9780MUX-IPGE-ASI
Compact ASI/IP Re/De-Multiplexer

User Manual

EVERTZ MICROSYSTEMS LTD.
5288 John Lucas Drive
Burlington, Ontario, Canada
L7L 5Z9

Phone: +1 905-335-3700
Sales Fax: +1 905-335-3573
Tech Support Phone: +1 905-335-7570
Tech Support Fax: +1 905-335-7571

Internet: Sales: sales@evertz.com
Tech Support: service@evertz.com
Web Page: http://www.evertz.com

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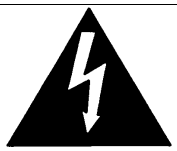
IMPORTANT SAFETY INSTRUCTIONS

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

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

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

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

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

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

INFORMATION TO USERS IN EUROPE

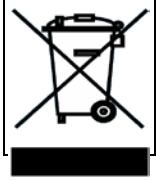
NOTE

CISPR 22 CLASS A DIGITAL DEVICE OR PERIPHERAL

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

CE

EN60065	Safety
EN55103-1: 1996	Emission
EN55103-2: 1996	Immunity



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

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

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

WARNING

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

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

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Tables

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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Nov 2016

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1. OVERVIEW

- **Flexible Solution**

  The 9780MUX-IPGE-ASI is part of the 9780 FR platform. A complete, flexible solution to concurrently demux and remux up to 4 x IP or ASI inputs across 4 x IP or ASI outputs. It's a highly flexible platform capable of supporting multiple input types including SPTS, MPTS, ASI, IP (Unicasts/Multicasts). The platform is also capable of supporting Statistical Multiplexing for encoding using Evertz 3480 Encoders*.

  Controlled by the industry leading VistaLINK® PRO CSM, the 9780 Multiplexer offers grooming and re-multiplexing of pre-encoded content in a new single or multi program transport stream ready to be broadcast across DVB-S, DVB-T, DVB-C and IPTV networks. The platform is enabled with Service, Socket, Port and Device level redundancy when paired with VLPRO CSM NMS.

- **Advanced Stream Processing**

  The 9780 Multiplexer supports advanced stream processing capabilities such as Program and PID remapping, DVB/ATSC table generation and per program bit rate limiting to stop over bit rate inputs from disrupting groomed outputs.

- **In band Metadata Insertion**

  When paired with VLPRO CSM NMS, the 9780 Multiplexer can also support in band metadata insertion directly into a private PID. Downstream devices can receive this PID and process accordingly. Applications can vary from in band firmware upgrade or data tags.

Figure 1-1 : 9780MUX-IPGE Front Panel

Features & Benefits

- Program grooming and re/de-multiplexing with PID filtering
- Program and PID remapping
- Re-mux engine core with:

  4 x SPTS/MPTS ASI inputs
  4 x SPTS/MPTS ASI outputs
  4 x SPTS/MPTS IP inputs
  4 x SPTS/MPTS IP outputs

- Output TS bit rate configuration
- Per program bitrate limiting
- Inband metadata insertion to private PID*
- Internal TSM-Lite per stream: TS loss, CC, Bitrate
- Auto fail-over to the redundant incoming Transport via VLPRO CSM NMS
- 1:1, GbE Port and Socket redundancy via VLPRO CSM NMS
- 1:1, M:N Unit Redundancy via VLPRO CSM NMS

*Contact factory for additional details

Figure 1-2 : 9780MUX-IPGE Rear Panel

Control

- Full SNMP (Simple Network Management Protocol) support and integrated with the industry leading VistaLINK® PRO system

2. GETTING STARTED

Upon unpacking, the user should find:

1 x 9780MUX-IPGE
2 x Power cords contained in a plastic bag

Locate a 1RU space in a 19" rack and install the unit. Remove the power cords from their package and connect each one to one of the two black power sockets on the rear plate of the 9780MUX-IPGE. Then connect the other end of each power cord to a power source that meets product requirements. Connecting to a power source should automatically power the device on. Should the device not start when connected to a power source, check that the power cords are firmly connected.

2.1. SET UP INPUTS AND OUTPUTS

- Connect the Ethernet cable to the CONTROL Ethernet port and the other end to an Ethernet switch. See Figure 2-1.
    - Connect Ethernet cables to desired ports and the other end to the Ethernet switch.

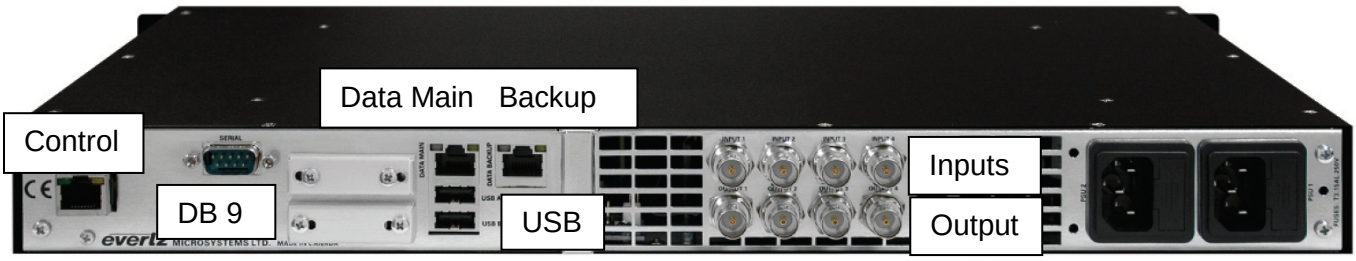


Figure 2-1 : 9780MUX-IPGE Rear Panel

Control: This connector allows for the 9780MUX-IPGE to be able to communicate with the computer, allowing for the user to control the 9780MUX-IPGE through the interface of choice.

Data Main: This RJ45 connector is for primary data output feed.

Data Backup: This RJ45 connector is the secondary data output feed. It can be configured to provide an exact copy of the Data Main.

DB9: This serial port is used for initial network configurations on the Control and Data ports.

Inputs & Outputs: The 9780MUX-IPGE provides 4 ASI and IP inputs and 4 ASI and IP outputs.

USB: The 9780MUX-IPGE provides two type A USB ports.

2.2. CONFIGURING THE CONTROL PORT

2.2.1. Configuring control port from the Front panel

Connecting the device to the computer:

Table 2-1 illustrates the different drop down menus for setting up the network configurations. Scroll between the menus by using the up and down arrow buttons and pressing Select to choose items or Esc to exit one back.

Main Button	Sub Menus		
System	Network	Control	Netmask, IP Address, Gateway, DHCP
		Data Main	Netmask, IP Address, Gateway, DHCP
		Data Backup	Netmask, IP Address, Gateway, DHCP
		Apply Changes	Netmask, IP Address, Gateway, DHCP

Table 2-1 : Front Panel of 9780MUX for Network Configuration

1. To check the IP address of the device, select the **System** button on the front panel of the encoder and scroll down to Control and press Select button. Scroll down to IP address and press select button. The IP address of the 9780MUX will be displayed.
2. Press "**ESC**" if no changes are required or "**Select**" to make changes to each octet of the IP address.
3. Once completed, navigate to the **Network** submenu and select **Apply** changes.
4. In the **Control** submenu, select **Reboot System** to make sure new settings are applied.
5. Plug in a standard Ethernet cable (CAT-5E) from PC's Ethernet network to the control port of the device.
6. On the computer screen, select "Start" in the bottom left corner. Then select "Control Panel". Search for "Network Connections" icon and double click it. Double click the interface icon "Local area connection" and click the "properties" button. Following that, select "Internet Protocol (TCP/IP4)" and click the "properties" button again. Select the button labelled "Use the following IP address" and click OK.
7. Verify that the computer is on the same control/management subnet as the 9780MUX. For example, if the 9780MUX's control/management IP address is 192.168.77.100, set the PC to 192.168.77.xxx where xxx is user's choice.
8. Now check communication with the device. Select "Start" in the bottom left corner of the computer screen. Then select "Run…" and in the space provided enter "cmd" followed by clicking the "Enter" button. In the command prompt, type "ipconfig" and push the "Enter" key. This will confirm that the IP address has been set. Type "ping" followed by the IP address and press the Enter key again, if the IP address replies as is shown in Figure 2-2, then it is connected.

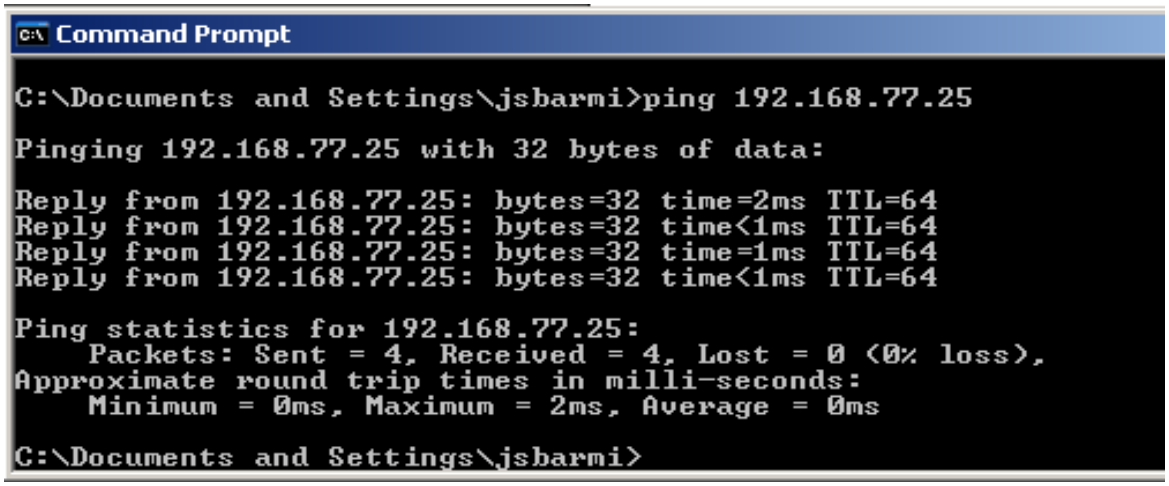


Figure 2-2 : Command Prompt

If “Request timed out” appears, then there is a network problem. Double check steps 1-3.

2.2.2. Configuring the control

a. Plug in a standard Ethernet cable (Cat 5e) from computer’s Ethernet port to the Ethernet port of the device.

b. Power on the device. If there is any problem in powering up, contact one of the Evertz’ person to find out about the problem.

c. On the computer screen, select “Start” in the bottom left corner. Then select “Control Panel”. Search for the “Network and Sharing Center” icon and double click it. Double click on “Change Adapter Settings”. Select “Local Area Connection” and click the “properties” button. Following that, select “Internet Protocol (TCP/IP)” and click the “properties” button again. Select the button labelled “Use the following IP address” and click “ok”. Enter in an IP address that is on the same subnet as the MUXIP with the same subnet mask and gateway.

d. Now check communication with the device. Select “Start” in the bottom left corner of the computer screen. Then select “Run...” and in the space provided enter “cmd” followed by clicking the “ok” button. In the command prompt type “ipconfig” and push the Enter key, this will confirm the IP address has been set. Type in “ping” followed by the IP address of the MUXIP and press the Enter key again, if the IP address replies then you are connected. If “Request timed out” appears then there is a network problem.

Configure IP interfaces to the MUX

a. Connect RS 232 cable to the MUX and set 115200 bitrate. Login and password is “customer”.

b. Type 1 to open Network Configuration menu.

c. Type 1 to open Control port menu.

d. Type 2 to set IP address
e. Type 4 to set Gateway

f. Type x to exit Control port menu

g. Type x to exit Network Configuration menu.

h. Type x to exit and save configuration.

i. The same steps can be done for Data 1(Data Main) and Data 2(Data Redundant) interfaces.

j. All other Data ports must be configured through VLPro. Data 3 and Data 4 are not defined in 9780MUX-IPGE as if the box only supports

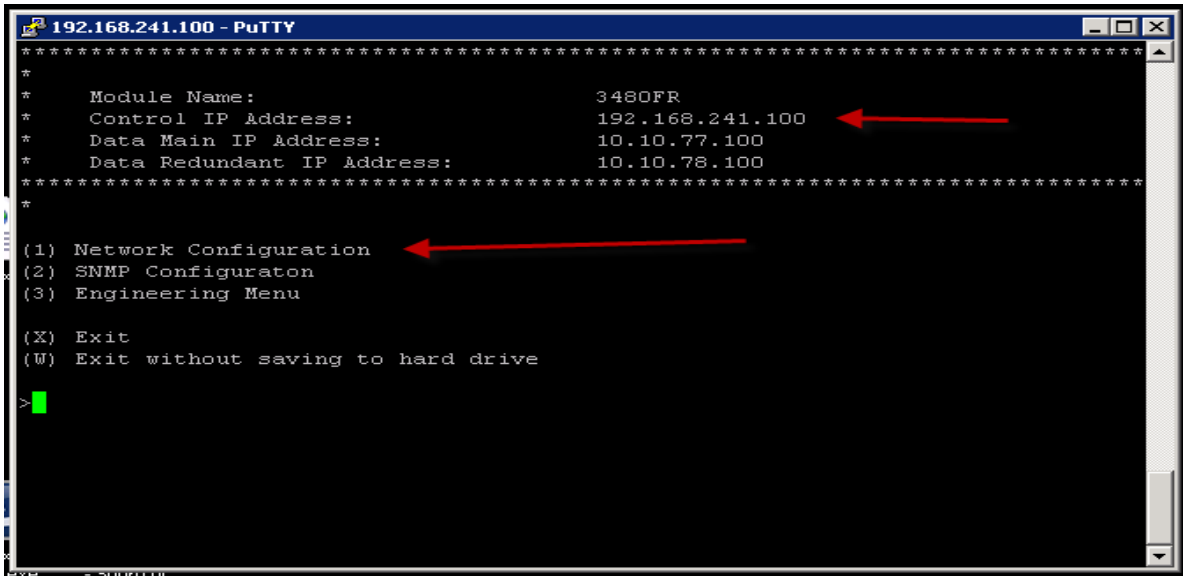


Figure 2-3 : Configure IP Interfaces to the MUXIP

3. TECHNICAL SPECIFICATIONS

3.1. INPUTS & OUTPUTS

- 2 x Gbe Ethernet data ports RJ45

- 4 x ASI inputs per TR 101 891
  Min ASI Bitrate 100Kb/s per input
  Max ASI Bitrate 213Mb/s per input

- 4 x ASI outputs per TR 101 891
  Min ASI Bitrate 100Kb/s per Output
  Max ASI Bitrate 100Mb/s per Output*

3.2. RE-MUXING ENGINE

Input format	MPTS or SPTS, VBR (Variable Bit Rate) or CBR (Configurable Bitrate)
Output format	MPTS or SPTS, CBR (Configurable bitrate)

3.3. PROCESSING

- Program/PID grooming/Filtering
- Local generation of DVB/ATSC tables
- Per program bit rate limiting
- Inband metadata insertion*
- Statistical Multiplexing for Evertz 3480TXE encoders

3.4. ENCAPSULATION PARAMETERS:

- IP encapsulation: MAC802.3>IPV4>UDP>MPEG
- Destination IP Address (Unicast and Multicast)
- Destination UDP port
- Source UDP port

3.5. DE-CAPSULATION PARAMETERS

- Source IP Address (Unicast and Multicast)
- Destination IP Address (Unicast and Multicast)
- Join Multicast by providing correct messaging using IGMP
- Selection of the input format
- Selection of the UDP Ports
- Auto fail-over to redundant multicast address, service, socket, port and device via VLPRO CSM NMS

3.6. CONFIGURATION & MGMT

- 1 x Gbe Ethernet control port RJ45
- SNMP control and monitoring via VLPRO

3.7. ELECTRICAL

Input Voltage	Auto ranging 100-240VAC
Power	Up to 120W
EMI/RFI	Complies with FCC regulations for class-A devices Complies with EU EMC directive

3.8. PHYSICAL

Dimensions	19”W x 1.75”H x 18.75” D
Weight	17lbs. (7.7kg)

4. VISTALINK® PRO CONFIGURATION

The IP address of the 9780MUX should automatically appear in VistaLINK® PRO Client window, along the left column under **hardware**. Should it not appear, open the VistaLINK® PRO Sever window and click the **Discovery** tab. This will allow the user to search for the IP address of the device of choice. Under the **Range Discovery** tab, enter the range of the IP address of the 9780MUX and then push the Start button. This should contact the 9780MUX and allow communication with it through VistaLINK® PRO.

Under device IP (3480FR) there are four different types of menus (Figure 4-1):

- **9780MUX Frame:** This section is used for general settings like: Status, Ethernet Ports, SNMP Configuration etc.
- **MUX General:** This section is used for general setting like: System info, Status and MUX Syncing.
- **MUX Input:** Each one of the input channels has its own menu for control, monitoring and alarming capabilities.
- **MUX Output:** Each one of the output channels has its own menu for control and monitoring output.

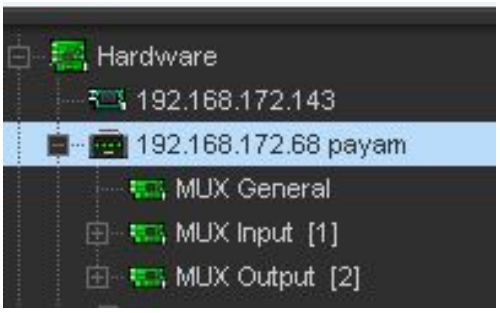


Figure 4-1 : VistaLINK® PRO - Tree view

In the paragraphs below every single menu will be described in details.

4.1. 9780MUX-IPGE FRAME

4.1.1. Status Tab

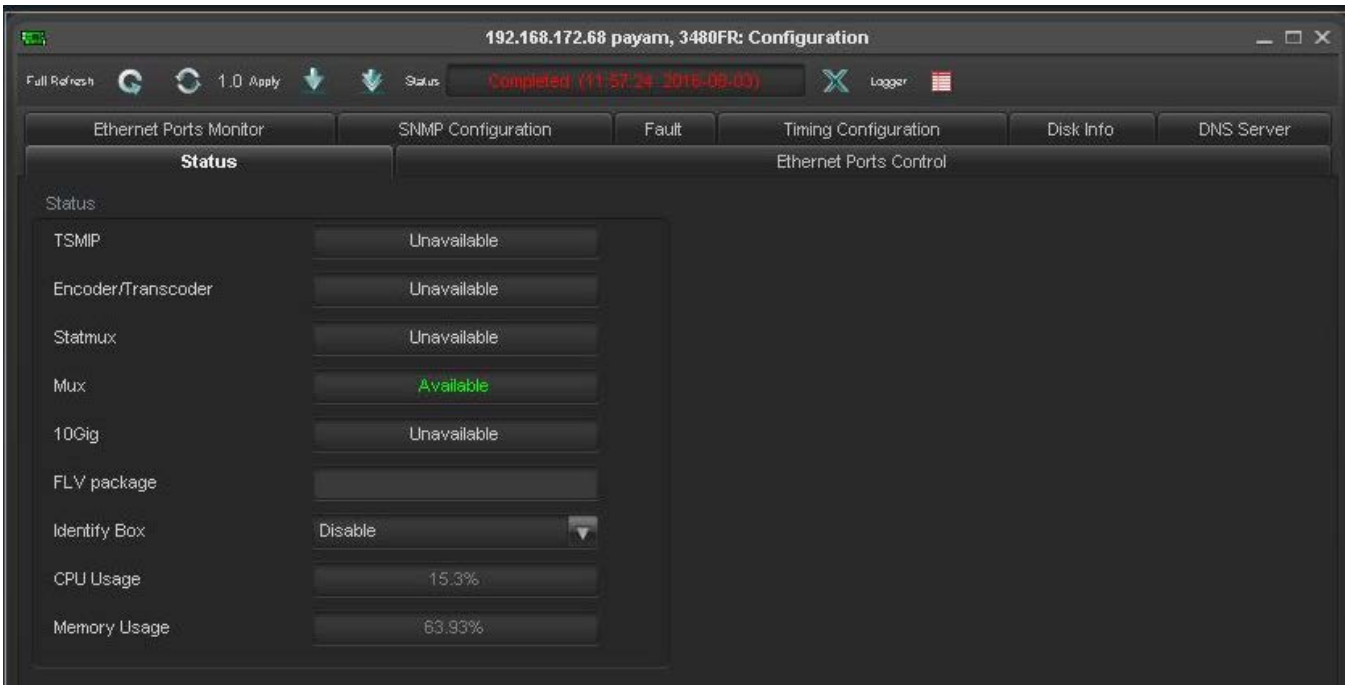


Figure 4-2 : VistaLINK® PRO Hardware Configuration – Status Tab

The Status tab indicates the current status of the module including firmware installed on the box, CPU and memory usage in percentage.

