



Release Notes for Cisco cBR Series Converged Broadband Routers, Cisco IOS XE Amsterdam 17.3.x

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CONTENTS

CHAPTER 1

What's New in Cisco cBR-8 Series Routers 1

New and Changed Information 1

New Software Features in Cisco IOS XE Amsterdam 17.3.1z 1

New Hardware Features in Cisco IOS XE Amsterdam 17.3.1z 2

New Software Features in Cisco IOS XE Amsterdam 17.3.1x 2

New Hardware Features in Cisco IOS XE Amsterdam 17.3.1x 3

New Software Features in Cisco IOS XE Amsterdam 17.3.1w 3

New Hardware Features in Cisco IOS XE Amsterdam 17.3.1w 3

Behaviour Changes Introduced Features 3

Modified Software Features in Cisco IOS XE Amsterdam 17.3.1z 3

Modified Hardware Features in Cisco IOS XE Amsterdam 17.3.1z 4

Modified Software Features in Cisco IOS XE Amsterdam 17.3.1x 4

Modified Hardware Features in Cisco IOS XE Amsterdam 17.3.1x 4

Modified Software Features in Cisco IOS XE Amsterdam 17.3.1w 4

Modified Hardware Features in Cisco IOS XE Amsterdam 17.3.1w 4

CHAPTER 2

Caveats 5

Open Caveats for Cisco IOS XE Amsterdam 17.3.1z 5

Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1z 6

Open Caveats for Cisco IOS XE Amsterdam 17.3.1x 7

Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1x 8

Open Caveats for Cisco IOS XE Amsterdam 17.3.1w 8

Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1w 8

Cisco Bug Search 10

CHAPTER 3

Supported Packages and System Requirements 11

| | |
|---|----|
| Memory Requirements | 11 |
| Hardware Supported | 12 |
| Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1z | 13 |
| Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1x | 14 |
| Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1w | 15 |
| Determine Firmware Support | 16 |

CHAPTER 4**Other Important Information 21**

| | |
|---|----|
| Feature Support | 21 |
| Cisco cBR-8 Routers and Cisco Remote PHY Devices Version Compatibility | 21 |
| MIBs | 22 |
| New and Changed MIB Information in Cisco IOS-XE Amsterdam 17.3.1z | 22 |
| New and Changed MIB Information in Cisco IOS-XE Amsterdam 17.3.1x | 22 |
| New and Changed MIB Information in Cisco IOS-XE Amsterdam 17.3.1w | 22 |
| Platform-Independent Features for Cisco cBR 17.3.1w | 22 |
| Supported Transceiver Modules | 24 |
| Best Practice Manual of Procedure for Cisco IOS XE Amsterdam 17.3.x Upgrade | 25 |
| Cisco cBR-8 Documentation References | 25 |



CHAPTER 1

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.
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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.

- [New and Changed Information, on page 1](#)
- [Behaviour Changes Introduced Features, on page 3](#)

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 Amsterdam 17.3.1z

The following features are supported in the Cisco cBR-8 series routers:

Support for OFDMA 2048-QAM Modulation

Cisco cBR-8 router supports [2048-Quadrature Amplitude Modulation \(QAM\)](#) for subcarriers of upstream OFDMA channels.

DEPI Statistics Synchronization Interval Configuration

In Cisco cBR-8 router, the DEPI statistics is synchronized from cdman (us-scheduler) to IOSd. The previous synchronization interval is 15 seconds, which consumes extra CPU resources and may impact the overall

cBR-8 system performance. Starting from Cisco IOS XE Amsterdam 17.3.1z, the default DEPI statistics synchronization interval is set to 60 seconds to reduce the CPU usage of the synchronization process. You can also configure the interval by using **cable rphy statistics session update-freq** command in global configuration mode to accommodate your specific needs. But Cisco recommends the default setting unless a change is requested by a Cisco service representative for a particular topology or use case. You must keep in mind that never use short interval in large scale deployment to avoid high CPU usage. For more information, see https://www.cisco.com/c/en/us/td/docs/cable/cmts/cmd_ref/b_cmts_cable_cmd_ref/cable_p_through_cable_rhtml/#wp3469000627.

Increased Support for US and DS classifier count

From Cisco IOS XE Amsterdam 17.3.1z release, support for static classifiers increased from 16 downstream and 16 upstream per modem to 32 downstream and 32 upstream per modem. You can view information about the classifiers for a particular Cable Modem, using the **show cable modem classifiers** command in privileged EXEC mode.

New Hardware Features in Cisco IOS XE Amsterdam 17.3.1z

There are no new hardware features in the Cisco IOS XE Amsterdam 17.3.1z release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Amsterdam 17.3.1x

The following features are supported in the Cisco cBR-8 series routers:

IPDR support for DOCSIS 3.1

Supports DOCSIS 3.1 IPDR schemas to address the need for a reliable, fast, efficient, and flexible export process of high volume data records such as billing, performance, and diagnostic data.

VRF RI Address for Unicast and Multicast

Both multicast and unicast on Cisco cBR-8 can use the VRF RI address advertised by source PE.

Common 55-1 US Profile for 2x2/1x2 RPD

The Cisco cBR-8 supports configuring the same profile to both upstream physical RF ports in an RPD. Service providers can now expand the 55-1 service group on to the second US port without the need for extra hardware.

PCMM High Priority Calls

From Cisco IOS XE Amsterdam 17.3.1x, the Cisco cBR-8 supports specifying the SessionClassID of high priority calls. The Cisco cBR-8 considers PCMM calls with the default SessionClassID of 15 and calls with the priority you specify as high priority calls. A new command, **packetcable multimedia high-priority** has been introduced to specify the SessionClassID of high priority calls.

L2VPN MTU Size Auto-negotiation

Cisco cBR-8 router allows you to configure arbitrary MTUs for each DOCSIS 3.1 modem differently and auto-negotiates the set up of L2VPN pseudowire. You can use the **cable l2-vpn-service xconnect mtu-auto-negotiation** command to achieve L2VPN MTU size auto-negotiation.

