SSD6200 & SSD6200A
Series Management Guide

Version 1.01

Copyright © 2022 HighPoint Technologies, Inc.
All rights reserved

Table of Contents

HighPoint RAID Management Software 4
Using the HighPoint RAID Management (WebGUI) Software 1
Starting the WebGUI 1
How to login WebGUI in Windows 1
How to login WebGUI in Linux 1
Verify the Controller Status 2
Physical Information 3
Controller Information 3
Physical Device Information 4
Creating an Array 4
Array Type 5
Initialization Method 5
Block Size 6
Obtaining Logical Device Information 6
Logical Device 6
Array Information &Maintenance Options: Normal Status 7
Array Information & Maintenance Options: Critical Status 8
Array Information & Maintenance Options: Disabled Status 8
Rescan 9
System Setting 9
System Setting 9
Password Setting 10
Email Setting 10
SMTP setting 11
Event Tab 16
SHI (Storage Health Inspector) 16
How to Enable SMART Monitoring 16
How to Use the Health Inspector Scheduler 18
Using the HighPoint Command Line Interface (CLI) 20
How to use the CLI in Windows 20
How to use the CLI in a Linux system 21
CLI Command Reference 21
Query Commands 21
query controllers 21
query devices 22
query devices {device_id} 23
query arrays 24
query arrays {arrays_id} 25
Create Commands 25
Delete Command 27
Rescan Command 28
Lscard Command 28
events 29
events save {file_name} 29
Mail Commands 30

mail recipient 30
mail recipient add {recipient_name} {mail_address} [Inf|War|Err] 30
mail recipient delete {recipient_name} 30
mail recipient test {recipient_name} 31
mail recipient set {recipient_name} {Inf|War|Err} 31
mail server 31
mail server set {server_address} {port} {ssl} {status} {from_address} [username] [password] 32
mail server set {a|p|s|m|u|t} {value} 32
Task Commands 34
Set Commands 35
Help Commands 36
help 36
Exit Command 37
Syntax 37
Using the OOB (out of band) RAID Management 37
How to use the OOB （Windows） 37
CLI Command Reference 39
Info Commands 39
info -o hba 40
Info -o pd 40
Info -o vd 40
Temperature commands 41
Fan commands 42
Beeper Commands 43
Create Commands 43
Delete Commands 44
Help Commands 39
Troubleshooting 44
Table 1. WebGUI Icon Guide 45
HighPoint Recommended List Motherboards 47
Contacting Technical Support 47

HighPoint RAID Management Software

Your Choice – Graphical or Text-only interfaces

To make it easier for customers to use our SSD6200 series products, we have developed both graphical and text-based management interfaces for the SSD6202/6204, SSD6202A/6204A NVMe RAID Controllers. To simplify installation and upgrade procedures both interfaces are packaged into a single download, and are available for Windows/Linux 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 RAID configurations installed for a Linux distribution.

The Web RAID Management Interface (**WebGUI**), is a simple, and intuitive web-based management tool available for Windows and Linux 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 Windows/Linux platform. Comprehensive user guides are available for the CLI, and are included with the most recent product updates available from the SSD6202/6204, SSD6202A/6204A Software Updates webpage.

OOB (out of band) RAID Management – SSD6200A Series NVMe AIC drives feature an OOB port (accepts USB Type-C monitor connections) and a built-in CLI (command line utility) which allows users to manage and monitor RAID storage without an operating system.

OOB is a handy troubleshooting tool for professional applications, as it allows administrators to examine and diagnose the status of a RAID configuration or NVMe SSD while the host system is unresponsive. More

Using the HighPoint RAID Management (WebGUI) Software

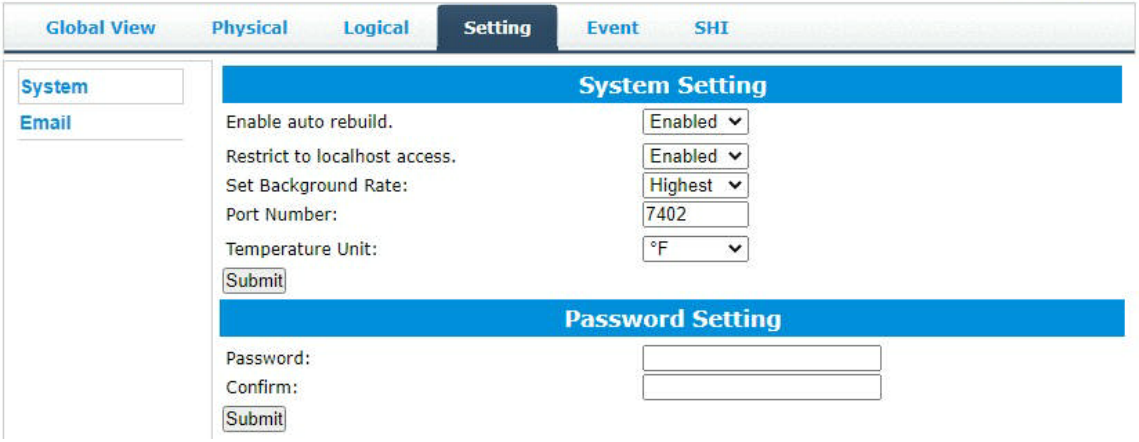
This guide provides an overview of the Web-RAID Management graphical user interface, also known as the WebGUI. The WebGUI is an intuitive, yet comprehensive management tool designed for users of any experience level.

Starting the WebGUI

How to login WebGUI in Windows

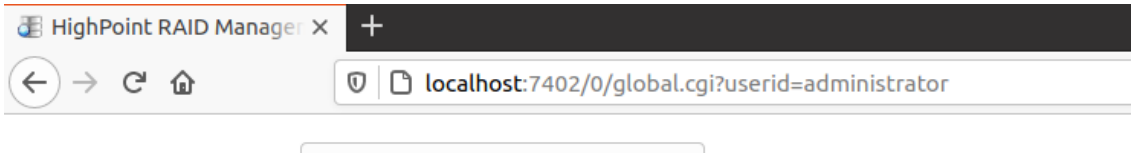
Double click the Desktop ICON to start the software using the system's default web browser. It will automatically log-in to the WebGUI.

The password can be set after the first log-in. To change the password, select **Setting → Password Setting** from the menu bar.

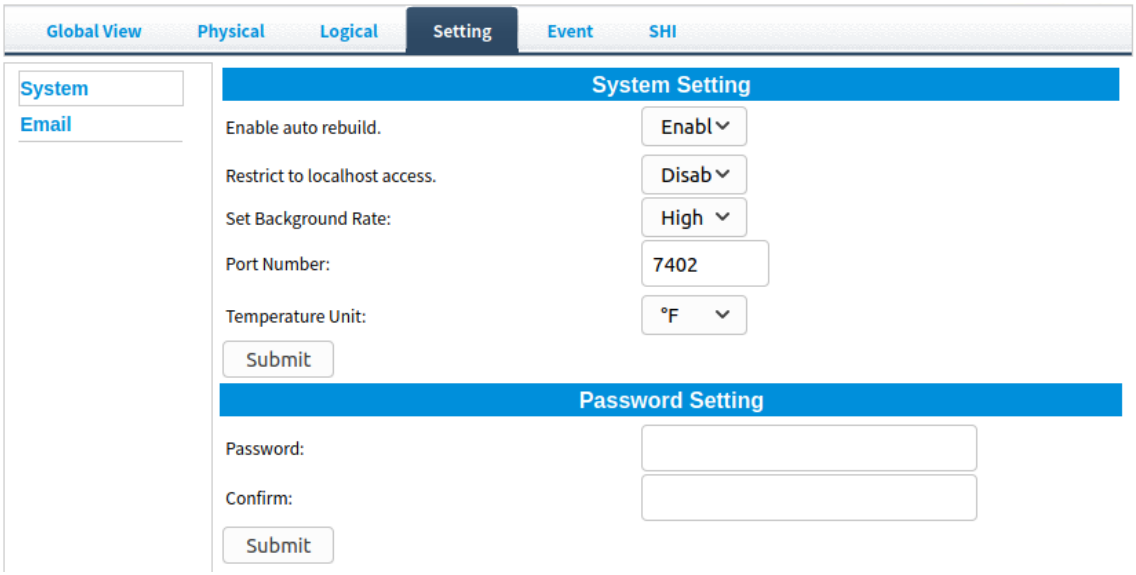


How to login WebGUI in Linux

Enter http://127.0.0.1:7402 or http://localhost:7402 into the **browser** to log into the **WebGUI,** 7402 is the WebGUI's Port Number, which can be modified.



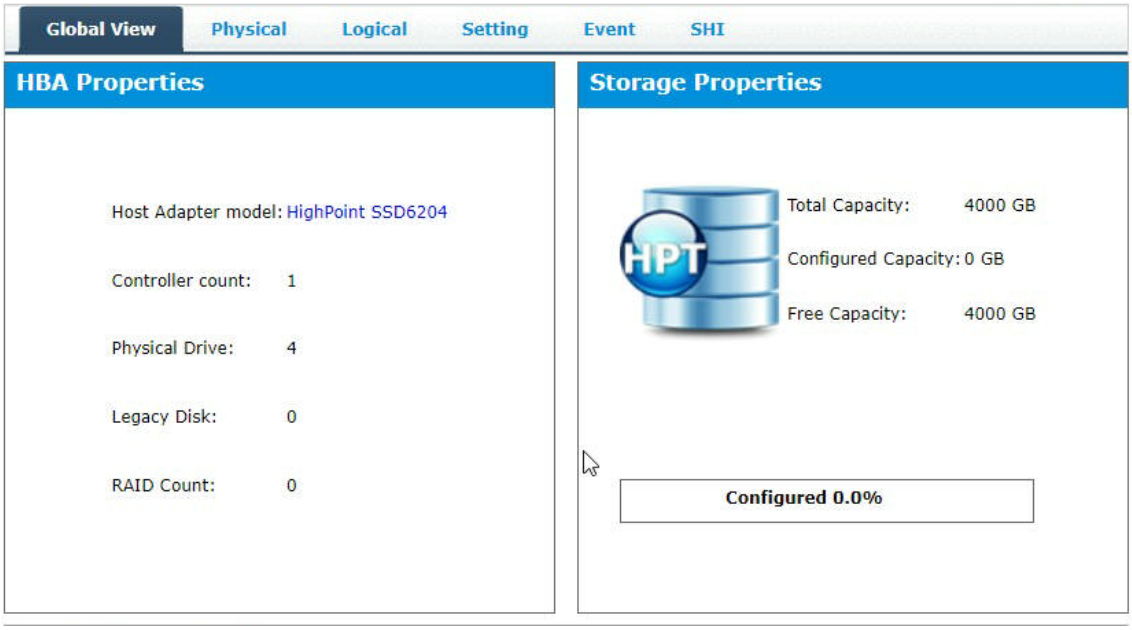
The password can be set after the first log-in. To change the password, select **Setting→ Password Setting** from the menu bar.



