HighPoint NVMe RAID Management Guide

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HighPoint RAID Management Software

Your Choice – Graphical or Text-only interfaces

HighPoint understands that one size doesn't fit all - when maintaining critical storage configurations, each customer has specific needs and preferences. We have developed both graphical and text-based management interfaces for NVMe products. Both interfaces are packaged into a single download to simplify installation and upgrade procedures and are available for each operating system platform. The following is a list of supported NVMe products.

Supported Controller	SSD7540 SSD7505 SSD7502 SSD7140A SSD7204 SSD7202 SSD7104 SSD7104F SSD7101A-1 SSD7105 SSD7749M SSD7749E SSD7580A SSD7580B SSD7580C SSD7184 SSD7180 SSD7120 RocketAIC 7749EW Series RocketAIC 7749MW Series RocketAIC 7540HW Series RocketAIC 7505HW Series RocketAIC 7502HW Series RocketAIC 7140AW Series RocketAIC 7105HW Series RocketAIC 7749MM Series RocketAIC 7749EM Series RocketAIC 7540HM Series RocketAIC 7505HM Series RocketAIC 7204HM Series RocketAIC 7202HM Series RocketAIC 7140AM Series RocketAIC 7105HM Series
Supported Enclosure	SSD6540 SSD6540M SSD6444 SSD6780A

Both management interfaces share universal layouts across all major operating systems and can be administered locally or remotely via the Internet. – 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 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 specific application configurations using the Advanced Options menu.

The **CLI** (command line interface) is a powerful, text-only management interface 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 include the most recent product updates from the Software Updates section of the product category webpages.

Using the HighPoint RAID Management (WebGUI) Software

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

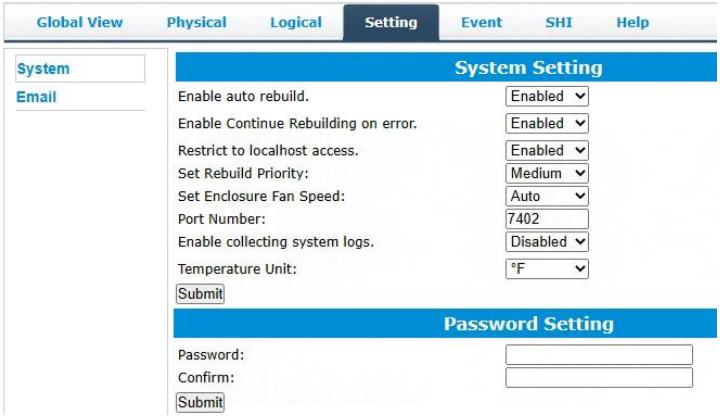
Starting the WebGUI

How to login WebGUI in Windows/Mac

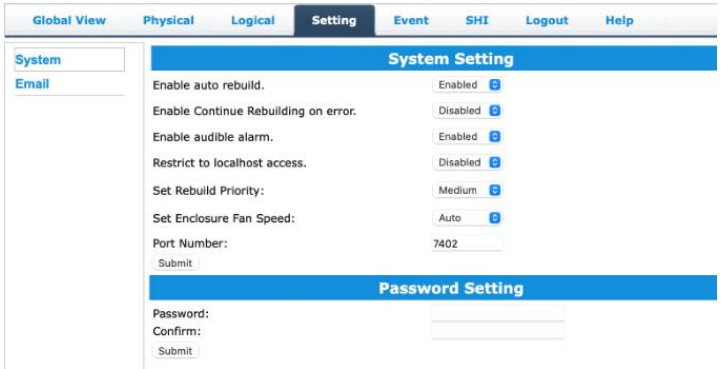
Double-click the Desktop ICON to start the software using the system's default web browser. It will automatically log in to the WebGUI.

The password can be set after the first login. Select **Setting>Password Setting** from the menu bar to change the password.

Windows:

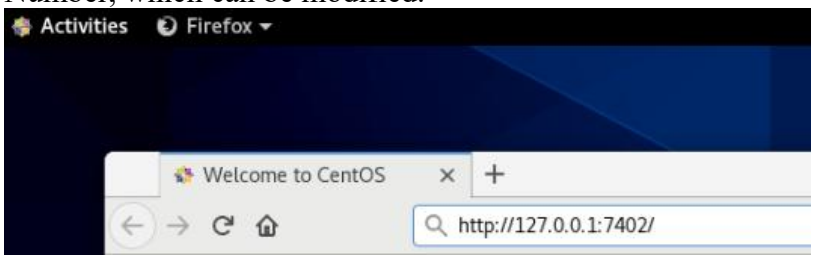


Mac：

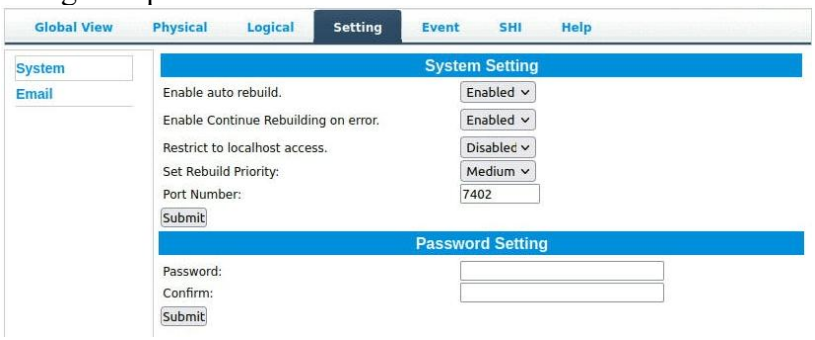


How to login WebGUI in Linux

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



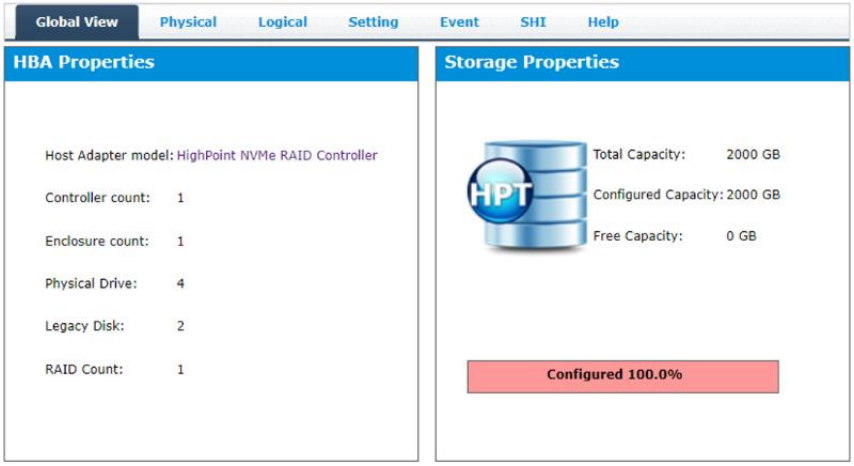
The password can be set after the first login. Select **Setting>Password Setting** from the menu bar to change the password.



Verify the Controller Status

1. The **Global View** Tab will display the overall status of the controller.
2. RAID configurations are listed under **Logical Device Information**.
3. The individual NVMe SSDs are listed under **Physical Device Information.**

Example screenshot



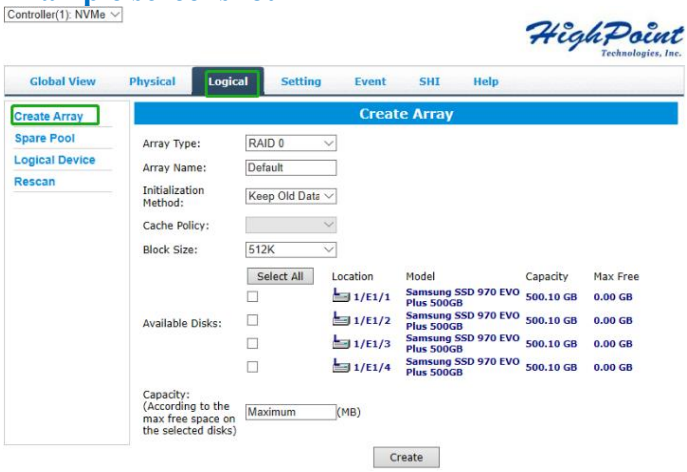
Note: *the picture is only for reference; please make the object the standard.*

Creating an Array

Single controller to create 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



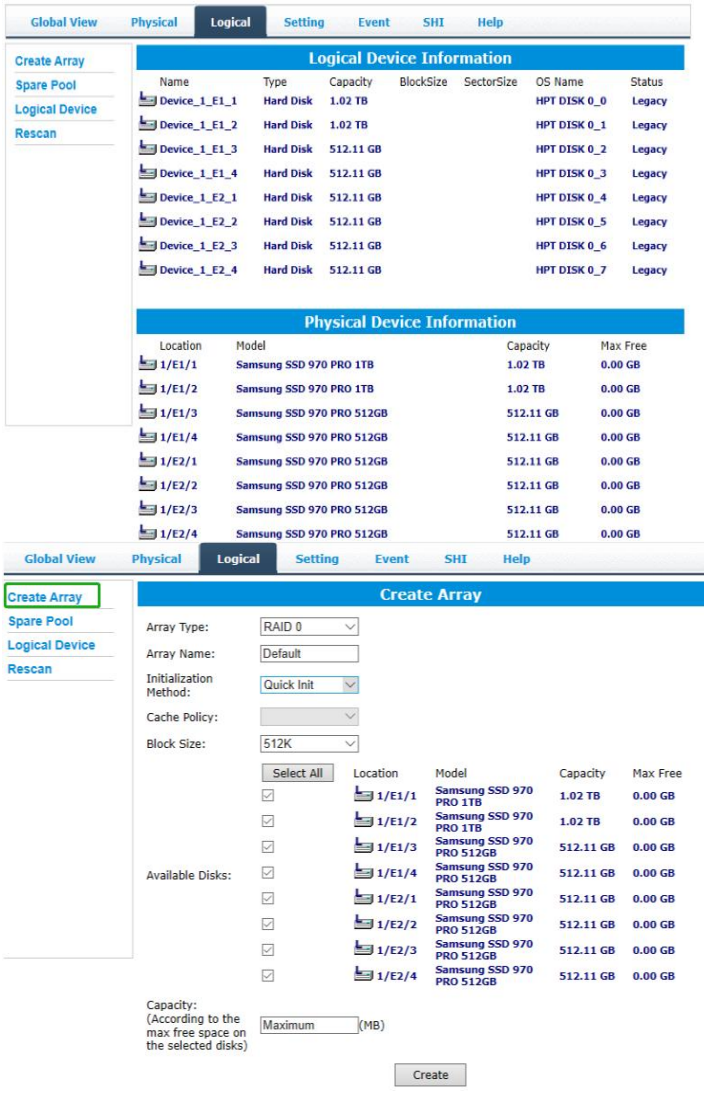
Note: *the picture is only for reference; please make the object the standard.*

Using the Cross-Sync feature to create an array

Note: *This function is only supported by the SSD7101A-1, SSD7104, SSD7104F, SSD7105, SSD7120, SSD7202, SSD7140A, SSD7502, SSD7505, SSD7540, SSD7580A, SSD7580B, SSD7749M, SSD7749E, SSD7580C controllers, and the RocketAIC 7749EW, 7749MW, 7540HW, 7505HW, 7502HW, 7140AWand 7105HW Series NVMe drives.*
For more information about Cross-Sync, please submit a Support Ticket via our Online Support Portal, or contact sales@highpoint-tech.com

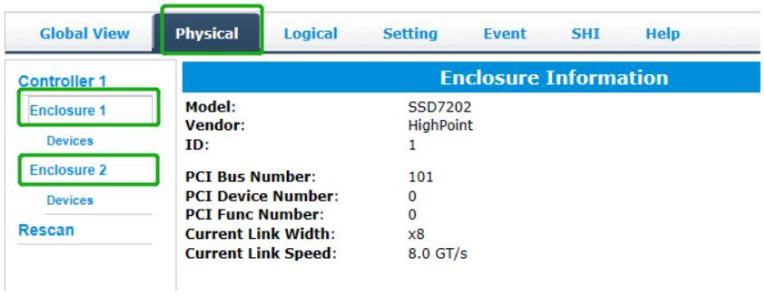
1. Open the WebGUI.
2. Select the appropriate controller using the drop-down menu in the interface's upper left-hand corner.
3. Click the Logical tab.
4. Click Create Array – it should recognize the SSDs attached to both cards.

