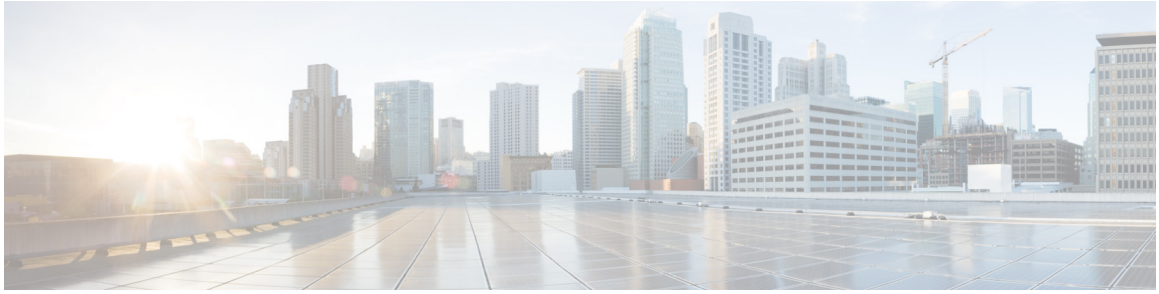

R Commands

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

rd

To create routing and forwarding tables, use the **rd** command. To return to the default setting, use the **no** form of this command.

rd *route-distinguisher*

no rd *route-distinguisher*

Syntax Description

route-distinguisher	8-byte value that is added to an IPv4 prefix to create a VPN IPv4 prefix.

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 routing and forwarding tables:

```
switch# configure terminal
switch(config)# vrf context vpn1
switch(config-vrf)# rd 1.2:1
```

Related Commands

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

record-route (LSP attribute configuration mode)

To record the route used by the label switched path (LSP), use the **record-route** command.

record-route

Syntax Description

This command has no arguments or keywords.

Command Modes

LSP attribute configuration mode

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

The following holds true for all tunnel-te commands that can be specified both in "TE interface configuration mode" or path-option command line or "LSP attribute configuration mode":

If a setting is specified for an LSP, either via the path-option command directly or by assigning an LSP attribute list to a path-option, takes precedence for that specific path-option.

If no setting is specified for an LSP, then the LSP/path-option inherits any setting specified in the tunnel-te configuration mode: affinity, auto-bw, priority, record-route, protection/fast-reroute.

This command requires the MPLS Services license.

Examples

This example shows how to record the route by LSP:

```
switch# configure terminal
switch(config)# mpls traffic-eng configuration
switch(config-te)# lsp attributes 1
switch(config-lsp-attr)# record-route
```

Related Commands

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

record-route (TE interface configuration mode)

To record the route used by the label switched path (LSP), use the **record-route** command.

record-route

Syntax Description

This command has no arguments or keywords.

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 requires the MPLS Services license.

Examples

This example shows how to record the route by LSP:

```
switch# configure terminal
switch(config)# interface tunnel-te 1
switch(config-if-te)# record-route
switch(config-if-te)#
```

Related Commands

Command	Description
interface tunnel-te	Configures the traffic engineering (TE) interface.

redistribute

To redistribute routes from one routing domain into another routing domain, use the **redistribute** command. To return to the default setting, use the **no** form of this command.

redistribute {**bgp** *as* | **direct** | {**eigrp** | **ospf** | **rip**} *instance-tag* | **static**} **route-map** *map-name*

no redistribute {**bgp** *as* | **direct** | {**eigrp** | **ospf** | **rip**} *instance-tag* | **static**} **route-map** *map-name*

Syntax Description

bgp	Specifies the Border Gateway Protocol (BGP).
as	16-bit integer or a 32-bit integer in the form of a higher 16-bit decimal number and a lower 16-bit decimal number in xx.xx format.
direct	Specifies directly connected routes.
eigrp	Specifies the Enhanced Interior Gateway Routing Protocol (EIGRP).
ospf	Specifies the Open Shortest Path First (OSPF).
rip	Specifies the Routing Information Protocol (RIP).
instance-tag	Instance-tag that can be any case-sensitive, alphanumeric string up to 20 characters.
static	Specifies static routes.
route-map	Specifies the policy to constrain redistribution.
map-name	Name of the map that you used to redistributes routes from one routing domain into another routing domain. The name can be any case-sensitive, alphanumeric string up to 63 characters.

