

H3 Platform Falcon 4016 User Manual

- **System Introduction**
- **Web GUI Introduction**

Contents

Chapter 1 System Overview	2
1.1 System Feature and Specification	2
1.2 System Configuration	3
1.3 Thermal and Ambient Temperature	4
1.4 Device Compatibility List	4
1.5 Host OS Compatibility List	5
1.6 Accessory List	5
Chapter 2 Hardware Introduction	7
2.1 Front View	8
2.2 Rear View	9
2.3 Drawer	10
2.4 LED Status Indicator	10
2.5 GPU Installation	16
2.6 Host Adapter Card Installation	20
2.7 Boot Process	21
Chapter 3 Web GUI Introduction	23
3.1 Login Page	23
3.2 Overview	24
3.3 Resource Management	27
3.4 Port Configuration	32
3.5 Monitor	34
3.6 Event Log	35
3.7 System Health	36
3.8 Maintenance	39
3.9 Chassis	39
3.10 Setting	40

Chapter 1 System Overview

This chapter provides a general overview of the system. The overview outlines the system features and specification, system configuration capability, compatibility list and accessory list.

1.1 System Feature and Specification

The main system software features of Falcon 4016 include:

- GPU dynamic provisioning
- Device surprise add and remove
- Device peer-to-peer (GPU P2P)
- PCIe port configuration
- Performance and error monitoring

The main system management UI features of Falcon 4016 include:

- H3 management center
- Real-time GPU cluster topology
- Dashboard for GPU utilization, performance and other info
- Predictive health monitoring
- Role-based authentication and access control

The main hardware specification of Falcon 4016 includes:

- BMC/mCPU: Aspeed AST2500
- PCIe Switch: Broadcom PEX 88096 PCIe switch
- Power: Three 3000W PSUs, hot-swappable, 2+1 redundant
- Fan: Four 80x80mm dual-roter fans, hot-swappable
- PCIe Device Slot: Sixteen PCIe 4.0 x16 double-width slots
- LED Indicator: System Power, System Warning, UID , Drawer Power, AIC Status
- LAN: One RJ45 GbE LAN port
- Dimension: 4U; 174.8(H) x 448(W) x 835(D) mm
- Weight: 30kgs

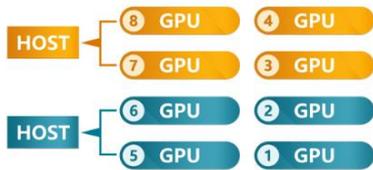
The main software specification of Falcon 4016 includes:

- Management Interface: Redfish, RESTful API, GUI
- Supported Browsers: Google Chrome, Microsoft Edge, Mozilla Firefox

1.2 System Configuration

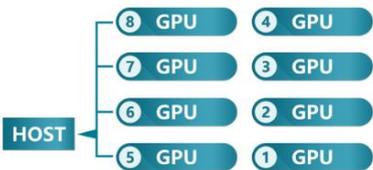
Falcon 4016 provides various configuration capabilities to meet the requirements of different usage scenarios. Each drawer can be set (Note: Falcon 4016 consists of 2 drawers) to the following three modes.

- a. Standard mode with two hosts



You can install 8 devices and connect two hosts to the drawer. Each host can then access 4 devices.

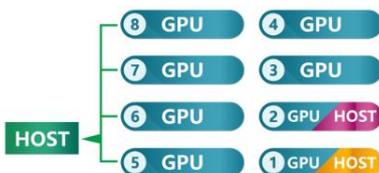
- b. Standard mode with one host



You can install 8 devices and connect one host to the drawer. Each host can then access 8 devices.

Caution: In this mode, the other 2 host ports (1:H2, 2:H2) have become the device ports which can be used to connect another Falcon 4016. Please do not connect these ports with the host servers.

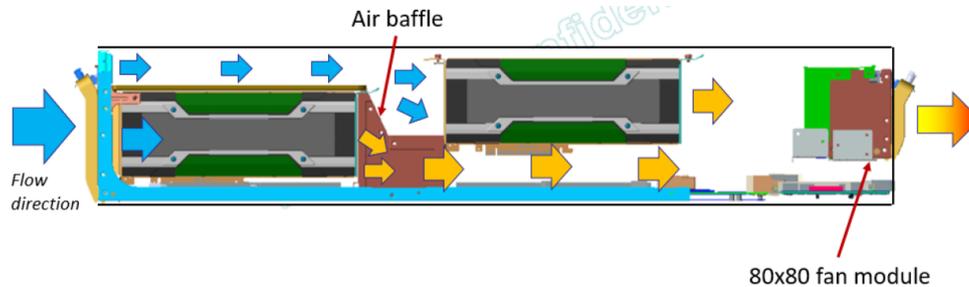
- c. Advanced mode



You can configure slot 1 and 2 (as indicated above) as the host ports with the additional host cards and all GPUs can be allocated and re-allocated dynamically on the fly across the connected hosts.

1.3 Thermal and Ambient Temperature

Falcon 4016 has four 80x80mm dual-rotor fan modules, and the airflow direction goes from front to rear as the following drawing indicates.



The system ambient temperature is 35°C. System manages the thermal by adjusting the fan RPM based on the system and device temperatures respectively. When the system or device temperature goes up, RPM will be increased and when the system or device temperature goes down, RPM will be reduced.

1.4 Device Compatibility List

Before installing any device on Falcon 4016, please check the following compatibility list to ensure the device has been tested by our team and proved workable. The list is subject to change thus we recommend checking out our compatibility list on our company website to follow the latest updates.

Caution: Please only use the devices that are on the compatibility list. Failure to follow the list could result in damage to Falcon 4016 and H3 Platform will not be responsible for the damage.

Accelerator	<ul style="list-style-type: none">• Nvidia Tesla® P100, V100Nvidia Quadro® RTX 8000/6000 Passive• AMD Radeon™ Pro V340• AMD Radeon Instinct™ MI50, MI60
Storage	<ul style="list-style-type: none">• Intel® P4500, P4600, P4800X series• Samsung PM1725a, PM1725b, PM1733 series
Network Adapter	<ul style="list-style-type: none">• Mellanox ConnectX®-4, ConnectX®-5

1.5 Host OS Compatibility List

Falcon 4016 supports the following host OS, and failure to use the supported host OS could potentially result in damage to Falcon 4016 and H3 Platform will not be responsible for the damage.

RHEL/CentOS	<ul style="list-style-type: none">• 7.2 ~ 7.6
Ubuntu	<ul style="list-style-type: none">• 16.04 LTS• 18.04 LTS
Windows	<ul style="list-style-type: none">• Windows 10 Pro (Build 1903)

1.6 Accessory List

- a. 16* GPU rear brackets (with 48 screws)



- b. 16* GPU power cords
 - 8pin to 8pin: Nvidia Tesla® P100, V100, Nvidia Quadro® RTX8000/6000 Passive



- 8pin to 8+8pin (Note: This power cord needs to be purchased additionally. Please contact us for details): AMD Radeon Instinct™ MI50, MI60



Caution: Please use the correct power cord for your GPU model. Using the wrong power cord will damage the GPU.

- c. 16* full-height brackets



Caution: Please install the bracket when PCIe slot is not populated with any device for good airflow.

- d. 3* power cords (220V, Type B to IEC320 C19)



- e. 4 or 2* host adapter cards (based on the ordered barebone chassis P/N) with half-height/full-height brackets (screws located in the drawer)



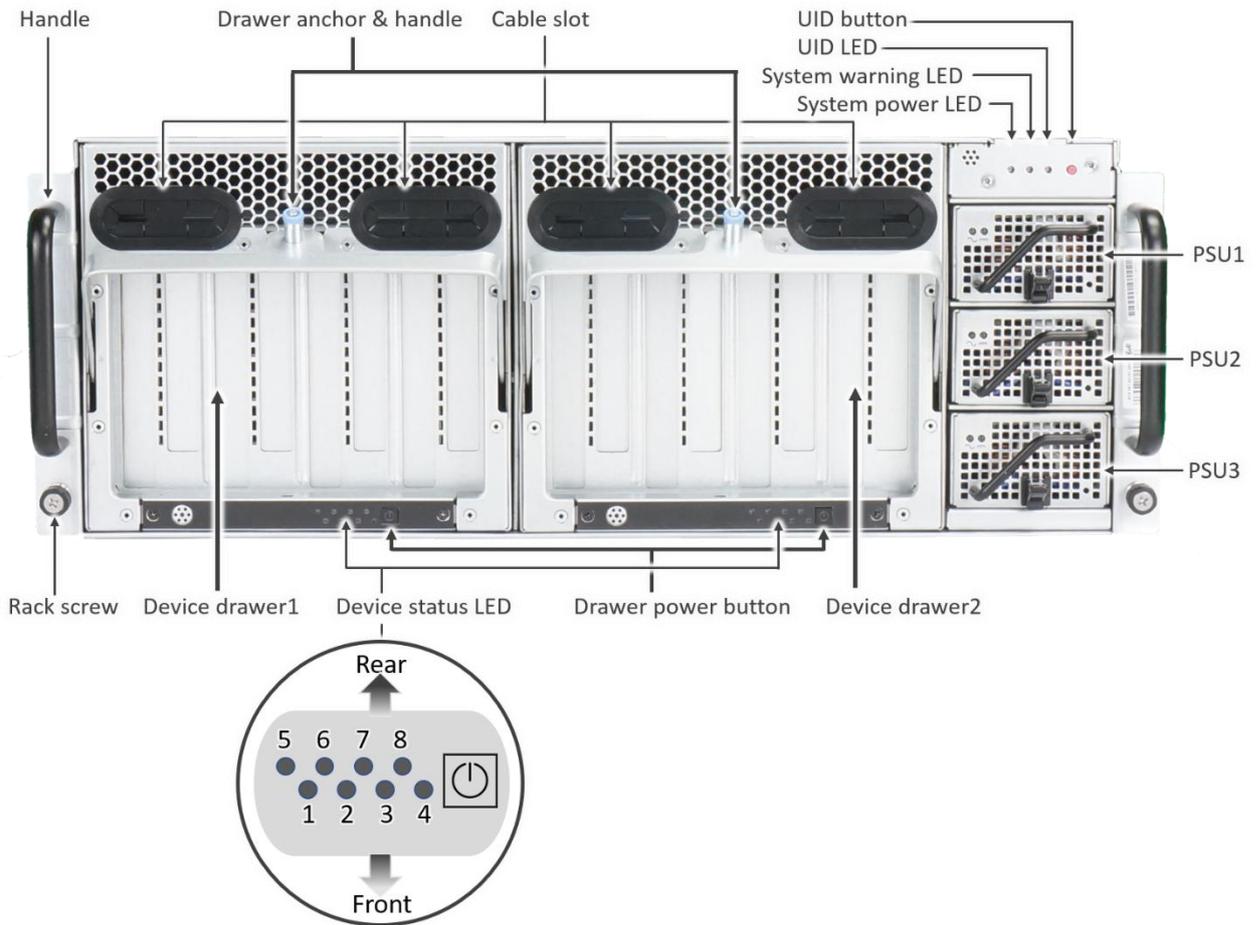
- f. 4 or 2* 1.5m CDFP cables (based on the ordered barebone chassis P/N)



Chapter 2 Hardware Introduction

This chapter introduces the package contents and each part of Falcon 4016.

2.1 Front View



Rack screw: For attaching Falcon 4016 to rack.

Device drawer: One drawer can accommodate 8 GPUs [Left, Right: Drawer1, Drawer2].

Drawer power button: For controlling single drawer power.

Button functionality:

Pressing for 1-10 seconds (blinking green) will switch on/off the drawer.

During the power on/off process, the system warning LED will blink amber.

When the drawer power is completely on, the button will glow green.

Pressing for >10 seconds (amber) will reset GUI IP/password.

Device status LED: A Total of 8 LEDs show the GPU status for each drawer. When a GPU is installed correctly, the LED will glow green.

Handle: For transporting Falcon 4016.

System power LED: For showing Falcon 4016 power status. When the system power is completely on, the LED will glow green. During the power on/off process,

the system power LED will first blink green, then the system warning LED will blink amber and go off.

Drawer anchor & handle: For removing drawer from Falcon 4016.

Cable slot: For allowing cable access to GPUs at the back portion of the drawer.

