Manage Cable Devices

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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 4.

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 Cable Application are up and available for configuring.

2 Adding the cBR-8 device and ensuring that the inventory collection status for the device is 'Completed'. See Add Devices to Cisco EPN Manager

3 (Optional) Configuring the required access in Cisco EPN Manager by providing Cable Application credentials.

4 (Optional) Monitoring the devices using the network topology to view the associated monitoring policies, alarms information, and link information.

5 (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 Cable Application with Cisco EPN Manager .

- Monitoring and visualizing RPD to cBR-8 L2TP links in the network topology.

- Ability to place unmapped cable devices on the network topology.

- 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.

Cable Management Features	Root / Admin / Super Users	Config Managers	System Monitoring	Monitor Lite	User Assistant	Other Users
Viewing the Cable RPD Association page.	Yes	Yes	Yes	Yes	Yes	–
Listing and exporting RPDs.	Yes	Yes	Yes	Yes	–	–

Cable Management Features	Root / Admin / Super Users	Config Managers	System Monitoring	Monitor Lite	User Assistant	Other Users
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	–	–
Viewing, adding, and editing Cable Application client credentials.	Yes	–	–	–	–	–

Configure Client Credentials for Cable Devices

To manage cBR-8 devices and RPDs, you must first configure the Cable Application client credentials. This enables Cisco EPN Manager to set up a connection with the cable devices via Cable Application.

To configure cable client credentials:

Before You Begin

Ensure that you log in with the required credentials for configuring the client credentials. For information on the user groups and supported tasks, see Cable Management Features and Supported User Groups, on page 2.

Note Cable Application must not be configured with more than one Cisco EPN Manager server. You must also ensure that after you configure Cable Application client credentials in the Admin Settings page, you must not change the configuration to a new Cable Application client.

Step 1 From the left sidebar, choose **Administration** > **Settings** > **System Settings**.

Step 2 Expand Client and User and choose **Cable Client Credentials**.

Step 3 Specify the following Cable Application credentials:

a) IP Address or DNS name—The IPv4 or IPv6 address of the client or the DNS hostname of the client.

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.

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 4.

Manage Cisco cBR-8 and RPDs Association

You can use Cisco EPN Manager to monitor and discover RPDs from Cisco cBR-8 devices. 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 you must first establish the pairing between the devices as explained in the sections below.

You can launch the Cable RPD Association page in two ways:

- From the **Configuration** > **Network Devices** > **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.

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.

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'.

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

RPD Device Parameters and Descriptions

RPD Device Parameters	Description
RPD Name	Hostname of the RPD device.

RPD Device Parameters	Description
RPD MAC ID	MAC ID of the RPD.
Associated cBR-8	Cisco cBR-8 device that the selected RPD is linked to.
Interface	Interface of the cBR-8 device that is physically connected to the RPD.
Service Templates	Cisco EPN Manager cable service template applied to the RPD. When field is left blank during the import operation, the default service template is assigned to the RPD automatically. When the Cable Application client is not configured, this field is marked 'Unknown'.
Latitude and Longitude	Represents the exact location of the RPD. This then helps visualize the location of the device on the Cisco EPN Manager Network Topology.
Information (i) icon	The information (i) icon allows you to launch the device 360 view for the selected Cisco cBR-8 device and its associated interfaces. For more information, see, Get Basic Device Information: Device 360 View.

Monitor the Health of RPD to cBR-8 Links

The links between cBR-8 devices and its connected RPDs are 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-RDPs association details are added to 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.

Icon	Status	Description
🖊	Not Reachable	Cisco cBR-8 device to RPD association is not formed and hence the L2TP tunnel creation process is not initiated.

For more information about the service states icons in the Link 360 view, see Link Serviceability States.

Visualize the Topology of Cable Devices on the Network Topology

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

- Click **Configuration** > **Network Topology** in the left navigation panel, and then click the Geographical Map icon.

- By clicking the **Geographical Map** hyperlink from the Cable RPDs Association page.

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