3480DEC18-MP2SD-ASI18

High Density MPEG-2 SD Decoder

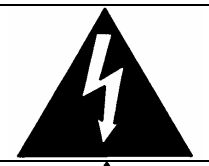
User Guide

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

Version 0.1 September 2008

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.

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.

TABLE OF CONTENTS

Figures

Tables

REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary	Sept 08

This page left intentionally blank

1. OVERVIEW

As broadcasters, cable companies, satellite providers and IPTV companies are moving toward an all digital domain, all distribution is done in the compressed domain. These service providers have a need for a bulk, easy to use, cost effective professional video decoder.

The 3480DEC-MP2SD-ASI18 Series is a professional high quality bulk, high density MPEG-2 SD decoder. It offers high end SD decoding of a signal coming from ASI input.

The 3480DEC18-MP2SD-ASI18 series is perfect for monitoring applications or decoding for downstream baseband video and audio processing.

The 3480DEC18-MP2SD-ASI18 Series can reconstruct in the most flexible way all VANC & HANC data in the SDI outputs.

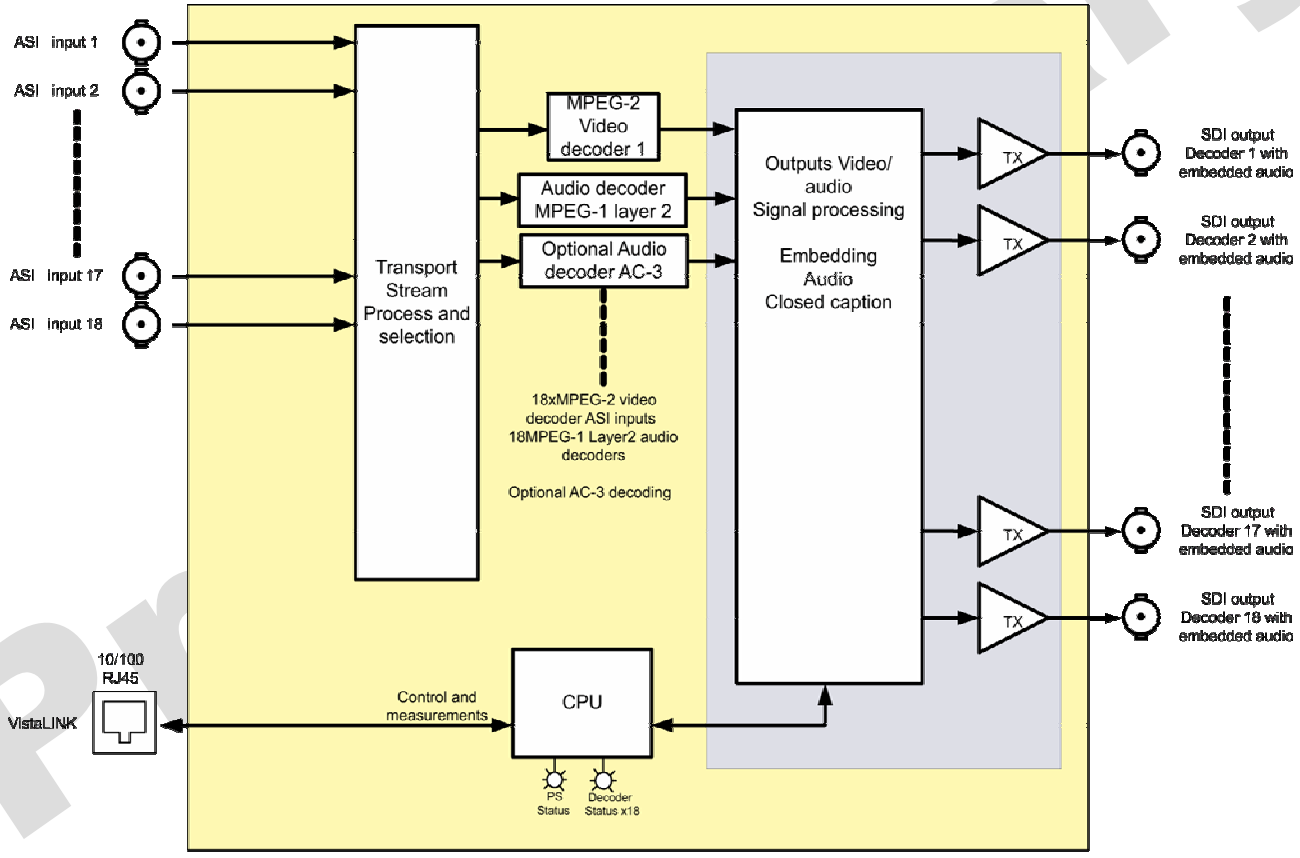


Figure 1-1: 3480DEC18-MP2SD-ASI18

2. INSTALLATION

2.1. REAR PANEL

The 3480DEC18-MP2SD-ASI18 rear panel is shown in Figure 2-1.

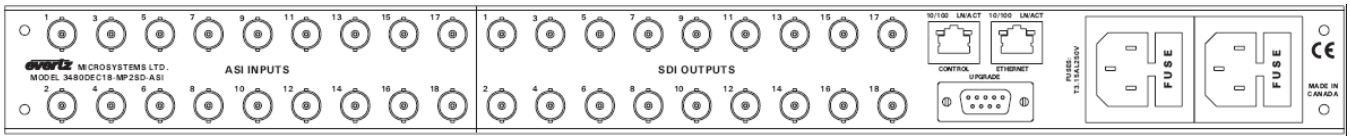


Figure 2-1: 3480DEC18-MP2SD-ASI18

ASI INPUTS (1-18): ASI input per DVB TR 101 891-270Mb/s maximum bit rate 180Mb/s

SDI OUTPUTS (1-18): Eighteen BNC serial digital video outputs are present. Each output corresponds to a specific decoder. For example, Output 1 is connected to Decoder 1, Output 2 is connected to Decoder 2, and so on. The output standard is 525 (NTSC) or 625 (PAL).

UPGRADE: A 9 pin female 'D' connector for connection to the RS-232 serial communications. This port is configured for a 'straight through' RS-232 connection to a PC COM port and can be used for uploading firmware, and updating/changing the units IP address. Table 2-1 shows the pin out of the serial port in its default RS-232 DCE configuration.

PIN #	Name	Description
1		
2	TxD	RS-232 Transmit Output
3	RxD	RS-232 Receive Input
4		
5	Sig Gnd	RS-232 Signal Ground
6		
7	RTS	RS-232 RTS Input
8	CTS	RS-232 CTS Input
9		

Table 2-1: Pin Out for Serial Port (Default RS-232 DCE Configuration)

2.2. CONNECTING THE DECODER TO AN ETHERNET CONNECTOR

The decoder is designed to be used with either 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) also known as *Fast Ethernet*, twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. The cable must be "straight through" with a RJ-45 connector at each end. Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the decoder and the other end into a port of the supporting hub. If you are connecting the decoder directly to a PC, then you will have to use a crossover cable.

The straight through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 2-2. A colour code wiring table is provided in Table 2-2 for the current RJ-45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.

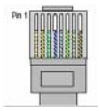
	Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
Pin 1 	1	Transmit +	White/Green	White/Orange	X
	2	Transmit –	Green/White or White	Orange/White or Orange	X
	3	Receive +	White/Orange	White/Green	X
	4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
	5	N/A	White/Blue	White/Blue	Not used (required)
	6	Receive –	Orange/White or Orange	Green/White or Green	X
	7	N/A	White/Brown	White/Brown	Not used (required)
	8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 2-2: Standard RJ45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ-45 connector to carry Ethernet signals.
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins, a crossover cable made for one will also work with the other.
- Pairs may be solid colours and not have a stripe.
- Category 5 cables must use Category 5 rated connectors.

The maximum cable run between the decoder and the supporting hub is 300 ft (90 m). The maximum combined cable runs between any two end points (i.e. decoder and PC/laptop via network hub) is 675 feet (205 m).

Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity. The decoder rear panel is fitted with two LEDs to monitor the Ethernet connection.

10/100: This amber LED is ON when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected (the LINK LED is ON). Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is completed.

LN/ACT: This dual purpose green LED indicates that the decoder has established a valid linkage to its hub, and indicates whether the decoder is sending or receiving data. This LED will be ON when the decoder has established a good link to its supporting hub. This gives you a good indication that the segment is wired correctly. The LED will BLINK when the decoder is sending or receiving data. The LED will be OFF if there is no valid connection.