IPv6 Support for Inserting Hostname

Cisco cBR-8 router provides IPv6 support for inserting hostname into DHCPv6 packets. Use the **cable ipv6 dhcp-insert hostname** command to configure the Cisco cBR-8 routers.

New Hardware Features in Cisco IOS XE Amsterdam 17.3.1x

There are no new hardware features in the Cisco IOS XE Amsterdam 17.3.1x release for Cisco cBR-8 series routers.

New Software Features in Cisco IOS XE Amsterdam 17.3.1w

The following features are supported in the Cisco cBR-8 series routers:

Cisco cBR-8 Router as Auxiliary Video Core

You can configure a Cisco cBR-8 router as a Remote PHY auxiliary video core. Use the Cisco cBR-8 router as an auxiliary video core to support video and OOB with Cisco cnBR or to support video on a separate Cisco cBR-8 router other than the DOCSIS core.

DOCSIS Predictive Scheduler

DOCSIS Predictive Scheduler (DPS) is a scheduling technique to reduce the DOCSIS upstream latency by predicting and allocating unsolicited grants to service flows.

Differentiated Services Code Point Downstream Marking

Cisco cBR-8 Converged Broadband Router conforms to DOCSIS service's priority to drive traffic by high queue or low queue with various Differentiated Services Code Point downstream (DSCP) marking.

Multicast Downstream Interface Selection

DOCSIS 3.1 modems can use the secondary wideband interface without the RCC template for downstream multicast traffic if the secondary wideband interface conforms to the following:

- The interface has the `cable igmp static-group group`.
- Belongs to the same MAC domain as the modem.
- Its active `rf-chan` list is the subset of modem's downstream Receive Channel Set (RCS).

The DOCSIS 3.0 modems are capable of using secondary wideband interface for downstream multicast traffic by using the RCC template.

New Hardware Features in Cisco IOS XE Amsterdam 17.3.1w

There are no new hardware features in the Cisco IOS XE Amsterdam 17.3.1w release.

Behaviour Changes Introduced Features

Modified Software Features in Cisco IOS XE Amsterdam 17.3.1z

There are no modified software features in the Cisco IOS XE Amsterdam 17.3.1z release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Amsterdam 17.3.1z

There are no modified hardware features in the Cisco IOS XE Amsterdam 17.3.1z release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Amsterdam 17.3.1x

There are no modified software features in the Cisco IOS XE Amsterdam 17.3.1x release for Cisco cBR-8 series routers.

Modified Hardware Features in Cisco IOS XE Amsterdam 17.3.1x

There are no modified hardware features in the Cisco IOS XE Amsterdam 17.3.1x release for Cisco cBR-8 series routers.

Modified Software Features in Cisco IOS XE Amsterdam 17.3.1w

The following features are modified in the Cisco cBR-8 series routers:

PTP Reroute

Improves PTP rerouting performance when a Cisco cBR-8 router switches path to the PTP primary clock.

show platform integrity Command

New **OS Hashes** section is available with the `show platform integrity` command output.

MD5 and DES/3DES deprecated in SNMPv3

Starting from Cisco IOS XE Amsterdam 17.3.1w, MD5 authentication and DES/3DES privacy options are deprecated.

Modified Hardware Features in Cisco IOS XE Amsterdam 17.3.1w

The following hardware feature is supported in the Cisco cBR-8 series routers:

New Revision of CBR-CCAP-LC-40G

Supports version ID V09 of the Cisco cBR-8 line card CBR-CCAP-LC-40G. It is compatible with Cisco IOS XE Amsterdam 17.3.1w and later releases.



CHAPTER 2

Caveats

- [Open Caveats for Cisco IOS XE Amsterdam 17.3.1z](#), on page 5
- [Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1z](#), on page 6
- [Open Caveats for Cisco IOS XE Amsterdam 17.3.1x](#), on page 7
- [Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1x](#), on page 8
- [Open Caveats for Cisco IOS XE Amsterdam 17.3.1w](#), on page 8
- [Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1w](#), on page 8
- [Cisco Bug Search](#), on page 10

Open Caveats for Cisco IOS XE Amsterdam 17.3.1z

| Caveat ID Number | Description |
|----------------------------|--|
| CSCvw37563 | Controller Integrated-Cable NORESOURCE on VIDEO Channels after SUPHA |
| CSCvw48811 | Supervisor running IOS-XE reloads with error messages observed |
| CSCvw68124 | No "Percentage of ideal BL" displayed on scm prof-mgmt when using ZBL |
| CSCvx04248 | Not enough cdman FPA buffer for messages: cable modems cannot come online |
| CSCvx71564 | Cable LC reloaded after vdman and veman processes have been heldown |
| CSCvx97160 | CBR8 ignore partial service TLV if CM sends incorrect vendor specific TLV inside REG-ACK after DBC |
| CSCvy01592 | OFDMA modems get stuck on IUC13 after sending O-INIT-RNG-REQ while online |
| CSCvy02299 | New JIB number gets allocated for rf-channel belonging to QRG on port un-shut post LCHA |

Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1z

| Caveat ID Number | Description |
|----------------------------|---|
| CSCvv14238 | cBR-8 line card lost SDV/VOD service after LCHA with VIDEO_BAD_PRIMARY_ID log messages |
| CSCvv51471 | cBR-8 line card out of free memory, may reload due to process veman fail |
| CSCvv75695 | CBR8 Channels sometimes get stuck at 3.2W Rather than reverting to 6.4. |
| CSCvw04657 | CBR8 Queue ID Pending Drain after DS controller shutdown |
| CSCvw14429 | SUP veman CLC Data Cleanup Results in SUP unexpected reload upon LCHA |
| CSCvw52701 | CDM_PKTIO core file at cdm_rng_ios_stats_check |
| CSCvw61725 | cBR8 - CLC CDMAN unexpected reload due to Watchdog Timeout |
| CSCvw69760 | cBR-8 resets DSID Seq number and MTA repost seq-out-of-order causing calls to drop |
| CSCvw69986 | Patch upgrade from 16.12.1z to cbr_patch-16.12.1z-patch1.tar fails, both the SUPs say ACTIVE |
| CSCvw71923 | cBR8: set default input queue size on WAN interface to 100000 |
| CSCvw75070 | RF Resiliency CPUHOG: cmts_rf_resil_rp_is_sf_on_interface() |
| CSCvw80040 | cBR8 - 'no upstream...' Under DOCSIS 2.0 LB Group Causes SUP Reload |
| CSCvw84157 | Reload of CLC when upstream flow changes state "cm_instance_t *cminstp = USF_CM(flowp)" |
| CSCvw84664 | Free Classifier Causes Corruption of Free Memory Block & CLC Reload |
| CSCvw93501 | ccsSpectrum MIB reports incorrect power-level values when noise level > powerlevel |
| CSCvw95451 | SNMP traps for upstream ifindex/ifDescr mismatch |
| CSCvw95723 | cBR8: Memory leak with WB Resiliency (DS OFDM / DS PROF EV) causes CLC reload |
| CSCvw96405 | %PLATFORM-4-ELEMENT_WARNING: smand [R0/R1] Used memory exceeding warning level of 80% |
| CSCvw97917 | cBR8 - with OPSimp config, 'cable enable-trap cmonoff-notification' missing from LC after LC reload |
| CSCvx01761 | OFDMA with specific exclusion band configs result in no equalization coefficients sent to modems. |
| CSCvx02092 | docsIf3RxChStatusIfIndex showing inconsistencies returning ifindex for OFDM channel |

| Caveat ID Number | Description |
|----------------------------|---|
| CSCvx02127 | cBR8: SNMP returns wrong ifType for D3.1 Upstream OFDMA channel |
| CSCvx09826 | cached multicast session still contribute traffic on wideband interface |
| CSCvx15877 | Wrong output of 'show controller integrated x/0/x counter rf-channel' (cosmetic issue) |
| CSCvx16243 | Program terminated with signal SIGSEGV, Segmentation fault. |
| CSCvx19791 | per SF DPS grants may be issued for longer than expected |
| CSCvx23933 | SUP reload - error: Cannot access memory at address 0xd0d0d0d0d0d0d0d |
| CSCvx23949 | CMTS CBR LC Unexpected Reload When Printing Modem Details |
| CSCvx24033 | PCMM IPv6 Classifiers is not applied to the DOCSIS Service flow. |
| CSCvx29857 | incorrect value on OID docsIf31CmtsCmUsOfdmaChannelRxPower |
| CSCvx32657 | Avg upstream channel utilization(%data bytes) : 100% when there is no data grants on that channel |
| CSCvx33565 | DS Resil: Updates to Default Config Values |
| CSCvx62575 | 'clear cable upstream ofdma mer-fec ..' makes ofdma mer-fec value FFFF FFFF |
| CSCvx63028 | Fixes to channel level OFDMA IUC Uncorr CWDs & InOctets counts. |
| CSCvx68687 | cbr8 - static LB moves modem after registration to forward on a smaller WB interface |
| CSCvx69912 | OFDMA RxMER Standard Deviation calculation is incorrect |
| CSCvx76530 | After LCSO rpd-cores-ident db not showing proper core function value |
| CSCvx93204 | SUP Reloads after polling Upstream Channel Stats via SNMP query |

Open Caveats for Cisco IOS XE Amsterdam 17.3.1x

| Caveat ID Number | Description |
|----------------------------|---|
| CSCvv14238 | Cisco cBR-8 line card lost SDV/VOD service after LCHA with VIDEO_BAD_PRIMARY_ID log messages. |
| CSCvv14429 | SUP veman CLC data cleanup results in SUP unexpected reload upon LCHA. |
| CSCvv75695 | CBR8 channels sometimes get stuck at 3.2W rather than reverting to 6.4. |
| CSCvv04657 | CBR8 queue ID pending drain after DS controller shutdown. |
| CSCvv48811 | RP went down due to __be_iosd_rec_malloc_free_before. |
| CSCvv68124 | No \"Percentage of ideal BL\" displayed on scm prof-mgmt when using ZBL. |

Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1x

| Caveat ID Number | Description |
|----------------------------|---|
| CSCvu24572 | Common 55-1 US profile for Cisco RPD 2x2/1x2. |
| CSCvv61493 | PMA automation causing un-correctable errors causing the CM-16 status messages. |
| CSCvv65121 | Cisco cBR-8 linecard restart related to TaFDM. |
| CSCvw08800 | Session create failure intermittently during bootup from LED to LC. |
| CSCvw33743 | Cisco cBR-8: Some RCC templates ignored after reload. |

Open Caveats for Cisco IOS XE Amsterdam 17.3.1w

| Caveat ID Number | Description |
|----------------------------|--|
| CSCvv65121 | Cisco cBR-8 line card restart related to TaFDM. |
| CSCvv60675 | <code>\sh cab vid session log id < x > session-id < session-id ></code> timeout after SUPSO. |
| CSCvv79722 | Cisco cBR-8 LC (CBR-CCAP-LC-G2-R) may not be recognized by the standby SUP. |
| CSCvu83486 | Long outage time in US direction during LCHA due to late map when CIN have several ms latency. |

