



Release Notes for Cisco CRS-1 and Cisco CRS-3 for Cisco IOS XR Software Release 4.0.1

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Cisco IOS XR Software Release 4.0.1

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These release notes describe the features provided in the Cisco IOS XR Software Release 4.0.1 for the Cisco CRS Router and are updated as needed.



Note For information on the Cisco CRS Router running Cisco IOS XR Software Release 4.0.1, see the [“Important Notes” section on page 63](#).

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 4.0.1, see the [“Caveats” section on page 68](#). 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/public/support/tac/fn_index.html

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- [Determining Your Software Version, page 27](#)
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Introduction

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

Cisco IOS XR software running on the Cisco CRS Router provides the following features and benefits:

- **IP and Routing**—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 features (VRRP).
- **BGP Prefix Independent Convergence**—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)**—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**—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)**—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**—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**—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**—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**—Delivers IPv6 traffic over an IPv4/MPLS core with IPv6 provider edge router (6PE) support.
- **IPv6 VPN over MPLS (6VPE) support**—Delivers IPv6 VPN over MPLS (IPv6) VPN traffic over an IPv4 or MPLS core with 6VPE support.
- **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 4.0.1, see the [“New Features in Cisco IOS XR Software Release 4.0.1”](#) section on page 59 in this document.

System Requirements

This section describes the system requirements for Cisco IOS XR Software Release 4.0.1 supported on the Cisco CRS Router. The system requirements include the following information:

- [Cisco CRS-1 Feature Set Table, page 3](#)
- [Memory Requirements, page 7](#)
- [Hardware Supported, page 8](#)
- [Software Compatibility, page 12](#)
- [Other Firmware Support, page 13](#)

To determine the software versions or levels of your current system, see the [“Determining Your Software Version”](#) section on page 27.

Cisco CRS-1 Feature Set Table

Cisco IOS XR software is packaged in *feature sets* (also called *software images*). Each feature set contains a specific set of Cisco IOS XR Software Release 4.0.1 features.

[Table 1](#) lists the Cisco IOS XR software feature set matrix (PIE files) and associated filenames available for the Cisco IOS XR Software Release 4.0.1 supported on the Cisco CRS-1 Series Router.

Table 1 *Cisco CRS-1 Supported Feature Sets
(Cisco IOS XR Software Release 4.0.1 PIE Files)*

Feature Set	Filename	Description
Composite Package		
Cisco IOS XR IP Unicast Routing Core Bundle	hfr-mini-p-4.0.1	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-p.vm-4.0.1	Contains the required core packages including OS, Admin, Base, Forwarding, Modular Services Card, Routing, SNMP Agent, and Alarm Correlation.
Optional Individual Packages¹		
Cisco IOS XR Manageability Package	hfr-mgbl-p.pie-4.0.1	CORBA ² agent, XML ³ Parser, and HTTP server packages.
Cisco IOS XR MPLS Package	hfr-mpls-p.pie-4.0.1	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-p.pie-4.0.1	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-p.pie-4.0.1	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-p.pie-4.0.1	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-p.pie-4.0.1	Diagnostic utilities for Cisco IOS XR routers.
Cisco IOS XR Documentation Package	hfr-doc-p.pie-4.0.1	.man pages for Cisco IOS XR software on the Cisco CRS chassis.
Cisco IOS XR Carrier Grade NAT Package	hfr-cgn-p.pie-4.0.1	Support for Carrier Grade NAT on Cisco CRS routers.

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 lists the Cisco CRS-1 Router TAR files.

Table 2 Cisco CRS-1 and Cisco CRS-3 Supported Feature Sets
(Cisco IOS XR Software Release 4.0.1 TAR Files)

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software	CRS-1-iosxr-4.0.1.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 Diagnostic Package • Cisco IOS XR FPD Package
Cisco IOS XR IP/MPLS Core Software 3DES	CRS-1-iosxr-k9-4.0.1.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

Cisco CRS-3 Feature Set Table

Table 3 lists the Cisco IOS XR software feature set matrix (PIE files) and associated filenames available for the Cisco IOS XR Software Release 4.0.1 supported on the Cisco CRS-3 Router.

Table 3 *Cisco CRS-3 Supported Feature Sets
(Cisco IOS XR Software Release 4.0.1 PIE Files)*

Feature Set	Filename	Description
Composite Package		
Cisco IOS XR IP Unicast Routing Core Bundle	hfr-mini-px-4.0.1	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-4.0.1	Contains the required core packages including OS, Admin, Base, Forwarding, Modular Services Card, Routing, SNMP Agent, and Alarm Correlation.
Optional Individual Packages¹		
Cisco IOS XR Manageability Package	hfr-mgbl-px.pie-4.0.1	CORBA ² agent, XML ³ Parser, and HTTP server packages.
Cisco IOS XR MPLS Package	hfr-mpls-px.pie-4.0.1	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-4.0.1	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-4.0.1	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-4.0.1	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-4.0.1	Diagnostic utilities for Cisco IOS XR routers.
Cisco IOS XR Documentation Package	hfr-doc-px.pie-4.0.1	.man pages for Cisco IOS XR software on the Cisco CRS chassis.
Cisco IOS XR Carrier Grade NAT Package	hfr-cgn-px.pie-4.0.1	Support for Carrier Grade NAT on Cisco CRS routers.

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 4 lists the Cisco CRS-3 Router TAR files.

Table 4 Cisco CRS-3 Supported Feature Sets
(Cisco IOS XR Software Release 4.0.1 TAR Files)

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software	CRS-iosxr-px-4.0.1.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 Diagnostic Package • Cisco IOS XR FPD Package
Cisco IOS XR IP/MPLS Core Software 3DES	CRS-iosxr-px-k9-4.0.1.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 4.0.1 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 USB on MSC-140 and FP-140
- 2-GB PCMCIA Flash Disk

Hardware Supported

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

[Table 5](#) lists the supported hardware components on the Cisco CRS and the minimum required software versions. For more information, see the [“Other Firmware Support” section on page 13](#).



Note

With Cisco IOS XR Release 4.0.0 PX, CRS MSC-140 or CRS FP-140 can only be used for Provider (P) router configuration. With Cisco IOS XR Software Release 4.0.1 PX, 6PE alone is supported in Cisco CRS-3 Routers as a PE feature. No other PE edge facing feature is supported in Cisco CRS-3 Routers with Cisco IOS XR Software Release 4.0.1. Also, with Cisco IOS XR Software Release 4.0.1 PX, the CRS-3 can be positioned at the edge as a pure Layer 3 edge router, with no VPN features. Please contact your Cisco representative for more information.

Table 5 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

Table 5 Cisco CRS Supported Hardware and Minimum Software Requirements (continued)

Component	Part Number	Support from Version
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 Series 4-Slot Line Card Chassis		
Cisco CRS-1 4-Slot Single-Shelf System	CRS-4/S	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

Table 5 Cisco CRS Supported Hardware and Minimum Software Requirements (continued)

Component	Part Number	Support from Version
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 1 GB	CRS-FLASH-DISK-1G	3.2
Cisco CRS PCM CIA Flash Disk 2 GB	CRS-FLASH-DISK-2G	3.7
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 SFPs		
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
Cisco CRS Fabric Cards		
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 Router 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 16-Slot Route Processor	CRS-16-RP	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

Table 5 Cisco CRS Supported Hardware and Minimum Software Requirements (continued)

Component	Part Number	Support from Version
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 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-3c/STM-1 and OC-12c/STM-4 POS SPA	SPA-2XOC12-POS	3.6.1
Cisco CRS 4-Port OC-3c/STM-1 and OC-12c/STM-4 POS SPA	SPA-4XOC12-POS	3.6.1
Cisco CRS 1-Port OC-48c/STM-16c POS/RPR Shared Port Adapter	SPA-1XOC48-POS/RPR	3.6.1
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 4-Port OC-3c/STM-1 POS Shared Port Adapter Version 2	SPA-4XOC3-POS-V2	3.6.0
Cisco CRS 8-Port OC-3c/STM-1 POS Shared Port Adapter	SPA-8XOC3-POS	3.6.0
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

Table 5 Cisco CRS Supported Hardware and Minimum Software Requirements (continued)

Component	Part Number	Support from Version
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	3.9.1
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-1 Carrier Grade Service Engine Interface Modules		
Cisco CRS-1 Series Carrier Grade Service Engine PLIM	CRS-CGSE-PLIM	3.9.1
Cisco CRS-1 Optical to Electrical Modules		
10GBASE-LR XENPAK Module for Cisco CRS	XENPAK-10GB-LR	3.2
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

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 Multi Chassis License 140G

Software Compatibility

Cisco IOS XR Software Release 4.0.1 is compatible with the following Cisco CRS-1 systems:

- Cisco CRS 4-Slot Line Card Chassis
- Cisco CRS 8-Slot Line Card Chassis
- Cisco CRS 16-Slot Line Card Chassis
- Cisco CRS Multishelf

Cisco IOS XR Software Release 4.0.1 is compatible with the following Cisco CRS-3 systems:

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

Other Firmware Support

The Cisco CRS supports the following firmware code:

- The minimum ROMMON version required for this release is 2.01. For more information about ROMMON specifications, see http://www.cisco.com/web/Cisco_IOS_XR_Software/index.html. For information about upgrading the ROMMON, refer to the *Cisco IOS XR ROM Monitor Guide for the Cisco CRS-1 Router* at: http://www.cisco.com/en/US/products/ps5763/products_installation_and_configuration_guides_list.html
- The minimum CPUCNTRL version required for this release is 2.07. For more information about CPU controller bits, refer to the *Cisco IOS XR System Management Configuration Guide for the Cisco CRS-1 Router* at: http://www.cisco.com/en/US/products/ps5763/products_installation_and_configuration_guides_list.html

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

Cisco CRS-1 show fpd package Output

```
!! File saved at 18:50:26 PDT Wed Aug 18 2010 by lab
=====
                                Field Programmable Device Package
                                =====
                                SW      Min Req
Min Req
Card Type          FPD Description          Type Subtype  Version  SW Ver
HW Vers
=====
S2
  0.0              FPGA 4.02                  1c  fpga2      4.02     0.0
  0.0              FPGA 5.00                  1c  fpga3      5.00     0.0
  0.0              FPGA 5.03 spb             1c  fpga1      5.03     0.0
  0.0              ROMMONA swv2.1 spb        1c  rommonA    2.01     0.0
  0.0              ROMMONB swv2.1 spb        1c  rommon     2.01     0.0
-----
140G-S1S2S3
  0.0              FPGA 4.01                  1c  fpga2      4.01     0.0
  0.0              FPGA 5.03 spb             1c  fpga1      5.03     0.0
  0.0              ROMMONA swv2.1 spb        1c  rommonA    2.01     0.0
  0.0              ROMMONB swv2.1 spb        1c  rommon     2.01     0.0
-----
Fabric HS123 Superst
  0.0              FPGA 4.00                  1c  fpga2      4.00     0.0
  0.0              FPGA 5.03 spb             1c  fpga1      5.03     0.0
```

0.0	ROMMONA swv2.1 spb	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 spb	lc	rommon	2.01	0.0

140G-4-S1S2S3	FPGA 4.01	lc	fpga2	4.01	0.0
0.0	FPGA 5.03 spb	lc	fpga1	5.03	0.0
0.0	ROMMONA swv2.1 spb	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 spb	lc	rommon	2.01	0.0

140G-S1S3	FPGA 4.01	lc	fpga2	4.01	0.0
0.0	FPGA 5.03 spb	lc	fpga1	5.03	0.0
0.0	ROMMONA swv2.1 spb	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 spb	lc	rommon	2.01	0.0

140G-S1S2S3-2	FPGA 4.01	lc	fpga2	4.01	0.0
0.0	FPGA 5.03 spb	lc	fpga1	5.03	0.0
0.0	ROMMONA swv2.1 spb	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 spb	lc	rommon	2.01	0.0
0.0					

140G-MSC	FPGA Linecard 0.35	lc	fpga2	0.35	0.0
0.0	FPGA CPU 0.8	lc	fpga1	0.08	0.0
0.0	ROMMONA swv2.1 kensho	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 kensho	lc	rommon	2.01	0.0
0.0					

FP-140G	FPGA Linecard 0.35	lc	fpga2	0.35	0.0
0.0	FPGA CPU 0.8	lc	fpga1	0.08	0.0
0.0	ROMMONA swv2.1 kensho	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 kensho	lc	rommon	2.01	0.0
0.0					

10C768-ITU/C	OPTICS FIRMWARE 110B10	lc	fpga2	110.10	0.0
0.0					

10C768-DWDM-L	OPTICS FIRMWARE 110B10	lc	fpga2	110.10	0.0
0.0					

10C768-DPSK/C	OPTICS FIRMWARE 110B14	lc	fpga2	110.14	0.0
0.0					

10C768-DPSK/C-O	OPTICS FIRMWARE 110B14	lc	fpga2	110.14	0.0
0.0					

10C768-DPSK/C-E	OPTICS FIRMWARE 110B14	lc	fpga2	110.14	0.0
0.0					

CRS-CGSE-PLIM 0.0	FPGA mCPU0 0.559	1c	fpga2	0.559	0.0
0.0	FPGA sCPU0 0.559	1c	fpga3	0.559	0.0
0.0	FPGA mCPU1 0.559	1c	fpga4	0.559	0.0
0.0	FPGA sCPU1 0.559	1c	fpga5	0.559	0.0
0.0	FPGA PLIM_SVC 0.41014	1c	fpga1	0.41014	0.0
20-10GBE 0.0	PLIM FPGA 42.0	1c	fpga3	42.00	0.0
12-10GBE 0.0	PLIM FPGA 42.0	1c	fpga3	42.00	0.0
1-100GBE 0.0	PLIM FPGA 19.0	1c	fpga3	19.00	0.0
0.0	RX MAC FPGA 44.0	1c	fpga4	44.00	0.0
0.0	TX MAC FPGA 29.0	1c	fpga5	29.00	0.0
14-10GBE 0.0	PLIM FPGA 42.0	1c	fpga3	42.00	0.0
CRS1-SIP-800 0.0	JACKET FPGA swv6.0	1c	fpga1	6.00	5.0
0.80	FPGA swv6.0 hwv80	1c	fpga1	6.00	5.0
8-10GBE 0.0	FPGA swvA.0	1c	fpga1	10.00	0.0
OC48-POS-16-ED 0.0	FPGA PLIM_OC48 9.0	1c	fpga1	9.00	0.0
4-10GBE 0.0	FPGA sw_4p_v15.0	1c	fpga1	15.00	0.0
8-10GBE 0.0	FPGA sw_8p_v15.0	1c	fpga1	15.00	0.0
4-10GE 0.0	SQUIRREL FPGA 10.0	1c	fpga1	10.00	0.0
42-1GE 0.0	FPGA swv6.0	1c	fpga1	6.00	0.0
0.80	FPGA swv6.0 hwv0.80	1c	fpga1	6.00	0.0
20-1GE-FLEX 0.0	FPGA swv6.0	1c	fpga1	6.00	0.0
0.80	FPGA swv6.0 hwv0.80	1c	fpga1	6.00	0.0
2-10GE-WL-FLEX 0.0	FPGA swv6.0	1c	fpga1	6.00	0.0
0.80	FPGA swv6.0 hwv0.80	1c	fpga1	6.00	0.0
FAN	FPGA 5.02 spb	1c	fpga1	5.02	0.0

0.0						
		ROMMONA swv2.1 spb	lc	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 spb	lc	rommon	2.01	0.0
0.0						

Route Processor		ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0						
		ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0						

SC		ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0						
		ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0						

RP		ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0						
		ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0						

Shelf Controller GE		ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0						
		ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0						

RP		ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0						
		ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0						

Shelf Controller GE2		ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0						
		ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0						

DRP		ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0						

0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

DRP_B 0.0	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

S1S2S3 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

S1S3 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

S2 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

Fabric HS123 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

Fabric QQS123 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

LED 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

40G-MS 0.0	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0

MSC_B	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
FP40	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
PSAL	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
PSAL	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
FAN	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
FC Fan Controller	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
LED	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
SPA-4XT3/E3	SPA E3 Subrate FPGA	spa	fpga2	1.04	0.0
0.0	SPA T3 Subrate FPGA	spa	fpga3	1.04	0.0
0.0	SPA I/O FPGA	spa	fpga1	1.00	0.0
0.0	SPA ROMMON	spa	rommon	2.12	0.0
SPA-2XT3/E3	SPA E3 Subrate FPGA	spa	fpga2	1.04	0.0
0.0	SPA T3 Subrate FPGA	spa	fpga3	1.04	0.0

0.0	SPA I/O FPGA	spa fpga1	1.00	0.0
0.0	SPA ROMMON	spa rommon	2.12	0.0
0.0				
SPA-OC192POS 0.0	SPA FPGA swv1.3	spa fpga1	1.03	0.0
SPA-8XOC12-POS 0.5	SPA FPGA swv1.0	spa fpga1	1.00	0.0
SPA-4XOC3-POS 0.0	SPA FPGA swv3.4	spa fpga1	3.04	0.0
SPA-OC192POS-XFP 0.0	SPA FPGA swv1.2	spa fpga1	1.02	0.0
SPA-8X1GE 0.0	SPA FPGA swv1.8	spa fpga1	1.08	0.0
SPA-2XOC48POS/RPR 0.0	SPA FPGA swv1.0	spa fpga1	1.00	0.0
SPA-4XOC48POS/RPR 0.0	SPA FPGA swv1.0	spa fpga1	1.00	0.0
SPA-1XOC48POS/RPR 0.0	SPA FPGA swv1.2	spa fpga1	1.02	0.0
SPA-8XOC3-POS 0.5	SPA FPGA swv1.0	spa fpga1	1.00	0.0
0.5	SPA FPGA swv1.0	spa fpga1	1.00	0.0
SPA-2XOC12-POS 0.5	SPA FPGA swv1.0	spa fpga1	1.00	0.0
SPA-4XOC12-POS 0.5	SPA FPGA swv1.0	spa fpga1	1.00	0.0
SPA-10X1GE-V2 0.0	SPA FPGA swv1.10	spa fpga1	1.10	0.0
SPA-8X1GE-V2 0.0	SPA FPGA swv1.10	spa fpga1	1.10	0.0
SPA-5X1GE-V2 0.0	SPA FPGA swv1.10	spa fpga1	1.10	0.0
SPA-1X10GE-L-V2 0.0	SPA FPGA swv1.11	spa fpga1	1.11	0.0
SPA-4XOC3-POS-V2 0.5	SPA FPGA swv1.0	spa fpga1	1.00	0.0
SPA-1X10GE-WL-V2 0.0	SPA FPGA swv1.11	spa fpga1	1.11	0.0
SPA-1XOC3-ATM-V2 0.0	SPA FPGA swv1.2	spa fpga1	2.02	0.0
SPA-2XOC3-ATM-V2 0.0	SPA FPGA swv1.2	spa fpga1	2.02	0.0

```

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

