Release Notes for Cisco 8000 Series Routers, IOS XR Release 7.3.2

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Cisco 8100, 8200, and 8800 Series Routers

Note This software release has reached end-of-life status. For more information see the End-of-Life and End-of-Sale Notices.

What's New in Cisco IOS XR Release 7.3.2

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

Software Features Introduced and Enhanced

To learn about features introduced in other Cisco IOS XR releases, select the release from the What's new page.

Feature	Description
System Error Messages	
System Error Messages	An intuitive interface to view, search, compare, and download Cisco IOS XR Error Messages.
System Setup	
Secure Zero Touch Provisioning with Removable Storage Device	This feature allows you to securely sign onboarding data in a removable storage device so that you can use the device for secure ZTP operations. This support gives you the plug-and-play flexibility for ZTP without any additional infrastructure requirements.
Telemetry	
Stream Telemetry Data about PBR Decapsulation Statistics	This feature streams telemetry data about header decapsulation statistics for traffic that uses the Policy-Based Routing (PBR) functionality to bypass a routing table lookup for egress. You use the `Cisco-IOS-XR-infra-policymgr-oper.yang` data model to capture the decapsulation data for Generic Routing Encapsulation (GRE) and Generic UDP Encapsulation (GUE) tunneling protocols. Decapsulation data helps you understand if all encapsulated packets are decapsulated and alerts you to issues if there is a mismatch in the number of packets.
Programmability	
Contextual Script Infrastructure	When you create and run Python scripts on the router, this feature enables a contextual interaction between the scripts, the IOS XR software, and the external servers. This context, programmed in the script, uses Cisco IOS XR Python packages, modules, and libraries to: • obtain operational data from the router • set configurations and conditions • detect events in the network and trigger an appropriate action

Feature	Description
Enhancements to openconfig-platform YANG data model	The openconfig-platform YANG data model provides a structure for querying hardware and software router components via the NETCONF protocol. This release delivers an enhanced openconfig-platform YANG data model to provide information about: • software version • golden ISO (GISO) label • committed IOS XR packages You can access this data model from the Github repository.
Manage Automation Scripts Using YANG RPCs	This feature enables you to use remote procedure calls (RPCs) on YANG data models to perform the same automated operations as CLIs, such as edit configurations or retrieve router information.
Model-driven CLI to Display Running Configuration in XML and JSON Formats	This feature enables you to display the configuration data for Cisco IOS XR platforms in both JSON and XML formats. This feature introduces the **show run | [xml | json]** command.
Model-driven CLI to Show YANG Operational Data	This feature enables you to use a traditional CLI command to display YANG data model structures on the router console and also obtain operational data from the router in JSON or XML formats. The functionality helps you transition smoothly between CLI and YANG models, easing data retrieval from your router and network. This feature introduces the **show yang operational** command.
Operational Simplicity Using Automation Scripts	This feature lets you host and execute your automation scripts directly on a router running IOS XR software, instead of managing them on external controllers. The scripts available on-box can now leverage Python libraries, access the underlying router information to execute CLI commands, and monitor router configurations continuously. This results in setting up a seamless automation workflow by improving connectivity, access to resources, and speed of script execution. The following categories of on-box scripts are used to achieve operational simplicity: • Config scripts • Exec scripts • Process scripts • EEM scripts
IP Addresses and Services	
Monitor LPTS host path drops via YANG data model	This feature allows you to use the `Cisco-IOS-XR-lpts-pre-ifib-oper.yang` data model to monitor the policer action for Local Packet Transport Services (LPTS) flow type for all IOS XR platforms. To access this data model, see the Github repository.

Feature	Description
Permit statistics for ACL-based Forwarding (ABF)	This feature enables the inclusion of permitted packet count for ABF in the hardware profile statistics, thus providing the cumulative packet count of permit and deny ACL and ABF. This information helps you plan your traffic management and distribution more effectively. Modified command: • hw-module profile stats acl-permit
L2VPN	
CFM on VPLS	This feature helps you monitor and manage a Layer 2 VPN running VPLS. It does so by providing proactive network management, enabling fault detection and isolation, and reporting end-to-end ethernet connectivity issues.
Double-Tagged 802.1ad Encapsulation Options for Layer 3 Physical and Bundle Subinterfaces	This feature enables you to increase the number of VLAN tags in an interface and increment the number of subinterfaces up to 4094. Hence, with the dual tag, the number of VLANs can reach up to 4094*4094. You can enable this feature either on a physical interface or a bundle interface. When you cofigure this feature with the dual tag, interfaces check for IP addresses along with MAC addresses.
GTP Load Balancing	In addition to the source IP address, destination IP address, and port number, this functionality enables using the unique tunnel endpoint identifier (TEID) to compute load balancing (or hashing) of traffic in tunnels between endpoints. The load balancing occurring at the TEID is unique for each traffic flow and achieves better distribution of traffic over equal-cost links. It also helps in load balancing GTP traffic over bundles at transit routers. By default, this functionality is enabled on the Cisco 8000 Series routers, and you cannot disable it.
Split-Horizon Groups	This feature prevents packets from going into endless loops by aggregating attachment circuits and pseudowires into one of three groups called split-horizon groups. Split-horizon groups operate on the principle that members within a group will not send traffic to each other thereby preventing traffic loops.
Traffic Storm Control	This feature monitors incoming traffic levels on a port in the VPLS bridge. It drops traffic when the number of packets reaches the configured threshold level, thus preventing packets from flooding the VPLS bridge and creating excessive traffic and degrading network performance.
Transparent Layer 2 Protocol Tunneling	This feature allows Layer 2 protocol data units (PDUs) to be kept intact and delivered across the service-provider network to the other side of the customer network. Such delivery is transparent because the VLAN and Layer 2 protocol configurations are maintained throughout. With this feature, service providers can send traffic from multiple customers across a core network without impacting the traffic of other customers. This feature is enabled by default.
Virtual Private LAN Bridging Services	This feature employs PE routers connected by a mesh of tunnels, enabling you to connect multiple customer devices in a single bridged domain. Such a setup allows service providers to seamlessly offer a variety of services that they can provision rapidly.
L3VPN	
L3VPN over RSVP-TE	Using labeled switch paths (LSPs), this feature enables resource reservations in each node across data paths on MPLS-configured Layer 3 VPNs. Such reservations allow service providers to offer high throughput to their subscribers with optimal network operations.

