

6G SERIES RAID WEB GUI DETAILED MANUAL



Introduction

Sans Digital Web RAID Management Software (WebGUI) is used to monitor and configure your hard disks and RAID arrays attached to Sans Digital RocketRAID controllers.

The software package must be installed on system with supported Sans Digital RocketRAID controllers installed, and the device driver must be loaded to run the service. A web browser with XML support is required on the client side, e.g. Internet Explorer, Mozilla, FireFox or Google's Chrome.

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Chapter 1 Getting Started

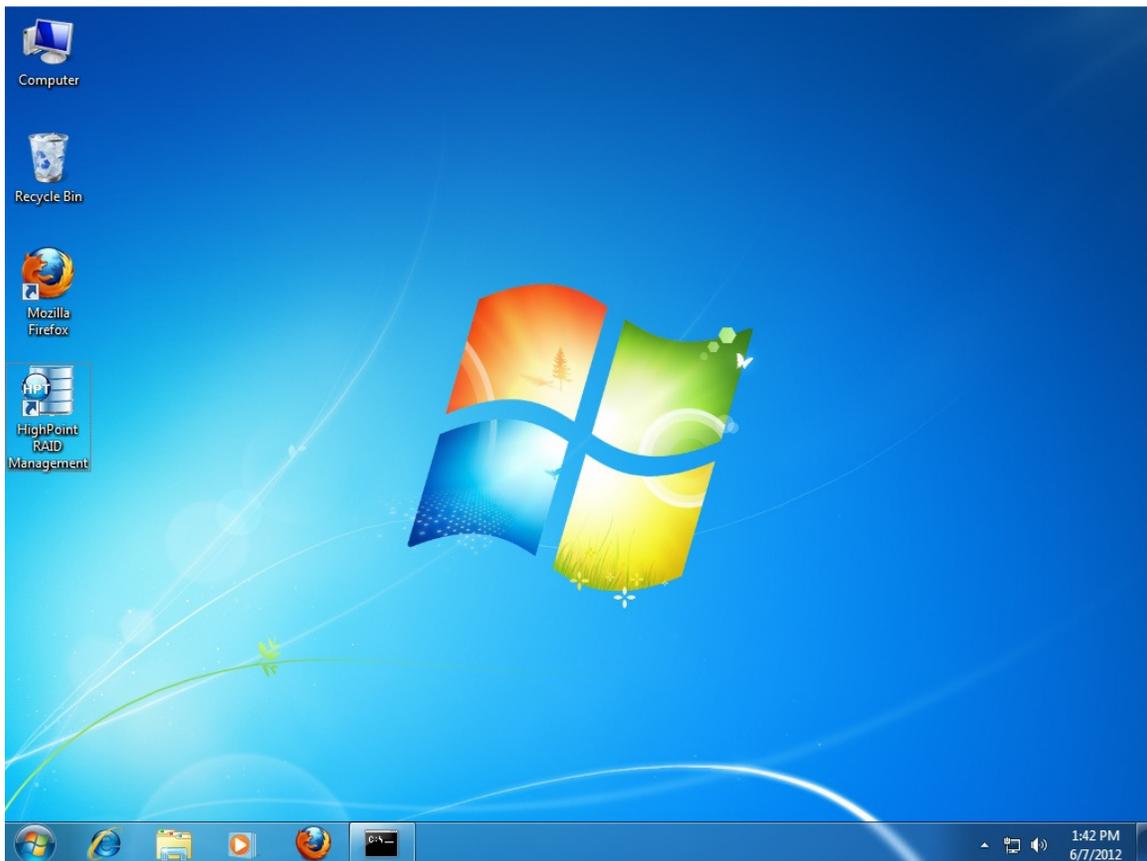
Uninstall the previous release before installing the latest web GUI software package by running "Sans Digital RAID Management_v2.1.exe".

Chapter 2 Running the Management Software

To run the Web GUI, start your browser and enter the following URL address or click on the shortcut icon on the desktop:

`http://localhost:7402`

Use the **short cut icon** that is created desktop during the web GUI installation to start the web GUI



If you are accessing Web GUI on a remote system please update the “localhost” to the server addressed. If you can't connect to local system, please check if hptsvr.exe is running on the system. If not, you can start it manually by running "net start hptsvr" under a Windows command prompt.

If you can't connect to a remote system, check if hptsvr is running on that system and you can access the remote system via TCP/IP connection. If you have firewall configured, make sure TCP port 7402 is not blocked.

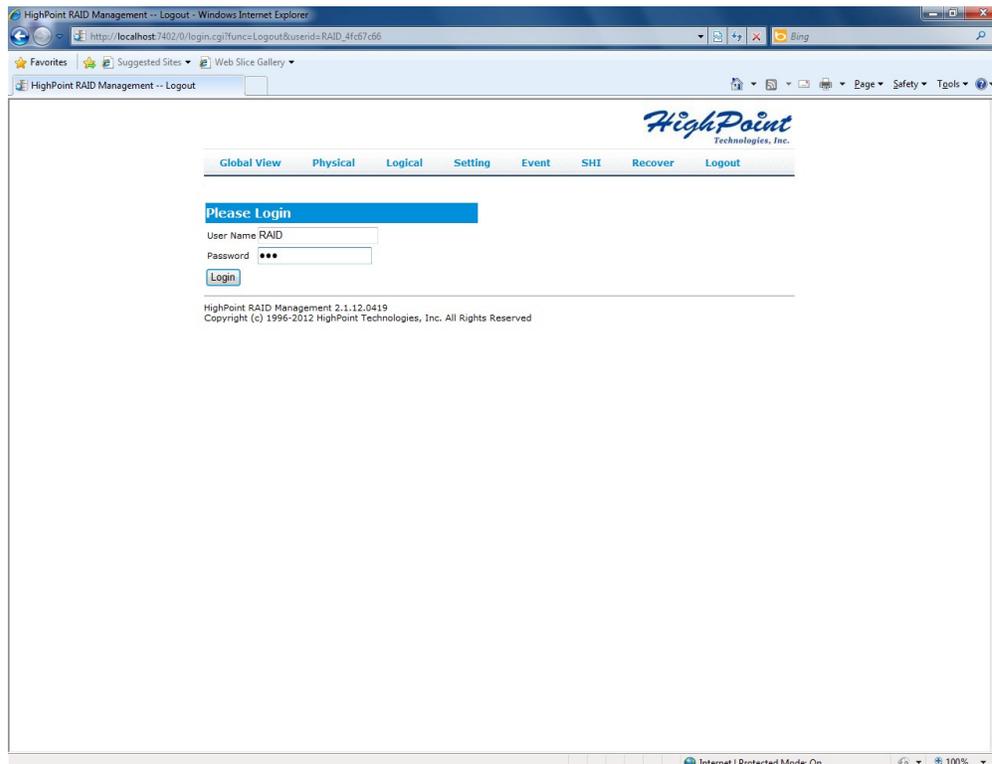
Chapter 3 Log into Web GUI

Enter default User Name and Password

User Name: RAID

Password: hpt

Note: You will have the option to change the password.



Chapter 4 Remote login

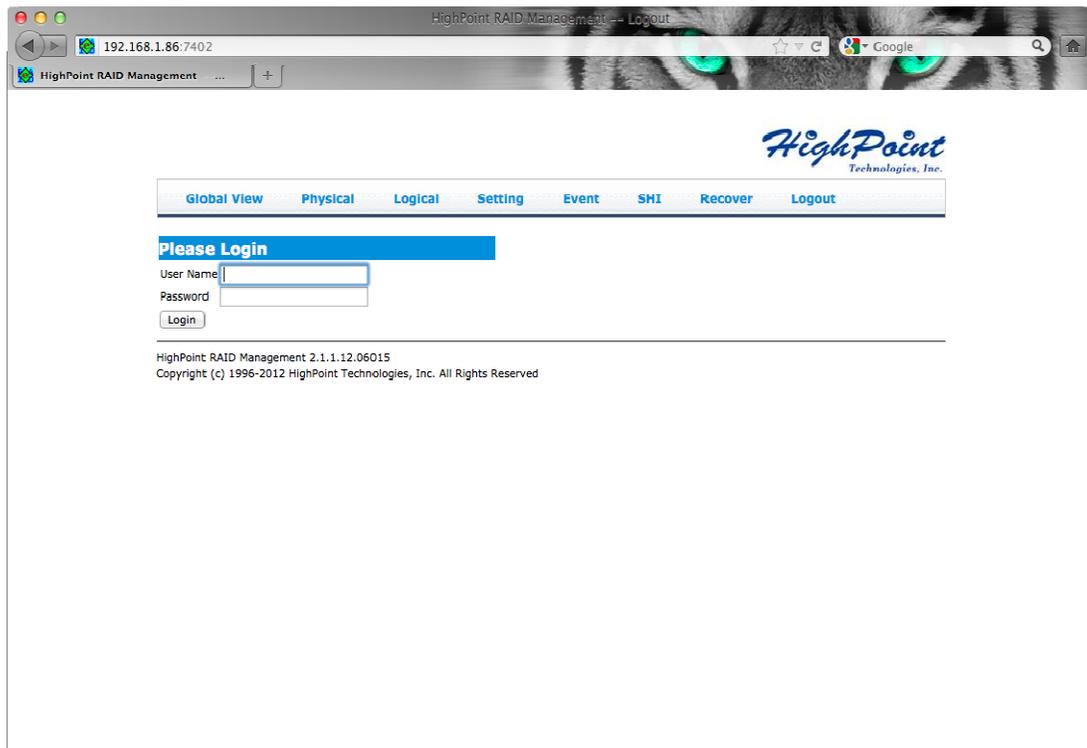
User connected to a local network can remotely access the web GUI through the IP address the machine is located on.

In a Windows machine user can get the IP address for their machine by opening a command prompt and typing in the command IP Config

In a Mac and Linux open a terminal and type in the command ifconfig

Once the IP address is obtained users can remotely access the machine by typing in the following address:

http://IP Address:7402



Chapter 5 WebGUI - Global View

Controller(0):	Drop menu to display the controller that is currently being managed,
Host Adapter Model:	Name of the RocketRAID series controller
Logical Drive:	Total number of Logical Drives created (single disk or RAID arrays)
Physical Drive:	Total physical drives detected by the RocketRAID controller
Total Capacity:	Total capacity of all detected HDD's
Configured Capacity:	Total GB of capacity configured for in Logical devices
Free Capacity:	Total GB of capacity that is free for use in creating a JBOD or RAID array

HighPoint RAID Management -- Global View - Windows Internet Explorer

http://localhost:7402/0/global.cgi?userid=RAID_4fc67c92

Controller(0): 272x_1x

HighPoint Technologies, Inc.

Global View Physical Logical Setting Event SHI Recover Logout

HBA Properties	Storage Properties
Host Adapter model: RocketRAID 272x_1x SAS Controller	Total Capacity: 9001 GB
Enclosure count: 0	Configured Capacity: 9001 GB
Logical Drive: 0	Free Capacity: 0 GB
Physical Drive: 3	

Configured 100.0%

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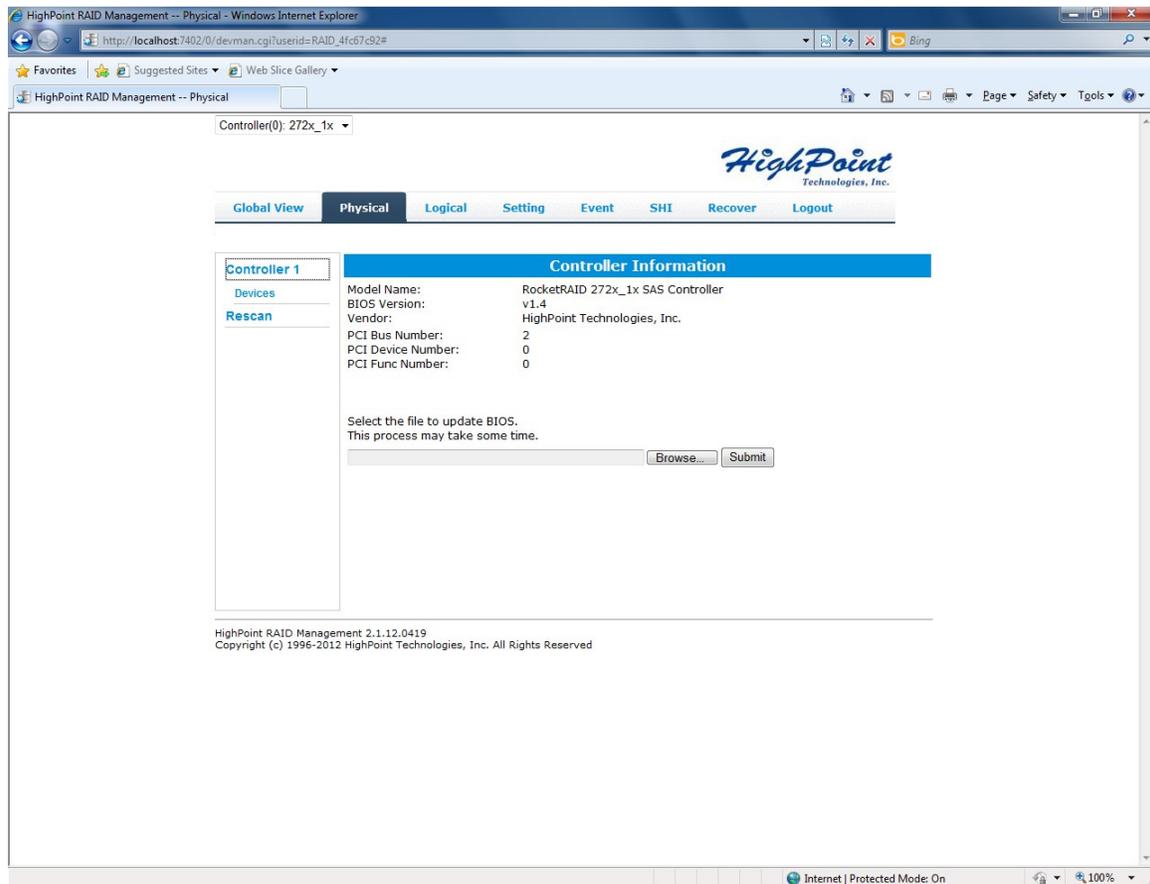
Internet | Protected Mode: On 100%