Example screenshot



Note: *the picture is only for reference; please make the object the standard.*

5. You can view information about both controllers using the **Physical** tab.
   Note: *The interface will refer to the controllers as "Enclosure 1" and "Enclosure 2".*



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 SSD7202 /7502 is capable of creating the following types of arrays:

- RAID 0 — Striping
- RAID 1 — Mirroring

The other NVMe products can create the following types of arrays:

- RAID 0 — Striping
- RAID 1 — Mirroring
- RAID10 — Striping Mirrored array

Each RAID level has its pros and cons based on the application you use it for.

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

Initialization Method:

Initialization of a disk sets all data bits to 0, 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.

- **Keep Old Data:** This option skips the initialization process, and all data on each physical disk of the array will be untouched.
- **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.
- **Foreground**: The array initialization process will be set as a high priority. During this time, the array is not accessible, but the initialization process will complete much faster.
- **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, RAID1 Initialization (Foreground) time is approximately 10 minutes. Initialization using the Background option would take 12 minutes to complete.*

Background and Foreground Initialization

Foreground initializing the array will completely zero out the data on the disks, meaning the disk will be completely wiped, and every bit on the disk will be set to 0. Background initialization means the array will still be created, and you can still write new data onto the array. But when your array requires rebuilding, residual data left behind may interfere with the process.

Block Size (default: 512K)

Windows:

SSD7105/7202/7502/7505/7540/7580A/7580B/7580C/7749M/7749E/6780A/ RocketAIC 7505HW /7540HW/7749EW/7749MW: [supported block sizes: 64K/128K/256K/512K]

SSD7101A-1/SSD7120/7104/6444/6540/6540M/7204/7184/7180/7140A: [supported block sizes: 16K/32K/64K/128K/256K/512K/1024K]

Mac：
SSD7105/7502/7505/7540/7101A-1/7120/7104/6444/6540/6540M/7204/7140A/7749M/7749E/ Rocket AIC 7505HW/7540HW/7749WE/7749MW:
[supported block sizes16K/32K/64K/128K/256K/512K/1024K]

Linux:
SSD7105/7502/7202/7505/7540/7101A-1/7120/7104/6444/6540/6540M/7204/7184/7180/ 7140A/7580A/7580B/7580C/7749M/7749E/6780A/ RocketAIC 7505HW/7540HW/7749WE/7749MW: [supported block sizes: 128K/256K/512K]

Adjusting the block size to match 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 increase the throughput, meaning better performance.

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

Capacity (Default: Maximum)

This section allows you to set the total space you want the RAID array to use. When creating RAID levels, disk capacities are limited by the smallest disk.

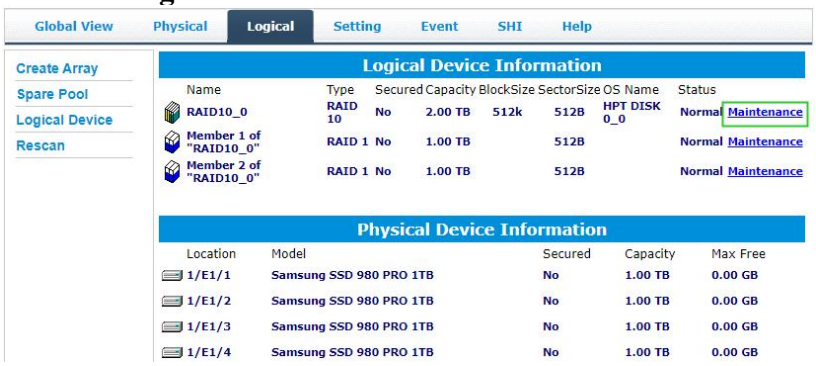
An example of how disk capacities are limited by the smallest disk:

- You have 2 drives connected to the enclosure.
- The first drive is 6 TB, the second is 4 TB.
- After creating a RAID level 1 using both drives and maximum capacity, the first drive will have 2 TB, and the second will have 0 TB of free capacity.
- The free capacity on the second drive can be used to create a separate array with other drives.

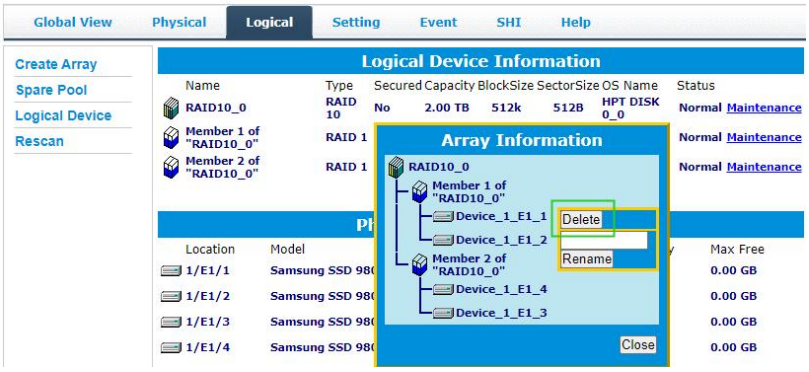
Delete an Array

Used to delete a created Array

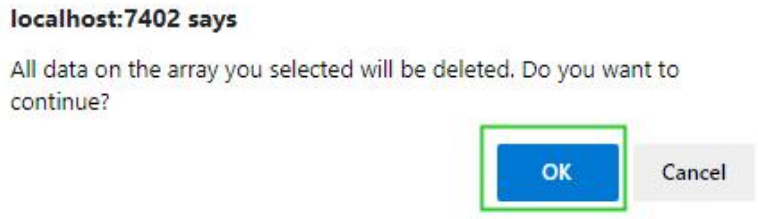
1. Open the WebGUI.
2. Click the **Logical** tab→**Manintenance.**



3. Click **Delete** to delete the RAID array.

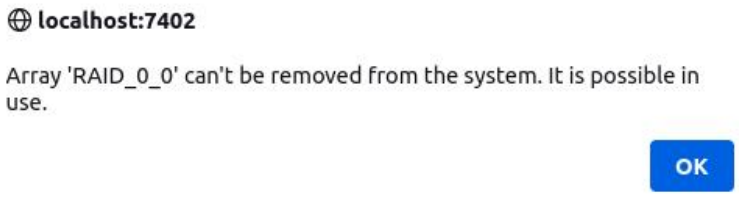


4. A pop-up box on the page, click **OK** to confirm the RAID deletion.



5. There is no deleted RAID information at **Logical Device Information**, indicating that the RAID deletion operation is complete.

Note 1: *When the RAID is in the rebuild, verify the foreground/background init status or be mounted, and delete the RAID, which will prompt in use.*



Note 2: *When RAID is in a rebuild, verify foreground/background init status. If you want to delete the RAID, you can stop the current operation and continue to delete the RAID.*
Note 3: *When RAID is mounted. If you want to delete the RAID, you can umount the RAID Array and continue to delete the RAID.*

Adding Spare Disks

Note: *This feature is not supported by the SSD7202 or SSD7502.*

Spare disks are physical disks that immediately replace critical disks in an array.

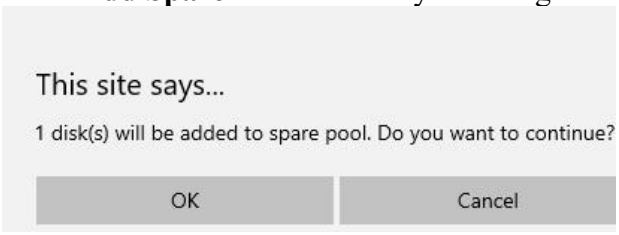
Example screenshot

To add spare disks:

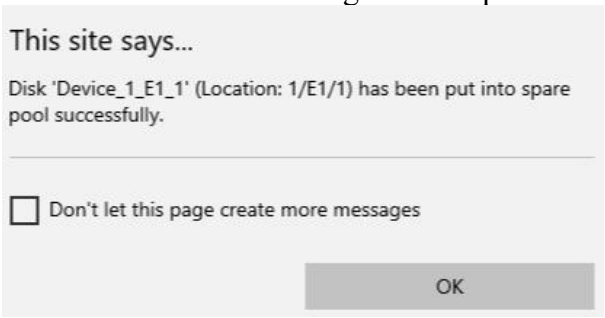
1. Open the WebGUI
2. Click Logical
3. Click Spare Pool:

Example screenshot

4. Check the box for the disk you want as a spare under **Available Disks.**
5. Click **Add Spare** and confirm by selecting OK from the pop-up window.



6. The disk has now been assigned as a spare. Click **OK** to confirm.



Disks added to the spare pool will be displayed under the **Spare Pool** and removed by checking the box before the target drive and then clicking the **Remove Spare** button.
Physical drives marked as spare will automatically be added to an array whenever a disk fails. This feature minimizes the chances of data loss by reducing the time an array is in critical status.

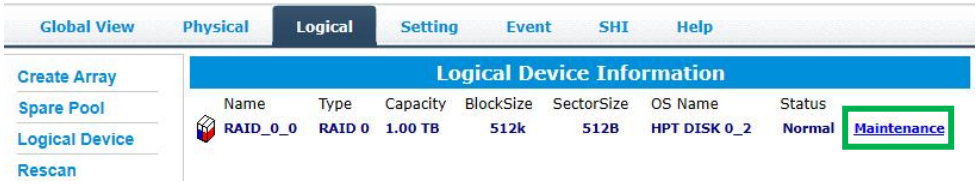
Obtaining Logical Device Information

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.

Logical Device Information
Arrays you create and the properties associated with them will appear here.

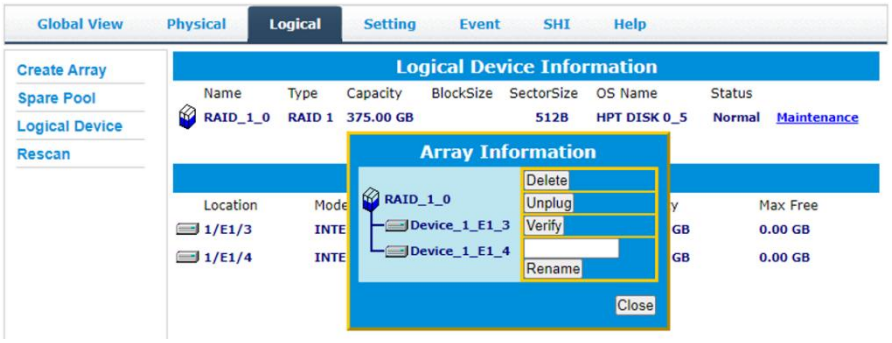
Maintenance

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
Clicking on the **Maintenance** button will show you the Array information box. Different array statuses (Normal, critical, disabled) will have different maintenance options.

