



Release Notes for Cisco CRS-1 and Cisco CRS-3 for Cisco IOS XR Software Release 4.2.3

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

These release notes describe the features provided in the Cisco IOS XR Software Release 4.2.3 for the Cisco CRS router and are updated as needed.



Note

For information on the Cisco CRS router running Cisco IOS XR Software Release 4.2.3, see the "[Important Notes on Cisco IOS XR Software and Cisco CRS Router, on page 80](#)" section.

You can find the most current Cisco IOS XR software documentation at:

http://www.cisco.com/en/US/products/ps5763/tsd_products_support_series_home.html

These electronic documents may contain updates and modifications. For more information on obtaining Cisco documentation, see the "Obtaining Documentation and Submitting a Service Request".

For a list of software caveats that apply to Cisco IOS XR Software Release 4.2.3, see the "Caveats" section. The caveats are updated for every release and are described at www.cisco.com.

We recommend that you view the field notices for this release located at the following URL to see if your software or hardware platforms are affected:

http://www.cisco.com/en/US/support/tsd_products_field_notice_summary.html

Cisco IOS XR Software running on the Cisco CRS 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.
- **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), Resource Reservation Protocol (RSVP), Label Distribution Protocol (LDP), Virtual Private LAN Service (VPLS), Layer 2 Virtual Private Network (L2VPN), 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, and Bidirectional Protocol Independent Multicast (BIDIR-PIM).
- **Quality of Service (QoS)**—This supports QoS mechanisms including policing, marking, queuing, random and hard traffic dropping, and shaping. Additionally, Cisco IOS XR Software also supports modular QoS command-line interface (MQC). MQC is used to configure QoS features.
- **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 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, BGP, and OSPF, and nonstop forwarding (NSF).
- **Multicast service delivery in SP NGN**—MVPNv4 support carries multicast traffic over an ISP MPLS core network.
- **IPv6 Provider Edge Router support for IPv6 applications**—This delivers IPv6 traffic over an IPv4/MPLS core with IPv6 provider edge router (6PE) support.
- **IPv6 VPN over MPLS (6VPE) support**—This delivers IPv6 VPN over MPLS (IPv6) VPN traffic over an IPv4 or MPLS core with 6VPE support.
- **IPv6 VPN over IP**—This delivers IPv6 VPN over IP traffic.



Note IPv6 VPN over MPLS and IPv6 VPN over IP won't co-exist

- **Carrier Grade Network Address Translation (CGN)**—This enables services providers to execute orderly transitions to IPv6 through mixed IPv4 and IPv6 networks. CGN provides address family translation but is not limited to just translation within one address family. CGN delivers a comprehensive solution suite for IP address management and IPv6 transition.
- **Enhanced core competencies:**
 - IP fast convergence with Fast reroute (FRR) support for intermediate System-to-Intermediate System (IS-IS) and OSPF
 - Traffic engineering support for unequal load balancing

- Traffic engineering over generic routing encapsulation (GRE) tunnel interfaces—LDP, L2VPN, and L3VPN over TE over GRE are supported. VPN routes over TE and over GRE, require a labelled path for path resolution
- VRF support for GRE tunnel interfaces—This support includes GRE tunnel interfaces under a VRF, however the GRE tunnel source and destination are in the global table
- RSVP support over GRE tunnels
- Path Computation Element (PCE) capability for traffic engineering

For more information about new features provided on the Cisco CRS router for Cisco IOS XR Software Release 4.2.3, see the "New Cisco CRS Router Software Features" section in this document.

- [System Requirements, page 3](#)
- [Determining Your Software Version, page 22](#)
- [Software Features Introduced in Cisco IOS XR Software Release 4.2.3, page 70](#)
- [Hardware Features Introduced in Cisco IOS XR Software Release 4.2.3 for Cisco CRS Router, page 78](#)
- [Important Notes on Cisco IOS XR Software and Cisco CRS Router, page 80](#)
- [Caveats, page 85](#)
- [Upgrading Cisco IOS XR Software, page 88](#)
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System Requirements

This section describes the system requirements for Cisco IOS XR Software Release 4.2.3 supported on the Cisco CRS Router.

To determine the software versions or levels of your current system, see the "[Determining Your Software Version, on page 22](#)" section.

Feature Set Table

[Table 1: Cisco IOS XR Software Release 4.2.3 PIE Files, on page 3](#) lists the Cisco IOS XR Software feature set matrix (PIE files) and associated filenames available for the Cisco IOS XR Software Release 4.2.3 supported on the Cisco CRS router.

Table 1: Cisco IOS XR Software Release 4.2.3 PIE Files

Feature Set	Filename	Description
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Composite Package		
Cisco IOS XR IP Unicast Routing Core Bundle	hfr-mini-px.pie-4.2.3	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	hfr-mini-px.vm-4.2.3	Contains the required core packages including OS, Admin, Base, Forwarding, Modular Services Card, Routing, SNMP Agent, and Alarm Correlation.
Optional Individual Packages ¹		
Cisco IOS XR Manageability Package	hfr-mgbl-px.pie-4.2.3	CORBA ² agent, XML ³ Parser, and HTTP server packages.
Cisco IOS XR MPLS Package	hfr-mpls-px.pie-4.2.3	MPLS-TE ⁴ , LDP ⁵ , MPLS Forwarding, MPLS OAM ⁶ , LMP ⁷ , OUNI ⁸ , RSVP ⁹ , and Layer-2 VPN and Layer-3 VPN.
Cisco IOS XR Multicast Package	hfr-mcast-px.pie-4.2.3	Multicast Routing Protocols (PIM, MSDP ¹⁰ , IGMP ¹¹ , Auto-RP), Tools (SAP, MTrace), and Infrastructure (MRIB ¹² , MURIB ¹³ , MFWD ¹⁴), and BIDIR-PIM. ¹⁵
Cisco IOS XR Security Package	hfr-k9sec-px.pie-4.2.3	Support for Encryption, Decryption, IPSec ¹⁶ , SSH ¹⁷ , SSL ¹⁸ , and PKI ¹⁹ (Software based IPSec support—maximum of 500 tunnels)
Cisco IOS XR FPD Package	hfr-fpd-px.pie-4.2.3	Firmware for Fixed PLIM ²⁰ and SPA ²¹ modules as well as ROMMON ²² images for Cisco CRS chassis.
Cisco IOS XR Diagnostic Package	hfr-diags-px.pie-4.2.3	Diagnostic utilities for Cisco IOS XR routers.
Cisco IOS XR Documentation Package	hfr-doc-px.pie-4.2.3	.man pages for Cisco IOS XR Software on the Cisco CRS chassis.
Cisco IOS XR Video Package	hfr-video-px.pie-4.2.3	Support for Video Monitoring on Cisco CRS routers.

Cisco IOS XR Carrier Grade Services Engine Package	hfr-services-px.pie-4.2.3	Support for Carrier Grade NAT and Cloud Centric Networking on Cisco CRS routers.
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- 1 Packages are installed individually
- 2 Common Object Request Broker Architecture
- 3 Extensible Markup Language
- 4 MPLS Traffic Engineering
- 5 Label Distribution Protocol
- 6 Operations, Administration, and Maintenance
- 7 Link Manager Protocol
- 8 Optical User Network Interface
- 9 Resource Reservation Protocol
- 10 Multicast Source Discovery Protocol
- 11 Internet Group Management Protocol
- 12 Multicast Routing Information Base
- 13 Multicast-Unicast RIB
- 14 Multicast forwarding
- 15 Bidirectional Protocol Independent Multicast
- 16 IP Security
- 17 Secure Shell
- 18 Secure Socket Layer
- 19 Public-key infrastructure
- 20 Physical layer interface module
- 21 Shared port adapters
- 22 ROM monitor

Table 2: Cisco IOS XR Software Release 4.2.3 TAR Files, on page 5 lists the Cisco CRS Router TAR files.

Table 2: Cisco IOS XR Software Release 4.2.3 TAR Files

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software	CRS-iosxr-px-4.2.3.tar	<ul style="list-style-type: none"> • Cisco IOS XR IP Unicast Routing Core Bundle • Cisco IOS XR Manageability Package • Cisco IOS MPLS Package • Cisco IOS XR Multicast Package • Cisco IOS XR Diagnostic Package • Cisco IOS XR FPD Package

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software 3DES	CRS-iosxr-px-k9-4.2.3.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 Diagnostic Package • Cisco IOS XR FPD 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 a Cisco CRS running Cisco IOS XR Software Release 4.2.3 consist of the following:

- 4-GB memory on the route processors (RPs)
- 2-GB memory on Modular Services Card (MSC-40) and Forwarding Processor (FP-40)
- 4-GB memory on MSC-140 and FP-140
- 4-GB PCMCIA Flash Disk on the route processors (RPs)
- 6-GB memory on Performance Route Processors (PRPs)

Hardware Supported

All hardware features are supported on Cisco IOS XR Software, subject to the memory requirements specified in the "[Memory Requirements, on page 6](#)" section.

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

Table 3: Cisco CRS Supported Hardware and Minimum Software Requirements

Component	Part Number	Support from version
Cisco CRS Series 16-Slot Line Card Chassis		
Cisco CRS 16-Slot Line Card Chassis	CRS-16-LCC	3.2
Cisco CRS Fan Tray for 16-Slot LCC	CRS-16-LCC-FAN-TR	3.2
Cisco CRS Fan Controller for 16-Slot Line Card Chassis	CRS-16-LCC-FAN-CT	3.2
Cisco CRS 16-Slot Alarm Board	CRS-16-ALARM	3.2
Cisco CRS AC Delta Power Shelf for 16-Slot LCC	CRS-16-LCC-PS-ACD	3.2
Cisco CRS AC Wye Power Shelf for 16-Slot LCC	CRS-16-LCC-PS-ACW	3.2
Cisco CRS DC Power Shelf for 16-Slot LCC	CRS-1-LCC-PS-DC	3.2
Cisco CRS LCC Front AC Power Panel	CRS-16-ACGRILLE	3.2
Cisco CRS LCC Front DC Power Panel	CRS-16-DCGRILLE	3.2
Cisco CRS Line Card Chassis Front Doors	CRS-16-LCC-DRS-F	3.2
Cisco CRS Line Card Chassis Front Cable Mgmt	CRS-16-LCC-FRNT	3.2
Cisco CRS LCC Expanded Front Cable Mgmt	CRS-16-LCC-FRNT-E	3.2
Cisco CRS Line Card Chassis Rear Cable Mgmt	CRS-16-LCC-BCK-CM	3.2
Cisco CRS Line Card Chassis Rear Doors	CRS-16-LCC-DRS-R	3.2
Cisco CRS Lift for LCC 16 and FCC	CRS-16-LIFT/B	3.2
Cisco CRS DC PEM for 16 slot LCC and FCC	CRS-16-DC-PEM	3.2
Cisco CRS 16 Slot System Reduced-Noise DC PEM	CRS-16-DC-PEM-B	3.8
Cisco CRS 16 Slot System Reduced-Noise Fan Tray	CRS-16-LCC-FNTR-B	3.8
Cisco CRS Series LC Chassis Fan Controller	CRS-16-LCC-F-CT-B	4.0.1PX
Cisco CRS 16-Slot Enhanced Line Card Chassis	CRS-16-LCC-B	4.0.3