Verify the Controller Status

The **Global View** Tab will display the overall status of the controller. The Virtual Disk is listed under **Logical Device Information**. The individual drives are listed under **Physical Device Information.**

For example: SSD6204:



Host Adapter model – Display board name

Controller count – Display the number of boards

Physical Drive – Shows the number of physical disks accessed

Legacy Disk – Displays the number of disks after initialization

RAID Count – Displays the number of RAIDs created

Configured 0.0% – Displays the current usage of the disk, 0.0% means no data in the disk

Physical Information

This page shows the **Controller Information** and **Devices Information**

Controller Information

Display board information

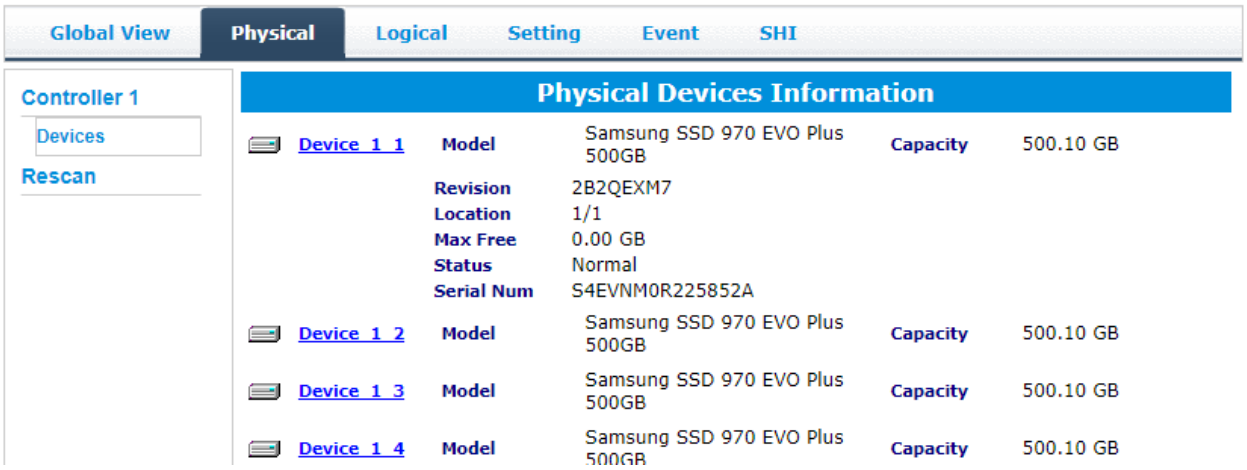
Temperature – The real-time temperature of the main chip of the board

Firmware Version –"Driver" inside the device

Serial Number – Product Serial Number

Model Number – Product name

Physical Device Information



Model — model number of the disk connected

Revision — revised version of disk

Location — which controller and port the disk is located in

Max Free — total capacity that is not configured

Status — Current state of drive

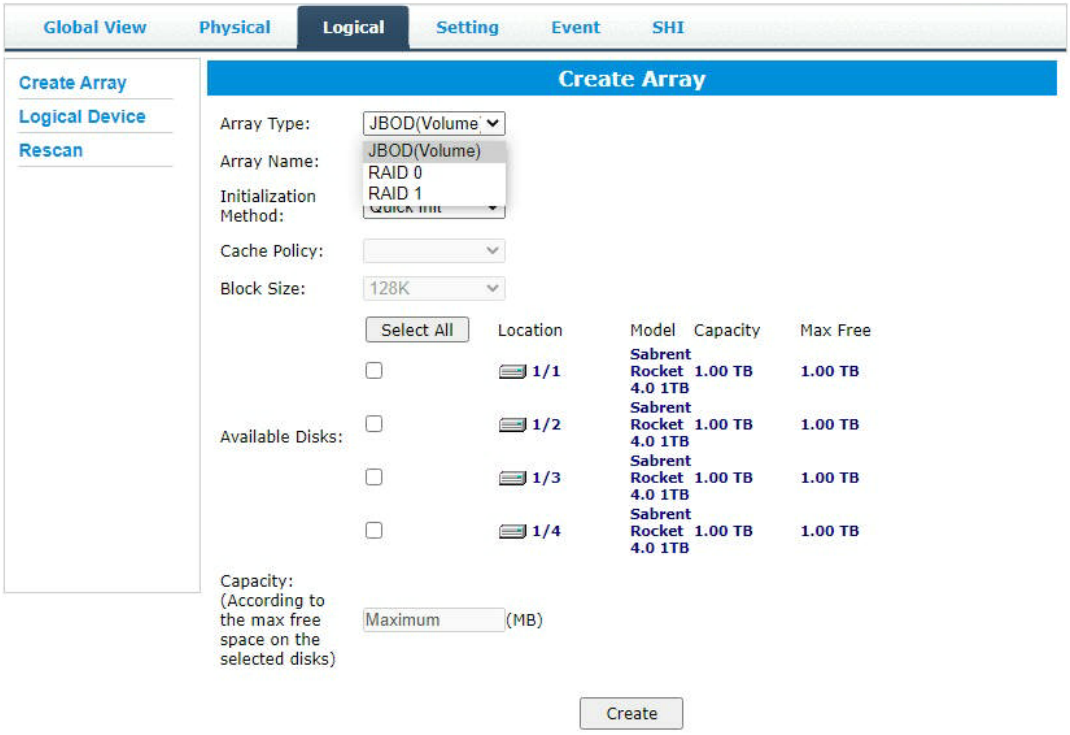
Serial Num — Serial number of the disk

Capacity — total capacity of the disk

Creating an Array

1. Open the WebGUI
2. Select the proper **controller** from the drop down on the top left
3. Click the **Logical** tab
4. Click **Create Array**

   Example screenshot (SSD6204)



Array Type

This drop-down menu allows you to specify the RAID level. An array is a collection of physical disks that will be one virtual drive by your Operating System (OS).
The SSD6200/6200A is capable of creating the following types of arrays:

- RAID 0 — Striping
- RAID 1 — Mirroring
- JBOD — Spanning

Each RAID level has its pros and cons based on the application you use it for (Note: Refer to RAID level Quick Reference)

Array Name: the name that will be displayed in Logical Device Information (Default: RAID_<level>_<array number>)

Initialization Method

Initialization of a disk sets all data bits to 0, essentially clearing all the data on the drive. It is important to initialize disks as previous data physically stored on the drive may interfere with new data.

- **Quick Init**: This option grants immediate access to the RAID array by skipping the initialization process, but it will delete all data. Note: Skipping initialization is generally not recommended as residual data on disks may interfere with new data in the future.

- **Background**: The array initialization process will have a lower priority. During this time the array will be accessible, but the initialization process will take much longer to complete.

Note: *Using a Samsung 970 EVO Plus 500GB as an example：*
RAID 1 Initialization using the Background option would take 1 hours to complete.

Block Size

Supported block sizes: 128K/256K/512K， default: 128K

Adjusting the block size towards your disk usage can result in some performance gain.

In a typical RAID configuration, data of the virtual drive is striped (or spread across) the physical drives. Having a smaller array block size will increase the likelihood of accessing all physical drives when processing large I/O requests. Multiple physical drives working in parallel increases the throughput, meaning better performance.

For smaller I/O requests (512 bytes to 4 kilobytes), it is better to have each individual disk handle their own I/O request, improving the IOPS (I/O per second), rather than having one tiny I/O request being handled by multiple disks.

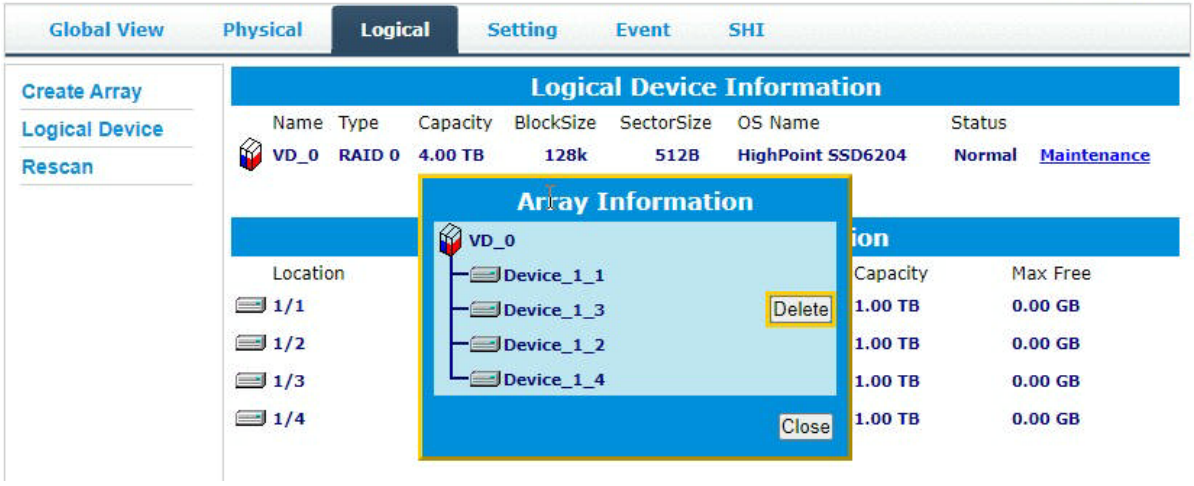
Obtaining Logical Device Information

Logical Device

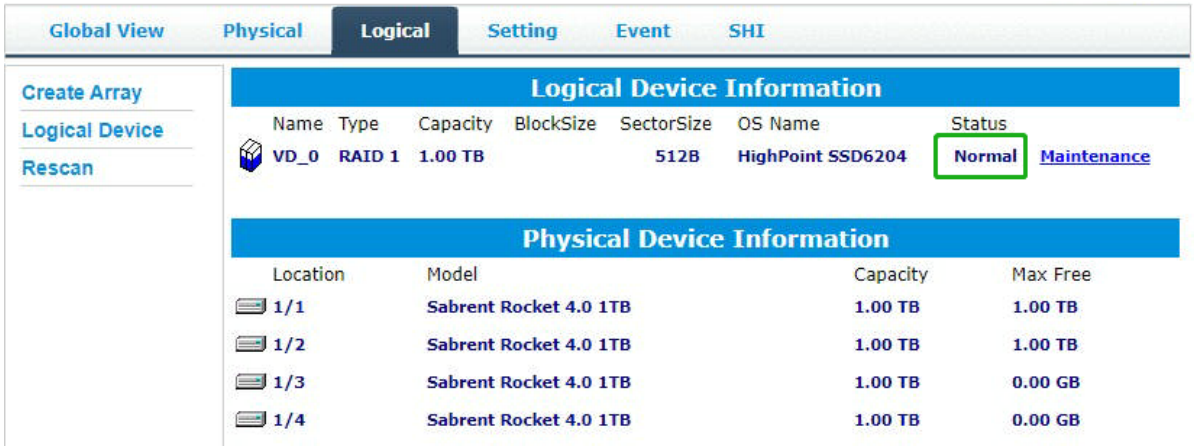
The Logical device tab is the default page after clicking the Logical tab of the HRM. This page contains information about your RAID arrays and the individual disks your system detects.

Maintenance

Once an array has been created, the Maintenance menu provides options to maintain or edit it. To access the Maintenance menu, click the Maintenance button towards the right-hand side of the array name.



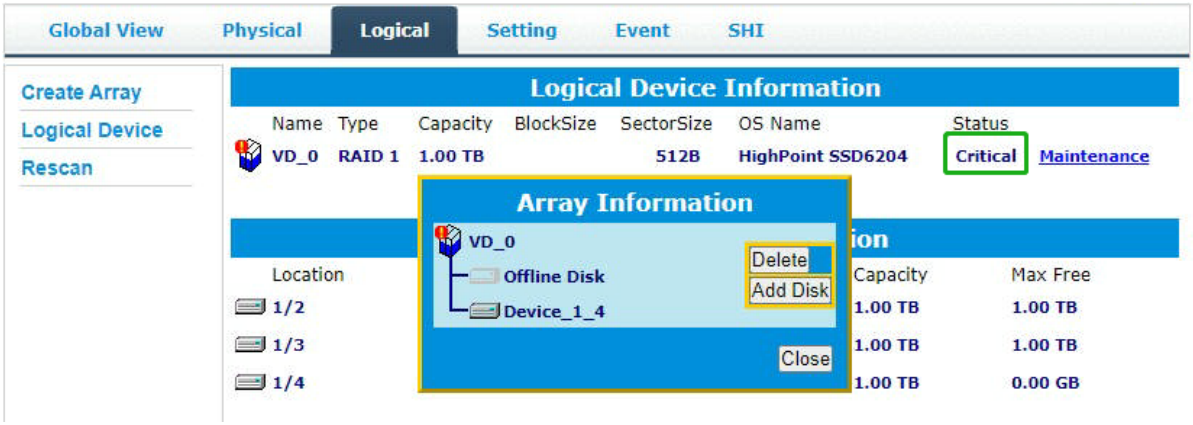
Array Information &Maintenance Options: Normal Status



Arrays with the **Normal** status are healthy and functioning properly, and have the following options:

Delete – deletes the selected RAID array

Array Information & Maintenance Options: Critical Status



Arrays in the **Critical** status can be accessed and utilized, but are no longer fault tolerant. A Critical array should be rebuilt as soon as possible to restore redundancy.

