



PRODUCT BULLETIN NO. 2551

NEW CISCO IOS SOFTWARE RELEASE 12.1(22)EA1 FOR CISCO CATALYST 3550, 2955, 2950, 2950-LRE AND 2940 SERIES SWITCHES

OVERVIEW

Cisco Systems® announces Cisco IOS® Software updates for the Cisco® Catalyst® 3550, 2955, 2950, 2950-LRE and 2940 series Intelligent Ethernet switches. This new release furthers Cisco leadership in providing secure, reliable, and easily managed LAN switching solutions.

This product bulletin describes the content and delivery information about Cisco IOS Software Release 12.1(22)EA1. For more information about the Cisco IOS Software release process, see Product Bulletin 537.

Catalyst 2940 switch now extends its support from 4 VLANs in the past to **12 VLANs** with this IOS release. This also increases the number of supported STP instances to 12. VLANs are identified with a number from **1 to 4094**. VLAN IDs 1002 through 1005 are reserved for Token Ring and FDDI VLANs. VTP only learns normal-range VLANs, with VLAN IDs 1 to 1005; VLAN IDs greater than 1005 are extended-range VLANs and are not stored in the VLAN database. The switch must be in VTP transparent mode when you create VLAN IDs from 1006 to 4094.

With the introduction of **802.1x with Dynamic VLAN assignment** on 2940 switches, users can limit network access for certain users by using VLAN assignment. After successful 802.1x authentication of a port, the RADIUS server sends the VLAN assignment to configure the switch port. The RADIUS server database maintains the username-to-VLAN mappings, which assigns the VLAN based on the username of the client connected to the switch port.

With the introduction of **802.1x with Guest VLAN** support on 2940 switches, users can configure a guest VLAN for each 802.1x port on the switch to provide limited services to clients (for example, users can download the 802.1x client). These clients might be upgrading their system for 802.1x authentication, and some hosts, such as Windows 98 systems, might not be 802.1x-capable. With the current implementation of this feature, users that do not support the 802.1x supplicant code on their desktop will fail 802.1x authentication and be placed in the guest VLAN.

The **Speed Autonegotiate** enhancement allows users to enter specific values associated with the capability to Autonegotiate speed and duplex settings of switch ports. As an example, the network manager can configure 10/100/1000 Mbps capable ports to only advertise 10/100 Mbps speeds. This might be used in situations where the core of the network has not yet been scaled to support users at 1000 Mbps. Table 1 below shows the speed and duplex settings that will be supported.

Table 1. Speed, Duplex, and Autonegotiation Settings supported in Release 12.1(22)EA1

10/100 Ethernet Ports	10/100/100 Ethernet Ports	Fiber SFP, GBIC, & XENPAK Uplink Interfaces	Duplex Settings
speed <10 100 auto [10 100]> The user will be able to configure the following different combinations: speed 10 speed 100 speed auto speed auto 10 speed auto 100 speed auto 10 100	speed <10 100 1000 auto [10 100 1000]> The user will be able to configure the following different combinations: speed 10 speed 100 speed 1000 speed auto speed auto 10 speed auto 100 speed auto 1000 speed auto 10 100 speed auto 10 1000 speed auto 100 1000 speed auto 10 100 1000	Only one speed is supported on most types of interfaces; Please refer to the Release Notes for more information.	The duplex command will not change. (Note – half-duplex is not supported on 1000 Mbps and 10000 Mbps interfaces)

The configured status for these speed and duplex commands will be displayed through a new command—show interface transceiver properties.

The storm control feature as implemented on the Cat 3550 allows a port to be blocked if a particular traffic type (multicast, unicast, or broadcast) exceeds a given threshold. The threshold is specified as a percentage of the total bandwidth of the port (%BW). However, customers have requested the option to specify the threshold in packets per second (PPS). In order to meet customer requirements for this feature, Storm control packet per second support has been added with this IOS release on the 3550 switching platform. In addition, the "show storm-control" command output will display port statistics in the same units (PPS or %BW) configured by the user.

NEW FEATURES IN CISCO IOS SOFTWARE RELEASE 12.1(22)EA1

The features shown in Table 2 will be delivered in Cisco IOS Software Release 12.1(22)EA1

Table 2. Cisco IOS Software Release 12.1(22)EA1 New Features

Feature	Cisco Catalyst 3550-EMI	Cisco Catalyst 3550-SMI	Cisco Catalyst 2995	Cisco Catalyst 2950 EI	Cisco Catalyst 2950 SI	Cisco Catalyst 2950 LRE	Cisco Catalyst 2940
Increased # of VLANs							X
4K VLAN IDs	E	E	E	E		E	X
802.1x with Guest VLAN	E	E	E	E		E	X
802.1x with Dynamic VLAN assignment	E	E	E	E		E	X
Speed Autonegotiate Enhancement	X	X	X	X	X	X	X
Show Interface Transceiver Properties	X	X	X	X	X	X	X
Packet Based Storm Control	X	X	E	E	E		E

SMI – Standard Multi-layer Image

EMI – Enhanced Multi-layer Image

E – Feature exists of this platform

Feature enhancements made to Cisco Cluster Management Suite (CMS) Software with this new software release are highlighted in Table 3 below.

Table 3. New Features in Cisco CMS Software

Feature	Description
Extended VLAN ID support	Cisco CMS will now extend support for 4K VLAN IDs on 2940 switches. This feature is accessible from “VLAN->VLAN...” menu item.
Increased number of VLANs	Cisco CMS will now extend support for 12 VLANs on 2940 switches. This feature is accessible from “VLAN->VLAN...” menu item.

