



S Commands

This chapter describes the Cisco NX-OS unicast routing commands that begin with the letter S, except for the **show** commands.

set as-path

To modify an autonomous system path (as-path) for BGP routes, use the **set as-path** command in route-map configuration mode. To not modify the autonomous system (AS) path, use the **no** form of this command.

```
set as-path { tag | { prepend as-num[...as-num] | last-as num } }
```

```
no as-path { tag | { prepend as-num[...as-num] | last-as num } }
```

Syntax Description

tag	Converts the tag of a route into an autonomous system path. Applies only when redistributing routes into BGP.
prepend	Appends the specified AS number to the autonomous system path of the route that is matched by the route map. Applies to both inbound and outbound BGP route maps. Range: 1 to 65535. You can configure more than one AS number.
last-as	Prepends the last AS numbers to the as-path. Range: 1 to 10.

Defaults

Autonomous system path is not modified.

Command Modes

Route-map configuration (config-route-map)

Supported User Roles

network-admin
vdc-admin

Command History

4.0(1) This command was introduced.

Usage Guidelines**feature pbr****route-map**

Use the **route-map** command to enter route-map configuration mode. Once you enter the **route-map** command, the prompt changes to the following:

```
switch(config-route-map)#
```

Once you enter route-map configuration mode, you can enter the `set as-path` command.

The only global BGP metric available to influence the best path selection is the autonomous system path length. By varying the length of the autonomous system path, a BGP speaker can influence the best path selection by a peer further away.

By allowing you to convert the tag into an autonomous system path, the `set as-path` variation of this command modifies the autonomous system length. The `prepend` variation allows you to “prepend” an arbitrary autonomous system path string to BGP routes. Usually the local autonomous system number is prepended multiple times, increasing the autonomous system path length.

Examples

The following example converts the tag of a redistributed route into an autonomous system path:

```
)# route-map test1
   set as-path tag
```

The following example prepends 100 to all the routes advertised to 10.108.1.1:

```

match as-path 1
set as-path prepend 100
!
switch(config)# router bgp 64496
                 neighbor 10.108.1.1 remote-as 64497
-router-neighbor)# address-family ipv4 unicast
                   route-map set-as-path test1 out
```

match as-path	Matches a BGP autonomous system path access list.
match community	Matches a BGP community.
match ip address	Distributes any routes that have a destination network number address that is permitted by a standard or expanded access list, and performs policy routing on packets.
match ip next-hop	Redistributes any routes that have a next hop router address passed by one of the access lists specified.
match ip route-source	Redistributes routes that have been advertised by routers and access servers at the address specified by the access lists.
match metric	Redistributes routes with the metric specified.

match tag

route-map (IP)

set as-path

set community

set level Indicates where to import routes.

set local-preference Specifies a preference value for the autonomous system path.

set metric Sets the metric value for a routing protocol.

set metric-type Sets the metric type for the destination routing protocol.

set next-hop Specifies the address of the next hop.

set tag Sets a tag value of the destination routing protocol.

set weight Specifies the BGP weight for the routing table.

set comm-list delete

community-list-name

Syntax Description

<i>community-list-name</i>	A standard or expanded community list name. The name is any alphanumeric string up to 63 characters.
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Command Default

Command Modes

Supported User Roles

Command History

4.0(1)	This command was introduced.
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Usage Guidelines

Each entry of a standard community list should list only one community when used with the `set community-list delete` command. For example, in order to be able to delete communities 10:10 and 10:20, you must use the following format to create the entries:

```
ip community-list 500 permit 10:10
ip community-list 500 permit 10:20
```

The following format for a community list entry, while acceptable otherwise, does not work with the `set community-list delete` command:

```
ip community-list 500 permit 10:10 10:20
```

When both the `set community-list delete` and `set community-list` commands are configured in the same sequence of a route map attribute, the deletion operation (`set community-list delete`) is performed before the set operation (`set community-list`).

This command does not require a license.

