Using Pseudowire Virtual Circuit Connectivity Verification Commands

Pseudowire is a tunnel established between two provider edge (PE) routers to transport Layer 2 protocol data units (PDUs) across a public switched network (PSN). A multisegment pseudowire is a static or dynamically configured set of two or more contiguous pseudowire segments. These segments act as a single pseudowire, allowing you to:

- Manage the end-to-end service by separating administrative or provisioning domains.
- Keep IP addresses of PE nodes private across interautonomous system (inter-AS) boundaries.
- Use IP address of autonomous system boundary routers (ASBRs) and treat them as pseudowire aggregation routers. The ASBRs join the pseudowires of the two domains.

A multisegment pseudowire can span either an inter-AS boundary or two multiprotocol label switching (MPLS) networks.

Cisco Prime Network supports the discovery and modeling of Any Transport over MPLS (AToM) and Ethernet over MPLS (EoMPLS) domains that span multisegment pseudowires.

Cisco Prime Network also extends Virtual Circuit Connectivity Verification (VCCV) to support end-to-end connectivity verification across a pseudowire switching point and to provide the ability to trace the path of a multisegment pseudowire over any number of segments. You can use the ping command to verify the connectivity between any set of PE routers in the pseudowire path. This feature allows you to verify end-to-end VC connectivity in the case where the pseudowire spans multiple administrative domains and associated pseudowire switching points.

Cisco Prime Network 3.8 supports:

- Single segment pseudowires with no redundancy
- Single segment pseudowires with redundancy
- Single segment pseudowires with multiple backups
- Multi-segment pseudowires with no redundancy

Cisco Prime Network discovers and displays the pseudowires configured on a selected network element in the Logical Inventory tree of the Cisco Prime Network Vision application. Each pseudowire is configured with the following set of attributes:

- Name—The name of the pseudowire.
- Multi-segment Pseudowire—Whether or not the pseudowire is multi-segment: True or False.
- System Name—The name of the system on which the pseudowire is configured.
- Pseudowire Type—The type of pseudowire, such as Ethernet, Ethernet Tagged, or Point-to-Point Protocol (PPP).

When you select the pseudowire on the Logical Inventory tree, you can view the list of pseudowire tunnels or interfaces configured on the selected network element in the Tunnel Edges table on the content area of the Cisco Prime Network Vision application. The following tunnel or interface attributes are modeled in Cisco Prime Network:

- Port—Virtual Switch Interface (VSI) on which the tunnel is configured.
- Peer VC Label—The MPLS label that is used by the router to identify or access the tunnel.
- Tunnel Status—Operational state of the tunnel: Up or Down.
- Local VC Label—The MPLS label that is used to identify or access the tunnel.
- Local Router IP—The IP address of the tunnel endpoint, which is used as the MPLS router identifier.
- Tunnel ID—The tunnel identifier.
- Peer Router IP—The IP address of the peer tunnel endpoint, which is used as the MPLS router identifier.
- Local MTU—The size, in bytes, of the MTU on the local interface.
- Remote MTU—The size, in bytes, of the MTU on the remote interface.
- Signaling Protocol—The protocol used by MPLS to build the tunnel.
- Pseudowire Type—The type of pseudowire, such as Ethernet, Ethernet Tagged, or PPP.

Supported Network Elements

You can run the psuedowire commands on all Cisco IOS and Cisco IOS XR devices that support pseudowire technology, such as

- Cisco 7200 series routers
- Cisco 7600 series routers
- Cisco ASR 9000 series aggregation services routers
- Cisco XR 12000 series routers
- Cisco ME 3600X and Cisco ME 3800X Carrier Ethernet Switches

See Part 1—Cisco VNEs for details on the software versions Prime Network supports for these network elements. To run the pseudowire commands, the software on the network element must support the pseudowire technology.

Pinging the Peer Router from a Single Segment or Multisegment Pseudowire

Use the **Ping Pseudowire** command to ping the peer router with a tunnel ID from a single or multisegment pseudowire. This command can be used to verify connectivity between any set of PE routers in the pseudowire path. For a multisegment pseudowire this command can be used to verify that all the segments of the multisegment pseudowire are operating. You can use this command to verify connectivity at the following pseudowire points:

- From one end of the pseudowire to the other
- From one of the pseudowires to a specific segment

- The segment between two adjacent PE routers

You can choose to ping the peer router by default or provide the IP of the required destination router to ping.

Note   The **Ping Pseudowire** command applies to all Cisco IOS and Cisco IOS XR devices that support pseudowire technology.

Step 1   In the inventory window, expand the Logical Inventory tree and choose Pseudowires.

The Tunnel Edges table is displayed on the content area, listing the pseudowire tunnels or interfaces configured on the selected element.

Step 2   Right-click the required interface and choose **Commands > Configure > Ping Pseudowire**. The Ping Pseudowire dialog box opens.

By default, the General tab is displayed. Enter values for the following parameters.

Input Parameter	Description
Multisegment Ping[1]	Select **Enable** or **Disable** to activate or deactivate multisegment pinging.
Ping with default Destination IP and VC-ID	Check this to ping the peer router by default. The destination router is identified from the peer router IP specified in the Tunnel Edges table.
Destination IP address	The IP address of the router to ping. Leave this blank if the Ping with default Destination IP and VC-ID check box is selected.
VC-ID	The pseudowire virtual circuit (VC) identifier. Leave this blank if the Ping with default Destination IP and VC-ID check box is selected.

1.   This parameter is available only for Cisco IOS XR devices.

Step 3   To see the command that will be applied on the device, click **Preview**.

Step 4   To schedule the command, click the Scheduling tab. For more details on scheduling, see Scheduling a Command.

Step 5   To run the command, click **Execute**.

Any errors are displayed in the Result tab.

Step 6   To close the dialog box, click **Close**.

Displaying Pseudowire Information

Use the **Display Pseudowire** command to show the MPLS Layer 2 (L2) transport binding using tunnel identifier. MPLS L2 transport binding allows you to identify the VC label binding information. This command can be used to display information about the pseudowire switching point.

Note   The **Display Pseudowire** command applies to all Cisco IOS and Cisco IOS XR devices that support pseudowire technology.

Step 1   In the inventory window, expand the Logical Inventory tree and choose Pseudowires.

The Tunnel Edges table is displayed on the content area, listing the pseudowire tunnels or interfaces configured on the selected element.

Step 2   Right-click the required interface and choose **Commands > Show > Display Pseudowire**. The Display Pseudowire dialog box opens.

By default, the Result tab is displayed. The command does not require any input parameters.

Step 3   To see the command that will be applied on the device, click **Preview**.

You can view the command in the Result tab. You can go back and modify the parameter setting if required.

Step 4   To schedule the command, click the Scheduling tab. For more details on scheduling, see Scheduling a Command.

Step 5   To run the command, click **Execute Now**.

Any errors are displayed in the Result tab.

Step 6   To close the dialog box, click **Close**.