Release Notes for the Catalyst 4500 Series Switch, Cisco IOS Release 12.2(31)SGA

Current Release
12.2(31)SGA—September 11, 2006

Previous Releases
12.2(31)SG, 12.2(25)SG, 12.2(25)EWA7, 12.2(25)EWA6, 12.2(25)EWA5, 12.2(25)EWA4, 12.2(25)EWA3, 12.2(25)EWA2, 12.2(25)EWA1, 12.2(25)EW, 12.2(20)EWA4, 12.2(20)EWA3, 12.2(20)EWA2, 12.2(20)EWA1, 12.2(20)EWA, 12.2(20)EW4, 12.2(20)EW3, 12.2(20)EW2, 12.2(20)EW1, 12.2(20)EW, 12.2(18)EW7, 12.2(18)EW6, 12.2(18)EW5, 12.2(18)EW4, 12.2(18)EW3, 12.2(18)EW2, 12.2(18)EW1, 12.2(18)EW, 12.1(20)EW4, 12.1(20)EW3, 12.1(20)EW1, 12.1(20)EW, 12.1(19)EW3, 12.1(19)EW2, 12.1(19)EW1, 12.1(19)EW, 12.1(13)EW4, 12.1(13)EW3, 12.1(13)EW1, 12.1(13)EW, 12.1(12c)EW4, 12.1(12c)EW3, 12.1(12c)EW1, 12.1(12c)EW, 12.1(11b)EW1, 12.1(11b)EW, 12.1(8a)EW1, 12.1(8a)EW

These release notes describe the features, modifications, and caveats for the Cisco IOS software on the Catalyst 4500 series switch. The most current software release is Cisco IOS Release 12.2(31)SGA.

The most current software release is Cisco IOS Release 12.2(31)SGA. The most current release notes for this release is available on Cisco.com at this URL:

http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_release_note09186a00801f5b1e.html

Contents

This publication consists of these sections:

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Cisco IOS Software Packaging for the Cisco Catalyst 4500 Series

With Cisco IOS Release 12.2(25)SG, Cisco Systems® announced a new Cisco IOS Software package for the Cisco Catalyst 4500 Series switches. This package creates a new foundation for features and functionality, and provides consistency across all Catalyst switches. The new Cisco IOS Software release train is designated as 12.2SG.

Prior Cisco IOS Software images for the Catalyst 4500 Series, formally known as *Basic L3* and *Enhanced L3* images, now map to *IP Base* and *Enterprise Services*, respectively. Border Gateway Protocol (BGP) is now included in the Enterprise Services image. Unless otherwise specified, all currently shipping Catalyst 4500 software features based on Cisco IOS Software are supported in Release 12.2(31)SGA, IP Base image with a few exceptions:

- The IP Base image does not support enhanced routing related features (including BGP, Enhanced Interior Gateway Routing Protocol [EIGRP], OSPF, IS-IS, Internetwork Packet Exchange [IPX] protocol, Apple Talk, Virtual Route Forwarding [VRF]-lite, and Policy-Based Routing [PBR]).

Note If you want to use Supervisor Engine II+ and IPX, you need a release prior to Cisco IOS Release 12.2(25)SG.

- The IP Base image supports EIGRP-Stub for limited Layer 3 routing on all Catalyst 4500 Series Supervisor Engines. For more information on EIGRP-Stub functionality, go to the location:

  http://www.cisco.com/en/US/tech/tk365/technologies_white_paper0900aecd8023df6f.shtml

The Enterprise Services image supports all Catalyst 4500 Series software features based on Cisco IOS Software, including enhanced routing. Customers planning to enable BGP for Supervisor Engines IV, V, or V-10GE will no longer need to purchase a separate BGP license (FR-IRC4); BGP capability is included in the Enterprises Services package.

Note The Supervisor Engine II+ family (II+, II+TS, and II+10GE) does *not* support the Enterprise Services image.

Orderable Product Numbers:

- S45IPB-12231SGA—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines II-Plus, II-Plus-TS, II-Plus-10GE, IV, V, and V-10GE (IP Base image) (cat4500-ipbase-mz)
- S45IPBK9-12231SGA—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines II-Plus, II-Plus-TS, II-Plus-10GE, IV, V, and V-10GE (IP Base image with Triple Data Encryption Standard (3DES)) (cat4500-ipbasek9-mz)

- S45ES-12231SGA—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines IV, V, and V-10GE (Enterprise Services image with BGP support) (cat4500-entservices-mz)
- S45ESK9-12231SGA—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines IV, V, and V-10GE (Enterprise Services image with 3DES and BGP support) (cat4500-entservicesk9-mz)

Note We recommend that you load 12.2(25)EWA6.

- S45IPB-12231SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines II-Plus, II-Plus-TS, II-Plus-10GE, IV, V, and V-10GE (IP Base image) (cat4500-ipbase-mz)
- S45IPBK9-12231SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines II-Plus, II-Plus-TS, II-Plus-10GE, IV, V, and V-10GE (IP Base image with Triple Data Encryption Standard (3DES)) (cat4500-ipbasek9-mz)
- S45ES-12231SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines IV, V, and V-10GE (Enterprise Services image with BGP support) (cat4500-entservices-mz)
- S45ESK9-12231SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines IV, V, and V-10GE (Enterprise Services image with 3DES and BGP support) (cat4500-entservicesk9-mz)
- S45IPB-12225SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines II-Plus, II-Plus-TS, II+10GE, IV, V, and V-10GE (IP Base image) (cat4500-ipbase-mz)
- S45IPBK9-12225SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines II-Plus, II-Plus-TS, IV, V, and V-10GE (IP Base image with Triple Data Encryption Standard (3DES)) (cat4500-ipbasek9-mz)
- S45ES-12225SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines IV, V, and V-10GE (Enterprise Services image with BGP support) (cat4500-entservices-mz)
- S45ESK9-12225SG—Cisco IOS software for the Catalyst 4500 Series Supervisor Engines IV, V, and V-10GE (Enterprise Services image with 3DES and BGP support) (cat4500-entservicesk9-mz)
- S4KL3-12225EWA—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 and voice software image (RIPv1, RIPv2, Static Routes, AppleTalk, and IPX Software Routing, Release 12.2(25)EWA (cat4000-i9s-mz.122-25.EWA)
- S4KL3E-12225EWA—Cisco IOS software for the Catalyst 4500 series switch, enhanced Layer 3 and voice software image including OSPF, IS-IS, and EIGRP, Release 12.2(25)EWA (cat4000-i5s-mz.122-25.EWA)
- S4KL3K9-12225EWA—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, basic Layer 3 and voice software image (SSHv1, SSHv2, RIPv1, RIPv2, static routes, AppleTalk, and IPX), Release 12.2(25)EWA (cat4000-i9k9s-mz.122-25.EWA)
- S4KL3EK9-12225EWA—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, enhanced Layer 3 and voice software image including (OSPF, IS-IS, IGRP, and EIGRP), Release 12.2(25)EWA (cat4000-i5k9s-mz.122-25.EWA)
- S4KL3-12220EWA—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 and voice software image (RIPv1, RIPv2, Static Routes, AppleTalk, and IPX Software Routing, Release 12.2(20)EWA (cat4000-i9s-mz.122-20.EWA)
- S4KL3E-12220EWA—Cisco IOS software for the Catalyst 4500 series switch, enhanced Layer 3 and voice software image including OSPF, IS-IS, and EIGRP, Release 12.2(20)EWA (cat4000-i5s-mz.122-20.EWA)
- S4KL3K9-12220EWA—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, basic Layer 3 and voice software image (SSHv1, SSHv2, RIPv1, RIPv2, static routes, AppleTalk, and IPX), Release 12.2(20)EWA (cat4000-i9k9s-mz.122-20.EWA)

- S4KL3EK9-12220EWA—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, enhanced Layer 3 and voice software image including (OSPF, IS-IS, IGRP, and EIGRP), Release 12.2(20)EWA (cat4000-i5k9s-mz.122-20.EWA)
- S4KL3-12220EW—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 and voice software image (RIPv1, RIPv2, Static Routes, AppleTalk, and IPX), Release Software Routing, Release 12.2(20)EW (cat4000-i9s-mz.122-20.EW)
- S4KL3E-12220EW—Cisco IOS software for the Catalyst 4500 series switch, enhanced Layer 3 and voice software image including OSPF, IS-IS, and EIGRP, Release 12.2(20)EW (cat4000-i5s-mz.122-20.EW)
- S4KL3K91-12220EW—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, basic Layer 3 and voice software image (SSHv1, SSHv2, RIPv1, RIPv2, static routes, AppleTalk, and IPX), Release 12.2(20)EW (cat4000-i9k91s-mz.122-20.EW)
- S4KL3EK91-12220EW—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, enhanced Layer 3 and voice software image including (OSPF, IS-IS, and EIGRP), Release 12.2(20)EW (cat4000-i5k91s-mz.122-20.EW)
- S4KL3-12218EW—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 and voice software image (RIPv1, RIPv2, Static Routes, AppleTalk, and IPX), Release Software Routing, Release 12.2(18)EW (cat4000-i9s-mz.122-18.EW)
- S4KL3E-12218EW—Cisco IOS software for the Catalyst 4500 series switch, enhanced Layer 3 and voice software image including OSPF, IS-IS, and EIGRP, Release 12.2(18)EW (cat4000-i5s-mz.122-18.EW)
- S4KL3K91-12218EW—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, basic Layer 3 and voice software image (SSHv1, SSHv2, RIPv1, RIPv2, static routes, AppleTalk, and IPX), Release 12.2(18)EW (cat4000-i9k91s-mz.122-18.EW)
- S4KL3EK91-12218EW—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, enhanced Layer 3 and voice software image including (OSPF, IS-IS, and EIGRP), Release 12.2(18)EW (cat4000-i5k91s-mz.122-18.EW)
- S4KL3-12120EW—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 and voice software image (RIPv1, RIPv2, Static Routes, AppleTalk, and IPX), Release Software Routing, Release 12.1(20)EW (cat4000-i9s-mz.121-20.EW)
- S4KL3E-12120EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV, enhanced Layer 3 and voice software image including OSPF, IS-IS, IGRP, and EIGRP, Release 12.1(20)EW (cat4000-i5s-mz.121-20.EW)
- S4KL3K2-12120EW—Cisco IOS software for the Catalyst 4500 series switch, with 3DES strong encryption, basic Layer 3 and voice software image (SSHv1, SSHv2, RIPv1, RIPv2, static routes, AppleTalk, and IPX), Release 12.1(20)EW (cat4000-i9k2s-mz.121-20.EW)
- S4KL3EK2-12120EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV with 3DES strong encryption, enhanced Layer 3 and voice software image including (OSPF, IS-IS, IGRP, and EIGRP), Release 12.1(20)EW (cat4000-i5k2s-mz.121-20.EW)
- S4KL3-12119EW—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 and voice software image (RIPv1, RIPv2, Static Routes, AppleTalk, and IPX), Release Software Routing, Release 12.1(19)EW (cat4000-i9s-mz.121-19.EW)
- S4KL3E-12119EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV, enhanced Layer 3 and voice software image including OSPF, IS-IS, IGRP, and EIGRP, Release 12.1(19)EW (cat4000-i5s-mz.121-19.EW)

- S4KL3K2-12119EW—Cisco IOS software for the Catalyst 4500 series switch with 3DES strong encryption, basic Layer 3 and voice software image (SSHv1, SSHv2, RIPv1, RIPv2, static routes, AppleTalk, and IPX), Release 12.1(19)EW (cat4000-i9k2s-mz.121-19.EW)
- S4KL3EK2-12119EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV with 3DES strong encryption, enhanced Layer 3 and voice software image including (OSPF, IS-IS, IGRP, and EIGRP), Release 12.1(19)EW (cat4000-i5k2s-mz.121-19.EW)
- S4KL3-12113EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV, basic Layer 3 and voice software image (RIP, Static Routes, AppleTalk and IPX), Release 12.1(13)EW
- S4KL3E-12113EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV, enhanced Layer 3 and voice software image including OSPF, IGRP, EIGRP, and IS-IS, Release 12.1(13)EW
- S4KL3K2-12113EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV with 3DES strong encryption, basic Layer 3 and voice software image (SSHv1, RIP, static routes, AppleTalk and IPX), Release 12.1(13)EW
- S4KL3EK2-12113EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV with 3DES strong encryption, enhanced Layer 3 and voice software image including OSPF, IGRP, EIGRP, and IS-IS, Release 12.1(13)EW
- S4KL3-12112EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV, basic Layer 3 software image (RIP, Static Routes, AppleTalk and IPX), Release 12.1(12c)EW
- S4KL3E-12112EW—Cisco IOS software for the Catalyst 4500 series switch, Supervisor Engines III and IV, enhanced Layer 3 software image including OSPF, IGRP and EIGRP, Release 12.1(12c)EW
- S4KL3-12111EW—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 software image (RIP, static routes), Release 12.1(11b)EW
- S4KL3E-12111EW—Cisco IOS software for the Catalyst 4500 series switch, enhanced Layer 3 software image including OSPF, IGRP and EIGRP, Release 12.1(11b)EW1
- S4KL3-12108EW—Cisco IOS software for the Catalyst 4500 series switch, basic Layer 3 software image (RIP, static routes), Release 12.1(8a)EW
- S4KL3E-12108EW—Cisco IOS software for the Catalyst 4500 series switch, enhanced Layer 3 software image including OSPF, IGRP and EIGRP, Release 12.1(8a)EW1

Catalyst 4500 Series Switch Cisco IOS Release Strategy

Cisco IOS Release 12.2EW train offers the latest features for the Catalyst 4500 Series supervisor engines. Customers with Catalyst 4500 series supervisor engines who need the latest hardware support and software features should migrate to Cisco IOS Release 12.2(31)SGA.

Note As part of the Cisco IOS Reformation effort, Cisco IOS Releases 12.2EW and 12.2SG are the same release train with a name change.

Cisco IOS Software Release 12.2(18)EW1 and all subsequent 12.2(18)EW maintenance releases have only the feature set based on Cisco IOS Release 12.2(18)EW for the Catalyst 4500 Series supervisor engines. Customers with Catalyst 4500 Series supervisor engines who require the stability of a bug fix maintenance release should stay with the Cisco IOS Software Release 12.2(25)EWA maintenance releases.

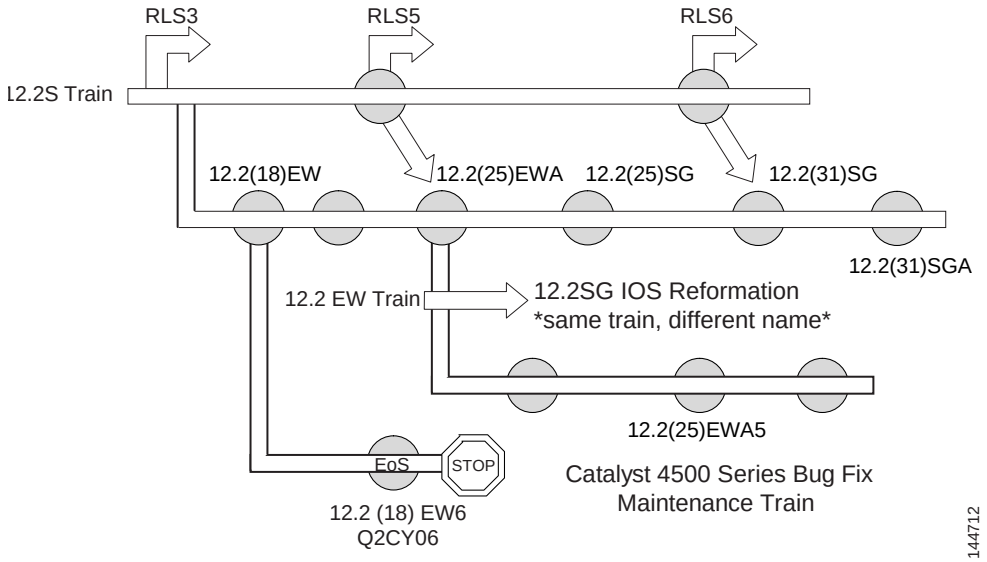
Cisco IOS Releases 12.1(19)E1 through 12.1(26)E have only the feature set based on Cisco IOS Release 12.1(12c)EW1 for the Catalyst 4500 Series supervisor engines. Customers with Catalyst 4500 Series supervisor engines who require the stability of a maintenance release should migrate from 12.1E releases to the Cisco IOS Release 12.2(25)EWA maintenance releases.

For more information on the Catalyst 4500 series switches, visit the following URL: www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/index.htm

Cisco IOS Software Migration Guide

Figure 1 displays the Cisco IOS Software Release 12.2(31)SGA plan relative to the 12.2S and 12.1 releases, and identifies the recommended migration path.

Figure 1 Software Release Strategy for the Catalyst 4500 Series Switch



Summary of Migration Plan

Releases 12.2(18)EW and 12.2(25)EWA will continue offering maintenance releases.

The 12.1 EW train reached end of sale on October 4, 2005.

System Requirements

This section describes the system requirements:

Memory Requirements

These are the minimum required memory configurations for Cisco IOS software on the Catalyst 4500 series switch:

- 256-MB SDRAM DIMM
- 32-MB Flash SIMM

Supported Hardware

The following tables lists the hardware supported on the Catalyst 4500 series switch.

Table 1 Supported Hardware

Product Number (append with "=" for spares)	**Product Description**	**Software Release**	
		Minimum	**Recommended**
Supervisor Engines			
WS-X4013+=	Catalyst 4500 series switch Supervisor Engine II-Plus	12.1(19)EW	12.2(25)EWA6
WS-X4013+TS	Catalyst 4500 series switch Supervisor Engine II-Plus-TS	12.2(20)EWA	12.2(25)EWA6
WS-X4013+10GE	Catalyst 4500 series switch Supervisor Engine II-Plus-10GE	12.2(25)SG	12.2(25)SG
WS-X4515=	Catalyst 4500 series switch Supervisor Engine IV	12.1(12c)EW	12.2(25)EWA6
WS-X4515/2=	Catalyst 4507R series switch Redundant Supervisor Engine IV	12.1(12c)EW	12.2(25)EWA6
WS-X4516=	Catalyst 4500 series switch Supervisor Engine V	12.2(18)EW	12.2(25)EWA6
WS-X4516/2=	Catalyst 4507R series switch Redundant Supervisor Engine V	12.2(18)EW	12.2(25)EWA6
WS-X4516-10GE=	Catalyst 4500 series switch Supervisor Engine V-10GE	12.2(25)EW	12.2(25)EWA6
Gigabit Ethernet Switching Modules			
WS-X4302-GB	2-port 1000BASE-X (GBIC) Gigabit Ethernet module	12.1(19)EW	12.2(25)EWA6
WS-X4306-GB	6-port 1000BASE-X (GBIC) Gigabit Ethernet switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4418-GB	18-port 1000BASE-X (GBIC) Gigabit Ethernet server switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4412-2GB-T	12-port 1000BASE-T Gigabit Ethernet and 2-GBIC ports switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4424-GB-RJ45	24-port 10/100/1000BASE-T Gigabit Ethernet RJ-45 switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4448-GB-LX	48-port 1000BASE-LX (small form-factor pluggable) Gigabit Ethernet fiber optic interface switching module	12.1(8a)EW	12.2(25)EWA6

Table 1 Supported Hardware (continued)

Product Number (append with "=" for spares)	Product Description	Software Release	
		Minimum	Recommended
WS-X4448-GB-RJ45	48-port 10/100/1000BASE-T Gigabit Ethernet switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4448-GB-SFP	48-port 1000BASE-X (small form-factor pluggable) module	12.2(20)EW	12.2(25)EWA6
WS-X4506-GB-T	6-port Alternately-Wired 10/100/1000BASE-T Catalyst 4500 series Power over Ethernet (PoE) 802.3af or 1000BASE-X SFP	12.2(20)EWA	12.2(25)EWA6
WS-X4524-GB-RJ45V	24-port 10/100/1000BASE-T RJ-45 Catalyst 4500 series PoE 802.3af	12.2(18)EW	12.2(25)EWA6
WS-X4548-GB-RJ45	48-port 10/100/1000BASE-T Gigabit Ethernet module	12.1(19)EW	12.2(25)EWA6
WS-X4548-GB-RJ45V	48-port 10/100/1000BASE-T RJ-45 Catalyst 4500 series PoE 802.3af	12.2(18)EW	12.2(25)EWA6
Fast Ethernet Switching Modules			
WS-X4124-FX-MT	24-port 100BASE-FX Fast Ethernet MT-RJ multimode fiber switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4148-FX-MT	48-port 100BASE-FX Fast Ethernet MT-RJ multimode fiber switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4148-FE-LX-MT	48-port 100BASE-LX10 Fast Ethernet MT-RJ single-mode fiber switching module	12.1(13)EW	12.2(25)EWA6
WS-X4148-FE-BD-LC	48-port 100BASE-BX10-D module	12.2(18)EW	12.2(25)EWA6
WS-X4248-FE-SFP	48-port 100BASE-X SFP switching module	12.2(25)SG	12.2(25)SG
WS-U4504-FX-MT	4-port 100BASE-FX (MT-RF) uplink daughter card	12.1(8a)EW	12.2(25)EWA6
Ethernet/Fast Ethernet (10/100) Switching Modules			
WS-X4124-RJ45	24-port 10/100 RJ-45 module	12.2(20)EW	12.2(25)EWA6
WS-X4148-RJ	48-port 10/100 RJ-45 switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4148-RJ21	48-port 10/100 4xRJ-21 (telco connector) switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4148-RJ45V	48-port Pre-standard PoE 10/100BASE-T switching module	12.1(8a)EW for data support 12.1(11b)EW for data and inline power support	12.2(25)EWA6
WS-X4224-RJ45V	24-port 10/100BASE-TX RJ-45 Cisco Catalyst 4500 series PoE 802.3af	12.2(20)EW	12.2(25)EWA6
WS-X4232-GB-RJ	32-port 10/100 Fast Ethernet RJ-45, plus 2-port 1000BASE-X (GBIC) Gigabit Ethernet switching module	12.1(8a)EW	12.2(25)EWA6
WS-X4248-RJ45V	48-port 10/100BASE-T RJ-45 Cisco Catalyst 4500 series PoE 802.3af	12.2(18)EW	12.2(25)EWA6
WS-X4248-RJ21V	48-port 10/100 Fast Ethernet RJ-21 Cisco Catalyst 4500 series PoE 802.3af telco	12.2(18)EW	12.2(25)EWA6

Table 1 Supported Hardware (continued)

Product Number (append with "=" for spares)	Product Description	Software Release	
		Minimum	Recommended
WS-X4232-RJ-XX	32-port 10/100 Fast Ethernet RJ-45 modular uplink switching module	12.1(8a)EW	12.2(25)EWA6
Small Form-Factor Pluggable 100 Megabit Ethernet Modules			
GLC-FE-100FX	100BASE-FX, 1310 nm wavelength, 2 km over MMF	12.2(25)SG	12.2(25)SG
GLC-FE-100LX	100BASE-LX, 1310 nm wavelength, 10 km over SMF	12.2(25)SG	12.2(25)SG
GLC-FE-100BX-D	100BASE-BX10-D, 1550 nm TX/1310 nm RX wavelength	12.2(25)SG	12.2(25)SG
GLC-FE-100BX-U	100BASE-BX10-U, 1310 nm TX/1550 nm RX wavelength	12.2(25)SG	12.2(25)SG
Small Form-Factor Pluggable Gigabit Ethernet Modules			
GLC-BX-D	1000BASE-BX10-D small form-factor pluggable module	12.2(20)EWA	12.2(25)EWA6
GLC-BX-U	1000BASE-BX10-U small form-factor pluggable module	12.2(20)EWA	12.2(25)EWA6
GLC-SX-MM	1000BASE-SX small form-factor pluggable module	12.2(20)EW	12.2(25)EWA6
GLC-LH-SM	1000BASE-LX/LH small form-factor pluggable module	12.2(20)EW	12.2(25)EWA6
GLC-ZX-SM	1000BASE-ZX small form-factor pluggable module	12.2(20)EW	12.2(25)EWA6
GLC-T	1000BASE-T small form-factor pluggable module	12.2(20)EW	12.2(25)EWA6
CWDM-SFP-xxxx	CWDM small form-factor pluggable module (See Table 2 on page 10 for a list of supported wavelengths.)	12.2(20)EW	12.2(25)EWA6
10 Gigabit Ethernet X2 Pluggable Modules			
X2-10GB-LR	10GBASE-LR single-mode X2 module	12.2(25)EW	12.2(25)EWA6
X2-10GB-SR	10GBASE-SR single-mode X2 module	12.2(25)EWA5	12.2(25)SG
X2-10GB-CX4	10GBASE-CX4 single-mode X2 module	12.2(25)SG	12.2(25)SG
X2-10GB-LX4	10GBASE-LX4 single-mode X2 module	12.2(25)SG	12.2(25)SG
X2-10GB-ER	10GBASE-ER single-mode X2 module	12.2(25)SG	12.2(25)SG
Gigabit Interface Converter			
WS-G5483=	1000BASE-T GBIC	12.1(13)EW	12.2(25)EWA6
WS-G5484	1000BASE-SX short wavelength GBIC (multimode only)	12.1(8a)EW	12.2(25)EWA6
WS-G5486	1000BASE-LX/LH long-haul GBIC (single mode or multimode)	12.1(8a)EW	12.2(25)EWA6
WS-G5487	1000BASE-ZX extended reach GBIC (single-handed)	12.1(8a)EW	12.2(25)EWA6
CWDM-GBIC-xxxx	CWDM gigabit interface converter (See Table 2 on page 10 for a list of supported wavelengths.)	12.1(12c)EW	12.2(25)EWA6
DWDM-GBIC-xx.yy	Dense Wavelength-Division Multiplexing ITU 100-Ghz grid 15xx.yy nm GBIC	12.1(19)EW	12.2(25)EWA6
WDM-GBIC-REC	Receive-only 1000BASE-WDM GBIC	12.1(19)EW	12.2(25)EWA6
Other Modules			
MEM-C4K-FLD64M	Catalyst 4500 series switch CompactFlash, 64 MB Option	12.1(8a)EW	12.2(25)EWA6
MEM-C4K-FLD128M	Catalyst 4500 series switch CompactFlash, 128 MB Option	12.1(8a)EW	12.2(25)EWA6

Table 1 Supported Hardware (continued)

Product Number (append with "=" for spares)	Product Description	Software Release	
		Minimum	Recommended
WS-F4531	Catalyst 4500 series switch NetFlow Services Card on Catalyst 4500 series switch Supervisor Engines IV and V	12.1(13)EW	12.2(25)EWA6
WS-X4590=	Catalyst 4500 series switch Fabric Redundancy Modules	12.2(18)EW	12.2(25)EWA6
PWR-C45-1000AC	Catalyst 4500 series switch 1000 Watt AC power supply for Supervisor Engines 4503, 4506, and 4507R (data only)	12.1(12c)EW	12.2(25)EWA6
PWR-C45-1400DC	Catalyst 4500 series switch 1400 Watt DC triple input power supply (data-only)	12.2(25)EW	12.2(25)EWA6
PWR-C45-1400DC-P	Catalyst 4500 series switch 1400 Watt DC power supply with integrated PEM	12.1(19)EW	12.2(25)EWA6
PWR-C45-1400AC	Catalyst 4500 series switch 1400 Watt AC power supply (data-only)	12.1(12c)EW	12.2(25)EWA6
PWR-C45-1300ACV	Catalyst 4500 series switch 1300 Watt AC power supply with integrated voice for Supervisor Engines 4503, 4506, and 4507R	12.1(12c)EW	12.2(25)EWA6
PWR-C45-2800ACV	Catalyst 4500 series switch 2800 Watt AC power supply with integrated voice (data and PoE) for Supervisor Engines 4503, 4506, and 4507R	12.1(12c)EW	12.2(25)EWA6
PWR-C45-4200ACV	Catalyst 4500 series switch 4200 Watt AC dual input power supply with integrated voice (data and PoE)	12.2(25)EWA5	12.2(25)EWA6
WS-P4502-1PSU	Catalyst 4500 series switch auxiliary power shelf (25-slot), including one PWR-4502	12.1(19)EW	12.2(25)EWA6
PWR-4502	Catalyst 4500 series switch auxiliary power shelf redundant power supply	12.1(19)EW	12.2(25)EWA6

Table 2 briefly describes the supported wavelengths in the Catalyst 4500 series switches.

Table 2 CWDM GBIC and SFP Supported Wavelengths

Product Number (append with "=" for spares)	Product Description	Software Release	
		Minimum	Recommended
CWDM-GBIC (or SFP) -1470	Longwave 1470 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6
CWDM-GBIC (or SFP) -1490	Longwave 1490 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6
CWDM-GBIC (or SFP) -1510	Longwave 1510 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6
CWDM-GBIC (or SFP) -1530	Longwave 1530 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6
CWDM-GBIC (or SFP) -1550	Longwave 1550 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6
CWDM-GBIC (or SFP) -1570	Longwave 1570 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6
CWDM-GBIC (or SFP) -1590	Longwave 1590 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6
CWDM-GBIC (or SFP) -1610	Longwave 1610 nm laser single-mode	12.1(12c)EW	12.2(25)EWA6

Table 3 briefly describes the seven chassis in the Catalyst 4500 series switches. For the chassis listed in the table, refer to Table 4 on page 12 for software release information.

Table 3 Chassis Description

Product Number (append with "=" for spares)	**Description of Modular Chassis**
WS-C4503	Catalyst 4503 chassis includes these components: • 3 slots • Fan tray • Supports Supervisor Engine V-10GE, Supervisor Engine V, Supervisor Engine IV, Supervisor Engine III, Supervisor Engine II-Plus-10GE, Supervisor Engine II-Plus-TS, Supervisor Engine II-Plus, and Supervisor Engine II
WS-C4506	Catalyst 4506 chassis includes these components: • 6 slots • Fan tray • Supports Supervisor Engine V-10GE, Supervisor Engine V, Supervisor Engine IV, Supervisor Engine III, Supervisor Engine II-Plus-10GE, Supervisor Engine II-Plus, and Supervisor Engine II
WS-C4507R	Catalyst 4507R chassis includes these components: • 7 slots • Fan tray • Supports Supervisor Engine V-10GE, Supervisor Engine V, Supervisor Engine IV, Supervisor Engine II-Plus-10GE, and Supervisor Engine II-Plus
WS-C4510R	Catalyst 4510R chassis includes: • 10 slots; Slot 10 accepts only the Catalyst 4500 series 2-port Gigabit Ethernet line card (WS-X4302-GB with Supervisor Engine V **Note** The Supervisor Engine V-10GE does not have this restriction. • Fan tray • Supports Supervisor Engine V-10GE and Supervisor Engine V

Table 4 lists the software release information for the Catalyst 4500 series switch supervisor engines.

Table 4 Supervisor Engine Support

Supervisor Engine	Software Release	
	Minimum	Recommended
Supervisor Engine II	Catalyst operating system software	
Supervisor Engine II-Plus	12.1(19)EW	12.2(25)EWA6
Supervisor Engine II-Plus-TS	12.2(20)EWA	12.2(25)EWA6
Supervisor Engine II-Plus-10GE	12.2(25)SG	12.2(25)SG
Supervisor Engine IV	12.1(12c)EW	12.2(25)EWA6
Supervisor Engine V	12.2(18)EW	12.2(25)EWA6
Supervisor Engine V-10GE	12.2(25)EW	12.2(25)EWA6

Supported Features

Table 5 lists the Cisco IOS software features for the Catalyst 4500 series switch.

Table 5 Cisco IOS Software Feature Set for the Catalyst 4500 Series Switch

Layer 2 Switching Features
Storm control
Multicast storm control[1]
IP Source Guard
PVRST+
Layer 2 protocol tunneling
Layer 2 transparent bridging[2]
Layer 2 MAC[3] learning, aging, and switching by software
Unicast MAC address filtering
VMPS[4] Client
Layer 2 hardware forwarding up to 102 Mpps
Layer 2 switch ports and VLAN trunks
Spanning-Tree Protocol (IEEE 802.1D) per VLAN
802.1s and 802.1w
Layer 2 traceroute
Unidirectional Ethernet port
Per-VLAN spanning tree (PVST) and PVST+
Spanning-tree root guard
Spanning-tree Loop guard and PortFast BPDU Filtering
Support for 9216 byte frames
Port security on PVLANs
Private VLANs

Table 5 Cisco IOS Software Feature Set for the Catalyst 4500 Series Switch (continued)

Private VLAN DHCP snooping
Private VLAN Promiscuous Trunk
Community PVLANs
ISL[5]-based VLAN encapsulation (excluding blocking ports on WS-X4418-GB and WS-X4412-2GB-T)[6]
IEEE 802.1Q-based VLAN encapsulation
Multiple VLAN access port
VLAN Trunking Protocol (VTP) and VTP domains
Support for 4096 VLANs per switch
Unidirectional link detection (UDLD) and aggressive UDLD
SNMP V3 support for Bridge-MIB with VLAN indexing
Layer 3 Routing, Switching, and Forwarding
802.1Q Tunneling (Q in Q)[7]
QinQ and Protocol Tunneling
Pragmatic General Multicast
IP and IP multicast routing and switching between Ethernet ports
Static IP routing
Classless routing[8]
PBR[9]
Dynamic Buffer Limiting
QoS-based forwarding based on IP precedence
Trusted boundary
Auto QoS
Match CoS for non-IPV4 traffic
CoS Mutation
CEF[10] load balancing
Hardware-based IP CEF routing at 48 Mpps
Up to 128,000 IP routes
Up to 32,000 IP host entries (Layer 3 adjacencies)
Up to 16,000 IP multicast route entries
Multicast flooding suppression for STP changes
Software routing of IPX, AppleTalk, and IPv6.
IGMPv1, IGMPv2, and IGMPv3 (Full Support)
VRF-lite
Route Leaking[11]
IP Unnumbered
Supported Protocols
IS-IS[12]

Table 5 Cisco IOS Software Feature Set for the Catalyst 4500 Series Switch (continued)

DTP[13]
RIP[14] and RIP II
EIGRP[15]
OSPF[16]
BGP4[17]
MBGP[18]
MSDP[19]
ICMP[20] Router Discovery Protocol
PIM[21]—sparse and dense mode
Static routes
Classless interdomain routing (CIDR)
DVMRP[22]
SSM
NTP[23]
WCCP version 2 Layer 2 Redirection
VRRP[24]
SCP[25]
EtherChannel Features
Cisco EtherChannel technology - 10/100/1000 Mbps, 10 Gbps
Load balancing for routed traffic, based on source and destination IP addresses
Load sharing for bridged traffic based on MAC addresses
ISL on all EtherChannels
IEEE 802.1Q on all EtherChannels
Bundling of up to eight Ethernet ports
Up to 64 active Ethernet port channels
Trunk Port Security over EtherChannel
Additional Protocols and Features
SPAN CPU port mirroring
SPAN packet-type filtering
SPAN destination in-packets option
SPAN ACL filtering
RSPAN
Enhanced VLAN statistics
Netflow version 8
NetFlow Statistics Collection
NetFlow Statistics Export Version 1 and Version 5
NetFlow Bridged IP Flow

Table 5 Cisco IOS Software Feature Set for the Catalyst 4500 Series Switch (continued)

Secondary addressing
Bootstrap protocol (BOOTP)
Authentication, authorization, and accounting using TACACS+ and RADIUS protocol
Cisco Discovery Protocol (CDP)
Sticky port security
Trunk port security
Voice VLAN Sticky port security
Cisco Group Management Protocol (CGMP) server support
HSRP[26] over Ethernet, EtherChannels - 10/100/1000Mbps, 10 Gbps
IGMP snooping version1, version 2, and version 3 (Full Support)
IGMP filtering
Port Aggregation Protocol (PagP)
802.3ad LACP
SSH version 1 and version 2[27]
Inline power preallocation
show interface capabilities command
IfIndex persistence
UDLR[28]
Enhanced SNMP MIB support
SNMP[29] version 1, version 2, and version 3
SNMP version 3 (with encryption)
DHCP server and relay-agent
DHCP snooping
DHCP client autoconfiguration
DHCP Option 82 Pass Through
802.1X port-based authentication
802.1X with port security
802.1X accounting
802.1X with voice VLAN ID
802.1X private VLAN assignment
802.1X private guest VLAN
802.1X RADIUS-supplied session timeout
802.1X authentication failure VLAN
MAC Authentication Bypass
802.1X Inaccessible Authentication Bypass
802.1X Unidirectional Controlled Port
Cisco NAC[30] Layer 2 802.1X

Table 5 Cisco IOS Software Feature Set for the Catalyst 4500 Series Switch (continued)

Port flood blocking
Router standard and extended ACLs [31]on all ports with no performance penalty
Extended IPX Access Control Lists
VLAN Access Control Lists
PACL[32]
Control Plane Policing
Local Proxy ARP
Dynamic ARP Inspection on PVLANs
Dynamic ARP Inspection
Per-port QoS[33] rate-limiting and shaping
Per-port Per-VLAN QoS
Inline power support for Cisco IP phones
PoE[34]
Power redundancy
RPR[35]
SSO[36]
SSO Aware HSRP
SSO support for routed ports
Non-stop Forwarding Awareness
Non-stop Forwarding Awareness for EIGRP-stub in IP base for all supervisor engines
Non-stop Forwarding with Stateful Switchover
ISSU[37]
MAC Address Notification
Combined Mode Power Resiliency
SmartPort macros
Forced 10/100 Auto Negotiation
802.1s standards compliance
IS-IS MIB
OSPF Fast Convergence[38]
Time Domain Reflectometry
CNA[39]
CLI to turn off Auto MDIX

1. Requires the Catalyst 4500 series switch Supervisor Engine V
2. Hardware-based transparent bridging within a VLAN
3. MAC = Media Access Control
4. VMPS = VLAN Management Policy Server
5. ISL = Inter-Switch Link
6. Ports 3 thru 18 on the WS-X4418-GB and ports 1 thru 12 on the WS-X4412-2GB
7. Requires the Catalyst 4500 series switch Supervisor Engine V

8. The **ip classless** command is not supported as classless routing is enabled by default.
9. PBR = policy-based routing
10. CEF = Cisco Express Forwarding
11. Route Leaking from a global routing table into a VRF and Route Leaking from a VRF into a global routing table
12. IS-IS = Intermediate System to Intermediate System
13. DTP = Dynamic Trunking Protocol
14. RIP = Routing Information Protocol
15. EIGRP = Enhanced Interior Gateway Routing Protocol
16. OSPF = Open Shortest Path First
17. BGP4 = Border Gateway Protocol 4
18. MBGP = Multicast Border Gateway Protocol
19. MSDP = Multicast Source Discovery Protocol
20. ICMP = Internet Control Message Protocol
21. PIM = Protocol Independent Multicast
22. DVMRP = Distance Vector Multicast Routing Protocol
23. NTP = Network Time Protocol
24. VRRP = Virtual Router Redundancy Protocol
25. SCP = Secure Copy Protocol
26. HSRP = Hot Standby Router Protocol
27. SSH = Secure Shell Protocol
28. UDLR = Unidirectional Link Routing
29. SNMP = Simple Network Management Protocol
30. NAC = Network Admission Control
31. ACLs = Access Control Lists
32. PACL = Port Access Control List
33. QoS = Quality of Service
34. PoE = Power over Ethernet
35. RPR = Supervisor engine redundancy
36. SSO = Stateful switchover (includes Stateful IGMP Snooping and Stateful DHCP Snooping)
37. ISSU = In Service Software Upgrade Process
38. The Catalyst 4500 series switch supports Fast Hellos, ISPF, and LSA Throttling.
39. CNA = Cisco Network Assistant; Minimum CNA release that supports Releases 12.2(25)EW is 1.0(2). Minimum CNA release that supports Release 12.2(20)EWA is 1.0(1).

Unsupported Features

These features are not supported in Cisco IOS Release 12.2(31)SGA for the Catalyst 4500 series switches:

- The following ACL types:
  - Standard Xerox Network System (XNS) access list
  - Extended XNS access list
  - DECnet access list
  - Protocol type-code access list
- ADSL and Dial access for IPv6
- AppleTalk EIGRP (use native AppleTalk routing instead)
- Bridge groups

- Cisco IOS software IPX ACLs:
  - <1200-1299> IPX summary address access list
- Cisco IOS software-based transparent bridging (also called “fallback bridging”)
- Connectionless (CLNS) routing; including IS-IS routing for CLNS. IS-IS is supported for IP routing only.
- DLSw (data-link switching)
- IGRP (use EIGRP instead)
- IP SLA
- **isis network point-to-point** command
- Kerberos support for access control
- Lock and key
- NAT-PT for IPv6
- NetFlow per-VRF
- PBR with Multiple Tracking Options
- QoS for IPv6
- Reflexive ACLs
- Routing IPv6 over an MPLS network
- Two-way community VLANs in private VLANs
- WCCP version 1; WCCP version 2 is supported

New and Changed Information

These sections describe the new and changed information for the Catalyst 4500 series switch running Cisco IOS software:

New Hardware Features in Release 12.2(31)SGA

Cisco IOS Release 12.2(31)SGA is the first IOS release supporting the ME-X4924-10GE.

New Software Features in Release 12.2(31)SGA

Release 12.2(31)SGA provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- In Service Software Upgrade (“Configuring the Cisco IOS In Service Software Upgrade” chapter)
- Trunk Port Security over EtherChannel (“Configuring Port Security and Configuring EtherChannel” chapters)
- Match CoS for Non-IPv4 Traffic (“Configuring QoS” chapter)
- CoS Mutation (“Configuring QoS” chapter)
- QinQ Tunneling and Protocol Tunneling (“Configuring 802.1Q and Layer 2 Protocol Tunneling” chapter)
- IP Unnumbered (“Configuring IP Unnunmbered Support” chapter)
- CLI to turn off Auto-MDIX (“Configuring Layer 3 Interfaces” chapter)

New Hardware Features in Release 12.2(31)SG

Release 12.2(31)SG provides the following new hardware for the Catalyst 4500 series switch:

- None

New Software Features in Release 12.2(31)SG

Release 12.2(31)SG provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- Non-Stop Forwarding with Stateful Switchover (NSF/SSO) (“Configuring Cisco NSF with SSO Supervisor Engine Redundancy” chapter)
- SSO Aware HSRP (“Configuring Cisco NSF with SSO Supervisor Engine Redundancy” chapter)
- Control Plane Policing (“Configuring Control Plane Policing” chapter)
- WCCP version 2 Layer 2 Redirection (“Configuring WCCPv2 Services” chapter)
- MAC Authentication Bypass (“Configuring 802.1X Port-Based Authentication” chapter)
- 802.1X Inaccessible Authentication Bypass (“Configuring 802.1X Port-Based Authentication” chapter)
- 802.1X Unidirectional Controlled Port (“Configuring 802.1X Port-Based Authentication” chapter)
- Private VLAN Promiscuous Trunk (“Configuring Private VLANs” chapter)
- MAC Address Notification (“Administering the Switch” chapter)
- Voice VLAN Sticky Port Security (“Configuring Port Security” chapter)
- Combined Mode Power Resiliency (“Environmental Monitoring and Power Management” chapter)
- Virtual Router Redundancy Protocol (VRRP) (Refer to the Cisco IOS Release 12.3 documentation)
- Secure Copy Protocol (SCP) (Refer to the Cisco IOS Release 12.3 documentation

New Hardware Features in Release 12.2(25)SG

Release 12.2(25)SG provides the following new hardware for the Catalyst 4500 series switch:

- WS-X4013+10GE—Catalyst 4500 series switch Supervisor Engine II-Plus-10GE
- WS-X4248-FE-SFP—Catalyst 4500 series switch 48-port 100BASE-X SFP module
- GLC-FE-100FX—100Mbit SFP, 100BASE-FX, 1310 nm wavelength, 2 km over MMF
- GLC-FE-100LX—100Mbit SFP, 100BASE-FX, 1310 nm wavelength, 10 km over MMF
- GLC-FE-100BX-D—100Mbit SFP, 100BASE-BX-D, 1550 nm TX/1310 nm RX wavelength, 10km over single-strand SMF
- GLC-FE-100BX-U—100Mbit SFP, 100BASE-BX-U, 1310 nm TX/1550 nm RX wavelength, 10km over single-strand SMF

New Software Features in Release 12.2(25)SG

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

Release 12.2(25)SG provides the following Cisco IOS software features for the Catalyst 4500 series switch:

- Cisco Catalyst 4500 Series Supervisor Engine V-10GE Uplink Enhancement for simultaneous use of 10-Gigabit Ethernet and the Gigabit Ethernet SFP interfaces. (The Catalyst 4510R requires optional configuration. See the “Configuring Interfaces” chapter.)

