

Release Notes for Cisco 8000 Series Routers, IOS XR Release 7.3.4

Cisco 8100, 8200, and 8800 Series Routers

What's New in Cisco IOS XR Release 7.3.4

Software Features Introduced and Enhanced

To learn about features introduced in other Cisco IOS XR releases, select the release from the [Documentation Landing Page](#).

Feature	Description
Application Hosting	
Boot Devices Using PXE Server Running in a Docker Container	<p>You can now boot your network devices with a PXE pre-boot execution environment (PXE or iPXE) server running in a Docker container. You use the application manager (appmgr) to manage PXE server docker hosting and functioning through Cisco IOS XR CLIs.</p> <p>This functionality lets you 'freeze' your booting environment in a Docker container instead of having to reinstall the environment for every new machine you want to boot, saving you the trouble of remembering the exact commands and sequences for a PXE boot.</p>
Telemetry	
Enhancements to Hardware Timestamp	<p>Telemetry messages carry a timestamp per interface to indicate the time when data is collected from the hardware. With this feature, the support for hardware timestamp is extended to MPLS Traffic Engineering (MPLS TE) counters, Segment Routing for Traffic Engineering (SR-TE) interface counters, protocol statistics, and bundle protocol counters.</p> <p>The interface counters in the following paths are enhanced for hardware timestamp:</p> <ul style="list-style-type: none"> • Cisco-IOS-XR-infra-statsd-oper:infra-statistics/interfaces/interface/cache /generic-counters • Cisco-IOS-XR-infra-statsd-oper:infra-statistics/interfaces/interface/latest /generic-counters • openconfig-network-instance:network-instances/network-instance/mpls/lsp/constrained-path/tunnels • openconfig-interfaces:interfaces/interface

Feature	Description
Programmability	
Hardware Timestamp for the OC-AFT YANG Model	<p>This release enables the hardware timestamp option in the OC-AFT YANG model, where the network management system (NMS) receives only essential interface characteristics, such as the next-hop group, next hop, and RSVP-TE for an IP prefix. With the hardware timestamp now available, the NMS calculates the rate at which data is transmitted accurately.</p> <p>The timestamp option is also enabled for interface counters. It helps you retrieve an accurate set of statistics related to the operational state of the router in terms of label, packets-forwarded, and octets-forwarded for an interface.</p> <p>See hardware timestamping for more information.</p>
OpenConfig YANG Model:SR	<p>Support has been extended for the following components in the OpenConfig (OC) Segment-Routing (SR) YANG model:</p> <ul style="list-style-type: none"> • The aggregate-sid-counters container in the sr-mpls-top group to aggregate the prefix-SID counters across all interfaces of the router. • The aggregate-sid-counter list is supported along with the mpls-label key to aggregate counters across all the interfaces of the router corresponding to traffic forwarded with a particular prefix-SID. <p>You can access the OC data model from the Github repository.</p>
OpenConfig YANG Model:SR-TE Policies	<p>The OpenConfig (OC) Segment Routing-Traffic Engineering (SR-TE) YANG data model provides data definitions for SR-TE policy configuration and associated signaling and traffic engineering protocols. This release extends support for the following data model to stream telemetry data:</p> <p>openconfig-srte-policy</p> <p>You can access the OC data model from the Github repository.</p>
Segment Routing	
BGP Best Path Computation using SR Policy Paths	<p>BGP best-path selection is modified for a prefix when at least one of its paths resolves over the next hop using SR policies (SR policy in “up” state). Under this condition, paths not steered over an SR policy (those using native next-hop resolution) are considered ineligible during best-path selection.</p> <p>You can thus control the best path selection in order to steer traffic, preferably or exclusively, over SR policies with the desired SLA.</p> <p>This feature introduces the bgp bestpath sr-policy {force prefer} command.</p>
Interface and Hardware Component	
ERSPAN Traffic to a Destination in a Non-Default VRF	<p>Encapsulated Remote Switched Port Analyzer (ERSPAN) now transports mirrored traffic through GRE tunnels with multiple VRFs, helping you design your network with multiple Layer 3 partitions.</p> <p>In earlier releases, ERSPAN transported mirrored traffic through GRE tunnels that belonged to only default VRF.</p>
Ethernet Interface Route Statistics	<p>You can view statistics on the number of packets sent and received in unicast, multicast, and broadcast routes.</p> <p>These statistics help you to monitor the network performance and measure your bandwidth.</p>

