

Cisco IOS XE Software Release 3.1.0 SG for Cisco Catalyst 4500E Series Supervisor Engine 7-E Switches

PB621403

Overview

This product bulletin describes the primary hardware and software features supported by Cisco IOS[®] XE Software Release 3.1.0 SG. Cisco IOS XE Software Release 3.1.0 SG is a new hardware release delivering primary hardware and software innovations including:

- Support for next-generation Cisco[®] Catalyst[®] 4500E Series system Supervisor Engine 7-E and associated line cards
- Unprecedented application and security visibility and policy controls with Flexible NetFlow and Embedded Event Manager (EEM) integration
- Extensible operation system with Cisco IOS XE Software
- Simplified software management and compliance audit with Cisco software activation licensing

Hardware Support

Cisco IOS XE Software Release 3.1.0 SG is a software release specifically for the new hardware, Supervisor Engine 7-E. Table 1 shows the supervisor engine support matrix.

Table 1. Supervisor Engine Support Matrix

Image	Supervisor Engine 7-E	Supervisor Engine 6-E, Supervisor Engine 6L-E	Supervisor Engine V-10GE
Cisco IOS XE Software Release 3.1.0 SG	Supported	Not supported Use 12.2(53)SGx or 12.2(54)SG	Not supported Use 12.2(53)SGx or 12.2(54)SG

Cisco IOS XE Software Release 3.1.0 SG supports all shipping Cisco Catalyst 4500E series chassis.

Cisco IOS XE Software Release 3.1.0 SG supports all existing shipping Cisco Catalyst 4500 line cards. In addition, it supports the following new line cards:

- WS-X4748-RJ45V+E: 48-port 10/100/1000 1:1 PoEP line card
- WS-X4712-SFP+E: 12-port 10 Gigabit Ethernet (SFP+) line card
- WS-4612-SFP-E: 12-port line rate SFP line card

New Software Features

Table 2 highlights the primary software features in this release.

Table 2. New Software Features

Feature	Description
Flexible NetFlow	<p>Cisco Flexible NetFlow is the next-generation in flow technology. It optimizes the network infrastructure, reducing operation costs and improving capacity planning and security incident detection with increased flexibility and scalability. It provides additional benefits over traditional NetFlow:</p> <ul style="list-style-type: none"> • Flexibility and scalability of flow data beyond traditional NetFlow • Customized traffic identification • Ability to focus and monitor specific network behavior

Feature	Description
	<ul style="list-style-type: none"> Ability to monitor a wider range of packet information, producing new information about network behavior with new keys such as Layer 2 information, TCP/UDP flags, and so on Enhanced network anomaly and security detection Convergence of multiple accounting technologies into one accounting mechanism Local event correlation and policy action with EEM integration
Extensible OS with Cisco IOS XE Software	<p>Cisco IOS XE Software Release 3.1.0 SG provides next-generation operating system for the Cisco Catalyst 4500 Supervisor Engine 7-E. Cisco IOS XE Software delivers new OS capabilities while making sure of smooth migration with same Cisco IOS Software look-and-feel and feature parity:</p> <ul style="list-style-type: none"> Modular OS supporting multicore CPU architecture of Supervisor Engine 7-E Extensive OS platform that allows future application hosting for fast advanced technology adoption, while keeping Cisco IOS Software simple and robust
Cisco software activation licensing	<p>Cisco Software Activation is a simplified approach to software deployment and management. For more details, visit http://www.cisco.com/go/sa.</p>

Feature

The following new features of Cisco IOS Software Release 12.2(54)SG are applicable to all supervisor engines and Cisco Catalyst 4900 Series fixed-configuration systems, unless otherwise stated.