A critical status array has all the normal status options except the following:

- **Add Disk** replaces the Verify Disk option

Once the array status changes to critical, the faulty disk will be taken offline and you can either:

- Reinsert the same disk
- Insert a new disk

Reinserting the same disk should trigger the rebuilding status, since data on the disk would be recognized.

If you insert a new disk, clicking Add Disk will give you the option to select that disk and add it to the array.

Array Information & Maintenance Options: Disabled Status

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.

Your options in Maintenance are:

- Delete

Delete – will delete the array

Rescan

Clicking **Rescan** will ask the driver to recheck and report the array status.

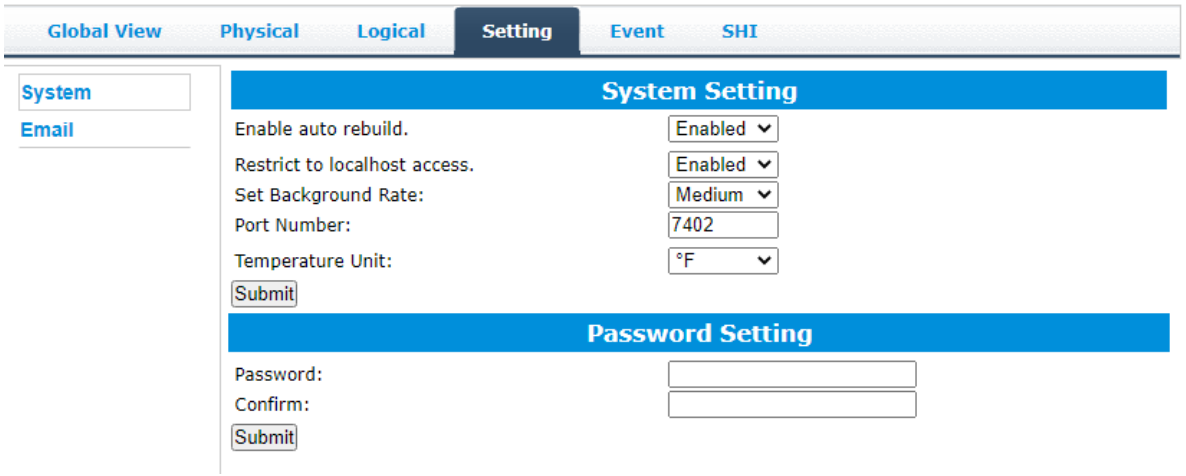
When Rescan is initiated by the WebGUI; the driver will immediately check and see whether the status of any disk has changed. If there are any changes, the status of the disks and RAID array will be updated to reflect this.

- Disk Status – if any disks were added or removed, or if a disk is no longer responding, the status will change.
- RAID status – the RAID array's status may change depending on the status of the disks.

System Setting

The following topics are covered under system:

System Setting



Enable auto rebuild (default: Enabled)

When a physical drive fails, the controller will take the drive offline. Once you re-insert or replace the disk, the controller will not automatically rebuild the array unless this option is enabled.

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 WebGUI.

Set Background Rate (default: Medium)

Port Number (default: 7402)

The default port that the HighPoint WebGUI listens on is 7402. You may change it to any open port.

Temperature Unit (default: °F)

The default temperature unit is Fahrenheit (°F); you can also change it to Celsius (°C)

Password Setting

Changing 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 Setting

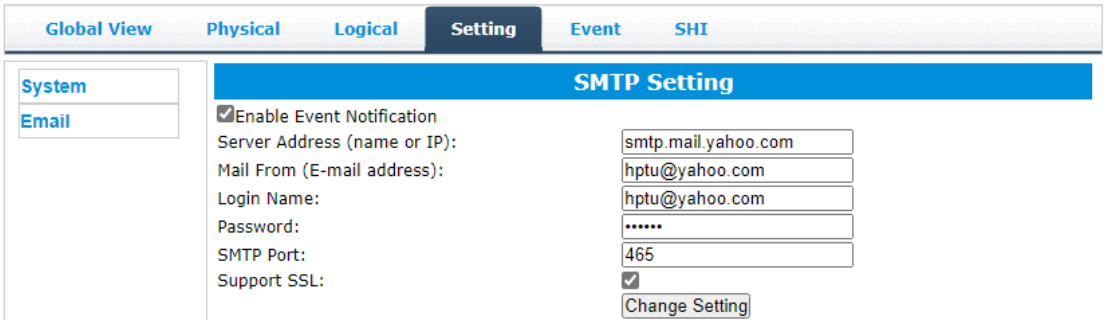
The following topics are covered under email:

SMTP Setting

Adding Recipient

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 Tab).

SMTP setting



Note: After you click **Change Setting,** the password field will be reset.

To set up email alerts:

Using a **Yahoo Mail** account as an example:

1. Check the **Enable Event Notification** box.
2. Enter the ISP server address name or SMTP name

   For example: **smtp.mail.yahoo.com**
3. Type in the email address of the **sender** (email account that is going to **send** the alert)

   For example: **hptu@yahoo.com**
4. Type in the account name and password of the sender
5. Type in the SMTP port (default: **25**)
6. 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:

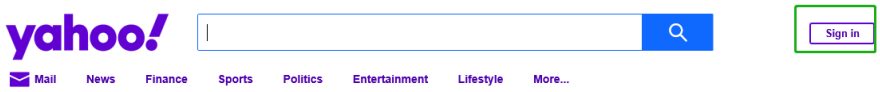
To change permission settings, please refer to the following link:

https://help.yahoo.com/kb/account/SLN27791.html?impressions=true

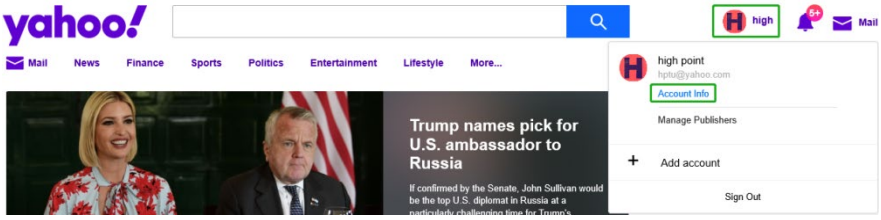
Procedure:

1. Log in to yahoo email; click "**Sign in**" to log in:

   https://www.yahoo.com

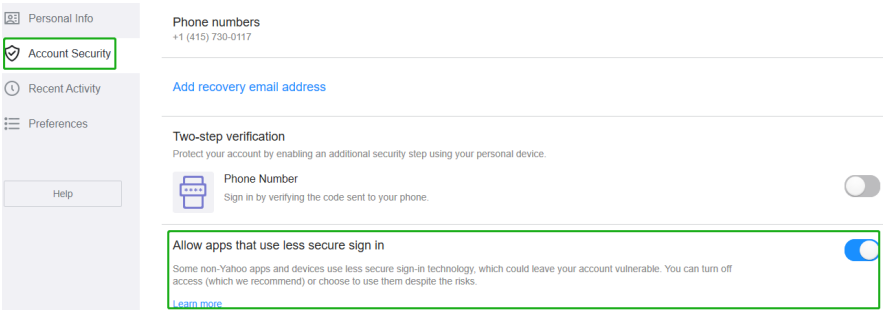


2. After a successful login, click "**Account Info**" under the user name：



3. Go to the "**Account Info**" page, click "**Account Security**".

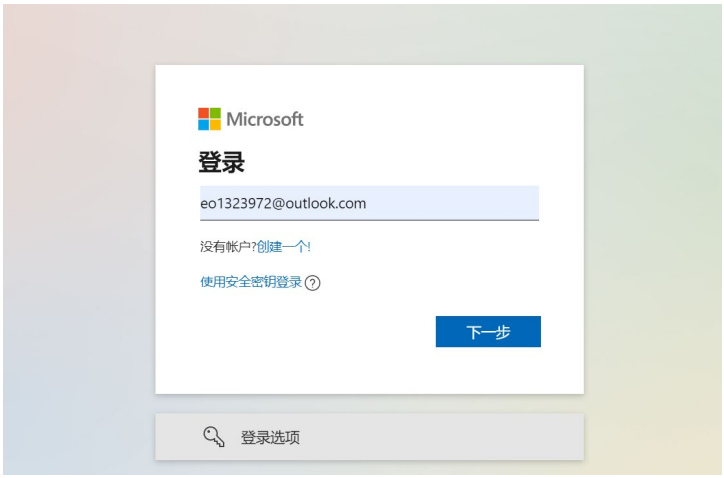
   On the "Account Security" page, click the "**Allow apps that use less secure sign in**" button:



