Monitor SR-TE Policies and RSVP-TE Tunnels

This section contains the following topics:

- View SR-TE Policies and RSVP-TE Tunnels on the Topology Map, on page 1
- Visualize SR-TE Policies and RSVP-TE Tunnels Example, on page 4
- Configure Timeout Settings, on page 13

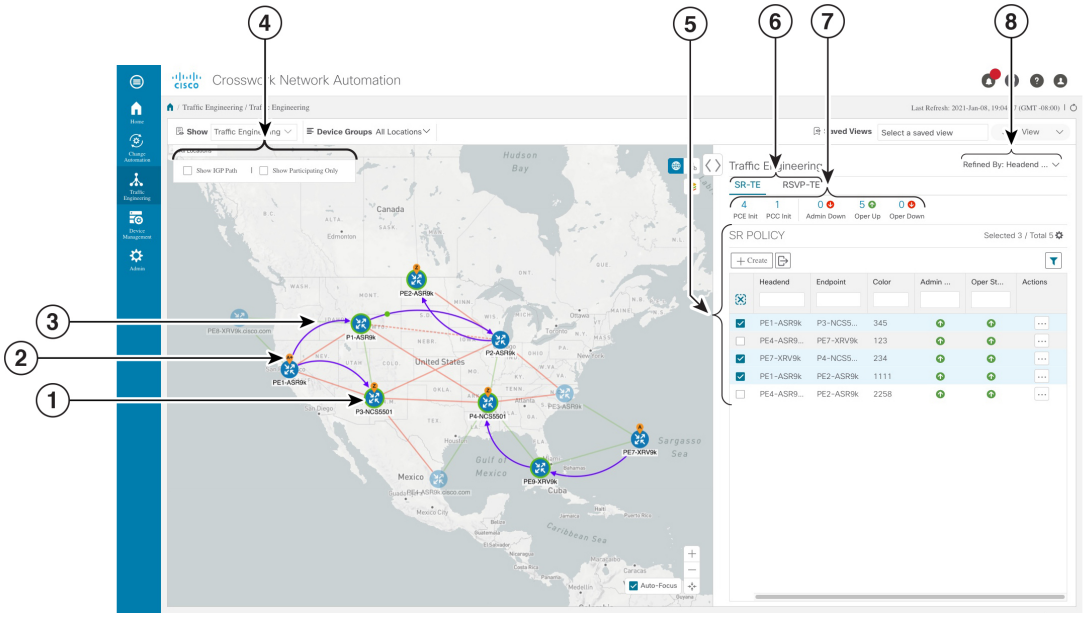
View SR-TE Policies and RSVP-TE Tunnels on the Topology Map

Crosswork Optimization Engine visualization provides the most value by giving you the ability to easily view and manage SR-TE policies and RSVP-TE tunnels. By visually examining your network, the complexity of provisioning and managing these TE tunnels is significantly reduced.

To get to the Traffic Engineering topology map, choose **Traffic Engineering** > **Traffic Engineering**.

Note Throughout this document, the navigation is documented as **Traffic Engineering** > **Traffic Engineering**. However, when using Crosswork Optimization Engine within the Crosswork Network Controller solution, the navigation is **Traffic Engineering & Services** > **Traffic Engineering**.