Feature	Description
Modular QoS	
Improve ACL Scaling Using Peering QoS	This feature merges the functions of QoS and security access control lists (ACLs). This combination enables using the ACL filter with the Object Group ACL, which provides a vastly improved ACL scale due to much lower TCAM usage. Before this functionality was introduced, ACLs applied for QoS group actions consumed a sizeable number of TCAM entries, reducing the available scale of the feature.
System Security	
CiscoSSH	This release introduces CiscoSSH, a newer implementation of SSH, on this platform. CiscoSSH leverages OpenSSH implementation, by using the Linux TCP/IP stack to transmit and receive SSH packets over the management Ethernet interface and line card interfaces on the router. CiscoSSH provides additional security features like FIPS compliance and X.509 digital certification. It supports packet path features like MPP, ACL and VRF support, and ensures interoperability with various existing SSH implementations. **Note** Cisco IOS XR SSH, the SSH implementation that existed prior to this release, is now deprecated.
Public Key-Pair Generation in XR Config Mode	This feature allows you to generate public-key pairs in the XR Config mode, which in turn lets you save configurations. You can then load these saved configurations across different routers to quickly deploy the key-pair configurations. You could generate public-key pairs in earlier releases only in the XR EXEC mode, which does not save configurations. So manually executing the key-pair generation commands on every router was time-consuming. The following commands are available in XR Config mode, in addition to XR EXEC mode: • crypto key generate rsa • crypto key generate dsa • crypto key generate ecdsa • crypto key generate ed25519
SSH Port Forwarding with CiscoSSH	This release introduces SSH port forwarding with CiscoSSH, an OpenSSH-based implementation of SSH. CiscoSSH replaces Cisco IOS XR SSH, which is the older SSH implementation that existed prior to this release.
Graceful Termination of SSH Sessions	This functionality gracefully terminates the active SSH sessions on the router by returning a successful exit code (0) to the SSH client. This functionality is mainly helpful for automation scenarios such as image installation on a router initiated by a client through an SSH session, where the router reloads automatically post-upgrade. This functionality existed earlier with Cisco IOS XR SSH and is now getting introduced with CiscoSSH. Without this functionality, the SSH sessions terminated abruptly by returning a failure error code (255) to the SSH client, causing the automation scripts to fail. The new functionality is applicable only for upgrade and router reload scenarios; not for RP failovers and active RP reload scenarios.

Feature	Description
Segment Routing	
BFDv6-triggered TI-LFA	Topology-Independent Loop-Free Alternate (TI-LFA) uses segment routing to provide link, node, and Shared Risk Link Groups (SRLG) protection in topologies where other fast reroute techniques cannot provide protection. BFDv6-triggered TI-LFA allows you to obtain link, node, and SRLG protection using the Bidirectional Forwarding Detection (BFD) over IPv6 protocol.
BGP Proxy Prefix SID	This feature is a BGP extension to signal BGP prefix-SIDs. This feature allows you to attach BGP prefix SID attributes for remote prefixes learned over BGP labeled unicast (LU) sessions and propagate them as SR prefixes using BGP LU. This allows an LSP towards non-SR endpoints to use segment routing global block in the SR domain.
Interface and Hardware Component	
Disabling time-to-live (TTL) decrement at GRE encapsulation	This feature allows you to disable the time-to-live (TTL) decrement of the incoming packets. The result is that encapsulation of the original incoming packet takes place without any change in the TTL value. This feature avoids dropping incoming packets with a TTL value equal to one after GRE encapsulation. Before this release, the TTL value of incoming packets was decremented by one before GRE decapsulation. This feature introduces the **tunnel ttl disable** command.
ERSPAN over GRE IPv6	With this release, the router allows you to mirror IPv4 or IPv6 traffic with ERSPAN over GRE IPv6 sessions to monitor traffic on remote traffic analyzers. In earlier releases, ERSPAN traffic monitoring was possible only on IPv4 networks
Higher Payload Analysis with Eight ERSPAN Sessions	With this release, Cisco 8000 Series routers support eight ERSPAN sessions. This functionality helps you analyze higher payloads in real time across Layer 3 domains on your network.
Dynamic TCAM carving	This feature enables the dynamic modification of the hardware resource TCAM, depending on the user configuration. Hence, allowing the system to accommodate changing service requirements. This feature doesn't require a system reboot for the revised TCAM configuration to take effect. The following options are added to the **show controller npu resources** command: • ingressacltcam • egressacltcam
Layer 3 VLAN Interfaces and Subinterfaces Scale	The total number of Layer 3 VLAN interfaces supported on a router that is running IOS-XR has been increased from 2000 to 3580. This number includes main, bundle, and Layer 3 subinterfaces. For example, if the router is already configured with 96 main interfaces, you can configure up to a maximum of 3484 (3580 — 96) subinterfaces. Also, the maximum number of Layer 3 subinterfaces under each main interface can be only up to 2000.
Routing	