Defaults

None

Command Modes

Route 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 redistribute routes from one routing domain into another routing domain:

```
switch# configure t
switch(config)# feature rip
```

```
switch(config)# router rip test1
switch(config-router)# vrf vpn1
switch(config-router-vrf-af)# redistribute bgp 1.0 route-map bagpipe
switch(config-router-vrf-af)#
```

Related Commands

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

redistribute direct route-map

To redistribute directly connected routes using the Border Gateway Protocol (BGP), use the **redistribute direct route-map** command. To return to the default setting, use the **no** form of this command.

redistribute direct route-map *map-tag*

no redistribute direct route-map *map-tag*

Syntax Description

map-tag	Map name that can be any case-sensitive, alphanumeric string up to 63 characters.

Defaults

None

Command Modes

Address family 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 redistribute directly connected routes using BGP:

```
switch# configure t
switch(config)# router bgp 1.1
switch(config-router)# vrf vpn1
switch(config-router-vrf)# address-family ipv4 unicast
switch(config-router-vrf-af)# redistribute direct route-map directMap
switch(config-vrf-af)#
```

Related Commands

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

redistribute static route-map

To redistribute static routes by using the Border Gateway Protocol (BGP), use the **redistribute static-map** command. To return to the default setting, use the **no** form of this command.

redistribute static route-map *map-tag*

no redistribute static route-map *map-tag*

Syntax Description

map-tag	Map name that can be any case-sensitive, alphanumeric string up to 63 characters.

Defaults

None

Command Modes

Address family 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 redistribute static routes using BGP:

```
switch# configure t
switch(config)# router bgp 1.1
switch(config-router)# vrf vpn1
switch(config-router-vrf)# address-family ipv4 unicast
switch(config-router-vrf-af)# redistribute static route-map StaticMap
switch(config-vrf-af)#
```

Related Commands

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

redundancy

To configure a Layer 2 VPN (L2VPN) virtual forwarding interface (VFI) context as the primary or secondary node, use the **redundancy** command.

redundancy {**primary** | **secondary**}

Syntax Description

primary	Specifies the context as a primary node.
secondary	Specifies the context as a secondary node.

Defaults

None

Command Modes

config-l2vpn-vfi mode

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
6.2.2	This command was introduced.

Usage Guidelines

This command requires the MPLS Services license.

Examples

This example shows how to configure an L2VPN VFI context as the primary node:

```
switch# configure terminal
switch(config)# l2vpn vfi context vpls80
switch(config-l2vpn-vfi)# description VFIforDualHome
switch(config-l2vpn-vfi)# vpn 10
switch(config-l2vpn-vfi)# redundancy primary
switch(config-l2vpn-vfi)#
```

Related Commands

Command	Description
bridge domain	Enters bridge-domain configuration mode and configures a bridge domain.
l2vpn vfi context	Establishes a Layer 2 VPN (L2VPN) Virtual Forwarding Interface (VFI) between two or more separate networks.
vpn	Configures a Virtual Private Network (VPN) ID on a VFI context.

remote link failure notification

To enable Any Transport over MPLS (AToM) remote link failure notification and shutdown, use the **remote link failure notification** command. To disable remote link failure notification, use the **no** form of this command.

remote link failure notification

no remote link failure notification

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
6.2.2	This command was introduced.

Usage Guidelines

This command requires the MPLS Services license.

Examples

This example shows how to enable AToM remote link failure notification and shutdown:

```
switch# configure terminal
switch(config)# l2vpn xconnect context XCON1
switch(config-xconnect)# remote link failure notification
```

This example shows how to disable the AToM remote link failure notification and shutdown:

```
switch(config-xconnect)# no remote link failure notification
switch(config-xconnect)#
```

Related Commands

Command	Description
l2vpn xconnect context	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.

reoptimize events link-up

To reoptimize tunnels on link-up events, use the **reoptimize events link-up** command. To return to the default setting, use the **no** form of this command.

reoptimize events link-up

no reoptimize events link-up

Syntax Description

This command has no arguments or keywords.