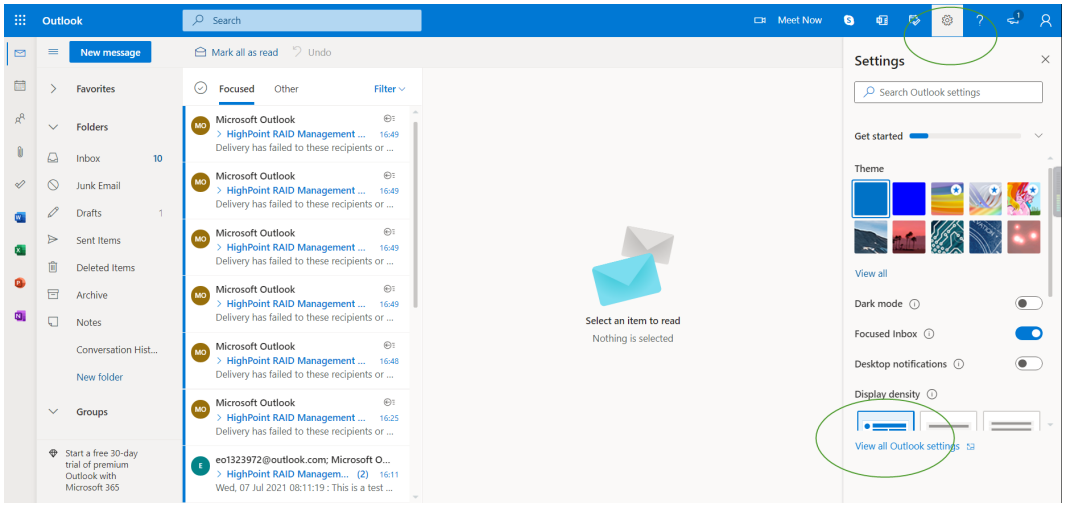
Outlook Setting：

1. Sign in to mail and set it up, Login email address link:

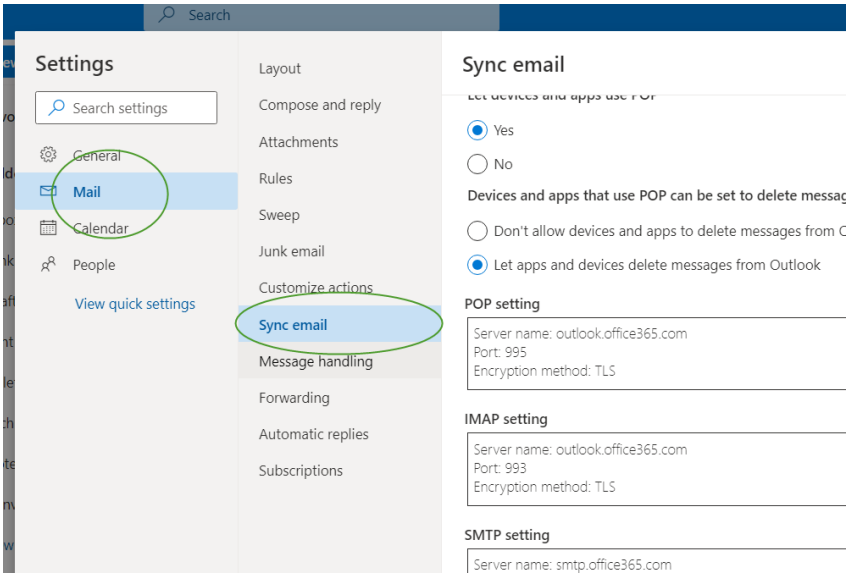
   https://outlook.live.com/mail/inbox



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

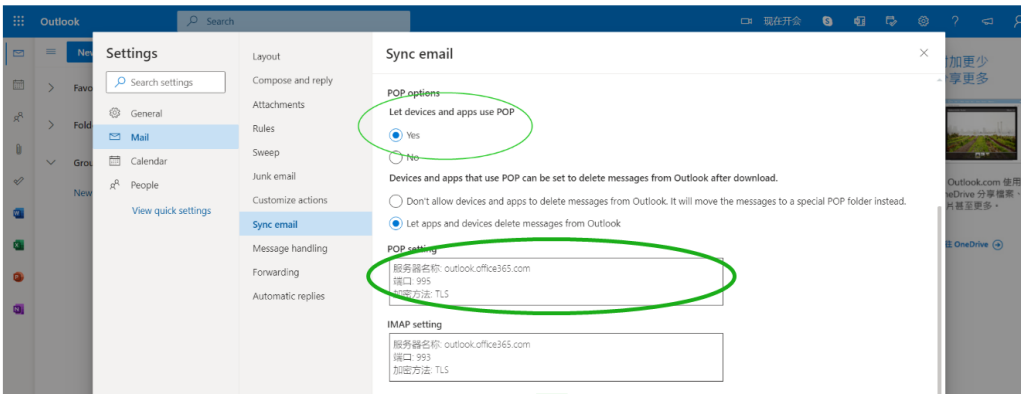


3. Enter the redirect page, select **mail**, then click **Sync email**



4. Let devices and apps use pop select '**yes**'
5. 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.

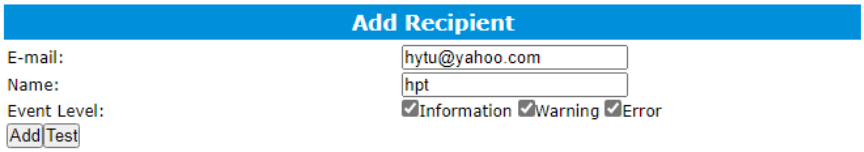


***Note**: If you are having trouble configuring notification for your Email account, please contact our [Technical Support Department]*

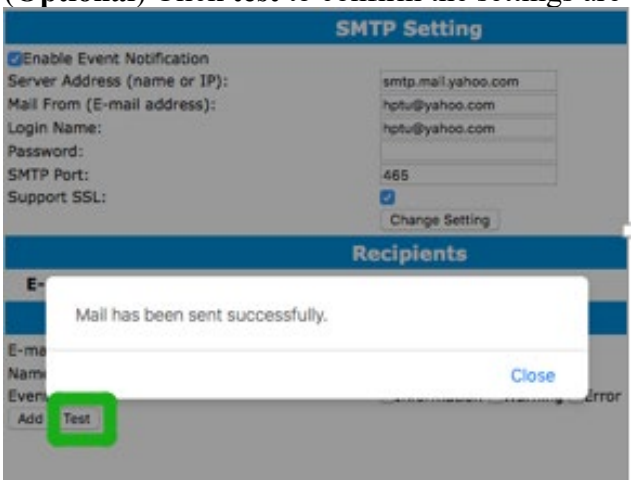
Add Recipients

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

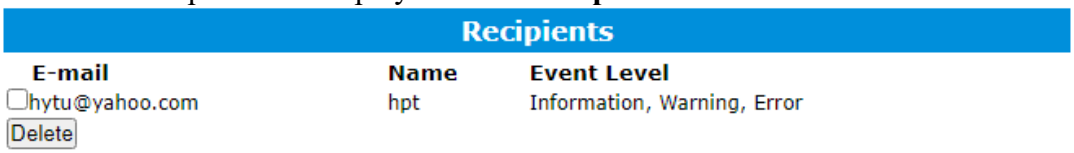
1. Type the email of the recipient in the **E-mail** text box
2. Type the name of the recipient in the **Name** text box
3. Set which type(s) of events will trigger an email using the respective **Event Level** check boxes.



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



5. Click **add** to add the recipient to recipient list
6. The added recipient will display in under **Recipients**



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

Example email message:

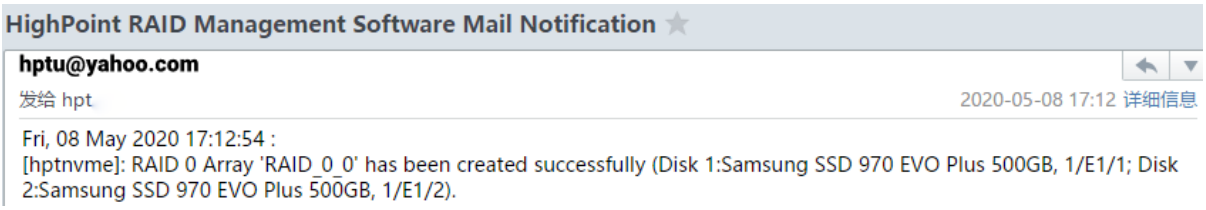
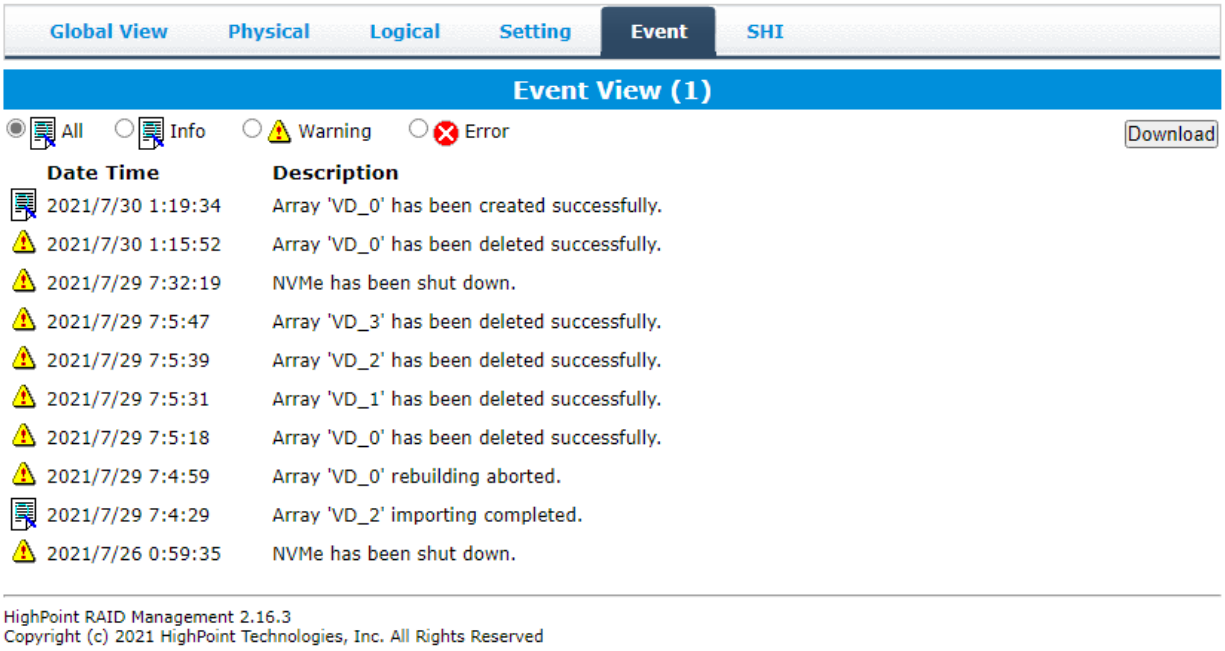


Figure 1. Example event log email

Event Tab

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



Download - Save the log file on your compute

Date Time - Show the time of the event

Description -Show details of the event

SHI (Storage Health Inspector)

The following topics are covered under SHI:

- S.M.A.R.T Attributes
- SSD Temperature Threshold Setting

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.

How to Enable SMART Monitoring

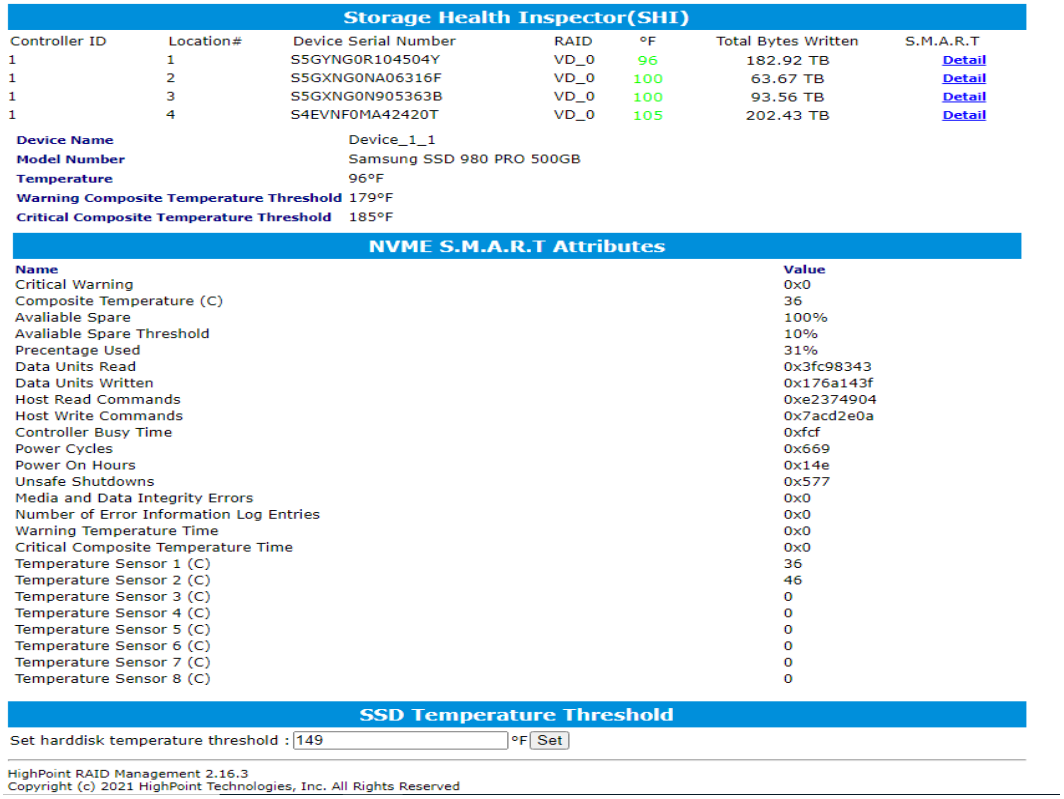
To access SMART attributes of an individual disk:

1. Log in to the HighPoint RAID Management
2. Select the proper controller using the drop-down menu on the top left
3. Click the **SHI** tab

4. Click **Detail** on the desired disk

Note: The current NVMe Temperature threshold is set to 149 °F. If it does not exceed 149 °F, it will be displayed in “Green”.

Warning and Critical Composite Temperature Threshold - Temperature threshold of the hard drive itself. Note that the set temperature threshold should not exceed Warning Composite Temperature Threshold.



