TABLE OF CONTENTS

Figures

Tables

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Oct 07
1.1	Updated card edge drawing and RS-422 Wiring table	Nov 07
1.2	Added Tally Support Information	Jan 08

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1. CARD EDGE CONTROLS

1.1. DETERMINING CURRENT IP ADDRESS SETTINGS

To read the current IP address during normal operation, press the front switch DOWN. The IP address can be read on the four-character alphanumeric display.

1.2. RESTORING FACTORY DEFAULTS

To restore all settings to factory defaults, apply power to the card while holding the toggle switch UP until the green LED is illuminated.

1.3. CARD EDGE LEDS

LED 22 is illuminated when Ethernet activity is detected.

All other card edge LEDs are for factory use only.

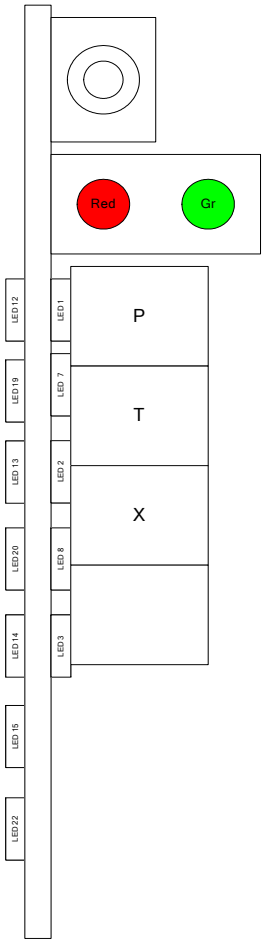

Figure 1-1: PTX Card Edge

2. CONFIGURATION

2.1. EXAMPLE CONFIGURATION

The setup in Figure 2-1 will be used to demonstrate how to configure the 7700PTX-MVS.

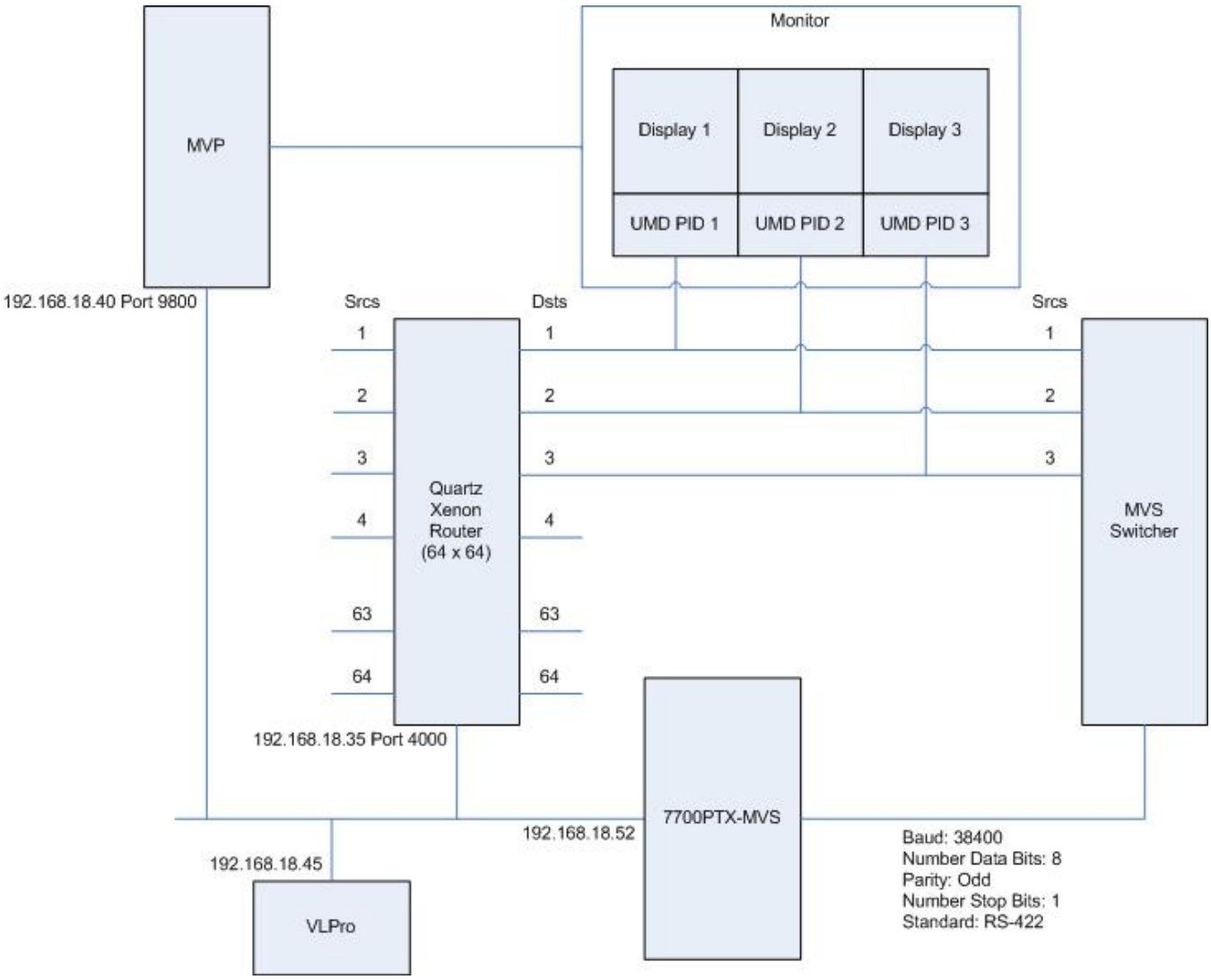

Figure 2-1: Example Setup

Figure 2-1 contains the following elements:

- A 64x64 Xenon router with IP address 192.168.18.35. The router is configured so that Ethernet 1 port, as a server, will receive the Quartz standard protocol on port number 4000.
- A MVP with a single output card. The output card has IP address 192.168.18.40. It is configured to receive UMD data using Image Video over a network link using TCP port 9800. A monitor is connected to the output card.
- Destination 1 of the router is monitored by Display 1. Display 1 has a UMD with protocol ID (PID) set to 1. This UMD displays the name of the router source associated with router destination 1.

- Destination 1 of the router is connected to source 1 of the switcher.
- Destination 2 of the router is monitored by Display 2. Display 2 has a UMD with a PID of 2. This UMD displays the name of the router source associated with router destination 2.
- Destination 2 of the router is connected to source 2 of the switcher.
- Destination 3 of the router is monitored by Display 3. Display 1 has a UMD with a PID of 3. This UMD displays the name of the router source associated with router destination 3.
- Destination 3 of the router is connected to source 3 of the switcher.
- A 7700PTX-MVS has IP address 192.168.18.52. It conveys UMD information via TCP to the MVP's output card. It uses TCP to retrieve source names and crosspoint information from the Xenon router. It uses the MVS-8000 protocol over a serial link to set the names of switcher sources 1, 2, and 3. It can retrieve tally information from the switcher and convey this as VGPIs to the MVP's output card. Switcher source names 1, 2 and 3 will correspond to the router sources associated with router destinations 1, 2, and 3 respectively.
- A computer, having IP address 192.168.18.45, with VLPro installed. Apart from its network settings, VLPro is used to configure the parameters of the 7700PTX-MVS.

2.2. STEP 1: PREPARE MVP OUTPUT CARD TO RECEIVE UMD DATA

1. Connect a console application, such as HyperTerminal, to the output card using a procedure similar to that of section 2.4.
2. From the output card's *Main Menu* select *Under Monitor Display Setup*.
3. Select *Set protocol*.
4. Select *Image Video*.
5. Select *Network* as the input type.
6. Enter *9800* for the TCP port.
7. Select *S* to *Save and Exit*.
8. Reboot the output card.
9. During the subsequent boot process you should see the message *Ready to accept ImageVideo Protocol* on the console. This message indicates the output card is listening on TCP port 9800 for UMD data.

2.3. STEP 2: CONNECT 7700PTX-MVS TO THE SWITCHER

1. Ensure there is no power applied to the 7700PTX-MVS.
2. Connect the RS-422 pins of the 7700PTX-MVS to those of the switcher. See Figure 2-2 and Table 2-1.
3. Apply power to the 7700PTX-MVS.

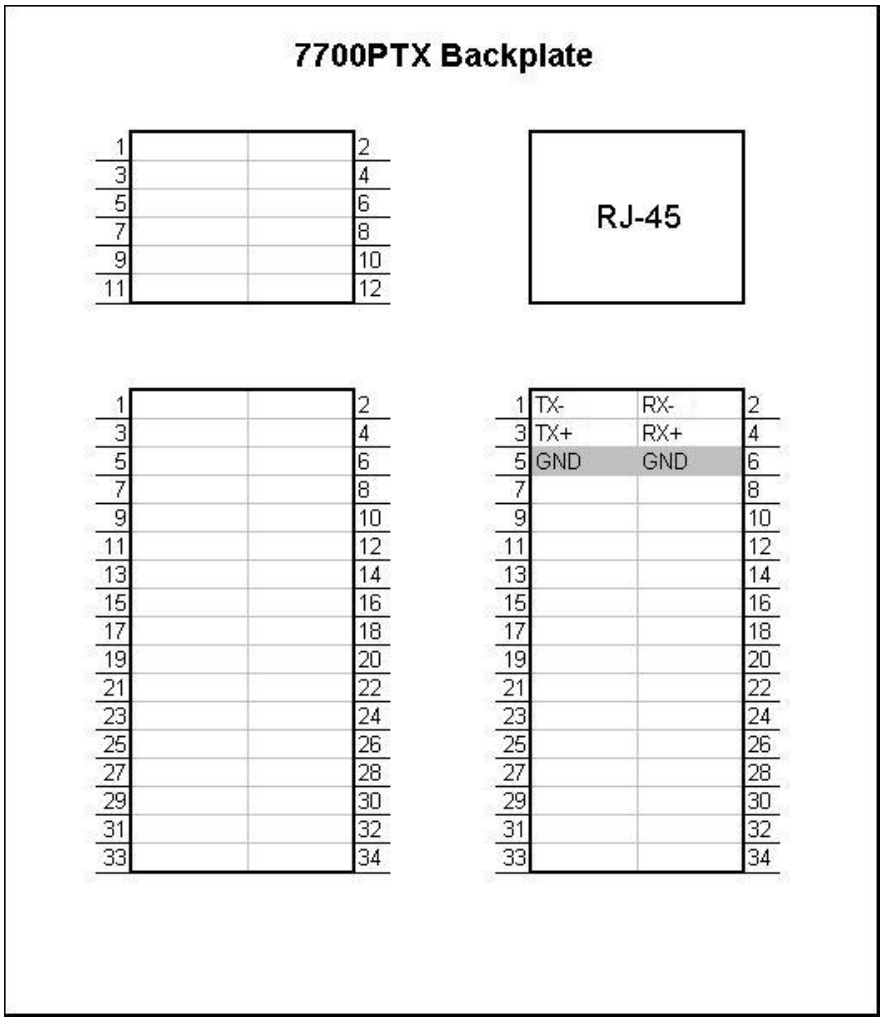

Figure 2-2: RS-422 Pins

7700PTX-MVS			Switcher	
Port	Pin Name	Pin	Pin	Pin Name
1	TX-	1	2	RX A
	TX+	3	7	RX B
	RX-	2	8	TX A
	RX+	4	3	TX B
	GND	6	6	RX Common
	GND	5	4	TX Common

Table 2-1: RS-422 Wiring

2.4. STEP 3: CONNECT A PC TO THE DEBUG/MONITOR PORT

The network parameters of the 7700PTX-MVS must be configured via its debug/monitor port, the header of which is labelled J1. A special Evertz adapter cable allows this port to connect to the COM port of a personal computer. The following steps describe this procedure.

