

VistaLINK® PRO – CSM (Compression System Manager) User Manual

© Copyright 2013 - 2015

EVERTZ MICROSYSTEMS LTD.

5292 John Lucas Drive,
Burlington, Ontario,
Canada L7L 5Z9

Phone: +1 905-335-3700

Sales: sales@evertz.com

Fax: +1 905-335-3573

Tech Support: service@evertz.com

Fax: +1 905-335-7571

Web Page: <http://www.evertz.com>

Version 0.2, January 2015

The material contained in this manual consists of information that is the property of Evertz Microsystems and is intended solely for the use of purchasers of VistaLINK® PRO series products. Evertz Microsystems expressly prohibits the use of this manual for any purpose other than the operation of VistaLINK® PRO series products. Due to on going research and development, features and specifications in this manual are subject to change without notice.

All rights reserved. No part of this publication may be reproduced without the express written permission of Evertz Microsystems Ltd. Copies of this manual can be ordered from your Evertz dealer or from Evertz Microsystems.

Preliminary

This page left intentionally blank

REVISION HISTORY

<u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
0.1	Preliminary Release – QRG (Quick Reference Guide)	Feb 2013
0.2	Full Release	Jan 2015

Information contained in this manual is believed to be accurate and reliable. However, Evertz assumes no responsibility for the use thereof nor for the rights of third parties, which may be affected in any way by the use thereof. Any representations in this document concerning performance of Evertz products are for informational use only and are not warranties of future performance, either expressed or implied. The only warranty offered by Evertz in relation to this product is the Evertz standard limited warranty, stated in the sales contract or order confirmation form.

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

This page left intentionally blank

Preliminary

Table of Contents

1. INTRODUCTION	1
1.1. OVERVIEW.....	1
1.2. REQUIREMENTS	1
1.2.1. VistaLINK [®] PRO Server	1
1.2.2. VistaLINK [®] PRO CSM Client.....	1
1.3. TERMINOLOGY	2
1.4. NEW CSM TREE NODES	3
1.4.1. Enable CSM Tree Nodes	3
1.5. CSM CLIENT WORKFLOW	5
1.6. VISTALINK CSM USER INTERFACE.....	6
2. NODES	7
2.1. HARDWARE.....	7
2.2. SERVICES.....	7
2.3. NETWORKS	8
2.3.1. Add a Network.....	8
2.3.2. Adding a Network Group.....	12
2.3.3. Dynamic Network Services	13
2.3.4. Log	15
2.3.5. Router State Monitoring	16
2.4. TOPOLOGIES	17
2.4.1. Adding a Topology	17
2.4.2. Adding Elements to a Topology	18
2.4.3. Adding a Topology Group	21
2.4.4. Configuring Topology Settings	21
2.4.5. Log	22
2.5. TRANSPORTS	23
2.5.1. Adding a Transport.....	23
2.5.2. Adding a Transport Group.....	23
2.5.3. Configuring Transport Settings.....	24
2.5.4. Adding a Transport Service.....	25
2.5.5. Add a Link	29
2.5.6. View Alarm	31
2.5.7. Log	32

3.	CSM SAMPLE SYSTEM CREATION WALKTHROUGH	33
3.1.	REQUIREMENTS.....	33
3.2.	SAMPLE USE CASE DESCRIPTION.....	33
4.	SYSTEM CREATION PROCEDURES	35
4.1.	NETWORK CREATION	35
4.2.	TOPOLOGY CREATION.....	36
4.3.	ADD “LOGICAL” ELEMENTS TO THE TOPOLOGY	38
4.3.1.	Add Logical Elements to the Created Topology.....	38
4.4.	ADD REAL WORLD HARDWARE ELEMENTS TO TOPOLOGY	41
4.4.1.	Add Real World Encoders to Topology.....	44
4.5.	MAKING CONNECTIONS.....	47
4.6.	TOPOLOGY REDUNDANCY CONFIGURATION	50
5.	TRANSPORT / SERVICE CREATION	55
5.1.	NEW TRANSPORT CREATION	55
5.2.	LINKAGE STAGE	59
5.2.1.	Link a Transport to a Topology	59
5.2.2.	Checking the Linkage	63
6.	CSM OPERATIONAL CONTROL	65
6.1.	TRANSPORT PROVISIONING AND ACTIVATION	65
6.1.1.	Provision a Transport.....	65
6.2.	DEPROVISIONING / DEACTIVATING CHANNEL SERIVES	67
7.	REDUNDANCY OPERATIONS	69
7.1.	MANUAL REDUNDANCY TRIGGERING.....	69
7.1.1.	Restoring a Failed Service.....	71
7.2.	HARDWARE DEVICE (REDUNDANT UNIT) SHARING.....	71
7.3.	AUTOMATIC REDUNDACY TRIGGERING	72
7.4.	SERVICE PRIORITY BASED FAILOVERS.....	74
7.4.1.	To Setup Priority Failovers.....	74
8.	ADDITIONAL FEATURES	77
8.1.	MAINTENANCE MODE	77
8.1.1.	Placing a Topology Element into Maintenance Mode.....	77

8.2. ALARM LOGGING FUNCTIONS 78

8.3. MAP SERVICE TRACING 79

9. APPENDIX A 81

9.1. VERSIONS 81

Figures

Figure 1-1: Enable CSM Tree Nodes 4

Figure 1-2: VLPRO-CSM User Interface 6

Figure 2-1: New Network 8

Figure 2-2: Device Details – Ports Tab 9

Figure 2-3: Add Ports - BNC 9

Figure 2-4: Port Attributes 10

Figure 2-5: Device Details – Device Tab 10

Figure 2-6: New Network – Connections Tab 11

Figure 2-7: Establish Connection 12

Figure 2-8: Network Group Creation 12

Figure 2-9: Dynamic Network Services 13

Figure 2-10: Dynamic Service Editor 13

Figure 2-11: Element Log 15

Figure 2-12: Routed State Monitoring Configuration 16

Figure 2-13: Topology Creation 17

Figure 2-14: Device Details – Ports Tab 18

Figure 2-15: Add Ports - BNC 19

Figure 2-16: Port Attributes 19

Figure 2-17: Device Details – Device Tab 20

Figure 2-18: Topology Group Creation 21

Figure 2-19: Topology Settings 21

Figure 2-20: Element Log 22

Figure 2-21: Transport Creation 23

Figure 2-22: Transport Group Creation 23

Figure 2-23: Transport Settings 24

Figure 2-24: Transport Service 25

Figure 2-25: Parameter Definitions – Components 26

Figure 2-26: Transport Service populated 26

Figure 2-27: Transport Service Definition 27

Figure 2-28: Import/Export Dialog Window 28

Figure 2-29: Transport Service Template 28

Figure 2-30: Transport Service – Style Tab 29

Figure 2-31: Transport Linkage 30

Figure 2-32: Alarm View 31

Figure 2-30: Element Log 32

Figure 3-1: Architecture of the Sample System 34

Figure 4-1: Network Creation 35

Figure 4-2: Topology Creation 36

Figure 4-3: Topology Creation 37

Figure 4-4: Add Logical Elements to the Created Topology 39

Figure 4-5: Add Logical Elements to the Created Topology 40

Figure 4-6: Add Real World Hardware Elements to Topology (1) 41

Figure 4-7: Add Real World Hardware Elements to Topology (2) 42

Figure 4-8: Add Real World Hardware Elements to Topology (3) 43

Figure 4-9: Add Real World Encoders to Topology (1) 45

Figure 4-10: Add Real World Encoders to Topology (2) 46

Figure 4-11: Add Real World Encoders to Topology (3) 47

Figure 4-12: Making Connections 49

Figure 4-13: Topology Redundancy Configuration (1) 50

Figure 4-14: Topology Redundancy Configuration (2).....	51
Figure 4-15: Topology Redundancy Configuration (3).....	52
Figure 4-16: Topology Redundancy Configuration (4).....	53
Figure 4-17: Topology Redundancy Configuration (5).....	54
Figure 5-1: New Transport Creation (1).....	56
Figure 5-2: New Transport Creation (2).....	57
Figure 5-3: Sample Scenario for New Transport Creation.....	58
Figure 5-4: Link a Transport to a Topology (1).....	59
Figure 5-5: Link a Transport to a Topology (2).....	61
Figure 5-6: Link a Transport to a Topology (3).....	62
Figure 5-7: Checking the Linkage.....	63
Figure 6-1: Provision a Transport (1).....	65
Figure 6-2: Provision a Transport (2).....	66
Figure 6-3: Provision a Transport (3).....	67
Figure 6-4: DeProvisioning/Deactivating Channel Service.....	68
Figure 7-1: Manual Redundancy Triggering (1).....	69
Figure 7-2: Manual Redundancy Triggering (2).....	70
Figure 7-3: Restoring a Failed Service.....	71
Figure 7-4: Automatic Redundancy Triggering.....	73
Figure 7-5: Set Up Priority Failovers.....	75
Figure 8-1: Placing a Topology Element into Maintenance Mode.....	77
Figure 8-2: Alarm Logging Functions.....	79
Figure 8-3: Map Service Tracing.....	80

Preliminary

1. INTRODUCTION

This document will provide an overview of the Evertz Compression System Manager (CSM) Software Package.

1.1. OVERVIEW

The Evertz CSM system is a new client type in the VistaLINK[®] PRO software suite that has been specifically developed for configuration and management of Evertz compression systems. The VistaLINK[®] CSM client extends the standard VistaLINK[®] PRO client feature set to include new features for creating and managing Evertz routers, encoders and monitoring devices in compression system architectures. This document assumes that the user is already familiar with the standard VistaLINK[®] PRO clients and feature-set.

1.2. REQUIREMENTS

This document assumes that the following is already installed and available for use:

- VistaLINK[®] PRO Server application
- VistaLINK[®] PRO CSM Client application
- Evertz compression system hardware components (routers, encoders etc.)



This document will refer to and take advantage of VistaLINK hardware, Auto-Discovery device items, Configuration Views and Alarm Logs. It is assumed the user is familiar with these.

1.2.1. VistaLINK[®] PRO Server

The VistaLINK PRO Server must be installed and fully operational.

1.2.2. VistaLINK[®] PRO CSM Client

The CSM client must be installed, running and connected to the VistaLINK PRO Server.

1.3. TERMINOLOGY

The VistaLINK® PRO CSM client includes additional functions that extend the standard VistaLINK® PRO software feature-set. The following is terminology that is used in the CSM client system. The user should be familiar with these terms and their meaning as it relates to usage of the VistaLINK® PRO CSM client application.

Networks – A *Network* is a logical collection of devices and device connections that are used within a system. As a user creates topology maps and device connections with the CSM client, the Server software automatically adds all components to name defined network for tracking and root cause analysis purposes.

Topology – A *Topology* is a graphical map that is created by a user. The Topology can have hardware devices added to for management. Topologies represent a subsection of hardware that is working together within a facility. A topology defines a group of hardware elements as well as how those elements are connected. Once *Topologies* have been created in CSM, *Transports* can be linked to them in order to provision real-world services.

Vertex – Any hardware device that is added to a CSM Topology map can be referred to as a Topology Vertex or Topology element.

Transports – *Transports* are the services/channel configurations that are defined by the user and linked to a topology for activation. Transports hold all configuration data for all hardware devices that are managed on the topology the transport is linked to. A Transport will consist on a main node (TS) name, one or more “channel Services” (and optionally a “Mux” node for MPTS type transports.)

1.4. NEW CSM TREE NODES

1.4.1. Enable CSM Tree Nodes

The VistaLINK[®] PRO CSM client adds additional main nodes in the hardware tree that are specific to the CSM management system. This node should be enabled by default, or can be enabled through the main menu via Tree > Properties.

The new nodes specific to the CSM client are as follows:

Networks: Networks is a node that displays all hardware devices that are added to a CSM topology map. The Networks node allows users to see all devices and connections in a CSM managed network. The Networks node is meant for informational purposes. Once an initial network has been created all other interaction is handled by the software. It is optional to show the Networks node after an initial network name has been defined in the system. (Must be shown to create first Network)

Topologies: The Topologies node lists all the user created maps that hardware can be added to in order to manage a compression system setup. Topologies are created by users and items are added to them in order to work with the elements. Topology access and configuration is a main part of the CSM system and thus the Topologies node should always be displayed.

Transports: The Transports node allows users to create transports and Services (channel line-up) configurations that can be applied to created topologies. Transport management and configuration is a primary function of the CSM client and thus the Transport node should always be displayed.

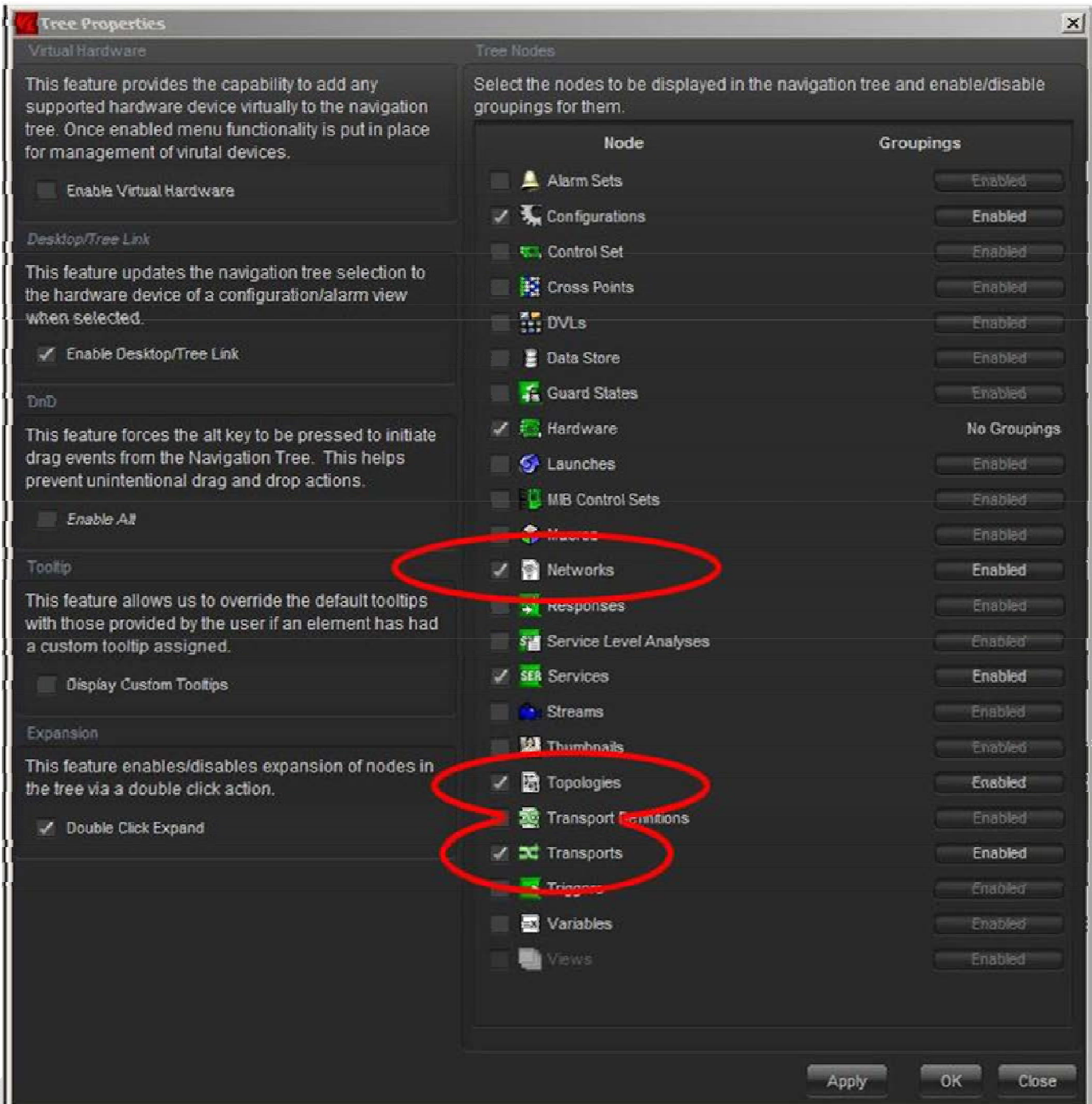


Figure 1-1: Enable CSM Tree Nodes

1.5. CSM CLIENT WORKFLOW

The VistaLINK[®] PRO CSM system requires that a certain creation workflow be used when building new systems. The workflow should approximately follow the below major milestone steps:

1. Software (Server/CSM Client installation)
2. Run VistaLINK[®] PRO Server
 - a. In the Server navigate to **Help** and select **Activate License**.
 - b. Load the required license for CSM and select **OK**.
3. Hardware installation and setup
4. Hardware discovery within VistaLINK[®] PRO
5. Initial **Network** creation
6. Creation and configuration of a CSM **Topology(s)** map
 - a. Configure topology redundancy scheme
7. Creation and configuration of a CSM **Transport(s)**
8. Linking of a CSM **Transport** to a CSM **Topology**
9. **Provisioning/Activating Services**

1.6. VISTALINK CSM USER INTERFACE

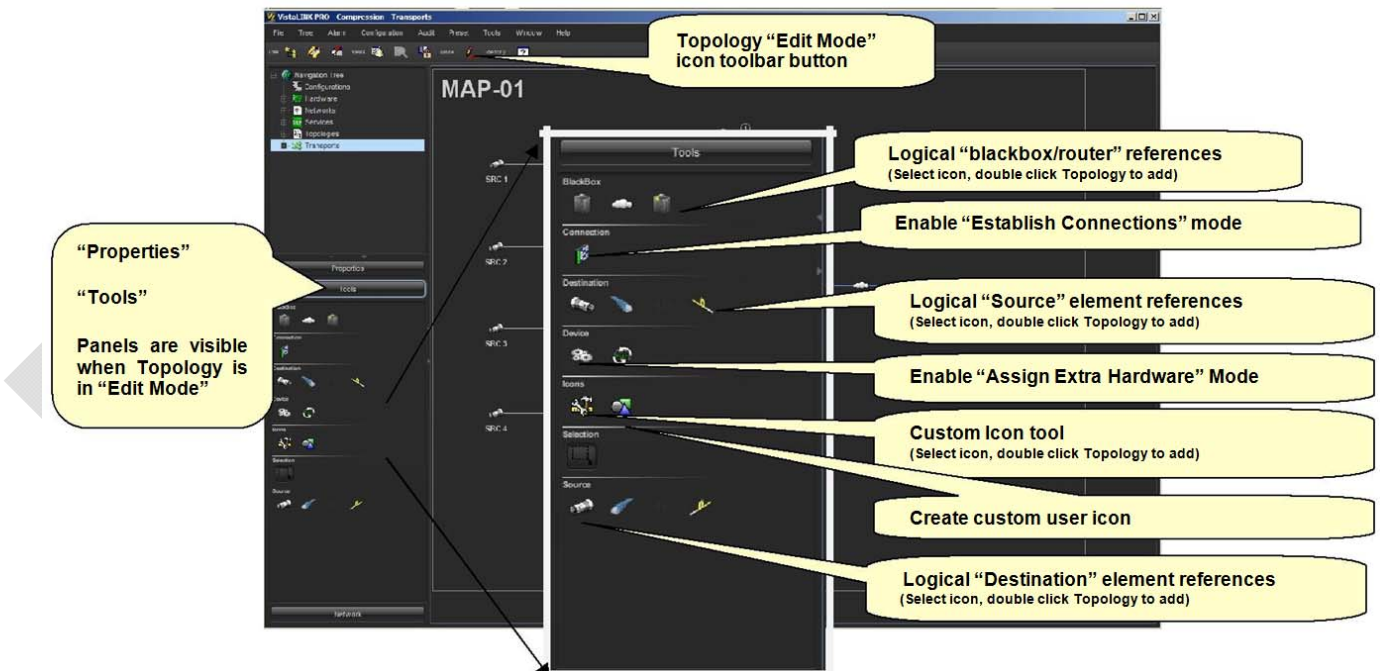
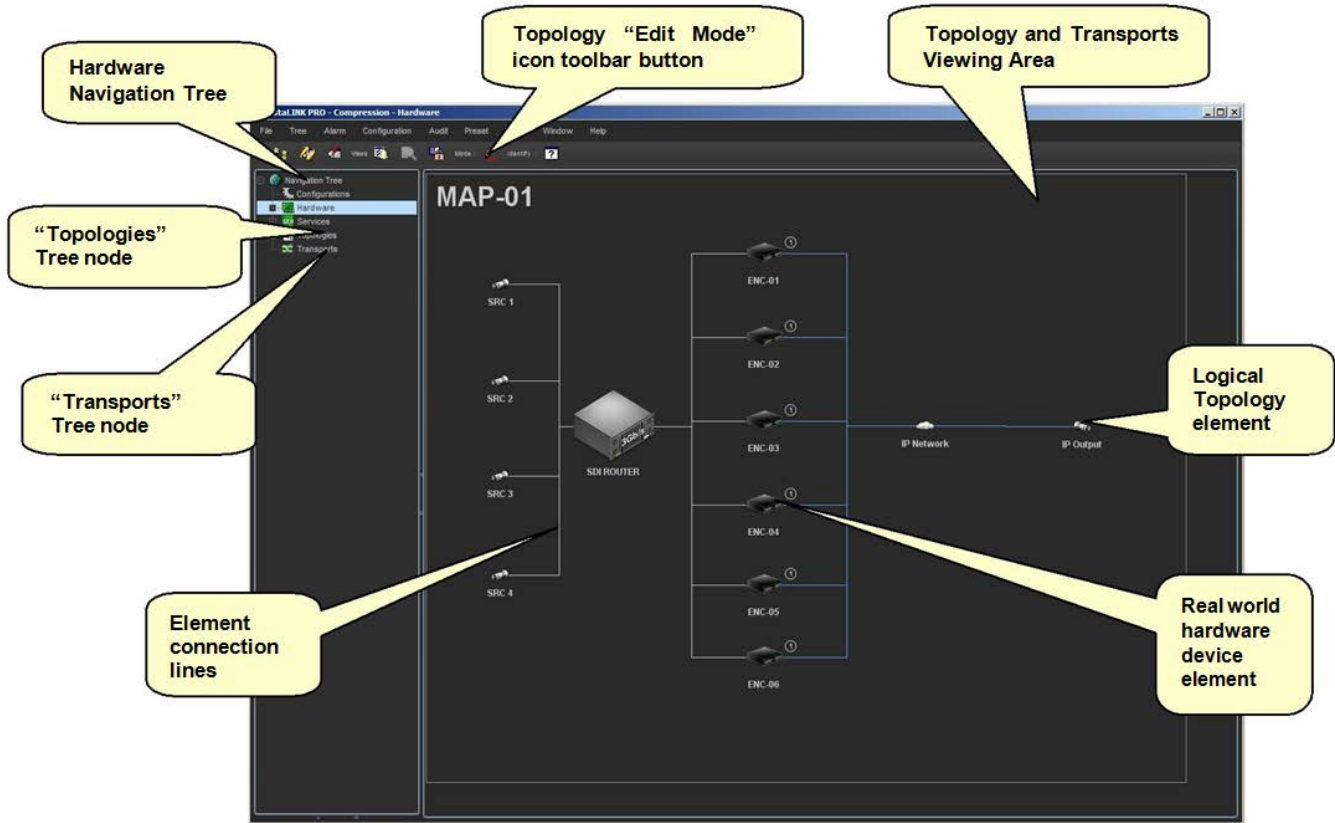


Figure 1-2: VLPRO-CSM User Interface

2. NODES

2.1. HARDWARE

The *Hardware* node allows users to view all available devices and configure them according to their needs.

The functions and tools available in the Hardware node do not differ from the tools available in VistaLINK[®] PRO Client. For details on these tools please refer to the VistaLINK[®] PRO User Manual.

2.2. SERVICES

The *Services* node allows the user to create Services, add hardware to a service, create Service Templates as well as add to your Service Templates.

The functions and tools available in the Services node do not differ from the tools available in VistaLINK[®] PRO Client. For details on these tools please refer to the VistaLINK[®] PRO User Manual and/or Service Template Mapping Guide.

2.3. NETWORKS

Networks is a node that displays all hardware devices that are added to a CSM topology map. The *Networks* node allows users to see all devices and connections in a CSM managed network. The *Networks* node is meant for informational purposes. Once an initial network has been created all other interaction is handled by the software. It is optional to show the *Networks* node after an initial network name has been defined in the system. (Must be shown to create first Network)

This section will provide details on features and capabilities in the Network node.

2.3.1. Add a Network

To add a network from the *Network* node, right click on *Networks* in the Navigation tree. Select *New>Network*, this will open the following window. In this window the user can add a new Network by entering a name for the network in the first box labelled *Name*.

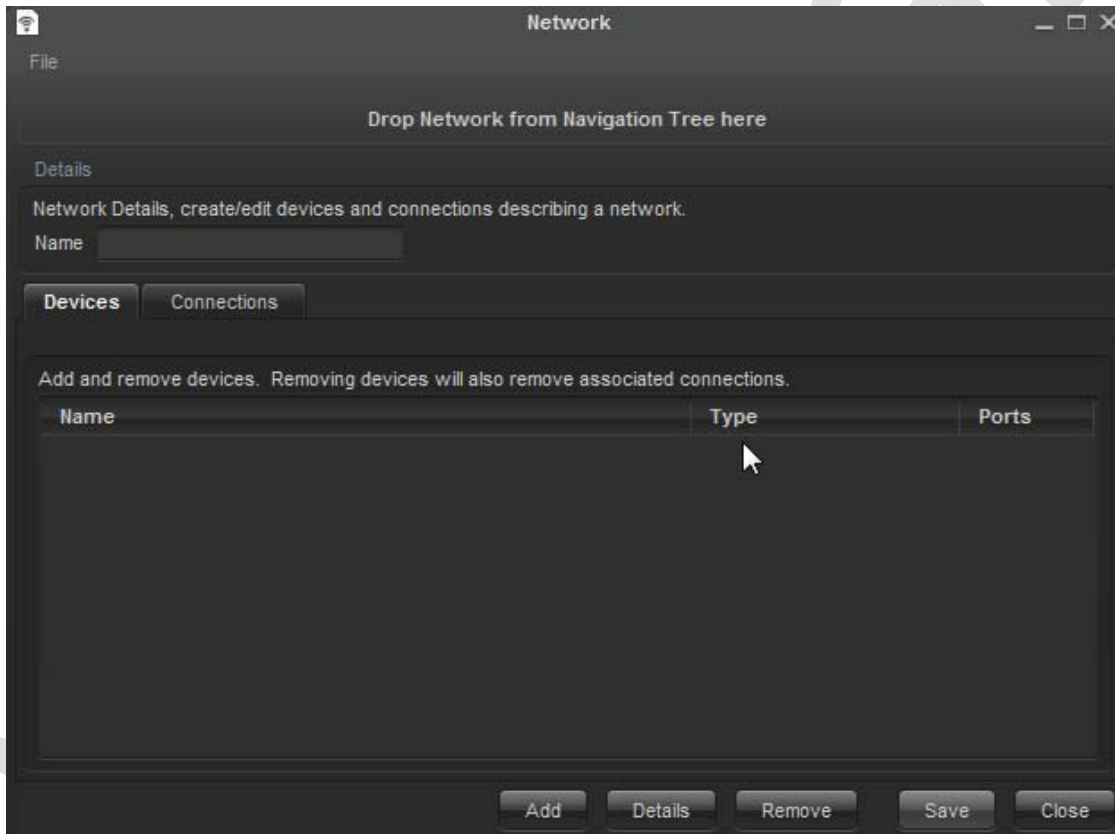


Figure 2-1: New Network

Selecting *Add* when the New Network has been added will open a *Device Details* window like the one in Figure 2-2. This window requires the user to configure parameters associated with the device.

Name: This field allows the user to enter a name to associate with the device being added.

Type: This field allows the user to select the type of device that is being added. It can either be a Source, a Destination or a Blackbox.

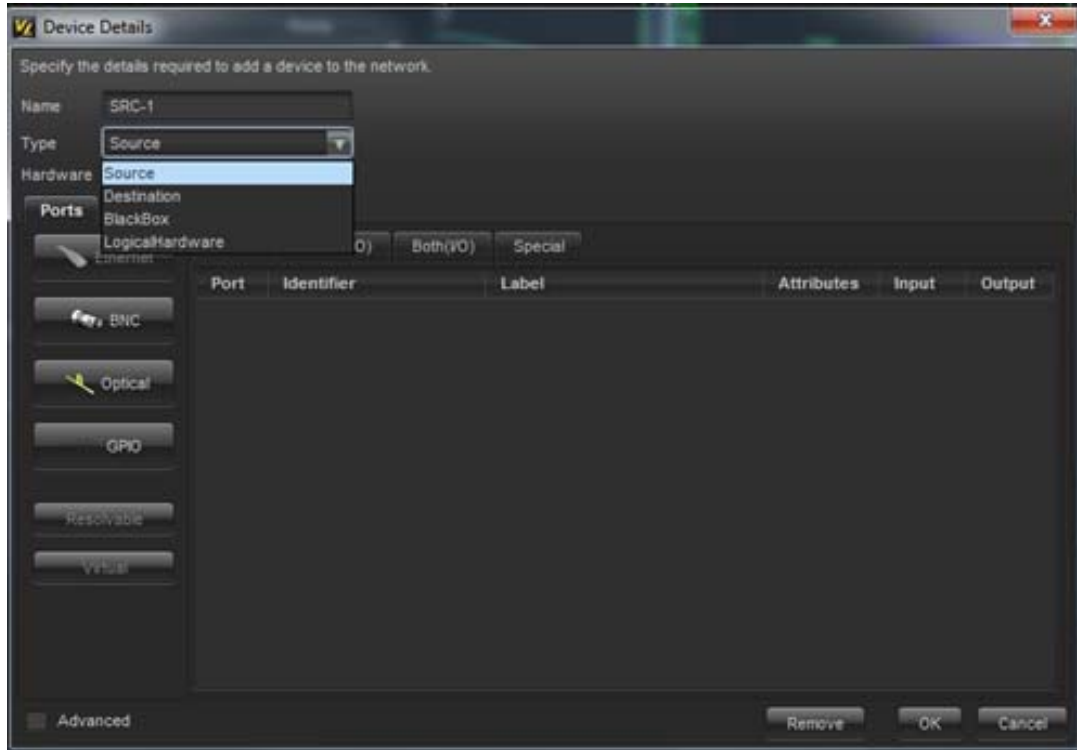


Figure 2-2: Device Details – Ports Tab

Additionally, this window has options to add Input ports, Output port as well as special ports. The tabs both display and organize the ports for the User to easily view the ports and their details.

Port options include Ethernet ports, BNC ports, Optical ports and GPIO ports to allow the user to represent accurately their network. Selecting any of these ports will open a window that appear like the one in Figure 2-3. In this window the user is asked to enter the number of ports of this connection type and then select **OK**.

Ethernet ports become available to select in this window when the *Both(I/O)* tab is selected. Similarly, the Virtual ports become available to select in this window when the *Special* tab is selected.

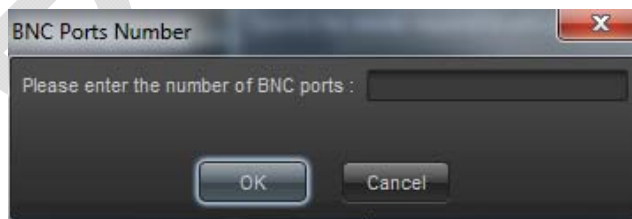


Figure 2-3: Add Ports - BNC

For each port added, the *Device Detail* window will be populated with a port number, Identifier and Label. These parameters can be altered by the user by double clicking on any of them. Additionally, the Attributes can be altered; clicking on Attributes will open a window a Port Attributes window as shown in Figure 2-4.

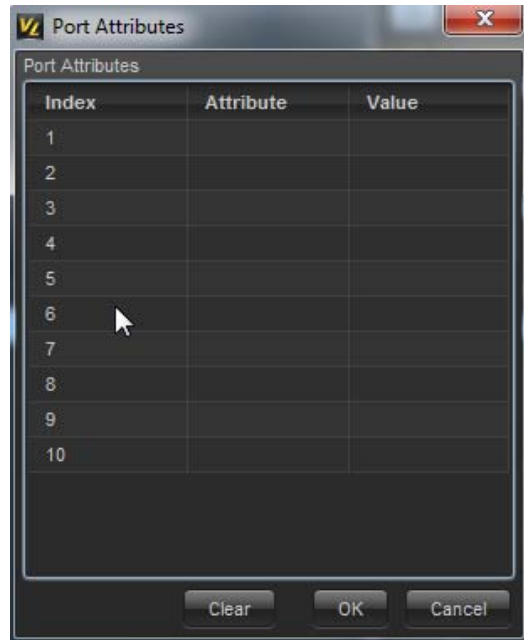


Figure 2-4: Port Attributes

Returning to the *Device Details* window the user will find a *Device* tab if they select *Advanced* in the bottom left corner. Selecting this will allow the user to configure parameters associated with the device as shown in Figure 2-5. The parameters in this window may differ depending on what device is being configured.

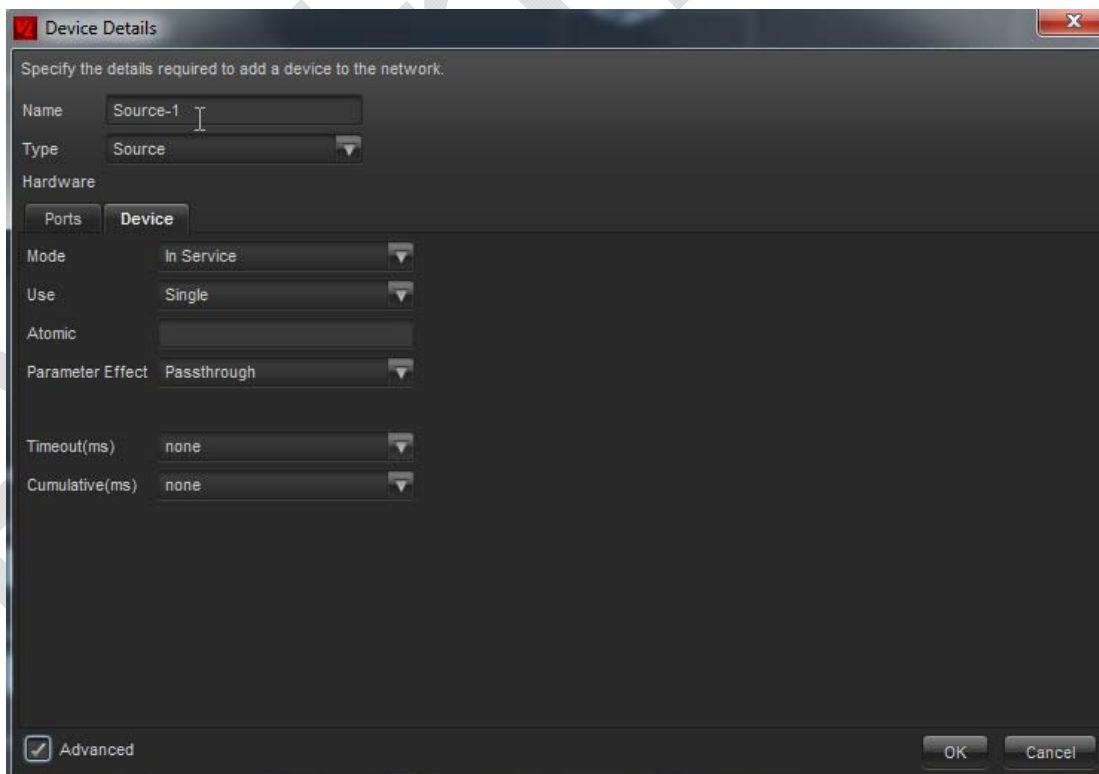


Figure 2-5: Device Details – Device Tab

Within this tab the user can configure the following parameters.

