



MAGNUM-HW-C

1RU Compact Server for MAGNUM

User Manual

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IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of un-insulated “Dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

- Read this information.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the plug provided does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Connect mains power supply cord only to a mains socket outlet with a protective earthing connection.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

WARNING
DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT.

WARNING
TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

WARNING
THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

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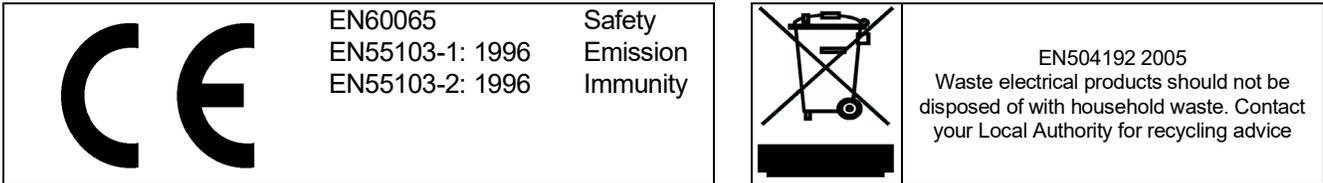
NOTE

This equipment with the CE marking complies with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60065 Product Safety
- EN55103-1 Electromagnetic Interference Class A (Emission)
- EN55103-2 Electromagnetic Susceptibility (Immunity)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



INFORMATION TO USERS IN THE U.S.A.

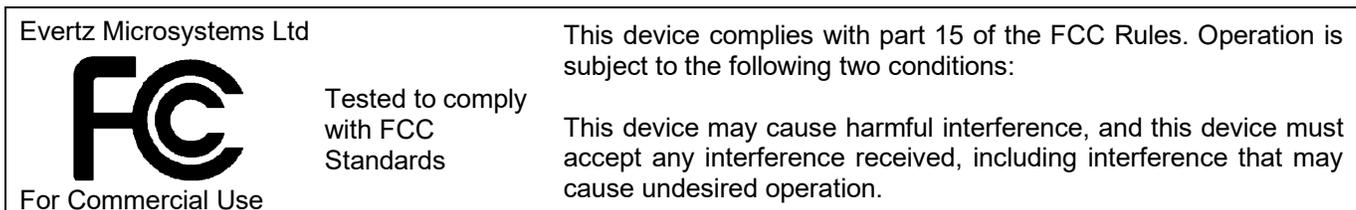
NOTE

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

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REVISION HISTORY

<u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	First Release	Feb 2020
2.0	Updated for new hardware	July 2024

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1. OVERVIEW

MAGNUM-HW-C is the dedicated 1RU Compact Server hardware that runs the Magnum Control System. There are two versions of the hardware available.

1.1. SOFTWARE PRE-INSTALLED

MAGNUM-OS, requiring only license purchase to activate the MAGNUM modules.

1.2. KEY FEATURES AND BENEFITS

- 1RU Compact Server
- Linux Operating System
- Supports all MAGNUM software module configurations

1.3. NETWORK CONNECTIONS

MAGNUM-HW-C Gen 2

- 1x RJ45 Dedicated IPMI LAN port
- 6x RJ45 LAN ports
- 4x SFP+ LAN ports

MAGNUM-HW-C Gen 1

- 1x RJ45 Dedicated IPMI LAN port
- 2x RJ45 LAN ports
- 2x SFP+ LAN ports

1.4. DEVICE IMAGES



Figure 1-1: MAGNUM-HW-C Gen 2 Front and Rear View



Figure 1-2: MAGNUM-HW-C Gen 1 Front and Rear View

2. CONNECTIONS

2.1. MAGNUM-HW-C GEN 2

2.1.1. Front Panel

- Mini Display Port
- Ethernet Ports 08 - 09
- IPMI Port
- 2x USB Ports
- Power Button/LED
- Unit ID LED
- Status LED

