MAGNUM - SDVN Management and Control of Evertz IP Switch Fabrics and Gateways 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 uninsulated "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 these instructions
- 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 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 provided plug 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.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as 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

INFORMATION TO USERS IN EUROPE

<u>NOTE</u>

CISPR 22 CLASS A DIGITAL DEVICE OR PERIPHERAL

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.



EN60065 EN55103-1: 1996 EN55103-2: 1996

Safety Emission Immunity



EN504192 2005 Waste electrical products should not be disposed of with household waste. Contact your Local Authority for recycling advice

INFORMATION TO USERS IN THE U.S.A.

<u>NOTE</u>

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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

Changes or Modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.



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REVISION HISTORY

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DESCRIPTION

<u>DATE</u>

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Although every attempt has been made to accurately describe the features, installation and operation of this product in this manual, no warranty is granted nor liability assumed in relation to any errors or omissions unless specifically undertaken in the Evertz sales contract or order confirmation. Information contained in this manual is periodically updated and changes will be incorporated into subsequent editions. If you encounter an error, please notify Evertz Customer Service department. Evertz reserves the right, without notice or liability, to make changes in equipment design or specifications.



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1. OVERVIEW

The MAGNUM control platform provides flexible and unified control of an entire broadcast environment through a variety of user operational and management surfaces. MAGNUM has an ecosystem of separately installable, licensable modules, each providing unique functionality in a unified system of control.

The MAGNUM modules are:

ROUTER	Baseband router control
MULTIVIEWER	Management and control of Evertz multiviewers
TALLY	Management and control of tally for production and master control
ISP	Automatic provisioning and pathing through pools of dynamic signal processing
	resources
KVM	Management and control of Evertz KVMx solution
NAMES	Name synchronization with third-party systems
SCHEDULE	Time based scheduling of routing events
CLIENTHOST	Panel hosting / configuration and 3rd Client interfacing
SCRIPTS	Script engine to augment and extend core MAGNUM capabilities to provided
	uniquely tailored functionality
SDVN	Management and control of Evertz IP switch fabrics and gateways

The management and configuration of the various MAGNUM modules is unified through a single, tailorable web interface, called VUE-WEB. VUE-WEB's tailored interface provides user specific dashboards which expose only the required applications and widgets required by that user, whether they are configuration, operational, monitoring or design elements.

MAGNUM's modules are designed to interact with each other through MAGNUM's inter-module control APIs, which enables support for resources to be distributed or consolidated through the use of virtualization or physical deployments. This allows MAGNUM to provide new functionality, e.g. adding servers with more CPU and memory resources in a scalable architecture.



1.1. MAGNUM-SDVN: ORCHESTRATION AND CONTROL

MAGNUM, the unified facility control system using the SDVN module, is the orchestration and control layer of Evertz SDVN solution. MAGNUM-SDVN manages the flows of video, audio, and data packets over a network that consists of Evertz 10/100GbE switching fabrics, EXE-VSR and 3080IPX, IP media gateways (e.g. 570IPG and 3000REM) and traditional SDI products (e.g. EQX and 7812 series).

MAGNUM, a software defined network controller, gives full control of switching and routing of flows to the operator. Unlike traditional networking equipment where the control and data plane reside on the routing switch which leads to complex networks and routes, MAGNUM is separate from the data plane.

MAGNUM looks at the network as a whole to determine the most optimize path to use and manages the flow across that path. From an operations perspective, controls to switch a source to a destination are the same one used in a traditional baseband environment.



2. GETTING STARTED

2.1. INSTALLING THE MAGNUM SOFTWARE

For information on the installation of MAGNUM Software on MAGNUM Hardware please refer to the MAGNUM Hardware User Manual.

2.2. MAGNUM SERVER CONFIGURATION SHELL

The MAGNUM Server Configuration Shell enables the user to set up the MAGNUM server parameters. By accessing the MAGNUM Server Configuration Shell a number of operations can be performed in order to properly set up your server. Access to the MAGNUM Server Configuration Shell is available when directly connected or KVM access to the Server or remotely through a SSH session



Tip: Changes that affect the operation of the MAGNUM 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 when prompted. These are the default credentials:

- Enter admin as the username and then press <enter>
- Enter *admin* as the password and then press *<enter>*

Figure 2-1 displays the main setup menu. Section 2.2.1 to 2.2.5 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 2-1: Main Server Control Menu



2.2.1. System Configuration

Selecting the **System Configuration** option will reveal the screen displayed in Figure 2-2. 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.

