CONFIGURATION GUIDE

Brocade 5600 vRouter
Routing Policies Configuration Guide

Supporting Brocade 5600 vRouter 4.2R1

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Preface

Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Brocade technical documentation.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used in the flow of the text to highlight specific words or phrases.

Format	Description
bold text	Identifies command names Identifies keywords and operands Identifies the names of user-manipulated GUI elements Identifies text to enter at the GUI
italic text	Identifies emphasis Identifies variables Identifies document titles
`Courier font`	Identifies CLI output Identifies command syntax examples

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
value	In Fibre Channel products, a fixed value provided as input to a command option is printed in plain text, for example, **--show** WWN.
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ x | y | z }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options. In Fibre Channel products, square brackets may be used instead for this purpose.
x | y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.

Convention	Description
...	Repeat the previous element, for example, *member*[*member*...].
\	Indicates a “soft” line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

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Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

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A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

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About This Guide

This guide describes how to configure routing policies on the Brocade 5600 vRouter (referred to as a virtual router, vRouter, or router in the guide).

Routing Policy Overview

Routing policy

A routing policy is a mechanism that allows a user to configure criteria to compare a routing update against, with one or more actions to be performed on the route if the defined criteria are met. For example, a policy can be created to filter (block) specific route prefixes that are being announced by a BGP neighbor. Policy statements are also used to export routes learned via one protocol, for instance OSPF, into another protocol, for instance BGP. This is commonly called route redistribution.

Routing policies are grouped together in the Brocade vRouter configuration under the **policy** node. This **policy** node simply serves as a container for policy statements; it's the actual policy statements that define the rules that will be applied to routing updates.

Once a policy has been defined, in order for it to take affect, it needs to be applied to a specific routing protocol. A policy can be applied as either an import policy or an export policy to routing protocols like RIP, OSPF, and BGP. In the case of BGP, policies can be applied per peer. Only one import and one export policy can be applied to a protocol (or a BGP peer).

A policy that has been applied as an import policy to a routing protocol is used to evaluate routing updates received through the routing protocol to which the policy is applied. For example, if a user configures an import policy for the BGP protocol, all BGP announcements received by the Brocade vRouter is compared against the import policy first, prior to being added to the BGP and routing tables.

A policy that has been applied as an export policy to a routing protocol is used to evaluate routing updates that are transmitted by the routing protocol to which the policy is applied. For example, if a user configures an export policy for BGP, all BGP updates originated by the Brocade vRouter will be compared against the export policy statement prior to the routing updates being sent to any BGP peers.

In addition to controlling routing updates transmitted by a routing protocol, export policies are also used to provide route redistribution. For example, if a user wants to redistribute routes learned through OSPF into BGP, the user would configure a policy statement identifying the OSPF routes of interest, and then the user would apply this policy statement as an export policy for OSPF.

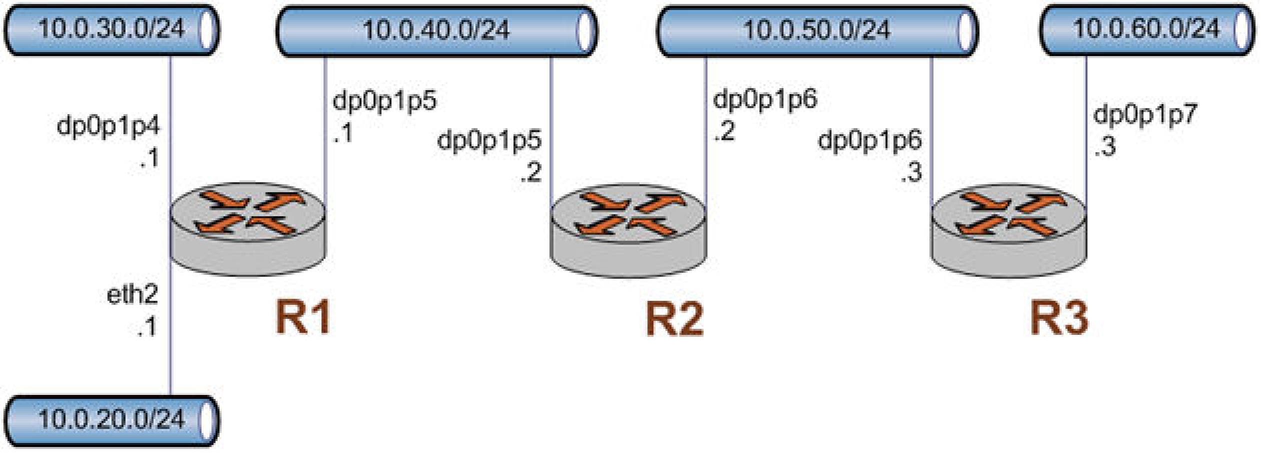
Routing Policy Configuration Examples

Filtering routes using access lists

Access lists can be used to filter routes for distance-vector protocols such as RIP and at redistribution points into link-state routing domains (like OSPF) where they can control which routes enter or leave the domain.

This section presents a sample configuration for RIP and route filtering policy. In it we first show a RIP configuration that distributes all known routes among three routers. Then we configure a route filtering policy using access lists to filter out advertisement of one network. The configuration example is based on the following reference diagram.

FIGURE 1 RIP configuration reference diagram



Basic RIP configuration

This example assumes that the router interfaces are already configured; the RIP configuration on each of the routers is shown below.

TABLE 1 Basic RIP configuration

Router	Step	Command(s)

R1	Display the configuration.	
		```
		vyatta@R1# show protocols
		 rip {
		    network 10.0.40.0/24
		    redistribute {
		        connected {
		        }
		    }
		 }
		```

TABLE 1 Basic RIP configuration (continued)

Router	Step	Command(s)

R2	Display the configuration.	vyatta@R2# show protocols
		rip {
		network 10.0.40.0/24
		network 10.0.50.0/24
		redistribute {
		connected {
		}
		}
		}

R3	Display the configuration.	vyatta@R2# show protocols
		rip {
		network 10.0.50.0/24
		redistribute {
		connected {
		}
		}
		}

Verifying the RIP configuration

The following operational mode commands can be used to verify the RIP configuration.

