



Manage Cable Devices

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Manage Cable Devices

The Cisco cBR-8 Converged Broadband Router (Cisco cBR-8) is a 13 rack unit (RU) chassis. It supports multiple card modules and is designed with back-to-back midplanes; a front facing Digital Midplane and a rear facing RF Midplane. In a cable network with the Remote PHY architecture, multiple Remote PHY Devices (RPDs) connect to Cisco cBR-8 devices based on the Data Over Cable Systems Interface Standard (DOCSIS) and EuroDOCSIS standards that define two-way operation over the cable network.

Remote PHY is an architectural strategy that removes the PHY element from a product and places that PHY element in a separate access point interconnected with an IP network. The Cisco Remote-PHY solution leverages existing IP technologies like Ethernet PON (EPON), Gigabit-capable Passive Optical Networks (GPON), and Metro Ethernet (MetroE) equipment; it deploys DOCSIS in Multi Dwelling Units (MDUs) over digital fiber to enable two-way services over cable.

Using Cisco EPN Manager , you can add and discover Cisco cBR-8 and devices and RPDs, view their L2TP links and topology on the network topology, and further configure them. You can also continuously monitor the health of RPDs to Cisco cBR-8 device links. See [Manage Cisco cBR-8 and RPDs Association, on page 6](#).

Cisco EPN Manager , enables you to create service templates with profiles such as events profiles, downstream and upstream controller profiles, to associate the templates with RPDs in bulk. As part of the service template, you can also configure the Remote PHY timing values for the RPD, using the Remote DTI (R-DTI) protocol. To configure the R-DTI profile and other service template parameters, see [Manage Cable Service Templates, on page 11](#).

For more information about cBR-8 devices, see <http://www.cisco.com/c/en/us/td/docs/cable/cbr/cisco-cbr/index.html>:

The process of managing cable devices in Cisco EPN Manager involves:

1. Ensuring that the cBR-8 devices and Cisco Smart PHY are up and available for configuring.
2. Configuring the required access in Cisco EPN Manager by providing Cisco Smart PHY credentials.
3. Adding the cBR-8 device and ensuring that the inventory collection status for the device is 'Completed'. See [Add Devices to Cisco EPN Manager](#)
4. Adding RPD information to Cisco EPN Manager either manually or by importing RPD details from a CSV file.
5. Ensuring that the status of CBR-8 and RPD pairing is Online.
6. (Optional) Creating service templates or using the default service template and applying them to the RPDs.
7. (Optional) Monitoring the devices using the network topology to view the alarm and link information.
8. (Optional) Managing device images using Software Image Management. See [Manage Device Software Images](#).

Features and Limitations

Cisco EPN Manager supports the following features to manage cable devices:

- Configuring Cisco Smart PHY with Cisco EPN Manager .
- Importing RPD cBR-8 pairing details in bulk.
- Monitoring and visualizing RPD to cBR-8 L2TP links in the network topology.
- Ability to place unmapped cable devices on the network topology.
- Creating service templates and associating them with RPDs.
- Managing software images on cBR-8 devices.
- Performing configuration audit using compliance for cBR-8 devices.
- Viewing cBR-8 device 360 and interface 360 information.
- Viewing cBR-8 device details in the chassis view.
- Viewing cable device syslogs.

Cisco EPN Manager has the following limitation in managing cable devices:

- You cannot set the location of devices in bulk using the **Import and Export Locations** options on the network topology.

Cable Management Features and Supported User Groups

The following table lists the various cBR-8 and RPD management tasks supported by Cisco EPN Manager and the supported user groups. See [View and Change the Tasks a Group Can Perform](#) for information on the tasks that pertain to each user group and the default settings.