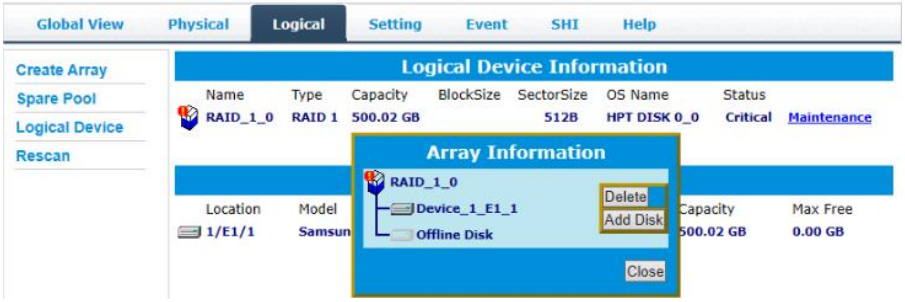
Array Information &Maintenance Options: Normal Status



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

- **Delete** – deletes the selected RAID array
- **Unplug** – to ensure data security, if you want to unplug a RAID array while the system is operating, click unplug first and then unplug the NVMe SSDs(**only supported by the SSD7580B and SSD7580C)**
- **Verify** – verifies the integrity of the RAID array (**only supports RAID1/10**)
- **Rename** – renames the RAID array.

Array Information & Maintenance Options: Critical Status



Arrays in 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:

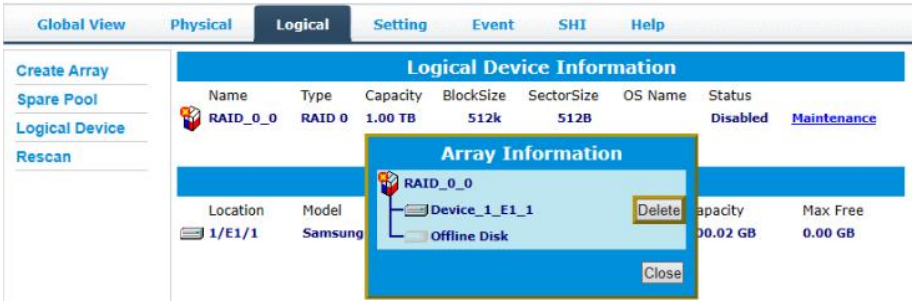
- The Array can no longer be renamed
- **Add Disk** replaces the **Verify Disk** option

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 allow you to select and add it to the array.

Array Information & Maintenance Options: Disabled Status



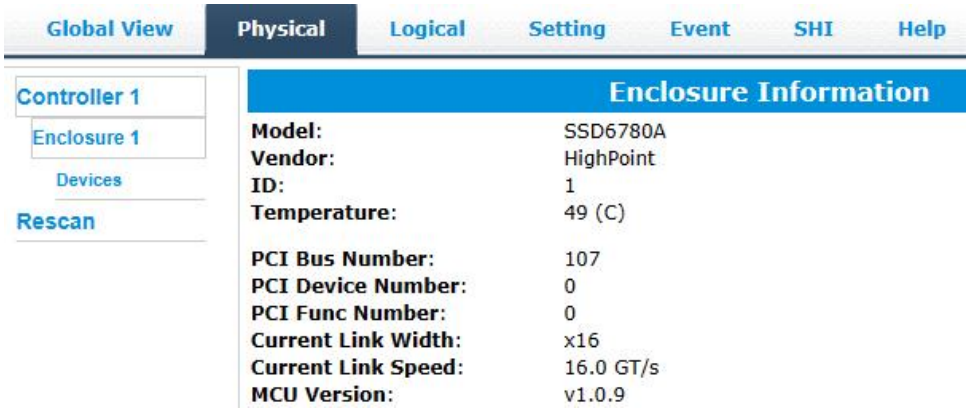
An array with the **Disabled** status means that the RAID level does not have enough disks to function.

- 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:

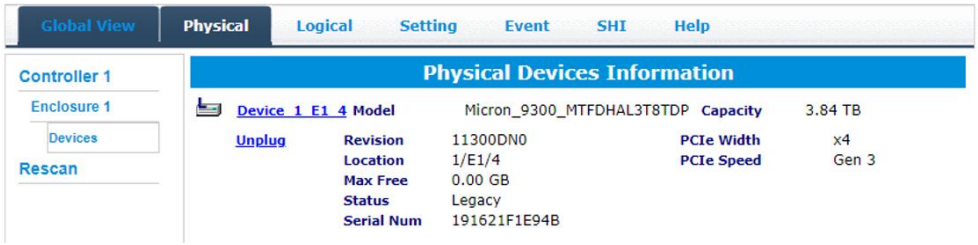
- **Delete** – will delete the array

Enclosure Information



- **Model Name**— the model name of the device connected
- **Vendor** — the controller's owner
- **Temperature** — Temperature of the controller's sensor
- **Current Link Width —** PCIe width occupied by the current controller
- **Current Link Speed —** Rate of current bandwidth
- **MCU Version** — MCU version of the product

Physical Device Information



- **Unplug** — to ensure data security, if you want to unplug an NVMe SSD while the system is operating, click **unplug** first and then unplug the NVMe SSD (**only supported by the SSD7580B and SSD7580C)**
- **Model** — model number of the drive connected
- **Revision** — a revised version of the 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 driver
- **PCIe Speed** — Rate of current bandwidth

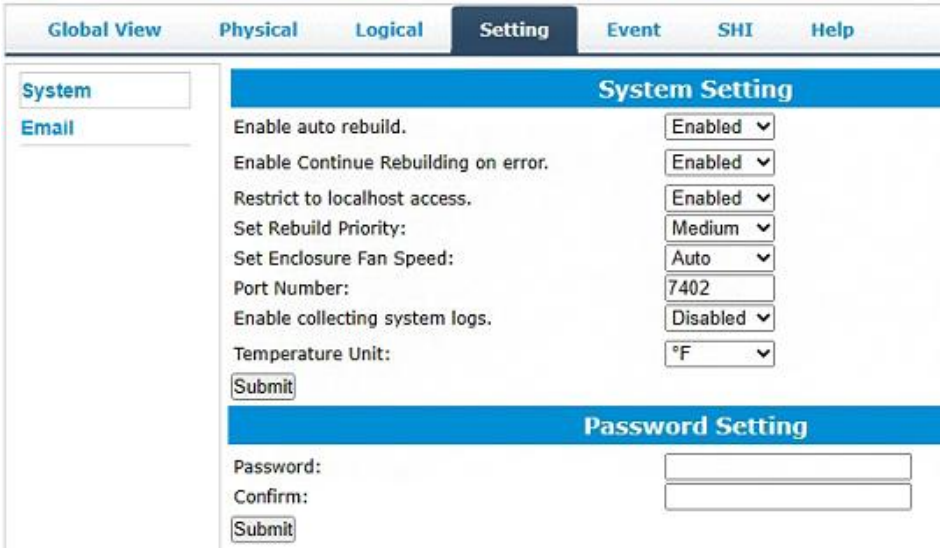
Rescan

Clicking **Rescan** will ask the driver to recheck and report the array status.
When the WebGUI initiates Rescan, the driver will immediately check and see whether the status of any disk has changed. If there are any changes, the disks and RAID array status will be updated to reflect this.

- Disk Status – if any disks were added or removed or 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

Note: *The temperature unit function is only supported by Windows and macOS.*



Using this tab, you can change the following:

- Enable auto-rebuilding
- Enable rebuilding on error
- Restrict to localhost
- Set rebuild priority
- Set Enclosure Fan Speed
- Change port number
- Collecting system log
- Change Temperature Unit
- Change HRM password

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.

Enable continue rebuilding on error (default: Enabled)
When enabled, the rebuilding process will ignore bad disk sectors and continue rebuilding until completion. When the rebuild is finished, the data may be accessible but also inconsistent due to any bad sectors that were ignored during the procedure. HighPoint recommends checking the event log periodically for bad sector warnings if 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 cannot remotely log in to the HRM.

Rebuild Priority (default: Medium)
You can specify the amount of system resources you want to dedicate to rebuilding the array. There are 5 levels of priority [Lowest, Low, Medium, High, Highest]

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

Port Number (default: 7402)
The default port that the HighPoint HRM listens on is 7402. You may change it to any open port.

Enable collecting system logs (default: Disabled)
You can set it to enable to collect system logs at any time. The collected system logs are stored on the **C:/Windows/hpt_diagdriver.** The maximum capacity of the collected system log is 800MB, and parts exceeding 800MB will be overwritten forward.

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

Password Settings

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.

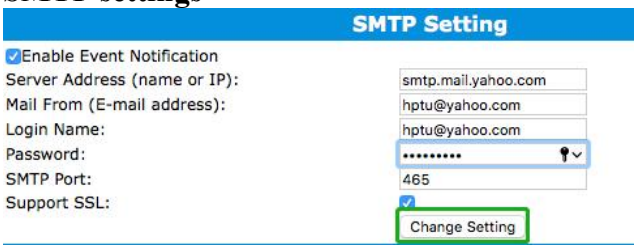
Email Setting

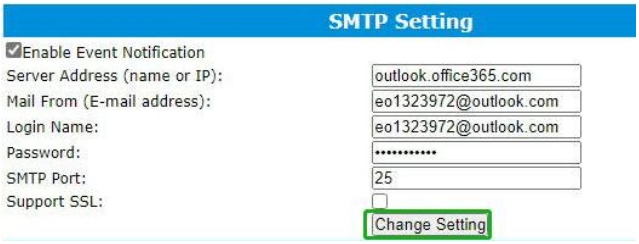
The following topics are covered under email:

- SMTP Setting
- Adding Recipients

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

SMTP settings





***Note**: The password field will be reset after you click Change Setting.*

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 your ISP supports SSL (note the port value will change to **465**).

Email Precautions

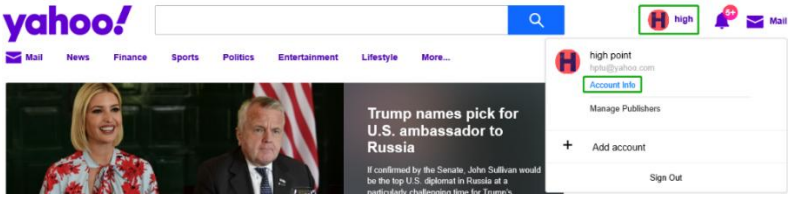
If you want to receive notification mail using a Webmail account, you may need to modify the mailbox's permissions. The following example is for a Yahoo and Outlook webmail account.

