What's New for Cisco IOS XE Bengaluru 17.5.x

This chapter describes the new hardware and software features supported in Cisco IOS XE Bengaluru 17.5.x.

For information on features supported for each release, see Feature Compatibility Matrix.

What's New in Hardware for Cisco IOS XE Bengaluru 17.5.1

Feature	Description
High Density DS1 Panel for CEM	A new higher density, 144-port patch panel (PANEL-144-1-AMP64) is now available and can be used for DS1 termination of the 48-port T1/E1 Interface Module (48XT1/E1) (A900-IMA48D-C) on the Cisco ASR 903, 907, and 914 routers. For more information on A900-IMA48D-C support, see the Cisco ASR 903 and ASR 903U Aggregation Services Router Hardware Installation Guide, Cisco ASR 907 Router Hardware Installation Guide, and Cisco ASR 914 Aggregation Services Router Hardware Installation Guide.

What's New in Software for Cisco IOS XE Bengaluru 17.5.1

Feature	Description
1 port OC-48/STM-16 or 4 port OC-12/OC-3 / STM-1/STM-4 + 12 port T1/E1 + 4 port T3/E3 CEM Interface Module	

Feature	Description
GR-820-CORE specific Performance Monitoring	The **show controller tabular** command enables you to view the performance monitoring details in tabular form as per GR-820-Core standards. This feature is supported on the following CEM interface modules: • 48-Port T3/E3 CEM Interface Module • 48-Port T1 or E1 CEM Interface Module • 1-Port OC-192 or 8-Port Low Rate CEM Interface Module • 1 port OC-48/STM-16 or 4 port OC-12/OC-3 / STM-1/STM-4 + 12 port T1/E1 + 4 port T3/E3 CEM Interface Module
MLPPP IP Termination on all Serial Physical and Logical Interfaces	This release supports Layer 3 termination using IPv6 addressing on MLPPP interfaces for the 1 port OC-48/STM-16 or 4 port OC-12/OC-3 / STM-1/STM-4 + 12 port T1/E1 + 4 port T3/E3 CEM interface module. In releases earlier, with IPv4 addressing, you can scale up to 512 MLPPP bundles. Now with IPv6 addressing, the MLPPP bundles can be scaled up to 1024.
Unframed Framing Support on E1 and Channel STM links	In this release, a new framing mode 'unframed' is supported for the 1 port OC-48/STM-16 or 4 port OC-12/OC-3 / STM-1/STM-4 + 12 port T1/E1 + 4 port T3/E3 CEM Interface Module. With the unframed mode, you can create serial interface under the following modes: • SDH VC12 • Electrical E1
QoS: Policing and Shaping	
IP Address Range-Based Filtering Support for CoPP ACL	This feature supports Ingress on In-band Management Loopback interface and Ingress on Data plane interface to block traffic using MPLS. CoPP ACL also enables you to configure the 830 and 5432 ports on the Cisco router. Both, Source IP and Destination IP based filtering are supported on Cisco RSP3 module; however, only Source IP based filtering is supported on the Cisco RSP2 module.
Carrier Ethernet	
CFM Sessions Hardware Offload	This feature enables for effective CPU utilization by offloading the one second CCM interval sessions on the hardware.
IP SLAs	
TWAMP Light	This feature enables you to configure a TWAMP Light session using the **ip sla responder twamp-light test-session** command. This feature is supported on the Cisco RSP2 module.
Layer 2	
MAC Security	The MACsec and Macsec Key Agreement protocol (MKA) features are introduced on the main interface with pre-shared key support for the MKA. This feature is supported on the Cisco RSP3 module.