Note On a Catalyst 4510R series switch, if you enable both the 10-Gigabit Ethernet and the Gigabit Ethernet SFP uplink ports, you must re-boot the switch. On the Catalyst 4503, 4506, and 4507R series switches, this capability is automatically enabled.

- Simultaneous provisioning of X2 pluggable moduels and SFP uplinks on the Supervisor Engine II-Plus-10GE (WS-X4013+10GE).
- 802.1S Standards Compliance (Refer to the Cisco IOS Release 12.3 documentation)
- 802.1X Authentication Failure VLAN (“Understanding and Configuring 802.1X Port-Based Authentication” chapter)
- HTTPS (Refer to the Cisco IOS Release 12.3 documentation)
- Interface Link and Trunk Status Logging Event Enhancement (“Configuring Interfaces” chapter)
- IS-IS MIB (Refer to the Cisco IOS Release 12.3 documentation
- Microflow Policing Full Flow Match (“Configuring QoS” and Configuring Netflow” chapters)
- POST enhancement for Supervisor Engine V-10GE (“Diagnostics on the Catalyst 4500 Series Switch”)
- OSPF Fast Convergence. Catalyst 4500 series switch will support Fast Hellos, ISPF, and LSA Throttling.

Refer to the following URLs for the Cisco IOS Release 12.3 documentation:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/120newft/120limit/120s/120s24/ospfispf.htm

http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/120newft/120limit/120s/120s25/fsolsath.htm

http://www.cisco.com/univercd/cc/td/doc/product/software/ios124/124cg/hirp_c/ch15/hfasthel.htm

- Time Domain Reflectometry (“Checking Port Status and Connectivity” chapter)
- SNMP V3 support for Bridge-MIB with VLAN indexing

New Hardware Features in Release 12.2(25)EWA

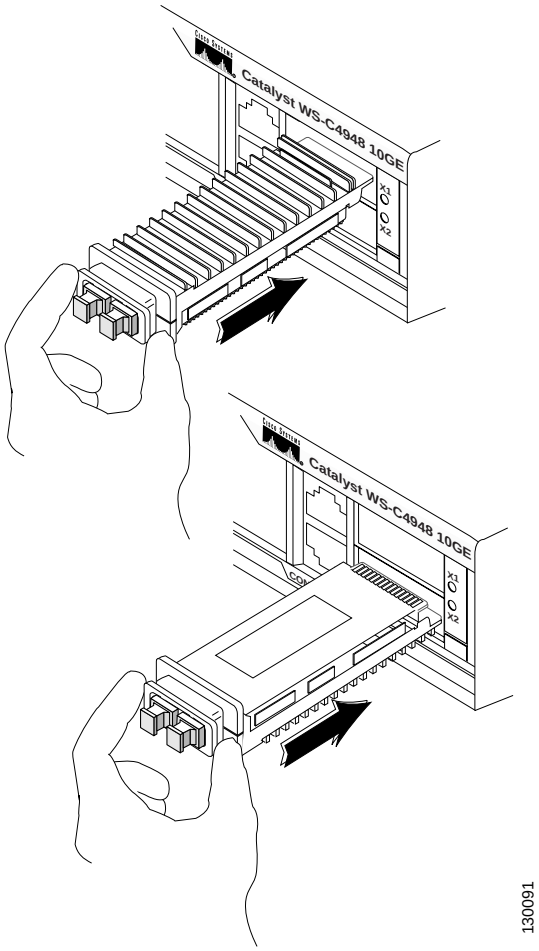
Release 12.2(25)EWA provides the following new hardware for the Catalyst 4500 series switch:

- WS-X4948-10GE—Catalyst 4948 48-Port 10/100/1000 + 2 10GE in a 1 RU with dual, redundant AC/DC power

Caution If you plan to insert X2 transceivers in the Cisco Catalyst 4948-10GE, you should ensure that the Catalyst 4500 series switch and the X2 back interfaces are properly oriented during the OIR (Online insertion and removal) of the transceivers. The top transceiver (port tengig1/49) should be inserted with heatsink facing up. The bottom transceiver (port tengig1/50) should be plugged in with heatsink facing down, CLEI (Common Language Equipment Identifiers) label facing up. (See Figure 2.). When inserted correctly, the TX/RX of the bottom transceiver would look reversed. For more details refer to the *Catalyst 4948-10GE Switch Installation Guide*, at the URL:
http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/hw_doc/4948_10/05modcfg.htm#wp1038597

- PWR-C45-4200ACV—Catalyst 4500 series switch 4200 Watt AC dual input power supply with integrated voice (data and PoE)

Figure 2 Cavities of X2 Transceivers on the Catalyst 4948-10GE



New Software Features in Release 12.2(25)EWA

Release 12.2(25)EWA provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- Per-Port Per-VLAN QoS (“Configuring QoS and Per-Port Per-VLAN QoS” chapter)
- Trunk-Port Security (“Configuring Port Security and Trunk Port Security” chapter)
- NetFlow Bridged IP Flow (“Configuring NetFlow Statistics Collection” chapter)
- 802.1X Private VLAN Assignment (“Understanding and Configuring 802.1X Port-Based Authentication” chapter)
- 802.1X Private Guest VLAN (“Understanding and Configuring 802.1X Port-Based Authentication” chapter)

- 802.1X Radius-Supplied Session Timeout (“Understanding and Configuring 802.1X Port-Based Authentication” chapter)
- DHCP Option 82 Pass Through (“Configuring DHCP Snooping and IP Source Guard” chapter)

New Hardware Features in Release 12.2(25)EW

Note This release is deferred to 12.2(25)EWA2.

Release 12.2(25)EW provides the following new hardware for the Catalyst 4500 series switch:

- WS-X4516-10GE—Catalyst 4500 series switch Supervisor Engine V-10GE
- PWR- C45-1400DC SP—Catalyst 4500 series switch 1400 DC triple input power supply (data-only)

New Software Features in Release 12.2(25)EW

Note This release is deferred to 12.2(25)EWA2.

Release 12.2(25)EW provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- Enhanced NetFlow support on the Catalyst 4500 series switch Supervisor Engine V-10GE
- 10-Gigabit Ethernet support on the Catalyst 4500 series switch Supervisor Engine V-10GE

New Hardware Features in Release 12.2(20)EWA

Release 12.2(20)EWA provides the following new hardware for the Catalyst 4500 series switch:

- WS-X4013+TS—Catalyst 4500 series switch Supervisor Engine II-Plus-TS
- WS-X4506-GB-T—Catalyst 4500 series 6-Port Alternatively-Wired 10/100/1000 Power over Ethernet (PoE) or 1000BASE-X SFP module
- WS-X4948—Catalyst 4948 48-Port 10/100/1000 + 4 SFP in a 1 RU with dual, redundant AC/DC power

New Software Features in Release 12.2(20)EWA

Release 12.2(20)EWA provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- Non-Stop Forwarding Awareness (“Configuring Supervisor Engine Redundancy Using RPR and SSO” chapter)
- Stateful Switchover (“Configuring Supervisor Engine Redundancy Using RPR and SSO” chapter)
- 802.1X with Voice VLAN ID (“Understanding and Configuring 802.1X Port-Based Authentication” chapter)
- Forced 10/100 Auto Negotiation (“Configuring Interfaces” chapter)

New Hardware Features in Release 12.2(20)EW

Release 12.2(20)EW provides the following new hardware for the Catalyst 4500 series switch:

- WS-X4124-RJ45—Catalyst 4500 series 24-port 10/100(RJ-45) module
- WS-X4224-RJ45V—Catalyst 4500 series Power over Ethernet (PoE) 10/100-Mbps, 24-port (RJ-45) 802.3af
- WS-X4448-GB-SFP—Catalyst 4500 series 48-Port 1000BASE-X SFP module
- WS-X4524-GB-RJ45V—Catalyst 4500 series Power over Ethernet (PoE) 10/100/1000-Mbps, 24-port (RJ-45) 802.3af

New Software Features in Release 12.2(20)EW

Release 12.2(20)EW provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- Community PVLAN (“Configuring Private VLANs” chapter)
- SPAN ACL Filtering (“Configuring SPAN and RSPAN” chapter)
- DHCP Client Autoconfiguration (“Configuring the Switch for the First Time” chapter)
- Software-based IPv6

For information on the IPv6 feature for LAN and WAN interfaces, refer to the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t13/ipv6_vgf.htm

For limitations of IPv6 support on the Catalyst 4500 series switch, refer to the “Unsupported Features” section on page 17.

New Hardware Features in Release 12.2(18)EW

Release 12.2(18)EW provides the following new hardware for the Catalyst 4500 series switch:

- WS-X4516—Catalyst 4500 series switch Supervisor Engine V
- WS-C4510R—Catalyst 4500 series switch chassis with 10 slots (supports Supervisor Engine V only)
- WS-X4148-FE-BD-LC—Catalyst 4500 series switch 48-port 100BASE-BX10-D module
- WS-X4248-RJ45V—Catalyst 4500 series switch Power over Ethernet (PoE) 10/100-Mbps, 48 port (RJ-45)
- WS-X4248-RJ21V—Catalyst 4500 series switch Power over Ethernet (PoE) 10/100-Mbps, 48 port telco (4xRJ-21)
- WS-X4548-GB-RJ45V—Catalyst 4500 series switch Power over Ethernet (PoE) 48-port 10/100/1000-Mbps (RJ-45)

New Software Features in Release 12.2(18)EW

Release 12.2(18)EW provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- 802.1Q Tunneling (Q in Q) (“Configuring 802.1Q and Layer 2 Protocol Tunneling” chapter)
- Layer 2 Protocol Tunneling (“Configuring 802.1Q and Layer 2 Protocol Tunneling” chapter)
- Storm Control (“Configuring Port-Based Traffic Control” chapter)
- Sticky Port Security (“Configuring Port Security” chapter)
- 802.1X with Port Security (“Understanding and Configuring 802.1X Port-Based Authentication” chapter)
- 802.1X Accounting (“Understanding and Configuring 802.1X Port-Based Authentication” chapter)
- SmartPort Macros (“Configuring SmartPort Macros” chapter)
- Chassis and Inline Power Management (“Environmental Monitoring and Power Management” chapter)

For more information on these features, refer to these publications:

- *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide* at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_2_18/config/index.htm
- *Catalyst 4500 Series Switch Cisco IOS Command Reference* at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_2_18/command/index.htm

New Hardware Features in Release 12.1(20)EW

There are no new hardware features in Release 12.1(20)EW.

New Software Features in Release 12.1(20)EW

Release 12.1(20)EW provides the following Cisco IOS features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- Internet Group Management Protocol (IGMP) v3 snooping enhancements ("Configuring IGMP Snooping and Filtering" chapter)
- Virtual Routing Forwarding-lite ("Configuring VRF-lite" chapter)
- Remote Switched Port ANalyzer ("Configuring SPAN and RSPAN" chapter)
- Pragmatic General Multicast (PGM)
- Port Security on PVLAN ports
- Dynamic ARP Inspection on PVLAN ports
- Authentication, authorization, and accounting using TACACS+ and RADIUS protocol
- Internetwork Packet Exchange (IPX)/AppleTalk access control lists (ACLs)
  - <1000-1099> IPX SAP access list
  - <800-899> IPX standard access list
  - <900-999> IPX extended access list
- Transceiver Optical Monitoring
- Enhanced Simple Network Management Protocol (SNMP) Management Information Base (MIB) support

For more information on these features, refer to these publications:

- *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide* at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_2_18/config/index.htm
- *Catalyst 4500 Series Switch Cisco IOS Command Reference* at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_2_18/command/index.htm

New Hardware Features in Release 12.1(19)EW

Release 12.1(19)EW provides the following new hardware for the Catalyst 4500 series switch:

- WS-X4013+—Catalyst 4500 series Supervisor Engine II-Plus
- WS-X4548-GB-RJ45—Catalyst 4500 series 48-port 10/100/1000 RJ-45 line card
- WS-X4302-GB—Catalyst 4500 series 2-port Gigabit Ethernet line card
- DWDM-GBIC-xx.yy—Cisco DWDM GBICs
- WDM-GBIC-REC—Cisco receive-only 1000BASE-WDM GBIC

New Software Features in Release 12.1(19)EW

Release 12.1(19)EW provides the following Cisco IOS software features for the Catalyst 4500 series switch:

Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

- Storm Control (“Configuring Port-Based Traffic Control” chapter)
- Per-VLAN Rapid Spanning Tree (“Understanding and Configuring STP” chapter)
- Trusted boundary (“Configuring QoS” chapter)
- Auto QoS (“Configuring QoS” chapter)
- Secure access with Secure Shell Protocol (SSHv2)
- **show interface capabilities** command (“Configuring Port-Based Traffic Control” chapter)
- NetFlow version 8 (“Configuring NetFlow Statistics Collection” chapter)
- Port ACL (“Configuring Network Security with ACLs” chapter)
- Dynamic ARP Inspection (“Understanding and Configuring Dynamic ARP Inspection” chapter)
- IP source guard (“Configuring DHCP Snooping and IP Source Guard” chapter)

Note For any network deployment of Dynamic ARP Inspection, IP Source Guard and the DHCP snooping features, it is essential that you read the white paper “Catalyst 4500 Security Services Best Practices” at the URL:
http://www.cisco.com/en/US/partner/products/hw/switches/ps4324/prod_white_papers_list.html

- CPU port sniffing (“Configuring SPAN” chapter)
- Packet type filtering (“Configuring SPAN” chapter)
- Ingress packets (“Configuring SPAN” chapter)
- Port flood blocking (“Port Unicast and Multicast Flood Blocking” chapter)
- 802.1X with VLAN assignment (“Configuring 802.1X Port-Based Authentication” chapter)
- 802.1X with guest VLAN (“Configuring 802.1X Port-Based Authentication” chapter)
- IGMP version 3 (“Configuring IGMP Snooping and Filtering” chapter)
- Unidirectional link routing (“Configuring Unidirectional Link Routing” chapter in the *Cisco IP and IP Routing Configuration Guide)*
- Inline power preallocation (“Environmental Monitoring and Power Management” chapter)
- IPX performance enhancements

  The delivery latency for IPX packet forwarding has been significantly improved. For lock-step based protocols with single or small packet window sizes, this results in an increased throughput rate and better responsiveness.

For more information on these features, refer to these publications:

- *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide* at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_19/config/index.htm

- *Catalyst 4500 Series Switch Cisco IOS Command Reference* at the following URL:
  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_19/command/index.htm

New Hardware Features in Release 12.1(13)EW

Release 12.1(13)EW provides the following new hardware for the Catalyst 4500 series switch:

- WS-F4531—Catalyst 4500 Series NetFlow Services Card
- WS-G5483—Cisco 1000BASE-T GBIC
- WS-X4604-GWY—Cisco Catalyst 4000 Access Gateway Module
- WS-X4148-FE-LX-MT—48-port 100BASE-LX10 Fast Ethernet switching module

New Software Features in Release 12.1(13)EW

Release 12.1(13)EW provides the following Cisco IOS software features for the Catalyst 4500 series switch:

- The new Layer 2 features are as follows:

  Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*

  - VLAN Management Policy Server (VMPS) client (“Configuring Dynamic VLAN Membership” chapter)
  - Support for 9216 byte frames (“Configuring Interfaces” chapter)
  - Unicast MAC filtering (“Configuring Network Security with ACLs” chapter)
  - Layer 2 traceroute (“Checking Port Status and Connectivity” chapter)
  - Unidirectional Ethernet port (“Configuring Unidirectional Ethernet” chapter)
  - Private VLAN DHCP snooping (“Configuring PVLANs” chapter)
  - Port security (“Configuring Port Security” chapter)
- The new Layer 3 features are as follows:
  - PBR (policy-based routing) (“Configuring Policy-Based Routing” chapter)
  - Dynamic Buffer Limiting (“Understanding and Configuring QoS” chapter)
- Secure access via secure shell (SSH) Protocol
- Intermediate System to Intermediate System (IS-IS)
- NetFlow VLAN Statistics
- NetFlow Statistics Collection
- NetFlow Statistics Export Version 1 and Version 5
- IEEE 802.3ad (“Understanding and Configuring EtherChannel” chapter)
- Enhanced SNMP MIB support

For more information on these features, refer to these publications:

- *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide* at the following URL:
  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_13/config/index.htm
- *Catalyst 4500 Series Switch Cisco IOS Command Reference* at the following URL:
  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_13/command/index.htm

New Hardware Features in Release 12.1(12c)EW

Release 12.1(12c)EW provides the following new hardware for the Catalyst 4500 series switch:

- PWR-C45-1000AC—Catalyst 4500 1000 Watt AC Power Supply (data only)
- PWR-C45-2800AC—Catalyst 4500 2800 Watt AC Power Supply (with integrated voice)
- WS-C4503—Catalyst 4503 chassis with 3 slots and a fan
- WS-C4506—Catalyst 4506 chassis with 6 slots and a fan
- WS-C4507R—Cisco Catalyst 4507 chassis with 7 slots and a fan (supports Supervisor Engine IV only)
- WS-X4515—Cisco Catalyst 4500 Supervisor Engine IV
- WS-X4515/2—Cisco Catalyst 4507R Redundant Supervisor Engine IV
- CWDM-GBIC-1470—Longwave 1470 nm laser single-mode
- CWDM-GBIC-1490—Longwave 1490 nm laser single-mode
- CWDM-GBIC-1510—Longwave 1510 nm laser single-mode
- CWDM-GBIC-1530—Longwave 1530 nm laser single-mode
- CWDM-GBIC-1550—Longwave 1550 nm laser single-mode
- CWDM-GBIC-1570—Longwave 1570 nm laser single-mode
- CWDM-GBIC-1590—Longwave 1590 nm laser single-mode
- CWDM-GBIC-1610—Longwave 1610 nm laser single-mode

New Software Features in Release 12.1(12c)EW

Release 12.1(12c)EW provides the following Cisco IOS features for the Catalyst 4500 series switch.

- The new Layer 2 features are as follows:

  Note The following chapter references are for the *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*.

  – Support for 4096 VLANs per switch (refer to the “Understanding and Configuring VLANs” chapter)

  – Support for 1600 byte-sized frames to enable two nested 802.1q headers (802.1q in 802.1q pass-through) and Multiprotocol Label Switching (MPLS) on the network (refer to the “Understanding and Configuring VLANs" chapter)

  - Spanning-tree Loop guard and PortFast BPDU Filtering (refer to the “Configuring STP Features” chapter)
  - 802.1s and 802.1w (refer to the “Understanding and Configuring Multiple Spanning Trees” chapter)
  - IGMP filtering on trunks
  - PVLAN isolated trunk port (refer to the “Configuring PVLANs” chapter)
  - DHCP snooping (refer to the “Understanding and Configuring DHCP Snooping" chapter)
  - 802.1X port-based authentication (refer to the "Configuring 802.1X Port-Based Authentication" chapter)
  - VLAN access control lists (refer to the "Configuring Network Security with ACLs" chapter)
- The new Layer 3 features are as follows:
  - Software routing IPX and Appletalk
- Supervisor Engine Redundancy (refer to the “Configuring Supervisor Engine Redundancy on the Catalyst 4507R” chapter)
- Support for SPAN sessions with both received and transmitted traffic (refer to the “Configuring SPAN” chapter)

For more information on these features, refer to these publications:

- *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide* at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_12/config/index.htm
- *Catalyst 4500 Series Switch Cisco IOS Command Reference* at the following URL:

  http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_12/command/index.htm

New Hardware Features in Release 12.1(11b)EW

Release 12.1(11b)EW provides initial support of the Cisco IOS software for the Catalyst 4006 switch with Supervisor Engine III and the following modules:

- WS-X4148-RJ45V—48-port inline power 10/100BASE-TX switching module with inline power support
- WS-X4095-PEM—Catalyst 4000 DC Power Entry Module
- WS-P4603-2PSU—Catalyst 4000 Auxiliary Power Shelf (3-slot) including two WS-X4608 power supplies
- WS-X4608—Catalyst 4603 Power Supply Unit for WS-P4603

New Software Features in Release 12.1(11b)EW

Release 12.1(11b)EW provides initial support of the Cisco IOS software for the Catalyst 4006 switch with Supervisor Engine III.

- For more information on the following features, refer to these publications:
  - *Software Configuration Guide for the Catalyst 4006 Switch with Supervisor Engine III* at the following URL:

    http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_11/config/index.htm

  - *Command Reference for the Catalyst 4006 Switch with Supervisor Engine III* at the following URL:

    http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_11/command/index.htm

Release 12.1(11b)EW provides these features:

- Multiple VLAN access port (only for data and voice VLANs)
- Inline power management for Cisco IP phones and Aironet 350 Wireless Access Points on the WS-X4148-RJ45V module.
- Power redundancy
- Multicast flooding suppression for STP changes
- IGMP filtering

New Hardware Features in Release 12.1(8a)EW

Release 12.1(8a)EW provides initial support of the Cisco IOS software for the Catalyst 4006 switch with Supervisor Engine III and the following modules:

- WS-X4124-FX-MT—24-port 100BASE-FX Fast Ethernet switching module
- WS-X4148-FX-MT—48-port 100BASE-FX Fast Ethernet switching module
- WS-X4148-RJ—48-port 10/100 Fast Ethernet RJ-45 switching module
- WS-X4148-RJ21—48-port 10/100-Mbps Fast Ethernet RJ-21 (telco connector) switching module
- WS-X4148-RJ45V—48-port inline power 10/100BASE-TX switching module: data traffic only (inline power not supported in Cisco IOS Release 12.1(8a)EW)
- WS-X4232-GB-RJ—32-port 10/100 Fast Ethernet RJ-45, plus 2-port 1000BASE-X (GBIC) Gigabit Ethernet switching module
- WS-X4232-RJ-XX—32-port 10/100 Fast Ethernet RJ-45 modular uplink switching module
- WS-X4306-GB—6-port 1000BASE-X (GBIC) Gigabit Ethernet switching module
- WS-X4418-GB—18-port 1000BASE-X (GBIC) Gigabit Ethernet switching module
- WS-X4412-2GB-T—12-port 1000BASE-T Gigabit Ethernet and 2-GBIC ports switching module
- WS-X4424-GB-RJ45—24-port 10/100/1000BASE-T Gigabit Ethernet switching module
- WS-X4448-GB-LX—48-port 1000BASE-LX Gigabit Ethernet Fiber Optic interface switching module
- WS-X4448-GB-RJ45—48-port 10/100/1000BASE-T Gigabit Ethernet switching module

New Software Features in Release 12.1(8a)EW

Release 12.1(8a)EW provides initial support of the Cisco IOS software for the Catalyst 4006 switch with Supervisor Engine III.

- For more information on the following features, refer to these publications:
  - *Software Configuration Guide for the Catalyst 4006 Switch with Supervisor Engine III* at the following URL:

    http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_18a/config/index.htm

  - *Command Reference for the Catalyst 4006 Switch with Supervisor Engine III* at the following URL:

    http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_18a/command/index.htm

Release 12.1(8a)EW provides these features:

- The Layer 2 features are as follows:

  Note The following chapter references are for the *Software Configuration Guide for the Catalyst 4006 Switch with Supervisor Engine III*.

  - Layer 2 switch ports and VLAN trunks with the Dynamic Trunking Protocol (DTP) (refer to the "Configuring Layer 2 Ethernet Interfaces" chapter)
  - VLANs (refer to the "Understanding and Configuring VLANs" chapter)
  - Private VLANs (refer to the "Understanding and Configuring Private VLANs" chapter)
  - VLAN Trunk Protocol (VTP) and VTP domains (refer to the "Understanding and Configuring VTP" chapter)
  - Spanning Tree Protocol (refer to the "Understanding and Configuring STP" chapter)
  - Spanning tree PortFast, UplinkFast, and BackboneFast (refer to the "Configuring STP Features" chapter)
  - IGMP snooping (refer to the "Understanding and Configuring IGMP Snooping" chapter)
- Cisco Express Forwarding for IP unicast traffic (refer to the "Configuring CEF" chapter)
- Standard Domain Naming System (DNS) support (refer to the Cisco IOS *Network Protocols Configuration Guide*, Part 1, and the Cisco IOS *Network Protocols Command Reference*, Part 1)
- Dynamic Host Configuration Protocol (DHCP); (refer to Cisco IOS *IP and IP Routing Configuration Guide*, Release 12.1, "Configuring DHCP")
- Bootstrap Protocol (BOOTP) relay (refer to the Cisco IOS *Network Protocols Configuration Guide*, Part 1, and the Cisco IOS *Network Protocols Command Reference*, Part 1)
- Cisco Discovery Protocol (CDP); (refer to the "Understanding and Configuring CDP" chapter)
- Standard IP access control lists (ACLs) at wire rate (refer to the "Configuring Network Security" chapter)
- The Layer 3 features are as follows:
  - Layer 3 routing protocols (refer to the Cisco IOS *Network Protocols Configuration Guides*, Parts 1 and 2, and the Cisco IOS *Network Protocols Command Reference*, Parts 1 and 2):

    Static IP routing
    IP routing protocols
    IP multicast routing protocols
  - Layer-3 related protocols (refer to the Cisco IOS Release 12.1 *Network Protocols Configuration Guides*, Parts 1 and 2, and the Cisco IOS Release 12.1 *Network Protocols Command Reference*, Parts 1 and 2):

    Internet Group Management Protocol (IGMP) v1 and v2
    Cisco Group Membership Protocol (CGMP) server support
    Full Internet Control Message Protocol (ICMP) support
    ICMP Router Discovery Protocol (IRDP)
    Multicast Source Discovery Protocol (MSDP)
    Multicast Border Gateway Protocol (MBGP)

- Multiple-Hot Standby Routing Protocol (M-HSRP; refer to “Hot Standby Router Protocol” in the Cisco IOS *Network Protocols Configuration Guide*, Part 1, and the Cisco IOS *Network Protocols Command Reference*, Part 1)
- Access control using several supported authentication methods (refer to the “Configuring the Switch for the First Time” chapter)
- Switched Port Analyzer (SPAN); (refer to the “Understanding and Configuring SPAN” chapter)
- Quality of Service (QoS); (refer to the “Understanding and Configuring QoS” chapter)

Upgrading the System Software

In most cases, upgrading the switch to a newer release of Cisco IOS software does not require a ROMMON upgrade. However, if you are running an early release of Cisco IOS software and plan to upgrade, the following tables list the recommended ROMMON release.

Caution Most supervisor engines have the required ROMMON release. However, due to caveat CSCed25996, we recommend that you upgrade your ROMMON to the recommended release.

Table 6 Supervisor Engine and Minimum Cisco IOS Release

Supervisor Engine	Minimum Cisco IOS Release
IV	12.1(12c)EW or 12.1(14)E
II-Plus	12.1(19)EW
II-Plus-10GE	12.2(25)SG
V	12.2(18)EW
II-Plus-TS	12.2(20)EWA
V-10GE	12.2(25)EW
ME-X4924-10GE	12.2(31)SGA

Table 7 Supervisor Engine and Recommended ROMMON Release

Supervisor Engine	Minimum ROMMON Release	Recommended ROMMON Release
IV	12.1(12r)EW	12.2(31r)SG3
II-Plus	12.1(19r)EW	12.2(31r)SG3
II-Plus-10GE	12.2(25r)SG	12.2(31r)SG3
V	12.1(20r)EW1	12.2(31r)SG3
II-Plus-TS	12.2(20r)EW	12.2(31r)SG3
V-10GE	12.2(25r)EW	12.2(31r)SG3
ME-X4924-10GE	12.2(25)EW	V-10GE

Table 8 ROMMON Release and Promupgrade Programs

ROMMON Release	Promupgrade Program
12.1(11br)EW	cat4000-sup3-promupgrade-121_11br_EW
12.1(12r)EW	cat4000-sup3-promupgrade-121_12r_ew
12.1(19r)EW	cat4000-ios-promupgrade-121_19r_EW
12.1(20r)EW1	cat4000-ios-promupgrade-121_20r_EW1
12.1(20r)EW2	cat4000-ios-promupgrade-121_20r_EW2
12.2(20r)EW	cat4000-ios-promupgrade-122_20r_EW
12.2(20r)EW1	cat4000-ios-promupgrade-122_20r_EW1
12.2(31r)SG3	cat4500-ios-promupgrade-122_31r_SG3
12.2(31r)SGA	cat4500-ios-promupgrade-122_31r_SGA

The following sections describe how to upgrade your switch software:

- Guidelines for Upgrading the ROMMON, page 35
- Upgrading the Supervisor Engine ROMMON from the Console, page 35
- Upgrading the Supervisor Engine ROMMON Remotely Using Telnet, page 38
- Upgrading the Cisco IOS Software, page 43

Guidelines for Upgrading the ROMMON

Caution If your supervisor engine is shipped with a newer version of ROMMON then do not downgrade! The new ROMMON will have board settings based on a hardware revision of components, and old settings will not work.

Upgrading the Supervisor Engine ROMMON from the Console

Caution To avoid actions that might make your system unable to boot, read this entire section before starting the upgrade.

Note The examples in this section use the programmable read-only memory (PROM) upgrade version 12.1(20r)EW1 and Cisco IOS Release 12.1(20)EW1. For other releases, replace the ROMMON release and Cisco IOS software release with the appropriate releases and filenames.

Follow this procedure to upgrade your supervisor engine ROMMON:

Step 1 Directly connect a serial cable to the console port of the supervisor engine.

Note This section assumes that the console baud rate is set to 9600 (default). If you want to use a different baud rate, change the configuration register value for your switch.

Step 2 Download the cat4000-ios-promupgrade-121_20r_EW1 program from Cisco.com, and place it on a TFTP server in a directory that is accessible from the switch that will be upgraded.

The cat4000-ios-promupgrade-121_20r_EW1 programs are available on Cisco.com at the same location from which you download Catalyst 4000 system images.

Step 3 Use the **dir bootflash:** command to ensure that there is sufficient space in Flash memory to store the PROM upgrade image. If there is insufficient space, delete one or more images, and then issue the **squeeze bootflash:** command to reclaim the space.

If you are using a CompactFlash card, replace **bootflash:** with **slot0:**.

Step 4 Download the cat4000-ios-promupgrade-121_20r_EW1 program into Flash memory using the **copy tftp** command.

The following example shows how to download the PROM upgrade image cat4000-ios-promupgrade-121_20r_EW1 from the remote host 172.20.58.78 to bootflash:

```
Switch# copy tftp: bootflash:
Address or name of remote host [172.20.58.78]?
Source filename [cat4000-ios-promupgrade-121_20r_EW1]?
Destination filename [cat4000-ios-promupgrade-121_20r_EW1]?
Accessing tftp://172.20.58.78/cat4000-ios-promupgrade-121_20r_EW1...
Loading cat4000-ios-promupgrade-121_20r_EW1 from 172.20.58.78 (via
FastEthernet2/1):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!
[OK - 455620 bytes]

455620 bytes copied in 2.644 secs (172322 bytes/sec)
Switch#
```

Step 5 Enter the **reload** command to reset the switch, press **Ctrl-C** to stop the boot process, and re-enter ROMMON.

The following example shows the output after a reset into ROMMON:

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

03:57:16:%SYS-5-RELOAD:Reload requested



******************************************************
 *                                                    *
 * Welcome to Rom Monitor for WS-X4515 System.        *
 * Copyright (c) 2002 by Cisco Systems, Inc.          *
 * All rights reserved.                               *
 *                                                    *
 ******************************************************

 Rom Monitor Program Version 12.1(12r)EW


.
```

```
.(output truncated)
.

 Established physical link 100MB Half Duplex
 Network layer connectivity may take a few seconds
rommon 1 >
```

Step 6 Run the PROM upgrade program by entering this command:
boot bootflash:cat4000-ios-promupgrade-121_20r_EW1

Caution No intervention is necessary to complete the upgrade. To ensure a successful upgrade, do not interrupt the upgrade process. Do not perform a reset, power cycle, or OIR of the supervisor engine until the upgrade is complete.

The following example shows the output from a successful upgrade, followed by a system reset:

```
rommon 2 > boot bootflash:cat4000-ios-promupgrade-121_20r_EW1

************************************************************
 *                                                          *
 * Rom Monitor Upgrade Utility For WS-X4515 System         *
 * This upgrades flash Rom Monitor image to the latest      *
 *                                                          *
 * Copyright (c) 2002, 2003 by Cisco Systems, Inc.          *
 * All rights reserved.                                     *
 *                                                          *
 ************************************************************

 Image size = 314.236 KBytes

 Maximum allowed size = 511.75 KBytes


 Upgrading your PROM... DO NOT RESET the system
 unless instructed or upgrade of PROM will fail !!!

 Beginning erase of 0x80000 bytes at offset 0x3f80000...  Done!

 Beginning write of prom  (0x4e8ec bytes at offset 0x3f80000)...

 This could take as little as 30 seconds or up to 2 minutes.
 Please DO NOT RESET!

 Success! The prom has been upgraded successfully.
 System will reset itself and reboot in about 15
```

Step 7 Boot the Cisco IOS software image, and enter the **show version** command to verify that ROMMON has been upgraded to 12.1(20r)EW1.

Step 8 Use the **delete** command to delete the PROM upgrade program from bootflash and the **squeeze** command to reclaim unused space.

The following example shows how to delete the **cat4000-ios-promupgrade-121_20r_EW1** image from bootflash and reclaim unused space:

```
Switch# delete bootflash:cat4000-ios-promupgrade-121_20r_EW1
Switch# squeeze bootflash:

All deleted files will be removed, proceed (y/n) [n]? y

Squeeze operation may take some time, proceed (y/n) [n]? y
Switch#
```

Step 9 Use the **show version** command to verify that the ROMMON has been upgraded

```
Switch#show version
Cisco Internetwork Operating System Software
IOS (tm) Catalyst 4500 L3 Switch Software (cat4500-I9S-M), Version 12.1(20)EW, E
ARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Wed 22-Oct-03 23:42 by kellmill
Image text-base: 0x00000000, data-base: 0x00F56DDC

ROM: 12.1(20r)EW1
Dagobah Revision 86, Swamp Revision 28

Switch uptime is 0 day, 0 hour, 5 minutes
System returned to ROM by reload
System image file is "bootflash:cat4500-i9s-mz.121-20.EW1"

cisco WS-C4503 (XPC8245) processor (revision 7) with 524288K bytes of memory.
Processor board ID FOX06460YD8
Last reset from Reload
3 Ethernet/IEEE 802.3 interface(s)
51 FastEthernet/IEEE 802.3 interface(s)
2 Gigabit Ethernet/IEEE 802.3 interface(s)
403K bytes of non-volatile configuration memory.

Configuration register is 0x2102

Switch#
```

The ROMMON has now been upgraded.

See the "Upgrading the Cisco IOS Software" section on page 43 for instructions on how to upgrade the Cisco IOS software on your switch.

Upgrading the Supervisor Engine ROMMON Remotely Using Telnet

Caution To avoid actions that might make your system unable to boot, read this entire section before starting the upgrade.

Follow this procedure to upgrade your supervisor engine ROMMON to Release 12.1(20r)EW1. This procedure can be used when console access is not available and when the ROMMON upgrade must be performed remotely.

Note In the following section, use the PROM upgrade version cat4000-ios-promupgrade-121_20r_EW1.

Step 1 Establish a Telnet session to the supervisor engine.

Note In the following discussion, we assume that at least one IP address has been assigned to either an SVI or a routed port.

Step 2 Download the cat4000-ios-promupgrade-121_20r_EW1 program from Cisco.com, and place it on a TFTP server in a directory that is accessible from the switch to be upgraded.

The cat4000-ios-promupgrade-121_20r_EW1 programs are available on Cisco.com at the same location from which you download Catalyst 4500 system images.

Step 3 Use the **dir bootflash:** command to ensure that there is sufficient space in Flash memory to store the PROM upgrade image. If there is insufficient space, delete one or more images, and then issue the **squeeze bootflash:** command to reclaim the space.

If you are using a CompactFlash card, replace **bootflash:** with **slot0:**.

Step 4 Download the cat4000-ios-promupgrade-121_20r_EW1 program into Flash memory using the **copy tftp** command.

The following example shows how to download the PROM upgrade image cat4000-ios-promupgrade-121_20r_EW1 from the remote host 172.20.58.78 to bootflash:

```
Switch# copy tftp: bootflash:
Address or name of remote host [172.20.58.78]?
Source filename [cat4000-ios-promupgrade-121_20r_EW1]?
Destination filename [cat4000-ios-promupgrade-121_20r_EW1]?
Accessing tftp://172.20.58.78/cat4000-ios-promupgrade-121_20r_EW1...
Loading cat4000-ios-promupgrade-121_20r_EW1 from 172.20.58.78 (via
FastEthernet2/1):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!
[OK - 455620 bytes]

455620 bytes copied in 2.644 secs (172322 bytes/sec)
Switch#
```

Step 5 Use the **no boot system flash bootflash:***file_name* command to clear all BOOT variable commands in the configuration file. In this example, the BOOT variable was set to boot the image cat4000-i5s-mz.121-19.EW1.bin from bootflash:

```
Switch# configure terminal
Switch(config)# no boot system flash bootflash:cat4000-i5s-mz.121-19.EW1.bin
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#

Use the boot system flash bootflash:file_name command to set the BOOT variable. You will
use two BOOT commands: one to upgrade the ROMMON and a second to load the Cisco IOS
software image after the ROMMON upgrade is complete. Notice the order of the BOOT
variables in the example below. At bootup the first BOOT variable command upgrades the
ROMMON. When the upgrade is complete the supervisor engine will autoboot, and the second
BOOT variable command will load the Cisco IOS software image specified by the second BOOT
command.
```

Note The **config-register** must be set to autoboot.

```
In this example, we assume that the console port baud rate is set to 9600 bps and that the
config-register is set to 0x0102.

Use the config-register command to autoboot using image(s) specified by the BOOT variable.
Configure the BOOT variable to upgrade the ROMMON and then autoboot the IOS image after
the ROMMON upgrade is complete. In this example, we are upgrading the ROMMON to version
12.1(20r)EW1. After the ROMMON upgrade is complete, the supervisor engine will boot Cisco
IOS software Release 12.1(20)EW1.
```

```
config-register to 0x0102.

Switch# configure terminal
Switch(config)# boot system flash bootflash:cat4000-ios-promupgrade-121_20r_EW1
Switch(config)# boot system flash bootflash:cat4000-i9s-mz.121-20.EW1
Switch(config)# config-register 0x0102
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#
```

Step 6 Use the **show bootvar** command to verify the boot string. The BOOT variable in this example will first run the PROM upgrade to upgrade ROMMON. Then, the upgrade software will reload and the supervisor engine will load the Cisco IOS software image.

```
Switch#sh bootvar
BOOT variable = bootflash:cat4000-ios-promupgrade-121_20r_EW1,1;bootflash:cat400
0-i9s-mz.121-20.EW1,1
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x2102
```

Step 7 Run the PROM upgrade program by issuing the **reload** command. Issuing this command will terminate your Telnet session.

Caution Verify the boot string in step 6. No intervention is necessary to complete the upgrade. To ensure a successful upgrade, do not interrupt the upgrade process. Do not perform a reset, power cycle, or OIR of the supervisor engine until the upgrade is complete.

The following example shows the console port output from a successful ROMMON upgrade followed by a system reset. Your Telnet session will be disconnected during the ROMMON upgrade, so you will not see this output. This step could take 2-3 minutes to complete. You will need to reconnect your Telnet session after 2-3 minutes when the Cisco IOS software image and the interfaces are loaded.

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

1d05h: %SYS-5-RELOAD: Reload requested



 ********************************************************
 *                                                      *
 * Welcome to Rom Monitor for WS-X4515 System.          *
 * Copyright (c) 2002 by Cisco Systems, Inc.            *
 * All rights reserved.                                 *
 *                                                      *
 ********************************************************

 Rom Monitor Program Version 12.1(12r)EW

 Board type 2, Board revision 7
 Swamp FPGA revision 28, Dagobah FPGA revision 86

***** The system will autoboot in 5 seconds *****
```

```
Type control-C to prevent autobooting.
. . . . .
Established physical link 100MB Full Duplex
Network layer connectivity may take a few seconds


******** The system will autoboot now ********


config-register = 0x0102
Autobooting using BOOT variable specified file.....

Current BOOT file is --- bootflash:cat4000-ios-promupgrade-121_20r_EW1




**********************************************************
*                                                        *
* Rom Monitor Upgrade Utility For  WS-X4515 System       *
* This upgrades flash Rom Monitor image to the latest    *
*                                                        *
* Copyright (c) 2002, 2003 by Cisco Systems, Inc.        *
* All rights reserved.                                   *
*                                                        *
**********************************************************

Image size = 314.236 KBytes

Maximum allowed size = 511.75 KBytes


Upgrading your PROM... DO NOT RESET the system
unless instructed or upgrade of PROM will fail !!!

Beginning erase of 0x80000 bytes at offset 0x3f80000...  Done!

Beginning write of prom  (0x4e8ec bytes at offset 0x3f80000)...

This could take as little as 30 seconds or up to 2 minutes.
Please DO NOT RESET!

Success! The prom has been upgraded successfully.
System will reset itself and reboot in about 15
.
.(output truncated)
.
******** The system will autoboot now ********


config-register = 0x0102
Autobooting using BOOT variable specified file.....

Current BOOT file is --- bootflash:cat4000-i9s-mz.121-20.EW1

Rommon reg: 0x56000380

Running IOS...
```

```
Decompressing the image
################################################################################
################################################################################
################################################################################
################################################################################
################################################################################
########################################################################## [OK]
```

Step 8 Use the **no boot system flash bootflash:***file_name* command to clear the BOOT command used to upgrade the ROMMON.

```
Switch# configure terminal
Switch(config)# no boot system flash bootflash:cat4000-ios-promupgrade-121_20r_EW1
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#
```

Step 9 Use the **show version** command to verify that the ROMMON has been upgraded.

```
Switch#show version
Cisco Internetwork Operating System Software
IOS (tm) Catalyst 4000 L3 Switch Software (cat4000-I9S-M), Version 12.1(20)EW, E
ARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Wed 22-Oct-03 23:42 by kellmill
Image text-base: 0x00000000, data-base: 0x00F56DDC

ROM: 12.1(20r)EW1
Dagobah Revision 86, Swamp Revision 28

Switch uptime is 0 day, 0 hour, 5 minutes
System returned to ROM by reload
System image file is "bootflash:cat4000-i9s-mz.121-20.EW1"

cisco WS-C4503 (XPC8245) processor (revision 7) with 524288K bytes of memory.
Processor board ID FOX06460YD8
Last reset from Reload
3 Ethernet/IEEE 802.3 interface(s)
51 FastEthernet/IEEE 802.3 interface(s)
2 Gigabit Ethernet/IEEE 802.3 interface(s)
403K bytes of non-volatile configuration memory.

Configuration register is 0x0102

Switch#
```

Step 10 Use the **delete** command to delete the PROM upgrade program from bootflash and the **squeeze** command to reclaim unused space.