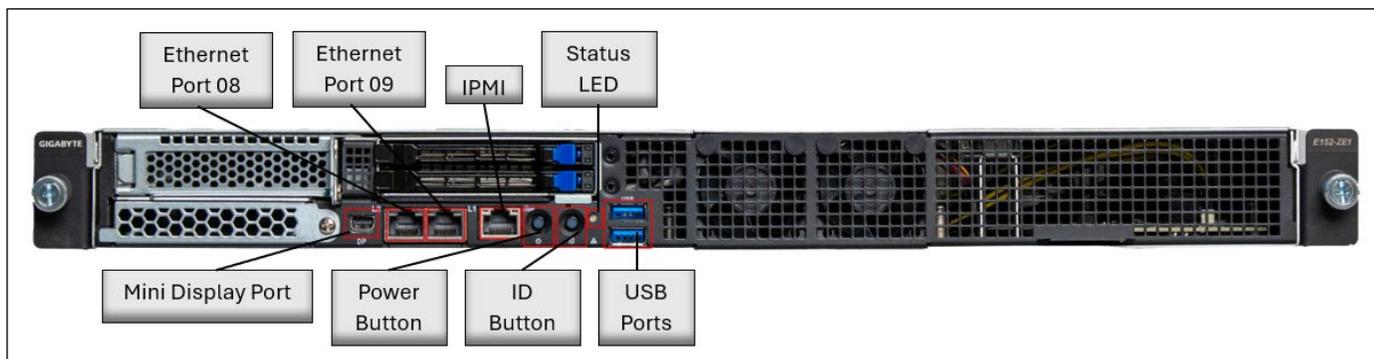


Figure 2-1: MAGNUM-HW-C Gen 2 Connections – Front View

2.1.2. Rear Panel

- Dual Power Connection
- Ethernet Ports 00 - 03
- SFP Port 04 - 07

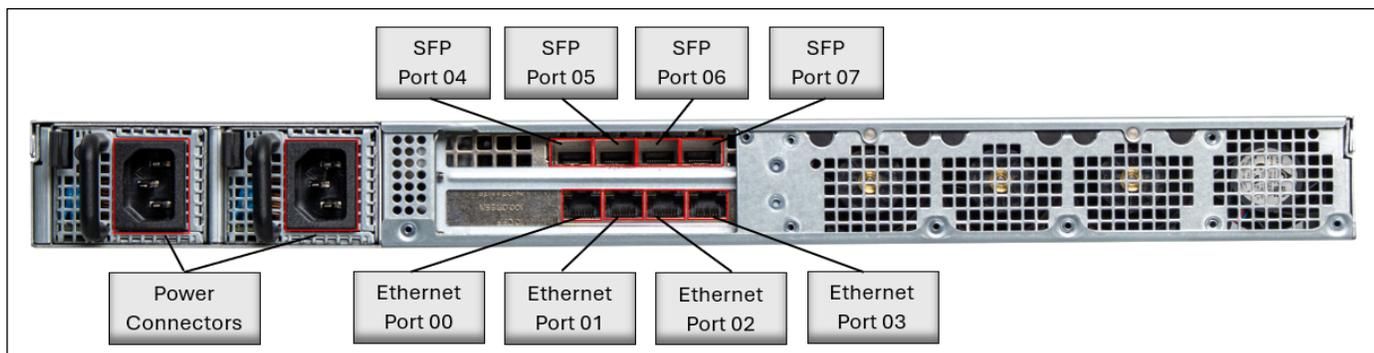


Figure 2-2: MAGNUM-HW-C Gen 2 Connections – Rear View

2.2. MAGNUM-HW-C GEN 1

2.2.1. Front Panel

- Power Button



Figure 2-3: MAGNUM-HW-C Gen 1 Connections – Front View

2.2.2. Rear Panel

- Power Connection
- VGA Port
- USB Port
- USB Port
- Ethernet Port 00
- Ethernet Port 01
- Ethernet Port 02
- SFP Port 03
- SFP Port 04

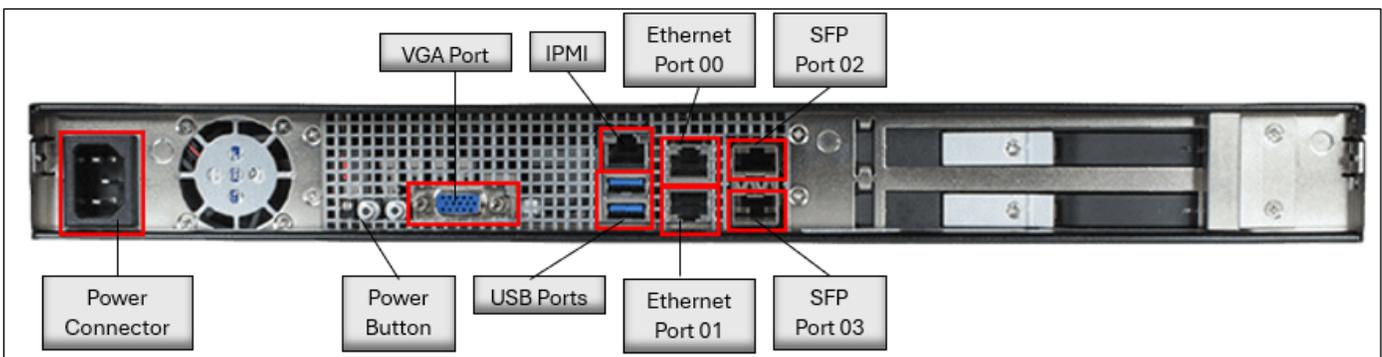


Figure 2-4: MAGNUM-HW-C Gen 1 Connections – Rear View

3. SPECIFICATIONS

3.1. MAGNUM-HW-C GEN 2

3.1.1. Chassis

Form Factor 1U Rackmount

Dimensions

- Height 1.7" (43mm)
- Width 17.2" (438mm)

3.1.2. LEDs

- Power Button with LED
- ID Button with LED
- System Status LED

3.1.3. System Cooling

- 6x Cooling Fans
- 2x Power Supply Fans

3.1.4. Environmental

- Operating Temperature: 10° to 35°C (50° to 95°F)
- Non-operating Temperature: -40° to 60°C (-40° to 158°F)
- Operating Humidity: 8% to 80% (non-condensing)
- Non-operating Humidity: 20 to 95% (non-condensing)

3.1.5. Power Supply

- 2x 1000W Redundant PSUs
 - AC Input
 - 100-127V~/15A, 50-60Hz
 - 200-240V~/3A, 50-60Hz
 - DC Output
 - Max 1000W
 - +12V/83.3A
 - +12Vsb/3A

3.1.6. LAN

- 7x RJ-45 LAN Ports
- 4x SFP+ LAN Ports

3.1.7. USB

- 2x USB Ports (front)

3.1.8. Display Port

- 1x Display Port (front)

3.1.9. Supported SFPs

- SFP10G-TR13-A
- SFPTR-RJ45-SER-AV

3.2. MAGNUM-HW-C GEN 1

3.2.1. Chassis

Form Factor 1U Rackmount

Dimensions

- Height 1.7" (43mm)
- Width 17.2" (437mm)

3.2.2. Front Panel

- Buttons
 - System Reset Button

3.2.3. LEDs

- Power LED
- 2x Network activity LEDs

3.2.4. System Cooling

- 2x Cooling Fans
- 1x power supply fan

3.2.5. Environmental

- Operating Temperature: 10° to 35°C (50° to 95°F)
- Non-operating Temperature: -40° to 70°C (-40° to 158°F)
- Operating Relative Humidity: 8% to 90% (non-condensing)
- Non-operating Relative Humidity: 5 to 95% (non-condensing)

3.2.6. Power Supply

- 250 watts AC-DC high-efficiency power supply
 - 100-240V, 50-60Hz
- 1x AC INPUT

3.2.7. LAN

- 3x RJ-45 LAN ports
- 2x SFP+ LAN ports

3.2.8. USB

- 2x USB rear ports

3.2.9. VGA

- 1x VGA Port

3.2.10. Supported SFPs

- SFP10G-TR13-A
- MMA10G-SFP-TR13
- SFPTR-RJ45-SER-AV
- SFPTR-RJ45-SGM-AV

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4. MAGNUM SERVER CONFIGURATION SHELL

The server control tool enables the user to set up the MAGNUM server parameters. Launching the MAGNUM Server Configuration tool will reveal several operations that can be performed to properly set up your server. For more detailed information on the MAGNUM Server Configuration Shell, please refer to the MAGNUM manual. This section outlines the minimum configuration required.