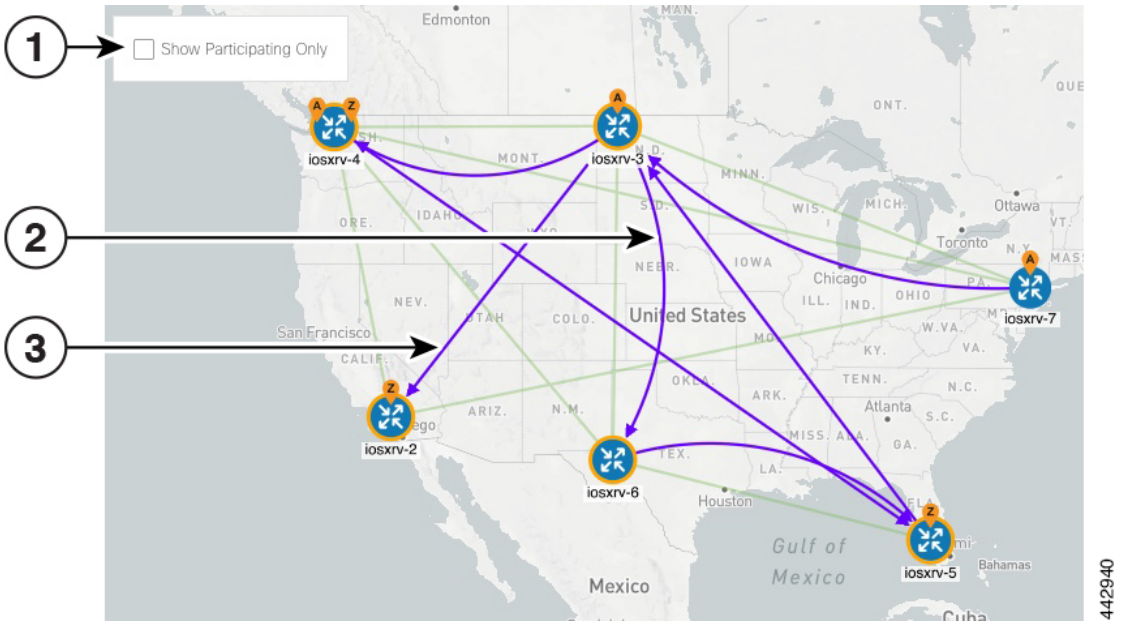
Figure 1: Traffic Engineering UI



Callout No.	Description
1	SR-TE Policies—A device with a green ( ) outline indicates there is a node SID associated with that device or a device in the cluster. RSVP-TE Tunnels—A device with a solid orange outline ( )indicates that it is a strict hop. A dashed orange outline indicates that a loose hop was discovered. **Note** RSVP-TE tunnels cannot be configured with loose hops when provisioning in the UI.
2	**SR-TE Policy and RSVP-TE Tunnel Origin and Destination**: If both **A** and **Z** are displayed in a device cluster, at least one node in the cluster is a source and another is a destination. The **A+** denotes that there is more than one SR-TE policy or RSVP-TE tunnel that originates from a node. The **Z+** denotes that the node is a destination for more than one TE tunnel.
3	**SR-TE Policies and RSVP-TE Tunnels**: When SR-TE policies or RSVP-TE tunnels are selected in the SR-TE Policy or RSVP-TE Tunnel tables, they show as purple directional lines on the map indicating source and destination. An adjacency segment ID (SID) is shown as a green dot on a link along the path ( ).
4	Click the appropriate check box to enable the following options: • **Show IGP Path**—Displays the IGP path for the selected SR-TE policy. This option is not available when viewing RSVP TE tunnels. • **Show Participating Only**—Displays only links that belong to selected TE tunnels. All other links and devices disappear.

Callout No.	Description
5	The content of this window depends on what has been selected or filtered. In this example, the SR-TE tab is selected and the SR Policy table is displayed. Depending on what is selected on the topology map, or whether you are in the process of viewing and managing TE tunnels, you can do the following: • Visualize SR-TE Policies and RSVP-TE Tunnels Example, on page 4 • Provision SR-TE Policies • Provision RSVP-TE Tunnels
6	Click on either the **SR-TE** or **RSVP-TE** tabs to view the respective list of TE tunnels.
7	The **Mini Dashboard** provides a summary of the operational TE tunnel status and the number of PCC and PCE initiated tunnels that are *currently* listed in the SR Policy or RSVP-TE tables. If filters are applied, the Mini Dashboard is updated to reflect what is displayed in the SR Policy or RSVP-TE table.
8	This option allows you to choose how the group filter (when in use) should be applied on the table data. For example, if **Headend only** was selected, then it would only display policies where the headend device of the policy is in the selected group. This filter allows you to see specific configurations and is useful when you have a large network.

Figure 2: RSVP-TE Tunnels



The display of RSVP-TE tunnels is similar *except* for the following:

Callout No.	Description
1	The **Show IGP Path** option is not available.

Callout No.	Description
2	Record Route Object (RRO) paths are shown as straight lines.
3	Explicit Route Object (ERO) paths are shown as curved lines. **Note** If both RRO and ERO paths are available, the RRO path is displayed by default.

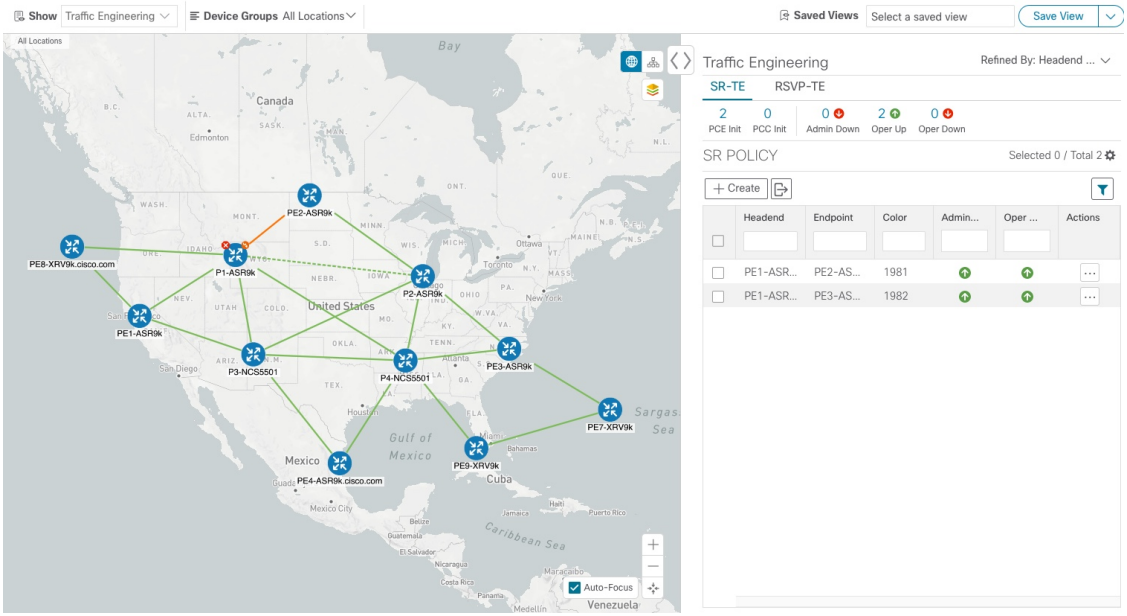
Visualize SR-TE Policies and RSVP-TE Tunnels Example

This example walks you through a number of TE tunnel visualization features that are available from the topology map. The topology map displays TE tunnels provisioned using the UI along with tunnels discovered from the network by SR-PCE. From there you can drill down to details and visualization of participating TE tunnels.

In this example, we assume that devices and SR-TE policies have been added and device groups have been created. SR-TE policies are not yet highlighted in the map.