Cisco CRS Modular Power Alarm for 16 slots and FCC	CRS-16-ALARM-C	3.9
Cisco CRS Modular Power Grill For 16 Slots and FCC	CRS-16-PW-GRILL	3.9
Cisco CRS Modular DC Power Shelf for 16 slots LCC	CRS-16LCC-PSH-DC	3.9
Cisco CRS Modular AC Power Shelf for 16 slots LCC	CRS-16LCC-PSH-AC	3.9
Cisco CRS Modular AC Power Module	CRS-PM-AC	3.9
Cisco CRS Series 8-Slot Line Card Chassis		
Cisco CRS 8-Slot Install Kit	CRS-8-INSTALL-KT	N/A
Cisco CRS 8-Slot Fork Lift Tube	CRS-8-LIFT-TUBE	N/A
Cisco CRS 8-Slot Front Badge Panel	CRS-8-BDG-PANEL	N/A
Cisco CRS 8-Slot Front Inlet Grill	CRS-8-FRNT-GRILL	N/A
Cisco CRS 8-Slot Horizontal Install Rails	CRS-8-HRZ-RAILS	N/A
Cisco CRS 8-Slot Line Card Chassis	CRS-8-LCC	3.2
Cisco CRS Fan Tray for 8-Slot Line Card Chassis	CRS-8-LCC-FAN-TR	3.2
Cisco CRS Line Card Chassis Filter Pack	CRS-8-LCC-FILTER	3.2
Cisco CRS AC Pwr Rectifier for 8-Slot LCC	CRS-8-AC-RECT	3.2
Cisco CRS DC Power Entry Module for 8-Slot LCC	CRS-8-DC-PEM	3.2
Cisco CRS AC & DC Power Module Filter for 8-Slot LCC	CRS-8-PWR-FILTER	3.2
Cisco CRS AC Delta PDU for CRS-8 LCC	CRS-8-LCC-PDU-ACD	3.2
Cisco CRS AC Wye PDU for CRS-8 LCC	CRS-8-LCC-PDU-ACW	3.2
Cisco CRS DC PDU for CRS-8 LCC	CRS-8-LCC-PDU-DC	3.2
Cisco CRS 8-Slot Enhanced Line Card Chassis	CRS-8-LCC-B	4.2.0
Cisco CRS Modular DC Power Shelf for 8 slots Chassis	CRS-8-PSH-DC	3.9

Cisco CRS Modular DC Power Module	CRS-PM-DC	3.9
Cisco CRS Modular AC Power Shelf for 8 slots Chassis	CRS-8-PSH-AC	3.9
Cisco CRS Modular AC Power Module	CRS-PM-AC	3.9
Cisco CRS Series 4-Slot Line Card Chassis		
Cisco CRS 4-Slot Line Card Chassis	CRS-4-CH	3.4
Cisco CRS Fabric Chassis Hardware		
CRS-FCC= Cisco CRS-1 Series Fabric Card Chassis Only	CRS-FCC=	3.2
CRS-1 Fabric Chassis AC Delta Power Kit	CRS-FCC-ACD-KIT	3.2
CRS-1 Fabric Chassis AC Grille	CRS-FCC-ACGRILLE	3.2
CRS-1 Fabric Chassis AC-Wye Power Kit	CRS-FCC-ACW-KIT	3.2
CRS Fabric Chassis DC Power Kit	CRS-FCC-DC-KIT	3.2
CRS-1 Fabric Chassis DC Power Grille	CRS-FCC-DCGRILLE	3.2
CRS Fabric Chassis Lift Bracket	CRS-FCC-LIFT-BRKT	3.2
CRS Fabric Chassis OIM Modules	CRS-FCC-OIM-1S=	3.2
Cisco CRS-1 Series FC Chassis Shelf/Fan/Enet cntr	CRS-FCC-SC-GE=	3.2
CRS-1 Fabric Chassis AC Intake Grille	CRS-FCC-ACGRILLE=	3.2
CRS-1 Fabric Chassis DC Intake Grille	CRS-FCC-DCGRILLE=	3.2
Cisco CRS-1 Series Fan Tray for FCC	CRS-FCC-FAN-TR=	3.2
CRS-1 Fabric Card Chassis Fan Tray Filters	CRS-FCC-FILTER=	3.2
CRS-1 Fabric Chassis Front Cosmetic Kit	CRS-FCC-FRNT-CM=	3.2
Cisco CRS-1 Series Fabric Card Chassis Fiber Module LED	CRS-FCC-LED=	3.2
Cisco CRS-1 Series DC Power Shelf for FCC	CRS-FCC-PS-DC=	3.2
CRS-1 Fabric Chassis Rear Cosmetic Kit	CRS-FCC-REAR-CM=	3.2
CRS-LIFT Brackets for Fabric Chassis	CRS-FCC-LIFT-BRKT=	3.2

CRS Fabric Chassis OIM Module	CRS-FCC-OIM-1S	3.2
CRS-1 Fabric Chassis AC Delta Power Supply	CRS-FCC-PS-ACD	3.2
CRS-1 Fabric Chassis AC Wye Option	CRS-FCC-PS-ACW	3.2
CRS-1 Fabric Chassis DC Power Option	CRS-FCC-PS-DC	3.2
Cisco CRS-1 Series Fabric Card Chassis Switch Fabric Card	CRS-FCC-SFC=	3.2
CRS-1 Fabric Chassis Integrated Switch Controller Card	CRS-FCC-SC-22GE Integrated Switch	3.4.1
Cisco CRS General Chassis Hardware		
Cisco CRS PCMCIA Flash Disk 4 GB	CRS-FLASH-DISK-4G	3.8
Cisco CRS Modular Services Card	CRS-MSC	3.2
Cisco CRS Modular Service Card B	CRS-MSC-B	3.6
Cisco CRS-1 Series Forwarding Processor 40G	CRS-FP40	3.8.1
Cisco CRS Series Modular Services Card 140G	CRS-MSC-140G	4.0.0 PX
Cisco CRS Series Forwarding Processor Card 140G	CRS-FP140	4.0.0 PX
Cisco CRS PCMCIA Flash Disk 16 GB	CRS-FLASH-DISK-16G	4.2
Cisco CRS 8-Slot Fabric Card/Single	CRS-8-FC/S	3.2
Cisco CRS 8-Slot Fabric Card Blank	CRS-8-FC-BLANK	3.2
Cisco CRS 8-Slot Fabric Handle	CRS-8-FC-HANDLE	3.2
Cisco CRS 16-Slot Fabric Card/Single	CRS-16-FC/S	3.2
Cisco CRS Series 4 Slots Fabric Card / Single (140G)	CRS-4-FC140/S	4.0.0 PX
Cisco CRS Series 8 Slots Fabric Card / Single (140G)	CRS-8-FC140/S	4.0.0 PX
Cisco CRS Series 16 Slots Fabric Card / Single (140G)	CRS-16-FC140/S	4.0.0 PX
Cisco CRS Interface and Route Processor Cards		
Cisco CRS 8-Slot Route Processor	CRS-8-RP	3.2

Cisco CRS 8-Slot Route Processor Blank	CRS-8-RP-BLANK	3.2
Cisco CRS 8-Slot Route Processor Handle	CRS-8-RP-HANDLE	3.2
Cisco Carrier 1 Series SPA Interface Processor 40G	CRS1-SIP-800	3.2
Cisco CRS-1 Distributed Route Processor	CRS-DRP	3.3
Cisco CRS-1 Distributed Route Processor CPU Module	CRS-DRP-B-CPU	3.4.1
Cisco CRS-1 Distributed Route Processor PLIM Module	CRS-DRP-B-PLIM	3.4.1
Cisco CRS-1 16-slot Route Processor, revision B	CRS-16-RP-B	3.3
Cisco CRS Series 14x10GbE LAN/WAN-PHY Interface Module	14X10GBE-WL-XFP	4.0.0 PX
Cisco CRS Series 20x10GbE LAN/WAN-PHY Interface Module	20X10GBE-WL-XFP	4.0.0 PX
Cisco CRS 1-port 100-GE CFP PLIM	1x100-GE CFP PLIM	4.0.1 PX
Cisco CRS-1 Series 8 Slots 6 Gb Performance Route Processor	CRS-8-PRP-6G	4.1
Cisco CRS-1 Series 8 Slots 12 Gb Performance Route Processor	CRS-8-PRP-12G	4.1
Cisco CRS-1 Series 16 Slots 6 Gb Performance Route Processor	CRS-16-PRP-6G	4.1
Cisco CRS-1 Series 16 Slots 12 Gb Performance Route Processor	CRS-16-PRP-12G	4.1
Cisco CRS Series 4x40GbE OTU3 Interface Module	4-40GE-L/OTN	4.2.3
Cisco CRS Series 2x40GbE OTU3 Interface Module	2-40GE-L/OTN	4.2.3
Cisco CRS Series 1x100GbE IPoDWDM Interface Module	1-100GE-DWDM/C	4.2.3
Cisco CRS SONET Interface Modules and SPAs		
Cisco CRS 4xOC-192c/STM64c POS/DPT Interface Module/VS	4OC192-POS/DPT-VS	3.2

Cisco CRS 4xOC-192c/STM64c POS/DPT Interface Module/SR	4OC192-POS/DPT-SR	3.2
Cisco CRS 4xOC-192c/STM64c POS/DPT Interface Module/IR	4OC192-POS/DPT-IR	3.2
Cisco CRS 4xOC-192c/STM64c POS/DPT Interface Module/LR	4OC192-POS/DPT-LR	3.2
Cisco CRS 16xOC-48c/STM16c POS/DPT Interface Module	16OC48-POS/DPT	3.2
Cisco CRS 1xOC-768c/STM256c POS Interface Module/SR	1OC768-POS-SR	3.2
Cisco CRS 8-Port OC-12c/STM-4c Shared Port Adapter	SPA-8XOC12-POS	3.3
Cisco CRS 2-Port OC-48c/STM-16c POS/RPR Shared Port Adapter	SPA-2XOC48-POS/RPR	3.4
Cisco CRS 4-Port OC-48c/STM-16c POS/RPR Shared Port Adapter	SPA-4XOC48-POS/RPR	3.4
Cisco CRS 1-Port OC-192c/STM-64c POS/RPR Shared Port Adapter with XFP Optics	SPA-OC192POS-XFP	3.2
Cisco CRS 4-Port OC-3c/STM-1c Shared Port Adapter	SPA-4XOC3-POS	3.2
Cisco CRS 1-Port OC-192/STM-64 POS/RPR SPA VSR Optics	SPA-OC192POS-VSR	3.4.1
Cisco CRS 1-Port OC-768c/STM-256c (C-band) DWDM PLIM	1OC768-ITU/C	3.3
Cisco CRS 1-Port OC-768c/STM-256c (C-band) DPSK+ DWDM PLIM	1OC768-DPSK/C	3.6
Cisco CRS ATM Modules and SPAs		
3-Port Clear Channel OC-3 ATM SPA	SPA-3XOC3-ATM-V2	3.7
1-Port Clear Channel OC-12 ATM SPA	SPA-1XOC12-ATM-V2	3.7
Cisco CRS Serial Interface Modules and SPAs		
Cisco CRS 4-Port Clear Channel T3/E3 Serial Shared Port Adapter	SPA-4XT3/E3	3.4.1

Cisco CRS 2-Port Clear Channel T3/E3 Serial Shared Port Adapter	SPA-2XT3/E3	3.4.1
Cisco CRS Ethernet Interface Modules and SPAs		
Cisco CRS 8x10 GbE Interface Module LR/ER	8-10GBE	3.2
Cisco 5-Port Gigabit Ethernet Shared Port Adapter, Version 2	SPA-5X1GE-V2	3.4
Cisco 8-Port Gigabit Ethernet Shared Port Adapter, Version 2	SPA-8X1GE-V2	3.4
Cisco 8-Port Gigabit Ethernet Shared Port Adapter	SPA-8X1GE	3.2
Cisco 10-Port Gigabit Ethernet Shared Port Adapter, Version 2	SPA-10X1GE-V2	3.4
Cisco 1-Port Ten Gigabit Ethernet Shared Port Adapter, Version 2	SPA-1X10GE-L-V2	3.4
Cisco 4-Port Ten Gigabit Ethernet (C-band) DWDM PLIM	4-10GE-ITU/C	3.3
Cisco 1-port 10GbE SPA WAN/LAN PHY	SPA-1X10GE-WL-V2	3.5.2
Cisco CRS-1 Series 4x10GE Interface Module	4-10GE	3.8.1
Cisco CRS-1 Series 42x1GE Interface Module	42-1GE	3.8.1
Cisco CRS-1 Series 8-Port Ten Gigabit Ethernet Interface Module	8-10GBE-WL-XFP	3.9.1
Cisco CRS-1 Series 4-Port Ten Gigabit Ethernet Interface Module	4-10GBE-WL-XFP	3.8.4
Cisco CRS-1 Series 20x1GE Flexible Interface Module	20-1GE-FLEX	3.8.1
Cisco CRS-1 Series 2x10GE WAN/LAN Flexible Interface Module	2-10GE-WL-FLEX	3.8.1
Cisco CRS 10GE Optical to Electrical Modules		
10GBASE-LR XENPAK Module for Cisco CRS	XENPAK-10GB-LR+	3.4
10GBASE-DWDM XENPAK	XENPAK-10GB-DWDM	3.2.2
10GBASE-ER XENPAK Modular for Cisco CRS-1	XENPAK-10GB-ER	3.4