Chapter 6 WebGUI - Physical View

Controller Information

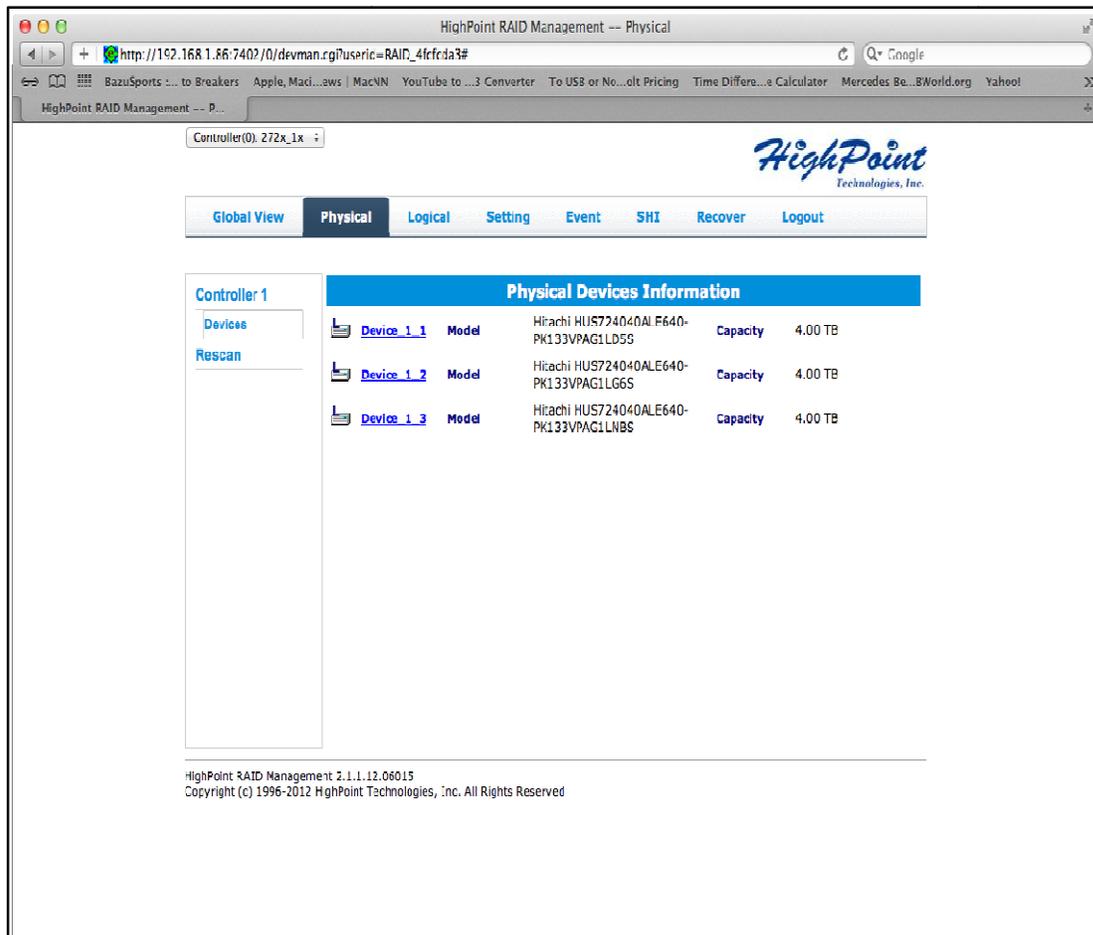
Model Name: RocketRAID model number
BIOS Version: RocketRAID BIOS version
PCI Bus Number: PCI slot information
PCI Device Number: PCI device number
PCI Func Number: PCI function number

Update BIOS from the web GUI. Browse for BIOS image and click the Submit button.



6.1 Physical (Controller 1 Devices)

Physical Devices Information – These are the devices attached to the controller. Information includes the device model, serial number and capacity.



The screenshot displays the HighPoint RAID Management web interface. The browser address bar shows the URL: `http://192.168.1.86:7402/0/devman.cgi?useric=RAID_4lcfra3#`. The page title is "HighPoint RAID Management -- Physical". The HighPoint Technologies, Inc. logo is visible in the top right. A navigation menu includes "Global View", "Physical" (selected), "Logical", "Setting", "Event", "SHI", "Recover", and "Logout".

On the left, a sidebar for "Controller 1" contains "Devices" and "Rescan" options. The main content area, titled "Physical Devices Information", lists three devices:

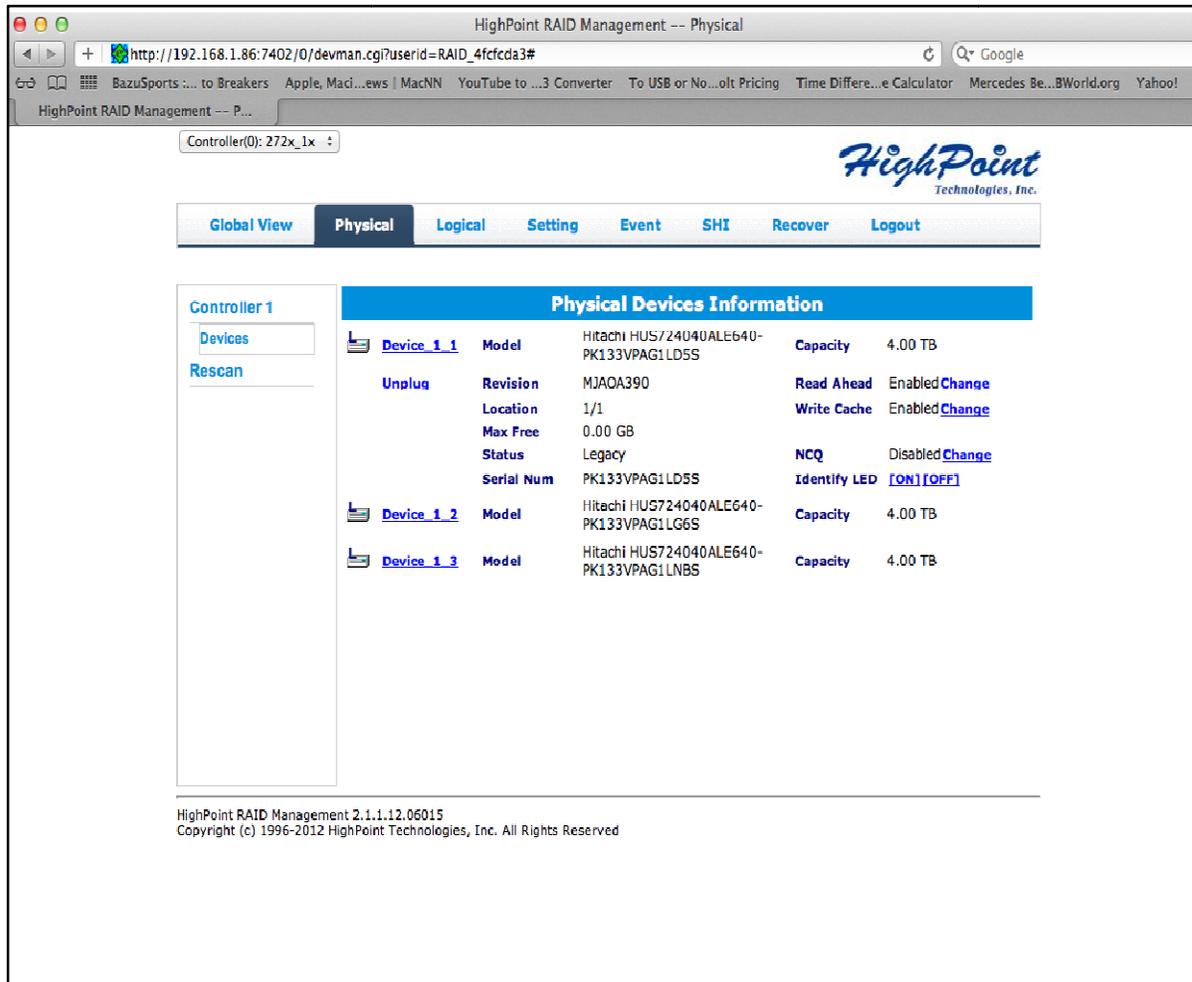
Device	Model	Capacity
Device 1_1	Hitachi HUS724040AL F640-PK133VPAG1LD5S	4.00 TB
Device 1_2	Hitachi HUS724040ALE640-PK133VPAG1LG6S	4.00 TB
Device 1_3	Hitachi HUS724040ALE640-PK133VPAG1LNBS	4.00 TB

At the bottom of the page, the text reads: "HighPoint RAID Management 2.1.1.12.06015 Copyright (c) 1996-2012 HighPoint Technologies, Inc. All Rights Reserved".

6.2 WebGUI - Physical (Controller 1 Devices Physical Devices Information)

Unplug :	Powers off the device or RAID array and allow you to remove the device
Model:	Device model information
Revision:	Firmware revision
Location:	Location number of the device on the host adapter
Max Free:	Max free space for creating a single disk JBOD or to be a part of a RAID array
Status:	Device status is Legacy or Normal
Serial Number:	Serial Number of device
Capacity:	Total capacity of the device
Read Ahead:	Caching mode to improve Read performance
Write Cache:	Caching mode to improve Write performance
NCQ:	Native Command Queuing, I/O commands that are in a queue are re-ordered for better efficiency
Identify LED:	A blinking cursor to identify the location of a HDD

Rescan: Rescan will rescan the controller to detect devices



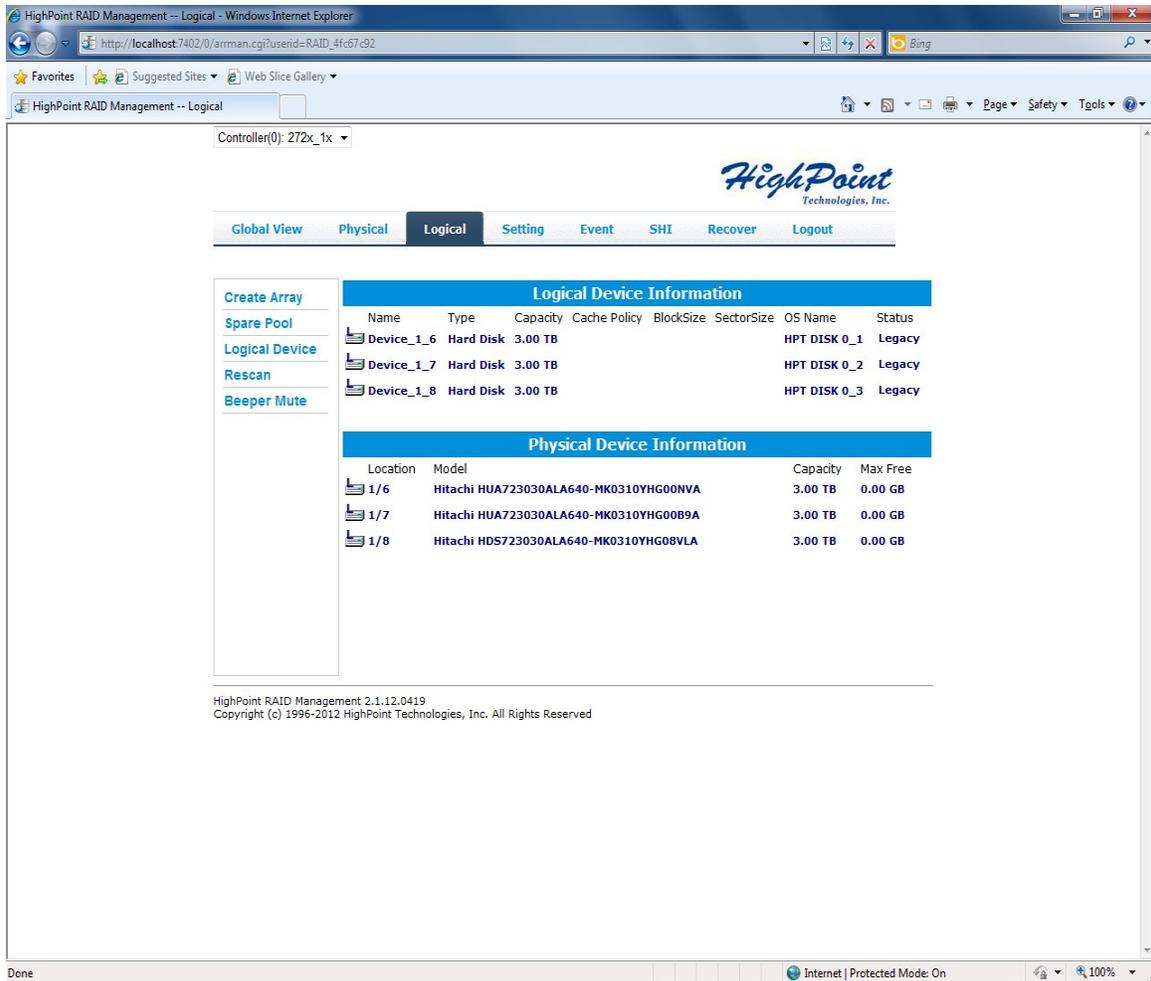
Chapter 7 Logical

Logical Device Information – It is the logical disk that is connected to the HBA and has already been reported to the OS.

