Router Control and Multiviewer School

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1. SCHEDULE

1.1. DAY 1

Intro to Magnum / Hardware and Software Setup

- BIOS and RAID configuration and optimization
- Operating System Installation
- Installation of Magnum Router Control and Multiviewer Packages
- Support Package Installation
- Cluster Configuration / ConfigShell Interface

1.2. DAY 2

MAGNUM Router Control and Multiviewer Configuration

- ConfigShell Interface
- Web Configuration Interface
- Server addition and license acquisition
- Device creation and management
- Tieline creation and management
- Advanced Routing Configuration (Source Availability, Subscriptions, Mirrors, and Virtual Ports)
- Name Management
- Interface Management (Multi-Profile Panels, Single Profile Panels, Labels, Categories)
- Routing and Reporting Tools (Quick Routes, Advanced Routes, Multiviewer, Reports, Dashboard)
- User Management
- Configuration Management
- Logs

1.3. DAY 3

Interface Configuration

- Simple/Single Profile Panel base configuration and upgrading
- Advanced / Multi-Profile Panel base configuration and upgrading
- MVP and SNMP Configuration of Advanced / Multi-Profile Panels
- Virtual Control panel base configuration

Third Party Integration

- Quartz Interface Configuration
- 7700R-SC-BRC Configuration and Interfacing

Advanced Techniques and Configurations

- Tweaks
- Customized mappings
- Debugging / Logging

2. MAGNUM UNIFIED CONTROL

3. MAGNUM MODULES

- Router
- Multiviewer
- Names
- Tally
- Script
- ISP
- ATP
- Schedule

3.1. ROUTER

- Control full Evertz routing products such as EQX (Video and Audio) to XRF series
- Interface with 3rd Party Routers and Router Control Systems
- Intelligent Path Finding
- Multiple NameSets for Source and Destinations

3.2. MULTIVIEWER

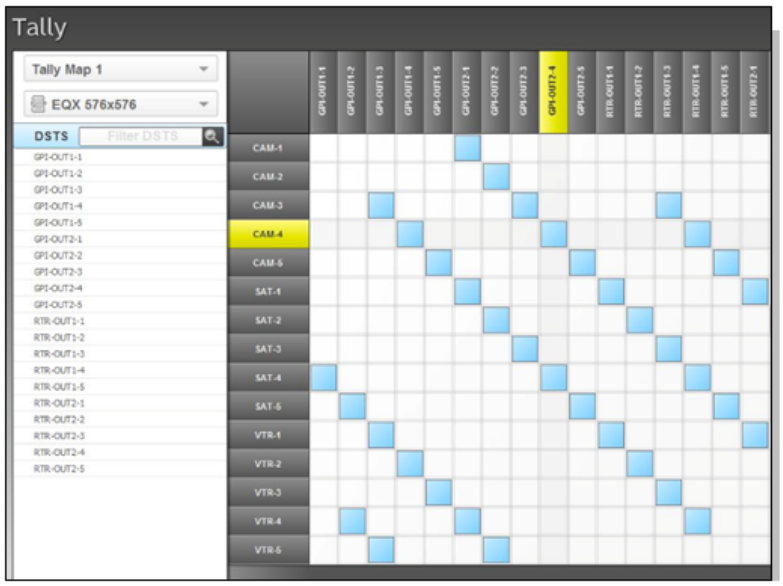
- Dynamic UMD from Router source and destination
- Tally from production and master control switchers
- On-screen control
- Layout recall
- Hot redundancy (-R option)

3.3. NAMES

- 3rd Party Systems
- Discrete IMDs and UMDs

	Port	Global	CBS-ET	CORPLEX A TRUCK
)X	1	HD CCU 01	TEST 01 - BLACK - DV	Cam 01
)X	2	HD CCU 02	TEST 02 - BARS - DV	Cam 02
)X	3	HD CCU 03	TEST 03 - HD TEST - DV	Cam 03
)X	4	HD CCU 04	TEST 04 - SD TEST - DV	Cam 04
)X	5	HD CCU 05	FEED 01 - TVC RX 1 - DV	Cam 05
)X	6	HD CCU 06	FEED 02 - TVC RX 2 - DV	Cam 06
)X	7	HD CCU 07	FEED 03 - TVC RX 3 - DV	Cam 07
)X	8	HD CCU 08	FEED 04 - TVC RX 4 - DV	Cam 08
)X	9	HD CCU 09	FEED 05 - BC RX 1 - DV	Cam 09
)X	10	HD CCU 10	FEED 06 - BC RX 2 - DV	Cam 10
)X	11	HD CCU 11	FEED 07 - ATT RX 1 - DV	Cam 11
)X	12	HD CCU 12	FEED 08 - ATT RX 2 - DV	Cam 12
)X	13	HD CCU 13	FEED 09 - TSW RX 2 - DV	Cam 13
)X	14	HD CCU 14	FEED 10 - TSW RX 4 - DV	Cam 14
)X	15	HD CCU 15	FEED 11 - TSW RX 6 - DV	Cam 15
)X	16	HD CCU 16	FEED 12 - TSW RX 8 - DV	Cam 16
)X	17	ZZ TDM GAP 17	EQX-SRC-17 - DV	Cam 17
)X	18	ZZ TDM GAP 18	EQX-SRC-18 - DV	Cam 18
)X	19	HD CCU 17	FEED 15 - SAT RX 1 - DV	FS-19
)X	20	HD CCU 18	FEED 16 - SAT RX 2 - DV	FS-20
)X	21	HD CCU 19	EQX-SRC-21 - DV	FS-21
)X	22	HD CCU 20	SYND 01 - DV	FS-22
)X	23	FSYNC 1	SYND 02 - DV	FS-23
)X	24	FSYNC 2	SYND 03 - DV	FS-24

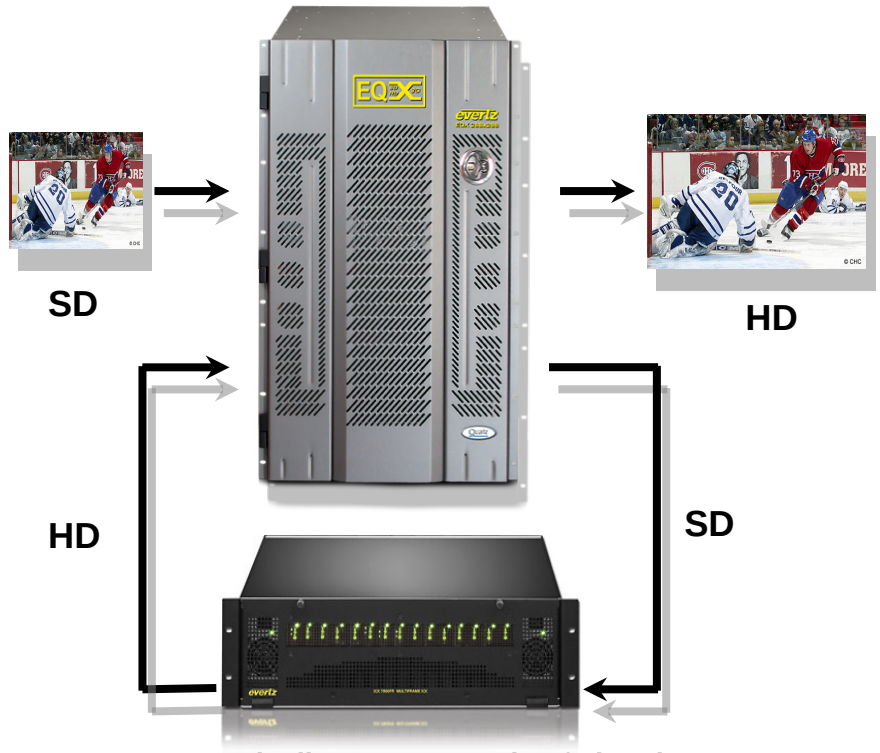
3.4. TALLY



3.5. SCRIPT

```
@qmcdcp.onButtonAssignSource.when('button==65')
def onButtonAssignSource_b1(qmcdcpid, button, source):
    mvp.changeStream(display=1, window='Window.001', source=source)


@qmcdcp.onButtonAssignSource.when('button==66')
def onButtonAssignSource_b10(qmcdcpid, button, source):
    mvp.changeStream(display=1, window='Window.002', source=source)


@qmcdcp.onButtonAssignSource.when('button==67')
def onButtonAssignSource_b11(qmcdcpid, button, source):
    mvp.changeStream(display=1, window='Window.003', source=source)


@qmcdcp.onChangeChannel.when('channel=="FOXNews"')
def onChangeChannel_FOXNews(qmcdcpid, channel):
    mvp.runScript(display=1, script='FoxNewsD1.vssl')
    mvp.runScript(display=1, script='FoxNewsD2.vssl')
    mvp.runScript(display=1, script='FoxNewsD3.vssl')


@qmcdcp.onChangeChannel.when('qmcdcpid==5 and channel=="FOXNEWS"')
def onChangeChannel_FOXNews_supervisordcp(qmcdcpid, channel):
    mvp.runScript(display=1, script='FoxNewsD1.vssl')
    mvp.runScript(display=1, script='FoxNewsD2.vssl')
    mvp.runScript(display=1, script='FoxNewsD3.vssl')
    mvp.runScript(display=4, script='FoxNews-supervisor.vssl')


@qmcdcp.onChangeChannel.when('channel=="HBO"')
def onChangeChannel_HBO(qmcdcpid, channel):
    mvp.runScript(display=1, script='HBOD1.vssl')
    mvp.runScript(display=1, script='HBOD2.vssl')
    mvp.runScript(display=1, script='HBOD3.vssl')


@qmcdcp.onChangeChannel.when('qmcdcpid==5 and channel=="HBO"')
def onChangeChannel_HBO_supervisordcp(qmcdcpid, channel):
    mvp.runScript(display=1, script='HBOD1.vssl')
    mvp.runScript(display=1, script='HBOD2.vssl')
    mvp.runScript(display=1, script='HBOD3.vssl')
    mvp.runScript(display=4, script='HBO-supervisor.vssl')
```

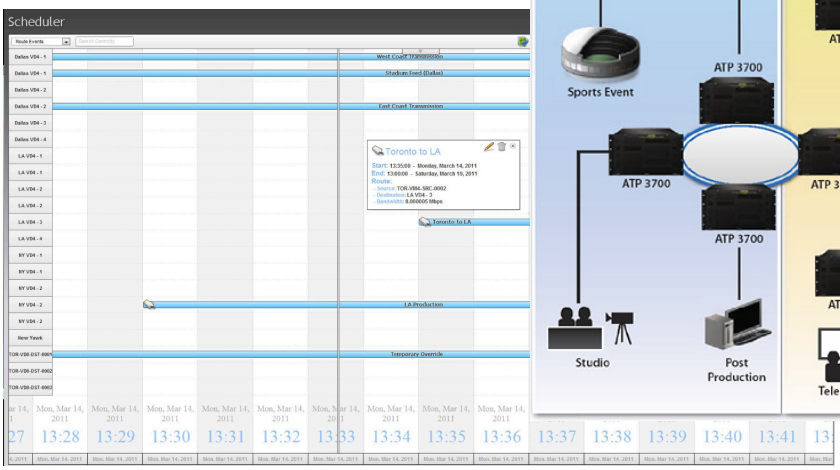
3.6. ISP – INTELLIGENT SIGNAL PATHING

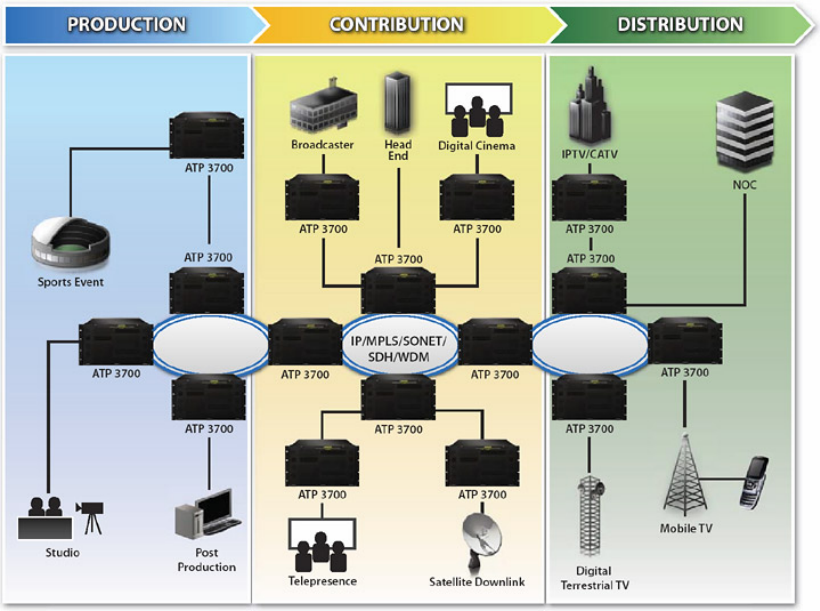


Automatically manage pools of signal processing devices

3.7. ATP & SCHEDULE

- **Provision, schedule, and manage network and optical link bandwidth and pathfinding**





4. DAY 1: BIOS AND RAID CONFIGURATION AND OPTIMIZATIONS

Customer Supplied HP DL360 G5/G6/G7 Configuration & Installation Instructions

4.1. CONFIGURATION

4.1.1. Serial Port

After some time, the server puts hardware components in a low power state. This causes the serial cable to stop functioning after somewhere between 4 to 52 hours (as tested). The server is also noticeably slower during normal processing.

To fix this problem the user must disable power saving on the server using the following method:

1. Boot into BIOS configuration by pressing [F9] during boot.
2. Go to the menu "Power Management Options" then "HP Power Profile".
3. Select "Maximum Performance".
4. Exit and reboot by pressing [ESC] a few times and then press [F10].

4.1.2. ILO

iLO should be disabled on all servers to prevent the CLI from locking out the serial port.

To disable CLI on HP DL360, follow the instructions outlined below:

1. Reboot the machine.
2. Press [F8] when the BIOS says “IntegratedLightsOut, press [F8] to configure” (very brief window).
3. There might be a password required:
    a. Login with user “Administrator”
4. Default password is on top of the server case, just above the leftmost hard-drive port on the front panel.
5. Go to Settings -> CLI
6. Press [Spacebar] until the option says “DISABLED”.
7. Save.
8. Go to File -> Exit.

4.1.3. Resume on Power Failure

This will force the HP Server to automatically power on whenever AC is applied, meaning that if it is OFF and AC is re-applied it will turn ON. Generally, even without this mode enabled, the server will return to it's previous power state. (Note: It seems that power blips are a loop hole for the default mode.)

1. Press [F9] (During Bootup) to Enter BIOS Setup.
2. Select "Server Availability".
3. Select "Automatic Power On".
4. Select "Enabled".
5. Press the [ESC] button.
6. Press [F10] to save and exit.

4.1.4. HP DL360 g5/G6/g7 RAID Configuration

1. Boot Server.
2. Press F8 to enter the "Option Rom Configuration for Arrays" as seen in Figure 4-1.

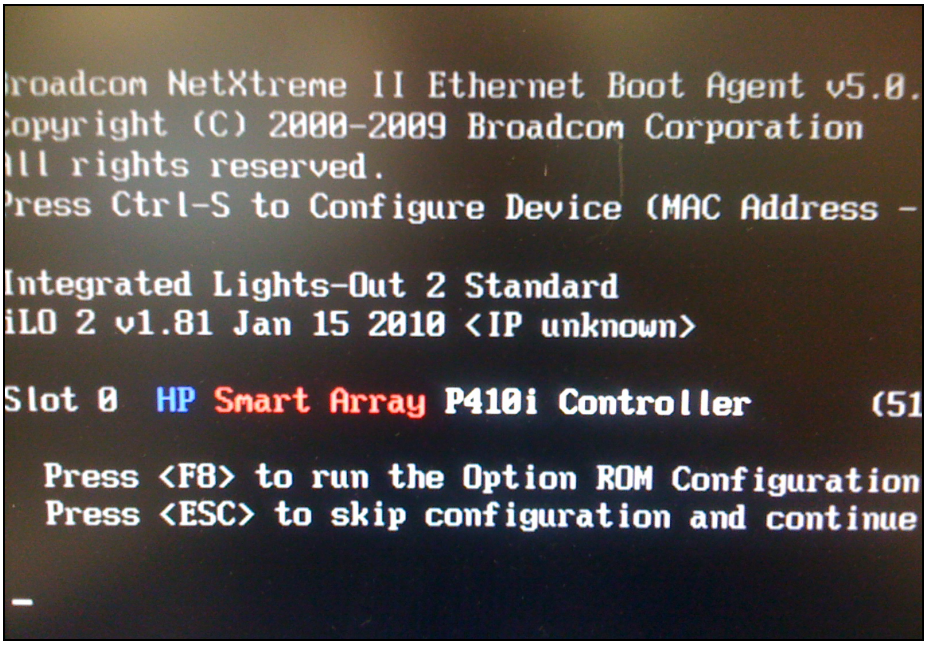


Figure 4-1: Option Rom Configuration for Arrays

3. In "Option Rom Configuration for Arrays" window, select "Create Logical Drive" to start the configuration process.

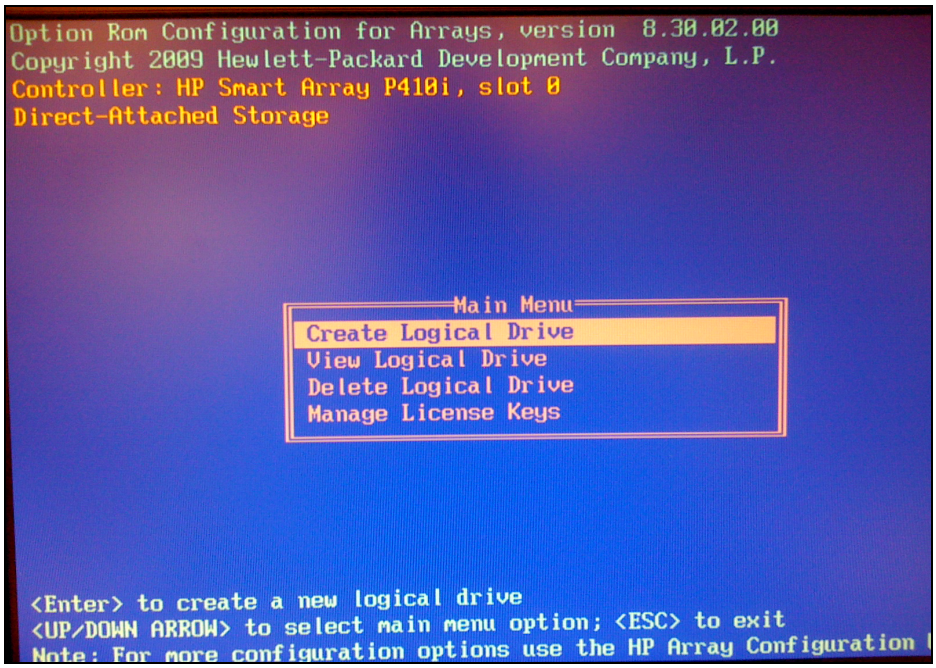


Figure 4-2: Create Logical Drive

4. All the disks will be selected by default.

5. Navigate to RAID Configurations by using <Tab>, and set to “RAID 5” by pressing Space.

6. When Four Drives are present, define the 4th drive as a spare by not including it in the RAID array but marking it as “Spare”.

7. Press Enter to create the logical drive.

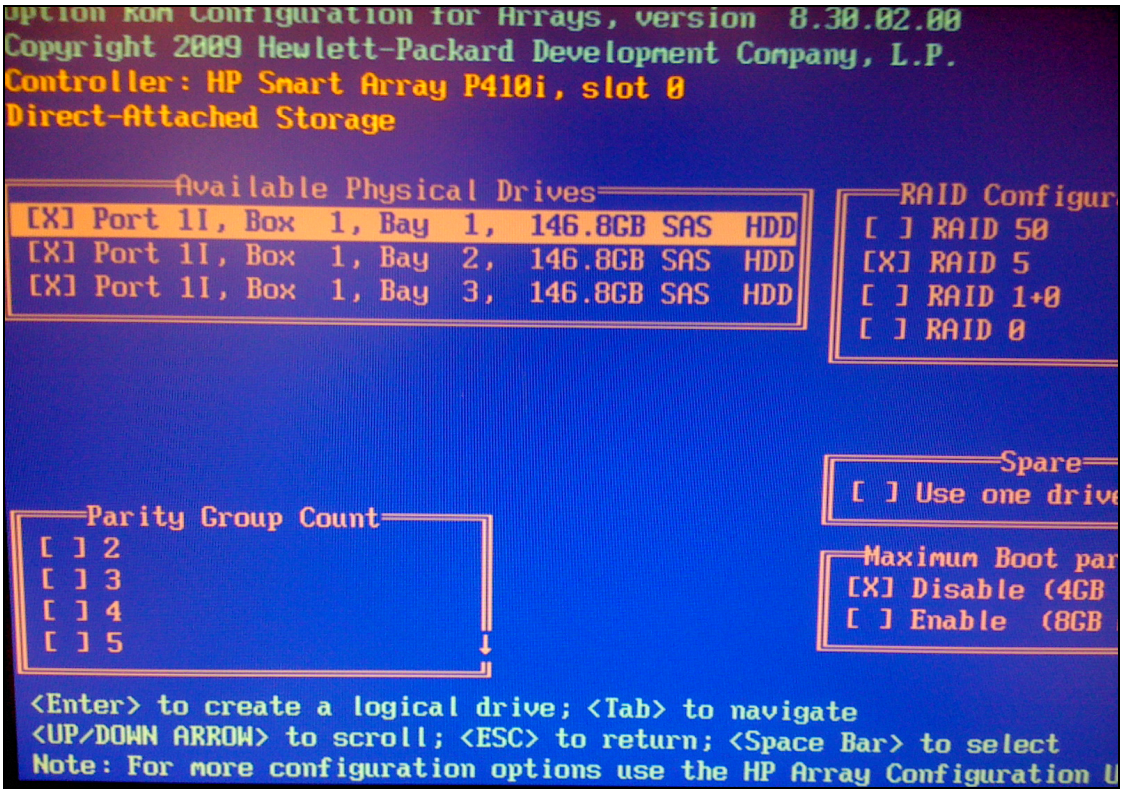


Figure 4-3: Press Enter to Create Logical Drive

8. Press <F8> to Save the configuration.

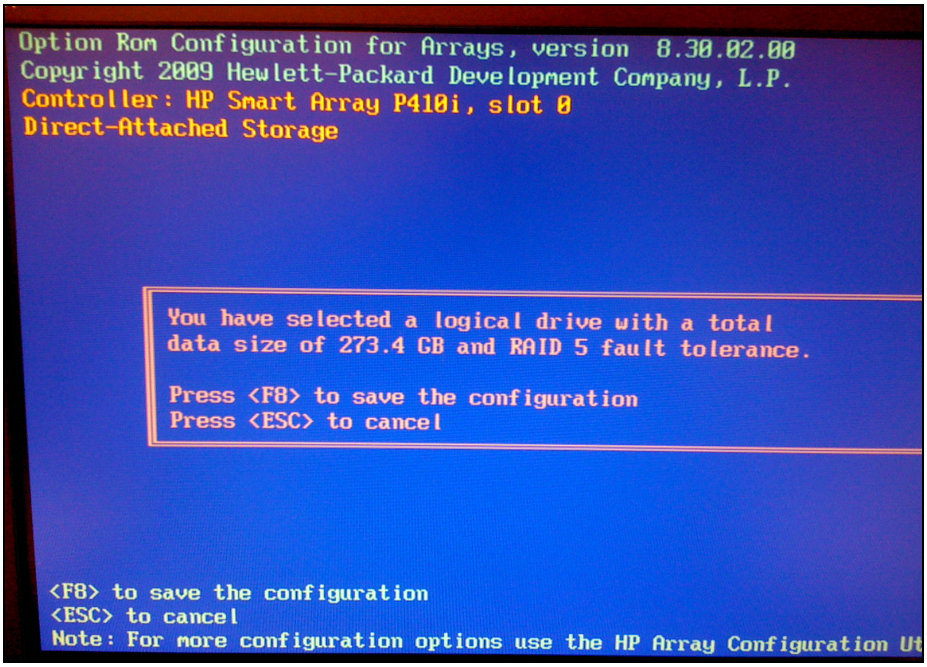


Figure 4-4: Save Configuration

9. “Configuration Saved”, and Press <Enter> to continue.

10. Select “View Logical Drive” in “Option Rom Configuration for Arrays” window.

11. The configured RAID setting is shown in Figure 4-5. RAID 5 is correctly set.

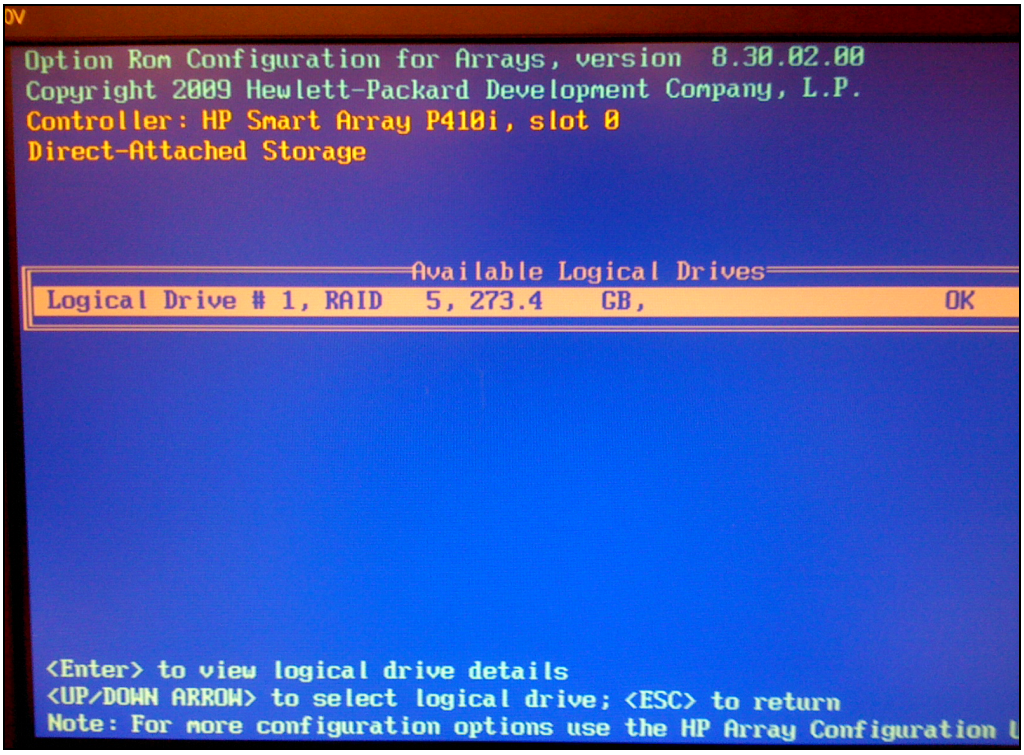


Figure 4-5: Configured RAID Setting

12. Press ESC to exit.

13. Reboot the server.

4.2. OPERATING SYSTEM AND MAGNUM PACKAGE INSTALLATION

Customer Supplied HP DL360 G5 / G6 / G7 Configuration and Installation Instructions

Prior to installation of the linux OS, the following information should be prepared:

- Server class hardware which meets the MAGNUM server specifications, ready to power up, connected to monitor and keyboard with a NULL modem serial cable between Primary and secondary (if secondary is in use).
- IP information (Address, Netmask, Gateway, etc.) for each machine plus one for the virtual system.
- A "name" for each machine (MAGNUMPRI/ MAGNUMSEC or something similar).

Tip: Although each MAGNUM server PC requires at least one IP in order to facilitate ease of use and reliability for router panel and 3rd party connection to the system, a "virtual" or system IP masks the individual hardware IP addresses. No matter which server is active it still holds the "virtual" IP.

Getting Started:

1. Power on the machine and insert the debian etch CD or bootable USB.
2. The debian installation will begin automatically, when prompted press *enter* to continue booting.
3. When prompted for a language, select appropriately "English" as standard, and then continue.
4. Select the appropriate Country, and then continue.
5. From the keymap, select *American English* as standard, and then continue.
6. When prompted to choose a primary network interface, choose *eth0* and then continue.
7. Choose to configure the network and then continue.
    a. Enter settings as prompted for address, netmask, gateway, and nameserver.
    b. Enter MAGNUMPRI or something similar for the host name of the primary MAGNUM server (MAGNUMSEC for redundant, etc).
8. When prompted to configure partitions choose "*guided setup*", select the disk and the option to put "*all files in one partition*".
9. When prompted choose to *"finish partition"* and "*write all changes to disk".* At this point the machine will format the drives, which can take 5 to 30 minutes depending on hard drive configuration, etc.
10. When prompted select your timezone.
11. When prompted to setup users use the following settings:
    a. The password for the "root" user (equivalent to admin in linux systems) should be set to "*evertz".*
    b. The user account username should be set to "*evertz"* and the password for user account should be set to "*evertz".*

c. Once this step is complete, please wait until prompted.

12. When prompted to configure a network mirror for the packet manager select "*no"* and wait for the "*could not connect*" message and then continue.

13. When prompted to participate in the package survey, select "NO".

14. When prompted for software selection, choose only "*standard system*" (ensure **no other items** such as "*desktop environment*" are selected).

15. When prompted to choose the installation of the GRUB bootloader, select "*yes*" and then continue.

16. When prompted select *continue*, remove the CD and the machine will reboot.

17. Repeat this process for the redundant server, if present.

4.2.1. Installing the MAGNUM Server

1. Copy the two MAGNUM server files onto a USB stick. (There will be a large base file and a small update file).

2. Insert the USB stick into the linux server (Note the location where it is automatically installed. It will install to *sda(x)*, which will probably be *sda1*).

3. To mount the USB drive: Type *mkdir /mnt/usb* and then press <*enter*>. Doing this creates a directory in the */mnt* directory called *usb.* Then type *mount /dev/sdax /mnt/usb* (where the *x* value entered will be the same as the previous step).

4. Copy the two MAGNUM server files onto the machines: *cp /mnt/usb/*MAGNUM_ *…..efp* /tmp and press <*enter*>. Repeat this step for the other file.

5. Run the evertz-server-base-.x.x.x.efp file: sh /tmp/ *evertz-server-base-x.x.x.efp* and then press <*enter*>*.* This process may take several minutes.

6. Now run the second file: sh/tmp/ MAGNUM-server-x.x.x.efp and then press <*enter*>. When prompted choose *OK* to finish.

7. Once the installation of the update file is complete on the primary server shut it down by using "shutdown –h now" and press <*enter*>.

8. At this point return to the beginning of this section and follow the same procedure for the secondary server.

9. Once this step is reached for the secondary server and it is shutdown, power on the primary server first and then the secondary server.

4.2.2. HP DL360 G6/g7 Installation Notes using Debian Etch 4.0

A USB installer is required for the installation of Debian Etch 4.0

- Drivers not available for CDROM (SATA)
- Drivers not available for onboard network adapter NC382i

The following packages are required for the CDROM and ethernet adapter support:

- linux-image-2.6.26-bpo.2-686-bigmem_2.6.26-17~bpo40+1_i386.deb
- firmware-bnx2_0.13~bpo40+1_all.deb

The above mentioned files are located:

ftp.evertz.com/private/hpdl360

Installation of these packages use the command "dpkg -i ". Follow the instructions outlined below:

1. Install the Debian Etch first and then reboot the system.
   a. If Debain Etch fails to load after the reboot with the following error

   Inquiring remote APIC #3...
   ... APIC #3 ID: failed
   ... APIC #3 VERSION: failed
   ... APIC #3 SPIV: failed
   SMP alternatives: switching to SMP code
   Booting processor 3/2 APIC 0x1
   Not responding.

   i. Enter BIOS and enable single core
   ii. Install Debian 4 Etch as normal

2. Install the **linux-image-2.6.26-bpo.2-686-bigmem_2.6.26-17~bpo40+1_i386.deb** file (listed above) using the **dpkg -i** command.

3. Install the **firmware-bnx2_0.13~bpo40+1_all.deb** file (listed above) using the **dpkg -i** command and then reboot the system.

4. Enter BIOS and re-enable all cores.

4.3. BIOS AND RAID CONFIGURATION AND OPTIMIZATIONS

Evertz Supplied SuperMicro Server Configuration and Installation Instructions

4.3.1. RAID Configuration Procedures for SuperMicro Servers

1. Boot Server.
2. Press “DEL” during BIOS “SuperMicro” screen to enter BIOS setup mode.
3. To make USB mouse work, set option Advanced>Advanced Chipset Control>South Bridge.
4. Configuration>Port 64/60 Emulation = Enabled.
5. Press “F10” to save the changes and reboot.
6. Press Ctrl+H during bios boot to enter to WebConfig BIOS program.
7. In “Adapter Selection” window, select one Adapter and select “Start” to begin the configuration process.
8. In “MegaRAID BIOS Config Utility Virtual Configuration” page, select “Configuration Wizard”.
9. Select “New Configuration” and then “Next” to create a new configuration.
10. “Are you sure you want to clear the configuration?” Select “Yes” to continue.
11. Select “Manual Configuration” and select “Next” to continue.
12. On the Drive Group Definition page, select the two SSDs on the left “Drives” table and select “Add to Array”.

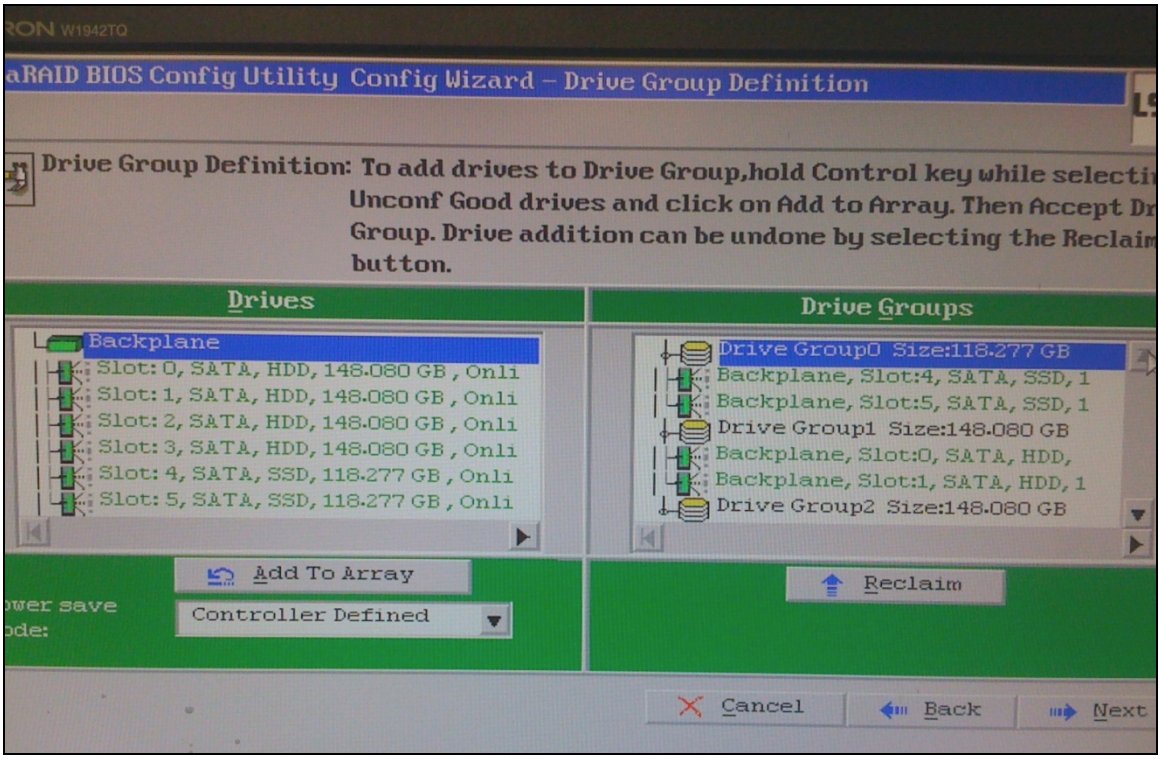


Figure 4-6: Drive Group Definition Page

13. The two SSDs will show up on the right “Drive Groups” table.

14. Select “Accept DG” to make the drive group.

15. Select Drive Group1 on the right, and select the first two Spinning drives on the left to “Add to Array”.

16. Select “Accept DG” to make the drive group.

17. Select Drive Group2 on the right, and select the other two spinning drives on the left to “Add to Array”.

18. Select “Accept DG” to make the drive group.

19. Select “Next” to continue.

20. On “Span Definition” page, select “Drive Group0” and “Add to SPAN”.

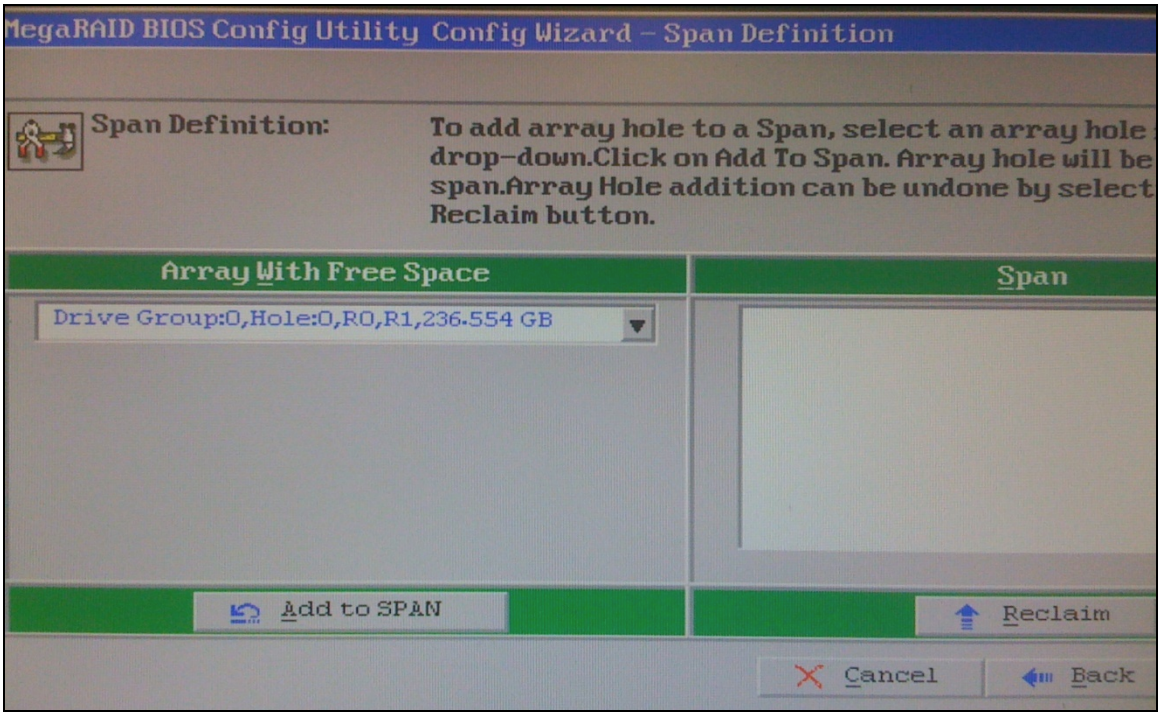


Figure 4-7: Span Definition Page

21. Select “Next” to continue to “Virtual Drive Definition” page.

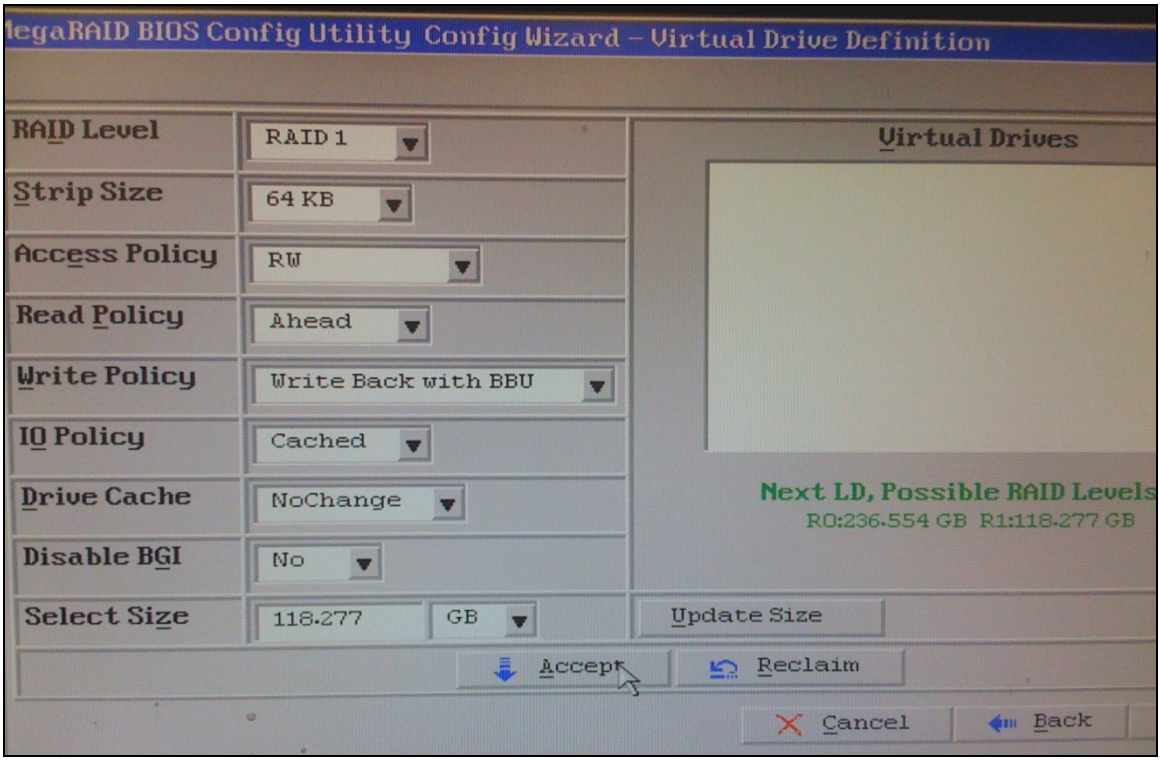


Figure 4-8: Virtual Drive Definition Page

22. Choose RAID LEVEL “RAID 1”.

23. Select size “Update Size”, this will update the size automatically, and select “Accept”.

24. “Are you sure you want to select Write Back with BBU mode?” Select “Yes” to continue.

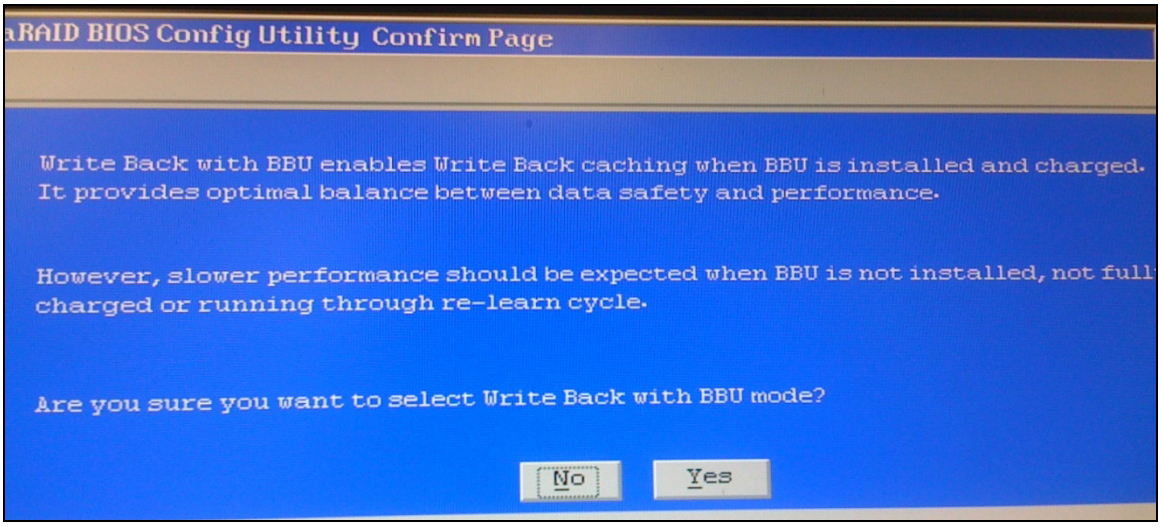


Figure 4-9: Confirm Page

25. Select “Back” to go back to the Span Definition page.

26. “Add to SPAN” Drive Group1 and Drive Group2.

27. Select “Next” to continue.

28. Set RAID Level “RAID 10” and “Update Size”.

29. Select “Accept” to continue.

30. “Are you sure you want to select Write Back with BBU mode?” Select “Yes” to continue.

31. Select “Next” to continue to “Preview” page.

32. Select “Accept” to continue.

33. “Save this Configuration?” Select “Yes” to save the configuration.

34. “All data on the new Virtual Drives will be lost. Want to Initialize?” Select “Yes” to continue.

35. Select “HOME to go back to the Main menu.

36. Check if all the drives are configured correctly and in the correct Virtual Drives.

37. The correct RAID configuration is shown in Figure 4-10. SSD should be in RAID1, and the spinning drives are in RAID 10.

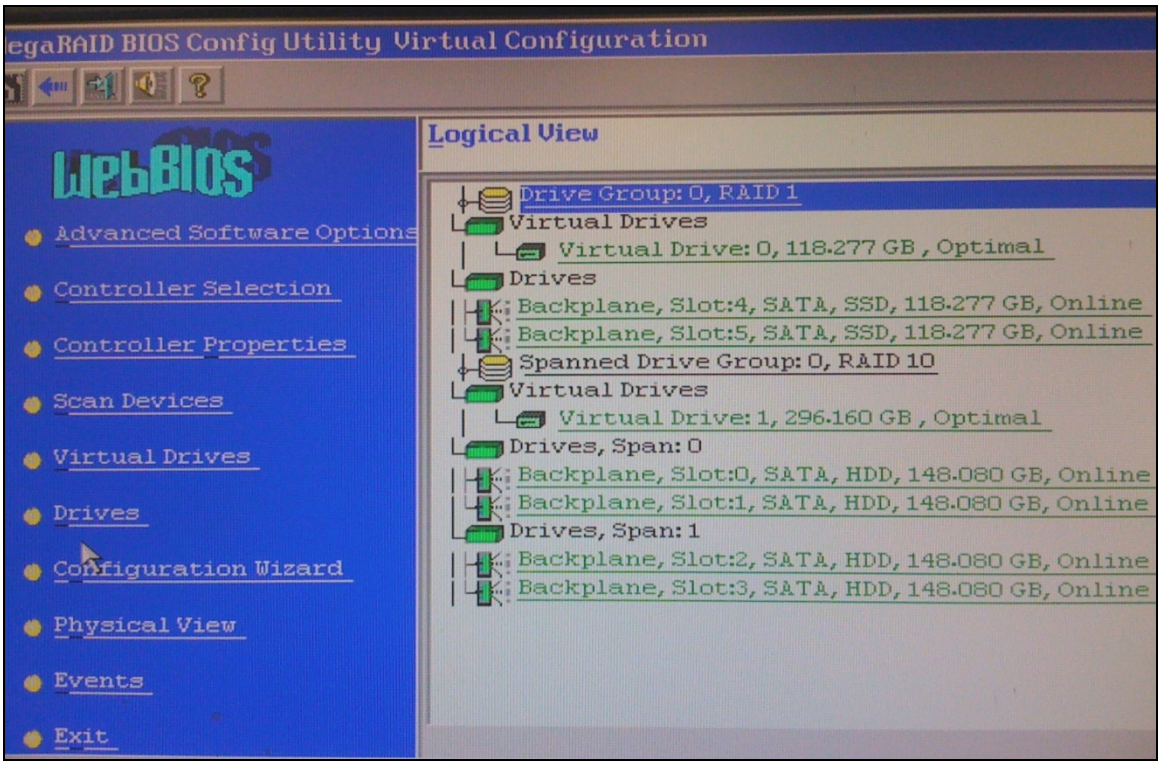


Figure 4-10: Correct RAID Configuration

38. Select “Exit” on the main menu to exit from WebBIOS Config page.
39. “Exit Application” Select “Yes”.
40. Manually restart the server.

Below is a diagram of the disk locations on the server:

D,d=spinning disks in RAID 10, s=ssd in RAID 1. D’s are a mirror, d’s are a mirror, s’s are a mirror.

D	d	s
D	d	s

This allows the system to tolerate the removal of one D, one d, and one s without issue.

4.4. OPERATING SYSTEM AND MAGNUM PACKAGE INSTALLATION

Evertz Supplied SuperMicro Server Configuration and Installation Instructions

1. Boot Server.
2. Press “F11” during BIOS “SuperMicro” screen to show boot device menu later.
3. Insert MagnumLive CD or USB key.
4. When boot device menu appears, select CD or USB Key.
5. Wait until MagnumLive boot screen appears, type "install" and enter to continue.

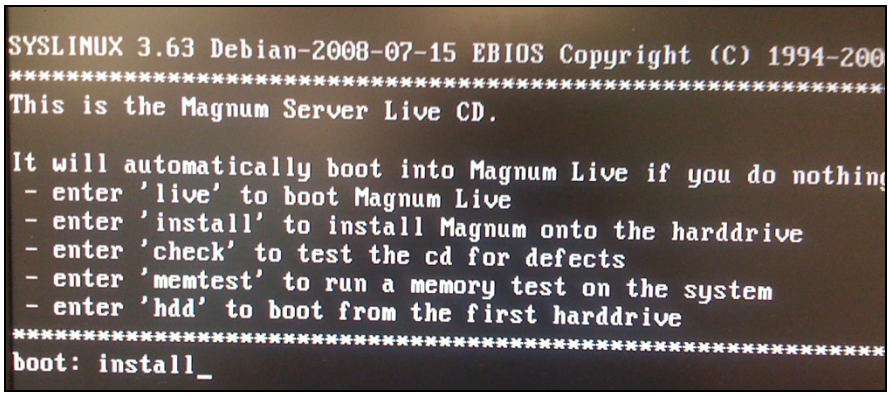


Figure 4-11: Type “install”

6. Wait for the “Prepare disk space” window appears, and select “Specify partitions manually (advanced)”, and select “Forward” to continue.

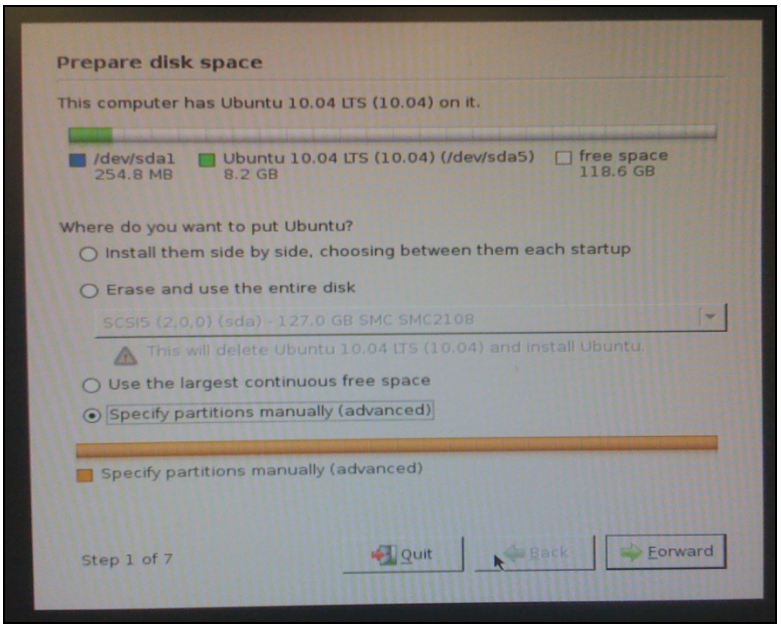


Figure 4-12: Prepare Disk Space Window

7. Configure the drive partitions as follows, keeping in mind that SSD is /dev/sda; Spinning Drives are /dev/sdb.

/dev/sda		/dev/sdb	
Mount	**Space (MB)**	**Mount**	**Space (MB)**
/boot	256	/var	4096
/	8192	/opt	4096
		/tmp	4096
		swap	20000
		/var/log	The remaining fee space

Table 4-1: Drive Partitions

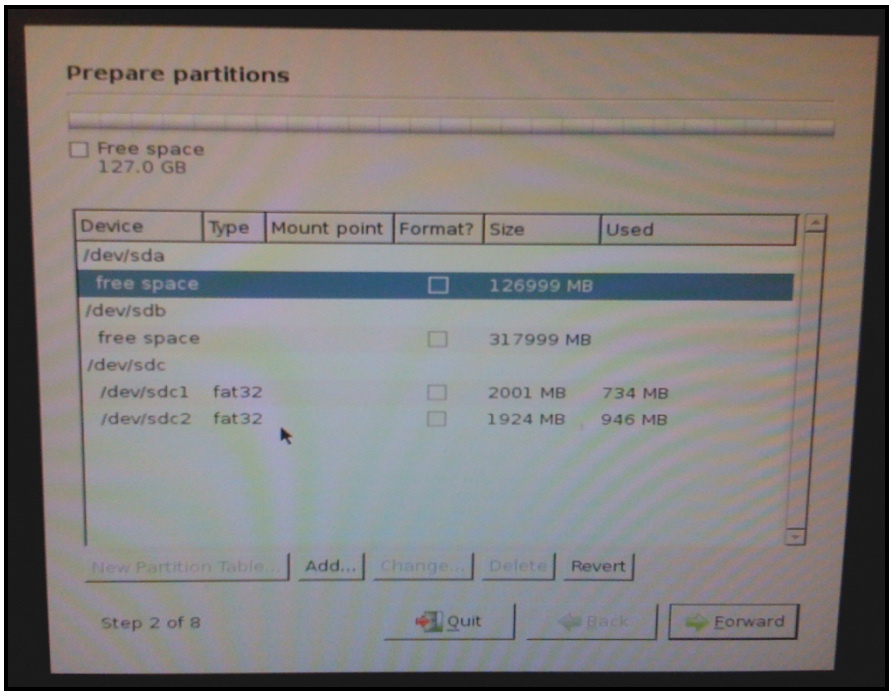


Figure 4-13: Prepare Partitions Window

.

8. Select “free space” in “/dev/sda” and select “Add”.

9. “Create a new partition” window will appear.

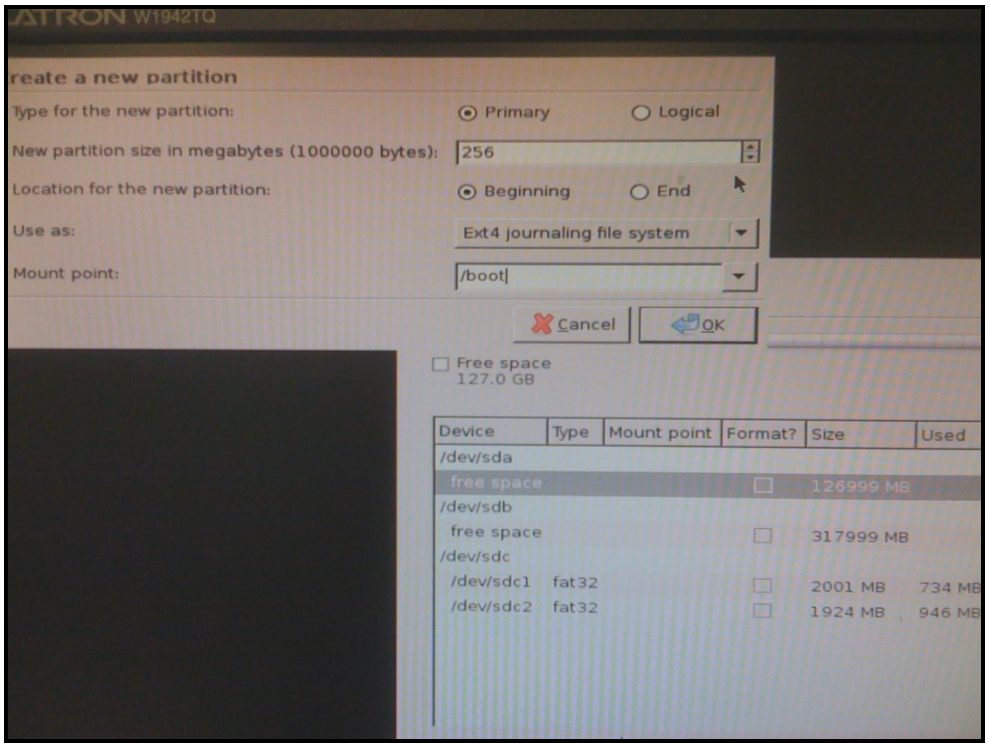


Figure 4-14: Create a New Partition Window

10. Type in the Partition size in “New partition size in megabytes” field; for example, 256 for “/boot”.

11. Select “Ext4 journaling file system” in the “Use as:” field.

12. Type in “/boot” in “Mount point” field.

13. Select “OK” to add new partition in.

14. For the “swap” partition you have to select “swap area” instead of “Ext4 journaling file system” in the “Use as:” field.

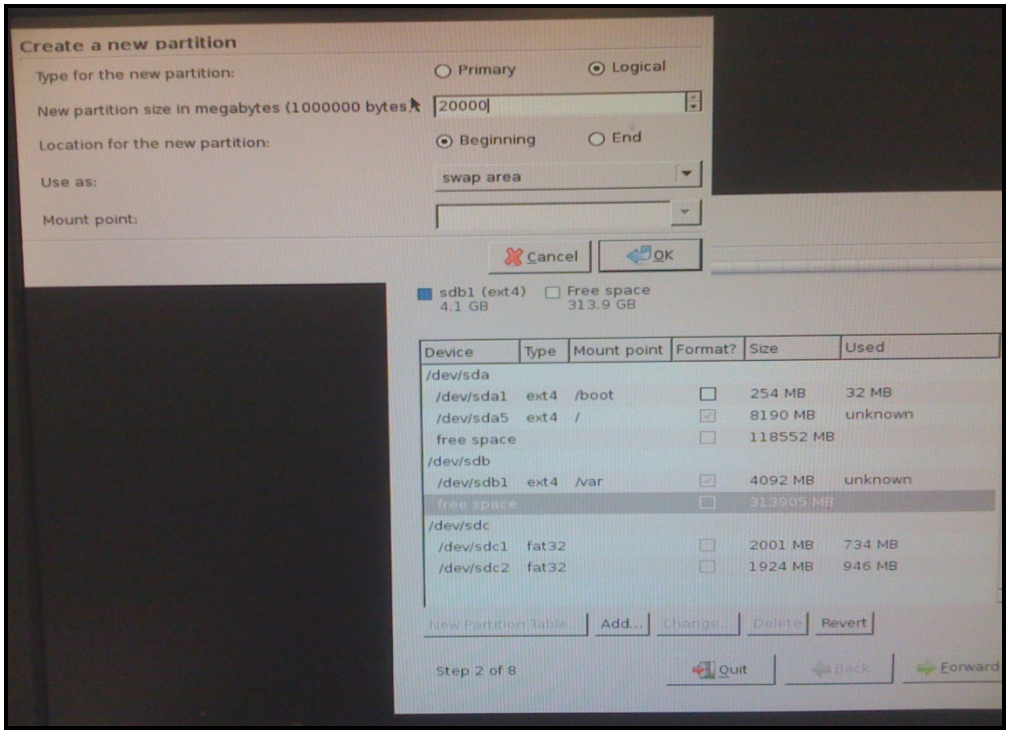


Figure 4-15: Select “swap area”

15. Add all the other partitions according to the Partitions Map.

16. Final partitions should appear as defined in Figure 4-16.

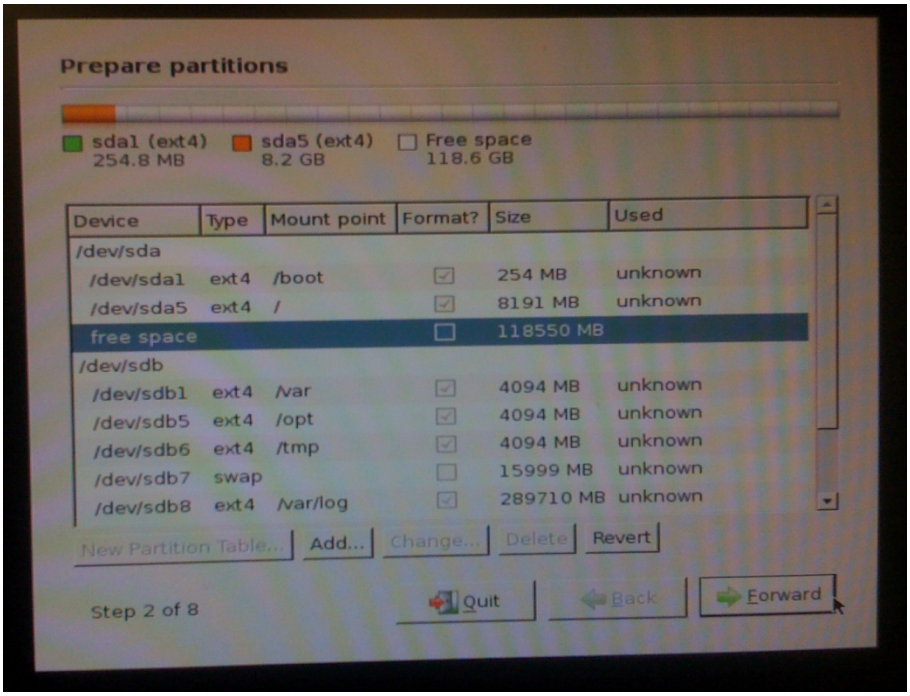


Figure 4-16: Final Partitions

17. Select “Forward” to continue.

18. Select "Restart Now" to reboot the server after the installation process is done.

19. Take out MagnumLive CD or USB key.

4.5. SUPPORT PACKAGE INSTALLATION

The configuration and management of the MAGNUM Router control system is facilitated by two main interfaces, Configuration Shell and MAGNUM Web Configuration.

The Configuration Shell control tool enables the user to set up the MAGNUM server parameters. Launching the MAGNUM Server Configuration tool will reveal a number of operations that can be performed in order to properly set up your server. The Configuration Shell can be accessed directly on the MAGNUM Server using a monitor and keyboard, or remotely by using a SSH client.

The MAGNUM Web Configuration Interface is accessed using any modern web browser such as Firefox, Chrome, or Safari.

A few helpful installers to have available are:

ChromeStandaloneSetup.exe ---Chrome web browser installer
Firefox Setup x.x.x.exe ----Firefox web browser installer
putty.exe --- Ssh client for Windows
winscp418setup.exe ---File transfer client for Windows

4.6. MAGNUM CONFIGURATION SHELL AND CLUSTER CONFIGURATION

4.6.1. 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 a number of operations that can be performed in order to properly set up your server.

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 when prompted by the debian server:

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

Figure 4-17 displays the main setup menu. Section 4.6.2 to 4.6.18 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.

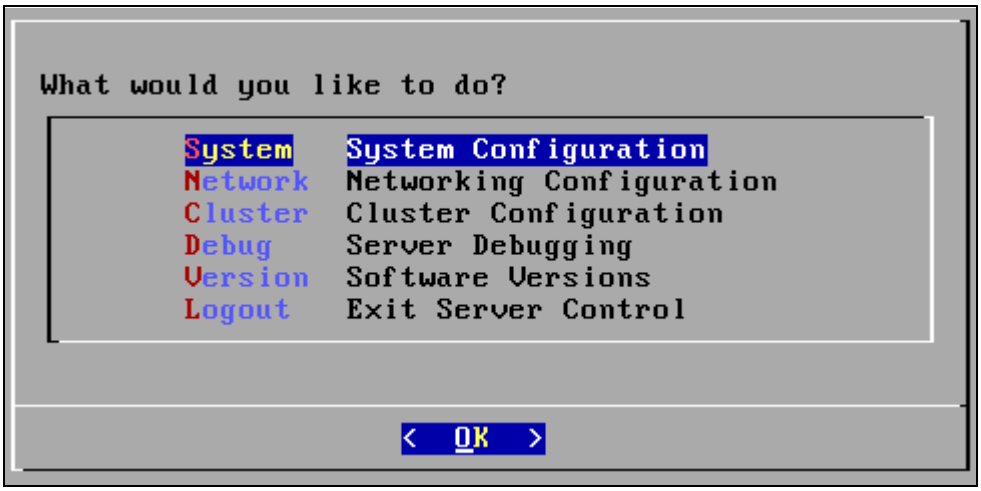


Figure 4-17: Main Server Control Menu

4.6.2. System Configuration

Selecting the **System Configuration** option will reveal the screen displayed in Figure 4-18. 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.

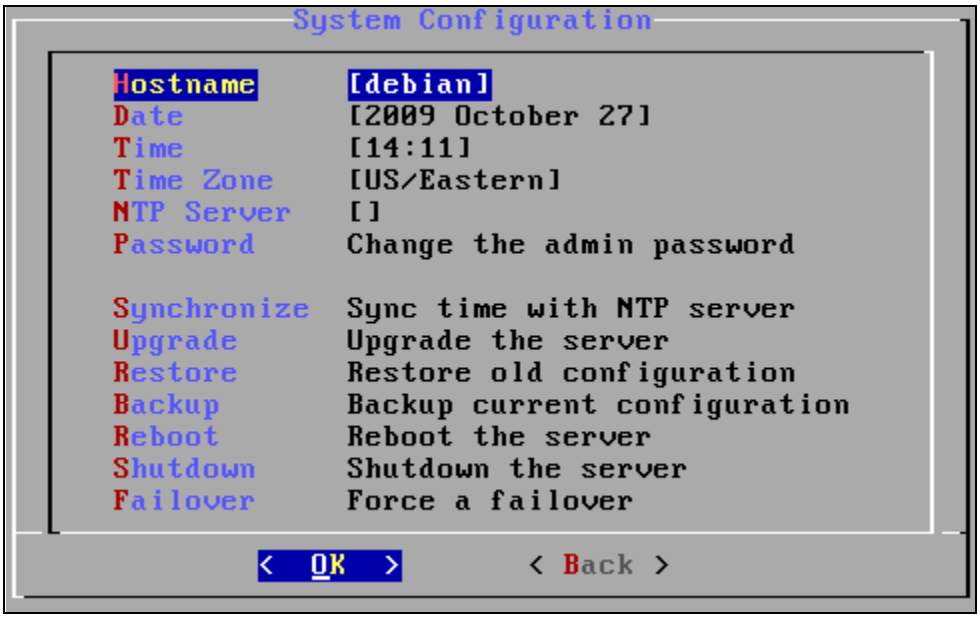


Figure 4-18: System Configuration Menu

4.6.2.1. 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 4-19 will appear when this option is selected. The user will be prompted to enter the desired name for the host into the "S*et current host name:*" field. This name was set during initial installation but can be changed using this menu option.

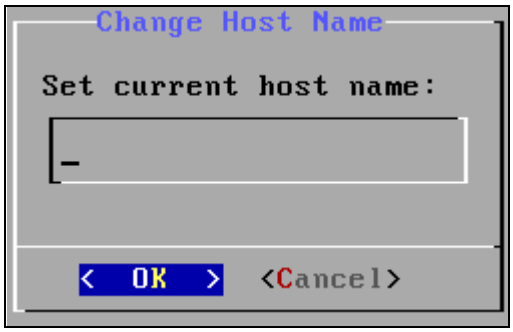


Figure 4-19: Change Host Name

4.6.2.2. 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 4-20.

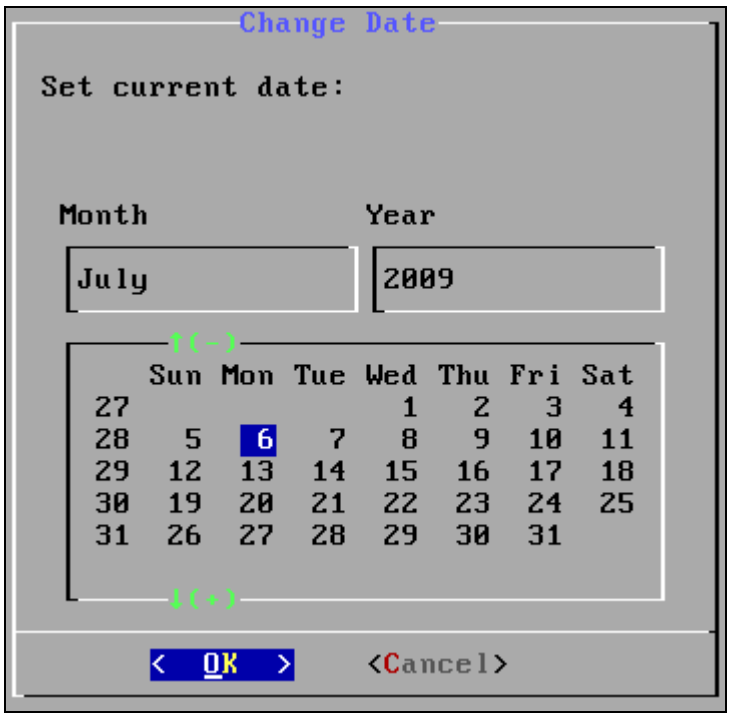


Figure 4-20: Change Date

4.6.2.3. 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 4-21. Use the up and down arrow keys to set the values and tab to switch boxes.

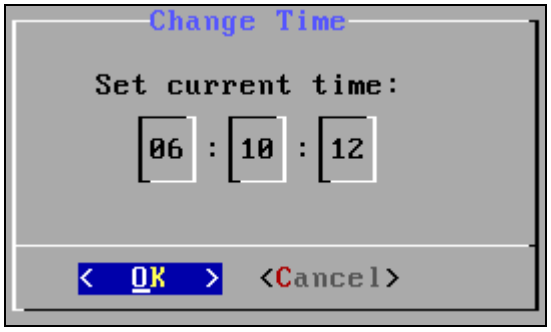


Figure 4-21: Change Time

4.6.2.4. 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 4-22.

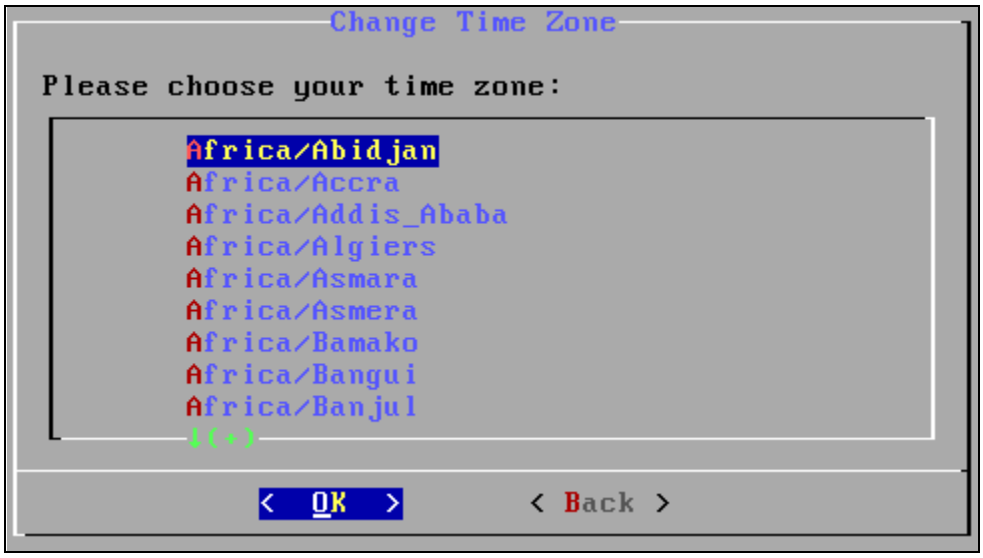


Figure 4-22: Change Time Zone

4.6.2.5. 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 4-23 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.

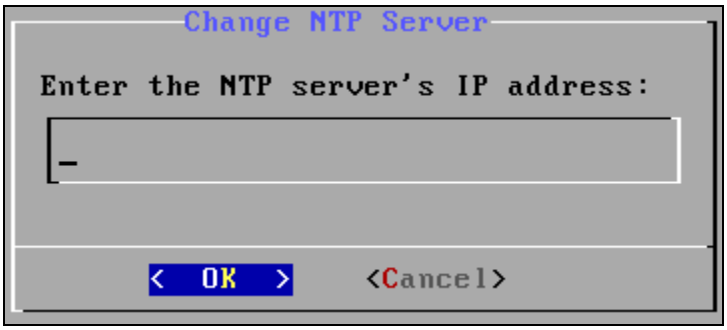


Figure 4-23: Change NTP Server

4.6.2.6. 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 4-24 will appear when this option is selected. The user will be prompted to enter the current password into the "*enter current password to change*" field.

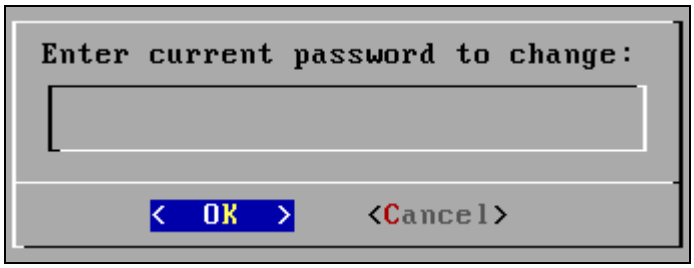


Figure 4-24: Change Password

Once the current password is entered, a new dialog box will appear as shown in Figure 4-25. This dialog box will prompt the user to enter the new password for the server. Type the new password into empty field and select **OK** to set the password.

Figure 4-25: Enter New Password Dialog Box

4.6.2.7. Syncing Time with NTP Server

Selecting the **Synchronize** option from the System Configuration menu will enable the user to force a sync with the NTP server.

4.6.2.8. Upgrading the Server

Selecting the **Upgrade** option from the System Configuration menu will enable you to upgrade the server. The dialog box in Figure 4-26 will appear when this option is selected. Enter the current "*admin"* password into the "Enter password to upgrade server:" field and press **OK**.

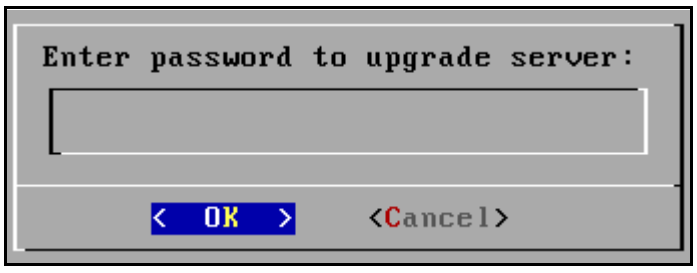


Figure 4-26: Enter Password to Upgrade Server

Once the correct password is entered, the user should connect the USB device containing the correct upgrade files. When the USB device is recognized, the dialog box in Figure 4-27 will disappear. If you do not wish to upgrade the server, select the **Cancel** button.

Figure 4-27: Waiting for USB Device

4.6.2.9. Restoring the Configuration

Selecting the **Restore** option from the System Configuration menu will enable the user to restore an old configuration. The dialog box in Figure 4-28 will appear when this option is selected. Choose the configuration that you wish to restore from the list provided and then select **OK**. This is a low level configuration restore, please refer to section 4.6.2.10 for normal configuration backup and restore operations.

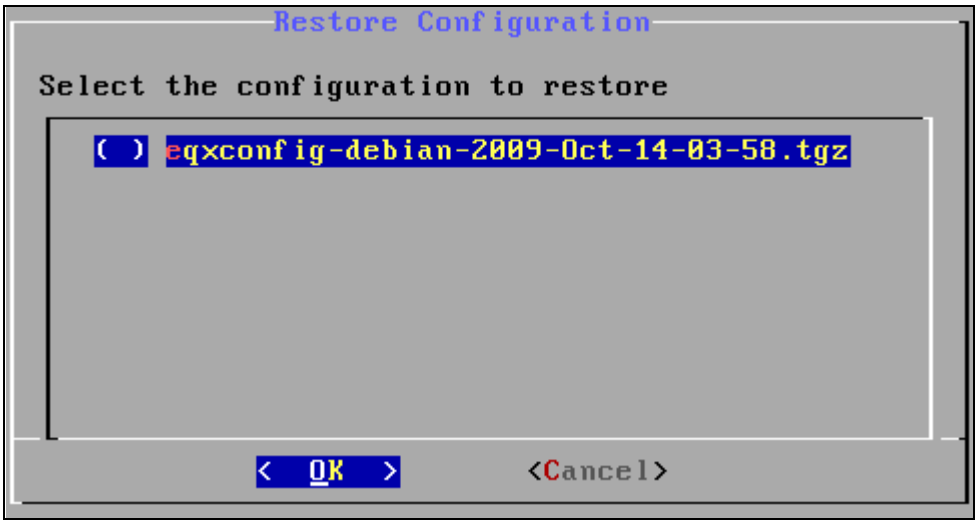


Figure 4-28: Restore Configuration

4.6.2.10. Backing Up Configuration

Selecting the **Backup** option from the System Configuration menu will enable you to backup the current configuration. The dialog box in Figure 4-29 will appear when this option is selected. Enter the current "*admin*" password into the "Enter password to backup configuration:" field and press **OK**.

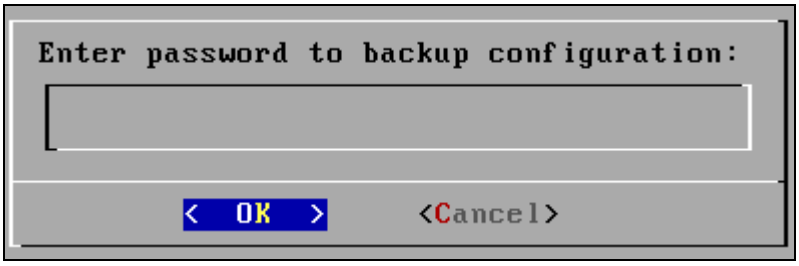


Figure 4-29: Enter Password to Backup Configuration

The current configuration will begin backing up and the following screen will be displayed:

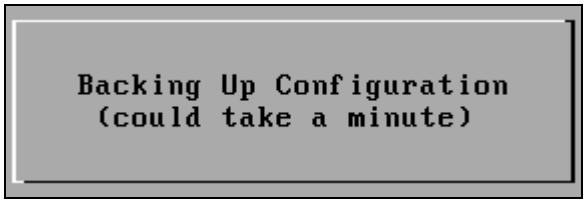


Figure 4-30: Backing Up Configuration

Once the configuration has been successfully backed up the following screen will appear informing the user that the configuration has been saved:

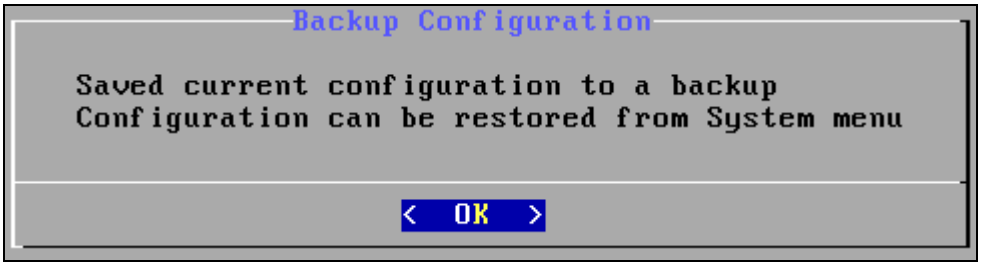


Figure 4-31: Backup Configuration

4.6.2.11.Rebooting the Server

Selecting the **Reboot** option from the System Configuration menu will enable you to reboot the server. The dialog box in Figure 4-32 will appear when this option is selected. Enter the current "*admin"* password into the "Enter password to reboot the server:" field and press **OK**. The server will reboot.

Figure 4-32: Enter Password to Reboot Server

4.6.2.12.Shutting Down the Server

Selecting the **Shutdown** option from the System Configuration menu will enable you to shutdown the server. The dialog box in Figure 4-33 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 4-33: Enter Password to Shutdown Server

4.6.2.13.Forcing a Failover

Selecting the **Failover** option from the System Configuration menu will enable the user to force a fail-over from the active server to the redundant server. Please note that a forced fail-over can only be done from the active server.

4.6.3. Networking Configuration

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

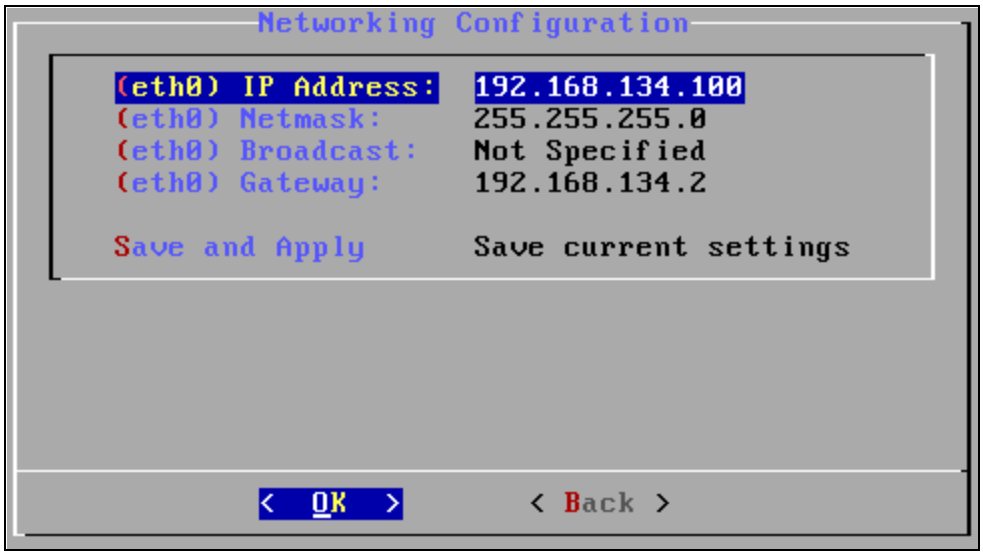


Figure 4-34: Network Configuration Menu

4.6.3.1. Assigning an IP Address for eth1

To assign an IP Address, select the **(eth1) IP Address** option from the Networking Configuration menu. The dialog box in Figure 4-35 will appear when this option is selected. The user will be prompted to enter the desired IP address into the “New IP address for eth1” 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.

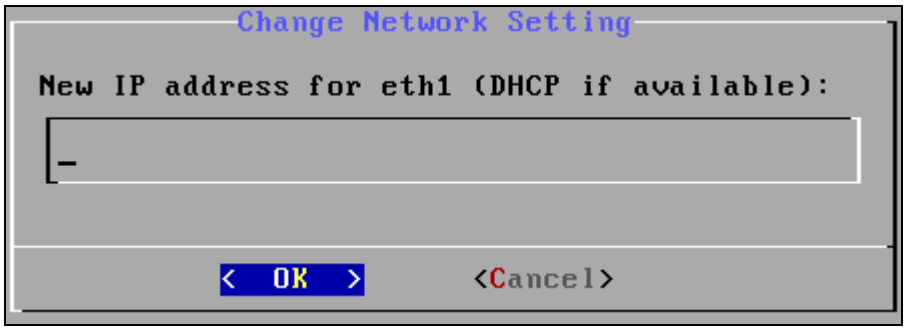


Figure 4-35: Enter New IP Address for eth1

4.6.3.2. Assigning a Subnet Mask for eth1

To assign a subnet mask for eth1, select the **(eth1) Netmask** option from the Networking Configuration menu. The dialog box in Figure 4-36 will appear when this option is selected. The user will be prompted to enter the desired subnet mask into the "New subnet mask for eth1" 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.

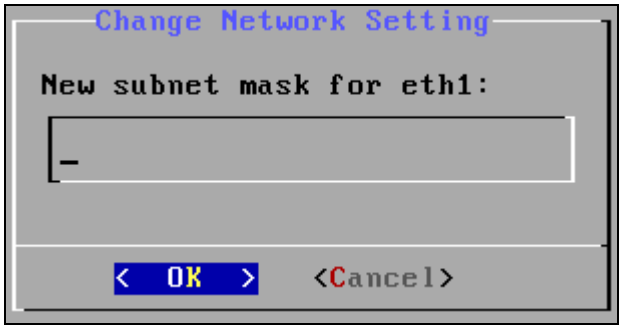


Figure 4-36: Enter New Subnet Mask for eth1

4.6.3.3. Assigning a Gateway Address for eth1

To assign a gateway for eth1, select the **(eth1) Gateway** option from the Networking Configuration menu. The dialog box in Figure 4-37 will appear when this option is selected. The user will be prompted to enter the desired gateway into the "New gateway address for eth1" 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.

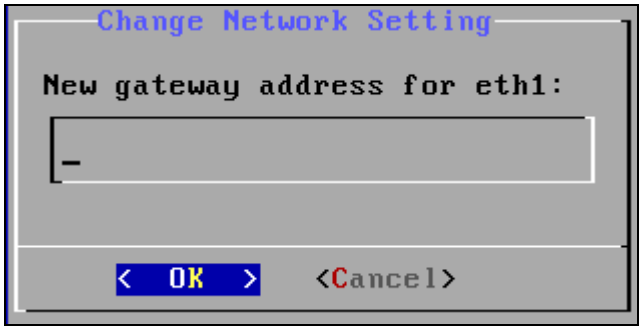


Figure 4-37: Enter New Gateway Address for eth1

4.6.3.4. Assigning a Broadcast Address for eth1

To assign a broadcast address for eth1, select the **(eth1) Broadcast** option from the Networking Configuration menu. The dialog box in Figure 4-38 will appear when this option is selected. The user will be prompted to enter the desired subnet mask into the "New broadcast address for eth1" 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.

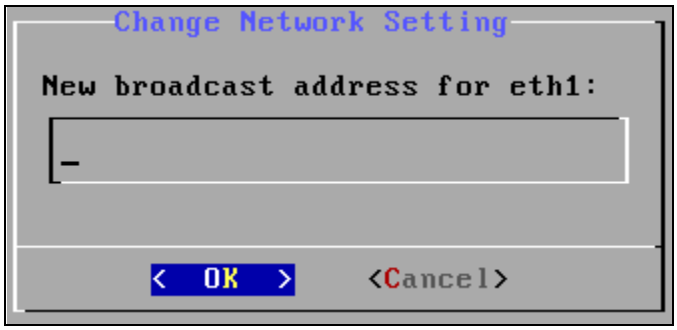


Figure 4-38: Enter New Broadcast Address for eth1

4.6.3.5. Bonding Multiple Interfaces

The **Create Bond** option enables the user to create an active/backup network configuration using two network ports on the MAGNUM Server. This feature allows the user to bond two adapters together to function as one. For example, if one of the adapters of the bond were to fail (link loss as result of cable failure, NIC failure, switch port failure, switch failure etc) the second adapter would automatically continue network connectivity. To create a bond, toggle to the **Create Bond** menu item as shown in Figure 4-39 and use this command to bond multiple interfaces.

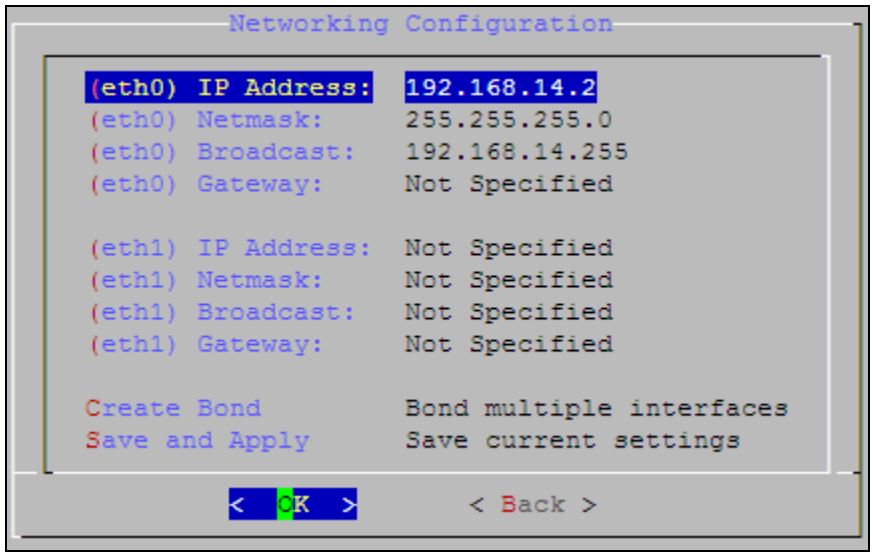


Figure 4-39: Creating a Bond

Once the network ports are bonded, the user can specify an IP address, Netmask, and Gateway for the bonded adapters. The network ports that are bonded together will be identified in the **Slaves** field. For example, *eth0* and *eth1* would be listed under the *Slaves* item as shown in Figure 4-40.

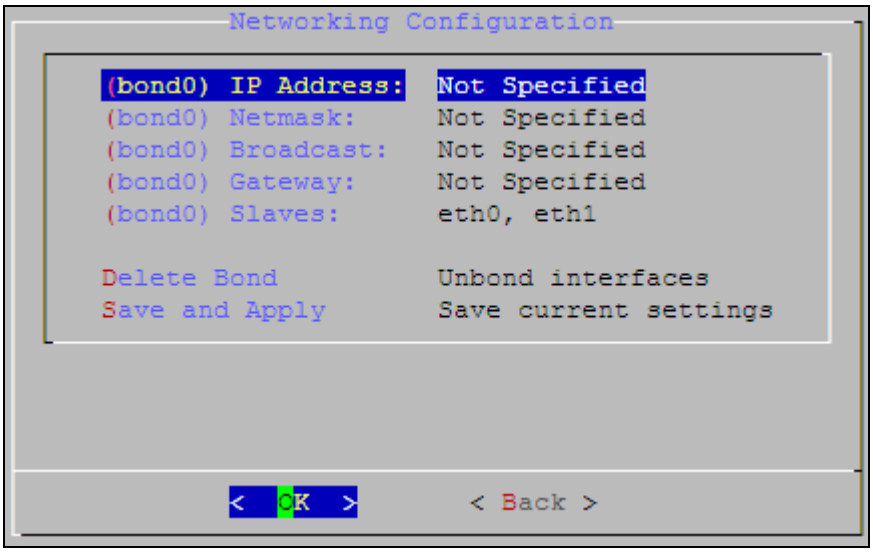


Figure 4-40: Bonded Network Ports

The bond between the interfaces can be removed by selecting the **Delete Bond** function.

4.6.4. Cluster Configuration

The **Cluster Configuration** menu will enable the user to set the cluster information for primary and redundant MAGNUM Servers. (Host names and IP addresses, preferred hosts, and cluster IP addresses).

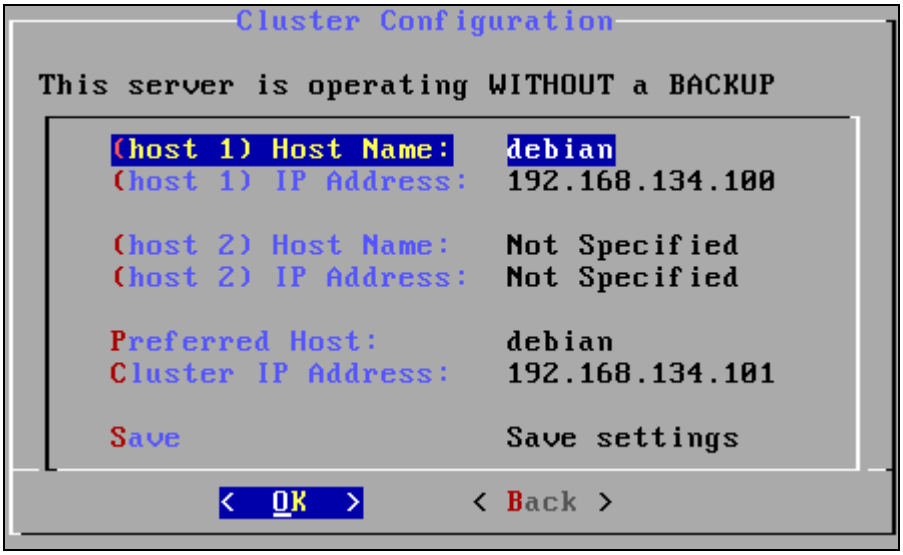


Figure 4-41: Cluster Configuration

4.6.4.1. (host x) Host Name

To assign a host name to the primary host (Host 1), select the **(host 1) Host Name** option from the Cluster Configuration menu. The dialog box in Figure 4-42 will appear when this option is selected. The user will be prompted to enter the primary host name into the "Enter host name" field and then select the **OK** button.

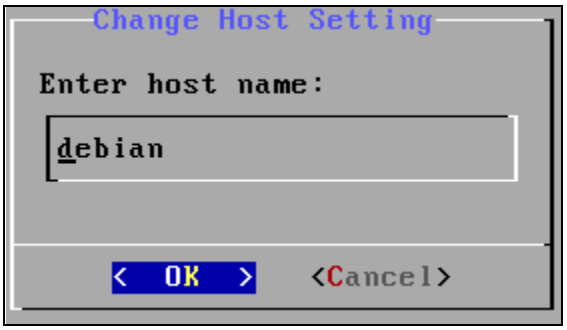


Figure 4-42: Change Host Setting

To assign a host name to the redundant server, select the **(host 2) Host Name** option and enter the desired redundant server name into the "Enter host name" field and then select the **OK** button.

4.6.4.2. (host x) IP Address

To assign a host IP address to the primary server, select the **(host 1) IP Address** option from the Cluster Configuration menu. The dialog box in Figure 4-43 will appear when this option is selected. The user will be prompted to enter the desired host IP address into the "Enter (*host name)*'s IP address" field and then select the **OK** button.

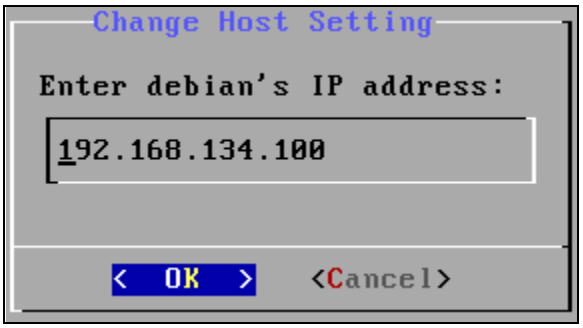


Figure 4-43: Host IP Address

If you wish to assign an IP address to the redundant server, select the **(host 2) IP Address** option and enter the desired redundant server name into the "Enter (*host name*)'s IP address" field and then select the **OK** button.

4.6.4.3. Preferred Host

The **Preferred Host** field will display the name of the primary server. If there is more than one server available, the user can select the server that they wish to assign as the preferred, primary server. To assign the preferred host, toggle to the **Preferred Host** option and select the **OK** button.

A **Preferred Host** dialog will appear (as shown in Figure 4-44) enabling the user to select a preferred host from the list of servers available. Toggle to the host in the list that you wish to make the primary server and then select the **OK** button. The selected server will be set as the primary server. A preferred host is the server that will be made active if both primary and secondary servers are brought online at the same time. This requires the cluster is configured correctly and communication links between both servers are functioning correctly.

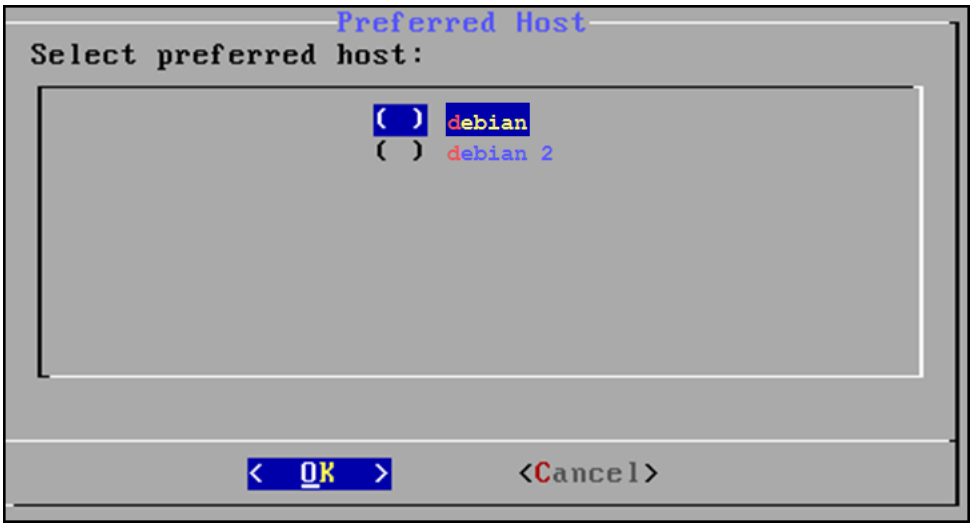


Figure 4-44: Select Preferred Host

4.6.4.4. Change Cluster IP Address

To change the cluster IP address, select the **Cluster IP Address** option from the Cluster Configuration menu. The dialog box in Figure 4-45 will appear when this option is selected. If the user wishes to change the cluster IP address, enter a new IP address into the "*Enter the Cluster IP address"* field and then select the **OK** button. The cluster IP address is the IP address assigned to the Active MAGNUM server so that all clients have a single address connected to them regardless of which MAGNUM Server is Active. This is the IP address you will use to access the WEB Configuration Tool, and which will be manually programmed into any advanced panels for MAGNUM-SERVER connectivity.

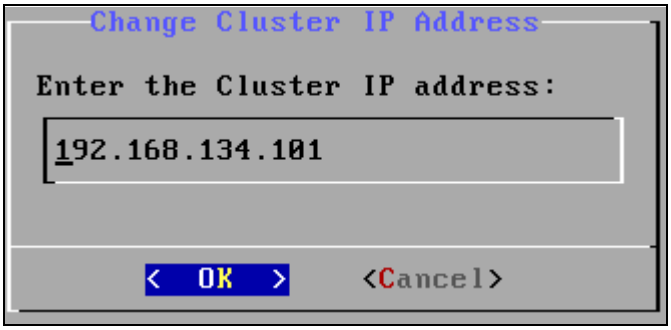


Figure 4-45: Change Cluster IP Address

4.6.4.5. Monitored Interfaces

The **Monitored Interfaces** field, as shown in Figure 4-46, displays the network interface that will be monitored for Loss of Network Link. When this option is enabled the active server will automatically force a cluster fail-over if it detects a network link loss on the monitored interface. To select a network interface, toggle to the **Monitored Interfaces** option and select the **OK** button.

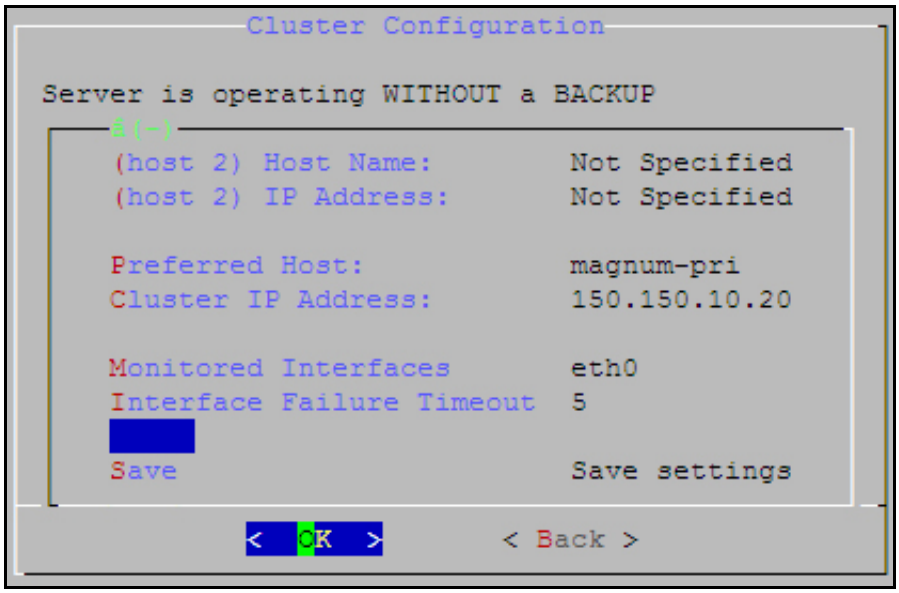


Figure 4-46: Monitored Interfaces

The **Monitored Interfaces** dialog will appear, as shown in Figure 4-47, enabling the user to select network interfaces to be monitored. Toggle to the network interface in the list that you wish to make as the monitored interface and select the **OK** button. The selected interface will now be monitored once the settings are saved and the system is rebooted.

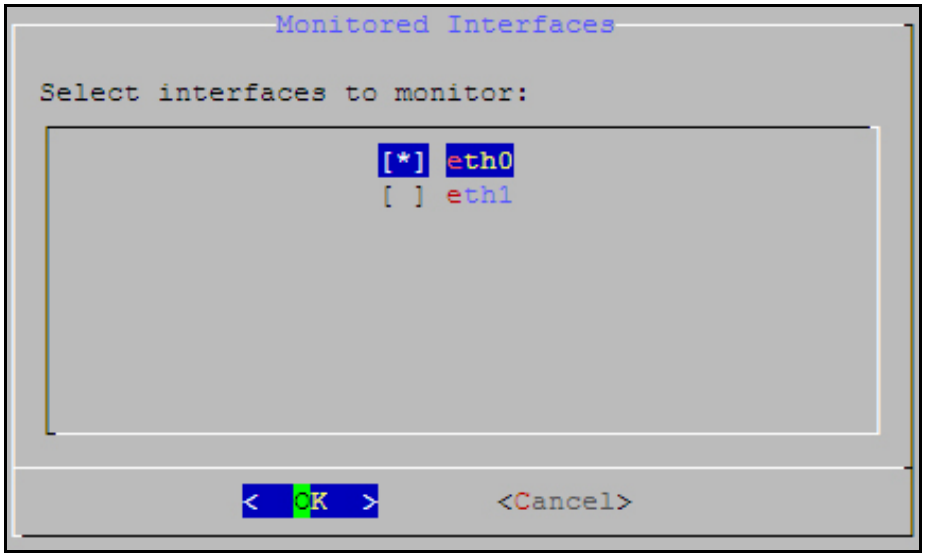


Figure 4-47: Select Interfaces to Monitor

4.6.4.6. Interface Failure Timeout

The **Interface Failure Timeout** field, as shown in Figure 4-48, will display the time in seconds before a network interface monitored for Loss of Network Link is in a loss state. When this option is enabled the active server will automatically force a cluster fail-over if it detects a network link loss for the amount of time defined for the monitored interface. To specify a time, toggle to the **Interface Failure Timeout** option and select the **OK** button.

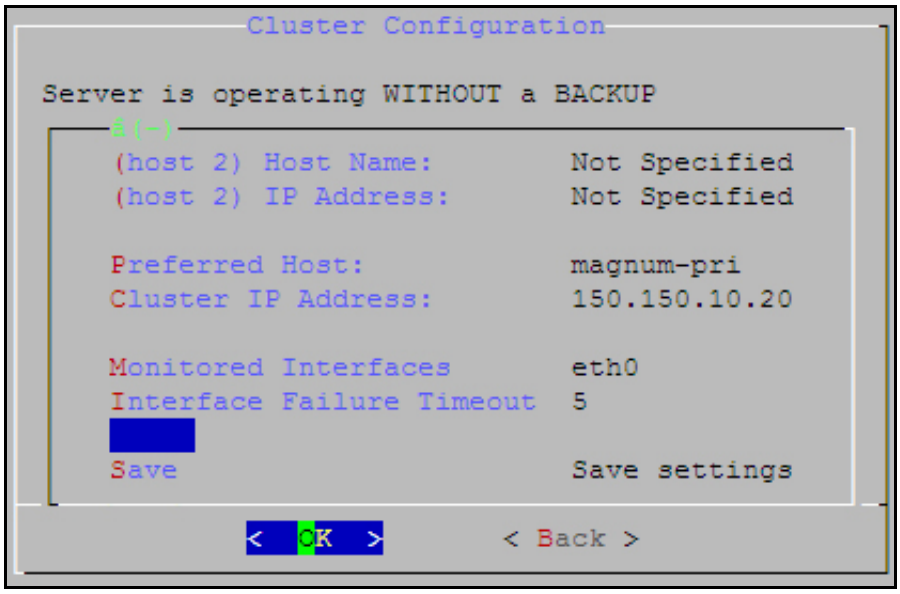


Figure 4-48: Interface Failure Timeout

The **Interface Failure Timeout** dialog will appear, as shown in Figure 4-49, enabling the user to enter a time in seconds before a cluster fail-over is triggered based on Loss of Network Link on the monitored network interfaces. Enter a value in seconds to define the amount of time a link must be lost for the monitored interface before causing a cluster fail-over and then select the **OK** button. The selected interface will now be monitored once the settings are saved and the system is rebooted.

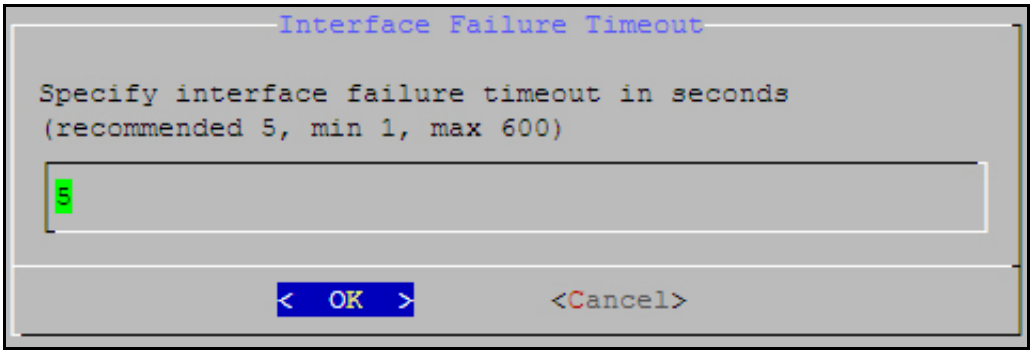


Figure 4-49: Specify Interface Failure Timeout

4.6.5. Server Debugging

The **Server Debugging** menu enables the user to view the server debugging features.

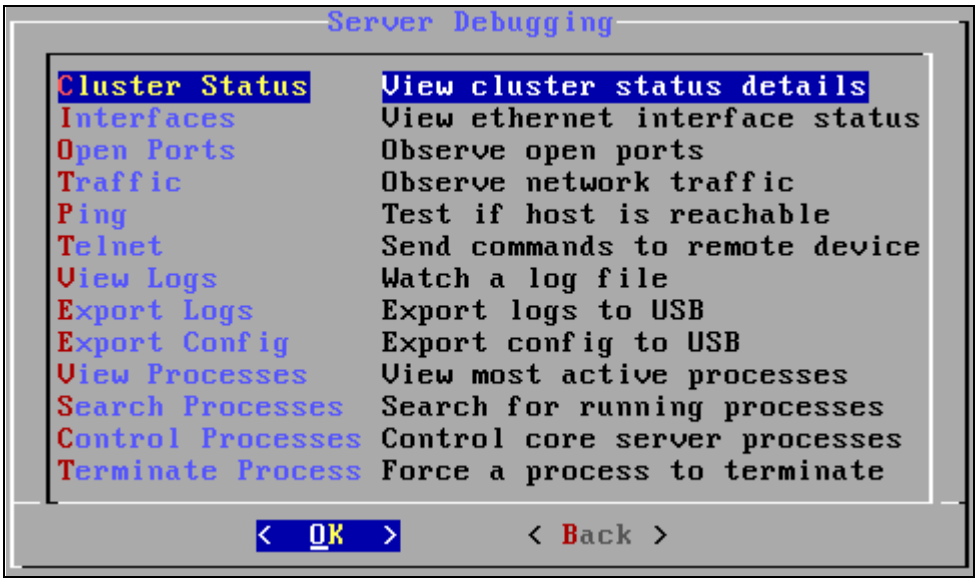


Figure 4-50: Server Debugging Main Screen

4.6.5.1. Viewing the Cluster Status

To view the cluster status, select the **Cluster Status** option from the Server Debugging menu. The **Cluster Status** window will display the details of all the elements in the cluster and whether or not the cluster is running properly, as shown in Figure 4-51. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

Figure 4-51: Cluster Status

4.6.5.2. Viewing the Ethernet Status

To view the status of the Ethernet connection, select the **Interface** option from the Server Debugging menu. The **Interface** window will display the details of the Ethernet interface status, as shown in Figure 4-52. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

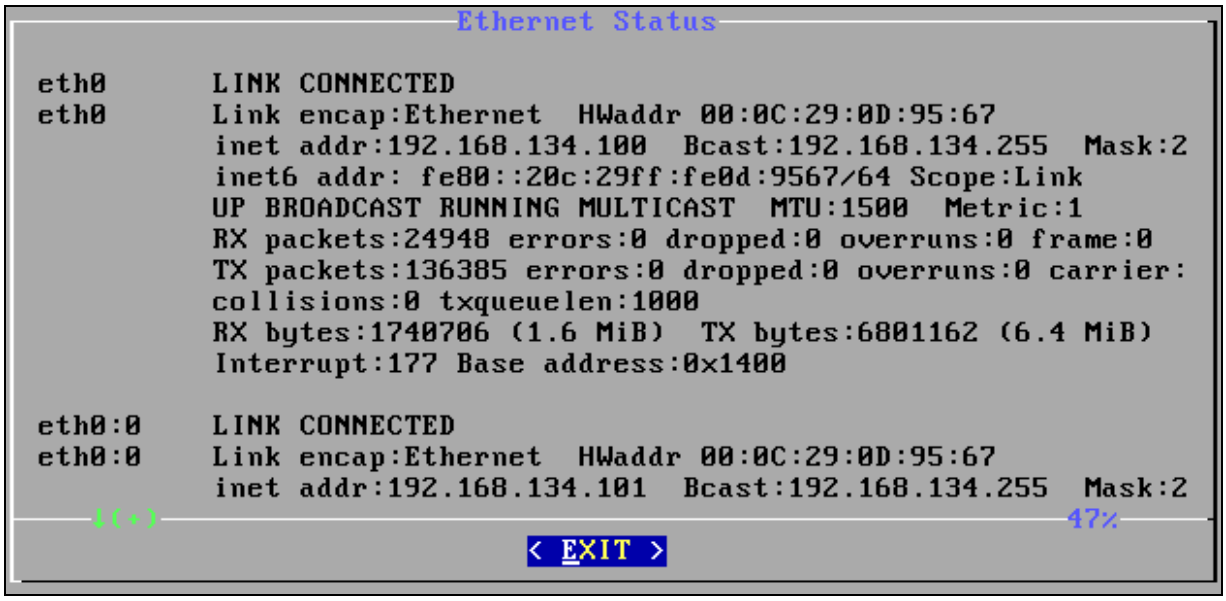


Figure 4-52: Ethernet Interface Status

4.6.5.3. Observing Open Ports

To observe the status of the open ports select the **Open Ports** menu item to display network connections, routing tables, and interface statistics, as shown in Figure 4-53. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

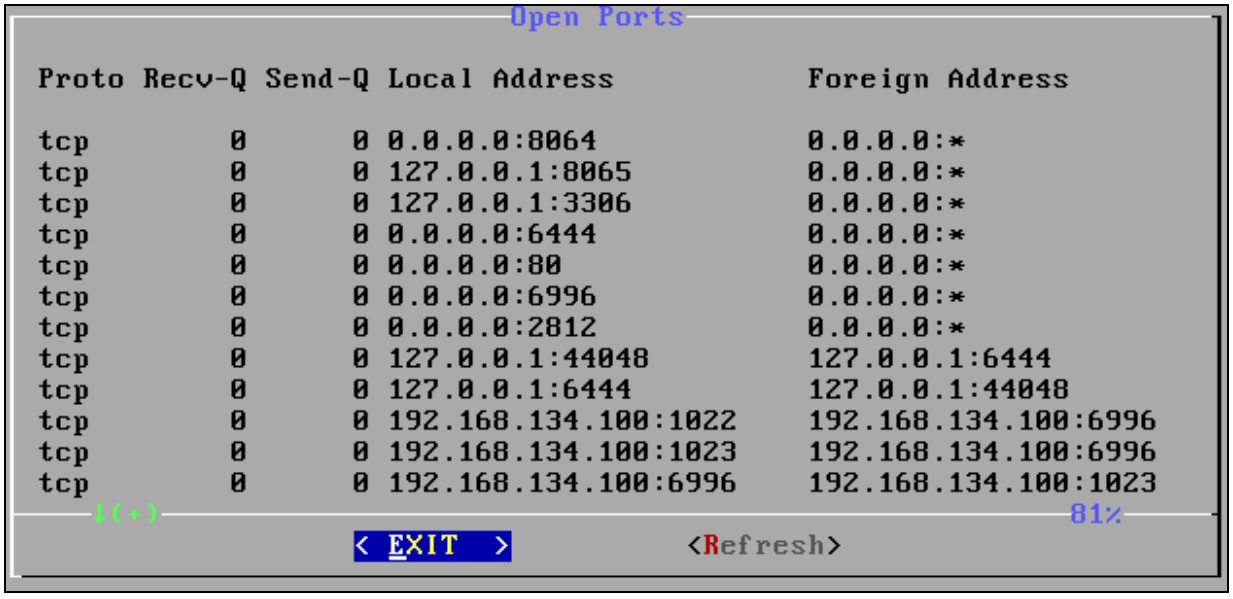


Figure 4-53: Observe Open Ports

4.6.6. TCPdump

Selecting the **TCPDUMP** menu item, as shown in Figure 4-54, enables the user to capture network traffic on a specific Ethernet interface to USB. To exit the **TCPDUMP** capture screen press the '**ctrl+c**' key on your keyboard to stop the capture and save it to USB.

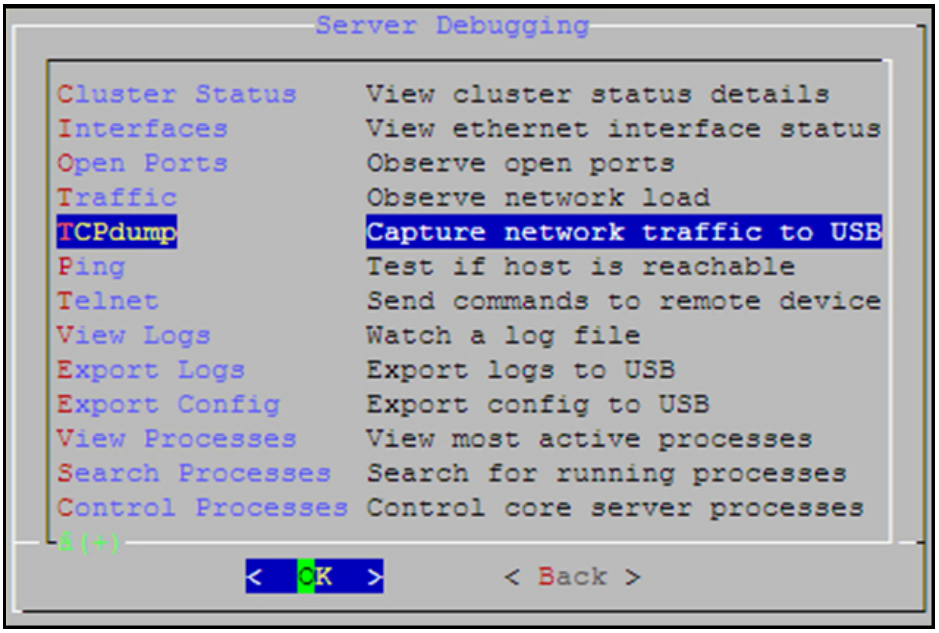


Figure 4-54: TCPdump

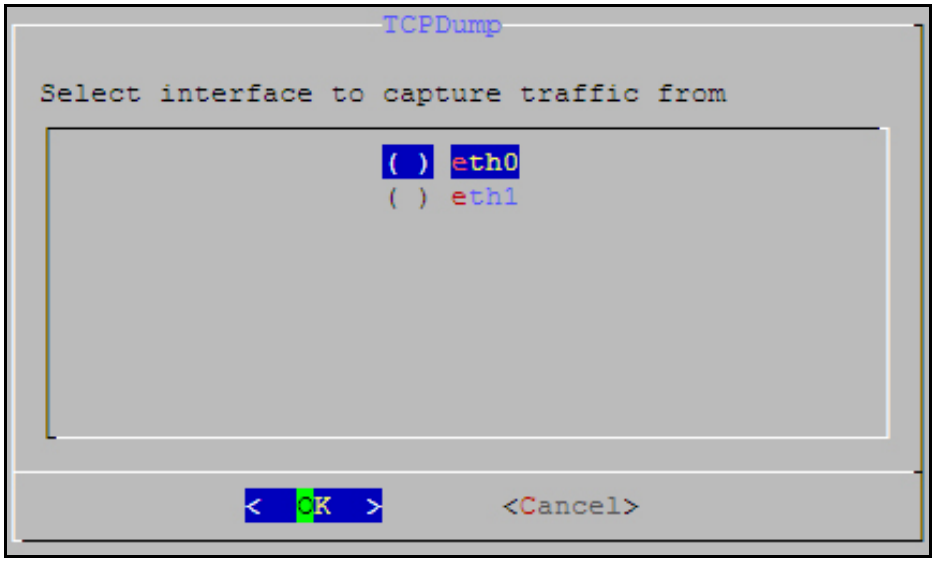


Figure 4-55: Select Interface to Capture Traffic From

4.6.7. Observing Network Traffic

Selecting the **Traffic** menu item enables the user to view the network traffic on a specific Ethernet interface, as shown in Figure 4-56. To exit the **Network Traffic** screen press the '**q**' key on your keyboard to quit the screen.