4.1.2. Ethernet Ports Control Tab

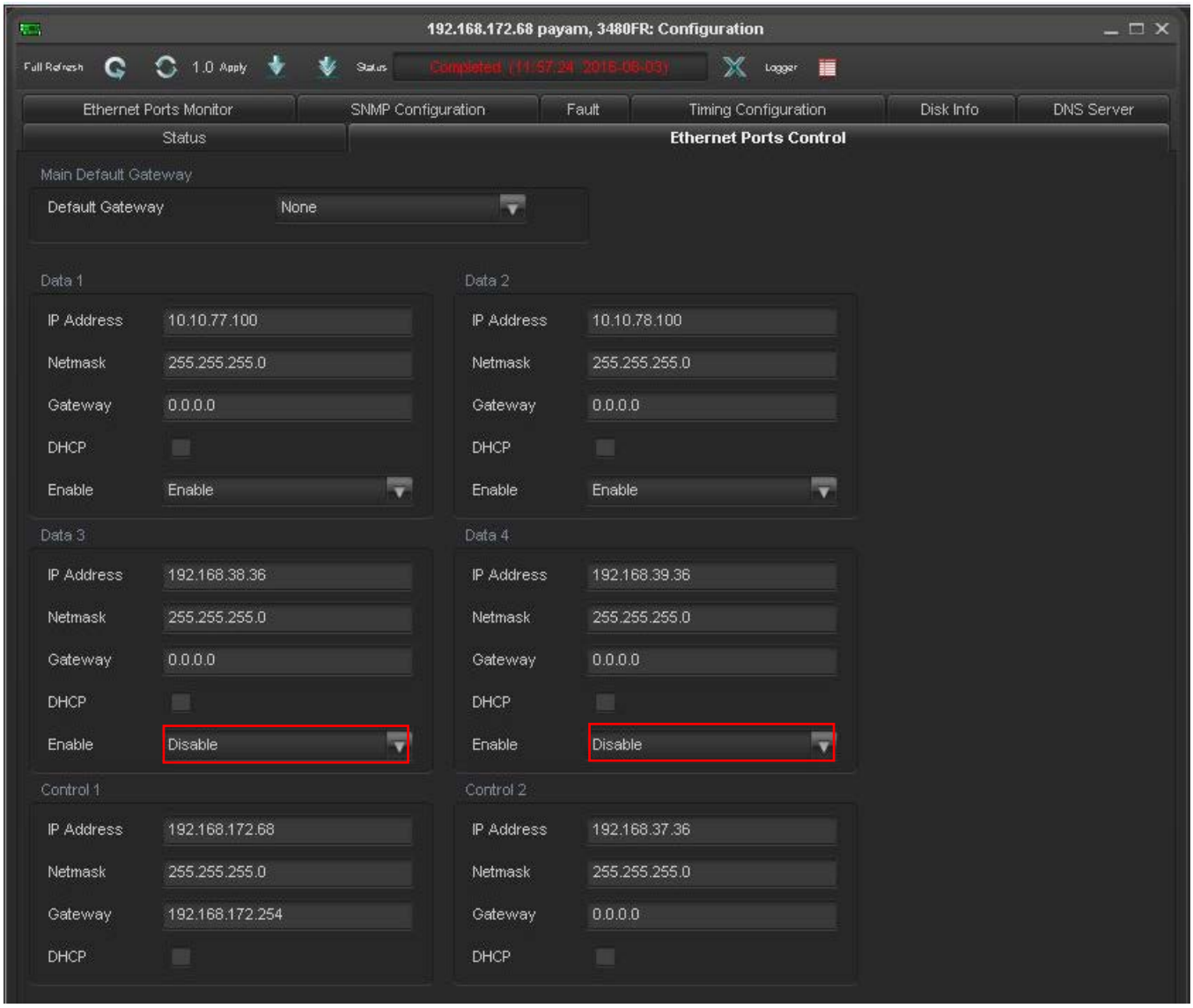


Figure 4-3 : VistaLINK® PRO Hardware Configuration – Ethernet Ports Tab

Default Gateway: The default value is none but user can specific a specific gateway IP.

This tab allows Mapping on the rear of the MUXIP to VLPro data port configuration. **DATA 3, DATA 4** and **Control Port 2 are not used**.

Control Port 1	Control Port 2	Data Port 1	Data Port 2	Data Port 3	Data Port 4
Control	NA	DATA1	DATA2	NA	NA

Table 4-1 : VistaLINK® PRO Mapping to Rear to 9780MUX-IPGE

IP address: Self IP address of the port.

Netmask: The Netmask address which is 255.255.255.0 by default.

Gateway: Gateway IP address for this port.

DHCP check box: This check box can be Enabled or Disabled.

Note: Make sure only one Gateway IP address is assigned (The Gateway for control). Set the others to 0.0.0.0.

4.1.3. Ethernet Ports Monitor Tab

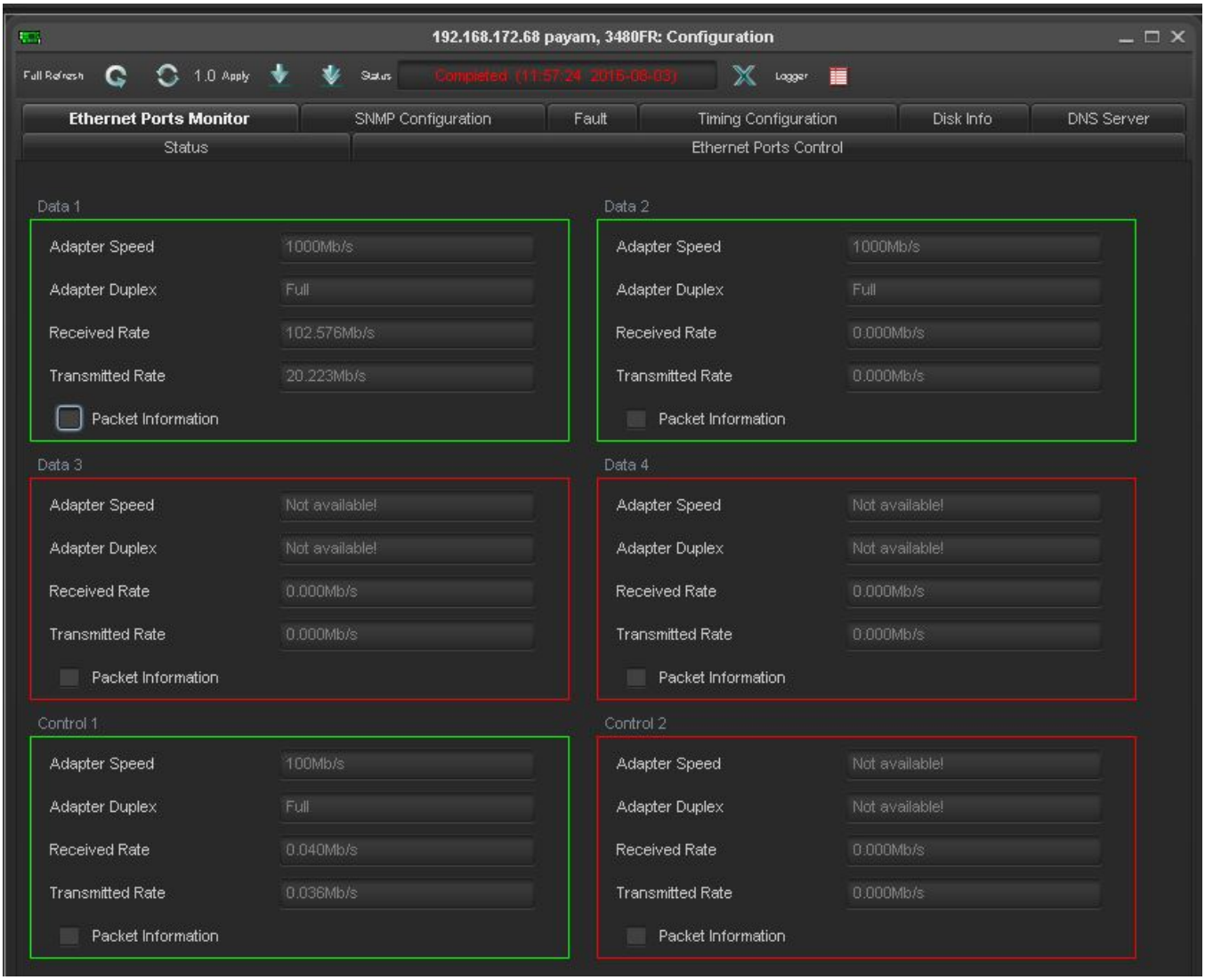


Figure 4-4 : VistaLINK® PRO Hardware Configuration – Ethernet Ports Monitor Tab

The “Ethernet Port Monitor” tab indicates the current status of the Ethernet ports.

Packet Information: By enabling this field, the user can monitor the Packets specifications and also will be able to reset the Packets as is shown in Figure 4-5.
Received and Transmitted Error Packets and also Received and Transmitted Dropped Packets can be monitored here.

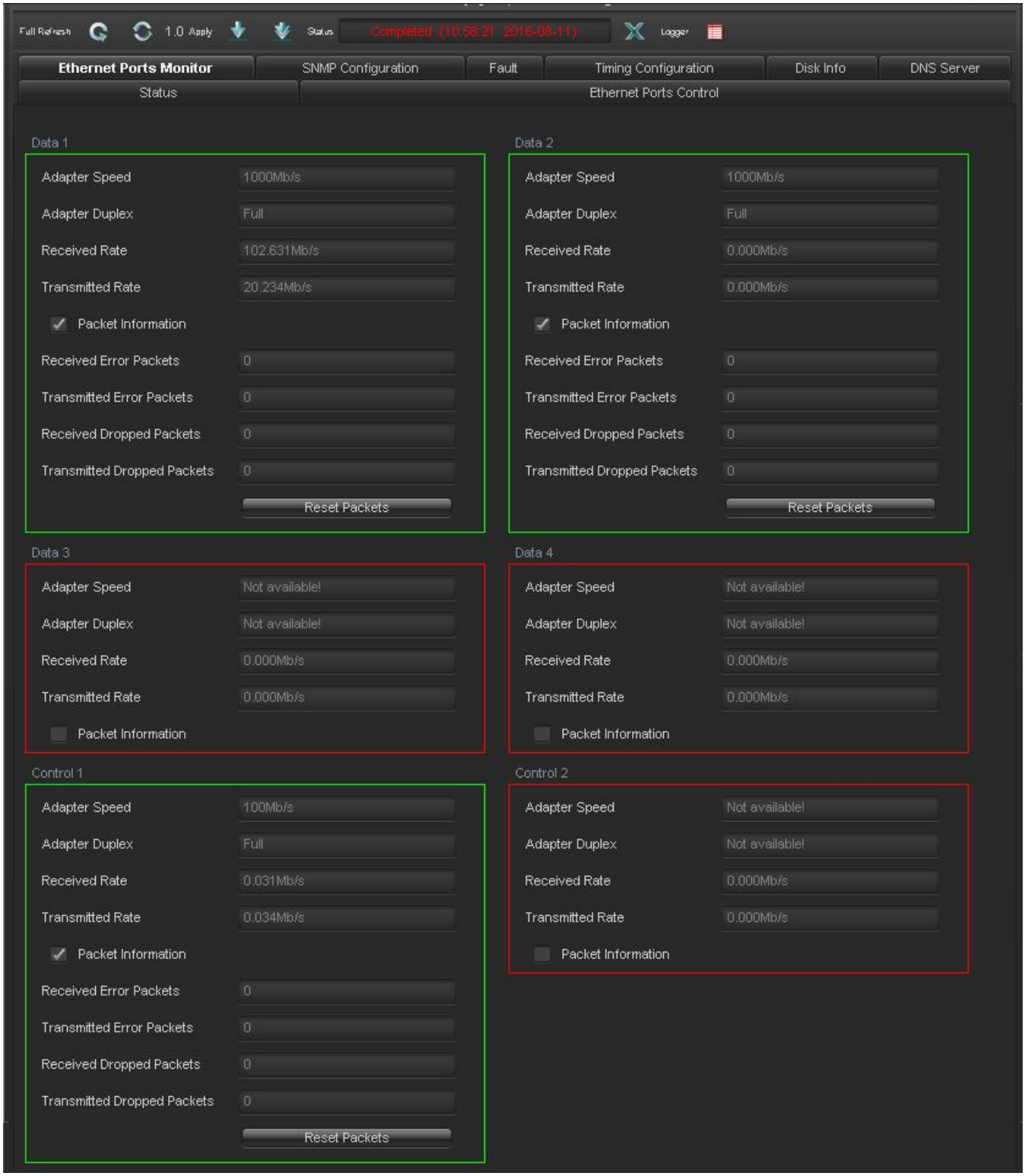


Figure 4-5 : VistaLINK® PRO – Ethernet Ports Monitor Tab – Packet Information

4.1.4. SNMP Configuration Tab

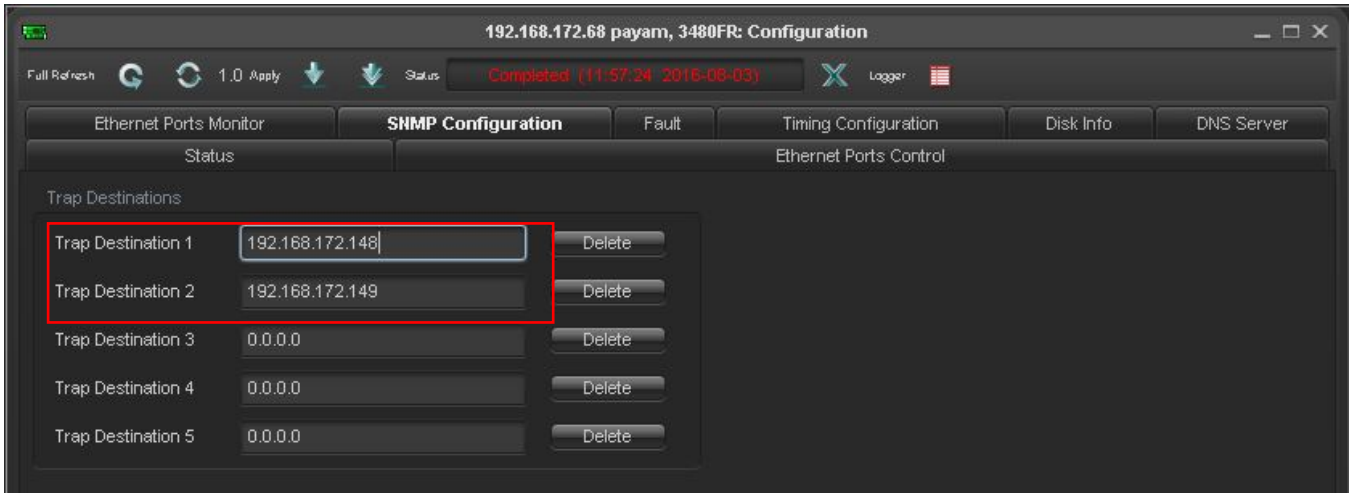


Figure 4-6 : VistaLINK® PRO Hardware Configuration - SNMP Configuration Tab

Trap Destination<1-5>: The user can define IP addresses of VLPro server where SNMP traps will be sent.

4.1.5. Fault Tab

This tab indicates the status of the ports and also allows the user to enable/disable traps to be sent upon fault detection.

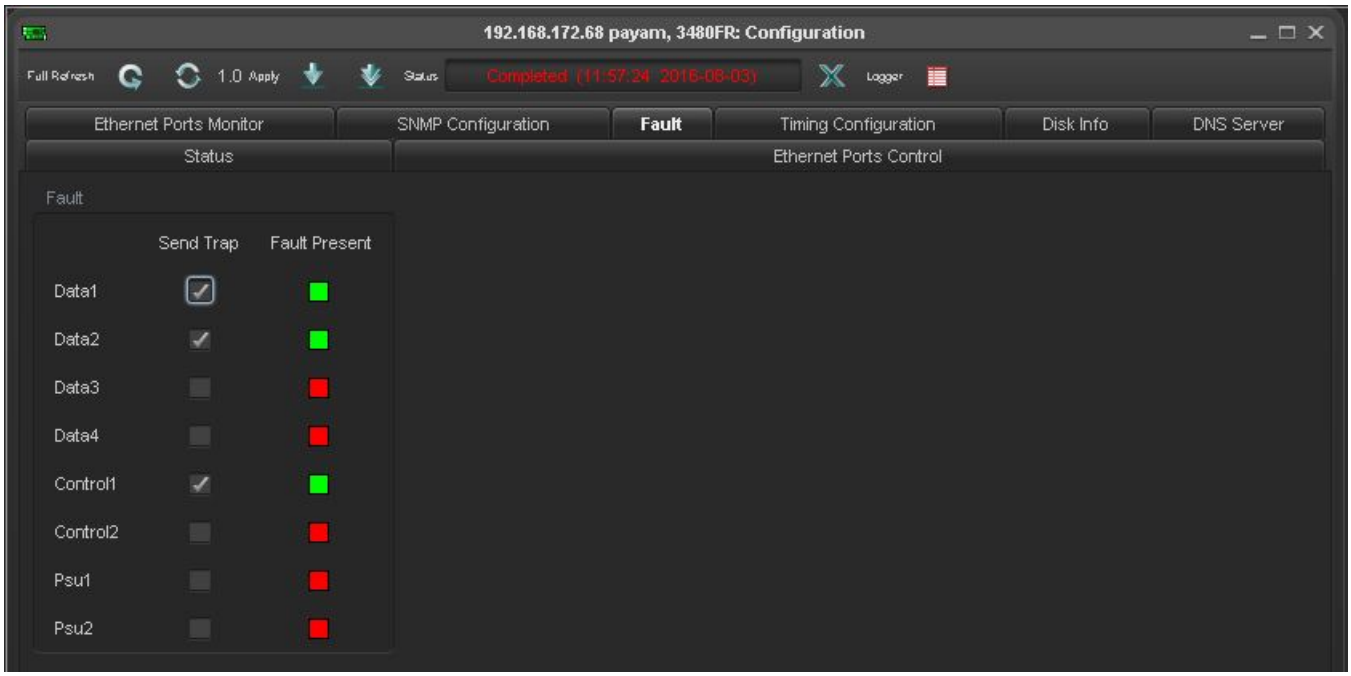


Figure 4-7 : VistaLINK® PRO Hardware Configuration - Fault Tab

4.1.6. Timing Configuration

This section is an external package which has to be manually installed.

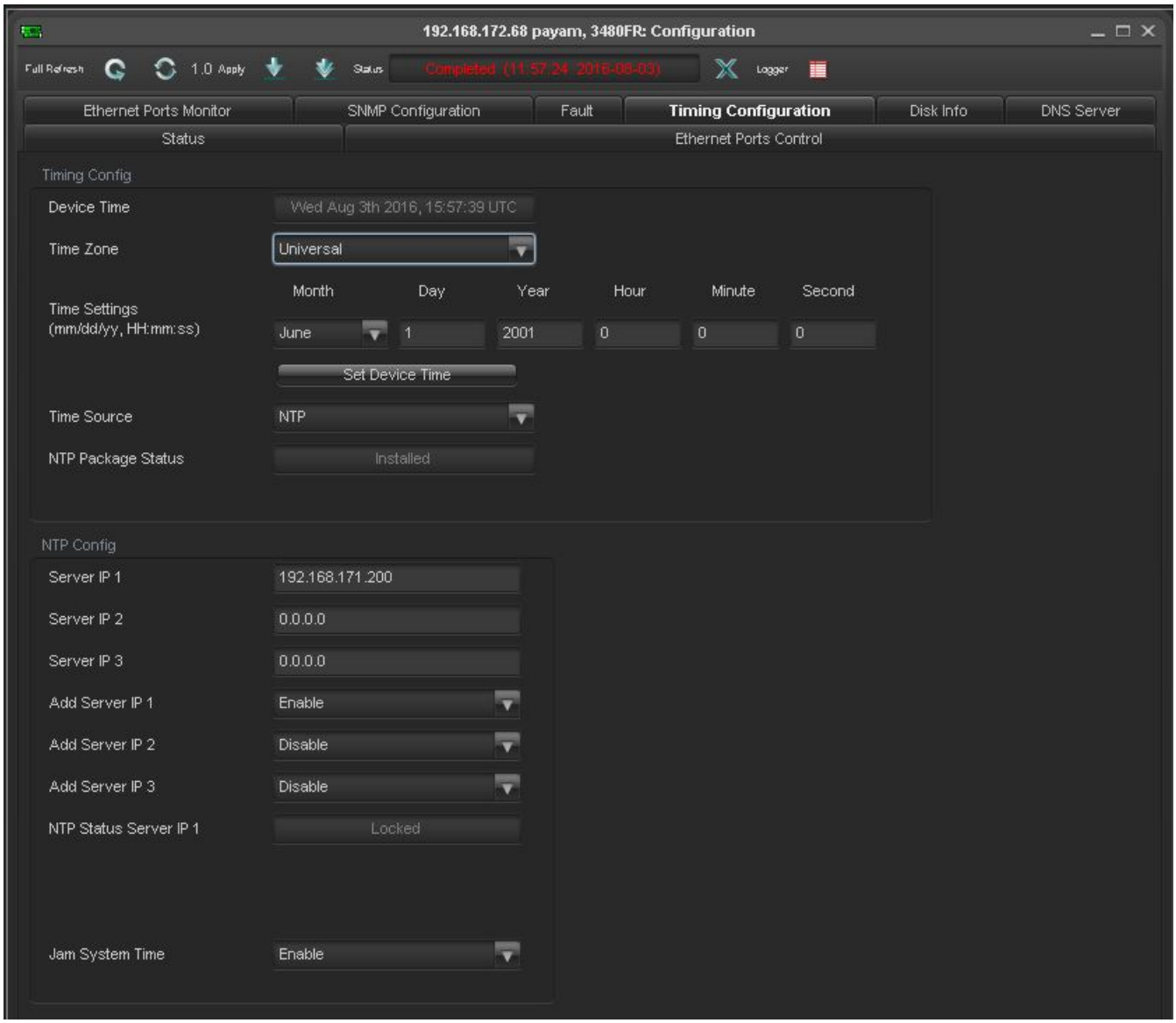


Figure 4-8 : VistaLINK® PRO Hardware Configuration – Timing Configuration Tab

4.1.7. Disk Info

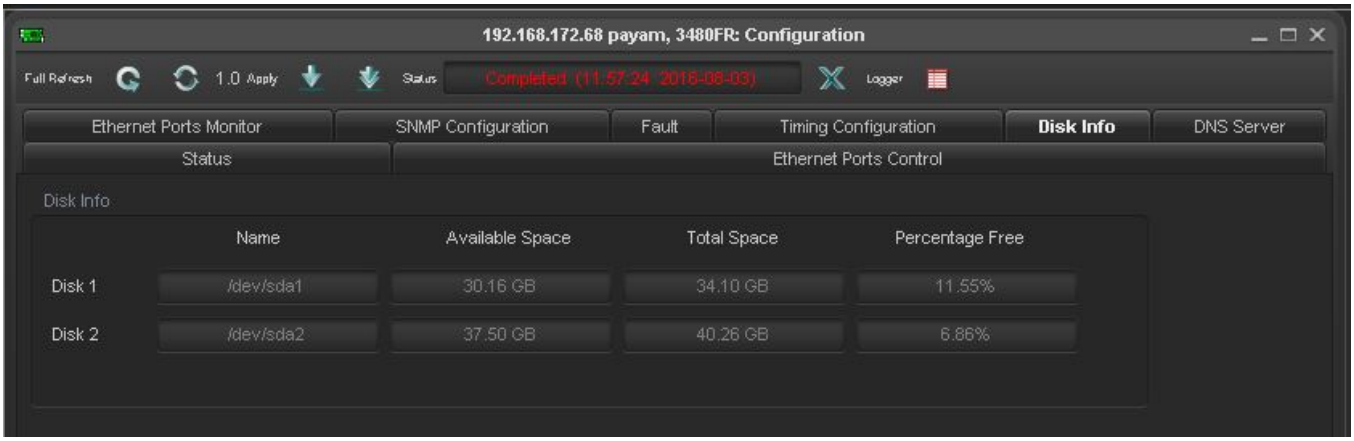


Figure 4-9 : VistaLINK® PRO Hardware Configuration – Disk Info Tab

The functionality of this section will be added in the future.