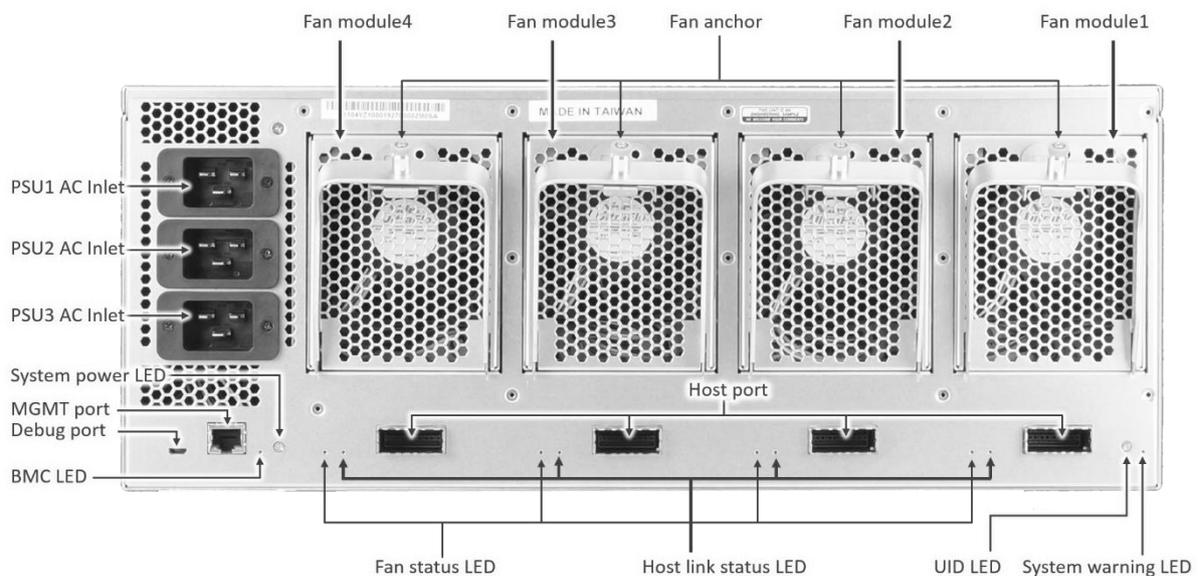
UID button: For controlling UID LED on/off.

UID LED: For identifying Falcon 4016 location and the LED will glow blue.

System warning LED: The LED will glow red when Falcon 4016 suffers a critical error.

Power supply: A total of 3 PSUs supply the power allowing 1 PSU to be shut down as a redundancy.

2.2 Rear View



Fan status LED: For showing fan status. Green light indicates fan is operating normally [1, 2, 3, 4].

Host link status LED: For showing host link status. Green light indicates host is linked [1, 2, 3, 4].

UID LED: For identifying Falcon 4016 location and the LED will glow blue.

Host port: For connection to host by CDFP cable [2:H2, 2:H1, 1:H2, 1:H1].

Fan module: A total of 4 dual-rotor fan modules deliver the best cooling performance allowing 1 rotor of each fan module to be shut down [1, 2, 3, 4] as a redundancy.

Fan anchor: For attaching fan module. Pull up to remove fan module.

AC inlet: Sockets for AC power cords [1, 2, 3].

System power LED: For showing Falcon 4016 power status. When the system power is completely on, the LED will glow green. During the power on/off process, the system power LED will first blink green, then the system warning LED will blink amber and go off.

MGMT port: RJ45 management port.

Debug port: Micro USB for critical fault debugging.

BMC LED: For showing BMC status.

2.3 Drawer

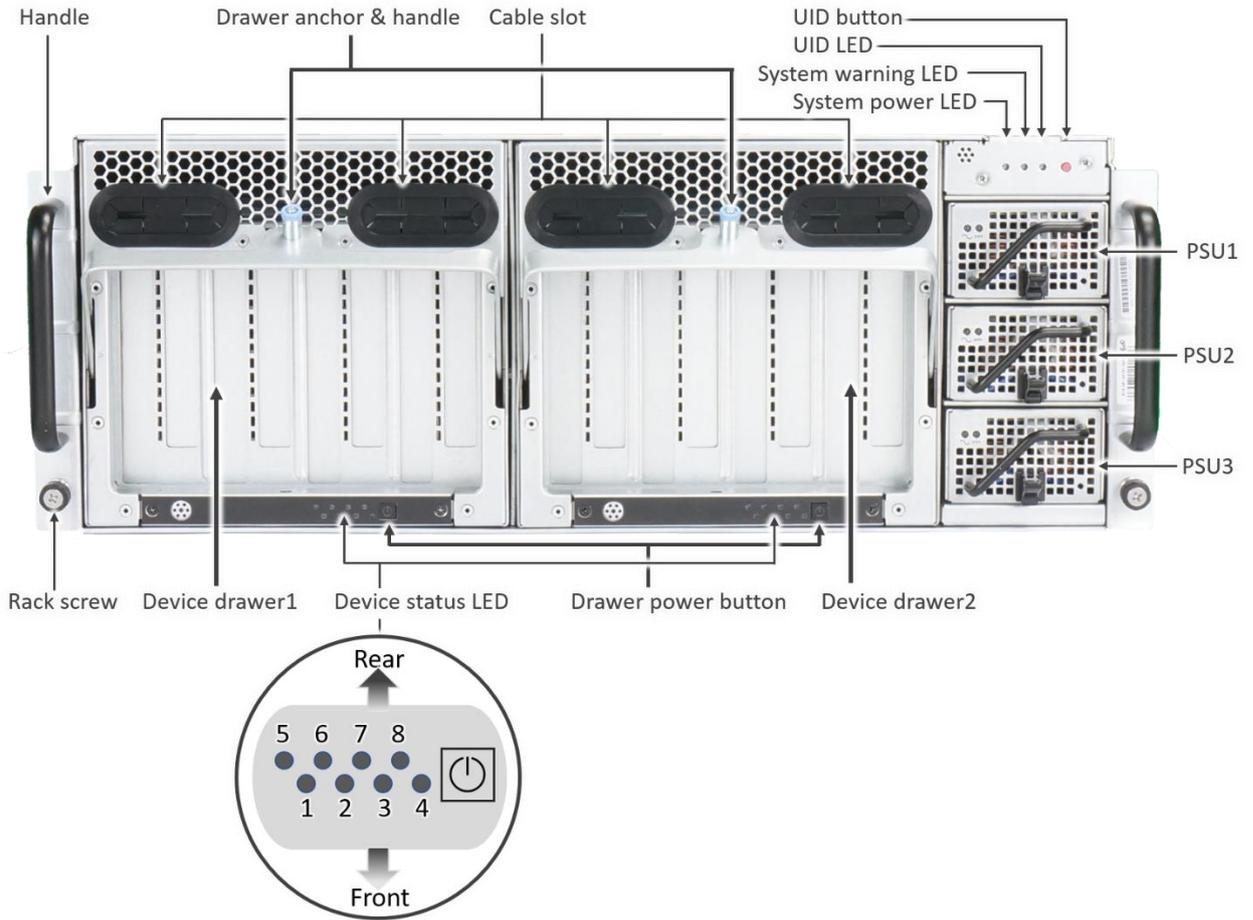


PCIe slot: For device installation [Drawer number, 1~8]

2.4 LED Status Indicator

Front:

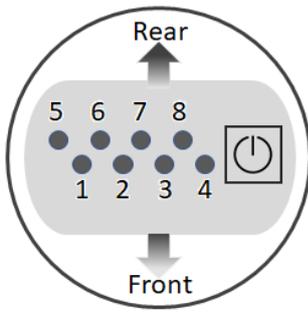
- a. UID button/UID LED/System warning LED/System power LED



LED Indicator	LED Color	LED State	Status
System power LED	Green	On	System is on
		Blinking	a. Power-on initialization is in process (1-second on, 1-second off) b. BMC initialization is in process (every 0.25 sec)
		Off	Power is off
System warning LED	Amber	On	Critical system error has occurred
		Blinking	CPLD setting is in process (every 0.25 sec)

			PCIe 4.0 switch initialization is in process (every 0.5 sec) Start-up of system services is in process (every 1 sec)
		Off	System is healthy
UID LED	Blue	On	System identification has been activated (UID button is pressed)
		Off	N/A

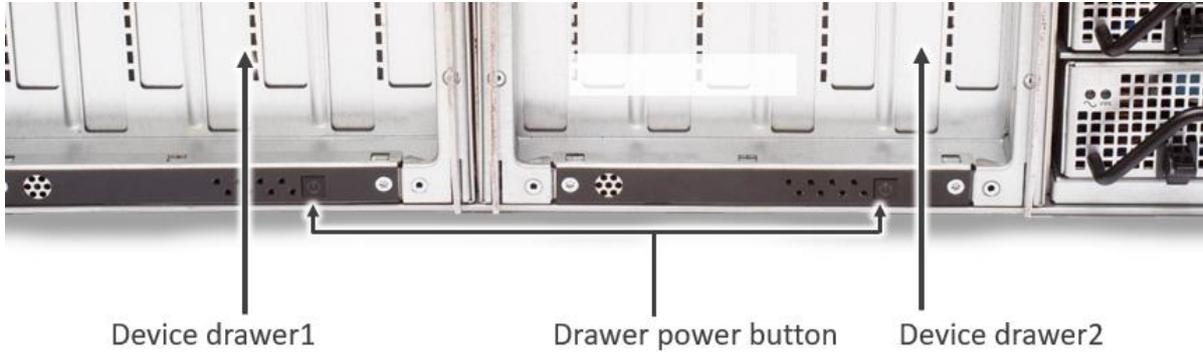
b. Device status LED



LED Indicator	LED Color	LED State	Status
Device status LED	Green	Off>On	Device is online and healthy
		On>Off	Device is offline
		Blinking	N/A
	Amber	On	Device is installed, but with error

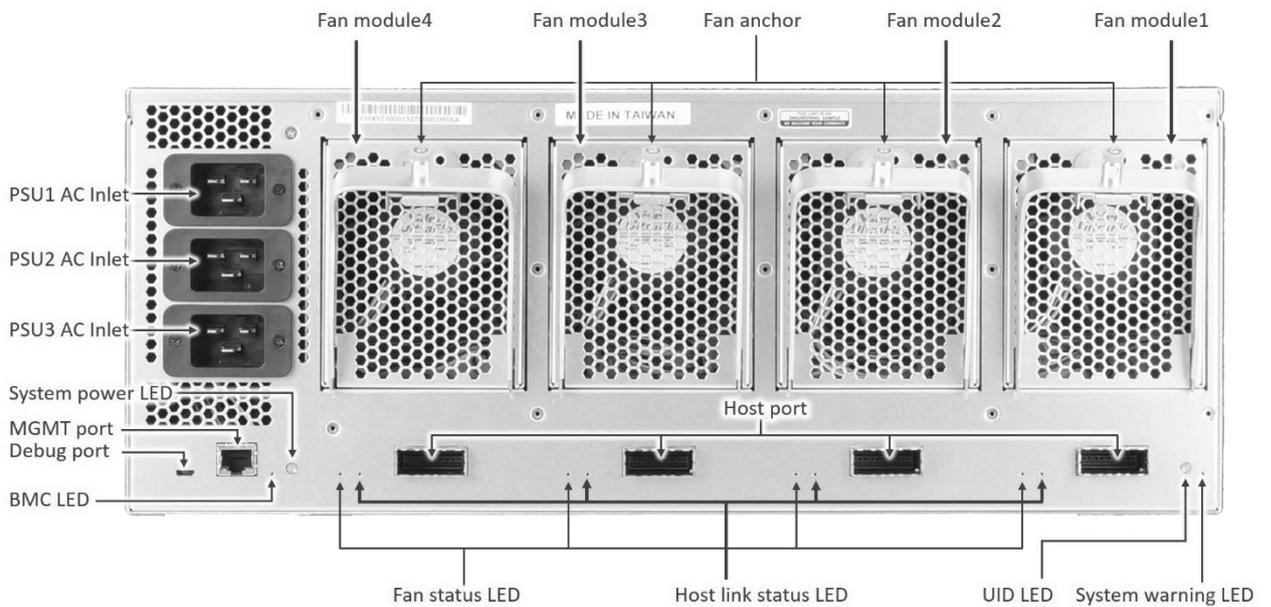
		Off	N/A
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c. Drawer power button



LED Indicator	LED Color	LED State	Status
Drawer power button	Green	On	Drawer power is on
		Off	Drawer power is off
		Blinking	Drawer is ready to be booted up or shut down

Rear:



a. BMC LED

LED Indicator	LED Color	LED State	Status
BMC LED	Green	On	BMC has been crashed
		Off	BMC is offline
		Blinking	BMC is online and healthy

b. System power LED

LED Indicator	LED Color	LED State	Status
System power LED	Green	On	System is on
		Blinking	a. Power-on initialization is in process (1-second on, 1-second off) b. BMC initialization is in process (every 0.25 sec)
		Off	Power is off

c. Host link status LED

LED Indicator	LED Color	LED State	Status
Host link status LED	Green	On	Uplink speed is PCIe Gen4
		Blinking with 2 secs	Uplink speed is PCIe Gen3
		Blinking with 1 sec	Uplink speed is PCIe Gen2
		Blinking with 0.5 sec	Uplink speed is PCIe Gen1
		Off	No link

d. Fan status LED

LED Indicator	LED Color	LED State	Status
Fan status LED	Green	On	Fan module is present and healthy
	Red	On	Fan module is not present or unhealthy

e. UID LED

LED Indicator	LED Color	LED State	Status
UID LED	Blue	On	System identification has been activated (UID button is pressed)
		Off	N/A
	Red	On	System is booting
		Off	N/A

f. System warning LED

LED Indicator	LED Color	LED State	Status
System warning LED	Amber	On	System critical error has occurred
		Blinking	CPLD setting is in process (every 0.25 sec) PCIe 4.0 switch initialization is in process (every 0.5 sec) Start-up of system services is in process (every 1 sec)
		Off	System is healthy

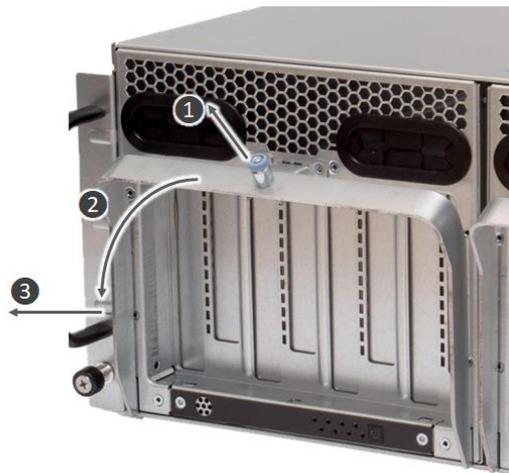
2.5 GPU Installation

Please follow the following steps to install/remove your GPUs.