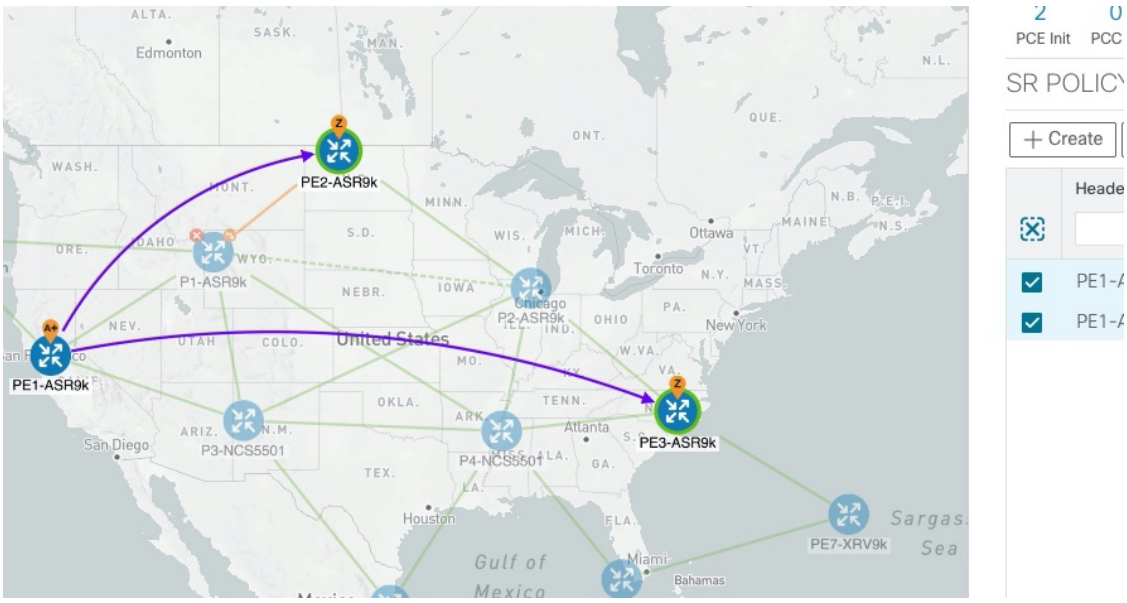
Note Although this example uses SR-TE policies, the basic functionality of the maps for both SR-TE policies and RSVP TE tunnels are the same.

Figure 3: Topology Map Example



Step 1 From the **SR Policy** table, check the checkbox next to the SR-TE policies you are interested in. In this example, there are two SR policies selected.

Figure 4: SR-TE Policy Selection



After SR-TE policy selection, the map displays the following:

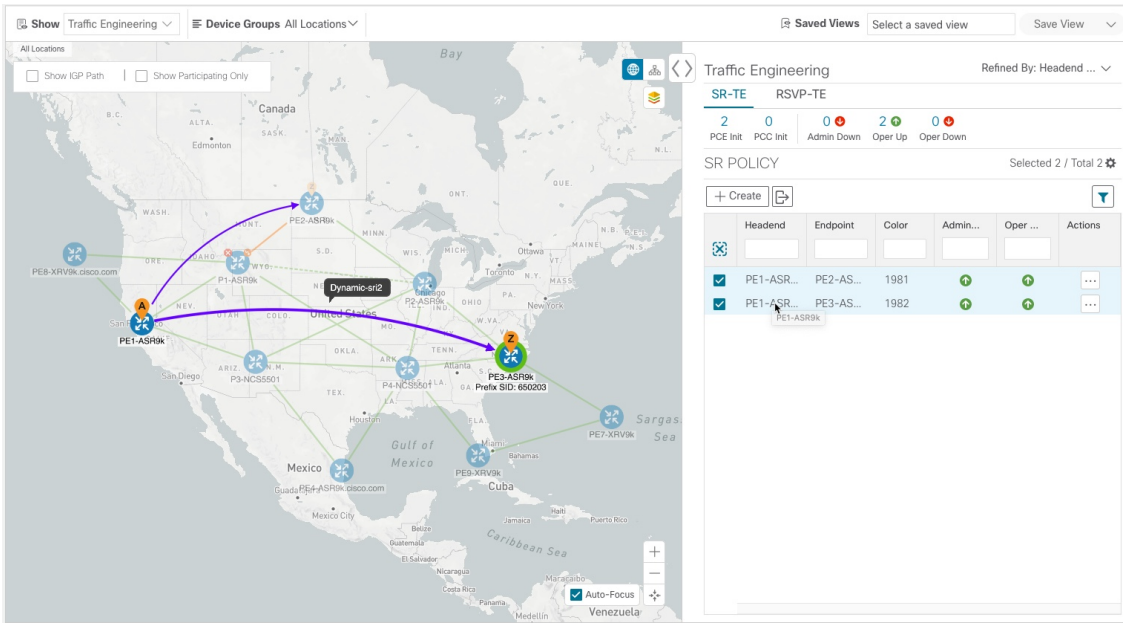
- SR-TE policies appear as purple links with arrows that indicate the path direction.
- The PE1-ASR9k node is an origin for the both selected policies. PE2-ASR9k and PE3-ASR9k are destinations for the selected policies. SR-TE policy origin and destination are marked with **A** and **Z**, respectively. The **A+** denotes that there is more than one policy that originates from a device. A **Z+** would denote that the device is a destination for more than one policy.

  Note If both **A** and **Z** are displayed in a device cluster, at least one device in the cluster is a source and another is a destination.

- indicates that PE2-ASR9k and PE3-ASR9k have node SIDs.