The following example shows how to remove communities from the community attribute of an inbound or outbound update:

Matches a BGP autonomous system path access list.
Matches a BGP community.
Distributes any routes that have a destination network number address that is permitted by a standard or expanded access list, and performs policy routing on packets.
Redistributes any routes that have a next hop router address passed by one of the access lists specified.
Redistributes routes that have been advertised by routers and access servers at the address specified by the access lists.
Redistributes routes with the metric specified.
Redistributes routes in the routing table that match the specified tags.
Defines the conditions for redistributing routes from one routing protocol into another, or enables policy routing.
Modifies an autonomous system path for BGP routes.
Sets the BGP communities attribute.
Indicates where to import routes.
Specifies a preference value for the autonomous system path.
Sets the metric value for a routing protocol.
Sets the metric type for the destination routing protocol.
Specifies the address of the next hop.
Sets a tag value of the destination routing protocol.
Specifies the BGP weight for the routing table.

set community

To set the BGP communities attribute, use the `set community` route map configuration command. To delete the entry, use the `no set community` form of this command.

```

set community { community-name } : aa:nn additive local-as no-advertise no-export
no set community none aa:nn additive local-as no-advertise no-export
    
```

aa:nn

additive

local-AS

no-advertise

no-export

none

4.0(1) This command was introduced.

route-map **match** **set**

route-map **match** **set** **match**
match criteria—the conditions under which redistribution is allowed for the current command. The *set actions*—the particular redistribution actions to perform if the criteria enforced by the *match* commands are met. The *match* command deletes the route map.

The *route map* configuration commands specify the redistribution *set actions* to be performed when all of the match criteria of a route map are met. When all match criteria are met, all set actions are performed.

This command does not require a license.

In the following example, routes that pass the autonomous system path access list 1 have the community set to 109:02 and 33:40. Routes that pass the autonomous system path access list 2 have the community set to no-export (these routes will not be advertised to any external BGP [eBGP] peers).

```
set community 109:02 33:40
exit
route-map test1 20 permit
match as-path 2
set community no-export
```

In the following similar example, routes that pass the autonomous system path access list 1 have the community set to 109:30. Routes that pass the autonomous system path access list 2 have the community set to local-as (the router will not advertise this route to peers outside the local autonomous system).

```
route-map test1 10 permit
match as-path 1
set community 109:30 additive
exit
route-map test1 20 permit
match as-path 2
set community local-as
```

Creates a community list for BGP and control access to it.

Matches a BGP community.

Defines the conditions for redistributing routes from one routing protocol into another, or enables policy routing.

Removes communities from the community attribute of an inbound or outbound update.

Displays routes that belong to specified BGP communities.



set dampening

half-life reuse suppress max-suppress-time

Syntax Description

half-life

reuse

10-second increments. Range: 1 to 20000. Default: 750.

suppress

Suppresses a route when its penalty exceeds this limit. Range: 1 to 20000. Default: 2000.

max-suppress-time

Maximum time (in minutes) a route can be suppressed. Range: 1 to 255. Default: Four times the *half-life* value. If the *half-life* value is allowed to default, the maximum suppress time defaults to 60 minutes.

Command Default

Command Modes

SupportedUserRoles

Command History

4.0(1)

This command was introduced.

Usage Guidelines

match criteria

set actions

This command does not require a license.

The following example sets the half life to 30 minutes, the reuse value to 1500, the suppress value to 10000; and the maximum suppress time to 120 minutes:

Matches a BGP autonomous system path access list.
Matches a BGP community.
Distributes any routes that have a destination network number address that is permitted by a standard or expanded access list, and performs policy routing on packets.
Redistributes any routes that have a next hop router address passed by one of the access lists specified.
Redistributes routes that have been advertised by routers and access servers at the address specified by the access lists.
Redistributes routes with the metric specified.
Redistributes routes in the routing table that match the specified tags.
Defines the conditions for redistributing routes from one routing protocol into another, or enables policy routing.
Modifies an autonomous system path for BGP routes.
Sets the BGP communities attribute.
Indicates where to import routes.
Specifies a preference value for the autonomous system path.
Sets the metric value for a routing protocol.
Sets the metric type for the destination routing protocol.
Specifies the address of the next hop.
Sets a tag value of the destination routing protocol.
Specifies the BGP weight for the routing table.

set etxcommunity

To set the Border Gateway Protocol (BGP) extended communities attribute, use the command. To delete the entry, use the form of this command.

```
{ | { | } aa4 nn aa4:nn  
aa4 nn aa4:nn
```

Syntax Description

aa4 nn

Command Default

Command Modes

Supported User Roles

Command History

Release	Modification

Usage Guidelines

set actions

■ set etxcommunity

Examples

Related Commands

Command	Description

set extcomm-list delete

community-list-name

Syntax Description

community-list-name

Command Default

Command Modes

SupportedUserRoles

Command History

Release	Modification

Usage Guidelines

set actions

community-number

community-number

Examples

■ set extcomm-list delete

Related Commands	Command	Description

set forwarding-address

To set the OSPF forwarding address for redistributed type-5 LSAs, use the route-map configuration mode command. To remove the address, use the form of this command.