1. Locate the small, keyed, four–pin end of the upgrade cable provided by Evertz.

2. Connect it to the four-pin interface (J1) near the front of the 7700PTX, directly above the card unlock latch.

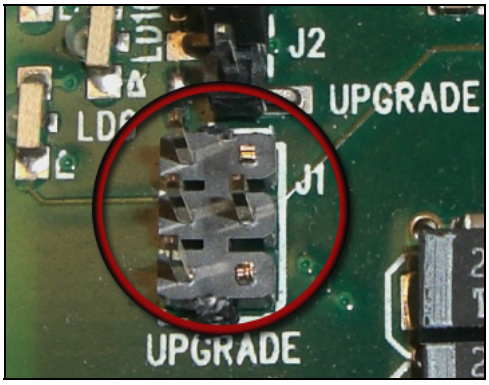

Figure 2-3: Upgrade Jumper

3. Connect the other end of the upgrade cable to a straight-through serial cable. Connect the serial cable to the serial or COM port of the computer.
4. Initiate HyperTerminal on your computer by selecting: "*Start\Programs\Accessories\Communications\HyperTerminal*".
5. Enter a name for your connection, for example: PTX.
6. Press the <Enter> key. A new "Connect To" window will appear.

Figure 2-4: 'Connect To' Window

7. In the "*Connect using"* region, select COM1 from the drop down menu. If COM1 is in use, select an alternate COM port.
8. Press the <Enter> key or select OK. This opens the "COM Properties" window.

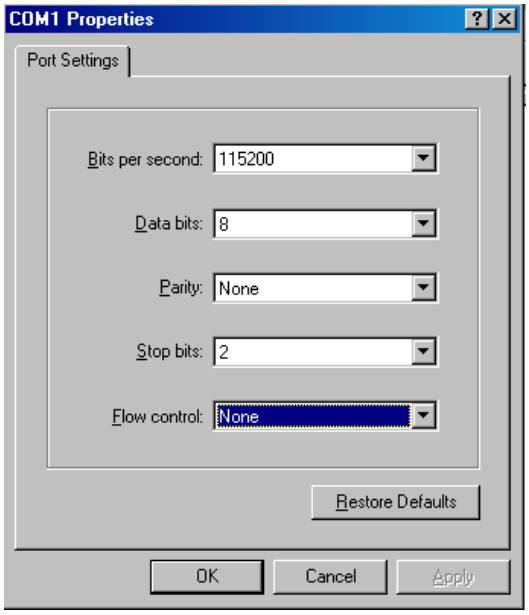

Figure 2-5: COM1 Properties

9. Enter the information for the *COM1 Properties* settings as listed in the screen above.
10. Press the <Enter> key or select OK. The "COM Properties" window closes, leaving the HyperTerminal window open.
11. Apply power if the 7700PTX-MVS does not have power. The boot sequence and Main Menu are displayed in the HyperTerminal window.
12. If the 7700PTX-MVS has power, press the <Enter> key to view the 7700PTX-MVS's menu system.
13. Various 7700PTX-MVS parameters are configurable via the 7700PTX-MVS's menu system, the root of which is called *Main Menu*. This is shown in Figure 2-6.

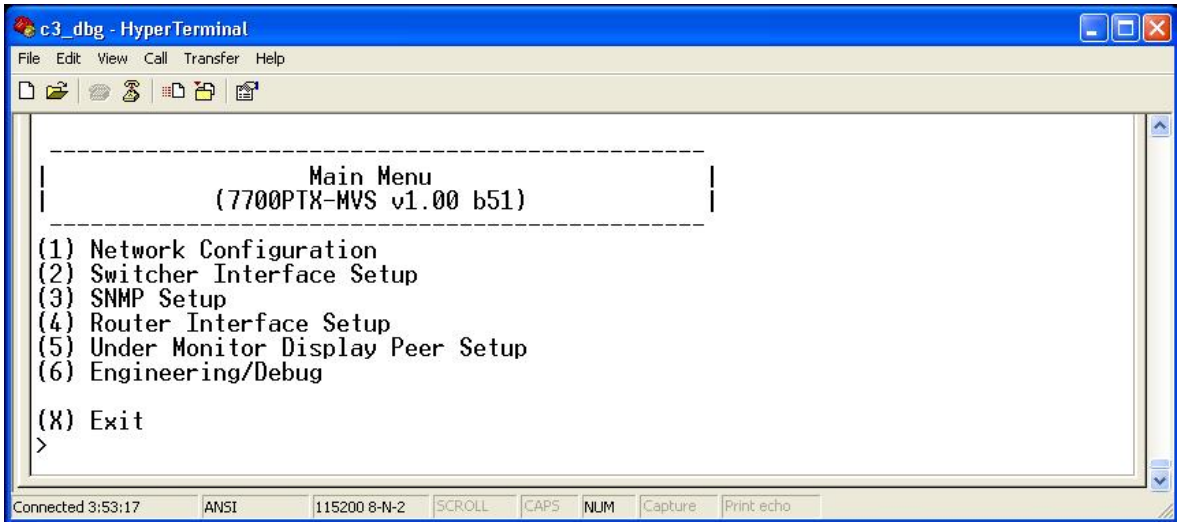

Figure 2-6: 7700PTX-MVS Main Menu

2.5. STEP 4: CONFIGURE NETWORK PARAMETERS

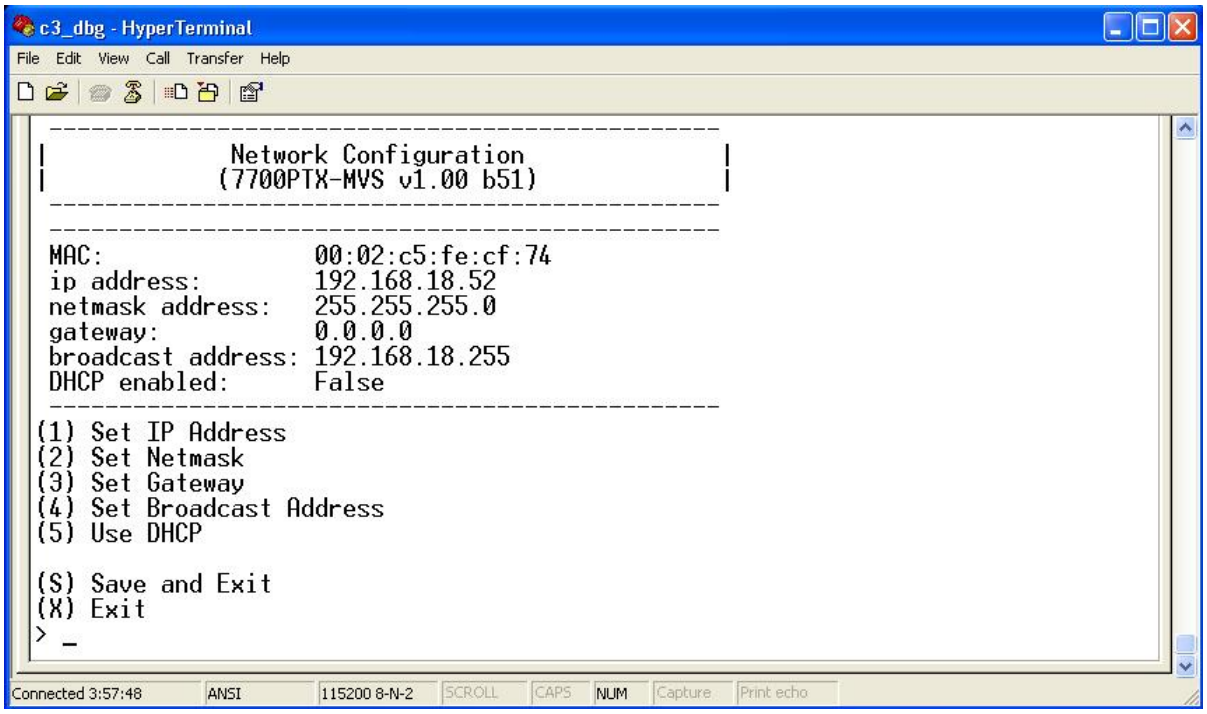

Figure 2-7: 7700PTX-MVS Network Configuration Menu

The network parameters of the 7700PTX-MVS can only be configured by using its menu system.

1. From the *Main Menu* select *Network Configuration*.
2. Select *Set IP Address* then enter the IP address, 192.168.18.52, of the 770PTX-MVS.
3. Select *Set Netmask* then enter the subnet mask, 255.255.255.0, of the 7700PTX-MVS.
4. For example, the MVP output card and Xenon router reside on the same IP network as the 7700PTX-MVS. Thus, the *gateway* can be left as 0.0.0.0. If the 7700PTX-MVS were on a different IP network then the IP address of the gateway would need to be entered by selecting *Set Gateway* and entering the appropriate IP address.
5. For a manually entered network configuration, ensure *DHCP enabled* is set to *False*. A setting of *True* means the 7700PTX-MVS will, upon boot, try to fetch network settings from a DHCP server. The *Use DHCP* entry permits changes to this parameter.
6. Once the network settings are configured, select *Save* and *Exit* before exiting the *Network Configuration* to save the settings, otherwise select *Exit*.
7. Reboot the 7700PTX-MVS.
8. Ensure the VLPro machine can ping the 7700PTX-MVS. If it can, the menu system of the 7700PTX-MVS is no longer required and the adapter cable can be removed from the debug/monitor port.

