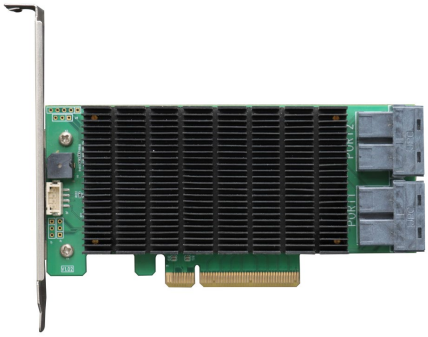
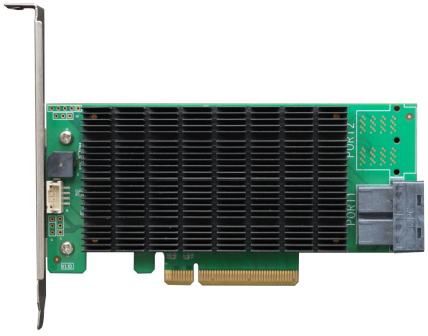
Rocket 700L Series
SAS 12Gb/s PCI-Express 3.0 x8 Controller



Rocket 720L



Rocket 710L

V1.00-Sept, 28,2023

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Notice

Reasonable effort has been made to ensure that the information in this manual is accurate. HighPoint assumes no liability for technical inaccuracies, typographical, or other errors containedherein.

FCC Part 15 Class B Radio Frequency Interference statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user’s authority to operate the equipment under FCC rules.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union Compliance Statement

This Information Technologies Equipment has been tested and found to comply with the followingEuropean directives:

- European Standard EN55022 (1998) Class B
- European Standard EN55024 (1998)

Table of Contents

1. HighPoint Rocket 700L Overview

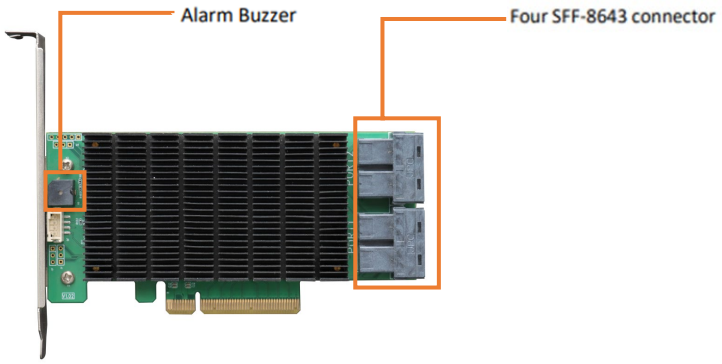
HighPoint 12G SAS Connectivity HBAs are the industry's most cost-effective SAS/SATA storage solutions. The compact half-height PCIe 3.0 x8 HBAs can be easily integrated into any industry standard PCIe Gen3 or Gen4 platform, and are available with 8 or 16 dedicated device channels.

1.1. Rocket 700L Technical Specifications

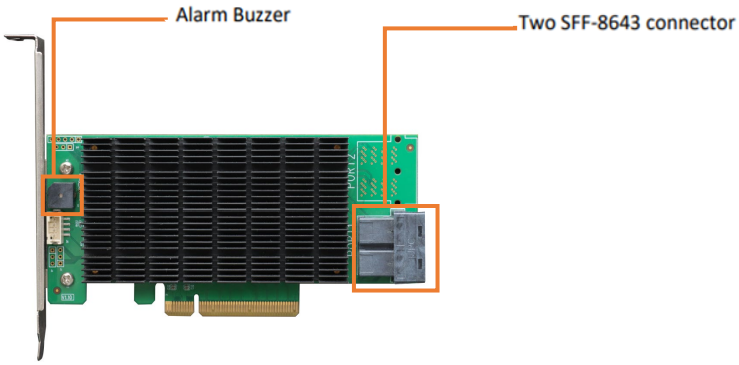
Hardware Feature	
Bus Interface	8-lane, 8 GT/s PCI Express 3.0 Compliant
Number of Channel/ Port	Rocket 720L (R720L): 16x 12Gb/s SAS / 6Gb/s SATA Channels Rocket 710L (R710L): 8x 12Gb/s SAS / 6Gb/s SATA Channels
Number of Devices	16x SAS/SATA Hard Drive/ SSD
Bus Type	PCIe 3.0 x8
Form Factor	Low Profile
Dimensions	5.51"W * 2.48"H * 0.67"D
Weight	0.66 lbs
Warranty	2 Years
HBA Mode	Single disk
Operating System	Windows 11,10 Windows Server 2022, 2019, 2016 Microsoft Hyper-V Linux (Support Linux Driver auto Compile) Redhat/ Ubuntu/ Debian/ Fedora/ Proxmox/ Rocky Linux (Kernel 3.10 and later) (Only supports 64bit operating system) (Linux Driver can be installed via internet/network connection)
System Requirements	PC Systems or Motherboard with an industry standard PCIe x8 or x16 physical slot.
Advanced HBA Features	
Storage Health Inspector	
Storage Configurations Support Details (DAS)	
Drive hot plug support	