Resolved Caveats for Cisco IOS XE Amsterdam 17.3.1w

| Caveat ID Number | Description |
|----------------------------|---|
| CSCvu92404 | Cisco cBR-8: Downstream QAMs Down and Not Recovering Back to Up state. |
| CSCvv22836 | Unexpected reload at configuration while binding the NDR <code>\viavi-ndr-01\</code> with the NDR-profile <code>\1280\</code> . |
| CSCvt67752 | Object (IPv6 ACL) stuck in forwarding data plane. No IPv6 traffic goes towards the upstream router. |
| CSCvu60425 | Cisco cBR-8: Stby-SUP in N/A state and Continuously Reloading Due to <code>\Act2-lock: timeout getting lock\</code> . |
| CSCvu66132 | PNM UTS: ifIndex of upstream port missing in PNM filename. |
| CSCvv12562 | show interfaces cable upstream packet and cw counts not incrementing for OFDMA. |
| CSCvv20830 | RP0 veman restart on LED Reload and SUP SO/Reload. |

| Caveat ID Number | Description |
|----------------------------|--|
| CSCvv21785 | PKI: Trusted Certificates may not load correctly from NVRAM: |
| CSCvv51471 | Cisco cBR-8 line card out of free memory, may reload due to process veman fail. |
| CSCvv57855 | OFDM: ifSpeed not correct. |
| CSCvv62194 | Line card restart while handling bandwidth request after MD channel type changed. |
| CSCvs60014 | Error log may lead to dead loop in logic. |
| CSCvs68146 | Observed <code>IOS_INTR_OVER_LIMIT</code> error message and traceback after SUPHA/LCHA combination. |
| CSCvt32637 | MIB get response as full zero for <code>ÔªÔªøclassifier</code> without sourceMac. |
| CSCvt87576 | <code>hw-module slot 0 stop/start</code> command. |
| CSCvt93091 | <code>hw-module slot 0 stop</code> command not working occasionally. |
| CSCvu03787 | D31 dynamic load balance of CM not always assigning OFDMA channel. |
| CSCvu23476 | Buffer pool summary, the maxium allocator is <code>mcp_alloc_ipc_tx_msg_once</code> . |
| CSCvu31815 | Cisco cBR-8 <code>'R0/0: kernel: \"echo 0 > /proc/sys/kernel/hung_task_timeout_secs\"'</code> on Subpkg Expand. |
| CSCvu38525 | 55d1 DS OUT-GROUP IP change is not reflected after the change of VOM-IP. |
| CSCvu38611 | Some modems index are not included in the MIB table <code>docsRphyCcapRpdToCmMapStatusEntry</code> . |
| CSCvu38788 | Cisco cBR-8: Wrong timeout chosen for DBC for DSA/DSC, should be 45 mSec but takes 3 seconds. |
| CSCvu38834 | MAC address not assigned automatically when creating LED. |
| CSCvu43568 | Video sessions going to Pending state on LED reload followed by SUPSO. |
| CSCvu58795 | PNM RxMER tftp file contains inactive subcarriers. |
| CSCvu66542 | VGQI-2-RESOURCE_ALLOCATION_ERROR: R0/0 error and Traceback. |
| CSCvu69291 | Cisco cBR-8: Line card does not transition beyond <code>StdbY Cold</code> redundancy state while standby. |
| CSCvu73421 | <code>#no ipdr exporter start</code> cannot restart the stuck IPDR session on Cisco cBR-8 router. |
| CSCvu78379 | PME: Cisco cBR-8 is not reconnecting with the CEM using the new IP address returned by the DNS. |
| CSCvu87659 | Cisco cBR-8: <code>cable enable-trap cmonoff-notification</code> Missing from CLC after chassis reload or LCHA-revert. |

| Caveat ID Number | Description |
|----------------------------|--|
| CSCvu90440 | Text create wbbft session get gcp fail appended to log messages not related to wbbft feature. |
| CSCvu91905 | Streaming telemetry connection subscription cannot proceed: 5. |
| CSCvv09311 | Remove special character check in static PW name. |
| CSCvv10838 | Performing LCHA affects OOB (55d1), without having mulsticast-pool redundant. |
| CSCvv10984 | Standby PIC daughter board missing from inventory after standby SUP replacement. |
| CSCvv16288 | D31-UMP: When cur IUC is not 13, CMs go to /p due to CW par downgrade check and stuck in /p state. |
| CSCvv35737 | Cisco cBR-8: Optimization of D3.1 SNMP queries when Zero OFDMA modems. |
| CSCvv49931 | VRF CLI change should be allowed for new LC provisioning. |

Cisco Bug Search

Use the [Cisco Bug Search Tool](#) to access open and resolved bugs for a release.

The tool allows you to search for a specific bug ID, or for all bugs specific to a product and a release.

You can filter the search results by last modified date, bug status (open, resolved), severity, rating, and support cases.



CHAPTER 3

Supported Packages and System Requirements

- [Memory Requirements, on page 11](#)
- [Hardware Supported, on page 12](#)
- [Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1z, on page 13](#)
- [Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1x, on page 14](#)
- [Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1w, on page 15](#)
- [Determine Firmware Support, on page 16](#)

Memory Requirements

The following table displays the memory recommendations for the Cisco cBR-8 routers with Cisco IOS XE Amsterdam 17.3.x feature sets.

Table 1: Memory Recommendations for the Cisco cBR-8 Routers with Cisco IOS XE Amsterdam 17.3.1z

| Feature Set | Cisco cBR-8 Route Processor | Software Image | Recommended Flash Memory | Recommended DRAM Memory | Runs From |
|--------------------------|---------------------------------|-------------------------------------|--------------------------|-------------------------|------------|
| CISCO IOS-XE universalk9 | Cisco cBR-8 (CBR) Processor | cbrsup-universalk9.17.3.01z.SPA.bin | 8G | 48G | Bootflash: |
| CISCO IOS-XE CLC K9 | Cisco cBR-8 (CYLONS) Processor | cbrsup-universalk9.17.3.01z.SPA.bin | 8G | 16G | Supervisor |
| CISCO IOS-XE Kobol-R | Cisco cBR-8 (Kobol-R) Processor | cbrsup-universalk9.17.3.01z.SPA.bin | 8G | 64G | Supervisor |

Table 2: Memory Recommendations for the Cisco cBR-8 Routers with Cisco IOS XE Amsterdam 17.3.1x

| Feature Set | Cisco cBR-8 Route Processor | Software Image | Recommended Flash Memory | Recommended DRAM Memory | Runs From |
|--------------------------|---------------------------------|-------------------------------------|--------------------------|-------------------------|------------|
| CISCO IOS-XE universalk9 | Cisco cBR-8 (CBR) Processor | cbrsup-universalk9.17.3.01x.SPA.bin | 8G | 48G | Bootflash: |
| CISCO IOS-XE CLC K9 | Cisco cBR-8 (CYLONS) Processor | cbrsup-universalk9.17.3.01x.SPA.bin | 8G | 16G | Supervisor |
| CISCO IOS-XE Kobol-R | Cisco cBR-8 (Kobol-R) Processor | cbrsup-universalk9.17.3.01x.SPA.bin | 8G | 64G | Supervisor |