Yahoo Setting:

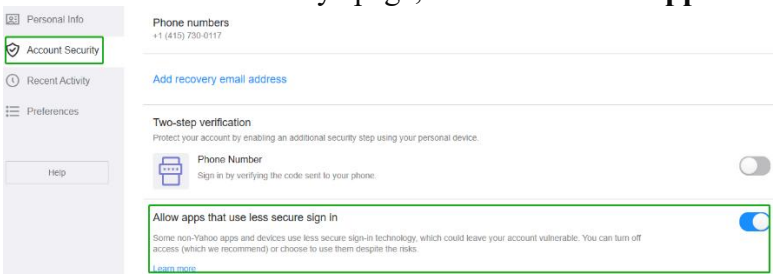
To change permission settings, please refer to the following link:
https://help.yahoo.com/kb/account/SLN27791.html?impressions=true

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:

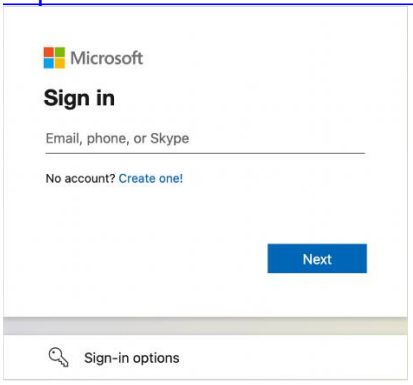


3. Go to the "**Account Info**" page and click "**Account Security**".
   On the "Account Security" page, click the "**Allow apps that use less secure sign-in**" button:

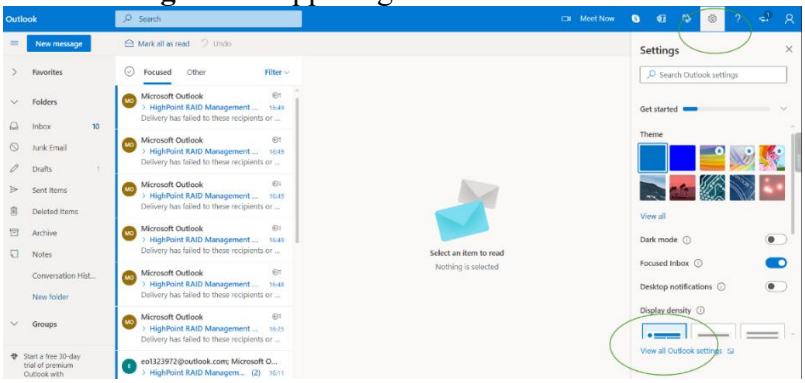


Outlook Setting:

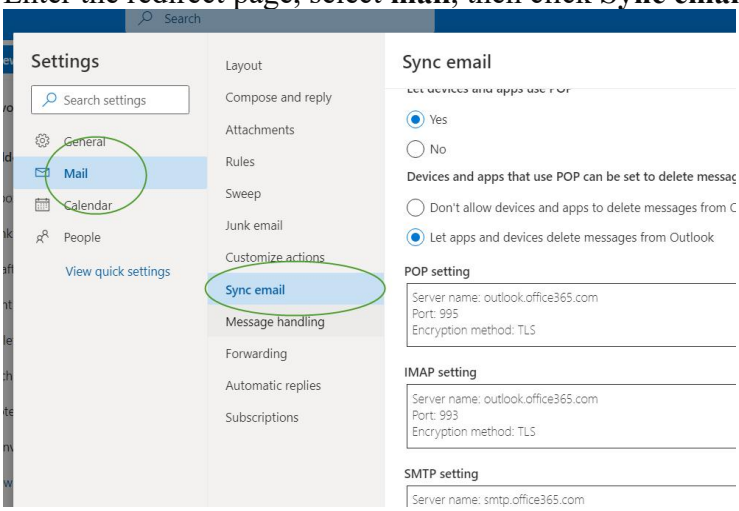
1. Sign in to mail and set it up, Login email address link:
   https://outlook.live.com/mail/inbox



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

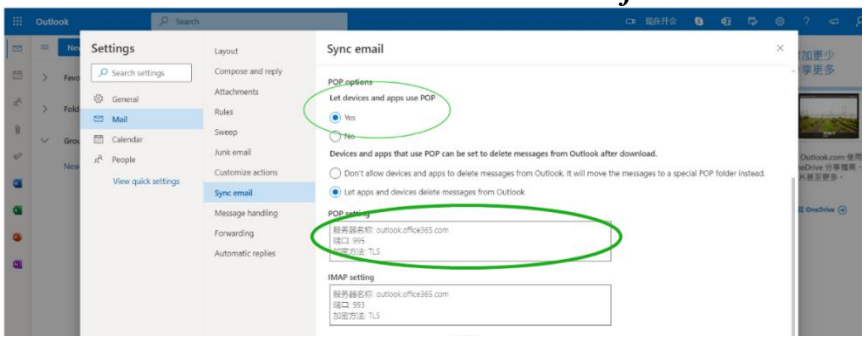


3. Enter the redirect page, select **mail**, then click **Sync email**



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.

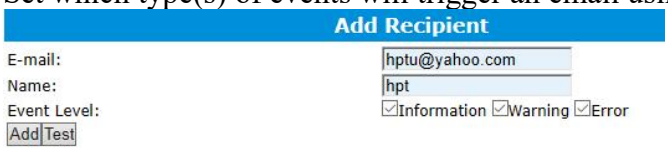


***Note**: If you are having trouble configuring notifications for your Email account, please contact our [Technical Support Department]*

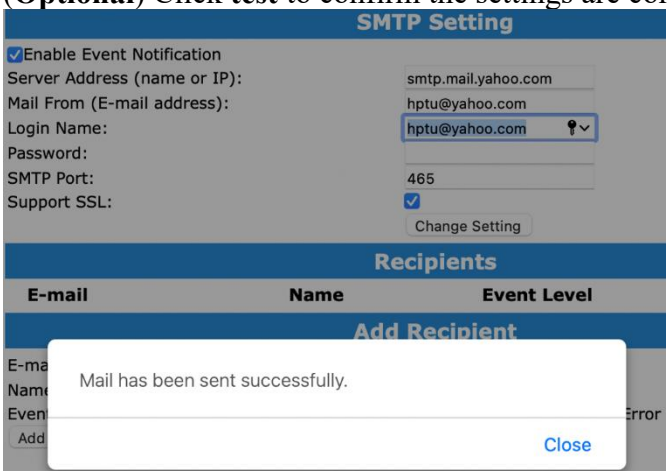
How to Add Recipients

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

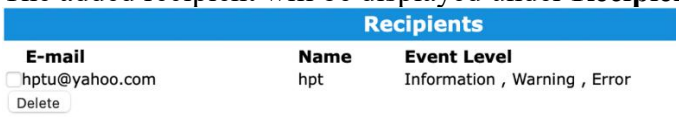
1. Type the email of the recipient in the **E-mail** text box.
2. Type the name of the recipient in the **Name** text box.
3. Set which type(s) of events will trigger an email using the respective **Event Level** check boxes.



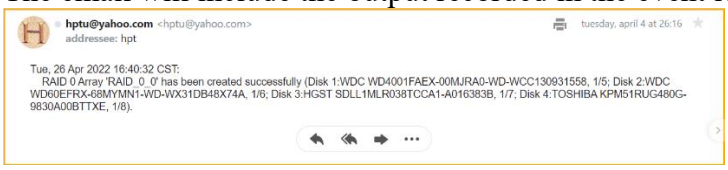
4. (**Optional**) Click **test** to confirm the settings are correct by sending a test email.



5. Click **add** to add the 'recipient to recipient' list
6. The added recipient will be displayed under **Recipients**



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



Event Tab

You can see log entries associated with the HighPoint device in the event tab. The event log provides useful information when troubleshooting your setup.

In the event tab, there are four options available:

- **Download** – Save the log file on your computer
- **Prev** – View the previous log page
- **Next** – View the next log page

SHI (Storage Health Inspector)

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

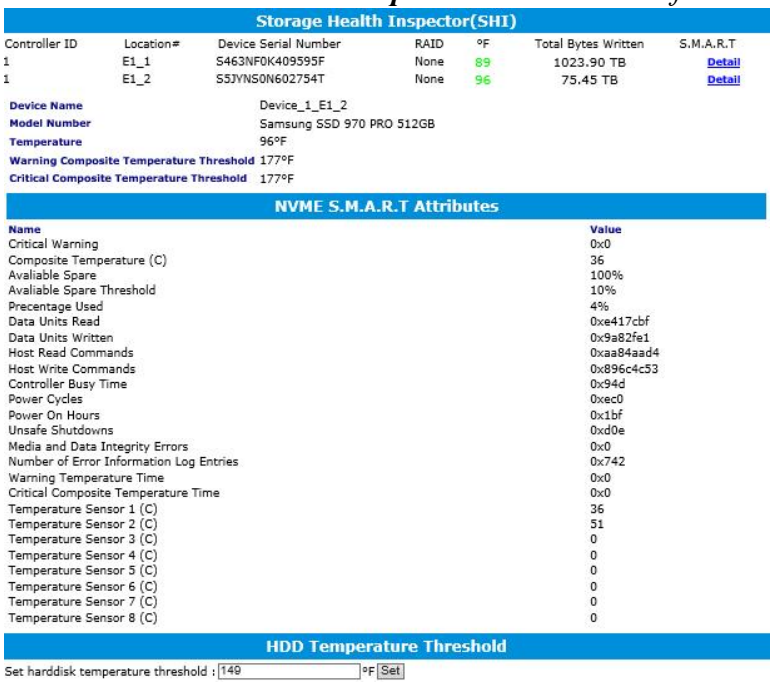
SHI outputs information collected using SMART (Self-Monitoring Analysis and Reporting Technology) Drive Technology. The data provided on this tab helps you anticipate any disk failures based on various monitored disk properties.

How to Enable SMART Monitoring

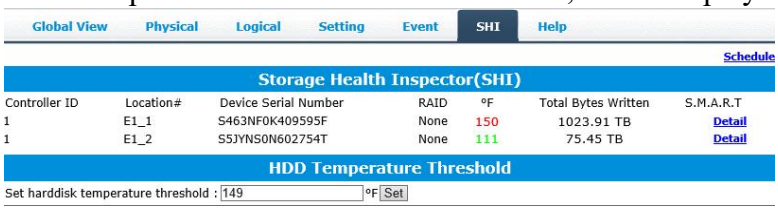
To access the SMART attributes of an individual disk:

1. Log in to the WebGUI.
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:

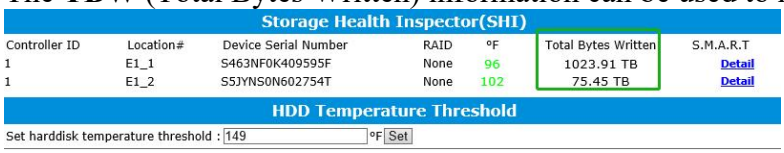
*Note: The current NVMe **Temperature threshold** defaults to 65℃（149°F）.*



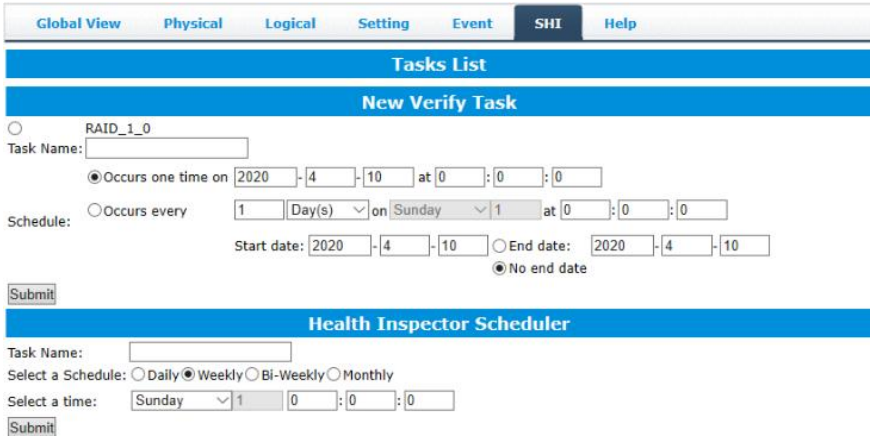
If the temperature exceeds 65℃（*149*°F）, it will display "**Red**".