Disk Format compatible: 512, 512e, 4Kn	
Larger than 2 TB Drive support	
Spin down Idle Disks support	
Native Command Queuing	
SAS TCQ	
Disk media scan and repair	
Staggered Drive Spin Up	
SSD TRIM Mode (Supported by Linux)	
Management Suite	
WebGUI (Browser-Based management tool)	
CLI (Command Line Interface- scriptable configuration tool)	
API package	
Enclosure Management Interface: SGPIO (Drive LEDs supported: SGPIO)	
SMTP Email Alert Notification	
Alarm Buzzer	
Operating Environment	
Operating Temperature	Work Temp: +5°C ~ + 55°C Storage Temp: −20°C ~ + 80°C
Operating Voltage	PCI-e: 12 V / 3.3 V, Power: 14W
MTBF (Mean Time Before Failure)	920,585 Hours
Compliance Certification	
CE FCC RoHS REACH WEEE	

2. Board Layout



R720L



R710L

SFF-8643 connector

Each SFF-8643 connector supports 4 disks. Connect the hard disks or disk backplane to the controller using the appropriate data cables.

Alarm Buzzer

An audible alarm will sound if a disk failed status occurs.

3. What's in the Box

Make sure the following items are included in your purchase:

- 1x R700L controller card
- 1x Low Profile Bracket
- 1x Quick Installation Guide

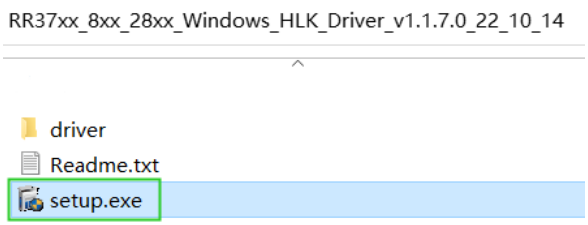
4. Using the Rocket 700L

4.1. Driver and Management Software Installation

4.1.1 Driver and Management Software Installation (Windows)

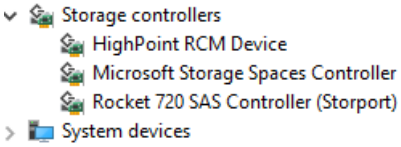
1. Download the Windows Driver and Management Software from the product download page.
2. Install the R700L on the motherboard and boot to the Windows operating system.
3. Windows should automatically detect the card as a new "**RAID Controller**" under **Device Manager**.

4. Extract the Windows driver package and double-click **Setup.exe** in the driver folder to install the Windows driver.

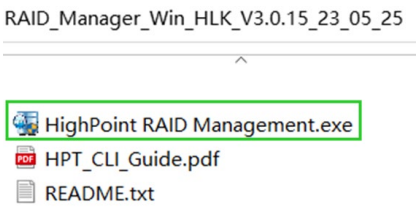


Note: *Picture is for reference only.*

5. Reboot the system so that the Windows driver is fully loaded and the R700L can be used.



6. Extract the Management Software package and double click **High Point RAID Management.exe** to install the Management Software.



Note: *Pictures is for reference only.*

4.1.2 Driver and Management Software Installation (Linux)

1. Power on the system and boot the Linux distribution.
2. Download and prepare the Driver and Management Software from the product download page.
3. Open a system terminal with root privileges.
4. Browse to the directory where the driver download is located, and enter the following commands to extract the Linux Opensource Driver software package.
   #tar zxvf RR37xx_8xx_28xx_Linux_X86_64_Src_ vx.x.xx_xx_xx_xx.tar.gz

```
root@test-Super-Server:/home/test/Downloads# tar zxvf RR37xx_8xx_28xx_Linux_X86_64_Src_v1.23.13_23_01_16.tar.gz
rr37xx_8xx_28xx_linux_x86_64_src_v1.23.13_23_01_16.bin
README
```

5. Install the Opensource Driver using the following command.
   #sh rr37xx_8xx_28xx_linux_x86_64_src_vx.x.xx_xx_xx_xx.bin or
   #./rr37xx_8xx_28xx_linux_x86_64_src_vx.x.xx_xx_xx_xx.bin

```
root@test-Super-Server:/home/test/Downloads# ./rr37xx_8xx_28xx_linux_x86_64_src_v1.23.13_23_01_16.bin
Verifying archive integrity... All good.
Uncompressing RR3740A/840A Linux Open Source package installer.....................................................
Checking and installing required toolchain and utility ...
Found program make (/usr/bin/make)
Found program gcc (/usr/bin/gcc)
Found program perl (/usr/bin/perl)
Found program wget (/usr/bin/wget)
Synchronizing state of hptdrv-monitor.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable hptdrv-monitor
update-rc.d: warning: enable action will have no effect on runlevel 1

SUCCESS: Driver rr3740a is installed successfully for kernel 6.2.0-26-generic.
Please restart the system for the driver to take effect.
If you want to uninstall the driver from the computer, please run hptuninrr3740a to uninstall the driver files.
```

   Note: *The driver revision shown in the screenshots may not correspond with current software releases. Please make sure to download the latest driver from the product's Software Download page.*

6. Enter the following commands to extract the Management software package.
   #tar zxvf RAID_Manage_Linux_v3.x.x.x_x_x_x.tgz

```
root@test-Super-Server:/home/test/Downloads# tar zxvf RAID_Manage_Linux_v3.1.13_22_12_05.tgz
HPT_CLI_Guide.pdf
README.txt
RAID_Manage_Linux_v3.1.13_22_12_05.bin
```