Feature	Description
Netflow	
Increased sFlow Sample-Header Size	<p>You can now configure the sFlow sampling size up to 343 bytes of the incoming or outgoing packet header. This enhancement lets the router export a larger sample to the flow-analyzer tool, enabling the tool to provide more accurate network analytics.</p> <p>In earlier releases, you could configure up to 200 bytes.</p>
System Security	
MAC Authentication Bypass	<p>Based on the MAC address of the end device or the client connected to the router port, this feature enables port control functionality for your router. This functionality provides controlled access to network services for end devices that do not support other authentication methods such as IEEE 802.1X port-based authentication.</p> <p>This feature introduces these commands and options:</p> <ul style="list-style-type: none"> • mab option in the dot1x profile command • mab-retry-time option in the authenticator command • clear mab • show mab
RSA and DSA Keys Displayed in Running Configuration	You can view the RSA and DSA keys in the running configuration by using the show running-config command.
System Management	
Reset your Device to Factory Settings	In accordance with NIST 800-88 guidelines for Media Sanitization, this feature enables you to erase and overwrite customer sensitive data, configuration, or keys from the Router Processor or line card. Thereby ensuring data privacy during a Return Merchandise Authorization (RMA).

Hardware Introduced

Cisco IOS XR Release 7.3.4 introduces the following hardware support:

Hardware Feature	Description
Direct Attach Copper cables for Cisco 8000 Series Routers	<p>The Cisco 8201 and Cisco 8201-32FH routers now support the following QSFP direct-attach copper modules (also referred to as copper cables):</p> <ul style="list-style-type: none"> • QSFP-H40G-CU3M • QSFP-H40G-CU2M • QSFP-H40G-CU1M • QSFP-H40G-CU0-5M <p>You can plug these copper cables directly into the optical ports of the chassis.</p> <p>These cables offer a variety of high-density and low-power 40 Gigabit Ethernet connectivity options for data centers, high-performance computing networks, enterprise core and distribution layers, and service provider applications.</p>

For a complete list of supported hardware and ordering information, see the [Cisco 8000 Series Data Sheet](#).