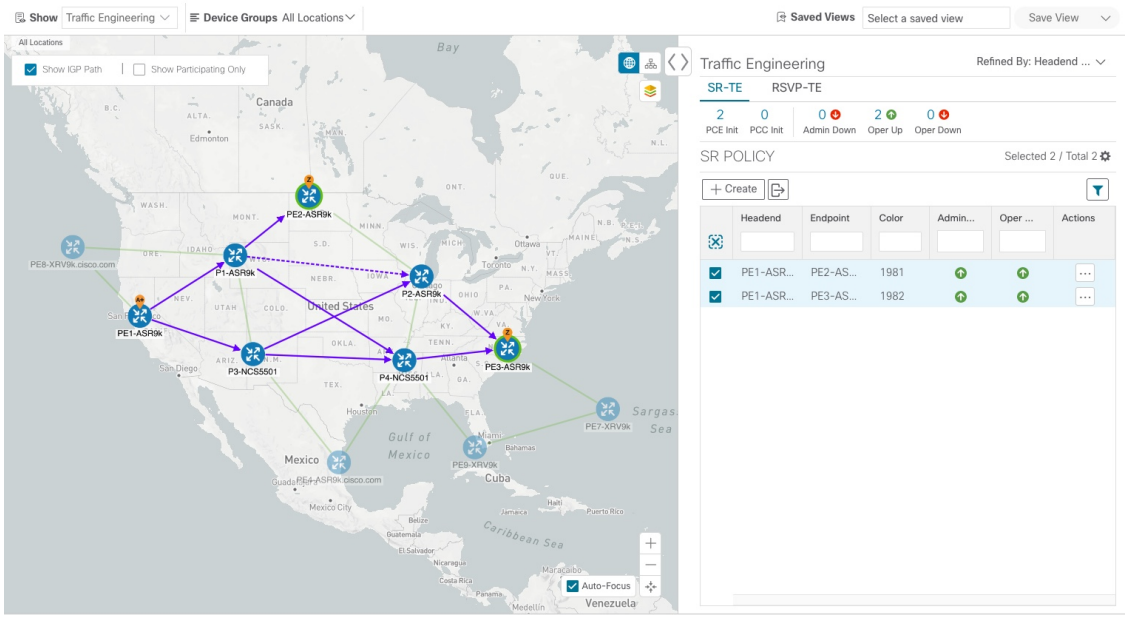
Step 2 From the **SR Policy** table, *hover* over a selected policy. The path name of that policy is highlighted on the topology view. You will also see prefix SID information.

Figure 5: Hover over an SR-TE Policy for Details



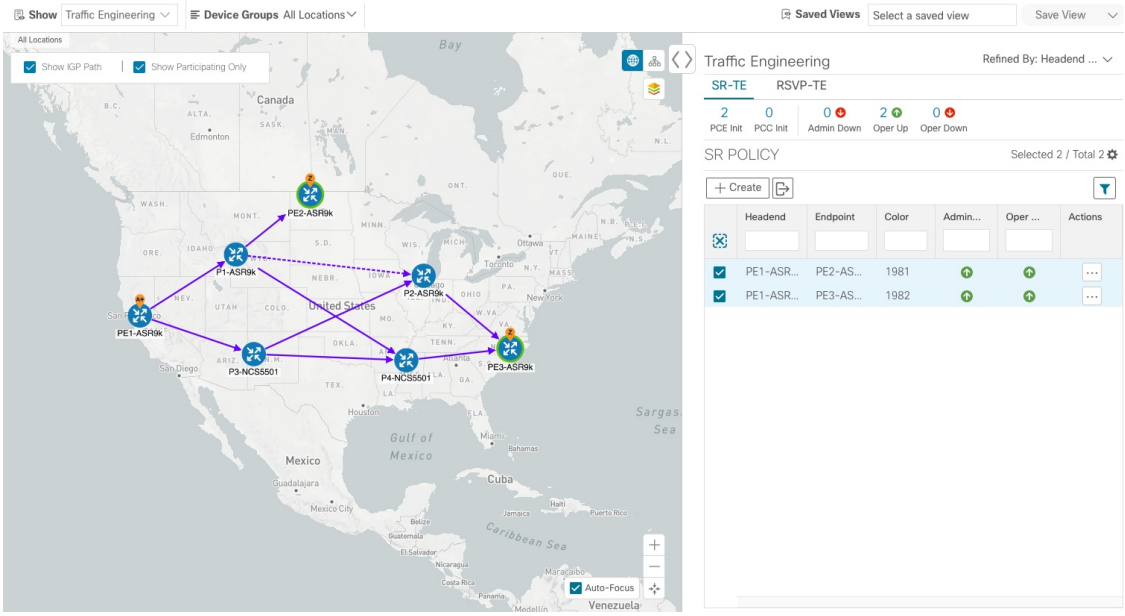
Step 3 To see the physical path between endpoints, check the **Show IGP Path** check box (available only with SR-TE policies). The IGP paths for the selected SR-TE policies are displayed, with straight lines, instead of the segment hops.

Figure 6: IGP Paths



Step 4 Check the **Show Participating Only** check box. All non-participating links and devices disappear. Only participating policies are displayed.

Figure 7: Participating SR-TE Policies



Step 5 To view the IGP, TE or Delay metrics for each tunnel along a policy's path, do the following:

a) For SR-TE policies only, confirm that the **Show IGP Path** checkbox is checked.