Table 1: Cable Management Features and Supported User Groups

Cable Management Features	Root/Super Users	Admin Users	Config Managers	System Monitoring	Monitor Lite	User Assistant	NBI Credentials	Network NBI	NBI Read	NBI Write	Other Users
Adding, editing, deleting, and importing RPDs. Editing RPD data using the inline editing option.	Yes	Yes	Yes	–	–	–	–	–	–	Yes (not applicable for inline editing of RPD data)	–
Viewing the Cable RPD Association page and the Cable Service Templates page	Yes	Yes	Yes	Yes	Yes	Yes	–	–	–	–	–
Listing RPDs.	Yes	Yes	Yes	Yes	Yes	–	–	–	Yes	–	–
Exporting RPDs.	Yes	Yes	Yes	Yes	Yes	–	–	–	–	Yes	–
Using quick launch hyperlinks. From the Cable RPD Association page to the network topology and vice versa.	Yes	Yes	Yes	–	–	–	–	–	–	–	–
Viewing cable devices in the network topology	Yes	Yes	Yes	Yes	Yes	–	–	–	–	–	–
Launching, viewing, adding, and editing Cable Application (Cisco Smart PHY) client credentials.	Yes	Yes	–	–	–	–	–	–	– (Only viewing details is permitted)	–	–

Cable Management Features	Root/Super Users	Admin Users	Config Managers	System Monitoring	Monitor Lite	User Assistant	NBI Credentials	Neighbor NBI	NBI Read	NBI Write	Other Users
Viewing Cisco cBR-8 device information (in the Configuration tab) such as the device's license usage status, available sensor readings, IPv4 and IPv6 statistics, voice calls count, fan and power supply status, and other generic data. Also view slot level information such as FPGA/CPLD version numbers.	Yes	-	Yes	-	-	-	-	-	Yes	-	-
View Cisco cBR-8 device performance information (in the Performance tab) in the linecard upstream and downstream dashlet, power supply dashlet, CPU and memory utilization dashlet, fan tray dashlet, along with other general configuration details.	Yes	-	Yes	Yes	-	-	-	-	Yes	-	-
Listing Service Templates, including expanding and collapsing the Assign Service Template hyperlink	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
Creating, copying and deleting service templates. Updating and assigning service templates to RPDs. RPD assign (up arrow link).	Yes	Yes	Yes	-	-	-	-	-	-	-	-

Cable Management Features	Root/Super Users	Admin Users	Config Managers	System Monitoring	Monitor Lite	User Assistant	NBI Credentials	Read NBI	NBI Read	NBI Write	Other Users
Using the Service Templates quick launch hyperlink	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
Cable Dashboard settings (launch cBR-8 dashboard, access software version, license usage and status, cable modem, RPD status, FPGA version, alarm dashboard, cable modem, count by vendor and categories)	Yes	Yes	Yes	Yes	Yes	-	-	-	Yes	-	-

Configure Client Credentials for Cable Devices

To manage Cisco cBR-8 devices and Cisco Remote-PHY devices (RPDs), you must first configure the Cisco Smart PHY client credentials. This enables Cisco EPN Manager to set up a connection with the Cisco Smart PHY application.

To configure Cisco Smart PHY credentials:

Before you begin

Ensure that you log in with the required credentials for configuring the Cisco Smart PHY client credentials. For information on the user groups and supported tasks, see [Cable Management Features and Supported User Groups, on page 3](#).

For more information about Cisco Smart PHY, see https://www.cisco.com/c/en/us/td/docs/cable/cbr/administration/guide/cisco_smart_phy_application_user_guide/information_about_cisco_sdn_application.html.



Note The Cisco Smart PHY application must not be configured with more than one Cisco EPN Manager server. If the Smart PHY credentials have to be updated, it is recommended that the RPDs are removed from Cisco EPN Manager before configuring the credentials in the Admin Settings page.

- Step 1** From the left sidebar, choose **Administration > Settings > System Settings**.
- Step 2** Expand Client and User and choose **Cisco Smart PHY Credentials**.
- Step 3** Specify the following Cable Application credentials:

- a) IP Address or DNS name—The IPv4 address of the client or the DNS hostname of the Cisco Smart PHY application.
- b) Port—Numeric port number for communication between the device and Cisco EPN Manager .
- c) User name and password—Specify the login credentials to login to the client. You will need to re-enter the password for verification.

Step 4 Click **Save** to enable the client credentials.

You can now add CBR-8 to RPD pairing information and associate RPDs with cable service templates. See [Assign Cable Service Templates to RPD, on page 12](#).

Step 5 Click **Delete** to remove an existing Smart PHY credential information from the Cisco EPN Manager database.

