

Cisco IOS Software Release 12.1(20)EW for the Cisco Catalyst 4500 Series Supervisor Engines II-Plus, III, and IV

Introduction

This product bulletin lists the hardware and software features that are supported in Cisco IOS® Software Release 12.1(20)EW for the Cisco® Catalyst® 4500 Series Supervisor Engines II-Plus, III, and IV. Cisco IOS Software Release 12.1(20)EW is derived from the Cisco IOS Software 12.1E train. Cisco IOS Software Release 12.1(20)EW is not supported on the Cisco Catalyst 4000 Series Supervisor Engine I or II, or any other Cisco switching or routing platforms.

Cisco IOS Software Release 12.1(20)EW Software Support

New Software Features

- Virtual Routing Forwarding-lite (VRF-lite)
- Remote Switched Port ANalyzer (RSPAN)
- Internet Group Management Protocol (IGMP) v3 snooping enhancements
- Pragmatic General Multicast (PGM)
- Internetwork Packet Exchange (IPX)/AppleTalk access control lists (ACLs)
- Transceiver Optical Monitoring
- Enhanced Simple Network Management Protocol (SNMP) Management Information Base (MIB) support

VRF-lite

VRF-lite, also known as Multi-VRF CE, is an extension of IP routing with multiple routing instances on a single switch. It enables the creation of a Layer 3 VPN service by keeping separate IP routing and forwarding tables for each VPN customer. VRF-lite uses input interfaces to distinguish routes for different VPNs. VRF-lite forms virtual packet-forwarding tables by associating one or more interfaces with each VRF. An interface can not belong to more than one VRF at any time. VRF-lite supports overlapping unicast IP addresses across different VRFs. Multicast routing within a VRF is not supported. VRF-lite is typically deployed along with Multiprotocol Label Switching (MPLS) VPN at the customer edge to support multiple customers on a single switch.

RSPAN

RSPAN is an extension to SPAN, where source ports and destination ports are distributed across multiple switches. The traffic for each RSPAN session is carried over a dedicated, user-specified RSPAN VLAN in all participating switches. RSPAN enables remote monitoring of multiple switches across the network.



IGMPv3 Snooping Enhancements

IGMPv3 snooping provides constrained flooding of multicast traffic in the presence of IGMPv3 hosts or routers. IGMPv3 snooping listens to IGMPv3 query and membership report messages to maintain host-to-multicast group associations. It enables a switch to propagate multicast data only to the member ports. IGMPv3 snooping is fully interoperable with IGMPv1 and v2.

Explicit Host Tracking (EHT) is an extension to IGMPv3 snooping. EHT enables immediate leave operations on a per-port basis. EHT can be used to track per-host membership information, or to gather statistics about all IGMPv3 group members. IGMPv3 snooping also suppresses duplicated channel membership reports to the multicast routers. IGMPv3 snooping proxy reporting enables a switch to respond for the group on behalf of its downstream hosts.

PGM

PGM is a reliable multicast transport protocol for applications that require ordered, duplicate-free, multicast data delivery from multiple sources to multiple receivers. PGM guarantees that a receiver in a multicast group either receives all data packets from transmissions and retransmissions, or can detect unrecoverable data packet loss. PGM is intended as a solution for multicast applications with basic reliability requirements.

IPX/AppleTalk ACLs

Various IPX and AppleTalk ACLs are now supported in software. The supported IPX/AppleTalk ACLs include IPX standard (800-899), IPX extended (900-999), IPX SAP (1000-1099), and AppleTalk (600-699).

Transceiver Optical Monitoring

Transceiver Optical Monitoring provides the ability to monitor the selected characteristics of pluggable optical transceivers in operation. It enables network operators to monitor the status of optical interconnects with additional Layer 1 information for link failure trace. The available characteristics include optical transmit power, optical receive power, voltage, temperature, and current.