```

Cisco CRS-3 show fpd package Output

Sat Oct 23 22:17:07.679 PST

```

=====
                                Field Programmable Device Package
                                =====
                                SW      Min Req
Min Req
Card Type          FPD Description          Type Subtype  Version  SW Ver
HW Vers
=====
S2
  0.0              FPGA 4.02                lc  fpga2      4.02     0.0
  0.0              FPGA 5.00                lc  fpga3      5.00     0.0
  0.0              FPGA 5.03 spb           lc  fpga1      5.03     0.0
  0.0              ROMMONA swv2.1 spb      lc  rommonA    2.01     0.0
  0.0              ROMMONB swv2.1 spb     lc  rommon     2.01     0.0
-----
140G-S1S2S3
  0.0              FPGA 4.01                lc  fpga2      4.01     0.0
  0.0              FPGA 5.03 spb           lc  fpga1      5.03     0.0
  0.0              ROMMONA swv2.1 spb      lc  rommonA    2.01     0.0
  0.0              ROMMONB swv2.1 spb     lc  rommon     2.01     0.0
-----
Fabric HS123 Superst
  0.0              FPGA 4.00                lc  fpga2      4.00     0.0
  0.0              FPGA 5.03 spb           lc  fpga1      5.03     0.0
  0.0              ROMMONA swv2.1 spb      lc  rommonA    2.01     0.0
  0.0              ROMMONB swv2.1 spb     lc  rommon     2.01     0.0
-----
140G-4-S1S2S3
  0.0              FPGA 4.01                lc  fpga2      4.01     0.0
  0.0              FPGA 5.03 spb           lc  fpga1      5.03     0.0
  0.0              ROMMONA swv2.1 spb      lc  rommonA    2.01     0.0
  0.0              ROMMONB swv2.1 spb     lc  rommon     2.01     0.0
-----
140G-S1S3
  0.0              FPGA 4.01                lc  fpga2      4.01     0.0
  0.0              FPGA 5.03 spb           lc  fpga1      5.03     0.0
  0.0              ROMMONA swv2.1 spb      lc  rommonA    2.01     0.0

```

0.0						
	ROMMONB swv2.1 spb	1c	rommon	2.01	0.0	
0.0						
140G-S1S2S3-2	FPGA 4.01	1c	fpga2	4.01	0.0	
0.0						
	FPGA 5.03 spb	1c	fpga1	5.03	0.0	
0.0						
	ROMMONA swv2.1 spb	1c	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 spb	1c	rommon	2.01	0.0	
0.0						
140G-MSC	FPGA Linecard 0.35	1c	fpga2	0.35	0.0	
0.0						
	FPGA CPU 0.8	1c	fpga1	0.08	0.0	
0.0						
	ROMMONA swv2.1 kensho	1c	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 kensho	1c	rommon	2.01	0.0	
0.0						
FP-140G	FPGA Linecard 0.35	1c	fpga2	0.35	0.0	
0.0						
	FPGA CPU 0.8	1c	fpga1	0.08	0.0	
0.0						
	ROMMONA swv2.1 kensho	1c	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 kensho	1c	rommon	2.01	0.0	
0.0						
10C768-ITU/C	OPTICS FIRMWARE 110B10	1c	fpga2	110.10	0.0	
0.0						
10C768-DWDM-L	OPTICS FIRMWARE 110B10	1c	fpga2	110.10	0.0	
0.0						
10C768-DPSK/C	OPTICS FIRMWARE 110B14	1c	fpga2	110.14	0.0	
0.0						
10C768-DPSK/C-O	OPTICS FIRMWARE 110B14	1c	fpga2	110.14	0.0	
0.0						
10C768-DPSK/C-E	OPTICS FIRMWARE 110B14	1c	fpga2	110.14	0.0	
0.0						
CRS-CGSE-PLIM	FPGA mCPU0 0.559	1c	fpga2	0.559	0.0	
0.0						
	FPGA sCPU0 0.559	1c	fpga3	0.559	0.0	
0.0						
	FPGA mCPU1 0.559	1c	fpga4	0.559	0.0	
0.0						
	FPGA sCPU1 0.559	1c	fpga5	0.559	0.0	
0.0						
	FPGA PLIM_SVC 0.41014	1c	fpga1	0.41014	0.0	
0.0						
20-10GBE	PLIM FPGA 42.0	1c	fpga3	42.00	0.0	
0.0						
12-10GBE	PLIM FPGA 42.0	1c	fpga3	42.00	0.0	
0.0						
1-100GBE	PLIM FPGA 19.0	1c	fpga3	19.00	0.0	

0.0						
		RX MAC FPGA 44.0	1c	fpga4	44.00	0.0
0.0						
		TX MAC FPGA 29.0	1c	fpga5	29.00	0.0
0.0						
14-10GBE		PLIM FPGA 42.0	1c	fpga3	42.00	0.0
0.0						
CRS1-SIP-800		JACKET FPGA swv6.0	1c	fpga1	6.00	5.0
0.0						
		FPGA swv6.0 hww80	1c	fpga1	6.00	5.0
0.80						
8-10GBE		FPGA swvA.0	1c	fpga1	10.00	0.0
0.0						
OC48-POS-16-ED		FPGA PLIM_OC48 9.0	1c	fpga1	9.00	0.0
0.0						
4-10GBE		FPGA sw_4p_v15.0	1c	fpga1	15.00	0.0
0.0						
8-10GBE		FPGA sw_8p_v15.0	1c	fpga1	15.00	0.0
0.0						
4-10GE		SQUIRREL FPGA 10.0	1c	fpga1	10.00	0.0
0.0						
42-1GE		FPGA swv6.0	1c	fpga1	6.00	0.0
0.0						
		FPGA swv6.0 hww0.80	1c	fpga1	6.00	0.0
0.80						
20-1GE-FLEX		FPGA swv6.0	1c	fpga1	6.00	0.0
0.0						
		FPGA swv6.0 hww0.80	1c	fpga1	6.00	0.0
0.80						
2-10GE-WL-FLEX		FPGA swv6.0	1c	fpga1	6.00	0.0
0.0						
		FPGA swv6.0 hww0.80	1c	fpga1	6.00	0.0
0.80						
FAN		FPGA 5.02 spb	1c	fpga1	5.02	0.0
0.0						
		ROMMONA swv2.1 spb	1c	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 spb	1c	rommon	2.01	0.0
0.0						
Route Processor		ROMMONA swv2.1 asmp	1c	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	1c	rommonA	2.01	0.0
0.0						
		ROMMONB swv2.1 asmp	1c	rommon	2.01	0.0
0.0						
		ROMMONB swv2.1 dsmp	1c	rommon	2.01	0.0
0.0						
SC		ROMMONA swv2.1 asmp	1c	rommonA	2.01	0.0
0.0						
		ROMMONA swv2.1 dsmp	1c	rommonA	2.01	0.0
0.0						

0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	

RP	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0	
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	

Shelf Controller GE	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0	
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	

RP	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0	
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	

Shelf Controller GE2	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0	
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	

DRP	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0	
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0	

DRP_B	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0	
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0	
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	

0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
S1S2S3 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
S1S3 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
S2 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
Fabric HS123 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
Fabric QQS123 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
LED 0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
40G-MSC 0.0	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
MSC_B 0.0	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0
0.0	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0
0.0	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0
FP40 0.0	ROMMONA swv2.1 asmp	lc	rommonA	2.01	0.0
0.0	ROMMONA swv2.1 dsmp	lc	rommonA	2.01	0.0
	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0

