



Release Notes for Cisco ASR 9000 Series Aggregation Services Routers for Cisco IOS XR Software Release 4.3.4

Cisco IOS XR Software is a distributed operating system designed for continuous system operation combined with service flexibility and higher performance.



Note

For information on Cisco ASR 9000 Series Aggregation Services Router running Cisco IOS XR Software Release 4.3.4, see the [Features Supported on the Cisco ASR 9000 Series Aggregation Services Router](#) section.

These release notes describe the features provided on the Cisco ASR 9000 Series Aggregation Services Router running Cisco IOS XR Software Release 4.3.4 and are updated as needed.

For a list of software caveats that apply to the Cisco ASR 9000 Series Aggregation Services Router running Cisco IOS XR Software Release 4.3.4, see the [Caveats, on page 50](#) section. The caveats are updated for every release and are described at <http://www.cisco.com>.

Cisco IOS XR Software running on the Cisco ASR 9000 Series Router provides the following features and benefits:

- **IP and Routing**—This supports a wide range of IPv4 and IPv6 services and routing protocols such as Border Gateway Protocol (BGP), Routing Information Protocol (RIPv2), Intermediate System-to-Intermediate System (IS-IS), Open Shortest Path First (OSPF), IP Multicast, Routing Policy Language (RPL), Hot Standby Router Protocol (HSRP), and Virtual Router Redundancy Protocol (VRRP) features.
- **Ethernet Services**—The following Ethernet features are supported:
 - Ethernet Virtual Connections (EVCs)
 - Flexible VLAN classification
 - Flexible VLAN translation
 - IEEE bridging
 - IEEE 802.1s Multiple Spanning Tree (MST)

- MST Access Gateway
 - L2VPN
 - Virtual Private LAN Services (VPLS), Hierarchical VPLS (H-VPLS), Virtual Private Wire Service (VPWS), Ethernet over MPLS (EoMPLS), pseudo wire redundancy, and multi segment pseudo wire stitching.
- **BGP Prefix Independent Convergence**—This provides the ability to converge BGP routes within sub seconds instead of multiple seconds. The Forwarding Information Base (FIB) is updated, independent of a prefix, to converge multiple 100K BGP routes with the occurrence of a single failure. This convergence is applicable to both core and edge failures and with or without MPLS. This fast convergence innovation is unique to Cisco IOS XR Software.
 - **Multiprotocol Label Switching (MPLS)**—This supports MPLS protocols, including Traffic Engineering (TE) [including TE-FRR and TW Preferred Path], Resource Reservation Protocol (RSVP), Label Distribution Protocol (LDP), Targeted LDP (T-LDP), Differentiated Services (DiffServ)-aware traffic engineering, and Layer 3 Virtual Private Network (L3VPN).
 - **Multicast**—This provides comprehensive IP Multicast software including Source Specific Multicast (SSM) and Protocol Independent Multicast (PIM) in Sparse Mode only. The Cisco ASR 9000 Series Aggregation Services Router also supports Auto-Rendezvous Point (AutoRP), Multiprotocol BGP (MBGP), Multicast Source Discovery Protocol (MSDP), Internet Group Management Protocol Versions 2 and 3 (IGMPv2 and v3), and IGMPv2 and v3 snooping.
 - **Quality of Service (QoS)**—This supports QoS mechanisms including policing, marking, queuing, random and hard traffic dropping, and shaping. Additionally, Cisco IOS XR supports modular QoS command-line interface (MQC). MQC is used to configure various QoS features on various Cisco platforms, including the Cisco ASR 9000 Series Aggregation Services Router. Supports the following:
 - Class-Based Weighted Fair Queuing (CBWFQ)
 - Weighted Random Early Detection (WRED)
 - Priority Queuing with propagation
 - 2-rate 3-color (2R3C) Policing
 - Modular QoS CLI (MQC)
 - 4-level Hierarchical-QoS
 - Shared Policy Instances
 - **Manageability**—This provides industry-standard management interfaces including modular command-line interface (CLI), Simple Network Management Protocol (SNMP), and native Extensible Markup Language (XML) interfaces. Includes a comprehensive set of Syslog messages.
 - **Security**—This provides comprehensive network security features including Layer 2 and Layer 3 access control lists (ACLs); routing authentications; Authentication, Authorization, and Accounting (AAA)/Terminal Access Controller Access Control System (TACACS+), Secure Shell (SSH), Management Plane Protection (MPP) for management plane security, and Simple Network Management Protocol version3 (SNMPv3). Control plane protections integrated into line card Application-Specific Integrated Circuits (ASICs) include Generalized TTL Security Mechanism (GTSM), RFC 3682, and Dynamic Control Plane Protection (DCPP).

- **Availability**—This supports rich availability features such as fault containment, fault tolerance, fast switchover, link aggregation, nonstop routing for ISIS, LDP and OSPF, and nonstop forwarding (NSF).
 - **Enhanced core competencies:**
 - IP fast convergence with Fast Reroute (FRR) support for Intermediate System-to-Intermediate System (IS-IS)
 - IP fast convergence with Fast Reroute (FRR) support for Open Shortest Path First (OSPF)
 - Path Computation Element (PCE) capability for traffic engineering
- [System Requirements, page 3](#)
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System Requirements

This section describes the system requirements for Cisco ASR 9000 Series Aggregation Services Router Software Release .

To determine the software versions or levels of your current system, see the [Determining Your Software Version, on page 29](#) section.

Feature Set Table

The Cisco ASR 9000 Series Aggregation Services Router Software is packaged in *feature sets* (also called *software images*). Each feature set contains a specific set of Cisco ASR 9000 Series Aggregation Services Router Software Release 4.3.4

[Table 1: Cisco IOS XR Software Release 4.3.4 PX PIE Files, on page 3](#) lists the Cisco ASR 9000 Series Aggregation Services Router Software feature set matrix (PX PIE files) and associated filenames available for the Release 4.3.4 supported on the Cisco ASR 9000 Series Aggregation Services Router.

Table 1: Cisco IOS XR Software Release 4.3.4 PX PIE Files

Feature Set	Filename	Description
Composite Package		

Cisco IOS XR IP Unicast Routing Core Bundle	asr9k-mini-px.pie-4.3.4	Contains the required core packages, including OS, Admin, Base, Forwarding, Modular Services Card, Routing, SNMP Agent, and Alarm Correlation.
Cisco IOS XR IP Unicast Routing Core Bundle	asr9k-mini-px.vm-4.3.4	Contains the required core packages including OS, Admin, Base, Forwarding, Forwarding Processor Card 40G, Routing, SNMP Agent, Diagnostic Utilities, and Alarm Correlation.
Optional Individual Packages (Packages are installed individually)		
Cisco IOS XR Manageability Package	asr9k-mgbl-px.pie-4.3.4	CORBA2 agent, XML3 Parser, and HTTP server packages. This PIE also contains some SNMP MIB infrastructure. Certain MIBs won't work if this PIE is not installed.
Cisco IOS XR MPLS Package	asr9k-mpls-px.pie-4.3.4	MPLS Traffic Engineering (MPLS-TE), Label Distribution Protocol (LDP), MPLS Forwarding, MPLS Operations, Administration, and Maintenance (OAM), Link Manager Protocol (LMP), Optical User Network Interface (OUNI), Resource Reservation Protocol (RSVP), and Layer-3 VPN.
Cisco IOS XR Multicast Package	asr9k-mcast-px.pie-4.3.4	Multicast Routing Protocols (PIM, Multicast Source Discovery Protocol [MSDP], Internet Group Management Protocol [IGMP], Auto-RP), Tools (SAP, MTrace), and Infrastructure [(Multicast Routing Information Base [MRIB], Multicast-Unicast RIB [MURIB], Multicast forwarding [MFWD]), and Bidirectional Protocol Independent Multicast (BIDIR-PIM).

Cisco IOS XR Security Package	asr9k-k9sec-px.pie-4.3.4	Support for Encryption, Decryption, IP Security (IPSec), Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI) (Software based IPSec support—maximum of 500 tunnels)
Cisco IOS XR Advanced Video Package	asr9k-video-px.pie-4.3.4	Firmware for the advanced video feature for Cisco ASR 9000 Series Router chassis.
Cisco IOS XR Optics Package	asr9k-optic-px.pie-4.3.4	Firmware for the optics feature for Cisco ASR 9000 Series Aggregation Services Router Chassis. It enables Transport / OTN feature under interfaces.
Cisco IOS XR FPD Package	asr9k-fpd-px.pie-4.3.4	Firmware pie for all LC and RSP FPGA's and ASIC's.
Cisco IOS XR Documentation Package	asr9k-doc-px.pie-4.3.4	.man pages for Cisco IOS XR Software on the Cisco ASR 9000 Series Aggregation Services Router Chassis.
Cisco IOS XR Services Package	asr9k-services-px.pie-4.3.4	Includes binaries to support CGv6 on ISM.
Cisco IOS XR Satellite Package	asr9000v-nV-px.pie-4.3.4	Includes Satellite software images.
Cisco IOS XR BNG Package	asr9k-bng-px.pie-4.3.4	Includes binaries to support BNG features.
Cisco IOS XR Lawful Intercept (LI) Package	asr9k-li-px.pie-4.3.4	Includes LI software images.
Cisco IOS XR Cisco ASR 903 Series Router Package	asr9k-asr903-nV-px.pie-4.3.4	Includes binaries to support Cisco ASR 903 Series Router software.
Cisco IOS XR Cisco ASR 901 Series Router Package	asr9k-asr901-nV-px.pie-4.3.4	Includes binaries to support Cisco ASR 901 Series Router software.

**Caution**

Starting Cisco IOS XR Software Release 4.3.0 of the Cisco ASR 9000 Aggregation Services Router platform, P images are no longer supported. The P images are now converged with PX. Through the normal upgrade process the migration will happen to PX.

Table 2: Cisco IOS XR Software Release 4.3.4TAR Files, on page 6 lists the Cisco ASR 9000 Series Aggregation Services Router TAR files.

