



# Route Map Commands

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# match ip address (Policy Routing)

To match IP packets to perform IP policy routing, use the **match ip address** command in Route Map Configuration Mode. To move the **match ip address** entry, use the **no** form of this command.

## Syntax

```
match ip address access-list extended-access-list-name
```

```
no match ip address access-list
```

## Parameters

- **access-list** *extended-access-list-name*—Specifies an extended IP ACL.

## Default Configuration

No the command is configured.

## Command Mode

Route Map Configuration Mode

## User Guidelines

The **match ip address** command allows you to policy route IP packets based on criteria that can be matched with an extended IP access list; for example, a protocol, protocol service, and source or destination IP address.

The ACL list specified by the *extended-access-list-name* argument cannot contain the following keywords:

- **time-range**
- **disable-port**
- **log-input**

## Example

The example below gives how IPv4 Policy Base Routing is configured:

```
switchxxxxxx(config)# ip access-list extended acl1
switchxxxxxx(config-ip-al)# permit ip 176.212.0.0 00.255.255 any
switchxxxxxx(config-ip-al)# exit
switchxxxxxx(config)# route-map pbr
switchxxxxxx(config-route-map)# match ip address access-list acl1
switchxxxxxx(config-route-map)# set ip next-hop 173.23.13.20
switchxxxxxx(config-route-map)# exit
```

# match ipv6 address (Policy Routing)

To match IPv6 packets to perform IPv6 policy routing, use the **match ipv6 address** command in Route Map Configuration Mode. To move the **match ipv6 address** entry, use the **no** form of this command.

## Syntax

```
match ipv6 address access-list extended-access-list-name
```

```
no match ipv6 address access-list
```

## Parameters

- **access-list** *extended-access-list-name*—Specifies an extended IPv6 access list.

## Default Configuration

No the command is configured.

## Command Mode

Route Map Configuration Mode

## User Guidelines

The **match ipv6 address** command allows you to policy route IPv6 packets based on criteria that can be matched with an extended access list; for example, a protocol, protocol service, and source or destination IPv6 address.

The ACL list specified by the *extended-access-list-name* argument cannot contain the following keywords:

- **time-range**
- **disable-port**
- **log-input**

## Example

The example below gives how IPv4 Policy Base Routing is configured:

```
switchxxxxxx(config)# ipv6 access-list acl1
switchxxxxxx(config-ip-al)# permit ipv6 3211:1297:: :/32 any
switchxxxxxx(config-ip-al)# exit
switchxxxxxx(config)# route-map pbr
switchxxxxxx(config-route-map)# match ipv6 address access-list acl1
switchxxxxxx(config-route-map)# set ipv6 next-hop 3003:17ac::20
switchxxxxxx(config-route-map)# exit
switchxxxxxx(config-ip-al)# exit
```

# route-map (Policy Routing)

To define the conditions for policy routing, use the **route-map** command in Global Configuration mode and the **match** and **set** commands in Route Map Configuration Mode. To delete an entry, use the **no** form of this command.

## Syntax

```
route-map map-tag [sequence-number]
```

```
no route-map map-tag [sequence-number]
```

## Parameters

- **map-tag**—A meaningful name for the route map. The redistribute router configuration command uses this name to reference this route map. Multiple route maps may share the same map tag name.
- **sequence-number**—Positive integer number that indicates the position a new route map will have in the list of route maps already configured with the same name. If the parameter is used with the **no** form of this command, the position of the route map should be deleted. If the parameter is omitted in the **route-map** command then a value of 10 is applied. If the parameter is omitted in the **no** format then all route maps sharing same map tag name are deleted.

## Default Configuration

Conditions for policy routing is not configured.

## Command Mode

Global Configuration mode

## User Guidelines

Use the **route-map** command to enter route-map configuration mode. The purpose of the **route map** command is to define policy routing.

The **match** commands specify the conditions under which policy routing occurs and the **set** commands specify the routing actions to perform if the criteria enforced by the match commands are met:

- If a routed packet matches to an ACL with the permit action the packet is forwarded by the **set** command (policy based routing).
- If a routed packet matches to an ACL with the deny action the frame is forwarded by the Forwarding table (regular routing).

A route map can have several sections configured by separate **route-map** commands with the same map tag. When a routed packet is checked by a route map the first section which criteria is forced is applied. If there is no matched section the obvious shortest path using the Forwarding Table is applied.

**Example 1.** The following example gives an example of a route map with one section. TCP packet sent to subnet 156.12.5.0/24 are passed to the next hop 56.1.1.1.

```
switchxxxxxx(config)# ip access-list extended pr-ac11
switchxxxxxx(config-ip-al)# permit tcp any any 156.12.5.0 0.0.0.255 any
switchxxxxxx(config-ip-al)# exit
switchxxxxxx(config)# route-map pbr
switchxxxxxx(config-route-map)# match ip address access-list pr-ac11
switchxxxxxx(config-route-map)# set ip next-hop 56.1.1.1
switchxxxxxx(config-route-map)# exit
switchxxxxxx(config)# interface vlan 1
switchxxxxxx(config-if)# ip policy route-map pbr
switchxxxxxx(config-if)# exit
```

