



## I Commands

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This chapter describes the Cisco NX-OS Multiprotocol Label Switching commands that begin with I.

**import**

# import

To import route-map based virtual routing and forwarding (VRF) and virtual router context, use the **import** command.

```
import {map [map-name | redist-bgp] | vrf default [maximum-prefix | map]}
```

**Syntax Description**

<b>map</b>	Specifies route-map based VRF import.
<i>map-name</i>	Name of the map. A map name can be a case-sensitive, alphanumeric character string with a maximum length of 63 characters.
<b>redist-bgp</b>	Specifies a known route-map name.
<b>vrf</b>	Specifies the virtual router context.
<b>default</b>	Specifies the default VRF name.
<i>maximum-prefix</i>	Maximum prefix. The range is from 1 to 2147483647.

**Defaults**

1000

**Command Modes**

Address family configuration

**SupportedUserRoles**network-admin  
vdc-admin**Command History**

<b>Release</b>	<b>Modification</b>
5.2(1)	This command was introduced.

**Usage Guidelines**

This command does not require the MPLS Services license.

**Examples**

This example shows how to import virtual router context:

```
switch# configure terminal
switch(config)# feature mpls l3vpn
switch(config)# vrf context vpn1
switch(config-vrf)# rd 1.2:1
switch(config-vrf)# address-family ipv4 unicast
switch(config-vrf-af-ipv4)# route-target import 1:101
switch(config-vrf-af-ipv4)# maximum routes 3000
switch(config-vrf-af-ipv4)# import vrf default map redist-bgp
```

This example shows how to remove the virtual router context:  
 switch(config-vrf-af-ipv4)# no import vrf default map redist-bgp

**Related Commands**

Command	Description
<b>maximum routes</b>	Configure the maximum number of routes to be allowed in the routing table.
<b>route-target</b>	Create a route-target extended community for a VRF instance.

# index

To insert or modify a traffic engineering (TE) explicit path entry at a specific index, use the **index** command. To restore the system to its default condition, use the **no** form of this command.

**index index command**

**no index index command**

<b>Syntax Description</b>	<b>index</b> Index number. The range is from 1 to 65535. <b>command</b> Command that can be the <b>exclude-address</b> keyword or the <b>next-address</b> keyword.
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<b>Defaults</b>	None
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<b>Command Modes</b>	TE explicit path configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	This command requires the MPLS Services license.
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<b>Examples</b>	This example shows how to insert or modify a path entry at a specific index:
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```
switch# configure terminal
switch(config)# mpls traffic-eng configuration
switch(config-te)# explicit-path name link5
switch(config-te-explicit-path)# index 10 next-address 10.0.0.1
Explicit Path name link5:
    10: next-address 10.0.0.1
switch(config-te-explicit-path)#

```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls traffic-eng configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Traffic Engineering Protocol (MPLS-TE).

# inherit port-profile

To apply an existing pseudowire port profile to an interface, use the **inherit port-profile** command.

**inherit port-profile** *profile-name*

<b>Syntax Description</b>	<i>profile-name</i>	Profile name. The string can be any alphanumeric string up to 63 characters.
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<b>Defaults</b>	None
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<b>Command Modes</b>	config-if-pseudowire configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.2.2	This command was introduced.

<b>Usage Guidelines</b>	An interface can inherit only an active pseudowire port profile. To enable a pseudowire port profile, use the <b>state enabled</b> command.
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This command requires the MPLS Services license.

<b>Examples</b>	This example shows how to apply an existing port profile to an interface:
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```
switch# configure terminal
switch(config)# port-profile type pseudowire AToM
switch(config-if-prof)# encapsulation mpls
switch(config-pseudowire-mpls)# interface pseudowire 100
switch(config-if-prof)# inherit port-profile AToM
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>interface pseudowire</b>	Enters interface pseudowire configuration mode and configures a static pseudowire logical interface.
	<b>port-profile type pseudowire</b>	Enters interface port-profile configuration mode and configures a pseudowire port profile.
	<b>state enabled</b>	Enables the interface port profile.

# internetworking

To specify the type of pseudowire and the type of traffic that can flow across the network, use the **internetworking** command.

**internetworking {ethernet | vlan}**

<b>Syntax Description</b>	<b>ethernet</b> Specifies the Ethenet type. <b>vlan</b> Specified the VLAN type.
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<b>Defaults</b>	None
-----------------	------

<b>Command Modes</b>	config-xconnect configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.2.2	This command was introduced.

<b>Usage Guidelines</b>	This command is required only if you are configuring a connection between two disparate attachment circuits.
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- The internetworking type on a provider edge (PE) device must match the internetworking type on its peer PE device.
- The **ethernet** keyword causes Ethernet frames to be extracted from the attachment circuit and sent over the pseudowire. Ethernet end-to-end transmission is assumed. Attachment circuit frames that are not Ethernet are dropped.
- The **vlan** keyword allows the VLAN ID to be included as part of the Ethernet frame.

This command requires the MPLS Services license.

<b>Examples</b>	This example shows how to specify the type of pseudowire and the type of traffic that can flow across the network:
-----------------	--