7. Install the HighPoint Management software (WebGUI & CLI) using the following command:
   #./RAID_Manage_Linux_v3.x.x_x_x_x.bin

```
root@test-Super-Server:/home/test/Downloads# ./RAID_Manage_Linux_v3.1.13_22_12_05.bin
Remove old hpt_install.log.
--------------------------------------------------------------------------------
Install ......
Package readline lib is already installed!
readline/hptsvr_3.1.13_amd64.deb will be installed!
Selecting previously unselected package hptsvr.
(Reading database ... 166268 files and directories currently installed.)
Preparing to unpack .../hptsvr_3.1.13_amd64.deb ...
Unpacking hptsvr (3.1.13) ...
Setting up hptsvr (3.1.13) ...
```

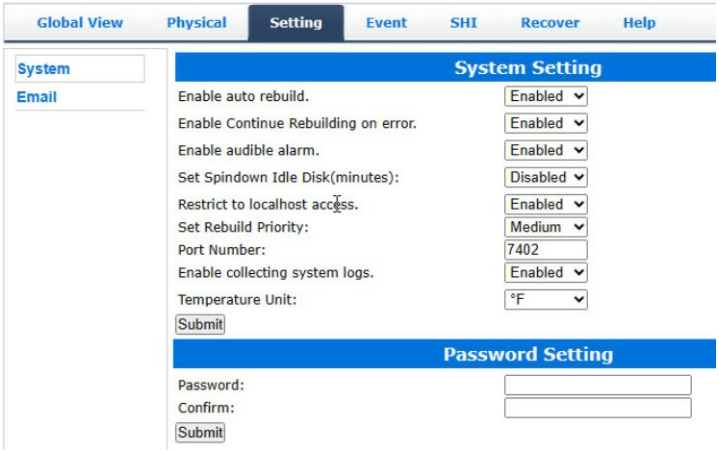
4.2. Using the HighPoint WebGUI

The Web-based Management Interface **(WebGUI)**, is a simple, and intuitive web-based management tool available for Windows /Linux operating systems. 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.

4.2.1 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.

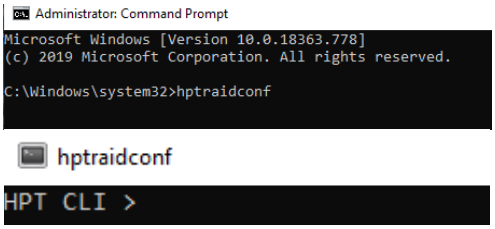
The password can be set after the first log-in. To change the password, select **Setting>Password Setting** from the menu bar.



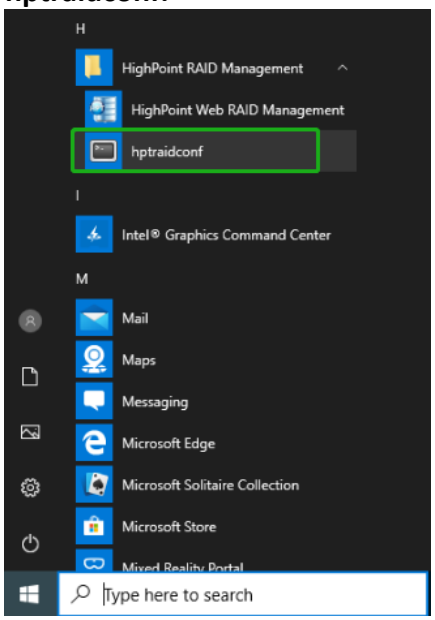
4.2.2 How to login CLI in Windows

There are two methods to login CLI in Windows.

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

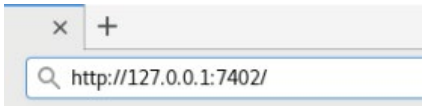


Method2： Click "**Start**" to find the **HighPoint RAID Management** folder, and click on **hptraidconf.**

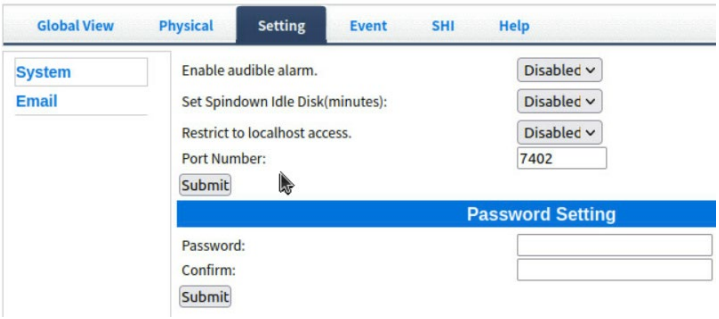


4.2.3 How to login WebGUI in Linux

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

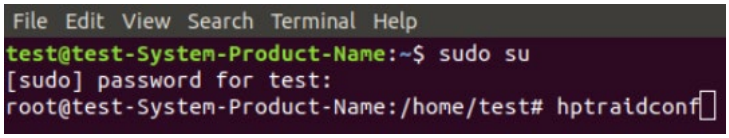


The password can be set after the first log-in. To change the password, select **Setting>Password Setting** from the menu bar.