Add Cable Devices

Add the required cBR-8 devices to Cisco EPN Manager by device discovery, manual addition, or by importing device details using a CSV file. For more information about adding devices, see [Add Devices to Cisco EPN Manager](#).

After you add devices, and before you configure cable devices, you must first ensure that the inventory collection status for the devices is **Completed**. You can then proceed with adding RPDs and associating them with the cable devices. See [Manage Cisco cBR-8 and RPDs Association, on page 6](#).

Manage Cisco cBR-8 and RPDs Association

You can use Cisco EPN Manager to monitor and discover RPDs from Cisco cBR-8 devices. Once the devices are discovered, the pairing between the devices must be established as explained in the sections below.

Launch the Cable RPD Association page in one of the following ways:

- From the **Configuration > Cable > RPD Association** option in the left navigation panel.
- From the **Cable** drop-down menu in the network topology.

RPD Auto Discovery: As part of the Cisco cBR-8 device discovery, RPDs associated with the devices are automatically added to the Cisco EPN Manager database. In this scenario, you do not need to add or import the RPDs as shown below, however, the RPD will be visible in the **RPD Association** page with only minimal information.



Note Only RPDs with Principal Role will be automatically discovered.

Manage cBR-8 devices and RPDs in the following ways:

Manage cBR-8 to RPD Pairing	Description
Add CBR-8 to RPDs pairing information manually	Add cBR-8 and RPDs Pairing Information Manually, on page 8

Import CBR-8 to RPDs pairing information using a CSV file	Import cBR-8 and RPDs Pairing Information in Bulk, on page 9
Delete RPDs	<ol style="list-style-type: none"> 1. From the left sidebar, choose Configuration > Cable > RPD Association. 2. Select the RPDs you want to delete, and click the 'Delete' icon from the toolbar. Deleting RPDs will delete the associated links with Cisco cBR-8 devices and thus update the Cisco cBR-8 RPD links view in network topology. <p>Note Once you delete a Cisco cBR-8 device, the RPDs associated with those devices are also deleted from Cisco EPN Manager .</p>
Edit RPD	<ol style="list-style-type: none"> 1. From the left sidebar, choose Configuration > Cable > RPD Association. 2. Select the RPD you want to edit, and click the 'Edit' icon from the toolbar. 3. Make the required changes to the parameters. For more information about these parameters, see RPD Device Parameters and Descriptions, on page 10. 4. Click Save to update your changes. You can check the Service Status icon again to see the updated status. <p>Note The RPD name may fail in Cisco EPN Manager if the RPD to be edited does not exist in Smart PHY. For more information, see Troubleshooting Cable Devices, on page 18.</p>
Apply service templates to RPDs	Assign Cable Service Templates to RPD, on page 12

Add cBR-8 and RPDs Pairing Information

Before you can manage Cisco cBR-8 devices and RPDs, you need to first discover the cBR-8 - RPDs pairing information to Cisco EPN Manager from the Cisco cBR-8 devices.

When Cisco cBR-8 devices are in sync with Cisco EPN Manager with a pending integration with the Cisco Smart PHY, the auto discovered service templates (associated with RPDs) cannot be edited. Once the integration with the Cisco Smart PHY is complete, the service templates that are marked None are auto assigned to the default service template.

Link Utilization: After the pairing of the devices has been established, you can view the topology of the cable network in the network topology and monitor the health of the links between the devices. To do this:

1. Choose **Maps > Topology Maps > Network Topology**.
2. Use the **Cable** drop-down menu to filter Cable devices. By default, the physical links between the Cisco cBR-devices and the RPDs are displayed.
3. Use the **Show** option and choose **Links** to filter Physical or L2TP links.

For cable L2TP links, L2TP utilization (for available L2TP tunnels) is calculated per RPD by getting the OFDM channels utilization of the associated downstream controller. For more information, see, [Show Bandwidth Utilization for Links on the Map](#).

Pre-requisites:

- Add cBR-8 devices to Cisco EPN Manager . See [Add Devices to Cisco EPN Manager](#).
- Ensure that the inventory collection status for the cBR-8 device (associated with the RPDs you are importing) is 'Completed'.
- Ensure that you configure the Cisco Smart PHY client credentials. See [Configure Client Credentials for Cable Devices, on page 5](#).