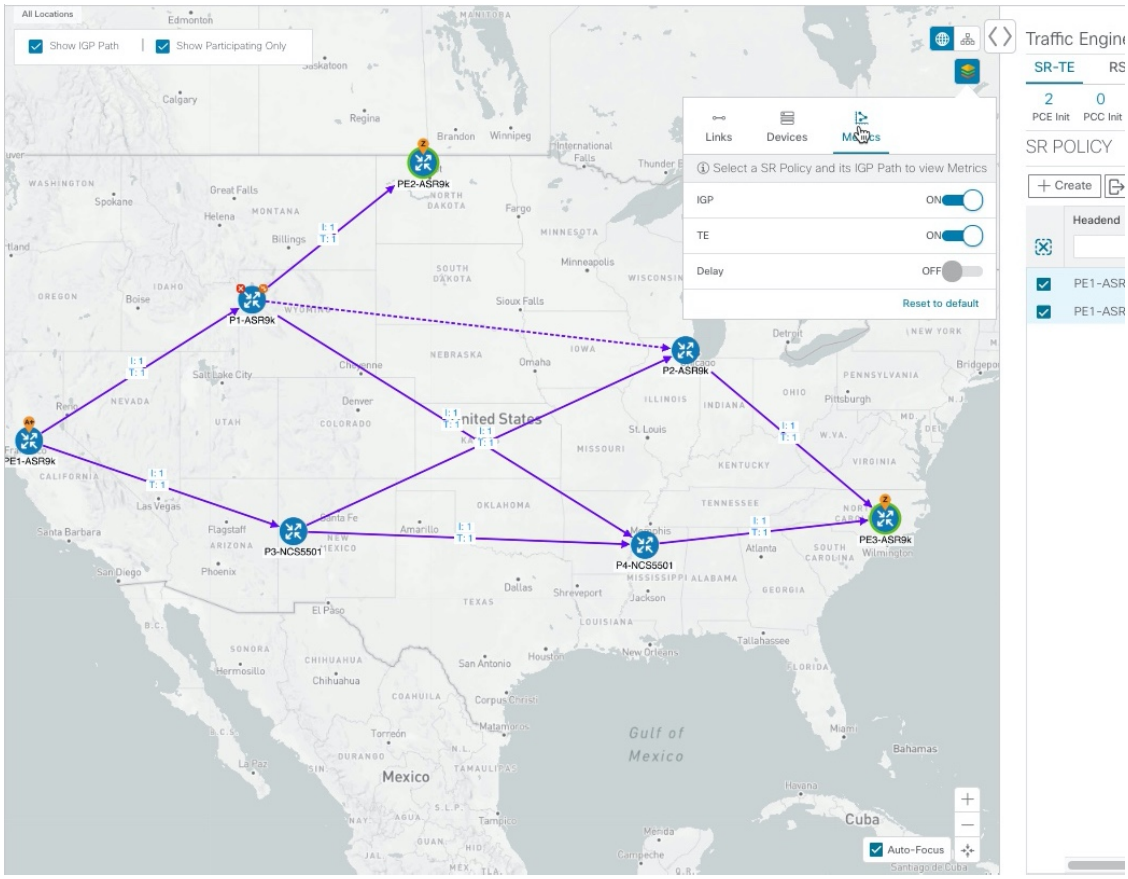
b) Click .

c) Click the **Metrics** tab.

d) Toggle applicable metrics to **ON**.

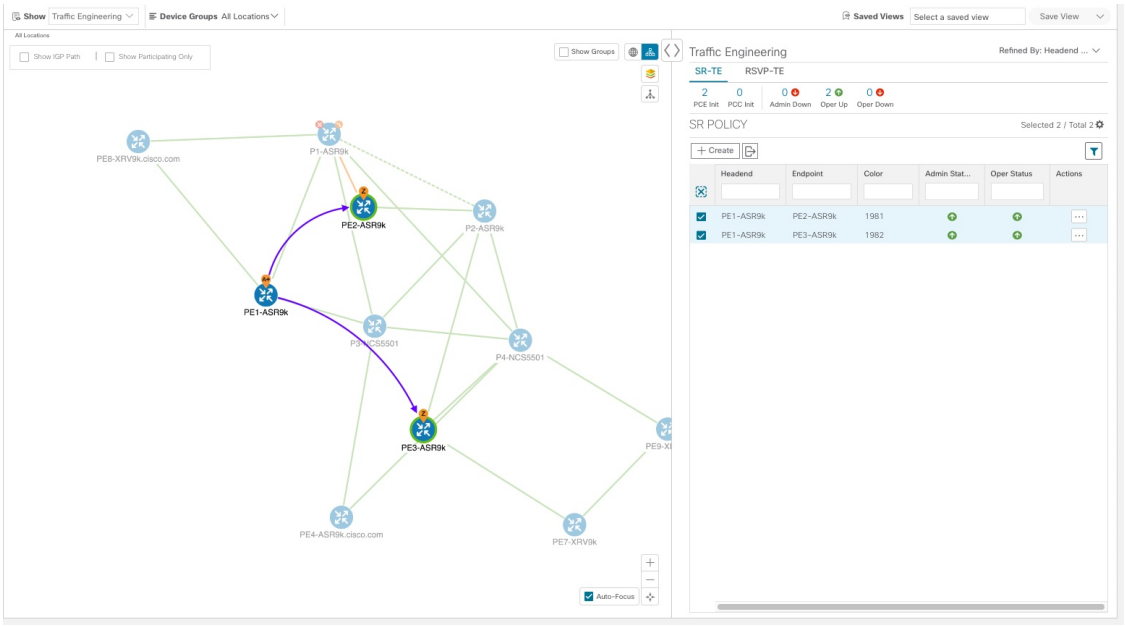
The metric details are displayed for each policy on the map.

Figure 8: IGP, Delay, and TE Metrics



Step 6 Click ⁂ to display the logical view.