Table 3: Memory Recommendations for the Cisco cBR-8 Routers with Cisco IOS XE Amsterdam 17.3.1w

| Feature Set | Cisco cBR-8 Route Processor | Software Image | Recommended Flash Memory | Recommended DRAM Memory | Runs From |
|--------------------------|---------------------------------|-------------------------------------|--------------------------|-------------------------|------------|
| CISCO IOS-XE universalk9 | Cisco cBR-8 (CBR) Processor | cbrsup-universalk9.17.3.01w.SPA.bin | 8G | 48G | Bootflash: |
| CISCO IOS-XE CLC K9 | Cisco cBR-8 (CYLONS) Processor | cbrsup-universalk9.17.3.01w.SPA.bin | 8G | 16G | Supervisor |
| CISCO IOS-XE Kobol-R | Cisco cBR-8 (Kobol-R) Processor | cbrsup-universalk9.17.3.01w.SPA.bin | 8G | 64G | Supervisor |

Hardware Supported

For detailed information about the hardware supported in Cisco IOS XE Amsterdam 17.3.x and its maintenance releases, see: [How and What to Order](#).



Note The Cisco cBR-8 chassis must house line cards with either downstream DOCSIS 3.0 PHY modules or downstream DOCSIS 3.1 PHY modules. Mixed configuration is not supported.

Cisco announced September 18, 2020, as the end-of-sale date for the Cisco cBR-8 Leoben1 based DOCSIS line cards (CBR-LC-*-16U30) and SUP60 (CBR-CCAP-SUP-60G).

Cisco IOS XE Amsterdam 17.3.1w is the first Cisco cBR-8 software release to discontinue support for these end-of-sale products. For more details on the end-of-sale and end-of-life announcements, see:

<https://www.cisco.com/c/en/us/products/collateral/video/cbr-series-converged-broadband-routers/eos-eol-notice-c51-743587.html>.

Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1z

To determine the version of the Cisco IOS XE software running on your Cisco cBR Series Converged Broadband Router, log in and enter the **show version EXEC** command:

```
Router#show version
Cisco IOS XE Software, Version 17.03.01z
Cisco IOS Software [Amsterdam], cBR Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version
17.3.1z, RELEASE SOFTWARE (fc6)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2021 by Cisco Systems, Inc.
Compiled Mon 26-Apr-21 15:48 by mcpre
```

```
Cisco IOS-XE software, Copyright (c) 2005-2021 by cisco Systems, Inc.
All rights reserved. Certain components of Cisco IOS-XE software are
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with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
GPL code under the terms of GPL Version 2.0. For more details, see the
documentation or "License Notice" file accompanying the IOS-XE software,
or the applicable URL provided on the flyer accompanying the IOS-XE
software.
```

```
ROM: 16.7(7r)S
```

```
Router uptime is 5 minutes
Uptime for this control processor is 12 minutes
System returned to ROM by reload at 22:08:41 EDT Mon Apr 26 2021
System image file is "harddisk:cbrsup-universalk9.17.03.01z.SPA.bin"
Last reload reason: Reload Command
```

```
This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.
```

A summary of U.S. laws governing Cisco cryptographic products may be found at:
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to
export@cisco.com.

Smart Licensing Status: UNREGISTERED/EVAL MODE

Cisco cBR-8 (CBR) processor (revision CBR) with 8438300K/6147K bytes of memory.
 Processor board ID FXS1927Q4VZ
 24 Gigabit Ethernet interfaces
 32768K bytes of non-volatile configuration memory.
 50331648K bytes of physical memory.
 7739391K bytes of eUSB flash at bootflash:.
 97620247K bytes of SATA hard disk at harddisk:.

Configuration register is 0x0

Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1x

To determine the version of the Cisco IOS XE software running on your Cisco cBR Series Converged Broadband Router, log in and enter the **show version EXEC** command:

```
Router#show version
Load for five secs: 15%/1%; one minute: 16%; five minutes: 29%
Time source is NTP, 14:01:08.967 EST Thu Dec 3 2020
Cisco IOS XE Software, Version 17.03.01x
Cisco IOS Software [Amsterdam], CBR Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version
17.3.1x, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2020 by Cisco Systems, Inc.
Compiled Thu 03-Dec-20 02:22 by mcpre
```

Cisco IOS-XE software, Copyright (c) 2005-2020 by cisco Systems, Inc.
 All rights reserved. Certain components of Cisco IOS-XE software are
 licensed under the GNU General Public License ("GPL") Version 2.0. The
 software code licensed under GPL Version 2.0 is free software that comes
 with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
 GPL code under the terms of GPL Version 2.0. For more details, see the
 documentation or "License Notice" file accompanying the IOS-XE software,
 or the applicable URL provided on the flyer accompanying the IOS-XE
 software.

ROM: 16.7(6r)S

```
Router uptime is 12 minutes
Uptime for this control processor is 19 minutes
System returned to ROM by reload at 13:38:17 EST Thu Dec 3 2020
System restarted at 13:48:29 EST Thu Dec 3 2020
System image file is "harddisk:cbrsup-universalk9.17.03.01x.SPA.bin"
Last reload reason: Reload Command
```

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: <http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to export@cisco.com.

Smart Licensing Status: UNREGISTERED/EVAL MODE

Cisco cBR-8 (CBR) processor (revision CBRVE) with 16250817K/6147K bytes of memory.
Processor board ID FXS2038Q3HF
72 Gigabit Ethernet interfaces
16 Ten Gigabit Ethernet interfaces
4 Hundred Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
50331648K bytes of physical memory.
7649279K bytes of eUSB flash at bootflash:.
234365527K bytes of SATA hard disk at harddisk:.
15157248K bytes of USB flash at usb0:.