Tip: Changes that affect the operation of the MAGNUM Server or admin level actions will cause an authentication prompt to be displayed.

To login to the MAGNUM Server Configuration Shell, the user will have to enter the following information at the login screen. The login screen is accessed by hitting **[Ctrl] + [Alt] + [F2]** to switch terminals. At the login prompt use the following default credentials.

- Enter *configshell* as the username and then press **[Enter]**
- Enter *configshell* as the password and then press **[Enter]**

Figure 4-1 displays the main setup menu. This section will guide you through the process of setting up your server and identifying the function of each configuration tool.

You will use the arrow keys, tab, and enter keys to navigate through the MAGNUM Server Configuration Shell.

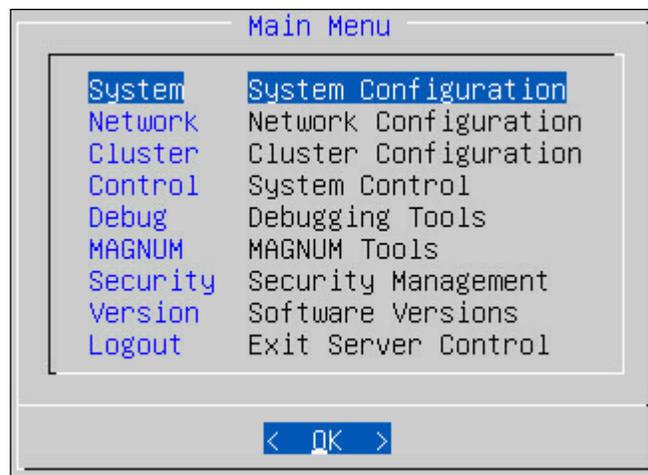


Figure 4-1: Main Server Control Menu

4.1. SYSTEM CONFIGURATION

Selecting the **System Configuration** option will reveal the screen displayed in Figure 4-2. The main function of the system configuration menu is to complete the set-up of the server configuration. The System Configuration Menu allows the user to verify or change system level configuration, such as Date/Time, Hostname, etc.; or to perform system level operations such as changing the admin password, upgrading, rebooting, etc.

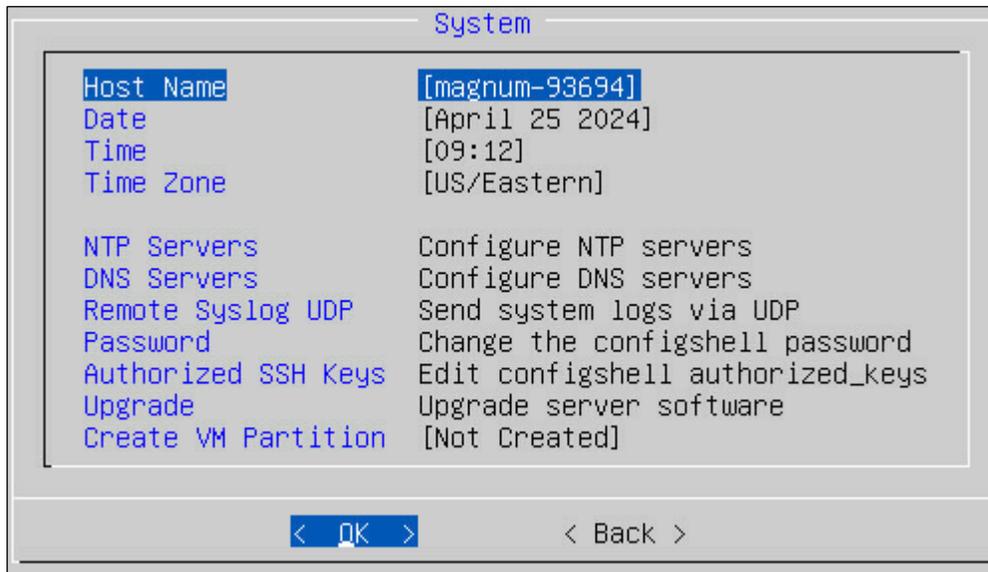


Figure 4-2: System Configuration Menu

4.1.1. Setting the Host Name

Selecting the **Host Name** option from the System Configuration menu will enable the user to set the host name for the server. The dialog box in Figure 4-3 will appear when this option is selected. The user will be prompted to enter the desired name for the host into the "Host name:" field. This name was set during initial installation but can be changed using this menu option.

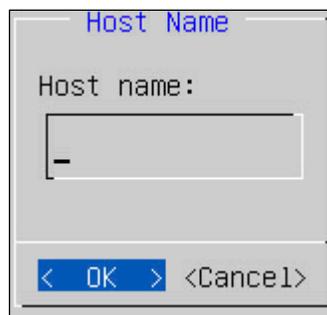
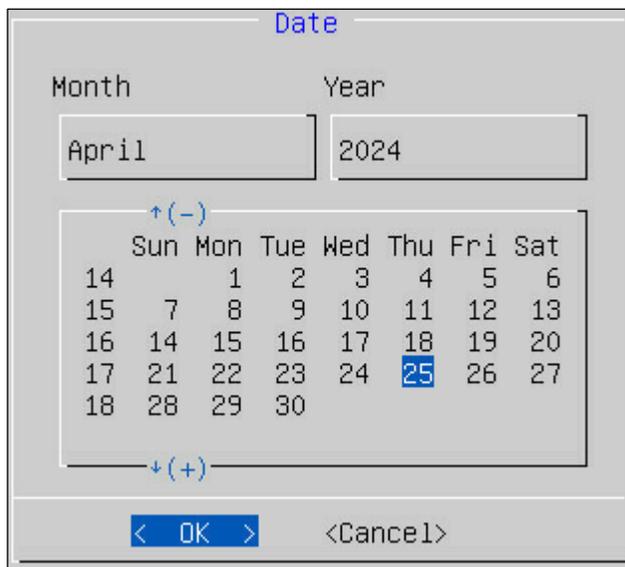


Figure 4-3: Change Host Name

4.1.2. Setting the Server Date

Selecting **Date** from the System Configuration menu will enable the user to set the date for which the server will reference. Select the current day, month and year from the calendar identified in Figure 4-4.