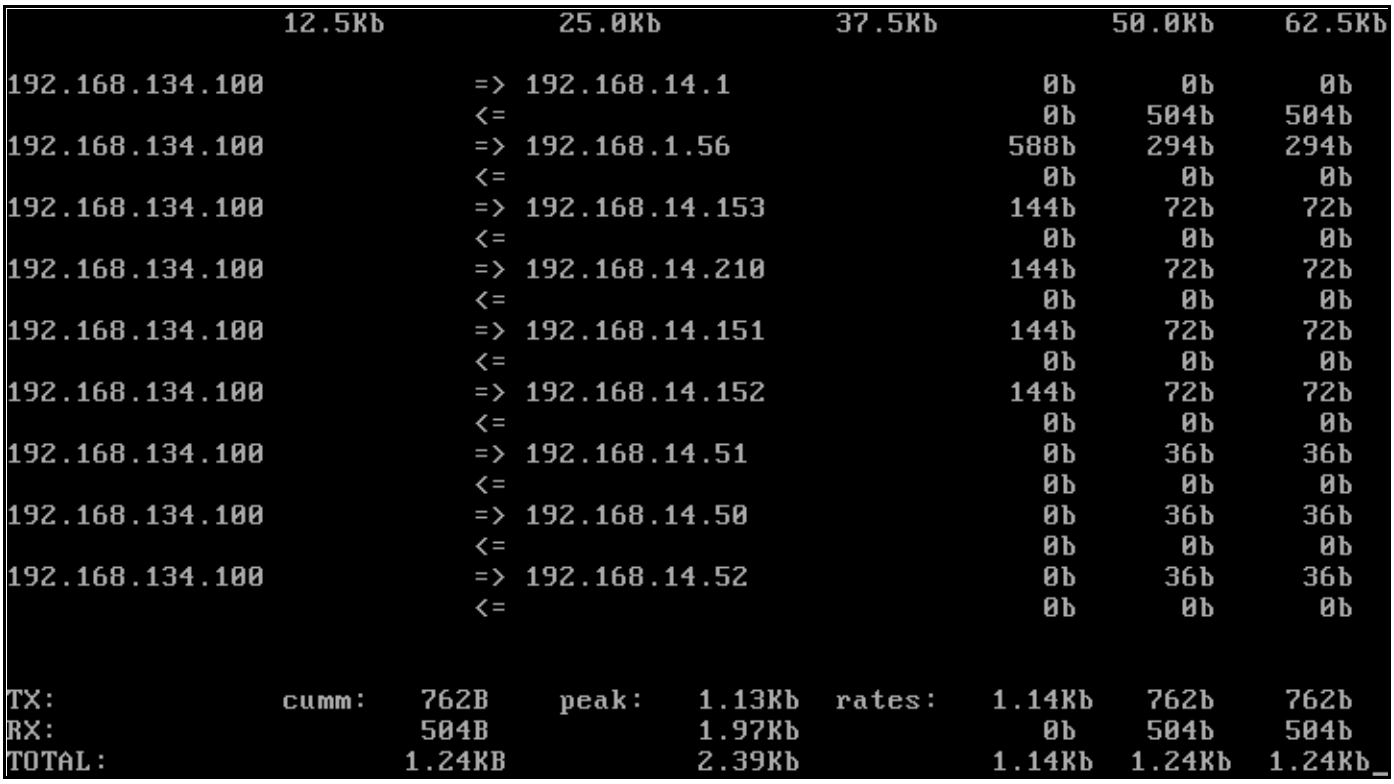


Figure 4-56: Observing Network Traffic

4.6.8. Test if the Host is Reachable

Select the **Ping** menu item to test if devices on the network are reachable. When the **Ping** option is selected the **Ping Host** field will appear as shown in Figure 4-57. Enter the host name or IP address into the "Enter host name or IP address" field.

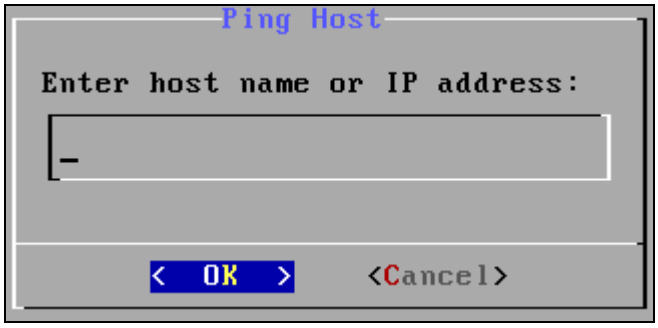


Figure 4-57: Ping Host Dialog Box

4.6.9. Send Commands to Remote Machine

Select the **Telnet** menu item to test if devices on the network support a telnet connection. When the **Telnet** option is selected the **Telnet** field will appear as shown in Figure 4-58. Enter the host name or IP address into the “Enter host name or IP address” field.

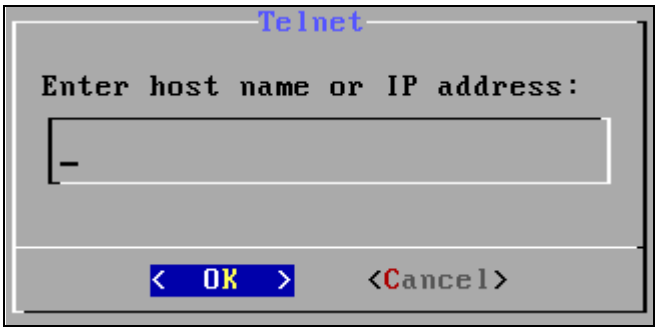


Figure 4-58: Telnet Dialog Box

4.6.10. Watch a Log File

Selecting the **View Logs** menu option will allow the user to view log files in real time. The **Watch Logfiles** dialog box will appear enabling the user to toggle through the log files, as shown in Figure 4-59. Toggle to the desired log file and select it by highlighting the file in the list and pressing the **OK** button.

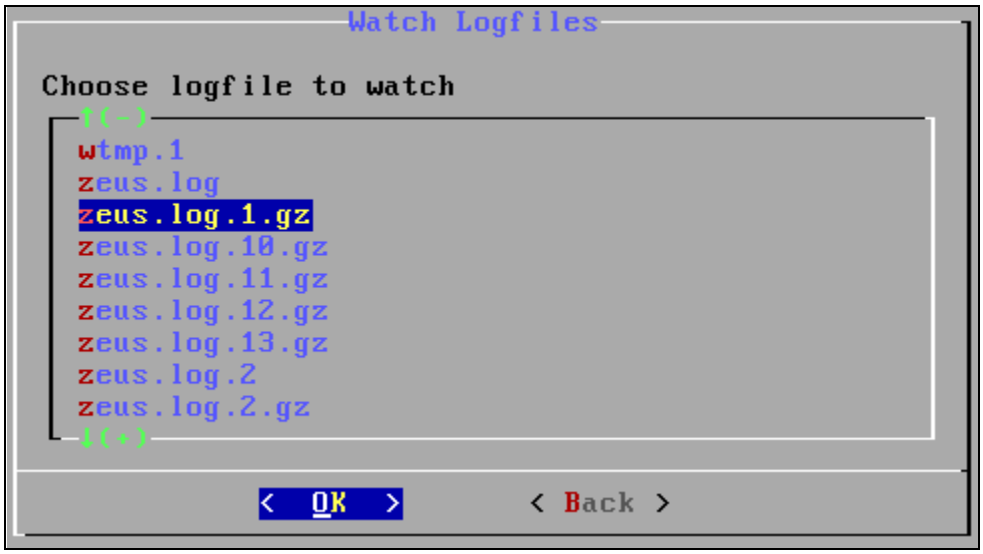


Figure 4-59: Watch Logs Dialog Box

Once the log file is selected, the corresponding information will be displayed as shown in Figure 4-60. To exit the **logfile** screen press the ‘**q’** key on your keyboard to quit the screen.

```
Oct 27 14:01:01 debian zeus: INFO:pantheos.zeus:Version 1.4.0rc53
Oct 27 14:01:01 debian zeus: INFO:license:System ID = 1718666178
Oct 27 14:01:01 debian zeus: INFO:license:License is not correct
Oct 27 14:01:01 debian zeus: ERROR:pantheos.zeus:License not valid for this syst
em! Going into standby..
Oct 27 14:01:01 debian zeus: INFO:pantheos.zeus:loading configuration from /opt/
eqx-server/config.d
Oct 27 14:01:01 debian zeus: DEBUG:pantheos.zeus:Tweak enabled: virtual_destinat
ion_availability -> all
Oct 27 14:01:01 debian zeus: DEBUG:pantheos.zeus:Tweak enabled: guess_virtual_so
urce_tally -> 1
Oct 27 14:01:01 debian zeus: WARNING:pantheos.zeus:Tweak 'salvo_delay_interval'
not recognized - it will have no effect.
Oct 27 14:01:01 debian zeus: INFO:pantheos.zeus:initializing internal structures
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating crosspoint dev
ice 'EQX'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating destination mo
nitor device 'EQX.MON'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating multipoint dev
ice 'ADMX'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating avip device 'E
QX.AVIP.9'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating avip device 'E
QX.AVIP.10'
[Shift-F] to follow / [Q] to quit_
```

Figure 4-60: Viewing Logs Dialog Box

4.6.11. Export Logs

Selecting the **Export Logs** menu option will allow the user to export logs to USB. When this option is selected, the user will be required to enter the password in order to export the log files. This is a Low level operation, Webconfig interface allows for an easy method of exporting logs from the active server. The following dialog box will prompt the user to enter a password:

Figure 4-61: Enter Password to Export Logfiles

Once a password is entered the user will be required to connect a USB device to which the log files will be exported to.

4.6.12. Export the Configuration

Selecting the **Export Config** menu option will allow the user to export the configuration to USB. When this option is selected, the user will be required to enter the password in order to export the configuration. This is a Low Level operation, Webconfig interface allows for an easy method of exporting the configuration from the active server. The following dialog box will prompt the user to enter a password:

Figure 4-62: Enter Password to Export the Configuration

Once a password is entered the user will be required to connect a USB device to which the log files will be exported to.

4.6.13. Viewing Server Process Details

Selecting the **View Processes** menu item enables the user to view the server process details. When this option is selected, the user will be prompted to enter a password.

Figure 4-63: Enter Password to View Processes

Once the password is entered, the processes information will be displayed as similarly shown in Figure 4-64. To exit the **Server Process** screen press the '**q**' key on your keyboard to quit the screen.

```
top - 11:39:17 up 21:38,  1 user,  load average: 0.00, 0.01, 0.00
Tasks:  51 total,   1 running,  50 sleeping,   0 stopped,   0 zombie
Cpu(s):  0.0%us,  0.7%sy,  0.0%ni, 99.3%id,  0.0%wa,  0.0%hi,  0.0%si,  0.0%st
Mem:    516864k total,   505800k used,    11064k free,   112604k buffers
Swap:   409616k total,        0k used,   409616k free,    81624k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 3812 admin     18   0  2228 1104  860 R  0.7  0.2   0:00.03 top
    1 root      15   0  1948  644  548 S  0.0  0.1   0:00.91 init
    2 root      RT   0     0    0    0 S  0.0  0.0   0:00.00 migration/0
    3 root      34  19     0    0    0 S  0.0  0.0   0:00.00 ksoftirqd/0
    4 root      10  -5     0    0    0 S  0.0  0.0   0:00.16 events/0
    5 root      10  -5     0    0    0 S  0.0  0.0   0:00.00 khelper
    6 root      10  -5     0    0    0 S  0.0  0.0   0:00.00 kthread
    9 root      10  -5     0    0    0 S  0.0  0.0   0:00.10 kblockd/0
   10 root      20  -5     0    0    0 S  0.0  0.0   0:00.00 kacpid
   66 root      10  -5     0    0    0 S  0.0  0.0   0:00.00 kseriod
  102 root      25   0     0    0    0 S  0.0  0.0   0:00.00 pdflush
  103 root      15   0     0    0    0 S  0.0  0.0   0:00.33 pdflush
  104 root      10  -5     0    0    0 S  0.0  0.0   0:00.08 kswapd0
  105 root      20  -5     0    0    0 S  0.0  0.0   0:00.00 aio/0
  636 root      11  -5     0    0    0 S  0.0  0.0   0:00.00 scsi_eh_0
  881 root      10  -5     0    0    0 S  0.0  0.0   0:01.96 kjournald
 1038 root      21  -4  2180  592  352 S  0.0  0.1   0:00.28 udevd
 1312 root      15  -5     0    0    0 S  0.0  0.0   0:00.00 kpsmoused
```

Figure 4-64: Server Processes Page

4.6.14. Search for Running Processes

Selecting the **Search Processes** menu item enables the user to search for the running processes. When this option is selected, the user will be prompted to enter a password in the **Search Processes** dialog box.

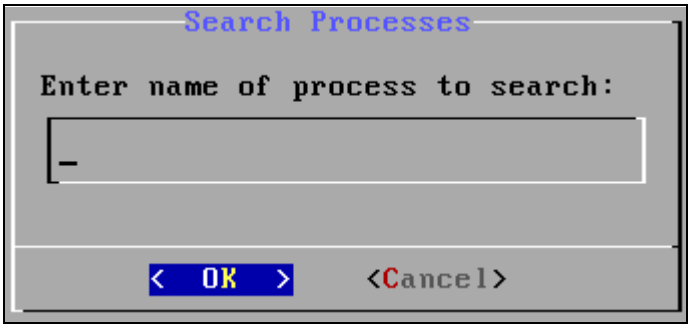


Figure 4-65: Enter Password for Search Processes

Once the password is entered, a list of processes will appear (as shown in Figure 4-66) enabling the user to view the running processes returned by the search. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

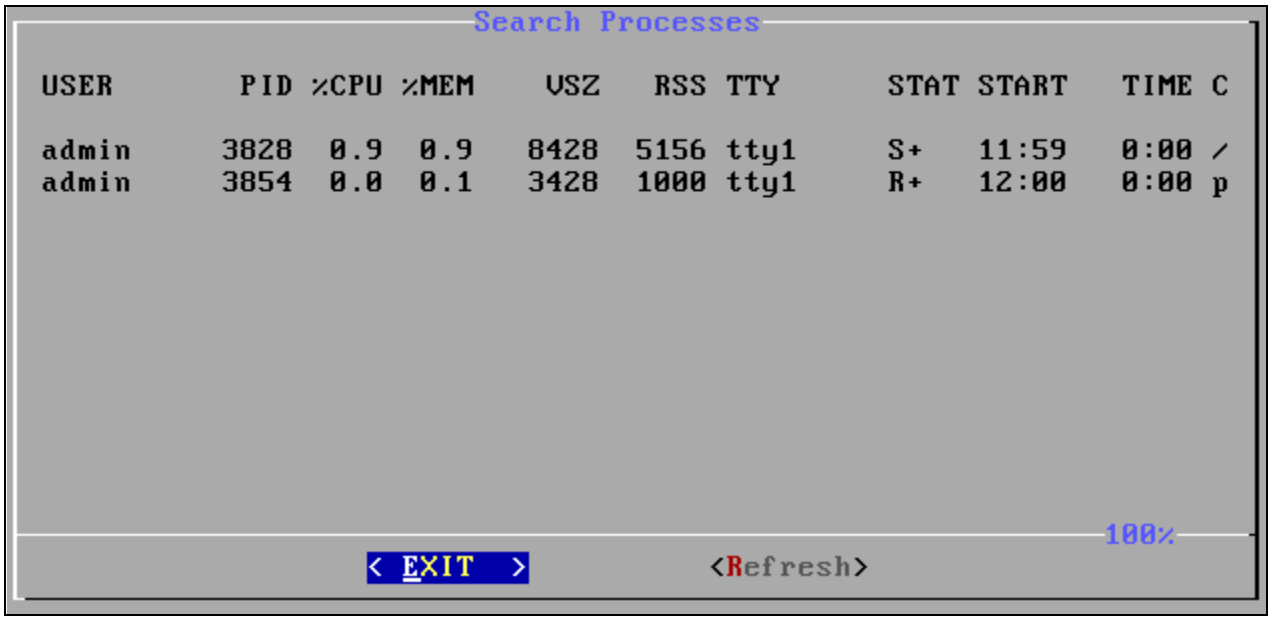


Figure 4-66: Search Processes

4.6.15. Control Server Process

Selecting the **Control Processes** menu item enables the user to control core server processes. The Control Process screen will appear as shown in Figure 4-67. The user can toggle through the various control processes to view the specific process details or stop the process from running.

This should only be used with the support of Evertz Technical personnel.

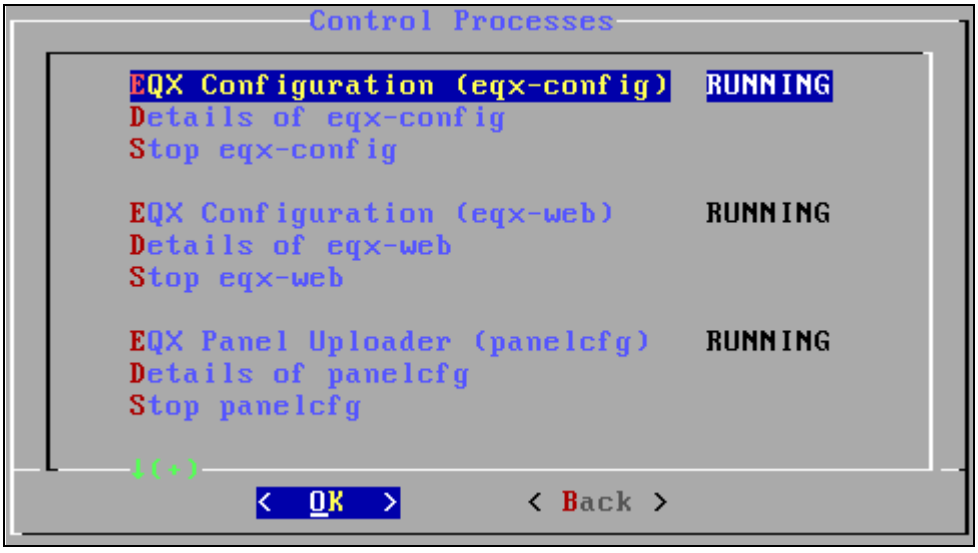


Figure 4-67: Control Processes

To view the process details, toggle to the *details* menu item for the desired process and select **OK**. A screen similar to the one in Figure 4-68 will appear allowing the user to view the process details. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

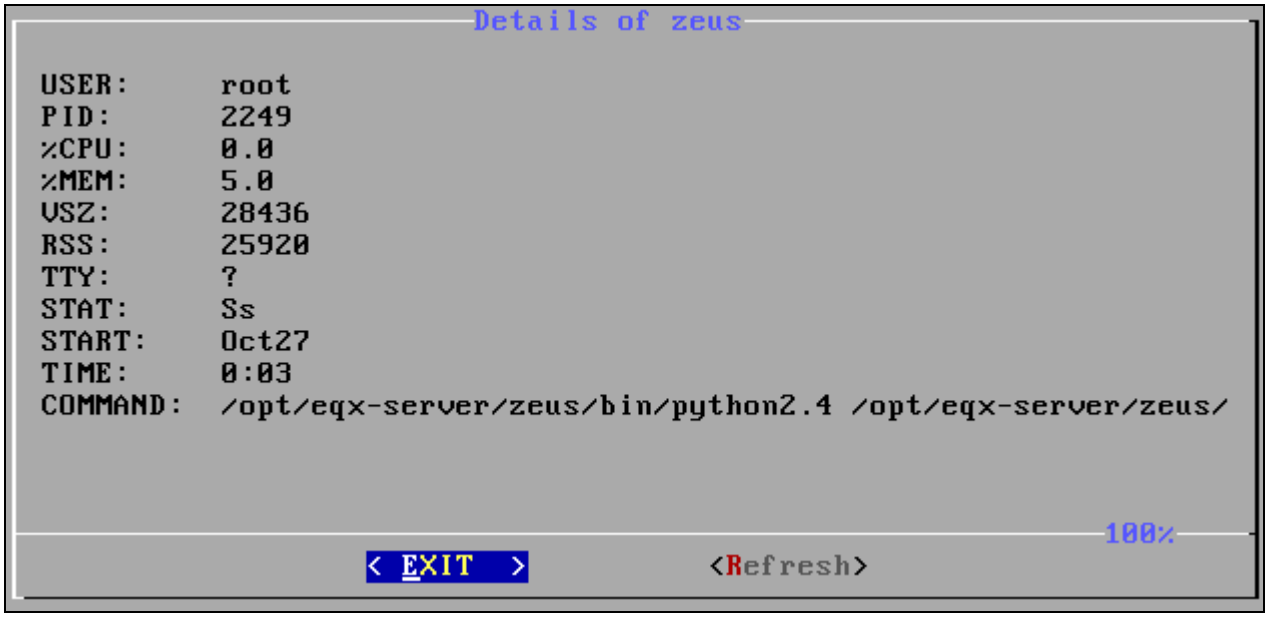


Figure 4-68: Details of Process

To stop a process, use the up and down arrows on your keyboard to toggle to the process that you wish to stop, and then select the **OK** button when you have selected the *stop* function for that process. For example, if you wish to stop the **Panel Uploader (panelcfg)** process, toggle to the ***Stop panelcfg*** item and select the **OK** button. The *Panel Uploader* process will be stopped.

4.6.16. Terminate Process

Selecting the **Terminate Process** menu item enables the user to force a process to terminate. Upon selecting this option a *Terminate Process* screen will appear as shown in Figure 4-69.

This should only be used with the support of Evertz Technical personnel.

To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

Figure 4-69: Terminate Process

4.6.17. About this Server

Selecting the **About** option from the main menu will display the current Server, Configshell and Kernel version.

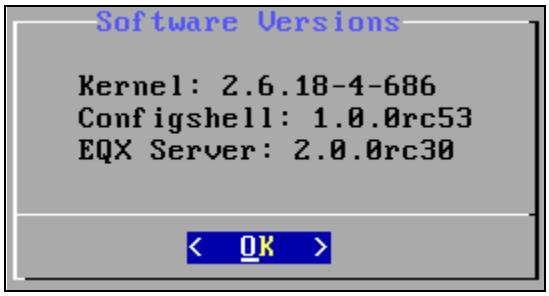


Figure 4-70: About…

4.6.18. Logout

To safely logout of the MAGNUM Server Configuration tool, toggle to the **Logout** option and then select the **OK** button.

5. MAGNUM DAY 1 LABS

5.1. INSTALLATION AND CONFIGURATION OF MAGNUM ON SUPERMICROS

1. Succesfull RAID configuration of SuperMicro Servers.

2. Succesfull installation of MAGNUM on SuperMicro Servers.

5.2. SINGLE CLUSTER CONFIGURATION OF MAGNUM

1. Successful network settings configuration.
    a. Assigning IP address and connection to a network.
    b. Able to access the MAGNUM server from a Windows PC on the network.

2. Successful single server Magnum configuration.

5.3. MULTI SERVER CLUSTER CONFIGURATION OF MAGNUM

1. Successful multi-server cluster configuration.

5.4. FAIL-OVER BETWEEN MULTI SERVER CLUSTERS

1. Fail-over on power loss of the Active Server.
    a. Correct state for both Primary and Secondary Servers.

2. Fail-over on network loss on the Active Server.
    a. Correct state for both Primary and Secondary Servers.

6. DAY 2: MAGNUM WEB CONFIGURATION INTERFACE

6.1. REQUIREMENTS FOR USING THE WEB CONFIG TOOL

1. Ensure the MAGNUM Server is installed and operational, and the IP Address is set correctly.

2. Ensure the computer is attached to the same network as the MAGNUM Server.
    a. Since the MAGNUM Web Config Tool (WCT) uses standard HTML, XHTML, CSS, etc any web browser on any platform that complies with these formats can be used.
        i. Currently the most adopted browser that is completely compliant is Mozilla Foundations Firefox. We recommend that you use this browser, if available to you, for the best performance of the WCT. For a free download of the current Mozilla Firefox browser navigate to the following website:
            http://www.mozilla.com/en-US/firefox/

3. It is not required, but it is 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.

6.2. GETTING STARTED: SETTING UP YOUR ROUTER SYSTEM

1. Launch the firefox web browser and enter the numeric address chosen as the system IP address (also called the virtual or CLUSTER IP address which was entered into the Cluster configuration page during initial setup) into the address bar followed by “/magnum” or /eqx (for example: 192.168.1.4/magnum or 192.168.1.4/eqx) and then press the <enter> key; you should see the login page for the MAGNUM server web configuration tool.

2. Click the **Login** link button and enter the username and password. The default administrator username and password (as set during MAGNUM server install) is:
    USERNAME: admin
    PASSWORD: admin

3. Once the username and password is filled in, click the **Login** button. A Home screen / Dashboard will appear as shown in Figure 6-1.

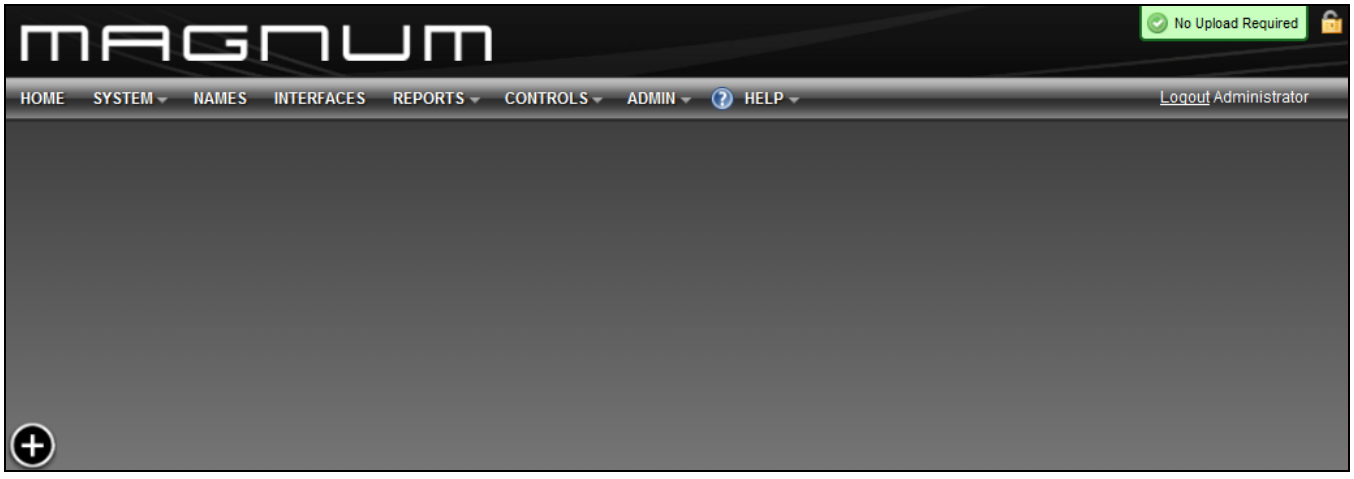


Figure 6-1: Home Page

6.3. WIDGET SELECTOR MENU

The user can access the Widget Selector menu by clicking on the button. A panel will appear at the bottom of the page as illustrated in Figure 6-2.

Figure 6-2: Widgets Selector Menu

The menu enables the user to select the following widgets for display: Devices, Satellites, Panels, and Routes. To close the Widget Selector menu, click on the button.

6.3.1. Devices Widget

Selecting the **Devices** icon will launch the **Devices** widget as illustrated in Figure 6-3. The **Devices** widget provides the user with a heads-up view of the current connection states of all devices managed by Magnum.

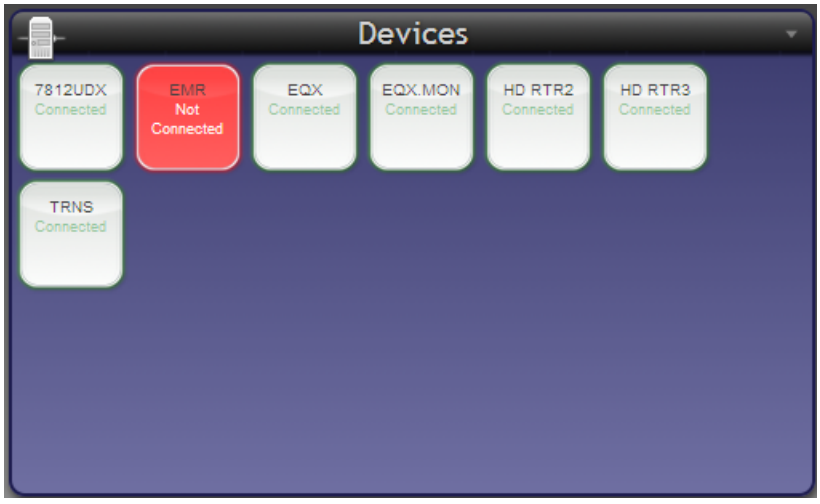


Figure 6-3: Devices Widget

The user can move the **Devices** widget anywhere on the page by clicking on the widget and then dragging it to the desired location. The user can also resize the widget by dragging the window's bottom right corner. To close the widget, click on the button in the top left corner.

Please Note: To move, resize, or close the Devices window, the Widget Selector menu must be open at the bottom of the screen.

6.3.2. Satellites Widget

Selecting the **Satellites** icon will launch the **Satellites** widget as illustrated in Figure 6-4. The **Satellites** widget provides the user with a heads-up view of the current connection state of any 3rd Party Router/Control System that Magnum Router Control may be interfacing with. The widget is also used to present the user with *Names* updates from the 3rd Party Router Control System that may be enabled by the Magnum Names module and 3rd Party Router/System that supports name transfer/updates.

Figure 6-4: Satellites Widget

The user can move the **Satellites** widget anywhere on the page by clicking on the widget and then dragging it to the desired location. The user can also resize the widget by dragging the window's bottom right corner. To close the widget, click on the button in the top left corner.

Please Note: To move, resize, or close the Satellites window, the Widget Selector menu must be open at the bottom of the screen.

6.3.3. Panels Widget

Selecting the **Panels** icon will launch the **Panels** widget as illustrated in Figure 6-5. The **Panels** widget provides the user with a heads-up view of the current connection state of any connected panel managed by the Magnum Router Control System.

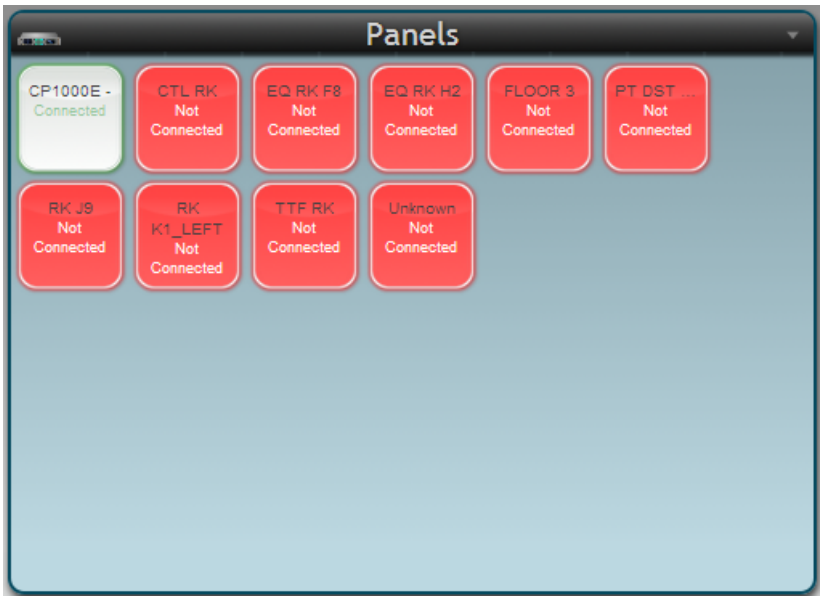


Figure 6-5: Panels Widget

The user can move the **Panels** widget anywhere on the page by clicking on the widget and then dragging it to the desired location. The user can also resize the widget by dragging the window's bottom right corner. To close the widget, click on the button in the top left corner.

Please Note: To move, resize, or close the Panels window, the Widget Selector menu must be open at the bottom of the screen.

6.3.4. Routes Widget

Selecting the **Routes** icon will launch the **Routes** widget as illustrated in Figure 6-6. The **Routes** widget provides the user with a heads-up view of the current routes that are being made on the Magnum Router Control System. The route information is presented using the Global Names as defined in the Magnum Router Control System *Names* page. The information displayed in the **Routes** widget is not persistent and will only display the routes made while the Magnum Dashboard page is viewed.

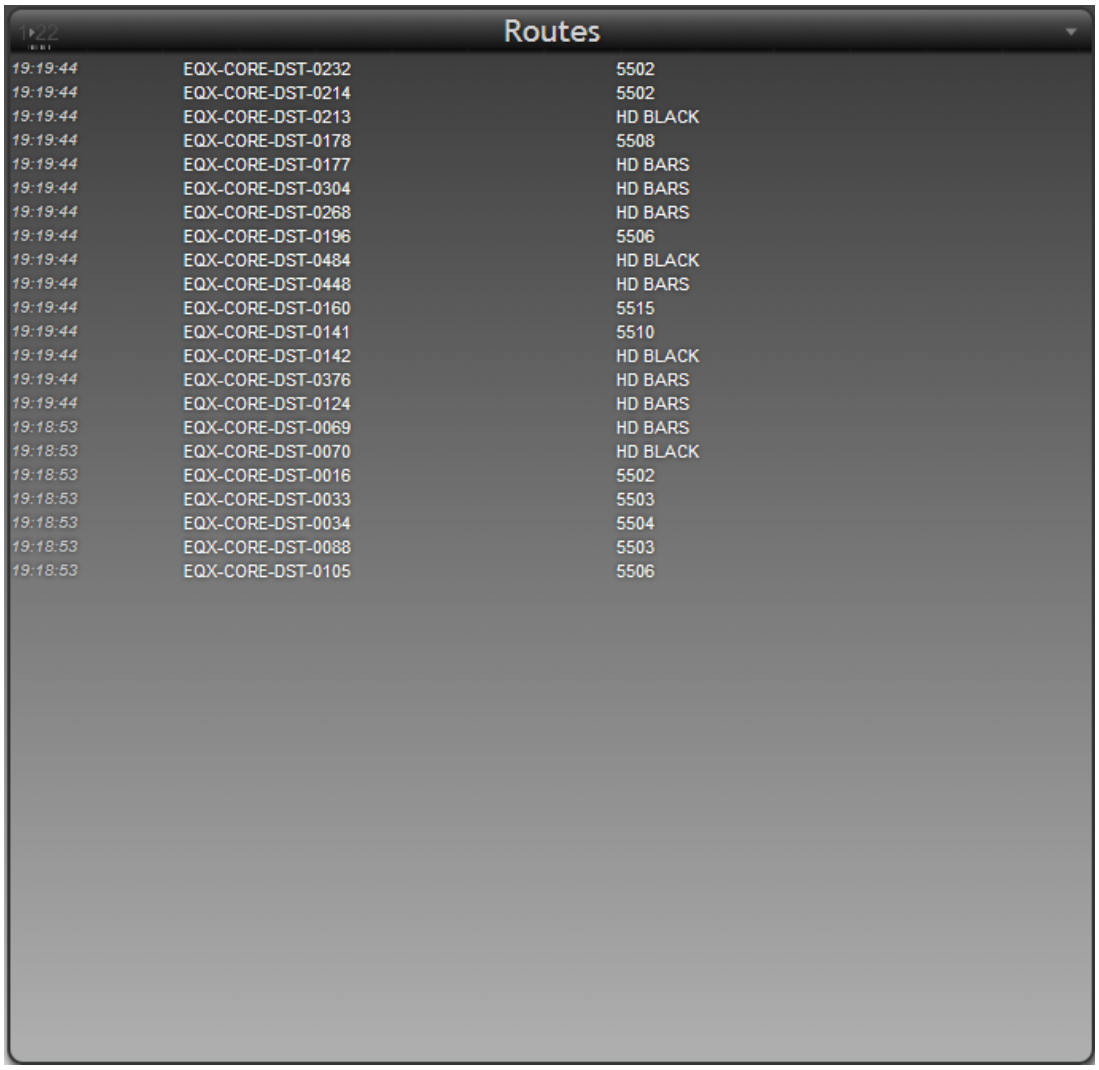


Figure 6-6: Routes Widget

The user can move the **Routes** widget anywhere on the page by clicking on the widget and then dragging it to the desired location. The user can also resize the widget by dragging the window's bottom right corner. To close the widget, click on the button in the top left corner.

Please Note: To move, resize, or close the Routes window, the Widget Selector menu must be open at the bottom of the screen.

6.4. CONFIGURING THE SYSTEM

6.4.1. Defining the Servers

The **Servers** tab will enable the user to view, add and delete servers. The existing servers will be listed in the *Name* column alongside the corresponding IP Address in the *IP Address* column. The *Active* column will identify whether a server is active or inactive. If a server is active a green check mark will appear in the *Active* column. The *Upload Required* column will identify if an upload is required depending on if changes have been made. The *Server License* field identifies the validity of a license. If the user has a valid license loaded, the *Server License* field will read "License Valid"; if a license is invalid or missing it will be indicated in this column. The *License Virtual Panels* column identifies the number of virtual panels that can connect to MAGNUM Server at one time.

To access the server screen:

1. Click on the **SYSTEM** drop down menu and select the **Servers** menu item.

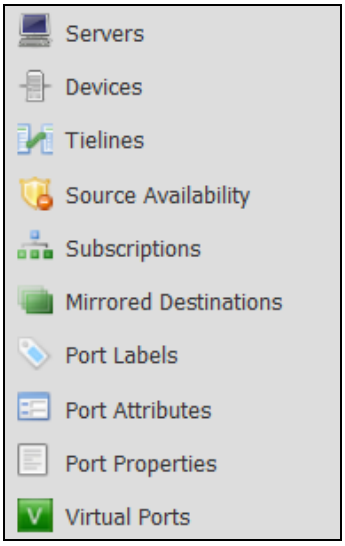


Figure 6-7: System Menu

2. The **Server** screen, as shown in Figure 6-8, enables the user to add, view and edit the properties of the servers.

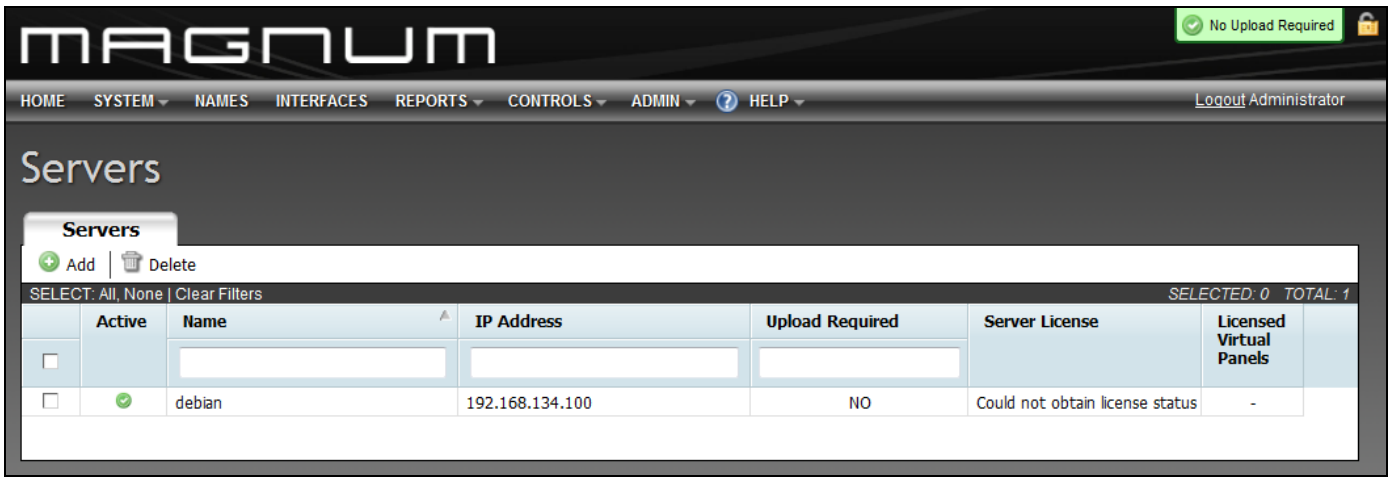


Figure 6-8: Servers Page

3. To add a new server, click on the **Add** button and an **Add Server** dialog box will appear, as shown in Figure 6-9.

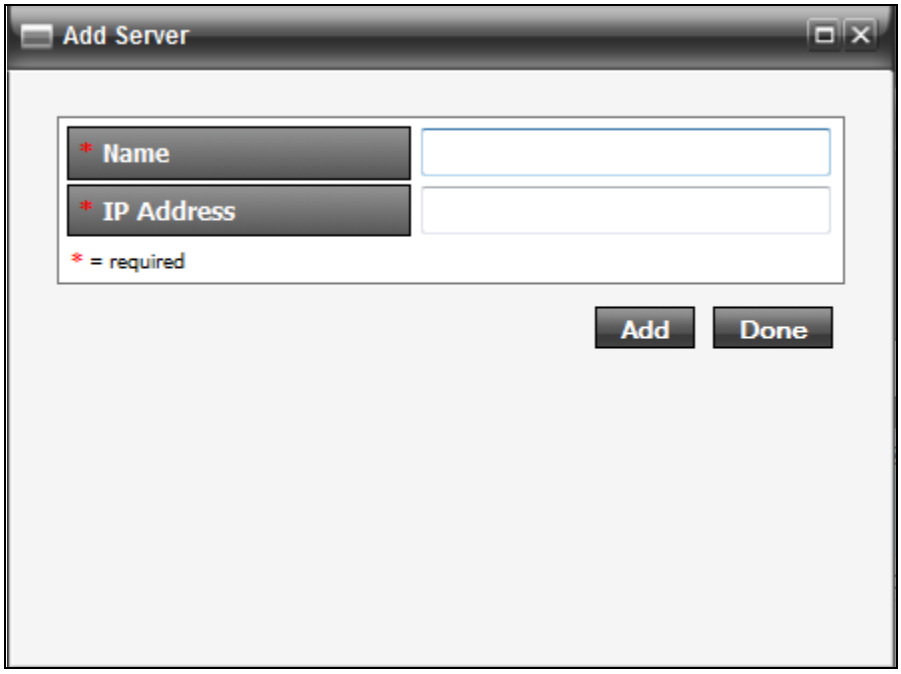


Figure 6-9: Add Server

4. To add a new server, enter a unique server name and IP address into the fields provided. Once the information is entered, select the **ADD** button to add the server to the Server List. If you have finished adding servers, click the **Done** button to exit and return to the main server page.

4. The user can apply changes to the system using the controls on the server screen.

5. If changes have been made that require uploading, **YES** will be displayed in the **Upload Required** field and the button at the top right of the page will be orange in colour and state "Upload Required". To upload the changes, select the **Commit Changes** button.

Figure 6-10: Upload Required Button

6. Should a major change be required, the changes will be listed in the **Changes** dialog screen that appears when clicking the **Upload Required** button. This area lists the major changes like deleting a router, changing the I/O size, renaming a device or servers, etc. Anytime a change to the system is made the change will be listed in the Change Set section. The **Change Details** column lists the individual details of the changes made to each object.

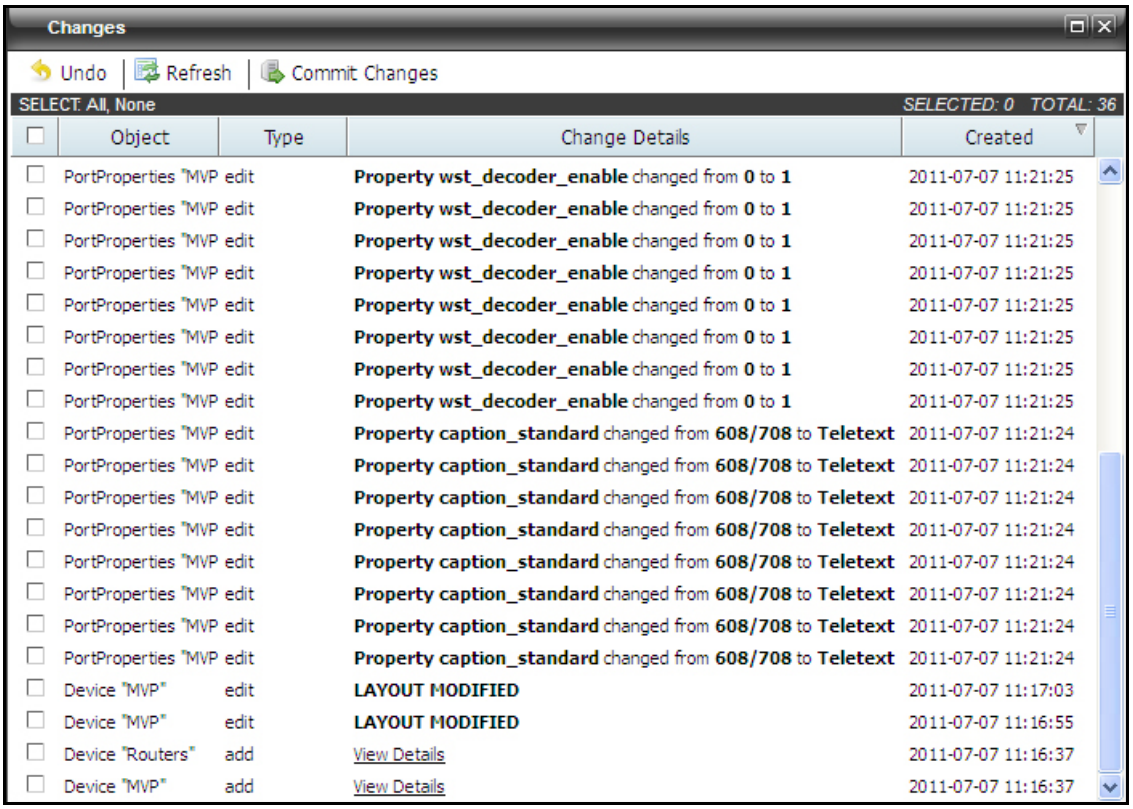


Figure 6-11: Changes Dialog Screen

7. To upload the changes to the server, select the **Commit Changes** button.

Figure 6-12: Committing Changes Window

6.4.2. Defining the Routing Devices

1. From the **SYSTEM** drop down menu, select the **Devices** option.

2. The *Devices* screen shown in Figure 6-13 will enable the user to Add, Delete, or Group devices. To group the devices displayed in the devices list, select the *Group By…* drop down menu.

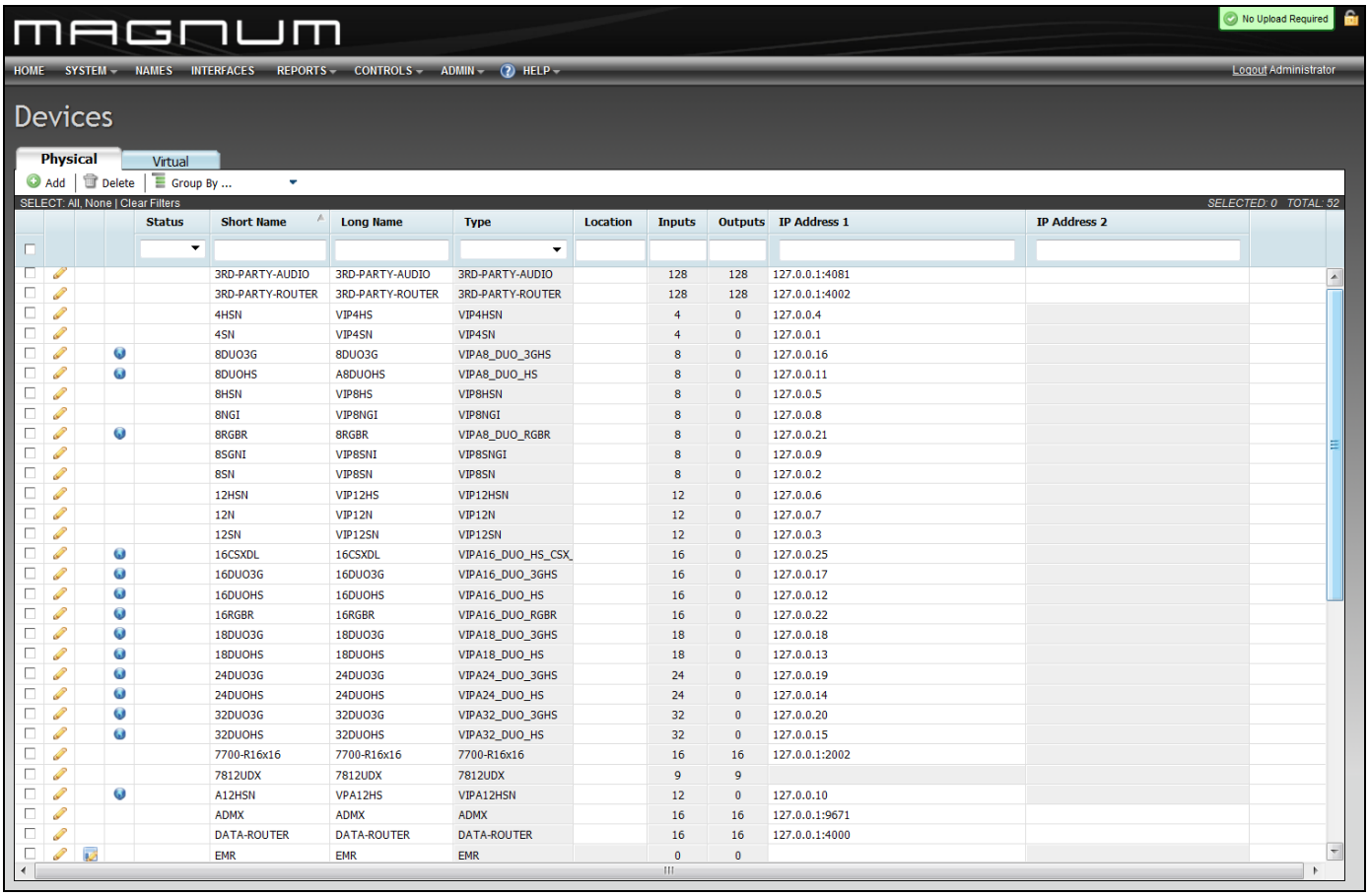


Figure 6-13: Device Page

3. The user has three "Group By…" options; *None, Type,* and *Location*.
   - ***None*** will display all of the devices present in no specific order.
   - Selecting the ***Type*** option from the drop down menu will separate the devices into categories based on the device type. Refer to Figure 6-14.
   - Selecting the ***Location*** option from the drop down menu will separate the devices into categories based on the device location. Refer to Figure 6-15.

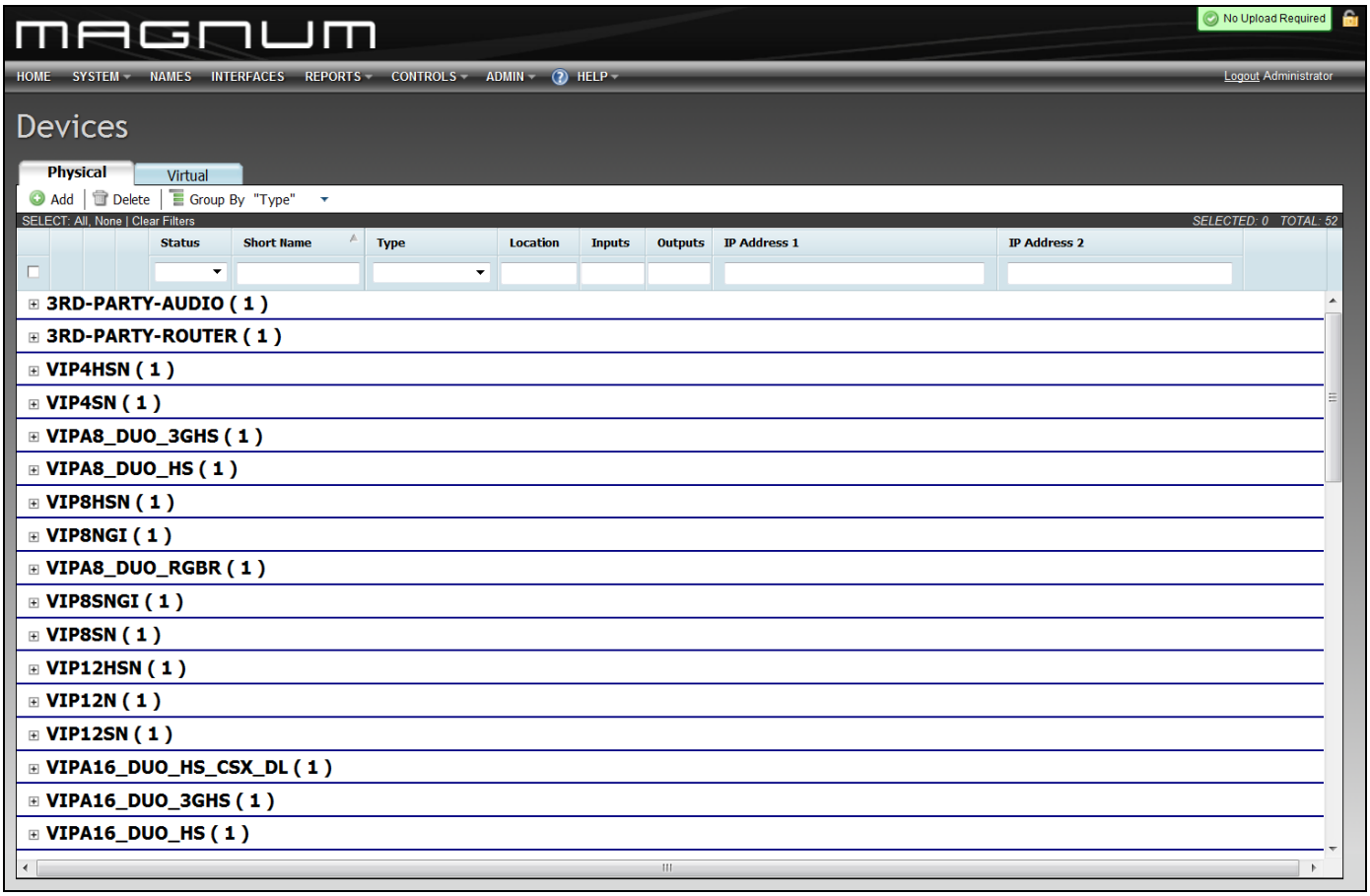


Figure 6-14: Group By "Type"

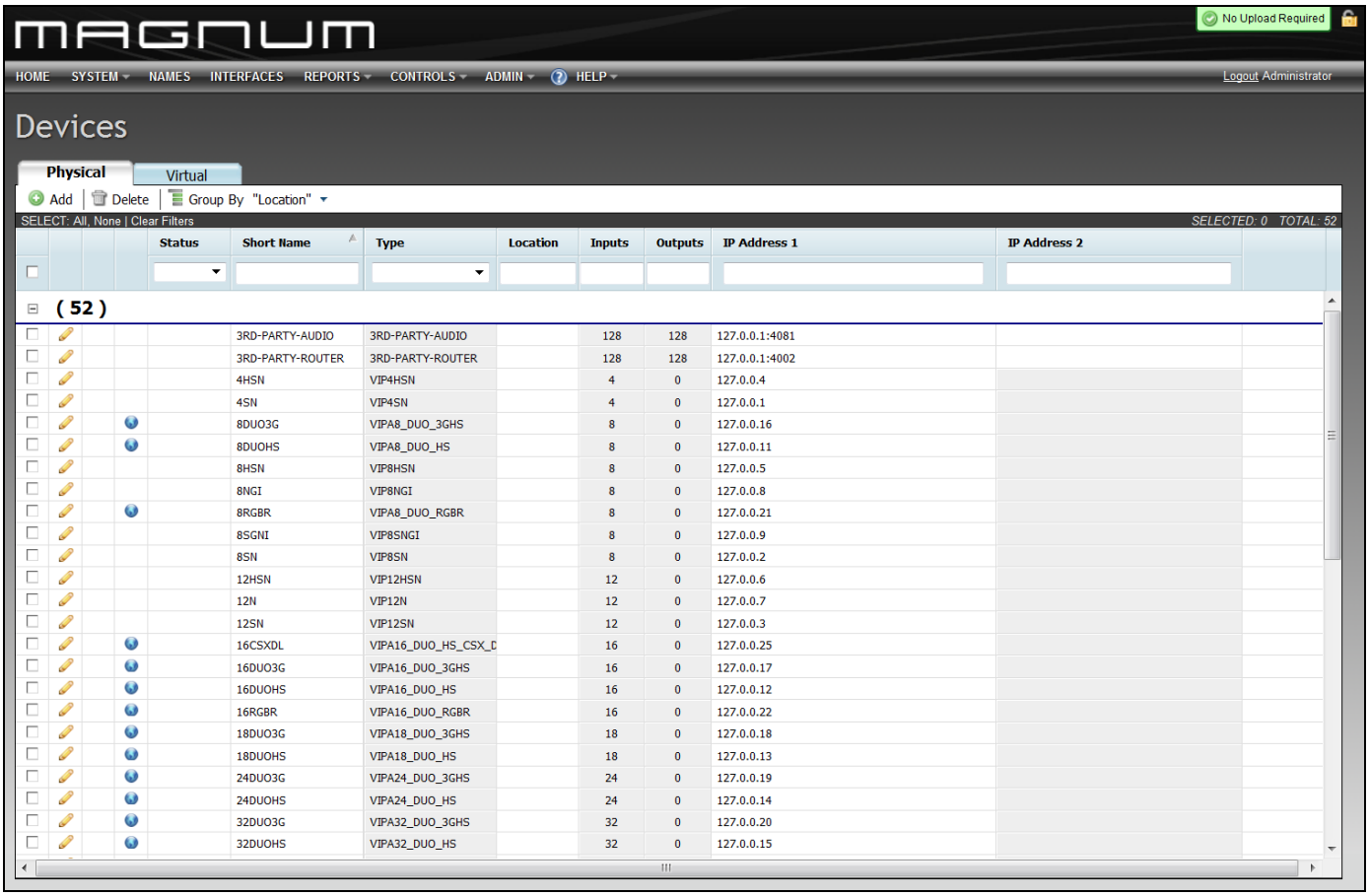


Figure 6-15: Group By “Location”

4. To add a new device, select the **Add** button. An *Add Device* screen will appear enabling the user to choose a device to add using the "Select a Device Type" drop down menu. Once the device type is selected, the corresponding device fields will appear which enable the user to enter the router parameters.

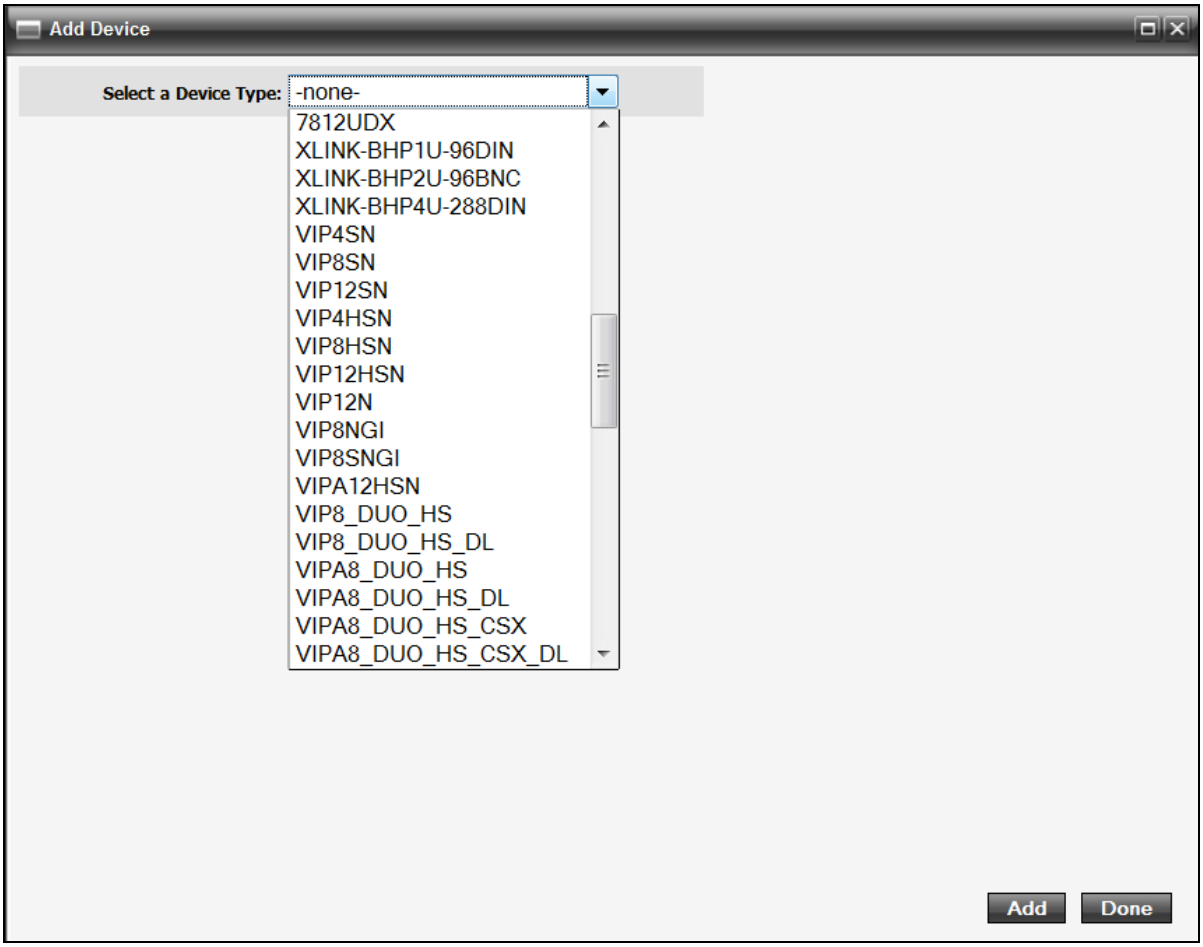


Figure 6-16: Server: Devices Tab

5. Adding a multiviewer device…

PARAMETER	DESCRIPTION
Device Type	The multiviewer type to be controlled.
Short Name	The name used to reference the multiviewer device
Long Name	A more descriptive title for the device.
Primary IP (address)	The network information of multiviewer that is required for the server to connect to it
Location	Information pertaining to the physical location (Los Angeles or ER-227) can be optionally entered here.

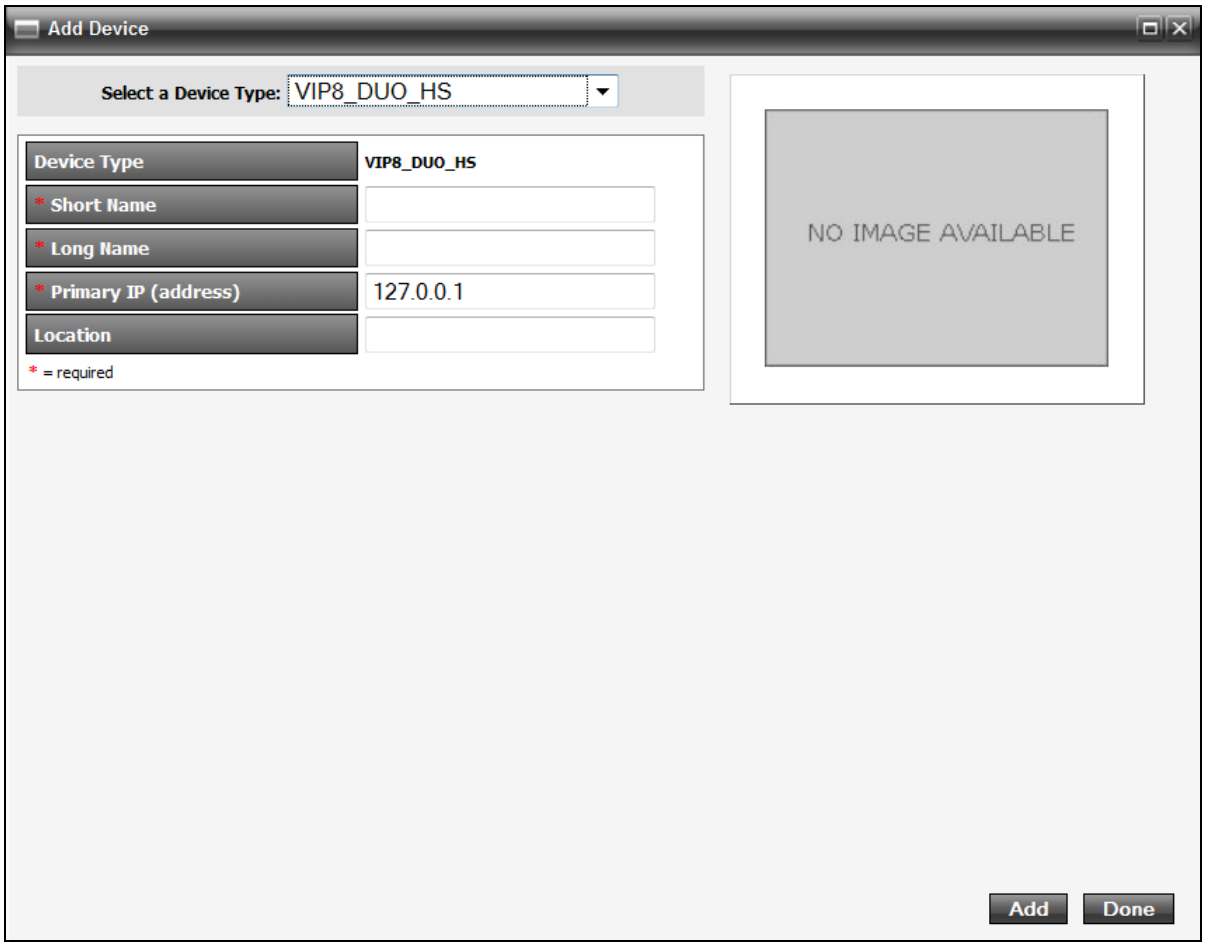


Figure 6-17: Adding a Multiviewer Device

6. Addining a router by entering information in the **Required** and **Optional** information fields. Below is a list of the parameters and a description of their function:

PARAMETER	DESCRIPTION
Device Type	The router type to be controlled.
Short Name	The name used to build default names for source destinations and tielines.
Long Name	A more descriptive title for the device.
Inputs	Define the number of the inputs available on the router to be controlled.
Outputs	Define the number of the outputs available on the router to be controlled.
Primary IP (address:port)	The network information of the primary FC is required for the router to be controlled.
Secondary IP (address:port)	The network information of the secondary FC is optional.
Monitor Port	The port entered will allow control of the EQX dedicated signal monitoring ports.
Location	Information pertaining to the physical location (Los Angeles or ER-227) can be optionally entered here.

7. Once complete, click the **Add** button. If you have added all the desired devices, select the **Done** button to finish adding products. In order for the addition of these devices to be applied to the server, the user must navigate to the **Server** page and upload the changes by pressing the "Commit Changes" button. Any changes or additions to the system will be listed in the Server Change Set tab. You may upload these changes now or move onto further configuration.

Tip: Remember your changes will not be lost, even if the web browser is closed. They will be stored in the web host portion of the MAGNUM server, but will not be applied to the system until you select the "Upload Required" icon and click the "Commit Changes" button.

8. 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.

9. To find a particular device(s), use the filter toolbar to search through the list of existing devices. Enter a property into one of the blank fields at the top. As you type, the list of devices will be narrowed down to display only the properties that match the data being entered.

Figure 6-18: Device Filter

9. To edit a device, select the icon. An **Edit Device** window will open where the user can update the device's properties.

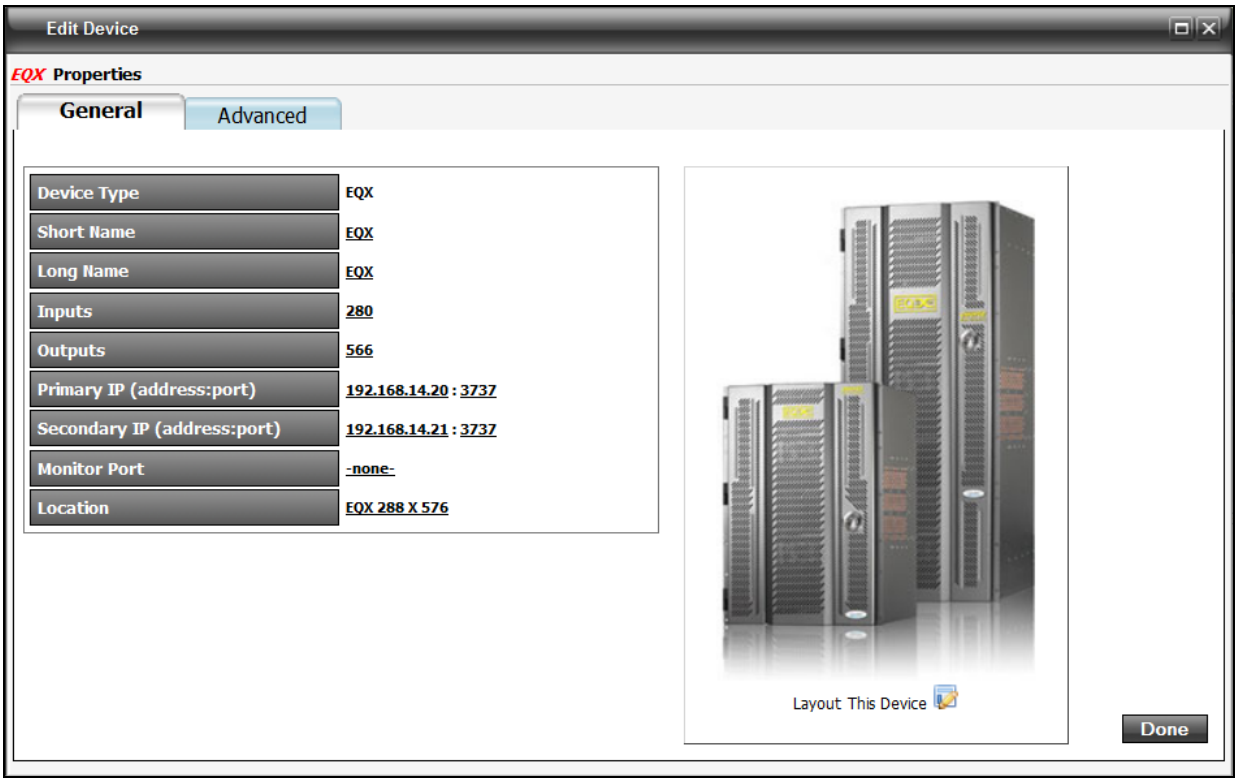


Figure 6-19: Edit Device Window – General Tab

10. If changes are required for device communication, the **Advanced** tab can be used to customize how Magnum communicates with a device. The **Advanced** tab should be used with the assistance of Evertz Server personnel.

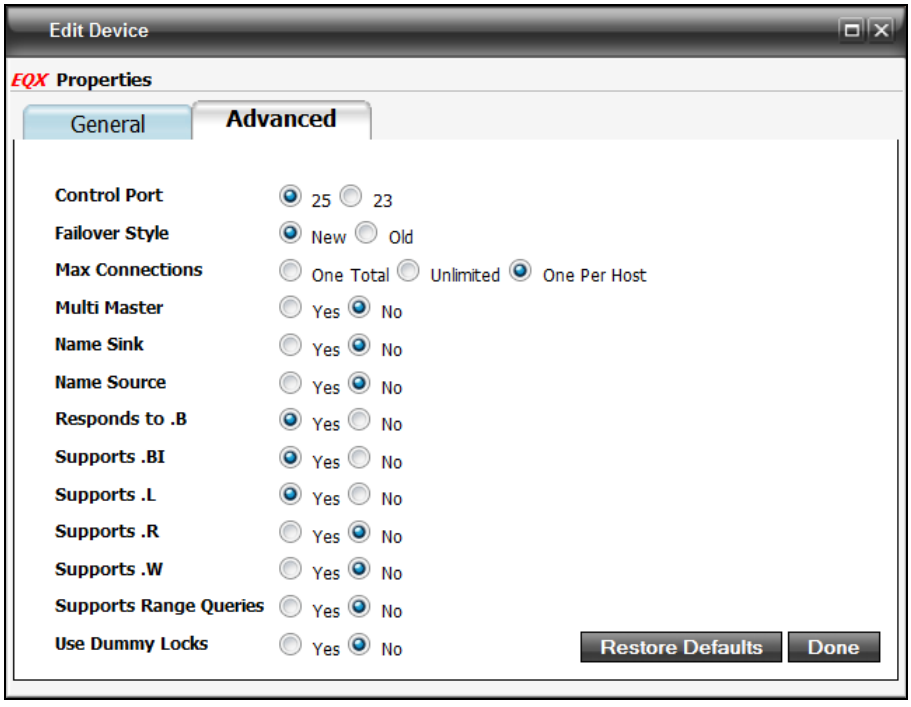


Figure 6-20: Edit Device Window – Advanced Tab

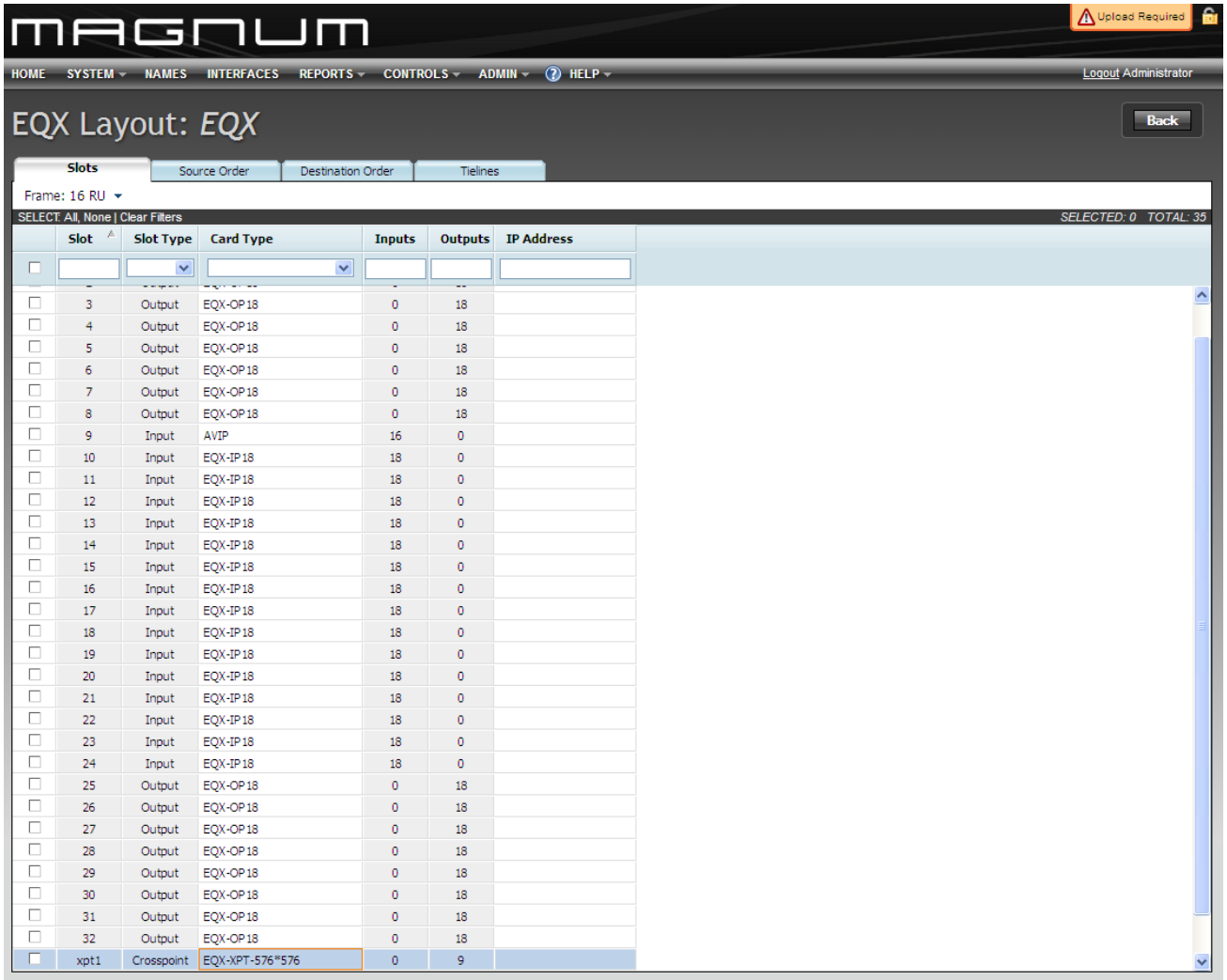
6.4.3. Edit Device Layout

The user can edit a device layout by selecting the icon. A new window will open where the user can update the device's layout. The device layout page is used to define special cards such as AVIPs and AVOPs or cross-points that can be used to provide XLINK outputs for multiviewer connections

6.4.3.1. EQX Layout

Clicking in the the card type cell will allow the user to change or add new card types to a slot in the router. If a card type is already defined, the user can delete the card and hit the "ctrl" key on the keyboard to see a list of available card types for that slot. The number of inputs and outputs may change based on the card type selected. When changing the card type ensure that the physical router layout matches what is defined EQX Layout page.

The card type cell for the router cross-points allows the user to define the cross-points that are used to provide XLINK outputs from the router. Clicking in the cell and hitting the "ctrl" key on the keyboard will display a list of available cards for that slot.



Slot	Slot Type	Card Type	Inputs	Outputs	IP Address
3	Output	EQX-OP18	0	18	
4	Output	EQX-OP18	0	18	
5	Output	EQX-OP18	0	18	
6	Output	EQX-OP18	0	18	
7	Output	EQX-OP18	0	18	
8	Output	EQX-OP18	0	18	
9	Input	AVIP	16	0	
10	Input	EQX-IP18	18	0	
11	Input	EQX-IP18	18	0	
12	Input	EQX-IP18	18	0	
13	Input	EQX-IP18	18	0	
14	Input	EQX-IP18	18	0	
15	Input	EQX-IP18	18	0	
16	Input	EQX-IP18	18	0	
17	Input	EQX-IP18	18	0	
18	Input	EQX-IP18	18	0	
19	Input	EQX-IP18	18	0	
20	Input	EQX-IP18	18	0	
21	Input	EQX-IP18	18	0	
22	Input	EQX-IP18	18	0	
23	Input	EQX-IP18	18	0	
24	Input	EQX-IP18	18	0	
25	Output	EQX-OP18	0	18	
26	Output	EQX-OP18	0	18	
27	Output	EQX-OP18	0	18	
28	Output	EQX-OP18	0	18	
29	Output	EQX-OP18	0	18	
30	Output	EQX-OP18	0	18	
31	Output	EQX-OP18	0	18	
32	Output	EQX-OP18	0	18	
xpt1	Crosspoint	EQX-XPT-576*576	0	9	

Figure 6-21: EQX Layout – Slots Layout

To search for a device layout, use the filter toolbar to sort through the list of layouts. Enter a property into one of the blank fields or use the drop down menu to narrow down your search. As you type or select an item, the list of devices will be narrowed down to display only the properties that match the data being entered.

Figure 6-22: Slots Filters

The Source Order tab allows the user to see the logical port order of sources for the router as defined within Magnum.

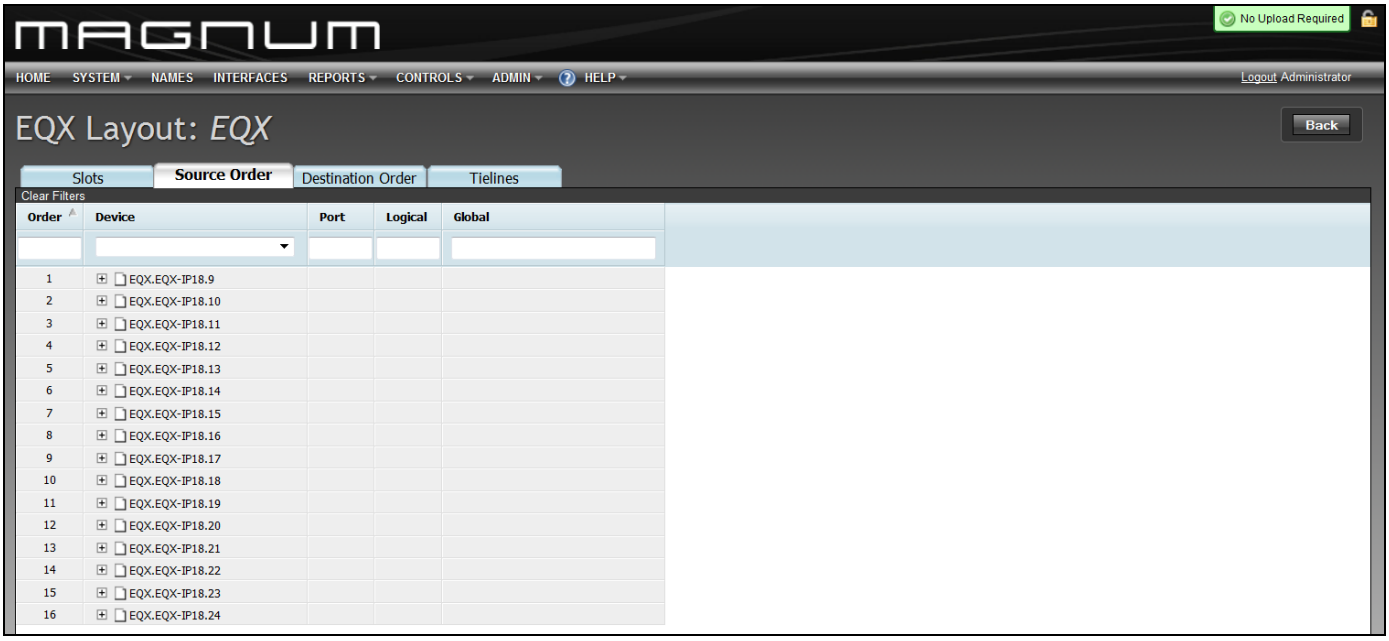


Figure 6-23: EQX – Source Order Tab

To search for a source device, use the filter toolbar to sort through the list of devices. Enter a property into one of the blank fields or use the drop down menu to narrow down your search. As you type or select an item, the list of devices will be narrowed down to display only the properties that match the data being entered.

Figure 6-24: Source Order Filters

The Destination Order tab allows the user to see the logical port order of destinations for the router as defined within Magnum.

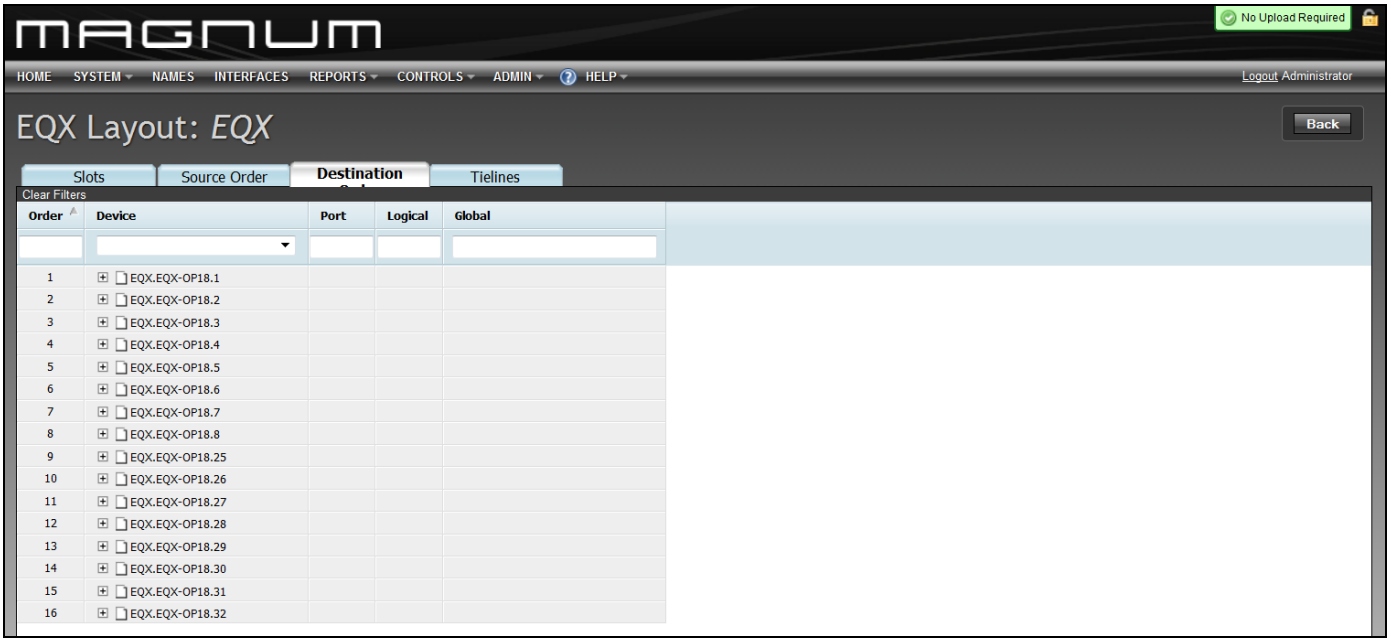


Figure 6-25: EQX – Destination Order Tab

To search for a device, use the filter toolbar to sort through the list of destination devices. Enter a property into one of the blank fields or use the drop down menu to narrow down your search. As you type or select an item, the list of devices will be narrowed down to display only the properties that match the data being entered.

Figure 6-26: Destination Filters

The Tielines tab allows the user to define the XLINK connections from the router cross-points to the VIPX or MVPX rear plates. For a split cable connection the user defines the connections using the Link to A and Link to B cells. Clicking in the cell and hitting the “ctrl” key on the keyboard will display the list of devices available for tielining to the selected port. VIPX rear plates and Breakout panels are the common devices that will be tielined to the XLINK outputs of the cross-point devices.

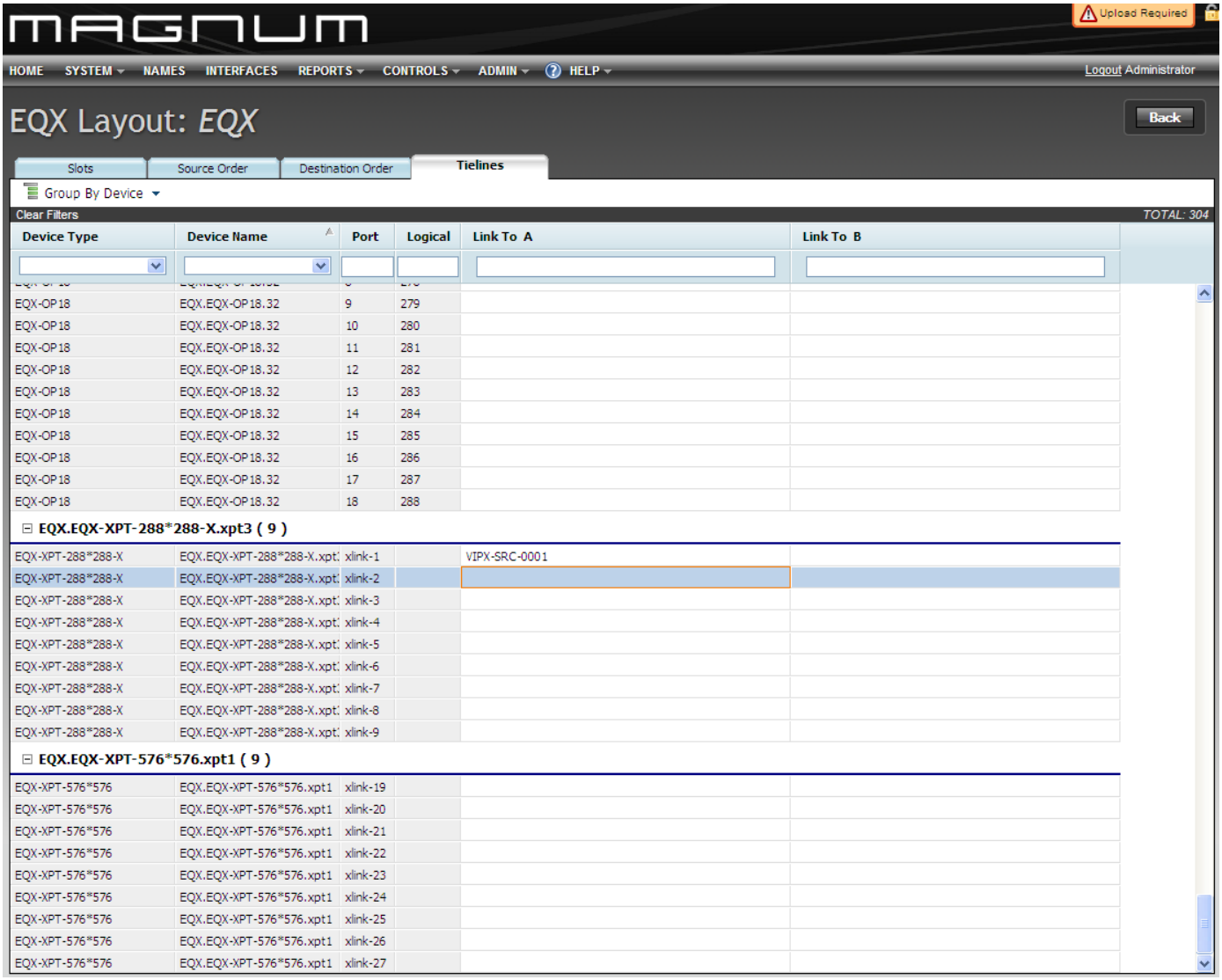


Figure 6-27: EQX – Tielines

To search for a device use the filter toolbar to sort through the list of devices. Enter a property into one of the blank fields or use the drop down menu to narrow down your search. As you type or select an item, the list of devices will be narrowed down to display only the properties that match the data being entered.

Figure 6-28: Tielines Filters

6.4.3.2. Xenon Layout

The user can edit a Xenon device layout by selecting the icon. A new window will open where the user can update the device's layout. The device layout page is used to define special cards such as XLINK outputs cards provide XLINK outputs for multiviewer connections.

Clicking in the "Type" cell will allow the user to change or add new card types to a slot in the router. If a card type is already defined, the user can delete the card and hit the "ctrl" key on the keyboard to see a list of available card types for that slot. The number of inputs and outputs may change based on the card type selected. When changing the card type ensure that the physical router layout matches what is defined in Xenon Layout page.

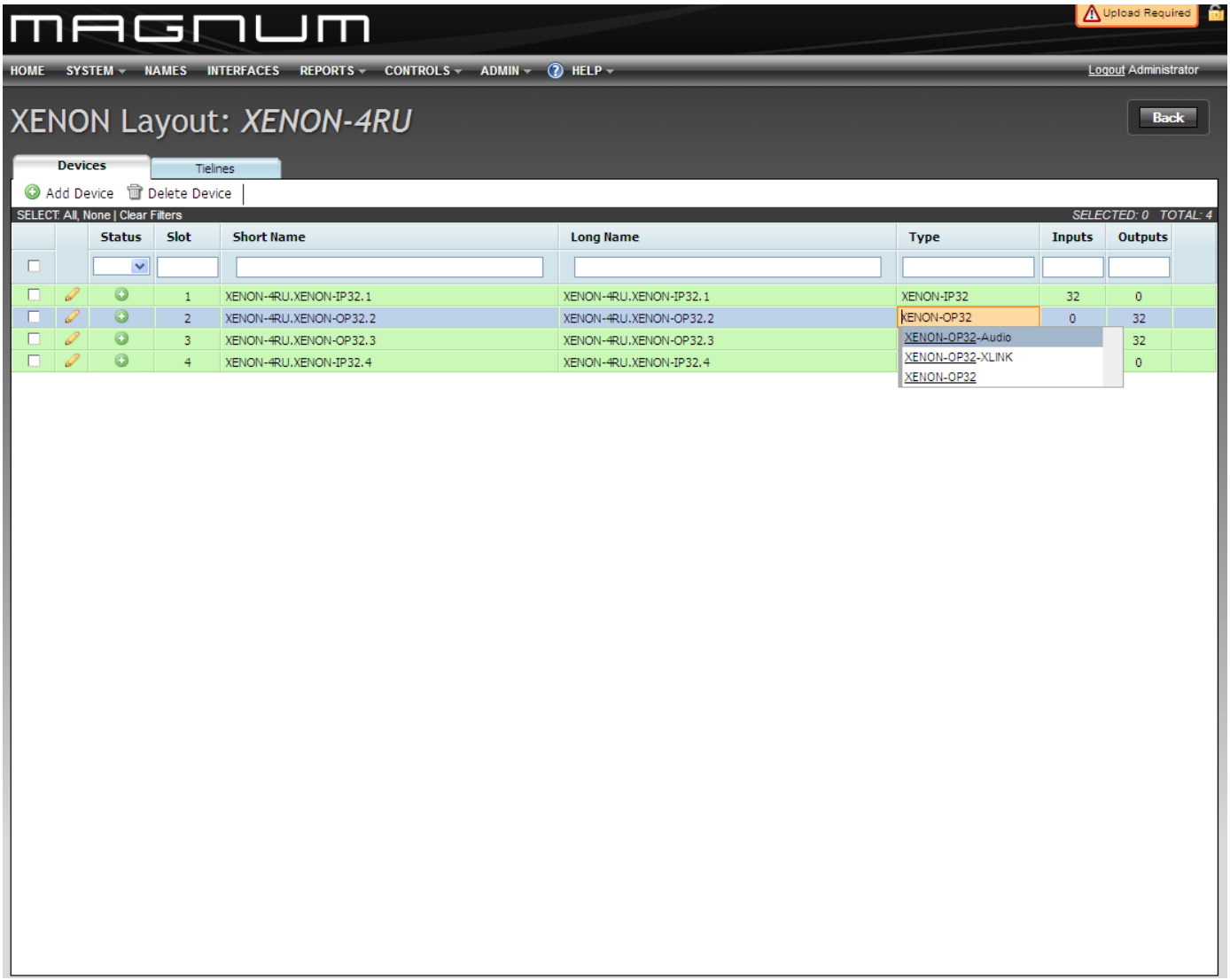


Figure 6-29: XENON Layout

The Tielines tab allows the user to define the XLINK connections from the XLINK output card to the VIPX or MVPX rear plates. For a split cable connection the user defines the connections using the Link to A and Link to B cells. Clicking in the cell and hitting the “ctrl” key on the keyboard will display the list of devices available for tielining to the selected port. VIPX rear plates and Breakout panels are the common devices that will be tielined to the XLINK outputs.

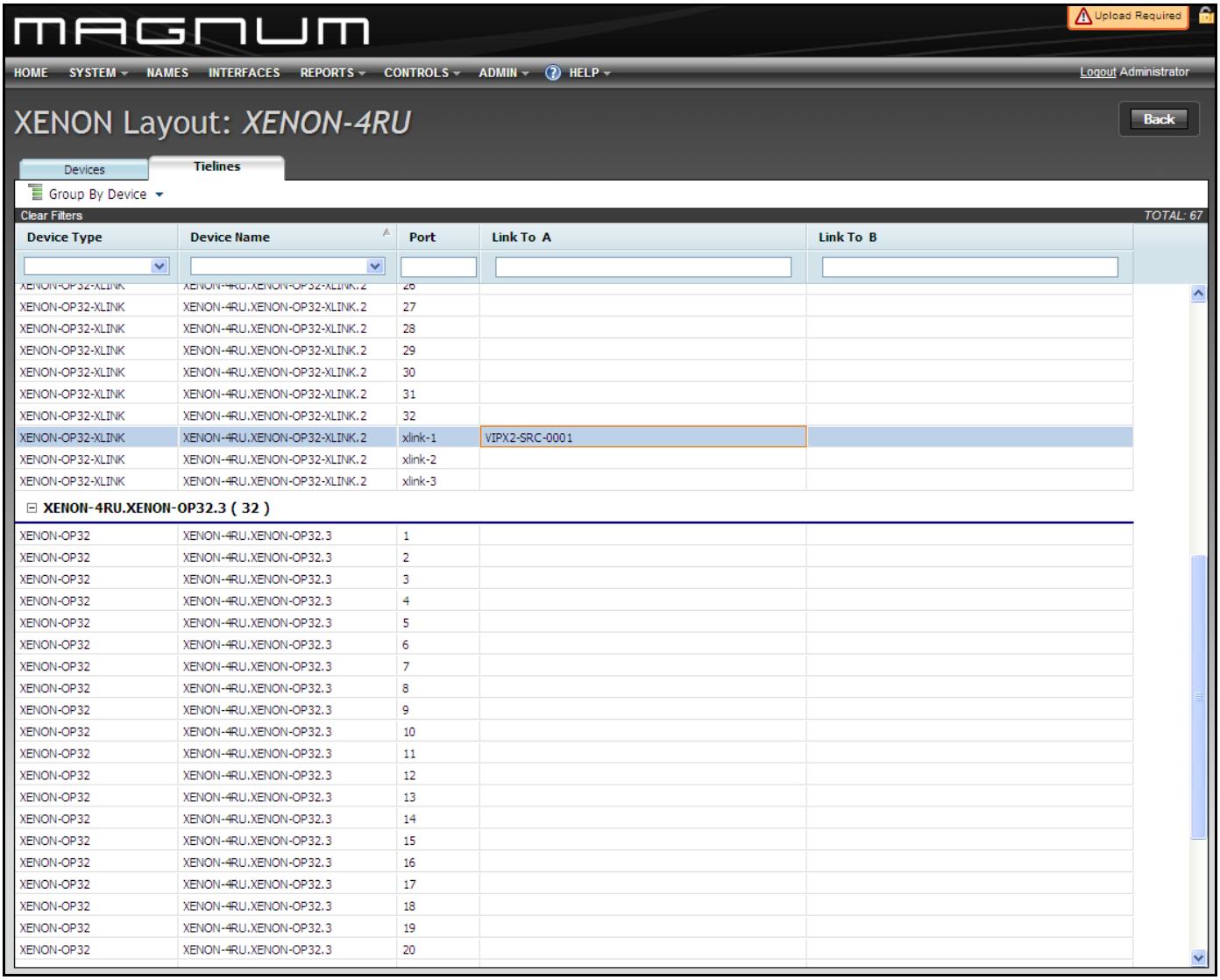


Figure 6-30: Tielines Tab

6.4.3.3. EMR Layout

The EQX Router, when paired with the Magnum Server and equipped with Audio-Video Input (AVIP) and Audio-Video Output (AVOP) cards can be used to De-embed audio to, and Embed audio from an EMR Audio Router.

In Magnum 1.3.0 and above there are changes to how the audio systems are defined in the server, and how the routing occurs from a user interface. The AVIP/AVOP audio system appears as part of a large flat audio router where the individual ports can be named, and the names are not inherited from the video level.

The EMR Device is then created using the Add Device dialog box on the Devices Page. The default Primary IP address of the EMR (127.0.0.1:6555) is used and should not be changed. All EMR Cards at one location are added to a single EMR Device, regardless of frame layout. In situations where there are multiple EMRs in Multiple Locations (Such as two mobile trucks where the B unit is not always connected to the A truck) a second EMR Device is added with another IP address (127.0.0.1:6556).

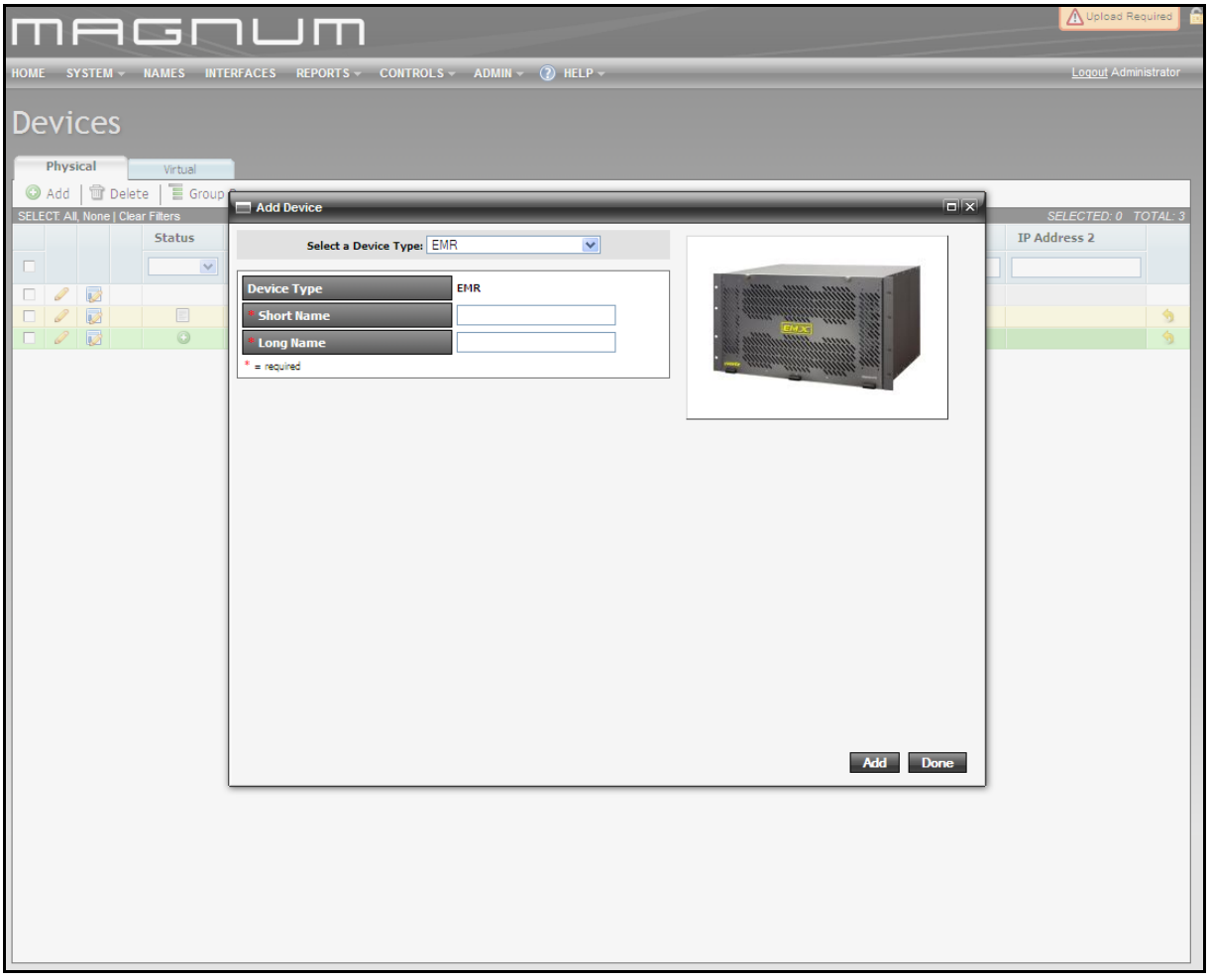


Figure 6-31: Add Device

PARAMETER	DESCRIPTION
Device Type	EMR
Short Name	The name used to build default names for source destinations and tielines.
Long Name	A more descriptive title for the device.

The user can edit the EMR device layout by selecting the icon. A new window will open where the user can update the device's layout. In the EMR Device, The AVIP and AVOP cards are added to the EMR by clicking on "Insert Existing Device", highlighting all the modules, and pressing Add. The AVIP and AVOP cards are first defined during the editing of the EQX layout.

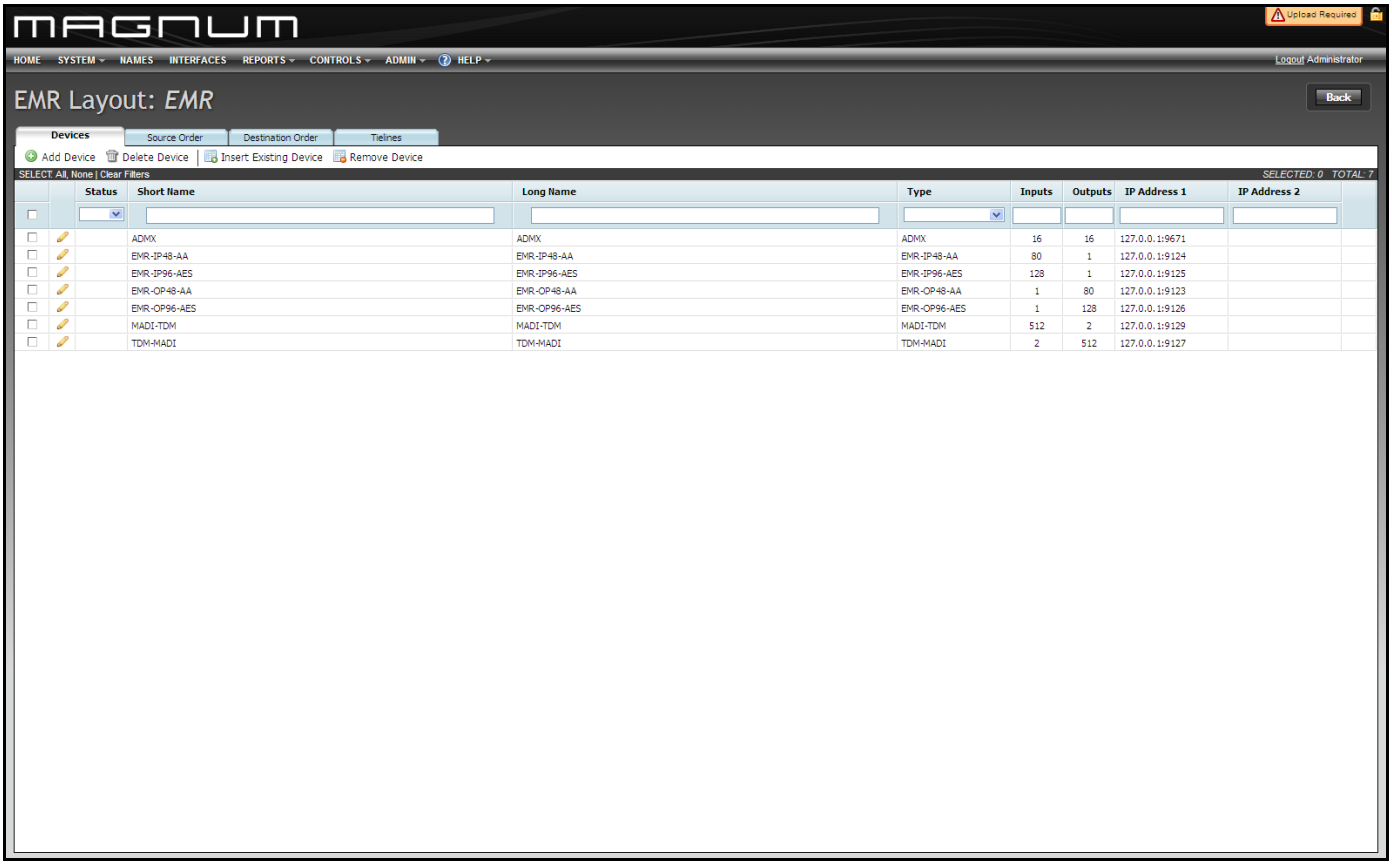


Figure 6-32: EMR Layout

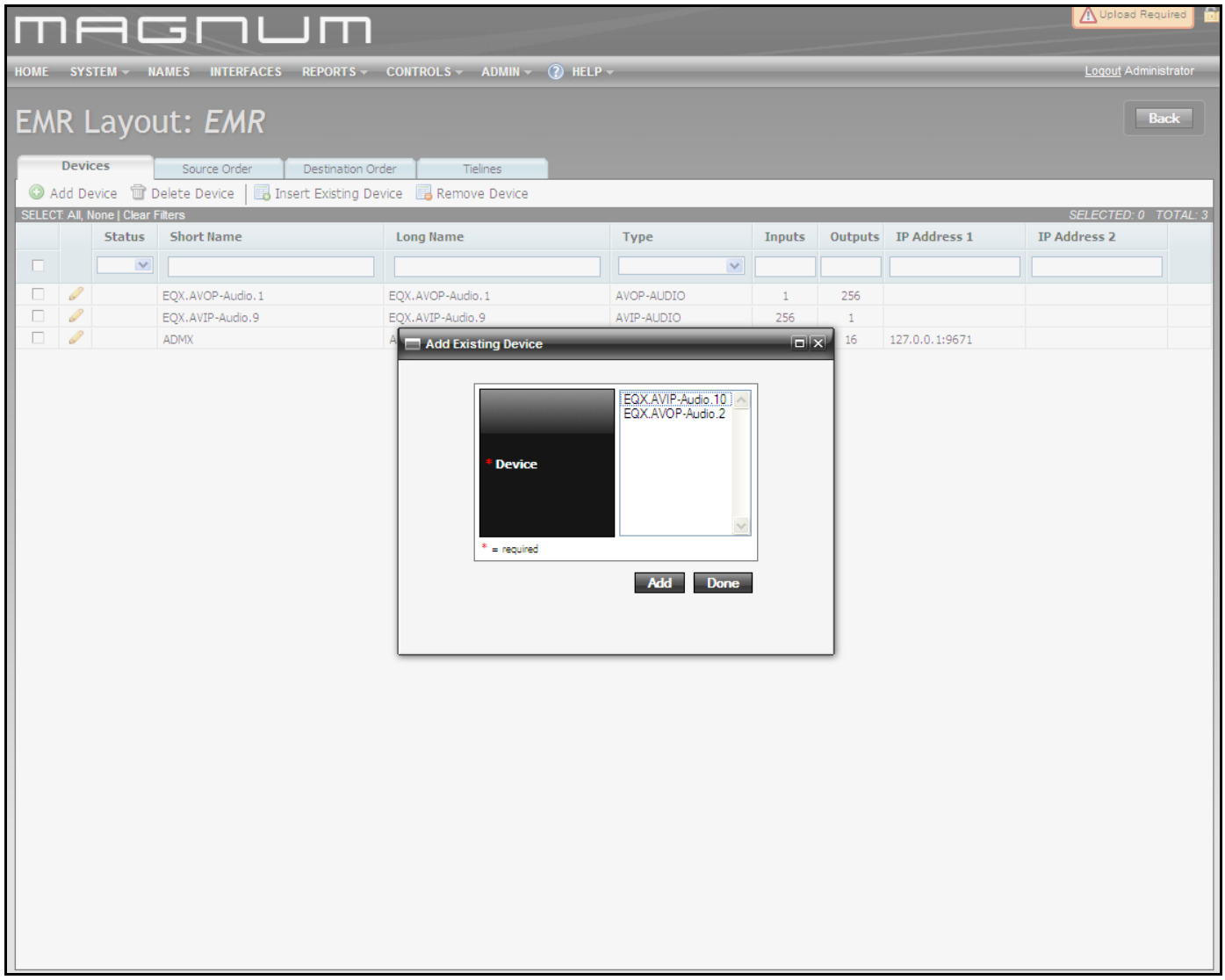


Figure 6-33: Add Existing Device

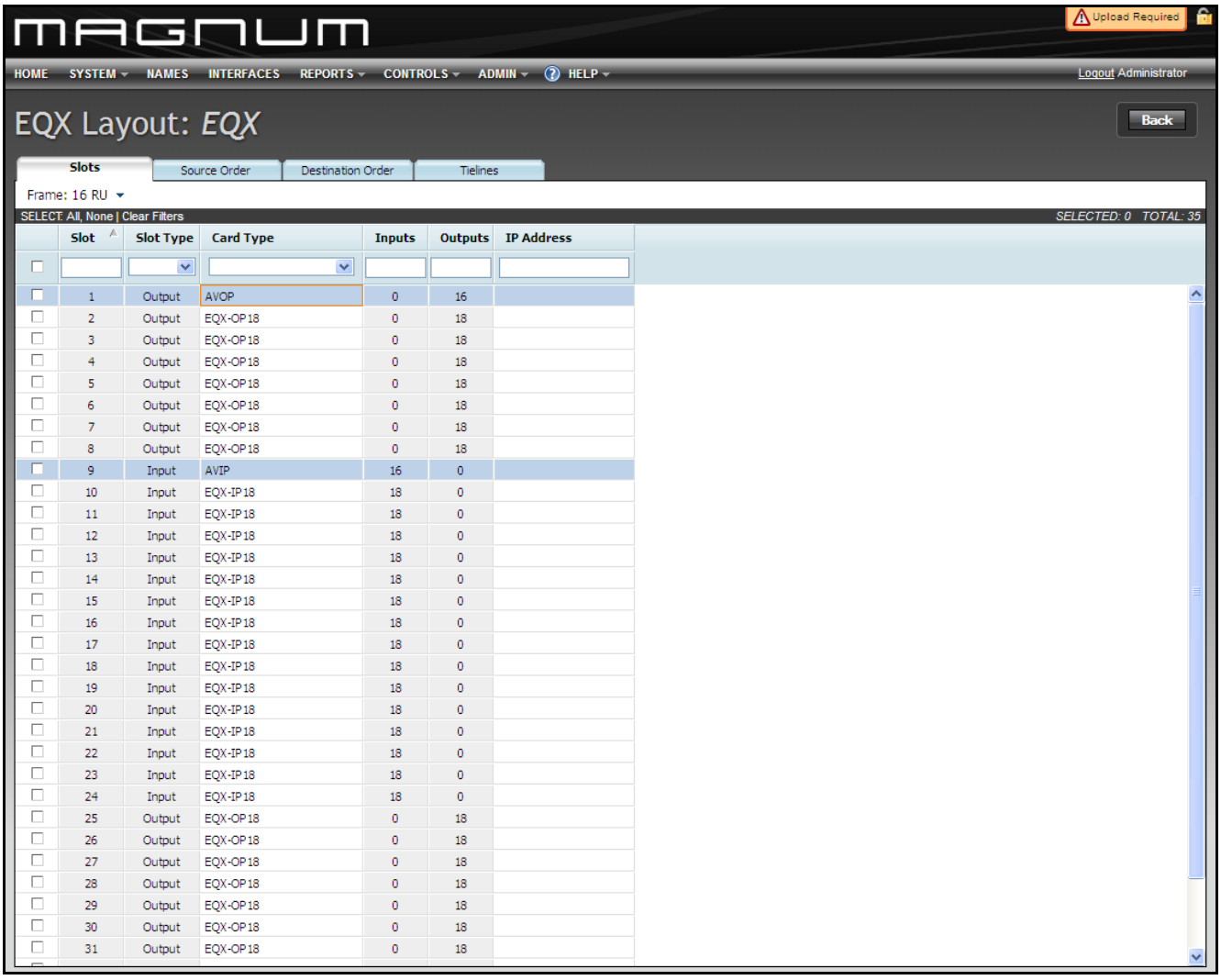


Figure 6-34: Slots Tab

Other EMR Devices (Input Modules, Output Modules, ADMXs) are then added to the EMR device using the Add Devices button in the EMR Layout Page. Available EMR devices appear in the drop down list when selecting the “Select a Device Type” box.

PARAMETER	DESCRIPTION
Device Type	The router type to be controlled.
Short Name	The name used to build default names for source destinations and tielines.
Long Name	A more descriptive title for the device.
Inputs	Define the number of the inputs available on the audio device to be interfaced with
Outputs	Define the number of the outputs available on the audio device to be interfaces with
Primary IP (address:port)	The network information of the audio device to be interfaced with
Secondary IP (address:port)	The network information of the redundant audio device to be interfaced with
Location	Information pertaining to the physical location (Los Angeles or ER-227) can be optionally entered here.