Table 2: Cisco IOS XR Software Release 4.3.4TAR Files

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software [for RSP440 systems]	ASR9K-iosxr-px-4.3.4.tar	<ul style="list-style-type: none"> • Cisco IOS XR IP Unicast Routing Core Bundle • Cisco IOS XR Manageability Package • Cisco IOS XR MPLS Package • Cisco IOS XR Multicast Package • Cisco IOS XR FPD Package • Cisco IOS XR Diagnostic Package • Cisco IOS XR Advanced Video Package • Cisco IOS XR Optics Package • Cisco IOS XR Upgrade Package • Cisco IOS XR Documentation Package • Cisco IOS XR Lawful Intercept Package

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software 3DES [for RSP440 systems]	ASR9K-iosxr-px-k9-4.3.4.tar	<ul style="list-style-type: none"> • Cisco IOS XR IP Unicast Routing Core Bundle • Cisco IOS XR Manageability Package • Cisco IOS XR MPLS Package • Cisco IOS XR Multicast Package • Cisco IOS XR Security Package • Cisco IOS XR FPD Package • Cisco IOS XR Diagnostic Package • Cisco IOS XR Advanced Video Package • Cisco IOS XR Optics Package • Cisco IOS XR Upgrade Package • Cisco IOS XR Documentation Package • Cisco IOS XR Lawful Intercept Package

Memory Requirements



Caution

If you remove the media in which the software image or configuration is stored, the router may become unstable and fail.

The minimum memory requirements for Cisco ASR 9000 Series Aggregation Services Router running Cisco IOS XR Software Release 4.3.4 consist of the following:

- minimum 6 GB memory on the RSP-440 and ASR9922 RP [A9K-RSP-4G and A9K-RSP-8G is 4 GB]
- maximum 12 GB memory on the RSP-440 and ASR9922 RP [A9K-RSP-4G and A9K-RSP-8G is 4 GB]
- minimum 2 GB compact flash (on disk0, default) on route switch processors (RSPs)
- minimum 4 GB memory (default) on the line cards (LCs)

These minimum memory requirements are met with the base board design.

The supported ASR9K low memory and high memory RSP card PIDs are:

Description	PID	Release
ASR9001 Route Switch Processor 8 GB	—	Release 4.2.1
ASR9K Route Switch Processor with 440G/slot Fabric and 6 GB	A9K-RSP440-TR	Release 4.2.0
ASR9K Route Switch Processor with 440G/slot Fabric and 12 GB	A9K-RSP440-SE	Release 4.2.0
ASR9K Fabric, Controller 4 GB memory	A9K-RSP-4G	Release 3.7.2
Route Switch Processor 8 GB Memory	A9K-RSP-8G	Release 3.7.2
ASR 9900 Route Processor 12 GB for Service Edge	ASR-9900-RP-SE	Release 4.3.2
ASR 9900 Route Processor 6 GB for Packet Transport	ASR-9900-RP-TR	Release 4.3.2

Supported Hardware

Cisco IOS XR Software Release supports Cisco ASR 9000 Series Aggregation Services Routers.

All hardware features are supported on Cisco IOS XR Software, subject to the memory requirements specified in the "[Memory Requirements, on page 7](#)" section.

The following tables lists the supported hardware components on the Cisco ASR 9000 Series Router and the minimum required software versions. For more information, see the [Firmware Support, on page 16](#) section.

Table 3: Cisco ASR 9000 Series Aggregation Services Router Supported Hardware and Minimum Software Requirements

Component	Part Number	Support from Version
Cisco ASR 9000 Series Aggregation Services Router 22-Slot		
Cisco ASR 9000 Series Aggregation Services Router 22-Slot 20 Line Card Slot AC Chassis w/ PEM V2	ASR-9922-AC	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot 20 Line Card Slot DC Chassis w/ PEM V2	ASR-9922-DC	

Cisco ASR 9000 Series Aggregation Services Router 22-Slot Accessory Kit with grounding locks, guide rails etc	ASR-9922-ACC-KIT	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Accessory - Cover for Power Shelves and Modules	ASR-9922-PWR-COV	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Reflector	ASR-9922-AIRREF	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Accessory - Door (with lock) and Fan Tray Covers	ASR-9922-DOOR	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Fan Tray	ASR-9922-FAN	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Filter with Media, Center	ASR-9922-FLTR-CEN	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Filter with Media, Left & Right	ASR-9922-FLTR-LR	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Route Processor Filler	ASR-9922-RP-FILR	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Route Processor 12GB for Service Edge	ASR-9922-RP-SE	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Route Processor 6GB for Packet Transport	ASR-9922-RP-TR	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Switch Fabric Card Slot Filler	ASR-9922-SFC-FILR	
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Switch Fabric Card/110G	ASR-9922-SFC110	
Cisco ASR 9000 Series Aggregation Services Router 2-RU		
Cisco ASR 9000 Series Aggregation Services Router 2-Slot Route Processor	—	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 2-Slot Fan Tray	ASR-9001-FAN	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 2-Slot Line Card	ASR-9001-LC	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router	ASR-9001-TRAY	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 6-Slot		

Cisco ASR 9000 Series Aggregation Services Router 6-Slot System	ASR-9006	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Fan Tray	ASR-9006-FAN	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Door Kit	ASR-9006-DOOR	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot AC Chassis	ASR-9006-AC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot DC Chassis	ASR-9006-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Air		
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Air Filter	ASR-9006-FILTER	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot		
Cisco ASR 9000 Series Aggregation Services Router 10-Slot System	ASR-9010	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Fan Tray	ASR-9010-FAN	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Door Kit	ASR-9010-DOOR	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot AC Chassis	ASR-9010-AC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot DC Chassis	ASR-9010-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 2 Post Mounting Kit	ASR-9010-2P-KIT	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 4 Post Mounting Kit	ASR-9010-2P-KIT	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Air		
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Air Filter	ASR-9010-FILTER	Release 3.7.2

Cisco ASR 9000 Series Aggregation Services Router 10-Slot External Exhaust Air Shaper	ASR-9010-AIRSHPR	NA
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Air Inlet Grill	ASR-9010-GRL	NA
Cisco ASR 9000 Series Aggregation Services Router Power		
Cisco ASR 9000 Series Aggregation Services Router 2KW DC Power Module, version 2	A9K-2KW-DC-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 3KW AC Power Module, version 2	A9K-3KW-AC-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router AC Power Entry Module Version 2	A9K-AC-PEM-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router DC Power Entry Module Version 2	A9K-DC-PEM-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router Power Entry Module Version 2 Filler	A9K-PEM-V2-FILR	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 1.5kW DC Power Module	A9K-1.5KW-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 2kW DC Power Module	A9K-2KW-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 3kW AC Power Module	A9K-3KW-AC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router Line Cards		
Cisco ASR 9000 Series Aggregation Services Router 1-port 100GE, Service Edge Optimized	A9K-1X100GE-SE	
Cisco ASR 9000 Series Aggregation Services Router 1-port 100GE, Packet Transport Optimized	A9K-1X100GE-TR	
Cisco ASR 9000 Series Aggregation Services Router 36-port 10GE, Service Edge Optimized	A9K-36X10GE-SE	
Cisco ASR 9000 Series Aggregation Services Router 36-port 10GE, Packet Transport Optimized LC	A9K-36X10GE-TR	
Cisco ASR 9000 Series Aggregation Services Router 2-Port Ten Gigabit Ethernet + Cisco ASR 9000 Series Aggregation Services Router 20-Port Gigabit Ethernet, Medium Queue	A9K-2T20GE-B	Release 3.9.0

Cisco ASR 9000 Series Aggregation Services Router 2-Port Ten Gigabit Ethernet + Cisco ASR 9000 Series Aggregation Services Router 20-Port Gigabit Ethernet, High Queue	A9K-2T20GE-E	Release 3.9.0
Cisco ASR 9000 Series Aggregation Services Router 4-Port Ten Gigabit Ethernet, Medium Queue	A9K-4T-B	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 4-Port Ten Gigabit Ethernet Extended Line Card, High Queue	A9K-4T-E	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 4-Port Ten Gigabit Ethernet, Low Queue	A9K-4T-L	Release 3.9.0
Cisco ASR 9000 Series Aggregation Services Router 8-Port Ten Gigabit Ethernet, 80G Line Rate Extended Line Card, Medium Queue	A9K-8T-B	Release 4.0.1
Cisco ASR 9000 Series Aggregation Services Router 8-Port Ten Gigabit Ethernet, 80G Line Rate Extended Line Card, High Queue	A9K-8T-E	Release 3.9.0
Cisco ASR 9000 Series Aggregation Services Router 8-Port Ten Gigabit Ethernet, 80G Line Rate Extended Line Card, Low Queue	A9K-8T-L	Release 3.9.0
Cisco ASR 9000 Series Aggregation Services Router 8-Port Ten Gigabit Ethernet, Medium Queue	A9K-8T/4-B	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 8-Port Ten GE DX Extended Line Card, High Queue	A9K-8T/4-E	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 8-Port Ten Gigabit Ethernet, Low Queue	A9K-8T/4-L	Release 3.9.0
Cisco ASR 9000 Series Aggregation Services Router 16-Port Ten Gigabit Ethernet, Medium Queue	A9K-4T-B	Release 4.0.1
Cisco ASR 9000 Series Aggregation Services Router 40-Port Ten Gigabit Ethernet, Medium Queue	A9K-40GE-B	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 40-Port Ten Gigabit Ethernet, High Queue	A9K-40GE-E	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 40-Port Ten Gigabit Ethernet, Low Queue	A9K-40GE-L	Release 3.9.0
Cisco ASR 9000 Series Aggregation Services Router Line Card Filler	A9K-LC-FILR	Release 3.7.2
ISM (Integrated Service Module) Line Card	A9K-ISM-100	Release 4.2.0

Cisco ASR 9000 Series Aggregation Services Router 2-Port Hundred Gigabit Ethernet, Service Edge Optimized	A9K-2X100GE-SE	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 2-Port Hundred Gigabit Ethernet, Packet Transport Optimized	A9K-2X100GE-TR	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 24-Port Ten Gigabit Ethernet, Service Edge Optimized	A9K-24X10GE-SE	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 24-Port Ten Gigabit Ethernet, Packet Transport Optimized	A9K-24X10GE-TR	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router Modular Line Cards		
Cisco ASR 9000 Series Aggregation Services Router 80 Gig Modular Line Card, Service Edge Optimized	A9K-MOD80-SE	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 80 Gig Modular Line Card, Packet Transport Optimized	A9K-MOD80-TR	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 160 Gig Modular Line Card, Service Edge Optimized	A9K-MOD160-SE	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 160 Gig Modular Line Card, Packet Transport Optimized	A9K-MOD160-TR	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router Modular Port Adapters (MPAs)		
Cisco ASR 9000 Series Aggregation Services Router 1-port 40GE Modular Port Adapter	A9K-MPA-1X40GE	Release 4.2.3
Cisco ASR 9000 Series Aggregation Services Router 4-port 10GE Modular Port Adapter	A9K-MPA-4X10GE	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 20-port 1GE Modular Port Adapter	A9K-MPA-20X1GE	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 2-port 10GE Modular Port Adapter	A9K-MPA-2X10GE	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 2-port 40GE Modular Port Adapter	A9K-MPA-2X40GE	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router Route Switch Processor Cards		
Cisco ASR 9000 Series Aggregation Services Router Route Switch Processor, 4G Memory	A9K-RSP-4G	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router Route Switch Processor, 8G Memory	A9K-RSP-8G	Release 4.0.1

