



PRODUCT BULLETIN NO. 3003

## CISCO IOS SOFTWARE RELEASE 12.3(14)YT

### LIFESPAN OF RELEASE

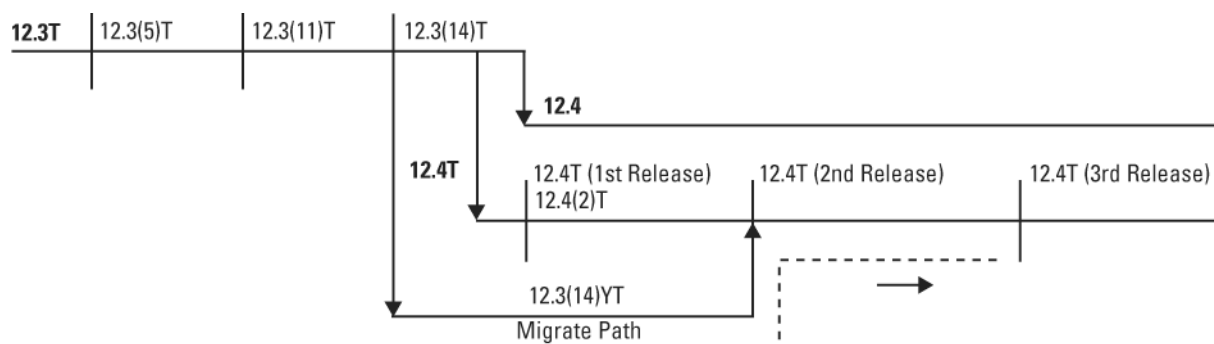
This Cisco IOS® Software special release is a short-lived release and will migrate into the second release of the 12.4T train. Six months after the migration into this 12.4T train, this release will no longer be orderable and will no longer be configurable in the dynamic configuration tool.

### PRODUCT OVERVIEW

This product bulletin provides content and delivery information for Cisco IOS Software Release 12.3(14)YT. It should be used in conjunction with the product bulletin for Cisco IOS Software Release 12.4T. It supports Cisco® 850 Series, 870 Series, 1800 Series (fixed-configuration and modular), and 2801 routers.

This product bulletin only lists Cisco IOS Software Release 12.3(14)YT features that are new to the respective routers; more information is available in the release notes. Customers should be prepared to upgrade using the migration path described in Figure 1.

**Figure 1.** Cisco IOS Software Release 12.3(14)YT Release Train and Migration Guide



### NEW FEATURES IN CISCO IOS SOFTWARE RELEASE 12.3(14) YT

Table 1, 2, and 3 lists the features delivered in Cisco IOS Software Release 12.3(14)YT by platform.

**Table 1.** Features Delivered in Cisco 12.3(14)YT for Cisco 850 Series and 870 Series Routers

New Features	Cisco 851	Cisco 857	Cisco 871	Cisco 876	Cisco 877	Cisco 878
VRF-aware Cisco IOS Firewall	No	No	Yes	Yes	Yes	Yes
Advanced application inspection and control	Yes	Yes	Yes	Yes	Yes	Yes
E-mail inspection engine	Yes	Yes	Yes	Yes	Yes	Yes

**Table 2.** New Features Delivered in Cisco 12.3(14)(YT) for Cisco 1800 Series Fixed-Configuration Routers

New Features	Cisco 1801	Cisco 1802	Cisco 1803	Cisco 1811	Cisco 1812
VRF-aware Cisco IOS Firewall	Yes	Yes	Yes	Yes	Yes
Advanced application inspection and control	Yes	Yes	Yes	Yes	Yes
E-mail inspection engine	Yes	Yes	Yes	Yes	Yes