Caution: Please ensure each step is carefully followed. Failure to follow the procedure below could result in damage to Falcon 4016. Special attention should be paid to cable/power cord connections and screws being fully and correctly engaged.

1. To pull out the device drawer: Pull up the drawer anchor, pull down the drawer handle, then pull out the drawer.

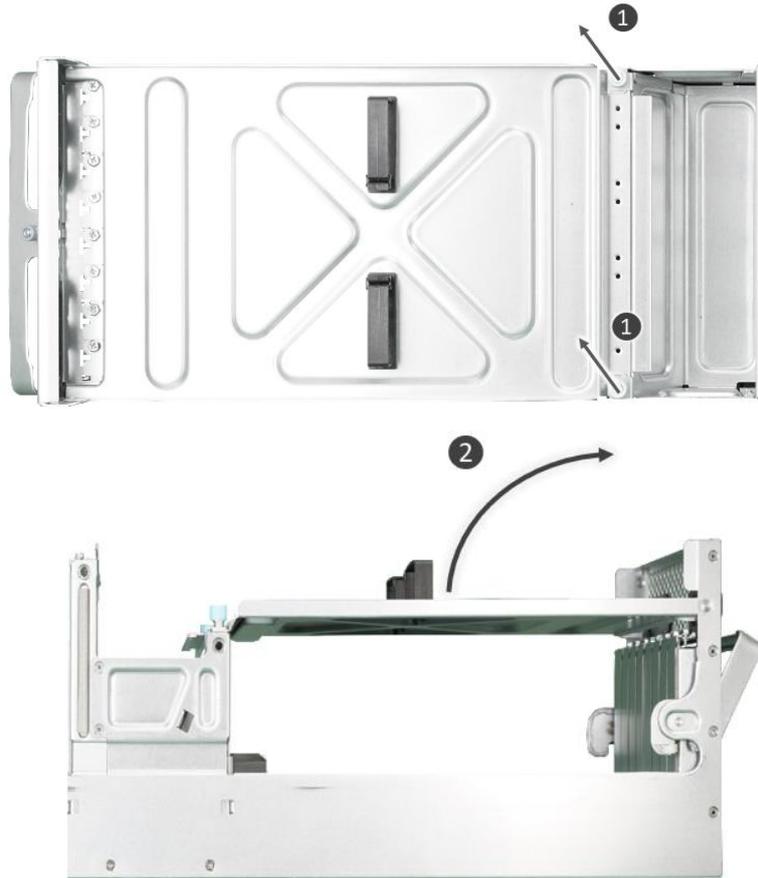
Caution: Please don't hot plug the drawer as the drawer power needs to be turned off first before pulling the drawer out.



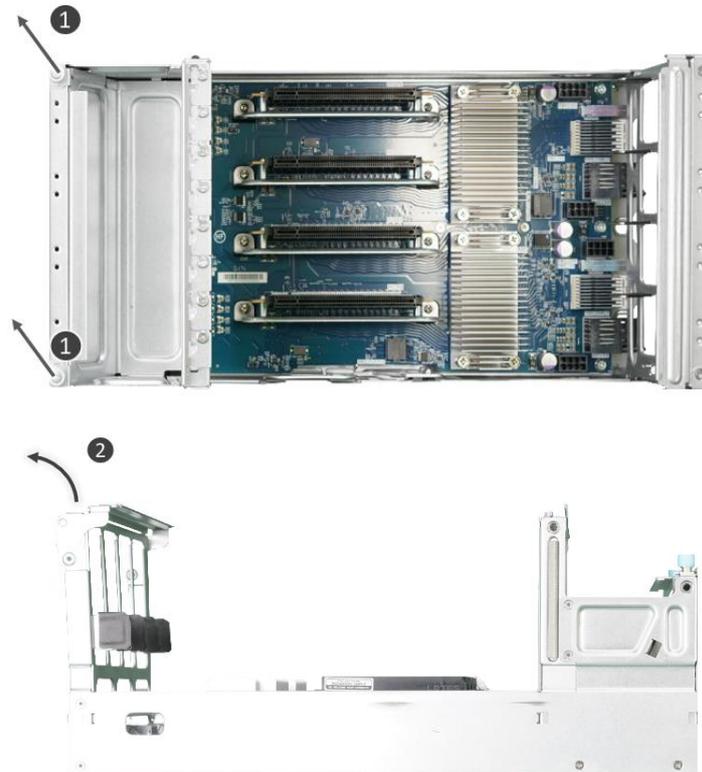
To fully remove the drawer from Falcon 4016, please push the safety latch on the bottom right hand side of the drawer. This latch becomes visible once the drawer has been withdrawn to the halfway point, see the image below.



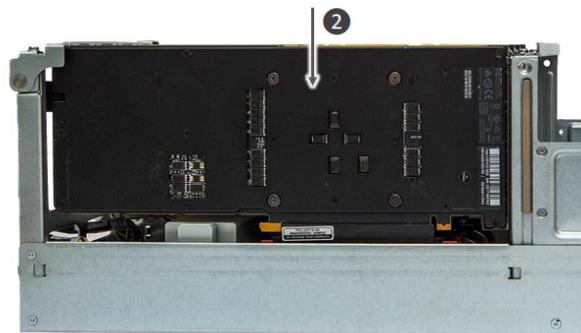
2. To install or remove the GPUs located in the **front** portion of the drawer, the top cover should be removed. Release 2 screws, then remove cover.



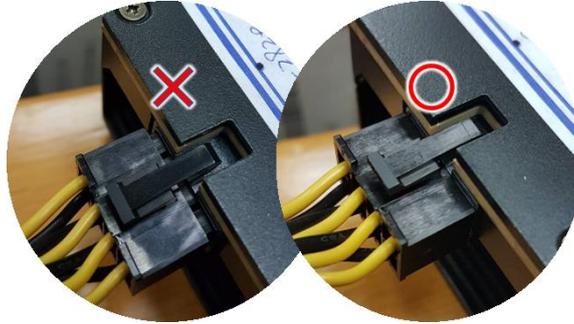
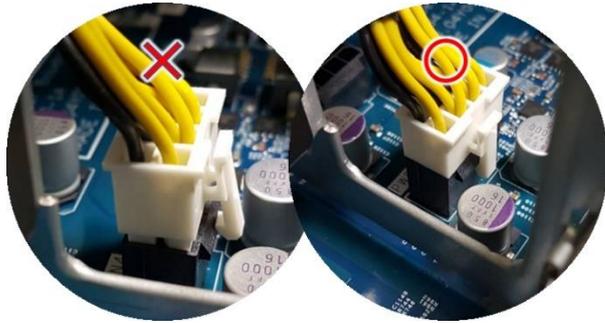
To install or remove the GPUs located in the **rear** portion of the drawer, the rear GPU holder must be opened. Release 2 screws, then open holder.



3. To install a GPU: Release bracket screw, install GPU, plug in power cord, then lock bracket screw.



Caution: Ensure correct installation as shown below.



* Baseboard side

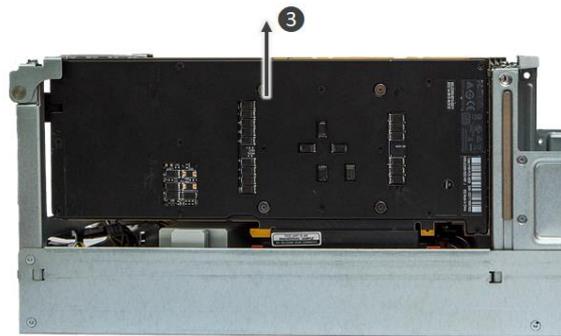
* GPU side



Caution: Please ensure screws are correctly aligned and fully engaged. Failure to follow the procedure below could result in damage to Falcon 4016.

- To remove a GPU: Release bracket screw, unplug power cord, remove GPU, then install bracket and lock screw.





5. To push the drawer back into Falcon 4016

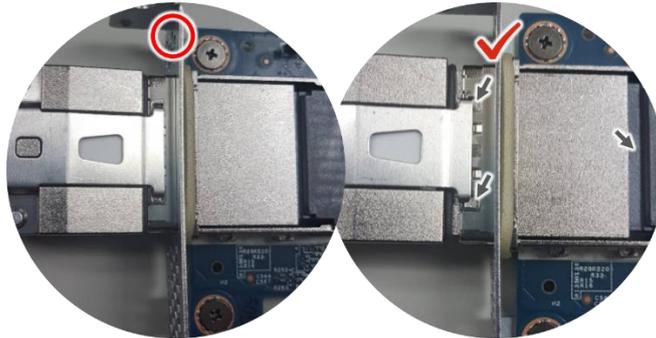
Caution: Take care not to trap items or fingers in the drawer during reinsertion.

2.6 Host Adapter Card Installation

Please ensure your host meets the following criteria prior to installation.

OS: CentOS 7.5 and 7.6; RedHat 7.5 and 7.6; Ubuntu 16.04 and 18.04;
Window 10 pro (build 1903)

Installation space: PCIe x16 socket, 166.7mm length and 65mm height



Caution: Please ensure CDFP cable is correctly connected, see the image above. Failure to follow the procedure below could result in damage to Falcon 4016.

2.7 Boot Process

Please follow step 1~6 outlined below to boot up your Falcon 4016.

1. Install your GPU in Falcon 4016.
2. Connect the MGMT port to the network.



3. Connect to at least 2 A/C PSUs to power on
Falcon 4016 will take ~2 minutes completing the boot-up process.



4. After the system power-up, the system power LED will glow green.
Now use the management UI to insert the following information:
 - Default IP is "169.254.100.100"
 - Account/Password is admin/admin
5. Plug in the CDFP cable and link to the host and then boot up the host.
6. Modify your time/network/account setting using the management UI. Please refer to Chapter 3 for details.

Chapter 3 Web GUI

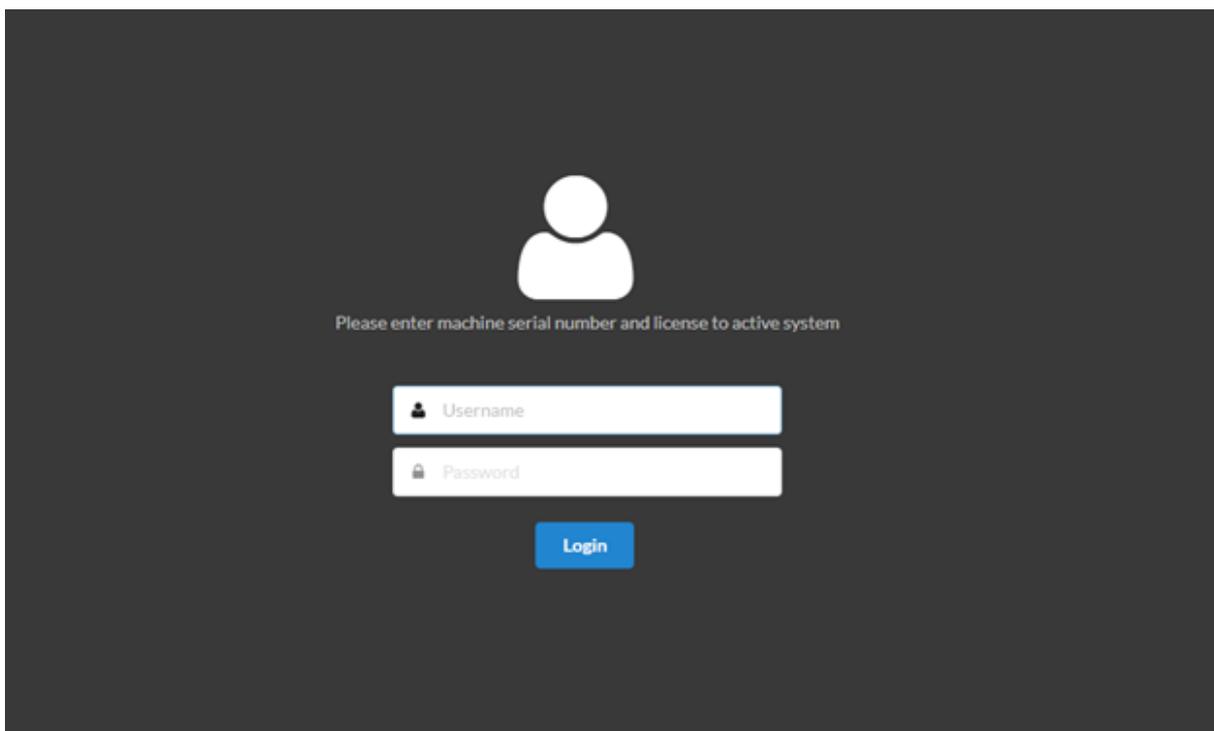
Introduction

This chapter introduces Falcon 4016 single GUI functions and operations. The UI of your device is accessed using a web browser. Currently Firefox 3.5 or newer, Internet Explorer 7 or newer or Chrome version 12 or higher are all supported.