Syntax Description This command has no arguments or keywords.

Command Default No forwarding address is set as a default.

Command Modes Route-map configuration (config-route-map)

Supported User Roles network-admin
vdc-admin

Command History	Release	Modification
	4.0(1)	This command was introduced.

Usage Guidelines This command is used by the Open Shortest Path First (OSPF) to set the forwarding address in the for the redistributed type-5 LSAs. The value of the forwarding address specified by the autonomous system boundary router (ASBR) can be either 0.0.0.0 or non-zero. The 0.0.0.0 address indicates that the originating router (the ASBR) is the next hop. The forwarding address is determined by these conditions: The forwarding address is set to 0.0.0.0 if the ASBR redistributes routes and OSPF is not enabled on the next hop interface for those routes. This is true in the figure if Router 1 does not have OSPF enabled on the Ethernet interface.

All of the following conditions must be met to set the forwarding address field to a non-zero address:

- OSPF is enabled on the ASBR's next hop interface.
- ASBR's next hop interface is non-passive under OSPF.
- ASBR's next hop interface is not point-to-point.
- ASBR's next hop interface is not point-to-multipoint.

Any other conditions besides those listed previously, set the forwarding address to 0.0.0.0.

This command does not require a license.

Examples The following example shows how to set the forwarding address:

```
set forwarding-address
```


ip-address ...ip-address

ip-address ...ip-address

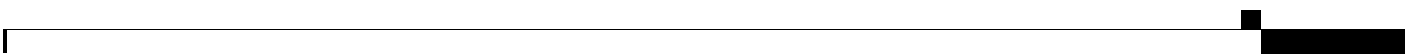
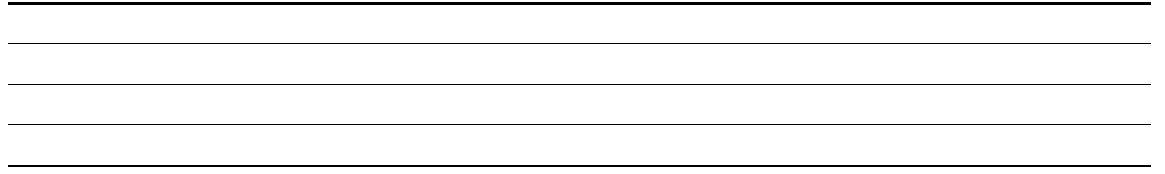
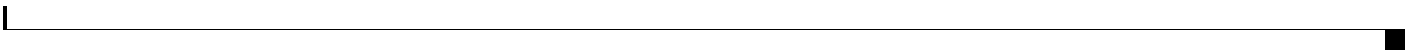
<i>ip-address</i>	IP address of the next hop to which packets are output. The next hop must be an adjacent router. You can configure up to 32 IP addresses.
	(Optional) Enables load sharing.

4.0(1)	This command was introduced.
--------	------------------------------

ip-address

command needs to be adjacent to the router. The optional specified IP addresses are tried in turn.

Use the interface configuration command, the global configuration command, and the and route-map configuration commands to define the conditions for policy routing packets. The command identifies a route map by name. Each command has a list of and commands associated with it. The commands specify the *match criteria*—the conditions under which policy routing occurs. The commands specify the *set actions*—the particular routing actions to perform if the criteria enforced by the commands are met.