Feature	Description
Conditional Default Route Originating in IS-IS	The Conditional Default Route Originating in IS-IS feature allows you to enhance the granularity of the default route the IS-IS originates based on a condition. It enables IS-IS to originate the default route based on the presence of a specific route in the RIB originated by a particular BGP speaker. This feature improves the reaction time of the watched route in the RIB by avoiding periodical queries of the routing policy. This feature enables you to respond to the client in a timely fashion when the watched route changes in the RIB.
System Monitoring	
Extending Graceful Handling of Out of Resource (OOR) Situations for GRE and MPLS traffic	This release extends the graceful handling of dropped traffic in an out-of-resource situation to GRE and MPLS-enabled traffic. Modified command: • show controllers npu resources
IP Service level Agreement	This feature allows you to actively monitor, measure, and report traffic information continuously across the network. You can configure the router to measure and report jitter, response time, packet loss, QoS thresholds, connectivity, response or downtime, and delays.
System Management	
Dynamic Power Management	Previously available for fabric and line cards, this feature that helps avoid excess power allocation by considering dynamic factors before allocating power to them is now available for optical modules. To view the power allocation on a per port basis, a new command "**show environment power allocated [details]**" is introduced.
Flexible Consumption model of Smart Licensing for 8100 Fixed chassis and 8800 Modular chassis	The 8100 fixed chassis and 8800 modular chassis and licenses that are available are as follows: • 8101-32FH — 8101-32FH-TRK • 8102-64H — 8102-64H-TRK • 8101-32H — 8101-32H-TRK • 8808 — 8804-TRK
PTP Delay Asymmetry	Any delays on Precision Time Protocol (PTP) paths can impact PTP accuracy and in turn impact clock settings for all devices in a network. This feature allows you to configure the static asymmetry such that the delay is accounted for and the PTP synchronization remains accurate. The **delay-symmetry** command is introduced for this feature.

Hardware Introduced

Cisco IOS XR Release 7.3.2 introduces the following hardware support:

Hardware Feature	Description
Introducing Cisco 8101-32H, Cisco 8102-64H, and Cisco 8101-32FH Variants	This release introduces new variants in the Cisco 8100 Series routers. Based on the new Router-on-Chip (RoC) model, these routers deliver full routing functionality with a single ASIC per router. The newly introduced variants are: • **Cisco 8101-32H** – this router provides 3.2 Tbps of network bandwidth with dramatically lower power consumption than the current 10 Tbps systems. Supported ports include 32 QSFP28 100 GbE. • **Cisco 8102-64H** – this router provides 6.4 Tbps of network bandwidth with dramatically lower power consumption than the current 10 Tbps systems. Supported ports include 64 QSFP28 100 GbE. • **Cisco 8101-32FH** – This router provides 12.8 Tbps of network bandwidth. Supported ports include 32 QSFP56-DD 400 GbE.
Cisco QDD-4X100G-FR-S	This is a new optical module that supports 100G breakout link lengths of up to 2 km. The module has four pairs of single-mode fiber (SMF) with an MPO-12 connector and is compliant to the IEEE 802.3cu for 100GBASE-FR1, and 400GAUI-8/CEI-56G-VSR-PAM4 standards. The 400 Gigabit Ethernet signal is carried over four parallel lanes by one wavelength per lane. It can be used as 4x100G breakout to QSFP28 100G-DR (up to 500m), 100G-FR, and 100G-LR. See QDD-4X100G-FR-S Data Sheet.
8800-LC-48H, 8800-LC-36FH, 88-LC0-36FH, and 88-LC0-36FH-M compatibility, with no slot restrictions	This release supports the following line cards: • 8800-LC-48H • 8800-LC-36FH • 88-LC0-36FH • 88-LC0-36FH-M It enables the Cisco 8800 chassis on the Q200 Silicon One ASIC NPU, to perform at its full capacity and without any slot restrictions. Find more details about the Cisco 8000 series routers here.

Hardware Feature	Description
Support for parity features on Q200 Silicon One ASIC NPU for pre-7.3.2 Release Features	With this release, additional feature support is introduced on Cisco 8000 Series Routers with Q200 Silicon One ASIC NPU. This enhancement significantly improves the router's forwarding and routing capabilities. Some of the key features now supported are: • Multicast 120K Route • L2 Local/Cross Connect • L2VPN • IRB • L2 QoS • Carrier Supporting Carrier • L3VPN per VRF • BFD with Ti-lFA • GRE and GUE
Support of QDD-400G-ZR-S and QDD-400G-ZRP-S Optical Module	The QDD-400G-ZR-S and QDD-400G-ZRP-S optical modules, combined with routers optimized for 400G port bandwidth, offer customers a massive increase in router scale and capacity at significantly improved cost points. This release supports QDD-400G-ZR-S and QDD-400G-ZRP-S optical modules on the following fixed-port routers and line card: • 8101-32FH fixed-port router • 8201-32FH fixed-port router • 88-LC0-36FH line card In this release, the QDD-400G-ZRP-S optical module additionally supports 3x100 and 2x100 muxponder and 1x100 transponder modes. With these modes, the QDD-400G-ZRP-S optical module can support link lengths of up to 2000 km. This optical module supports QPSK modulation for 1x100 and 2x100 modes and 8QAM modulation for 3x100 mode. The CD (chromatic dispersion) range selection is increased between -160000 to + 160000. For configuration details, see the Configuring 400G Digital Coherent Optics. For command details, see the Coherent Optics Commands. See the Cisco 400G Digital Coherent Optics QSFP-DD Optical Modules Data Sheet for more information about the optic module portfolio.

Hardware Feature	Description
60A support on the PSU4.8KW-DC100 (DC100) power supply	This feature allows you to operate the 4.8 KW power supply for 48V 100A DC with 48V 60A. By default, the power module accepts 100A. To change the power mode to 60A, a toggle switch is provided in the power tray.
PSU4.8KW-DC100 power supply for Cisco 8804 and 8808 routers.	This feature introduces support for the 4.8 KW power supply for 48V 100A DC (DC100) on the Cisco 8804 and 8808 routers. The power supply accepts a nominal input voltage of 48V 100A DC, with an operational tolerance range of -40 to -75 VDC.

For a complete list of supported hardware and ordering information, see the Cisco 8000 Series Data Sheet.

Release 7.3.2 Packages

The Cisco IOS XR software is composed of a base image (ISO) that provides the XR infrastructure. The ISO image is made up of a set of packages (also called RPMs). These packages are of three types:

- A mandatory package that is included in the ISO
- An optional package that is included in the ISO
- An optional package that is not included in the ISO

Visit the Cisco Software Download page to download the Cisco IOS XR software images.