0.0						
	ROMMONB swv2.1 asmp	lc	rommon	2.01	0.0	
0.0						
	ROMMONB swv2.1 dsmp	lc	rommon	2.01	0.0	
0.0						
	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0	
0.0						
PSAL	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0	
0.0						
PSAL	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0	
0.0						
FAN	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0	
0.0						
FC Fan Controller	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0	
0.0						
LED	ROMMONA swv2.1 sp	lc	rommonA	2.01	0.0	
0.0						
	ROMMONB swv2.1 sp	lc	rommon	2.01	0.0	
0.0						
SPA-4XT3/E3	SPA E3 Subrate FPGA	spa	fpga2	1.04	0.0	
0.0						
	SPA T3 Subrate FPGA	spa	fpga3	1.04	0.0	
0.0						
	SPA I/O FPGA	spa	fpga1	1.00	0.0	
0.0						
	SPA ROMMON	spa	rommon	2.12	0.0	
0.0						
SPA-2XT3/E3	SPA E3 Subrate FPGA	spa	fpga2	1.04	0.0	
0.0						
	SPA T3 Subrate FPGA	spa	fpga3	1.04	0.0	
0.0						
	SPA I/O FPGA	spa	fpga1	1.00	0.0	
0.0						
	SPA ROMMON	spa	rommon	2.12	0.0	
0.0						
SPA-OC192POS	SPA FPGA swv1.3	spa	fpga1	1.03	0.0	
0.0						
SPA-8XOC12-POS	SPA FPGA swv1.0	spa	fpga1	1.00	0.0	
0.5						
SPA-4XOC3-POS	SPA FPGA swv3.4	spa	fpga1	3.04	0.0	
0.0						
SPA-OC192POS-XFP	SPA FPGA swv1.2	spa	fpga1	1.02	0.0	
0.0						
SPA-8X1GE	SPA FPGA swv1.8	spa	fpga1	1.08	0.0	

0.0						
SPA-2XOC48POS/RPR 0.0	SPA FPGA swv1.0		spa fpga1	1.00	0.0	
SPA-4XOC48POS/RPR 0.0	SPA FPGA swv1.0		spa fpga1	1.00	0.0	
SPA-1XOC48POS/RPR 0.0	SPA FPGA swv1.2		spa fpga1	1.02	0.0	
SPA-8XOC3-POS 0.5	SPA FPGA swv1.0		spa fpga1	1.00	0.0	
0.5	SPA FPGA swv1.0		spa fpga1	1.00	0.0	
SPA-2XOC12-POS 0.5	SPA FPGA swv1.0		spa fpga1	1.00	0.0	
SPA-4XOC12-POS 0.5	SPA FPGA swv1.0		spa fpga1	1.00	0.0	
SPA-10X1GE-V2 0.0	SPA FPGA swv1.10		spa fpga1	1.10	0.0	
SPA-8X1GE-V2 0.0	SPA FPGA swv1.10		spa fpga1	1.10	0.0	
SPA-5X1GE-V2 0.0	SPA FPGA swv1.10		spa fpga1	1.10	0.0	
SPA-1X10GE-L-V2 0.0	SPA FPGA swv1.11		spa fpga1	1.11	0.0	
SPA-4XOC3-POS-V2 0.5	SPA FPGA swv1.0		spa fpga1	1.00	0.0	
SPA-1X10GE-WL-V2 0.0	SPA FPGA swv1.11		spa fpga1	1.11	0.0	
SPA-1XOC3-ATM-V2 0.0	SPA FPGA swv1.2		spa fpga1	2.02	0.0	
SPA-2XOC3-ATM-V2 0.0	SPA FPGA swv1.2		spa fpga1	2.02	0.0	
SPA-3XOC3-ATM-V2 0.0	SPA FPGA swv1.2		spa fpga1	2.02	0.0	
SPA-1XOC12-ATM-V2 0.0	SPA FPGA swv1.2		spa fpga1	2.02	0.0	

Minimum Firmware Requirement

- After completing an RMA remember to upgrade the firmware as per this matrix:
http://www.cisco.com/web/Cisco_IOS_XR_Software/pdf/SoftwareFirmwareCompatibilityMatrix.pdf
- Links to PDF copies of the IOS XR Firmware Upgrade Guides are available here:
http://www.cisco.com/web/Cisco_IOS_XR_Software/index.html

Here's the link to the Cisco Systems IOS XR Firmware Upgrade Guide For CRS-1 and XR12000:

http://www.cisco.com/web/Cisco_IOS_XR_Software/pdf/IOSXRFirmwareUpgradeGuide.pdf

- 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 for the upgrade CLI:

http://www.cisco.com/en/US/docs/routers/crs/software/crs_r4.0/system_management/command/reference/yr40crs_chapter8.html

Determining Your Software Version

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

Cisco CRS-1 show version Output

Step 1 Establish a Telnet session with the router.

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

```
Cisco IOS XR Software, Version 4.0.1[Default] Copyright (c) 2010 by Cisco Systems, Inc.
```

```
ROM: System Bootstrap, Version 2.01(20100723:223432) [CRS-1 ROMMON],
```

```
STCRS1PE02-002 uptime is 18 hours, 44 minutes System image file is
"bootflash:disk0/hfr-os-mbi-4.0.1/mbihfr-rp.vm"
```

```
cisco CRS-8/S (7457) processor with 4194304K bytes of memory.
7457 processor at 1197Mhz, Revision 1.2
Cisco CRS Series 8 Slots Line Card Chassis
```

```
2 Management Ethernet
5 TenGigE
33 SONET/SDH
33 Packet over SONET/SDH
13 GigabitEthernet
1019k bytes of non-volatile configuration memory.
38079M bytes of hard disk.
3607548k bytes of disk0: (Sector size 512 bytes).
```

```
Boot device on node 0/0/CPU0 is mem:
```

```
Package active on node 0/0/CPU0:
```

```
iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
```

```
  Built on Mon Dec 13 20:12:12 PST 2010
```

```
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
```

```
iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
```

```
  Built on Mon Dec 13 20:12:21 PST 2010
```

```
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
```

```
iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
```

```
  Built on Mon Dec 13 20:15:54 PST 2010
```

```
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
```

```
iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
```

```
  Built on Mon Dec 13 20:12:36 PST 2010
```

```

By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Mon Dec 13 20:21:01 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Mon Dec 13 20:14:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Mon Dec 13 20:16:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Mon Dec 13 21:03:44 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-
supp-4.0.1
  Built on Mon Dec 13 21:03:19 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-
supp-4.0.1
  Built on Mon Dec 13 20:12:33 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Mon Dec 13 20:16:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
  Built on Mon Dec 13 20:20:54 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
Boot device on node 0/1/CPU0 is mem:
Package active on node 0/1/CPU0:
iosxr-mppls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mppls-4.0.1
  Built on Mon Dec 13 20:12:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Mon Dec 13 20:12:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Mon Dec 13 20:15:54 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Mon Dec 13 20:12:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Mon Dec 13 20:21:01 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Mon Dec 13 20:14:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Mon Dec 13 20:16:14 PST 2010

```

```

By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Mon Dec 13 21:03:44 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-
suppl-4.0.1
  Built on Mon Dec 13 21:03:19 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-
suppl-4.0.1
  Built on Mon Dec 13 20:12:33 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Mon Dec 13 20:16:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Mon Dec 13 20:20:54 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/2/CPU0 is mem:
Package active on node 0/2/CPU0:
iosxr-mpsl, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpsl-4.0.1
  Built on Mon Dec 13 20:12:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Mon Dec 13 20:12:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Mon Dec 13 20:15:54 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Mon Dec 13 20:12:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Mon Dec 13 20:21:01 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Mon Dec 13 20:14:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Mon Dec 13 20:16:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Mon Dec 13 21:03:44 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-
suppl-4.0.1
  Built on Mon Dec 13 21:03:19 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-

```

```

supp-4.0.1
  Built on Mon Dec 13 20:12:33 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Mon Dec 13 20:16:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Mon Dec 13 20:20:54 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/3/CPU0 is mem:
Package active on node 0/3/CPU0:
iosxr-mpis, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpis-4.0.1
  Built on Mon Dec 13 20:12:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Mon Dec 13 20:12:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Mon Dec 13 20:15:54 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Mon Dec 13 20:12:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Mon Dec 13 20:21:01 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Mon Dec 13 20:14:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Mon Dec 13 20:16:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Mon Dec 13 21:03:44 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-
supp-4.0.1
  Built on Mon Dec 13 21:03:19 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-
supp-4.0.1
  Built on Mon Dec 13 20:12:33 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Mon Dec 13 20:16:16 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Mon Dec 13 20:20:54 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/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:
hfr-doc-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-doc-suppl-4.0.1
    Built on Mon Dec 13 21:03:55 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-security, V 4.0.1[00], Cisco Systems, at disk0:iosxr-
security-4.0.1
    Built on Mon Dec 13 21:03:11 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mppls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mppls-4.0.1
    Built on Mon Dec 13 20:12:12 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mgbl, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mgbl-4.0.1
    Built on Mon Dec 13 20:12:02 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
    Built on Mon Dec 13 20:12:21 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
    Built on Mon Dec 13 20:15:54 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
    Built on Mon Dec 13 20:12:36 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
    Built on Mon Dec 13 20:21:01 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
    Built on Mon Dec 13 20:14:16 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
    Built on Mon Dec 13 20:16:14 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
    Built on Mon Dec 13 21:03:44 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-
suppl-4.0.1
    Built on Mon Dec 13 21:03:19 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-k9sec-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-k9sec-
suppl-4.0.1
    Built on Mon Dec 13 21:03:16 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mgbl-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mgbl-suppl-4.0.1
    Built on Mon Dec 13 20:12:10 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-
suppl-4.0.1

