MPLS High Availability Command Changes

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This feature module details changes to commands that are required to support updates to the Multiprotocol Label Switching (MPLS) High Availability (HA) feature.

In Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA, and 12.2(33)SXH, the MPLS control plane software is enhanced to work in MPLS HA environments. The changes made the control plane software more modular, which helps MPLS support MPLS HA applications. Some of the control plane software changes also made MPLS more scalable and flexible.

Changes to the MPLS Forwarding Infrastructure (MFI) and the Cisco Express Forwarding component introduced new commands and changed other existing commands. MFI replaced the Label Forwarding Information Base (LFIB) and is responsible for managing MPLS data structures used for forwarding.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About MPLS High Availability Command Changes

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MPLS Replacement Commands for Tag-Switching Commands

Starting with Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA and 12.2(33)SXH, all tag-switching commands are obsoleted and are replaced with MPLS command versions. When you enter an obsolte tag-switching command, such as **tag-switching ip**, you receive the following message:

```
% Command accepted but obsolete, unreleased, or unsupported; see documentation
```

Use the MPLS version of the command instead, such as **mpls ip.**

Support for the tag-switching versions of commands will cease in a future release.

Configuration files that use the tag-switching version of the commands continue to operate. However, running configurations will display the new MPLS versions of the commands.

New Command Defaults

Starting with Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA and 12.2(33)SXH, Label Distribution Protocol (LDP) is the default protocol. In other releases and trains, the default label distribution protocol is Tag Distribution Protocol (TDP). See the **mpls label protocol**(global configuration) command in the NSF/SSO—MPLS LDP and MPLS LDP Graceful Restart feature for more information.

MPLS MTU Command Changes

The **mpls mtu** command has changed over the course of the several releases, starting in Cisco IOS Release 12.2(25)S. This section documents the changes implemented in Cisco IOS Release 12.2(25)S. For information about the changes implemented in Cisco IOS Releases 12.2(27)SBC and later releases, see the MPLS MTU Command Changes feature.

In Cisco IOS Release 12.2(25)S, if the interface MTU is less than 1524 bytes, you can set the maximum MPLS MTU to 24 bytes more than the interface MTU. For example, if the interface MTU is set to 1510 bytes, then you can set the maximum MPLS MTU to 1534 bytes (1510 + 24).

Note   Although you can set the MPLS MTU to a value greater than the MPLS MTU, it is recommended that you keep the MPLS MTU less than or equal to the interface MTU to prevent the hardware from dropping packets. A best practice is to set the interface MTU of the core-facing interface to a value greater than either the IP MTU or interface MTU of the edge-facing interface.

If the interface MTU is greater than or equal to 1524 bytes, then you can set the maximum MPLS MTU as high as the interface MTU. For example, if the interface MTU is set to 1600 bytes, then you can set the MPLS MTU to a maximum of 1600 bytes. If you set the MPLS MTU higher than the interface MTU, traffic is dropped.

For interfaces that do not allow you to configure the interface MTU value and the interface MTU is 1500 bytes, the MPLS MTU range is 64 to 1524 bytes.

If you upgrade to Cisco IOS Release 12.2(25)S from an earlier release and you have an MPLS MTU setting that does not conform to these guidelines, the MPLS MTU setting is not accepted by the system. If this happens, reconfigure the MPLS MTU setting to conform to the guidelines.

Deleted Commands

The following commands are no longer available in Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA, and 12.2(33)SXH:

- **debug mpls adjacency**
- **debug mpls lfib cef**
- **debug mpls lfib enc**
- **debug mpls lfib lsp**
- **debug mpls lfib state**
- **debug mpls lfib struct**
- **debug mpls lfib fast-reroute**

Replaced Commands

The first table below lists the commands that use the term tag-switching. Starting with Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA, and 12.2(33)SXH, these commands have been updated with MPLS terminology. Although the tag-switching versions of the commands are obsoleted, the tag-switching commands continue to work, but are not documented.

Please use the MPLS versions of the commands. If you issue a tag-switching command, you receive the following error:

```
% Command accepted but obsolete, unreleased, or unsupported; see documentation
```

For information about any of the MPLS commands in the two tables below, see the Cisco IOS Multiprotocol Label Switching Command Reference.

The table below alphabetically lists the MPLS commands used by the Cisco 7500 series routers that replaced the tag-switching commands.