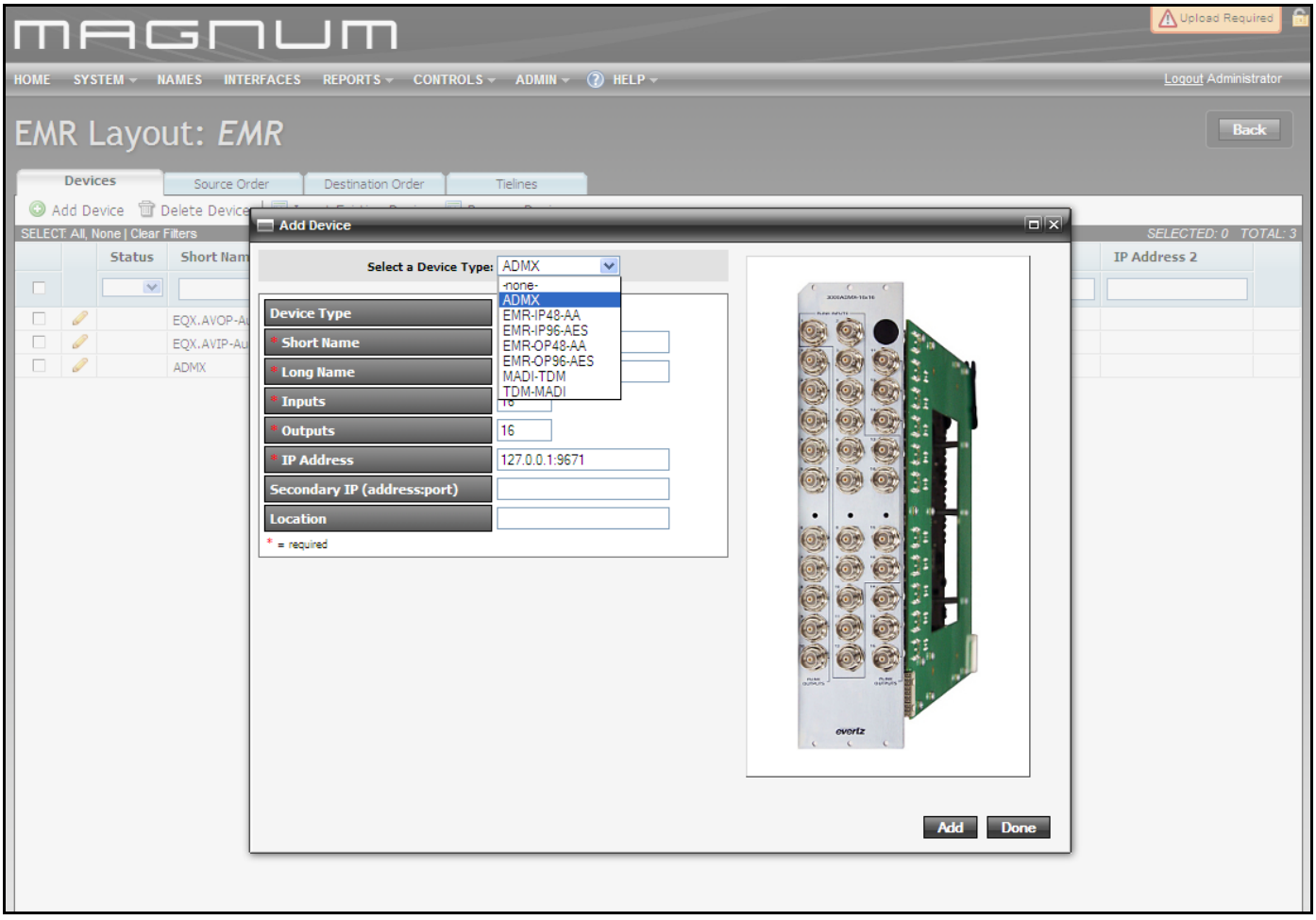


Figure 6-35: Add Device

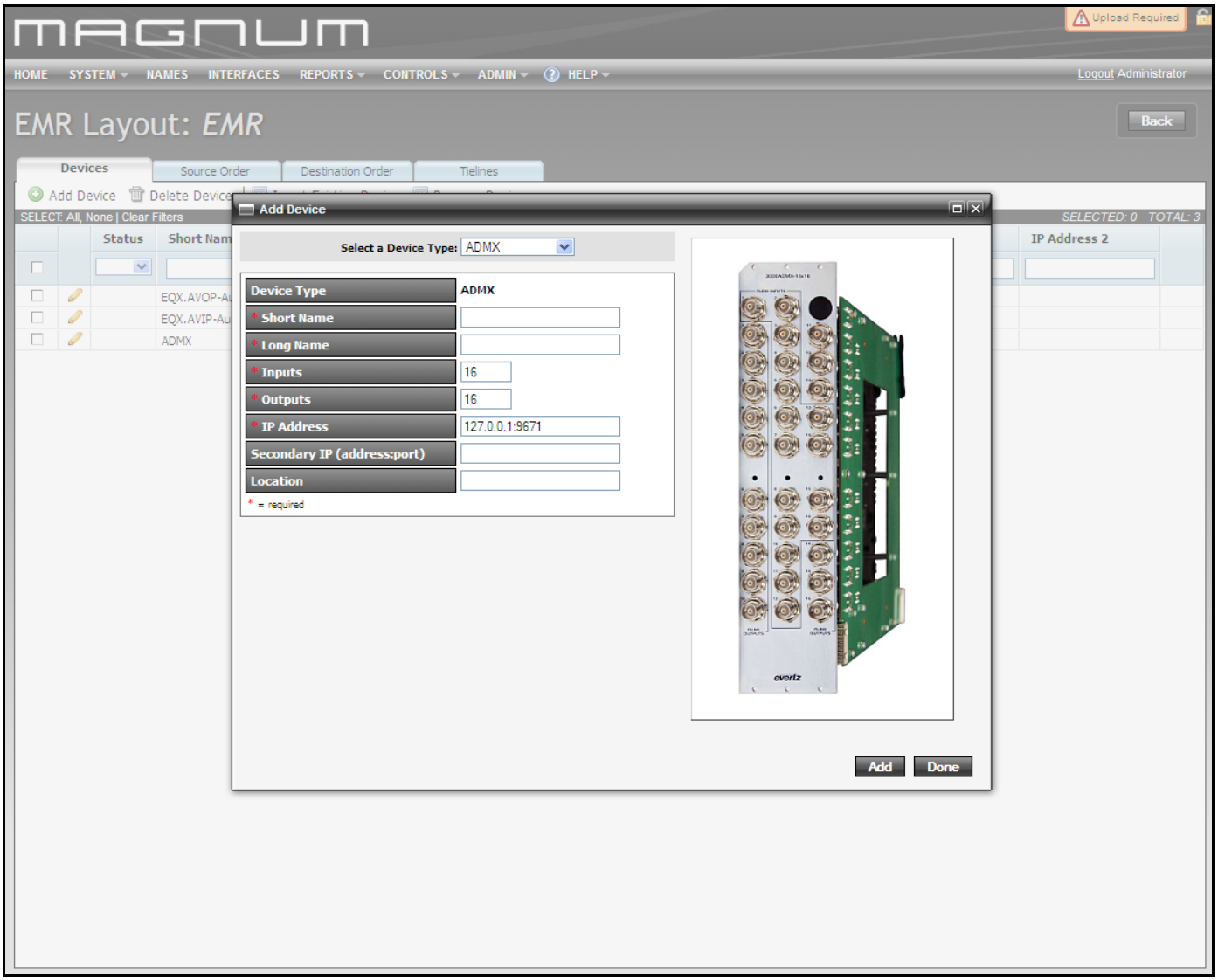


Figure 6-36: Select ADMX

The **Source Order** tab allows the user to see the logical port order of sources for the EMR device as defined within Magnum.

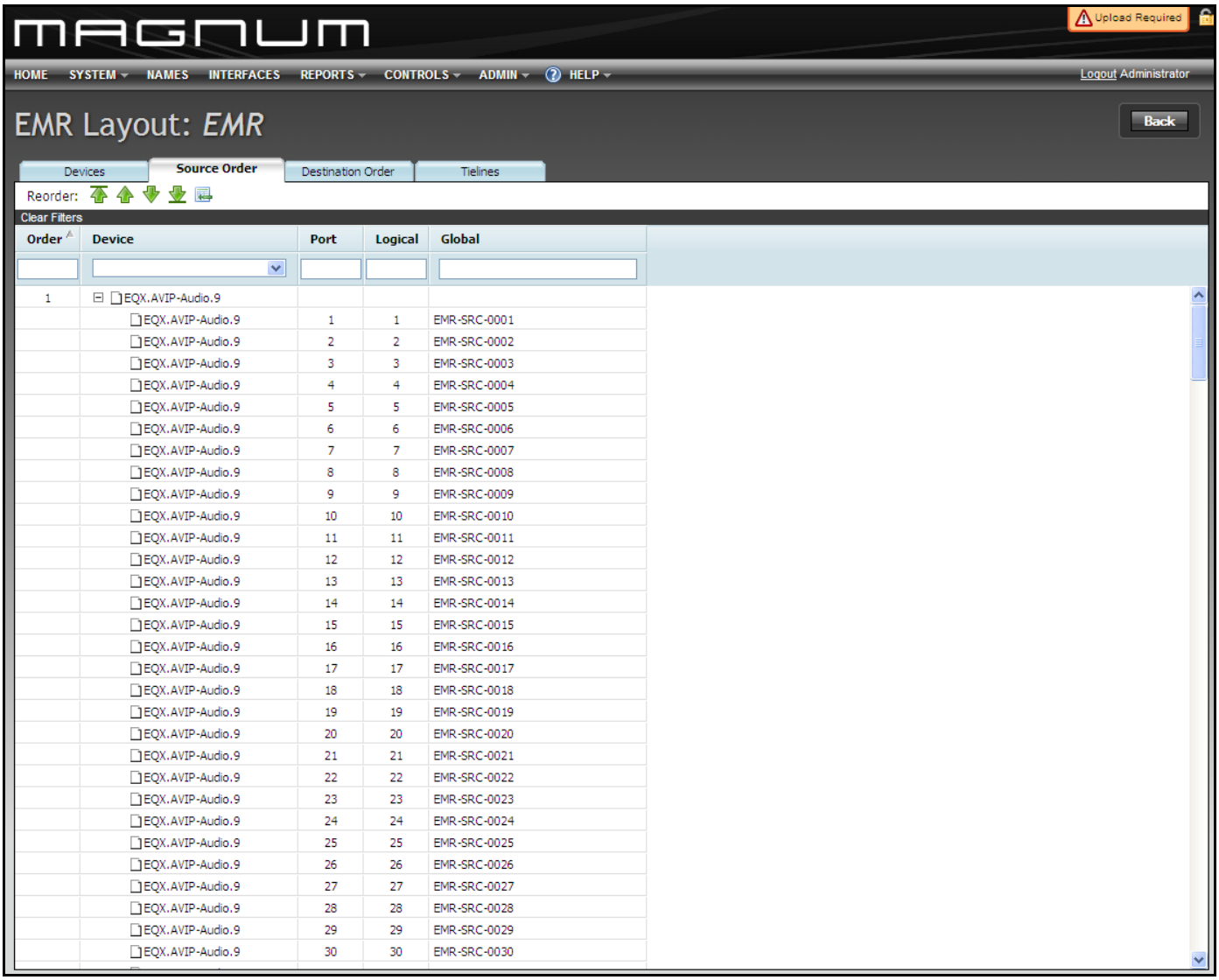


Figure 6-37: Source Order Tab

The **Destination Order** tab allows the user to see the logical port order of sources for the EMR device as defined within Magnum.

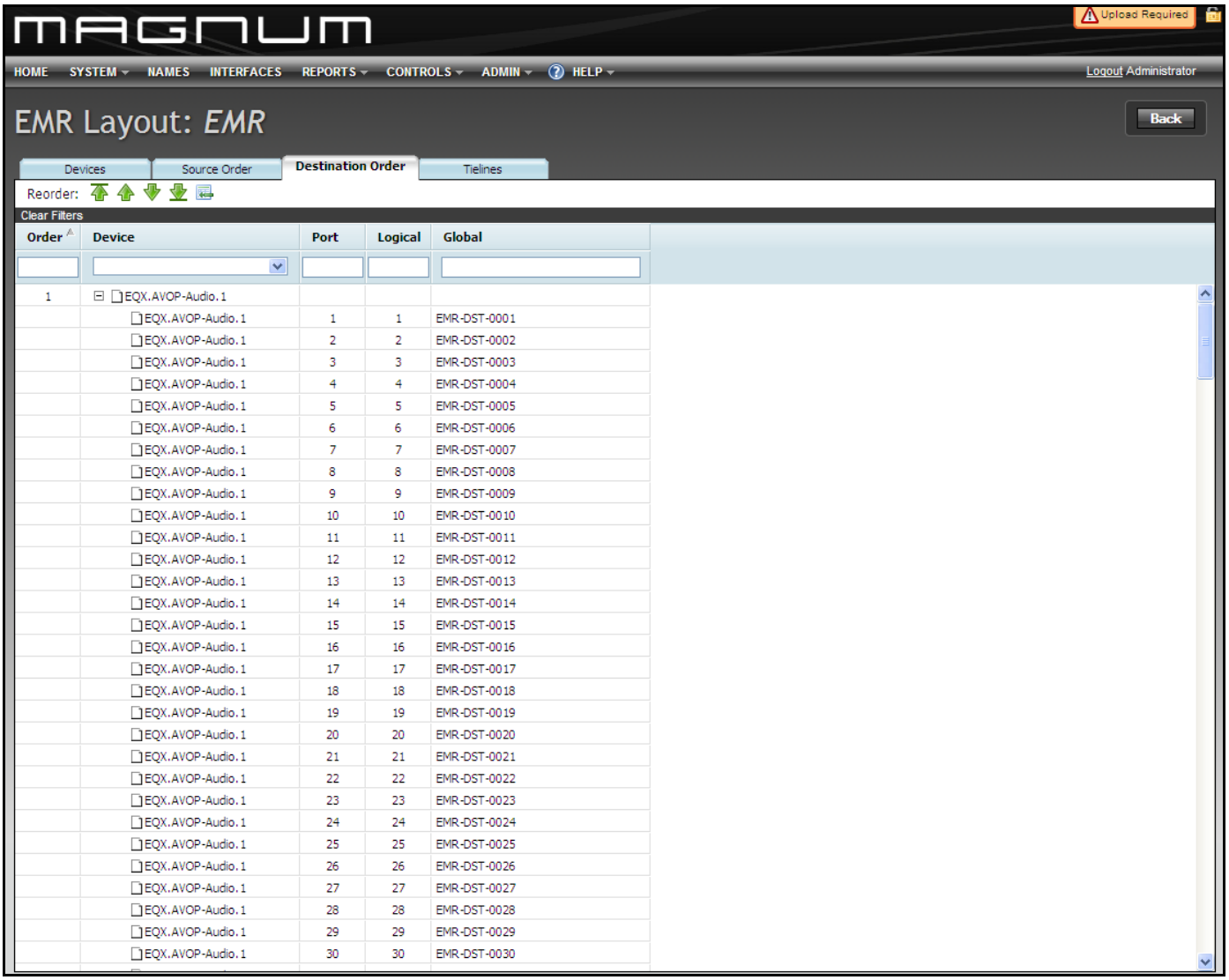


Figure 6-38: Destination Order Tab

Since the AVIP/AVOP system is part of the flat EMR audio router, routes from an AVIP's audio ports are actually EMR sources, and routes to an AVOPs audio ports are actually EMR Destinations. The correlation between the AVIP or AVOP and EMR is seen in the EMR Device Layout, under the Source or Destination tab. The AVIP in the EQX Router, Slot 9 (First Input card slot), audio starts at EMR-SRC-0001.

This means:

- The first audio pair (Since this is a Stereo system) of this AVIP input 1 is EMR-SRC-0001
- The last audio pair of this AVIP input 1 would be EMR-SRC-0008, since there are 8 stereo pairs per AVIP
- The first audio pair of this AVIP input 2 would be EMR-SRC-0009
- The last audio pair of this AVIP input 2 would be EMR-SRC-0016
- The same is true for the destination side using the AVOP

The **Tielines** tab is used to define the TDM connections between the audio cards and the ADMX (audio cross-point card.

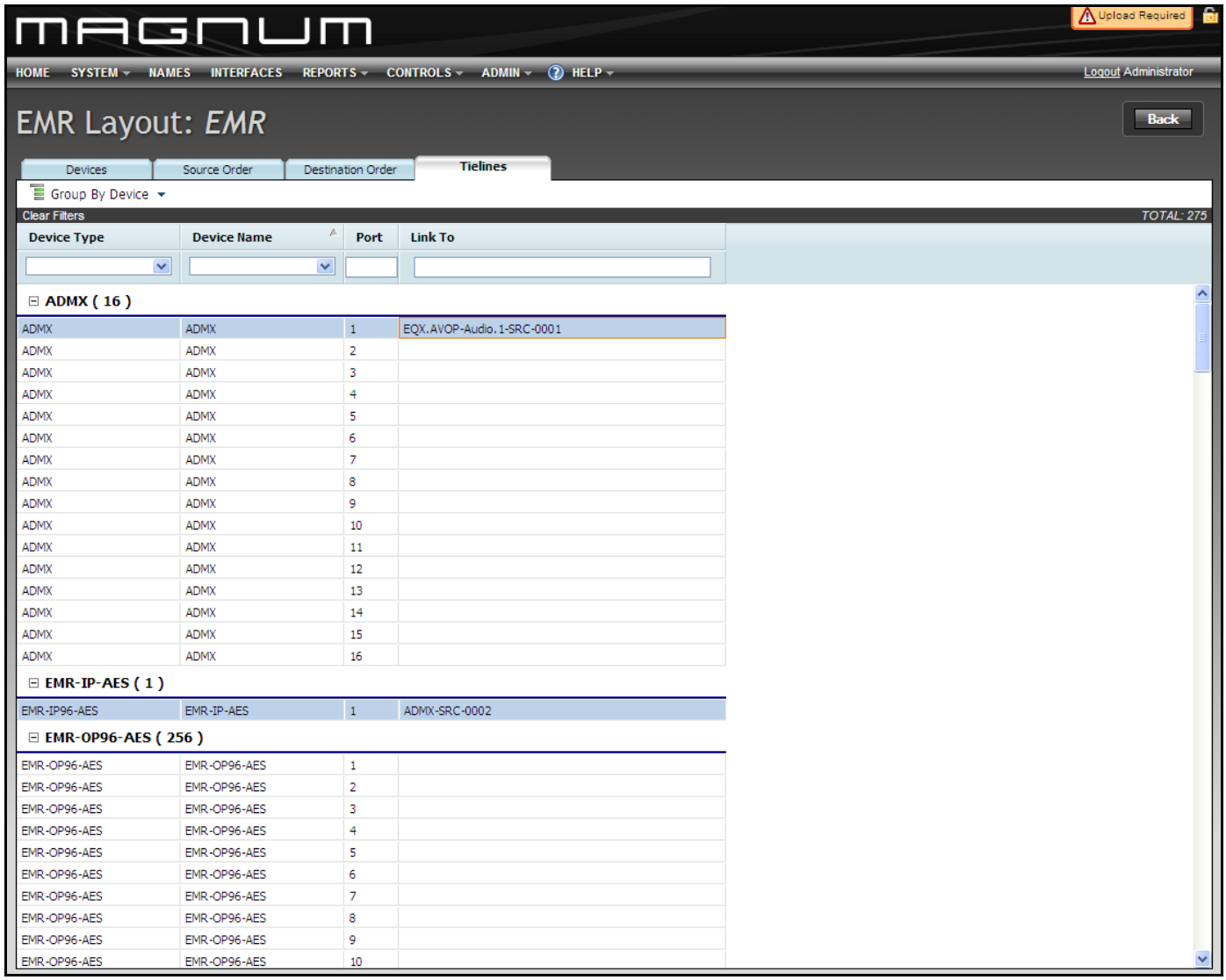


Figure 6-39: Tielines Tab

6.4.3.4. Adding Virtual Devices

To create a virtual device, navigate to the **SYSTEM** menu and select the **Devices** menu item. From the **Devices** page select the **Virtual** tab. The *Virtual Device Management* page will appear enabling the user to add virtual devices. A virtual device is a tool to subdivide a single router into what appears to the control system as multiple physical routers.

1. Select a router from the one's listed in the *Physical Router* drop down menu. All the destinations and sources for the corresponding router will be listed in the DSTs and SRCs fields.

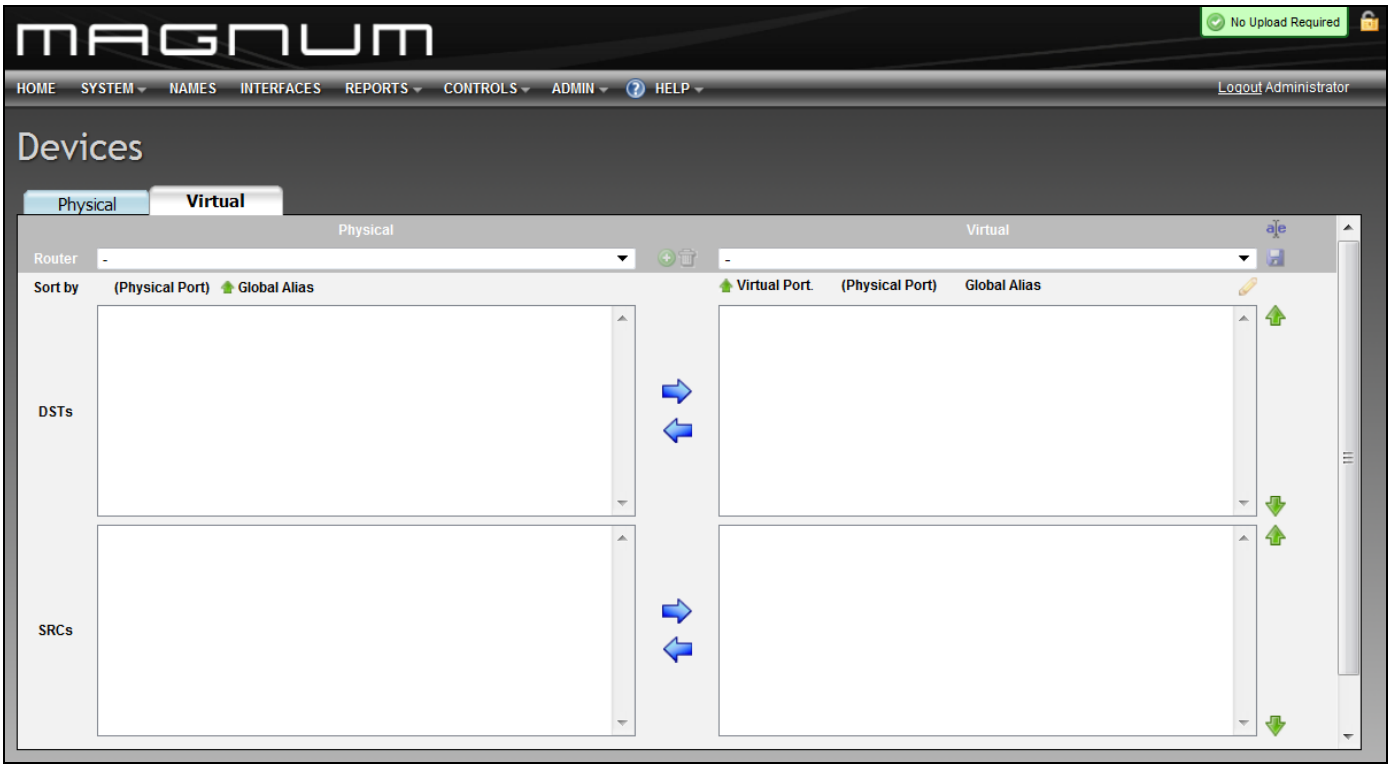


Figure 6-40: Virtual Device Management Tab

2. Use the button to add a new virtual device. To remove a virtual device select an item from the *Virtual Router* drop down list and hit the button.

3. Once a physical device is selected and a virtual device is created, use the right and left arrows to move the DSTs and SRCs to and from the Virtual device. Select one or multiple destinations (select one item and hold down Shift and click another item to select a series of multiple items) and then use the arrows to move the destinations and sources to and from the virtual device.

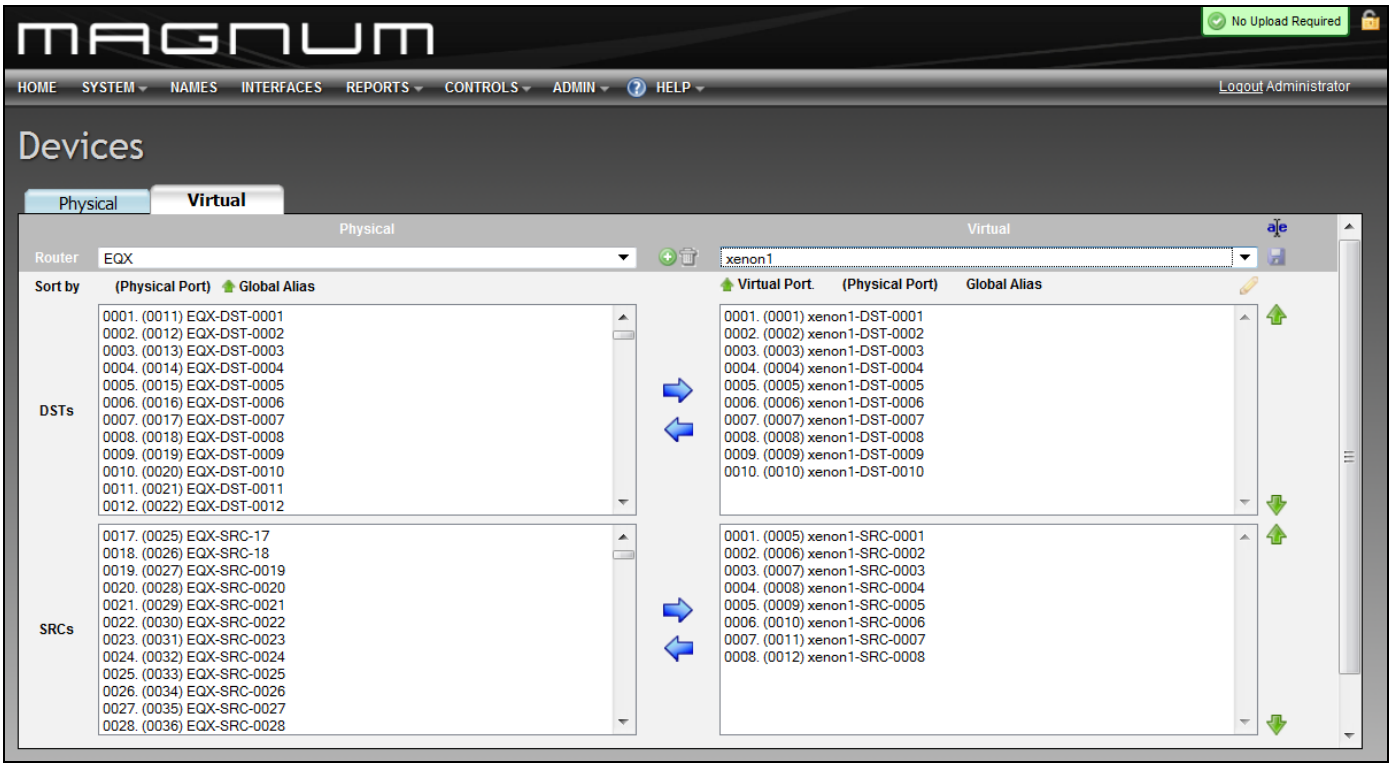


Figure 6-41: Destinations and Sources Added to Virtual Hardware

4. To re-arrange the order of a destination or source, select the item in the field, and use the green up and down arrows on the right hand side of the screen to re-arrange the item in the list.

5. To add and remove a destination or a source from one list to another, select the item in the field, and use the blue left and right arrows in the middle of the screen to add and remove items.

6. To edit the name of the *Virtual* device select the *rename this virtual device* icon . A dialog box will appear enabling the user to change the name of the virtual device, as shown in Figure 6-42.

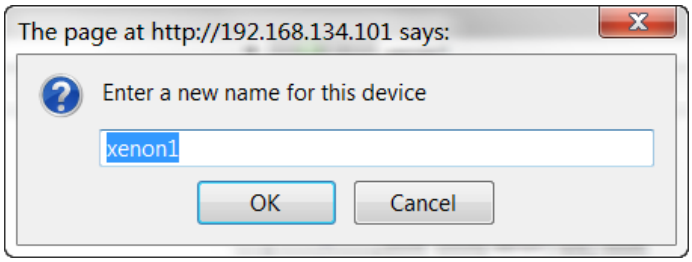


Figure 6-42: Change Name of Virtual Device

7. Before navigating away from the Virtual Devices page, select the *Save this Virtual Device* icon so that the Virtual Device configuration will be saved.

6.4.4. Establishing Tielines

There are two Tieline types that can be created in the MAGNUM server:

1. A **Normal** tieline is added to a pool that can be utilized by any device downstream depending on availability.

2. A **Reserved** tieline is used to create a tieline group for downstream destinations and is NOT part of a pool. Destinations that are part of this group will only use these tielines and do not share in the general pool of tielines.

STEPS:

1. Select the **Tielines** option from the **SYSTEM** drop down menu.

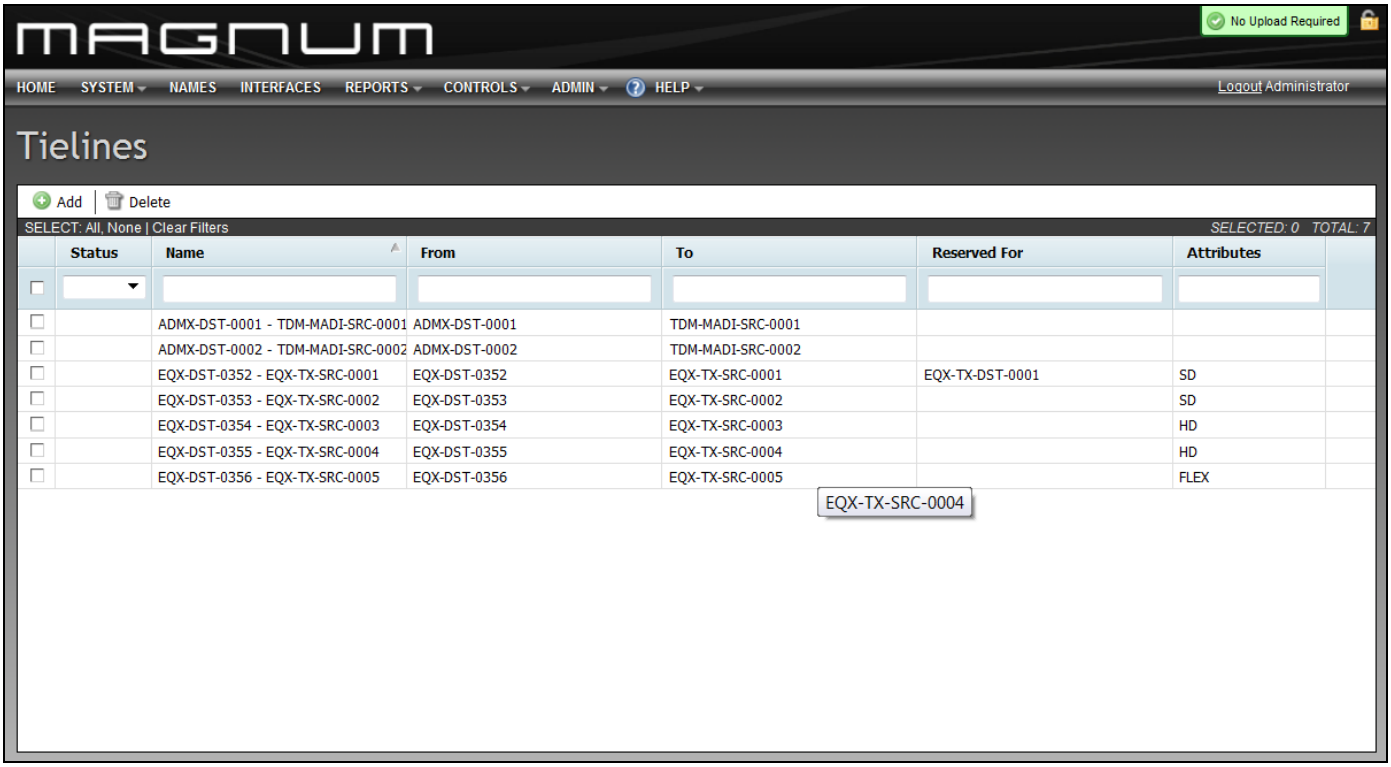


Figure 6-43: Server - Tielines Tab

2. To create a new tieline, select the **Add**

button. A dialog box enabling the user to create a new tieline will appear, as shown in Figure 6-44.

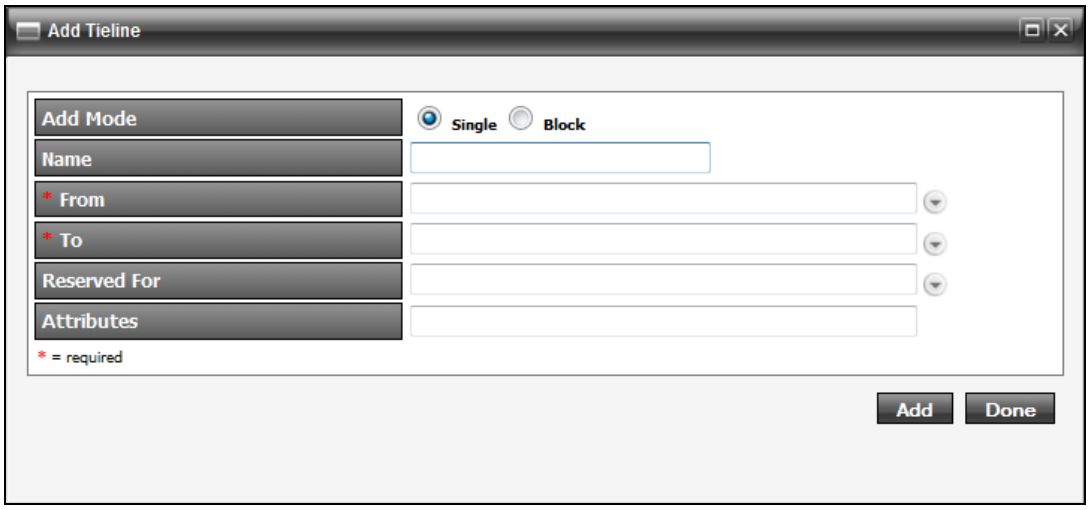


Figure 6-44: Add Tieline Dialog Box

3. The **Add Tieline** screen enables the user to choose the upstream (**From**) and downstream (**To**) of each tieline. It also enables the user to reserve the tieline for a given destination. It is not required but it is recommended that the user enter a Name into the **Name** field to easily identify the tieline. If a name is not defined, a name will be auto-generated on the creation of the tieline. A tieline without reservation is added to a pool and can be utilized by any device downstream depending on availability. A **Reserved** tieline is reserved for a SINGLE downstream destination and is NOT part of a tieline pool.

4. The **Attributes** field enables the user to assign tieline attributes. Attributes are generic labels that the end user can add to indicate capabilities that a particular tieline possesses. These attributes can then be specified while performing a route to limit the paths that the signal can take. Enter an attribute into this field (i.e. HD, SD, Flex, etc).

Please note that attributes are available only to the advanced control panels such as the CP-2200E/CP-2232E/CP-2116E.

5. After selecting the **From** and **To** for each tieline, click the **ADD** button to complete and save it. It will be added to the **Change Set**.

Tip: Tieline names are used throughout the system to identify paths between a source and destination that you are working with. You do NOT have to manually specify a tieline name, therefore for time efficiency an appropriate name is generated from the "From" router's short name and port, and the "To" router's short name and port. You are welcome to overwrite this name with any name that you wish but be sure to include details that distinctly identify the path from the name.

Once complete be sure to click on the "Upload Required" icon upload any changes.

6. To remove a tieline, place a check mark in the box beside the tieline or tielines you wish to remove and then select the **Delete** button

.

7. To sort or filter the tielines, enter a property into one of the blank fields at the top. As you type, the list of tielines will be narrowed down to display only the ones that match the property being entered.

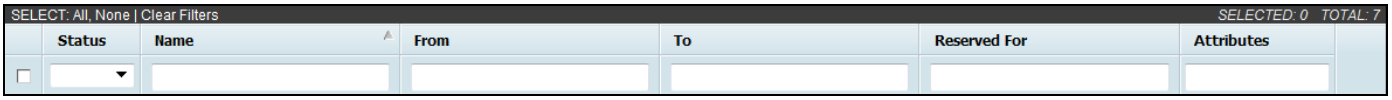


Figure 6-45: Tieline Filter

6.4.5. Global Source Availability

In a routing system it is beneficial to "permanently" limit the scope of some destinations. This enables the user to control from a high level which destinations have access to which sources. Imagine a facility where 2 channels are broadcast: (1) a music channel for teens and (2) a religious affiliate. The best way to avoid content from one spilling over to the other is to limit the destination of the one to only its appropriate designated sources. This prevents, without returning to this page, panels or automation systems from routing the incorrect source when routing through the control system. Once this setting is applied and if the sources are not available to the destinations, then the system filters the sources as if they do not exist for the chosen destination. By default the system is open and available on creation of a device, however if the device size is expanded in the future, the availability will need to be set for the new sources / destinations.
If tielines are used, availability will need to set in order to use upstream router sources on downstream router destinations via the tielines.

1. From the **SYSTEM** drop down menu, select the **Source Availability** menu option.

2. From the **Devices** drop down list, select the router that contains the destination(s) that you want to work with. The list will populate in the Destinations and Sources field.

3. Once populated, select one or more destinations by placing a check mark in the box beside the desired destination. A list of sources (both available and unavailable) will populate in the right hand **Sources** column.
    a. If you have selected multiple DSTs, any SRCs common to ALL DSTs will be in green. If the sources and/or destinations are white then this identifies that they are "unavailable".

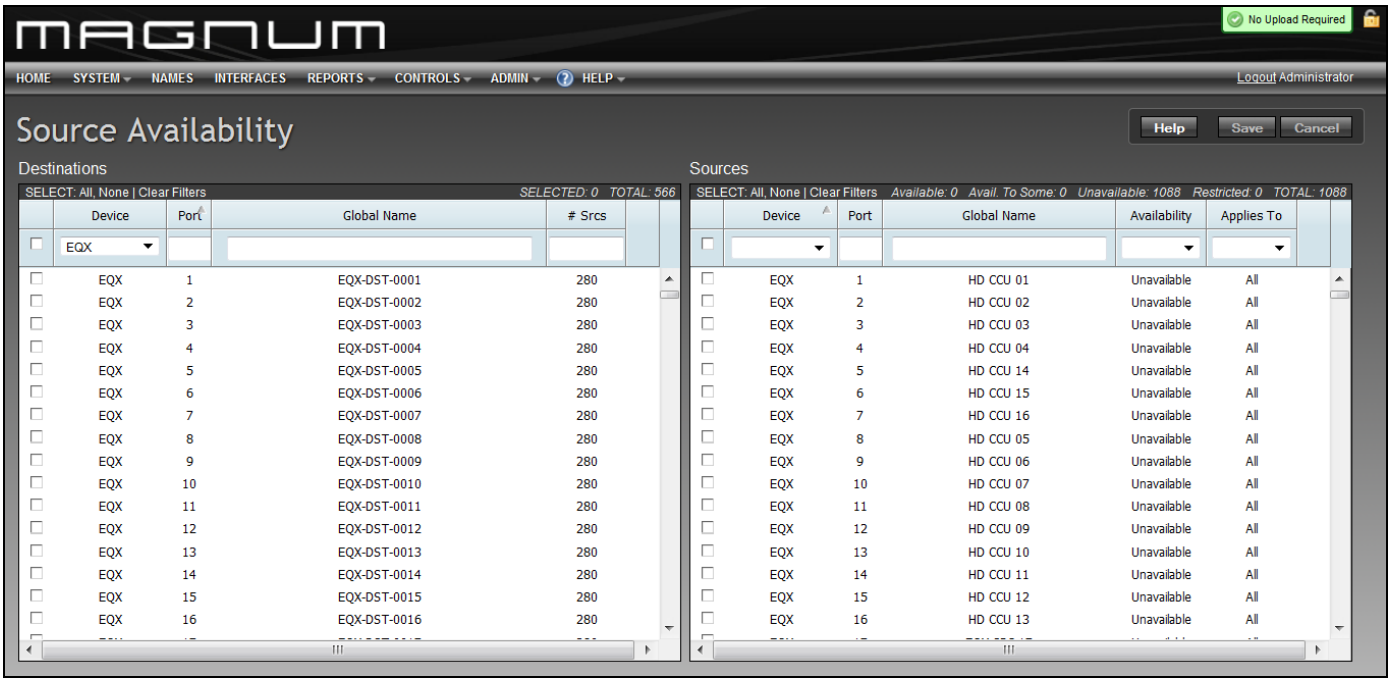


Figure 6-46: Global SRC Availability

4. To add a source to the selected destination, place a check mark beside the source that you wish to add (the source will be highlighted green when it is available). To remove a source from the selected destination, remove the check mark or leave the box blank beside the source that you do not want available (the source will be highlighted white when it is unavailable).

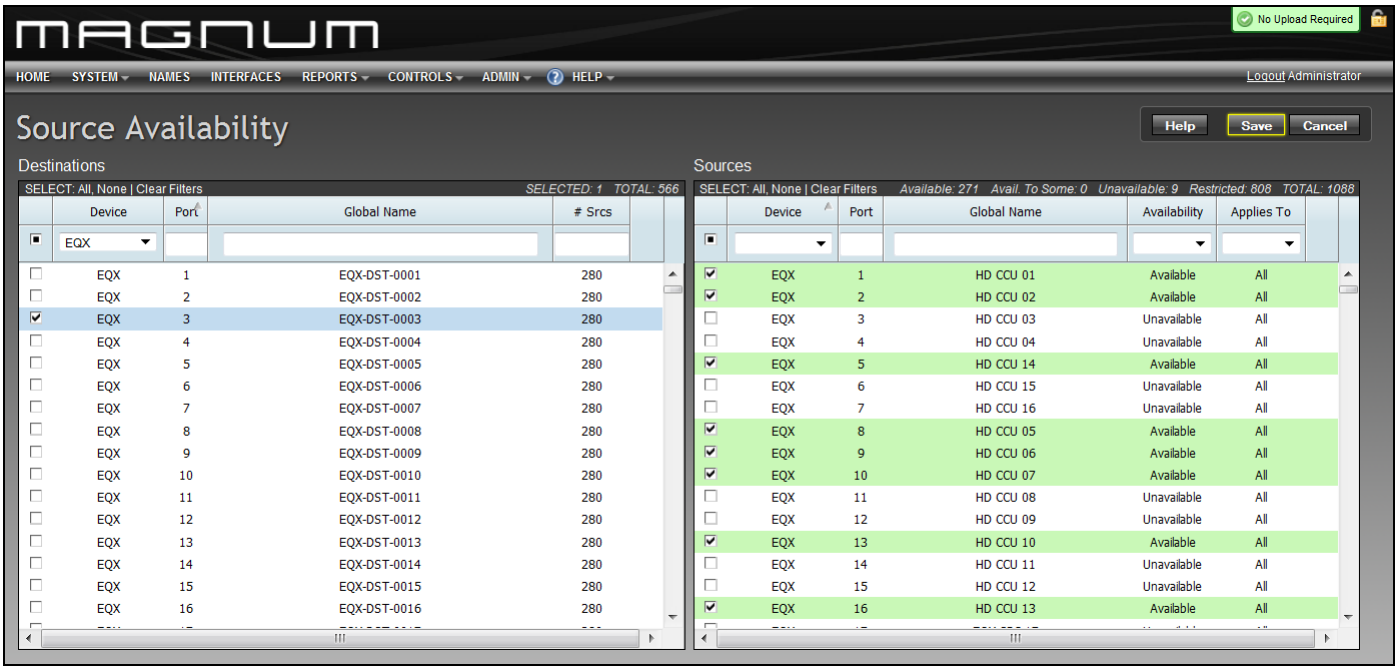


Figure 6-47: Selecting Sources

5. (Optional) To find a destination that is available for that source, right click on a source and perform a reverse destination availability lookup, as shown in Figure 6-48.

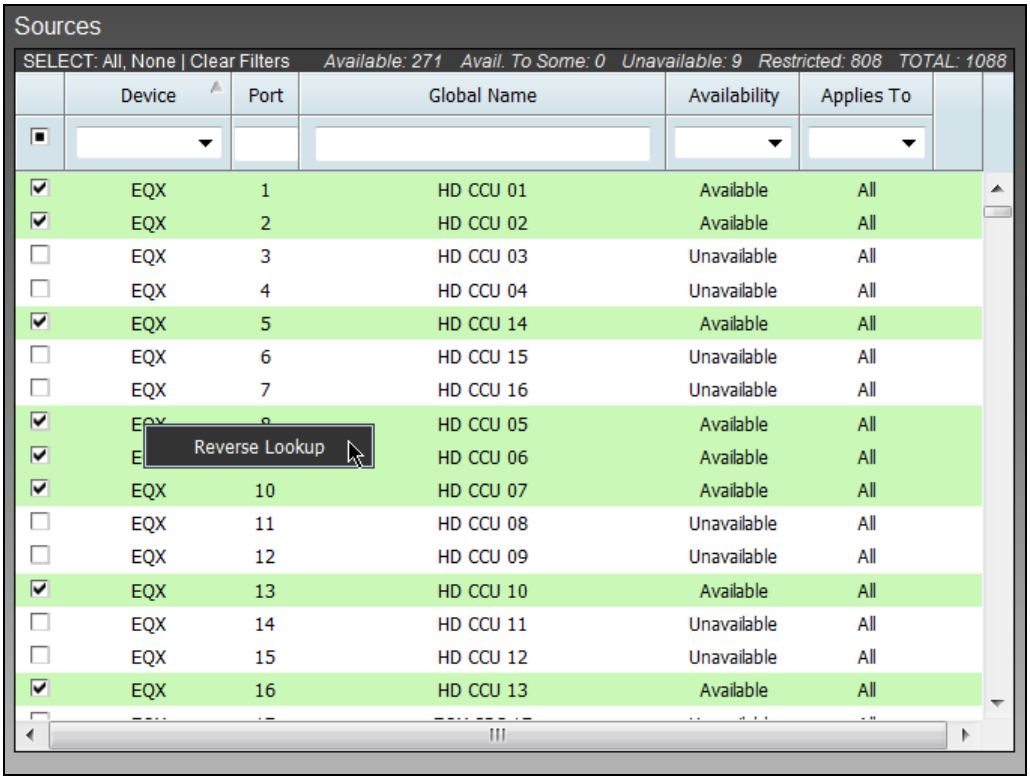


Figure 6-48: Reverse Lookup Selection

6. Selecting a reverse lookup option will open the *Destination Availability* dialog box as shown in Figure 6-49. The dialog box will display all the available destinations for the selected source.

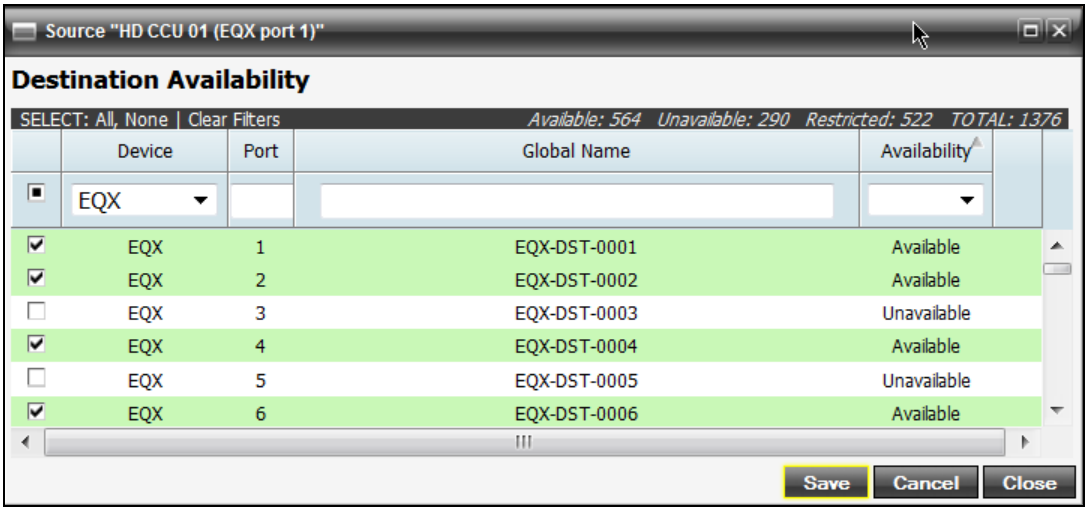


Figure 6-49: Reverse Destination Availability Lookup Dialog Box

7. Place a check mark in the box beside the destination that you wish to use. Once all the desired destinations are selected, press the **Save** button.

TIP: Sources from all routers that a given destination MAY have access to will appear in the list. (Meaning if tielines exist connecting the selected DST to an upstream router all SRCs on both the local and upstream router will appear in the SRCs lists).

Once complete be sure to click on the "Upload Required" icon to upload any changes.

6.4.6. Defining Subscriptions

A **Subscription** allows users to subscribe or un-subscribe to routes that are being made in the system. This is sometimes referred to as Mirroring on the fly or Virtual re-entry.

1. From the **SYSTEM** drop down menu, select the **Subscriptions** menu option. A subscription gives the user the ability to create a mirror on the fly or in other terms allow destinations/sources to subscribe to a specific route. A subscription is both a source and destination within the control system. The subscription screen will appear as shown in Figure 6-50.

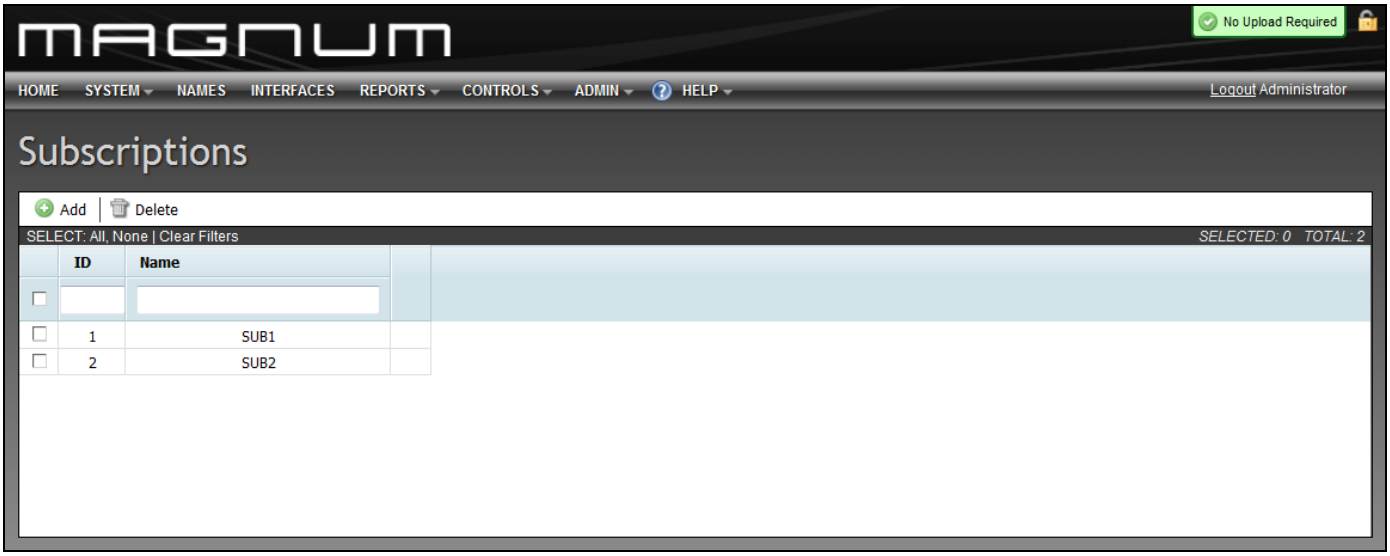


Figure 6-50: Subscriptions Page

2. To add a subscription, select the **Add** button . An *Add Subscription* dialog box will appear enabling the user to create a subscription. Enter a name into the *Name* field of the dialog box and select **Add**. To create multiple subscriptions, continue to enter new names and then click the **Add** button to continue adding items. Once all the desired subscriptions have been added, select the **Done** button. (See Figure 6-51)

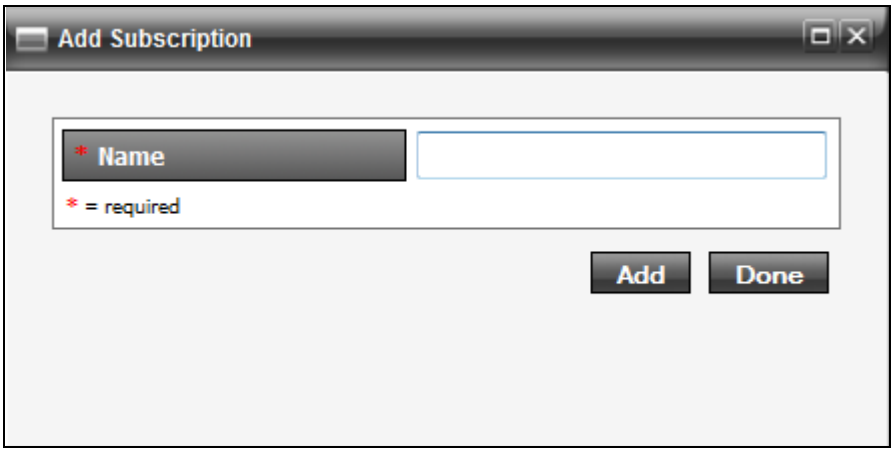


Figure 6-51: Add Subscription Dialog Box

3. The Subscriptions will be added to the main subscription list. To remove a subscription, place a checkmark in the box beside the item you wish to remove and select the **Delete** button.

Once complete be sure to click on the "Upload Required" icon to upload any changes.

6.4.7. Setting Mirrored Destinations

Mirrored Destinations allow the user to group destinations so that if a source is routed to one destination in the mirror, then all destinations in that mirror will also have the same source.

1. If you wish to mirror destinations, select the **Mirror Destinations** option from the main *System* drop down menu. A screen divided into two sections will appear, *Mirror Groups* and *Destinations*. The *Mirror Groups* window displays the available mirrored groups, and enables the user to add or remove mirrored groups.

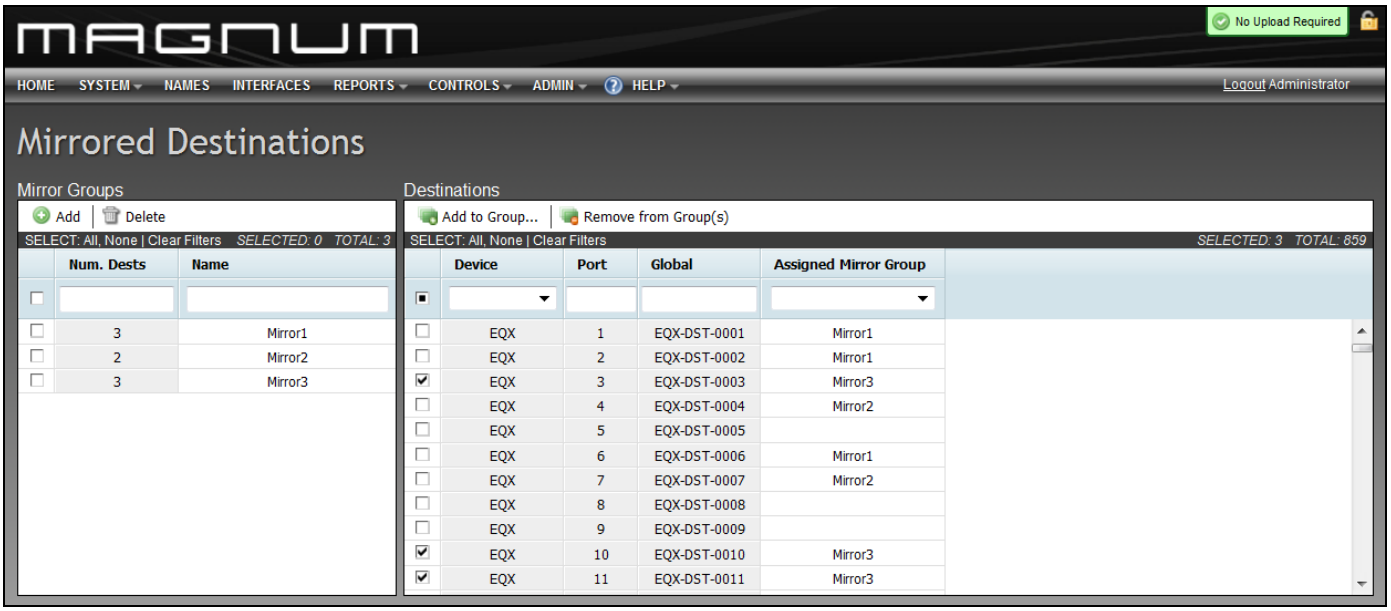


Figure 6-52: Mirror Destinations Window

2. To create a new mirror group, select the **Add** button

in the *Mirror Groups* window. An **Add Mirror** dialog box will appear enabling the user to create a new mirror, as shown in Figure 6-53. Enter a unique mirror name into the *Name* field and then select the **Add** button. Once you have finished adding all the desired mirror groups, select the **Done** button to apply changes to the mirror groups. To remove a mirror group, place a checkmark in the box beside the mirror that you wish to remove and then select the **Delete** button.

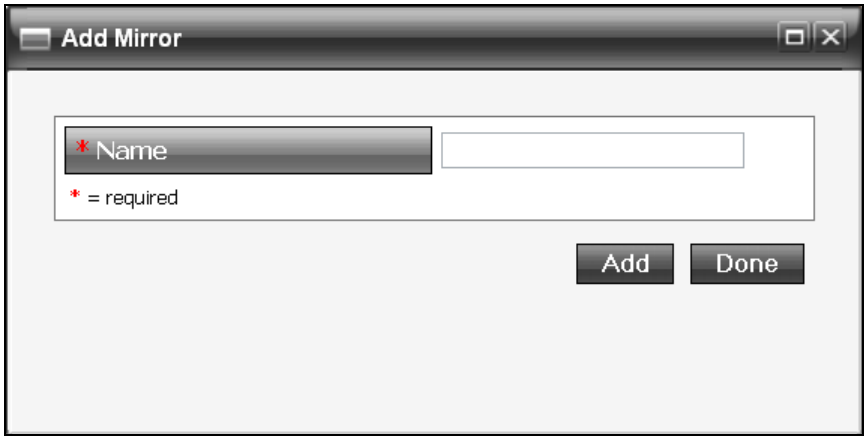


Figure 6-53: Add Mirror Dialog Box

3. To filter a mirror group name, enter a number into the *Num. Dests* field or enter a mirror name in the *Name* field. As you type, the list of mirror groups will be narrowed down to display only the ones that match the property being entered.

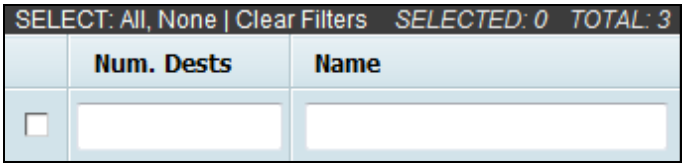


Figure 6-54: Mirror Group Filtering Toolbar

4. If you wish to set up the destinations, first select the device you wish to assign mirrored destinations to by navigating to the **Device** drop down menu and then selecting the desired device from the list in the destinations window.

5. The destinations will be populated under the *Destinations* window. To assign a destination to a mirror group, place a checkmark in the box beside the desired destination and then select the **Add to Group** button.

6. An **Add To Mirror Group…** dialog box will appear, as shown in Figure 6-55. If one or more Mirror groups already exist, they will be listed under the *Mirror* field dialog box. As you begin typing the mirror name into the *Mirror* field, the list will filter the existing mirror names based on what you have typed. If your desired mirror group is visible use the down arrows to toggle to the appropriate mirror name. Once you have assigned the selected destinations to the appropriate mirror groups, select the **done** button.

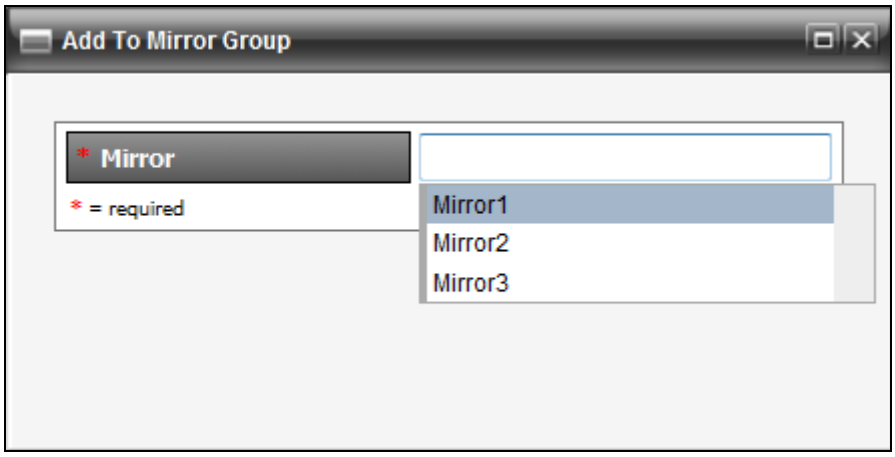


Figure 6-55: Add To Mirror Dialog Box

7. The *Mirror Name* will be listed in the ***Assigned Mirror Group*** column beside the corresponding destination. To remove a destination from a mirror group, place a check mark beside the destination and then select the ***Remove from Group(s)*** button.

8. To find a specific port, global destination or set of mirror groups, use the filter toolbar to sort through the parameters. Place the cursor in the field which you wish to search and type the desired parameter. The list will adjust to show only the destinations with the properties that you listed in the filtering column. (See Figure 6-56)

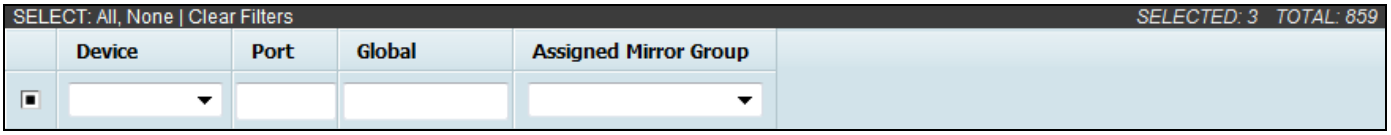


Figure 6-56: Destination Filtering Toolbar

6.4.8. Port Labels

Selecting the **Port Labels** menu item from the **SYSTEM** drop down menu allows the user to add source and destination labels to ports that can be used by the CP-2232E/CP-2116E's advanced filters. The advanced panels use Port labels to extend the advanced filters capabilities of the system. Port labels can be used to group sources or destinations under multiple labels for advanced filtering.

The user can label ports independent of the actual name. For example: EQX Source Port 1 can be called CAM1; however, the user can define Port Labels so that the CP-2232E/CP-2216E can find the source using custom labels such as BOB, HD, CAM. Numbers can be added to the port label as well using a period to distinguish the label, example CAM.1, CAM.2

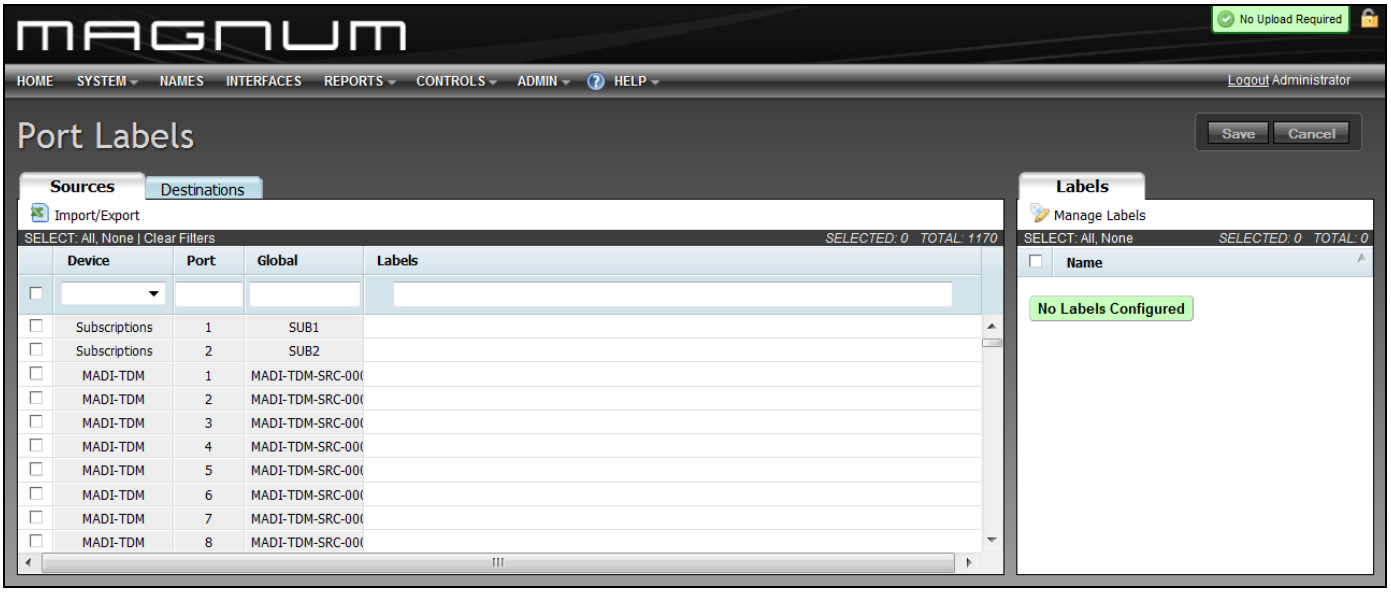


Figure 6-57: Port Labels

1. The user can import or export port labels using the **Import/Export** function. To import port labels, navigate to the port labels page and select the **Import/Export** button. When the **Import/Export CSV** dialog box appears, select the ***Browse*** button and navigate to the desired file. Select the **Open** button in the dialog box and then click the **Import** button once the file is listed in the file field.

Figure 6-58: Import/Export CSV Dialog Box

2. To export a port label, select the **Export** button. The following dialog box will appear, as shown in Figure 6-59. **Microsoft Office Excel** is the default program that the .csv file will open in and export to. If you wish to open the .csv file in a program other than excel, use the *Open with* function to select a new program, otherwise select the **OK** and the .csv file will open and display the current content in an excel spreadsheet. Once all import and export functions are complete, select the **Done** button.

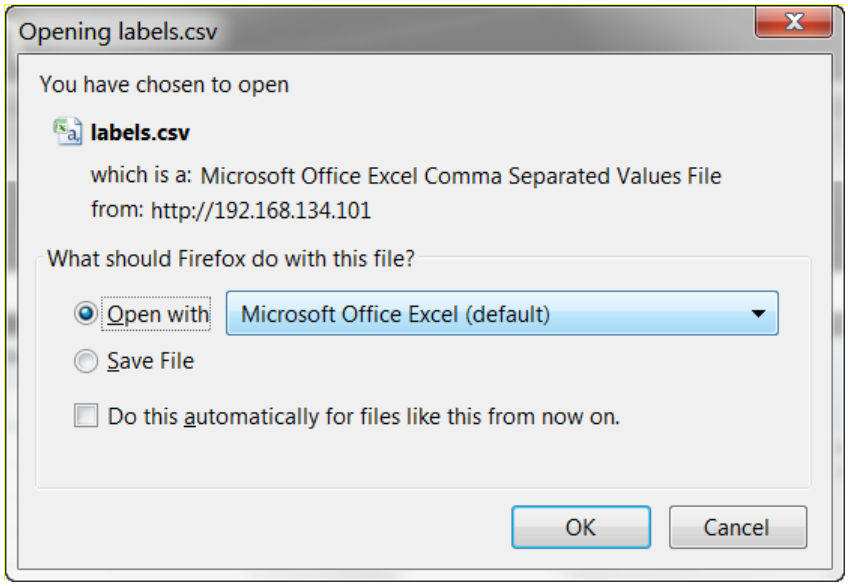


Figure 6-59: Opening Labels.csv Dialog Box

3. To add a label to the source tab, select the Manage Labels button at the top of the **Label** tab and an **Add** and **Delete** button will appear. Select the **Add** button and an "Add Label" dialog box will appear enabling the user to create a label. Enter the desired name of the new label into the *Name* field and then select the **Add** button. Once all labels have been added, select the **Done** button to apply your changes. To add a label to the destination tab, follow the same procedure.

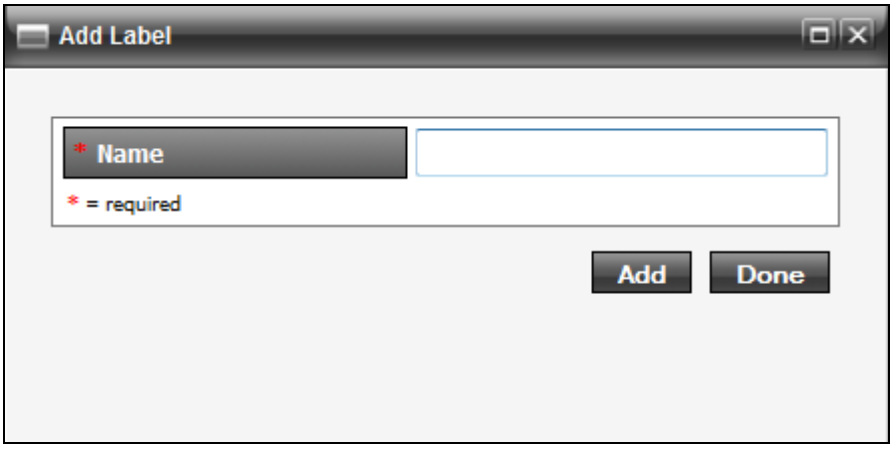


Figure 6-60: Add Label

4. To remove a source label or destination label, select the Manage Labels button at the top of the **Label** tab and an **Add** and **Delete** button will appear. Place a check mark beside the items that you wish to remove and select the **Delete** button.

5. The user can also copy and paste existing cells or rows. To copy a cell or row, right click on the cell that you wish to copy and select **Copy Cell** or **Copy Row** from the pop up menu that appears. Once the data is copied to the clipboard, navigate to the cell or row that you wish to paste the information onto, then right click on the cell and select the **Paste** option. You can also copy and paste using the keyboard controls: Copy (**Ctrl + C**) and Paste (**Ctrl + V**).
6. Labels are assigned to ports by typing in the cell or rows next to the port that the user wants to assign the custom Port Label to. Labels that do not exist in the Label section will automatically be added.

Please note that the keyboard copy (Ctrl + C) and paste (Ctrl + V) control can be used globally on almost any cell in the MAGNUM Server Interface.

Once complete be sure to click on the "Upload Required" icon to upload any changes.

7. To add or delete a destination label, add a level to the destination tab, or import/export destinations, the user must follow the same procedure outlined for creating a source label.

6.4.9. Port Attributes

Selecting the **Port Attributes** menu item from the **SYSTEM** drop down menu allows the user to config port attributes such as SD or HD, which can then be used by the control system to determine if a conversion device is required for that route. The conversion device is defined in the Devices page and the “tieline” ports (where it is connected to the router) is defined in the Tielines page. The conversion path would be used if a user selected a SD source (port attributed) to a HD destination (port attributed). The sytem currently has sample attributes defined, such as MATCH, SD4x3C, SD4x3L, SD16x9, HD720p, and HD1080i.

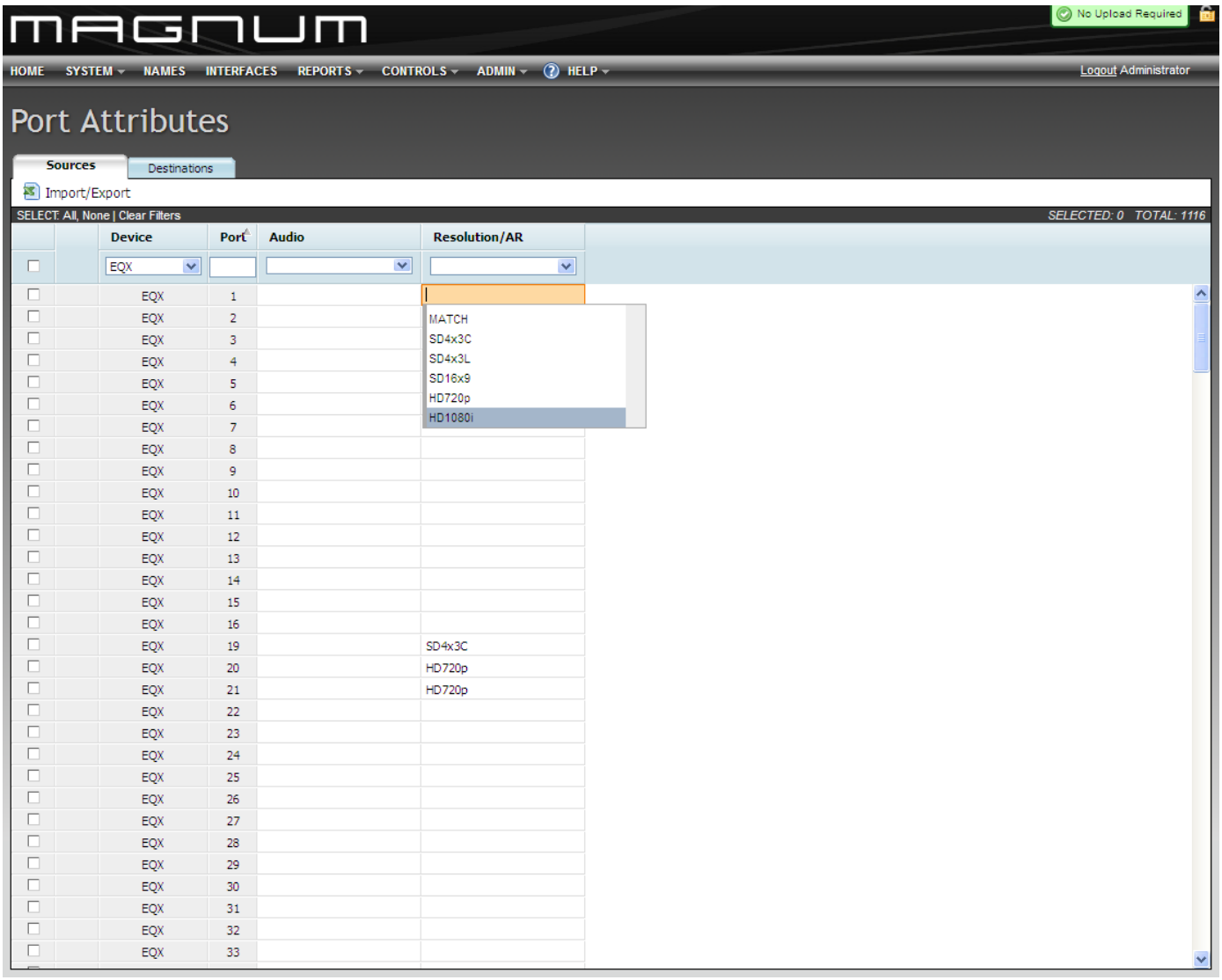


Figure 6-61: Port Attributes Page

1. The user can import or export the port attributes table using the **Import/Export** function. To import port attributes, navigate to the port attributes page and select the **Import/Export** button. When the **Import/Export CSV** dialog box appears, select the ***Browse*** button and navigate to the desired file. Select the **Open** button in the dialog box and then click the **Import** button once the file is listed in the file field.

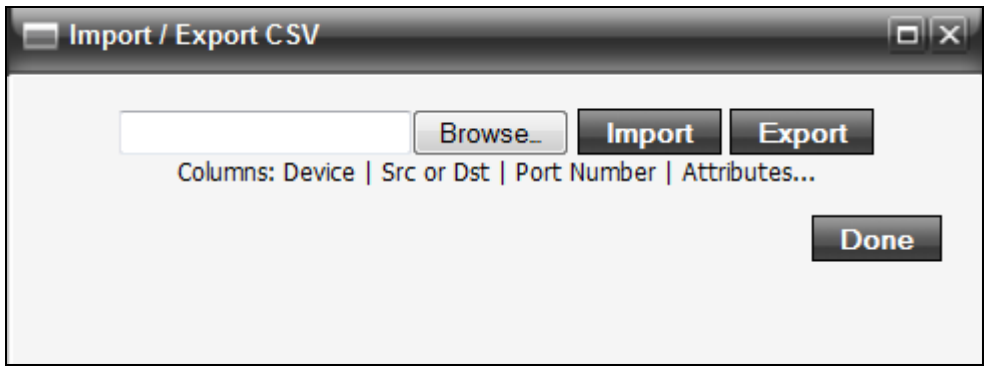


Figure 6-62: Import/Export CSV Dialog Box

2. To export a port attributes table, select the **Export** button. The following dialog box will appear, as shown in Figure 6-63. **Microsoft Office Excel** is the default program that the .csv file will open in and export to. If you wish to open the .csv file in a program other than excel, use the *Open with* function to select a new program, otherwise select the **OK** and the .csv file will open and display the current content in an excel spreadsheet. Once all import and export functions are complete, select the **Done** button.

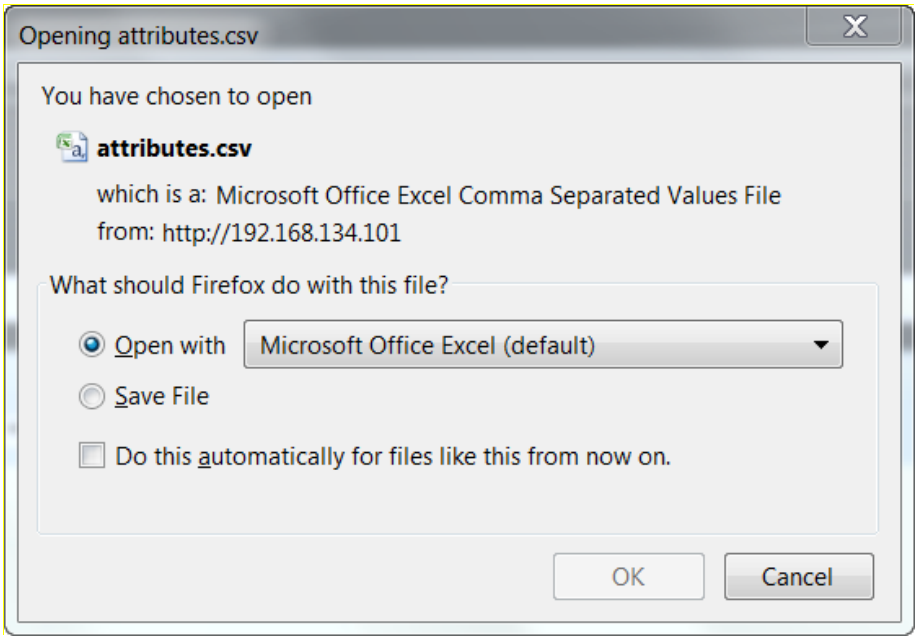


Figure 6-63: Opening attributes.csv Dialog Box

3. You can use the filter toolbar to sort through the parameters. Place the cursor in the field which you wish to search and type the desired parameter. The list will adjust to show only the port attributes with the properties that you listed in the filtering column.

Figure 6-64: Destination Filters

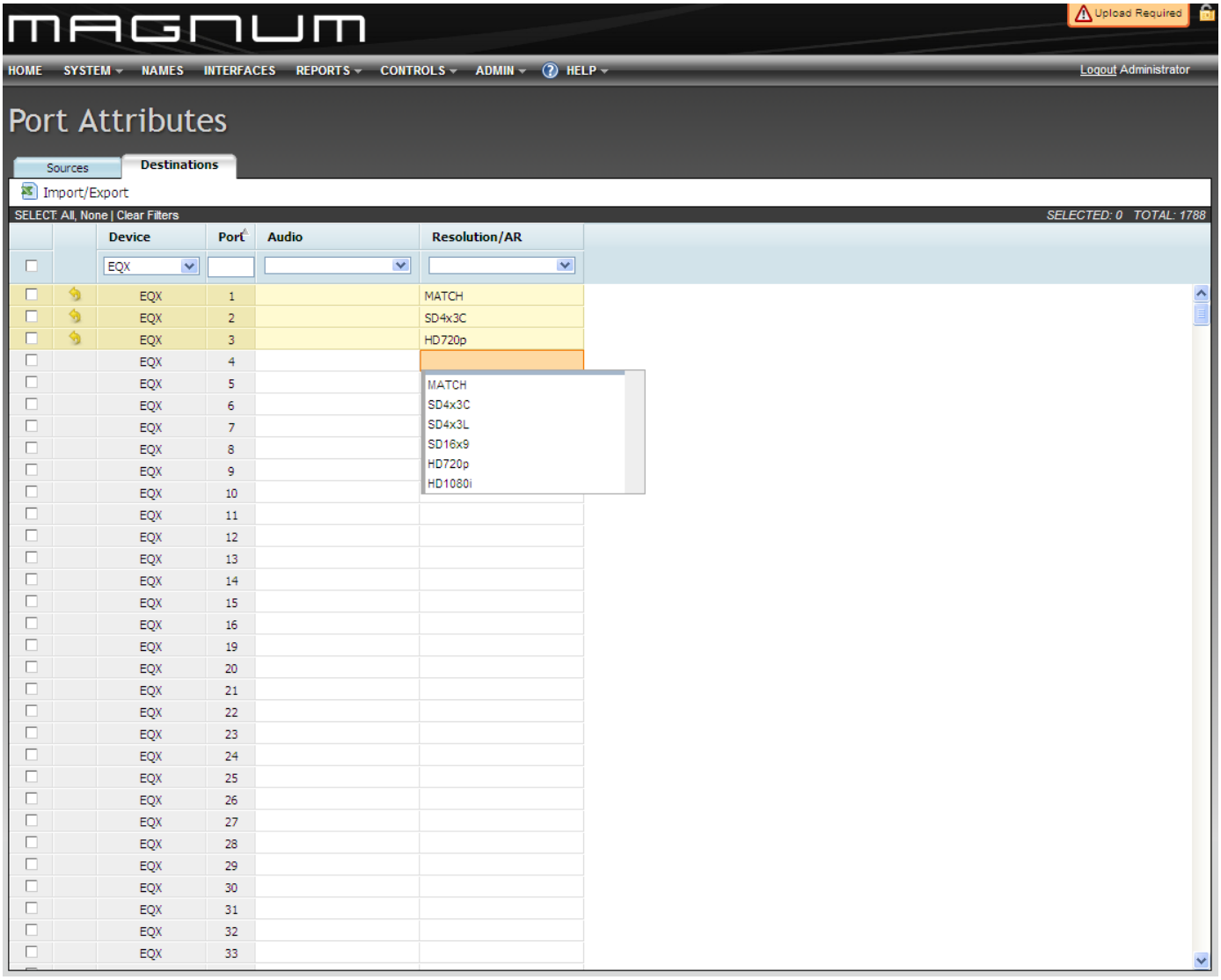


Figure 6-65: Port Attributes – Destinations

6.4.10. Port Properties

Selecting the **Port Properties** menu item from the **SYSTEM** drop down menu allows the user to configure port properties for multiviewer devices such as Protocol IDs, Audio channels and levels, Data Services, etc.

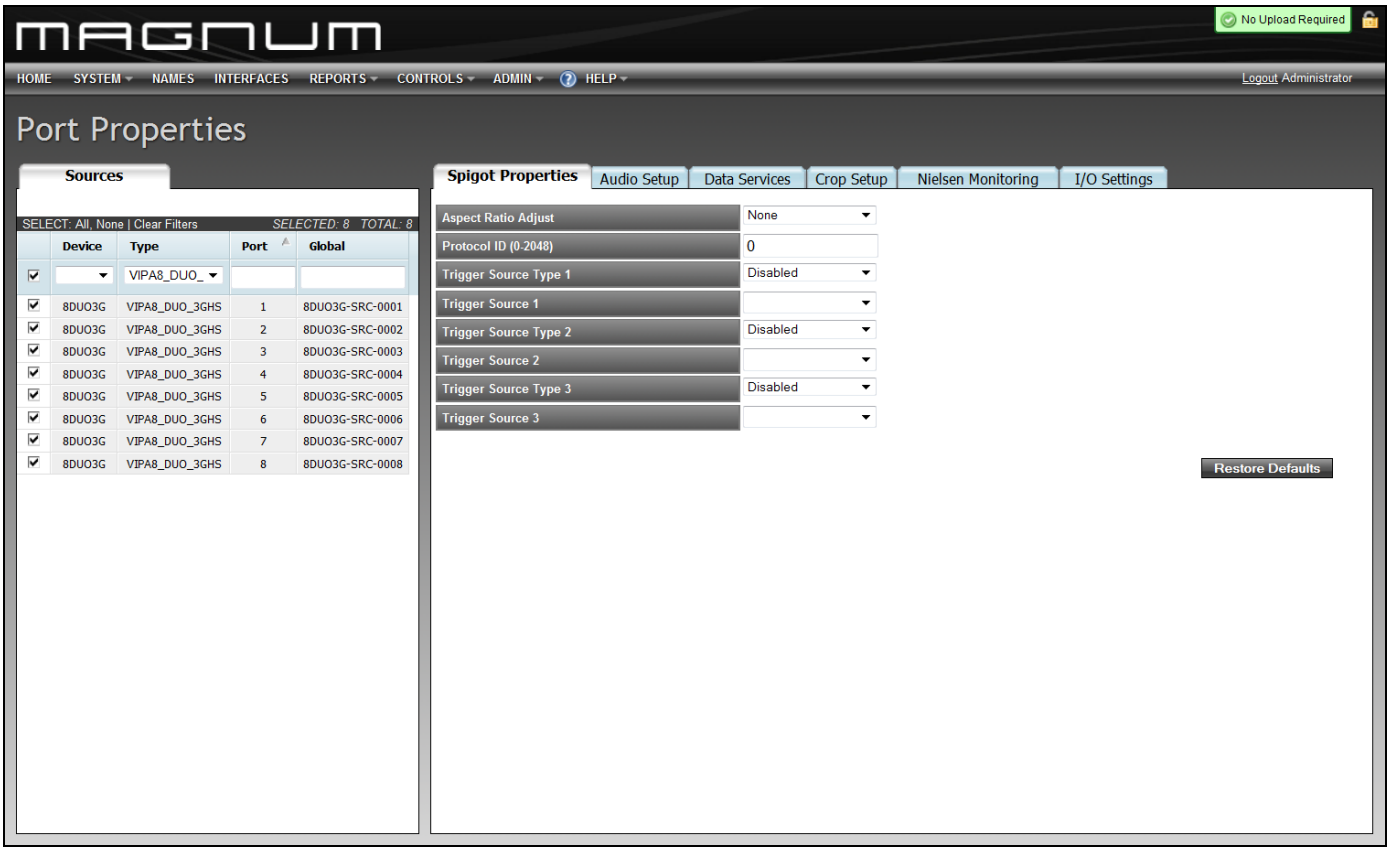


Figure 6-66: Port Properties

The **Spigot Properties** tab, as illustrated in Figure 6-67, enables the user to set Aspect Ratio, Protocol ID and Trigger Sources as well as enable/disable Trigger Source Types.

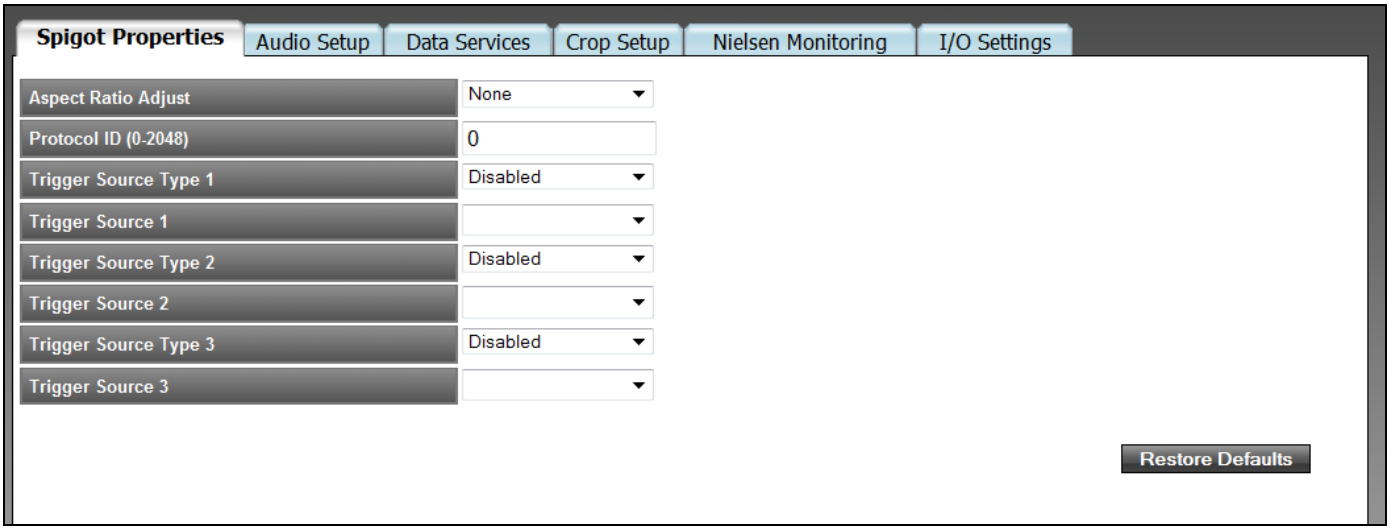


Figure 6-67: Spigot Properties Tab

The **Audio Setup** tab, as illustrated in Figure 6-68, enables the user to configure various audio parameters such as audio type, group, level bar and phase bar type, PPM type, error region, reference level.

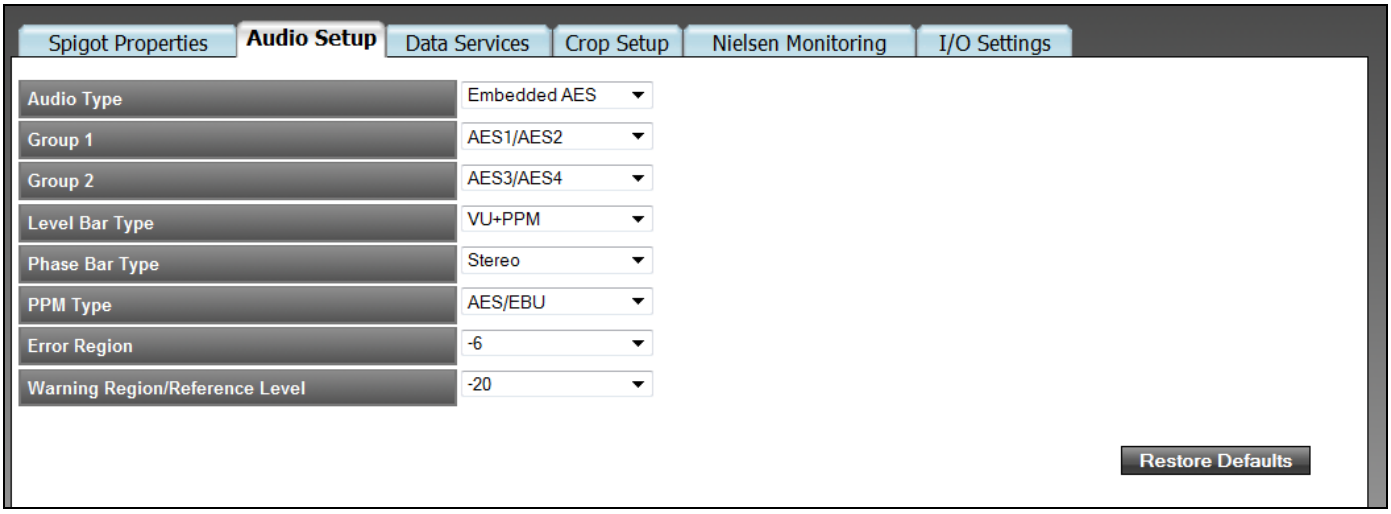


Figure 6-68: Audio Setup Tab

The **Data Services** tab, as illustrated in Figure 6-69, enables the user enable the CC Line and turn on/off WSS / Video Index Decode mode.

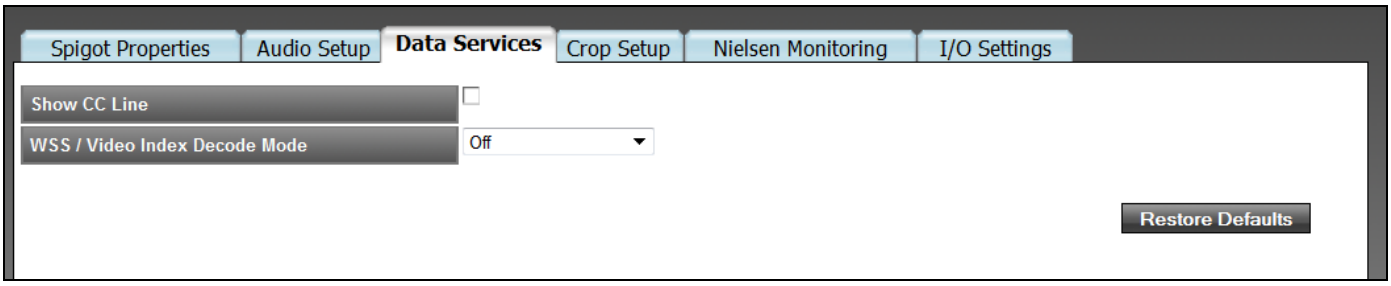


Figure 6-69: Data Services Tab

The **Crop Setup** tab, as illustrated in Figure 6-70, allows the user to set crop values.

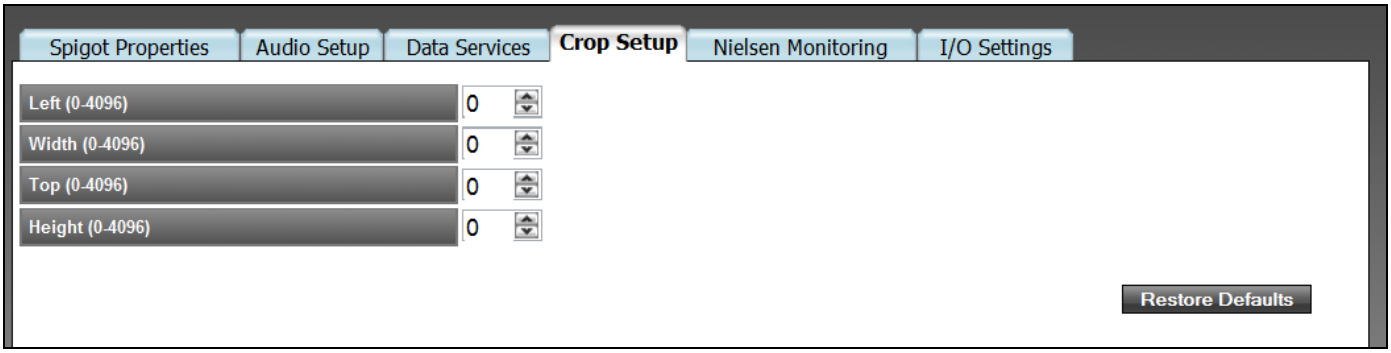


Figure 6-70: Crop Setup Tab

The **Nielsen Monitoring** tab, as illustrated in Figure 6-71, enables the user to enter a remote IP address, and select an audio channel and code type.

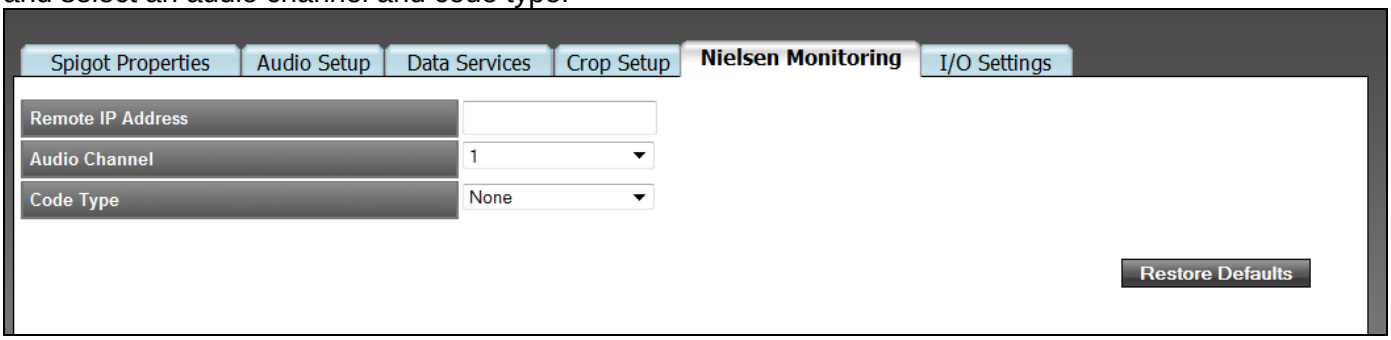


Figure 6-71: Neilsen Monitoring Tab

The **I/O Settings** tab, as illustrated in Figure 6-72, allows the user to enable the GLINK Input Cascade function as well as set the SDI Output Mode and Output Format.

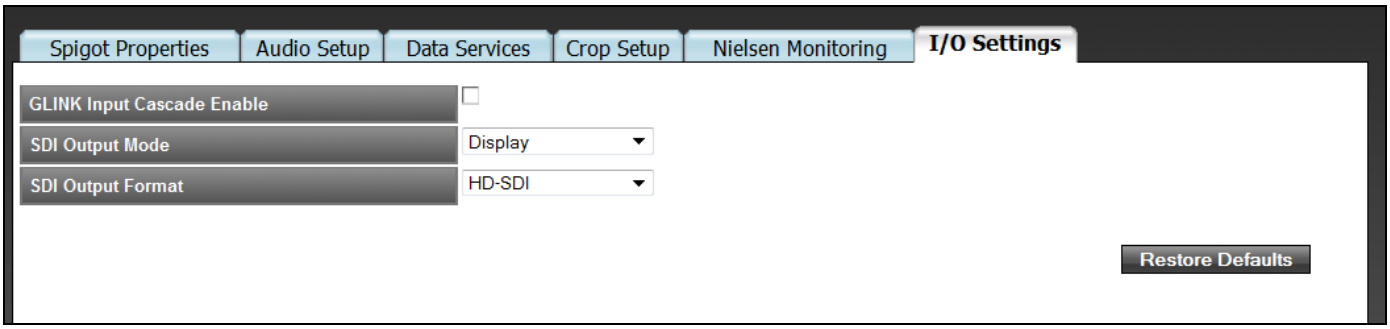


Figure 6-72: I/O Settings

6.4.11. Virtual Ports

Selecting the **Virtual Ports** menu item from the **SYSTEM** drop down menu allows the user to add virtual destinations and virtual sources. Virtual sources are a method of creating sources that span levels and frames. This facilitates level routing with virtual sources lining up routing to matching levels on virtual destinations. Breakaways are also performed within virtual sources and destinations on the panel by allowing you to choose new source assignments on the fly to route into particular levels of a virtual destination.

A virtual port is required to route both video and audio together when using the EMR. The Video Level of the Virtual port will contain the EQX Port, and the Audio levels (Level names starting with (A) will have the EMR Ports.

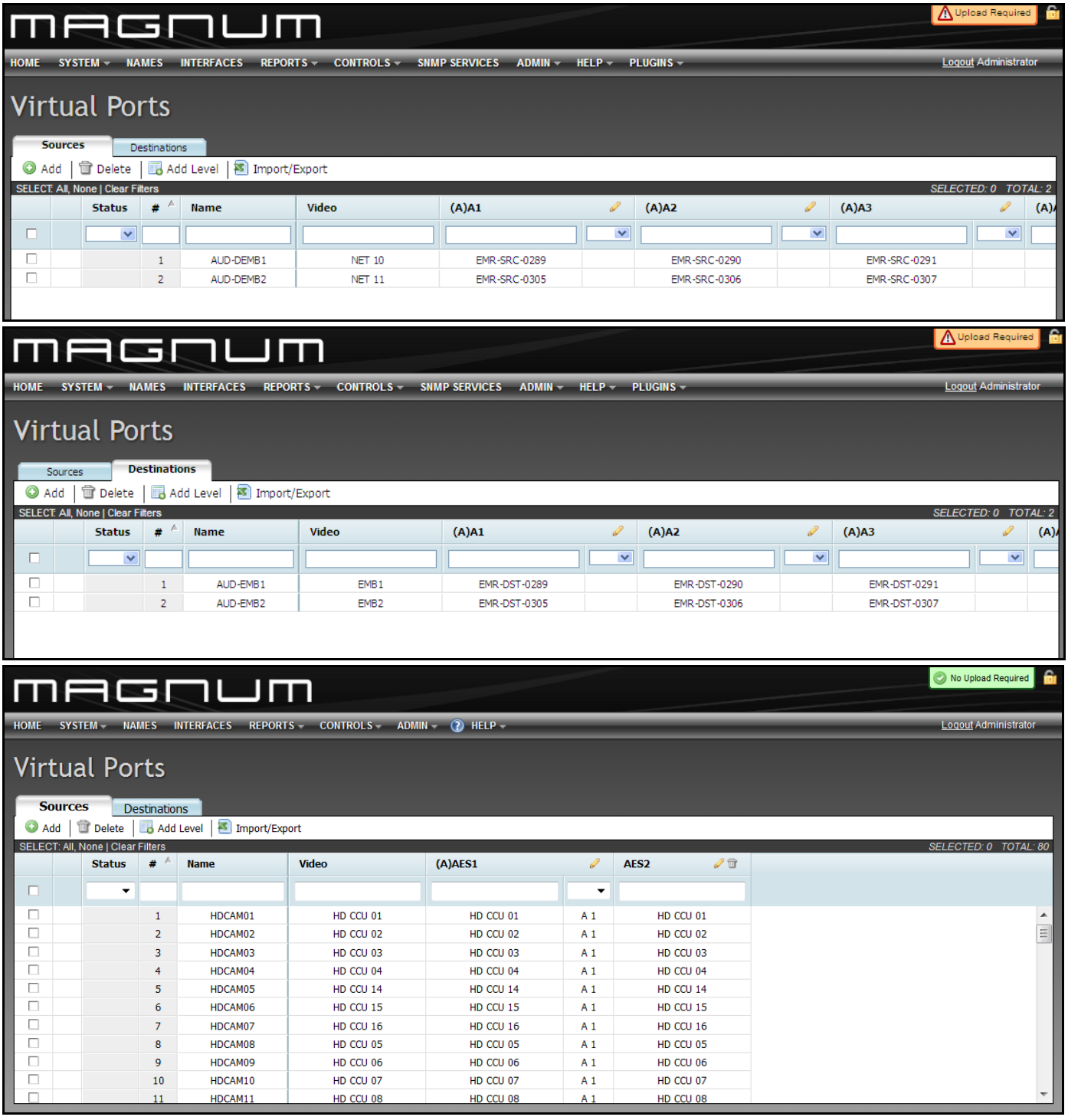


Figure 6-73: Virtual Sources

1. The user can import or export a virtual port using the **Import/Export** function. To import a virtual source, navigate to the virtual ports page and select the **Import/Export** button. When the **Import/Export CSV** dialog box appears, select the ***Browse*** button and navigate to the desired file. Select the **Open** button in the dialog box and then click the **Import** button once the file is listed in the file field.

Figure 6-74: Import/Export CSV Dialog Box

2. To export a virtual port, select the **Export** button. The following dialog box will appear, as shown in Figure 6-75. **Microsoft Office Excel** is the default program that the .csv file will open in and export to. If you wish to open the .csv file in a program other than excel, use the *Open with* function to select a new program, otherwise select the **OK** and the .csv file will open and display the current content in an excel spreadsheet. Once all import and export functions are complete, select the **Done** button.

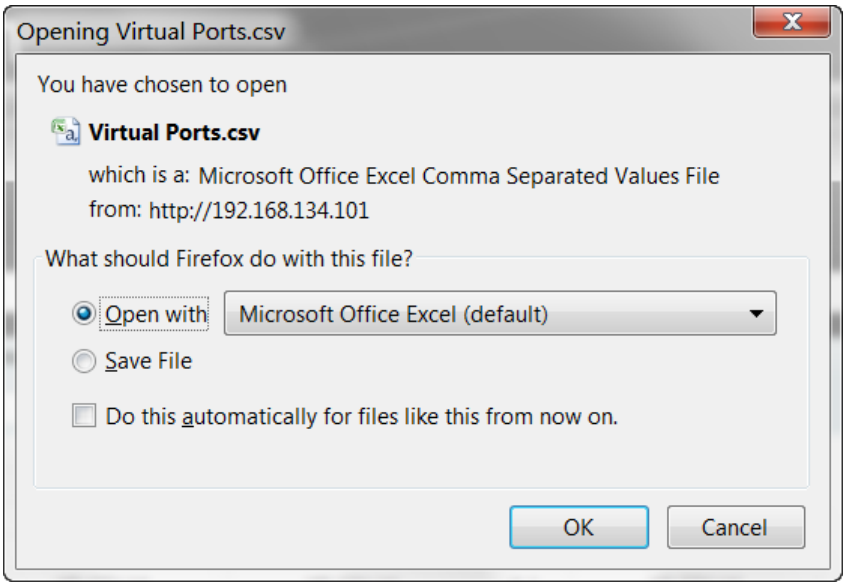


Figure 6-75: Opening Virtual Ports.csv Dialog Box

3. To add a virtual port to the source tab, select the **Add** button at the top of the **Sources** tab. An "Add Virtual Port" dialog box will appear enabling the user to create a virtual port. Enter the desired name of the new virtual port into the *Name* field and then select the **Add** button. Once all virtual ports have been added, select the **Done** button to apply your changes. To add a virtual port to the destination tab, follow the same procedure.

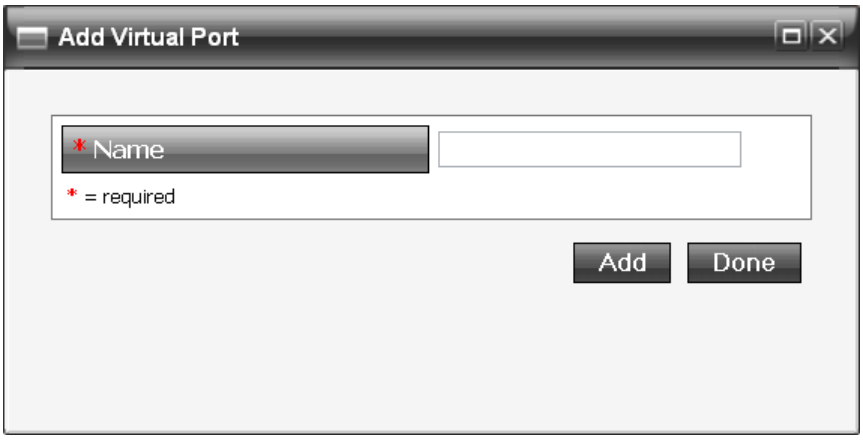


Figure 6-76: Add Virtual Port

4. To add a level to the source or destination, select the **Add Level** button. An **Add Level** dialog box will appear enabling the user to enter a unique level name into the *Name* field. Once all the desired levels have been entered select the **Done** button. Repeat this step each time the user wishes to add another virtual source or virtual destination.

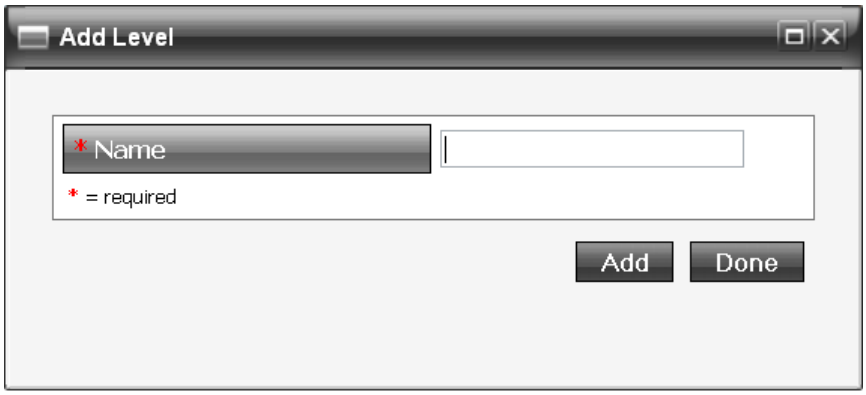


Figure 6-77: Add Level

5. To remove a virtual source or destination, place a check mark beside the items that you wish to remove and select the **Delete** button.

6. The user can also perform a reverse lookup on a source or destination by selecting the cell and holding down the **Shift** key. To perform a reverse lookup on an entire row hold down the **Ctrl+Alt** and **Shift** keys when you have selected the cell in the row that you wish to view. The reverse lookup cells are shown highlighted in blue in Figure 6-78.

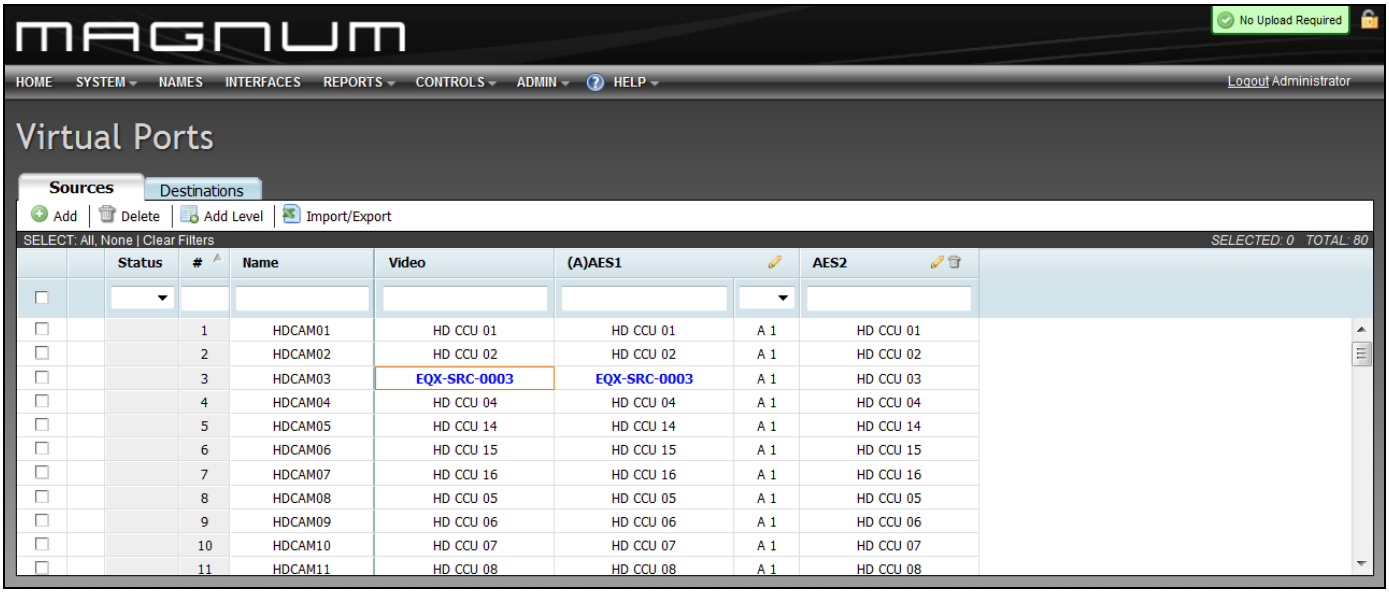


Figure 6-78: Reverse Lookup

7. The user can also copy and paste existing cells or rows. To copy a cell or row, right click on the cell that you wish to copy and select **Copy Cell** or **Copy Row** from the pop up menu that appears. Once the data is copied to the clipboard, navigate to the cell or row that you wish to paste the information onto, then right click on the cell and select the **Paste** option. You can also copy and paste using the keyboard controls: Copy (**Ctrl + C**) and Paste (**Ctrl + V**).

Please note that the keyboard copy (Ctrl + C) and paste (Ctrl + V) control can be used globally on almost any cell in the MAGNUM Server Interface.

Once complete be sure to click on the "Upload Required" icon to upload any changes.

8. To add or delete a destination, add a level to the destination tab, or import/export destinations, the user must follow the same procedure outlined for creating a virtual source.

Tip: Virtual destinations enable the user to build up destinations with multiple level assignments. In this way a destination that naturally spans frames and levels can be routed to with sources sorting into the correct levels automatically.

6.5. ASSIGNING NAMES

A **NameSet** allows the user to create multiple names for the same source or destination within the system. To assign names to organize the sources and destinations select the **Names** item from the main toolbar.

6.5.1. Sources Tab

To create a Nameset for the sources, navigate to the **Sources** tab.

1. Select a device from the **Device** drop down menu. The device list will populate in the sources tab.

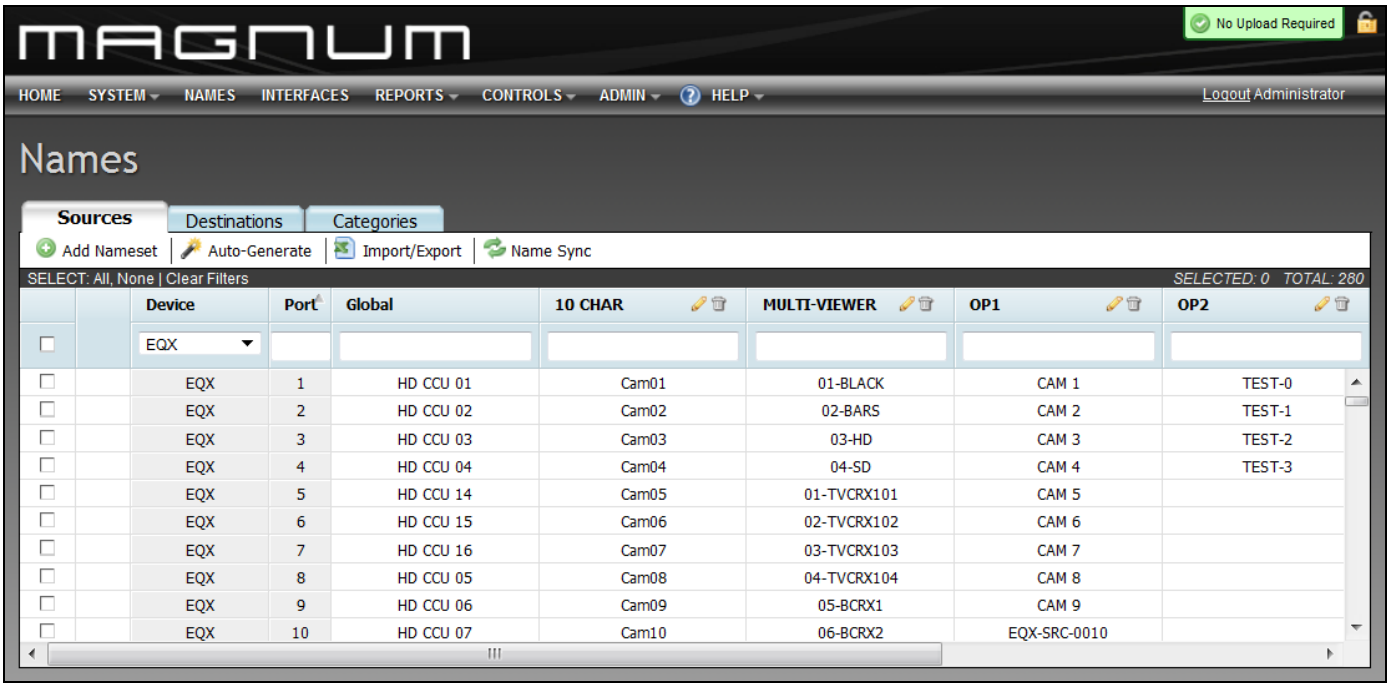


Figure 6-79: Names Sources Tab

2. To assign ports to a certain name set, select the desired ports by placing a check mark in the box or boxes beside the port name(s) and then select the **Auto-Generate** button.

    a. An **Auto-Generate Names** dialog box will appear enabling the user to generate names automatically based on the properties selected in this dialog box. From the **Selected Nameset** drop down menu select one of the nameset items for which you are auto-generating the list.