Add cBR-8 and RPDs Pairing Information Manually

To import cBR-8 and RPDs pairing information manually:

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- Step 1** From the left sidebar, choose **Configuration > Cable > RPD Association**.
- Step 2** Click the + (Add) icon.
- Step 3** Enter the RPDs parameters as described in [RPD Device Parameters and Descriptions, on page 10](#) and click **Save**.
- Note** RPDs with only Name or MAC ID can also be added.
- Step 4** To verify that the entered RPDs information is accurate:
- Hover over the Service Status icon for each RPD to understand the status of the pairing between the cBR-8 device and the RDP. To understand what each service state means, see [Monitor the Health of RPD to cBR-8 Links, on page 16](#).
 - To modify the parameters, click on the respective parameters and make the required changes.
 - Click **Save** again to update your changes. You can then check the Service Status icon again to see the updated status.
- Step 5** Click **Clear** to clear the association of CCAP Core and CCAP Core Interface for the selected RPDs.
- Step 6** (Optional) Click the **i(information)** icon from the **RPD MAC ID** column to launch the 360 view for the selected RPD. Click the **History** tab to view the previous states of the selected RPD.
- Note**
- RPDs should have MAC ID, Name, and configured Smart PHY settings to launch the RPD 360 view.
 - RPD 360 view is not available for auto-discovered RPDs with service template name as UNKNOWN.
- Step 7** (Optional) Click the following shortcut links in RPD Association page to launch the relevant pages:
- Click **Network Topology** to launch the topology view of the RPD
 - Click **Service Templates** to view and modify the service templates.
 - Click **Global Settings** to view and modify the RPD Global configuration. For more information, see [Configure RPD Global Settings, on page 9](#)
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Import cBR-8 and RPDs Pairing Information in Bulk

Cisco EPN Manager compares your entries with the current database to check for duplicate entries. If your entries are duplicate, the parameters that match are highlighted and you can choose to replace the existing entries one by one, in bulk, or skip the import operation altogether.

To import cBR-8 and RPDs pairing information using a CSV file:

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- Step 1** From the left sidebar, choose **Configuration > Cable > RPD Association**.
- Step 2** Click the 'Import' icon.
- Step 3** Use the template supported by Cisco EPN Manager for importing RPD information by following these steps:
- Click the **Download the 'Associate RPDs' template (*.csv)** hyperlink to download a sample template for importing cBR-8 and RPDs pairing information in bulk.
 - Choose a location on your system where the file must be saved, and click **OK**.
- Step 4** To import the cBR-8 and RPDs pairing information:
- Ensure that the CSV file you are using to import is of the same template as the CSV file downloaded in Step 3 above.
Note RPD Name and MAC ID must be specified in the CSV file before you import.
 - Click the 'Import' icon.
 - Click **Browse** and locate the CSV file that you want to import.
 - Click **Import**.
- Note** You can also import the CSV file exported from Smart PHY application, by following the above step.
- Step 5** (Optional) Verify that the RPDs information imported is accurate:
- Hover over the Service Status icon for each RPD to understand the status of the pairing between the cBR-8 device and the RPD. To understand what each service state means, see [Monitor the Health of RPD to cBR-8 Links, on page 16](#).
 - To modify the parameters, click on the respective parameters and make the changes. For more information about the RPDs parameters, see [RPD Device Parameters and Descriptions, on page 10](#).
 - Click **Save** to update your changes. You can then check the Service Status icon again to see the updated status.

Configure RPD Global Settings

To configure the RPD Global Settings:

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- Step 1** Launch the RPD Global Configuration page in one of the following ways:
- From the **Configuration > Cable > Smart PHY Global Settings** option in the left navigation panel.
 - From the **Global Settings** option in the RPD Association page.
- Step 2** Choose the following parameters according to your requirement:
- Configure Static Route:** Cisco Smart PHY application option adds a static route configuration on the cBR-8 device for IPv4/IPv6 network interfaces configured on the DPIC.
 - Validate Software Compatibility:** Cisco Smart PHY application checks the compatibility between the RPD version and the Cisco cBR-8 device version specified in the table.

- c) **Persist Running Configuration:** Cisco Smart PHY application makes the configuration persistent for every change made on the Cisco cBR-8 device.