Once you have established a valid link you will have to set up the network I/P address for the decoder. When you have set up the I/P addresses you should be able to 'ping' each of the devices in the system.

2.3. POWER CONNECTIONS

The 3480DEC18-MP2SD-ASI18 has two universal power supplies (main and backup) that operate on either 100-115 or 220-240 volts AC at 50 or 60 Hz and automatically sense the input voltage. Power should be applied by connecting a 3-wire grounding type power supply cord to the power entry modules on the rear panel.

2.3.1. Changing the Fuses

Check that the line fuse is rated for the correct value marked on the rear panel. Never replace with a fuse of greater value.

The fuse holder is located inside the power entry module. To change the fuses, pull out the fuse holder from the power entry module using a small screwdriver. The fuse holder contains two fuses, one for the line and one for the neutral side of the mains connection. Pull out the blown fuse and place a fuse of the correct value in its place. If the fuse blows, replace with a fuse of the correct type only in this case T3.15AL250V; Use of any higher amperage value will void the warranty.

NOTE: Fuses are for your protection. Never substitute a fuse of a higher rating, or bypass it.

NOTE: The fuse will not blow unless the unit is overstressed. Before replacing the fuse, correct the condition that caused it to fail.

2.4. MOUNTING

To successfully install the 3480DEC18-MP2SD-ASI18:

1. Unused IP address on the network or a DHCP server
2. Serial cable
3. VLPro Server IP address

The 3480DEC18-MP2SD-ASI18 is equipped with rack mounting angles and fits into a standard 19 inch by 1 ¾ inch rack space.

2.4.1. Accessing the Serial Port Menu

Connect a serial cable to the UPGRADE port at the back of the unit. Do not connect any cables to the rear card (failure to do this could cause unwanted network issues) until the initial configuration has been completed. Connect the 9-pin d-type end of the serial cable to the serial port of your computer. Open a Terminal session and configure the port for the following configuration:

Bits per second	**115200**
Data Bits	**8**
Parity	**None**
Stop Bits	**2**
Flow Control	**None**

Figure 2-2: COM Properties Window

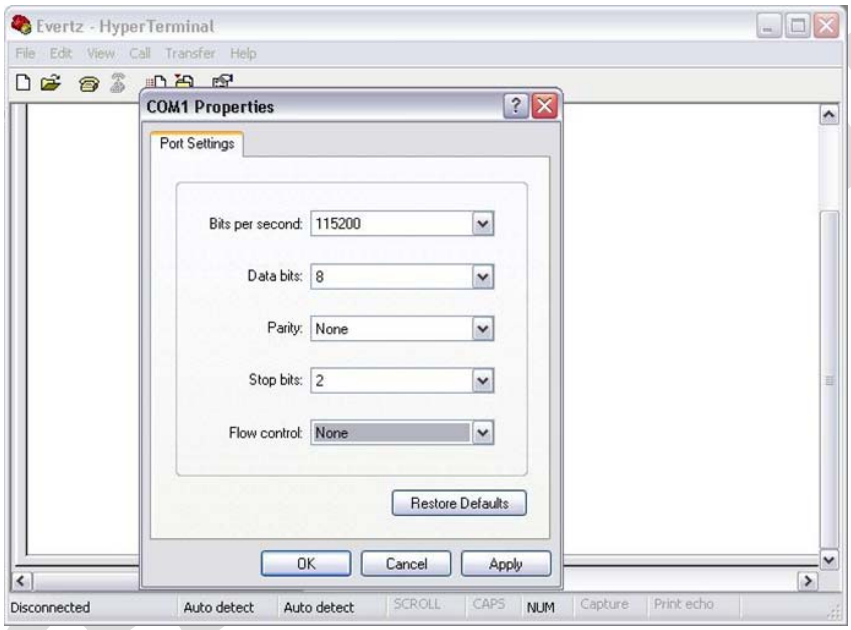


Figure 2-3: COM1 Properties

Click OK to apply these settings and press the <enter> button. The session should respond with the 3480DEC18-MP2SD-ASI18 Main Menu as shown in Figure 2-4:

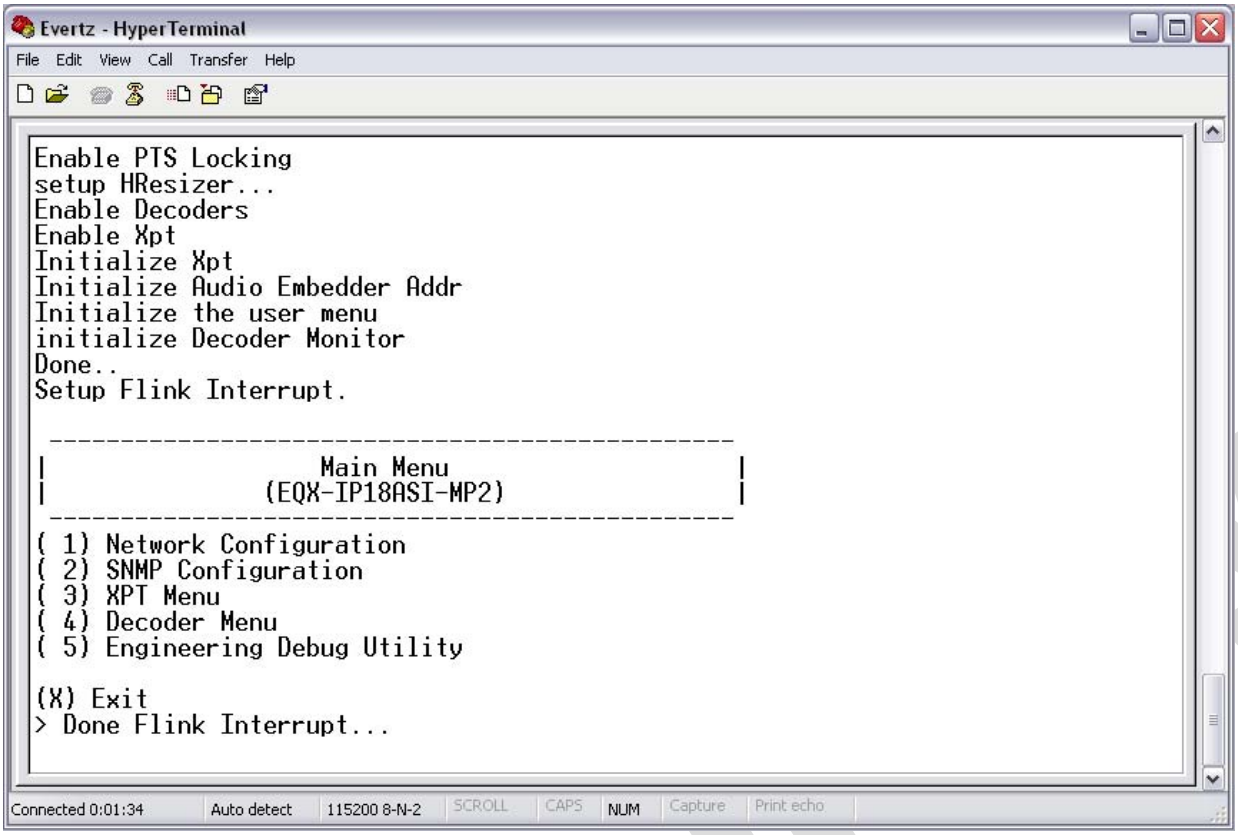


Figure 2-4: HyperTerminal Main Menu

(1) Network Configuration
This sub-menu enables the user to configure the network settings for the card.

(2) SNMP Configuration
This sub-menu enables the user to configure the Simple Network Management Protocol settings. In this menu you can set or remove the SNMP trap IP address and the SNMP Read and Set community strings.

(3) XPT Menu
This sub-menu is used to configure the decoder parameters. As this configuration can also be performed via VLPro this sub-menu will not be covered in this section.

(4) Decoder Menu
This sub-menu contains two utilities. One command is for clearing the memory, and the other for clearing the flash. In normal operation it should not be necessary to use either of these options.

(5) Engineering Debug Utility
This menu is for Evertz personnel only. You may be requested to access and execute options within this menu when seeking technical support from Evertz. Guidance will be given should this be required.

Before is it possible to configure the card via VLPro it is first necessary to configure the initial basic network settings via the serial cable; this configuration is described in section 2.5.