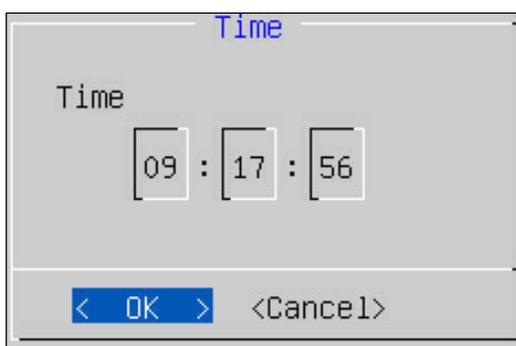
The 'Date' dialog box contains the following elements:

- Title: Date
- Month: April
- Year: 2024
- Calendar grid showing days of the week (Sun-Sat) and dates (14-18 for Sun, 7-18 for Mon-Fri, 28-30 for Sat). The date 25 is highlighted.
- Navigation: Up (-) and Down (+) arrows.
- Buttons: < OK > and <Cancel>

Figure 4-4: Change Date

4.1.3. Setting the Server Time

Selecting **Time** from the System Configuration menu will enable you to set the current time for which the server will reference. Select the hour, minute and second identified in the **Change Time** dialog box as shown in Figure 4-5. Use the up and down arrow keys to set the values and tab to switch boxes.



The 'Time' dialog box contains the following elements:

- Title: Time
- Time: 09 : 17 : 56
- Buttons: < OK > and <Cancel>

Figure 4-5: Change Time

4.1.4. Setting the Server Time Zone

Selecting **Time Zone** from the System Configuration menu will enable you to set the current time zone for the region you are in. Toggle through the list of countries and zones to select your region. Refer to Figure 4-6.



Figure 4-6: Change Time Zone

4.2. NETWORKING CONFIGURATION

The **Networking Configuration** menu will enable the user to set the network information (IP, Netmask, and Gateway). Refer to Figure 4-7.

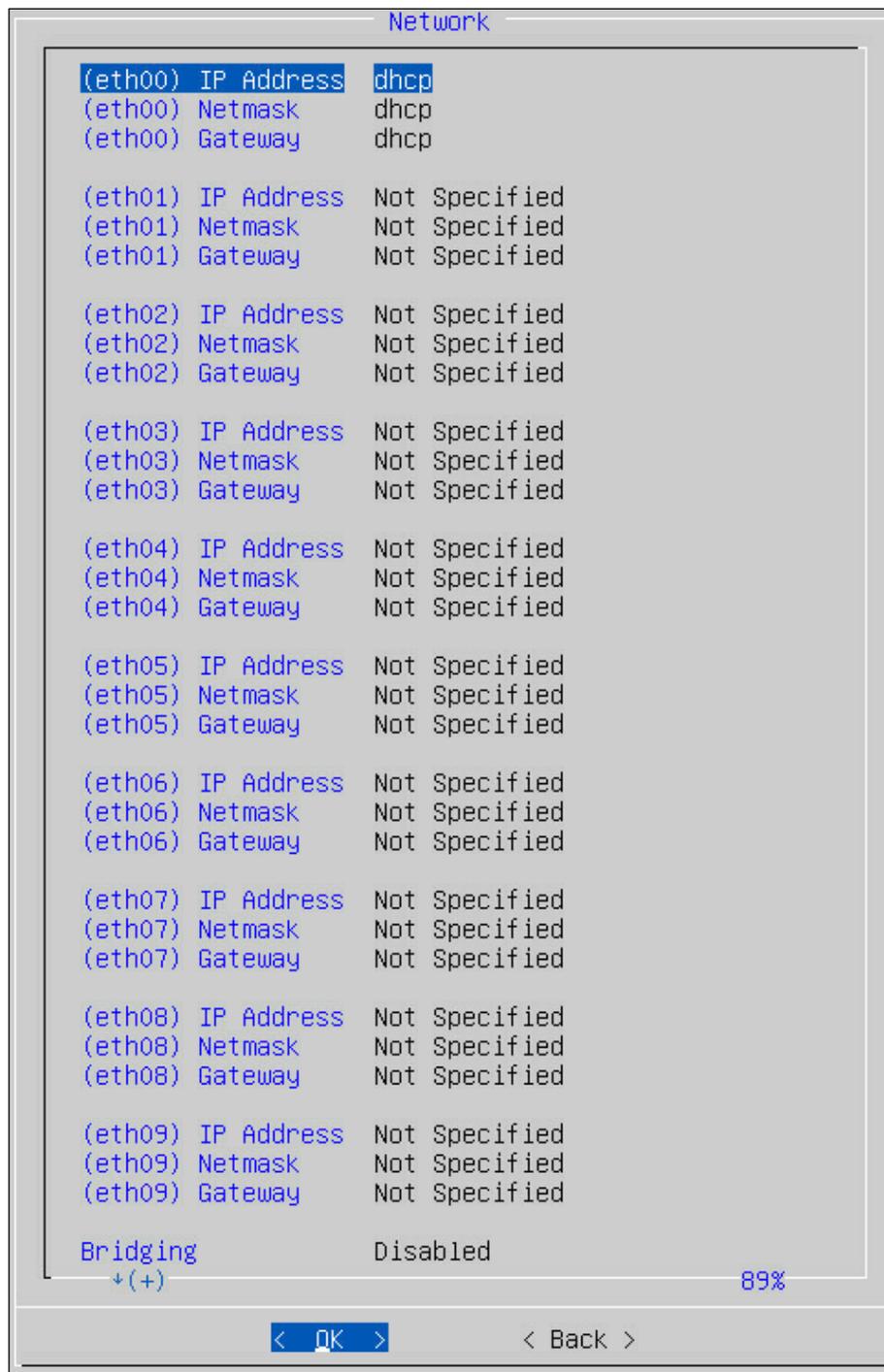


Figure 4-7: Network Configuration Menu

4.2.1. Assigning an IP Address for eth00

To assign an IP Address, select the **(eth00) IP Address** option from the Networking Configuration menu. The dialog box in Figure 4-8 will appear when this option is selected. The user will be prompted to enter the desired IP address into the “IP address (or dhcp) for eth00” field and then select the **OK** button. Please note that the settings must be saved using the **Save and Apply** option from the Networking Configuration menu. Please note that DHCP is NOT recommended at any time.