The 7700PTX-MVS must be rebooted for any network setting changes to take effect.

2.6. STEP 5: OPEN 7700PTX-MVS VLPRO CONFIGURATION VIEW

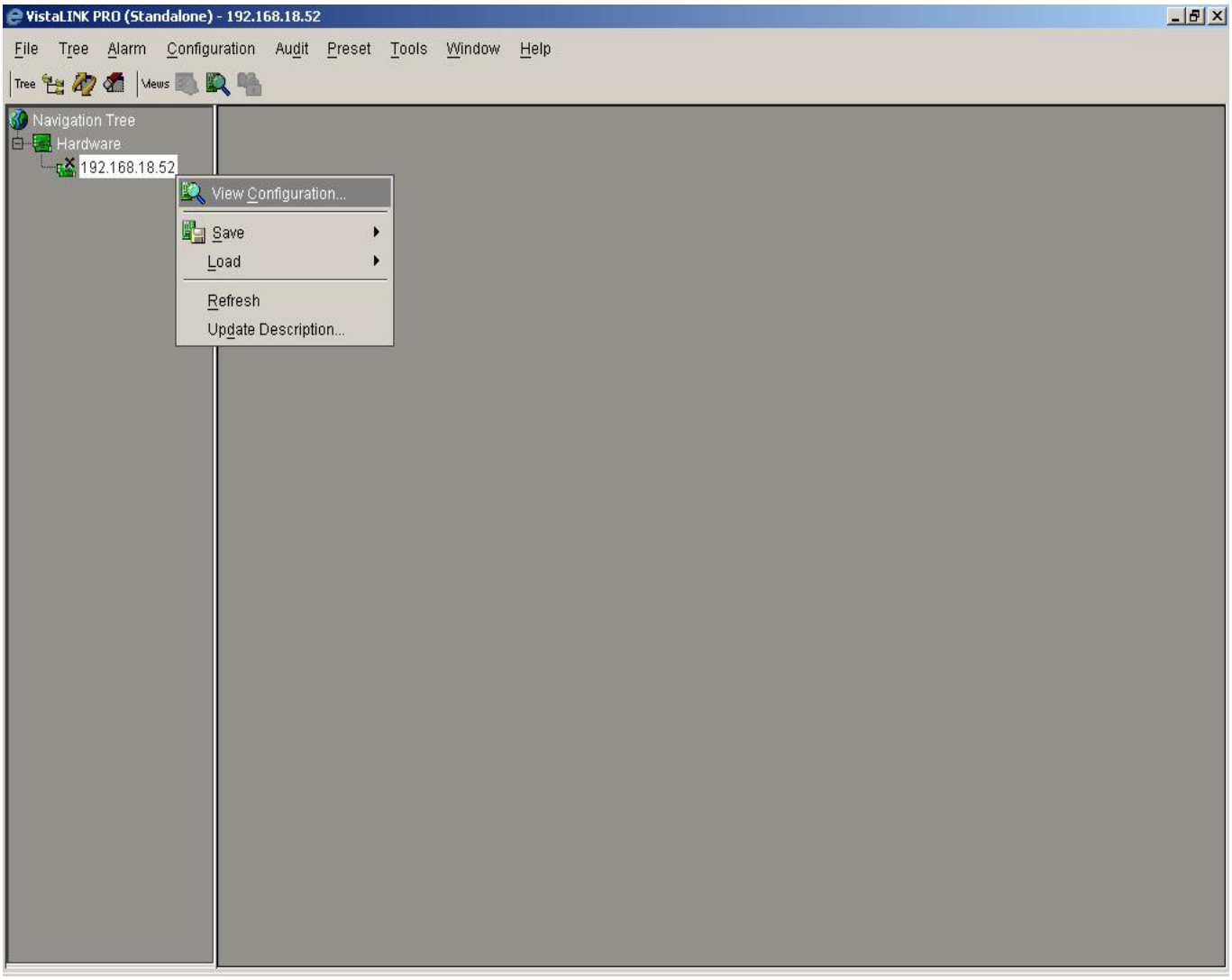

Figure 2-8: VLPro Hardware Navigation Tree

1. Launch VLPro. The IP address of the 7700PTX-MVS, 192.168.18.52, should appear in the hardware navigation tree.
2. Right click on the IP address.
3. Click *View Configuration*.

2.7. STEP 6: CONFIGURE SWITCHER PARAMETERS

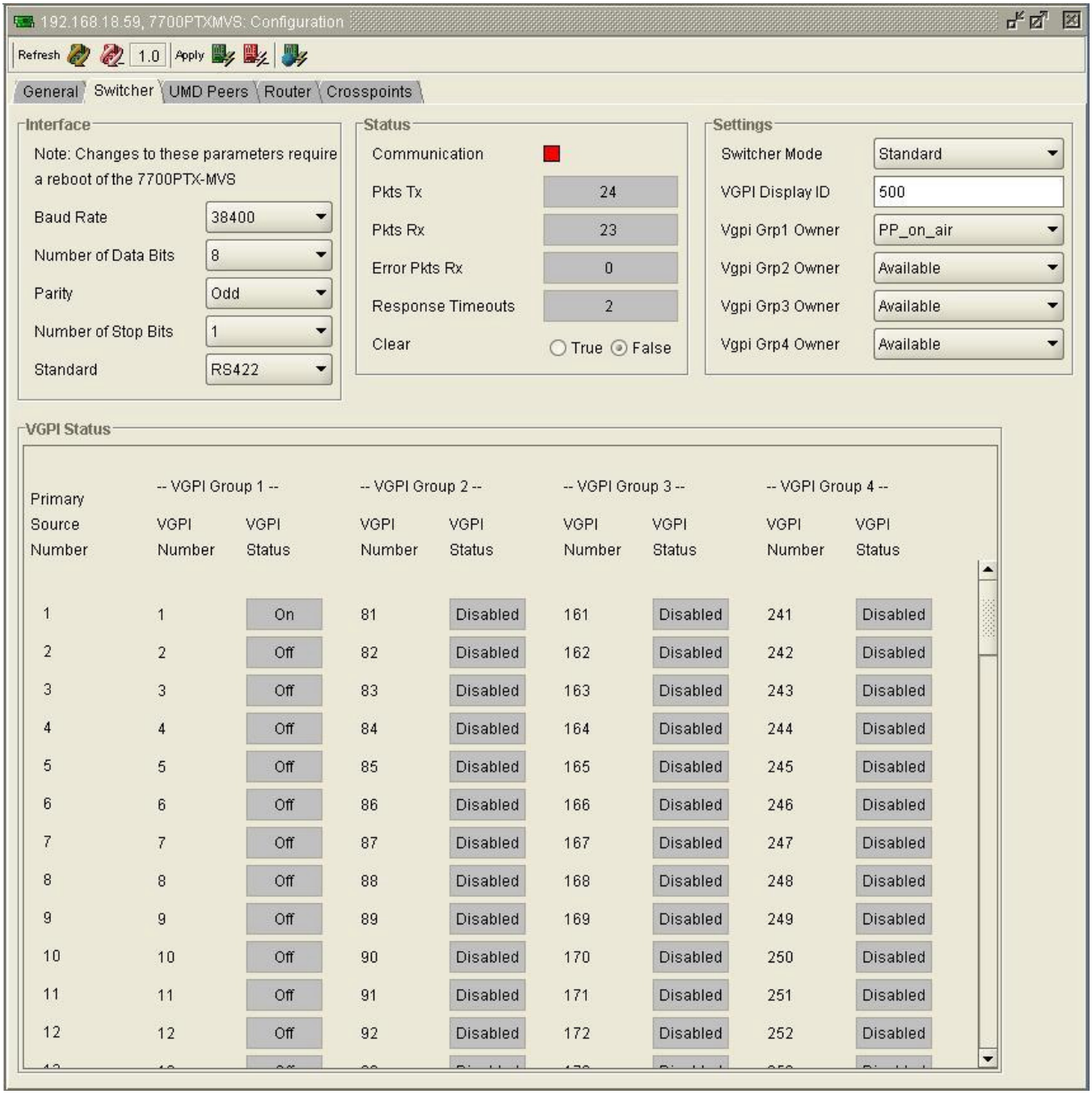

Figure 2-9: Switcher Parameters

1. From the VLPro configuration view, click the *Switcher* tab.
2. Select the baud rate to match that of the switcher. Typically, this value is 38400.
3. Select the number of data bits to match that of the switcher. Typically, this value is 8.
4. Select the parity to match that of the switcher. Typically, odd parity is used.
5. Select the number of stop bits to match that of the switcher. Typically, this value is 1.
6. Select the standard to match that of the switcher. Typically, this value is RS-422.

7. If desired, the tallies of the switcher can be monitored. The switcher will indicate which of its primary sources are contributing to the switcher's outputs. Tally information is conveyed as VGPIs to the MVP's output card. A VGPI is associated with each of the switcher's 80 primary sources. The 7700PTX-MVP supports up to 4 VGPI groups. Each VGPI group consists of 80 VGPI's – one for each primary source of the switcher. A VGPI group can be assigned an owner. An owner corresponds to one of the switcher's outputs. Thus, if a VGPI is on the switcher's primary source it is contributing to the monitored output. If a VGPI is off the primary source it is not contributing to the monitored output. For instance, suppose we wish to monitor the switcher's program/preview output. As shown in Figure 2-9, *PP_on_air* is selected as the owner of VGPI group 1. Thus VGPIs 1 – 80 will be associated with the program/preview output. Table 2-2 shows the primary source/VGPI relationship.
8. Click the apply button.
9. A reboot of the 7700PTX-MVS is required in order for changes to the switcher interface parameters to take effect. However, this step will be delayed until all parameters of the 7700PTX-MVS are configured.