2.5. CONFIGURING THE BASIC NETWORK SETTINGS

Select option (1) *Network Configuration*, the Network Configuration menu will be displayed as shown in Figure 2-5. If you prefer to use DHCP then you may select option (5) *Use DHCP*, and then continue from step 4:

1. Select option (1) *Set IP Address* and configure the IP address for the 3480DEC18-MP2SD-ASI18 ensuring that the IP address is not already in use on the network.
2. Now select option (2) *Set Netmask* and configure the correct subnet mask for your network.
3. If required also configure option (3) *Set Gateway*.
4. Exit from the Network Configuration menu using (s) *Save and Exit*, NOT (x) *Exit*.

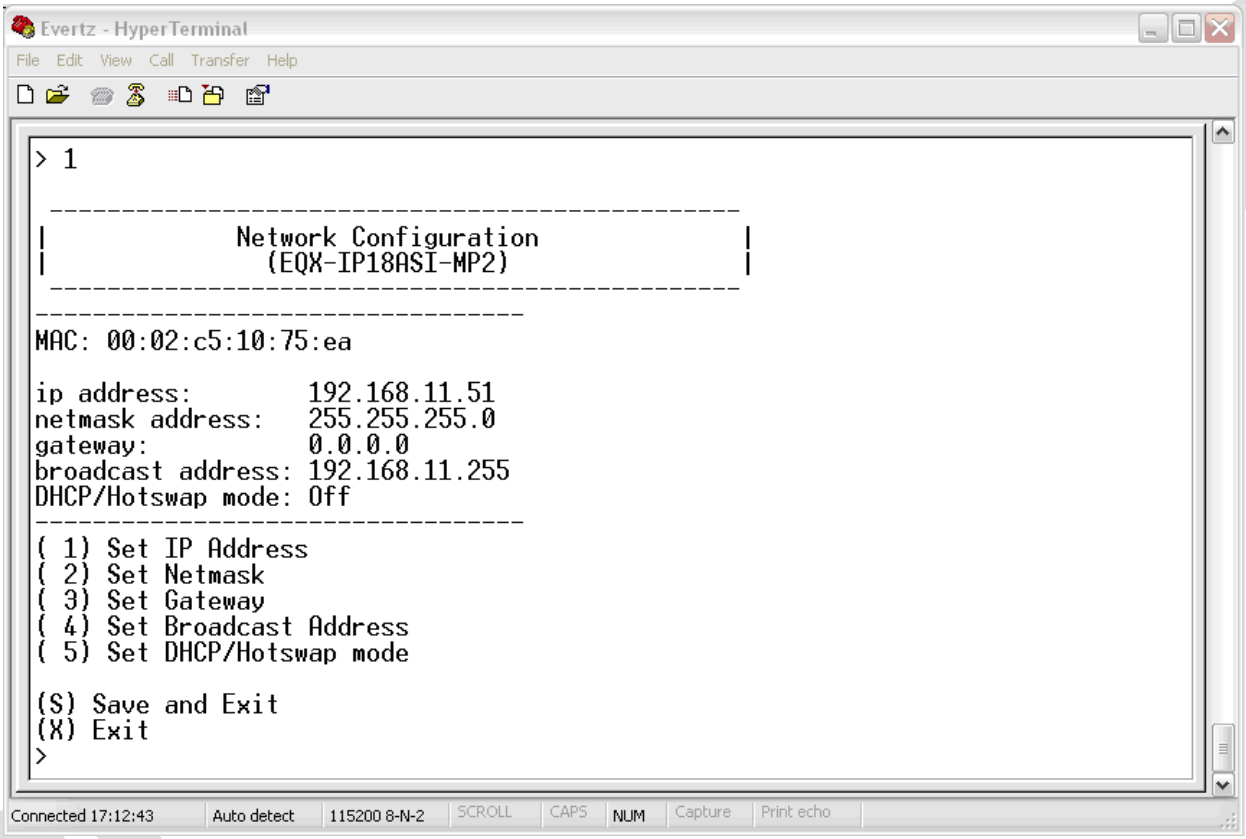


Figure 2-5: Network Configuration Sub-Menu

From the Main Menu select option (2) *SNMP Configuration*. Normally it is only necessary to configure option (1) *Set IP Address*, and enter here the IP address of your VLPro Server. Exit using option (S) *Save and Exit*. Now extract the card from the rack, remove the serial cable and re-insert it.

You have now completed the necessary minimum configuration and can connect the cables to the rear of the card when ready.

2.6. CONNECTING TO VLPRO

This chapter assumes that the VLPro server and VLPro client are already configured for your network and you have basic knowledge of the VLPro interface. It also assumes that the user or network administrator has already added the 3480DEC18-MP2SD-ASI18 jar file to the server and both the client and server applications have been restarted. If you are the network administrator refer to section 5.2 for information on updating the VLPro Server Jar File.

Open VLPro and click on the refresh tree icon. Expand the hardware tree by clicking on the "+" symbol. Your 3480DEC18-MP2SD-ASI18 should appear as a newly listed device with the IP address used to configure the card in Step 1 above. It may take up to a minute to appear while the card and switch negotiate network settings (this can be verified directly on the switch if necessary).

Listed below the 3480DEC18-MP2SD-ASI18 IP address will be two sub-menu ASI inputs and Decoders.

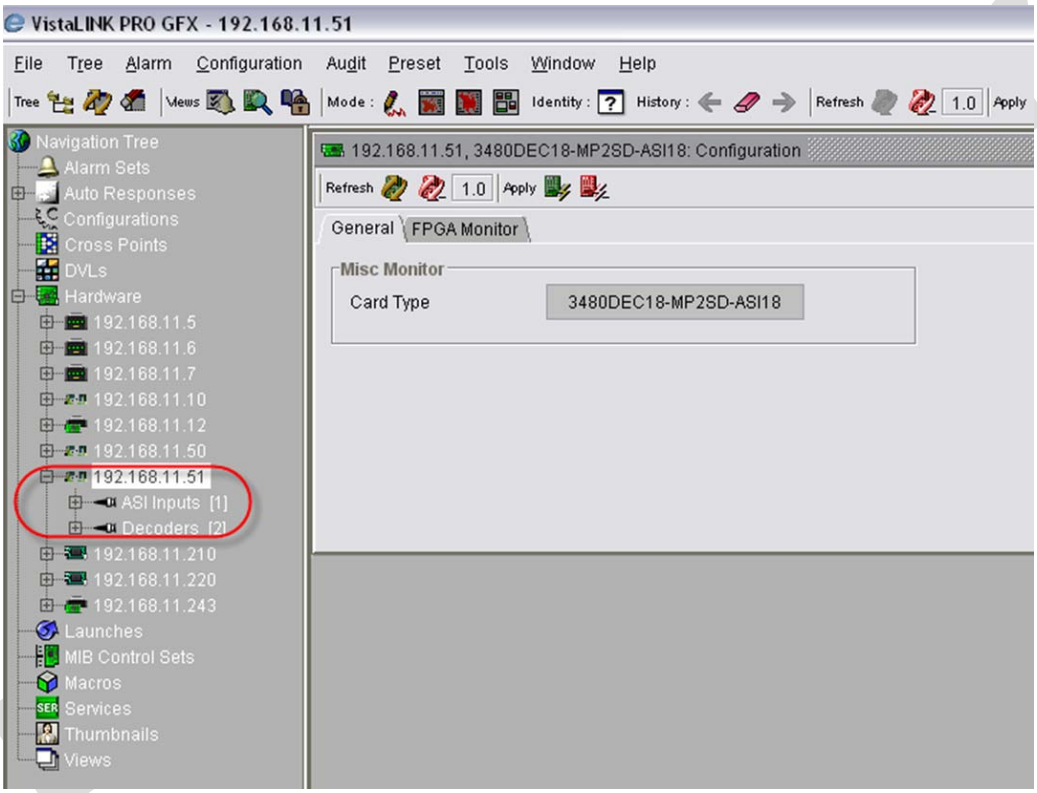


Figure 2-6: VistaLINK® PRO Hardware Configuration

Note: If after a couple of minutes the card has still not appeared try selecting *Add Agent* from the *Tree> Add/Update Agent* menu. Enter the IP address used in the configuration stage earlier and select OK. The card should now be listed and will remain greyed out for a moment while VLPro finds the card and confirms its configuration.

Please consult your network administrator if you continue to have problems connecting the card with VLPro, alternatively contact Evertz Microsystems Ltd. or your authorized reseller for technical support.

3. CARD CONFIGURATION

The 3480DEC18-MP2SD-ASI18 has three different types of menus:

1) **Root Menu:** Present card type and FPGA monitoring parameters.
2) **ASI Inputs Menu:** Each one of the eighteen ASI inputs has its own menu for monitoring and alarming capabilities.
3) **Decoders Menu:** Each one of the eighteen decoders has its own menu for ASI input selection, program tuning, alarming … etc.