Release 7.3.4 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                             7.3.4v1.0.0-1
xr-8000-aib                               7.3.4v1.0.0-1
xr-8000-bfd                               7.3.4v1.0.0-1
xr-8000-bmc                               7.3.4v1.0.0-1
xr-8000-buffhdr-ea                       7.3.4v1.0.0-1
xr-8000-bundles                          7.3.4v1.0.0-1
xr-8000-card-support                     7.3.4v1.0.0-1
xr-8000-cdp-ea                           7.3.4v1.0.0-1
xr-8000-cfm                              7.3.4v1.0.0-1
xr-8000-core                             7.3.4v1.0.0-1
xr-8000-cpa                              7.3.4v1.0.0-1
xr-8000-cpa-npu                         7.3.4v1.0.0-1
xr-8000-cpa-sb-data                     7.3.4v1.0.0-1
xr-8000-dot1x                           7.3.4v1.0.0-1
xr-8000-dsm                              7.3.4v1.0.0-1
```

xr-8000-encap-id	7.3.4v1.0.0-1
xr-8000-ether-ea	7.3.4v1.0.0-1
xr-8000-fabric	7.3.4v1.0.0-1
xr-8000-feat-mgr	7.3.4v1.0.0-1
xr-8000-fib-ea	7.3.4v1.0.0-1
xr-8000-forwarder	7.3.4v1.0.0-1
xr-8000-fpd	7.3.4v1.0.0-1
xr-8000-fwd-tools	7.3.4v1.0.0-1
xr-8000-fwdlib	7.3.4v1.0.0-1
xr-8000-host-core	7.3.4v1.0.0-1
xr-8000-l2fib	7.3.4v1.0.0-1
xr-8000-leabaofa	7.3.4v1.0.0-1
xr-8000-libofaasync	7.3.4v1.0.0-1
xr-8000-lpts-ea	7.3.4v1.0.0-1
xr-8000-mcast	7.3.4v1.0.0-1
xr-8000-netflow	7.3.4v1.0.0-1
xr-8000-npu	7.3.4v1.0.0-1
xr-8000-oam	7.3.4v1.0.0-1
xr-8000-optics	7.3.4v1.0.0-1
xr-8000-os	7.3.4v1.0.0-1
xr-8000-os-extra	7.3.4v1.0.0-1
xr-8000-pbr	7.3.4v1.0.0-1
xr-8000-pfilter	7.3.4v1.0.0-1
xr-8000-pidb	7.3.4v1.0.0-1
xr-8000-pktio	7.3.4v1.0.0-1
xr-8000-port-mapper	7.3.4v1.0.0-1
xr-8000-port-mode	7.3.4v1.0.0-1
xr-8000-ppinfo	7.3.4v1.0.0-1
xr-8000-qos-ea	7.3.4v1.0.0-1
xr-8000-secy-driver	7.3.4v1.0.0-1
xr-8000-span	7.3.4v1.0.0-1
xr-8000-spio	7.3.4v1.0.0-1
xr-8000-spp-ea	7.3.4v1.0.0-1
xr-8000-tams	7.3.4v1.0.0-1
xr-8000-timing	7.3.4v1.0.0-1
xr-8000-tunnel-ip	7.3.4v1.0.0-1
xr-8000-utapp-blaze	7.3.4v1.0.0-1
xr-8000-vether	7.3.4v1.0.0-1
xr-8000-ztp-ea	7.3.4v1.0.0-1
xr-aaa	7.3.4v1.0.0-1
xr-acl	7.3.4v1.0.0-1
xr-apphosting	7.3.4v1.0.0-1
xr-appmgr	7.3.4v1.0.0-1
xr-bcdl	7.3.4v1.0.0-1
xr-bfd	7.3.4v1.0.0-1
xr-bgp	7.3.4v1.0.0-1
xr-bgputil	7.3.4v1.0.0-1
xr-bng-stubs	7.3.4v1.0.0-1
xr-bundles	7.3.4v1.0.0-1
xr-cal-pi	7.3.4v1.0.0-1
xr-cdp	7.3.4v1.0.0-1
xr-cds	7.3.4v1.0.0-1
xr-cfgmgr	7.3.4v1.0.0-1
xr-cfm	7.3.4v1.0.0-1
xr-cofo	7.3.4v1.0.0-1
xr-core	7.3.4v1.0.0-1
xr-core-calv	7.3.4v1.0.0-1
xr-cpa-common	7.3.4v1.0.0-1
xr-cpa-common-optics	7.3.4v1.0.0-1
xr-cpa-common-psu	7.3.4v1.0.0-1
xr-cpa-driver-devobj-misc	7.3.4v1.0.0-1
xr-cpa-driver-devobj-npu	7.3.4v1.0.0-1
xr-cpa-driver-devobj-phy	7.3.4v1.0.0-1
xr-cpa-driver-devobj-sensors	7.3.4v1.0.0-1

xr-cpa-driver-devobj-storage	7.3.4v1.0.0-1
xr-cpa-driver-devobj-test	7.3.4v1.0.0-1
xr-cpa-driver-devobj-timing	7.3.4v1.0.0-1
xr-cpa-driver-fpgalib-access	7.3.4v1.0.0-1
xr-cpa-driver-fpgalib-common	7.3.4v1.0.0-1
xr-cpa-driver-fpgalib-infra	7.3.4v1.0.0-1
xr-cpa-driver-fpgalib-kmod	7.3.4v1.0.0-1
xr-cpa-driver-fpgalib-misc	7.3.4v1.0.0-1
xr-cpa-driver-fpgalib-optics	7.3.4v1.0.0-1
