



Pinpoint.



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Myricom nVoy Series

Packet Broker

Getting Started Guide

Version 1.0



March 10, 2017

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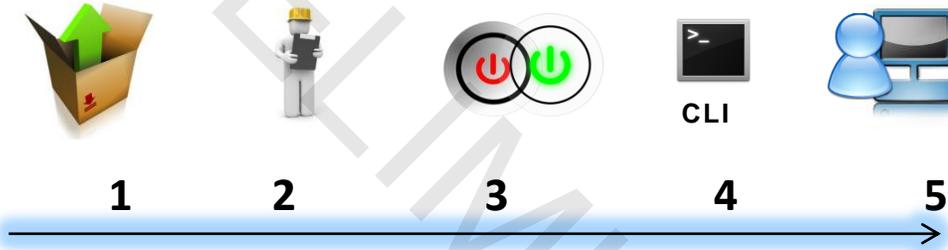
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Welcome

The Myricom nVoy Series Packet Broker Getting Started Guide provides the user with all the information needed to verify, setup, and operate the nVoy Packet Broker appliance.

The getting started guide is divided into five chapters, as described below:

- Chapter 1: Check the Items in nVoy Packet Broker Package
- Chapter 2: Install the nVoy Packet Broker Appliance
- Chapter 3: Power on and Power off nVoy Packet Broker Appliance
- Chapter 4: Use Command Line Interface (CLI) to Setup Management Parameters
- Chapter 5: Create Virtual Wire Domain Between Two Traffic Ports



Should you have any questions, suggestions, or a feature request, please do not hesitate to contact the CSPi team at: support@cspi.com.

We are more than happy to help you.



1 nVoy Packet Broker Package Contents

Before you install the nVoy Packet Broker appliance, please check that the following items have been shipped and received. Contact CSPi at support@cspi.com if any of the items are damaged or missing.

	Item Name	nVoy Packet Broker
	Count	1
	Item Name	Mini USB to DB9 cable
	Count	1
	Item Name	Cat.6 RJ45 Ethernet Cable
	Count	1
	Item Name	Power Cord
	Count	1
	Item Name	Rack Mount Kit
	Count	1

Table 1: nVoy Packet Broker package contents



2 nVoy Packet Broker Hardware and Cabling

Before you install and connect the nVoy Packet Broker, familiarize yourself with the appliance's hardware design and cabling requirements.

This chapter includes the following sections:

- nVoy Packet Broker Front Panel
- nVoy Packet Broker Rear Panel
- nVoy Packet Broker Lithium Battery
- Cabling

2.1 nVoy Packet Broker Front Panel

This section describes the layout of nVoy Packet Broker front panel and main interfaces, as described below.

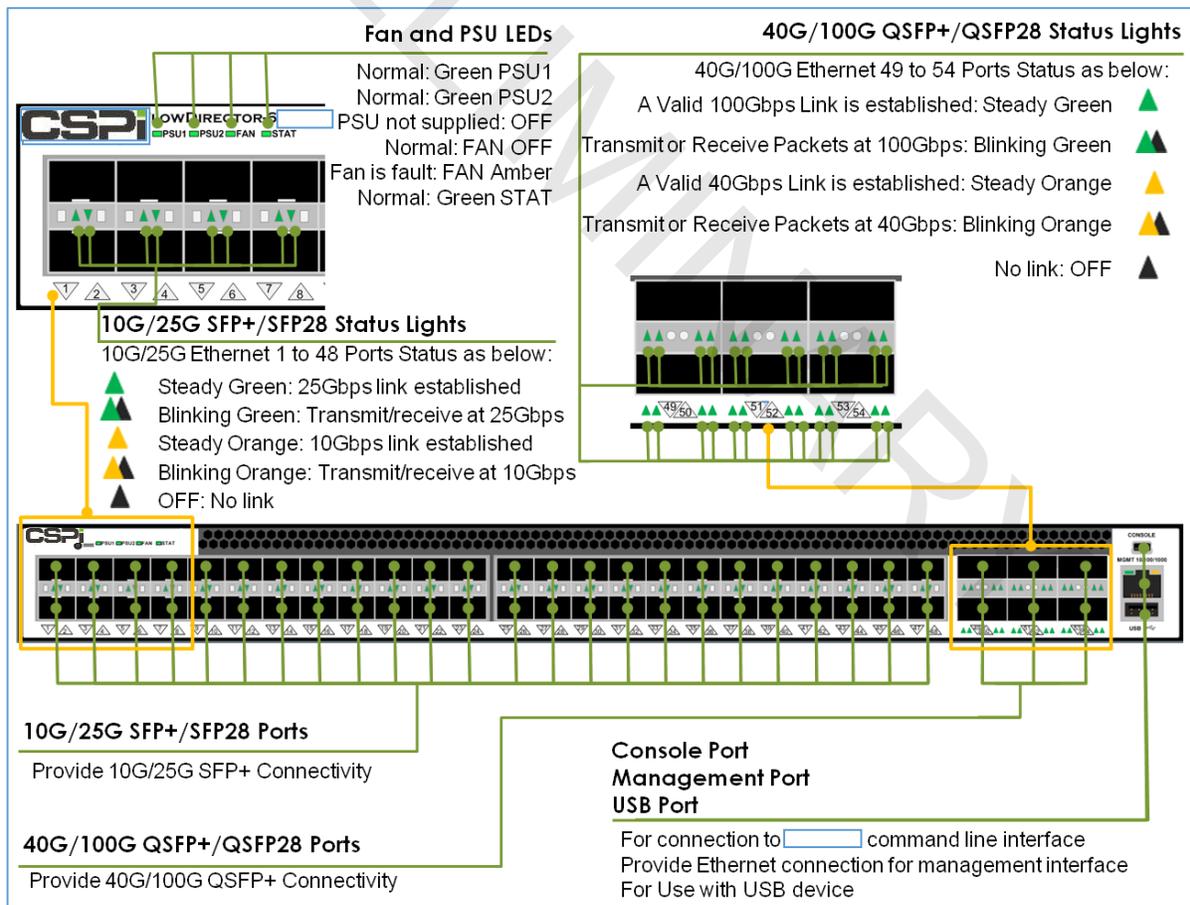


Figure 1: nVoy Packet Broker front panel layout.

General description (front panel)

The following important interfaces, listed from left to right, are:

- 48, 1G/10G/25G SFP+/SFP28 Traffic Ports
- 6, 40G/100G QSFP+/QSFP28 Traffic Ports
- 1, Serial Console Port
- 1, Ethernet Management Port
- 1, USB Port

LEDs (front panel)

- one LED indicator for each 1G/10G/25G SFP+ Ethernet port (Ports 1 to 48)
- one LED indicator for each 40G/100G QSFP+ Ethernet port (Ports 49 to 54)
- one LED system indicator

Important Considerations

The nVoy Packet Broker has the hardware capability to split 1x40G/100G QSFP+/QSFP28 port into 4x1G/10G/25G SFP+/SFP28 mapping ports.

Each QSFP+/QSFP28 port has four, Yellow/Green LEDs to indicate 4 x1G/10G/25G SFP+/SFP28 port link and activity status for Ports 49 to 54.

LED meaning and behavior is documented in the following sections.

2.1.1 Power, Fan and STAT Status LEDs



Figure 2: Power, Fan, and STAT status console.

System and Power LEDs Description		
PSU1	GREEN ORANGE OFF	Power Supply 1 working normal Power Supply 1 failure Power Supply 1 not inserted
PSU2	GREEN ORANGE OFF	Power Supply 2 working normal Power Supply 2 failure Power Supply 2 not inserted
FAN	GREEN ORANGE	All fans working well Fan is abnormal or fan fail or fan tray is not inserted
STAT	GREEN ORANGE	System works normal System works abnormal

Table 2: Power, Fan, and STAT Status LED descriptions.