Enhanced SNMP MIB Support

SNMP event notifications are generated whenever Cisco gigabit interface converters (GBICs) are inserted or removed from line cards. Additional SNMP MIBs supported in this release include:

- CISCO-PORT-STORM-CONTROL-MIB

Support

Cisco IOS Software Release 12.1(20)EW follows the standard Cisco support policy, available at:

http://www.cisco.com/en/US/products/products_end-of-life_policy.html

For more information on the Cisco Catalyst 4500 Series, visit:

<http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/index.htm>



Product Numbers

Table 1 Cisco IOS Software Release 12.1(20)EW Feature Sets, Images, and Software Licenses

| Product Number | Description | Image |
|-------------------------|--|----------------------------|
| S4KL3-12120EW | Cisco IOS Software for the Cisco Catalyst 4500 Series Supervisor Engine II-Plus, III, and IV Basic Layer 3 and voice software image, including Routing Information Protocol (RIP) v1 and v2, static routes, AppleTalk, and IPX software routing | cat4000-i9s-mz.121-20.EW |
| S4KL3E-12120EW | Cisco IOS Software for the Cisco Catalyst 4500 Series Supervisor Engine III and IV Enhanced Layer 3 and voice software image, including Open Shortest Path First (OSPF), Intermediate System to Intermediate System (IS-IS), Interior Gateway Routing Protocol (IGRP), and Enhanced IGRP (EIGRP) | cat4000-i5s-mz.121-20.EW |
| S4KL3K2-12120EW | Cisco IOS Software for the Cisco Catalyst 4500 Series Supervisor Engine II-Plus, III, and IV with Triple Data Encryption Standard (3DES) strong encryption Basic Layer 3 and voice software image, including Secure Shell (SSH) Protocol Version 1 and 2, RIPv1 and v2, static routes, AppleTalk, and IPX software routing | cat4000-i9k2s-mz.121-20.EW |
| S4KL3EK2-12120EW | Cisco IOS Software for the Cisco Catalyst 4500 Series Supervisor Engine III and IV with 3DES strong encryption Enhanced Layer 3 and voice software image, including OSPF, IS-IS, IGRP, and EIGRP | cat4000-i5k2s-mz.121-20.EW |
| FR-IRC4 | Cisco IOS Software for the Cisco Catalyst 4500 Series Supervisor Engine III and IV Interdomain routing feature license including Border Gateway Protocol Version 4 (BGP4) | N/A |



Table 2 Cisco IOS Software Release 12.1(20)EW Hardware Support

| Product Number | Description |
|----------------------|---|
| WS-X4014 | Cisco Catalyst 4500 Series Supervisor Engine III |
| WS-X4515 | Cisco Catalyst 4500 Series Supervisor Engine IV |
| WS-X4515/2 | Cisco Catalyst 4507R Series Redundant Supervisor Engine IV |
| WS-X4013+ | Cisco Catalyst 4500 Series Supervisor Engine II-Plus |
| WS-C4503 | Cisco Catalyst 4503 chassis |
| WS-C4506 | Cisco Catalyst 4506 chassis |
| WS-C4507R | Cisco Catalyst 4507R chassis |
| WS-C4006-S3 | Cisco Catalyst 4006 chassis, with Supervisor Engine III and two AC power supplies |
| WS-C4006-S3-DC | Cisco Catalyst 4006 chassis, with Supervisor Engine III and two DC power supplies |
| WS-C4006-S4 | Cisco Catalyst 4006 chassis, with Supervisor Engine IV and two AC power supplies |
| WS-C4006-S4-DC | Cisco Catalyst 4006 chassis, with Supervisor Engine IV and two DC power supplies |
| WS-C4006-S2+ | Cisco Catalyst 4006 chassis, with Supervisor Engine II-Plus and two AC power supplies |
| WS-C4006-S2+-DC | Cisco Catalyst 4006 chassis, with Supervisor Engine II-Plus and two DC power supplies |
| WS-X4124-FX-MT (=) | Cisco Catalyst 4000 Series Fast Ethernet switching module, 24-port 100BASE-FX multimode fiber (MMF) (MT-RJ) |
| WS-X4148-FX-MT (=) | Cisco Catalyst 4000 Series Fast Ethernet switching module, 48-port 100BASE-FX MMF (MT-RJ) |
| WS-X4148-FE-LX-MT(=) | Cisco Catalyst 4000 Series Fast Ethernet switching module, 48-port 100BASE-LX10 single-mode fiber (SMF) (MT-RJ) |
| WS-X4148-RJ (=) | Cisco Catalyst 4000 Series 10/100 module, 48 ports (RJ-45) |
| WS-X4148-RJ21 (=) | Cisco Catalyst 4000 Series 10/100 module, 48-port telco (4xRJ-21) |
| WS-X4148-RJ45V (=) | Cisco Catalyst 4000 Series inline power 10/100 module, 48 ports (RJ-45) |
| WS-X4232-GB-RJ (=) | Cisco Catalyst 4000 Series 32-port 10/100 (RJ-45), 2 Gigabit Ethernet (GBIC) module |
| WS-X4232-RJ-XX (=) | Cisco Catalyst 4000 Series 32-port 10/100 (RJ-45) with modular uplink slot |
| WS-X4424-GB-RJ45 (=) | Cisco Catalyst 4000 Series 24-port 10/100/1000 module (RJ-45) |
| WS-X4306-GB (=) | Cisco Catalyst 4000 Series Gigabit Ethernet Module, 6 ports (GBIC) |
| WS-X4302-GB (=) | Cisco Catalyst 4500 Series 2-port Gigabit Ethernet line card (GBIC) |
| WS-X4412-2GB-T (=) | Cisco Catalyst 4000 Series Gigabit Ethernet module, 12-port 1000BASE-T (RJ-45) with two 1000BASE-X GBICs |
| WS-X4418-GB (=) | Cisco Catalyst 4000 Series Gigabit Ethernet module, server switching 18-port (GBIC) |
| WS-X4448-GB-LX (=) | Cisco Catalyst 4000 Series 48-port 1000BASE-LX (small form-factor pluggable [SFP]) |