The **Save Interval** option is enabled when Persist Running Configuration is enabled. The value can be a unique integer ranging from 10 to 10800.

Step 3 Click **Save** to update your changes.

RPD Device Parameters and Descriptions

RPD Device Parameters	Description
Status	Status of the RPD device.
RPD Name	Hostname of the RPD device.
RPD MAC ID	MAC ID of the RPD.
Service Template	Cisco EPN Manager cable service template applied to the RPD. When the Cisco Smart PHY client is not configured, this field is marked as 'Unknown'. This is applicable for auto-discovered RPDs.
CCAP Core	The Cisco cBR-8 device that the selected RPD should connect to.
CCAP Core Interface	Interface of the cBR-8 device that is physically connected to the RPD.
Downstream Data Service Group	All RPDs with the same data service group will share the Downstream controller for Data Service (Virtual Splitting for Data).
Upstream Data Service Group	All RPDs with the same data service group will share the Upstream controller for Data Service (Virtual Splitting for Data).
Narrowcast Video Interface	Complete name of the TenGigabitEthernet DPIC Interface to be used for Narrowcast Video Service
Narrowcast Video Service Group	All RPDs with the same video service group will share the Narrowcast controller for Video Service
Broadcast Video Interface	Complete name of the TenGigabitEthernet DPIC Interface to be used for Broadcast Video Service. Cannot be same as the Video Interface.
Broadcast Video Service Group	All RPDs with the same video service group will share the Broadcast controller for Video Service
Additional Cores	List of additional cores the RPD should connect to
RPD Latitude and Longitude	Represents the location coordinates of the RPD. This helps to visualize the location of the device on the Cisco EPN Manager Network Topology.

RPD Device Parameters	Description
Information (i) icon	The information (i) icon allows you to launch the 360 view (RPD 360, Device 360, and Interface 360) for the selected Cisco cBR-8 device and its associated interfaces. For more information, see, Get Basic Device Information: Device 360 View .
Preconfigure	If you choose true , the Cisco Smart PHY application validates a preconfiguration that is available on the Cisco cBR-8 router and applies the configuration immediately. This process saves the time in bringing the RPD online.
RPD Description	Description of the RPD device.

Manage Cable Service Templates

Cisco EPN Manager cable service templates enable you to associate event and data service profile related information directly with one or multiple RPDs in bulk.

Launch the Cable Service Template page in the following ways:

- From the **Configuration > Cable > Service Templates** option in the left navigation panel.
- From the **Service Templates** hyperlink in the **Configuration > Cable > RPD Association** page.
- From the **Cable** drop-down menu in the Network Topology.

You can manage cable service templates in the following ways:

Manage Cable Service Templates	Description
Create and edit cable service templates	See Create and Edit Cable Service Templates, on page 12 .
Copy service templates	<ol style="list-style-type: none"> 1. From the left sidebar, choose Configuration > Cable > Service Templates. 2. Select the Service Templates you want to copy, and click Save Copy. <p>The parameters of the selected service template are populated onto a new service template. You can modify the parameters if required and then save. Ensure that the names of the service templates are unique.</p>
Delete cable service templates	<ol style="list-style-type: none"> 1. From the left sidebar, choose Configuration > Cable > Service Templates. 2. Select the Service Templates you want to delete, and click the Delete (X) button. <p>Note You cannot delete the default service template and service templates assigned to RPD(s). To delete a service template, you must reassign the associated RPD(s) and assign a different service template as the default before you can delete it.</p>

Manage Cable Service Templates	Description
Set a new cable service template as the default	<ol style="list-style-type: none"> 1. From the left sidebar, choose Configuration > Cable > Service Templates. 2. Select the Service Templates that must be set as the default. 3. Enable the Set as Default checkbox. 4. Click Update and Assign. <p>Note When you import RPD information using a CSV file and leave the Service Template field blank, the default service template is automatically associated with the RPD(s).</p> <p>Note To delete a service template assigned as the default, you must first assign a different service template as the default and then delete the required service template.</p>

Create and Edit Cable Service Templates

To create cable service templates:

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- Step 1** From the left sidebar, choose **Configuration > Cable > Service Templates**.
 - Step 2** Click **+ Create New** from the Templates navigation panel on the left.
 - Step 3** Specify the service template parameters as described in [Cable Service Template Parameters and Descriptions, on page 13](#).
 - Step 4** Click **Save** to save the template or **Save and Assign** to assign the new template to RPDs immediately. You can also further assign saved templates to RPDs as described in [Assign Cable Service Templates to RPD, on page 12](#).
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Assign Cable Service Templates to RPD

Assign cable service template to RPD(s) in the following ways:

- Using the Cisco EPN Manager GUI to select the service template that must be assigned to the RPD(s).
- Importing RPD information using a CSV file that specifies the names of the service templates associated with the MAC ID of the RPD(s).

To assign cable service template to RPD(s):

Before you begin

- Add cBR-8 devices to Cisco EPN Manager and ensure that the inventory collection status for the devices is 'Completed'. See [Add Devices to Cisco EPN Manager](#).

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- Step 1** From the left sidebar, choose **Configuration > Cable > RPD Association**.
- Step 2** To select service template and then apply them to RPD(s):
- Expand the **Assign Service Template** hyperlink.
 - Select the required Service Template from the panel on the left and then select the required RPD(s) from the Cable Associate RPD(s) table.
 - Click **Assign**.
- Step 3** To import service template (associated with RPD) using a CSV file:
- Follow the steps described in [Import cBR-8 and RPDs Pairing Information in Bulk, on page 9](#).
 - Ensure that the Service Template field in the CSV file accurately represents the exact name of the service template associated with the RPD(s).
- Step 4** (Optional) To verify, check the numeric value displayed alongside the service template. This number represents the total number of RPD(s) to which the service template is assigned.
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Cable Service Template Parameters and Descriptions

The table below describes the parameters and values used in cable service templates.

Cable Service Template Parameters	Descriptions
Name	Name of the service template. This name can be used to associate RPD(s) to service templates automatically while importing RPD data into Cisco EPN Manager .
Description (Optional)	A description that explains the purpose of the service profile.
Event Profile	Specifies the event parameter for RPD(s) associated with this service template.
R-DTI Profile	Remote DOCSIS Timing Interface (R-DTI) Set. Defines the RFC 1588 clock profile parameters for the RPD.
Primary Service Parameters	
Service Group Profile	Defines the channels and bonding parameters for the RPD(s) associated with this service template.
Downstream and Upstream Controller Profile	Specified the RF parameter for downstream and upstream Data Channel.
Enable MAC Domain Splitting	Enables the segregation of Upstream and Downstream data channels, used for multicast traffic.
Video Service (Optional) Parameters	
Narrowcast Video Controller Profile	Specifies RF parameters for Narrowcast (Downstream Video Controller Profile) data channels.

Cable Service Template Parameters	Descriptions
Broadcast Video Controller Profile	Specifies the RF parameters for Broadcast (Downstream Video Controller Profile) data channels.
Out Of Band (Optional) Parameters	
Note You must choose to fill either all of the Out of Band parameter fields, or none at all.	
Downstream VOM ID	ID required to configure the RPD to use OOB. This value specifies the RF parameters for out of band downstream VOM channels.
Downstream and Upstream Profile IDs	Specifies the RF parameters for out of band upstream/downstream profile channels.
Upstream VARPD ID	Specifies the RF parameters for out of band upstream VARPD channels.

View and Export Cable Device Information and Configuration Details

Using the Cisco EPN Manager Chassis View, you can view Cisco cBR-8 device information such as the device's license usage status, sensor readings, IPv4 and IPv6 statistics, bandwidth utilization on the different channels and controllers, fan and power supply status, and more. You can also view slot level information such as FPGA/CPLD version numbers.

To view device and chassis information described in the table below:

Before you begin

To ensure that information is collected and reported for the Cisco cBR-8 routers in your network, verify that Cable Policies is listed on the **Monitoring Policies** page (**Monitor > Monitoring Tools > Monitoring Policies > Policies** pane), is currently active, and has polling intervals set for its parameters. To activate Cable monitoring policies, see, [Change Thresholds and Alarm Behavior for a Monitoring Policy](#).