{ load-share] peer-address
no set ip next-hop { load-share] peer-address

load-share
peer-address

ip policy route-map route-map
match set route-map
ip policy route-map route-map
match set match
set

set ip next-hop

set ip next-hop command peer-address

set ip next-hop

peer-address

neighbor next-hop-self
neighbor next-hop-self

set ip next-hop

set ip next-hop
set ip default next-hop

set ip next-hop peer-address

ip policy route-map
match ip address

match length
route-map

set ip default next-hop

set ipv6 default next-hop

no **ipv6 default next-hop**

set ipv6 default next-hop *ipv6-address ...ipv6-address*
ipv6-address ...ipv6-address

ipv6-address

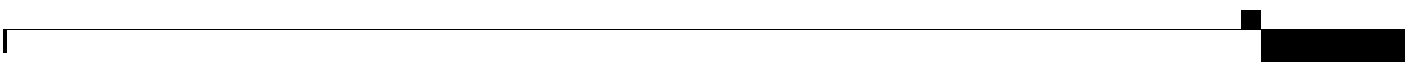
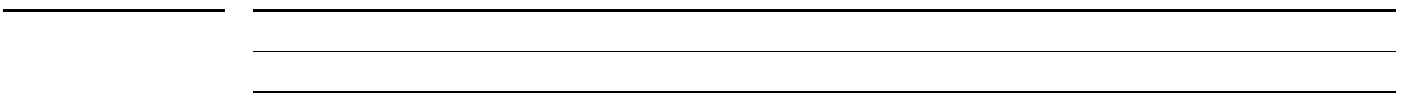
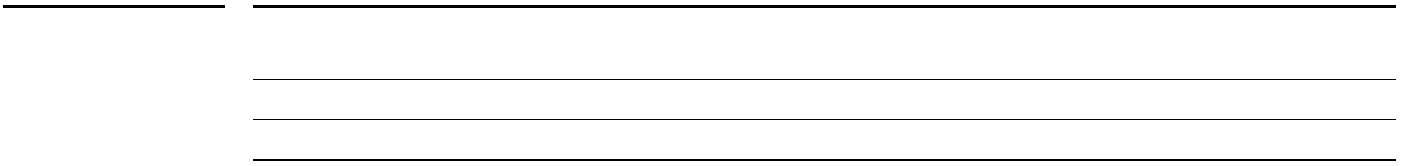
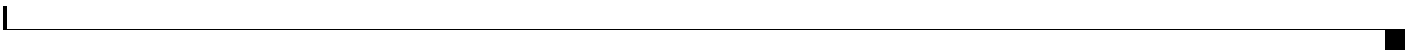
ipv6-address

match criteria
actions

set









```
ipv6 access-list test
    permit ipv6 2001:0DB8::/48 any
    exit
route-map equal-access
    match ipv6 address test
    set ipv6 next-hop 2001:0DB8::3
    exit
interface ethernet 2/1
    ipv6 policy route-map equal-access
```

level-1 level-2 level-1-2

no set level level-1 level-2 level-1-2

level-1

level-2

level-1-2

route-map

match set

route-map

match set

match

route-map

set

match

no route-map

set

ip policy route-map

match ip address

match length

neighbor next-hop-self

route-map (IP)

set ip default next-hop

match as-path

match community

match interface (IP)

match ip address

match ip next-hop

match ip route-source

match metric (IP)

match route-type (IP)

match tag

route-map (IP)

set automatic-tag

set community

set ip next-hop

set level (IP)

set local-preference

set metric (BGP, OSPF, RIP)

set metric-type

set origin (BGP)

set tag (IP)

set metric
no

set metric + - *bandwidth-metric*

set metric *bandwidth-metric* *delay-metric* *reliability-metric* *load-metric* *mtu*

no set metric

+

-

is from 0 to 4294967295.., in Kb/s. The range

(Optional) Interior Gateway Routing Protocol (IGRP) delay metric, in 10 microsecond units. The range is from 1 to 4294967295.

(Optional) IGRP reliability metric. The range is from 0 to 255.

(Optional) IGRP load metric. The range is from 1 to 255.

(Optional) IGRP maximum transmission unit (MTU) of the path. The range is from 1 to 4294967295.

4.0(1) This command was introduced.

4.1(2) Added the and keywords.

set metric



reliability-metric *load-metric*

Use the `metric` or `delay` keywords to modify the existing delay metric value. You can modify only the delay metric with these keywords.

Use the `metric` global configuration command and the `metric` and `route-map` configuration command to define the conditions for redistributing routes from one routing protocol into another. Each `metric` command has a list of `match` and `set` commands associated with it. The `match` commands specify the `match`—the conditions under which redistribution is allowed for the current `metric` command. The `set` commands specify the `set`—the particular redistribution actions to perform if the criteria enforced by the `match` commands are met. The `no metric` command deletes the route map.