Mode: This parameter allows the user to select the mode for the devices in the network. This determines the usability of the device, if the mode is set to *In Service* the device cannot be used.

Use: This parameter allows the user to configure the type of use for the specified device. If the use is set to *Multiple* then the vertex may be used more than once simultaneously.

Atomic: The value entered in this field by the user provides the ability to treat multiple devices as though they were only one device, and use them accordingly.

Parameter Effect: This parameter allows the user to specify how parameter values will be handled when being passed through the device. The parameters can be passthrough, swap, swap source or consume.

Timeout (ms): This parameter allows the user to specify a timeout value to override the devices default timeout value when performing a single set on the device.

Cumulative (ms): This parameter allows the user to specify a cumulative timeout value to override the devices default value when performing all sets on the device.

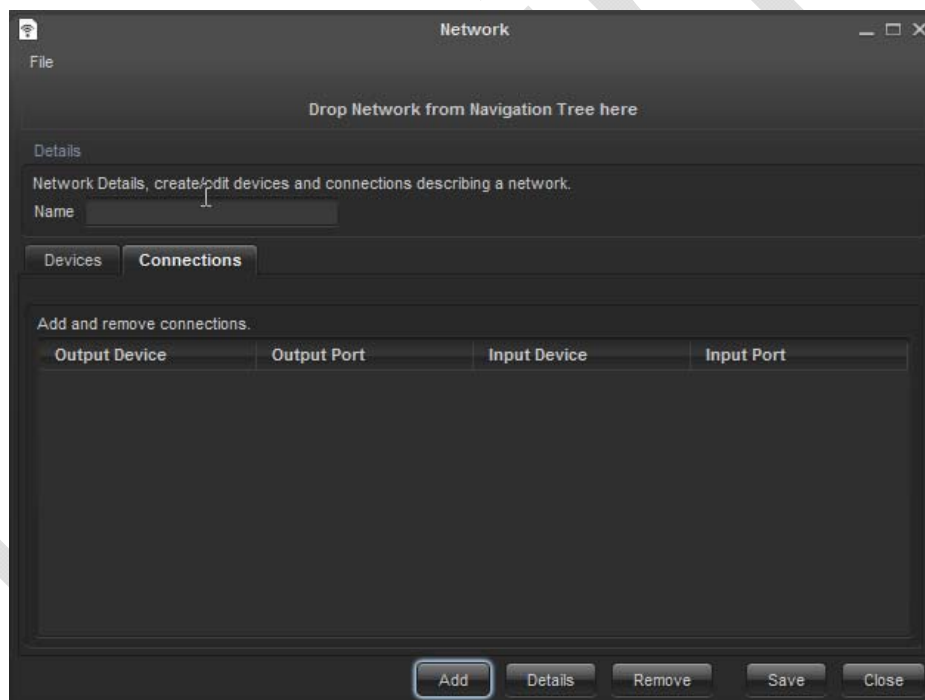


Figure 2-6: New Network – Connections Tab

Returning to the New Network window there is also a *Connections* tab. Selecting *Add* will open an *Establish Connection* window as shown in Figure 2-7.

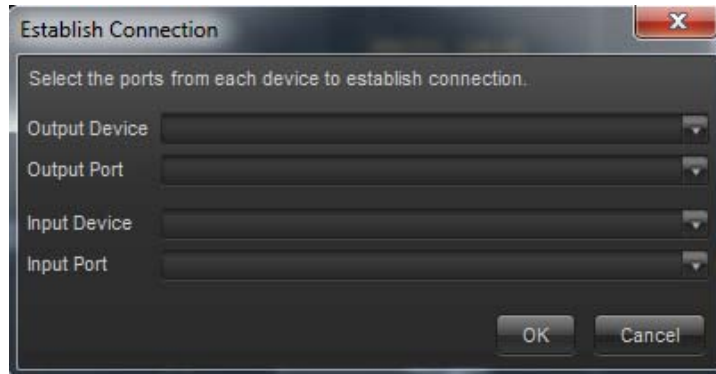


Figure 2-7: Establish Connection

Within this window the following parameters must be configured by the user.

Output Device: This field requires the user to select the output device from a list of output devices created in the *Devices* tab to be used for the new connection.

Output Port: This field requires the user to select the output port to be used on this device to create the connection.

Input Device: This field requires the user to select the input device from a list of input devices created in the *Devices* tab to be used for the new connection.

Input Port: This field requires the user to select the input port to be used on this device to create the connection.

2.3.2. Adding a Network Group

To add a Network Group from the *Network* node, right click on *Networks* in the Navigation tree. Select *New>Group*, this will open a *Network Group Creation* window like the one in Figure 2-8. In this window the user can add a new Network Group to organize the networks in by entering a name for the group in the field labelled *New Name*.

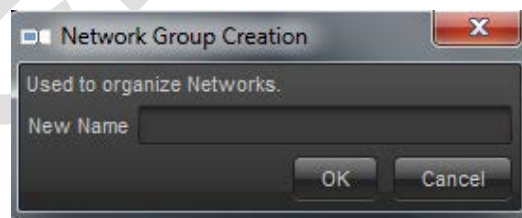


Figure 2-8: Network Group Creation

2.3.3. Dynamic Network Services

Once a Network has been created the user can open *Dynamic Network Services* by right clicking on the newly created network in the Network node and selecting *Dynamic Network Services*.

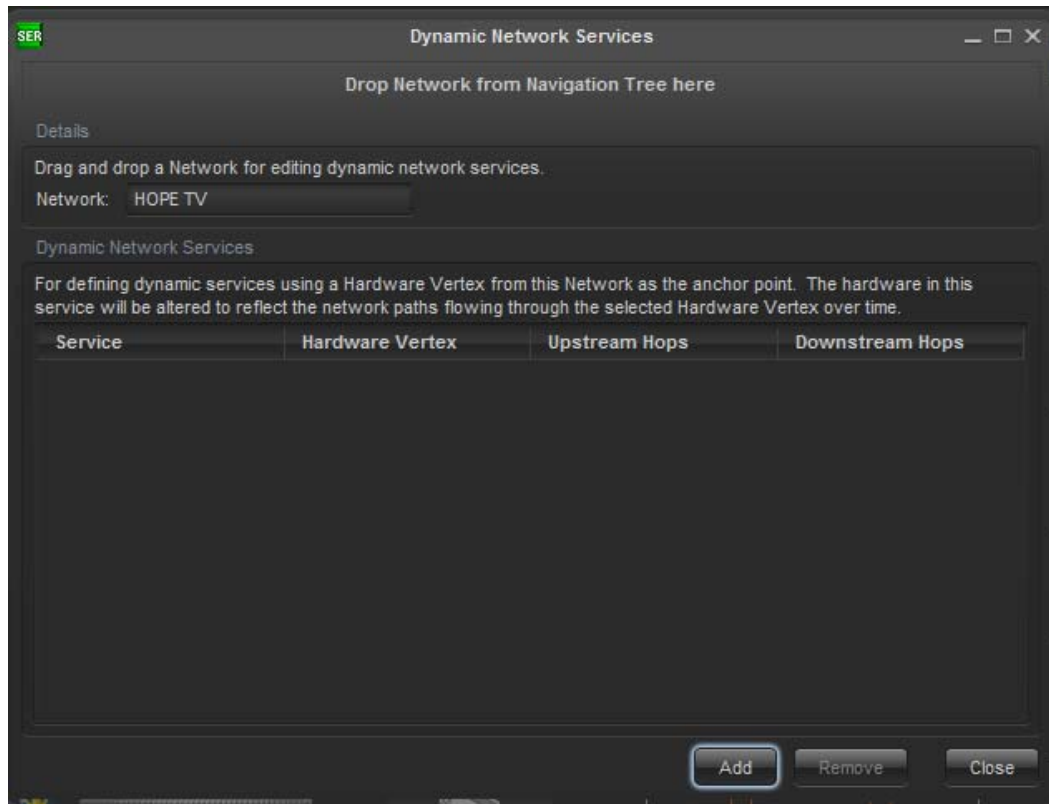


Figure 2-9: Dynamic Network Services

Selecting *Add* will open the *Dynamic Service Editor* window as shown in Figure 2-10.

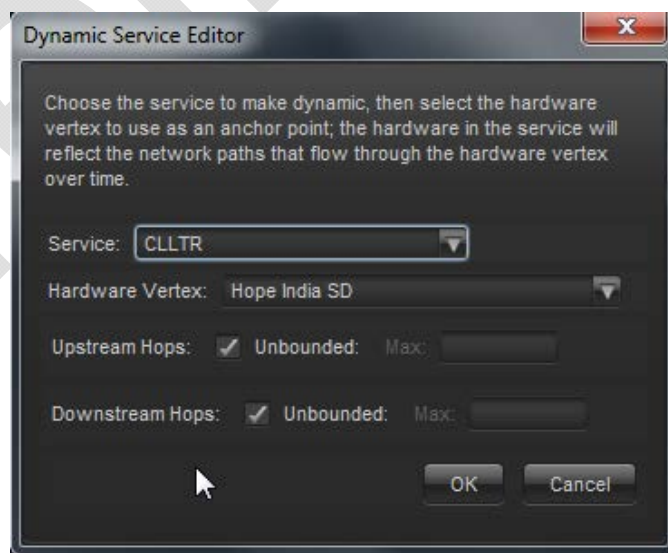


Figure 2-10: Dynamic Service Editor

In this window the user selects the Service they would like to make dynamic so they can alter the hardware in the service over time. This is done by configuring the following parameters:

Service: This dropdown menu allows the user to select the service for which the hardware will be dynamically changed over time.

Hardware Vertex: This dropdown menu allows the user to select the hardware they desire to use as the anchor point for their dynamic service. This hardware vertex allows the user to choose which pieces of hardware to add to the service. The service hardware will reflect the routed state of the network as it flows through this hardware vertex.

Upstream Hops: This parameter allows the user to specify either a maximum number of upstream hops from the hardware vertex or choose unbounded. This will limit the hardware that can be added to the service, by restricting the number of hardware nodes Upstream of the anchor point that can be travelled.

Downstream Hops: This parameter allows the user to specify either a maximum number of downstream hops from the hardware vertex or choose unbounded. This will limit the hardware that can be added to the service, by restricting the number of hardware nodes Downstream of the anchor point that can be travelled.

Preliminary

2.3.4. Log

To view the Element Log of a Network, right click on the desired Network and select *Log...*, this will open an *Element Log* window as shown in Figure 2-11. In this window the user can view all recent events for the chosen network, these will be displayed in the top panel. By selecting an event the bottom panel will populate with the details of the event for the user to view.

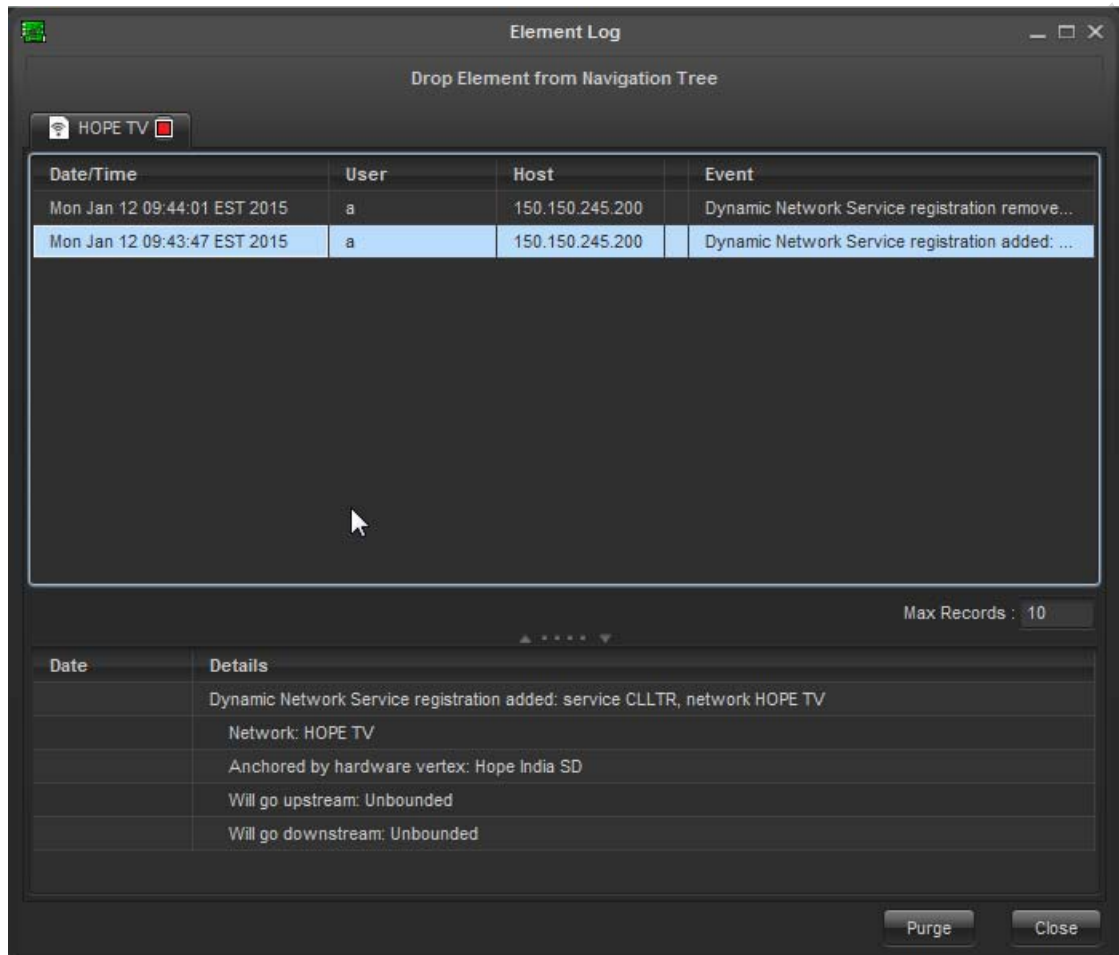


Figure 2-11: Element Log

There are few controls for the user in this window, the controls are listed below.

Max Records: This parameter allows the user to set the number of records that can be viewed in this window.

Purge: This control allows the user to remove all Log entries from the Record. When this control is selected an additional window will appear confirming with the user that they would like to purge all Log entries.

Close: This control will close the Element Log window for the user without altering the Log entries.

2.3.5. Router State Monitoring

To enable Routes State Monitoring on the Network, right click on the desired Network, and select *Router State Monitoring > Configuration*. This will open a window which appears like the one in Figure 2-12.

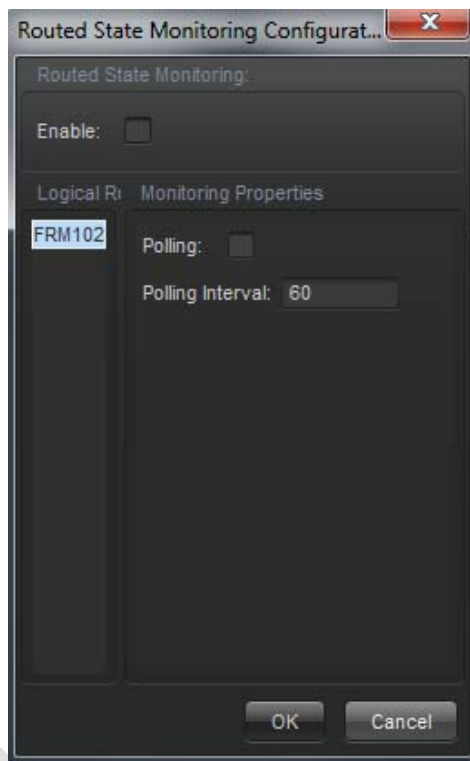


Figure 2-12: Routed State Monitoring Configuration

In the *Routed State Monitoring* panel the user can enable the Monitoring features. By selecting a Router from the *Logical Router* panel the *Monitoring Properties* panel will become available for configuration. In the *Monitoring properties* panel the user can enable the polling feature as well as set the desired polling interval.

2.4. TOPOLOGIES

The *Topologies* node lists all the user created maps that hardware can be added to in order to manage a compression system setup. Topologies are created by users and items are added to them in order to work with the elements. Topology access and configuration is a main part of the CSM system and thus the Topologies node should always be displayed.

2.4.1. Adding a Topology

To add a topology from the *Topology* node, right click on *Topologies* in the Navigation tree. Select *New>Topology*, this will open the following window. In this window the user can add a new Topology by entering a name for the topology in the first box labelled *Name* and selecting the network to associate the new topology with.

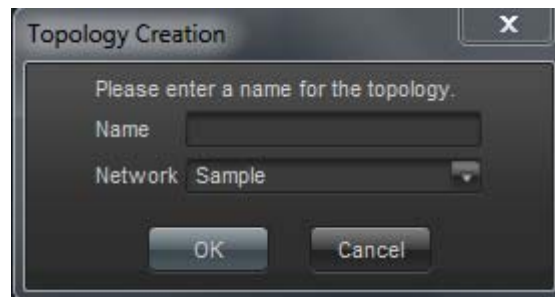


Figure 2-13: Topology Creation

2.4.2. Adding Elements to a Topology

Dragging and dropping a Device from the Hardware node or the Tool bar onto the topology will add it. This will open the Device Details window as shown similar to the one in Figure 2-14.

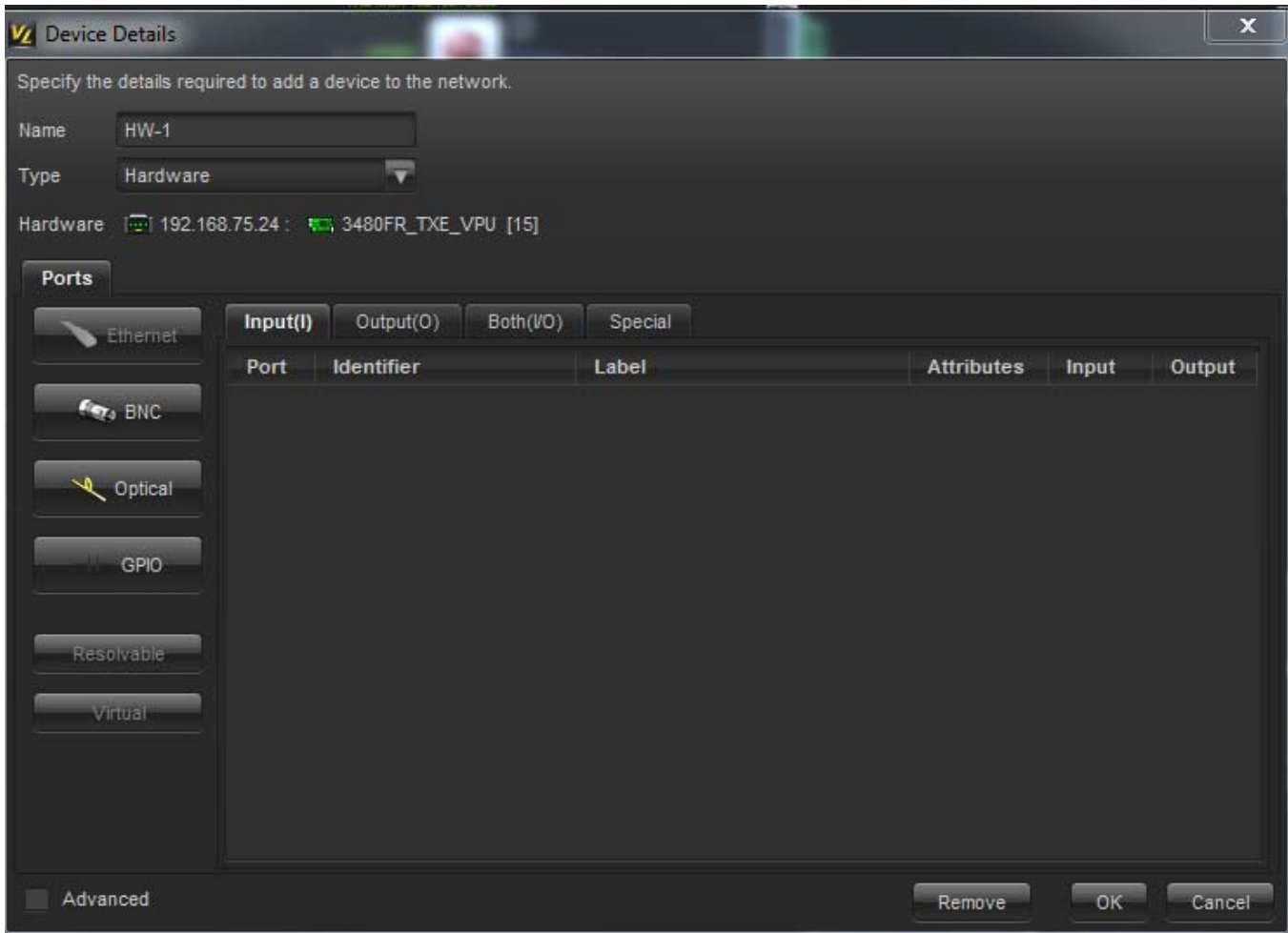


Figure 2-14: Device Details – Ports Tab

Additionally, this window has options to add Input ports, Output port as well as special ports. The tabs both display and organize the ports for the User to easily view the ports and their details.

Port options include Ethernet ports, BNC ports, Optical ports and GPIO ports to allow the user to represent accurately their network. Selecting any of these ports will open a window similar to the one shown in Figure 2-15. In this window the user is asked to enter the number of ports of this connection type and then select *OK*.

Ethernet ports become available to select in this window when the *Both(I/O)* tab is selected. Similarly, the Virtual ports become available to select in this window when the *Special* tab is selected.

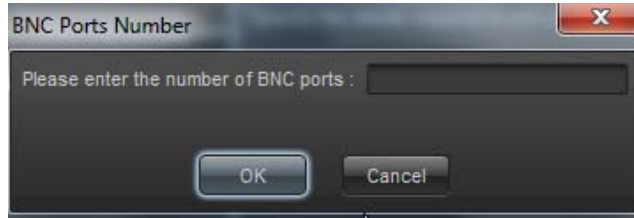


Figure 2-15: Add Ports - BNC

For each port added, the *Device Detail* window will be populated with a port number, Identifier and Label. These parameters can be altered by the user by double clicking on any of them. Additionally, the Attributes can be altered; clicking on Attributes will open a window as shown in Figure 2-19.

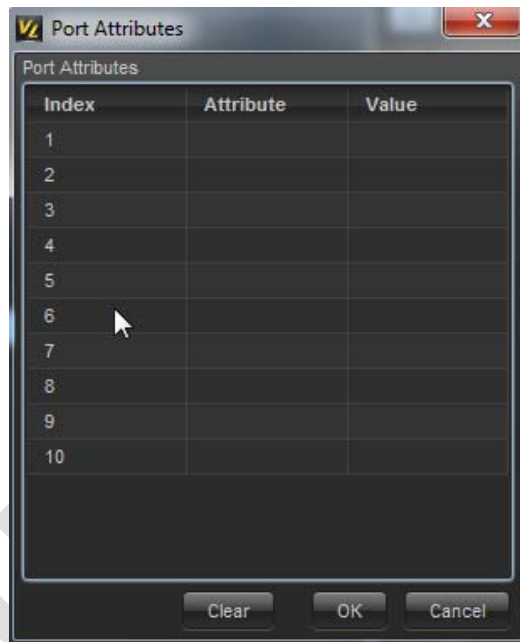


Figure 2-16: Port Attributes

Returning to the *Device Details* window the user will find a *Device* tab if they select *Advanced* in the bottom left corner. Selecting this will allow the user to configure parameters associated with the device as shown in Figure 2-17. The parameters in this window may differ depending on what device is being configured.

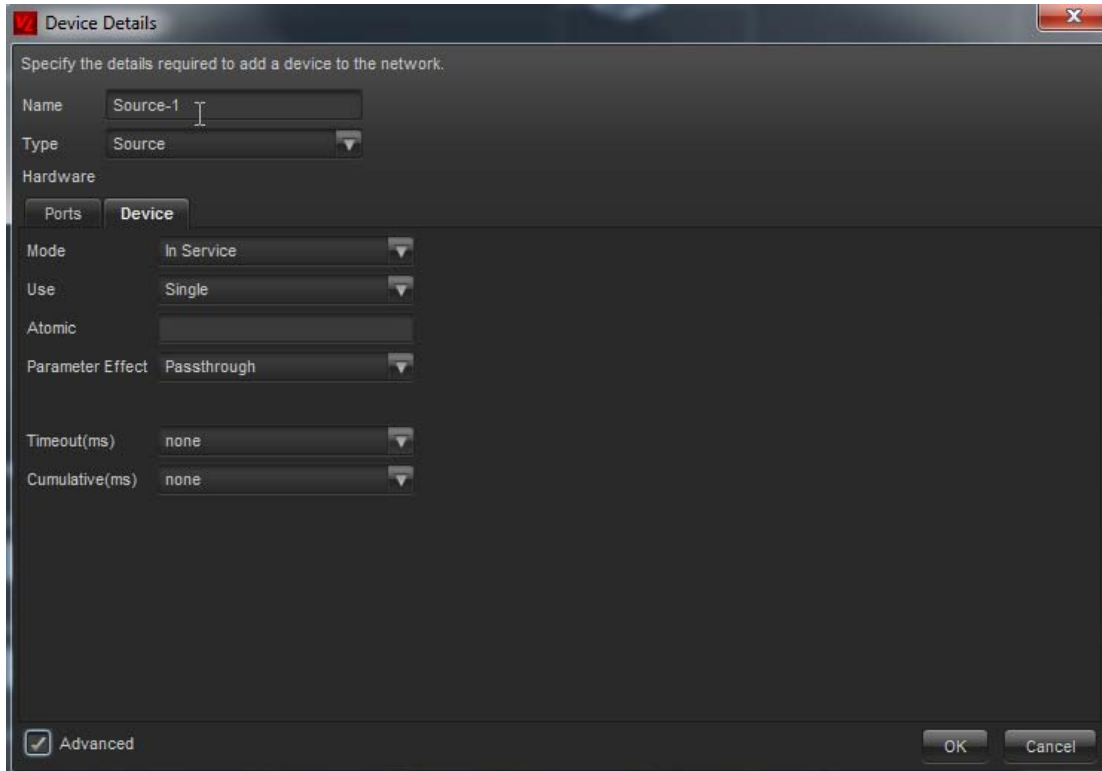


Figure 2-17: Device Details – Device Tab

Within this tab the user can configure the following standard parameters.

Mode: This parameter allows the user to select the mode for the devices in the network. This determines the usability of the device, if the mode is set to *In Service* the device cannot be used.

Use: This parameter allows the user to configure the type of use for the specified device. If the use is set to *Multiple* then the vertex may be used more than once simultaneously.

Atomic: The value entered in this field by the user provides the ability to treat multiple devices as though they were only one device, and use them accordingly.

Parameter Effect: This parameter allows the user to specify how parameter values will be handled when being passed through the device. The parameters can be passthrough, swap, swap source or consume.

There are additional parameters that can be configured depending on the hardware being added, these may vary based on the device being added.

2.4.3. Adding a Topology Group

To add a Topology Group from the *Topology* node, right click on *Topologies* in the Navigation tree. Select *New>Group*, this will open a *Topology Group Creation* window similar the one in Figure 2-18. In this window the user can add a new Topology Group to organize the topologies in by entering a name for the group in the field labelled *New Name*.



Figure 2-18: Topology Group Creation

2.4.4. Configuring Topology Settings

To configure Topology Settings from the Topology node, right click on Topologies in the Navigation tree. Select *Settings...*, this will open the topology settings window which will appear similar to the one in Figure 2-19.

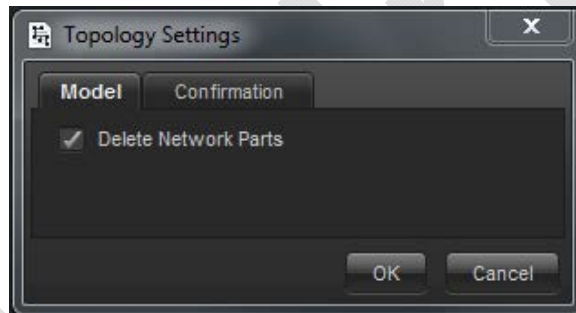


Figure 2-19: Topology Settings

There are 2 tabs in this window that allow the user to set the following settings.

Delete Network Parts: This parameter is in the *Model* tab and allows the user to set whether underlying network parts will be deleted when topology parts are deleted.

Verify Swap: This parameter is in the *Confirmation* tab and allows the user to set whether the user will be prompted for confirmation of hardware swapping in topology devices.

When completed the configuration of the Transport Settings the user can select *OK* to close the window and apply the changes or select *Cancel* and this will close the window without applying the changes.

2.4.5. Log

To view the Element Log of a Topology, right click on the desired Topology and select *Log...*, this will open an *Element Log* window similar to the one in Figure 2-20. In this window the user can view all recent events for the chosen topology, these will be displayed in the top panel. By selecting an event the bottom panel will populate with the details of the event for the user to view.

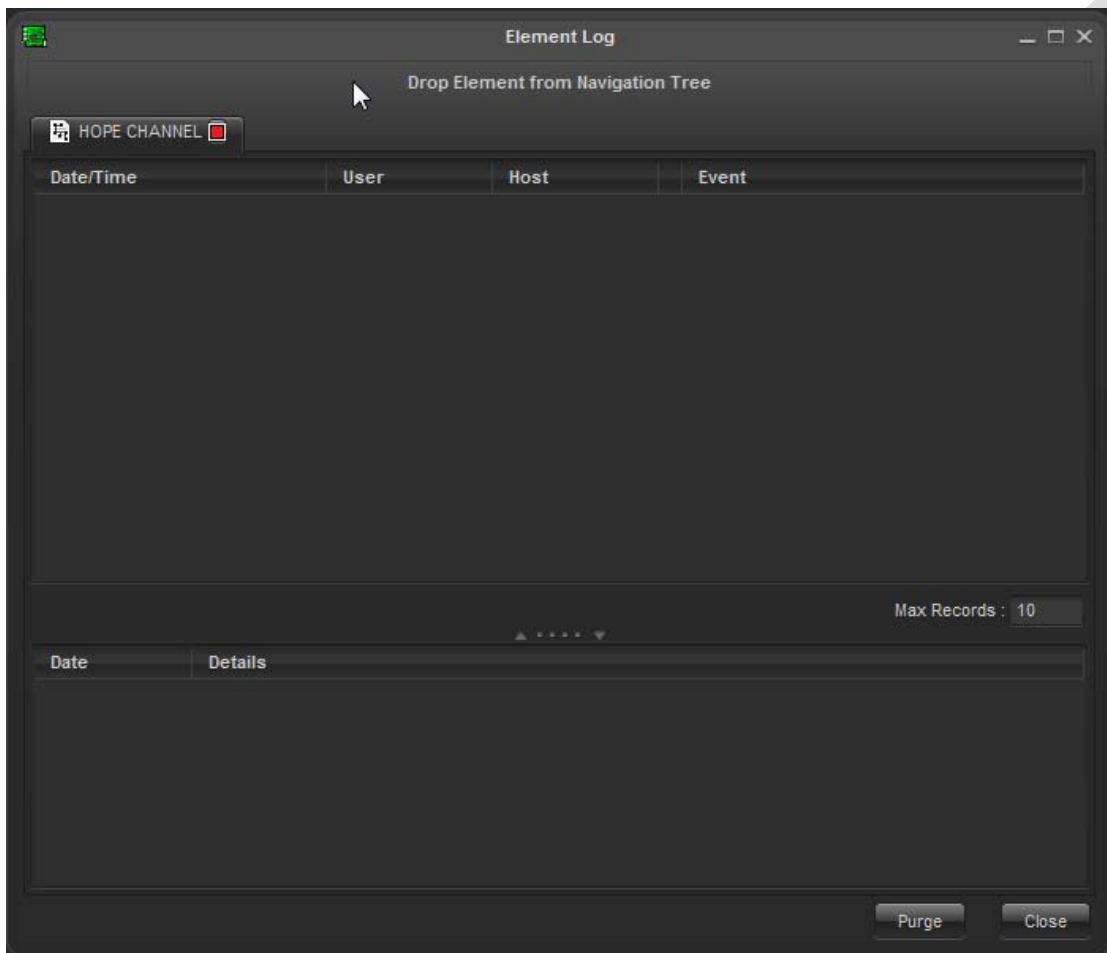


Figure 2-20: Element Log

There are few controls for the user in this window, the controls are listed below.

Max Records: This parameter allows the user to set the number of records that can be viewed in this window.

Purge: This control allows the user to remove all Log entries from the Record. When this control is selected an additional window will appear confirming with the user that they would like to purge all Log entries.

Close: This control will close the Element Log window for the user without altering the Log entries.

2.5. TRANSPORTS

The *Transports* node allows users to create transports and Services (channel line-up) configurations that can be applied to created topologies. Transport management and configuration is a primary function of the CSM client and thus the Transport node should always be displayed.

2.5.1. Adding a Transport

To add a transport from the *Transport* node, right click on *Transports* in the Navigation tree. Select *New>Transport*, at this point the user will have to choose between *MPTS* and *SPTS*, the difference are described below. Selecting either of these transport types will open the *Transport Creation* window like the one in Figure 2-21.

MPTS: Multi Program Transport Stream, selecting MPTS would allow multiplexer configuration to be part of the Transport definition.

SPTS: Single Program Transport Stream, selecting SPTS would allow the user to create a single flow stream.

In this window the user can add a new Transport by entering a name for the transport in the first box labelled *New Name*.

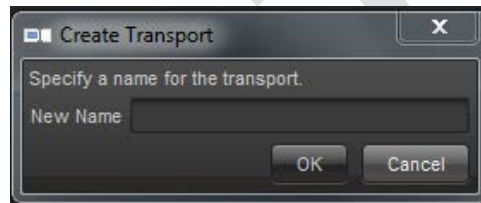


Figure 2-21: Transport Creation

2.5.2. Adding a Transport Group

To add a Transport Group from the *Transport* node, right click on *Transports* in the Navigation tree. Select *New>Group*, this will open a *Transport Group Creation* window like the one in Figure 2-22. In this window the user can add a new Transport Group to organize the transports in by entering a name for the group in the field labelled *New Name*.