2.1.2 Management Port LED

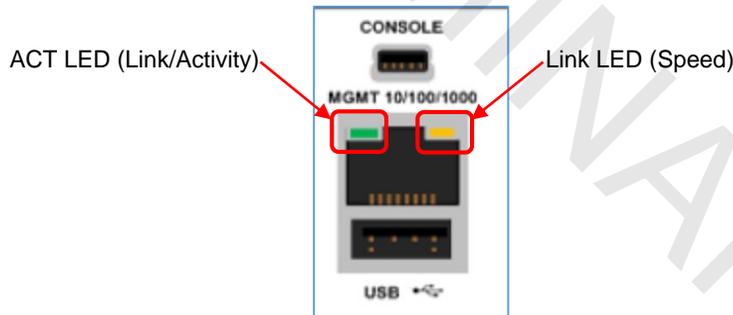


Figure 3: Management port LEDs.

Management Port LEDs Description		
LINK LED (Speed)	ORANGE GREEN OFF	1Gbps linked 100 Mbps linked 10 Mbps linked
ACT LED (Link/Activity)	GREEN GREEN BLINKING OFF	Network Link Network Activity No link or port disabled

Table 3: Management port LEDs description.

2.1.3 1G/10G/25G SFP+/SFP28 Port LED

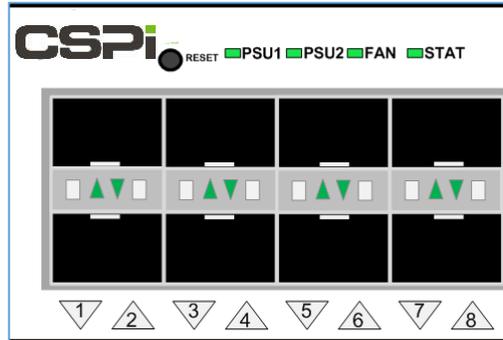


Figure 4: 1G/10G/25G SFP+/SFP28 Port LEDs

1G/10G/25G SFP+/SFP28 Port LEDs Description		
1G LINK/ACT LED (Port No. 1 to 48)	ORANGE ORANGE BLINKING	1Gbps Link established Transmit or receive data at 1Gbps speed
10G LINK/ACT LED (Port No. 1 to 48)	ORANGE ORANGE BLINKING	10Gbps Link established Transmit or receive data at 10Gbps speed
25G LINK/ACT LED (Port No. 1 to 48)	GREEN GREEN BLINKING	25Gbps Link established Transmit or receive data at 25Gbps speed
	OFF	No 1G/10G/25G link in this port

Table 4: 1G/10G/25G SFP+/SFP28 Port LED descriptions.

2.1.4 40G/100G QSFP+/QSFP28 Port LED

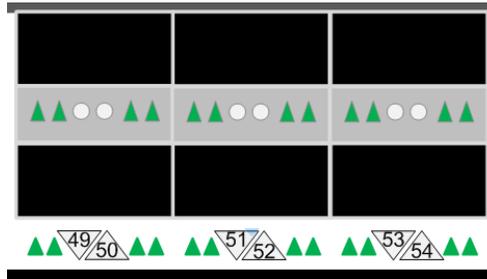


Figure 5: 40G/100G QSFP+/QSFP28 Port LEDs

40G/100G QSFP+/QSFP28 Port LEDs Description		
100G Link/Activity LEDs (Port No. 49 - 54)	GREEN GREEN BLINKING	100Gbps link established Transmit or receive data at 100Gbps speed
40G Link/Activity LEDs (Port No. 49 - 54)	ORANGE ORANGE BLINKING	40Gbps link established Transmit or receive data at 40Gbps speed
	OFF	No 40/10G Network Link in this port.

Table 5: 40G/100G QSFP+/QSFP28 Port LED descriptions.

2.2 nVoy Packet Broker Rear Panel

This section describes the layout of the nVoy Packet Broker rear panel, as shown below.

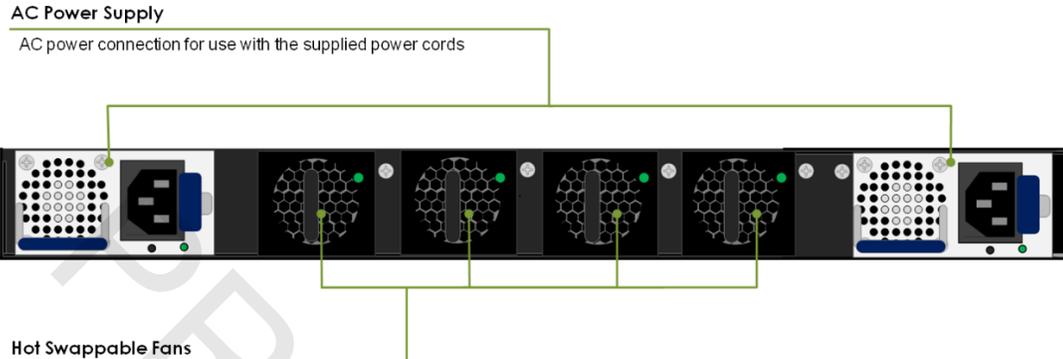


Figure 6: nVoy Packet Broker rear panel layout.

LEDs (rear panel)

- one LED indicator for each power supply unit (2)
- one LED indicator for each fan (4)

Power supply units (PSUs)

The nVoy Packet Broker has two redundant power supply units, each with its own LEDs to indicate failure.

	<p>The nVoy Packet Broker can draw power from one power supply unit or the other. To prevent damage to the nVoy Packet Broker, protect data, and avoid personal injury, observe proper ESD precautions and disconnect the appliance from its power source prior to moving or servicing.</p>
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Fans

nVoy Packet Broker has 4 fan trays for system cooling, and each fan tray has one LED to indicate failure, please see below for Fan tray LED location and LED description.

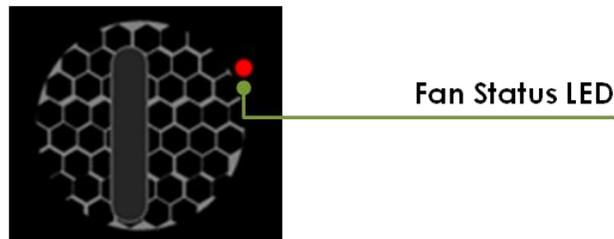


Figure 7: Fan with fan status LED.

<i>Fan Status LEDs Description</i>		
Fan Status LED	RED GREEN	Fan failure Fan normal

Table 6: Fan status LED description.

2.3 nVoy Packet Broker Lithium Battery

The nVoy Packet Broker contains a 3V CR2032 Lithium battery.

Do not attempt to replace the Lithium battery with a different type.

 DANGER	<p>RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.</p>
--	---

Replacing the battery

Contact CSPi support at support@cspi.com for Lithium battery replacement.

2.4 Cabling

The section describes how to connect the nVoy Packet Broker to the interfaces.

Prerequisites

The following are required before connecting the nVoy Packet Broker to the interfaces.

1. Personal computer, including:
 - a. A working serial port attached
 - b. Ethernet connectivity to the nVoy Packet Broker appliance
2. 110V 50-60Hz power outlet with 4 Amps capacity

Cabling procedure

1. Connect an Ethernet cable (Cat 5 or better) from the nVoy Packet Broker management port to a switch or PC. The management Ethernet cable is provided.
2. Connect the nVoy Packet Broker console port to the PC's serial port with the console cable provided. Fasten the screw on the DB-9 connector.
3. For 1G/10G/25G traffic ports, run SFP+/SFP28 copper cables or fiber optical modules (with proper cables) from one or more SFP+/SFP28 traffic ports to the devices. SFP+/SFP28 Direct Attach Cables (DACs) or SFP+/SFP28 fiber optical modules and cables are not provided.
4. For 40G/100G traffic ports, run QSFP+/QSFP28 copper 40G/100G cables or QSFP+/QSFP28 fiber optical modules (with proper cables) from one or more QSFP+/QSFP28 traffic ports to the devices. The QSFP+/QSFP28 cables or QSFP+/QSFP28 fiber optical modules and cables are not provided.
5. Connect nVoy Packet Broker Appliance to a power outlet with the power cord provided

The following diagram displays the nVoy Packet Broker with all connections in place.