Example:

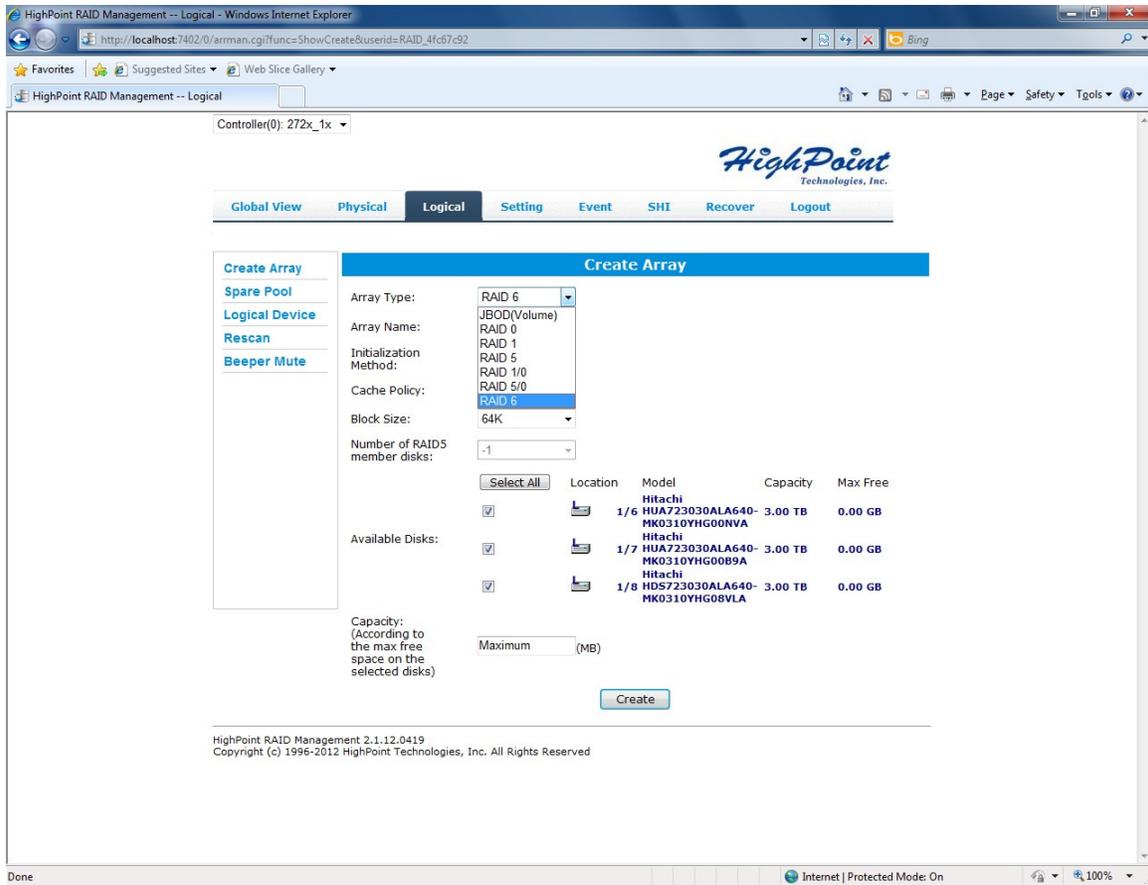
- Windows – “Disk Management” Disk (x)
- Linux - “/dev/sd(x)
- Mac OS X – “Disk Utility”

Physical Device Information – The physical disk attached to the HBA.



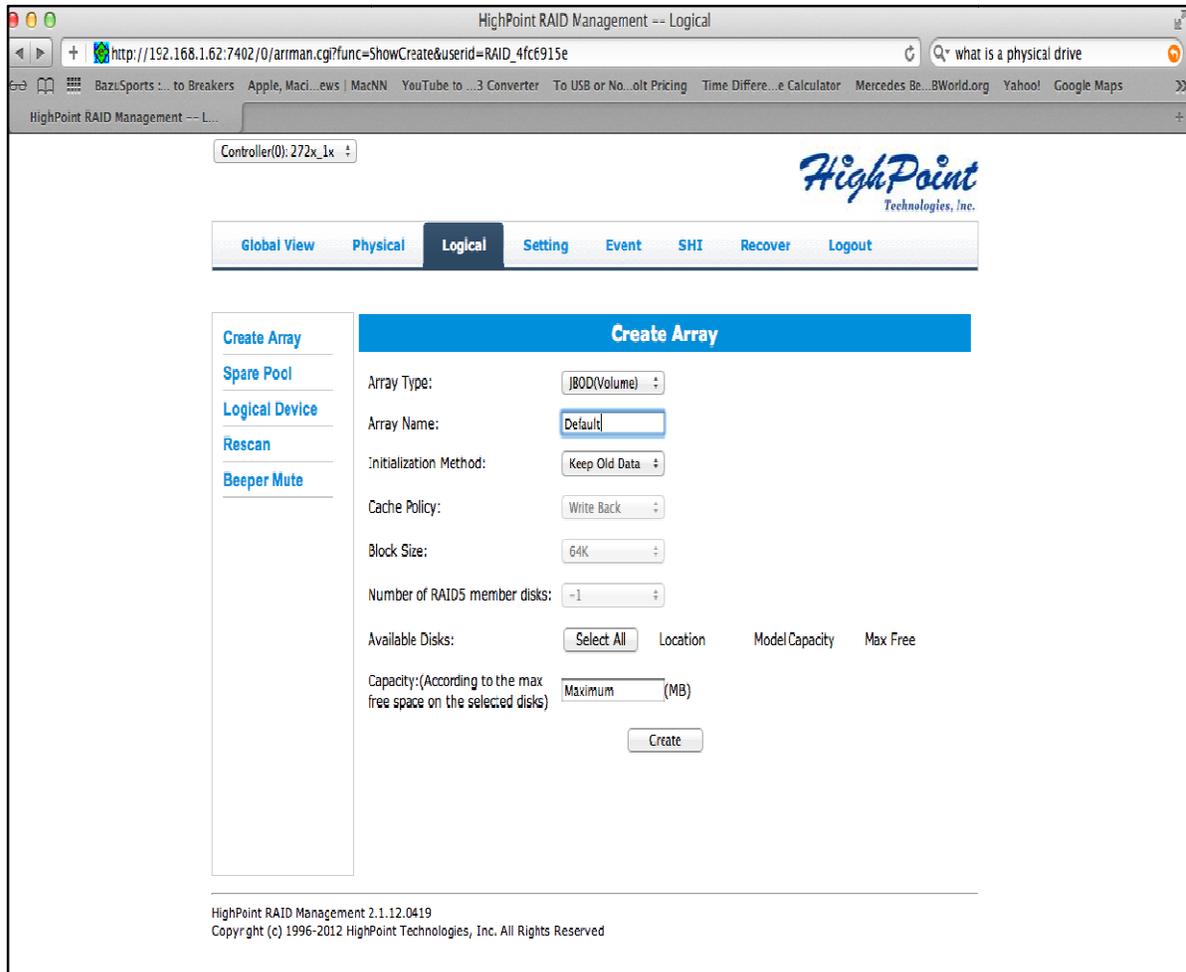
7.1 Create Array (Array Type)

Array Type: Choose the RAID type to create. RAID levels depend on the RocketRAID series controller. RAID 0, 1, 5, 6, 10, 50 and JBOD are supported.



7.2 Create Array (Array Name)

Array Name: Enter the name for the RAID array.



7.3 Create Array (Initialization Method)

Initialization Method: There are four methods to choose from.

Keep Old Data: This is the default option when creating a RAID array.

Note:

- A. This option is used to assure data safety and avoid operation errors causing data lose to the original disk.
- B. This option does not initialize the array disk. New disks can be used to create a RAID without initialization since the disk is empty.
- C. This option can be used to recover the disabled RAID array.

Quick Init: The RAID array will be immediately accessible.

Note:

- A. This option will delete all content on the disks
- B. This option will not perform disk array initialization. When new HDD's are used this option can be ignored since there is no data on the hard disks.

Foreground: The RAID array is not accessible until disk array initialization is completed.

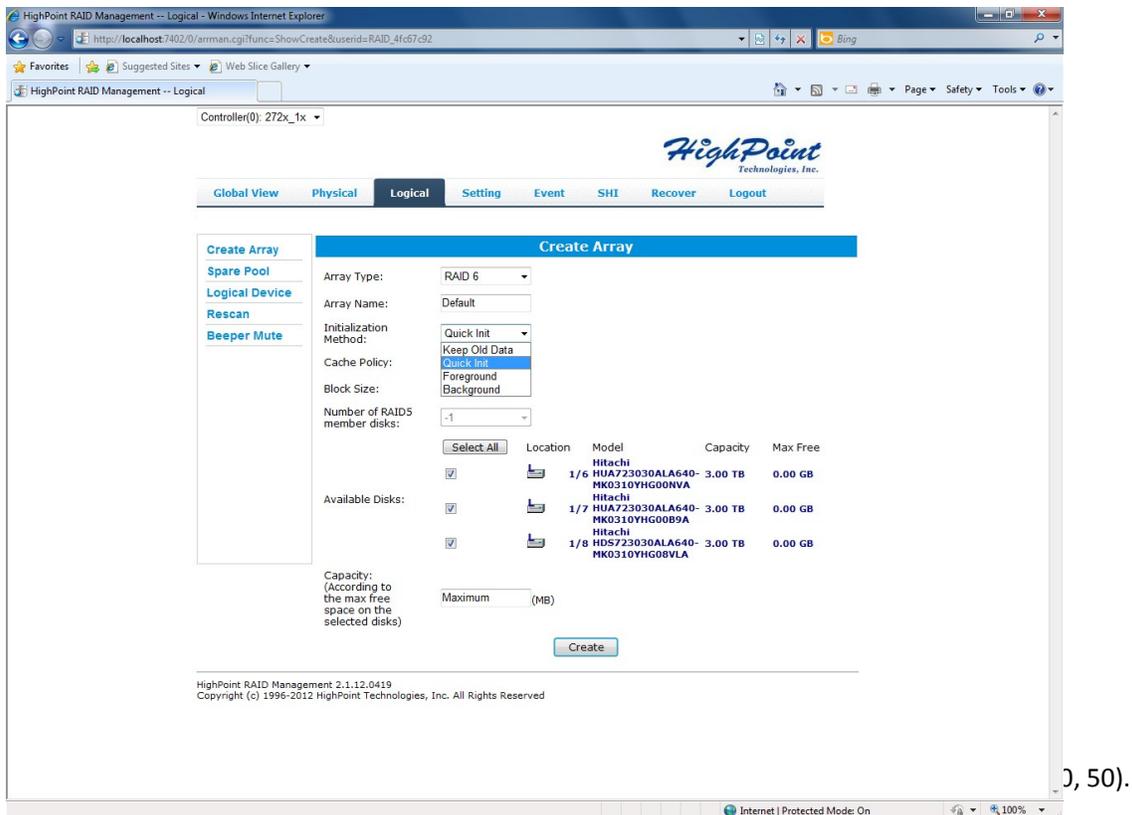
Note:

- A. This option will delete all content on the disks
- B. The initialization time will be shorter time compared to the "Background" option. The logical disks will not be reported to the OS until the initialization is complete.

Background: The RAID array is accessible while disk initialization is being performed.

Note:

- A. This option will delete all content on the disks
- B. The initialization time will be longer when compared to "Foreground" but the logical drives can be used during the initialization process.

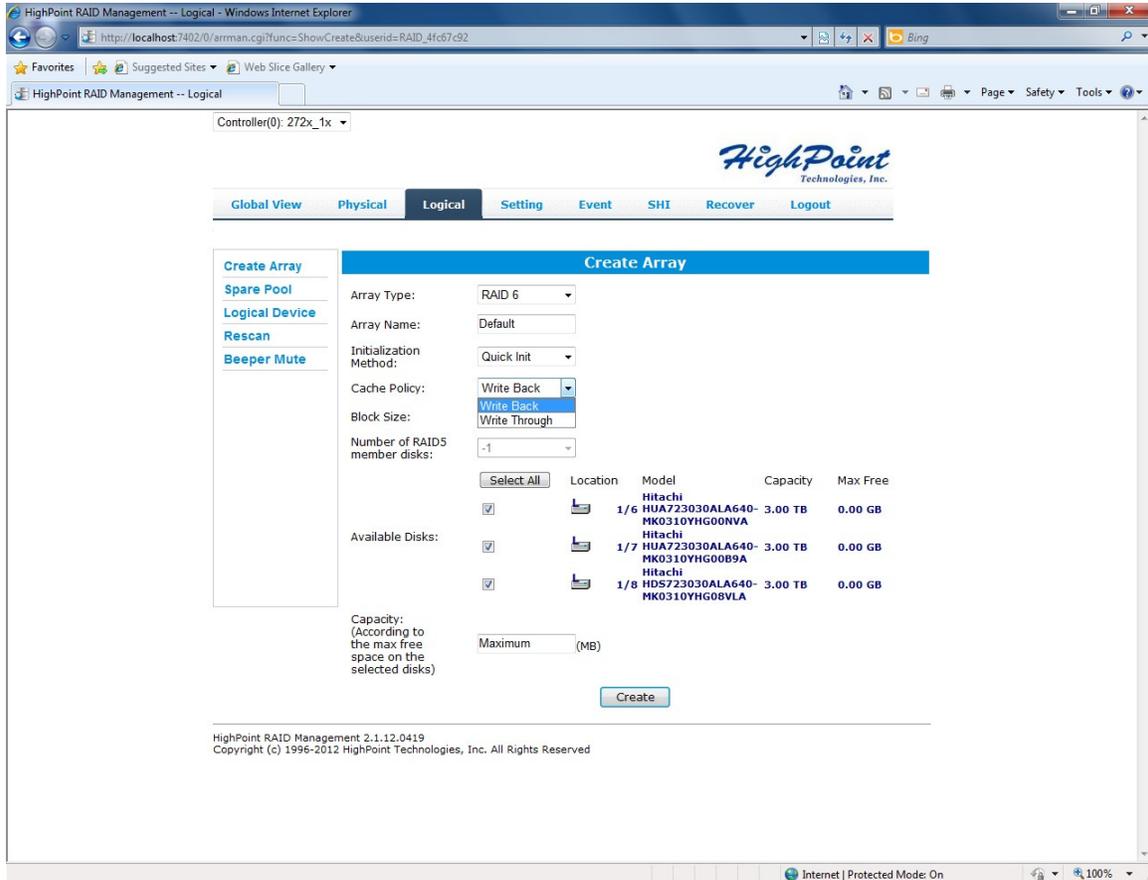


Write Back: Provides higher write performance for redundant RAID arrays. Data is at risk when there is a power failure, system kernel panic and un-responding abnormal conditions.

Write Through: Provides higher data protection when there is a power failure. Data is written directly to disk.

Block Size: 64K block stripe size is a good choice of many applications. Other Sans Digital RocketRAID controller 3000/4000 series have adjusted RAID block to fit applications needs.

Number of RAID 5 member disk: This option is related to creating a RAID 50 array.



7.5 Create Array (Select All)

Select All: This will select all of the HDD for the RAID array.