3.1. ROOT MENU

Right click the IP address (selected earlier) of the 3480DEC18-MP2SD-ASI18 and select "View Configuration". The configuration page will open; this page contains two different tabs **General** and **FPGA Monitor**.

3.1.1. General Tab

The General tab provides the product name of the selected device.

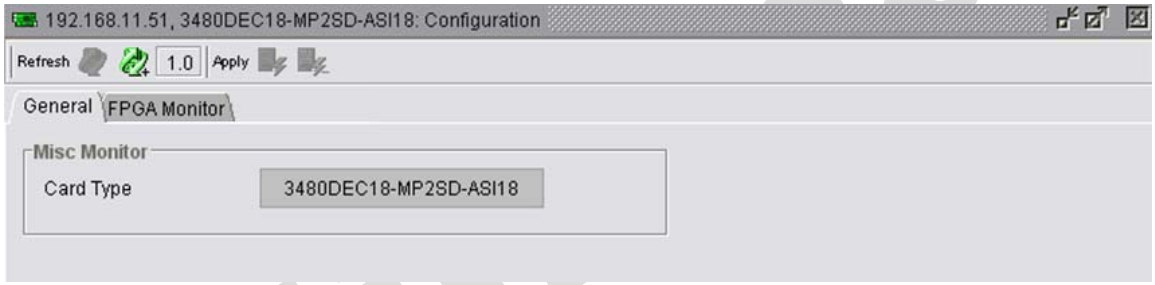


Figure 3-1: General Tab

3.1.2. FPGA Monitor TAB

The FPGA Monitor tab provides a reading of the FPGA current core temperature. These values can be used for engineering troubleshooting purposes.

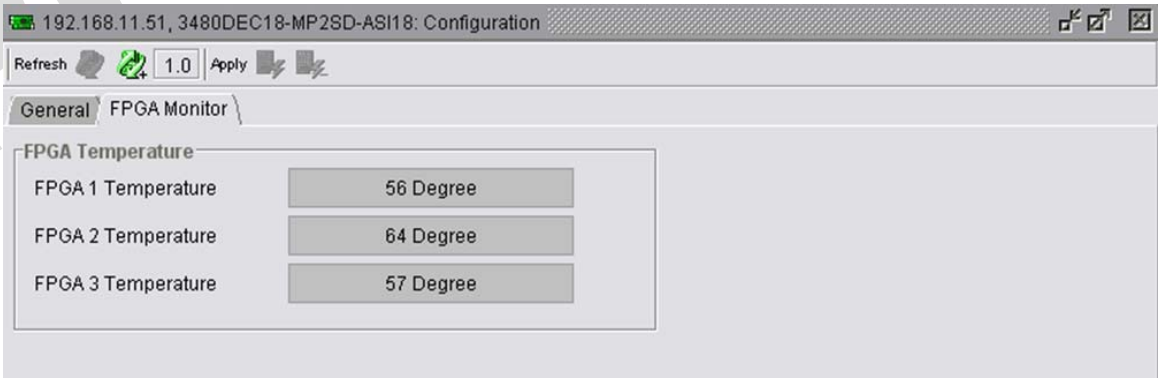


Figure 3-2: FPGA Monitor Tab

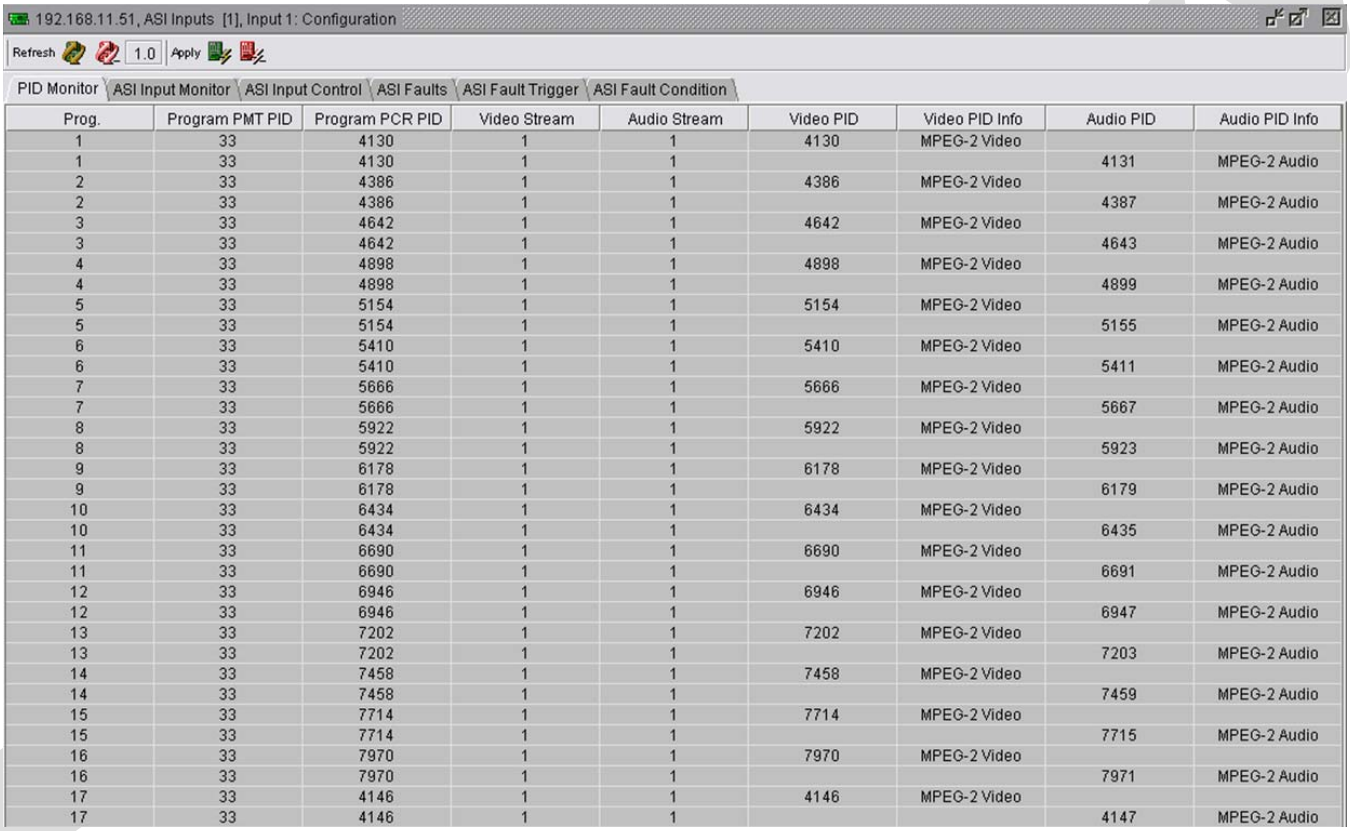
3.2. ASI INPUTS

Click the '+' sign next to the IP address, followed by the '+' sign next to ASI Inputs to view the eighteen ASI inputs that are present. For simplicity a description of one of the inputs will be provided, this description applies to all eighteen different ASI inputs. Right click **Input 1** and select view configuration.

This configuration window is divided into 6 different tabs, the following sections 3.2.1 to 3.3.4 provide detailed descriptions of each tab.

3.2.1. PID Monitor Tab

The PID Monitor tab is where VLPro displays the standard Transport Stream parameters. As shown in Figure 3-3 it is possible to see a basic view of most of the packets within the TS stream. They are organized in ascending order by Service ID but can also be re-ordered by Prog #. This can be done by double clicking the column header, make sure you are not in the auto refresh mode when doing this.