R3: show ip route

The following example shows the output of the **show ip route** command for router R3.

```
vyatta@R3:~$ show ip route

Codes: K - kernel route, C - connected, S - static, R - RIP, O - OSPF,
       I - ISIS, B - BGP, > - selected route, * - FIB route

R>* 10.0.20.0/24 [120/3] via 10.0.50.2, dp0p1p6, 00:20:16
R>* 10.0.30.0/24 [120/3] via 10.0.50.2, dp0p1p6, 00:34:04
R>* 10.0.40.0/24 [120/2] via 10.0.50.2, dp0p1p6, 02:15:26
C>* 10.0.50.0/24 is directly connected, dp0p1p6
C>* 10.0.60.0/24 is directly connected, dp0p1p7
C>* 127.0.0.0/8 is directly connected, lo
vyatta@R3:~$
```

The output shows that routes to 10.0.20.0/24, 10.0.30.0/24, and 10.0.40.0/24 have been learned via RIP and that packets to those networks will be forwarded out dp0p1p6 to 10.0.50.2. Networks 10.0.50.0/24 and 10.0.60.0/24 are directly connected.

R3: show ip rip

The **show ip rip** command for R3 displays similar information in a different format. This is shown in the following example.

```
vyatta@R3:~$ show ip rip

Codes: R - RIP, C - connected, S - Static, O - OSPF, B - BGP
Sub-codes:
      (n) - normal, (s) - static, (d) - default, (r) - redistribute,
      (i) - interface

     Network            Next Hop         Metric From            Tag Time
R(n) 10.0.20.0/24       10.0.50.2             3 10.0.50.2         0 00:23
R(n) 10.0.30.0/24       10.0.50.2             3 10.0.50.2         0 00:23
R(n) 10.0.40.0/24       10.0.50.2             2 10.0.50.2         0 00:23
C(i) 10.0.50.0/24       0.0.0.0               1 self              0
```

```
C(r) 10.0.60.0/24       0.0.0.0              1 self (connected:1)  0
vyatta@R3:~$
```

Again, the output shows that networks 10.0.20.0/24, 10.0.30.0/24, and 10.0.40.0/24 have been learned via RIP and that packets to those networks will be forwarded to 10.0.50.2. Networks 10.0.50.0/24 and 10.0.60.0/24 are directly connected.

Creating a route filtering policy

In this section, you configure a route filtering policy on R2 using access lists to deny incoming routes from 10.0.20.0/24.

TABLE 2 Route filtering configuration

Router	Step	Command(s)
R2	Create an access list and a rule to deny specified routes.	`vyatta@R2# set policy access-list 100 rule 10 action deny`
R2	Match any destination.	`vyatta@R2# set policy access-list 100 rule 10 destination any`
R2	Match source 10.0.20.0.	`vyatta@R2# set policy access-list 100 rule 10 source network 10.0.20.0`
R2	Specify the inverse mask for the network.	`vyatta@R2# set policy access-list 100 rule 10 source inverse-mask 0.0.0.255`
R2	Create a rule to permit all other routes.	`vyatta@R2# set policy access-list 100 rule 20 action permit`
R2	Match any destination.	`vyatta@R2# set policy access-list 100 rule 20 destination any`
R2	Match any source.	`vyatta@R2# set policy access-list 100 rule 20 source any`
R2	Commit the changes.	`vyatta@R2# commit`

R2	Display the configuration.	`vyatta@R2# show policy`
		` access-list 100 {`
		`    rule 10 {`
		`        action deny`
		`        destination {`
		`            any`
		`        }`
		`        source {`
		`            inverse-mask 0.0.0.255`
		`            network 10.0.20.0`
		`        }`
		`    }`
		`    rule 20 {`
		`        action permit`
		`        destination {`
		`            any`
		`        }`
		`        source {`
		`            any`
		`        }`

TABLE 2 Route filtering configuration (continued)

Router	Step	Command(s)

		`        }`
		`    }`

Applying a route filtering policy

In this section, you apply the route filtering policy to incoming RIP advertisements on R2.

TABLE 3 Applying a route filtering policy

Router	Step	Command(s)
R2	Use the access list created in the previous example to filter incoming route advertisements.	`vyatta@R2# set protocols rip distribute-list access-list in 100`
R2	Commit the configuration.	`vyatta@R2# commit`

R2	Display the configuration.	`vyatta@R2# show protocols`
		` rip {`
		`    distribute-list {`
		`        access-list {`
		`            in 100`
		`        }`
		`    }`
		`    network 10.0.40.0/24`
		`    network 10.0.50.0/24`
		`    redistribute {`
		`        connected {`
		`        }`
		`    }`
		` }`

Verifying the route filtering policy configuration

The following operational mode commands can be used to verify the route filtering policy configuration.

R3: show ip route

The following example shows the output of the **show ip route** command for router R3.

```
vyatta@R3:~$ show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP, O - OSPF,
       I - ISIS, B - BGP, > - selected route, * - FIB route

R>* 10.0.30.0/24 [120/3] via 10.0.50.2, dp0p1p6, 00:45:21
R>* 10.0.40.0/24 [120/2] via 10.0.50.2, dp0p1p6, 00:45:21
C>* 10.0.50.0/24 is directly connected, dp0p1p6
C>* 10.0.60.0/24 is directly connected, dp0p1p7
C>* 127.0.0.0/8 is directly connected, lo
vyatta@R3:~$
```

The output shows that routes to 10.0.30.0/24, and 10.0.40.0/24 have been learned via RIP and that packets to those networks will be forwarded out dp0p1p6 to 10.0.50.2. Networks 10.0.50.0/24 and 10.0.60.0/24 are directly connected. Notice that there is no route to 10.0.20.0/24 as it was filtered by the routing policy.

R3: show ip rip

The **show ip rip** command for R3 displays similar information in a different format. This is shown in the following example.

```
vyatta@R3:~$ show ip rip
Codes: R - RIP, C - connected, S - Static, O - OSPF, B - BGP
Sub-codes:
      (n) - normal, (s) - static, (d) - default, (r) - redistribute,
      (i) - interface

     Network            Next Hop          Metric From            Tag Time
R(n) 10.0.30.0/24       10.0.50.2              3 10.0.50.2         0 00:22
R(n) 10.0.40.0/24       10.0.50.2              2 10.0.50.2         0 00:22
C(i) 10.0.50.0/24       0.0.0.0                1 self              0
C(i) 10.0.60.0/24       0.0.0.0                1 self              0
vyatta@R3:~$
```

Again, the output shows that networks 10.0.30.0/24, and 10.0.40.0/24 have been learned via RIP and that packets to those networks will be forwarded to 10.0.50.2. Networks 10.0.50.0/24 and 10.0.60.0/24 are directly connected. Again, there is no route to 10.0.20.0/24.