Feature	Description
Quality of Service	
Increase QoS Service-Policy Scale	Starting with Cisco IOS XE Bengaluru 17.5.1 release, you can further increase the TCAM scale limit per NPU from 2048 entries to 3072 entries for ingress QoS policy maps. This feature is supported on the Cisco RSP3 module.
MPLS Layer 2 VPNs	
On-Change Notifications for L2VPN Pseudowire	This feature allows you to subscribe on-change Network Configuration Protocol (NETCONF) notifications for L2VPN pseudowire. You can generate an alert from a device when the pseudowire status changes.
Segment Routing	
ECMP over SR-TE Policy	This feature allows you to configure ECMP over SR-TE policies. In case of multiple paths, this feature enables mitigation of local congestion through load balancing. This feature is supported only on Cisco ASR 900 RSP3 module.
EVPN Integrated Routing and Bridging (L2 and L3 Anycast Gateway) and Data Center Interconnect or Border Leaf (Single Homing)	This feature allows the devices to forward both layer 2 or bridged and layer 3 or routed traffic providing optimum unicast and multicast forwarding for both intra-subnets and inter-subnets within and across data centers. Data Center Interconnects (DCI) products are targeted at the Edge or Border Leaf (BL) of data center environments, joining data centers to each other in a point-to-point or point-to-multipoint fashion, or at times extending the connectivity to internet gateways or peering points.
SR-PM Delay Deduction (Loopback Mode)	This feature improves the SR-PM detection time as the PM probes are not punted on the remote nodes. Also, it does not a require a third-party support for interoperability.
SR-TE PM: Liveness of SR Policy Endpoint	This feature enables Performance Measurement (PM) liveness detection and delay measurement for an SR policy on all the segment lists of every candidate path that are present in the forwarding table using PM probes. Thus, you can easily monitor the traffic path and efficiently detect any drop of traffic due to cable or hardware or configuration failures. This feature provides the following benefits: • End-to-end liveness is verified before activating the candidate path in the forwarding table. • End-to-end liveness failure can trigger re-optimization to another path by deactivating the current path
Segment Routing Flexible Algorithm with OSPF	This feature allows you to configure Segment Routing Flexible Algorithm with OSPF. Flexible Algorithm with OSPF supports metric minimization and avoidance, multi-plane, delay metric with rounding, and ODN with auto-steering.

Feature	Description
Segment Routing Policy Counters	This feature enables statistic counters to be displayed when traffic passes over the SR-TE tunnel. You can use the command **show segment-routing traffic-eng policy name** *policy name* to view the counters.
CEM Generic	
RSP-based Non-Intrusive Monitor Ports	This feature allows you to transmit data to multiple connections from a single source using the RSP-based non-intrusive monitor port or Terminal Access Point (TAP) port. It establishes a one-way cross-connect listen connection that listens to either the source or destination of an existing cross-connect or a local connect connection. This feature is only supported on Cisco RSP3 module. This feature is supported on the following CEM interface modules: • 1-port OC481/ STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-Port T1/E1 + 4-Port T3/E3 CEM Interface Module • 48-port T3/E3 CEM Interface Module (ASR 900 48-port DS3/E3 Interface Module) • 48-port T1/E1 CEM Interface Module (ASR 900 48 port T1/E1 Interface Module)
Support for Static MPLS Labels on Cisco RSP3 Module	This feature allows you to provision an Any Transport over Multiprotocol (AToM) label switching static pseudowire without the use of a directed control connection. In environments that do not or cannot use directed control protocols, this feature provides a means for provisioning the pseudowire parameters statically at the Cisco IOS Command-Line Interface (CLI). This feature is supported on Cisco RSP3 module.
Programmability	
gRPC Telemetry Support	Prior to Cisco IOS XE Bengaluru 17.5.1, gRPC protocol was supported on default VRF only. Effective Cisco IOS XE Bengaluru 17.5.1, gRPC protocol is supported on all types (default and non-default) of VRF. This will help you to get the data from all VRF and non-VRF network.
Complete YANG Model for L2VPN XConnect	L2VPNs can provide pseudowire resiliency through their routing protocols. When the connectivity between the end-to-end PE routers fails, an alternative path to the directed LDP session and the user data takes over. XConnect is a feature that enables you to assign remote IP Addresses, VLAN ID and encapsulation, and Pseudowire class names
Complete YANG Model for Pseudowire Interface Configuration	Pseudowires (PWs) manage encapsulation, timing, order, and other operations in order to make it transparent to users; the PW tunnel appears as an unshared link or circuit of the emulated service. Effective from the Cisco IOS XE 17.5.1 release, you can configure the Pseudowire Interface using YANG models.

YANG Data Models—For the list of Cisco IOS XE YANG models available with this release, navigate to https://github.com/YangModels/yang/tree/master/vendor/cisco/xe/1751. Revision statements embedded in the YANG files indicate if there has been a model revision. The README.md file in the same GitHub location highlights changes that have been made in the release.