The following example shows how to delete the cat4000-ios-promupgrade-121_20r_EW1 image from bootflash and reclaim unused space:

```
Switch# delete bootflash:cat4000-ios-promupgrade-121_20r_EW1
Switch# squeeze bootflash:

All deleted files will be removed, proceed (y/n) [n]? y

Squeeze operation may take some time, proceed (y/n) [n]? y
Switch#
```

Step 11 Use the **show bootvar** command to verify that the ROMMON upgrade program has been removed from the BOOT variable.

```
Switch#sh bootvar
BOOT variable = bootflash:cat4000-i9s-mz.121-20.EW1,1
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x0102
```

The ROMMON has now been upgraded.

See the "Upgrading the Cisco IOS Software" section on page 43 for instructions on how to upgrade the Cisco IOS software on your switch.

Upgrading the Cisco IOS Software

Caution To avoid actions that might make your system unable to boot, please read this entire section before starting the upgrade.

Before you proceed, observe the following rules for hostname:

- Do not expect case to be preserved

  Uppercase and lowercase characters look the same to many internet software applications. It may seem appropriate to capitalize a name the same way you might do in English, but conventions dictate that computer names appear all lowercase. For more information, refer to RFC 1178, Choosing a Name for Your Computer.
- Must start with a letter and end with a letter or digit.
- Interior characters can only be letters, digits, and hyphens; periods and underscores not allowed.
- Names must be 63 characters or fewer; hostname of fewer than 10 characters is recommended.
- On most systems, a field of 30 characters is used for the host name and the prompt in the CLI. Longer configuration mode prompts may be truncated.

To upgrade the Cisco IOS software on your Catalyst 4500 series switch, use this procedure:

Step 1 Download Cisco IOS Release 12.1(20)EW from Cisco.com, and place the image on a TFTP server in a directory that is accessible from the supervisor engine that will be upgraded.

Step 2 Use the **dir bootflash:** command to ensure that there is sufficient space in Flash memory to store the **promupgrade** image. If there is insufficient space, delete one or more images, and then enter the **squeeze bootflash:** command to reclaim the space.

If you are using a CompactFlash card, use **slot0:** instead of **bootflash**.

Step 3 Download the software image into Flash memory using the **copy tftp** command.

The following example shows how to download the Cisco IOS software image cat4000-is-mz.121-12c.EW from the remote host **172.20.58.78** to **bootflash**:

```
Switch# copy tftp: bootflash:
Address or name of remote host [172.20.58.78]?
Source filename [cat4000-is-mz121_12c.EW]?
Destination filename [cat4000-is-mz.121-12c.EW]?
Accessing tftp://172.20.58.78/cat4000-is-mz.121-12c.EW...
```

```
Loading cat4000-is-mz.121-12c.EW from 172.20.58.78 (via
FastEthernet2/1):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
|!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
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!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 6923388/13846528 bytes]

6923388 bytes copied in 72.200 secs (96158 bytes/sec)
Switch#
```

Step 4 Use the **no boot system flash bootflash:***file_name* command to clear the cat4000-is-mz.121-8a.EW file and to save the BOOT variable.

The following example shows how to clear the BOOT variable:

```
Switch# configure terminal
Switch(config)# no boot system flash bootflash:cat4000-is-mz.121-8a.EW
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#
```

Step 5 Use the **boot system flash** command to add the Cisco IOS software image to the BOOT variable.

The following example shows how to add the cat4000-is-mz.121-12c.EW image to the BOOT variable:

```
Switch# configure terminal
Switch(config)# boot system flash bootflash:cat4000-is-mz.121-12c.EW
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3641 to 1244 bytes [OK]
Switch#
```

Step 6 Use the **config-register** command to set the configuration register to 0x2102.

The following example show how to set the second least significant bit in the configuration register:

```
Switch# configure terminal
Switch(config)# config-register 0x2102
Switch(config)# exit
Switch# write
Building configuration...
Compressed configuration from 3723 to 1312 bytes [OK]
Switch#
```

Step 7 Enter the **reload** command to reset the switch and load the software.

Caution No intervention is necessary to complete the upgrade. To ensure a successful upgrade, do not interrupt the upgrade process by performing a reset, power cycle, or OIR of the supervisor, for at least five minutes.

The following example shows the output from a successful upgrade followed by a system reset:

```
Switch# reload
Rommon reg: 0x2B004180

Upgrading FPGA...

Decompressing the image
############## [OK]

 ******************************************************
 *                                                    *
 * WS-X4014 FPGA Upgrade Utility For WS-X4014 Machines *
 *                                                    *
 * Copyright (c) 2002 by Cisco Systems, Inc.          *
 * All rights reserved.                               *
 *                                                    *
 ******************************************************

 Image size = 483.944 KBytes

 Maximum allowed size = 1023.75 KBytes


 Upgrading your FPGA image... DO NOT RESET the system
 unless instructed or upgrade of FPGA will fail !!!

 Beginning erase of 0x100000 bytes at offset 0x3d00000...  Done!

 Beginning write of fpga image  (0x78fb0 bytes at offset 0x3d00000)...

 This could take as little as 30 seconds or up to 2 minutes.
 Please DO NOT RESET!

 Success! FPGA image has been upgraded successfully.
 System will reset itself and reboot in about 15 seconds.
 0




 ******************************************************
 *                                                    *
 * Welcome to Rom Monitor for WS-X4014 System.        *
 * Copyright (c) 2002 by Cisco Systems, Inc.          *
 * All rights reserved.                               *
 *                                                    *
 ******************************************************

 Rom Monitor Program Version 12.1(12r)EW

 Board type 1, Board revision 5
 Swamp FPGA revision 16, Dagobah FPGA revision 47


 MAC Address  : 00-30-85-XX-XX-XX
 IP Address   : 10.10.10.91
```

```
 Netmask      : 255.255.255.0
 Gateway      : 10.10.10.1
 TftpServer   : Not set.
 Main Memory  : 256 MBytes

 ***** The system will autoboot in 5 seconds *****


 Type control-C to prevent autobooting.
Switch#
```

Step 8 Use the **show version** command to verify that the new Cisco IOS release is operating on the switch.

Limitations and Restrictions

These sections list the limitations and restrictions for the current release of Cisco IOS software on the Catalyst 4500 series switch:

- For IP Unnumbered, the following are not supported:
  - Dynamic routing protocols
  - HSRP/VRRP
  - Static arp
  - Unnumbered interface and Numbered interface in different VRFs
- For WCCP version 2, the following are not supported:
  - GRE encapsulation forwarding method
  - Hash bucket based assignment method
  - Redirection on an egress interface (redirection out)
  - Redirect-list ACL
- For IPX software routing, the following are not supported:
  - NHRP (Next Hop Resolution Protocol)
  - NLSP
  - Jumbo Frames
- For AppleTalk software routing, the following are not supported:
  - AURP
  - AppleTalk Control Protocol for PPP
  - Jumbo Frames
  - EIGRP
- For NFL, the following are not supported:
  - The following packets are not accounted for by the NetFlow Services card:

    Control packets

    Packets with link-level errors

    ARP, RARP

  - Software flow cache size is fixed
  - Distribution not based on IP packet size
- For PBR, the following are not supported:
  - Matching cannot be performed on packet lengths
  - IP precedence, TOS, and QoS group are fixed
  - ACL or route-map statistics cannot be updated
- IGRP not supported (use EIGRP, instead).
- The MAC address table will be cleared while switching between supervisor engines if either the 802.1s or 802.1w spanning tree protocol is configured. To minimize address clearing and subsequent packet flooding, configure the edge ports as 'spanning-tree portfast' and the link type as 'spanning-tree link-type point-to-point'.
- While running NSF and IS-IS IETF mode, if you issue the **issu runversion** command within 5 minutes of issuing the **issu loadversion** command, packet loss may occur during an ISSU upgrade,

  Workaround: Configure the NSF interval timer to 0 minutes, or delay issuing the **issu runversion** command until the NSF interval timer has expired and NSF has restarted.
- Routes may not properly be resdistributed from one routing protocol to another when NSF is enabled on the switch. The success of the redistribution depends on the order in which the routing protocols converge after an NSF switchover.

  Workaround: None
- IP classful routing is not supported. The command **ip classless** is not supported as classless routing is enabled by default.
- The Catalyst 4510R switch does not support Supervisor Engines II-Plus, III, and IV. Installing an unsupported supervisor engine will result in unpredictable hardware behavior that cannot be handled by the software. Using an unsupported supervisor in a redundant slot may result in a supported supervisor in the other slot not working properly.
- Supervisor Engine II-Plus cannot read a CompactFlash card formatted by Supervisor Engine III or Supervisor Engine IV in a prior release.
- Catalyst 4500 supervisor engines will not be properly initialized if the VLAN configuration in the startup file does not match the information stored in the VLAN database file. This situation might occur if a backup configuration file was used.
- A Layer 2 LACP channel cannot be configured with the spanning tree PortFast feature.
- Netbooting using a boot loader image is not supported. See the "Troubleshooting" section on page 178 for details on alternatives.
- There is no support for downgrading to Release 12.1(8a)EW1 after running Release 12.1(13)EW (or higher). If you need to downgrade, contact your TAC representative for further instructions, and mention caveat CSCdz59058.
- Be aware of the following standard Cisco IOS software behavior when deploying redundant supervisors in a Catalyst 4507R: For hardware that does not exist while the startup configuration file is being parsed, the configuration file for the hardware is not applied.

  For example, if the active supervisor engine is in slot 1, and you have configured interface GE 1/1, the supervisor engine in slot 2 becomes active if you remove the active supervisor engine from the chassis. In addition, while the startup configuration file is being parsed, you will receive an error

message indicating that interface GE1/1 is no longer present. This behavior is correct. When the formerly active supervisor engine is reinserted in slot 1, there is no configuration for interface Gig 1/1.

This situation will not occur when both supervisor engines are physically in the chassis.

Workaround: Copy the startup configuration file into the running configuration:

```
Sup4#copy startup-config running-config
```

- An unsupported default CLI for mobile IP is displayed in the HSRP configuration. Although this CLI will not harm your system, you might want to remove it to avoid confusion.

  Workaround: Display the configuration with the **show standby** command, then remove the CLI. Here is sample output of the **show standby GigabitEthernet1/1** command:

  ```
  switch(config)# interface g1/1
  switch(config)# no standby 0 name (0 is hsrp group number)
  ```

- For HSRP "preempt delay" to function consistently, you must use the **standby delay minimum** command. Be sure to set the delay to more than 1 hello interval, thereby ensuring that a hello is received before HSRP leaves the initiate state.

  Use the **standby delay reload** option if the router is rebooting after reloading the image.

- When you attempt to run OSPF between a Cisco router and a third party router, the two interfaces might get stuck in the Exstart/Exchange state. This problem occurs when the maximum transmission unit (MTU) settings for neighboring router interfaces do not match. If the router with the higher MTU sends a packet larger than the MTU set on the neighboring router, the neighboring router ignores the packet.

  Workaround: Since the problem is caused by mismatched MTUs, the solution is to change the MTU on either router to match the neighbor's MTU.

- Catalyst 4000 WS-X4124-FX-MT modules with hardware revisions 1.5 and earlier are supported with the Supervisor Engines I (WS-X4012) and II (WS-X4013) only.

  Workaround: Contact your technical support representative for a replacement.

- You can run .1q-in-.1q packet pass-through with Supervisor Engine III and Supervisor Engine IV, but you can run only .1q-in-.1q encapsulation with a Supervisor Engine V.
- For PVST and Catalyst 4500 series switch VLANs, Cisco IOS Release 12.1(13)EW and higher support a maximum of 3000 spanning tree port instances. If you want to use more than this number of instances, you should use MST rather than PVST.
- Only ports 1 and 2 on the WS-X4418-GB and ports 13 and 14 on the WS-X4412-2GB-T module can be set as ISL trunks.
- The Fast Ethernet port (10/100) on the supervisor module is active in ROMMON mode only.
- If an original packet is dropped due to transmit queue shaping and/or sharing configurations, a SPAN packet copy can still be transmitted on the SPAN port.
- For all software releases (Cisco IOS Releases 12.1(8a)EW through Cisco IOS Release 12.2(31)SG), do not use over 100,000 routes.
- All software releases (Cisco IOS Releases 12.1(8a)EW through Cisco IOS Release 12.2(31)SG), support a maximum of 16,000 IGMP snooping group entries.
- For all software releases (Cisco IOS Releases 12.1(8a)EW through Cisco IOS Release 12.2(31)SG), the CLI contains some commands that are not supported. (CSCdw44274)
- Use the **no ip unreachables** command on all interfaces with ACLs configured for performance reasons.

- Layer 3 path load balancing metrics are not supported in Cisco IOS Releases 12.1(8a)EW, 12.1(11b)EW, 12.1(12c)EW, 12.1(13)EW, 12.1(19)EW, and 12.1(20)EW. (CSCdv10578)
- The threshold for the Dynamic Arp Inspection err-disable function is set to 15 ARP packets per second per interface. You should adjust this threshold depending on the network configuration. The CPU should not receive DHCP packets at a sustained rate greater than 1000 pps.
- A limited number of ACL bindings are dynamically installed by the IP source guard feature on a Catalyst 4500 series switch Supervisor Engine II-Plus. To take full advantage of the IP source guard feature, you should use the Catalyst 4500 series switch Supervisor Engine IV.
- If the CPU on the switch is 99 percent utilized, IPv6 Neighbor discovery packets may not be switched, causing IPv6 pings to fail between directly connected networks. If this situation continues, routes will eventually fail to appear in the IPv6 routing table.

  Workaround: Verify whether or not the Neighbor discovery cache has an entry, separate from regular troubleshooting areas of IPv6 address configurations and other configurations.
- If you first configure an IP address or IPv6 address on a Layer 3 port, then change the Layer 3 port to a Layer 2 port with the **switchport** command, and finally change it back to a Layer 3 port, the original IP/IPv6 address will be lost.
- By default, IPv6 is not enabled. To route IPv6, you must issue the **IPv6 unicast-routing** command. If you plan to use IPv6 multicast routing, use the **IPv6 multicast-routing** command.
- By default, CEF is not enabled for IPv6 (once IPv6 unicast routing is enabled). To prevent IPv6 traffic from being process-switched, use the **IPv6 cef** command.
- Multicast sources in community VLANs are not supported.
- Two-way community VLANs are not supported.
- Voice VLANs are not supported on community VLAN host interfaces.
- Private VLAN trunks do not carry community VLANs.
- When using private VLANs on the WS-4516 module, old ARP entries will not timeout of the ARP cache without manually clearing the entry. This event has no impact on production.
- The 802.1X voice VLAN port feature does not support the Cisco IP phone Model 7970, because this phone does not forward 802.1X EAPOL packets.
- Compact flash formatted in Release 12.2(20)EW should be re-formatted in Release 12.2(25)EW on both Supervisor Engine V-10GE and non-Supervisor V-10GE systems. Compact flash formatted on any other release need not be re-formatted on non-Supervisor Engine V-10GE systems.
- In a redundant system, do not remove and reinsert the standby supervisor while the active supervisor is booting up. Doing so may cause a failure in the online diagnostics test.

  Workaround: Remove and reinsert the standby supervisor after the active supervisor boots. (CSCsa66509)
- Slot 10 of the Supervisor Engine V accepts only the Catalyst 4500 series 2-port Gigabit Ethernet line card (WS-X4302-GB) and the Catalyst 4000 Access Gateway Module (WS-X4604-GWY).
- The maximum number of unique private VLAN pairs supported by the **switchport private-vlan mapping trunk** command above is 500. For example, one thousand secondary VLANs could map to one primary VLAN, or one thousand secondary VLANs could map one to one to one thousand primary VLANs.
- Support for PoE depends on the use of line cards and power supplies that support PoE.

  PoE switching modules

  – WS-X4148-RJ45V

  - WS-X4224-RJ45V
  - WS-X4248-RJ45V
  - WS-X4248-RJ21V
  - WS-X4524-GB-RJ45V
  - WS-X4548-GB-RJ45V

  PoE enabled power supplies

  - 1300 W AC
  - 1400 W DC
  - 2800 W AC

- While configuring PVLAN promiscuous trunk ports, the maximum number of mappings is 500 primary VLANs to 500 secondary VLANs.
- 802.1X inaccessible authentication bypass feature is not supported with NAC LAN port IP feature.
- Changes to the console speed in "line console 0" configuration mode do not impact console speed in ROMMON mode. To apply the same console speed in ROMMON mode, use the "confreg" ROMMON utility and change ROMMON console speed.
- A CompactFlash module formatted on a Catalyst 4500 Supervisor Engine with Cisco IOS software prior to Cisco IOS Release 12.1(19)EW or a Cisco IOS 12.1 release does not work on a Supervisor Engine II-Plus.
- If a Catalyst 4500 series switch requests information from the Cisco Secure Access Control Server (ACS) and the message exchange times out because the server does not respond, a message similar to this appears:

  ```
  00:02:57: %RADIUS-4-RADIUS_DEAD: RADIUS server 172.20.246.206:1645,1646 is not
  responding.
  ```

  If this message appears, check that there is network connectivity between the switch and the ACS. You should also check that the switch has been properly configured as an AAA client on the ACS.
- The **bgp shutdown** command is not supported in BGP router configuration mode. Executing this command might produce unexpected results.
- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)
- Interfaces on the module WS-X4148-RJ45V may not establish a link with a Daiden DN-2800G media converter, when both the switch and the media converter interfaces are configured to operate at 100 Mbps and full duplex. This situation occurs when the interface on the module is configured to automatically detect and power up devices inline with the **power inline auto** command. This caveat is exhibited in all software releases.

  Workarounds:

  1. Disable inline power on the switch ports using the **power inline never** command.

  2. Configure the media converter to autonegotiate the speed and duplex instead of running at 100 Mbps and full duplex. (CSCee62109)

Caveats

Caveats describe unexpected behavior in Cisco IOS releases. Caveats listed as open in a prior release are carried forward to the next release as either open or resolved.

Note All caveats in Release 12.3 also apply to the corresponding 12.1 E releases. Refer to the *Caveats for Cisco IOS Release 12.3* publication at the following URL: http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123relnt/123cavs/123mcavs.htm

Open Caveats in Cisco IOS Release 12.2(31)SGA

This section lists the open caveats in Cisco IOS Release 12.2(31)SGA:

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
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000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

```
clearwater#sh policy-map int
  FastEthernet3/2

   Service-policy output: p1

     Class-map: c1 (match-all)
       0 packets<--------It stays at '0' despite of traffic being received
       Match: access-group name fnacl21
       police: Per-interface
         Conform: 9426560 bytes Exceed: 16573440 bytes
```

  Workaround: Verify that the MAC addresses being transmitted through the system are learned.

  (CSCef01798)

- After an SSO switchover, you may receive a “PM-4-PORT_INCONSISTENT” error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not impact the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, then the **no shutdown** command on the same port will ensure that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- On redundant systems in SSO mode, when you issue the **cisco-phone $AVID $VVID** macro command to an interface connected to an IP phone, you might leave the interface on the standby supervisor engine in a wrong state. This would cause the data SVI and/or the voice SVI to be down after the switchover.

  Workaround: If the data or video SVIs associated to the physical interface (connected to the IP phone) are down after the switchover, issue the **shutdown** and **no shutdown** commands on the physical interface to restore the correct (up) state for all the SVIs. (CSCsb02308)

- When you issue the **ip http secure-server** command (or if the system reads it from the startup configuration), the device will check for the existence of a persistent self-signed certificate during boot up.

  – If such a certificate does not exist and the device's hostname and default_domain have been set, then a persistent self-signed certificate will be generated.

  – If such a certificate exists, the FQDN in the certificate is compared with the current device's hostname and default_domain. If either of these differs from the FQDN in the certificate, then the existing persistent self-signed certificate is replaced with a new one with the updated FQDN. Be aware that the existing keypair is used in the new certificate.

  On a switch that support redundancy, the generation of the self-signed certificate is performed independently on the active and the standby supervisor engines. So, the certificates differ. After switchover, the HTTP client that holds the old certificate can not connect to the HTTPS server.

  Workaround: Re-connect. (CSCsb11964)

- If you modify policers with a large number of VLAN tags on a Catalyst 4507R or a 4510R chassis with dual supervisor engines operating in SSO mode during substantial CPU bound traffic, the following message appears:

  ```
  %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync config-changed command to standby
  ```

  Workaround: Reset the standby supervisor by entering the **redundancy reload peer** command. This command synchronizes the standby supervisor configuration with the active supervisor.

- After upgrading to Cisco IOS 12.2(31)SG, some CPU queues configured as SPAN sources and saved in the startup configuration file do not function as they did in the older software release.

  This only impacts a switch that has any of the following queues are configured as SPAN source in releases prior to 12.2(31)SG and saved to startup-config. The SPAN destination would not get the same traffic after upgrading to 12.2(31)SG.

QueueID	Old QueueName	New QueueName
5	control-packet	control-packet
6	rpf-failure	control-packet
7	adj-same-if	control-packet
8	<unused queue>	control-packet
11	<unused queue>	adj-same-if

QueueID	Old QueueName	New QueueName
13	acl input log	rfp-failure
14	acl input forward	acl input log

Workaround: After upgrading to 12.2(31)SG, remove the old SPAN source configuration and reconfigure with the new queue names/IDs. For example:

```
Switch(config)# no monitor session n source cpu queue all rx
Switch(config)# monitor session n source cpu queue <new QueueName)
```

(CSCsc94802)

- If you initiate a scp copy from the console and it is delayed long enough to cause a timeout, the console is disconnected.

  Workarounds:

  – Use a different copy protocol.

  – Set a longer ssh timout.

  (CSCsc94317)

- Occasionally, on redundant systems in SSO mode, when you apply a **macro apply cisco-phone** command to an interface connected to an IP phone, you might leave the interface on the standby supervisor engine in a wrong state. This would cause the data SVI and/or the voice SVI to be down after the switchover.

  Workaround: If the data or video SVIs associated to the physical interface connected to the IP phone are down after the switchover, issue the **shutdown** and **no shutdown** commands on the physical interface to restore the correct (up) state for all the SVIs. (CSCsb02308))

- To enable IP CEF if it is disabled by hardware exhausting, use the **ip cef distributed** command.

  Workaround: None. (CSCsc11726)

- When you do not save the running configuration on the active supervisor engine before a Stateful Switchover occurs due to the failure of the active supervisor engine, the following error message is observed:

  ```
  00:00:26: %PM-4-PORT_INCONSISTENT: Port Gi3/1 is inconsistent: IDB state down (set
  00:00:02 ago), link: up (00:00:02 ago)
  ```

  Traffic loss is observed for about 500 ms.

  Workaround: Save your changes to the running configuration to avoid the error log and the loss of traffic during a Stateful Switchover.

- When module WS-X4418-GB is installed, the mismatch command list (MCL) error is reported for the **switchport trunk encapsulation dot1q** command on interfaces associated with this module that are configured as trunks. The active supervisor engine displays the MCL commands and resets the standby supervisor engine, which boots in RPR mode.

  Workaround: Display the mismatch command list on the active supervisor engine with the **show issu config-sync failures mcl** command.

  Module WS-X4418-GB supports dot1q encapsulation only and is the default encapsulation.

Remove the sub-interface **switchport trunk encapsulation dot1q** command from each of the interfaces associated with the WS-X4418-GB module on the active supervisor engine, then reboot the standby supervisor engine. Verify that the encapsulation command is removed from the running config on the active supervisor engine for the above interfaces. The standby supervisor engine now boots in SSO mode. Save the config file on the active supervisor engine. (CSCse86228)

- An ip redirect may not be sent out if the outgoing interface on a Catalyst 4500 series switch is an ip unnumbered port.

  This could occur for these reasons:

  – A packet requires an ip redirect to an ip unnumbered outgoing port within 3 minutes of booting the Catalyst 4500 series switch.

  – You perform a shut/no shut on an outgoing port that has ip unnumbered enabled and the Catalyst 4500 series switch receives packets that require redirection and the destination mac-address is already in the ARP table.

  Workarounds:

  – Do not inject packets that require ip redirect sent out to an ip unnumbered port within 3 minutes of booting the Catalyst 4500 series switch.

  – Configure the correct default gateway on the host side. (CSCse75660)

- After configuring the **bgp dampening route-map bgp_damp** command on an active supervisor engine in SSO mode, the following system logs are seen on the console of the standby supervisor engine:

  ```
  00:10:34: %BGP-5-DAMPENING_HIGH_MAX_PENALTY: Maximum penalty (32473) is more than
  allowed maximum (20000). Dampening is OFF

  00:10:06: %BGP-5-DAMPENING_HIGH_MAX_PENALTY: Maximum penalty (32473) is more than
  allowed maximum 000). Dampening is OFF
  ```

  At this point, if you revert back to the **bgp dampening** command on the active supervisor engine, the new command is not synchronized with the standby supervisor engine.

  Workarounds: Issue the **no bgd dampening** command, then the **bgp dampening** command. (CSCse12485)

- While upgrading the Catalyst 4500 series switch with ISSU, issuing the **issu runversion** command as the standby supervisor engine boots causes the active supervisor engine to report a bulk sync failure due to a mismatch command (MCL). The MCL errors are reported only for PoE interfaces on WS-X4506-GB-T line cards configured for inline power with the **power inline static max** command. The standby supervisor engine automatically resets and re-boots in RPR mode.

  Workarounds: Remove the configuration lines reported in the MCL list from the running config on the active supervisor engine. Then, reboot the standby supervisor engine. Once the standby supervisor engine has booted and Catalyst 4500 series switch is in a STANDBY HOT state, reconfigure the original **power inline static max** command. (CSCse57813)

- On redundant systems working in SSO mode, a line-by-line (LBL) configuration sync error occurs between the active and standby supervisor engines when the administrator defaults the configuration for an interface configured with port security. The error causes the standby supervisor engine to reset if the config sync policy for the lbl errors is enforced (with the **issu config-sync policy lbl prc** command).

  This problem only occurs if the interface configured with port security is in violation restrict mode (through the **switchport port-security violation restrict** command). Moreover, the interface must be in security violation state when you apply the **default interface** command.

Workarounds: Bring the interface into shutdown mode before you apply the **default interface** command. (CSCsf30157)

- After an ISSU is performed on a WS-X4448-GB-SFP linecard running Cisco IOS Release 12.2(31)SGA, the output of the **show inventory** command does not display some of the 1000Base SFPs .

  Workarounds: None. (CSCse43697)

Resolved Caveats in Cisco IOS Release 12.2(31)SGA

This section lists the resolved caveats in Release 12.2(31)SGA:

- A Catalyst 4500 series switch clears the mac-add-table notif counters when the feature is disabled.

  Workaround: Re-connect. (CSCsc31540)

Open Caveats in Cisco IOS Release 12.2(31)SG

This section lists the open caveats in Cisco IOS Release 12.2(31)SG:

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
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  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

```
clearwater#sh policy-map int
  FastEthernet3/2

   Service-policy output: p1
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```
Class-map: c1 (match-all)
  0 packets<--------It stays at '0' despite of traffic being received
  Match: access-group name fnacl21
  police: Per-interface
    Conform: 9426560 bytes Exceed: 16573440 bytes
```

Workaround: Verify that the MAC addresses being transmitted through the system are learned.

(CSCef01798)

- After an SSO switchover, you may receive a "PM-4-PORT_INCONSISTENT" error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not impact the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, then the **no shutdown** command on the same port will ensure that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- On redundant systems in SSO mode, when you issue the **cisco-phone $AVID $VVID** macro command to an interface connected to an IP phone, you might leave the interface on the standby supervisor engine in a wrong state. This would cause the data SVI and/or the voice SVI to be down after the switchover.

  Workaround: If the data or video SVIs associated to the physical interface (connected to the IP phone) are down after the switchover, issue the **shutdown** and **no shutdown** commands on the physical interface to restore the correct (up) state for all the SVIs. (CSCsb02308)

- When you issue the **ip http secure-server** command (or if the system reads it from the startup configuration), the device will check for the existence of a persistent self-signed certificate during boot up.

  – If such a certificate does not exist and the device's hostname and default_domain have been set, then a persistent self-signed certificate will be generated.

  – If such a certificate exists, the FQDN in the certificate is compared with the current device's hostname and default_domain. If either of these differs from the FQDN in the certificate, then the existing persistent self-signed certificate is replaced with a new one with the updated FQDN. Be aware that the existing keypair is used in the new certificate.

  On a switch that support redundancy, the generation of the self-signed certificate is performed independently on the active and the standby supervisor engines. So, the certificates differ. After switchover, the HTTP client that holds the old certificate can not connect to the HTTPS server.

  Workaround: Re-connect. (CSCsb11964)

- If you modify policers with a large number of VLAN tags on a Catalyst 4507R or a 4510R chassis with dual supervisor engines operating in SSO mode during substantial CPU bound traffic, the following message appears:

  ```
  %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync config-changed command to standby
  ```

  Workaround: Reset the standby supervisor by entering the **redundancy reload peer** command. This command synchronizes the standby supervisor configuration with the active supervisor.

- A Catalyst 4500 series switch clears the mac-add-table notif counters when the feature is disabled.

  Workaround: Re-connect. (CSCsc31540)

- After upgrading to Cisco IOS 12.2(31)SG, some CPU queues configured as SPAN sources and saved in the startup configuration file do not function as they did in the older software release.

  This only impacts a switch that has any of the following queues are configured as SPAN source in releases prior to 12.2(31)SG and saved to startup-config. The SPAN destination would not get the same traffic after upgrading to 12.2(31)SG.

QueueID	Old QueueName	New QueueName
5	control-packet	control-packet
6	rpf-failure	control-packet
7	adj-same-if	control-packet
8	<unused queue>	control-packet
11	<unused queue>	adj-same-if
13	acl input log	rfp-failure
14	acl input forward	acl input log

Workaround: After upgrading to 12.2(31)SG, remove the old SPAN source configuration and reconfigure with the new queue names/IDs. For example:

```
Switch(config)# no monitor session n source cpu queue all rx
Switch(config)# monitor session n source cpu queue <new QueueName)
```

(CSCsc94802)

- If you initiate a scp copy from the console and it is delayed long enough to cause a timeout, the console is disconnected.

  Workarounds:

  – Use a different copy protocol.

  – Set a longer ssh timout.

  (CSCsc94317)

- Occasionally, on redundant systems in SSO mode, when you apply a **macro apply cisco-phone** command to an interface connected to an IP phone, you might leave the interface on the standby supervisor engine in a wrong state. This would cause the data SVI and/or the voice SVI to be down after the switchover.

  Workaround: If the data or video SVIs associated to the physical interface connected to the IP phone are down after the switchover, issue the **shutdown** and **no shutdown** commands on the physical interface to restore the correct (up) state for all the SVIs. (CSCsb02308))

- To enable IP CEF if it is disabled by hardware exhausting, use the **ip cef distributed** command.

  Workaround: None. (CSCsc11726)

- When you do not save the running configuration on the active supervisor engine before a Stateful Switchover occurs due to the failure of the active supervisor engine, the following error message is observed:

  ```
  00:00:26: %PM-4-PORT_INCONSISTENT: Port Gi3/1 is inconsistent: IDB state down (set
  00:00:02 ago), link: up (00:00:02 ago)
  ```

  Traffic loss is observed for about 500 ms.

  Workaround: Save your changes to the running configuration to avoid the error log and the loss of traffic during a Stateful Switchover.

Resolved Caveats in Cisco IOS Release 12.2(31)SG

This section lists the resolved caveats in Release 12.2(31)SG:

- When changing the access VLAN ID on a sticky port configured with IPSG and voice VLAN, the secure MAC address counter on this port might become negative. This does not impact the system.

  Workaround: Avoid enabling IPSG on sticky ports that are configured with VVID. (CSCeg31712)

- QoS policing will fail if you configure more than 1000 policers on a trunk port and you remove some of the VLANs from the trunk port.

  Workaround: Use less than 1000 policers.(CSCsa57218)

- When Fast Hellos is configured on an interface thru the command **ip ospf dead-interval minimal hello-multiplier**, the dead-interval can be changed to exceed 1 second with the **ip ospf dead-interval** keyword. However, the running configuration still displays the **ip ospf dead-interval minimal hello-multiplier** command instead of the **ip ospf dead-interval** command.

  Workaround: To change the dead-interval when Fast Hellos is enabled, first disable Fast Hellos and then configure the new dead-interval. (CSCsa86676)

- In redundant systems in SSO mode, when one or more ports belong to port-channel and you issue the sequence of commands **shut** and **no shut** quickly on a port-channel interface on the active supervisor engine, all physical ports associated with the port-channel on the standby supervisor engine remain administratively shutdown. So, the **no shut** command does not get synced correctly on the standby supervisor engine. After issuing the **shut** command, if you wait 30-60 seconds before issuing a **no shut** command, you will not see the problem.

  Workaround: Re-issue the **shut** and **no shut** commands on the ports. (CSCsb16809)

- If you modify policers with a large number of VLAN tags on a Catalyst 4507R or a 4510R chassis (with dual supervisor engines operating in SSO mode) during substantial CPU bound traffic, the following message appears:

  ```
  %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync config-changed command to standby.
  ```

  Workaround: Reset the standby supervisor with the **redundancy reload peer** command, which synchronizes the standby supervisor engine configuration with that of the active supervisor engine

- Under rare conditions, when the active supervisor engine is running Cisco IOS 12.2(25r)EW and the standby supervisor engine is running Cisco IOS 12.2(31r)SG ROMMON, traffic may take slightly longer (less than 2 seconds) to resume switching on a WS-X4516-10GE supervisor engine after the SSO switchover.

  Workaround: Upgrade the ROMMON of both WS-4516-10GE supervisor engines with ROMMON version 12.2(31r)SG .

- Symptoms: The VTP feature in certain versions of Cisco IOS software may be vulnerable to a crafted packet sent from the local network segment which may lead to denial of service condition.

  Conditions: The packets must be received on a trunk enabled port.

  Further Information: On the 13th September 2006, Phenoelit Group posted an advisory containing three vulnerabilities:

  – VTP Version field DoS

  – Integer Wrap in VTP revision

  – Buffer Overflow in VTP VLAN name

  These vulnerabilities are addressed by Cisco IDs:

- CSCsd52629/CSCsd34759—VTP version field DoS
- CSCse40078/CSCse47765—Integer Wrap in VTP revision
- CSCsd34855/CSCei54611—Buffer Overflow in VTP VLAN name

Cisco's statement and further information are available on the Cisco public website at http://www.cisco.com/warp/public/707/cisco-sr-20060913-vtp.shtml

(CCSCsd34759)

Open Caveats in Cisco IOS Release 12.2(25)SG

This section lists the open caveats in Cisco IOS Release 12.2(25)SG:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then re-enable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This activity can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
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config-changed command to standby
```

Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- In a hierarchical policer configuration with parent as the aggregate policer and child as the microflow policer, child microflow policer-matched packets report only the packets that are in the profile (they match the policing rate). Packets that exceed the policing rate are not reported in the class-map packet match statistics.

  Workaround: None. (CSCef88634)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

```
clearwater#sh policy-map int
  FastEthernet3/2

   Service-policy output: p1

     Class-map: c1 (match-all)
       0 packets<--------It stays at '0' despite of traffic being received
       Match: access-group name fnacl21
       police: Per-interface
         Conform: 9426560 bytes Exceed: 16573440 bytes
```

  Workaround: Verify that the MAC addresses being transmitted through the system are learned.

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  Workaround: Avoid enabling IPSG on sticky ports that are configured with VVID. (CSCeg31712)

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- On redundant systems in SSO mode, when you issue the **cisco-phone $AVID $VVID** macro command to an interface connected to an IP phone, you might leave the interface on the standby supervisor engine in a wrong state. This would cause the data SVI and/or the voice SVI to be down after the switchover.

  Workaround: If the data or video SVIs associated to the physical interface (connected to the IP phone) are down after the switchover, issue the **shutdown** and **no shutdown** commands on the physical interface to restore the correct (up) state for all the SVIs. (CSCsb02308)

- When Fast Hellos is configured on an interface thru the command **ip ospf dead-interval minimal hello-multiplier**, the dead-interval can be changed to exceed 1 second with the **ip ospf dead-interval** keyword. However, the running configuration still displays the **ip ospf dead-interval minimal hello-multiplier** command instead of the **ip ospf dead-interval** command.

  Workaround: To change the dead-interval when Fast Hellos is enabled, first disable Fast Hellos and then configure the new dead-interval. (CSCsa86676)

- In redundant systems in SSO mode, when one or more ports belong to port-channel and you issue the sequence of commands **shut** and **no shut** quickly on a port-channel interface on the active supervisor engine, all physical ports associated with the port-channel on the standby supervisor engine remain administratively shutdown. So, the **no shut** command does not get synced correctly on the standby supervisor engine. After issuing the **shut** command, if you wait 30-60 seconds before issuing a **no shut** command, you will not see the problem.

  Workaround: Re-issue the **shut** and **no shut** commands on the ports. (CSCsb16809)

- When you issue the **ip http secure-server** command (or if the system reads it from the startup configuration), the device will check for the existence of a persistent self-signed certificate during boot up.

  – If such a certificate does not exist and the device's hostname and default_domain have been set, then a persistent self-signed certificate will be generated.

  – If such a certificate exists, the FQDN in the certificate is compared with the current device's hostname and default_domain. If either of these differs from the FQDN in the certificate, then the existing persistent self-signed certificate is replaced with a new one with the updated FQDN. Be aware that the existing keypair is used in the new certificate.

  On a switch that support redundancy, the generation of the self-signed certificate is performed independently on the active and the standby supervisor engines. So, the certificates differ. After switchover, the HTTP client that holds the old certificate can not connect to the HTTPS server.

  Workaround: Re-connect. (CSCsb11964)

- If you modify policers with a large number of VLAN tags on a Catalyst 4507R or a 4510R chassis with dual supervisor engines operating in SSO mode during substantial CPU bound traffic, the following message appears:

  ```
  %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync config-changed command to standby
  ```

  Workaround: Reset the standby supervisor by entering the **redundancy reload peer** command. This command synchronizes the standby supervisor configuration with the active supervisor.

Resolved Caveats in Cisco IOS Release 12.2(25)SG

This section lists the resolved caveats in Release 12.2(25)SG:

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

Workarounds:

1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.

2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature will show only two options: exit and help.

  Workaround: Exit, then re-enter interface configuration mode. All commands will be accepted, even after you enter the **macro apply** command. (CSCsa44632)

- Entering the **no ip flow ingress** command will not turn off the collection of switched IP flows.

  Workaround: Use the **no ip flow ingress** command in conjunction with the **no ip flow ingress layer2-switched** command. (CSCsa67042)

- Modifying a policer may not work if you configure more than 800 policers.

  Workaround: Remove, reconfigure and reinstall policers, or, use less than 800 policers. (CSCsa66422)

- When you apply smartport macros (like “cisco-switch” and “cisco-desktop”) on a WS-C457R or a WS-C4510R are using CNA, the active supervisor goes through an unexpected switchover.

  Workaround: No workarounds are available. Enter the **default interface** command and apply smartport macros such as “cisco-switch” and “cisco-desktop”. (CSCsb59783)

- When you enter the **default interface** command on a WS-C457R or a WS-C4510R are using HTTP, the active supervisor goes through an unexpected switchover.

  Workaround: No workarounds are available. Enter the **default interface** command and apply smartport macros such as “cisco-switch” and “cisco-desktop”. (CSCei76082)

- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

- Symptoms: The VTP feature in certain versions of Cisco IOS software is vulnerable to a locally-exploitable buffer overflow condition and potential execution of arbitrary code. If a VTP summary advertisement is received with a Type-Length-Value (TLV) containing a VLAN name greater than 100 characters, the receiving switch will reset with an Unassigned Exception error.

  Conditions: The packets must be received on a trunk enabled port, with a matching domain name and a matching VTP domain password (if configured).

  Further Information: On the 13th September 2006, Phenoelit Group posted an advisory containing three vulnerabilities:

  – VTP Version field DoS

  – Integer Wrap in VTP revision

  – Buffer Overflow in VTP VLAN name

  These vulnerabilities are addressed by Cisco IDs:

  - CSCsd52629/CSCsd34759—VTP version field DoS
  - CSCse40078/CSCse47765—Integer Wrap in VTP revision
  - CSCsd34855/CSCei54611—Buffer Overflow in VTP VLAN name

  Cisco's statement and further information are available on the Cisco public website at http://www.cisco.com/warp/public/707/cisco-sr-20060913-vtp.shtml

  (CSCei54611)

Open Caveats in Cisco IOS Release 12.2(25)EWA7

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA7:

- While configuring Smartport macros via HTTP interactively, a Catalyst 4500 series switch might restart unexpectedly.

  Workaround: Provide the entire command sequence in the browser "command" area as if you were entering the commands through the CLI. (CSCei76082)

- A Catalyst 4500 series switch upgrading to IOS versions 12.2(25)EWA or 12.2(31)SG might show unusual uptime in the output of the **show version** command:

  ```
  Switch uptime is 113 years, 43 weeks, 4 days, 7 hours, 53 minutes
  ```

  This does not impact the operation of the Catalyst 4500 series switch, appearing to be strictly cosmetic.

  Workaround: Power-cycle the switch. (CSCsg00796)

- A Catalyst 4500 series switch running Cisco IOS Release 12.(25)EWA7 will send in dot1q tagged cdp packets when dot1x is enabled on a voice VLAN port. This might cause gigabit IP phones to send in packets that are untagged, moving the phone into the data VLAN.

  Workaround: Do either of the following:

  - Remove dot1x from the port.
  - Upgrade the IOS image to Cisco IOS 12.2(31)SGA or later.

  (CSCsg10135)

- When hardcoded duplex and speed settings are deleted after an interface shuts down, an "a-" is added to the duplex and speed in the output from the **show interface status** command.

  This does not impact performance.

  Workaround: Issue the **no shutdown** command. (CSCsg27395)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA7

This section lists the resolved caveats in Cisco IOS Release 12.2(25)EWA7:

- When VRF Packet Leaking is configured on a Catalyst 4500 series switch with a Supervisor Engine IV, a packet loss of 50 per cent occurs when you ping a VRF interface IP address from a device in the global table.

  Packets forwarded by the switch are not impacted.

  Workaround: None. (CSCej36831)

- If you running Cisco IOS Release 12.2(25)EWA5 on a Catalyst 4500 series switch, after reloading an "ip ftp source-interface <physical port>" configuration, it is impossible to upload the configuration to the FTP Server with the **copy running-config ftp** command.

  Workaround: Issue the **ip ftp source-interface <loopback port>** command rather than the **ip ftp source-interface <physical port>** command. (CSCsd22662)

- Reconfiguring a heavily-used policy map on a Catalyst 4500 series switch may cause the switch to crash.

  This issue impacts Cisco IOS Releases 12.2(25)EWA3, 12.2(25)EWA4, 12.2(25)EWA5, 12.2(25)EWA6, 12.2(25)SG and 12.2(31)SG.

  Workaround: Remove the policy-map from all interfaces before reconfiguring its contents. Also ensure that no configuration is made in parallel that might result in concurrent modification of configured interface's state. (CSCse80948)

- Configuring an ACL on a port configured with the **switchport access vlan dynamic** command will cause the Catalyst 4500 series switch to crash.

  This issue impacts Catalyst 4500 series switches running IOS release including and prior to 12.2(31)SGA and 12.2(25)EWA6.

  Workaround: None. (CSCsg03745)

- GARP-based protocol packets leak through the STP block. In a redundant topology, this might lead to a GARP storm.

  Workaround: Use Hardware Control Plane Policing (CoPP) to police GARP packets. (CSCsg08775)

- A reload of a Catalyst 4500 series switch may cause neighbour switches connected over WS-X4448-GE modules to errdisable their links to the switch because of too many link flaps.

  Workaround: Configure “errdisable recovery cause link-flap” on the connected switches. (CSCsd55376)

- When the **clear arp snmp** command is sent to a Catalyst 4500 series switch running Cisco IOS Release 12.2(25)EWA4, the switch may reset.

  This issue impacts Catalyst 4500 series switches running IOS releases including and prior to 12.2(31)SG and 12.2(25)EWA6.

  Workaround: None. (CSCse49277)

- When there are numerous non-RPF multicast groups and the incoming rate of multicast traffic is high, the Catalyst 4500 series switch does not trigger a PIM Assert for some multicast groups immediately after receiving multicast packets on non-RPF interface.

  Workaround: None. (CSCse56839)

- While running Cisco IOS Release 12.2(25)EWA6 on either the Catalyst 4500 series switch, the 4013+TS supervisor engine, or the 4306-GB-T linecard, you might experience the following problem on RJ45 ports:

  – At 1Gbps, the ports cannot sustain the linerate when sending packets greater than 6656 bytes.

  – In rare situations, the TxQueue's associated with the RJ45 ports may get stuck when the packets of greater than 6656 bytes are involved and the port is operating at 10Mbps, 100Mbps, or 1Gbps. You would see the following type of messages:

  ```
  Aug  1 04:46:01 CDT: %C4K_HWPORTMAN-4-BLOCKEDTXQUEUE: Blocked transmit queue
  HwTxQId1
  on Switch Phyport Gi1/35, count=1784
  ```

```
Aug  1 04:46:12 CDT: Current Freelist count 5629. Fell below threshold 601 times
consecutively
Aug  1 04:46:42 CDT: Current Freelist count 5629. Fell below threshold 1202 times
consecutively
```

Workaround: Use packets sizes less than or equal to 6656 bytes or use Cisco IOS Release 12.2(25)EWA5 until the fix is available in subsequent releases. The fix will be available in 12.2(25)EWA7 release onwards. (CSCse29295)

- On a Catalyst 4500 series switch with an IOS-based supervisor engine running Cisco IOS Release 12.2(25)EWA6 or earlier, some linecards may boot as faulty, including:
  - WS-X4448-GB-RJ45,
  - WS-X4448-GB-LX,
  - WS-4448-GB-SFP,
  - WS-X4548-GB-RJ45,
  - WS-X4548-GB-RJ45V,
  - WS-X4424-GB-RJ45,
  - WS-X4524-GB-RJ45V.

  The **show diagnostic result module 2 test all detail** command returns the following:

```
Test results: (. = Pass, F = Fail, U = Untested)

__________________________________________________________________________________?

   1) linecard-online-diag --------------------> F <<--

         Error code --------------------------> 4 (DIAG_PARTIAL_FAILURE) <<---
         Total run count ---------------------> 1
         Last test execution time ------------> Jul 12 2006 12:11:29
         First test failure time -------------> Jul 12 2006 12:11:29
         Last test failure time --------------> Jul 12 2006 12:11:29
         Last test pass time -----------------> n/a
         Total failure count -----------------> 1
         Consecutive failure count -----------> 1

Slot Ports Card Type                              Diag Status      Diag Details
---- ----- ------------------------------------- ---------------- ------------
 2    48   10/100/1000BaseT (RJ45)V, Cisco/IEEE   Partial Failure  Port failure

Detailed Status
---------------
. = Pass              U = Unknown
L = Loopback failure  S = Stub failure
I = Ilc failure       P = Port failure
E = SEEPROM failure   G = GBIC integrity check failure


Ports 1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16
      S   S   S   S   S   S   S   S   .   .   .   .   .   .   .   .