Storage Health Inspector(SHI)

Controller ID	Location#	Device Serial Number	RAID	°F	Total Bytes Written	S.M.A.R.T
1	1	S5GYNG0R104504Y	VD_0	96	182.92 TB	Detail
1	2	S5GXNG0NA06316F	VD_0	100	63.67 TB	Detail
1	3	S5GXNG0N905363B	VD_0	100	93.56 TB	Detail
1	4	S4EVNF0MA42420T	VD_0	105	202.43 TB	Detail

Device Name	Device_1_1
Model Number	Samsung SSD 980 PRO 500GB
Temperature	96°F
Warning Composite Temperature Threshold	179°F
Critical Composite Temperature Threshold	185°F

NVME S.M.A.R.T Attributes

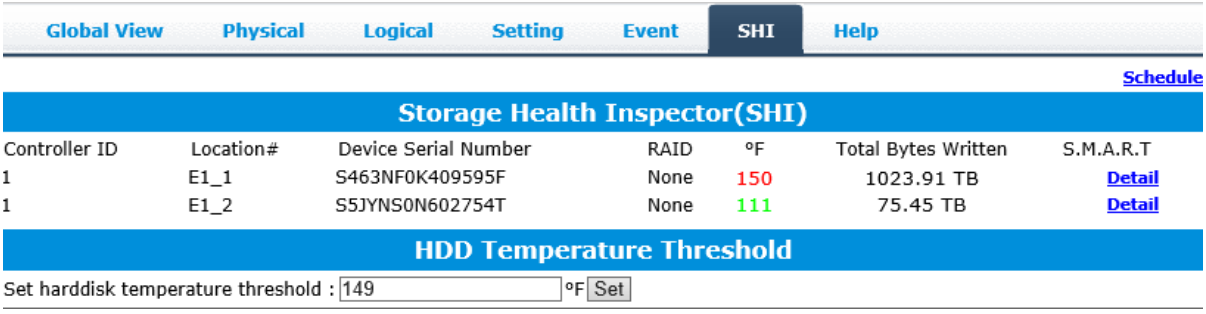
Name	Value
Critical Warning	0x0
Composite Temperature (C)	36
Avaliable Spare	100%
Avaliable Spare Threshold	10%
Precentage Used	31%
Data Units Read	0x3fc98343
Data Units Written	0x176a143f
Host Read Commands	0xe2374904
Host Write Commands	0x7acd2e0a
Controller Busy Time	0xfcf
Power Cycles	0x669
Power On Hours	0x14e
Unsafe Shutdowns	0x577
Media and Data Integrity Errors	0x0
Number of Error Information Log Entries	0x0
Warning Temperature Time	0x0
Critical Composite Temperature Time	0x0
Temperature Sensor 1 (C)	36
Temperature Sensor 2 (C)	46
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

SSD Temperature Threshold

Set harddisk temperature threshold : 149 °F Set

HighPoint RAID Management 2.16.3
Copyright (c) 2021 HighPoint Technologies, Inc. All Rights Reserved

If the temperature exceeds 149 °F, it will display “**Red**”.



Global View | Physical | Logical | Setting | Event | SHI | Help

Schedule

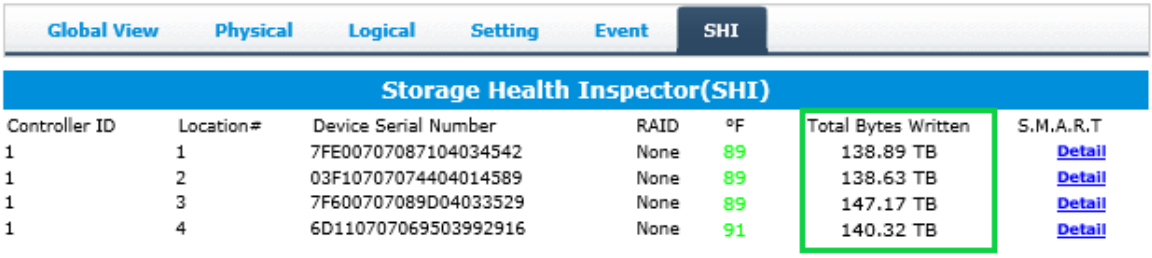
Storage Health Inspector(SHI)

Controller ID	Location#	Device Serial Number	RAID	°F	Total Bytes Written	S.M.A.R.T
1	E1_1	S463NF0K409595F	None	150	1023.91 TB	Detail
1	E1_2	S5JYNS0N602754T	None	111	75.45 TB	Detail

HDD Temperature Threshold

Set harddisk temperature threshold : 149 °F Set

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



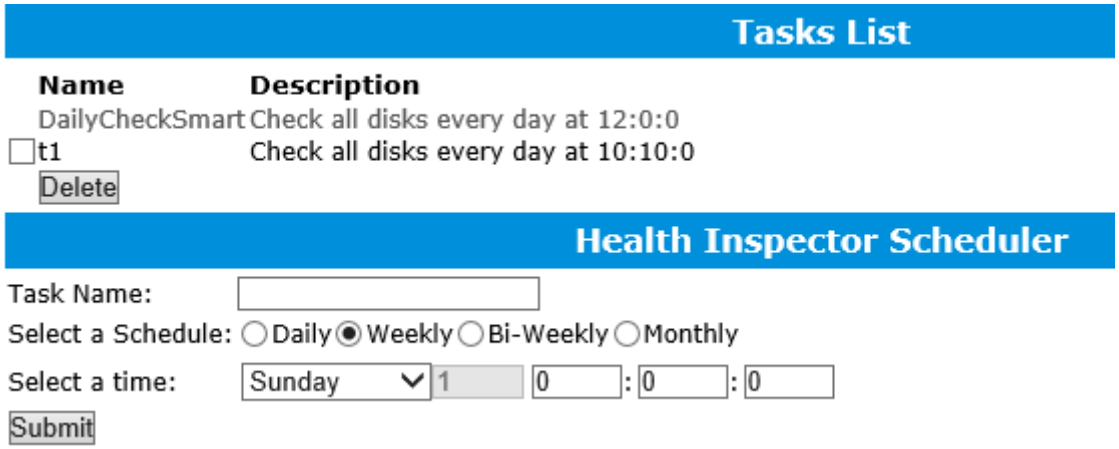
How to Use the Health Inspector Scheduler

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

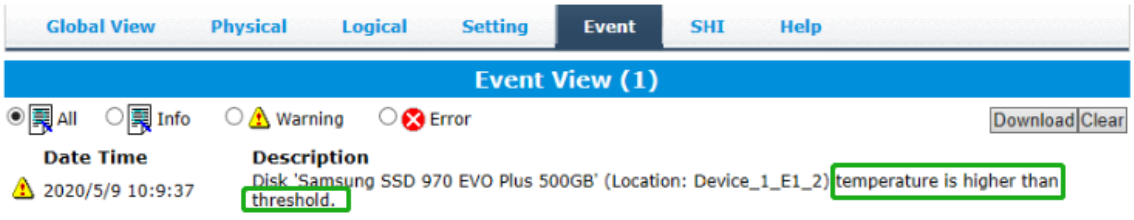
If you want to check the disk status on a daily, weekly, or monthly basis, you can enable this using the **HIS** function.

For example:

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

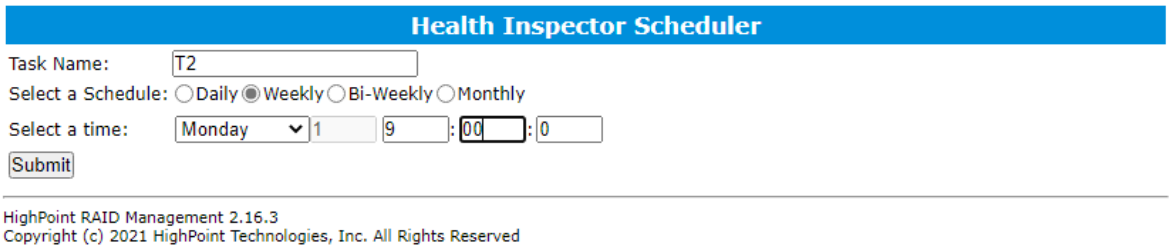


When the operating temperature of the disk exceeds 65°C, a “Warning” event will appear in “Events”:

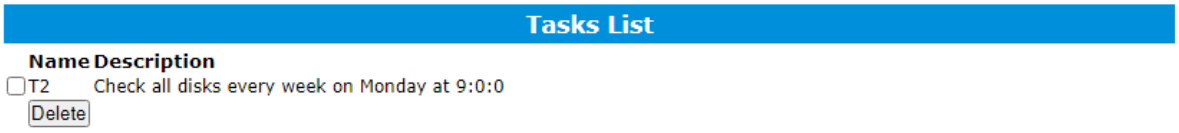


Redundant RAID arrays (RAID 1) will appear under New Verify Task

1. Log into the WebGUI
2. Select the proper controller from the top left drop down
3. Click **SHI**
4. Click **Schedule**
5. Select the array you want to schedule the verify task
6. Type the name in **Task Name** entry box
7. Choose whether you want to schedule
8. One time verify task on specific date (YYYY-MM-DD) at (HH:MM: SS, 24-hr clock)
9. Or a specific schedule you can adjust based on Daily, Weekly, or Monthly options
10. Click **Submit**



11. Your entry will appear under **Tasks List**

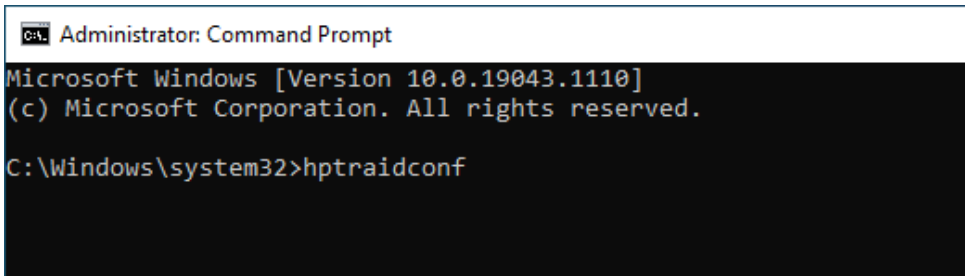


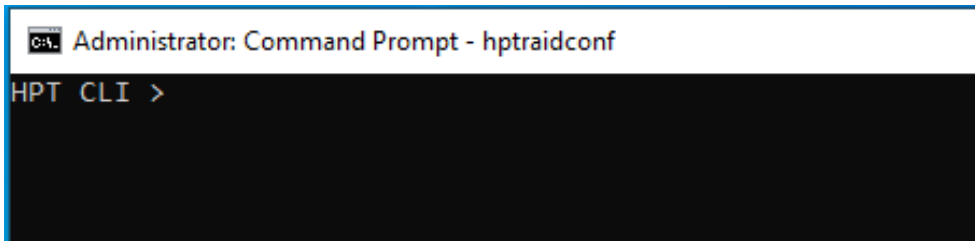
Note: New Verify Task box only appears if you have normal status arrays. If you have a critical array, New Rebuild Task will replace New Verify Task.

Using the HighPoint Command Line Interface (CLI)

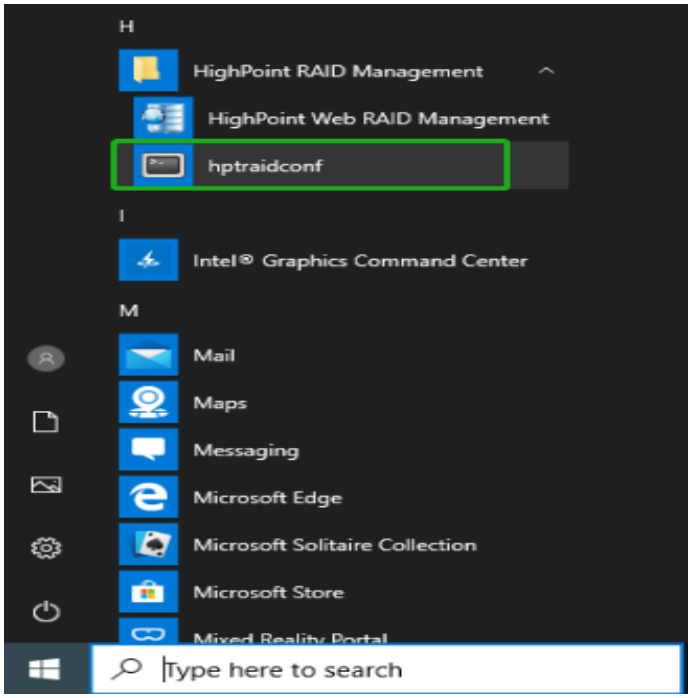
How to use the CLI in Windows

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



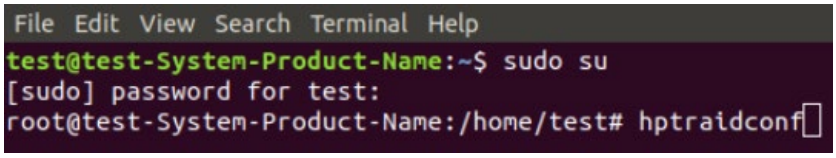


Method2: Click '**Start**' to find the **HighPoint RAID Management** folder, and click on **hptraidconf**



How to use the CLI in a Linux system

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, delete, switch, lscard, rescan, events, mail, task, set, clear, help and exit.