System				
Host Name	[magnum]			
Date	[July 15 2014]			
Time	[17:00]			
Time Zone	[US/Eastern]			
NTP Servers	Configure NTP Servers			
Password	Change the admin password			
Upgrade	Upgrade server software			
Reboot	Reboot the server			
Shutdown	Shutdown the server			
K	> < Back >			

Figure 2-2: System Configuration Menu

2.2.1.1. Setting the Host Name

Selecting the **Hostname** option from the System Configuration menu will enable the user to set the host name for the server. The dialog box in Figure 2-3 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. The host name must be unique within the system.

- Host Name				
Host name:				
<u>m</u> agnum				
< OK > <cancel></cancel>				

Figure 2-3: Change Host Name



2.2.1.2. 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 2-4.

	Date					1			
1	Month Year								
July				201	14]	
	27 28 29 30 31	<u>†(-</u> Sun 6 13 20 27	-) Mon 7 14 21 28	Tue 1 8 15 22 29	Wed 2 9 16 23 30	Thu 3 10 17 24 31	Fri 4 11 18 25	Sat 5 12 19 26	
< <u>OK</u> → <cancel></cancel>									

Figure 2-4: Change Date

2.2.1.3. Setting the Server Time

Selecting **Time** from the System Configuration menu will enable the user 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 2-5. Use the up and down arrow keys to set the values and tab to switch boxes.

Time			
Time			
17 : 01 : 55			
< <u>OK</u> → <cancel></cancel>			

Figure 2-5: Change Time



2.2.1.4. 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 2-6.

Time Z	one
Time zone	
	1
Pacific/Yap	
Poland	
Portuga l	
ROC	
ROK	
Singapore	
Turkey	
UCT	
US	
US/Alaska	
US/Aleutian	
US/Ar izona	
US/Central	
US/East-Indiana	
US/Eastern	
L(+)	97%
<u>< Ок ></u>	< Back >

Figure 2-6: Change Time Zone

2.2.1.5. Setting the IP Address of the NTP Server

Selecting **NTP Server** from the System Configuration menu will enable you to set the IP address for the NTP Server. The dialog box in Figure 2-7 will appear when this option is selected. The user will be prompted to enter the IP address of the NTP Server into the empty field.

NTP Servers Add Server Save and Apply Force Sync	Add Server Server:
<u>QK</u> < Back >	< OK > <cancel></cancel>

Figure 2-7: Change NTP Server



2.2.1.6. Changing the Server Password

Selecting the **Password** option from the System Configuration menu will enable you to change the *admin* password and set a new password for the "admin" account used to access the Server Configuration Shell. The dialog box in Figure 2-8 will appear when this option is selected. The user will be prompted to enter the current password into the "*enter password to change*" field.

Figure 2-8: Change Password

Once the current password is entered, a new dialog box will appear as shown in Figure 2-9. This dialog box will prompt the user to enter the new password for the server. Type the new password into the empty field and select **OK** to set the password.

Figure 2-9: Enter New Password Dialog Box



2.2.1.7. Rebooting the Server

Selecting the **Reboot** option from the System Configuration menu will enable the user to reboot the server. The dialog box in Figure 2-10 will appear when this option is selected. Enter the current password into the "Enter password to reboot the server:" field and press **OK**. The server will reboot.

Reboot]
password	to	reboot the server:	
			-
< OK	>	<cancel></cancel>	
	password C OK	Reb password to < OK >	Reboot password to reboot the server: < OK > <cancel></cancel>

Figure 2-10: Enter Password to Reboot Server

2.2.1.8. Shutting Down the Server

Selecting the **Shutdown** option from the System Configuration menu will enable the user to shutdown the server. The dialog box in Figure 2-11 will appear when this option is selected. The user will be prompted to enter the current password into the "Enter password to shutdown the server" field. Once the password is entered, press the **OK** button.



Figure 2-11: Enter Password to Shutdown Server



2.2.2. Networking Configuration

The **Networking Configuration** menu will enable the user to set the network information (IP, Netmask, Gateway, and Broadcast) for multiple network adapters.