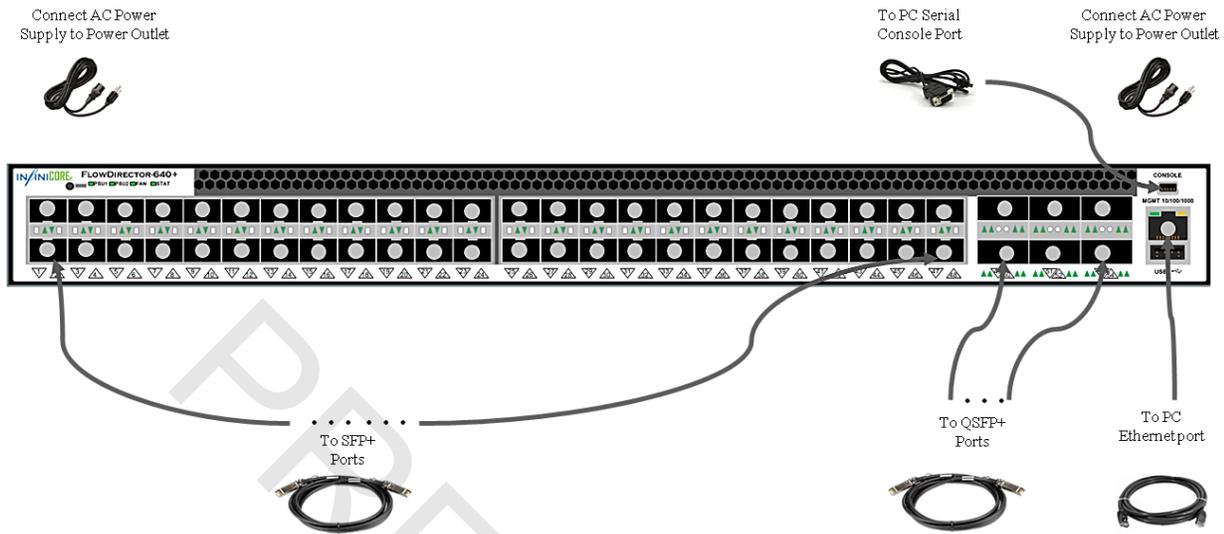


Figure 8: nVoy Packet Broker with all cables in place.



3 Powering ON the nVoy Packet Broker

This chapter describes how to power ON and OFF the nVoy Packet Broker appliance.

3.1 Power ON Sequence

Before you power on the nVoy Packet Broker appliance:

1. Unplug the Ethernet cable to your network first to prevent IP address conflicts.
2. Connect the appliance power cords to the power supply.
It takes about five minutes for the appliance to be ready for use.
3. Connect the Ethernet cable directly to a PC or laptop.

NOTE: We recommend connecting the appliance to a desktop or a laptop to change the IP address from the Web GUI.

3.2 Power OFF Sequence

The Shutdown setting enables the user to shut down the device operation.

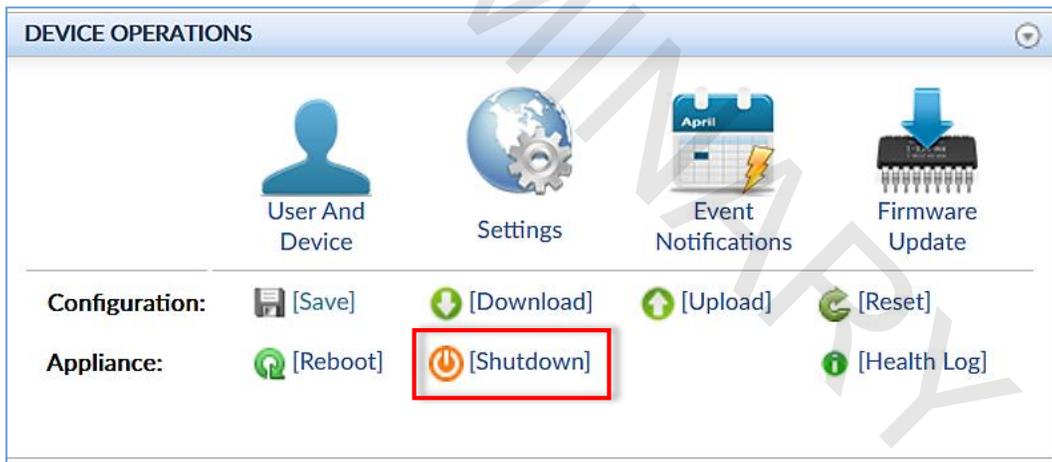


Figure 9: Web UI - Device Operations panel.

1. Click **[Shutdown]** in the Devices Operation panel, as shown in Figure 1.
A Confirm Shutdown System window appears, as shown in Figure 2.

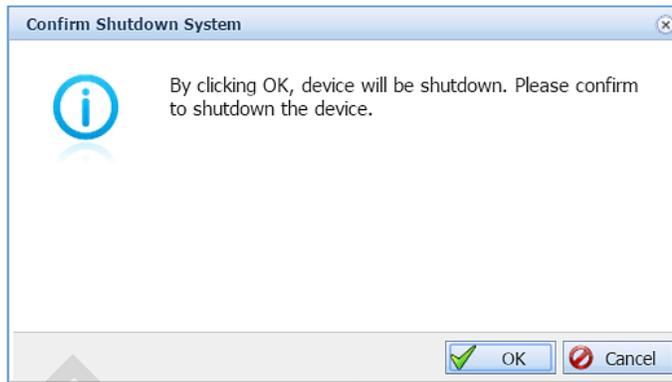


Figure 10. Confirming shutdown.

2. Click **OK** to confirm shutting down the device operation.



4 Setting up Management Parameters

Once you have cabled and powered on the nVoy Packet Broker appliance, you can now set up the management parameters through the serial port. The settings will take effect immediately once the parameters are set. Table 1. lists the necessary parameters.

Parameter	Meaning	Importance	Command
Management IP	Management IP address and netmask	Mandatory	<code>config interface mgmt ip</code>
Gateway	Gateway	Optional	<code>Config interface mgmt gateway</code>
Date	Date and Time	Optional	<code>Config system date</code>
Host name	Appliance Name	Optional	<code>Config system hostname</code>
Description	Appliance description	Optional	<code>Config system desc</code>
Location	Appliance location	Optional	<code>Config system location</code>
Contact	Administrator contact Information	Optional	<code>Config system contact</code>

Table 7: List of management parameters.

The following sections will guide you through the setup.

4.1 Setting up Default Serial Port Settings

Table 8 displays the nVoy Packet Broker appliance serial port default settings.

Setting	Value
Baud Rate	115200
Data Bits	8 bit
Stop Bits	1 bit
Parity	No
Flow Control	No

Table 8: Serial port settings.

NOTE	Your console application serial port settings must match the nVoy Packet Broker default settings to ensure successful communication.
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The following section describes how to set up serial ports in Tera Term and Microsoft HyperTerminal terminal emulators.

4.1.1 Serial port setup window - Tera Term

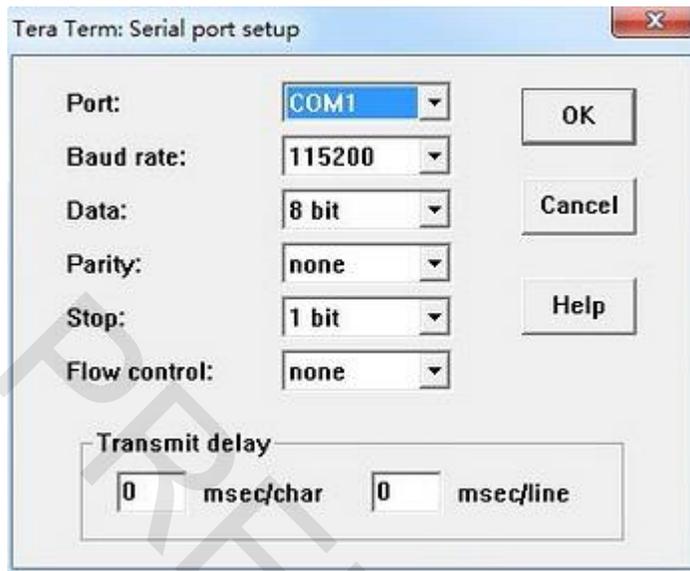


Figure 11: Tera Term setup window.