10GBASE-ER XENPAK Modular for Cisco CRS-1	XENPAK-10GB-ER+	3.4
Cisco 10GBASE-SR XFP Module for MMF	XFP-10G-MM-SR	3.8
Cisco Multirate 10GBASE-LR/-LW and OC-192/STM-64 SR-1 XFP Module for SMF	XFP-10GLR-OC192SR	3.4
Cisco Multirate 10GBASE-LR/-LW and OC-192/STM-64 SR-1 XFP Module for SMF, low power (1.5W)	XFP10GLR-192SR-L	3.8.4, 3.9.1
Cisco Multirate 10GBASE-ER/-EW and OC-192/STM-64 IR-2 XFP Module for SMF	XFP-10GER-192IR+	3.4
Cisco Multirate 10GBASE-ER/-EW and OC-192/STM-64 IR-2 XFP Module for SMF, low power (2.5W)	XFP10GER-192IR-L	3.8.4, 3.9.1
Cisco Multirate 10GBASE-ZR/-ZW and OC-192/STM-64 IR-2 XFP Module for SMF	XFP-10GZR-OC192LR	3.4
Cisco CRS SFPs and CFPs		
Cisco CRS 2.5 G SFP LR Optic	POM-OC48-LR2-LC-C	3.2
Cisco CRS 2.5 G SFP SR Optic	POM-OC48-SR-LC-C	3.2
GE SFP, LC connector LX/LH transceiver	GLC-LH-SM	3.2
1000BASE-SX SFP transceiver module, MMF, 850nm, DOM	GLC-SX-MMD	3.6
1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM	GLC-LH-SMD	3.6
1000BASE-LX/LH SFP	SFP-GE-L	3.4
1000BASE-SX SFP (DOM)	SFP-GE-S	3.4
1000BASE-T SFP (NEBS 3 ESD)	SFP-GE-T	3.4
1000BASE-ZX Gigabit Ethernet SFP (DOM)	SFP-GE-Z	3.4
100GBASE-LR4 CFP transceiver module for SMF, 1310-nm wavelength, SC duplex connector	CFP-100G-LR4	4.0
100 Gigabit Ethernet over 10 short-reach optical lanes (SR10) optics (multimode fiber)	CFP-100G-SR10	4.2.1

Cisco 10GBASE Dense Wavelength-Division Multiplexing XFP Module	DWDM-XFP-C	4.2.3
40-Gigabit Ethernet C Form-factor Pluggable (CFP) optics module - 40GBASE-LR4	CFP-40G-LR4	4.2.3
40-Gigabit Ethernet C Form-factor Pluggable (CFP) optics module - 40GBASE-SR4	CFP-40G-SR4	4.2.3
40-Gigabit Ethernet C Form-factor Pluggable (CFP) optics module - 40GBASE-FR	CFP-40G-FR	4.2.3

Hardware Not Supported

The following hardware are not supported in Cisco IOS XR Software Release 4.2.3:

Component	Part Number
Cisco CRS-1 16-Slot Line-Card Chassis Route Processor	CRS-16-RP
Cisco CRS PCMCIA Flash Disk 2 GB	CRS-FLASH-DISK-2G



Note

RP-B with CRS-3 is not supported for Multichassis systems; only PRP is supported for such systems. Cisco highly recommends PRP for all CRS-1, CRS-3 Single chassis and Multichassis configurations, due to its significant advantages in improving boot time, performance, and scale. For information on End-of-Sale and End-of-Life Announcement for the Cisco CRS 8-Slot and 16-slot Line Card Chassis Route Processors:

http://www.cisco.com/en/US/prod/collateral/routers/ps5763/end_of_life_notice_c51-695816.html

http://www.cisco.com/en/US/prod/collateral/routers/ps5763/end_of_life_notice_c51-695817.html



Note

Cisco Session Border Controller (SBC) is not supported. Cisco IOS XR Software Release 3.7 is the last release that supports SBC.

CRS FP-140 Licenses

The following licenses apply to the CRS FP-140:

Licence	Description
XC-ENH-NF-140G	Cisco CRS Series Enhanced Netflow Performance License 140G

XC-L2L3VPN-140G	Cisco CRS Series L2 and L3 VPN Peering Edge License 140G
XC-RTE-SCL-140G	Cisco CRS Series Route Scale License 140G
XC-TE-SCL-140G	Cisco CRS Series Traffic Engineering Scale License 140G
XC-MC-LIC-140G	Cisco CRS Series Multichassis License 140G

CRS FP-140 also supports eDelivery licenses, which can be downloaded as the License Certificates in PDF format.

For further information or questions, please visit <http://www.cisco.com/web/partners/tools/edelivery.html>.

eDelivery PID	Description
L-XC-ENH-NF-140G=	Cisco CRS Series Enhanced NetFlow License 140G
L-XC-RTE-SCL-140G=	Cisco CRS Series Route Scale License 140G
L-XC-MC-LIC-140G=	Cisco CRS Series Multichassis License 140G
L-XC-TE-SCL-140G=	Cisco CRS Series Traffic Engineering Scale License 140G
L-XC-L2L3VPN-140G=	Cisco CRS Series L2 L3 VPN Peering Edge License 140G

Software Compatibility

Cisco IOS XR Software Release 4.2.3 is compatible with the following Cisco CRS-1 and CRS-3 systems:

- Cisco CRS 4-Slot Line Card Chassis
- Cisco CRS 8-Slot Line Card Chassis
- Cisco CRS 16-Slot Line Card Chassis
- Cisco CRS Multichassis Systems

Cisco IOS XR Software Release 4.2.3 is compatible with the following Cisco CRS-3 system:

- Cisco CRS Back-to-Back System

Firmware Support

The Cisco CRS Router supports the following firmware code:

- The bundled ROMMON version is 2.07.
- For details about minimum required firmware versions please refer to "**admin show fpd package**" (see below).
- To upgrade firmware use the "**admin upgrade hw-module fpd**" command. Alternatively, refer to the "fpd auto-upgrade" feature.

Check the firmware needed by running the **show fpd package** command in admin mode.

Cisco CRS show fpd package output

RP/0/RP0/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
PRP	FPGA ZJF uBlaze	1c	fpga2	0.01	0.00	0.0
	S-8 FPGA Nirvana	1c	fpga3	14.00	0.00	0.0
	FPGA BCM 8727	1c	fpga4	0.01	0.00	0.0
	FPGA MCU	1c	fpga5	0.01	0.00	0.0
	FPGA CPU ZJF	1c	fpga1	7.00	0.00	0.0
	ROMMONA swv2.07 x86mp	1c	rommonA	2.07	2.03	0.0
	ROMMONB swv2.07 x86mp	1c	rommon	2.07	2.07	0.0
PRP	FPGA ZJF uBlaze	1c	fpga2	0.01	0.00	0.0
	S-16 FPGA Nirvana	1c	fpga3	13.00	0.00	0.0
	FPGA BCM 8727	1c	fpga4	0.01	0.00	0.0
	FPGA MCU	1c	fpga5	0.01	0.00	0.0
	ZJF FPGA CPU	1c	fpga1	7.00	0.00	0.0
	ROMMONA swv2.07 x86mp	1c	rommonA	2.07	2.03	0.0
	ROMMONB swv2.07 x86mp	1c	rommon	2.07	2.07	0.0
S2	FPGA 4.02	1c	fpga2	4.02	0.00	0.0
	FPGA 5.00	1c	fpga3	5.00	0.00	0.0
	FPGA 6.04 spb	1c	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	1c	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	1c	rommon	2.07	2.07	0.0
140G-S1S2S3	FPGA 4.01	1c	fpga2	4.01	0.00	0.0
	FPGA 6.04 spb	1c	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	1c	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	1c	rommon	2.07	2.07	0.0
Fabric HS123 Superst	FPGA 4.00	1c	fpga2	4.00	0.00	0.0
	FPGA 6.04 spb	1c	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	1c	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	1c	rommon	2.07	2.07	0.0
140G-4-S1S2S3	FPGA 4.01	1c	fpga2	4.01	0.00	0.0
	FPGA 6.04 spb	1c	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	1c	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	1c	rommon	2.07	2.07	0.0
140G-S1S3	FPGA 4.01	1c	fpga2	4.01	0.00	0.0
	FPGA 6.04 spb	1c	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	1c	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	1c	rommon	2.07	2.07	0.0
140G-S1S2S3-2	FPGA 4.01	1c	fpga2	4.01	0.00	0.0
	FPGA 6.04 spb	1c	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	1c	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	1c	rommon	2.07	2.07	0.0
140G-S1S3-2	FPGA 4.01	1c	fpga2	4.01	0.00	0.0
	FPGA 6.04 spb	1c	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	1c	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	1c	rommon	2.07	2.07	0.0

	RXPOD swvF034 spb	lc	rxpod	240.52	0.00	0.0
	TXPOD swvF039 spb	lc	txpod	240.57	0.00	0.0
140G-S2-2	FPGA 4.02	lc	fpga2	4.02	0.00	0.0
	FPGA 16.00	lc	fpga3	16.00	0.00	0.0
	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0
	RXPOD swvF034 spb	lc	rxpod	240.52	0.00	0.0
	TXPOD swvF039 spb	lc	txpod	240.57	0.00	0.0
140G-MSC	FPGA Linecard 0.36	lc	fpga2	0.36	0.00	0.0
	FPGA CPU 0.8	lc	fpga1	0.08	0.00	0.0
	ROMMONA swv2.07 kensho	lc	rommonA	2.07	2.04	0.0
	ROMMONB swv2.07 kensho	lc	rommon	2.07	2.07	0.0
FP-140G	FPGA Linecard 0.36	lc	fpga2	0.36	0.00	0.0
	FPGA CPU 0.8	lc	fpga1	0.08	0.00	0.0
	ROMMONA swv2.07 kensho	lc	rommonA	2.07	2.04	0.0
	ROMMONB swv2.07 kensho	lc	rommon	2.07	2.07	0.0
CRS-LSP	FPGA Linecard 0.36	lc	fpga2	0.36	0.00	0.0
	FPGA CPU 0.8	lc	fpga1	0.08	0.00	0.0
	ROMMONA swv2.07 kensho	lc	rommonA	2.07	2.04	0.0
	ROMMONB swv2.07 kensho	lc	rommon	2.07	2.07	0.0
10C768-ITU/C	OPTICS FIRMWARE 110B10	lc	fpga2	110.10	0.00	0.0
10C768-DWDM-L	OPTICS FIRMWARE 110B10	lc	fpga2	110.10	0.00	0.0
10C768-DPSK/C	OPTICS FIRMWARE 110B14	lc	fpga2	110.14	0.00	0.0
10C768-DPSK/C-O	OPTICS FIRMWARE 110B14	lc	fpga2	110.14	0.00	0.0
10C768-DPSK/C-E	OPTICS FIRMWARE 110B14	lc	fpga2	110.14	0.00	0.0
CRS-CGSE-PLIM	FPGA mCPU0 0.559	lc	fpga2	0.559	0.00	0.0
	FPGA sCPU0 0.559	lc	fpga3	0.559	0.00	0.0
	FPGA mCPU1 0.559	lc	fpga4	0.559	0.00	0.0
	FPGA sCPU1 0.559	lc	fpga5	0.559	0.00	0.0
	FPGA PLIM_SVC 0.41014	lc	fpga1	0.41014	0.00	0.0
2-40GBE-OTN	PLIM FPGA 32	lc	fpga3	32.00	0.00	0.0
1-100GBE-DWDM	PLIM FPGA 32.0	lc	fpga3	32.00	0.00	0.0
	OPTICS FIRMWARE 4.07	lc	fpga4	4.07	0.00	0.0
4-40GBE-OTN	PLIM FPGA 32	lc	fpga3	32.00	0.00	0.0
20-10GBE	PLIM FPGA 42.0	lc	fpga3	42.00	0.00	0.0
12-10GBE	PLIM FPGA 42.0	lc	fpga3	42.00	0.00	0.0
1-100GBE	PLIM FPGA 19.0	lc	fpga3	19.00	0.00	0.0
	RX MAC FPGA 49.0	lc	fpga4	49.00	0.00	0.0
	TX MAC FPGA 38.0	lc	fpga5	38.00	0.00	0.0
14-10GBE	PLIM FPGA 42.0	lc	fpga3	42.00	0.00	0.0
DRP_B	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 sp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 dsmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 sp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0
MSC_B	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 sp	lc	rommonA	2.07	2.01	0.0

