MPLS Static Commands

Note All commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router that is introduced from Cisco IOS XR Release 6.3.2. References to earlier releases in Command History tables apply to only the Cisco NCS 5500 Series Router.

Note

- Starting with Cisco IOS XR Release 6.6.25, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 560 Series Routers.
- Starting with Cisco IOS XR Release 6.3.2, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router.
- References to releases before Cisco IOS XR Release 6.3.2 apply to only the Cisco NCS 5500 Series Router.
- Cisco IOS XR Software Release 7.0.1 specific updates are not applicable for the following variants of Cisco NCS 540 Series Routers:
  - N540-28Z4C-SYS-A
  - N540-28Z4C-SYS-D
  - N540X-16Z4G8Q2C-A
  - N540X-16Z4G8Q2C-D
  - N540-12Z20G-SYS-A
  - N540-12Z20G-SYS-D
  - N540X-12Z16G-SYS-A
  - N540X-12Z16G-SYS-D

This module describes the commands used to configure static MPLS labels in a Multiprotocol Label Switching (MPLS) network on the .

For detailed information about MPLS concepts, configuration tasks, and examples, see *MPLS Configuration Guide for Cisco NCS 5500 Series RoutersMPLS Configuration Guide for Cisco NCS 540 Series RoutersMPLS Configuration Guide for Cisco NCS 560 Series Routers*.

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address family ipv4 unicast (mpls-static)

To enable static MPLS label binding on a specific IPv4 unicast destination address prefix and on the forwarding next-hop address, use the **address-family ipv4 unicast** command in MPLS static configuration mode. To remove MPLS static binding, use the **no** form of this command.

address-family ipv4 unicast local-label *label_value* **allocate** [**per-prefix** *ipv4_prefix_value*] **forward path** *path_value* **nexthop** *nexthop_information interface-type interface-path-id* **out-label** {*label_value* | **pop** | **exp-null**}
no address-family ipv4 unicast

Syntax Description

local-label *label_value*	Specifies MPLS local-label value for static binding and forwarding. The range is from 16 to 1048575.
allocate	Displays local-label allocation options.
per-prefix *ipv4_prefix_value*	Specifies IPv4 prefix value to which the specified MPLS label will be statically bound.
forward	Configure forwarding for traffic with static MPLS label.
path *path-value*	Specifies path-ID for MPLS cross-connect path.
nexthop *nexthop_information*	Specifies the next-hop information that is either an IP address or interface.
interface-type interface-id	Interface type. For more information, use the question mark (?) online help function.
out-label *label_value*	Specifies mpls local-label value for static binding on the egress packet.
pop	Removes label from egress packet.
exp-null	Applies explicit null label on the egress packet.

Command Default

None

Command Modes

MPLS static configuration

Command History

Release	Modification
Release 5.1.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
mpls-static	read

Example

The following command sequence shows how to specify local label for an ip-prefix and define LSP.

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#mpls static
RP/0/RP0/CPU0:router(config-mpls-static)#address-family ipv4 unicast
RP/0/RP0/CPU0:router(config-mpls-static-af)#local-label 30500 allocate per-prefix 10.1.1.1/24
 forward path 1 nexthop 12.2.2.2 out-label 30600
```

clear mpls static local-label discrepancy

To clear any discrepancy between statically allocated and dynamically allocated local labels, use the **clear mpls static local-label discrepancy** command in XR EXEC mode. A label discrepancy is generated when:

- A static label is configured for an IP prefix (per VRF) that already has a binding with a dynamic label.
- A static label is configured for an IP prefix, when the same label value is dynamically allocated to another IP prefix.

clear mpls static local-label discrepancy {*label-value* | **all**}

Syntax Description

label-value	A value that denotes the label for which the discrepancies need to be cleared.
all	Specifies that all discrepancies need to be cleared.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
mpls-static	read

```
RP/0/RP0/CPU0:router#clear mpls static local-label discrepancy all
```

interface (mpls-static)

To enable MPLS encapsulation on specified interfaces, use the **interface** command in MPLS static configuration mode. To disable MPLS encapsulation on specified interfaces, us the **no** form of the command.

interface *interface-type interface-id*
no interface *interface-type interface-id*

Syntax Description

interface-type	Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface instance.

Command Default

None

Command Modes

MPLS static configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
mpls-static	read and write

Example

The following command sequence shows how to enable MPLS encapsulation on a HundredGigE port.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# mpls static
RP/0/RP0/CPU0:router(config-mpls-static)# interface HundredGigE 0/1/0/0
```

show mpls static local-label

To display information about local labels allocated using **mpls static** command, use the **show mpls static local-label** command in XR EXEC mode.

show mpls static local-label {*label-value* | **all** **[detail]** | **discrepancy** **[detail]** | **error** **[detail]**}

Syntax Description

local-label *label-value*	Specifies local label value to display MPLS static information for only that label.
all	Displays MPLS static information about all local labels.
discrepancy	Displays label discrepancy between static labels and dynamic labels.
error	Displays MPLS static labeling errors.
detail	(Optional) Detailed information is displayed.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
mpls-static	read

The following command sequence shows how to view label discrepancy information:

```
RP/0/RP0/CPU0:router#show mpls static local-label discrepancy detail
Tue Apr 22 18:20:47.183 UTC
Label   VRF             Type         Prefix           RW Configured   Status
------- --------------- ------------ ---------------- --------------- --------
16003   default         Per-Prefix   1.1.1.1/32       No              Discrepancy
          STATUS :  Label has discrepancy
```

The following command sequence shows how to view MPLS static information for all local labels:

```
RP/0/RP0/CPU0:router#show mpls static local-label all
Tue Apr 22 18:21:41.813 UTC
Label   VRF             Type         Prefix           RW Configured   Status
------- --------------- ------------ ---------------- --------------- --------
200     default         Per-Prefix   10.10.10.10/32   Yes             Created
16003   default         Per-Prefix   1.1.1.1/32       No              Discrepancy
```

show mpls static summary

To display MPLS static summary information, use the **show mpls static summary** command in XR EXEC mode.

show mpls static summary

Syntax Description

summary	Displays MPLS static binding information.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
mpls-static	read

This is the sample output for **show mpls static summary** command:

```
RP/0/RP0/CPU0:router#show mpls static summary
Tue Apr 22 18:22:17.931 UTC

Label     :  Total      2   Errored     0   Discrepancies         1
VRF       :  Total      1   Active      1
Interface :  Total      7   Enabled     1   Forward-Reference     0

LSD       :  CONNECTED
IM        :  CONNECTED
RSI       :  CONNECTED
```