4.1.8. DNS Server

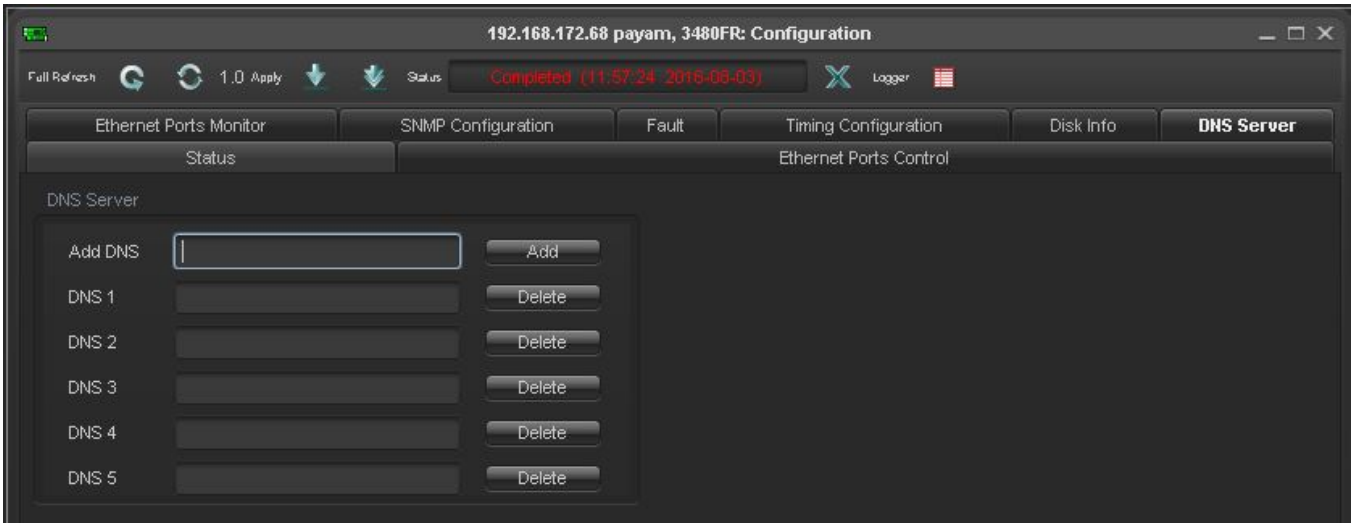


Figure 4-10 : VistaLINK® PRO Hardware Configuration – DNS Server Tab

The functionality of this section will be added in the future.

4.2. 9780MUX-IPGE GENERAL

Right click on the “MUX General” on hardware tree and select *View Configuration*.

4.2.1. Status Tab

The status tab indicates all inputs and outputs with configured IP and bitrate.

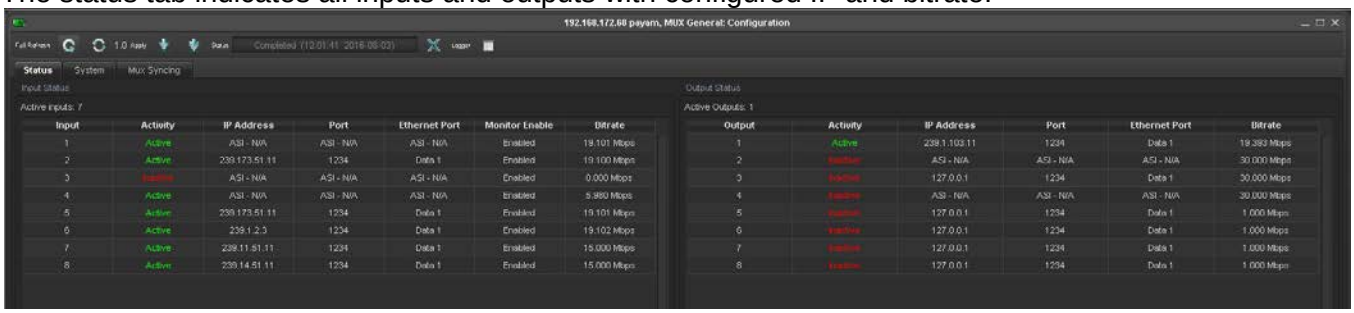


Figure 4-11 : VistaLINK® PRO – 9780MUX General - Status Tab

Input Status

Input: This field displays the index number of each IP input.

Activity: This field indicates the status of input which can be Active or Inactive.

IP Address: This field indicates the Source IP address of each IP input.

Port: This field indicates the Transport Protocol port of each IP input.

Ethernet Port: This field indicates the DATA GigE for each IP input.

Monitor Enable: This field indicates the Monitor status of each IP input which can be Enabled or Disabled.

Bitrate: This field displays the bitrate value (Mbit/s) of the monitored MPEG-2 TS.

The same definitions are applicable for Output Status columns.

4.2.2. System Tab

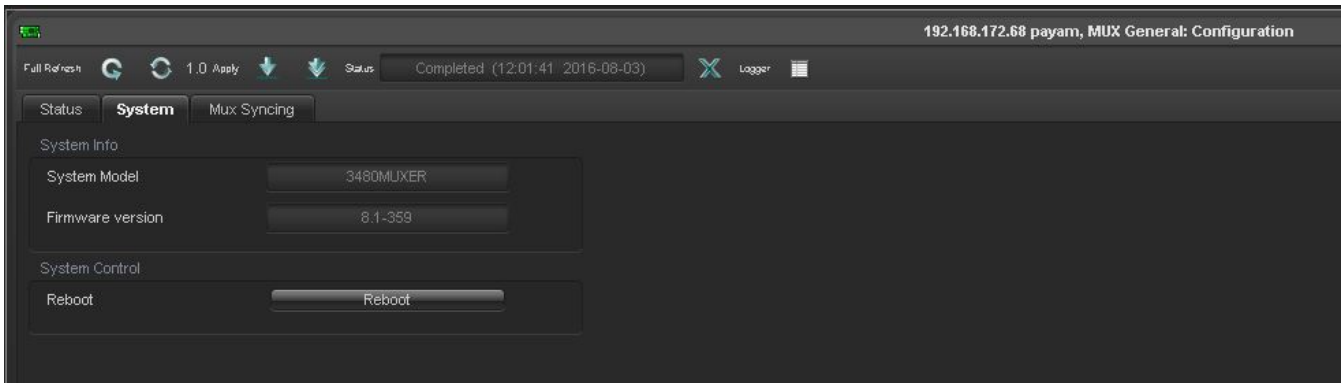


Figure 4-12 : VistaLINK® PRO – 9780MUX General - System Tab

System Model: This field indicates the Model's name.

Firmware Version: This field indicates the Firmware version of the device.

Reboot: This button allows the user to reboot the device.

4.2.3. MUX Syncing

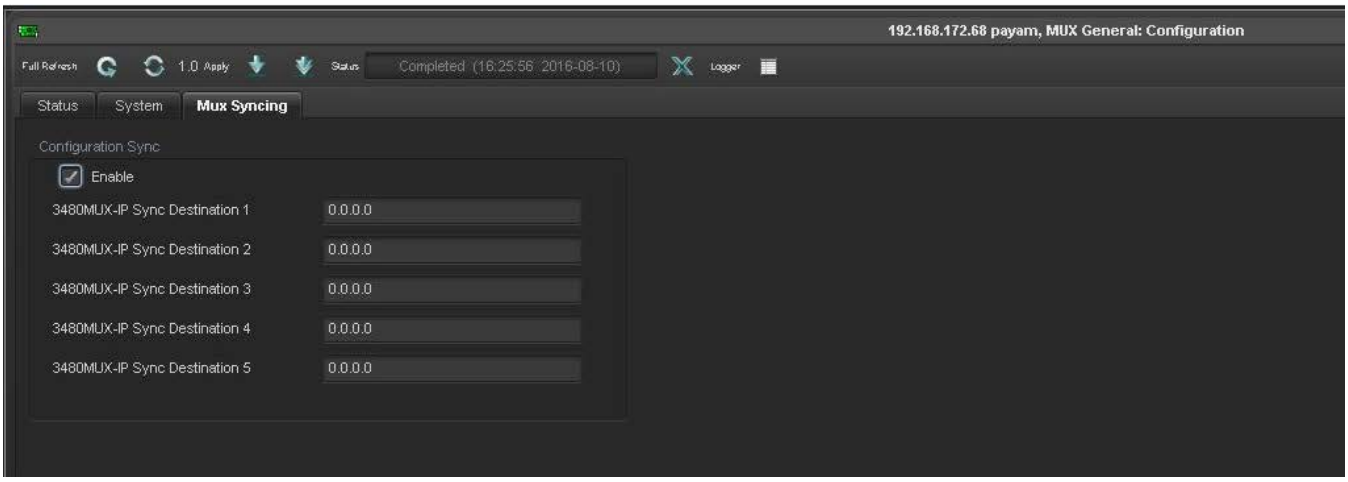


Figure 4-13 : VistaLINK® PRO – 9780MUX General - Mux Syncing Tab

The Mux Sync is a useful function which needs to be used with VistaLink CSM. This feature allows configuration changes on the 9780MUX to dynamically be applied also on the other 3480/9780MUX sync destinations specified. This can be useful in a 1:1 MUX environment where all boxes are identical and changes in one box need to be done on all the other boxes and this feature does that automatically for the user.

4.3. 9780MUX-IPGE INPUT

Select “Mux Input” on hardware tree and right click of the mouse will open the pull down menu. By selecting “View Configuration…” and left click of the mouse; 9780MUX-IPGE Input Configuration Menu will open as shown in Figure 4-14.

Also, it is possible to configure each input by right click on the individual inputs on input tree which takes the user to input configuration window.

To input streams via a Gbe port, configure the input addresses first by specifying both the IP address and UDP/RTP port. The user may configure up to 4 inputs from the inputs tree in the left part of the Configuration menu.

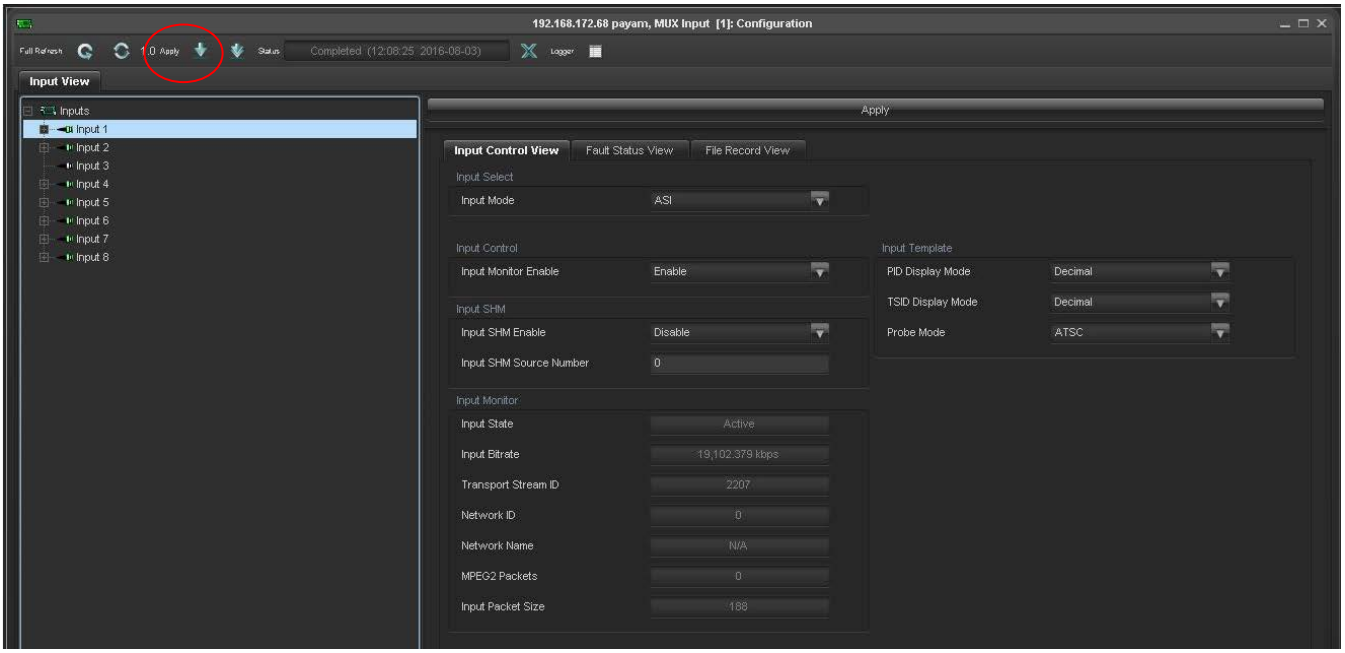


Figure 4-14 : VistaLINK® PRO – 9780MUX Input – Input View

Right side of the Configuration Menu includes (Figure 4-14):

Apply Button: Push this button after any changes at the Input Control View Tab. Note that some times it is needed to push the apply button on the top menu bar to make the changes.

Input Control View Tab: Each one of the input channels has its own menu for control and monitoring capabilities.

Fault Status View Tab: Each one of the input channels has its own menu for alarming capabilities.

File Record View Tab: Records the file information associated with the selected input.

4.3.1. Input Control View Tab

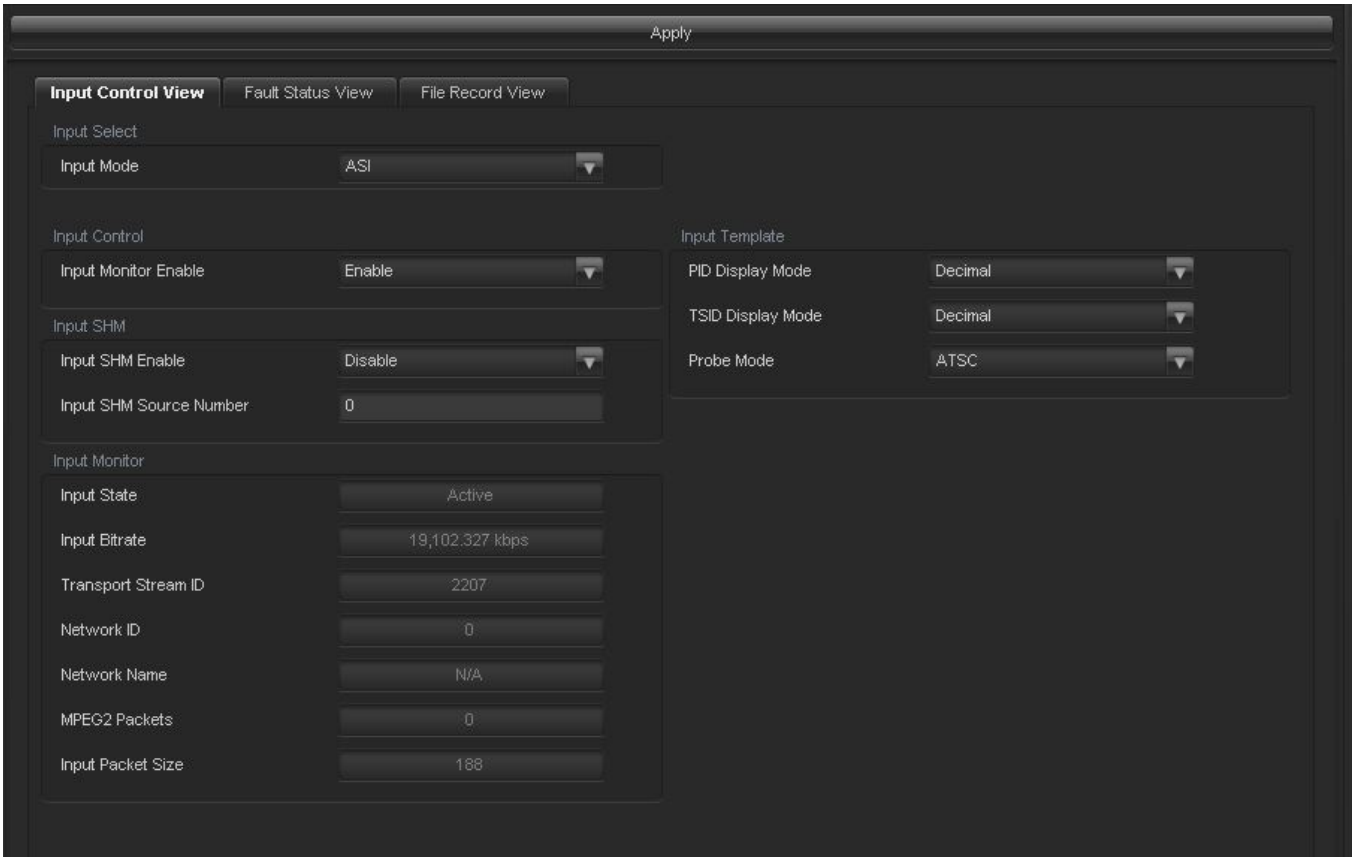


Figure 4-15 : VistaLINK® PRO –Mux Input - Input Control View Tab

Input Select

Input Mode: This drop down menu allows the user to select the input mode which can be IP and ASI.

Note: Input 1, 2, 3 and 4 are ASI+IP and inputs 5, 6, 7 and 8 are IP only.

Input Control

Input Monitor Enable: The user can Enable or disable the Input Socket.

Input SHM

Input SHM Enable: This should be disabled for the standalone 9780MUX.

Input SHM Source Number: This field will be ignored as above parameter should be disabled for normal function.

Input Monitor

Input State: This field shows the current state of input which can be either Active or Inactive.

Input Bitrate: This field indicates total input bitrate in kbps.

Transport Stream ID: This field shows the current bitrate of the input ASI stream.

Network ID: This field shows the decimal value for Transport Stream Network ID. For example, corresponds to one entire satellite of transponders.

Network Name: This field shows the network name like “BBC” if it is available.

MPEG2 Packets: This field shows the number of MPEG2 packets which is received.

Packet Framing: This field displays the type of framing being used. It can be either UDP or RTP.

Input Packet Size: This field indicates normal TS packet size 188.

Input Template

PID Display Mode: This field allows the user to set PID display mode which can be Decimal or Hex.

TSID Display Mode: This field allows the user to set the TSID display mode which can be Decimal or Hex.

Probe Mode: This drop down menu allows the user to set the Probe Mode. Possible options are ATSC, DVB and MPEG.

If Input Mode is set to IP, the Input Control View configuration will be as Figure 4-16.

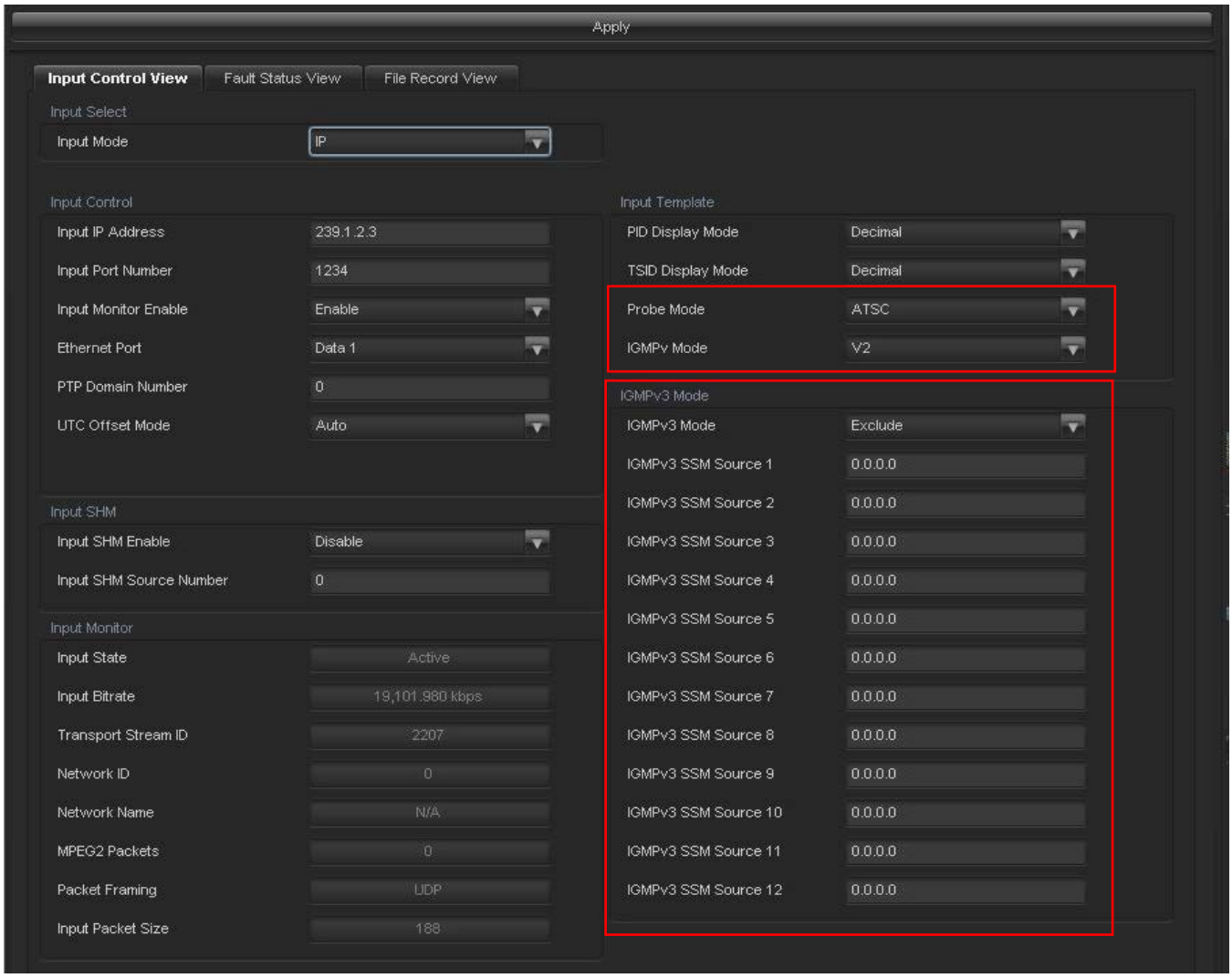


Figure 4-16 : VistaLINK® PRO –Mux Input - Input Control View Tab – Input Mode IP

Input IP Address: This control allows the user to set the IP address of input.

