I Commands

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

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

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

Defaults

1000

Command Modes

Address family configuration

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
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
maximum routes	Configure the maximum number of routes to be allowed in the routing table.
route-target	Create a route-target extended community for a VRF instance.

index

To insert or modifiy 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*

Syntax Description

index	Index number. The range is from 1 to 65535.
command	Command that can be the **exclude-address** keyword or the **next-address** keyword.

Defaults

None

Command Modes

TE explicit path 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 insert or modifiy a path entry at a specific index:

```
switch# configure terminal
switch(config)# mpls traffic-eng configuration
switch(config-te)# explicit-path name link5
switch(config-te-expl-path)# index 10 next-address 10.0.0.1
Explicit Path name link5:
    10: next-address 10.0.0.1
switch(config-te-expl-path)#
```

Related Commands

Command	Description
mpls traffic-eng configuration	Configures the Multiprotocol Label Switching (MPLS) Traffic Engineering Protocol (MPLS-TE).

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*

Syntax Description

slot/chassis number	Slot or chassis number. The range is from 1 to 253.

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

When you disable the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP) on the device, no LDP commands are available.

This command requires the MPLS Services license.

Examples

This example shows how to configure the Ethernet interface on which you are enabling MPLS LDP:

```
switch(config)# interface ethernet 2/2
switch(config-if)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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*

Syntax Description

number	Traffic engineering interface number. The range is from 0 to 65503.

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 a TE interface:

```
switch# configure terminal
switch(config)# interface tunnel-te 65
switch(config-if-te)#
```

Related Commands

Command	Description
None	There are no related commands.

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

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 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
feature-set mpls	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

prefix-list	Name of the prefix list. The prefix list can be up to 63 characters.
description	Specifies the description of the IP prefix list.
description	IP prefix list description. The maximum size is alphanumeric 90 characters.
seq	Specifies sequence number of an entry.
number	Sequence number. The range is from 1 to 4294967294.
deny	(Optional) Denies access for a matching condition.
network/length	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.
eq	(Optional) Specifies the equal to operator.
eq-length	Prefix length to be matched.
ge	(Optional) Specifies the greater than or equal to operator.
ge-length	Specifies the minimum prefix length to be matched.
le	(Optional) Specifies the less than or equal to operator.
le-length	Maximum prefix length to be matched.
permit	Specifies the permit access for a matching condition.

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 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
mpls ldp configuration	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
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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
mpls ldp configuration	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*

Syntax Description

key-chain-name	Key chain name.

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 activate RSVP cryptographic authentication on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# ip rsvp authentication key-chain key1
switch(config-if)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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*

Syntax Description

hh:mm:ss	Lifetime value in seconds. The range is from 30 to 86400 seconds.

Syntax Description

This command has no arguments or keywords.

Defaults

30 minutes

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 control how long RSVP maintains security associations on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# ip rsvp authentication key-chain key1
switch(config-if)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

ip rsvp authentication type

To configure the algorithm used to generate crytpgraphic 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**}

Syntax Description

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

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 the algorithm used to generate crytographic 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)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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*

Syntax Description

value	Maximum number of messages allowed in receive window. The range is from 1 to 64.

Syntax Description

This command has no arguments or keywords.

Defaults

1

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 specify the tolerance for an out-of-sequence message on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# ip rsvp authentication window-size 3
switch(config-if)#
```

Related Commands

Command	Description
mpls ldp configuration	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*

Syntax Description

value	DSCP value. The range is from 0 to 63.

Defaults

48.

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 set the DSCP for RSVP signalling messages:

```
switch# configure terminal
switch(config)# interface ethernet 6/1
switch(config-if)# ip rsvp signalling dscp 1
switch(config-if)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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*

Syntax Description

value	Differentiated Services Code Point (DSCP) value. The range is from 0 to 63.

Defaults

48.

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 set the DSCP value that is in the IP header of the hello message:

```
switch# configure terminal
switch(config)# interface ethernet 2/2
switch(config-if)# ip rsvp signalling hello dscp 1
switch(config-if)#
```

Related Commands

Command	Description
mpls ldp configuration	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**]

Syntax Description

override-graceful	Specifies to ignore the existence of the GR node neighbor for the Hello State Timer (HST) behavior.

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 IP RSVP signalling hello RSVP reroute commands:

```
switch# configure terminal
switch(config)# interface ethernet 2/2
switch(config-if)# ip rsvp signalling hello reroute override-graceful
switch(config-if)#
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

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 *vlaue*

Syntax Description

value	Maximum number of messages allowed in the receive window. The range is from 1 to 64.

Defaults

4

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 the number of consecutive missed hello message before a neighbor is declared down or unreachable for HST functionality:

```
switch# configure terminal
switch(config)# interface ethernet 2/2
switch(config-if)# ip rsvp signalling hello reroute state-timeout refresh misses 12
```

Related Commands

Command	Description
mpls ldp configuration	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

ip rsvp signalling hello reroute state-timeout refresh interval

To configure the interval in which Resource Reservation Protocol (RSVP) hello mesages 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*

Syntax Description

value	Maximum number of messages allowed in the receive window. The range is from 1 to 64.

Defaults

2 seconds for HST.

200 milli seconds for fast-reroute.

Command Modes

Interface configuration mode

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

The same form of the command with the **fast-reroute** 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.

This command requires the MPLS Services license.

Examples

This example shows how to configure the interval in which RSVP hello message are sent to support the HST functionality:

```
switch# configure terminal
switch(config)# interface ethernet 2/2
switch(config-if)# ip rsvp signalling hello reroute state-timeout refresh interval 12
```

Related Commands

Command	Description
mpls ldp configuration	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*

Syntax Description

number	Virtual interface number. The range is from 0 to 1023.

Defaults

None

Command Modes

TE interface configuration mode

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

This command is not effective until you configure the specified loopback with an IP address.

This command does not require an MPLS Services license.

Examples

This example shows how to configure an interface as an unnumbered loopback:

```
switch# configure terminal
switch(config)# interface tunnel-te 1
switch(config-if-te)# ip unnumbered loopback 0
switch(config-if-te)#
```

Related Commands

Command	Description
tunnel-te interface	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**}

Syntax Description

metric-value	Default metric. The range is from 0 to 16777215.
level-1	Specifies the metric to level 1 links.
level-2	Specifies the metric to level 2 links.

Command Modes

TE interface configuration mode

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

Specify the **isis metric** 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.

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.

Examples

This example shows how to configure the IS-IS metric for a tunnel interface to be used as a forwarding adjacency:

```
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)#
```

Related Commands

Command	Description
interface tunnel-te	Configure the traffic engineering interface.