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



How to Use the Health Inspector Scheduler

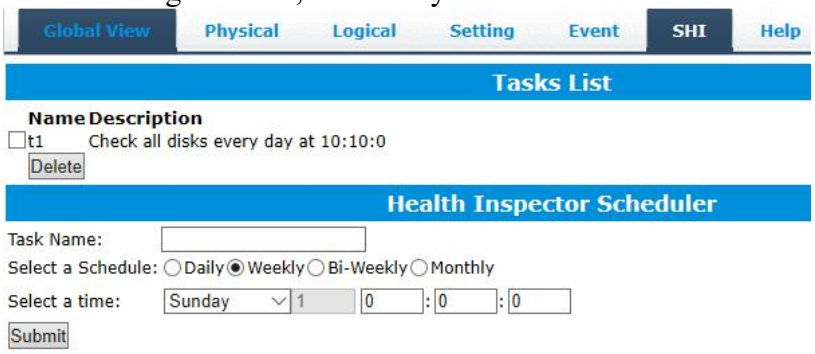


The **Health Inspector Scheduler** (**HIS**) enables you to schedule disk/array checkups to ensure disks/array are functioning optimally.

If you want to check the disk status daily, weekly, or monthly, 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."

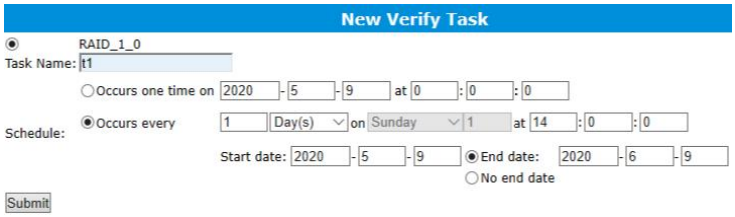


When the operating temperature of the disk exceeds 65°, a “Warning” event will appear in “Events”:

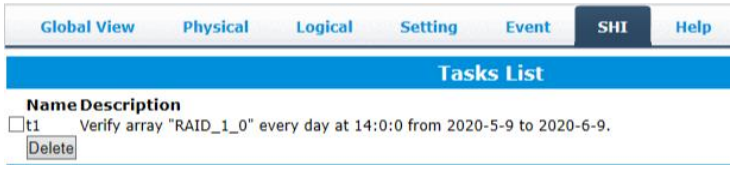
How to Create a New Verify Task

All Redundant RAID arrays (RAID 1) will appear under the 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 the **Task Name** entry box.
7. Choose whether you want to schedule.
8. One-time verify task on a 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 the **Tasks List.**



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

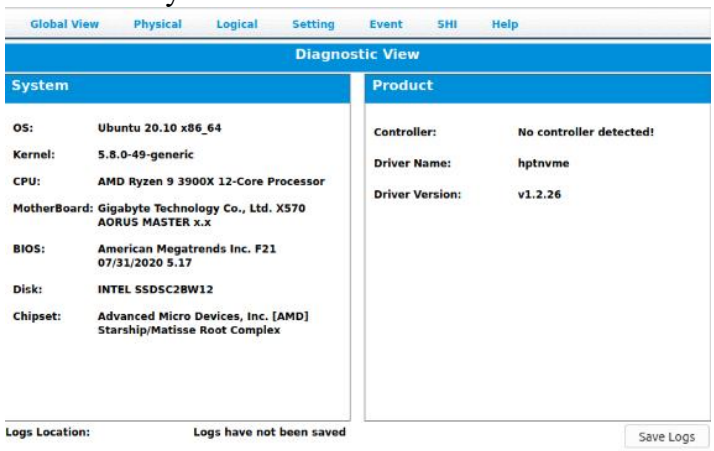
Log collecting

Diagnostic view

We have provided a detailed video on log collection methods: link

For Example - Linux system

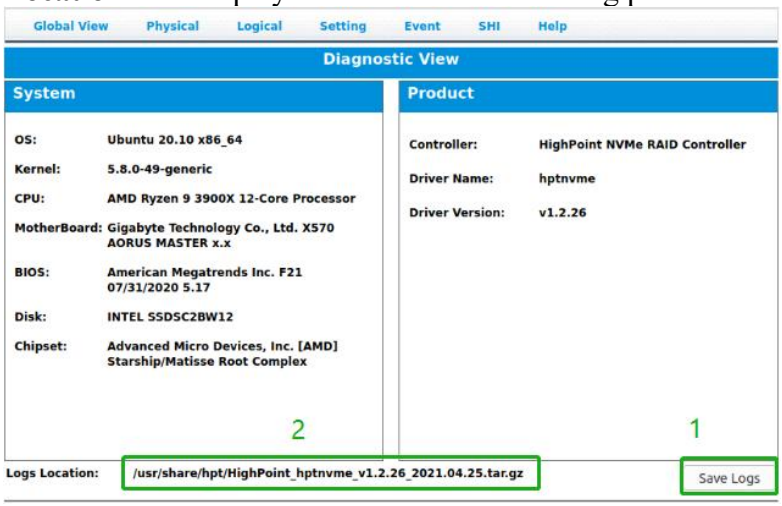
1. Start the WEBGUI. Diagnostic view will appear when the Driver or HPT card does not affect you can see the system information and HPT Product information in this view.



2. Click 'Help'→'Diagnostic' to enter the diagnostic view.

Log saving

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



If you have problems, please submit the log to our online service (https://www.highpoint-tech.com/support-and-services).

Using the HighPoint Command Line Interface (CLI)

How to use the CLI directly

Syntax：
hptraidconf -u {username} -p {password} {CLI command }
The default user name is **RAID**; password is: **hpt；**
This default password can be modified in the WEBGUI—Password setting.

Example 1: In Windows System

1. Run '**Command Prompt**' as **Administrator;**
2. Enter '**hptraidconf -u RAID -p hpt help',** Show generic help about this utility。

```
C:\Windows\system32>hptraidconf -u RAID -p hpt help

help [query|create|delete|OCE/ORLM|rebuild|verify|unplug|switch|lscard
rescan|init|events|mail|task|set|clear|help|exit|diag]


C:\Windows\system32>
```

3. Enter '**hptraidconf -u RAID -p hpt help set**' to show the system settable parameters.

```
C:\Windows\system32>hptraidconf -u RAID -p hpt help set

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 CE=[y|n]            Continue Rebuild On Error
                set AA=[y|n]            Audible Alarm
                set SS=[y|n]            Staggered spinup
                set DS=[seconds]        Delay between spinup (seconds)
                set ND=[number]         Number of drives per spinup
                set IT=[y|n]            INT 13 support
                set SB=[y|n]            Single BCV entry
                set NC=[y|n]            NCQ
                set BP=[y|n]            Beeper
                set FS=[Auto|Off|Low|Medium|High]               Enclosure Fan Speed
                set RP=[1-100]          Rebuild Priority
                set BR=[1-100]          Background Rate
                set SD=[minutes]        Spindown Idle Disk (minutes)
                set TT=[20-100]         Temperature threshold
                set TU=[C|F]            Temperature Unit
                set PS                  Set Password
        set {device id} {name= }
                set tcq=[y|n]   set TCQ enable or disable.
                set ncq=[y|n]   set NCQ enable or disable.
                set wc=[y|n]    set Write Cache enable or disable.
                set ra=[y|n]    set Read Ahead enable or disable.
                set smart=[y|n] set smart enable or disable.
        set {array id} name={name} cp=[wt|wb|none]
                name    Set the array's name.
                cp      Set array's cache policy.
```

4. Enter '**hptraidconf -u RAID -p hpt query devices**' to query the device.

```
C:\Windows\system32>hptraidconf -u RAID -p hpt query devices

ID      Capacity    MaxFree     Flag    Status    ModelNumber
------------------------------------------------------------------------------
1/E1/1  512.11      0           SINGLE  LEGACY    Samsung SSD 970 PRO 512GB
1/E1/2  512.11      0           SINGLE  LEGACY    Samsung SSD 970 PRO 512GB
1/E1/3  500.11      0           SINGLE  LEGACY    Samsung SSD 980 PRO 500GB
1/E1/4  500.11      0           SINGLE  LEGACY    Samsung SSD 980 PRO 500GB
1/E1/5  2000.40     0           SINGLE  LEGACY    Seagate FireCuda 520 SSD ZP2000GM30002
1/E1/6  2000.40     0           SINGLE  LEGACY    Seagate FireCuda 520 SSD ZP2000GM30002
1/E1/7  1024.21     0           SINGLE  LEGACY    KXG60ZNV1T02 TOSHIBA
1/E1/8  1024.21     0           SINGLE  LEGACY    KXG60ZNV1T02 TOSHIBA
------------------------------------------------------------------------------
```

Example 2: In Linux System

1. Open '**Terminal**' and enter root permissions;
2. Execute the command '**hptraidconf -u RAID -p hpt query devices**' to query the device.

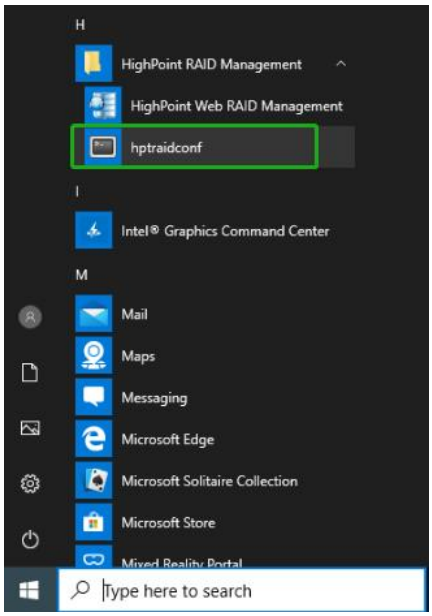
```
root@test-Z390-AORUS-XTREME:/home/test# hptraidconf -u RAID -p hpt query devices

ID      Capacity    MaxFree     Flag    Status    ModelNumber
------------------------------------------------------------------------------
1/E1/1  500.03      0           RAID    NORMAL    Samsung SSD 980 PRO 500GB
1/E1/2  512.11      0           SINGLE  LEGACY    Samsung SSD 970 PRO 512GB
1/E1/3  1000.20     0           SINGLE  LEGACY    WDS100T3X0C-00SJG0
1/E1/4  1000.20     0           SINGLE  LEGACY    WD Green SN350 1TB
------------------------------------------------------------------------------
```

How to use the CLI in Windows

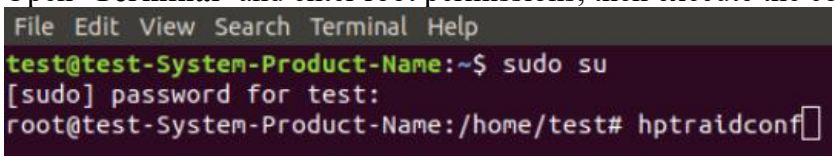
Method1: Run '**Command Prompt'** as **Administrator** enter **hptraidconf,** and press Enter

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, Create, Delete, Rebuild, Verify, Unplug, Switch, Lscard, Rescan, Init, Events, Mail, Task, Set, Clear, Diag, Help, and Exit.

***Warning**: using Create/Delete commands may destroy data stored in the disks, and this lost data can never be recovered. Please be cautious when executing these commands. The CLI utility will not prompt you before each command is executed.*
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:

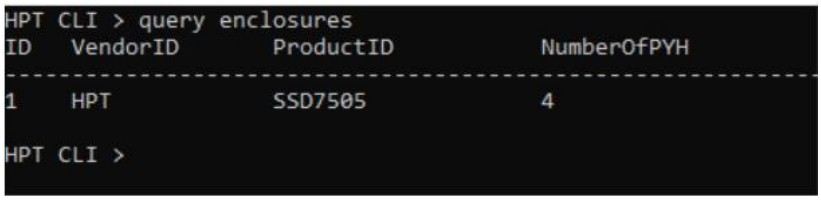
Example screenshot

query enclosures

This command reports Product ID information.

Single card:

Example screenshot



Cross-Sync:
Note: This function is only supported by SSD7101A-1, SSD7105, SSD7104, SSD7104F, SSD7120, SSD7202, SSD7204, SSD7140A, SSD7502, SSD7505, SSD7540, SSD7580A, SSD7580B, SSD7580C, SSD7749M, SSD7749E controllers, and the RocketAIC 7749EW, 7749MW, 7540HW, 7505HW, 7502HW, 7140AWand 7105HW Series.