Cisco ASR 9000 Series Aggregation Services Router Route Switch Processor Filler	ASR-9000-RSP-FILR	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router Next Generation Route Switch Processor, Service Edge Optimized	A9K-RSP-440-SE	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router Next Generation Route Switch Processor, Packet Transport Optimized	A9K-RSP-440-TR	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router SIP and SPA Cards		
Cisco ASR 9000 SIP-700 SPA interface processor	A9K-SIP-700	Release 3.9.0
2-Port Channelized OC-12/DS0 SPA	SPA-2XCHOC12/DS0	Release 3.9.0
1-Port Channelized OC48/STM16 DS3 SPA	SPA-1XCHOC48/DS3	Release 4.0.1
2-Port OC-48/STM16 SPA	SPA-2XOC48POS/RPR	Release 4.0.1
8-Port OC12/STM4 SPA	SPA-8XOC12-POS	Release 4.0.1
1-Port OC-192/STM-64 POS/RPR SPA	SPA-OC192POS-XFP	Release 4.0.1
4-Port Clear Channel T3/E3 SPA	SPA-4XT3E3	Release 4.0.1
2-Port Clear Channel T3/E3 SPA	SPA-2XT3E3	Release 4.0.1
1-Port Channelized OC-3/STM-1 SPA	SPA-1XCHSTM1/OC3	Release 4.0.1
4-Port OC-3/STM-1 POS SPA	SPA-4XOC3	Release 4.0.1
8-Port OC-3/STM-1 POS SPA	SPA-8XOC3	Release 4.0.1
4-Port Channelized T3 to DS0 SPA	SPA-4XCT3/DS0	Release 4.1.0
8-Port Channelized T1/E1 SPA	SPA-8XCHT1/E1	Release 4.1.0
1-Port and 3-Port Clear Channel OC-3 ATM SPA	SPA-1/3XOC3ATM	Release 4.2.0
1-Port Clear Channel OC-12 ATM SPA	SPA-1XOC12ATM	Release 4.2.0
1-Port Channelized OC-3 ATM CEoP SPA	SPA-1XOC3-CE-ATM	Release 4.2.0

Software Compatibility

Cisco IOS XR Software Release is compatible with the following Cisco ASR 9000 Series Aggregation Services Router systems.

- Cisco ASR 9000 Series Aggregation Services Router 6-Slot Line Card Chassis
- Cisco ASR 9000 Series Aggregation Services Router 10-Slot Line Card Chassis
- Cisco ASR 9000 Series Aggregation Services Router 22-Slot Line Card Chassis
- Cisco ASR 9000 Series Aggregation Services Router ASR-9001 Chassis

Table 4: Cisco ASR 9000 Series Aggregation Services Router Supported Software Licenses

Software License	Part Number
Cisco ASR 9000 Series Aggregation Services Router iVRF License	A9K-IVRF-LIC
Cisco ASR 9000 Series Aggregation Services Router Per Chassis Advanced Video License	A9K-ADV-VIDEO-LIC
Cisco ASR 9000 Series Aggregation Services Router Per Line Card Advanced Optical License	A9K-ADV-OPTIC-LIC
Cisco ASR 9000 Series Aggregation Services Router L3VPN License, Medium Queue and Low Queue Line Cards	A9K-AIP-LIC-B
Cisco ASR 9000 Series Aggregation Services Router L3VPN License, High Queue Line Cards	A9K-AIP-LIC-E

Note that error messages may display if features run without the appropriate licenses installed. For example, when creating or configuring VRF, if the A9K-IVRF-LIC license is not installed before creating a VRF, the following message displays:

```
RP/0/RSP0/CPU0:router#LC/0/0/CPU0:Dec 15 17:57:53.653 : rsi_agent[247]:
%LICENSE-ASR9K_LICENSE-2-INFRA_VRF_NEEDED : 5 VRF(s) are configured without license
A9K-ivrf-LIC in violation of the Software Right To Use Agreement. This feature may be
disabled by the system without the appropriate license. Contact Cisco to purchase the
license immediately to avoid potential service interruption.
```

For Cisco license support, please contact your Cisco Sales Representative or Customer Service at 800-553-NETS (6387) or 408-526-4000. For questions on the program other than ordering, please send e-mail to: cwm-license@cisco.com.

Cisco ASR 9000 Series Aggregation Services Router Right-To-Use (RTU) Licensing

Here are on-line locations of the Cisco ASR 9000 Series Aggregation Services Router Right-To-Use (RTU) licensing docs:

<http://www.cisco.com/en/US/docs/routers/asr9000/hardware/Prodlicense/A9k-AIP-LIC-B.html>

<http://www.cisco.com/en/US/docs/routers/asr9000/hardware/Prodlicense/A9k-AIP-LIC-E.html>

**Note**

Layer 3 VPNs are only to be used after you have purchased a license. Cisco will enforce the RTU of L3VPNs in follow on releases. You should contact Cisco, or check the release notes for the follow on release before upgrading for directions on how to install the license as part of the upgrade - otherwise the L3VPN feature may be affected.

The activation of VRF capability still requires the use of the appropriate per line card license (A9K-IVRF-LIC / A9K-AIP-LIC-B / A9K-AIP-LIC-E). Please contact your sales representative for more details.

Firmware Support

To check the firmware code running on the Cisco ASR 9000 Series Router, run the **show fpd package** command in admin mode.

In upgrading from Release 3.7.3 or earlier releases, you may be expected to do a one-time FPD upgrade for any firmware images that may have changed since the last release. Refer to the documents at http://www.cisco.com/web/Cisco_IOS_XR_Software/index.html for upgrade instructions.

RP/0/RSP0/CPU0:router (admin) #**show fpd package**

Field Programmable Device Package								
Card Type	FPD Description	Type	Subtype	SW Version	Min Req SW Ver	Min Req HW Vers		
ASR-9912-BPID2	Can Bus Ctrl (CBC) BP2	bp	cbc	7.104	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.104	0.00	0.1		
ASR-9922-BPID2	Can Bus Ctrl (CBC) BP2	bp	cbc	7.104	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.104	0.00	0.1		
A9K-BPID2-10-SLOT	Can Bus Ctrl (CBC) BP2	bp	cbc	7.104	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.104	0.00	0.1		
A9K-BPID2-6-SLOT	Can Bus Ctrl (CBC) BP2	bp	cbc	7.104	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.104	0.00	0.1		
ASR-9922-SFC110	Can Bus Ctrl (CBC) MTFC	fc	cbc	28.05	0.00	0.1		
	Fabric Ctrl10 MTFC	fc	fpga7	1.02	0.00	0.1		
	Can Bus Ctrl (CBC) MTFC	lc	cbc	28.05	0.00	0.1		
ASR-9912-SFC110	Can Bus Ctrl (CBC) SSFC	fc	cbc	32.04	0.00	0.1		
	Fabric Ctrl10 MTFC	fc	fpga7	1.02	0.00	0.1		
ASR-9010-FAN	Can Bus Ctrl (CBC) FAN	ft	cbc	4.02	0.00	0.1		
	Can Bus Ctrl (CBC) FAN	lc	cbc	4.02	0.00	0.1		

ASR-9006-FAN	Can Bus Ctrl (CBC) FAN	ft	cbc	5.02	0.00	0.1
	Can Bus Ctrl (CBC) FAN	lc	cbc	5.02	0.00	0.1

ASR-9922-FAN	Can Bus Ctrl (CBC) MFAN	ft	cbc	29.11	0.00	0.1
	Can Bus Ctrl (CBC) MFAN	lc	cbc	29.11	0.00	0.1

ASR-9912-FAN	Can Bus Ctrl (CBC) SFAN	ft	cbc	31.03	0.00	0.1

ASR-9010-FAN-V2	Can Bus Ctrl (CBC) FAN	ft	cbc	29.11	0.00	0.1
	Can Bus Ctrl (CBC) FAN	lc	cbc	29.11	0.00	0.1

ASR-9001-FAN	Can Bus Ctrl (CBC) FAN	ft	cbc	24.114	0.00	0.1
	Can Bus Ctrl (CBC) FAN	lc	cbc	24.114	0.00	0.1

A9K-40GE-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.06	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-4T-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.08	0.00	0.1
	LCCLKCtrl LC2	lc	cp1d3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-8T/4-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.08	0.00	0.1
	LCCLKCtrl LC2	lc	cp1d3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-2T20GE-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1

	PHYCtrl LC2	lc	cp1d2	0.11	0.00	0.1
	LCCLKCtrl LC2	lc	cp1d3	0.10	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.16	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
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A9K-40GE-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.06	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
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A9K-4T-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.08	0.00	0.1
	LCCLKCtrl LC2	lc	cp1d3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
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A9K-8T/4-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.08	0.00	0.1
	LCCLKCtrl LC2	lc	cp1d3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
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A9K-2T20GE-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.11	0.00	0.1
	LCCLKCtrl LC2	lc	cp1d3	0.10	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.16	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-8T-B	Can Bus Ctrl (CBC) LC3	lc	cbc	6.11	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.03	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1
A9K-16T/8-B	Can Bus Ctrl (CBC) LC3	lc	cbc	6.12	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1
A9K-8T-E	Can Bus Ctrl (CBC) LC3	lc	cbc	6.11	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.03	0.00	0.1
	CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1
A9K-16T/8-E	Can Bus Ctrl (CBC) LC3	lc	cbc	6.12	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1
A9K-40GE-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1

	PHYCtrl LC2	lc	cp1d2	0.06	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-4T-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.08	0.00	0.1
	LCClkCtrl LC2	lc	cp1d3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Serdes Upgrade LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-8T/4-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.08	0.00	0.1
	LCClkCtrl LC2	lc	cp1d3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Serdes Upgrade LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-2T20GE-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cp1d1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cp1d2	0.11	0.00	0.1
	LCClkCtrl LC2	lc	cp1d3	0.10	0.00	0.1
	Tomcat LC2	lc	fpga2	0.16	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-8T-L	Can Bus Ctrl (CBC) LC3	lc	cbc	6.11	0.00	0.1
	CPUCtrl LC3	lc	cp1d1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cp1d2	0.08	0.00	0.1
	LCClkCtrl LC3	lc	cp1d3	0.03	0.00	0.1
	CPUCtrl LC3	lc	cp1d4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1