Network			
(eth0) IP Address (eth0) Netmask (eth0) Broadcast (eth0) Gateway	150.150.245.22 255.255.0.0 150.150.255.255 Not Specified Bond multiple interfaces		
Delete Bond Save and Apply	Unbond multiple interfaces Save current settings		
<u>< Ок ></u>	< Back >		

Figure 2-12: Network Configuration Menu

2.2.2.1. Assigning an IP Address for eth0

To assign an IP Address, select the **(eth0) IP Address** option from the Networking Configuration menu. The dialog box in Figure 2-13 will appear when this option is selected. The user will be prompted to enter the desired IP address into the "IP address for eth0" field and then select the **OK** button.



Please note that DHCP is NOT recommended at any time. Repeat these steps for each network adapter that requires configuration.



Please note that the settings must be saved using the *Save and Apply* option from the Networking Configuration menu.

(eth0) IP Address		
IP address for eth0:		
150.150.245.22		
L		
Cancel>		

Figure 2-13: Enter IP Address for eth0



2.2.2.2. Assigning a Subnet Mask for eth0

To assign a subnet mask for eth0, select the **(eth0) Netmask** option from the Networking Configuration menu. The dialog box in Figure 2-14 will appear when this option is selected. The user will be prompted to enter the desired subnet mask into the "Netmask for eth0" 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. Repeat these steps for each network adapter that requires configuration.



Figure 2-14: Enter Netmask for eth0

2.2.2.3. Assigning a Gateway Address for eth0

To assign a gateway for eth0, select the **(eth0) Gateway** option from the Networking Configuration menu. The dialog box in Figure 2-15 will appear when this option is selected. The user will be prompted to enter the desired gateway into the "Gateway address for eth0" 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. Repeat these steps for each network adapter that requires configuration.

(eth0) Gateway
Gateway address for eth0:
L-
·
< OK > <cancel></cancel>

Figure 2-15: Enter Gateway Address for eth1



2.2.2.4. Assigning a Broadcast Address for eth0

To assign a broadcast address for eth0, select the **(eth0) Broadcast** option from the Networking Configuration menu. The dialog box in Figure 2-16 will appear when this option is selected. The user will be prompted to enter the desired subnet mask into the "Broadcast address for eth0" 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. Repeat these steps for each network adapter that requires configuration.

(eth0) Broadcast		
Broadcast address for eth0:		
<u>1</u> 50.150.255.255		
L		
Cancel>		

Figure 2-16: Enter Broadcast Address for eth0

2.2.3. Cluster Configuration

The **Cluster Configuration** menu will enable the user to define the cluster information for the MAGNUM system. These settings will need to match on each server within the cluster.

Cluster		
Multicast Address 1 Multicast Interface 1	Not Specified Not Specified	
Multicast Address 2 Multicast Interface 2	Not Specified Not Specified	
Database IP 1	Not Specified	
Save and Apply	Save current settings	
<u>< ОК ></u>	< Back >	

Figure 2-17: Cluster Configuration



2.2.4. (host x) IP Address

To assign the **Multicast Address 1** for the MAGNUM system select the option from the Cluster Configuration menu. The dialog box in Figure 2-18 will appear when this option is selected. The user will be prompted to enter the desired address into the "Multicast Address" field and then select the **OK** button.

Figure 2-18: Host IP Address

If you wish to assign an secondary multicast address to MAGNUM system, select the **Multicast Address 2** option and enter the desired "Multicast Address" field and then select the **OK** button.

2.2.5. Database IP Address

To assign the **Database Address** for the MAGNUM system select the option from the Cluster Configuration menu. The dialog box in Figure 2-19 will appear when this option is selected. The user will be prompted to enter the desired address into the "IP Address" field and then select the **OK** button.

Database IP 1	
IP Address:	
150.150.245.23	
L	
$\langle 0k \rangle \langle Cancel \rangle$	

Figure 2-19: Database IP Address



3. OPERATING THE MAGNUM SERVER

3.1. REQUIREMENTS FOR ACCESSING THE MAGNUM SYSTEM

- 1. Ensure the MAGNUM Server is installed and operational, and the IP Addresses are set correctly.
- 2. Ensure the computer is attached to the same network as the MAGNUM Server.
 - a. Since web interface uses standard HTML, XHTML, CSS, etc any web browser on any platform that complies with these formats can be used.



Currently the most adopted browsers that are completely compliant are Google Chrome and Safari. We recommend that you use one of these browsers for the best performance.

3. It is not required, but an asset to have a solid general understanding of routing systems. Knowing how your system is wired in terms of inputs, outputs, tielines to terminal equipment and other routers and names for resources makes moving through the process of configuring your router control system far easier.