Filtering inbound routes using prefix lists

This section presents the following topics:

- Prefix list configuration.
- Verifying the inbound filter.

Prefix list configuration

A common requirement for BGP configurations is to filter inbound routing announcements from a BGP peer. On the Brocade vRouter, this is accomplished using routing policies that are then applied to the BGP process as “import” policies. In this instance we use prefix lists in conjunction with route maps to accomplish this.

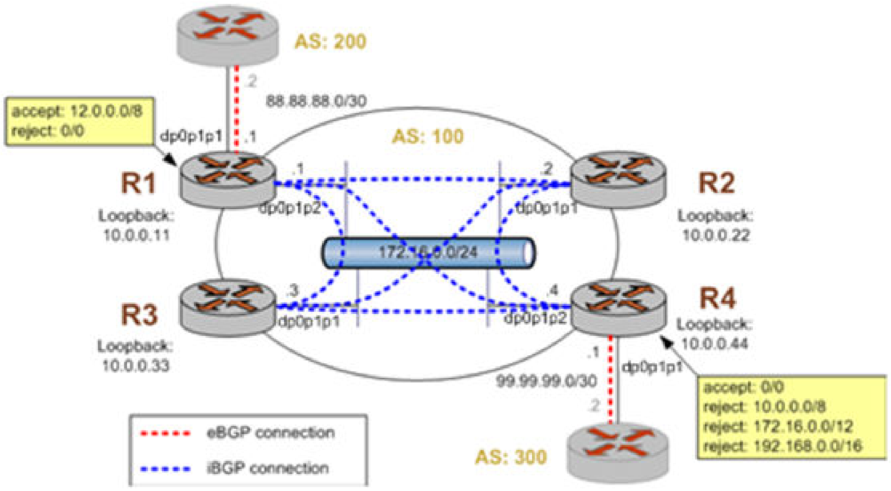
Table 4 creates the following inbound filtering policies:

- R1 should only accept network 12.0.0.0/8 from its eBGP peer, and reject everything else.
- R4 should allow all Internet routes, but reject all RFC 1918 networks from its eBGP peer.

This import policy is shown in following figure.

NOTE
We assume that the routers in AS100 have been configured for iBGP and eBGP as shown and that the routers in AS200 and AS300 are configured appropriately as eBGP peers.

FIGURE 2 Filtering inbound routes



To create this inbound route filter, perform the following steps in configuration mode.

TABLE 4 Creating an import policy

Router	Step	Command(s)

R1	Create a list of prefixes to allow. In this case we just have one - 12.0.0.0/8.	`vyatta@R1# set policy route prefix-list ALLOW-PREFIXES rule 1 action permit`
		`vyatta@R1# set policy route prefix-list ALLOW-PREFIXES rule 1 prefix 12.0.0.0/8`

R1	Create a route map rule to permit all prefixes in our list.	`vyatta@R1# set policy route-map eBGP-IMPORT rule 10 action permit`
		`vyatta@R1# set policy route-map eBGP-IMPORT rule 10 match ip address prefix-list ALLOW-PREFIXES`

R1	Create a route map rule to deny all other prefixes.	`vyatta@R1# set policy route-map eBGP-IMPORT rule 20 action deny`
R1	Assign the route map policy created as the import route map policy for AS 200.	`vyatta@R1# set protocols bgp 100 neighbor 88.88.88.2 address-family ipv4-unicast route-map import eBGP-IMPORT`
R1	Commit the configuration.	`vyatta@R1# commit`
R1	Reset the BGP session to the peer so that the new policies are enabled.	`vyatta@R1# run reset ip bgp 88.88.88.2`

R1	Display the policy configuration.	`vyatta@R1# show policy`
		` route {`
		`    prefix-list ALLOW-PREFIXES {`
		`      rule 1 {`
		`         action permit`
		`         prefix 12.0.0.0/8`
		`     }`
		` }`
		` route-map eBGP-IMPORT {`
		`     rule 10 {`
		`         action permit`

TABLE 4 Creating an import policy (continued)

Router	Step	Command(s)

		`         match {`
		`             ip {`
		`                 address {`
		`                     prefix-list ALLOW-PREFIXES`
		`                 }`
		`             }`
		`         }`
		`     }`
		`     rule 20 {`
		`         action deny`
		`     }`
		` }`
		`vyatta@R1#`

R1	Display the BGP configuration for eBGP neighbor 88.88.88.2.	`vyatta@R1# show protocols bgp 100 neighbor 88.88.88.2{`
		` address-family {`
		`             ipv4-unicast {`
		`                 route-map {`
		`                     import eBGP-IMPORT`
		`                 }`
		`             }`
		`             ipv6-unicast {`
		`             }`
		`         }`
		`         ebgp-multihop 1`
		`         remote-as 200`
		`     }`
		`vyatta@R1#`

R4	Create a rule to match any prefix from 10.0.0.0/8 to 32.	`vyatta@R4# set policy route prefix-list RFC1918PREFIXES rule 1`
		`action permit`
		`vyatta@R4# set policy route prefix-list RFC1918PREFIXES rule 1 le`
		`32`
		`vyatta@R4# set policy route prefix-list RFC1918PREFIXES rule 1`
		`prefix 10.0.0.0/8`

R4	Commit the configuration.	`vyatta@R4# commit`

R4	Create a route map rule to deny all prefixes in our list.	`vyatta@R4# set policy route-map eBGP-IMPORT rule 10 action deny`
		`vyatta@R4# set policy route-map eBGP-IMPORT rule 10 match ip`
		`address prefix-list RFC1918PREFIXES`

R4	Create a route map rule to permit all other prefixes.	`vyatta@R4# set policy route-map eBGP-IMPORT rule 20 action permit`
R4	Commit the configuration.	`vyatta@R4# commit`

R4	Assign the route map policy created as the import route map policy for AS 300.	`vyatta@R4# set protocols bgp 100 neighbor 99.99.99.2 route-map`
		`import eBGP-IMPORT`