Defaults

None

Command Modes

TE 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 reoptimize tunnels on link-up events:

```
switch# configure t
switch(config)# mpls traffic-eng configuration
switch(config-te)# reoptimize events link-up
switch(config-te)#
```

Related Commands

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

reoptimize timers

To configure Multiprotocol Label Switching (MPLS) traffic engineering reoptimize timers, use the **reoptimize timers** command. To return to the default setting, use the **no** form of this command.

reoptimize timers {**delay cleanup** *sec* | **installation** *sec* | **frequency** *sec*}

no reoptimize timers {**delay cleanup** | **installation** | **frequency**}

Syntax Description

delay	Specifies the delay reoptimization action.
cleanup	Specifies to delay the cleanup of the reoptimized LSP.
sec	Time in seconds to delay the cleanup of the replaced tunnel LSP. The range is from 0 to 60.
installation	Specifies to delay the replacement of the current LSP by the reoptimized LSP.
sec	Time in seconds to delay the replacement of the tunnel LSP. The range is from 0 to 3600.
frequency	Specifies the interval between reoptimization scans.
sec	Time in seconds between reoptimizations. The range is from 0 to 604800.

Defaults

The default are as follows:

- Delay cleanups— The default is 10.
- Installation— The default is 3.
- frequency— The default is 3600.

Command Modes

TE 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 delay the replacement of the current LSP by the reoptimized LSP:

```
switch# configure t
switch(config)# mpls traffic-eng configuration
switch(config-te)# reoptimize timers delay installation 3000
```

```
switch(config-te)#
```

Related Commands

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

restart

To gracefully restart the Resource Reservation Protocol (RSVP) process, use the **restart** ommand. To return to the default settings, use the **no** form of the command.

restart rsvp

no restart rsvp

Syntax Description

This command has no arguments or keywords.

Defaults

None

Command Modes

EXEC.

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 rate limit the number of messages that are sent to a neighboring router:

```
switch# restart rsvp
switch#
```

Related Commands

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

rewrite ingress tag push dot1q symmetric

To add one VLAN tag to the incoming dot1q frame and symmetrically apply the operation to the ingress and egress frames, use the **rewrite ingress tag push dot1q symmetric** command.

rewrite ingress tag push dot1q *vlan-id* **symmetric**

Syntax Description

vlan-id	VLAN ID. The range is from 2 to 967.

Defaults

None

Command Modes

config-if-srv mode

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
6.2.2	This command was introduced.

Usage Guidelines

The VLAN ID must match the domain ID of the bridge domain to which this Ethernet Flow Point (EFP) is to be associated.

This command is supported only on an EFP that you configured with the **encapsulation default** command.

This command requires the MPLS Services license.

Examples

This example shows how to add one VLAN tag to the incoming dot1q frame and symmetrically apply the operation to the ingress and egress frames:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# no ip address 10.1.1.1 255.255.255.0
switch(config-if)# service instance 1 ethernet
switch(config-if-srv)# description EFP1forTest
switch(config-if-srv)# encapsulation dot1q 10
switch(config-if-srv)# rewrite ingress tag push dot1q 30 symmetric
switch(config-if-srv)#
```

Related Commands

Command	Description
rewrite ingress tag translate 1-to-1 dot1q symmetric	To rewrite one VLAN tag in the incoming dot1q frame and symmetrically apply the operation to the ingress and egress frames.
service instance	Enters interface services configuration mode and configures an EFP on the interface.

rewrite ingress tag translate 1-to-1 dot1q symmetric

To rewrite one VLAN tag in the incoming dot1q frame and symmetrically apply the operation to the ingress and egress frames, use the **rewrite ingress tag translate 1-to-1 dot1q symmetric** command.

rewrite ingress tag translate 1-to-1 dot1q *vlan-id* **symmetric**

Syntax Description

vlan-id	VLAN ID. The range is from 2 to 967.

Defaults

None

Command Modes

config-if-srv mode

SupportedUserRoles

network-admin
vdc-admin

Command History

Release	Modification
6.2.2	This command was introduced.

Usage Guidelines

The VLAN ID must match the domain ID of the bridge domain to which this Ethernet Flow Point (EFP) is to be associated.

This command is supported only on an EFP that you configured with the **encapsulation default** command.

This command requires the MPLS Services license.

Examples

This example shows how to rewrite one VLAN tag in the incoming dot1q frame and symmetrically apply the operation to the ingress and egress frames:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# no ip address 10.1.1.1 255.255.255.0
switch(config-if)# service instance 1 ethernet
switch(config-if-srv)# description EFP1forTest
switch(config-if-srv)# encapsulation dot1q 10
switch(config-if-srv)# rewrite ingress tag push dot1q 30 symmetric
switch(config-if-srv)# rewrite ingress tag translate 1-to-1 dot1q 20 symmetric
```

Related Commands

Command	Description
rewrite ingress tag push dot1q symmetric	Adds one VLAN tag to the incoming dot1q frame and symmetrically applies the operation to the ingress and egress frames.
service instance	Enters interface services configuration mode and configures an EFP on the interface.