3.2. GETTING STARTED: SETTING UP YOUR MAGNUM CONTROL SYSTEM

- 1. Launch the Google Chrome web browser and enter the numeric address chosen as the system IP address (also called the virtual or Database IP address which was entered into the Cluster configuration page during initial setup) into the address bar (for example: 192.168.1.4/) and then press the <enter> key; you should see the login page for VUE-WEB.
- 2. The management and configuration of the various MAGNUM modules is unified through a single, tailorable web interface, called VUE-WEB. VUE-WEB's tailored interface provides user specific dashboards which expose only the required applications and widgets required by that user, whether they are configuration, operational, monitoring or design elements.
- 3. Click the **Login** button and enter the username and password. The default administrator username and password is:

USERNAME: admin PASSWORD: admin

4. Once the username and password is filled in, click the **Login** button. A Home screen / Dashboard will appear as shown in Figure 3-1.





Figure 3-1: Home Page





The VUE Search bar or Go Bar allows the user to search for items available in VUE and jump directly to that location when selected.

This opens the **Devices and Links** application directly from the dashboard. The **Devices and Links** app provides the user the ability to create and manage devices that MAGNUM will interface to and control. It also provides the user the ability to define how devices are connected together within system. The **Devices and Links** app also provides the user with a topology view which provides a visual representation of the devices and connections in relation to each other in the system. A third component of the Device and Links application is the real-time update of the connection state of the various devices under MAGNUM control



This opens the **Ports** application directly from the dashboard. The **Ports** app provides the user with the ability to name the source and destination ports within the system. It additionally provides engineering level routing through the system.



This opens the **Mutliviewers** application directly from the dashboard. The **Multiviewers** app manages the multiviewer displays. This application allows for configuration and management of the VIP10G mutliviewers connected to MAGNUM. Using this app, users are able to design, save and recall layouts.







SNMP Control

This opens the **EXE and IPX** application directly from the dashboard. The **EXE and IPX** app is a low level information tool which presents to the user the configured active inputs and outputs of the Evertz switch fabric devices. It allows the user to see the sources, ports and destinations associated with each input and output on the EXE and IPX devices that MAGNUM is controlling.

This opens the **SNMP Control** application directly from the dashboard. The **SNMP Control** app provides the user with the ability to create configurations or status views for the hardware that MAGNUM is interfacing to.



This opens the **User Management** application directly from the dashboard. The **User Management** app provides the ability to add new users, delete users and change user settings. Each user provides his own dashboard upon login.



This tool allows the user to enter edit mode on VUE. While in edit mode the user is able to add desired applications to the dashboard. They are also able to reorganize the dashboard to meet their desired layout and fit their needs.



3.3. APPLICATIONS SELECTOR MENU

The user can access the Applications Selector menu by clicking on the button. A panel will appear at the bottom of the page as illustrated in Figure 3-2.

Applications	
Devices and Links 0.1.0	Ð
	Ð
III Multiviewers	Ð
© Ports 0.1.0	Ð
詩 SNMP Control 0.1.1	Ð
User Management	Ð

Figure 3-2: Applications Selector Menu

This menu enables the user to select the following widgets to add to the VUE dashboard: Devices and Links, EXE and IPX, Multiviewers, Ports and SNMP Control. To close the Applications Selector menu, click anywhere outside of the App menu.



4. CONFIGURING THE SYSTEM

4.1. DEFINING THE DEVICES

The **Devices and Links Application**, Devices Tab enables the user to view, add, delete and modify devices managed by MAGNUM. The created devices will be listed in the *Name* column alongside the corresponding IP Address in the *IP Address* column. The *Connection* column will identify whether the device connected or disconnected within the MAGNUM system.

To access the Devices screen:

- 1. Click on the **DEVICES AND LINKS** Application
- 2. The **Devices** screen, as shown in Figure 4-1, enables the user to add, view and edit the properties of the devices.

Povices & Links						
Show:	All	Watched	Add Device Delete Device(s)		Filter Devices	٩
	96 -	▲ Name	🔶 Model	♣ IP Address	Conn	
Ο	۲	🗑 EXE	EXE	127.0.0.1:9671		
Ο	۲	🗑 IPG1	3080IPG-HD6-IP10GE	127.0.0.1:161		
Ο	۲	🗑 VIP1	3067VIP10G-J2K	127.0.0.1:9700		

Figure 4-1: Devices Page



3. To add a new device, click on the **Add Device** button and an **Add Device** dialog box will appear, as shown in Figure 4-2.