Table 1   Cisco 7500 Series—MPLS Commands That Replaced Tag-Switching Commands

This MPLS Command Replaces	This Tag-Switching Command
debug mpls atm-cos	debug tag-switching atm-cos
debug mpls atm-ldp api	debug tag-switching atm-tdp api
debug mpls atm-ldp routes	debug tag-switching atm-tdp routes
debug mpls atm-ldp states	debug tag-switching atm-tdp states
debug mpls events	debug tag-switching events
debug mpls ldp advertisements	debug tag-switching tdp advertisements
debug mpls ldp bindings	debug tag-switching tdp bindings
debug mpls ldp messages	debug tag-switching tdp pies
debug mpls ldp peer state-machine	debug tag-switching tdp peer state-machine

This MPLS Command Replaces	This Tag-Switching Command
debug mpls ldp session io	debug tag-switching tdp session io
debug mpls ldp session state-machine	debug tag-switching tdp session state-machine
debug mpls ldp targeted-neighbors	debug tag-switching tdp directed-neighbors
debug mpls ldp transport connections	debug tag-switching tdp transport connections
debug mpls ldp transport events	debug tag-switching tdp transport events
debug mpls traffic-eng tunnels events	debug tag-switching tsp-tunnels events
debug mpls traffic-eng tunnels labels	debug tag-switching tsp-tunnels tagging
debug mpls traffic-eng tunnels signalling	debug tag-switching tsp-tunnels signalling
debug mpls xtagatm cross-connect	debug tag-switching xtagatm cross-connect
debug mpls xtagatm errors	debug tag-switching xtagatm errors
debug mpls xtagatm events	debug tag-switching xtagatm events
debug mpls xtagatm vc	debug tag-switching xtagatm vc
mpls atm control-vc	tag-switching atm control-vc
mpls atm cos	tag-switching atm cos
mpls atm disable-headend-vc	tag-switching atm disable-headend-vc
mpls atm multi-vc	tag-switching atm multi-vc
mpls atm vpi	tag-switching atm vpi
mpls atm vp-tunnel	tag-switching atm vp-tunnel
mpls cos-map	tag-switching cos-map
mpls ip (global configuration)	tag-switching ip (global configuration)
mpls ip (interface configuration)	tag-switching ip (interface configuration)
mpls ip default-route	tag-switching ip default-route
mpls ip propagate-ttl	tag-switching ip propagate-ttl
mpls label range	tag-switching tag-range downstream
mpls ldp advertise-labels	tag-switching advertise-tags
mpls ldp atm control-mode	tag-switching atm allocation-mode
mpls ldp atm vc-merge	tag-switching atm vc-merge
mpls ldp discovery	tag-switching tdp discovery

This MPLS Command Replaces	This Tag-Switching Command
mpls ldp holdtime	tag-switching tdp holdtime
mpls ldp maxhops	tag-switching atm maxhops
mpls mtu	tag-switching mtu
mpls prefix-map	tag-switching prefix-map
mpls request-labels for	tag-switching request-tags for
mpls traffic-eng tunnels	tag-switching tsp-tunnels
show mpls atm-ldp bindings	show tag-switching atm-tdp bindings
show mpls atm-ldp bindwait	show tag-switching atm-tdp bindwait
show mpls atm-ldp capability	show tag-switching atm-tdp capability
show mpls atm-ldp summary	show tag-switching atm-tdp summary
show mpls cos-map	show tag-switching cos-map
show mpls forwarding-table	show tag-switching forwarding-table
	show tag-switching forwarding vrf
show mpls interfaces	show tag-switching interfaces
show mpls ldp bindings	show tag-switching tdp bindings
show mpls ldp discovery	show tag-switching tdp discovery
show mpls ldp neighbors	show tag-switching tdp neighbors
show mpls ldp parameters	show tag-switching tdp parameters
show mpls prefix-map	show tag-switching prefix-map
show mpls traffic-eng tunnels	show tag-switching tsp-tunnels
tunnel mode mpls traffic-eng	tunnel mode tag-switching

The table below alphabetically lists the MPLS commands used by the Cisco 10000 series routers that replaced the tag-switching commands.