Primary Source	VGPI Group 1	VGPI Group 2	VGPI Group 3	VGPI Group 4
1	1	81	161	241
2	2	82	162	242
3	3	83	163	243
4	4	84	164	244
5	5	85	165	245
6	6	86	166	246
7	7	87	167	247
8	8	88	168	248
9	9	89	169	249
10	10	90	170	250
11	11	91	171	251
12	12	92	172	252
13	13	93	173	253
14	14	94	174	254
15	15	95	175	255
16	16	96	176	256
17	17	97	177	257
18	18	98	178	258
19	19	99	179	259
20	20	100	180	260
21	21	101	181	261
22	22	102	182	262
23	23	103	183	263
24	24	104	184	264
25	25	105	185	265
26	26	106	186	266
27	27	107	187	267
28	28	108	188	268
29	29	109	189	269
30	30	110	190	270
31	31	111	191	271
32	32	112	192	272
33	33	113	193	273
34	34	114	194	274
35	35	115	195	275
36	36	116	196	276
37	37	117	197	277
38	38	118	198	278
39	39	119	199	279
40	40	120	200	280
41	41	121	201	281
42	42	122	202	282
43	43	123	203	283
44	44	124	204	284

45	45	125	205	285
46	46	126	206	286
47	47	127	207	287
48	48	128	208	288
49	49	129	209	289
50	50	130	210	290
51	51	131	211	291
52	52	132	212	292
53	53	133	213	293
54	54	134	214	294
55	55	135	215	295
56	56	136	216	296
57	57	137	217	297
58	58	138	218	298
59	59	139	219	299
60	60	140	220	300
61	61	141	221	301
62	62	142	222	302
63	63	143	223	303
64	64	144	224	304
65	65	145	225	305
66	66	146	226	306
67	67	147	227	307
68	68	148	228	308
69	69	149	229	309
70	70	150	230	310
71	71	151	231	311
72	72	152	232	312
73	73	153	233	313
74	74	154	234	314
75	75	155	235	315
76	76	156	236	316
77	77	157	237	317
78	78	158	238	318
79	79	159	239	319
80	80	160	240	320

Table 2-2: Primary Source/VGPI

2.8. STEP 7: CONFIGURE UMD PEERS

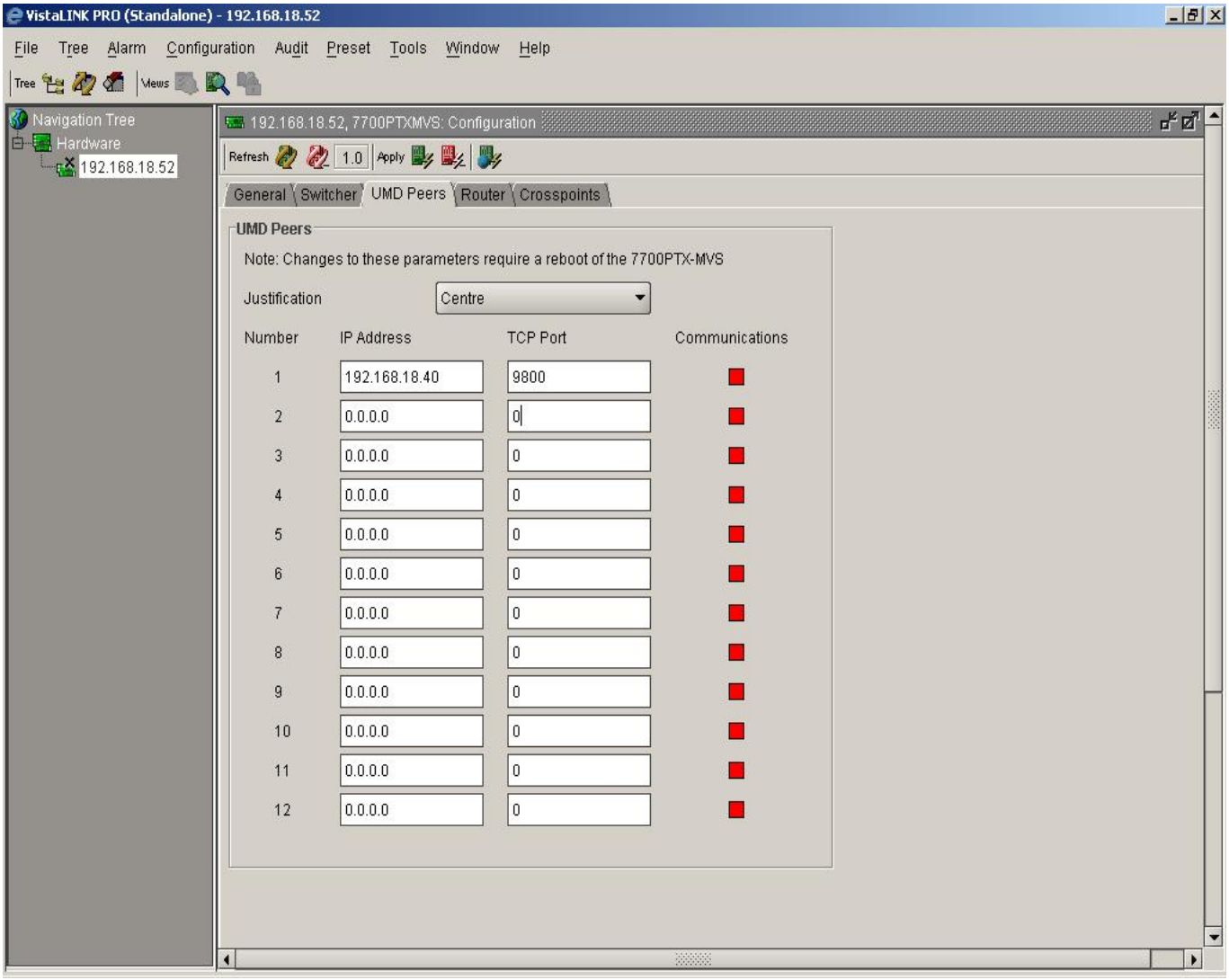

Figure 2-10: UMD Peer Parameters

1. From the VLPro configuration view, click the *UMD Peers* tab.
2. Configure how the UMD text will be justified by selecting an appropriate entry from the *Justification* box.
3. Enter the IP address of the host to receive UMD data. For our example, this will correspond to the IP address of the MVP's output card, 192.168.18.40.
4. Enter the TCP port over which the UMD data will be exchanged. For our example, this will be 9800.
10. Click the *Apply* button.
5. A reboot of the 7700PTX-MVS is required in order for changes to the UMD Peer parameters to take effect. However, this step will be delayed until all parameters of the 7700PTX-MVS are configured.

2.9. STEP 8: CONFIGURE ROUTER PARAMETERS

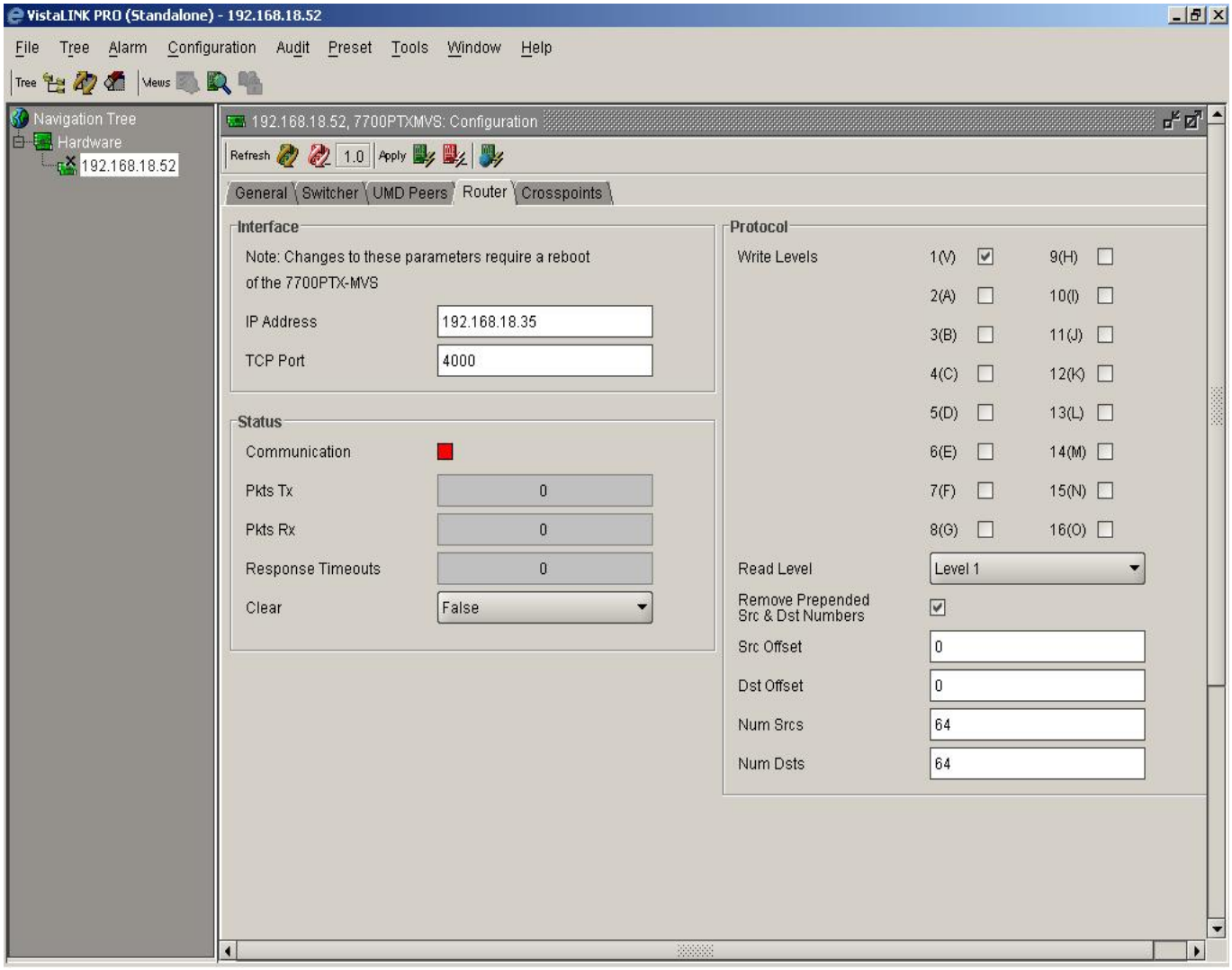

Figure 2-11: Router Parameters

1. From the VLPro configuration view, click the *Router* tab.
2. Set the IP address to match that of the Xenon router. For our example, this is 192.168.18.35. Using WinSetup, the IP address can be found by selecting *System* then *Ethernet Configuration*.
3. Set the TCP port to match that of the Xenon router's Ethernet 1 port number. For our example, this is 4000. Figure 2-12 shows which WinSetup window is used to configure Ethernet 1 to accept the Quartz protocol.
4. A reboot of the 7700PTX-MVS is required in order for changes to the router interface parameters to take effect. However, this step will be delayed until all parameters of the 7700PTX-MVS are configured.
5. In the *Write levels* section set which router levels will be included in any crosspoint set message sent by the 77700PTX-MVS to the router. These levels must match that configured on the router using WinSetup. Figure 2-13 shows the level configuration for our example. Thus, we would need to set only level *1* as our write level.