Add Device		×
Device Type	Select a device type	•
		۹.
	570IPG-3G18-SFPP12	cel
	2430RX-J2K-IP	
ST-STREAMS	3000REM-RX9-2MTP12	
ST-STREAMS	3000REM-TX9-2MTP12	
	3067VIP10G-J2K	
ST-STREAMS	3080IPG-ASI16-IPGE	
ST-STREAMS	3080IPG-HD6-IP10GE	
ST STDEAMS	3080IPG-HD12-IP10GE	
ST-STREAMS	3080IPX-16-G3	
ST-STREAMS	3080IPX-32-G3	
ST-STREAMS	3080IPX-64-G3	
	3080MADI9-TS-10GE2	
ST-STREAMS	3080TS-MADI9-10GE2	
ST-STREAMS	7880DFC-J2K-2IPASI	

Figure 4-2: Add Device

4. To add a new device, select the device from the drop down menu this will cause additional information to appear as shown in Figure 4-3. Enter a unique name and IP address of the device into the fields provided. Once the information is entered, select the ADD button to add the device to the Device List. If you have finished adding devices, click the CANCEL button to exit and return to the main device page.



Add Device	×
Device Type	3080IPX-16-G3
Name	*
Primary Address	
Primary IP	•
Primary Port	9672 *
Secondary Address	
Secondary IP	
Secondary Port	9672
Back	Add Another Add Device Cancel

Figure 4-3: Add Device

Device Type: This field displays the device type that MAGNUM will be controlling

Name: This field allows the user to enter a specific name for the associated device.

Primary IP: This field allows the user to enter the primary IP address of the device.

Primary Port: This field allows the user enter the primary Port address of the device. Default is automatically filled in.

Secondary IP: This field allows the user to enter the secondary IP address of the device

Secondary Port: This field allows the user enter the Secondary Port address of the device. Default is automatically filled in.

Add Another: When this field is checked, the device will be added and the user will be automatically prompted to add a new device and repeat the process.

Back: This control allows the user to return to the previous window.

Cancel: This control allows the user to cancel the Add Device process without saving the current changes or device.



- 5. To remove a device, place a check mark in the box beside the device or devices that you wish to remove. Once the desired devices are selected press the **Delete** button.
- 6. To make changes to the devices settings, click the **at the end of the row and a smaller** window with additional options becomes available. These options will open additional windows that link to additional selections related to the device.

				P	Devices	ℰ Links				
Show:	All	Wa	atched	Ð Add Device 🛛 🗑 🛙	elete Device(s	5)		Filt		٩
0-	Ø -		▲ Name	🔶 Model			IP Address		Conn	
Ο	۲	Ū	3067VIP2	3067VIP10G-J	2K		127.0.0.2:9700		8	
Ø	۲	Ť	EXE	EXE			127.0.0.1:9671		8	•••
Ο	۲	Ŵ	IPG1	3080IPG-HD6-	IP10GE		127.0.0.1:161		General Setting	s
Ο	۲	Ŵ	IPG2	3080IPG-ASI1	6-IPGE		127.0.0.1:161		Device Web Pa	ge
Ο	۲	Ŵ	IPX	3080IPX-16-G	3		127.0.0.3:9672		8	
D	۲	Ū	VIP1	3067VIP10G-J	2K		127.0.0.1:9700			

Figure 4-4: Additional Device Options



4.2. DEFINING THE LINKS

The **Links** tab enables the user to view, add, delete or modify device links. The link will be listed in the *Name* column alongside the corresponding *Start Port* of the link followed by the *End Port* column.

To access the Link screen:

- 1. Click on the DEVICES AND LINKS Application. Select the LINKs Tab
- 2. The **LINK** screen, as shown in Figure 4-5, enables the user to add, delete, modify or view the properties of the links connecting devices.

			🖵 Devices 🥜 Links		
• A	dd Lir	nk 🗑 Delete Link(s)		Filter Links	٩
O-		▲ Name	🔶 Start Port	븆 End Port	
Ο	Ū	EXE-2-VIP1-1	EXE-ENET-2	VIP1-ENET-1	>
Ο	Ū	IPG1-1-EXE-1	IPG1-ENET-1	EXE-ENET-1	>

Figure 4-5: Links Page



This button allows the user to delete the selected link.