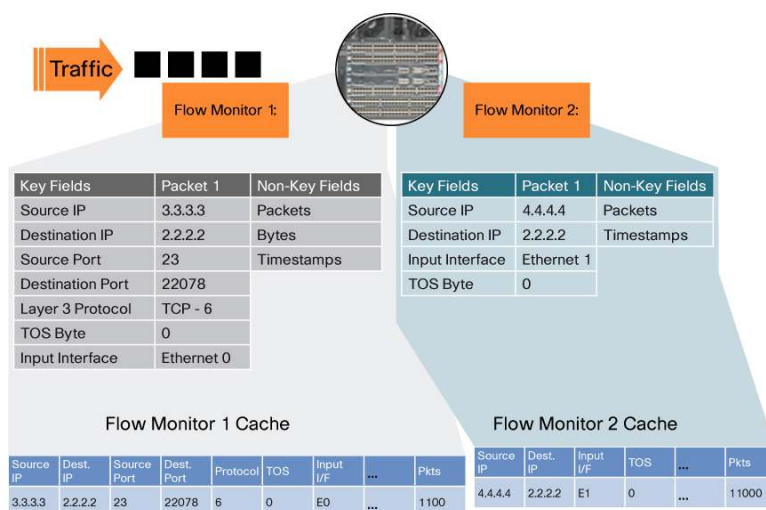
Software Features

- Flexible NetFlow**

Cisco IOS Software Flexible NetFlow is the next generation in flow technology (Figure 1). It optimizes the network infrastructure, reducing operation costs and improving capacity planning and security incident detection with increased flexibility and scalability. It provides additional benefits over the traditional NetFlow:

- Flexibility and scalability of flow data beyond traditional NetFlow
- Customized traffic identification
- Ability to focus and monitor specific network behavior

Figure 1. Flexible NetFlow Monitors and Caches



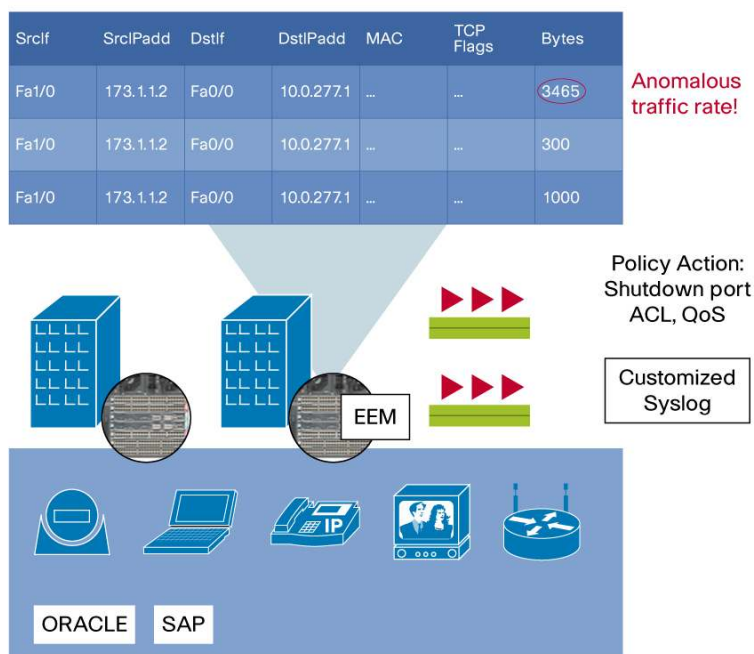
- Ability to monitor a wider range of packet information, producing new information about network behavior with new keys such as Layer 2 information, includes MAC addresses and VLAN ID, IPv6 header. Monitoring based on Layer 2 information gives visibility into local LAN traffic based on MAC address or VLAN IDs; and Layer 4 Information includes TCP and UDP flags, which can be extremely useful in security monitoring.
- Enhanced network anomaly and security detection.

- Convergence of multiple accounting technologies into one accounting mechanism.
- Local event correlation and policy action with EEM integration (Figure 2). Cisco Catalyst 4500 Flexible NetFlow enables powerful, on-box, and customizable event correlation and policy actions with EEM. This allows the switches to trigger customized event alarms or policy actions once the predefined flow statistics thresholds are met, for example:

Real-time alarm or policy action upon detection of malware activities

Real-time alarm or policy actions (for example, QoS throttling) upon detection of application behavior anomaly such as excessive bandwidth usage

Figure 2. Flexible NetFlow and EEM Integration



• Cisco IOS XE Software

Cisco continues to evolve Cisco IOS Software to support next-generation switching hardware and provide increased architectural flexibility to deliver quick adoption of future Cisco Borderless Networks services, while making sure of customer investment protection in Cisco IOS Software.