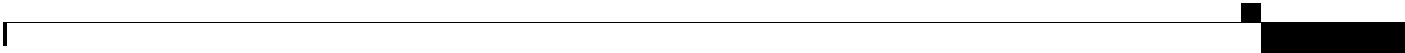
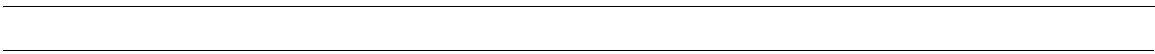
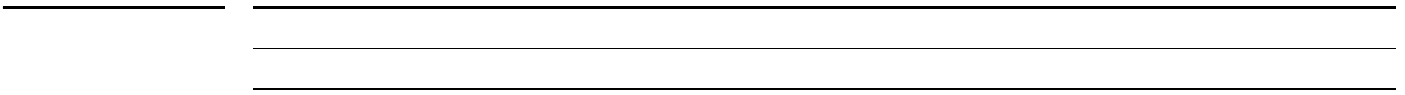
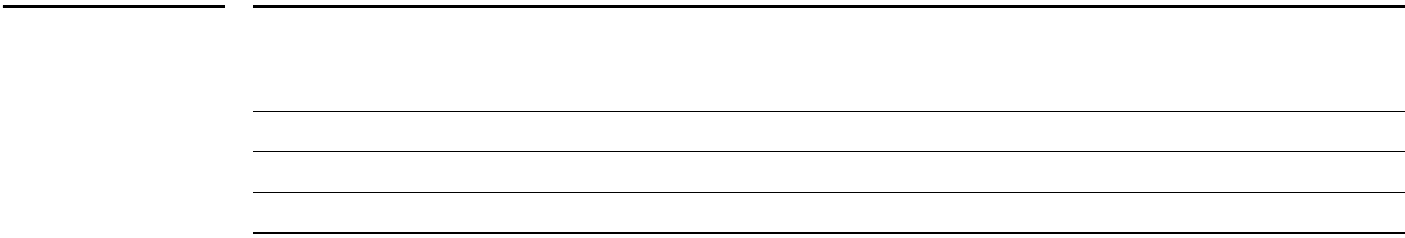
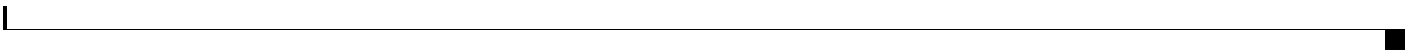
The `route-map` configuration commands specify the redistribution `set` to be performed when all the match criteria of a route map are met. When all match criteria are met, all set actions are performed.

This command does not require a license.

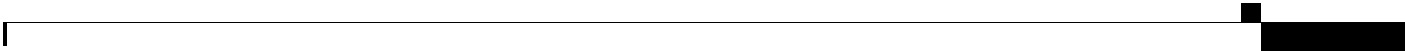
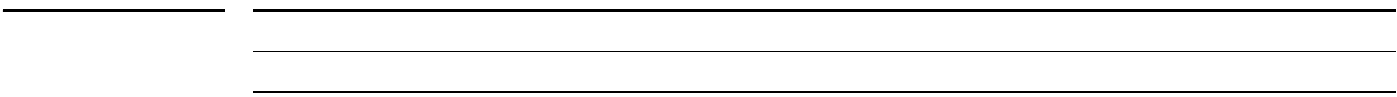
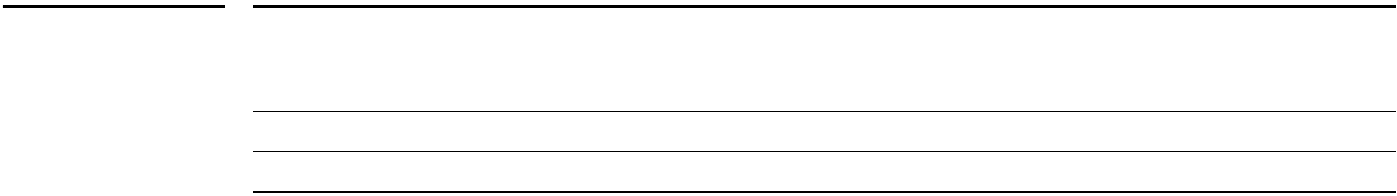
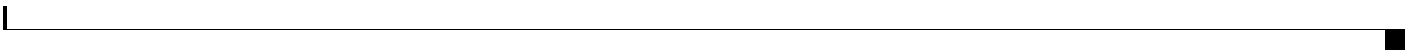
The following example shows how to set the bandwidth metric value for the routing protocol to 100:

The following example shows how to increase the bandwidth metric value for the routing protocol by 100:

```
set metric +100
```



```
route-map map-type
  set metric-type type-1
```



```
route-map set_origin
  match as-path 10
  set origin igp
```

tag-value

tag-value

tag-value

forward

match criteria

set actions

set actions

```
route-map test
  set tag 5
```



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To enable virtual routing/forwarding instance (VRF) selection within a route map for policy-based routing VRF selection, use the `route-map vrf` command in route-map configuration mode. To disable VRF selection within a route map, use the `no route-map vrf` form of this command.

```

route-map vrf {
  [ vrf-name ]
}

```

Name assigned to the VRF.

Sets the VRF to the default VRF.

Sets the VRF to the management VRF.

No default behavior or values

Route-map configuration (config-route-map)

network-admin
vdc-admin

4.0(1) This command was introduced.

The `route-map vrf` route-map configuration command was introduced with the MPLS VPN—VRF Selection using Policy Based Routing feature to provide a PBR mechanism for VRF selection. This command is used to enable VRF selection by policy routing packets through a route map. The route map is attached to the incoming interface. Match criteria is defined in an IP access list or in an IP prefix list. Match criteria can also be defined based on packet length with the `route-map packet-length` route map command. The VRF must be defined prior to the configuration of this command, and the `route-map` interface configuration command must be configured to enable policy routing under the interface or subinterface. If the VRF is not defined or if policy routing is not enabled, an error message will be printed in the console when you attempt to configure the `route-map vrf` command.



The `route-map vrf` command cannot be configured with the `route-map`, `route-map`, and `route-map` policy routing commands because a packet cannot be set to an interface and the next hop cannot be changed when the VRF is specified. This is designed behavior. An error message will be printed in the console if you attempt to configure the `route-map vrf` command with any of the four above set clauses.

This command does not require a license.


```
route-map set-weight
  match as-path 10
  set weight 200
```


set-attached-bit

Syntax Description

Defaults

Command Modes

SupportedUserRoles

Command History

4.1(2)	This command was introduced.
--------	------------------------------

Usage Guidelines

"attached-bit" will not be advertised by the router in its Level 1 LSP, and other Level 1 routers in the area will not use this router as the default router outside the area.

This command requires the Enterprise Services license.

The following example shows how to unset the attached bit:

```

router(config)# set attached-bit

```

```

router(config)# set attached-bit

```

To configure the router to signal other routers not to use this router as an intermediate hop in their shortest path first (SPF) calculations, use the `no ip ospf advertise` command. To remove the designation, use the `no ip ospf advertise` form of this command.

```

[[ { | { { | [. ]} ]
  ] [ ]]

```

Sets the overload bit unconditionally.

Sets the overload bit at system startup. The overload bit remains set for the number of seconds configured. Range: 5 to 86400.

Causes the overload bit to be set upon system startup and remains set until BGP has converged.

AS number. Range: 1 to 65535

(Optional) AS number. Range: 0 to 65535

(Optional) Causes the type of prefix identified by the subsequent keyword or keywords to be suppressed.

(Optional) Prevents the IP prefixes that are learned from another IS-IS level from being advertised.

(Optional) Prevents the IP prefixes that are learned from other protocols from being advertised.

The overload bit is not set by default.

Router configuration
VRF configuration

network-admin
vdc-admin

4.0(1) This command was introduced.

The `no ip ospf advertise` command forces the router to set the overload bit in its nonpseudonode link-state packets (LSPs). Normally, the setting of the overload bit is allowed only when a router runs into problems. For example, when a router is experiencing a memory shortage, it might be that the link-state

database is not complete, resulting in an incomplete or inaccurate routing table. By setting the overload bit in its LSPs, other routers can ignore the unreliable router in their SPF calculations until the router has recovered from its problems.

The results are that no paths through this router are seen by other routers in the IS-IS area. However, IP and Connectionless Network Service (CLNS) prefixes directly connected to this router are reachable.

This command can be useful when you want to connect a router to an IS-IS network but do not want real traffic flowing through it under any circumstances. Examples situations are as follows:

- A test router in the lab, connected to a production network.