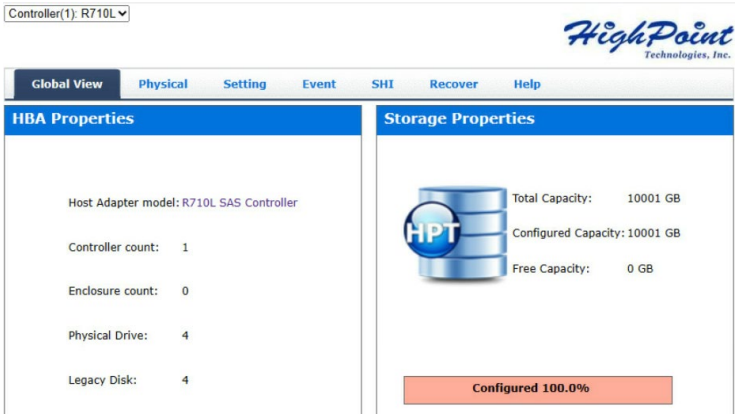
4.2.4 How to login CLI in Linux

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

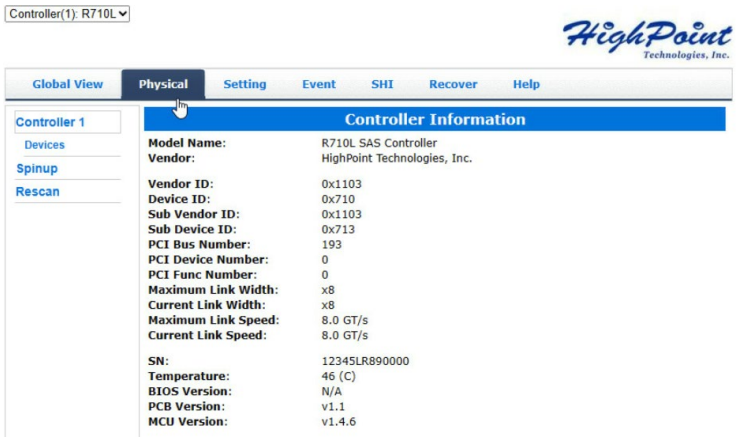


4.2.5 Verify the Controller Status

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.**

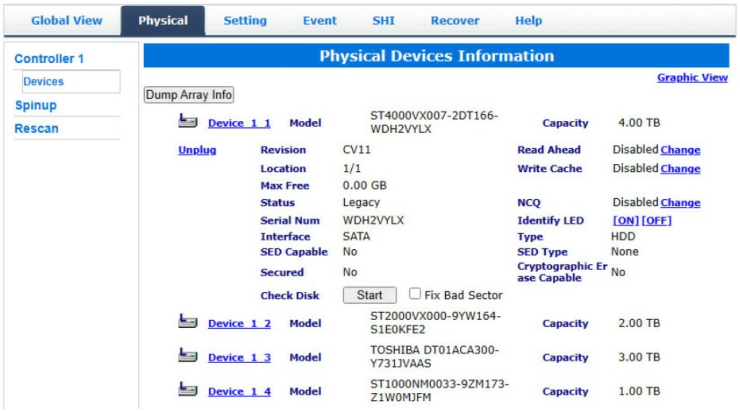


4.2.6 Physical Controller Information



- **Model Name**— model name of the device connected
- **Vendor** — the controller's owner
- **Maximum Link Width —** PCIe width occupied by the motherboard
- **Current Link Width —** PCIe width occupied by the current controller
- **Maximum Link Speed —** Maximum rate supported by the motherboard
- **Current Link Speed —** Rate of current bandwidth
- **SN —** Serial Number of the controller
- **Temperature** — Temperature of controller's sensor
- **PCB Version** — PCB version of the controller
- **MCU Version** — MCU version of the controller

4.2.7 Physical device Information



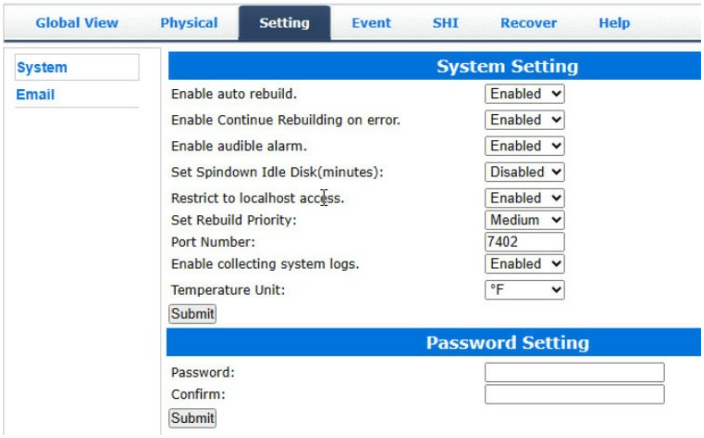
- **Location** — which controller and port the drive is located
- **Model** — model number of the drive connected
- **Capacity** — total capacity of the drive
- **MaxFree** — total capacity that is not configured
- **Status** — Current state of drive
- **Serial Num** — Serial number of the drive
- **Interface** — Current interface of drive
- **Identify LED** — Drive LEDs supported

Rescan

Clicking rescan will force the drivers to report the drive status. For any drive(s) you hot plug into the device, do not click rescan until all physical drives are detected and appear under Physical Device Information.

If any drives were added or removed, or if a drive is no longer responding, the status will change.