A9K-16T/8-L	Can Bus Ctrl (CBC) LC3	lc	cbc	6.12	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.00	0.1
	LCCLKCtrl LC3	lc	cpld3	0.01	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1
A9K-SIP-700	Can Bus Ctrl (CBC) LC5	lc	cbc	3.06	0.00	0.1
	CPUCtrl LC5	lc	cpld1	0.15	0.00	0.1
	QFPCPUBridge LC5	lc	fpga2	5.14	0.00	0.1
	NPUXBarBridge LC5	lc	fpga1	0.23	0.00	0.1
	ROMMONB LC5	lc	rommon	1.04	0.00	0.1
A9K-SIP-500	Can Bus Ctrl (CBC) LC5	lc	cbc	3.06	0.00	0.1
	CPUCtrl LC5	lc	cpld1	0.15	0.00	0.1
	QFPCPUBridge LC5	lc	fpga2	5.14	0.00	0.1
	NPUXBarBridge LC5	lc	fpga1	0.23	0.00	0.1
	ROMMONB LC5	lc	rommon	1.04	0.00	0.1
A9K-SIP-700-8G	Can Bus Ctrl (CBC) LC5	lc	cbc	3.06	0.00	0.1
	CPUCtrl LC5	lc	cpld1	0.15	0.00	0.1
	QFPCPUBridge LC5	lc	fpga2	5.14	0.00	0.1
	NPUXBarBridge LC5	lc	fpga1	0.23	0.00	0.1
	ROMMONB LC5	lc	rommon	1.35	0.00	0.1
A9K-RSP-2G	Can Bus Ctrl (CBC) RSP2	lc	cbc	1.03	0.00	0.1
	CPUCtrl RSP2	lc	cpld2	1.18	0.00	0.1
	IntCtrl RSP2	lc	fpga2	1.15	0.00	0.1
	ClkCtrl RSP2	lc	fpga3	1.23	0.00	0.1
	UTI RSP2	lc	fpga4	3.08	0.00	0.1
	PUNT RSP2	lc	fpga1	1.05	0.00	0.1
	ROMMONB RSP2	lc	rommon	1.06	0.00	0.1
A9K-RSP-4G	Can Bus Ctrl (CBC) RSP2	lc	cbc	1.03	0.00	0.1
	CPUCtrl RSP2	lc	cpld2	1.18	0.00	0.1
	IntCtrl RSP2	lc	fpga2	1.15	0.00	0.1

	ClkCtrl RSP2	lc	fpga3	1.23	0.00	0.1
	UTI RSP2	lc	fpga4	3.08	0.00	0.1
	PUNT RSP2	lc	fpga1	1.05	0.00	0.1
	ROMMONB RSP2	lc	rommon	1.06	0.00	0.1

A9K-RSP-8G	Can Bus Ctrl (CBC) RSP2	lc	cbc	1.03	0.00	0.1
	CPUCtrl RSP2	lc	cp1d2	1.18	0.00	0.1
	IntCtrl RSP2	lc	fpga2	1.15	0.00	0.1
	ClkCtrl RSP2	lc	fpga3	1.23	0.00	0.1
	UTI RSP2	lc	fpga4	3.08	0.00	0.1
	PUNT RSP2	lc	fpga1	1.05	0.00	0.1
	ROMMONB RSP2	lc	rommon	1.06	0.00	0.1

A9K-RSP440-TR	Can Bus Ctrl (CBC) RSP3	lc	cbc	16.115	0.00	0.1
	ClockCtrl0 RSP3	lc	fpga2	1.06	0.00	0.1
	UTI RSP3	lc	fpga3	4.09	0.00	0.1
	CPUCtrl RSP3	lc	fpga1	0.10	0.00	0.1
	ROMMONB RSP3	lc	rommon	0.71	0.00	0.1

A9K-RSP440-SE	Can Bus Ctrl (CBC) RSP3	lc	cbc	16.115	0.00	0.1
	ClockCtrl0 RSP3	lc	fpga2	1.06	0.00	0.1
	UTI RSP3	lc	fpga3	4.09	0.00	0.1
	CPUCtrl RSP3	lc	fpga1	0.10	0.00	0.1
	ROMMONB RSP3	lc	rommon	0.71	0.00	0.1

ASR-9922-RP-TR	Can Bus Ctrl (CBC) MTRP	lc	cbc	25.02	0.00	0.1
	Fabric Ctrl13 MTFC	lc	fpga10	1.02	0.00	0.1
	Fabric Ctrl14 MTFC	lc	fpga11	1.02	0.00	0.1
	Fabric Ctrl15 MTFC	lc	fpga12	1.02	0.00	0.1
	Fabric Ctrl16 MTFC	lc	fpga13	1.02	0.00	0.1
	CPUCtrl11	lc	fpga2	1.03	0.00	0.1
	ClkCtrl	lc	fpga3	1.03	0.00	0.1
	IntCtrl	lc	fpga4	1.04	0.00	0.1
	UTI	lc	fpga5	4.09	0.00	0.1
	Timex	lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl10 MTFC	lc	fpga7	1.02	0.00	0.1
	Fabric Ctrl11 MTFC	lc	fpga8	1.02	0.00	0.1
	Fabric Ctrl12 MTFC	lc	fpga9	1.02	0.00	0.1
	CPUCtrl0	lc	fpga1	1.04	0.00	0.1

	ROMMONB MTRP	1c	rommon	5.11	0.00	0.1

ASR-9922-RP-SE	Can Bus Ctrl (CBC) MTRP	1c	cbc	25.02	0.00	0.1
	Fabric Ctrl3 MTFC	1c	fpga10	1.02	0.00	0.1
	Fabric Ctrl4 MTFC	1c	fpga11	1.02	0.00	0.1
	Fabric Ctrl5 MTFC	1c	fpga12	1.02	0.00	0.1
	Fabric Ctrl6 MTFC	1c	fpga13	1.02	0.00	0.1
	CPUCtrl1	1c	fpga2	1.03	0.00	0.1
	ClkCtrl	1c	fpga3	1.03	0.00	0.1
	IntCtrl	1c	fpga4	1.04	0.00	0.1
	UTI	1c	fpga5	4.09	0.00	0.1
	Timex	1c	fpga6	0.02	0.00	0.1
	Fabric Ctrl10 MTFC	1c	fpga7	1.02	0.00	0.1
	Fabric Ctrl11 MTFC	1c	fpga8	1.02	0.00	0.1
	Fabric Ctrl12 MTFC	1c	fpga9	1.02	0.00	0.1
	CPUCtrl0	1c	fpga1	1.04	0.00	0.1
	ROMMONB MTRP	1c	rommon	5.11	0.00	0.1

ASR-9900-RP-TR	Can Bus Ctrl (CBC) MTRP	1c	cbc	25.02	0.00	0.1
	Fabric Ctrl3 MTFC	1c	fpga10	1.02	0.00	0.1
	Fabric Ctrl4 MTFC	1c	fpga11	1.02	0.00	0.1
	Fabric Ctrl5 MTFC	1c	fpga12	1.02	0.00	0.1
	Fabric Ctrl6 MTFC	1c	fpga13	1.02	0.00	0.1
	CPUCtrl1	1c	fpga2	1.03	0.00	0.1
	ClkCtrl	1c	fpga3	1.03	0.00	0.1
	IntCtrl	1c	fpga4	1.04	0.00	0.1
	UTI	1c	fpga5	4.09	0.00	0.1
	Timex	1c	fpga6	0.02	0.00	0.1
	Fabric Ctrl10 MTFC	1c	fpga7	1.02	0.00	0.1
	Fabric Ctrl11 MTFC	1c	fpga8	1.02	0.00	0.1
	Fabric Ctrl12 MTFC	1c	fpga9	1.02	0.00	0.1
	CPUCtrl0	1c	fpga1	1.04	0.00	0.1
	ROMMONB MTRP	1c	rommon	5.11	0.00	0.1

ASR-9900-RP-SE	Can Bus Ctrl (CBC) MTRP	1c	cbc	25.02	0.00	0.1
	Fabric Ctrl3 MTFC	1c	fpga10	1.02	0.00	0.1
	Fabric Ctrl4 MTFC	1c	fpga11	1.02	0.00	0.1
	Fabric Ctrl5 MTFC	1c	fpga12	1.02	0.00	0.1

	Fabric Ctrl6 MTFC	lc	fpga13	1.02	0.00	0.1
	CPUCtrl1	lc	fpga2	1.03	0.00	0.1
	ClkCtrl	lc	fpga3	1.03	0.00	0.1
	IntCtrl	lc	fpga4	1.04	0.00	0.1
	UTI	lc	fpga5	4.09	0.00	0.1
	Timex	lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl0 MTFC	lc	fpga7	1.02	0.00	0.1
	Fabric Ctrl11 MTFC	lc	fpga8	1.02	0.00	0.1
	Fabric Ctrl12 MTFC	lc	fpga9	1.02	0.00	0.1
	CPUCtrl0	lc	fpga1	1.04	0.00	0.1
	ROMMONB MTRP	lc	rommon	5.11	0.00	0.1

ASR9001-RP	Can Bus Ctrl (CBC) IMRP	lc	cbc	22.114	0.00	0.1
	MB CPUCtrl	lc	fpga2	1.14	0.00	0.0
	ROMMONB IM RP	lc	rommon	2.01	0.00	0.1

A9K-24x10GE-SE	Can Bus Ctrl (CBC) LC6	lc	cbc	19.111	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.03	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.01	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.07	0.00	0.0
	ROMMONB LC6	lc	rommon	2.00	0.00	0.0

A9K-2x100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	21.110	0.00	0.1
	DB IO FPGA1	lc	cp1d1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.01	0.00	0.0
	Emux	lc	fpga5	1.03	0.00	0.0
	100GIGMAC	lc	fpga6	39.00	0.00	0.0
	ROMMONB LC4	lc	rommon	2.00	0.00	0.0

A9K-MOD80-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	20.117	0.00	0.1
	DB Ctrl	lc	fpga2	1.04	0.00	0.0
	MB CPUCtrl	lc	fpga4	1.05	0.00	0.0
	ROMMONB LC4	lc	rommon	2.00	0.00	0.1

