



What's New in Cisco cBR-8 Series Routers



- Note** Explore the [Content Hub](#), the all new portal that offers an enhanced product documentation experience.
- Use faceted search to locate content that is most relevant to you.
 - Create customized PDFs for ready reference.
 - Benefit from context-based recommendations.

Get started with the Content Hub at content.cisco.com to craft a personalized documentation experience.
Do provide feedback about your experience with the Content Hub.

Cisco is continuously enhancing the product with every release and this section covers a brief description of key features and enhancements that were added. It also includes links to detailed documentation, where available.

- [New and Changed Information, on page 1](#)
- [Behaviour Changes Introduced Features, on page 5](#)

New and Changed Information

The following section lists the new software and hardware features supported on the Cisco cBR Series Converged Broadband Routers in this release:

New Software Features in Cisco IOS XE Cupertino 17.9.1y1

There are no new software features in the Cisco IOS XE Cupertino 17.9.1y1 release for Cisco cBR-8 series routers.

New Hardware Features in Cisco IOS XE Cupertino 17.9.1y1

There are no new hardware features in the Cisco IOS XE Cupertino 17.9.1y1 release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Cupertino 17.9.1y

- **Support for Active Queue Management(AQM) In Low Latency DOCSIS (LLD):** Active Queue Management (AQM) is one of the critical components of LLD. AQM allows routers to control the queue length and delay of packets.

- **Support for Arbitrary Configuration of a Combination of US Channels in a USBG:**

Starting with Cisco IOS XE Cupertino 17.9.1y, the **upstream bonding-group** (USBG) can include any of the available 16 US channels. You can arbitrarily configure a combination of US channels in a USBG. The maximum limit remains eight channels per USBG. For example, you can configure US6, US7, US8, and US9 together in a USBG.

In releases before Cisco IOS XE Cupertino 17.9.1y, the **upstream bonding-group** can only include upstream channels either from **Group 1** (US channels 0-7) or **Group 2** (US channels 8-15). For example, you can't configure US6, US7, US8, and US9 together in a USBG as they are from different groups.

- **Support for Multiple TFTP Servers:**

Starting with Cisco IOS XE Cupertino 17.9.1y, the new PNM BDT MIB (docsPnmBulkDataTransferCfgTable) support has been added. It introduces support for multiple TFTP destination servers, and simultaneous capture of both UTSC freerun and RxMER data and store into different TFTP server locations. PNM captured files can be stored in three different TFTP servers simultaneously. Each TFTP server detail is stored into BDT table using unique index values (that is, 1, 2 and 3). The existing PNM Bulk Data Control Table MIB remains supported with the following changes.

- Capture doesn't start if the destination TFTP IP address and PATH aren't configured.
- For UTSC other mode, the path isn't required and only IP is required.

PNM BulkData Transfer Cfg MIB and the legacy PNM Bulk Data Control MIB, can be configured and used at the same time.

In releases before Cisco IOS XE Cupertino 17.9.1y, only one BDT TFTP destination server per CCAP is supported to store the captured UTSC or RxMER data, and maximum eight captures on upstream ports per line card and a maximum of 20 captures per CBR8 is supported for both I-CMTS and RPHY. All captured files are stored into the same TFTP server.

- **Updates to GCP Configuration:**

The timeout range for the `cable rphy gcp keepalive timeout` command is updated 0–1000 to **0-100**. The following options are added to the `cable rphy gcp` command.

- **flowctrl-threshold**
- **max-idle-time**
- **reconnect-timeout**
- **recovery-act-delay**
- **recovery-act-retry**
- **recovery-action** *action*

- **Proactive Network Management Using RxPwr MIB:** Provides an estimate of the received power in a specified OFDMA channel at the F connector input of either a CMTS-integrated linecard or RPD. The

measurement is based on upstream probes, which are typically the same probes used for pre-equalization adjustment. For more information see, [Proactive Network Management](#).