To access the Web GUI, enter the following URL and login details into your browser. You can revise these settings in the “Setting” page.

IP address	169.254.100.100
Login name	admin
Login password	admin

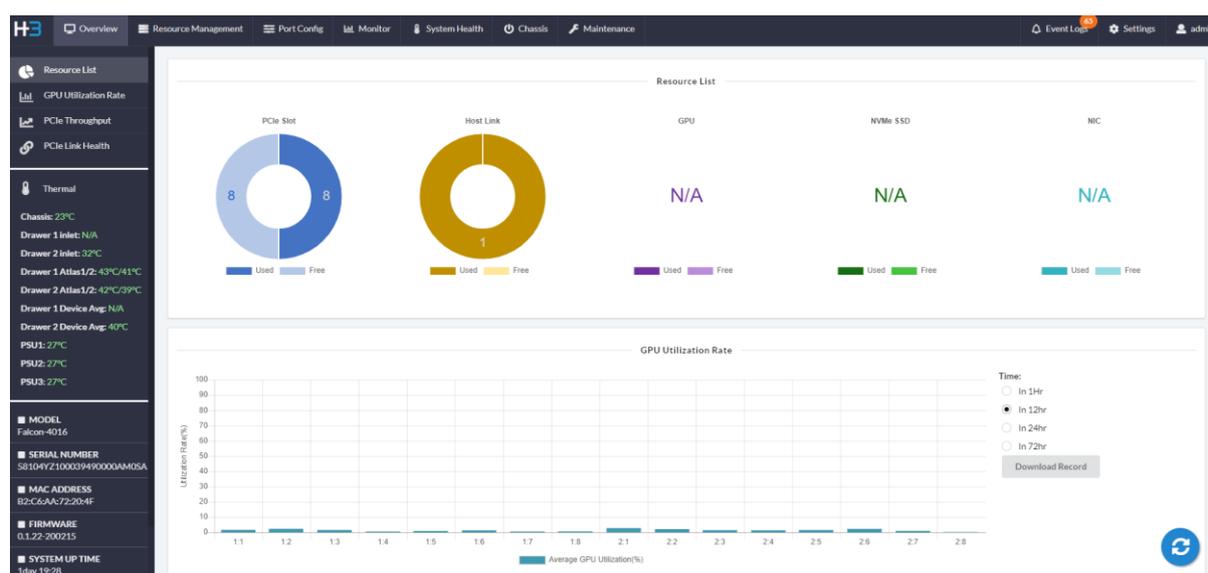
3.1 Login Page



Every time when you visit the Web management GUI, you will be asked to enter your “Username” and “Password”. The default “Username” is “admin”, and “Password” is “admin” as well.

If you forgot your IP address, username, or password, please contact the Admin. to proceed further. If you are an Admin. yourself, please push either one of the drawer power buttons, press it for 10 seconds, then release it, IP address and password will then be reset back to the default login details.

3.2 Overview



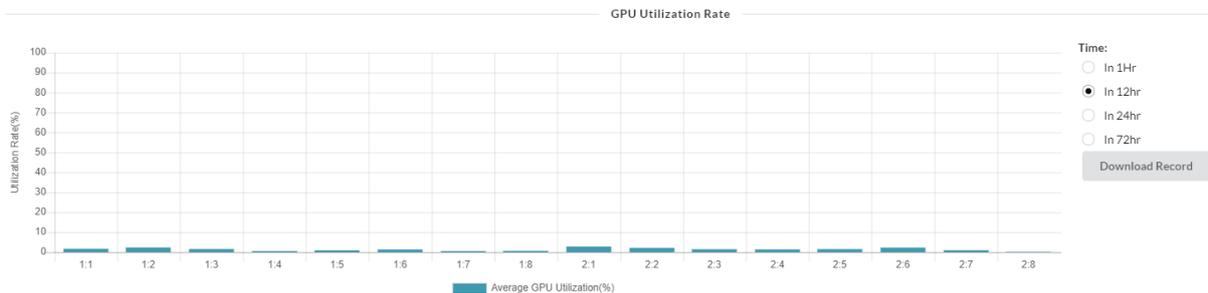
On the Overview page, it provides the analytical information to help you quickly monitor the system and manage the resource utilization. With the Refresh icon in the bottom right corner, the page can be updated manually or it will be automatically updated every 30 seconds.

a. Resource List



With the Resource List, you can easily get a status overview of all the resources including PCIe Slot, Host Link, GPU, NVMe SSD, and NIC to find out how many have been used and how many are still free to be allocated.

b. GPU Utilization Rate



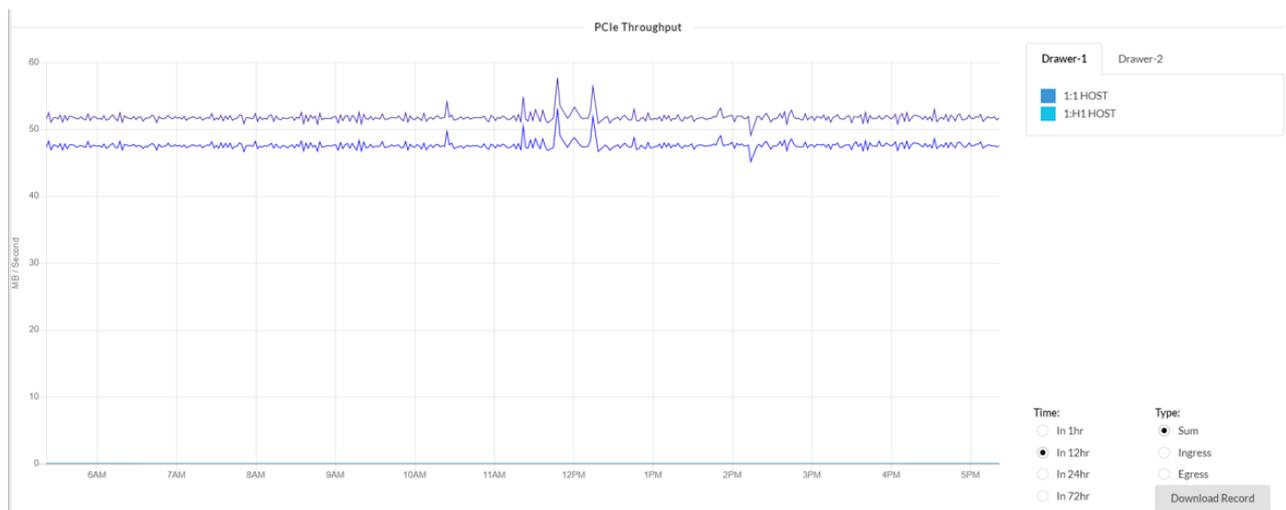
X-axis: X-axis represents the GPU location [drawer number: port number].

Y-axis: Y-axis represents the utilization rate.

[Download Record]: 72-hour utilization rate report can be downloaded in excel to do the off-line analysis.

[Time]: You can select the different time period, 1, 12, 24, or 72 hours, to check the performance history.

c. PCIe Throughput



X-axis: X-axis represents the time measured.

Y-axis: Y-axis represents the performance in Megabytes per second.

[Drawer check box]: You can check the performance chart of any specific slot by selecting drawer and PCIe slot number.

[Time]: You can check the performance chart by selecting time period including 1, 12, 24, and 72 hours.

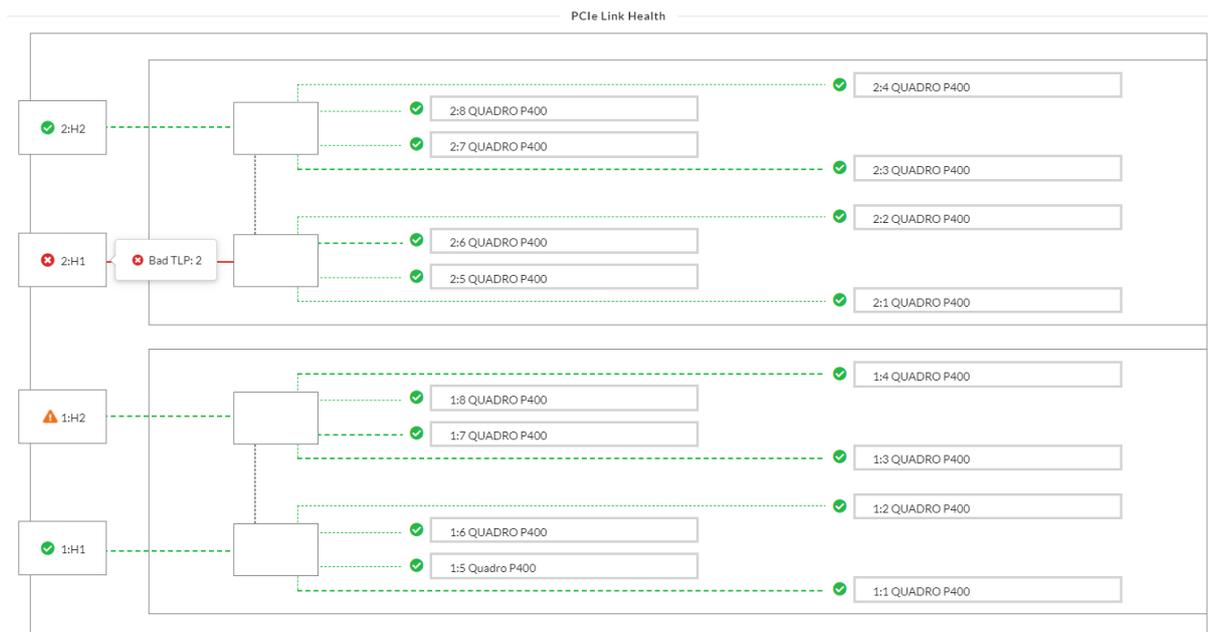
[Type]: You can check the performance chart by selecting type including Sum, Ingress, and Egress.

[Download Record]: 72-hour PCIe throughput report can be downloaded in excel to do the off-line analysis.

d. PCIe Link Health

System PCIe link health status [Healthy, Warning, Error: Green, Amber, Red:

✔ Health , ⚠ Bad DLLP: 1 , ❌ Bad TLP: 1] is provided to determine the connection quality between the PCIe switch and device.



e. System Information

On the sidebar, various system information is displayed as follows.



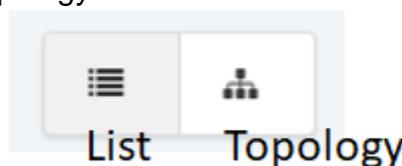
f. Thermal information

Also on the sidebar, the following information is provided to help monitor the hardware and usage in real time.



3.3 Resource Management

You can allocate and re-allocate the device resources to the connected hosts here by either List mode or Topology mode.



a. List mode

Slot #	Assigned Port #	Device Model Name	UUID / Serial Number	Temp.C	Link Capability	Status
1:2	-	Ethernet SDI Adapter	-	0	G3x8 / G4x16	Available
1:3	-	BCM57454 NetXtreme-E...	-	0	G4x16 / G4x16	Available
1:4	-	RTL8111/8168/8411...	-	0	G4x16 / G4x16	Available
1:5	H1	Tesla K20Xm	GPU-f17b48e9-796e-cad6-d960-f1f0e76d38f	31	G2x16 / G4x16	Allocated
1:6	-	Tesla K20Xm	-	0	-- / G4x16	Empty
1:7	-	-	-	0	-- / --	Empty
1:8	H1	Tesla K80	GPU-a0bc11a-b899-4286-74f2-0a51fedbf902	32	G4x16 / G4x16	Allocated
2:2	H3	Tesla T4	GPU-8bcf0edd-4ba9-ae02-83df-76b36726af80	44	G1x16 / G4x16	Allocated
2:3	H3	Tesla P100-PCIe-16GB	GPU-c1a51b77-44a2-282a-23a5-eecebc375565	34	G4x16 / G4x16	Allocated

Allocate: For assigning and re-assigning the devices across different hosts.

Refresh page: For refreshing the resource management page manually or this page will be refreshed automatically every 5 seconds.

Slot #: For showing the slot that the device is installed in [drawer number: port number].

Assigned port #: For showing the host port number that the device is assigned to [drawer number: host port number].

Device Model Name #: For showing the model name that the system reads from the installed device (Note: Some devices are not supported).

UUID/Serial Number: For showing the UUID/Serial Number that the system reads from the installed device (Note: Some devices are not supported).

Temp. C: For showing the device temperature in Celsius.