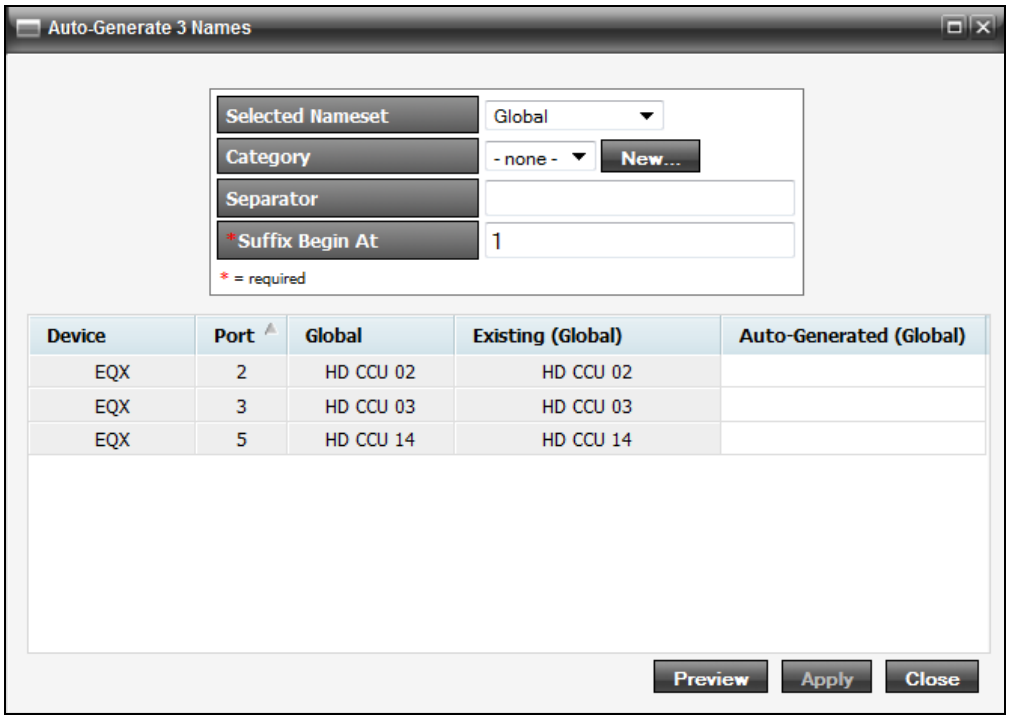


Figure 6-80: Auto-Generate Names Dialog Box

b. The user can assign a category which will be used in the naming process when the names are generated. Select a category from the drop down menu. If a category does not exist or if you would like to create a new category, select the **New…** button and enter a unique name into the *New Category Name* field. Users can also enter a name in the separator box instead of creating a Category. Example: CAM-

c. If you wish to separate the category and suffix using a specific character, you can optionally enter a character into the separator field (ie. -, :, etc).

d. It is required that the user enter a beginning alpha-numeric suffix. The number or letter entered in the **Suffix Begin At** field will be the starting character for which the generated names will be counted up from (ie. 1, 2, 3..etc). If adding 0s, the auto-generate will automatically pad all names. Example: 001 as the suffix will create 001 and 016.

e. Once all the fields are filled in, select the **Preview** button to view how the names will be displayed. The names will be generated based on your selections and will be displayed in the *Auto-Generated* field. If you are satisfied with your changes, select the **Apply** button and then **Close** to return to the original screen.

f. Your changes will be generated and displayed under the corresponding columns.

3. To import or export a CSV file, select the **Import/Export** button. To import a file, select the **Browse** button and then navigate to the appropriate CSV file. Once the file is selected, click on the **Import** button and the data will be imported to the name set list.

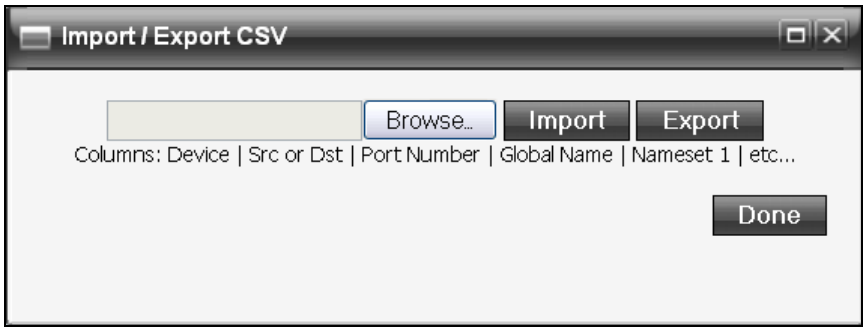


Figure 6-81: Import/Export CSV for Name Sets

4. To export a CSV file, select the **Export** button. The information displayed in the current name set list will be exported to an excel CSV file as shown in Figure 6-82.

Microsoft Excel - Name Sets.csv [Read-Only]

File Edit View Insert Format Tools Data Window Help

A1 Device Short Name

	A	B	C	D	E	F	G	H	I	J	K	L
1	Device Short Name	Src or Dst	Port Number	Global	10 CHAR	MULTIVIEWER	NS1	NS2	NS3	NS4	OP1	TD
2	EQX	SRC	1	TEST-1	TEST-1	TEST 1	FS1	REMOTE 1	SAT 1	CAM 1		
3	EQX	SRC	2	TEST-2	TEST-2	TEST 2	FS2	REMOTE 2	SAT 2	CAM 2		
4	EQX	SRC	3	NET 10	NET-10	NET 10	FS3	REMOTE 3	SAT 3	CAM 3		
5	EQX	SRC	4	NET 11	NET-11	paul	FS4	REMOTE 4	SAT 4	CAM 4		
6	EQX	SRC	5	SAT-11	SAT-11	WASHINGTON	FS5	REMOTE 5	SAT 5	CAM 5		
7	EQX	SRC	6	SAT-12A	SAT-12	NEW YORK	FS6	REMOTE 6	SAT 6	CAM 6		
8	EQX	SRC	7	BLACK	BLACK		FS7	REMOTE 7	SAT 7	CAM 7		
9	EQX	SRC	8	SRC EMR MON								
10	EQX	SRC	9	OUT EMR MON								
11	EQX	SRC	10	REM 3	REM-3							
12	EQX	SRC	11	REM 4	REM-4							
13	EQX	SRC	12	REM 5	REM-5							
14	EQX	SRC	13	REM 6	REM-6							
15	EQX	SRC	14	VSP 101								
16	EQX	SRC	15	VSP 102								
17	EQX	SRC	16	VSP 111								
18	EQX	SRC	19	VSP 112								
19	EQX	SRC	20	SVR 931								
20	EQX	SRC	21	SVR 932								
21	EQX	SRC	22	VT-11								
22	EQX	SRC	23	VT-12								
23	EQX	SRC	24	VT-13								
24	EQX	SRC	25	VT-14								
25	EQX	SRC	26	VT-15								
26	EQX	SRC	27	DUB 21								
27	EQX	SRC	28	DUB 41								
28	EQX	SRC	29	DUB 81								
29	EQX	SRC	30	PCRA 1								
30	EQX	SRC	31	PCRA 2								
31	EQX	SRC	32	PCRA 3								
32	EQX	SRC	33	PCRA 4								
33	EQX	SRC	34	PCRA 5								
34	EQX	SRC	37	EDIT 71								
35	EQX	SRC	38	EDIT 72								
36	EQX	SRC	39	EDIT 73								
37	EQX	SRC	40	EDIT 74								
38	EQX	SRC	41	GFX 511								
39	EQX	SRC	42	GFX 5119								
40	EQX	SRC	43	GFX 512								
41	EQX	SRC	44	CAM 1								
42	EQX	SRC	45	CAM 2								
43	EQX	SRC	46	CAM 3								
44	EQX	SRC	47	CAM 4								
45	EQX	SRC	48	CAM 5								
46	EQX	SRC	49	CAM 6								
47	EQX	SRC	50	CAM 7								
48	EQX	SRC	51	CAM 8								
49	EQX	SRC	52	PROMPT1								

Name Sets

Ready NUM

Figure 6-82: Name Sets Exported to CSV File

5. **Name Sync** button has been replaced by the Magnum module, Names. This module when installed and configured will publish names to the Satellite dashboard widget for viewing and accepting the name updates.

6.5.2. Destinations Tab

To create Names for the destinations, navigate to the **Destinations** tab.

1. Select a device from the **Device** drop down menu. The device list will populate in the destinations tab.

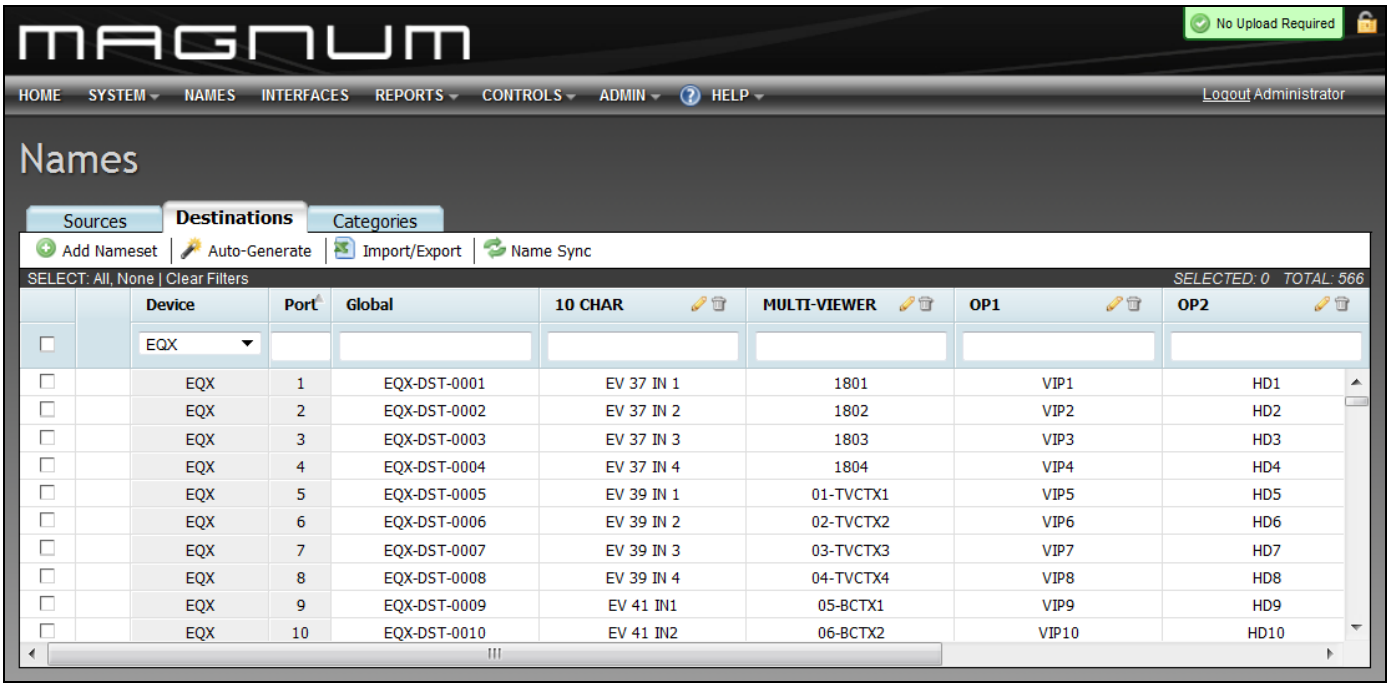


Figure 6-83: Names Destinations Tab

2. To assign ports to a certain name set, select the desired ports by placing a check mark in the box or boxes beside the port name(s) and then select the **Auto-Generate** button.

    a. An **Auto-Generate Names** dialog box will appear enabling the user to generate names automatically based on the properties selected in this dialog box. From the **Selected Nameset** drop down menu select one of the nameset items for which you are auto-generating the list.

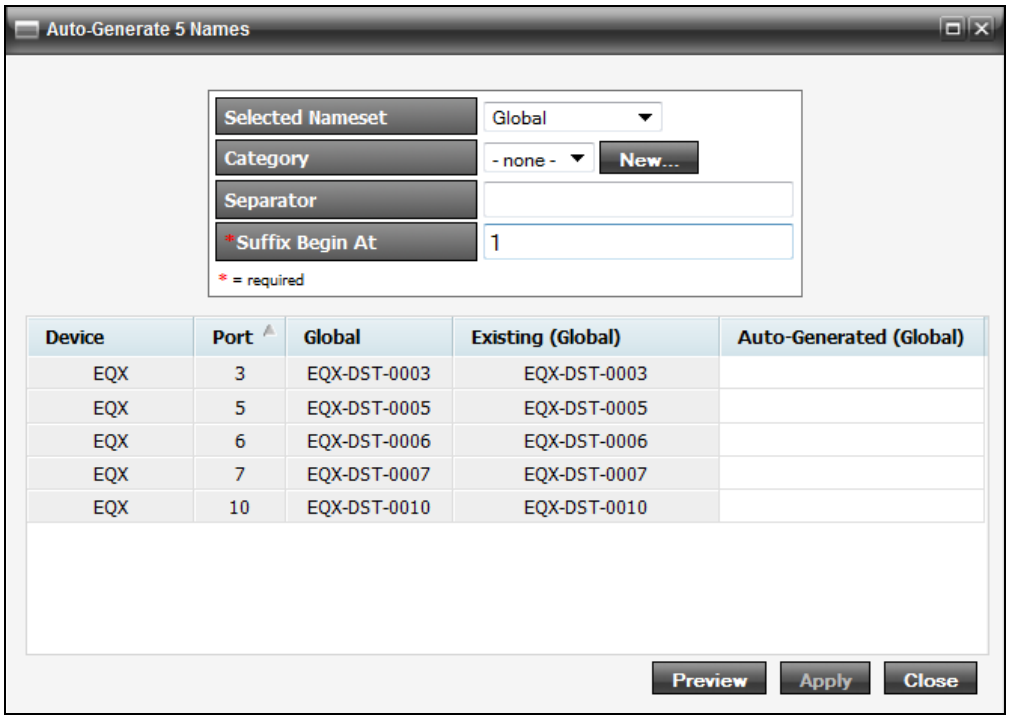


Figure 6-84: Auto-Generate Names - Destinations

b. The user can assign a category which will be used in the naming process when the names are generated. Select a category from the drop down menu. If a category does not exist or if you would like to create a new category, select the **New…** button and enter a unique name into the *New Category Name* field. Users can also enter a name in the separator box instead of creating a Category. Example: CAM-

c. If you wish to separate the category and suffix using a particular character, you can optionally enter a character into the separator field (i.e. -, :, etc).

d. It is required that the user enter a beginning alpha-numeric suffix. The number or letter entered in the **Suffix Begin At** field will be the starting character for which the generated names will be counted up from (i.e. 1, 2, 3, etc). If adding 0s, the auto-generate will automatically pad all names. Example: 001 as the suffix will create 001 and 016.

e. Once all the fields are filled in, select the **Preview** button to view how the names will be displayed. The names will be generated based on your selections and will be displayed in the *Auto-Generated* field. If you are satisfied with your changes, select the **Apply** button and then **Close** to return to the original screen.

f. Your changes will be generated and displayed under the corresponding columns.

3. To import or export a CSV file, select the **Import/Export** button. To import a file, select the **Browse** button and then navigate to the appropriate CSV file. Once the file is selected, click on the **Import** button and the data will be imported to the name set list.

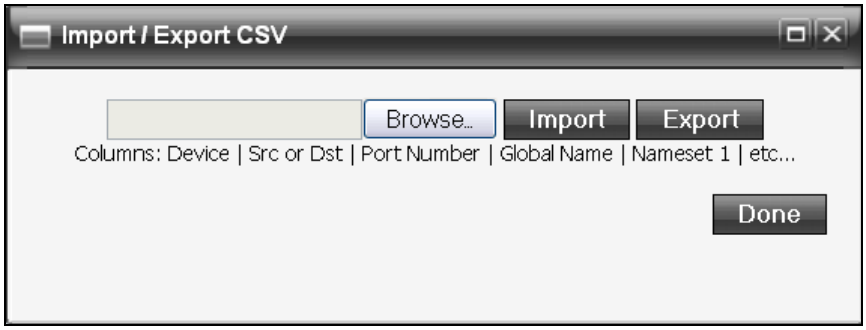


Figure 6-85: Import/Export CSV for Name Sets

4. To export a CSV file, select the **Export** button. The information displayed in the current name set list will be exported to an excel CSV file.

5. To retrieve names from the selected device, click on the **Name Sync** button. This will connect to the device and load the names from the device onto the name set page.

6.5.3. Adding a Nameset

The user can create a *nameset* when they want to re-alias sources and destinations. When a user creates a new nameset, the new nameset will be added alphanumerically to the list of columns in both the sources and destinations tab.

1. To add a new name set column to the list, select the **Add Nameset** button.

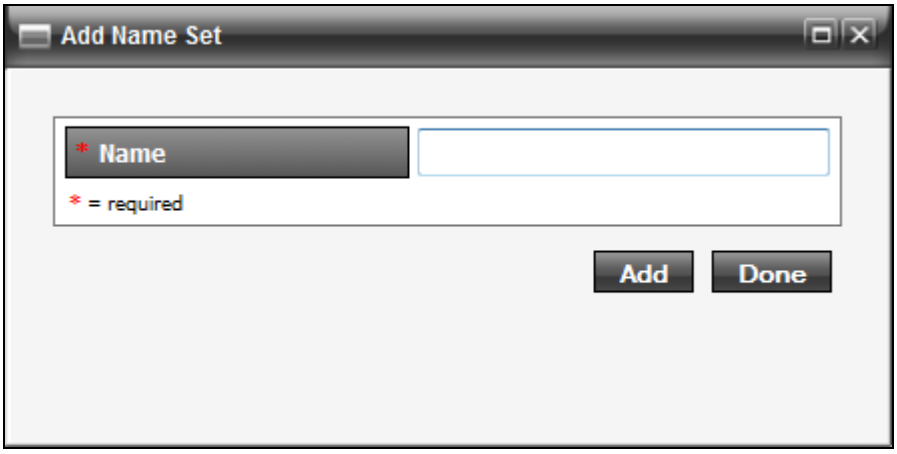


Figure 6-86: Add Name Set

2. When the dialog box appears, enter a unique name into the *Name* field and then press the **Add** button. Once you have added all of the desired names, select the **Done** button. The name will be added as a new column in alphabetical order.

6.5.4. Categories Tab

The **Categories** tab enables the user to create and view nameset categories. A category is a prefix; it allows the user to quickly locate sources or destinations by using prefix keys on the control panel (i.e. CP-2200E/CP2232E/CP2116E). Creating a category will help the user to easily identify what group the destination or source is associated with.

Figure 6-87: Name Set Categories Tab

1. To create a new "Name Category", select the **Add** button.

2. An **Add Category** dialog box will appear prompting the user to enter a category name into the **Name** field.

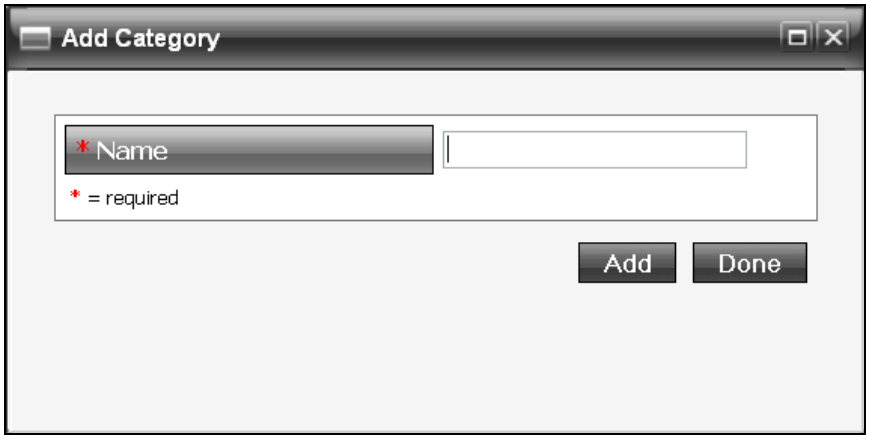


Figure 6-88: Add Category

3. Select the **Add** button after you have entered the name. This will add the name to the category list. If you wish to create more than one group, continue to add category names, and then once you are complete, select the **Done** button.

4. Once the name is added it will be listed in the Category list. To remove a category, place a check mark in the box beside the category you wish to remove and then select the **Delete** button.

6.6. CONFIGURING THE INTERFACES

The MAGNUM Server based router control system has many advanced features. One of the most powerful is the ability to generate Profiles for panels. These profiles are essentially a collection of sources and destinations along with a new set of aliases for those sources and destinations. You do NOT have to explicitly add tielines to a profile, nor do you have to design a panel layout for intelligent panels. The intelligent panels themselves find the best way to layout the various sources, destinations, prefixes, etc, that the user has decided to use. In the case of traditional panels a simple but powerful GUI is provided to determine the explicit actions that the panel can make, from defining menus to adding sources and destinations. Creating profiles is very similar to setting up the Router system itself. The steps are: create a profile, add destinations, sources and prefixes, and then alias anything as you see fit.

6.6.1. Multi-Profile

The **Multi-Profile** tab enables the user to view, add, edit and delete Multi-Profiles capable panels, such as the CP-2200E, CP2232E, CP2116E.

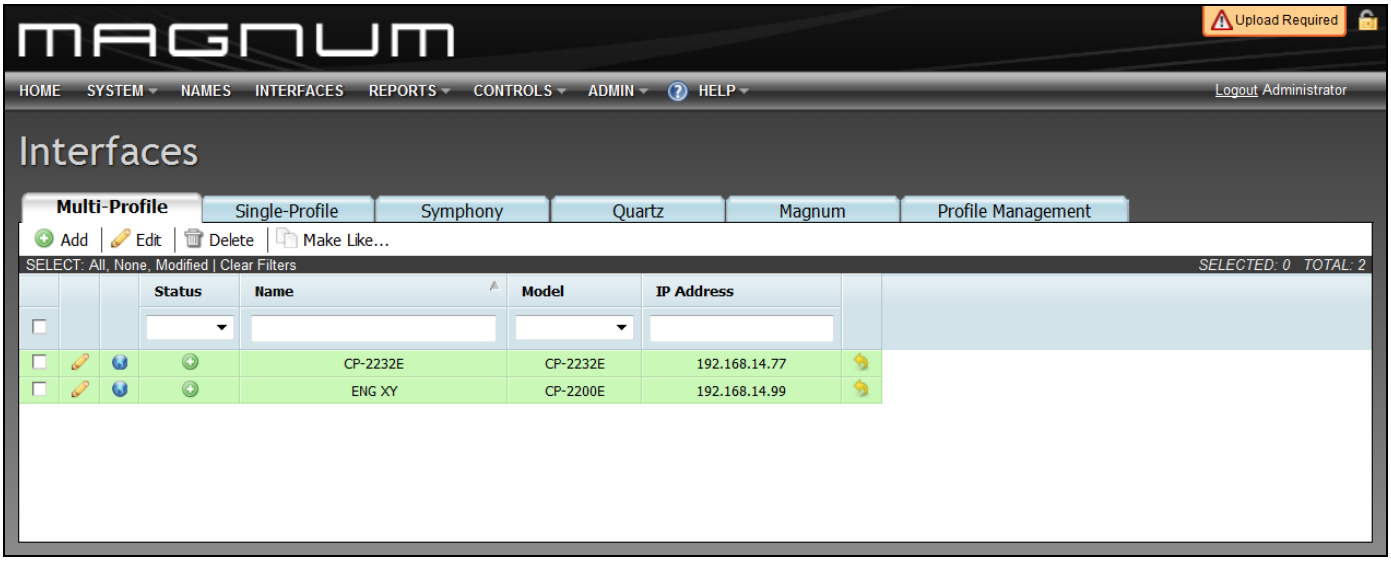


Figure 6-89: Multi-Profile Tab

The following table provides descriptions of the toolbar button functions for the Multi-Profile Tab:

Icon	Description
Add	**Add:** To add a multi-profile panel, select the Add button from the main toolbar. An ***Add Multi-Profile Panel*** dialog box will appear as shown in Figure 6-90.
Edit	**Edit:** To edit a panel(s) profile, place a check mark in the box beside the profile(s) that you wish to edit and then select the edit icon. This function is particularly useful if you are editing multiple panels at one time. Otherwise if you are just editing one panel, select the pencil icon beside the panel that you wish to edit.
Delete	**Delete:** To remove a panel profile, place a check mark in the box beside the profile that you wish to remove, and select the delete icon.
Make Like...	**Make Like:** The *Make Like* function enables the user to clone an existing panel of the same type. Place a check mark beside the panels(s) that you wish to change and then select the *Make Like* button. The *Make Like* dialog box will appear (as shown in Figure 6-91). From the clone drop down menu select a panel that you wish to clone and then press the **Apply** button.

Table 6-1: Multi-Profile Toolbar

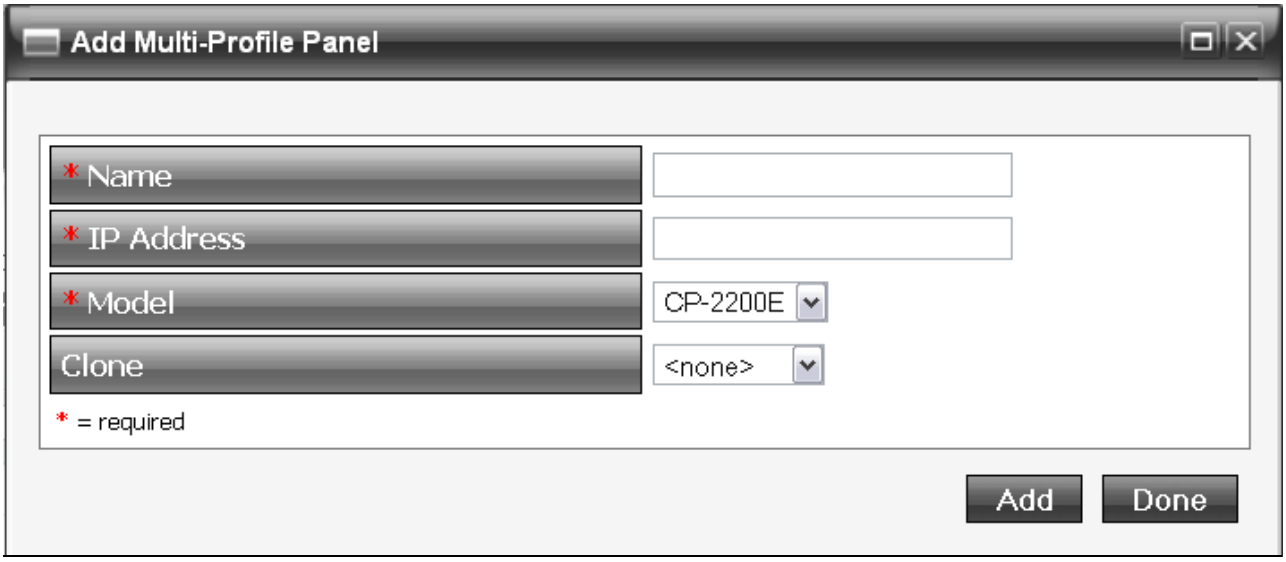


Figure 6-90: Add Multi-Profile Panel

The following items describe the *Add Multi-Profile Panel* dialog box functions:

- **Name:** Enter a unique name for the multi-profile that you wish to create.
- **IP Address:** Enter the IP address of the panel.
- **Model:** Select the model number from the model drop down list.
- **Clone:** If you wish to replicate an already existing Multi-Profile Panel, select one of the panels from the ***Clone*** drop down menu. This profile will be created based on the selected clone.

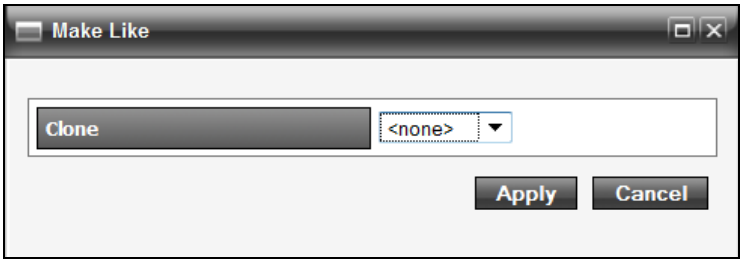


Figure 6-91: Make Like Dialog Box

6.6.1.1. Editing a Multi-Profile Interface

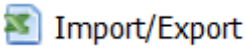
The following procedure will describe how to edit a multi-profile interface. The editing of the multi-profile interface is used to assign created profiles for access when this panel issued. If a multi-profile interface only has three of five profiles, only those three profiles will be presented to the user at the panel. Creation of profiles can be done within the Multi-profile interface or on the Profiles page.

1. Select the **Edit** icon beside the profile that you wish to edit. An **Interface Layout** screen will appear identifying the name of the multi-profile you selected, the control panel interface display, profiles available in the multi-profile, and the configuration tabs (*Sources*, *Destinations*, *Categories*, and *Settings*).

2. The **Sources** tab enables the user to view the status of the sources and set the sources to available or unavailable status.

3. The user can use the Nameset **Name** drop down menu to select and load another nameset for that profile.

4. The **Sources** tab provides two top level menu options which include; *Import/Export* and *Editing Mode*:

Menu Option	Description
	The user can import or export the source / destination availability for a select profile using the **Import/Export** function. 1. To import a file, select the **Import/Export** button. When the **Import/Export CSV** dialog box appears, select the ***Browse*** button and navigate to the desired file. Select the **Open** button in the dialog box and then click the **Import** button once the file is listed in the file field. 2. To export a profile_availability.csv, select the **Export** button. **Microsoft Office Excel** is the default program that the .csv file will open in and export to. If you wish to open the .csv file in a program other than excel, use the *Open with* function to select a new program, otherwise select the **OK** and the .csv file will open and display the current content in an excel spreadsheet. Once all import and export functions are complete, select the **Done** button.
	The **Editing Mode** drop down menu in the top left hand corner of the tab enables the user to change how the source availability is displayed. There are three availability options: i. **Availability:** Lists all the sources in alphanumeric order. ii. **Availability (Group):** Places the sources into alphanumeric device groups. iii. **Re-order:** Enables the user to physically drag and drop the sources into a specific order.

5. Selecting the option will hide the panel interface and expand the source tab to populate the entire length of the screen.

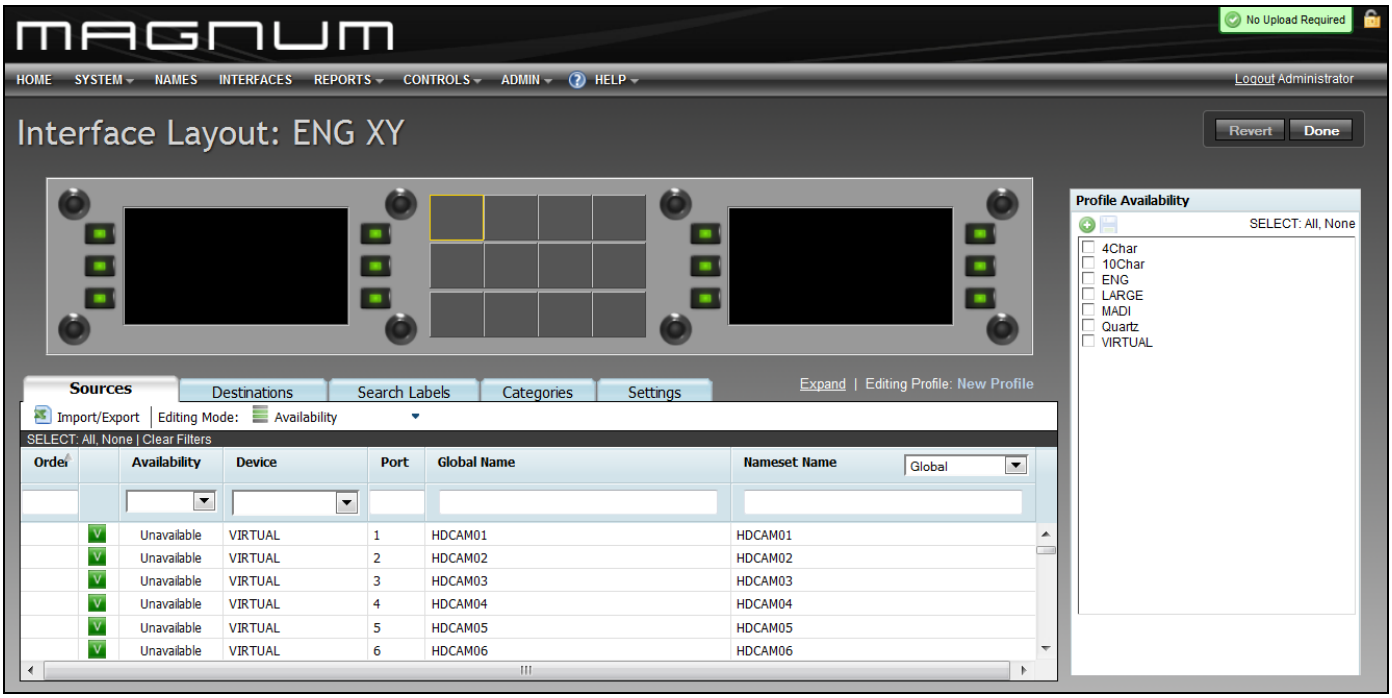


Figure 6-92: Interface Layout – Sources

6. Next, toggle to the **Destinations** tab as shown in Figure 6-93, and perform the same functions as described above for editing the sources tab.

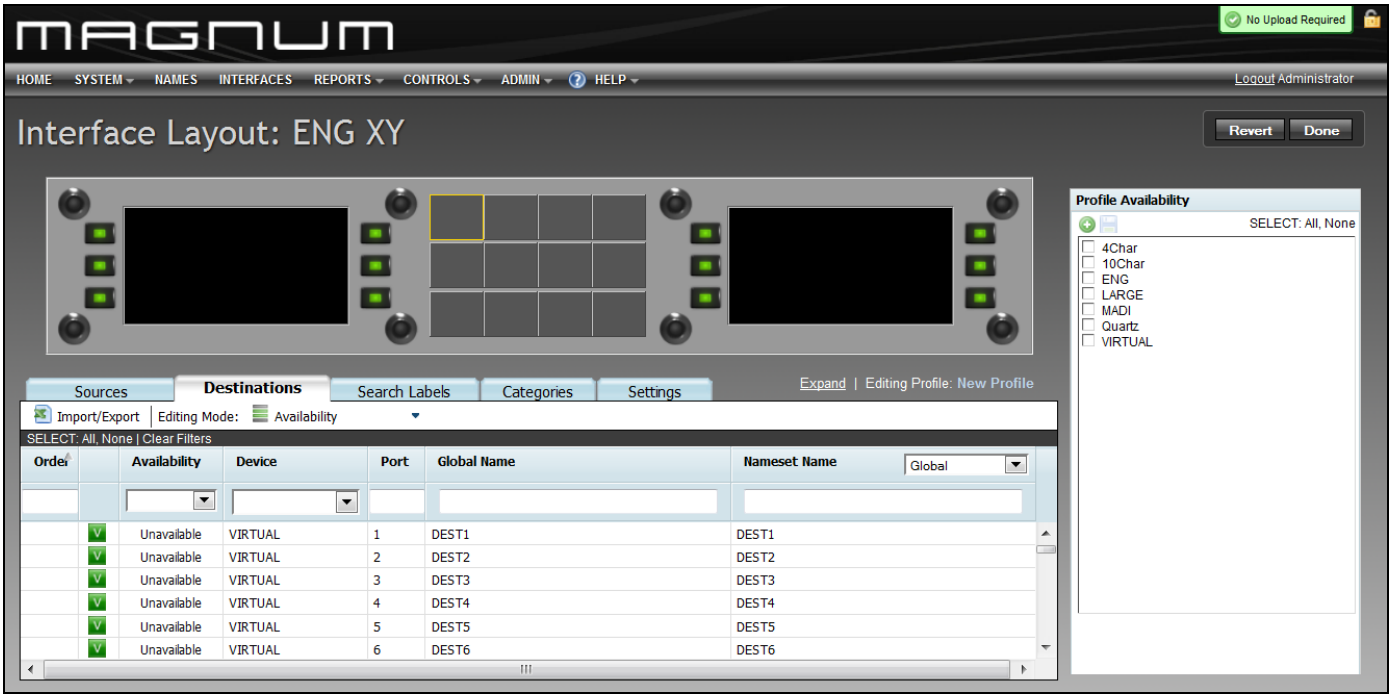


Figure 6-93: Interface Layout – Destinations

7. The **Search Labels** tab allows the user to add and remove Source and Destination labels available to the selected profile. The Labels available and the assignment to available ports are done on the **Port Labels** page. If Search Labels are used they override selections made in the **Category** tab.

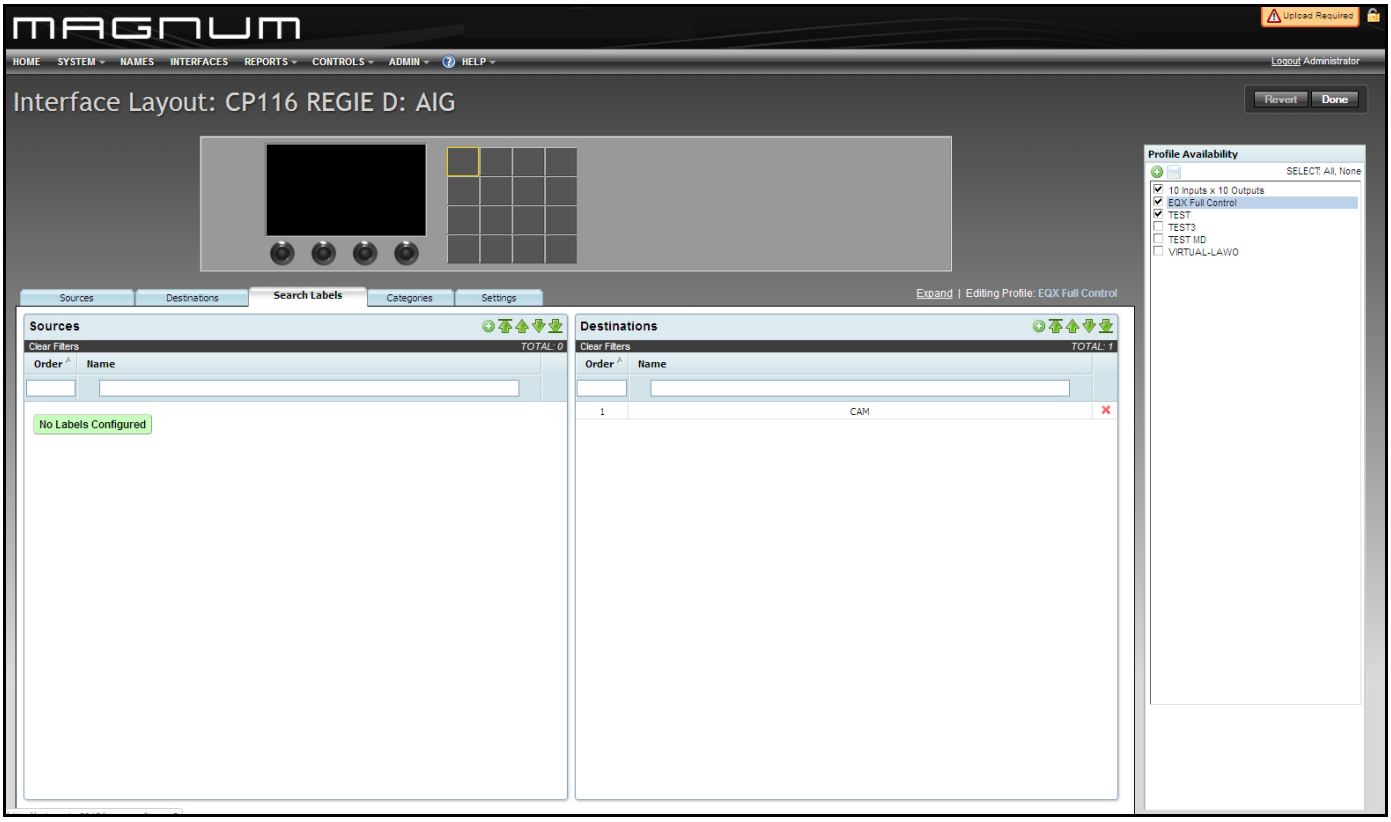


Figure 6-94: Interface Layout - Search Labels

8. The user can also add a new category or edit one of the existing categories associated with the selected profile. Select the **Category** tab to edit the category settings; the **Source Categories** will be listed on the left side of the screen and the **Destination Categories** will be listed on the right side of the screen. If a category is listed as *unavailable* (white), then single click on the category row to change it to *available* (green). If you wish to make an *available* category *unavailable*, single click on the desired row to change the status.

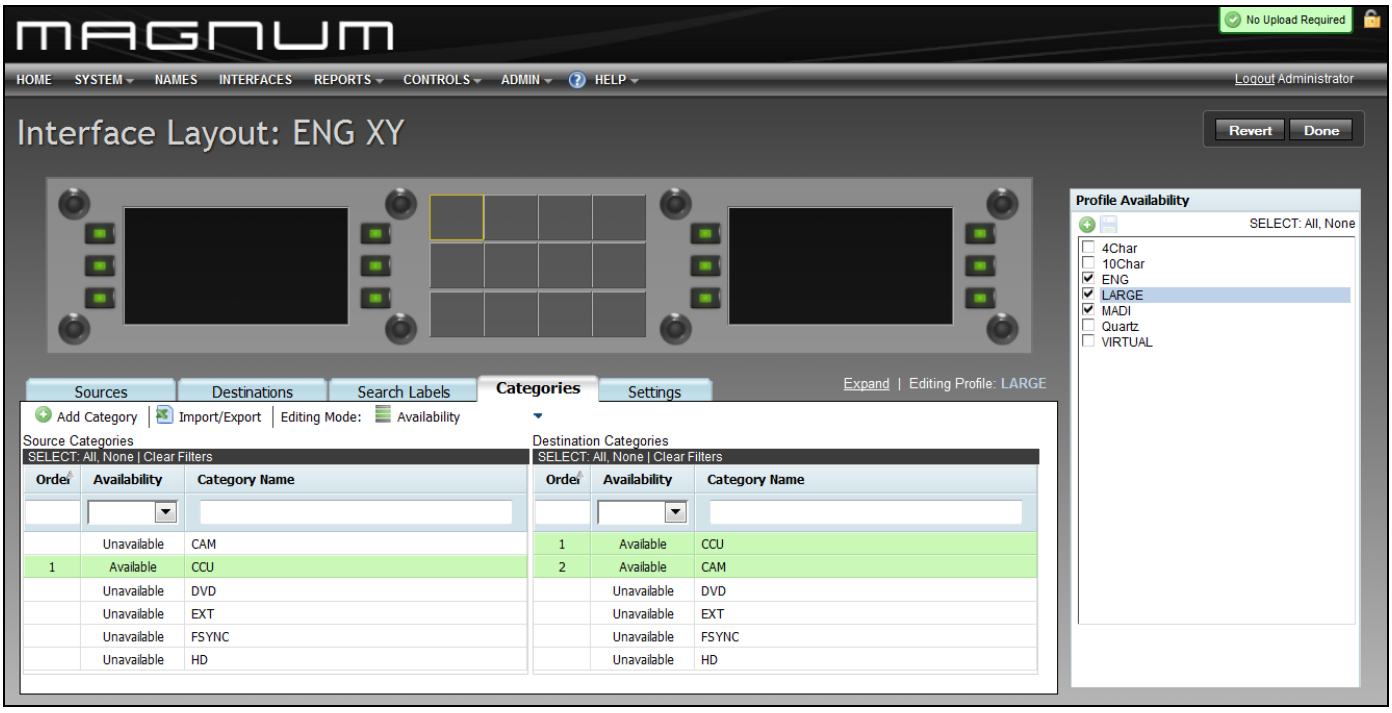


Figure 6-95: Interface Layout – Categories

9. To modify the profile settings, select the **Settings** tab. The profile settings for the selected profile will be displayed as shown in Figure 6-96.

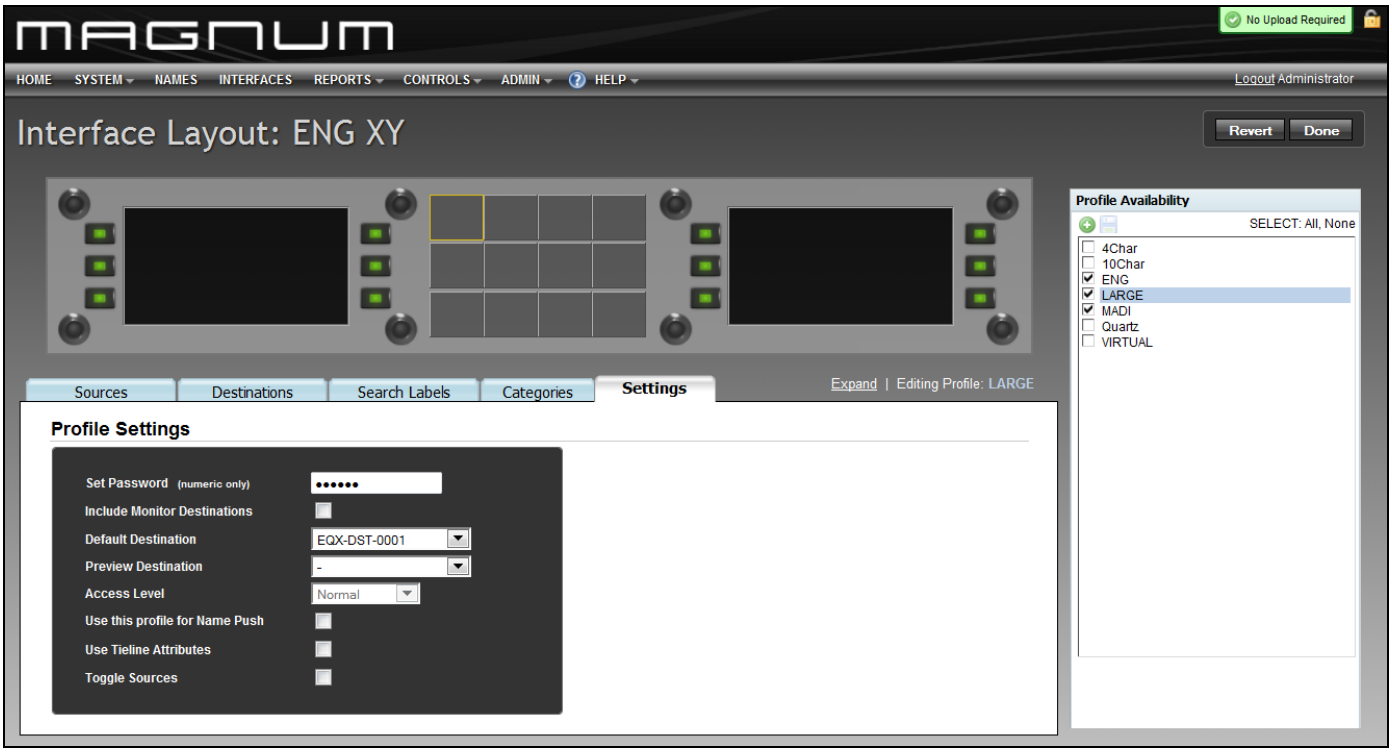


Figure 6-96: Interface Layout - Settings

10. Below is a list of the parameters that can be edited in the settings tab:

    a. **Set Password:** The *Set Password* field enables the user to assign a password to the selected profile. If a password already exists, it is not required that the user know the original password in order to overwrite it. Enter the desired password into this field. The password is numeric only.

    b. **Include Monitor Destinations:** If you wish to control the monitor destinations of the EQX router from the selected profile, place a check mark in the *Include monitor destinations* check box. This add the four EQX router monitor destinations automatically to the selected profile and will appear on any Advanced control panels that use this profile.

    c. **Default Destination:** To set a default destination, select a destination from the drop down menu. This destination will be automatically selected when the profile is loaded

    d. **Preview Destination:** To set a preview destination, select a destination from the drop down menu. When you preset a source (prior to pressing take) your source will be routed automatically to the Preview Destination you have selected.

    e. **Access Level:** To set an access level, select either Minimal, *Normal*, or *Administrator* from the drop down menu. The access level defines the level of control for locks and protects. Minimal (Unable to lock or protect), Normal (Able to lock and protect but not override owners), Administrator (Able to lock, protect, and override owners)

    f. **Use this profile for Name Push:** Placing a check mark in this box will force name updates from the MAGNUM server onto a device that supports local name updates.

    g. **Use Tieline Attributes:** Placing a check mark in this box will allow the panel to present the user with an attribute selection in order to use a specific tieline for a route.

    h. **Toggle Sources:** Placing a check mark in this box will allow the panel to present the user with all destinations within the profile with Toggle enabled by default.

11. If you are unhappy with the changes you have made to the multi-profile, you can revert back to the original profile settings by selecting the **Revert** button at the top right of the screen. After you have completed making your changes, select the **Done** button to finalized your updates.

6.6.2. Single-Profile

The **Single-Profile** tab enables the user to view, add, edit and delete Single-Profile interfaces.

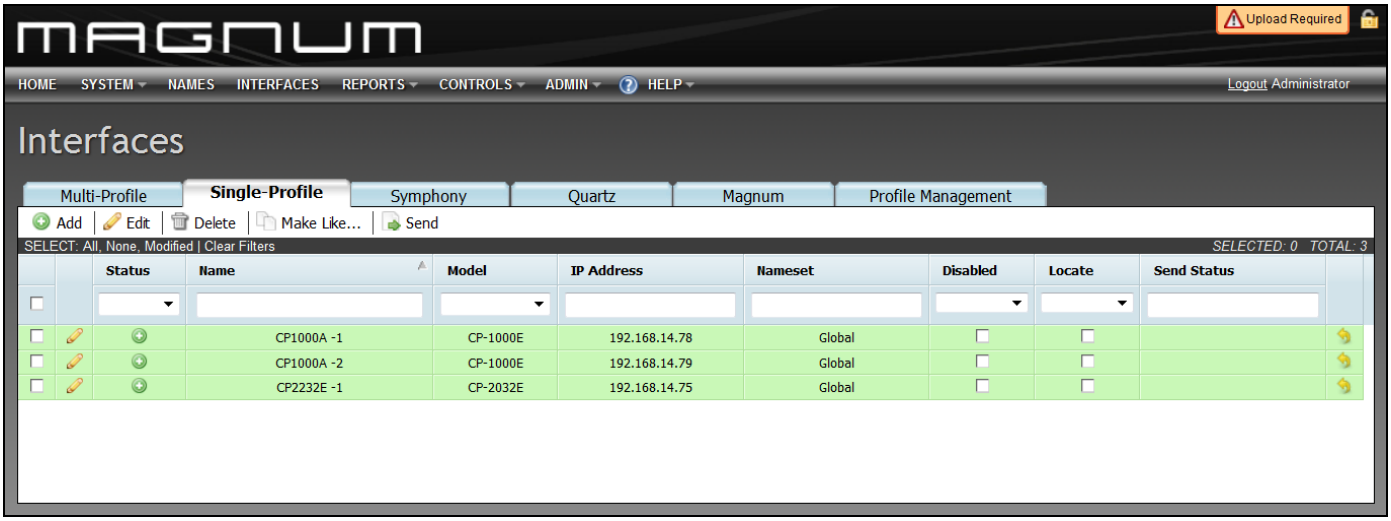


Figure 6-97: Single-Profile

The following table provides descriptions of the toolbar button functions for the Single-Profile Tab:

Icon	Description
Add	**Add:** To add a single-profile panel, select the **Add** button from the main toolbar. An ***Add Single-Profile Panel*** dialog box will appear as shown in Figure 6-98.
Edit	**Edit:** To edit a panel(s) profile, place a check mark in the box or boxes beside the profile that you wish to edit and then select the edit icon. This function is particularly useful if you are editing multiple panels at one time. Otherwise if you are just editing one panel, select the pencil icon beside the panel that you wish to edit.
	Delete: To remove a panel profile, place a check mark in the box beside the profile that you wish to remove, and select the delete icon.
Make Like...	**Make Like:** The *Make Like* function enables the user to clone an existing panel. Place a check mark beside the profile(s) that you wish to change and then select the *Make Like* button. The *Make Like* dialog box will appear (as shown in Figure 6-99). From the clone drop down menu select a panel that you wish to clone and then press the **Apply** button.
Send	**Send:** To apply the panel configuration to the physical panel(s), select the panel(s) that you wish to update and then press the *Send* button. The changes will be sent and applied to the selected panel

Table 6-2: Single Profile Toolbar

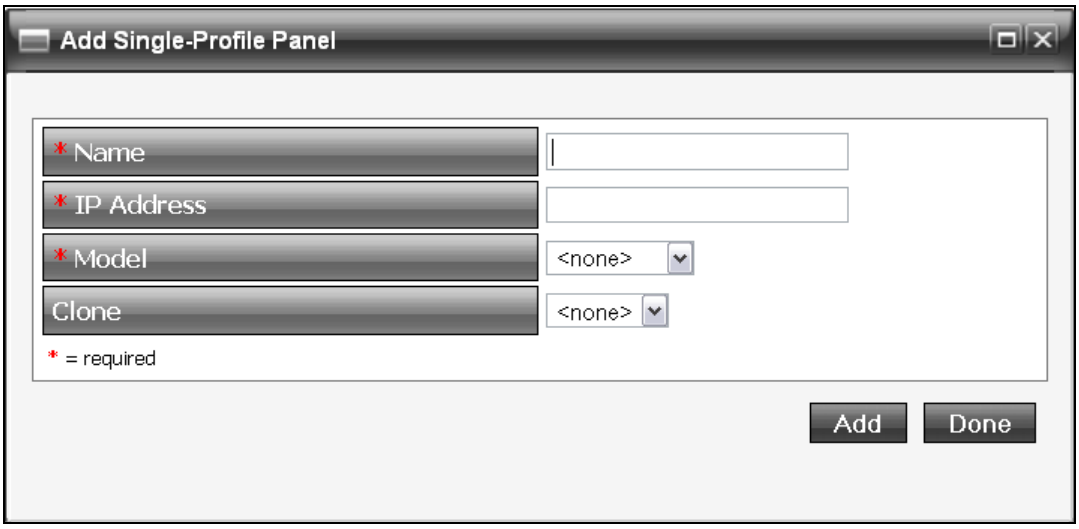


Figure 6-98: Add Single-Profile Panel Dialog Box

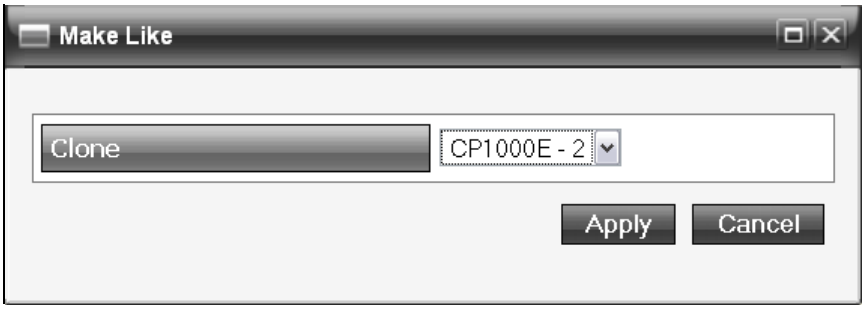


Figure 6-99: Make Like Dialog Box

To search for a particular panel, use the filter toolbar to sort through the list of panels. Enter a property into one of the blank fields or use the drop down menu to narrow down your search. As you type or select an item, the list of devices will be narrowed down to display only the properties that match the data being entered.

Figure 6-100: Single Profile Filter

The **Locate** function is used to find single profile simple panels (such as the CP-1000E or CP-2048E). When this function is turned on it will cause the panel to keep flashing in order for the user to find it.

6.6.2.1. Editing a Single Profile

To edit a single profile, navigate to the **Single Profile** Tab and follow the instructions listed below. Please note that the configuration controls for the sources and destinations tabs are the same, therefore for the sake of simplicity only the controls for the sources tab will be listed in detail below.

1. Select the **Edit** icon beside the profile that you wish to edit.

2. An **Interface Layout** screen will appear identifying the name of the single profile panel that you selected, as shown in Figure 6-101. The **Interface Layout** screen enables the user to assign sources and destinations to the control panel buttons. This screen also allows the user to configure the key settings, panel reset settings, sub-panel defaults, joystick ports and key colours, which will be later discussed in the manual.

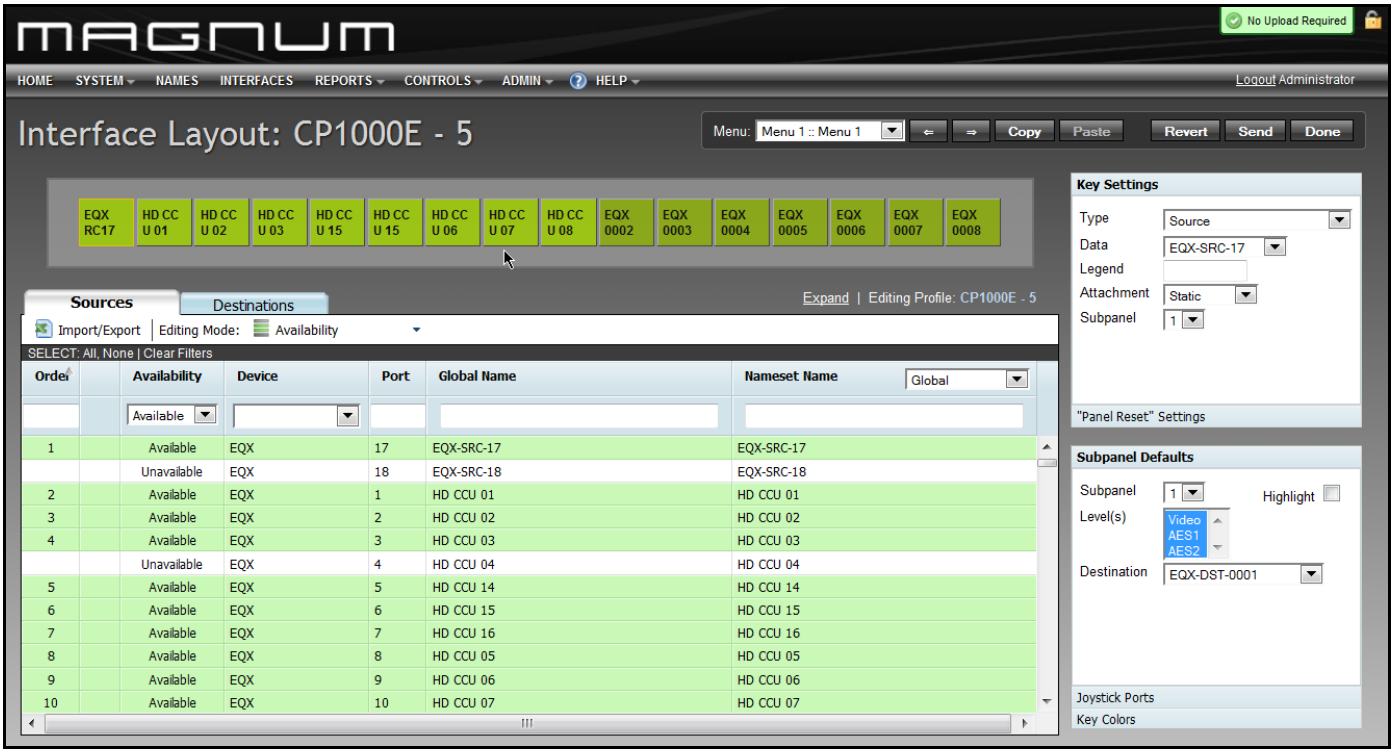


Figure 6-101: Single Profile – Sources Tab

3. The **Sources** tab provides a list of sources that are available and unavailable for the selected control panel. By single clicking on a source cell the user can perform three functions: Make a source available (green), make a source unavailable (white – *unavailable*) or create a placeholder/blank cell (white – *blank*). To see all available sources, set your availability filter to *Available*. To see all unavailable sources, set your availability filter to *Unavailable*. Finally, to view all sources (*available* and *unavailable*) clear the Availability drop down filter so that it is blank.

   A pop-up menu will be revealed when the user right clicks on a cell. By right clicking on a source, the menu shown in Figure 6-102 will appear. The following provides a list of actions that can be applied using the right-click menu, these items include:

   - **Make Available:** Allows the user to make an unavailable source available to the control panel. Available sources can be assigned to a control panel key using the **Key Settings** function.

   - **Hide:** Selecting the *Hide* function will turn the selected source row grey and blank out the corresponding button on the control panel. The term *Blank* will be displayed in the device column and on the corresponding control panel key. The blank features functions as a placeholder, allowing the user to reserve that source for future use.

- **Make Unavailable:** Selecting this feature will make the source unavailable and remove it from the current display. If a source is made unavailable, it cannot be referenced to the control panel.

- **Insert Blank:** Selecting this option will insert a blank source row and control panel key. Inserting a blank row will act as a placeholder.

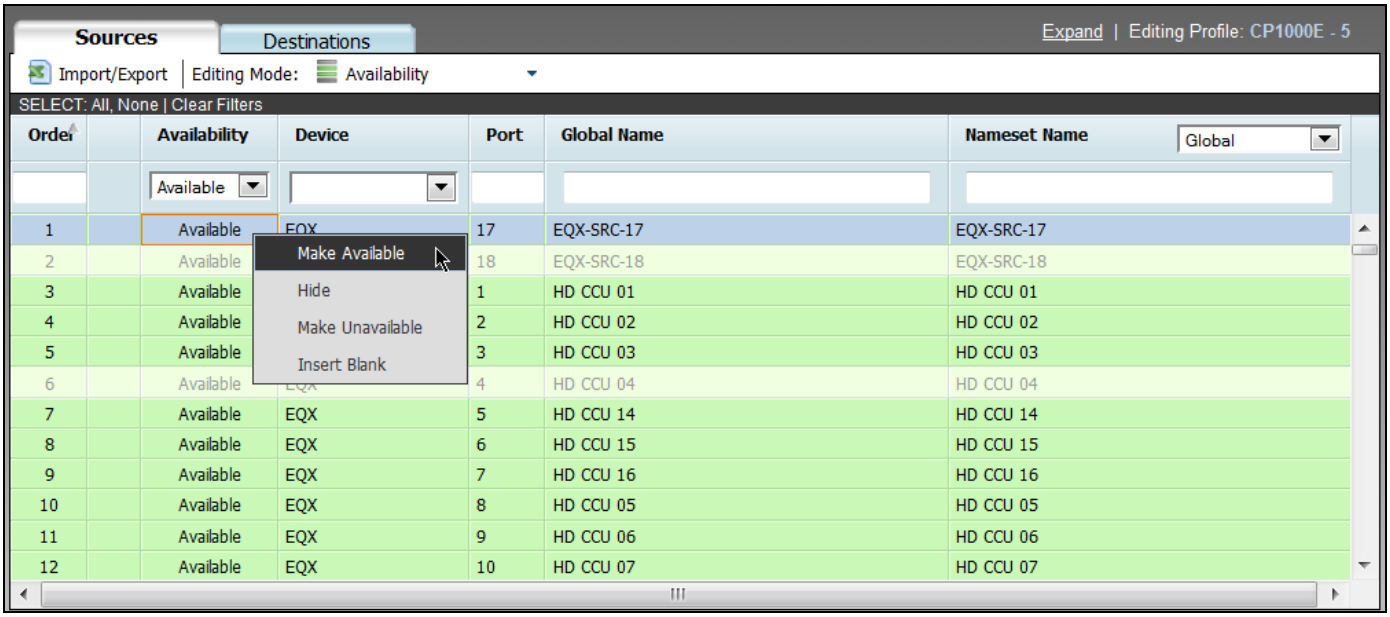


Figure 6-102: Right Click Menu for Interfaces

4. The **Sources** tab provides two top menu level options which include; *Editing Mode* and *Full Screen* mode.

Menu Option	Description
Availability	The **Editing Mode** drop down menu in the top left hand corner of the tab enables the user to change how the source availability is displayed. There are three availability options: **a) Availability:** Lists all the sources in alphanumeric order. **b) Availability (Group):** Places the sources into alphanumeric device groups. **c) Re-order:** Enables the user to physically drag and drop the sources into a specific order. The user can select multiple items by holding down the **shift** key and selecting a block of rows; they can select various random items by clicking the **Ctrl** key and selecting multiple cells. These items can then be dragged and dropped to a specific location in the column. See Figure 6-103.
Expand	Selecting the **Expand** option will hide the panel interface and expand the sources tab to populate the entire length of the screen.

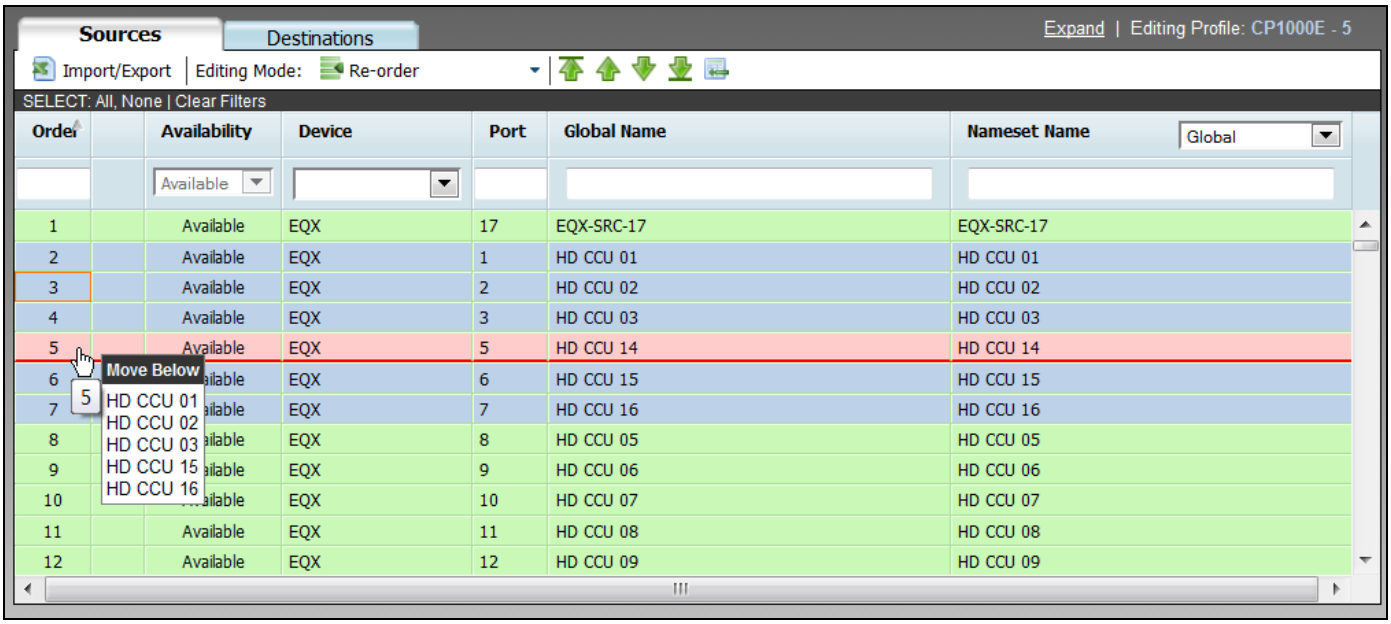


Figure 6-103: Re-order Availability – Drag & Drop Multiple Items

5. Using the **Key Settings** window (located on the right side of the screen and shown in Figure 6-104), the user can assign a specific source to a particular control panel key. Highlight a key on the control panel by selecting the panel button with your mouse; the selected key will be highlighted with a faint yellow box around the button.

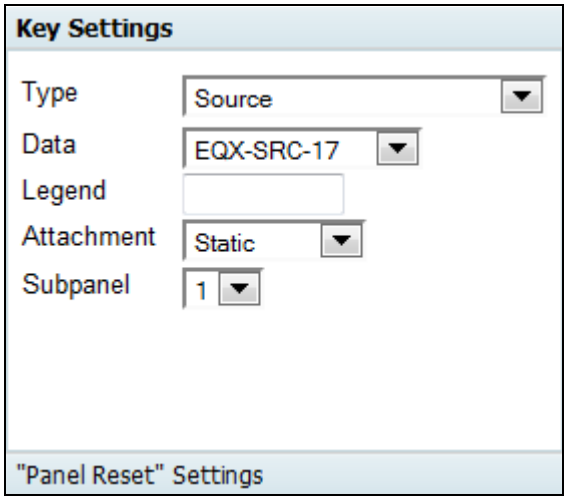


Figure 6-104: Key Settings

6. Once the desired button is selected, navigate to the **Key Settings** window and configure the following parameters:

Parameter	Description
Type	The **Type** drop down menu enables the user to select what type of button the selected key will be assigned to. There are numerous key options, therefore you must use the drop down menu to define the function of the key. See Table 6-3 for a list of the possible button assignments.
Data	The **Data** drop down menu enables the user to assign data to the selected button. Depending on your selection in the **Type** drop down menu, the **Data** drop down menu will adjust to accommodate the data related to the button type. For example, if the button **Type** is set to *Destination*, then the **Data** may be set to *MAGNUM-DST-0008*.
Legend	The **Legend** function enables the user to uniquely label the button. Type a name into the **Legend** field and the name will be displayed on the selected control panel button.
Attachment	The **Attachment** drop down menu enables the user to set an attachment status for the selected button. The attachment options are *Primary*, *Secondary*, and *Static*. This determines if the button will be affected by Primary menu or Secondary menu navigation. Static prevents any navigation affecting the button.
Subpanel	The **Subpanel** drop down menu enables the user to assign a sub-panel number to the selected button. This allows the user to sub divide the panel into different sections of control.

The following is a list of buttons that are used to configure the Control Panel.

Button	Description
Add String	This will clear the preset string and add the name field string defined for this key to it.
Add String/Character	This key will perform two different functions dependant on the content of the preset string. If the preset string is empty then it will add the name string defined for this key to it, otherwise it will append the single character defined for this key to the preset string providing there are less than 8 characters already in the string.
Append String	This will append a name field string to the current content of the preset string
Current Destination Display	Displays the name of the currently selected destination.
Current Dst Src Display	Displays the name of the currently routed source to the currently selected destination.
Current Source Display	Displays the currently routed source to a specific destination.
Delete Last Character	Deletes the last character in a string
Destination Mode	Toggles the preset window between source and destination mode
Destination Protect	Protects the destination from being routed from any other interface except the one that is protecting the destination.
Destination	Changes the currently selected destination.
Dst Scroll Up	Scrolls up and through the Destination List.
Dst Scroll Down	Scrolls down and through the Destination List.
Enable	Inhibits any source key from being taken to a destination unless this button is held down.
Last Menu	Displays and navigates to the previously displayed menu.
Level	Toggles the level *on/off* to affect possible breakaways on subsequent takes. Displays the level name.
Locks	Allows access to the locks functionality.
Next Destination	Changes the current destination to the next one defined in the name table.
Next Source Preset	This key increments the source that is routed to the pre-select. This key does not change any destination on the system but is used when a take or level take key is pressed. It will then take this pre-selection to the current destination.
Not Used	This key will not be used to control any function.
Panel Lock	Locks all functionality of the local panel.
Preset Clear	This key will clear the current preset string.
Prev. Source Preset	This key decrements the source that is routed to the pre-select. This key does not change any destination on the system but is used when a take or level take key is pressed. It will then take this pre-selection to the current destination.

Previous Destination	Changes the current destination to the previous one defined in the name table.
Primary Menu	Allows access to a primary menu.
Secondary Menu	Allows access to a secondary menu.
Setup	Allows access to the Setup menu.
Source	Takes this source to a currently selected source.
Source Chop	Allows the user to create a chop between two sources at a pre-determined rate.
Source Preset	This key changes the source that is routed to the pre-select. This key does not change any destination on the system but is used when a take or level take key is pressed. It will then take this pre-selection to the current destination.
Source Toggle	This key toggles between two sources.
Src Scroll Up	Scrolls up and through the Source List.
Src Scroll Down	Scrolls down and through the Source List.
Static Destination	Destinations that are not affected by re-ordering or scroll list navigation
Static Source	Sources that are not affected by re-ordering or scroll list navigation – CP2272E
Static Source Preset	Sources that are not affected by re-ordering or scroll list navigation – CP2272E. The Static Source Preset is used in conjunction with Take, the source is not routed unless the Take is used.
System Salvo	This key type allows one of the system salvos (defined by the salvo combo box) to be fired.
Take	This key takes the current preset source selection to the current destination on all the currently enabled levels. The button will display the currently routed source on the lowest enabled level, unless a legend is given to this key.
Take Clear	Clear selected source on Take.
Take Level Preset	Source take on a specific level.

Table 6-3: Button Description

7. To assign panel reset buttons, select the **'Panel Reset' Settings** button to expand the reset instructions and put the control panel interface into *Panel Reset* mode. Using your cursor, select two buttons that will be used to reset the physical panel. When the buttons are selected they will flash black, as shown in Figure 6-105. Once the configuration is sent to and loaded on the physical control panel, the user will be able to physically hold down these two keys in order to reset the panel.

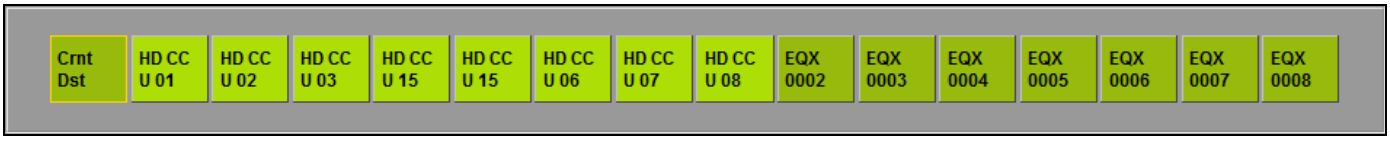


Figure 6-105: Panel Reset Selection

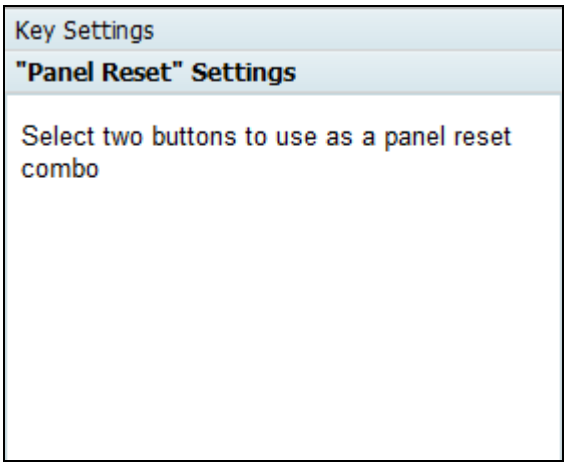


Figure 6-106: 'Panel Reset' Setting Window

8. To configure the sub-panel defaults, navigate to the **Subpanel Defaults** window and use the window to configure your settings.

Parameter	Description
Subpanel	Use the **Subpanel** drop down menu to select the sub-panel number.
Level(s)	Use the **Levels** menu to select the level that you wish to assign as the default.
Destination	Assign a default destination by selecting a destination from the **Destination** drop down menu.
Highlight	Place a check mark in the **Highlight** box if you wish to highlight the selected subpanel.

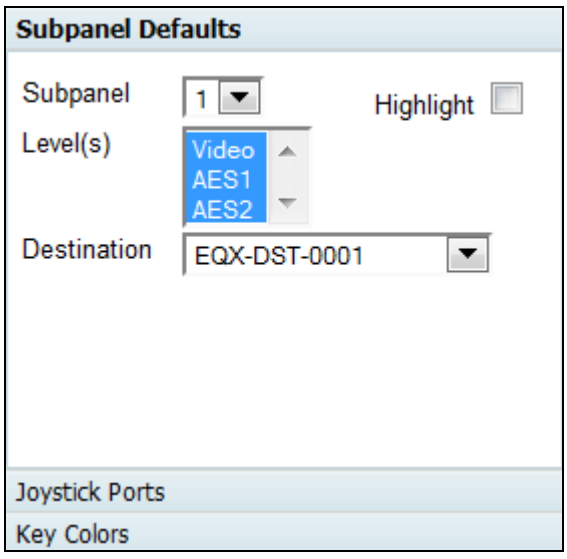


Figure 6-107: Subpanel Defaults Window

9. To configure the joystick ports, expand the **Joystick Ports** window and configure your settings using the parameters listed below:

Parameter	Description
Port	Use the **Port** drop down menu to select the port number.
Level(s)	Use the **Levels** menu to select the level that you wish to assign to the joystick.
Mode	Use the **Mode** drop down menu to select the joystick port mode. The mode options are: i. **Disabled:** Disables the joystick port. ii. **Momentary:** Switches to new source then back to previous iii. **Permanent:** Switches to new source and does not revert
Source	Use the **Source** drop down menu to assign a source to the joystick port.
Destination	Use the **Destination** drop down menu to assign a destination to the joystick port.

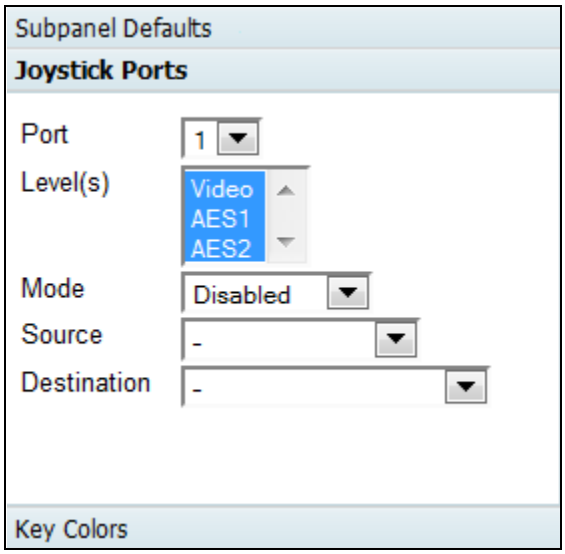


Figure 6-108: Joystick Ports Window

10. To configure the button key colors, expand the **Key Colors** window and configure your settings using the parameters listed below:

Parameter	Description
Source	This parameter enables the user to set the key colors for the source buttons. To set the *Off* color, highlight the Source *Off* key and then select a color from the palette. Follow the same procedure for the *On* button. Be sure to select different colors for the *On* and *Off* state so that they can be easily identified.
Preset	Use the color palette to set the *On/Off Preset* key colors.
Destination	Use the color palette to set the *On*/*Off Destination* key colors.
Level	Use the color palette to set the *On/Off Level* key colors. Use the drop down menu to set the colors for each level key.
Lock	Use the color palette to set the *On/Off Lock* key colors.
Display	Use the color palette to set the *Display* key colors.
Take	Use the color palette to set the *On/Off Take* key colors.
Level Take	Use the color palette to set the *On/Off Level Take* key colors.
Salvo	Use the color palette to set the *On/Off Salvo* key colors.
Other	Use the color palette to set the *On/Off Other* key colors.
Reset	Select the **Reset** button to set the button keys to their original designated color palette.
Set to Panel Defaults	Select the **Set to Panel Defaults** button to set the button keys to the panel's designated key colors.

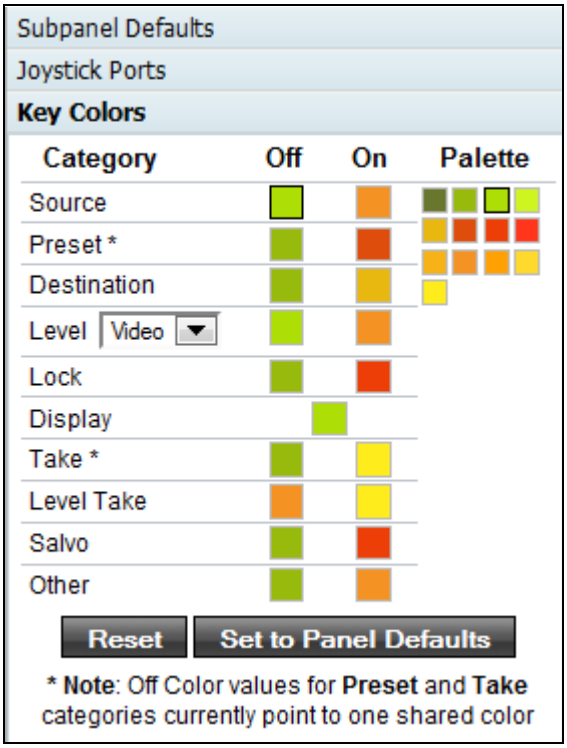


Figure 6-109: Key Colors Window

11. The control menu at the top of the screen enables the user to navigate the menu structure created for the Interface. Table 6-4 will describe the functions of the menu, as shown in Figure 6-110:

Figure 6-110: Interface Layout Menu

Control	Description
Menu:	Use the drop down menu to select a pre-existing interface from the list. Selecting one of these options will navigate to the selected menu.
⇐	Using the *Back* button will toggle back through the drop down menu.
⇒	Using the *Forward* button will toggle the user to the next menu layout listed in the drop down menu.
Copy	Select the *Copy* button if you wish to copy the contents of the currently selected menu.
Paste	Select the *Paste* button if you wish to paste the contents of the selected menu during the "copy" and paste into the layout.
Revert	The *Revert* button will load the original interface layout. Select the *Revert* button if you have made changes that you are not satisfied with and you would like to revert back to the original layout.
Send	To send the interface layout to the physical control panel, select the **Send** button and the control panel configuration will be sent and loaded onto your control panel.
Done	If you have finished configuring the interface layout, select the **Done** button to save the changes and return back to the *Interfaces* main screen.

Table 6-4: Menu Controls

12. If you wish to configure the destinations on the interface, select the **Destinations** tab from the *Interface Layout* screen, as shown in Figure 6-111 and follow the same procedures to edit destinations as outlined above for sources.

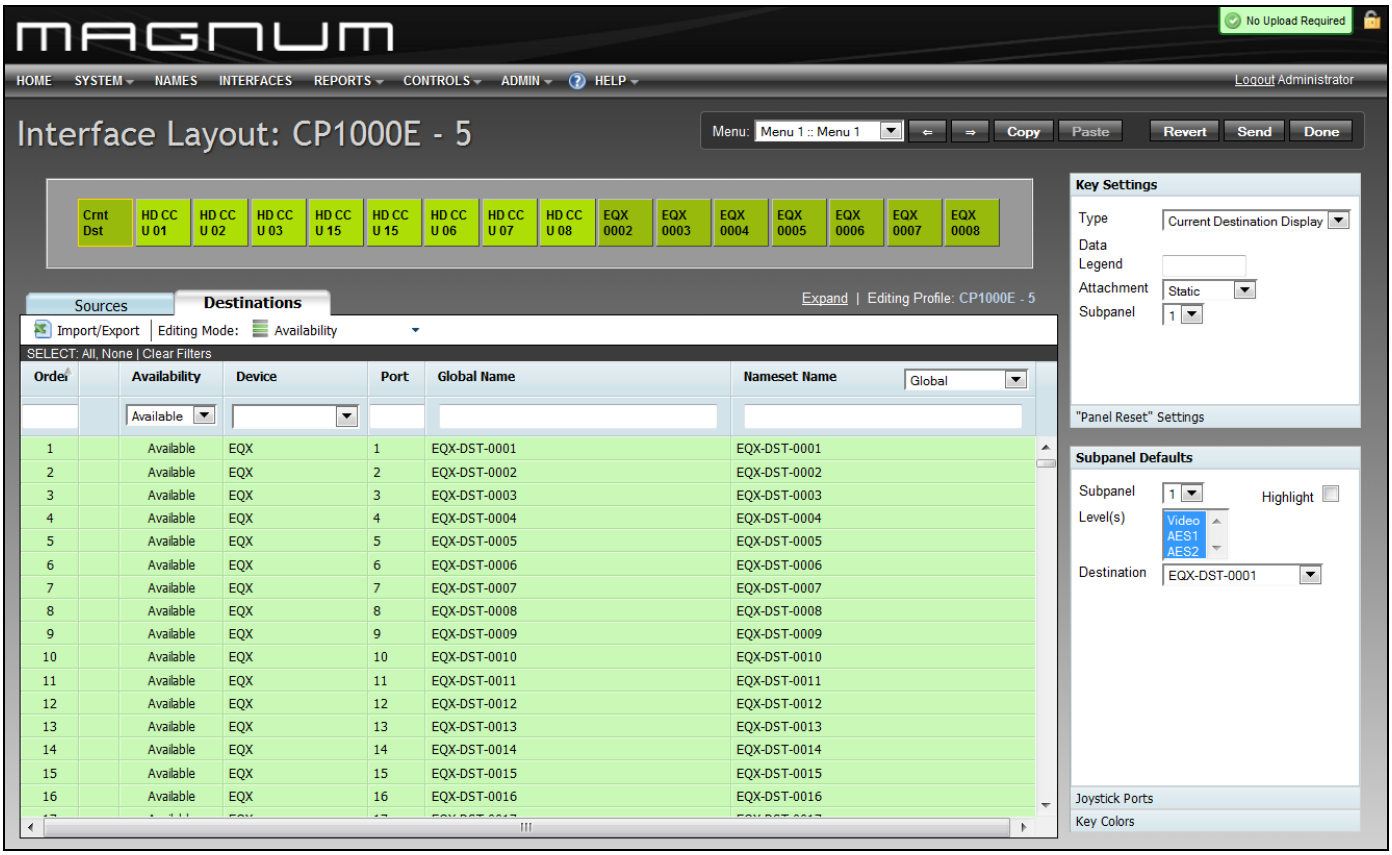


Figure 6-111: Single Profile – Destination Tab

6.6.2.2. Editing Multiple Interfaces Simultaneously

1. The user can edit multiple single-profile panels simultaneously by placing a check mark(s) in the SELECT column beside the panels that you wish to edit, as shown in Figure 6-112.

2. Once the desired panels have been selected, click on the **Edit** icon at the top menu bar.

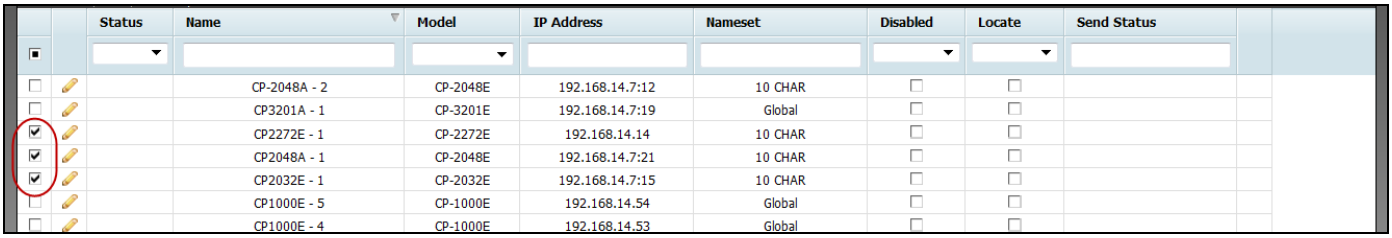


Figure 6-112: Multiple Panels Selected on a Single Profile

3. The **Interface Layout** screen will appear enabling the user to edit all of the selected panels at once. Edit the panels using the same instructions as listed in section 6.6.2.1.

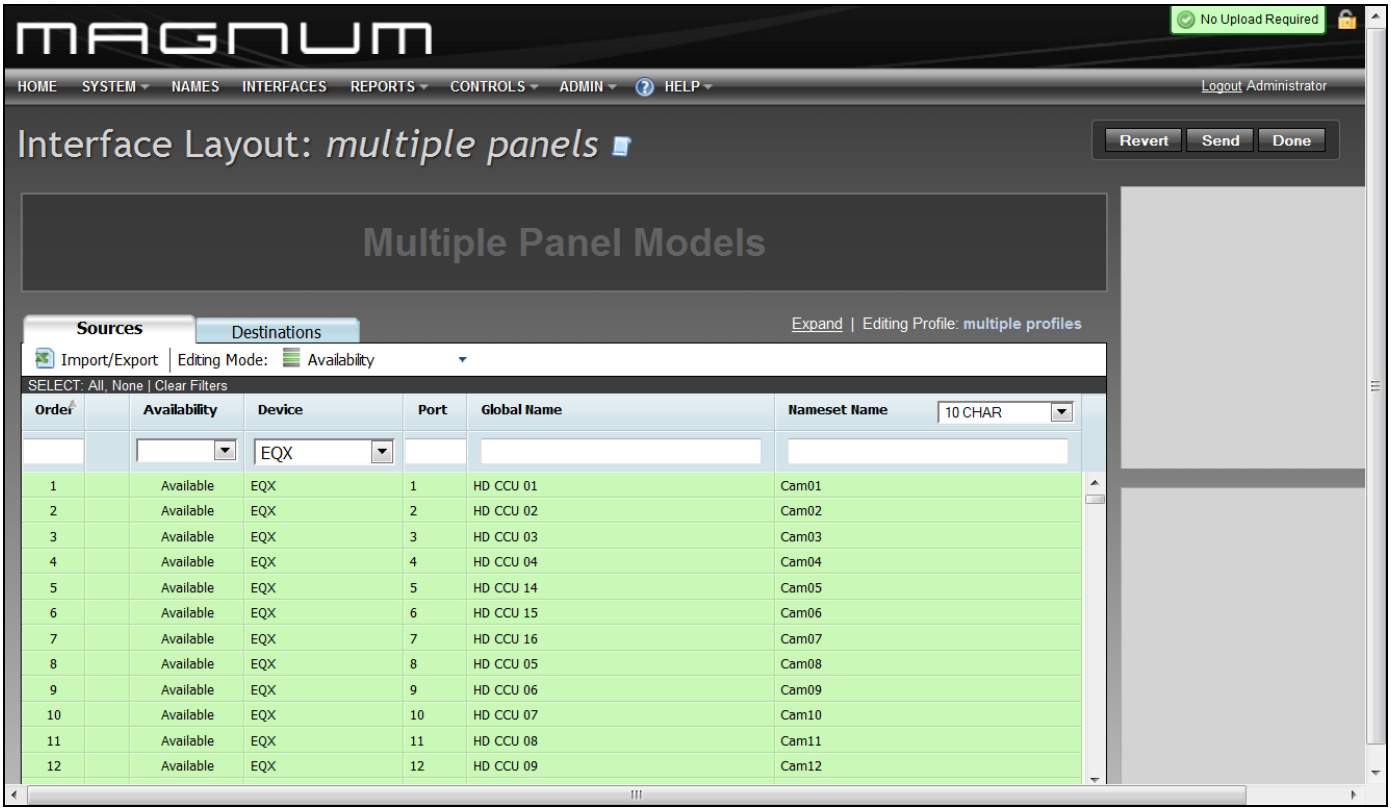


Figure 6-113: Multiple Panel Interface Layout

4. The user can sort and filter the devices using the **Availability** drop down menu highlighted in Figure 6-113. There are three menu options in the availability filter drop down menu: *Available*, *Unavailable*, and *Uncommon*. The function of these options are as follows:

    - **Available:** Displays all the common available sources/destinations.
    - **Unavailable:** Displays all the common unavailable sources/destinations.
    - **Uncommon:** Displays all the sources/destinations that are dissimilar. If a selected profile does not have the same availability then the source or destination that is uncommon to the other items in the profile will be displayed. For example, Figure 6-114 shows the uncommon items present in a multi-panel selection.

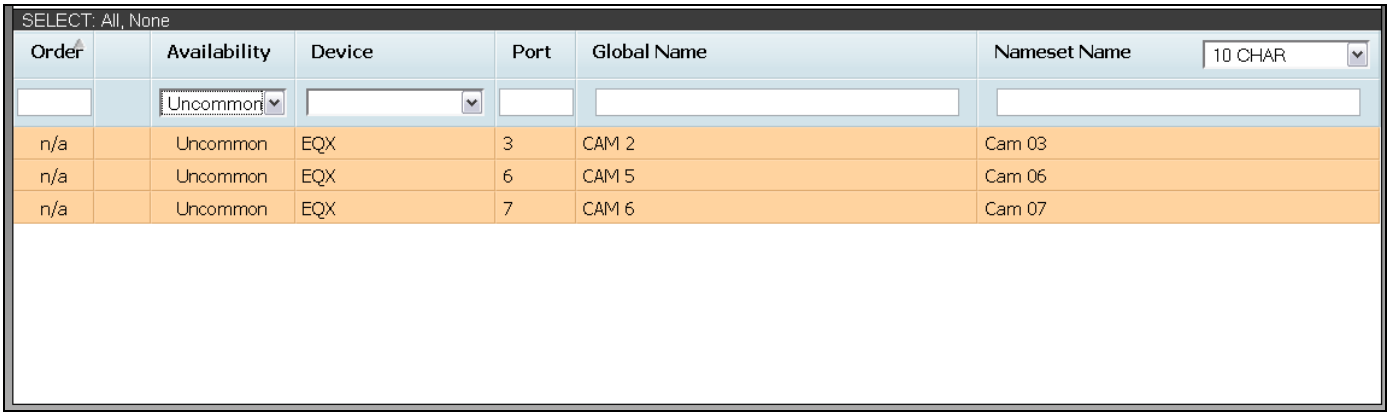


Figure 6-114: Availability – 'Uncommon' in Multi-Panel Selection

5. To review the panels that you have selected, select the **paper scroll** icon at the top of the screen beside the '*multiple panels'* text. Selecting this icon will display a **Panel List** dialog box (as shown in Figure 6-115) that lists all of the panels in the selected group.

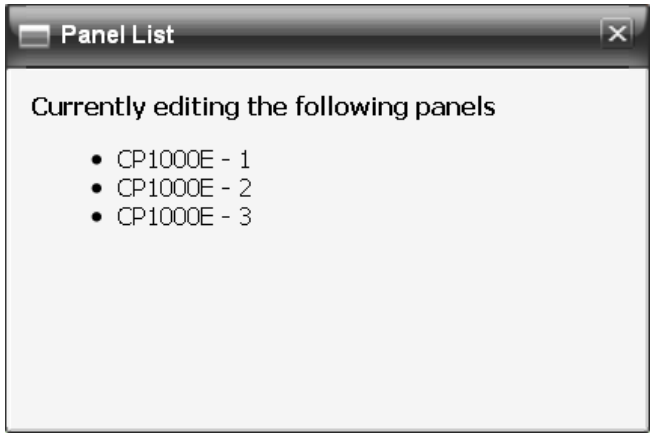


Figure 6-115: Panel List Dialog Box

6.6.3. Symphony

The **Symphony** section enables the user to setup the Symphony protocol for 3rd party access.

The user can select a previously created profile and assign it to the Symphony interface from the Profile Availability selection box. The sources and destinations contained within the profile will be made available to the 3rd party system for control using the Symphony protocol

Once the profile is selected, it will be applied to the Symphony and the message "*Successfully changed the Profile*" will be displayed.

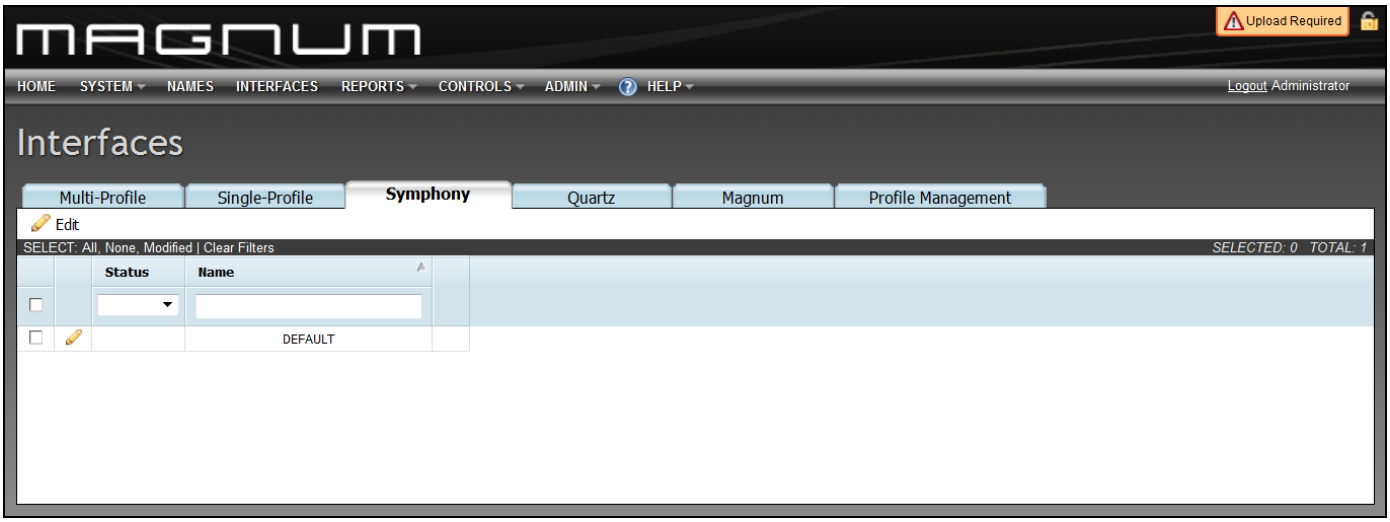


Figure 6-116: Symphony Tab

The *Symphony* tab has one main control button, as described below:

Icon	Description
Edit	**Edit:** To edit a symphony profile, place a check mark in the box beside the profile that you wish to edit and then select the edit icon.

Table 6-5: Symphony Toolbar

6.6.4. Quartz

Selecting the **Quartz** menu item from the **INTERFACES** menu enables the user to configure a Quartz interface to the MAGNUM Server that acts like a Quartz device. Quartz is an integer based protocol, the integers are derived from the order column within the configured Quartz interface.

The MVP Profile interface is automatically created and maintained by MAGNUM when multiviewer devices are present in the system. Editing of the MVP Profile should only be done with the assistance of Evertz Service personnel.

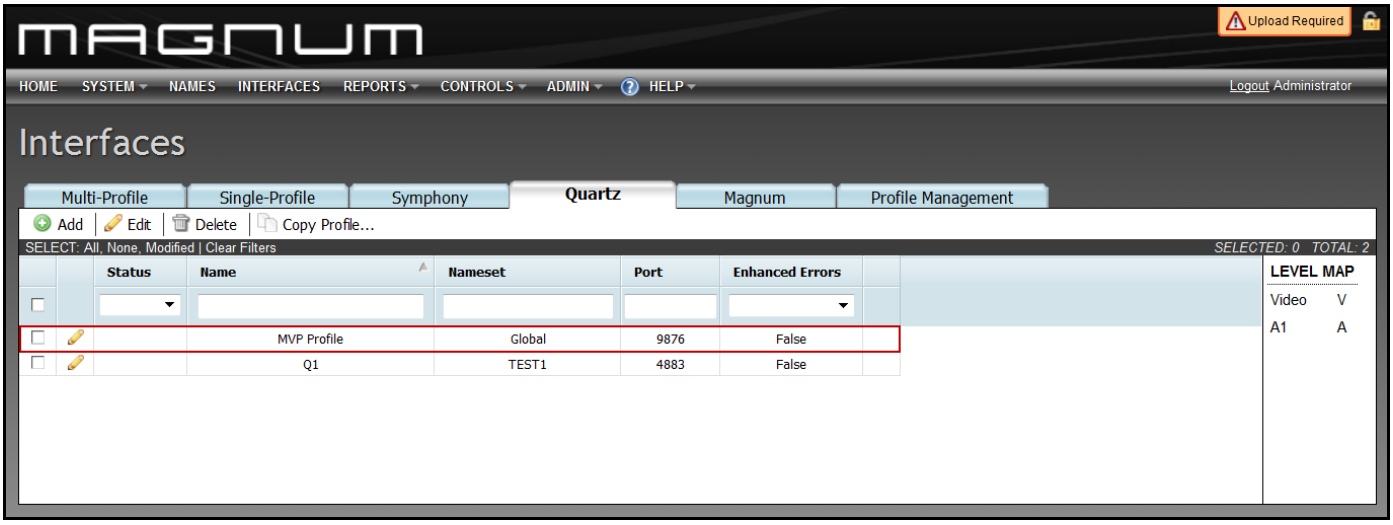


Figure 6-117: Quartz Tab

Icon	Description
Add	**Add:** To add a Quartz interface, select the **Add** button from the main toolbar. An ***Add Interface*** dialog box will appear as shown in Figure 6-118.
Edit	**Edit:** To edit an interface, place a check mark in the box beside the interface that you wish to edit and then select the edit icon. This function is particularly useful if you are editing multiple interfaces at one time. Otherwise if you are just editing one interface, select the pencil icon beside the profile that you wish to edit.
	Delete: To remove interface, place a check mark in the box beside the interface that you wish to remove, and select the **Delete** icon.
Copy Profile...	**Copy Profile:** The *Copy Profile* function enables the user to clone an existing profile to be used for the Quartz interface. Place a check mark beside the profile(s) that you wish to change and then select the *Copy Profile* button. The *Copy A Profile* dialog box will appear (as shown in Figure 6-119). From the clone drop down menu select a profile that you wish to clone and then press the **Apply** button.

Table 6-6: Quartz Toolbar

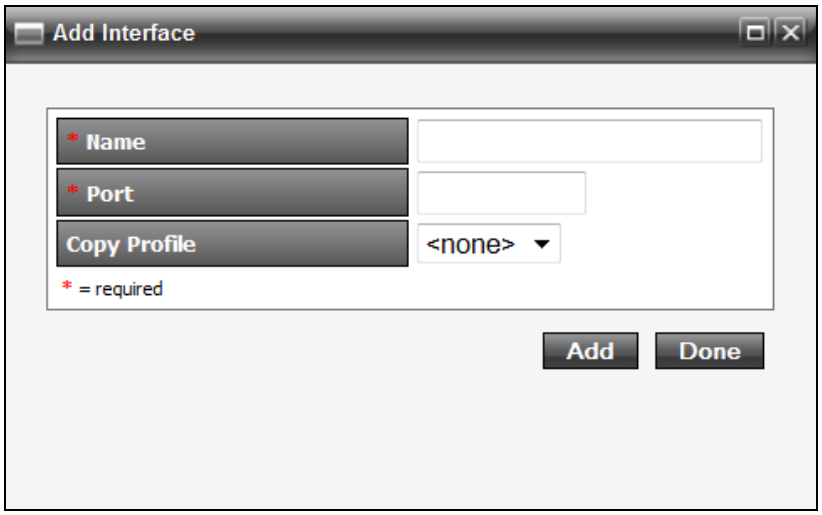


Figure 6-118: Add Interface Dialog Box

To create a new quartz interface, follow the instructions listed below:

1. The user can add a quartz interface by entering a unique identifier name into the *Name* field.
2. In the *Port* field, enter the port that will be used for the Quartz interface.
3. Select a profile from the *Copy Profile* drop down menu.
4. Once all the appropriate information is entered, select the **Add** button to add the Quartz interface to the list on the main Quartz tab.
5. When you have finished adding interfaces, select the **Done** button to return to the main Quartz interface screen.

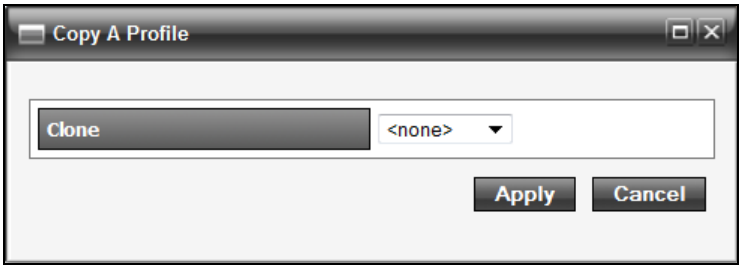


Figure 6-119: Copy A Profile Dialog Box

6.6.4.1. Level Map

The Level Map is the Quartz Protocol Level equivalent to the levels that are defined within the Virtual Ports Page. These levels would be used when Virtual Ports are included within a Quartz Interface and the user would like to route using the available levels of such ports.

LEVEL MAP	
Video	V
A1	A

6.6.5. Magnum Tab

Selecting the **Magnum** menu item from the **INTERFACES** menu enables the user to configure a Magnum Protocol interface into to the MAGNUM Server. This is a JSON RPC protocol interface.

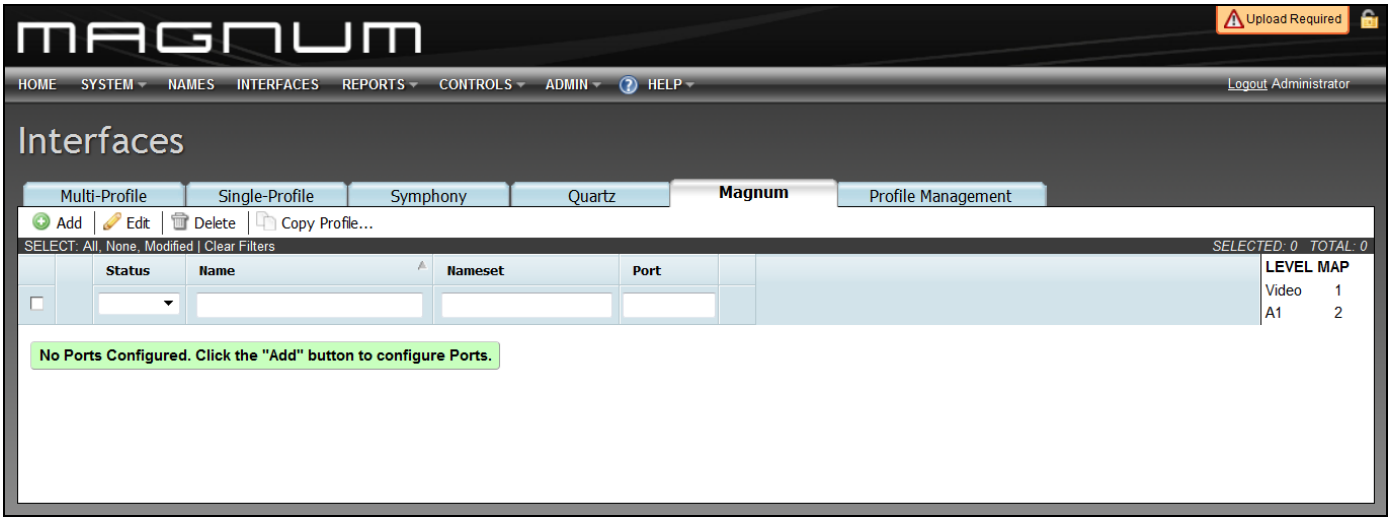


Figure 6-120: Magnum Tab

Icon	Description
Add	**Add:** To add a Magnum interface, select the **Add** button from the main toolbar. An ***Add Interface*** dialog box will appear as shown in Figure 6-118.
Edit	**Edit:** To edit an interface, place a check mark in the box beside the interface that you wish to edit and then select the edit icon. This function is particularly useful if you are editing multiple interfaces at one time. Otherwise if you are just editing one interface, select the pencil icon beside the profile that you wish to edit.
	Delete: To remove interface, place a check mark in the box beside the interface that you wish to remove, and select the **Delete** icon.
Copy Profile...	**Copy Profile:** The *Copy Profile* function enables the user to clone an existing profile to be used for the Quartz interface. Place a check mark beside the profile(s) that you wish to change and then select the *Copy Profile* button. The *Copy A Profile* dialog box will appear (as shown in Figure 6-119). From the clone drop down menu select a profile that you wish to clone and then press the **Apply** button.

Table 6-7: Magnum Toolbar

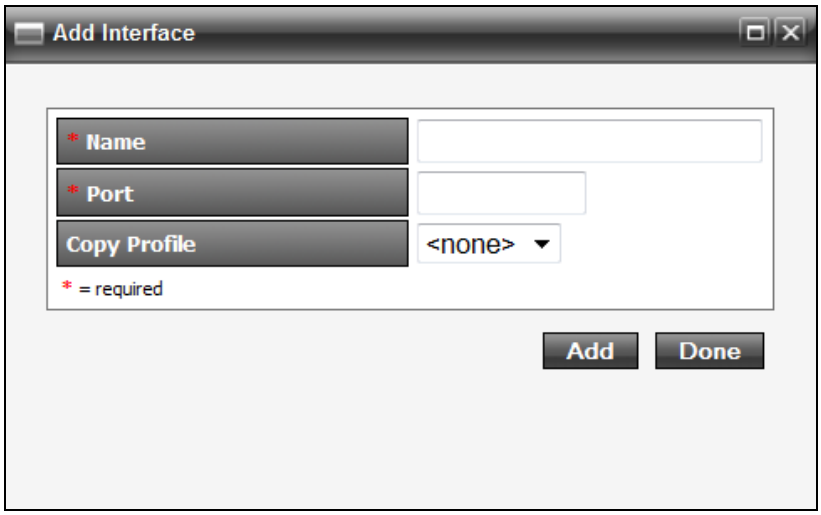


Figure 6-121: Add Interface Dialog Box

To create a new quartz interface, follow the instructions listed below:

6. The user can add a Magnum interface by entering a unique identifier name into the *Name* field.
7. In the *Port* field, enter the port that will be used for the Magnum interface.
8. Select a profile from the *Copy Profile* drop down menu.
9. Once all the appropriate information is entered, select the **Add** button to add the Magnum interface to the list on the main Magnum tab.
10. When you have finished adding interfaces, select the **Done** button to return to the main Magnum interface screen.

Figure 6-122: Copy A Profile Dialog Box

6.6.5.1. Level Map

The Level Map is the MAGNUM Protocol Level equivalent to the levels that are defined within the Virtual Ports Page. These levels would be used when Virtual Ports are included within the MAGNUM Interface and the user would like to route using the available levels of such ports.

LEVEL MAP	
Video	V
A1	A

6.6.6. Profile Management

The **Profile Management** section enables the user to create, edit or remove profiles. A profile is a list of sources, destinations and a nameset which can be applied to panels, protocol interfaces etc.

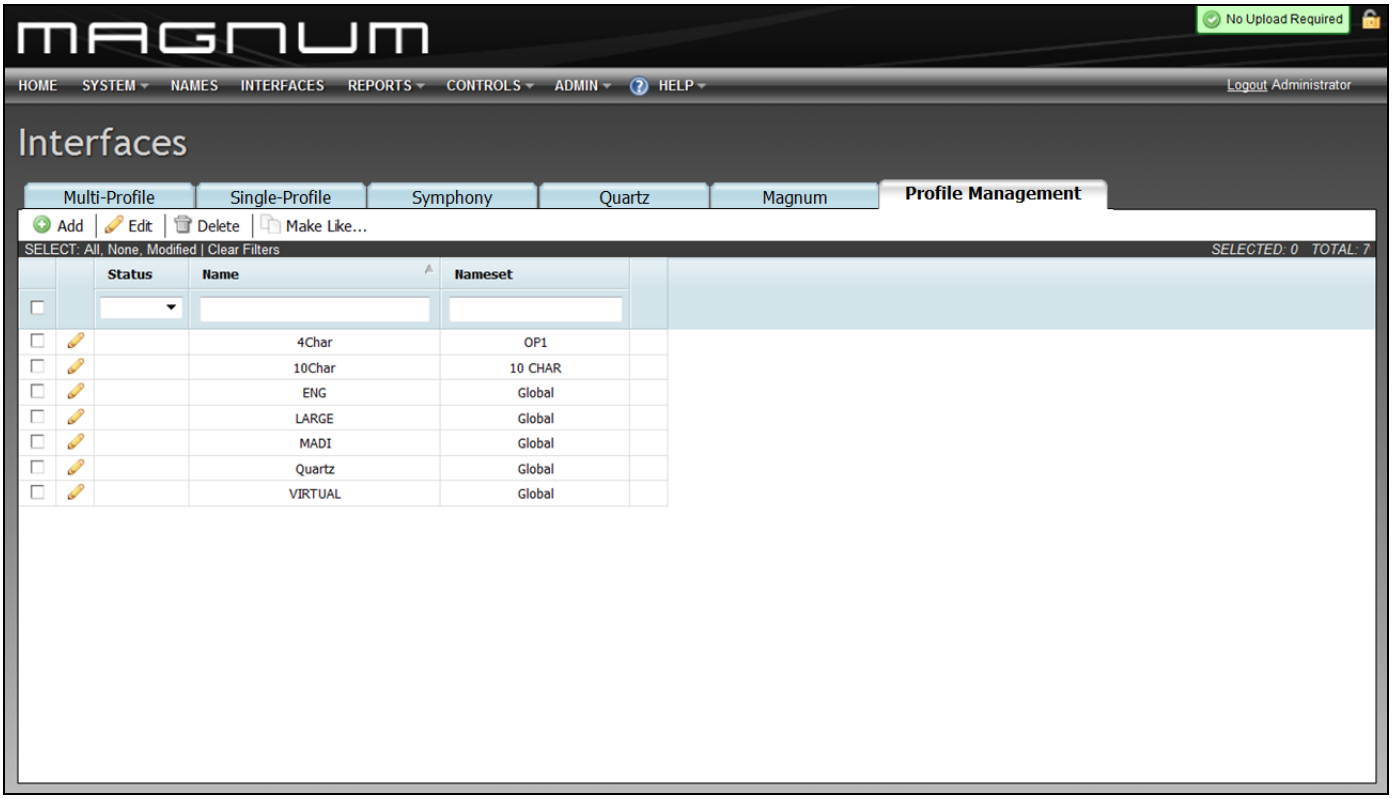


Figure 6-123: Profile Management

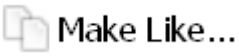
Icon	Description
	Add: To add a profile, select the **Add** button from the main toolbar. An ***Add Profile*** dialog box will appear as shown in Figure 6-124.
	Edit: To edit profile(s), place a check mark in the box beside the profile(s) that you wish to edit and then select the edit icon. This function is particularly useful if you are editing multiple profiles at one time. Otherwise if you are just editing one profile, select the pencil icon beside the profile that you wish to edit.
	Delete: To remove a profile, place a check mark in the box beside the profile that you wish to remove, and select the delete icon.
	**Make Like:** The *Make Like* function enables the user to clone an existing profile. Place a check mark beside the profile(s) that you wish to change and then select the *Make Like* button. The *Copy A Profile* dialog box will appear (as shown in Figure 6-125). From the clone drop down menu select a panel that you wish to clone and then press the **Apply** button.

Figure 6-124: Add Profile

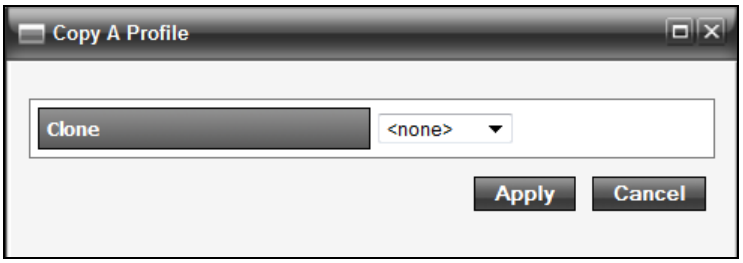


Figure 6-125: Copy A Profile Dialog Box

6.6.6.1. Editing a Single Profile

The following section will describe how to edit a single profile.

1. To edit a profile, select the edit icon beside the corresponding profile that you wish to edit, as shown in Figure 6-126.

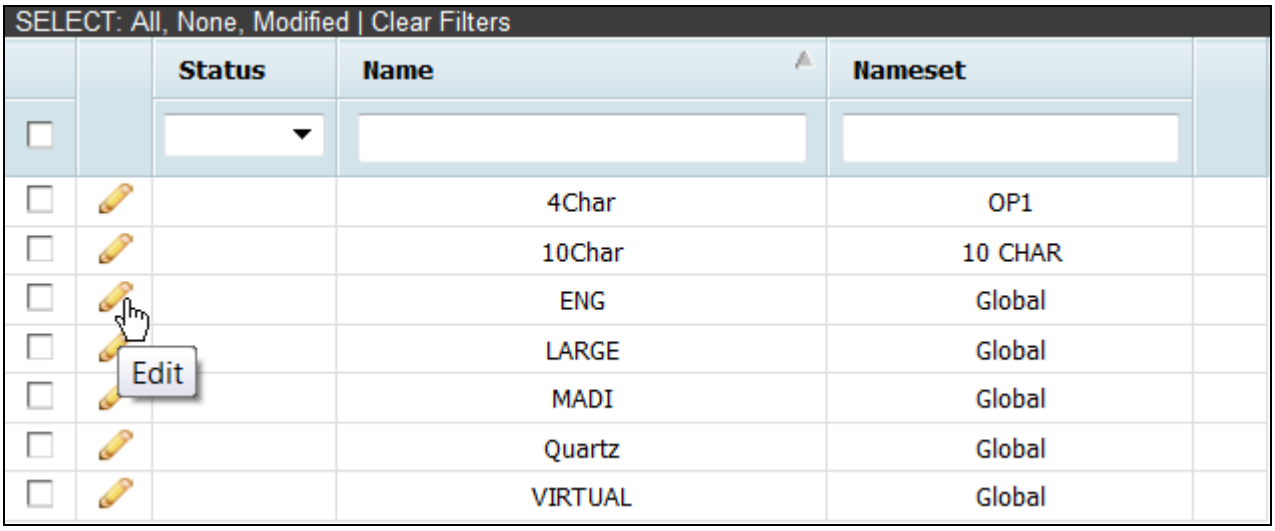


Figure 6-126: Selecting a Profile to Edit

2. Once the single profile is selected, the **Edit Profile** screen will appear enabling the user to configure four different sections: Sources, Destinations, Categories, and Settings.