Input Port Number: This control allows the user to set the Port number of input.

Input Monitor Enable: This dropdown menu allows the user to enable the input monitor.

Ethernet Port: This dropdown menu allows the user to set the Ethernet port. Possible options are Data 1 and Data 2.

PTP Domain Number: This control allows the user to set the PTP Domain number.

UTC Offset Mode: This dropdown menu allows the user to set the UTC offset mode.

If Probe Mode is set to ATSC, The IGMPv mode should be set (Figure 4-16).

IGMPv Mode: This field allows the user to set the IGMPv mode. Possible options are V2 and V3. (For V3 use panel below to set mode and SSM)

IGMPv3 Mode

IGMPv3 Mode: This dropdown menu allows the user to set the mode to Exclude.

IGMPv3 SSM Source 1 - 12: There are up to 12 different sources IP for current socket

4.3.2. Fault Status View Tab

This section allows the user to enable faults for both ASI and IP inputs.

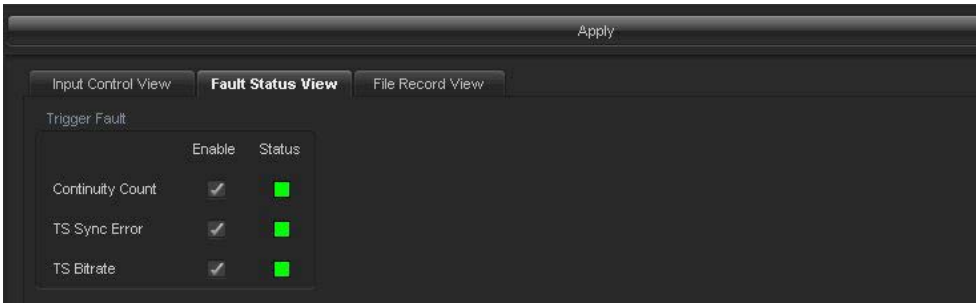


Figure 4-17 : VistaLINK® PRO –Mux Input - Fault Status View Tab

Trigger Fault Enable

Continuity Count: By checking the box, enable triggering on Continuity Counter Error.

TS Sync Error: By checking the box, enable triggering on TS Sync bite (0x47) Error.

TS Bitrate: By checking the box, enable triggering on wrong TS Bitrate.

4.3.3. File Record View Tab

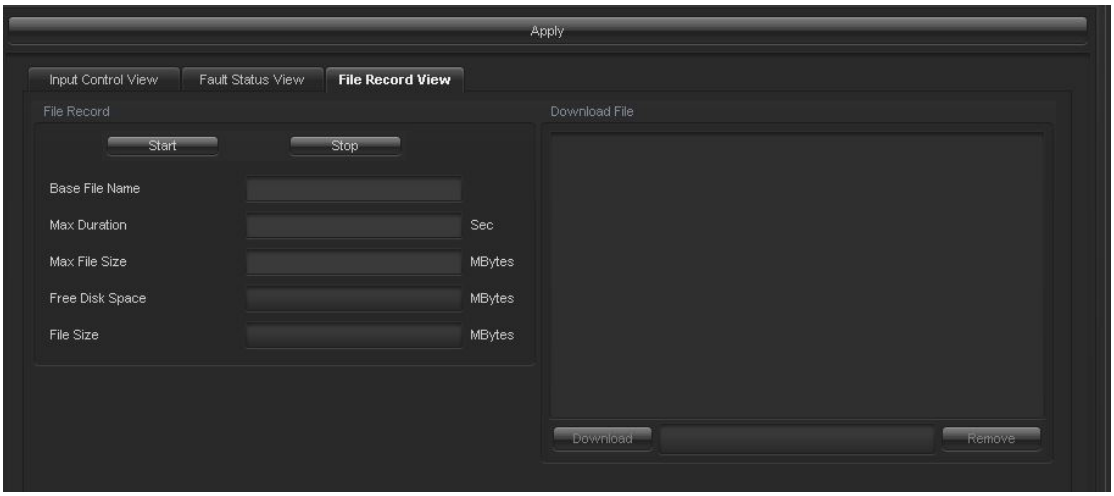


Figure 4-18 : VistaLINK® PRO –Mux Input - File Record View Tab

This tab records the file information associated with the selected input.

4.4. 9780MUX-IPGE OUTPUT

In Output section, the user can define 9780MUX output functionality by grooming multiple services to one MPTS or forming a single SPTS from the input MPTS. There is a tree of 8 MUX outputs under 9780MUX-IP output menu.

There are two views for every MUX which are Offline Output view and Active Output view.

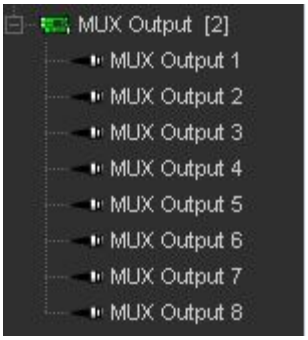


Figure 4-19 : VistaLINK® PRO - MUX Output Tree View

Right click on the MUX Output will take the user to the Output Configuration window (Figure 4-20) where the user can configure all the outputs there and the user can click on each output for individual configuration.

Also, it is possible to configure each output by right click on the individual outputs on Output tree which takes the user to Output configuration window as is shown in Figure 4-21.

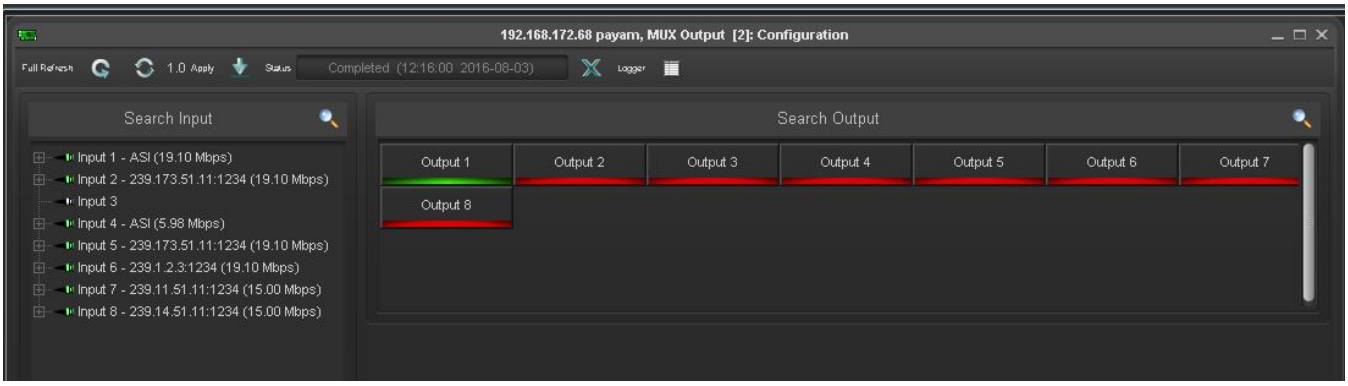


Figure 4-20 : VistaLINK® PRO - MUX Output Configuration window

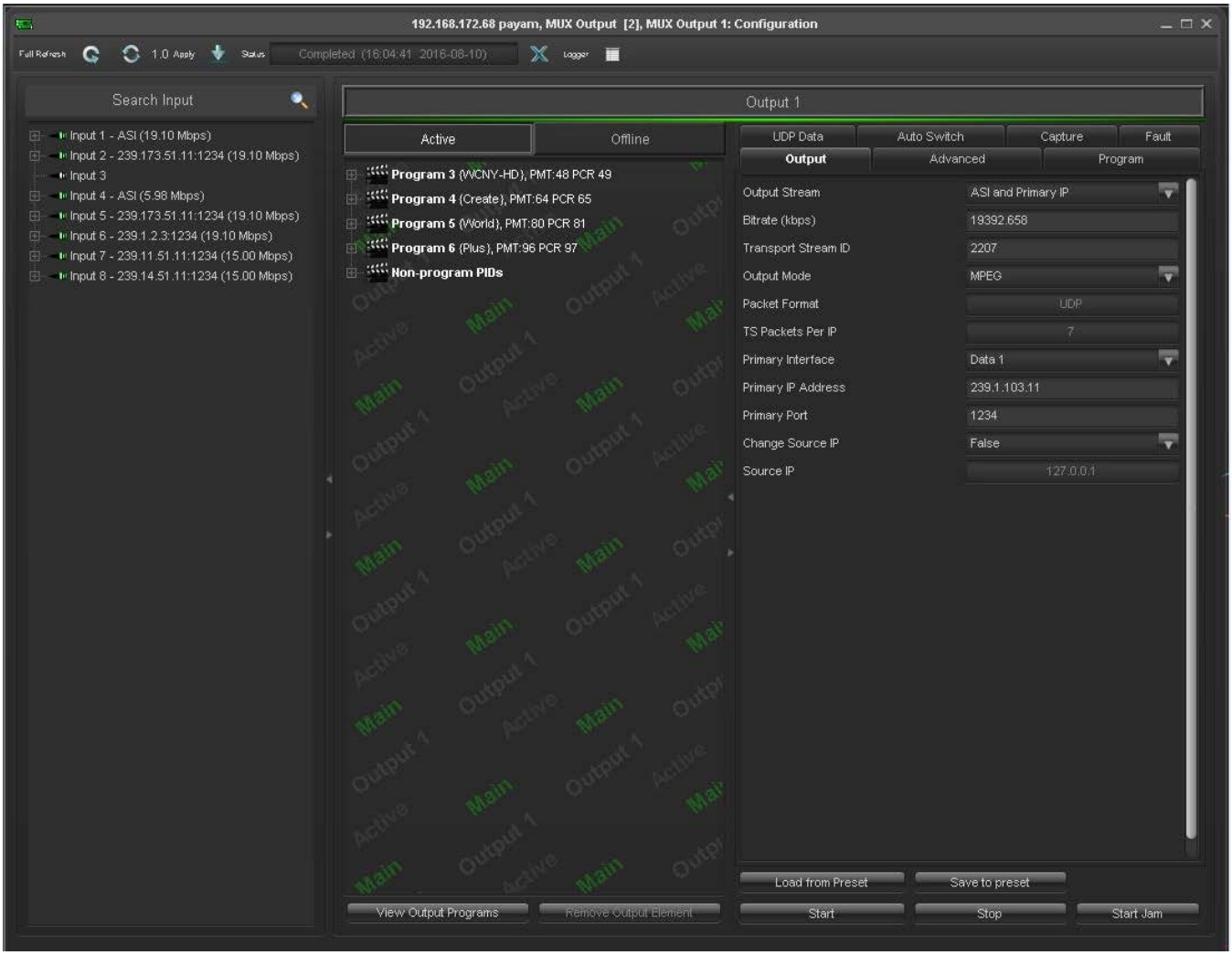


Figure 4-21 : VistaLINK® PRO - MUX Output Configuration window

4.4.1. Offline Output View Tab

The user can configure all the output specifications through this section. Once it is done, the output should be saved as a preset. Each preset can be load again by pressing the “Load from Preset” button in both Offline and Active outputs.

4.4.1.1. Offline Output\Output Tab

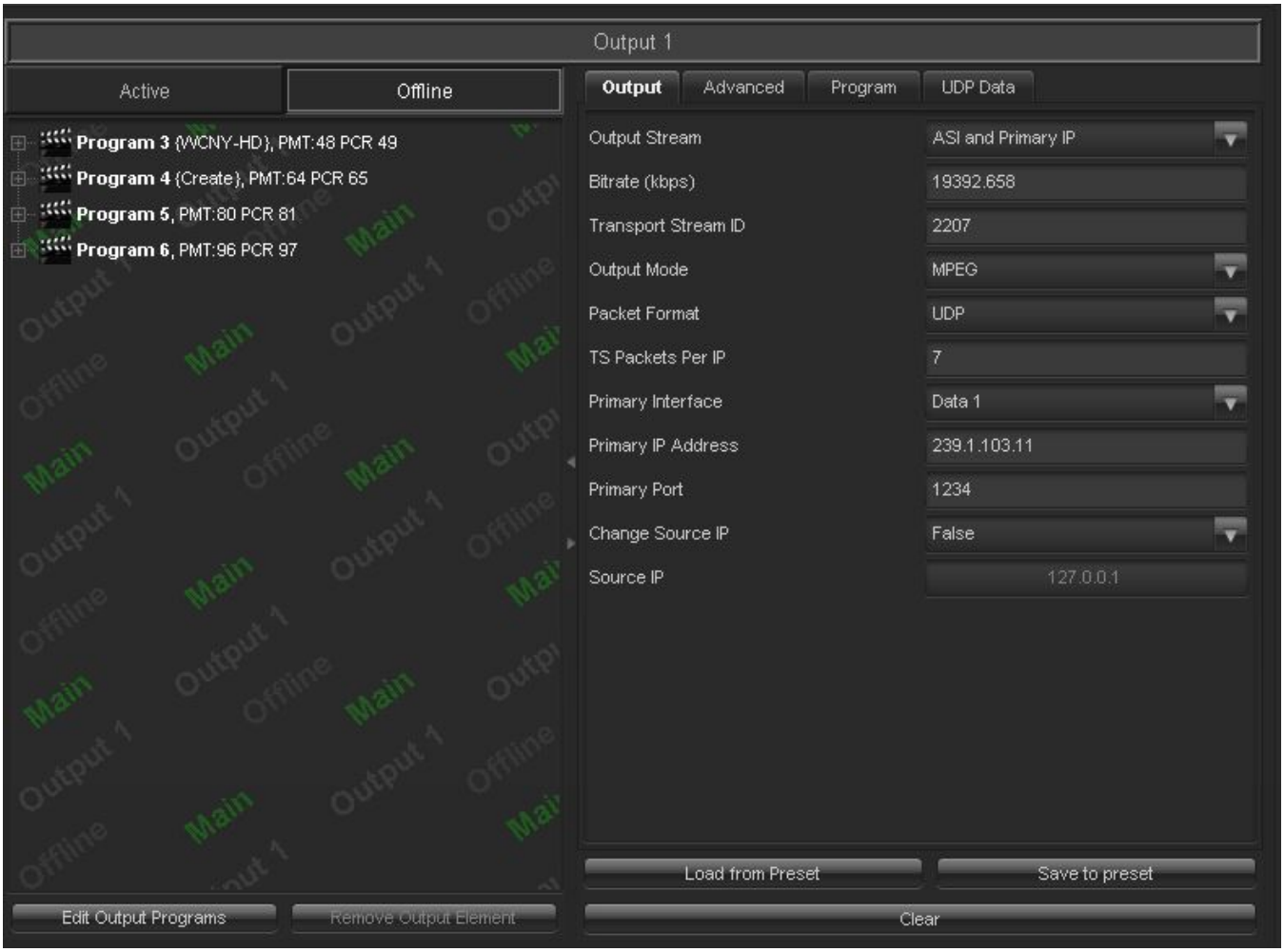


Figure 4-22 : VistaLINK® PRO - Offline Output - Output Tab

Output Stream: This drop down menu allows the user to select the output stream.

Bitrate (kbps): This control allows the user to set the bit rate for offline output mode.

Transport stream ID: This control allows the user to set the transport stream ID for offline output mode. Each Broadcaster needs to have unique TS ID for each type of service.

Output Mode: This control allows the user to set the output mode for offline output mode. Possible options are MPEG, DVB and ATSC.

Packet Format: This dropdown menu allows the user to set the packet format for Offline output mode. Possible options are UDP and RTP+UDP.

TS Packets Per IP: This control allows the user to set the TS packets per IP for each offline output.

Primary Interface: This dropdown menu allows the user to set the primary interface which can be Data1 or Data 2 (Data 3 and Data 4 are not supported on this device).

Primary IP address: This control allows the user to set the destination IP of the socket via primary interface.

Primary Port: This control allows the user to set the destination UDP/RTP of the socket via primary interface.

Changes Source IP: It can be either false or true.

Source IP: This field indicates the Source IP address.

Save To Preset: By pressing this button after configuring all output specifications, the user can save them as a Preset and assign them a name in the new appeared window. (Figure 4-23)

Load From preset: By pressing this button, the user can load a preset from saved presets (Figure 4-24).

Figure 4-23 : VistaLINK® PRO - Save or Rename a Preset

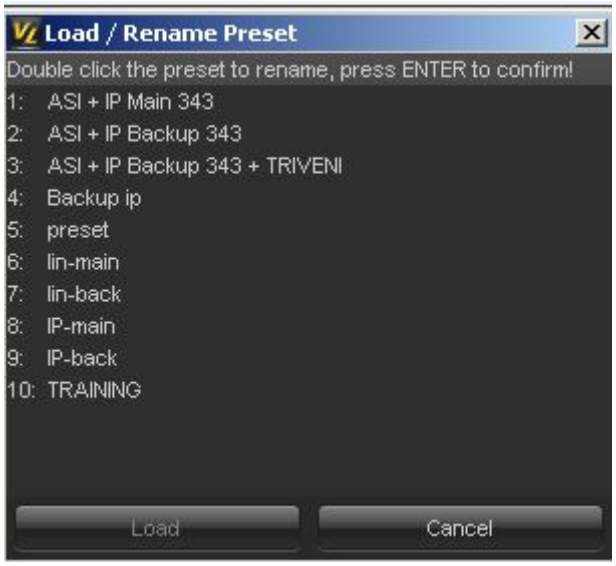


Figure 4-24 : VistaLINK® PRO - Load or Rename a Preset

4.4.1.2. Offline Output\Advanced Tab

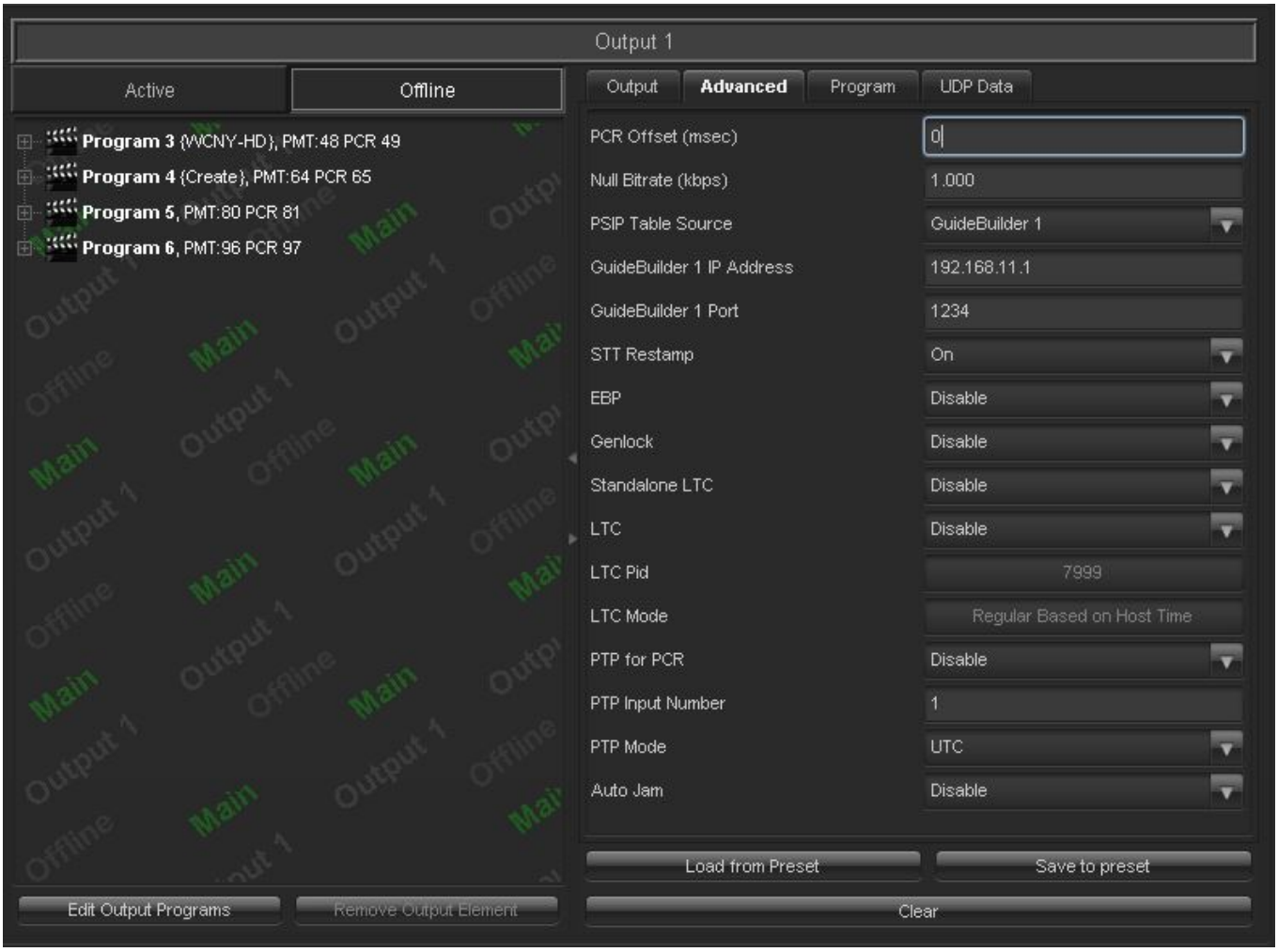


Figure 4-25 : VistaLINK® PRO - Offline Output - Advanced Tab

PCR Offset (msec): This control allows the user to set the PCR offset in milliseconds.