Figure 4-8: Enter New IP Address for eth00

4.2.2. Assigning a Subnet Mask for eth00

To assign a subnet mask for eth00, select the **(eth00) Netmask** option from the Networking Configuration menu. The dialog box in Figure 4-9 will appear when this option is selected. The user will be prompted to enter the desired subnet mask into the “Netmask for eth00” field and then select the **OK** button. Please note that the settings must be saved using the **Save and Apply** option from the Networking Configuration menu.

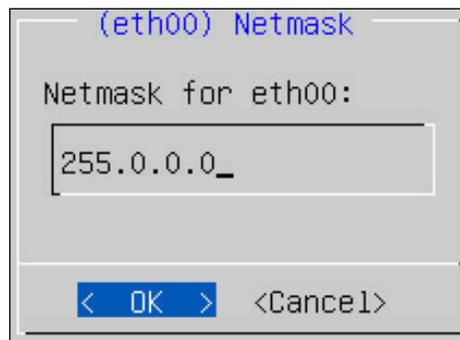


Figure 4-9: Enter New Subnet Mask for eth00

4.2.3. Assigning a Gateway Address for eth00

To assign a gateway for eth00, select the **(eth00) Gateway** option from the Networking Configuration menu. The dialog box in Figure 4-10 will appear when this option is selected. The user will be prompted to enter the desired gateway into the “Gateway address for eth00” field and then select the **OK** button. Please note that the settings must be saved using the **Save and Apply** option from the Networking Configuration menu.



Figure 4-10: Enter New Gateway Address for eth00

4.3. CLUSTER CONFIGURATION

Selecting the **Cluster Configuration** option will reveal the screen displayed in Figure 4-11. The main function of the cluster configuration menu is to assign a common cluster IP that will be used as a common IP for clients. When multiple MAGNUM servers are clustered only one of the servers will be the active server, the remaining server(s) function in standby in case of failover on the active server.

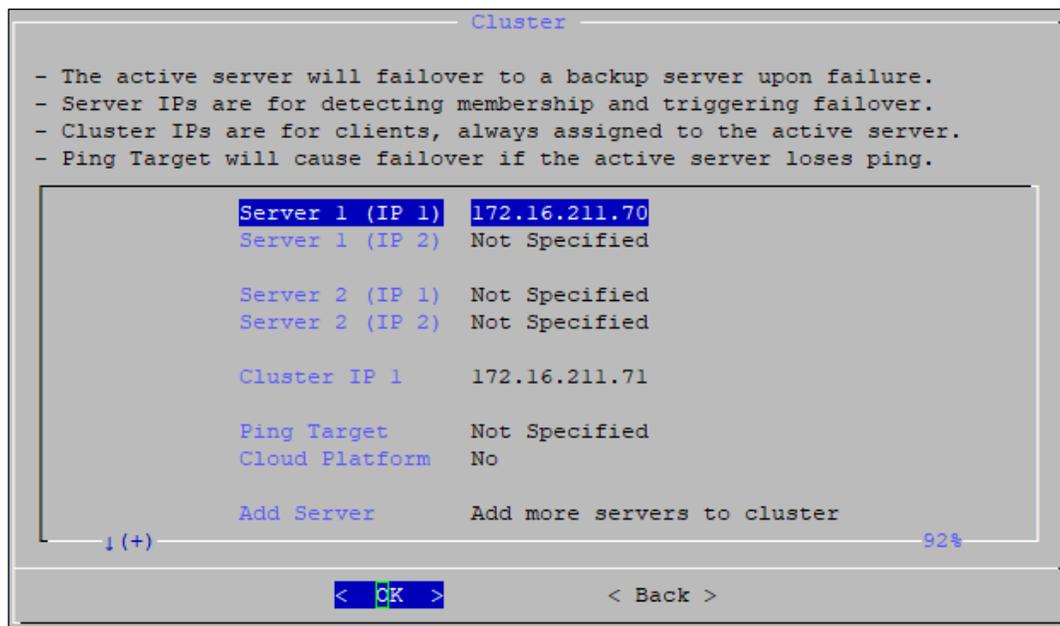


Figure 4-11: Cluster Configuration Menu

4.3.1. Server 1

The Server designated as Server 1 will be the primary server unless, and until, there is a system failover. A minimum of 1 IP address, **Server 1 (IP 1)** must be completed, using the dialog box in Figure 4-12. A secondary IP address for the same server can be assigned using the dialog box, **Server 1 (IP 2)**, shown in Figure 4-13.

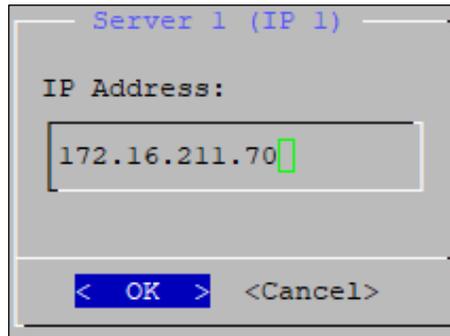


Figure 4-12: Server 1 (IP 1)

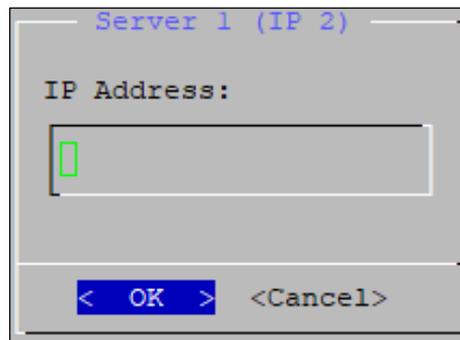


Figure 4-13: Server 1 (IP 2)

4.3.2. Server 2

The Server designated as Server 2 will be the secondary server unless, and until, there is a system failover. A minimum of 1 IP address, **Server 2 (IP 1)** must be completed, using the dialog box in Figure 4-14. A secondary IP address for the same server can be assigned using the dialog box, **Server 2 (IP 2)**, shown in Figure 4-15.