6. Select the *Read Level* to correspond to one of the selected *Write Levels*. This is the level used by the 7700PTX-MVS when reading router crosspoints. For our example, the *Read Level* would correspond to *1*.
7. Some Quartz equipment applies a number to the source or destination name. For instance the name associated with source 1 would be reported as *001,SRC-1*. This parameter, when set to *True*, instructs the 7700PTX-MVS to remove this number.
8. It is possible to create a WinSetup configuration whereby 2 (or more) routers are configured in a contiguous manner and the router other than the first is to be controlled. As an example, suppose we have a 32 x 32 router on level 1 and a 16 x 16 router on level 2. WinSetup is used to configure the sources such that 1 to 32 correspond to the first router and 33 to 48 the second. The destinations are configured in the same manner. For this scenario, on the protocol side, the control module of the router deals with sources and destinations between 1 and 48. Suppose we'd like to control only the 16 x 16 router. We would not want to present this as a 48 x 48 router to VLPro but, instead, a 16 x 16. *Src Offset* and *Dst Offset* both set to 32 would allow for this.
9. Set *Num Srcs* to correspond to the number of router sources. For our example, this would be 64.
10. Set *Num Dsts* to correspond to the number of router destinations. For our example, this would be *64*.
11. Click the *Apply* button.

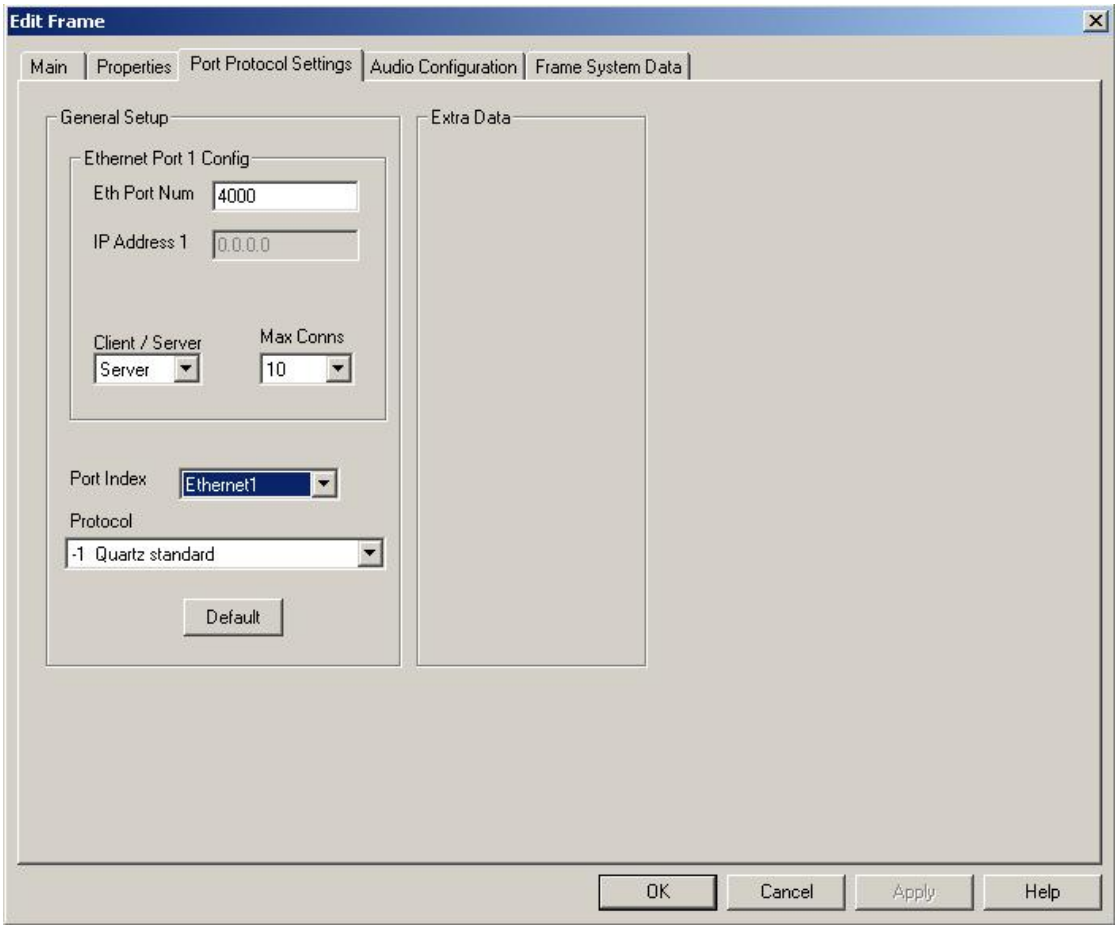

Figure 2-12: WinSetup Port Protocol Settings

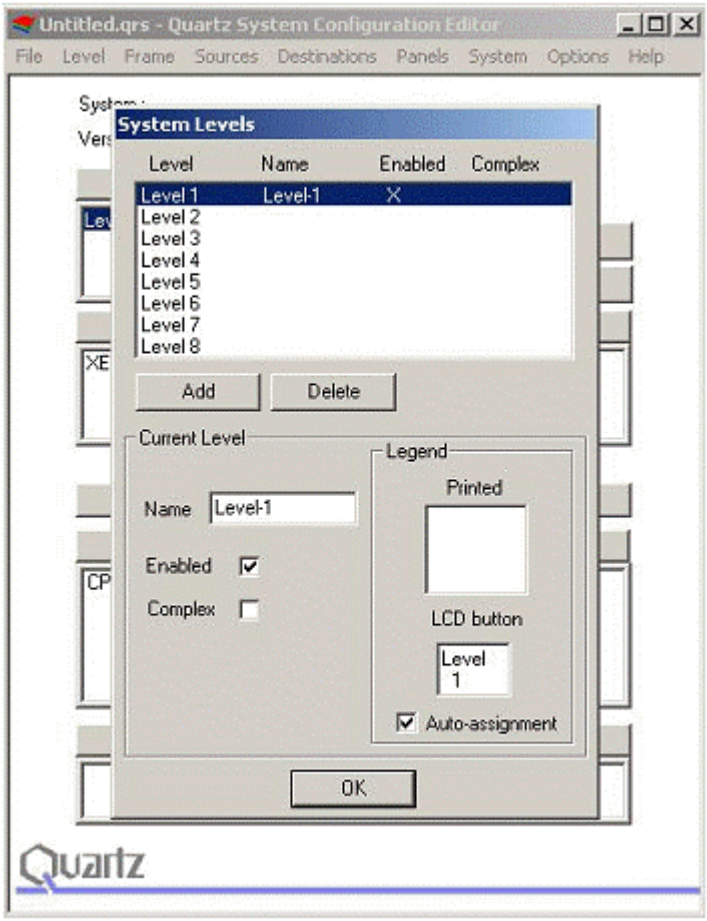

Figure 2-13: WinSetup System Levels

2.10. STEP 9: REBOOT THE 7700PTX-MVS

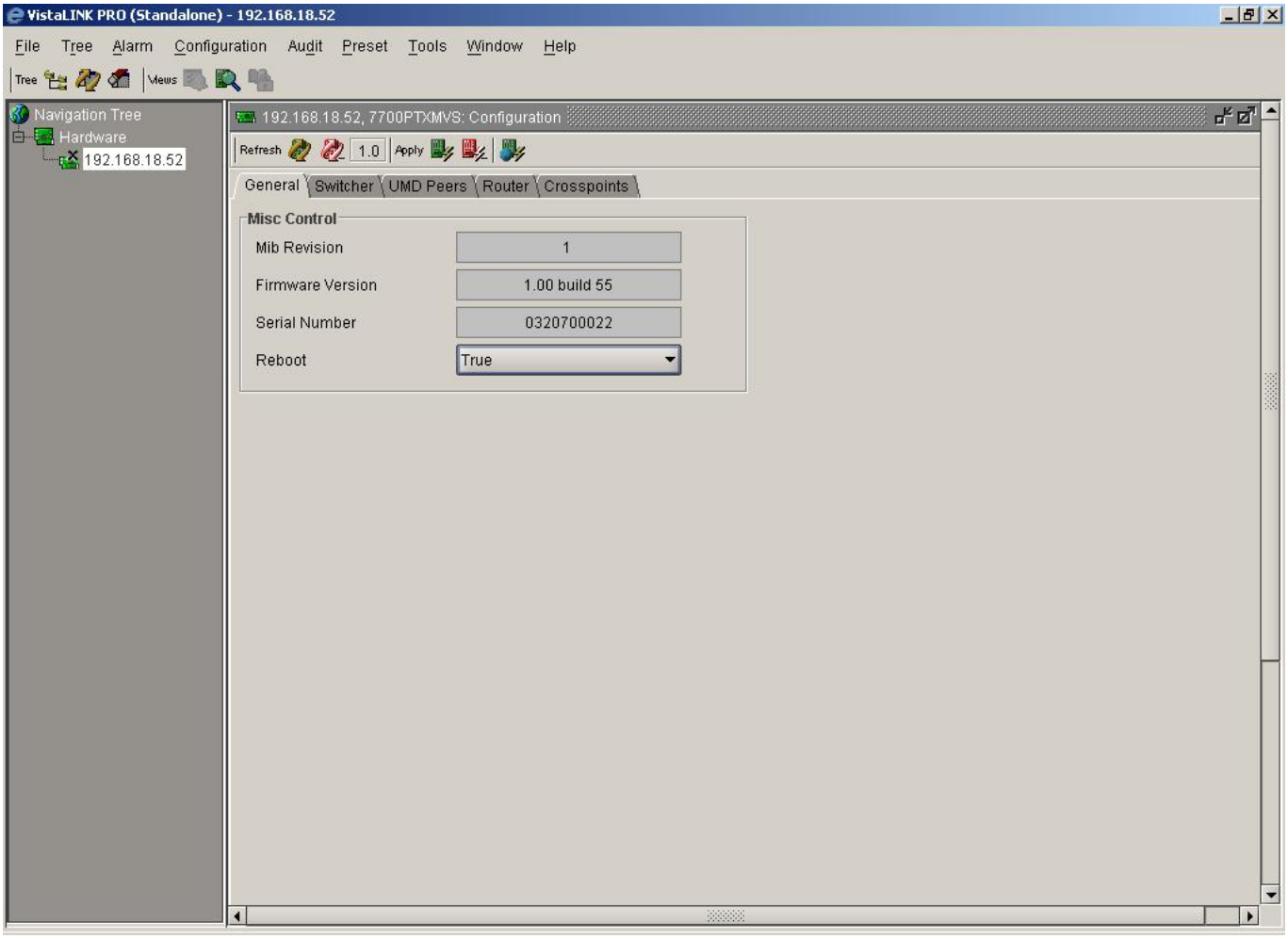

Figure 2-14: Rebooting the 7700PTX-MVS

1. From the VLPro configuration view, click the *General* tab.
2. Set the *Reboot* box to *True*.
3. Click the *Apply* button.
4. Since the number of router sources and destinations was changed, the configuration view must be closed.
5. Wait 15 seconds to allow the 7700PTX-STP to establish communications with the router, switcher, and UMD peer(s).
6. Open the VLPro configuration view.