Configuration register is 0x0

Determining the Software Version for Cisco IOS XE Amsterdam 17.3.1w

To determine the version of the Cisco IOS XE software running on your Cisco cBR Series Converged Broadband Router, log in and enter the **show version EXEC** command:

```
Router#show version
Load for five secs: 39%/4%; one minute: 17%; five minutes: 16%
Time source is NTP, 10:33:56.187 PDT Wed Sep 30 2020
Cisco IOS XE Software, Version 17.03.01w
Cisco IOS Software [Amsterdam], cBR Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version
17.3.1w, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2020 by Cisco Systems, Inc.
Compiled Fri 25-Sep-20 12:43 by mcpre
```

Cisco IOS-XE software, Copyright (c) 2005-2020 by cisco Systems, Inc. All rights reserved. Certain components of Cisco IOS-XE software are licensed under the GNU General Public License ("GPL") Version 2.0. The software code licensed under GPL Version 2.0 is free software that comes with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such GPL code under the terms of GPL Version 2.0. For more details, see the documentation or "License Notice" file accompanying the IOS-XE software, or the applicable URL provided on the flyer accompanying the IOS-XE software.

```
ROM: 16.7(6r)S-NO_DEV_MODE
```

```
Router uptime is 5 hours, 36 minutes
Uptime for this control processor is 5 hours, 42 minutes
System returned to ROM by reload at 04:44:24 PDT Wed Sep 30 2020
System restarted at 04:57:24 PDT Wed Sep 30 2020
System image file is "harddisk:cbrsup-universalk9.17.03.01w.SPA.bin"
Last reload reason: Reload Command
```

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at: <http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to export@cisco.com.

```
Smart Licensing Status: UNREGISTERED/EVAL MODE
```

```
Cisco cBR-8 (CBR) processor (revision CBRVE) with 12344596K/6147K bytes of memory.
Processor board ID FXS1849Q1FE
16 Ten Gigabit Ethernet interfaces
4 Hundred Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
50331648K bytes of physical memory.
7649279K bytes of eUSB flash at bootflash:.
234365527K bytes of SATA hard disk at harddisk:.
```

```
Configuration register is 0x2
```

Determine Firmware Support

This section describes firmware that are supported for the Cisco cBR-8 Converged Broadband Routers.

For more information, see the [Install and Upgrade Guides](#).



Note

If you want to upgrade to one of the Supervisor CPLD versions mentioned in the table, the chassis must have Cisco IOS XE Gibraltar 16.12.1w or later.

Table 4: Firmware Packages and Versions Supported in Cisco IOS XE Amsterdam 17.3.1z

| Internal Name | Component Name | Required Minimum Version | Command |
|------------------------------------|--|---------------------------------|--------------------|
| Supervisor CPLD | CBR-CCAP-SUP-160G CPLD | 16052011 19071712 (optional) | show platform |
| | CBR-CCAP-SUP-250G CPLD | 170724E0 190717E1 (optional) | show platform |
| Supervisor ROMMON | CBR-CCAP-SUP-160G ROMMON and CBR-CCAP-SUP-250G ROMMON | 16.7(6r)S | show platform |
| Line Card CPLD | CBR-CCAP-LC-40G CPLD | 00000026 | show platform diag |
| DOCSIS 3.1 downstream module Micro | CBR-CCAP-LC-40G Gemini2 Micro | 3.1A | show platform diag |
| DOCSIS 3.1 downstream module FPGA | CBR-CCAP-LC-40G Gemini2 Apollo | 4.484F | show platform diag |
| DPIC Uboot and FPGA | CBR-DPIC-8X10G | 00010001 | show platform diag |
| | CBR-DPIC-8X10G Firmware | 00010001 | show platform diag |
| DPIC 100G Uboot and FPGA | CBR-DPIC-2X100G Firmware | 00020005 | show platform diag |
| CBR-CCAP-LC-80G-R ADM1266 (qty 4) | CBR-CCAP-LC-G2-R ADM1266 | 2.5 | show platform diag |
| RF-PROT-PIC Firmware | CBR-RF-PROT-PIC Firmware | 00000721 | show platform diag |

Table 5: Firmware Packages and Versions Supported in Cisco IOS XE Amsterdam 17.3.1x

| Internal Name | Component Name | Required Minimum Version | Command |
|-----------------|------------------------|---------------------------------|---------------|
| Supervisor CPLD | CBR-CCAP-SUP-160G CPLD | 16052011 19071712 (optional) | show platform |
| | CBR-CCAP-SUP-250G CPLD | 170724E0 190717E1 (optional) | show platform |

| Internal Name | Component Name | Required Minimum Version | Command |
|------------------------------------|---|--------------------------|---------------------------|
| Supervisor ROMMON | CBR-CCAP-SUP-160G ROMMON and CBR-CCAP-SUP-250G ROMMON | 16.7(6r)S | show platform |
| Line Card CPLD | CBR-CCAP-LC-40G CPLD | 00000026 | show platform diag |
| DOCSIS 3.1 downstream module Micro | CBR-CCAP-LC-40G Gemini2 Micro | 3.1A | show platform diag |
| DOCSIS 3.1 downstream module FPGA | CBR-CCAP-LC-40G Gemini2 Apollo | 4.484F | show platform diag |
| DPIC Uboot and FPGA | CBR-DPIC-8X10G | 00010001 | show platform diag |
| | CBR-DPIC-8X10G Firmware | 00010001 | show platform diag |
| DPIC 100G Uboot and FPGA | CBR-DPIC-2X100G Firmware | 00020005 | show platform diag |
| CBR-CCAP-LC-80G-R ADM1266 (qty 4) | CBR-CCAP-LC-G2-R ADM1266 | 2.5 | show platform diag |
| RF-PROT-PIC Firmware | CBR-RF-PROT-PIC Firmware | 00000721 | show platform diag |

Upgrade Cisco cBR-8 to the minimum supported firmware revisions for the Cisco IOS XE Amsterdam 17.3.1w.