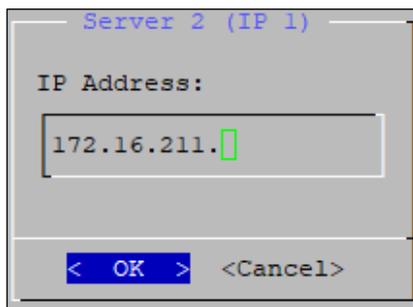


Figure 4-14: Server 2 (IP 1)

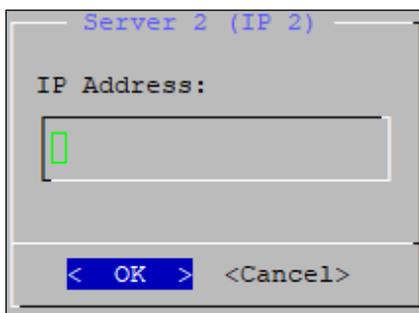


Figure 4-15: Server 2 (IP 2)

4.3.3. Setting the Cluster IP

The Cluster IP is the IP address that will be used to access the MAGNUM system. It is assigned using the dialog box in Figure 4-16.

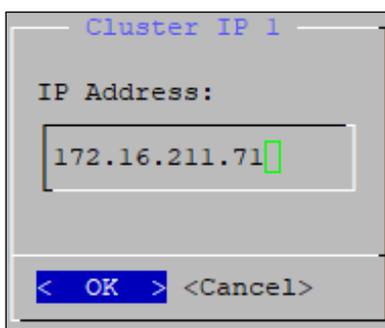


Figure 4-16: Cluster IP 1

4.3.4. Setting a Ping Target

Setting a **Ping Target** is optional. If choosing to add a ping target, it is recommended to use a gateway IP. If a gateway IP is not suitable, then any other known IP address within the network is acceptable. The **Ping Target** is set in the dialog box shown in Figure 4-17.

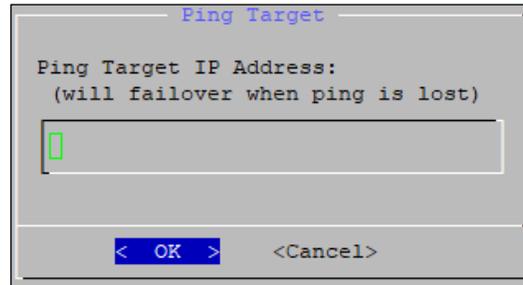


Figure 4-17: Ping Target

4.3.5. Save and Apply

When finished editing the Cluster Configuration settings, select **Save and Apply** from the main Cluster menu (see Figure 4-18) to save the settings to the system.

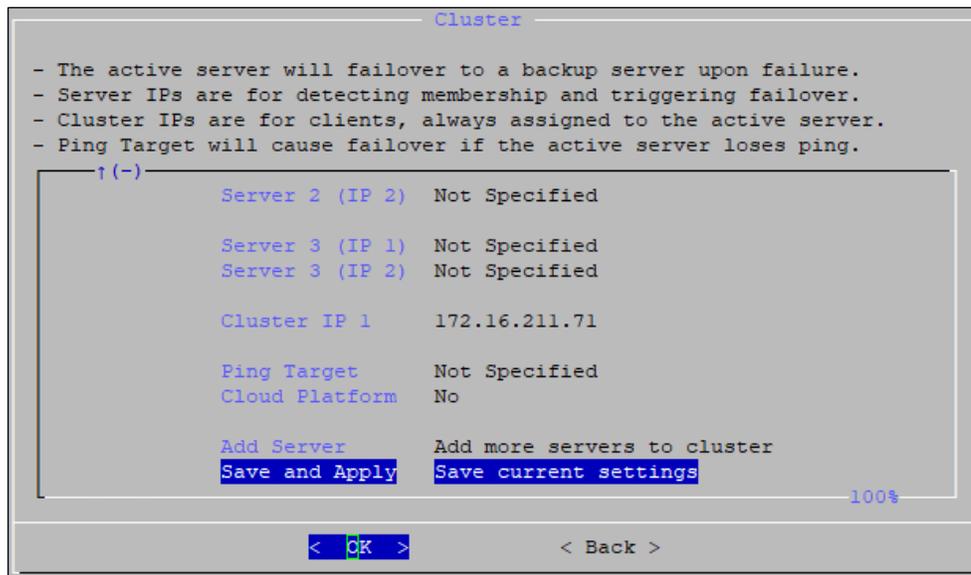


Figure 4-18: Save and Apply Cluster Settings

5. MAGNUM-OS

5.1. ACCESSING MAGNUM-OS FROM A BROWSER

1. Open a browser window.
2. Type in the Cluster IP for the MAGNUM. The login screen will appear (Figure 5-1).

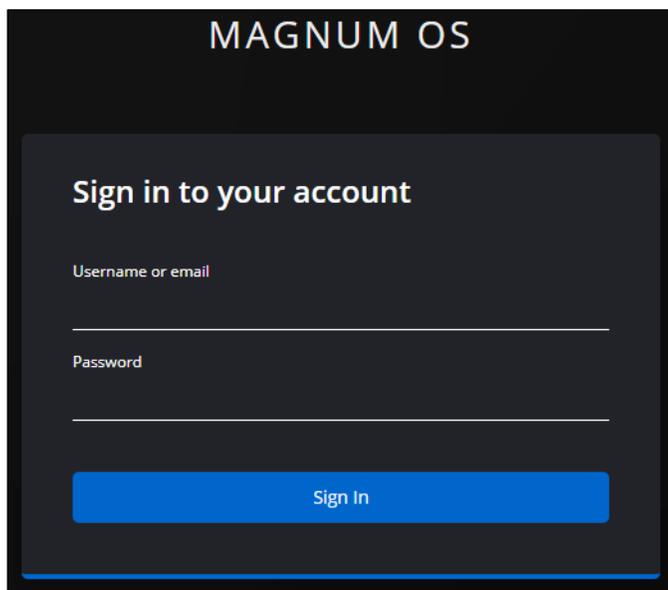


Figure 5-1: MAGNUM-OS Login Screen

3. Log in using username: **admin** and password: **admin**.

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6. APPENDIX

6.1. FAQ

6.1.1. MAGNUM Installer Screen is not viewable

If the Magnum installer screen is not viewable, switch to other terminals back and forth. For example, **[Ctrl] + [Alt] + [F2]** will switch to the command line, and **[Ctrl] + [Alt] + [F1]** will switch back to the installer screen.