Note For more information on cable policies, see [Cable Policy](#) and [Cable Utilization](#)

- Step 1** From the left sidebar, choose **Configuration > Network Devices**.
- Step 2** To view device or chassis information, click the device/chassis/supervisor (SUP) from the Chassis Explorer.
- Step 3** To view the fan or power supply information, click fan or power supply module from the Chassis Explorer.
- Step 4** Click the **Configuration** tab.
- Step 5** Expand the tabs listed in the table below to view the corresponding information.

For a graphical representation of this info, navigate to the **Performance** tab and ensure that you add the required dashlet to the tab. You can display up to 10 dashlets at a given point of time on the Performance tab.

To filter mac domains, fiber nodes, or controllers based on the utilized bandwidth values or the stream types, use the **Advanced Filter** option in the **Configuration** tab. For example, you can filter mac domains that have average utilization values greater or lesser than a particular range. You can further add additional filters to list mac domains with a particular stream type (such as downstream or upstream).

Table 2: Cable Device Configuration Information






Tabs	Chassis Explorer Selection	Requires Policy Activation	Information Available
General	Device, chassis, SUP, fan, and power supply unit.	No	<ul style="list-style-type: none"> • Generic device and chassis information: View information such as, device name, IP address, installed software version, system up time, device serial number, product ID, part number, device operational state (whether enabled or not), hardware version number, associated CLEI code, operating or configured redundancy state, the unique description associated with the device, number of ports that are up/down, and the device's current ICMP latency. • Fan information: Fan usage status in percentage format. • Power Supply information: Total power capacity and power consumed by the device in watts. • Line card information: View generic device information and the upstream and downstream bandwidth utilization of the card.
License Usage Status	Device	No	Licenses usage information and reporting of the Cisco products on the Cisco cBR-8 device, along with the enforced state.
Sensor Readings	Line cards, fans, and power supply units.	Yes	General environmental status of each FRU since installation. You can view the name, sensor state, and threshold values. The sensor readings include the temperature conditions.
FPGA/CPLD Versions	SUPs	No	All available Supervisor FPGA or CPLD firmware on the router and their respective version numbers.
IPv4 and IPv6 Statistics	Device	Yes	Type of packets and number of packets being sent and received. This includes IPv4 ARP statistics, and IPv6 neighbor statistics.
Voice Calls	Device	Yes	This tab displays the count of active high priority calls and all active calls. The count is refreshed periodically based on your settings in the Cable Monitoring policy settings.
Modem Details	Device	Yes	View the number of cable modems using different DOCSIS versions (such as DOCSIS 1.1 and DOCSIS 2.0) and belonging to different vendors.

Tabs	Chassis Explorer Selection	Requires Policy Activation	Information Available
DEPI Sessions	Device	No	<p>DEPI (Downstream External-PHY Interface) is an IP Tunnel that exists between the CCAP Core and the Remote PHY using Layer 2 Tunneling Protocol (L2TP).</p> <p>Using this tab, you can view the number of DEPI sessions for every RPD connected with the selected Cisco cBR-8 device. You can also view additional information about the remote device such as the associated tunnel IDs, L2TP class, device name, IP address, and state.</p> <p>For detailed information about each DEPI session, navigate to the Network Topology, identify the RPD, and use the RPD 360 view for detailed information such as the DEPI session modes, remote states, associated pseudowires, etc.</p>
Fiber Node Utilization	Device	Yes	<p>View the list of fiber nodes on the selected device, their streaming modes (upstream or downstream), and the average utilization of each fiber node (average of all channels associated with the fiber node).</p> <p>For a graphical representation of the percentage range of utilization mapped to the number of fiber nodes per range, view the Fiber Node Downstream/Upstream Utilization graph in the Performance tab.</p>
Mac Domain Utilization	Device	Yes	<p>View the list of MAC Domains available on the selected device, their streaming modes (upstream or downstream), and the average utilization values per Mac domain node (average of all channels associated with every Mac domain).</p> <p>For a graphical representation of the percentage range of utilization mapped to the number of mac domains per range, view the MD Downstream/Upstream SG Utilization graph in the Performance tab.</p> <p>Note The recommended polling interval is 1 hour.</p>
Cable Controller Utilization	Line Card	Yes	<p>View the configured controller types on the selected card, their streaming modes (upstream or downstream), and the average utilization of each controller (average of the bandwidth utilized on all channels associated with the controller).</p>

Monitor the Health of RPD to cBR-8 Links

The link between cBR-8 device and its associated RPD(s) is represented with the link type L2TP in Cisco EPN Manager . To view the links in the network topology and display the associated link 360 details, see [Get More Information About Links](#).

