



# MPLS Static Commands

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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 the Cisco CRS 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 }
```

### Syntax Description

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

### Task ID

Task ID	Operation
mpls-static	read

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 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 }
```

<b>Syntax Description</b>	<i>label-value</i> A value that denotes the label for which the discrepancies are cleared.
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<b>all</b>	Specifies that all discrepancies are cleared.
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<b>Command Default</b>	None
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<b>Command Modes</b>	EXEC
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 5.1.1	This command was introduced.

<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	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, use the **no** form of the command.

**interface** *interface-type* *interface-id*

<b>Syntax Description</b>	<i>interface-type</i>	Interface type. For more information, use the question mark (?) online help function.
	<i>interface-path-id</i>	Physical interface instance.
<b>Command Default</b>	None	
<b>Command Modes</b>	MPLS static configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 5.1.1	This command was introduced.
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	mpls-static	read and write

### Example

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

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# mpls static
RP/0/RP0/CPU0:router(config-mpls-static)# interface gigabitEthernet 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 EXEC mode.

```
show mpls static local-label { label-value | all | discrepancy | error | vrf { vrf-name | default } } { all | discrepancy | error } } [detail]
```

Syntax Description	
<b>local-label</b> <i>label-value</i>	Specifies local label value to display MPLS static information for only that label.
<b>all</b>	Displays MPLS static information about all local labels.
<b>discrepancy</b>	Displays label discrepancy between static labels and dynamic labels.
<b>error</b>	Displays MPLS static labeling errors.
<b>vrf</b> <i>vrf-name</i>	Specifies VRF name to display MPLS static information specific to that VRF.
<b>default</b>	Displays MPLS static information for the default VRF.
<b>detail</b>	(Optional) Detailed information is displayed.

**Command Default** None

**Command Modes** EXEC

Command History	Release	Modification
	Release 5.1.1	This command was introduced.

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    10.0.0.1/32     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    10.0.0.1/32     No              Discrepancy
```

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

```
RP/0/RP0/CPU0:router#show mpls static local-label vrf vpn1 all  
Wed Apr 23 18:13:56.671 UTC
```

Label	VRF	Type	Prefix	RW Configured	Status
1100	vpn1	Per-Prefix	10.10.10.10/32	No	Created

# show mpls static summary

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

**show mpls static summary**

<b>Syntax Description</b>	<b>summary</b> Displays MPLS static binding information.				
<b>Command Default</b>	None				
<b>Command Modes</b>	EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 5.1.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 5.1.1	This command was introduced.
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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
```



## vrf (mpls static)

To enable static MPLS label binding on a specific IPv4 unicast destination address prefix, in the context of a specific VRF, use the **vrf** command in MPLS-static configuration mode. To remove MPLS static binding, use the **no** form of this command.

```
vrf vrf-name address-family ipv4 unicast local-label label_value allocate { per-prefix ipv4-prefix-value | per-vrf forward path path_value pop-and-lookup }
```

Syntax Description		
<b>ipv4</b>		Configure IPv4 address-family parameters.
<b>unicast</b>		Make MPLS static configurations for unicast traffic.
<b>local-label</b> <i>label_value</i>		Specifies MPLS local-label value for static binding and forwarding. The range is from 16 to 1048575.
<b>allocate</b>		Displays local-label allocation options.
<b>per-prefix</b> <i>ipv4_prefix_value</i>		Specifies IPv4 prefix value to which the specified MPLS label is statically bound.
<b>per-vrf</b>		The MPLS protocol requests a single VPN label to be statically bound as the local label for all the prefixes in a specified VRF.
<b>forward</b>		Configures forwarding for traffic with static MPLS label.
<b>path</b> <i>path-value</i>		Specifies path-id for MPLS cross-connect path.
<b>pop-and-lookup</b>		Removes the MPLS label and performs IP-based lookup to learn about provider edge (PE) or customer edge (CE) interfaces for forwarding packets.

**Command Default** None

**Command Modes** MPLS static configuration

Command History	Release	Modification
	Release 5.1.1	This command was introduced.

**Usage Guidelines** While using the VRF command, it is not possible to specify the out going label or next hop information for packet that have static MPLS label binding.

Task ID	Task ID	Operation
	mpls-static	read

The following command sequence shows how to specify local label for an ip-prefix in context of a specific VRF.

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#mpls static
RP/0/RP0/CPU0:router#vrf vrf1 address-family ipv4 unicast
RP/0/RP0/CPU0:router#local-label 30500 allocate per-prefix 10.2.2.2/24
```

The following command sequence shows how to remove the MPLS label and perform IP-based lookup to forward the packets.

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router#mpls static
RP/0/RP0/CPU0:router#vrf vrf1 address-family ipv4 unicast
RP/0/RP0/CPU0:router#local-label 30500 allocate per-vrf forward path 1 pop-and-lookup
```