To determine the Cisco IOS XR Software packages installed on your router, log in to the router and enter the **show install active** command:

```
RP/0/RP0/CPU0#show install active
Package                                                                  Version
---------------------------------------------------- ---------------------------
xr-8000-af-ea                                                      7.3.2v1.0.0-1
xr-8000-aib                                                        7.3.2v1.0.0-1
xr-8000-bfd                                                        7.3.2v1.0.0-1
xr-8000-bmc                                                        7.3.2v1.0.0-1
xr-8000-buffhdr-ea                                                 7.3.2v1.0.0-1
xr-8000-bundles                                                    7.3.2v1.0.0-1
xr-8000-card-support                                               7.3.2v1.0.0-1
xr-8000-cdp-ea                                                     7.3.2v1.0.0-1
xr-8000-cfm                                                        7.3.2v1.0.0-1
xr-8000-core                                                       7.3.2v1.0.0-1
xr-8000-cpa                                                        7.3.2v1.0.0-1
xr-8000-cpa-npu                                                    7.3.2v1.0.0-1
xr-8000-cpa-sb-data                                                7.3.2v1.0.0-1
xr-8000-dsm                                                        7.3.2v1.0.0-1
xr-8000-encap-id                                                   7.3.2v1.0.0-1
xr-8000-ether-ea                                                   7.3.2v1.0.0-1
xr-8000-fabric                                                     7.3.2v1.0.0-1
xr-8000-feat-mgr                                                   7.3.2v1.0.0-1
xr-8000-fib-ea                                                     7.3.2v1.0.0-1
xr-8000-forwarder                                                  7.3.2v1.0.0-1
xr-8000-fpd                                                        7.3.2v1.0.0-1
xr-8000-fwdlib                                                     7.3.2v1.0.0-1
xr-8000-host-core                                                  7.3.2v1.0.0-1
xr-8000-l2fib                                                      7.3.2v1.0.0-1
```

xr-8000-leabaofa	7.3.2v1.0.0-1
xr-8000-libofaasync	7.3.2v1.0.0-1
xr-8000-lpts-ea	7.3.2v1.0.0-1
xr-8000-mcast	7.3.2v1.0.0-1
xr-8000-netflow	7.3.2v1.0.0-1
xr-8000-npu	7.3.2v1.0.0-1
xr-8000-oam	7.3.2v1.0.0-1
xr-8000-optics	7.3.2v1.0.0-1
xr-8000-os	7.3.2v1.0.0-1
xr-8000-pbr	7.3.2v1.0.0-1
xr-8000-pfilter	7.3.2v1.0.0-1
xr-8000-pidb	7.3.2v1.0.0-1
xr-8000-pktio	7.3.2v1.0.0-1
xr-8000-port-mapper	7.3.2v1.0.0-1
xr-8000-port-mode	7.3.2v1.0.0-1
xr-8000-ppinfo	7.3.2v1.0.0-1
xr-8000-qos-ea	7.3.2v1.0.0-1
xr-8000-secy-driver	7.3.2v1.0.0-1
xr-8000-span	7.3.2v1.0.0-1
xr-8000-spio	7.3.2v1.0.0-1
xr-8000-spp-ea	7.3.2v1.0.0-1
xr-8000-tams	7.3.2v1.0.0-1
xr-8000-timing	7.3.2v1.0.0-1
xr-8000-tunnel-ip	7.3.2v1.0.0-1
xr-8000-utapp-blaze	7.3.2v1.0.0-1
xr-8000-vether	7.3.2v1.0.0-1
xr-8000-ztp-ea	7.3.2v1.0.0-1
xr-aaa	7.3.2v1.0.0-1
xr-acl	7.3.2v1.0.0-1
xr-apphosting	7.3.2v1.0.0-1
xr-appmgr	7.3.2v1.0.0-1
xr-bcdl	7.3.2v1.0.0-1
xr-bfd	7.3.2v1.0.0-1
xr-bgp	7.3.2v1.0.0-1
xr-bgputil	7.3.2v1.0.0-1
xr-bng-stubs	7.3.2v1.0.0-1
xr-bundles	7.3.2v1.0.0-1
xr-cal-pi	7.3.2v1.0.0-1
xr-cdp	7.3.2v1.0.0-1
xr-cds	7.3.2v1.0.0-1
xr-cfgmgr	7.3.2v1.0.0-1
xr-cfm	7.3.2v1.0.0-1
xr-cofo	7.3.2v1.0.0-1
xr-core	7.3.2v1.0.0-1
xr-core-calv	7.3.2v1.0.0-1
xr-cpa-common	7.3.2v1.0.0-1
xr-cpa-common-optics	7.3.2v1.0.0-1
xr-cpa-common-psu	7.3.2v1.0.0-1
xr-cpa-driver-devobj-misc	7.3.2v1.0.0-1
xr-cpa-driver-devobj-npu	7.3.2v1.0.0-1
xr-cpa-driver-devobj-phy	7.3.2v1.0.0-1
xr-cpa-driver-devobj-sensors	7.3.2v1.0.0-1
xr-cpa-driver-devobj-storage	7.3.2v1.0.0-1
xr-cpa-driver-devobj-test	7.3.2v1.0.0-1
xr-cpa-driver-devobj-timing	7.3.2v1.0.0-1
xr-cpa-driver-fpgalib-access	7.3.2v1.0.0-1
xr-cpa-driver-fpgalib-common	7.3.2v1.0.0-1
xr-cpa-driver-fpgalib-infra	7.3.2v1.0.0-1
xr-cpa-driver-fpgalib-kmod	7.3.2v1.0.0-1
xr-cpa-driver-fpgalib-misc	7.3.2v1.0.0-1
xr-cpa-driver-fpgalib-optics	7.3.2v1.0.0-1
xr-cpa-driver-optics	7.3.2v1.0.0-1
xr-cpa-ethsw	7.3.2v1.0.0-1
xr-cpa-idprom	7.3.2v1.0.0-1