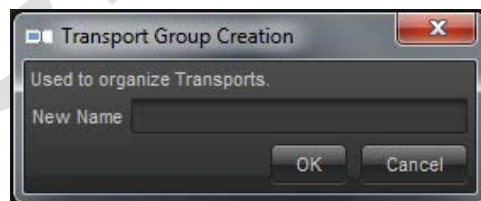


Figure 2-22: Transport Group Creation

2.5.3. Configuring Transport Settings

To configure Topology Settings from the Topology node, right click on Topologies in the Navigation tree. Select *Settings...*, this will open the topology settings window which will appear similar to the one in Figure 2-23.

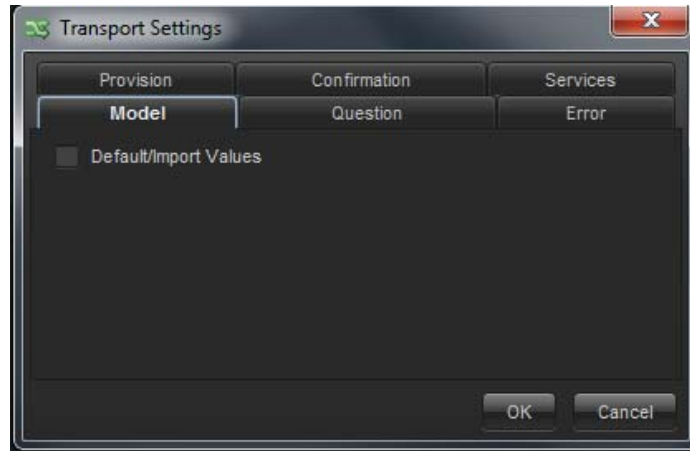


Figure 2-23: Transport Settings

There are 6 tabs in this window that allow the user to set the following settings.

Default/Import Values: This parameter is in the *Model* tab and allows the user to set whether default or import values are assigned to transport service parameters when selected.

Auto Close: This parameter is in the *Question* tab and allows the user to set whether the question prompt dialog will automatically close after all questions have been answered.

Auto Reap: This parameter is in the *Question* tab and allows the user to set whether questions which have expired will be automatically removed from the question dialog. A checkmark in this box enabled to expired questions to be automatically removed.

Error Overlay: This parameter is in the *Error* tab and allows the user to set whether a warning overlay on the transport whiteboards will be displayed when a provision error or warning occurs.

Set Timeout (ms): This parameter is in the *Provision* tab and allows the user to set the amount of time in milliseconds that VistaLINK will wait for a single set to return before it considered a failure during provisioning.

Set Cumulative Timeout (ms): This parameter is in the *Provision* tab and allows the user to set the amount of time in milliseconds that VistaLINK will wait for entire configuration of a single device before it considered a failure during provisioning.

Verify Activation: This parameter is in the *Confirmation* tab and allows the user to set whether there will be a prompt for confirmation of activation/de-activation of transport or transport parts.

Verify Provision: This parameter is in the *Confirmation* tab and allows the user to set whether there will be a prompt for confirmation of provision/de-provision of transports or transport parts.

Verify Linkage: This parameter is in the *Confirmation* tab and allows the user to set whether there will be a prompt for confirmation of de-linking transports or transport parts.

Auto Create Services from Transport Services: This parameter is in the *Services* tab and allows the user to set the autocreation of services once a transport service has been created.

When completed the configuration of the Transport Settings the user can select *OK* to close the window and apply the changes or select *Cancel* and this will close the window without applying the changes.

2.5.4. Adding a Transport Service

To add a service to a Transport, right click on the desired *Transport* and select *New > Service*. This will open a *Transport Service* window like the one in Figure 2-24.

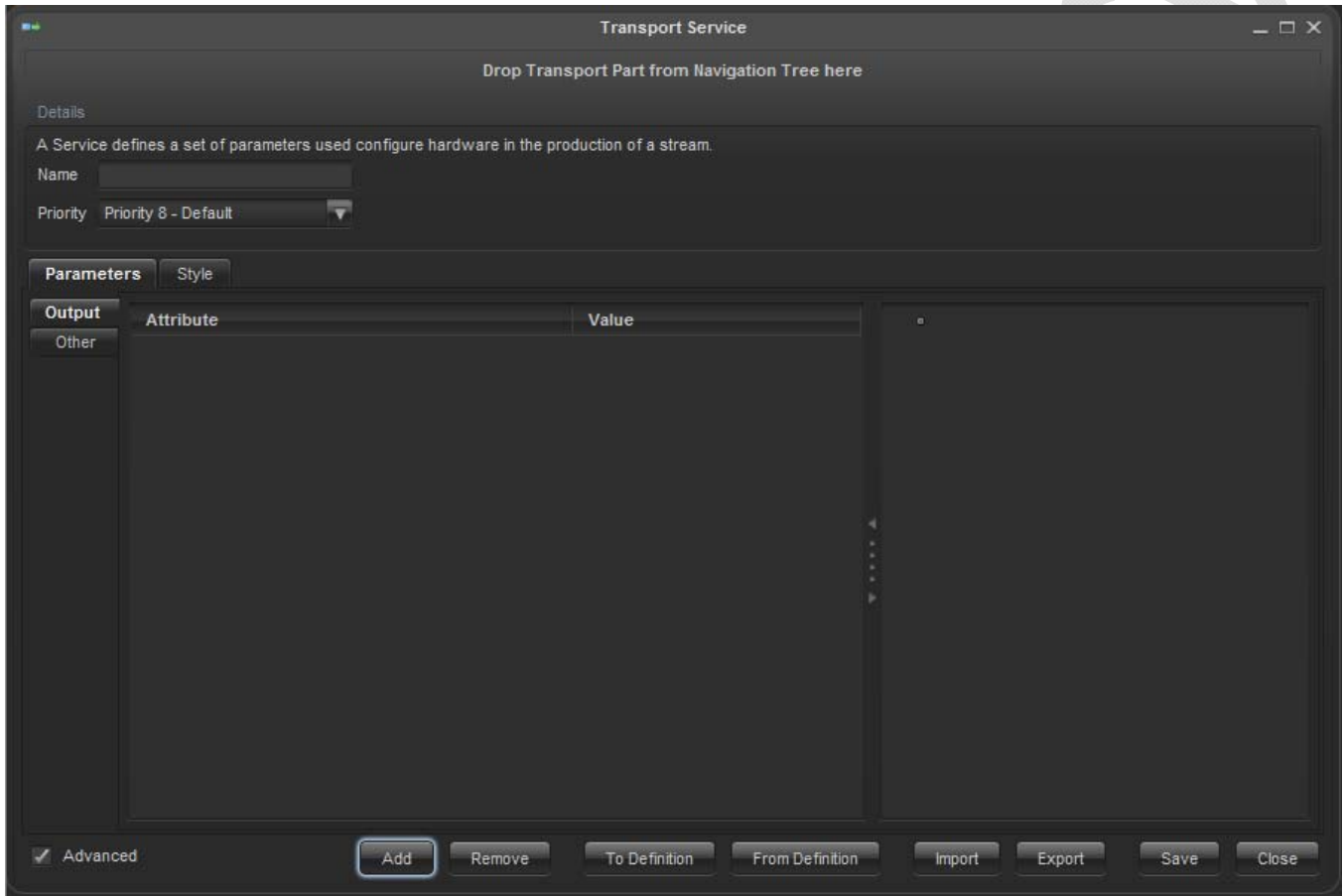


Figure 2-24: Transport Service

Within this window the user has the following basic fields to configure.

Name: This field allows the user to specify a name for this transport service.

Priority: This field allows the user to specify the Priority of the hardware contained in this service.

Additionally the user has two tabs, *Parameters* and *Style*, when *Advanced* is selected, which have the following controls.

2.5.4.1. Parameters

Selecting *Add* in the Parameters tab will open the *Parameter Definitions* window that will appear similar to the one in Figure 2-25. Selecting *Advanced* will open an additional tab for component Parameters.

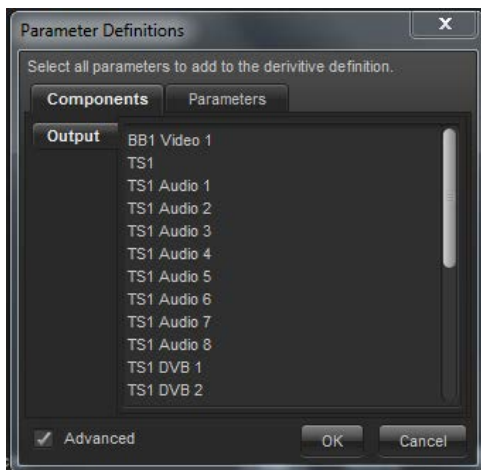


Figure 2-25: Parameter Definitions – Components

In this window the user can add derivative definitions one at a time by selecting a component (or parameter) and selecting *OK*. However, the user can add multiple at once by holding *Ctrl* and selecting the components (or parameters) to add to the derivative definition.

Once this is done the *Transport Service* window will be populated to appear similar to Figure 2-26. The value which can be configured for each attribute added will differ depending on the values available for that specific attribute. To *Remove* an attribute simply select the attribute in this window and then select *Remove*.

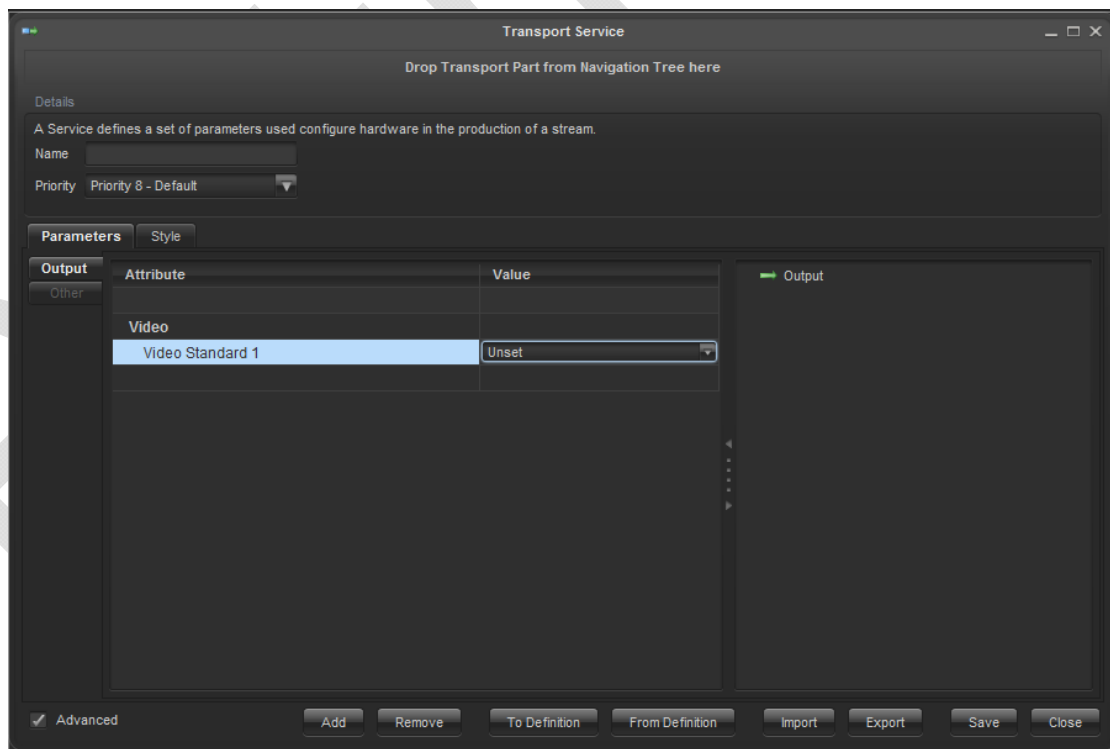


Figure 2-26: Transport Service populated

Selecting *To Definition* will open up a new window where the user can save the current parameters as a derivate definition so it can be used later. This window will appear similar as shown in Figure 2-27.

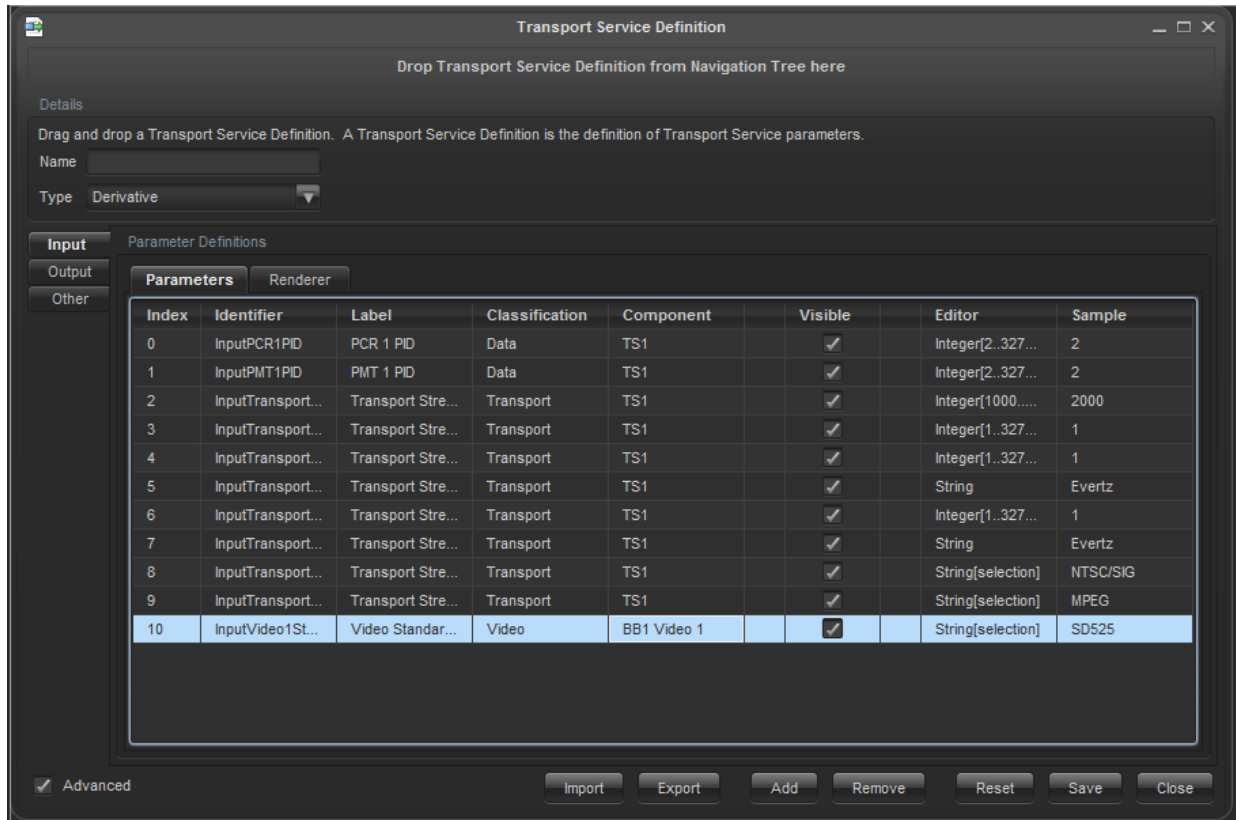


Figure 2-27: Transport Service Definition

The *Transport Service Definition* window also has its own controls along the bottom of the window. Some of these functions do not differ from the main window, others do.

For example, the *Import* control will only work if *Type* (the second field in the window) is set to *Original*, as you cannot Import from a derivative. Selecting either *Import* or *Export* will open a window where the user can either locate the file to import from or select the location to export the file to, it will appear similar to the one in Figure 2-28.

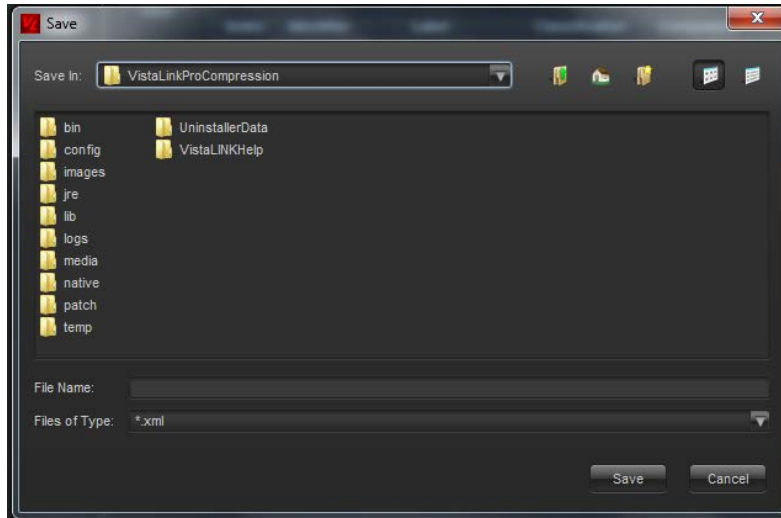


Figure 2-28: Import/Export Dialog Window

The *Add/Remove* buttons work the same as in the previous window, selecting *add* will open a *Parameters Definition* window similar to the one in Figure 2-25. Selecting the *Reset* button will return the Transport Service Definition values to their default values. Selecting *Save* will apply the changes made, and selecting *Close* without *Save* first will close the window without applying the changes made.

From the *Transport Service* window in Figure 2-24 the user can also select *From Definition*. This will open a *Template* window that appears similar to the one in Figure 2-29.

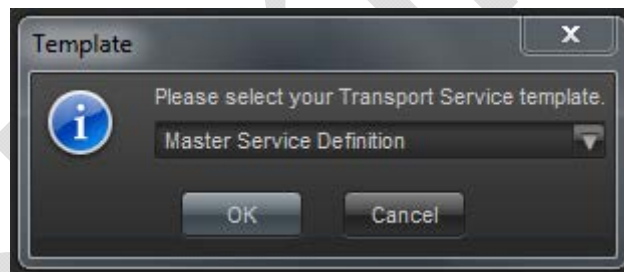


Figure 2-29: Transport Service Template

For example, the *Import* control will only work if *Type* (the second field in the window) is set to *Original*, as you cannot *Import* from a derivative. Selecting either *Import* or *Export* will open a window where the user can either locate the file to import from or select the location to export the file to, it will appear similar to the one in Figure 2-28. Selecting the *Reset* button will return the Transport Service Definition values to their default values. Selecting *Save* will apply the changes made, and selecting *Close* without *Save* first will close the window without applying the changes made.

2.5.4.2. Style

The *Style* tab has all the same buttons along the bottom of the window that the Parameters tab has. The difference here lays in the way the attributes are represented. This window allows the user to control where and how the hardware appears within the transport.

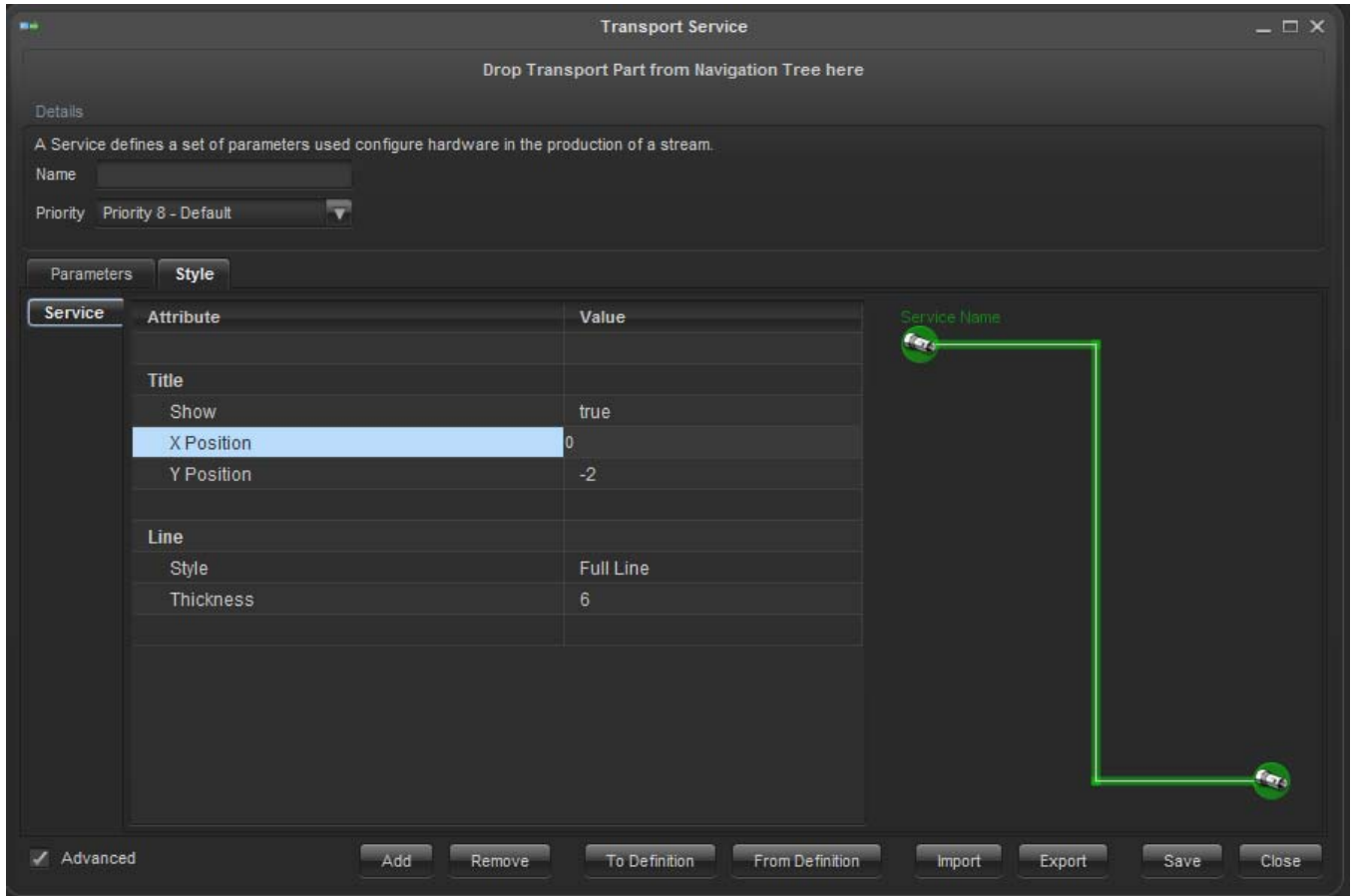


Figure 2-30: Transport Service – Style Tab

2.5.5. Add a Link

To add a transport link from the *Transport* node, right click on *Transports* in the Navigation tree. Select *Linkage>Link...*, this will open a *Transport Linkage* window like the one in Figure 2-31. This will define the associate between the transport and the topology which it is configuring.

In this window the user can add a new Transport link by entering a name for the transport in the first box labelled *New Name*.

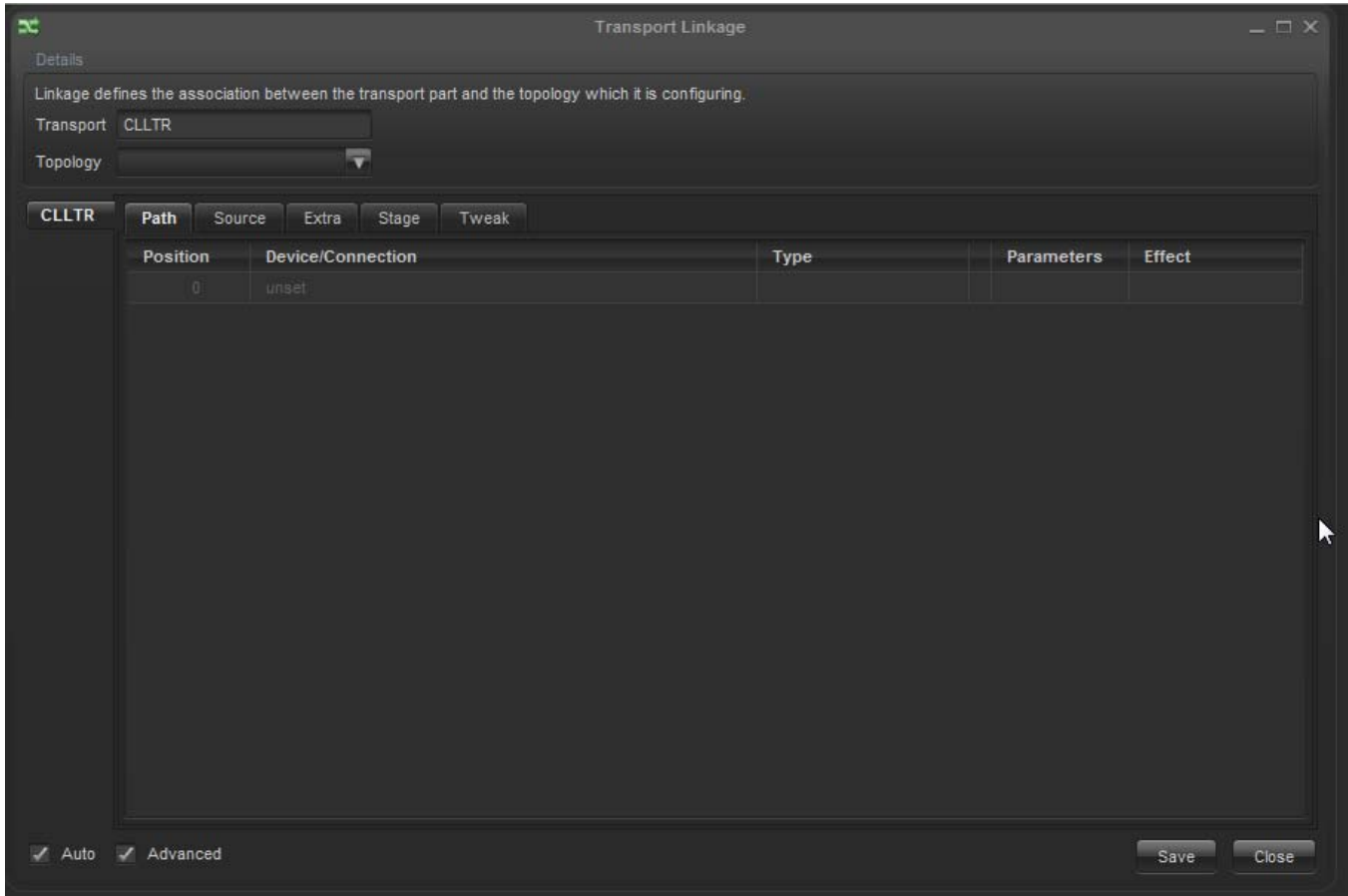


Figure 2-31: Transport Linkage

In the *Transport Linkage* window there are 3 tabs which appear automatically, selecting *Advanced* will display an additional 2 tabs.

Path: This tab allows the user to create a signal flow along the path between devices.

Source: This tab allows the user to view and configure Sources along the Transport.

Extra: This tab allows the user to view and configure triggers, etc. along the Transport.

Stage: This tab displays the different stages of the actions against the hardware.

Activate

- **Activate:** This stage runs activate configuration actions against the hardware.

DeActivate

- **DeActivate:** This stage runs de-activate configuration actions against the hardware.

Provision

- **DeActivate:** This stage runs de-activate configuration actions against the hardware.
- **Pre:** This stage runs pre-configuration actions against the hardware.
- **Route:** This stage runs all the routing actions to allow the content to go from the source to the destination.
- **Main:** This stage runs main configuration actions against the hardware.
- **Post:** This stage runs post configuration actions against the hardware.

DeProvision

- **DeActivate:** This stage runs de-activate configuration actions against the hardware.

- **Reset:** This stage resets the path or device to the pre-provision original devices.
- **Dispose:** This stage resets the part status to the inactive state.

Tweak:

- **DeActivate:** This stage runs de-activate configuration actions against the hardware.
- **Pre:** This stage runs pre-configuration actions against the hardware.
- **Route:** This stage runs all the routing actions to allow the content to go from the source to the destination.
- **Main:** This stage runs main configuration actions against the hardware.
- **Post:** This stage runs post configuration actions against the hardware.
- **Reset:** This stage resets the path or device to the pre-provision original devices.
- **Dispose:** This stage resets the part status to the inactive state.

2.5.6. View Alarm

To view the transport alarms from the *Transport* node, right click on *Transports* in the Navigation tree. Select *View Alarms*, this will open an *Alarm* window like the one in Figure 2-32.

In this window the user has the capability to view the reporting of alarms. Selecting an Alarm will populate the bottom panel where the user can view details of the alarm as well as any possible notes added to the alarm by other users.

The tools along the top of the Alarm window allow the user to acknowledge alarms, which will clear them from this window, correct alarms, filter the list, add notes to specific alarms, log the alarm updates or suspend the alarm notification.

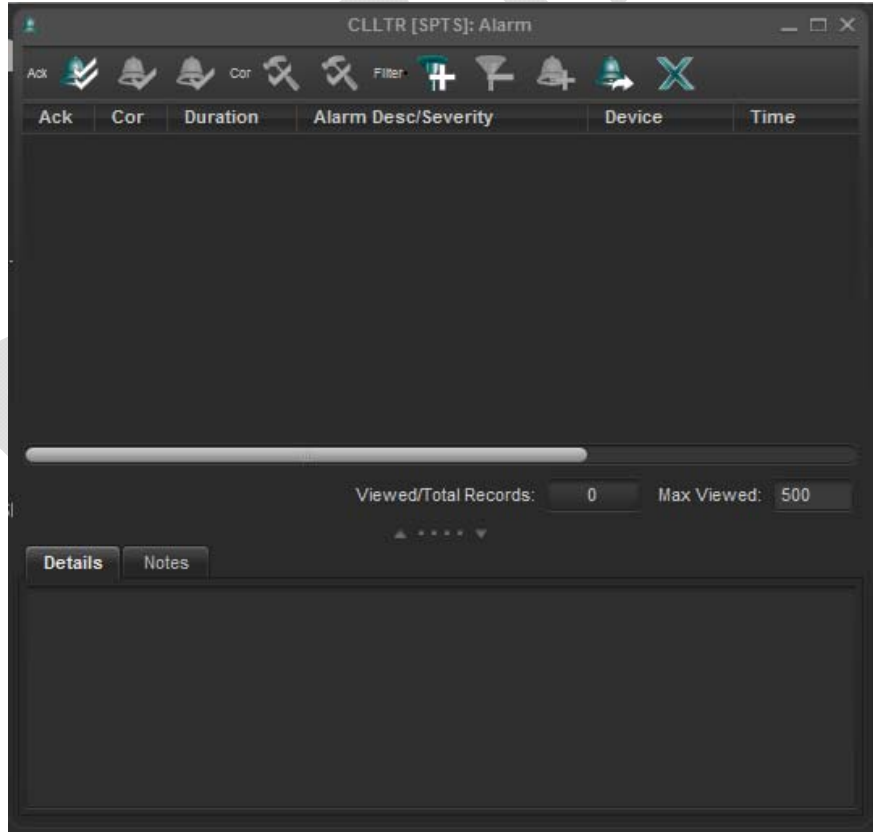


Figure 2-32: Alarm View

2.5.7. Log

To view the Element Log of a Transport, right click on the desired Transport and select *Log...*, this will open an *Element Log* window similar to the one in Figure 2-33. In this window the user can view all recent events for the chosen topology, these will be displayed in the top panel. By selecting an event the bottom panel will populate with the details of the event for the user to view.

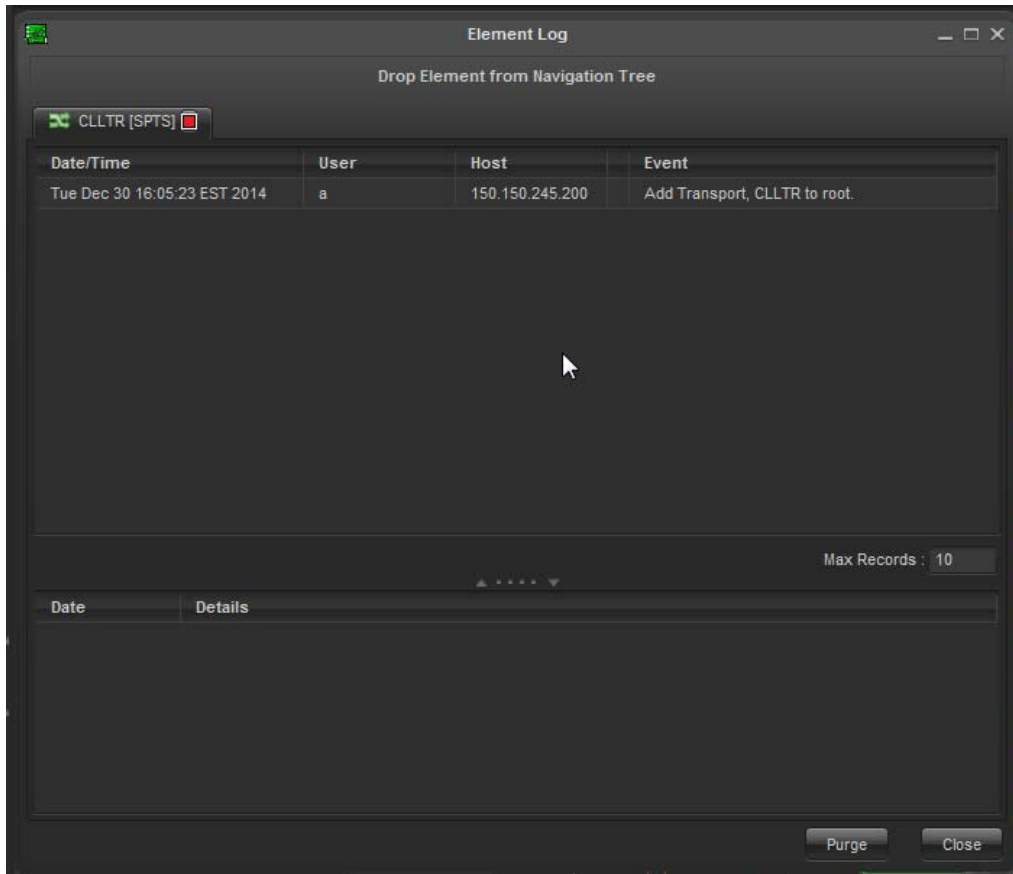


Figure 2-33: Element Log

There are few controls for the user in this window, the controls are listed below.

Max Records: This parameter allows the user to set the number of records that can be viewed in this window.

Purge: This control allows the user to remove all Log entries from the Record. When this control is selected an additional window will appear confirming with the user that they would like to purge all Log entries.

Close: This control will close the Element Log window for the user without altering the Log entries.

3. CSM SAMPLE SYSTEM CREATION WALKTHROUGH

This section will show how a CSM system can be configured and setup by walking through a sample scenario. The following information will include each step required in order to setup and configure a CSM system to handle the provided sample use case. Note that the use case will touch on all aspects of the CSM configuration processes. Configuring larger scale systems will simply be additional setup of the core concepts described.

3.1. REQUIREMENTS

This walkthrough assumes that you have met the requirements outlined in section 1 above. The user should have a running VLPRO Server and CSM client with compression system hardware auto-discovered by the software and listed in the clients Hardware discovery tree.