**Table 3.** New Features Delivered in Cisco 12.3(14)(YT) for Cisco 1800 Series Modular Routers and Cisco 2801 Routers

New Features	Cisco 1841	Cisco 2801
<b>Multiprotocol Label Switching (MPLS) Support—Basic MPLS Capabilities</b>		
Basic MPLS forwarding and signaling	Yes	Yes
Label Distribution Protocol (LDP)	Yes	Yes
Resource Reservation Protocol (RSVP)	Yes	Yes
<b>MPSL Class of Service (CoS)</b>		
Congestion management	Yes	Yes
Packet marking, policing, and shaping	Yes	Yes
<b>MPLS Traffic Engineering</b>		
MPLS Traffic Engineering	Yes	Yes
TE-RSVP	Yes	Yes
Guaranteed Bandwidth Traffic Engineering (GB-TE)	Yes	Yes
MPLS DiffServ-Aware Traffic Engineering (DS-TE)	Yes	Yes
Intermediate System-to-Intermediate System Traffic Engineering (ISIS-TE)	Yes	Yes
<b>MPLS VPN Features</b>		
MPLS VPN	Yes	Yes
Guaranteed Bandwidth VPN	Yes	Yes
Interprovider VPN	Yes	Yes
Carrier Supporting Carrier (CSC) VPN	Yes	Yes
Border Gateway Protocol (BGP) attributes	Yes	Yes
High Availability		
LSP Preemption		

## DETAILED INFORMATION

### New Features

#### VRF-Aware Cisco IOS Firewall

##### Supported on: Cisco 870 Series

Supported in the Cisco IOS feature sets: Advanced IP Services, and Advanced Enterprise Services

##### Supported on: Cisco 180x and Cisco 181x routers

Supported in the Cisco IOS feature sets: Advanced IP Services and Advanced Enterprise Services

VRF-aware Cisco IOS Firewall applies Cisco IOS Firewall capabilities to Virtual Routing and Forwarding (VRF) interfaces when the firewall is configured. This extends security service that can be managed by service providers. The VRF-aware Cisco IOS Firewall supports VRF-aware URL filtering and VRF-lite (also known as Multi-VRF CE).

For more information, visit [http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products\\_feature\\_guide09186a00803f8721.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products_feature_guide09186a00803f8721.html).

## Advanced Application Inspection and Control

### **Supported on: Cisco 850 Series**

Supported in the Cisco IOS feature sets: Advanced Security

### **Supported on: Cisco 870 Series**

Supported in the Cisco IOS feature sets: Advanced Security, Advanced IP Services, and Advanced Enterprise Services

### **Supported on: Cisco 180x and Cisco 181x routers**

Supported in the Cisco IOS feature sets: Advanced IP Services and Advanced Enterprise Services

The Advanced Application Inspection and Control feature augments the Cisco IOS Firewall to inspect TCP Port 80 and provides detailed policy control at an application level. It also recognizes traffic and follows state and protocol exchange of applications such as instant messaging applications.

For more information, visit [http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products\\_feature\\_guide09186a008040afd7.html](http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products_feature_guide09186a008040afd7.html).

## E-Mail Inspection Engine

### **Supported on: Cisco 850 Series**

Supported in the following Cisco IOS feature sets: Advanced Security

### **Supported on: Cisco 870 Series**

Supported in the Cisco IOS feature sets: Advanced Security, Advanced IP Services, and Advanced Enterprise Services

### **Supported on: Cisco 180x and Cisco 181x routers**

Supported in the Cisco IOS feature sets: Advanced IP Services and Advanced Enterprise Services

Enhances Cisco IOS Firewall with the ability to inspect Post Office Protocol 3 (POP3) and Internet Message Access Protocol (IMAP) in addition to Simple Mail Transport Protocol (SMTP) and Enhanced SMTP (ESMTP).

## MPLS

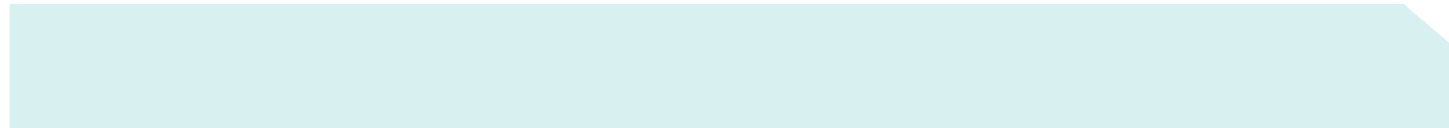
### **Supported on: Cisco 1841 and Cisco 2801 routers**

Supported in the Cisco IOS feature sets: Advanced Security, Advanced IP Services, and Advanced Enterprise Services Images

## BASIC MPLS CAPABILITIES

### **Basic MPLS Forwarding and Signaling**

MPLS assigns labels to packets for transport across packet- or cell-based ATM networks. The forwarding mechanism is label swapping, in which a label is assigned once at the edge of the MPLS network and removed at the other end. These labels are assigned to packets based on groupings or



forward error corrections (FECs). Features include label imposition and disposition, label switching, label stacking (supports a five-label-deep stack), static labels, MPLS explicit null label, MPLS implicit null label, penultimate hop popping, label merging, and label stitching.