6.1.2. MAGNUM Software Requires Re-Installation

If the MAGNUM unit requires re-bootstrapping, please contact Evertz Service Department (service@evertz.com) for specific instructions on how to proceed.

6.2. REPLACING A HARD DRIVE

Replacing a hard drive should only be done once this has been determined to be the root cause of the issue. Only one hard drive can be replaced using this method. If both hard drives have failed, please contact Evertz Service (service@evertz.com).

6.2.1. MAGNUM-HW-C Gen 2

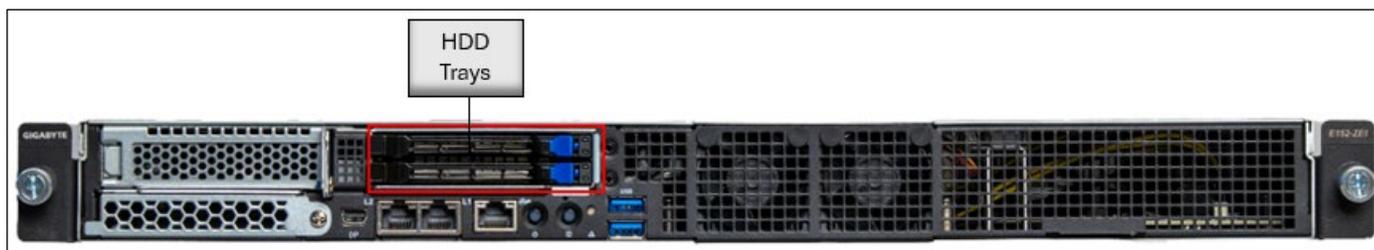


Figure 6-1: MAGNUM-HW-C Gen 2 Front Panel – HDD Trays

1. Press the blue release button on the HDD (hard disk drive) slot.
2. Extend the locking lever.
3. Pull the locking lever to remove the HDD tray.
4. Align the hard disk drive with the positioning stub on the HDD tray.
5. Slide hard disk drive into the blank HDD tray.
6. Reinsert the HDD tray into the slot and close the locking lever.

6.3. IPMI

6.3.1. MAGNUM-HW-C Gen 2

1. Reboot the server by pressing the **Power Button** (if the server is not rebooting already).
2. Press **[Delete]** repeatedly while the BIOS displays the Gigabyte Logo in Figure 6-2.



Figure 6-2: BIOS Gigabyte Logo

3. Navigate to **Server Management > BMC Network Configuration**.
4. Select **Configuration Address source** to **Static**.
5. Set the **IP Address**, **Subnet Mask** and **Router IP Address** (gateway IP) to ensure the PC can reach the server.

Never change the MAC Address.

```
--BMC network configuration--  
  
Lan channel 1  
Configuration Address source      [Static]  
Station IP address                172.016.107.095  
Subnet mask                       255.255.255.000  
Router IP address                 172.016.107.001  
Station MAC address               74-56-3c-bb-1c-62  
VLAN Support                       [Disabled]
```

Figure 6-3: IPMI Configuration

6. Press **[F10]** to save the BIOS settings. When asked to save and exit as shown in Figure 6-4, select **OK** to power off the server.



Figure 6-4: Save BIOS Settings

7. Disconnect all power cables for at least 10 seconds.
8. Plug an Ethernet cable into the IPMI Ethernet port highlighted in Figure 2-4.
9. Plug in all power cables and the server should power on automatically.
10. On the PC, point a web browser to the server's IPMI IP Address.
11. Login using the username **admin** and the password printed on the label on the pull out of the server.
12. The web page shown in Figure 6-5 should appear.