**Example 2.** The following example gives an example of a route map with two sections. TCP packet sent to subnet 156.12.5.0/24 are passed to the next hop 56.1.1.1 and CP packet sent to subnet 156.122.5.0/24 are passed to the next hop 50.1.1.1.

```
switchxxxxxx(config)# ip access-list extended pr-ac11
switchxxxxxx(config-ip-al)# permit tcp any any 156.12.5.0 0.0.0.255 any
switchxxxxxx(config-ip-al)# exit
switchxxxxxx(config)# ip access-list extended pr-ac12
switchxxxxxx(config-ip-al)# permit tcp any any 156.122.5.0 0.0.0.255 any
switchxxxxxx(config-ip-al)# exit
switchxxxxxx(config)# route-map pbr 10
switchxxxxxx(config-route-map)# match ip address access-list pr-ac11
switchxxxxxx(config-route-map)# set ip next-hop 56.1.1.1
switchxxxxxx(config-route-map)# exit
switchxxxxxx(config)# route-map pbr 20
switchxxxxxx(config-route-map)# match ip address access-list pr-ac12
switchxxxxxx(config-route-map)# set ip next-hop 50.1.1.1
switchxxxxxx(config-route-map)# exit
switchxxxxxx(config)# interface vlan 1
switchxxxxxx(config-if)# ip policy route-map pbr
switchxxxxxx(config-if)# exit
```

# set ip next-hop

To specify the IP address of the next hop policy routing, use the **set ip next-hop** command in Route Map Configuration Mode. To delete an entry, use the **no** form of this command.

## Syntax

**set ip next-hop** *next-hop*

**no set ip next-hop**

## Parameters

- *next-hop*—IPv4 address of the next hop router.

## Default Configuration

This command is disabled by default.

## Command Mode

Route Map Configuration Mode

## User Guidelines

Use the **set ip next-hop** command to set the IP address of the next hop policy routing.

## Example

In the following example sets IP address 192.168.30.1 as the next hop IP address:

```
switchxxxxxx(config)# route-map bpr
switchxxxxxx(config-route-map)# match ip address access-list acl
switchxxxxxx(config-route-map)# set ip next-hop 192.168.30.1
switchxxxxxx(config-route-map)# exit
```

# set ipv6 next-hop

To specify the IPv6 address of the next hop policy routing, use the **set ipv6 next-hop** command in Route Map Configuration Mode. To delete an entry, use the **no** form of this command.

## Syntax

**set ipv6 next-hop** *next-hop*

**no set ipv6 next-hop**

## Parameters

- *next-hop*—IPv6 address of the next hop router or outgoing interface ID for a point-to-point outgoing interfaces.

## Default Configuration

This command is disabled by default.

## Command Mode

Route Map Configuration Mode

## User Guidelines

Use the **set ip next-hop** command to set the IPv6 address of the next hop policy routing.

## Examples

**Example 1.** In the following example sets IPv6 address **3003:17ac::20** as the next hop IPv6 address:

```
switchxxxxxx(config)# route-map pbr
switchxxxxxx(config-route-map)# match ipv6 address access-list acl1
switchxxxxxx(config-route-map)# set ipv6 next-hop 3003:17ac::20
switchxxxxxx(config-route-map)# exit
switchxxxxxx(config-ip-al)# exit
```

**Example 2.** In the following example sets interface tunnel1 as the next hop:

```
switchxxxxxx(config)# interface tunnel 1
switchxxxxxx(config-if)# tunnel source 132.1.1.1
switchxxxxxx(config-if)# tunnel destination 192.168.30.1
switchxxxxxx(config-if)# tunnel mode ipv6ip
switchxxxxxx(config-if)# exit
switchxxxxxx(config)# route-map bpr
switchxxxxxx(config-route-map)# match ipv6 address access-list acl
switchxxxxxx(config-route-map)# set ipv6 next-hop tunnel 1
switchxxxxxx(config-route-map)# exit
```

# show route-map

To display route maps, use the **show route-map** command in Privileged EXEC mode.

## Syntax

```
show route-map [map-name]
```

## Parameters

- *map-name*—Name of a specific route map.

## Default Configuration

## Command Mode

Privileged EXEC mode

## User Guidelines

Use the **show route-map** *map-name* command, to display one given route map.

Use the **show route-map** command, to display all configured route maps.

## Example

The following is sample output from the show route-map command:

```
switchxxxxxx# show route-map
route-map POLICY-ROUTING, permit, sequence 10
  Match clauses:
    ip address access-lists: acl1
  Set clauses:
    ip next-hop: 192.12.34.5
route-map POLICY-ROUTING, permit, sequence 20
  Match clauses:
    ip address access-lists: acl2
  Set clauses:
    ip next-hop: 192.122.23.15
route-map POLICY-ROUTING-IPv6, permit, sequence 10
  Match clauses:
    ipv6 address access-lists: acl3
  Set clauses:
    ipv6 next-hop: 3003:17ac::20
route-map POLICY-ROUTING-IPv6, permit, sequence 20
  Match clauses:
    ipv6 address access-lists: acl4
  Set clauses:
    interface next-hop: tunnel 1
```