2.11. STEP 10: CHECK SWITCHER COMMUNICATION

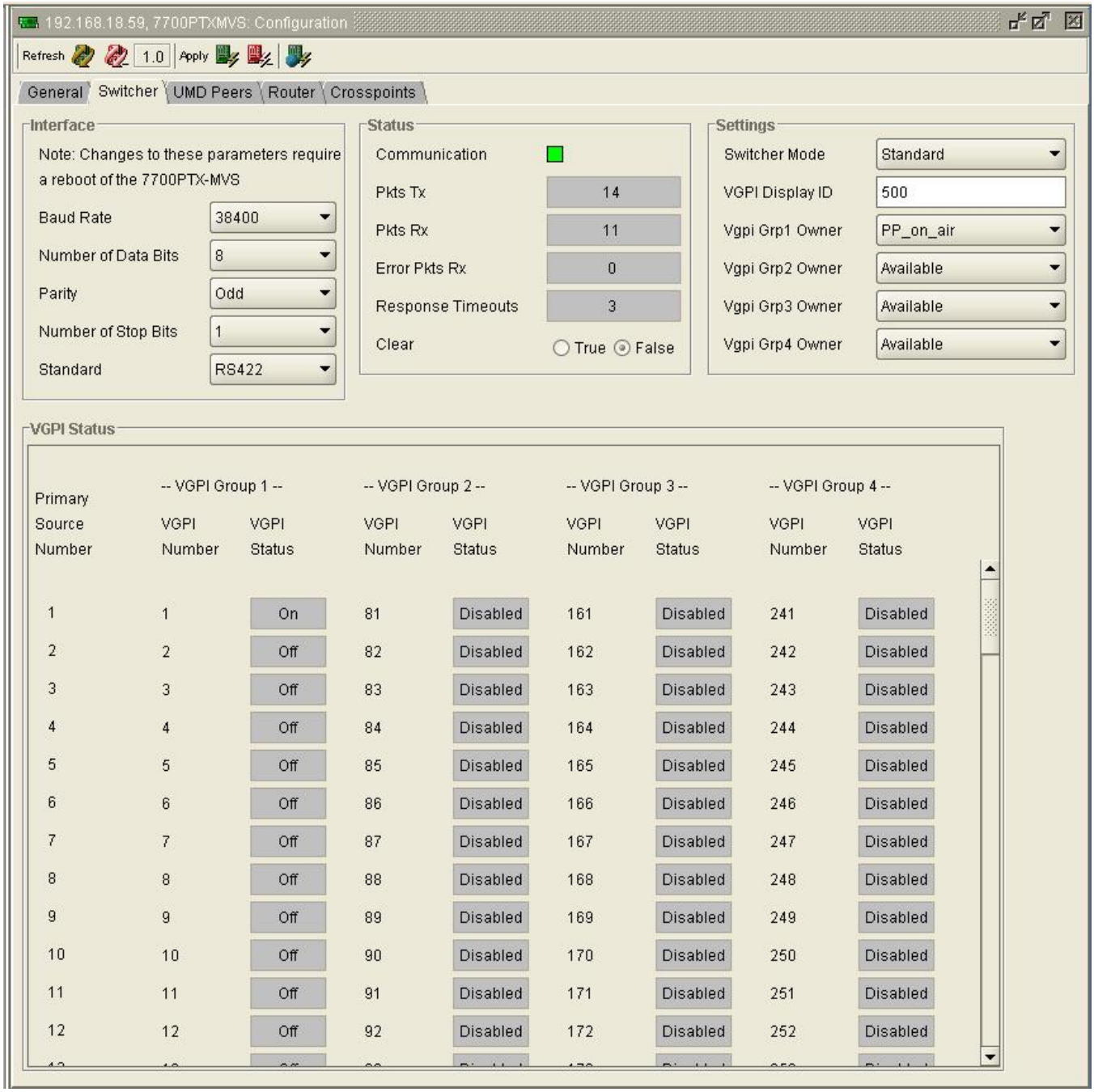

Figure 2-15: Switcher Communication

1. From the VLPro configuration view, click the *Switcher* tab.
2. Check the *Communication* status box. Green indicates the ability of the 7700PTX-MVS to communicate with the switcher. Red indicates the inability of the 7700PTX-MVS to communicate with the switcher. Refer to Table 2-3 for descriptions of the switcher status parameters.

3. If switcher tallies are being monitored, check the VGPI status frame to determine which of the switcher's primary sources are contributing to the monitored switcher output. As Figure 2-15 shows, primary source 1 is contributing to the program/preview on-air switcher output. This information is conveyed as VGPI 1 to the MVP's output card.

Status Parameter	Description
Communication	Green indicates the ability of the 7700PTX-MVS to communicate with the switcher. Red indicates the inability of the 7700PTX-MVS to communicate with the switcher. This may mean the wiring or serial settings are incorrect.
Pkts Tx	This reports the number of packets sent by the 7700PTX-MVS to the switcher.
Pkts Rx	This reports the number of packets sent by the switcher to the 7700PTX-MVS.
Error Pkts Rx	This reports the number of packets with some type of error received by the 7700PTX-MVS.
Response Timeouts	This reports the number of times the 7700PTX-MVS timed out waiting for a response packet from the switcher.
Clear	The combo box can be used to reset the status statistics. To do so, set the box to *True* and click the *Apply* button. Then click the refresh button.

Table 2-3: Switcher Status Parameters

2.12. STEP 11: CHECK UMD PEER COMMUNICATION

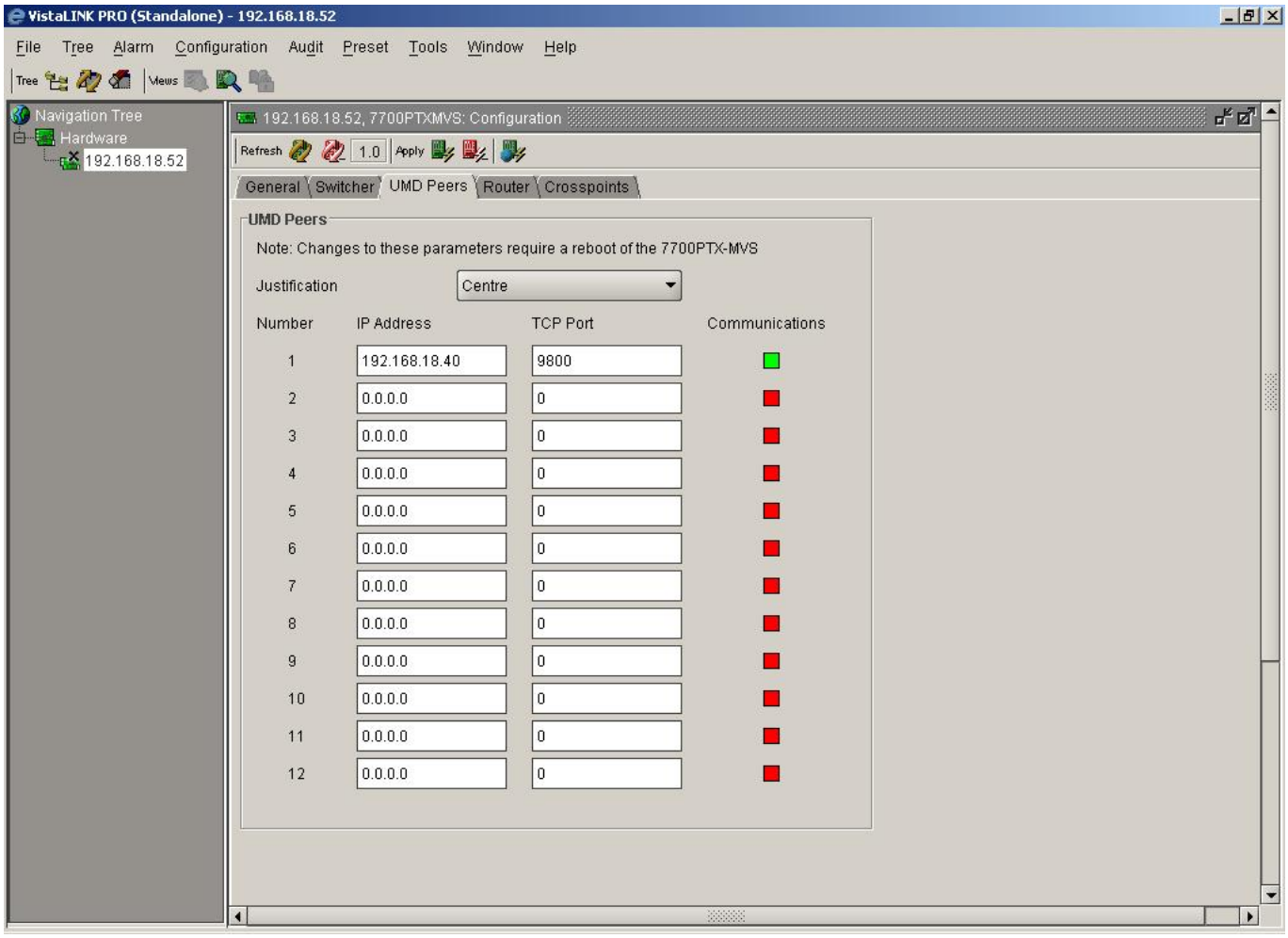

Figure 2-16: UMD Peer Communication

1. From the VLPro configuration view, click the *UMD Peers* tab.
2. Check the *Communications* status box. Green indicates the ability of the 7700PTX-MVS to communicate with that UMD peer. Red indicates the inability of the 7700PTX-MVS to communicate with that UMD peer.