	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 dsmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 sp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0

FP40	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 sp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 dsmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 sp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0

CRS1-SIP-800	JACKET FPGA swv6.0	lc	fpga1	6.00	5.00	0.0
	FPGA swv6.0 hww80	lc	fpga1	6.00	5.00	0.80

8-10GBE	FPGA swvA.0	lc	fpga1	10.00	0.00	0.0

OC48-POS-16-ED	FPGA PLIM_OC48 9.0	lc	fpga1	9.00	0.00	0.0

4-10GBE	FPGA sw_4p_v15.0	lc	fpga1	15.00	0.00	0.0

8-10GBE	FPGA sw_8p_v15.0	lc	fpga1	15.00	0.00	0.0

4-10GE	SQUIRREL FPGA 10.0	lc	fpga1	10.00	0.00	0.0

42-1GE	FPGA swv6.0	lc	fpga1	6.00	0.00	0.0
	FPGA swv6.0 hww0.80	lc	fpga1	6.00	0.00	0.80

20-1GE-FLEX	FPGA swv6.0	lc	fpga1	6.00	0.00	0.0
	FPGA swv6.0 hww0.80	lc	fpga1	6.00	0.00	0.80

2-10GE-WL-FLEX	FPGA swv6.0	lc	fpga1	6.00	0.00	0.0
	FPGA swv6.0 hww0.80	lc	fpga1	6.00	0.00	0.80

CRS-16-ALARM-C	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 sp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 sp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0

CRS-16-ALARM-B	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0

CRS-16-FAN-CT	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0

CRS-16-LCC-F-CT-B	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0

CRS-FCC-LED	FPGA 6.04 spb	lc	fpga1	6.04	0.00	0.0
	ROMMONA swv2.07 sp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 spb	lc	rommonA	2.07	2.05	0.0
	ROMMONB swv2.07 sp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 spb	lc	rommon	2.07	2.07	0.0

Route Processor	ROMMONA swv2.07 asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONB swv2.07 asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 dsmp	lc	rommon	2.07	2.07	0.0

SC	ROMMONA swv2.07 asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA swv2.07 dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONB swv2.07 asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB swv2.07 dsmp	lc	rommon	2.07	2.07	0.0

RP	ROMMONA swv2.07 asmp	lc	rommonA	2.07	2.01	0.0

	ROMMONA	swv2.07	dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	dsmp	lc	rommon	2.07	2.07	0.0

Shelf Controller GE	ROMMONA	swv2.07	asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA	swv2.07	dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	dsmp	lc	rommon	2.07	2.07	0.0

RP	ROMMONA	swv2.07	asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA	swv2.07	dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	dsmp	lc	rommon	2.07	2.07	0.0

Shelf Controller GE2	ROMMONA	swv2.07	asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA	swv2.07	dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	dsmp	lc	rommon	2.07	2.07	0.0

DRP	ROMMONA	swv2.07	asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA	swv2.07	dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	dsmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

S1S2S3	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

S1S3	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

S2	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

Fabric HS123	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

Fabric QQS123	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

LED	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

40G-MSC	ROMMONA	swv2.07	asmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA	swv2.07	dsmp	lc	rommonA	2.07	2.01	0.0
	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	asmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	dsmp	lc	rommon	2.07	2.07	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

CRS-16-ALARM	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

CRS-16-LCC-FAN-CT	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

FC Fan Controller	ROMMONA	swv2.07	sp	lc	rommonA	2.07	2.01	0.0
	ROMMONB	swv2.07	sp	lc	rommon	2.07	2.07	0.0

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	1.00	0.00	0.0
	SPA ROMMON			spa	rommon	2.12	0.00	0.0

SPA-2XT3/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	1.00	0.00	0.0
	SPA ROMMON			spa	rommon	2.12	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-1XCHOC12/DS0	SPA I/O FPGA	spa fpga2	1.00	0.00	0.49
	SPA I/O FPGA	spa fpga1	1.36	0.00	0.49
	SPA ROMMON	spa rommon	2.02	0.00	0.49
SPA-OC192POS	SPA FPGA swv1.3	spa fpga1	1.03	0.00	0.0
SPA-8XOC12-POS	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5
SPA-4XOC3-POS	SPA FPGA swv3.4	spa fpga1	3.04	0.00	0.0
SPA-OC192POS-XFP	SPA FPGA swv1.2	spa fpga1	1.02	0.00	0.0
SPA-8X1GE	SPA FPGA swv1.8	spa fpga1	1.08	0.00	0.0
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-1XOC48POS/RPR	SPA FPGA swv1.2	spa fpga1	1.02	0.00	0.0
SPA-8XOC3-POS	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5
	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-8X1GE-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 swv1.11	spa fpga1	1.11	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 swv1.11	spa fpga1	1.11	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

Minimum Firmware Requirement

The following table provides the procedures and resources for minimum firmware requirements:

After completing an RMA, upgrade the firmware as per the matrix in this link, which also links to PDF copies of the IOS XR Firmware Upgrade Guides	http://www.cisco.com/web/Cisco_IOS_XR_Software/index.html
--	---

For the upgrade CLI, refer to the *Hardware Redundancy and Node Administration Commands* on *Cisco IOS XR Software* chapter of the *Cisco IOS XR System Management Command Reference for the Cisco CRS router*

http://www.cisco.com/en/US/docs/routers/crs/software/crs_r4.2/system_management/command/reference/b_sysman_cr42crs.html

Determining Your Software Version



Note

P image is discontinued from Cisco IOS XR Software Release 4.2 onwards. For more information about this, see the discontinuation of P image for Cisco CRS in Cisco IOS XR Software Release 4.2 and later at

http://www.cisco.com/en/US/prod/collateral/routers/ps5763/product_bulletin_c25-663499.html.

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/RP0/CPU0:a25(admin)#
RP/0/RP0/CPU0:a25(admin)#sh ver
```

```
Cisco IOS XR Software, Version 4.2.3[Default]
Copyright (c) 2012 by Cisco Systems, Inc.
```

```
ROM: System Bootstrap, Version 2.07(20120620:232041) [CRS ROMMON],
```

```
a25 uptime is 12 hours, 19 minutes
System image file is "disk0:hfr-os-mbi-4.2.3/0x100008/mbihfr-rp-x86e.vm"
```

```
cisco CRS-16/S (Intel 686 F6M14S4) processor with 6291456K bytes of memory.
Intel 686 F6M14S4 processor at 2133Mhz, Revision 2.174
Cisco CRS Series 16 Slots Line Card Chassis
```

```
3 Management Ethernet
25 SONET/SDH
25 Packet over SONET/SDH
56 GigabitEthernet
190 TenGigE
160 DWDM controller(s)
156 WANPHY controller(s)
1 HundredGigE
4 FortyGigE
```

1019k bytes of non-volatile configuration memory.
14712M bytes of hard disk.
10449904k bytes of disk0: (Sector size 512 bytes).
10449904k bytes of disk1: (Sector size 512 bytes).

Boot device on node 0/0/CPU0 is lcdisk0:
Package active on node 0/0/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-suppl-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwling, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwling-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwling, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwling-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

```
hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/1/SP is bootflash:
Package active on node 0/1/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/1/CPU0 is mem:
Package active on node 0/1/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```


iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-sup-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-sup-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012

```
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/4/SP is bootflash:
Package active on node 0/4/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/4/CPU0 is mem:
Package active on node 0/4/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
```

```
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-sup-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-sup-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/5/SP is bootflash:
Package active on node 0/5/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/5/CPU0 is mem:
Package active on node 0/5/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supp-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/6/CPU0 is lcdisk0:
Package active on node 0/6/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

```
hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/7/CPU0 is lcdisk0:
Package active on node 0/7/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supp-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/9/SP is bootflash:
Package active on node 0/9/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
```



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Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/10/CPU0 is lcdisk0:
Package active on node 0/10/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
    Built on Mon Sep 24 13:46:02 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
    Built on Mon Sep 24 13:22:31 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-suppl-4.2.3
    Built on Mon Sep 24 13:45:33 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
    Built on Mon Sep 24 13:45:33 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
    Built on Mon Sep 24 13:21:52 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
    Built on Mon Sep 24 13:22:08 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwling, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwling-4.2.3
    Built on Mon Sep 24 13:22:31 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwling, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwling-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-suppl-4.2.3
    Built on Mon Sep 24 13:46:02 PDT 2012
```

```
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/11/CPU0 is lcdisk0:
Package active on node 0/11/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpis, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpis-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supp-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/13/CPU0 is lcdisk0:
Package active on node 0/13/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
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```
hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/15/SP is bootflash:
Package active on node 0/15/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/15/CPU0 is mem:
Package active on node 0/15/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
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By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supp-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Configuration register on node 0/RP0/CPU0 is 0x102
Boot device on node 0/RP0/CPU0 is disk0:
Package active on node 0/RP0/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012

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By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-doc-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-doc-suppl-4.2.3
Built on Mon Sep 24 13:45:26 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-suppl-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-security, V 4.2.3[00], Cisco Systems, at disk0:iosxr-security-4.2.3
Built on Mon Sep 24 13:44:20 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mgbl, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mgbl-4.2.3
Built on Mon Sep 24 13:21:42 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwling, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwling-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwling, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwling-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
```

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Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-k9sec-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-k9sec-supply-4.2.3
Built on Mon Sep 24 13:44:20 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mgbl-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mgbl-supply-4.2.3
Built on Mon Sep 24 13:21:42 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Configuration register on node 0/RP1/CPU0 is 0x102
Boot device on node 0/RP1/CPU0 is disk0:
Package active on node 0/RP1/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-doc-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-doc-supply-4.2.3
Built on Mon Sep 24 13:45:26 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
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Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-security, V 4.2.3[00], Cisco Systems, at disk0:iosxr-security-4.2.3
Built on Mon Sep 24 13:44:20 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mgbl, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mgbl-4.2.3
Built on Mon Sep 24 13:21:42 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-sup-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

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hfr-k9sec-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-k9sec-supply-4.2.3
  Built on Mon Sep 24 13:44:20 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mgbl-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mgbl-supply-4.2.3
  Built on Mon Sep 24 13:21:42 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/FC0/SP is bootflash:
Package active on node 0/FC0/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/FC1/SP is bootflash:
Package active on node 0/FC1/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

```

```
hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-suppl-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/AM0/SP is bootflash:
Package active on node 0/AM0/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-suppl-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/AM1/SP is bootflash:
Package active on node 0/AM1/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
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By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/SM4/SP is bootflash:
Package active on node 0/SM4/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/SM5/SP is bootflash:
Package active on node 0/SM5/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3

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Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/SM6/SP is bootflash:
Package active on node 0/SM6/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/SM7/SP is bootflash:
Package active on node 0/SM7/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
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hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/0/CPU0 is lcdisk0:
Package active on node 1/0/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-sup-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fw, V 4.2.3[00], Cisco Systems, at disk0:hfr-fw-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fw, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fw-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
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Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/1/CPU0 is ldisk0:
Package active on node 1/1/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
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By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supp-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/3/SP is bootflash:
Package active on node 1/3/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

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hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-suppl-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/3/CPU0 is mem:
Package active on node 1/3/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-suppl-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpsl, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpsl-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
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hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-sup-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-sup-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/4/SP is bootflash:
Package active on node 1/4/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
```

```
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/4/CPU0 is mem:
Package active on node 1/4/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-sup-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fw, V 4.2.3[00], Cisco Systems, at disk0:hfr-fw-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fw, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fw-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
```

```
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/5/SP is bootflash:
Package active on node 1/5/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/5/CPU0 is mem:
Package active on node 1/5/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
```

```
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-sup-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fw, V 4.2.3[00], Cisco Systems, at disk0:hfr-fw-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fw, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fw-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-sup-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