Ports 17  18  19  20  21  22  23  24  25  26  27  28  29  30  31  32
      .   .   .   .   .   .   .   .   .   .   .   .   .   .   .   .

Ports 33  34  35  36  37  38  39  40  41  42  43  44  45  46  47  48
      .   .   .   .   .   .   .   .   .   .   .   .   .   .   .   .
<snip>
```

You can verify the failure by looking at the output of the **show platform software interface** <*failed_port*> **stub internal** command for any of the faulty ports. The output should include the following:

```
Lemans 2-1(Gi2/1-8) Statistics for Port 0
Symbol Error Counter Reg 0          : 0xFFFFFFFFFFFFFFFF
Symbol Error Counter Reg 1          : 0xFFFFFFFFFFFFFFFF
Symbol Error Counter Reg 2          : 0xFFFFFFFFFFFFFFFF
Symbol Error Counter Reg 3          : 0xFFFFFFFFFFFFFFFF
Symbol Error Counter Reg 4          : 0x0000FFFFFFFF0000
Pause Frame Invalid Opcode Reg 0    : 0xFFFFFFFFFFFFFFFF
Pause Frame Invalid Opcode Reg 1    : 0xFFFFFFFFFFFFFFFF
Pause Frame Invalid Opcode Reg 2    : 0xFFFFFFFFFFFFFFFF
Pause Frame Invalid Opcode Reg 3    : 0xFFFFFFFFFFFFFFFF
Transmit No Buffer Reg 0            : 0xFFFFFFFFFFFFFFFF
Transmit No Buffer Reg 1            : 0xFFFFFFFFFFFFFFFF
Transmit No Buffer Reg 2            : 0xFFFFFFFFFFFFFFFF
Transmit No Buffer Reg 3            : 0xFFFFFFFFFFFFFFFF
```

If the Symbol Error Count Reg 4 is NOT *0xFFFFFFFFFFFFFFFF* then the faulty condition can be attributed to this bug.

Workaround: Reset the module's status with the **hw-module module reset** command. (CSCse80413)

- If a Catalyst 4500 series switch running Cisco IOS Release 12.2(31)SG is configured with Port Security and Cisco IP Phones are connected to the switchports, the CPU might be higher than expected. In the output of the **show platform health** command, the process hogging the CPU would be the following

```
CAT4506#sh platform health | inc K2L2 Address
K2L2 Address Table R   2.00  27.08     12      5  100  500   15  23   19  4871:26
CAT4506##sh platform health | inc K2L2 Address
K2L2 Address Table R   2.00  34.92     12      5  100  500   38  25   19  4871:32
```

This process should not cause any forwarding issues.

Workaround: None. (CSCse72353)

- Reading the object dot1dTpLearnedEntryDiscards always returns zero.

Workaround: None. (CSCse66318)

- Applying an ACL to a Layer 3 interface on a Catalyst 4500 series switch that is too large to fit entirely in the TCAM, might cause valid arp replies to be installed incorrectly.

Workaround: Determine which portion of the TCAM is becoming saturated and resize it accordingly. This can be done by looking at the output of the **show plat hard acl statistics u brief** command:

```
                        Entries/Total(%)  Masks/Total(%)
                          ----------------  --------------
Input  Acl(PortAndVlan)     5 / 8112 (  0)     3 / 1014 (  0)
Input  Acl(PortOrVlan)   8105 / 8112 ( 99)  1014 / 1014 (100)
Input  Qos(PortAndVlan)     0 / 8128 (  0)     0 / 1016 (  0)
Input  Qos(PortOrVlan)      0 / 8128 (  0)     0 / 1016 (  0)
Output Acl(PortAndVlan)     0 / 8112 (  0)     0 / 1014 (  0)
Output Acl(PortOrVlan)      5 / 8112 (  0)     3 / 1014 (  0)
Output Qos(PortAndVlan)     0 / 8128 (  0)     0 / 1016 (  0)
Output Qos(PortOrVlan)      0 / 8128 (  0)     0 / 1016 (  0)
```

On a Catalyst 4500 series switch running Cisco IOS Release 12.2(31)SG or later, you can reize the TCAM allocation with the **access-list hardware region** [**feature**/**qos**] **in balance [***percentage***]** command. (CSCse53198)

Upon reloading a Catalyst 4500 series switch configured with the **ip ftp source-interface** <*physical port*> command and running Cisco IOS Release 12.2(25)EWA5, it is impossible to upload a configuraton to the FTP Server by issuing the **copy running-config ftp** command.

Workaround: Issue the **ip ftp source-interface** <*loopback port*>, instead of the **ip ftp source-interface** <*physical port*> command. (CSCsd22662)

- When a “shut/no shut” is performed on some ports of a Catalyst 4500 series switch, an adjacent port might drop some packets (less than 20).

  Workaround: Upgrade to Cisco IOS Release 12.2(25)EWA7 or later. (CSCsg02099)

- The link between WS-X4548-GB-RJ45 and WS-C3560-24PS might not come up (that is, both interfaces stay down) after reloading a Catalyst 4500 series switch with Supervisor Engine IV running Cisco IOS Release 12.2(25)EWA5 or 12.2(25)SG.

  This problem is not seen when WS-C3560-24PS is reloaded.

  Workaround: Do a “shut/no shut” on the interface. (CSCsd90837)

- A Catalyst 4500 series switch running Cisco IOS Release 12.2(25)EWA6, drops some ARP request packets in some VLANs.

  Workaround: None. (CSCsf16422)

- Ports on a WS-X4418-GB in a Catalyst 4500 switch may come up in half-duplex after the link is reset. This symptom is accompanied by logging duplex mismatch messages.

  The problem has been seen with connections between a WS-X4418-GB module and a Catalyst 3550 series switch, a Catalyst 3560 series switch, and a Catalyst 3500xl series switches.

  Workaround: Do a "shut/no shut" on the interface on WS-X4418-GB. (CSCsg21514)

Open Caveats in Cisco IOS Release 12.2(25)EWA6

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA6:

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- While configuring Smartport macros via HTTP interactively, a Catalyst 4500 series switch might restart unexpectedly.

  Workaround: Provide the entire command sequence in the browser "command" area as if you were entering the commands through the CLI. (CSCei76082)

- When VRF Packet Leaking is configured on a Catalyst 4500 series switch with a Supervisor Engine IV, a packet loss of 50 per cent occurs when you ping a Catalyst 4500 series switch VRF interface IP address from a device in the global table.

  Packets forwarded by Catalyst 4500 series switch are not impacted.

  Workaround: None. (CSCej36831)

- When you insert gbics on a WS-X4448-GB-SFP running Cisco IOS Release 12.2(25)EWA2 on a WS-C4610R chassis, the output of **show interface status** and **show interface** displays "media type is No Gbic".

  Workaround: OIR the WS-X4448-GB-SFP. (CSCsd57960)

- While running Cisco IOS Release 12.2(25)EWA5, after reloading an "ip ftp source-interface <physical port>" configuration, it is impossible to upload the configuration to the FTP Server with the **copy running-config ftp** command.

  Workaround: Issue the **ip ftp source-interface <loopback port>** command rather than the **ip ftp source-interface <physical port>** command. (CSCsd22662)

- An active supervisor engine WS-X4516-10GE in a WS-C4510R chassis running Cisco IOS Release 12.2(25)EWA2 crashes when you replace the standby supervisor engine WS-X4516-10GE.

  Workaround: None. (CSCsd46408)

- When a third-party device is connected to a 1000BaseX interface and the link is shutdown/unshutdown, the autonegotiation process takes considerable time to complete and the link needs several minutes to come up again.

  Workaround: Disable autonegotiation or flow-control. (CSCse33607)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA6

This section lists the resolved caveats in Cisco IOS Release 12.2(25)EWA6:

- On a Supervisor Engine V10-GE, when there are lot of flows in the system, an error message is logged to SYSLOG indicating that the netflow hardware table is full. The error message is misleading; the message states "flow table full" instead of "flow collisions."

  Workaround: None. (CSCeh97868)

- Occasionally, when a Catalyst 4500 series switch is in VTP client mode and “switchport trunk prunning vlan none” is configured on the trunk port, the trunk interface fails to send VLAN joins to the VTP server. Some of the VLAN is pruned on the link to the VTP server even when those VLANs are used.

  Workaround: Instead of using the "none" option, provide a specific VLAN when enabling VTP pruning on the trunk interface. (CSCei42957)

- After you initially boot a Catalyst 4500 series switch, if the input interface is in PIM dense mode, “s,g” multicast cast traffic is not forwarded to the intended destination even if that group is represented by a “*,g” on the system.

  Workaround: Issue the **clear ip mroute *** command multiple times. (CSCsb50317)

- A standby Supervisor Engine IV in SSO mode might restart in a Catalyst 4507R series switch running Cisco IOS Release 12.2(25)EWA.

  Workaround: None. (CSCsc41651)

- When PVLAN features (for example, PVLAN QoS) are applied on a trunk port for a number of VLANs and later removed from some VLANs, the features may be reprogrammed for all other VLANs. While the reprogramming is in progress, you might see some log message indicating that the features could not be programmed for some of the VLANs.

  Workaround: Remove the features and reapply. For PVLAN QoS, issuing a **no qos** and **qos** command will help. (CSCsc61449)

- On Cisco IOS Release 12.2(25)EWA4 and 12.2(25)EWA5, the system may crash during modification of a policy map attached to an interface with the **set ip {dscp|ip|precedence}** command.

  Workaround: Remove the policy-map from the interface and re-configure a new policy-map without this option. (CSCsc97186)

- On a WS-C4948 running Cisco IOS Release 12.2(25)EWA3, you cannot re-set the interface MTU to the default.

  Workaround: Return the value of "Global Ethernet MTU" to the previous default value. (CSCsb81150)

- The following error messages may appear on a Catalyst 4500 series switch after reload, causing it to lose its VLAN configuration and preventing you from recreating them:

  This is observed on a switch whose VTP is in transparent mode, Version 2, after some non-default settings for VLANs 1003 and 1005 (token ring) were learned when the switch was in server mode.

  ```
  %SW_VLAN-4-VTP_INTERNAL_ERROR: VLAN manager received an internal error 14 from vtp
  function vtp_download_info: Bad parent VLAN ID-Traceback=...
  ```

  Workarounds:

  – Return to VTP version 1.

  – Use a 'ring' value in the range for 1 - 1005 for all Token Ring VLANs (CSCsc69560)

- When you configure “logging host X.X.X.X vrf,” on a WS-X4515 chassis that is running Cisco IOS Release 12.2(25)EWA5 or 12.2(25)SG, the chassis does not accept the command line to delete this configuration.

  Workaround: Issue the **erase start** command. (CSCek33573).

- If a physical interface is configured in shutdown mode, then configured with the same configuration including "switchport nonegotiate,” when it is later enabled by the **no shutdown** command, it can not join the bundle and the following error message displays:

  ```
  %EC-5-CANNOT_BUNDLE2: Gi3/16 is not compatible with Po1and will be suspended (trunk
  mode of Gi3/16 is dynamic, Po1 is trunk)
  ```

  The following configuration sequence will prevent interface g3/16 from joining the bundle:

  ```
  int g3/16
  shut
  switchport mode trunk
  switchport nonegotiate
  ```

```
channel-group 1 mode on

int po1
switchport trunk enacp dot1q
switchport mode trunk
switchport nonegotiate

int g3/16
 no shut
```

Workaround: Do NOT configure the channel-port with the same configuration while all physical ports are still in shutdown mode. Instead, issue the **unshutdown** command on the physical ports to carry over the first unshutdown to the channel port. (CSCsd11234)

- When you set up a topology wherein a Catalyst 6000 series switch is connected by multiple links to Port 2, 15-16, 21-47 of a Catalyst 4948 series switch, after 1 minute, the blocking port of Catalyst 4948 starts flapping the STP port status.

  Workaround: Shutdown 2 ports to reduce the number of VLAN instances. (CSCsc29392)

- On a Catalyst 4500 series switch running Cisco IOS Release 12.2(25)EWA2, dhcp snooping does not work on a PVLAN trunk.

  Workaround: None (CSCej06004).

- The first multicast packet is dropped.

  Workaround: None (CSCsc51906).

- The BOOT variable is not cleared with the **no boot system** command.

  Workaround: Check the variable with the **show bootvar** command before issuing the **write memory** command. (CSCeg74620).

- For Cisco IOS Releases preceeding Cisco IOS 12.2(25)EWA6, if the Inline Power circuit of a 4200W power supply fails, the supervisor engine might not switchover to the Active power supply. This will result in a IP phone outage because the Inline power drops to zero. This problem can occur in redundant mode or combined mode.

  Workarounds:

  – Remove the failed power supply from the bay.

  – Upgrade to Cisco IOS Release 12.2(25)EWA6 or releases after Cisco IOS Releases 12.2(31)SG. (CSCse18104)

- If an interface is set to “not autonegotiate” from SNMP, and an snmp get is done to query the state of the interface, the correct state is returned. However, if the interface is set to “not autonegotiate” from the CLI, then an snmp get will show that it is still in autonegotiate mode, even though it isn't.

  Workaround: If the autonegotiate state is set by SNMP through the ifMauAutoNegAdminStatus value, it is reported by SNMP and CLI correctly. (CSCsc21274).

- After an SSO switchover, a Catalyst 4500 series switch running in Cisco IOS Releases 12.2(20)EWA to 12.2(20)EWA3, 12.2(25)EW, and 12.2(25)EWA to 12.2(25)EWA5, the Fantray index is missing the entPhysicalTable of the entity MIB.

  Workaround: None. (CSCei17285).

- When copying files to and from the switch, using ftp, the operation fails for files larger than 18528 bytes when the ftp server is on a remote network.

  A sample operation is:

  ```
  switch# copy running-conf ftp://user:password@n.n.n.n//users/xxx/switch-confg
  ```

The error is:

```
00:02:06: FTP: 550 /users/xxx/switch-confg: Broken pipe.
```

Workaround: Either use a local ftp server on the same network or use tftp or rcp. (CSCsc48710).

- You might be the continuous error messages like:

```
Dec 19 10:53:36: %C4K_PKTPROCESSING-4-UNKNOWNBRIDGEORROUTE: (Suppressed 52 times)
Unable to determine whether to route or bridge replicated software-processed pa cket
with source address 00:04:AC:E4:BC:38 and destination address 00:00:0C:07:AC:23

Dec 19 11:03:45: %C4K_PKTPROCESSING-4-UNKNOWNBRIDGEORROUTE: (Suppressed 48 times)
Unable to determine whether to route or bridge replicated software-processed packet
with source address 00:04:AC:E4:BC:38 and destination address 00:00:0C:07:AC:23

Dec 19 11:13:52: %C4K_PKTPROCESSING-4-UNKNOWNBRIDGEORROUTE: (Suppressed 37 times)
Unable to determine whether to route or bridge replicated software-processed pa cket
with source address 00:04:AC:E4:BC:38 and destination address 00:00:0C:07:AC:23
```

Workaround: None (CSCsc87365).

- On a WS-X4306 on Catalyst WS-C4507R running 12.2(25)SG and 12.2(25)EWA5, after configuring “speed nonegotiate" in interface range, Symbol-Err and Sequence-Err counters increase.

  Workaround: Link up these ports through the **no shutdown** command. (CSCsc71324).

Open Caveats in Cisco IOS Release 12.2(25)EWA5

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA5:

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After moving to a non-redundant chassis, a supervisor engine previously configured in SSO mode cannot configure router ports or port-channel.

Workarounds:

- 1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.
- 2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- After an SSO switchover, you may receive a “PM-4-PORT_INCONSISTENT” error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not affect the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, and then the **no shutdown** command on the same port ensures that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- A QoS policing fails if you configure more than 1000 policers on a trunk port and you remove some of the VLANs from the trunk port.

  Workaround: Use less than 1000 policers. (CSCsa57218)

- On a Supervisor Engine V10-GE, when there are lot of flows in the system, an error message is logged to SYSLOG indicating that the netflow hardware table is full. The error message is misleading; the message states "flow table full" instead of "flow collisions."

  Workaround: None. (CSCeh97868)

- Occasionally, when a Catalyst 4500 series switch is in VTP client mode and “switchport trunk prunning vlan none” is configured on the trunk port, the trunk interface fails to send VLAN joins to the VTP server. Some of the VLAN is pruned on the link to the VTP server even when those VLANs are used.

  Workaround: Instead of using the "none" option, provide a specific VLAN when enabling VTP pruning on the trunk interface. (CSCei42957)

- While configuring Smartport macros via HTTP interactively, a Catalyst 4500 series switch might restart unexpectedly.

  Workaround: Provide the entire command sequence in the browser "command" area as if you were entering the commands through the CLI. (CSCei76082)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature will show only two options: exit and help.

  Workaround: Exit, then re-enter interface configuration mode. All commands will be accepted, even after you enter the **macro apply** command. (CSCsc05612)

- When VRF Packet Leaking is configured on a Catalyst 4500 series switch with a Supervisor Engine IV, a packet loss of 50 per cent occurs when you ping a Catalyst 4500 series switch VRF interface IP address from a device in the global table.

  Packets forwarded by Catalyst 4500 series switch are not impacted.

  Workaround: None. (CSCej36831)

- On a Catalyst 4500 series switch running Cisco IOS Release 12.2(18)EW2 or 12.2(18)EW5, instances of the entAliasMappingIdentifier MIB object for some interfaces are missing. This situation can occur randomly on interfaces, regardless of their type, location and status.

  Workaround: None. (CSCsc07093)

- After you initially boot a Catalyst 4500 series switch, if the input interface is in PIM dense mode, “s,g” multicast cast traffic is not forwarded to the intended destination even if that group is represented by a “*,g” on the system.

Workaround: Issue the **clear ip mroute *** command multiple times. (CSCsb50317)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA5

This section lists the resolved caveats in Cisco IOS Release 12.2(25)EWA5:

- On the WS-4948G (RJ45 and SFP ports), WS-4948G-10GE (RJ45 ports only), WS-X4506-GB-T (RJ45 ports only), and WS-X4013+TS (RJ45 ports only), one or more ports may exhibit complete loss of traffic in both the transmit and receive directions. The problem can be seen on a port when its link flaps (up/down) multiple times in a short period of time.

  This problem impacts all IOS releases starting from Cisco IOS Release 12.2(25)EWA2 or later, including 12.2(25)SG. Entering the **shut** and **no shut** commands will not recover from this problem.

  Please verify the following problem conditions to confirm the occurrence of this problem:

  – Issue the **show interface** *module/port* **status** command; it displays the Connected state

  – Issue the **show platform hardware interface GigabitEthernet** *module/port* **all**; it indicates that the MAC state is “Down” and that the rxInReset flag is set to “True”

  Workaround: Reload the switch. (CSCsc10017)

- A WS-4948G, WS-4948G-10GE, WS-X4506-GB-T, and WS-X4013+TS might display the following message while running the Cisco IOS Release 12.2(20)EWA and later:

  ```
  %C4K_HWPORTMAN-4-BLOCKEDTXQUEUE: Blocked transmit queue HwTxQId1 on Switch Phyport
  18,count=342141
  ```

  Ports with a duplex mis-match and the switch port operating in half duplex will exhibit this problem and no traffic will flow through those ports.

  Such a mis-match can occur when the switch port is configured for auto-negotiation but the far-end device is operating in forced mode. This mis-match can also occur when both ends of the link are operating in forced mode with the same speed but different duplex settings.

  Workarounds:

  – Issue shut /no shut to recover the port. (Prior to Cisco IOS Release 12.2(25)EWA2, a reload may be required.)

  – Repair the duplex mis-match. Ensure that both the switch and the far-end device are both auto-negotiating or forced to operate at same speed and duplex. (CSCsb62330)

- A Catalyst 4500 series switch does not forward an 802.1X request with NULL credentials.

  Workaround: None. (CSCej03858)

- A port enabled for Loop Guard that participates in spanning tree (and is in BLK state) goes into a loop inconsistent state when it stops receiving BPDUs from its neighbor. When the neighbor resumes sending BPDUs (instead of STP BPDUs), STP ordinarily recovers from this state. For this caveat, STP does not recover and the port remains stuck.

  Workarounds:

  – Enter the **shut** and **no shut** commands on the port.

  – Disable Loop Guard on the port and then re-enable it. (CSCsc04047)

- A Catalyst 4500 series switch with Supervisor Engine IV running Cisco IOS Release 12.2(25)EWA3 will send an ARP packet (from an STP blocking port) that can cause a broadcast storm when you either reload a Catalyst 4500 series switch with a blocking port or enter **shut** and **no shut** commands on any port of the switch.

Workaround: None. (CSCsb84685)

- If UDLD is enabled on a trunk port with native VLAN tagging enabled, the UDLD protocol packets are sent out untagged. This may cause UDLD interoperability issues with other Cisco switches that expect to always see tagged packets on trunk ports.

  Workaround: None. (CSCsb34771)

Open Caveats in Cisco IOS Release 12.2(25)EWA4

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA4:

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After moving to a non-redundant chassis, a supervisor engine previously configured in SSO mode cannot configure router ports or port-channel.

  Workarounds:

  – 1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.

  – 2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- After an SSO switchover, you may receive a “PM-4-PORT_INCONSISTENT” error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not affect the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, and then the **no shutdown** command on the same port ensures that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature shows only two options: exit and help.

Workaround: Exit, then re-enter interface configuration mode. All commands are accepted, even after you enter the **macro apply** command. (CSCsa44632)

- QoS policing fails if you configure more than 1000 policers on a trunk port and you remove some of the VLANs from the trunk port.

  Workaround: Use less than 1000 policers. (CSCsa57218)

- After you initially boot a Catalyst 4500 series switch, if the input interface is in PIM dense mode, “s,g” multicast cast traffic is not forwarded to the intended destination even if that group is represented by a “*,g” on the system.

  Workaround: Issue the **clear ip mroute *** command multiple times. (CSCsb50317)

- On a Supervisor Engine V10-GE, when there are lot of flows in the system, an error message is logged to SYSLOG indicating that the netflow hardware table is full. The error message is misleading; the message states "flow table full" instead of "flow collisions."

  Workaround: None. (CSCeh97868)

- Occasionally, when a Catalyst 4500 series switch is in VTP client mode and “switchport trunk prunning vlan none” is configured on the trunk port, the trunk interface fails to send VLAN joins to the VTP server. Some of the VLAN is pruned on the link to the VTP server even when those VLANs are used.

  Workaround: Instead of using the "none" option, you must provide a specific VLAN when enabling VTP pruning on the trunk interface. (CSCei42957)

- If UDLD is enabled on a trunk port with native VLAN tagging enabled, the UDLD protocol packets are sent out untagged. This may cause UDLD interoperability issues with other Cisco switches that expect to always see tagged packets on trunk ports.

  Workaround: None. (CSCsb34771)

- While configuring Smartport macros via HTTP interactively, a Catalyst 4500 series switch might restart unexpectedly.

  Workaround: Provide the entire command sequence in the browser "command" area as if you were entering the commands through the CLI. (CSCei76082)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA4

This section lists the resolved caveats in Cisco IOS Release 12.2(25)EWA4:

- Issuing the **no ip flow ingress** command does not turn off the collection of switched IP flows.

  Workaround: Use the **no ip flow ingress** command in conjunction with the **no ip flow ingress layer2-switched** command.

  (CSCsa67042)

- Modifying a policer may not work if you configure more than 800 policers.

  Workaround: Remove, reconfigure and reinstall policers, or, use less than 800 policers. (CSCsa66422)

- The **dot1x default** command does not restore the defaults for the **dot1x max-reauth-req** and **dot1x timeout reauth server** commands.

  Workaround: Restore these default values manually. (CSCeh97513)

- During an SSO switchover, if another device telnets to a Catalyst 4500 series switch while this switch is in global configuration mode, you might observe the following with the **show users** command:

```
4507R# show users
    Line       User       Host(s)              Idle       Location
*  0 con 0                idle                 00:00:00
   1 vty 0                idle                    never  <<<==========
```

  After vty is set to “never,” it cannot be released with the **clear line XX** command.

  Workaround: Reload the system. (CSCei26830)

Note Always exit the global configuration mode *before* a switchover.

- After changing the SNMP engine ID on a Catalyst 4500 series switch running Cisco IOS Release 12.2(25)EWA, none of the existing community strings work. You must re-establish the relationship between any community strings and the new engine ID.

  Upon issuing the **snmp mib community-map** command, you will observe additional SNMP configuration entries that reflect the mismatched SNMP engine ID.

  Workaround: Remove the community-map with the **no snmp mib community-map** command. (CSCei29841)

- With IP multicast routing and IGMP snooping enabled, a Catalyst 4500 series switch does not send ARP requests to a partner switch if the trunk port on the Catalyst 4500 switch is the only interface carrying private VLANs.

  Workaround: Configure any other port on the Catalyst 4500 switch (not necessarily one connected to the partner switch) as a regular trunk interface. Ensure that the interface is “link up” and carries both primary and isolated VLANs. (CSCsb06924)

- After executing a redundancy force-switchover, a Catalyst 4500 series switch loaded with a redundant supervisor engine may reload when you issue a **show snmp group** command.

  Workaround: None. (CSCsb12225)

- If an 802.1X supplicant logs off, the AAA Accounting Stop record displays “port-error” as the Acct-Terminate-Cause[49] reason instead of "user-req.”

  Workaround: None.(CSCsb36480)

- A Catalyst 4500 series switch running the Cisco IOS Release 12.2(25)EWA2 does not send LinkUp traps (IF-MIB).

  Workaround: Issue the **snmp trap link-status permit duplicates** command on the interfaces. (CSCsb38308)

Note Do not use this command with redundant supervisor engines because its behavior at switchover is unpredictable. Moreover, it does not work with the **interface range** command; configure the command on every interface.

- When there are two supervisor engines in a redundant Catalyst 4500 chassis, the active supervisor engine reloads when you configure the following:

```
router bgp 100
bgp upgrade-cli
```

  Workaround: Do not issue the **bgp upgrade-cli** command on a redundant chassis. (CSCsb42734)

- Executing the **show** command in trustpoint-ca configuration mode might cause the switch to fail by corrupting the stack.

  Workaround: Do not issue the **show** command in trust-ca configuration mode. (CSCsb42958)

- When 802.1X accounting is enabled, the Framed-IP-Address[8] attribute is not included in accounting messages generated on ports with IP DHCP snooping trust enabled.

  Workaround: None. (CSCsb46019)

- If storm control is configured and you manually toggle the link (up/down), the ARP table no longer updates its database.

  Workaround: Allow storm control to disable and enable the interface. (CSCsb49409)

- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

- Symptoms: The VTP feature in certain versions of Cisco IOS software is vulnerable to a locally-exploitable buffer overflow condition and potential execution of arbitrary code. If a VTP summary advertisement is received with a Type-Length-Value (TLV) containing a VLAN name greater than 100 characters, the receiving switch will reset with an Unassigned Exception error.

  Conditions: The packets must be received on a trunk enabled port, with a matching domain name and a matching VTP domain password (if configured).

  Further Information: On the 13th September 2006, Phenoelit Group posted an advisory containing three vulnerabilities:

  – VTP Version field DoS
  – Integer Wrap in VTP revision
  – Buffer Overflow in VTP VLAN name

  These vulnerabilities are addressed by Cisco IDs:

  – CSCsd52629/CSCsd34759—VTP version field DoS
  – CSCse40078/CSCse47765—Integer Wrap in VTP revision
  – CSCsd34855/CSCei54611—Buffer Overflow in VTP VLAN name

  Cisco's statement and further information are available on the Cisco public website at http://www.cisco.com/warp/public/707/cisco-sr-20060913-vtp.shtml

  (CSCei54611)

Open Caveats in Cisco IOS Release 12.2(25)EWA3

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA3:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then re-enable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This activity can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

  Workarounds:

  1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.

  2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- In a hierarchical policer configuration with parent as the aggregate policer and child as the microflow policer, child microflow policer-matched packets report only the packets that are in the profile (they match the policing rate). Packets that exceed the policing rate are not reported in the class-map packet match statistics.

  Workaround: None. (CSCef88634)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

```
clearwater#sh policy-map int
  FastEthernet3/2

   Service-policy output: p1

     Class-map: c1 (match-all)
       0 packets<--------It stays at '0' despite of traffic being received
       Match: access-group name fnacl21
       police: Per-interface
         Conform: 9426560 bytes Exceed: 16573440 bytes
```

  Workaround: Verify that the MAC addresses being transmitted through the system are learned.

  (CSCef01798)

- After an SSO switchover, you may receive a “PM-4-PORT_INCONSISTENT” error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not impact the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, then the **no shutdown** command on the same port will ensure that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature will show only two options: exit and help.

  Workaround: Exit, then re-enter interface configuration mode. All commands will be accepted, even after you enter the **macro apply** command. (CSCsa44632)

- Under certain rare scenarios, the packet match counter in **show policy-map interface fa6/1** does not show the packets being matched, as in the following configuration:

```
clearwater#sh policy-map int
 FastEthernet6/2

  Service-policy output: p4

    Class-map: ipc2 (match-all)
      0 packets<---------- It shouldn't stay at '0'.
      Match: access-group name ipacl_2
      police: Per-interface
        Conform: 22937970 bytes Exceed: 977688712 bytes <--- traffic going thru
```

```
Class-map: class-default (match-any)
  410 packets
  Match: any
    410 packets
```

Workaround: Either enter a shutdown/no shutdown on the port or detach and reapply the service policy. (CSCef30883)

- When changing the access VLAN ID on a sticky port configured with IPSG and voice VLAN, the secure MAC address counter on this port might become negative. This does not impact the system.

  Workaround: Avoid enabling IPSG on sticky ports that are configured with VVID. (CSCeg31712)

- Issuing the **no ip flow ingress** command will not turn off the collection of switched IP flows.

  Workaround: Use the **no ip flow ingress** command in conjunction with the **no ip flow ingress layer2-switched** command.

  (CSCsa67042)

- QoS policing will fail if you configure more than 1000 policers on a trunk port and you remove some of the VLANs from the trunk port.

  Workaround: Use less than 1000 policers.(CSCsa57218)

- Modifying a policer may not work if you configure more than 800 policers.

  Workaround: Remove, reconfigure and reinstall policers, or, use less than 800 policers. (CSCsa66422)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA3

This section lists the resolved caveats in Release 12.2(25)EWA3:

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)
- When a Catalyst 4510 series switch is booted with more than 5 WS-X4148-RJ45V (and possibly other PoE) line cards, the supervisor engine occasionally reloads. With 7 WS-X4148-RJ45V line cards, this occurs about 20 per cent of the time.

  Workaround: Because this only occurs around 20 per cent of the time, simply reboot the switch. After the switch boots, this problem will not occur. (CSCsa96753)

Open Caveats in Cisco IOS Release 12.2(25)EWA2

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA2:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then re-enable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This activity can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

Workarounds:

1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.

2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- In a hierarchical policer configuration with parent as the aggregate policer and child as the microflow policer, child microflow policer-matched packets report only the packets that are in the profile (they match the policing rate). Packets that exceed the policing rate are not reported in the class-map packet match statistics.

  Workaround: None. (CSCef88634)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

```
clearwater#sh policy-map int
  FastEthernet3/2

   Service-policy output: p1

     Class-map: c1 (match-all)
       0 packets<--------It stays at '0' despite of traffic being received
       Match: access-group name fnacl21
       police: Per-interface
         Conform: 9426560 bytes Exceed: 16573440 bytes
```

  Workaround: Verify that the MAC addresses being transmitted through the system are learned.

  (CSCef01798)

- After an SSO switchover, you may receive a “PM-4-PORT_INCONSISTENT” error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not impact the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, then the **no shutdown** command on the same port will ensure that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature will show only two options: exit and help.

  Workaround: Exit, then re-enter interface configuration mode. All commands will be accepted, even after you enter the **macro apply** command. (CSCsa44632)

- Under certain rare scenarios, the packet match counter in **show policy-map interface fa6/1** does not show the packets being matched, as in the following configuration:

```
clearwater#sh policy-map int
 FastEthernet6/2

  Service-policy output: p4

    Class-map: ipc2 (match-all)
      0 packets<---------- It shouldn't stay at '0'.
      Match: access-group name ipacl_2
      police: Per-interface
        Conform: 22937970 bytes Exceed: 977688712 bytes <--- traffic going thru
```

```
Class-map: class-default (match-any)
  410 packets
  Match: any
    410 packets
```

Workaround: Either enter a shutdown/no shutdown on the port or detach and reapply the service policy. (CSCef30883)

- When changing the access VLAN ID on a sticky port configured with IPSG and voice VLAN, the secure MAC address counter on this port might become negative. This does not impact the system.

  Workaround: Avoid enabling IPSG on sticky ports that are configured with VVID. (CSCeg31712)

- Issuing the **no ip flow ingress** command will not turn off the collection of switched IP flows.

  Workaround: Use the **no ip flow ingress** command in conjunction with the **no ip flow ingress layer2-switched** command.

  (CSCsa67042)

- QoS policing will fail if you configure more than 1000 policers on a trunk port and you remove some of the VLANs from the trunk port.

  Workaround: Use less than 1000 policers.(CSCsa57218)

- Modifying a policer may not work if you configure more than 800 policers.

  Workaround: Remove, reconfigure and reinstall policers, or, use less than 800 policers. (CSCsa66422)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA2

This section lists the resolved caveats in Release 12.2(25)EWA2:

- If the switch receives an unlearned source MAC address after a security violation, memory is consumed in creating a security violation-related SNMP trap for each source MAC address. If the switch receives several unlearned source MAC addresses at a very high rate, considerable memory is consumed to ensure that the SNMP traps are generated and sent out correctly.

  Workaround: Configure the trap-rate to limit very small number of traps every second. The following configuration sets a trap-rate of 1/2 trap per second (CSCeg41478):

  ```
  Switch(config)#snmp-ser enable traps port-se trap-rate 1
  Switch(config)#snmp-ser enable traps port-se trap-rate 2
  ```

- If you configure a SPAN session and then apply a SPAN ACL filter to the session, the packets that should be dropped according to the ACL definition are still sent out the SPAN destination port.

  For example, the intent of the following command sequence is to drop packets with source or destination IP address 20.4.1.2 on the SPAN destination port Gigabit Ethernet 6/5:

  ```
  Switch(config)# access-list 1 deny 20.4.1.2
  Switch(config)# monitor session 1 source interface gi6/5
  Switch(config)# monitor session 1 destination interface gi6/7
  Switch(config)# monitor session 1 filter ip access-group 1
  ```

  However, if this is the first time you are applying the ACL filter to the SPAN session, the packets with IP address 20.4.1.2 are still copied to the SPAN destination port.

  If this sample configuration is contained in the startup-config, then the ACL filter would work properly after the Catalyst 4500 series switch boots.

  This caveat only impacts Cisco IOS Release 12.2(25)EWA.

Workaround: Remove the ACL filter and then re-apply it using the following command sequence:

```
Switch(config)# no monitor session 1 filter ip access-group 1
Switch(config)# monitor session 1 filter ip access-group 1
```

(CSCsa64231)

- Issuing the **no ip flow ingress** command will not turn off the collection of switched IP flows.

  Workaround: Use the **no ip flow ingress** command in conjunction with the **no ip flow ingress layer2-switched** command.

  (CSCsa67042)

- When you use the **vlan** command in interface range configuration mode to configure a range of VLANs on Layer 3 ports, the VLANs might not be created, as in the following example. Additional VLANs will not be created on the Catalyst 4500 series switch until the switch has been reloaded.