```

```

Built on Mon Dec 13 20:12:33 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Mon Dec 13 20:16:16 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
Built on Mon Dec 13 20:20:54 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/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:
hfr-doc-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-doc-supp-4.0.1
Built on Mon Dec 13 21:03:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-security, V 4.0.1[00], Cisco Systems, at disk0:iosxr-
security-4.0.1
Built on Mon Dec 13 21:03:11 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpis, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpis-4.0.1
Built on Mon Dec 13 20:12:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mgbl, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mgbl-4.0.1
Built on Mon Dec 13 20:12:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Mon Dec 13 20:12:21 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Mon Dec 13 20:15:54 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Mon Dec 13 20:12:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Mon Dec 13 20:21:01 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Mon Dec 13 20:14:16 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Mon Dec 13 20:16:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Mon Dec 13 21:03:44 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-
supp-4.0.1
Built on Mon Dec 13 21:03:19 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```



```

hfr-k9sec-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-k9sec-
suppl-4.0.1
    Built on Mon Dec 13 21:03:16 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mgbl-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mgbl-suppl-4.0.1
    Built on Mon Dec 13 20:12:10 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-
suppl-4.0.1
    Built on Mon Dec 13 20:12:33 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
    Built on Mon Dec 13 20:16:16 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
    Built on Mon Dec 13 20:20:54 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```

Cisco CRS-3 show version Output

Step 1 Establish a Telnet session with the router.

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

```

Cisco IOS XR Software, Version 4.0.1[Default]
Copyright (c) 2010 by Cisco Systems, Inc.

ROM: System Bootstrap, Version 2.01(20100723:223432) [CRS-1 ROMMON],

FQ-P1 uptime is 16 hours, 56 minutes
System image file is "bootflash:disk0/hfr-os-mpi-4.0.1/mbihfr-rp.vm"

cisco CRS-16/S (7457) processor with 4194304K bytes of memory.
7457 processor at 1197Mhz, Revision 1.2
Cisco CRS Series 16 Slots Line Card Chassis

2 Management Ethernet
4 HundredGigE
61 WANPHY controller(s)
5 GigabitEthernet
35 SONET/SDH
35 Packet over SONET/SDH
73 TenGigE
1019k bytes of non-volatile configuration memory.
38079M bytes of hard disk.
3607548k bytes of disk0: (Sector size 512 bytes).
2053440k bytes of disk1: (Sector size 512 bytes).

Boot device on node 0/0/SP is bootflash:
Package active on node 0/0/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
    Built on Tue Dec 14 04:24:36 PST 2010
    By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1

```

```

Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/0/CPU0 is mem:
Package active on node 0/0/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
Built on Tue Dec 14 04:24:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-suppl-4.0.1
Built on Tue Dec 14 04:24:59 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
Built on Tue Dec 14 04:24:57 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpi, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpi-4.0.1
Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```

```

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-suppl-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/1/SP is bootflash:
Package active on node 0/1/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/1/CPU0 is mem:
Package active on node 0/1/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-suppl-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```

```

iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Tue Dec 14 03:11:02 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Tue Dec 14 02:51:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/2/SP is bootflash:
Package active on node 0/2/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1

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Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supply, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supply-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/2/CPU0 is mem:
Package active on node 0/2/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
Built on Tue Dec 14 04:24:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supply, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supply-4.0.1
Built on Tue Dec 14 04:24:59 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
Built on Tue Dec 14 04:24:57 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpi, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpi-4.0.1
Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supply, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supply-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/3/SP is bootflash:
Package active on node 0/3/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/3/CPU0 is mem:
Package active on node 0/3/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supp-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Tue Dec 14 03:11:02 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Tue Dec 14 02:51:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/4/SP is bootflash:
Package active on node 0/4/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
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Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/4/CPU0 is mem:
Package active on node 0/4/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
Built on Tue Dec 14 04:24:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-sup, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-sup-4.0.1
Built on Tue Dec 14 04:24:59 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
Built on Tue Dec 14 04:24:57 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-sup, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-sup-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-sup, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-sup-4.0.1
Built on Tue Dec 14 02:46:21 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/5/CPU0 is lcdisk0:
Package active on node 0/5/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supp-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mps, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mps-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwng, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwng-4.0.1
  Built on Tue Dec 14 03:11:02 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwng, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwng-4.0.1
  Built on Tue Dec 14 02:51:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1

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Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/6/SP is bootflash:
Package active on node 0/6/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/6/CPU0 is mem:
Package active on node 0/6/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-suppl-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mppl, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mppl-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1

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Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-suppl-4.0.1
Built on Tue Dec 14 02:46:21 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/7/CPU0 is lcdisk0:
Package active on node 0/7/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
Built on Tue Dec 14 04:24:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-suppl-4.0.1
Built on Tue Dec 14 04:24:59 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
Built on Tue Dec 14 04:24:57 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpi, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpi-4.0.1
Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Tue Dec 14 02:51:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/8/CPU0 is lcdisk0:
Package active on node 0/8/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supp-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Tue Dec 14 03:11:02 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1

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Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-suppl-4.0.1
Built on Tue Dec 14 02:46:21 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/9/CPU0 is lcdisk0:
Package active on node 0/9/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
Built on Tue Dec 14 04:24:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-suppl-4.0.1
Built on Tue Dec 14 04:24:59 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
Built on Tue Dec 14 04:24:57 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpi, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpi-4.0.1
Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
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iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-suppl-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/10/SP is bootflash:
Package active on node 0/10/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/10/CPU0 is mem:
Package active on node 0/10/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-suppl-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mps, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mps-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Tue Dec 14 03:11:02 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Tue Dec 14 02:51:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/11/CPU0 is lcdisk0:
Package active on node 0/11/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supp-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1

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Built on Tue Dec 14 04:24:57 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-suppl-4.0.1
Built on Tue Dec 14 02:46:21 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/12/CPU0 is lcdisk0:
Package active on node 0/12/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
Built on Tue Dec 14 04:24:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-suppl-4.0.1
Built on Tue Dec 14 04:24:59 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
Built on Tue Dec 14 04:24:57 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Tue Dec 14 03:11:02 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Tue Dec 14 02:51:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/13/CPU0 is lcdisk0:
Package active on node 0/13/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supp-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1

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Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
Built on Tue Dec 14 02:46:21 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Configuration register on node 0/RP0/CPU0 is 0x2
Boot device on node 0/RP0/CPU0 is disk0:
Package active on node 0/RP0/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
Built on Tue Dec 14 04:24:36 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-doc-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-doc-supp-4.0.1
Built on Tue Dec 14 04:24:38 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supp-4.0.1
Built on Tue Dec 14 04:24:59 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
Built on Tue Dec 14 04:24:57 PST 2010

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By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-security, V 4.0.1[00], Cisco Systems, at disk0:iosxr-security-4.0.1
Built on Tue Dec 14 04:22:37 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
Built on Tue Dec 14 02:45:14 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-mgbl, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mgbl-4.0.1
Built on Tue Dec 14 02:44:46 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
Built on Tue Dec 14 02:45:42 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
Built on Tue Dec 14 02:55:55 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
Built on Tue Dec 14 02:46:26 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
Built on Tue Dec 14 03:11:02 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
Built on Tue Dec 14 02:51:12 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
Built on Tue Dec 14 02:56:45 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
Built on Tue Dec 14 04:23:51 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
Built on Tue Dec 14 04:23:00 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-k9sec-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-k9sec-supp-4.0.1
Built on Tue Dec 14 04:22:58 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-mgbl-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mgbl-supp-4.0.1
Built on Tue Dec 14 02:45:11 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
Built on Tue Dec 14 02:46:21 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
Built on Tue Dec 14 02:56:48 PST 2010
By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie
hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
Built on Tue Dec 14 03:10:49 PST 2010

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By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Configuration register on node 0/RP1/CPU0 is 0x2
Boot device on node 0/RP1/CPU0 is disk0:
Package active on node 0/RP1/CPU0:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-doc-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-doc-supp-4.0.1
  Built on Tue Dec 14 04:24:38 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-service-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-service-supp-4.0.1
  Built on Tue Dec 14 04:24:59 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-service, V 4.0.1[00], Cisco Systems, at disk0:iosxr-service-4.0.1
  Built on Tue Dec 14 04:24:57 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-security, V 4.0.1[00], Cisco Systems, at disk0:iosxr-security-4.0.1
  Built on Tue Dec 14 04:22:37 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mpls, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mpls-4.0.1
  Built on Tue Dec 14 02:45:14 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mgbl, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mgbl-4.0.1
  Built on Tue Dec 14 02:44:46 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-mcast, V 4.0.1[00], Cisco Systems, at disk0:iosxr-mcast-4.0.1
  Built on Tue Dec 14 02:45:42 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-routing, V 4.0.1[00], Cisco Systems, at disk0:iosxr-routing-4.0.1
  Built on Tue Dec 14 02:55:55 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fwding, V 4.0.1[00], Cisco Systems, at disk0:hfr-fwding-4.0.1
  Built on Tue Dec 14 03:11:02 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-fwding, V 4.0.1[00], Cisco Systems, at disk0:iosxr-fwding-4.0.1
  Built on Tue Dec 14 02:51:12 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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hfr-k9sec-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-k9sec-supp-4.0.1
  Built on Tue Dec 14 04:22:58 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mgbl-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mgbl-supp-4.0.1
  Built on Tue Dec 14 02:45:11 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-mcast-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-mcast-supp-4.0.1
  Built on Tue Dec 14 02:46:21 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/FC0/SP is bootflash:
Package active on node 0/FC0/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mbi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mbi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/FC1/SP is bootflash:
Package active on node 0/FC1/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

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hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/AM0/SP is bootflash:
Package active on node 0/AM0/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/AM1/SP is bootflash:
Package active on node 0/AM1/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```

