



What's New in Cisco cBR-8 Series Routers



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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.

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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 Bengaluru 17.6.1z1

There are no new software features in the Cisco IOS XE Bengaluru 17.6.1z1 release for Cisco cBR-8 series routers.

New Hardware Features in Cisco IOS XE Bengaluru 17.6.1z1

There are no new hardware features in the Cisco IOS XE Bengaluru 17.6.1z1 release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Bengaluru 17.6.1z

The following features are supported from Cisco IOS XE Bengaluru 17.6.1z:

Support for TLV 5.36: This feature introduces TLV 5.36 support for cBR-8 routers. The output of the **show cable modem verbose** is modified and displays the UGS Service Flow Limit details.

Command to set a threshold for AOM download process time: The platform **aom pending-threshold {seconds-to-error} {seconds-to-warning}** command allows you to configure a threshold value, in seconds, to notify that an AOM download is stuck. When the specified threshold time is reached, an error and warning notification is sent to the console and trace log, respectively. The valid range is 60–3600 seconds. Use the **No** form of the command to remove the threshold value.

Enhancements in leasequery to support multiple DHCP relays: Cable DHCP leasequery now supports multiple DHCP relays between the cBR-8 router and the DHCP server for the following scenarios:

- Unitary DHCPv4
- Unitary DHCPv6, including CPE router
- Bulk DHCPv6 Lease Query (LQv6)

Commands to view DHCP leasequery packet statistics: This feature introduces new commands **show cable leasequery-stats [clear]** and **show cable ipv6 leasequery-stats [clear]** for DHCPv4 and DHCPv6, respectively, to view the packet processing statistics with an option to reset all counters to zero.

OUUDP leakage detection for RPHY: Cable operators can now measure cable signal leaks by initiating the Orthogonal Frequency-Division Multiple Access (OFDMA) Upstream Data Profile (OUUDP) leakage test sessions on one or more upstream OFDMA channels simultaneously. OUUDP 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.

Stats for multicast DEPI traffic: This feature enables you to view statistics for the multicast group assigned by DEPI multicast pool. You can enable this feature using the **cable depi multicast statistic monitor** command. The **show cable depi multicast counter** command displays the statistics information.

Enhancement to the show cable modem select usphy command: The **show cable modem select usphy** command is enhanced such that if a modem is assigned with multiple upstream bonded channel, the best operating mode is used in usphy. The priority order for usphy operating mode of bonded upstreams is ofdma, atdma, and tdma.

Configuring GCP session KeepAlive timeout on cBR-8 routers: GCP KeepAlive messages are used to verify GCP connectivity between a CCAP Core and an RPD. You can use the **cable rphy gcp keepalive timeout** command to configure the interval and retry times of GCP keepAlive messages that cBR-8 router sends to RPD.

Enhancement for configuring DPS with OFDMA: DPS has been enhanced to support OFDMA channels. This can be enabled with either **cable upstream dps ofdma-only** or **cable upstream dps all** commands.

Updates to the RPD auxiliary cores: You can add or remove the auxiliary cores that exist outside the cBR-8 routers without rebooting the RPD.

PW type support in spectrum capture capabilities for RPD: You can check the supported PW type by using the **show cable rpd [{ ip-address | mac-address | rpd-id id | name name spectrum-capture-capabilities }]** command.

New command support added to MAC-Domain profile configurations: The following commands are added:

- **MAC-Domain profile**
 - **shutdown**
 - **cable upstream resiliency [change-channel-set | channel-down-detect | data-burst | modem-offline-detect | on-failure | sf-move]**

New Hardware Features in Cisco IOS XE Bengaluru 17.6.1z

There are no new hardware features in the Cisco IOS XE Bengaluru 17.6.1z release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Bengaluru 17.6.1x

The following features are supported from Cisco IOS XE Bengaluru 17.6.1x:

Display CM counts per US IUC and DS profile: This feature introduces new commands **show cable modem phy ofdm downstream prof-count** and **show cable modem phy ofdm upstream iuc-count**. It helps tracking and reporting number of Cable Modems being in use per Upstream IUC and Downstream Profile on each controller separately. These counters are indicative of health of the RF plant.

Force 8-channel DBG with contiguous frequency channels: Some CMs change to downstream partial mode when moving on the DBG with disconnected frequency channels. This feature allows you to create 8-channel DBG with contiguous frequency channels for load balance purpose.