Example screenshot

```
HPT CLI > query enclosures
ID   VendorID       ProductID          NumberOfPYH
-------------------------------------------------
1    HPT            SSD7505            4
2    HPT            SSD7505            4

HPT CLI >
```

query devices

This command will provide the status of each physical device hosted by the controller. It lists device IDs, capacity, model numbers, status, and array attributes. Each device's status will be listed as one of the following: NORMAL, DISABLED, SPARE, RAID, and BOOT.

Attributes:

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/E1/1 represents the disk on controller 1 port 1;

Capacity:
The capacity of the disk is GB.

MaxFree:
The maximum sequence free space on a disk can be used to create the array.

Flag:
Shows whether the disk is **single** or has been created **RAID**.

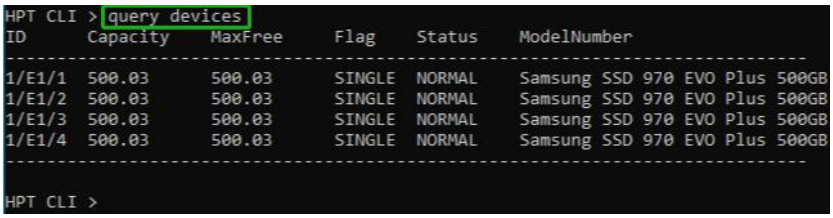
Status:
This will display the disk status (1 of 4 possible states):

- 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.
- SPARE: The disk has been set as a spare disk

ModelNumber:
The disk's model number.

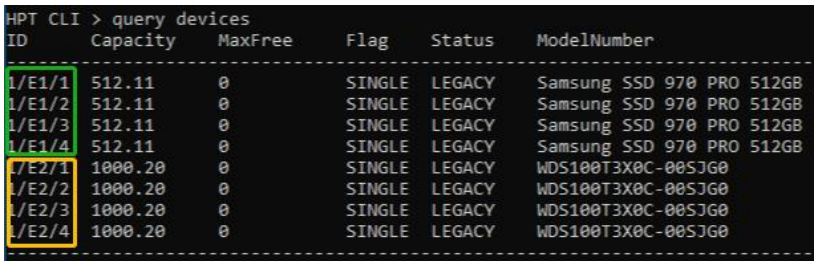
Single card：

Example screenshot



Cross-Sync:

Example screenshot



query devices {device_id}

This command presents information for the specified device.

Attributes:

Model 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.
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 disk.

Example:

```
HPT CLI > query devices 1/E1/1
Mode Number:        Samsung SSD 970 EVO Plus 500GB
Serial Number:      S4EVNMFN502918J
Firmware Version:   2B2QEXM7
Capacity(GB):   500.03              TotalFree(GB):  500.03
Status:         SINGLE              Flag:           NORMAL
PCIe Width:     x4                  PCIe Speed:     Gen 3
Temperature (C):                                47
Warning Composite Temperature Threshold (C):    85
Critical Composite Temperature Threshold (C):   85
-------------------------------------------------------------------------------
                            S.M.A.R.T Attributes
S.M.A.R.T Status OK.
Name                                    Value
-------------------------------------------------------------------------------
Critical Warning                        : 0x0
Composite Temperature (C)               : 47
Available Spare                         : 100%
Available Spare Threshold               : 10%
Percentage Used                         : 7%
Data Units Read                         : 0x7da5bdd
Data Units Written                      : 0x6b05bb1
Host Read Commands                      : 0x8cb661dc
Host Write Commands                     : 0x6a64a263
Controller Busy Time                    : 0x61f
Power Cycles                            : 0xd8c
Power On Hours                          : 0x1cb
Unsafe Shutdowns                        : 0xa6f
Media and Data Integrity Errors         : 0x0
Number of Error Information Log Entries : 0x9d5
Warning Temperature Time                : 0x0
Critical Composite Temperature Time     : 0x0
Temperature Sensor 1 (C)                : 47
Temperature Sensor 2 (C)                : 56
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: A number or set of numbers generally represents an array ID.

Attributes:

Type:

SSD7202/7502: The array's type. (RAID0, RAID1)
SSD7101A-1/7105/7120/7204/7104/6444/6540/6540M/7505/7184/7180/7140A/7540/7580A/7580B/7580C/7749M/7749E/6780A:
The array's type. (RAID0, RAID1, RAID10)

Status:

- NORMAL: Array status is normal
- DISABLED: Array is disabled.
- REBUILDING: Array is being rebuilt
- VERIFYING: Array is verifying
- INIT(F): Initializing an array using Foreground mode
- INIT(B): Initializing an array using Background mode
- UNINITIALIZED: Array is not initialized
- 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

Example:

```
HPT CLI > query arrays
ID    Capacity(GB)    Type        Status    Block  Sector   Cache          Name
-------------------------------------------------------------------------------
1          500.03    RAID1        NORMAL      --    512B    NONE        RAID_1_0
```

query arrays {arrays_id}

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

Example:

```
HPT CLI > query arrays 1
ID:             1                   Name:           RAID_1_0
Type:           RAID1               Status:         NORMAL
Capacity(GB):   500.03              BlockSize:      --
SectorSize:     512B                CachePolicy:    NONE
Progress:       --
ID      Capacity    MaxFree     Flag    Status    ModelNumber
-------------------------------------------------------------------------------
1/E1/1  500.03      0           NORMAL  RAID      Samsung SSD 970 EVO Plus 500GB
1/E1/2  500.03      0           NORMAL  RAID      Samsung SSD 970 EVO Plus 500GB
```

Init Commands

You can use init commands to initialize disks or arrays. A drive must be initialized first before being used to create arrays.

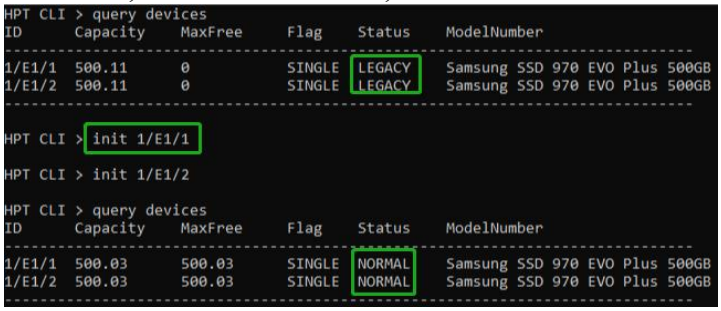
Syntax:
init {device_id} | init {array_id} {start|stop}

init {device_id}

This command initializes a disk for first use or a legacy disk on the controller.

Example:

After entering the CLI, enter the command: '**query devices**' to view the current NVMe status as 'LEGACY,' enter 'init 1/E1/1', and NVMe status as 'NORMAL.'

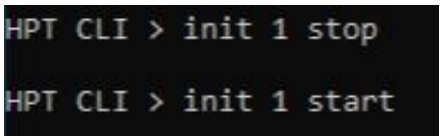


Note: *This command instructs the controller to initialize the disk on controller 1 channel 1. All data on the disk will be destroyed.*

init {array_id} {start|stop}

This command starts/stops the initialization process of a redundant RAID array (RAID 1)

Example:



This command instructs the controller to stop/start the initialization process on array 1. Take the Samsung 970 EVO PLUS as an example. Create a RAID1 init that takes about 10 minutes.

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|RAID10 spare} [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 that will compose a new array, e.g., disks=1/E1/1,1/E1/2, 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 (foreground, background, quickinit, keep old data). 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.

foreground: Initialize an array using foreground mode. This is the recommended method when creating redundant RAID arrays.

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

Quickinit: Do a quick init.

keep old data: This option will create the RAID array but keep existing data on the RAID array. This option should be selected when trying to recover a RAID 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.

src= specifies an existing array to be expanded/migrated. All data on
the source array will be redistributed online to the target array. If this parameter is omitted, a new array is created.

capacity= specifies the capacity, in size of MB, for the target array. Maximum capacity is default.

bs= specifies the block size, in KB, for the target array. This option is only valid for stripped RAID levels.

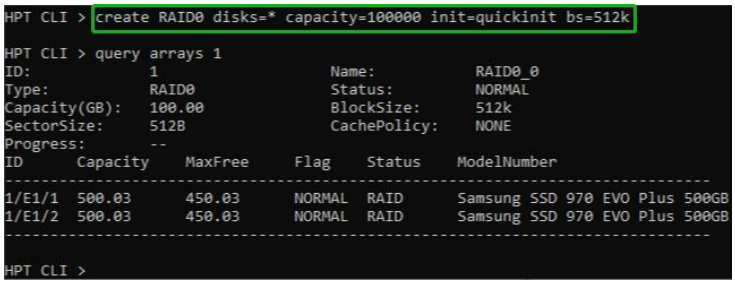
sector= specifies the logical sector size, in B/KB, for the target array. This option is only valid for stripped RAID levels. The default is 512 Bytes.

Example:

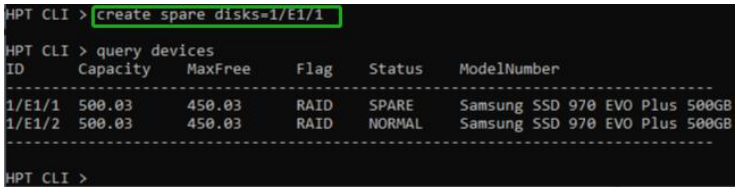
```
HPT CLI > create RAID0 disks=* capacity=* init=quickinit bs=512k