Cisco IOS XE Software is the next-generation operating system for the Cisco Catalyst 4500E Supervisor Engines, beginning with the Supervisor Engine 7-E. It provides the following customer benefits:

- A modern operating system that can take advantage of the multicore CPU architecture of the next-generation Cisco Catalyst 4500 system with Supervisor Engine 7-E.
- Customer investment protection in the existing Cisco IOS Software. With Cisco IOS XE Software, today's Cisco IOS Software becomes a "Cisco IOS Software package" with a consistent feature set and operational look and feel. This allows a transparent migration experience.
- Extensible architecture that allows the future capability for Cisco Catalyst 4500 to host Cisco applications not based on Cisco IOS Software, customer-written applications, or third-party applications in parallel with Cisco IOS Software. The hosted application can communicate with Cisco IOS Software to use its rich feature sets. This benefit allows customers to quickly adopt new technologies using proven code, while keeping Cisco IOS Software simple and robust.

- **Cisco Software Activation Licensing**

Starting from Cisco IOS Software Release 3.1.0 SG on Cisco Catalyst 4500 Supervisor Engine 7-E, the Cisco software activation licensing solution is supported. This solution has been supported and is implemented on Cisco Catalyst 3750-E and 3560-E Switches and Cisco Integrated Services Routers Generation 2.

As illustrated in Figure 3, the Cisco Catalyst 4500 Supervisor Engine 7-E can be ordered with a “universal image” and different Cisco IOS Software licenses. The software license will enable the universal image with different feature sets such as IP BASE and Enterprise Services. This provides customers the benefits of:

- Ease of ordering

A single Cisco IOS Software Universal image that will ship with all Cisco Catalyst 4500 Supervisor Engine 7-E systems

Cisco IOS Software enforceable licenses to enable different level of packages

- Operational simplicity

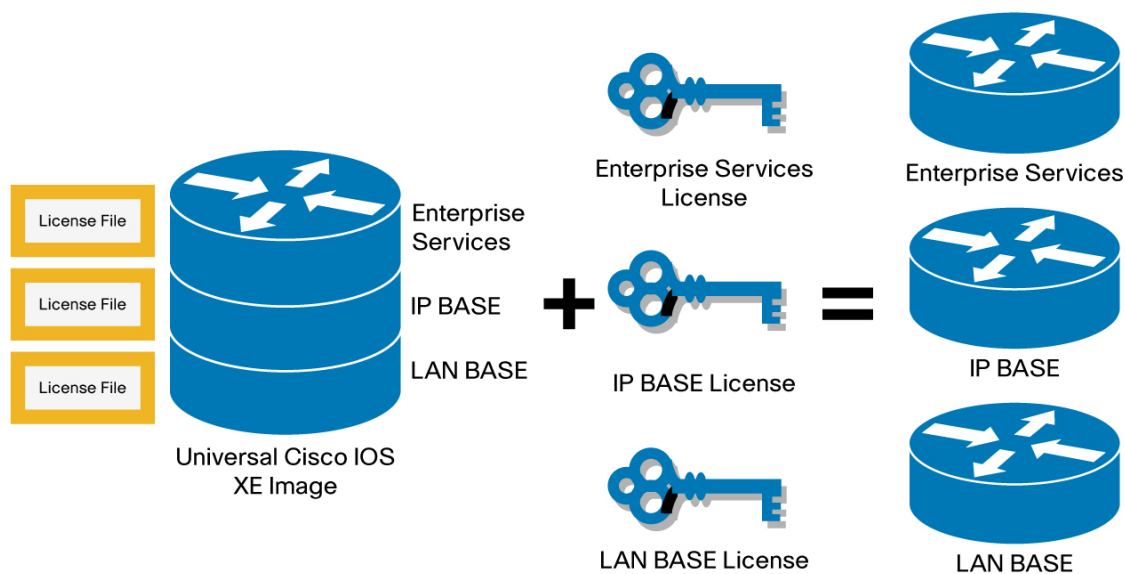
Try and buy

Reduced testing

- Services on demand

Cisco IOS Software feature upgrades can be done by enabling a new license key, reducing the need for service calls to remote offices