The Layer 3 capable fixed configuration Catalyst switches supported with this software release are listed in Table 4 below.

Table 4. Layer 3 Products Supported with this Release

Cisco Catalyst 3550 Series Enhanced Multilayer Software Image Models	Cisco Catalyst 3550 Series Standard Multilayer Software Image Models
3550-12G Switch	3550-24-SMI Switch
3550-12T Switch	3550-24PWR-SMI
3550-24-EMI Switch	3550-48-SMI Switch
3550-24 PWR SwitchEMI	3550-24-FX-SMI Switch
3550-48-EMI Switch	3550-24-DC-SMI Switch
3550-24-FX-SMI Switch with EMI upgrade	
3550-24-DC-SMI Switch with EMI upgrade	

The Layer 2+ capable fixed configuration Catalyst switches supported with this software release are listed in Table 5 below.

Table 5. Layer 2+ Products Supported with this Release

Cisco Catalyst 2955 Enhanced Image Models	Cisco Catalyst 2950 Series Enhanced Image Models	Cisco Catalyst 2950 Series Standard Image Models	Cisco Catalyst 2950-LRE Series Models	Cisco Catalyst 2940 Series Models
2955C-12	2950T-24	2950-12	2950LRE-24-997	2940-8TF
2955S-12	2950C-24	2950-24	2950ST-24-LRE	2940-8TT
2955T-12	2950G-12-EI	2950SX-24	2950ST-8-LRE	
	2950G-24-EI	2950SX-48		
	2950G-48-EI	2950T-48		
	2950G-24-EI-DC			

ADDITIONAL RESOURCES

Software Download—Software available July 2004

Cisco Catalyst 3550 Series Software Download—<http://www.cisco.com/cgi-bin/tablebuild.pl/cat3550>

Cisco Catalyst 2955 Series software download—<http://www.cisco.com/cgi-bin/tablebuild.pl/cat2955>

Cisco Catalyst 2950 Series software download—<http://www.cisco.com/cgi-bin/tablebuild.pl/cat2950>

Cisco Catalyst 2950 LRE Series software download—<http://www.cisco.com/cgi-bin/tablebuild.pl/cat2950LRE>

Cisco Catalyst 2940 Series software download—<http://www.cisco.com/cgi-bin/tablebuild.pl/cat2940>

Due to export restrictions on strong cryptography software, a separate image is required for the cryptographic features (Secure Shell Protocol, Simple Network management Protocol Version 3, and Kerberos Protocol). These software images can be downloaded from the corresponding 3DES area of the links provided above.

Catalyst 3550 Series product information:

<http://www.cisco.com/go/catalyst3550>

Catalyst 2955 product information:

<http://www.cisco.com/go/catalyst2955>

Catalyst 2950 Series Product information:

<http://www.cisco.com/go/catalyst2950>

Catalyst 2950 LRE Series product information:

<http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2940/index.htm>

Catalyst 2940 Series product information:

<http://www.cisco.com/go/catalyst2940>

Catalyst 3550, 2955/2950/2950-LRE, and 2940 release notes:

<http://www.cisco.com/univercd/cc/td/doc/product/lan/c3550/index.htm>

<http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2950/index.htm>

<http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2940/index.htm>

SUPPORT

Cisco IOS Software Release 12.1(22)EA1 follows the standard Cisco support policy as indicated at

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

SOFTWARE IMAGE MIGRATION GUIDE

Figure 1 displays Cisco IOS Software Release 12.1(22)EA1 functions relative to the 12.1 and 12.1E releases, and identifies the recommended migration path. For more information about the Cisco IOS Software release process, see Product Bulletin 537.

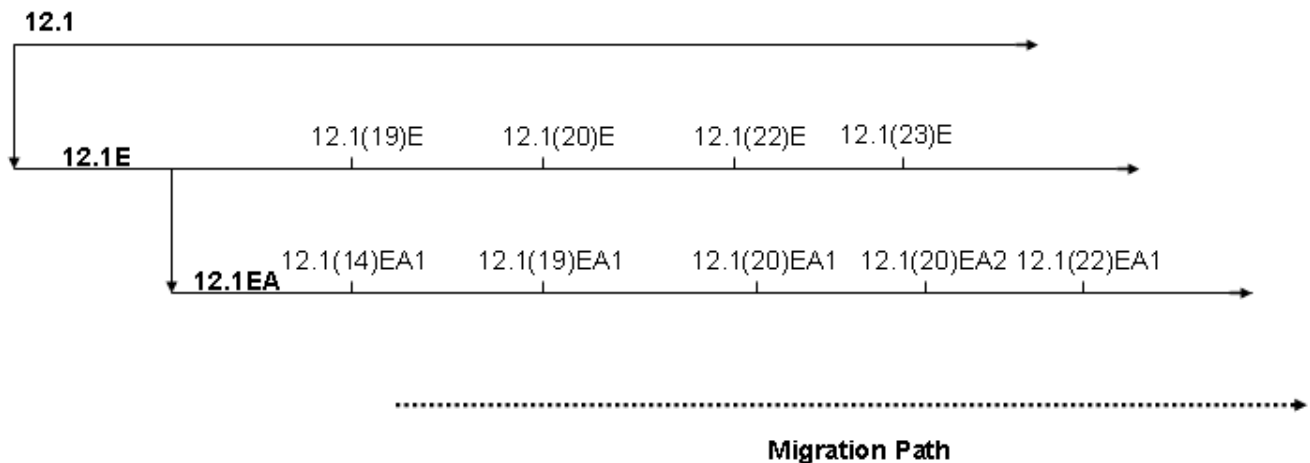


Figure 1: Cisco IOS Software Release 12.1EA Release Train



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