### **Label Distribution Protocol (LDP)**

LDP provides a standard methodology for hop-by-hop or dynamic label distribution in an MPLS network by assigning labels to routes that have been chosen by the underlying interior gateway routing protocols. This feature adheres to the IETF standard and supports downstream unsolicited label advertisement as well as transport of LDP label switched paths (LSPs) over an RSVP-TE tunnel/LSP. This feature provides interoperable, standards-based dynamic LSP setup and teardown between MPLS-enabled devices from Cisco and third-party vendors. It provides best-effort path selection, and supports backward-compatibility with Tag Distribution Protocol (TDP)-based core networks, allowing interoperability with Cisco routers running TDP while allowing use of LDP only on Cisco OSR edge routers.

### **Resource Reservation Protocol (RSVP)**

Provides explicitly created, source-routed path creation and teardown to provide guaranteed bandwidth reservation between two nodes, from end to end. Strict and loose explicit routes and bandwidth reservation are supported.

### **MPLS Class of Service**

#### **Congestion Management**

Weighted Round Robin (WRR)—Provides fair queue servicing of variable Type of Service (ToS), Differentiated Services Code Point (DSCP), or 802.1p values, as expressed in the MPLS EXP bits of the header. Provides strict priority queues

Class-Based Weighted Fair Queuing (CBWFQ)—Provides class-based scheduling and link bandwidth guarantees.

#### **Congestion Avoidance**

Weighted Random Early Detection (WRED)—Provides selective congestion control on a hop-by-hop basis. Uses a weighted average queue depth to determine drop probability. Drop thresholds are based on relative ToS, DSCP, or 802.1p values, as expressed in the MPLS EXP bits of the header.

#### **Packet Marking, Policing, and Shaping**

Committed Access Rate (CAR)—Used to classify and limit traffic according to predefined traffic policies, on ingress and egress from an interface.

RSVP CoS—Supports CoS for RSVP in adherence to IETF draft standards.

### **MPLS Traffic Engineering**

#### **MPLS Traffic Engineering**

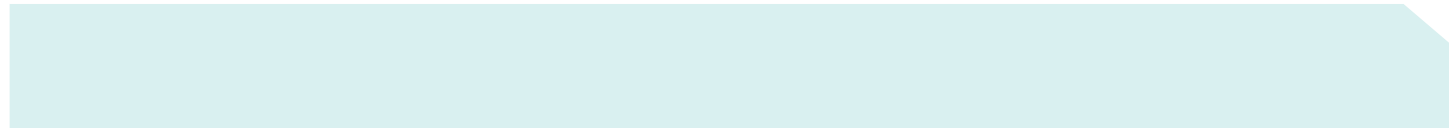
Supports RSVP-initiated traffic engineered tunnels, Open Shortest Path First (OSPF)-TE single area, and ISIS-TE single area.

#### **TE-RSVP**

RSVP in MPLS networks provides a quality of service (QoS) model designed to run over many technologies and optimized to support IP applications, both of which are necessary to build a consistent, workable, end-to-end IP QoS service.

#### **Guaranteed Bandwidth Traffic Engineering (GB-TE) Tunnels**

Extends MPLS Traffic Engineering capabilities to provide additional constraint-based routing and admission control. GB-TE builds upon traditional Traffic Engineering by introducing the concept of an additional class of service for specifically guaranteed bandwidth, enabling delivery of QoS services for customers that rely upon signaled QoS instead of provisioned QoS. This enables service providers to provide firm bandwidth



commitments as a premium QoS service, and extends OSPF and ISIS to advertise available GB-TE bandwidth, in addition to available regular TE bandwidth.