3.2. SAMPLE USE CASE DESCRIPTION

The following guide will detail the setup of the following scenario:

The sample system will be comprised of the following:

- 4 x SDI sources that need to be encoded to IP (SPTS) streams for delivery over an IPTV network.
- SDI streams are feed to the encoders via a SDI routing switcher
 - (Evertz EQT 32x32 Router)
- There will be 3 encoders total
 - 2 x 2-channel encoders for normal service flow of 4 channels total
 - 1 x 2-channel encoder as a spare
 - (Evertz 3480ENC encoders)
- Encoders output SPTS streams direct to distribution IP network
- Encoder redundancy scheme is 4:2 (N:M). There will be a single 2-channel encoder configured as a backup encoder.



Note that CSM handles redundancy at the individual Service (channel encoder) level regardless of the use of single channel or high density multi channel encoders being used. CSM can optionally group channels on a single, multi-input device in order to force unit based box redundancy rather than service based individual redundancy. For the sample case; because the system will produce single flow SPTS encodes, the redundancy will be configured at the Service / channel encoder level. This means that up to 2 services can failover to the backup and these services can be from the same or different main encoders. If unit based group redundancy is enabled then 2 services could still be backed up, but only for one physical encoder at a time. In this case the redundancy scheme will be purely Service based thus providing a 4:2 (N:M) redundancy scheme.

Below is a diagram showing the architecture of the sample system.

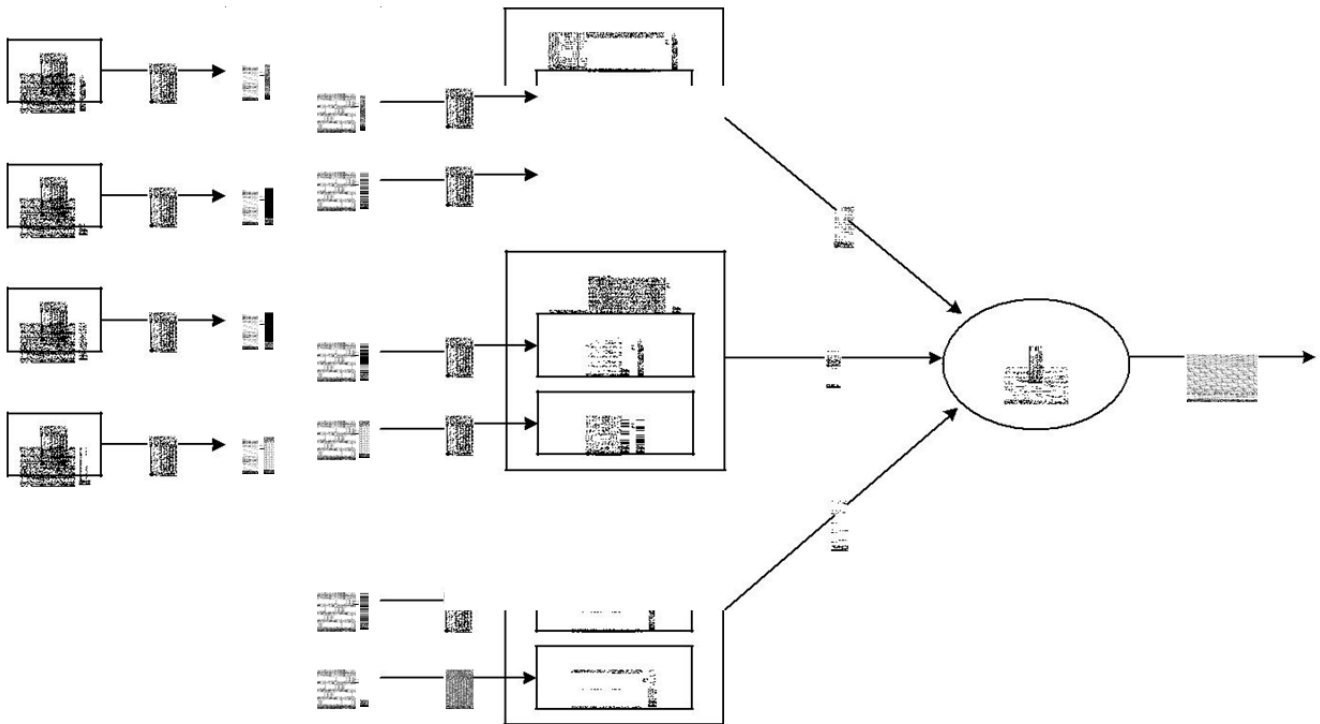


Figure 3-1: Architecture of the Sample System

4. SYSTEM CREATION PROCEDURES

The following is a walkthrough of the exact steps required to configure the sample case scenario. The user should have the CSM client open and the “*Hardware*”, “*Networks*”, “*Services*”, “*Topologies*” and “*Transports*” nodes should be enabled in the tree view.

4.1. NETWORK CREATION

A Network is a container that CSM will use to organize devices and maps that are created by users. Once the network has been defined and named there is no further user interaction required. The CSM system will automatically add elements to the Network as the user builds maps and transports using other methods. A user can come back and look a data added to Network after topologies and have been created. Users can create multiple Networks for logical organizational purposes. (Note that Root Cause Analysis can only be achieved across elements that are part of the same Network)

- 1.) Right click the **Networks** node in the CSM Navigation Tree and select **New Network**.
- 2.) Provide a Name for the network and click the **Save** button. (sample “*My Network*”)

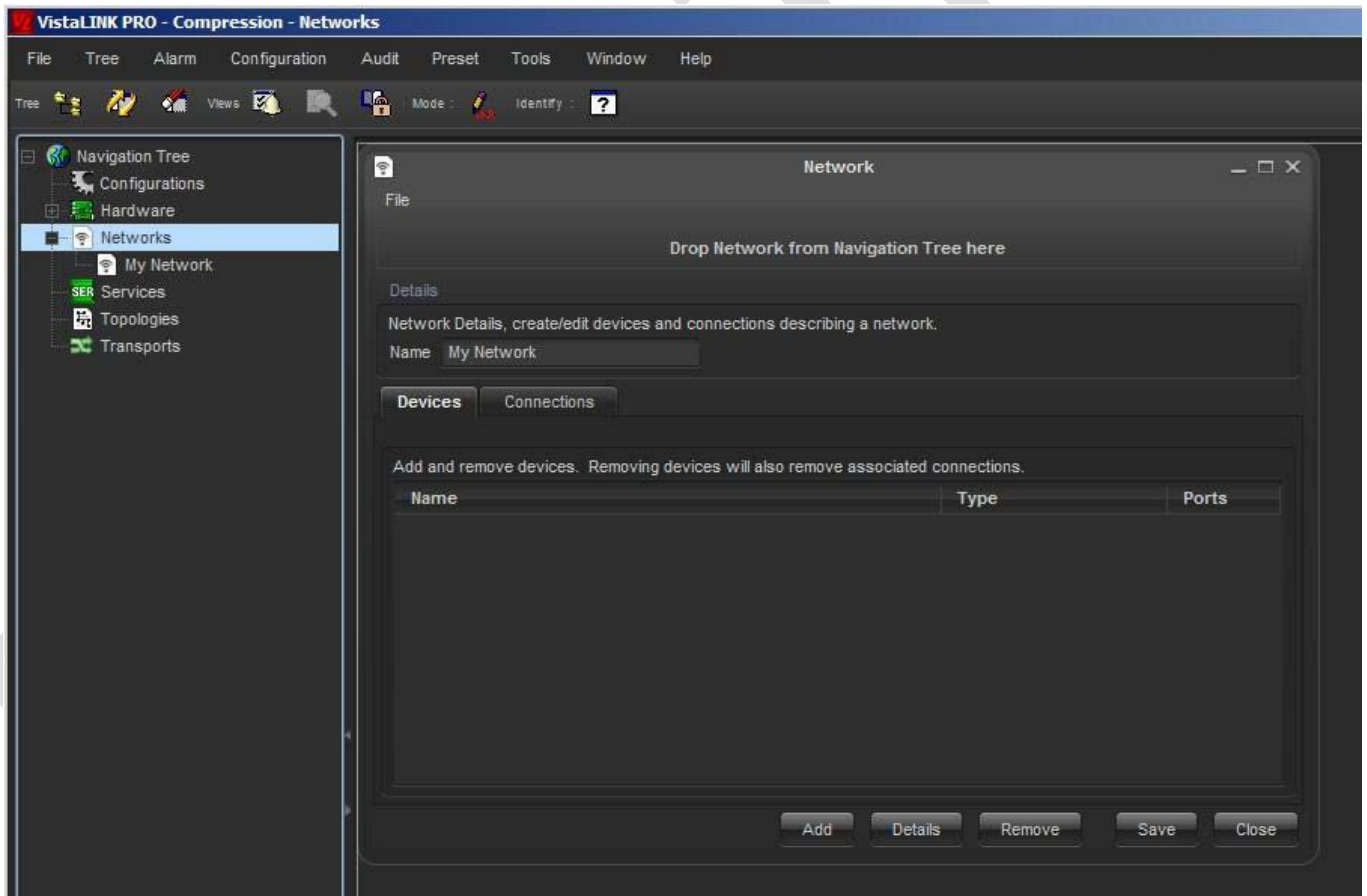


Figure 4-1: Network Creation

4.2. TOPOLOGY CREATION

A Topology is a canvas area that can be created to display hardware elements that make up a logical subsection of a compression system. A system can have more than one topology. Traditional systems are spread across multiple topologies according to redundancy or mux physical groupings. A topology is also a graphical map that shows a collection of devices and how those devices are connected together. In order to provision Services with CSM, a transport must be linked to a user created Topology (a defined collection of hardware devices)

- 1.) Right click the **Topologies** node in the CSM Navigation Tree and select **New Topology**
- 2.) Provide a Name for the new Topology (sample “MAP-01”)
- 3.) Ensure the Network you created in section 3.1 is selected for the Network option

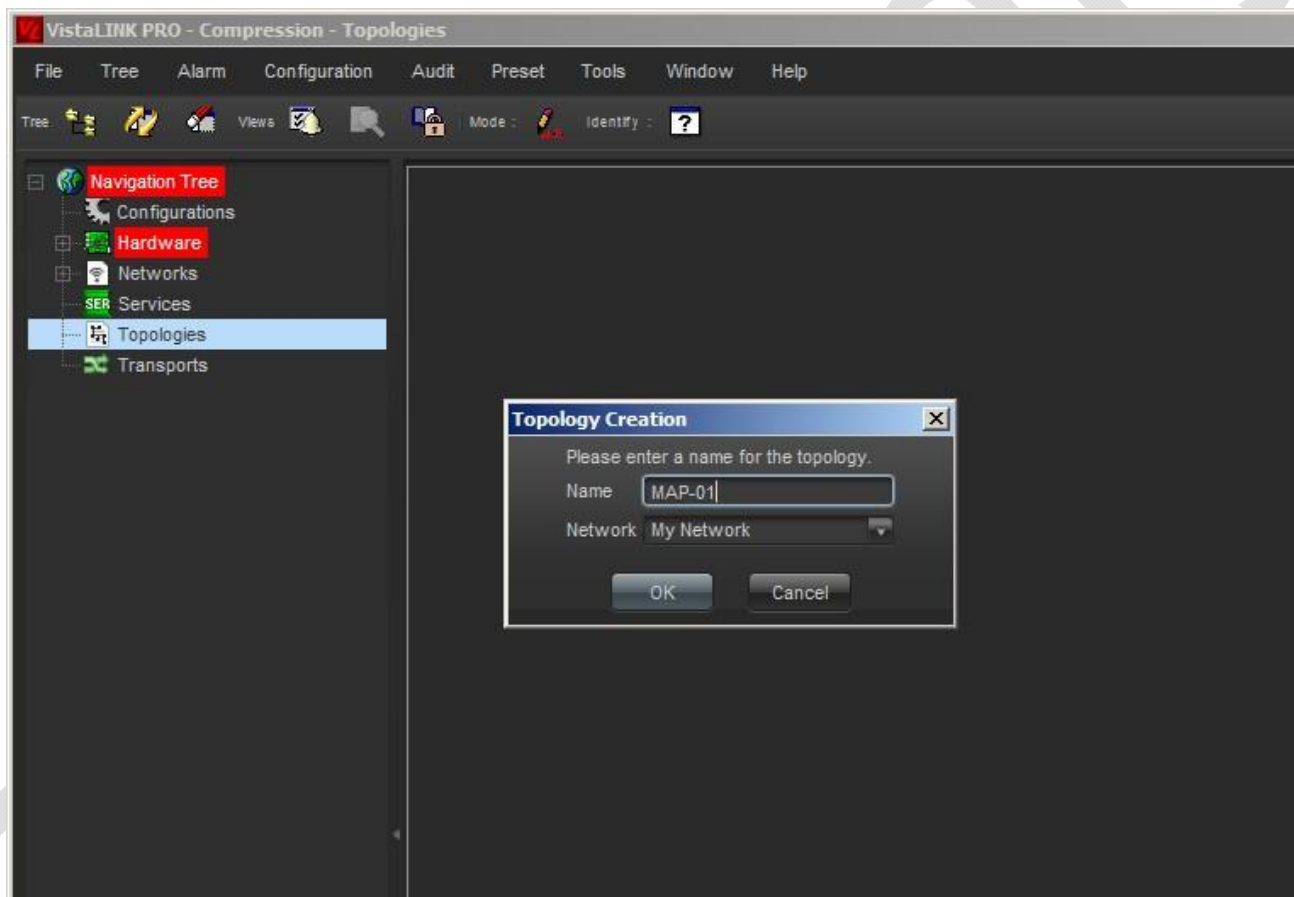


Figure 4-2: Topology Creation

- 4.) Click the **OK** button to Save the new Topology
- 5.) Immediately following the Save action, CSM will place the New Topology into “**Edit-Mode**” allowing Topology configuration. Note that “**Edit-Mode**” must be enabled to make changes to a Topology. To place a Topology in **Edit Mode**, select the Topology in the Navigation Tree and press the Toolbar pencil icon or right click any empty area on the topology canvas and select “**Edit (Topology) Enabled**” It is easy to identify when a Topology is in Edit Mode as the Navigation Tree area on the left hand side will be divided into 2 sections with a lower section showing **Properties**, **Tools** and **Network** option panels.

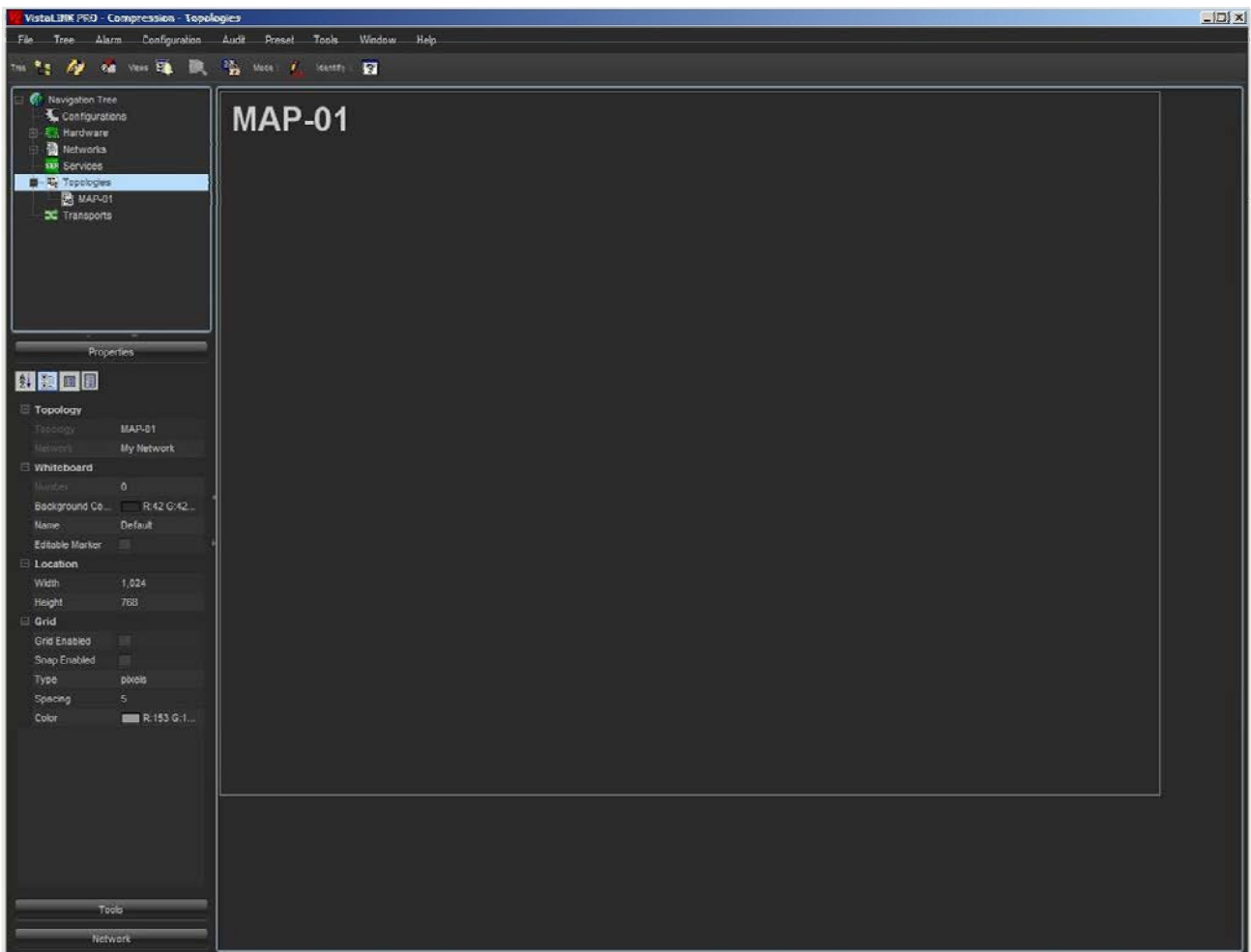


Figure 4-3: Topology Creation



You can change *Properties* of the Topology Canvas itself such a size and color. Click any empty area of the Topology canvas when in *Edit Mode* to display the Topologies Properties. In the left hand *Properties* panel values can be edited.

- 6.) Change the Width and Height properties to increase the size of the canvas to match screen resolution or desired canvas space.
- 7.) Enable the Grid
- 8.) Snap Enabled checkbox for easy Topology snapping grid layouts
- 9.) Change the Topology Background Color if desired

4.3. ADD “LOGICAL” ELEMENTS TO THE TOPOLOGY

In order to configure a Topology Map the user will add both “logical” elements as well as real world hardware devices. Logical elements are map representations of a topology component that is not a direct hardware device and not listed under the Hardware node in the CSM Navigation Tree. An example of a logical device is the icon representing the 4 input SDI sources in the sample scenario. We want to represent these incoming sources on the topology map; however, they are not physically discovered hardware elements. “Logical” Topology map items are added by selecting the desired elements from the **Tools** section of the Edit-Mode left hand panel. Real world discovered hardware devices can also be added to Topology maps. Real devices are added by dragging the discovered hardware component from the CSM Hardware tree to the Topology while in Edit-Mode.

For the Sample Scenario we will be adding the following elements to the new Topology

1. 4 x SDI Input Sources (**Logical elements**) (Starting point for Service flows)
2. Evertz EQT Router (**Real Hardware element**)
3. 3480ENC encoder channels/profiles (**Real Hardware element**)
4. IP Distribution Network Icon (**Logical element**)
5. IP Final Output Icon (**Logical element**) (Ending point for Service flows)



Note that all Topology Maps require that logical sources and destinations be added to use as starting and end points for all Services in the system. It is a requirement that all Services have a defined Source starting point and a defined Destination end point. The logical Source and Destination elements can be added as type BNC, Ethernet or Fibre.

4.3.1. Add Logical Elements to the Created Topology

- 1.) Ensure the Topology is in Edit-Mode
- 2.) In the Left hand **Tools** panel click the “Drop BNC Source” icon (BNC icon listed under “Sources) so that it is selected.
- 3.) Move your mouse pointer to an empty area of the Topology map and double click to drop a new logical Source.
- 4.) As you double click to drop each new logical Source a dialog box will appear to provide a name for the new Source.
- 5.) Add 4 logical sources named SRC1, SRC2, SRC3 and SRC4.
- 6.) Position the new Source icons in a vertical row along the left hand side of the Topology canvas



You can mouse click on one of the new sources in order to change properties for that icon object such as label size, position, color and the icon library used. By default the CSM system should represent the Logical source with a small BNC styled icon.

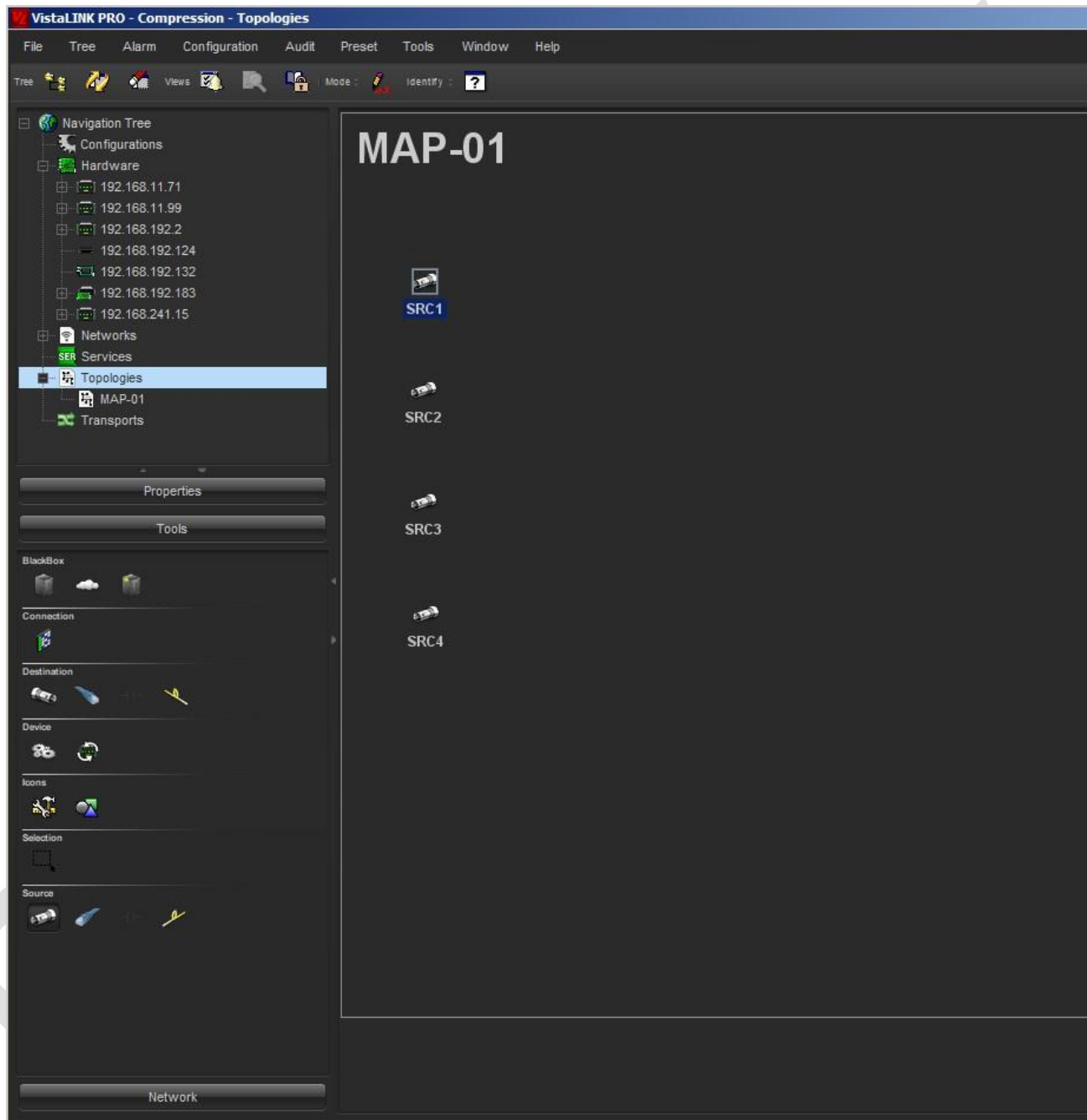


Figure 4-4: Add Logical Elements to the Created Topology

- 7.) In the CSM **Tools** panel click on the “**Drop Ethernet Blackbox**” (cloud icon under BlackBox heading) to select it.

- 8.) Double click an empty area of the Topology canvas to drop an IP Black Box (logical representation of customer IP delivery network)
- 9.) In the CSM Tools panel click the **“Drop Ethernet Destination”** icon (RJ45 icon under Destination heading)
- 10.) Double click an empty area of the Topology canvas to drop an Ethernet Destination (logical representation final IP output)

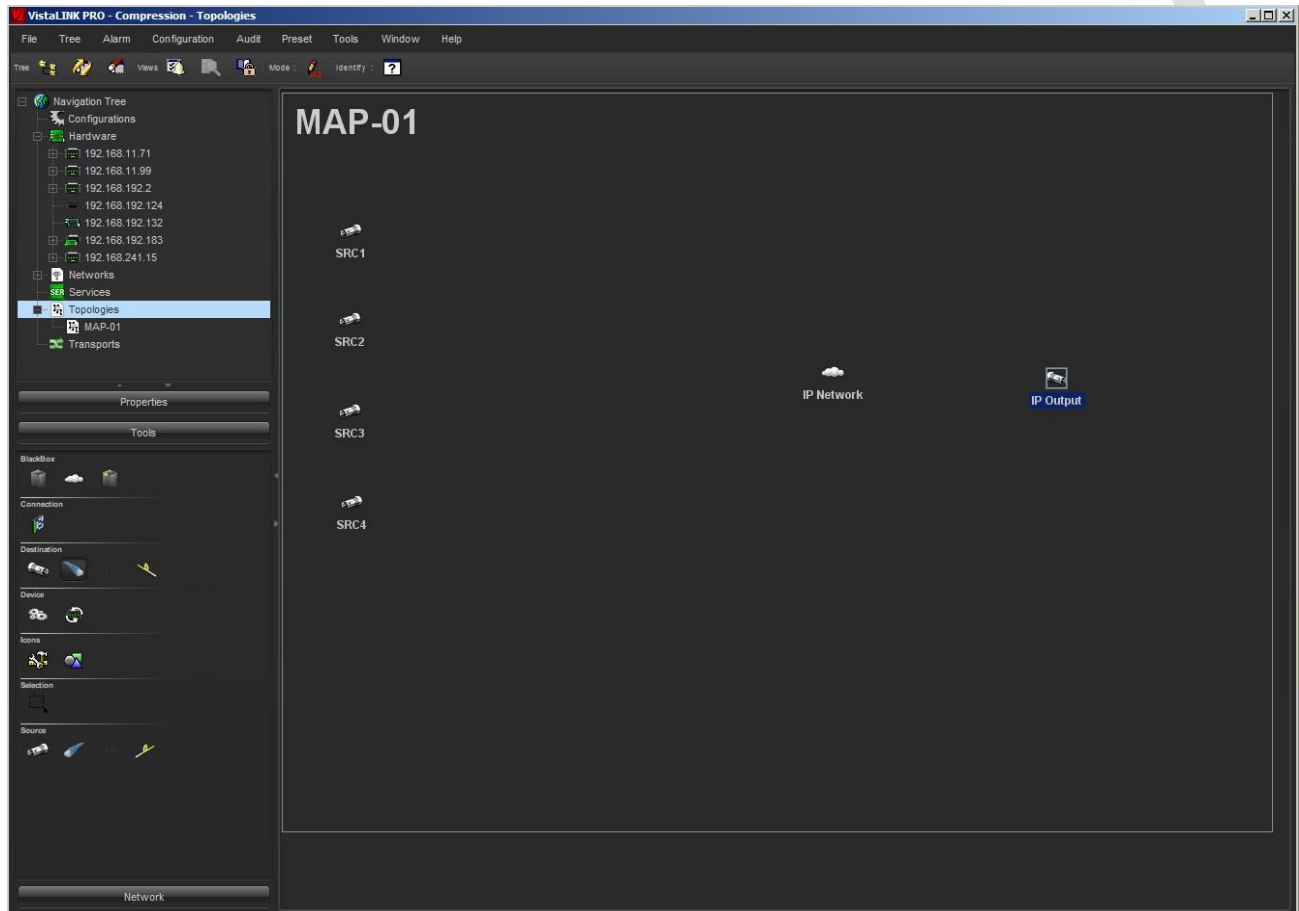


Figure 4-5: Add Logical Elements to the Created Topology

4.4. ADD REAL WORLD HARDWARE ELEMENTS TO TOPOLOGY

- 1.) Drag the Evertz router from the CSM Hardware section of the Navigation Tree to the Topology map.
- 2.) Once you drop the router a device details panel will be presented in order to provide the amount of inputs and outputs that will be used as part of this router representation.



Note that each router type device that is added to a CSM topology is added as a “Logical” router. This allows the user to define a sub section of a larger router to be used for this topology. The user can define the entire router I/O or can define just a smaller sub section portion of the router to be used.

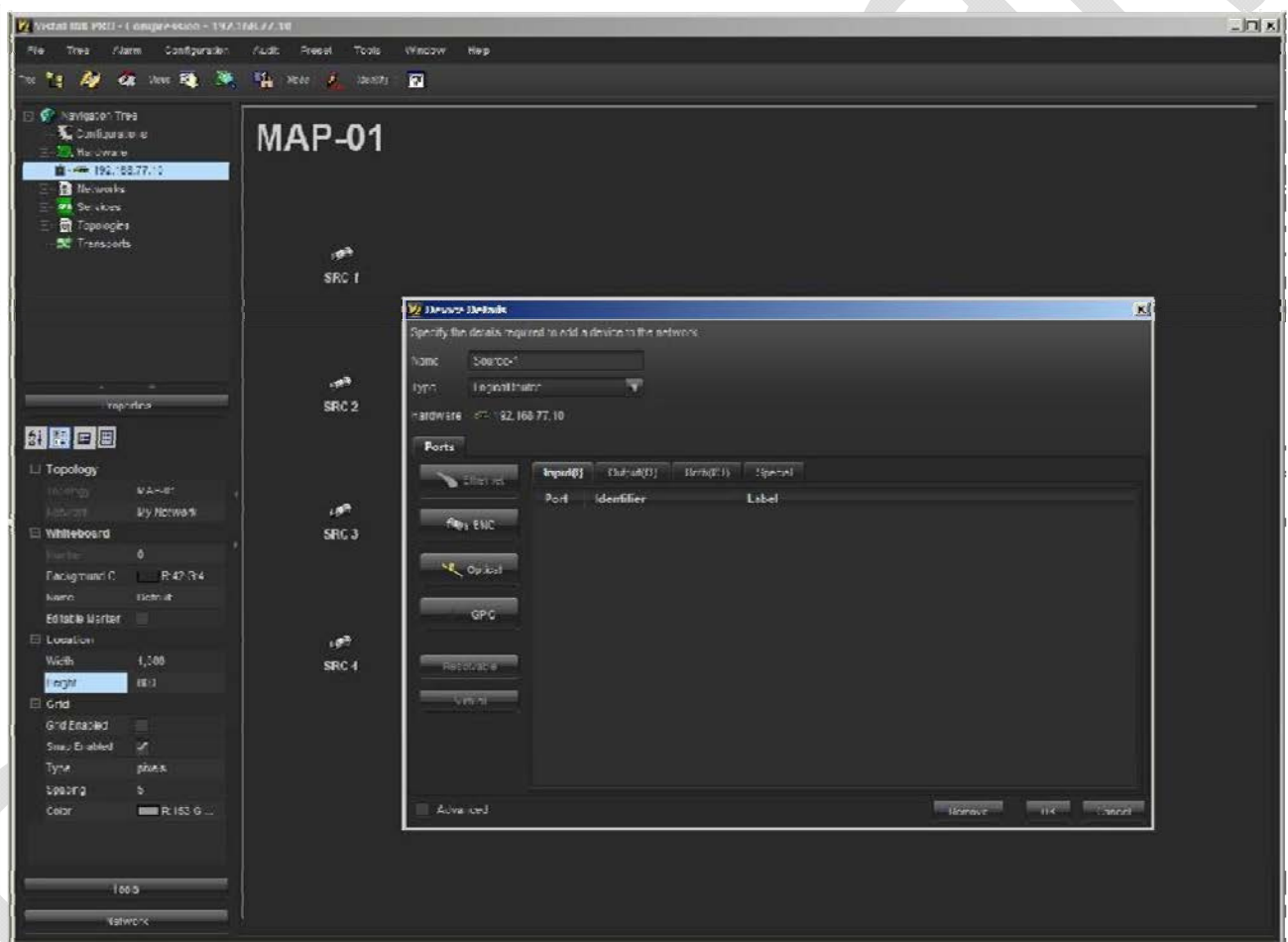


Figure 4-6: Add Real World Hardware Elements to Topology (1)

- 3.) Provide a name for the router device representation (“SDI ROUTER”)
- 4.) Switch to the “**Inputs**” tab.
- 5.) Click the “**BNC**” button on the left hand panel, provide the amount of router inputs to use and click **OK**.

6.) Switch to the “**Outputs**” tab.

7.) Click the “**BNC**” button on the left hand panel and provide the amount of router outputs to use.