HPT CLI > query arrays 1
ID:             1               Name:           RAID0_0
Type:           RAID0           Status:         NORMAL
Capacity(GB):   4096.33         BlockSize:      512k
SectorSize:     512B            CachePolicy:    NONE
Progress:       --
ID      Capacity    MaxFree     Flag    Status    ModelNumber
------------------------------------------------------------------------------
1/E1/1  512.04      0           NORMAL  RAID      Samsung SSD 970 PRO 512GB
1/E1/2  512.04      0           NORMAL  RAID      Samsung SSD 970 PRO 512GB
1/E1/3  512.04      0           NORMAL  RAID      Samsung SSD 970 PRO 512GB
1/E1/4  512.04      0           NORMAL  RAID      Samsung SSD 970 PRO 512GB
1/E2/1  1000.12     488.08      NORMAL  RAID      WDS100T3X0C-00SJG0
1/E2/2  1000.12     488.08      NORMAL  RAID      WDS100T3X0C-00SJG0
1/E2/3  1000.12     488.08      NORMAL  RAID      WDS100T3X0C-00SJG0
1/E2/4  1000.12     488.08      NORMAL  RAID      WDS100T3X0C-00SJG0
------------------------------------------------------------------------------
```

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, and Block Size is 512KB.



This command instructs the system to create a RAID0 array using the disks attached to controller 1 channels 1 and 2; the capacity is 100GB, and the Block Size is 512KB.



This command instructs the system to set the disk on controller 1 channel 1 as a spare disk.

Delete Command

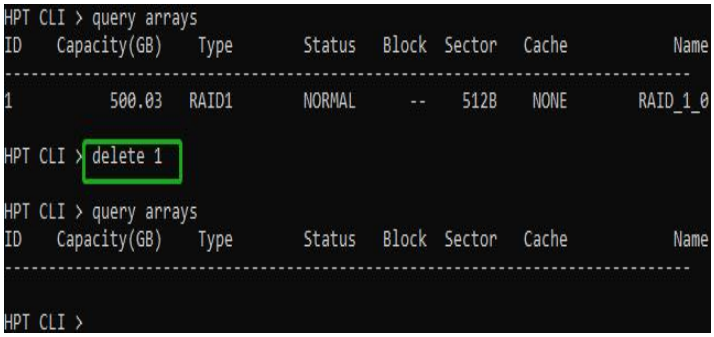
This command allows you to delete an existing RAID array or remove a spare disk. After deletion, the original array and all data on it will be lost. All the member disks will be listed as available single disks.

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.*

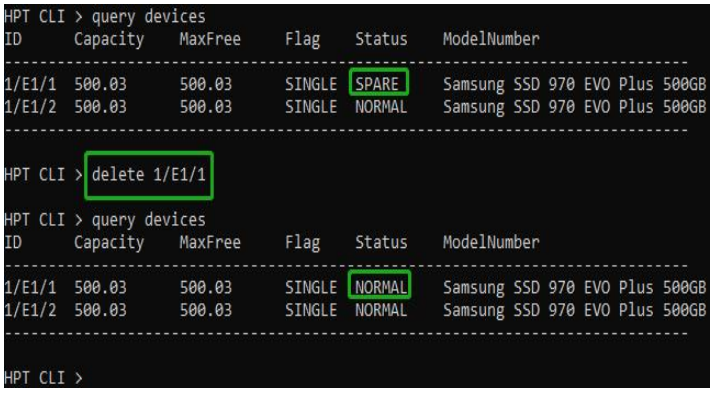
Syntax

delete {array_or_spare_ID}

Example:



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



This command removes the spare disk on controller 1 channel 1.

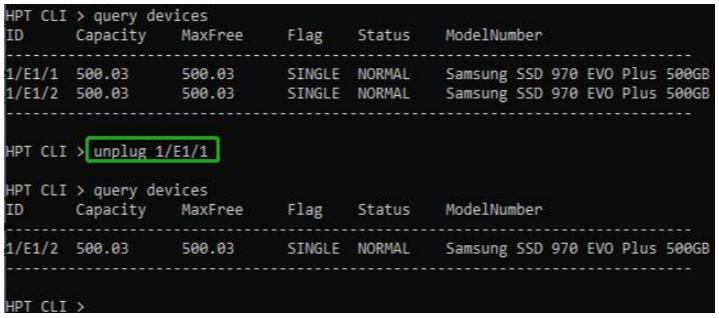
Unplug Command

To ensure data security, if you want to unplug an NVMe SSD or RAID array while the system is operating, click unplug first and then unplug the NVMe SSDs (this feature is only supported by the SSD7580B and SSD7580C).

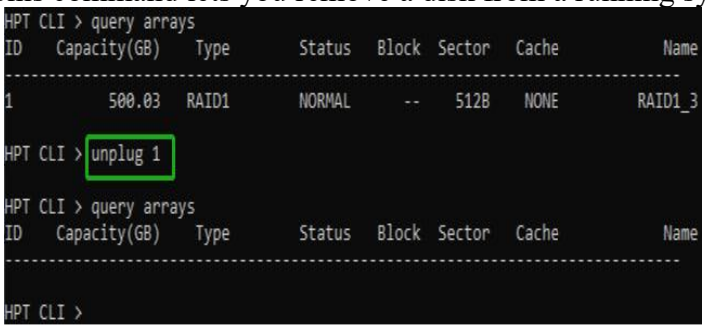
Syntax

unplug {array _id or device _id}

Example:



This command lets you remove a disk from a running system without shutting down.



This command instructs the controller to disconnect the array “1”; you can then disconnect the drives safely.

Rebuild Commands

You can use rebuild commands to rebuild a RAID1 array when it is critical or broken.

Syntax

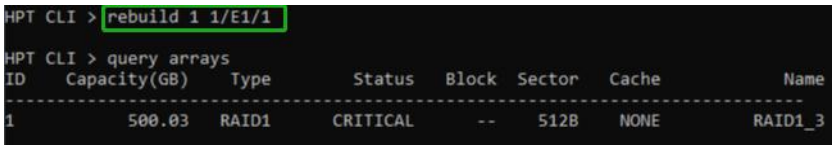
rebuild {array_id} {device_id}
rebuild {array_id} {start|stop}

rebuild {array_id} {device_id}

This command allows you to add the specified disk to a broken array and rebuild it.

Example:

HPT CLI> **rebuild 1 1/E1/1**



This command instructs the controller to add the disk “1/E1/1” to rebuild the array “1”. Before the rebuild command, you can use the query commands first to verify the device ID and the array ID information.

rebuild {array_id} {start|stop}

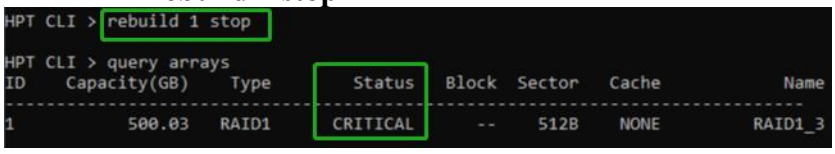
This command allows you to start or stop the rebuilding process on the specified array. After you stop a rebuilding process, you can resume it later with the rebuild start command.

Example:

HPT CLI> **rebuild 1 start**

This command starts the rebuilding process on the array “1”.

HPT CLI> **rebuild 1 stop**



This command stops the rebuilding process on the array “1”.

Verify Command

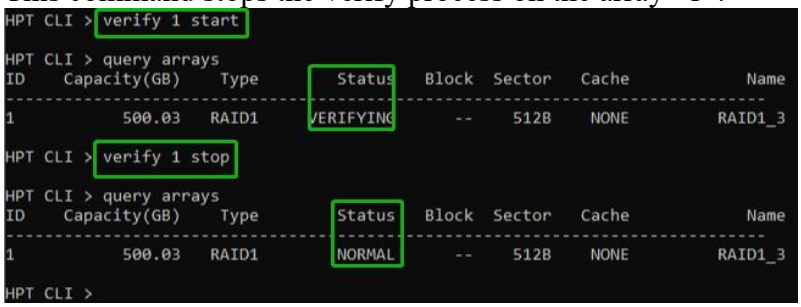
Syntax

verify {array_id} {start|stop}
This command starts or stops the verify process on the specified array.

Example:

HPT CLI> verify 1 start
This command starts to verify the array “1”.

HPT CLI> verify 1 stop
This command stops the verify process on the array “1”.



Rescan Command

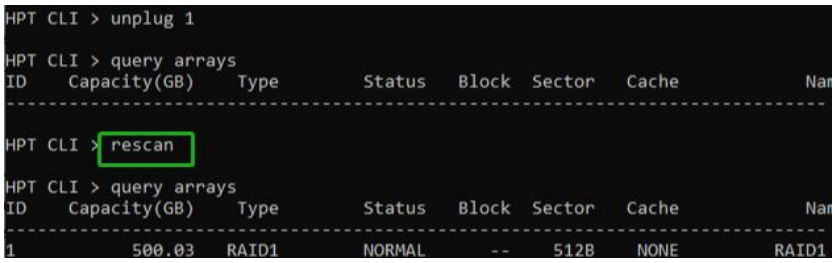
This command will rescan all physical devices attached to the RAID controller.

Syntax

rescan

Example:

HPT CLI> rescan



Lscard Command

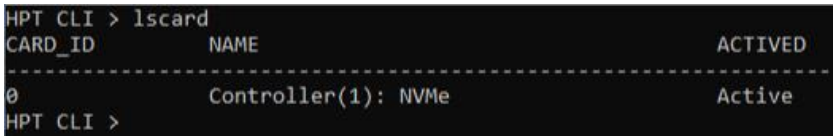
The lscard command is used to list multiple RAID controllers.

Syntax

lscard

Example:

HPT CLI> lscard



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

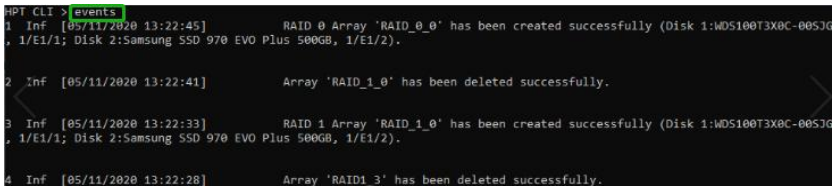
events | events clear | events save {file_name}

events

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

Example:

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

```
HPT CLI > events save C:/raidlog.txt
The event log C:/raidlog.txt has been saved.
```

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 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:

HPT CLI> mail recipient

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

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 hpt yzhang@highpoint-tech.com Inf War Err

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

This command will set up 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 hpt