More detailed CM status and timeline information support: This feature introduces new commands **show cable modem cm-status verbose** and **show cable modes timeline [dynamic | verbose]**, it allows you to get more detailed CM status and timeline information.

Remote PHY 2 OFDMA channels per controller support: This feature allows you to configure two OFDMA channels on the same upstream cable controller in a Remote PHY deployment.

RPD ResetCtrl (TLV 40.1) feature support: This feature introduces a new command **clear cable rpd reset**, you can use this command to perform different types of RPD reset, including factory configuration reset, non-volatile configuration reset, software reset, and hard reset.

RPHY support for show cable upstream ofdma mer-fec command: This feature introduces the command **show cable upstream ofdma mer-fec** in Remote PHY deployment to get the channel performance statistics for the upstream OFDMA channel.

SNMP support for obtaining IUC RxMER per OFDMA channel: This feature allows you to get the quality of different IUCs in the upstream direction.

Support for docsIf31CmtsUsOfdmaDataIucStatsIucAverageMer: This feature supports the MIB object `docsIf31CmtsUsOfdmaDataIucStatsIucAverageMer` to read the average MER of OFDMA channel.

Enhancement to show tech-support cmts rpd command: This feature enhances the command **show tech-support cmts rpd** to collect more Remote PHY related information from the CCAP core. It is recommended to use both **show tech-support** and **show tech-support cmts rpd** commands to get complete information.

New Hardware Features in Cisco IOS XE Bengaluru 17.6.1x

There are no new hardware features in the Cisco IOS XE Bengaluru 17.6.1x release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Bengaluru 17.6.1w

The following features are supported from Cisco IOS XE Bengaluru 17.6.1w:

- **Enhanced Support for Debugging CDMAN FPA Buffer:** In Cisco cBR Bengaluru 17.6.1w, the cable device manager's (cdman) FPA buffer check interval is reduced from 5 mins to 10s, along with other enhancements to effectively monitor the FPA buffer.
- **ARP Autoreply:** To reduce the CPU consumption due to the processing of ARPs in eRouters, and for the data plane to periodically punt a unicast ARP, the ARP-filter feature is enabled on the subscriber-side source-based rate limit (SBRL). The SBRL processing for ARP is also updated for ARP autoreply functionality. In Cisco cBR Bengaluru 17.6.1w, ARP autoreply is enabled by default.
- **Upstream Channel Priority:** This feature allows the cable modem to do the initial ranging on the upstream channel with the highest priority.
- **CLI to diagnose load balancing in modems:** The new 'show cable load-balance move-history cable x/y/z' CLI provides detailed information on modem movement through load balancing.
- **Increase Scale of Virtual OMs:** From cBR 17.6.1w, support for 55d1 Out of Band virtual-om configuration has been increased from 10 to 20. This provides for increased scalability of the Virtual OMs.
- **New MIB support on RPHY line cards:** Cisco cBR-8 supports `docsIf31CmtsUsOfdmaDataIucStatsInOctets` on RPHY line cards.
- **New command support added to MAC-Domain and Wideband-interface profile configurations:** The following commands were added:
 - **MAC-Domain profile**
 - `cable d31-mode`
 - `cable diplexer-band-edge`
 - `cable downstream [description | override]`
 - `cable dynamic-flow vrf`
 - `cable init-channel-timeout`
 - `cable insertion-interval [automatic]`
 - `cable rcc-templates frequency-based`
 - `cable rcp-control verbose`
 - `cable reduction-mode [energy-management | mta-battery]`
 - `cable registration-timeout`
 - `cable service type`

- **cable shared-secondary-secret index**
- **cable sid-cluster-group** [dynamic | num-of-cluster | req-multiplier]
- **cable sid-cluster-switching** [max-outstanding-byte | max-request | max-time | max-total-byte]
- **cable sync-interval**
- **cable udc-capability**
- **cable upstream** [dpon | ext-power | max-channel-power-offset | qos | ranging-init-technique | ranging-poll | <0-15>]
- **Wideband-interface profile**
 - **cable acfe** [constant-eir-demand | max-bonus-bandwidth]
 - **cable bonding-group-secondary**
 - **cable dynamic-secret** [lock | mark | reject]
 - **cable igmp static-group** <> [source]
 - **cable multicast ses-cache** <>
 - **cable multicast-qos group** <>
 - **cable privacy** [bpi-plus-policy | mandatory]
 - **cable shared-secondary-secret index** <> [0 | 7 | LINE]
 - **cable shared-secret** [0 | 7 | LINE]

New Hardware Features in Cisco IOS XE Bengaluru 17.6.1w

There are no new hardware features in the Cisco IOS XE Bengaluru 17.6.1w release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Bengaluru 17.6.1a

The following features are supported from Cisco IOS XE Bengaluru 17.6.1a:

SNMP RX queuing: This feature introduces a control plane policing queue to shape incoming SNMP traffic in Cisco cBR-8 routers. It reduces the need for SNMP poller to retransmit the polling request in case the request is dropped when SNMP traffic overloads the queue.