Null Bitrate (kbps): This field allows the user to set the Null Bitrate in kbps.

PSIP Table Source: This dropdown menu allows the user to set the PSIP table source. Possible options are Guidebuilder1, 2 and None.

Guidebuilder 1 IP Address: This control allows the user to set the IP address for GuideBuilder 1.

GuideBuilder 1 Port: This control allows the user to set the port number for GuideBuilder 1.

STT Restamp: This dropdown menu allows the user to turn On or Off the STT Restamp which is used for ATSC PSIP table insertion application.

EBP: This dropdown menu allows the user to enable or disable the EBP.

Genlock: This dropdown menu allows the user to enable or disable the Genlock.

Standalone LTC: This dropdown menu allows the user to enable or disable the Standalone LTC.

LTC: This dropdown menu allows the user to enable or disable the LTC.

LTC Pid: This field indicates the LTC Pid.

LTC Mode: This field indicates the LTC mode.

PTP for PCR: This dropdown menu allows the user to set enable or disable the PTP for PCR.

PTP Input Number: This field allows the user to set the PTP Input number.

PTP Mode: This control allows the user to set the PTP mode. Possible options are UTC and TAI.

Auto Jam: This dropdown menu is a custom application and should be disabled.

4.4.1.3. Offline Output\Program Tab

In this tab for modifying the fields, the user should select a program from program trees at the left side.

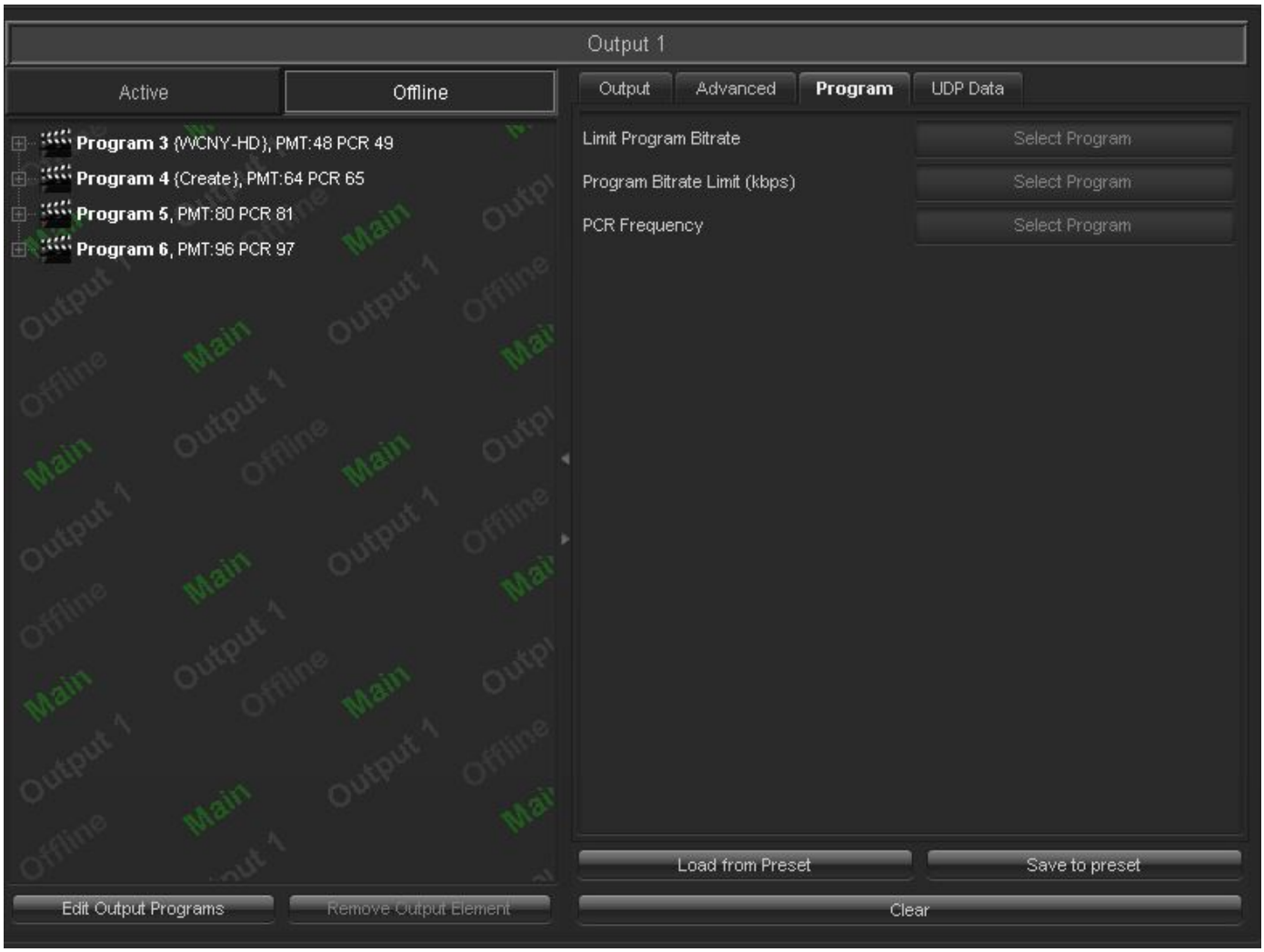


Figure 4-26 : VistaLINK® PRO - Offline Output - Program Tab

Limit Program Bitrate: This field allows the user to define the bitrate limit for each program in Kbps.

Program Bitrate Limit (kbps): This field allows the user to put a limit for a specific program bitrate in Kbps.

PCR Frequency: This field allows the user to set the PCR Frequency. The frequency will be at the maximum range if the program number is more than 5.

4.4.1.4. Offline Output\UDP Data Tab

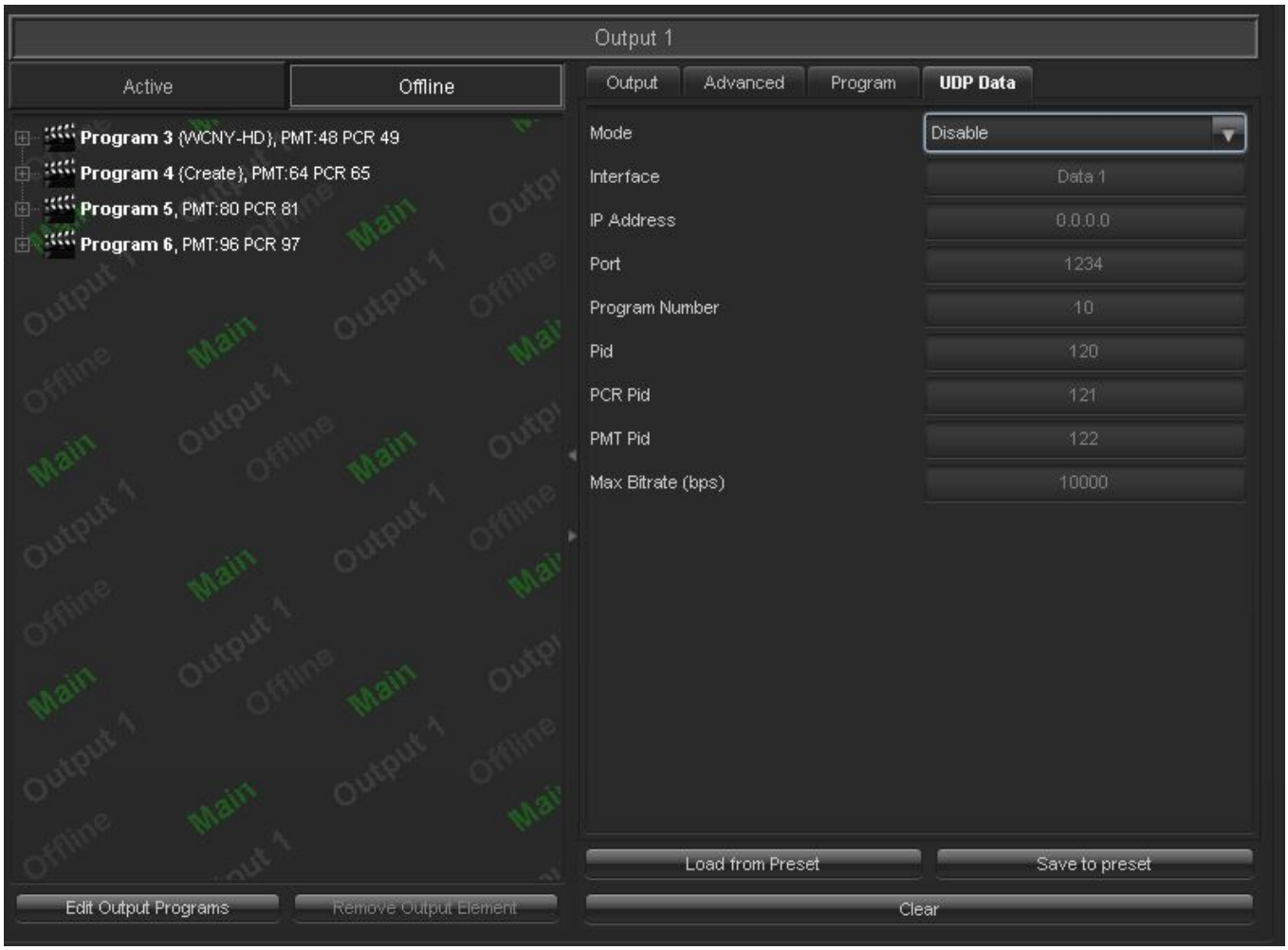


Figure 4-27 : VistaLINK® PRO - Offline Output - UDP Data Tab

Mode: This dropdown menu allows the user to enable or disable the UDP data mode. If it is set to Enable, allows the user to configure the fields.

Interface: This dropdown menu allows the user to set the UDP data interface.

IP Address: This field allows the user to set the UDP data IP address.

Port: This field allows the user to set the UDP data port number.

Program Number: This field allows the user to set the UDP data program number.

Pid: This field allows the user to set the UDP data Pid.

PCR Pid: This field allows the user to set the UDP data PCR Pid.

PMT Pid: This field allows the user to set the UDP data PMT Pid.

Max Bitrate (bps): This filed allows the user to set the UDP data Max Bitrate.

4.4.2. Drag and Drop

There are 8 possible inputs to the current output 9780MUX. The user can drag and drop one or multiple inputs, programs or Pids to the output window in order to create output SPTS or MPTS service accordingly. When the user drag and drop input to the output window, a table will be opened as is shown in Figure 4-28.

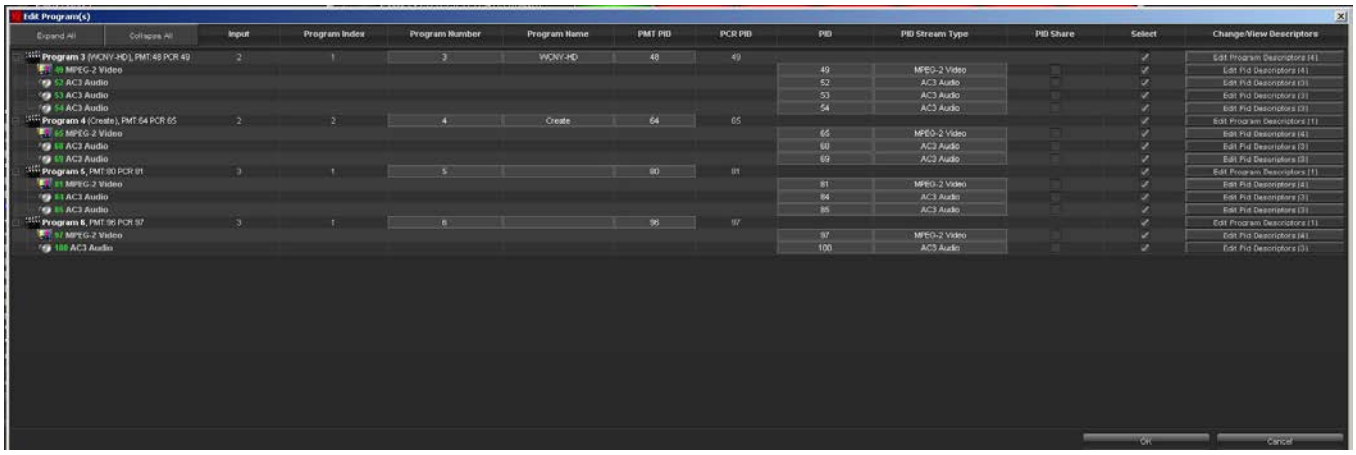


Figure 4-28 : VistaLINK® PRO - Edit Program(s) Window

In this table the user can modify:

- Program Number
- Program Name
- PMT PID
- Video PID
- Audio PID
- Data PID

If the output mode is ***ATSC***, the Add program(s) window will be as is shown in Figure 4-29.

Figure 4-29 : VistaLINK® PRO – Add Program(s)/PID(s) window - ATSC Output Mode

If the output mode is ***DVB***, the Add program(s) window will be as is shown in Figure 4-30.

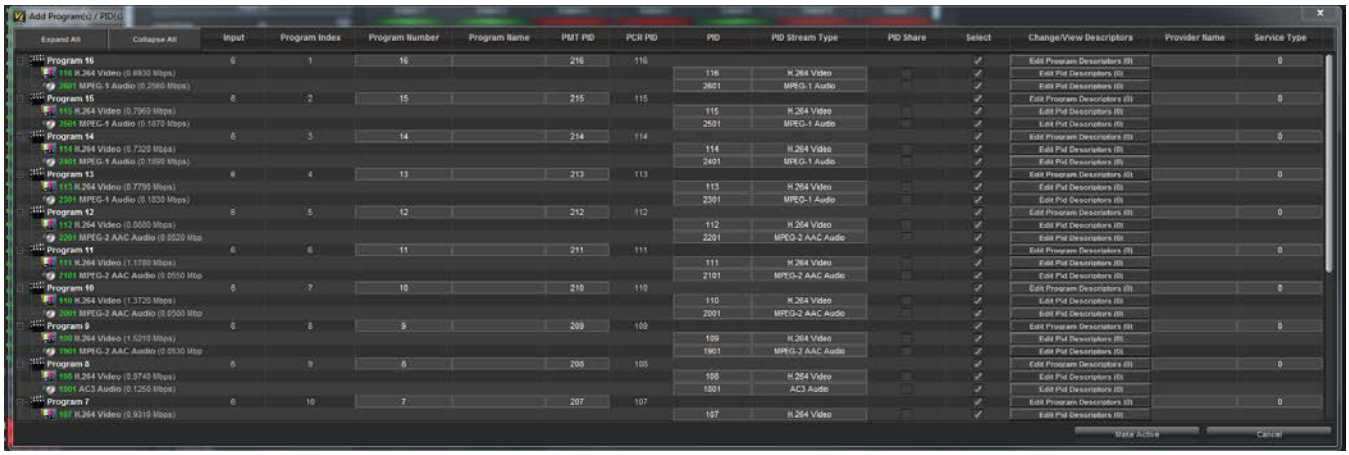


Figure 4-30 : VistaLINK® PRO – Add Program(s)/PID(s) window - DVB Output Mode

Within this table the user has the ability to change or view the Program descriptors by pressing the buttons under the Change/View Descriptors column for each program or Pid.

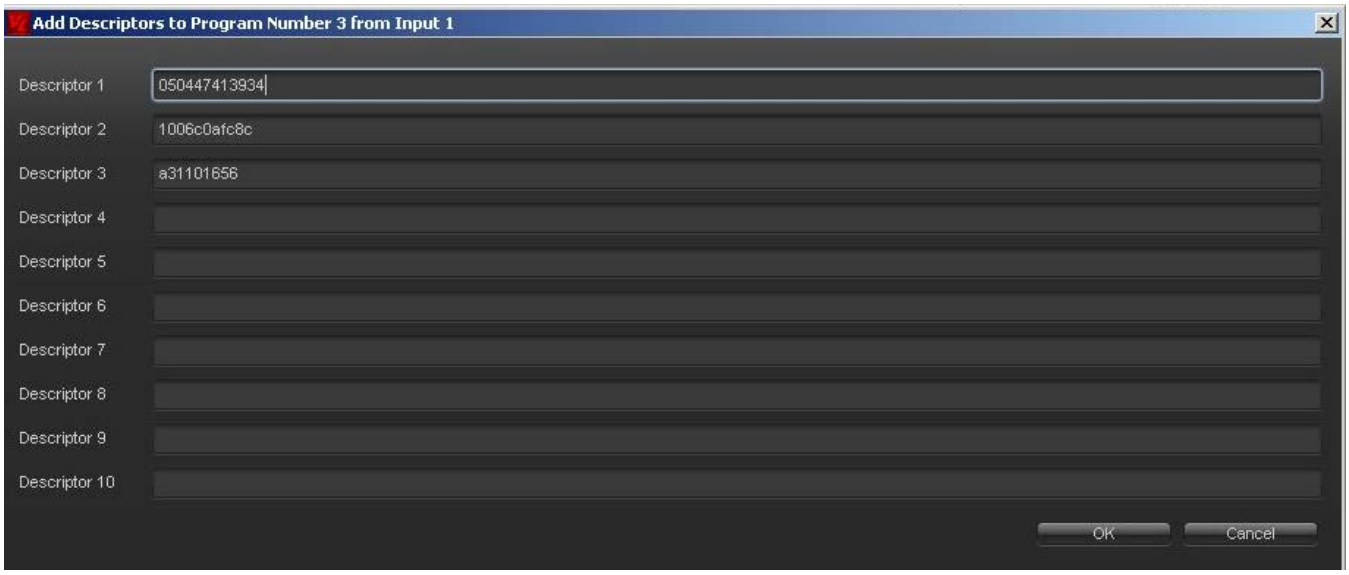


Figure 4-31 : VistaLINK® PRO - Edit Program Descriptor

Edit Program Descriptors: Add, edit or remove Program descriptors in the PMT table to a maximum of 10 descriptors per program.

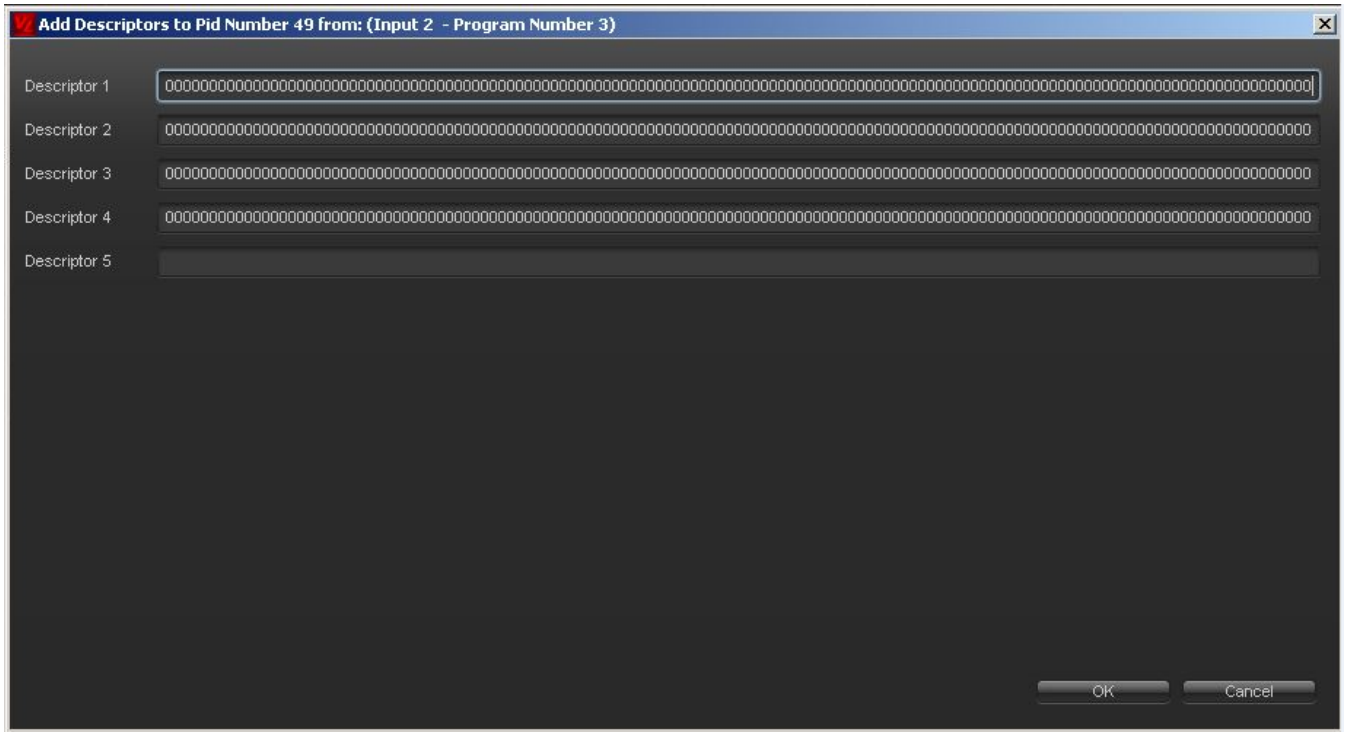


Figure 4-32 : VistaLINK® PRO - Edit PID Descriptors

Edit PID Descriptors: Add, edit or remove Elementary Stream descriptors to a maximum of 5 per PID.