route-target

To create a route-target extended community for a virtual routing and forwarding (VRF) instance, use the **route target** command. To return to the default setting, use the **no** form of this command.

route-target {**import** | **export**} *route-target-ext-community*

no route-target {**import** | **export**} *route-target-ext-community*

Syntax Description

import	Imports routing information from the target virtual private network (VPN) extended community.
export	Exports routing information to the target virtual private network (VPN) extended community.
route-target-ext-community	Route-target-extended community attributes that you can use to specify the VRF's list of import or export route-target extended communities. You can enter the route-target-ext-community argument as follows: • 16-bit or 32-bit AS number: your 32-bit number, for example, 1.2:3 • 32-bit IP address: your 16-bit number, for example, 192.0.2.1:1

Defaults

None

Command Modes

Address family configuration mode

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 create a route-target extended community for a VRF:

```
switch# configure t
switch(config)# vrf context vpn1
switch(config-vrf)# address-family ipv4 unicast
switch(config-vrf-af)# route-target import 1:101
```

Related Commands

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

router bgp

To configure a Border Gateway Protocol (BGP) process for an interface, use the **router bgp** command. To return to the default setting, use the **no** form of this command.

router bgp *as-number*

no router bgp *as-number*

Syntax Description

as-number	Number of an autonomous system that identifies the router to other BGP routers and tags that the routing information passed along. The AS number can be a 16-bit integer or a 32-bit integer in the form of a higher 16-bit decimal number and a lower 16-bit decimal number in xx.xx format.

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 a BGP process for an interface:

```
switch(config)# router bgp 1.1
switch(config-router)#
```

Related Commands

Command	Description
tunnel-te interface	Configures the traffic engineering (TE) interface.

router isis

To configure an Intermediate System-to-Intermediate System (IS-IS) routing process, use the **router isis** command. To return to the default setting, use the **no** form of this command.

router isis *routing-process-tag*

no router isis *routing-process-tag*

Syntax Description

routing-process-tag	Routing process tag. The maximum size is 20 alphanumeric characters.

Defaults

None

Command Modes

Router 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 an IS-IS routing process:

```
switch# configure terminal
switch(config)# router isis p1
switch(config-router)#
```

Related Commands

Command	Description
tunnel-te interface	Configures the traffic engineering (TE) interface.

router ospf

To enable an Open Shortest Path First (OSPF) routing process, use the **router ospf** command. To return to the default setting, use the **no** form of this command.

router ospf *router-process-tag*

no router ospf *router-process-tag*

Syntax Description

router-process-tag	Process name. The maximum size is 20 alphanumeric characters.

Syntax Description

This command has no arguments or keywords.

Defaults

None

Command Modes

Router 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 enable an OSPF routing process:

```
switch# configure terminal
switch(config)#  router ospf p1
switch(config-router)#
```

Related Commands

Command	Description
tunnel-te interface	Configures the Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP).

router rip

To enable the Routing Information Protocol (RIP), use the **router rip** command. To return to the default setting, use the **no** form of this command.

router rip *instance-tag*

no router rip *instance-tag*

Syntax Description

instance-tag	Instance tag that can be any case-sensitive, alphanumeric string up to 20 characters.

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 enable RIP:

```
switch# configure terminal
switch(config)#
switch(config)# feature rip
switch(config)# router rip Test1
switch(config-router)#
```

Related Commands

Command	Description
tunnel-te interface	Configures the traffic engineering (TE) interface.

router-id

To configure the preferred interface for determining the Label Distribution Protocol (LDP) router ID, use the **router-id** command. To return to the default setting, use the **no** form of this command.

router-id loopback *interface number* [**force**]

no router-id loopback *interface number* [**force**]

Syntax Description

loopback	Specifies the loopback interface. The interface could be Ethernet or any others.
interface number	Virtual interface number. The range is from 0 to 1023.
force	(Optional) Specifies to forcibly change the LDP router ID.

Defaults

None

Command Modes

LDP 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 preferred interface for determining the LDP router ID:

```
switch(config)# mpls ldp
switch(config-ldp)# router-id loopback 2
switch(config-ldp)#
```

This example shows how to assign Ethernet 2/2 interface as the LDP router ID:

```
switch# configure terminal
switch(config)# mpls ldp
switch(config-ldp)# router-id loopback 0 force
```

Related Commands

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