4.1.2 Serial port setup window - Hyper Terminal

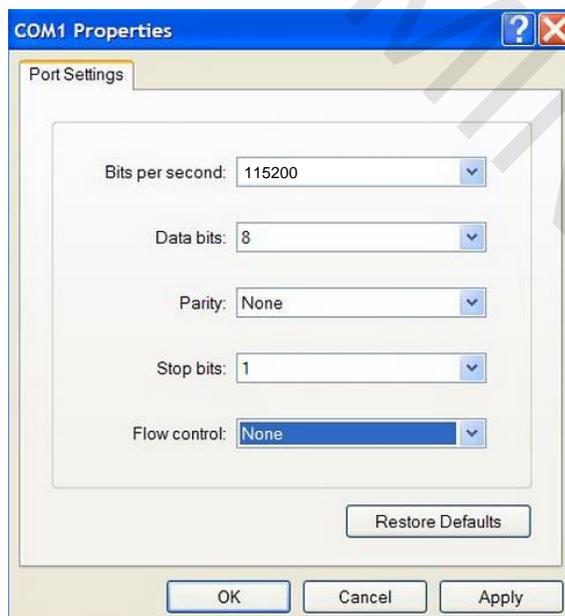


Figure 12: Hyper Terminal setup window.

4.2 Logging on the CLI through the Serial Console

The nVoy Packet Broker appliance is shipped with a default IP address to establish TCP/IP connectivity.

4.2.1 Default login information

Default IP address	192.168.0.240
Default administrative username	Enter: admin
Default administrative account password	There is no default password issued.
Default console port setting	Baud rate of 115200, 8 data bit, no parity, and a 1 stop bit.

Table 9: Default login information.



Figure 13: Login screen.

A successful logon displays, with navigation keys, as shown below.

```
nVoy Packet Broker
exit          - exit shell
config       - configuration
exec         - execute operation
show         - display system information
help         - display help information
tree         - display command line tree
history      - display command history

nVoy Packet Broker

Hardware Platform : nVoy Packet Broker
Firmware Version  : 1.8.2.6
Control Plane CPU : Intel(R) Core(TM) i3- CPU @ 2.00GHz
Control Plane Version: 1.0.4
CP Memory Max/Free : 4139147264/3389046784
CP Core Temp      : 40.0 (C)
```

Figure 14: Successful logon with navigation keys.

4.2.2 CLI Navigation Keys

The nVoy Packet Broker command line interface follows popular Cisco “CLI” style. Press “?” to access the help screen at any time.

Key	Description
Exit	exit shell
Config	configuration
Exec	execute operation
Show	display system information
Help	display help information
Tree	display command line tree
History	display command history

Table 10: CLI navigation keys.

4.3 Configuring the Network and System Parameters

The following example describes how to configure the network and system parameters:

Example

- IP address: **192.168.0.240**
- Gateway: **192.168.0.1**
- Hostname: **QC01**
- Location: **QClab02-Rack1**
- Administrator Contact: **"x613 admin"**
- Date: **2015-05-19 13:26:00**

Output

```
nVoy Packet Broker# config interface mgmt ip 192.168.0.240 255.255.255.0
System IP address set to 192.168.0.240 with netmask 255.255.255.0
nVoy Packet Broker# config interface mgmt gateway 192.168.0.1
Default gateway address is set to 192.168.0.1
nVoy Packet Broker# config system
nVoy Packet Broker system# ?

hostname          - name of the system
description       - description of the system
location         - location of the system
contact          - administrator contact
date             - Date and Time Settings

nVoy Packet Broker system# hostname QC01
QC01 system# description QC-10G
QC01 system# location QClab02-Rack1
QC01 system# contact x613 admin
QC01 system# date 2015-05-19 16:28:00
QC01 system#
```

The nVoy Packet Broker can now connect to the web user interface (Web UI) network, once the management IP address has been configured to the appliance.

4.4 Web User Interface (Web UI)

Once you have configured the nVoy Packet Broker appliance IP and the device is accessible through the network, you can now access the device through the Web User Interface (Web UI). The Web UI is the recommended method to interact with the nVoy Packet Broker appliance.

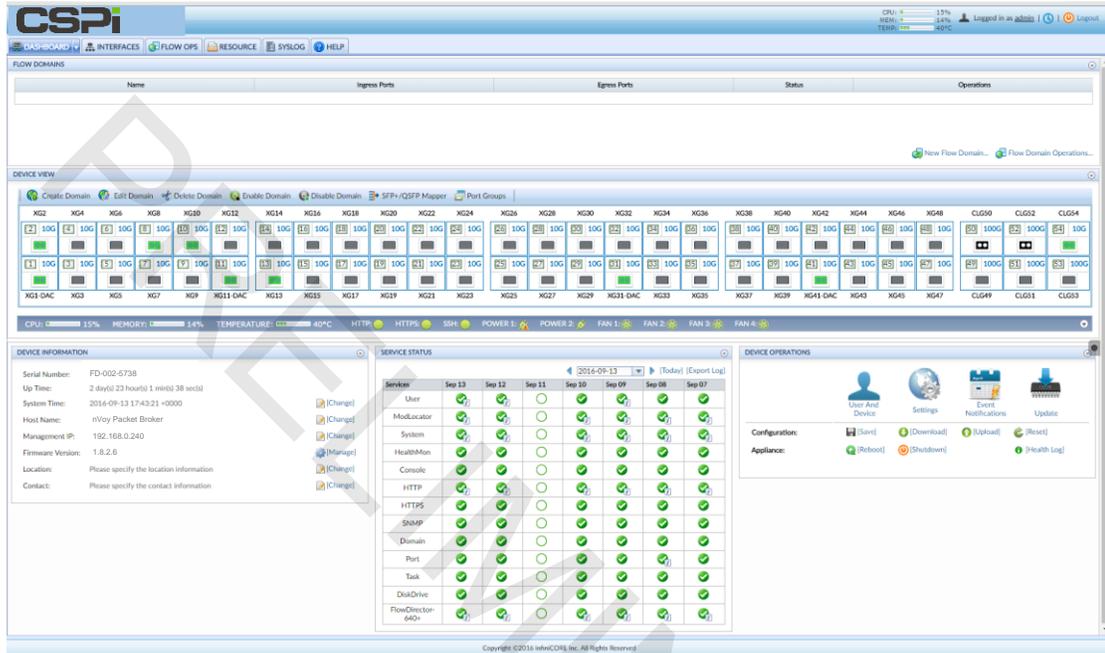


Figure 15: nVoy Packet Broker Web UI home page

4.4.1 Web UI features

The Web UI allows the user to easily perform the following tasks on the device:

- Port management tasks such as port allocation, reservation, and state management.
- Domain management tasks such as domain creation, deletion, enabling, and disabling.
- User management tasks such as user creation, deletion and edition.
- Device diagnostic information, including serial number, firmware version, location, and administrator contact information.
- Device operations, including the ability to update device firmware, saving configurations, rebooting the appliance, and so on.

5 Creating a Virtual Wire to Connect Two Ports



In this chapter we employ the nVoy Packet Broker to cross-connect two ports with Virtual Wire Mode. The purpose is to introduce you to the various configuration options available on the Web UI.