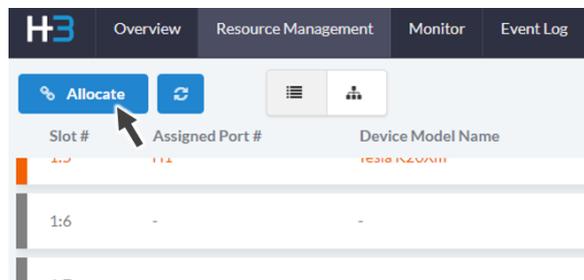
Link Capability: For showing the link capability between the PCIe switch and device and PCIe switch alone [Real PCIe link speed capability/Max. PCIe switch link speed capability].

Status: For showing the status of the slot and installed device [Empty: no device; Available: free device; Unavailable: free device with error; Allocated: device has been assigned].

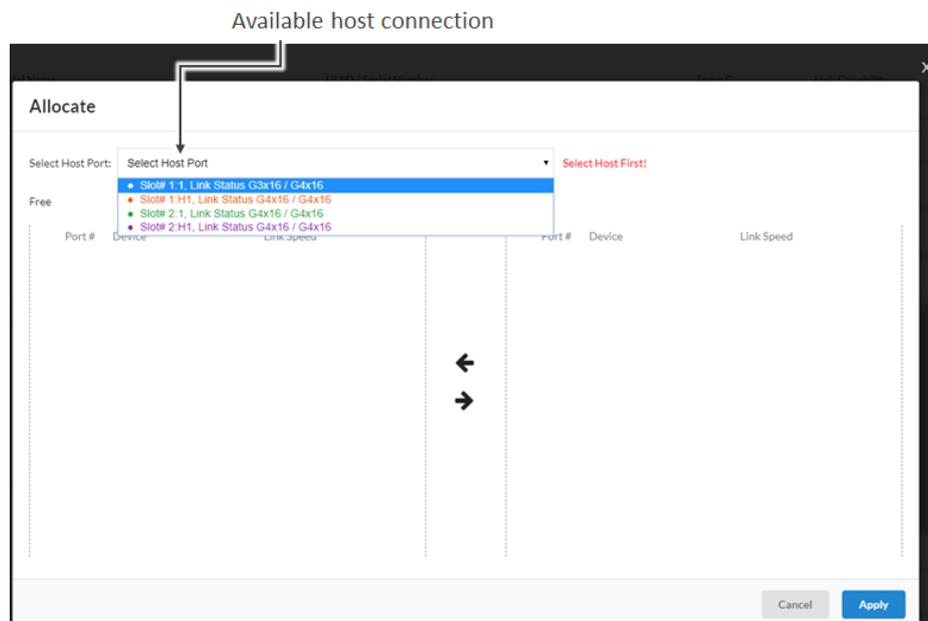
You can also click on any device to show the detailed device information (Note: Some devices are not supported), please see the image below.

Slot #	Assigned Port #	Device Model Name	UUID / Serial Number	Temp.C	Link Capability	Status																																
1:6	-	-	-	0	--/G4x16	Empty																																
1:7	-	-	-	0	--/--	Empty																																
1:8	H1	Tesla K80	GPU-a0bc11a-b899-4286-74f2-0a61fe68f902	32	G4x16 / G4x16	Allocated																																
2:2	H3	Tesla T4	GPU-8bcf0edd-4ba9-ae02-83df-76b36726af80	44	G1x16 / G4x16	Allocated																																
				<table border="1"> <tr> <td>Vendor ID & Device ID</td> <td>10de 1e88</td> <td>GPU Part No.</td> <td>1EB8-895-A1</td> </tr> <tr> <td>Sub System ID</td> <td>12a2</td> <td>Board Part No.</td> <td>900-2G183-0000-000</td> </tr> <tr> <td>Product Name</td> <td>Tesla T4</td> <td>Temperature</td> <td>44</td> </tr> <tr> <td>Serial No.</td> <td>0324318118888</td> <td>Power Draw</td> <td>-</td> </tr> <tr> <td>UUID</td> <td>GPU-8bcf0edd-4ba9-ae02-83df-76b36726af80</td> <td>Memory Usage</td> <td>-</td> </tr> <tr> <td>VBIOS Version</td> <td>90.04.38.00.03</td> <td>GPU Utilization</td> <td>-</td> </tr> <tr> <td>Image Version</td> <td>G183.0200.00.02</td> <td>Fan Speed</td> <td>-</td> </tr> <tr> <td>Build Date</td> <td>2018/10/25</td> <td></td> <td></td> </tr> </table>		Vendor ID & Device ID	10de 1e88	GPU Part No.	1EB8-895-A1	Sub System ID	12a2	Board Part No.	900-2G183-0000-000	Product Name	Tesla T4	Temperature	44	Serial No.	0324318118888	Power Draw	-	UUID	GPU-8bcf0edd-4ba9-ae02-83df-76b36726af80	Memory Usage	-	VBIOS Version	90.04.38.00.03	GPU Utilization	-	Image Version	G183.0200.00.02	Fan Speed	-	Build Date	2018/10/25			
Vendor ID & Device ID	10de 1e88	GPU Part No.	1EB8-895-A1																																			
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Product Name	Tesla T4	Temperature	44																																			
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Image Version	G183.0200.00.02	Fan Speed	-																																			
Build Date	2018/10/25																																					
2:3	H3	Tesla P100-PCIE-16GB	GPU-c1a51b77-44a2-282e-23a5-eecebc375565	34	G4x16 / G4x16	Allocated																																
2:4	H3	QUADRO P400	GPU-aa9314f2-b821-c5e6-e17c-bbc121530ed6	37	G4x16 / G4x16	Allocated																																

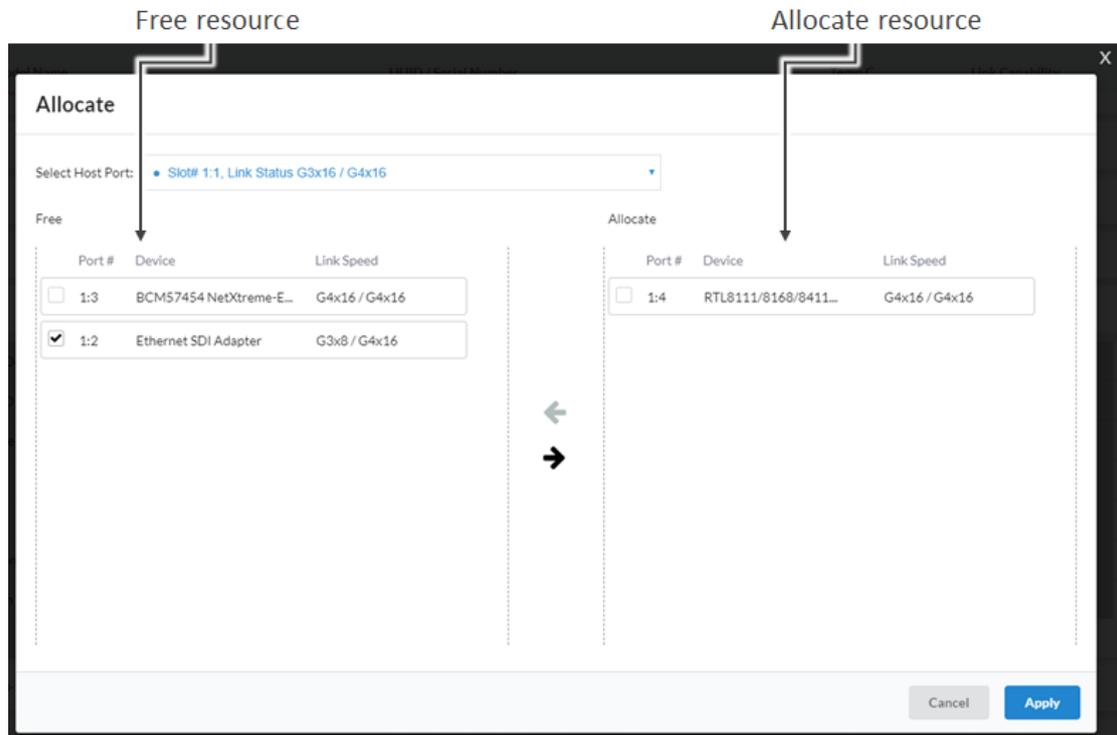
b. Allocate the resource on the List mode
Click on “Allocate” to access the allocation page.



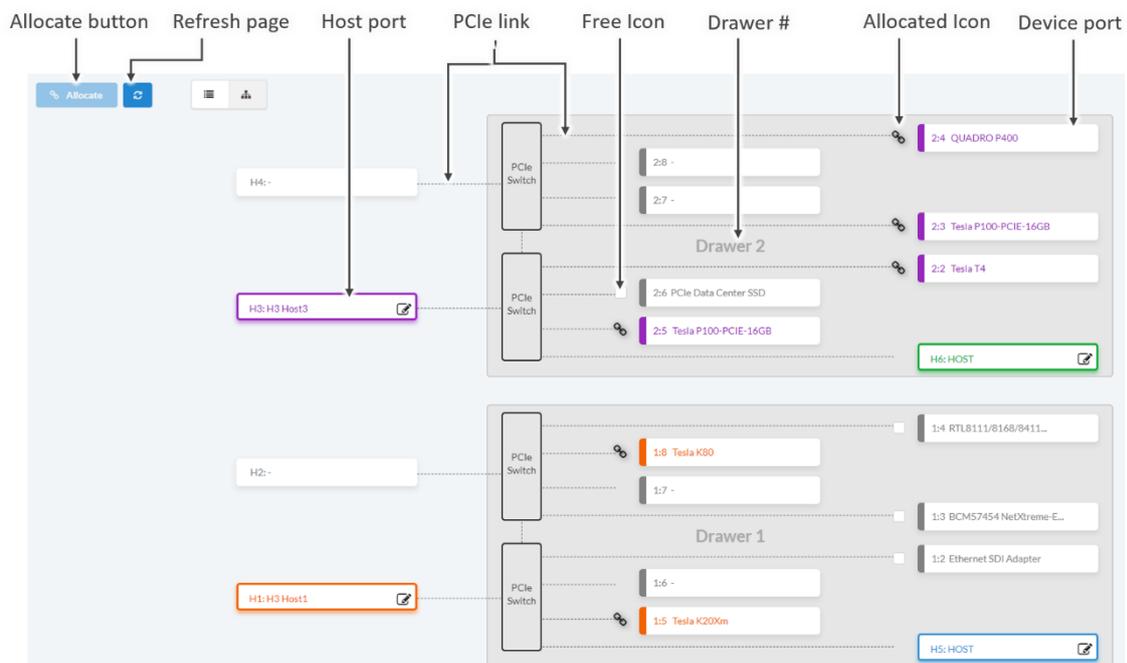
Select the “Host Port” that you want to allocate the resource to as the system will list out all the connected hosts to choose from.



Select the device that you want to assign to the “Allocate” area, and the device that you want to release to the “Free” Area. Click on “Apply” to proceed with the allocation plan.



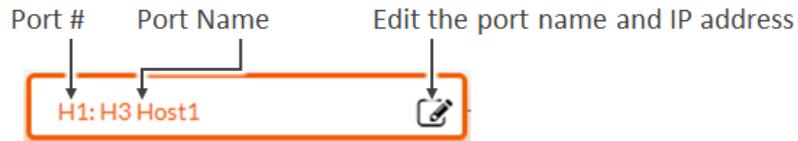
c. Topology mode



Allocate: For assigning the resource once the host and device have been selected.

Refresh page: For refreshing the resource management page manually or this page will be refreshed automatically every 5 seconds.

Host port: For showing the connected hosts that can also be renamed.



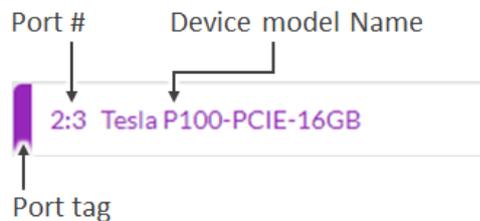
PCIe link: For showing the connection among the PCIe switch, hosts, and devices.

Free icon: For checking out the box to assign the available resource.

Drawer #: For showing the physical drawer number and when the drawer power is off, "Drawer #(Offline)" will be shown in darker gray.

Allocated icon: For releasing/unassigning the assigned device.