4.2.8 System Setting



Using this tab, you can change the following:

- Enable audible alarm
- Set Spindown Idle Disk(minutes)
- Restrict to localhost
- Change port number
- Change temperature unit
- Collect system logs
- Change HRM password

4.2.8.1 System Setting

Enable audible alarm (default: Enabled)

When the disk is dropped, the buzzer will beep. If this option is disable, you won't hear any sound.

Set Spindown Idle Disk(minutes) (default: Disabled)

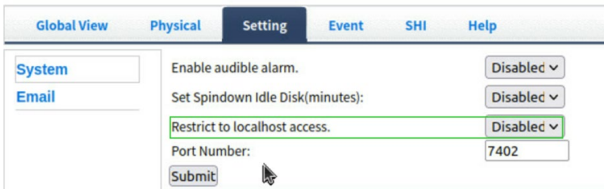
If this option is disabled, the disk attached to the R700L will not stop spinning. If you set the time limit, the diskwill stop rotating according to the specified time when the system is not reading or writing.

Restrict to localhost access (default: Enabled)

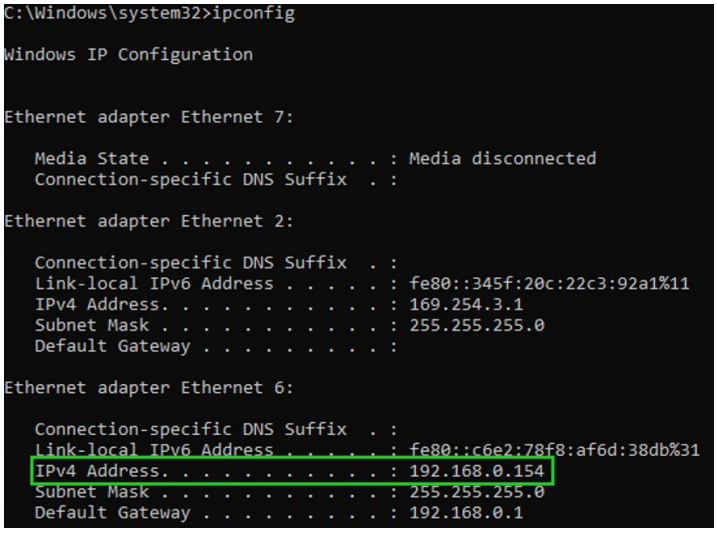
Remote access to the controller will be restricted when enabled; other users in your network will be unable to remotely log in to the HRM.

How to remote access to the controller

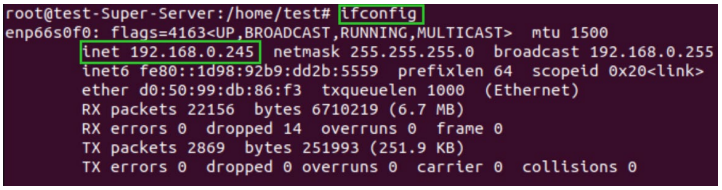
1. Set **Restrict to localhost access** to **Disabled**, click **Submit**, and reboot the system to take effect.



2. Ensure that the motherboard on which the controller is installed has a network and check the IP address.
   a. If you are using **Windows**, run "**Command Prompt**" as Administrator and enter **ipconfig** and press **Enter** to check the IP address**.**

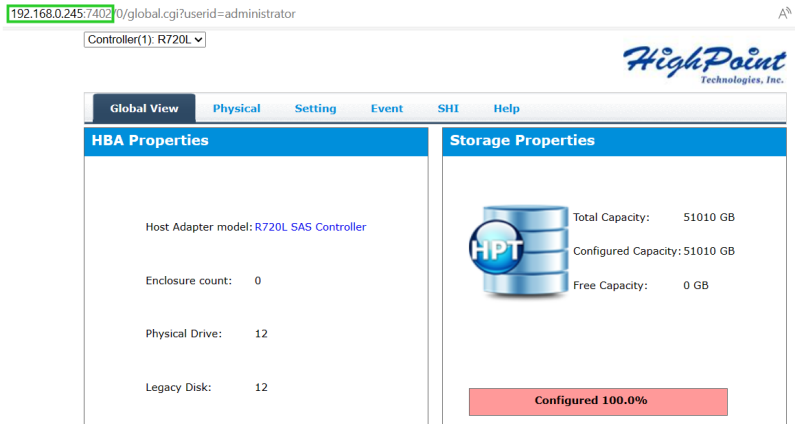


   b. If you are using Linux, open "**Terminal**" and enter root permissions, then execute the command "**ifconfig**" to check the IP address**.**



3. Enter **IP address:Port Number** (default: 7402) in the browser of the remote host, you can remote access to the controller.

   For example: 192.168.0.245:7402



Port Number (default: 7402)

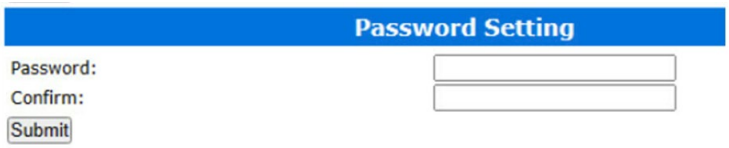
The default port that the HighPoint HRM listens on is 7402. You may change it to any open port.