4.4.3. Active Output\Output Tab

The user can configure the outputs through Active Output too but it is not allowed to configure or modify all the specifications on the Active mode.

Push “Load from Preset” button in order to activate new configuration as shown in Figure 4-33.

Figure 4-33 : VistaLINK® PRO – Mux Output - Output Tab

4.4.3.1. Active Output\ Output Tab

Output stream: This drop down menu allows the user to select the output stream.

Bitrate(kbps): This field allows the user to set socket output Bitrate in Kbps.

Transport Stream ID: This filed allows the user to set the transport stream ID. Each broadcaster needs to have unique TS ID for each type of service.

Output Mode: This dropdown menu allows the user to set the output mode. Possible options are MPEG, DVB and ATSC.

Packet Format: This field indicates the packet format.

TS Packets Per IP: This field indicates TS packets per IP.

Primary Interface: This dropdown menu allows the user to select primary data Ethernet port which can be Data 1 or Data 2.

Primary IP Address: This filed allows the user to set the destination IP of the socket via Primary interface.

Primary Port: This field allows the user to set the destination UDP/RTP of the socket via Primary interface.

Change Source IP: This dropdown menu is used in specific custom applications and should be disabled.

Source IP: This field indicates the source IP address.

Load from Preset: This button allows the user to load a preset from saved presets and also rename a preset.

Save to Preset: This button allows the user to save the configuration to a preset or rename a preset.

Start: By pushing the Start button, the user can start the stopped program.

Stop: By pushing the Stop button, the user can stop the running program.

Start Jam: This button is used for a specific custom application and should be ignored.

Note: According to output stream selection, different fields can be configured.

4.4.3.2. Active Output\Advanced Tab

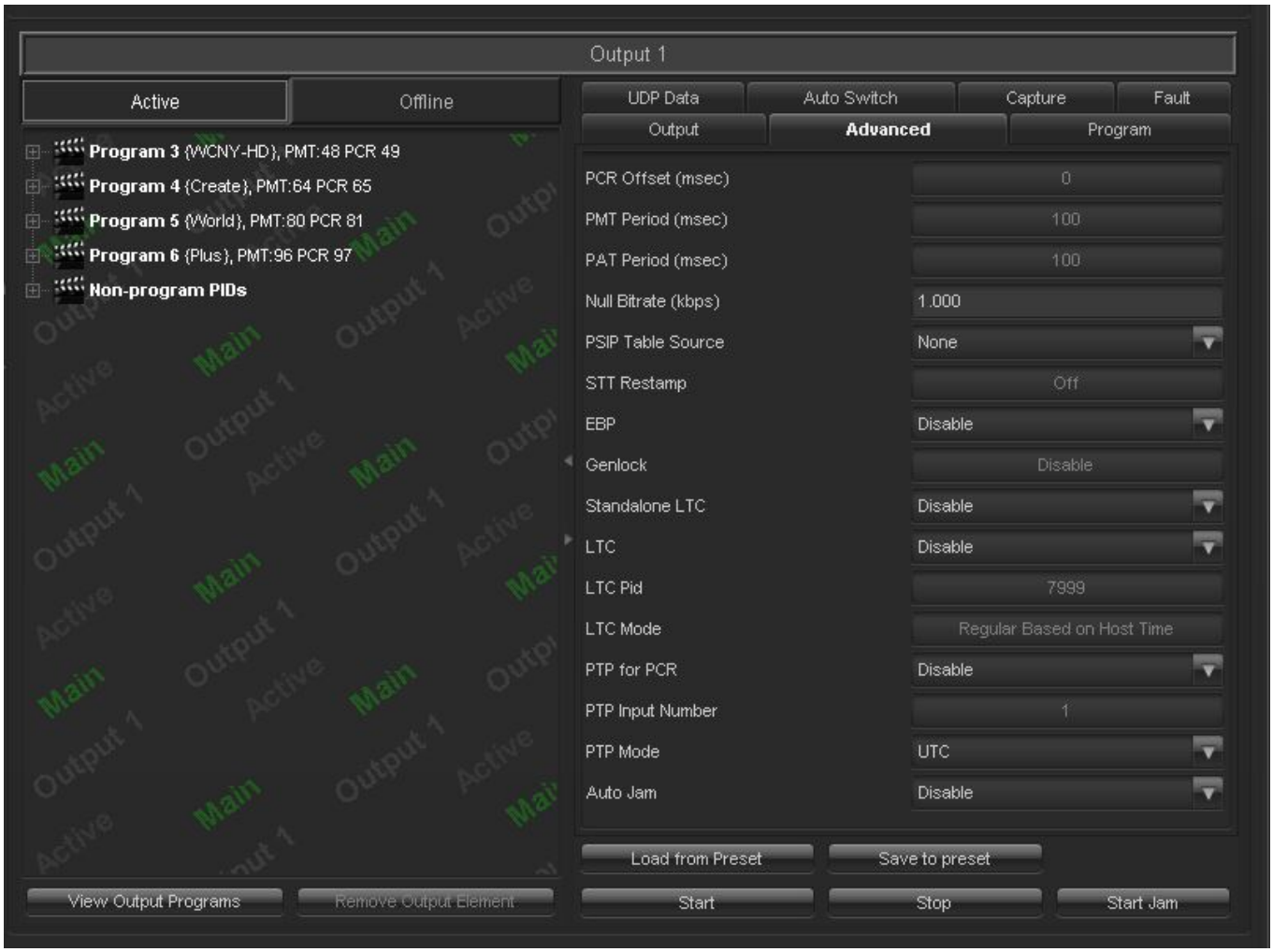


Figure 4-34 : VistaLINK® PRO – Mux Output - Advanced Tab

As mentioned before, the user is not allowed to configure or modify the entire field in Active output section. Some of the field here are for monitor only.

PCR Offset (msec): This field indicates the PCR Offset in millisecond.

PMT Period (msec): This field indicates the PMT Period in millisecond.

PAT Period (msec): This field indicates the PAT Period in millisecond.

Null Bitrate (kbps): This field allows the user to set the Null Bitrate in kbps.

PSIP Table Source: This dropdown menu allows the user to set the PSIP table source. Possible options are None, GuideBuilder1 and GuideBuilder2.

STT Restamp: This field indicates the STT Restamp.

EBP: This dropdown menu allows the user to disable or enable the EBP.

Genlock: This field indicates the Genlock status.

Standalone LTC: This dropdown menu allows the user to enable or disable the Standalone LTC.

LTC: This dropdown menu allows the user to enable or disable the LTC.

LTC Pid: This field indicates the LTC Pid.

LTC Mode: This field indicates the LTC mode.

PTP for PCR: This dropdown menu allows the user to disable or enable the PTP for PCR.

PTP Input Number: This field indicates the PTP input number.

PTP Mode: This dropdown menu allows the user to set the PTP Mode. Possible options are UTC and TAI.

Auto Jam: This field should be disabled.

4.4.3.3. Active Output\Program Tab

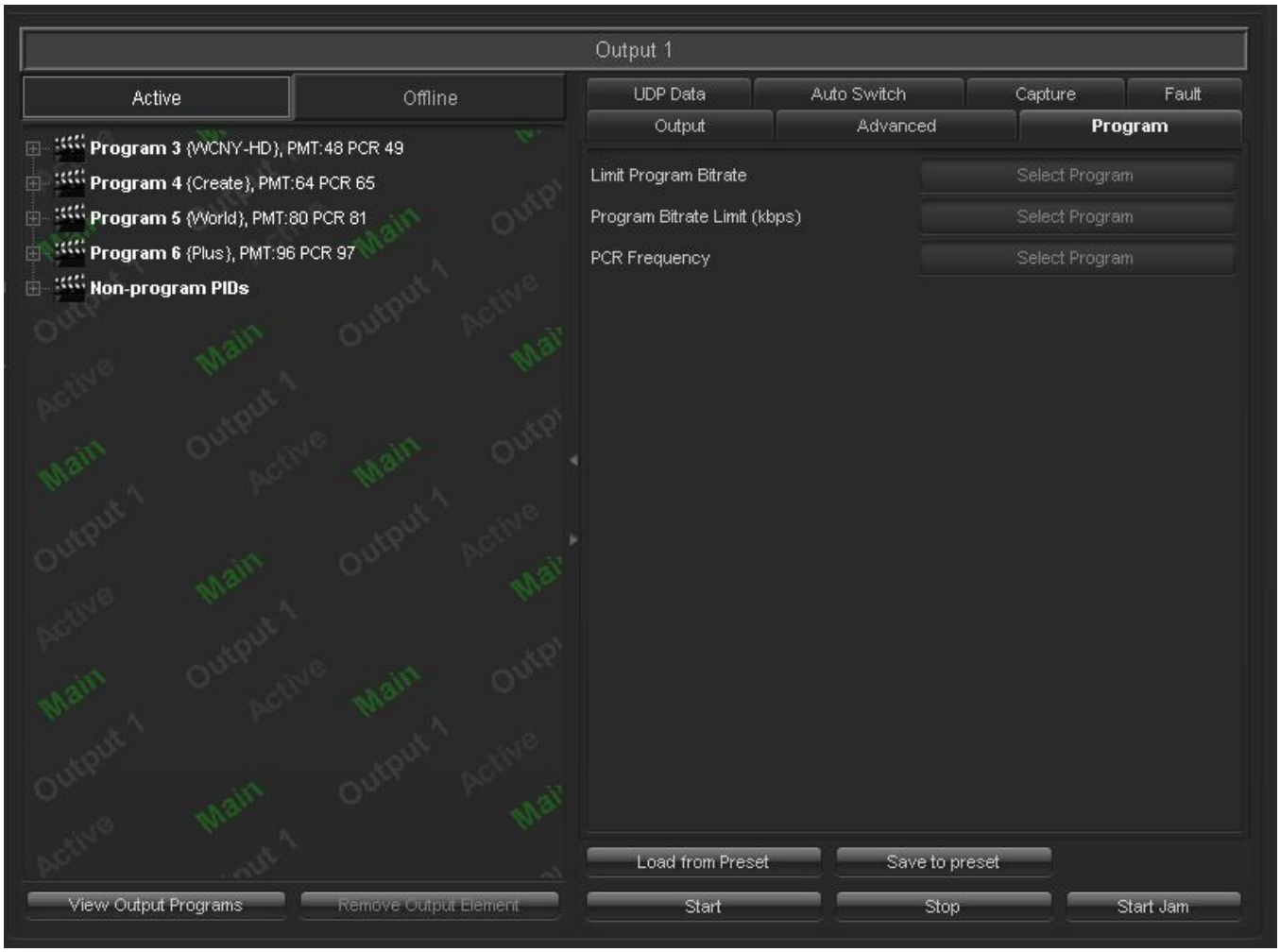


Figure 4-35 : VistaLINK® PRO – Mux Output - Program Tab

For modifying the fields in this section, the user should select a program from program trees at the left side.

Limit Program Bitrate: This field allows the user to define the bitrate limit for each program in Kbps.

Program Bitrate Limit (kbps): This field allows the user to put an additional limit for a specific program bitrate in Kbps.

PCR Frequency: This field allows the user to set the PCR Frequency. The frequency will be at the maximum range if the program number is more than 5.

4.4.3.4. Active Output\UDP Data Tab

his section will create a program with the following information (Figure 4-36). It should be disabled as it's for a custom application.

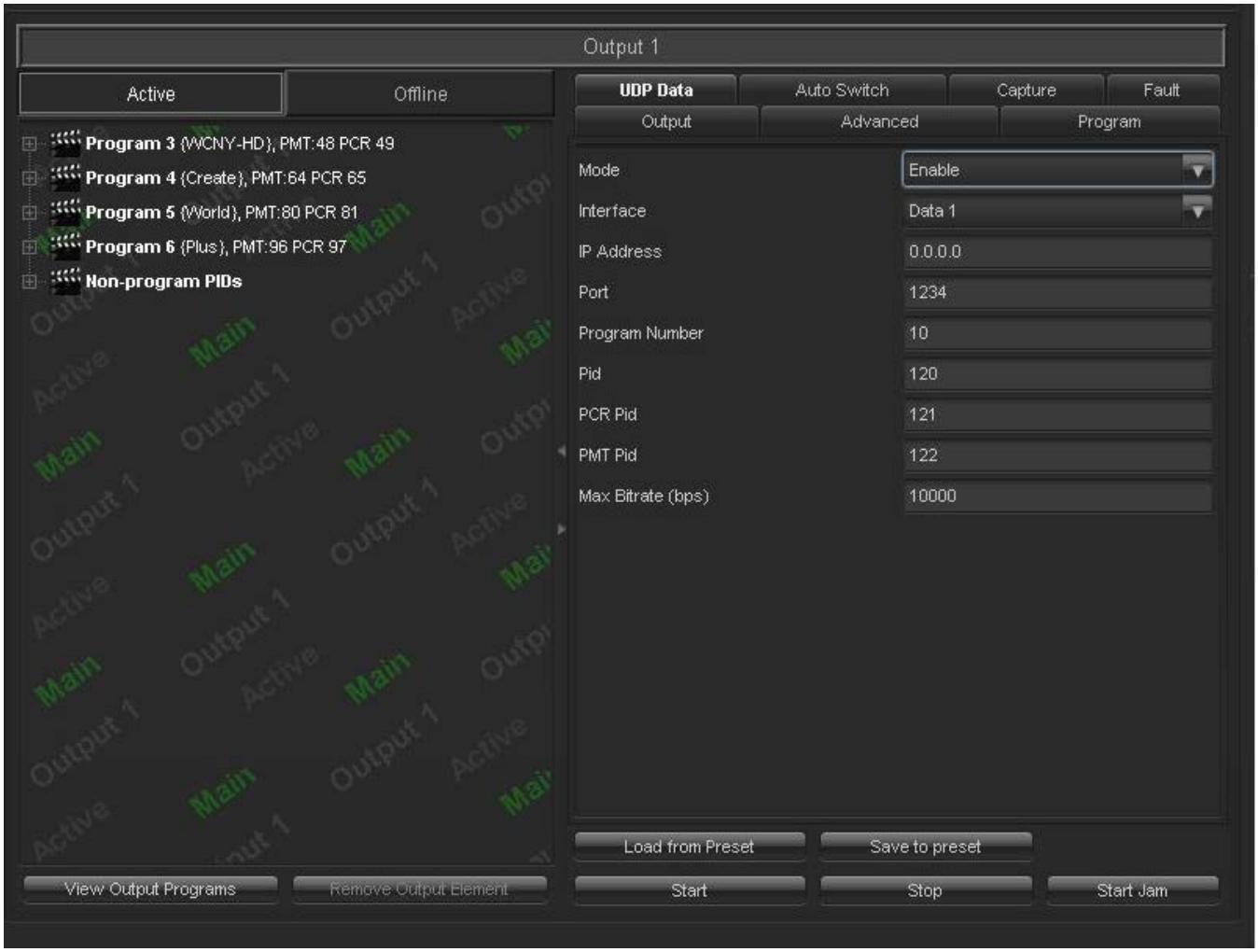


Figure 4-36 : VistaLINK® PRO – Mux Output - UDP Data Tab

Mode: This dropdown menu allows the user to enable or disable the UDP data mode. If it is set to Enable, allows the user to configure the fields.

Interface: This dropdown menu allows the user to set the UDP data interface.

IP Address: This field allows the user to set the UDP data IP address.

Port: This field allows the user to set the UDP data port number.

Program Number: This field allows the user to set the UDP data program number.

Pid: This field allows the user to set the UDP data Pid.

PCR Pid: This field allows the user to set the UDP data PCR Pid.

PMT Pid: This field allows the user to set the UDP data PMT Pid.

Max Bitrate (bps): This filed allows the user to set the UDP data Max Bitrate.

4.4.3.5. Active Output\ Auto Switch Tab

It should be disabled as it's for a custom application.

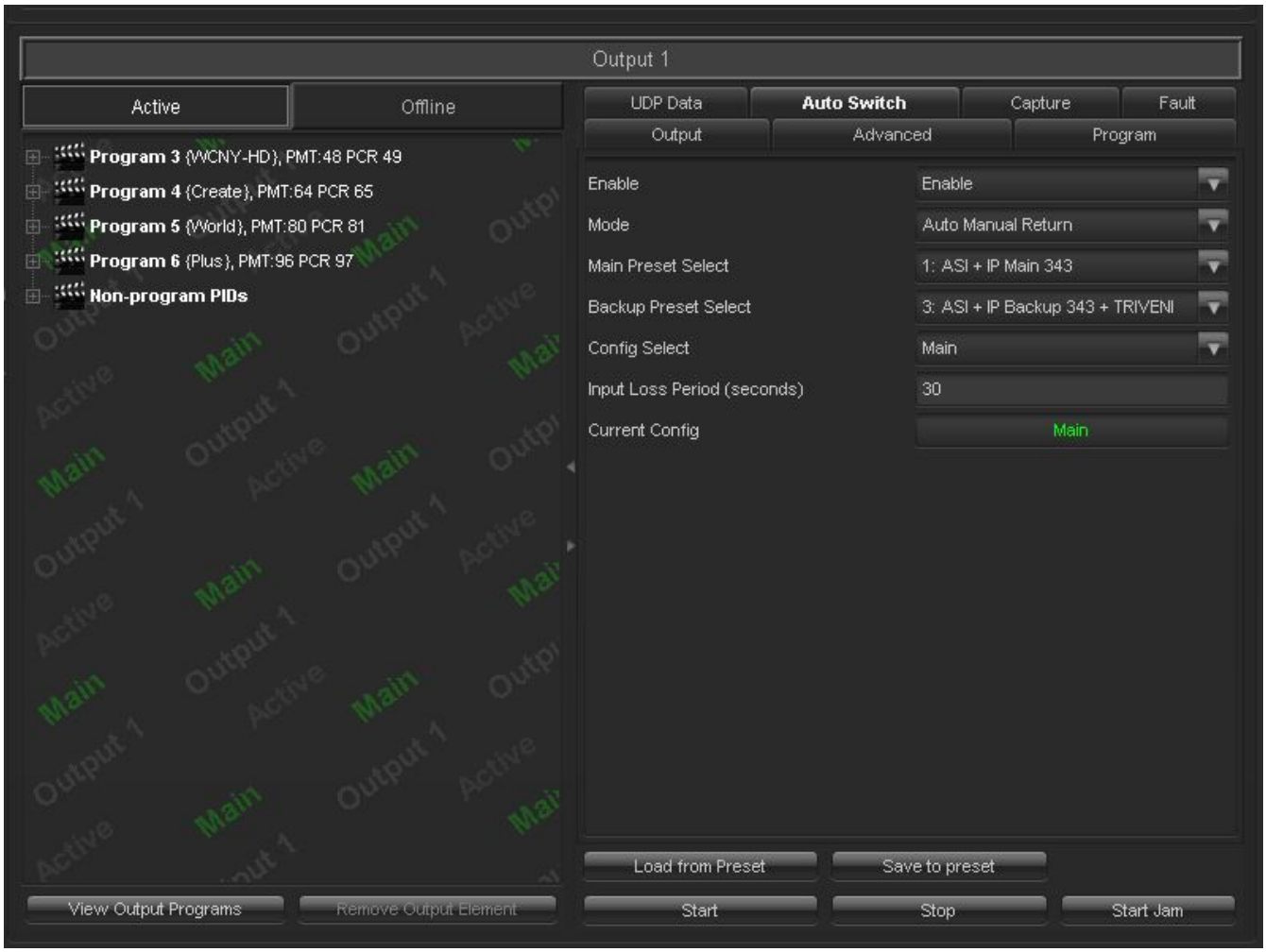


Figure 4-37 : VistaLINK® PRO – Mux Output – Auto Switch Tab

4.4.3.6. Active Output\ Capture Tab

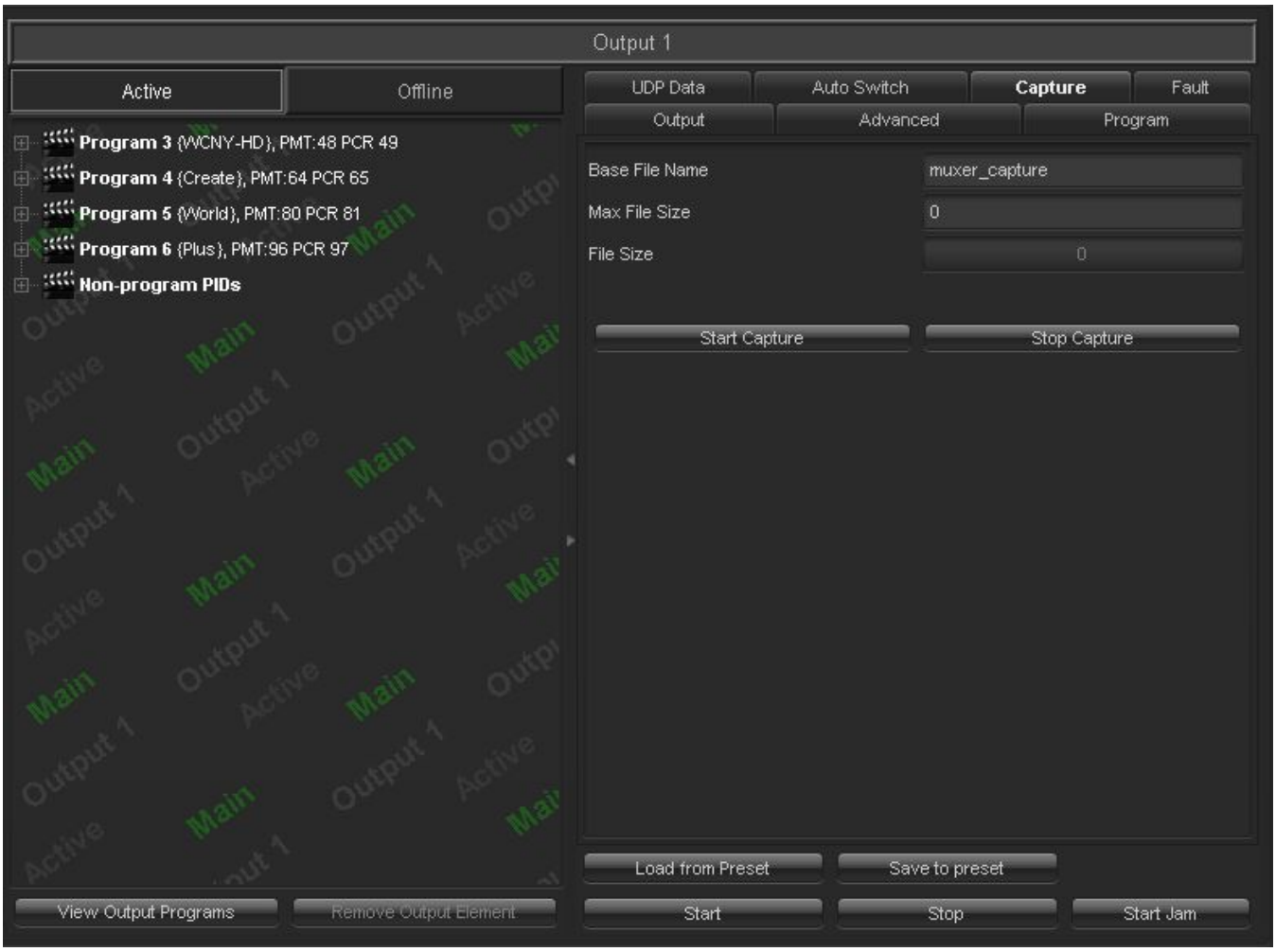


Figure 4-38 : VistaLINK® PRO – Mux Output - Capture Tab

Base File Name: This field allows the user to set a base file name for capture.