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hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/6/CPU0 is lcdisk0:
Package active on node 1/6/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpis, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpis-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
```

```
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-sup-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-sup-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/7/CPU0 is lcdisk0:
Package active on node 1/7/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-sup-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
```

```
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-suppl-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-suppl-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-suppl-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/10/SP is bootflash:
```



```
Package active on node 1/10/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/10/CPU0 is mem:
Package active on node 1/10/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mps, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mps-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-sup-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-sup-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/12/CPU0 is lcdisk0:
Package active on node 1/12/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
```

```
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/13/SP is bootflash:
Package active on node 1/13/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/13/CPU0 is mem:
Package active on node 1/13/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
  Built on Mon Sep 24 13:45:33 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

```

```
iosxr-mpis, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpis-4.2.3
  Built on Mon Sep 24 13:21:52 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supp-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supp-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Configuration register on node 1/RP1/CPU0 is 0x102
Boot device on node 1/RP1/CPU0 is disk0:
```

```

Package active on node 1/RP1/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
    Built on Mon Sep 24 13:46:02 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-doc-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-doc-supp-4.2.3
    Built on Mon Sep 24 13:45:26 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
    Built on Mon Sep 24 13:22:31 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
    Built on Mon Sep 24 13:45:33 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
    Built on Mon Sep 24 13:45:33 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-security, V 4.2.3[00], Cisco Systems, at disk0:iosxr-security-4.2.3
    Built on Mon Sep 24 13:44:20 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
    Built on Mon Sep 24 13:21:52 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mgbl, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mgbl-4.2.3
    Built on Mon Sep 24 13:21:42 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
    Built on Mon Sep 24 13:22:08 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
    Built on Mon Sep 24 13:22:31 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012

```

```
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-k9sec-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-k9sec-supply-4.2.3
Built on Mon Sep 24 13:44:20 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mgbl-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mgbl-supply-4.2.3
Built on Mon Sep 24 13:21:42 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/FC0/SP is bootflash:
Package active on node 1/FC0/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/AM0/SP is bootflash:
Package active on node 1/AM0/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/AM1/SP is bootflash:
Package active on node 1/AM1/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-sup, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-sup-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
```



```
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/SM4/SP is bootflash:
Package active on node 1/SM4/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/SM5/SP is bootflash:
Package active on node 1/SM5/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supp-4.2.3
Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
```

```
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/SM6/SP is bootflash:
Package active on node 1/SM6/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
    Built on Mon Sep 24 13:45:02 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-suppl-4.2.3
    Built on Mon Sep 24 13:44:29 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
    Built on Mon Sep 24 13:24:24 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 1/SM7/SP is bootflash:
Package active on node 1/SM7/SP:
iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
    Built on Mon Sep 24 13:45:02 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-suppl-4.2.3
    Built on Mon Sep 24 13:44:29 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
    Built on Mon Sep 24 13:24:24 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie
```

```
Boot device on node 0/9/CPU0 is disk0:
Package active on node 0/9/CPU0:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
    Built on Mon Sep 24 13:46:02 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-doc-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-doc-supp-4.2.3
    Built on Mon Sep 24 13:45:26 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
    Built on Mon Sep 24 13:22:31 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supp, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supp-4.2.3
    Built on Mon Sep 24 13:45:33 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
    Built on Mon Sep 24 13:45:33 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-security, V 4.2.3[00], Cisco Systems, at disk0:iosxr-security-4.2.3
    Built on Mon Sep 24 13:44:20 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
    Built on Mon Sep 24 13:21:52 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mgbl, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mgbl-4.2.3
    Built on Mon Sep 24 13:21:42 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
    Built on Mon Sep 24 13:22:08 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
    Built on Mon Sep 24 13:22:28 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
    Built on Mon Sep 24 13:22:31 PDT 2012
    By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
```

```
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
  Built on Mon Sep 24 13:45:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
  Built on Mon Sep 24 13:44:29 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-k9sec-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-k9sec-supply-4.2.3
  Built on Mon Sep 24 13:44:20 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mgbl-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mgbl-supply-4.2.3
  Built on Mon Sep 24 13:21:42 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-supply-4.2.3
  Built on Mon Sep 24 13:22:08 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mpi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mpi-4.2.3
  Built on Mon Sep 24 13:24:24 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

Boot device on node 0/9/CPU1 is disk0:
Package active on node 0/9/CPU1:
iosxr-ce, V 4.2.3[00], Cisco Systems, at disk0:iosxr-ce-4.2.3
  Built on Mon Sep 24 13:22:28 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-adv-video, V 4.2.3[00], Cisco Systems, at disk0:iosxr-adv-video-4.2.3
  Built on Mon Sep 24 13:46:02 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-doc-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-doc-supply-4.2.3
  Built on Mon Sep 24 13:45:26 PDT 2012
  By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-ce, V 4.2.3[00], Cisco Systems, at disk0:hfr-ce-4.2.3
  Built on Mon Sep 24 13:22:31 PDT 2012
```

```
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-service-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-service-supply-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-service, V 4.2.3[00], Cisco Systems, at disk0:iosxr-service-4.2.3
Built on Mon Sep 24 13:45:33 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-security, V 4.2.3[00], Cisco Systems, at disk0:iosxr-security-4.2.3
Built on Mon Sep 24 13:44:20 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mpls, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mpls-4.2.3
Built on Mon Sep 24 13:21:52 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mgbl, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mgbl-4.2.3
Built on Mon Sep 24 13:21:42 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-mcast, V 4.2.3[00], Cisco Systems, at disk0:iosxr-mcast-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-routing, V 4.2.3[00], Cisco Systems, at disk0:iosxr-routing-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-infra, V 4.2.3[00], Cisco Systems, at disk0:iosxr-infra-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fwding, V 4.2.3[00], Cisco Systems, at disk0:hfr-fwding-4.2.3
Built on Mon Sep 24 13:22:31 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-fwding, V 4.2.3[00], Cisco Systems, at disk0:iosxr-fwding-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

iosxr-diags, V 4.2.3[00], Cisco Systems, at disk0:iosxr-diags-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-adv-video-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-adv-video-supply-4.2.3
Built on Mon Sep 24 13:46:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-fpd, V 4.2.3[00], Cisco Systems, at disk0:hfr-fpd-4.2.3
Built on Mon Sep 24 13:45:02 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-diags-supply, V 4.2.3[00], Cisco Systems, at disk0:hfr-diags-supply-4.2.3
```

```

Built on Mon Sep 24 13:44:29 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-k9sec-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-k9sec-suppl-4.2.3
Built on Mon Sep 24 13:44:20 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mgbl-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-mgbl-suppl-4.2.3
Built on Mon Sep 24 13:21:42 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-mcast-suppl, V 4.2.3[00], Cisco Systems, at disk0:hfr-mcast-suppl-4.2.3
Built on Mon Sep 24 13:22:08 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-base, V 4.2.3[00], Cisco Systems, at disk0:hfr-base-4.2.3
Built on Mon Sep 24 13:22:28 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

hfr-os-mbi, V 4.2.3[00], Cisco Systems, at disk0:hfr-os-mbi-4.2.3
Built on Mon Sep 24 13:24:24 PDT 2012
By iox-bld3 in /auto/srcarchive6/production/4.2.3/all/workspace for pie