The chapter includes the following sections:

- Changing the Port Name
- Changing the Port Speed
- Creating a TAP/Mirror Port
- Disabling and Enabling Ports
- Creating a Virtual Wire Domain

5.1 Changing the Port Name

To change the port name on the Web UI, follow these steps:

Example

In this example, port 14 is **XG14** and port 18 is **XG18**.

1. Click the Dashboard tab and scroll to the Device View panel.
2. Click **XG14** (Port14) and enter **Tester-P1** in the port name text box.
3. Click **Enter** for the new name to take effect.

The port name changes from **XG14** to **Tester-P1**.

4. Click **XG18** (Port18) and enter **DUT-P1** in the port name text box.
5. Click **Enter** for the new name to take effect.

The port name changes from **XG18** to **DUT-P1**.



Figure 16: Changing a port name.

5.2 Changing the Port Speed

To change the port speed on the Web UI, follow these steps:

Example

In this example, port 14 is **Tester-P1**.

1. Click the Dashboard tab and scroll to the Device View panel.
2. Right-click the port icon below the **Tester-P1** port name.
3. The Tester-P1 pull-down combo box appears.
4. Select **Link..** and click the desired port speed from the secondary menu, as shown in the figure 17 below.

The port speed is changed.

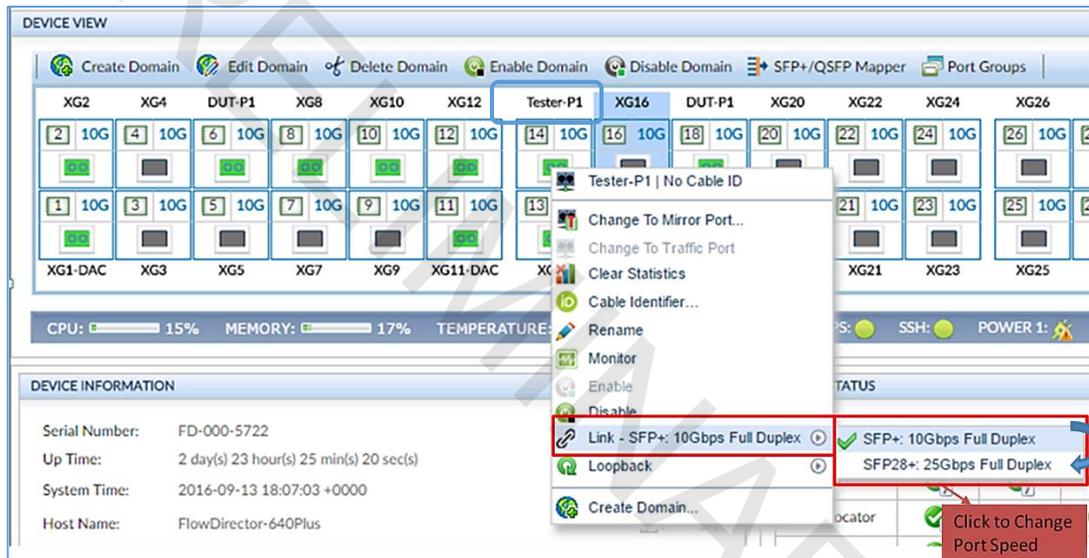


Figure 17: Changing the port speed.

5.3 Creating a TAP/Mirror Port

To create a TAP/Mirror Port on the Web UI, follow these steps:

Example

In this example, port 14 is **Tester-P1**.

1. Click the Dashboard tab and scroll to the Device View panel.
2. Right-click the port icon below the **Tester-P1** port name.

The Tester-P1 pull-down combo box appears, as shown in Figure 18 below.

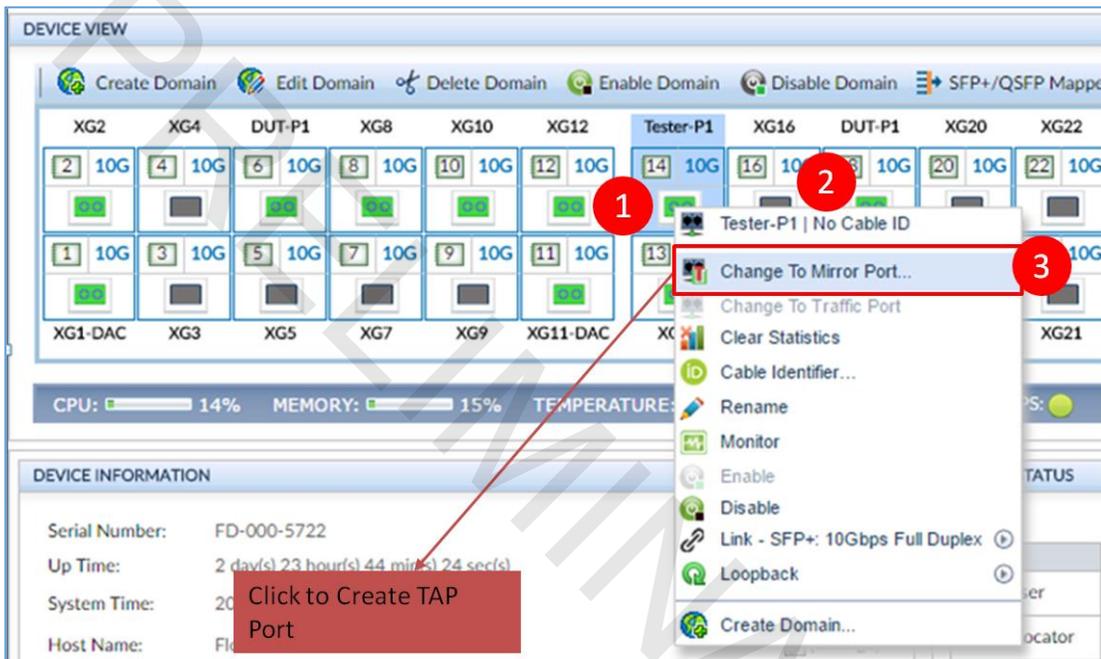


Figure 18: Creating a TAP/Mirror Port from the Device View panel.

3. Click **Change to Mirror Port...**

The Tap Port Settings window appears, as shown in Figure 19 below.

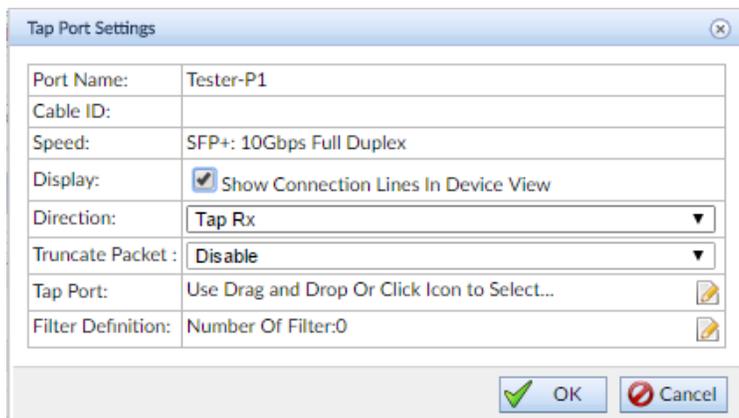


Figure 19: Tap Port Settings window.

4. Make the necessary changes to **Display:**, **Direction:**, **Truncate Packet:**, **Tap Port:**, or **Filter Definition:** settings.
5. Click **OK**.
The TAP/Mirror port is created.

5.4 Disabling and Enabling Ports

NOTE By default, all ports are enabled on the Web UI

To disable or enable ports on the Web UI, follow these steps:

Example

In this example, port 14 is **Tester-P1**.

1. Click the Dashboard tab and scroll to the Device View panel.
2. Right-click the port icon below the **Tester-P1** port name.
The Tester-P1 pull-down combo box appears, as shown in Figure 20 below.
3. Click **Enable**, if the port is disabled.
OR
4. Click **Disable**, if the port is enabled.