A9K-MOD160-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	20.117	0.00	0.1
	DB Ctrl	lc	fpga2	1.04	0.00	0.0
	MB CPUCtrl	lc	fpga4	1.05	0.00	0.0

	ROMMONB LC4	lc	rommon	2.00	0.00	0.1

A9K-24x10GE-TR	Can Bus Ctrl (CBC) LC6	lc	cbc	19.111	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.03	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.01	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.07	0.00	0.0
	ROMMONB LC6	lc	rommon	2.00	0.00	0.0

A9K-2x100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	21.110	0.00	0.1
	DB IO FPGA1	lc	cp1d1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.01	0.00	0.0
	Emux	lc	fpga5	1.03	0.00	0.0
	100GIGMAC	lc	fpga6	39.00	0.00	0.0
	ROMMONB LC4	lc	rommon	2.00	0.00	0.0

A9K-MOD80-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	20.117	0.00	0.1
	DB Ctrl	lc	fpga2	1.04	0.00	0.0
	MB CPUCtrl	lc	fpga4	1.05	0.00	0.0
	ROMMONB LC4	lc	rommon	2.00	0.00	0.1

A9K-MOD160-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	20.117	0.00	0.1
	DB Ctrl	lc	fpga2	1.04	0.00	0.0
	MB CPUCtrl	lc	fpga4	1.05	0.00	0.0
	ROMMONB LC4	lc	rommon	2.00	0.00	0.1

A9K-8T-TEST	Can Bus Ctrl (CBC) LC17	lc	cbc	17.214	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	0.03	0.00	0.0
	ROMMONB LC6	lc	rommon	1.04	0.00	0.0

A9K-36x10GE-SE	Can Bus Ctrl (CBC) LC6	lc	cbc	15.103	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.01	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.00	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.03	0.00	0.0
	ROMMONB LC6	lc	rommon	2.00	0.00	0.0

A9K-36x10GE-TR	Can Bus Ctrl (CBC) LC6	lc	cbc	15.103	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.01	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.00	0.00	0.0

	LCCPUCtrl LC6	lc	fpga4	1.03	0.00	0.0
	ROMMONB LC6	lc	rommon	2.00	0.00	0.0

A9K-1x100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	21.110	0.00	0.1
	DB IO FPGA1	lc	cp1d1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.01	0.00	0.0
	Emux	lc	fpga5	1.03	0.00	0.0
	100GIGMAC	lc	fpga6	39.00	0.00	0.0
	ROMMONB LC4	lc	rommon	2.00	0.00	0.0

A9K-1x100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	21.110	0.00	0.1
	DB IO FPGA1	lc	cp1d1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.01	0.00	0.0
	Emux	lc	fpga5	1.03	0.00	0.0
	100GIGMAC	lc	fpga6	39.00	0.00	0.0
	ROMMONB LC4	lc	rommon	2.00	0.00	0.0

ASR9001-LC	Can Bus Ctrl (CBC) IMLC	lc	cbc	23.114	0.00	0.1
	DB CPUCtrl	lc	fpga2	1.18	0.00	0.0
	EP Gambit	lc	fpga3	0.08	0.00	0.0
	MB CPUCtrl	lc	fpga4	2.07	0.00	0.0
	EP Rogue	lc	fpga6	1.06	0.00	0.0
	EP Sage	lc	fpga7	1.02	0.00	0.0
	ROMMONB IM LC	lc	rommon	2.01	0.00	0.1

ASR9001-LC-S	Can Bus Ctrl (CBC) IMLC	lc	cbc	23.114	0.00	0.1
	DB CPUCtrl	lc	fpga2	1.18	0.00	0.0
	EP Gambit	lc	fpga3	0.08	0.00	0.0
	MB CPUCtrl	lc	fpga4	2.07	0.00	0.0
	EP Rogue	lc	fpga6	1.06	0.00	0.0
	EP Sage	lc	fpga7	1.02	0.00	0.0
	ROMMONB IM LC	lc	rommon	2.01	0.00	0.1

A9K-ISM-100	Can Bus Ctrl (CBC) LC6	lc	cbc	18.08	0.00	0.1
	CPUCtrl LC6	lc	cp1d1	0.01	0.00	0.1

	Maintenance LC6	lc	fpga2	2.13	0.00	0.1
	Amistad LC6	lc	fpga1	0.33	0.00	0.20
	ROMMONB LC6	lc	rommon	1.02	0.00	0.1

A9K-RSP-3G	ClockCtrl0 RSP3	lc	fpga2	1.06	0.00	0.1
	UTI RSP3	lc	fpga3	4.09	0.00	0.1
	CPUCtrl RSP3	lc	fpga1	0.10	0.00	0.1
	ROMMONB RSP3	lc	rommon	0.71	0.00	0.1

A9K-RSP-24G	ClockCtrl0 RSP3	lc	fpga2	1.06	0.00	0.1
	UTI RSP3	lc	fpga3	4.09	0.00	0.1
	CPUCtrl RSP3	lc	fpga1	0.10	0.00	0.1
	ROMMONB RSP3	lc	rommon	0.71	0.00	0.1

SPA-4XT3/E3	SPA E3 Subrate FPGA	spa	fpga2	1.04	0.00	0.0
	SPA T3 Subrate FPGA	spa	fpga3	1.04	0.00	0.0
	SPA I/O FPGA	spa	fpga1	1.01	0.00	0.0
	SPA ROMMON	spa	rommon	2.12	0.00	0.0

SPA-4XCT3/DS0	SPA T3 Subrate FPGA	spa	fpga2	0.11	0.00	0.100
	SPA T3 Subrate FPGA	spa	fpga2	1.04	0.00	0.200
	SPA I/O FPGA	spa	fpga1	2.08	0.00	0.100
	SPA ROMMON	spa	rommon	2.12	0.00	0.100

SPA-1XCHSTM1/OC3	SPA T3 Subrate FPGA	spa	fpga2	1.04	0.00	0.0
	SPA I/O FPGA	spa	fpga1	1.08	0.00	0.0
	SPA ROMMON	spa	rommon	2.12	0.00	0.0

SPA-24CHT1-CE-ATM	SPA T3 Subrate FPGA	spa	fpga2	1.10	0.00	1.0
	SPA I/O FPGA	spa	fpga1	2.32	0.00	1.0
	SPA ROMMON	spa	rommon	1.03	0.00	1.0

SPA-2CHT3-CE-ATM	SPA T3 Subrate FPGA	spa	fpga2	1.11	0.00	1.0
	SPA I/O FPGA	spa	fpga1	2.22	0.00	1.0
	SPA ROMMON	spa	rommon	1.04	0.00	1.0

SPA-1CHOC3-CE-ATM	SPA OC3 Subrate FPGA	spa	fpga2	2.23	0.00	0.0
	SPA I/O FPGA	spa	fpga1	2.23	0.00	2.0
	SPA ROMMON	spa	rommon	1.04	0.00	0.0

SPA-1XCHOC48/DS3	SPA I/O FPGA	spa	fpga2	1.00	0.00	0.49

	SPA I/O FPGA	spa fpga3	1.00	0.00	0.52
	SPA I/O FPGA	spa fpga1	1.36	0.00	0.49
	SPA ROMMON	spa rommon	2.02	0.00	0.49

SPA-2XCHOC12/DS0	SPA FPGA2 swv1.00	spa fpga2	1.00	0.00	0.0
	SPA FPGA swv1.36	spa fpga1	1.36	0.00	0.49
	SPA ROMMON swv2.2	spa rommon	2.02	0.00	0.49

A9K-MPA-20X1GE	EP I/O FPGA	spa fpga3	0.08	0.00	0.0

A9K-MPA-2X10GE	EP I/O FPGA	spa fpga6	1.06	0.00	0.0

A9K-MPA-4X10GE	EP I/O FPGA	spa fpga6	1.06	0.00	0.0

A9K-MPA-2X40GE	EP Sage	spa fpga7	1.03	0.00	0.0

A9K-MPA-1X40GE	EP Sage	spa fpga7	1.03	0.00	0.0

A9K-MPA-8X10GE	EP I/O FPGA	spa fpga8	1.00	0.00	0.0

SPA-8XOC12-POS	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5

SPA-8XCHT1/E1	SPA I/O FPGA	spa fpga1	2.08	0.00	0.0
	SPA ROMMON	spa rommon	2.12	0.00	0.140

SPA-OC192POS-XFP	SPA FPGA swv1.2 hmv2	spa fpga1	1.02	0.00	2.0

SPA-2XOC48POS/RPR	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.0

SPA-4XOC48POS/RPR	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.0

SPA-8XOC3-POS	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5

SPA-2XOC12-POS	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5

SPA-4XOC12-POS	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5

SPA-10X1GE-V2	SPA FPGA swv1.10	spa fpga1	1.10	0.00	0.0

SPA-5X1GE-V2	SPA FPGA swv1.10	spa fpga1	1.10	0.00	0.0

SPA-1X10GE-L-V2	SPA FPGA swv1.9	spa fpga1	1.09	0.00	0.0

SPA-4XOC3-POS-V2	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5

SPA-1X10GE-WL-V2	SPA FPGA swv1.9	spa fpga1	1.09	0.00	0.0

SPA-1XOC3-ATM-V2	SPA FPGA swv1.2	spa fpga1	2.02	0.00	0.0

SPA-2XOC3-ATM-V2	SPA FPGA swv1.2	spa fpga1	2.02	0.00	0.0
SPA-3XOC3-ATM-V2	SPA FPGA swv1.2	spa fpga1	2.02	0.00	0.0
SPA-1XOC12-ATM-V2	SPA FPGA swv1.2	spa fpga1	2.02	0.00	0.0

Determining Your Software Version

To determine the version of Cisco IOS XR Software running on your router, log in to the router and enter the **show version** command:

Procedure

Step 1 Establish a Telnet session with the router.