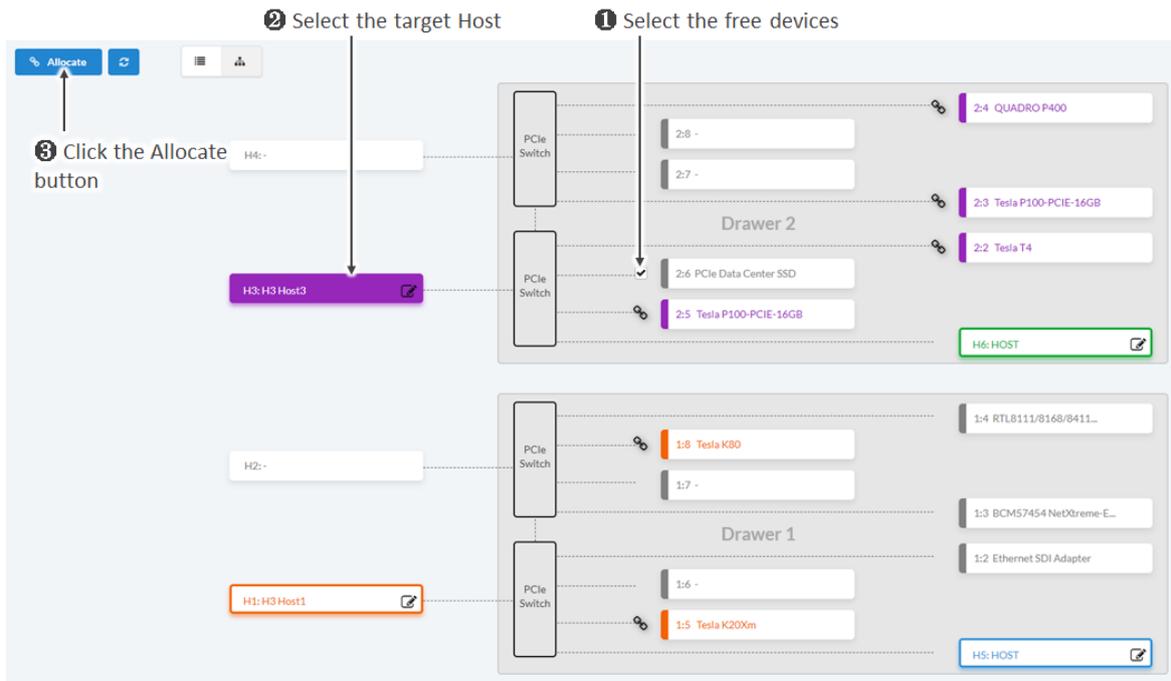
Device port: For showing the installed device. When it's in gray, it's available to be assigned and once it's been assigned, the color will be the same as the host that it is assigned to (**Note: Some devices are not supported**).



d. Allocate the resource on the Topology mode

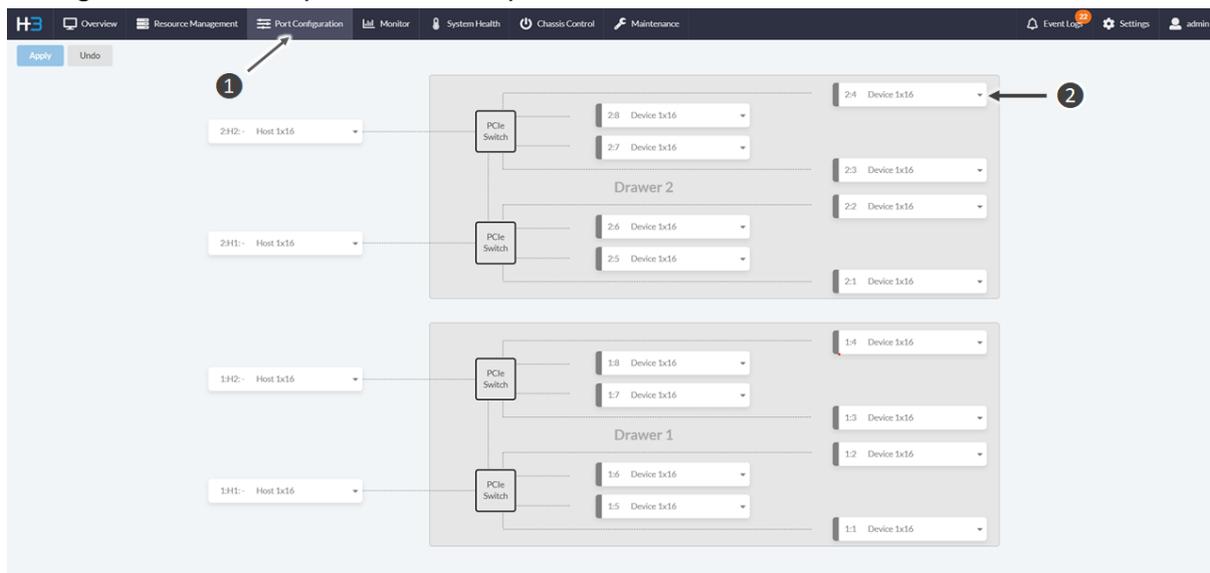
Follow the following steps to allocate the resource:

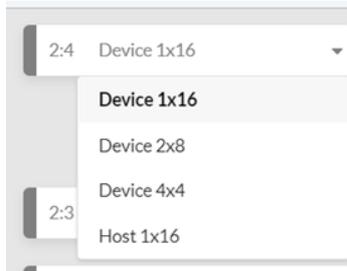
1. Select the available device
2. Select the host that you want to assign the resource to
3. Click on "Allocate"



3.4 Port Configuration

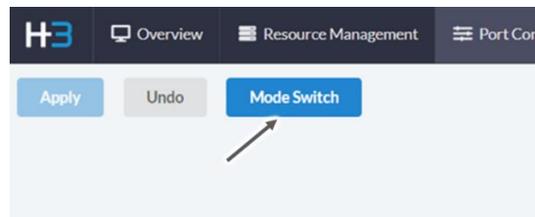
The user-defined port configuration function is provided as you can select the device by various PCIe port types based on the following steps and you can also re-configure the device port as a host port.





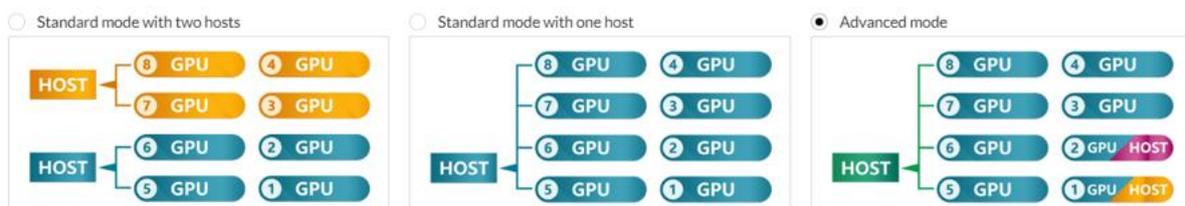
- Go to "Port Configuration" page.
- Click on Device for the drop-down menu of PCIe port type.
- Select the PCIe port type [Device 1x16, Device 2x8, Device 4x4, Host 1x16]
- Click on "Apply" to process the new port configuration or click on "Undo" to cancel the selected PCIe port type.
- System will need to be rebooted to officially activate the new port configuration by either using the Web GUI ("Chassis" page) or pushing the Drawer Power button.

The mode switch function is also provided to meet the requirements of different use cases.

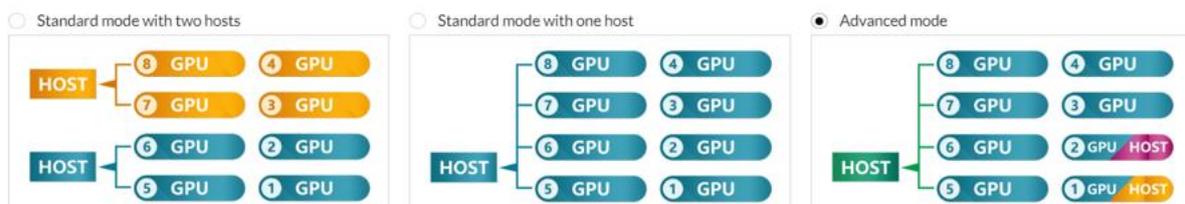


- Go to "Port Configuration" page.
- Click on "Mode Switch".
- Select the configuration mode by drawer [Standard mode with two hosts, Standard mode with one host, Advanced mode]

Drawer 2



Drawer 1

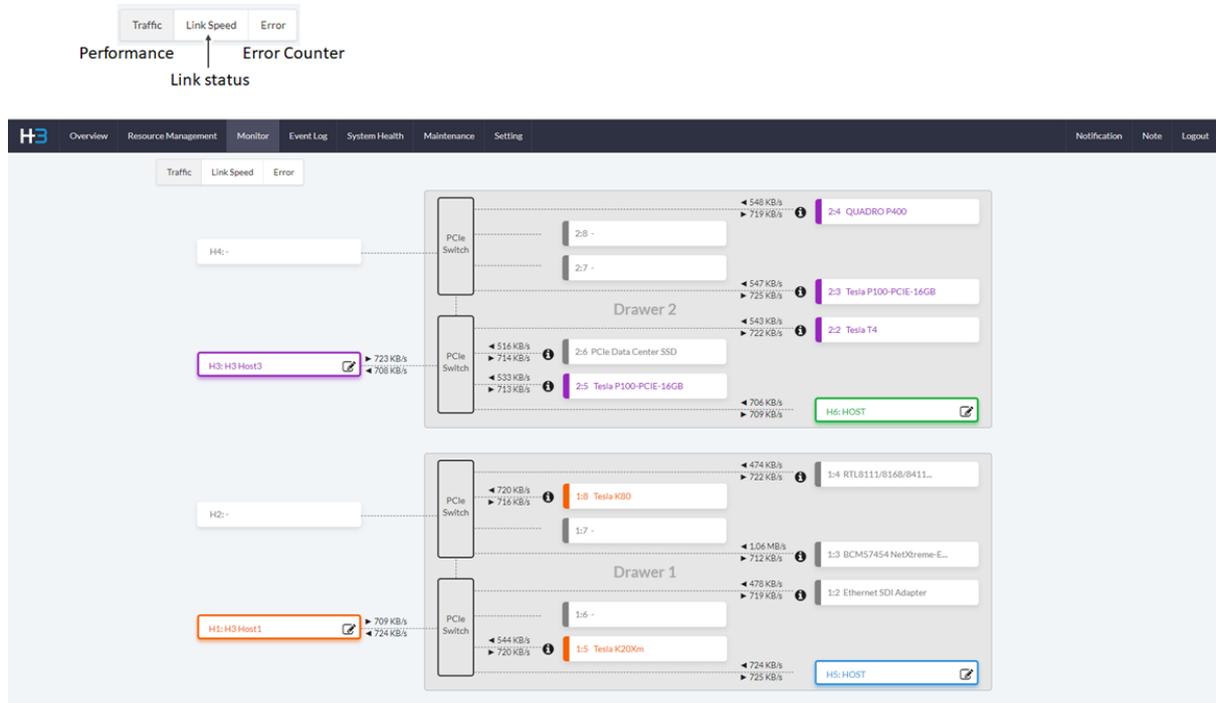


- Click on “Apply” to activate the new mode or click on “Cancel” to cancel the new mode switch plan.

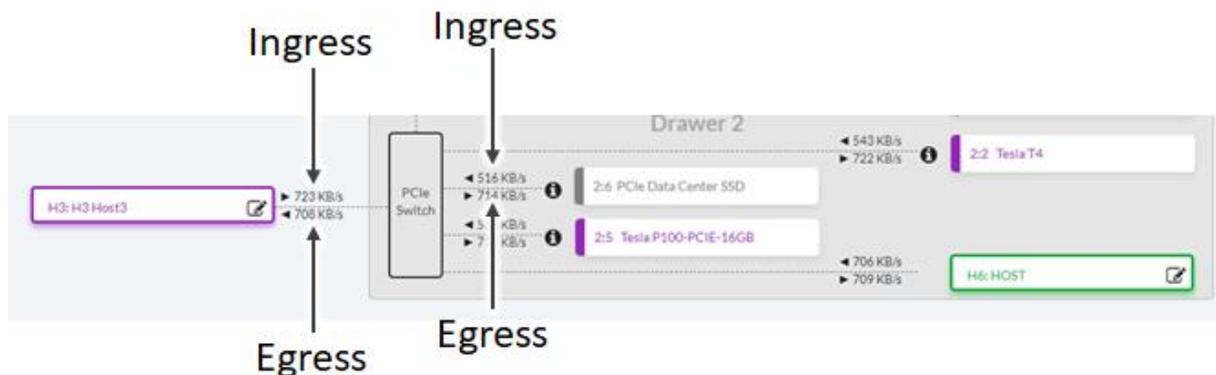
Caution: When the mode switch activation fails, an error message will pop up to help you through the next steps.

3.5 Monitor

The system provides various information to help monitor the PCIe traffic status.

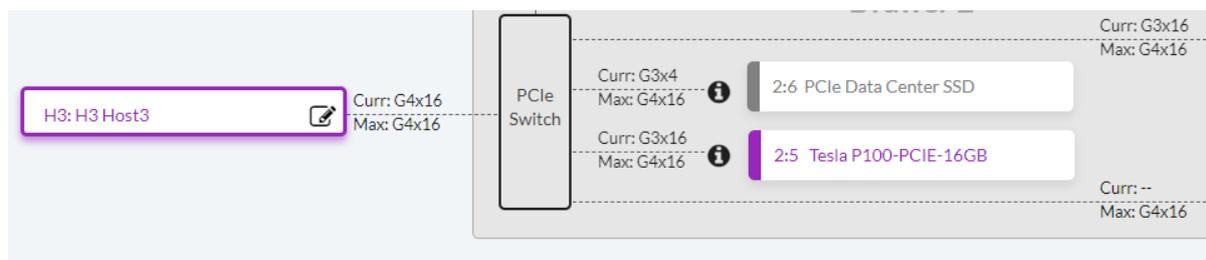


- Traffic: It shows the traffic performance of all the PCI ports including ingress and egress. The arrow pointing to the PCIe switch is ingress traffic while the arrow pointing to the device or host is egress traffic.