Temperature Unit (default: °F)
You can switch the expression of temperature units between °C and °F temperature units.
Note: *Only Windows systems support this function.*

Enable collecting system logs (default: Disabled)
You can set it to enabled to collect driver logs at any time. The collected driver logs are stored on the **C:/Windows/hpt_diagdriver.log.** The maximum capacity of the collected system log is 400MB, and parts exceeding 400MB will be overwritten forward.
Note: *Only Windows systems support this function.*

4.2.8.2 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 you need to restart the computer and open the WebGUI to set a new password.

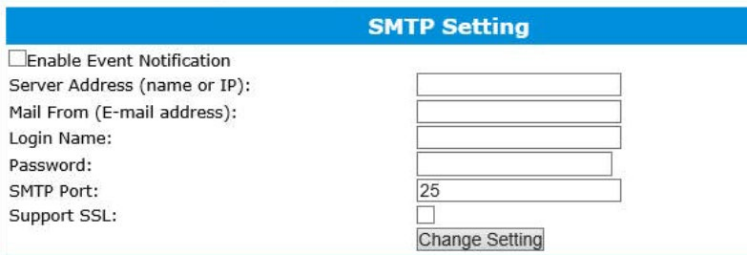
For **Windows** Users:

1. Open file explorer.
2. Navigate to **C:/Windows/.**
3. Delete **hptuser.dat.**
4. Reboot.

4.2.8.3 Email Setting

The following topics are covered under email:
SMTP Setting
Adding Recipients
You can instruct the controller to send an email out to the recipients of your choosing when certain events trigger (for more information, see Event Tab).

SMTP settings



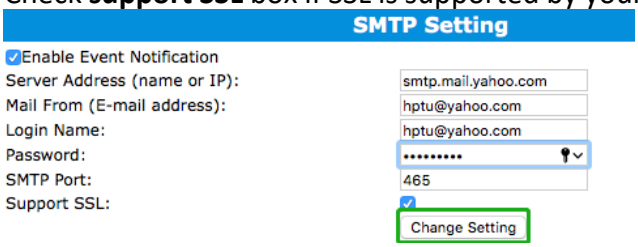
To set up email alerts:

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 **support SSL** box if SSL is supported by your ISP (port value will change to **465**).



***Note**: After you click **Change Setting,** the password box will become blank.*

Email Precautions

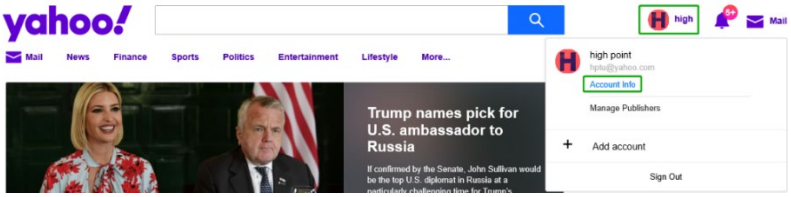
If you want to receive notification mail using a Webmail account, you may need to modify the mailbox's permissions. The following example is for a Yahoo and outlook webmail account.

Yahoo Setting:

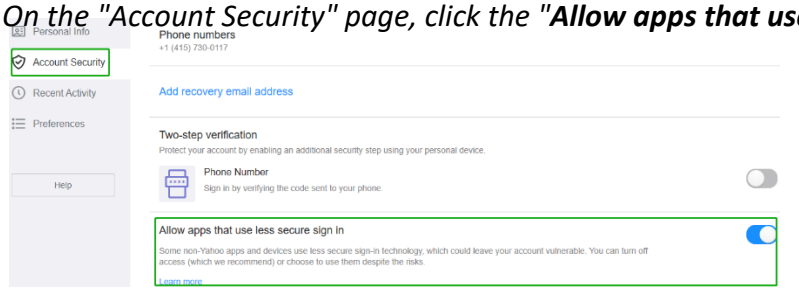
To change permission settings, please refer to the following link:
https://help.yahoo.com/kb/account/SLN27791.html?impressions=true

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 username.

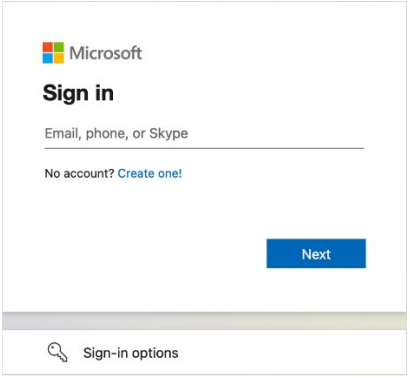


3. *Go to the "**Account Info**" page, click "**Account Security**".*
   *On the "Account Security" page, click the "**Allow apps that use less secure sign in**" button.*

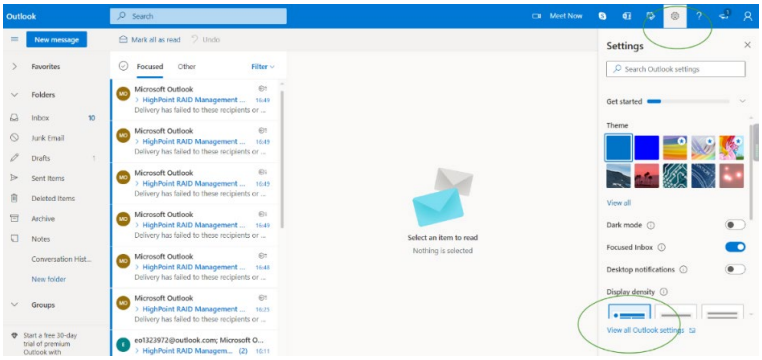


Outlook Setting:

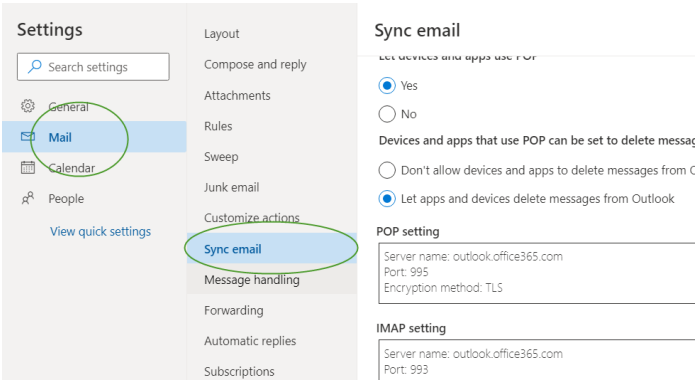
1. Sign in to mail and set it up, Login email address link: https://outlook.live.com/mail/inbox



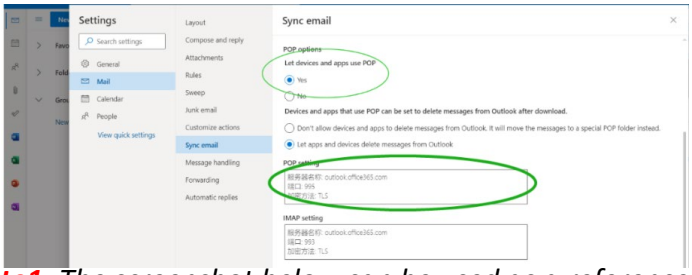
2. Click **Settings** in the upper right corner, select the lower left corner: **View all outlook settings**.



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.**



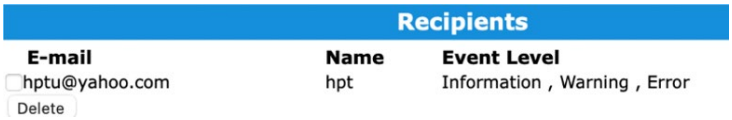
Note1: *The screenshot below can be used as a reference. The POP setting is the mailbox server.*

Note2: *If you are having trouble configuring notification 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. Check 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 the recipient list.
6. The added recipient will display in under Recipients.



4.2.9 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.

In the event tab, there are three options available:

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

4.2.10 SHI (Storage Health Inspector)

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

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

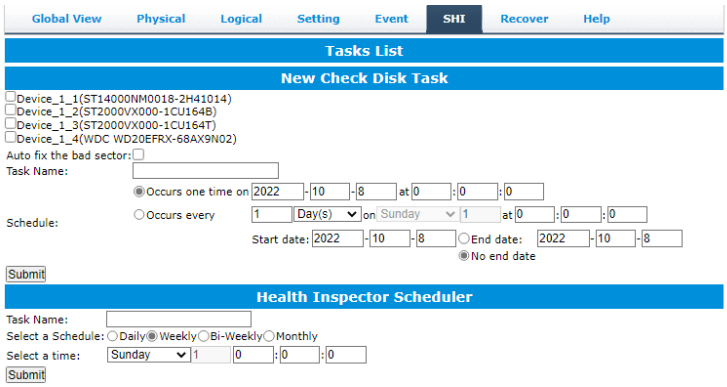
How to Enable SMART Monitoring

To access 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 disk temperature threshold is default set to 65°C (149°F). If the temperature exceeds 65°C (149°F), it will display "**Red**".*

How to Use the Health Inspector Scheduler



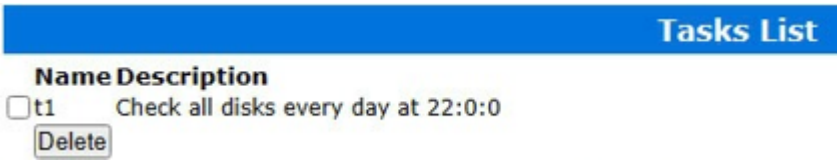
The **Health Inspector Scheduler** (**HIS**) enables you to schedule disk checkups to ensure disks arefunctioning optimally.

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 **22:00.**

2. After clicking "**Submit**", the task you created will be shown under the "**Task List**".



4.2.11 Help

- **Online Help**
- **Diagnostic**

Online Help redirects you to additional documentation concerning the HighPoint HRM.

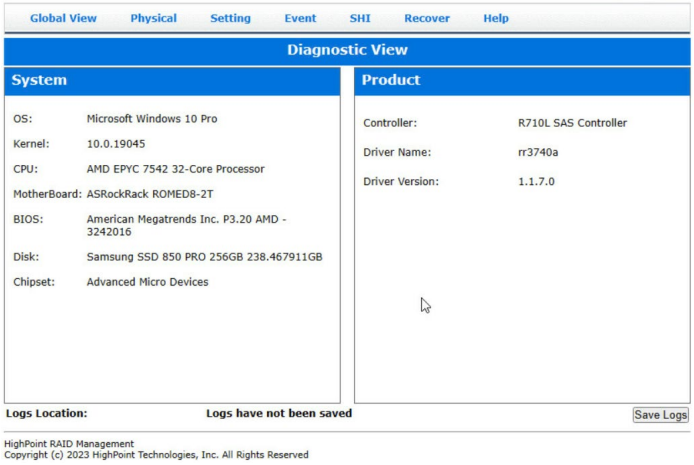
Diagnostic provides some basic information about the system and product.