3. The **Sources** tab enables the user to view and change sources to be available or unavailable.

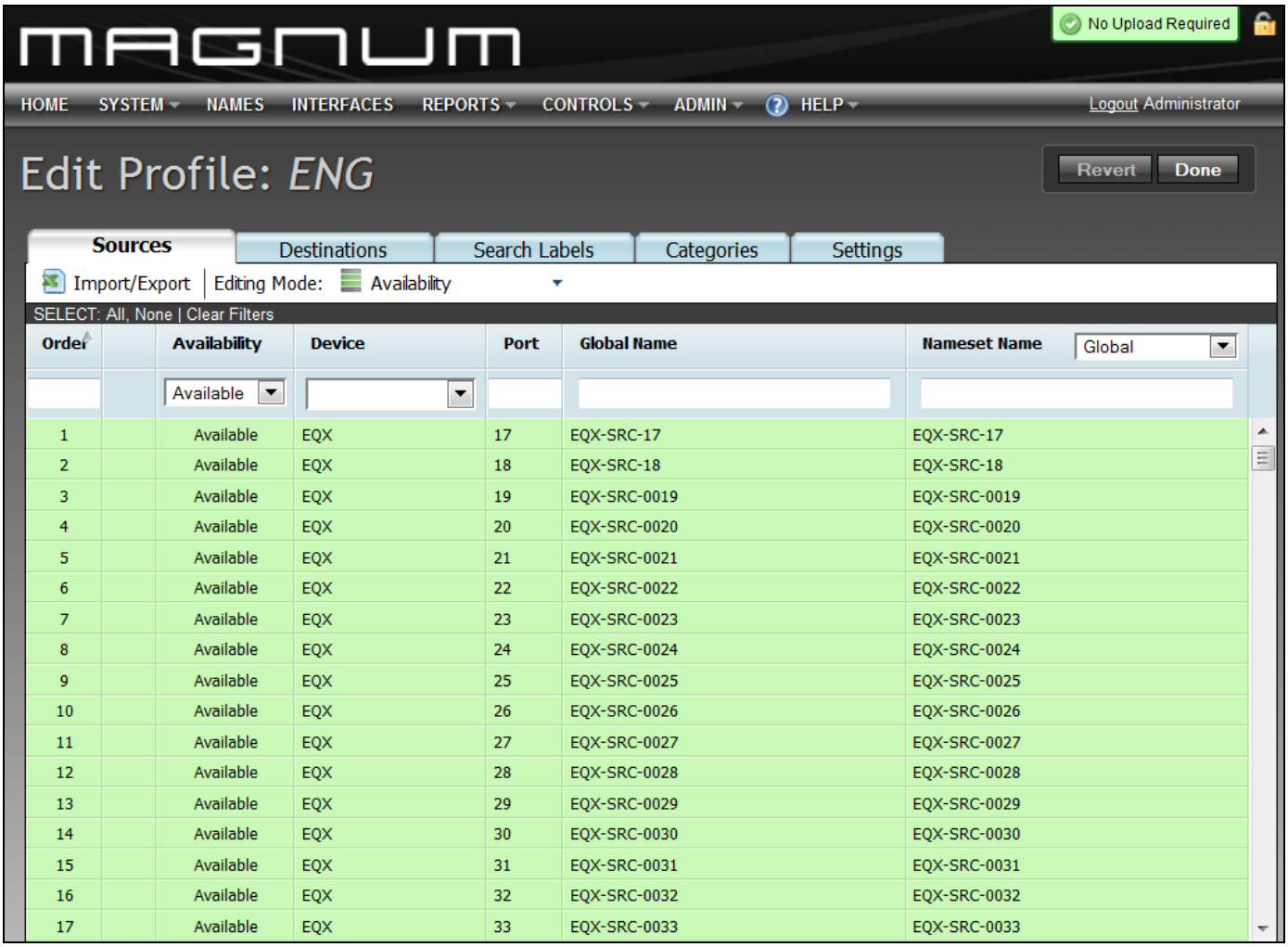


Figure 6-127: Edit Profile – Sources Tab

4. The user can use the **Nameset Name** drop down menu to select and load another Nameset. Once the Nameset is loaded the user can to edit the sources to be available or unavailable.

5. Next, toggle to the **Destinations** tab, and perform the same functions as described above for editing the sources tab.

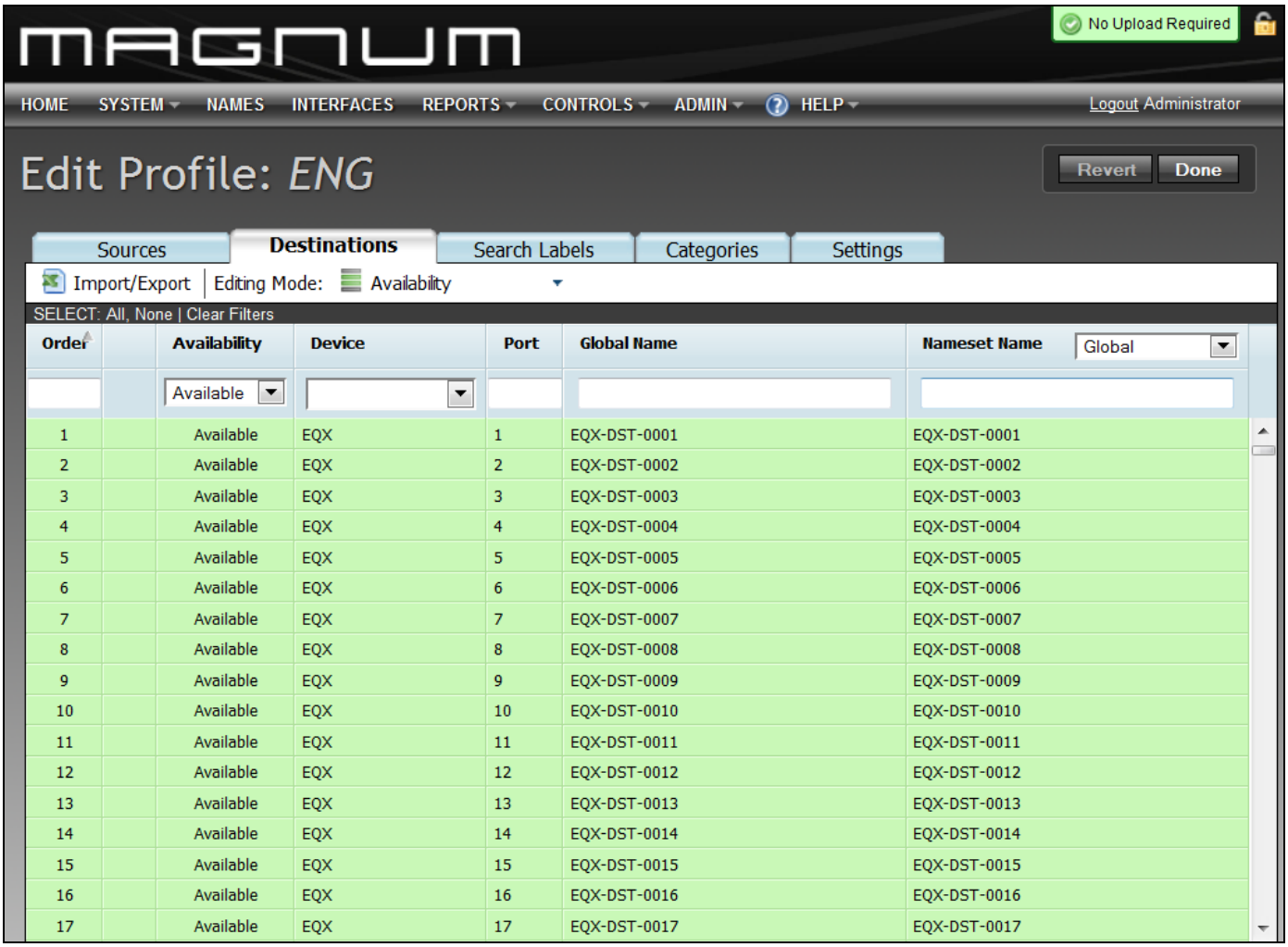


Figure 6-128: Edit Profile – Destinations Tab

6. The **Search Labels** tab allows the user to add and remove Source and Destination labels available to the selected profile. The Labels available and the assignment to available ports are done on the **Port Labels** page. If Search Labels are used they override selections made in the **Category** tab.

Figure 6-129: Edit Profile – Search Labels Tab

7. The user can also add a new category or edit one of the current categories associated with the selected profile. Select the **Category** tab to edit the category settings; the **Source Categories** will be listed on the left side of the screen and the **Destination Categories** will be listed on the right side of the screen. If a category is listed as *unavailable* (white), then single click on the category row to change it to *available* (green). If you wish to make an *available* category *unavailable*, single click on the desired row to change the status.

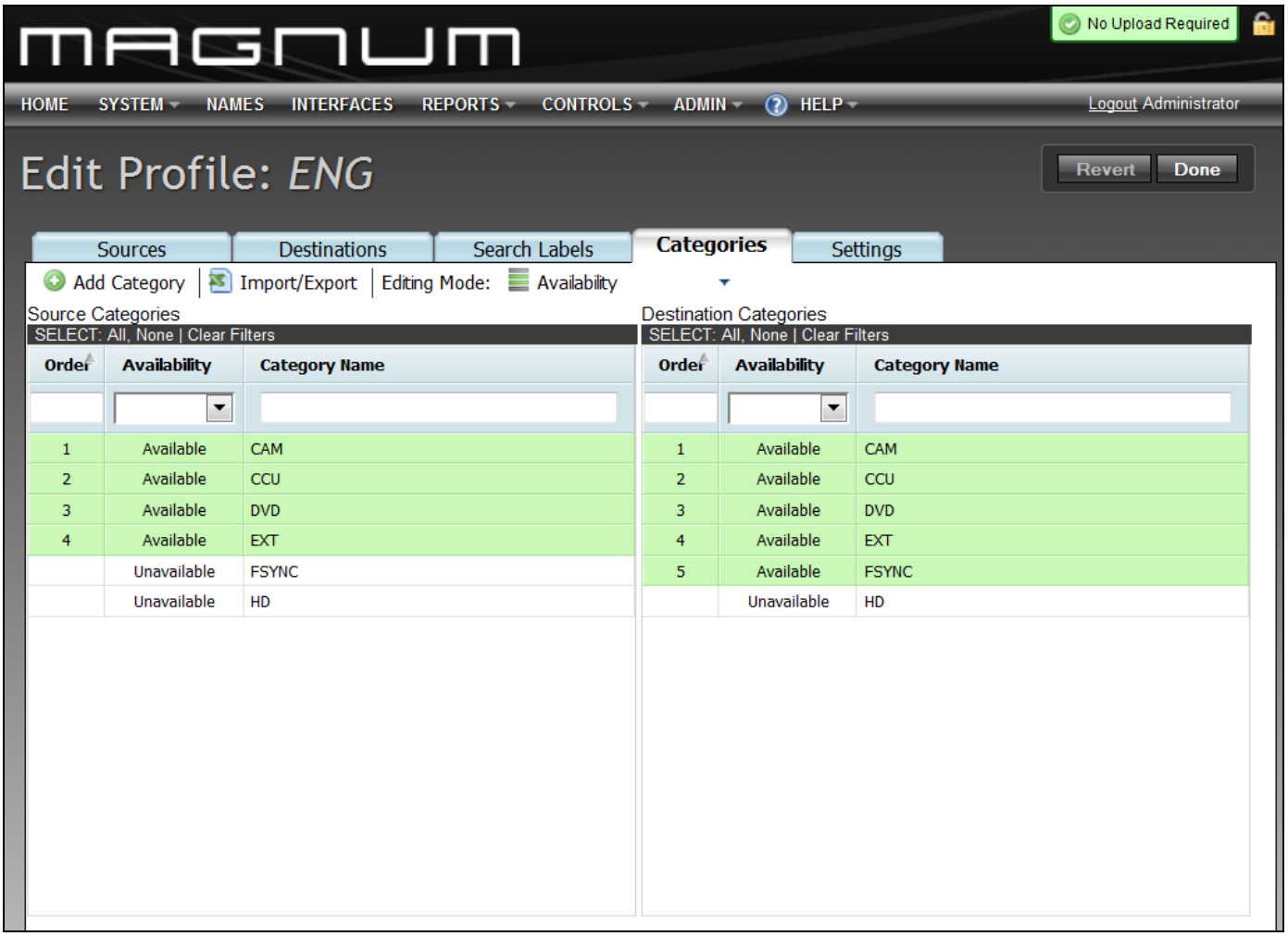


Figure 6-130: Edit Profile - Categories Tab

8. To modify the profile settings, select the **Settings** tab. The profile settings for the selected profile will be displayed as shown in Figure 6-131.

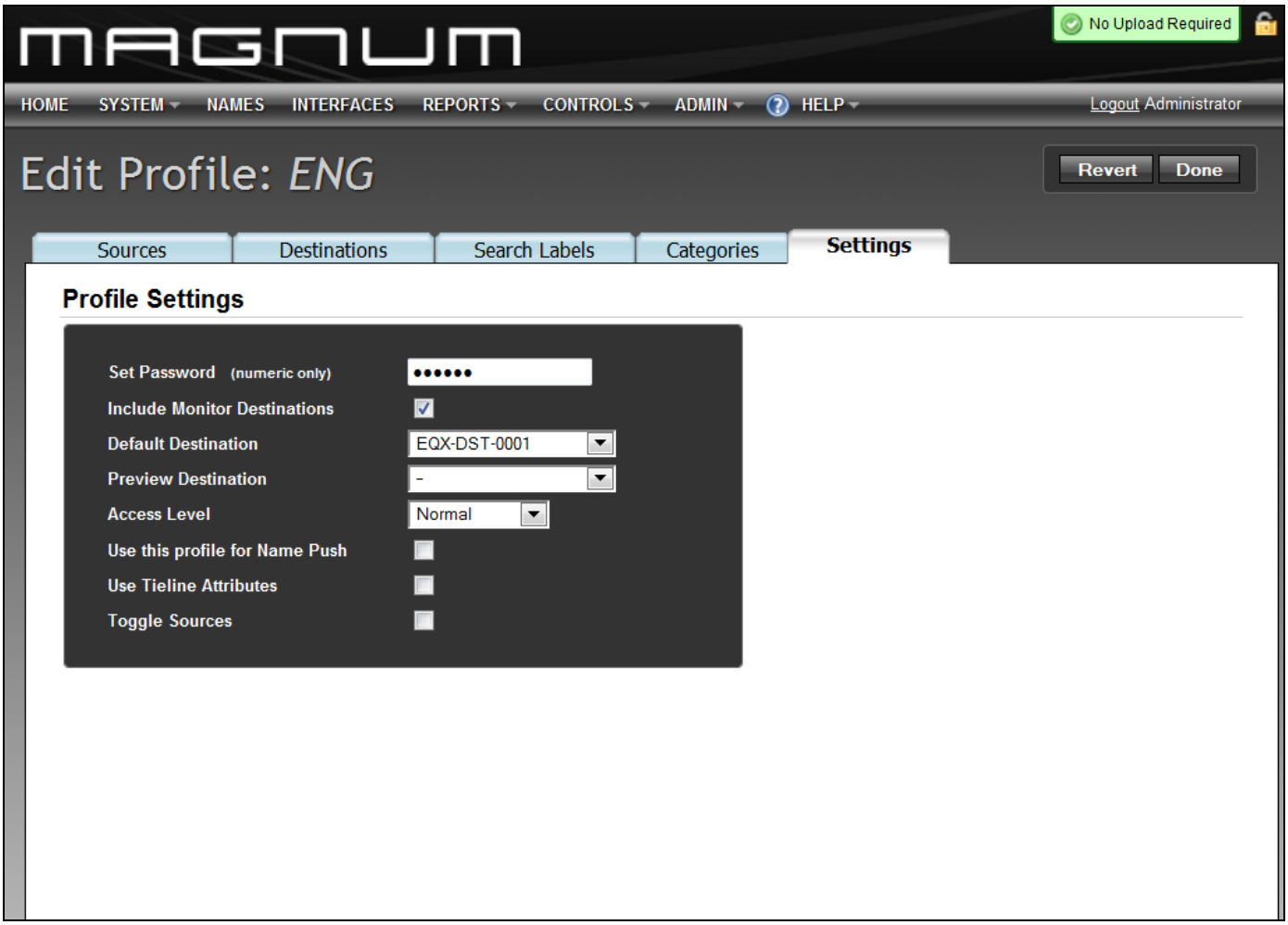


Figure 6-131: Edit Profile - Settings

9. Below is a list of the parameters that can be edited in the settings tab:

    a. **Set Password:** The *Set Password* field enables the user to assign a password to the selected profile. If a password already exists, it is not required to know the original password in order to overwrite it. Enter the desired password into this field. Password is numeric only.

    b. **Include Monitor Destinations:** If you wish to control EQX monitor destinations for this profile, place a check mark in the *Include monitor destinations* check box, otherwise leave this box blank if you do not wish to control EQX monitor destinations.

    c. **Default Destination:** To set a default destination, select a destination from the drop down menu. This destination will be set as your default destination and will be automatically selected when the profile is loaded

    d. **Preview Destination:** To set a preview destination, select a destination from the drop down menu. This destination will be set as your preview destination.

e. **Access Level:** To set an access level, select either Minimal, *Normal* or *Administrator* from the drop down menu. The access level defines the level of control for locks and protects. Minimal (Unable to lock or protect), Normal (Able to lock and protect but not override owners), Administrator (Able to lock, protect, and override owners)

i. **Use this profile for Name Push:** Place a check mark in this box, to force the name updates from the MAGNUM server onto a device that supports local name updates.

j. **Use Tieline Attributes:** Place a check mark in this box, to allow the panel to present the user with an attribute selection in order to use a specific tieline for a route.

k. **Toggle Sources:** Placing a check mark in this box will allow the panel to present the user with all destinations within the profile with Toggle enabled by default

10. If you are unhappy with the changes you have made to the profile, you can revert back to the original profile settings by selecting the **Revert** button in the top right of the screen. After you have completed making your changes, select the **Done** button to finalize your updates.

6.6.6.2. Simultaneously Editing Multiple Profiles

The following section describes how to edit multiple profiles at the same time.

1. To simultaneously edit multiple profiles, place a check mark in the box beside the corresponding profiles that you wish to edit (the selected profiles are highlighted yellow in Figure 6-132).

2. Once all of the desired profiles have been selected, click the **Edit** button in the *Profile Management* main toolbar.

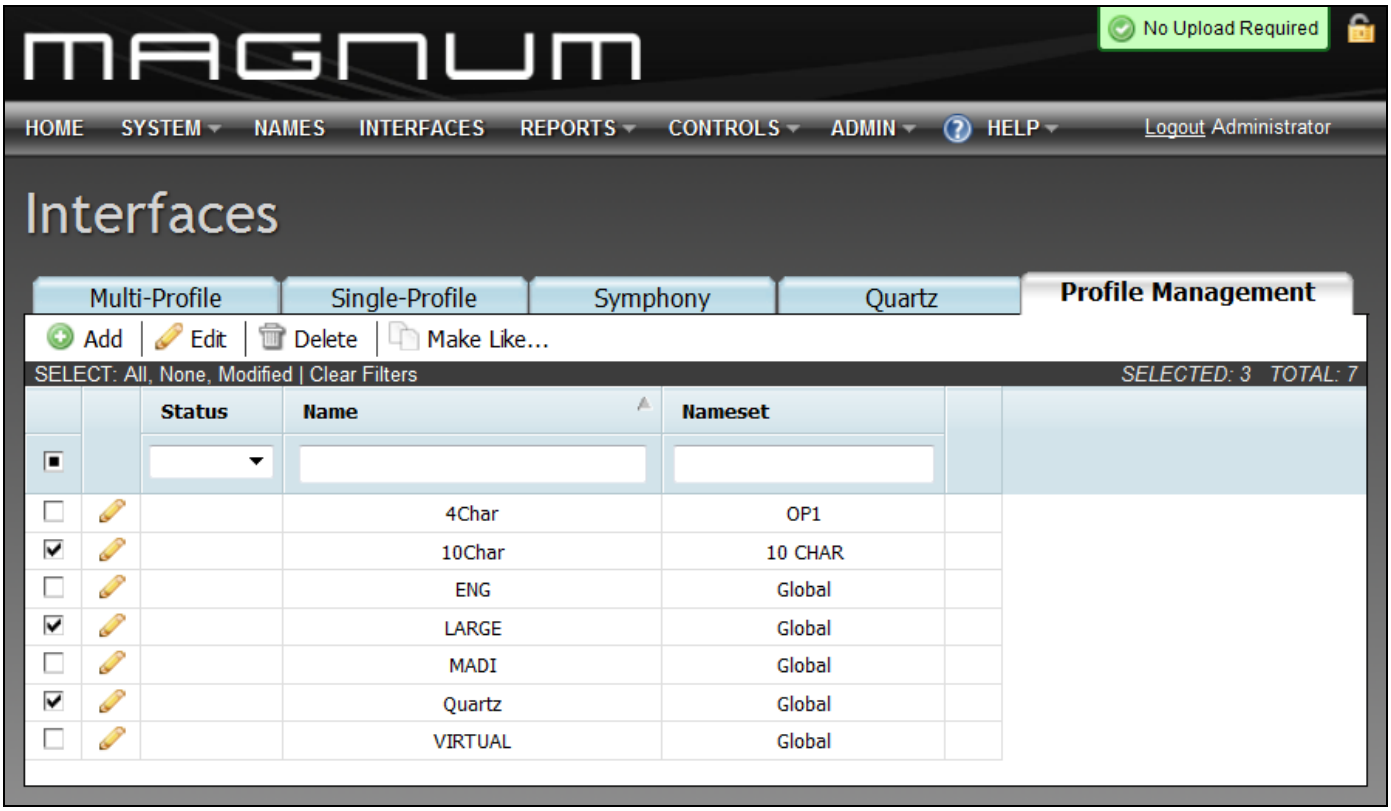


Figure 6-132: Selecting Multiple Profiles

3. The **Edit Profile: *multiple profiles*** page will appear and the user will be presented with a list of Sources and Destinations. The user can change the availability of the Sources and Destinations by single clicking the desired row.

4. The **Editing Mode** drop down menu in the top left hand corner of the tab enables the user to change how the availability is displayed in the sources columns. There are three availability options:
    i. **Availability:** Lists all the sources in alphanumeric order.
    ii. **Availability (Group):** Places the sources into alphanumeric device groups.
    iii. **Re-order:** Enables the user to physically drag and drop the sources into a specific order.

Please note that making changes to any source and/or destination will merge the profiles of the panels currently being edited.

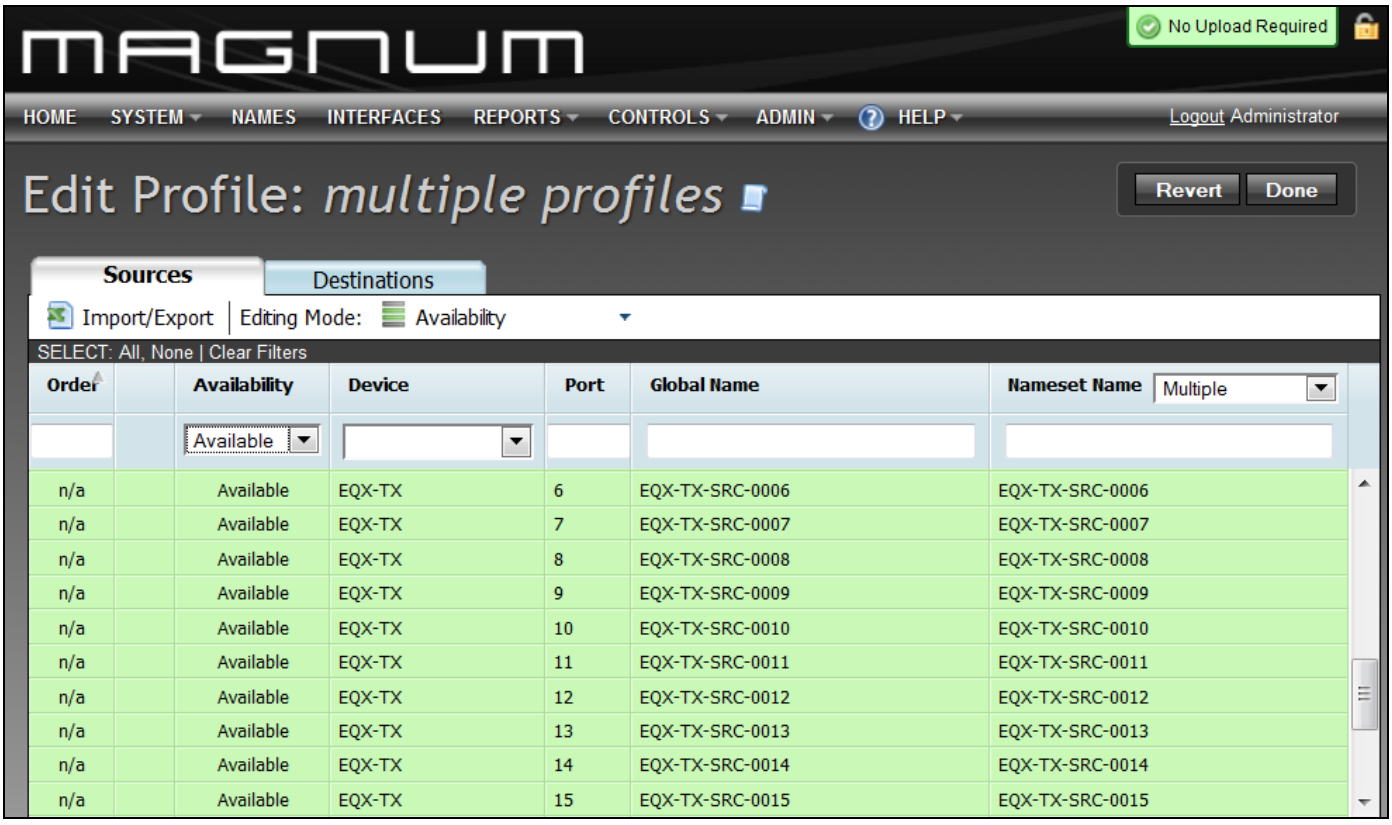


Figure 6-133: Editing Multiple Profiles

5. If you are unhappy with the changes you have made to the profile, you can revert back to the original profile settings by selecting the **Revert** button at the top right of the screen. After you have completed making your changes, select the **Done** button to finalize your updates.

6.7. VIEWING REPORTS

The reporting pages allow the user to view specific information concerning the state of the Devices, Panels, Tielines, and Subscriptions.

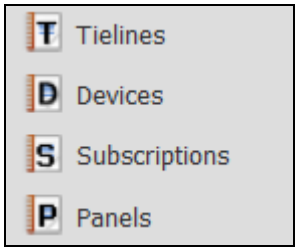


Figure 6-134: Reports Drop Down Menu

6.7.1. Tieline Reports

Using the **Reports** drop down menu, navigate to the **Tielines** menu item. There is a report for tieline usage which, amongst other things; displays a tieline, what source is on it and who is currently using it. Selecting the **Tielines** sub-tab from the **REPORTS** section will display the current tieline information. The time the information was received is displayed below the owner field. If changes were made but are not displayed, press the **REFRESH** button to retrieve the latest information. A tieline is only in use when the Users field contains destinations.

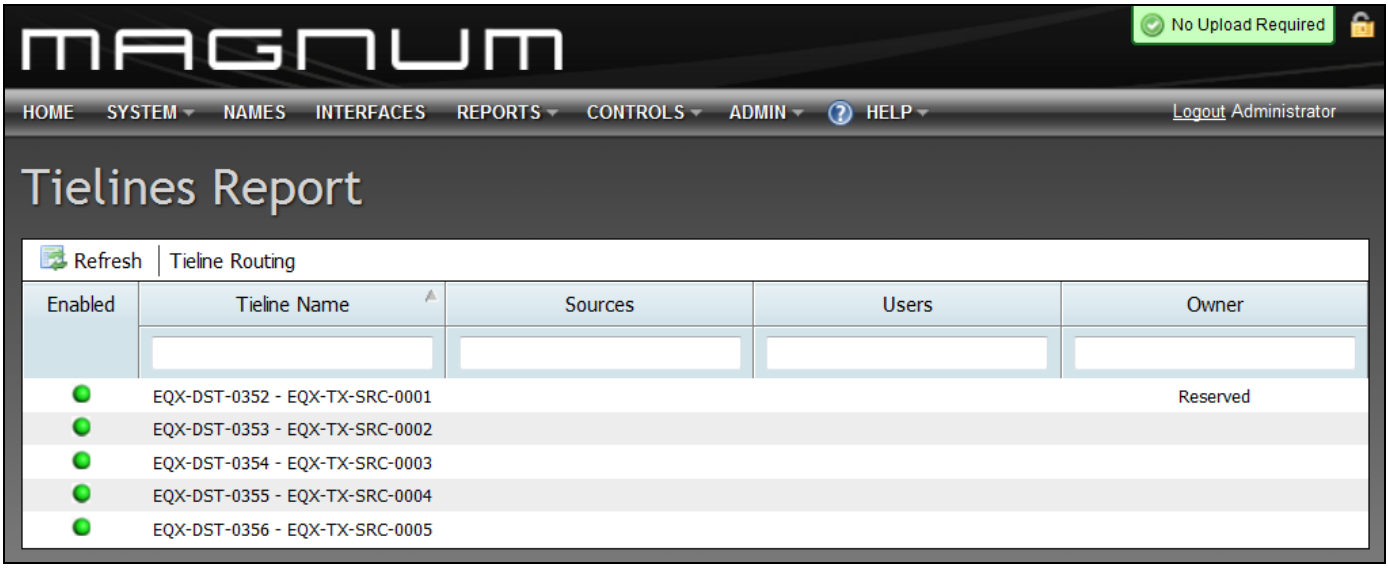


Figure 6-135: Reports Tab

Please note that clicking on the green icon under the *Enabled* column will disable the corresponding tieline and prevent any routing using that tieline.

6.7.2. Devices Report

Selecting the **Devices** menu item from the **REPORTS** drop down menu will display the current device information. The report for the Devices will display the device name, related components and the status of the device (whether it is connected or not). If changes were made but are not displayed, press the **REFRESH** button to retrieve the latest information.

Figure 6-136: Devices Reports Tab

Please note that clicking on the green icon under the *Enabled* column will disable the corresponding device and prevent any routing on the device.

6.7.3. Subscription Report

Selecting the **Subscriptions** menu item from the **REPORTS** drop down menu will display the current device information. The report for the subscriptions will display the subscription name, level, subscribed destination(s) and the subscribed source. If changes were made but are not displayed, press the **REFRESH** button to retrieve the latest information.

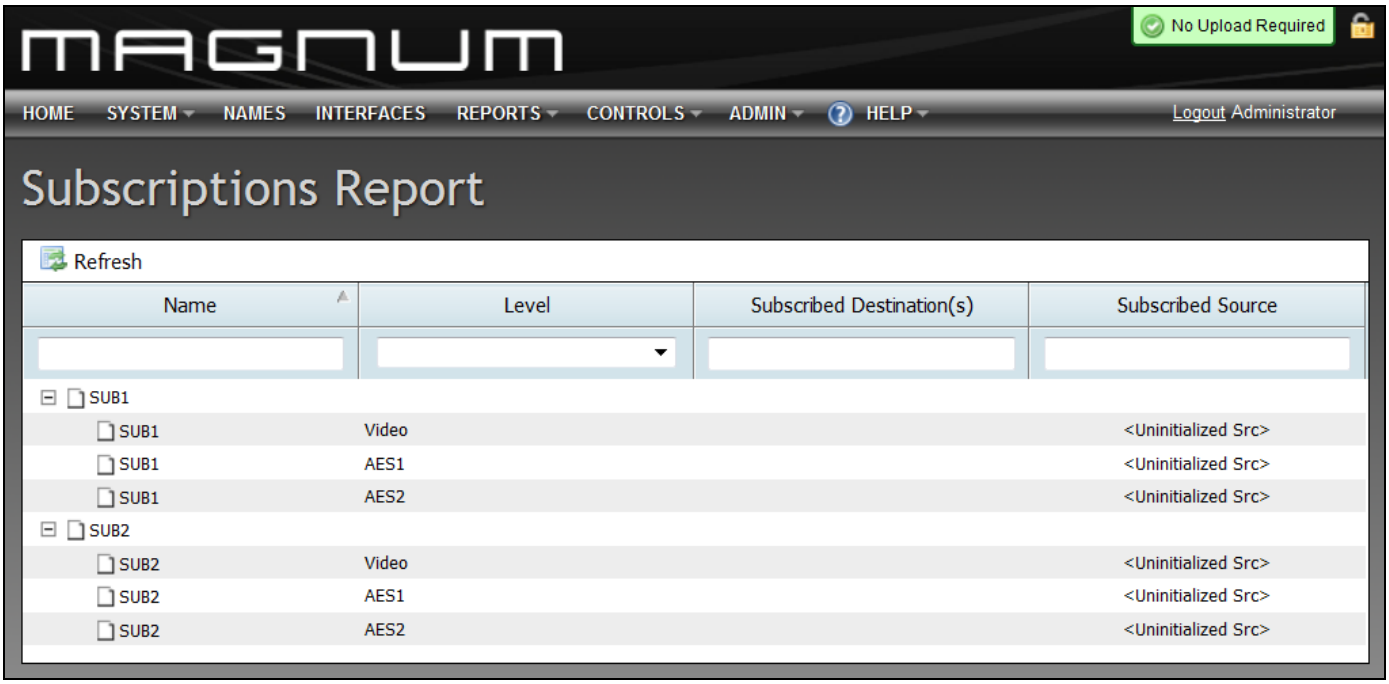
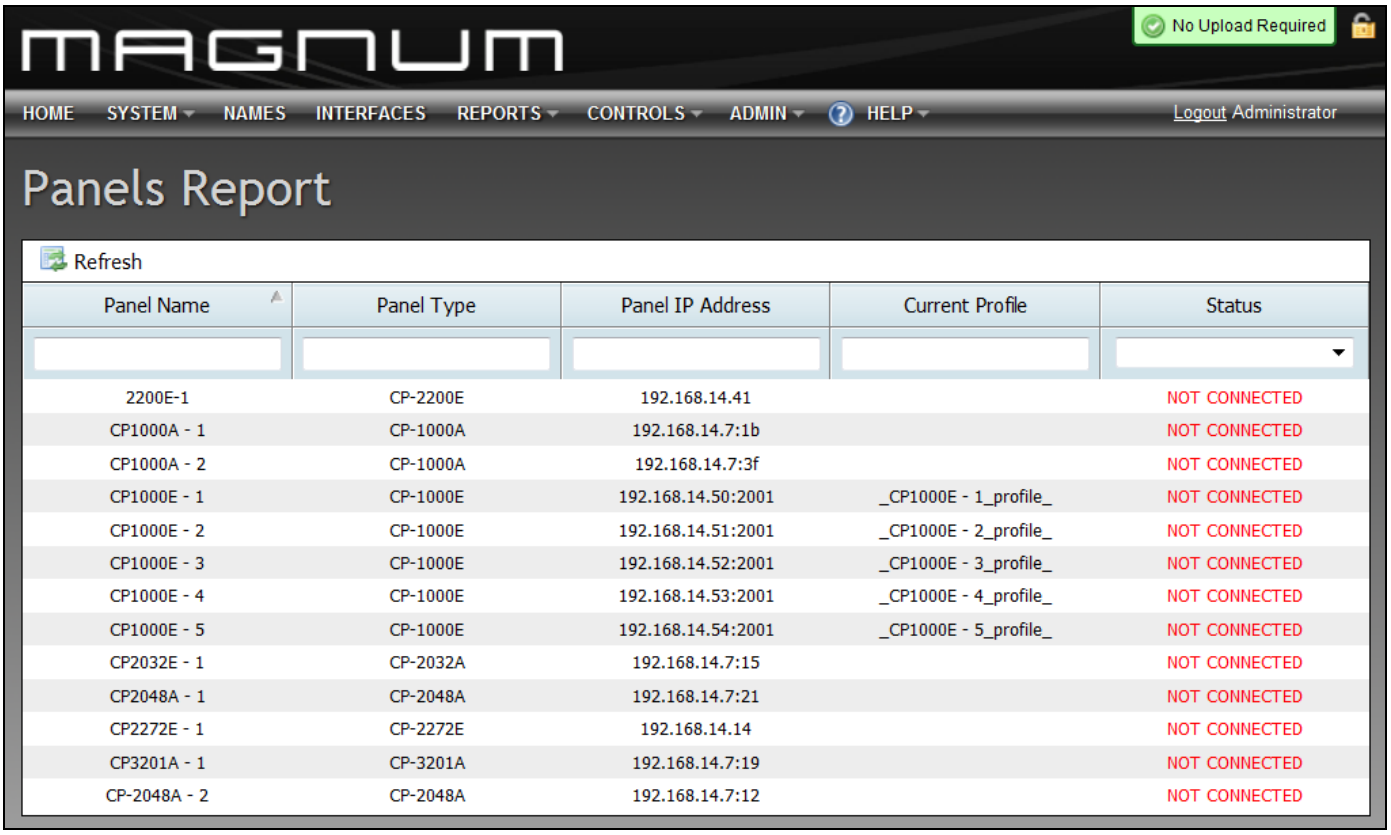


Figure 6-137: Subscription Reports Tab

6.7.4. Panels Report

Selecting the **Panels** menu item from the **REPORTS** drop down menu will display the current panel information. The report generated for the *Panels* section displays the panel name, the panel IP address, the current profile and the panel status (whether it is connected or not). If changes were made but are not displayed, press the **REFRESH** button to retrieve the latest information.



Panel Name	Panel Type	Panel IP Address	Current Profile	Status
2200E-1	CP-2200E	192.168.14.41		NOT CONNECTED
CP1000A - 1	CP-1000A	192.168.14.7:1b		NOT CONNECTED
CP1000A - 2	CP-1000A	192.168.14.7:3f		NOT CONNECTED
CP1000E - 1	CP-1000E	192.168.14.50:2001	_CP1000E - 1_profile_	NOT CONNECTED
CP1000E - 2	CP-1000E	192.168.14.51:2001	_CP1000E - 2_profile_	NOT CONNECTED
CP1000E - 3	CP-1000E	192.168.14.52:2001	_CP1000E - 3_profile_	NOT CONNECTED
CP1000E - 4	CP-1000E	192.168.14.53:2001	_CP1000E - 4_profile_	NOT CONNECTED
CP1000E - 5	CP-1000E	192.168.14.54:2001	_CP1000E - 5_profile_	NOT CONNECTED
CP2032E - 1	CP-2032A	192.168.14.7:15		NOT CONNECTED
CP2048A - 1	CP-2048A	192.168.14.7:21		NOT CONNECTED
CP2272E - 1	CP-2272E	192.168.14.14		NOT CONNECTED
CP3201A - 1	CP-3201A	192.168.14.7:19		NOT CONNECTED
CP-2048A - 2	CP-2048A	192.168.14.7:12		NOT CONNECTED

Figure 6-138: Panels Reports Tab

6.8. CONTROLS

The user can use the Quick route or Advanced Route pages to route the destination and sources using the MAGNUM Web Configuration Tool

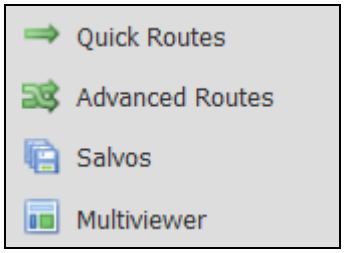


Figure 6-139: Controls Menu

6.8.1. Quick Routes

To access quick routes, select the **Quick Routes** option from the **CONTROLS** menu. The *Quick Single Route* page will appear enabling the user to select a profile, destination, source and level.

1. From the **Profile** drop down menu select one of the profiles from the list to filter and use names and available sources/destinations that are contained within that profile.

2. Begin typing a destination into the **DST** field and as the destination is recognized, a list of possible destinations will be revealed. If you know the exact name of the destination enter it in the field, otherwise select from the list that appears. You may enter the physical port name or the nameset name.

Figure 6-140: Selecting a Destination

3. To select a Source, begin typing the source name into the **SRC** field and as the source is recognized, a list of possible sources will be revealed. If you know the exact name of the source, enter it in the field, otherwise select from the list that appears. Again, you may enter the physical port name or the nameset name.

4. From the **Levels** list select a level or multiple levels that you wish to send the information to.

5. Use the **FIND** button to interrogate a destination for the currently routed source.

6. Use the **TAKE** button to route the currently populated source to the selected destination.

7. From the **Salvo** list, select a salvo and then select the **Fire** button to cause the select salvo to be executed on the system

6.8.2. Advanced Routes

The Advanced routes page displays the status of all cross-points for the entire system at a current point in time. Upon selecting the **Advanced Routes** menu option from the **CONTROLS** drop down menu, the advanced routes screen will appear as shown in Figure 6-141.

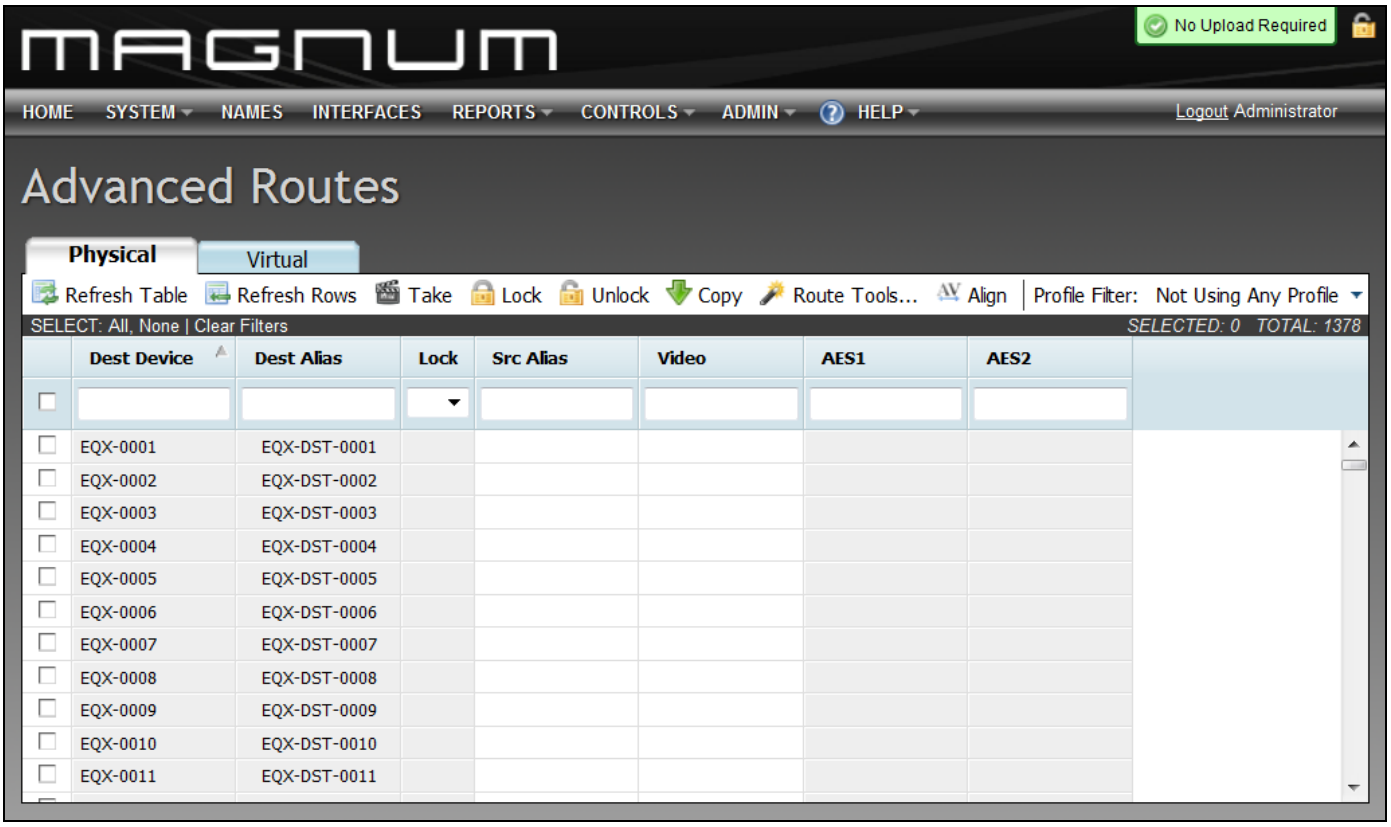


Figure 6-141: Advanced Routes – Physical Tab

1. The **Physical** tab enables the user to configure the destinations for the selected route.

Icon	Description
Refresh Table	**Fill Table:** Selecting this button enables the user to refresh the current routes for the entire table with the latest destination information extracted from the system.
Refresh Rows	**Fill Rows:** Selecting this button enables the user to refresh routes for the selected rows.
Take	**TAKE:** Selecting this button will route the currently populated source to the selected destination.
Lock	**LOCK:** The lock button enables the user to lock the destination so that it can not be changed or manipulated.
Unlock	**UNLOCK:** Selecting the unlock button will unlock a previously locked destination.

Copy	**Copy:** Selecting this button will copy the selected cell value onto the next line.
Route Tools...	**Route Tools:** Place a check mark beside the destinations that you wish to route on and then select the **Route Tools** button. A dialog box will appear as illustrated in Figure 6-142. The tool will allow the user to select a source to be routed to all selected destinations or select a start and end source to be incrementally assigned to the selected destinations for routing.
Align	**Align:** Selecting this button will expand all of the columns to fit the data.
Profile Filter: Not Using Any Profile	**Profile Filter:** The profile menu enables the user to select a control panel profile from the items listed in the profile.

Table 6-8: Advanced Routes Toolbar Controls

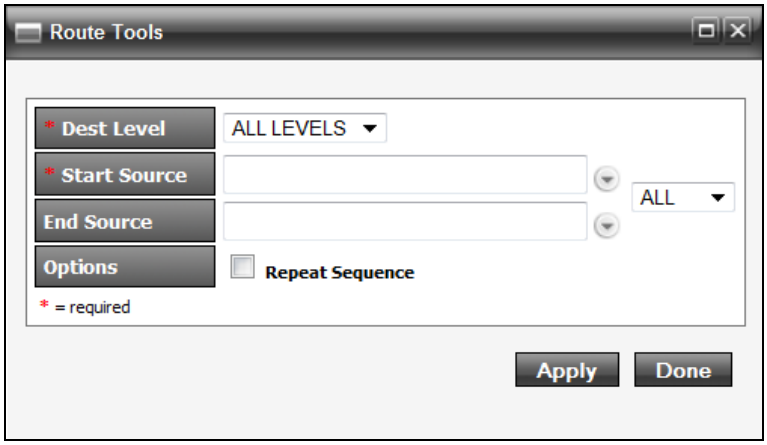


Figure 6-142: Route Tools Dialog Box

2. To search for a particular route, use the filter toolbar to search through the list of existing devices. Enter a property into one of the blank fields at the top. As you type, the list of devices will be narrowed down to display only the properties that match the data being entered.

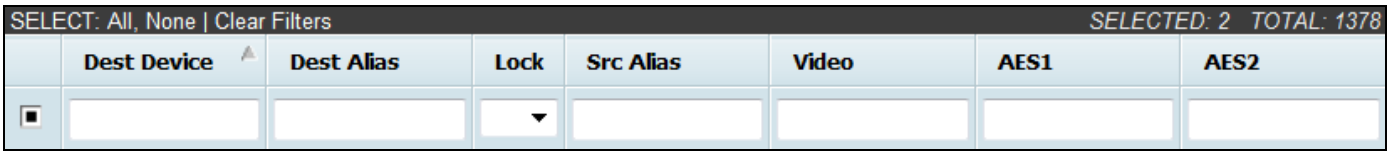


Figure 6-143: Advanced Routes Filter Toolbar

3. Table 6-8 applies to both physical and virtual route tabs. Please use the table above to identify the functions of the buttons on the virtual tab. The virtual routes can be edited in the same way as the physical routes.

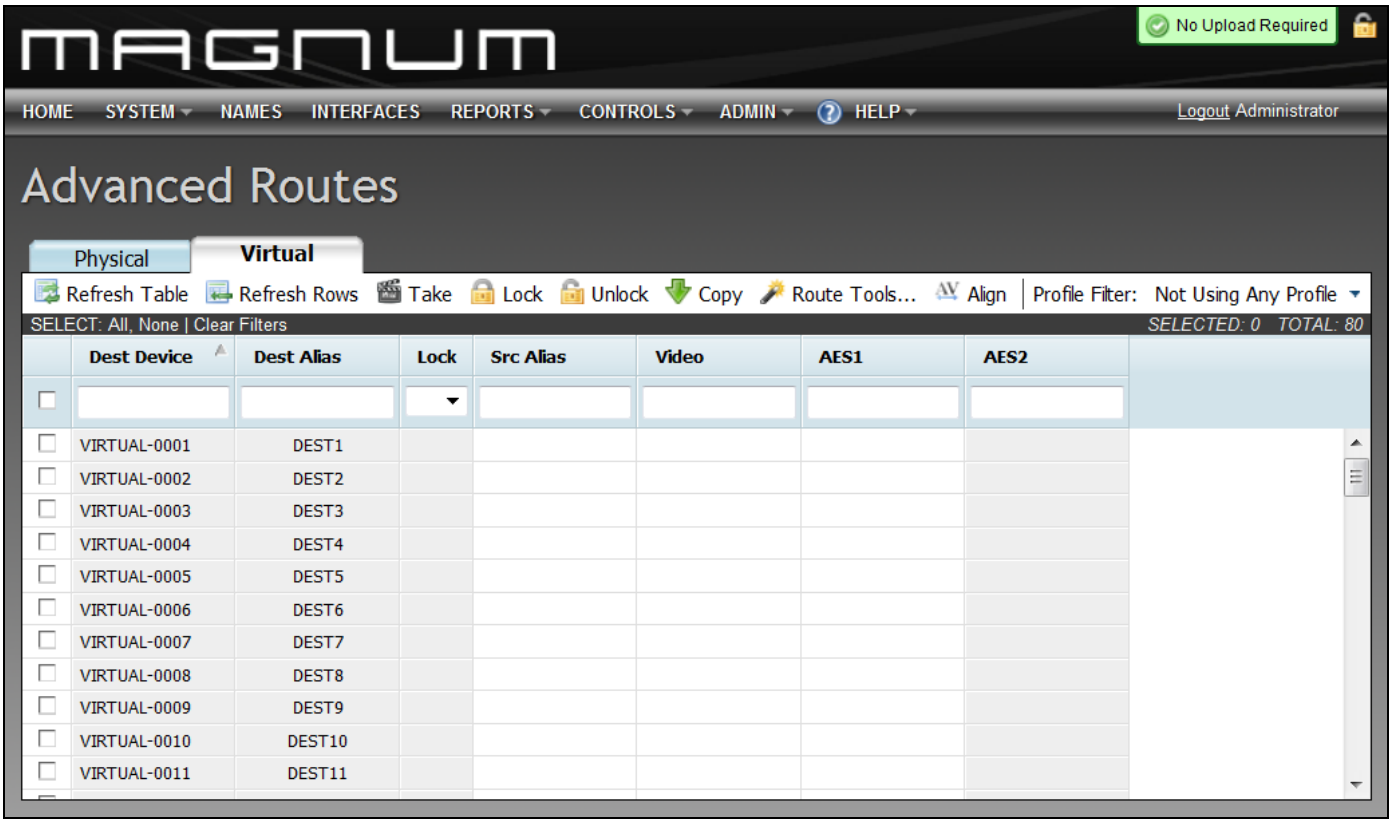


Figure 6-144: Advanced Routes – Virtual Tab

6.8.3. Salvos Builder

To access the Salvos Builder, navigate to the **CONTROL** menu and select the **Salvos Builder** from the drop down menu.

1. Select a salvo from the salvo folder on the left hand side of the screen. Depending on the salvo selected, the physical destination information for that salvo will be displayed under the **Physical** tab on the right.

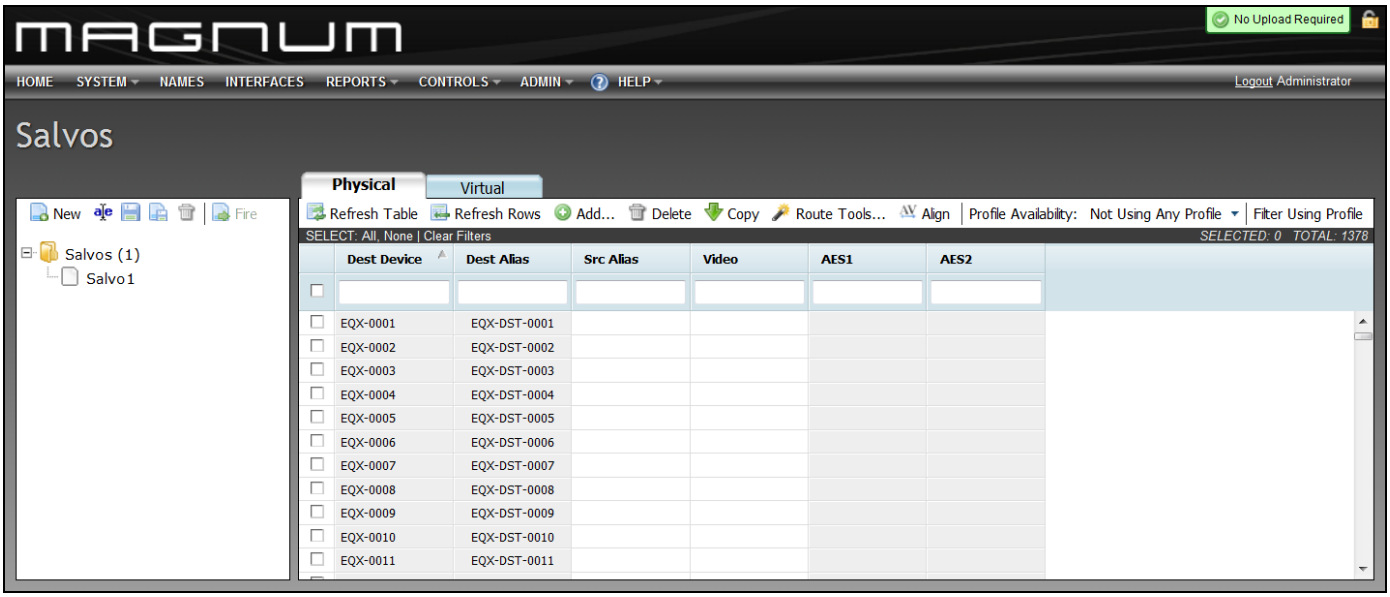


Figure 6-145: Salvos Builder

2. The left Salvo menu enables the user to manage the salvos:

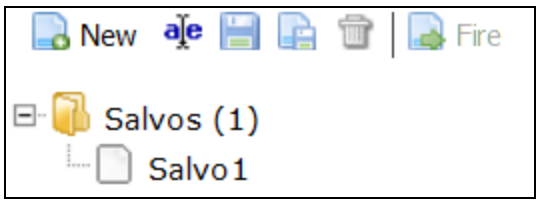


Figure 6-146: Salvo Menu and Folder

Icon	Description
	New Salvo: Selecting this icon will enable the user to add a new salvo to the list.
	Rename: Selecting this icon will enable the user to rename the highlighted salvo.
	Save: If changes have been made, then this icon will be illuminated (not greyed out). Selecting this icon will enable the user to save the changes made to the highlighted salvo.
	Save As: Selecting this icon will enable the user to save the highlighted salvo as a different filename.
	Delete: To remove a salvo from the salvo folder, highlight the salvo in the list and select the delete icon.
	Fire Salvo: Executes the selected salvo on the MAGNUM Server.

Table 6-9: Salvo Menu Controls

3. The **Physical** tab on the left side of the screen enables the user to configure the destinations for the selected salvo.

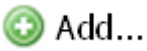
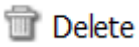
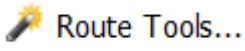
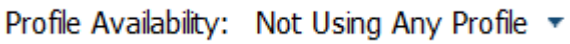
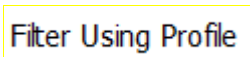
Icon	Description
	Fill Table: Selecting this button enables the user to refresh the current routes for the entire table with the latest destination information extracted from the selected salvo.
	Fill Rows: Selecting this button enables the user to refresh routes for the selected rows.
	**Add…:** Selecting this button will enable the user to add another destination to the selected salvo. An **Add Destinations** dialog box will appear, as shown in Figure 6-153, which enables the user to add single or multiple destinations.
	**Delete:** Selecting this button will enable the user to delete the selected destination from the salvo. Place a check mark beside the destination which you wish to delete and then press the **Delete** button.
	Copy: Selecting this button will copy the selected cell value onto the next line.
	**Route Tools:** Place a check mark beside the destinations that you wish to route on and then select the **Route Tools** button. A dialog box will appear as illustrated in Figure 6-142.
	Align: Selecting this button will expand all of the columns to fit the data.
	**Profile Availabilty:** The profile drop down menu enables the user to select a control panel profile from the items listed in the profile. When the profile is selected, the NameSet applied to that profile will be used for information displayed in the *Physical* or *Virtual* tab. Profile also enforces salvo availability for the advanced panels such as the CP2200E
	**Filter Using Profile:** Selecting this button will enable the user to assign the salvo to a specific profile used by the CP2200E/CP2232E/CP2116E. The salvo will only be available to the selected profile for these panels.

Table 6-10: Salvo Toolbar Controls

4. Use the device filter fields (as shown in Figure 6-147) to sort through the destinations and narrow your search to a particular destination.

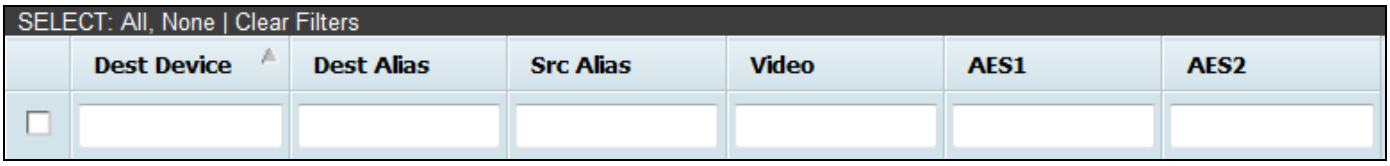


Figure 6-147: Salvo Filter Toolbar

6.8.3.1. Building a Salvo

1. To build a salvo, select a profile from the profile drop down menu, and the Nameset and salvo availability for that profile will be displayed on the main screen, as shown in Figure 6-148.

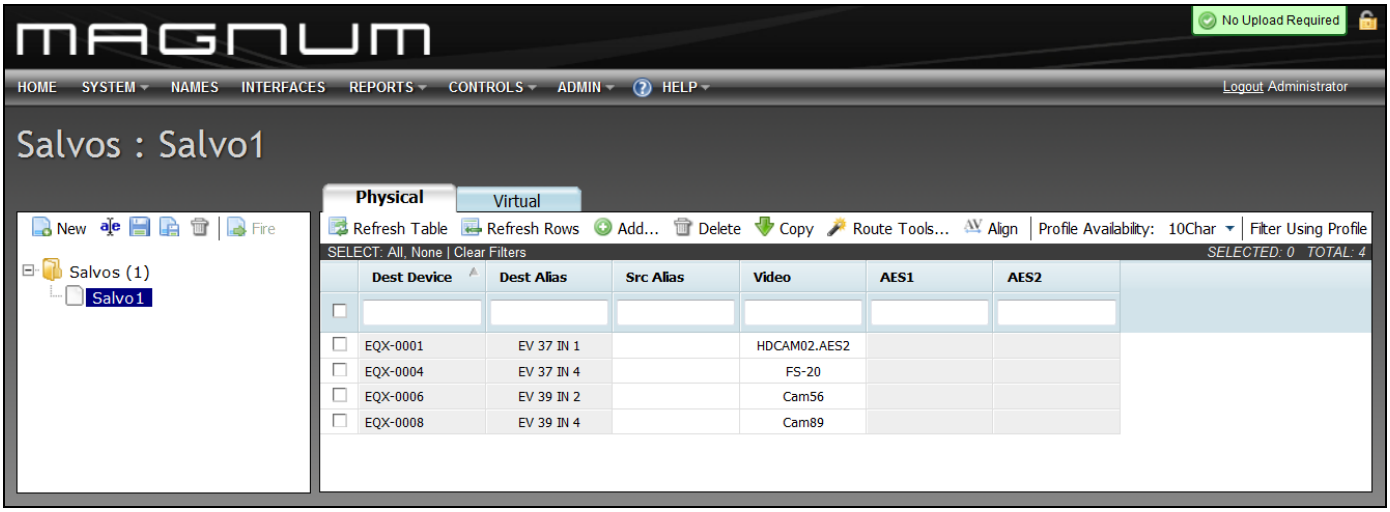


Figure 6-148: Destination List Populated

2. Place a check mark beside the destinations that you wish to add to the new salvo. Begin typing a source alias into the **Src Alias** field beside the check marked destination. A menu will appear enabling the user to select a source from the source list, as shown in Figure 6-149.

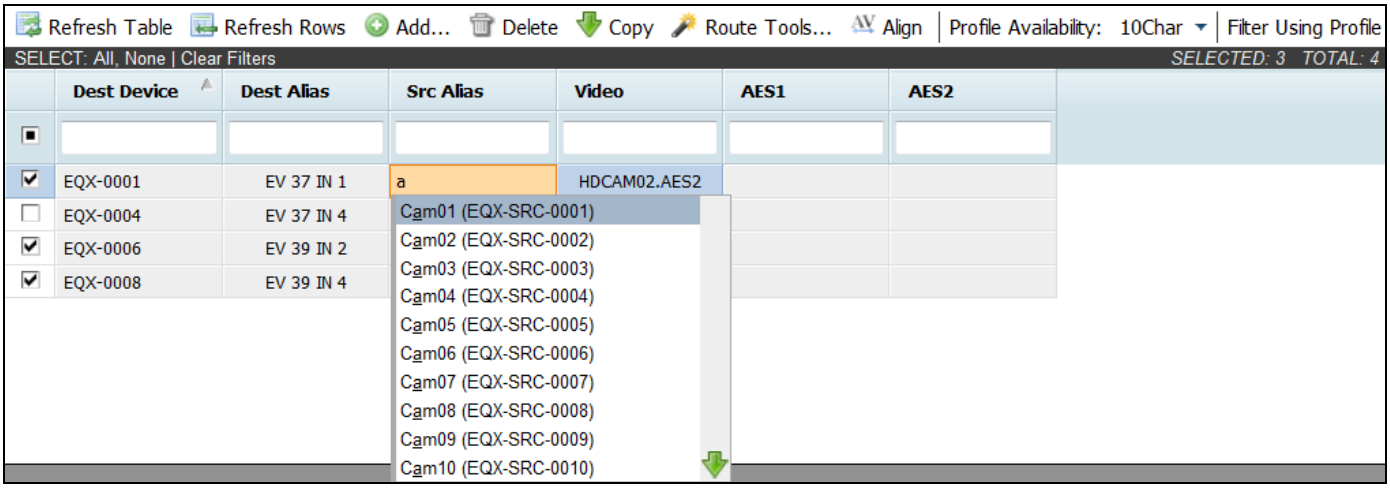


Figure 6-149: Accessing the Src Alias Menu

3. Use the up and down arrows to toggle to the desired source and then select the source. Once you have selected the source, the **Video** column will populate with the video information for the selected source.

4. Continue to build the salvo contents by adding sources to the destinations you selected. Once all the desired destinations have been selected, navigate to the left window and select the **Save** or **Save As** button, identified in Figure 6-150.

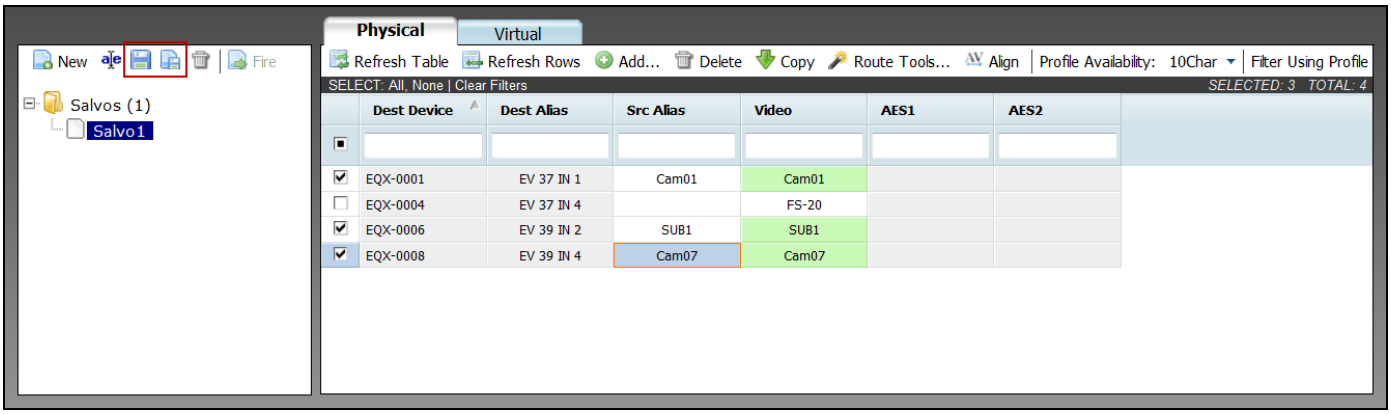


Figure 6-150: Saving the Salvo

5. A dialog box will appear prompting the user to enter a new salvo name, as shown in Figure 6-151. Enter a unique name into the dialog box and then select **OK**.

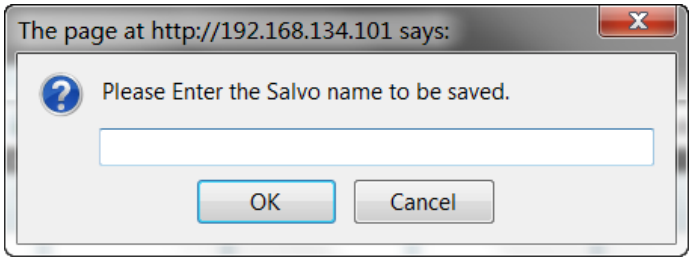


Figure 6-151: Enter New Salvo Name

6. The new salvo will be created and all the selected destinations will be contained within the salvo. The main screen will display the newly created salvo and the destinations currently associated with it.

Please note that when a salvo is created the user must click on the "Upload Required" icon to upload the changes. The salvo will not be recognized unless an upload to the server is performed.

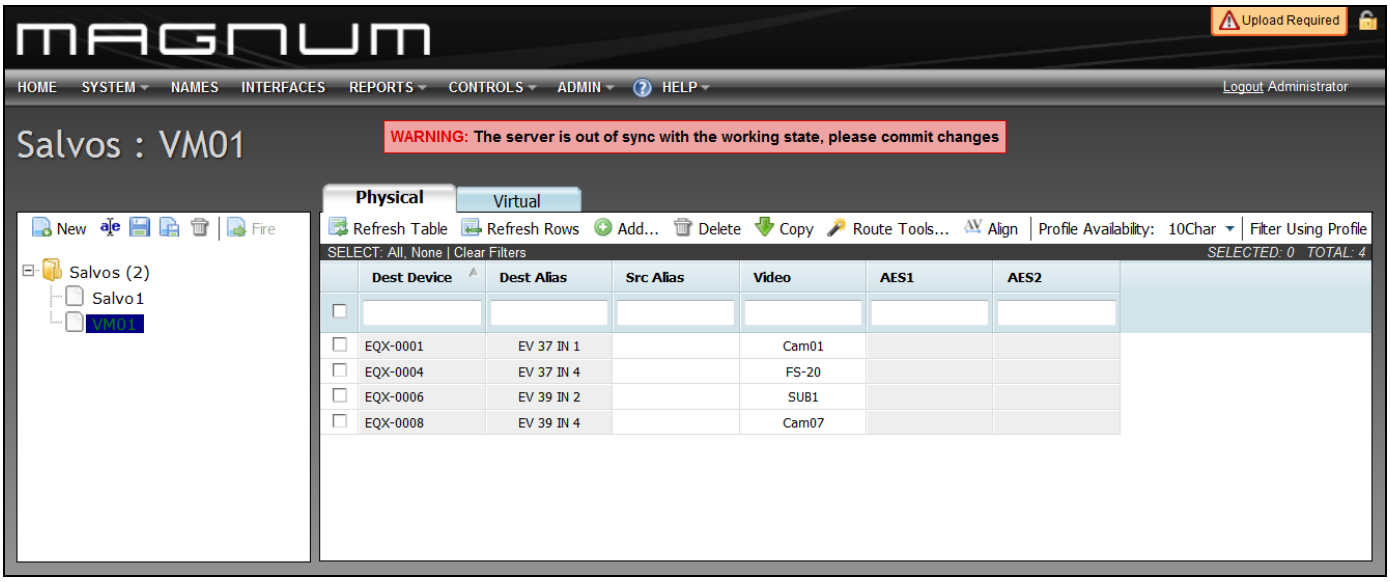


Figure 6-152: Selected Salvo Contents

7. Pressing the **New** button will clear the salvo from the screen and return the user back to the selected profile's list of destinations so that new salvos can be created. Any available salvos will be listed in the left window and can be viewed by selecting the salvo name.

8. To add destinations to an existing salvo, select the salvo from the salvo menu on the left side of the page. Click the **Add** button on the tool bar to see a list of available destinations to add to the salvo. Click the box beside each destination that you want to add to the existing salvo and then click the **Add** button. Select the **Save** button to save the destination to the existing salvo.

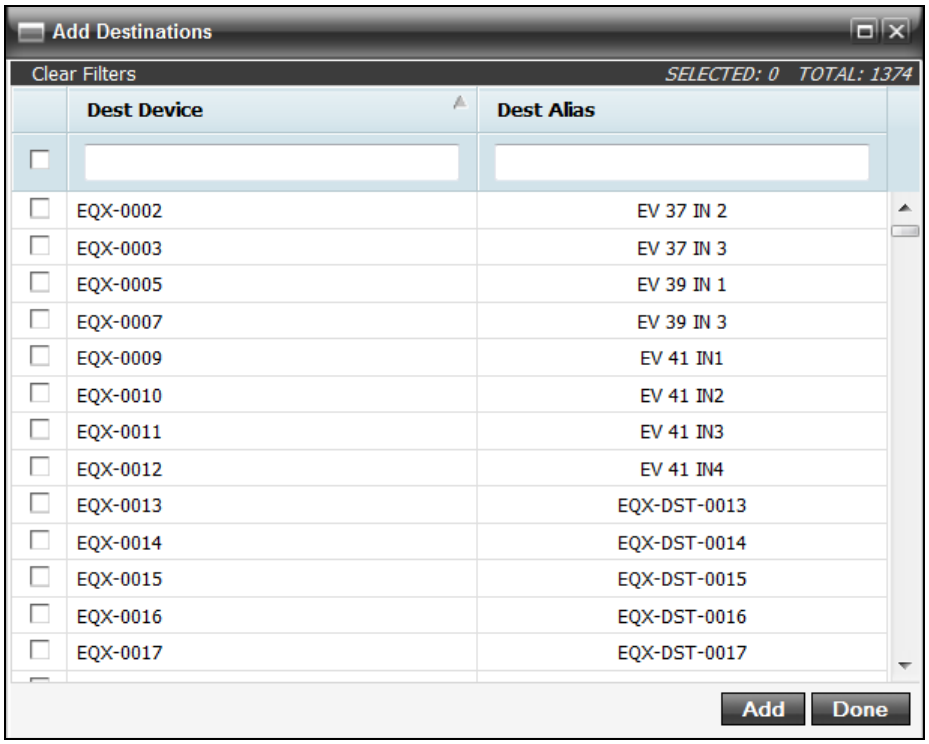


Figure 6-153: Add Destinations

6.8.4. Multiviewer

To access the Multiviewer page, navigate to the **CONTROL** menu and select **Multiviewer** from the drop down menu. The Multiviewer page will open as illustrated in Figure 6-154. This page allows the user to view the layouts are maybe present on multiviewer outputs. The Multiviewer control page will display layouts that have been created and saved in the Maestro Design Tool as “Scripts”.

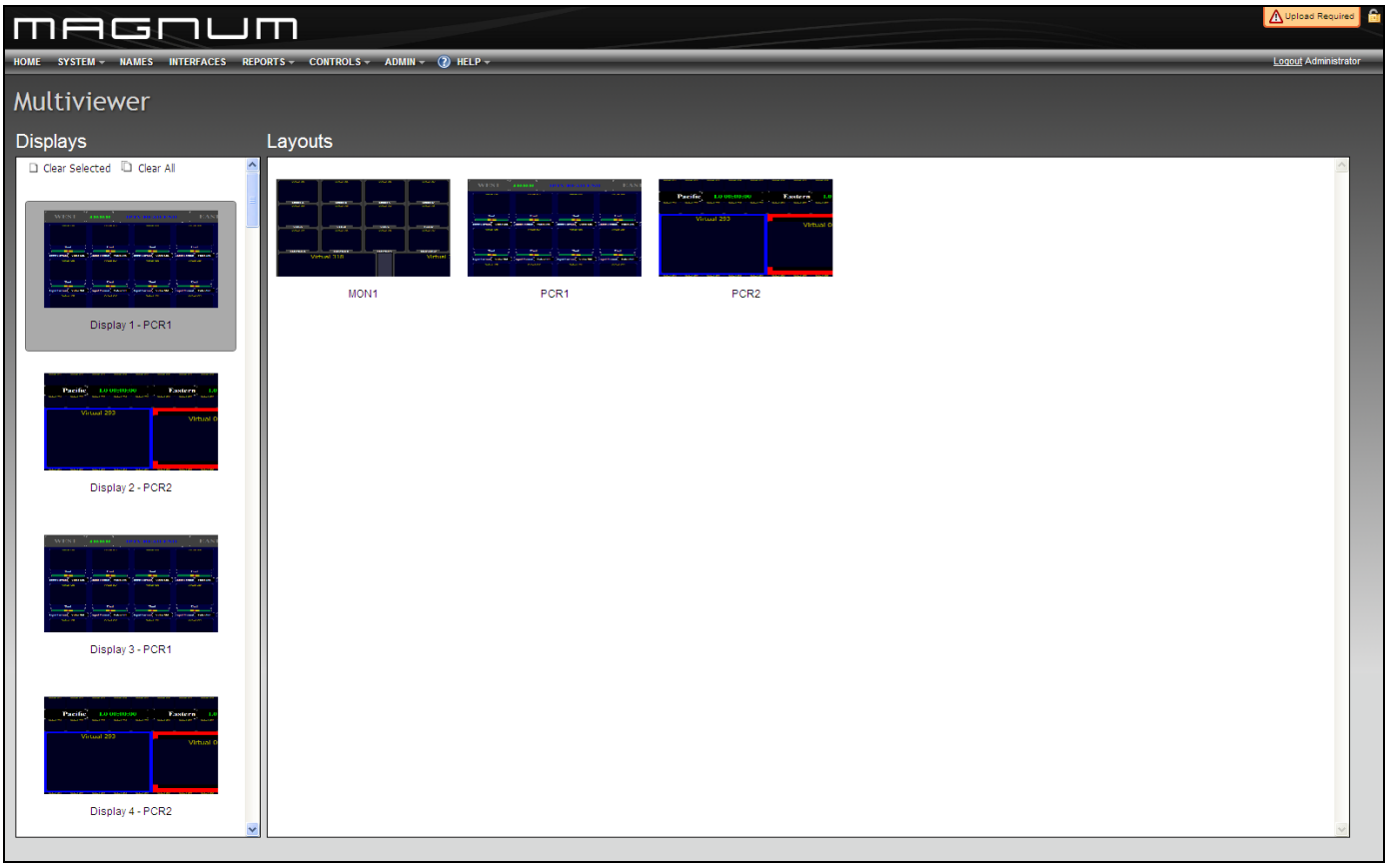


Figure 6-154: Multiviewer Page

6.8.4.1. Displays

The Displays section shows the available Multiviwer display outputs and the layouts that are currently loaded on them. The Displays section will only be able to show layouts that have been saved as “Scripts” and recalled using the layout recall functions that leverage the created scripts.

Clear Selected and Clear All controls allow the user to clear the multiviewer selected or all multiviewer output displays

6.8.4.2. Layouts

The Layouts section shows the available Multiviewer layouts that were created and saved using the Maestro Design Tool “Save as Scripts” function. A user can select one or multiple multiviewer displays and recall a layout on them by then selecting the layout in the Layouts section.

6.9. SERVER ADMINISTRATION

6.9.1. Creating User Accounts

A core routing system is extremely powerful. With great power comes great responsibility, and as a result managing who has access to view or change important information is key.

When using multiple users in Magnum system, users can lock pages so that other cannot make changes at the same time to the same properties. The “Lock” icon in the top right corner of the Magnum Web interface allows users to lock page. If another user is on same page the lock icon will flash and a user notification will appear.

Selecting the **User Management** menu item from the **ADMIN** drop down menu enables the administrator to create new accounts for users.

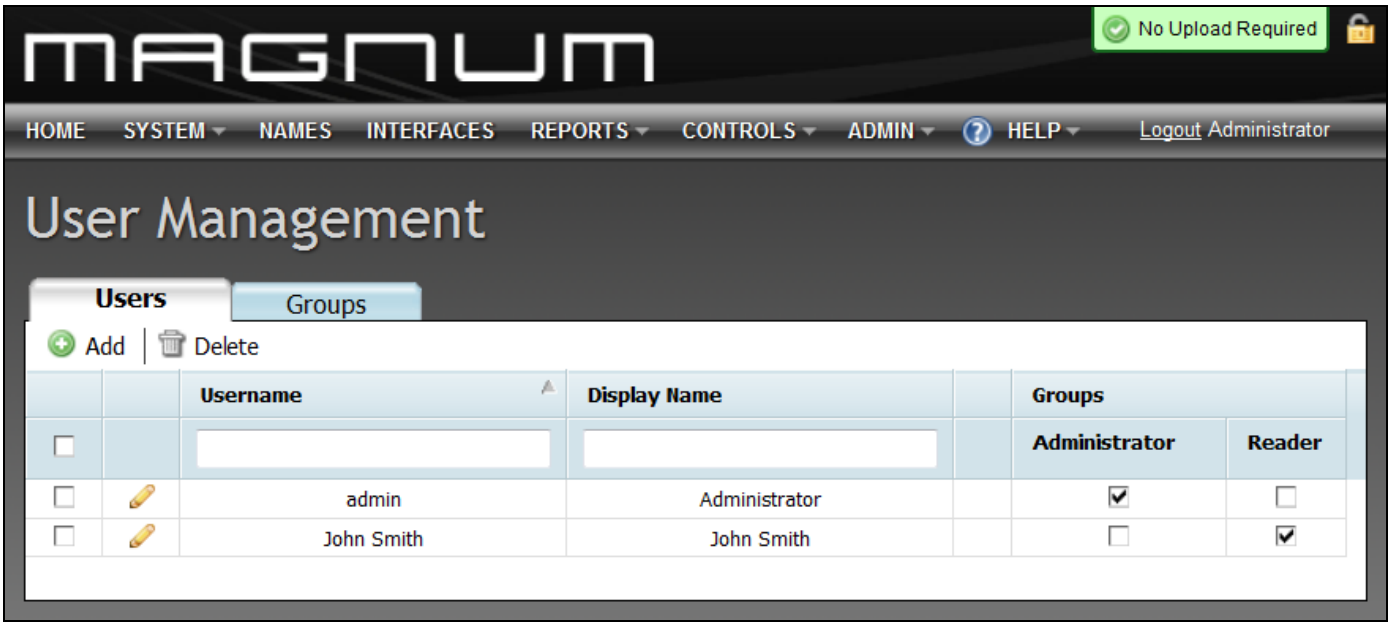


Figure 6-155: User Management Page – Users Tab

1. To add a user, select the **Add** button from the *Users* tab. An **Add User** dialog box will appear enabling the user to create a new user profile. The following information will have to be entered into the appropriate fields:

   - **Username:** Enter the desired username into this field. This will be the name that is entered into the login field when the user is logging into the MAGNUM Server.

   - **Display Name:** This name will be shown as your screen username when you are logged into the MAGNUM server. It will be displayed in the top right hand corner beside the logout button.

   - **Password:** Create a password that will be used to log into the MAGNUM Server.

- **Confirm Password:** Enter the password again into the **Confirm Password** field. The **Confirm Password** field verifies that the value entered in the *password* field is the same as the value entered in the **Confirm Password** field.

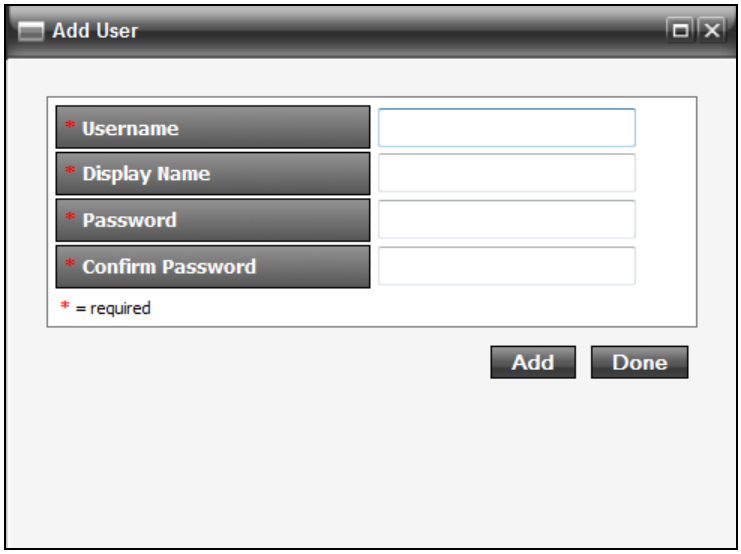


Figure 6-156: Add User Dialog Box

2. Once all the fields are filled in, select the **Add** button. If you have added all the desired users, select the **Done** button to save the changes and return back to the main *User Management* screen. The users that you have added will be listed in the *Users* table.

3. To remove a user, place a check mark in the box beside the user that you wish to remove and then press the **Delete** button.

4. To assign the user to a group, use the Groups option on the filter toolbar as illustrated in Figure 6-157. The group options are *Reader* and *Administrator*. Adding a user in the Administrator group will give them full permissions. If a user is added as a Reader, the user will have limited permissions.

5. If you would like to find a particular name in an expansive list of users, use the filter toolbar to narrow down your search. Type the username or display name into the appropriate search fields.

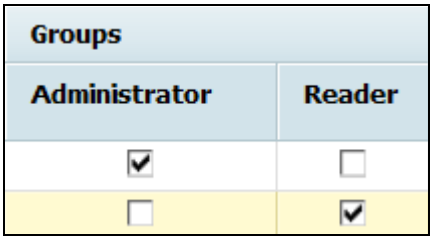


Figure 6-157: Group Options

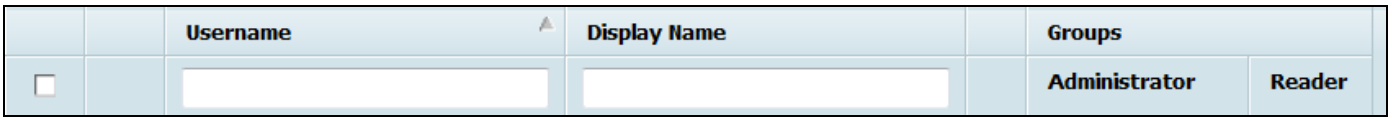


Figure 6-158: Filter Toolbar

Once complete be sure to click on the "Upload Required" icon to upload any changes..

6.9.2. Creating Group Accounts

Selecting the **User Management** menu item from the **ADMIN** drop down menu enables the administrator to create new accounts for groups.

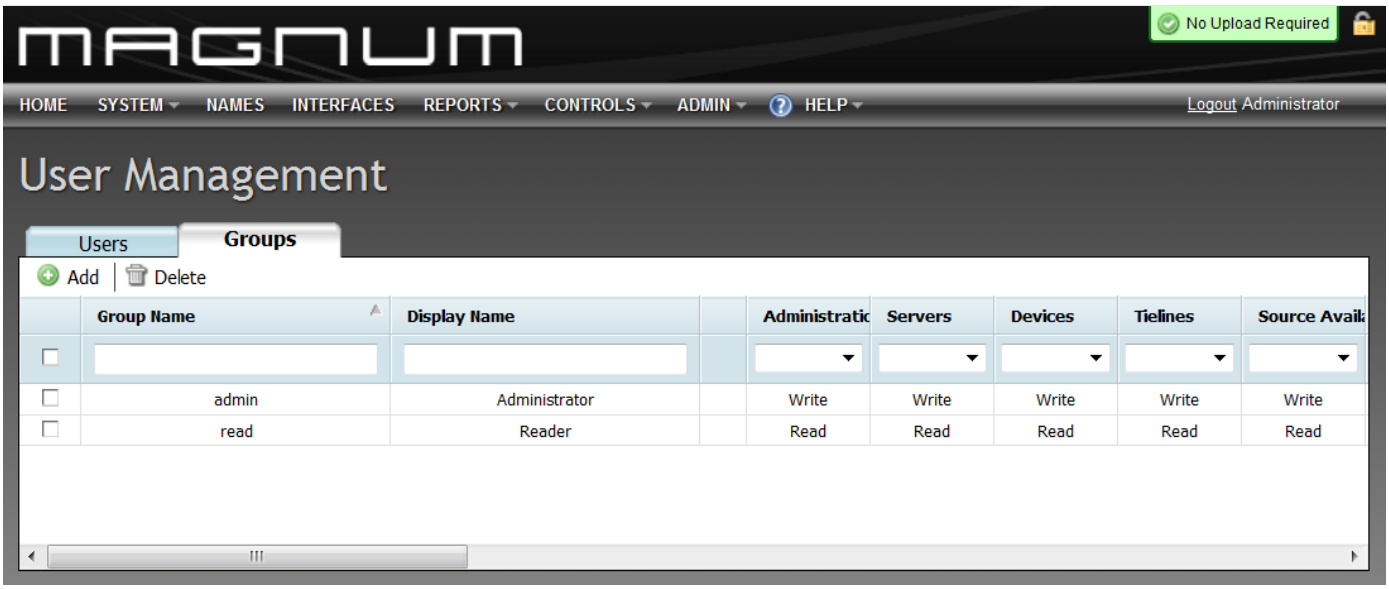


Figure 6-159: User Management Page – Group Tab

6. To add a group, select the **Add** button from the *Groups* tab. An **Add Group** dialog box will appear enabling the user to create a new group profile. The following information will have to be entered into the appropriate fields:

   - **Name:** Enter the desired username into this field. This will be the name that is entered into the login field when the group is logging into the MAGNUM Server.

   - **Display Name:** This name will be shown as your group username when you are logged into the MAGNUM server. It will be displayed in the top right hand corner beside the logout button.

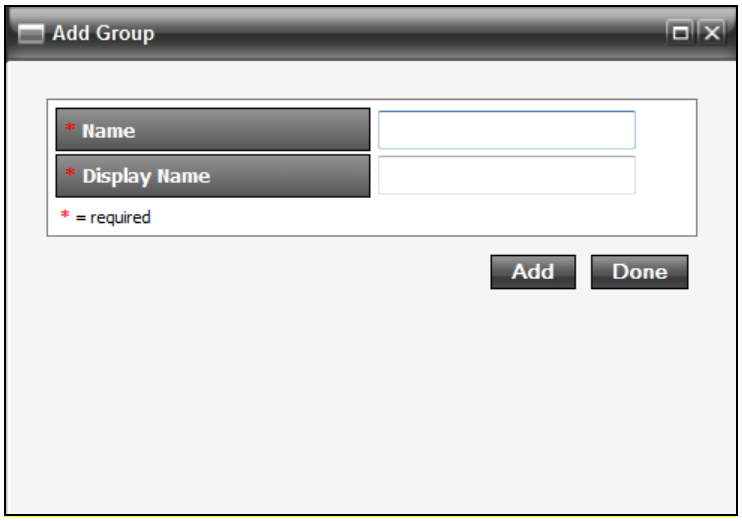


Figure 6-160: Add User Dialog Box

7. Once all the fields are filled in, select the **Add** button. If you have added all the desired groups, select the **Done** button to save the changes and return back to the main *User Management* screen. The groups that you have added will be listed in the *Groups* table.

8. To remove a group, place a check mark in the box beside the group that you wish to remove and then press the **Delete** button.

9. To change read/write permissions for a group, select the desired control option (i.e. Servers) in the Groups table and then press the 'Enter' key. A drop-down menu will appear as illustrated in Figure 6-161. Here, the user can select from the following permissions: None, Read, and Write.

10. If you would like to find a particular name in an expansive list of groups use the filter toolbar to narrow down your search. Type the username or display name into the appropriate search fields, or sort by read/write access by selecting the read/write options from each control's (i.e. Servers) drop down menu.

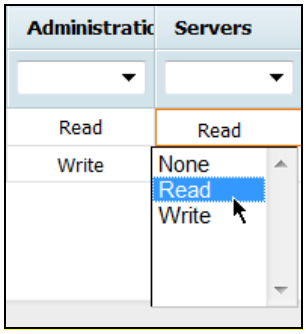


Figure 6-161: Read/Write Permissions Drop-down Menu

Figure 6-162: Filter Toolbar

Once complete be sure to click on the "Upload Required" icon to upload any changes.

6.9.3. Configuration Management

The **Configuration Management** section enables the user to download the configuration. The configuration Management page will keep the 100 most recent snapshots.

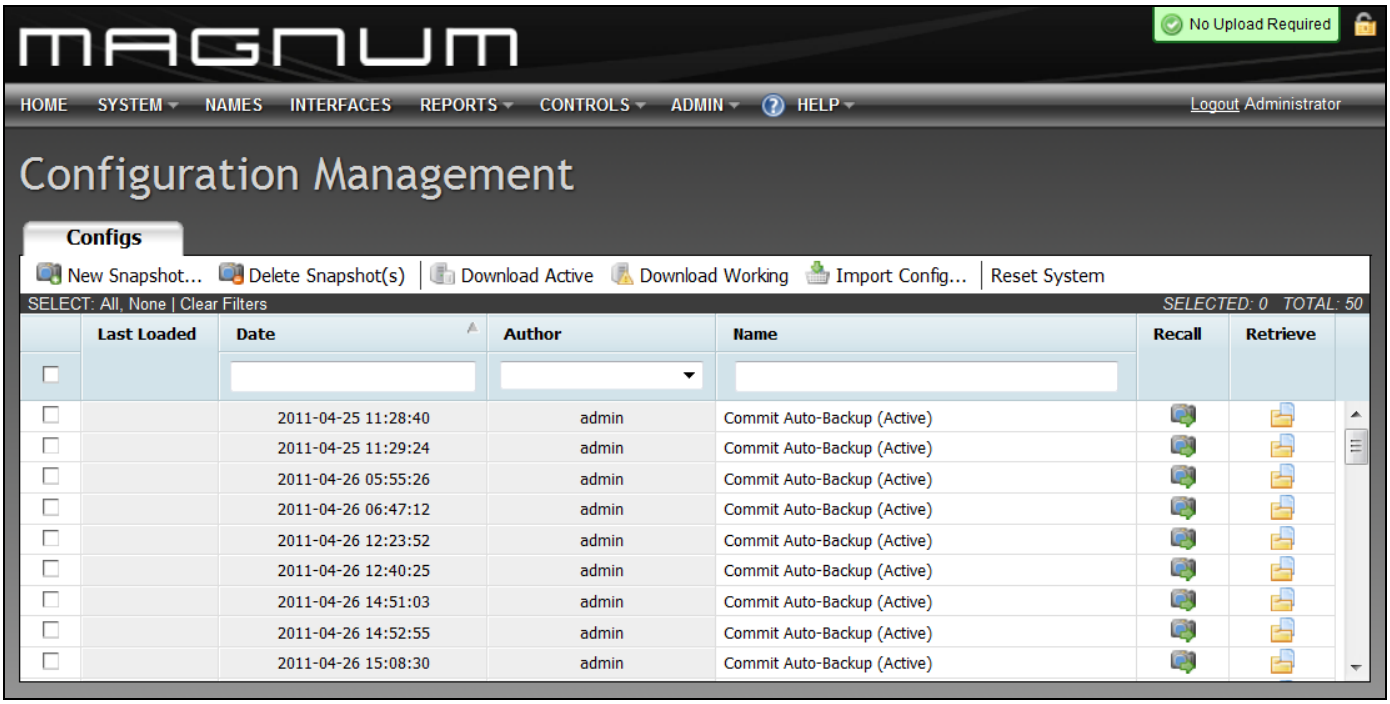


Figure 6-163: Configuration Management

1. The following table provides descriptions of the toolbar button functions for the Configs Tab:

Icon	Description
New Snapshot...	Select the **New Snapshot** button to create a snapshot of the system configuration.
Delete Snapshot(s)	Select the **Delete** button to remove a snapshot from the list. Place a check mark beside the snapshot you wish to delete and then press the **Delete Snapshot(s)** button.
Download Active	Select the **Download Active** button to download a copy of the active configuration from the server.
Download Working	Select the **Download Working** button to download a copy of the configuration that the user is currently working on.
Import Config...	Select the **Import** button to import a working copy of the configuration.
Reset System	Select the **Reset System** button if you wish to reset the working state of the system and start from scratch.

Table 6-11: Configuration Management Toolbar Controls

Please Note: Using the reset button will completely delete all router control system information including deleting all routers, panels, names, tielines, all configuration information. Do not use this button unless it is your intent to completely delete your entire system and start from absolutely no configuration.

2. Use the device filter fields (as shown in Figure 6-164) to sort through the configurations and narrow your search to a particular configuration.

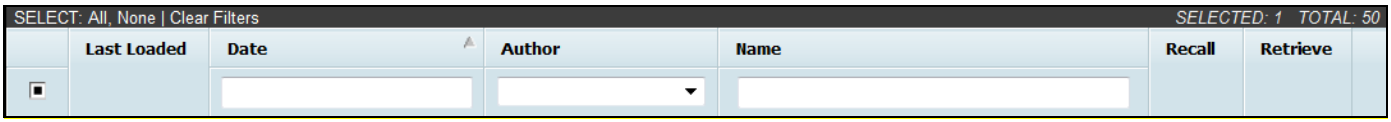


Figure 6-164: Filter Toolbar

3. Use the icon to recall a snapshot. When this button is selected, a warning message will appear as illustrated in Figure 6-165 in order to confirm the snapshot recall.

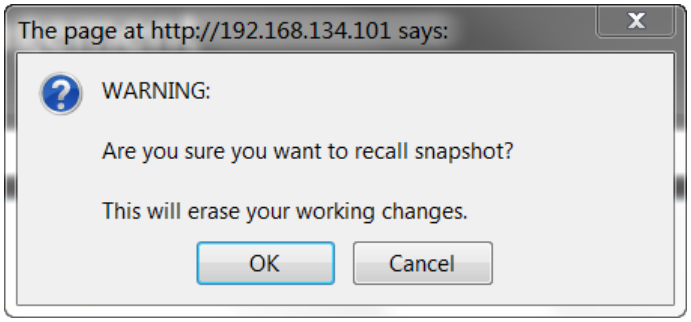


Figure 6-165: Recall Snapshot Window

4. The button is used to save a configuration snapshot to a file. When this button is selected, an *Opening config.zf* window will appear as illustrated in Figure 6-166. Here, the user can chose to open or save the snapshot.

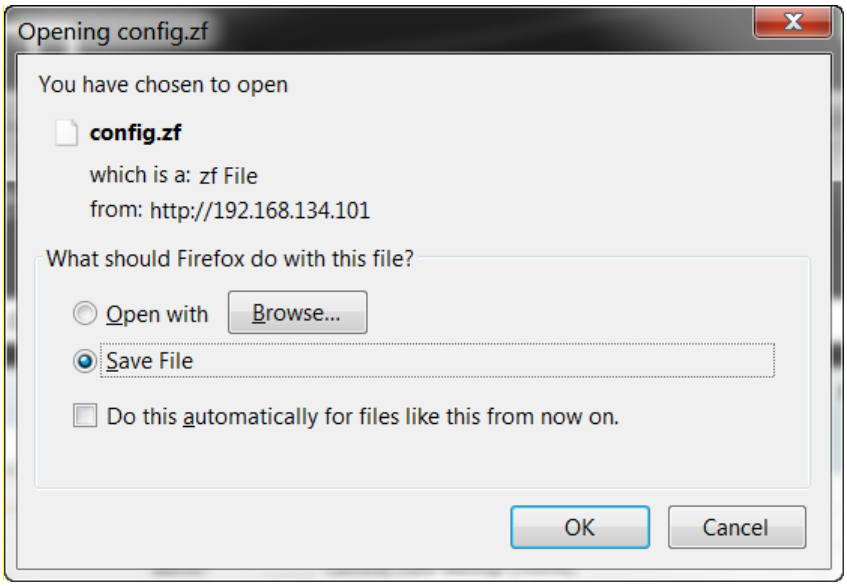


Figure 6-166: Opening config.zf Window

6.9.4. Setting the Preferences

The *Preference* settings screen enables the user to change the colour scheme and branding options of the MAGNUM Server interface.

Figure 6-167: Preference Settings

1. To change the colour scheme of the interface, select the desired skin from the *Skin* options. The colour of the interface will instantly change to reflect the skin you selected.

2. If you wish to brand your MAGNUM Server interface with an image or logo, you can upload an image file (i.e. .jpeg or .png of your company logo). Click on the **Browse…** button and navigate to the image you wish to upload.

3. Once you have located your image, select **Open** to load the file.

4. When the filename is listed on the main screen in the **Browse** field, select the **Import** button. Your image will be displayed across the top banner of the interface.

NOTE: All images should be less than 300x50 pixels.

NOTE: If you wish to **DELETE** the image that you have uploaded, select the **Delete Current Image** button that appears only when an image is loaded.

5. If you wish to assign a name to the server, type a name into the *Set Server Name* field and click on the **Set Server Name** button.

NOTE: To clear the server name, remove the name from the text field and select the **Set Server Name** button. The server name will be removed.

6. If you wish to assign an SNMP trap address to the server, type an address into the *Set SNMP Trap Addresses* field and click on the **Set SNMP Trap Addresses** button.

7. If the banner position has shifted due to the addition or subtraction of logos and text, select the **Reset Banner Position** to send the banner to its original center justified location.

6.9.5. License Management

In order for the user to obtain an authorized license for the MAGNUM Server an ID number must be generated. To obtain a license, navigate to the main toolbar and from the **ADMIN** drop down menu select the **License Management** button.

Figure 6-168: License Management

1. Your server name(s) and IP address will be listed in the *License Management* window. Select the **Get ID** button to generate a Server ID number.

2. A generated number will appear in the **Server ID** column, as shown highlighted in Figure 6-169.

3. Once the Server ID has been regenerated, the user must submit the ID number to Evertz Service in order to acquire an authorized license.

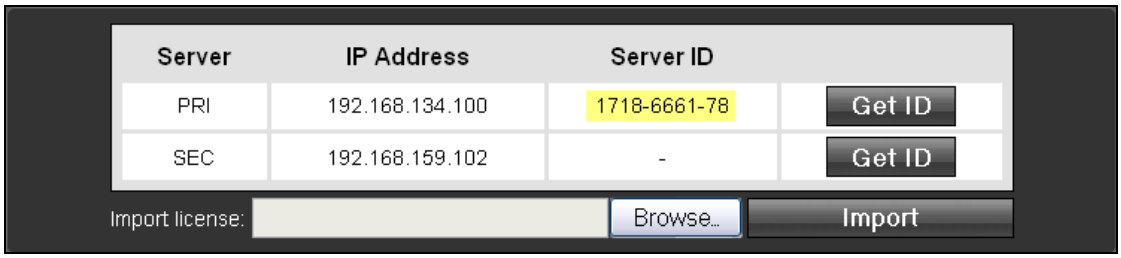


Figure 6-169: Generating a Server ID

4. Once the license is obtained by the user, the user must import the license. Click on the **Browse** button and then navigate to the appropriate file.

5. Once the appropriate file is selected, click the **Open** button.

6. The filename will be listed in the *Import license* field.

7. Finally, select the **Import** button to import the selected file and load the user license.

8. In order for changes to take effect the user must restart the server from the configuration GUI in the first part of this manual. ALL SERVERS must be restarted.

6.10. HELP TAB

The **Help** menu displays the current version of the MAGNUM server and retrieve logs.

6.10.1. Viewing the Version Information

To view the version information, select the **About** item from the **Help** drop down menu. The *About* screen will display the software version, as shown in Figure 6-170.

Figure 6-170: About Window

6.10.2. Retrieving Logs

To download the server logs, select the **Retrieve Logs** menu item from the **HELP** drop down menu. By selecting the **Download** button the user can download a zip file containing all of the server logs.

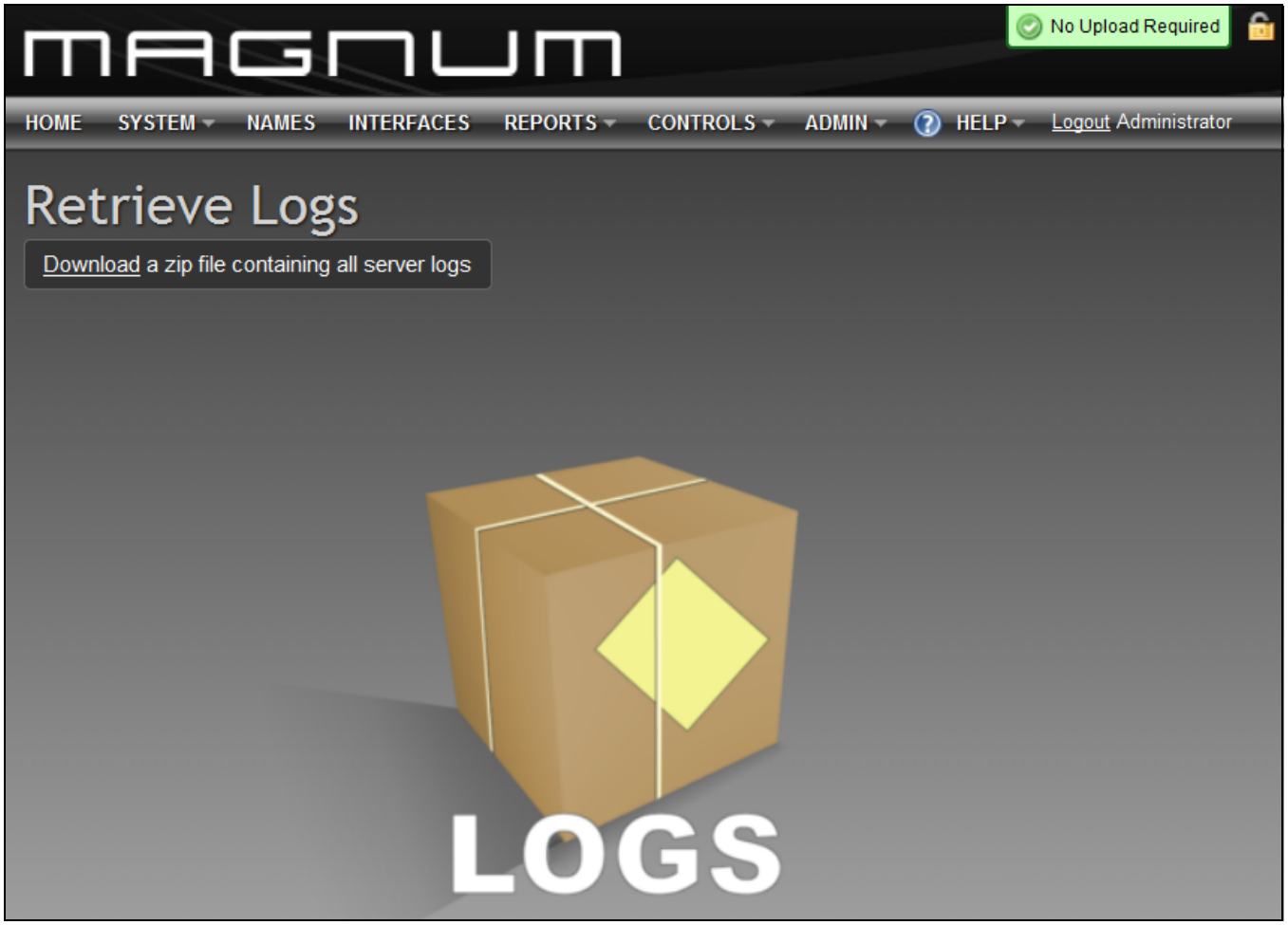


Figure 6-171: Retrieve Logs Window

7. MAGNUM DAY 2 LABS

7.1. ACCESSING WEB MAGNUM WEB INTERFACE

1. Successful connection to the Heartbeat address of a MAGNUM Cluster.

2. Successful addition of a MAGNUM Server.

3. Successful query and licensing of a MAGNUM Server.

7.2. CONFIGURATION OF EQX, EMR, AND MULTIVIEWER DEVICES

1. Successful creation and addition of an EQX router.
   a. Creation and addition of AVIP and AVOP cards.
   b. Creation and addition of XLINK cross-point.

2. Successful creation and addition of an EMR device.
   a. AVIP and AVOP cards.
   b. EMR Input and Output cards.

3. Successful creations and tielining of VIPX devices to EQX router.

4. Proven ability to route and control created devices.
   a. Ability to route video sources to video destinations on the EQX.
   b. Ability to route audio sources to audio destinations.
   c. Ability to create Multiviewer layouts using EQX video sources to VIPX displays.

7.3. CREATION OF NAMESETS FOR VARIOUS INTERFACES

1. Successful creation of a NameSet for Multiviewers only
   a. Ability to view the re-aliased ports in Maestro for EQX video sources to VIPX displays

7.4. CREATION OF TIELINES BETWEEN TWO ROUTERS

1. Successful creation of tielines between two routers (Xenon1 and Xenon2).
   a. Ability to route sources from Xenon 1 to Xenon 2 destinations.
   b. Ability to check the tieline used.

7.5. PROGRAMING AND USING MULTI-PROFILE PANELS IN MAGNUM

1. Successful creation and assignment of profiles.
    a. Eng Profile (All EQX Video Ports).
    b. Multiviewer (Only Multiviewer connected destinations and EQX Video Ports).
    c. TD (Only first 5 EQX Video Ports).

2. Port Labels for EQX Video Ports.
    a. Able to dial-up sources and destinations using assigned Port Labels.

3. Able to override lock owner for a Destination.
    a. Lock a destination using the Web interface and unlock using the Advanced Panel.

7.6. PROGRAMING AND USING SINGLE PROFILE PANELS IN MAGNUM

1. Successful creation of a single profile panel containing source and destination buttons.

7.7. CONFIGURING VIRTUAL PORTS

1. Successful creation of virtual ports that contain Video, Audio, Data, and Time Code levels.

2. Created both source and destination ports that contain ports from Video, Audio, Data, and Time Code routers.

3. Ability to route on all four devices with the selection of a destination and source route from an interface.

7.8. CONFIGURING BLACK TO ALL SALVO

1. Successful creation a salvo that routes BLACK to all EQX video destinations.

2. Successful recall of BLACK to ALL salvo from an interface.

7.9. SAVING AND RECALLING CONFIGUATIONS

1. Able to save current MAGNUM configuration.

2. Able to retrieve MAGNUM configuration after a system reset.

7.10. DOWNLOADING LOGS

1. Able to download current logs from MAGNUM.

8. DAY 3: INTERFACE CONFIGURATION (ADVANCED PANELS)

8.1. SYSTEM CONFIGURATION

8.1.1. Upgrading the CP-2232E Panel

8.1.1.1. Requirements

1. The user must have a laptop or PC connected to the same network as the CP-2232E.

2. The user must obtain upgrade files from Evertz Personnel.

    a. Your computer must be running the Mozilla Firefox web browser located at: http://www.mozilla.com/en-US/firefox/
    b. This browser is also available in Chinese simplified and traditional, if preferred, by clicking the “other languages…” option under the download link.

8.1.1.2. Getting Started

1. Set the IP address of the CP-2232E by holding down the first and last rotary encoders (S1 and S4) on the far left of the panel for 6 seconds.
    c. Select the “Network” page.
    d. Set the IP address for the A port and ensure “bonding” is off (a red x should appear next to it).
    e. Select *Apply*, then press the setup button.

2. Set the IP of your laptop or PC in the same range as the panel.

3. Ensure that Firefox is installed on your machine. If not, please review section 8.1.1.1 for instructions on installing Firefox.

8.1.1.3. Upgrading Firmware on the CP-2232E

1. To upgrade firmware using the web interface, open a Firefox web browser and enter the IP address of the CP-2232E, then press the <*enter*> key. The *CP2232e* web interface will appear, as shown in Figure 8-1.

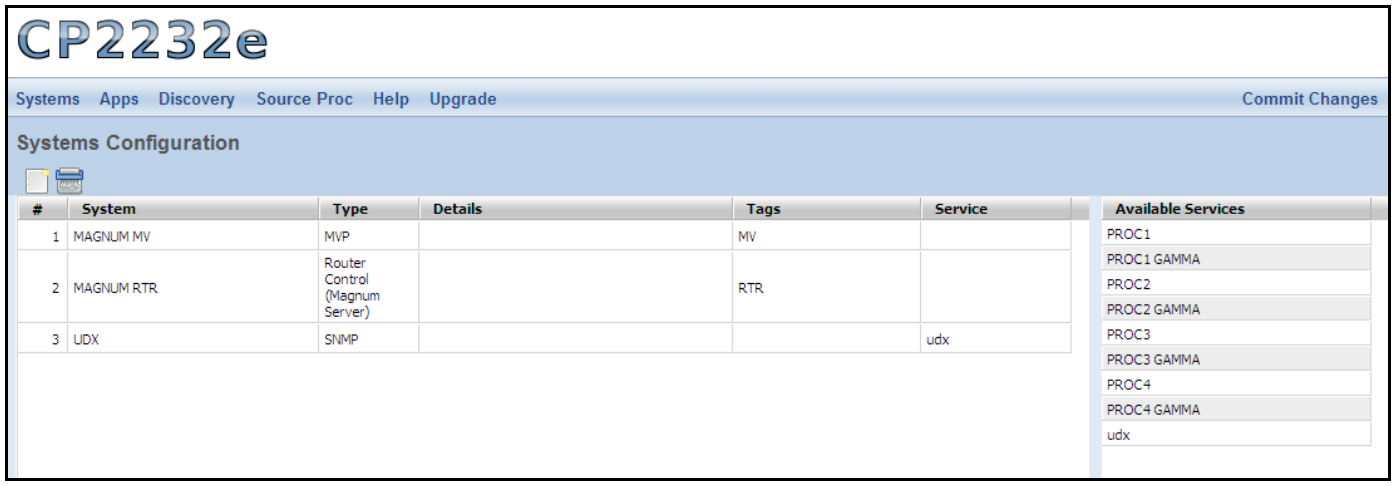


Figure 8-1: CP2232e Web Interface

2. Select the **Upgrade** menu and the “Install Firmware” page will open as illustrated in Figure 8-2.

Figure 8-2: Install Firmware Page

3. Click on the **Browse** button to select the file to be updated (i.e. CP2232e-1.1_1.efp) and then select the **Install** button to start the install.

4. If a reboot is required the panel should automatically reboot on its own otherwise you may reboot it using the front panel.

5. Once the panel has rebooted you are ready to configure the CP-2232E.

8.1.2. Systems Menu

The **Systems** menu enables the user to upload product jar files, create services and templates, and add systems. Figure 8-3 illustrates the **Systems** drop down menu.

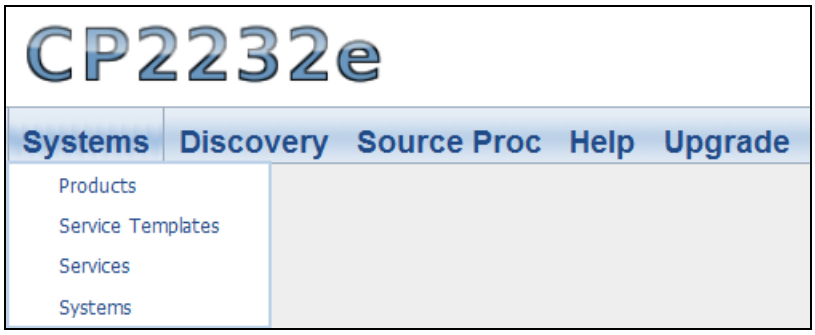


Figure 8-3: Systems Drop Down Menu

8.1.2.1. Products Page

The **Products** page, as illustrated in Figure 8-4, enables the user to upload product jar files to the control panel. Uploading the product files will provide access to the specific product parameters and enable configuration of such products.

To open the **Products** page, select the **Products** option from the **Systems** drop down menu.

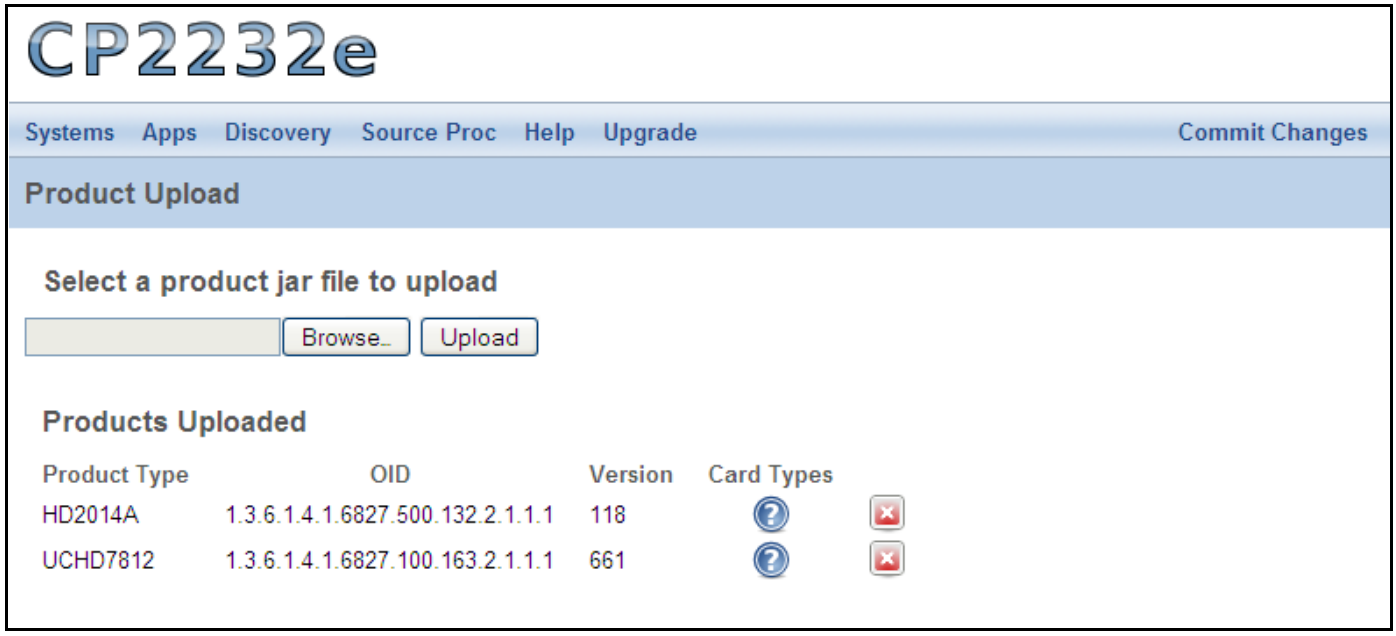


Figure 8-4: Products Page

The **Products** page has two control buttons, which are listed below:

- **BROWSE:** Selecting the *Browse* button will open a dialog box that enables the user to navigate to the desired jar file. Once the file is selected and opened, the filename will be displayed in the field to the left of the *Browse* button.