Note: The following example is for a Windows system:

Query Commands

Syntax:

query controllers

query devices | query devices {devices_id} |

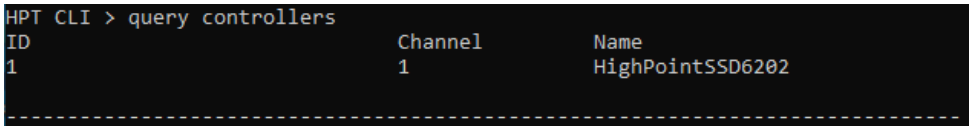
query arrays | query arrays {array_id}

query controllers

This command reports controller information

Single card:

SSD6202/6202A:



SSD6204/6204A:

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, model numbers, status, and array attributes. Each device's status will be listed as one of the following: Legacy, NORMAL, DISABLED, RAID.

ID:

A device ID is a string used to represent a disk. It is in the format "controller/channel/device" for NVMe controllers. E.g. 1/1 represents the disk on controller 1 port 1;

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 4 possible states):

NORMAL: The disk's status is normal.

DISABLED: The disk cannot be used. (may be related to disk failure or removal)

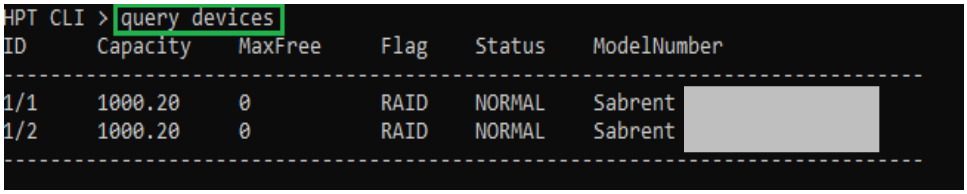
RAID: The disk is a member of a RAID array.

ModelNumber:

The disk's model number.

Example:

SSD6202:



SSD6204:

```
HPT CLI > query devices
ID      Capacity    MaxFree     Flag    Status    ModelNumber
------------------------------------------------------------------------------
1/1     1000.20     0           RAID    NORMAL    Sabrent Rocket 4.0 1TB
1/2     1000.20     0           RAID    NORMAL    Sabrent Rocket 4.0 1TB
1/3     1000.20     0           RAID    NORMAL    Sabrent Rocket 4.0 1TB
1/4     1000.20     0           RAID    NORMAL    Sabrent Rocket 4.0 1TB
------------------------------------------------------------------------------
```

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.

Read Ahead/Write Cache/TCQ/NCQ Status:

Disk’s Read Ahead/Write Cache/TCQ/NCQ status could be enabled/disabled/--(**not support**)

Pcie width：

The disk's Pcie width.

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:

```
HPT CLI>query devices 1/1

Mode Number:
Serial Number:      190806459014
Firmware Version:   201000WD
Capacity(GB):   500.11              TotalFree(GB):  0
Status:         RAID                Flag:           NORMAL
PCIe Width:     x2                  PCIe Speed:     Gen 3
Temperature (F):                                95
Warning Composite Temperature Threshold (F):    179
Critical Composite Temperature Threshold (F):   186
--------------------------------------------------------------------------------
                            NVMe S.M.A.R.T Attributes
Critical Warning                                    0x0
Composite Temperature (C)                           35
Avaliable Spare                                     100%
Avaliable Spare Threshold                           10%
Precentage Used                                     45%
Data Units Read                                     0x547c83cb
Data Units Written                                  0x38350c0d
Host Read Commands                                  0x1a716fee6
Host Write Commands                                 0x15501318b
Controller Busy Time                                0x5f25
Power Cycles                                        0xd79
Power On Hours                                      0x769
Unsafe Shutdowns                                    0xa1a
Media and Data Integrity Errors                     0x0
Number of Error Information Log Entries             0x41e
Warning Temperature Time                            0x28
Critical Composite Temperature Time                 0x0
Temperature Sensor 1 (C)                            0
Temperature Sensor 2 (C)                            0
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, RAID level, and status information.

Note: An array ID is generally represented by number or set of numbers.

Type:

The array's type. (RAID0, RAID1, JBOD)

Status:

NORMAL: Array status is normal

DISABLED: Array is disabled.

REBUILDING: Array is being rebuilt

INIT(B): Initializing an array using Background mode

CRITICAL: Array is in a degraded status (no data redundancy)

Block:

Array Block size.

Sector:

Bytes per sector.

Cache:

Array Cache Policy

WT: Write Through

WB: Write Back NONE:

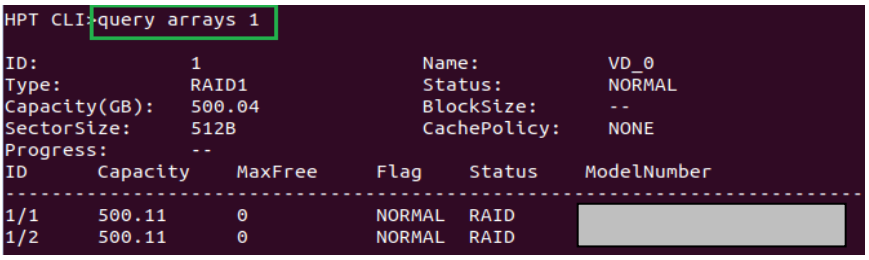
No Cache policy enabled

Examle:

query arrays {arrays_id}

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

Example:



Create Commands

This command allows you to create a new RAID array, add a spare disk, or expand/migrate an existing array.

Note: A drive must be initialized first before being used to create arrays.

Syntax:

create {RAID0|RAID1|JBOD} [create-options]

Parameters

You can specify one or more create options for this command, separated by a space. The options can be typed in any order.

disks= specifies member disks which will compose a new array, e.g. disks=1/1,1/2, disks=*. The character * means all available drives.

NOTE: When you enter a complete command with parameters disks=* at the shell prompt, the correct writing is disks="*".

For example:

hptraidconf –u RAID –p hpt create RAID0 disks="*".

init= specifies the initialization option (background, quickinit). The default option is create-only. The create-only option is applicable for all the RAID types, which is to create an array without any initialization process. Initialization is needed for redundant arrays to provide data redundancy.

background: Initialize an array using background mode. The array is accessible during array initialization.

quickinit: Setup array information blocks and zero out MBR data on the array.

name= specifies the name for the array being created.

If the option is omitted, the utility will assign a default name for the array.

bs= specifies the block size(128k,256k,512k), in KB, for the target array. This option is only valid for stripped RAID levels. Default is 128KB.

Examples:

```
HPT CLI > create RAID0 name=VD_0 disks=*

HPT CLI > query arrays 1
ID:             1                   Name:           VD_0
Type:           RAID0               Status:         NORMAL
Capacity(GB):   2000.16             BlockSize:      128k
SectorSize:     512B                CachePolicy:    NONE
Progress:       --
ID      Capacity    MaxFree     Flag    Status    ModelNumber
------------------------------------------------------------------------------
1/1     500.11      0           NORMAL  RAID      Samsung
1/3     1000.20     0           NORMAL  RAID      Samsung
1/2     1000.20     0           NORMAL  RAID      Samsung
1/4     500.11      0           NORMAL  RAID      Samsung
------------------------------------------------------------------------------

HPT CLI >
```

This command instructs the system to create a RAID0 array using

the disks attached to controller 1 channels 1,2,3,4 and name it VD_0.

```
HPT CLI > create RAID0 disks=* capacity=* init=quickinit bs=256k

HPT CLI > query arrays 1
ID:             1                   Name:           VD_0
Type:           RAID0               Status:         NORMAL
Capacity(GB):   2000.16             BlockSize:      256k
SectorSize:     512B                CachePolicy:    NONE
Progress:       --
ID      Capacity    MaxFree     Flag    Status    ModelNumber
------------------------------------------------------------------------------
1/1     500.11      0           NORMAL  RAID      Samsung
1/3     1000.20     0           NORMAL  RAID      Samsung
1/2     1000.20     0           NORMAL  RAID      Samsung
1/4     500.11      0           NORMAL  RAID      Samsung
------------------------------------------------------------------------------
```

This command instructs the system to create a RAID0 array using

the disks attached to controller 1 channels 1/2/3/4, and controller 2 channels 1/2/3/4; capacity is maximum, Block Size is 256KB.

Delete Command

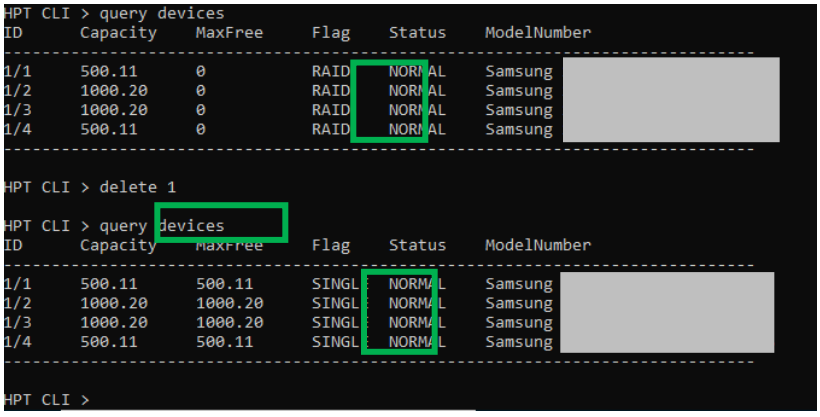
This command allows you to delete an existing RAID array or remove a spare disk. After deletion, the original array and all data on it will be lost. All the member disks will be listed as available single disks.

***Note**: If you want to use a single disk after deleting the RAID, please restart the system after deleting the RAID. When the single disk status shows the Legacy status in WEBGUI or CLI, it can be used normally.*

Syntax

delete {array ID}

Examples



This command instructs the system to delete the array whose id is “1”. You can query the array ID before the deletion.

Rescan Command

This command will rescan all of the physical devices attached to the RAID controller.

Syntax

rescan

Example

HPT CLI> rescan

```
HPT CLI > rescan

HPT CLI > query arrays
ID    Capacity(GB)    Type        Status    Block  Sector   Cache           Name
-------------------------------------------------------------------------------
1          2000.16   RAID0       NORMAL    256k    512B    NONE         VD_0
```

Lscard Command

The lscard command is used to list multiple RAID controllers.

Syntax

lscard

Example

HPT CLI> lscard