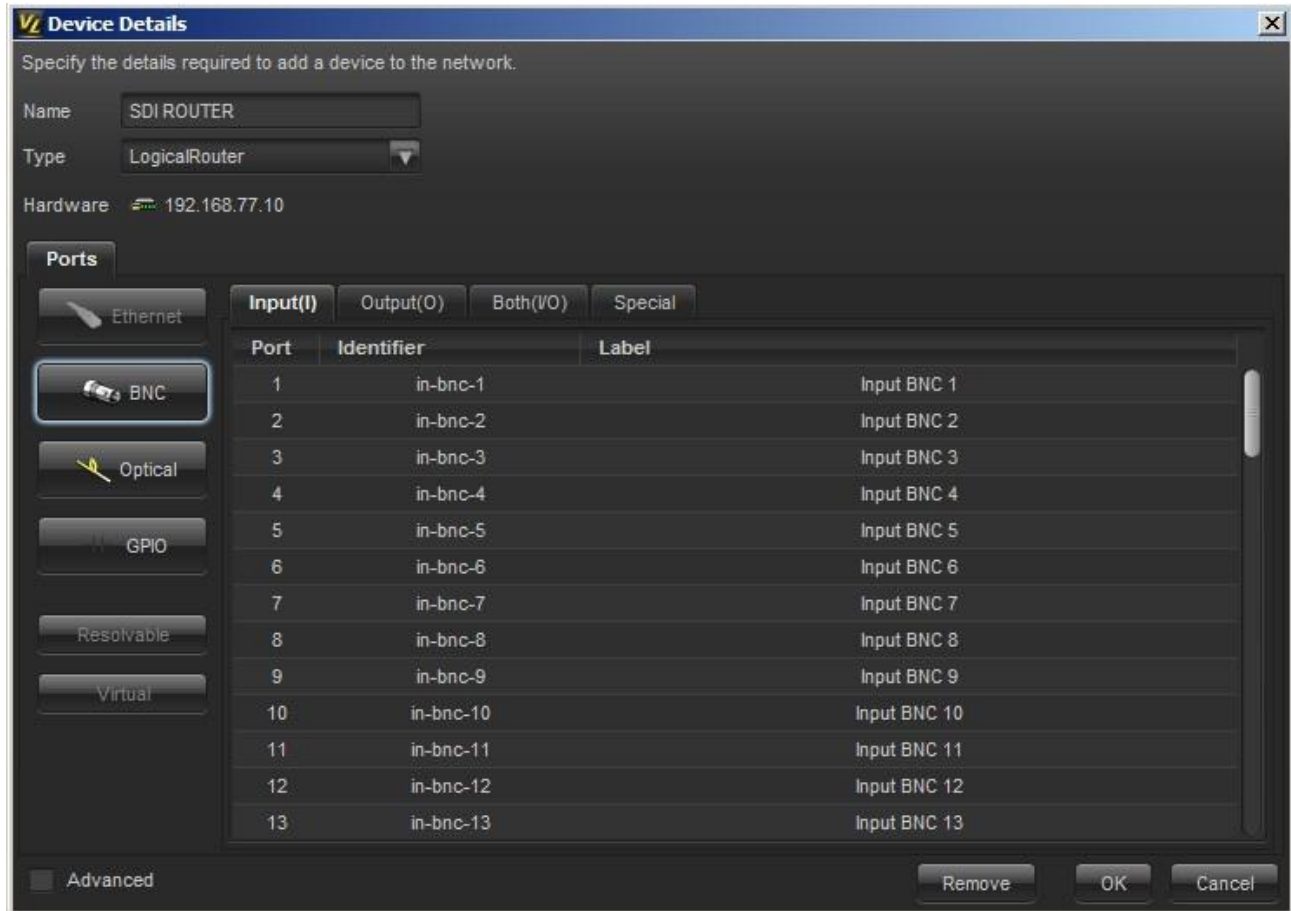


Figure 4-7: Add Real World Hardware Elements to Topology (2)

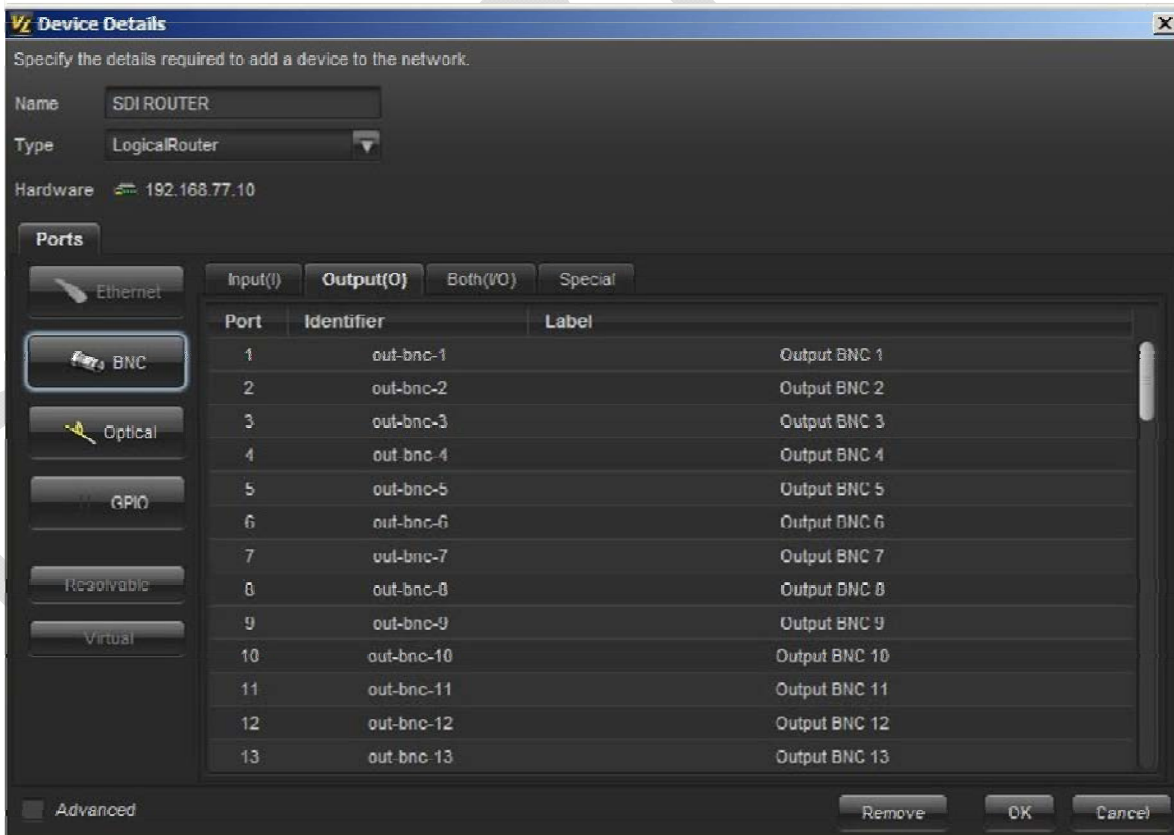
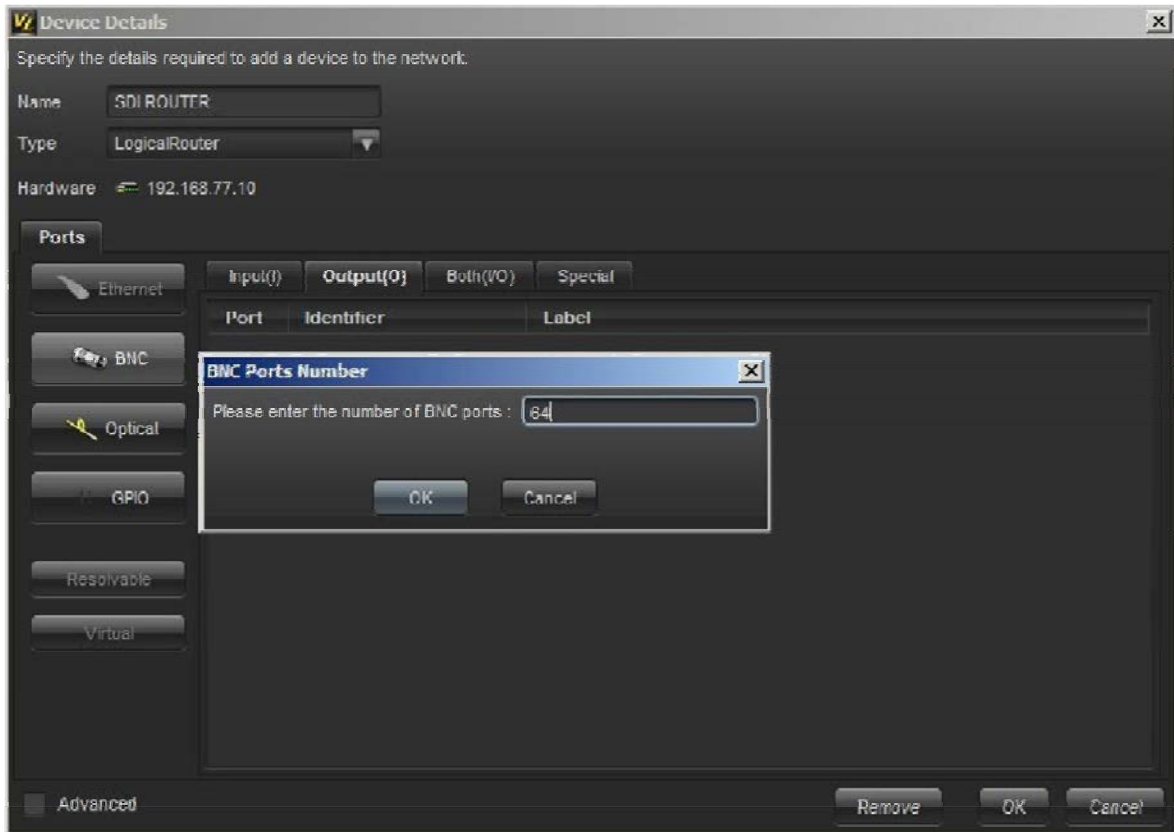


Figure 4-8: Add Real World Hardware Elements to Topology (3)

4.4.1. Add Real World Encoders to Topology

For this example we will be adding 3 x 3480ENC2-H.264-HD encoders. Each encoder can handle up to 2 channels of video and audio. The system will be configured with 2 encoders acting as Primary encoders for the 4 SDI signals and a 3rd encoder will be acting as a backup encoder to the two primaries (this will create a 4:2 (N:M) backup scenario.

- 1.) Locate the 3480ENC (or other encoder devices) in the Hardware Navigation Tree
- 2.) Expand the 3480ENC devices in the Hardware Navigation Tree to expose the underlying “channels” and “profiles” nodes.
- 3.) Expand the “channels” node under the 3480ENC device.
- 4.) Drag the first and second **channel** from each encoder to the Topology
- 5.) When you drag and drop one of the 3480ENC channels to the Topology map, a pop-up dialog will be presented that allows you to provide a name for the encoding channel you are adding.



Note that when you drop the 3480ENC channel on the Topology, the Ports map information is already provided and does not need to be manually added. Most Evertz encoder/decoder device drivers will have the Port Information added already. Port information needs to be provided only if the driver does not provide this by default.

- 6.) Continue to add the first and second channel from each encoder to the Topology map until all six encoding channels are represented.

For the sample scenario the 6 encoder hardware elements on the Topology are named: **ENC-01, ENC-02, ENC-03, ENC-04, ENC-05, ENC-06**

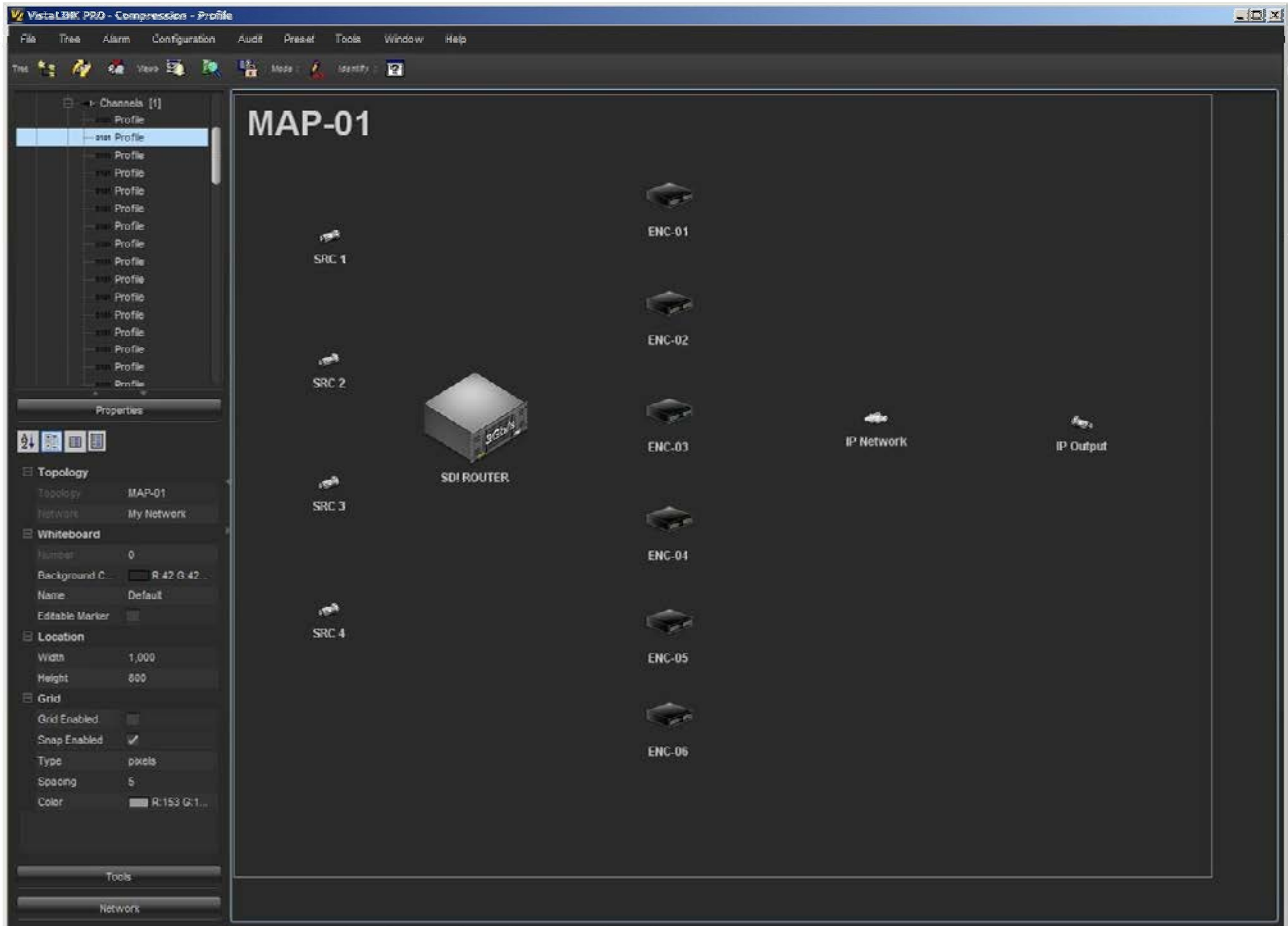


Figure 4-9: Add Real World Encoders to Topology (1)



For the 3480MXP series encoders an extra step is required in order to associate a “*Profile*” that the encoder should use for its normal operation. The user must assign a “*Profile*” to each encoding channel that has been added to the Topology.

The CSM client offers a special mode for this action “**Assign Extra Hardware**”. This special mode is activated by pressing the “**Assign Extra Hardware**” button found under the Devices section of the **Tools** property panel on the left. Entering this mode will place a translucent field over all existing hardware on the Topology, allowing extra hardware devices to be associated.

In this example we will assign the matching “**Profile**” number based on the encoder channel number (e.g. *Encoder-1_Channel-1* will be associated with *Encoder-1_Profile-1* and *Encoder-2_Channel-2* with *Encoder-2_Profile-2* etc.)

- 1.) Ensure the Topology is in **Edit Mode**
- 2.) In the Tools properties panel, press the **Assign Extra Hardware** button (gears icon). This will place a grey translucent film over all currently added hardware devices.

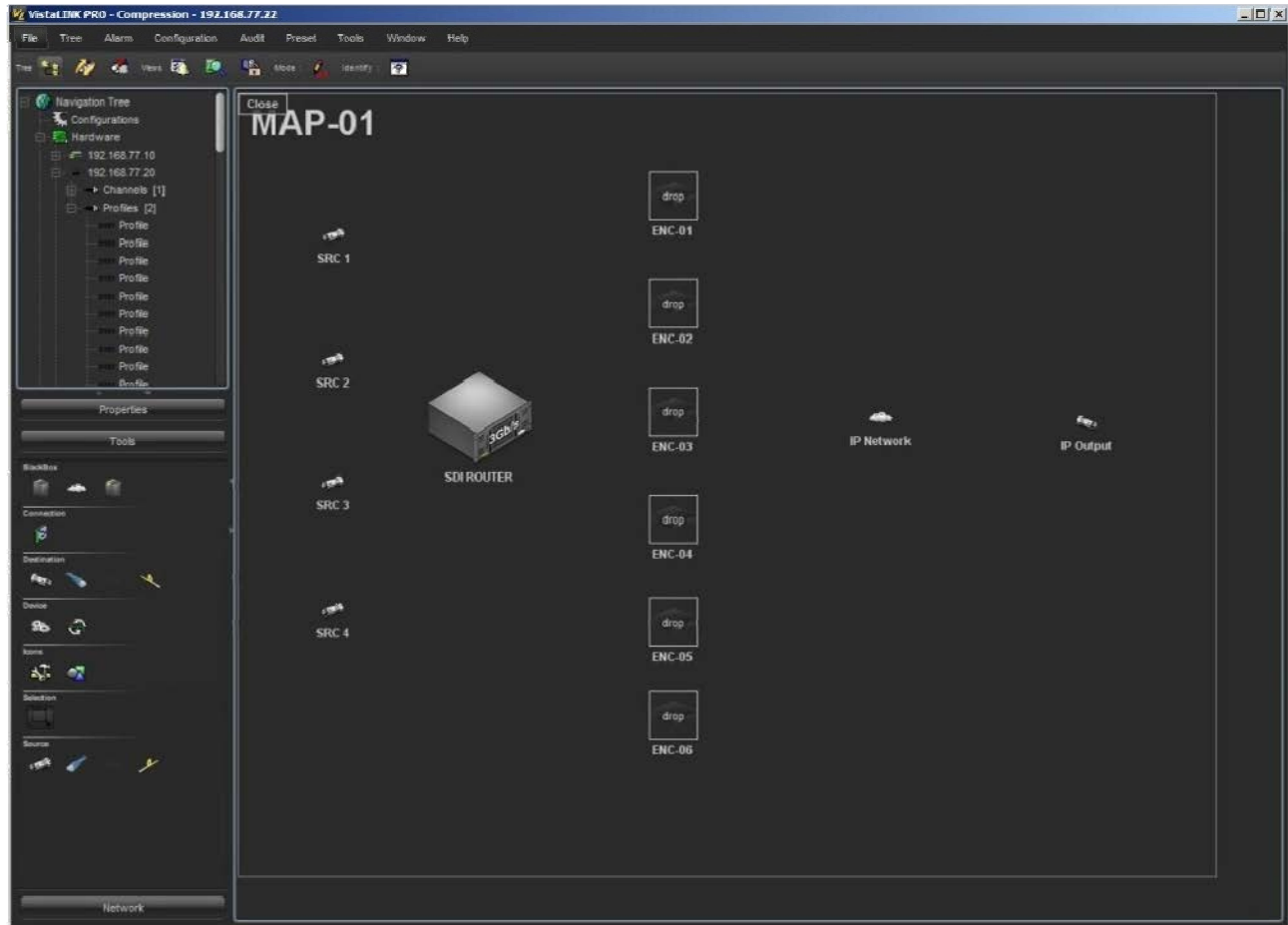


Figure 4-10: Add Real World Encoders to Topology (2)

- 3.) From the Hardware Navigation screen, drag the associated encoder “**Profile**” to the corresponding encoder channel on the Topology. Drop the “**Profile**” on top of the film for the encoder you want to associate it with. Once you drop the “**Profile**” on an encoder, a small number “1” will appear in the top right corner of the encoder icon indicating that extra hardware has been associated.
- 4.) Continue to match each **Profile** to its corresponding encoder channel number.

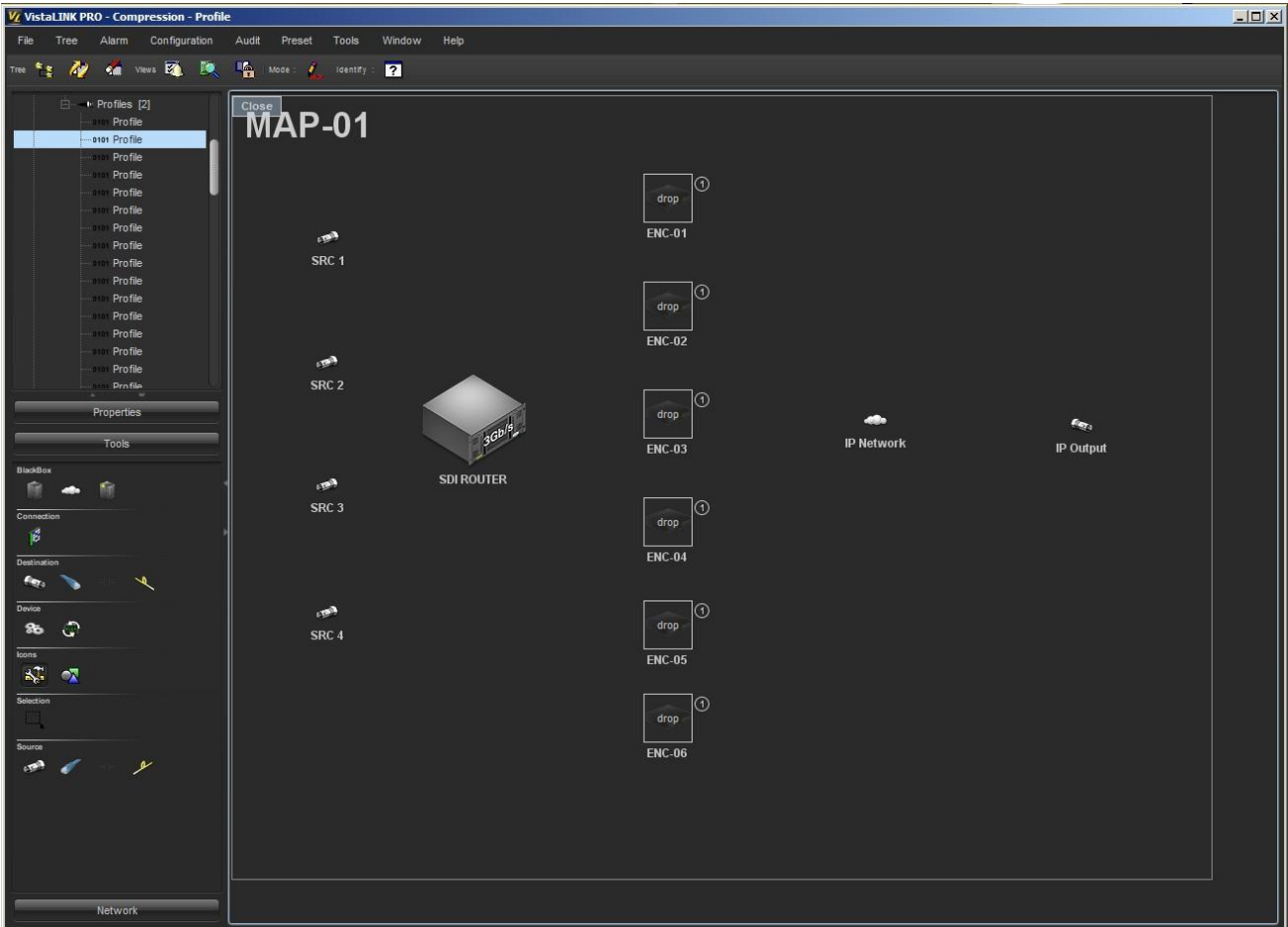


Figure 4-11: Add Real World Encoders to Topology (3)

- 5.) Once you have finished adding all the extra **Profile** nodes, click the “**Close**” button found in the top left corner of the Topology view to exit the “**Assign Extra Hardware**” mode.

4.5. MAKING CONNECTIONS

The next step to completing the Topology Map is to make the connections that are present between the logical and real world devices. The connections will represent the real world wiring of the compression system and allow the CSM software to handle routing and failover scenarios. The CSM client contains a special mode for defining device wiring through a drag to connect method.

- 1.) Ensure the Topology is selected and in **Edit Mode**.
- 2.) Place the Topology in **Connection Mode** by pressing the **Establish Connections** button found under the **Connections** header in the **Tools** property panel on the left.
- 3.) Once the **Establish Connections** mode is activated, a translucent film will appear over all elements that have been added to the Topology map.
- 4.) With the mouse, click on, hold and drag from one map element to another in order to establish a wired connection. When you release the mouse button on the end device for the connection a dialog box will be presented in order to provide the exact output and input connector on each device that should be used to model the connection.

Sample System:

- a. In the dialog box that appears select the default **Output Port (0)** for the source and select the input port on the SDI router that will provide the first SDI source. Alternatively you can select the option “**Resolve Input Later**” to specify the router input source as part of the Service creation step rather than a hard assigned wired input. The “**Resolve Input Later**” option is a more convenient method than hard assigned source wiring as it allows the actual router source to be defined as part of the Service creation step and allows for easier updating if sources are moved on the input stage of the router.
- b. Repeat the drag and drop action to define all connections from Logical input sources to the router.
- c. Click and drag from the **SDI Router** to the first encoder channel to define the connection from the router to the first encoder. Once the mouse button is released a dialog will be presented to select the output of the router that feeds the encoder channel as well as the input on the encoder that is used by this encoder channel.
- d. Repeat this step for all wired connections from the router to each encoder channel.



Note that in the sample case each encoder will handle two channels, so the first 2 inputs of each encoder should be used when wiring.

- e. Drag a connection line from each encoder to the “**IP Network**” cloud icon in order to establish the IP output connection from each router. Select the “**Data**” IP output on each encoder and the appropriate Eth port number for each input connection on the IP network.
- f. Drag from the **IP Network** icon to the final **IP Output** icon to represent the final IP output flow of each service from the compression system. As there is only one logical end point for all Service flows, only a single connection needs to be established from the **IP Network** to the final logical **IP Output** icon.

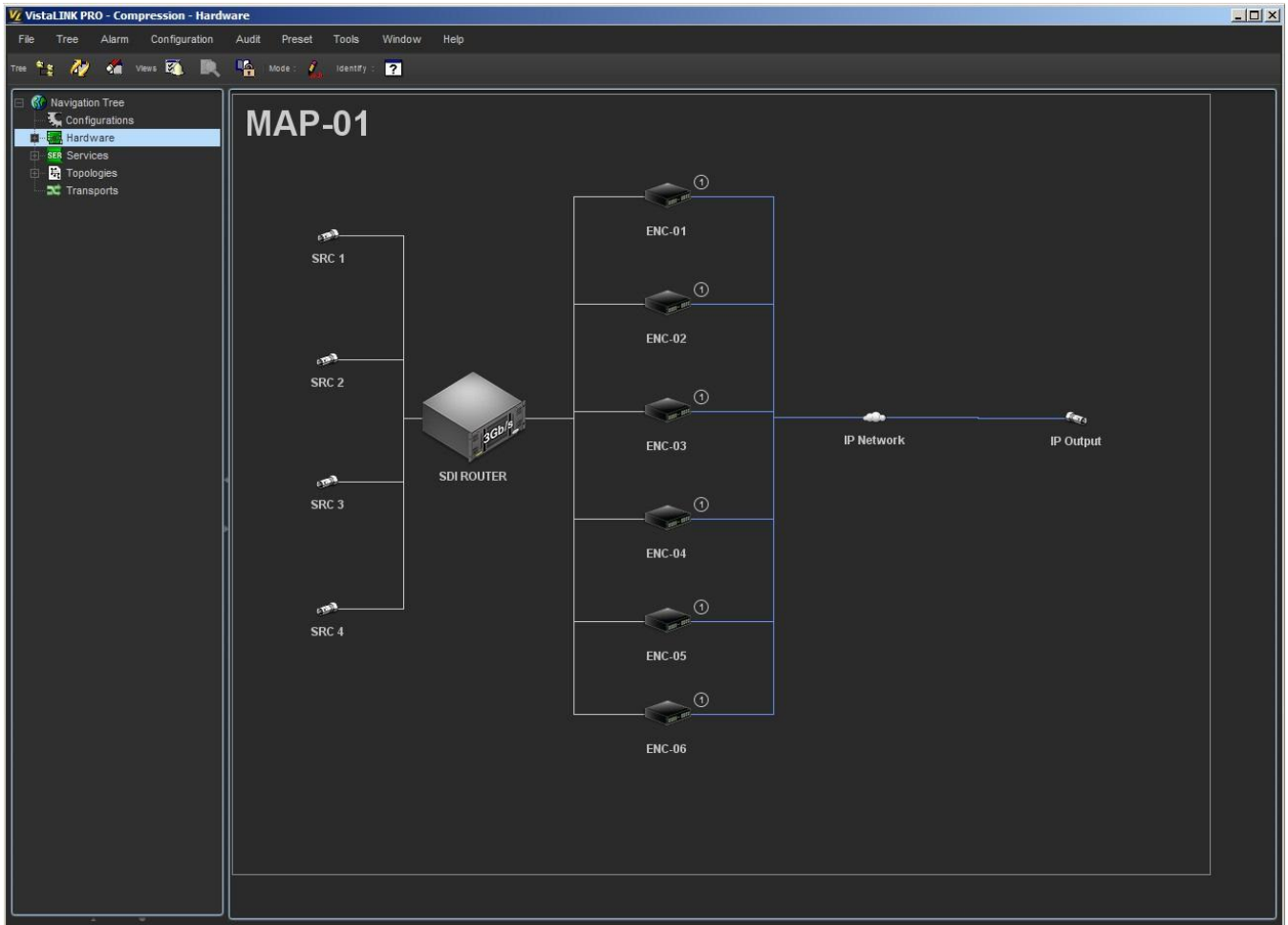


Figure 4-12: Making Connections

4.6. TOPOLOGY REDUNDANCY CONFIGURATION

The CSM system allows redundancy profiles to be created for groups of similar routable devices in a compression signal path. The encoder stage devices are most commonly configured into a redundancy grouping in order to provide failover protection for a failed encoder. When a redundancy group has been configured in CSM the user is immediately given a simple method to **manually** force the redundancy action to occur. Further to this, it is very simple to select alarm triggers within the created redundancy group in order to create an automated redundancy handled scenario.

In our sample setup we will place all encoder channels into a single redundancy group where channels 1 and 2 from both primary encoders will be placed in an N:M redundancy group with channels 1 and 2 from the single backup encoder.

- 1.) Ensure the Topology is in **Edit Mode**.
- 2.) While holding down the Ctrl key on the keyboard, multi select each encoder channel until all are selected.
- 3.) With the encoders selected, right click anyone of the selected elements and choose **Redundancy > Assign Redundancy** from the right click context menu.

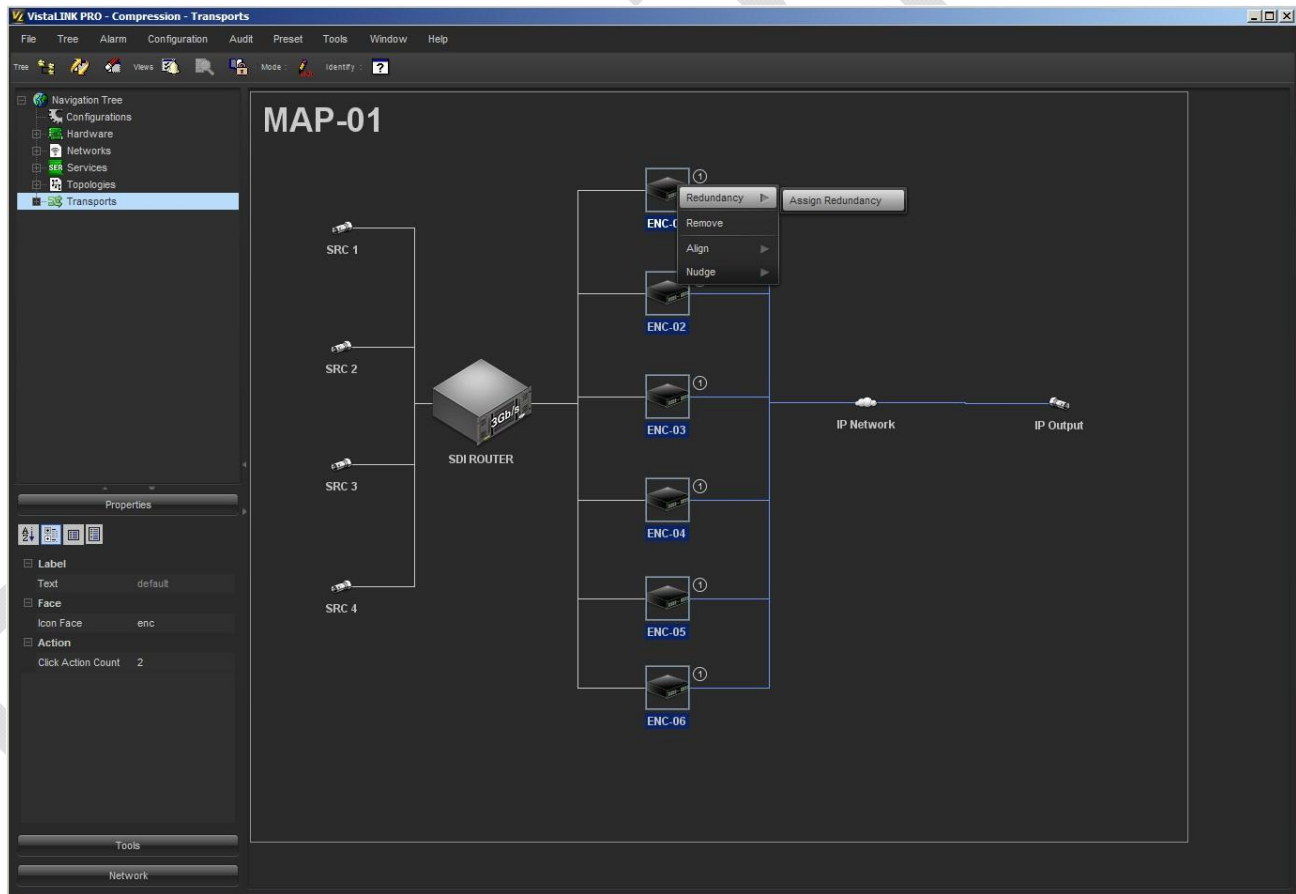


Figure 4-13: Topology Redundancy Configuration (1)

- 4.) The *Redundancy Details* dialog will be presented allowing the user to configure the redundancy group.

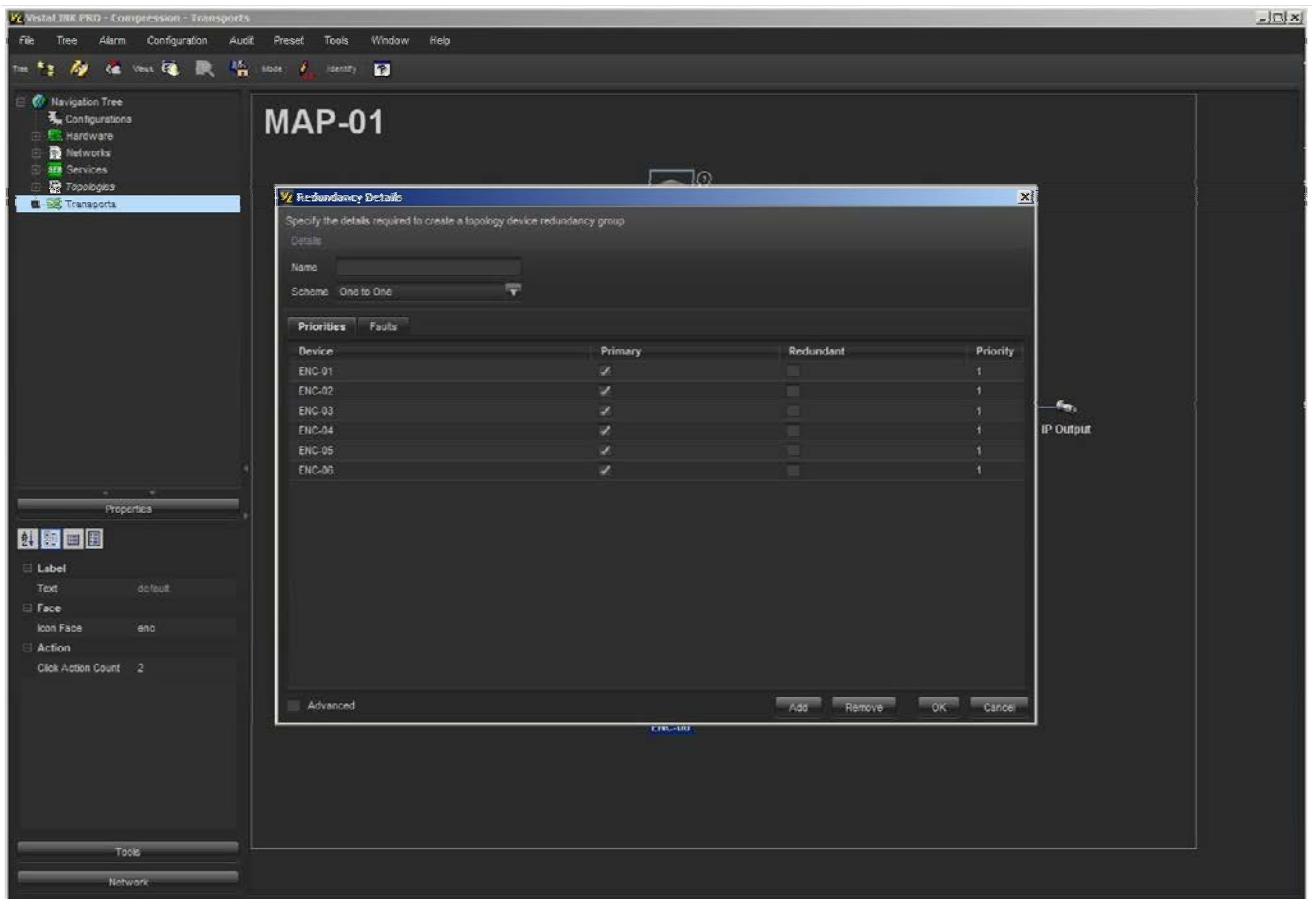


Figure 4-14: Topology Redundancy Configuration (2)

- 5.) Provide a name for the Redundancy group (any name is valid)
- 6.) Change the “**Scheme:**” option to “**N to M**”
- 7.) Change the checkbox option for **ENC-05** and **ENC-06** so that they are listed as “**Redundant**” units instead of “**Primary**” units.