  ```
  Switch(config)# int range gi3/3 - 28
  Switch(config-if-range)# sw
  Switch(config-if-range)# no sw
  Switch(config-if-range)# vlan 1000-4094
  % Command failed on interface GigabitEthernet3/4. Aborting
  Switch(config)#
  ```

  Workaround: Create the VLANs in global or interface command mode. CSCsa54831)

- Deleting the trusted boundary configuration from a port that does not have a phone attached to it and which was configured using the **auto qos voip cisco** command leaves the port in an untrusted state. The **auto qos voip cisco** command will configure two CLI's on a port: **qos trust cos** and **qos trust device cisco-phone**. Removing the **qos trust device cisco-phone** command (using the **no qos trust cisco-phone** command) will cause the port to remain in an untrusted state.

  Workaround: None.(CSCsa64726)

- Under load conditions, the CPU utilization reported on a Catalyst 4500 series switch running Cisco IOS Release 12.2(25)EWA2 is approximately 5 per cent higher than that reported on previous releases of IOS.

  Workaround: In previous releases of Cisco IOS, CPU utilization was computed incorrectly. This defect has been fixed in Cisco IOS Release 12.2(25)EWA2 resulting in slightly higher CPU utilization being reported under similar load conditions as compared to previous releases. (CSCsb19391)

  This is not a problem and a workaround is unnecessary.

- When the active supervisor engine on a Catalyst 4500 series switch redundant chassis is running Release 12.1-based IOS and the standby supervisor engine is running 12.2-based IOS, the following IPC error is seen, and the active supervisor engine is reset by the standby supervisor engine:

  ```
  00:00:36: %C4K_REDUNDANCY-4-KEEPALIVE_WARNING: Keepalive messages from peer Supervisor
  are missing for 27 seconds
  00:00:38: %CHKPT-3-IPCSESSION: Unable to open an IPC session for communicating with
  (STANDBY). rc= 12
  00:01:03: %C4K_REDUNDANCY-4-KEEPALIVE_WARNING: Keepalive messages from peer Supervisor
  are missing for 54 seconds
  00:01:30: %C4K_REDUNDANCY-4-KEEPALIVE_WARNING: Keepalive messages from peer Supervisor
  are missing for 81 seconds
  00:05:42: %C4K_REDUNDANCY-3-PEER_RELOAD: The peer Supervisor is being reset because
  keepalive message(s) not received.
  00:05:42: %C4K_REDUNDANCY-6-SWITCHOVER: Switchover activity detected, changing role
  from STANDBY to ACTIVE
  ```

Workaround: This is not a supported configuration. Ensure that both supervisor engines are running the same IOS release. (CSCsb21892)

- A QoS service-policy cannot be attached to a port or VLAN if routing is not configured on the system.

  Workaround: Enable IP routing on the system, but do not configure any SVIs and or physical routed ports. The routing operation is performed only when a SVI and or physical routed port is configured with a valid IP address. (CSCsa54215)

- When you configure numerous per-port per-VLAN QoS (like 800 input policers), and then modify them, per-port per-VLAN QoS will stop working.

  Workaround: Disable and or re-enable QoS. (CSCsa66422)

- Occasionally, when IPX ACL is configured with a tunnel interface to carry IPX traffic, the Catalyst 4500 series switch reloads once you delete the interface.

  This caveat does not occur in earlier releases.

  Workaround: None. (CSCsa68817)

- Let's assume that you configure the WS-X4548-GB-RJ45V linecard with the **interface range** command, as follows:

  ```
  power inline static max 15400
  no switchport
  ```

  You might receive the following error message-related trace back for any of the configured interfaces within the range:

  ```
  1d02h: %INTERFACE_API-3-NOADDSUBBLOCK: The SWIDB subblock named UDLD was not added to
  GigabitEthernet#/#
  -Traceback= 1022E35C 10291A1C 1055FE5C 103E3890 103E3924 1038D228 103EF2C8 103EF758
  1043D910 101E1B90 103BA750 101E0DA4 101E0858 101FA910 1030F04C 103059E8
  ```

  Workarounds: To avoid the error message, do either of the following:

  1. Enter the configuration as soon as the WS-X4548-GB-RJ45V linecard is inserted into the chassis rather than wait for a timeout period.

  2. Use interface configuration instead of interface range configuration. (CSCsb24491)

- When a redundant Catalyst 4500 chassis operating in SSO mode is configured for dot1q trunk and performs a switchover, IP traffic might not be able to travel from the Layer 3 interface on the new active supervisor engine to the Layer 3 interface on an interconnected WS-4014.

  Workaround: Clear the arp cache on both supervisor engines. (CSCsb24611)

- Moving a GBIC from one port (uplink or non-uplink) to another may cause a traceback. This problem can occur on any supervisor engine in any Catalyst 4500 chassis.

  Workaround: Ensure that the port is administratively shutdown before you remove the GBIC. (CSCsa66349)

Open Caveats in Cisco IOS Release 12.2(25)EWA1

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA1:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then re-enable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This activity can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

  Workaround: Reload the supervisor engines. (CSCef67309)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

  Workarounds:

  1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.

  2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- In a hierarchical policer configuration with parent as the aggregate policer and child as the microflow policer, child microflow policer-matched packets report only the packets that are in the profile (they match the policing rate). Packets that exceed the policing rate are not reported in the class-map packet match statistics.

  Workaround: None. (CSCef88634)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

```
clearwater#sh policy-map int
  FastEthernet3/2

   Service-policy output: p1

     Class-map: c1 (match-all)
       0 packets<--------It stays at '0' despite of traffic being received
       Match: access-group name fnacl21
       police: Per-interface
         Conform: 9426560 bytes Exceed: 16573440 bytes
```

  Workaround: Verify that the MAC addresses being transmitted through the system are learned.

  (CSCef01798)

- After an SSO switchover, you may receive a “PM-4-PORT_INCONSISTENT” error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not impact the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, then the **no shutdown** command on the same port will ensure that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature will show only two options: exit and help.

  Workaround: Exit, then re-enter interface configuration mode. All commands will be accepted, even after you enter the **macro apply** command. (CSCsa44632)

- If the switch receives an unlearned source MAC address after a security violation, memory is consumed in creating a security violation-related SNMP trap for each source MAC address. If the switch receives several unlearned source MAC addresses at a very high rate, considerable memory is consumed to ensure that the SNMP traps are generated and sent out correctly.

  Workaround: Configure the trap-rate to limit very small number of traps every second. The following configuration sets a trap-rate of 1/2 trap per second (CSCeg41478):

  ```
  Switch(config)#snmp-ser enable traps port-se trap-rate 1
  Switch(config)#snmp-ser enable traps port-se trap-rate 2
  ```

- Under certain rare scenarios, the packet match counter in **show policy-map interface fa6/1** does not show the packets being matched, as in the following configuration:

  ```
  clearwater#sh policy-map int
   FastEthernet6/2

    Service-policy output: p4

      Class-map: ipc2 (match-all)
        0 packets<---------- It shouldn't stay at '0'.
        Match: access-group name ipacl_2
        police: Per-interface
          Conform: 22937970 bytes Exceed: 977688712 bytes <--- traffic going thru


      Class-map: class-default (match-any)
        410 packets
        Match: any
          410 packets
  ```

  Workaround: Either enter a shutdown/no shutdown on the port or detach and reapply the service policy. (CSCef30883)

- When a switchport configured with port security is converted from an access to a promiscuous port, the port security configuration is lost. The **show interface** command will show that port security is no longer configured.

  Workaround: After converting a switchport with port security to a promiscuous port, apply the port security interface command again. (CSCeg41424)

- When changing the access VLAN ID on a sticky port configured with IPSG and voice VLAN, the secure MAC address counter on this port might become negative. This does not impact the system.

  Workaround: Avoid enabling IPSG on sticky ports that are configured with VVID. (CSCeg31712)

- If you configure a SPAN session and then apply a SPAN ACL filter to the session, the packets that should be dropped according to the ACL definition are still sent out the SPAN destination port.

  For example, the intent of the following command sequence is to drop packets with source or destination IP address 20.4.1.2 on the SPAN destination port Gigabit Ethernet 6/5:

  ```
  Switch(config)# access-list 1 deny 20.4.1.2
  Switch(config)# monitor session 1 source interface gi6/5
  Switch(config)# monitor session 1 destination interface gi6/7
  Switch(config)# monitor session 1 filter ip access-group 1
  ```

  However, if this is the first time you are applying the ACL filter to the SPAN session, the packets with IP address 20.4.1.2 are still copied to the SPAN destination port.

  If this sample configuration is contained in the startup-config, then the ACL filter would work properly after the Catalyst 4500 series switch boots.

  This caveat only impacts Cisco IOS Release 12.2(25)EWA.

Workaround: Remove the ACL filter and then re-apply it using the following command sequence:

```
Switch(config)# no monitor session 1 filter ip access-group 1
Switch(config)# monitor session 1 filter ip access-group 1
```

(CSCsa64231)

- Issuing the **no ip flow ingress** command will not turn off the collection of switched IP flows.

  Workaround: Use the **no ip flow ingress** command in conjunction with the **no ip flow ingress layer2-switched** command.

  (CSCsa67042)

- QoS policing will fail if you configure more than 1000 policers on a trunk port and you remove some of the VLANs from the trunk port.

  Workaround: Use less than 1000 policers. (CSCsa57218)

- Modifying a policer may not work if you configure more than 800 policers.

  Workaround: Remove, reconfigure and reinstall policers, or, use less than 800 policers. (CSCsa66422)

- When you use the **vlan** command in interface range configuration mode to configure a range of VLANs on Layer 3 ports, the VLANs might not be created, as in the following example. Additional VLANs will not be created on the Catalyst 4500 series switch until the switch has been reloaded.

  ```
  Switch(config)# int range gi3/3 - 28
  Switch(config-if-range)# sw
  Switch(config-if-range)# no sw
  Switch(config-if-range)# vlan 1000-4094
  % Command failed on interface GigabitEthernet3/4. Aborting
  Switch(config)#
  ```

  Workaround: Create the VLANs in global or interface command mode. CSCsa54831)

- Deleting the trusted boundary configuration from a port that does not have a phone attached to it and which was configured using the **auto qos voip cisco** command leaves the port in an untrusted state. The **auto qos voip cisco** command will configure two CLI's on a port: **qos trust cos** and **qos trust device cisco-phone**. Removing the **qos trust device cisco-phone** command (using the **no qos trust cisco-phone** command) will cause the port to remain in an untrusted state.

  Workaround: None. (CSCsa64726)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA1

This section lists the resolved caveats in Release 12.2(25)EWA1:

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supercedes the deprecated NetFlow Feature Acceleration.

Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

```
cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
cnfFeatureActive              1.3.6.1.4.1.9.9.99999.1.3.4.1.3
cnfFeatureAttaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.4
cnfFeatureDetaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.5
cnfFeatureConfigChanges       1.3.6.1.4.1.9.9.99999.1.3.4.1.6
```

(CSCsa81379)

- Cisco Internetwork Operating System (IOS®) Software is vulnerable to a Denial of Service (DoS) and potentially an arbitrary code execution attack from a specifically crafted IPv6 packet. The packet must be sent from a local network segment. Only devices that have been explicitly configured to process IPv6 traffic are affected. Upon successful exploitation, the device may reload or be open to further exploitation.

  Cisco has made free software available to address this vulnerability for all affected customers.

  More details can be found in the security advisory that is posted at http://www.cisco.com/warp/public/707/cisco-sa-20050729-ipv6.shtml. (CSCef68324)

Open Caveats in Cisco IOS Release 12.2(25)EWA

This section lists the open caveats in Cisco IOS Release 12.2(25)EWA:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then re-enable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This activity can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is

disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000105: Jul  9 01:23:36.721 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

  Workaround: Reload the supervisor engines. (CSCef67309)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

  Workarounds:

  1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.

  2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- In a hierarchical policer configuration with parent as the aggregate policer and child as the microflow policer, child microflow policer-matched packets report only the packets that are in the profile (they match the policing rate). Packets that exceed the policing rate are not reported in the class-map packet match statistics.

  Workaround: None. (CSCef88634)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

```
clearwater#sh policy-map int
  FastEthernet3/2

   Service-policy output: p1

     Class-map: c1 (match-all)
       0 packets<--------It stays at '0' despite of traffic being received
       Match: access-group name fnacl21
       police: Per-interface
         Conform: 9426560 bytes Exceed: 16573440 bytes
```

  Workaround: Verify that the MAC addresses being transmitted through the system are learned.

  (CSCef01798)

- After an SSO switchover, you may receive a "PM-4-PORT_INCONSISTENT" error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not impact the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, then the **no shutdown** command on the same port will ensure that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature will show only two options: exit and help.

  Workaround: Exit, then re-enter interface configuration mode. All commands will be accepted, even after you enter the **macro apply** command. (CSCsa44632)

- If the switch receives an unlearned source MAC address after a security violation, memory is consumed in creating a security violation-related SNMP trap for each source MAC address. If the switch receives several unlearned source MAC addresses at a very high rate, considerable memory is consumed to ensure that the SNMP traps are generated and sent out correctly.

  Workaround: Configure the trap-rate to limit very small number of traps every second. The following configuration sets a trap-rate of 1/2 trap per second (CSCeg41478):

```
Switch(config)#snmp-ser enable traps port-se trap-rate 1
Switch(config)#snmp-ser enable traps port-se trap-rate 2
```

- Under certain rare scenarios, the packet match counter in **show policy-map interface fa6/1** does not show the packets being matched, as in the following configuration:

```
clearwater#sh policy-map int
 FastEthernet6/2

  Service-policy output: p4

    Class-map: ipc2 (match-all)
      0 packets<---------- It shouldn't stay at '0'.
      Match: access-group name ipacl_2
      police: Per-interface
        Conform: 22937970 bytes Exceed: 977688712 bytes <--- traffic going thru
```

```
Class-map: class-default (match-any)
  410 packets
  Match: any
    410 packets
```

Workaround: Either enter a shutdown/no shutdown on the port or detach and reapply the service policy. (CSCef30883)

- When a switchport configured with port security is converted from an access to a promiscuous port, the port security configuration is lost. The **show interface** command will show that port security is no longer configured.

  Workaround: After converting a switchport with port security to a promiscuous port, apply the port security interface command again. (CSCeg41424)

- When changing the access VLAN ID on a sticky port configured with IPSG and voice VLAN, the secure MAC address counter on this port might become negative. This does not impact the system.

  Workaround: Avoid enabling IPSG on sticky ports that are configured with VVID. (CSCeg31712)

- If you configure a SPAN session and then apply a SPAN ACL filter to the session, the packets that should be dropped according to the ACL definition are still sent out the SPAN destination port.

  For example, the intent of the following command sequence is to drop packets with source or destination IP address 20.4.1.2 on the SPAN destination port Gigabit Ethernet 6/5:

  ```
  Switch(config)# access-list 1 deny 20.4.1.2
  Switch(config)# monitor session 1 source interface gi6/5
  Switch(config)# monitor session 1 destination interface gi6/7
  Switch(config)# monitor session 1 filter ip access-group 1
  ```

  However, if this is the first time you are applying the ACL filter to the SPAN session, the packets with IP address 20.4.1.2 are still copied to the SPAN destination port.

  If this sample configuration is contained in the startup-config, then the ACL filter would work properly after the Catalyst 4500 series switch boots.

  This caveat only impacts Cisco IOS Release 12.2(25)EWA.

  Workaround: Remove the ACL filter and then re-apply it using the following command sequence:

  ```
  Switch(config)# no monitor session 1 filter ip access-group 1
  Switch(config)# monitor session 1 filter ip access-group 1
  ```

  (CSCsa64231)

- Issuing the **no ip flow ingress** command will not turn off the collection of switched IP flows.

  Workaround: Use the **no ip flow ingress** command in conjunction with the **no ip flow ingress layer2-switched** command.

  (CSCsa67042)

- QoS policing will fail if you configure more than 1000 policers on a trunk port and you remove some of the VLANs from the trunk port.

  Workaround: Use less than 1000 policers. (CSCsa57218)

- Modifying a policer may not work if you configure more than 800 policers.

  Workaround: Remove, reconfigure and reinstall policers, or, use less than 800 policers. (CSCsa66422)

- When you use the **vlan** command in interface range configuration mode to configure a range of VLANs on Layer 3 ports, the VLANs might not be created, as in the following example. Additional VLANs will not be created on the Catalyst 4500 series switch until the switch has been reloaded.

```
Switch(config)# int range gi3/3 - 28
Switch(config-if-range)# sw
Switch(config-if-range)# no sw
Switch(config-if-range)# vlan 1000-4094
% Command failed on interface GigabitEthernet3/4. Aborting
Switch(config)#
```

  Workaround: Create the VLANs in global or interface command mode. CSCsa54831)

- Deleting the trusted boundary configuration from a port that does not have a phone attached to it and which was configured using the **auto qos voip cisco** command leaves the port in an untrusted state. The **auto qos voip cisco** command will configure two CLI's on a port: **qos trust cos** and **qos trust device cisco-phone**. Removing the **qos trust device cisco-phone** command (using the **no qos trust cisco-phone** command) will cause the port to remain in an untrusted state.

  Workaround: None. (CSCsa64726)

- The policers configured on VLANs associated with the trunk ports of a Catalyst 4500 series switch may stop functioning when more than 1000 VLANs have policers applied to them and VLANs are added or deleted from the policer list. For example, if a trunk port allows 1020 VLANs with a policer applied to all VLANs, removing and adding some VLANs from the VLAN list may stop the policers from functioning on any of the VLANs.

  Workaround: If you configure more than 1000 VLANs with policers, remove the excess VLAN policers, disable, and enable QoS globally to restore QoS. For a VLAN list of roughly 1000 VLANs, disable, then enable QoS globally to restore QoS after the VLAN changes are made. (CSCsa57218)

Resolved Caveats in Cisco IOS Release 12.2(25)EWA

This section lists the resolved caveats in Release 12.2(25)EWA:

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When the access VLAN of an access port is converted into an RSPAN VLAN, the **show interface** and **show interface inactive** commands indicate that the interface is up and connected. This problem is strictly cosmetic; the interface is no longer forwarding traffic.

  Workaround: None. (CSCsa44090)

- When a Catalyst 4500 series switch exhausts the packet buffers and can no longer receive packets, the Rx-No_pkt_Buff field in the output of the **show platform interface all** command may not get updated.

  Workaround: None. (CSCef72691)

- Per-flow Border Gateway Protocol (BGP) AS information is not collected. As a result, BGP AS information will not be available in any of the aggregation caches.

  Workaround: None. (CSCin85662)

- Multicast over Generic Routing Encapsulation (GRE) does not work.

  Workaround: None (CSCin85525)

- The PoE status LED on the WS-X4506-GB-T linecard is always off. Moreover, PoE status does not appear in the output of the show environment command.

Workaround: None. (CSCeh26976)

Open Caveats in Cisco IOS Release 12.2(25)EW

This section lists the open caveats in Cisco IOS Release 12.2(25)EW.

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

```
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000103: Jul  9 01:23:16.642 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000104: Jul  9 01:23:26.682 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
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config-changed command to standby
000106: Jul  9 01:23:46.777 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

  Workaround: Reload the supervisor engines. (CSCef67309)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

  Workarounds:

  1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR.

  2. Enter the **write memory** command and reload the switch from the non-redundancy chassis. (CSCef67677)

- When the access VLAN of an access port is converted into an RSPAN VLAN, the **show interface** and **show interface inactive** commands indicate that the interface is up and connected. This problem is strictly cosmetic; the interface is no longer forwarding traffic.

  Workaround: None. (CSCsa44090)

- When a Catalyst 4500 series switch exhausts the packet buffers and can no longer receive packets, the Rx-No_pkt_Buff field in the output of the **show platform interface all** command may not get updated.

  Workaround: None. (CSCef72691)

- In a hierarchical policer configuration with parent as the aggregate policer and child as the microflow policer, child microflow policer-matched packets report only the packets that are in the profile (they match the policing rate). Packets that exceed the policing rate are not reported in the class-map packet match statistics.

  Workaround: None. (CSCef88634)

- Per-flow Border Gateway Protocol (BGP) AS information is not collected. As a result, BGP AS information will not be available in any of the aggregation caches.

  Workaround: None. (CSCin85662)

- In rare instances, when you are using MAC ACL-based policers, the packet match counters in **show policy-map interface fa6/1** do not show the packets being matched:

  ```
  clearwater#sh policy-map int
    FastEthernet3/2

     Service-policy output: p1
  ```

```
Class-map: c1 (match-all)
  0 packets<--------It stays at '0' despite of traffic being received
  Match: access-group name fnacl21
  police: Per-interface
    Conform: 9426560 bytes Exceed: 16573440 bytes
```

Workaround: Verify that the MAC addresses being transmitted through the system are learned.

(CSCef01798)

- Multicast over Generic Routing Encapsulation (GRE) does not work.

  Workaround: None (CSCin85525)

- After an SSO switchover, you may receive a "PM-4-PORT_INCONSISTENT" error message on the switch console if you enter the **shutdown** command, then the **no shutdown** command on the port that is in UDLD error-disable state. This does not impact the switch; the port remains in UDLD error-disable state. Re-entering the **shutdown** command, then the **no shutdown** command on the same port will ensure that the error message does not re-appear.

  Workaround: None. (CSCeg48586)

- If you enter the **default interface** command at the interface level, then at the interface configuration level, any command you enter after a **macro apply** command is not accepted. The Help(?) feature will show only two options: exit and help.

  Workaround: Exit, then re-enter interface configuration mode. All commands will be accepted, even after you enter the **macro apply** command. (CSCsa44632)

- If the switch receives an unlearned source MAC address after a security violation, memory is consumed in creating a security violation-related SNMP trap for each source MAC address. If the switch receives several unlearned source MAC addresses at a very high rate, considerable memory is consumed to ensure that the SNMP traps are generated and sent out correctly.

  Workaround: Configure the trap-rate to limit very small number of traps every second. The following configuration sets a trap-rate of 1/2 trap per second (CSCeg41478):

```
Switch(config)#snmp-ser enable traps port-se trap-rate 1
Switch(config)#snmp-ser enable traps port-se trap-rate 2
```

- Under certain rare scenarios, the packet match counter in **show policy-map interface fa6/1** does not show the packets being matched, as in the following configuration:

```
clearwater#sh policy-map int
 FastEthernet6/2

  Service-policy output: p4

    Class-map: ipc2 (match-all)
      0 packets<---------- It shouldn't stay at '0'.
      Match: access-group name ipacl_2
      police: Per-interface
        Conform: 22937970 bytes Exceed: 977688712 bytes <--- traffic going thru


    Class-map: class-default (match-any)
      410 packets
      Match: any
        410 packets
```

Workaround: Either enter a shutdown/no shutdown on the port or detach and reapply the service policy. (CSCef30883)

- When a switchport configured with port security is converted from an access to a promiscuous port, the port security configuration is lost. The **show interface** command will show that port security is no longer configured.

  Workaround: After converting a switchport with port security to a promiscuous port, apply the port security interface command again. (CSCeg41424)

- When changing the access VLAN ID on a sticky port configured with IPSG and voice VLAN, the secure MAC address counter on this port might become negative. This does not impact the system.

  Workaround: Avoid enabling IPSG on sticky ports that are configured with VVID. (CSCeg31712)

- The PoE status LED on the WS-X4506-GB-T linecard is always off. Moreover, PoE status does not appear in the output of the show environment command.

  Workaround: None. This was fixed in Cisco IOS Release 12.2(25)EWA. (CSCeh26976)

Resolved Caveats in Cisco IOS Release 12.2(25)EW

This section lists the resolved caveats in Release 12.2(25)EW:

- Under conditions where switch communication with the RADIUS server is broken or delayed, 802.1X may either cause the switch to crash or generate memory corruption tracebacks. This issue impacts Releases 12.1(20)EW, 12.2(18)EW, 12.2(18)EW1, 12.2(20)EW and 12.2(20)EWA.

  Workaround: None. (CSCef46146)

- When the gigabit port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the gigabit port of a Catalyst 4500 series switch with Supervisor Engine WS-X4516 and Release 12.2(18)EW or 12.2(20)EW, the gigabit uplink port on the Catalyst 3550 switch fails POST (lost loopback packet) during bootup.

  Workarounds:

  1. Disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch before booting the Catalyst 3550 switch. After the Catalyst 3550 switch boots, reconnect the cable.

  2. Shutdown the gigaports on the Catalyst 4500 series switch before booting the Catalyst 3550 switch. After the Catalyst 3550 switch boots, enter a **no shutdown** command on the gigaports of the Catalyst 4500 series switch. (CSC50578)

- Upon power-cycle, a Catalyst 4500 series switch with redundant supervisor engines and Release 12.2(20)EWA may indicate that all modules are faulty.

  Workaround: Enter the **redundancy reload peer** command to reload the standby supervisor engine. Then, reset all the faulty line-cards with the **hw-module slot reset** command. (CSCsa44721)

- Cisco Internetwork Operating System (IOS®) Software is vulnerable to a Denial of Service (DoS) and potentially an arbitrary code execution attack from a specifically crafted IPv6 packet. The packet must be sent from a local network segment. Only devices that have been explicitly configured to process IPv6 traffic are affected. Upon successful exploitation, the device may reload or be open to further exploitation.

  Cisco has made free software available to address this vulnerability for all affected customers.

  More details can be found in the security advisory that is posted at http://www.cisco.com/warp/public/707/cisco-sa-20050729-ipv6.shtml. (CSCef68324)

Open Caveats in Cisco IOS Release 12.2(20)EWA4

This section lists the open caveats in Cisco IOS Release 12.2(20)EWA4:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000100: Jul  9 01:22:46.534 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

```
000101: Jul  9 01:22:56.566 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
000102: Jul  9 01:23:06.598 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
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000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

  Workaround: Reload the supervisor engines. (CSCef67309)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

  Workarounds:

  1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR mode.

  2. If you do not perform the first workaround, enter the **write memory** command, and reload the switch from the non-redundancy chassis. (CSCef67677)

- The PoE status LED on the WS-X4506-GB-T linecard is always off. Moreover, PoE status does not appear in the output of the show environment command.

  Workaround: None. This was fixed in Cisco IOS Release 12.2(25)EWA. (CSCeh26976)

Resolved Caveats in Cisco IOS Release 12.2(20)EWA4

This section lists the resolved caveats in Release 12.2(20)EWA4:

- Some (or all) CDP neighbors are not visible.

  It only happens on releases including the fix for CSCse85200.

  When turning on "debug cdp event", the following message occurs:

  ```
  CDP-EV: Received item (type : 9) with invalid length 4
  ```

  Workaround: None. (CSCsf07847)

Open Caveats in Cisco IOS Release 12.2(20)EWA3

This section lists the open caveats in Cisco IOS Release 12.2(20)EWA3:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

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config-changed command to standby
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```
000107: Jul  9 01:23:56.793 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
config-changed command to standby
```

Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

  Workaround: Reload the supervisor engines. (CSCef67309)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

  Workarounds:

  1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR mode.

  2. If you do not perform the first workaround, enter the **write memory** command, and reload the switch from the non-redundancy chassis. (CSCef67677)

- The PoE status LED on the WS-X4506-GB-T linecard is always off. Moreover, PoE status does not appear in the output of the show environment command.

  Workaround: None. This was fixed in Cisco IOS Release 12.2(25)EWA. (CSCeh26976)

Resolved Caveats in Cisco IOS Release 12.2(20)EWA3

This section lists the resolved caveats in Release 12.2(20)EWA3:

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)

Open Caveats in Cisco IOS Release 12.2(20)EWA2

This section lists the open caveats in Cisco IOS Release 12.2(20)EWA2:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

```
000099: Jul  9 01:22:36.478 PDT: %HA_CONFIG_SYNC-3-LBL_CFGSYNC: Unable to sync
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config-changed command to standby
```

  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

  Workaround: Reload the supervisor engines. (CSCef67309)

- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

Workarounds:

1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR mode.

2. If you do not perform the first workaround, enter the **write memory** command, and reload the switch from the non-redundancy chassis. (CSCef67677)

- The PoE status LED on the WS-X4506-GB-T linecard is always off. Moreover, PoE status does not appear in the output of the show environment command.

  Workaround: None. This was fixed in Cisco IOS Release 12.2(25)EWA. (CSCeh26976)

Resolved Caveats in Cisco IOS Release 12.2(20)EWA2

This section lists the resolved caveats in Release 12.2(20)EWA2:

- Cisco Internetwork Operating System (IOS®) Software is vulnerable to a Denial of Service (DoS) and potentially an arbitrary code execution attack from a specifically crafted IPv6 packet. The packet must be sent from a local network segment. Only devices that have been explicitly configured to process IPv6 traffic are affected. Upon successful exploitation, the device may reload or be open to further exploitation.

  Cisco has made free software available to address this vulnerability for all affected customers.

  More details can be found in the security advisory that is posted at http://www.cisco.com/warp/public/707/cisco-sa-20050729-ipv6.shtml. (CSCef68324)

Open Caveats in Cisco IOS Release 12.2(20)EWA1

This section lists the open caveats in Cisco IOS Release 12.2(20)EWA1:

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later releases.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is

disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting (flapping) of the link.

Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

- When you enter the **access-list N permit host hostname** command on a redundant chassis operating in SSO mode, you might observe the following syslog messages. The command is not synchronized with the redundant supervisor engine, and keepalive warnings appear.

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  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

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- After moving to a non-redundant chassis, a supervisor engine that was previously configured in SSO mode will not be able to configure router ports or port-channel.

  Workarounds:

  1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR mode.

  2. If you do not perform the first workaround, enter the **write memory** command, and reload the switch from the non-redundancy chassis. (CSCef67677)

- The PoE status LED on the WS-X4506-GB-T linecard is always off. Moreover, PoE status does not appear in the output of the show environment command.

  Workaround: None. This was fixed in Cisco IOS Release 12.2(25)EWA. (CSCeh26976)

Resolved Caveats in Cisco IOS Release 12.2(20)EWA1

This section lists the resolved caveats in Release 12.2(20)EWA1:

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supercedes the deprecated NetFlow Feature Acceleration.

  Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

```
cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
cnfFeatureActive              1.3.6.1.4.1.9.9.99999.1.3.4.1.3
cnfFeatureAttaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.4
cnfFeatureDetaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.5
cnfFeatureConfigChanges       1.3.6.1.4.1.9.9.99999.1.3.4.1.6
```

  (CSCsa81379)

Open Caveats in Cisco IOS Release 12.2(20)EWA

This section lists the open caveats in Cisco IOS Release 12.2(20)EWA.

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- On a system reload, some of the QoS policies that had previously loaded into the hardware may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, and then reenable QoS with the **qos global** command. (CSCee52449)

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  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

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  Workaround: When using the **access-list N permit host hostname** command, specify the IP address of the host rather than the hostname (CSCef67489)

- After a supervisor engine switchover in SSO mode, the Diagnostic Optical Monitoring feature (CLI and MIB support) might not work as expected. The **show interfaces transceiver** command will not display any output.

  Workaround: Reload the supervisor engines. (CSCef67309)

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Workarounds:

1. Before moving the supervisor engine to a non-redundancy-capable chassis, change the mode to RPR mode.

2. If you do not perform the first workaround, enter the **write memory** command, and reload the switch from the non-redundancy chassis. (CSCef67677)

- The PoE status LED on the WS-X4506-GB-T linecard is always off. Moreover, PoE status does not appear in the output of the show environment command.

  Workaround: None. This was fixed in Cisco IOS Release 12.2(25)EWA. (CSCeh26976)

Resolved Caveats in Cisco IOS Release 12.2(20)EWA

This section lists the resolved caveats in Release 12.2(20)EWA:

- The DHCP snooping database agent has a maximum of 8192 entries. If the number of DHCP bindings learned by the system exceeds this number, the entries in the database agent will be cleared out, the entries in hardware will be retained, and switching will continue. However, upon reload, bindings and connectivity will be lost.

  Workaround: None. (CSCee34375)

- If IP source guard and QoS policies with large ACLs are configured on an interface, deleting the QoS policy will not clear the policers from the hardware.

  Workaround: Either remove the IP source guard configuration using the **no ip verify source vlan dhcp-snooping port-security** command and reconfigure using the **ip verify source vlan dhcp-snooping port-security** command or shut down the interface (after removing the policy) using the **shutdown** command, and reactivate it using the **no shutdown** command. (CSCee44402)

- A Catalyst 4500 series switch with a 1000 W power supply might display the following message during bootup sequence and also when you enter the **show idprom power-supply** command:

  ```
  %C4K_SUPERVISOR-3-POWERSUPPLYSEEPROMINVALID: Invalid data in power supply 1’s serial
  eeprom
  ```

  This is cosmetic only and does not impact system performance. (CSCee54636)

- When you use private VLANs on the Catalyst 4500 series switch Supervisor Engine V (WS-X4516), old ARP entries will not timeout of the ARP cache without manually clearing the ARP entry. This has no effect on production.

  Workaround: Issue the **clear arp** command on the supervisor engine. (CSCee73094)

Open Caveats in Cisco IOS Release 12.2(20)EW4

This section lists the open caveats in Cisco IOS Release 12.2(20)EW4.

- For Release 12.2(18)EW or later, when the Gigabit Ethernet port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the Gigabit Ethernet port of a Catalyst 4500 series switch with a Supervisor Engine V (WS-X4516), the port on the Catalyst 3500 switch fails POST (power-on self test) during startup.

  Workarounds:

1. Before starting up the Catalyst 3550 switch, disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch. Once the Catalyst 3550 switch boots, reconnect the cable.

2. Before starting up the Catalyst 3550 switch, issue the **shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 series switch. After starting up the Catalyst 3550 switch, issue the **no shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 switch. (CSCee50578)

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- The DHCP snooping database agent has a maximum of 8192 entries. If the number of DHCP bindings learned by the system exceeds this number, the entries in the database agent will be cleared out, the entries in hardware will be retained, and switching will continue. However, upon reload, bindings and connectivity will be lost.

  Workaround: None. (CSCee34375)

- If IP source guard and QoS policies with large ACLs are configured on an interface, deleting the QoS policy will not clear the policers from the hardware.

  Workaround: Either remove the IP source guard configuration using the **no ip verify source vlan dhcp-snooping port-security** command and reconfigure using **ip verify source vlan dhcp-snooping port-security** command or shut down the interface (after removing the policy) using the **shutdown** command and reactivate it using the **no shutdown** command. (CSCee44402)

- On a system reload, some of the QoS policies that had previously loaded into the hardware, may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

Resolved Caveats in Cisco IOS Release 12.2(20)EW4

This section lists the resolved caveats in release 12.2(20)EW4:

- Some (or all) CDP neighbors are not visible.

  It only happens on releases including the fix for CSCse85200.

  When turning on "debug cdp event", the following message occurs:

  ```
  CDP-EV: Received item (type : 9) with invalid length 4
  ```

  Workaround: None. (CSCsf07847)

Open Caveats in Cisco IOS Release 12.2(20)EW3

This section lists the open caveats in Cisco IOS Release 12.2(20)EW3.

- For Release 12.2(18)EW or later, when the Gigabit Ethernet port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the Gigabit Ethernet port of a Catalyst 4500 series switch with a Supervisor Engine V (WS-X4516), the port on the Catalyst 3500 switch fails POST (power-on self test) during startup.

  Workarounds:

  1. Before starting up the Catalyst 3550 switch, disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch. Once the Catalyst 3550 switch boots, reconnect the cable.

  2. Before starting up the Catalyst 3550 switch, issue the **shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 series switch. After starting up the Catalyst 3550 switch, issue the **no shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 switch. (CSCee50578)

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- The DHCP snooping database agent has a maximum of 8192 entries. If the number of DHCP bindings learned by the system exceeds this number, the entries in the database agent will be cleared out, the entries in hardware will be retained, and switching will continue. However, upon reload, bindings and connectivity will be lost.

  Workaround: None. (CSCee34375)

- If IP source guard and QoS policies with large ACLs are configured on an interface, deleting the QoS policy will not clear the policers from the hardware.

Workaround: Either remove the IP source guard configuration using the **no ip verify source vlan dhcp-snooping port-security** command and reconfigure using **ip verify source vlan dhcp-snooping port-security** command or shut down the interface (after removing the policy) using the **shutdown** command and reactivate it using the **no shutdown** command. (CSCee44402)

- On a system reload, some of the QoS policies that had previously loaded into the hardware, may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

Resolved Caveats in Cisco IOS Release 12.2(20)EW3

This section lists the resolved caveats in release 12.2(20)EW3:

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)
- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

Open Caveats in Cisco IOS Release 12.2(20)EW2

This section lists the open caveats in Cisco IOS Release 12.2(20)EW2.

- For Release 12.2(18)EW or later, when the Gigabit Ethernet port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the Gigabit Ethernet port of a Catalyst 4500 series switch with a Supervisor Engine V (WS-X4516), the port on the Catalyst 3500 switch fails POST (power-on self test) during startup.

  Workarounds:

  1. Before starting up the Catalyst 3550 switch, disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch. Once the Catalyst 3550 switch boots, reconnect the cable.

  2. Before starting up the Catalyst 3550 switch, issue the **shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 series switch. After starting up the Catalyst 3550 switch, issue the **no shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 switch. (CSCee50578)

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- The DHCP snooping database agent has a maximum of 8192 entries. If the number of DHCP bindings learned by the system exceeds this number, the entries in the database agent will be cleared out, the entries in hardware will be retained, and switching will continue. However, upon reload, bindings and connectivity will be lost.

  Workaround: None. (CSCee34375)

- If IP source guard and QoS policies with large ACLs are configured on an interface, deleting the QoS policy will not clear the policers from the hardware.

  Workaround: Either remove the IP source guard configuration using the **no ip verify source vlan dhcp-snooping port-security** command and reconfigure using **ip verify source vlan dhcp-snooping port-security** command or shut down the interface (after removing the policy) using the **shutdown** command and reactivate it using the **no shutdown** command. (CSCee44402)

- On a system reload, some of the QoS policies that had previously loaded into the hardware, may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

Resolved Caveats in Cisco IOS Release 12.2(20)EW2

This section lists the resolved caveats in release 12.2(20)EW2:

- Cisco Internetwork Operating System (IOS®) Software is vulnerable to a Denial of Service (DoS) and potentially an arbitrary code execution attack from a specifically crafted IPv6 packet. The packet must be sent from a local network segment. Only devices that have been explicitly configured to process IPv6 traffic are affected. Upon successful exploitation, the device may reload or be open to further exploitation.

  Cisco has made free software available to address this vulnerability for all affected customers.

  More details can be found in the security advisory that is posted at http://www.cisco.com/warp/public/707/cisco-sa-20050729-ipv6.shtml. (CSCef68324)

Open Caveats in Cisco IOS Release 12.2(20)EW1

This section lists the open caveats in Cisco IOS Release 12.2(20)EW1.

- For Release 12.2(18)EW or later, when the Gigabit Ethernet port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the Gigabit Ethernet port of a Catalyst 4500 series switch with a Supervisor Engine V (WS-X4516), the port on the Catalyst 3500 switch fails POST (power-on self test) during startup.

  Workarounds:

  1. Before starting up the Catalyst 3550 switch, disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch. Once the Catalyst 3550 switch boots, reconnect the cable.

2. Before starting up the Catalyst 3550 switch, issue the **shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 series switch. After starting up the Catalyst 3550 switch, issue the **no shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 switch. (CSCee50578)

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- The DHCP snooping database agent has a maximum of 8192 entries. If the number of DHCP bindings learned by the system exceeds this number, the entries in the database agent will be cleared out, the entries in hardware will be retained, and switching will continue. However, upon reload, bindings and connectivity will be lost.

  Workaround: None. (CSCee34375)

- If IP source guard and QoS policies with large ACLs are configured on an interface, deleting the QoS policy will not clear the policers from the hardware.

  Workaround: Either remove the IP source guard configuration using the **no ip verify source vlan dhcp-snooping port-security** command and reconfigure using **ip verify source vlan dhcp-snooping port-security** command or shut down the interface (after removing the policy) using the **shutdown** command and reactivate it using the **no shutdown** command. (CSCee44402)

- On a system reload, some of the QoS policies that had previously loaded into the hardware, may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

Resolved Caveats in Cisco IOS Release 12.2(20)EW1

This section lists the resolved caveats in release 12.2(20)EW1:

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supersedes the deprecated NetFlow Feature Acceleration.

  Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

```
cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
cnfFeatureActive              1.3.6.1.4.1.9.9.99999.1.3.4.1.3
cnfFeatureAttaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.4
cnfFeatureDetaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.5
cnfFeatureConfigChanges       1.3.6.1.4.1.9.9.99999.1.3.4.1.6
```

  (CSCsa81379)

Open Caveats in Cisco IOS Release 12.2(20)EW

This section lists the open caveats in Cisco IOS Release 12.2(20)EW.

- For Release 12.2(18)EW or later, when the Gigabit Ethernet port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the Gigabit Ethernet port of a Catalyst 4500 series switch with a Supervisor Engine V (WS-X4516), the port on the Catalyst 3500 switch fails POST (power-on self test) during startup.

  Workarounds:

  1. Before starting up the Catalyst 3550 switch, disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch. Once the Catalyst 3550 switch boots, reconnect the cable.

  2. Before starting up the Catalyst 3550 switch, issue the **shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 series switch. After starting up the Catalyst 3550 switch, issue the **no shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 switch. (CSCee50578)

- Changes to console speed are not updated in ROMMON. If a system is reloaded, you will not see a prompt until Cisco IOS software re-starts.

  Workaround: None. (CSCee65294)

- The DHCP snooping database agent has a maximum of 8192 entries. If the number of DHCP bindings learned by the system exceeds this number, the entries in the database agent will be cleared out, the entries in hardware will be retained, and switching will continue. However, upon reload, bindings and connectivity will be lost.

  Workaround: None. (CSCee34375)

- If IP source guard and QoS policies with large ACLs are configured on an interface, deleting the QoS policy will not clear the policers from the hardware.

  Workaround: Either remove the IP source guard configuration using the **no ip verify source vlan dhcp-snooping port-security** command and reconfigure using **ip verify source vlan dhcp-snooping port-security** command or shut down the interface (after removing the policy) using the **shutdown** command and reactivate it using the **no shutdown** command. (CSCee44402)

- On a system reload, some of the QoS policies that had previously loaded into the hardware, may fail to load due to limited space.

  Workaround: Disable QoS with the **no qos** command, then reenable QoS with the **qos global** command. (CSCee52449)

- Insertion of unsupported SFPs (small form-factor pluggable optics) into a WS-X4448-GB-SFP or WS-X4448-GB-LX module and can cause undetected communication failures between the supervisor engine and the corresponding module. Subsequent insertion or removal of SFPs from the module is not recognized by the system. This behavior can be observed on a Catalyst 4500 series switch using Release 12.1(12c)EW1 or later.

  Workaround: Reset the module with the **hw-module module reset** command. (CSCee05078)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays active regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays shut down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into errdisable mode because of the continuous connecting and disconnecting flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV that uses Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine that uses Release 12.1(19)EW (or later). (CSCeb36355)

Resolved Caveats in Cisco IOS Release 12.2(20)EW

This section lists the resolved caveats in release 12.2(20)EW:

- Cisco Internetwork Operating System (IOS) Software is vulnerable to a Denial of Service (DoS) attack from crafted IPv6 packets when the device has been configured to process IPv6 traffic. This vulnerability requires multiple crafted packets to be sent to the device which may result in a reload upon successful exploitation.

  More details can be found in the security advisory, which is posted at http://www.cisco.com/warp/public/707/cisco-sa-20050126-ipv6.shtml.

  (CSCed40933)

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- When DHCP snooping, IP source guard, and trunks are configured on all 240 interfaces on a Catalyst 4500 series switch equipped with a Supervisor Engine II+, the switch may exhaust its TCAM space.

  Workaround: None. (CSCed18765)

- When Layer 3 fragmentation fails, a Catalyst 4500 series switch that uses Supervisor Engine IV sends back the wrong ICMP code and causes the Path MTU auto-discovery feature to fail. The switch returns the code “ICMP Host unreachable / Communication administratively filtered (code 13)," yet the correct code is "ICMP Host unreachable / Fragmentation needed but DF-Bit set (Code 4)."

  Workaround: None. (CSCed56513)

- When you upgrade a Cisco IOS software image from Release 12.1(12c) or 12.1(19)E to a release in the 12.2 release train, the following syslog message appears: "00:00:01: %C4K_IOSSYS-3-BLANKSTARTUPCONFIG: Blank or invalid startup-config, booting up with defaults".

  Workaround: You may ignore the message. (CSCed26025)

- When configured for VRF-Lite, a Catalyst 4500 series switch inadvertently forwards packets received on the VRF interface for those destinations not in the VRF routing table. Instead of dropping the packets, the switch forwards them using the global routing table.

  Workaround: Issue the command **ip route vrf <vrf name> 0.0.0.0 0.0.0.0 null 0** to drop the packet. (CSCed20990)

- The **show mod** command will not display the correct status of a WS-X4604-GWY module if the gateway module has failed. The status of the module incorrectly displays as “Ok,” but the correct status is “Offline.” This problem has been resolved in the Release 12.3(8.3)T image of the WS-X4604-GWY module.

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- Ports in suspended mode due to misconfiguration in the LACP port channel do not recover, even after reconfiguring the ports. This situation occurs when most ports are configured for 802.1X encapsulation and one or more ports are not.

Workaround: Enter the **switchport trunk encap dot1q** command to add the suspended port to the channel, shut down the port using the **shutdown** command, and then enter the **no shutdown** command to force the port to stay active. This action ensures that the port gets added to the port channel. (CSCeb78999)

Open Caveats in Cisco IOS Release 12.2(18)EW7

This section lists the open caveats in Cisco IOS Release 12.2(18)EW7.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- On a Catalyst 4500 series switch with Gigabit Ethernet Switching Modules, link flaps may occur when you pull out TX cables on a giga ethernet interface configured with "speed nonnegotiate."