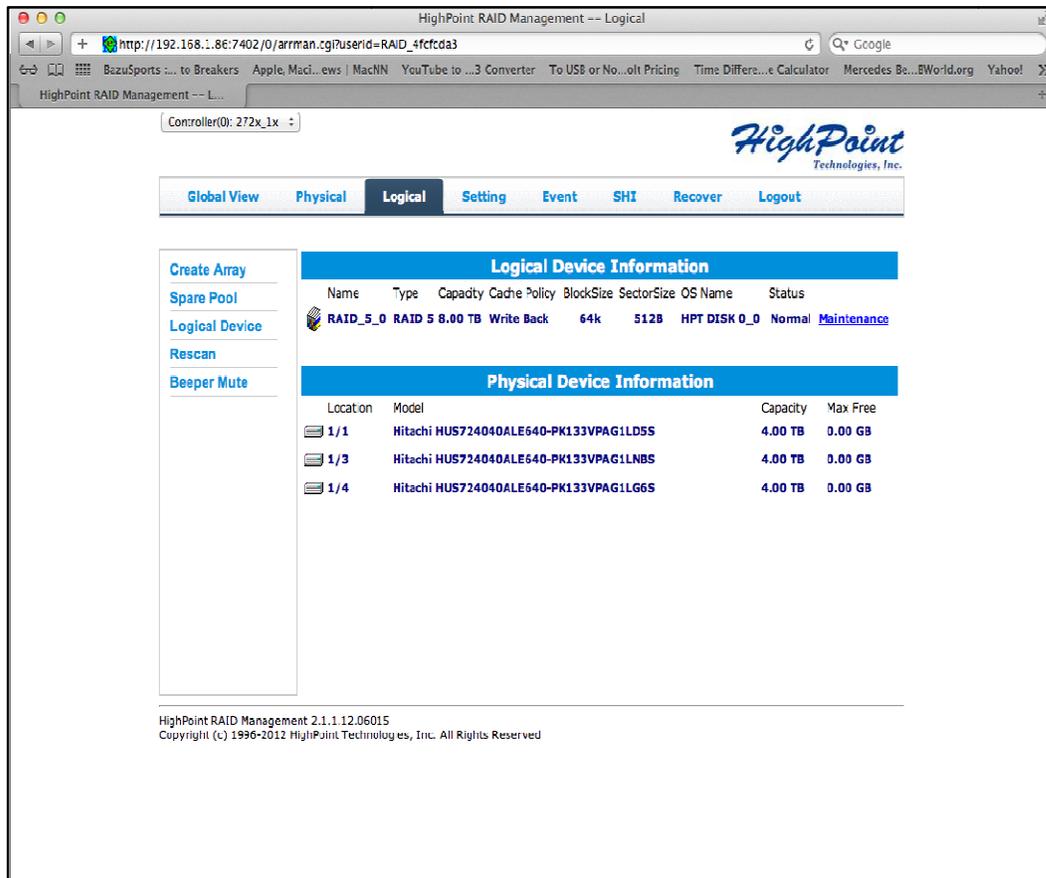
The screenshot shows the HighPoint RAID Management web interface. The browser address bar displays the URL: `http://192.168.1.62:7402/0/arrman.cgi?func=ShowCreate&userid=RA_D_4fc6915e`. The page title is "HighPoint RAID Management -- Logical". The "Logical" tab is selected in the navigation menu. The "Create Array" section is active, showing configuration options for a RAID 5 array. The "Available Disks" table lists three Hitachi HDDs, all of which are selected with checkmarks.

Location	Model	Capacity	Max Free
1/6	HUA723030ALA640-MK0310YH600NVA	3.00 TB	3.00 TB
1/7	HUA723030ALA640-MK0310YH60099A	3.00 TB	3.00 TB
1/8	HDS723030ALA640-MK0310YH600VLA	3.00 TB	3.00 TB

7.6 Create Array (Logical Device Information)

After the RAID has been created it will appear in the Logical Device Information. Information of the newly created RAID array includes the following

Name: Default name of the RAID array
Type: Type of RAID array
Capacity: Total capacity of the RAID array
Cache Policy: Redundant RAID array options for performance or protection
Block Size: RAID array block size
Sector Size: RAID array sector size
OS Name: Name of HDD seen in the OS
Status: Status of RAID array. Other option include (Normal, Critical, Disable, Rebuilding, Verifying, Expanding/Migrating)



The screenshot displays the HighPoint RAID Management web interface. The browser address bar shows the URL: `http://192.168.1.86:7402/0/arrman.cgi?userid=RAID_4fcfda3`. The interface includes a navigation menu with options: Global View, Physical, Logical (selected), Setting, Event, SHI, Recover, and Logout. On the left, there is a sidebar with links: Create Array, Spare Pool, Logical Device, Rescan, and Beeper Mute. The main content area is divided into two sections:

Logical Device Information

Name	Type	Capacity	Cache Policy	BlockSize	SectorSize	OS Name	Status
RAID_5_0	RAID 5	8.00 TB	Write Back	64k	512B	HPT DISK 0_0	Normal Maintenance

Physical Device Information

Location	Model	Capacity	Max Free
1/1	Hitachi HUS724040ALE640-PK133VPAG1LD5S	4.00 TB	0.00 GB
1/3	Hitachi HUS724040ALE640-PK133VPAG1LNBS	4.00 TB	0.00 GB
1/4	Hitachi HUS724040ALE640-PK133VPAG1LG6S	4.00 TB	0.00 GB

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7.7 Create Array (Logical Device Information)

Maintenance: Maintenance will provide features that allow the user to perform general maintenance features on the RAID array.

Specific conditions of the RAID array will have different option available when Maintenance is selected:

- 1) RAID status is "Normal", there will be a "Verify" button available.
- 2) RAID status is "Critical", there will be a "Add" button available.
- 3) After "Add Disk" then Rebuilding, it displays "Stop" button.

Delete: Delete the selected RAID array

Unplug: Power off the RAID array and remove it

Rebuild: Add a disk and rebuild a critical RAID array to normal

Change Cache Policy: Toggle between Write Through and Write Back.

Write Through - Lower Write performance because data is written directly to HDD. Data cannot be lost due to power failure or some other circumstance.

Write Back - Higher Write performance but chances of data lose are greater since data still resides in cache.

Rename: Rename the RAID array other than the default

OCE/ORLM: Online Capacity Expansion and or Online RAID Level Migration (see additional document on How To).

The screenshot displays the HighPoint RAID Management web interface. The main content area is titled "Logical Device Information" and contains a table with the following data:

Name	Type	Capacity	Cache Policy	BlockSize	SectorSize	OS Name	Status
RAID_5_0	RAID 5	8.00 TB	Write Back	64k	512B	HPT DISK 0_0	Normal Maintenance

An "Array Information" dialog box is open, showing details for RAID_5_0:

Location	Model	Capacity	Max Proc
1/1	Hitachi	4.00 TB	0.00 GB
1/3	Hitachi	4.00 TB	0.00 GB
1/4	Hitachi	4.00 TB	0.00 GB

The dialog box also includes options for "Delete", "Unplug", "Verify", "Change Cache Policy", "Rename", and "JBOD(Volume) : CCE/ORLM".

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Chapter 8 Spare Pool

Spare Pool: When creating redundant RAID arrays (1, 5, 6, 10 or 50) a Spare HDD can be configured to automatically help rebuild a degraded redundant RAID.

The screenshot shows the HighPoint RAID Management web interface in Internet Explorer. The browser address bar shows the URL: `http://localhost:7402/0/spareman.cgi?userid=RAID_4fc67c92`. The page title is "HighPoint RAID Management -- Logical". The interface includes a navigation menu with tabs: Global View, Physical, Logical (selected), Setting, Event, SHI, Recover, and Logout. The main content area is titled "Controller(0): 272x_1x" and features the HighPoint Technologies, Inc. logo. A sidebar on the left contains links for "Create Array", "Spare Pool", "Logical Device", "Rescan", and "Beeper Mute". The main area displays two sections: "Spare Pool" and "Available Disks".

Spare Pool			
<input type="checkbox"/>	Device_1_6	Hitachi HUA723030ALA640-MK0310YHG00NVA	3.00 TB
<input type="button" value="Remove Spare"/>			

Available Disks			
<input type="checkbox"/>	Device_1_7	Hitachi HUA723030ALA640-MK0310YHG00B9A	3.00 TB
<input type="checkbox"/>	Device_1_8	Hitachi HDS723030ALA640-MK0310YHG08VLA	3.00 TB
<input type="button" value="Add Spare"/>			

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Chapter 9 Logical Device

Logical Device: Displays the logical devices on the HBA.

The screenshot shows the HighPoint RAID Management web interface in Internet Explorer. The browser address bar shows the URL: `http://localhost:7402/0/armman.cgi?userid=RAID_4fc67c92`. The page title is "HighPoint RAID Management -- Logical". The controller is identified as "Controller(0): 272x_1x".

The interface has a navigation menu with tabs: Global View, Physical, Logical (selected), Setting, Event, SHI, Recover, and Logout. The HighPoint Technologies, Inc. logo is displayed at the top right.

On the left side, there is a sidebar with the following options: Create Array, Spare Pool, Logical Device (selected), Rescan, and Beeper Mute.

The main content area is divided into two sections:

Logical Device Information

Name	Type	Capacity	Cache Policy	BlockSize	SectorSize	OS Name	Status
Device_1_7	Hard Disk	3.00 TB				HPT DISK 0_2	Legacy
Device_1_8	Hard Disk	3.00 TB				HPT DISK 0_3	Legacy

Physical Device Information

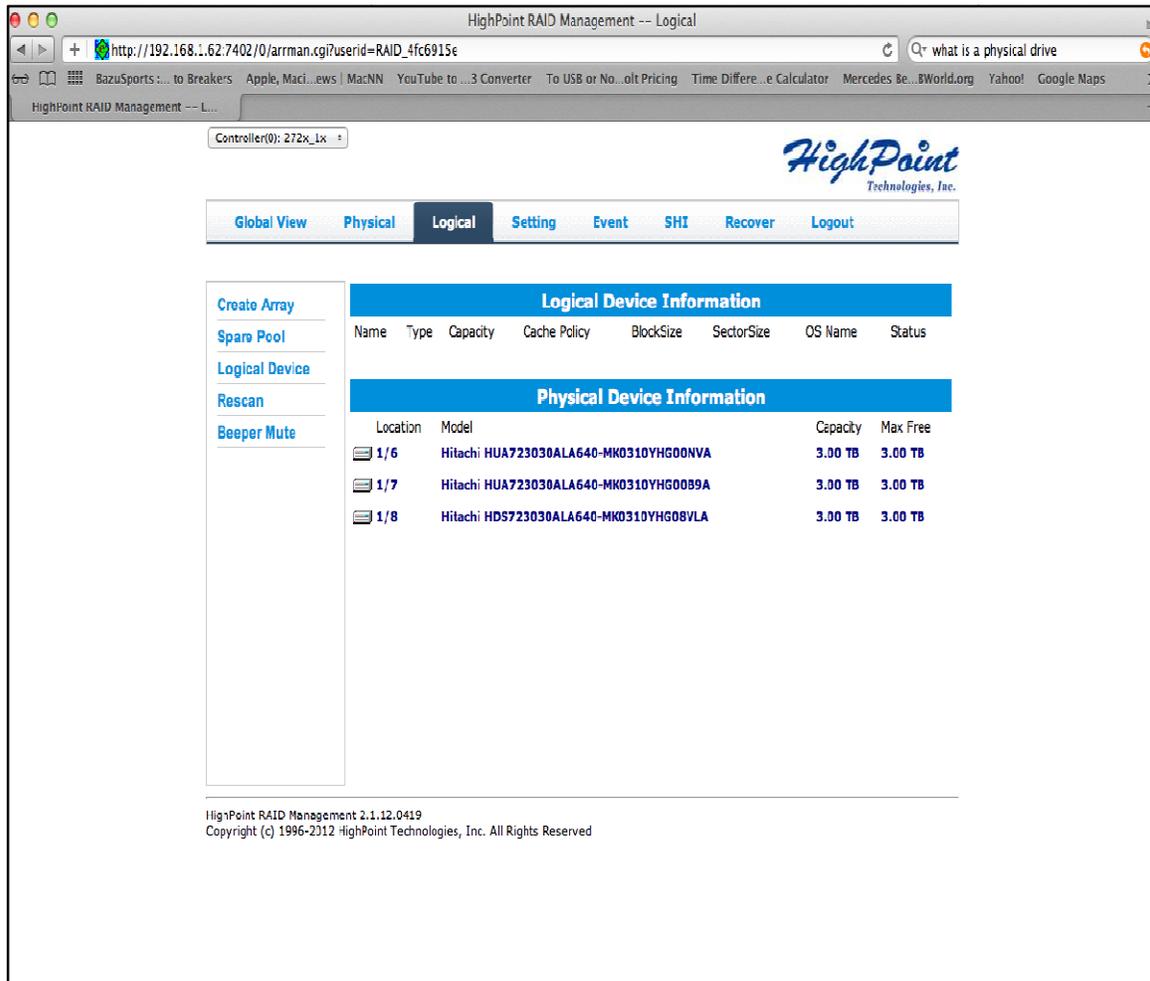
Location	Model	Capacity	Max Free
1/6	Hitachi HUA723030ALA640-MK0310YHG00NVA	3.00 TB	3.00 TB
1/7	Hitachi HUA723030ALA640-MK0310YHG00B9A	3.00 TB	0.00 GB
1/8	Hitachi HDS723030ALA640-MK0310YHG08VLA	3.00 TB	0.00 GB

At the bottom of the page, the following text is displayed: HighPoint RAID Management 2.1.12.0419 Copyright (c) 1996-2012 HighPoint Technologies, Inc. All Rights Reserved.

Chapter 10 Rescan and Beeper Mute

Rescan: When hot plugging a single device or RAID array the Rescan button will help find the disk members and the array information will be identified automatically and report logical disks to the system.

Beeper Mute: This will temporarily disable the internal speaker on the RocketRAID controller



The screenshot shows the HighPoint RAID Management web interface. The browser address bar displays `http://192.168.1.62:7402/0/arrman.cgi?userid=RAID_4fc6915e`. The page title is "HighPoint RAID Management -- Logical". The controller information is "Controller(0): 272x_1x". The HighPoint Technologies, Inc. logo is visible in the top right. A navigation menu includes "Global View", "Physical", "Logical" (selected), "Setting", "Event", "SHI", "Recover", and "Logout". On the left, a sidebar contains links for "Create Array", "Spare Pool", "Logical Device", "Rescan", and "Beeper Mute". The main content area is divided into two sections: "Logical Device Information" and "Physical Device Information".