xr-cpa-driver-optics	7.3.4v1.0.0-1
xr-cpa-ethsw	7.3.4v1.0.0-1
xr-cpa-idprom	7.3.4v1.0.0-1
xr-cpa-tamlib	7.3.4v1.0.0-1
xr-ctc	7.3.4v1.0.0-1
xr-debug	7.3.4v1.0.0-1
xr-dhcp	7.3.4v1.0.0-1
xr-diskboot	7.3.4v1.0.0-1
xr-drivers	7.3.4v1.0.0-1
xr-eem	7.3.4v1.0.0-1
xr-elmi-stubs	7.3.4v1.0.0-1
xr-ema	7.3.4v1.0.0-1
xr-enhancedmanageability	7.3.4v1.0.0-1
xr-fib	7.3.4v1.0.0-1
xr-filesysinv	7.3.4v1.0.0-1
xr-foundation-8000	7.3.4v1.0.0-1
xr-fpd	7.3.4v1.0.0-1
xr-ha-infra	7.3.4v1.0.0-1
xr-healthcheck	7.3.4v1.0.0-1
xr-host-core	7.3.4v1.0.0-1
xr-httpclient	7.3.4v1.0.0-1
xr-icpe-eth	7.3.4v1.0.0-1
xr-icpe-opt	7.3.4v1.0.0-1
xr-identifier	7.3.4v1.0.0-1
xr-infra-sla	7.3.4v1.0.0-1
xr-install	7.3.4v1.0.0-1
xr-ip-apps	7.3.4v1.0.0-1
xr-ip-core	7.3.4v1.0.0-1
xr-ip-infra-vrf	7.3.4v1.0.0-1
xr-ip-mibs	7.3.4v1.0.0-1
xr-ip-static	7.3.4v1.0.0-1
xr-ipc	7.3.4v1.0.0-1
xr-ipsla	7.3.4v1.0.0-1
xr-is-is	7.3.4v1.0.0-1
xr-k9sec	7.3.4v1.0.0-1
xr-l2snooptransport	7.3.4v1.0.0-1
xr-l2vpn	7.3.4v1.0.0-1
xr-ldp	7.3.4v1.0.0-1
xr-licensing	7.3.4v1.0.0-1
xr-link-oam	7.3.4v1.0.0-1
xr-linuxnetworking	7.3.4v1.0.0-1
xr-linuxsecurity	7.3.4v1.0.0-1
xr-lldp	7.3.4v1.0.0-1
xr-lpts	7.3.4v1.0.0-1
xr-manageabilityxml	7.3.4v1.0.0-1
xr-mandatory	7.3.4v1.0.0-1
xr-mcast	7.3.4v1.0.0-1
xr-mds	7.3.4v1.0.0-1
xr-mpls	7.3.4v1.0.0-1
xr-mpls-oam	7.3.4v1.0.0-1
xr-mpls-oam-client	7.3.4v1.0.0-1
xr-mpls-static	7.3.4v1.0.0-1
xr-netflow	7.3.4v1.0.0-1
xr-networkboot	7.3.4v1.0.0-1
xr-nosi	7.3.4v1.0.0-1

xr-ntp	7.3.4v1.0.0-1
xr-ofa	7.3.4v1.0.0-1
xr-optics	7.3.4v1.0.0-1
xr-orrspf	7.3.4v1.0.0-1
xr-os	7.3.4v1.0.0-1
xr-ospf	7.3.4v1.0.0-1
xr-perf-meas	7.3.4v1.0.0-1
xr-perfmgmt	7.3.4v1.0.0-1
xr-pfi	7.3.4v1.0.0-1
xr-platforms-ras	7.3.4v1.0.0-1
xr-pm-alarm	7.3.4v1.0.0-1
xr-procmgr	7.3.4v1.0.0-1
xr-python	7.3.4v1.0.0-1
xr-qos	7.3.4v1.0.0-1
xr-rid-mgr	7.3.4v1.0.0-1
xr-routing	7.3.4v1.0.0-1
xr-rpl	7.3.4v1.0.0-1
xr-rsvp-te	7.3.4v1.0.0-1
xr-security	7.3.4v1.0.0-1
xr-servicelayer	7.3.4v1.0.0-1
xr-snmp	7.3.4v1.0.0-1
xr-span	7.3.4v1.0.0-1
xr-spi-core	7.3.4v1.0.0-1
xr-spi-hw	7.3.4v1.0.0-1
xr-spp	7.3.4v1.0.0-1
xr-sr	7.3.4v1.0.0-1
xr-stats	7.3.4v1.0.0-1
xr-stp	7.3.4v1.0.0-1
xr-stubs	7.3.4v1.0.0-1
xr-sysdb	7.3.4v1.0.0-1
xr-syslog	7.3.4v1.0.0-1
xr-telemetry	7.3.4v1.0.0-1
xr-telnet	7.3.4v1.0.0-1
xr-timing	7.3.4v1.0.0-1
xr-tmpdir-cleanup	7.3.4v1.0.0-1
xr-track	7.3.4v1.0.0-1
xr-transport	7.3.4v1.0.0-1
xr-tty	7.3.4v1.0.0-1
xr-tunnel-ip	7.3.4v1.0.0-1
xr-utils	7.3.4v1.0.0-1
xr-vether	7.3.4v1.0.0-1
xr-vpnmib	7.3.4v1.0.0-1
xr-xmlinfra	7.3.4v1.0.0-1
xr-xr-libcurl	7.3.4v1.0.0-1
xr-ztp	7.3.4v1.0.0-1

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.

Caveats

Table 1: Cisco 8000 Series Router Specific Bugs

Bug ID	Headline
CSCwa17890	interface configuration missing on one LC after chassis restart
CSCwb48925	AIB process crash after RPFO
CSCwb72772	ACL match counter not incremented for deny SSH ACL, while access denied as expected
CSCwb78746	SFD18mibd_interface blocked on Mutex cbqosmib_ifmgr_callback when 3 of 16LCs qos CPUHOG

Determine Software Version

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