Step 2 Enter **show version** command from EXEC mode.

```
RP/0/RSP0/CPU0:router#show version
```

```
Cisco IOS XR Software, Version 4.3.4[Default]
Copyright (c) 2013 by Cisco Systems, Inc.
```

```
ROM: System Bootstrap, Version 0.71(c) 1994-2012 by Cisco Systems, Inc.
```

```
XMEN-PE1 uptime is 10 hours, 43 minutes
System image file is "disk0:asr9k-os-mbi-4.3.4/0x100305/mbiasr9k-rsp3.vm"
```

```
cisco ASR9K Series (Intel 686 F6M14S4) processor with 6291456K bytes of memory.
Intel 686 F6M14S4 processor at 2127MHz, Revision 2.174
ASR-9010 AC Chassis
```

```
4 Management Ethernet
30 TenGigE
32 DWDM controller(s)
30 WANPHY controller(s)
20 GigabitEthernet
2 HundredGigE
503k bytes of non-volatile configuration memory.
6143M bytes of hard disk.
10998768k bytes of disk0: (Sector size 512 bytes).
10998768k bytes of disk1: (Sector size 512 bytes).
```

```
Configuration register on node 0/RSP0/CPU0 is 0x1922
Boot device on node 0/RSP0/CPU0 is disk0:
Package active on node 0/RSP0/CPU0:
iosxr-adv-video, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-adv-video-4.3.4
  Built on Sun Dec 22 03:51:46 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie
```

```
asr9k-adv-video-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-adv-video-supp-4.3.4
  Built on Sun Dec 22 03:51:46 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-video-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-video-px-4.3.4
  Built on Sun Dec 22 03:51:53 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-service, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-service-4.3.4
  Built on Sun Dec 22 03:51:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-service-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-service-supp-4.3.4
  Built on Sun Dec 22 03:51:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-services-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-services-px-4.3.4
  Built on Sun Dec 22 03:52:20 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optics-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optics-supp-4.3.4
  Built on Sun Dec 22 03:51:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optic-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optic-px-4.3.4
  Built on Sun Dec 22 03:51:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mpls, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mpls-4.3.4
  Built on Sun Dec 22 03:48:24 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mpls-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mpls-px-4.3.4
  Built on Sun Dec 22 03:48:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-infra, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-infra-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-fwding, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-fwding-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-routing, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-routing-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-diags, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-diags-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-ce, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-ce-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie
```

```
asr9k-os-mpi, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-os-mpi-4.3.4
  Built on Sun Dec 22 03:38:06 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-base, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-base-4.3.4
  Built on Sun Dec 22 03:24:48 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fwding, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fwding-4.3.4
  Built on Sun Dec 22 03:24:58 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-diags-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-diags-sup-4.3.4
  Built on Sun Dec 22 03:25:18 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-scfclient, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-scfclient-4.3.4
  Built on Sun Dec 22 03:25:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-cpp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-cpp-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-ce, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-ce-4.3.4
  Built on Sun Dec 22 03:25:01 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mini-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mini-px-4.3.4
  Built on Sun Dec 22 03:48:09 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mgbl, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mgbl-4.3.4
  Built on Sun Dec 22 03:49:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mgbl-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mgbl-sup-4.3.4
  Built on Sun Dec 22 03:49:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mgbl-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mgbl-px-4.3.4
  Built on Sun Dec 22 03:49:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mcast, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mcast-4.3.4
  Built on Sun Dec 22 03:48:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-sup-4.3.4
  Built on Sun Dec 22 03:48:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-px-4.3.4
  Built on Sun Dec 22 03:49:29 pst 2013
```

```

By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-li, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-li-4.3.4
  Built on Sun Dec 22 03:51:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-4.3.4
  Built on Sun Dec 22 03:51:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-px-4.3.4
  Built on Sun Dec 22 03:51:45 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-security, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-security-4.3.4
  Built on Sun Dec 22 03:49:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-k9sec-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-k9sec-sup-4.3.4
  Built on Sun Dec 22 03:49:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-k9sec-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-k9sec-px-4.3.4
  Built on Sun Dec 22 03:50:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fpd, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fpd-4.3.4
  Built on Sun Dec 22 03:51:12 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fpd-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fpd-px-4.3.4
  Built on Sun Dec 22 03:51:36 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9K-doc-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9K-doc-sup-4.3.4
  Built on Sun Dec 22 03:50:58 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-doc-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-doc-px-4.3.4
  Built on Sun Dec 22 03:51:11 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-bng, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-bng-4.3.4
  Built on Sun Dec 22 03:50:32 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-4.3.4
  Built on Sun Dec 22 03:50:32 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-px-4.3.4
  Built on Sun Dec 22 03:50:57 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr903-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr903-sup-4.3.4

```



```
Built on Sun Dec 22 03:52:37 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr903-nV-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr903-nV-px-4.3.4
Built on Sun Dec 22 03:53:36 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr901-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr901-supp-4.3.4
Built on Sun Dec 22 03:52:26 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr901-nV-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr901-nV-px-4.3.4
Built on Sun Dec 22 03:52:35 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-9000v-nV-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-9000v-nV-supp-4.3.4
Built on Sun Dec 22 03:52:21 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-9000v-nV-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-9000v-nV-px-4.3.4
Built on Sun Dec 22 03:52:24 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

Configuration register on node 0/RSP1/CPU0 is 0x1922
Boot device on node 0/RSP1/CPU0 is disk0:
Package active on node 0/RSP1/CPU0:
iosxr-adv-video, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-adv-video-4.3.4
Built on Sun Dec 22 03:51:46 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-adv-video-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-adv-video-supp-4.3.4
Built on Sun Dec 22 03:51:46 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-video-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-video-px-4.3.4
Built on Sun Dec 22 03:51:53 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-service, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-service-4.3.4
Built on Sun Dec 22 03:51:56 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-service-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-service-supp-4.3.4
Built on Sun Dec 22 03:51:56 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-services-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-services-px-4.3.4
Built on Sun Dec 22 03:52:20 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optics-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optics-supp-4.3.4
Built on Sun Dec 22 03:51:54 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optic-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optic-px-4.3.4
```

```
Built on Sun Dec 22 03:51:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mpls, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mpls-4.3.4
  Built on Sun Dec 22 03:48:24 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mpls-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mpls-px-4.3.4
  Built on Sun Dec 22 03:48:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-infra, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-infra-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-fwding, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-fwding-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-routing, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-routing-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-diags, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-diags-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-ce, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-ce-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-os-mpi, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-os-mpi-4.3.4
  Built on Sun Dec 22 03:38:06 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-base, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-base-4.3.4
  Built on Sun Dec 22 03:24:48 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fwding, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fwding-4.3.4
  Built on Sun Dec 22 03:24:58 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-diags-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-diags-supp-4.3.4
  Built on Sun Dec 22 03:25:18 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-scfclient, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-scfclient-4.3.4
  Built on Sun Dec 22 03:25:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-cpp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-cpp-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie
```

```
asr9k-ce, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-ce-4.3.4
  Built on Sun Dec 22 03:25:01 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mini-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mini-px-4.3.4
  Built on Sun Dec 22 03:48:09 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mgbl, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mgbl-4.3.4
  Built on Sun Dec 22 03:49:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mgbl-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mgbl-suppl-4.3.4
  Built on Sun Dec 22 03:49:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mgbl-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mgbl-px-4.3.4
  Built on Sun Dec 22 03:49:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mcast, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mcast-4.3.4
  Built on Sun Dec 22 03:48:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-suppl-4.3.4
  Built on Sun Dec 22 03:48:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-px-4.3.4
  Built on Sun Dec 22 03:49:29 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-li, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-li-4.3.4
  Built on Sun Dec 22 03:51:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-4.3.4
  Built on Sun Dec 22 03:51:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-px-4.3.4
  Built on Sun Dec 22 03:51:45 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-security, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-security-4.3.4
  Built on Sun Dec 22 03:49:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-k9sec-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-k9sec-suppl-4.3.4
  Built on Sun Dec 22 03:49:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-k9sec-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-k9sec-px-4.3.4
  Built on Sun Dec 22 03:50:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie
```

```

asr9k-fpd, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fpd-4.3.4
  Built on Sun Dec 22 03:51:12 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fpd-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fpd-px-4.3.4
  Built on Sun Dec 22 03:51:36 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9K-doc-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9K-doc-suppl-4.3.4
  Built on Sun Dec 22 03:50:58 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-doc-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-doc-px-4.3.4
  Built on Sun Dec 22 03:51:11 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-bng, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-bng-4.3.4
  Built on Sun Dec 22 03:50:32 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-4.3.4
  Built on Sun Dec 22 03:50:32 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-px-4.3.4
  Built on Sun Dec 22 03:50:57 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr903-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr903-suppl-4.3.4
  Built on Sun Dec 22 03:52:37 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr903-nV-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr903-nV-px-4.3.4
  Built on Sun Dec 22 03:53:36 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr901-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr901-suppl-4.3.4
  Built on Sun Dec 22 03:52:26 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-asr901-nV-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-asr901-nV-px-4.3.4
  Built on Sun Dec 22 03:52:35 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-9000v-nV-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-9000v-nV-suppl-4.3.4
  Built on Sun Dec 22 03:52:21 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-9000v-nV-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-9000v-nV-px-4.3.4
  Built on Sun Dec 22 03:52:24 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

Boot device on node 0/1/CPU0 is mem:
Package active on node 0/1/CPU0:

```

```
iosxr-adv-video, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-adv-video-4.3.4
  Built on Sun Dec 22 03:51:46 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-adv-video-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-adv-video-suppl-4.3.4
  Built on Sun Dec 22 03:51:46 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-video-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-video-px-4.3.4
  Built on Sun Dec 22 03:51:53 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-service, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-service-4.3.4
  Built on Sun Dec 22 03:51:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-service-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-service-suppl-4.3.4
  Built on Sun Dec 22 03:51:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-services-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-services-px-4.3.4
  Built on Sun Dec 22 03:52:20 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optics-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optics-suppl-4.3.4
  Built on Sun Dec 22 03:51:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optic-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optic-px-4.3.4
  Built on Sun Dec 22 03:51:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mpls, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mpls-4.3.4
  Built on Sun Dec 22 03:48:24 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mpls-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mpls-px-4.3.4
  Built on Sun Dec 22 03:48:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-infra, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-infra-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-fwding, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-fwding-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-routing, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-routing-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-diags, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-diags-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie
```

```
iosxr-ce, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-ce-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-os-mpi, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-os-mpi-4.3.4
  Built on Sun Dec 22 03:38:06 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-base, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-base-4.3.4
  Built on Sun Dec 22 03:24:48 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fwding, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fwding-4.3.4
  Built on Sun Dec 22 03:24:58 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-diags-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-diags-supp-4.3.4
  Built on Sun Dec 22 03:25:18 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-scfclient, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-scfclient-4.3.4
  Built on Sun Dec 22 03:25:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-cpp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-cpp-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-ce, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-ce-4.3.4
  Built on Sun Dec 22 03:25:01 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mini-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mini-px-4.3.4
  Built on Sun Dec 22 03:48:09 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mcast, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mcast-4.3.4
  Built on Sun Dec 22 03:48:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-supp-4.3.4
  Built on Sun Dec 22 03:48:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-px-4.3.4
  Built on Sun Dec 22 03:49:29 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-li, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-li-4.3.4
  Built on Sun Dec 22 03:51:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-4.3.4
  Built on Sun Dec 22 03:51:41 pst 2013
```

```
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-px-4.3.4
Built on Sun Dec 22 03:51:45 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-bng, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-px-4.3.4
Built on Sun Dec 22 03:50:57 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

Boot device on node 0/3/CPU0 is mem:
Package active on node 0/3/CPU0:
iosxr-adv-video, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-adv-video-4.3.4
Built on Sun Dec 22 03:51:46 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-adv-video-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-adv-video-sup-4.3.4
Built on Sun Dec 22 03:51:46 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-video-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-video-px-4.3.4
Built on Sun Dec 22 03:51:53 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-service, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-service-4.3.4
Built on Sun Dec 22 03:51:56 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-service-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-service-sup-4.3.4
Built on Sun Dec 22 03:51:56 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-services-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-services-px-4.3.4
Built on Sun Dec 22 03:52:20 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optics-sup, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optics-sup-4.3.4
Built on Sun Dec 22 03:51:54 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optic-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optic-px-4.3.4
Built on Sun Dec 22 03:51:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mps, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mps-4.3.4
Built on Sun Dec 22 03:48:24 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie
```