- **UPLOAD:** Selecting the *Upload* button will upload the selected file.

8.1.2.2. Products Uploaded

Products Type: This column lists the product files that are currently loaded on the control panel. If a product is loaded onto the panel, the product will be accessible in the **Service Templates** page (see section 8.1.3 for further information regarding the **Service Templates** page).

OID: This column identifies the product's unique address known as an "Object Identification."

Version: This column lists the product's current version number.

Select the button to delete the product.

8.1.3. Service Templates Page

The **Service Templates** page enables the user to create templates that contain SNMP parameters and controls for specific products. These templates are then used for creating and defining SNMP Services on the CP-2232E control panel. The **Service Templates** page also allows the user to edit existing templates.

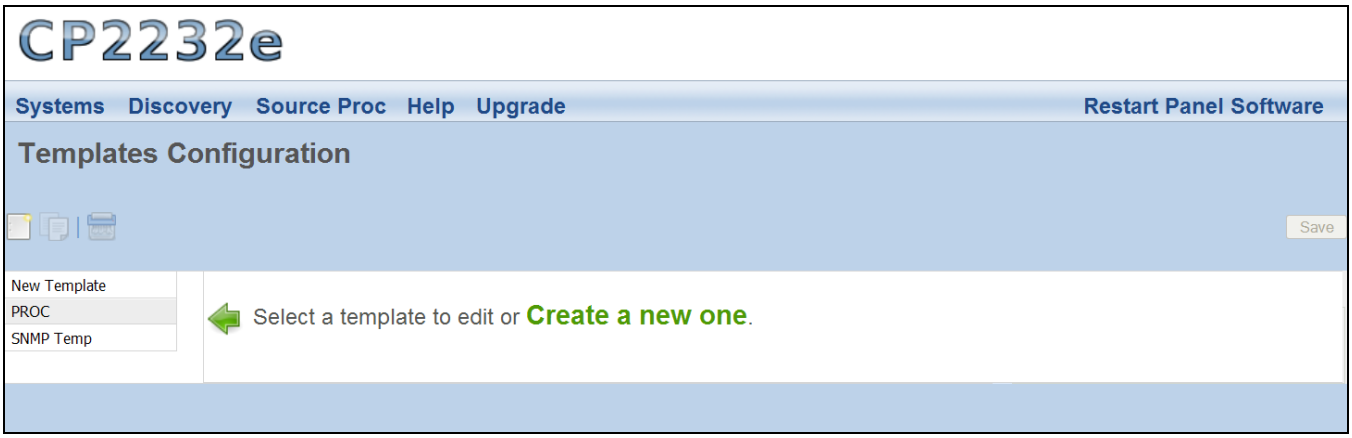


Figure 8-5: Systems – Service Template Page

The user can add, copy, or remove a template using the **Service Templates** buttons listed in Table 8-1:

Button	Image	Description
New Template		The *New Template* button enables the user to add and create a new template. Selecting this button will open a new template page as shown in Figure 8-9.
Duplicate Template		The *Duplicate Template* button enables the user to duplicate the selected template. Select the template that you wish to copy and then press the *Duplicate Template* button to create a replica of that template.
Delete Template		The *Delete Template* button enables the user to completely remove the currently selected template. Select the template that you wish to delete and then press the *Delete Template* button to remove the template.

Table 8-1: Service Template Buttons

The templates that currently exist will be listed in the far left column as illustrated in Figure 8-6.

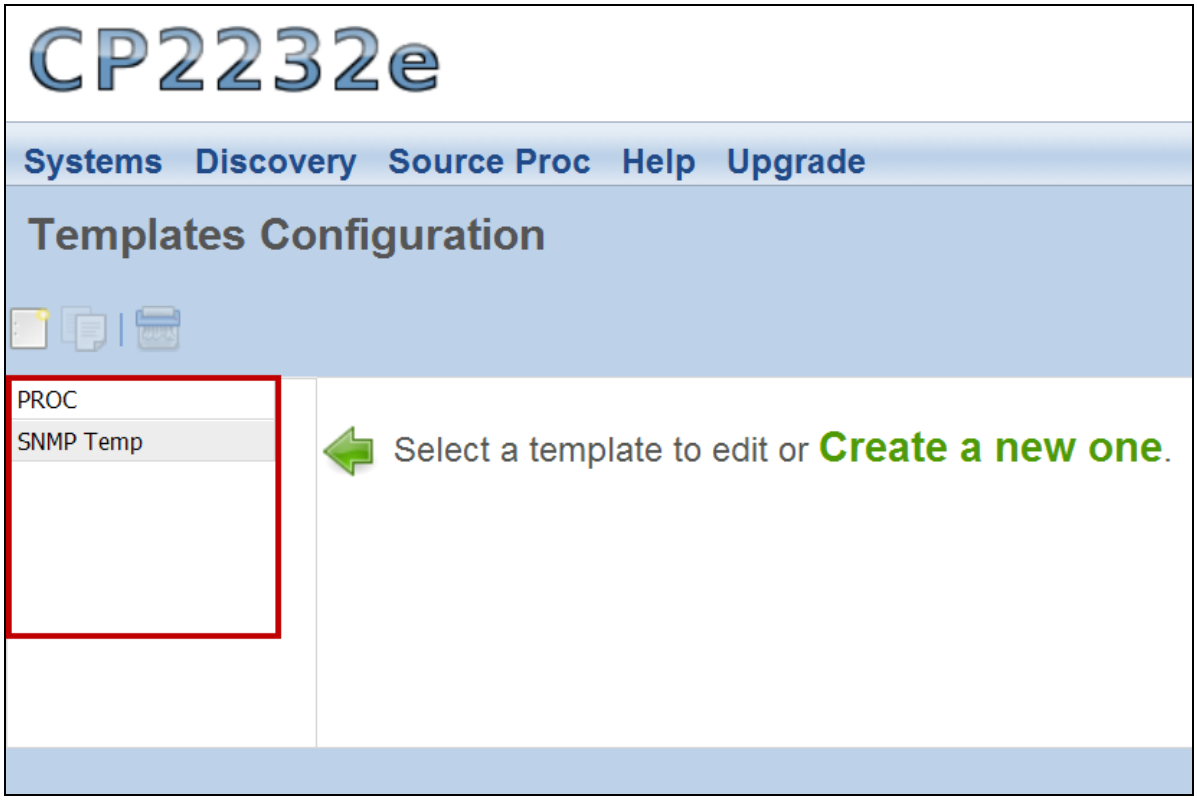


Figure 8-6: Service Template List

Once a template is selected or the user creates a new template, a new template page will appear enabling the user to add and/or edit parameters.

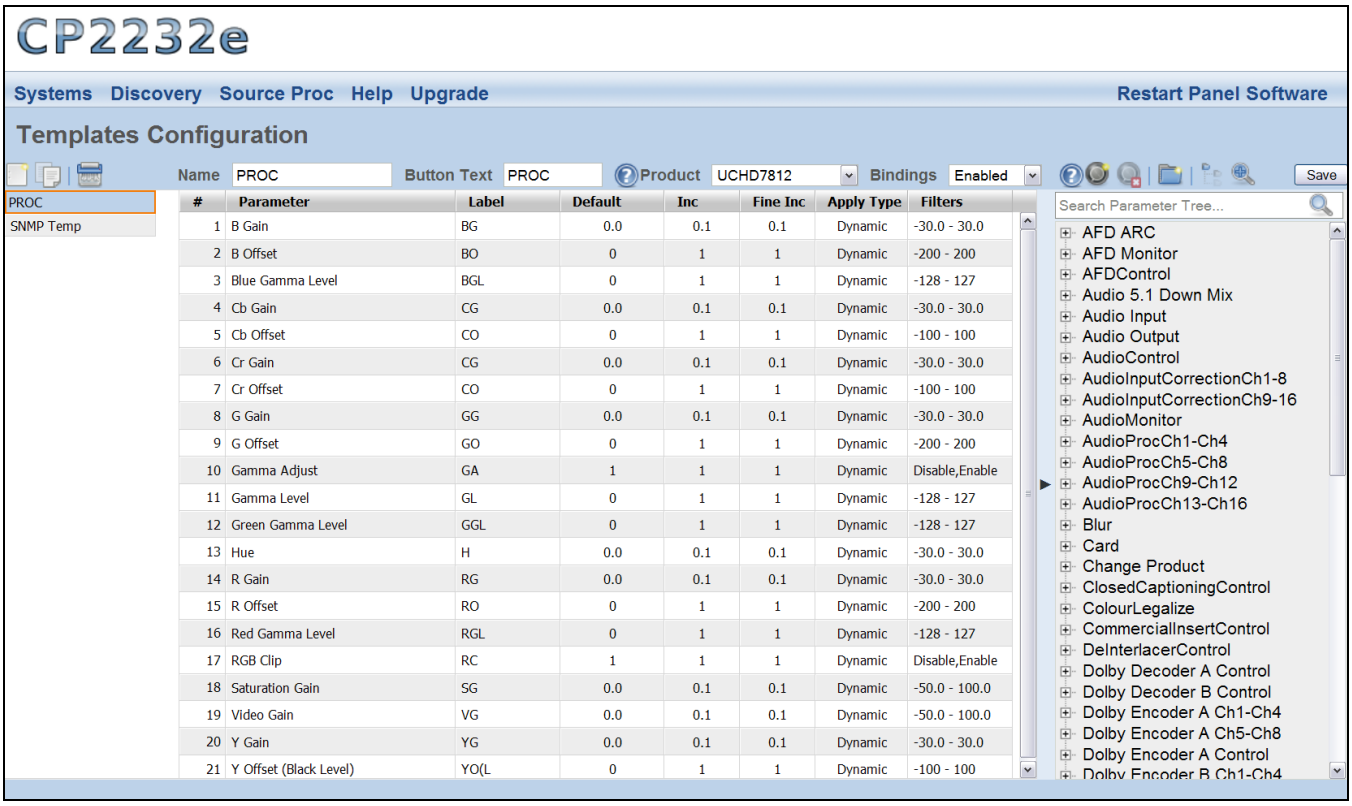


Figure 8-7: Customizing a Template

8.1.3.1. Service Template Controls

To modify the template, use the **Service Templates** controls as listed below:

- **Name:** To assign a name to the template, enter a unique name into the **Name** field.
- **Button Text:** To assign button text to the template, enter a unique name into the **Button Text** field. This is then used as a shortcut to the control when multiple templates are assigned to a SNMP Service.
- **Product:** The **Product** drop down menu provides a list of available products. Once the desired product is selected, the parameter tree will reflect the available parameter items for the selected product. More products can be added to this list by uploading product jar files using the **Products** menu under the **Systems** menu.
- **Bindings:** This setting allows the user to enable or disable the **Bindings** option. Bindings are used on controls that have can different parameters depending on the configuration of other controls. For example, if a specific card is set to use HD video the aspect controls would different than if the card was set to SD video.
- **Add a Parameter:** To add a parameter to the list, select the **Add a Parameter** button

- **Delete Selected Parameters/Groups:** Select the **Delete Selected Parameters/Groups** to delete a parameter/group.

- **Add a Group:** To add a group to the list, select the **Add a Group** button.

- **Hide Tree View:** Selecting the **Hide Tree View** button will hide the parameter tree view. Selecting this button again will show the parameter tree view.

- **Show Details:** Selecting the **Show Details** button will toggle the content of the **Parameter** field. When the user selects the **Show Details** button, the path of the parameter and the abbreviated name will be displayed in the **Parameter** field (i.e. VideoControl > Video Control > H Phase Offset (HPhaseOffset). If the user wishes to only display the **Parameter** name, then press the same button again (now identified as **Hide Details**).

- **Save:** Press the **Save** button to save all the changes you have made.

8.1.3.2. Service Template Parameter Tree

The **Service Template Parameter Tree** is used to select parameters and add them to the template. The user can navigate through the parameter tree by pressing the plus (+) and minus (-) buttons to expand or collapse the parameter items. Once the user has located their desired parameter, they can transfer it to the list by dragging the parameter from the tree and dropping it onto the list.

To quickly locate a parameter, type the parameter name into the **Search Parameter Tree…** field and press the <enter> key on your keyboard or select the icon. The search tool will expand the parameter tree to reveal the location of the parameter you entered.

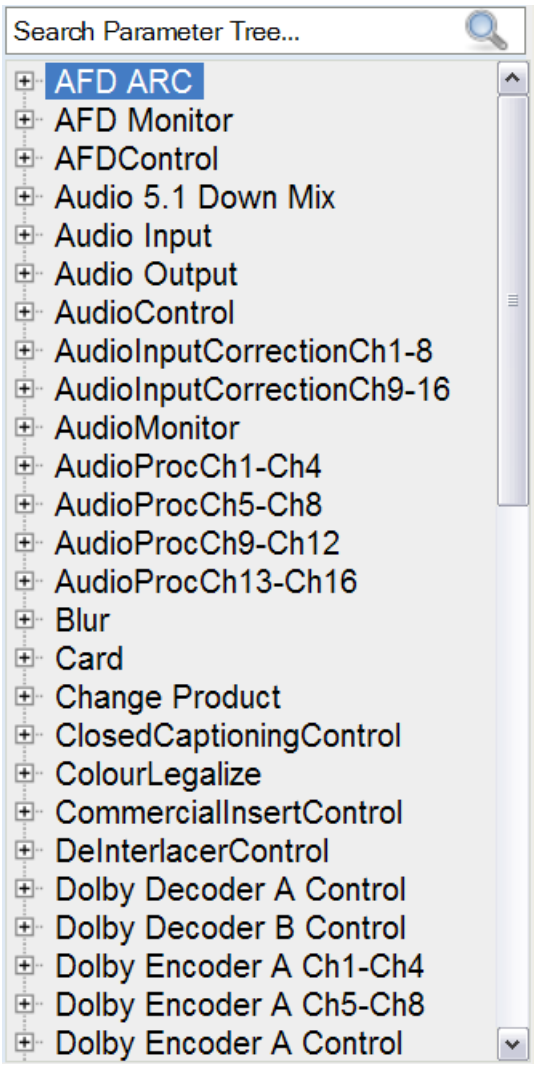


Figure 8-8: Parameter Tree

8.1.3.3. Template Properties

The user can adjust the template properties by entering the appropriate information into the fields below:

- **#:** Double-clicking a number in this column will highlight the corresponding parameter in the **Service Template Parameter Tree**.
- **Parameter:** This field identifies the parameter name and will display the location of the parameter in the parameter tree when double-clicked.
- **Label:** This field displays the name that is shown on the LCD screen for each control parameter. The user can customize the buttons by entering a new label into this field.
- **Default:** This field displays the default level for the selected parameter. The user can enter the appropriate unit into this field.

- **Inc:** Entering a number in this field will assign a number value that the encoder will increment when it is rotated. For example, if this value is set to **2**, each time the shaft encoder is turned (clicked over once) the value will increment by 2 instead of a regular default unit of 1.

- **Fine Inc:** Entering a number in this field will assign a fine increment value that will be used when the shaft encoder is pushed. This value will then be used each time the shaft encoder is turned (clicked over once).

- **Apply Type:** This field enables the user to select an **Apply Type**. The user can select "Pressed," "Dynamic," or "Cycle."

- **Filters:** This field displays the range of values and control options available for the selected parameter. The user can change the minimum and maximum values and the parameter options using this field.

8.1.3.4. Creating a New Service Template

To create a new template follow the procedure outlined below:

1. Navigate to the **Service Templates** control menu and click on the **New Template** button or select the **Create a New One** link. A new screen, as illustrated in Figure 8-9 will open.

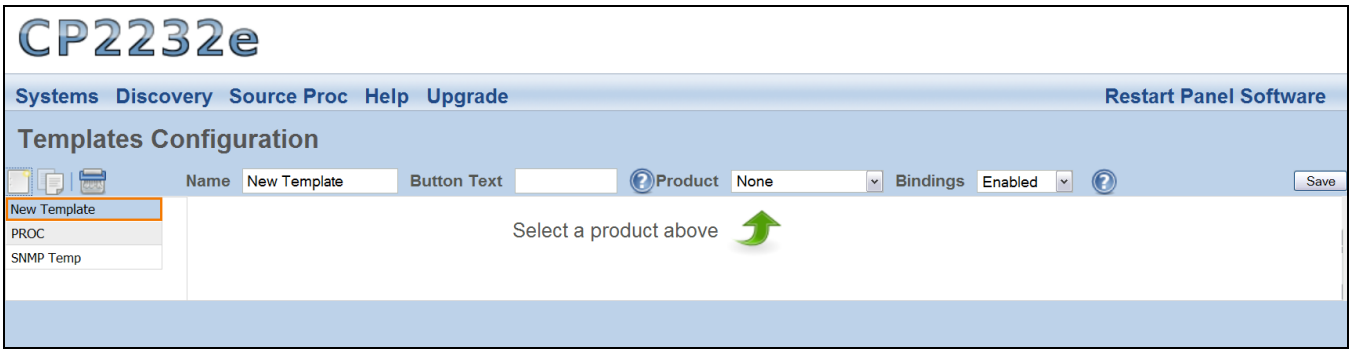


Figure 8-9: New Template Page

2. Assign a new name to the template by entering a name into the **Name** field.

3. Assign a name for the designated LCD button using the **Button Text** field.

4. Select a product using the **Product** drop-down menu. Once the desired product is selected, the parameter tree will reflect the available parameter items for the selected product. More products can be added to this list by uploading product jar files using the **Products** menu under the **Systems** menu.

5. Enable or disable **Bindings** using the **Bindings** drop-down menu. Please refer to section 8.1.3.1 for more information.

6. Drag and drop a card parameter from the parameter tree to the template parameter list in the middle of the screen. Please refer to Figure 8-10.

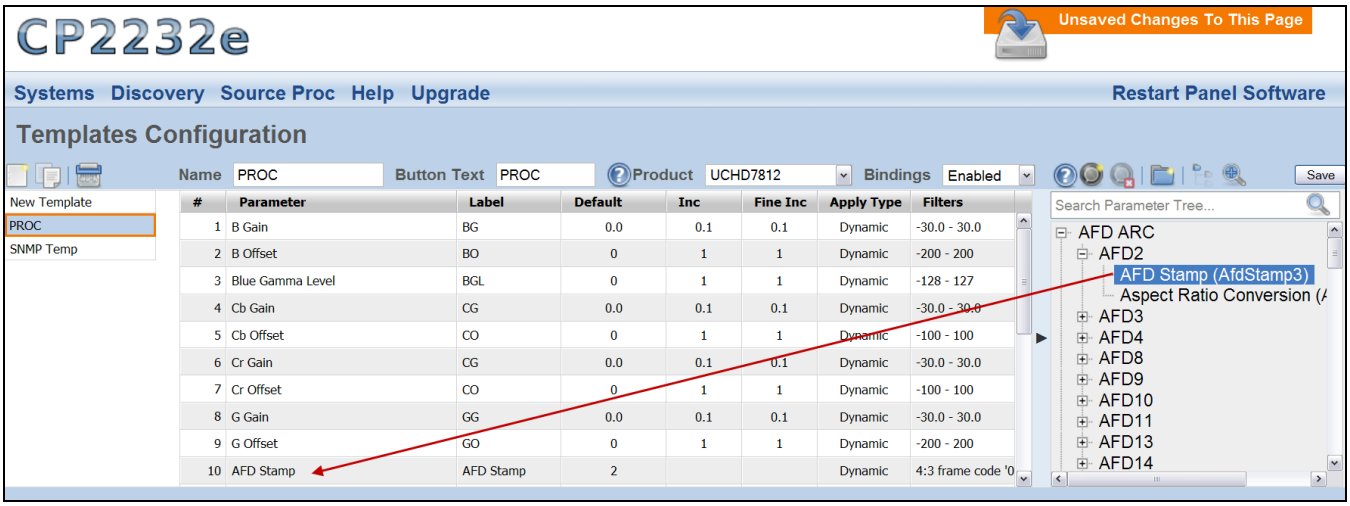


Figure 8-10: Assigning a Parameter

7. For each parameter that is added, the user can fill in the seven properties (i.e. *Parameter*, *Button Text*, *Default*, *Inc*, etc). Please refer to section 8.1.3.3 for more information.

8. Click the **SAVE** button on the right hand side of the screen to save the template.

Please note that the user must press the "Save" button in order for changes to be saved and then select "Restart Panel Software" to apply the changes to the control panel.

8.1.3.5. Service Template Controls

To modify the template, use the **Service Templates** controls. Please refer to section 8.1.3.1 for more information.

8.1.4. Services Page

The **Services** page enables the user to create a service or edit an existing service, which can be loaded onto the CP-2232E control panel. Services are created by linking a Service Template to a particular Service and then defining the frame, card in a particular slot, and input using the **Services** page.

The services that currently exist will be listed in the far left column as illustrated in Figure 8-11.

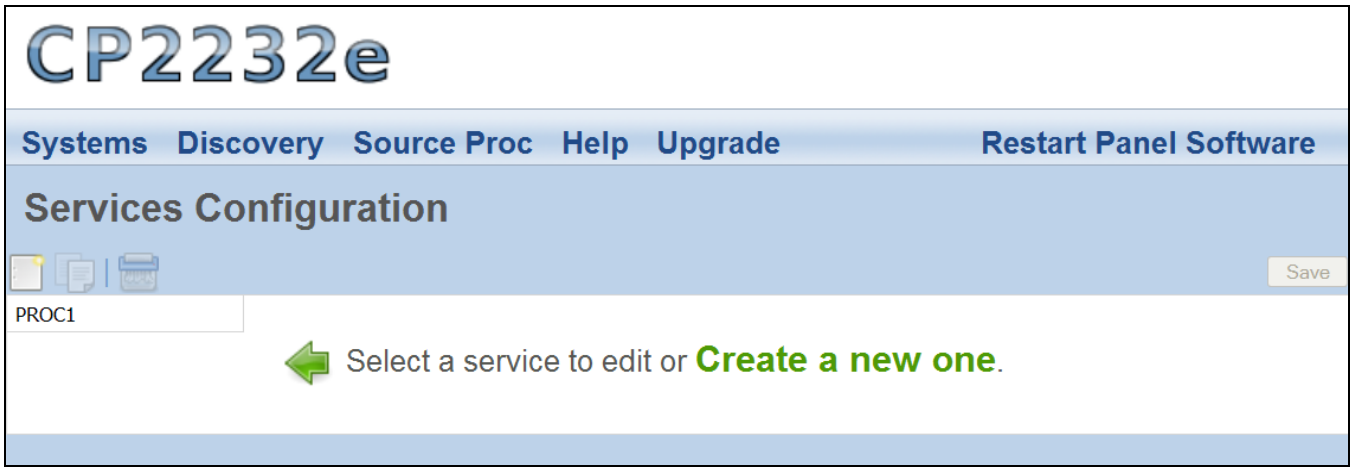


Figure 8-11: Services List

The user can add, copy, or remove a service using the **Service** buttons listed in Table 8-2:

Button	Image	Description
New Service		The *New Service* button enables the user to add and create a new service. Selecting this button will open a new service page.
Duplicate Services		The *Duplicate Services* button enables the user to duplicate the selected service. Select the service that you wish to copy and then press the *Duplicate Services* button to create a replica of that service.
Delete Services		The *Delete Services* button enables the user to completely remove the currently selected service. Select the service that you wish to delete and then press the *Delete Services* button to remove the template.

Table 8-2: Service Template Buttons

Once a service is selected or the user creates a new service, a new page will appear enabling the user to customize the service.

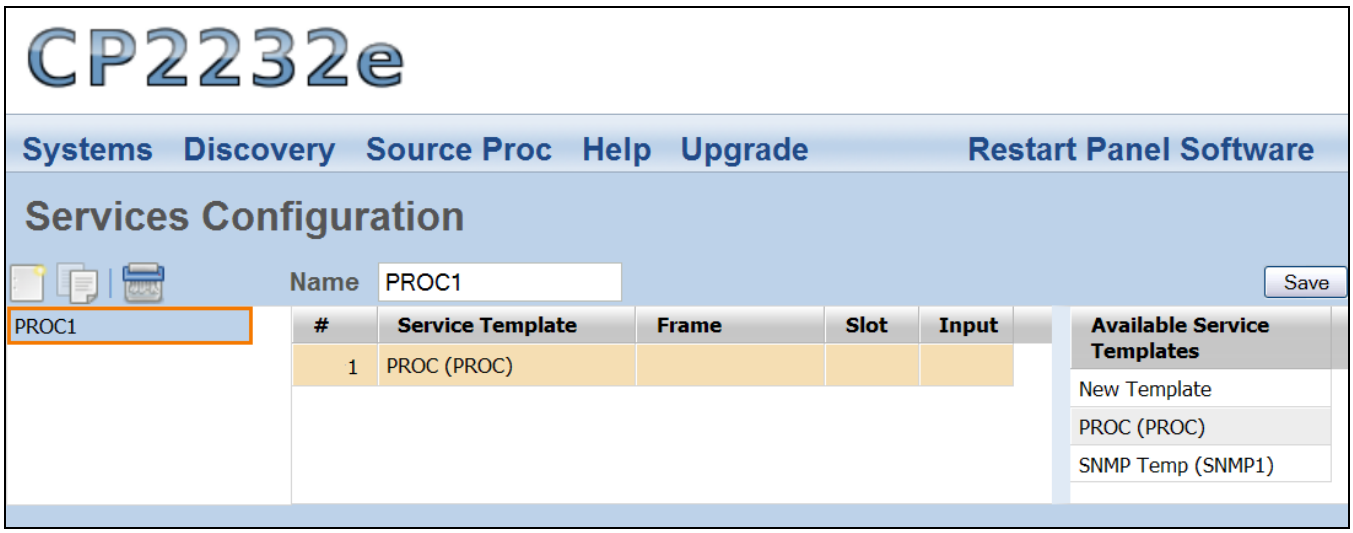


Figure 8-12: Customizing a Service

8.1.4.1. Service Controls

To name and save the service, use the **Service** controls as listed below:

- **Name:** To assign a name to the service, enter a unique name into the **Name** field.
- **Save:** Press the **Save** button to save all the changes you have made.

8.1.4.2. Available Service Templates

The **Available Service Templates** column provides the user with a list of **Service Templates** that are currently available. Selecting a template from the list will open the **Service Templates** page. The user can also drag and drop a template from the **Available Service Templates** column to the **Service Template** list in order to customize its properties.

8.1.4.3. Service Properties

The user can adjust the properties of the service by entering the appropriate information into the fields below:

- **#:** This field identifies the service template's number in the list.
- **Frame:** This field enables the user to select the appropriate frame for the service.
- **Slot:** This field identifies the slot number of the card in the frame that will be controlled by the panel.
- **Input:** This field enables the user to assign an input number.

8.1.4.4. Add a Service Template to the Service List

1. Navigate to the **Service** option from the **Systems** menu.
2. Select the desired template from the **Available Service Templates** column and drag and drop a template to the **Service Template** list.
3. Assign a "Frame," "Slot," and "Input" number to each service.
4. To apply these changes, select the **Save** button in the top right hand corner.

Please note that the user must press the "Save" button in order for changes to be saved and then select "Restart Panel Software" to apply the changes to the control panel.

8.1.5. Systems Page

The **Systems** page enables the user to view the devices that are currently available on the CP-2232E for connection and control as well as adding new devices. The user can also edit and/or change details, tags, and services for specific devices.

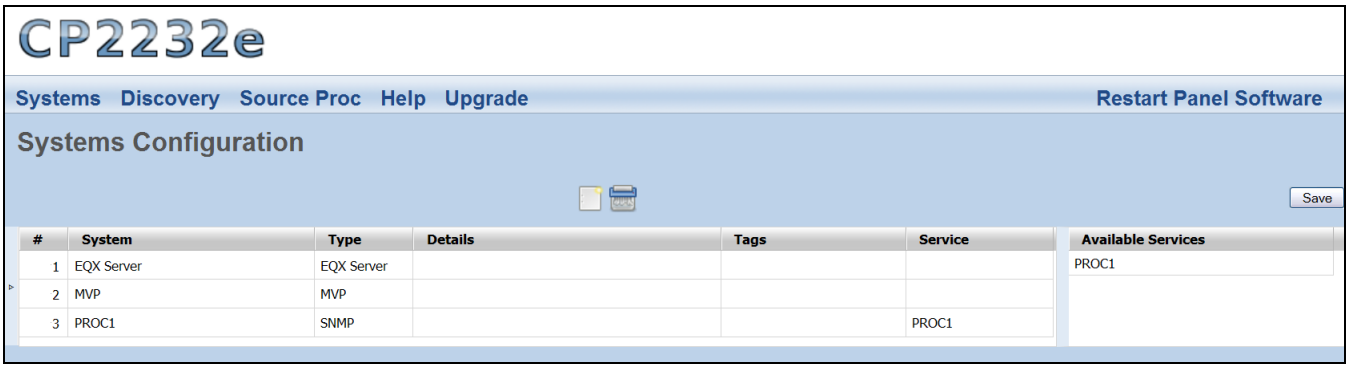


Figure 8-13: Systems Page

The user can add and/or remove a device using the **Systems** buttons listed in Table 8-3:

Button	Image	Description
New Device		The *New Device* button enables the user to add and create a new device. Selecting this button will open a new system window as shown in Figure 8-14.
Delete Device		The *Delete Device* button enables the user to completely remove the currently selected device. Select the device that you wish to delete and then press the *Delete Device* button to remove the device.

Table 8-3: Service Template Buttons

Figure 8-14: New System Window

8.1.5.1. Device Properties

The user can adjust each device's properties by entering the appropriate information into the fields below:

If the user double clicks the *System*, *Type*, *Details*, and/or *Tags* field, an *Update System* window will open as illustrated in Figure 8-15.

System: This field displays the device's name. If the user double clicks the **System** field, an **Update System** window will open. Here, the user can edit the device's name using the **Name** field.

Type: This field displays the device's type. If the user double clicks the **Type** field, an **Update System** window will open. Here, the user can select a device type using the **Type** drop down menu.

Details: This field displays specific details about the device. If the user double clicks the **Details** field, an **Update System** window will open. Here, the user can enter information about the device using the **Details** field.

Tags: This field displays the tags for a particular device. If the user double clicks the **Tags** field, an **Update System** window will open. Here, the user can add tags to the device in order to create shortcut buttons while searching for a system on the first selection screen of the panel.

Service: This field displays the available SNMP services for the device. The user can drag and drop a service from the **Available Services** column to the desired device's **Service** field.

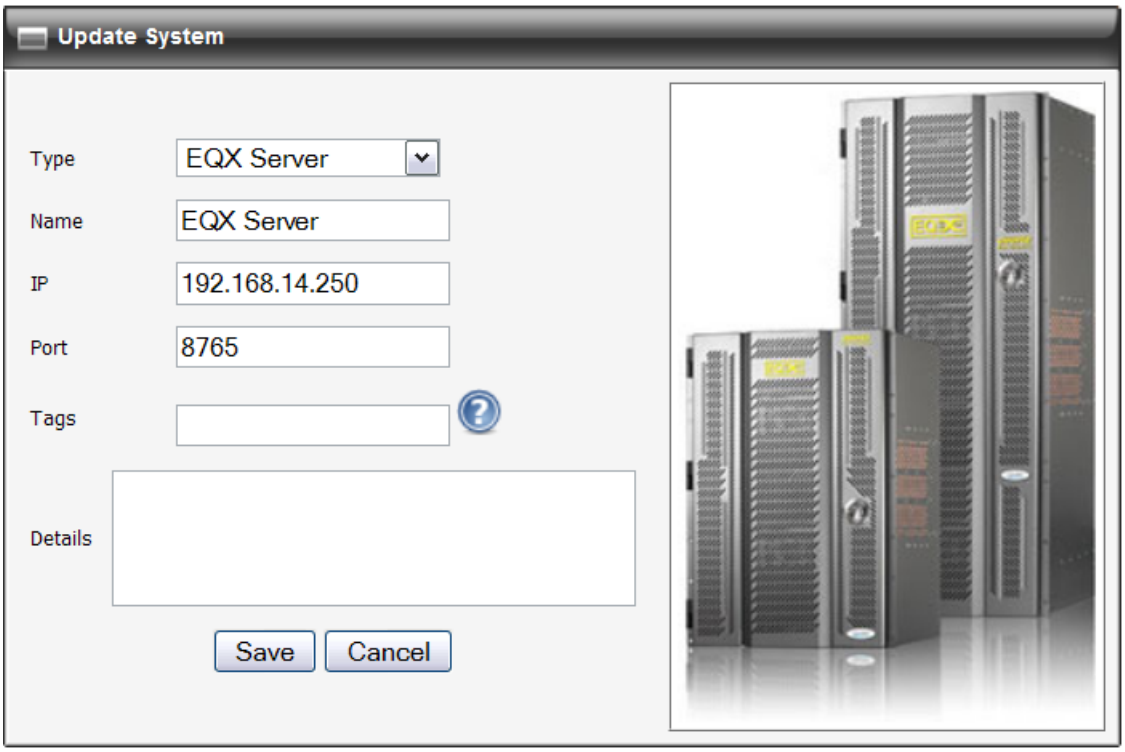


Figure 8-15: Update System Window

8.2. SOURCE PROC MENU

The **Source Proc** menu enables the user to create source-service, destination-service, and macro-service mapping.

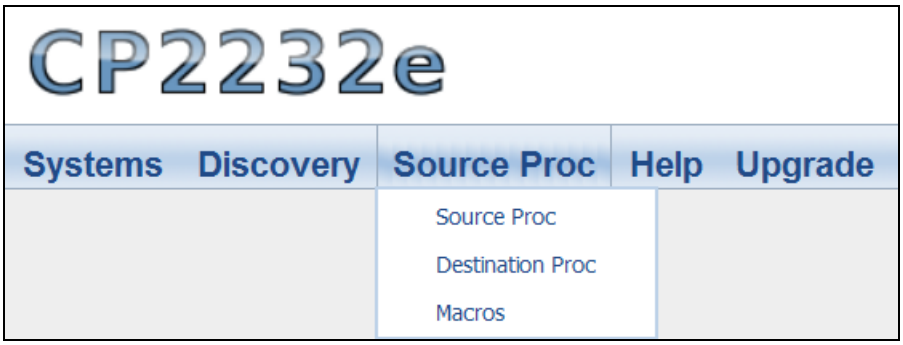


Figure 8-16: Source Proc Menu

8.2.1. Source Proc Page

The **Source Proc** page enables the user to attach an SNMP service to a router's input port.

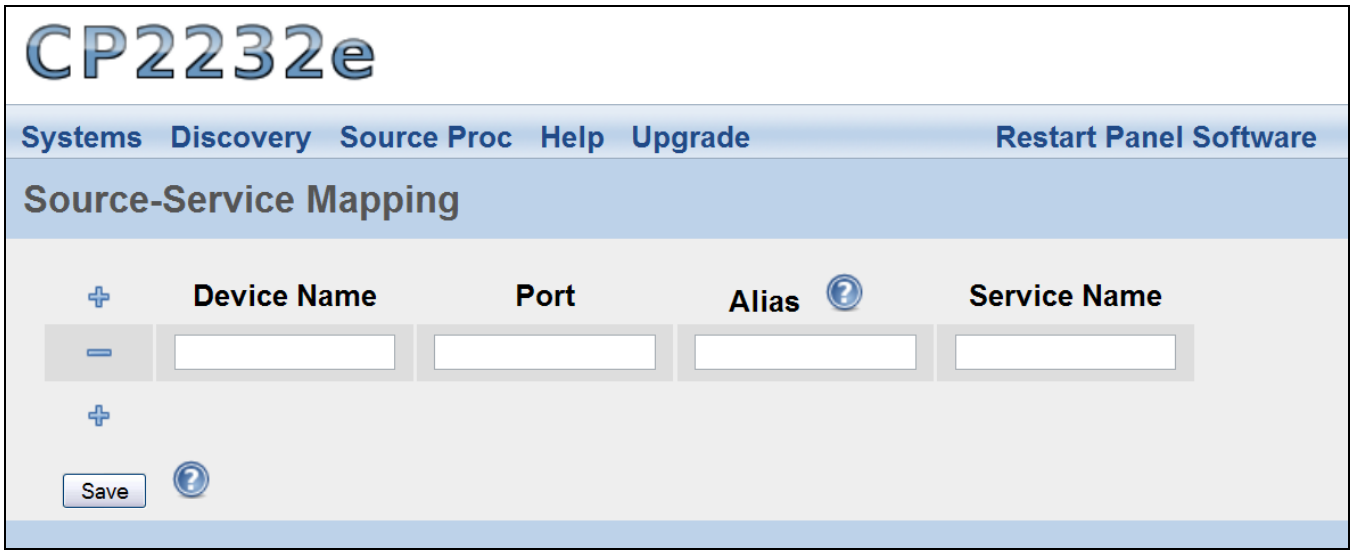


Figure 8-17: Source Proc Page

1. The following items will be required before you begin:
    a. The PRECISE "short name" from the EQX Server for the router containing the input or output you wish to map a service to.
    b. The PRECISE port number (in other words, the numerical input) the service should be mapped to. This number should be entered without any preceding zeros. Enter the number one as: 1 not 001.
    c. An *Alias* name for the router source (which will be used if the device name and port are not provided).
    d. A *Service* created and saved on the CP-2232E panel.
2. Select the plus sign to create a new mapping.
3. Enter the PRECISE "short name" of the router device to map to in the **Device Name** field.
4. Enter the port number (the numerical input) to map to in the **Port** field.
5. Enter an **Alias** name for the router source. Please note that this parameter is **optional.** An **Alias** will be used if a device name and port are not provided. The alias would be the Global name of the source as defined in the EQX Server.
6. Enter the name of the desired SNMP service in the **Service Name** field.
7. Once selected, click the **Save** button.
8. When you are finished mapping the SNMP Services, be sure to click the "Restart Panel Software" link found at the top of each page.

8.2.2. Destination Proc Page

The **Destination Proc** page enables the user to attach an SNMP service to a router's output port.

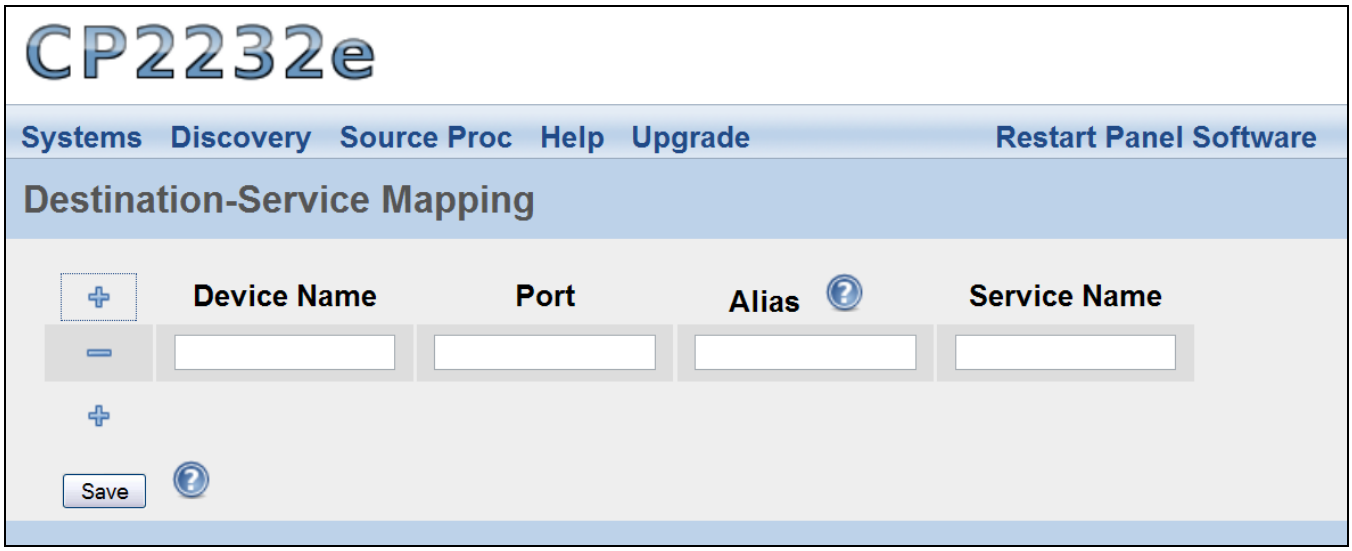


Figure 8-18: Destination Proc Page

To create a new **Destination-Service Mapping**, please follow the numbered instructions in section 8.2.1

8.2.3. Help Menu

The **Help** menu enables the user to view panel and products information, retrieve logs, change preference settings, and import/export configurations.

Figure 8-19: Help Menu

8.2.3.1. Help Page

Selecting the **Help** menu enables the user to view the current panel version, product support, and retrieve configuration and logs.

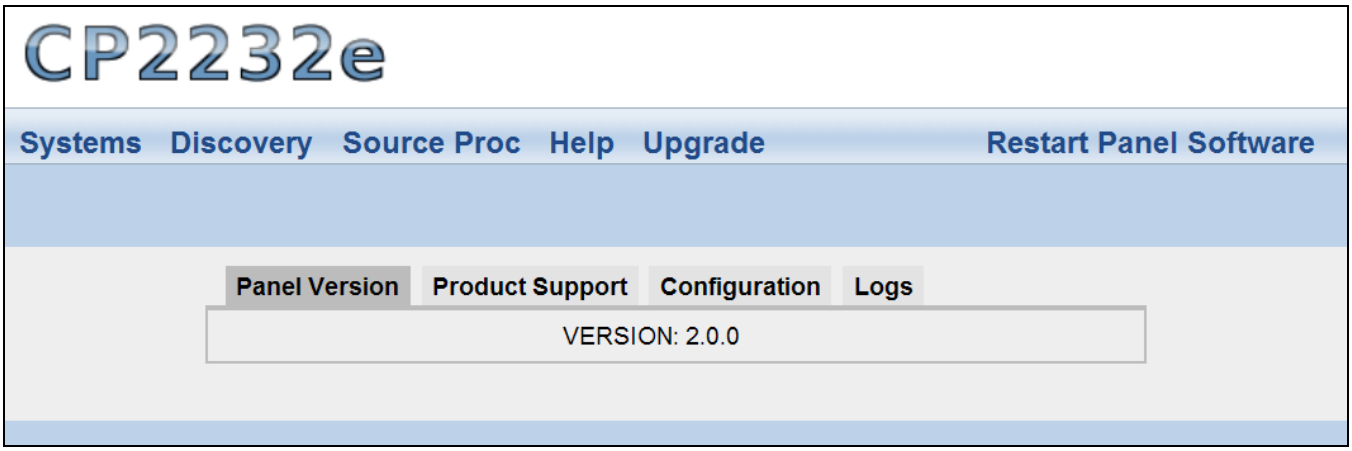


Figure 8-20: Help Page

8.2.3.2. Panel Version

Selecting the **Panel Version** option, as illustrated in Figure 8-20, will display the current panel's version number.

8.2.3.3. Product Support

The **Product Support** option provides a list of current product versions.

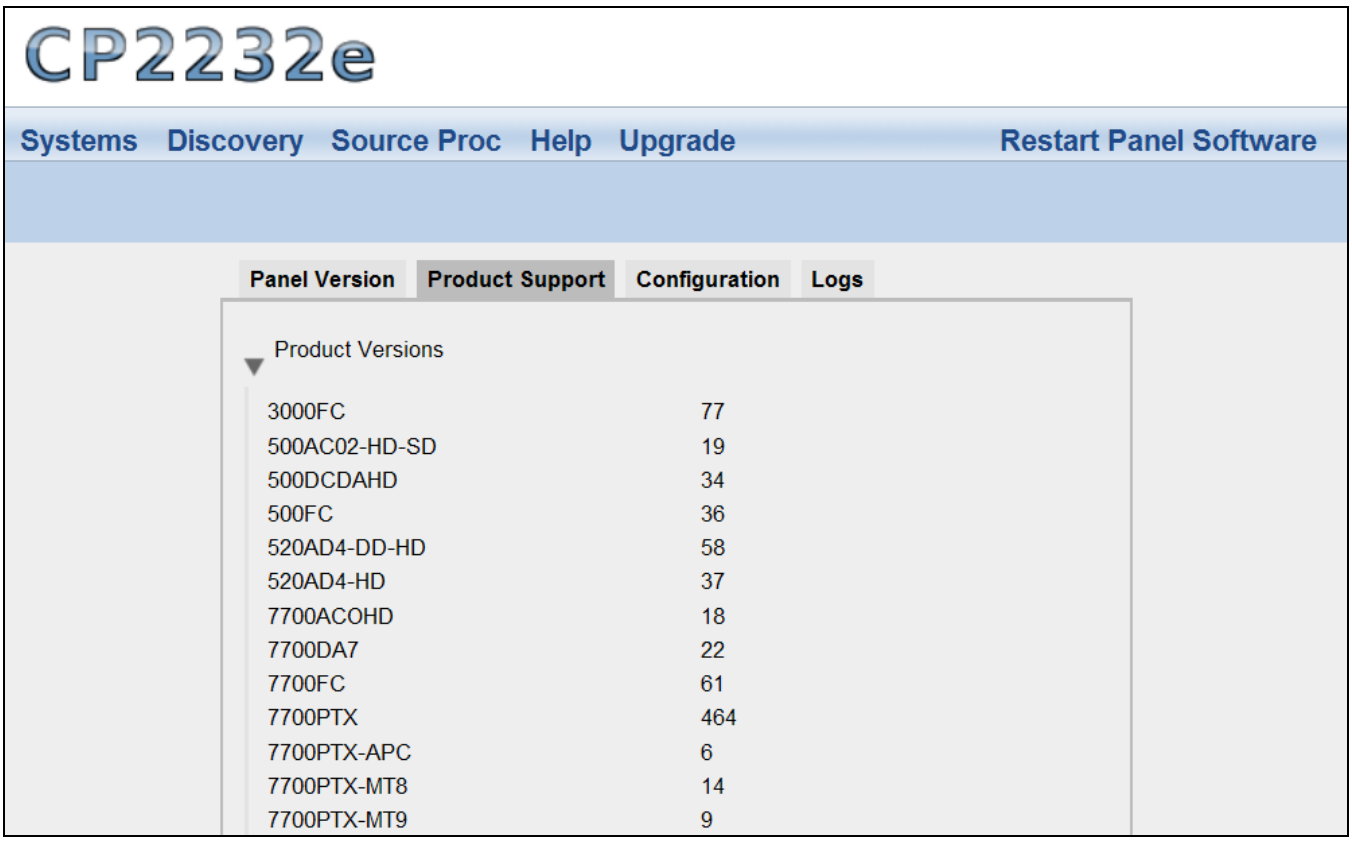


Figure 8-21: Product Support Tab

Clicking the **Product Versions** text will reveal a list of currently supported products and their version numbers.

8.2.3.4. Configuration

The **Configuration** tab, as illustrated in Figure 8-22, enables the user to export the panel's configuration settings.

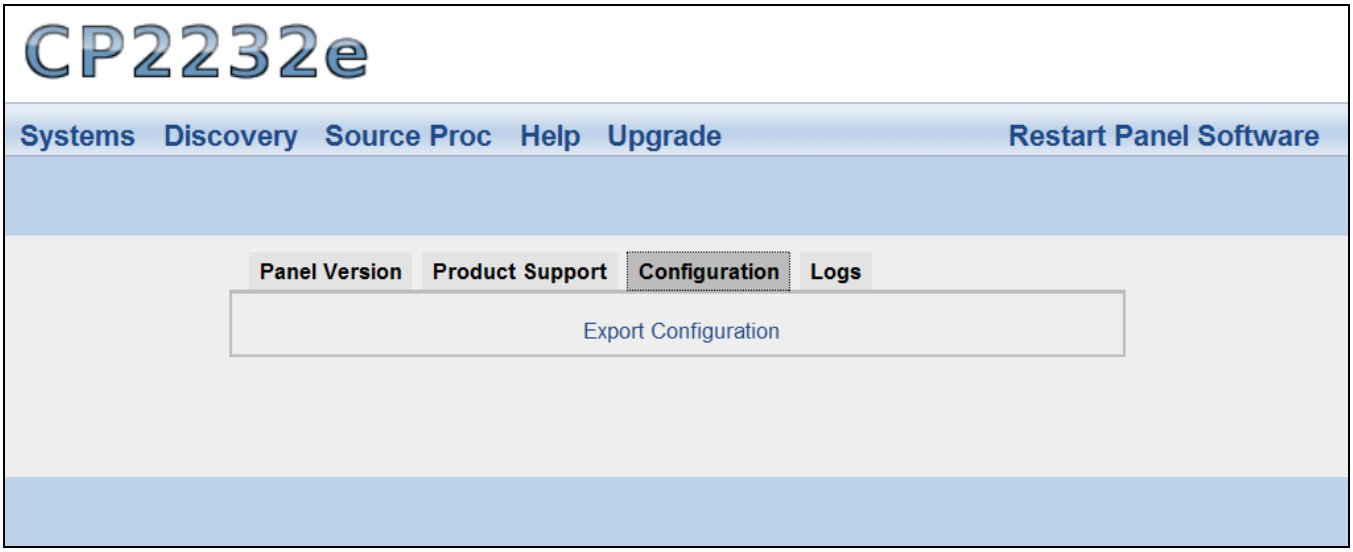


Figure 8-22: Configuration Tab

Select the **Export Configuration** text and an **Opening config.cf** dialog box will be appear which will prompt the user to open or save the configuration file.

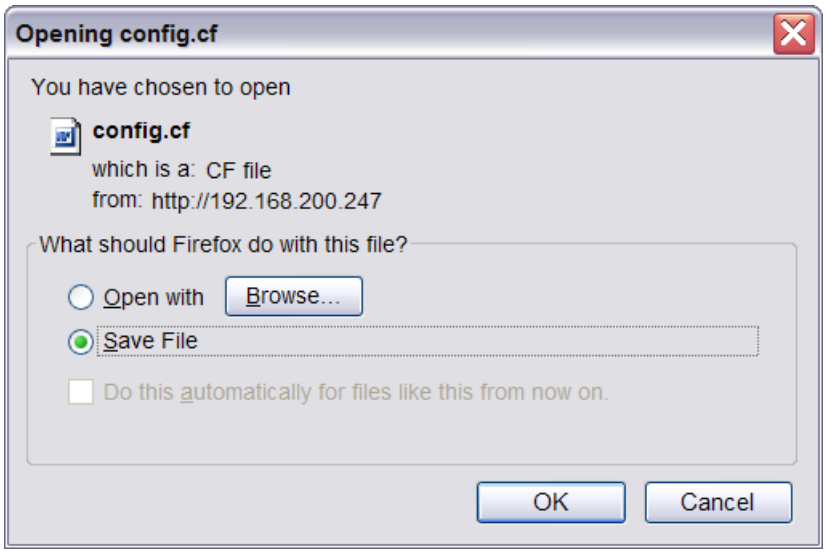


Figure 8-23: Opening config.cf Dialog Box

8.2.3.5. Logs Tab

The **Logs** tab, as illustrated in Figure 8-24, enables the user to retrieve configuration logs.

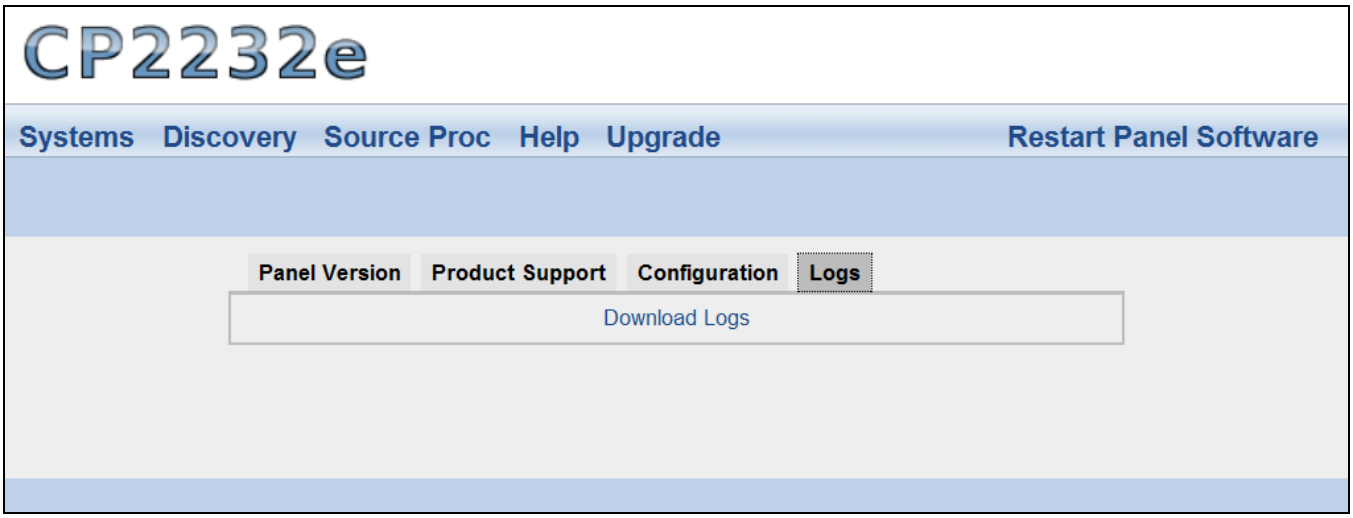


Figure 8-24: Logs Tab

Select the **Download Logs** text and an **Opening logs.lf** dialog box will appear which will prompt the user to open or save the log file.

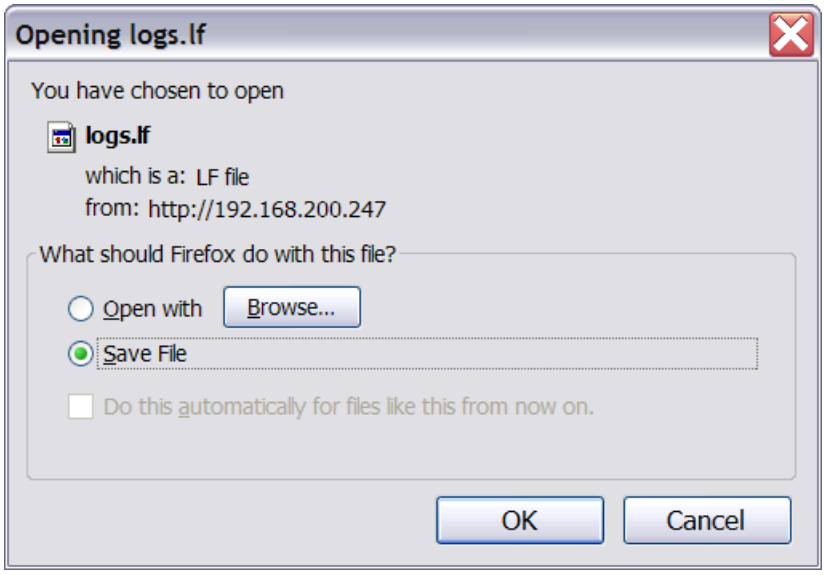


Figure 8-25: Opening logs.lf Dialog Box

8.2.4. Preferences Page

The user can select the **Preferences** option from the **Help** menu drop down menu. The **Preferences** page enables the user to change the visual settings of the panel.

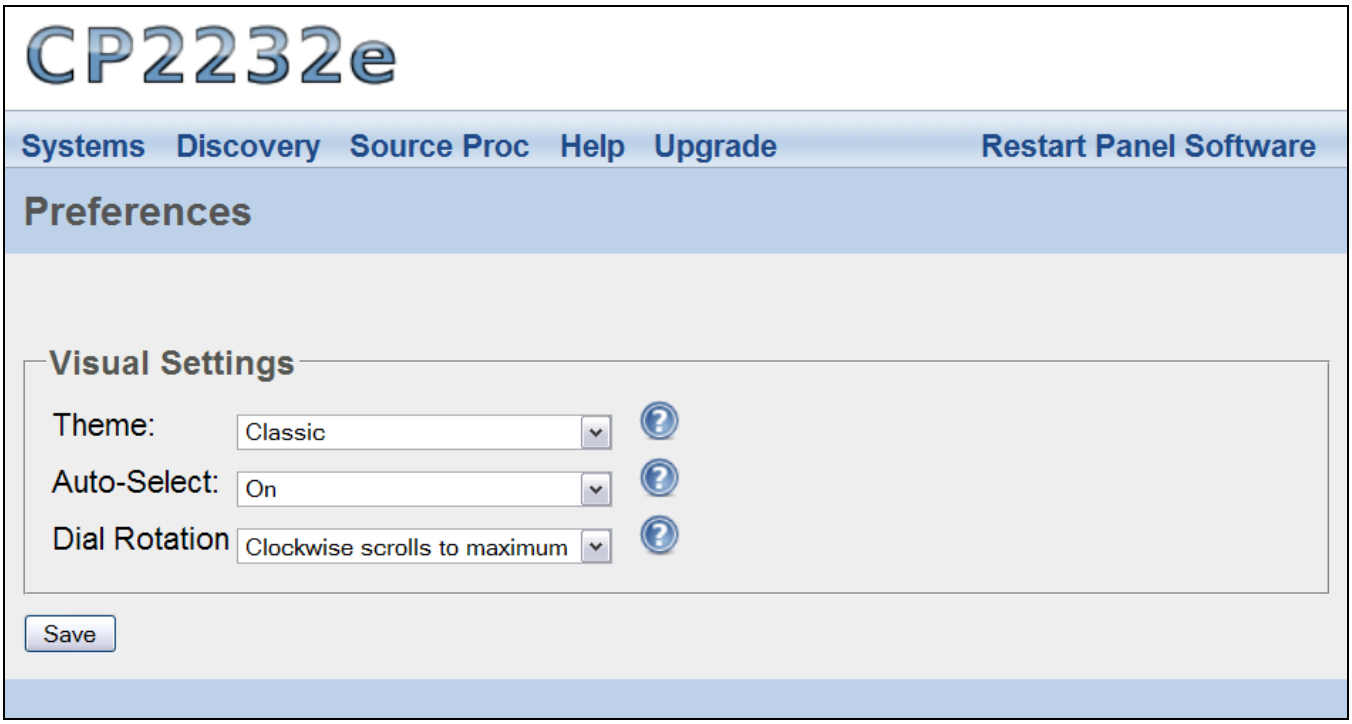


Figure 8-26: Preferences Page

8.2.4.1. Visual Settings

Theme: This parameter enables the user to the change the panel's colour palette. **Theme** options include: "Dark Gray," "Ocean Blue," "Forest Green," "Smokey Grey," and "Classic."

Auto-Select: This parameter enables the user to enable or disable the **Auto-Select** function. If set to **On**, a single item in a list will be automatically selected (where applicable) without having to use the **Select** button. If set to **No**, the **Select** button will need to be used in order to select an item from a list.

Dial Rotation: This parameter enables the user to change the shaft encoders' scrolling direction. The "Clockwise scrolls to maximum" option will increase the number value when turning a shaft encoder clockwise. The "Clockwise scrolls to minimum" option will decrease the number value when turning a shaft encoder clockwise.

8.2.5. Import/Export Page

The user can select the **Import/Export** option from the **Help** menu drop down. This page, as illustrated in Figure 8-27, enables the user to import and export an advanced panel configuration.

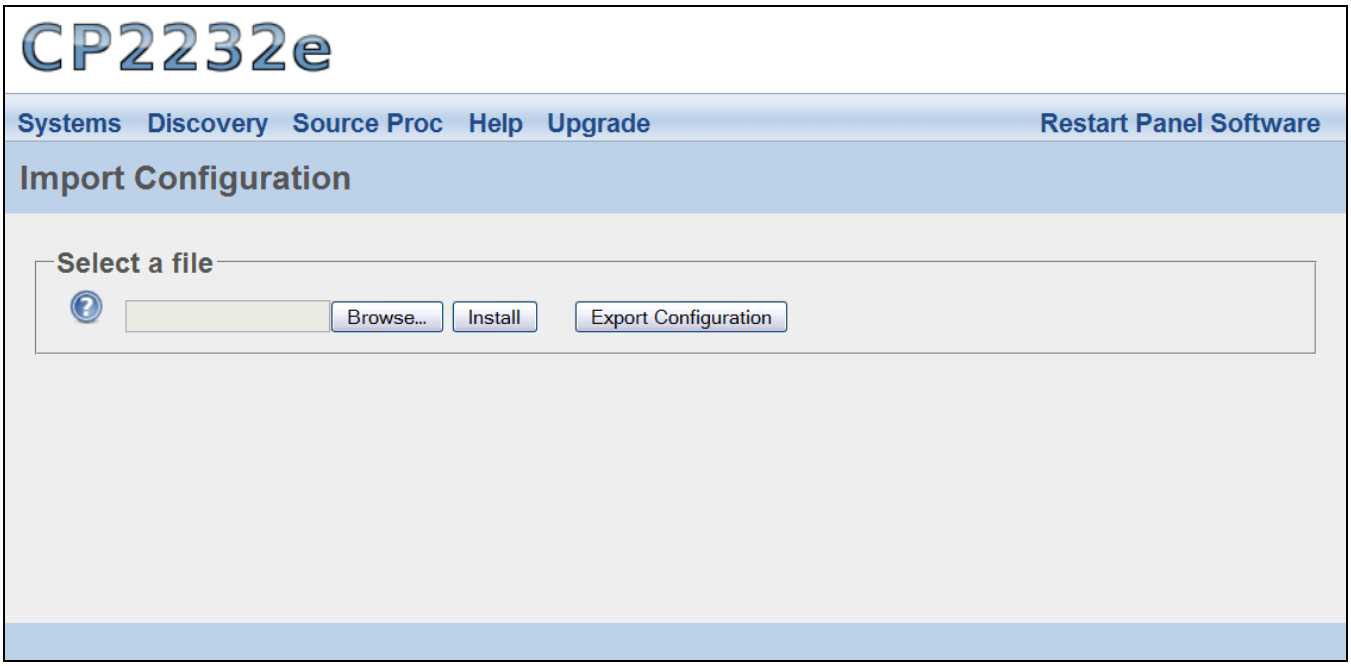


Figure 8-27: Import/Export Page

To import a configuration, follow the instructions outlined below:

1. Select the **Browse** button and navigate to the appropriate configuration file and then select the **Open** button.

2. Once the file name is displayed in the field next to the **Browse** button, select the **Install** button.

3. The panel must be restarted when a file is imported. Click the **Restart Panel Software** button in the top right hand corner.

To export a configuration, select the **Export Configuration** button. An **Opening config.cf** dialog box will be appear, as illustrated in Figure 8-23, which will prompt the user open or save the configuration file. Select “Save File” to download and save the configuration locally on the PC.

9. INTERFACE CONFIGURATION (SIMPLE PANELS)

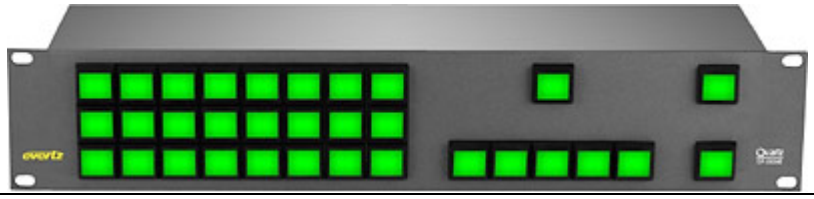
9.1. SIMPLE / SINGLE PROFILE ROUTER CONTROL PANELS

CP-1000E

CP-1024E

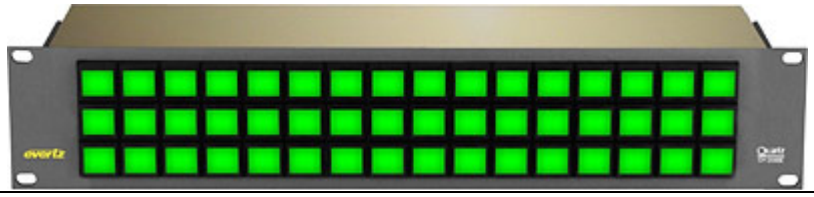
CP-1604E

CP-2024E

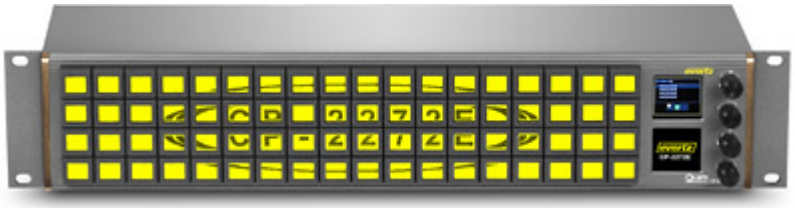


CP-2032E

CP-2048E



CP-2272E

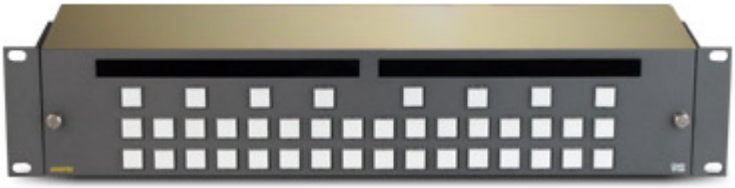


CP-2402E

CP-3200E

CP-3201E

CP-3208E



CP-6400E

CP-6401E

CP-6408E

9.2. CONFIGURING REMOTE CONTROL PANELS

The main setup or configuration, generated within the router control system, defines the way each panel functions. However, there are a few functions set on the panels by the user.

There are generally two types of panels, those with intelligent LCD buttons and those without. All panels have a multi-segment LCD display in the rear of the panel and a rotary shaft encoder. These may be used to select a communications method (Ethernet or QLINK) and set the various addresses. Additionally panels with intelligent LCD buttons can be set from the front panel using the LCD buttons. These methods are described in the following sections 9.2.1 and 9.2.2.

9.2.1. Configuring ANY Panel via the Rotary Shaft Encoder

The multi-segment display on the rear of the panel should be scrolling the current firmware revision.

To configure the panel for a specific communication method:

1. Turn the encoder until COMM is shown on the multi-segment display.
2. Once displayed, push in the encoder knob. The current communication method will be displayed (either ENET or QLNK).
3. To select the method, push in the encoder knob again, and then turn the encoder to select QLNK/ENET as desired. Once complete push in the encoder to select the item.
4. Turn the encoder knob to END, and then push in the encoder knob again. This will apply the setting.

To set the IP Settings:

1. The following settings may be edited in the same manner as below:
    a. IP Address (IPAD).
    b. Subnet Mask (NETM).
    c. DHCP enable or disable (1 or 0) (DHCP).
    d. For more advanced IP configuration, such as gateways, the debug port must be used.
2. Scroll to the parameter to be configured (IE. IPAD), then click the encoder to select it.
3. The first four characters (including periods ".") will be displayed, and the very first segment of the display will have a cursor on the bottom.
4. Scroll the cursor to the character you wish to edit then push in the encoder to select it.
5. Turn the encoder to select the desired character then push in the encoder to save that value and return to the cursor mode.
6. Repeat until all settings are correct and END is displayed. Push in the encoder on END to apply the value.

9.2.2. Configuring Intelligent LCD Button Panels via Front Panel LCD Buttons

If the panel has not yet been connected to a control system or a connection is NOT present (IE the Ethernet or QLINK have been unplugged) then the panel will be in "Comms information Mode" and will display information about the current version, Comms mode, and address information. There will also be a setup button to enter the configuration mode. If the panel already has a configuration loaded and is actively connected to a control system you may display this Comms Information Mode by simultaneously pushing in and holding the bottom left most and bottom right most buttons for approximately 10 seconds. At that time you can press setup to enter the configuration mode.

Once in setup mode, follow the instructions below to configure the panel for a specific communication method:

1. Click on COMMS SETUP.
2. Next to the MODE control, ETHERNET or QLINK will be highlighted showing the current selection. Click on method you wish to use.
3. Click save and reset.

Once in setup mode, follow the instructions listed below to set the QLINK Address:

1. Use the arrows next to ADDR to select a new value. The current value will be displayed.
2. Click **save** and **reset**.

Once in setup mode, follow the instructions listed below to set the IP Settings:

1. Click the value to edit (IP Setup, Mask Setup, Gate Setup) as the configuration is similar for each item.
2. The page will change (i.e. Under IP Setup) to display IP = *and the current IP value*.
3. Choose the octet to edit. Use the up and down arrows to select the desired value.
4. Once all IP Settings are complete, click **save** and **reset**.

9.2.3. Upgrading the Panel

1. Open a command prompt by clicking “Start” / Run” and typing “cmd” and hitting enter.
2. At the command prompt type “ftp 192.168.x.x” without the quotes and replacing 192.168.x.x with the IP address of the panel.
3. Press enter for both the username and the password when prompted.
4. After you have logged in, type “put” without the quotes, then press space, and then drag and drop the panel firmware file (example: “panel_2_1_2.bin”) in to the command prompt and then press enter.
5. When the upload is complete, type “bye” without the quotes and then press enter.
6. Panel will automatically reboot.

9.2.3.1. Editing a Single Profile

To edit a single profile, navigate to the **Single Profile** Tab and follow the instructions listed below. Please note that the configuration controls for the sources and destinations tabs are the same; therefore for the sake of simplicity only the controls for the sources tab will be listed in detail below.

1. Select the **Edit** icon beside the profile that you wish to edit.

2. An **Interface Layout** screen will appear identifying the name of the single profile panel that you selected, as shown in Figure 9-1. The **Interface Layout** screen enables the user to assign sources and destinations to the control panel buttons. This screen also allows the user to configure the key settings, panel reset settings, sub-panel defaults, joystick ports and key colours, which will be later discussed in the manual.

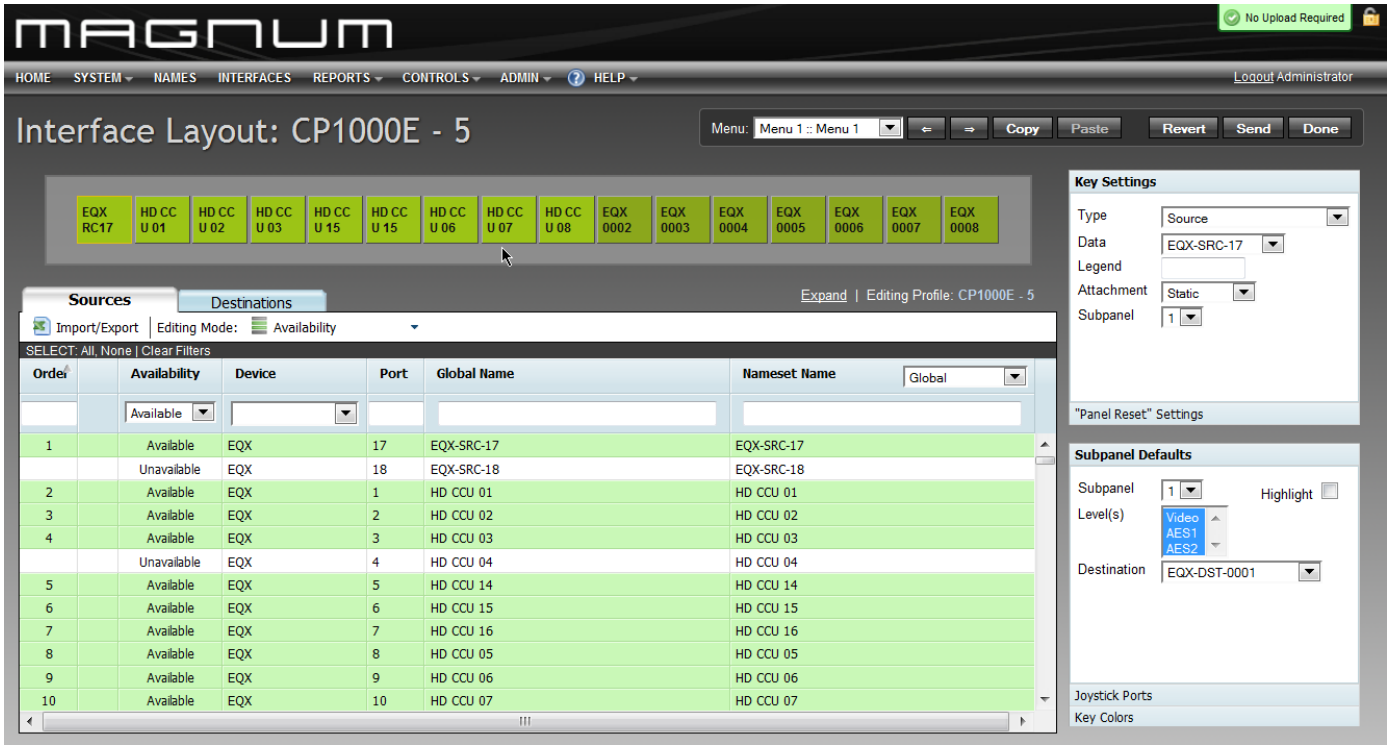


Figure 9-1: Single Profile – Sources Tab

3. The **Sources** tab provides a list of sources that are available and unavailable for the selected control panel. By single clicking on a source cell the user can perform three functions: Make a source available (green), make a source unavailable (white – *unavailable*) or create a placeholder/blank cell (white – *blank*). To see all available sources, set your availability filter to *Available*. To see all unavailable sources, set your availability filter to *Unavailable*. Finally, to view all sources (*available* and *unavailable*) clear the Availability drop down filter so that it is blank.

   A pop-up menu will be revealed when the user right clicks on a cell. By right clicking on a source, the menu shown in Figure 5-93 will appear. The following provides a list of actions that can be applied using the right-click menu, these items include:

   - **Make Available:** Allows the user to make an unavailable source available to the control panel. Available sources can be assigned to a control panel key using the **Key Settings** function.

- **Hide:** Selecting the *Hide* function will turn the selected source row grey and blank out the corresponding button on the control panel. The term *Blank* will be displayed in the device column and on the corresponding control panel key. The blank features functions as a placeholder, allowing the user to reserve that source for future use.

- **Make Unavailable:** Selecting this feature will make the source unavailable and remove it from the current display. If a source is made unavailable, it cannot be referenced to the control panel.

- **Insert Blank:** Selecting this option will insert a blank source row and control panel key. Inserting a blank row will act as a placeholder.

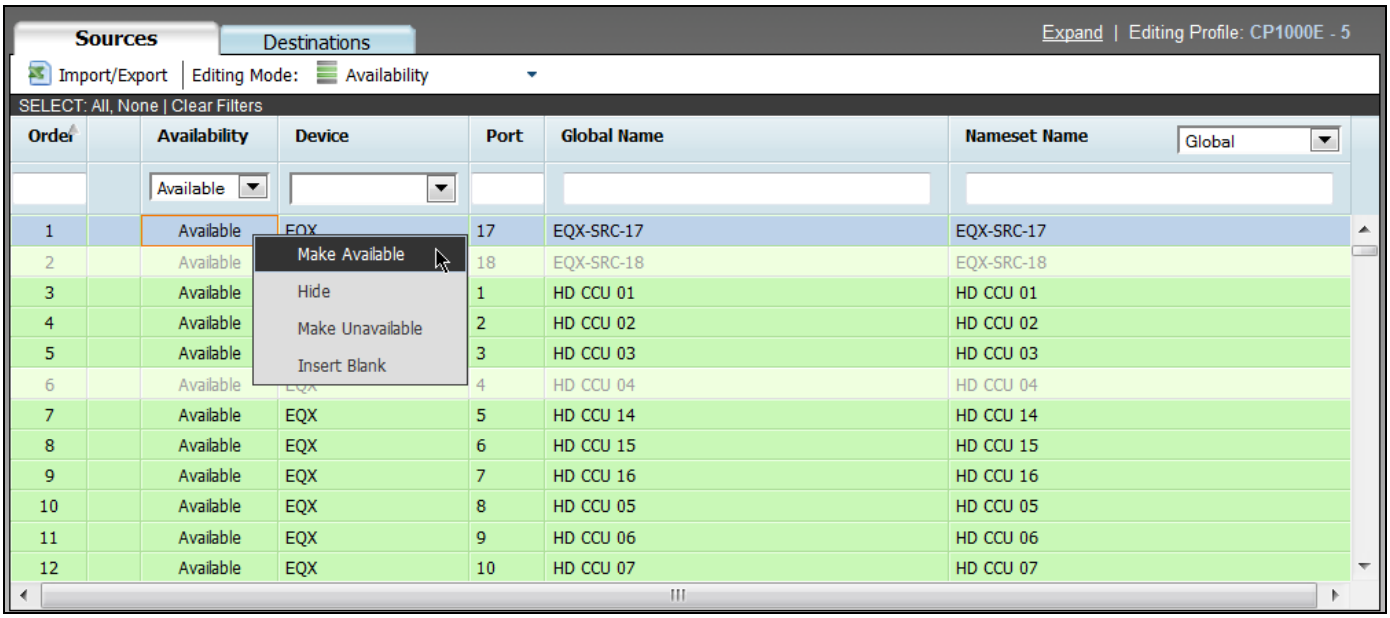


Figure 9-2: Right Click Menu for Interfaces

4. The **Sources** tab provides two top menu level options which include; *Editing Mode* and *Full Screen* mode.

Menu Option	Description
Availability	The **Editing Mode** drop down menu in the top left hand corner of the tab enables the user to change how the source availability is displayed. There are three availability options: **a) Availability:** Lists all the sources in alphanumeric order. **b) Availability (Group):** Places the sources into alphanumeric device groups. **c) Re-order:** Enables the user to physically drag and drop the sources into a specific order. The user can select multiple items by holding down the **shift** key and selecting a block of rows; they can select various random items by clicking the **Ctrl** key and selecting multiple cells. These items can then be dragged and dropped to a specific location in the column. See Figure 5-94.
Expand	Selecting the **Expand** option will hide the panel interface and expand the sources tab to populate the entire length of the screen.

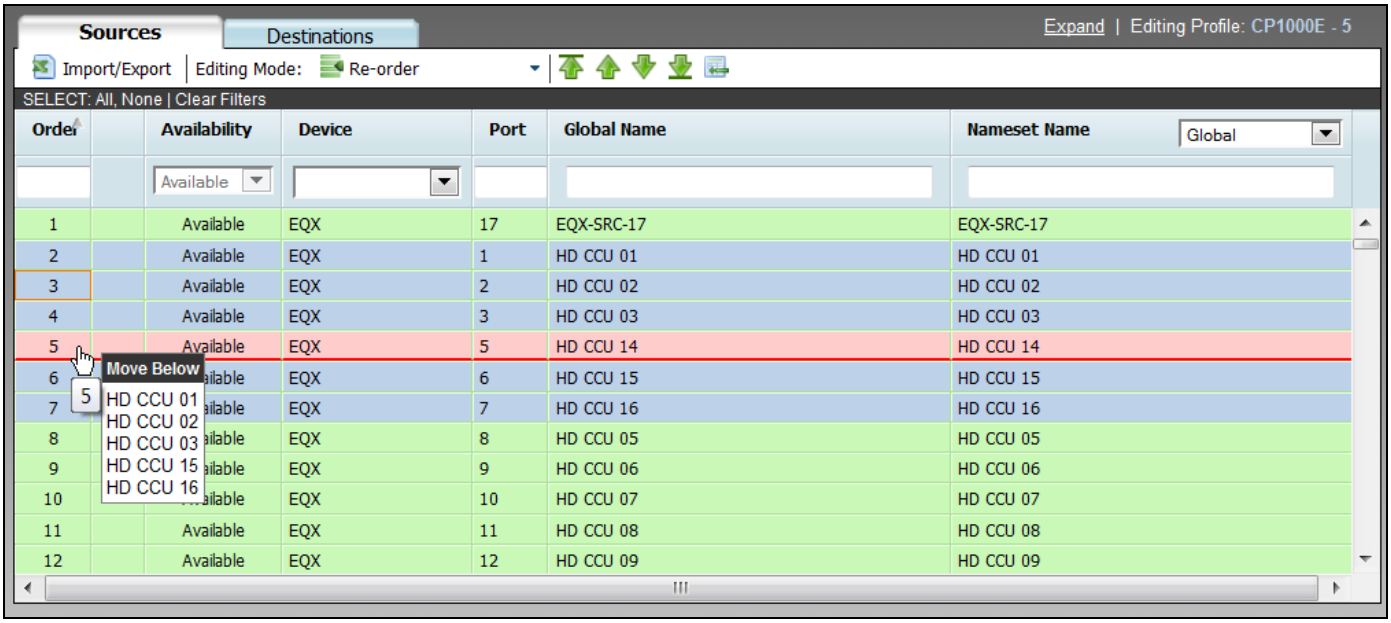


Figure 9-3: Re-order Availability – Drap & Drop Multiple Items

5. Using the **Key Settings** window (located on the right side of the screen and shown in Figure 9-4), the user can assign a specific source to a particular control panel key. Highlight a key on the control panel by selecting the panel button with your mouse; the selected key will be highlighted with a faint yellow box around the button.

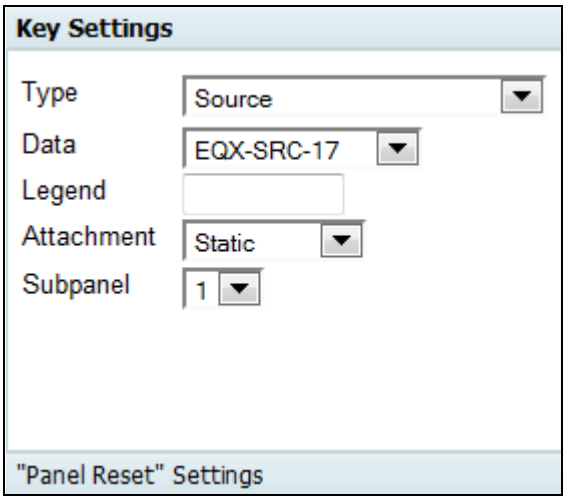


Figure 9-4: Key Settings

6. Once the desired button is selected, navigate to the **Key Settings** window and configure the following parameters:

Parameter	Description
Type	The **Type** drop down menu enables the user to select what type of button the selected key will be assigned to. There are numerous key options, therefore you must use the drop down menu to define the function of the key.
Data	The **Data** drop down menu enables the user to assign data to the selected button. Depending on your selection in the **Type** drop down menu, the **Data** drop down menu will adjust to accommodate the data related to the button type. For example, if the button **Type** is set to *Destination*, then the **Data** may be set to *MAGNUM-DST-0008*.
Legend	The **Legend** function enables the user to uniquely label the button. Type a name into the **Legend** field and the name will be displayed on the selected control panel button.
Attachment	The **Attachment** drop down menu enables the user to set an attachment status for the selected button. The attachment options are *Primary*, *Secondary*, and *Static*. This determines if the button will be affected by Primary menu or Secondary menu navigation. Static prevents any navigation affecting the button.
Subpanel	The **Subpanel** drop down menu enables the user to assign a sub-panel number to the selected button. This allows the user to sub divide the panel into different sections of control.

The following is a list of buttons that are used to configure the Control Panel.

Button	Description
Add String	This will clear the preset string and add the name field string defined for this key to it.
Add String/Character	This key will perform two different functions dependant on the content of the preset string. If the preset string is empty then it will add the name string defined for this key to it, otherwise it will append the single character defined for this key to the preset string providing there are less than 8 characters already in the string.
Append String	This will append a name field string to the current content of the preset string
Current Destination Display	Displays the name of the currently selected destination.
Current Dst Src Display	Displays the name of the currently routed source to the currently selected destination.
Current Source Display	Displays the currently routed source to a specific destination.
Delete Last Character	Deletes the last character in a string
Destination Mode	Toggles the preset window between source and destination mode
Destination Protect	Protects the destination from being routed from any other interface except the one that is protecting the destination.
Destination	Changes the currently selected destination.
Dst Scroll Up	Scrolls up and through the Destination List.
Dst Scroll Down	Scrolls down and through the Destination List.
Enable	Inhibits any source key from being taken to a destination unless this button is held down.
Last Menu	Displays and navigates to the previously displayed menu.
Level	Toggles the level *on/off* to affect possible breakaways on subsequent takes. Displays the level name.
Locks	Allows access to the locks functionality.
Next Destination	Changes the current destination to the next one defined in the name table.
Next Source Preset	This key increments the source that is routed to the pre-select. This key does not change any destination on the system but is used when a take or level take key is pressed. It will then take this pre-selection to the current destination.
Not Used	This key will not be used to control any function.
Panel Lock	Locks all functionality of the local panel.
Preset Clear	This key will clear the current preset string.
Prev. Source Preset	This key decrements the source that is routed to the pre-select. This key does not change any destination on the system but is used when a take or level take key is pressed. It will then take this pre-selection to the current destination.

Previous Destination	Changes the current destination to the previous one defined in the name table.
Primary Menu	Allows access to a primary menu.
Secondary Menu	Allows access to a secondary menu.
Setup	Allows access to the Setup menu.
Source	Takes this source to a currently selected source.
Source Chop	Allows the user to create a chop between two sources at a pre-determined rate.
Source Preset	This key changes the source that is routed to the pre-select. This key does not change any destination on the system but is used when a take or level take key is pressed. It will then take this pre-selection to the current destination.
Source Toggle	This key toggles between two sources.
Src Scroll Up	Scrolls up and through the Source List.
Src Scroll Down	Scrolls down and through the Source List.
Static Destination	Destinations that are not affected by re-ordering or scroll list navigation
Static Source	Sources that are not affected by re-ordering or scroll list navigation – CP2272E
Static Source Preset	Sources that are not affected by re-ordering or scroll list navigation – CP2272E. The Static Source Preset is used in conjunction with Take, the source is not routed unless the Take is used.
System Salvo	This key type allows one of the system salvos (defined by the salvo combo box) to be fired.
Take	This key takes the current preset source selection to the current destination on all the currently enabled levels. The button will display the currently routed source on the lowest enabled level, unless a legend is given to this key.
Take Clear	Clear selected source on Take.
Take Level Preset	Source take on a specific level.

Table 9-1: Button Description

7. To assign panel reset buttons, select the **'Panel Reset' Settings** button to expand the reset instructions and put the control panel interface into *Panel Reset* mode. Using your cursor, select two buttons that will be used to reset the physical panel. When the buttons are selected they will flash black. Once the configuration is sent to and loaded on the physical control panel, the user will be able to physically hold down these two keys in order to reset the panel.

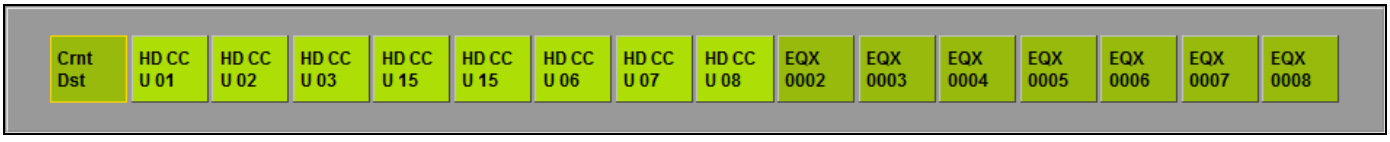


Figure 9-5: Panel Reset Selection

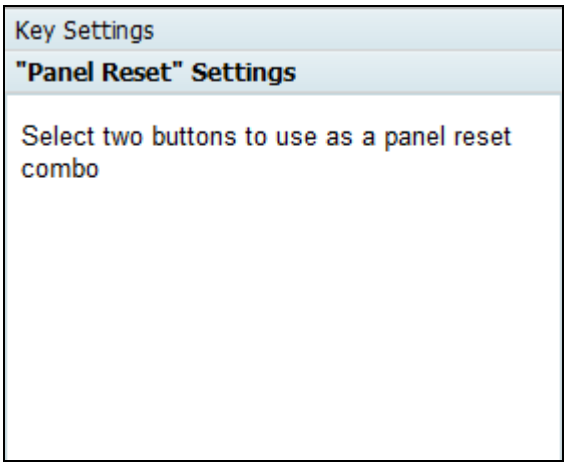


Figure 9-6: 'Panel Reset' Setting Window

8. To configure the sub-panel defaults, navigate to the **Subpanel Defaults** window and use the window to configure your settings.

Parameter	Description
Subpanel	Use the **Subpanel** drop down menu to select the sub-panel number.
Level(s)	Use the **Levels** menu to select the level that you wish to assign as the default.
Destination	Assign a default destination by selecting a destination from the **Destination** drop down menu.
Highlight	Place a check mark in the **Highlight** box if you wish to highlight the selected subpanel.

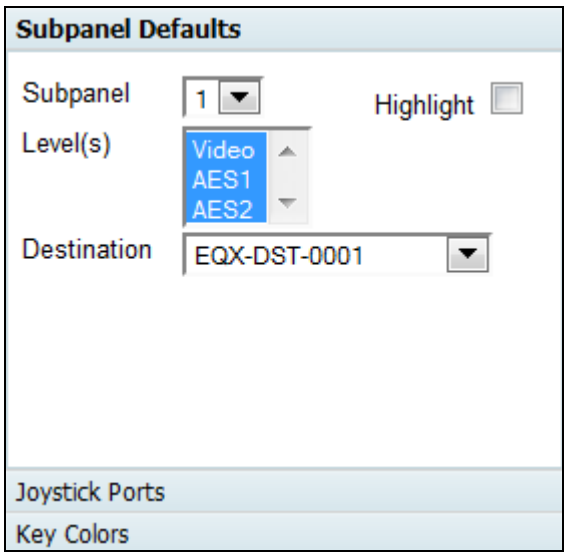


Figure 9-7: Subpanel Defaults Window

9. To configure the joystick ports, expand the **Joystick Ports** window and configure your settings using the parameters listed below:

Parameter	Description
Port	Use the **Port** drop down menu to select the port number.
Level(s)	Use the **Levels** menu to select the level that you wish to assign to the joystick.
Mode	Use the **Mode** drop down menu to select the joystick port mode. The mode options are: i. **Disabled:** Disables the joystick port. ii. **Momentary:** Switches to new source then back to previous iii. **Permanent:** Switches to new source and does not revert
Source	Use the **Source** drop down menu to assign a source to the joystick port.
Destination	Use the **Destination** drop down menu to assign a destination to the joystick port.

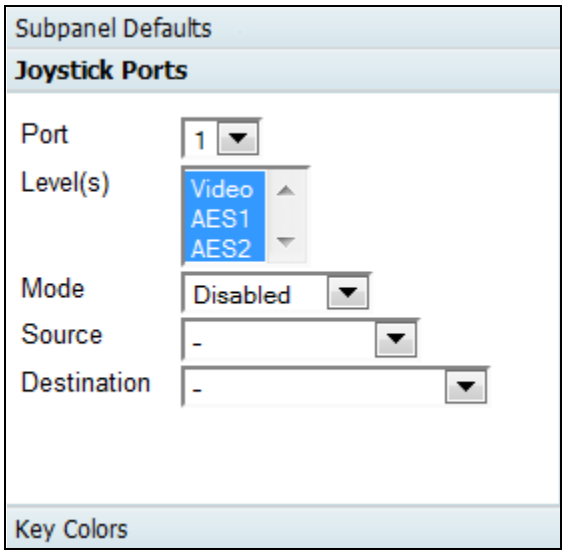


Figure 9-8: Joystick Ports Window

10. To configure the button key colors, expand the **Key Colors** window and configure your settings using the parameters listed below:

Parameter	Description
Source	This parameter enables the user to set the key colors for the source buttons. To set the *Off* color, highlight the Source *Off* key and then select a color from the palette. Follow the same procedure for the *On* button. Be sure to select different colors for the *On* and *Off* state so that they can be easily identified.
Preset	Use the color palette to set the *On/Off Preset* key colors.
Destination	Use the color palette to set the *On*/*Off Destination* key colors.
Level	Use the color palette to set the *On/Off Level* key colors. Use the drop down menu to set the colors for each level key.
Lock	Use the color palette to set the *On/Off Lock* key colors.
Display	Use the color palette to set the *Display* key colors.
Take	Use the color palette to set the *On/Off Take* key colors.
Level Take	Use the color palette to set the *On/Off Level Take* key colors.
Salvo	Use the color palette to set the *On/Off Salvo* key colors.
Other	Use the color palette to set the *On/Off Other* key colors.
Reset	Select the **Reset** button to set the button keys to their original designated color palette.
Set to Panel Defaults	Select the **Set to Panel Defaults** button to set the button keys to the panel's designated key colors.

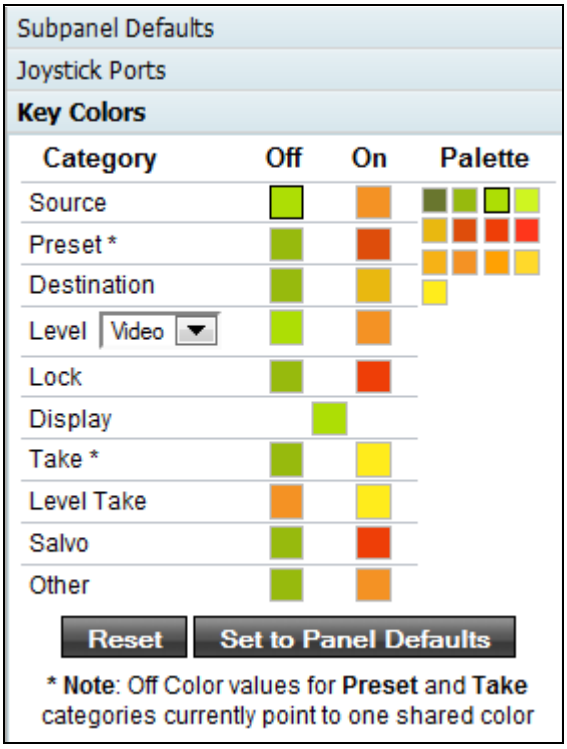


Figure 9-9: Key Colors Window

11. The control menu at the top of the screen enables the user to navigate the menu structure created for the Interface. Table 9-2 will describe the functions of the menu, as shown in Figure 9-10:

Figure 9-10: Interface Layout Menu

Control	Description
Menu:	Use the drop down menu to select a pre-existing interface from the list. Selecting one of these options will navigate to the selected menu.
⇐	Using the *Back* button will toggle back through the drop down menu.
⇒	Using the *Forward* button will toggle the user to the next menu layout listed in the drop down menu.
Copy	Select the *Copy* button if you wish to copy the contents of the currently selected menu.
Paste	Select the *Paste* button if you wish to paste the contents of the selected menu during the "copy" and paste into the layout.
Revert	The *Revert* button will load the original interface layout. Select the *Revert* button if you have made changes that you are not satisfied with and you would like to revert back to the original layout.
Send	To send the interface layout to the physical control panel, select the **Send** button and the control panel configuration will be sent and loaded onto your control panel.
Done	If you have finished configuring the interface layout, select the **Done** button to save the changes and return back to the *Interfaces* main screen.

Table 9-2: Menu Controls

12. If you wish to configure the destinations on the interface, select the **Destinations** tab from the *Interface Layout* screen and follow the same procedures to edit destinations as outlined above for sources.

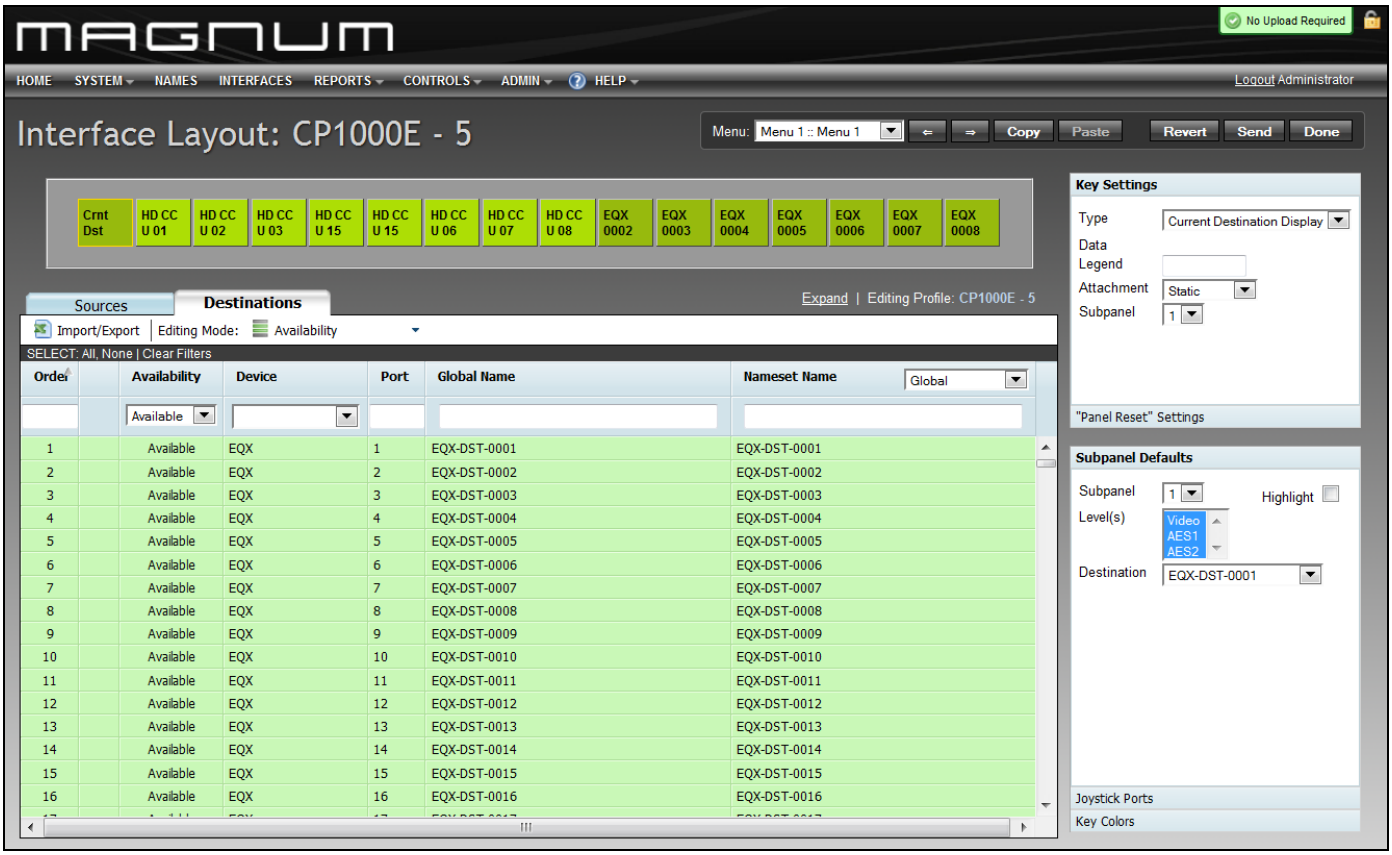


Figure 9-11: Single Profile – Destination Tab

10. MAGNUM ROUTER VIRTUAL CONTROL PANEL

The Magnum Router Virtual Control Panel requires a MAGNUM ROUTER or MAGNUM ROUTER SS with an enabled MAGNUM-ROUTER-VCP license in order for the panels to come online. Any simple panel type can be selected.

The MAGNUM-ROUTER-VCP panels are added to the Single Profile Interface in MAGNUM ROUTER or MAGNUM ROUTER SS just like any physical panel. The MAGNUM-ROUTER-VCP panel layouts are created in MAGNUM ROUTER or MAGNUM ROUTER SS similar to any physical panel.

10.1. CONFIGURATION

10.1.1. Controls

10.1.1.1. Tool Menu

The **Tools** drop down menu enables the user to start or stop the panels.

Figure 10-1: Tool Menu

Selecting the *Start Panel* option or pressing the *Start* button will activate the panel and illuminate the control panel keys.

Selecting the *Stop* option or button will stop the control panel from running.

10.1.1.2. Edit Menu

The **Edit** drop down menu enables the user to manage the panels and racks.

Figure 10-2: Edit Menu

Selecting the *Add Panel* option will create a new panel which will be displayed in the main Router Panels window. If a rack already exists, the panel will be placed under the rack text and appear in the separate frame window. If a rack does not exist, selecting this option will create a rack and panel concurrently. The user can continue to add panels which will appear in the rack as they are listed in the Router Panels hierarchy field.

Selecting the *Add Rack* option will create a new rack which will be displayed in the main Router Panels window. A new window will also open, which displays a grey box representing a frame. This window will allow the user to interact with the control panel once the panel has been added.

In order to delete a rack or panel, the user must select (highlight) the item from the main Router Panels window, and then use the *Delete* option from the *Edit* drop down menu.

10.1.1.3. About Menu

The *About* menu enables the user to view the version number of Magnum Router VCP software.

Figure 10-3: About Menu

10.1.2. Adding a Panel in the Magnum-Router-VCP Application

1. After successfully installing the MAGNUM-ROUTER-VCP software, launch the *Router Panels* application.

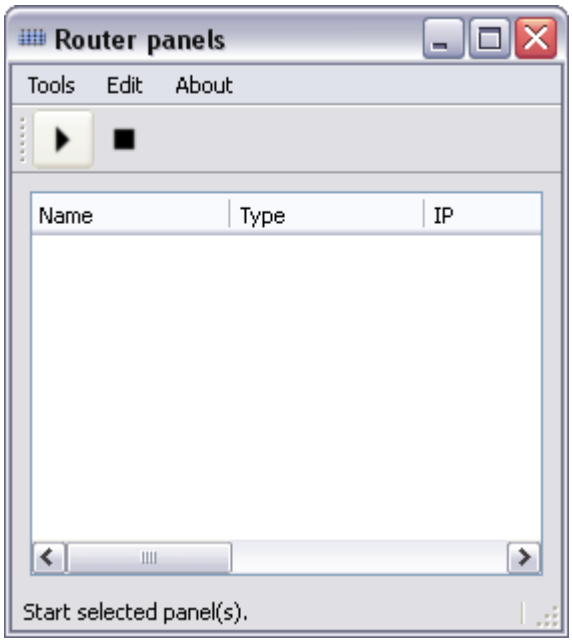


Figure 10-4: Router Panels

2. To add a new rack and/or panel, navigate to the *Edit* menu.

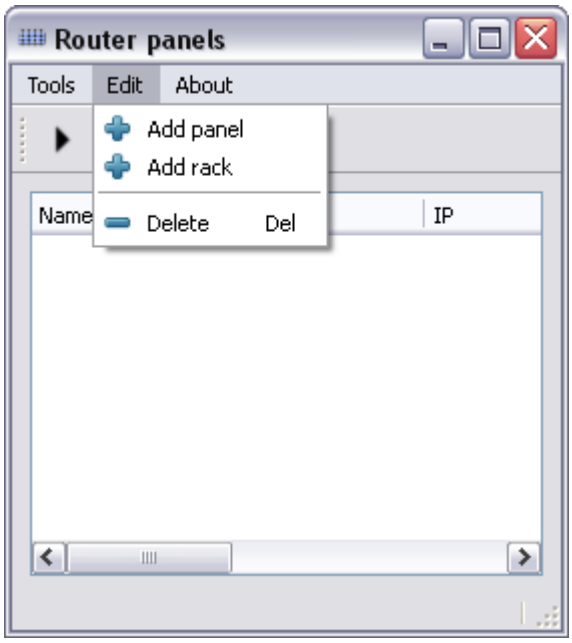


Figure 10-5: Edit Drop Down Menu

3. From the drop down menu select "Add Panel". This action will automatically create a Rack and launch a second window called "Rack".

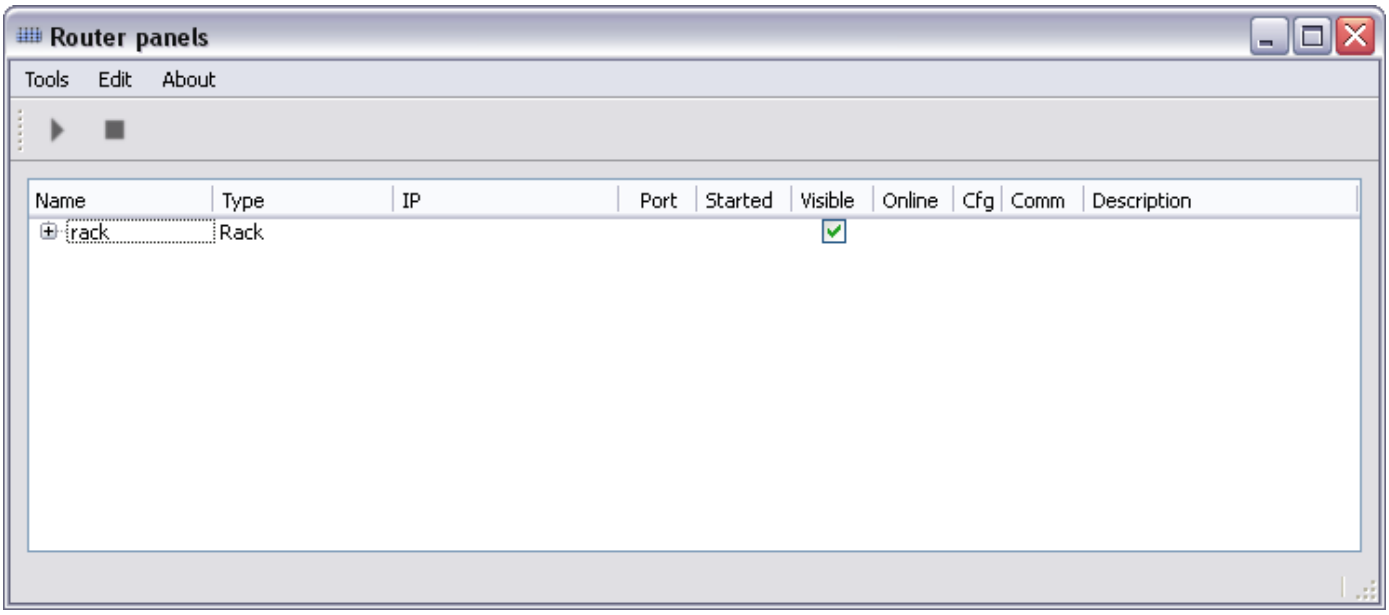


Figure 10-6: Router Panels Window

Figure 10-7: Rack Window

4. Expand out the rack device in the Router Panels window. (Please Note: If you cannot see all of the parameters in the Router Panels window, then expand the window by dragging the bottom right corner until all items are visible.)

5. The Router Panels window should show a panel called "panel1". The *Type* will be listed as *none* and the IP will be blank.

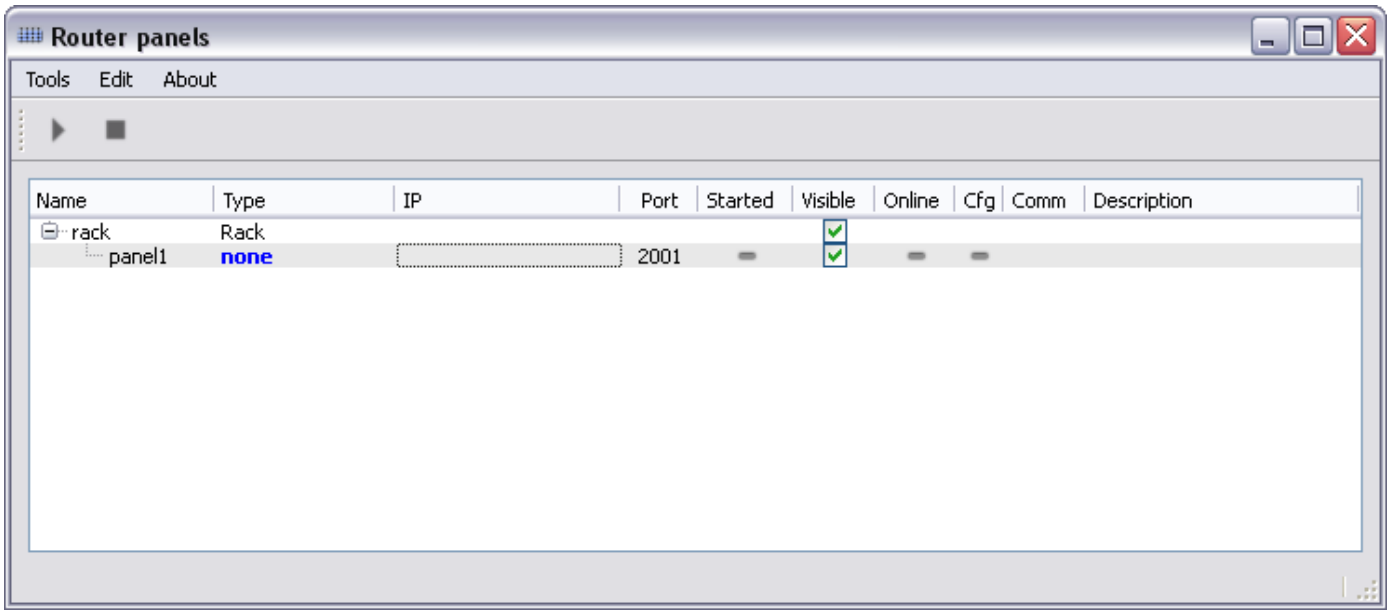


Figure 10-8: Displaying the Panel's Parameters

6. To select a panel type, double click on the *none* text under the *Type* column and a drop down menu will appear. From the drop down menu, select the type of panel that is to be used.

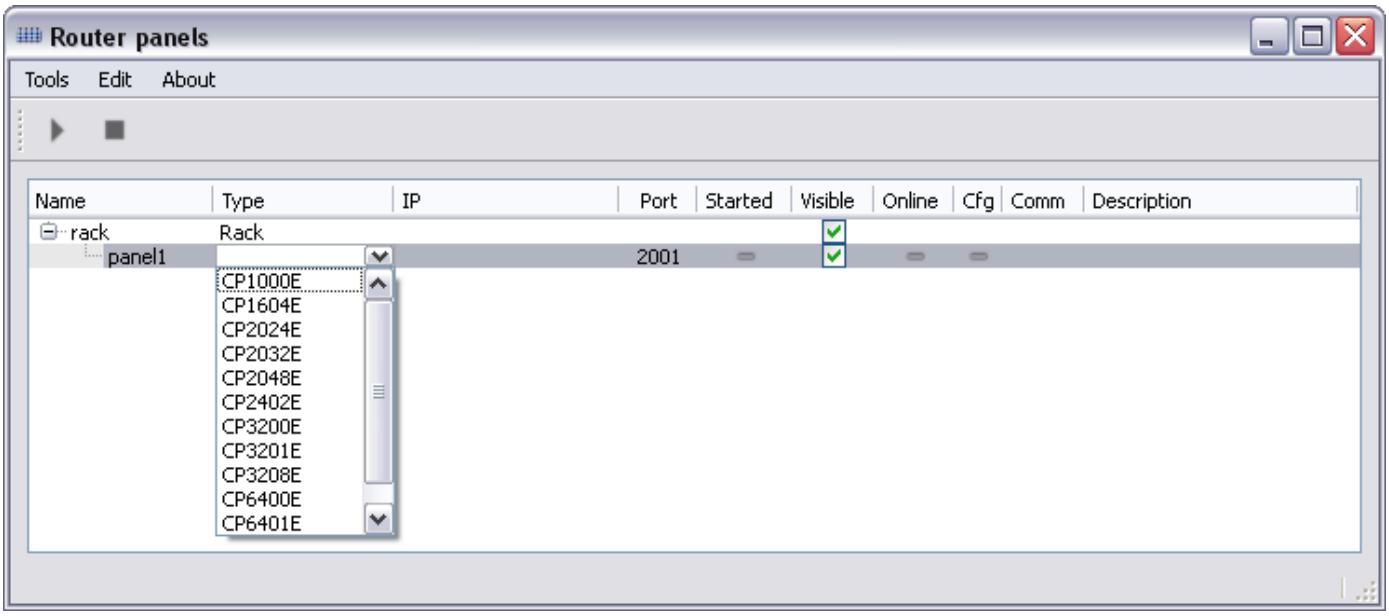


Figure 10-9: Selecting a Panel Type

7. To set the IP address, a drop down menu will appear when double clicking on the blank cell under the "IP" column. From the drop down list, select the IP address of the local PC that is able to communicate with the MAGNUM ROUTER SS. Please note that if there are multiple panels using the same IP address, the ports must be different for each panel.

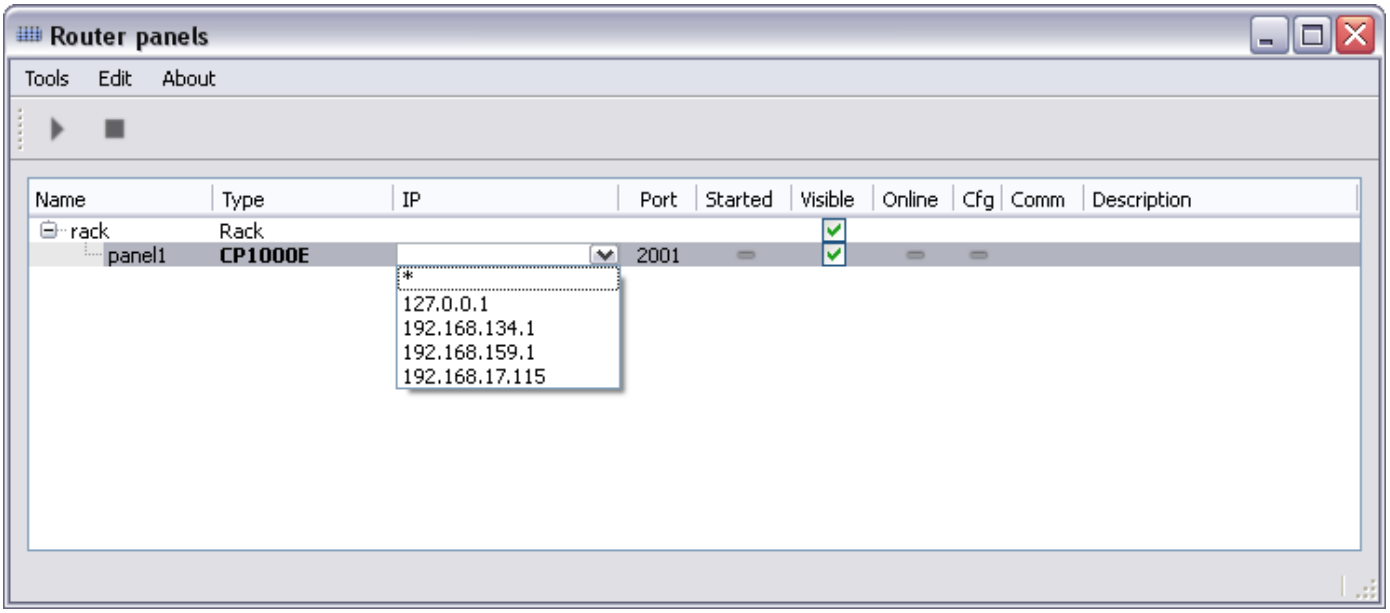


Figure 10-10: Setting an IP Address

8. Click the “Play” button on the top left of the Router Panels application to activate the panel. Once the panel is activated, a virtual control panel will be displayed in the *Rack* window.

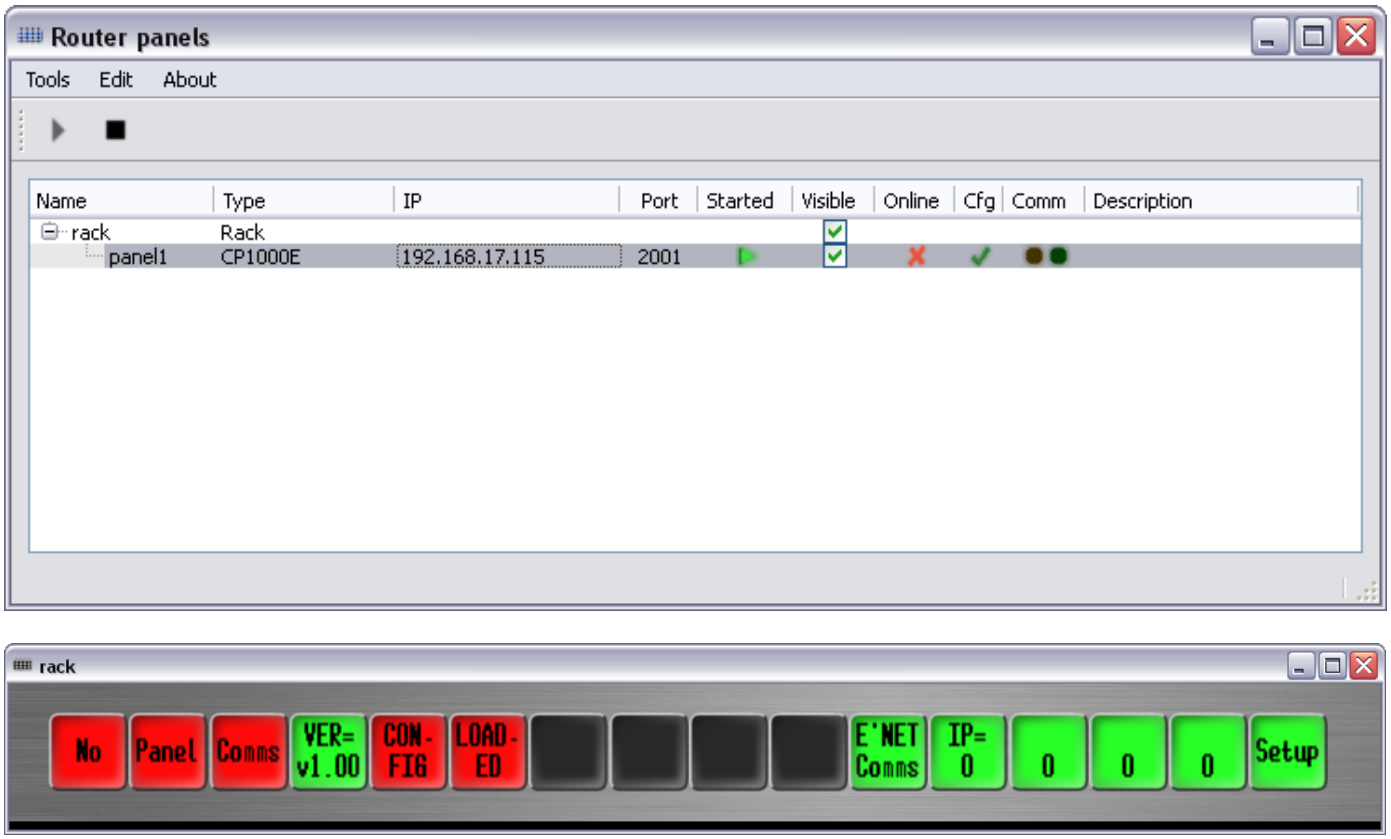


Figure 10-11: Activated Control Panel

9. Log into the MAGNUM ROUTER or MAGNUM ROUTER SS Web Configuration interface to add the newly created MAGNUM-ROUTER-VCP panel to the Single Profile Panel interface.