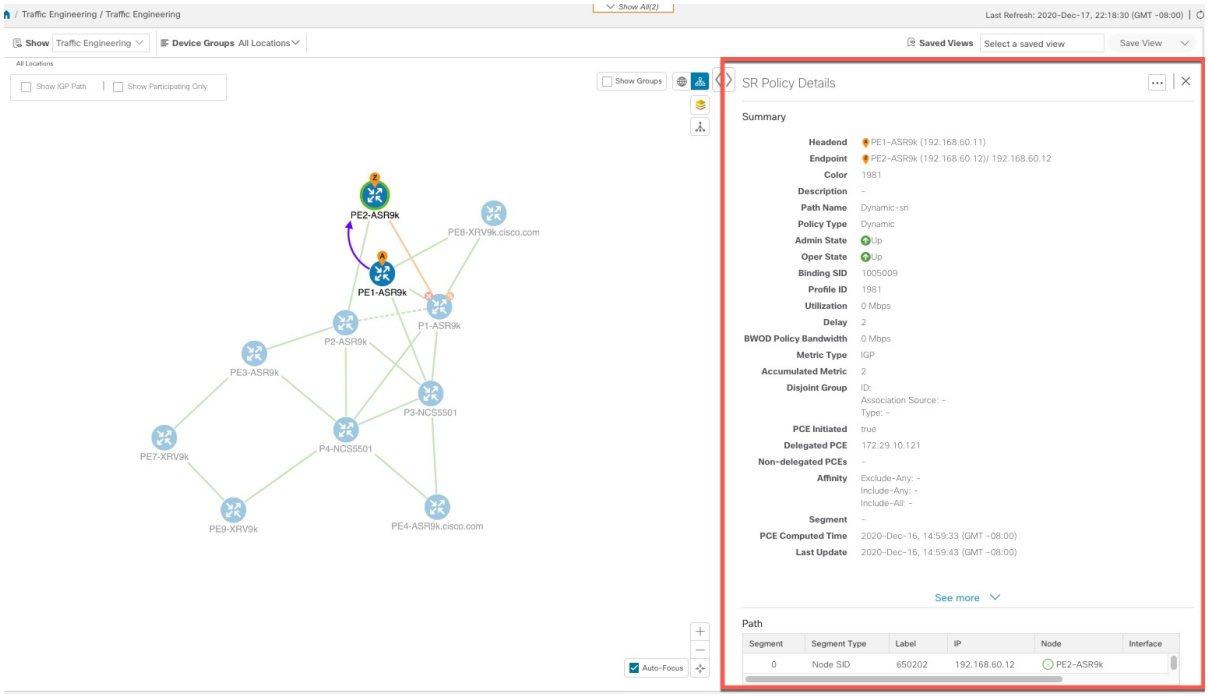
Figure 9: Logical Map



You are able to see the same information (aside from geographical location) that is available on the geographical topology map. You also have the ability to move devices and links on the map to make it easier to view. Click **Save View** to save the current view and retrieve it later.

Step 7 To view SR-TE policy details such as disjoint groups, metric type, segment hop information, and so on, click ··· under the **Actions** column from the table.
The **SR Policy Details** window is displayed in the side panel. Note that only the selected policy is now highlighted on the topology map.

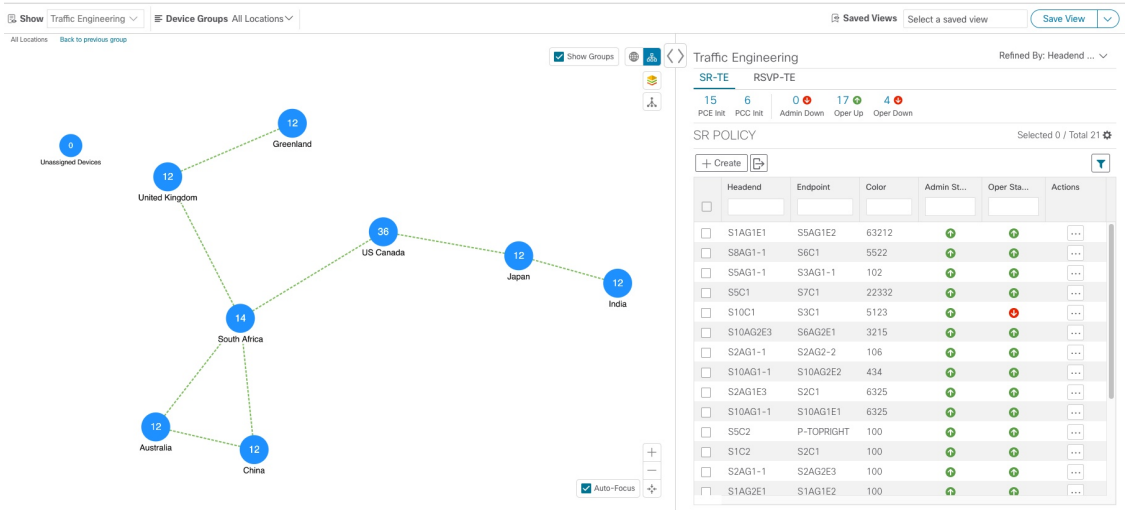
Figure 10: SR-TE Policy Details



Step 8 Close (✕) the current view to return to the **SR Policy** table.