R4	Commit the configuration.	`vyatta@R4# commit`
R4	Reset the BGP session to the peer so that the new policies are enabled.	`vyatta@R4# run reset ip bgp 99.99.99.2`

R4	Display the policy configuration.	`vyatta@R4# show policy`
		`route {`

TABLE 4 Creating an import policy (continued)

<table>
<tr><th>Router</th><th>Step</th><th>Command(s)</th></tr>
<tr><td></td><td></td><td><pre>
     prefix-list RFC1918PREFIXES {
         rule 1 {
             action permit
             le 32
             prefix 10.0.0.0/8
         }
     }
     route-map eBGP-IMPORT {
         rule 10 {
             action deny
             match {
                 ip {
                     address {
                         prefix-list RFC1918PREFIXES
                     }
                 }
             }
         }
         rule 20 {
             action permit
         }
     }
 }
vyatta@R4#
</pre></td></tr>
<tr><td>R4</td><td>Display the BGP configuration for eBGP neighbor 99.99.99.2.</td><td><pre>
vyatta@R4# show protocols bgp 100 neighbor 99.99.99.2
 address-family {
             ipv4-unicast {
                 route-map {
                     import eBGP-IMPORT
                 }
             }
             ipv6-unicast {
             }
         }
         ebgp-multihop 1
         remote-as 300
     }
vyatta@R4#
</pre></td></tr>
</table>

Verifying the inbound filter

The following commands can be used to verify the inbound filter configuration.

R1: show ip bgp before applying import filter

The following example shows R1's BGP table before the import filter is applied.

```
vyatta@R1:~$ show ip bgp
BGP table version is 0, local router ID is 10.0.0.11
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, R Removed
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*> 2.0.0.0/24       88.88.88.2               0             0 200 i
*> 2.1.0.0/24       88.88.88.2               0             0 200 i
*> 2.2.0.0/24       88.88.88.2               0             0 200 i
*>i3.0.0.0/24       99.99.99.2               0    100      0 300 i
*>i3.1.0.0/24       99.99.99.2               0    100      0 300 i
*>i3.2.0.0/24       99.99.99.2               0    100      0 300 i
*> 12.0.0.0         88.88.88.2               0             0 200 i
```

```
*>i13.0.0.0/24      99.99.99.2               0    100      0 300 i
*> 88.88.88.0/30    88.88.88.2               0             0 200 i
*>i99.99.99.0/30    99.99.99.2               0    100      0 300 i
*> 172.16.0.0/24    0.0.0.0                  1         32768 i
* i                 10.0.0.44                1    100      0 i
*>i172.16.128.0/24  99.99.99.2               0    100      0 300 i
*>i192.168.2.0      99.99.99.2               0    100      0 300 i

Total number of prefixes 13
vyatta@R1:~$
```

R1: show ip bgp after applying import filter

The following example shows R1's BGP table after the import filter is applied. Note that only 12.0.0.0 from 88.88.88.2 is still in the table.

```
vyatta@R1:~$ show ip bgp
BGP table version is 0, local router ID is 10.0.0.11
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, R Removed
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*>i3.0.0.0/24       99.99.99.2               0    100      0 300 i
*>i3.1.0.0/24       99.99.99.2               0    100      0 300 i
*>i3.2.0.0/24       99.99.99.2               0    100      0 300 i
*> 12.0.0.0         88.88.88.2               0             0 200 i
*>i13.0.0.0/24      99.99.99.2               0    100      0 300 i
*>i99.99.99.0/30    99.99.99.2               0    100      0 300 i
*> 172.16.0.0/24    0.0.0.0                  1         32768 i
* i                 10.0.0.44                1    100      0 i
*>i172.16.128.0/24  99.99.99.2               0    100      0 300 i
*>i192.168.2.0      99.99.99.2               0    100      0 300 i

Total number of prefixes 9
vyatta@R1:~$
```

R4: show ip bgp before applying import filter

The following example shows R4's BGP table before the import filter is applied.

```
vyatta@R4:~$ show ip bgp
BGP table version is 0, local router ID is 10.0.0.44
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, R Removed
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*> 3.0.0.0/24       99.99.99.2               0             0 300 i
*> 3.1.0.0/24       99.99.99.2               0             0 300 i
*> 3.2.0.0/24       99.99.99.2               0             0 300 i
*>i12.0.0.0         88.88.88.2               0    100      0 200 i
*> 13.0.0.0/24      99.99.99.2               0             0 300 i
*> 99.99.99.0/30    99.99.99.2               0             0 300 i
* i172.16.0.0/24    10.0.0.11                1    100      0 i
*>                  0.0.0.0                  1         32768 i
*> 172.16.128.0/24  99.99.99.2               0             0 300 i
*> 192.168.2.0      99.99.99.2               0             0 300 i

Total number of prefixes 9
vyatta@R4:~$
```

R4: show ip bgp after applying import filter

The output below shows R4's BGP table after the import filter is applied.

```
vyatta@R4:~$ show ip bgp
BGP table version is 2, local router ID is 10.0.0.44
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal, l - labeled
```

```
              S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*>i12.0.0.0         88.88.88.2               0    100      0 200 i

Total number of prefixes 1
```

Filtering outbound routes using AS path lists

This section presents the following topics:

- As-path-list configuration
- Verifying the outbound filter

As-path-list configuration

Filtering outbound prefixes is another common BGP configuration requirement. On the Brocade vRouter, this is accomplished using routing policies that are then applied to the BGP process as export policies.

The example in this section assumes that AS100 does not want to be a transit AS for AS 200 or AS 300. This means that:

- eBGP routes from R1's eBGP peer (AS 200) should not be sent to R4's eBGP peer.
- Routes from R4's eBGP peer (AS 300) should not be sent to R1's eBGP peer.