- A router configured as an LSP flooding server, for example, on a nonbroadcast multiaccess (NBMA) network, in combination with the mesh group feature.

- A router that is aggregating virtual circuits (VCs) used only for network management. In this case, the network management stations must be on a network directly connected to the router with the set-overload-bit command configured.

Unless you specify the `wait` keyword, this command sets the overload bit immediately.

In addition to setting the overload bit, you might want to suppress certain types of IP prefix advertisements from LSPs. For example, allowing IP prefix propagation between level 1 and level 2 effectively makes a node a transit node for IP traffic, which might be undesirable. The suppress keyword used with the interlevel or external keyword (or both) accomplishes that suppression while the overload bit is set.

This command does not require a license.

The following example sets the overload bit upon startup and until BGP has converged:

```
isis
```

Enables IS-IS on the router.

```
set-overload-bit
```

Enables IS-IS.

shutdown (BGP)

Syntax Description

Defaults

Command Modes

Supported User Roles

Command History

Release

Modification

Usage Guidelines

Examples

```
router BGP 64496
shutdown
```

shutdown (EIGRP)

Syntax Description

Defaults

Command Modes

SupportedUserRoles

Command History

Release	Modification
---------	--------------

Usage Guidelines

Examples

shutdown (IS-IS)

Syntax Description

Command Default

Command Modes

SupportedUserRoles

Command History

Release	Modification

Usage Guidelines

Examples

Related Commands

Command	Description

shutdown (OSPF)

Syntax Description

Command Default

Command Modes

SupportedUserRoles

Command History

Release	Modification

Usage Guidelines

Examples

Related Commands

Command	Description

shutdown (OSPFv3)

Syntax Description

Command Default

Command Modes

Supported User Roles

Command History

Release	Modification

Usage Guidelines

Examples

Related Commands

Command	Description
feature ospfv3	
router ospfv3f	

shutdown (VRRP)

Syntax Description

Defaults

Command Modes

SupportedUserRoles

Command History

Release	Modified

Usage Guidelines

Examples

```
# vrrp 45
  shutdown
  address 6.6.6.45
  no shutdown
```

Related Commands

Command	Description

spf-interval

Syntax Description

Command Default

Command Modes

SupportedUserRoles

Command History

Release	Modification

Usage Guidelines

■ spf-interval

Examples

```
router isis firstcompany
  spf-interval level-1 500 500 500
```

Related Commands

Command**Description**

stub

leak-map receive-only redistributed
 no stub direct leak-map receive-only redistributed

direct

leak-map

receive-only

redistributed

stub

direct

receive-only

receive-only

redistributed

direct leak-map receive-only redistributed

stub



no **summary-address**
summary-address / /

/

level-1

level-1-2

level-2

```
redistribute direct route-map CORE1
summary-address 10.1.0.0 255.255.0.0
```

ip-prefix/length

tag

ip-prefix/length

tag

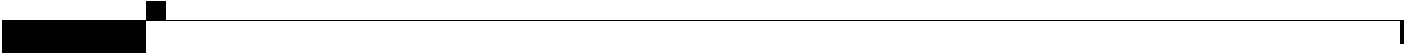
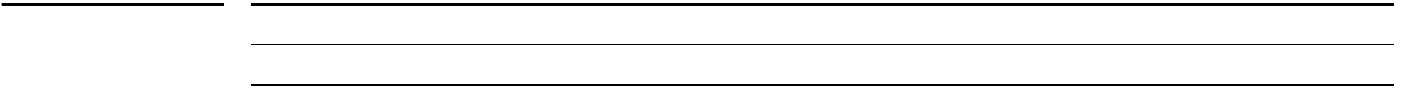
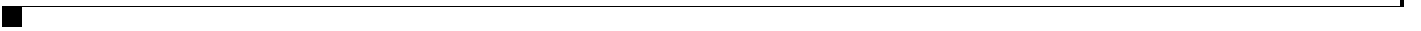
ip-prefix/length

ip-prefix

length

tag

```
router ospf 201
summary-address 192.0.0.0/16
```



summary-address 2001:0DB8::0/16

```
router bgp 64496
  neighbor 192.0.2.1/8 remote-as 64497
  address-family ipv4 unicast
    suppress-inactive
```

```
map-name
```