RP/0/RP0/CPU0:a25(admin)#

```

Software Features Introduced in Cisco IOS XR Software Release 4.2.3

BGP Attribute Filtering

The BGP Attribute Filter feature checks integrity of BGP updates in BGP update messages and optimizes reaction when detecting invalid attributes. BGP Update message contains a list of mandatory and optional attributes. These attributes in the update message include MED, LOCAL_PREF, COMMUNITY etc. In some cases, if the attributes are malformed, there is a need to filter these attributes at the receiving end of the router. The BGP Attribute Filter functionality filters the attributes received in the incoming update message. The attribute filter can also be used to filter any attributes that may potentially cause undesirable behavior on the receiving router.

Some of the BGP updates are malformed due to wrong formatting of attributes such as the network layer reachability information (NLRI) or other fields in the update message. These malformed updates, when received, causes undesirable behavior on the receiving routers. Such undesirable behavior may be encountered during update message parsing or during re-advertisement of received NLRIs. In such scenarios, its better to filter these corrupted attributes at the receiving end.

For more information on BGP Attribute Filtering, see the *Implementing BGP module* in the *Cisco IOS XR Routing Configuration Guide for the Cisco CRS Router*.

Bidirectional Forwarding Detection over Logical Bundle

The Bidirectional Forwarding Detection (BFD) over Logical Bundle feature implements and deploys BFD over bundle interfaces based on RFC 5880. The BFD over Logical Bundle (BLB) feature replaces the BVLAN feature and resolves certain interoperability issues with other platforms that run BFD over bundle interface in pure RFC5880 fashion. These platforms include products of other vendors, as well as other Cisco products running Cisco IOS or Cisco Nexus OS software.

BLB is a multipath (MP) single-hop session. BLB requires limited knowledge of the bundle interfaces on which the sessions run; this is because BFD treats the bundle as one big pipe. To function, BLB requires only information about IP addresses, interface types, and caps on bundle interfaces. Information such as list of bundle members, member states, and configured minimum or maximum bundle links are not required.

BLB is supported on IPv4 address, IPv6 global address, and IPv6 link-local address.

For more information on BFD over Logical Bundle, refer the *Configuring Bidirectional Forwarding Detection* chapter in *Cisco IOS XR Routing Configuration Guide for the Cisco CRS Router*. For complete command reference of the BFD commands, see the *Bidirectional Forwarding Detection Commands* chapter in the *Cisco IOS XR Routing Command Reference for the Cisco CRS Router*.

Support for 6PE/6VPE over L2TPv3

The 6PE/6VPE over L2TPv3 feature supports native IPv6 (6PE) and IPv6 VPN services (6VPE) (described in RFC 2547) over L2TPv3 tunnels across an IPv4 core network. The 6PE/6VPE over L2TPv3 feature is supported for label, IPv6 VPN (6VPE) and 6PE traffic.

For more information on configuring L2TPv3, see the *Implementing Layer 2 Tunnel Protocol Version 3* module in the *Cisco IOS XR Virtual Private Network Configuration Guide for the Cisco CRS Router*.

MPLS TE End-to-End Path Protection

Path protection provides an end-to-end failure recovery mechanism for MPLS-TE tunnels. An alternate recovery mechanism is Fast Reroute (FRR), which protects MPLS-TE LSPs only from link and node failures by locally repairing the LSPs at the point of failure. The explicit paths are used to create backup autotunnels. The **protected-by** keyword is used to configure path protection for an explicit path that is protected by another explicit path.

For more information about the MPLS TE end-to-end path protection feature, see the *Cisco IOS XR MPLS Configuration Guide for the Cisco CRS Router* and *Cisco IOS XR MPLS Command Reference for the Cisco CRS Router*.

MPLS P2MP TE Inter-area Enhancements

The MPLS-TE inter-area tunneling feature allows you to establish P2P and P2MP TE tunnels that spans multiple Interior Gateway Protocol (IGP) areas and levels, thereby eliminating the requirement that headend and tailend routers reside in a single area. An enhancement to P2MP-TE inter-area allows ABRs to support loose hop ERO expansion to find path to the next ABR until it reaches to the tail-end LSR, without introducing remerge.

For more information about the P2MP TE inter-area enhancements feature, see the *Cisco IOS XR MPLS Configuration Guide for the Cisco CRS Router* and *Cisco IOS XR MPLS Command Reference for the Cisco CRS Router*.

Link Layer Discovery Protocol (LLDP)

The Cisco Discovery Protocol (CDP) is a device discovery protocol that runs over Layer 2 (the Data Link layer) on all Cisco-manufactured devices (routers, bridges, access servers, and switches). CDP allows network management applications to automatically discover and learn about other Cisco devices connected to the network.

To support non-Cisco devices and to allow for interoperability between other devices, the Cisco CRS Router also supports the IEEE 802.1AB LLDP. LLDP is also a neighbor discovery protocol that is used for network devices to advertise information about themselves to other devices on the network. This protocol runs over the Data Link Layer, which allows two systems running different network layer protocols to learn about each other.

LLDP supports a set of attributes that it uses to learn information about neighbor devices. These attributes have a defined format known as a Type-Length-Value (TLV). LLDP supported devices can use TLVs to receive and send information to their neighbors. Details such as configuration information, device capabilities, and device identity can be advertised using this protocol.

For more information about the LLDP feature, see the *Cisco IOS XR Interface and Hardware Component Configuration Guide for the Cisco CRS Router*.

Virtual Routing and Forwarding (vrf) Aware Source Interface for Syslog Transactions

A syslog message contains the IPv4 or IPv6 address of the interface used to exit the router. The virtual routing and forwarding aware source interface enables you to configure syslog packets to contain the IPv4 or IPv6 address of a particular interface for a VRF, regardless of which interface the packet uses to exit the router.

For more information about the vrf aware source interface for syslog transactions feature, see the *Implementing VRRP* module in the *Cisco IOS XR IP Addresses and Services Configuration Guide for the Cisco CRS Router*.

GTP Tunnel Load Balancing

GPRS Tunneling Protocol (GTP) is used mainly to deliver mobile data on wireless networks via Cisco CRS Router as core router. When two routers carrying GTP traffic are connected with link bundling, the traffic is required to be distributed evenly between all bundle members. You can use the **bundle-hash** command in EXEC mode to verify that the interface selected within the bundle for load balancing matches with the output from the **bundle-hash** command.

When two routers carrying GTP traffic are connected with equal-cost multi-path (ECMP) between them, you can use the **sh cef exact-route** command in EXEC mode to verify the interface selected for load balancing.

To achieve load balancing, Cisco CRS router uses 7-tuple load balancing mechanism which takes account of source IP, destination IP, router-id, ingress interface, protocol, L4 source and destination port (if traffic is TCP or UDP) fields from the packet. But for GTP traffic, limited number of unique values for these fields restrict the equal distribution of traffic load on tunnel.

For more information about GTP tunnel load balancing feature, see the *Implementing Cisco Express Forwarding* module in the *Cisco IOS XR IP Addresses and Services Configuration Guide for the Cisco CRS Router*

Video Monitoring

Poor video experience is a major cause for concern among service providers in terms of service costs and loss of revenue. To avoid the service costs of help desk time, NOC (network operation center) troubleshooting resources, and truck rolls, the capability of monitoring video traffic is essential. On Cisco IOS XR software, problems in video flows can be easily diagnosed by video monitoring.

For more information about the video monitoring feature, see the *Implementing Video Monitoring* module in the *Cisco IOS XR IP Addresses and Services Configuration Guide for the Cisco CRS Router*.

Updating Software Images Without a Router Reload

In-service software upgrade (ISSU) is a user initiated and controlled process that upgrades a stateful switchover/nonstop forwarding (SSO/NSF)-capable Cisco IOS XR image from a lower to a higher version, or installs ISSU software maintenance updates (SMUs). ISSU upgrades a SSO/NSF-capable image with minimal downtime, degradation of service, or loss of packets.



Note

ISSU is supported on Cisco CRS single-shelf systems only.

ISSU involves a route processor (RP) switchover followed by line card upgrades performed via an ISSU minimum disruption restart (MDR) [iMDR]. ISSU consists of three phases:

- 1 Load** is the first phase of the ISSU process. The new image is downloaded to all nodes in the router. The new image is checked for compatibility to ensure the router can be upgraded. If the image is found to be incompatible, or an outage is warranted, you are notified.

Standby RPs and shelf controllers (SCs) are reloaded with the new version of the software. Each fabric card is also reloaded with the new software one at a time to minimize the impact to traffic. Each plane is brought down, fabric cards in this plane are reloaded with the new image and then the plane is added back before proceeding to the next plane.

At the end of this stage, all standby nodes are running the new software and all active nodes (including all line cards) are still running the original software images. Any abort of the upgrade process during the load phase, either intentional (user abort) or due to failures, results in a hitless rollback and each standby/upgraded node is reloaded with the original software. The load phase is completed once all standby nodes are ISSU-ready.
- 2 Run** is the second phase of the ISSU process. Each RP/SC pair completes an active to standby switchover. In parallel, each line card undergoes an iMDR to complete the software upgrade.

Any abort of the upgrade process during the run phase results in a router reload with the original software. The ISSU run phase is completed once all iMDR and switchover operations are completed.
- 3 Complete** is the final step of the ISSU process. This concludes the ISSU process and the new software is running on all nodes in the system. Since this is the conclusion of the ISSU process, the system cannot be reverted back to the original software from this point onwards.

The ISSU process can be performed in prompted mode, to ensure and verify that there is no degradation of the service throughout the process. Or the ISSU process can be performed unprompted, where the phases are executed automatically with no user intervention.

ISSU Release Information

For Cisco IOS XR Release 4.2.3, only Software Maintenance Upgrades (SMUs) that are identified and tagged as ISSU SMUs can be activated using ISSU.



Note

Only an SMU marked as *ISSU* can be activated using ISSU.

This table provides information regarding hardware not supported by the ISSU process in Cisco IOS XR Release 4.2.3.

Table 4: Hardware Not Supported by ISSU

Type	Component	Part number
Chassis	Cisco CRS Multishelf System	—
DRP	Cisco CRS-1 Distributed Router Processor	CRS-DRP
DRP	Cisco CRS-1 Distributed Router Processor CPU Module	CRS-DRP-B-CPU
DRP	Cisco CRS-1 Distributed Router Processor PLIM Module	CRS-DRP-B-PLIM
DRP	Cisco CRS-1 Distributed Router Processor CPU Module	CRS-DRP-CPU
PLIM	Cisco CRS 1-Port OC-768c/STM-245c (C-band) DWDM PLIM	1OC768-ITU/C
PLIM	Cisco CRS Series 4x40GbE OTU3 Interface Module	4-40GE-L/OTN
PLIM	Cisco CRS Series 2x40GbE OTU3 Interface Module	2-40GE-L/OTN
PLIM	Cisco CRS Series 1x100GbE IPoDWDM Interface Module	1-100GE-DWDM/C
PLIM	Cisco CRS 1-Port OC-768c/STM-256c (C-band) DPSK +DWDM PLIM	1OC768-DPSK/C
PLIM	Cisco 4-Port Ten Gigabit Ethernet (C-band) DWDM PLIM	4-10GE-ITU/C

Type	Component	Part number
CGSE	Cisco CRS-1 Series Carrier Grade Service Engine PLIM	CRS-CGSE-PLIM
SPA	Cisco CRS 4-Port Clear Channel T3/E3 Serial Shared Port Adapter	SPA-4XT3/E3
SPA	2-Port OC-12c/STM-4c POS Shared Port Adapter	SPA-2XOC12-POS
SPA	1-Port OC-48c/STM-16c POS/RPR Shared Port Adapter	SPA-1XOC48-POS/RPR
SPA	3-Port Clear Channel OC-3 ATM Shared Port Adapter	SPA-3XOC3-ATM-V2
SPA	1-Port Clear Channel OC-12 ATM Shared Port Adapter with XFP Optics	SPA-1XOC12-ATM-V2
SPA	1-Port Channelized OC12 to DS0 Shared Port Adapter	SPA-1XCHOC12/DS0
SPA	Cisco CRS 2-Port Clear Channel T3/E3 Serial Shared Port Adapter	SPA-4XT3/E3

During the ISSU orchestration (from the load process till the complete process), ISSU disables all unsupported line cards, SPAs and service engine cards (CGSEs) and holds them in the MBI run state. After the ISSU process is complete, the unsupported line cards, SPAs and CGSEs boot with the new software.



Caution

If the users have DRPs (Distributed Route Processors) in the router, then they must shut down the DRPs manually to start ISSU. If this is not done, ISSU is aborted. Also, SDR configurations must be avoided or removed before starting ISSU.

An SMU delivers a software change to the user in the least possible time. Prior to ISSU support, SMU installations resulted in either restart of one or more processes, or reload of one or more nodes. ISSU minimizes the operational impact that a user experiences. As ISSU does not support software downgrade, SMU upgrades installed using ISSU can only be uninstalled by means of parallel reload method.

To perform an ISSU SMU upgrade, use the **issu** keyword with the **install activate** command. There are three types of SMUs:

- ISSU SMU—This is installed using the ISSU method. These SMUs can also be installed using the parallel reload method by omitting the **issu** keyword in the **install activate** command.
- Reload SMU—This SMU requires parallel reloads during its installation.
- Restart SMU—This SMU requires process restarts during its installation.

The type of SMU can be identified by viewing output of the **show install pie-info pie detail** command. ISSU SMUs are identified by *ISSU (quick) warm-reload* in the Restart information field.

```
RP/0/RP0/CPU0:ROUTER(admin)# show install pie-info tftp://223.255.254.254/hfrp-
4.2.3.02I.issu.pie detail
Mon Jul 11 12:32:27.114 PST
Contents of pie file '/tftp://223.255.254.254/hfr-p-4.2.3.02I.issu.pie':
Expiry date : Oct 16, 2015 17:51:47 PST
Uncompressed size : 727056
Compressed size : 316258
hfr-p-4.2.3.02I.CSCeal2345-1.0.0
hfr-p-4.2.3.02I.CSCeal2345 V1.0.0[SMU] User specified bundle hfrbase-
4.2.3.02I.CSCeal2345.pi.pie.
[composite package]
[root package, grouped contents]
Vendor : Cisco Systems
Desc : User specified bundle hfr-base-4.2.3.02I.CSCeal2345.pi.pie.
Build : Built on Fri Jul 8 16:25:25 PST 2011
Source : By sjc-lds-773 in /nobackup/ryeh/smu-test-issu for pie
Card(s): RP, RP-B, HRP, DRP, 40G-MSC, SP, SC
Restart information:
Default:
parallel impacted processes restart
Size Compressed/Uncompressed: 308KB/710KB (43%)
Components in package hfr-p-4.2.3.02I.CSCeal2345-1.0.0, package hfrp-
4.2.3.02I.CSCeal2345:
hfr-base-4.2.3.02I.CSCeal2345-1.0.0