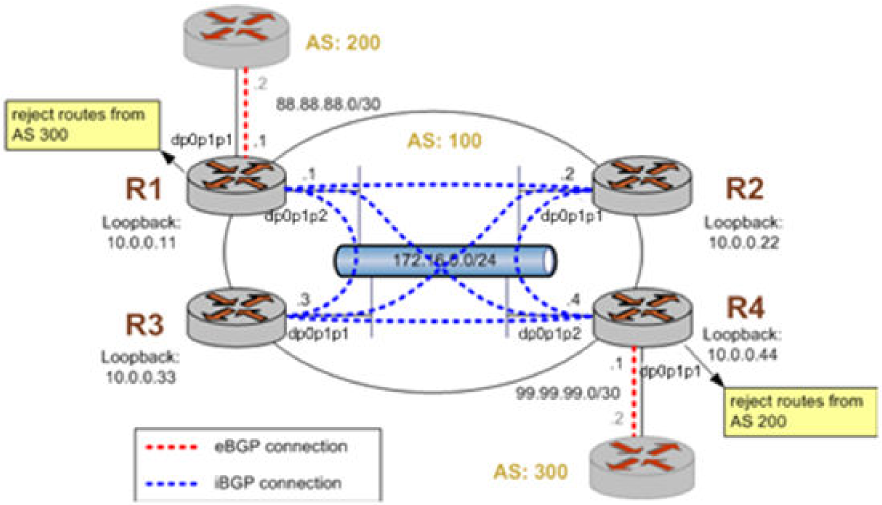
If we did not implement this filtering, AS 300 might send traffic destined for AS 200 to router R4, and this traffic would then be carried across the AS 100 network.

There are several ways that this routing policy could be implemented: two most common are basing the filter on the network prefix or basing it on the AS Path. In this example, we update the existing BGP export policy to add some additional restrictions that will prevent AS 100 from acting as a transit network for AS 200 and AS 300.

This export policy is shown in the following figure.

NOTE
We assume that the routers in AS100 have been configured for iBGP and eBGP as shown and that the routers in AS200 and AS300 are configured appropriately as eBGP peers.

FIGURE 3 Filtering outbound routes



To create this export policy, perform the following steps in configuration mode.

TABLE 5 Creating an export policy

Router	Step	Command(s)

R1	Create a list of AS paths to deny. In this case we just have one - AS300.	`vyatta@R1# set policy route as-path-list AS300 rule 1 action permit`
		`vyatta@R1# set policy route as-path-list AS300 rule 1 regex 300`

R1	Create a route map rule to deny all AS paths in our list.	`vyatta@R1# set policy route route-map eBGP-EXPORT rule 10 action deny`
		`vyatta@R1# set policy route route-map eBGP-EXPORT rule 10 match as-path AS300`

R1	Create a route map rule to permit all other prefixes.	`vyatta@R1# set policy route route-map eBGP-EXPORT rule 20 action permit`

R1	Assign the route map policy created as the export and import route map policy for AS 200.	`vyatta@R1# set protocols bgp 100 neighbor 88.88.88.2 remote-as 200`
		`vyatta@R1# set protocols bgp 100 neighbor 88.88.88.2 address-family ipv4-unicast route-map export eBGP-EXPORT`
		`vyatta@R1# set protocols bgp 100 neighbor 88.88.88.2 address-family ipv4-unicast route-map import eBGP-IMPORT`
		`vyatta@R1# set protocols bgp 100 neighbor 88.88.88.2 ebgp-multihop 1`

TABLE 5 Creating an export policy (continued)

<table>
<tr><th>Router</th><th>Step</th><th>Command(s)</th></tr>
<tr><td>R1</td><td>Commit the configuration.</td><td><pre>vyatta@R1# commit</pre></td></tr>
<tr><td>R1</td><td>Reset the BGP session to the peer so that the new policies are enabled.</td><td><pre>vyatta@R1# run reset ip bgp
88.88.88.2</pre></td></tr>
<tr><td>R1</td><td>Display the policy configurations.</td><td><pre>vyatta@R1# show policy
 route {
     as-path-list AS300 {
         rule 1 {
             action permit
             regex 300
         }
     }
     route-map eBGP-EXPORT {
         rule 10 {
             action deny
             match {
                 as-path AS300
             }
         }
         rule 20 {
             action permit
         }
     }</pre></td></tr>
<tr><td>R1</td><td>Display the BGP configuration for eBGP neighbor 88.88.88.2.</td><td><pre>vyatta@R1# show protocols bgp
100 neighbor 88.88.88.2
 address-family {
     ipv4-unicast {
         route-map {
             export eBGP-EXPORT
             import eBGP-IMPORT
         }
}
}
 ebgp-multihop 1
 remote-as 200</pre></td></tr>
<tr><td>R4</td><td>Create a list of AS paths to deny. In this case we just have one - AS200.</td><td><pre>vyatta@R4# set policy route
route-map eBGP-EXPORT rule 20
action permit
vyatta@R4# set policy route as-
path-list AS200 rule 1 regex 200
vyatta@R4# commit</pre></td></tr>
<tr><td>R4</td><td>Create a route map rule to deny all AS paths in our list.</td><td><pre>vyatta@R4# set policy route
route-map eBGP-EXPORT rule 10
action deny
vyatta@R4# set policy route
route-map eBGP-EXPORT rule 10
match as-path AS200</pre></td></tr>
<tr><td>R4</td><td>Create a route map rule to permit all other prefixes.</td><td><pre>vyatta@R4# set policy route
route-map eBGP-EXPORT rule 20
action permit
vyatta@R4# commit</pre></td></tr>
<tr><td>R4</td><td>Assign the route map policy created as the export route map policy for AS 300.</td><td><pre>vyatta@R4#set protocol bgp 100
neigh 99.99.99.2 address-family</pre></td></tr>
</table>

TABLE 5 Creating an export policy (continued)

Router	Step	Command(s)
		`ipv4-unicast  route-map export eBGP-EXPORT`
R4	Commit the configuration.	`vyatta@R4# commit`
R4	Reset the BGP session to the peer so that the new policies are enabled.	`vyatta@R4# run reset ip bgp 99.99.99.2`

R4	Display the policy configurations.	`vyatta@R4# show policy`
		` route {`
		`     as-path-list AS200 {`
		`         rule 1 {`
		`             action permit`
		`             regex 200`
		`         }`
		`     }`
		`     prefix-list RFC1918PREFIXES {`
		`         rule 1 {`
		`             action permit`
		`             le 32`
		`             prefix 10.0.0.0/8`
		`         }`
		`     }`
		`     route-map eBGP-EXPORT {`
		`         rule 10 {`
		`             action deny`
		`             match {`
		`                 as-path AS200`
		`             }`
		`         }`
		`         rule 20 {`
		`             action permit`
		`         }`
		`     }`
		`     route-map eBGP-IMPORT {`
		`         rule 10 {`
		`             action deny`
		`             match {`
		`                 ip {`
		`                     address {`
		`                         prefix-list RFC1918PREFIXES`
		`                     }`
		`                 }`
		`             }`
		`         }`
		`         rule 20 {`
		`             action permit`
		`         }`
		`     }`
		` }`