2.13. STEP 12: CHECK ROUTER COMMUNICATION

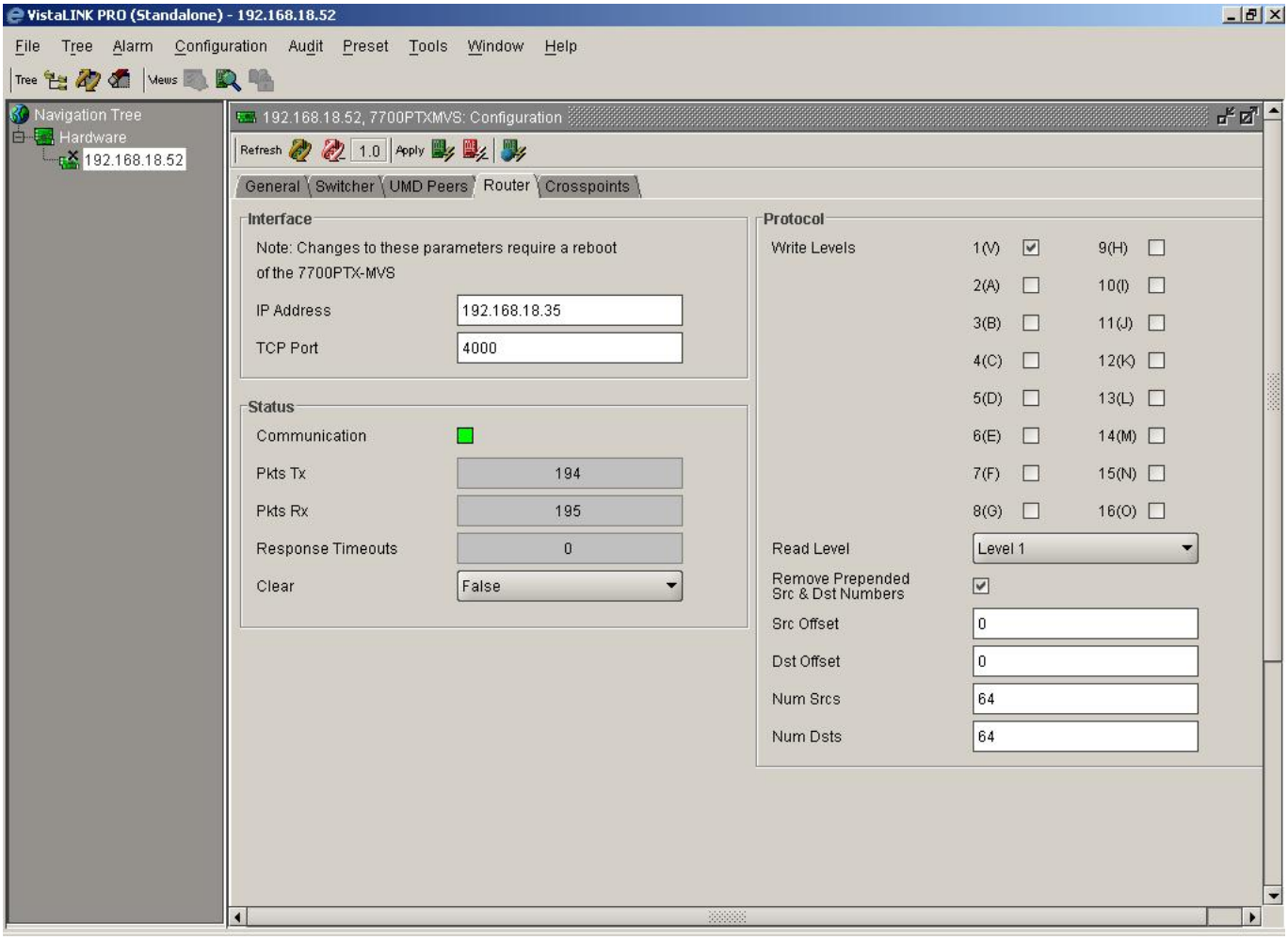

Figure 2-17: Router Communication

1. From the VLPro configuration view, click the *Router* tab.
2. Check the *Communication* status box. Green indicates the ability of the 7700PTX-MVS to communicate with the router. Red indicates the inability of the 7700PTX-MVS to communicate with the router. Refer to Table 2-4 for descriptions of the router status parameters.

Status Parameter	Description
Communication	Green indicates the ability of the 7700PTX-MVS to communicate with the router. Red indicates the inability of the 7700PTX-MVS to communicate with the router.
Pkts Tx	This reports the number of packets sent by the 7700PTX-MVS to the router.
Pkts Rx	This reports the number of packets sent by the router to the 7700PTX-MVS.
Response Timeouts	This reports the number of times the 7700PTX-MVS timed out waiting for a response packet from the router.
Clear	The combo box can be used to reset the router statistics. To do so, set the box to *True* and click the *Apply* button. Then click the refresh button.

Table 2-4: Router Status Parameters

2.14. STEP 13: ASSOCIATE UMD PROTOCOL IDS WITH ROUTER DESTINATIONS

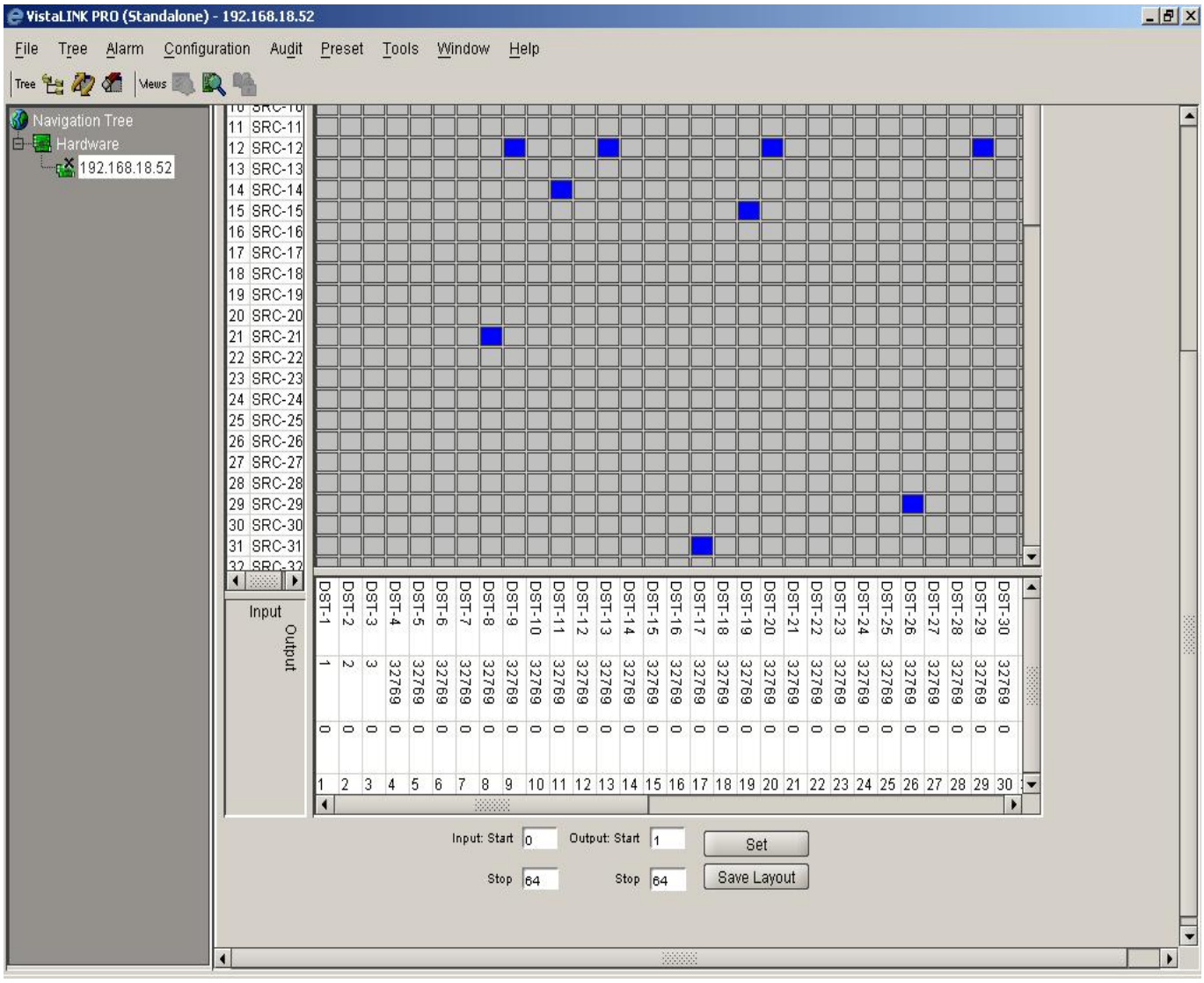

Figure 2-18: Configuring UMD Protocol IDs (PIDs)

1. From the VLPro configuration view, click the *Crosspoints* tab.
2. Locate the name associated with destination 1. The destinations are located along the bottom of the crosspoint grid.
3. Locate the box under the destination name. This box corresponds to the UMD protocol ID associated with this router destination. Double click the box, delete the existing text, and enter 1. UMD PID 1 is now associated with router destination 1.
4. Repeat step 3 for destinations 2 and 3. Enter PIDs 2 and 3 respectively.
5. A UMD PID of 32769 means no UMD is associated with this destination.
6. Click the *Apply* button.
7. You should see the name of the sources associated with destinations 1, 2 and 3 on the UMDs having PIDs 1, 2 and 3 respectively.