This button allows the user to create a new link between devices.

3. To add a new link, click on the **Add Link** button and an **Add Link** dialog box will appear, as shown in Figure 4-6.



Add Link				×
Link Name				
Start Port	Select a Start Port	•		
End Port	Select an End Port	•		
			4	Add Link Cancel

Figure 4-6: Add Link

Link Name: This field allows the user to specify a user-friendly Link Name.

Start Port: This field allows the user to specify the start port of the link.

End Port: This field allows the user to specify the end port of the link.

- 4. To add a new link, enter a unique name and define the start and end ports from the drop down menus. Once the information is entered, select the **ADD** button to add the link to the Link List. If you have finished adding links, click the **Cancel** button to exit and return to the main links page.
- 5. The user can apply changes to the system using the controls on the links screen.
- 6. To remove a link, place a check mark in the box beside the link or links that you wish to remove. Once the desired links are selected press the **Delete** button.



4.3. ENCAPSULATION

At the bottom left hand corner of the **Devices and LINKS** window the user will find this icon selecting this icon provide the user the ability to assign Encapsulation IP Addresses to devices ports

Encapsulation IP A	Addresses				111111	11 march		CC	x x
ENCAPSULA	TION IP ADDRESSES		G VIP1	0G					
Filter by Device -									Q
Device	Video Input	Ethernet Port	. 🔺	Destination IP	÷	Destination Port	¢	Source IP	¢
IPG1	IPG1-VID-INPUT-1	IPG1-ENET-1							
IPG1	IPG1-VID-INPUT-1	IPG1-ENET-2							
IPG1	IPG1-VID-INPUT-2	IPG1-ENET-1							
IPG1	IPG1-VID-INPUT-2	IPG1-ENET-2							
IPG1	IPG1-VID-INPUT-3	IPG1-ENET-1							
IPG1	IPG1-VID-INPUT-3	IPG1-ENET-2							
IPG1	IPG1-VID-INPUT-4	IPG1-ENET-1							
IPG1	IPG1-VID-INPUT-4	IPG1-ENET-2							
IPG1	IPG1-VID-INPUT-5	IPG1-ENET-1							
IPG1	IPG1-VID-INPUT-5	IPG1-ENET-2							
IPG1	IPG1-VID-INPUT-6	IPG1-ENET-1							
IPG1	IPG1-VID-INPUT-6	IPG1-ENET-2							

IPG VIP10G Filter by Device ▼ Device Video Input Ethernet Port Destination IP Destination Port Source IP

Figure 4-7: Encapsulation IP Addresses

This button allows the user to view all the Encapsulation IP Addresses associated with a specific device type, such as IPG, VIP, REM, etc.

This drop down menu allows the user to filter the list of encapsulation IP addresses by device name.

This column lists each device which has an Encapsulation IP Address in alpha-numeric order.

This column lists each video input port for the devices, it can be used to sort the list alpha-numerically by Video Input.

This column lists each Ethernet port for the devices, it can be used to sort the list alpha-numerically by Ethernet port.

This column lists each Destination IP address for each port on the devices, it can be used to sort the list numerically by Destination IP.

This column lists each Destination port number for each of the devices, it can be used to sort the list numerically by Destination port number.

This column lists each Source IP address for each port on the devices, it can be used to sort the list numerically by Source IP.

This field allows the user to search device(s) by the encapsulation IP address.



4.4. PORTS

The **Ports** app allows for the naming of ports as well as aliasing through namesets. This app also allows for Engineering level routing through the system.

In the **Sources** tab the user can see the available ports on each device as well as the type of port. Additionally, Name Sets can be created to re-alis the associated port.

Ports			C E # >
SOURCES		L Sources L Destinations	Name Sets - 🕕 🕐
			Filter Sourcea
Port	Source	ENG	OPS
IPG1-VID-INPUT-1	SDI		
IPG1-VID-INPL/T/2			
IPG1-VID-INPUT-3	SOI		
IPG1-VID-INPUT-4			
IPG1-VID-INPUT-5	SDI		
IPG1-VID INPUT 6			
VIP1-VID-INPUT-1	SDI		
VIP1-VID-INPUT-2	SDI		
VIPL VID INPLICE	\$0		

Figure 4-8: Ports Sources

In the **Destinations** tab the user can see the available ports on each device as well as the type of port. Additionally, Name Sets can be created to re-alis the associated port.