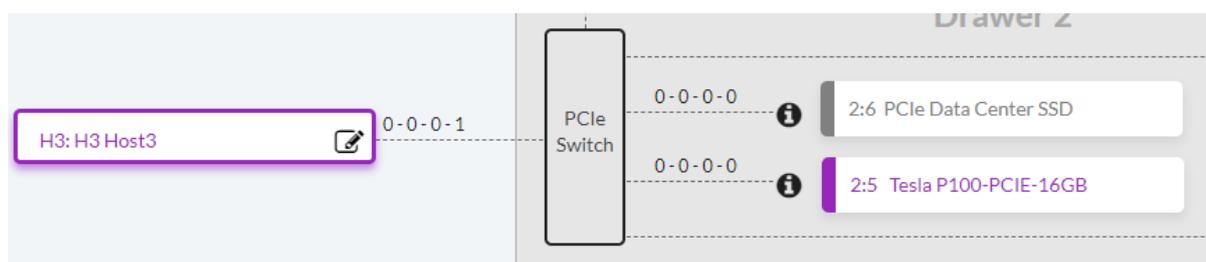


- Link Speed: It shows the link capability between the PCIe switch and device and PCIe switch alone. “Curr” represents the real PCIe link speed capability while

“Max” represents the theoretical PCIe switch link speed capability indicated in the SPEC].



- c. Error: There are four error types including Bad DLLP, Bad TLP, Port RX Error, and Recovery Diag Error and when clicking on the information icon, it will show the error counter of the PCIe link.



3.6 Event Log

The system provides the event log to monitor and manage the events, and it goes by the following 3 types:

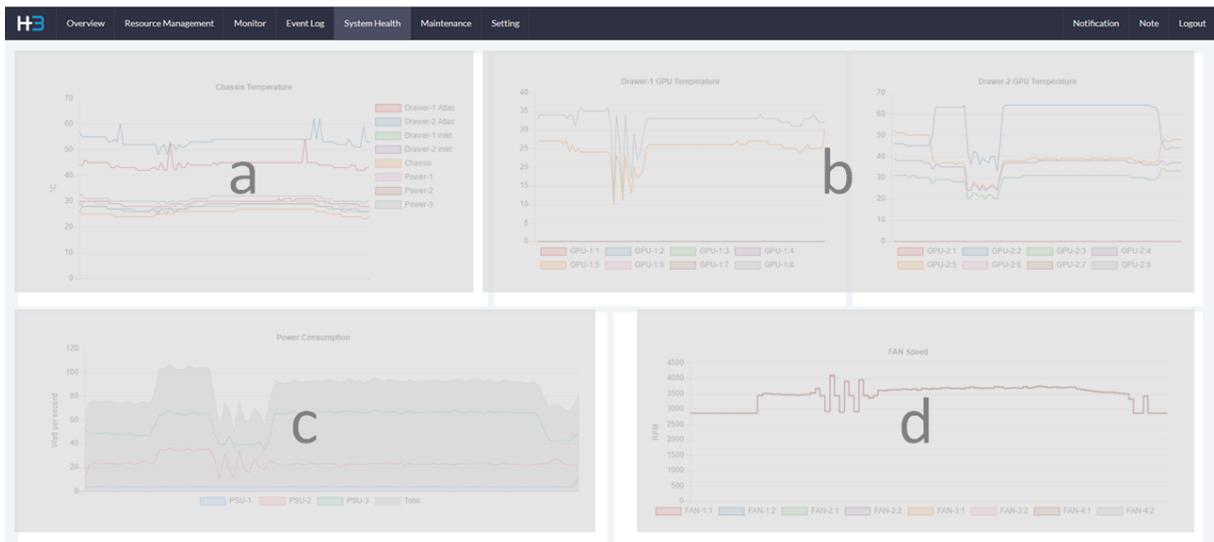
- Error: It contains the critical information such as overheat that will cause the damage to Falcon 4016 or the device.
- Warning: It contains the important information such as system or drawer power-off that will affect the use of Falcon 4016 or the device.
- Info: It contains all the information related to Falcon 4016 resource management such as user login or resource allocation.

Filter by log type Filter by keyword Control the event log q'ty in a page

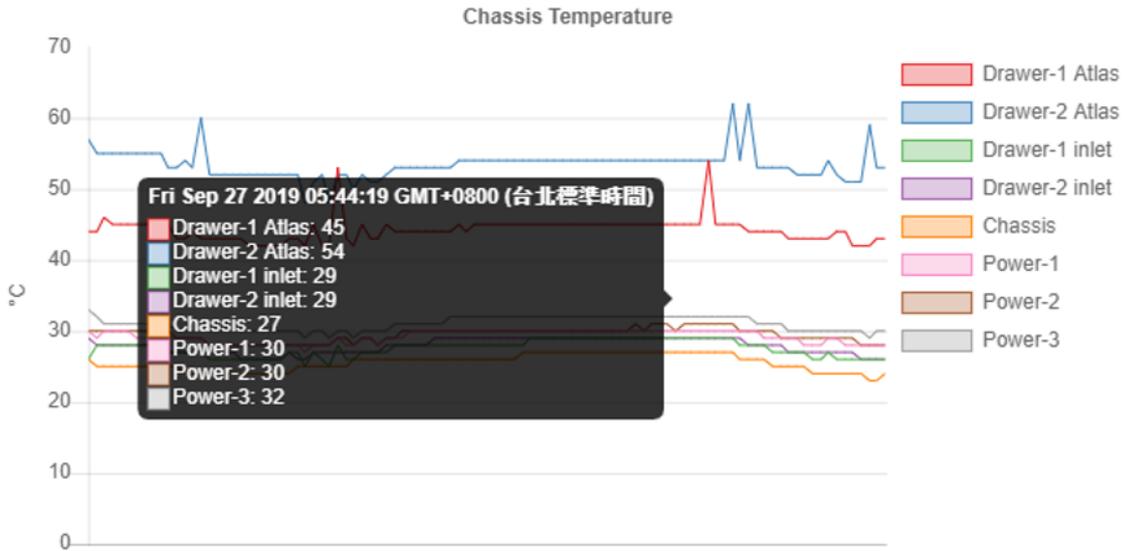
ID	TIME	DATE	Level	Content
26	23:10:42	2019-9-26	▲	Power status changed, D1:ON D2:ON
27	23:10:13	2019-9-26	▲	Power change event detected, start processing power procedures.
28	23:10:11	2019-9-26	●	10.0.22.223 set power as power_d1_on_d2_on
29	23:10:10	2019-9-26	▲	Power status changed, D1:OFF D2:OFF
30	23:09:52	2019-9-26	▲	Power change event detected, start processing power procedures.
31	23:09:51	2019-9-26	●	10.0.22.223 set power as power_d1_of_d2_of
34	23:07:24	2019-9-26	▲	Power status changed, D1:OFF D2:ON
35	23:07:00	2019-9-26	▲	Power change event detected, start processing power procedures.
36	23:06:58	2019-9-26	●	10.0.22.223 set power as power_d1_of_d2_on
41	23:02:28	2019-9-26	▲	Power status changed, D1:ON D2:ON
42	23:01:59	2019-9-26	▲	Power change event detected, start processing power procedures.
43	23:01:57	2019-9-26	●	10.0.22.223 set power as power_d1_on_d2_on
46	22:59:48	2019-9-26	▲	Power status changed, D1:ON D2:OFF
47	22:59:27	2019-9-26	▲	Power change event detected, start processing power procedures.
48	22:59:25	2019-9-26	●	10.0.22.223 set power as power_d1_on_d2_of
53	22:54:55	2019-9-26	▲	Power status changed, D1:ON D2:ON
54	22:54:26	2019-9-26	▲	Power change event detected, start processing power procedures.
55	22:54:24	2019-9-26	●	10.0.22.223 set power as power_d1_on_d2_on

3.7 System Health

System Health is provided to monitor Falcon 4016 in real time to ensure it runs in good condition.



a. Chassis temperature:

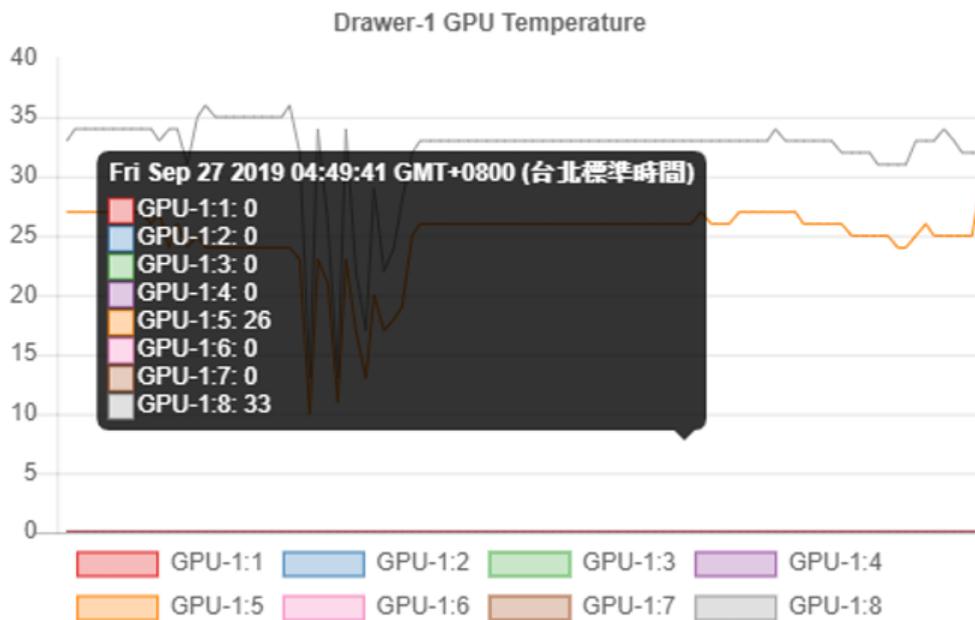


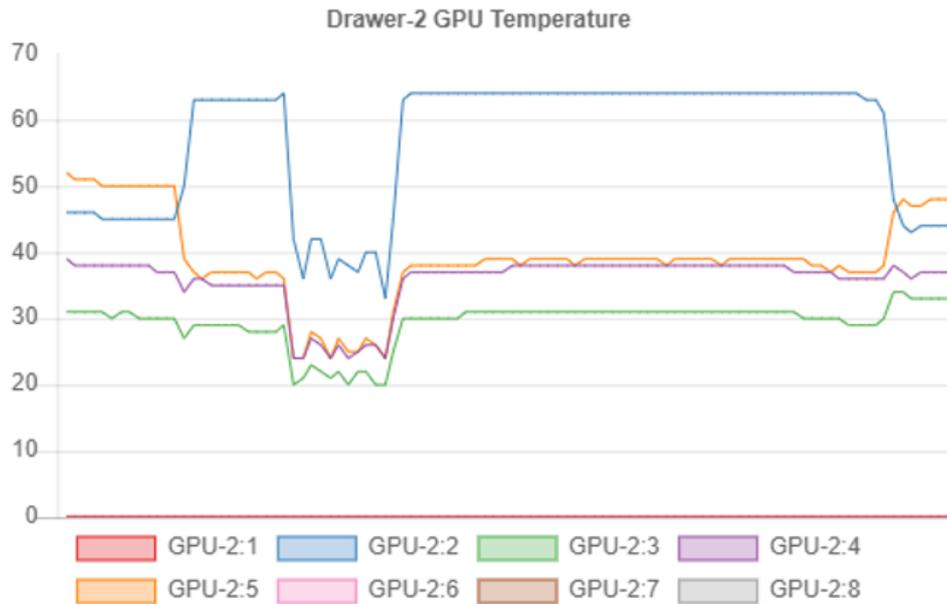
X-axis: X-axis represents the time measured.

Y-axis: Y-axis represents the temperature measured [in Celsius].

When moving the mouse cursor across the chart and stopping on certain point, it will show all the temperature data measured at the time.

b. Device temperature



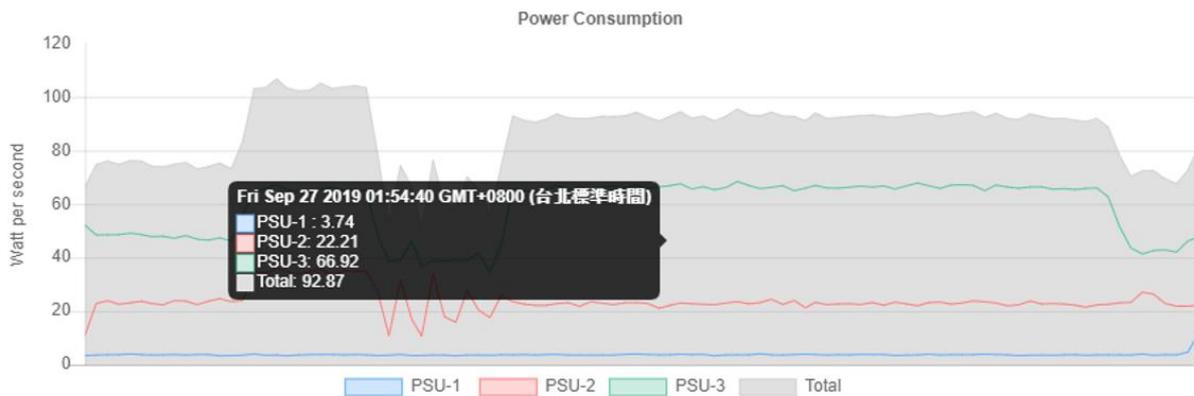


X-axis: X-axis represents the time measured.