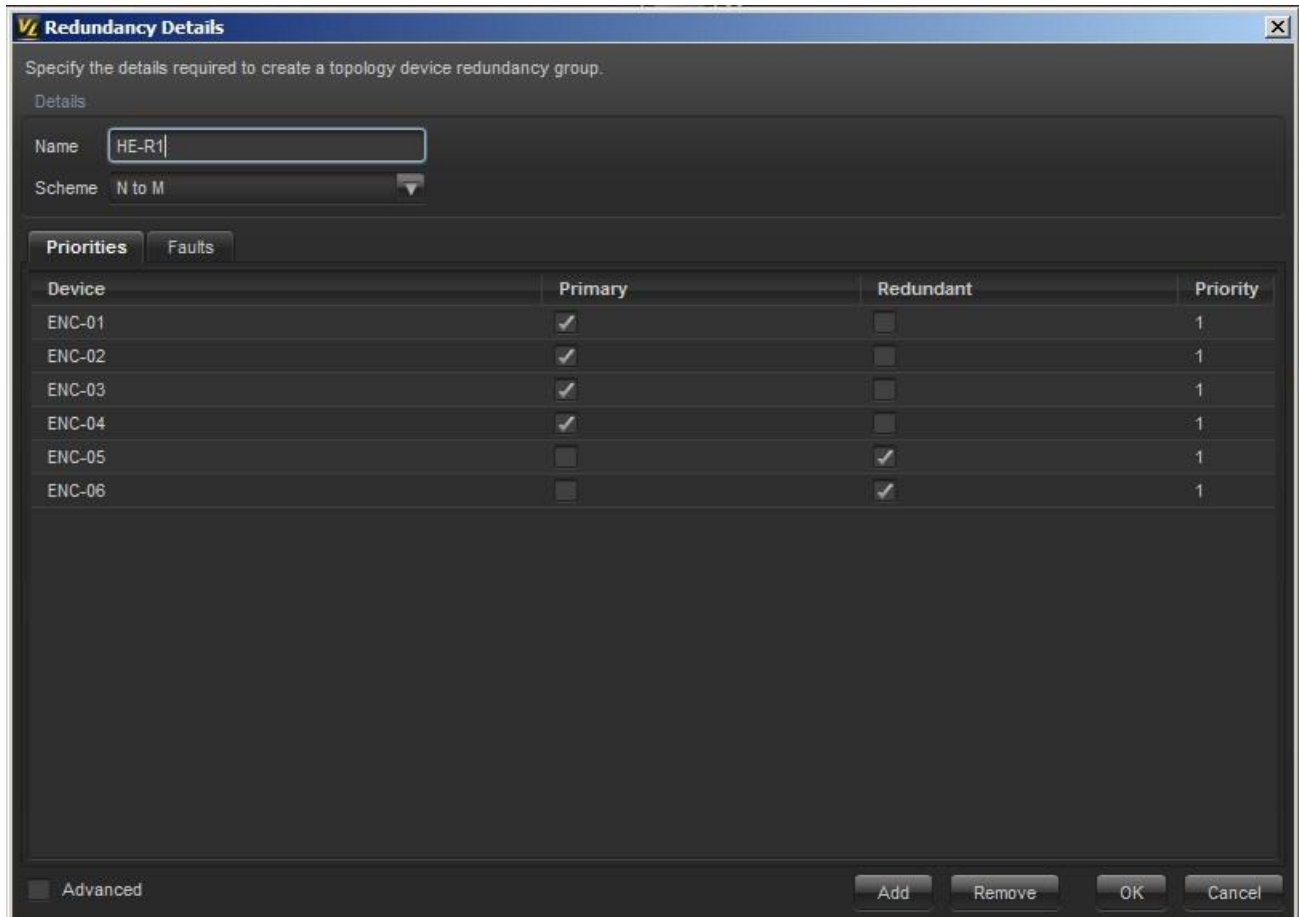


Figure 4-15: Topology Redundancy Configuration (3)

Once the Redundancy Details dialog window closes, you will notice there is now a semi transparent grey box outlining the devices that have been placed in a redundancy group. The transparent box is a visual indication that that a redundancy grouping exists. The color and transparency of the redundancy group maker can be changed by editing its properties.

To edit the details of previously created redundancy group, right click the redundancy group maker itself and select “**Edit**” from the menu that appears.

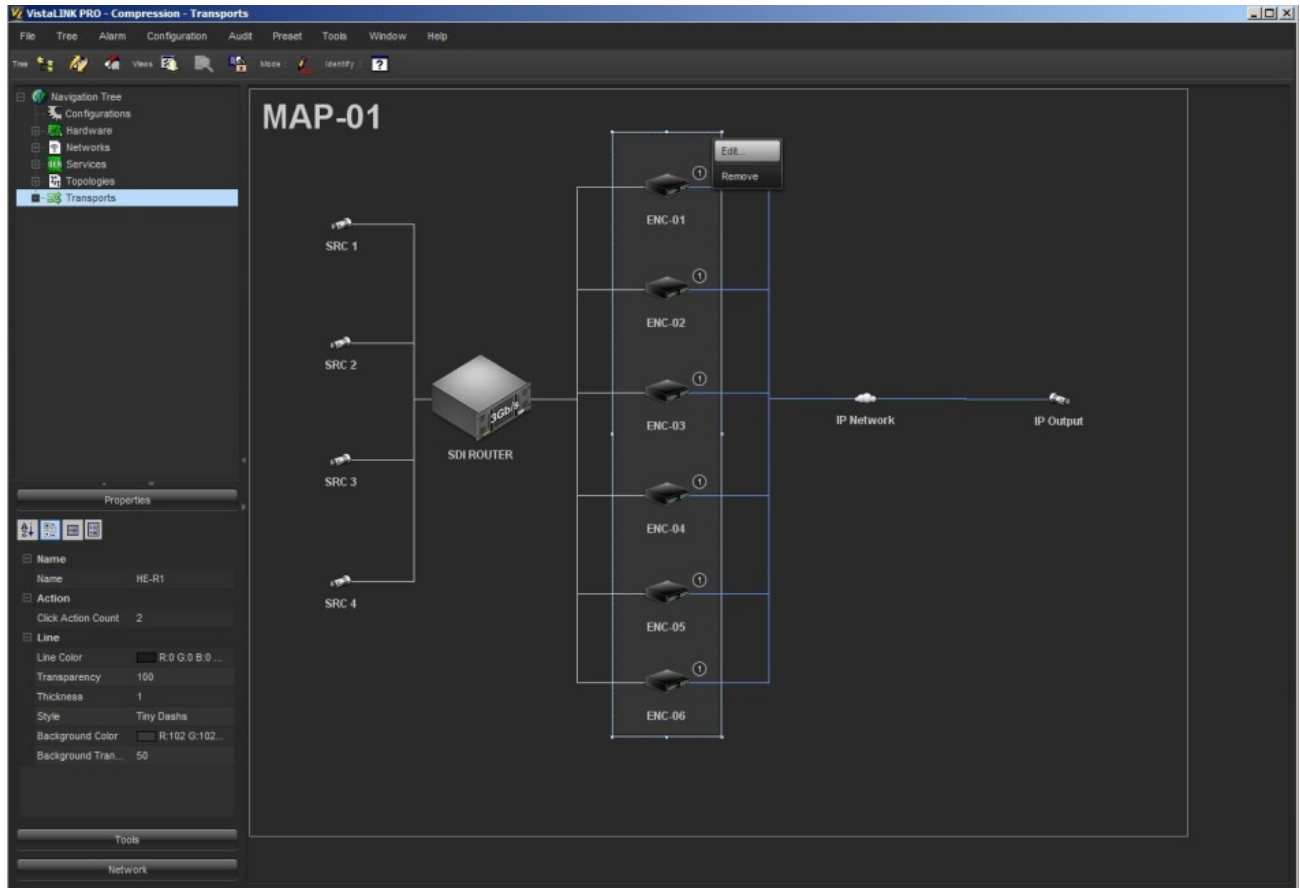


Figure 4-16: Topology Redundancy Configuration (4)



Note that the redundancy group details dialog editor also allows device fault alarm triggers to be selected in order to configure automatic redundant handling scenarios. See section 6.0 later in this guide for instructions on selecting redundancy failover triggers.

9.) Exit Topology “**Edit Mode**” once redundancy creation is completed.

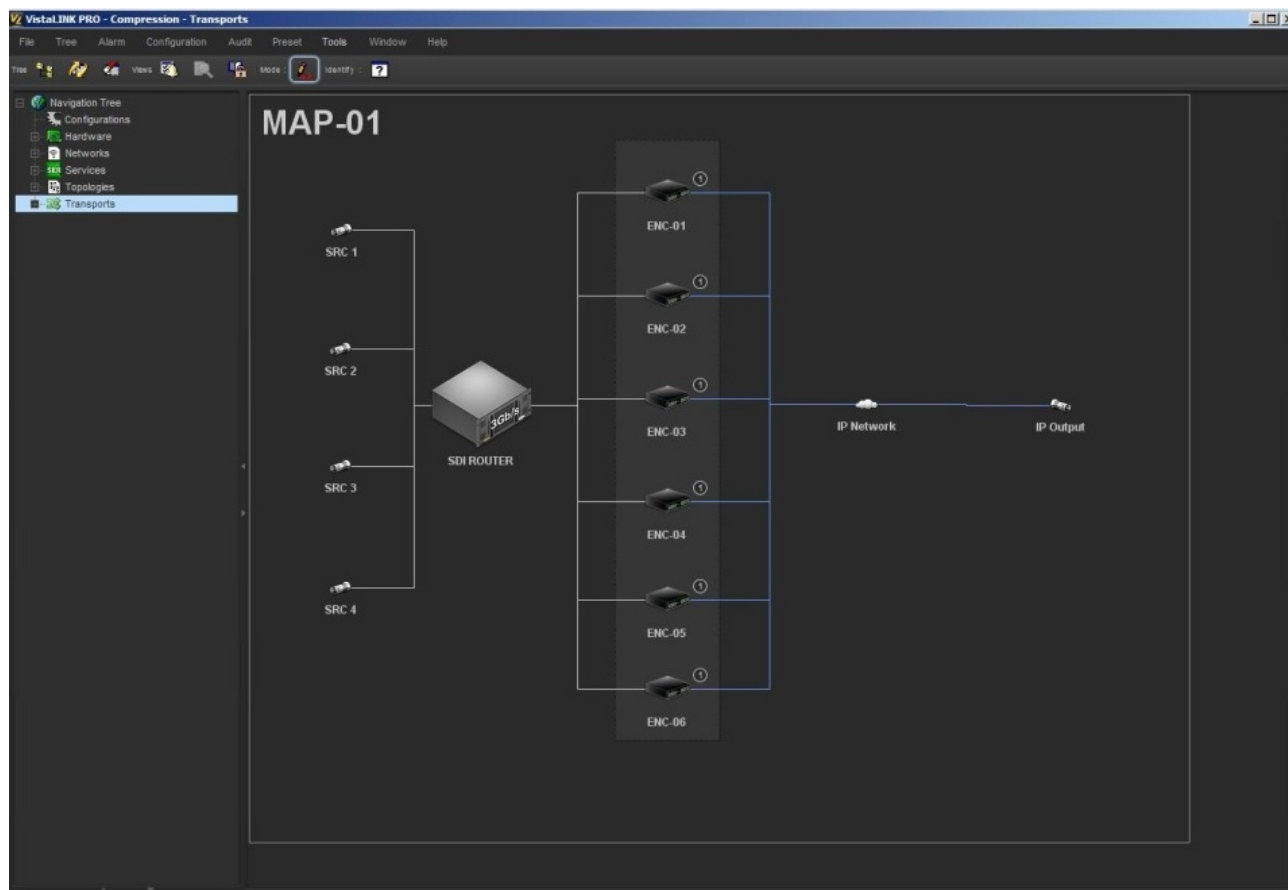


Figure 4-17: Topology Redundancy Configuration (5)

5. TRANSPORT / SERVICE CREATION

Once a Topology Map has been created the final step is to create a Transport (set of channel Services) that will be linked to the created Topology hardware. The **Transport** and **Services** are representations of the actually channels that the compression system will deliver. Each **Service** defined within the **Transport** will hold the configuration for each channel so that it can be activated on the hardware it is provisioned to. The channel Service configurations hold all encoder configuration that is required in order to establish that Service configuration on any encoder path within the system being designed.

5.1. NEW TRANSPORT CREATION

- 1.) Right click the **Transports** node in the Navigation Tree and select **New > Transport > SPTS**

As this sample system models an IPTV type head-end, the services will be built as single flow **SPTS** streams. If the system was to utilize a multiplexer for MPTS final outputs then "**MPTS**" would be selected in the step above rather than "**SPTS**". Selecting MPTS would allow multiplexer configuration to be part of the Transport definition.

- 2.) Provide a Name for the new transport ("**HE-01**") and select OK.

- 3.) The new **Transport** group will be added to the Transport node in the Tree and the Transport Service dialog will be opened allowing you to enter the first Channel/Service configuration.

- 4.) In the *Transport Service* dialog

- a. Provide a Name for the new channel **Service** to add

- b. Set a Priority Level for the Service (default 8)

- c. Add Video, Audio and Data configuration parameters to the Service definition

- i. Click the **Add** button at the bottom of the dialog window

- ii. In the Parameter Definitions window that launches select the following parameters (hold Ctrl key to multi select):

1. **TS1**
 2. **TS1 Audio 1**
 3. **TS1 Audio 2**
 4. **TS1 IP**
 5. **TS1 Video**

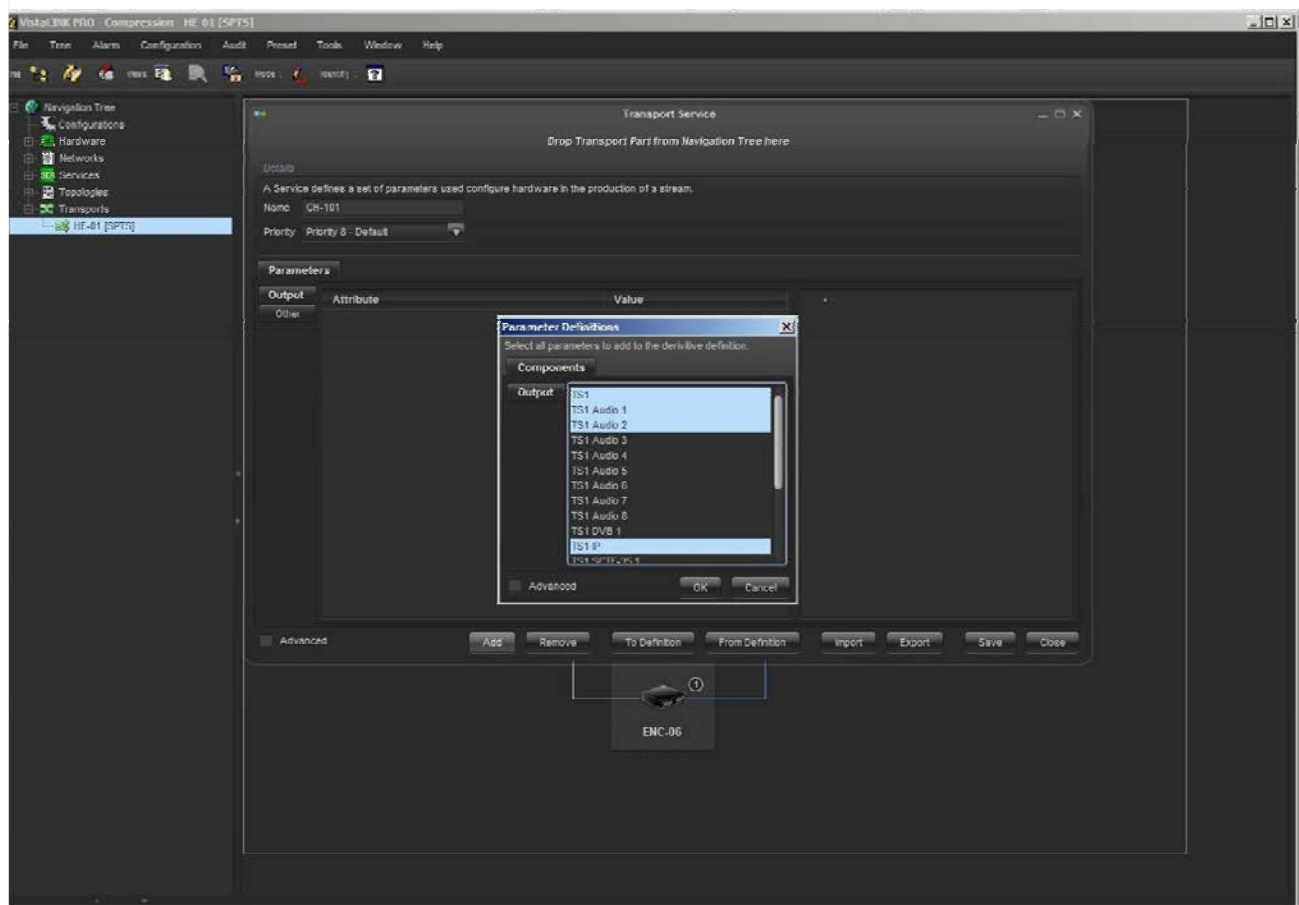


Figure 5-1: New Transport Creation (1)

- d. Click the “**OK**” button to add the parameters.
 - e. Once the parameters have been added to the Transport Service configuration dialog click to enter each parameters “**Value**” field to enter a value for the item selected (e.g. click the value field beside “Transport Stream 1 Multicast IP” and enter a Multicast address in the for xxx.xxx.xxx.xxx to set the Multicast IP destination address for the channel Service being configured.)
- 5.) The Stream tree view panel on the right hand side of the dialog will show a tree representation of the configured channel Service as configuration values are entered to the dialog.
- 6.) Once all the required channel Service values have been provided, press the “**Save**” button to save the new channel **Service** to the **Transport**.



Note that only values that are dynamic and specific to a channel *Services* need to be set in the *Transport channel Service* configuration. Only parameters that are specific to the channel itself and would need to be set in order to configure an encoder unit to provide that channel need to be set here. If the encoder channel has additional configuration that needs to be set, but is not specific to a channel *Service* or is consistent across all channel *Services*, then it should not have a value in the *Transport Service* configuration but rather be set as standard configuration on the unit itself via the Web GUI or VistaLINK PRO configuration view.

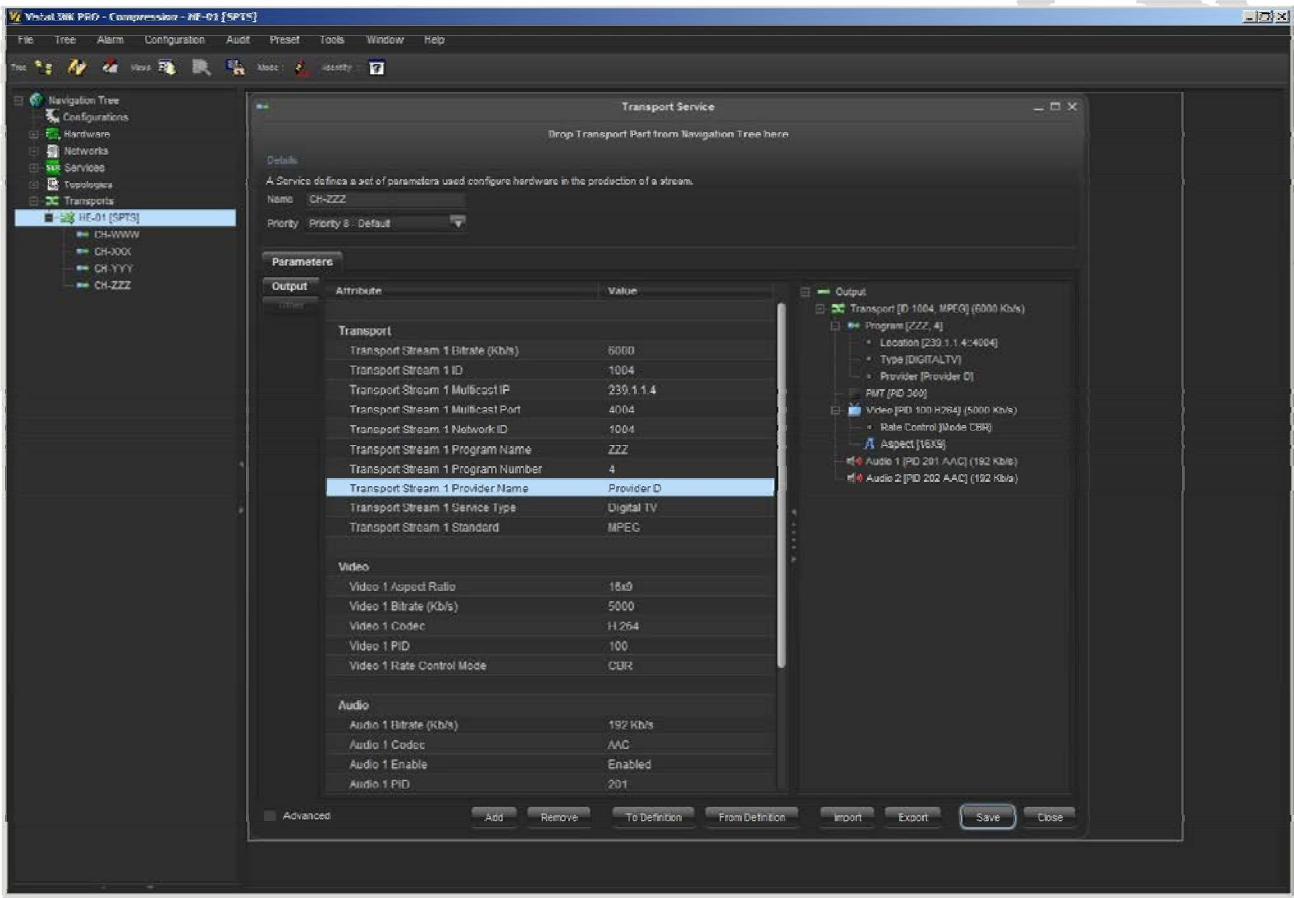


Figure 5-2: New Transport Creation (2)

Example: The Multicast IP output of and encoding channel is specific to each individual channel *Service* and thus must be set as part of the channel *Service* configuration, however encoder settings such as Encode type (H.264) and Rate Mode (CBR) may be static settings across all encoders, does not change as part of a differing channel setup and thus does not need to be configured or hold a value in the channel *Service* configuration.

7.) Repeat the channel **Service** configuration steps until all *Services* are configured.

In the sample scenario, four channel **Services** will be defined as specified below. Note that these services are examples only, users should provide their own real world channel **Service** configuration data.

Name: CH-WWW
 Priority: Priority 8 - Default

Transport
 TS Stream 1 Bitrate (Kb/s): 6000
 Transport Stream 1 ID: 1001
 Transport Stream 1 Multicast IP: 239.1.1.1
 Transport Stream 1 Multicast Port: 4001
 Transport Stream 1 Network ID: 1001
 Transport Stream 1 Program Name: WWW
 Transport Stream 1 Program Number: 1
 Transport Stream 1 Provider Name: Provider W
 Transport Stream 1 Service Type: Digital TV
 Transport Stream 1 Standard: MPEG

Video
 Video 1 Aspect Ratio: 16x9
 Video 1 Bitrate (Kb/s): 5000
 Video 1 Codec: H.264
 Video 1 PID: 100
 Video 1 Rate Control Mode: CBR

Audio
 Audio 1 Bitrate (Kb/s): 192 Kb/s
 Audio 1 Codec: AAC
 Audio 1 Enable: Enabled
 Audio 1 PID: 201
 Audio 2 Bitrate: 192 Kb/s
 Audio 2 Codec: AAC
 Audio 2 Enable: Enabled
 Audio 2 PID: 202

Data
 PMT PID: 300

Name: CH-YYY
 Priority: Priority 8 - Default

Transport
 TS Stream 1 Bitrate (Kb/s): 6000
 Transport Stream 1 ID: 1003
 Transport Stream 1 Multicast IP: 239.1.1.3
 Transport Stream 1 Multicast Port: 4003
 Transport Stream 1 Network ID: 1003
 Transport Stream 1 Program Name: YYY
 Transport Stream 1 Program Number: 3
 Transport Stream 1 Provider Name: Provider Y
 Transport Stream 1 Service Type: Digital TV
 Transport Stream 1 Standard: MPEG

Video
 Video 1 Aspect Ratio: 16x9
 Video 1 Bitrate (Kb/s): 5000
 Video 1 Codec: H.264
 Video 1 PID: 100
 Video 1 Rate Control Mode: CBR

Audio
 Audio 1 Bitrate (Kb/s): 192 Kb/s
 Audio 1 Codec: AAC
 Audio 1 Enable: Enabled
 Audio 1 PID: 201
 Audio 2 Bitrate: 192 Kb/s
 Audio 2 Codec: AAC
 Audio 2 Enable: Enabled
 Audio 2 PID: 202

Data
 PMT PID: 300

Name: CH-XXX
 Priority: Priority 8 - Default

Transport
 TS Stream 1 Bitrate (Kb/s): 6000
 Transport Stream 1 ID: 1002
 Transport Stream 1 Multicast IP: 239.1.1.2
 Transport Stream 1 Multicast Port: 4002
 Transport Stream 1 Network ID: 1002
 Transport Stream 1 Program Name: XXX
 Transport Stream 1 Program Number: 2
 Transport Stream 1 Provider Name: Provider X
 Transport Stream 1 Service Type: Digital TV
 Transport Stream 1 Standard: MPEG

Video
 Video 1 Aspect Ratio: 16x9
 Video 1 Bitrate (Kb/s): 5000
 Video 1 Codec: H.264
 Video 1 PID: 100
 Video 1 Rate Control Mode: CBR

Audio
 Audio 1 Bitrate (Kb/s): 192 Kb/s
 Audio 1 Codec: AAC
 Audio 1 Enable: Enabled
 Audio 1 PID: 201
 Audio 2 Bitrate: 192 Kb/s
 Audio 2 Codec: AAC
 Audio 2 Enable: Enabled
 Audio 2 PID: 202

Data
 PMT PID: 300

Name: CH-ZZZ
 Priority: Priority 8 - Default

Transport
 TS Stream 1 Bitrate (Kb/s): 6000
 Transport Stream 1 ID: 1004
 Transport Stream 1 Multicast IP: 239.1.1.4
 Transport Stream 1 Multicast Port: 4004
 Transport Stream 1 Network ID: 1004
 Transport Stream 1 Program Name: ZZZ
 Transport Stream 1 Program Number: 4
 Transport Stream 1 Provider Name: Provider Z
 Transport Stream 1 Service Type: Digital TV
 Transport Stream 1 Standard: MPEG

Video
 Video 1 Aspect Ratio: 16x9
 Video 1 Bitrate (Kb/s): 5000
 Video 1 Codec: H.264
 Video 1 PID: 100
 Video 1 Rate Control Mode: CBR

Audio
 Audio 1 Bitrate (Kb/s): 192 Kb/s
 Audio 1 Codec: AAC
 Audio 1 Enable: Enabled
 Audio 1 PID: 201
 Audio 2 Bitrate: 192 Kb/s
 Audio 2 Codec: AAC
 Audio 2 Enable: Enabled
 Audio 2 PID: 202

Data
 PMT PID: 300

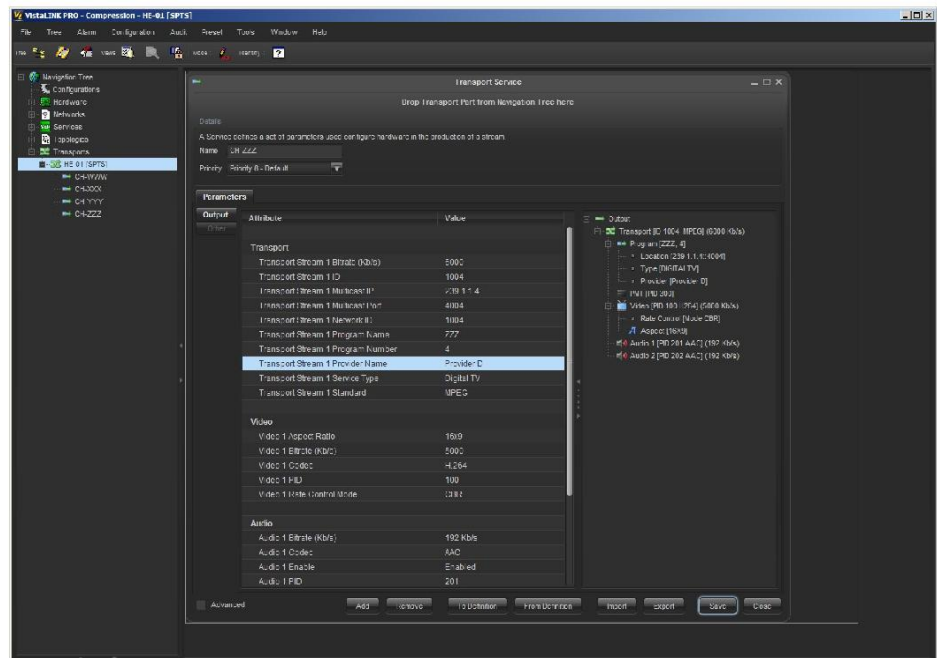


Figure 5-3: Sample Scenario for New Transport Creation

5.2. LINKAGE STAGE

The final step required as part of the CSM configuration is to “**Link**” the newly created Transport channel Services to a Topology for operation. Once the **Transport** has been linked to a **Topology**, then the Transport can be **Provisioned** and **Activated**.

5.2.1. Link a Transport to a Topology

- 1.) Expand the **Transports** node in the Navigation Tree so that the Transport you wish to link is displayed and the contained **Services** are also shown.
- 2.) Right click the **Transport** and select **Linkage > Link**. This will open the **Transport Linkage** dialog window

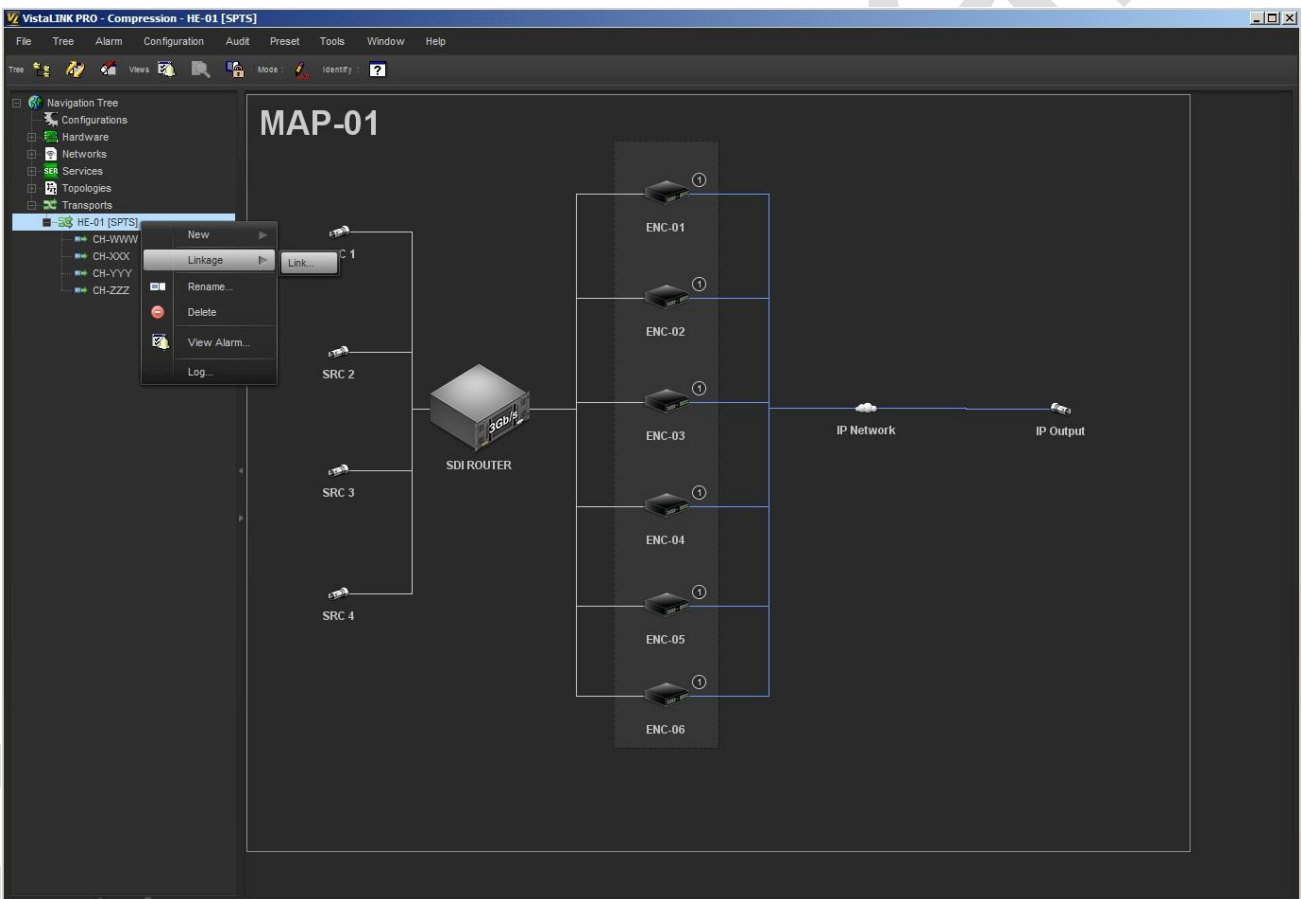


Figure 5-4: Link a Transport to a Topology (1)

- 3.) Ensure the **Transport** field shows the desired Transport link.
- 4.) Change the **Topology** field to the **Topology** that you want to link this **Transport** to.
- 5.) The channel **Services** that were configured in the **Transport** will be listed as tabs along the left side of the dialog window.