Table 6: Firmware Packages and Versions Supported in Cisco IOS XE Amsterdam 17.3.1w

| Internal Name | Component Name | Required Minimum Version | Command |
|-------------------|---|---------------------------------|---------------------------|
| Supervisor CPLD | CBR-CCAP-SUP-160G CPLD | 16052011 19071712 (optional) | show platform |
| | CBR-CCAP-SUP-250G CPLD | 170724E0 190717E1 (optional) | show platform |
| Supervisor ROMMON | CBR-CCAP-SUP-160G ROMMON and CBR-CCAP-SUP-250G ROMMON | 16.7(6r)S | show platform |
| Line Card CPLD | CBR-CCAP-LC-40G CPLD | 00000026 | show platform diag |

| Internal Name | Component Name | Required Minimum Version | Command |
|------------------------------------|--------------------------------|--------------------------|--------------------|
| DOCSIS 3.1 downstream module Micro | CBR-CCAP-LC-40G Gemini2 Micro | 3.1A | show platform diag |
| DOCSIS 3.1 downstream module FPGA | CBR-CCAP-LC-40G Gemini2 Apollo | 4.484F | show platform diag |
| DPIC Uboot and FPGA | CBR-DPIC-8X10G | 00010001 | show platform diag |
| | CBR-DPIC-8X10G Firmware | 00010001 | show platform diag |
| DPIC 100G Uboot and FPGA | CBR-DPIC-2X100G Firmware | 00020005 | show platform diag |
| CBR-CCAP-LC-80G-R ADM1266 (qty 4) | CBR-CCAP-LC-G2-R ADM1266 | 2.5 | show platform diag |
| RF-PROT-PIC Firmware | CBR-RF-PROT-PIC Firmware | 00000721 | show platform diag |



CHAPTER 4

Other Important Information

- [Feature Support](#), on page 21
- [Cisco cBR-8 Routers and Cisco Remote PHY Devices Version Compatibility](#), on page 21
- [MIBs](#), on page 22
- [Platform-Independent Features for Cisco cBR 17.3.1w](#), on page 22
- [Supported Transceiver Modules](#), on page 24
- [Best Practice Manual of Procedure for Cisco IOS XE Amsterdam 17.3.x Upgrade](#), on page 25
- [Cisco cBR-8 Documentation References](#), on page 25

Feature Support

Cisco IOS XE software is packaged in feature sets that consist of software images that support specific platforms. The feature sets available for a specific platform depend on which Cisco IOS XE software images are included in a release. Each feature set contains a specific set of Cisco IOS XE features.



Caution

Cisco IOS XE images with strong encryption (including, but not limited to 168-bit [3DES] data encryption feature sets) are subject to U.S. government export controls and have limited distribution. Strong encryption images to be installed outside the United States are likely to require an export license. Customer orders may be denied or subject to delay because of U.S. government regulations. When applicable, the purchaser or user must obtain local import and use authorizations for all encryption strengths. Please contact your sales representative or distributor for more information, or send an e-mail to export@cisco.com.

Cisco cBR-8 Routers and Cisco Remote PHY Devices Version Compatibility

The versions of Cisco cBR-8 router and RPD must be compatible. If the versions are not compatible, the RPD remains in the **init(gp)** state. The following table provides details of the compatible Cisco cBR-8 and Cisco RPD versions:

| Cisco cBR-8 Software Version | Compatible Cisco RPD Software Version |
|--------------------------------|--|
| Cisco IOS XE Amsterdam 17.3.1z | Cisco 1x2 / Compact Shelf RPD Software 9.5 |

| Cisco cBR-8 Software Version | Compatible Cisco RPD Software Version |
|--------------------------------|--|
| Cisco IOS XE Amsterdam 17.3.1x | Cisco 1x2 / Compact Shelf RPD Software 9.1, 9.2, 9.3 |
| Cisco IOS XE Amsterdam 17.3.1w | Cisco 1x2 / Compact Shelf RPD Software 9.1 |

MIBs

To locate and download MIBs for selected platforms, Cisco IOS XE releases, and feature sets, use Cisco MIB Locator found at the following URL:

<https://mibs.cloudapps.cisco.com/ITDIT/MIBS/servlet/index>

New and Changed MIB Information in Cisco IOS-XE Amsterdam 17.3.1z

There are no new or updated MIBs in the Cisco IOS XE Amsterdam 17.3.1z release for Cisco cBR-8 series routers.

New and Changed MIB Information in Cisco IOS-XE Amsterdam 17.3.1x

There are no new or updated MIBs in the Cisco IOS XE Amsterdam 17.3.1x release for Cisco cBR-8 series routers.

New and Changed MIB Information in Cisco IOS-XE Amsterdam 17.3.1w

The following new MIBs are supported in the Cisco IOS XE Amsterdam 17.3.1w release.

Support for docsRphyPtpRpdPortMasterClockStatusGmTable

- docsRphyPtpRpdPortMasterClockStatusGmClockIdentity
- docsRphyPtpRpdPortMasterClockStatusGmPriority1
- docsRphyPtpRpdPortMasterClockStatusGmPriority2
- docsRphyPtpRpdPortMasterClockStatusGmQualityClass
- docsRphyPtpRpdPortMasterClockStatusGmQualityAccuracy
- docsRphyPtpRpdPortMasterClockStatusGmQualityOffset
- docsRphyPtpRpdPortMasterClockStatusGmStepsRemoved

Platform-Independent Features for Cisco cBR 17.3.1w

The following platform-independent features are available in the Cisco IOS XE Amsterdam 17.3.1 release.

These features are tested by the core team. In addition, where it is specified, the features are tested for Cisco cBR-8 routers.

show platform software status control-processor brief Command

Adds additional CPU utilization information to the `show tech` output for the active Supervisor cards and all line cards.