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asr9k-mps-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mps-px-4.3.4
  Built on Sun Dec 22 03:48:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-infra, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-infra-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-fwding, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-fwding-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-routing, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-routing-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-diags, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-diags-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-ce, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-ce-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-os-mpi, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-os-mpi-4.3.4
  Built on Sun Dec 22 03:38:06 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-base, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-base-4.3.4
  Built on Sun Dec 22 03:24:48 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fwding, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fwding-4.3.4
  Built on Sun Dec 22 03:24:58 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-diags-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-diags-supp-4.3.4
  Built on Sun Dec 22 03:25:18 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-scfclient, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-scfclient-4.3.4
  Built on Sun Dec 22 03:25:31 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-cpp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-cpp-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-ce, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-ce-4.3.4
  Built on Sun Dec 22 03:25:01 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mini-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mini-px-4.3.4
  Built on Sun Dec 22 03:48:09 pst 2013
```



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By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mcast, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mcast-4.3.4
Built on Sun Dec 22 03:48:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-suppl-4.3.4
Built on Sun Dec 22 03:48:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-px-4.3.4
Built on Sun Dec 22 03:49:29 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-li, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-li-4.3.4
Built on Sun Dec 22 03:51:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-4.3.4
Built on Sun Dec 22 03:51:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-px-4.3.4
Built on Sun Dec 22 03:51:45 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-bng, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-px-4.3.4
Built on Sun Dec 22 03:50:57 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

Boot device on node 0/4/CPU0 is mem:
Package active on node 0/4/CPU0:
iosxr-adv-video, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-adv-video-4.3.4
Built on Sun Dec 22 03:51:46 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-adv-video-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-adv-video-suppl-4.3.4
Built on Sun Dec 22 03:51:46 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-video-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-video-px-4.3.4
Built on Sun Dec 22 03:51:53 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-service, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-service-4.3.4
Built on Sun Dec 22 03:51:56 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie
```

```
asr9k-service-supply, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-service-supply-4.3.4
  Built on Sun Dec 22 03:51:56 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-services-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-services-px-4.3.4
  Built on Sun Dec 22 03:52:20 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optics-supply, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optics-supply-4.3.4
  Built on Sun Dec 22 03:51:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optic-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optic-px-4.3.4
  Built on Sun Dec 22 03:51:55 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mpls, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mpls-4.3.4
  Built on Sun Dec 22 03:48:24 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mpls-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mpls-px-4.3.4
  Built on Sun Dec 22 03:48:54 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-infra, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-infra-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-fwding, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-fwding-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-routing, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-routing-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-diags, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-diags-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-ce, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-ce-4.3.4
  Built on Sun Dec 22 03:24:41 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-os-mpi, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-os-mpi-4.3.4
  Built on Sun Dec 22 03:38:06 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-base, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-base-4.3.4
  Built on Sun Dec 22 03:24:48 pst 2013
  By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fwding, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fwding-4.3.4
  Built on Sun Dec 22 03:24:58 pst 2013
```

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By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-diags-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-diags-supp-4.3.4
Built on Sun Dec 22 03:25:18 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-scfclient, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-scfclient-4.3.4
Built on Sun Dec 22 03:25:31 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-cpp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-cpp-4.3.4
Built on Sun Dec 22 03:24:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-ce, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-ce-4.3.4
Built on Sun Dec 22 03:25:01 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mini-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mini-px-4.3.4
Built on Sun Dec 22 03:48:09 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mcast, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mcast-4.3.4
Built on Sun Dec 22 03:48:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-supp-4.3.4
Built on Sun Dec 22 03:48:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-px-4.3.4
Built on Sun Dec 22 03:49:29 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-li, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-li-4.3.4
Built on Sun Dec 22 03:51:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-4.3.4
Built on Sun Dec 22 03:51:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-px-4.3.4
Built on Sun Dec 22 03:51:45 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-bng, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-px-4.3.4
```

```
Built on Sun Dec 22 03:50:57 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

Boot device on node 0/6/CPU0 is mem:
Package active on node 0/6/CPU0:
iosxr-adv-video, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-adv-video-4.3.4
    Built on Sun Dec 22 03:51:46 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-adv-video-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-adv-video-suppl-4.3.4
    Built on Sun Dec 22 03:51:46 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-video-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-video-px-4.3.4
    Built on Sun Dec 22 03:51:53 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-service, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-service-4.3.4
    Built on Sun Dec 22 03:51:56 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-service-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-service-suppl-4.3.4
    Built on Sun Dec 22 03:51:56 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-services-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-services-px-4.3.4
    Built on Sun Dec 22 03:52:20 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optics-suppl, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optics-suppl-4.3.4
    Built on Sun Dec 22 03:51:54 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-optic-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-optic-px-4.3.4
    Built on Sun Dec 22 03:51:55 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mpls, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mpls-4.3.4
    Built on Sun Dec 22 03:48:24 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mpls-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mpls-px-4.3.4
    Built on Sun Dec 22 03:48:54 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-infra, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-infra-4.3.4
    Built on Sun Dec 22 03:24:41 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-fwldng, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-fwldng-4.3.4
    Built on Sun Dec 22 03:24:41 pst 2013
    By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-routing, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-routing-4.3.4
    Built on Sun Dec 22 03:24:41 pst 2013
```

```
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-diags, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-diags-4.3.4
Built on Sun Dec 22 03:24:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-ce, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-ce-4.3.4
Built on Sun Dec 22 03:24:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-os-mpi, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-os-mpi-4.3.4
Built on Sun Dec 22 03:38:06 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-base, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-base-4.3.4
Built on Sun Dec 22 03:24:48 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-fwding, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-fwding-4.3.4
Built on Sun Dec 22 03:24:58 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-diags-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-diags-supp-4.3.4
Built on Sun Dec 22 03:25:18 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-scfclient, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-scfclient-4.3.4
Built on Sun Dec 22 03:25:31 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-cpp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-cpp-4.3.4
Built on Sun Dec 22 03:24:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-ce, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-ce-4.3.4
Built on Sun Dec 22 03:25:01 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mini-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mini-px-4.3.4
Built on Sun Dec 22 03:48:09 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-mcast, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-mcast-4.3.4
Built on Sun Dec 22 03:48:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-supp, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-supp-4.3.4
Built on Sun Dec 22 03:48:55 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-mcast-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-mcast-px-4.3.4
Built on Sun Dec 22 03:49:29 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-li, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-li-4.3.4
```

```

Built on Sun Dec 22 03:51:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-4.3.4
Built on Sun Dec 22 03:51:41 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-li-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-li-px-4.3.4
Built on Sun Dec 22 03:51:45 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

iosxr-bng, V 4.3.4[Default], Cisco Systems, at disk0:iosxr-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-4.3.4
Built on Sun Dec 22 03:50:32 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

asr9k-bng-px, V 4.3.4[Default], Cisco Systems, at disk0:asr9k-bng-px-4.3.4
Built on Sun Dec 22 03:50:57 pst 2013
By iox-bld1 in /auto/srcarchive9/production/4.3.4/all/workspace for pie

```

What's New in Cisco IOS XR Software Release 4.3.4 for Cisco ASR 9000 Series Aggregation Service Router

ASR 9000 Ethernet Line Card Scale Profile

See the below link for information on tuning ASR 9000 Ethernet Line Card for efficient performance:

http://www.cisco.com/en/US/customer/products/ps9853/products_tech_note09186a0080c1f9c3.shtml

Important Notes

For Cisco IOS XR Software Release 4.2, the Cisco ASR 9000 Series Aggregation Services Router does not support the following inventory schemas:

- vkg_invmgr_adminoper.xsd

- vkg_invmgr_common.xsd

- vkg_invmgr_oper.xsd

- Only MLPPP encapsulation channels on the OC-12 SONET interface can be protected by IP-FRR in Cisco IOS XR software Release 3.9.0 and above.

- For Cisco IOS XR software Release 3.9.0 and above the SIP 700 with the 2-Port Channelized OC-12/DS0 SPA does not support SDH (including all the mappings under SDH) or DS0 mappings.
- For Cisco IOS XR software Release 3.9.0 and above the SIP 700 with the 2-Port Channelized OC-12/DS0 SPA does not support ATM or POS.
- For Cisco IOS XR software Release 3.9.0 and above the SIP 700 with the 2-Port Channelized OC-12/DS0 SPA does not support MPLS/Traffic Engineering FRR.
- For Cisco IOS XR software Release 4.0.1 and above the SIP 700 with the 1-Port Channelized OC48/STM16 DS3 SPA does not support MPLS/Traffic Engineering FRR.
- For Cisco IOS XR software Release 4.0.1 and above the SIP 700 with the 1-Port Channelized OC48/STM16 DS3 SPA, the 2-Port Channelized OC-12/DS0 SPA , the 8-Port OC12/STM4 SPA , and the 2-Port OC-48/STM16 SPA Layer 2VPN support only includes FR.
- **Country-specific laws, regulations, and licenses**—In certain countries, use of these products may be prohibited and subject to laws, regulations, or licenses, including requirements applicable to the use of the products under telecommunications and other laws and regulations; customers must comply with all such applicable laws in the countries in which they intend to use the products.
- **Card fan controller, and RSP removal**—For all card removal and replacement (including fabric cards, line cards, fan controller, and RSP) follow the instructions provided by Cisco to avoid impact to traffic. See the *Cisco ASR 9000 Series Aggregation Services Router Getting Started Guide* for procedures.
- **Exceeding Cisco testing**—If you intend to test beyond the combined maximum configuration tested and published by Cisco, contact your Cisco Technical Support representative to discuss how to engineer a large-scale configuration maximum for your purpose.
- **Installing a Line Card**—For a fully populated 40-port high density Line Card with cable optics, maintenance time required for card replacement is higher. For more information about Line Card installation and removal, refer to the *Cisco ASR 9000 Aggregation Services Router Ethernet Line Card Installation Guide*.
- **Serial Interfaces Out of Order in "show ip interface brief" Command**—The show ip interface brief command might display interfaces out of order if different types of serialization are used on the SPA cards.

The serial interfaces are displayed in the show ip interface brief command output in the order shown in the example below:

The ordering is based on:

- 1 Slot
- 2 SPA
- 3 Type
- 4 T3
- 5 T3/T1
- 6 vt15-T1
- 7 multilink

This may be confusing (the interfaces appear out of order) for the user who is accustomed to IOS.

Example output:

With multiple cards:

```

Serial0/2/0/1/1/1:0 (t3/t1)
Serial0/2/0/1/2/1:0
Serial0/2/0/1/3/1:0
Serial0/2/0/1/4/1:0
Serial0/2/0/1/5/1:0
Serial0/2/0/1/6/1:0
Serial0/2/0/1/7/1:0
Serial0/2/0/1/8/1:0
Serial0/2/0/1/9/1:0
Serial0/2/0/1/10/1:0
Serial0/2/0/1/11/1:0
Serial0/2/0/1/12/1:0
Serial0/2/0/0/1/1/1:0 (vt15)
Serial0/2/0/0/2/1/1:0
Serial0/2/0/0/3/1/1:0
Serial0/2/0/0/4/1/1:0
Serial0/2/0/0/5/1/1:0
Serial0/2/0/0/6/1/1:0
Serial0/2/0/0/7/1/1:0
Serial0/2/0/0/8/1/1:0
Serial0/2/0/0/9/1/1:0
Serial0/2/0/0/10/1/1:0
Serial0/2/0/0/11/1/1:0
Serial0/2/0/0/12/1/1:0
Multilink 0/2/0/0/1
Serial0/2/1/0/1 (t3)
Serial0/2/1/1/1/1:0 (t3/t1)
Serial0/2/1/1/2/1:0
Serial0/2/1/1/3/1:0
Serial0/2/1/1/4/1:0
Serial0/2/1/1/5/1:0
Serial0/2/1/1/6/1:0
Serial0/2/1/1/7/1:0
Serial0/2/1/1/8/1:0
Serial0/2/1/1/9/1:0
Serial0/2/1/1/10/1:0
Serial0/2/1/1/11/1:0
Serial0/2/1/1/12/1:0
Serial0/6/0/1/1/1:0
Serial0/6/0/1/2/1:0
Serial0/6/0/1/3/1:0
Serial0/6/0/1/4/1:0
Serial0/6/0/1/5/1:0
Serial0/6/0/1/6/1:0
Serial0/6/0/1/7/1:0
Serial0/6/0/1/8/1:0
Serial0/6/0/1/9/1:0
Serial0/6/0/1/10/1:0
Serial0/6/0/1/11/1:0
Serial0/6/0/1/12/1:0
Serial0/6/0/0/1/1/1:0
Serial0/6/0/0/2/1/1:0
Serial0/6/0/0/3/1/1:0
Serial0/6/0/0/4/1/1:0

```



```

Serial0/6/0/0/5/1/1:0
Serial0/6/0/0/6/1/1:0
Serial0/6/0/0/7/1/1:0
Serial0/6/0/0/8/1/1:0
Serial0/6/0/0/9/1/1:0
Serial0/6/0/0/10/1/1:0
Serial0/6/0/0/11/1/1:0
Serial0/6/0/0/12/1/1:0
Multilink 0/6/0/0/1
Serial0/6/1/0/1
Serial0/6/1/1/1/1:0
Serial0/6/1/1/2/1:0
Serial0/6/1/1/3/1:0
Serial0/6/1/1/4/1:0
Serial0/6/1/1/5/1:0
Serial0/6/1/1/6/1:0
Serial0/6/1/1/7/1:0
Serial0/6/1/1/8/1:0
Serial0/6/1/1/9/1:0
Serial0/6/1/1/10/1:0
Serial0/6/1/1/11/1:0
Serial0/6/1/1/12/1:0

```

- Starting with Cisco IOS XR Software Release 3.9 the **pw-class class name encapsulation mpls** command **control-word** option default is now **disable** -In Cisco IOS XR Software Release 3.9 and above the control word is disabled by default. To configure the control word, enter the control-word keyword shown in the following example:

```
pw-class class1 encapsulation mpls control-word
```

- For configured policer rates of less than 1 Mbps, the actual policer rate can be approximately 10 percent less than the configured rate. For example, for a configured policer rate of 500 kbps, the actual policer rate is 448 kbps due to a granularity round down in hardware.
- In Cisco ASR 9000 Series Aggregation Services Router Software Release 4.0.0, the minimum configurable logging buffered size has been increased to 307200. Any configuration with a value less than 307200 fails to upgrade to Release 4.0.1.
 - Run the **show configuration failed startup** command on startup to display the failed configuration.
 - Workaround: Prior to upgrading to Release 4.0.1, set the logging buffer size to a value of 307200 or greater (**logging buffered 307200**) .
- dsu mode Command Default**— For E3 interfaces on the 4-Port Clear Channel T3/E3 SPA that interoperate with E3 interfaces on a Cisco 10000 Series router, the default data service unit (DSU) mode is digital-link. To change the DSU mode to cisco, configure scrambling.
- Starting from Cisco IOS XR Software Release 4.0.0, the **hw-module location <LOC> reload warm** command is disabled. As a result, the warm reload feature also has been disabled.
- In Cisco ASR 9000 Series Aggregation Services Router Software Release 4.1.0, you use the **cablelength short** command to set a cable length of 655 feet or shorter for a DS1 link on a 4-Port Channelized T1/E1 SPA. The **cablelength short** command options are listed as follows:

```

RP/0/RSP0/CPU0:vkq_rol_a(config-t1)#cablelength short ?
133ft  0-133ft

```

266ft 134-266ft
 399ft 267-399ft
 533ft 400-533ft
 655ft 534-655ft

However, when using the **cablelength short** command on a 4-Port Channelized T1/E1 SPA in Cisco ASR 9000 Series Aggregation Services Router Software Release 4.1.0, only the 133ft option (for cable lengths from 0 to 133 feet) works. The other values that are greater than 133 feet (266, 399, 533, or 655) all cause the T1 controller to go down. The workaround is to restart the controller after you set the cable length to 266, 399, 533, or 655 feet. The **cablelength long** command works correctly

Caveats

Caveats describe unexpected behavior in Cisco IOS XR Software releases. Severity-1 caveats are the most serious caveats; severity-2 caveats are less serious.

This section lists the caveats for Cisco ASR 9000 Series Aggregation Services Router Software Release 4.3.4 and the Cisco ASR 9000 Series Aggregation Services Router platform.

Cisco Bug Search Tool

Use the Bug Search Tool (BST) to view the list of outstanding and resolved bugs in a release.

BST, the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The tool allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The tool has provision to filter bugs based on credentials to provide external and internal bug views for the search input.

The BST is available at [Bug Search](#). To search for a specific bug, go to <https://tools.cisco.com/bugsearch/bug/bugid>. For more information on BST, see [Bug Search Help](#).

Search Bugs in BST

Follow the instructions below to search bugs specific to Cisco IOS XR Software Release 4.3.4 in BST.

Procedure

-
- Step 1** Go to <https://tools.cisco.com/bugsearch/>.
 Log in to the tool using your Cisco.com user name and password. After successful login, the Bug Search Tool page opens.
- Step 2** To search for Release 4.3.4 bugs, enter the following parameters in the page:
- Product—Select **Series**, enter **Cisco ASR 9000 Series Aggregation Services Routers** in the text box. You can alternately navigate to the product name from the **Select from list** link.
 - Releases—Enter 4.3.4.

- Show Bugs—Select **Affecting or Fixed in these Releases**.

Step 3 Press **Enter**.

Note

- By default, the search results include bugs with all severity levels and statuses, and bugs that were modified during the life cycle of the bug. After you perform a search, you can filter your search results to meet your search requirements.
- An initial set of 25 search results is shown in the bottom pane. Drag the scroll bar to display the next set of 25 results. Pagination of search results is not supported.

Upgrading Cisco IOS XR Software

Cisco IOS XR Software is installed and activated from modular packages, allowing specific features or software patches to be installed, upgraded, or downgraded without affecting unrelated processes. Software packages can be upgraded or downgraded on all supported card types, or on a single card (node).

Software packages are installed from package installation envelope (PIE) files that contain one or more software components.

The following URL contains links to information about how to upgrade Cisco IOS XR Software:

http://www.cisco.com/web/Cisco_IOS_XR_Software/index.html

Troubleshooting

For information on troubleshooting Cisco IOS XR Software, see the *Cisco ASR 9000 Series Aggregation Services Routers Getting Started Guide* and the *Cisco ASR 9000 Series Router Troubleshooting Feature Module*.

Resolving Upgrade File Issues



Note

In some very rare cases inconsistencies in the content of the internal configuration files can appear. In such situations, to avoid configuration loss during upgrade, the following steps can be optionally done before activating packages:

- 1 Clear the NVGEN cache:

```
RP/0/RSP0/CPU0:router# run nvgen -F 1
```

- 2 Create a dummy config commit:

```
RP/0/RSP0/CPU0:router# config
```

```
RP/0/RSP0/CPU0:router(config)# hostname <hostname>
```

```
RP/0/RSP0/CPU0:rotuer(config)# commit
```

```
RP/0/RSP0/CPU0:router(config)# end
```

- 3 Force a commit update by using the **reload** command. Press **n** when the confirmation prompt appears:

```
RP/0/RSP0/CPU0:router# reload
```

```
Updating Commit Database. Please wait...[OK]
```

```
Proceed with reload? [confirm]
```

- 4 Press **n**

In some cases other activity may preclude a reload. The following message may display:

```
RP/0/RSP0/CPU0:router# reload
```

```
Preparing system for backup. This may take a few minutes .....System
configuration backup in progress [Retry later]
```

If you receive this message wait and then retry the command after some time.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*, at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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