Logical Device Information							
Name	Type	Capacity	Cache Policy	BlockSize	SectorSize	OS Name	Status

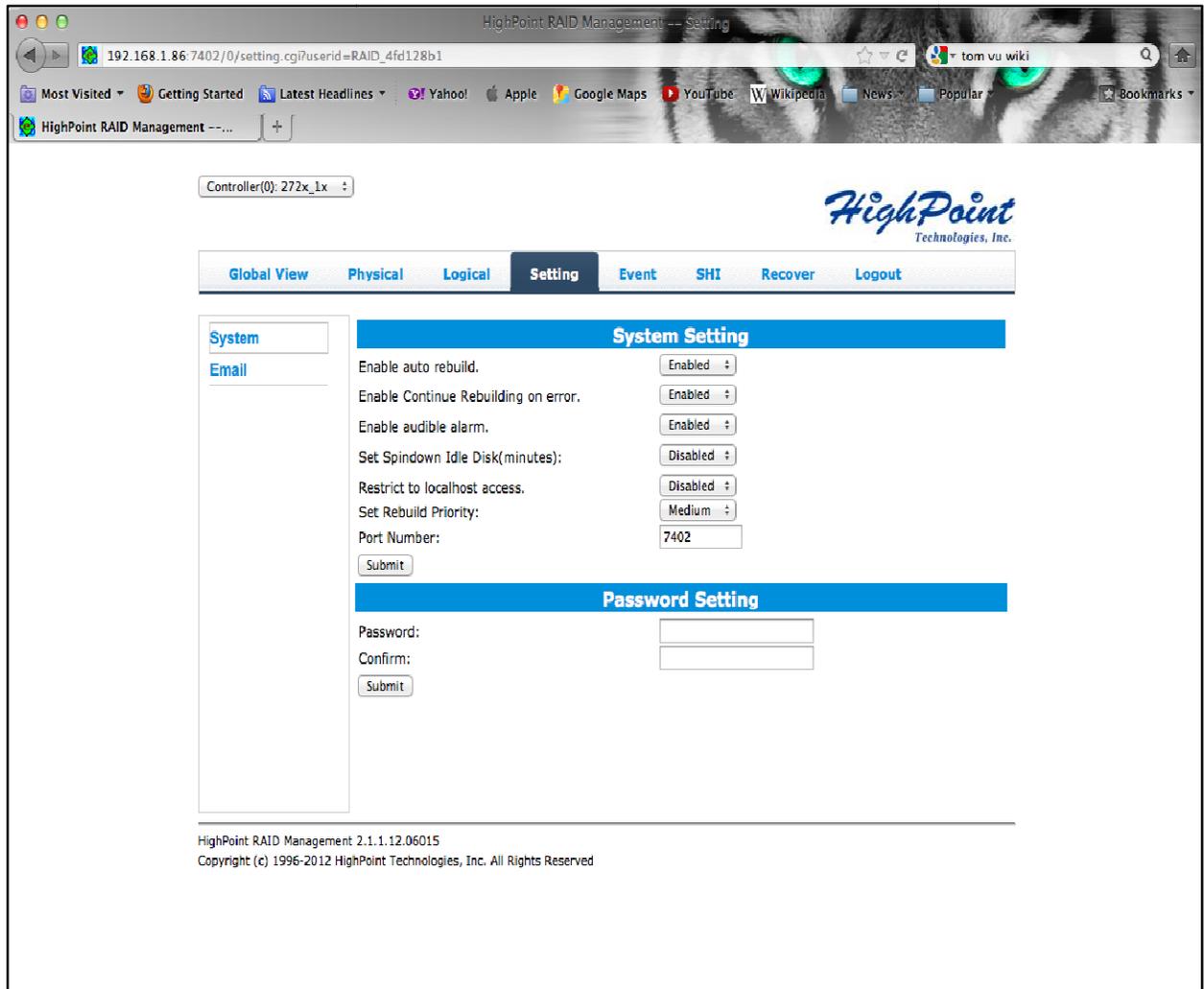
Physical Device Information				
Location	Model	Capacity	Max Free	
1/6	Hitachi HUA723030ALA640-MK0310YHG00NVA	3.00 TB	3.00 TB	
1/7	Hitachi HUA723030ALA640-MK0310YHG00B9A	3.00 TB	3.00 TB	
1/8	Hitachi HDS723030ALA640-MK0310YHG08VLA	3.00 TB	3.00 TB	

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Chapter 11 Settings (System: Enable auto rebuild)

System - Enable auto rebuild: When a new disk is detected on the RocketRAID series controller the disk can help to rebuild the critical RAID array.

Note: The new disk needs to be equal to or larger than the minimum capacity among the remaining disk members of the array.



The screenshot shows the HighPoint RAID Management web interface. The browser address bar displays the URL `192.168.1.86:7402/0/setting.cgi?userid=RAID_4fd128b1`. The page title is "HighPoint RAID Management -- Setting". The interface includes a navigation menu with tabs for "Global View", "Physical", "Logical", "Setting" (selected), "Event", "SHI", "Recover", and "Logout". On the left, there is a sidebar with "System" and "Email" options. The main content area is titled "System Setting" and contains the following configuration items:

Setting	Value
Enable auto rebuild.	Enabled
Enable Continue Rebuilding on error.	Enabled
Enable audible alarm.	Enabled
Set Spindown Idle Disk(minutes):	Disabled
Restrict to localhost access.	Disabled
Set Rebuild Priority:	Medium
Port Number:	7402

Below the System Setting section is the "Password Setting" section, which includes input fields for "Password:" and "Confirm:" and a "Submit" button.

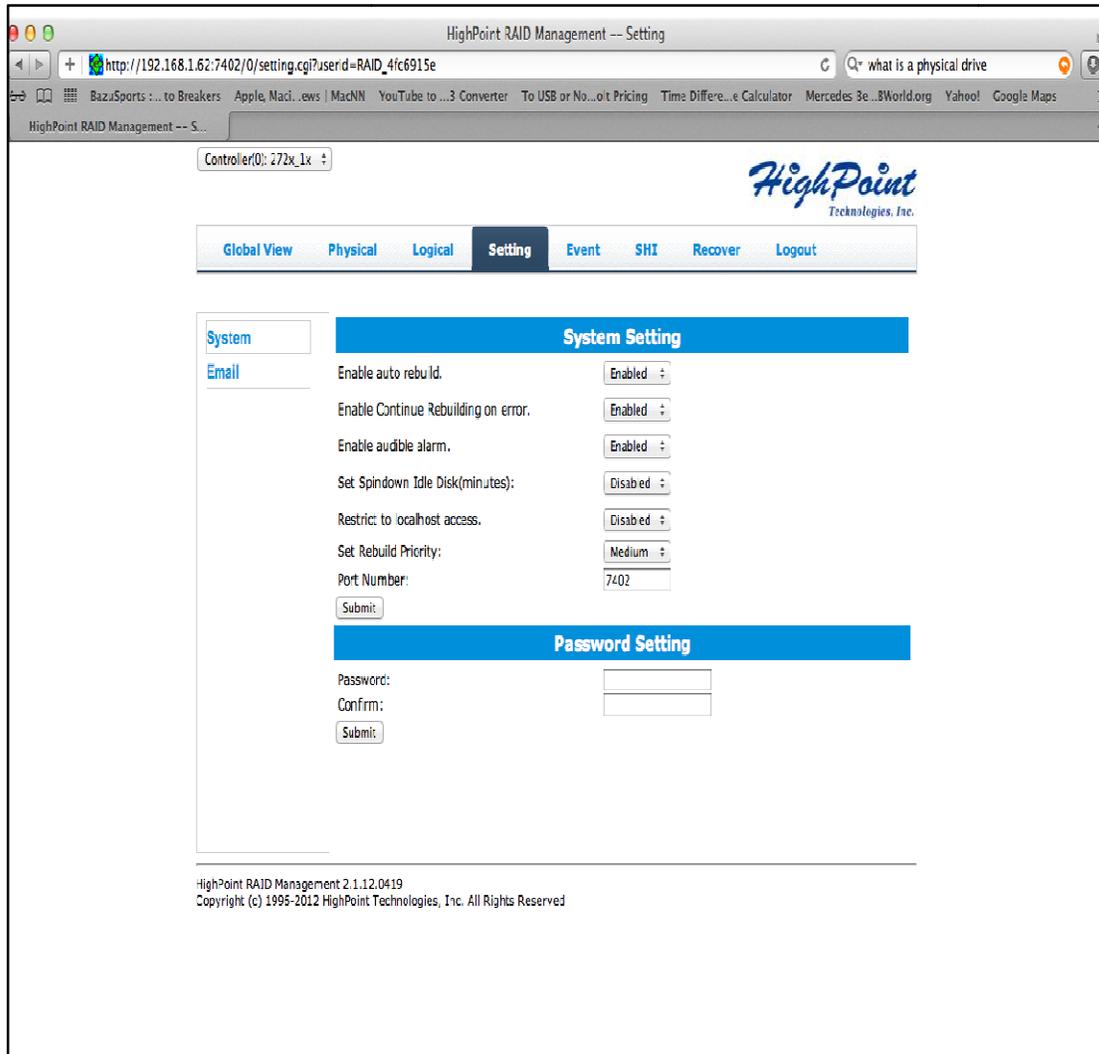
At the bottom of the page, the following text is displayed:

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11.1 Setting (System: Enable Continue Rebuilding on error)

System - Enable Continue Rebuilding on error: Bad sectors can cause a RAID rebuild to stop. This option will ignore bad sector reading and let the rebuild process continue. This can cause data inconsistency in the future.

By enabling this option it is recommended to view the Event log and look for HDD bad sector events. If bad sectors are found, it is then recommended that the HDD with bad sectors be fixed then reconnect the HDD back to the HBA



The screenshot shows the HighPoint RAID Management web interface. The browser address bar displays the URL: `http://192.168.1.62:7402/0/setting.cgi?userid=RAID_4fc6915e`. The page title is "HighPoint RAID Management -- Setting". The navigation menu includes: Global View, Physical, Logical, **Setting**, Event, SHI, Recover, and Logout. The "System" tab is selected in the left sidebar. The main content area is titled "System Setting" and contains the following configuration options:

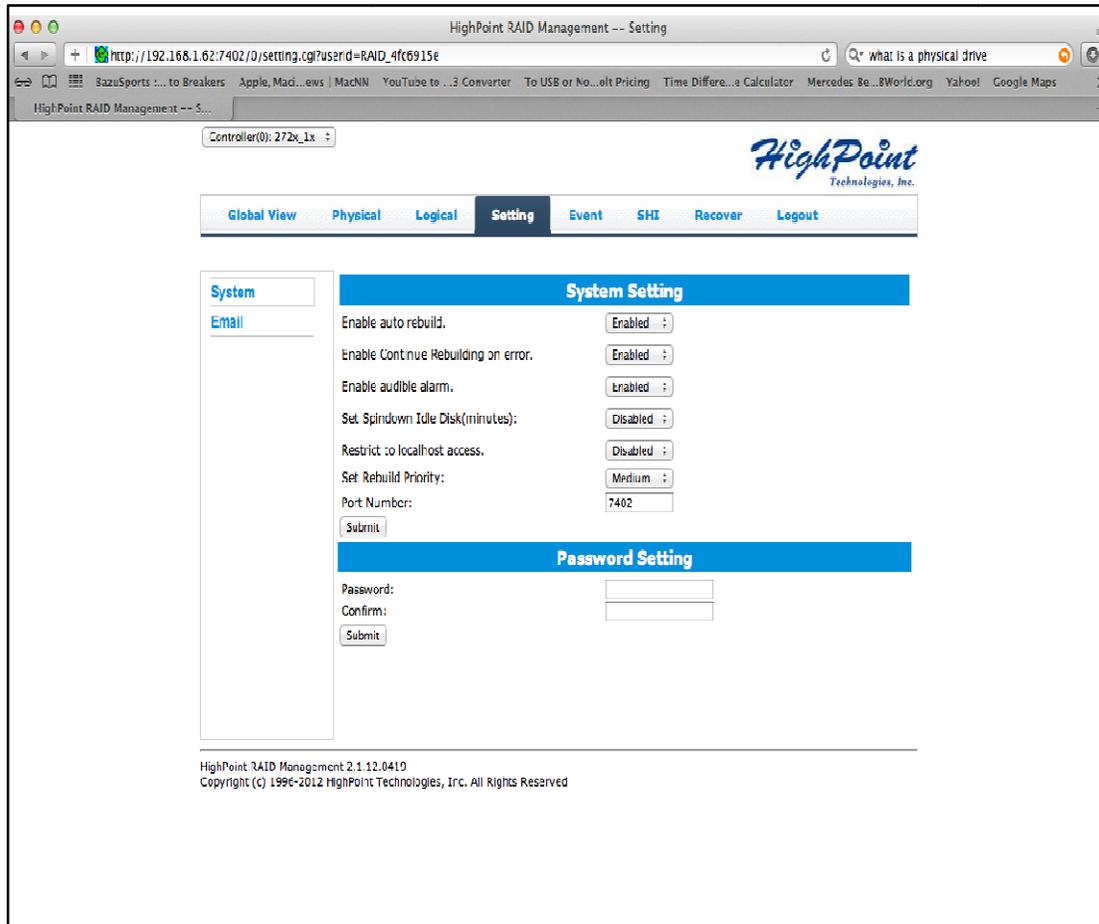
Setting	Value
Enable auto rebuild.	Enabled
Enable Continue Rebuilding on error.	Enabled
Enable audible alarm.	Enabled
Set Spindown Idle Disk(minutes):	Disabled
Restrict to localhost access.	Disabled
Set Rebuild Priority:	Medium
Port Number:	7402

Below the System Setting section is the "Password Setting" section, which includes fields for "Password:" and "Confirm:" with "Submit" buttons.

At the bottom of the page, the footer text reads: "HighPoint RAID Management 2.1.12.0419 Copyright (c) 1995-2012 HighPoint Technologies, Inc. All Rights Reserved".

11.2 Setting (System: Enable audible alarm)

System - Enable audible alarm: When a disk goes off-line the beeper on the HBA will sound.



The screenshot shows a web browser window titled "HighPoint RAID Management -- Setting". The address bar shows the URL "http://192.168.1.62:7402/0/setting.cgi?userd=RAID_4fc6915e". The browser tabs include "BazuSports ... to Breakers", "Apple, Mac...ews | MacNN", "YouTube to ...3 Converter", "To USB or No...olt Pricing", "Time Differ...e Calculator", "Mercedes Be...2World.org", "Yahoo!", and "Google Maps".