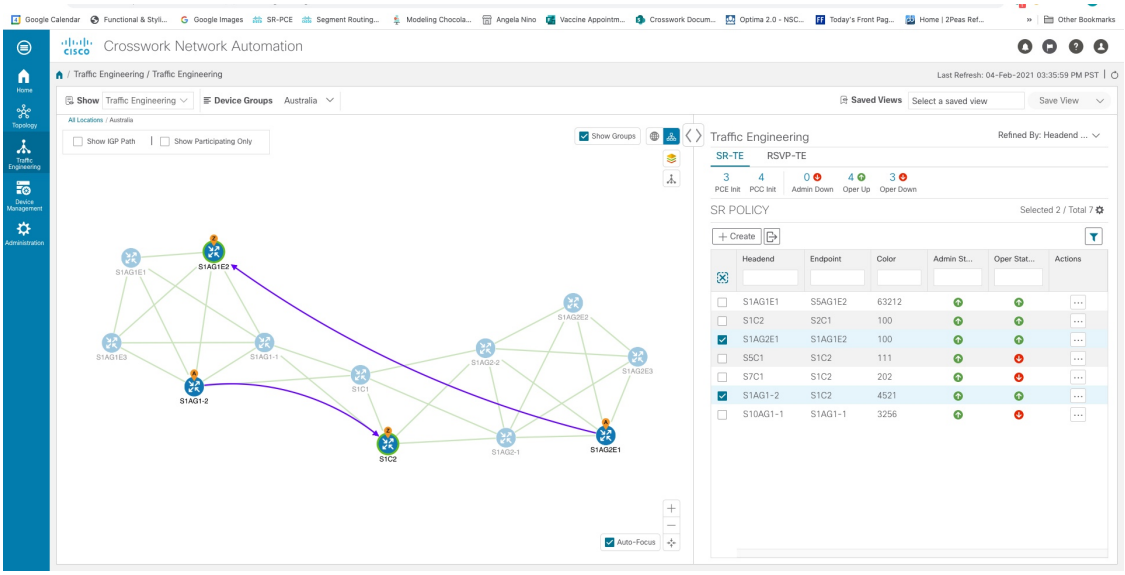
Step 9 To understand how device groups are displayed with the selection of SR-TE policies or RSVP-TE tunnels, uncheck any SR-TE policies that might be selected and check **Show Groups**.

Figure 11: Show Groups



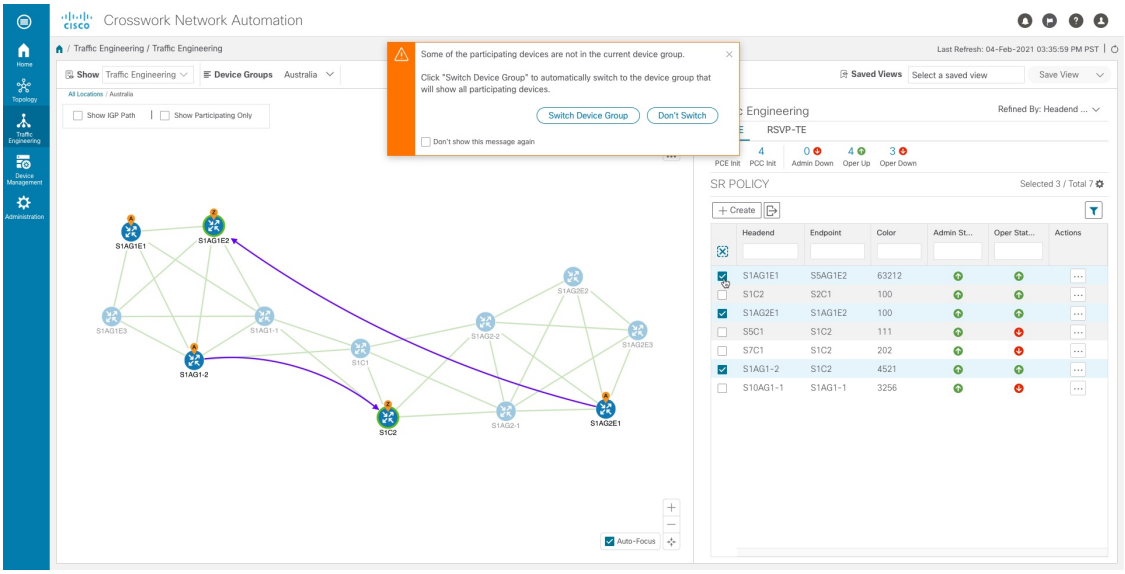
Step 10 Selecting a specific group from the **Device Groups** drop-down list, will only display that group in the map and . In this example, **Australia** is selected and the associated SR-TE policy is selected and displayed.

Figure 12: Device Group Selection



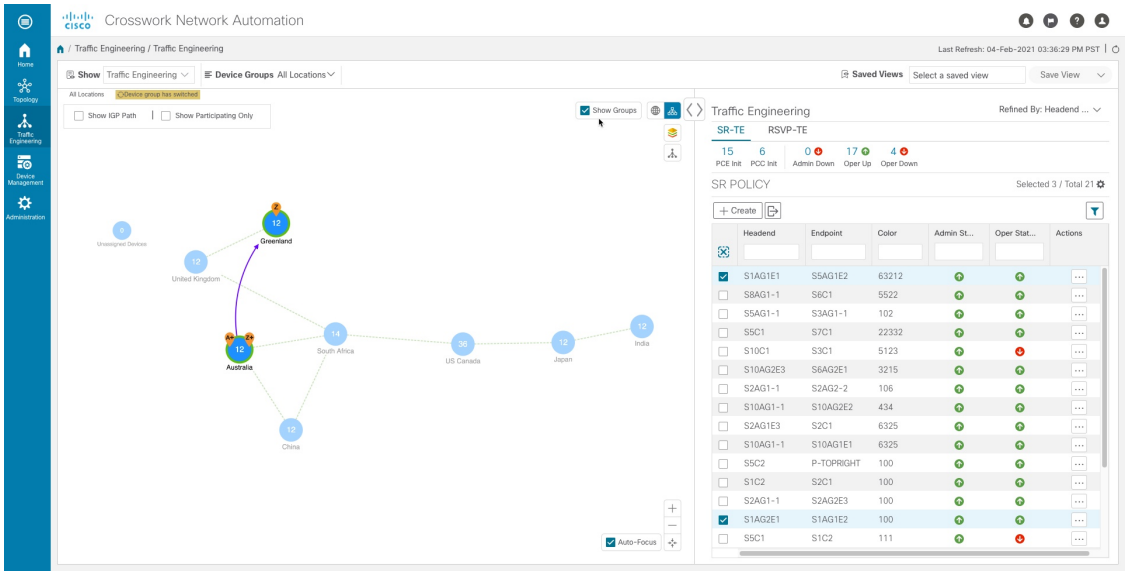
Step 11 If you select a policy where participating devices are not part of the selected group, then a dialog appears giving you an option to switch the group view. This is the default behavior. If this window does not appear, then the administrator has configured the display to automatically switch view or stay in the current view. For more information, see Set Display Behavior of Device Groups for TE Tunnels.