Table 2 Cisco IOS Software Release 12.1(20)EW Hardware Support

| Product Number | Description |
|----------------------|--|
| WS-X4448-GB-RJ45 (=) | Cisco Catalyst 4000 Series 48-port 10/100/1000 module (RJ-45) |
| WS-X4548-GB-RJ45 (=) | Cisco Catalyst 4500 Series 48-port 10/100/1000 RJ-45 line card |
| WS-U4504-FX-MT (=) | Cisco Catalyst 4000 Series uplink daughter card, 4-port 100BASE-FX (MT-RJ) |
| WS-G5483= | 1000BASE-T GBIC |
| WS-G5484 (=) | 1000BASE-SX short-wavelength GBIC (multimode only) |
| WS-G5486 (=) | 1000BASE-LX/LH long-haul GBIC (single-mode or multimode) |
| WS-G5487 (=) | 1000BASE-ZX extended-reach GBIC (single-mode) |
| MEM-C4K-FLD64M (=) | Cisco Catalyst 4000 Series Compact Flash, 64-MB option |
| MEM-C4K-FLD128M (=) | Cisco Catalyst 4000 Series Compact Flash, 128-MB option |
| WS-X4095-PEM (=) | Cisco Catalyst 4000 Series DC power entry module (PEM) |
| PWR-C45-2800ACV | 2800W AC power supply for Cisco Catalyst 4503, 4506, and 4507R chassis |
| PWR-C45-1400DC-P | Cisco Catalyst 4500 Series 1400W DC power supply with integrated PEM |
| PWR-C45-1300ACV | 1300W AC power supply for Cisco Catalyst 4503, 4506, and 4507R chassis |
| PWR-C45-1000AC | 1000W AC power supply for Cisco Catalyst 4503, 4506, and 4507R chassis |
| CWDM-GBIC-xxxx | Cisco 1000BASE-CWDM xxxx nm GBIC, where xxxx is the number 1470, 1490, 1510, 1530, 1550, 1570, 1590, or 1610 |
| DWDM-GBIC-xx.yy | Cisco 1000BASE-DWDM ITU 100-GHz grid 15xx.yy nm GBIC |
| WDM-GBIC-REC= | Cisco receive-only 1000BASE-WDM GBIC |
| WS-F4531 (=) | NetFlow Services Card on Cisco Catalyst 4500 Series Supervisor Engine IV |

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