```

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/SM0/SP is bootflash:
Package active on node 0/SM0/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/SM1/SP is bootflash:
Package active on node 0/SM1/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-suppl, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-suppl-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```

```

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/SM2/SP is bootflash:
Package active on node 0/SM2/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/SM3/SP is bootflash:
Package active on node 0/SM3/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```



```

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/SM4/SP is bootflash:
Package active on node 0/SM4/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/SM5/SP is bootflash:
Package active on node 0/SM5/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```

```

Boot device on node 0/SM6/SP is bootflash:
Package active on node 0/SM6/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

Boot device on node 0/SM7/SP is bootflash:
Package active on node 0/SM7/SP:
hfr-fit, V 4.0.1[00], Cisco Systems, at disk0:hfr-fit-4.0.1
  Built on Tue Dec 14 04:24:36 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-infra, V 4.0.1[00], Cisco Systems, at disk0:iosxr-infra-4.0.1
  Built on Tue Dec 14 02:46:26 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

iosxr-diags, V 4.0.1[00], Cisco Systems, at disk0:iosxr-diags-4.0.1
  Built on Tue Dec 14 02:56:45 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-fpd, V 4.0.1[00], Cisco Systems, at disk0:hfr-fpd-4.0.1
  Built on Tue Dec 14 04:23:51 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-diags-supp, V 4.0.1[00], Cisco Systems, at disk0:hfr-diags-supp-4.0.1
  Built on Tue Dec 14 04:23:00 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-base, V 4.0.1[00], Cisco Systems, at disk0:hfr-base-4.0.1
  Built on Tue Dec 14 02:56:48 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

hfr-os-mpi, V 4.0.1[00], Cisco Systems, at disk0:hfr-os-mpi-4.0.1
  Built on Tue Dec 14 03:10:49 PST 2010
  By sjc-lds-524 in /auto/srcarchive4/production/4.0.1/hfr/workspace for pie

```

New Features in Cisco IOS XR Software Release 4.0.1

The following sections contain information on new features and enhancements in Cisco IOS XR Software Release 4.0.1:

- [Cisco CRS Router-Specific Software Features, page 59](#)
- [Cisco CRS-3 Features, page 61](#)
- [New Hardware Features for the Cisco CRS Router, page 62](#)



Note

Cisco Session Border Controller (SBC) is not supported on any platform in Cisco IOS XR Software Release 4.0.1. Cisco IOS XR Software Release 3.7 is the last release that supports SBC.

Cisco CRS Router-Specific Software Features

The following new software features were introduced in Cisco IOS XR Software Release 4.0.1 on the Cisco CRS platform:

- IP Fast Reroute (IPFRR)—The following commands are introduced on the Cisco IOS XR Software Release 4.0.1:
 - ipfrr lfa
 - ipfrr lfa exclude interface

The following commands are modified to support this feature:

- fast-reroute per-link
- fast-reroute per-link exclude interface

For more information about these commands, refer to the *Cisco IOS XR Routing Command Reference* documentation.

- Destination Based Netflow Accounting (DBNA) for IPv4 Traffic—Destination-based NetFlow accounting is a usage-based billing application that tracks and records traffic according to its destination and enables service providers to do destination-specific accounting and billing.

For more information about DBNA, refer to the Destination-based NetFlow Accounting section of the *Cisco IOS XR Netflow Configuration Guide for the Cisco CRS Router*.



Note

DBNA is only supported on Cisco CRS-1 platforms.

- Lawful Intercept is the process by which law enforcement agencies conduct electronic surveillance of circuit and packet-mode communications, authorized by judicial or administrative order. This feature adds support for intercepting IPv6 packets, lawful intercept filters, intercepting 6VPE and 6PE packets, IPv6 MD encapsulation, and per TAP drop counters. The feature is available on MSC and FP based cards on the Cisco CRS router.

For more information about the Lawful Intercept IPv6 feature, refer to the Implementing Lawful Intercept section of the *Cisco IOS XR System Security Configuration Guide for the Cisco CRS Router*.

- VRF Aware NetFlow—VRF Aware NetFlow in IOX. BGP routing attributes will be downloaded to line cards and available to NetFlow to populate BGP peer-AS and destination-AS NetFlow fields when NetFlow is configured on a VRF enabled interface.

- BGP AD with LDP Signaling—The signaling of pseudowires between provider edge devices uses targeted LDP sessions to exchange label values and attributes and to configure the pseudowires.

For more information about this feature, refer to the of the BGP Auto Discovery With LDP Signaling section of the *Cisco IOS XR Virtual Private Network Configuration Guide for the Cisco CRS Router*.

- Support for POS SPAs—CRS-1 software changes to recognize POS SPAs in router inventory. Feature support for L1 Alarm handling and APS.

The following PoS SPAs are supported on the Cisco CRS-1 Router for Release 4.0.1:

- SPA-4XOC3-POS-V2
- SPA-8XOC3-POS
- SPA-2XOC12-POS
- SPA-4XOC12-POS
- SPA-1XOC48-POS/RPR

- LOCP QOS Group Set—This feature provides the ability to copy IP precedence value to qos-group for locally originated control packets (LOCP) on the RP. This feature can be turned on or off using a CLI.

```
RP/0/RP0/CPU0:R1#show run control-plane
control-plane
  local control-packets
    copy precedence qos-group
  !
!
```

The control packets generated by BGP/OSPF/LDP/PIM/RSVP-TE have IP precedence set to 6. This is copied to qos-group 6 if the above control plane configuration is present. This ensures that LOCP experiences the same QoS as transit control packets.

- MPLS TE Hop Limit—You can limit the number of hops traversed by MPLS-TE Tunnels. Cisco IOS XR Release 4.0.1 introduces the following new command:

```
router#(config-if) path-selection hop-limit <1-255>
```

- BFD Per Member Link—Beginning in Cisco IOS XR Release 4.0.1, the BFD feature supports BFD sessions on individual physical bundle member links to monitor Layer 3 connectivity on those links, rather than just at a single bundle member as in prior releases on the Cisco ASR 9000 Series Router.

When you run BFD on link bundles, you can run an independent BFD session on each underlying physical interface that is part of that bundle.

When BFD is running on a link bundle member, the following layers of connectivity are effectively tested as part of the interface state monitoring for BFD:

- Layer 1 physical state
- Layer 2 Link Access Control Protocol (LACP) state
- Layer 3 BFD state

The BFD agent on each bundle member link monitors state changes on the link. BFD agents for sessions running on bundle member links communicate with a bundle manager. The bundle manager determines the state of member links and the overall availability of the bundle. The state of the member links contributes to the overall state of the bundle based on the threshold of minimum active links or minimum active bandwidth that is configured for that bundle.

BFD Echo Latency Detection—Beginning in Cisco IOS XR 4.0.1, you can configure BFD sessions on non-bundle interfaces to bring down a BFD session when it exceeds the configured echo latency tolerance.

BFD Echo Startup Validation—Beginning in Cisco IOS XR Release 4.0.1, you can verify that the echo packet path is working and within configured latency thresholds before starting a BFD session on non-bundle interfaces.

Support for BFD over Link Bundles was added in Cisco IOS XR software Release 4.0.1 for the following PLIMs:

- 8-10GBE-WL-XFP
- 4-10GBE-WL-XFP
- 14-10GBE (14X10GBE-WL-XFP)
- 20-10GBE (20X10GBE-WL-XFP)
- 1X100GBE

For more information about BFD Per Member Link, refer to the *Cisco IOS XR Hardware and Interfaces Configuration Guide for the Cisco CRS Router*.

- Cisco CRS Series Modular Services Card 140G (CRS-MS-C-140G)—Cisco IOS XR software Release 4.0.1 introduces the following new features and changes for QoS for the Cisco CRS Series Modular Services Card 140G:
 - On the CRS-MS-C-140G, a police action must be configured in the same class as the priority action – this is a configuration change from the Cisco CRS Series Modular Services Card 40G (CRS-MS-C-40G).
 - The High Priority Propagation and Layer-all Accounting features were introduced on the CRS-MS-C-140G.