Ports					0 E # X
DEST	INATIONS	1 s	ources		lame Sets • 🚺 🕜
Show:	All Watched				Filter Dealmstons
14 -	Port	Destination	Current Source	ENG	OPS
355	IPG1-VID-OUTPUT-1	SOI			
(B)	IPG1-VID-OUTPUT-2				
1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 - 1950 -	IPG1-VID-OUTPUT-3	501			
15 ⁶	IPG1-VID-OUTPUT-4				
я¢	IPG1-VID-OUTPUT-5	SDI			
	IPG1-VID-OUTPUT-6	SCH			

Figure 4-9: Ports Destinations

Under the **Name Sets** drop down menu the user can filter the created Name Sets so that they only see the information that is relevant for their use.



5. ADDITIONAL APPS

5.1. GENERAL

There are multiple icons located on all application windows that the user will need to know to maximize their experience. These icons and their functions are listed here:



5.2. EXE AND IPX

The **EXE and IPX** app is a low level tool which presents to the user the configured active inputs and outputs of the Evertz switch fabric devices.

0 12 :				EXE and IPX
		Refresh Data	e 🗘 R	Device: EXE
Filter Addresses ROUTES Filter Addresses				SOURCES
Address 👙 Output Port * Output Stream 🛊 Input Port 🍦 Input Stream 🍦 IP Address 🌵 Clea	IP Address	Stream 🕴		Input Port
No data available in table		No data available in table		
Prihar Addresser Q. ROUTES Filter Addresser Address Imput Port Imput Port Imput Stream Imput Stream IP Address Cler No data available in table	Filter Addresses	Stream ¢ No data available in table	•	SOURCES

Figure 5-1: Additional Apps - EQX and IPX

To search for a device, use the filter toolbar to select a device from the list of devices. As a user types or select an item, the list of devices will be narrowed down to display only the properties that match the data being entered.



This button allows the user to refresh the data that is presented in the Application.

This field allows the user to select a specific device.

This field allows the user to filter displayed data in the table by multicast address.



5.3. MULTIVIEWERS

The **Multiviewers** app manages the multiviewer displays. This application allows for configuration and layout design of the VIP10G multiviewers controlled by MAGNUM. Using this application, users can set the multiviewer properties such as resolution, refresh rate and orientation, as well as design, save and recall layouts.



Figure 5-2: Additional Apps - Multiviewer Outputs



This allows the user to zoom in or out of the mutliviewer application.

This allows the user to enable or disable changes on the mutliviewer configuration.

This allows the user to auto-arrange the Multivewer displays in rows.

This allows the user to change the resolution, rotation and refresh rate of the displays when Live Edits is **ON**.



Multiviewers		0 C H # X
+ Back	VIP1 1 (1920x1080)	Live Edits: OFF
		Sources Layouts Themes
		🕑 土 🎟 🗊 🖸 🖒 Filter Layouts 🔍
		TOTAL: 2
999/002908/15 80,980 6,6	999(100)986/10 399:198 66(1)	no preview available (no layout)
UMD	UMD	>
, varivno skuljini Koli sko 0, sko		Properties
UMD		

Figure 5-3: Additional Apps - Multiviewer Outputs

When a multiviewer display is selected, the user will be able to see the current layout on the selected multiviewer display and or begin editing/creating a new layout. To edit / create the multiviewer layout the Select Live Edits to be On, when set to ON this will expose a tool bar across the bottom of the Multiviewers window. This tool bar allows the user to add design elements / widgets to the multiviewer display.



Figure 5-4: Additional Apps - Widgets Menu



4:3	Add 4:3 Video Window widget to the multiviewer canvas.
16:9	Add 16:9 Video Window widget to the multiviewer canvas.
Grid	Create multiple Video Window widgets in a grid alignment on the multiviewer canvas.
S Label	This allows the user to add a label to a Video Window widget on the multiviewer canvas.
	This allows the user to add a UMD widget to the canvas.
Level Bar	Create and assign a level bar to an existing Video Window widget.
Clock	Add a clock widget to the multiviewer canvas.
Clock	Add a digital clock to the multiviewer canvas.

Selecting the desired widget, with Live Edits On, will allow access to the *Properties* tab. In this tab are controls to allow the user to set various properties of the widgets such as Border and Background Color, Border Width as well as VGPI Triggers. Each widget will have its own set of properties.