6.) Select the tab for the first channel **Service**



The Linkage stage is used to define the normally traversed path for a channel **Service**. The user will define through linkage selection all elements in the **Topology** that the **Service** should normally flow through

7.) In the middle pane, under “**Device Connection**”, click the area that reads “**unset**” to set the first element for the first channel **Service** flow.

For our sample scenario the first element for channel **Service WWW** will be “**SRC1**”

8.) Continue to select each subsequent “unset” line to build the entire device path for the **WWW** channel **Service**.

In the sample scenario the selection would be as follows:

Position 0: unset **SRC1**
Position 1: **SDI Router**
Position 2: **ENC-01**
Position 3: **IP Network**
Position 4: **IP Output**

This action ties the channel **Service** to the **Topology** and specifies that the normal flow for channel **Service WWW** will be:

*Starting from logical SDI representation “**SRC 1**” flowing through the “**SDI Router**”, output to “**ENC-01**” for encoding and then output to the “**IP Network**” and then to the “**IP Output**”*

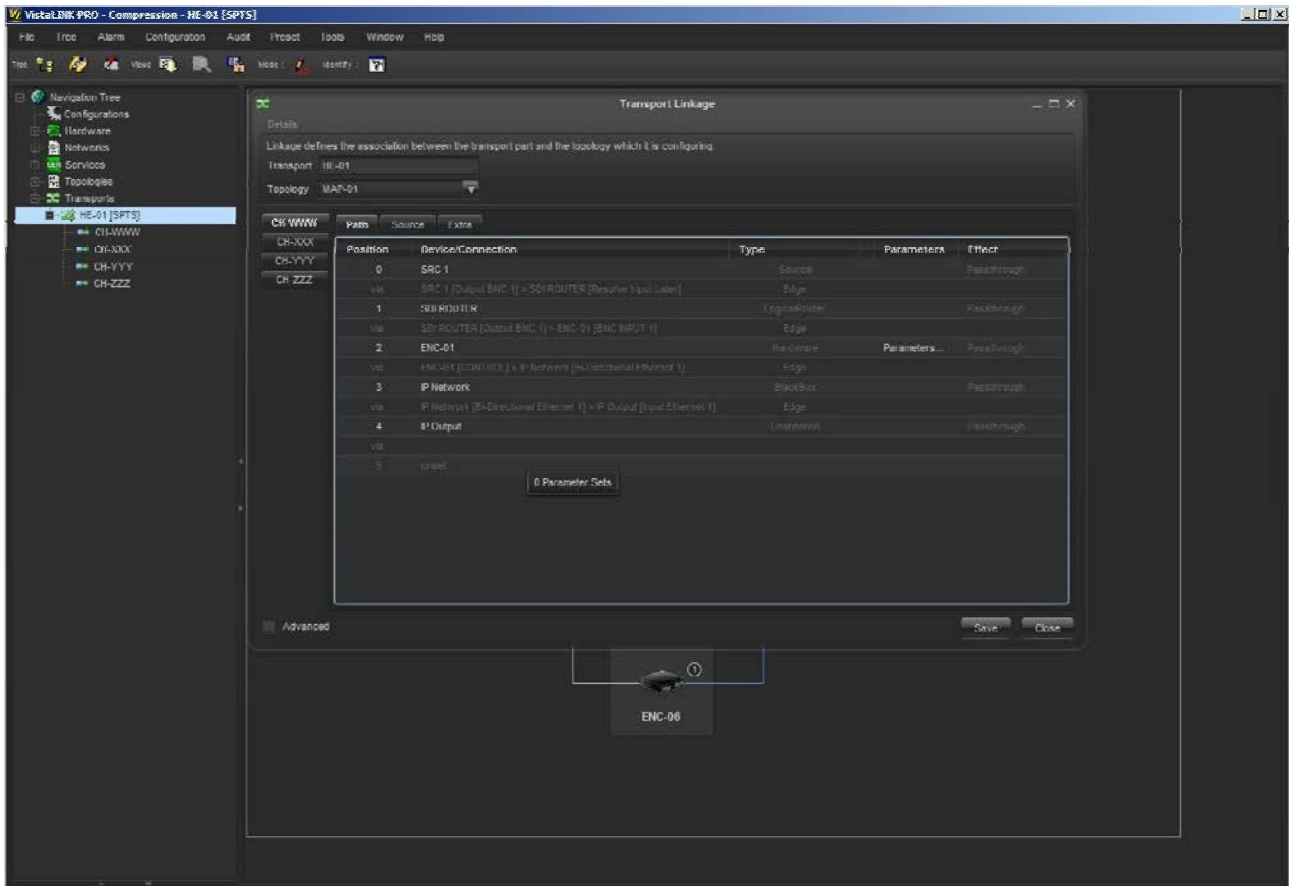


Figure 5-5: Link a Transport to a Topology (2)

- 9.) Switch to the “**Source**” tab.



Recall that earlier in the setup we elected to set the logical source representation inputs to the SDI Router as “*Resolve Input Later*”. By setting this option we informed CSM that the router input number would be set as part of the channel **Service** definition.

- 10.) On the **Source** tab under the “**Destination (Port)**” area, set the actual SDI Router input port that should be used to route this channel **Service** source feed.

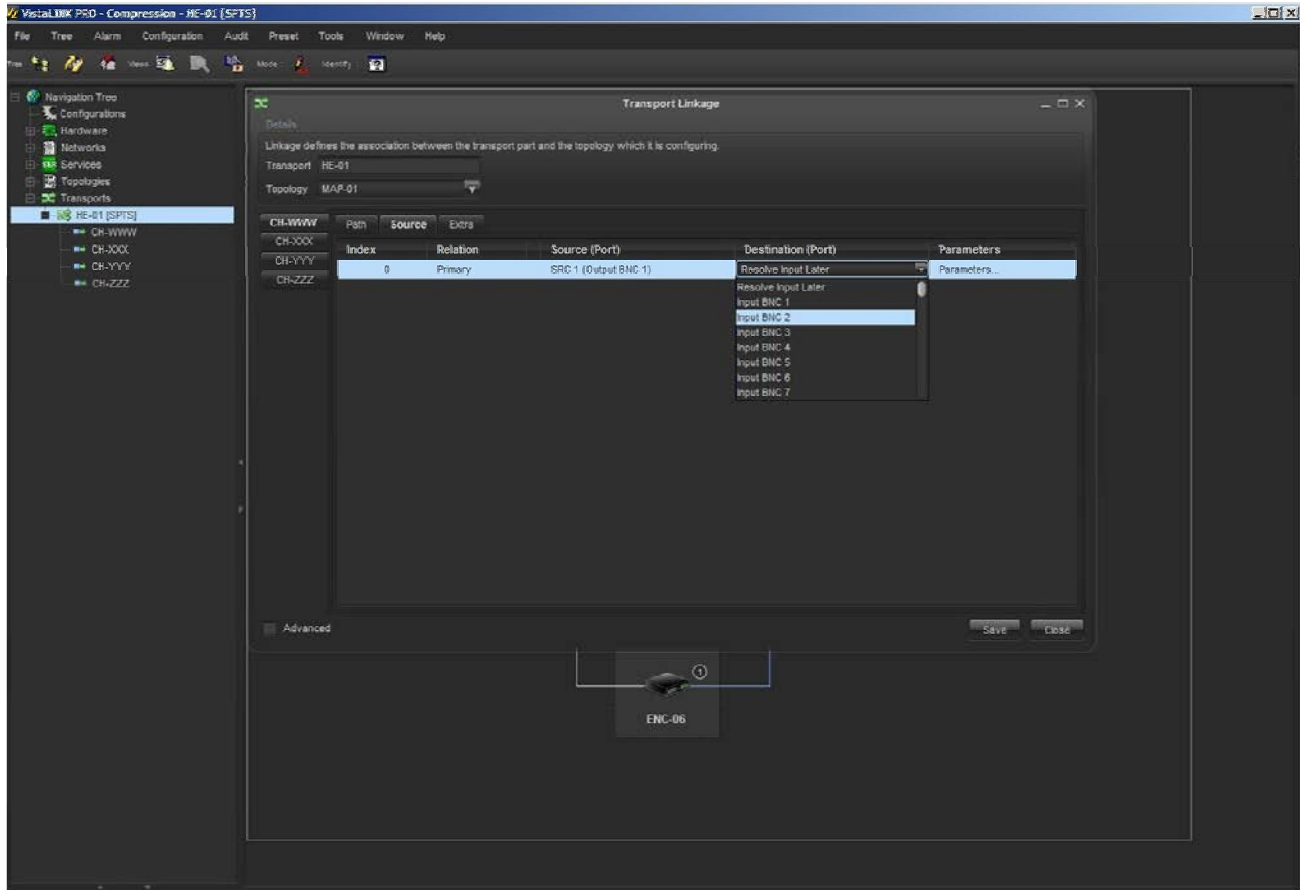


Figure 5-6: Link a Transport to a Topology (3)

- 11.) Repeat steps 6.) to 9.) for all 4 channels within the **Transport**. Note that the other channel Services should be linked to the corresponding number SRC and ENC device (2-4)
- 12.) Once the **Linkage** is complete and all paths have been mapped, press the **Save** button to commit the changes to the system. If all linkage requirements have been performed no errors will be generated. If linkage data is missing a dialog will be presented to the user listing the missing linkage information.

5.2.2. Checking the Linkage

Once the Linkage has been configured and saved, close the Linkage dialog box to return to the main interface. Ensure that “**Edit Mode**” is no longer active.

Double click the main node of the **Transport** that was just linked. If the **Transport** channel **Services** are linked properly, the **Topology** will be displayed and each channel flow will be represented as a blue shaded line on the **Topology** map itself. Alternatively, double-click each individual channel **Service** under the Transport main node to see the linked path for just that **Service** only.



Note that the color Blue is used to show a channel **Service** that has been Linked to a hardware **Topology** but has not yet been **Provisioned / Activated**. The blue color is used to represent that **Services** have been linked to the Topology and are ready to be **Provisioned and Activated**. A Provisioning or Activation command would turn the Service flow path highlight color to green. Alternatively when active **Services** are de-provisioned the Service path highlight color will change from green back to Blue.

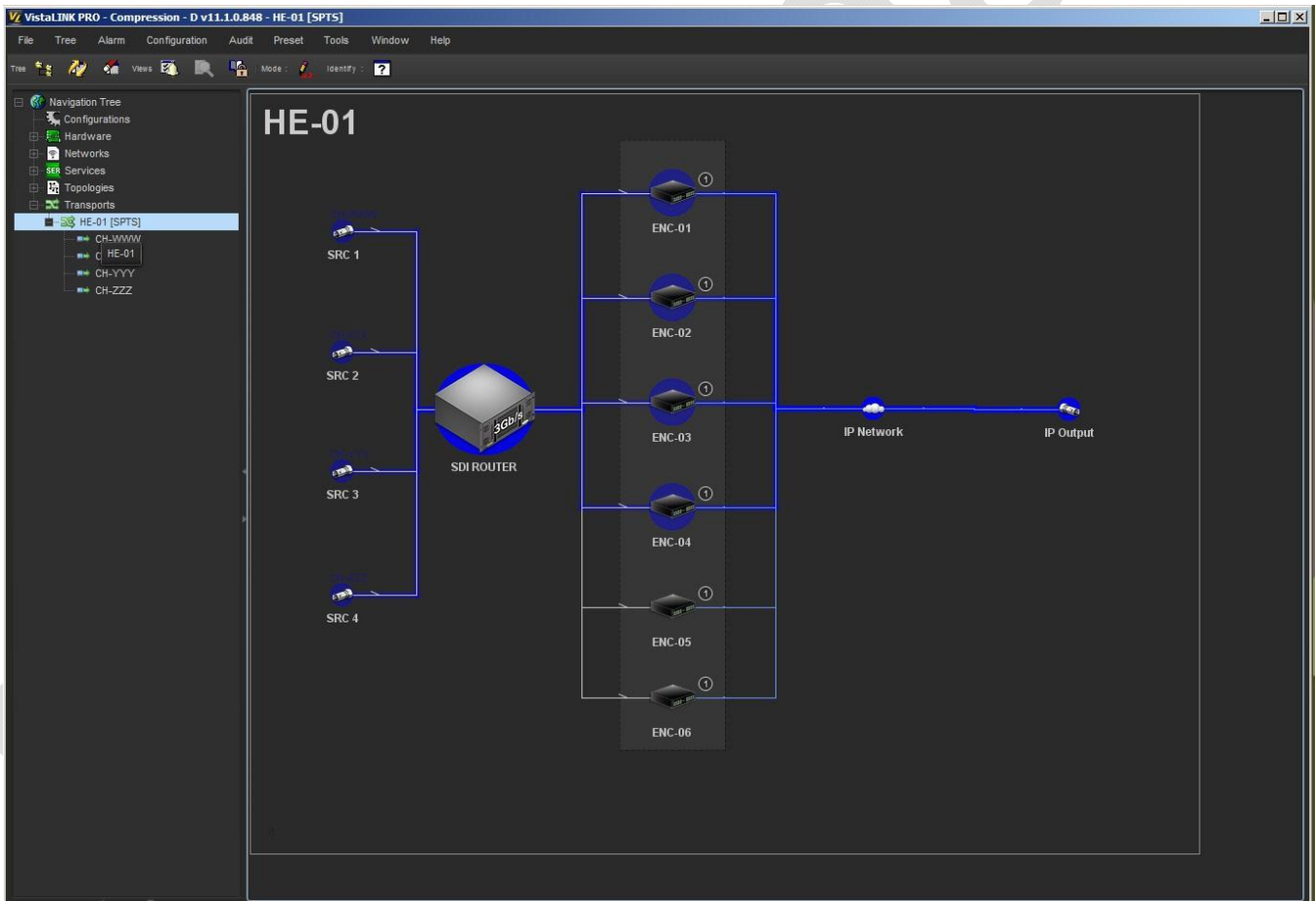


Figure 5-7: Checking the Linkage

To edit the configuration of an existing channel **Service**, right click the **Service** and select **Edit**.

To Edit the Linkage of an existing **Transport** or **Service**, right click the **Transport** or **Service** and select **Linkage > Link**

This page left intentionally blank

Preliminary

6. CSM OPERATIONAL CONTROL

6.1. TRANSPORT PROVISIONING AND ACTIVATION

The term and act of “**Provisioning**” in the CSM client will configure the channel **Services** on the target **Topology** hardware and prepare them for normal service flow operation. The **Provisioning** action will proceed through the “**Routing**”, “**Pre**”, “**Main**” and “**Post**” stages of the channel setup process.

The term and act of “**Activation**” in the CSM client will enable the final output flow of the encoders or multiplexer within the compression system. Once **Services** are **Activated**, encoded video/audio feeds should actively be flowing to the configured outputs.

The **Provisioning** and **Activation** of a **Transport** can be performed in multiple ways depending on the desired output result.

1. Separate Provisioning and Activation steps “**Provision [Manual Activation]**”
2. Combined Provisioning with Auto Activation “**Provision [Auto Activation]**”

6.1.1. Provision a Transport

- 1.) Right click the **Transport** (or individual **Service**) you wish to Provision and Activate and select **Provision > Provision [Auto Activation]**

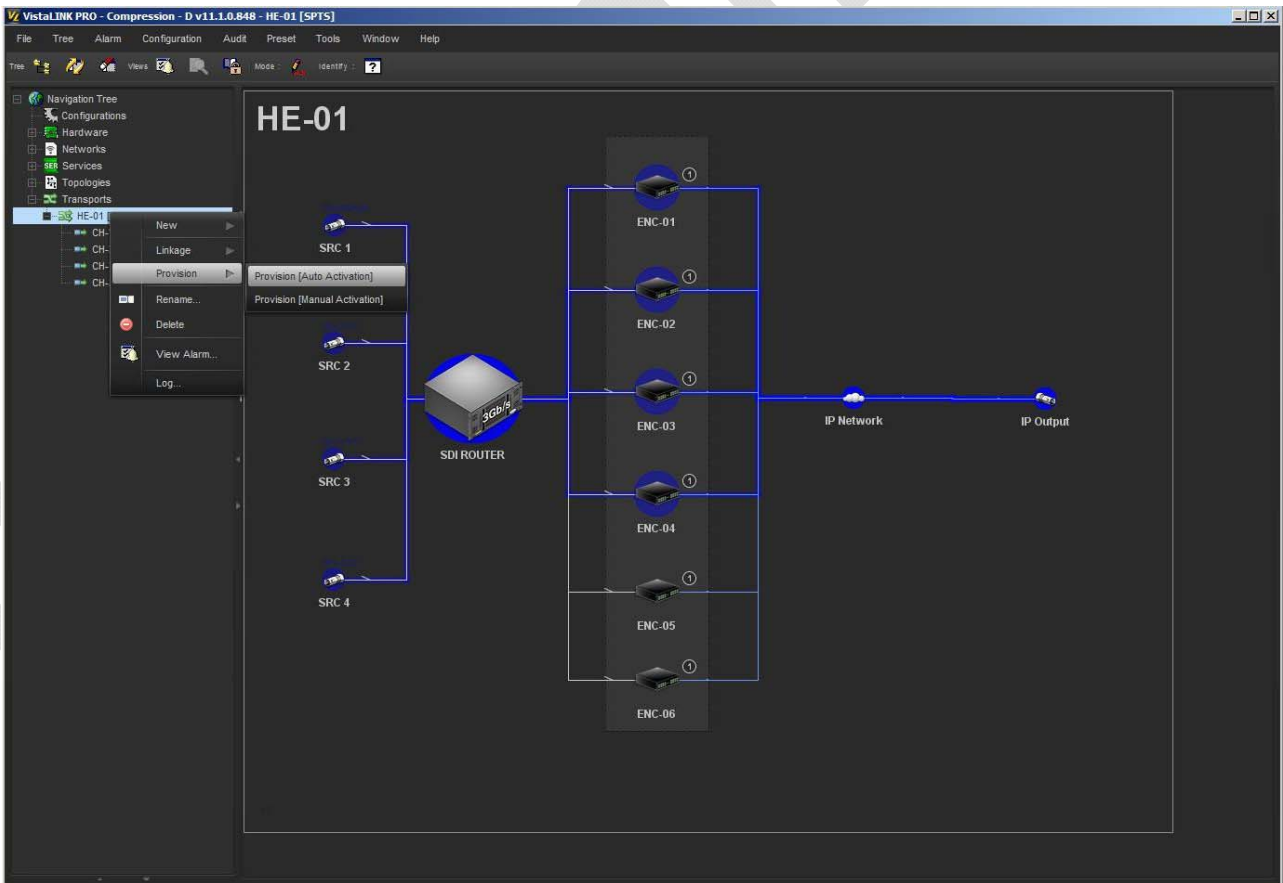


Figure 6-1: Provision a Transport (1)

2.) The CSM system will attempt to Provision and Activate the Transport Service. The CSM system will advance through the following stages for each channel Service:

PROVISIONING [Routing]

[Route the configured SDI source to the linked encoder for the Service]

Route input 1 (SRC 1) to output 1 (ENC-01) on SDI Router (EQT-32x32)

[Configuration – Pre Actions]

[Pre stage actions]

None

[Configuration – Main Actions]

[Configure linked encoder channel]

SET channel Service configuration values to 3480ENC channel

[Configuration – Post Actions]

[Post stage actions]

None

ACTIVATION [Activate]

[Enable encoder IP output]

SET encoder IP Output to “enabled”

3.) If the CSM Provisioning and Activation stages are successful the blue linked Service path highlights will now change to green to indicate that the Service is Provisioned (light green) and possibly Activated (dark green).

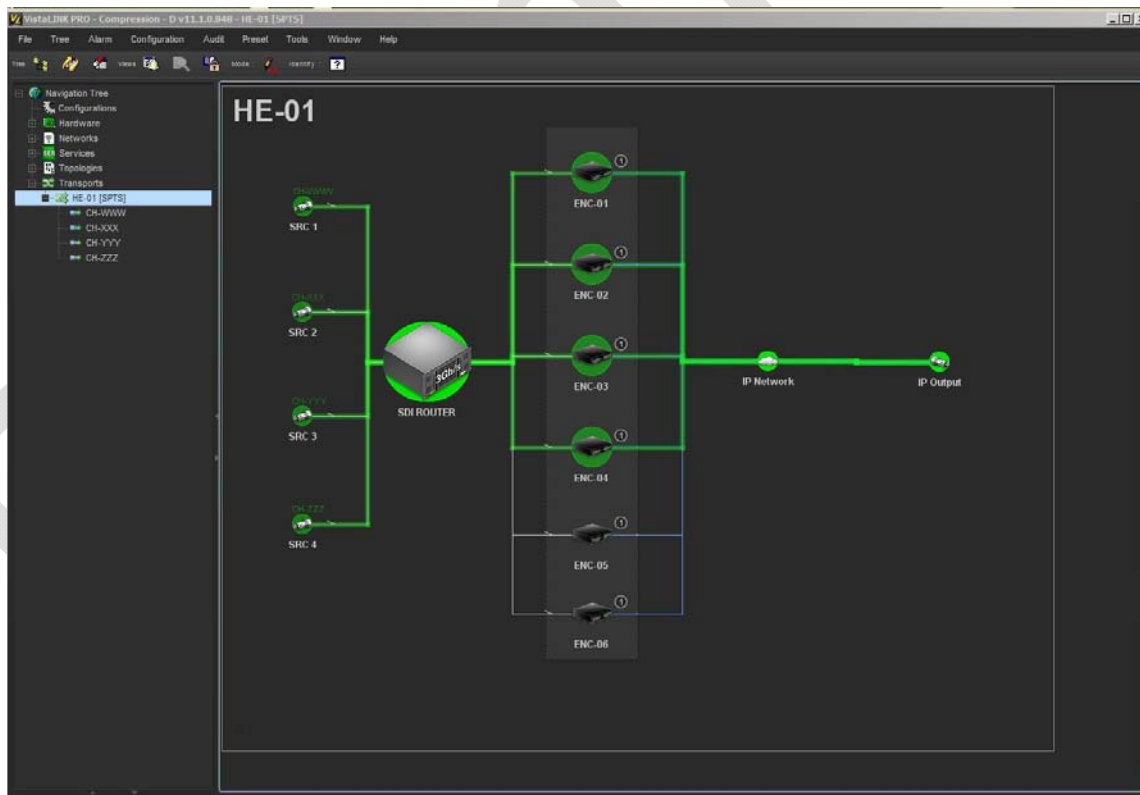


Figure 6-2: Provision a Transport (2)

A full Element action log is stored for each Transport that will detail all users updates as well as an action confirmation and validation log entry for each step of the Provisioning and Activation process. The Transport log can be accessed at any time to further investigate specific details of a Transport provisioning or activation process.

To access a Transport log view, right click the desired **Transport** of **Service** and select the “**Log...**” menu option.

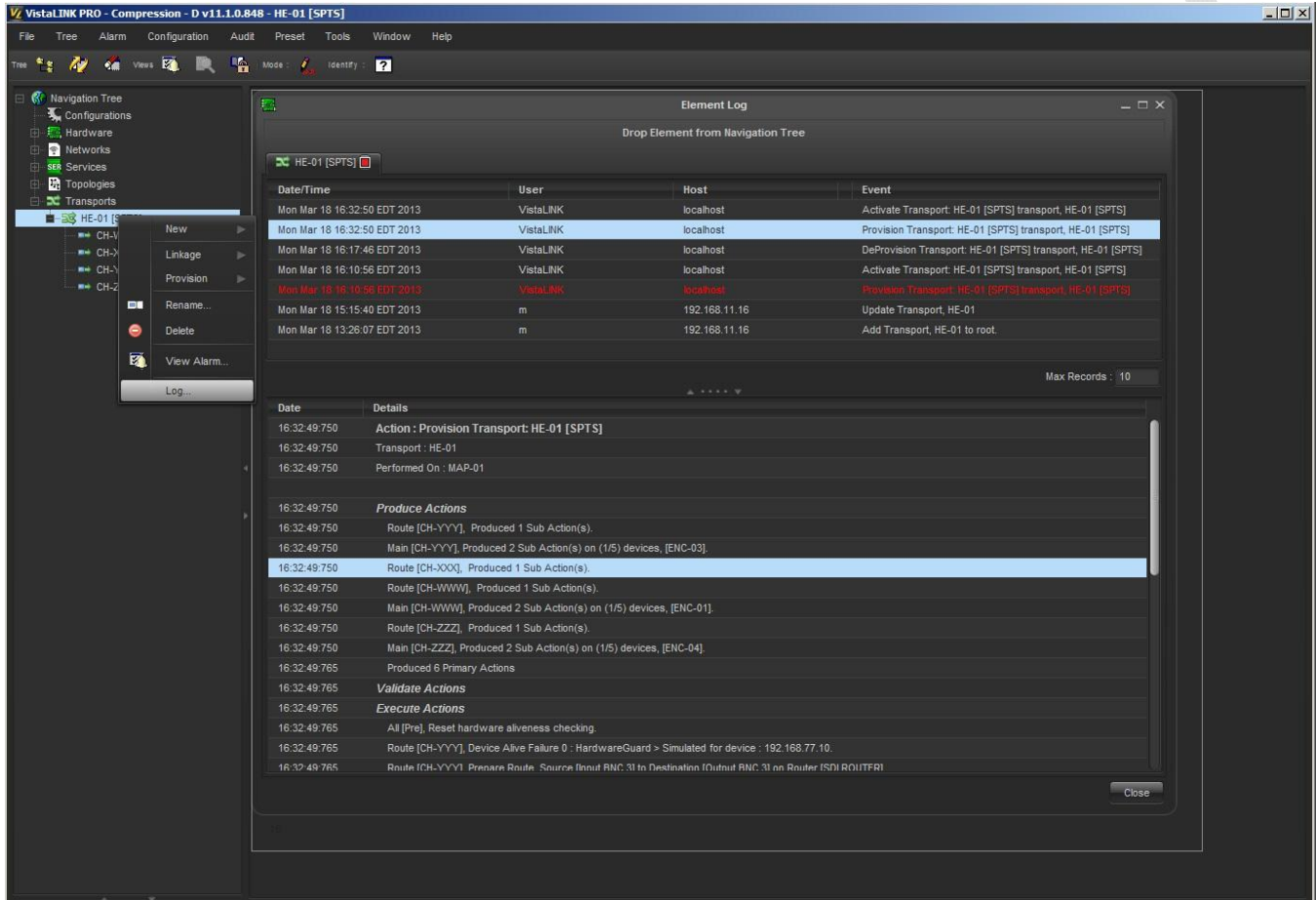


Figure 6-3: Provision a Transport (3)

6.2. DEPROVISIONING / DEACTIVATING CHANNEL SERVICES

To de-provision a channel **Service** or **Transport**, right click the active Transport or Service and select **Provision > De-Provision** or **Provision > De-Activate**.

CSM will run the default registered **De-Provision** actions as part of the **De-Provision** process. By default these actions will include the De-Activate steps (disabling the encoder IP outputs). This action will cause those channel Services to no longer flow from the encoder when the De-provision action is performed. In some cases this may not be the desired operation for users that wish to be able to De-provision Services and make changes without affecting on air signals. CSM can be configured to not run the De-Activate actions as part of the De-Provision process.



Note that the below settings can only be changed when the Transport is in the De-Provisioned state.

- 1.) De-provision the entire Transport (path highlights will turn blue)
- 2.) Right click the main node **Transport** name and select **Linkage > Link**
- 3.) In the Transport Linkage dialog, enable “Advanced” checkbox in the bottom left hand corner. This will add two additional tabs (**Stage**, **Tweak**) to the dialog view.
- 4.) Switch to the **Stage** tab
- 5.) Once on the **Stage** main tab, switch to the **De-Provision** tab along the left side
- 6.) Uncheck the **Index 0 Enable** option for the **DeActivate Stage**
- 7.) Click the **Save** button to apply the change
- 8.) Repeat steps 5.) – 7.) for each channel Service in the Transport.

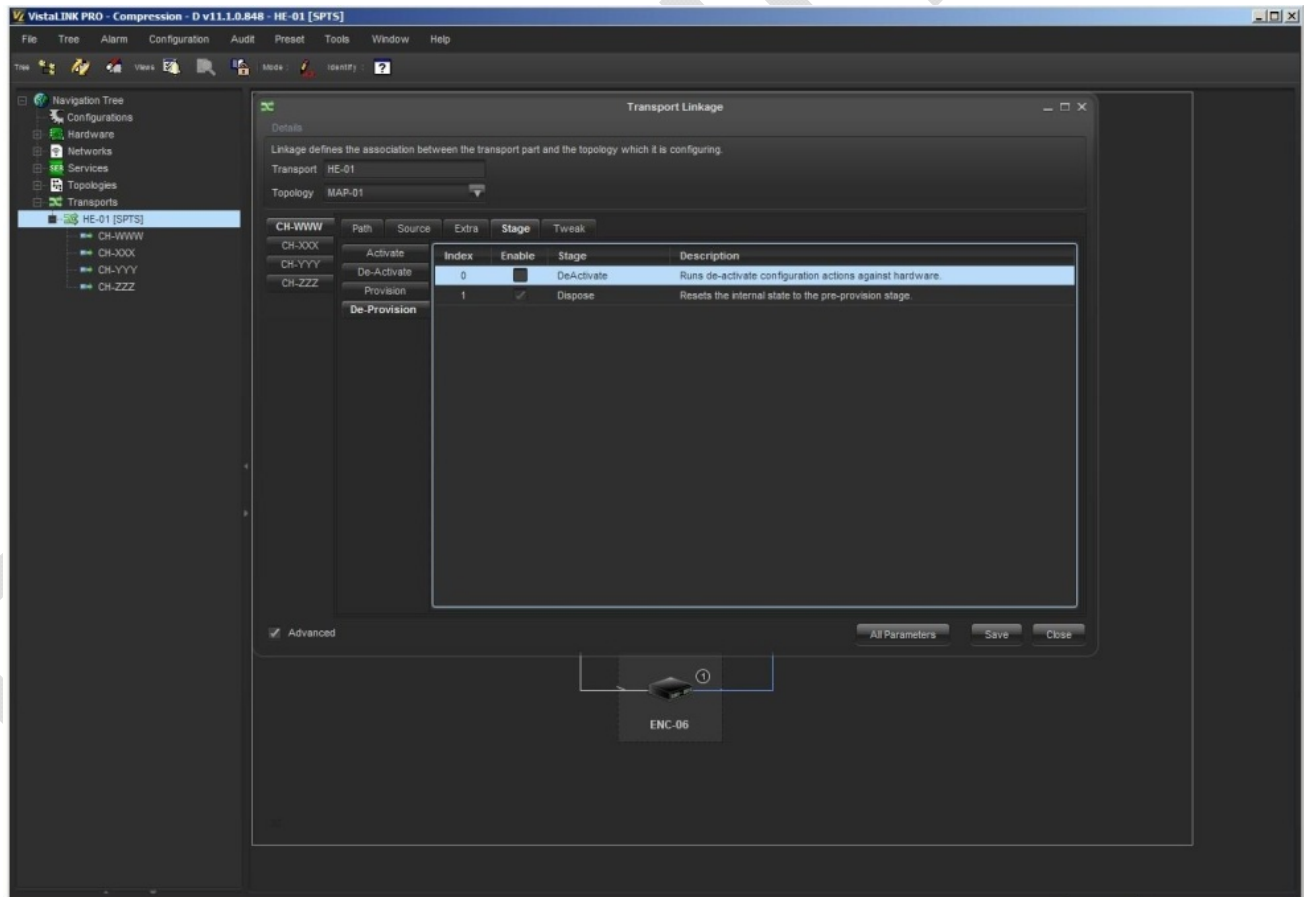


Figure 6-4: DeProvisioning/Deactivating Channel Service

7. REDUNDANCY OPERATIONS

The CSM system allows redundancy configurations to be configured for groups of elements such as encoders and encoder channels (see sec 3 for redundancy group setup).

If a redundancy group has been configured on a Topology, it can be activated in one of two ways.

- 1.) Manually triggered by a user using the CSM client GUI.
- 2.) Automatically triggered by the reception and logging of user selected device fault alarms.

7.1. MANUAL REDUNDANCY TRIGGERING

All redundancy configurations that have been configured in the system can be manually triggered by users through the CSM client GUI.

- 1.) Double click the desired **Transport** to ensure it is displayed in the CSM client.

(Note that redundancy failovers can only be manually triggered for Transports with Active, Provisioned channel Services.)

- 2.) Locate a device that is part of a CSM redundancy group. Right click the actual device you would like to force the failover action for and select **Transport > Redundancy > Manual Failure**.