Prog.	Program PMT PID	Program PCR PID	Video Stream	Audio Stream	Video PID	Video PID Info	Audio PID	Audio PID Info
1	33	4130	1	1	4130	MPEG-2 Video		
1	33	4130	1	1			4131	MPEG-2 Audio
2	33	4386	1	1	4386	MPEG-2 Video		
2	33	4386	1	1			4387	MPEG-2 Audio
3	33	4642	1	1	4642	MPEG-2 Video		
3	33	4642	1	1			4643	MPEG-2 Audio
4	33	4898	1	1	4898	MPEG-2 Video		
4	33	4898	1	1			4899	MPEG-2 Audio
5	33	5154	1	1	5154	MPEG-2 Video		
5	33	5154	1	1			5155	MPEG-2 Audio
6	33	5410	1	1	5410	MPEG-2 Video		
6	33	5410	1	1			5411	MPEG-2 Audio
7	33	5666	1	1	5666	MPEG-2 Video		
7	33	5666	1	1			5667	MPEG-2 Audio
8	33	5922	1	1	5922	MPEG-2 Video		
8	33	5922	1	1			5923	MPEG-2 Audio
9	33	6178	1	1	6178	MPEG-2 Video		
9	33	6178	1	1			6179	MPEG-2 Audio
10	33	6434	1	1	6434	MPEG-2 Video		
10	33	6434	1	1			6435	MPEG-2 Audio
11	33	6690	1	1	6690	MPEG-2 Video		
11	33	6690	1	1			6691	MPEG-2 Audio
12	33	6946	1	1	6946	MPEG-2 Video		
12	33	6946	1	1			6947	MPEG-2 Audio
13	33	7202	1	1	7202	MPEG-2 Video		
13	33	7202	1	1			7203	MPEG-2 Audio
14	33	7458	1	1	7458	MPEG-2 Video		
14	33	7458	1	1			7459	MPEG-2 Audio
15	33	7714	1	1	7714	MPEG-2 Video		
15	33	7714	1	1			7715	MPEG-2 Audio
16	33	7970	1	1	7970	MPEG-2 Video		
16	33	7970	1	1			7971	MPEG-2 Audio
17	33	4146	1	1	4146	MPEG-2 Video		
17	33	4146	1	1			4147	MPEG-2 Audio

Figure 3-3: VistaLINK® PRO – PID Monitor

For each individual PID it is possible to view its type and encoding standard.

Note: The PID Monitor is a dynamic view; by clicking the auto refresh button it is possible to see near instantaneous values for the stream.

3.2.2. ASI Input Monitor

This tab reports back the **Input state**, **Number of programs** present and the **Transport stream ID**.

- **Input State:** Displays either Active or Inactive, this shows the state of the current input. An input is active if a sync byte (x47) can be detected, otherwise it is considered inactive.
- **Number of Programs:** This field displays the number of programs present within the PAT.
- **Transport Stream ID:** This field displays the transport stream ID as it appears within the PAT.

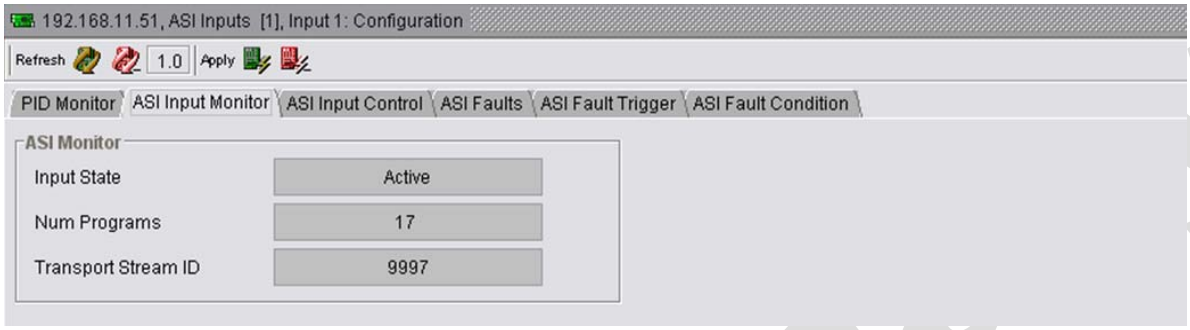


Figure 3-4: ASI Input Monitor Tab

3.2.3. ASI Input Control

- **Expected TS ID:** Enter here the expected transport stream ID, this number is checked against the transport stream ID displayed under the ASI Input Monitor tab, if the numbers do not match an alarm will be set.
- **Expected Num Programs:** Enter here the expected number of Programs, this number is checked against the transport stream ID displayed under the ASI Input Monitor tab, if the numbers do not match an alarm will be set.
- **Input Mode Select:** Options available are ATSC, DVB and MPEG.

It is important to select the standard to which the stream is being coded as this affects the context of the alarms for ETSI TR 101 290 priority 3 and the handling of AC3 Audio.

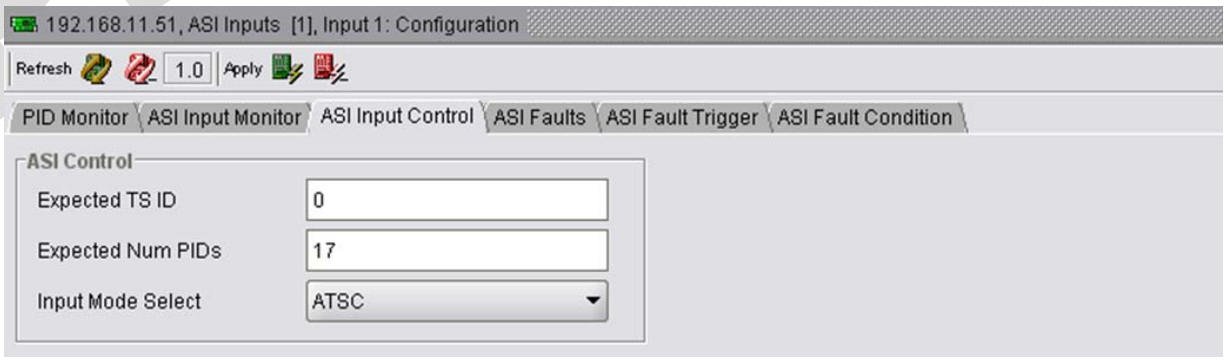


Figure 3-5: ASI Input Control

3.2.4. ASI Faults

This tab is divided into two windows: **Faults** and **Trap Enable**.

3.2.4.1. Faults

- **TS Sync Error:** The presence of the sync byte (x47) is monitored here, this indicator will stay green as long as a sync byte is present, if a sync byte cannot be detected this indicator will turn red.

- **TS ID Error:** This indicator checks the TS ID present within the PAT against the value entered by the user under the ASI Input Control tab; if the values match the indicator will remain green, otherwise it will turn red.

- **Number of Programs:** This indicator checks the Number of Programs present within the PAT against the value entered by the user under the ASI Input Control tab; if the values match the indicator will remain green, otherwise it will turn red.

- **ASI Fault Condition 1:** The conditions that will trigger this indicator can be configured under the ASI Fault Trigger.

3.2.4.2. Trap Enable

Using the trap enable section the user can enable or disable traps from being sent. To enable any of the traps/alarms simply click the check box that corresponds to the alarm you wish to enable.

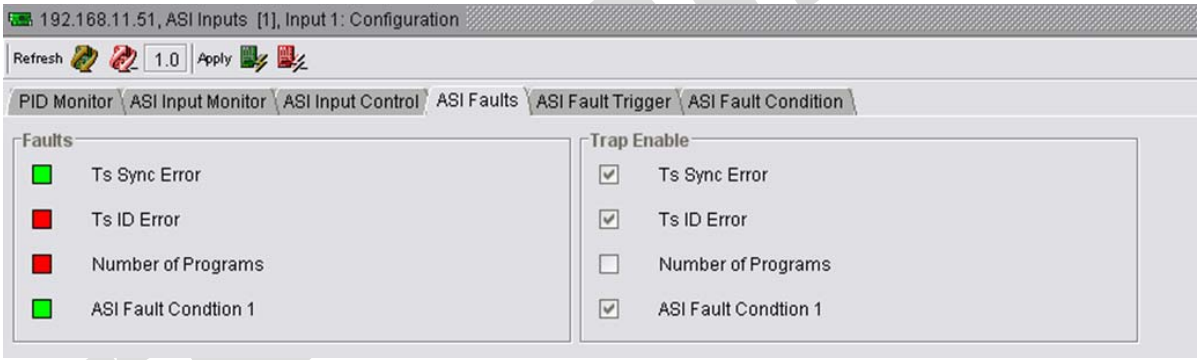


Figure 3-6: ASI Faults

3.3. DECODER

Click the '+' sign next to the IP address, followed by the '+' next to **Decoders** to view the eighteen Decoders that are present. For simplicity a description of one of the decoders will be provided, this description applies to all eighteen different decoders. Right click **Decoder 1** and select *view configuration* from the drop down menu.