Ability to configure Querier's Robustness Variable value in IGMP queries: This feature fine-tunes the IGMP robustness variable to allow for expected packet loss on a subnet. You can increase the robustness variable on a congested network to increase the number of times that packets are resent.

The following features are applicable to the CBR-CCAP-LC-G2-R linecard:

- **32 SG/MAC Domains and 32 Video Service Groups:** Cisco cBR-8 routers support DOCSIS with 32 service groups (SG) and 32 video SGs on the CBR-CCAP-LC-G2-R and CBR-CCAP-LC-40G-R linecards.

The new 32 video SGs (downstream-video) are supported in addition to the existing 32 SGs (downstream-cable).

- **DS OFDM blocks increased to 80:** From Cisco IOS XE 17.6.1a, the CBR-CCAP-LC-G2-R line card capability on the Cisco cBR-8 platform has been enhanced to increase downstream OFDM blocks that are supported from 32 to 80.
- **DS bandwidth increased to 50 Gbps:** From Cisco IOS XE 17.6.1a, the CBR-CCAP-LC-G2-R line card capability on the Cisco cBR-8 platform has been enhanced to increase maximum downstream throughput from 40 Gbps to 50 Gbps.
- **DS SC-QAM increased to 1536:** From Cisco IOS XE Bengaluru 17.6.1a, the CBR-CCAP-LC-G2-R line card capability on the Cisco cBR-8 platform has been enhanced for improved scaling of downstream SC-QAM. From Cisco IOS XE 17.6.1a, 1536 downstream QAM channels are supported, instead of the earlier 768. This would provide for improved deployment and interoperability with Remote-PHY.



Note Starting from Cisco IOS XE Bengaluru 17.6.1a, CBR-CCAP-LC-G2-R can only protect CBR-CCAP-LC-G2-R for linecard HA.

New Hardware Features in Cisco IOS XE Bengaluru 17.6.1a

There are no new hardware features in the Cisco IOS XE Bengaluru 17.6.1a release for Cisco cBR-8 series routers.

Behaviour Changes Introduced Features

Modified Software Features in Cisco IOS XE Bengaluru 17.6.1z1

There are no modified software features in the Cisco IOS XE Bengaluru 17.6.1z1 release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Bengaluru 17.6.1z1

There are no modified hardware features in the Cisco IOS XE Bengaluru 17.6.1z1 release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Bengaluru 17.6.1z

The following modified software features are supported from Cisco IOS XE Bengaluru 17.6.1z for Cisco cBR-8 series routers:

Reducing SUP CPU Usage During CM Mass Registration Events: You can use the **cable resiliency rbg-throttle [auto | rate]** command to reduce SUP CPU usage during CM Mass Registration Events.

Preventing RBG deletion if CPP has traffic on the interface: You can set the time in seconds for the **cable ds-resiliency idle-interval** command in global configuration mode, to move an unused Resiliency Bonding

Group's (RBG) state from Assigned to In_Delete in global configuration mode. If CPP has traffic on the interface, then you can use this command to prevent RBG deletion.

Modified Hardware Features in Cisco IOS XE Bengaluru 17.6.1z

There are no modified hardware features in the Cisco IOS XE Bengaluru 17.6.1z release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Bengaluru 17.6.1x

There are no modified software features in the Cisco IOS XE Bengaluru 17.6.1x release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Bengaluru 17.6.1x

There are no modified hardware features in the Cisco IOS XE Bengaluru 17.6.1x release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Bengaluru 17.6.1w

There are no modified software features in the Cisco IOS XE Bengaluru 17.6.1w release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Bengaluru 17.6.1w

There are no modified hardware features in the Cisco IOS XE Bengaluru 17.6.1w release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Bengaluru 17.6.1a

There are no modified software features in the Cisco IOS XE Bengaluru 17.6.1a release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Bengaluru 17.6.1a

There are no modified hardware features in the Cisco IOS XE Bengaluru 17.6.1a release for Cisco cBR-8 series routers.