### **MPLS DiffServ-Aware Traffic Engineering (DS-TE)**

DS-TE is an enhancement to MPLS Traffic Engineering that introduces the concept of class types to Traffic Engineering. Each participating link advertises the amount of available bandwidth of each class type on that link. When the constraint-based routing process is executed for a new tunnel, a bandwidth constraint of a particular class type can be defined as one of the criteria to be used for the path selection. The admission control process carried using RSVP at each hop is performed against the available bandwidth of the specific class type.

### **ISIS-TE**

MPLS Traffic Engineering using the IS-IS protocol.

### **MPLS VPN**

An MPLS VPN is a Layer 3 VPN that includes provider edge-to-provider edge internal BGP (IBGP) routing, provider edge-to-customer edge routing, MPLS VPN support for external BGP (EBGP), static routes, OSPF, and Routing Initiation Protocol (RIP)v2.

#### **Guaranteed Bandwidth VPN**

Provides a mechanism to extend basic MPLS VPNs with the creation of point-to-point guaranteed bandwidth services with tightly defined and controlled QoS.

#### **Interprovider VPN**

Provides a mechanism for placing two or more MPLS provider edge devices into the same VPN, though each provider edge node might reside in a different autonomous system, with an EBGP connection between the two autonomous systems.

#### **BGP Attributes**

Tests BGP operation with specific attributes configured. Attributes include “site of origin” (SOO) and “hub and spoke”.

#### **Carrier Supporting Carrier (CSC) VPN**

Provides a mechanism for supporting the concept of hierarchical VPNs by defining two new VPN layers for service provider networks—backbone carriers and customer carriers. The backbone carrier uses a VPN to carry all of the traffic of its customer carrier, which in turn is free to provision its own VPNs within the higher-level VPN to support its own customers.

### **High Availability**

#### **LSP Pre-emption**

High-priority LSPs can preempt low-priority LSPs.

Tables 4, 5, 6, and 7 list feature sets, ordering information, and memory recommendations for Cisco 850 Series, 870 Series, 1800 Series (fixed-configuration and modular), and 2801 routers.

**Table 4.** Feature Sets, Ordering Information, and Memory Recommendations for Cisco IOS Software Release 12.3(14)YT for Cisco 850 Series and 870 Series Routers

Cisco 870 and 850 Series Images				Recommended Memory	
Platform	Software Product Description	Image File Name	Part Number	Flash	DRAM
Cisco 871, 876, 877, and 878	Cisco IOS Software Advanced Security Services for Cisco 870 Series	c87x-advsecurityk9-mz	S870ASK9-12314YT	24 MB	128 MB
			S870ASK9-12314YT=		
Cisco 871, 876, 877, and 878	Cisco IOS Software Advanced IP Services for Cisco 870 Series	c87x-advipservicesk9-mz	S870AISK9-12314YT	28 MB	128 MB
			S870AISK9-12314YT=		
Cisco 876	Cisco IOS Software Advanced Enterprise Services for Cisco 870 Series	C87x-adventerprisek9-mz	S870AESK9-12314YT	28 MB	128 MB
			S870AESK9-12314YT		
Cisco 851 and 857	Cisco IOS Software Advanced Security Services for Cisco 850 and 870 Series	C85x-advsecurityk9-mz	S850ASK9-12314YT	20 MB	64 MB
			S850ASK9-12314YT		

**Table 5.** Feature Sets, Ordering Information, and Memory Recommendations for Cisco IOS Software Release 12.3(14)YT for Cisco 1800 Series Fixed-Configuration Routers

Cisco 1800 Series Images				Recommended Memory	
Platform	Software Product Description	Image File Name	Part Number	Flash	DRAM
Cisco 1801	Cisco 180X IP Broadband	c180x-broadband-mz	S180BB-12314YT	32 MB	128 MB
			S180BB-12314YT=	32 MB	128 MB
Cisco 1801, Cisco 1802, Cisco 1803	Cisco 180X IOS Software Advanced IP Services	C180x-advipservicesk9-mz	S180AISK9-12314YT	32 MB	128 MB
			S180AISK9-12314YT=	32 MB	128 MB
Cisco 1801, Cisco 1802, Cisco 1803	Cisco 180X IOS Software Advanced Enterprise Services	c180x-adventerprisek9-mz	S180AESK9-12314YT	32 MB	128 MB
			S180AESK9-12314YT=	32 MB	128 MB
Cisco 1811, Cisco 1812	Cisco 181X IOS Software Advanced IP Services	C181x-advipservicesk9-mz	S181AISK9-12314YT	32 MB	128 MB
			S181AISK9-12314YT=	32 MB	128 MB
Cisco 1811, Cisco 1812	Cisco 181X IOS Software Advanced Enterprise Services	c181x-adventerprisek9-mz	S181AESK9-12314YT	32 MB	128 MB
			S181AESK9-12314YT=	32 MB	128 MB