R4	Display the BGP configuration for eBGP neighbor 99.99.99.2.	`vyatta@R4# show protocols bgp 100 neighbor 99.99.99.2`
		` address-family {`
		`     ipv4-unicast {`
		`         route-map {`
		`             import eBGP-IMPORT`
		`         }`
		`         soft-reconfiguration {`
		`             inbound`
		`         }`

TABLE 5 Creating an export policy (continued)

Router	Step	Command(s)

		`    }`
		`    ipv6-unicast {`
		`    }`
		`}`
		`ebgp-multihop 1`
		`remote-as 300`

Verifying the outbound filter

The following commands can be used to verify the outbound filter configuration.

AS 200: show ip bgp before applying export filter

The following example shows AS 200's BGP table before the export filter is applied.

```
vyatta@AS200:~$ show ip bgp
BGP table version is 0, local router ID is 10.0.11.11
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, R Removed
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*> 2.0.0.0/24       0.0.0.0                  0         32768 i
*> 2.1.0.0/24       0.0.0.0                  0         32768 i
*> 2.2.0.0/24       0.0.0.0                  0         32768 i
*> 3.0.0.0/24       88.88.88.1                             0 100 300 i
*> 3.1.0.0/24       88.88.88.1                             0 100 300 i
*> 3.2.0.0/24       88.88.88.1                             0 100 300 i
*> 12.0.0.0         0.0.0.0                  0         32768 i
*> 13.0.0.0/24      88.88.88.1                             0 100 300 i
*> 88.88.88.0/30    0.0.0.0                  0         32768 i
*> 99.99.99.0/30    88.88.88.1                             0 100 300 i
*> 172.16.0.0/24    88.88.88.1               1             0 100 i

Total number of prefixes 11
vyatta@AS200:~$
```

AS 200: show ip bgp after applying export filter

The following example shows AS 200's BGP table after the export filter is applied.

```
vyatta@AS200:~$ show ip bgp
BGP table version is 0, local router ID is 10.0.11.11
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, R Removed
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*> 2.0.0.0/24       0.0.0.0                  0         32768 i
*> 2.1.0.0/24       0.0.0.0                  0         32768 i
*> 2.2.0.0/24       0.0.0.0                  0         32768 i
*> 12.0.0.0         0.0.0.0                  0         32768 i
*> 88.88.88.0/30    0.0.0.0                  0         32768 i
*> 172.16.0.0/24    88.88.88.1               1             0 100 i

Total number of prefixes 6
vyatta@AS200:~$
```

Routing Policy Commands

policy route access-list <list-num>

Defines an access list.

Syntax

set policy route access-list *list-num*

delete policy route access-list *list-num*

show policy route access-list *list-num*

Parameters

list-num

Multi-node. A numeric identifier for the access list. Access list numbers can take the following values:

1 to 99: IP standard access list

100 to 199: IP extended access list

1300 to 1999: IP standard access list (expanded range)

2000 to 2699: IP extended access list (expanded range)

You can create multiple access lists by creating multiple **policy access-list** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        access-list list-num {}
    }
}
```

Usage Guidelines

Use the **set** form of this command to create an access list.

Use the **delete** form of this command to remove an access list.

Use the **show** form of this command to display access list configuration.

policy route access-list <list-num> description <desc>

Allows you to specify a brief d escription for an access list.

Syntax

set policy route access-list *list-num* **description** *desc*

delete policy route access-list *list-num* **description**

show policy route access-list *list-num* **description**

Parameters

list-num

The number of a defined access list.

desc

A brief text description for the access list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        access-list list-num {
            description desc
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for an access list.

Use the **delete** form of this command to remove an access list description.

Use the **show** form of this command to display the description for an access list.

policy route access-list <list-num> rule <rule-num>

Creates a rule for an access list.

Syntax

set policy route access-list *list-num* **rule** *rule-num*

delete policy route access-list *list-num* **rule** *rule-num*

show policy route access-list *list-num* **rule** *rule-num*

Parameters

list-num

The number of a defined access list.

rule-num

Multi-node. A numeric identifier for the rule. The range is 1 to 4294967295.

You can define multiple rules by creating multiple **rule** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        access-list list-num {
            rule rule-num {}
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create an access list rule.

Use the **delete** form of this command to remove an access list rule.

Use the **show** form of this command to display configuration settings for an access list rule.

policy route access-list <list-num> rule <rule-num> action

Specifies the action to be taken for packets matching an access list rule.

Syntax

set policy route access-list *list-num* **rule** *rule-num* **action** { **deny** | **permit** }

delete policy route access-list *list-num* **rule** *rule-num* **action**

show policy route access-list *list-num* **rule** *rule-num* **action**

Command Default

Packets matching this rule are forwarded.

Parameters

list-num

The number of a defined access list.

rule-num

The number of a defined access list rule.

deny

Packets matching this rule are silently dropped.

permit

Packets matching this rule are forwarded.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        access-list list-num {
            rule rule-num {
                action {
                    deny
                    permit
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define the action taken when received packets satisfy the match criteria for this rule.

If the action for a rule is **deny**, packets meeting the match criteria of the rule are silently dropped. If the action for the rule is **permit**, packets meeting the match criteria of the rule are forwarded.

Use the **delete** form of this command to restore the default action for packets satisfying the match criteria.

Use the **show** form of this command to display action settings for this rule.

policy route access-list <list-num> rule <rule-num> description <desc>

Allows you to specify a brief description for an access list rule.

Syntax

set policy route access-list *list-num* **rule** *rule-num* **description** *desc*

delete policy route access-list *list-num* **rule** *rule-num* **description**

show policy route access-list *list-num* **rule** *rule-num* **description**

Parameters

list-num

The number of a defined access list.

rule-num

The number of a defined access list rule.

desc

A brief text description for the access list rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list list-num {
        rule rule-num {
            description desc
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for an access list rule.

Use the **delete** form of this command to remove an access list rule description.

Use the **show** form of this command to display an access list rule description.

policy route access-list <list-num> rule <rule-num> destination

Defines match criteria for an access list rule based on destination.

Syntax

set policy route access-list *list-num* **rule** *rule-num* **destination** { **any** | **host** *ipv4* | **inverse-mask** *ipv4* | **network** *ipv4net* }

delete policy route access-list *list-num* **rule** *rule-num* **destination**

show policy route access-list *list-num* **rule** *rule-num* **destination**

Parameters

list-num

The number of a defined access list.

rule-num

The number of a defined access list.

any

Match packets destined for any destination. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

host *ipv4*

Match packets destined for the specified IPv4 host. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

inverse-mask *ipv4*

Match packets destined for the network specified by the mask. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

network *ipv4net*

Match packets destined for the specified network. The format is *ip-address/prefix*. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list list-num {
        rule rule-num {
            destination {
                any
                host ipv4
                inverse-mask ipv4
                network ipv4net
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify the destination match criteria for this access list rule.

Use the **delete** form of this command to remove configured destination match criteria for this rule. If no match criteria are specified, no packet filtering on destination will take place; that is, packets to all destinations are permitted.

Use the **show** form of this command to display configuration settings for access list rule destination packet filtering.

policy route access-list <list-num> rule <rule-num> source

Defines match criteria for an access list rule based on source.

Syntax

set policy route access-list *list-num* **rule** *rule-num* **source** { **any** | **host** *ipv4* | **inverse-mask** *ipv4* | **network** *ipv4net* }

delete policy route access-list *list-num* **rule** *rule-num* **source**

show policy route access-list *list-num* **rule** *rule-num* **source**

Parameters

list-num

The number of a defined access list.

rule-num

The number of a defined access list rule.

any

Match packets coming from any source. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

host *ipv4*

Match packets coming from the specified IPv4 host. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

inverse-mask *ipv4*

Match packets coming from the network specified by the mask. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

network *ipv4net*

Match packets coming from the specified network. The format is *ip-address/prefix*. Exactly one of **any**, **host**, **inverse-mask**, and **network** is mandatory.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list list-num {
        rule rule-num {
            source {
                any
                host ipv4
                inverse-mask ipv4
                network ipv4net
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify the source match criteria for this access list rule.

Use the **delete** form of this command to remove the configured source match criteria for this rule. If no match criteria are specified, no packet filtering on source will take place; that is, packets from all sources are permitted.

Use the **show** form of this command to display configuration settings for access list rule source packet filtering.

policy route access-list6 <list-name>

Defines an IPv6 access list.

Syntax

set policy route access-list6 *list-name*

delete policy route access-list6 *list-name*

show policy route access-list6 *list-name*

Parameters

list-name

Multi-node. The name of an IPv6 access list.

You can create multiple access lists by creating multiple **policy access-list** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list6 list-name {}
    }
}
```