Figure 3. Software Activation with Universal Cisco IOS Software Image



For more information about the Cisco software activation solution, visit <http://www.cisco.com/go/sa>.

Cisco Catalyst 4500 Cisco IOS Software Migration Guide

Cisco IOS Software Release 3.1.0 SG is a new hardware release only for Cisco Catalyst 4500 Series with Supervisor Engine 7-E. Customers who are deploying Cisco Catalyst 4500 Series with Supervisor Engine 6-E, Supervisor Engine 6L-E, and Supervisor Engine V-10GE should follow these recommendation:

- Customers requiring the latest Cisco Catalyst 4500 Series hardware and software features should migrate to Cisco IOS Software Release 12.2(54)SG.

- Cisco IOS Software Release 12.2(53)SG is a long-lived extended maintenance release, and we will continue offering rebuilds through calendar year 2013. The latest release from this maintenance train was 12.2(53)SG3.

Support

For configuration details and information about the new features in Cisco IOS Software Release 12.2(54)SG, refer to the release notes at http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_release_notes_list.html.

Support for Cisco IOS Software Release 12.2(54)SG follows the standard Cisco support policy, available at http://www.cisco.com/en/US/products/products_end-of-life_policy.html.

For more information about the Cisco Catalyst 4500 Series, visit <http://www.cisco.com/univercd/cc/td/doc/product/lan/cat4000/index.htm>.

Ordering Information

Tables 3 and 4 provide product numbers and ordering information for Cisco IOS XE Software Release 3.1.0 SG and supporting hardware.

Table 3. Cisco IOS Software Release 3.1.0 SG Product Numbers and Images for Cisco Catalyst 4500 Series

Product Number	Description	Image
S45U-31-01XO	Cisco Catalyst 4500 Supervisor Engine 7-E Cisco IOS Software XE release 3.1.0 SG non-crypto universal image	cat4500e-universal.SPA.03.01.00.SG.150-1.XO
S45UK9-31-01XO	Cisco Catalyst 4500 Supervisor Engine 7-E Cisco IOS Software XE release 3.1.0 SG crypto universal image	cat4500e-universal.SPA.03.01.00.SG.150-1.XO
C4500E-LIC=	Base product ID for paper delivered software licenses	Not applicable
C4500E-LB	LAN BASE software license (paper delivery)	Not applicable
C4500E-IPB	IP BASE software license (paper delivery)	Not applicable
C4500E-LB-IPB	LAN BASE to IP BASE upgrade license (paper delivery)	Not applicable
C4500E-LB-ES	LAN BASE to Enterprise Services upgrade license (paper delivery)	Not applicable
C4500E-IP-ES	IP BASE to Enterprise Services upgrade license (paper delivery)	Not applicable
C4500E-LIC-PAK	Base product ID for paper delivered software licenses for spare Supervisor Engine 7-E	Not applicable
C4500E-IP-ES-S	IP BASE to Enterprise Services upgrade license for spare Supervisor Engine7-E(paper delivery)	Not applicable
C4500E-IPB-S	IP BASE software license for spare Supervisor Engine 7-E (paper delivery)	Not applicable
L-C4500-LIC=	Base product ID for electronically delivered software licenses	Not applicable
L-C4500E-LB-IP	LAN BASE to IP BASE upgrade license (electronically delivered)	Not applicable
L-C4500E-IP-ES	IP BASE to Enterprise Services upgrade license (electronically delivered)	Not applicable
L-C4500E-LB-ES	LAN BASE to Enterprise Services upgrade license (electronically delivered)	Not applicable



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