```
HPT CLI > lscard
CARD_ID         NAME                                    ACTIVED
-------------------------------------------------------------------
0               Controller(1): HighPoint SSD6204        Active
```

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

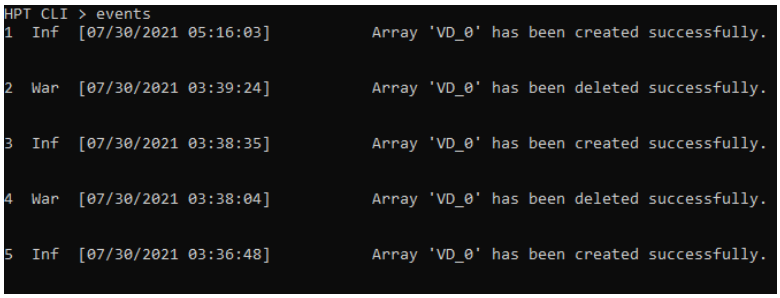
events save {file_name}

events

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

Example

HPT CLI> events

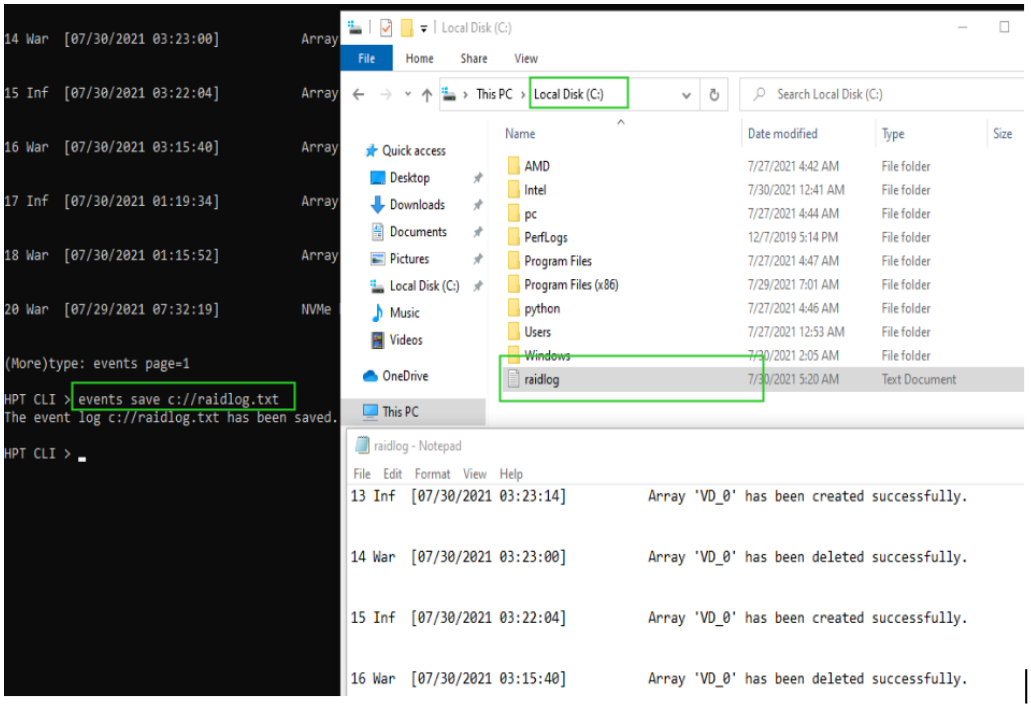


events save {file_name}

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

Example

HPT CLI> events save C:/raidlog.txt



This command will save all the events to C:/raidlog.txt.

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 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

HPT CLI> mail recipient

```
HPT CLI > mail recipient
ID   Name      Mail  Address                          Notify Types
-------------------------------------------------------------------------------
1    hpt       hytu@yahoo.com                         Information Warning Error

HPT CLI >
```

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

--- Add a new recipient

Example

HPT CLI> mail recipient add admin admin@somecompany.com Inf War Err

```
HPT CLI > mail recipient add lcn lcn@highpoint-tech.com Inf War Err

HPT CLI > mail recipient
ID   Name      Mail  Address                        Notify Types
-------------------------------------------------------------------------------
1    lcn       lcn@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

HPT CLI> mail recipient delete 'lcn'.

```
HPT CLI>mail recipient

ID   Name      Mail  Address                          Notify Types
-------------------------------------------------------------------------------
1    lcn       lcn@highpoint-tech.com                 Information Warning Error

HPT CLI>mail recipient delete lcn


HPT CLI>mail recipient

ID   Name      Mail  Address                          Notify Types
-------------------------------------------------------------------------------

HPT CLI>
```

mail recipient test {recipient_name}

--- Send a test email to a specified recipient.

Example

HPT CLI> mail recipient test hpt

```
HPT CLI > mail recipient test hpt

HPT CLI >
```

You will receive a test email.

Mon, 11 May 2020 07:52:30 :
This is a test mail.

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

--- Set the notification type for a recipient.

Example

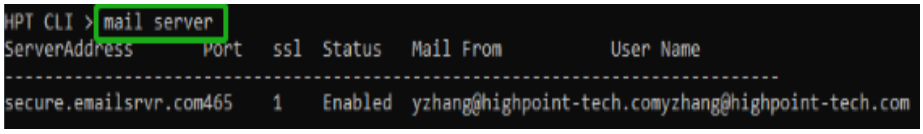
HPT CLI> mail recipient set admin War Err

mail server

--- display the SMTP server information

Example

HPT CLI> mail server



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

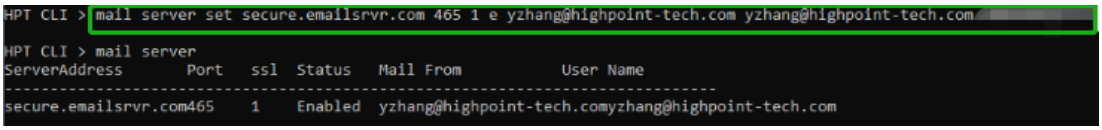
{from_address} – mail from address

{username} –mail username

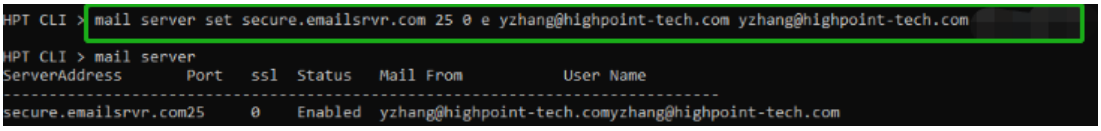
{password} – the user’s password

Examples:

HPT CLI> mail server set secure.emailsrvr.com 465 1 e name@somecompany.com name@somecompany.com password



HPT 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

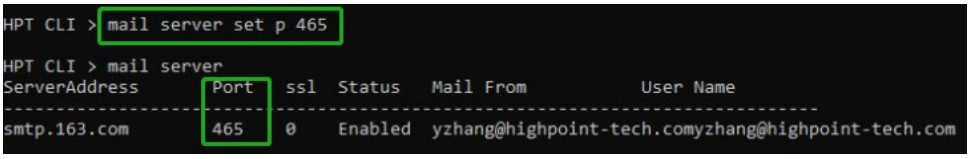
Examples:

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

--- Change the server address

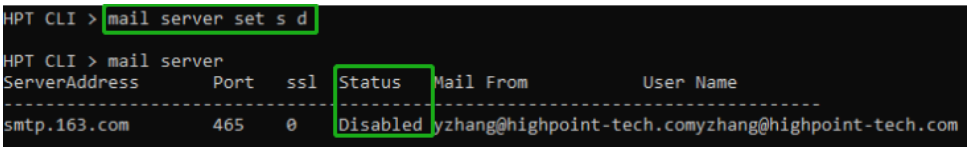
HPT CLI> mail server set p 465

--- Change the port



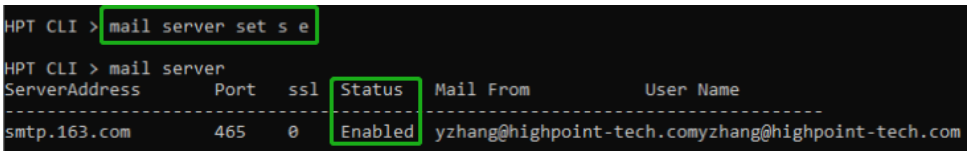
HPT CLI> mail server set s d

--- Disable mail notification



HPT CLI> mail server set s e

--- Enable mail notification



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 Commands
        Set tasks for the server.Syntax:
        task
        task {smart} {name=} {daily|monthly|weekly}={day}
        {interval}={interval} start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss
        task delete {task_id}

HPT CLI > task smart name=test1 daily=2 start=4/28/2021 time=12:00:00

HPT CLI >
```

task {smart} {name=} {daily|mothly|weekly}={day}{interval}={interval} start=mm/dd/yyyy end=mm/dd/yyyy time= hh:mm:ss

Example

HPT CLI> task smart name=test1 daily=2 start=7/30/2021 time=11:00:00

```
HPT CLI > task smart name=test1 daily=2 start=7/30/2021 time=11:00:00

HPT CLI > task
ID   Name      Start-Date     End-Date       S-F        Description
------------------------------------------------------------------------------
1    DailyChec 07/30/2021     N/A            E-D        Check all disks (created by )
2    test1     07/30/2021     N/A            E-D        Check all disks (created by )
```

This command adds a task schedule named test1 to verify the disk at 11:00:00 every 2 days from 7/30/2021.

Task delete {task_id}

Example

HPT CLI> task delete 2

```
HPT CLI > task
ID   Name      Start-Date     End-Date       S-F        Description
------------------------------------------------------------------------------
1    DailyChec 07/30/2021     N/A            E-D        Check all disks (created by )
2    test1     07/30/2021     N/A            E-D        Check all disks (created by )

HPT CLI > task delete 2

HPT CLI > task
ID   Name      Start-Date     End-Date       S-F        Description
------------------------------------------------------------------------------
1    DailyChec 07/30/2021     N/A            E-D        Check all disks (created by )

HPT CLI >
```

Set Commands

Syntax

set | set [name]={value}

Show the system settable parameters.

HPT CLI> set -help

```
HPT CLI > set -help
set Command
        Set the system, device or array's param.
Syntax:
        set
                show the system parameters
        set {name= }
                set AR=[y|n]            Auto Rebuild
                set BR=[1-100]          Background Rate
                set TT=[20-100]         Temperature threshold
                set TU=[C|F]            Temperature Unit
                set PS                  Set Password

HPT CLI >
```

set TT={Value}

The current NVMe default Temperature threshold is set to 149 °F.

Example

HPT CLI> set TT=140

set TU={F|C}

The default temperature unit is Fahrenheit(°F); you can also change it to Celsius(°C)

Example

HPT CLI> set TU=C

```
HPT CLI > set TU=C
```

set PS

Set or change your password and confirm it.

Example

HPT CLI> set PS

```
HPT CLI > set PS
The password can only have 8 characters at most!
Password :********
Confirm  :********
Password has been changed, please login with your new password.
HighPoint Windows CLI, Please Input
       Password:
```

set AR={y|n}

Set enable or disable to the [Auto Rebuild] parameter.

Example

HPT CLI> set AR=y

```
HPT CLI > set AR=y
```

set BR={1-100}

Set background rate to 1-100.

Example

HPT CLI> set BR=66

```
HPT CLI > set BR=66
```

Help Commands

Show help about a specific command.

Syntax

help | help {command}

help

Show generic help about this utility.

Example

HPT CLI> help