**Table 6.** Feature Sets, Ordering Information, and Memory Recommendations for Cisco IOS Software Release 12.3(14)YT for Cisco 1800 Series Modular Routers

Cisco 1800 Series Images				Recommended Memory	
Platform	Software Product Description	Image File Name	Part Number	Flash	DRAM
Cisco 1841	Cisco 1841 IOS Advanced Enterprise Services	C1841-adventerprisek9-mz	S184AESK9-12314YT	64 MB	192 MB
Cisco 1841	Cisco 1841 IOS Advanced IP Services	C1841-advipservicesk9-mz	S184AISK9-12314YT	64 MB	192 MB
Cisco 1841	Cisco 1841 IOS Advanced Security Services	c1841-advsecurityk9-mz	S184ASK9-12314YT	32 MB	192 MB
Cisco 1841	Cisco 1841 IOS Enterprise Base without crypto	c1841-entbase-mz	S184EB-12314YT	32 MB	128 MB

Cisco 1800 Series Images				Recommended Memory	
Platform	Software Product Description	Image File Name	Part Number	Flash	DRAM
Cisco 1841	Cisco 1841 IOS Enterprise Services	c1841-entservicesk9-mz	S184ESK9-12314YT	64 MB	192 MB
Cisco 1841	Cisco 1841 IOS IP Base without crypto	c1841-ipbase-mz	S184IPB-12314YT S184IPB-12314YT=	32 MB	128 MB
Cisco 1841	Cisco 1841 IOS Broadband	C1841-broadband-mz	S184BB-12314YT	32 MB	128 MB
Cisco 1841	Cisco 1841 IOS SP Services	c1841-spservicesk9-mz	S184SPSK9-12314YT	64 MB	128 MB

**Table 7.** Feature Sets, Ordering Information, and Memory Recommendations for Cisco IOS Software Release 12.3(14)YT for Cisco 2801 Routers

Cisco 2801 Images				Recommended Memory	
Platform	Software Product Description	Image Name	Product Code	Flash	DRAM
Cisco 2801	Cisco 2801 IOS Advanced Enterprise Services	c2801-adventerprisek9-mz	S280AESK9-12314YT	64 MB	192 MB
Cisco 2801	Cisco 2801 IOS Advanced IP Services	c2801-advipservicesk9-mz	S280AISK9-12314YT	64 MB	192 MB
Cisco 2801	Cisco 2801 IOS Advanced Security	c2801-advsecurityk9-mz	S280ASK9-12314YT	64 MB	192 MB
Cisco 2801	Cisco 2801 IOS Enterprise Base	c2801-entbase-mz	S280EB-12314YT	64 MB	128 MB
Cisco 2801	Cisco 2801 IOS Enterprise Services	c2801-entservicesk9-mz	S280ESK9-12314YT	64 MB	192 MB
Cisco 2801	Cisco 2801 IOS IP Base	c2801-ipbase-mz	S280IPB-12314YT S280IPB-12314YT=	64 MB	128 MB
Cisco 2801	Cisco 2801 IOS IP Voice	c2801-ipvoice-mz	S280IPV-12314YT	64 MB	192 MB
Cisco 2801	Cisco 2801 IOS SP Services	c2801-spservicesk9-mz	S280SPSK9-12314YT	64 MB	192 MB

## DOWNLOAD INFORMATION

Customers can download Cisco IOS Software Release 12.3(14)YT from the software image library at the [Cisco Software Center](#).

## FOR MORE INFORMATION

For more information about the Cisco 800 Series, visit <http://www.cisco.com/go/800>.

For more information about the Cisco 1800 Series, visit <http://www.cisco.com/go/2800>.

For more information about the Cisco 2800 Series, visit <http://www.cisco.com/go/2800>.

You may also contact your local account representative for information on any of these products.

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