High Priority Propagation improves low latency treatment for high priority traffic, such as real-time voice and video traffic.

For Ethernet interfaces, Layer-all Accounting translates to 20 bytes of Layer 1 overhead in addition to the Layer 2 overhead. The CRS-MS-C-40G does Layer 3 QoS accounting for ingress queueing; it does Layer 2 QoS accounting for egress queueing, egress policing, and ingress policing.

For information about these features and also about priority queueing, ingress queueing, egress queueing, policing, and egress minimum bandwidth on the CRS-MS-C-140G, see the “Configuring Modular QoS Congestion Management on Cisco IOS XR Software” module in the *Cisco IOS XR Modular Quality of Service Configuration Guide for the Cisco CRS Router*.

Cisco CRS-3 Features



Note

With Cisco IOS XR Release 4.0.0 PX, CRS MSC-140 or CRS FP-140 can only be used for Provider (P) router configuration. Positioning these cards in Provider Edge (PE) router configuration is NOT supported even if they are inserted as core-facing uplink on a PE device. Please contact your Cisco representative for more information.

The following features are supported on the Cisco CRS-3 Router:

- IP/LDP LFA FRR
- 6PE
- BFD over Bundles support
- IPv4 Unicast, Multicast

- IPv6 Unicast, Multicast
- MPLS LDP, TE, FRR
- PBTS v4/v6/MPLS
- P2MP-TE
- BFD v4/v6
- QoS
- ACL
- uRPF, BGP-PA
- Sampled Netflow
- Link Bundles (Parity with MSC-40)
- 10GE WAN PHY
- Single Chassis (4 , 8, 16)
- CRS MSC-140 (same scale as FP-140 and Full QoS)
- CRS FP-140
- Online and Field Diagnostics

New Hardware Features for the Cisco CRS Router

The following new hardware features were introduced in Cisco IOS XR Software Release 4.0.1 on the Cisco CRS-3 Router:

- 1-port 100-GE CFP Physical Layer Interface Module (PLIM) (CRS-3 only)
- XFP10GLR-192SR-L-V01
- XFP10GER-192IR-L-V01
- CRS-3 Fan Controller

The fan control boards are responsible for monitoring and controlling fan speeds for two fan trays that reside in each chassis (line card). The Cisco CRS-3 fan controller card support the following:

- BITS interface for SONET/SDH synchronization and as a DTI interface to support timestamp transmission
- Single BITS interface and timestamp interface failure
- Hardware support for IEEE-1588 timestamp transmission (no software support in Cisco IOS XR Release 4.0.1)
- Full redundancy
- Single fan failure
- Single fan tray failure
- Single fan controller board failure
- Single fan interface cable failure

The following are the set of commands used to identify and operate the fan controller cards.

```
RP/0/RP0/CPU0:S16(admin)#show diag 0/FC0/SP
```

```
CARD 0/FC0/* : Cisco CRS Series LC Chassis Fan Controller
```

```

MAIN: board type 90016b
      768-19837-09 rev G0
      dev N/A
      S/N SAD141100TB
PCA:  73-7646-07 rev G0
PID:  CRS-16-LCC-F-CT-B
VID:  V03
CLEI:
ECI:  0

NODE 0/FC0/SP
Node State : IOS XR RUN
PLD:  Motherboard: N/A, Processor: N/A, Power: N/A
MONLIB: QNXFFS Monlib Version 3.4
ROMMON: Version 2.1(20100723:223626) [CRS-1 ROMMON]

RP/0/RP0/CPU0:S16(admin)#sh inventory 0/FC0/SP
NAME: "0/FC0/*", DESCR: "Cisco CRS Series LC Chassis Fan Controller"
PID: CRS-16-LCC-F-CT-B , VID: V03, SN: SAD141100TB

```

For more information on the new hardware features, refer to the *Cisco CRS Carrier Routing System Ethernet Physical Layer Interface Module Installation Note*.



Note Contact crs-pm@cisco.com for hardware availability.

Important Notes

- **Default timestamp setting**—The timestamp prompt that precedes console output is enabled by default in Cisco IOS XR Release 3.8. 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-1 Router*.
- From Cisco IOS XR Software Release 3.6.0, WRED statements are collapsed in that if different random-detect statements using the same match types (EXP, DSCP, Prec, and so forth) are entered with identical minimum and maximum threshold values, a single configuration line is shown in the output of **show running config**. This reduces the length of the configuration but creates a problem with backward compatibility with previous releases. In such a situation, on rollback, the QoS policy is rejected and must be manually entered again.

Configuration prior to Cisco IOS XR Software Release 3.6.0:

```

Policy-map wred_example
Class class-default
  random-detect exp 0 384 packets 484 packets
  random-detect exp 1 384 packets 484 packets
  random-detect exp 2 384 packets 484 packets
  random-detect exp 3 484 packets 584 packets
  random-detect exp 4 484 packets 584 packets
  random-detect discard-class 0 384 packets 484 packets
  random-detect discard-class 1 384 packets 484 packets
  random-detect discard-class 2 484 packets 584 packets
  bandwidth remaining percent 20

```

Cisco IOS XR Software Release 3.6.0 and later releases:

```

policy-map wred_example
class class-default
  random-detect exp 0,1,2 384 packets 484 packets

```

```

random-detect exp 3,4 484 packets 584 packets
random-detect discard-class 0,1 384 packets 484 packets
random-detect discard-class 2 484 packets 584 packets
bandwidth remaining percent 20
!
end-policy-map
!
end

```

In Cisco IOS XR Software Release 3.6.0 and later releases, the implicitly assigned QoS class `class-default` must have at least 1 percent bandwidth made available to it. This can be done either by assigning at least 1 percent explicitly (`bandwidth remaining percent 1`) or by ensuring that the total bandwidth assigned to all other classes in the policy is a maximum of 99 percent, leaving 1 percent available for the `class-default`. A QoS policy that does not have any bandwidth for `class-default` is rejected when upgrading to Cisco IOS XR Software Release 3.6.0 or later releases.

- **Country-specific laws, regulations, and licences**—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 RP removal**—For all card removal and replacement (including fabric cards, line cards, fan controller, and RP) follow the instructions provided by Cisco to avoid impact to traffic. See the *Cisco IOS XR Getting Started Guide for the Cisco CRS-1 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.
- The following commands are not supported on the Cisco CRS-1 Series Router:
 - `affinity location set`
 - `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:CRS-A(config)#bfd
RP/0/RP0/CPU0:CRS-A(config-bfd)#ipv6 checksum disable
RP/0/RP0/CPU0:CRS-A(config-bfd)#end

```
 - To enable BFD IPv6 UDP checksum calculation:


```

RP/0/RP0/CPU0:CRS-A(config)#bfd
RP/0/RP0/CPU0:CRS-A(config-bfd)#no ipv6 checksum disable
RP/0/RP0/CPU0:CRS-A(config-bfd)#end

```
- On upgrading CRS-1 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:

LDP session hold time <= (Hello hold time - 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, Release 4.0*.

- 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

- For Cisco IOS XR software Release 4.0.0 and above, after upgrading, the FPGA upgrade using the **auto-fpd upgrade** command as a part of the auto-fpd upgrade process fails for the SPA-1X10GE-L-V2 SPA. The workaround is to perform a manual FPGA upgrade on the SPA-1X10GE-L-V2 SPA using the **upgrade hw-module fpd fpga1 location 0/0/1** command in admin mode after the **auto-fpd upgrade** command execution completes.
- 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 group 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 4.0.1. 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>
- The following XFPs are supported in this release:
 - XFP-10G-MM-SR
 - XFP10GLR-192SR-L
 - XFP10GER-192IR-L
 - XFP-10GZR-OC192LR
 - 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

Reference caveat, CSCtk96820. Please contact your Cisco representative for more information on dates by which this will be available.

New DWDM Configuration Requirement



Note

This section describes only 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-1 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 router, 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

Summary of 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 4.0.1

Cisco IOS XR Software Release 4.0.1 requires a 2-GB Flash Disk as a minimum. If your Cisco CRS currently uses a 1-GB Flash Disk, you must upgrade it to 2-GB before upgrading to Cisco IOS XR Software Release 4.0.1. The PCMCIA 1-GB Flash Disk was the default size for the Cisco CRS running Cisco IOS XR Software Release 3.6 and earlier.

In Cisco IOS XR Software Release 3.6 and later releases, disk partitioning is supported. Partitioning of a 2-GB disk is possible but not required. Partitioning of a 4-GB disk is required.

A 4-GB Flash Disk can be installed instead of the 2-GB for greater disk storage.

To upgrade from a 1-GB flash disk to a 2-GB or 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

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 Release 4.0.1 software 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 4.0.1 and are not platform specific:

- **CSCtf70866**

Basic Description:

Scale enhancements in rds regarding timeouts.

Symptom:

The following trace back is seen on the router console:

```
rdsfs_svr[309]: %OS-RDS-7-QUERY_PEERS_TIMED_OUT : TID=10 Couldnt cmd=262 for GID=0x7d9
CHDL=0x40000009(0x40000009) #to_resp=6 req=6 got=0 state=0x10, expstate=0x20
preq_id=15 rds_type=1 : pkg/bin/rdsfs_svr : (PID=598104) : -Traceback= 4ce44d2c
4ce4877c 4ce545dc 4ce5868c 4ce58fc0 40012db8 40000c04 40005494 40006038 4c2c0a64
4c2c2250 4c2a2298 4c2a1604 4c2a03b0 4c29f9f0 4c28f3c4
```

Conditions:

On rare occasions, the trace back is seen on the router console under the following conditions:

1. RP or RSP Failover.
2. OIR or node reload.
3. Certain configuration removal, for example, snmp-server configuration. The nodes not responding in time leads to query peer requests to time out. During FO/OIR the membership view with in RDS might not be in sync with GSP. Requests that go out during this window tend to fail.

Workaround:

There is no workaround available for this issue.

Recovery:

The recovery is automatic. There is no functional impact on the node.

- **CSCtg40080**

Basic Description:

Show mrib route does not show proper “Flag” output for ExtranetV6

Symptom:

Flag field is incorrect in “show mrib route”

Conditions:

This issue occurs when you have IPv6 MVPN enabled.

Workaround:

There is no work around. It is a show command issue.

Further Problem Description:

None.

- **CSCth81761**

Basic Description:

%ROUTING-BGP-3-NEGCOUNTER msgs after router reload or APS switchover

Symptom:

%ROUTING-BGP-3-NEGCOUNTER msgs seen on console

Conditions:

The error messages were seen on performing a router reload or during APS switchover

Workaround:

None.

- **CSCti48713**

Basic Description:

SONET_SDH XML does not bind to correct path for history stats

Symptom:

'PM get path data failed : Invalid argument ' message will be displayed on the console

Conditions:

This symptom is observed when querying the SONET_SDH XML schema.

Workaround:

None.

Recovery:

None.

- **CSCtj45064**

Basic Description:

Slow CLI response during multiple VTY connections.

Symptom:

In Cisco IOS XR software if the telnet or ssh access frequency is very high, the CLI response performance may decrease significantly. The CPU load increases to more than 90% with the top consumer processes of sysdb_svr_local, sysdb_shared_nc, and sysdb_mc. Eventually telnet and ssh access is not possible any more.

Conditions:

This issue occurs with fast consecutive and lasting telnet or ssh login attempts and multiple logins per minute over a long period of time.

Workaround:

Do not use more than three telnet or ssh login attempts per minute continuously over a lasting period of time.

Recovery:

Reduce the frequency of telnet or ssh logins.

- **CSCtj54889**

Basic Description:

"snmpd[1101]: t11 Failed process trap" flooding the console.

Symptom:

- "snmpd[1101]: t11 Failed process trap" messages.
- snmpd is consuming high memory and CPU with a sustained high rate of traps. See "show snmp" and "show snmp traps" to find the trap rate and per-trap type counts.

Conditions:

This was seen with "logging trap debug" and "snmp-server traps syslog" configured while a high rate debugs are enabled. This is likely with the above configuration when enabling of "debug snmp trap" as it creates a feedback loop resulting in exponential growth in the rate of syslog traps.

Workaround:

Change any "logging trap debug" configuration to have syslogs of higher severity generated as traps, for example 'logging trap informational' or 'logging trap warning'. It is not recommended to use the configuration 'logging trap debug' as that causes EVERY syslog, including debugs, to be generated as SNMP traps via the CISCO-SYSLOG-MIB. This causes a trap storm.

Recovery:

- Disable any debugs that are causing high rate of traps.
- Restart the snmpd process by issuing **process restart snmpd.**
- Change the SNMP trap send throttle, **snmp-server trap throttle-time <>**, configuration to the minimum of 10 ms: **snmp-server trap throttle-time 10**

- Disable any high rate traps by issuing **no snmp-server traps <>**.
- Remove all snmp-server host configuration until the condition clears.

- **CSCtj82350**

Basic Description:

Process 'cerrno_server' failed to pick up notified event within 240 second

Symptom:

Notice the following message after RPFO and standby RP reload:

```
RP/0/RP0/CPU0::Oct 31 03:44:20.893 : sysdb_svr_local[435]: %SYSDB-SYSDB-4-TIMEOUT_NFN
: Process 'cerrno_server' (jid 152, node 0/RP0/CPU0) failed to pick up notification
event within the timeout period (240 seconds)
```

Conditions:

RPFO OR standby RP reload.

Workaround:

None.

Recovery:

Yes.

- **CSCtk17885**

Basic Description:

BGP NSR: stnby bgp keep restarting due to PFX mismatched after RP FO .

Symptom:

BGP sessions keep flapping on standby RP after RP fail over. The following syslog indicates this issue:

```
bgp[1044]: %ROUTING-BGP-3-INITSYNC_FAILED : Nbr: 194.13.122.2 VRF: default AFI: IPv4
Unicast Pfx received: 155420 expected: 1 - will retry once more
```

Conditions:

This issue can occur if the following conditions are met:

1. NSR configured for BGP
2. Repeated LC/SPA OIR
3. RP FO

Workaround:

Identify the neighbor for which the prefix-mismatch is seen. First, try a soft clear for the neighbor. It may necessary to try a hard reset if the soft clear does not clear the problem.

- **CSCtk53821**

Basic Description:

BGP IAS functionality now requires explicit next-hop-self config.

Symptom:

BGP IAS functionality has changed since Cisco IOS XR Release 3.9.x.

Conditions:

End-to-end connectivity for IAS failed due to the removal of implicit next-hop-self configuration.

Workaround:

Explicitly configure next-hop-self.

- **CSCtk58144**

Basic Description:

IPv6 BGP session flapping due to RX path issue.

Symptom:

Few IPv6 BGP sessions configured with \leq (15/45) timer might flap during RP FO when configured with NSR.

Conditions:

This issue might occur if the following conditions are met:

1. NSR configured for BGP
2. IPv6 BGP session configured with aggressive timer
3. RP FO

Workaround:

No workaround required. Those sessions come up.

Recovery:

Recovery occurs automatically.

- **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.

Caveats Specific to the Cisco CRS-1 Router

The following open caveats are specific to the Cisco CRS-1 platform:

- **CSCtk60473**

Basic Description:

Traceback on OIR of 4*OC48 SPA failed to unregister stats for bundle if.

Symptom:

The following error message and Traceback might be displayed after OIR of a OC48-POS SPA:


```
spa_oc48[288]: %L2-SPA_OC48-7-DEBUG : 2/11/5 failed to unregister stats for bundle
ifhandle
0x82010, 'ifstatsd' detected the 'warning' condition 'an invalid argument was passed
to a stats
function' :
pkg/bin/spa_oc48 : (PID=135274) : -Traceback= 400049c0 4000c568 4d990360 4d991ba4
4d992010
4d992304 4d3f4a5c 4d3f1614 4c244880 4c242808 4d996630 4c29b3c4.
```

There is no functional impact.

Conditions:

This issue occurs when OIR of OC-48 SPA whose members are on a bundle interface.

Workaround:

None.

Caveats Specific to the Cisco CRS-3 Router

The following open caveats are specific to the Cisco CRS-3 platform:

- **CSCtk96820**

Basic Description:

10GZR-OC192LR, DWDM XFP not up after interface flapping.

Symptom:

10GZR-OC192LR, 1 DWDM 50.92 might not be up after interface flapping.

Conditions:

This issue occurs with interface flapping.

Workaround:

Shut/unshut interface 1 more time to recover it.

Resolved Cisco IOS XR Software PSIRT-Related Caveats



Note

Caveat CSCti62211 fix is included in the Cisco CRS-3 XR 4.0.0 px images.

- **CSCti62211**

Basic Description:

BGP flaps due to unknown attribute

Symptom:

Cisco IOS XR Software contains a vulnerability in the Border Gateway Protocol (BGP) feature. The vulnerability manifests itself when a BGP peer announces a prefix with a specific, valid but unrecognized transitive attribute. On receipt of this prefix, the Cisco IOS XR device will corrupt the attribute before sending it to the neighboring devices. Neighboring devices that receive this corrupted update may reset the BGP peering session.

Conditions:

Affected devices running Cisco IOS XR Software corrupt the unrecognized attribute before sending to neighboring devices, but neighboring devices may be running operating systems other than Cisco IOS XR Software and may still reset the BGP peering session after receiving the corrupted update. This is per standards defining the operation of BGP.

Workaround:

No workaround. Cisco developed a fix that addresses this vulnerability and will be releasing free software maintenance upgrades (SMUs) progressively starting 28 August 2010.

A Security Advisory is posted at

<http://www.cisco.com/warp/public/707/cisco-sa-20100827-bgp.shtml>

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 Cisco 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 following URL:

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

Troubleshooting

For information on troubleshooting Cisco IOS XR software, refer to 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. See *About Cisco IOS XR Software Documentation for Release 4.0* for a list of Cisco IOS XR Release 4.0.1 software documentation.

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 *What's New in Cisco Product Documentation* at:
<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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