  Workaround: Do not set “speed nonnegotiate.” (CSCeg57297)

- Inserting the WS-X4232-RJ-XX and/or WS-X4124-FX-M linecards into a Catalyst 4500 series switch running Cisco IOS Release 12.2(18)EW7 causes the switch to reload continuously.

  This problem is not present in Cisco IOS Release 12.2(25)EWA7.

  Workaround: Remove these linecards or upgrade to Cisco IOS Release 12.2(25)EWA7. (CSCsg43414)

Resolved Caveats in Cisco IOS Release 12.2(18)EW7

This section lists the resolved caveats in release 12.2(18)EW7:

- Some (or all) CDP neighbors are not visible.

  It only happens on releases including the fix for CSCse85200.

  When turning on "debug cdp event", the following message occurs:

  ```
  CDP-EV: Received item (type : 9) with invalid length 4
  ```

  Workaround: None. (CSCsf07847)

Open Caveats in Cisco IOS Release 12.2(18)EW6

This section lists the open caveats in Cisco IOS Release 12.2(18)EW6.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- On a Catalyst 4500 series switch with Gigabit Ethernet Switching Modules, link flaps may occur when you pull out TX cables on a giga ethernet interface configured with "speed nonnegotiate."

  Workaround: Do not set “speed nonnegotiate.” (CSCeg57297)

- Inserting the WS-X4232-RJ-XX and/or WS-X4124-FX-M linecards into a Catalyst 4500 series switch running Cisco IOS Release 12.2(18)EW6 causes the switch to reload continuously.

  This problem is not present in Cisco IOS Release 12.2(25)EWA7.

  Workaround: Remove these linecards or upgrade to Cisco IOS Release 12.2(25)EWA7. (CSCsg43414)

Resolved Caveats in Cisco IOS Release 12.2(18)EW6

This section lists the resolved caveats in release 12.2(18)EW6:

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)
- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

- If a Catalyst 4500 series switch is configured to receive STP packets, a malformed packet sent to the switch on the local LAN may cause the device to reload.

  Workaround: None. (CSCsa96905)

- If ARP Inspection and DHCP Snooping are enabled and MAC ACLs are applied on a Catalyst 4500 series switch, the switch shows high CPU.

  The **show platform health** command shows that the processes holding the CPU are:

  – KxAclPathMan update

  – TagMan-RecreateMtegR

  – K2L2 Address Table R

  Workaround: Remove the MAC ACLs. (CSCsa63528)

- If storm control is configured on an interface and storm control disables the interface, the ARP table does not update its database after you manually perform a link up/down.

  Workaround: Allow storm control to disable and re-enable the interface. (CSCsb49409)

- When a WS-X4148-RJ45V is configured to “auto” (negotiate) and is connected to an Intel Pro 1000 MT NIC card, the link is negotiated to a port speed of 10 and “full” duplex rather than a port speed of 100 and “full” duplex.

  Workaround: None. (CSCsa55172)

- If an RP is also a first hop Router, the first mcast packet is dropped.

  Workaround: Do not use first hop router as an RP or use dense mode. (CSCsc51906)

- When the 15K Sun server is a link partner to WS-X4118 and connected to a blocking port, rebooting the server may cause packets in the input queue of the port to be sent to the supervisor engine as bad packets. If this condition occurs, packets could remain in the input queue even after the port is shutdown. Packets left in the input queue will be forwarded indefinitely to the supervisor engine, causing flooding and high CPU utilization.

  Workarounds:

  1. Reset the line card **hw-module reset**.

  2. Remove and reinsert line card from the chassis.

  (CSCei19499)

- When configuring a monitor session and the learning option is enabled, the learning option is not shown in the stored config, but it shows in the output of the **show monitor** command. The learning option is disabled after reboot.

  Workaround: None. (CSCsb03748)

- A Catalyst 4500 series switch does not forward an 802.1X request with NULL credentials.

  Workaround: None. (CSCej03858)

- If loopguard is enabled on a port, which is participating in spanning tree (and is in BLK state), it may go into loop inconsistent state and stops receiving BPDUs from its neighbor.

  The problem is fixed in Cisco IOS Releases 12.2(18)EW6, 12.2(25)EWA5, and 12.2(31)SG.

  Workarounds:

  1. Issue **shutdown**, then **no shutdown** on the port stuck.

  2. Disable loop guard on the port, then enable it.

  (CSCsc04047)

- A Catalyst 4500 series switch running in pim dense-mode marks the OIL of (*,G) with an "H" flag (hardware switching flag). Ordinarily, switches operating in pim dense-mode should not use (*,G) to forward traffic.

  This situation does not impact (S,G) multicast traffic forwarding.

  Workaround: None. (CSCeh46536)

- After configuring **speed nonnegotiate** in an interface range on a WS-X4306 module on a Catalyst 4500 series switch, Symbol-Err and Sequence-Err counters may increase.

  Workaround: Link up these ports with the **no shut** command. (CSCsc71324)

- When 802.1x accounting is enabled, the Framed-IP-Address[8] attribute is not included in accounting messages generated on ports with **ip dhcp snooping trust** enabled.

  Workaround: None. (CSCsb46019)

- When HF is in pim dense mode, after a Catalyst 4500 series switch boots initially, (s,g) mcast traffic arriving on the switch is not forwarded to the intended destination despite a *,g for that group being present on the system.

  Workaround: Run the **clear ip mroute *** command multiple times. (CSCsb50317)

- If the system MTU is not configured to the default MTU value, the interface MTU cannot return to the default value even if it's cleared by the **no MTU** command in interface mode.

  Workaround: Clear the system MTU first, then clear the interface MTU.

- On a Catalyst 4500 series switch, when igmp-snooping static multicast entries are removed from a forwarding table after shutdown/no shutdown sequence on the port-channel interface on neighbor switch, communication may be lost.

  Workarounds:

  1. Use the **mac-address-table static vlan interface** command rather than the **ip igmp snooping vlan static interface** command.

  2. Use the Cisco IOS Release 12.1E Train.

  (CSCsa78002)

- When the RPF changes while the upstream router is still forwarding mcast packers, the (S,G) uptime doesn't count down but gets refreshed by the mcast packets that the Catalyst 4500 series switch is receiving. This situation does not let the switch send PIM prune messages to the upstream router. It causes unwanted mcast packets to flow across links and makes the link congested.

  If either the RPF interface does not change or it changes when the upstream router has pruned the link towards the downstream router, the prune process happens every 3 mins as expected.

  Workaround: Clear ip mroute for that (S,G). (CSCsa74825)

- If a VLAN assigned to a port via RADIUS by 802.1x does not exist on a switch, the switch may crash. This issue impacts Cisco IOS Releases 12.2(18)EW, 12.2(18)EW1, 12.2(18)EW2, 12.2(18)EW3, 12.2(18)EW4, 12.2(25)EWA and 12.2(25)EWA1.

  Workaround: Do not configure RADIUS to assign VLANs that do not exist. (CSCsb20052)

- Symptoms: The VTP feature in certain versions of Cisco IOS software is vulnerable to a locally-exploitable buffer overflow condition and potential execution of arbitrary code. If a VTP summary advertisement is received with a Type-Length-Value (TLV) containing a VLAN name greater than 100 characters, the receiving switch will reset with an Unassigned Exception error.

  Conditions: The packets must be received on a trunk enabled port, with a matching domain name and a matching VTP domain password (if configured).

  Further Information: On the 13th September 2006, Phenoelit Group posted an advisory containing three vulnerabilities:

  – VTP Version field DoS

  – Integer Wrap in VTP revision

  – Buffer Overflow in VTP VLAN name

  These vulnerabilities are addressed by Cisco IDs:

  – CSCsd52629/CSCsd34759—VTP version field DoS

  – CSCse40078/CSCse47765—Integer Wrap in VTP revision

  – CSCsd34855/CSCei54611—Buffer Overflow in VTP VLAN name

  Cisco’s statement and further information are available on the Cisco public website at http://www.cisco.com/warp/public/707/cisco-sr-20060913-vtp.shtml

  (CSCei54611)

- Symptoms: The VTP feature in certain versions of Cisco IOS software may be vulnerable to a crafted packet sent from the local network segment which may lead to denial of service condition.

  Conditions: The packets must be received on a trunk enabled port.

  Further Information: On the 13th September 2006, Phenoelit Group posted an advisory containing three vulnerabilities:

  – VTP Version field DoS

- Integer Wrap in VTP revision
- Buffer Overflow in VTP VLAN name

These vulnerabilities are addressed by Cisco IDs:

- CSCsd52629/CSCsd34759—VTP version field DoS
- CSCse40078/CSCse47765—Integer Wrap in VTP revision
- CSCsd34855/CSCei54611—Buffer Overflow in VTP VLAN name

Cisco's statement and further information are available on the Cisco public website at http://www.cisco.com/warp/public/707/cisco-sr-20060913-vtp.shtml

(CCSCsd34759)

Open Caveats in Cisco IOS Release 12.2(18)EW5

This section lists the open caveats in Cisco IOS Release 12.2(18)EW5.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- When DHCP snooping, IP source guard, and trunks are configured on all 240 interfaces of a Catalyst 4500 series switch that is equipped with a Supervisor Engine II+, all TCAM space on the switch might be exhausted.

  Workaround: None. (CSCed18765)

- When configured for VRF-Lite, a Catalyst 4500 series switch incorrectly forwards packets received on the VRF interface for those destinations not in the VRF routing table. Instead of dropping the packet, the switch forwards the packet using the global routing table.

  Workaround: Enter the **ip route vrf <vrf name> 0.0.0.0 0.0.0.0 null 0** command. (CSCed20990)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- If power is denied for an interface, the following console message is printed every five seconds:

  %ILPOWER-5-ILPOWER_POWER_DENY: Interface Gi6/29: inline power denied

  Despite this message, the system is functioning properly.

  Workaround: Turn off logging on the console with the **no logging console** command. (CSCed67157)

- Interfaces on the module WS-X4148-RJ45V may not establish a link with a Daiden DN-2800G media converter, when both the switch and the media converter interfaces are configured to operate at 100 Mbps and full duplex. This situation occurs when the interface on the module is configured to automatically detect and power up devices inline with the **power inline auto** command. This caveat is exhibited in all software releases.

  Workarounds:

  1. Disable inline power on the switch ports using the **power inline never** command.

  2. Configure the media converter to autonegotiate the speed and duplex instead of running at 100 Mbps and full duplex. (CSCee62109)

Resolved Caveats in Cisco IOS Release 12.2(18)EW5

This section lists the resolved caveats in release 12.2(18)EW5:

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)
- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

Open Caveats in Cisco IOS Release 12.2(18)EW4

This section lists the open caveats in Cisco IOS Release 12.2(18)EW4.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)
- When DHCP snooping, IP source guard, and trunks are configured on all 240 interfaces of a Catalyst 4500 series switch that is equipped with a Supervisor Engine II+, all TCAM space on the switch might be exhausted.

  Workaround: None. (CSCed18765)
- When configured for VRF-Lite, a Catalyst 4500 series switch incorrectly forwards packets received on the VRF interface for those destinations not in the VRF routing table. Instead of dropping the packet, the switch forwards the packet using the global routing table.

  Workaround: Enter the **ip route vrf <vrf name> 0.0.0.0 0.0.0.0 null 0** command. (CSCed20990)
- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)
- If power is denied for an interface, the following console message is printed every five seconds:

  %ILPOWER-5-ILPOWER_POWER_DENY: Interface Gi6/29: inline power denied

  Despite this message, the system is functioning properly.

  Workaround: Turn off logging on the console with the **no logging console** command. (CSCed67157)
- Interfaces on the module WS-X4148-RJ45V may not establish a link with a Daiden DN-2800G media converter, when both the switch and the media converter interfaces are configured to operate at 100 Mbps and full duplex. This situation occurs when the interface on the module is configured to automatically detect and power up devices inline with the **power inline auto** command. This caveat is exhibited in all software releases.

Workarounds:

1. Disable inline power on the switch ports using the **power inline never** command.

2. Configure the media converter to autonegotiate the speed and duplex instead of running at 100 Mbps and full duplex. (CSCee62109)

Resolved Caveats in Cisco IOS Release 12.2(18)EW4

This section lists the resolved caveats in release 12.2(18)EW4:

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supersedes the deprecated NetFlow Feature Acceleration.

  Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

```
cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
cnfFeatureActive              1.3.6.1.4.1.9.9.99999.1.3.4.1.3
cnfFeatureAttaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.4
cnfFeatureDetaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.5
cnfFeatureConfigChanges       1.3.6.1.4.1.9.9.99999.1.3.4.1.6
```

  (CSCsa81379)

Open Caveats in Cisco IOS Release 12.2(18)EW3

This section lists the open caveats in Cisco IOS Release 12.2(18)EW3.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- When DHCP snooping, IP source guard, and trunks are configured on all 240 interfaces of a Catalyst 4500 series switch that is equipped with a Supervisor Engine II+, all TCAM space on the switch might be exhausted.

  Workaround: None. (CSCed18765)

- When configured for VRF-Lite, a Catalyst 4500 series switch incorrectly forwards packets received on the VRF interface for those destinations not in the VRF routing table. Instead of dropping the packet, the switch forwards the packet using the global routing table.

Workaround: Enter the **ip route vrf <vrf name> 0.0.0.0 0.0.0.0 null 0** command. (CSCed20990)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- If power is denied for an interface, the following console message is printed every five seconds:

  %ILPOWER-5-ILPOWER_POWER_DENY: Interface Gi6/29: inline power denied

  Despite this message, the system is functioning properly.

  Workaround: Turn off logging on the console with the **no logging console** command. (CSCed67157)

- Interfaces on the module WS-X4148-RJ45V may not establish a link with a Daiden DN-2800G media converter, when both the switch and the media converter interfaces are configured to operate at 100 Mbps and full duplex. This situation occurs when the interface on the module is configured to automatically detect and power up devices inline with the **power inline auto** command. This caveat is exhibited in all software releases.

  Workarounds:

  1. Disable inline power on the switch ports using the **power inline never** command.

  2. Configure the media converter to autonegotiate the speed and duplex instead of running at 100 Mbps and full duplex. (CSCee62109)

Resolved Caveats in Cisco IOS Release 12.2(18)EW3

This section lists the resolved caveats in release 12.2(18)EW3:

- A document that describes how the Internet Control Message Protocol (ICMP) could be used to perform a number of Denial of Service (DoS) attacks against the Transmission Control Protocol (TCP) has been made publicly available. This document has been published through the Internet Engineering Task Force (IETF) Internet Draft process, and is entitled “ICMP Attacks Against TCP” (draft-gont-tcpm-icmp-attacks-03.txt).

  These attacks, which only affect sessions terminating or originating on a device itself, can be of three types:

  1. Attacks that use ICMP “hard” error messages
  2. Attacks that use ICMP “fragmentation needed and Don’t Fragment (DF) bit set” messages, also known as Path Maximum Transmission Unit Discovery (PMTUD) attacks
  3. Attacks that use ICMP “source quench” messages

  Successful attacks may cause connection resets or reduction of throughput in existing connections, depending on the attack type.

  Multiple Cisco products are affected by the attacks described in this Internet draft.

  Cisco has made free software available to address these vulnerabilities. In some cases there are workarounds available to mitigate the effects of the vulnerability.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20050412-icmp.shtml.

  The disclosure of these vulnerabilities is being coordinated by the National Infrastructure Security Coordination Centre (NISCC), based in the United Kingdom. NISCC is working with multiple vendors whose products are potentially affected. Its posting can be found at: http://www.niscc.gov.uk/niscc/docs/re-20050412-00303.pdf?lang=en. (CSCef60659)

- A document that describes how the Internet Control Message Protocol (ICMP) could be used to perform a number of Denial of Service (DoS) attacks against the Transmission Control Protocol (TCP) has been made publicly available. This document has been published through the Internet Engineering Task Force (IETF) Internet Draft process, and is entitled “ICMP Attacks Against TCP” (draft-gont-tcpm-icmp-attacks-03.txt).

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- Ports in suspended mode due to misconfiguration in the LACP port channel do not recover, even after reconfiguring the ports. This situation occurs when most ports are configured for dot1q encapsulation and one or more ports are not.

  Workaround: Enter the **switchport trunk encap dot1q** command to add the suspended port to the channel, shut down the port using the **shutdown** command, and then enter the **no shutdown** command to force the port to stay active. This action ensures that the port gets added to the port channel. (CSCeb78999)

Open Caveats in Cisco IOS Release 12.2(18)EW2

This section lists the open caveats in Cisco IOS Release 12.2(18)EW2.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- When DHCP snooping, IP source guard, and trunks are configured on all 240 interfaces of a Catalyst 4500 series switch that is equipped with a Supervisor Engine II+, all TCAM space on the switch might be exhausted.

  Workaround: None. (CSCed18765)

- When configured for VRF-Lite, a Catalyst 4500 series switch incorrectly forwards packets received on the VRF interface for those destinations not in the VRF routing table. Instead of dropping the packet, the switch forwards the packet using the global routing table.

  Workaround: Enter the **ip route vrf <vrf name> 0.0.0.0 0.0.0.0 null 0** command. (CSCed20990)

- Ports in suspended mode due to misconfiguration in the LACP port channel do not recover, even after reconfiguring the ports. This situation occurs when most ports are configured for dot1q encapsulation and one or more ports are not.

  Workaround: Enter the **switchport trunk encap dot1q** command to add the suspended port to the channel, shut down the port using the **shutdown** command, and then enter the **no shutdown** command to force the port to stay active. This action ensures that the port gets added to the port channel. (CSCeb78999)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- If power is denied for an interface, the following console message is printed every five seconds:

  %ILPOWER-5-ILPOWER_POWER_DENY: Interface Gi6/29: inline power denied

  Despite this message, the system is functioning properly.

  Workaround: Turn off logging on the console with the **no logging console** command. (CSCed67157)

- Interfaces on the module WS-X4148-RJ45V may not establish a link with a Daiden DN-2800G media converter, when both the switch and the media converter interfaces are configured to operate at 100 Mbps and full duplex. This situation occurs when the interface on the module is configured to automatically detect and power up devices inline with the **power inline auto** command. This caveat is exhibited in all software releases.

  Workarounds:

  1. Disable inline power on the switch ports using the **power inline never** command.

  2. Configure the media converter to autonegotiate the speed and duplex instead of running at 100 Mbps and full duplex. (CSCee62109)

Resolved Caveats in Cisco IOS Release 12.2(18)EW2

This section lists the resolved caveats in release 12.2(18)EW2:

- A document that describes how the Internet Control Message Protocol (ICMP) could be used to perform a number of Denial of Service (DoS) attacks against the Transmission Control Protocol (TCP) has been made publicly available. This document has been published through the Internet Engineering Task Force (IETF) Internet Draft process, and is entitled “ICMP Attacks Against TCP” (draft-gont-tcpm-icmp-attacks-03.txt).

  These attacks, which only affect sessions terminating or originating on a device itself, can be of three types:

  1. Attacks that use ICMP “hard” error messages
  2. Attacks that use ICMP “fragmentation needed and Don’t Fragment (DF) bit set” messages, also known as Path Maximum Transmission Unit Discovery (PMTUD) attacks
  3. Attacks that use ICMP “source quench” messages

  Successful attacks may cause connection resets or reduction of throughput in existing connections, depending on the attack type.

  Multiple Cisco products are affected by the attacks described in this Internet draft.

  Cisco has made free software available to address these vulnerabilities. In some cases there are workarounds available to mitigate the effects of the vulnerability.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20050412-icmp.shtml.

The disclosure of these vulnerabilities is being coordinated by the National Infrastructure Security Coordination Centre (NISCC), based in the United Kingdom. NISCC is working with multiple vendors whose products are potentially affected. Its posting can be found at: http://www.niscc.gov.uk/niscc/docs/re-20050412-00303.pdf?lang=en. (CSCed78149)

- Certain release trains of Cisco Internetwork Operating System (IOS), when configured to use the Cisco IOS Secure Shell (SSH) server in combination with Terminal Access Controller Access Control System Plus (TACACS+) as a means to perform remote management tasks on Cisco IOS devices, may contain two vulnerabilities that can potentially cause Cisco IOS devices to exhaust resources and reload. Repeated exploitation of these vulnerabilities can result in a Denial of Service (DoS) condition. Use of SSH with Remote Authentication Dial In User Service (RADIUS) is not affected by these vulnerabilities.

  Cisco has made free software available to address these vulnerabilities for all affected customers. There are workarounds available to mitigate the effects of the vulnerability (see the “Workarounds” section of the full advisory for details.)
  (CSCed65285)

  This advisory will be posted at
  http://www.cisco.com/warp/public/707/cisco-sa-20050406-ssh.shtml.

- Certain release trains of Cisco Internetwork Operating System (IOS), when configured to use the Cisco IOS Secure Shell (SSH) server in combination with Terminal Access Controller Access Control System Plus (TACACS+) as a means to perform remote management tasks on Cisco IOS devices, may contain two vulnerabilities that can potentially cause Cisco IOS devices to exhaust resources and reload. Repeated exploitation of these vulnerabilities can result in a Denial of Service (DoS) condition. Use of SSH with Remote Authentication Dial In UserService (RADIUS) is not affected by these vulnerabilities.

  Cisco has made free software available to address these vulnerabilities for all affected customers. There are workarounds available to mitigate the effects of the vulnerability (see the “Workarounds” section of the full advisory for details.)
  (CSCed65778)

  This advisory will be posted at
  http://www.cisco.com/warp/public/707/cisco-sa-20050406-ssh.shtml.

- A Cisco device running Cisco IOS and enabled for the Border Gateway Protocol (BGP) is vulnerable to a Denial of Service (DoS) attack from a malformed BGP packet. Only devices with the command ‘bgp log-neighbor-changes’ configured are vulnerable. The BGP protocol is not enabled by default, and must be configured in order to accept traffic from an explicitly defined peer. Unless the malicious traffic appears to be sourced from a configured, trusted peer, it would be difficult to inject a malformed packet.

  If a misformed packet is received and queued up on the interface, this bug may also be triggered by other means which are not considered remotely exploitable such as the use of the command ‘show ip bgp neighbors’ or running the command ‘debug ip bgp <neighbor> updates’ for a configured bgp neighbor.

  Cisco has made free software available to address this problem.

  For more details, please refer to this advisory, available at
  http://www.cisco.com/warp/public/707/cisco-sa-20050126-bgp.shtml

  (CSCee67450)

- Cisco IOS® devices running branches of Cisco IOS version 12.2S that have Dynamic Host Configuration Protocol (DHCP) server or relay agent enabled, even if not configured, are vulnerable to a denial of service where the input queue becomes blocked when receiving specifically crafted

DHCP packets. Cisco is providing free fixed software to address this issue. There are also workarounds to mitigate this vulnerability. This issue was introduced by the fix included in CSCdx46180 and is being tracked by Cisco Bug ID CSCee50294.

This advisory is available at
http://www.cisco.com/warp/public/707/cisco-sa-20041110-dhcp.html

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays up regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into err-disable mode because of the continuous flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV running Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine running Release 12.1(19)EW (or later). (CSCeb36355)

- For Release 12.2(18)EW or later, when the Gigabit Ethernet port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the Gigabit Ethernet port of a Catalyst 4500 series switch with a Supervisor Engine V (WS-X4516), the port on the Catalyst 3500 switch fails POST (power-on self test) during startup.

  Workarounds:

  1. Before starting up the Catalyst 3550 switch, disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch. Once the Catalyst 3550 switch boots, reconnect the cable.

  2. Before starting up the Catalyst 3550 switch, enter the **shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 series switch. After starting up the Catalyst 3550 switch, enter the **no shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 switch. (CSCee50578)

Open Caveats in Cisco IOS Release 12.2(18)EW1

This section lists the open caveats in Cisco IOS Release 12.2(18)EW1.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- When DHCP snooping, IP source guard, and trunks are configured on all 240 interfaces of a Catalyst 4500 series switch that is equipped with a Supervisor Engine II+, all TCAM space on the switch might be exhausted.

  Workaround: None. (CSCed18765)

- When configured for VRF-Lite, a Catalyst 4500 series switch incorrectly forwards packets received on the VRF interface for those destinations not in the VRF routing table. Instead of dropping the packet, the switch forwards the packet using the global routing table.

  Workaround: Enter the **ip route vrf <vrf name> 0.0.0.0 0.0.0.0 null 0** command. (CSCed20990)

- Ports in suspended mode due to misconfiguration in the LACP port channel do not recover, even after reconfiguring the ports. This situation occurs when most ports are configured for dot1q encapsulation and one or more ports are not.

  Workaround: Enter the **switchport trunk encap dot1q** command to add the suspended port to the channel, shut down the port using the **shutdown** command, and then enter the **no shutdown** command to force the port to stay active. This action ensures that the port gets added to the port channel. (CSCeb78999)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays up regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into err-disable mode because of the continuous flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV running Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine running Release 12.1(19)EW (or later). (CSCeb36355)

- If power is denied for an interface, the following console message is printed every five seconds:

  %ILPOWER-5-ILPOWER_POWER_DENY: Interface Gi6/29: inline power denied

  Despite this message, the system is functioning properly.

  Workaround: Turn off logging on the console with the **no logging console** command. (CSCed67157)

- For Release 12.2(18)EW or later, when the Gigabit Ethernet port of a Catalyst 3550 switch with inline power (WS-C3550-25-PWR) is connected to the Gigabit Ethernet port of a Catalyst 4500 series switch with a Supervisor Engine V (WS-X4516), the port on the Catalyst 3500 switch fails POST (power-on self test) during startup.

Workarounds:

1. Before starting up the Catalyst 3550 switch, disconnect the cable connecting the uplink ports on the Catalyst 3550 switch to the Catalyst 4500 series switch. Once the Catalyst 3550 switch boots, reconnect the cable.

2. Before starting up the Catalyst 3550 switch, enter the **shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 series switch. After starting up the Catalyst 3550 switch, enter the **no shutdown** command on the Gigabit Ethernet ports on the Catalyst 4500 switch. (CSCee50578)

- Interfaces on the module WS-X4148-RJ45V may not establish a link with a Daiden DN-2800G media converter, when both the switch and the media converter interfaces are configured to operate at 100 Mbps and full duplex. This situation occurs when the interface on the module is configured to automatically detect and power up devices inline with the **power inline auto** command. This caveat is exhibited in all software releases.

  Workarounds:

  1. Disable inline power on the switch ports using the **power inline never** command.

  2. Configure the media converter to autonegotiate the speed and duplex instead of running at 100 Mbps and full duplex. (CSCee62109)

Resolved Caveats in Cisco IOS Release 12.2(18)EW1

This section lists the resolved caveats in release 12.2(18)EW1:

- A Cisco device running Internetwork Operating System (IOS) and enabled for the Open Shortest Path First (OSPF) Protocol is vulnerable to a Denial of Service (DoS) attack from a malformed OSPF packet. The OSPF protocol is not enabled by default.

  The vulnerability is only present in IOS release trains based on 12.0S, 12.2, and 12.3. Releases based on 12.0, 12.1 mainlines and all IOS images prior to 12.0 are not affected. Refer to the Security Advisory for a complete list of affected release trains. (CSCec16481)

  Further details and the workarounds to mitigate the effects are explained in the Security Advisory which is available at the following URL:

  http://www.cisco.com/warp/public/707/cisco-sa-20040818-ospf.shtml.

- When Layer 3 fragmentation fails, a Catalyst 4500 series switch running Supervisor Engine IV sends back the wrong ICMP code and causes the Path MTU auto-discovery feature to fail. The switch returns the code “ICMP Host unreachable / Communication administratively filtered (code 13)," yet the correct code is "ICMP Host unreachable / Fragmentation needed but DF-Bit set (Code 4)."

  Workaround: None. (CSCed56513)

- When you upgrade a Cisco IOS software image from Release 12.1(12c) or 12.1(19)E to a release in the 12.2 release train, the following syslog message appears:

  00:00:01: %C4K_IOSSYS-3-BLANKSTARTUPCONFIG: Blank or invalid startup-config, booting up with defaults

  Workaround: The message is harmless and can be ignored. (CSCed26025)

- The **show mod** command will not display the correct status of a WS-X4604-GWY module if the gateway module has failed. The status of the module incorrectly displays as “Ok,” but the correct status is “Offline.” This problem has been resolved in the Release 12.3(8.3)T image of the WS-X4604-GWY module.

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

Open Caveats in Cisco IOS Release 12.2(18)EW

This section lists the open caveats in Cisco IOS Release 12.2(18)EW.

- When 802.1Q and Layer 2 Protocol Tunneling are disabled on a switch, and the switch is rebooted after saving the configuration, spanning-tree BPDU filtering is not disabled automatically on the port.

  Workaround: Manually disable spanning-tree BPDU filtering on the interface with the **no spanning-tree bpdufilter** command. (CSCec88311)

- When DHCP snooping, IP source guard, and trunks are configured on all 240 interfaces on a Catalyst 4500 series switch equipped with a Supervisor Engine II+, the switch may exhaust its TCAM space.

  Workaround: None. (CSCed18765)

- When Layer 3 fragmentation fails, a Catalyst 4500 series switch running Supervisor Engine IV sends back the wrong ICMP code and causes the Path MTU auto-discovery feature to fail. The switch returns the code “ICMP Host unreachable / Communication administratively filtered (code 13)," yet the correct code is "ICMP Host unreachable / Fragmentation needed but DF-Bit set (Code 4)."

  Workaround: None. (CSCed56513)

- When configured for VRF-Lite, a Catalyst 4500 series switch inadvertently forwards packets received on the VRF interface for those destinations not in the VRF routing table. Instead of dropping the packet, the switch forwards the packet using the global routing table.

  Workaround: Issue the command **ip route vrf <vrf name> 0.0.0.0 0.0.0.0 null 0**. (CSCed20990)

- Ports in suspended mode due to misconfiguration in the LACP port channel do not recover, even after reconfiguring the ports. This situation occurs when most ports are configured for dot1q encapsulation and one or more ports are not.

  Workaround: Enter the **switchport trunk encap dot1q** command to add the suspended port to the channel, shut down the port using the **shutdown** command, and then enter the **no shutdown** command to force the port to stay active. This action ensures that the port gets added to the port channel. (CSCeb78999)

- When in SML (Smart Missing Link) mode, some converter boxes (CPE devices) send pulses on the optical side when the Ethernet cable is removed. These converter boxes should also have an LT (Link Test) mode in which the optical side stays up regardless of the connection status and an ML (Missing Link) mode in which the optical side always stays down if the Ethernet cable is disconnected. If a WS-X4148-FE-BD-LC port is connected to a converter box in SML mode, and the Ethernet cable on the box is removed, the port will eventually go into err-disable mode because of the continuous flapping of the link.

  Workaround: Configure the convertor box (CPE device) to operate in either LT (Link Test) or ML (Missing Link) mode. (CSCed28409)

- When you upgrade a Cisco IOS software image from Release 12.1(12c) or 12.1(19)E to a release in the 12.2 release train, the following syslog message appears: "00:00:01: %C4K_IOSSYS-3-BLANKSTARTUPCONFIG: Blank or invalid startup-config, booting up with defaults".

  Workaround: Ignore the message. It is harmless. (CSCed26025)

- A spurious error message appears when an SSH connection disconnects after an idle timeout.

  Workaround: Disable idle timeouts. (CSCec30214)

- When PBR is configured on a Supervisor Engine III or Supervisor Engine IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- The **show mod** command will not display the correct status of a WS-X4604-GWY module if the gateway module has crashed. The status of the module incorrectly displays as “Ok,” but the correct status is “Offline.”

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- A CompactFlash module formatted on either Supervisor Engine III or Supervisor Engine IV running Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on the other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series switch supervisor engine running Release 12.1(19)EW (or later). (CSCeb36355)

Resolved Caveats in Cisco IOS Release 12.2(18)EW

This section lists the resolved caveats in release 12.2(18)EW:

- The packet memory on a Catalyst 4500 series Supervisor Engine may malfunction. If the packet memory malfunctions, the switch sends data packets with an invalid CRC, and the link partner discards them. Once the problem has been identified by the diagnostics that have been added to detect this problem, the switch automatically shuts down and restarts in "best-effort" mode. In this mode, the affected packet buffers are removed from circulation, and log messages are generated every 30 minutes to alert the user to the failures.

  Workaround: Replace the supervisor engine with packet memory errors. This problem is resolved in Cisco IOS Release 12.2(18)EW. (CSCed61591)

- If you delete an SVI interface that is a member of a VRF (using the **no int vlan 2** command), and then you re-create the interface and assign it to a different VRF, the interface might be treated as if it were still in the original VRF. Subsequently, if you deleted the original VRF, the new VRF configuration might overwrite what is on the SVI.

  Workaround: Erase the VRF configuration from an SVI before deleting it. (CSCec47177)

- Occasionally, when unwanted multicast traffic arrives on an interface on which you did not expect to receive it (also termed an RPF failure), the traffic is dropped. This situation can occur when two multicast routers have active PIM-enabled interfaces on the same Ethernet LAN segment. The PIM protocol ensures that only one router is elected to forward traffic to the LAN segment. The non-forwarding router, however, might still have a multicast route for that same multicast flow. If so, the non-forwarding router creates a multicast "fastdrop" entry in the hardware forwarding table

that drops the "RPF failure" packets before they reach the CPU of the non-forwarding router. Normally the **show ip mfib fastdrop** command displays a list of all active fastdrop entries. In some cases the “fastdrop” entry might be displayed.

Workaround: None. However, you can use the **show ip mfib log** command to validate that the RPF failure packets are not forwarded to the CPU. (CSCec45313)

- If a port is in shutdown state, then the **show interfaces** command might report an incorrect media type. The output of the **show interfaces status** command, however, provides the correct type, even if the port is in shutdown state.

  Workaround: None. (CSCec40451)

- If you have enabled jumbo frames or baby giants, and the switch routes packets destined to a router port (as configured with the **no switchport** command on a WS-X4418-GB or WS-X4412-2GB-T module), the switch might reload when it tries to fragment these packets.

  Workaround: Either disable the jumbo frames or baby giants feature, or remove the WS-X4418-GB or WS-X4412-2GB-T module from the chassis. (CSCec56212)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, the switch will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then re-enable the switchport. (CSCeb06811)

Open Caveats in Cisco IOS Release 12.1(20)EW4

This section lists the open caveats in Cisco IOS Release 12.1(20)EW4.

- For Cisco IOS Release 12.1(20)EW, in certain scenarios that entail LACP port channels, misconfigured ports do not recover, even after the configuration is fixed. For example, this behavior is observed when you have configured encapsulation on all ports with the **switchport trunk encap dot1q** command. Encapsulation is not configured on the misconfigured port, and the port remains in suspended state, even after the command is re-issued.

  Workaround: Repair the misconfiguration, and then issue a **shutdown** command, followed by a **no shutdown** command. (CSCec57894)

- If you delete an SVI interface that is a member of a VRF (using the **no int vlan 2** command), and then you re-create the interface and assign it to a different VRF, the interface might be treated as if it were still in the original VRF. Subsequently, if you deleted the original VRF, the new VRF configuration might overwrite what is on the SVI.

  Workaround: Erase the VRF configuration from an SVI before deleting it. (CSCec47177)

- Occasionally, when unwanted multicast traffic arrives on an interface on which you did not expect to receive it (also termed an RPF failure), the traffic is dropped. This situation can occur when two multicast routers have active PIM-enabled interfaces on the same Ethernet LAN segment. The PIM protocol ensures that only one router is elected to forward traffic to the LAN segment. The non-forwarding router, however, might still have a multicast route for that same multicast flow. If so, the non-forwarding router creates a multicast "fastdrop" entry in the hardware forwarding table that drops the "RPF failure" packets before they reach the CPU of the non-forwarding router. Normally the **show ip mfib fastdrop** command displays a list of all active fastdrop entries. In some cases the “fastdrop” entry might be displayed.

Workaround: None. However, you can use the **show ip mfib log** command to validate that the RPF failure packets are not forwarded to the CPU. (CSCec45313)

- Occasionally, Enabling auto QoS for the first time might cause the switch to reload.

  Workaround: Issue the **show auto qos interface** command, and then apply all displayed commands manually. (CSCec43783)

- If a port is in shutdown state, then the **show interfaces** command might report an incorrect media type. The output of the **show interfaces status** command, however, provides the correct type, even if the port is in shutdown state.

  Workaround: None. (CSCec40451)

- A spurious error message is appears when the SSH connection disconnects after the IDLE timeout.

  Workaround: Disable IDLE timeouts. (CSCec30214)

- If you have enabled jumbo frames or baby giants, and the switch routes packets destined to a router port (as configured with the **no switchport** command on a WS-X4418-GB or WS-X4412-2GB-T module), the switch might reload when it tries to fragment these packets.

  Workaround: Either disable the jumbo frames or baby giants feature, or remove the WS-X4418-GB or WS-X4412-2GB-T module from the chassis. (CSCec56212)

- When PBR is configured on a Catalyst 4500 Series Switch Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module if the gateway module has crashed. The status of the module is displayed as “Ok,” but the status should be “Offline.”

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- A CompactFlash module formatted on either Supervisor Engine III or IV running Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series supervisor engine running Release 12.1(19)EW (or later). (CSCeb36355)

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, the switch will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then re-enable the switchport. (CSCeb06811)

Resolved Caveats in Cisco IOS Release 12.1(20)EW4

This section lists the resolved caveats in release 12.1(20)EW4:

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)

- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

Open Caveats in Cisco IOS Release 12.1(20)EW3

This section lists the open caveats in Cisco IOS Release 12.1(20)EW3.

- For Cisco IOS Release 12.1(20)EW, in certain scenarios that entail LACP port channels, misconfigured ports do not recover, even after the configuration is fixed. For example, this behavior is observed when you have configured encapsulation on all ports with the **switchport trunk encap dot1q** command. Encapsulation is not configured on the misconfigured port, and the port remains in suspended state, even after the command is re-issued.

  Workaround: Repair the misconfiguration, and then issue a **shutdown** command, followed by a **no shutdown** command. (CSCec57894)

- If you delete an SVI interface that is a member of a VRF (using the **no int vlan 2** command), and then you re-create the interface and assign it to a different VRF, the interface might be treated as if it were still in the original VRF. Subsequently, if you deleted the original VRF, the new VRF configuration might overwrite what is on the SVI.

  Workaround: Erase the VRF configuration from an SVI before deleting it. (CSCec47177)

- Occasionally, when unwanted multicast traffic arrives on an interface on which you did not expect to receive it (also termed an RPF failure), the traffic is dropped. This situation can occur when two multicast routers have active PIM-enabled interfaces on the same Ethernet LAN segment. The PIM protocol ensures that only one router is elected to forward traffic to the LAN segment. The non-forwarding router, however, might still have a multicast route for that same multicast flow. If so, the non-forwarding router creates a multicast "fastdrop" entry in the hardware forwarding table that drops the "RPF failure" packets before they reach the CPU of the non-forwarding router. Normally the **show ip mfib fastdrop** command displays a list of all active fastdrop entries. In some cases the “fastdrop” entry might be displayed.

  Workaround: None. However, you can use the **show ip mfib log** command to validate that the RPF failure packets are not forwarded to the CPU. (CSCec45313)

- Occasionally, Enabling auto QoS for the first time might cause the switch to reload.

  Workaround: Issue the **show auto qos interface** command, and then apply all displayed commands manually. (CSCec43783)

- If a port is in shutdown state, then the **show interfaces** command might report an incorrect media type. The output of the **show interfaces status** command, however, provides the correct type, even if the port is in shutdown state.

  Workaround: None. (CSCec40451)

- A spurious error message is appears when the SSH connection disconnects after the IDLE timeout.

  Workaround: Disable IDLE timeouts. (CSCec30214)

- If you have enabled jumbo frames or baby giants, and the switch routes packets destined to a router port (as configured with the **no switchport** command on a WS-X4418-GB or WS-X4412-2GB-T module), the switch might reload when it tries to fragment these packets.

  Workaround: Either disable the jumbo frames or baby giants feature, or remove the WS-X4418-GB or WS-X4412-2GB-T module from the chassis. (CSCec56212)

- When PBR is configured on a Catalyst 4500 Series Switch Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module if the gateway module has crashed. The status of the module is displayed as “Ok,” but the status should be “Offline.”

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- A CompactFlash module formatted on either Supervisor Engine III or IV running Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series supervisor engine running Release 12.1(19)EW (or later). (CSCeb36355)

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, the switch will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then re-enable the switchport. (CSCeb06811)

Resolved Caveats in Cisco IOS Release 12.1(20)EW3

This section lists the resolved caveats in release 12.1(20)EW3:

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supercedes the deprecated NetFlow Feature Acceleration.

  Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

```
cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
```

```
cnfFeatureActive              1.3.6.1.4.1.9.9.99999.1.3.4.1.3
cnfFeatureAttaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.4
cnfFeatureDetaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.5
cnfFeatureConfigChanges       1.3.6.1.4.1.9.9.99999.1.3.4.1.6
```

(CSCsa81379)

Open Caveats in Cisco IOS Release 12.1(20)EW1

This section lists the open caveats in Cisco IOS Release 12.1(20)EW1.

- For Cisco IOS Release 12.1(20)EW, in certain scenarios that entail LACP port channels, misconfigured ports do not recover, even after the configuration is fixed. For example, this behavior is observed when you have configured encapsulation on all ports with the **switchport trunk encap dot1q** command. Encapsulation is not configured on the misconfigured port, and the port remains in suspended state, even after the command is re-issued.

  Workaround: Repair the misconfiguration, and then issue a **shutdown** command, followed by a **no shutdown** command. (CSCec57894)

- If you delete an SVI interface that is a member of a VRF (using the **no int vlan 2** command), and then you re-create the interface and assign it to a different VRF, the interface might be treated as if it were still in the original VRF. Subsequently, if you deleted the original VRF, the new VRF configuration might overwrite what is on the SVI.

  Workaround: Erase the VRF configuration from an SVI before deleting it. (CSCec47177)

- Occasionally, when unwanted multicast traffic arrives on an interface on which you did not expect to receive it (also termed an RPF failure), the traffic is dropped. This situation can occur when two multicast routers have active PIM-enabled interfaces on the same Ethernet LAN segment. The PIM protocol ensures that only one router is elected to forward traffic to the LAN segment. The non-forwarding router, however, might still have a multicast route for that same multicast flow. If so, the non-forwarding router creates a multicast "fastdrop" entry in the hardware forwarding table that drops the "RPF failure" packets before they reach the CPU of the non-forwarding router. Normally the **show ip mfib fastdrop** command displays a list of all active fastdrop entries. In some cases the “fastdrop” entry might be displayed.

  Workaround: None. However, you can use the **show ip mfib log** command to validate that the RPF failure packets are not forwarded to the CPU. (CSCec45313)

- Occasionally, Enabling auto QoS for the first time might cause the switch to reload.

  Workaround: Issue the **show auto qos interface** command, and then apply all displayed commands manually. (CSCec43783)

- If a port is in shutdown state, then the **show interfaces** command might report an incorrect media type. The output of the **show interfaces status** command, however, provides the correct type, even if the port is in shutdown state.

  Workaround: None. (CSCec40451)

- A spurious error message is appears when the SSH connection disconnects after the IDLE timeout.

  Workaround: Disable IDLE timeouts. (CSCec30214)

- If you have enabled jumbo frames or baby giants, and the switch routes packets destined to a router port (as configured with the **no switchport** command on a WS-X4418-GB or WS-X4412-2GB-T module), the switch might reload when it tries to fragment these packets.