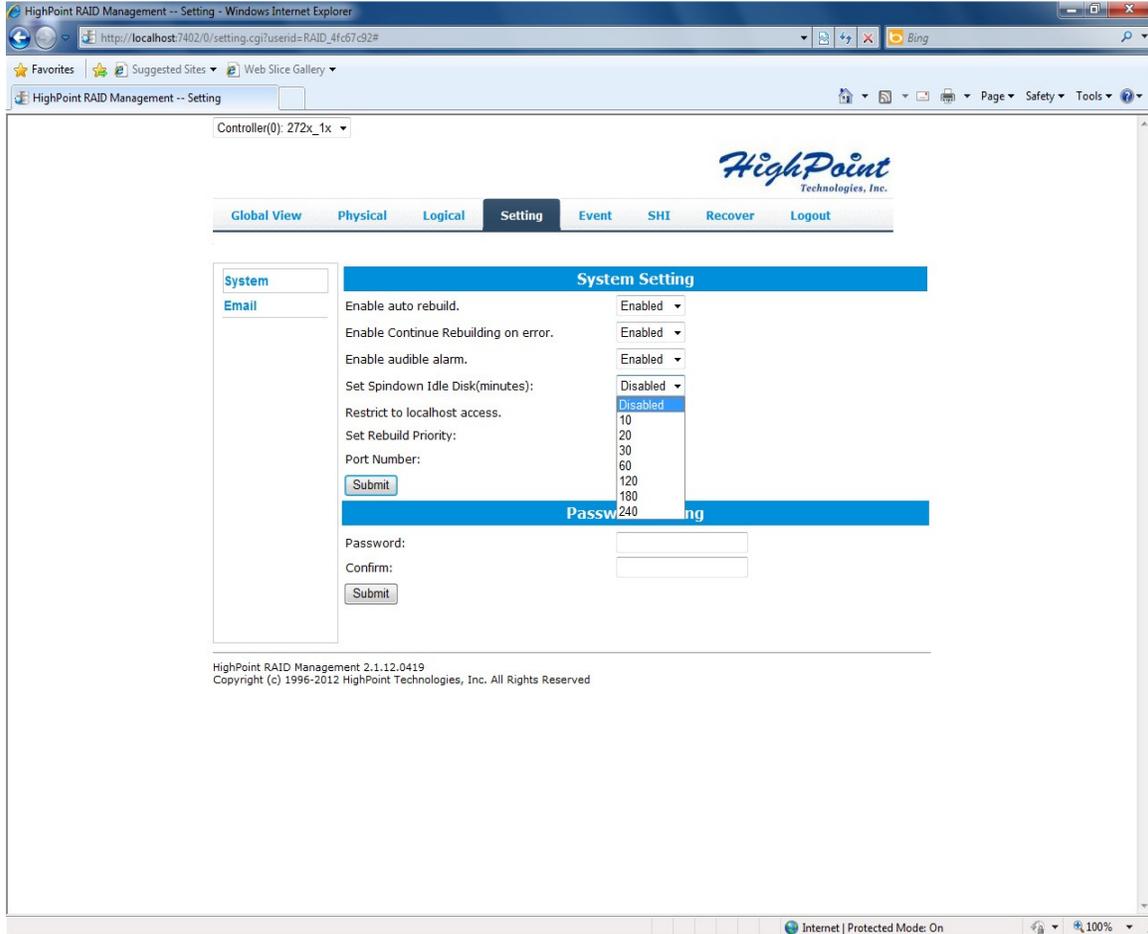
The main content area displays the "HighPoint Technologies, Inc." logo and a navigation menu with tabs: "Global View", "Physical", "Logical", "Setting" (selected), "Event", "SHI", "Recover", and "Logout". Below the menu, there is a sidebar with "System" and "Email" options. The main content area is divided into two sections:

- System Setting**: A list of settings with dropdown menus:
 - Enable auto rebuild: Enabled
 - Enable Continue Rebuilding on error: Enabled
 - Enable audible alarm: Enabled
 - Set Spindown Idle Disk(minutes): Disabled
 - Restrict to localhost access: Disabled
 - Set Rebuild Priority: Medium
 - Port Number: 7402
- Password Setting**: Two input fields for "Password:" and "Confirm:" with a "Submit" button below them.

At the bottom of the page, the text reads: "HighPoint RAID Management 2.1.12.0410 Copyright (c) 1996-2012 HighPoint Technologies, Inc. All Rights Reserved".

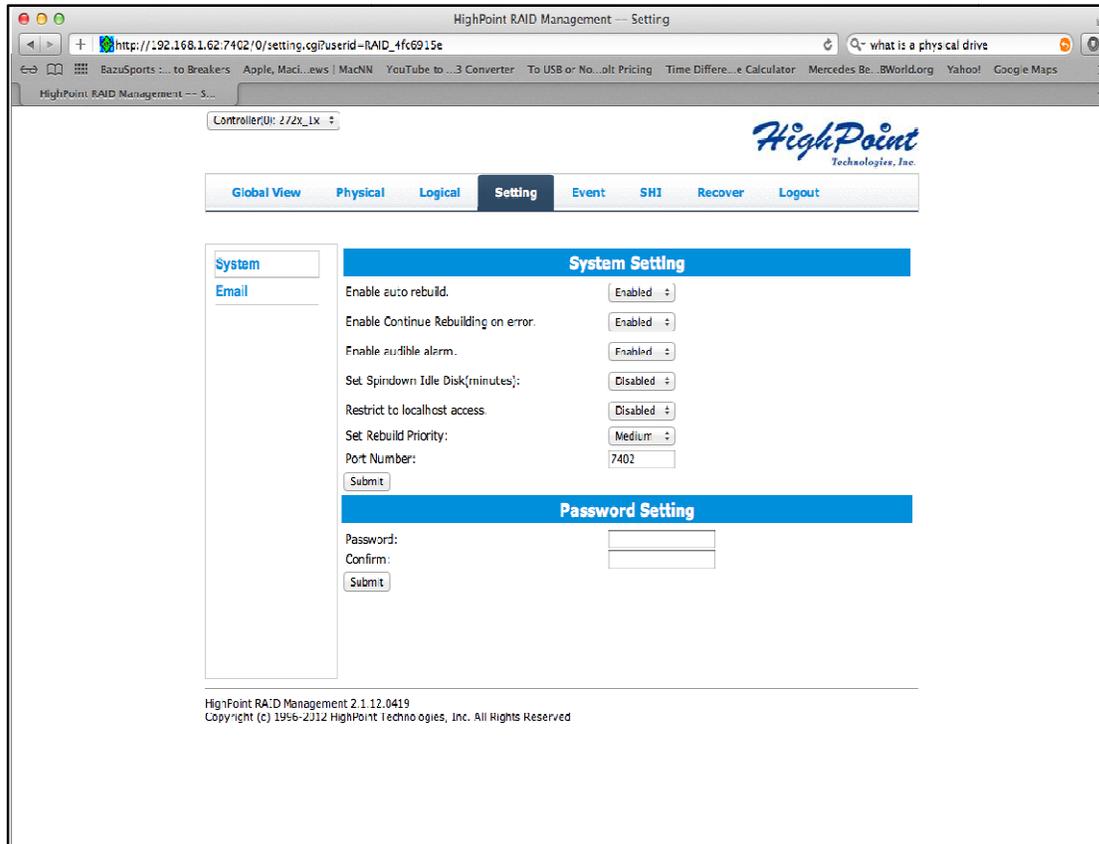
11.3 Setting (System: Set Spindown Idle disk minutes)

System - Set Spindown Idle Disk (Minutes): HDD can be setup to spindown when there is no disk activity from the selected interval of 10 to 240 minutes the disk will spin down.



11.4 Setting (System: Restrict to localhost access)

System - Restrict to localhost access: This option is used to restrict the web GUI access to the local system and not allow remote access.



The screenshot shows the HighPoint RAID Management web interface. The browser address bar displays `http://192.168.1.62:7402/setting.cgi?userid=RAID_4fc6915e`. The page title is "HighPoint RAID Management - Setting". The controller ID is "2/ZX_1X". The navigation menu includes "Global View", "Physical", "Logical", "Setting" (selected), "Event", "SHI", "Recover", and "Logout". The "System" menu is expanded, showing "System" and "Email". The "System Setting" section contains the following options:

Setting	Value
Enable auto rebuild.	Enabled
Enable Continue Rebuilding on error.	Enabled
Enable audible alarm.	Enabled
Set Spindown Idle Disk(minutes):	Disabled
Restrict to localhost access.	Disabled
Set Rebuild Priority:	Medium
Port Number:	7402

A "Submit" button is located below the System Setting section. The "Password Setting" section includes input fields for "Password:" and "Confirm:" with a "Submit" button below them.

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11.5 Setting (System: Set Rebuild Priority)

System – Set Rebuild Priority: When rebuilding a critical RAID array there are five rebuilding options to choose from. Each rebuild priority will affect the rebuild completion time.

Lowest: The lowest priority when rebuilding RAID array. All system resources are detected to other tasks.

Low: The second lowest priority when rebuilding RAID array. All system resources are detected to other tasks.

Medium: Medium system resources are utilized to rebuild RAID array. Medium is the default option.

High: High system resources are utilized to rebuild RAID array.

Highest: Highest system resources are utilized to rebuild RAID array. Rebuild RAID array will have highest system priority over other system task.

The screenshot shows the HighPoint RAID Management web interface in Internet Explorer. The browser address bar shows the URL: `http://localhost:7402/0/setting.cgi?userid=RAID_4fc67c92#`. The page title is "HighPoint RAID Management -- Setting". The main content area is titled "Controller(0): 272x_1x" and features the HighPoint Technologies, Inc. logo. A navigation menu includes "Global View", "Physical", "Logical", "Setting" (selected), "Event", "SHI", "Recover", and "Logout". On the left, there is a sidebar with "System" and "Email" links. The main content area is divided into two sections: "System Setting" and "Password Setting". The "System Setting" section contains several configuration options, each with a dropdown menu:

- Enable auto rebuild: Enabled
- Enable Continue Rebuilding on error: Enabled
- Enable audible alarm: Enabled
- Set Spindown Idle Disk(minutes): Disabled
- Restrict to localhost access: Disabled
- Set Rebuild Priority: Medium (selected)
- Port Number: Low

A "Submit" button is located below the "Set Rebuild Priority" dropdown. The "Password Setting" section includes "Password:" and "Confirm:" input fields, with a "Submit" button below them. At the bottom of the page, the text reads: "HighPoint RAID Management 2.1.12.0419 Copyright (c) 1996-2012 HighPoint Technologies, Inc. All Rights Reserved". The browser status bar at the bottom indicates "Internet | Protected Mode: On" and a zoom level of "100%".

11.6 Setting (System: Port Number)

System – Port Number 7402: The listening port number used to log into the web GUI. 7402 is the default port number. Other port numbers can be used in place of the default as long as they are free.

HighPoint RAID Management -- Setting

Controller(0): 272X_1X

HighPoint Technologies, Inc.

Global View Physical Logical **Setting** Event SHI Recover Logout

System

System Setting

Email

Enable auto rebuild. Enabled

Enable Continue Rebuilding on error. Enabled

Enable audible alarm. Enabled

Set Spindown Idle Disk(minutes): Disabled

Restrict to localhost access. Disabled

Set Rebuild Priority: Medium

Port Number: 7402

Submit

Password Setting

Password:

Confirm:

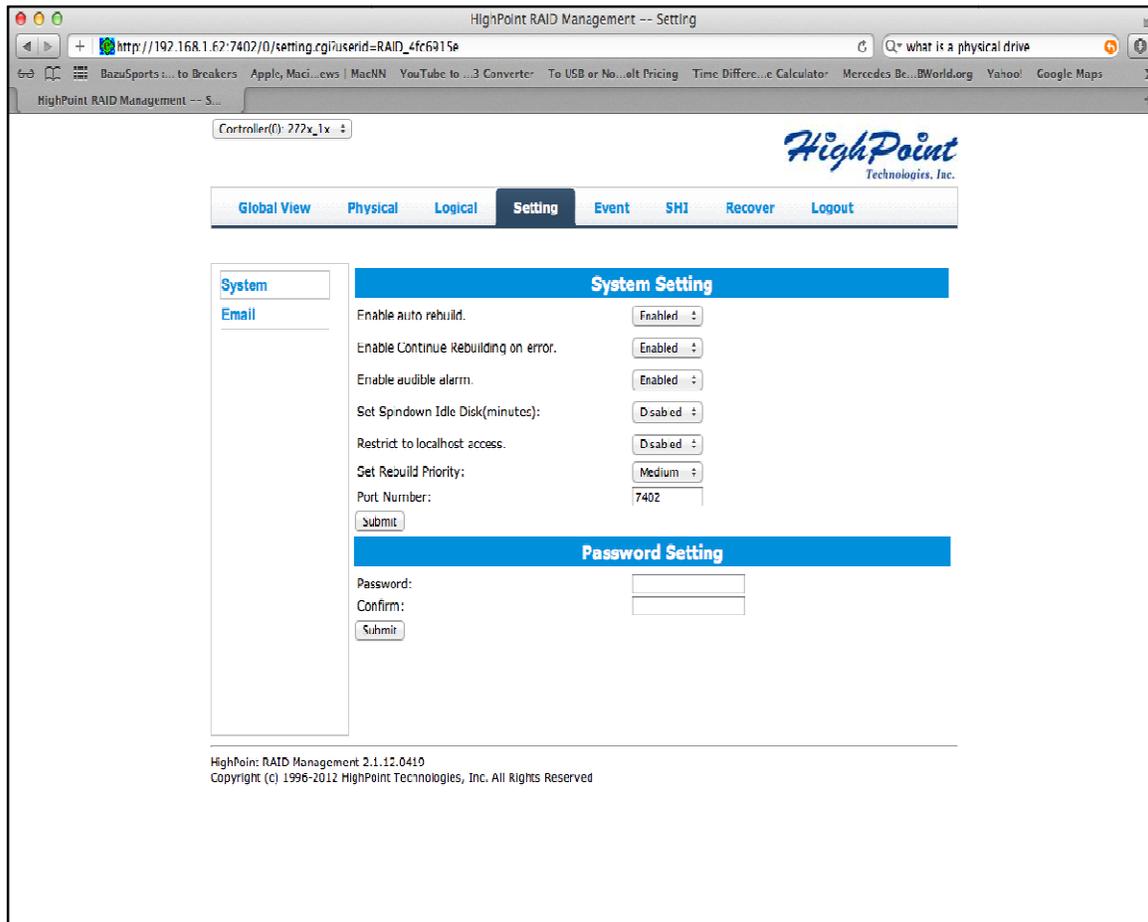
Submit

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11.7 Setting (System: Password Setting)

System – Password Setting: The default password “hpt” can be changed.

Note: If the updated password is forgotten, un-installing and re-install the web GUI will revert back to the default log in password.