10. Navigate to the interfaces screen and select the *Single Profile* tab.

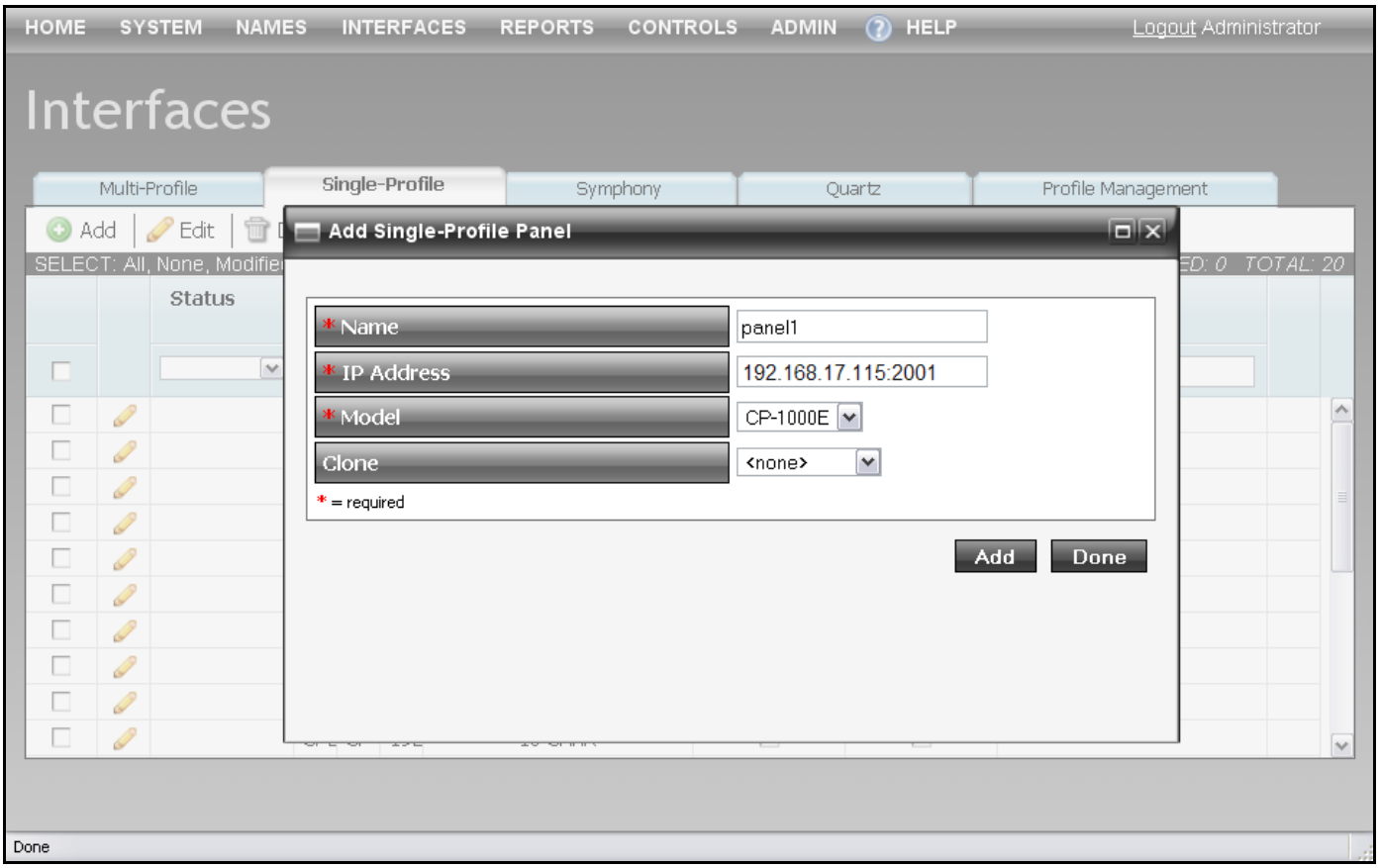


Figure 10-12: Adding the Panel in the Magnum Server

11. Ensure the same Panel Type and correct IP address is used when creating the panel in the MAGNUM ROUTER or MAGNUM ROUTER SS Web Configuration interface.

12. Once the panel is created, the user must commit the change to the MAGNUM ROUTER or MAGNUM ROUTER SS system. Navigate to the *Changeset* tab and select the *Commit Changes* button.

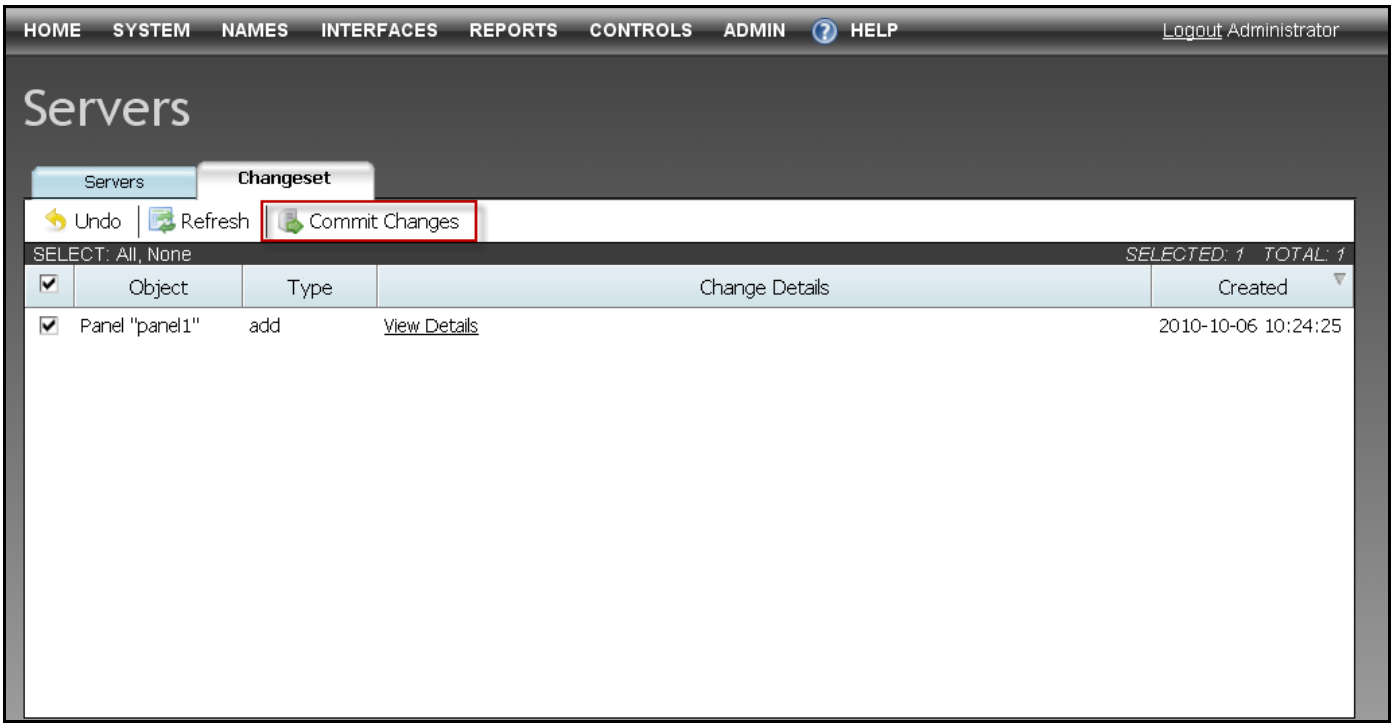


Figure 10-13: Commit Changes

13. Verify MAGNUM-ROUTER-VCP is online and communicating with the MAGNUM ROUTER or MAGNUM ROUTER SS system.

14. Once the changes are committed, the user will be able to edit the interface layout of the virtual control panel.

15. Navigate to the *Single Profile* tab under the *Interfaces* category and select the edit button for the newly added panel.

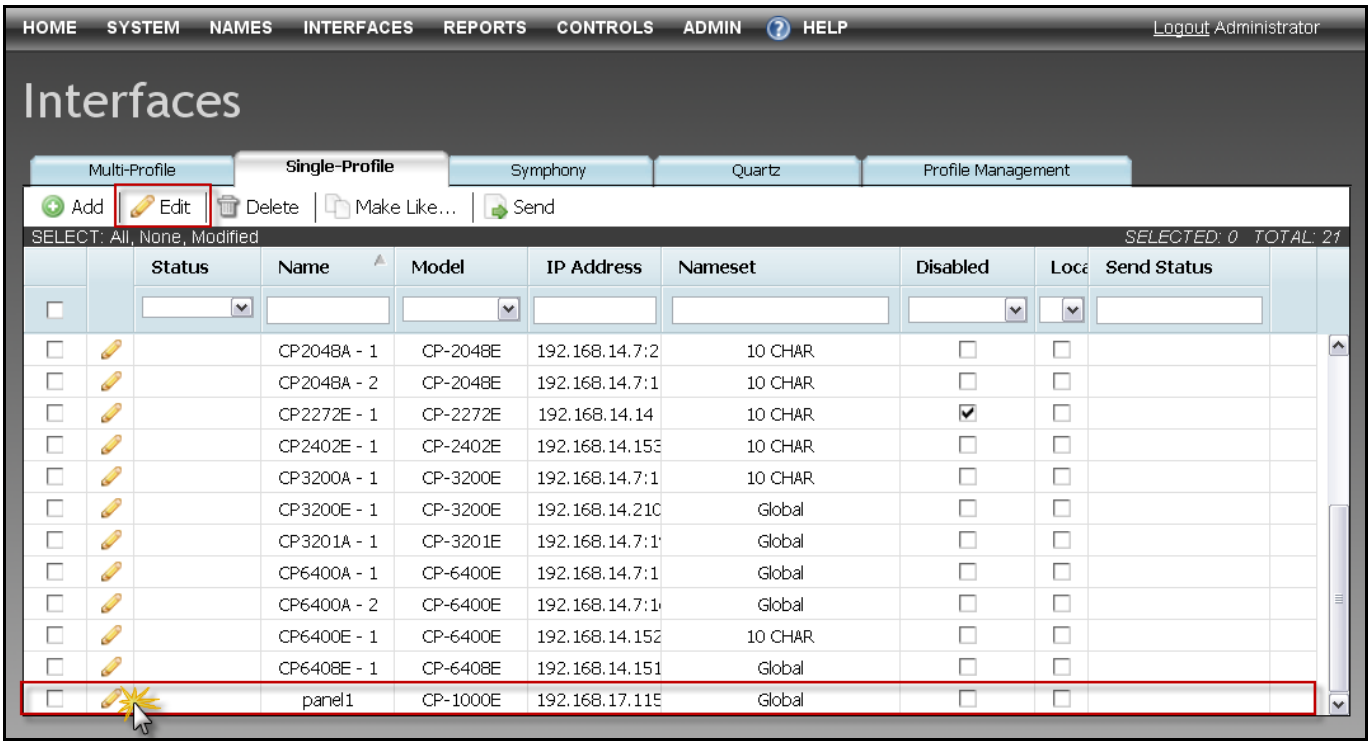


Figure 10-14: Selecting the Edit Button

16. The *Interface Layout* screen for the selected panel will appear. Use the MAGNUM ROUTER controls to edit the panel. Once complete, ensure the changes are committed.

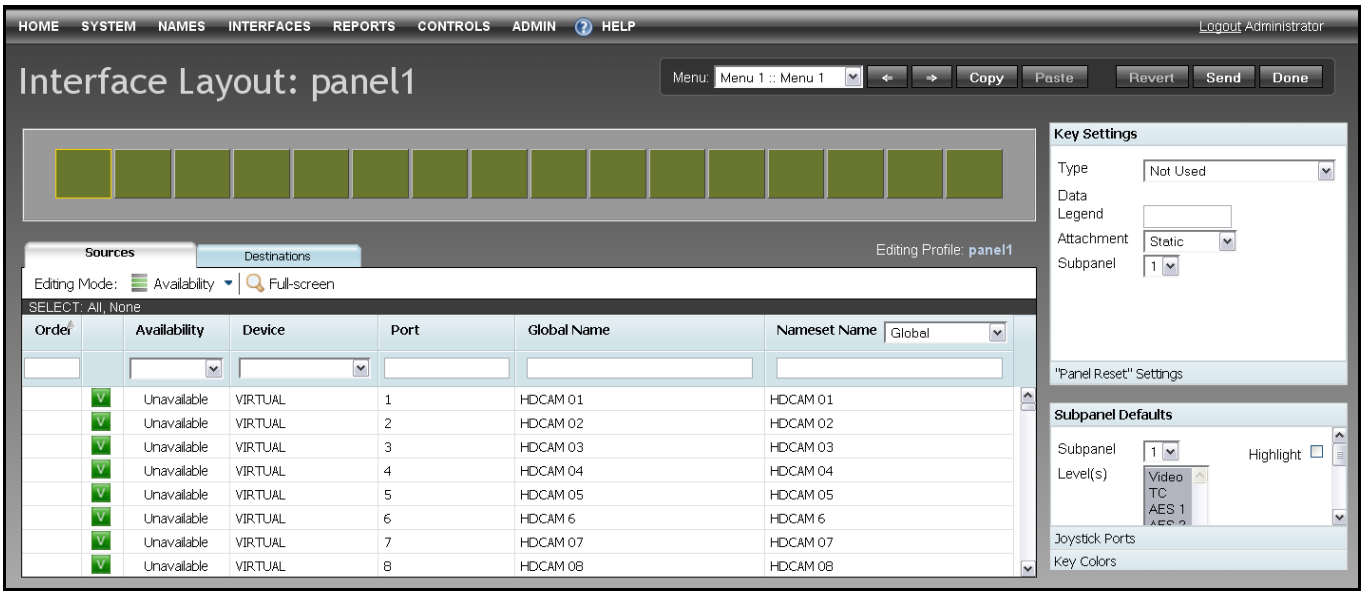


Figure 10-15: Magnum Router - Interface Layout Screen

11. APPENDIX: INSTALLING THE MAGNUM-ROUTER-VCP ON MAC OS

- VCP's installed on MAC O/S.

Issue: VCP will not connect to EQX / MAGNUM server.

Solution: File / Folder permissions issue.

Inside the application (Contents -> MacOS) there is an xml file which is the server-provided panel information. That xml file has permissions set so that only the user who installed the application originally can write to that file or directory.

For the Router Panel (application) -> Contents, change the access privileges to read+write for all users. Then propagate those permissions down. Once that xml file / directory can be accessed by everyone, it will allow any user on the system to open the router panel application and connect to the server.

12. QUARTZ INTERFACE CONFIGURATION FOR 3RD PARTY SYSTEMS

The Quartz Interface is used by 3rd Party Systems to integrate with MAGNUM for source / destination names and for cross-point information. These 3rd Party Systems include, but are not limited to, Image Video, TSL, and even the 7700R-SC-BRC. The MAGNUM Quartz Interface provides source / destination names and cross-point information to these 3rd Party Systems using the Quartz Protocol (For more information about the Quartz Protocol, please refer to Quartz Protocol RCP-T01 (1v26).pdf).

1. Configuration of the MAGNUM Quartz Interface begins with launching a Web Browser such as FireFox. Once the web browser has launched, enter the heartbeat address for the MAGNUM Cluster into the URL (For more information on this, please refer to the MAGNUM Server Manual).

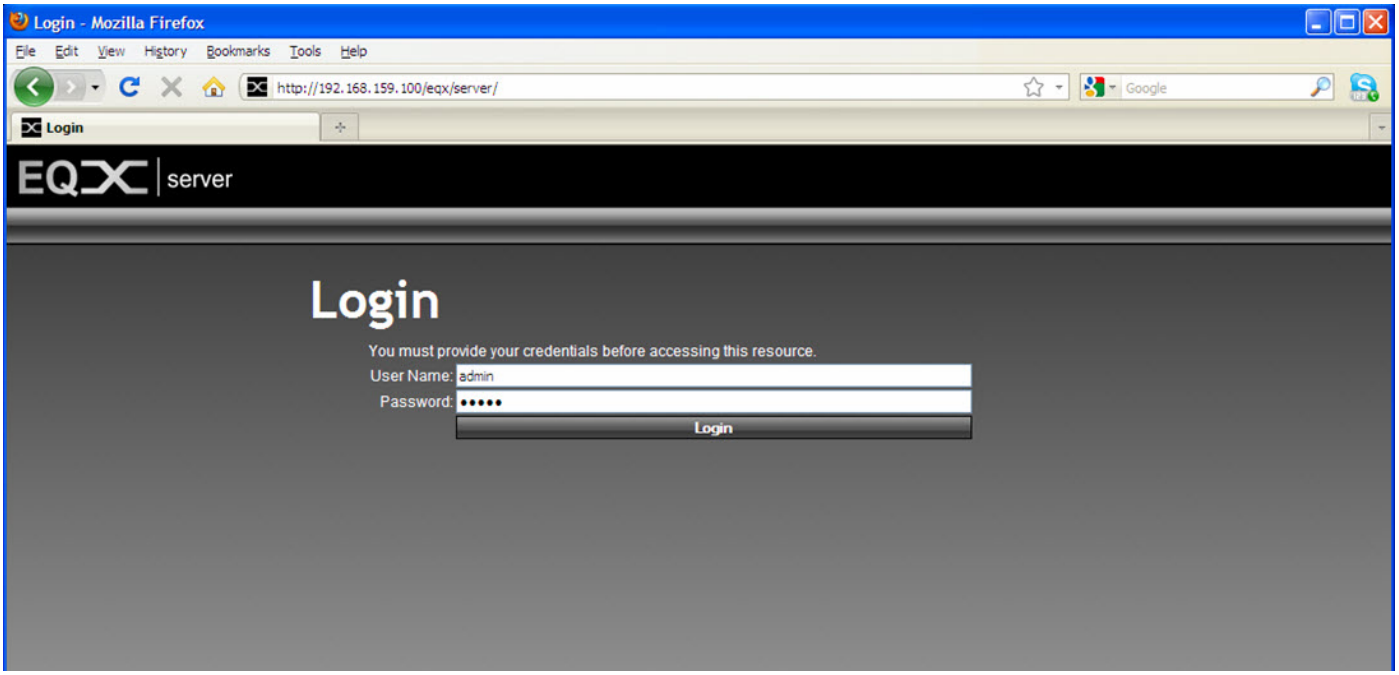


Figure 12-1: Login Screen

2. After successful login, navigate to the **Interfaces** page and select the **Quartz** tab. (This configuration assumes a configured and functional control system of at least one router. For more information on how to configure the MAGNUM to control routers, please refer to the MAGNUM Manual).

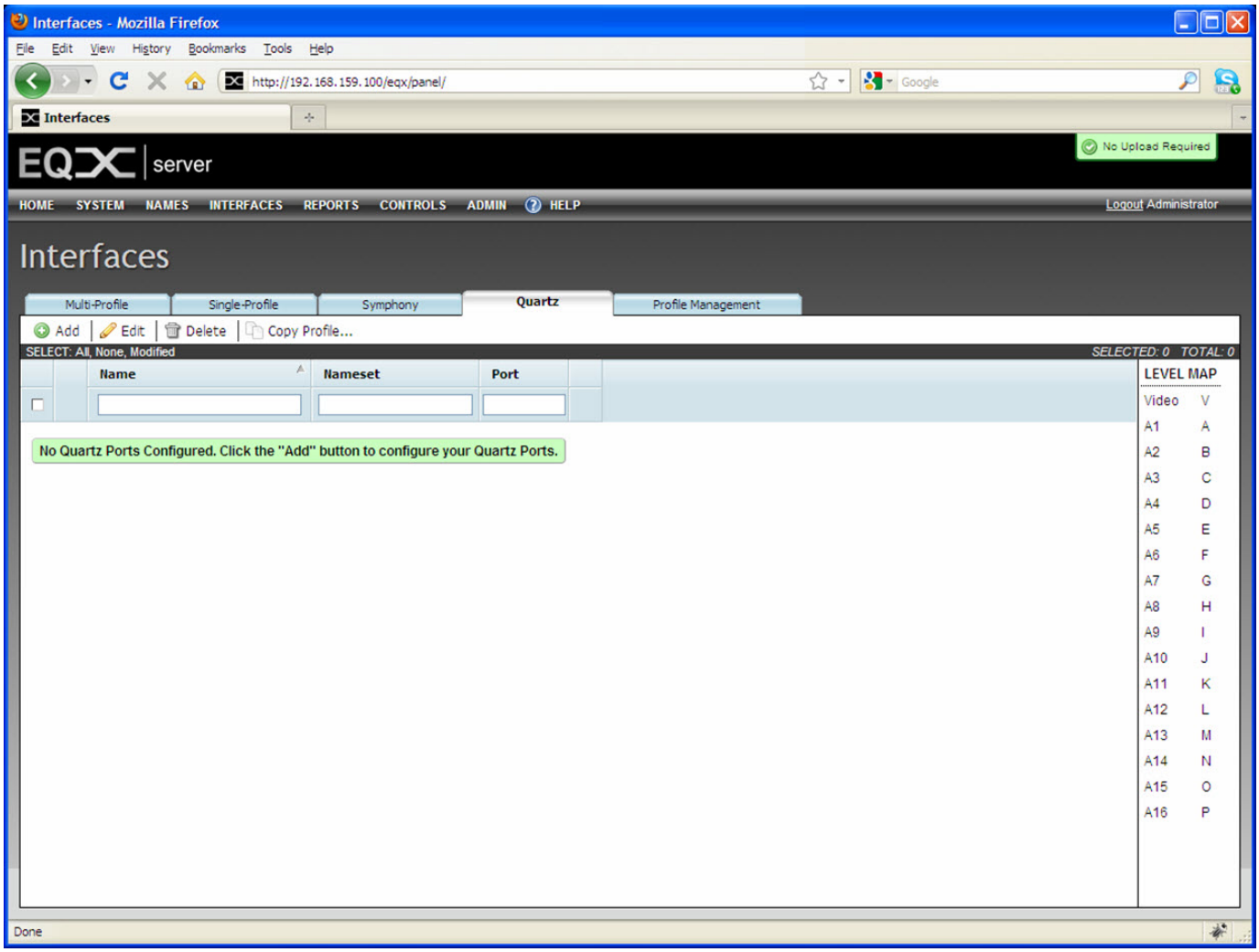


Figure 12-2: Quartz Tab

3. To add a Quartz Interface, click the “Add” button.

Figure 12-3: Quartz Tab – “Add” Button

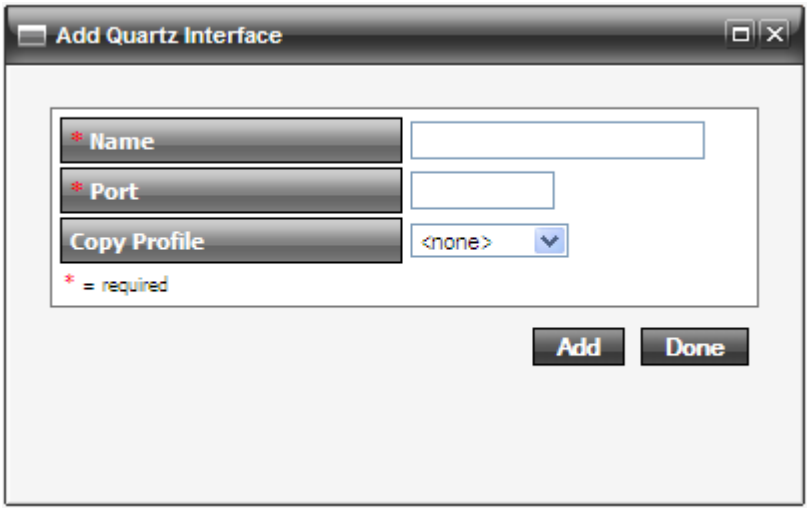


Figure 12-4: "Add Quartz Interface" Dialog Box

4. When the dialog box appears prompting you to add a Quartz Interface, enter the appropriate information into the required fields:

   - **Name:** This can be any user friendly name. This name will be used to identify the configured interface.
   - **Port:** This can be any user defined port. Recommend using ports above 4000 (Eg 4883)

5. Once the required fields have been filled in, click the "Add" button to finish creating the Quartz Interface.

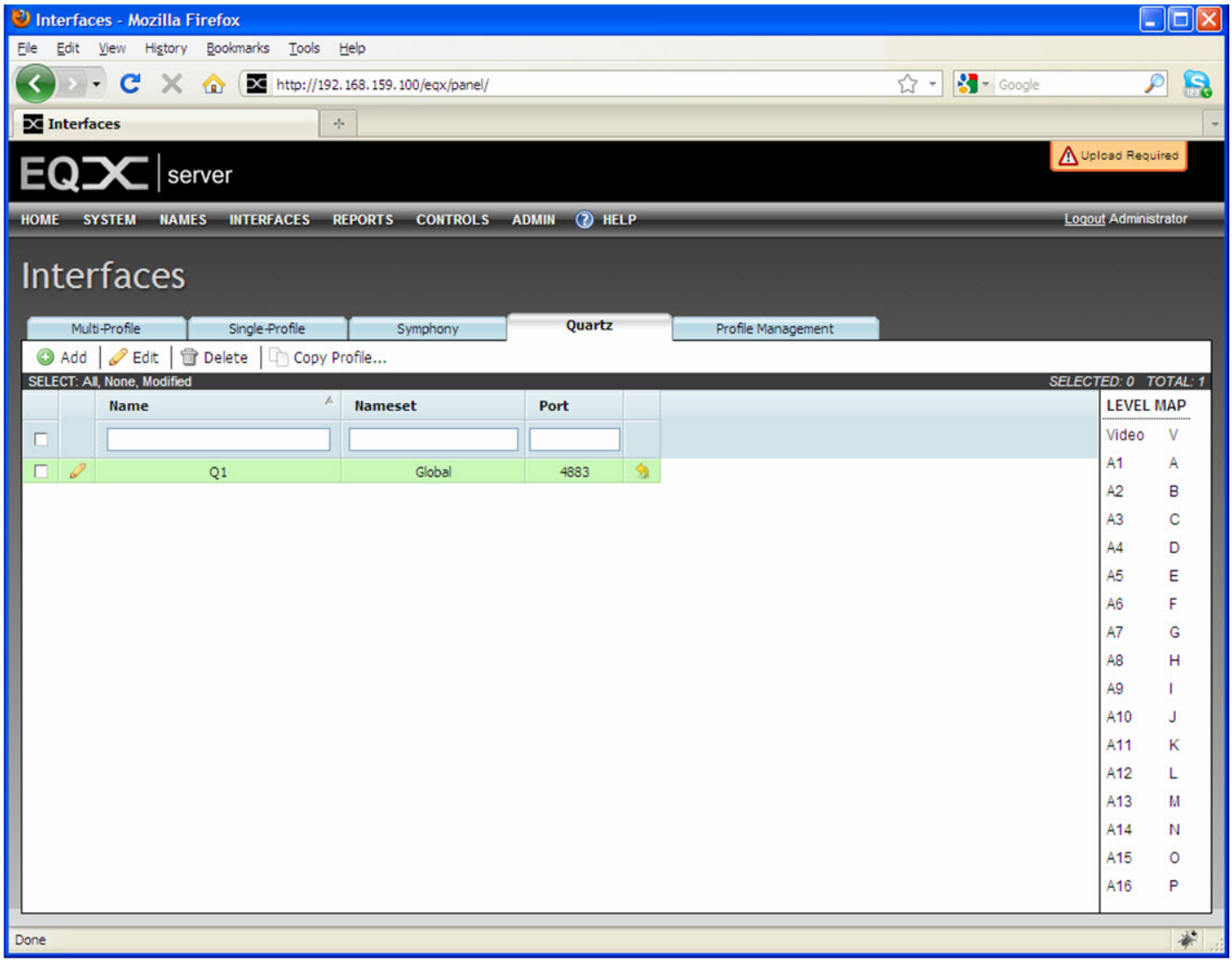


Figure 12-5: Newly Added Quartz Interface Listed in Quartz Tab

6. Now that the Quartz Interface has been created and appears in the Quartz Interface list, click on the “pencil” icon to finish the configuration of the Quartz Interface.

7. Once the “pencil” icon has been clicked, the Quartz Interface will present the user with tabs containing source and destinations for the entire system as shown in Figure 12-6.

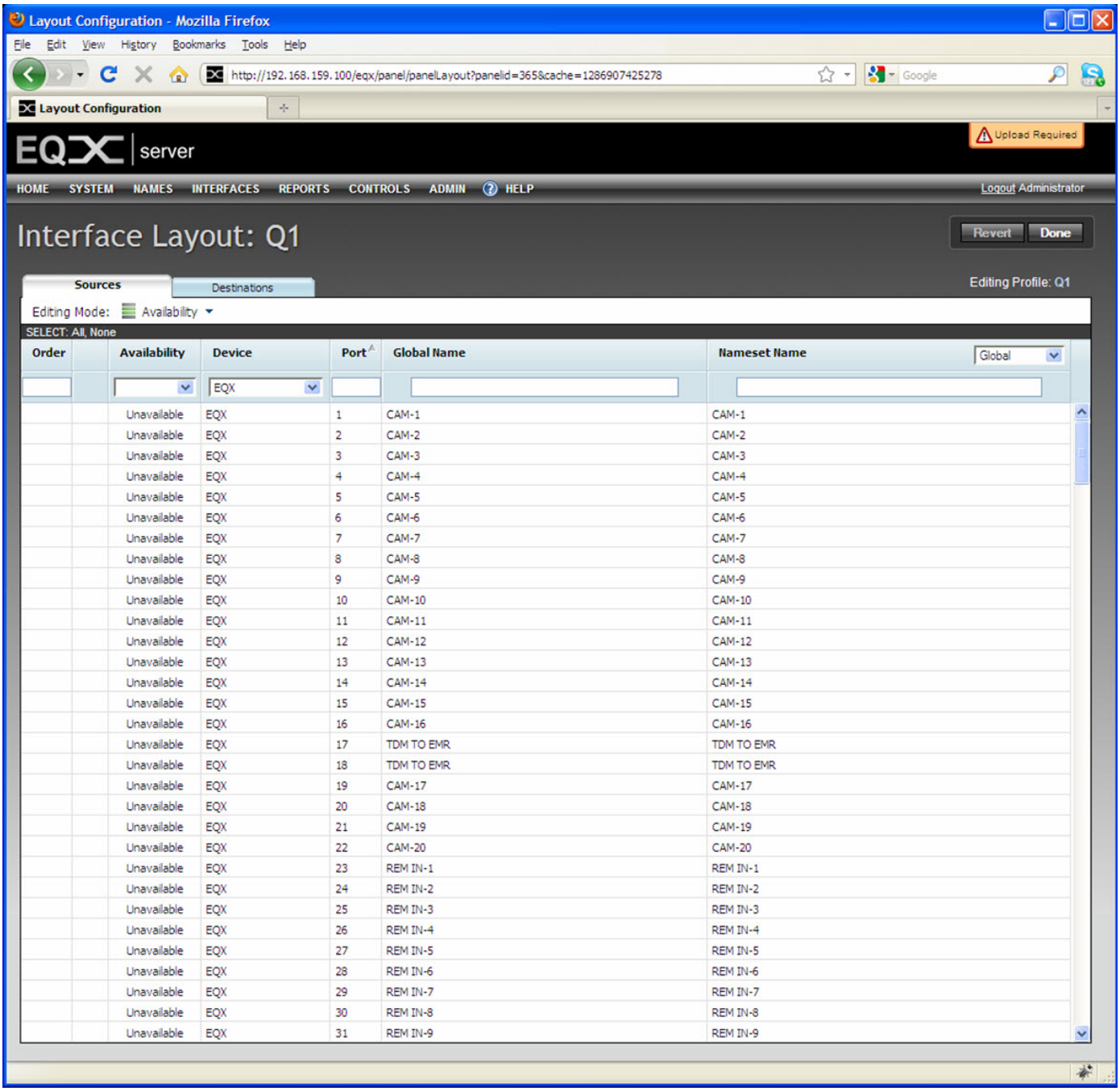


Figure 12-6: Sources Tab

8. The default state of all sources and destinations for this Quartz Interface is unavailable. To make a source or destination available to the Quartz Interface, click on the source or destination.

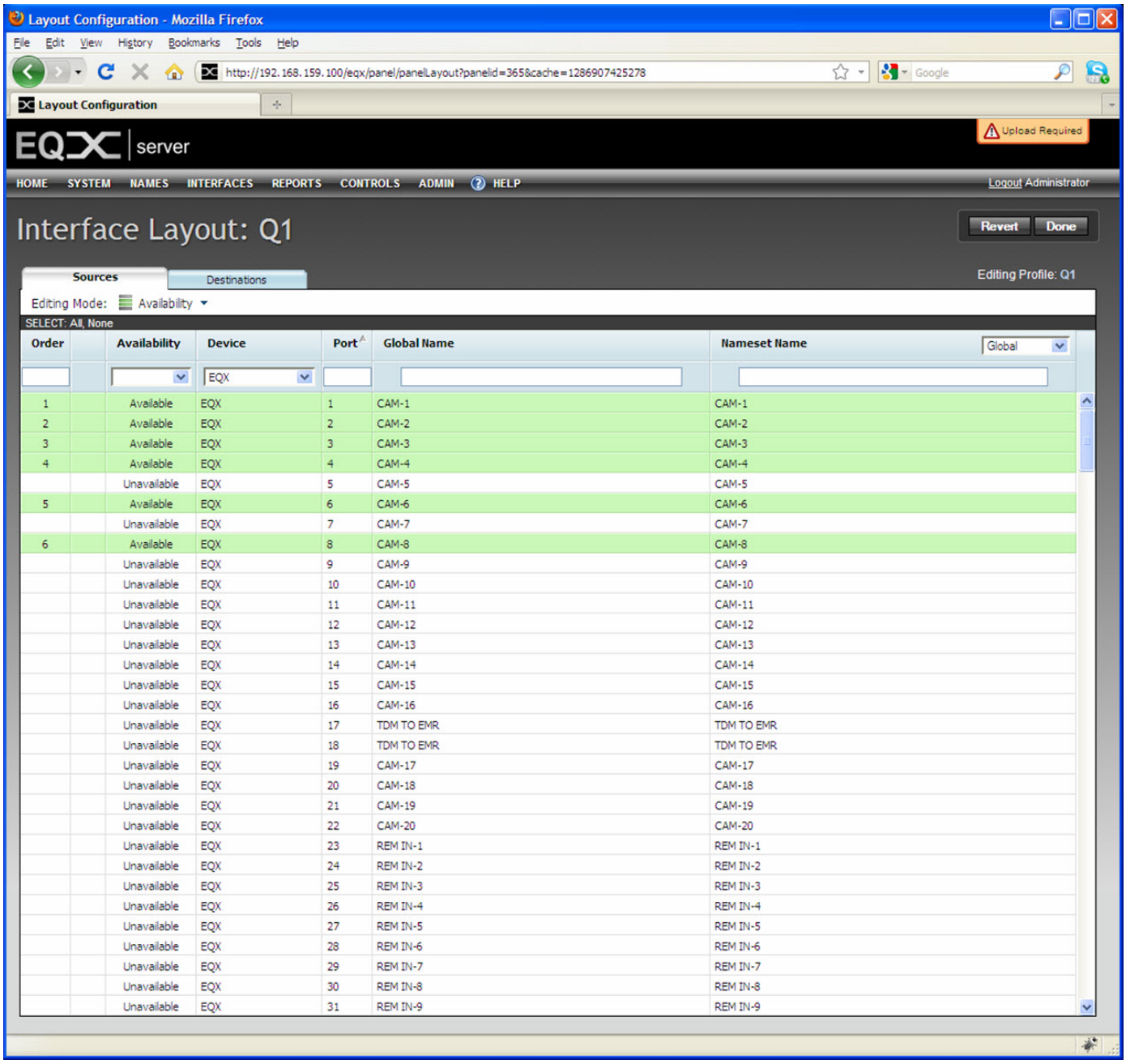


Figure 12-7: Making a Source/Destination Available

9. The source or destination will appear green (available) when clicked. To make a source or destination unavailable, hold down “ctrl” and click on the desired source or destination. Only sources or destinations that are available to the Quartz Interface will be accessible to the 3rd Party Interfaces that are connecting to the MAGNUM Server via this Quartz Interface.

10. Now that sources and destinations have been assigned to the Quartz Interface they are ready to be used once they are uploaded and committed to the MAGNUM Server.

However, Quartz is a numeric based protocol. This means that all sources and destination must have a numeric assignment, not alphanumeric assignments. The numeric assignment for the source and destinations within the Quartz port is derived from the “Order” column.

This means that the Quartz numeric assignment for EQX PORT 1 in Figure 12-8 is “1”, and the numeric assignment for EQX PORT 8 is “6”.

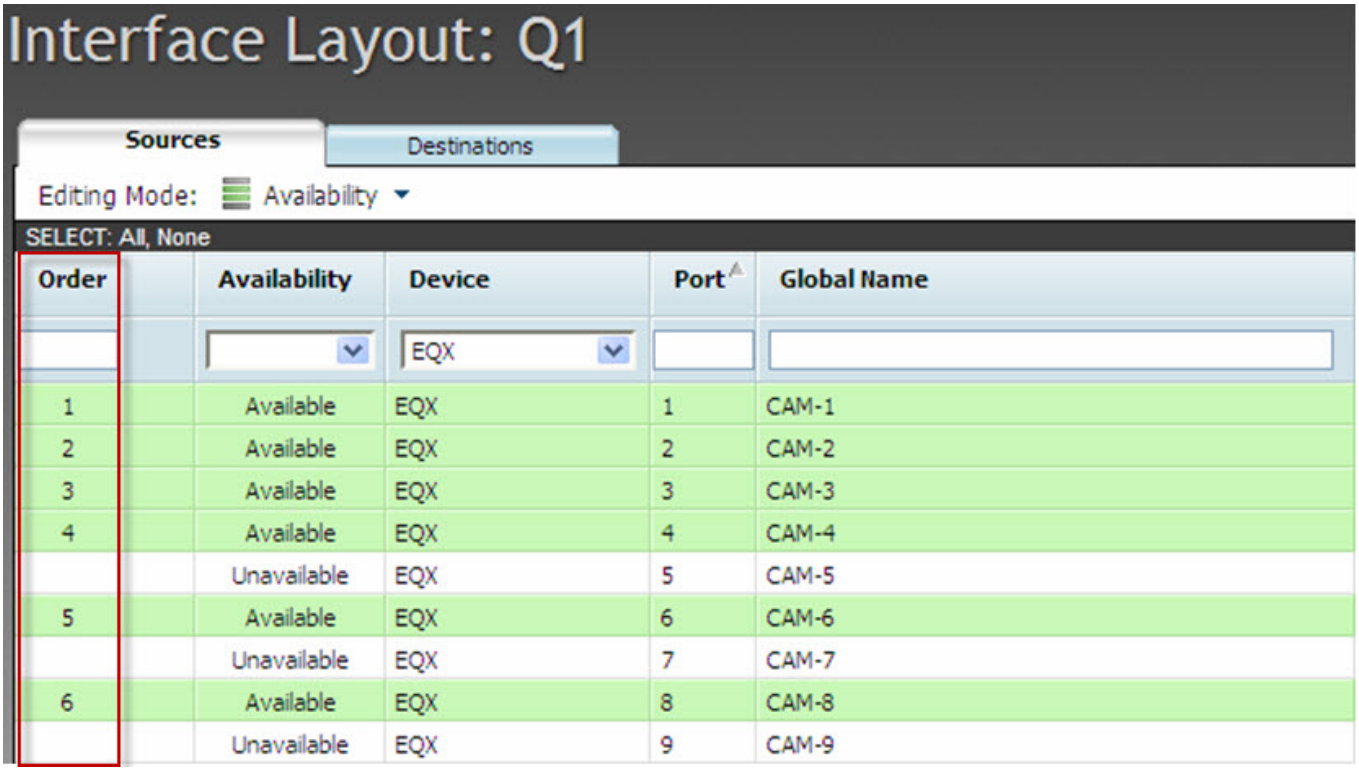


Figure 12-8: “Order” Column

11. The Quartz numeric assignment can be changed by clicking on “Editing Mode” and selecting “Re-order”. This allows the users to re-define the Quartz numeric assignments for a router port within the Quartz Interface.

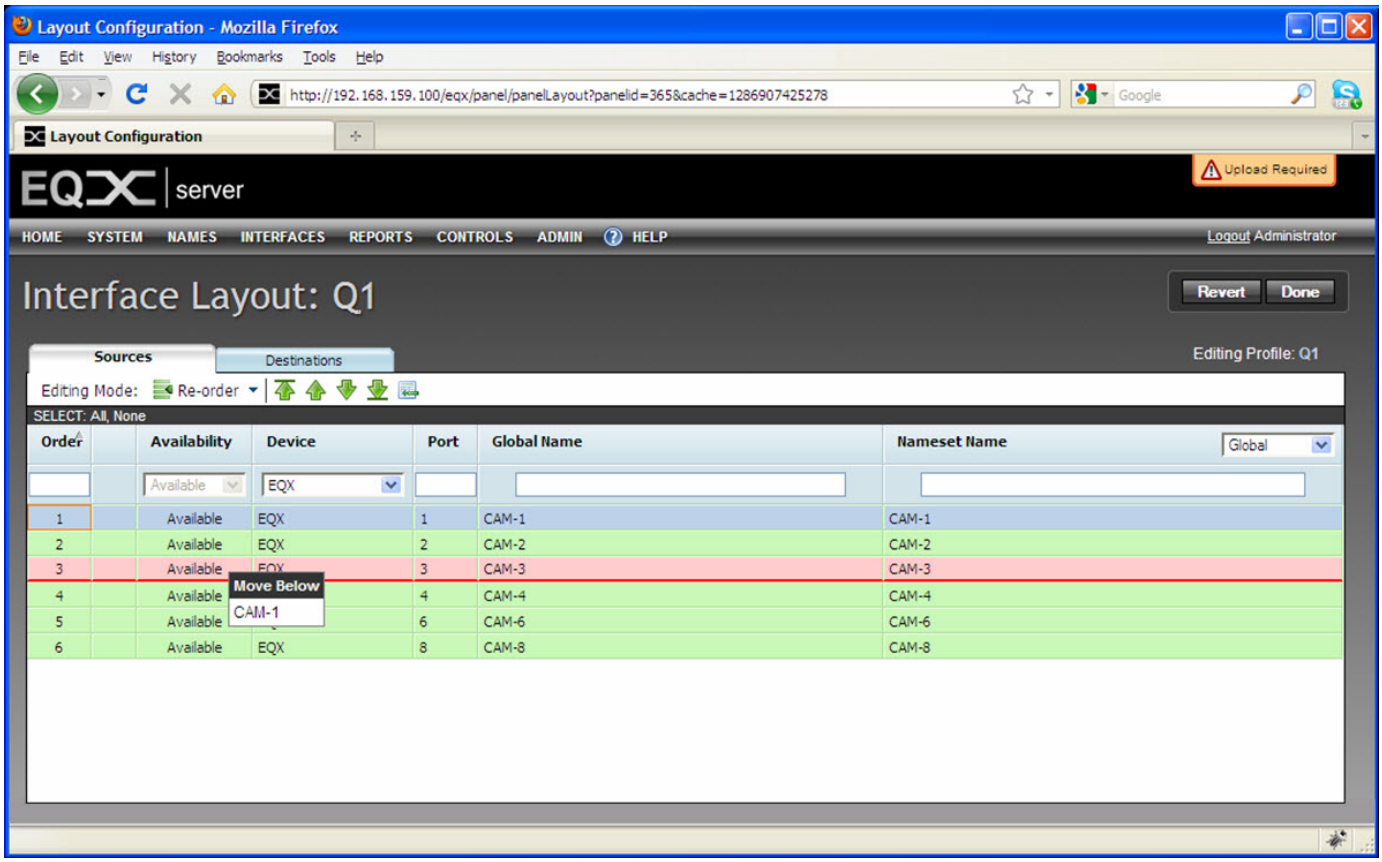


Figure 12-9: Re-arranging the Quartz Numeric Assignment

12. If specific Quartz assignments are required, the use of “Blanks” can be applied which insert place holders thereby forcing specific Quartz numeric assignments as shown in Figure 12-10.

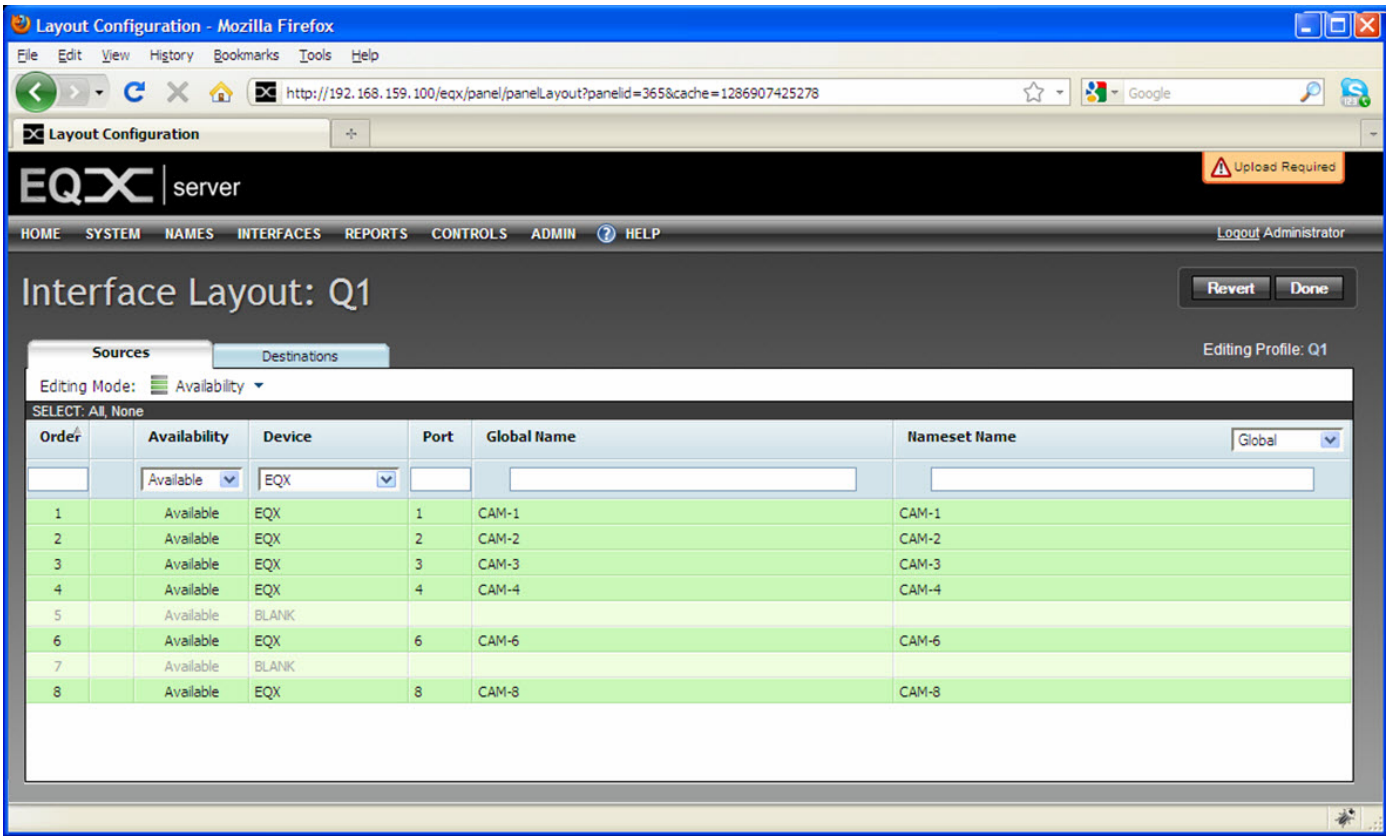


Figure 12-10: Creating "Blank" Sources & Destinations

13. QUARTZ PROTOCOL COMMANDS SUPPORTED BY MAGNUM QUARTZ INTERFACE

The protocol is ASCII text based with messages delimited by carriage return. Messages should be sent synchronously, as error messages contain no identifying information.

The Quartz interface, unlike others, may simultaneously listen on multiple ports. Each port is tied to a single specific profile.

MAGNUM accepts a number of Quartz commands over its Quartz interface:

Major Command	Minor Command	Example	Purpose
E	-	.E	An error has occurred
I	(level)	.IV1	Interrogate destination
S	(level)	.SV1,3	Set cross-point
L	(level)	.LV1,-	Interrogate multiple destinations
#	01	.#01	Query connection status
R	S	.RS1	Read source (short) name [1]
	T	.RT1	Read source (long) name [1]
	D	.RD1	Read destination (short) name [1]
	E	.RE1	Read destination (long) name [1]
B	L	.BL1	Lock destination [2]
	U	.BU1	Unlock destination
	I	.BI3	Destination lock interrogate
P	-	.P	Configuration change has occurred

Notes:

1. MAGNUM does not have different short and long names so the values will be the same
2. MAGNUM will respond with an .E if the destination is already locked

14. QUARTZ INTERFACE EXTENSIONS

The protocol is ASCII text based with messages delimited by carriage return. Messages should be sent synchronously, as error messages contain no identifying information except in the below cases when Quartz extensions are enabled.

The Quartz interface, unlike others, may simultaneously listen on multiple ports. Each port is tied to a single specific profile.

MAGNUM provides the following Quartz command extensions over its Quartz interface in the format of .E, extension message:

Major Command	Extension	Example	Purpose
E	-	.E	An error has occurred
	Permission denied routing: X	.E,Permission denied routing: 1	Permission denied routing to destination 1. Destination availability rules are preventing the source from routing to the specific destination. [1.]
	Tieline unavailable from X to Y	.E,Tieline unavailable from 19 to 2	Tieline unavailable for route: Destination 19, source 2. [1.]
	Resource Not Found – X	.E, Resource Not Found 30	Source or destination is not available in the Quartz Profile interface. [1.]
	No Path between X and Y	.E, No path between 22 and 10	Tielined path does not exist for the route: Destination 22 and source 10. [1.]
	Destination is Locked from X to Y	.E,Destination is Locked from 1 to 1	Destination is locked, trying to route destination 1, source 1. [1.]
	Not Connected - X	.E,Not Connected - EQX	Router is not connected

Notes:

1. The port numbers returned are the index numbers assigned to the physical ports within the Quartz Profile interface. These numbers may or may not be a one to one correlation to the physical ports on the router.

15. QUARTZ QUIRKS

The chart below has been created to assist during configuration/defining of devices within EQX Server / Magnum. The Advanced Properties tab for each device allows the user to tweak commands that are used to interact with the devices. The chart lists the recommended settings for each device type, however depending on the interaction with the device users may need to change individual settings in order to reach optimal interaction levels.

Device: Type of router

Port: TCP port used by the control system to issue normal quartz commands (Take, Lock, Unlock, Destination status, etc)

Control Port: TCP port used by the control system to determine which FC /FU is in-control of the router

Failover Style: Command required by the router in order for the control system to force an in-control change on the FC/FUs

Max Connections: Maximum number of TCP connections that the router will allow (Both EQX Server 2.2.0 and Magnum will have active connections from both primary and redundant servers)

Values: 1 total - only the main OR redundant Magnum can actively connect to the router
1 per host - main and back up can each have an active connection to the router
Unlimited - could be multiple connections per host or multiple hosts

Magnum: Requires the tweak <tweak name='allow_standby' value='1' /> if **1 Total** is enabled for the device

Multi-Master: Both FCs allow connections and will respond to normal quartz commands (Take, Lock, Unlock, Destination status, etc)

Responds to .B: Router will respond to lock requests

Responds to .BI: Router will respond to lock queries

Supports .L: Router supports List Routes queries (If this is set and the router does not support it, EQX Server and Magnum will report no cross-points)

Supports .R: Router supports read source / destination name queries (.RT and .RE)

Supports .W: Router supports write source / destination name commands (.WT and .WE)

Supports Range Queries: Router supports range queries using .IVnn-nn

Device	Port	Control Port	Failover Style	Max Connections	Multi Master	Responds to .B	Supports .BI	Supports .L	Supports .R	Supports .W	Support Range Queries	Supports .F	Supports .M
Topaz	23	23	&'	1 Per Host	Yes	Yes	Yes	Yes	No	No	No		
EQT	3737	25	&'	1 Total	Yes	Yes	Yes	No	No	No	Yes		
Xenon FU	4000	23	$'	Unlimited	No	Yes	Yes	Yes	No	No	No		
Xenon FC	4000	25	&'	1 Total	Yes	Yes	Yes	No	Yes	No	Yes		
EQX	3737	25	&'	1 Per Host	No	Yes	Yes	Yes	No	No	No		
1.4 build x and older	4000	25	&'	1 Per Host* One port (4000) needs to be opened Accepts one connection from each host	No	Yes	Yes	Yes	No	No	No		
2.02 build 1 2.02 build 47	4000	25	&'	1 Total or 1 Per Host* Multiple ports (4000) need to be opened Maximum of 4 instances	Yes	Yes	Yes	No	No	No	No		
3.00 build 9732	4000	25	&'	1 Total or 1 Per Host* Multiple ports (4000) need to be opened Maximum of 4 instances	Yes	Yes	Yes	No	Yes	Yes* Not stored across power cycles	Yes	Yes	Yes
EQX-1152x1152	4000	25	&'	1 Per Host	Yes	Yes	Yes	No	No	No	No		
X-link	3737	25	&'	1 Total	Yes	Yes	No	No	No	No	No		
XRF-1	4000	25	&'	1 Per Host	Yes	Yes	Yes	No	Yes	No	No		
XRF-6	4000	25	&'	1 Per Host	No	Yes	Yes	No	Yes	No	No		
R16x16	2000	25	&'	Unlimited	Yes	Yes	No	No	No	No	No		
Data Routers	4000	25	&'	1 Total	Yes	Yes	Yes	Yes	Yes	No	No		
3rd Party Router	4000	25	&'	1 Total	Yes	Yes	Yes	Yes	Yes	No	No		
3rd Party System	4000	25	&'	1 Total	Yes	Yes	Yes	Yes	Yes	No	No		
Level Controller	4000	25	&'	1 Total	Yes	Yes	Yes	Yes	Yes	No	No		

16. 7700R-SC-BRC

The 7700R-SC-BRC facilitates the following bidirectional router control scenarios:

Evertz Control
Evertz controls a third party router/controller. The 7700R-SC-BRC receives a request from an MAGNUM server, translates it into a third-party router protocol request and, in turn, passes it along to the third-party router either directly or a via a system controller.

Third-Party Control
A third-party controls an Evertz router. The 7700R-SC-BRC receives a request from a third-party control device, translates it into a Quartz Remote Control protocol request and, in turn, passes it along to the Evertz router either directly or via an MAGNUM server.

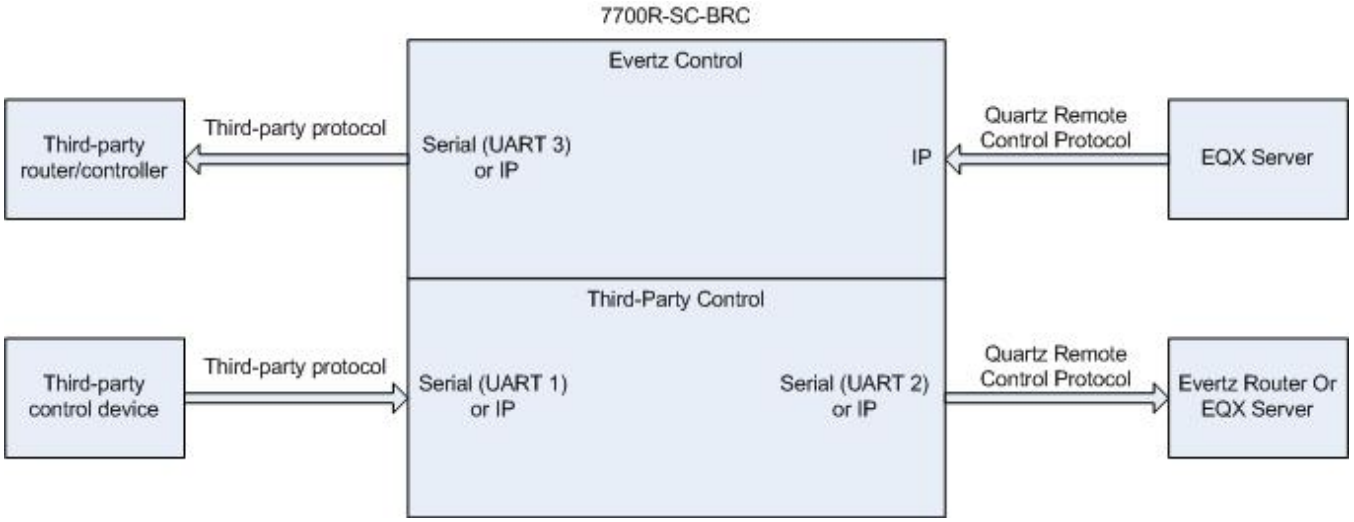


Figure 16-1: Functional Overview

16.1. EVERTZ CONTROLLER TO THIRD PARTY ROUTER/CONTROLLER

The 7700R-SC-BRC receives a request from MAGNUM, translates it into a third-party router protocol request and, in turn, passes it along to the third-party router either directly or a via a system controller.

The Evertz Protocol(Quartz) input is IP only and can support up to 4 different connections. By default the open port is 4000, but this can be changed via the serial port menu.

The 7700R-SC-BRC can support the following third party protocols:

- CPU Link No.1 (serial), supports locks and protects
- VMSI 3000 ASCII (serial)
- NVEP (TCP), supports locks and protects
- NVSP (serial), supports locks and protects
- NV9000 (TCP), supports locks and protects, gets and updates Names
- Remote 2 Cart++ (serial)
- ES Control (serial)
- ES Switch (serial), supports locks and protects, gets Names
- Rot 16 (TCP), supports protects, gets Names
- RCP 3 (serial, TCP), supports locks, gets Names
- RCL (serial, TCP), supports protects(locks using .B), gets and updates Names
- GVG NS7000 Native (serial, TCP), supports protects(locks using .B), gets Names
- Pro-Bel SW-P-08 (serial, TCP), supports protects(locks using .B), gets Names
- Pro-Bel SW-P-02 (serial), supports protects(locks using .B)
- NEXUS Matrix 5 (serial, TCP)
- Leitch XY (serial, TCP), supports locks and protects
- LAWO (TCP), supports locks, gets and updates Names
- Quartz (serial, TCP), supports locks and protects, gets and updates Names, Can be used for network isolation or TCP to Serial conversion

16.2. THIRD PARTY CONTROLLER TO EVERTZ ROUTER

The 7700R-SC-BRC receives a request from a third-party control device, translates it into a Quartz Remote Control protocol request and, in turn, passes it along to the Evertz router either directly or via MAGNUM.

The 7700R-SC-BRC can make a single connection to an Evertz device using the Quartz protocol or the Symphony protocol. This can be done over IP or serial.

When using the Quartz protocol over TCP there are five ways a 7700R-SC-BRC will drop a connection to a device. They are as follows:

- receive a ".P", this is a router configuration update response
- do not receive a ".A" in response to a ".#01", this is used in polling the device
- do not receive responses when getting information from the router using ".I", ".BI", and ".X,ILK", errors are fine but no response at all will cause the 7700R-SC-BRC to drop the connection
- failed to send or receive data via TCP, or received a [FIN] from the other device
- received a reconfiguration command

The connection will stay open if a request, ".S" or ".B" or ".X", did not get a response, however no cross-points will be updated as this is seen as an error and there are no follow up requests with interrogate commands.

The 7700R-SC-BRC can support the following third party protocols:

CPU Link No.1 (serial), supports locks and protects
ES Control (serial)
ES Switch (serial), supports locks and protects, gets names
Rot 16 (TCP), supports protects, gets and updates names
RCL (serial, TCP), supports protects, gets and updates names
GVG NS7000 Native (serial, TCP), supports protects, gets and updates names
NVEP (TCP), supports two connections
Pro-Bel SW-P-08 (serial, TCP), supports protects, gets names, supports two connections
Pro-Bel SW-P-02 (serial), supports protects, supports two connections
VM/SI 3000 ASCII (serial), supports locks and protects
Leitch XY (serial, TCP), supports locks and protects

16.3. CARD EDGE CONTROLS

16.3.1. Determining Current IP Address Settings

To read the current IP address during normal operation, press the front switch DOWN. The IP address can be read on the four-character LCD.

16.3.2. Restoring Factory Defaults

To restore all settings to factory defaults, apply power to the card while holding the toggle switch UP until the LCD begins to scroll *7700R-SC-BRC*.

16.3.3. Debug/Monitor Port

Some parameters of the 7700R-SC-BRC must be configured via its debug/monitor port. A special Evertz adapter cable allows this port to connect to the COM port of a personal computer. The following steps describe this procedure.

1. Locate the small, keyed, four–pin end of the upgrade cable provided by Evertz.
2. Connect it to the four-pin interface located beside the LCD.
3. Connect the other end of the upgrade cable to a straight-through serial cable. Connect the serial cable to the serial or COM port of the computer.
4. Initiate HyperTerminal on your computer by selecting:
   "*Start\Programs\Accessories\Communications\HyperTerminal.*"
5. Enter a name for your connection, for example: Evertz.
6. Press the <Enter> key. A new "Connect To" window will appear.

Figure 16-2: 'Connect To' Window

7. In the "*Connect using"* region, select COM1 from the drop down menu. If COM1 is in use, select an alternate COM port.
8. Press the <Enter> key or select OK. This opens the "COM Properties" window.

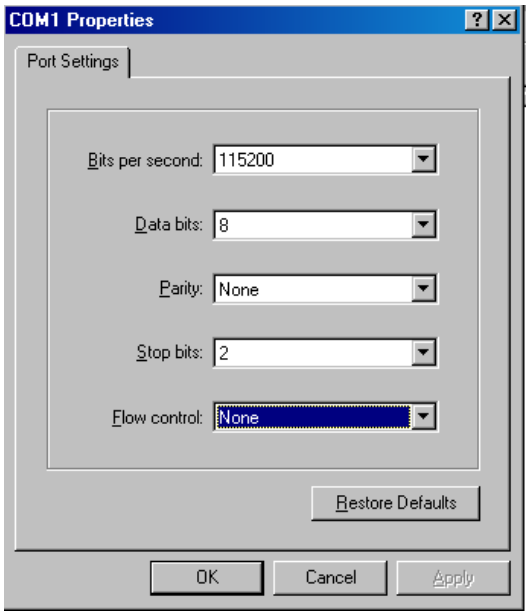


Figure 16-3: COM1 Properties

9. Enter the information for the *COM1 Properties* settings as listed in the screen above.
10. Press the <Enter> key or select OK. The "COM Properties" window closes, leaving the HyperTerminal window open.
11. Apply power if the 7700R-SC-BRC does not have power. The boot sequence and Main Menu are displayed in the HyperTerminal window.
12. If the 7700R-SC-BRC has power, press the <Enter> key to view the 7700R-SC-BRC's menu system (Figure 16-4).

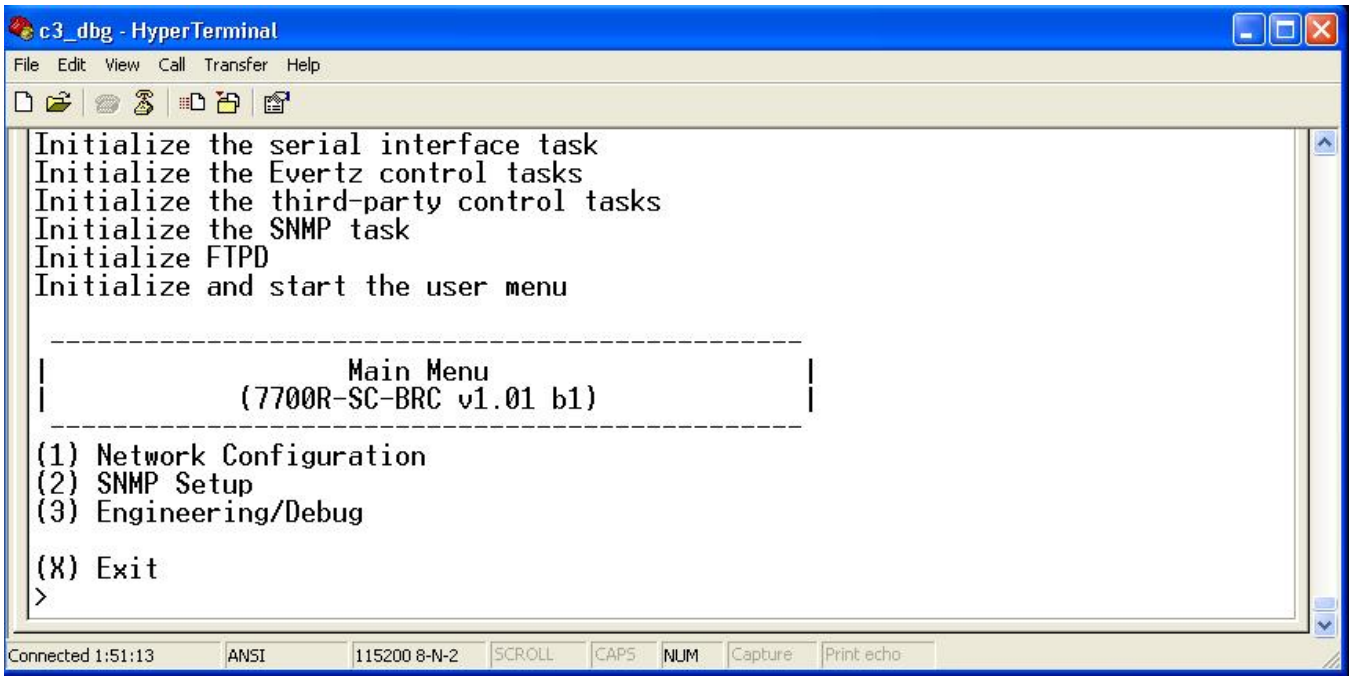


Figure 16-4: 7700R-SC-BRC Main Menu

16.4. MENU SYSTEM CONFIGURATION

The parameters mentioned in this section can only be configured by using the menu system of the 7700R-SC-BRC. Section 16.3.3 details how to access the menu system.

16.5. NETWORK PARAMETERS

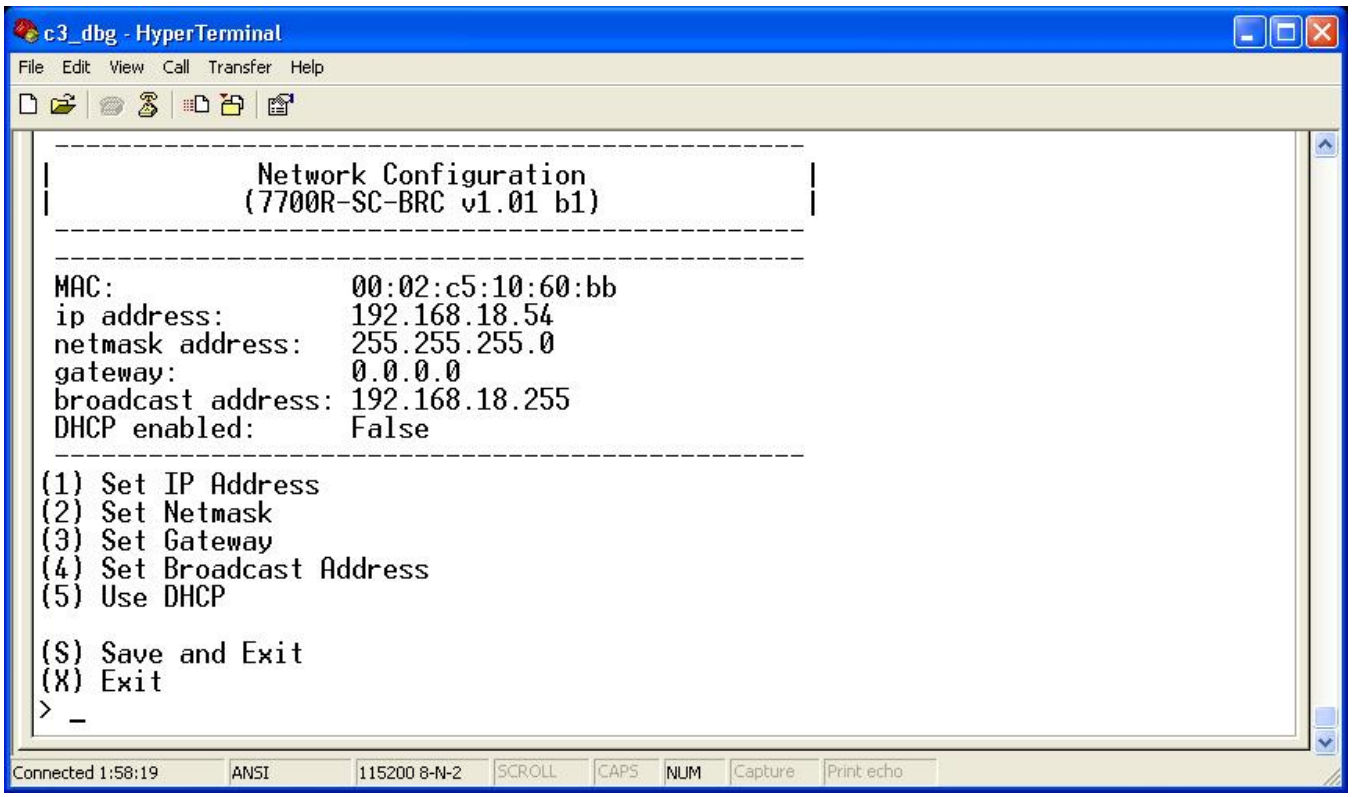


Figure 16-5: 7700R-SC-BRC Network Configuration Menu

1. From the *Main Menu* select *Network Configuration*.
2. If the 7700R-SC-BRC is to automatically obtain its network settings from a DHCP server, use the *Use DHCP* menu entry to set *DHCP enabled* to *True*. Go to step 7.
3. For static network settings use the *Use DHCP* menu entry to set *DHCP enabled* to *False*.
4. Select *Set IP Address* then enter the IP address of the 7700R-SC-BRC.
5. Select *Set Netmask* then enter the subnet mask of the 7700R-SC-BRC.
6. Optionally, select *Set Gateway* then enter the IP address of a gateway associated with the subnet.
7. Select *Save* and *Exit* before exiting the *Network Configuration* to save the settings, otherwise select *Exit*.
8. Reboot the 7700R-SC-BRC.
9. Ensure the VLPro machine can ping the 7700R-SC-BRC.

The 7700R-SC-BRC must be rebooted for any network setting changes to take effect.

17. VISTALINK® PRO (VLPRO) CONFIGURATION

This section details how to use VLPro to configure the remaining parameters of the 7700R-SC-BRC.

17.1. VLPRO CONFIGURATION VIEW

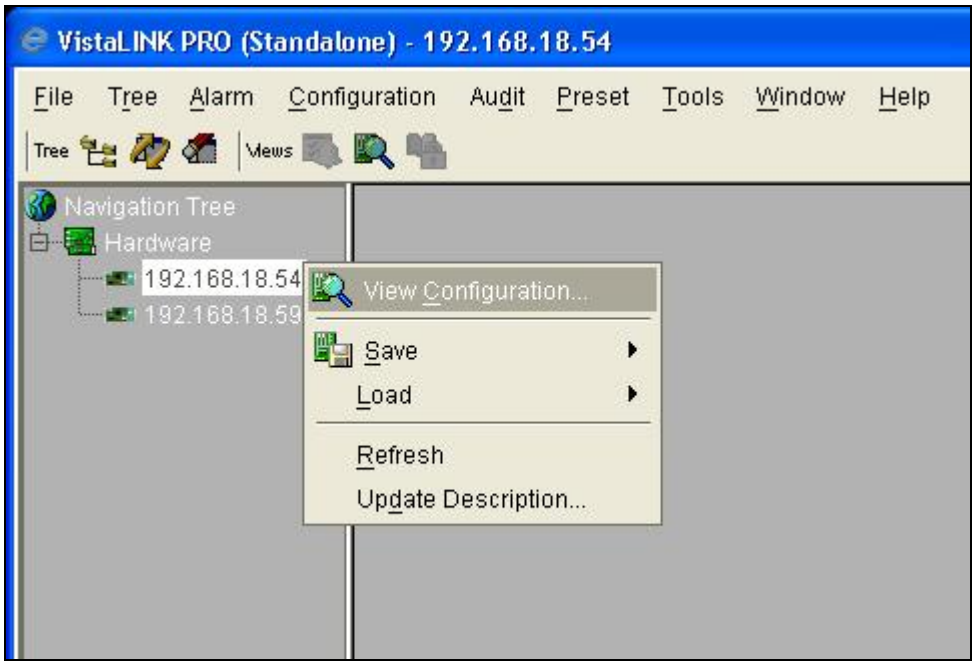


Figure 17-1: VLPro Hardware Navigation Tree

Suppose the IP address of the 7700R-SC-BRC is 192.168.18.54. To open the VLPro configuration view associated with the 7700R-SC-BRC:

1. Launch VLPro. The IP address of the 7700R-SC-BRC, 192.168.18.54, should appear in the hardware navigation tree.
2. Right click on the IP address.
3. Click *View Configuration*.
4. The configuration view should appear.

17.2. GENERAL TAB

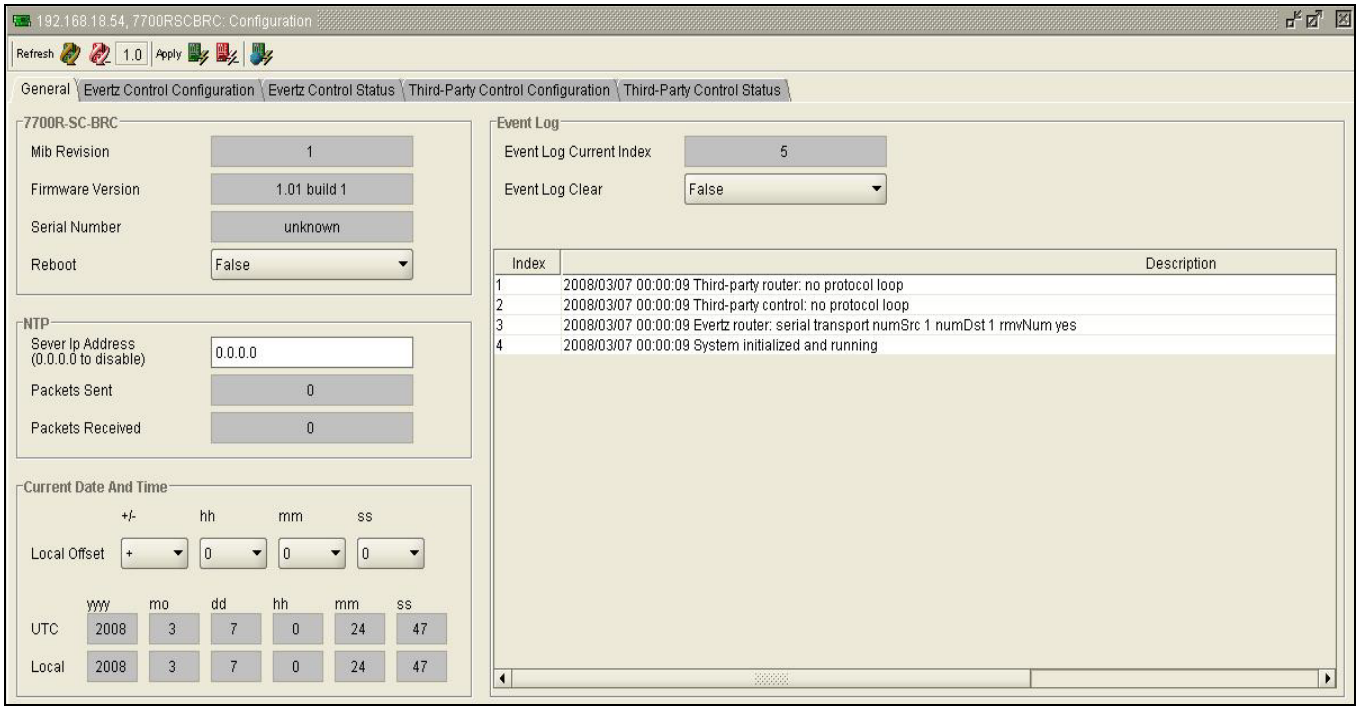


Figure 17-2: General Tab

Item	Notes
MIB Revision	Displays the MIB revision being used by the 7700R-SC-BRC.
Firmware Version	Displays the firmware version being used by the 7700R-SC-BRC.
Serial Number	Reports the serial number of the 7700R-SC-BRC.
Reboot	Allows the 7700R-SC-BRC to be rebooted. To do so, set the box to *True*.
NTP: Server IP Address	Optional. Allows the IP address of an NTP server to be configured. The 7700R-SC-BRC can use the time fetched from the server to timestamps the entries it puts into its event log.
NTP: Packets Sent	Reports the number of NTP request packets sent by the 7700R-SC-BRC to the NTP server.
NTP: Packets Received	Reports the number of NTP packets received by the 7700R-SC-BRC.
Current Date And Time	The 7700R-SC-BRC reports the time in two ways: Universal Co-ordinated Time (UTC) and Local Time. The local time is derived from UTC via the *Local Offset* parameters. To set these parameters, use the boxes to select the offset appropriate for your time zone.
Event Log	The 7700R-SC-BRC can communicate error and status information via its event log. The *Event Log Current Index* reports the position at which the next log entry would be placed. The event log can be cleared by setting *Event Log Clear* to *True*.

Table 17-1: General Tab Parameters

17.3. EVERTZ CONTROL CONFIGURATION TAB

17.3.1. General Frame

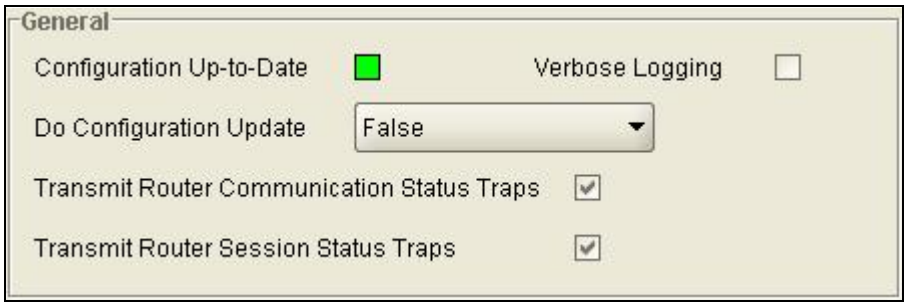


Figure 17-3: General Frame

Item	Notes
Configuration Up-To-Date	Green: The Evertz control configuration parameters are up-to-date and are being used to communicate with the third-party router. Red: The configuration parameters need to be updated via *Do Configuration Update* before the 7700R-SC-BRC can start using them.
Verbose Logging	When checked, the 7700R-SC-BRC will log events which may help with troubleshooting protocol-related issues. For normal operation, this box should be unchecked.
Do Configuration Update	When set to *True*, instructs the 7700R-SC-BRC to reset communications with the third-party router and to make use of any parameter changes.
Transmit Router Communication Status Traps	When checked, the 7700R-SC-BRC will transmit an SNMP trap when there is a change in the communication status between it and the third-party router.
Transmit Router Session Status Traps	When checked, the 7700R-SC-BRC will transmit an SNMP trap when there is a change in the session status between it and the third-party router. The EQX server may connect to and issues requests to the 7700R-SC-BRC once the router session has become active.

Table 17-2: General Frame Parameters

When the *Configuration Up-To-Date* status box is red, *Do Configuration Update* must be set to true for the 7700R-SC-BRC to begin using any parameter changes.

17.3.2. Third-Party Router Sources Frame

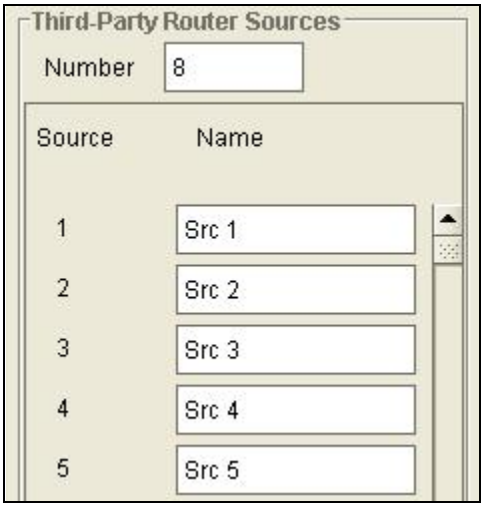


Figure 17-4: Third-Party Router Sources Frame

17.3.2.1. Number of Router Sources

These third-party protocols do not afford the 7700R-SC-BRC the ability to automatically determine the number of third-party router sources:

- CPU Link No. 1
- VMSI 3000 ASCII
- Remote 2/Cart++
- EScontrol

As such, the number of router sources must be manually entered into this field. This field is ignored for third-party router protocols which do allow the 7700R-SC-BRC to automatically determine the number of router sources.

17.3.2.2. Source Names

These third-party protocols do not afford the 7700R-SC-BRC the ability to automatically determine the names of router sources:

- CPU Link No. 1
- VMSI 3000 ASCII
- NVEP
- Remote 2/Cart++
- EScontrol

Optionally, these names can be entered into these fields. These fields are ignored for third-party router protocols which do allow the 7700R-SC-BRC to automatically determine the source names.

17.3.3. Third-Party Router Destinations Frame

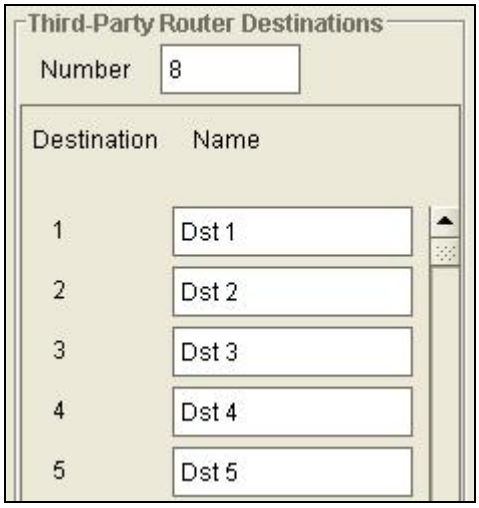


Figure 17-5: Third-Party Router Destinations Frame

17.3.3.1. Number of Router Destinations

These third-party protocols do not afford the 7700R-SC-BRC the ability to automatically determine the number of third-party router destinations:

- CPU Link No. 1
- VMSI 3000 ASCII
- Remote 2/Cart++
- EScontrol

As such, the number of router destinations must be manually entered into this field. This field is ignored for third-party router protocols which do allow the 7700R-SC-BRC to automatically determine the number of router destinations.

17.3.3.2. Destination Names

These third-party protocols do not afford the 7700R-SC-BRC the ability to automatically determine the names of router destinations:

- CPU Link No. 1
- VMSI 3000 ASCII
- NVEP
- Remote 2/Cart++
- EScontrol

Optionally, these names can be entered into these fields. These fields are ignored for third-party router protocols which do allow the 7700R-SC-BRC to automatically determine the destination names.

17.3.4. Third-Party Router Transport Frame

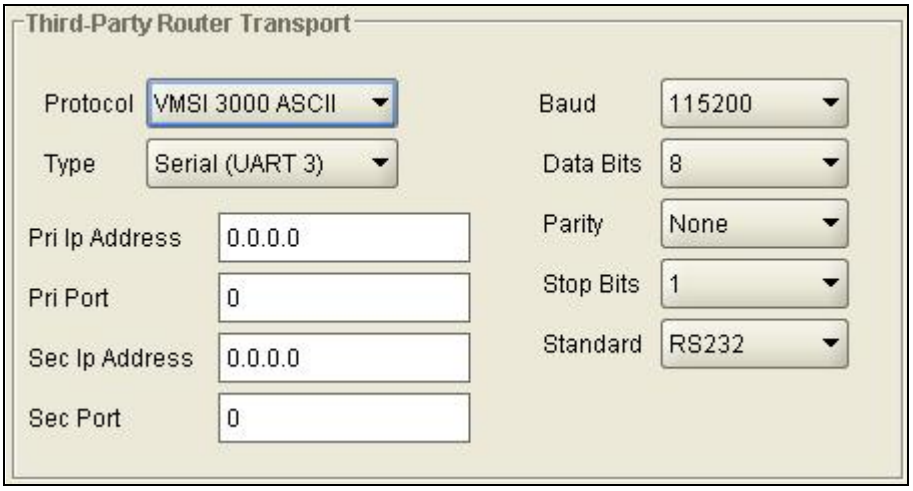


Figure 17-6: Third-Party Router Transport Frame

Item	Notes
Protocol	Specifies the protocol of the third-party router. The protocol *None* should be used when no third-party router is connected to the 7700R-SC-BRC.
Type	Specifies the type of transport that carries the third-party protocol.
Pri Ip Address	When the transport type is set to *TCP*, this field specifies the primary IP address of the third-party router. The third-party router will listen for incoming TCP connection requests from the 7700R-SC-BRC.
Pri Port	When the transport type is set to *TCP*, this field specifies on which primary port the third-party router will listen for incoming TCP connection requests from the 7700R-SC-BRC. For NVEP-based routers, this value is typically 5194. For NV9000 controllers, this value is typically 9193.
Sec Ip Address	When the transport type is set to *TCP*, this field specifies the secondary IP address of the third-party router. The third-party router will listen for incoming TCP connection requests from the 7700R-SC-BRC.
Sec Port	When the transport type is set to *TCP*, this field specifies on which secondary port the third-party router will listen for incoming TCP connection requests from the 7700R-SC-BRC. For NVEP-based routers, this value is typically 5194.
Baud	When the transport type is set to *Serial (UART 3)*, this field specifies the baud rate between the 7700R-SC-BRC and the third-party router.
Data Bits	When the transport type is set to Serial *(UART 3)*, this field specifies the number of data bits between the 7700R-SC-BRC and the third-party router.
Parity	When the transport type is set to *Serial (UART 3)*, this field specifies the parity between the 7700R-SC-BRC and the third-party router.
Stop Bits	When the transport type is set to Serial *(UART 3)*, this field specifies the number of stop bits between the 7700R-SC-BRC and the third-party router.
Standard	When the transport type is set to Serial *(UART 3)*, this field specifies the serial standard between the 7700R-SC-BRC and the third-party router.

Table 17-3: Third-Party Router Transport Frame Parameters

17.3.5. CPU Link No. 1 Configuration Frame

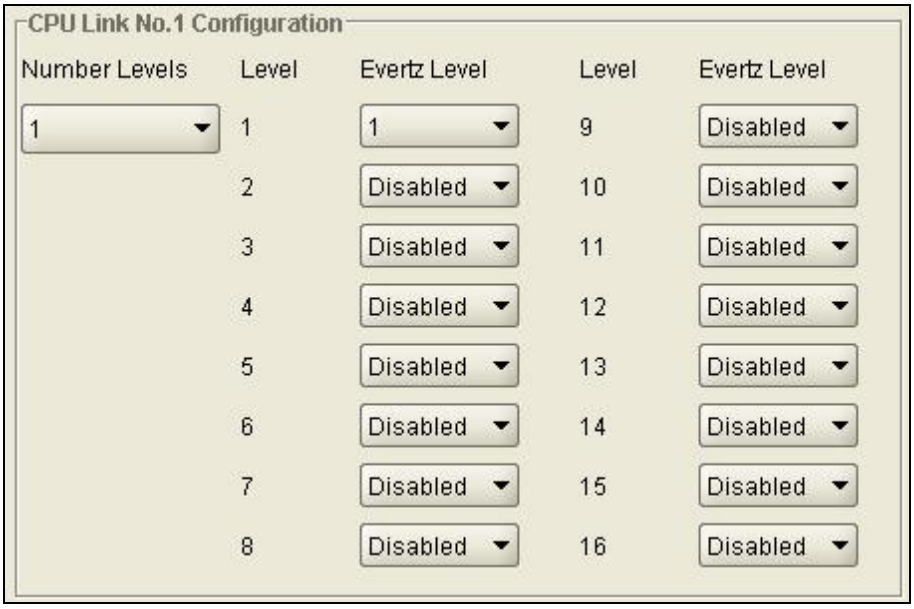


Figure 17-7: CPU Link No. 1 Configuration Frame

Item	Notes
Number Levels	Specifies the number of CPU Link Protocol No. 1 levels configured on the third-party router or controller – not just the number of levels Evertz is to control. The 7700R-SC-BRC is unable to automatically determine this value. This value *must* match that configured on the third-party router or controller. When using a 3500 controller, the configuration editor software, via the *Configuration/System Configuration/Configuration Info* toolbar, can be used to retrieve the number of levels configured on the 3500.
Evertz Level	Specifies the association between an Evertz level and a CPU Link No. 1 level. Figure 17-7 shows Evertz level 1 associated with CPU Link No. 1 level 1.

Table 17-4: CPU Link No. 1 Configuration Frame Parameters

17.3.6. VMSI 3000 Configuration Frame

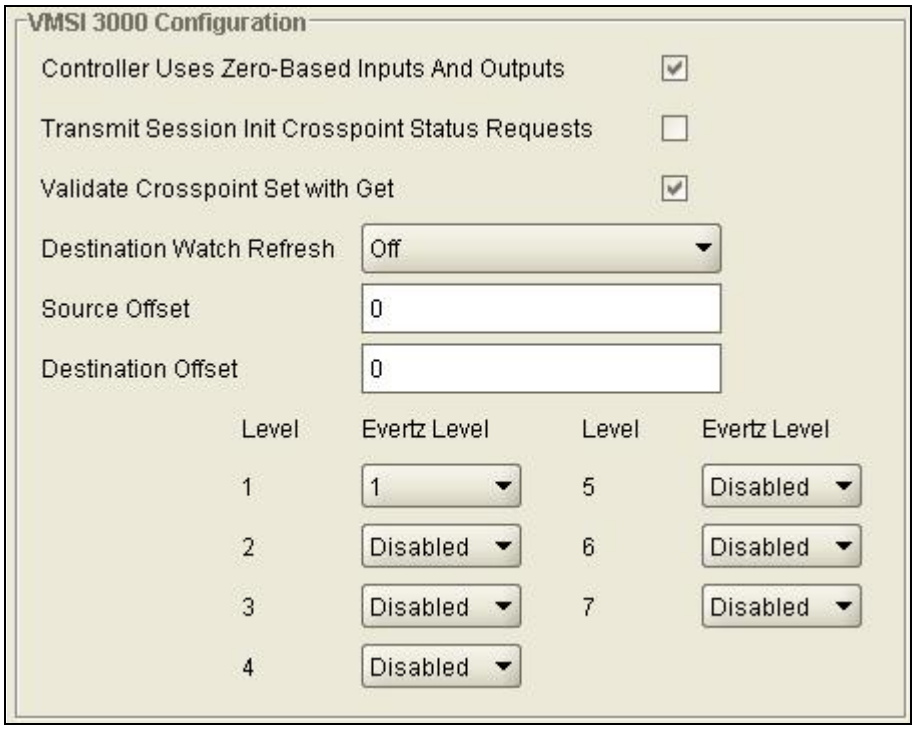


Figure 17-8: VMSI 3000 Configuration Frame

Item	Notes
Controller Uses Zero-Based Inputs and Outputs	When checked, specifies that the VMSI 3000-based controller/router, from a protocol perspective, uses 0-based inputs and outputs. That is, the first input is 0 and the first output is 0. When not checked specifies 1-based inputs and outputs. That is, the first input is 1 and the first output is 1.
Transmit Session Init Crosspoint Status Requests	When checked, specifies that the 7700R-SC-BRC should explicitly solicit crosspoint statuses during its session initialization process. This is not required for normal operation.
Validate Crosspoint Set with Get	When checked specifies that the 7700R-SC-BRC will verify a crosspoint set with a get should no set response be obtained by the 7700R-SC-BRC.
Destination Watch Refresh	During the session initialization process the 7700R-SC-BRC requests the router/controller watch all its destinations. This instructs the router/controller to provide unsolicited destination status update messages to the 7700R-SC-BRC. Thus, when there is a change to a crosspoint, the router/controller will provide the 7700R-SC-BRC with an update. Should the router/controller expire this watch request, setting this parameter can instruct the 7700R-SC-BRC to refresh the watch on a periodic basis. Enabling the destination watch refresh has significance only if a non-Evertz panel (or some other non-Evertz control equipment) will change a crosspoint on the router/controller.
Source Offset	This field specifies the amount to add to the EQX server source number to obtain the VMSI 3000 source number. For normal operation this field should be set to 0.

Destination Offset	This field specifies the amount to add to the EQX server destination number to obtain the VMSI 3000 destination number. For normal operation this field should be set to 0.
Evertz Level	Specifies the association between an Evertz level and a VMSI 3000 level. Figure 17-8 shows Evertz level 1 associated with VMSI 3000 level 1.

Table 17-5: VMSI 3000 Configuration Frame Parameters

17.3.7. NVEP Configuration Frame

Figure 17-9: NVEP Configuration Frame

Item	Notes
Monitor Crosspoints	Specifies the rate at which the 7700R-SC-BRC will poll the NVEP-based router for crosspoint changes. Crosspoint monitoring has significance when the EQX server needs to be notified of router crosspoint changes invoked by equipment *other* than the EQX server (for instance, NVEP panels).

Table 17-6: NVEP Configuration Parameters

17.3.8. Remote 2 (Cart++) Configuration Frame

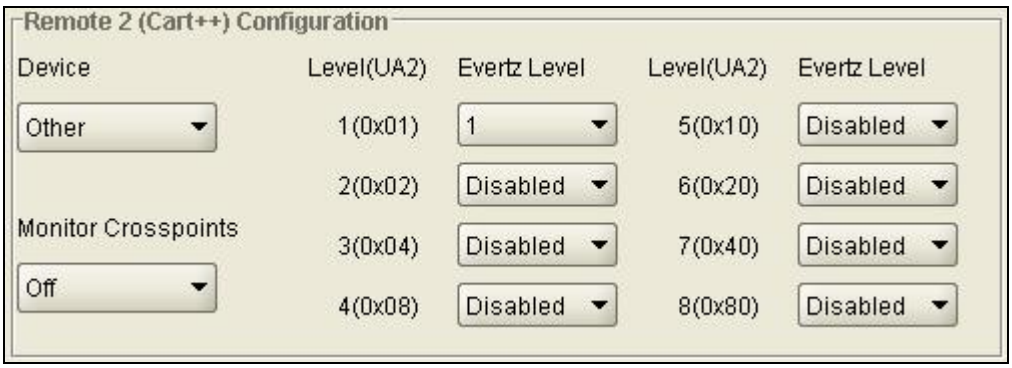


Figure 17-10: Remote 2 (Cart++) Configuration Frame

Item	Notes
Device	Specifies the device to which the 7700R-SC-BRC is connected.
Monitor Crosspoints	Specifies the rate at which the 7700R-SC-BRC will poll the remote 2 (cart++)-based router for crosspoint changes. Crosspoint monitoring has significance when the EQX server needs to be notified of router crosspoint changes invoked by equipment *other* than the EQX server (for instance, panels).
Evertz Level	Specifies the association between an Evertz level and a remote 2 level. Figure 17-10 shows Evertz level 1 associated with remote 2 level 1.

Table 17-7: Remote 2 (Cart++) Configuration Parameters

17.3.9. EScontrol Configuration Frame

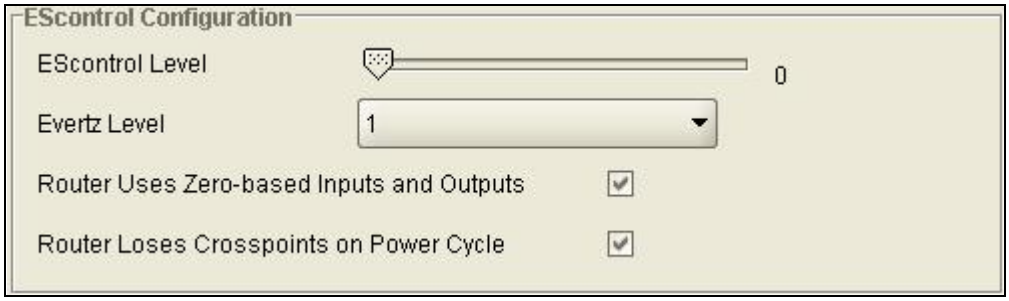


Figure 17-11: EScontrol Configuration Frame

Item	Notes
EScontrol level	Specifies the level over which the EScontrol-based router exchanges crosspoint information.
Evertz Level	Specifies the Evertz level associated with the EScontrol level.
Router Uses Zero-Based Inputs and Outputs	When checked, specifies that the EScontrol-based router, from a protocol perspective, uses 0-based inputs and outputs. That is, the first input is 0 and the first output is 0. When not checked, specifies 1-based inputs and outputs. That is, the first input is 1 and the first output is 1. SH612s typically use zero-based inputs and outputs.
Router Loses Crosspoints on Power Cycle	When checked, specifies that the EScontrol-based router will lose its crosspoint information when power is cycled on the router. For this scenario, the 7700R-SC-BRC will attempt to restore the crosspoints when the router is powered on. When not checked, specifies that the EScontrol-based router maintains its crosspoint information on a cycle of its power. SH612s typically lose their crosspoints on a power cycle.

Table 17-8: EScontrol Configuration Parameters

17.4. EVERTZ CONTROL STATUS TAB

17.4.1. General Frame

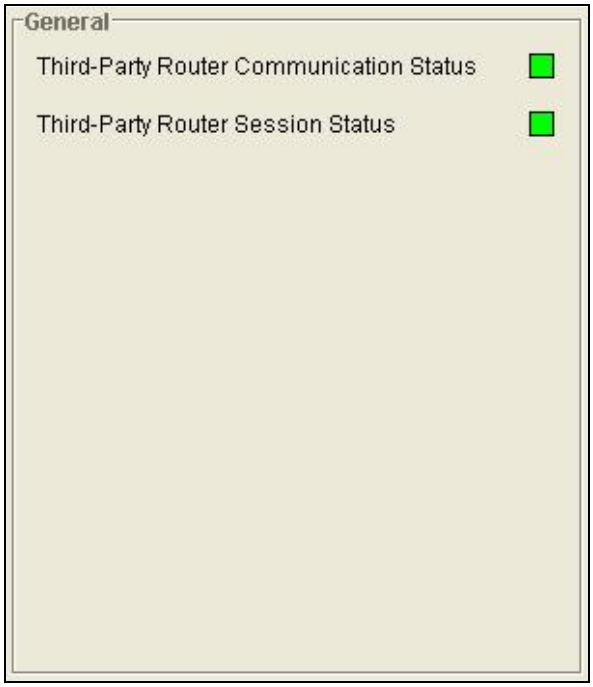


Figure 17-12: General Frame

Item	Notes
Third-Party Router Communication Status	Green: The 7700R-SC-BRC is able to communicate with the third-party router. Red: The 7700R-SC-BRC is not able to communicate with the third-party router.
Third-Party Router Session Status	Green: The 7700R-SC-BRC has established a session with the third-party router. The EQX server can connect to and issue requests to the 7700R-SC-BRC. Red: The 7700R-SC-BRC has not established a session with the third-party router. EQX server connections will not be permitted by the 7700R-SC-BRC.

Table 17-9: General Frame Parameters

17.4.2. Third-Party Router Sources Frame

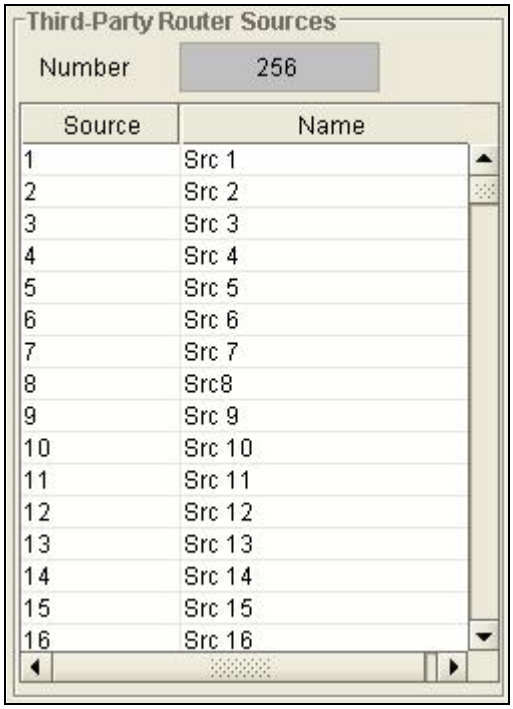


Figure 17-13: Third-Party Router Sources Frame

Item	Notes
Number	Reports the number of manually entered or automatically obtained third-party router sources.
Name	Reports the names of the manually entered or automatically obtained third-party router sources.

Table 17-10: Third-Party Router Sources Frame Parameters

17.4.3. Third-Party Router Destinations Frame

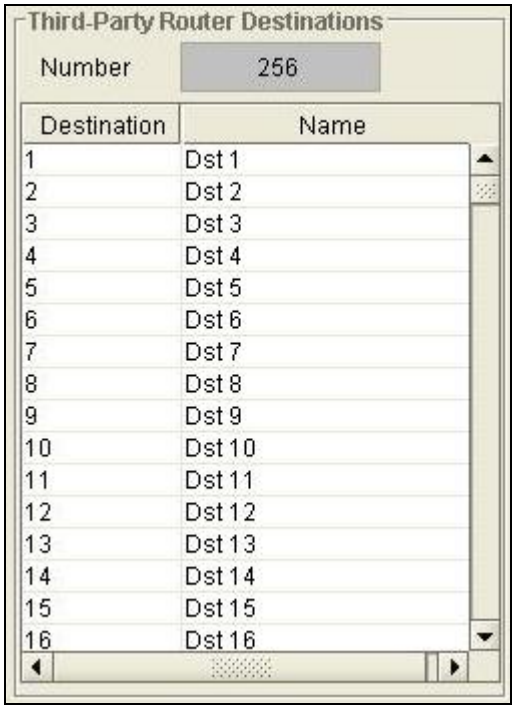
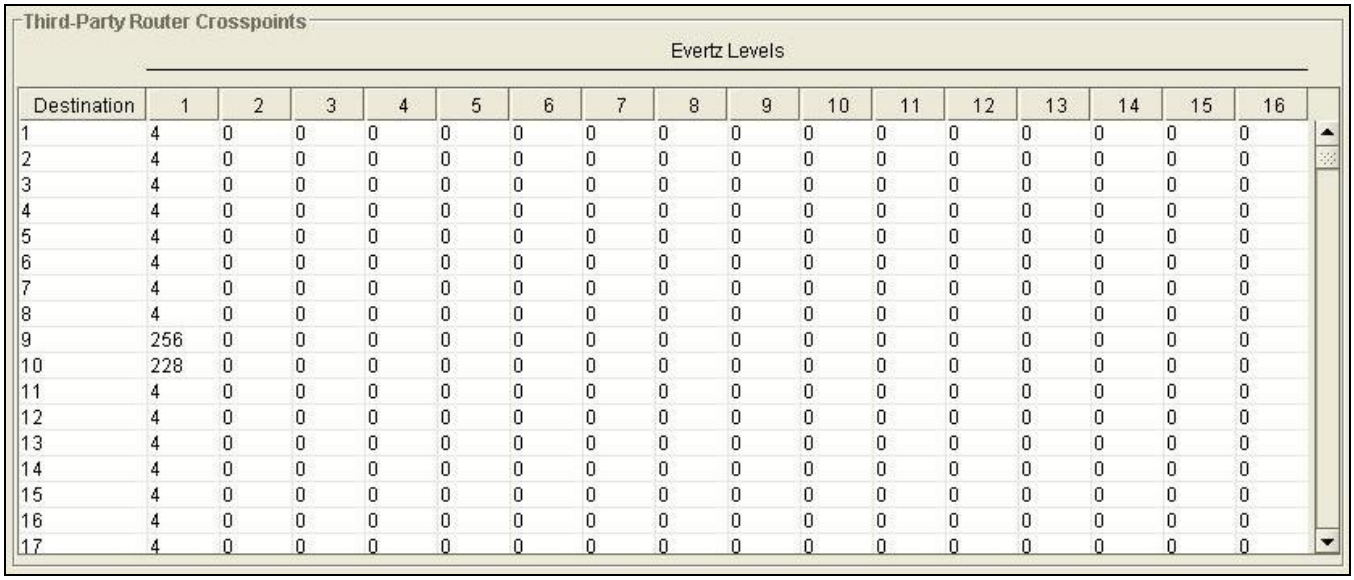


Figure 17-14: Third-Party Router Destination Frame

Item	Notes
Number	Reports the number of manually entered or automatically obtained third-party router destinations.
Name	Reports the names of the manually entered or automatically obtained third-party router destinations.

Table 17-11: Third-Party Router Destination Frame Parameters

17.4.4. Third-Party Router Crosspoints Frame



Destination	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 17-15: Third-Party Router Crosspoints Frame

This frame reports the third-party router crosspoint map in terms of an Evertz crosspoint map. The source and destination numbers are presented 1-based regardless of the third-party router protocol used. For example, Figure 17-15 shows:

- Source 4 is routed to destination 1 on Evertz level 1.
- Source 256 is routed to destination 9 on Evertz level 1.

17.5. THIRD-PARTY CONTROL CONFIGURATION TAB

17.5.1. General Frame

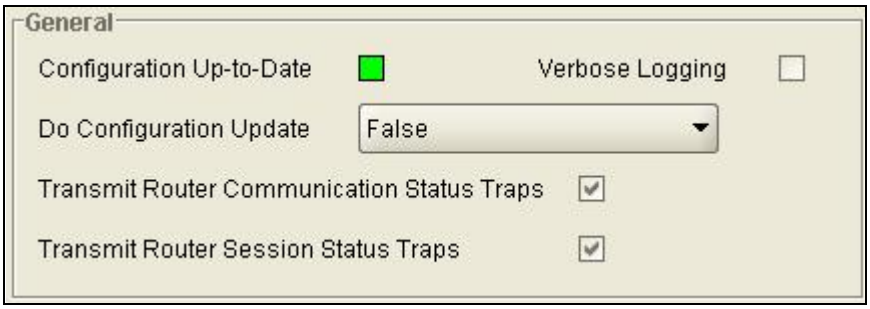


Figure 17-16: General Frame

Item	Notes
Configuration Up-To-Date	Green: The third-party control configuration parameters are up-to-date and are being used to communicate with the Evertz router. Red: The configuration parameters need to be updated via *Do Configuration Update* before the 7700R-SC-BRC can start using them.
Verbose Logging	When checked, the 7700R-SC-BRC will log events which may help with troubleshooting protocol-related issues. For normal operation, this box should be unchecked.
Do Configuration Update	When set to *True*, instructs the 7700R-SC-BRC to reset communications with the Evertz router or EQX server and to make use of any parameter changes.
Transmit Router Communication Status Traps	When checked, the 7700R-SC-BRC will transmit an SNMP trap when there is a change in the communication status between it and the Evertz router or EQX server.
Transmit Router Session Status Traps	When checked, the 7700R-SC-BRC will transmit an SNMP trap when there is a change in the session status between it and the Evertz router or EQX server. The third-party control device may connect to and issues requests to the 7700R-SC-BRC once the router session has become active.

Table 17-12: General Frame Parameters

When the *Configuration Up-To-Date* status box is red, *Do Configuration Update* must be set to true for the 7700R-SC-BRC to begin using any parameter changes.

17.5.2. Evertz Router Transport Frame

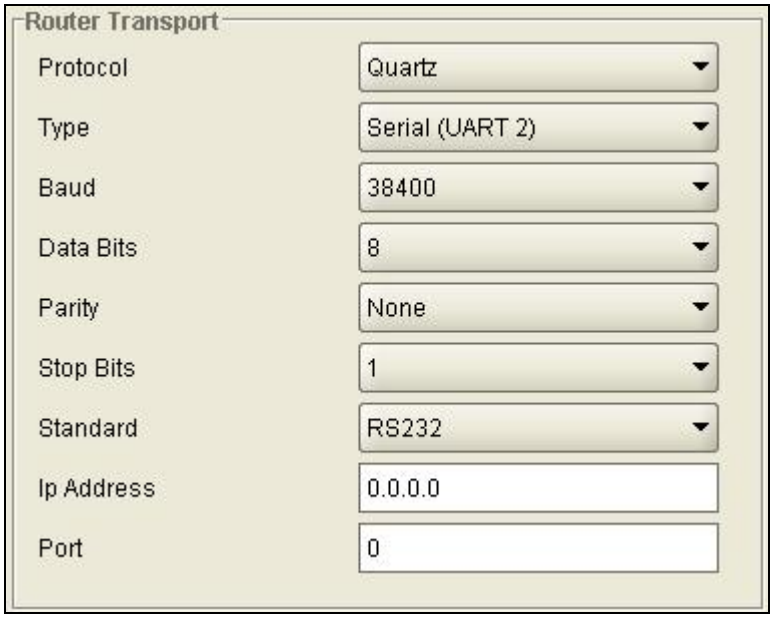


Figure 17-17: Evertz Router Transport Frame

Item	Notes
Protocol	Specifies the protocol to be used between the 7700R-SC-BRC and the router or EQX server. When communicating with a router this value is set to *Quartz*. When communicating with the EQX server this value is set to *Symphony*.
Type	Specifies the type of communication transport between the 7700R-SC-BRC and the Evertz router or EQX server. The Evertz router typically supports either serial or TCP communication types. The EQX server supports only TCP.
Baud	When the transport type is set to *Serial (UART 2)*, this field specifies the baud rate between the 7700R-SC-BRC and the Evertz router.
Data Bits	When the transport type is set to Serial *(UART 2)*, this field specifies the number of data bits between the 7700R-SC-BRC and the Evertz router.
Parity	When the transport type is set to *Serial (UART 2)*, this field specifies the parity between the 7700R-SC-BRC and the Evertz router.
Stop Bits	When the transport type is set to Serial *(UART 2)*, this field specifies the number of stop bits between the 7700R-SC-BRC and the Evertz router.
Standard	When the transport type is set to Serial *(UART 2)*, this field specifies the serial standard between the 7700R-SC-BRC and the Evertz router.
Ip Address	When the transport type is set to *TCP*, this field specifies the IP address of the Evertz router or EQX server.
Port	When the transport type is set to *TCP*, this field specifies on which port the Evertz router or EQX server will listen for incoming TCP connection requests from the 7700R-SC-BRC. When using the *Symphony* protocol the EQX server listens on port *9750*.

Table 17-13: Evertz Router Transport Frame Parameters

17.5.3. Evertz Router Configuration Frame

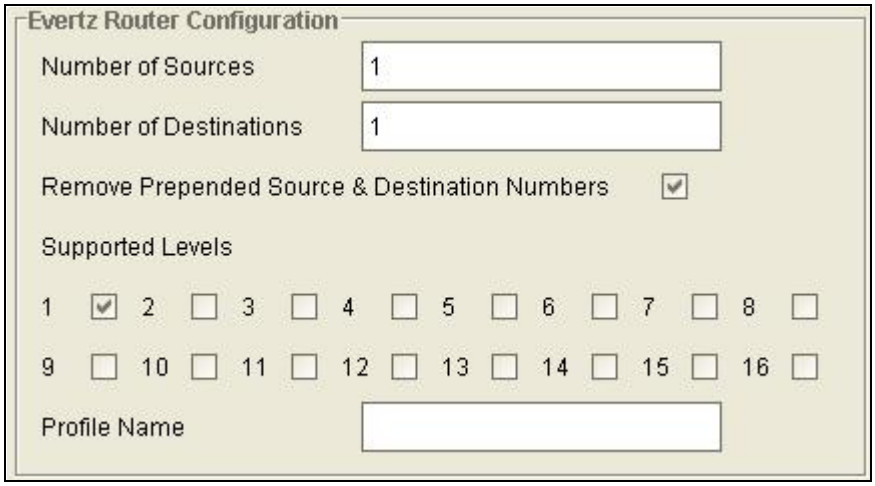


Figure 17-18: Evertz Router Configuration Frame

Item	Notes
Number of Sources	Specifies the number of sources configured on the Evertz router. This field has no significance when communicating with the EQX server.
Number of Destinations	Specifies the number of destinations configured on the Evertz router. This field has no significance when communicating with the EQX server.
Remove Prepended Source & Destination Numbers	Some Evertz equipment, for instance the SC-1000, can prepend a number (for instance '001,') to a source or destination's name. If this box is checked then the 7700R-SC-BRC will remove this number. This field has no significance when communicating with the EQX server.
Supported Levels	Boxes that are checked represent the level(s) supported by the router. This field has no significance when communicating with the EQX server.
Profile Name	When communicating with the EQX server this field represents the profile to be used by the 7700R-SC-BRC. This field has no significance when communicating with a router using the Quartz protocol.

Table 17-14: Evertz Router Configuration Frame Parameters

17.5.4. Control Transport Frame

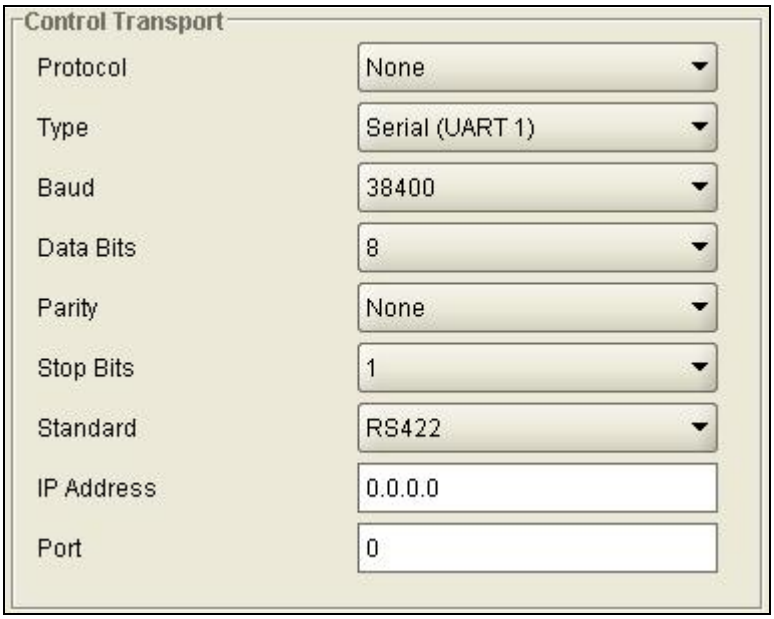


Figure 17-19: Control Transport Frame

Item	Notes
Protocol	Specifies the protocol of the third-party control device. The protocol *None* should be used when no third-party control device is connected to the 7700R-SC-BRC.
Type	Specifies the type of transport that carries the third-party control device protocol.
Baud	When the transport type is set to *Serial (UART 1)*, this field specifies the baud rate between the 7700R-SC-BRC and the third-party control device.
Data Bits	When the transport type is set to Serial *(UART 1)*, this field specifies the number of data bits between the 7700R-SC-BRC and the third-party control device.
Parity	When the transport type is set to *Serial (UART 1)*, this field specifies the parity between the 7700R-SC-BRC and the third-party control device.
Stop Bits	When the transport type is set to Serial *(UART 1)*, this field specifies the number of stop bits between the 7700R-SC-BRC and the third-party control device.
Standard	When the transport type is set to Serial *(UART 1)*, this field specifies the serial standard between the 7700R-SC-BRC and the third-party control device.
IP Address	The field specifies the IP address of the third-party control device when the 7700R-SC-BRC is required to connect to the third-party control device. When the 7700R-SC-BRC is required to listen for incoming connection requests then this field can be set to *0.0.0.0*.
Port	When the transport type is set to *TCP*, this field specifies: • On which port the 7700R-SC-BRC will listen for incoming TCP connection requests from the third-party control device. • The port the 7700R-SC-BRC will use for outgoing TCP connection requests to the third-party control device. ROT16 devices typically use port 8004.