  Workaround: Either disable the jumbo frames or baby giants feature, or remove the WS-X4418-GB or WS-X4412-2GB-T module from the chassis. (CSCec56212)

- When PBR is configured on a Catalyst 4500 Series Switch Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module if the gateway module has crashed. The status of the module is displayed as "Ok," but the status should be "Offline."

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- A CompactFlash module formatted on either Supervisor Engine III or IV running Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash module will continue to work on other supervisor engines.

  Workaround: Format the CompactFlash module on any Catalyst 4500 series supervisor engine running Release 12.1(19)EW (or later). (CSCeb36355)

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the "designated root" on the segment, the switch will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then re-enable the switchport. (CSCeb06811)

Resolved Caveats in Cisco IOS Release 12.1(20)EW1

This section lists the resolved caveats in release 12.1(20)EW1:

- Cisco IOS Release 12.1(20)EW1 includes changes that make the Catalyst 4006 and Catalyst 4500 Series chassis 802.3af-ready.

Open Caveats in Cisco IOS Release 12.1(20)EW

This section lists the open caveats in Release 12.1(20)EW.

- For Cisco IOS Release 12.1(20)EW, in certain scenarios that entail LACP port channels, misconfigured ports do not recover, even after the configuration is fixed. For example, this behavior is observed when you have configured encapsulation on all ports with the **switchport trunk encap dot1q** command. Encapsulation is not configured on the misconfigured port, and the port remains in suspended state, even after the command is re-issued.

  Workaround: Repair the misconfiguration, and then issue a **shutdown** command, followed by a **no shutdown** command. (CSCec57894)

- If you delete an SVI interface that is a member of a VRF (using the **no int vlan 2** command), and then re-create the interface and assigned it to a different VRF, it might be treated as if it were still in the original VRF. Subsequently, if you deleted the original VRF, the new VRF configuration might overwrite what is on the SVI.

  Workaround: Erase the VRF configuration from an SVI before deleting it. (CSCec47177)

- Occasionally, when unwanted multicast traffic arrives on an interface on which you did not expect to receive it (also termed an RPF failure), the traffic is dropped. This situation can occur when two multicast routers have active PIM-enabled interfaces on the same Ethernet LAN segment. The PIM

protocol ensures that only one router is elected to forward traffic to the LAN segment. The non-forwarding router, however, might still have a multicast route for that same multicast flow. If so, the non-forwarding router creates a multicast "fastdrop" entry in the hardware forwarding table that drops the "RPF failure" packets before they reach the CPU of the non-forwarding router. Normally the **show ip mfib fastdrop** command displays a list of all active fastdrop entries. In some cases the “fastdrop” entry might be displayed.

Workaround: None. However, you can use the **show ip mfib log** command to validate that the RPF failure packets are not forwarded to the CPU. (CSCec45313)

- Occasionally, when you enable auto QoS for the first time, you might cause the switch to reload.

  Workaround: Issue the command **show auto qos interface**, and then apply all the displayed commands manually. (CSCec43783)

- If a port is in shutdown state, then the **show interfaces** command might report an incorrect media type. The output of the **show interfaces status** command, however, provides the correct type, even if the port is in shutdown state.

  Workaround: None. (CSCec40451)

- A spurious error message is printed when the SSH connection disconnects after the IDLE timeout.

  Workaround: Disable IDLE timeouts. (CSCec30214)

- If you have enabled jumbo frames or baby giants, and the switch routes packets destined to a router port (as configured with **no switchport** on a WS-X4418-GB or WS-X4412-2GB-T module), the switch might reload when it tries to fragment these packets.

  Workaround: Either disable the jumbo frames or baby giants feature, or remove the WS-X4418-GB or WS-X4412-2GB-T module from the chassis. (CSCec56212)

- When PBR is configured on a Catalyst 4500 Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module if the gateway module has crashed. The status of the module is displayed as “Ok”; the status should be “Offline.”

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- A CompactFlash card formatted on either Supervisor Engine III or IV running Cisco IOS Releases 12.1(14)E, 12.1(19)E, or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash card will continue to work on other supervisor engines.

  Workaround: Format the CompactFlash card on any Catalyst 4500 series supervisor engine running 12.1(19)EW (or later).

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, it will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then re-enable the switchport. (CSCeb06811)

Resolved Caveats in Cisco IOS Release 12.1(20)EW

This section lists the resolved caveats in Release 12.1(20)EW:

- When a PortFast-enabled port assumes the forwarding state, it is added to the multicast flood set and starts receiving all unknown multicast traffic. This situation occurs only if the port was previously down and is now up, and IGMP snooping is enabled on that VLAN.

  Workaround: Disable the PortFast feature on the port. (CSCeb33852)

- You cannot update the calendar with the **calendar set** command.

  Workaround: Set the system clock with the **clock set** command, but update the calendar with the **clock update-calendar** command. (CSCea10436)

- Cisco IOS Release 12.1(19)EW can have 10/100 autonegotiation interoperability problems on a WS-X4148-RJ45V (Network Interface Card) that uses the Realtec RTL8139A Chipset.

  Workaround: Turn autonegotiation off. (CSCea18531)

Open Caveats in Cisco IOS Release 12.1(19)EW3

This section lists the open caveats in Release 12.1(19)EW3.

- When PBR is configured on a Catalyst 4500 Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module, if the gateway module has crashed. The status of the module is displayed as “Ok”; the status should be “Offline”.

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- When a PortFast-enabled port assumes the forwarding state, it is added to the multicast flood set and starts receiving all unknown multicast traffic. This situation occurs only if the port was previously down and is now up, and IGMP snooping is enabled on that VLAN.

  Workaround: Disable the PortFast feature on the port. (CSCeb33852)

- You cannot update the calendar with the **calendar set** command.

  Workaround: Set the system clock with the **clock set** command, but update the calendar with the **clock update-calendar** command. (CSCea10436)

- A CompactFlash card formatted on either Supervisor Engine III or IV running 12.1E or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash card will continue to work on other supervisor engines.

  Workaround: Format the CompactFlash card on any Catalyst 4500 series supervisor engine running 12.1(19)EW.

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, it will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then reenable the switchport. (CSCeb06811)

- Release 12.1(19)EW can have 10/100 autonegotiation interoperability problems on a WS-X4148-RJ45V (Network Interface Card) that uses the Realtec RTL8139A Chipset.

  Workaround: Turn autonegotiation off. (CSCea18531)

- The **interface range** command is incompatible with the **no ip igmp snooping tcn flood** command.

  Workaround: Apply the CLI directly on the interface. (CSCeb33811)

Resolved Caveats in Cisco IOS Release 12.1(19)EW3

This section lists the resolved caveats in Release 12.1(19)EW3:

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)
- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

Open Caveats in Cisco IOS Release 12.1(19)EW2

This section lists the open caveats in Release 12.1(19)EW2.

- When PBR is configured on a Catalyst 4500 Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module, if the gateway module has crashed. The status of the module is displayed as “Ok”; the status should be “Offline”.

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- When a PortFast-enabled port assumes the forwarding state, it is added to the multicast flood set and starts receiving all unknown multicast traffic. This situation occurs only if the port was previously down and is now up, and IGMP snooping is enabled on that VLAN.

  Workaround: Disable the PortFast feature on the port. (CSCeb33852)

- You cannot update the calendar with the **calendar set** command.

  Workaround: Set the system clock with the **clock set** command, but update the calendar with the **clock update-calendar** command. (CSCea10436)

- A CompactFlash card formatted on either Supervisor Engine III or IV running 12.1E or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash card will continue to work on other supervisor engines.

Workaround: Format the CompactFlash card on any Catalyst 4500 series supervisor engine running 12.1(19)EW.

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, it will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then reenable the switchport. (CSCeb06811)

- Release 12.1(19)EW can have 10/100 autonegotiation interoperability problems on a WS-X4148-RJ45V (Network Interface Card) that uses the Realtec RTL8139A Chipset.

  Workaround: Turn autonegotiation off. (CSCea18531)

- The **interface range** command is incompatible with the **no ip igmp snooping tcn flood** command.

  Workaround: Apply the CLI directly on the interface. (CSCeb33811)

Resolved Caveats in Cisco IOS Release 12.1(19)EW2

This section lists the resolved caveats in Release 12.1(19)EW2:

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supercedes the deprecated NetFlow Feature Acceleration.

  Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

```
cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
```

Open Caveats in Cisco IOS Release 12.1(19)EW1

This section lists the open caveats in Release 12.1(19)EW1.

- When PBR is configured on a Catalyst 4500 Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module, if the gateway module has crashed. The status of the module is displayed as “Ok”; the status should be “Offline”.

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- When a PortFast-enabled port assumes the forwarding state, it is added to the multicast flood set and starts receiving all unknown multicast traffic. This situation occurs only if the port was previously down and is now up, and IGMP snooping is enabled on that VLAN.

  Workaround: Disable the PortFast feature on the port. (CSCeb33852)

- You cannot update the calendar with the **calendar set** command.

  Workaround: Set the system clock with the **clock set** command, but update the calendar with the **clock update-calendar** command. (CSCea10436)

- A CompactFlash card formatted on either Supervisor Engine III or IV running 12.1E or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash card will continue to work on other supervisor engines.

  Workaround: Format the CompactFlash card on any Catalyst 4500 series supervisor engine running 12.1(19)EW.

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, it will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then reenable the switchport. (CSCeb06811)

- Release 12.1(19)EW can have 10/100 autonegotiation interoperability problems on a WS-X4148-RJ45V (Network Interface Card) that uses the Realtec RTL8139A Chipset.

  Workaround: Turn autonegotiation off. (CSCea18531)

- The **interface range** command is incompatible with the **no ip igmp snooping tcn flood** command.

  Workaround: Apply the CLI directly on the interface. (CSCeb33811)

Resolved Caveats in Cisco IOS Release 12.1(19)EW1

This section lists the resolved caveats in Release 12.1(19)EW1:

- When the ports on a WS-X4448-GB-LX module are connected and the link is up, the online diagnostics loopback test fails during bootup and the failed ports are marked as faulty.

  If all the ports on a stub are connected during bootup, the loopback test indicates a stub failure and the ports will neither come up nor switch traffic.

  Workaround: Do one of the following:

  – Unplug the fiber or SFPs from the ports on the module before bootup and reconnect them after the module is online.

  – Disable the link partner for all connected ports on the module before bootup and reenable the link partner after the module is online. (CSCeb59072)

- The **show interface flowcontrol** command will crash the switch if a portchannel has been created and then deleted previously.

  Workaround: None. (CSCeb61931)

- IGMPv3 leaves are not being forwarded to the multicast router ports, which impacts bandwidth by delaying the pruning of traffic from the router to the host. The result is unwanted multicast traffic between the router and the switch, which remains longer than necessary. The problem is corrected when the router “ages out” the interface from the group, which usually occurs on the router’s next IGMP general query.

  When multiple group records are present in an IGMPv3 membership report and the last record is a leave, the entire membership report will not be sent to the multicast router ports. This behavior might cause you to lose a v3 join.

  Workaround: None. (CSCeb60069)

- If one of two collocated hosts has sent an IGMP leave for the group, the ports on the other host might experience multicast disconnection for up to 5 seconds.

  Workaround: None. (CSCeb45371)

- When you enable DHCP snooping and configure a static MAC drop entry for a router or DHCP client, the switch might shut down.

  Workaround: When DHCP snooping is enabled, do not configure a static MAC drop entry, such as the following:

  ```
  mac-address-table static 00aa.00bb.00cc vlan 100 drop
  ```
  aa.bb.cc is a MAC address for either a router or a DHCP client. (CSCeb62361)

- If you have previously configured an access port with static MAC address (for example, through port security) and now you attempt to enable an IP Source Guard MAC filter, the switch may reload.

  Workaround: Either enable IP Source Guard with IP filter only, or ensure that there is no static MAC address entry configured on the port. (CSCeb74573)

- With a URT-based dynamic VLAN assignment for VMPs, a supervisor engine running 12.1(19)EW may reset.

  Workaround: None. (CSCeb62034)

Open Caveats in Cisco IOS Release 12.1(19)EW

This section lists the open caveats in Release 12.1(19)EW.

- When the ports on a WS-X4448-GB-LX module are connected and the link is up, the online diagnostics loopback test fails during bootup and the failed ports are marked as faulty.

  If all the ports on a stub are connected during bootup, the loopback test indicates a stub failure and the ports will neither come up nor switch traffic.

  Workaround: Do one of the following:

  – Unplug the fiber or SFPs from the ports on the module before bootup and reconnect them after the module is online.

  – Disable the link partner for all connected ports on the module before bootup and reenable the link partner after the module is online. (CSCeb59072)

- The **show interface flowcontrol** command will crash the switch if a portchannel has been created and then deleted previously.

  Workaround: None. (CSCeb61931)

- IGMPv3 leaves are not being forwarded to the multicast router ports, which impacts bandwidth by delaying the pruning of traffic from the router to the host. The result is unwanted multicast traffic between the router and the switch, which remains longer than necessary. The problem is corrected when the router "ages out" the interface from the group, which usually occurs on the router's next IGMP general query.

  When multiple group records are present in an IGMPv3 membership report and the last record is a leave, the entire membership report will not be sent to the multicast router ports. This behavior might cause you to lose a v3 join.

  Workaround: None. (CSCeb60069)

- If one of two collocated hosts has sent an IGMP leave for the group, the ports on the other host might experience multicast disconnection for up to 5 seconds.

  Workaround: None. (CSCeb45371)

- When you enable DHCP snooping and configure a static MAC drop entry for a router or DHCP client, the switch might shut down.

  Workaround: When DHCP snooping is enabled, do not configure a static MAC drop entry, such as the following:

  ```
  mac-address-table static 00aa.00bb.00cc vlan 100 drop
  ```

  aa.bb.cc is a MAC address for either a router or a DHCP client. (CSCeb62361)

- If you have previously configured an access port with static MAC address (for example, through port security) and now you attempt to enable an IP Source Guard MAC filter, the switch may reload.

  Workaround: Either enable IP Source Guard with IP filter only, or ensure that there is no static MAC address entry configured on the port. (CSCeb74573)

- With a URT-based dynamic VLAN assignment for VMPs, a supervisor engine running 12.1(19)EW may reset.

  Workaround: None. (CSCeb62034)

- When PBR is configured on a Catalyst 4500 Supervisor Engine III or IV, hardware-switched PBR packets update the access list or route map statistics improperly.

  Workaround: None. (CSCdz10171)

- When at least 2000 VLAN interfaces are configured in a startup-configuration file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup configuration file. (CSCdx91258)

- The **show mod** command will not reflect the correct status of a WS-X4604-GWY module, if the gateway module has crashed. The status of the module is displayed as "Ok"; the status should be "Offline."

  Workaround: Use SNMP to monitor both the gateway module and the supervisor engine as separate devices. (CSCea90578)

- When a PortFast-enabled port assumes the forwarding state, it is added to the multicast flood set and starts receiving all unknown multicast traffic. This situation occurs only if the port was previously down and is now up, and IGMP snooping is enabled on that VLAN.

  Workaround: Disable the PortFast feature on the port. (CSCeb33852)

- You cannot update the calendar with the **calendar set** command.

  Workaround: Set the system clock with the **clock set** command, but update the calendar with the **clock update-calendar** command. (CSCea10436)

- A CompactFlash card formatted on either Supervisor Engine III or IV running 12.1E or 12.1(13)EW will not work on Supervisor Engine II-Plus. The CompactFlash card will continue to work on other supervisor engines.

  Workaround: Format the CompactFlash card on any Catalyst 4500 series supervisor engine running 12.1(19)EW.

- If a switchport in loop-inconsistent mode is sending BPDUs and is elected the “designated root” on the segment, it will not be able to recover from loop-inconsistent mode.

  Workaround: Disable and then reenable the switchport. (CSCeb06811)

- Release 12.1(19)EW can have 10/100 autonegotiation interoperability problems on a WS-X4148-RJ45V (Network Interface Card) that uses the Realtec RTL8139A Chipset.

  Workaround: Turn autonegotiation off. (CSCea18531)

- The **interface range** command is incompatible with the **no ip igmp snooping tcn flood** command.

  Workaround: Apply the CLI directly on the interface. (CSCeb33811)

Resolved Caveats in Cisco IOS Release 12.1(19)EW

This section lists the resolved caveats in Release 12.1(19)EW:

- A Cisco device running IOS and enabled for the Border Gateway Protocol (BGP) is vulnerable to a Denial of Service (DOS) attack from a malformed BGP packet. The BGP protocol is not enabled by default, and must be configured in order to accept traffic from an explicitly defined peer. Unless the malicious traffic appears to be sourced from a configured, trusted peer, it would be difficult to inject a malformed packet. BGP MD5 is a valid workaround for this problem.

  Cisco has made free software available to address this problem. For more details, please refer to this advisory, available at http://www.cisco.com/warp/public/707/cisco-sa-20040616-bgp.shtml. (CSCdu53656 and CSCea28131)

- Catalyst 4500 IOS supervisor engines exhibit slow IPX routing performance (high latency).

  Workaround: None. (CSCea85204)

- When oversubscribed traffic destined for queue 4 is dropped in queue 4, the dynamic buffer limiting (DBL) drop counters for queue 2 (seen when you enter the **show int <int> counter** command) are incremented. When oversubscribed traffic destined for queue 2 is dropped in queue 2, the DBL drop counters for queue 4 are incremented.

  Queues 1 and 3 perform correctly.

  Workaround: None. (CSCdz58560)

- When IGMP Snooping is enabled and the last member leaves a multicast group, the switch will send an IGMP leave message with the source IP address of 0.0.0.0.

  Workaround: None. (CSCdz49171)

- When a fan tray fails or is removed, the supervisor engine status may not register as faulty and the status LED may not turn amber. The status LED also may not turn red when the power supply fails or is removed.

  Workaround: None. (CSCdz55274)

- When a nonblocking gigaport is configured as “unidirectional receive-only” and as “speed nonegotiation,” the port link may not come up after both CLIs are unconfigured.

  Workaround: Do one of the following:

  – Avoid configuring both unidirectional receive-only and speed nonegotiation on the same port, because the former places a port in speed nonegotiation mode.

  – Enter the **shut** and **no shut** commands to reset the port’s link partner and bring up the port’s link. (CSCdz53781)

- When the fan tray is removed from the switch for more than 5 minutes, the following message is displayed on the console and all line cards are reset:

  ```
  %C4K_CHASSIS-2-INSUFFICIENTFANSDETECTED: Too few working fans, the chassis will
  overheat
  ```

  Workaround: None. (CSCdz50817)

- When a Catalyst 4500 Supervisor Engine III or IV is configured to use PBR, and the route map specifies that the action is a default next-hop, that action is taken only if the ARP resolution for the specified host has already taken place. If the ARP resolution has not taken place, the system does not consider the host to be a valid default next-hop.

  Workaround: Ping the specified host to ensure that it is always in the ARP table. (CSCdz50786)

- If none of a port channel’s ports support jumbo frames, your attempt to change the MTU on the port channel will change the port channels MTU, but not the member ports MTU. None of the member ports are suspended.

  If some of the member ports support jumbo frames, this situation does not happen and the ports that do not support jumbo frames are suspended.

  Workaround: Do not change the port channel's MTU if none of its member ports support jumbo frames. (CSCdz43350)

- When the WS-X4148-RJ45V card is plugged into a Catalyst 4500 chassis, the power on LED does not operate. This caveat is present in 12.1(13)EW and all previous software releases.

  Workaround: None. (CSCdz60995)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages similar to the following on the console:

  ```
  %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between port
  Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and reenabled using the **no shutdown** VLAN configuration command, any subsequent flooded or multicast packets received on the private VLAN port does not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Noninitial fragments do not have any Layer 4 information (for example, UDP ports and the TCP flag).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN map, without any Layer 4 information. (CSCdx84696)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Open Caveats in Cisco IOS Release 12.1(13)EW4

This section lists the open caveats in Release 12.1(13)EW4.

- When oversubscribed traffic destined for queue 4 is dropped in queue 4, the DBL drop counters for queue 2 (seen when the **show int <int> counter** command is issued) are incremented. When oversubscribed traffic destined for queue 2 is dropped in queue 2, the DBL drop counters for queue 4 are incremented.

  Queues 1 and 3 perform correctly.

  Workaround: None. (CSCdz58560)

- When IGMP Snooping is enabled and the last member leaves a multicast group, the switch will send an IGMP leave message with the source IP address of 0.0.0.0.

  Workaround: None. (CSCdz49171)

- Supervisor engine status may not register as faulty and the status LED may not turn amber when a fan-tray fails or is removed. Moreover, the status LED may not go turn red when the power supply fails or is removed.

  Workaround: None. (CSCdz55274)

- When a non-blocking gigaport is configured as “unidirectional receive-only” as well as “speed nonegotiation,” once both CLIs are unconfigured, the port link may not come up.

  Workaround: Do one of the following:

  – Avoid configuring both unidirectional receive-only and speed nonegotiation on the same port, because the former places a port in speed nonegotiation mode.

  – Issue **shut** and **no shut** commands to reset the port’s link partner and bring up the port's link. (CSCdz53781)

- When the fan tray is removed from the switch for more than 5 minutes, the following message is displayed on the console and all line cards are reset:

  ```
  %C4K_CHASSIS-2-INSUFFICIENTFANSDETECTED: Too few working fans, the chassis will
  overheat
  ```

  Workaround: None. (CSCdz50817)

- When a Catalyst 4000 Supervisor Engine III or IV is configured to use PBR, and the route-map specifies that the action is a default next-hop, that action is taken only if the ARP resolution for the specified host has already taken place. If the ARP resolution has not taken place, the system does not consider the host to be a valid default next-hop.

  Workaround: Ping the specified host to ensure that it is always in the ARP table. (CSCdz50786)

- If none of a port-channel’s ports support Jumbo Frame, your attempt to change the MTU on the port-channel will change the port-channel's MTU, but not the member ports' MTU. Moreover, none of the member ports are suspended.

  In contrast, if some of the member ports support jumbo frames, this scenario does not happen and the ports that do not support jumbo frames are suspended.

  Workaround: Do not change the port-channel's MTU if none of its member ports support jumbo frames. (CSCdz43350)

- When PBR is configured on a Catalyst 4000 Supervisor Engine III or IV, PBR packets switched by hardware update the access-list or route-map statistics improperly.

  Workaround: None. (CSCdz10171)

- When the WS-X4148-RJ45V card is plugged into a Catalyst 4500 chassis, the power LED “on” does not work. This caveat is present in 12.1(13)EW and all previous software releases.

  Workaround: None. (CSCdz60995)

- With at least 2000 VLAN interfaces configured in the startup-config file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between port
  Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port does not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g., UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(13)EW4

This section lists the resolved caveats in Release 12.1(13)EW4.

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)
- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

Open Caveats in Cisco IOS Release 12.1(13)EW3

This section lists the open caveats in Release 12.1(13)EW3.

- When oversubscribed traffic destined for queue 4 is dropped in queue 4, the DBL drop counters for queue 2 (seen when the **show int <int> counter** command is issued) are incremented. When oversubscribed traffic destined for queue 2 is dropped in queue 2, the DBL drop counters for queue 4 are incremented.

  Queues 1 and 3 perform correctly.

  Workaround: None. (CSCdz58560)
- When IGMP Snooping is enabled and the last member leaves a multicast group, the switch will send an IGMP leave message with the source IP address of 0.0.0.0.

  Workaround: None. (CSCdz49171)
- Supervisor engine status may not register as faulty and the status LED may not turn amber when a fan-tray fails or is removed. Moreover, the status LED may not go turn red when the power supply fails or is removed.

  Workaround: None. (CSCdz55274)
- When a non-blocking gigaport is configured as “unidirectional receive-only” as well as “speed nonegotiation,” once both CLIs are unconfigured, the port link may not come up.

  Workaround: Do one of the following:

  – Avoid configuring both unidirectional receive-only and speed nonegotiation on the same port, because the former places a port in speed nonegotiation mode.

  – Issue **shut** and **no shut** commands to reset the port’s link partner and bring up the port's link. (CSCdz53781)
- When the fan tray is removed from the switch for more than 5 minutes, the following message is displayed on the console and all line cards are reset:

  ```
  %C4K_CHASSIS-2-INSUFFICIENTFANSDETECTED: Too few working fans, the chassis will
  overheat
  ```

  Workaround: None. (CSCdz50817)

- When a Catalyst 4000 Supervisor Engine III or IV is configured to use PBR, and the route-map specifies that the action is a default next-hop, that action is taken only if the ARP resolution for the specified host has already taken place. If the ARP resolution has not taken place, the system does not consider the host to be a valid default next-hop.

  Workaround: Ping the specified host to ensure that it is always in the ARP table. (CSCdz50786)

- If none of a port-channel's ports support Jumbo Frame, your attempt to change the MTU on the port-channel will change the port-channel's MTU, but not the member ports' MTU. Moreover, none of the member ports are suspended.

  In contrast, if some of the member ports support jumbo frames, this scenario does not happen and the ports that do not support jumbo frames are suspended.

  Workaround: Do not change the port-channel's MTU if none of its member ports support jumbo frames. (CSCdz43350)

- When PBR is configured on a Catalyst 4000 Supervisor Engine III or IV, PBR packets switched by hardware update the access-list or route-map statistics improperly.

  Workaround: None. (CSCdz10171)

- When the WS-X4148-RJ45V card is plugged into a Catalyst 4500 chassis, the power LED "on" does not work. This caveat is present in 12.1(13)EW and all previous software releases.

  Workaround: None. (CSCdz60995)

- With at least 2000 VLAN interfaces configured in the startup-config file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between port
  Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port does not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g., UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(13)EW3

This section lists the resolved caveats in Release 12.1(13)EW3.

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supercedes the deprecated NetFlow Feature Acceleration.

  Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

```
cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
cnfFeatureActive              1.3.6.1.4.1.9.9.99999.1.3.4.1.3
cnfFeatureAttaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.4
cnfFeatureDetaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.5
cnfFeatureConfigChanges       1.3.6.1.4.1.9.9.99999.1.3.4.1.6
```

  (CSCsa81379)

Open Caveats in Cisco IOS Release 12.1(13)EW2

This section lists the open caveats in Release 12.1(13)EW2.

- When oversubscribed traffic destined for queue 4 is dropped in queue 4, the DBL drop counters for queue 2 (seen when the **show int <int> counter** command is issued) are incremented. When oversubscribed traffic destined for queue 2 is dropped in queue 2, the DBL drop counters for queue 4 are incremented.

  Queues 1 and 3 perform correctly.

  Workaround: None. (CSCdz58560)

- When IGMP Snooping is enabled and the last member leaves a multicast group, the switch will send an IGMP leave message with the source IP address of 0.0.0.0.

  Workaround: None. (CSCdz49171)

- Supervisor engine status may not register as faulty and the status LED may not turn amber when a fan-tray fails or is removed. Moreover, the status LED may not go turn red when the power supply fails or is removed.

  Workaround: None. (CSCdz55274)

- When a non-blocking gigaport is configured as “unidirectional receive-only” as well as “speed nonegotiation,” once both CLIs are unconfigured, the port link may not come up.

  Workaround: Do one of the following:

  – Avoid configuring both unidirectional receive-only and speed nonegotiation on the same port, because the former places a port in speed nonegotiation mode.

  – Issue **shut** and **no shut** commands to reset the port’s link partner and bring up the port's link. (CSCdz53781)

- When the fan tray is removed from the switch for more than 5 minutes, the following message is displayed on the console and all line cards are reset:

  ```
  %C4K_CHASSIS-2-INSUFFICIENTFANSDETECTED: Too few working fans, the chassis will
  overheat
  ```

  Workaround: None. (CSCdz50817)

- When a Catalyst 4000 Supervisor Engine III or IV is configured to use PBR, and the route-map specifies that the action is a default next-hop, that action is taken only if the ARP resolution for the specified host has already taken place. If the ARP resolution has not taken place, the system does not consider the host to be a valid default next-hop.

  Workaround: Ping the specified host to ensure that it is always in the ARP table. (CSCdz50786)

- If none of a port-channel’s ports support Jumbo Frame, your attempt to change the MTU on the port-channel will change the port-channel's MTU, but not the member ports' MTU. Moreover, none of the member ports are suspended.

  In contrast, if some of the member ports support jumbo frames, this scenario does not happen and the ports that do not support jumbo frames are suspended.

  Workaround: Do not change the port-channel's MTU if none of its member ports support jumbo frames. (CSCdz43350)

- When PBR is configured on a Catalyst 4000 Supervisor Engine III or IV, PBR packets switched by hardware update the access-list or route-map statistics improperly.

  Workaround: None. (CSCdz10171)

- When the WS-X4148-RJ45V card is plugged into a Catalyst 4500 chassis, the power LED “on” does not work. This caveat is present in 12.1(13)EW and all previous software releases.

  Workaround: None. (CSCdz60995)

- With at least 2000 VLAN interfaces configured in the startup-config file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between port
  Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port does not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g., UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(13)EW2

This section lists the resolved caveats in Release 12.1(13)EW2.

- Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

  Workaround: Cisco has made software available, free of charge, to correct the problem. (CSCdz71127)

  This advisory is available at

  http://www.cisco.com/warp/public/707/cisco-sa-20030717-blocked.shtml

- Under certain conditions, a caveat in the power on self test (POST) may erroneously indicate that good WS-X4014 and WS-X4515 supervisor engines are faulty. When this happens, modules do not come online and the switch cannot be used to forward traffic.

  If the POST incorrectly identifies a good supervisor engine as faulty because of this situation, the POST output will only display the first port on the switch as faulty:

  ```
  Port Traffic: L2 Serdes Loopback ...
  0: F  1: .  2: .  3: .  4: .  5: .  6: .  7: .  8: .  9: . 10: . 11: .
  12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
  24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .
  ```

  If the POST fails, but the test output does not match the display shown here, your hardware probably is faulty.

This POST behavior is a software issue and has been resolved in 12.1(12c)EW2, 12.1(13)EW2, 12.1(19)EW, and 12.1(20)E images.

Workaround: None. (CSCeb59442)

Open Caveats in Cisco IOS Release 12.1(13)EW1

This section lists the open caveats in Release 12.1(13)EW1.

- Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

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  Port Traffic: L2 Serdes Loopback ...
  0: F  1: .  2: .  3: .  4: .  5: .  6: .  7: .  8: .  9: . 10: . 11: .
  12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
  24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .
  ```

  If the POST fails, but the test output does not match the display shown here, your hardware probably is faulty.

  This POST behavior is a software issue and has been resolved in 12.1(12c)EW2, 12.1(13)EW2, 12.1(19)EW, and 12.1(20)E images.

  Workaround: None. (CSCeb59442)

- When oversubscribed traffic destined for queue 4 is dropped in queue 4, the DBL drop counters for queue 2 (seen when the **show int <int> counter** command is issued) are incremented. When oversubscribed traffic destined for queue 2 is dropped in queue 2, the DBL drop counters for queue 4 are incremented.

  Queues 1 and 3 perform correctly.

  Workaround: None. (CSCdz58560)

- When IGMP Snooping is enabled and the last member leaves a multicast group, the switch will send an IGMP leave message with the source IP address of 0.0.0.0.

  Workaround: None. (CSCdz49171)

- Supervisor engine status may not register as faulty and the status LED may not turn amber when a fan-tray fails or is removed. Moreover, the status LED may not go turn red when the power supply fails or is removed.

  Workaround: None. (CSCdz55274)

- When a non-blocking gigaport is configured as “unidirectional receive-only” as well as “speed nonegotiation,” once both CLIs are unconfigured, the port link may not come up.

  Workaround: Do one of the following:

  – Avoid configuring both unidirectional receive-only and speed nonegotiation on the same port, because the former places a port in speed nonegotiation mode.

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  ```
  %C4K_CHASSIS-2-INSUFFICIENTFANSDETECTED: Too few working fans, the chassis will
  overheat
  ```

  Workaround: None. (CSCdz50817)

- When a Catalyst 4000 Supervisor Engine III or IV is configured to use PBR, and the route-map specifies that the action is a default next-hop, that action is taken only if the ARP resolution for the specified host has already taken place. If the ARP resolution has not taken place, the system does not consider the host to be a valid default next-hop.

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- When PBR is configured on a Catalyst 4000 Supervisor Engine III or IV, PBR packets switched by hardware update the access-list or route-map statistics improperly.

  Workaround: None. (CSCdz10171)

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  Workaround: None. (CSCdz60995)

- With at least 2000 VLAN interfaces configured in the startup-config file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

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  ```
  %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
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  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port does not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g., UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(13)EW1

This section lists the resolved caveats in Release 12.1(13)EW1.

- Non-CDP phones (such as Softphone and VIP) that are connected to a Catalyst 4500 series switch running IOS are not discovered by Cisco Emergency Responder (CER).

  Workaround: None. (CSCin28373)

- When you run “snmpwalk” (or a similar tool) over dot1dTpFdbTable, the system might not report every other consecutive learned host.

  Workaround: Use the **show mac-address** command instead. (CSCdz72134)

- If you enter the **show interface capabilities** command on a Catalyst 4000 family switch running release 12.1(13)EW, the switch reloads unexpectedly; this command is not supported in the 12.1(13)EW release.

  Workaround: None. (CSCdz64100)

- If you have assigned a policer to a policy map, and if you have changed parameters such as rate and burst, the new parameters sometimes do not take effect.

  Workaround: After changing the parameters, first disable and enable global QoS, then disable and enable QoS on the port or VLAN that is using this policy map. (CSCdz75217)

- A Catalyst 4000 family switch might reset itself when you enable a VMPS client as well as multiple ports (for dynamic VLAN assignment).

  Workaround: None. (CSCdz80184)

- A Catalyst 4000 family switch with Supervisor Engine III or IV running release 12.1(12c)EW1 might reload due to an exception on the tcp_putbyte process.

  Workaround: None. (CSCdz69546)

- Policy-based routing (PBR) causes your Catalyst 4000 family switch to shut down when running release 12.1(13)EW.

  Workaround: None. (CSCdz89145)

- When a large number of flows use a congested queue, some non aggressive flows might experience large drops of traffic. When the queue is cleared, the packets flow normally for all the flows.

  Workaround: None. (CSCea19319)

Open Caveats in Cisco IOS Release 12.1(13)EW

This section lists the open caveats in Release 12.1(13)EW.

- Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

  Workaround: Cisco has made software available, free of charge, to correct the problem. (CSCdz71127)

  This advisory is available at this URL:

  http://www.cisco.com/warp/public/707/cisco-sa-20030717-blocked.shtml

- Under certain conditions, a caveat in the power on self test (POST) may erroneously indicate that good WS-X4014 and WS-X4515 supervisor engines are faulty. When this happens, modules do not come online and the switch cannot be used to forward traffic.

  If the POST incorrectly identifies a good supervisor engine as faulty because of this situation, the POST output will only display the first port on the switch as faulty:

  ```
  Port Traffic: L2 Serdes Loopback ...
  0: F  1: .  2: .  3: .  4: .  5: .  6: .  7: .  8: .  9: . 10: . 11: .
  12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
  24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .
  ```

  If the POST fails, but the test output does not match the display shown here, your hardware probably is faulty.

  This POST behavior is a software issue and has been resolved in 12.1(12c)EW2, 12.1(13)EW2, 12.1(19)EW, and 12.1(20)E images.

  Workaround: None. (CSCeb59442)

- When oversubscribed traffic destined for queue 4 is dropped in queue 4, the DBL drop counters for queue 2 (seen when the **show int <int> counter** command is issued) are incremented. When oversubscribed traffic destined for queue 2 is dropped in queue 2, the DBL drop counters for queue 4 are incremented.

  Queues 1 and 3 perform correctly.

  Workaround: None. (CSCdz58560)

- When IGMP Snooping is enabled and the last member leaves a multicast group, the switch will send an IGMP leave message with the source IP address of 0.0.0.0.

  Workaround: None. (CSCdz49171)

- Supervisor engine status may not register as faulty and the status LED may not turn amber when a fan-tray fails or is removed. Moreover, the status LED may not go turn red when the power supply fails or is removed.

  Workaround: None. (CSCdz55274)

- When a non-blocking gigaport is configured as “unidirectional receive-only” as well as “speed nonegotiation,” once both CLIs are unconfigured, the port link may not come up.

  Workaround: Do one of the following:

  – Avoid configuring both unidirectional receive-only and speed nonegotiation on the same port, because the former places a port in speed nonegotiation mode.

  – Issue **shut** and **no shut** commands to reset the port’s link partner and bring up the port's link. (CSCdz53781)

- When the fan tray is removed from the switch for more than 5 minutes, the following message is displayed on the console and all line cards are reset:

  ```
  %C4K_CHASSIS-2-INSUFFICIENTFANSDETECTED: Too few working fans, the chassis will
  overheat
  ```

  Workaround: None. (CSCdz50817)

- When a Catalyst 4000 Supervisor Engine III or IV is configured to use PBR, and the route-map specifies that the action is a default next-hop, that action is taken only if the ARP resolution for the specified host has already taken place. If the ARP resolution has not taken place, the system does not consider the host to be a valid default next-hop.

  Workaround: Ping the specified host to ensure that it is always in the ARP table. (CSCdz50786)

- If none of a port-channel’s ports support Jumbo Frame, your attempt to change the MTU on the port-channel will change the port-channel's MTU, but not the member ports' MTU. Moreover, none of the member ports are suspended.

  In contrast, if some of the member ports support jumbo frames, this scenario does not happen and the ports that don't support jumbo frames are suspended.

  Workaround: Do not change the port-channel's MTU if none of its member ports support jumbo frames. (CSCdz43350)

- When PBR is configured on a Catalyst 4000 Supervisor Engine III or IV, PBR packets switched by hardware update the access-list or route-map statistics improperly.

  Workaround: None. (CSCdz10171)

- When the WS-X4148-RJ45V card is plugged into a Catalyst 4500 chassis, the power LED “on” does not work. This caveat is present in 12.1(13)EW and all previous software releases.

  Workaround: None. (CSCdz60995)

- With at least 2000 VLAN interfaces configured in the startup-config file, a switch might take at least 10 minutes to boot up. During this time, the switch is unresponsive.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between port
  Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port does not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g., UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(13)EW

This section lists the resolved caveats in Release 12.1(13)EW.

- Private VLAN trunks will continue to operate as private trunks after you configure them as normal trunks using the **switchport mode trunk** command. While the trunks are in this state, the interfaces will not show up as private VLAN trunks in the output of the **show vlan private-vlan** command.

  Workaround: To ensure that the ports operate as normal trunks, issue shutdown/no shutdown commands after configuring the ports as normal trunks. (CSCdy40311)

- On systems with redundant supervisors and large and complex configurations, where the system is actively processing startup-config file, the standby supervisor engine may take over from the active supervisor engine in the boot process. If this happens, the following message is displayed on the active supervisor:

  ```
  C4K_REDUNDANCY-4-CONFIGSYNCFAIL: Persistent-config Sync to Standby Supervisor failed
  ```

  and the following messages display on the standby supervisor:

  ```
  C4k_REDUNDANCY-6-SWITCHOVER: Switchover activity detected, changing role from STANDBY
  to ACTIVE
  C4K_REDUNDANCY-6-INIT: Initializing as ACTIVE supervisor
  ```

  Workaround: Keep your startup-config file reasonably small size. (CSCdy02031)

- The CLI erroneously permits enabling 802.1X on ports that are configured as private VLAN trunks and private VLAN access ports. This configuration may result in unexpected behavior.

  Workaround: Don't configure 802.1X on PVLAN ports. (CSCdy23098)

Open Caveats in Cisco IOS Release 12.1(12c)EW4

This section lists the open caveats in release 12.1(12c)EW4.

- Private VLAN trunks will continue to operate as private trunks after you configure them as normal trunks using the **switchport mode trunk** command. While the trunks are in this state, the interfaces will not show up as private VLAN trunks in the output of the **show vlan private-vlan** command.

  Workaround: To ensure that the ports operate as normal trunks, issue shutdown/no shutdown commands after configuring the ports as normal trunks. (CSCdy40311)

- With approximately 2000 or more VLAN interfaces configured in the startup-config file, the switch might take at least 10 minutes to boot up. The switch is unresponsive until it completes the boot.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  2d07h: %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  2d07h: %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between
  port Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port do not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g.: UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- On systems with redundant supervisors and large and complex configurations, where the system is actively processing startup-config file, the standby supervisor engine may take over from the active supervisor engine in the boot process. If this happens, the following message displays on the active supervisor”

  ```
  C4K_REDUNDANCY-4-CONFIGSYNCFAIL: Persistent-config Sync to Standby Supervisor failed
  ```

  and the following messages display on the standby supervisor:

  ```
  C4k_REDUNDANCY-6-SWITCHOVER: Switchover activity detected, changing role from STANDBY
  to ACTIVE
  C4K_REDUNDANCY-6-INIT: Initializing as ACTIVE supervisor
  ```

  Workaround: Keep your startup-config file reasonably small. (CSCdy02031)

- The CLI erroneously permits enabling 802.1X on ports that are configured as private VLAN trunks and private VLAN access ports. This configuration may result in unexpected behavior.

  Workaround: Don't configure 802.1X on PVLAN ports. (CSCdy23098)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(12c)EW4

This section lists the resolved caveats in Release 12.1(12c)EW4.

- Through normal software maintenance processes, Cisco is removing deprecated functionality. These changes have no impact on system operation or feature availability. (CSCei76358)
- Cisco IOS may permit arbitrary code execution after exploitation of a heap-based buffer overflow vulnerability. Cisco has included additional integrity checks in its software, as further described below, that are intended to reduce the likelihood of arbitrary code execution.

  Cisco has made free software available that includes the additional integrity checks for affected customers.

  This advisory is posted at http://www.cisco.com/warp/public/707/cisco-sa-20051102-timers.shtml. (CSCei61732)

Open Caveats in Cisco IOS Release 12.1(12c)EW3

This section lists the open caveats in release 12.1(12c)EW3.

- Private VLAN trunks will continue to operate as private trunks after you configure them as normal trunks using the **switchport mode trunk** command. While the trunks are in this state, the interfaces will not show up as private VLAN trunks in the output of the **show vlan private-vlan** command.

  Workaround: To ensure that the ports operate as normal trunks, issue shutdown/no shutdown commands after configuring the ports as normal trunks. (CSCdy40311)

- With approximately 2000 or more VLAN interfaces configured in the startup-config file, the switch might take at least 10 minutes to boot up. The switch is unresponsive until it completes the boot.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  2d07h: %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  2d07h: %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between
  port Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port do not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g.: UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- On systems with redundant supervisors and large and complex configurations, where the system is actively processing startup-config file, the standby supervisor engine may take over from the active supervisor engine in the boot process. If this happens, the following message displays on the active supervisor"

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  C4k_REDUNDANCY-6-SWITCHOVER: Switchover activity detected, changing role from STANDBY
  to ACTIVE
  C4K_REDUNDANCY-6-INIT: Initializing as ACTIVE supervisor
  ```

  Workaround: Keep your startup-config file reasonably small. (CSCdy02031)

- The CLI erroneously permits enabling 802.1X on ports that are configured as private VLAN trunks and private VLAN access ports. This configuration may result in unexpected behavior.

  Workaround: Don't configure 802.1X on PVLAN ports. (CSCdy23098)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(12c)EW3

This section lists the resolved caveats in Release 12.1(12c)EW3.