xr-cpa-tamlib	7.3.2v1.0.0-1
xr-ctc	7.3.2v1.0.0-1
xr-debug	7.3.2v1.0.0-1
xr-dhcp	7.3.2v1.0.0-1
xr-diskboot	7.3.2v1.0.0-1
xr-drivers	7.3.2v1.0.0-1
xr-eem	7.3.2v1.0.0-1
xr-elmi-stubs	7.3.2v1.0.0-1
xr-ema	7.3.2v1.0.0-1
xr-enhancedmanageability	7.3.2v1.0.0-1
xr-fib	7.3.2v1.0.0-1
xr-filesysinv	7.3.2v1.0.0-1
xr-foundation-8000	7.3.2v1.0.0-1
xr-fpd	7.3.2v1.0.0-1
xr-ha-infra	7.3.2v1.0.0-1
xr-healthcheck	7.3.2v1.0.0-1
xr-host-core	7.3.2v1.0.0-1
xr-httpclient	7.3.2v1.0.0-1
xr-icpe-eth	7.3.2v1.0.0-1
xr-icpe-opt	7.3.2v1.0.0-1
xr-identifier	7.3.2v1.0.0-1
xr-infra-sla	7.3.2v1.0.0-1
xr-install	7.3.2v1.0.0-1
xr-ip-apps	7.3.2v1.0.0-1
xr-ip-core	7.3.2v1.0.0-1
xr-ip-infra-vrf	7.3.2v1.0.0-1
xr-ip-mibs	7.3.2v1.0.0-1
xr-ip-static	7.3.2v1.0.0-1
xr-ipc	7.3.2v1.0.0-1
xr-ipsla	7.3.2v1.0.0-1
xr-is-is	7.3.2v1.0.0-1
xr-k9sec	7.3.2v1.0.0-1
xr-l2snooptransport	7.3.2v1.0.0-1
xr-l2vpn	7.3.2v1.0.0-1
xr-ldp	7.3.2v1.0.0-1
xr-licensing	7.3.2v1.0.0-1
xr-link-oam	7.3.2v1.0.0-1
xr-linuxnetworking	7.3.2v1.0.0-1
xr-lldp	7.3.2v1.0.0-1
xr-lpts	7.3.2v1.0.0-1
xr-manageabilityxml	7.3.2v1.0.0-1
xr-mandatory	7.3.2v1.0.0-1
xr-mcast	7.3.2v1.0.0-1
xr-mda	7.3.2v1.0.0-1
xr-mpls	7.3.2v1.0.0-1
xr-mpls-oam	7.3.2v1.0.0-1
xr-mpls-oam-client	7.3.2v1.0.0-1
xr-mpls-static	7.3.2v1.0.0-1
xr-netflow	7.3.2v1.0.0-1
xr-networkboot	7.3.2v1.0.0-1
xr-nosi	7.3.2v1.0.0-1
xr-ntp	7.3.2v1.0.0-1
xr-ofa	7.3.2v1.0.0-1
xr-optics	7.3.2v1.0.0-1
xr-orrspf	7.3.2v1.0.0-1
xr-os	7.3.2v1.0.0-1
xr-ospf	7.3.2v1.0.0-1
xr-perf-meas	7.3.2v1.0.0-1
xr-perfmgmt	7.3.2v1.0.0-1
xr-pfi	7.3.2v1.0.0-1
xr-platforms-ras	7.3.2v1.0.0-1
xr-pm-alarm	7.3.2v1.0.0-1
xr-procmgr	7.3.2v1.0.0-1
xr-python	7.3.2v1.0.0-1

```
xr-qos                                                          7.3.2v1.0.0-1
xr-rid-mgr                                                      7.3.2v1.0.0-1
xr-routing                                                      7.3.2v1.0.0-1
xr-rpl                                                          7.3.2v1.0.0-1
xr-rsvp-te                                                      7.3.2v1.0.0-1
xr-security                                                     7.3.2v1.0.0-1
xr-servicelayer                                                 7.3.2v1.0.0-1
xr-snmp                                                         7.3.2v1.0.0-1
xr-span                                                         7.3.2v1.0.0-1
xr-spi-core                                                     7.3.2v1.0.0-1
xr-spi-hw                                                       7.3.2v1.0.0-1
xr-spp                                                          7.3.2v1.0.0-1
xr-sr                                                           7.3.2v1.0.0-1
xr-stats                                                        7.3.2v1.0.0-1
xr-stp                                                          7.3.2v1.0.0-1
xr-stubs                                                        7.3.2v1.0.0-1
xr-sysdb                                                        7.3.2v1.0.0-1
xr-syslog                                                       7.3.2v1.0.0-1
xr-telemetry                                                    7.3.2v1.0.0-1
xr-telnet                                                       7.3.2v1.0.0-1
xr-timing                                                       7.3.2v1.0.0-1
xr-tmpdir-cleanup                                               7.3.2v1.0.0-1
xr-track                                                        7.3.2v1.0.0-1
xr-transports                                                   7.3.2v1.0.0-1
xr-tty                                                          7.3.2v1.0.0-1
xr-tunnel-ip                                                    7.3.2v1.0.0-1
xr-utils                                                        7.3.2v1.0.0-1
xr-vether                                                       7.3.2v1.0.0-1
xr-vpnmib                                                       7.3.2v1.0.0-1
xr-xmlinfra                                                     7.3.2v1.0.0-1
xr-xrlibcurl                                                    7.3.2v1.0.0-1
xr-ztp                                                          7.3.2v1.0.0-1
```

To know about all the RPMs installed including XR, OS and other components use the **show install active all** command.

The software modularity approach provides a flexible model that allows you to install a subset of IOS XR packages on devices based on your individual requirements. All critical components are modularized as packages so that you can select the features that you want to run on your router.

Note The above show command output displays mandatory packages that are installed on the router. To view the optional and bug fix RPM packages, first install the package and use the **show install active summary** command.