Y-axis: Y-axis represents the temperature measured [in Celsius].

When moving the mouse cursor across the chart and stopping on certain point, it will show all the temperature data measured at the time.

c. Power consumption:

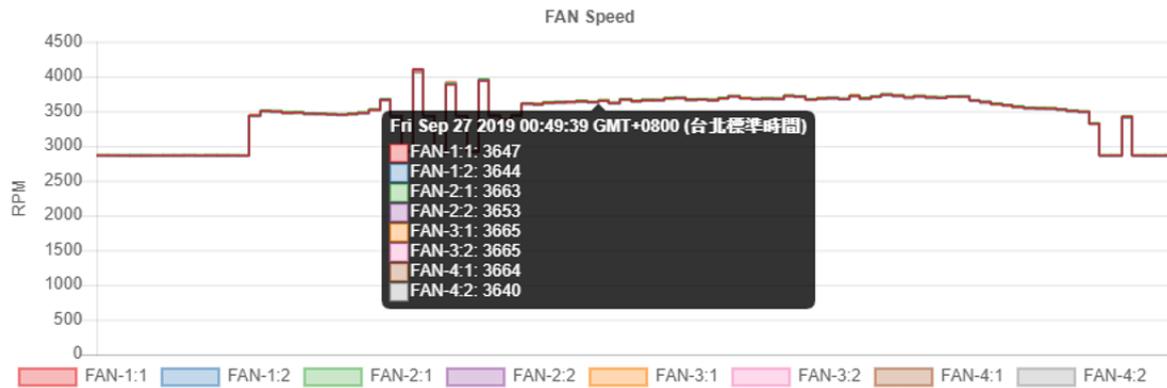


X-axis: X-axis represents the time measured.

Y-axis: Y-axis represents the power consumption measured [in Watt/second].

When moving the mouse cursor across the chart and stopping on certain point, it will show all the PSU power consumption data measured at the time.

d. Fan speed:



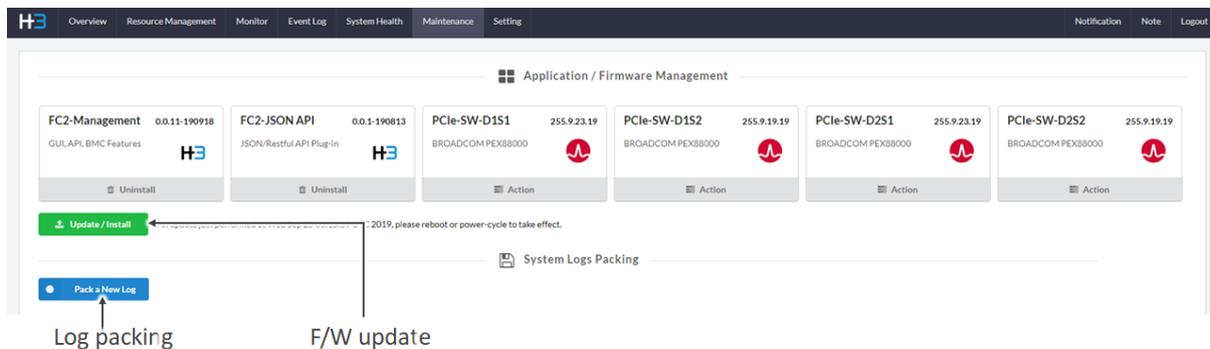
X-axis: X-axis represents the time measured.

Y-axis: Y-axis represents the RPM (Revolution Per Minute) measured.

When moving the mouse cursor across the chart and stopping on certain point, it will show all the fan RPM data measured at the time.

3.8 Maintenance

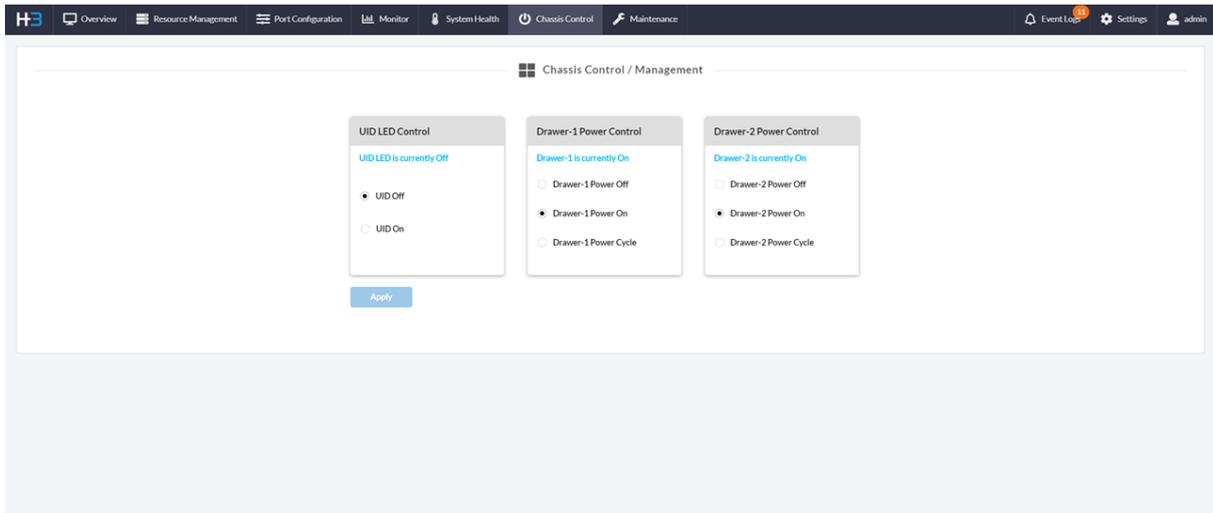
Maintenance page provides 2 functions to better manage the system:



- F/W update:** Click on “Update/Install” to select the F/W file that you want to update the system with, the system then will run the update automatically. After the FW update completes, Falcon 4016 needs to be rebooted to officially enable the new FW.
- Log packing:** Click on “Pack a New Log” to save all the system logs onto the computer.

3.9 Chassis

Chassis page provides the function to remote control Falcon 4016 including UID LED control, drawer power control:

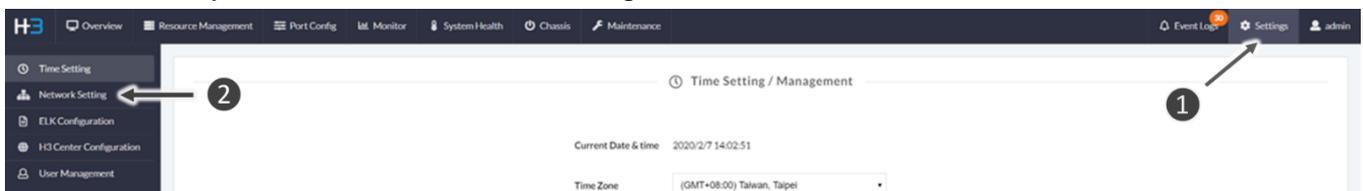


- Go to "Chassis Control" page, the page will show the current status of the drawer power and UID LED.
- Select the "UID LED Control" [UID On, UID Off] or
- Select the "Drawer-1 Power Control" [Drawer-1 Power On, Drawer-1 Power Off, Drawer-1 Power Cycle] or
- Select the "Drawer-2 Power Control" [Drawer-2 Power On, Drawer-2 Power Off, Drawer-2 Power Cycle]
- Click on "Apply" to activate.

3.10 Setting

a. Networking Setting

You can modify Falcon 4016 network settings here.



1. Settings > Network Setting

TCP/IP Setting

Obtain IP address setting automatically via DHCP

2) Use static IP address

IP Address **3)**

Subnet Mask **4)**

Default Gateway **5)**

DNS Setting

Obtain DNS server address automatically

Use the following DNS server address

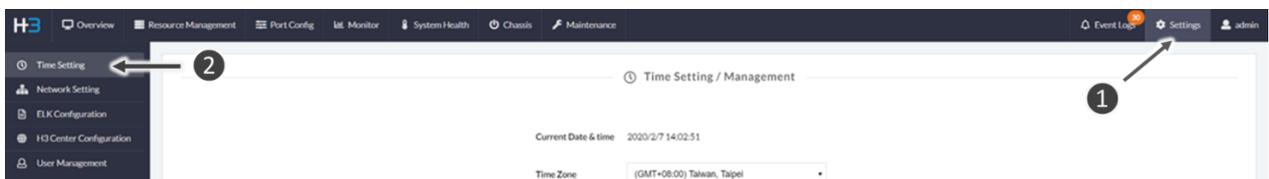
DNS **6)**

7)

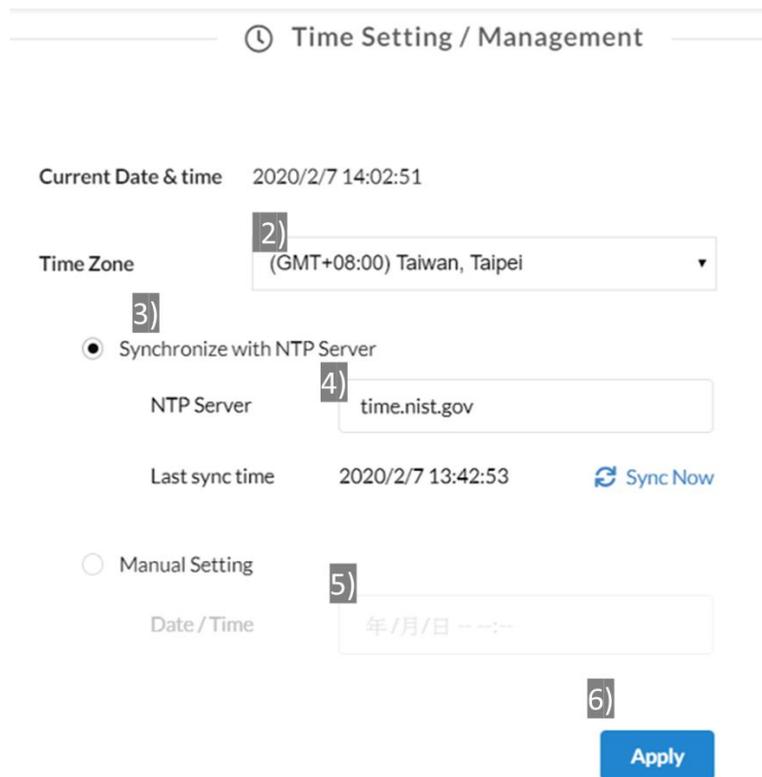
2. Select your new IP address via, [DHCP, Static]
3. Fill in your new IP address, [xxx.xxx.xxx.xxx]
4. Fill in your new Subnet Mask information, [xxx.xxx.xxx.xxx]
5. Fill in your new Gateway information, [xxx.xxx.xxx.xxx]
6. Fill in your new DNS server address, [xxx.xxx.xxx.xxx]
7. Click on “Apply” to complete the activation.

b. Time Setting

Please follow the following steps to update the system time.

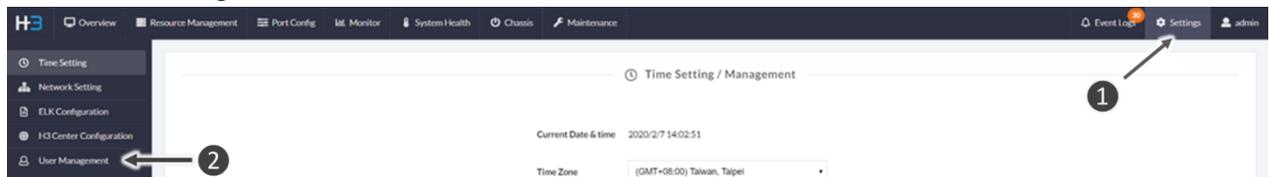


1. Setting> Time Setting



2. Select the time zone of your location.
3. Check the method to set up your new time, [Manual Setting Date/Time, Synchronize with NTP server]
4. For synchronizing to the NTP server, fill in the NTP server address that you want to synchronize with (support NIST NTP server only for now).
5. Manual Setting Date/Time, select using the calendar app.
6. Click on “Apply” to save the new settings.

c. User Management



Please follow the steps outlined below to create/delete/manage your Falcon 4016 account.

- Create

1. Select the account type [Administrator, Operator, Reservation, Guest]
 2. Fill in Username.
 3. Fill in Password and fill in password again to confirm.
 4. Click on “Apply” to save the new settings.
- Delete: Click on the button below to delete the account.

Action	Username	Authori:
 	admin	0
 	test	3
 	r2	2
 	op	1

- Edit: Click on the button below to edit the account, fill in new password and click on “Apply” to save the new settings.

Action	Username	Authori:
 	admin	0
 	test	3
 	r2	2
 	op	1

Edit Account X

Authorization : Administrator
Account : admin

New Password:

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