2.15. STEP 14: ASSOCIATE ROUTER DESTINATIONS WITH SWITCHER SOURCES

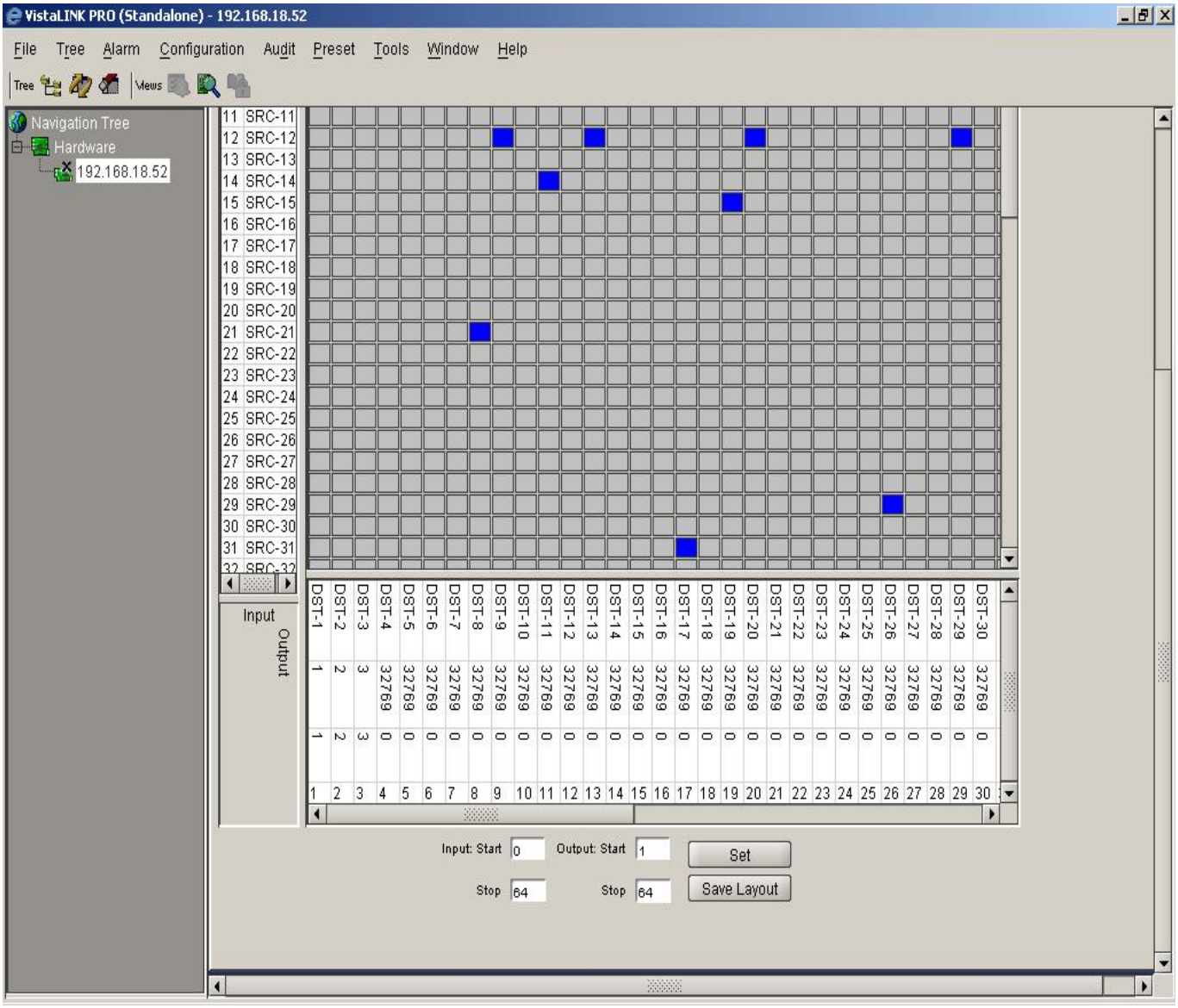

Figure 2-19: Associating Switcher Sources With Router Destinations

1. From the VLPro configuration view, click the Crosspoints tab.
2. Locate the name associated with destination 1. The destinations are located along the bottom of the crosspoint grid.
3. Locate the box under the UMD protocol ID box. This box corresponds to the switcher source associated with this router destination. Double click the box, delete the existing text, and enter 1. Switcher source 1 is now associated with router destination 1.
4. Repeat step 3 for destinations 2 and 3. Enter switcher sources 2 and 3 respectively.
5. A switcher source of 1 means this destination is not connected to the switcher.
6. Click the *Apply* button.
7. The names of the sources associated with destinations 1, 2 and 3 should be applied to switcher sources 1, 2, and 3 respectively.

3. ROUTER CONTROL

3.1. CROSSPOINT CONTROL

VLPro can be used to change router crosspoints. As an example, suppose source 2 is to be routed to destination 1:

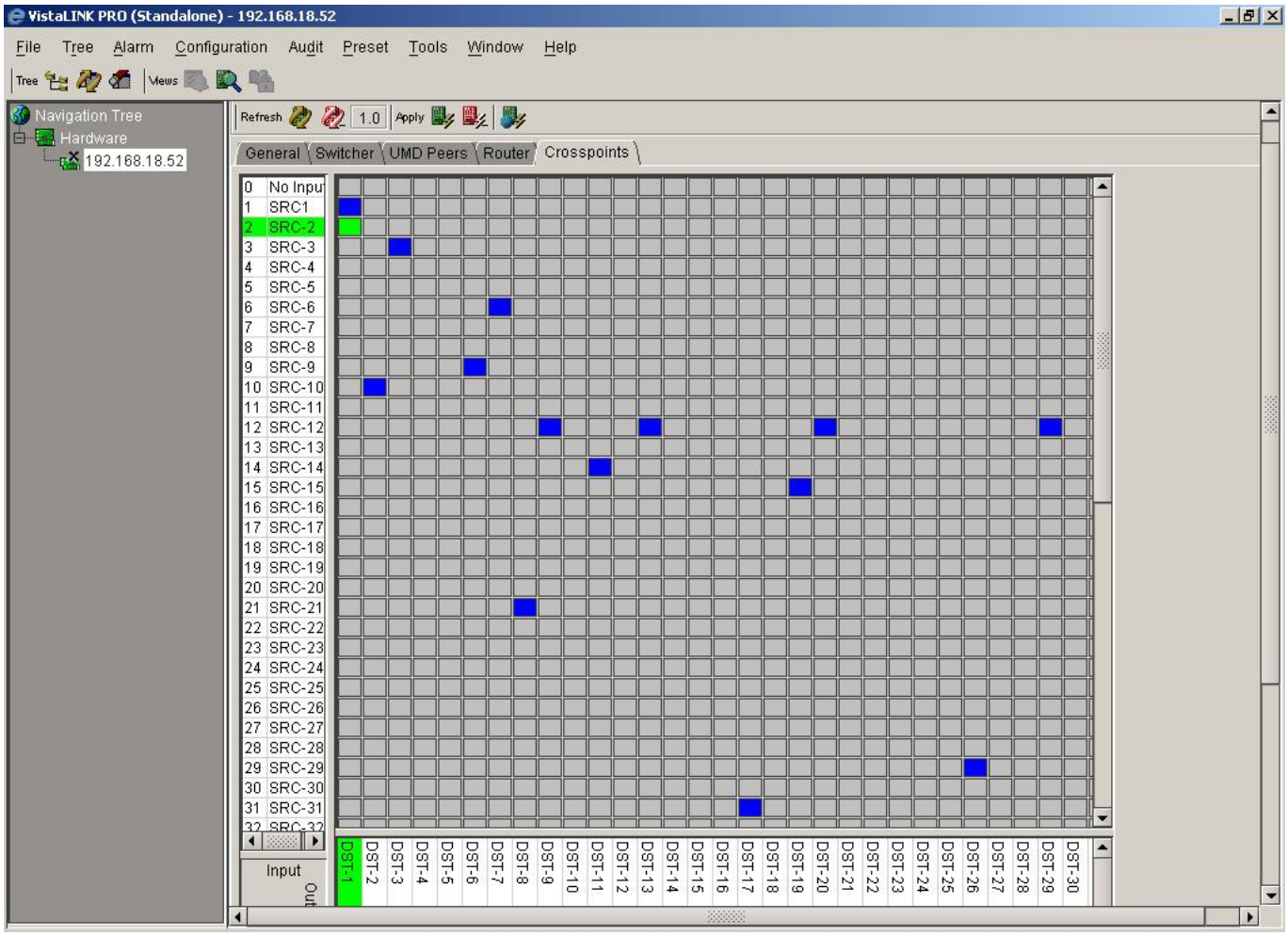

Figure 3-1: Changing Router Crosspoints

1. Locate the column associated with destination 1.
2. Click on the box that intersects that column with the row associated with source 2. The box will turn green.
3. Click the *Apply* button.

4. FIRMWARE UPGRADE

There are two ways to upgrade PTX firmware:

1. Using FTP to perform the upgrade via TCP/IP. (*recommended procedure*)
2. Using a terminal application such as *HyperTerminal* to perform the upgrade via a serial connection.

4.1. FTP

1. Open a command prompt window (in Windows: *Start/Programs/Accessories/Command Prompt*)
2. Enter the location of the firmware file. For example, type *cd c:\temp*.
3. Enter the command *ftp* followed by the PTX IP address.
   For example, type *ftp –A 192.168.18.22*.
4. Enter the FTP command *put* followed by the firmware file name. For example, *put ptx.bin*.
5. When the transfer is complete enter the FTP command: *bye*.
6. Step 5 begins the process of saving the firmware to the non-volatile flash of the PTX. The save process is displayed as a percentage on the PTX LCD. Once the process is complete, the PTX LCD again displays the product name and firmware version.
7. Power off the PTX.
8. Power on the PTX.

4.2. SERIAL

1. Power off the PTX.
2. Connect an adapter cable to a PC running a console or terminal application, such as Windows *HyperTerminal*, to the PTX debug/monitor port.
3. Configure the port settings of the terminal program as follows:

Baud	**115200**
Parity	**no**
Data bits	**8**
Stop bits	**2**
Flow Control	**None**

4. Set the PTX run/upgrade jumper to the upgrade position.
5. Power on the PTX.
6. After a few moments, the prompt *PPCBOOT*> will appear. Enter the command *upload.*
7. Start the firmware upload on the terminal application (for instance, in *HyperTerminal* select *Transfer/Send File*…), use Xmodem as the transfer protocol, and select the firmware file. For example, *ptx.bin.*
8. Once the upload is complete the message upload okay is displayed.
9. Power off the PTX.
10. Set the PTX run/upgrade jumper to the run position.
11. Remove the serial adapter cable.
12. Power on the PTX.