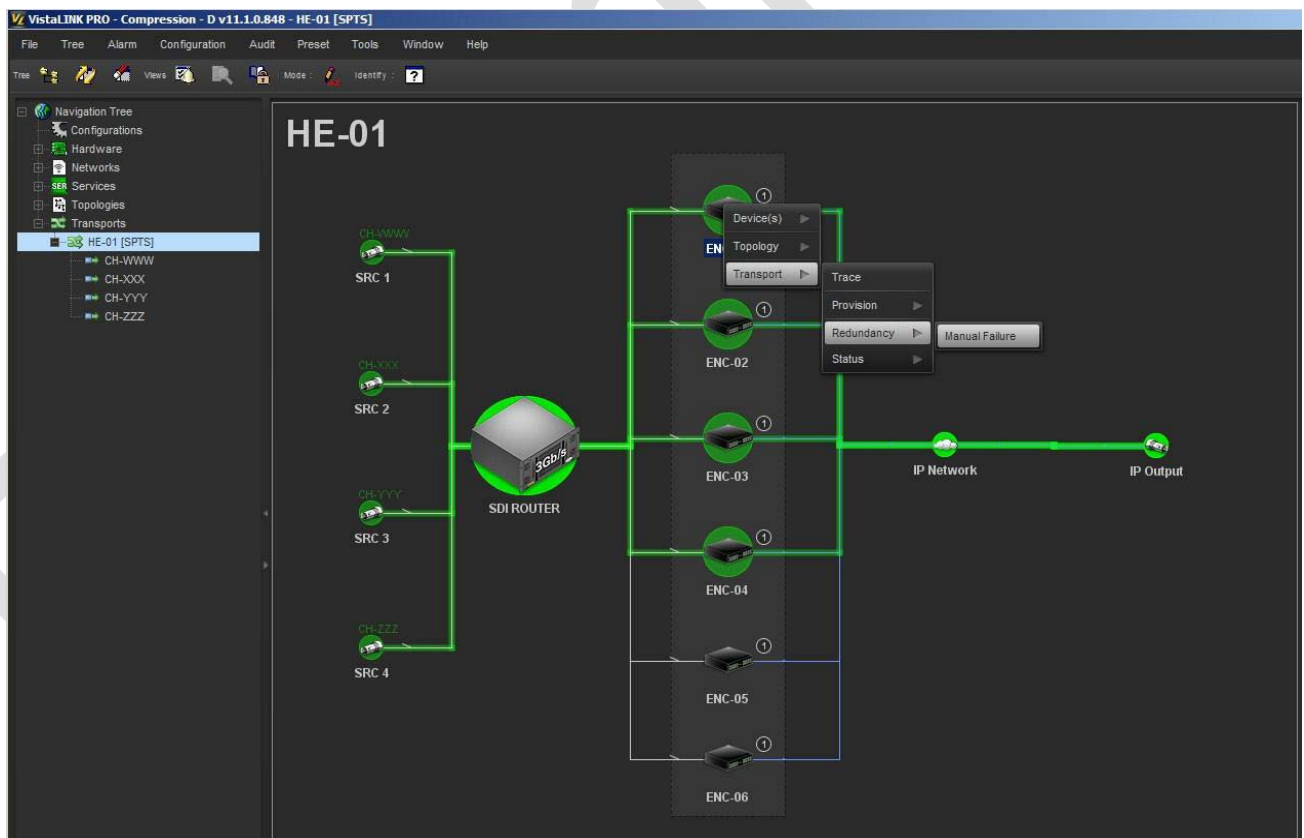


Figure 7-1: Manual Redundancy Triggering (1)

- 3.) The CSM system will perform the failover action (if backup units are available). Note that the path highlight lines turn to a Yellow color to visually indicate that the channel **Service** is active, but not in its normal running state.
- 4.) If the failover action is successful, CSM will show the path in Yellow and generate no pop-up error warning. If the failover action cannot be performed for any reason. A red color exclamation point error icon will appear. Clicking the Red exclamation point error icon will open a log detailing the cause of the failed failover action.

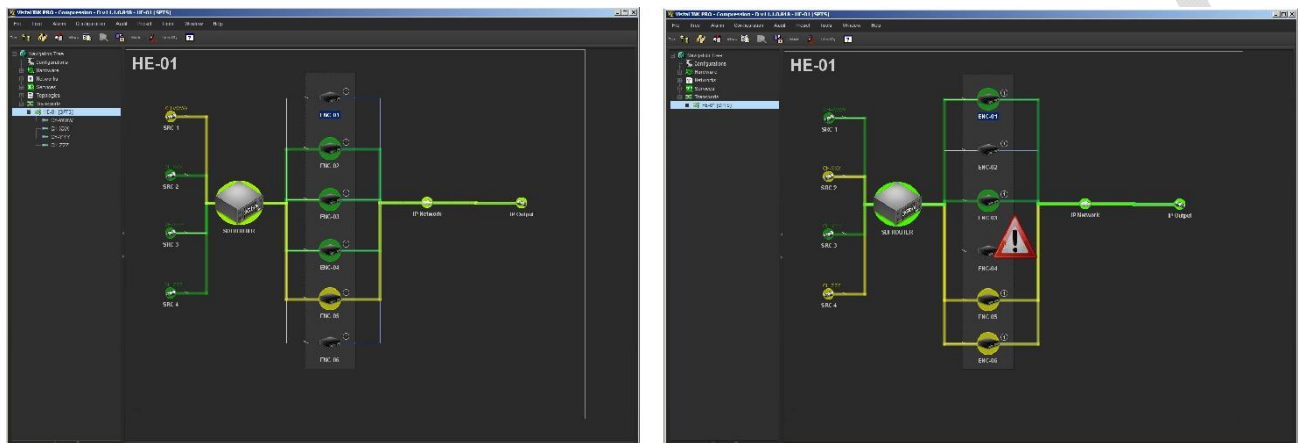


Figure 7-2: Manual Redundancy Triggering (2)

7.1.1. Restoring a Failed Service

To restore a channel Service (failed encoder) to its normal path, Right click the backup device that was failed to and select **Transport > Redundancy > Manual Restore**

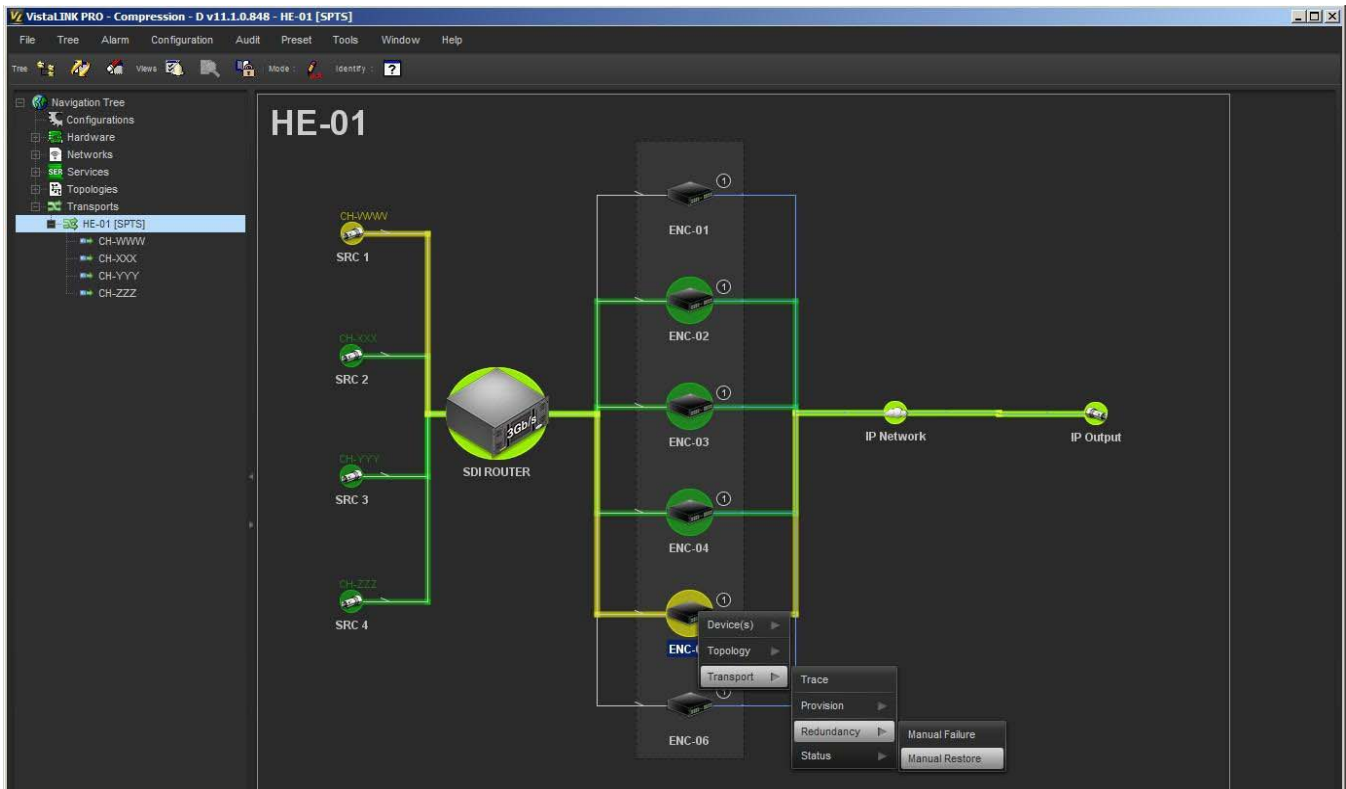


Figure 7-3: Restoring a Failed Service

7.2. HARDWARE DEVICE (REDUNDANT UNIT) SHARING

The VistaLINK PRO CSM system overcomes a long standing limitation of similar systems by allowing users to “share” hardware devices across multiple **Topology** maps. This powerful feature allows users to “share” redundant units across several topology groupings and have it used by the system for any group experiencing a failover. The CSM system will take care of tracking shared units in use and indicate “In Use” through a “U” icon on the Topology map device icon representation (i.e. the shared device is shown on two maps. Map one shows backup device in use with active service flow, map 2 shows shared device with “U” icon to indicate that it is currently in use on another map/grouping.) CSM also places a permanent “S” marker on the device icon to indicate on all maps that the device is shared with other **Topologies**.


In order to add a shared device to a map once it has been placed on a previous map, it must be dragged from the “Networks” device list that appears in the bottom left panel when the Topology is in Edit Mode. Elements that are added by dragging from the Networks list are automatically setup as shared elements.

Device sharing is a powerful feature of CSM that allows unique and more efficient use of backup hardware devices as well as a convenient method to model hardware into multiple transport workflows for changing/ad-hoc type environments.

7.3. AUTOMATIC REDUNDACY TRIGGERING

Any CSM redundancy grouping can be configured to trigger automatically based on user selected fault alarm triggers received by the CSM Server. To configure this, the user must select alarm triggers within each redundancy configuration dialog.

- 1.) Under the **Topology** main node in the Navigation Tree, double click the **Topology** that you wish to setup automatic failovers for. The Topology will be displayed (note that the Topology node needs to be selected directly, not the linked Transport)
- 2.) With the **Topology** selected, enter **Edit Mode** by clicking the **Pencil** icon on the toolbar.
- 3.) Right click an empty area of the surrounding redundancy group outline box and select **Edit**. This will open the *Redundancy Details* dialog window.
- 4.) Switch to the **Faults** tab (it will be blank by default)
- 5.) Click the **Add** button at the bottom of the dialog window. The *Fault Attributes* window will be displayed. In the “**Fault Providing Hardware**” dropdown menu, select the inline device that you want to select a fault trigger from (note that the dropdown only shows devices that are in the path for the channel **Service** being edited.)
- 6.) The *Specific Failover Device* field can be changed to create a trigger profile for just one specific element within the group if desired. Leave the option set to **None** for the setup to be applied and used for any device within the redundancy group.
- 7.) Click the **OK** button to select the device hardware.
- 8.) The selected device will add a vertical tab to the **Faults** tab and present a list of faults that can be logged for the selected device. Check the fault triggers that come from the selected device that you would like to initiate the failover process with automatically. The **Condition** field can be used if the fault needs to contain specific VarBind data entries.
- 9.) The **Origin** setting determines if the automatic redundancy trigger will fire the action immediately or potentially be suppressed through the Root Cause Analysis feature



Note that Root Cause Analysis is a higher level VistaLINK PRO / CSM alarming function that attempts to determine root cause or upstream errors that have caused downstream effects (cascaded faults). When CSM is operating in this mode it can intelligently determine which redundancy mechanism to fire where more that one occurs within a single channel Service path (e.g. upon source loss perform source redundancy switch as apposed to (and suppress) encoder failover redundancy switch)

When this setting is set to “**RAW – All Fault Matter**” the redundancy configuration will fire every time the selected fault trigger is received, regardless of any Root Cause Analysis determination.

- 10.) Set the **Perform** dropdown option as per the desired operation

a. Automatic – Immediate Failover

- i. In this mode the redundancy actions will be fired and run without any user interaction when the selected trigger is received by the system.

b. Manual Prompted Failover

- i. In this mode, the system will still listen for the selected target trigger and when received will present a pop-up dialog to the users to inform of the trigger event and provide a simple **Yes / No** select option to the human operator prior to running the redundancy actions. Use this mode to take advantage of the automatic redundancy logic and triggering functions within CSM, but still require a human operator authorization prior to performing the failover.

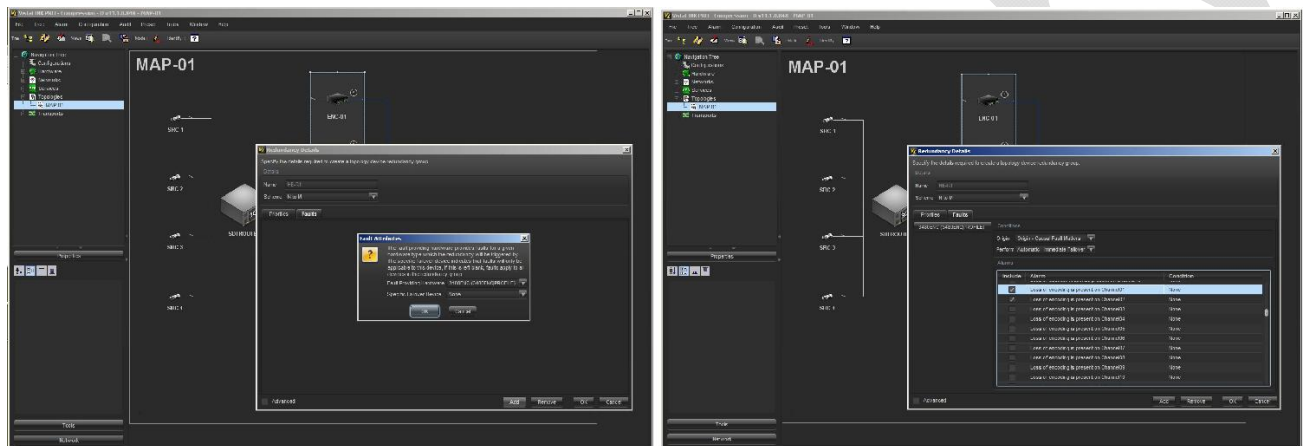


Figure 7-4: Automatic Redundancy Triggering

7.4. SERVICE PRIORITY BASED FAILOVERS

By default, the CSM system will run automatic failover actions for **Services** in the order that triggering faults are received until all redundant units are exhausted at which time no further failover actions will take place until a redundant unit is manually freed by an operator (disregard the channel Priority Level).

Alternatively, a redundancy group can be configured to account for the channel **Service Priority Level** when a failover trigger is received and potentially bump lower Priority Services from a backup unit if no free units are available. In this mode channels with a higher Priority Level (set as part of the channel Service creation stage, see section 4.1) will bump lower Priority Services from a Backup unit. (Services of the same Priority Level will not cause a redundant Service to be bumped) Note that this mode only provides an advantage if channel Services have been configured with differing Priority Levels

7.4.1. To Setup Priority Failovers

- 1.) Repeat steps 1.) to 3.) from section 6.2 to access a redundancy group's *Redundancy Details* dialog
- 2.) Check the "**Advanced**" checkbox in the lower left corner to display advanced options ("**Failure**" tab)
- 3.) Switch to the "**Failure**" tab
- 4.) Change the "**Failover:**" dropdown option from **First Failure** to **Priority Failure**

The CSM system will now take into account the channel Service Priority Level when determining if it should activate a failover action or bump lower priority services from redundant units.



Note that this dialog also contains a "Grace Period (ms)" setting. This setting is used to determine the amount of time that will pass after a Service is activated, before the CSM system will start to accept redundancy fault triggers for the group. This setting allows the settle time for new activations to be customized to ensure the system does not act on faults that may be transient as part of the provisioning or activation steps.

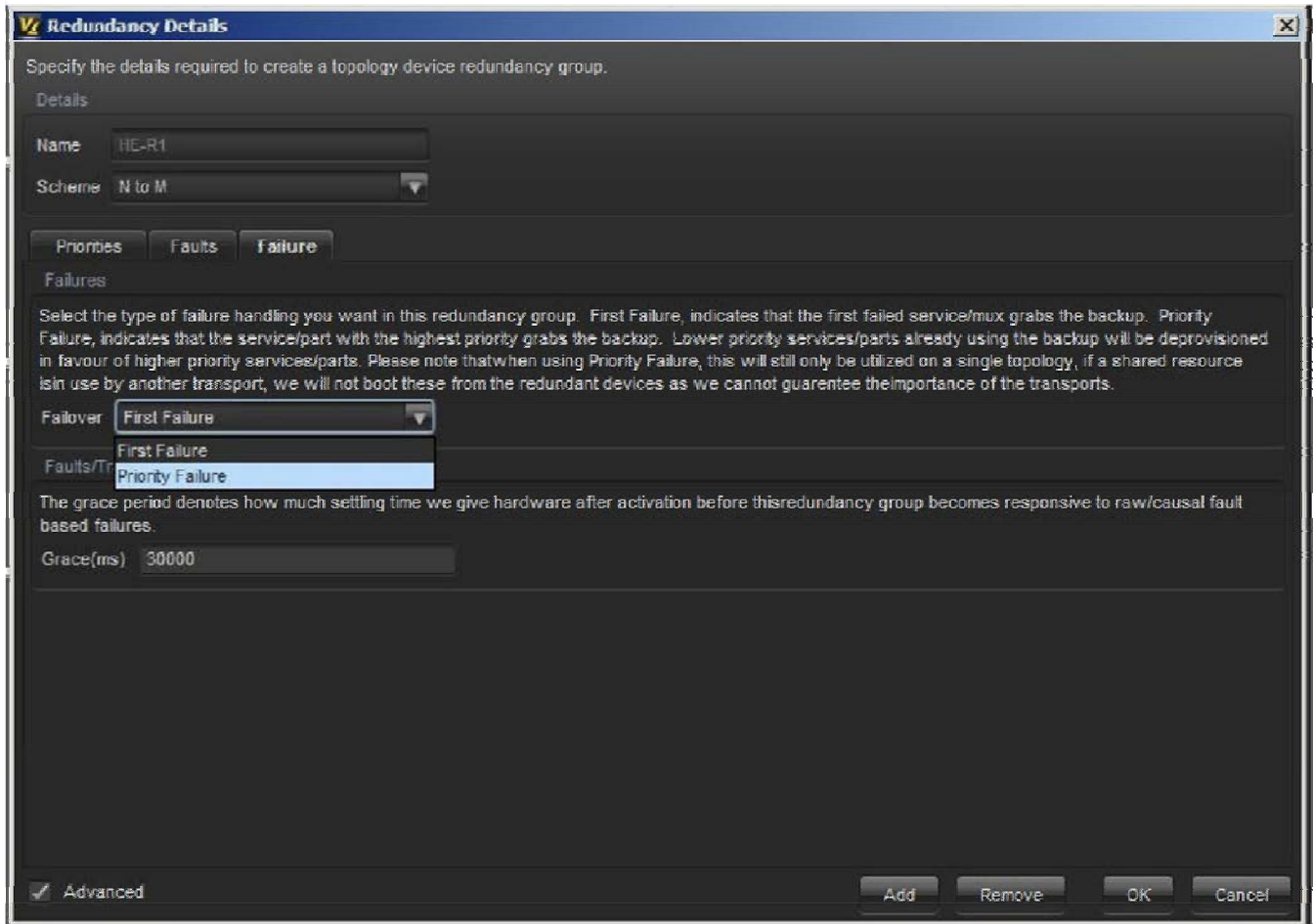


Figure 7-5: Set Up Priority Failovers

This page left intentionally blank

Preliminary

8. ADDITIONAL FEATURES

8.1. MAINTENANCE MODE

The CSM client allows any Topology device to be placed in Maintenance Mode. This mode will stop the CSM system from attempting to Provision a Transport Service using the selected Hardware device. This option can be used to block failover actions to backup devices that have been placed in maintenance or potentially to block restoring failed services to devices that need to be repaired. The Maintenance mode is a convenient method to make a hardware device unavailable in the system without actually removing it from the Topology map itself. Once a device has been placed in Maintenance mode a small red color “M” icon will appear on the bottom of the device icon representation.

8.1.1. Placing a Topology Element into Maintenance Mode

- 1.) Ensure that the Topology or Transport view with the target device is displayed.
- 2.) Right click the target device and select Topology > Mode > In Maintenance
- 3.) A small red color “M” icon will appear on the device icon to indicate that the device is in maintenance mode.
- 4.) To remove the device from Maintenance mode, right click the device and select Topology > Mode > In Service.

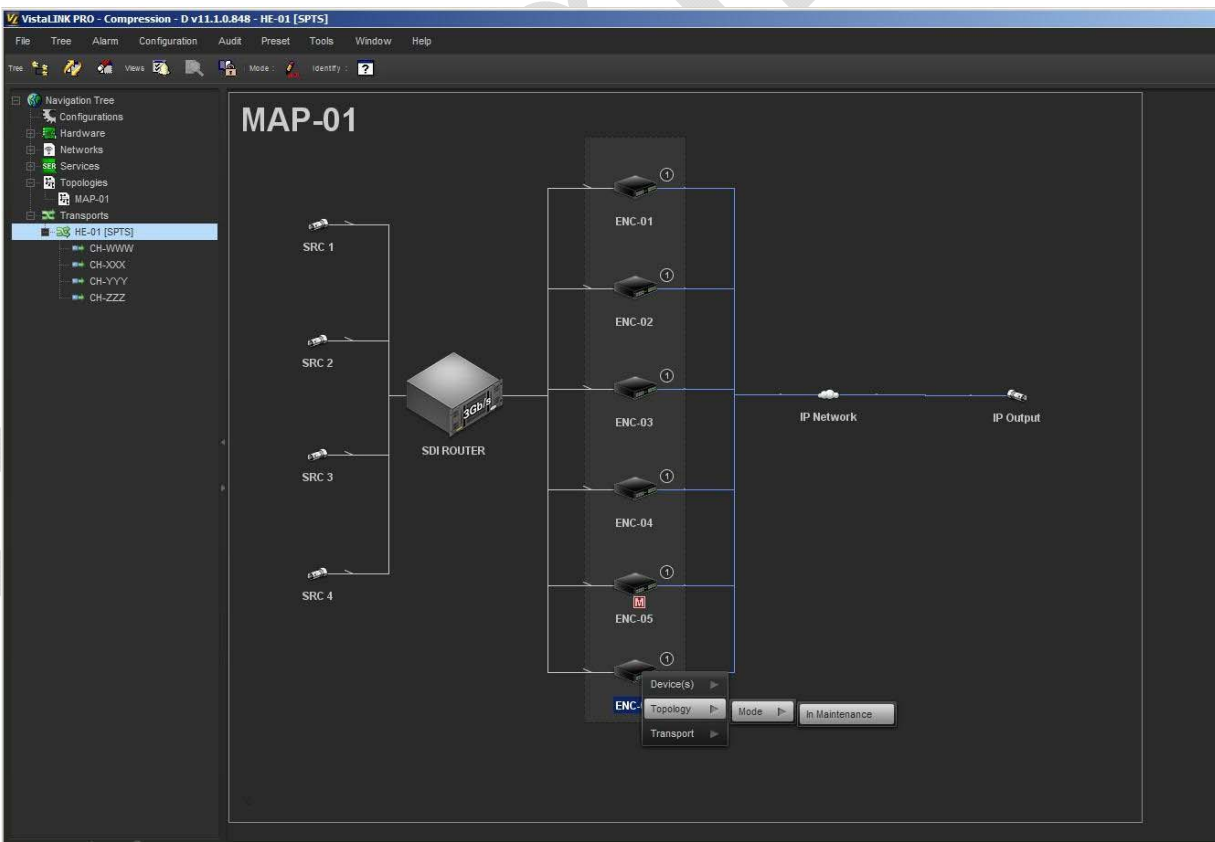


Figure 8-1: Placing a Topology Element into Maintenance Mode

8.2. ALARM LOGGING FUNCTIONS

The CSM client software provides access methods to view device fault alarms in the same way as a standard VistaLINK PRO client. User can access hardware in the Hardware Navigation Tree and right click to open device alarm log views.

Additionally the CSM client will indicate fault alarms for a device directly on the CSM Topology or Transport views. When an alarm is received the corresponding device icon on the map will flash red (or differing severity color) and the user can right click the device and select Devices > View Alarm to open its standard VistaLINK PRO fault alarm log.

Note that the right click menu for the device that is shown when in active (Not Edit Mode) mode is the same option menu presented in a standard VistaLINK client allowing the user to perform various actions such as opening the alarm log, opening the device full configuration view etc.

Note that the CSM client additionally allows users to open an alarm log from the “Transport” node in the navigation tree. An alarm log can be opened for an entire Transport or an individual channel Service. This alarm log will display any fault active on devices that are currently being used in the Service hardware path. This method provides a simple way to check alarms “per/affecting a Service” regardless of any failover actions that may have temporarily changed devices being used to transmit the service.

Lastly, the CSM system can be configured to automatically generate standard VistaLINK PRO Services that can be monitored using Standard or VLPRO-PLUS graphical VistaLINK PRO NMS clients. The CSM system will ensure that the device contains the correct hardware references in the event that a failover action changes the device in use.

To enable this option, right click the Transport main mode and select Settings, switch to the Services tab and check the option “Auto services from transport services”. Upon clicking OK the CSM system will automatically generate the new Services.

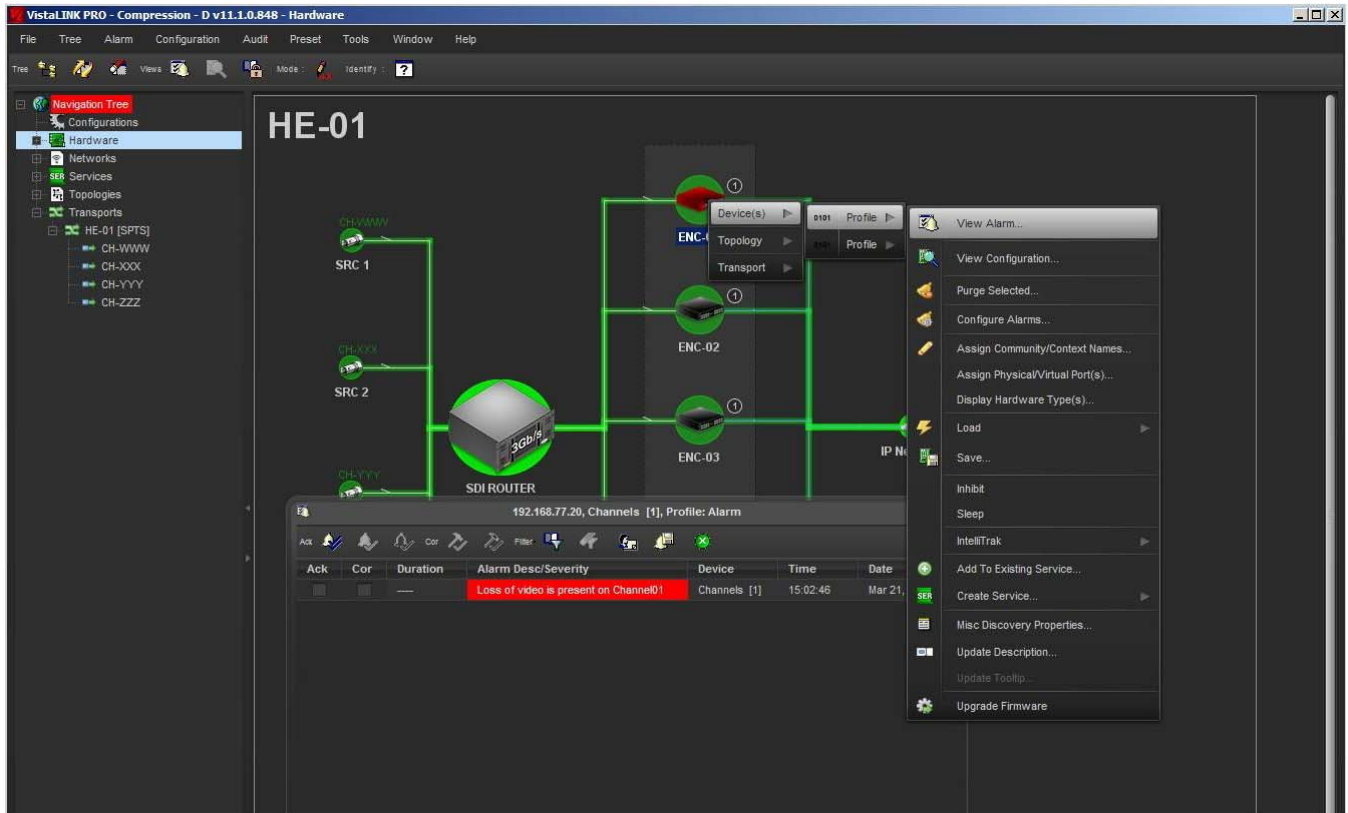


Figure 8-2: Alarm Logging Functions

8.3. MAP SERVICE TRACING

The CSM client system is able to **Trace** the path of any active service that is flowing through a selected hardware device. If the user right clicks any element on the map and chooses **Transport > Trace**, the CSM system will color highlight any service flow that is passing through the selected device. This option provides a convenient method to determine the full path flow of a service from any selection point on the map. As an example performing a trace on an encoder channel icon should trace the path for the signal channel **Service** that is passing through the encoder channel. Performing a Trace from the SDI Router would produce multiple Service traces as multiple Service flows all utilize a common router hardware component.

To perform a Service Trace, right click any device icon on the Transport map view and select **Transport > Trace**. The CSM system will highlight all elements in the channel Service that are Provisioned on the selected element.

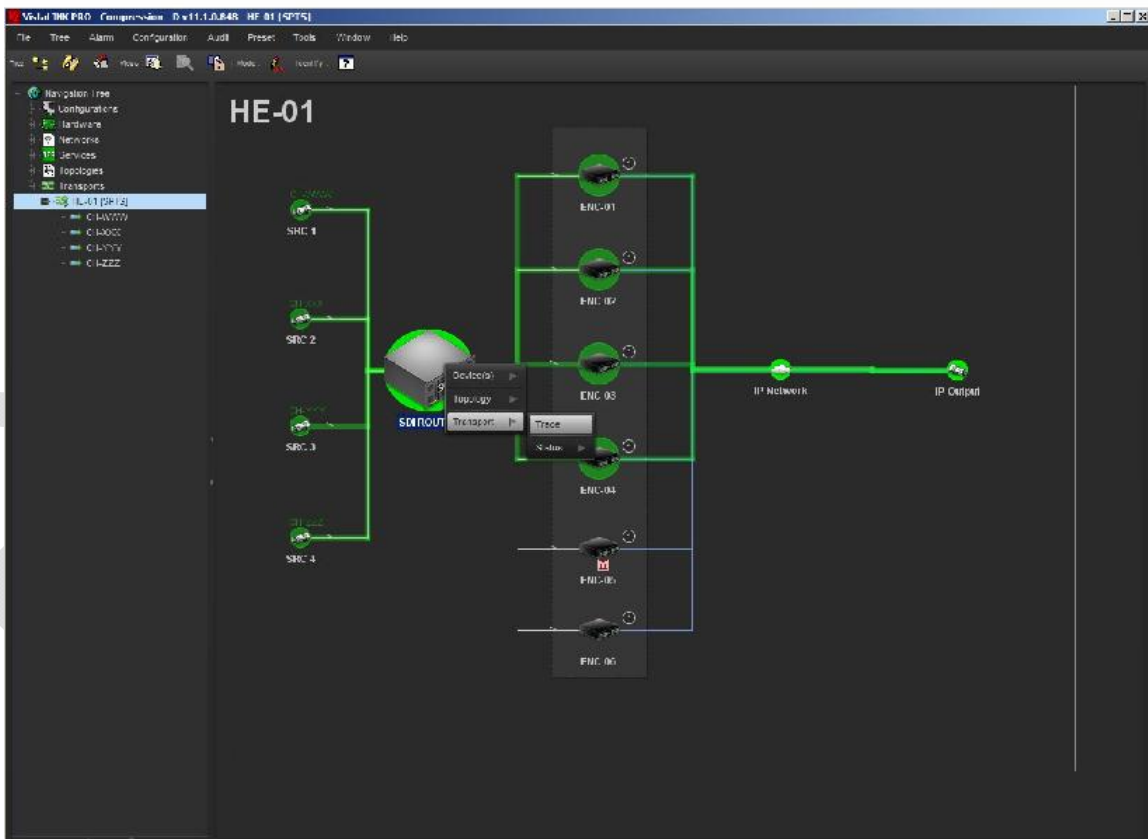
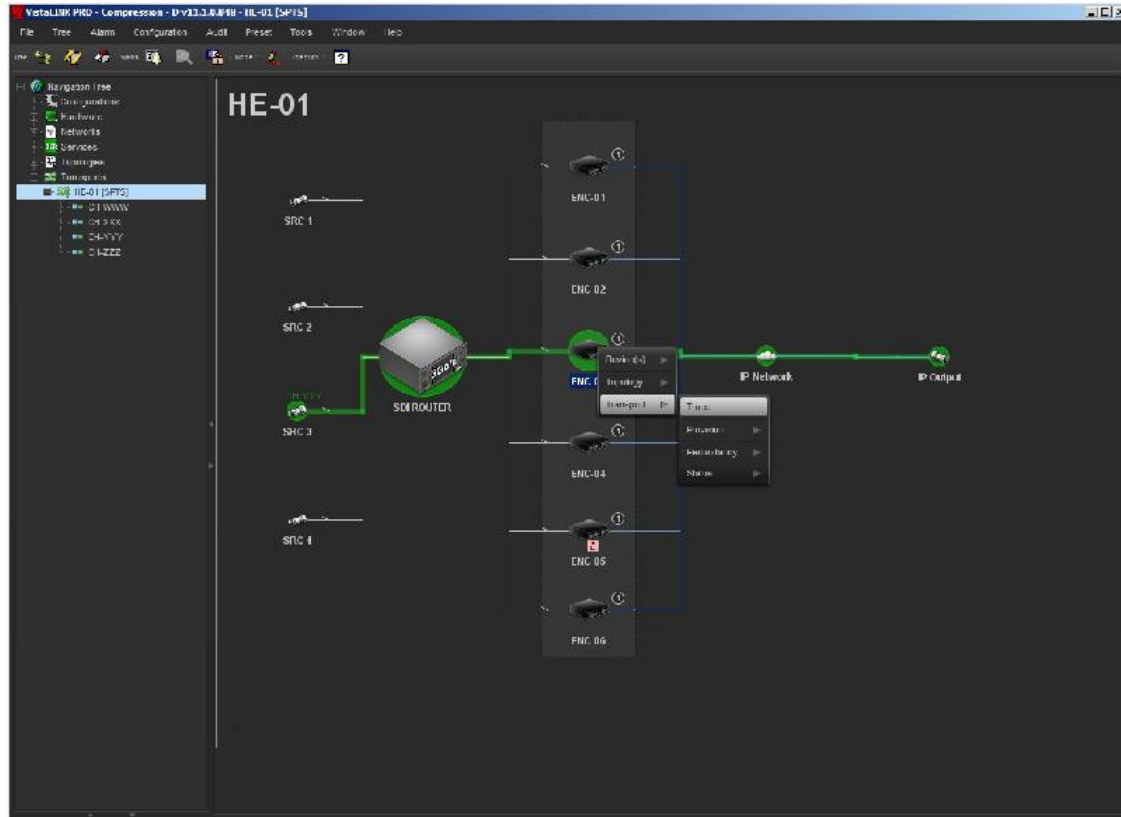


Figure 8-3: Map Service Tracing

9. APPENDIX A

9.1. VERSIONS

This manual has been built using the following software information. Should the interface you are working with differ in appearance this may be due to difference in software versions.

- VistaLINK Pro Version: 11.2.0
- Build: 1463

Preliminary

This page left intentionally blank

Preliminary