- **Rolling Average Calculation for Channel Utilization**

Rolling Average calculation is now available for OFDMA and SC-QAM. The average window size is configurable using cable util-interval command and via the SNMP using docsIfCmtsChannelUtilizationInterval MIB.

The following commands are modified to display the rolling average calculation: show interface cable mac-scheduler and show cable upstream ofdma chan-util.

The following MIBs are modified to support channel utilization:

- docsIfCmtsChannelUtUtilization for OFDMA - provides the same rolling average functionality.
- docsIfCmtsChannelUtilizationInterval - allows the "cable util-interval" setting to be read and configured via SNMP.

In addition, the above MIBs no longer include DPS grants in the utilization calculation.

- **CM Device Class DOCS-SUBMGT3-MIB:**

Updated the following MIBs:

- docsSubmgt3BaseCpeMaxIpv6AddressesDef :

This attribute represents the maximum number of IPv6 prefixes or addresses allowed for the CM's CPEs if not signaled in the registration process. All IPv6 addresses, including Link-Local and any address with a scope greater than 1 are counted against the docsSubmgt3BaseCpeMaxIpv6AddressesDef.

- docsSubmgt3BaseCpeMaxIpv6PrefixesDef:

This attribute represents the maximum number of IPv6 IA_PDs (delegated prefixes) allowed for the CM's CPEs if not signaled during the registration process. IPv6 IA_PDs are counted against the CpeMaxIpv6PrefixesDef. This contrasts with the CpeMaxIPv4AddressesDef addresses, rather than IPv4 subnets, allowed by default per CM. Because this attribute only counts IA_PDs against the default, IA_NA addresses and Link-Local addresses aren't counted against this default limit.

- **RPD reconnect enhancements:**

To configure RPD reconnection, use the following command:

- **cable rphy reconnection hold-time 120**

When an RPD drops offline, some resources such as capability database, configuration changed data, and so on, are paused until the next active reconnection. If there's no reconnection, then the data is cleared to avoid the leak. If the RPD reconnection is successful, then these data are used.

To disable the RPD reconnection, use the following command:

- **no cable rphy reconnection hold-time**

New Hardware Features in Cisco IOS XE Cupertino 17.9.1y

There are no new hardware features in the Cisco IOS XE Cupertino 17.9.1y release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Cupertino 17.9.1x1

The following features are supported from Cisco IOS XE Cupertino 17.9.1x1:

Enhanced RPD recovery mechanism after SUPHA: SUP CPU utilization increases when SUPSO occurs, during new SUP rebuilding of RPDs, CMs, and so on. At this time, if RPDs fail to recover, then those rpd's are suppressed and the speed it takes to become online again is based on the SUP IOS's CPU utilization. This can prevent the system from being further burdened by RPDs and CMs which come after them, by coming online and reducing the impact to other RPDs or CMs rebuilding. You can use the **cablerphy supso suppress-rpd max-cpu max-cpumin-cpumin-cputime** command to configure this feature.

High-Split Upstream Spectrum Capture Support: This feature allows 409.6M span to be configured with Upstream Triggered Spectrum Capture “other” mode for cBR-8 routers. This allows the full spectrum capture range of 0 MHz to 204.8MHz to be supported.

Low Latency DOCSIS (LLD) Aggregate Service Flow Phase 1: This feature introduces configuration and parsing of TLVs representing bidirectional Aggregate Service Flows using two associated static service flows for LLD capable D31 modems. ASF can be configured via TLVs or Service Classes, but ASF QoS Profile (AQP expansion) will be supported in a future release. Also, ASF Shaping will be supported in a future release.

Support for insertion of downstream description into the DHCPv6 packets: This feature introduces support for the insertion of downstream description into the DHCPv6 packets for Cisco cBR-8 series routers. Use the `cable ipv6 dhcp-insert downstream-description` command in global configuration mode to configure this feature.