- NetFlow Feature Acceleration has been deprecated and removed from Cisco IOS. The global command **ip flow-cache feature-accelerate** will no longer be recognized in any IOS configuration.

  If your router configuration does not currently contain the command **ip flow-cache feature-accelerate**, this change does not affect you.

  The removal of NetFlow Feature Acceleration does not affect any other aspects of Netflow operation, for example Access-list processing. The features are separate and distinct.

  Cisco Express Forwarding (CEF) supercedes the deprecated NetFlow Feature Acceleration.

  Additionally, the following MIB objects and OIDs have been deprecated and removed from the netflow mib (CISCO-NETFLOW-MIB):

  ```
  cnfFeatureAcceleration        1.3.6.1.4.1.9.9.99999.1.3
  cnfFeatureAccelerationEnable  1.3.6.1.4.1.9.9.99999.1.3.1
  cnfFeatureAvailableSlot       1.3.6.1.4.1.9.9.99999.1.3.2
  ```

```
cnfFeatureActiveSlot          1.3.6.1.4.1.9.9.99999.1.3.3
cnfFeatureTable               1.3.6.1.4.1.9.9.99999.1.3.4
cnfFeatureEntry               1.3.6.1.4.1.9.9.99999.1.3.4.1
cnfFeatureType                1.3.6.1.4.1.9.9.99999.1.3.4.1.1
cnfFeatureSlot                1.3.6.1.4.1.9.9.99999.1.3.4.1.2
cnfFeatureActive              1.3.6.1.4.1.9.9.99999.1.3.4.1.3
cnfFeatureAttaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.4
cnfFeatureDetaches            1.3.6.1.4.1.9.9.99999.1.3.4.1.5
cnfFeatureConfigChanges       1.3.6.1.4.1.9.9.99999.1.3.4.1.6
```

(CSCsa81379)

Open Caveats in Cisco IOS Release 12.1(12c)EW2

This section lists the open caveats in release 12.1(12c)EW2.

- Private VLAN trunks will continue to operate as private trunks after you configure them as normal trunks using the **switchport mode trunk** command. While the trunks are in this state, the interfaces will not show up as private VLAN trunks in the output of the **show vlan private-vlan** command.

  Workaround: To ensure that the ports operate as normal trunks, issue shutdown/no shutdown commands after configuring the ports as normal trunks. (CSCdy40311)

- With approximately 2000 or more VLAN interfaces configured in the startup-config file, the switch might take at least 10 minutes to boot up. The switch is unresponsive until it completes the boot.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  2d07h: %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  2d07h: %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between
  port Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port do not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g.: UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- On systems with redundant supervisors and large and complex configurations, where the system is actively processing startup-config file, the standby supervisor engine may take over from the active supervisor engine in the boot process. If this happens, the following message displays on the active supervisor”

  ```
  C4K_REDUNDANCY-4-CONFIGSYNCFAIL: Persistent-config Sync to Standby Supervisor failed
  ```

  and the following messages display on the standby supervisor:

  ```
  C4k_REDUNDANCY-6-SWITCHOVER: Switchover activity detected, changing role from STANDBY
  to ACTIVE
  C4K_REDUNDANCY-6-INIT: Initializing as ACTIVE supervisor
  ```

  Workaround: Keep your startup-config file reasonably small. (CSCdy02031)

- The CLI erroneously permits enabling 802.1X on ports that are configured as private VLAN trunks and private VLAN access ports. This configuration may result in unexpected behavior.

  Workaround: Don't configure 802.1X on PVLAN ports. (CSCdy23098)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(12c)EW2

This section lists the resolved caveats in Release 12.1(12c)EW2.

- Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

  Workaround: Cisco has made software available, free of charge, to correct the problem. (CSCdz71127, CSCea02355)

  This advisory is available at

  http://www.cisco.com/warp/public/707/cisco-sa-20030717-blocked.shtml

- Under certain conditions, a caveat in the power on self test (POST) may erroneously indicate that good WS-X4014 and WS-X4515 supervisor engines are faulty. When this happens, modules do not come online and the switch cannot be used to forward traffic.

  If the POST incorrectly identifies a good supervisor engine as faulty because of this situation, the POST output will only display the first port on the switch as faulty:

  ```
  Port Traffic: L2 Serdes Loopback ...
  0: F  1: .  2: .  3: .  4: .  5: .  6: .  7: .  8: .  9: . 10: . 11: .
  12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
  24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .
  ```

  If the POST fails, but the test output does not match the display shown here, your hardware probably is faulty.

This POST behavior is a software issue and has been resolved in 12.1(12c)EW2, 12.1(13)EW2, 12.1(19)EW, and 12.1(20)E images.

Workaround: None. (CSCeb59442)

Open Caveats in Cisco IOS Release 12.1(12c)EW1

This section lists the open caveats in Release 12.1(12c)EW1.

- Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

  Workaround: Cisco has made software available, free of charge, to correct the problem. (CSCdz71127, CSCea02355)

  This advisory is available at this URL:

  http://www.cisco.com/warp/public/707/cisco-sa-20030717-blocked.shtml

- Under certain conditions, a caveat in the power on self test (POST) may erroneously indicate that good WS-X4014 and WS-X4515 supervisor engines are faulty. When this happens, modules do not come online and the switch cannot be used to forward traffic.

  If the POST incorrectly identifies a good supervisor engine as faulty because of this situation, the POST output will only display the first port on the switch as faulty:

  ```
  Port Traffic: L2 Serdes Loopback ...
  0: F  1: .  2: .  3: .  4: .  5: .  6: .  7: .  8: .  9: . 10: . 11: .
  12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
  24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .
  ```

  If the POST fails, but the test output does not match the display shown here, your hardware probably is faulty.

  This POST behavior is a software issue and has been resolved in 12.1(12c)EW2, 12.1(13)EW2, 12.1(19)EW, and 12.1(20)E images.

  Workaround: None. (CSCeb59442)

- Private VLAN trunks will continue to operate as private trunks after you configure them as normal trunks using the **switchport mode trunk** command. While the trunks are in this state, the interfaces will not show up as private VLAN trunks in the output of the **show vlan private-vlan** command.

  Workaround: To ensure that the ports operate as normal trunks, issue shutdown/no shutdown commands after configuring the ports as normal trunks. (CSCdy40311)

- With approximately 2000 or more VLAN interfaces configured in the startup-config file, the switch might take at least 10 minutes to boot up. The switch is unresponsive until it completes the boot.

  Workaround: Configure fewer SVIs in the startup config file. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

  ```
  2d07h: %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
  2d07h: %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between
  port Po2 and port Po1
  ```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port do not reach all the destinations.

  Workaround: Do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets might not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g.: UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- On systems with redundant supervisors and large and complex configurations, where the system is actively processing startup-config file, the standby supervisor engine may take over from the active supervisor engine in the boot process. If this happens, the following message displays on the active supervisor"

  ```
  C4K_REDUNDANCY-4-CONFIGSYNCFAIL: Persistent-config Sync to Standby Supervisor failed
  ```

  and the following messages display on the standby supervisor:

  ```
  C4k_REDUNDANCY-6-SWITCHOVER: Switchover activity detected, changing role from STANDBY
  to ACTIVE
  C4K_REDUNDANCY-6-INIT: Initializing as ACTIVE supervisor
  ```

  Workaround: Keep your startup-config file reasonably small. (CSCdy02031)

- The CLI erroneously permits enabling 802.1X on ports that are configured as private VLAN trunks and private VLAN access ports. This configuration may result in unexpected behavior.

  Workaround: Don't configure 802.1X on PVLAN ports. (CSCdy23098)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(12c)EW1

This section lists the resolved caveats in Release 12.1(12c)EW1:

- On a 4507R chassis with dual supervisors, the following message displays during switchover under high CPU utilization:

  ```
  %Error: Opening vlan.dat on STANDBY
  ```

Workaround: After the switch boots, verify that the standby supervisor engine has a valid cat4000_flash:vlan.dat file. If you suspect the file is invalid, copy the valid file using the following command on the active supervisor:

copy cat4000_flash:vlan.dat slavecat4000_flash:vlan.dat

(CSCdy26890)

- No log message is generated when a power supply fails.

  Workaround:.Review the output of the **show power** command to check the status of power supplies. This is the only way to be notified of a supply failure. (CSCdy33518)

- When DHCP snooping, DHCP relay agent and CEF are all enabled on a switch, a DHCP server reply packet that is destined for the DHCP relay agent might get forwarded to the DHCP client.

  Workaround: Either not enable all these features at the same time, or upgrade the switch to the latest maintenance release image that contains the fix for this problem.

- A Catalyst 4000 supervisor engine running 12.1(12c)EW or an earlier release will not link up on a WS-X4424-GB-RJ45 line card interface if it is hard-coded for speed and duplex.

  Workaround: Issue a shutdown/ no shutdown command at the associated interface to bring up the link.

  When you force the speed, the switch port does not auto-detect crossover/straight through cables. In these situations, you must use the correct cable.

  - When connecting the switch port to another networking device, use a crossover cable.
  - When connecting the switch port to a workstation, use a straight through cable. (CSCdy44221)

- When the tcam entries in the ingress VLAN are exhausted, and when DHCP snooping is enabled in the VLAN, the packets that are punted to software for ACL processing might bypass the router ACLs.

  Workaround: None. (CSCdy47753)

- DHCP packets that are relayed by DHCP Relay Agents are treated as IOS internally-generated packets. This means that the output router ACL won't apply to these packets.

  Workaround: Apply an input router ACL to filter out those broadcast DHCP packets before they can be relayed by the Agent. (CSCdy50604)

- DHCP broadcast requests from a DHCP client will bypass router ACLs when DHCP snooping is disabled on the switch.

  Workaround: Either enable the DHCP snooping feature, or use a VACL instead of a router ACL to filter the DHCP packets. (CSCdy62123)

- When you boot diskless-workstations remotely, you might experience slow booting on random ports of the WS-X-4148-RJ45V module when used in conjunction with the Supervisor Engine III.

  Workaround: First, change the duplex to half, then reconfigure to full. (CSCdy67241)

- Under certain conditions, if numerous ACLs are configured on boot-up, some ACLs or QoS policies will not be programmed in the hardware and the following error messages will display:

  ```
  *Sep 19 21:53:17.947: %C4K_HWACLMAN-4-ACLHWPROGERR: <Feature using ACLs>- hardware
  TCAM limit, ...
  *Sep 19 21:53:17.975: %C4K_HWACLMAN-4-ACLHWPROGERRREASON: <Feature using ACLs>- out of
  software acl programming resources.
  ```

  Workaround: Re-apply the ACLs to the appropriate security ACL or QoS policy-map. (CSCdy68681)

- ACLs containing more than six L4 port operators trigger L4 operator expansion. Certain range operators are expanded too broadly, which causes the affected ACEs to match more packets than they should. Less-than and greater-than operators are expanded correctly in all cases. This issue affects only Cisco IOS Release 12.1(12c)EW.

  Workaround: Avoid configuring ACLs that trigger L4 operator expansion. (CSCdy70646)

Open Caveats in Cisco IOS Release 12.1(12c)EW

This section lists the open caveats in Release 12.1(12c)EW.

- Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

  Workaround: Cisco has made software available, free of charge, to correct the problem. (CSCdz71127, CSCea02355)

  This advisory is available at this URL:

  http://www.cisco.com/warp/public/707/cisco-sa-20030717-blocked.shtml

- Under certain conditions, a caveat in the power on self test (POST) may erroneously indicate that good WS-X4014 and WS-X4515 supervisor engines are faulty. When this happens, modules do not come online and the switch cannot be used to forward traffic.

  If the POST incorrectly identifies a good supervisor engine as faulty because of this situation, the POST output will only display the first port on the switch as faulty:

  ```
  Port Traffic: L2 Serdes Loopback ...
  0: F  1: .  2: .  3: .  4: .  5: .  6: .  7: .  8: .  9: . 10: . 11: .
  12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
  24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .
  ```

  If the POST fails, but the test output does not match the display shown here, your hardware probably is faulty.

  This POST behavior is a software issue and has been resolved in 12.1(12c)EW2, 12.1(13)EW2, 12.1(19)EW, and 12.1(20)E images.

  Workaround: None. (CSCeb59442)

- Private VLAN trunks will continue to operate as private trunks after you configure them as normal trunks using the **switchport mode trunk** command. While the trunks are in this state, the interfaces will not show up as private VLAN trunks in the output of the **show vlan private-vlan** command.

  Workaround: To ensure that the ports operate as normal trunks, issue shutdown/no shutdown commands after configuring the ports as normal trunks. (CSCdy40311)

- With approximately 2000 or more VLAN interfaces configured in the startup-config, the switch might take at least 10 minutes to boot up. The switch is unresponsive until it completes the boot.

  Workaround: Configure fewer SVIs in the startup config. (CSCdx91258)

- Disabling IGMP snooping with a large number of groups and VLANs might cause CPU HOG and HOST FLAPPING. If so, you will see messages like the following on the console:

```
2d07h: %SYS-3-CPUHOG: Task ran for 8692 msec (0/0), process = Exec, PC = 128790.
2d07h: %C4K_EBM-4-HOSTFLAPPING: Host 00:10:0B:10:B9:20 in vlan 200 is flapping between
port Po2 and port Po1
```

  Workaround: None. (CSCdy21031)

- When the spanning tree mode is PVST, isolated trunk ports transmit BPDUs with the primary VLAN instead of the secondary VLAN.

  Workaround: Use the **spanning-tree bpduguard enable** interface command to enable BPDU Guard to detect any BPDUs received on private VLAN trunk ports. (CSCdx62226)

- When a secondary VLAN is disabled using the **shutdown** VLAN configuration command and re-enabled using the **no shutdown** VLAN configuration command, any subsequent flooded/multicast packets received on the private VLAN port does not reach all the destinations.

  Workaround: If possible, do not use the **shutdown** and **no shutdown** VLAN configuration command to disable the VLAN. Instead, delete and recreate the secondary VLAN with the proper VLAN type and association configuration. (CSCdy22082)

- When a VLAN filter is applied to filter IP traffic based on Layer 4 information, fragmented packets may not be filtered correctly. Only the initial fragment has all the Layer 4 information. Non-initial fragments do not have any Layer 4 information (e.g.: UDP ports, TCP flag, etc.).

  Workaround: If IP packets can be fragmented in your network, program ACLs in the VLAN Map, without any Layer 4 information. (CSCdx84696)

- On systems with redundant supervisors and large and complex configurations, where the system is actively processing startup-config, the standby supervisor engine may take over from the active supervisor engine in the boot process. If this happens, the following message displays on the active supervisor:

```
C4K_REDUNDANCY-4-CONFIGSYNCFAIL: Persistent-config Sync to Standby Supervisor failed
```

  and the following messages display on the standby supervisor

```
C4k_REDUNDANCY-6-SWITCHOVER: Switchover activity detected, changing role from STANDBY
to ACTIVE
C4K_REDUNDANCY-6-INIT: Initializing as ACTIVE supervisor
```

  Workaround: Keep your startup-config reasonably small. (CSCdy02031)

- The CLI erroneously permits enabling 802.1X on ports that are configured as private VLAN trunks and private VLAN access ports. This configuration may result in unexpected behavior.

  Workaround: Don't configure 802.1X on PVLAN ports. (CSCdy23098)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(12c)EW

This section lists the resolved caveats in Release 12.1(12c)EW:

- A Catalyst 4006 switch with Supervisor Engine III using Release 12.1(11b)EW might crash when you enter the following command while the port channel set to **channel-no** is in a shutdown state:

  show platform software etherchannel port-channel channel-no

  This command was introduced in software release 12.1(11b)EW. Software release 12.1(8a)EW is not affected by this caveat.

  Workaround: Do not use the above command for a port channel in a shutdown state. (CSCdx47694)

- On a Catalyst 4006 switch with Supervisor Engine III, the output rate in **show interface** command might display a value greater than the bandwidth that the interface can handle. There is no workaround. (CSCdx30670)

- When you use a large number of ACLs with more than 1000 entries each, the switch boot up time will be extended.

  Workaround: Use extended named ACLs. Named ACLs specified in the ACL config mode do not exhibit this behavior. (CSCdw20032)

- A Cisco router configured for Multicast Source Discovery Protocol (MSDP) can experience frequent MSDP session resets with the MSDP peers of the router. This situation is often caused by excessive Source, Group (S, G) information that should be contained in a domain being passed to the outside, resulting in additional entries in the Source-Active (SA) cache.

  Workarounds: Determine whether the routers have the SA filters configured properly by reviewing the MSDP SA filter recommendations posted at the following URL: ftp://ftpeng.cisco.com/ipmulticast/config-notes/msdp-sa-filter.txt

  Determine whether the router is running a Cisco IOS image that has the correction for CSCdr93446 (MSDP: Reducing SA storms and session resets (MSDP rearchitect)).

  Review the output of the **show ip msdp sa-cache** EXEC command to see if some of the SAs can be filtered based on the source address, the Rendezvous point (RP) address, or the autonomous system (AS) number. (CSCdw35003)

- If you configure “inst 1 vlan 1,” topology change BPDUs are sent for 35 second rather than 2* hello time in the MST neighbor. There is no workaround. (CSCdy30488)

Open Caveats in Cisco IOS Release 12.1(11b)EW1

This section lists the open caveats in Release 12.1(11b)EW1:

- If you configure “inst 1 vlan 1,” typology change BPDUs are sent for 35 second rather than 2* hello time in the MST neighbor. There is no workaround. (CSCdy30488)

- A Catalyst 4006 switch with Supervisor Engine III using Release 12.1(11b)EW might crash when you enter the following command while the port channel set to **channel-no** is in a shutdown state:

  show platform software etherchannel port-channel channel-no

  This command was introduced in software release 12.1(11b)EW. Software release 12.1(8b)EW is not affected by this caveat.

  Workaround: Do not use the above command for a port channel in a shutdown state. (CSCdx47694)

- On a Catalyst 4006 switch with Supervisor Engine III, the output rate in **show interface** command might display a value greater than the bandwidth that the interface can handle.

  Workaround: None. (CSCdx30670)

- When you use a large number of ACLs with more than 1000 entries, the switch can take more than five minutes to boot up.

  Workaround: Use extended named ACLs. Named ACLs specified in the ACL config mode do not exhibit this behavior. (CSCdw20032)

- Under some conditions, the following error message will appear:

  ```
  3d03h: %FIB-4-FIBIDB: Missing cef idb for GigabitEthernet2/6 during address ch
  ```

  When this happens, traffic to or from that interface will not be received or forwarded correctly.

  Workaround: Functionality might be restored by bringing the interface administratively down and up, or by disabling and re-enabling IP routing. (CSCdx37609)

- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(11b)EW1

This section lists the resolved caveats in Release 12.1(11b)EW1:

- Under some conditions, the Supervisor Engine III (WS-X4014) might stop switching traffic on all connected ports. Should this occur, all incoming data traffic will be dropped.

  When the switch enters this state, the NoPacketBuffAvailOrCdmFifoOverruns counter will increment on all ports that have received incoming data traffic. You can display the contents of the NoPacketBuffAvailOrCdmFifoOverruns counter by entering the **show platform software interface statistics** command.

  Workaround: This condition is temporary and can be resolved by resetting the switch. (CSCdx66345)

- When burst CPU traffic conditions (low CPU traffic combined with intermittent bursts of routing updates) occur, packets sent to the CPU can be lost. This traffic interruption can occur for less than one second or for a few minutes. No intervention is required, the switch recovers automatically. (CSCdy06162)

Open Caveats in Cisco IOS Release 12.1(11b)EW

This section lists the open caveats in Release 12.1(11b)EW:

- Under some conditions, the Supervisor Engine III (WS-X4014) might stop switching traffic on all connected ports. Should this occur, all incoming data traffic will be dropped.

  When the switch enters this state, the NoPacketBuffAvailOrCdmFifoOverruns counter will increment on all ports that have received incoming data traffic. You can display the contents of the NoPacketBuffAvailOrCdmFifoOverruns counter by entering the **show platform software interface statistics** command.

Workaround: This condition is temporary and can be resolved by resetting the switch. (CSCdx66345)

- When burst CPU traffic conditions (low CPU traffic combined with intermittent bursts of routing updates) occur, packets sent to the CPU can be lost. This traffic interruption can occur for less than one second or for a few minutes. No intervention is required, the switch recovers automatically. (CSCdy06162)
- A Catalyst 4006 switch with Supervisor Engine III using Release 12.1(11b)EW might crash when you enter the following command while the port channel set to **channel-no** is in a shutdown state:

  show platform software etherchannel port-channel channel-no

  This command was introduced in software release 12.1(11b)EW. Release 12.1(8b)EW is not affected by this caveat.

  Workaround: Do not use the above command for a port channel in a shutdown state. (CSCdx47694)
- On a Catalyst 4006 switch with Supervisor Engine III, the output rate in **show interface** command might display a value greater than the bandwidth that the interface can handle. There is no workaround. (CSCdx30670)
- When you use a large number of ACLs with more than 1000 entries, the switch can take more than five minutes to boot up.

  Workaround: Use extended named ACLs. Named ACLs specified in the ACL config mode do not exhibit this behavior. (CSCdw20032)
- Under some conditions, the following error message will appear:

  ```
  3d03h: %FIB-4-FIBIDB: Missing cef idb for GigabitEthernet2/6 during address ch
  ```

  When this happens, traffic to or from that interface will not be received or forwarded correctly.

  Workaround: Functionality might be restored by bringing the interface administratively down and up, or by disabling and re-enabling IP routing. (CSCdx37609)
- A Cisco router configured for Multicast Source Discovery Protocol (MSDP) can experience frequent MSDP session resets with the MSDP peers of the router. This situation is often caused by excessive Source, Group (S, G) information that should be contained in a domain being passed to the outside, resulting in additional entries in the Source-Active (SA) cache.

  Workarounds: Determine whether the routers have the SA filters configured properly by reviewing the MSDP SA filter recommendations posted at the following URL: ftp://ftpeng.cisco.com/ipmulticast/config-notes/msdp-sa-filter.txt

  Determine whether the router is running a Cisco IOS image that has the correction for CSCdr93446 (MSDP: Reducing SA storms and session resets (MSDP rearchitect)).

  Review the output of the **show ip msdp sa-cache** EXEC command to see if some of the SAs can be filtered based on the source address, the Rendezvous point (RP) address, or the autonomous system (AS) number. (CSCdw35003)
- If an ACL is applied to more than one interface, and any Access Control Entry (ACE) in the ACL is subsequently modified, then the Ternary Content Addressable Memory (TCAM) usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: Detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

Resolved Caveats in Cisco IOS Release 12.1(11b)EW

This section lists the resolved caveats in Release 12.1(11b)EW:

- In the **show power** and **show environment** commands, the status of the Power Entry Module (PEM) is reported incorrectly. If the status of the PEM is listed as *bad*, it is actually good, and if the status is listed as *good*, it is actually bad. This has no affect on system operation. n software release 12.1(8a)EW1, the PEM is supported only in the **show** commands. (CSCdx05522)
- When a large number of ports (such as 240) have joined a large number of multicast groups, entering the **clear ip igmp group** command to delete IGMP group cache entries can sometimes reboot a Catalyst 4006 switch with Supervisor Engine III running Cisco IOS Release 12.1(8a)EW.

  Workaround: Do not clear the groups all at once. Instead, clear each IGMP group cache entry separately. (CSCdw46417)
- Occasionally, a switch may have errors when reading register status. When this occurs, the switch logs the message instead of recovering from the error by attempting to read the register status again. The hardware is not actually bad.There is no workaround. (CSCdx52952)
- Typing **Ctrl**-/ when attached to the console port will cause the switch to reboot. There is no workaround. (CSCdw06454)
- If you create Switched Virtual Interfaces (SVI) for both a primary VLAN and secondary VLAN and then delete them, a subsequent association between the VLANs the switch could reboot your switch.

  Workaround: Don not create associations between VLANs if the SVI of the primary VLAN has been deleted. (CSCdw50014)
- Packets that are software-generated or software-forwarded are not transmitted in a SPAN session. This includes Layer 2 control packets, such as CDP or spanning tree BPDUs, and packets forwarded by software such as FIB, or adjacency overload scenarios. There is no workaround. (CSCdv34494)
- In an ACL, the **fragment** keyword is ignored when the protocol is **ip**. For all other protocols the keyword is applied to traffic as expected.

  Workaround: Replace the **permit ip any any fragment** command with the following commands:

  ```
  permit 1 any any fragment
  permit 2 any any fragment
  permit 255 any any fragment
  ```
  (CSCdw39872)
- The **show platform hardware monitor** command may corrupt the stack if it is invoked when a VSPAN session or a PSPAN session with many source interfaces is configured on the switch. There is no workaround; to be safe, do not use this command on switches running Cisco IOS Release 12.1(8a)EW. (CSCdw59733)

Open Caveats in Cisco IOS Release 12.1(8a)EW1

This section lists the open caveats in Release 12.1(8a)EW1:

- In the **show power** and **show environment** commands, the status of the Power Entry Module (PEM) is reported incorrectly. If the status of the PEM is listed as *bad*, it is actually good, and if the status is listed as *good*, it is actually bad. This has no affect on system operation. n software release 12.1(8a)EW1, the PEM is supported only in the **show** commands. (CSCdx05522)
- When a large number of ports (such as 240) have joined a large number of multicast groups, entering the **clear ip igmp group** command to delete IGMP group cache entries can sometimes reboot a Catalyst 4006 switch with Supervisor Engine III running Cisco IOS Release 12.1(8a)EW.

Workaround: Do not clear the groups all at once. Instead, clear each IGMP group cache entry separately. (CSCdw46417)

- When you use a large number of ACLs with more than 1000 entries, the switch can take more than five minutes to boot up.

  Workaround: Use extended named ACLs. Named ACLs specified in the ACL config mode do not exhibit this behavior. (CSCdw20032)

- A Cisco router configured for Multicast Source Discovery Protocol (MSDP) can experience frequent MSDP session resets with the MSDP peers of the router. This situation is often caused by excessive source, group (S, G) information that should be contained in a domain being passed to the outside, resulting in additional entries in the Source-Active (SA) cache.

  Workarounds: Determine if the routers have the SA filters configured properly by reviewing the MSDP SA filter recommendations posted at the following URL: ftp://ftpeng.cisco.com/ipmulticast/config-notes/msdp-sa-filter.txt

  Determine if the router is running a Cisco IOS image that has the fix for CSCdr93446 (MSDP: Reducing SA storms and session resets (MSDP rearchitect)).

  Review the output of the **show ip msdp sa-cache** EXEC command to see if some of the SAs can be filtered based on the source address, the Rendezvous point (RP) address, or the autonomous system (AS) number. (CSCdw35003)

- Typing **Ctrl-/** when attached to the console port will cause the switch to reboot. There is no workaround. (CSCdw06454)

- If you create Switched Virtual Interfaces (SVI) for both a primary VLAN and secondary VLAN and then delete them, a subsequent association between the VLANs the switch could reboot your switch.

  Workaround: Don not create associations between VLANs if the SVI of the primary VLAN has been deleted. (CSCdw50014)

- In an ACL, the **fragment** keyword is ignored when the protocol is **ip**. For all other protocols the keyword is applied to traffic as expected.

  Workaround: Replace the **permit ip any any fragment** command with the following commands:

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  permit 1 any any fragment
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- Packets that are software-generated or software-forwarded are not transmitted in a SPAN session. This includes Layer 2 control packets, such as CDP or spanning tree BPDUs, and packets forwarded by software such as FIB, or adjacency overload scenarios. There is no workaround. (CSCdv34494)

- If an ACL is applied to more than one interface, and any ACE in the ACL is subsequently modified, then the TCAM usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

- The **show platform hardware monitor** command may corrupt the stack if it is invoked when a VSPAN session or a PSPAN session with many source interfaces is configured on the switch. There is no workaround; to be safe, do not use this command on switches running Cisco IOS Release 12.1(8a)EW. (CSCdw59733)

Resolved Caveats in Cisco IOS Release 12.1(8a)EW1

This section lists the resolved caveats in Release 12.1(8a)EW1:

- An error can occur with management protocol processing. Please use the following URL for further information:

  http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903

  (CSCdw65903)

Open Caveats in Cisco IOS Release 12.1(8a)EW

This section lists the open caveats in Release 12.1(8a)EW:

- Under some conditions, the Supervisor Engine III (WS-X4014) might stop switching traffic on all connected ports. Should this occur, all incoming data traffic will be dropped.

  When the switch enters this state, the NoPacketBuffAvailOrCdmFifoOverruns counter will increment on all ports that have received incoming data traffic. You can display the contents of the NoPacketBuffAvailOrCdmFifoOverruns counter by entering the **show platform software interface statistics** command.

  Workaround: This condition is temporary and can be resolved by resetting the switch. (CSCdx66345)

- In the **show power** and **show environment** commands, the status of the Power Entry Module (PEM) is reported incorrectly. If the status of the PEM is listed as *bad*, it is actually good, and if the status is listed as *good*, it is actually bad. This has no affect on system operation. n software release 12.1(8a)EW1, the PEM is supported only in the **show** commands. (CSCdx05522)

- Typing **Ctrl-/** when attached to the console port will cause the switch to reboot. There is no workaround. (CSCdw06454)

- When a large number of ports (such as 240) have joined a large number of multicast groups, entering the **clear ip igmp group** command to delete IGMP group cache entries can sometimes reboot a Catalyst 4006 switch with Supervisor Engine III running Cisco IOS Release 12.1(8a)EW.

  Workaround: Do not clear the groups all at once. Instead, clear each IGMP group cache entry separately. (CSCdw46417)

- When you use a large number of ACLs with more than 1000 entries, the switch can take more than five minutes to boot up.

  Workaround: Use extended named ACLs. Named ACLs specified in the ACL config mode do not exhibit this behavior. (CSCdw20032)

- A Cisco router configured for Multicast Source Discovery Protocol (MSDP) can experience frequent MSDP session resets with the MSDP peers of the router. This situation is often caused by excessive source, group (S, G) information that should be contained in a domain being passed to the outside, resulting in additional entries in the Source-Active (SA) cache.

  Workarounds: Determine if the routers have the SA filters configured properly by reviewing the MSDP SA filter recommendations posted at the following URL: ftp://ftpeng.cisco.com/ipmulticast/config-notes/msdp-sa-filter.txt

  Determine if the router is running a Cisco IOS image that has the fix for CSCdr93446 (MSDP: Reducing SA storms and session resets (MSDP rearchitect)).

Review the output of the **show ip msdp sa-cache** EXEC command to see if some of the SAs can be filtered based on the source address, the Rendezvous point (RP) address, or the autonomous system (AS) number. (CSCdw35003)

- If you create Switched Virtual Interfaces (SVI) for both a primary VLAN and secondary VLAN and then delete them, a subsequent association between the VLANs the switch could reboot your switch.

  Workaround: Don not create associations between VLANs if the SVI of the primary VLAN has been deleted. (CSCdw50014)

- If an ACL is applied to more than one interface, and any ACE in the ACL is subsequently modified, then the TCAM usage of that ACL is multiplied by the number of interfaces to which the ACL is applied.

  Workaround: detach the ACL from one interface at a time (without deleting the ACL), and then reattach the ACL to that interface. (CSCdw28603)

- In an ACL, the **fragment** keyword is ignored when the protocol is **ip**. For all other protocols the keyword is applied to traffic as expected.

  Workaround: Replace the **permit ip any any fragment** command with the following commands:

  ```
  permit 1 any any fragment
  permit 2 any any fragment
  permit 255 any any fragment
  ```
  (CSCdw39872)

- Packets that are software-generated or software-forwarded are not transmitted in a SPAN session. This includes Layer 2 control packets, such as CDP or spanning tree BPDUs, and packets forwarded by software such as FIB, or adjacency overload scenarios. There is no workaround. (CSCdv34494)

- The **show platform hardware monitor** command may corrupt the stack if it is invoked when a VSPAN session or a PSPAN session with many source interfaces is configured on the switch. There is no workaround; to be safe, do not use this command on switches running Cisco IOS Release 12.1(8a)EW. (CSCdw59733)

Resolved Caveats in Cisco IOS Release 12.1(8a)EW

There are no resolved caveats in software release 12.1(8a)EW.

Troubleshooting

These sections provide troubleshooting guidelines for the Catalyst 4000 family running IOS supervisor engines:

Netbooting from the ROMMON

Netbooting using a boot loader image is not supported. Instead, use one of the following options to boot an image:

1. Boot from a CompactFlash card by entering the following command:

   ```
   rommon 1> boot slot0:<bootable_image>
   ```

2. Use ROMMON TFTP boot.

   The ROMMON TFTP boot is very similar to the BOOTLDR TFTP boot, except that:

   – the BOOTLDR variable should *not* be set

   – the TFTP server must be accessible from the Ethernet management port on the supervisor engine.

   To boot from ROMMON, perform the following tasks while in ROMMON mode:

a. Ensure that the Ethernet management port on the supervisor engine is physically connected to the network.

b. Verify that bootloader environment is not set by entering the **unset bootldr** command.

c. Set IP address of the Ethernet management port on the supervisor engine by entering the following command: **set interface fa1** *ip_address*> <*ip_mask*

   For example, to set the supervisor engine Ethernet port with an IP address 172.16.1.5 and IP mask 255.255.255.0, enter the following command:

   ```
   rommon 2> set interface fa1 172.16.1.5 255.255.255.0
   ```

d. Set default gateway for the Ethernet management port on the supervisor engine by entering the following command: **set ip route default** *gateway_ip_address*. The default gateway should be directly connected to the supervisor engine Ethernet management port subnet.

e. Ping the TFTP server to ensure that there is connectivity to the server from the Ethernet management port on the supervisor engine by entering the following command: **ping** <*tftp_server_ip_address*>.

f. Once the ping is successful, boot the image from the TFTP server by entering the following command: **boot tftp:**//*tftp_server_ip_address*>/<*image_path_and_file_name*

   For example, to boot the image name cat4000-is-mz.160 located on the TFTP server 172.16.1.8, enter the following command:

   ```
   rommon 3> boot tftp://172.16.1.8/tftpboot/cat4000-is-mz
   ```

Troubleshooting at the System Level

This section contains troubleshooting guidelines for system-level problems:

- When the system is booting and running power-on diagnostics, do not reset the switch.
- Ensure that you do not mix the serial and Ethernet cables plugged into the supervisor engine. The Fast Ethernet port (10/100 MGT) on the supervisor engine is inoperative in all Catalyst 4500 Cisco IOS releases. An Ethernet cable plugged into the Fast Ethernet port is active only in ROMMON mode.

Troubleshooting Modules

This section contains troubleshooting guidelines for modules:

- When you hot insert a module into a chassis, always use the ejector levers on the front of the module to seat the backplane pins properly. Inserting a module without using the ejector levers might cause the supervisor engine to display incorrect messages about the module. For module installation instructions, refer to the *Catalyst 4500 Series Module Installation Guide*.
- Whenever you connect an interface that has duplex set to autonegotiate to an end station or another networking device, ensure that the other device is configured for autonegotiation as well. If the other device is not set to autonegotiate, the port set to autonegotiate will remain in half-duplex mode, which can cause a duplex mismatch resulting in packet loss, late collisions, and line errors on the link.

Troubleshooting MIBs

For general information on MIBs, RMON groups, and traps, refer to the Cisco public MIB directory (http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml). For information on the specific MIBs supported by the Catalyst 4500 series switches, refer to the Catalyst 4000 MIB Support List located at ftp://ftp.cisco.com/pub/mibs/supportlists/cat4000/cat4000-supportlist.html.

Related Documentation

These sections describe the documentation available for the Cisco IOS software for the Catalyst 4500 series switch. These publications consist of hardware and software installation guides, Cisco IOS configuration and command references, system error messages, feature modules, and other publications. Documentation is available electronically or in printed form.

Use these release notes with the publications listed in the following sections:

- Release-Specific Publications, page 180
- Platform-Specific Publications, page 181
- Cisco IOS Software Documentation Set, page 181

Release-Specific Publications

These publications are specific to Release 12.2 and are located on Cisco.com:

- *Cross-Platform Release Notes for Cisco IOS Release 12.2*

  On Cisco.com at
  Technical Documents: **Documentation Home Page**: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.2**
  http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/121relnt/xprn121/index.htm
- Product bulletins, field notices, and other release-specific publications on Cisco.com at **Technical Documents**
- *Caveats for Cisco IOS Release 12.2*

  As a supplement to the caveats listed in the "Caveats" section on page 51, see the *Caveats for Cisco IOS Release 12.2* publication.

On Cisco.com at
Technical Documents: Documentation Home Page: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.2**: **Caveats**

Note If you have an account on Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, go to Cisco.com and click **Login**. Then go to **Software Center: Cisco IOS Software: Cisco Bugtool Navigator II**. Another option is to go to http://www.cisco.com/support/bugtools.

Platform-Specific Publications

These publications are available for the Catalyst 4500 series switch running the Cisco IOS software at the following URL:
http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/12_1_18/index.htm

- *Catalyst 4500 Series Switch Cisco IOS Software Configuration Guide*
- *Catalyst 4500 Series Switch Cisco IOS Command Reference*
- *Catalyst 4500 Series Switch Cisco IOS System Message Guide*

Cisco IOS Software Documentation Set

The Cisco IOS software documentation set consists of the Cisco IOS configuration guides, Cisco IOS command references, and several other supporting publications.

Documentation Modules

Each module in the Cisco IOS documentation set consists of two books: a configuration guide and a corresponding command reference. Chapters in a configuration guide describe protocols, configuration tasks, and Cisco IOS software functionality and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. You can use each configuration guide in conjunction with its corresponding command reference. On Cisco.com, two master hot-linked publications provide information for the Cisco IOS software documentation set.

On Cisco.com at:
Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Configuration Guides and Command References

Release 12.2 Documentation Set

The following table describes the contents of the Cisco IOS Release 12.2 software documentation set, which is available in electronic form and orderable in printed form.

On Cisco.com at
Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2

Books	Major Topics
• *Cisco IOS Configuration Fundamentals Configuration Guide* • *Cisco IOS Configuration Fundamentals Command Reference*	Cisco IOS User Interfaces Cisco IOS File Management Cisco IOS System Management
• *Cisco IOS Interface Configuration Guide* • *Cisco IOS Interface Command Reference*	Interface Configuration Overview Configuring LAN Interfaces Configuring Serial Interfaces Configuring Logical Interfaces
• *Cisco IOS IP and IP Routing Configuration Guide* • *Cisco IOS IP and IP Routing Command Reference*	IP Addressing and Services IP Routing Protocols IP Multicast
• *Cisco IOS Multiservice Applications Configuration Guide* • *Cisco IOS Multiservice Applications Command Reference*	Multiservice Applications Overview Voice Video Broadband
• *Cisco IOS Quality of Service Solutions Configuration Guide* • *Cisco IOS Quality of Service Solutions Command Reference*	Quality of Service Overview Classification Congestion Management Congestion Avoidance Policing and Shaping signaling Link Efficiency Mechanisms Quality of Service Solutions
• *Cisco IOS Security Configuration Guide* • *Cisco IOS Security Command Reference*	Security Overview Authentication, Authorization, and Accounting (AAA) Security Server Protocols Traffic Filtering and Firewalls IP Security and Encryption Other Security Features
• *Cisco IOS Switching Services Configuration Guide* • *Cisco IOS Switching Services Command Reference*	Cisco IOS Switching Services Overview Cisco IOS Switching Paths Cisco Express Forwarding NetFlow Switching MPLS Switching Multilayer Switching Multicast Distributed Switching Virtual LANs LAN Emulation
• *New Features in 12.2-Based Limited Lifetime Releases* • *New Features in Release 12.2 T* • Release Notes (release note and caveat documentation for 12.2-based releases and various platforms) • *Cisco IOS Debug Command Reference* • *Cisco IOS Dial Services Quick Configuration Guide*	

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. This section explains the product documentation resources that Cisco offers.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/techsupport

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

The Product Documentation DVD is a library of technical product documentation on a portable medium. The DVD enables you to access installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the HTML documentation and some of the PDF files found on the Cisco website at this URL:

http://www.cisco.com/univercd/home/home.htm

The Product Documentation DVD is created and released regularly. DVDs are available singly or by subscription. Registered Cisco.com users can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

Ordering Documentation

You must be a registered Cisco.com user to access Cisco Marketplace. Registered users may order Cisco documentation at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

If you do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Documentation Feedback

You can provide feedback about Cisco technical documentation on the Cisco Technical Support & Documentation site area by entering your comments in the feedback form available in every online document.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to do the following:

- Report security vulnerabilities in Cisco products
- Obtain assistance with security incidents that involve Cisco products
- Register to receive security information from Cisco

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For emergencies only—security-alert@cisco.com

  An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.
- For nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.*x* through 9.*x*.

Never use a revoked encryption key or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT to find other means of encrypting the data before sending any sensitive material.

Product Alerts and Field Notices

Modifications to or updates about Cisco products are announced in Cisco Product Alerts and Cisco Field Notices. You can receive Cisco Product Alerts and Cisco Field Notices by using the Product Alert Tool on Cisco.com. This tool enables you to create a profile and choose those products for which you want to receive information.

To access the Product Alert Tool, you must be a registered Cisco.com user. (To register as a Cisco.com user, go to this URL: http://tools.cisco.com/RPF/register/register.do) Registered users can access the tool at this URL: http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do?local=en

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Note Use the **Cisco Product Identification Tool** to locate your product serial number before submitting a request for service online or by phone. You can access this tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link, clicking the **All Tools (A-Z)** tab, and then choosing **Cisco Product Identification Tool** from the alphabetical list. This tool offers three search options: by product ID or model name; by tree view; or, for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Tip Displaying and Searching on Cisco.com

If you suspect that the browser is not refreshing a web page, force the browser to update the web page by holding down the Ctrl key while pressing F5.

To find technical information, narrow your search to look in technical documentation, not the entire Cisco.com website. On the Cisco.com home page, click the **Advanced Search** link under the Search box

and then click the **Technical Support & Documentation** radio button.

To provide feedback about the Cisco.com website or a particular technical document, click **Contacts & Feedback** at the top of any Cisco.com web page.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411
Australia: 1 800 805 227
EMEA: +32 2 704 55 55
USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Online Subscription Center is the website where you can sign up for a variety of Cisco e-mail newsletters and other communications. Create a profile and then select the subscriptions that you would like to receive. To visit the Cisco Online Subscription Center, go to this URL:

  http://www.cisco.com/offer/subscribe

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco channel product offerings. To order and find out more about the *Cisco Product Quick Reference Guide*, go to this URL:

  http://www.cisco.com/go/guide

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- Cisco Press publishes a wide range of general networking, training, and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the *Internet Protocol Journal* at this URL:

  http://www.cisco.com/ipj

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

  http://www.cisco.com/en/US/products/index.html

- Networking Professionals Connection is an interactive website where networking professionals share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

  http://www.cisco.com/discuss/networking

- “What’s New in Cisco Documentation” is an online publication that provides information about the latest documentation releases for Cisco products. Updated monthly, this online publication is organized by product category to direct you quickly to the documentation for your products. You can view the latest release of “What’s New in Cisco Documentation” at this URL:

  http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

This document is to be used in conjunction with the documents listed in the "Related Documentation" section.

Release Notes for the Catalyst 4500 Series Switch, Cisco IOS Release 12.2(31)SGA