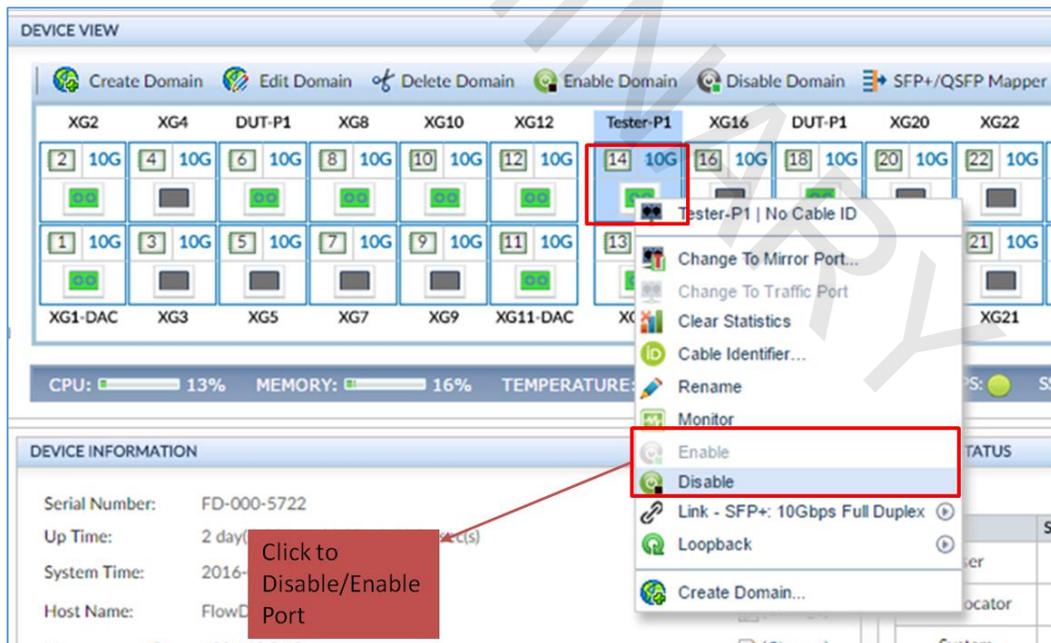


Figure 20: Enabling or Disabling a port in the Device View panel.

5.5 Creating a Virtual Wire Domain

There are two ways to create a Virtual Wire domain:

- Creating a Virtual Wire with “Drag and Drop” (Recommended)
- Creating a Virtual Wire from the Toolbar

5.5.1 Creating a Virtual Wire with “Drag and Drop”

To create a virtual wire domain using the “drag and drop” method, follow these steps:

Example

In this example, port 50 is **XLG50** and port 49 is **XLG49**.

1. Click the Dashboard tab and scroll to the Device View panel.
2. Drag and drop port **XLG50** to the destination port **XLG49**, as shown in Figure 21.

A virtual wire is created between both ports, as shown in Figure 22.

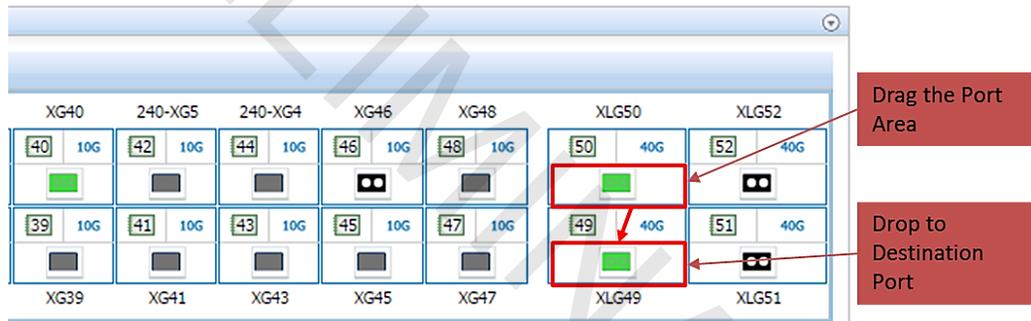


Figure 21: Dragging a dropping a port.

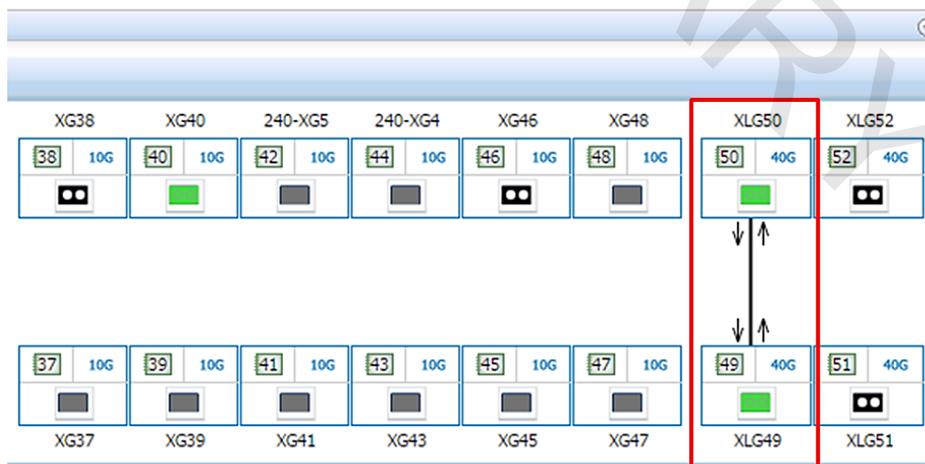


Figure 22. Creating a virtual wire between two ports.

5.5.2 Creating a Virtual Wire from the Toolbar

The Create Domain tab allows you to create a domain by assembling individual components or by employing templates.

NOTE: In this example we will select a template to create a bi-directional virtual wire domain. The bi-directional virtual wire cross-connects two ports.

1. Click **Create Domain** from the Device View toolbar.
The Input Domain name window appears, as shown in Figure 23.
2. Enter the domain name in the text box and click **OK**.
The Configuration Editor window appears with the domain name in the Data Path Components panel, as shown in Figure 23.