New Hardware Features in Cisco IOS XE Cupertino 17.9.1x1

There are no new hardware features in the Cisco IOS XE Cupertino 17.9.1x1 release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Cupertino 17.9.1w

The following features are supported from Cisco IOS XE Cupertino 17.9.1w:

Factory Reset Enhancement: The `factory-reset` command introduces two new options:

- **Fast Reset** (`factory-reset all`): Resets the card to factory default.
- **Secure Reset** (`factory-reset all secure`): Sanitizes all the storage devices.

For more information, see [Cisco cBR Series Converged Broadband Router Statement of Volatility](#).

Support for Long Haul QSFP Transceivers with cBR-8 SUP250: The Cisco 100GBASE Quad Small Form-Factor Pluggable (QSFP), **QSFP-100G-ER4L-S** is supported with cBR-8. It has 40 km reach over SMF, Duplex line card.

OUDD Leakage Detection for i-CCAP: Cable operators can now measure cable signal leaks by initiating the Orthogonal Frequency-Division Multiple Access (OFDMA) Upstream Data Profile (OUDD) leakage test sessions on one or more upstream OFDMA channels simultaneously. OUDD test sessions are initiated using

CLI commands in the config and EXEC modes. These commands direct modems to generate a test burst, which enables operators to locate leaks in the Federal Aviation Administration (FAA) frequency range above 100MHz. Operators use handheld or vehicle-based devices to detect leaks.

2x2 RPD DLM Support Enhancement: These following features are supported:

- Multiple Downstream controllers per RPD including 2x2 RPDs.
- Upstream sharing among multiple RPDs.
- Enhanced downstream sharing among multiple RPDs.

Downstream OFDM High Frequency Power Adjust: This feature enables power adjustment controls for OFDM downstream channels on RPD nodes to allow a step-down of channel power by 6 dB.

DS Resiliency Enhancement: VTY injection is not used during RBG change and the system shows the username of the last user who has performed the last configuration update.

Support for RPHY GCP TLV 98.3 (BaseTargetRxPower): This feature introduces TLV 98.3 support for cBR-8 routers. Use the **base-power-rx-level-1_6Mhz** option under **cable upstream controller-profile** *controller-profile-number* to enable base power configuration for the entire upstream port.

Support for Multiple Spectrum Acquisition (SAC): This feature introduces support for multiple SAC and support for *other* trigger mode.

Support for Flexible Consumption Model (Cisco Smart Licensing): This feature introduces support for *Flexible Consumption Model* in Cisco Smart Licensing. The Flexible Consumption Model (FCM) provides the capability and flexibility to purchase software capacity as needed.

New Hardware Features in Cisco IOS XE Cupertino 17.9.1w

There are no new hardware features in the Cisco IOS XE Cupertino 17.9.1w release for Cisco cBR-8 series routers.

Behaviour Changes Introduced Features

Modified Software Features in Cisco IOS XE Cupertino 17.9.1y1

There are no modified software features in the Cisco IOS XE Cupertino 17.9.1y1 release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Cupertino 17.9.1y1

There are no modified hardware features in the Cisco IOS XE Cupertino 17.9.1y1 release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Cupertino 17.9.1y

There are no modified software features in the Cisco IOS XE Cupertino 17.9.1y release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Cupertino 17.9.1y

There are no modified hardware features in the Cisco IOS XE Cupertino 17.9.1y release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Cupertino 17.9.1x1

There are no modified software features in the Cisco IOS XE Cupertino 17.9.1x1 release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Cupertino 17.9.1x1

There are no modified hardware features in the Cisco IOS XE Cupertino 17.9.1x1 release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Cupertino 17.9.1w

There are no modified software features in the Cisco IOS XE Cupertino 17.9.1w release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Cupertino 17.9.1w

There are no modified hardware features in the Cisco IOS XE Cupertino 17.9.1w release for Cisco cBR-8 series routers.