```
HPT CLI > help
help [query|create|delete|switch|lscard
rescan|events|mail|task|set|clear|help|exit]
```

Exit Command

Syntax

Exit from the interactive mode and close the window.

Using the OOB (out of band) RAID Management

SSD6200A NVMe RAID controllers feature an OOB port (accepts USB Type-C monitor connections) and a built-in CLI (command line utility) which allows users to manage and monitor RAID storage without an operating system.

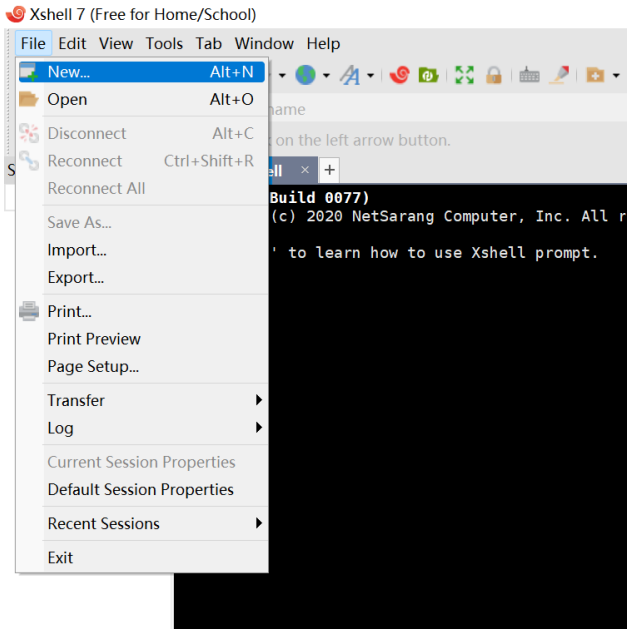
How to use the OOB （Windows）

Insert the SSD6200A into the motherboard and **only use USB-C to USB-A** cable to connect the board card to another host. Install and open the Xshell software on the connected host, and use it according to the following operations：

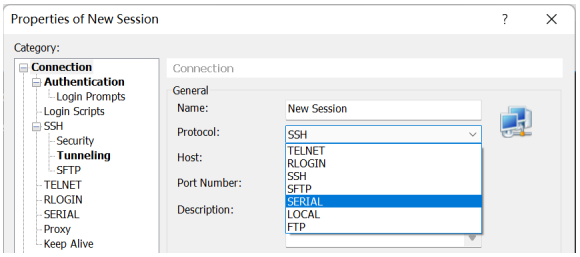
Xshell download：

[XSHELL - NetSarang Website]

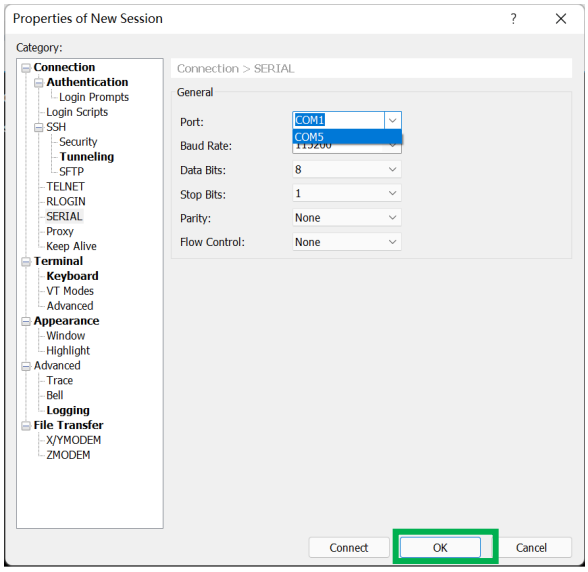
After opening the software, click the **File** in the upper left corner to create a new session window.



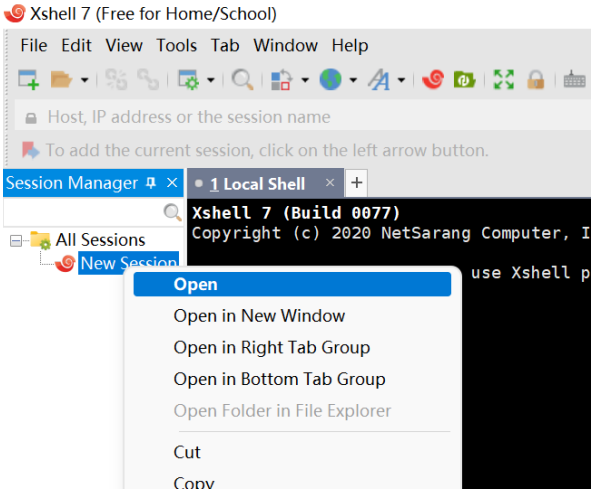
Set Protocol to **SERIAL** in the new setting.

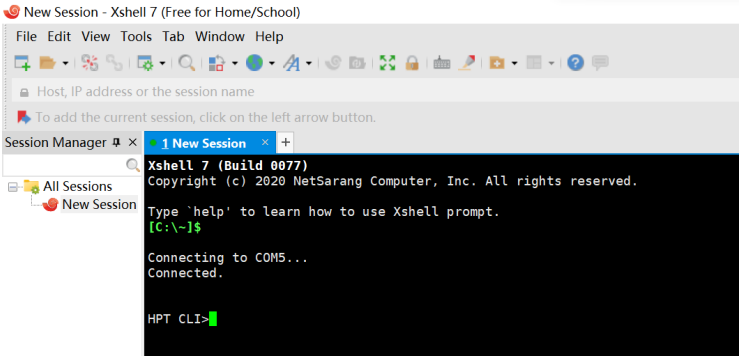


Then click **SERNAL** in the left menu bar to change the Port to the recognized serial port number. This completes the setup.



After creation, right-click and select open to connect to the CLI interface of SSD6200A, and click enter to start use.





CLI Command Reference

This chapter discusses the various CLI commands: info, temperature, fan, beeper, create, delete, help.

Help Commands

Show generic help about this utility.

Example:

HPT CLI> help

```
HPT CLI>help
       help:           display this message.
       info:           display hba/pd/vd info, type 'info help' for detail.
     create:           create raid or JBOD, type 'create help' for detail.
     delete:           delete raid or JBOD, type 'delete help' for detail.
temperature:           show temperature and setting temperature parameters, type 'temperature help' for detail.
        fan:           show fan info and setting fan parameters, type 'fan help' for detail.
     beeper:           enable or disable beeper, type 'beeper help' for detail.
```

Info Commands

Syntax:

info -o [hba/pd/vd]

hba: display adapter info

pd: display physical disk info

vd: display virtual disk info

info -o hba

This command is used to display adapter information

Example:

```
HPT CLI>info -o hba

Adpater Information:
--------------------------------------------------------------------------------
                  NVME UEFI Version:         0.0.0.3
              NVME Firmware Version:         1.0.0.1053
        HighPoint MCU Firmware Version:      1.0.5
                  Hardware Version:          3.0.10
         Sub Device ID : Sub Vendor ID:      6202 : 1103
                  Serial Number:             123453d678910

        PCIe Port:       0
                  Type:     RootComplex
               Link Speed:  8GT/s
               PCIe Width:  x4

        PCIe Port:       1
                  Type:     RootComplex
               Link Speed:  8GT/s
               PCIe Width:  x4

        PCIe Port:       2
                  Type:     EndPoint
               Link Speed:  8GT/s
               PCIe Width:  x8


          RAID Mode Support:    0       1       JBOD
        BGA Feature Support:    init    rebuild         Media patrol
        Stripe Size Support:    128K    256K    512K
--------------------------------------------------------------------------------
```

Info -o pd

This command will provide the status of each physical device hosted by the controller. It provides a list of slot ID's, model numbers, device firmware, sector size, capacity, temperature, status, and array attributes. Each device's status will be listed as one of the following: IDLE, ASSIGNED.

Example:

SSD6202A：

```
HPT CLI>info -o pd
 Slot                    Model                         Serial Number          Firmware       Sector Size     Capcity         Temperature     Status
--------------------------------------------------------------------------------------------------------------------------------------------------------
--------
0       WDS100T3X0C-00SJG0                            184890621671           102000WD               512     1000 GB          40.8 C        IDLE
1       KXG5AZNV256G NVMe SED TOSHIBA 256GB           67RF202GF4RS           AADA5102               512     256 GB           39.8 C        IDLE
--------------------------------------------------------------------------------------------------------------------------------------------------------
```

Info -o vd

This command is used to display virtual disk information. It provides a list of ID, VD's name, Disk Count, PDs, RAID Mode, status, Stripe Size, Capacity and Importable.

Example:

SSD6202A:

```
HPT CLI>info -o vd

ID      Name    Disk Count      PDs     RAID Mode       Status          Stripe Size             Capacity        Importable
------------------------------------------------------------------------------------------------------------------------
0       VD_0            2       0 1     RAID 0          Normal                256 K             511 GB            No
------------------------------------------------------------------------------------------------------------------------
```

Temperature commands

Use this command to adjust the temperature unit and set the temperature threshold to control the fan speed. You can also directly view the current temperature information by directly entering temperature

Syntax:

temperature <-u> [c/f] <-l> [(0-200)] <-h> [0-200] <-s> [0/1]

-u: Temperature Unit, c: Celsius Degree; f: Fahrenheit Degree

c: Celsius Degree

f: Fahrenheit Degree

-l: temperature Low threshold (used in Smart Fan Mode)

[0:200]: in uint of 'Temperature Unit', if higher than the temperature, fan will speed up

-h: temperature High threshold (used in Smart Fan Mode)

[0:200]: in uint of 'Temperature Unit', if higher than the temperature, fan will be full speed

-s: select temperature sensors for reference when have multiple sensors (used in Smart Fan Mode)

[0:1]: Temperature ID

Example:

HPT CLI>temperature -u c -I 50 -h 70 -s 1

```
HPT CLI>temperature -u c -l 50 -h 70 -s 1

      Sensor Count:       1

          SensorID:       0
 Board Temperature:      39 Celsius Degree
    Threshold(Low):      50 Celsius Degree
   Threshold(High):      70 Celsius Degree
```

```
HPT CLI>temperature

       Sensor Count:       1

           SensorID:       0
  Board Temperature:      38 Celsius Degree
```

Fan commands

Use this command to switch the fan mode between intelligent and manual, and set the threshold of fan speed and the speed ratio in full speed state. You can also enter fan directly to view the current fan settings.

Syntax:

fan <-m> [smart/manual] <-l> [(0-100)] <-h> [0-100] <-d> [0-100]

-m: Fan Mode

smart: Smart Fan Mode;

manual: Fan Controlled Manually

-l: Fan Low threshold (used in Smart Fan Mode)

[0:100]: Lowest Fan Speed in Smart Fan Mode, in unit of %

-h: Fan High threshold (used in Smart Fan Mode)

[0:100]: Highest Fan Speed in Smart Fan Mode, in unit of %

-d: Control Fan Speed

[0:100]: Ratio of Full Speed, in unit of %

Example:

HPT CLI>fan -m smart -l 10 -h 100 -d 90

```
HPT CLI>fan -m smart -l 10 -h 100 -d 90

       Fan Count:           1
            Mode:       Smart
            Rate:          10 %
           Speed:           0 RPM
  Threshold(Low):          10 %
 Threshold(High):         100 %
```

```
HPT CLI>fan

       Fan Count:           1
            Mode:      Manual
            Rate:        10 %
           Speed:         0 RPM
        Set Rate:       100 %
```

Beeper Commands

The beeper command is used to control the switch of the buzzer.

Syntax

beeper off

beeper on

Example

HPT CLI> beeper off

HPT CLI> beeper on

```
HPT CLI>beeper off
 Beeper Status:          Disable

HPT CLI>beeper on
 Beeper Status:          Enable
```

Create Commands

This command allows you to create a new RAID array.

Syntax

create -r [0/1/JBOD] -d [0/1/2/3] <-i> [quick/full]

Parameters

-r: RAID mode, MANDATORY parameter

0: RAID0 Mode

1: RAID1 Mode

jbod: JBOD Mode

-d: Disks Selected, MANDATORY parameter

[0:3]: use Slot ID to select, use ',' between Slot ID

for example: 0: disk 0; 0,1: disk 0 and disk 1

-i: Init mode. OPTIONAL parameter

quick: quick initiation (default)

full: full background initiation

Example:

HPT CLI> create -r 0 -d 0,1 -i quick

```
HPT CLI>create -r 0 -d 0,1 -i quick
 Command is executed sucessfully!!!

HPT CLI>
```

Delete Commands

This command allows you to delete an existing RAID array. After deletion, the original array and all data on it will be lost. All the member disks will be listed as available single disks.

Syntax

delete -i [0/1/2/3]

Parameters

[0:3]: RAID ID, only one ID could be used at one time

Example:

HPT CLI> delete -i 0

```
HPT CLI>delete -i 0
 Command is executed sucessfully!!!

HPT CLI>
```

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

	Critical – missing disk A disk is missing from the array bringing it to ‘critical’ status. The array is still accessible but another disk failure could result in data loss.
	Rebuilding The array is currently rebuilding meaning you replaced a failed disk or added a new disk to a ‘critical’ state array.
	Critical – rebuild required The array has all disks, but one disk requires rebuilding.
	Disabled The icon represents a disabled array, meaning more than one disk failed and the array is no longer accessible
	Initializing The array is initializing. The type of initialization is Background. (See Initialization)
	Legacy An existing file system has been detected on the disk. These disks are classified as legacy drives.

	Normal
	The array status is normal
	Initializing
	The array is initializing, background initialization
	Critical – Inconsistency
	Data in the array is inconsistent and needs to be rebuilt.
	Critical – missing disk
	A disk has been removed or experienced failure, and user needs to reinsert disk or add a new disk.
	Rebuilding
	The array is currently rebuilding.
	Disabled
	The array does not have enough disks to maintain the RAID level. A disabled array is not accessible.

HighPoint Recommended List Motherboards

HighPoint provides a list of motherboards suitable for use with the SSD6200/6200A. This document is routinely updated, and is available from the SSD6200/6200A Resources webpage:

https://www.highpoint-tech.com/ssd6200-series-overview

Contacting Technical Support

FAQ's, technical articles, and trouble-shooting tips are available from our Support web page

https://www.highpoint-tech.com/support-and-services

If you require technical Support, please submit a support ticket using our online service at

https://www.highpoint-tech.com/websupport/