Max File Size: This field allows the user to set the Maximum file size of capture.

File Size: This field indicates the file size of capture.

Start Capture: This button allows the user to start capturing.

Stop Capture: This button allows the user to stop capturing.

4.4.3.7. Active Output\Fault Tab

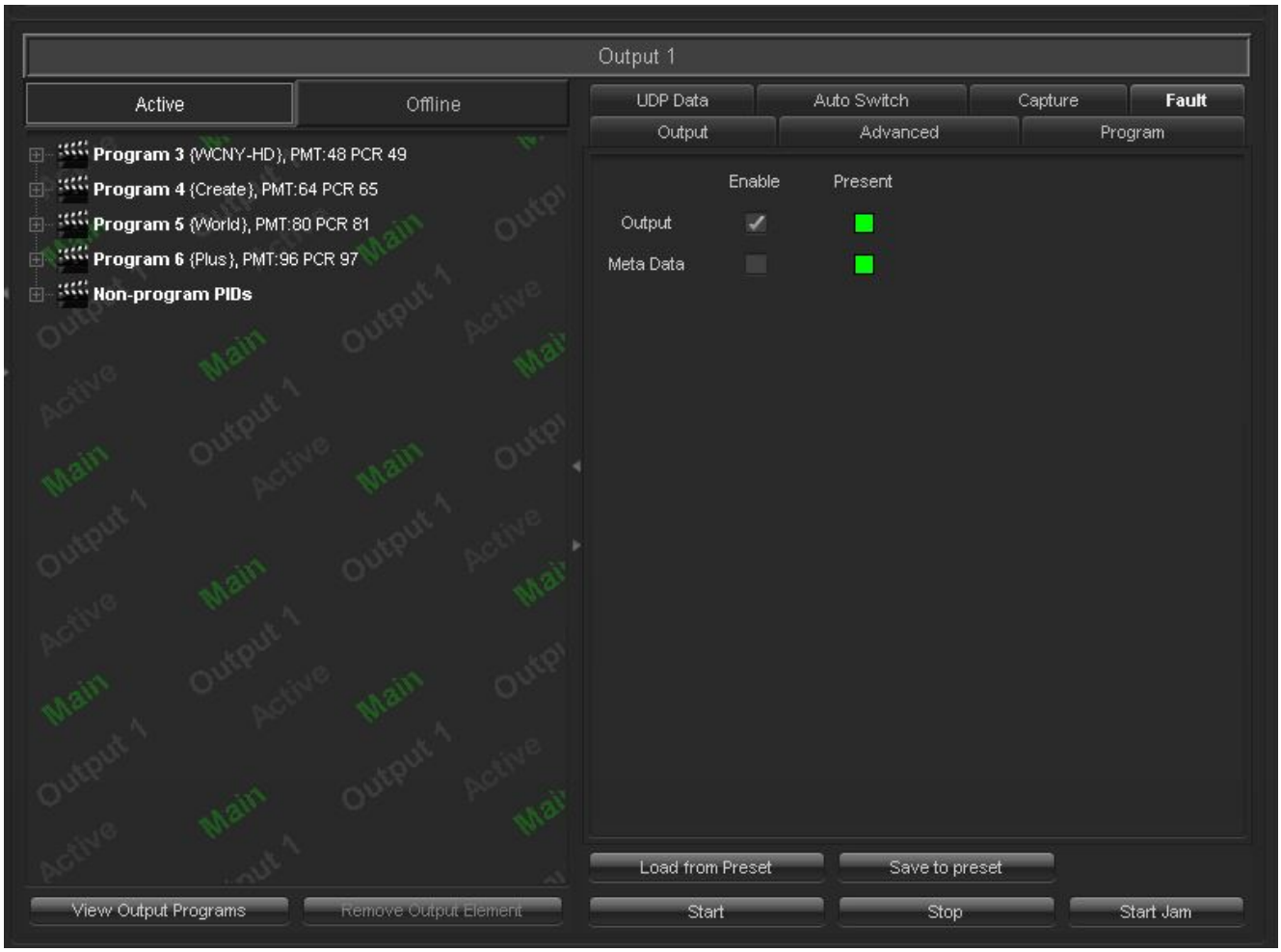


Figure 4-39 : VistaLINK® PRO – Mux Output - Fault Tab

Output: This trap will be triggered when Output is not present.

Meta Data: This trap will be triggered when Meta data is not present.

4.4.4. Adding Input on the Output section

This section allows the user to configure or modify the input settings. By clicking the “Configuration” button, the user will have access to the input window configuration.

Note: Make sure that input is enabled and input mode is IP or ASI and probe mode is ATSC.

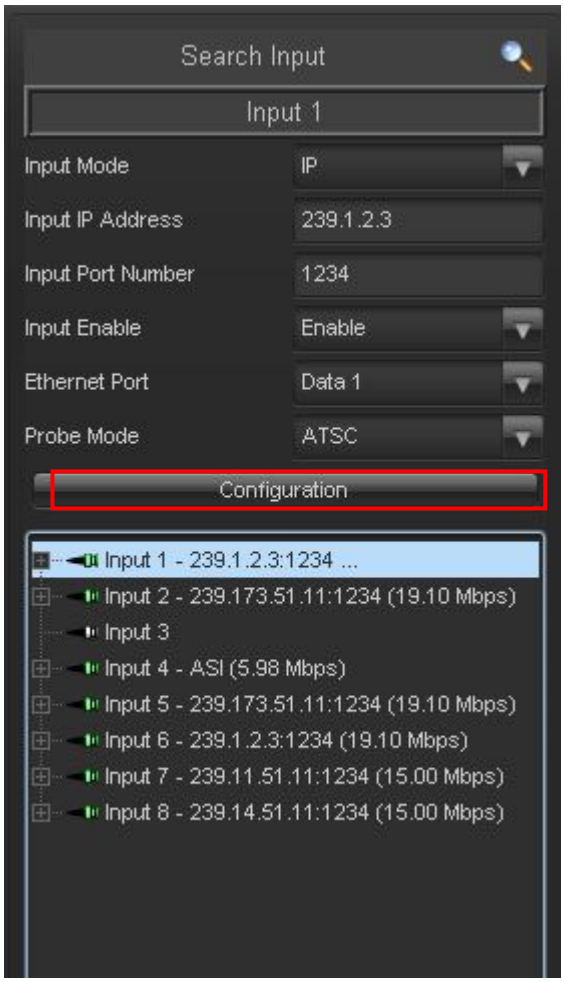


Figure 4-40 : VistaLINK® PRO - Configuring Input in Output Window

Input Mode: This dropdown menu allows the user to set the input mode. Possible options are IP, ASI, File and Delay.

Input IP Address: This filed allows the user to set the IP address for input.

Input Port Number: This control allows the user to set the input port number.

Input Enable: This dropdown menu allows the user to enable/disable the input.

Ethernet Port: This dropdown menu allows the user to set the Ethernet port.

Probe Mode: This dropdown menu allows the user to set the Probe Mode.

4.4.5. Search input and output

The user can search for a specific input or output. The parameters for search are:

4.4.5.1. Search Output

Figure 4-41 : VistaLINK® PRO - Search Output

If the user right clicks on the search output section, a search assistant icon will show up.

Figure 4-42 : VistaLINK® PRO - Search Output – Search Assistant

By clicking on the Search Assistant, a window will appear which helps about search output options as is shown in Figure 4-43.

Figure 4-43 : VistaLINK® PRO – Output Search Assistant

4.4.5.2. Search Input

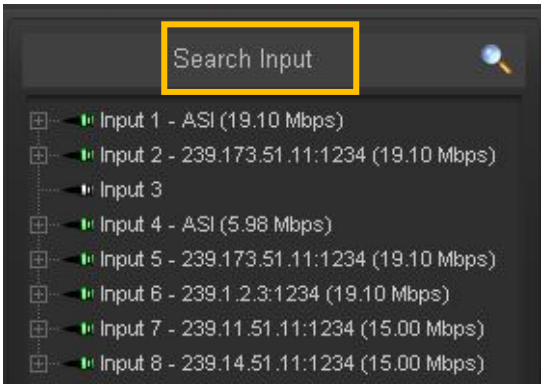


Figure 4-44 : VistaLINK® PRO - Search Input

If the user right clicks on the search input section, a search assistant icon will show up.

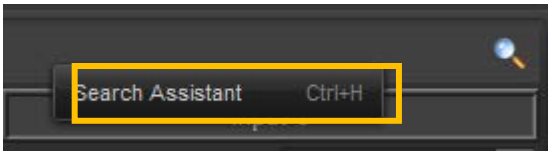


Figure 4-45 : VistaLINK® PRO - Search Input – Search Assistant

By clicking on the Search Assistant, a window will appear which helps about search input options as is shown in Figure 4-46.

Figure 4-46 : VistaLINK® PRO – Input Search Assistant

4.4.6. View output program button

By clicking the View Output Programs button, the user can edit the defined programs in new appeared window (Figure 4-47).

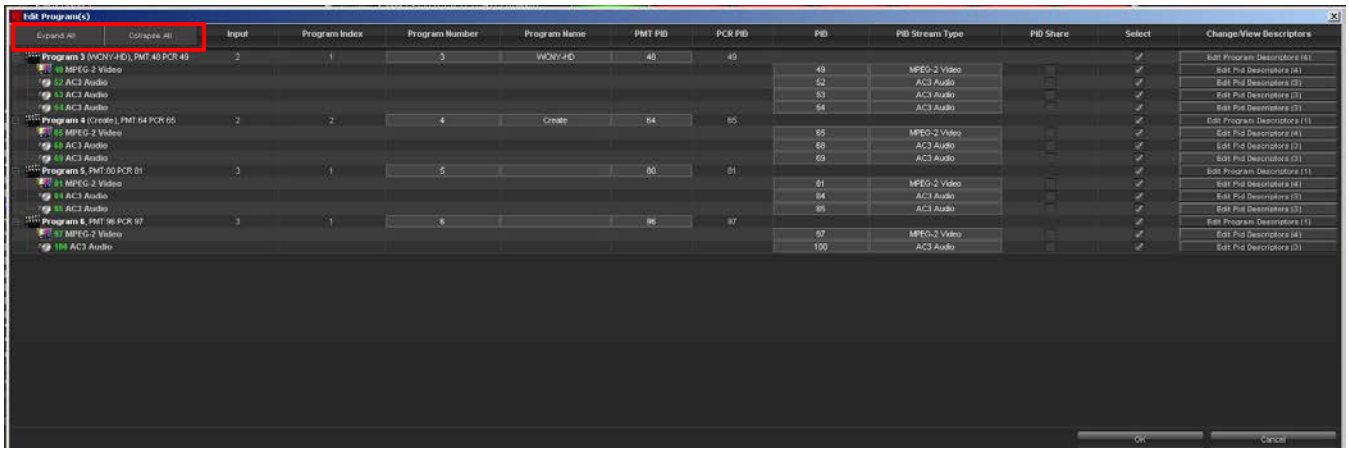
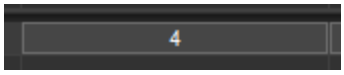


Figure 4-47 : VistaLINK® PRO - View Output Program\Edit Program(s) window

In this table, the user can modify any field which is modifiable. Any field that has the different color and border and also check boxes are modifiable. Like below:



Expand All and **Collapse All** buttons, allow the user to expand and collapse the program tree.

Under the Change/View Descriptors column, the user can change or view the program descriptors by clicking on Edit Program Descriptors buttons which will open a window as is shown in Figure 4-48.

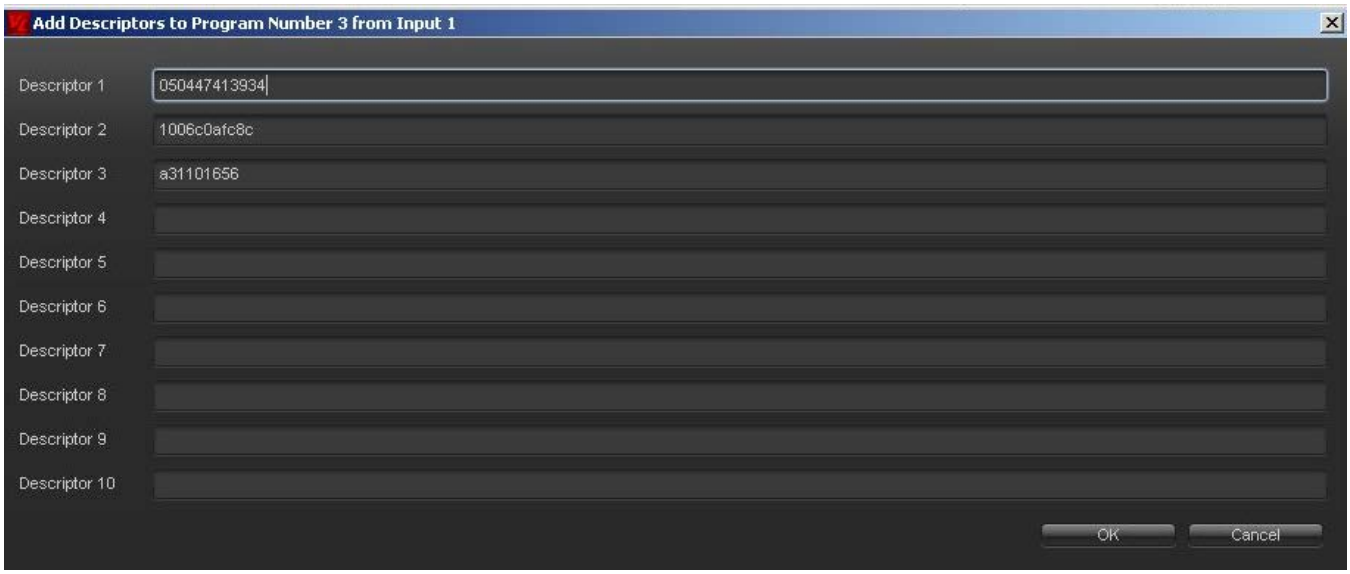


Figure 4-48 : VistaLINK® PRO - Edit Program Descriptor window

Also, it is possible to add, edit or remove Pid Descriptors in the PMT table to a maximum of 5 descriptors per Pid by clicking on the Edit Pid Descriptors button under Change/View Descriptors column as is shown in Figure 4-49.

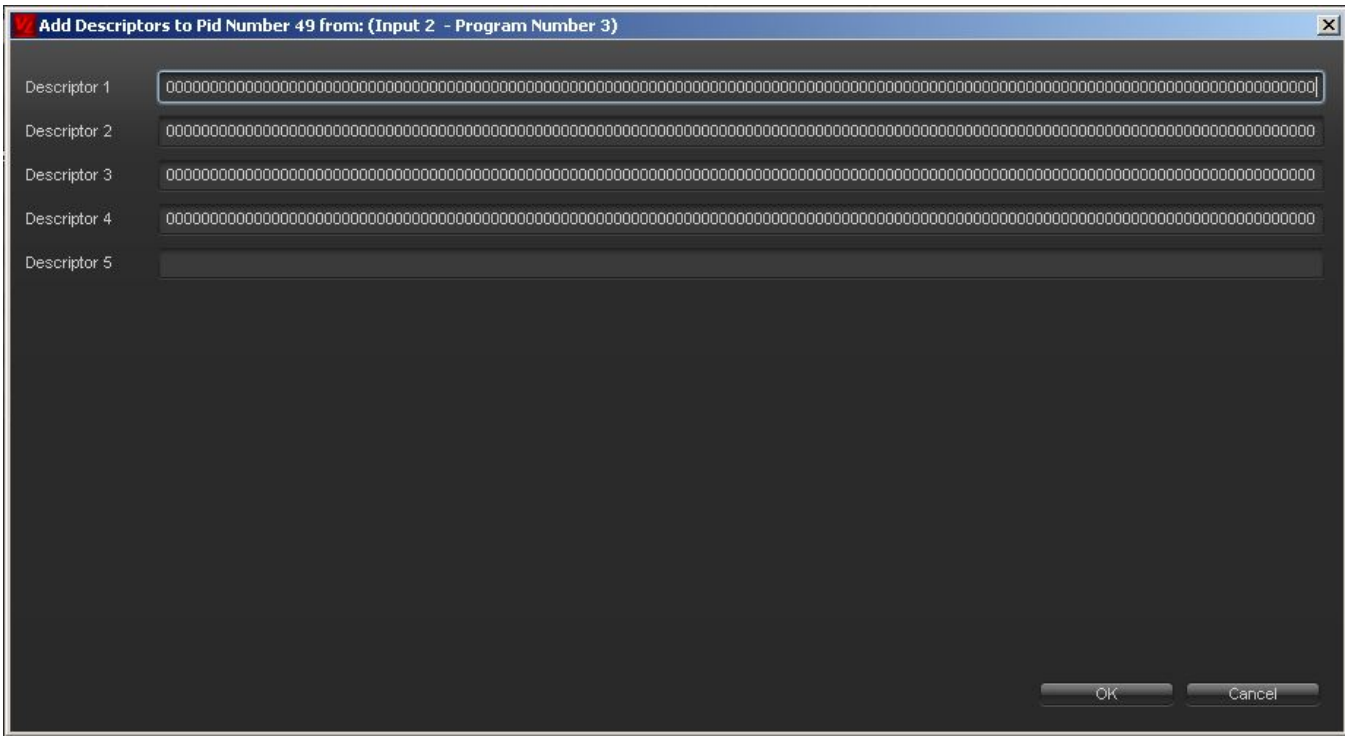


Figure 4-49 : VistaLINK® PRO - Edit PID Descriptors

4.4.7. Remove Output Program/Pid

By selecting a Program or Pid and clicking Remove Output Program Button, it is possible to remove that program/pid as is shown in Figure 4-50.

It is also possible to remove an output program by selecting it and pressing “Delete” key.