hfr-base-4.2.3.02I.CSCeal2345 V1.0.0[SMU] HFR base Package
Vendor : Cisco Systems
Desc : HFR base Package
Build : Built on Fri Jul 8 16:25:24 PST 2011
Source : By sjc-lds-773 in /nobackup/ryeh/smu-test-issu for pie
Card(s): RP, RP-B, HRP, DRP, 40G-MSC, SP, SC
Restart information:
Default:
ISSU (quick) warm reload
Specific:
ISSU (quick) warm reload to and from ***-*
Size Compressed/Uncompressed: 308KB/710KB (43%)
Components in package hfr-base-4.2.3.02I.CSCeal2345-1.0.0,
package hfr-base-4.2.3.02I.CSCeal2345:
hfr-lcplatform-mgr V[r412/3] LC only version of HFR
platform-mgr.
hfr-base-4.2.3.02I.CSCeal2345-package-compatibility
V[Default] Package Compatibility information for package hfr-base-
4.2.3.02I.CSCeal2345
hfr-base-4.2.3.02I.CSCeal2345-package V[Default] Manifest
information for package hfr-base-4.2.3.02I.CSCeal2345
```

Mixed SMU types can only be combined in the same activation if parallel reload is used as the activation type. ISSU cannot be used to activate parallel-process-restart SMUs. However, if the user wants to install both parallel-process-restart and ISSU SMUs, the following two options are provided:

- Use parallel-reload to install the SMUs.
- Install the parallel-process-restart SMU(s) as a first operation, and then install the ISSU SMU(s) as a separate operation.

You can use the following commands outside the maintenance window since there is no traffic impact:

- **install add**

Example: `install add tftp://223.255.254.254/hfr-px-4.2.3.CSCzz99999.pie`

- **install activate**—This command is used to initiate the ISSU and specify the prompt mode.

Example: `install activate id 1 issu prompt-level all issu`

It is recommend to use the following command within the maintenance window in run phase:

- ISSU Run Phase

Example: `install operation 70 run`

- ISSU Complete Phase

Example: `install operation 70 complete`

Available ISSU process syslog events are:

- The event that is logged upon execution of each phase (Load, Run and Complete) of the ISSU process.
- The event that is logged when the ISSU process is completed.
- The event that is logged when the Rollback process is kicked off.
- The event that is logged for all abnormal cases.

SMU Installation Combinations

The three types of maintenance upgrades (SMUs), process restart SMUs, ISSU SMUs, and reload SMUs, can be combined in various combinations in an upgrade procedure. Not all combinations of SMUs can be installed in one step. This table lists the installation behavior when the SMU activation is done both with and without the **issu** keyword:

SMU Type	With issu Keyword	Without issu Keyword
Restart SMU	User is prompted to continue operation as Parallel Process Restart	Parallel Process Restart
ISSU SMU	In-service upgrade	Parallel Reload
Reload SMU	User is prompted to continue operation as Parallel Reload	Parallel Reload
Restart and ISSU SMUs	Not supported, but allowed. The recommended procedure is to install the SMUs in two steps: first install the restart SMUs using the Parallel Process Restart method, then perform the in-service upgrade of the ISSU SMUs.	Parallel Reload
ISSU and Reload SMUs	User is prompted to continue the operation as a Parallel Reload	Parallel Reload
Restart, ISSU and Reload SMUs	User is prompted to continue operation as a Parallel Reload	Parallel Reload

DDoS Mitigation Support on CGSE

Threat Management System (TMS) software is ported to the Cisco Carrier Grade Services Engine (CGSE) to mitigate the attacks, and to send clean traffic back to the targeted host or network. The Cisco CGSE is a single-slot module supported on all models of Cisco's proven high-end carrier-class routing system: CRS-1 and CRS-3. CGSE offers carrier-class performance and scale in support of various applications and services.

For more information on Implementing DDoS Mitigation Support on CGSE, refer to the *Implementing DDoS Mitigation Support on CGSE* chapter in the *Cisco IOS XR System Security Configuration Guide for the Cisco CRS Router*.

For a complete description of the DDoS Mitigation Support commands, refer to the *DDoS Mitigation Support on CGSE Commands* module of the *Cisco IOS XR System Security Command Reference for the Cisco CRS Router*.

Hardware Features Introduced in Cisco IOS XR Software Release 4.2.3 for Cisco CRS Router

The following hardware features were introduced in Cisco IOS XR Software Release 4.2.3 on the Cisco CRS Router:

- 1-port 100-GE IPoDWDM PLIM

Cisco IOS XR Software Release 4.2.3 introduces support for the new Cisco 1-port 100-GE IPoDWDM PLIM on the Cisco CRS Router. The 1-port 100-GE DWDM PLIM supports a DWDM optics module.

- 4-port 40-GE OTU3 CFP PLIM

Cisco IOS XR Software Release 4.2.3 introduces support for the new Cisco 4-port 40-GE OTU3 CFP PLIM on the Cisco CRS Router. The 4-port 40-GE OTU3 CFP PLIM supports up to four 40-Gigabit Ethernet C Form-factor Pluggable (CFP) optics modules.

The 4-port 40-GE OTU3 CFP PLIM supports the following types of CFP optical transceiver modules:

- CFP-40G-LR4
- CFP-40G-FR
- CFP-40G-SR4

- 2-port 40-GE OTU3 CFP PLIM

Cisco IOS XR Software Release 4.2.3 introduces support for the new Cisco 2-port 40-GE OTU3 CFP PLIM on the Cisco CRS Router. The 2-port 40-GE OTU3 CFP PLIM supports up to two 40-Gigabit Ethernet C Form-factor Pluggable (CFP) optics modules.

The 2-port 40-GE OTU3 CFP PLIM supports the following types of CFP optical transceiver modules:

- CFP-40G-LR4
- CFP-40G-FR

- CFP-40G-SR4

For more general hardware information about the new Cisco 1-port 100-GE IPoDWDM PLIM, the new Cisco 4-port 40-GE OTU3 CFP PLIM, the new Cisco 2-port 40-GE OTU3 CFP PLIM, the CFP-40G-LR4, CFP-40G-FR, and CFP-40G-SR4CFP optical transceivers, and the new Cisco Tunable Optics feature, refer to the *Cisco CRS Carrier Routing System Ethernet Physical Layer Interface Module Installation Note* online.

Limitations

The 2-port 40-GE OTU3 CFP PLIM, the 4-port 40-GE OTU3 CFP PLIM, and the 1-port 100-GE IPoDWDM PLIM are examples of high powered PLIMs. High powered PLIMs are confined to upper slots, but are allowed in lower slots only if another identical PLIM is installed directly above. This restriction applies solely to the standard 16-slot chassis; the 4-slot and 8-slot chassis are excepted.

If you want to fill your chassis with either of these two PLIMs, then the following power management restrictions apply:

- 4-slot chassis - 1 slot must be left void (meaning that a PLIM blank must be inserted)
- 8-slot chassis - 2 slots must be left void (one in zone 1 and one in zone 3)
- 16-slot chassis - 4 slots must be left void (one each in zones 1, 3, 4, and 6)
- 8-slot and 16-slot enhanced chassis - no restrictions

The new Cisco Tunable Optics on the Cisco CRS Router support introduced with Cisco IOS XR Software Release 4.2.3 does not support management using SNMP. There is no XML support for tunable optics. Using the **controller dwdm** command, you can only configure the wavelength. The PID is DWDM-XFP-C and the supported channel range is 3-84. Both LAN and WAN mode are supported. The default wavelength configured is channel 84 and the controller state default is "out-of-service".

Tunable Optics

Cisco IOS XR Software Release 4.2.3 introduces support for the new Cisco Tunable Optics on the Cisco CRS Router. The new Cisco Tunable Optics on the Cisco CRS Router is a 10-Gbps, long-reach, ITU-compliant, 50-GHz-spaced optical interface using LC connectors supporting 10-Gigabit Ethernet LAN PHY interfaces tunable across 82 adjacent 50-GHz wavelengths, enabling support for C-Band DWDM networks.

The new Cisco Tunable Optics on the Cisco CRS Router are supported on the following PLIMs:

- 20x10GE-WL-XFP PLIM
- 14x10GE-WL-XFP PLIM
- 4-port and 8-port 10GE XFP PLIMs

To make any configuration on dwdm XFP we need to change the admin-state to "out-of-service" or "maintenance". We cannot configure anything till XFP holds "in-service" state.

For new Cisco Tunable Optics on the Cisco CRS Router configuration and command information, refer to the controller dwdm information in the *Cisco IOS XR Interface and Hardware Component Command Reference for the Cisco CRS Router, Release 4.2.x* and the *Cisco IOS XR Interface and Hardware Component Configuration Guide for the Cisco CRS Router, Release 4.2.x* online.

For more general hardware information about the new Cisco 1-port 100-GE IPoDWDM PLIM, the new Cisco 4-port 40-GE OTU3 CFP PLIM, the new Cisco 2-port 40-GE OTU3 CFP PLIM, the CFP-40G-LR4, CFP-40G-FR, and CFP-40G-SR4CFP optical transceivers, and the new Cisco Tunable Optics feature, refer to the *Cisco CRS Carrier Routing System Ethernet Physical Layer Interface Module Installation Note* online.

Important Notes on Cisco IOS XR Software and Cisco CRS Router

- **Default timestamp setting**—The timestamp prompt that precedes console output is enabled by default. To disable the timestamp prompt, use the **no service timestamp** command. For more information, refer to the *Cisco IOS XR System Management Command Reference for the Cisco CRS Router*.
- **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 IOS XR Getting Started Guide for the Cisco CRS Router* 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.
- **mpls traffic engineering igp-intact** command—This command must be used only when policy based tunnel selection is configured for all tunnels originating on the device. This CLI needs to be turned on under IGP (OSPF/ISIS) under the respective AFI.
- The following TE Path option attribute commands are not supported on the Cisco CRS-1 Series Router:
 - affinity location nset
 - affinity location type
 - affinity program
 - affinity self
- **BFD IPv6 UDP Checksum Calculation**—In Cisco IOS XR Software Release 3.9, you turn the BFD IPv6 UDP checksum calculation on and off:
 - To disable the BFD IPv6 UDP checksum calculation:


```
RP/0/RP0/CPU0:router(config)#bfd
RP/0/RP0/CPU0:router(config-bfd)#ipv6 checksum disable
RP/0/RP0/CPU0:router(config-bfd)#end
```
 - To enable BFD IPv6 UDP checksum calculation:


```
RP/0/RP0/CPU0:router(config)#bfd
RP/0/RP0/CPU0:router(config-bfd)#no ipv6 checksum disable
RP/0/RP0/CPU0:router(config-bfd)#end
```


- On upgrading Cisco IOS XR Software from 3.6.2 to 4.0.0 the MAC address assigned to physical interfaces changes. This is required because prior to Cisco IOS XR Software Release 3.8.4 the MAC address assigned to the bundle interface was taken from the first member's MAC address. If this bundle member is removed from the bundle, the bundle gets a new MAC address, which results in traffic loss due to ARP resolution. Beginning in Cisco IOS XR Software Release 3.8.4, a pool of MAC addresses are assigned to the bundle interfaces by the bundlemgr process during bundle interface creation.
- Deactivation of os-mpi dependent (Nonreload) SMU fails—Backing out the non reload os-mpi SMU fails because deactivation runs out of memory (activation did not release some memory, which stayed at 38 MB). This failure to activate or deactivate the SMU due to insufficient SP resources impacts SP cards on CRS.
- When configuring the Label Distribution Protocol (LDP) graceful restart (GR) process in a network with multiple [link and/or targeted] LDP hello adjacencies with the same neighbor, make sure that GR is activated on the session before any hello adjacency times out due to neighbor control plane failures. One way of achieving this is by configuring a lower session hold time between neighbors such that session time out always occurs before hello adjacency can time out. Cisco recommends setting LDP session hold time using the following formula:

$$\text{LDP session hold time} \leq (\text{Hello hold time} - \text{Hello interval}) * 3$$

This means that for default values of 15/5 seconds respectively for the link Hello hold time and the Hello interval, the LDP session hold time should be set to 30 seconds or less.

For more information, refer to the *Implementing MPLS Label Distribution Protocol on Cisco IOS XR Software* section of the *Cisco IOS XR MPLS Configuration Guide for the Cisco CRS Router*.

- For information about upgrading from a Cisco CRS-1 to a Cisco CRS-3 chassis, refer to the *Cisco CRS-1 Carrier Routing System to Cisco CRS-3 Carrier Routing System Upgrade Guide* at the following URL:
http://www.cisco.com/en/US/products/ps5763/prod_installation_guides_list.html
- The following commands have been modified to support Cisco CRS-3 router:
 - **show environment**
 - **hw-module reload**
 - **show controllers egressq client location**
 - **show controllers egressq queue drr [max | min] location** <>
 - **show controllers egressq queue drr [max | min] location** <>
 - **show controllers egressq group ntb [max | min] location** <>
 - **show controllers egressq port bmap location** <>
 - **show controllers egressq statistics detail location** <>
 - **show controllers egressq resources location** <>

For information about these commands, refer to the *Commands* section of the *Cisco CRS-1 Carrier Routing System to Cisco CRS-3 Carrier Routing System Upgrade Guide*:

http://www.cisco.com/en/US/products/ps5763/prod_installation_guides_list.html

- The minimum timer configuration value for the BFD on Bundle Members feature (BoB) increases from 30 to 60 seconds in Cisco IOS XR Software Release 4.2. The timer value can be left as default or modified as follows:

- **int bundle-(ether|pos) <num>**
- **bfd address-family ipv4 timers start <30-3600>**
- **bfd address-family ipv4 timers nbr-unconfig <30-3600>**
- This release supports the following fixed DWDM XFPs with CRS-3 and certain CRS-1 10GE interface modules:
 - DWDM-XFP-30.33
 - DWDM-XFP-60.61
 - DWDM-XFP-50.92
 - DWDM-XFP-50.12
 - DWDM-XFP-31.12
 - DWDM-XFP-31.90
 - DWDM-XFP-32.68
 - DWDM-XFP-34.25
 - DWDM-XFP-35.04
 - DWDM-XFP-35.82
 - DWDM-XFP-36.61
 - DWDM-XFP-38.19
 - DWDM-XFP-38.98
 - DWDM-XFP-39.77
 - DWDM-XFP-40.56
 - DWDM-XFP-42.14
 - DWDM-XFP-42.94
 - DWDM-XFP-43.73
 - DWDM-XFP-44.53
 - DWDM-XFP-46.12
 - DWDM-XFP-46.92
 - DWDM-XFP-47.72
 - DWDM-XFP-48.51
 - DWDM-XFP-51.72
 - DWDM-XFP-52.52
 - DWDM-XFP-54.13
 - DWDM-XFP-54.94
 - DWDM-XFP-55.75

- DWDM-XFP-56.55
- DWDM-XFP-58.17
- DWDM-XFP-58.98
- DWDM-XFP-59.79

- 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.

DWDM Configuration Management



Note

This section describes the new DWDM configuration requirements in Cisco IOS XR 3.9.0 and later releases. It does not describe all updates to the DWDM feature. For more information about DWDM configuration, refer to the *Configuring Dense Wavelength Division Multiplexing Controllers on Cisco IOS XR Software* module in the *Cisco IOS XR Interface and Hardware Component Configuration Guide for the Cisco CRS Router*.

Cisco IOS XR Software Release 3.9.0 introduced new commands in addition to an important change to the default laser state for all of the DWDM physical layer interface modules (PLIMs) supported on the Cisco CRS-1 and CRS-3 routers, which impacts the required configuration to support those cards.

This change affects all models of the following hardware on the Cisco CRS-1 router:

- Cisco 1-Port OC-768c/STM-256c DWDM PLIM
- Cisco 4-Port 10-Gigabit Ethernet DWDM PLIM

This change affects all models of the following hardware on the Cisco CRS-3 router:

- Cisco 1-Port 100GE OTU4 IPoDWDM PLIM
- Cisco 4-Port 40-GE OTU3 OTN/LAN PLIM
- Cisco 2-Port 40-GE OTU3 OTN/LAN PLIM

The **g709 fec high-gain** and **g709 fec long-haul** commands are added under DWDM configuration to configure the new high-gain FEC mode and long-haul FEC mode for Cisco 1-Port 100GE OTU4 IPoDWDM PLIM.

The following is an example of configuring the **g709 fec high-gain** command under DWDM configuration to configure the new high-gain FEC mode:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller dwdm <>
RP/0/RP0/CPU0:router(config)# g709 fec high-gain
RP/0/RP0/CPU0:router(config)# commit
```