```
HPT CLI > mail recipient delete hpt

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

```
HPT CLI > mail server
ServerAddress       Port   ssl  Status   Mail From          User Name
-------------------------------------------------------------------------
secure.emailsrvr.com465    1    Enabled  yzhang@highpoint-tech.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

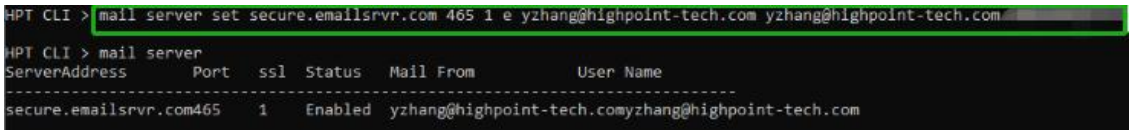
{from_address} – mail from address

{username} –mail username

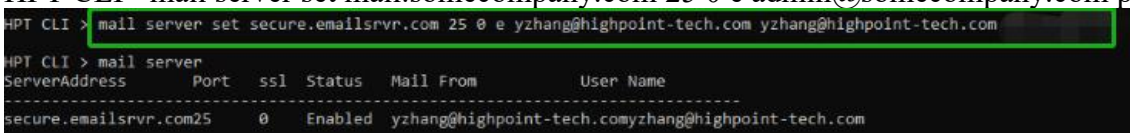
{password} – the user’s password

Example:

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 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

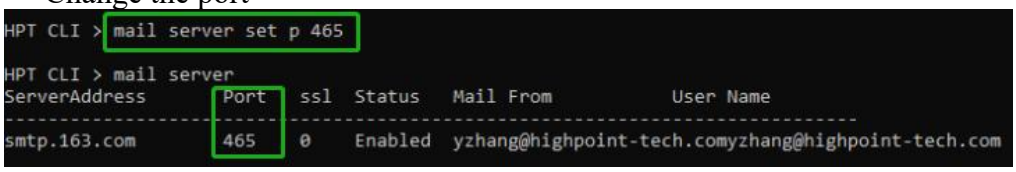
u – username

t – user’s password

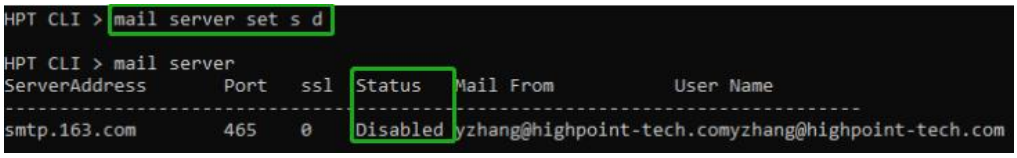
Example:

HPT CLI> mail server set a smtp.somecompany.com
--- Change the server address

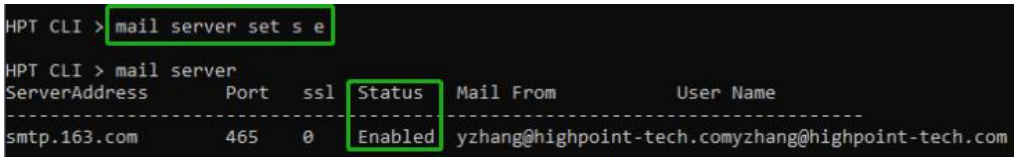
HPT CLI> mail server set p 465
--- Change the port



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. You can add new tasks and modify or delete existing tasks if you have the appropriate privileges.

Syntax

task

task rebuild {array_id} {name=} {once|daily|monthly|weekly}={day} interval={interval} start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss

task verify {array_id} {name=} {once|daily|monthly|weekly}={day interval={interval} start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss

task delete {task_id}

task enable {task_id}

task disable {task_id}

task

This command displays detailed information about all scheduled tasks.

Example:

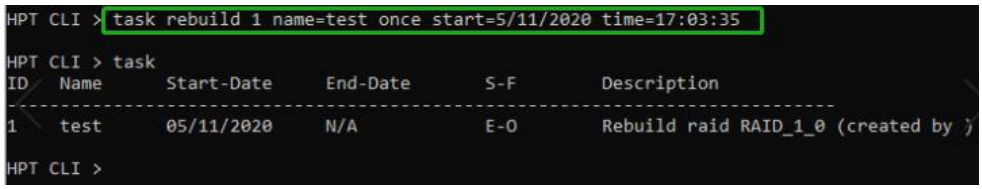
HPT CLI> task
This command displays the current background tasks.

task rebuild {array_id}{name=}{once|daily|weekly|monthly={day} interval={interval} start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss

This command allows you to schedule the frequency as once, daily, weekly, or monthly, and the detailed time range to rebuild a specified array. The first mm/dd/yyyy specifies the task start date, while the second mm/dd/yyyy specifies the task end date.
Note:
When you add a task to rebuild a selected array once, the parameter {day} should be omitted.

Example:

HPT CLI> task rebuild 1 name=test once start=5/11/2020 time=17:03:35



This command adds a task schedule named test to rebuild the array “1” at 17:03:35 on 5/11/2020. The rebuild frequency is set to once.

HPT CLI> task rebuild 4 name=myraid4 daily=2 start=2/8/2020 end=2/22/2020 time=13:49:58
This command adds a task schedule named myraid4 to rebuild the array ”4” at 13:49:58 every 2 days from 2/8/2005 to 2/22/2020.

HPT CLI> task rebuild 3 name=myraid3 weekly=2 interval=3 start=2/8/2020 end=2/22/2020 time=13:49:58
This command adds a task schedule named myraid3 to rebuild the array ”3” at 13:49:58 on Monday (the 2nd day a week) every 3 weeks from 2/8/2020 to 2/22/2020.

HPT CLI> task rebuild 2 name=myraid2 monthly=3 interval=4 start=2/8/2020 end=2/8/2020 time=12:30:33
This command adds a task schedule named myraid3 to rebuild the array ”2” at 12:30:33 on the 3rd day of a month every 4 months from 2/8/2020 to 2/8/2020.

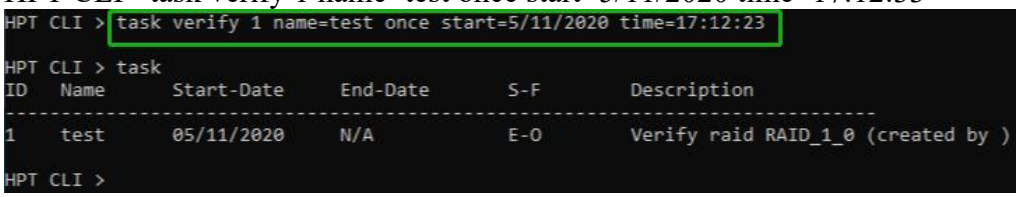
task verify

{array_id} {name=} {once|daily|weekly|monthly}={day} interval={interval} start=mm/dd/yyyy end=mm/dd/yyyy time=hh:mm:ss

This command allows you to schedule a verification task. The usage of this command is the same as adding a rebuild task schedule.

Example:

HPT CLI> task verify 1 name=test once start=5/11/2020 time=17:12:33

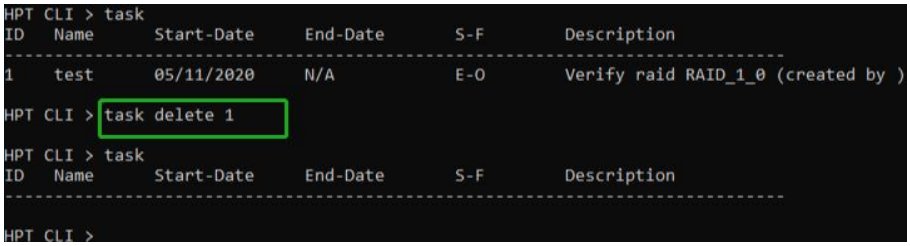


task delete {task_id}

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

Example:

HPT CLI> task delete 1



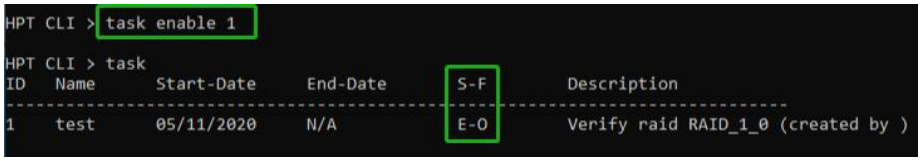
This command will delete the task ”1”.

task enable {task_id}

This command will enable a disabled task.

Example:

HPT CLI> task enable 1



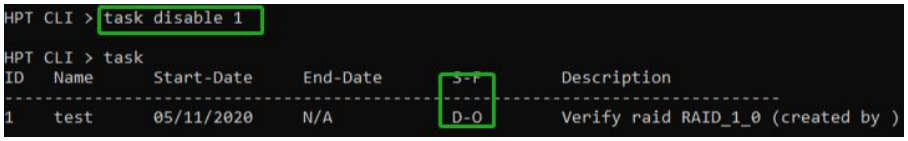
This command will enable the disabled task ”1”.

task disable {task_id}

This command will disable a scheduled task manually.

Example:

HPT CLI> task disable 1



This command will disable the scheduled task"1".

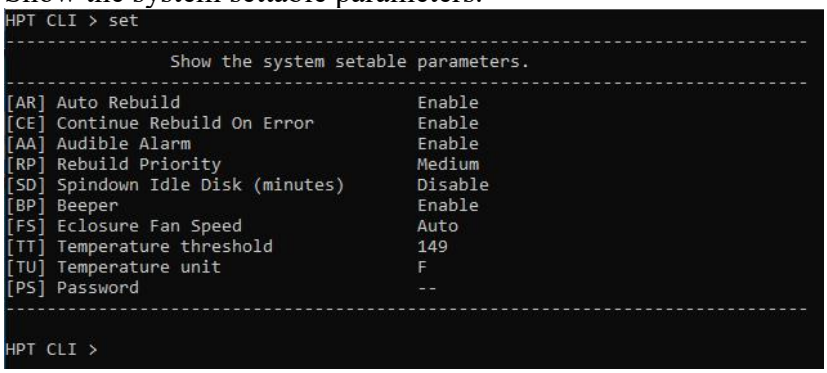
Set Commands

Syntax

set | set [name]={value}

set

Show the system settable parameters.



- **set AR={y|n}**

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

  Example:
  HPT CLI> set AR=y

- **set CE={y|n}**

  Set enable or disable to the [Continue Rebuilding On Error] parameter.

  Example:
  HPT CLI> set CE=y

- **set AA={y|n}**

  Enable or Disable the [Audible Alarm] parameter.

  Example:
  HPT CLI> set AA=y

- **set RP={0-100}**
  Change rebuilding priority. This command will set the global rebuilding priority if a controller is not specified.

  Note:

  [0-12] Lowest
  [13-37] Low
  [38-67] Medium
  [68-87] High
  [>88] Highest

  Example:
  HPT CLI> set RP=50

- **set SD={minutes}**

  Set value of [Spindown Idle Disk]
  [1-10] 10
  [11-20] 20
  [21-30] 30
  [31-60] 60
  [61-120] 120
  [121-180] 180
  [181-240] 240
  Example:
  HPT CLI> set SD=10

- **set BP={y|n}**

  Set enable or disable beeper.

  Example:
  HPT CLI> set BP=y

- **set FS={Auto|Off|Low|Medium|High}**

  Change Enclosure Fan Speed.

Example:
HPT CLI> set FS=Medium

- **set TT={value}, default=149F**

  Set temperature threshold.

  Example:
  HPT CLI> set TT=135

- **set TU={C|F}**

  Set temperature unit to Celsius equals or Fahrenheit equals.

  Example:
  HPT CLI> set TU=C

- **set PS**

  Set or change your password and confirm it.

  Example:
  HPT CLI> set PS

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

Diag Command

This command allows you to collect the diagnostic information.
Note: *This function is only supported by Linux & Windows.*

Example:
Linux: HPT CLI> diag

```
HPT CLI>diag

The diagnostic information has been saved in /usr/share/hpt/HighPoint_2021.04.07.
tar.gz
HPT CLI>
```

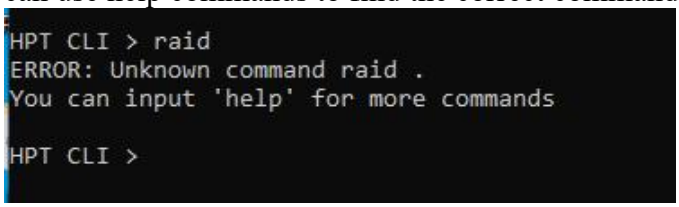
Windows: HPT CLI> diag

```
HPT CLI > diag
The diagnostic information will be saved in C:\Program Files (x86)\HighPoint Technologies, Inc\HighPoint RAID Management
\Service\webguiroot\HighPoint_rsnvme_1.3.19.0_2021.11.10_16.06.zip.It may take a few minutes to be ready.
```

The saving path will be displayed after entering this command.

Help Commands

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



Syntax

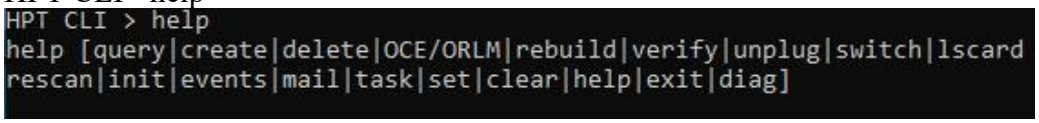
help | help {command}

help

Show generic help about this utility.

Example:

HPT CLI> help



help {command}

Show help about a specific command.

Example:

HPT CLI> help create

Exit Command

Syntax

exit

Exit from the interactive mode and close the window.

Clear Commands

Syntax

clear/cls/clr
This command is used to clear the screen.

Troubleshooting

Debugging an Abnormal RAID status.

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

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.
	Verifying The array is currently running a disk integrity check.
	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 two types of initialization are Foreground and Background. (See Initialization)
	Uninitialized The array initialization process has been interrupted, and the process is incomplete.
	Not Initialized The disk is not initialized yet and needs to be initialized before use.
	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, either foreground or background initialization.
	Initialization Stopped The initialization has been stopped. The current status is uninitialized.
	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 the user needs to reinsert the disk or add a new disk.
	Rebuilding The array is currently rebuilding.

	Verifying The array is performing a data consistency check. Array status will show ‘verifying’.
	Disabled The array does not have enough disks to maintain the RAID level. A disabled array is not accessible.

Table 2. RAID Level Reference Guide

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

HighPoint Recommended List of NVMe SSDs and Motherboards

HighPoint maintains a list of NVMe SSDs and motherboards suitable for use with NVMe products. The documents are routinely updated and are available for download from the product category webpages.

Contacting Technical Support

FAQs, technical articles, and troubleshooting 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 Support Service.