```
switch# configure terminal
switch(config)# interface ethernet 4/0/0.1
switch(config-if)# encapsulation dot1q 100
switch(config-if)# 12vpn xconnect context Test1
switch(config-xconnect)# internetworking ethernet
switch(config-xconnect)#

```

Related Commands	Command	Description
	<b>l2vpn xconnect context</b>	Enters Xconnect configuration mode and establishes a Layer 2 VPN (L2VPN) context for identifying the two members in a VPWS, multi segment pseudowire, or local connect service.
	<b>member pseudowire</b>	Adds an active pseudowire to the XConnect context.

**interface ethernet**

# interface ethernet

To configure an Ethernet interface on which you are enabling the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP), use the **interface ethernet** command. To return to the default setting, use the **no** form of this command.

**interface ethernet** *slot/chassis number*

**no interface ethernet** *slot/chassis number*

<b>Syntax Description</b>	<i>slot/chassis number</i> Slot or chassis number. The range is from 1 to 253.				
<b>Defaults</b>	None				
<b>Command Modes</b>	Interface configuration mode				
<b>Supported User Roles</b>	network-admin vdc-admin				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th><th>Modification</th></tr> </thead> <tbody> <tr> <td>5.2(1)</td><td>This command was introduced.</td></tr> </tbody> </table>	Release	Modification	5.2(1)	This command was introduced.
Release	Modification				
5.2(1)	This command was introduced.				
<b>Usage Guidelines</b>	<p>When you disable the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP) on the device, no LDP commands are available.</p> <p>This command requires the MPLS Services license.</p>				
<b>Examples</b>	<p>This example shows how to configure the Ethernet interface on which you are enabling MPLS LDP:</p> <pre>switch(config)# interface ethernet 2/2 switch(config-if)#</pre>				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th><th>Description</th></tr> </thead> <tbody> <tr> <td><b>mpls ldp configuration</b></td><td>Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).</td></tr> </tbody> </table>	Command	Description	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).
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<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).				

# interface pseudowire

To enter interface pseudowire configuration mode and configure a static pseudowire logical interface, use the **interface pseudowire** command. To delete the pseudowire interface and the associated configuration, use the **no** form of this command.

**interface pseudowire *pw-id***

**no interface pseudowire *pw-id***

<b>Syntax Description</b>	<i>pw-id</i>	Pseudowire ID. The range is from 1 to 200000. The range for a static pseudowire is from 1 to 8192.
<b>Defaults</b>	None	
<b>Command Modes</b>	config-if-pseudowire configuration mode	
<b>SupportedUserRoles</b>	network-admin vdc-admin	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.2.2	This command was introduced.
<b>Usage Guidelines</b>	This command requires the MPLS Services license.	
<b>Examples</b>	<p>This example shows how to enter interface pseudowire configuration mode and configure a static pseudowire logical interface:</p> <pre>switch# configure terminal switch(config)# port-profile type pseudowire AToM switch(config-if-prof)# encapsulation mpls switch(config-pseudowire-mpls)# interface pseudowire 100 switch(config-if-prof)# </pre> <p>This example shows how to delete the pseudowire interface and the associated configuration:</p> <pre>switch(config-if-prof)# no interface pseudowire 100 switch(config-if-prof)# </pre>	

**interface pseudowire**

Related Commands	Command	Description
	<b>port-profile type pseudowire</b>	Enters interface port-profile configuration mode and configures a pseudowire port profile.
	<b>port-profile type pseudowire</b>	Enters interface port-profile configuration mode and configures a pseudowire port profile.
	<b>state enabled</b>	Enables the interface port profile.

# interface tunnel-te

To configure a traffic engineering (TE) interface, use the **interface tunnel-te** command. To restore the system to its default condition, use the **no** form of this command.

**interface tunnel-te *number***

**no interface tunnel-te *number***

<b>Syntax Description</b>	<i>number</i>	Traffic engineering interface number. The range is from 0 to 65503.
<b>Defaults</b>	None	
<b>Command Modes</b>	Interface configuration mode	
<b>SupportedUserRoles</b>	network-admin vdc-admin	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.
<b>Usage Guidelines</b>	This command requires the MPLS Services license.	
<b>Examples</b>	This example shows how to configure a TE interface:  switch# <b>configure terminal</b> switch(config)# <b>interface tunnel-te 65</b> switch(config-if-te)#	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>None</b>	There are no related commands.

---

 ■ **install feature-set mpls**

# install feature-set mpls

To install feature set Multiprotocol Label Switching (MPLS), use the **install feature-set mpls** command. To restore the system to its default condition, use the **no** form of this command.

**install feature-set mpls**

**no install feature-set mpls**

---

**Syntax Description** This command has no arguments or keywords.

---

**Defaults** Only in default VDC

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**Command Modes** Global Configuration mode

---

**SupportedUserRoles** network-admin  
vdc-admin

---

Command History	Release	Modification
	5.2(1)	This command was introduced.

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**Usage Guidelines** This command requires the MPLS Services license.

---

**Examples** This example shows how to install feature set MPLS:

```
switch# configure terminal
switch(config)# install feature-set mpls
feature set is installed already(0x40aa0011)
switch(config)#

```

---

Related Commands	Command	Description
	<b>feature-set mpls</b>	Enables the feature set Multiprotocol Label Switching (MPLS).

---

# ip prefix-list

To create a prefix list for Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP) label filtering, outbound filtering, or inbound filtering, use the **ip prefix-list** command. To return to the default setting, use the **no** form of this command.

```
ip prefix-list prefix-list {description description | seq number [deny network/length [eq eq-length | ge ge-length | le le-length] | permit network/length [eq eq-length | ge ge-length] | deny network/length [eq eq-length | ge ge-length | le le-length]]}
```

```
no ip prefix-list prefix-list {description description | seq number [deny network/length [eq eq-length | ge ge-length | le le-length] | permit network/length [eq eq-length | ge ge-length] | deny network/length [eq eq-length | ge ge-length | le le-length]]}}
```

## Syntax Description

<b><i>prefix-list</i></b>	Name of the prefix list. The prefix list can be up to 63 characters.
<b><i>description</i></b>	Specifies the description of the IP prefix list.
<i>description</i>	IP prefix list description. The maximum size is alphanumeric 90 characters.
<b><i>seq</i></b>	Specifies sequence number of an entry.
<i>number</i>	Sequence number. The range is from 1 to 4294967294.
<b><i>deny</i></b>	(Optional) Denies access for a matching condition.
<i>network/length</i>	Network address and the length of the network mask in bits. The network number can be any valid IP address or prefix. The bit mask can be a number from 0 to 32.
<b><i>eq</i></b>	(Optional) Specifies the equal to operator.
<i>eq-length</i>	Prefix length to be matched.
<b><i>ge</i></b>	(Optional) Specifies the greater than or equal to operator.
<i>ge-length</i>	Specifies the minimum prefix length to be matched.
<b><i>le</i></b>	(Optional) Specifies the less than or equal to operator.
<i>le-length</i>	Maximum prefix length to be matched.
<b><i>permit</i></b>	Specifies the permit access for a matching condition.

## Defaults

None

## Command Modes

Global configuration mode

## SupportedUserRoles

network-admin  
vdc-admin

## Command History

<b>Release</b>	<b>Modification</b>
5.2(1)	This command was introduced.

**ip prefix-list**

**Usage Guidelines** This command requires the MPLS Services license.

**Examples** This example shows how to create an IP prefix list and specifies the prefixes permitted by the prefix list:

```
switch# configure terminal
switch(config)# ip prefix-list p1 permit 10.0.0.2/32 ge 10
switch(config)#
switch# configure terminal
switch(config)# ip prefix-list p1 permit 10.0.0.0/32
switch(config)#

```

Related Commands	Command	Description
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

# ip rsvp

To configure information about the Resource Reservation Protocol (RSVP) information, use the **ip rsvp** command. To restore the system to its default condition, use the **no** form of this command.

**ip rsvp**

**no ip rsvp**

**Syntax Description** This command has no arguments or keywords.

**Defaults** None

**Command Modes** Global configuration mode

**SupportedUserRoles** network-admin  
vdc-admin

Command History	Release	Modification
	5.2(1)	This command was introduced.

**Usage Guidelines** This command requires the MPLS Services license.

**Examples** This example shows how to configure RSVP information:

```
switch# configure terminal
switch(config)# ip rsvp
switch(config-ip-rsvp) #
```

Related Commands	Command	Description
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

---

 ip rsvp authentication challenge

# ip rsvp authentication challenge

To configure the Resource Reservation Protocol (RSVP) to use a challenge handshake on an interface, use the **ip rsvp authentication challenge** command. To disable the authentication on an interface, use the **no** form of this command.

**ip rsvp authentication challenge**

**no ip rsvp authentication challenge**

---

**Syntax Description** This command has no arguments or keywords.

---

**Defaults** None

---

**Command Modes** Interface configuration mode

---

**SupportedUserRoles** network-admin  
vdc-admin

---

Command History	Release	Modification
	5.2(1)	This command was introduced.

---



---

**Usage Guidelines** This command requires the MPLS Services license.

---

**Examples** This example shows how to configure RSVP to use a challenge handshake on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# ip rsvp authentication challenge
switch(config-if)#
```

---

Related Commands	Command	Description
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

---

# ip rsvp authentication key-chain

To activate the Resource Reservation Protocol (RSVP) cryptographic authentication on an interface, use the **ip rsvp authentication key-chain** command. To disable the authentication on an interface, use the **no** form of this command.

**ip rsvp authentication key-chain *key-chain-name***

**no ip rsvp authentication key-chain *key-chain-name***

<b>Syntax Description</b>	<i>key-chain-name</i> Key chain name.				
<b>Syntax Description</b>	This command has no arguments or keywords.				
<b>Defaults</b>	None				
<b>Command Modes</b>	Interface configuration mode				
<b>SupportedUserRoles</b>	network-admin vdc-admin				
<b>Command History</b>	<table border="1"> <thead> <tr> <th><b>Release</b></th><th><b>Modification</b></th></tr> </thead> <tbody> <tr> <td>5.2(1)</td><td>This command was introduced.</td></tr> </tbody> </table>	<b>Release</b>	<b>Modification</b>	5.2(1)	This command was introduced.
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5.2(1)	This command was introduced.				
<b>Usage Guidelines</b>	This command requires the MPLS Services license.				
<b>Examples</b>	<p>This example shows how to activate RSVP cryptographic authentication on an interface:</p> <pre>switch# configure terminal switch(config)# interface ethernet 2/1 switch(config-if)# ip rsvp authentication key-chain key1 switch(config-if)#</pre>				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th><b>Command</b></th><th><b>Description</b></th></tr> </thead> <tbody> <tr> <td><b>mpls ldp configuration</b></td><td>Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).</td></tr> </tbody> </table>	<b>Command</b>	<b>Description</b>	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).
<b>Command</b>	<b>Description</b>				
<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).				

---

 ip rsvp authentication lifetime

# ip rsvp authentication lifetime

To control how long the Resource Reservation Protocol (RSVP) maintains security associations on an interface, use the **ip rsvp authentication lifetime** command. To return to the default settings, use the **no** form of this command.

**ip rsvp authentication lifetime *hh:mm:ss***

**no ip rsvp authentication lifetime *hh:mm:ss***

<b>Syntax Description</b>	<i>hh:mm:ss</i>	Lifetime value in seconds. The range is from 30 to 86400 seconds.
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<b>Syntax Description</b>	This command has no arguments or keywords.
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<b>Defaults</b>	30 minutes
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<b>Command Modes</b>	Interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	This command requires the MPLS Services license.
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<b>Examples</b>	This example shows how to control how long RSVP maintains security associations on an interface:
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```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# ip rsvp authentication key-chain key1
switch(config-if)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

# ip rsvp authentication type

To configure the algorithm used to generate cryptographic signature messages on an interface, use the **ip rsvp authentication type** command. To return to the default settings, use the **no** form of this command.

**ip rsvp authentication type {md5 | sha-1}**

**no ip rsvp authentication type {md5 | sha-1}**

<b>Syntax Description</b>	md5 Specifies the Rivest, Shamir, and Adleman (RSA) Message Digest 5 hash algorithm.  sha-1 Specifies the National Institute of Standards and Technology (NIST) Secure Hash Algorithm 1.
---------------------------	--

**Syntax Description** This command has no arguments or keywords.

**Defaults** md5

**Command Modes** Interface configuration mode

**SupportedUserRoles** network-admin  
vdc-admin

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

**Usage Guidelines** This command requires the MPLS Services license.

**Examples** This example shows how to configure the algorithm used to generate cryptographic signatures messages on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# ip rsvp authentication type md5
switch(config-if)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

---

 ip rsvp authentication window-size

# ip rsvp authentication window-size

To configure the tolerance for an out-of-sequence message on an interface, use the **ip rsvp authentication window-size** command. To return to the default settings, use the **no** form of this command.