The screenshot displays the HighPoint RAID Management web interface. The browser address bar shows the URL `http://192.168.1.62:7402/0/setting.cgi?userid=RAID_4fr6915e`. The page title is "HighPoint RAID Management -- Setting". The controller is identified as "Controller(0): 777x_1x". The navigation menu includes "Global View", "Physical", "Logical", "Setting" (selected), "Event", "SHI", "Recover", and "Logout". The "System" menu is expanded, showing "System" and "Email". The "System Setting" section includes the following options:

Setting	Value
Enable auto rebuild.	Enabled
Enable Continue Rebuilding on error.	Enabled
Enable audible alarm.	Enabled
Set Spindown Idle Disk(minutes):	Disabled
Restrict to localhost access.	Disabled
Set Rebuild Priority:	Medium
Port Number:	7402

The "Password Setting" section includes:

Field	Value
Password:	<input type="password"/>
Confirm:	<input type="password"/>

Both sections have a "Submit" button. At the bottom, the footer text reads: "HighPoint RAID Management 2.1.12.0419 Copyright (c) 1996-2012 HighPoint Technologies, Inc. All Rights Reserved".

Note: When changing the password, the maximum number of characters allowed is eight

11.8 Setting (Email)

Email –All activities on the RocketRAID controller can be sent to an email address. Any problems or issues that occur will immediately have an email sent to the recipients created in the list.

The screenshot shows a web browser window titled "HighPoint RAID Management -- Setting". The address bar contains the URL "http://192.168.1.86:7407/0/setting.cgi?userid=RAID_4frfcd3#". The browser's address bar also shows several search engines and utility links. The main content area of the web page is titled "HighPoint Technologies, Inc." and features a navigation menu with tabs for "Global View", "Physical", "Logical", "Setting", "Event", "SHI", "Recover", and "Logout". The "Setting" tab is currently selected. On the left side, there is a sidebar menu with "System" and "Email" options. The main content area is divided into two sections: "SMTP Setting" and "Recipients".

SMTP Setting

Enable Event Notification

Server Address (name or IP):

Mail From (E-mail address):

Login Name:

Password:

SMTP Port:

Support SSL:

Recipients

E-mail	Name	Event Level
--------	------	-------------

Add Recipient

E-mail:

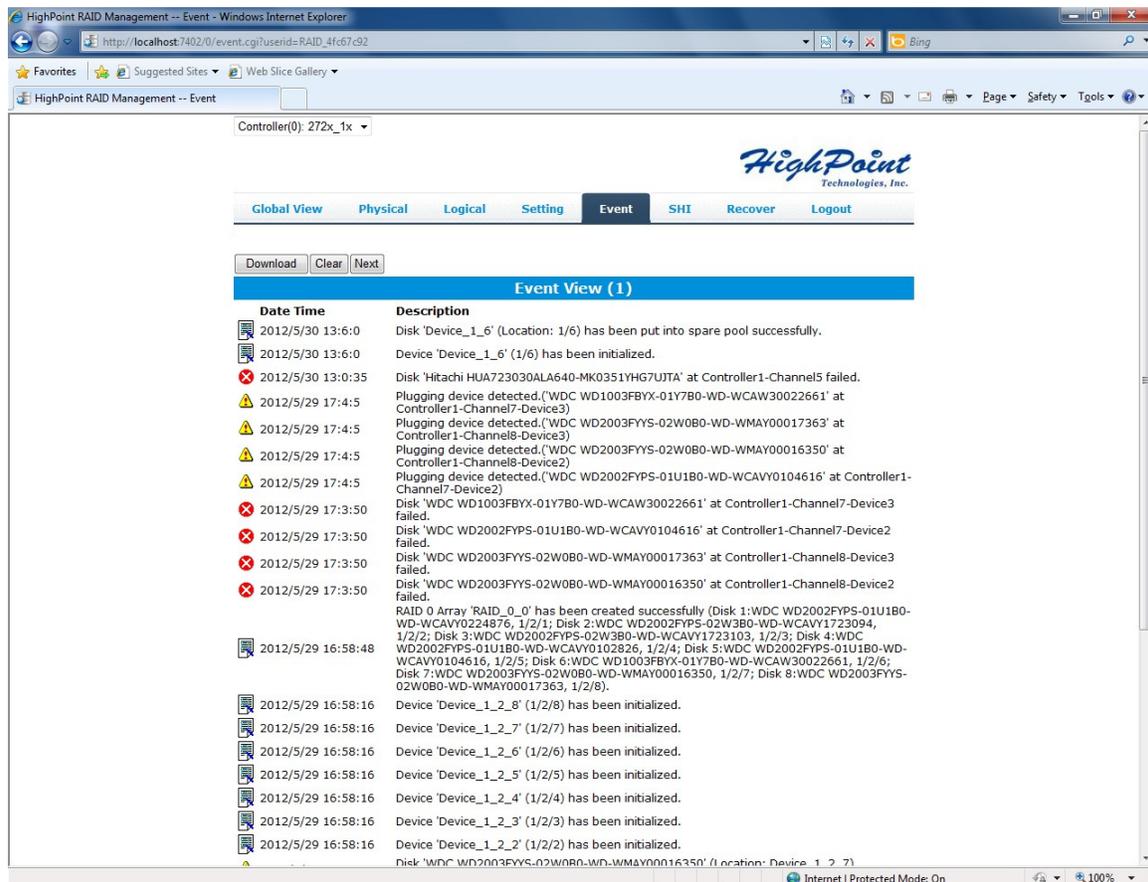
Name:

Event Level: Information Warning Error

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Chapter 12 Event

The Event View will show all activities of the RAID array. All of the Events can be saved to a text file.



The screenshot displays the HighPoint RAID Management web interface. The browser address bar shows the URL: `http://localhost:7402/0/event.cgi?userid=RAID_4fc67c92`. The page title is "HighPoint RAID Management -- Event". The interface includes a navigation menu with tabs for "Global View", "Physical", "Logical", "Setting", "Event" (selected), "SHI", "Recover", and "Logout". Below the menu are buttons for "Download", "Clear", and "Next". The main content area is titled "Event View (1)" and contains a table of events.

Date Time	Description
2012/5/30 13:6:0	Disk 'Device_1_6' (Location: 1/6) has been put into spare pool successfully.
2012/5/30 13:6:0	Device 'Device_1_6' (1/6) has been initialized.
2012/5/30 13:0:35	Disk 'Hitachi HUA723030ALA640-MK0351YHG7UJTA' at Controller1-Channel5 failed.
2012/5/29 17:4:5	Plugging device detected,('WDC WD1003FBYX-01Y7B0-WD-WCAW30022661' at Controller1-Channel7-Device3)
2012/5/29 17:4:5	Plugging device detected,('WDC WD2003FYYS-02W0B0-WD-WMAY00017363' at Controller1-Channel8-Device3)
2012/5/29 17:4:5	Plugging device detected,('WDC WD2003FYYS-02W0B0-WD-WMAY00016350' at Controller1-Channel8-Device2)
2012/5/29 17:4:5	Plugging device detected,('WDC WD2002FYPS-01U1B0-WD-WCAVY0104616' at Controller1-Channel7-Device2)
2012/5/29 17:3:50	Disk 'WDC WD1003FBYX-01Y7B0-WD-WCAW30022661' at Controller1-Channel7-Device3 failed.
2012/5/29 17:3:50	Disk 'WDC WD2002FYPS-01U1B0-WD-WCAVY0104616' at Controller1-Channel7-Device2 failed.
2012/5/29 17:3:50	Disk 'WDC WD2003FYYS-02W0B0-WD-WMAY00017363' at Controller1-Channel8-Device3 failed.
2012/5/29 17:3:50	Disk 'WDC WD2003FYYS-02W0B0-WD-WMAY00016350' at Controller1-Channel8-Device2 failed.
2012/5/29 16:58:48	RAID 0 Array 'RAID_0_0' has been created successfully (Disk 1:WDC WD2002FYPS-01U1B0-WD-WCAVY0224876, 1/2/1; Disk 2:WDC WD2002FYPS-02W3B0-WD-WCAVY1723094, 1/2/2; Disk 3:WDC WD2002FYPS-02W3B0-WD-WCAVY1723103, 1/2/3; Disk 4:WDC WD2002FYPS-01U1B0-WD-WCAVY0102826, 1/2/4; Disk 5:WDC WD2002FYPS-01U1B0-WD-WCAVY0104616, 1/2/5; Disk 6:WDC WD1003FBYX-01Y7B0-WD-WCAW30022661, 1/2/6; Disk 7:WDC WD2003FYYS-02W0B0-WD-WMAY00016350, 1/2/7; Disk 8:WDC WD2003FYYS-02W0B0-WD-WMAY00017363, 1/2/8).
2012/5/29 16:58:16	Device 'Device_1_2_8' (1/2/8) has been initialized.
2012/5/29 16:58:16	Device 'Device_1_2_7' (1/2/7) has been initialized.
2012/5/29 16:58:16	Device 'Device_1_2_6' (1/2/6) has been initialized.
2012/5/29 16:58:16	Device 'Device_1_2_5' (1/2/5) has been initialized.
2012/5/29 16:58:16	Device 'Device_1_2_4' (1/2/4) has been initialized.
2012/5/29 16:58:16	Device 'Device_1_2_3' (1/2/3) has been initialized.
2012/5/29 16:58:16	Device 'Device_1_2_2' (1/2/2) has been initialized.
	Disk 'WDC WD2003FYYS-02W0B0-WD-WMAY00016350' (Location: Device_1_2_7)

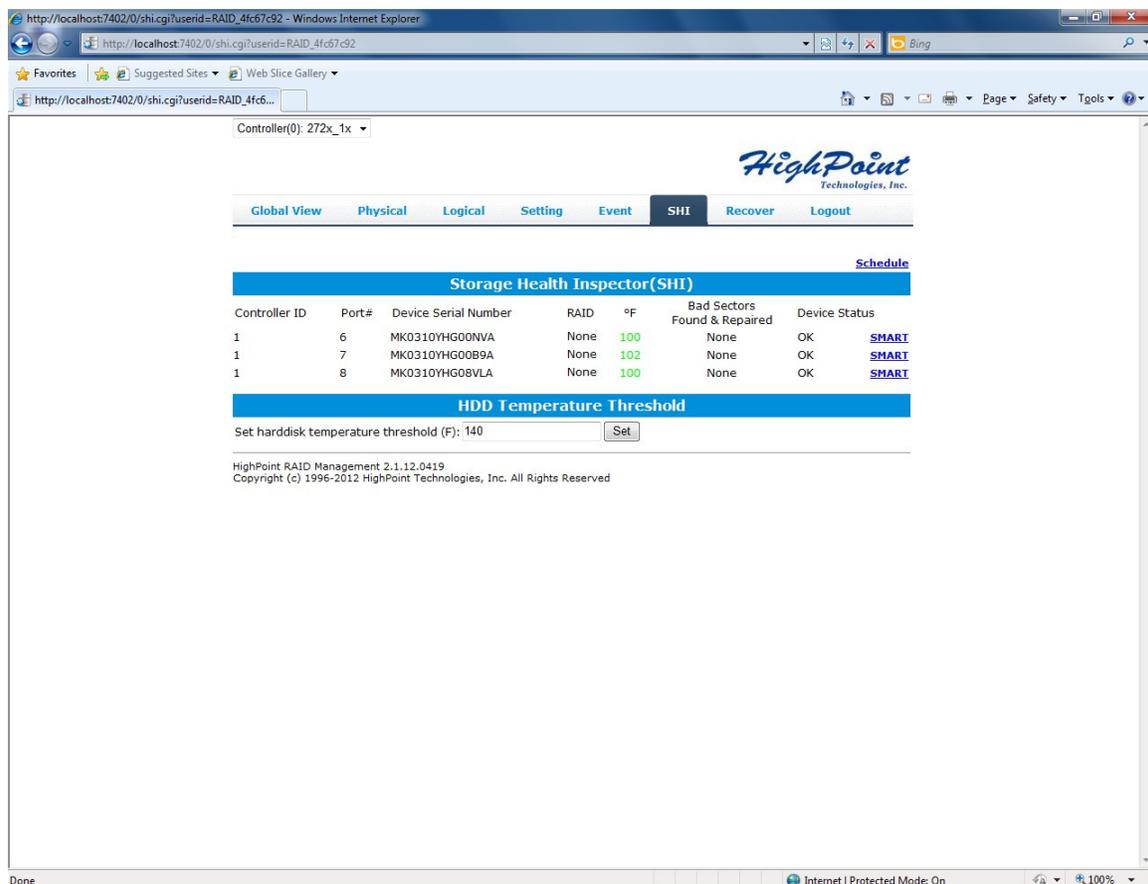
Chapter 13 SHI (Storage Health Inspector)

Storage Health Inspector: SHI will inspect each HDD periodically. If there are any abnormal status found it will be recorded in the Event log.

The SHI and can help to identify problems with HDD's and prevent further damage or data loss. If additional proof of errors is needed, the HDD's can be placed onto the onboard SATA port and a 3rd party SMART software utility can be run.

HDD Temperature Threshold: Setup the HDD temperature threshold to prevent HDD overheating. When the HDD goes beyond the threshold an alert will be triggered.

SMART: SMART attributes for each HDD will be displayed.



Controller(0): 272x_1x

HighPoint Technologies, Inc.