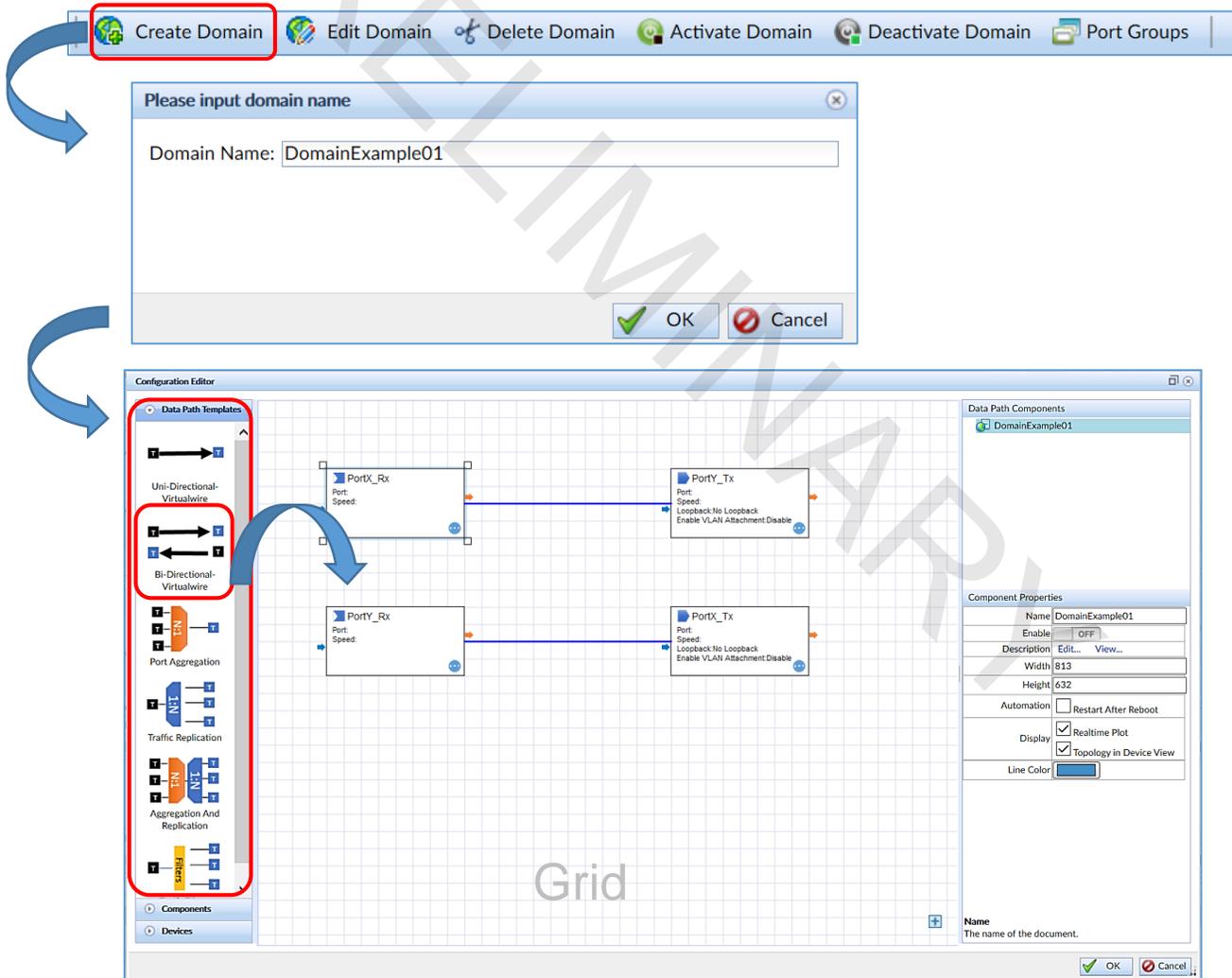


Figure 23: Configuration Editor window

- Click and drag the bi-directional domain template from the Data Path Templates panel to the grid.

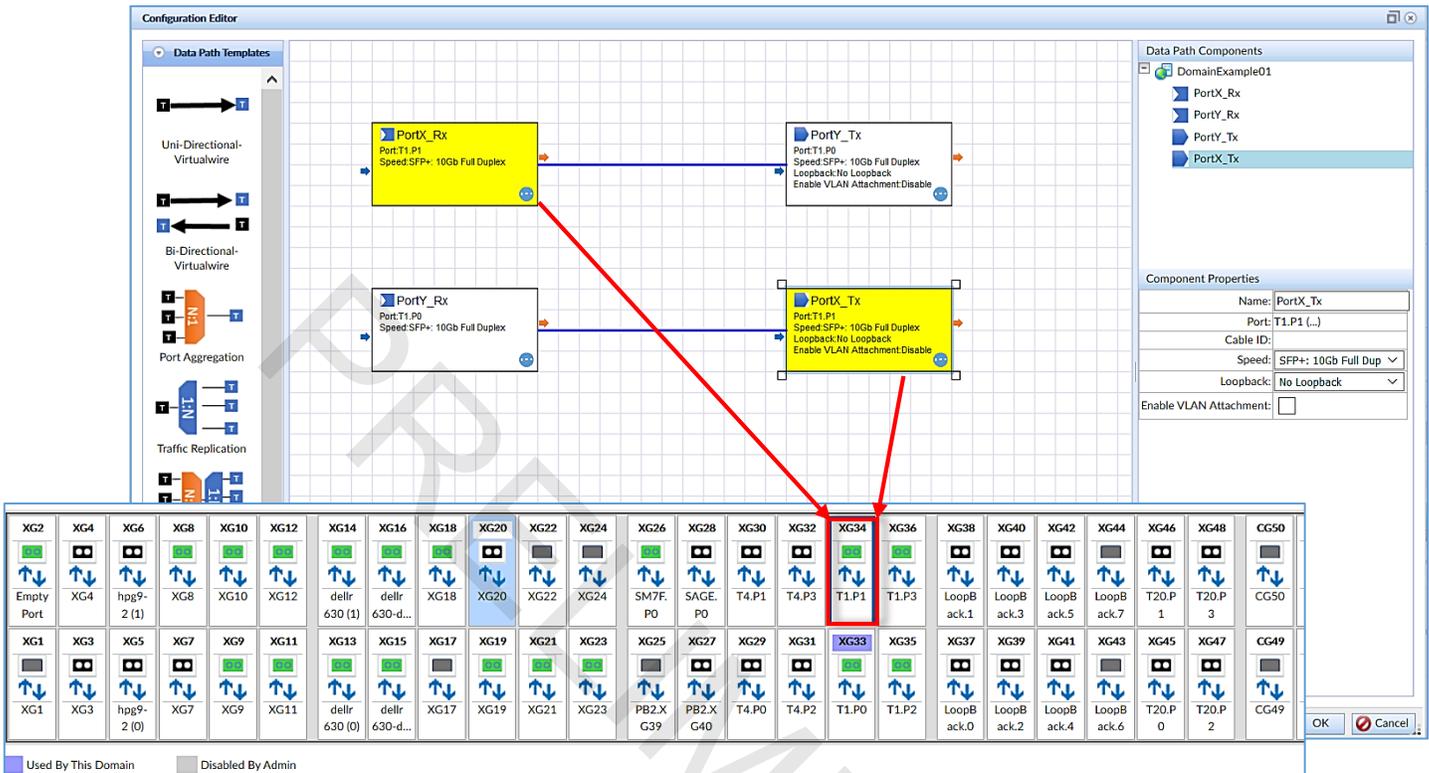


Figure 24: Assigning port XG34 to the bi-directional virtual wire template.

- Double-click the blocks **PortX_Rx** and **PortX_Tx** to assign the same port (Figure 24). In this example **PortX_Rx** and **PortX_Tx** are assigned to port **XG34**.

The Device View window appears, displaying the available ports (Figure 24 inset).

- Select port **XG34** and click **OK**.

The Device View window closes.

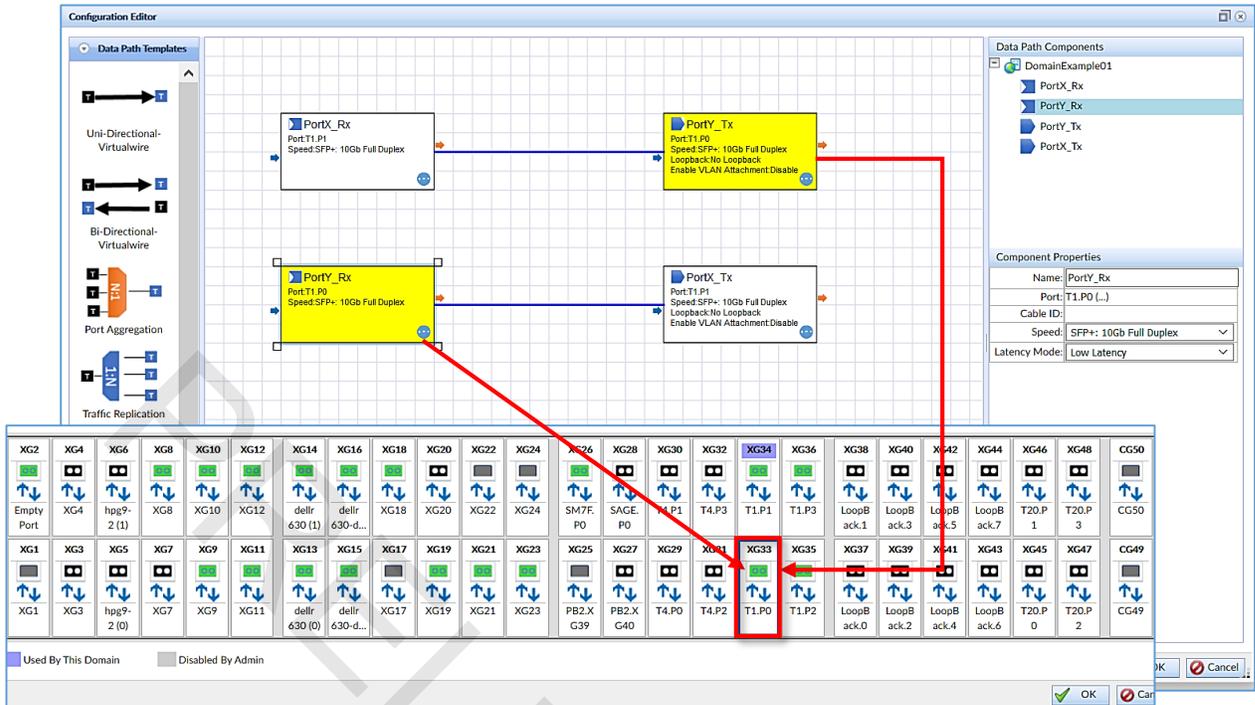


Figure 25: Assigning port **XG33** to the bi-directional virtual wire template.