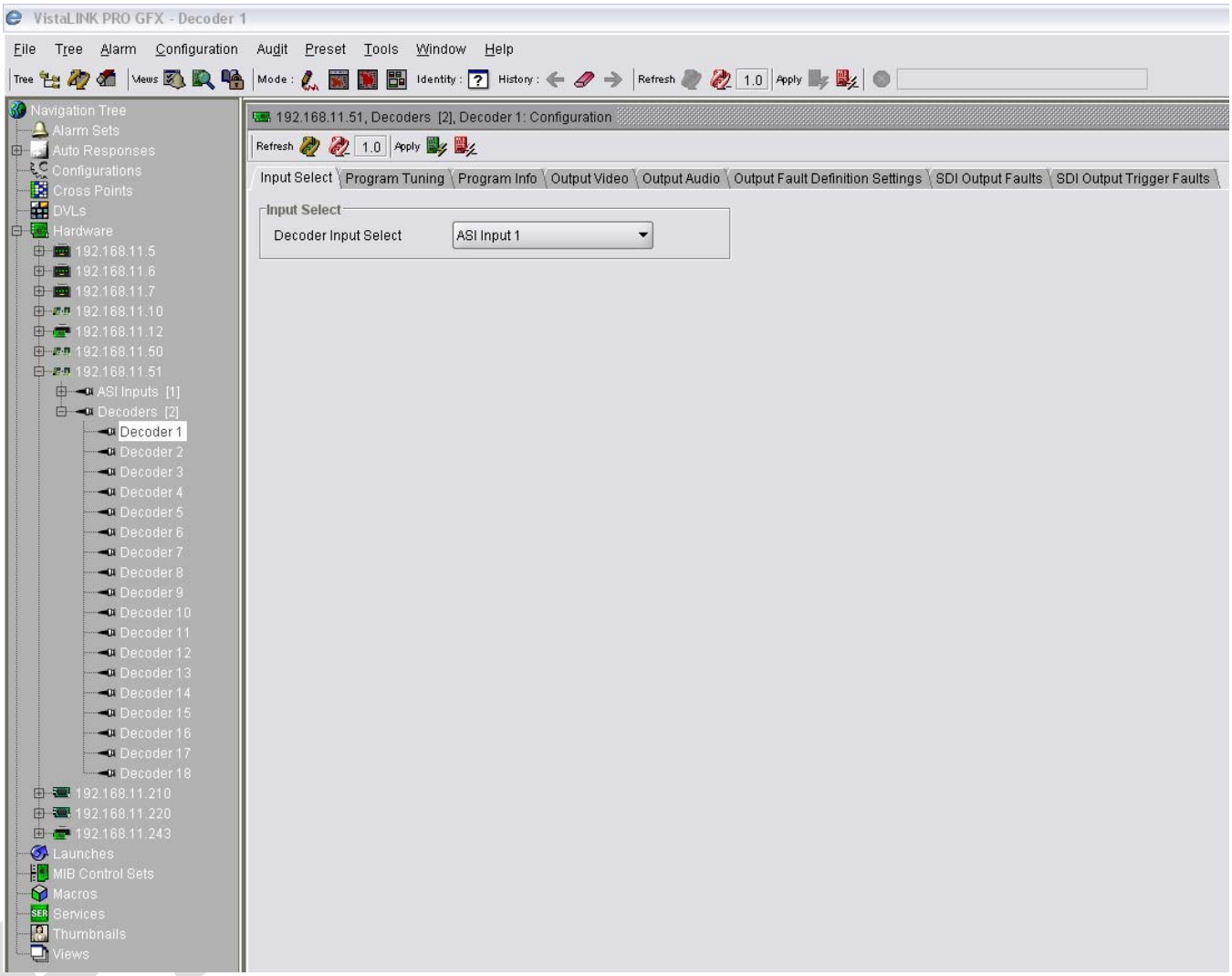


Figure 3-7: Decoder Window

This configuration window is divided into 8 different tabs, below is a detailed description of each tab.

3.3.1. Input Select

The input selection tab is used to select the input in use. There are eighteen different inputs, all of which are routable to any of the decoders. In order to select an input simply click on **ASI Input 1**, and a drop down menu will appear as shown in Figure 3-8. Once a selection is made click the apply button.

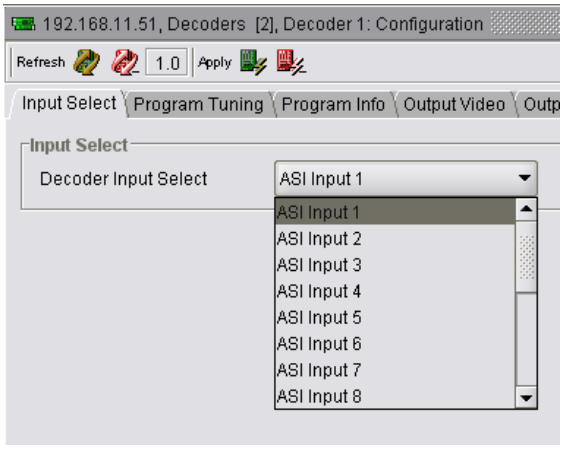


Figure 3-8: Decoder Input Select Drop Down Menu

3.3.2. Program Tuning

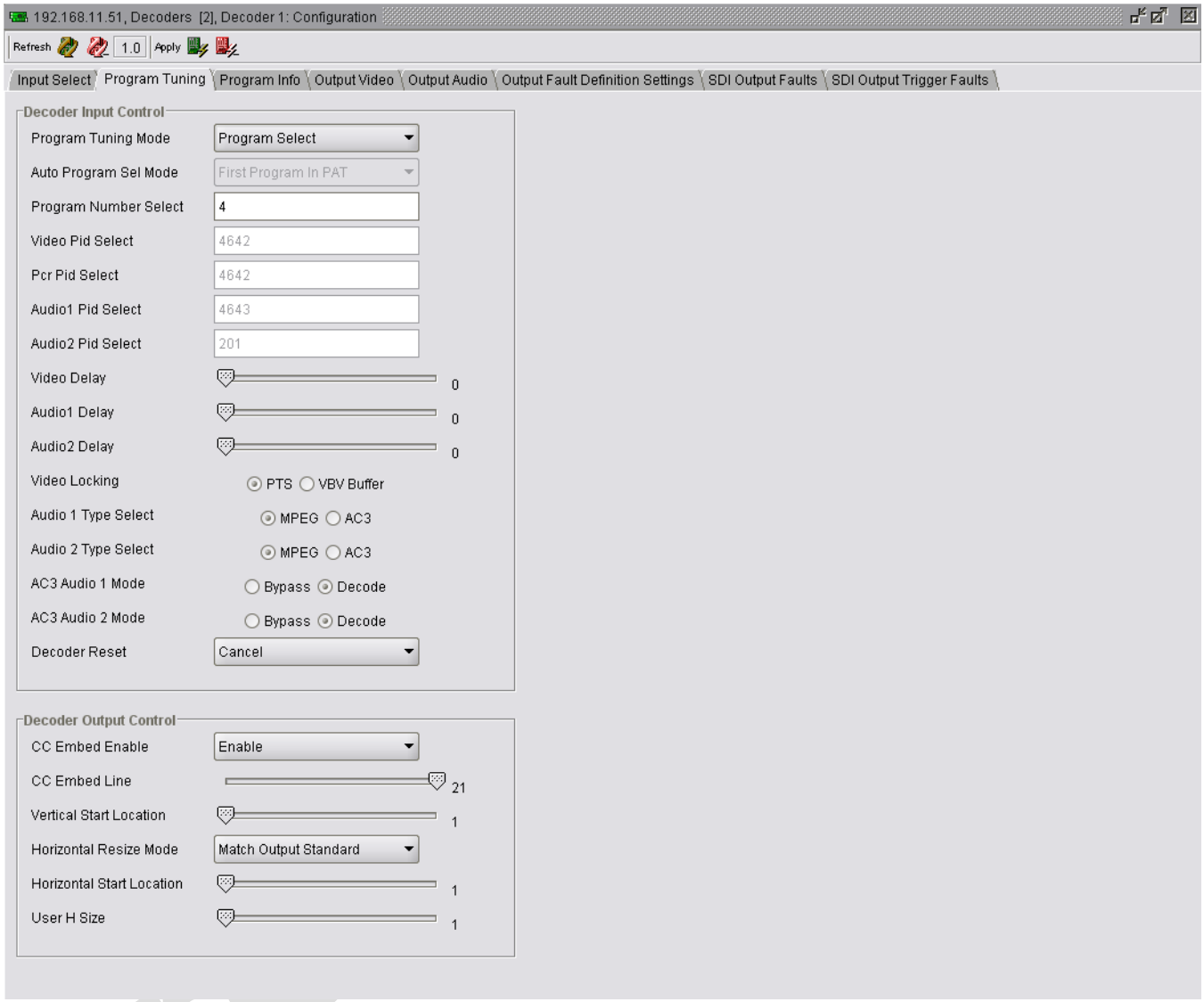


Figure 3-9: VistaLINK® PRO – Program Tuning

- **Program Tuning Mode:** Options are *Auto, Program Select* or *PID Select*.
  - Selection of *Auto* will set the decoder to decode either the first program in the PAT or the lowest program number; this can be selected using the next configuration option below.
  - *Program Select* allows the user to define the program number, PCR, video and audio selection is automatic based upon the PMT.
  - *PID Select* allows the user to define the PCR, Video and up to four audio by their PID numbers, the PMT PID is ignored.