```
RP/0/RP0/CPU0# show version
Cisco IOS XR Software, Version 7.3.4 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
Built By      : ingunawa
Built On     : Thu May 12 19:02:17 UTC 2022
Build Host   : iox-ucs-060
Workspace    : /auto/srcarchive14/prod/7.3.4/8000/ws
Version     : 7.3.4
Label       : 7.3.4-734_RENUM_2
```

```
cisco 8000 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz)
cisco 8808 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz) processor with 32GB of memory
D8WAN uptime is 2 hours, 46 minutes
Cisco 8808 8-slot Chassis
```

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
=====
Card Type      FPD Description      Req   SW   Min Req  Min Req
                                              Reload Ver   SW Ver  Board Ver
=====
8201           Bios                 YES   1.23  1.23     0.0
                BiosGolden           YES   1.23  1.15     0.0
                BmcFitGolden         YES   3.400 0.240   0.0
```


	BmcFitPrimary	YES	3.400	3.400	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	3.400	0.240	0.0
	BmcFitPrimary	YES	3.400	3.400	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	1.23	1.23	0.0
	BiosGolden	YES	1.23	1.15	0.0
	BmcFitGolden	YES	3.400	0.240	0.0
	BmcFitPrimary	YES	3.400	3.400	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	3.400	0.240	0.0
	BmcFitPrimary	YES	3.400	3.400	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

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                          Field Programmable Device Package
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Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
88-LC0-34H14FH	Bios	YES	1.03	1.03	0.0
	BiosGolden	YES	1.03	0.13	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.01	1.01	0.1
	IoFpgaGolden	YES	1.01	1.01	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	0.78	0.78	0.1
	x86FpgaGolden	YES	0.78	0.78	0.1
	x86TamFw	YES	6.10	6.10	0.1
	x86TamFwGolden	YES	6.10	6.10	0.1
88-LC0-34H14FH-O	Bios	YES	0.218	0.218	0.0
	BiosGolden	YES	0.218	0.218	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.01	1.01	0.1
	IoFpgaGolden	YES	1.01	1.01	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	0.78	0.78	0.1
	x86FpgaGolden	YES	0.78	0.78	0.1
	x86TamFw	YES	6.10	6.10	0.1
	x86TamFwGolden	YES	6.10	6.10	0.1
88-LC0-36FH	Bios	YES	1.03	1.03	0.0
	BiosGolden	YES	1.03	0.13	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.15	1.15	0.1
	x86FpgaGolden	YES	1.15	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	1.03	1.03	0.0
	BiosGolden	YES	1.03	0.13	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.15	1.15	0.1
	x86FpgaGolden	YES	1.15	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	0.218	0.218	0.0
	BiosGolden	YES	0.218	0.218	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.15	1.15	0.1
	x86FpgaGolden	YES	1.15	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	0.218	0.218	0.0
	BiosGolden	YES	0.218	0.218	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.15	1.15	0.1
	x86FpgaGolden	YES	1.15	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	1.23	1.23	0.0
	BiosGolden	YES	1.23	1.15	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.23	1.23	0.0
	BiosGolden	YES	1.23	1.15	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	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	1.23	1.23	0.0
	BiosGolden	YES	1.23	1.15	0.0
	BmcFitGolden	YES	3.400	0.240	0.0
	BmcFitPrimary	YES	3.400	3.400	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	3.400	0.240	0.0
	BmcFitPrimary	YES	3.400	3.400	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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