Example:

```
#show platform software status control-processor brief
Load Average
Slot  Status  1-Min  5-Min  15-Min
RP0  Healthy  1.74   1.53   1.41
SIP1 Healthy  11.00  10.44  10.13
SIP6 Unknown 21.24  21.15  20.89
SIP7 Unknown 20.80  20.54  20.60
SIP8 Healthy  10.51  10.94  11.11
SIP9 Healthy  11.49  11.21  11.26

Memory (kB)
Slot  Status  Total      Used (Pct)   Free (Pct)  Committed (Pct)
RP0  Healthy  49196136  16354396 (33%)  32841740 (67%)  16138380 (33%)
SIP1 Healthy  24648372  8060408 (33%)  16587964 (67%)  21536808 (87%)
SIP6 Healthy  54592044  8696428 (16%)  45895616 (84%)  23665008 (43%)
SIP7 Healthy  54592044  8718528 (16%)  45873516 (84%)  23662412 (43%)
SIP8 Healthy  24648372  7200316 (29%)  17448056 (71%)  23058788 (94%)
SIP9 Healthy  24648372  8653088 (35%)  15995284 (65%)  23069496 (94%)

CPU Utilization
Slot  CPU  User System  Nice  Idle  IRQ  SIRQ  IOWait
RP0   0   3.00  2.50  0.00  94.50  0.00  0.00  0.00
      1   2.90  2.20  0.00  94.90  0.00  0.00  0.00
      2  10.80  6.80  0.00  82.40  0.00  0.00  0.00
      3   1.00  1.80  0.00  97.10  0.00  0.10  0.00
      4   1.90  3.10  0.00  91.90  0.00  3.10  0.00
      5   2.40  2.80  0.00  94.80  0.00  0.00  0.00
      6   2.00  1.20  0.00  96.69  0.00  0.10  0.00
      7  12.48  4.59  0.00  82.81  0.00  0.09  0.00
      8   3.10  1.80  0.00  95.00  0.00  0.10  0.00
      9   0.90  1.50  0.00  97.40  0.00  0.20  0.00
     10  0.70  1.00  0.00  98.20  0.00  0.10  0.00
     11  9.79  2.69  0.00  87.51  0.00  0.00  0.00
     12  2.90  2.70  0.00  94.40  0.00  0.00  0.00
     13  4.49  1.09  0.00  94.40  0.00  0.00  0.00
     14  2.09  1.19  0.00  96.20  0.00  0.49  0.00
     15  4.30  0.80  0.00  94.80  0.00  0.10  0.00
...

```

Memory Garbage Detection for Non-IOSd Processes

The `show process memory platform accounting` command is enhanced to show additional backtrace information for non-IOSd processes in the system. This backtrace information helps in diagnosing a potential memory leak issue.

Example:

```
#show process memory platform accounting
Hourly Stats

process          callsite_ID(bytes)  max_diff_bytes  callsite_ID(calls)  max_diff_calls
tracekey                               timestamp(UTC)

rphyman_rp_0    3093525504          12736552        3093525506          408
1#ea1f8e152bfdd7b892f4772458bef529  2020-09-07 01:37

```

```
...
Backtrace
...
```

GuestShell Migration to CentOS8

GuestShell is upgraded to CentOS8 in Cisco IOS XE Amsterdam 17.3.1.



Note If you use GuestShell to run a Python script on the Cisco cBR-8 router, CentOS8 supports only the Python 3.x compatible scripts. For Python 3.x compatibility, update only those scripts that are compatible with legacy Python versions. In addition, command line execution must specify python3. For example `guestshell run python3 [file]`.

gNMI, gNOI, and YANG

The following programmability features are introduced in the core IOS XE Amsterdam 17.3.1 release:

- gNMI (gRPC Network Management Interface) configuration persistence: Ensures that all successful changes made through the gNMI SET RPC persist after a device restart.
- gNOI (gRPC Network Operations Interface) certificate management: Enables RPCs to install, rotate, get certificate, revoke certificate, and generate a certificate signing request (CSR).
- gNOI bootstrapping with certificate service: After installing gNOI certificates, bootstrapping is used to configure or operate a target. gNMI bootstrapping is enabled by using the `gnxi-secure-int` command and disabled by using the `secure-allow-self-signed-trustpoint` command.
- YANG data models: For a list of Cisco IOS XE YANG models available with the core Cisco IOS XE Amsterdam 17.3.1 release, see <https://github.com/YangModels/yang/tree/master/vendor/cisco/xe/1731>.

Revision statements embedded in the YANG files provide details of the model revisions. The `README.md` file in the same GitHub location highlights changes that are made in the release.

As specified in the feature configuration guide, these features are officially supported only on the Cisco Catalyst 9x00 Series Switches.

OpenConfig LLDP 0.2.1

OpenConfig LLDP supports the use of vendor-neutral data models to configure and manage the LLDP protocol. This data model defines the configuration and operational state of LLDP protocol. For more details on OpenConfig, see this Cisco blog: <https://blogs.cisco.com/sp/openconfig-on-cisco-platforms>.

Supported Transceiver Modules

For more information on the supported transceiver modules, see [Transceiver Module Group \(TMG\) Compatibility Matrix](#).

Best Practice Manual of Procedure for Cisco IOS XE Amsterdam 17.3.x Upgrade

See the *Upgrading the Cisco cBR Converged Broadband Routers for Cisco IOS XE Amsterdam 17.3.x* document at the [Install and Upgrade Guides](#) page.

Cisco cBR-8 Documentation References

We recommend that you view the field notices for this release to see if your software or hardware platforms are affected. If you have an account at Cisco.com, you can find the field notices at http://www.cisco.com/en/US/customer/support/tsd_products_field_notice_summary.html.

If you do not have an account at Cisco.com, you can find the field notices at http://www.cisco.com/en/US/support/tsd_products_field_notice_summary.html.



Note

Cisco IOS XE Amsterdam 17.3.x is generally available for field deployment. However, we recommend that you validate and qualify Cisco IOS XE Amsterdam 17.3.x in a limited field trial with your specific network configuration requirements. This process ensures a smoother, faster, and successful field deployment.

For information on Cisco cBR-8, go through the following links:

- [Cisco cBR-8 Documentation for Cisco IOS XE Amsterdam 17.3.x](#)
- [Cisco cBR-8 DOCSIS Software Configuration Guide for Cisco IOS XE Amsterdam 17.3.x](#)