Properties		
Border Color		Χ
Border Width		
Background Color		X
VGPI Triggers		
Minor	[Add Dynamic VGPI]	[Add Static VGPI]
Major	[Add Dynamic VGPI]	[Add Static VGPI]
Critical	[Add Dynamic VGPI]	[Add Static VGPI]

Properties	
Border Color	X
Border Width	
Background Color	
Text Color	X
Label Text	undefined

This *Properties* tab is associated with both the 4:3 window and the 16:9 window. Allowing the user to set the following parameters for the Video widget that has been selected:

Border Color Border Width Background Color VGPI Triggers

This *Properties* tab is associated with the Label, allowing the user set the following parameters for the Label widget that has been selected:

Border Color Border Width Background Color Text Color Label Text



Channel 6



This *Properties* tab is associated with the UMD widget. It allows the user to set the following parameters for the UMD widget that has been selected:

Border Color Border Width Background Color Text Color UMD Protocol Mode

This *Properties* tab is associated with the Level Bar widget. It allows the user configure the number of audio channels the selected Level Bar widget will display and the mapping of those channels.

Properties	
Border Color	X
Border Width	
Background Color	
Text Color	
Time Source	System Time

Properties		
Time Source	System Time	•

This *Properties* tab is associated with the Digital Clock. It allows the user to set the parameters for the Digital Clock widget selected:

Border Color Border Width Background Color Text Color Time Source

This *Properties* tab is associated with the Analog Clock. It allows the user to set the parameters for the Analog Clock widget selected.

The *Sources* tab displays each of the available Video Sources. These can be added to each widget to be displayed. The *Filter Sources* field allows the user to search for the desired source.



Sources Layouts Themes		
	Filter Sources	۹
	CHECKED: 0,	TOTAL: 32
VIP1-VID-INPUT-1		
VIP1-VID-INPUT-2		
VIP1-VID-INPUT-3		
VIP1-VID-INPUT-4		
VIP1-VID-INPUT-5		
VIP1-VID-INPUT-6		
VIP1-VID-INPUT-7		
VIP1-VID-INPUT-8		
VIP1-VID-INPUT-9		

Figure 5-5: Additional Apps – Sources Tab

The *Layouts* tab displays the available layouts to be previewed for each Multiviewer. The user can drag and drop the desired layout to the canvas to view it. The *Filter Layouts* field allows the user to search for the desired layout to add or view.



Figure 5-6: Additional Apps – Layouts Tab



The *Themes* tab allows the user to select the desired theme to load to the widget. The user can drag and drop the theme from the tab to the desired widget to be added. The *Filter Themes* field allows the user to search for the desired theme to add or view.



Figure 5-7: Additional Apps – Themes Tab

ø

This button allows the user to refresh the Themes and load any newly added ones.



5.4. SNMP CONTROL

The **SNMP Control** app allows the user the ability to set the configuration and monitoring functions of SNMP enabled devices.

SNMP Control				0 U # X
		IP Output Control - Main Port		
TS Packets per IP	UDP8	UDP12		
	RTP Mode	TS Packet Size		
	Disable Enable	188 bytes 204 bytes		
	FEC Column (L)	U0P9	Time to Live	
		Enable		
	to Disa	ble Enable		
≡ ∕ ⊙	Dashboard 1			B 1 1 6 6 6 6

Figure 5-8: Additional Apps - SNMP Control

The following icons are specific to the SNMP Control window and will allow the user to maximize their use of SNMP Control Application for their system.



This icon allows the user to enter edit mode for the SNMP Control window.

This icon allows the user to set the polling interval for the SNMP Controls.



This icon allows the user to open a list of all the available SNMP Controls.

This icon allows the user to open the panel. This panel displays all of the devices which are SNMP enabled and by selecting any one of these the user can add parameters to be monitored in the SNMP Control window.



These icons allow the user to either import or export a desired layout.

These icons allow the user to either import or export a snapshot of the saved values on the dashboard.



5.5. USER MANAGEMENT

The **User Management** app allows the user with the ability to add new users, delete users and change user settings.

User Management		o ⊑ # x
Users		
Add User Belete Selected	≜ Full Name	Piter Users Q
O 🖶 admin	Administrator	Charge Parment (199

Figure 5-9: Additional Apps - User Management



This button allows the user to add a new user to MAGNUM.

This button allows the user to delete selected user account from MAGNUM.

This button allows the user to change the password assigned to the selected account.

This allows the user to search for and filter the Users list.



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