The table below explains the link states once cBR-8 RPD(s) association details are added to the Cisco EPN Manager :

Icon	Status	Description
	Down	Cisco cBR-8 device to RPD association is not formed and the L2TP tunnel creation process is down.
	Online/Up	Online-Cisco cBR-8 device to RPD association is formed and the L2TP tunnel creation process is initiated. Up-Cisco cBR-8 device to RPD association is completed and the link is active.
	In Progress	The status of Cisco cBR-8 device to RPD association is being discovered.
	Deployment Pending	Cisco cBR-8 device to RPD association is not formed and hence the L2TP tunnel creation process is not initiated.
	Defined	RPD device is created without MAC ID.

For more information about the service states icons in the Link 360 view, see [Link Serviceability States](#).

View the Cable Dashboard

The Cable dashboard provides an executive overview of your cable network including the important issues currently affecting your network of Cisco cBR-8 devices. To open this dashboard, choose **Dashboard** > **Cable**. For more information, see [Cable Dashboard Overview](#).

Visualize the Topology of Cable Devices on the Network Topology

When RPDs are discovered from Cisco cBR-8 devices, you can view the L2TP and physical links, and other alarm information in the topology map. You can view cable devices in the network topology in the following ways:



Note Cisco EPN Manager supports RPD physical link discovery in IPv4 and IPv6 networks.

- Click **Maps** > **Topology Maps** > **Network Topology** in the left navigation panel.
- Click the Geographical Map icon.
- Click the **Network Topology** hyperlink from the RPD Association page.

For more information on the network topology features, see [View Your Network on a Geographical Map \(Geo Map\)](#)

RPD Topology Link (Overlay) discovery limitations:

- The Cisco EPN Manager will not discover the physical link between RPD and Switch, if RPD is terminated at a L2 Switch, or if the RPD is connected to a third-party switch.
- Upon discovery, if the Switch which immediately connects to the RPD is not managed by Cisco EPN Manager, the RPD Topology link will not be created. If the RPD is discovered before the Switch is added to Cisco EPN Manager, the RPD Topology link will be created with incomplete information.
- If the RPD is deleted, the physical link between RPD and Switch will not be visible in the topology.

Troubleshooting Cable Devices

Problem:

Mismatch in the count of RPDs per service profile.

Cause:

Duplicate Cisco Smart PHY credentials. Cisco Smart PHY is registered with more than one Cisco EPN Manager server.

Workaround:

Ensure that Cisco Smart PHY is not integrated with more than one Cisco EPN Manager server. After you register Cisco Smart PHY credentials in the Client Credentials page, ensure that you do not update the client to any other instance of Cisco Smart PHY.

If you decide to use a different Cisco Smart PHY client, complete the following steps:

**Note**

Before you proceed, we recommend that you export and save a local copy of Cisco cBR-8 devices and RPD data.

1. Delete all cBR-8 and RPD data from Cisco EPN Manager.
2. Configure the new Cable Network Automation client credentials.
3. Import the cBR-8 to RPD association details again.

Problem:

Edit RPD operation failing.

Cause:

Editing the RPD Name may fail in Cisco EPN Manager if the RPD to be edited does not exist in the Smart PHY application.

Workaround:

Edit any of the RPD parameters except the RPD Name. This ensures that the RPD is first added to the Smart PHY application. Once it is successfully added, editing the RPD Name will be possible in Cisco EPN Manager.

Problem:

High CPU usage in cBR-8 device.

Cause:

If the CPU of the cBR-8 device is idle, the CPU spikes may be seen momentarily during Cisco EPN Manager inventory collection. However, if there are high priority items running on the device, the SNMP requests from Cisco EPN Manager will be automatically throttled by the device.

Workaround:

No workaround as of now. If high priority items are running on the cBR-8 device, SNMP requests are automatically throttled by the device.