Cisco IOS XR Caveats

These caveats are applicable for Cisco IOS XR Software:

Bug ID	Headline
CSCvy13197	Telemetry Syslog events are not received by telemetry client

Determine Software Version

Log in to the router and enter the **show version** command:

```
RP/0/RP0/CPU0# show version
Thu Oct 14 13:19:38.556 PDT
Cisco IOS XR Software, Version 7.3.2 LNT
Copyright (c) 2013-2021 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Thu Oct 14 08:42:55 UTC 2021
 Build Host   : iox-ucs-020
 Workspace    : /auto/srcarchive17/prod/7.3.2/8000/ws
 Version      : 7.3.2
 Label        : 7.3.2-Renumber

cisco 8000 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz)
cisco 8201 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz) processor with 32GB of memory
r4 uptime is 2 hours, 3 minutes
Cisco 8201 Chassis w/ 24x400GE QSFP56-DD&12x100GE QSFP28
```

Determine Firmware Support

Log in to the router and enter **show fpd package** command:

Cisco 8200 Series Router

```
RP/0/RP0/CPU0# show fpd package
================================ ================================================
                                         Field Programmable Device Package
                                 ================================================
                                            Req     SW      Min Req   Min Req
Card Type            FPD Description        Reload  Ver     SW Ver  Board Ver
=================== ========================== ====== ======= ======== =========
--------------------------------------------------------------------------------
8201                 Bios                        YES     1.22      1.22      0.0
                     BiosGolden                  YES     1.22      1.15      0.0
                     BmcFitGolden                YES     3.300     0.240     0.0
                     BmcFitPrimary               YES     3.300     3.300     0.0
                     BmcFpga                     YES     1.01      1.01      0.0
                     BmcFpgaGolden               YES     1.01      0.86      0.0
                     BmcTamFw                    YES     5.06      5.06      0.0
                     BmcTamFwGolden              YES     5.06      5.05      0.0
                     BmcUbootGolden              YES     1.02      0.15      0.0
                     BmcUbootPrimary             YES     1.02      1.02      0.0
                     IoFpga                      YES     1.06      1.06      0.1
                     IoFpgaGolden                YES     1.06      0.48      0.1
                     SsdIntelS3520               YES     1.21      1.21      0.0
                     SsdIntelS4510               YES    11.32     11.32      0.0
                     SsdMicron5100               YES     7.01      7.01      0.0
                     SsdMicron5300               YES     0.01      0.01      0.0
                     x86Fpga                     YES     1.02      1.02      0.0
                     x86FpgaGolden               YES     1.02      0.48      0.0
                     x86TamFw                    YES     5.06      5.06      0.0
                     x86TamFwGolden              YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8201-ON              Bios                        YES     1.208     1.208     0.0
                     BiosGolden                  YES     1.208     1.207     0.0
                     BmcFitGolden                YES     3.300     0.240     0.0
                     BmcFitPrimary               YES     3.300     3.300     0.0
                     BmcFpga                     YES     1.01      1.01      0.0
                     BmcFpgaGolden               YES     1.01      0.86      0.0
                     BmcTamFw                    YES     5.06      5.06      0.0
```

```
                    BmcTamFwGolden            YES     5.06      5.05      0.0
                    BmcUbootGolden            YES     1.02      0.15      0.0
                    BmcUbootPrimary           YES     1.02      1.02      0.0
                    IoFpga                    YES     1.06      1.06      0.1
                    IoFpgaGolden              YES     1.06      0.48      0.1
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.02      1.02      0.0
                    x86FpgaGolden             YES     1.02      0.48      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8201-SYS            Bios                      YES     1.22      1.22      0.0
                    BiosGolden                YES     1.22      1.15      0.0
                    BmcFitGolden              YES     3.300     0.240     0.0
                    BmcFitPrimary             YES     3.300     3.300     0.0
                    BmcFpga                   YES     1.01      1.01      0.0
                    BmcFpgaGolden             YES     1.01      0.86      0.0
                    BmcTamFw                  YES     5.06      5.06      0.0
                    BmcTamFwGolden            YES     5.06      5.05      0.0
                    BmcUbootGolden            YES     1.02      0.15      0.0
                    BmcUbootPrimary           YES     1.02      1.02      0.0
                    IoFpga                    YES     1.06      1.06      0.1
                    IoFpgaGolden              YES     1.06      0.48      0.1
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.02      1.02      0.0
                    x86FpgaGolden             YES     1.02      0.48      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8201-SYS-ON         Bios                      YES     1.208     1.208     0.0
                    BiosGolden                YES     1.208     1.207     0.0
                    BmcFitGolden              YES     3.300     0.240     0.0
                    BmcFitPrimary             YES     3.300     3.300     0.0
                    BmcFpga                   YES     1.01      1.01      0.0
                    BmcFpgaGolden             YES     1.01      0.86      0.0
                    BmcTamFw                  YES     5.06      5.06      0.0
                    BmcTamFwGolden            YES     5.06      5.05      0.0
                    BmcUbootGolden            YES     1.02      0.15      0.0
                    BmcUbootPrimary           YES     1.02      1.02      0.0
                    IoFpga                    YES     1.06      1.06      0.1
                    IoFpgaGolden              YES     1.06      0.48      0.1
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.02      1.02      0.0
                    x86FpgaGolden             YES     1.02      0.48      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
PSU-2KW-HVPI        PO-PrimMCU                NO     17.136    17.136     0.0
--------------------------------------------------------------------------------
PSU1.4KW-ACPE       DC-PrimMCU                NO      3.01      3.01      0.0
                    DC-SecMCU                 NO      2.02      2.02      0.0
--------------------------------------------------------------------------------
PSU1.4KW-ACPI       DC-PrimMCU                NO      3.01      3.01      0.0
                    DC-SecMCU                 NO      2.02      2.02      0.0
--------------------------------------------------------------------------------
```

```
PSU2KW-ACPE          PO-PrimMCU                 NO     17.54     17.54      0.0
--------------------------------------------------------------------------------
PSU2KW-ACPI          PO-PrimMCU                 NO     17.56     17.56      0.0
--------------------------------------------------------------------------------
PSU2KW-DCPE          PO-PrimMCU                 NO      1.07      1.07      0.0
--------------------------------------------------------------------------------
PSU2KW-DCPI          PO-PrimMCU                 NO      1.07      1.07      0.0
```