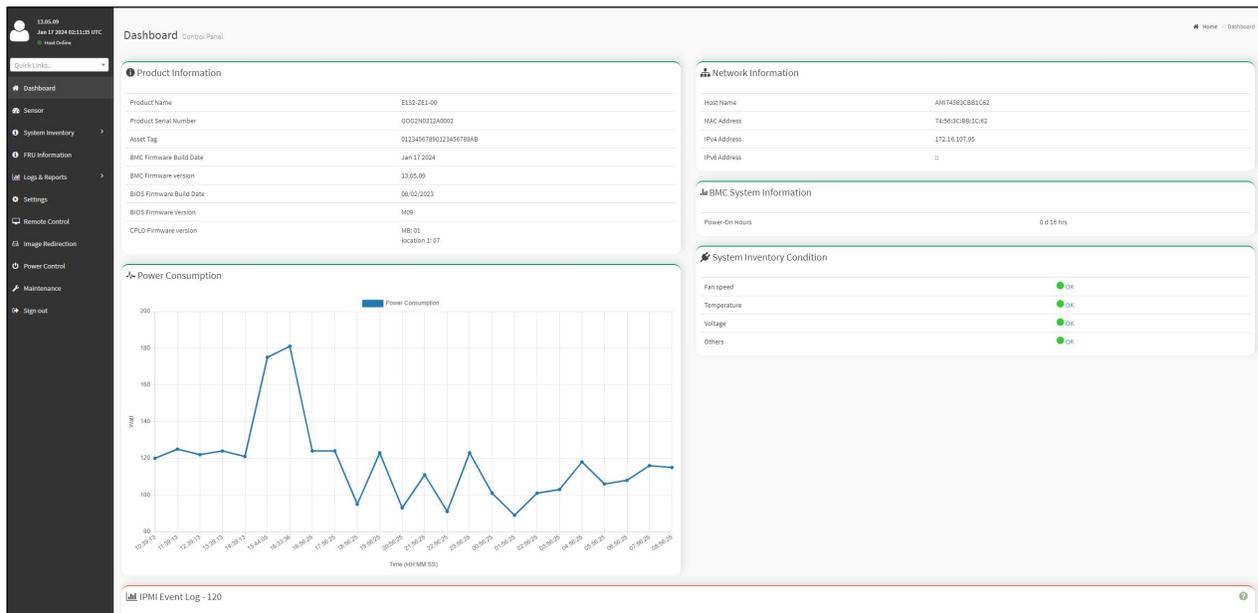


Figure 6-5: IPMI Web Page

6.3.1.1. Turning on the Universal Information (UID) LED

1. Navigate to **Remote Control**. Scroll down to “Identify LED.” Select **Turn ON**. Select **Save**.
2. The LED to the right of the Power Button on the front panel will be lit up.
3. Select **TURN OFF**. Click **Save** then click **OK**.

6.3.2. MAGNUM-HW-C Gen 1

1. Reboot the server by pressing the **Reset Button** (if the server is not rebooting already).
2. Press **[DELETE]** repeatedly while the BIOS displays the Gigabyte logo in Figure 6-6.



Figure 6-6: BIOS Gigabyte Logo

3. Navigate to **Advanced > IPMI Configuration > Set LAN Configuration**.
4. Set the **IP Address Source** to **Static**.
5. Set the **IP Address**, **Subnet Mask** and **Gateway Address** to ensure the PC can reach the server.
Never change the MAC Address.

```
--BMC network configuration--  
  
Lan channel 1  
Configuration Address source      [Static]  
Station IP address                172.016.107.095  
Subnet mask                       255.255.255.000  
Router IP address                 172.016.107.001  
Station MAC address               74-56-3c-bb-1c-62  
VLAN Support                      [Disabled]
```

Figure 6-7: IPMI Configuration

6. Press **[F10]** to save the BIOS settings.
When asked to save and exit as shown in Figure 6-8, select **OK** to power off the server.

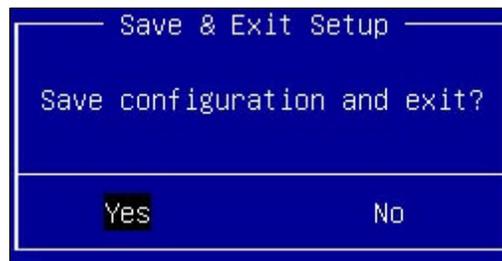


Figure 6-8: Save BIOS Settings

7. Disconnect all power cables for at least 10 seconds.
8. Plug an Ethernet cable into the IPMI Ethernet port highlighted in Figure 2-4.
9. Plug in all power cables and the server should power on automatically.
10. On the PC, point a web browser to the server's IPMI IP Address.
11. Login using the username **ADMIN** and password **ADMIN**.
12. The web page shown in Figure 6-9 should appear.

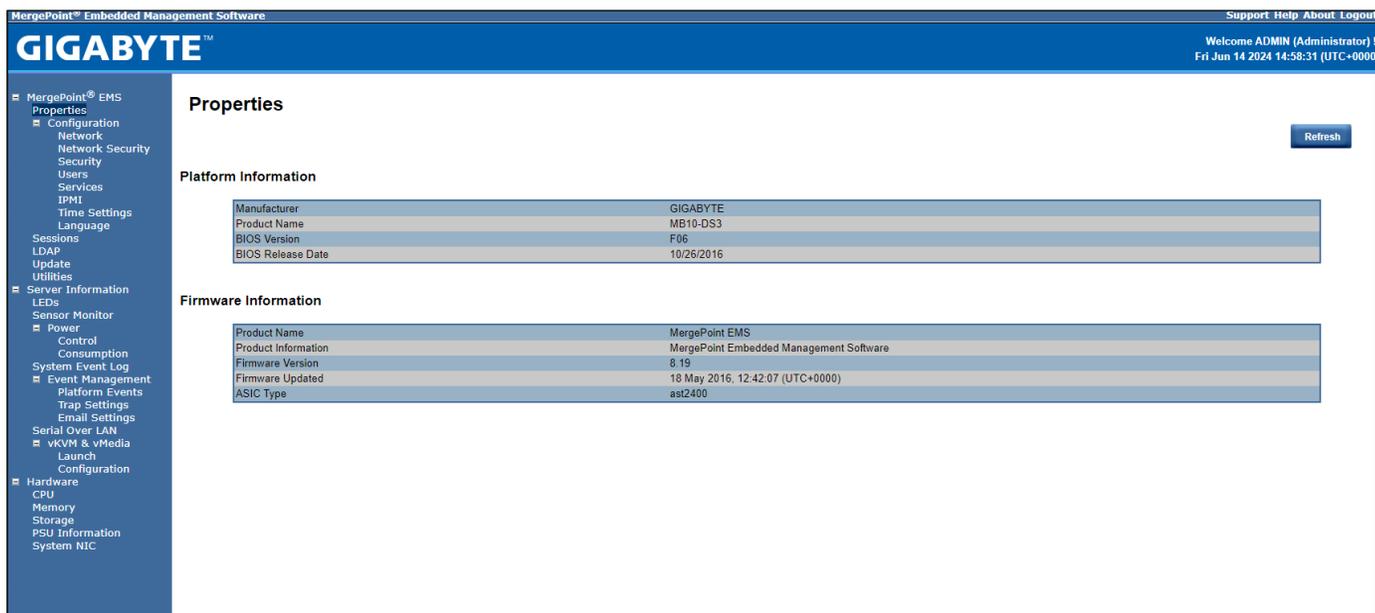


Figure 6-9: IPMI Web Page

6.3.2.1. Turning on the Universal Information (UID) LED

1. Navigate to **Miscellaneous > UID Control**. Select **TURN ON**. Click **Save** then click **OK**.
2. The leftmost UID LED under the power buttons should be blinking Blue.
3. Select **TURN OFF**. Click **Save** then click **OK**.

End of document