- **Auto Program Select Mode:** Options are *First Program in PAT* or *Lowest Program Number*.
  - First program means that the first program is defined within the PAT.
  - Lowest program number will select the program with the lowest Program ID.

- **Program Number:** When the Program Tuning mode is set to Program Select, enter here, in decimal form, the Program ID.

- **Video PID Number:** When the Program Tuning mode is set to PID Select, enter here, in decimal form, the Video PID ID.

- **PCR PID Number:** When the Program Tuning mode is set to PID Select, enter here, in decimal form, the PCR PID ID.

- **Audio 1 PID Number:** When the Program Tuning mode is set to PID Select, enter here, in decimal form, the first Audio PID ID.

- **Audio 2 PID Number:** When the Program Tuning mode is set to PID Select, enter here, in decimal form, the second Audio PID ID.

- **Video Delay:** Sets the video delay through the 3480DEC18-MP2SD-ASI18. Here you may delay your video for up to 15 frames.

- **Audio 1/2 Delay:** The 3480DEC18-MP2SD-ASI18 automatically embeds the selected audio streams into the outgoing SDI. It is possible to add an additional delay to synchronize the audio and video stream. Simply slide the audio delay to the desired setting for each audio group. The maximum delay is 2000ms.

- **Video Locking**: This field determines the video locking mechanism. The locking options are **PTS (Presentation Time Stamp)** or **VBV (Video Buffering Verifier)**. By default **PTS** will be selected.

- **Audi 1/2 type select:** When **Program Tuning Mode** is set to **PID Select** the user must specify the type of audio present, in all other cases this option will be disabled.

- **AC3 Audio 1/2 Mode:** The 3480DEC18-MP2SD-ASI18 gives the user the option to decode or bypass the AC3 audio. The user may select here to **Bypass** or **Decode** the AC3 audio.

- **Decoder Reset:** This option allows the user to perform a soft rest on each decoder, this can be used in case a particular decoder fails and the user wishes to rest it without having to reboot the unit. In order to perform a soft rest, select **Rest** from the drop down menu and click *apply*.

Note: MPEG 1 Layer II audio will always be decoded.

NOTE: When Program Tuning Mode is set to PID Select, it is possible to select any audio from any service with the transport stream.

3.3.2.1. Decoder Output Control:

- **CC Embed Enable:** This allows the user to decide if Closed Caption 608 should be embedded on the output, by default this is disabled.
- **CC Embed Line:** This allows the user to select the line at which the closed captions will be embedded; the range is line 7 to 21.
- **Vertical Start Location:** Currently not supported at this time.
- **Horizontal Resize Mode:** Currently not supported at this time.
- **Horizontal Start Location** Currently not supported at this time.

3.3.3. Program Info

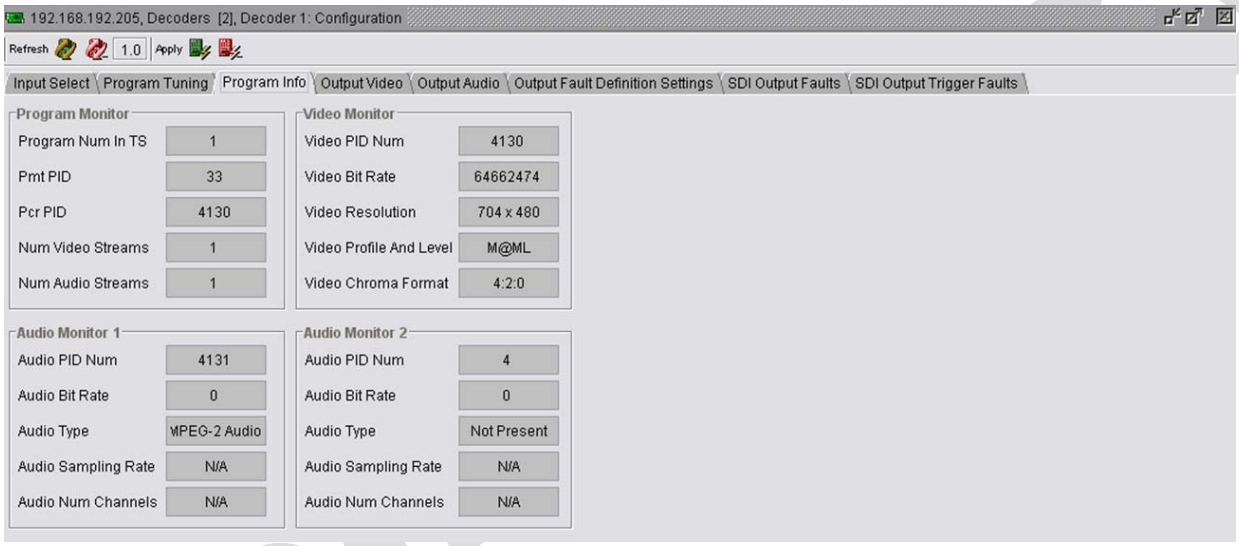


Figure 3-10 VistaLINK® PRO – Program Info

3.3.3.1. Program Monitor

- **Program Number in TS:** The currently decoded Program ID is displayed in this field in Decimal form.
- **PMT PID:** The currently decoded Program Map Table Packet ID is displayed in this field in Decimal form.
- **PCR PID:** The Program Clock Reference Packet ID is displayed in this field in decimal form.
- **Num Video Streams:** The number of video streams within the program is displayed in this field.
- **Num Audio Streams:** The number of audio streams within the program is displayed in this field.

3.3.3.2. Video Monitor

- **Video PID Number:** The currently decoded Video Packet ID is displayed here in Decimal form.
- **Video Bit Rate:** The current video bitrate is displayed in this field. This value will be variable for video encoded in VBR.
- **Video Resolution:** The currently decoded video resolution will be displayed in this field. This is read from the PSIP/PSI.
- **Video Profile and Level:** The currently decoded video profile will be displayed in this field. This is read from the PSIP/PSI. Currently the 3480DEC18-MP2SD-ASI18 supports MP@ML.
- **Video Chroma Format:** The currently decoded video resolution will be displayed in this field. This is read from the PSIP/PSI. This will either be 4:2:0 or 4:2:2.

3.3.3.3. Audio 1/2 Monitor

- **Audio PID Number:** The currently decoded Audio Packet ID is displayed here in Decimal form.
- **Audio Bit Rate:** The current Audio bitrate is displayed in this field.
- **Audio Type:** The currently decoded video resolution will be displayed in this field. This is read from the PSIP/PSI.
- **Sampling Rate:** The currently decoded Audio Sampling rate will be displayed in this field; this is read from the PSIP/PSI.
- **Num Channels:** The number of channels of Audio in the currently decoded program will be displayed in this field. This is read from the PSIP/PSI.

3.3.4. Output Audio

3.3.4.1. Audio Control

- **Group 1/2/3/4:** The 3480DEC-MP2SD-ASI18 automatically embeds the selected audio streams into the outgoing SDI. Here it is possible to re-arrange the audio streams and/or embed other separate audio streams. From the drop down menu, simply select for each Group which Audio should be embedded.