4.2.11.1 Diagnostic

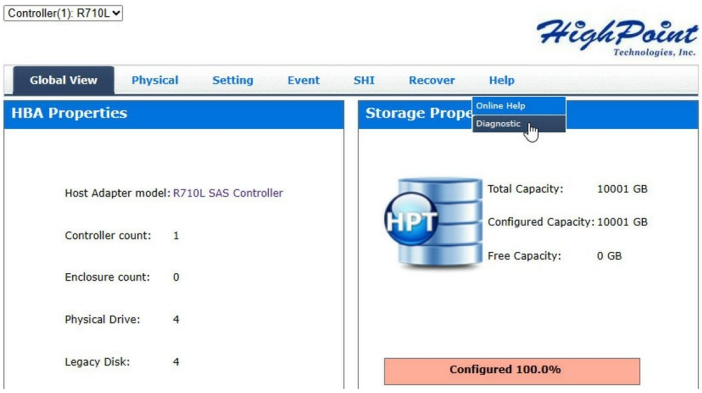
We have provided a detailed video on log collection methods: link .

For Example： Windows system

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

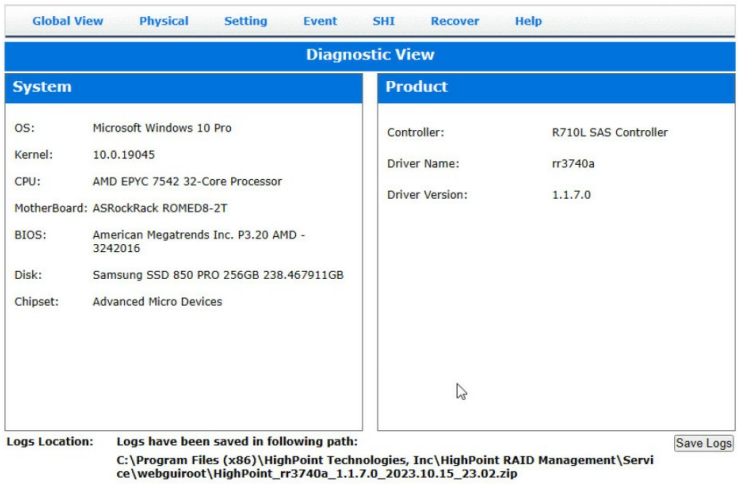


2. You can also click "**Help**"→"**Diagnostic**" to enter the diagnostic view.



4.2.11.2 How to collect Log information in WebGUI

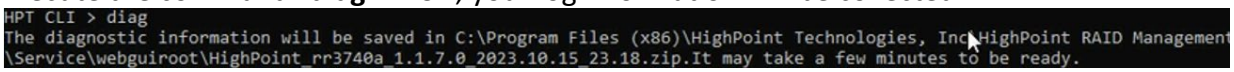
1. Enter the **Diagnostic** view.
2. Click "**Save Logs**", your log information will be collected. "**Logs Location**" will display the location of the saving path.



Note: *this process may take several minutes to complete.*

4.2.11.3 How to collect Log information in CLI

1. Execute the command "**hptraidconf**" to enter the CLI.
2. Execute the command "**diag**" in CLI, your log information will be collected.

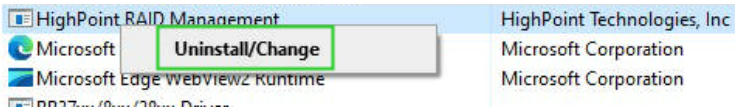


If you have problems in use, please submit the log to our online service (https://www.highpoint-tech.com/support-and-services).

4.3. Driver and Management Software Uninstallation

4.3.1 Driver and Management Software uninstallation (Windows)

1. Open the **Control Panel > Programs > Programs and Features**.
2. Select **RR37xx/8xx/28xx Driver and HighPoint RAID Management**, and **right click.**
3. Click **Uninstall/Change** to uninstall.



4.3.2 Driver and Management Software uninstallation (Linux)

1. Open a terminal and enter the root privilege.
2. Enter **hptuninrr3740a** to uninstall driver.

```
root@test-Super-Server:/home/test/Desktop# hptuninrr3740a
Are you sure to uninstall the driver rr3740a from system? (Y/n): y
All files installed have been deleted from the system.
```

3. Enter "**rpm -e hptsvr-https**" or "**dpkg -r hptsvr**" to uninstall the Management Software.

```
root@test-Super-Server:/home/test/Desktop# dpkg -r hptsvr
(Reading database ... 166423 files and directories currently installed.)
Removing hptsvr (3.1.13) ...
```

5. Customer Support

If you encounter any problems while utilizing the Rocket series HBA, or have any questions about this or anyother HighPoint Technologies, Inc. product, feel free to contact our Customer Support Department.

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

HighPoint Technologies, Inc. websites: https://www.highpoint-tech.com/