The following is an example of configuring the **g709 fec long-haul** command under DWDM configuration to configure the new long-haul FEC mode:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# g709 fec long-haul
RP/0/RP0/CPU0:router(config)# commit
```

Important DWDM Changes in Cisco IOS XR Software Release 3.9.0 and Later Releases

- The **laser off** and **shutdown (DWDM)** commands are replaced by the **admin-state-out-of-service** command.
- The default state of the laser has changed from "On" to "Off" for all PLIMs. Therefore, the laser for all DWDM controllers must explicitly be turned on using the **admin-state in-service** command in DWDM configuration mode

Configuration Examples in Cisco IOS XR Software Release 3.9.0 and Later Releases

This section provides configuration examples for turning on and off the laser on a DWDM PLIM.

Turning On the Laser: Example



Note

This is a required configuration beginning in Cisco IOS XR Software Release 3.9.0. The DWDM PLIMs will not operate without this configuration.

The following example shows how to turn on the laser and place a DWDM port in In Service (IS) state:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller dwdm 0/1/0/1
RP/0/RP0/CPU0:router(config-dwdm)# admin-state in-service
RP/0/RP0/CPU0:router(config-dwdm)# commit
```

Turning Off the Laser: Example



Note

This configuration replaces the **laser off** and **shutdown (DWDM)** configuration commands.

The following example shows how to turn off the laser, stop all traffic and place a DWDM port in Out of Service (OOS) state:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller dwdm 0/1/0/1
RP/0/RP0/CPU0:router(config-dwdm)# admin-state out-of-service
RP/0/RP0/CPU0:router(config-dwdm)# commit
```

Minimum Flash Disk Requirements When Upgrading to Release 4.2.3

Cisco IOS XR Software Release 4.2.3 requires a minimum of 4-GB Flash Disk. This release also provides an upgrade option to 16-GB Flash Disk. 1-GB and 2-GB Flash Disks are no longer supported with this release. For information on End-of-Sale and End-of-Life Announcement for the Cisco CRS-1 PCMCIA Flash Disk 2 GB, refer to: http://www.cisco.com/en/US/prod/collateral/routers/ps5763/end_of_life_notice_c51-681333.html

To upgrade from a 1-GB or 2-GB to a greater Flash Disk, refer to the Flash Disk Upgrade Tasks link on the following Cisco CRS router Installation and Upgrade URL: http://www.cisco.com/en/US/products/ps5763/prod_installation_guides_list.html

For Cisco CRS routers, change to FAT32 in order to partition a 4 GB Flash Disk as a 3.5 GB and 0.5 GB partition. This type of partition is recommended in order to create a partition with more than 2 GB of flash space. Disk partitioning has been supported from Cisco IOS XR Software Release 3.6 onwards. For more information, refer to the *Turbo Boot Appendix* of the *Cisco CRS-1 Carrier Routing System to Cisco CRS-3 Carrier Routing System Migration Guide*.

Additional upgrade instructions for the Cisco CRS router are available from http://www.cisco.com/web/Cisco_IOS_XR_Software/pdf/ReplacingPCMCIACardOnCRS-1.pdf.

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 contains caveats that are generic to the Cisco IOS XR Software Release 4.2.3 and those specific to the Cisco CRS-1 router and the Cisco CRS-3 router.

Cisco IOS XR Caveats

The following open caveats apply to Cisco IOS XR Software Release and are not platform specific:

- **CSCtt38345**

Basic Description:

The SNMP duplicate request dropping feature is not working.

Symptom:

SNMP duplicate request dropping feature is supposed to drop requests from the same NMS and port with the same request ID, and if the number of requests in queue is greater than 20.

Conditions:

SNMP duplicate request dropping feature is supposed to drop requests from the same NMS and port with the same request ID and if the number of requests in queue is greater than 20.

Workaround:

None.

- **CSCti50227**

Basic Description:

Not able to modify RPL and delete prefix-set in a single commit.

Symptom:

When a policy that is attached directly or indirectly to an attach point needs to be modified, a single commit operation cannot be performed when:

- Removing a set or policy referred by another policy that is attached to any attach point directly or indirectly.

- Modifying the policy to remove the reference to the same set or policy that is getting removed.

Workaround:

The commit must be performed in two steps:

- 1 Modify the policy to remove the reference to the policy or set and then commit.
- 2 Remove the policy or set and commit.

• **CSCub15328**

Basic Description:

underscore "_" in a RPL regexp does not match the start of a AS-SET segment denoted as {a, b, c, ...}.

Symptom:

The underscore symbol "_" in an RPL regexp does not match the start of a AS-SET segment denoted as {a, b, c, ...}.

Conditions:

When an RPL regexp is used in either inbound route-policy or outbound route-policy, the AS-PATH string contains AS-SET segment {a, b, c, ...}.

Workaround:

Use rpl native as-path semantics such as as-path neighbor-is, as-path originates-from or as-path passes-through instead of the regular expressions.

As-Path native semantics are more superior to ios regex. Use of regular expressions is computation intensive since regular expression is stored as a string.

• **CSCub98462**

Basic Description:

Radiusd mem leak occurred while executing all radius related CLI on router, which is used more than 10000 bytes for each and every radius CLI.

Symptom:

The **show radius** command triggers memory leak in 'radiusd' on routers with LC nodes, more so on MC (Multi-Chassis) routers than on SC routers.

Conditions:

The radius is configured on the router.

Workaround:

Use 'location' option with the **show radius** command to get statistics from a particular node. On non-BNG platforms (Carrier Routing System, Gigabit Switch Router, Aggregation Service Router) statistics from only dSC/dLRSC nodes are relevant because 'radiusd' that runs on other nodes are not used for non-BNG deployments. Therefore, dSC/dLRSC node-name can be given as input to 'location' option without any loss of functionality (statistics) of the **show radius** command.

Alternately, restart 'radiusd' if heap memory has accumulated.

• **CSCuc30874**

Basic Description:

MGMT fails to resolve NH in ingress LC(0/6/cpu0) if prefix and NH are from different VRF (V500:U31) and imported via export-map.

Symptom:

Routes imported from another vrf (on another LC) shows as unresolved in cef.

Conditions:

When prefix (from a vrf on a LC) is exported via export route-policy with additive route-target instead of export route-target configuration to another vrf on another LC.

Workaround:

Use export route-target configuration to export the routes in stead of route-policy or disable selective vrf download.

Caveats Specific to the Cisco CRS Router

The following open caveats are specific to the Cisco CRS platform:

- **CSCub93111**

Basic Description:

On Cisco CRS-3 Carrier Routing System Back-to-Back profile with full scale, the metro line cards have low memory available. The services pie takes ~90MB memory which is not required on these cards.

Symptom:

Cisco CRS-3 Carrier Routing Systems with high scale on Edge profile in Cisco IOS XR Release 4.2.3, may run into memory issues on Cisco CRS-1 Carrier Routing System line cards after loading the services pie. A Wdsysmon messages similar to the following is observed.

LC/0/5/CPU0:Sep 21 08:12:51 : wdsysmon[405]: %HA-HA_WD-4-MEMORY_ALARM : Memory threshold crossed: Minor with 198.367MB free.

Conditions:

Memory issues are observed with Cisco CRS-1 Carrier Routing System line cards on Cisco CRS-3 Carrier Routing System running high scale with edge profile after loading services pie.

Workaround:

Customers requiring services pie on Cisco CRS-3 Carrier Routing System running edge profile configuration should budget for a 30% reduction in supported release scale.

- **CSCuc09108**

Basic Description:

Unable to upgrade due to SP bootflash reporting wrong memory values.

Symptom:

Install operations fail on Cisco Carrier Routing Systems (CRS) due to stale space on SP nodes. This issue is more likely to occur on a system that over time has accumulated install operations. Once the issue is encountered, any further install operations are blocked until the stale space is cleaned up.

Conditions:

Occasionally observed on CRS systems that have a buildup of install operations over time.

Workaround:

When the issue is hit, enter the **sh filesystem bootflash: all location all** command in admin mode to get a list of all SP nodes in the system including nodes that indicate stale space. Then enter the **bootflash reclaim** command in admin mode to reclaim stale space for all nodes in the system.

- **CSCub87255**

Basic Description:

The gsp ping on admin system group fails, check **show health gsp**.

Symptom:

In Multi-chassis systems with seven or more LCCs and two or more FCCs running Cisco IOS XR, Release 4.2.3 and later releases, the **show health gsp** command output occasionally drops packets for multiple nodes. This behavior is inconsistent. However this does not cause any impact to the functionality of the system. The following example shows the **show health gsp** command output:

```
RP/0/RP0/CPU0:a1#show health gsp
Wed Oct 24 08:39:30.334 PDT
-----
In case this blocks for more than 5 minutes, Ctrl-C to abort
and contact gsp team for further triage.
-----
1) Verifying admin transport ...
   admin transport is healthy.
2) Verifying gsp admin system group ...
   Gsp ping on group 1 to the following node failed:
      6/12/CPU0
      1/11/CPU0
      7/2/CPU0
      6/4/CPU0
      2/3/CPU0
   Detect a gsp issue. Contact GSP team to triage further
RP/0/RP0/CPU0:a1#
```

Conditions:

Observed only on multi-chassis systems with seven or more LCCs and two or more FCCs.

Workaround:

None.

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

Migrating Cisco CRS-1 to CRS-3

For information about migrating from a Cisco CRS-1 to a Cisco CRS-3 chassis, refer to the *Cisco CRS-1 Carrier Routing System to Cisco CRS-3 Carrier Routing System Migration Guide* at the URL http://www.cisco.com/en/US/products/ps5763/prod_installation_guides_list.html

Troubleshooting

For information on troubleshooting Cisco IOS XR Software, see the *Cisco IOS XR Troubleshooting Guide for the Cisco CRS router* and the *Cisco IOS XR Getting Started Guide for the Cisco CRS router*

Related Documentation

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

http://www.cisco.com/en/US/products/ps5763/tsd_products_support_series_home.html

The Cisco IOS XR Software documentation set includes the Cisco IOS XR software configuration guides and command references, as well as a getting started guide.

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

http://www.cisco.com/en/US/products/ps5763/tsd_products_support_series_home.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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