Table 17-15: Control Transport Frame Parameters

17.5.5. CPU Link No. 1 Configuration Frame

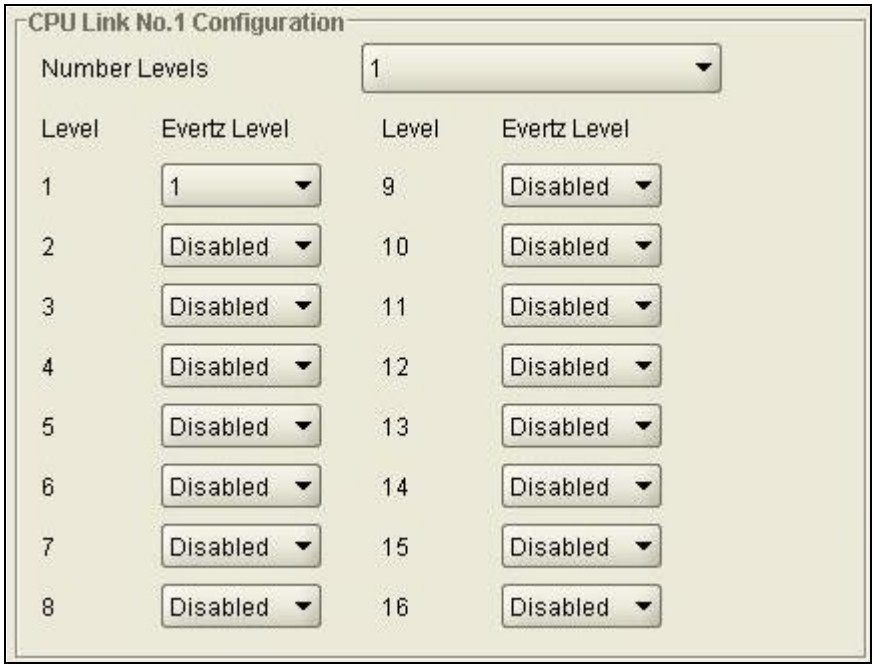


Figure 17-20: CPU Link No. 1 Configuration Frame

Item	Notes
Number Levels	Specifies the number of CPU Link Protocol No. 1 supported by the 7700R-SC-BRC. This value, typically set to 1, should match the number of levels on the Evertz router or EQX server the third-party control device is to control.
Evertz Level	Specifies the association between an Evertz level and a CPU Link No. 1 level. Figure 17-20 shows Evertz level 1 associated with CPU Link No. 1 level 1.

Table 17-16: CPU Link No. 1 Configuration Frame Parameters

17.5.6. EScontrol Configuration Frame

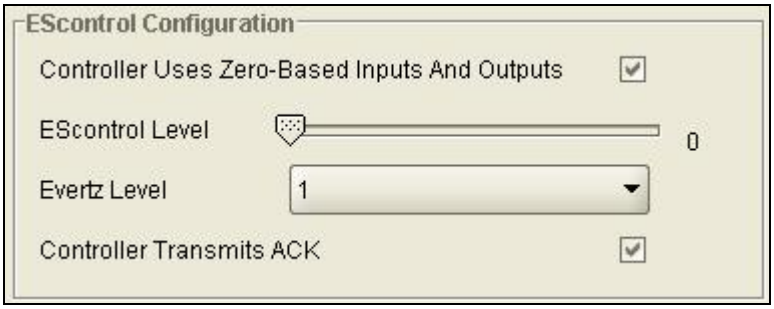


Figure 17-21: EScontrol Configuration Frame

Item	Notes
Controller Uses Zero-Based Inputs and Outputs	When checked, specifies that the EScontrol-based controller/router, from a protocol perspective, uses 0-based inputs and outputs. That is, the first input is 0 and the first output is 0. When not checked, specifies 1-based inputs and outputs. That is, the first input is 1 and the first output is 1.
EScontrol Level	Specifies the level used by the EScontrol-based controller/router.
Evertz Level	Specifies the Evertz level associated with the EScontrol level.
Controller Transmits ACK	For normal operation this field should be checked.

Table 17-17: EScontrol Configuration Frame Parameters

17.5.7. ROT16 Configuration Frame

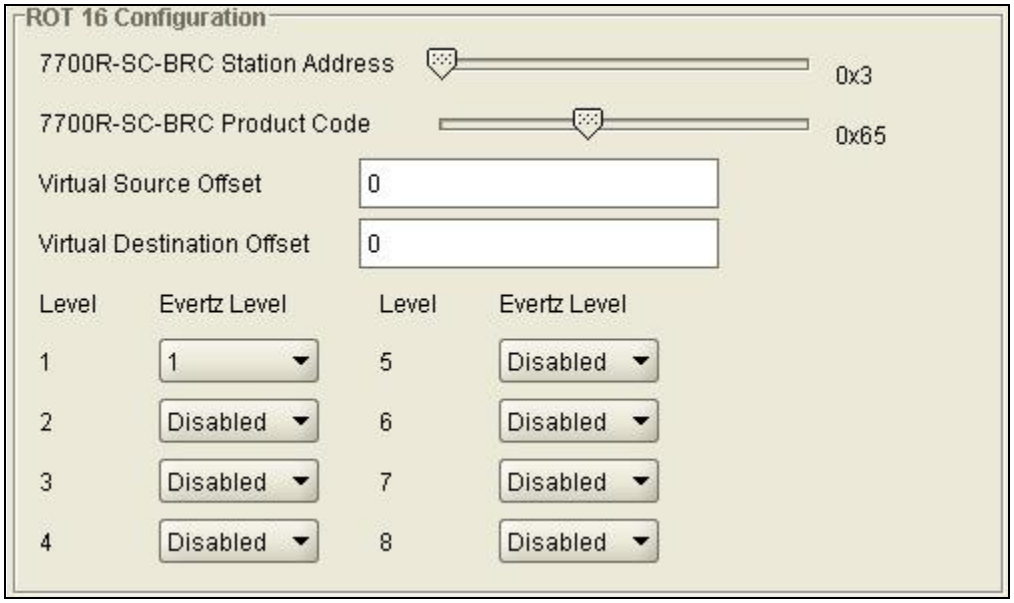


Figure 17-22: ROT16 Configuration Frame

Item	Notes
7700R-SC-BRC Station Address	The switcher/controller will be configured to be aware of the Evertz router/EQX server over which it will have control. As such, the switcher/controller will assign a SBUS hexadecimal station address to the Evertz router/EQX server. This field must match that address.
7700R-SC-BRC Product Code	Specifies the hexadecimal product code assigned by the switcher/controller to the Evertz router/EQX server.
Virtual Source Offset	The switcher has a router space which can accommodate a router with up to 1024 sources. Suppose sources 1 – 16 are to be associated with the Evertz router/EQX server. Switcher source 1 corresponds to Evertz router source 1. Thus, the virtual source offset would be set to 0. Suppose sources 21 – 36 are to be associated with the Evertz router/EQX server. Switcher source 21 corresponds to Evertz router source 1. Thus, the virtual source offset would be set to 20.
Virtual Destination Offset	The switcher has a router space which can accommodate a router with up to 1024 destinations. Suppose destinations 1 – 16 are to be associated with the Evertz router/EQX server. Switcher destination 1 corresponds to Evertz router destination 1. Thus, the virtual destination offset would be set to 0. Suppose destinations 21 – 36 are to be associated with the Evertz router/EQX server. Switcher destination 21 corresponds to Evertz router destination 1. Thus, the virtual destination offset would be set to 20.
Evertz Level	Specifies the association between an Evertz level and a ROT16 level. Figure 17-22 shows Evertz level 1 associated with ROT16 level 1.

Table 17-18: ROT16 Configuration Frame Parameters

17.5.8. RCL Configuration Frame

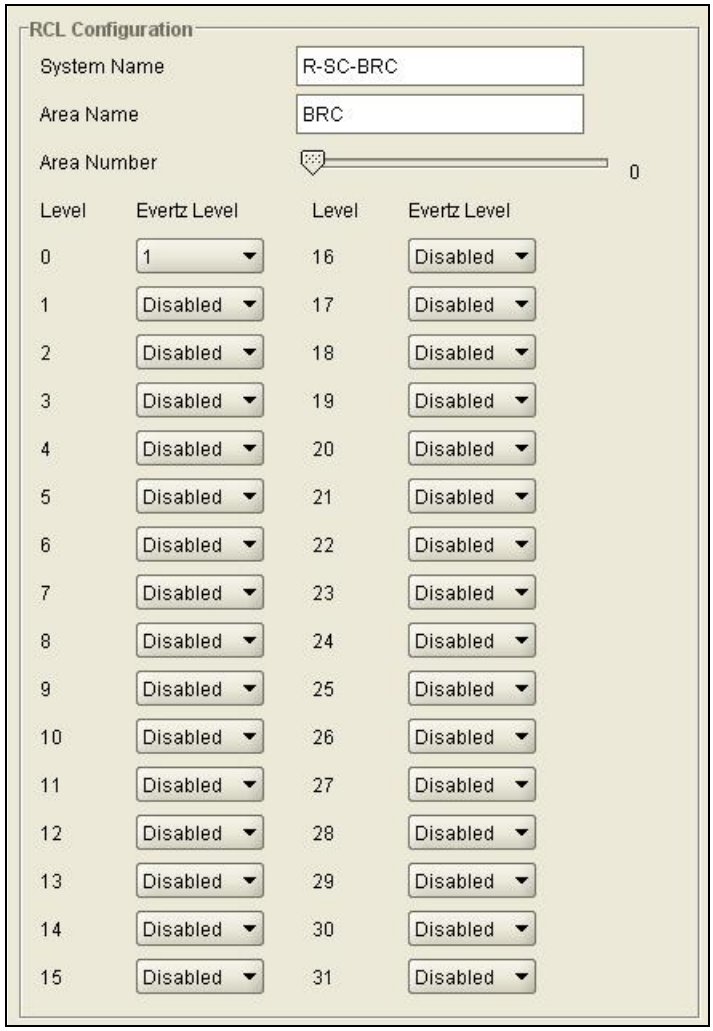


Figure 17-23: RCL Configuration Frame

Item	Notes
System Name	Assign a name to this RCL control system.
Area Name	Assign Area Name. Areas create hierarchies within the control system and make it easier to group sources and destinations in a large system. Once an area is defined the sources and destinations in the area can be identified using fully qualified names. A source or destination name is said to be fully qualified if it is prefixed by “area name:”
Area Number	Assign Area NumberName. 0 - 63. Areas create hierarchies within the control system and make it easier to group sources and destinations in a large system. Once an area is defined, the sources and destinations in the area can be identified using fully qualified indices. Source or destination indices need to be prefixed with “area index:” to make them fully qualified.
Evertz Level	Specifies the association between an Evertz level and a RCL level. Figure 17-23 shows Evertz level 1 associated with RCL level 0.

Table 17-19: RCL Configuration Frame Parameters

17.6. THIRD-PARTY CONTROL STATUS TAB

17.6.1. General Frame

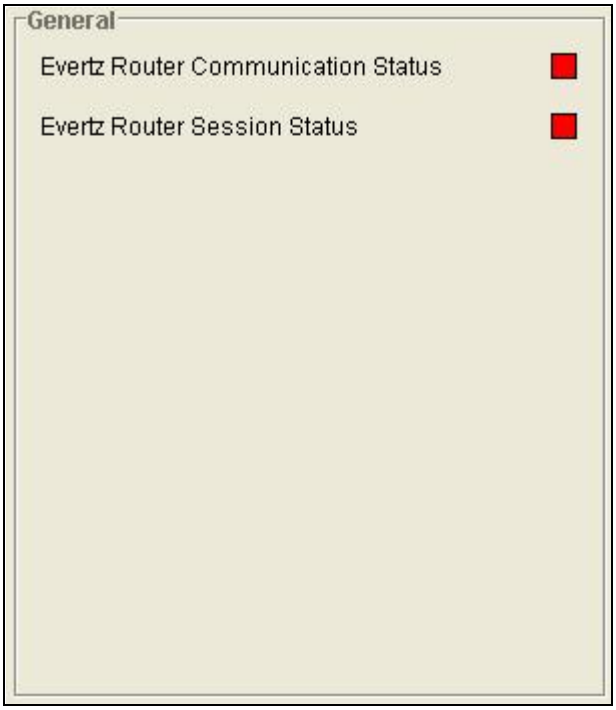


Figure 17-24: General Frame

Item	Notes
Evertz Router Communication Status	Green: The 7700R-SC-BRC is able to communicate with the Evertz router or EQX server. Red: The 7700R-SC-BRC is not able to communicate with the Evertz router or EQX server.
Evertz Router Session Status	Green: The 7700R-SC-BRC has established a session with the Evertz router or EQX server. The third-party control device can issue requests to the 7700R-SC-BRC. Red: The 7700R-SC-BRC has not established a session with the Evertz router or EQX server. The 7700R-SC-BRC will ignore requests sent by the third-party control device.

Table 17-20: General Frame Parameters

17.6.2. Evertz Router Sources Frame

Figure 17-25: Evertz Router Sources

Item	Notes
Number	Reports the number of Evertz router or EQX server sources.
Name	Reports the names of the automatically obtained Evertz router or EQX server sources.

Table 17-21: Evertz Router Frame Parameters

17.6.3. Evertz Router Destinations Frame

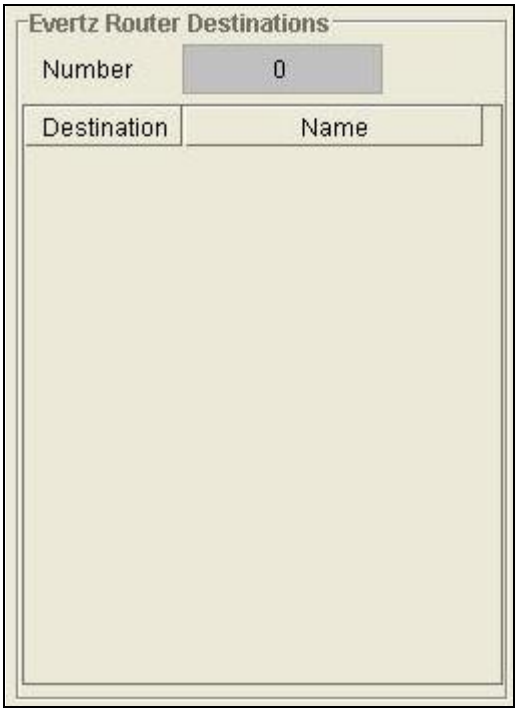


Figure 17-26: Evertz Router Destinations Frame

Item	Notes
Number	Reports the number of Evertz router or EQX server destinations.
Name	Reports the names of the automatically obtained Evertz router or EQX server destinations.

Table 17-22: Evertz Router Destinations Frame Parameters

17.6.4. Evertz Router Crosspoints Frame

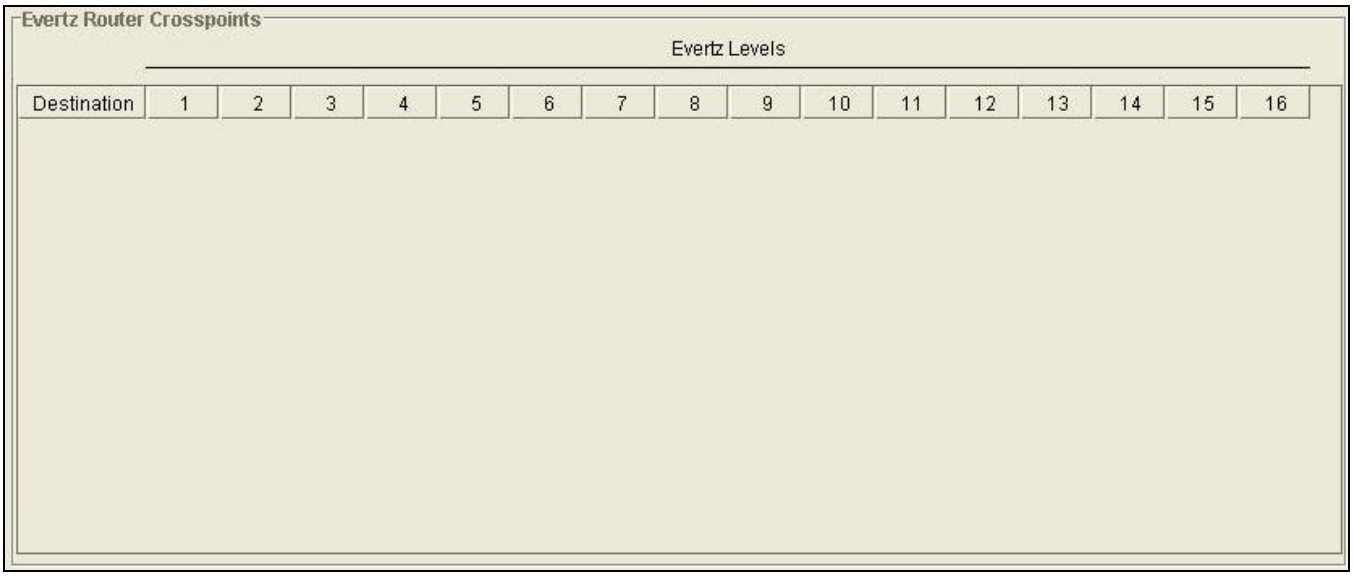
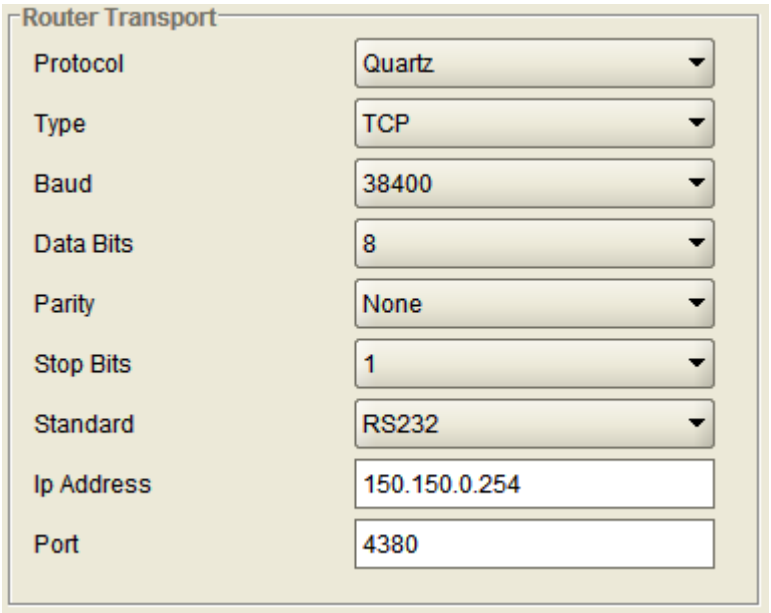


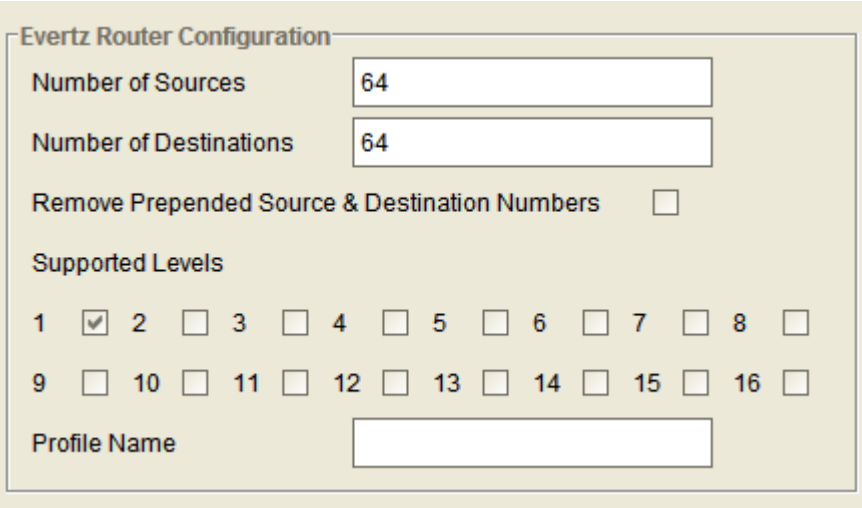
Figure 17-27: Evertz Router Crosspoints Frame

This frame reports the Evertz router or MAGNUM server crosspoint map. The source and destination numbers are presented 1-based.

18. MAGNUM SERVER SOURCES AND DESTINATIONS

The main 3rd Party Interface into MAGNUM is using the 7700R-SC-BRC using the Quartz protocol. Currently, there is no way for the 7700R-SC-BRC to automatically obtain the number of sources and destinations from the MAGNUM server's Quartz Interface. As such, they need to be set manually on the 7700R-SC-BRC. This is done by setting the number of inputs and outputs under the Third Party Control Configuration tab in Vistalink Pro for the 7700R-SC-BRC.





The number of source and the number of destinations must match what has been assigned to the Quartz Interface in MAGNUM. Refer to the Quartz Interface Configuration for 3rd Party Systems to review how to create this interface.

19. FIRMWARE UPGRADING THE 7700R-SC-BRC

19.1. FIRMWARE UPGRADE

There are two ways to upgrade the firmware of the 7700R-SC-BRC:

- Using FTP to perform the upgrade via TCP/IP. (*recommended procedure*)
- Using a terminal application such as *HyperTerminal* to perform the upgrade via a serial connection.

19.2. FTP

Suppose the 7700R-SC-BRC has IP address 192.168.18.54 and that firmware file fw.bin is located in c:\temp. Open a command prompt window (in Windows: *Start/Programs/Accessories/Command Prompt*) and enter the following commands:

1. ftp –A 192.168.18.54
2. cd [boot]
3. hash
4. put c:\temp\fw.bin
5. quote site reboot
6. bye

19.3. SERIAL

1. Power off the 7700R-SC-BRC.
2. Connect to the debug/upgrade port according to instructions of section 16.3.3.
3. Power on the 7700R-SC-BRC.
4. Hit *CTRL+X* to interrupt the boot cycle. The prompt *PPCBOOT>* will appear.
5. Enter the command *upload.*
6. Start the firmware upload on the terminal application (for instance, in *HyperTerminal* select *Transfer/Send File…*), use Xmodem as the transfer protocol, and select the firmware file. For example, *c:\temp\fw.bin.*
7. Once the upload is complete the message *upload okay* is displayed.
8. At the prompt *PPCBOOT>* enter *boot*.
9. Remove the serial adapter cable.

20. TROUBLESHOOTING

The best tool available to diagnose problems is the event log which can be viewed using VLPro. Refer to section 17.2. If event log does not prove sufficient, the menu system of the 7700R-SC-BRC provides statistics not available to VLPro which may be useful in diagnosing communication issues. Section 16.3.3 details how to access the menu system.

20.1. SERIAL COMMUNICATION

These statistics relate to the serial interfaces. To access these statistics:

1. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
2. Select *Serial interfaces*.
3. Select *Show statistics*.
4. Scroll up to the heading UART x where x represents the serial port number in which you have interest. For example, UART 1 corresponds to serial port 1.

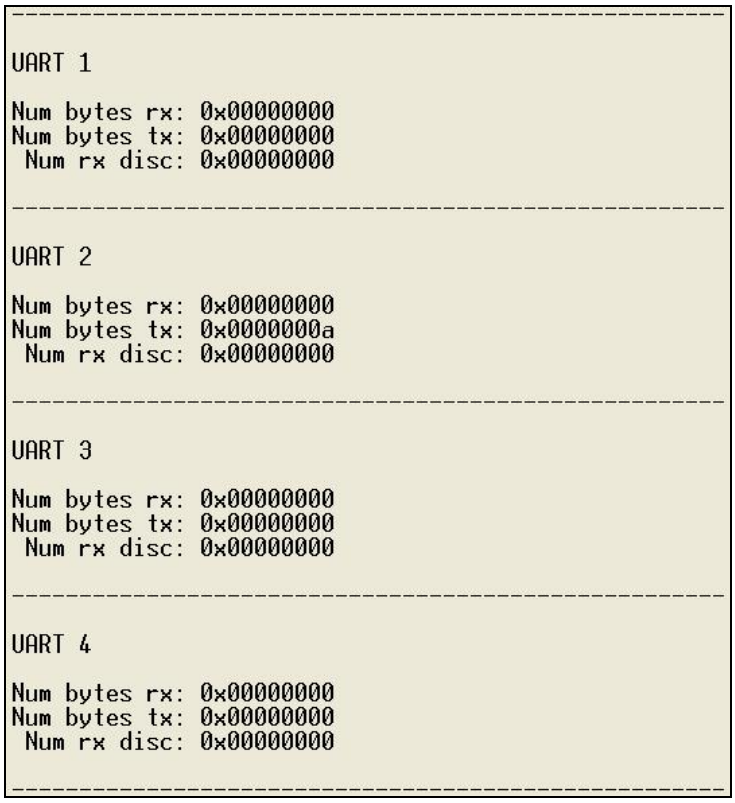


Figure 20-1: UART Statistics

Item	Notes
Num bytes rx	Reports, in hexadecimal, the number of bytes received by the 7700R-SC-BRC over the serial interface.
Num bytes tx	Reports, in hexadecimal, the number of bytes transmitted by the 7700R-SC-BRC over the serial interface.
Num rx disc	Reports, in hexadecimal, the number of bytes received and discarded by the 7700R-SC-BRC. This could happen if the connected device sends unsolicited data and the 7700R-SC-BRC is in the process of changing its configuration.

Table 20-1: UART Statistics

20.2. THIRD-PARTY ROUTER COMMUNICATION

These statistics pertain to communication with the third-party router. To access these statistics:

1. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
2. Select *Third-party router*.
3. Select *Show statistics*.

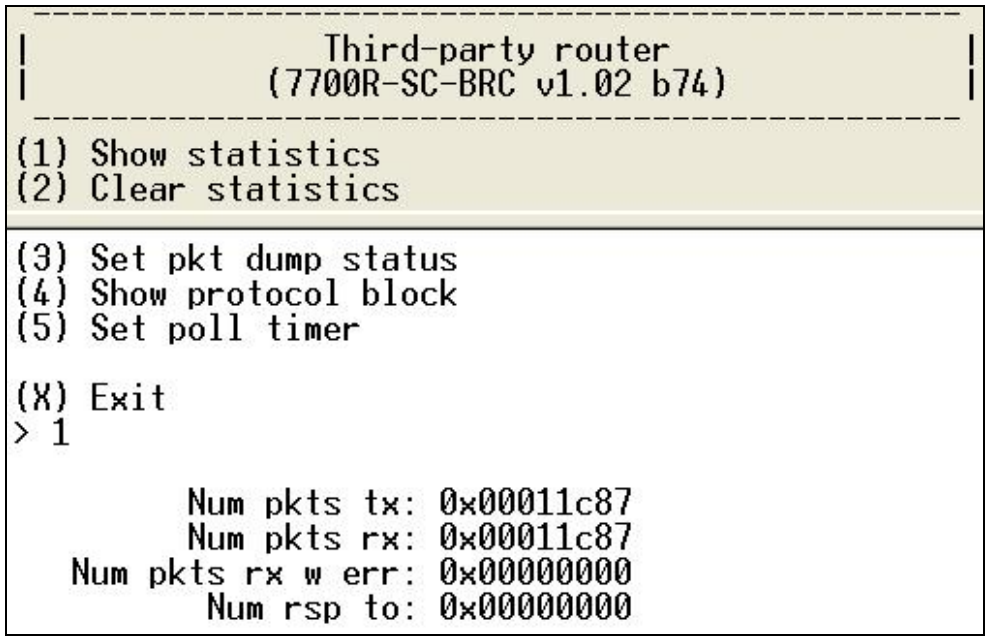


Figure 20-2: Third-Party Router Statistics

Item	Notes
Num pkts tx	Reports, in hexadecimal, the number of third-party router protocol packets transmitted by the 7700R-SC-BRC to the third-party router.
Num pkts rx	Reports, in hexadecimal, the number of error-free third-party router protocol packets received by the 7700R-SC-BRC.
Num pkts rx w err	Reports, in hexadecimal, the number of errored (for instance bad checksum) third-party router protocol packets received by the 7700R-SC-BRC.
Num rsp to	Reports, in hexadecimal, the number of instances the 7700R-SC-BRC timed-out waiting for a response from the third-party router.

Table 20-2: Third-Party Router Statistics

To view the data that is being sent between the 3rd Party device and the 7700R-SC-BRC

1. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
2. Select *Third-party router*.
3. Select *Set pkt dump status*
4. Select *Yes*

Once this debug mode is enabled all communication between the 3rd Party device and the 7700R-SC-BRC will be printed out into the HyperTerminal connection.

Selecting the same option again and selecting *No* will disable the protocol dump.

```
 ------------------------------------------------
|               Third-party router               |
|           (7700R-SC-BRC v1.08 b178)            |
 ------------------------------------------------
(1) Show statistics
(2) Clear statistics
(3) Set pkt dump status
(4) Show protocol block
(5) Set poll timer
(6) TPR lpr type
(7) Third-party router NV9000

(X) Exit
>
223.633::TPR dir: out index=22
000000: 00 00 00 0e 00 00 00 2f 00 00 00 1c 00 00 30 23   ......./......0#
000010: 00 00 02 02 00 00 00 01 00 00 20 00               .......... .

223.635::TPR dir: in  index=23
000000: 00 00 00 0e 00 00 00 2e 00 00 00 2c 80 00 30 22   ............,..0"
000010: 00 00 00 2f 00 00 02 02 00 00 00 01 00 00 20 00   .../.......... .
000020: 00 00 00 08 53 72 63 5f 30 30 30 31               ....Src_0001
```

20.3. MAGNUM SERVER (EVERTZ CONTROL) COMMUNICATION

For the purposes of Evertz control, the status of the MAGNUM server can be checked using the menu system. To access this information:

1. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
2. Select *EQX server*.
3. Select *Show info*.
4. Refer to the protocol handler x sections, where x = 1, 2, 3 or 4.

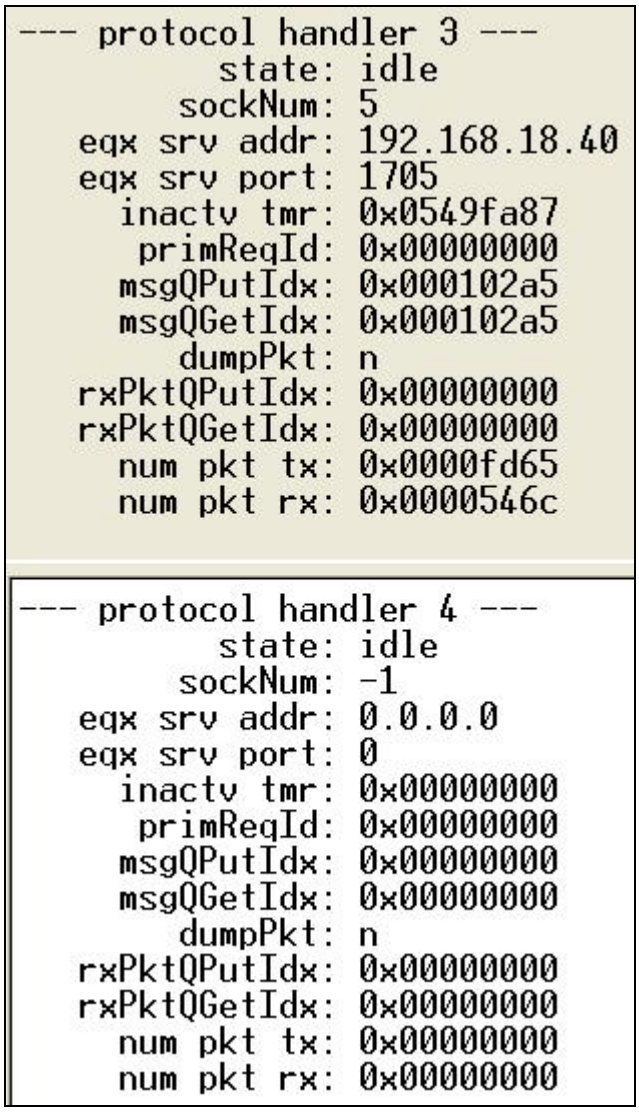


Figure 20-3: EQX Server Status

As an example, Figure 20-3 shows that protocol handler 3 of the 7700R-SC-BRC is communicating with an MAGUNM server with IP address 192.168.18.40, port 1705. Protocol handler 4 is free.

To view the data that is being sent between the 3rd Party device and the 7700R-SC-BRC

1. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
2. Select *EQX Server*
3. Select *Set pkt dump status*
4. Select *Yes*

Once this debug mode is enabled all communication between the EQX/MAGNUM Server and the 7700R-SC-BRC will be printed out into the HyperTerminal connection.

Selecting the same option again and selecting *No* will disable the protocol dump

20.4. EVERTZ ROUTER OR MAGNUM SERVER (THIRD-PARTY CONTROL) COMMUNICATION

These statistics pertain to communication with the Evertz router or MAGNUM server. To access these statistics:

1. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
2. Select *Evertz router*.
3. Select *Show statistics*.

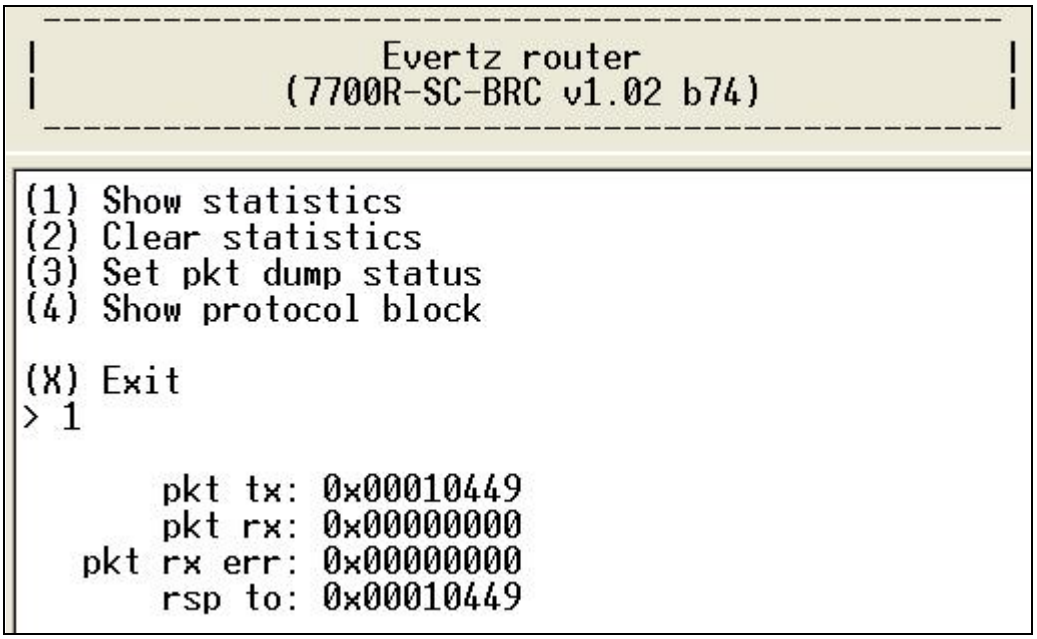


Figure 20-4: Evertz Router Statistics

Item	Notes
Num pkts tx	Reports, in hexadecimal, the number of protocol packets transmitted by the 7700R-SC-BRC to the third-party Evertz router or EQX server.
Num pkts rx	Reports, in hexadecimal, the number of error-free protocol packets received by the 7700R-SC-BRC.
Num pkts rx w err	Reports, in hexadecimal, the number of errored (for instance bad data) protocol packets received by the 7700R-SC-BRC.
Num rsp to	Reports, in hexadecimal, the number of instances the 7700R-SC-BRC timed-out waiting for a response from the Evertz router or EQX server.

Table 20-3: Evertz Router Statistics

20.5. THIRD-PARTY CONTROL DEVICE COMMUNICATION

These statistics pertain to communication with the third-party control device. To access these statistics:

5. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
6. Select *Third-party control*.
7. Select *Show statistics*.

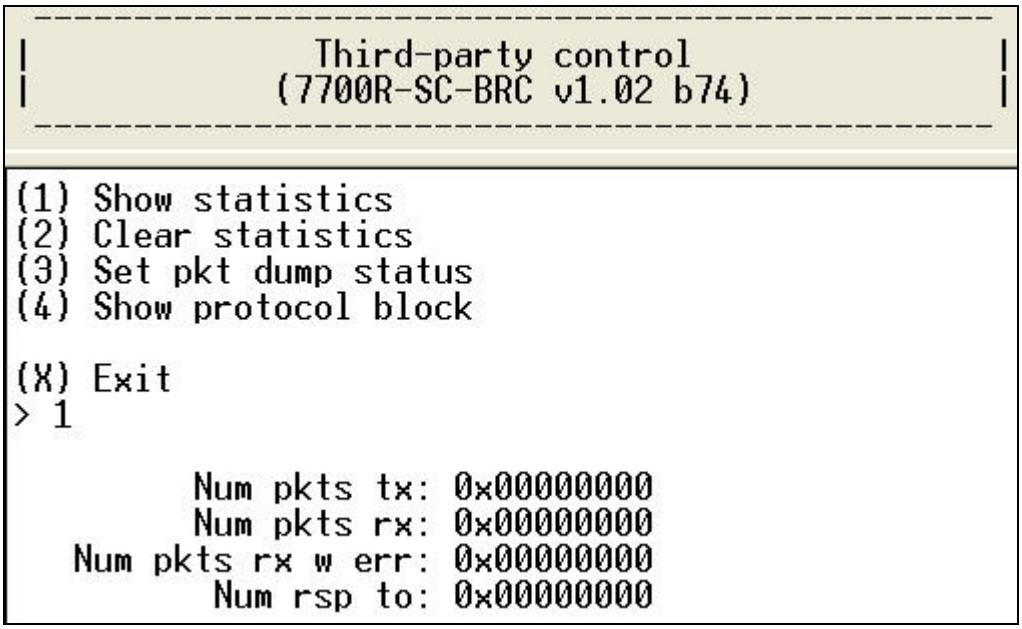


Figure 20-5: Third-Party Control Statistics

Item	Notes
Num pkts tx	Reports, in hexadecimal, the number of third-party control protocol packets transmitted by the 7700R-SC-BRC to the third-party control device.
Num pkts rx	Reports, in hexadecimal, the number of error-free third-party control protocol packets received by the 7700R-SC-BRC.
Num pkts rx w err	Reports, in hexadecimal, the number of errored (for instance bad checksum) third-party control protocol packets received by the 7700R-SC-BRC.
Num rsp to	Reports, in hexadecimal, the number of instances the 7700R-SC-BRC timed-out waiting for a response from the third-party control device.

Table 20-4: Third-Party Control Statistics

To view the data that is being sent between the 3rd Party device and the 7700R-SC-BRC

1. From the 7700R-SC-BRC's *Main Menu* select *Engineering/Debug*.
2. Select *Third-party Control*
3. Select *Set pkt dump status*
4. Select *Yes*

Once this debug mode is enabled all communication between the 3rd Party device and the 7700R-SC-BRC will be printed out into the HyperTerminal connection.

Selecting the same option again and selecting *No* will disable the protocol dump

21. MAGNUM TWEAKS

MAGNUM systems tweaks allow the user to specify 'tweaks', which modify the operations of the system. Tweaks are not set via any front-end UI, and are activated by modifying the *tweaks.cfg* file in your installation's current configuration directory (e.g. */opt/eqx-server/config.d/*). Access to the /opt/eqx-server/config.d/ is gained using WinSCP.

21.1. TWEAK CONFIGURATION FORMAT

A tweak file looks something like:

```
<config>
  <tweak name='tweak_name_goes_here' value='tweak_value_goes_here' />
</config>
```

A tweak file may contain multiple 'tweak' commands. (Note that tweaks are optional, and there may not be such a file in your installation if none have been enabled).

21.2. SUPPORTED TWEAKS

(Default values are bolded)

Tweak Name	Tweak Value(s)	Effect(s)	Supported Releases
allow_standby	1	The core will re-configure its drivers when becoming active/standby in case a driver does not support standby.	MAGNUM 1.0.0 and up
	0	The core will skip re-configuring drivers when becoming active/standby. Not compatible with systems where one or more devices only support a single connection.	
audio_group_size	**2**	Devices with audio channels have aliases generated in groups of 'audio_group_size'. A value of '2' indicates aliases are grouped in pairs (AES.1 and AES.2)	EQX Server 1.3.1 and up
	1	Audio aliases are all distinct, enabling mono routing (A 1.1, A 2.1, A 3.1, etc.)	
client_flood_ban_time	**100**	Number of seconds to ban clients that send too many requests in a short period of time. If set to 0, will not ban clients but will simply refuse requests that put the client over the flood threshold.	Magnum 1.0.0 and up
client_rate_threshold	**140**	Amount of 'points' a client can accumulate in 5 seconds (or twice the points a client can accumulate in 2 seconds) before they are banned.	Magnum 1.0.0 and up

Tweak Name	Tweak Value(s)	Effect(s)	Supported Releases
disconnect_on_reconfig	**''**	All Quartz interface clients will receive a {{{.P}}} message when configuration is changed.	EQX Server 2.2.0 and up. Negative option added starting in MAGNUM 1.0.0
	'port1,port2,..'	A list of quartz interface ports (numeric) on which clients will be disconnected when configuration is changed.	
	'-port1,...'	A negation sign in front a port indicates that *nothing* should happen on that port when configuration is changed.	
guess_virtual_source_tally	1	Tallies on r-link panels for a physical source not in that panel's profile, instead trigger a tally on any one matching virtual source alias in the panel's profile.	EQX Server 1.3.0 an up
	0	Tallies on r-link panels tally as blank if the initial source check fails.	
lock_disabled_tielines	1	Pantheos attempts to lock destinations on tielines that are disabled, as extra insurance, and to save disabled status across system restarts.	EQX Server 1.3.0 and up
	0	Tieline disabled status is stored only within one Pantheos system. It is not enforced on external systems via locking, and is lost on system restart.	
park_tielines	**''**	All Quartz interface clients will receive a {{{.P}}} message when configuration is changed.	Magnum 1.3.0 and up
	'RTR1,RTR2,..'	A list of crosspoint routers that will have destinations that are tieline heads routed to that router's 'tieline park port' when the tieline becomes unused.	
route_on_invalid_source	**skip**	If a route request has an invalid source name, do nothing to the destination in the route request.	EQX Server 2.1.0 and up.
	clear	If a route request has an invalid source name, clear the corresponding destination in the route request (this must be set if you want to enable passthrough routing on single-level sources, on some interfaces.	

Tweak Name	Tweak Value(s)	Effect(s)	Supported Releases
salvo_delay_interval	**5**	Salvos with more than 128 routes total, are divided into groups of 128, where each group is routed 'salvo_delay_interval' (in seconds) apart. This value can be any floating-point number >= 0	EQX Server 1.3.0 and up
serialize_device_commands	enable	Send device commands for a given route one at a time. Ie. wait for command response before executing the next one.	EQX Server 2.0.2 and up
	disable	Execute all device commands for a given route without waiting for responses.	
tieline_park_port	**1**	The port number of a 'clear' source on all routers that are used when parking or clearing tielines.	Magnum 1.3.0 and up

21.3. DEBUGGING AND LOGGING

21.4. MAIN MAGNUM PROCESSES

Systems	EQXPRI	System process
Process	zeus	Router Control Process (Device sync, status, route request handler and execution, lock, protects, etc)
Process	triton	Client interface process, manages all client requests (Quartz, Evertz Control Panels, Advanced Routes/Quick Routes Page)
Process	sshd	Remote client connections via SSH protocol
Process	rsyslogd	Logging service
Process	rlink	Single profile panel hosting and communication process with the exception of CP2272E and CP1024E
Process	panelcfg	Panel configuration transfer process for CP2272E and CP1024E panels
Process	nundina	Nameservice process which provides name updates to the Multiviewer system
Process	ntpd	Maintains system time in syncronization with time servers
Process	nginx	Web server service, hosts the Magnum Web Configuration Interface
Process	mysqld	MySQL service for backend storage of Magnum configuration
Process	heartbeat	Keep-alive service between primary and redundant servers
Process	eventd	Process that correlates events or responses to actions, used for the CP2272E buddy panels
Process	eqx-web	Magnum web configuration process
Process	config transfer	Magnum configuration transfers between primary and redundant servers
Process	asteroid	Dashboard update process for device status, routes, panel status, etc
File	schedule-file	Used with Magnum Scheduler to make routes at a pre-determined time (Not used)
File	rlink-config	Panel management configuration file for single profile panels with the exception of CP2272E and CP1024E
File	rlink-license	Rlink license file for virtual control panels for single profile panels with the exception of CP2272E and CP1024E
File	panelcfg-config	Panel management configuration file for CP2272E and CP1024E
File	nundina-cfg	Nameservice configuration file for interfacing with Multiviewers
File	nundina-named-cfg	Additional configuration options file for Nameservice when interfacing with Multiviewers or other devices that require names
File	eventd.ini	Configuration file for the Eventd process, used for the CP2272E buddy panels

21.5. MAIN MAGNUM LOG FILES

	Logs:	Level:	Description:
1	acpid	Linux OS	Advanced Configuration and Power Interface event daemon
2	asteroid	Evertz	Dashboard updater for Magnum dashboard
3	auth	Linux OS	Authentication Information
4	chronos	Evertz	All crosspoints and route updates from connected devices logging
5	config_transfer	Evertz	Configuration file transfer between Magnum Servers
6	daemon	Linux OS	Information on running system and application daemons
7	debug	Linux OS	Debug messages from the system and applications which log to syslogd at the debug level
8	dmesg	Linux OS	Contains messages from the kernel that were recorded during the boot process.
9	dpkg	Linux OS	Package installation logging
10	eqx-web	Evertz	Magnum Router Web Configuration Interface logging
11	error	Linux OS	Syslog error logging
12	kern	Linux OS	Kernel logging
13	localhost.access	Linux OS	
14	messages	Linux OS	System log file containing messages from system software, non-kernel boot issues, and messages that go to dmsg
15	mysql	Linux OS / Evertz	MySQL database logging
16	panelcfg	Evertz	Single profile panel configuration transfer logging
17	rlink	Evertz	Panel hoster for single profile panels with the exception of CP2272E and CP1024E
18	syslog	Linux OS	OS level syslog
19	triton	Evertz	Magnum Router client interface route and update message handler logging
20	user	Linux OS	User level syslog
21	zeus	Evertz	Router device level interface for device interaction (cross-points, device sync, locks, protects, device connection status) logging

21.6. MAGNUM SERVER CONFIGURATION SHELL

The server control tool enables the user to not only set up the MAGNUM server parameters but also debug certain issues. Launching the MAGNUM Server Configuration tool will reveal a number of operations that can be performed to assist in debugging certain issues.

To login to the MAGNUM Server Configuration Shell, the user will have to enter the following information when prompted by the debian server:

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

Figure 4-17 displays the main setup menu. You will use the arrow keys, tab, and enter keys to navigate through the MAGNUM Server Configuration Shell.

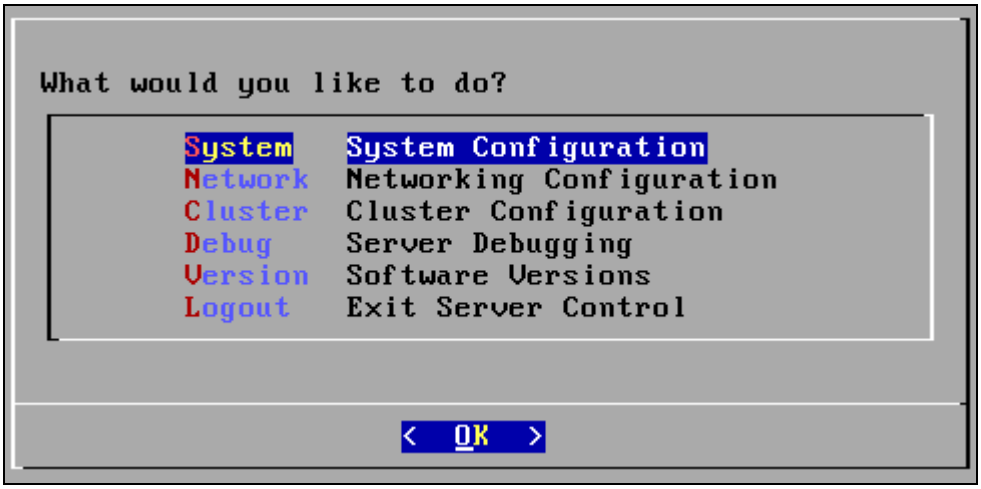


Figure 21-1: Main Server Control Menu

21.6.1. Server Debugging

The **Server Debugging** menu enables the user to view the server debugging features.

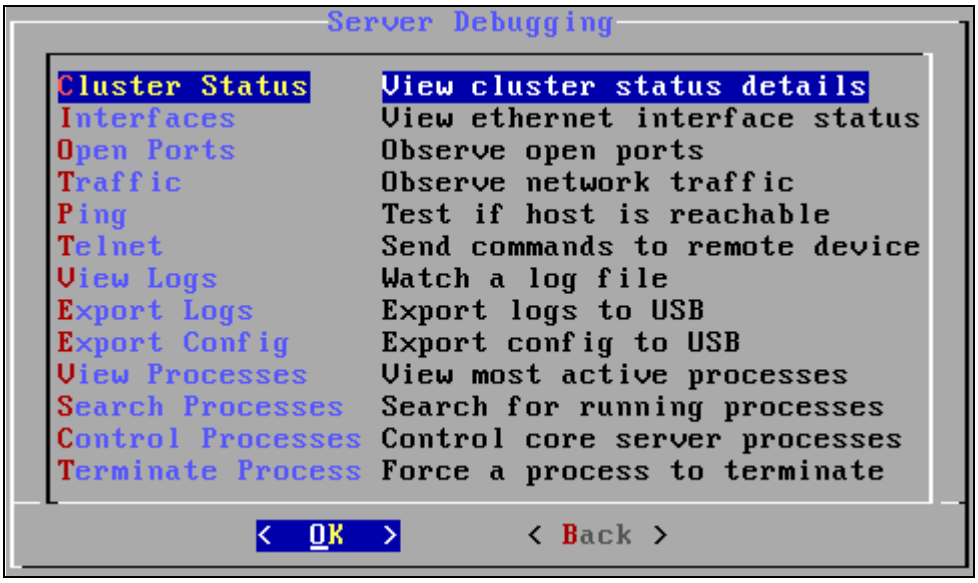


Figure 21-2: Server Debugging Main Screen

21.6.1.1. Viewing the Cluster Status

To view the cluster status, select the **Cluster Status** option from the Server Debugging menu. The **Cluster Status** window will display the details of all the elements in the cluster and whether or not the cluster is running properly, as shown in Figure 4-51. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

Figure 21-3: Cluster Status

21.6.1.2. Viewing the Ethernet Status

To view the status of the Ethernet connection, select the **Interface** option from the Server Debugging menu. The **Interface** window will display the details of the Ethernet interface status, as shown in Figure 21-4. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

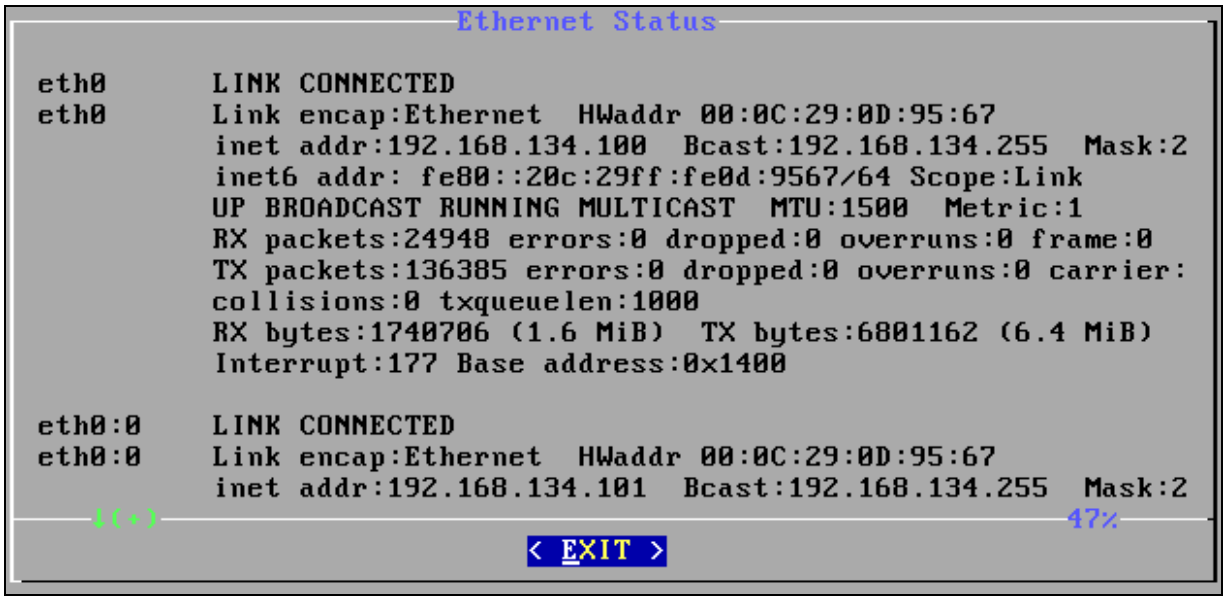


Figure 21-4: Ethernet Interface Status

21.6.1.3. Observing Open Ports

To observe the status of the open ports select the **Open Ports** menu item to display network connections, routing tables, and interface statistics. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

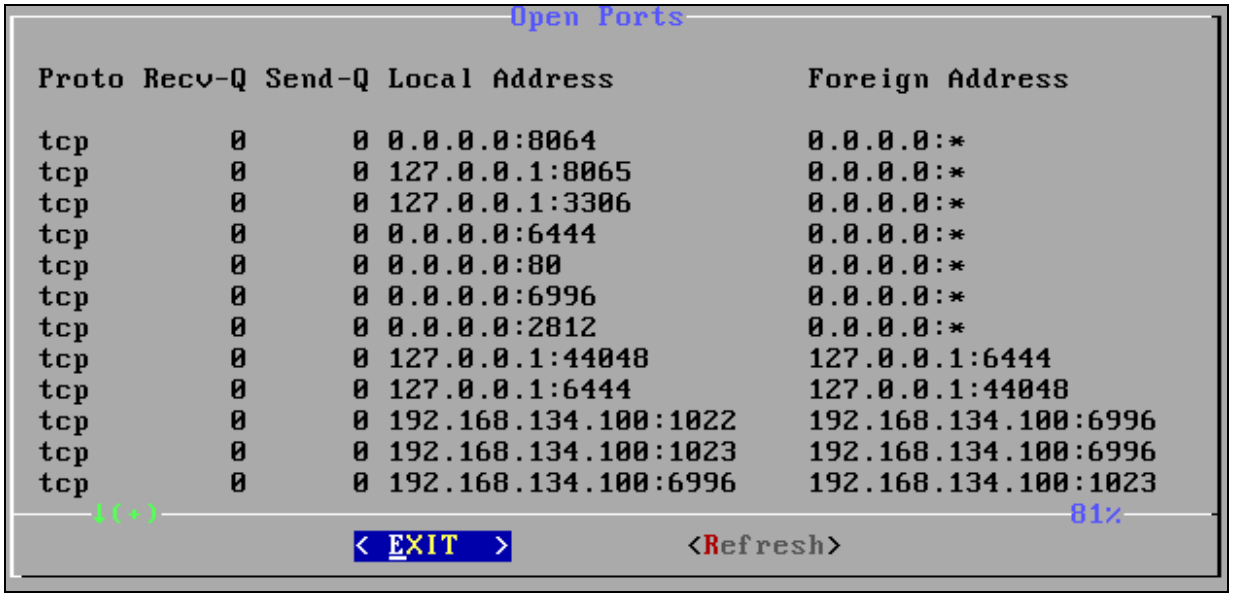


Figure 21-5: Observe Open Ports

21.6.2. TCPdump

Selecting the **TCPDUMP** menu item, as shown in Figure 21-6, enables the user to capture network traffic on a specific Ethernet interface to USB. To exit the **TCPDUMP** capture screen press the '**ctrl+c**' key on your keyboard to stop the capture and save it to USB.

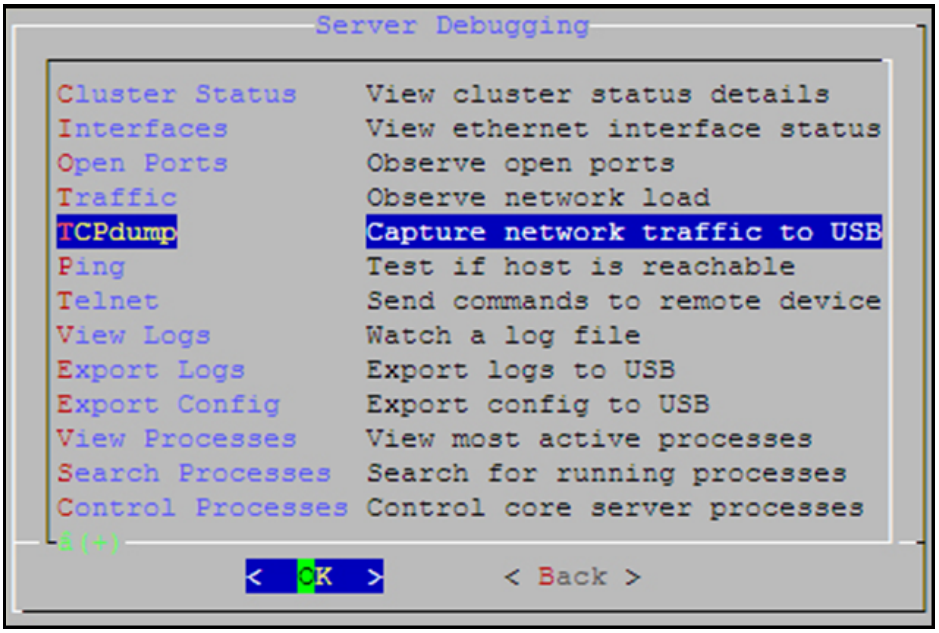


Figure 21-6: TCPdump

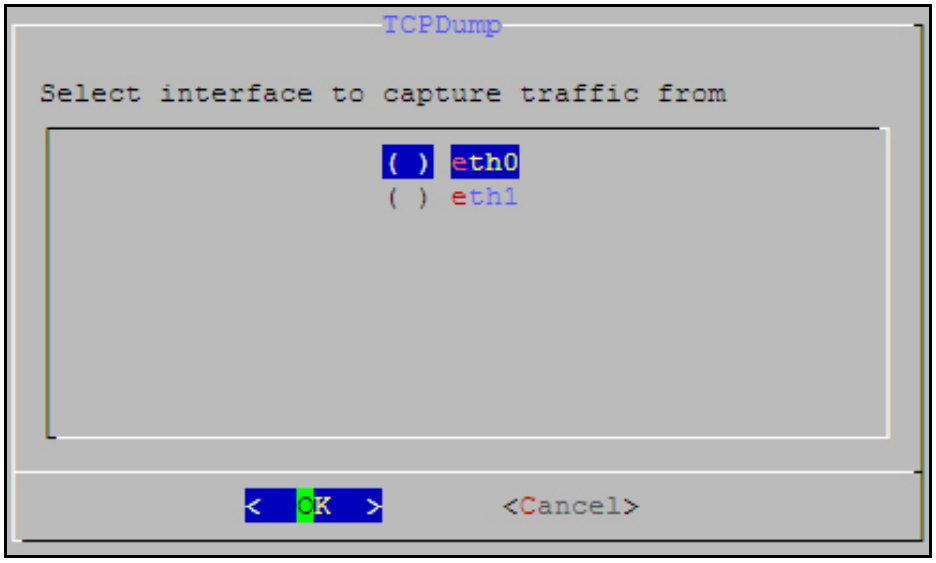


Figure 21-7: Select Interface to Capture Traffic From

21.6.3. Observing Network Traffic

Selecting the **Traffic** menu item enables the user to view the network traffic on a specific Ethernet interface, as shown in Figure 21-8. To exit the **Network Traffic** screen press the '**q**' key on your keyboard to quit the screen.

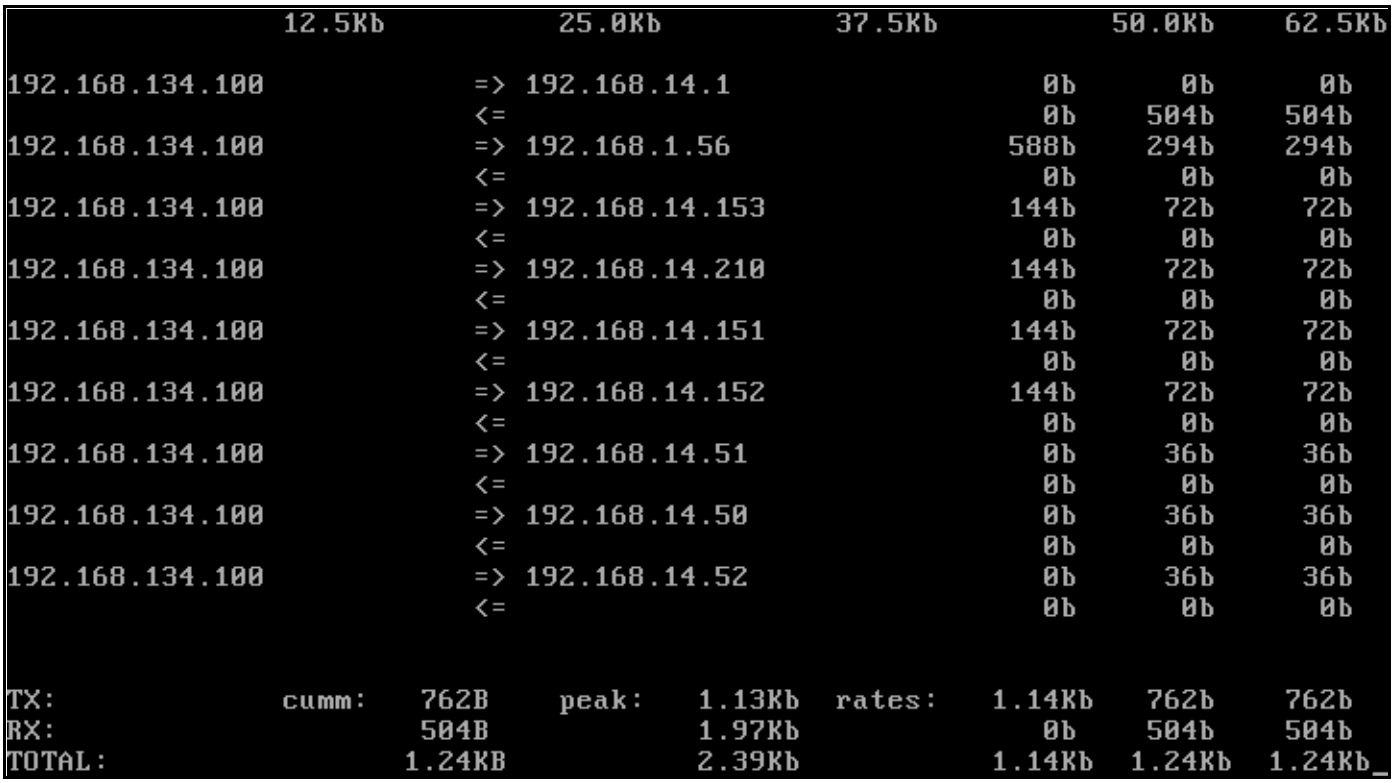


Figure 21-8: Observing Network Traffic

21.6.4. Test if the Host is Reachable

Select the **Ping** menu item to test if devices on the network are reachable. When the **Ping** option is selected the **Ping Host** field will appear. Enter the host name or IP address into the "Enter host name or IP address" field.

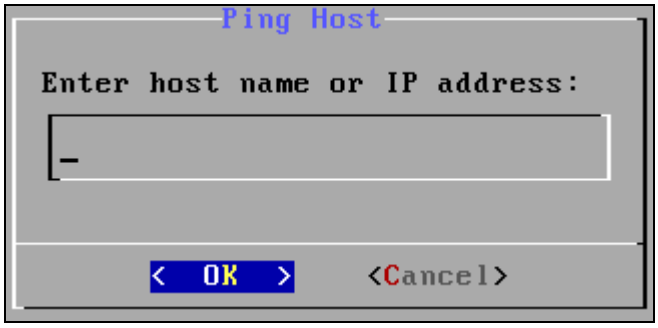


Figure 21-9: Ping Host Dialog Box

21.6.5. Send Commands to Remote Machine

Select the **Telnet** menu item to test if devices on the network support a telnet connection. When the **Telnet** option is selected the **Telnet** field will appear as shown in Figure 21-10. Enter the host name or IP address into the “Enter host name or IP address” field.

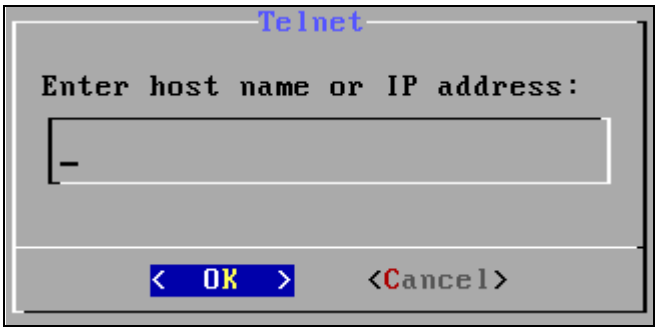


Figure 21-10: Telnet Dialog Box

21.6.6. Watch a Log File

Selecting the **View Logs** menu option will allow the user to view log files in real time. The **Watch Logfiles** dialog box will appear enabling the user to toggle through the log files. Toggle to the desired log file and select it by highlighting the file in the list and pressing the **OK** button.

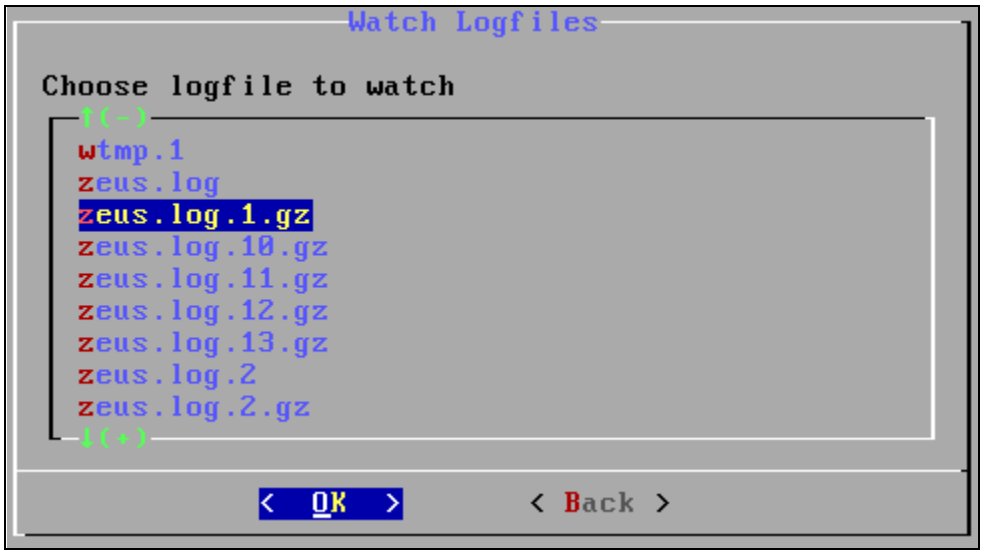


Figure 21-11: Watch Logs Dialog Box

Once the log file is selected, the corresponding information will be displayed as shown in Figure 21-12. To exit the **logfile** screen press the ‘**q’** key on your keyboard to quit the screen.

```
Oct 27 14:01:01 debian zeus: INFO:pantheos.zeus:Version 1.4.0rc53
Oct 27 14:01:01 debian zeus: INFO:license:System ID = 1718666178
Oct 27 14:01:01 debian zeus: INFO:license:License is not correct
Oct 27 14:01:01 debian zeus: ERROR:pantheos.zeus:License not valid for this syst
em! Going into standby..
Oct 27 14:01:01 debian zeus: INFO:pantheos.zeus:loading configuration from /opt/
eqx-server/config.d
Oct 27 14:01:01 debian zeus: DEBUG:pantheos.zeus:Tweak enabled: virtual_destinat
ion_availability -> all
Oct 27 14:01:01 debian zeus: DEBUG:pantheos.zeus:Tweak enabled: guess_virtual_so
urce_tally -> 1
Oct 27 14:01:01 debian zeus: WARNING:pantheos.zeus:Tweak 'salvo_delay_interval'
not recognized - it will have no effect.
Oct 27 14:01:01 debian zeus: INFO:pantheos.zeus:initializing internal structures
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating crosspoint dev
ice 'EQX'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating destination mo
nitor device 'EQX.MON'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating multipoint dev
ice 'ADMX'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating avip device 'E
QX.AVIP.9'
Oct 27 14:01:02 debian zeus: DEBUG:pantheos.leto.devices:Creating avip device 'E
QX.AVIP.10'
[Shift-F] to follow / [Q] to quit_
```

Figure 21-12: Viewing Logs Dialog Box

21.6.7. Export Logs

Selecting the **Export Logs** menu option will allow the user to export logs to USB. When this option is selected, the user will be required to enter the password in order to export the log files. This is a Low level operation, Webconfig interface allows for an easy method of exporting logs from the active server. The following dialog box will prompt the user to enter a password:

Figure 21-13: Enter Password to Export Logfiles

Once a password is entered the user will be required to connect a USB device to which the log files will be exported to.

21.6.8. Export the Configuration

Selecting the **Export Config** menu option will allow the user to export the configuration to USB. When this option is selected, the user will be required to enter the password in order to export the configuration. This is a Low Level operation, Webconfig interface allows for an easy method of exporting the configuration from the active server. The following dialog box will prompt the user to enter a password:

Figure 21-14: Enter Password to Export the Configuration

Once a password is entered the user will be required to connect a USB device to which the log files will be exported to.

21.6.9. Viewing Server Process Details

Selecting the **View Processes** menu item enables the user to view the server process details. When this option is selected, the user will be prompted to enter a password.

Figure 21-15: Enter Password to View Processes

Once the password is entered, the processes information will be displayed as similarly shown in Figure 21-16. To exit the **Server Process** screen press the '**q**' key on your keyboard to quit the screen.

```
top - 11:39:17 up 21:38,  1 user,  load average: 0.00, 0.01, 0.00
Tasks:  51 total,   1 running,  50 sleeping,   0 stopped,   0 zombie
Cpu(s):  0.0%us,  0.7%sy,  0.0%ni, 99.3%id,  0.0%wa,  0.0%hi,  0.0%si,  0.0%st
Mem:    516864k total,   505800k used,    11064k free,   112604k buffers
Swap:   409616k total,        0k used,   409616k free,    81624k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 3812 admin     18   0  2228 1104  860 R  0.7  0.2   0:00.03 top
    1 root      15   0  1948  644  548 S  0.0  0.1   0:00.91 init
    2 root      RT   0     0    0    0 S  0.0  0.0   0:00.00 migration/0
    3 root      34  19     0    0    0 S  0.0  0.0   0:00.00 ksoftirqd/0
    4 root      10  -5     0    0    0 S  0.0  0.0   0:00.16 events/0
    5 root      10  -5     0    0    0 S  0.0  0.0   0:00.00 khelper
    6 root      10  -5     0    0    0 S  0.0  0.0   0:00.00 kthread
    9 root      10  -5     0    0    0 S  0.0  0.0   0:00.10 kblockd/0
   10 root      20  -5     0    0    0 S  0.0  0.0   0:00.00 kacpid
   66 root      10  -5     0    0    0 S  0.0  0.0   0:00.00 kseriod
  102 root      25   0     0    0    0 S  0.0  0.0   0:00.00 pdflush
  103 root      15   0     0    0    0 S  0.0  0.0   0:00.33 pdflush
  104 root      10  -5     0    0    0 S  0.0  0.0   0:00.08 kswapd0
  105 root      20  -5     0    0    0 S  0.0  0.0   0:00.00 aio/0
  636 root      11  -5     0    0    0 S  0.0  0.0   0:00.00 scsi_eh_0
  881 root      10  -5     0    0    0 S  0.0  0.0   0:01.96 kjournald
 1038 root      21  -4  2180  592  352 S  0.0  0.1   0:00.28 udevd
 1312 root      15  -5     0    0    0 S  0.0  0.0   0:00.00 kpsmoused
```

Figure 21-16: Server Processes Page

21.6.10. Search for Running Processes

Selecting the **Search Processes** menu item enables the user to search for the running processes. When this option is selected, the user will be prompted to enter a password in the **Search Processes** dialog box.

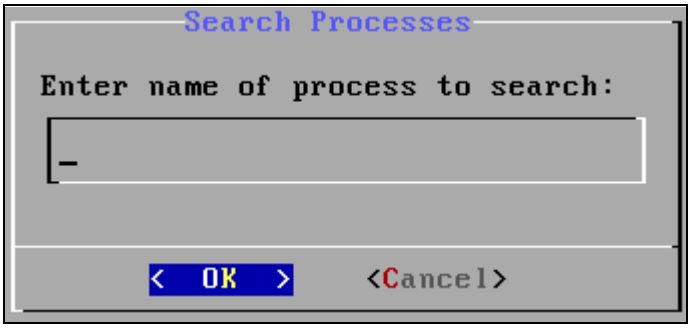


Figure 21-17: Enter Password for Search Processes

Once the password is entered, a list of processes will appear (as shown in Figure 21-18) enabling the user to view the running processes returned by the search. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

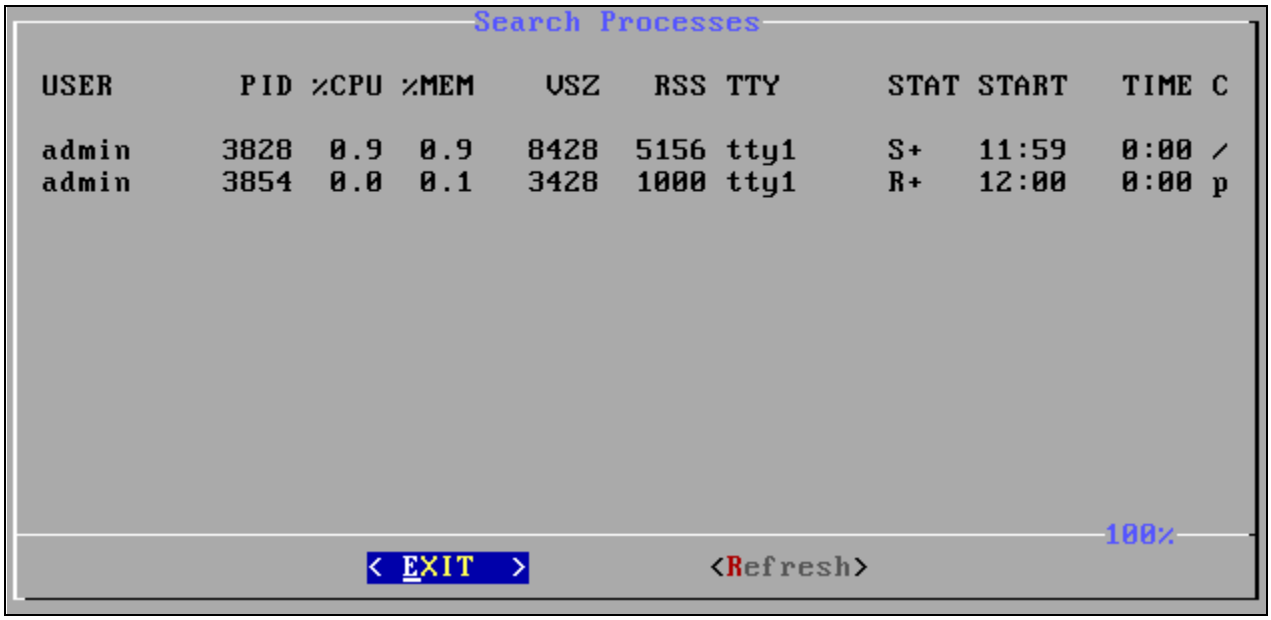


Figure 21-18: Search Processes

21.6.11. Control Server Process

Selecting the **Control Processes** menu item enables the user to control core server processes. The Control Process screen will appear. The user can toggle through the various control processes to view the specific process details or stop the process from running.

This should only be used with the support of Evertz Technical personnel.

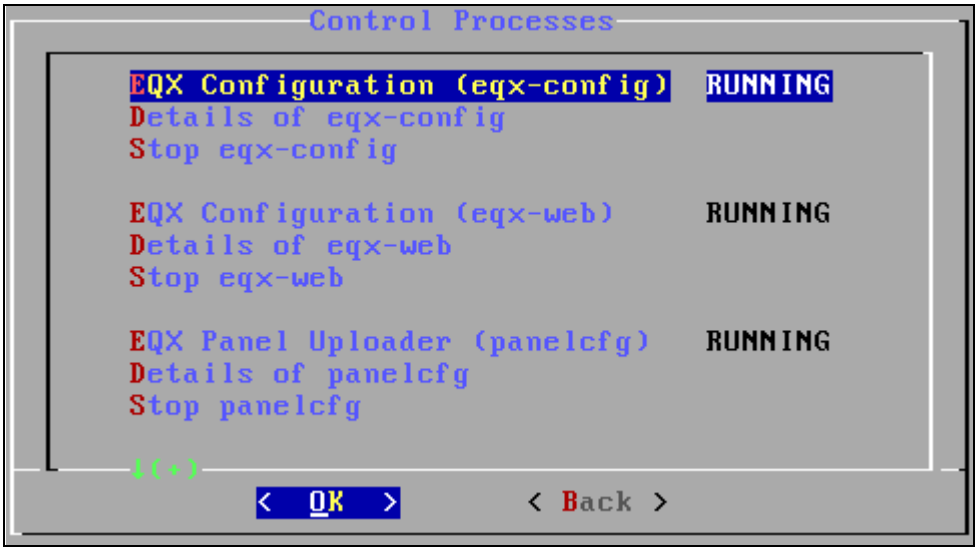


Figure 21-19: Control Processes

To view the process details, toggle to the *details* menu item for the desired process and select **OK**. A screen similar to the one in Figure 21-20 will appear allowing the user to view the process details. To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

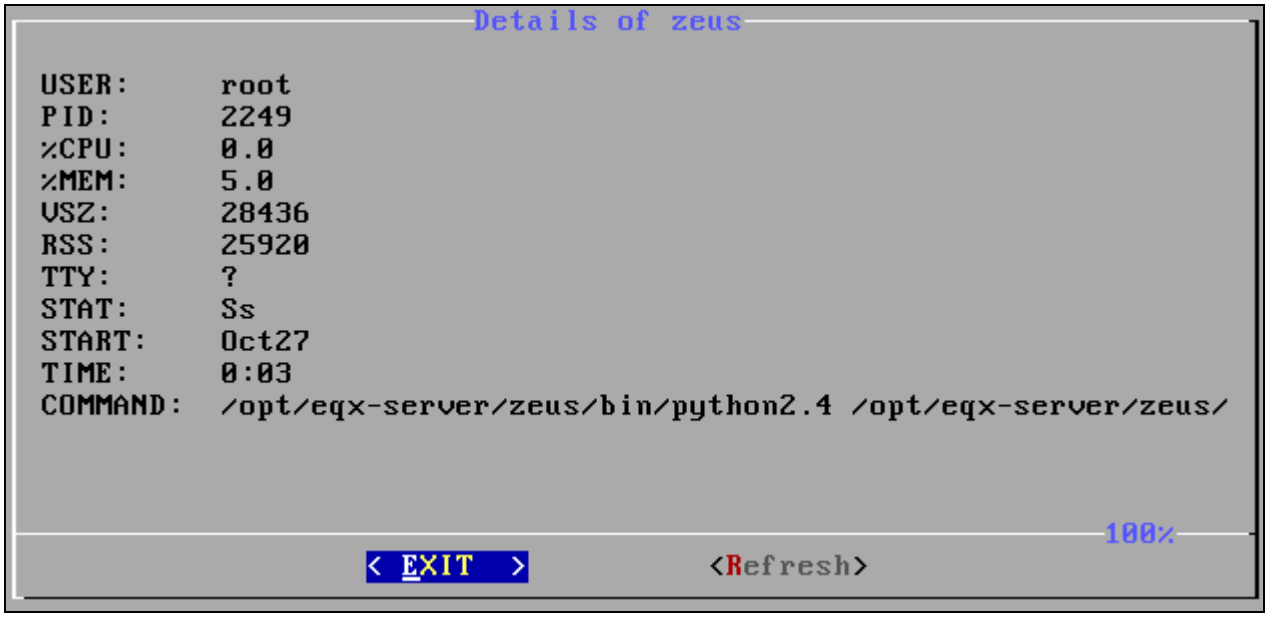


Figure 21-20: Details of Process

To stop a process, use the up and down arrows on your keyboard to toggle to the process that you wish to stop, and then select the **OK** button when you have selected the *stop* function for that process. For example, if you wish to stop the **Panel Uploader (panelcfg)** process, toggle to the ***Stop panelcfg*** item and select the **OK** button. The *Panel Uploader* process will be stopped.

21.6.12. Terminate Process

Selecting the **Terminate Process** menu item enables the user to force a process to terminate. Upon selecting this option a *Terminate Process* screen will appear.

This should only be used with the support of Evertz Technical personnel.

To return to the main **Server Debugging** screen toggle to the **Exit** option and press <enter>.

Figure 21-21: Terminate Process

21.6.13. MAGNUM MONIT Web page

The MONIT system is used by MAGNUM to monitor the status of the MAGNUM Processes. The state and health of these processes can be viewed using a Web Browser. To access the MONIT page, launch a Web Browser and enter the IP address of the MAGNUM Server you want to view. The port number 2812 must be appended to the IP address in the URL to access the MONIT page.

Example:
192.168.159.100:2812.

Authentication is required to access the MONIT page. The default username and password is “admin” and “admin”

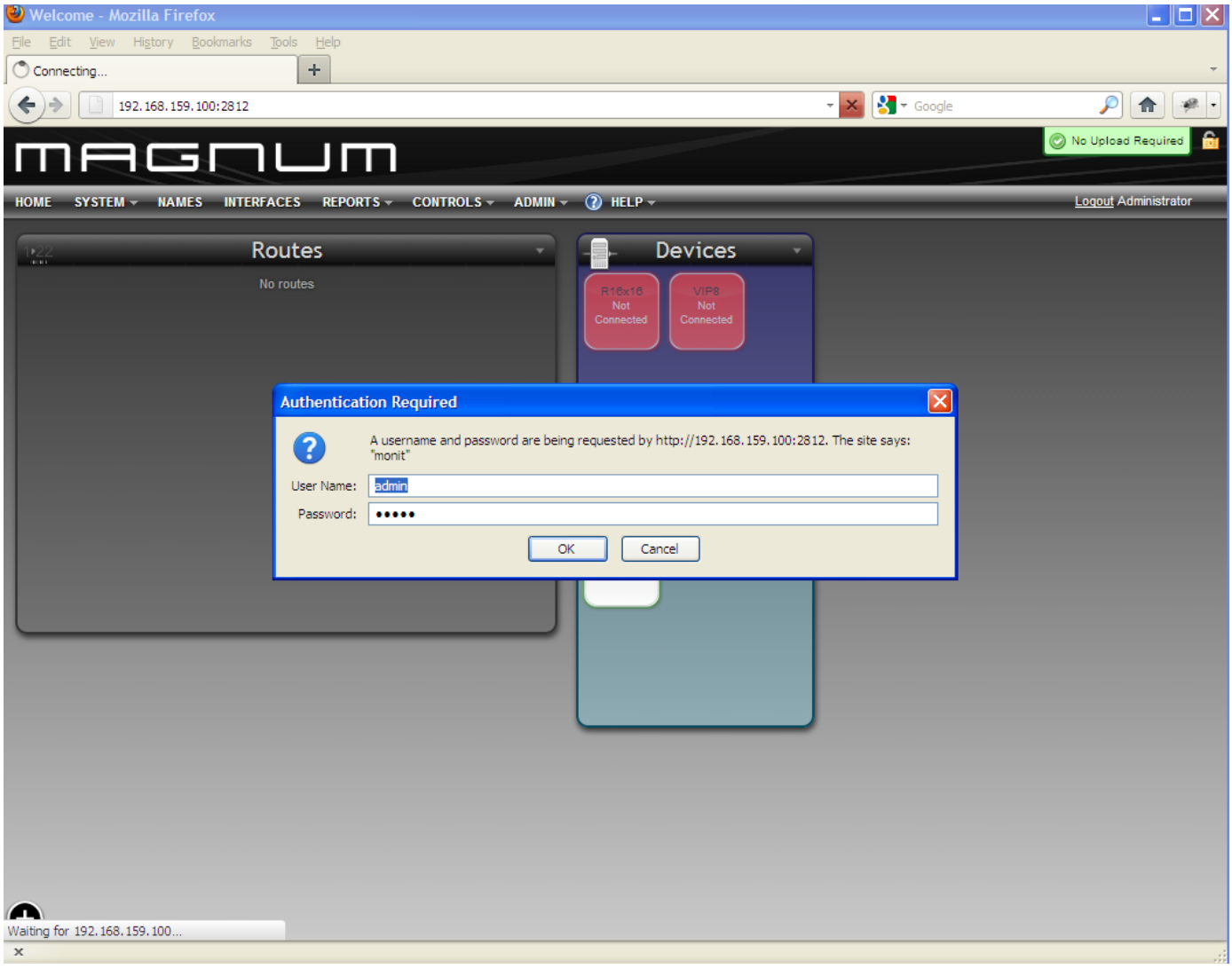


Figure 21-22: Authentication Required

Once authenticated the MONIT page will be displayed showing the state and health of the MAGNUM processes.

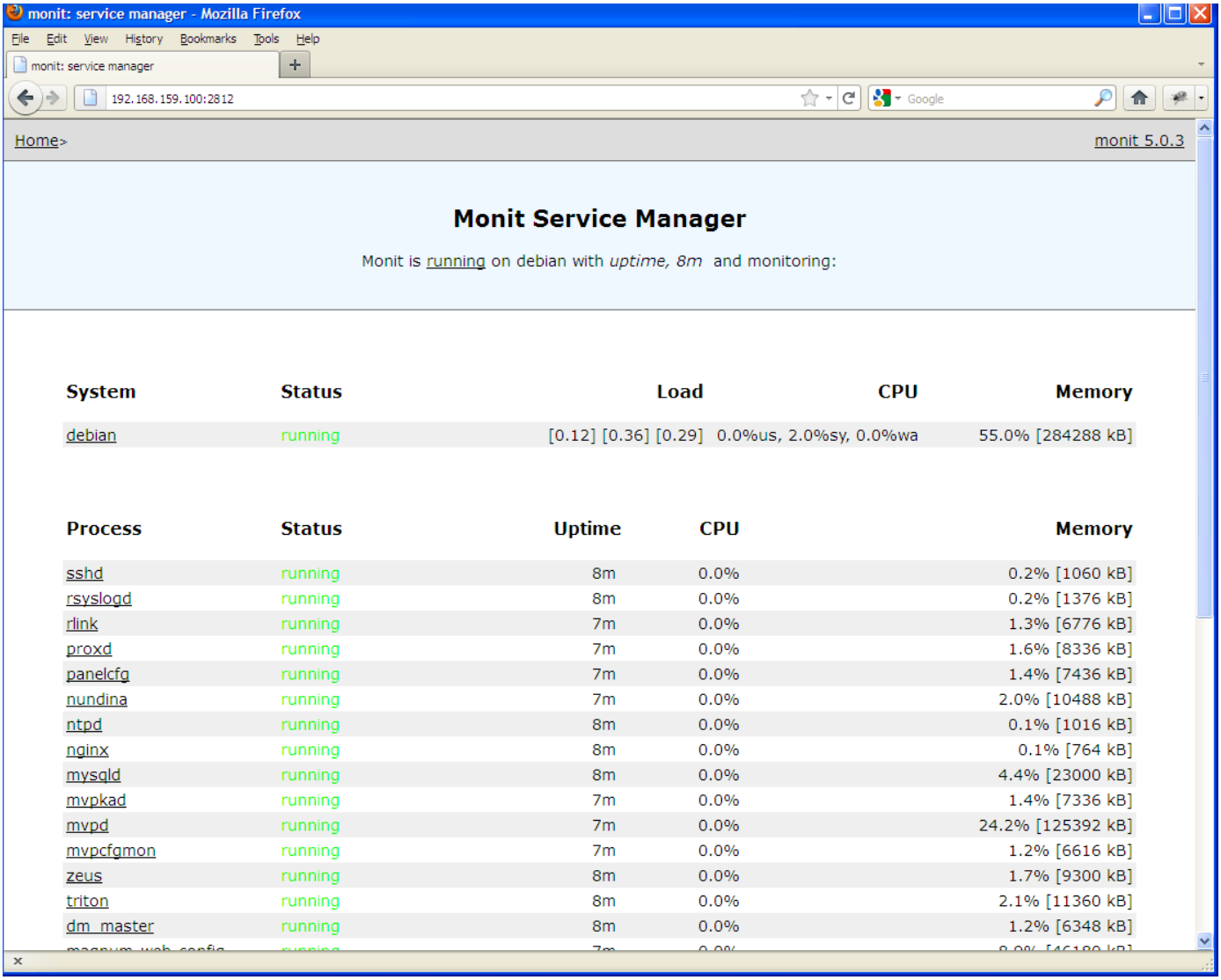


Figure 21-23: MONIT Page

The user can click on a process to view more information related to the selected process.

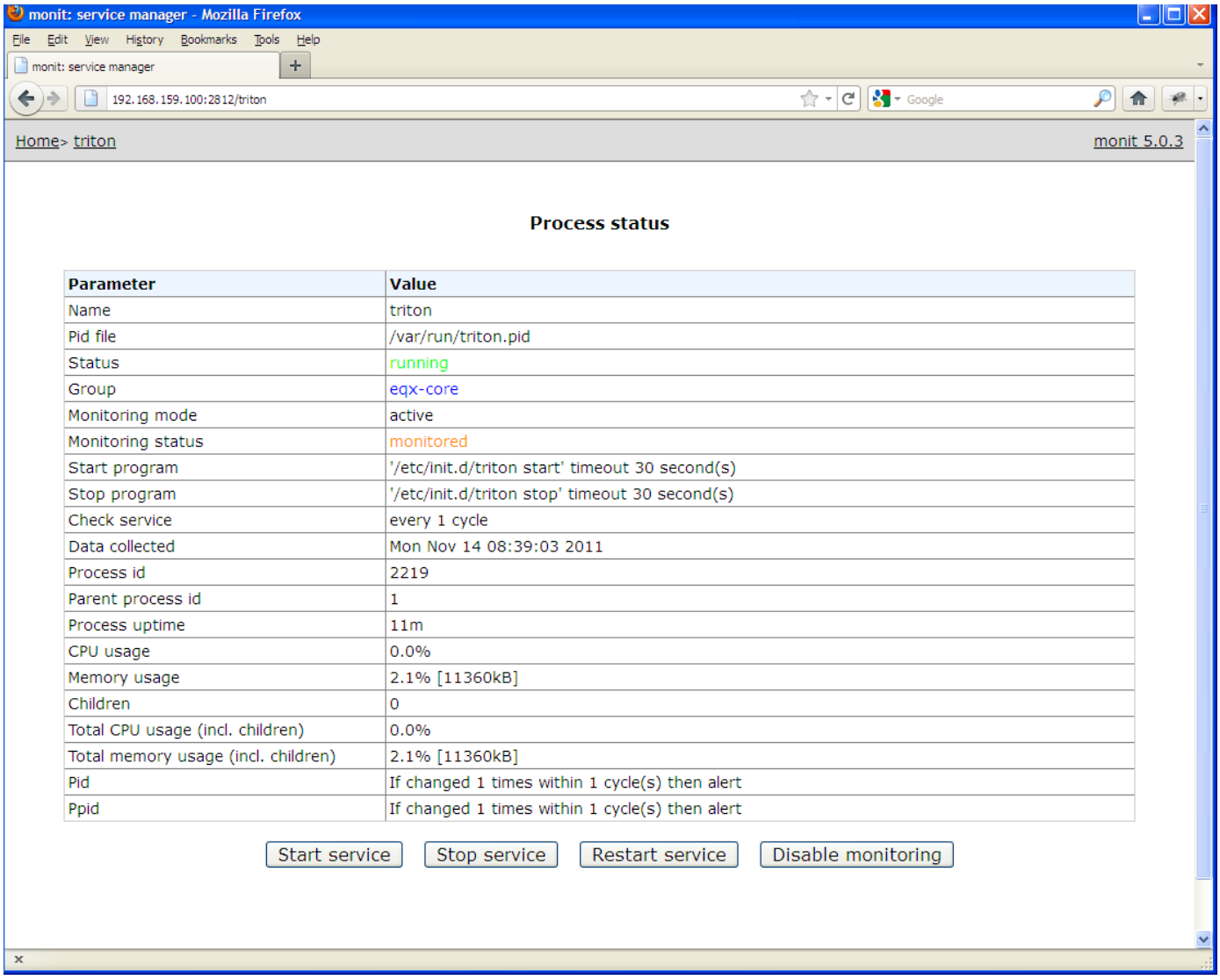


Figure 21-24: Process Status

The MONIT page will auto-refresh every few seconds. To navigate back to the MONIT home page use the Home link at the top of the page. To exit the MONIT page, close the Web Browser.

21.6.14. MAGNUM Logs

There are two ways to view the information that is logged by MAGNUM, real-time and recorded. The real-time view can be accessed via the MAGNUM Server Configuration Shell.

To login to the MAGNUM Server Configuration Shell, the user will have to enter the following information when prompted by the debian server:

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

Figure 21-25 displays the main setup menu. You will use the arrow keys, tab, and enter keys to navigate through the MAGNUM Server Configuration Shell.

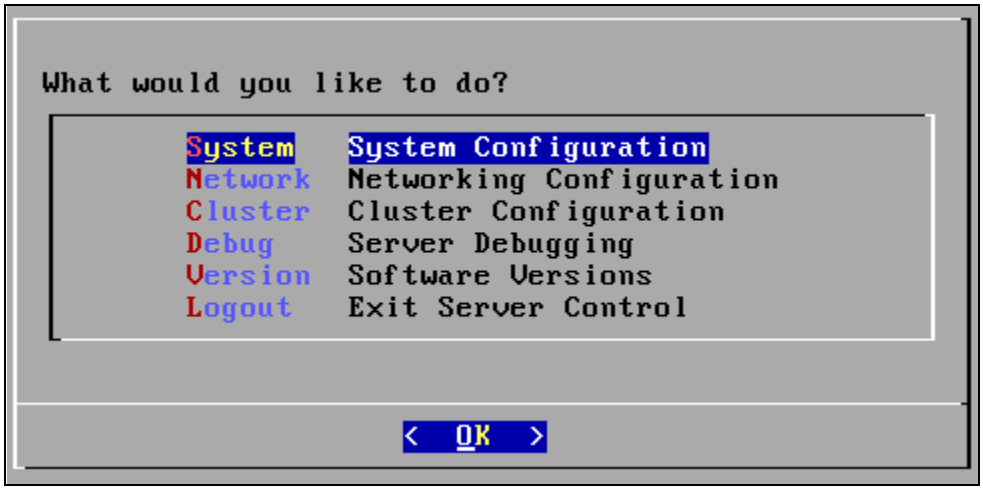


Figure 21-25: Main Server Control Menu

21.6.15. Server Debugging

The **Server Debugging** menu enables the user to view the server debugging features.

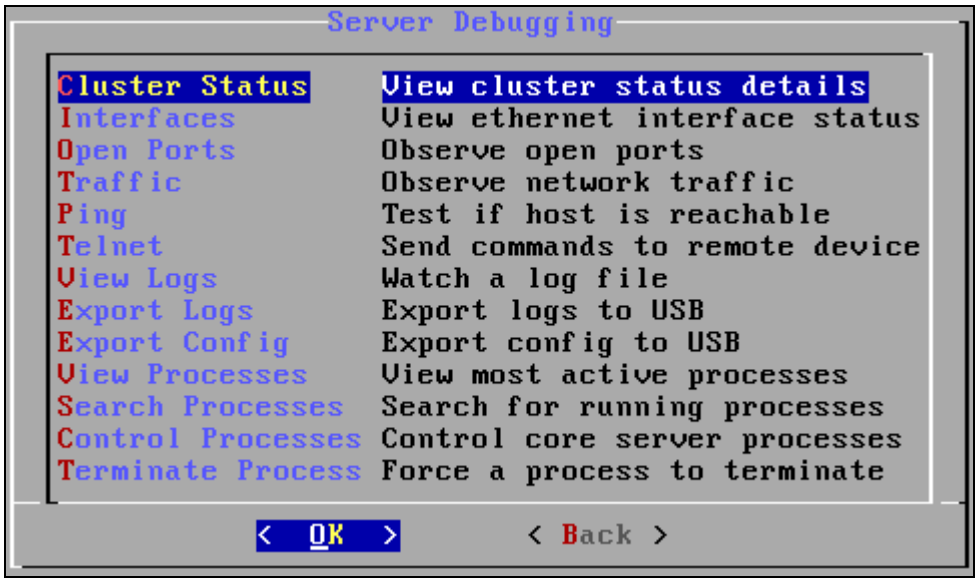


Figure 21-26: Server Debugging Main Screen

21.6.16. Watch a Log File

Selecting the **View Logs** menu option will allow the user to view log files in real time. The **Watch Logfiles** dialog box will appear enabling the user to toggle through the log files. Toggle to the desired log file and select it by highlighting the file in the list and pressing the **OK** button.

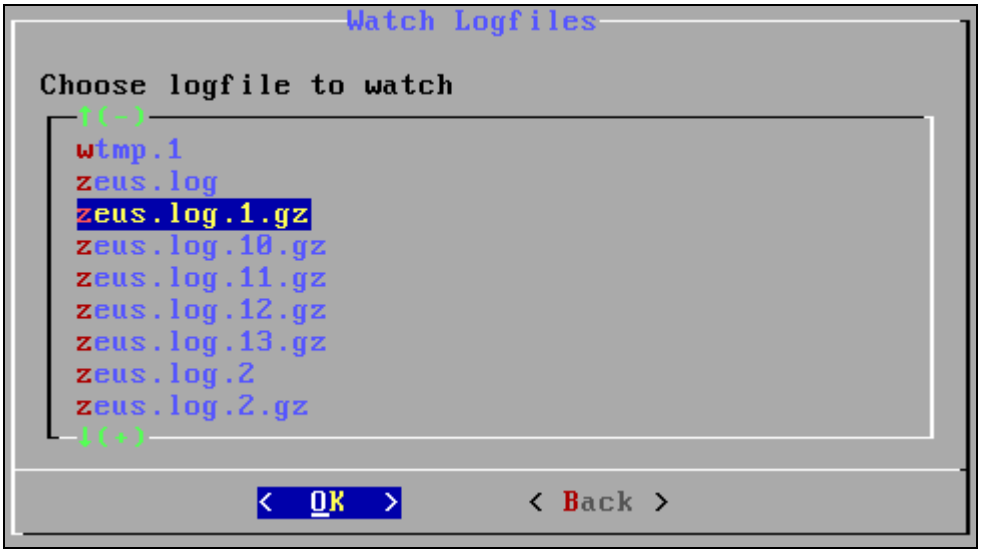


Figure 21-27: Watch Logs Dialog Box

Once the log file is selected, the corresponding information will be displayed as shown in Figure 21-28. To exit the **logfile** screen press the '**q'** key on your keyboard to quit the screen.

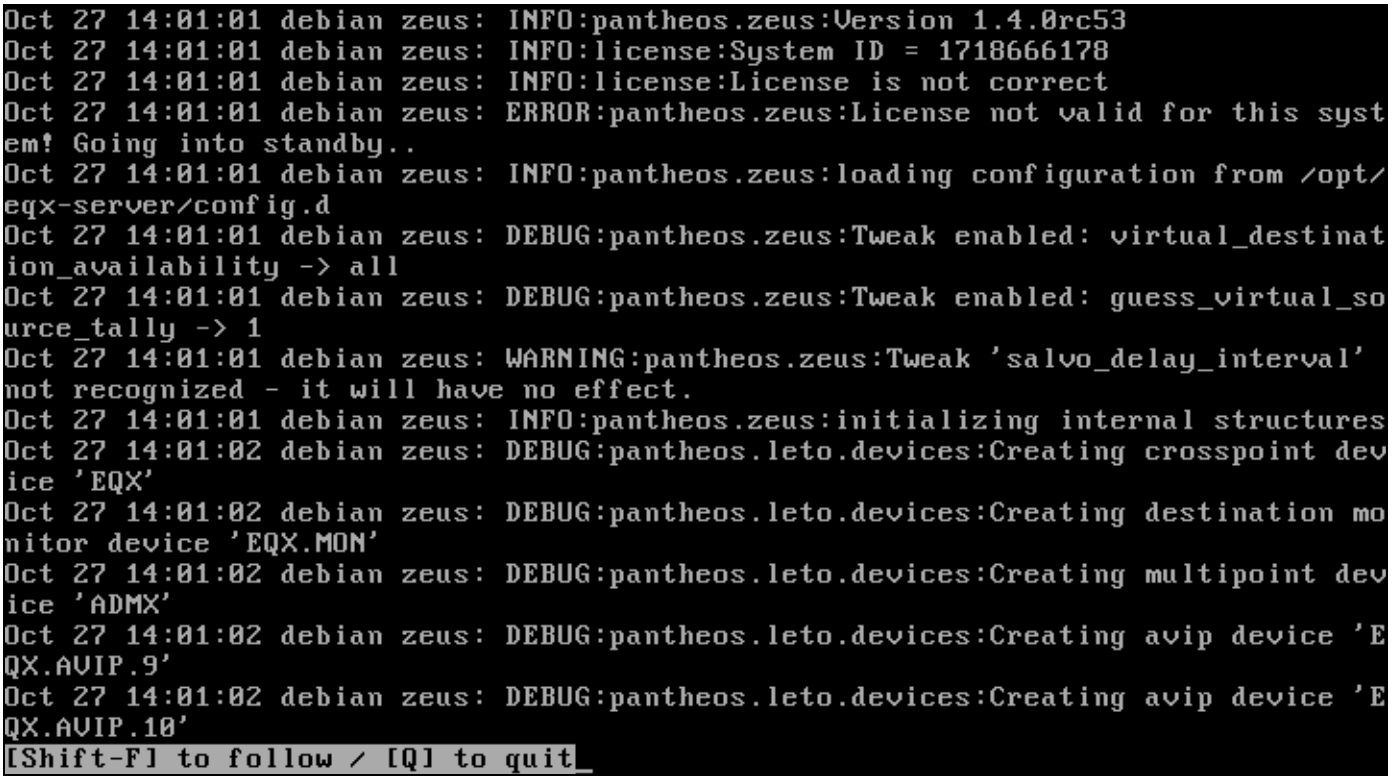


Figure 21-28: Viewing Logs Dialog Box

The recorded logs can be viewed by downloading the logs from the Active MAGNUM Server via the MAGNUM web interface.

To download the server logs, select the **Retrieve Logs** menu item from the **HELP** drop down menu. By selecting the **Download** button the user can download a zip file containing all of the server logs.

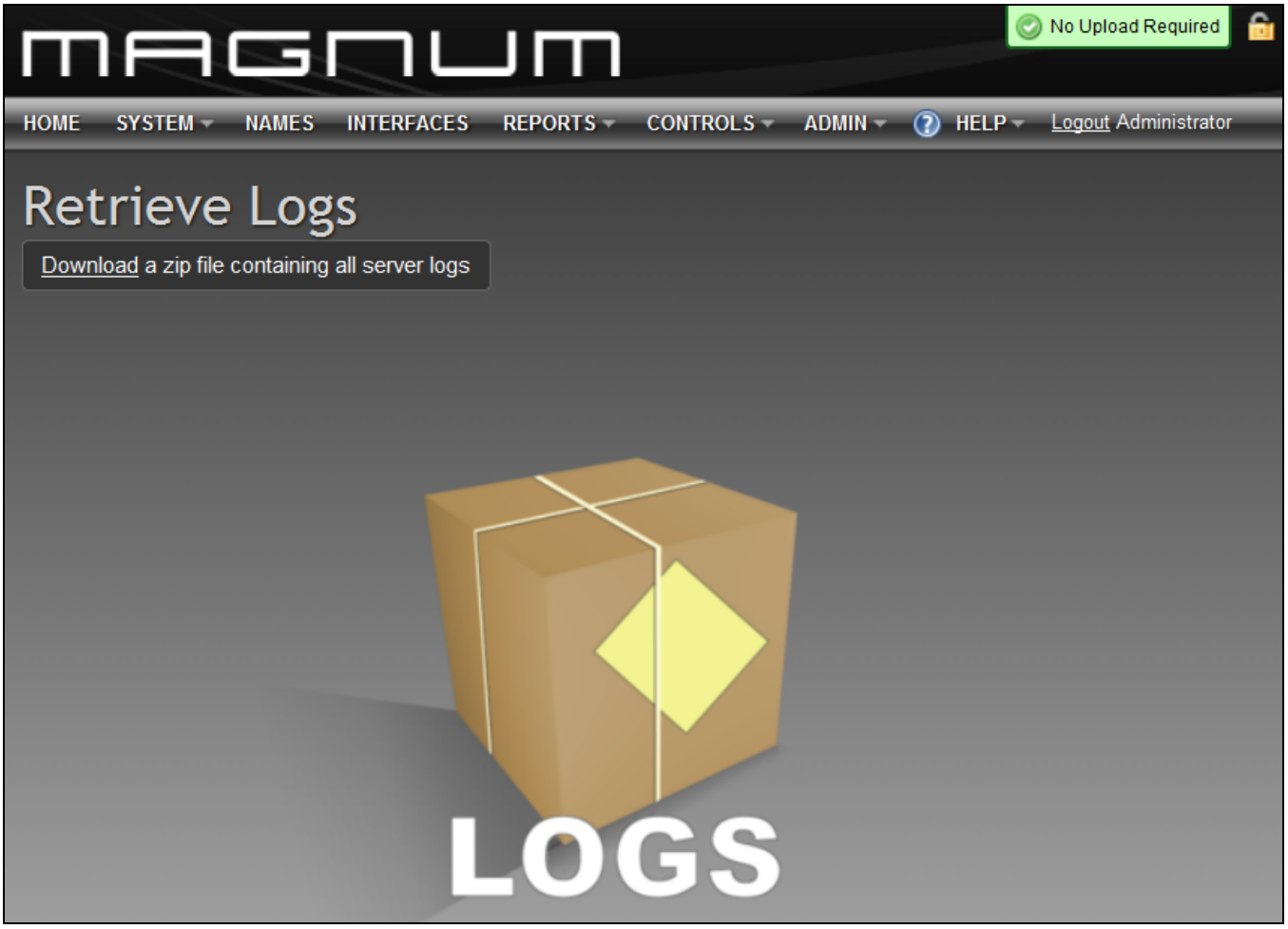


Figure 21-29: Retrieve Logs Window

Depending on the web browser settings, a dialog box may appear asking where to save the log files. If the dialog box does not prompt, the default location is My Documents/Downloads.

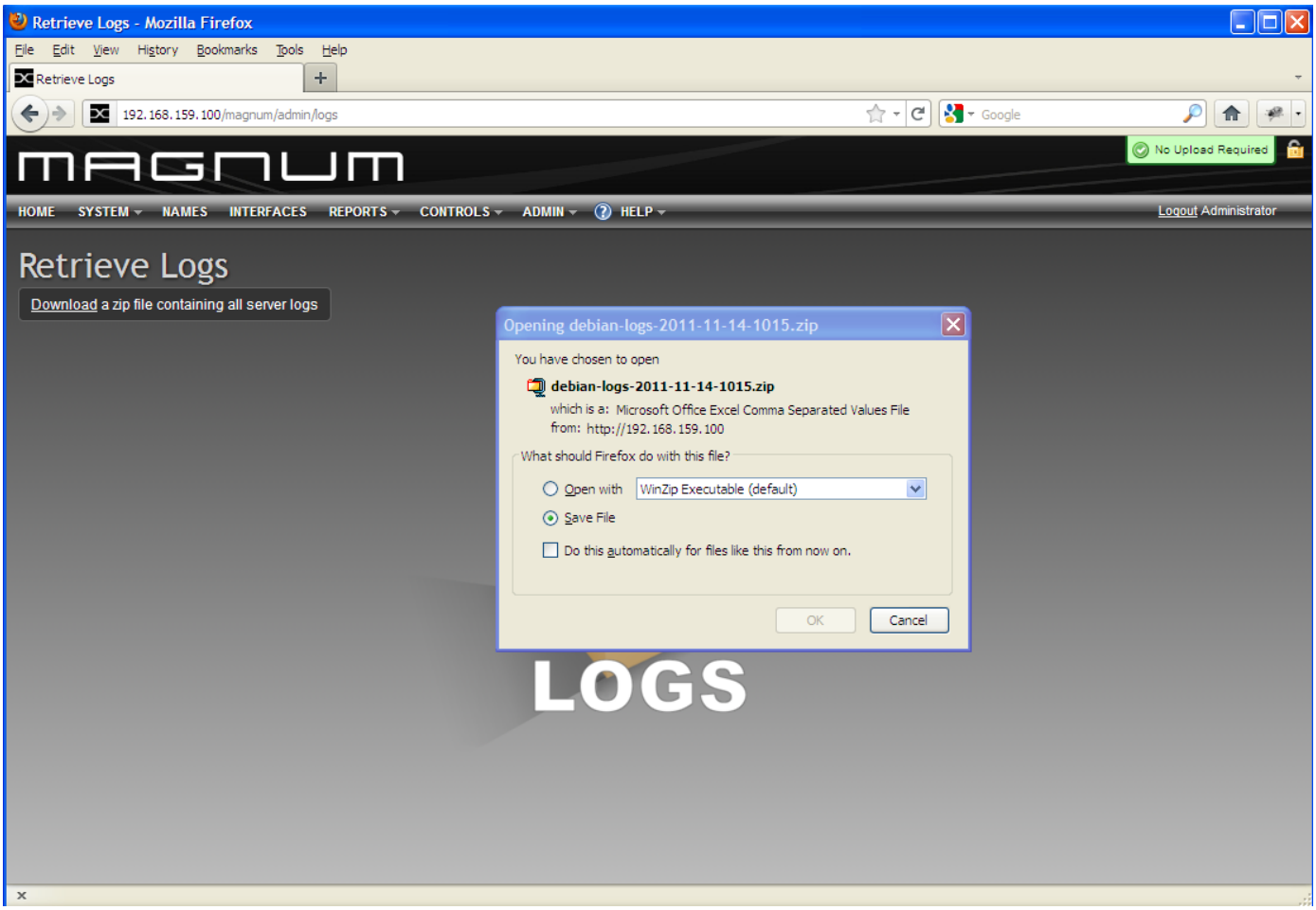


Figure 21-30: Save Log Files

The log files are downloaded as a zip file. Use any unzip program to unzip the contains of the zip file.

21.6.17. Reading the MAGNUM Logs

For searching for information concerning MAGNUM Server using the provided the logs for specific times or events the following program is very helpful:

http://gnuwin32.sourceforge.net/packages/grep.htm

With the program installed, the common events can be viewed using the some of the main MAGNUM logs

zeus - All device level logging and cross-point information
triton - All client logging and requests
eqx-web - All changes made to configuration
chronos - All cross-point changes made on a device

The device specific information such as “Router” would need to be updated with the device information as defined in the MAGNUM system.

21.6.18. Events That Happened at a Certain Time

grep "Oct 25 08:" zeus.log

or

grep "Oct 25 08:" triton.log

or

grep "Oct 25 08:" chronos.log

21.6.19. Cross-points Made to a Specific Destination

grep "Component Router-DST-0569.VID.DEF" zeus.log

or

grep "setCrosspoint (569, 169, 'V')" zeus.log

21.6.20. Cross-points Made with a Specific Source

grep "Component ROUTER-SRC-0169.VID.DEF" zeus.log

21.6.21. Cross-points Made to a Specific Destination or Source By or Outside of MAGNUM

grep "DST: ('INPUT', False, 236, ('VID', 'DEF" chronos.log

or

grep "SRC: ('INPUT', True, 169, ('VID', 'DEF" chronos.log

21.6.22. Route Requests From a Specific Client IP

grep "cucumber:route (by 172.17.11.58)" triton.log

21.6.23. Core Connecting to Devices

grep “INFO:drivers.quartz:connecting to”

21.6.24. Port Unlock Requests

grep “INFO:p.i.control:Unlock request”

21.6.25. Successful Route

grep “INFO:request_all_routes:routed <Component ROUTER-DST-0137.VID.DEF ()>”

21.6.26. Attempted Sync of a Router

grep “INFO:pantheos.devices.crosspoint:synchronize begin”

21.6.27. Failed Sync of a Router

grep “ERROR:pantheos.devices.crosspoint:sync failed”

21.6.28. Successful Sync of a Router

grep “INFO:pantheos.devices.general:EQX sync complete”

21.6.29. Core Disconnect From a Router FC

grep “INFO:drivers.quartz:disconnected from”

21.6.30. Successful Connection to a Router FC

grep “INFO:drivers.quartz:connected to”

22. MAGNUM DAY 3 LABS

22.1. CONFIGURING AND UPGRADING A SINGLE PROFILE PANEL

1. Successful configuration of IP address and connection via Ethernet to a Single Profile Panel
2. Successful upgrade of a Single Profile panel

22.2. PROGRAMING A SINGLE PROFILE PANEL

1. Able to program a row of source and destination buttons
2. Able to program scrolling source and destination buttons
3. Able to program source and destination menu groups
   a. Ability to set a static destination regardless of the menu
   b. Ability to navigate to the top level
4. Able to program source preset and destination buttons with Take operation

22.3. UPGRADING A MULTI PROFILE PANEL

1. Able to upgrade a multi profile panel
2. Able install Apps

22.4. PROGRAMING A MULTI PROFILE PANEL

1. Able to create an SNMP services for a Evertz terminal device
2. Able to create Source and Destination proc services

22.5. INSTALLING AND LICENSING A MAGNUM ROUTER VIRTUAL CONTROL PANEL

1. Able to install the MAGNUM Router Virtual control panel
2. Able to connect the MAGNUM Router Virtual control panel to MAGNUM
3. Able to send layouts to the MAGNUM Router Virtual control panel

22.6. CONFIGURING AND INTERFACING WITH THE MAGNUM QUARTZ INTERFACE

1. Able to configure a MAGNUM Quartz Interface for 3rd Party Integration
2. Able to re-assign ports for customized port assignments
3. Able to assigned different NameSets to the Quartz Interface
4. Able to validate the assigned tasks
   a. Configured Quartz Interfaces with video only ports
   b. Customized port assignments within the interface
   c. Assigned NamseSet returns correct names on source and destination queries
   d. Able to lock a destination
   c. Able to unlock a destination

22.7. ACCESSING THE MAGNUM LOGS AND RUNNING SIMPLE QUERIES

1. Able to download the MAGNUM Logs
2. Able to view the logs in real-time
3. Able to determine specific information
   a. Cross-points made to a specific destination
   b. Route requests from a specific client IP
   c. Port unlock requests
   d. Core connecting to devices
   e. Successful connection and sync to a router FC