Table 2   *Cisco 10000 Series—MPLS Commands That Replaced Tag-Switching Commands*

This MPLS Command Replaces	This Tag-Switching Command
debug mpls events	debug tag-switching events
debug mpls ldp advertisements	debug tag-switching tdp advertisements
debug mpls ldp bindings	debug tag-switching tdp bindings

This MPLS Command Replaces	This Tag-Switching Command
debug mpls ldp messages	debug tag-switching tdp pies
debug mpls ldp peer state-machine	debug tag-switching tdp peer state-machine
debug mpls ldp session io	debug tag-switching tdp session io
debug mpls ldp session state-machine	debug tag-switching tdp session state-machine
debug mpls ldp targeted-neighbors	debug tag-switching tdp directed-neighbors
debug mpls ldp transport connections	debug tag-switching tdp transport connections
debug mpls ldp transport events	debug tag-switching tdp transport events
debug mpls traffic-eng tunnels events	debug tag-switching tsp-tunnels events
debug mpls traffic-eng tunnels labels	debug tag-switching tsp-tunnels tagging
debug mpls traffic-eng tunnels signalling	debug tag-switching tsp-tunnels signalling
mpls ip (global configuration)	tag-switching ip (global configuration)
mpls ip (interface configuration)	tag-switching ip (interface configuration)
mpls ip default-route	tag-switching ip default-route
mpls ip propagate-ttl	tag-switching ip propagate-ttl
mpls label range	tag-switching tag-range downstream
mpls ldp advertise-labels	tag-switching advertise-tags
mpls ldp discovery	tag-switching tdp discovery
mpls ldp holdtime	tag-switching tdp holdtime
mpls ldp maxhops	tag-switching atm maxhops
mpls mtu	tag-switching mtu
mpls prefix-map	tag-switching prefix-map
mpls request-labels for	tag-switching request-tags for
mpls traffic-eng tunnels	tag-switching tsp-tunnels
show mpls forwarding-table	show tag-switching forwarding-table show tag-switching forwarding vrf
show mpls interfaces	show tag-switching interfaces
show mpls ldp bindings	show tag-switching tdp bindings
show mpls ldp discovery	show tag-switching tdp discovery

This MPLS Command Replaces	This Tag-Switching Command
show mpls ldp neighbors	show tag-switching tdp neighbors
show mpls ldp parameters	show tag-switching tdp parameters
show mpls prefix-map	show tag-switching prefix-map
show mpls traffic-eng tunnels	show tag-switching tsp-tunnels
tunnel mode mpls traffic-eng	tunnel mode tag-switching

How to Configure MPLS High Availability Command Changes

There are no cofiguration tasks for this feature.

Configuration Examples for MPLS High Availability Command Changes

There are no configuration examples for this feature.

Additional References

The following sections provide references related to the MPLS High Availability feature.

Related Documents

Related Topic	Document Title
MPLS HA for VPNS	NSF/SSO-MPLS VPN
MPLS HA for LDP	NSF/SSO-MPLS LDP and MPLS LDP Graceful Restart
MPLS HA and other applications	MPLS High Availability: Overview
Stateful switchover	Stateful Switchover
MPLS Label Distribution Protocol	MPLS Label Distribution Protocol (LDP)
Cisco nonstop forwarding	Cisco Nonstop Forwarding
MPLS MTU command changes implemented in Cisco IOS Releases 12.2(27)SBC and later releases.	MPLS MTU Command Changes
Cisco IOS Release 12.4 commands	*Cisco IOS Multiprotocol Label Switching Command Reference*

Standards

Standard	Title
None	—

MIBs

MIB	MIBs Link
None	To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL: http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

RFC	Title
None	—

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. Access to most tools on the Cisco Support 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 on Cisco.com.	http://www.cisco.com/techsupport

Feature Information for MPLS High Availability Command Changes

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 3 *Feature Information for MPLS High Availability: Command Changes*

Feature Name	Releases	Feature Information
MPLS High Availability: Command Changes	12.2(25)S 12.2(28)SB 12.2(33)SRA 12.2(33)SXH	This feature explains the MPLS commands that have been modified for the MPLS High Availability feature. In 12.2(25)S, this feature was introduced on the Cisco 7500 series router. In 12.2(28)SB, support was added for the Cisco 10000 series router. In 12.2(33)SRA, support was added for the Cisco 7600 series router. In 12.2(33)SXH, this feature was integrated into Cisco IOS Release 12.2(33)SXH.