Usage Guidelines

Use the **set** form of this command to create an access list.

Use the **delete** form of this command to remove an access list.

Use the **show** form of this command to display access list configuration.

policy route access-list6 <list-name> description <desc>

Allows you to specify a brief description for an IPv6 access list.

Syntax

set policy route access-list6 *list-name* **description** *desc*

delete policy route access-list6 *list-name* **description**

show policy route access-list6 *list-name* **description**

Parameters

list-name

The name of an IPv6 access list.

desc

A brief text description for the access list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route{
    access-list6 list-name {
        description desc
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for an access list.

Use the **delete** form of this command to remove an access list description.

Use the **show** form of this command to display the description for an access list.

policy route access-list6 <list-name> rule <rule-num>

Creates a rule for an IPv6 access list.

Syntax

set policy route access-list6 *list-name* **rule** *rule-num*

delete policy route access-list6 *list-name* **rule** *rule-num*

show policy route access-list6 *list-name* **rule** *rule-num*

Parameters

list-name

The name of an IPv6 access list.

rule-num

Multi-node. A numeric identifier for the rule. The range is 1 to 65535.

You can define multiple rules by creating multiple **rule** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list6 list-name {
        rule rule-num {}
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create an access list rule.

Use the **delete** form of this command to remove an access list rule.

Use the **show** form of this command to display configuration settings for an access list rule.

policy route access-list6 <list-name> rule <rule-num> action

Specifies the action to be taken for packets matching an IPv6 access list rule.

Syntax

set policy route access-list6 *list-name* **rule** *rule-num* **action** { **deny** | **permit** }

delete policy route access-list6 *list-name* **rule** *rule-num* **action**

show policy route access-list6 *list-name* **rule** *rule-num* **action**

Command Default

Packets matching this rule are forwarded.

Parameters

list-name

The name of an IPv6 access list.

rule-num

The number of a defined access list rule.

deny

Packets matching this rule are silently dropped.

permit

Packets matching this rule are forwarded.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list6 list-name {
        rule rule-num {
            action {
                deny
                permit
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define the action taken when received packets satisfy the match criteria for this rule.

If the action for a rule is **deny**, packets meeting the match criteria of the rule are silently dropped. If the action for the rule is **permit**, packets meeting the match criteria of the rule are forwarded.

Use the **delete** form of this command to restore the default action for packets satisfying the match criteria.

Use the **show** form of this command to display action settings for this rule.

policy route access-list6 <list-name> rule <rule-num> description <desc>

Allows you to specify a brief description for an IPv6 access list rule.

Syntax

set policy route access-list6 *list-name* **rule** *rule-num* **description** *desc*

delete policy route access-list6 *list-name* **rule** *rule-num* **description**

show policy route access-list6 *list-name* **rule** *rule-num* **description**

Parameters

list-name

The name of an IPv6 access list.

rule-num

The number of a defined access list rule.

desc

A brief text description for the access list rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list6 list-name {
        rule rule-num {
            description desc
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for an access list rule.

Use the **delete** form of this command to remove an access list rule description.

Use the **show** form of this command to display an access list rule description.

policy route access-list6 <list-name> rule <rule-num>

Allows you to specify the list name and rule number for an IPv6 access list rule.

Syntax

set policy route access-list6 *list-name* **rule** *rule-num*

delete policy route access-list6 *list-name* **rule**

show policy route access-list6 *list-name* **rule**

Parameters

list-name

The name of an IPv6 access list.

rule-num

The number of a defined IPv6 access list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list6 list-name {
        rule rule-num {}
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify the access list rule name and number.