6. Double-click the blocks **PortY_Rx** and **PortY_Tx** to assign the same port (Figure 25). In this example **PortY_Rx** and **PortY_Tx** are assigned to port **XG33**.

The Device View window appears, displaying the available ports (Figure 25 inset).

7. Select port **XG33** and click **OK**.

The Device View window closes.

8. Click **OK** in the Configuration Editor Window.

The Start Domain in Progress Window appears. The window closes once the domain has been configured.

9. Click **Activate Domain** from the Device View toolbar.

The Domain drop-down combo box appears, as shown in Figure 26.

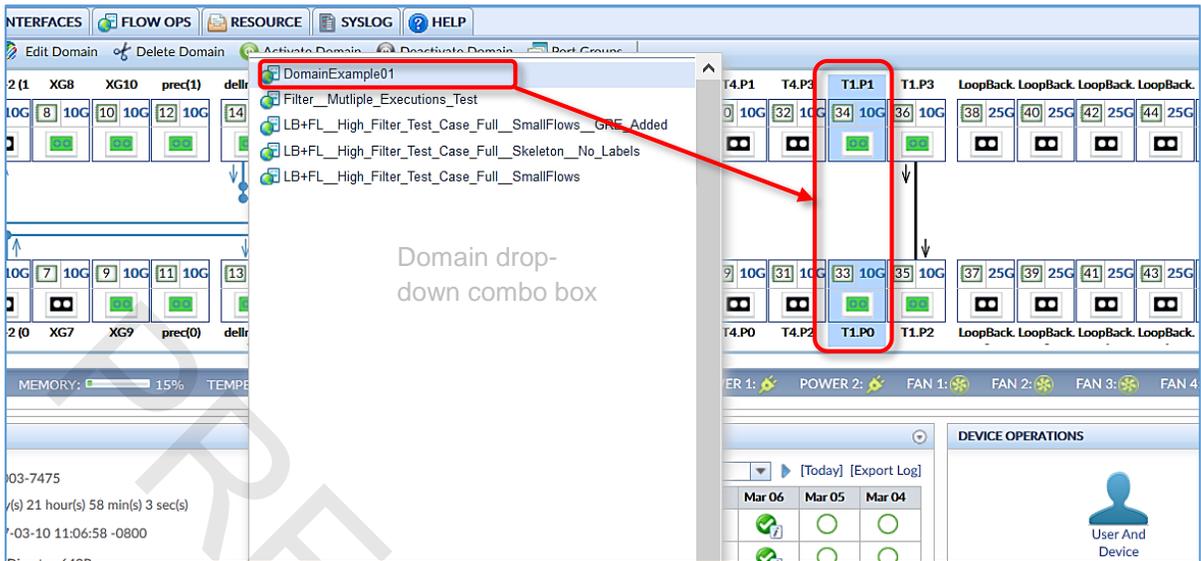


Figure 26. Selecting the domain to activate.

- Click the Domain entry (**DomainExample01**) from the drop-down combo box. The Start Domain in Progress window appears. The window closes once the domain has been activated (Figure 27).

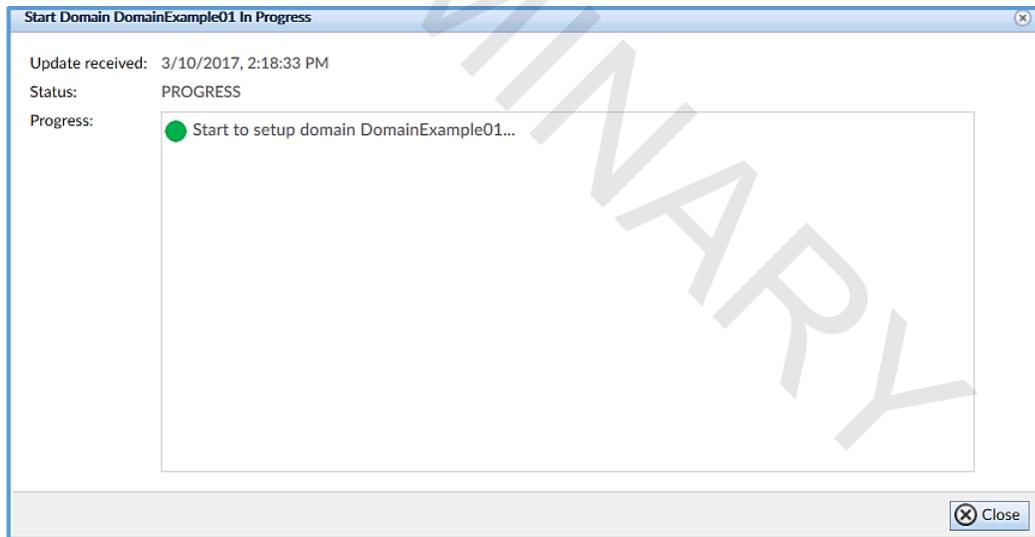


Figure 27. Start Domain in Progress window.

The activated bi-directional domain appears in the Device View window with the virtual wire cross-connecting two ports, as shown in Figure 28.

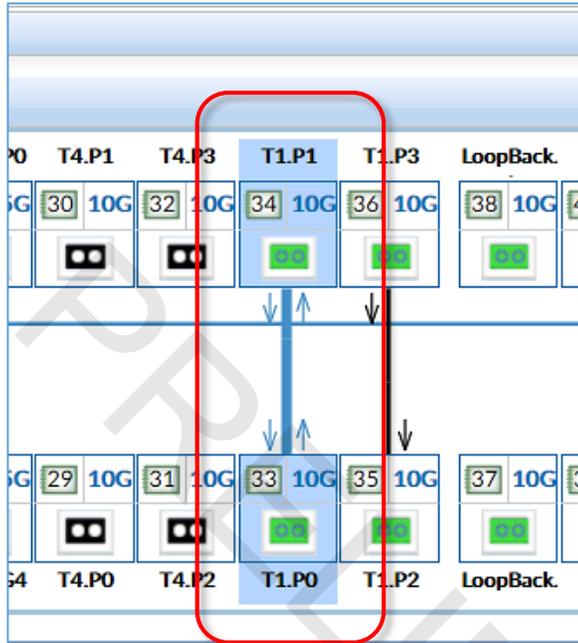


Figure 28. Bi-directional domain.

6 Recommended Reading Material

The following list provides further reading materials when users find the need to gain in-depth knowledge in specific area.

1. Myricom nVoy Series Packet Broker User Manual
2. Myricom nVoy Series Packet Broker Quick Reference Guide.

 Satisfy your packet recording needs. Contact us at myricom.sales@cspi.

About CSPI

CSPI (NASDAQ: CSPI) is a global technology innovator driven by a long history of business Ingenuity and technical expertise. A market leader since 1968, we are committed to helping our customers meet the demanding performance, availability, and security requirements of their complex network, applications and services that drive success.

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