**ip rsvp authentication window-size *value***

**no ip rsvp authentication window-size *value***

---

<b>Syntax Description</b>	<i>value</i>	Maximum number of messages allowed in receive window. The range is from 1 to 64.
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<b>Syntax Description</b>	This command has no arguments or keywords.
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<b>Defaults</b>	1
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<b>Command Modes</b>	Interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

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<b>Usage Guidelines</b>	This command requires the MPLS Services license.
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<b>Examples</b>	This example shows how to specify the tolerance for an out-of-sequence message on an interface:
<pre>switch# configure terminal switch(config)# interface ethernet 2/1 switch(config-if)# ip rsvp authentication window-size 3 switch(config-if)# </pre>	

---

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

---

# ip rsvp signalling dscp

To set a Differentiated Services Code Point (DSCP) for Resource Reservation Protocol (RSVP) signalling messages, use the **ip rsvp signalling dscp** command. To revert to the default settings, use the **no** form of this command.

**ip rsvp signalling dscp *value***

**no ip rsvp signalling dscp *value***

<b>Syntax Description</b>	<i>value</i>	DSCP value. The range is from 0 to 63.
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<b>Defaults</b>	48.
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<b>Command Modes</b>	Interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	This command requires the MPLS Services license.
-------------------------	--

<b>Examples</b>	This example shows how to set the DSCP for RSVP signalling messages:
<pre>switch# configure terminal switch(config)# interface ethernet 6/1 switch(config-if)# ip rsvp signalling dscp 1 switch(config-if)#</pre>	

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

---

 ip rsvp signalling hello dscp

# ip rsvp signalling hello dscp

To set the differentiated services code point (DSCP) value that is in the IP header of the hello message, use the **ip rsvp signalling hello dscp** command. To revert to the default settings, use the **no** form of this command.

**ip rsvp signalling hello dscp *value***

**no ip rsvp signalling hello dscp *value***

<b>Syntax Description</b>	<b>value</b>	Differentiated Services Code Point (DSCP) value. The range is from 0 to 63.
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<b>Defaults</b>	48.
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<b>Command Modes</b>	Interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	This command requires the MPLS Services license.
-------------------------	--

<b>Examples</b>	This example shows how to set the DSCP value that is in the IP header of the hello message:
	<pre>switch# configure terminal switch(config)# interface ethernet 2/2 switch(config-if)# ip rsvp signalling hello dscp 1 switch(config-if)#</pre>

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

# ip rsvp signalling hello reroute

To configure IP Resource reservation Protocol (RSVP) signalling hello reroute commands, use the **ip rsvp signalling hello reroute** command. To revert to the default settings, use the **no** form of this command.

**ip rsvp signalling hello reroute [override-graceful]**

**no ip rsvp signalling hello reroute [override-graceful]**

<b>Syntax Description</b>	<b>override-graceful</b>	Specifies to ignore the existence of the GR node neighbor for the Hello State Timer (HST) behavior.
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<b>Defaults</b>	None
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<b>Command Modes</b>	Interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	This command requires the MPLS Services license.
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<b>Examples</b>	This example shows how to configure IP RSVP signalling hello RSVP reroute commands:
	<pre>switch# configure terminal switch(config)# interface ethernet 2/2 switch(config-if)# ip rsvp signalling hello reroute override-graceful switch(config-if)#</pre>

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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ip rsvp signalling hello reroute state-timeout refresh misses

# ip rsvp signalling hello reroute state-timeout refresh misses

To configure the number of consecutive missed hello message before a neighbor is declared down or unreachable for Hello State Timer (HST) functionality, use the **ip rsvp signalling hello reroute state-timeout refresh misses** command. To return to the default behavior, use the **no** form of this command.