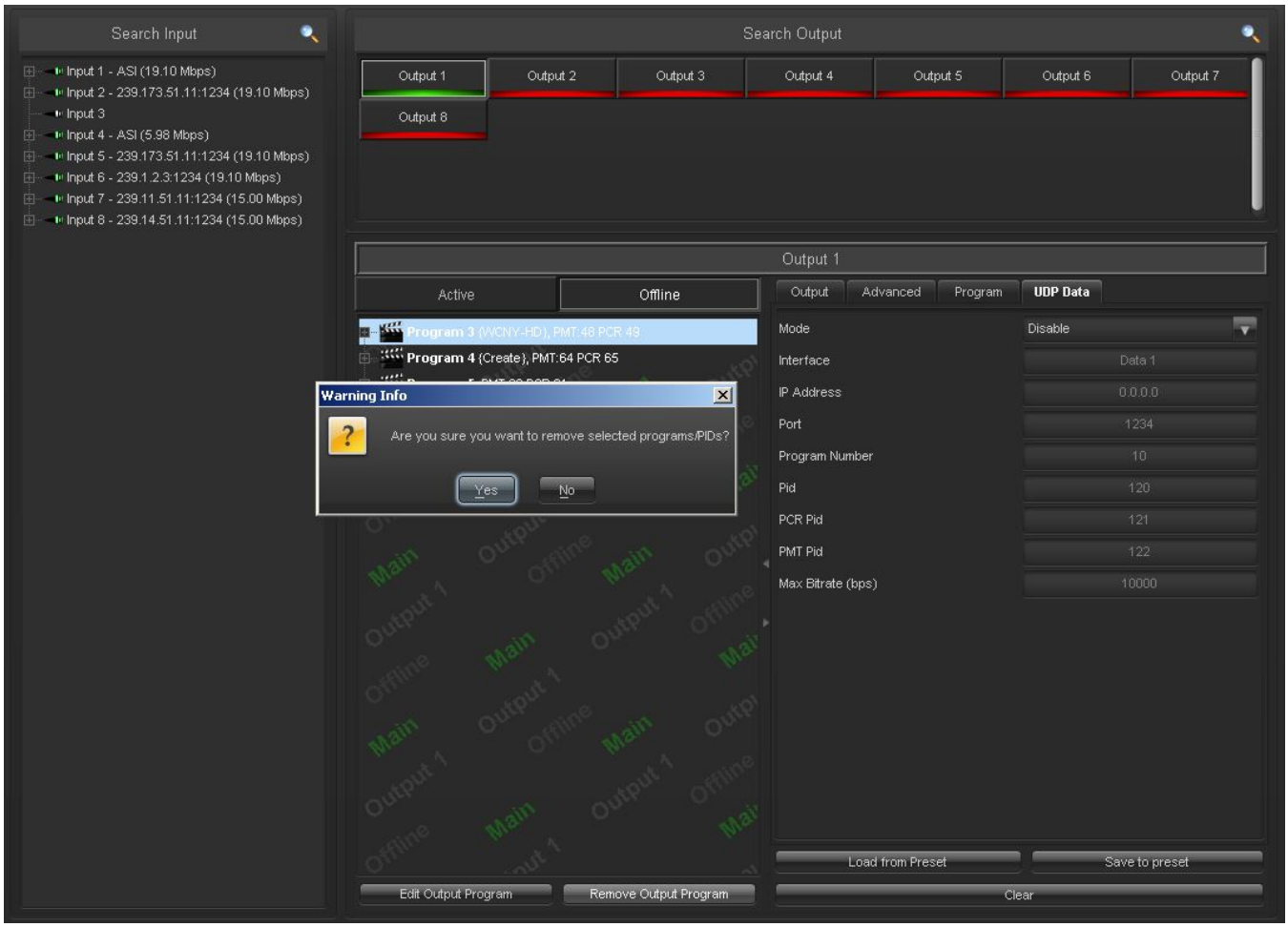


Figure 4-50 : VistaLINK® PRO - Remove Output Program/Pid

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5. UPGRADE PROCEDURES

5.1. UPDATING VLPRO SERVER JAR

Products from Evertz are constantly evolving and new features are often added. It is therefore important to update Jar files in use to provide access to all the latest features or enhancements. It will also be necessary to add Jar files for new products.

To perform a JAR update, ensure that all VLPro clients are closed (those clients which are not closed will automatically be disconnected as soon as the VLPro Server is restarted). Maximize the VLPro Server window from the windows task bar, select *Help>Apply Update>Product* from the menu (Figure 5-1).

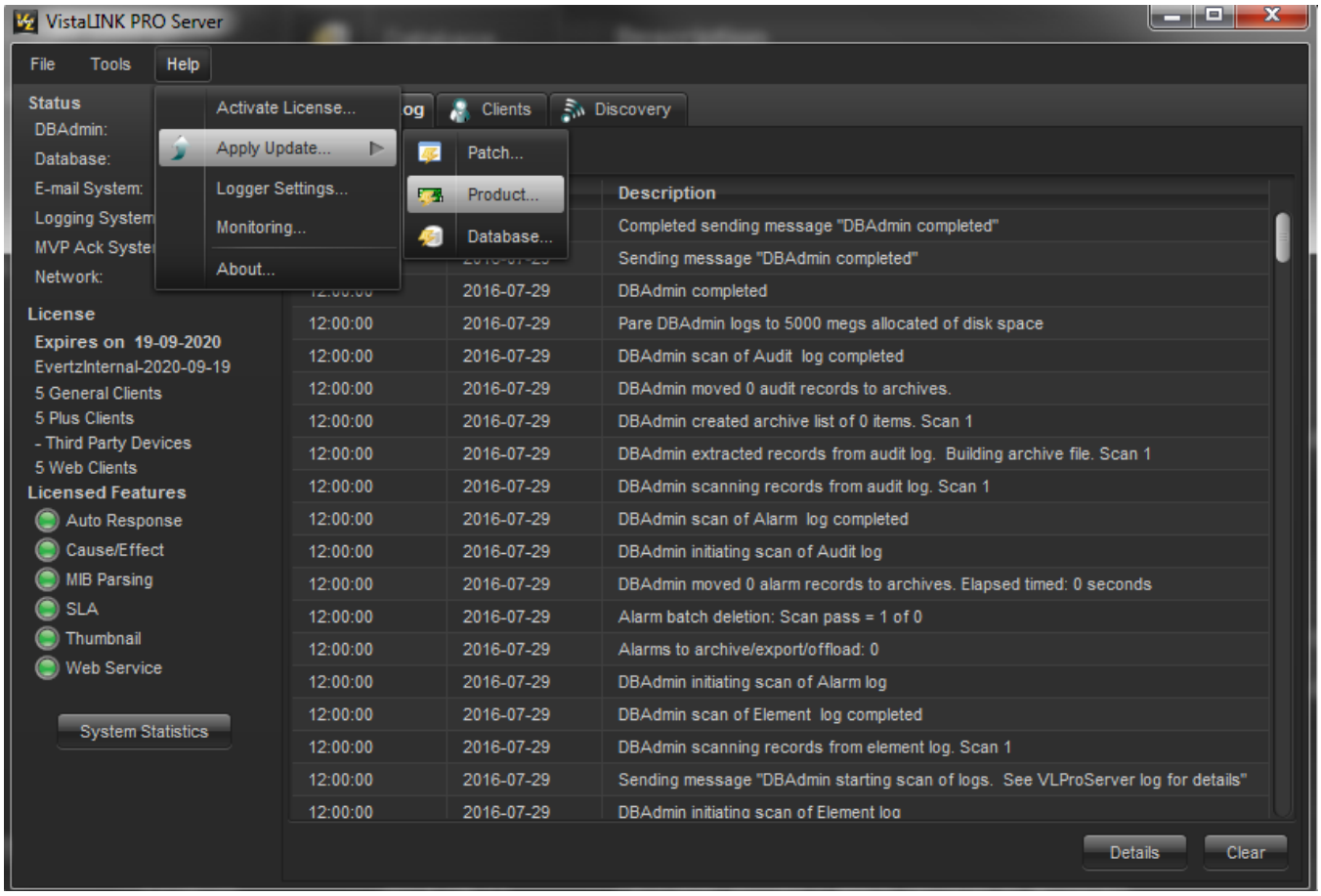

Figure 5-1 : VistaLINK® PRO Server

A window will appear as shown in Figure 5-2. Navigate to the location of the new JAR file and double click to select the file. The window will automatically close and the update will be applied in the background.

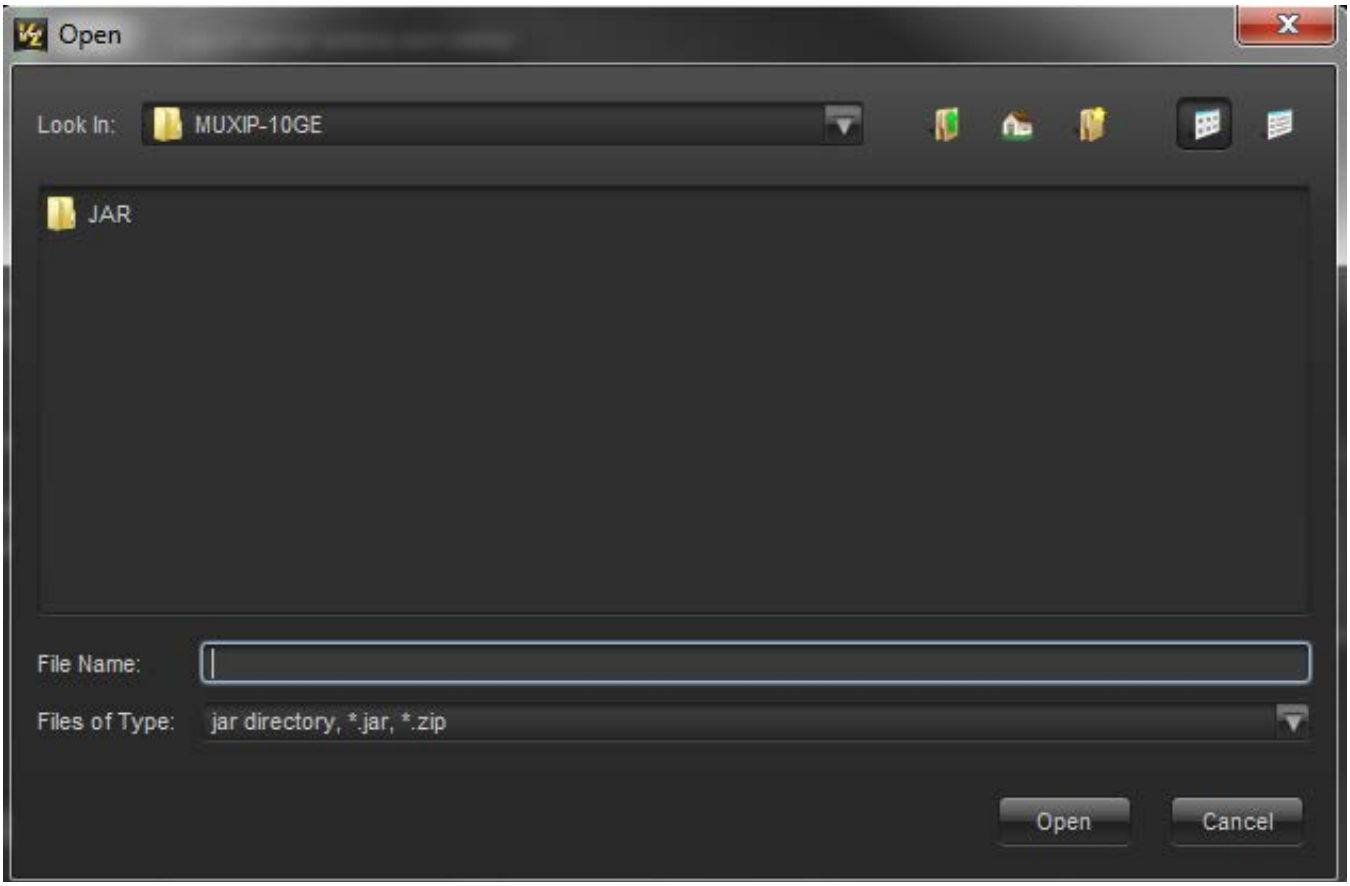

Figure 5-2 : VistaLINK® PRO - Applying JAR Updates

The user will be prompted to restart the server to enable the change to take effect. Apply as many JAR updates as required before restarting the server.

Shutdown the server by selecting from the menu: File>shutdown Server. Now re-open the server, it is normal for the start up to take marginally longer while each individual update is being applied. Once complete, you may restart the VLPro Clients. As the client restarts, the user will experience a short delay while the update is applied. A prompt will appear confirming that the updates have been applied.

5.2. FIRMWARE UPGRADE

The firmware in the MUXIP-10GE is contained on a FLASH EPROM. From time to time firmware updates will be provided to add additional features to the unit. The firmware update can be initiated using the VLPro.

The user will need the following in order to update the Firmware:

- New firmware supplied by Evertz. Firmware comes as a .deb archive file.

To upgrade the Firmware, navigate to *Version Information* by right-clicking on the IP address of the frame.

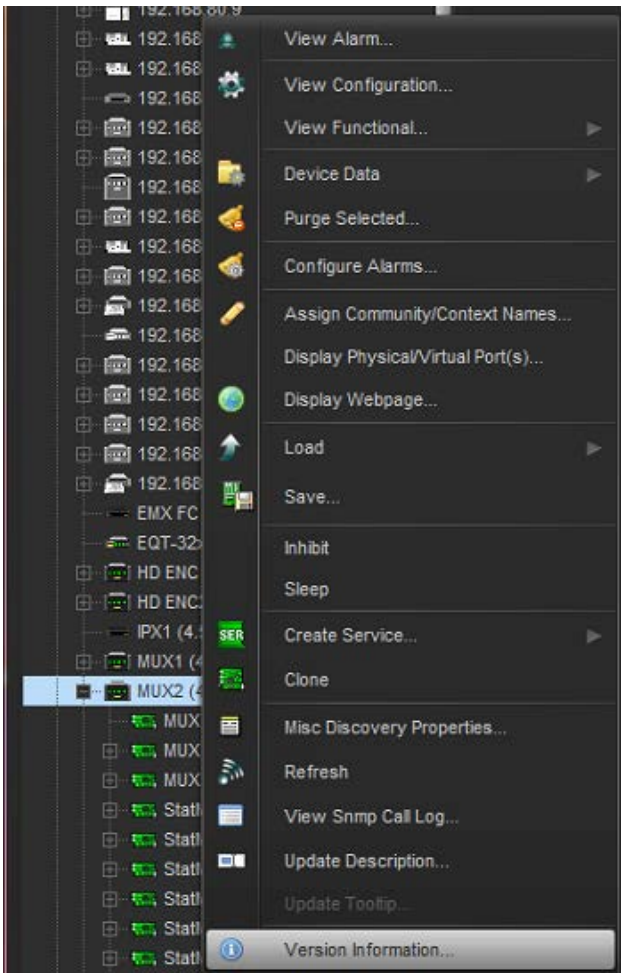

Figure 5-3 : VistaLINK® PRO – Selecting Version Information

This will launch the window where the user can see the version information associated with each menu on the MUX.

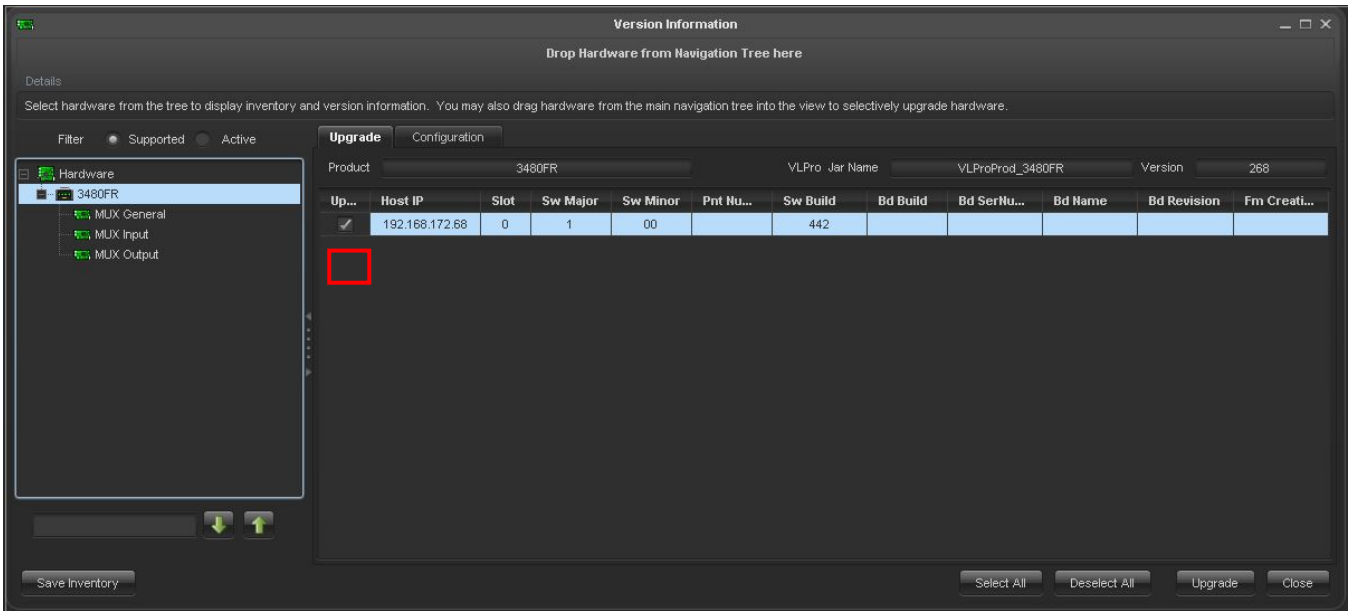

Figure 5-4 : VistaLINK® PRO – Selecting Card for Upgrade

Select the 3480FR(Frame) and the box highlighted in the image above. This will cause the *Upgrade* button to become available. Selecting the *Upgrade* button will open the *Firmware Upgrade* window where the user can locate the firmware and select it for upgrade.

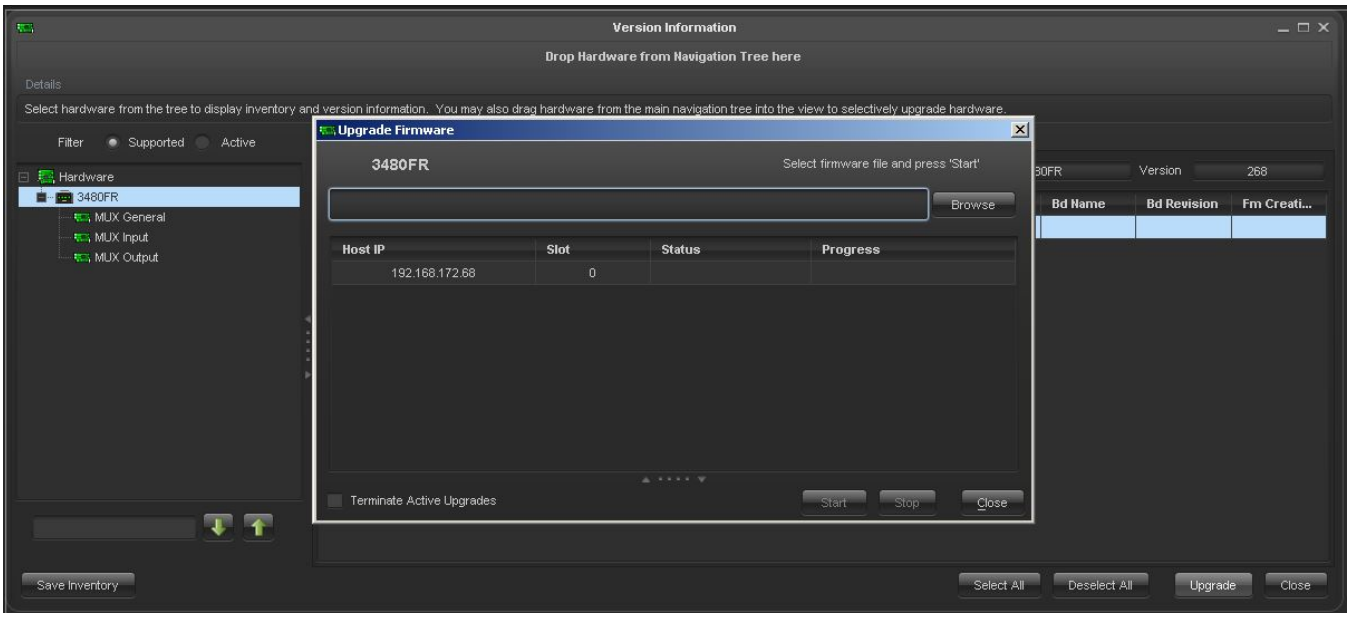

Figure 5-5 : VistaLINK® PRO – Selecting File for Firmware Upgrade

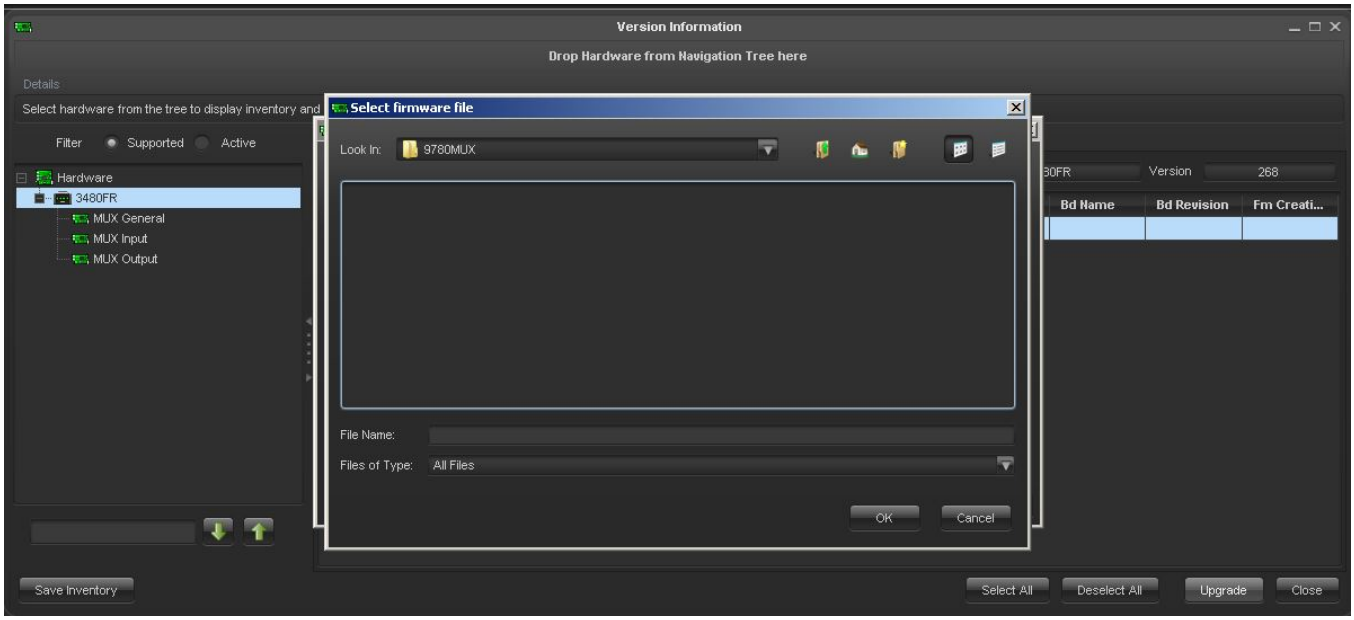

Figure 5-6 : VistaLINK® PRO – Selecting Firmware File for Update

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