Figure 13: Switch Device Group Dialog

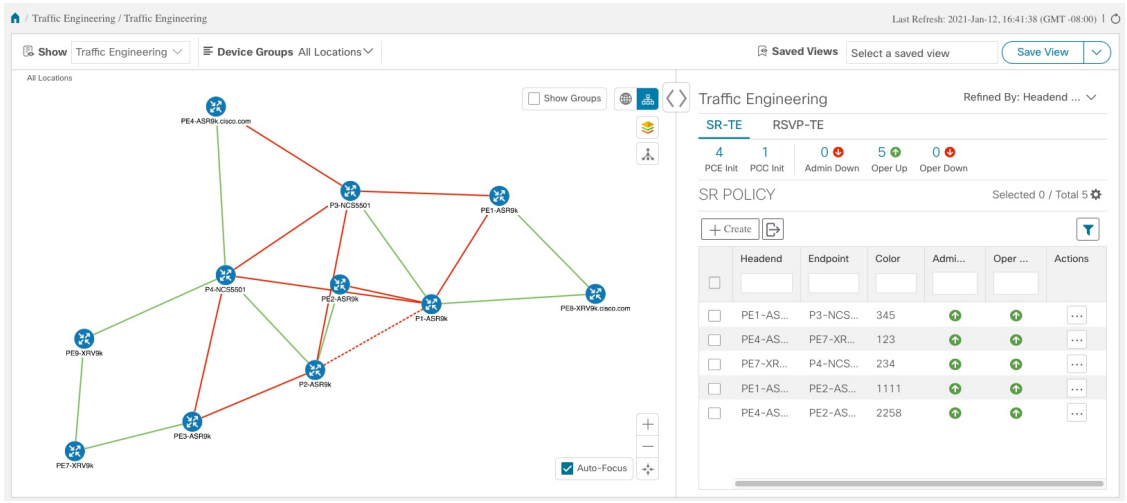


Step 12 If you select **Switch Device Group**, then the group will change and you will see all participating devices for the SR policies you have selected.
To go back to the previous group view, click **Back** (this link appears later in the yellow text area indicated in the following figure).

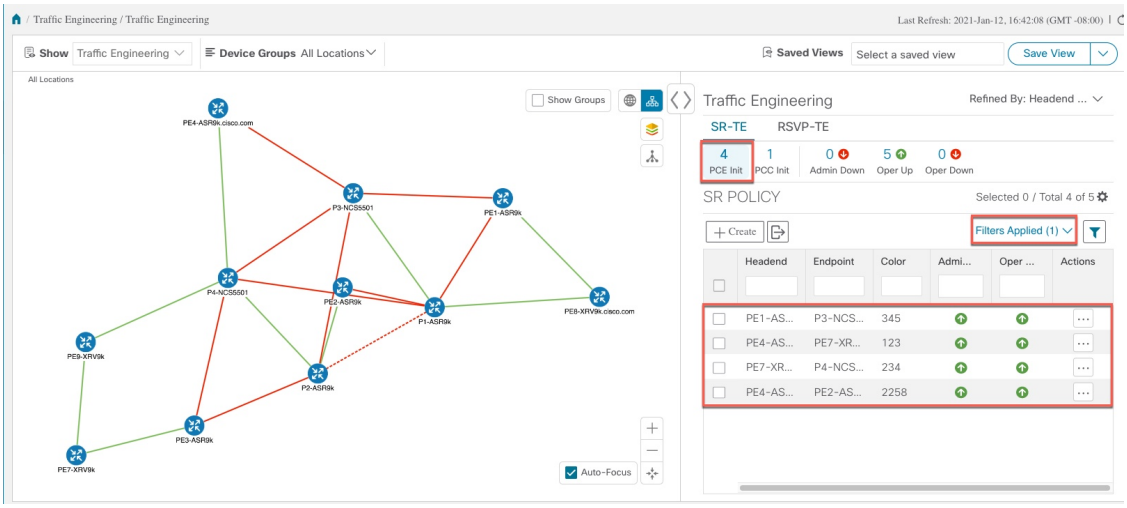
Figure 14: Result of Switching Device Group



Step 13 You can also use the Mini Dashboard to drill down and focus on certain SR-TE policies.



To filter the SR Policy table to show only PCE-initiated policies, click the value for PCE Init from the SR-TE Mini Dashboard. Note that the **Filters Applied** text appears.



Step 14 Change the layout of the nodes. To save the layout and the filtered list of SR policies, click **Save View**.

Note You cannot save a custom view with any SR-TE policies selected.

Step 15 To remove filter criteria, click **Filters Applied** > **Clear All Filters**. You can also select individual filters if more than one filter has been applied.

Configure Timeout Settings

To configure timeout settings for the provisioning and retrieval of data for SR-TE policies, RSVP-TE tunnels, Bandwidth on Demand and IGP paths, select **Administration** > **System Settings** > **Timeout Configuration** tab. Enter the timeout duration options. For more information, click ⓘ.