Cisco 8800 Series Router

```
RP/0/RP0/CPU0# show fpd package
================================ ===============================================
                                  Field Programmable Device Package
                                 ===============================================
                                             Req     SW      Min Req   Min Req
Card Type            FPD Description         Reload  Ver     SW Ver  Board Ver
=================== ========================== ====== ======= ======== =========
--------------------------------------------------------------------------------
88-LC0-36FH          Bios                       YES     0.17      0.17      0.0
                     BiosGolden                 YES     0.17      0.13      0.0
                     EthSwitch                  YES     1.03      1.03      0.0
                     EthSwitchGolden            YES     1.03      0.07      0.0
                     IoFpga                     YES     1.00      1.00      0.1
                     IoFpgaGolden               YES     1.00      1.00      0.1
                     SsdIntelS3520              YES     1.21      1.21      0.0
                     SsdIntelS4510              YES    11.32     11.32      0.0
                     SsdMicron5100              YES     7.01      7.01      0.0
                     SsdMicron5300              YES     0.01      0.01      0.0
                     x86Fpga                    YES     1.06      1.06      0.1
                     x86FpgaGolden              YES     1.06      1.04      0.1
                     x86TamFw                   YES     6.05      6.05      0.1
                     x86TamFwGolden             YES     6.05      6.05      0.1
--------------------------------------------------------------------------------
88-LC0-36FH-M        Bios                       YES     0.17      0.17      0.0
                     BiosGolden                 YES     0.17      0.13      0.0
                     EthSwitch                  YES     1.03      1.03      0.0
                     EthSwitchGolden            YES     1.03      0.07      0.0
                     IoFpga                     YES     1.00      1.00      0.1
                     IoFpgaGolden               YES     1.00      1.00      0.1
                     SsdIntelS3520              YES     1.21      1.21      0.0
                     SsdIntelS4510              YES    11.32     11.32      0.0
                     SsdMicron5100              YES     7.01      7.01      0.0
                     SsdMicron5300              YES     0.01      0.01      0.0
                     x86Fpga                    YES     1.06      1.06      0.1
                     x86FpgaGolden              YES     1.06      1.04      0.1
                     x86TamFw                   YES     6.05      6.05      0.1
                     x86TamFwGolden             YES     6.05      6.05      0.1
--------------------------------------------------------------------------------
88-LC0-36FH-MO       Bios                       YES     0.217     0.217     0.0
                     BiosGolden                 YES     0.217     0.217     0.0
                     EthSwitch                  YES     1.03      1.03      0.0
                     EthSwitchGolden            YES     1.03      0.07      0.0
                     IoFpga                     YES     1.00      1.00      0.1
                     IoFpgaGolden               YES     1.00      1.00      0.1
                     SsdIntelS3520              YES     1.21      1.21      0.0
                     SsdIntelS4510              YES    11.32     11.32      0.0
                     SsdMicron5100              YES     7.01      7.01      0.0
                     SsdMicron5300              YES     0.01      0.01      0.0
                     x86Fpga                    YES     1.06      1.06      0.1
                     x86FpgaGolden              YES     1.06      1.04      0.1
                     x86TamFw                   YES     6.05      6.05      0.1
                     x86TamFwGolden             YES     6.05      6.05      0.1
--------------------------------------------------------------------------------
88-LC0-36FH-O        Bios                       YES     0.217     0.217     0.0
```

```
                    BiosGolden                YES     0.217     0.217     0.0
                    EthSwitch                 YES     1.03      1.03      0.0
                    EthSwitchGolden           YES     1.03      0.07      0.0
                    IoFpga                    YES     1.00      1.00      0.1
                    IoFpgaGolden              YES     1.00      1.00      0.1
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.06      1.06      0.1
                    x86FpgaGolden             YES     1.06      1.04      0.1
                    x86TamFw                  YES     6.05      6.05      0.1
                    x86TamFwGolden            YES     6.05      6.05      0.1
--------------------------------------------------------------------------------
8800-LC-36FH        Bios                      YES     1.22      1.22      0.0
                    BiosGolden                YES     1.22      1.15      0.0
                    EthSwitch                 YES     1.03      1.03      0.0
                    EthSwitchGolden           YES     1.03      0.07      0.0
                    IoFpga                    YES     1.12      1.12      0.0
                    IoFpgaGolden              YES     1.12      0.08      0.0
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.13      1.13      0.0
                    x86FpgaGolden             YES     1.13      0.33      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8800-LC-36FH-O      Bios                      YES     1.208     1.208     0.0
                    BiosGolden                YES     1.208     1.207     0.0
                    EthSwitch                 YES     1.03      1.03      0.0
                    EthSwitchGolden           YES     1.03      0.07      0.0
                    IoFpga                    YES     1.12      1.12      0.0
                    IoFpgaGolden              YES     1.12      0.08      0.0
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.13      1.13      0.0
                    x86FpgaGolden             YES     1.13      0.33      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8800-LC-48H         Bios                      YES     1.22      1.22      0.0
                    BiosGolden                YES     1.22      1.15      0.0
                    EthSwitch                 YES     1.03      1.03      0.0
                    EthSwitchGolden           YES     1.03      0.07      0.0
                    IoFpga                    YES     1.12      1.12      0.0
                    IoFpgaGolden              YES     1.12      0.08      0.0
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.13      1.13      0.0
                    x86FpgaGolden             YES     1.13      0.33      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8800-LC-48H-O       Bios                      YES     1.208     1.208     0.0
                    BiosGolden                YES     1.208     1.207     0.0
                    EthSwitch                 YES     1.03      1.03      0.0
                    EthSwitchGolden           YES     1.03      0.07      0.0
                    IoFpga                    YES     1.12      1.12      0.0
```

```
                    IoFpgaGolden              YES     1.12      0.08      0.0
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    x86Fpga                   YES     1.13      1.13      0.0
                    x86FpgaGolden             YES     1.13      0.33      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8800-RP             Bios                      YES     1.22      1.22      0.0
                    BiosGolden                YES     1.22      1.15      0.0