**ip rsvp signalling hello reroute state-timeout refresh misses *value***

**no ip rsvp signalling hello reroute state-timeout refresh misses *value***

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<b>Syntax Description</b>	<i>value</i>	Maximum number of messages allowed in the receive window. The range is from 1 to 64.
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<b>Defaults</b>	4
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<b>Command Modes</b>	Interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

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<b>Usage Guidelines</b>	This command requires the MPLS Services license.
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<b>Examples</b>	This example shows how to configure the number of consecutive missed hello message before a neighbor is declared down or unreachable for HST functionality:
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```
switch# configure terminal
switch(config)# interface ethernet 2/2
switch(config-if)# ip rsvp signalling hello reroute state-timeout refresh misses 12
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<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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# ip rsvp signalling hello reroute state-timeout refresh interval

To configure the interval in which Resource Reservation Protocol (RSVP) hello messages are sent to support the HST functionality, use the **ip rsvp signalling hello reroute state-timeout refresh interval** command. To return to the default settings, use the **no** form of this command.

**ip rsvp signalling hello reroute state-timeout refresh interval *time***

**no ip rsvp signalling hello reroute state-timeout refresh misses *time***

<b>Syntax Description</b>	<i>value</i>	Maximum number of messages allowed in the receive window. The range is from 1 to 64.
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<b>Defaults</b>	2 seconds for HST. 200 milli seconds for fast-reroute.
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<b>Command Modes</b>	Interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	The same form of the command with the <b>fast-reroute</b> keyword may be used to configure the number of missed consecutive hello messages before a neighbor is declared down for fast reroute functionality in a future phase.
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This command requires the MPLS Services license.

<b>Examples</b>	This example shows how to configure the interval in which RSVP hello message are sent to support the HST functionality:
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```
switch# configure terminal
switch(config)# interface ethernet 2/2
switch(config-if)# ip rsvp signalling hello reroute state-timeout refresh interval 12
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mpls ldp configuration</b>	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

**ip unnumbered loopback**

To enable IP processing on an interface without assigning an explicit IP address to the interface, use the **ip unnumbered loopback** command. To restore the system to its default condition, use the **no** form of this command.

**ip unnumbered loopback *number***

**no ip unnumbered loopback *number***

<b>Syntax Description</b>	<i>number</i>	Virtual interface number. The range is from 0 to 1023.
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<b>Defaults</b>	None
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<b>Command Modes</b>	TE interface configuration mode
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<b>Supported User Roles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	This command is not effective until you configure the specified loopback with an IP address. This command does not require an MPLS Services license.
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<b>Examples</b>	This example shows how to configure an interface as an unnumbered loopback:
<pre>switch# configure terminal switch(config)# interface tunnel-te 1 switch(config-if-te)# ip unnumbered loopback 0 switch(config-if-te)# </pre>	

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>tunnel-te interface</b>	Configures the traffic engineering (TE) interface.

# isis metric

To configure the Intermediate System-to-Intermediate System (IS-IS) metric for a tunnel interface to be used as a forwarding adjacency, use the **isis metric** command.

**isis metric metric-value {level-1 | level-2}**

<b>Syntax Description</b>	<table border="0"> <tr> <td><i>metric-value</i></td><td>Default metric. The range is from 0 to 16777215.</td></tr> <tr> <td><b>level-1</b></td><td>Specifies the metric to level 1 links.</td></tr> <tr> <td><b>level-2</b></td><td>Specifies the metric to level 2 links.</td></tr> </table>	<i>metric-value</i>	Default metric. The range is from 0 to 16777215.	<b>level-1</b>	Specifies the metric to level 1 links.	<b>level-2</b>	Specifies the metric to level 2 links.
<i>metric-value</i>	Default metric. The range is from 0 to 16777215.						
<b>level-1</b>	Specifies the metric to level 1 links.						
<b>level-2</b>	Specifies the metric to level 2 links.						

<b>Command Modes</b>	TE interface configuration mode
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)	This command was introduced.

<b>Usage Guidelines</b>	Specify the <b>isis metric</b> command with level-1 or level-2 to be consistent with the IGP level at which you are performing traffic engineering; otherwise, the metric default value is 10.
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Use this command only if the IGP is IS-IS. If the IGP is OSPF, use the equivalent OSPF command.  
This command requires the MPLS Services license.

<b>Examples</b>	This example shows how to configure the IS-IS metric for a tunnel interface to be used as a forwarding adjacency:
<pre>switch# configure terminal switch(config)# interface tunnel-te 1 switch(config-if-te)# forwarding-adjacency switch(config-if-te)# isis metric 2 level-1 switch(config-if-te)# </pre>	

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>interface tunnel-te</b>	Configure the traffic engineering interface.