Global View Physical Logical Setting Event **SHI** Recover Logout

Schedule

Storage Health Inspector(SHI)

Controller ID	Port#	Device Serial Number	RAID	%F	Bad Sectors Found & Repaired	Device Status
1	6	MK0310YHG00NVA	None	100	None	OK SMART
1	7	MK0310YHG00B9A	None	102	None	OK SMART
1	8	MK0310YHG08VLA	None	100	None	OK SMART

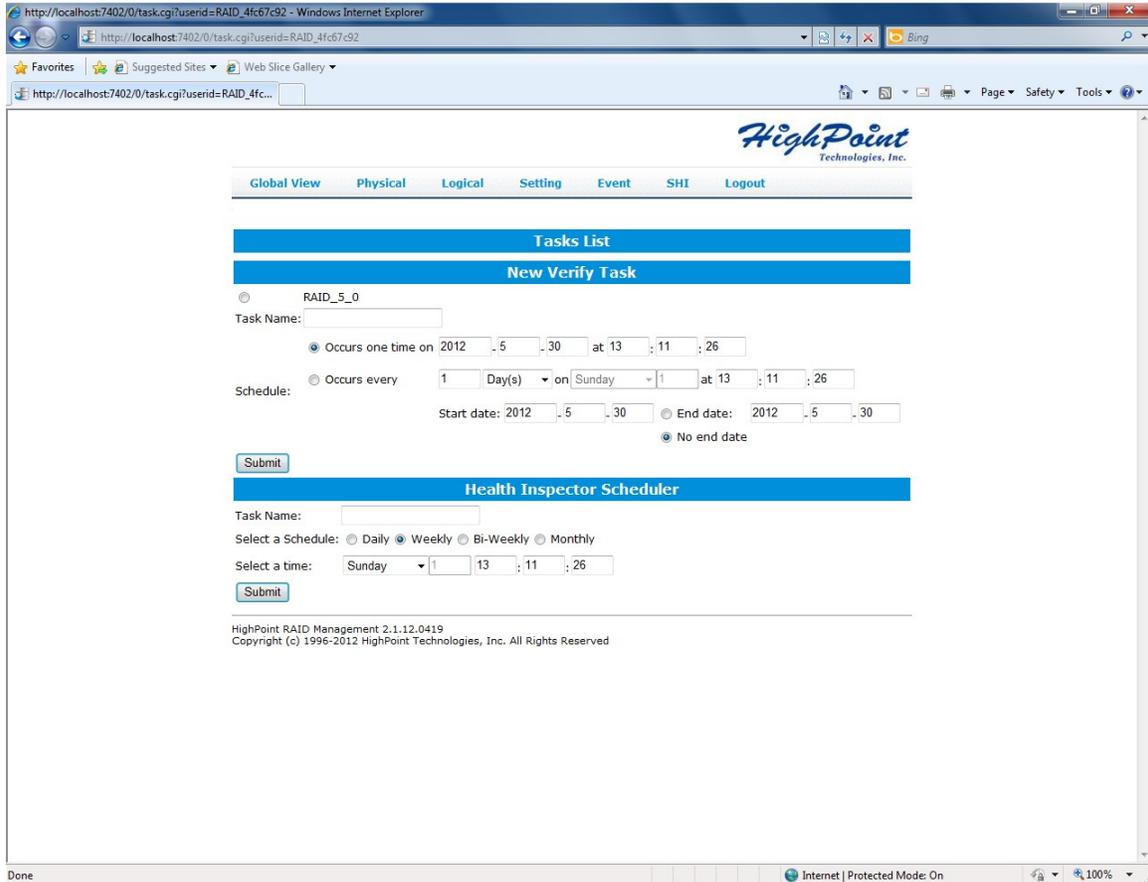
HDD Temperature Threshold

Set harddisk temperature threshold (F): 140

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13.1 (SHI: Schedule)

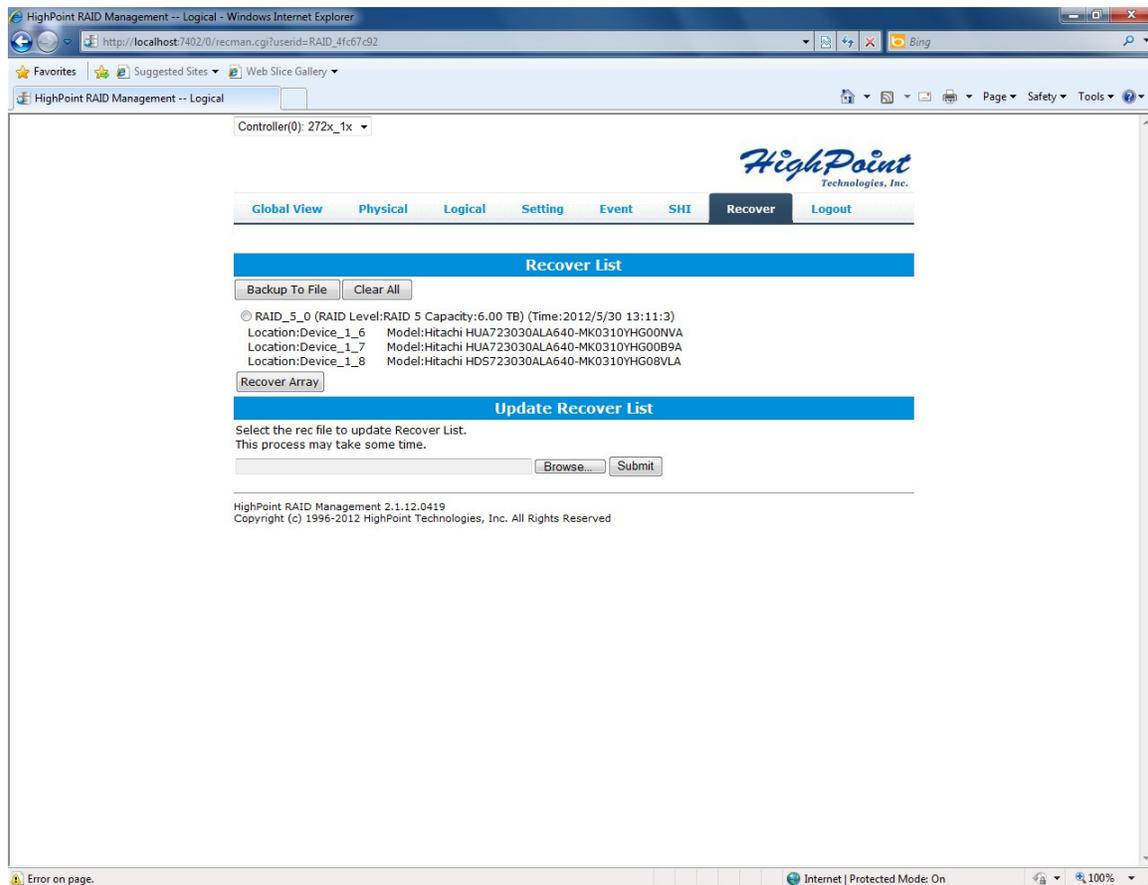
Schedule: Task List – Task can be setup for run at preset times and days for RAID arrays. This maintenance feature will ensure that the RAID array is operating at optimized functionality.



Chapter 14 Recover

Recover List: This is a new feature in the web GUI that will help to recover the RAID logic when the status of a RAID array is disabled and the data is not accessible. By using this option the RAID logic will be recovered and the status of the RAID array will be normal.

Note: There is a separate How-To guide that explains this Recover feature.



The screenshot displays the HighPoint RAID Management web interface in a Windows Internet Explorer browser. The browser's address bar shows the URL `http://localhost:7402/0/recman.cgi?usend=RAID_4f.c67.c92`. The page title is "HighPoint RAID Management -- Logical". The interface includes a navigation menu with tabs for "Global View", "Physical", "Logical", "Setting", "Event", "SHI", "Recover", and "Logout". The "Recover" tab is active, and the "HighPoint Technologies, Inc." logo is visible in the top right corner.

Under the "Recover" tab, there is a "Recover List" section. It contains two buttons: "Backup To File" and "Clear All". Below these buttons, a list of RAID arrays is shown:

- RAID_5_0 (RAID Level:RAID 5 Capacity:6.00 TB) (Time:2012/5/30 13:11:3)

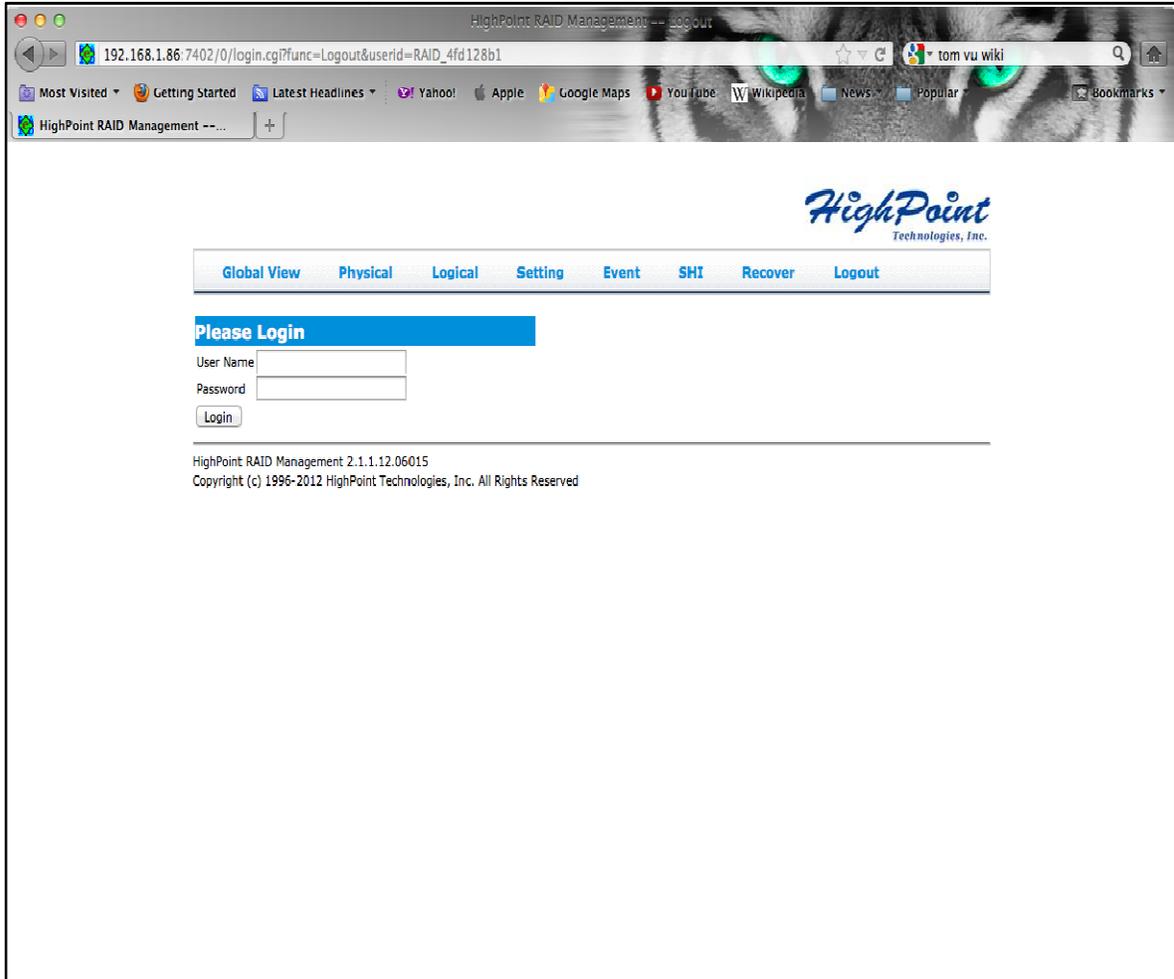
Location:Device_1_6	Model:Hitachi HUA723030ALA640-MK0310YHG00NVA
Location:Device_1_7	Model:Hitachi HUA723030ALA640-MK0310YHG00B9A
Location:Device_1_8	Model:Hitachi HDS723030ALA640-MK0310YHG08VLA

Below the list is a "Recover Array" button. Underneath, there is an "Update Recover List" section with the instruction: "Select the rec file to update Recover List. This process may take some time." This section includes a "Browse..." button and a "Submit" button.

At the bottom of the page, the footer text reads: "HighPoint RAID Management 2.1.12.0419 Copyright (c) 1996-2012 HighPoint Technologies, Inc. All Rights Reserved".

Chapter 15 Logout

Log out will quit and log you out from the web GUI. You will need to re-enter the User Name and Password entries to log into the web GUI.

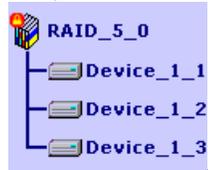


Chapter 16 Web GUI ICON Definition List

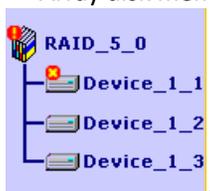
The definition of each ICON in the web GUI are listed below using RAID 5 array

1.  : The array status is “Critical” - a disk is missing from the RAID array.
2.  : The array status is “Verifying”. This indicates that the array is running a data integrity check.
3.  : The array status is “Rebuilding”. This occurs when the data verification fails or when adding a new disk into the “Critical” array.
4.  : The array status is “Critical”. This indicates that current array needs “rebuild”. This icon will also show up on a device in a RAID disk member as needing to “rebuild” its data.
5.  : The status of the “Array” or “Device” is “Disabled”.
6.  : The array is “Initializing”. There are two types of initialization- Foreground and Background.
-  : This icon means the RAID array is “Uninitialized”. On the RAID array either Foreground or Background initialization has stopped (Incomplete).
-  : On a disk (), it indicates that the disk is not initialized and will need to be initialized for the 1st time before it can be used with Sans Digital RAID card.
-  : The array disk is performing a OCE/ORLM operation.
7.  : The array OCE/ORLM operation has stopped.
8.  : The device status “Legacy()”. An existing file system has been created on the HDD.
9.  : The device is a “Spare()”. It is used to replace the failed RAID disk member to rebuild automatically.

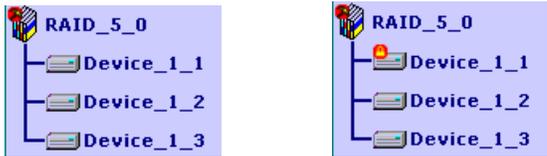
1.  : The array status is “Normal”.
2.  : The array is “Initializing”: Initializing(Foreground) and Initializing(Background).
3.  : The array has stopped “Initializing”. Current status is “Uninitialized”.
4.  : The array is inconsistent and it needs to “rebuild”. The current status is “Critical”.
Array disk member diagram is listed below



5.  : It shows a RAID-5 disk member is lost and its current status is “Critical”.
Array disk member diagram is listed below



6.  : The array is “rebuilding” and its current status is “Rebuilding”.
Array disk member diagram is listed below



7.  : The array is performing a data consistency checking and its current status is “Verifying”.

8.  : The array is not available. Two scenarios can cause this to happen. First - a lost RAID disk member exceed the minimum required to maintain a RAID level. Second - a disk failed before the initialization or rebuilding process complete. The status is in “Disabled”

Array disk member diagram is like this:



9.  : The array is performing an OCE/ORLM operation and Status is “Expanding/Migrating”

10.  : The OCE/ORLM operation has stopped and its current status “ Need Expanding/Migrating”

11.  : There is a disk member lost during OCE/ORLM operation. Its current status is “ Expanding/Migrating, Critical”.

Array disk member diagram is listed below



12.  : The OCE/ORLM operation needs to “rebuild”. Its current status is “Expanding/Migrating, Critical”.

Array disk member diagram is listed below



The following icons used in Event log to identify event type :

1.  : Information.
2.  : Warning.

3.  : Error.