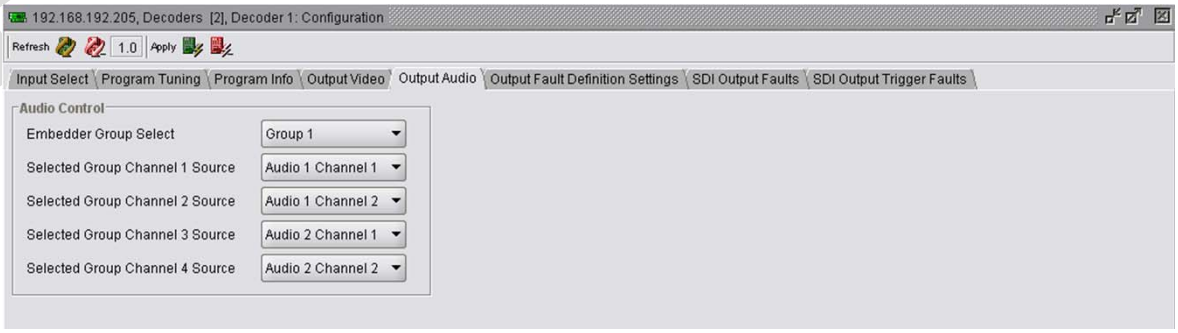


Figure 3-11: Output Audio

4. TECHNICAL SPECIFICATIONS

4.1. INPUTS AND OUTPUTS

- ASI Input per DVB TR 101 891-270Mb/s Maximum Bitrate 180Mb/s
- 18 SDI 270Mb/s SMPTE 259M

4.2. DECODING SPECIFICATIONS

VIDEO:

SD Encoded

Standard Supported: MPEG-2 Main Profile @ Main Level

Video Format: Standard Definition 525 (NTSC) and 625 (PAL)

4.3. AUDIO DECODER

- MPEG-1 Layer 2 Audio Decoder

4.4. EMBEDDING OF HANC & VANC

- Decoded Audio
- Audio Pass Through, AC-3
- Closed Caption

4.5. AC-3 DECODING OPTION (+18AC3-2C)

- 18xAC-3 decoder with downmix (2 channels output) embedded in SDI output

4.6. AUDIO VIDEO MONITORING (+AVM)

- Black, freeze, video presence, audio presence

4.7. A/V LEVEL ADJUSTMENT (+PROC)

- Luminance, chrominance, audio level adjustment

4.8. INTELLIGAN (+IG)

- Dynamic audio loudness & levels adjustment

5. TROUBLESHOOTING

5.1. VLPRO DOES NOT DISPLAY THE 3480DEC18-MP2SD-ASI18 ALARMS

Once a connection has been establish check and/or configure the SNMP settings with the correct VLPro Server IP address and ensure the community strings are correctly set. Refer to the network administrator if you are in doubt as to what these should be set to.

5.2. UPDATING VLPRO SERVER JAR FILE

Products from Evertz are constantly evolving and new features are often added. It is therefore important to update the 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. If your new product has not appeared even after waiting a few minutes for the Ethernet switch negotiation to complete then it is possible that your JAR file may be old or missing.

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.

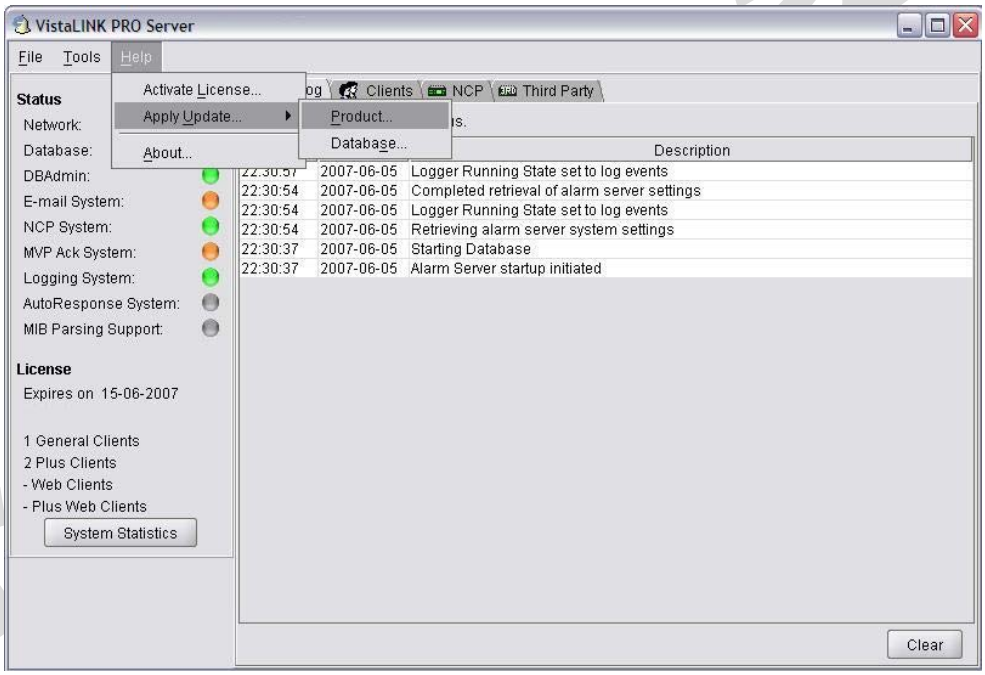


Figure 5-1: VistaLINK® PRO Server

A window will appear, as shown in Figure 5-2, simply navigate to the location of the new JAR file and select the file by double clicking it. The window will automatically close and the update will be applied in the background.

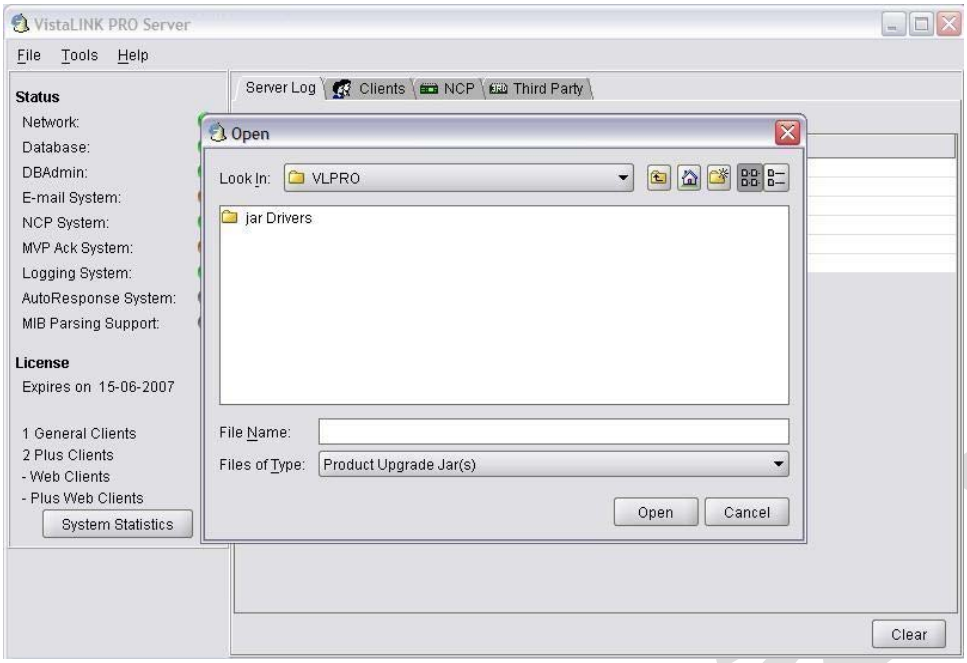


Figure 5-2: VistaLINK® PRO – Applying JAR Updates

You 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.

NOTE: You may confirm that all updates have been successfully applied by selecting from the menu *Tools>View>Show/Hide Product* update log.

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

6. ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

BAT Bouquet Association Table
BER Bit Error Rate
BW Band Width
CA Conditional Access
CAT Conditional Access Table
CPE Common Phase Error
CRC Cyclic Redundancy Check
ETSI European Telecommunications Standards Institute
DC Direct Current
DVB Digital Video Broadcasting
DVB-C Digital Video Broadcasting baseline system for digital cable television (EN 300 429 [6])
DVB-CS Digital Video Broadcasting baseline system for SMATV distribution systems (EN 300 473 [13])
DVB-S Digital Video Broadcasting baseline system for digital satellite television (EN 300 421 [5])
DVB-T Digital Video Broadcasting baseline system for digital terrestrial television (EN 300 744 [9])
EIT Event Information Table
ETR ETSI Technical Report
ETS European Telecommunication Standard
FEC Forward Error Correction
GOP Group of Pictures
HEX Hexadecimal
ISO International Organization for Standardization
ITU International Telecommunication Union
MGT Master Guide Table
MPEG Moving Picture Experts Group
NIT Network Information Table
PAT Program Association Table
PCR Program Clock Reference
PID Packet Identifier
PMT Program Map Table
PSI MPEG-2 Program Specific Information (as defined in ISO/IEC 13818-1 [1])
PSIP Program and System Information Protocol
PTS Presentation Time Stamps
RS Reed-Solomon
RST Running Status Table (see EN 300 468 [7])
RTE Residual Target Error
SDT Service Description Table
SI Service Information
TDT Time and Date Table
TOT Time Offset Table
TS Transport Stream
UTC Universal Time Co-ordinated