                    BmcFitGolden              YES     3.300     0.240     0.0
                    BmcFitPrimary             YES     3.300     3.300     0.0
                    BmcFpga                   YES     1.03      1.03      0.0
                    BmcFpgaGolden             YES     1.03      0.19      0.0
                    BmcTamFw                  YES     5.08      5.08      0.0
                    BmcTamFwGolden            YES     5.08      5.05      0.0
                    BmcUbootGolden            YES     1.02      0.15      0.0
                    BmcUbootPrimary           YES     1.02      1.02      0.0
                    EthSwitch                 YES     1.02      1.02      0.0
                    EthSwitchGolden           YES     1.02      0.07      0.0
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    TimingFpga                YES     1.02      1.02      0.0
                    TimingFpgaGolden          YES     1.02      0.11      0.0
                    x86Fpga                   YES     1.23      1.23      0.0
                    x86FpgaGolden             YES     1.23      0.24      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8800-RP-O           Bios                      YES     1.208     1.208     0.0
                    BiosGolden                YES     1.208     1.207     0.0
                    BmcFitGolden              YES     3.300     0.240     0.0
                    BmcFitPrimary             YES     3.300     3.300     0.0
                    BmcFpga                   YES     1.03      1.03      0.0
                    BmcFpgaGolden             YES     1.03      0.19      0.0
                    BmcTamFw                  YES     5.08      5.08      0.0
                    BmcTamFwGolden            YES     5.08      5.05      0.0
                    BmcUbootGolden            YES     1.02      0.15      0.0
                    BmcUbootPrimary           YES     1.02      1.02      0.0
                    EthSwitch                 YES     1.02      1.02      0.0
                    EthSwitchGolden           YES     1.02      0.07      0.0
                    SsdIntelS3520             YES     1.21      1.21      0.0
                    SsdIntelS4510             YES    11.32     11.32      0.0
                    SsdMicron5100             YES     7.01      7.01      0.0
                    SsdMicron5300             YES     0.01      0.01      0.0
                    TimingFpga                YES     1.02      1.02      0.0
                    TimingFpgaGolden          YES     1.02      0.11      0.0
                    x86Fpga                   YES     1.23      1.23      0.0
                    x86FpgaGolden             YES     1.23      0.24      0.0
                    x86TamFw                  YES     5.06      5.06      0.0
                    x86TamFwGolden            YES     5.06      5.05      0.0
--------------------------------------------------------------------------------
8804-FAN            FtFpga                    NO      1.00      1.00      0.0
                    FtFpgaGolden              NO      1.00      0.16      0.0
--------------------------------------------------------------------------------
8804-FC0            IoFpga                    YES     1.00      1.00      0.0
                    IoFpgaGolden              YES     1.00      0.16      0.0
--------------------------------------------------------------------------------
8808-FAN            FtFpga                    NO      1.00      1.00      0.0
                    FtFpgaGolden              NO      1.00      0.16      0.0
```

```
--------------------------------------------------------------------------------
8808-FC              IoFpga                     YES     1.02      1.02      0.0
                     IoFpgaGolden               YES     1.02      0.05      0.0
--------------------------------------------------------------------------------
8808-FC0             IoFpga                     YES     1.00      1.00      0.0
                     IoFpgaGolden               YES     1.00      0.16      0.0
--------------------------------------------------------------------------------
8812-FAN             FtFpga                     NO      1.00      1.00      0.0
                     FtFpgaGolden               NO      1.00      0.16      0.0
--------------------------------------------------------------------------------
8812-FC              IoFpga                     YES     1.02      1.02      0.0
                     IoFpgaGolden               YES     1.02      0.05      0.0
                     Retimer                    YES     3.00      3.00      0.0
--------------------------------------------------------------------------------
8818-FAN             FtFpga                     NO      1.00      1.00      0.0
                     FtFpgaGolden               NO      1.00      0.16      0.0
--------------------------------------------------------------------------------
8818-FC              IoFpga                     YES     1.02      1.02      0.0
                     IoFpgaGolden               YES     1.02      0.05      0.0
                     Retimer                    YES     3.00      3.00      0.0
--------------------------------------------------------------------------------
8818-FC0             IoFpga                     YES     1.00      1.00      0.0
                     IoFpgaGolden               YES     1.00      0.16      0.0
                     Retimer                    YES     3.00      3.00      0.0
--------------------------------------------------------------------------------
PSU-4.8KW-DC100      PO-PrimMCU                 NO     51.85     51.85      0.0
--------------------------------------------------------------------------------
PSU6.3KW-20A-HV      DT-LogicMCU                NO      1.00      1.00      0.0
                     DT-PrimMCU                 NO      1.00      1.00      0.0
                     DT-SecMCU                  NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
PSU6.3KW-HV          AB-LogicMCU                NO      3.08      3.08      0.0
                     AB-PrimMCU                 NO      3.08      3.08      0.0
                     AB-SecMCU                  NO      3.06      3.06      0.0
                     DT-LogicMCU                NO      4.11      4.11      0.0
                     DT-PrimMCU                 NO      4.01      4.01      0.0
                     DT-SecMCU                  NO      4.00      4.00      0.0
--------------------------------------------------------------------------------
PWR-4.4KW-DC-V3      DT-LogicMCU                NO      3.02      3.02      0.0
                     DT-Prim1MCU                NO      3.01      3.01      0.0
                     DT-Prim2MCU                NO      3.01      3.01      0.0
                     DT-Sec1MCU                 NO      3.01      3.01      0.0
                     DT-Sec2MCU                 NO      3.01      3.01      0.0
```

Supported Transceiver Modules

To determine the transceivers that Cisco hardware device supports, refer to the Transceiver Module Group (TMG) Compatibility Matrix tool.

Other Important Information

- The warning message that the smart licensing evaluation period has expired is displayed in the console every hour. There is, however, no functionality impact on the device. The issue is seen on routers that don't have the Flexible Consumption licensing model enabled. To stop the repetitive messaging, register the device with the smart licensing server and enable the Flexible Consumption model. Later load a new registration token.

  To register the device with the smart licensing server, see the Registering and Activating Your Router.

Related Documentation

The most current Cisco 8000 router documentation is located at the following URL:

https://www.cisco.com/c/en/us/td/docs/iosxr/8000-series-routers.html

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