Use the **delete** form of this command to remove the rule.

Use the **show** form of this command to display the access list rule name and number.

policy route access-list6 <list-name> rule <rule-num> source

Defines match criteria for an IPv6 access list rule based on source.

Syntax

set policy route access-list6 *list-name* **rule** *rule-num* **source** { **any** | **exact-match** | **network** *ipv6net* }

delete policy route access-list6 *list-name* **rule** *rule-num* **source**

show policy route access-list6 *list-name* **rule** *rule-num* **source**

Parameters

list-name

The name of an IPv6 access list.

rule-num

The number of a defined IPv6 access list rule.

any

Match packets coming from any source. Exactly one of **any**, **exact-match**, and **network** is mandatory.

exact-match

Match packets coming from one of the network prefixes. Exactly one of **any**, **exact-match**, and **network** is mandatory.

network *ipv6net*

Match packets coming from the specified network. The format is *iv6p-address/prefix*. Exactly one of **any**, **exact-match**, and **network** is mandatory.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    access-list6 list-name {
        rule rule-num {
            source {
                any
                exact-match
                network ipv6net
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify the source match criteria for this access list rule.

Use the **delete** form of this command to remove the configured source match criteria for this rule. If no match criteria are specified, no packet filtering on source will take place; that is, packets from all sources are permitted.

Use the **show** form of this command to display configuration settings for access list rule source packet filtering.

policy route as-path-list <list-name>

Defines an autonomous system (AS) path list.

Syntax

set policy route as-path-list *list-name*

delete policy route as-path-list *list-name*

show policy route as-path-list *list-name*

Parameters

list-name

Multi-node. A text identifier for the AS path list.

You can create multiple AS path lists by creating multiple **policy as-path-list** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    as-path-list list-name {}
    }
}
```

Usage Guidelines

Use the **set** form of this command to define an autonomous system (AS) path list for use in policy-based routing.

Use the **delete** form of this command to remove an AS path list.

Use the **show** form of this command to display AS path list configuration.

policy route as-path-list <list-name> description <desc>

Allows you to specify a brief description for an AS path list.

Syntax

set policy route as-path-list *list-name* **description** *desc*

delete policy route as-path-list *list-name* **description**

show policy route as-path-list *list-name* **description**

Parameters

list-name

The name of a defined AS path list.

desc

A brief text description for the AS path list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    as-path-list list-name {
        description desc
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify a description for an AS path list.

Use the **delete** form of this command to remove an AS path list description.

Use the **show** form of this command to display an AS path list description.

policy route as-path-list <list-name> rule <rule-num>

Creates a rule for an AS path list.

Syntax

set policy route as-path-list *list-name* **rule** *rule-num*

delete policy route as-path-list *list-name* **rule** *rule-num*

show policy route as-path-list *list-name* **rule** *rule-num*

Parameters

list-name

The name of a defined AS path list.

rule-num

Multi-node. A numeric identifier for the rule. The range is 1 to 4294967295.

You can define multiple rules by creating multiple **rule** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    as-path-list list-name {
        rule rule-num {}
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create an AS path list rule.

Use the **delete** form of this command to remove an AS path list rule.

Use the **show** form of this command to display configuration settings for an AS path list rule.

policy route as-path-list <list-name> rule <rule-num> action

Specifies the action to be taken for packets matching an AS path list rule.

Syntax

set policy route as-path-list *list-name* **rule** *rule-num* **action { deny | permit }**

delete policy route as-path-list *list-name* **rule** *rule-num* **action**

show policy route as-path-list *list-name* **rule** *rule-num* **action**

Command Default

Packets matching this rule are forwarded.

Parameters

list-name

The name of a defined AS path list.

rule-num

The number of a defined AS path list rule.

deny

Packets matching this rule are silently dropped.

permit

Packets matching this rule are forwarded.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    as-path-list list-name {
        rule rule-num {
            action {
                deny
                permit
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define the action taken when received packets satisfy the match criteria for this rule.

If the action for a rule is **deny**, packets meeting the match criteria of the rule are silently dropped. If the action for the rule is **permit**, destination-based routing is performed; that is, packets are sent using the normal forwarding channels.

Use the **delete** form of this command to restore the default action for packets satisfying the match criteria.

Use the **show** form of this command to display action settings for this rule.

policy route as-path-list <list-name> rule <rule-num> description <desc>

Allows you to specify a brief description for an AS path list rule.

Syntax

set policy route as-path-list *list-name* **rule** *rule-num* **description** *desc*

delete policy route as-path-list *list-name* **rule** *rule-num* **description**

show policy route as-path-list *list-name* **rule** *rule-num* **description**

Parameters

list-name

The name of a defined AS path list.

rule-num

The number of a defined AS path list rule.

desc

A brief text description for the AS path list rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    as-path-list list-name {
        rule rule-num {
            description desc
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify a description for an AS path list.

Use the **delete** form of this command to remove an AS path list description.

Use the **show** form of this command to display an AS path list description.

policy route as-path-list <list-name> rule <rule-num> regex <regex>

Defines match criteria for an AS path list rule based on a regular expression.

Syntax

set policy route as-path-list *list-name* **rule** *rule-num* **regex** *regex*

delete policy route as-path-list *list-name* **rule** *rule-num* **regex**

show policy route as-path-list *list-name* **rule** *rule-num* **regex**

Command Default

If no regular expression is defined, all packets are considered to match the rule.

Parameters

list-name

The name of a defined AS path list.

rule-num

The number of a defined AS path list rule.

regex

A POSIX-style regular expression representing an AS path list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    as-path-list list-name {
        rule rule-num {
            regex regex
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define the match criteria to be used to determine forwarding policy based on AS paths.

Packets are matched based on whether the AS paths listed in the packet match the regular expression defined using this command. Depending on the action defined for the rule using policy route as-path-list <list-name> rule <rule-num> action on page 52, matched packets are either permitted or denied.

Use the **delete** form of this command to remove the regular expression entry. If no regular expression is defined, all packets are considered to match the rule.

Use the **show** form of this command to display the regular expression entry.

policy route community-list [standard | expanded] { <list-num> | <list-name> }

Creates a standard BGP community list.

Syntax

set policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* }

delete policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* }

show policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* }

Parameters

list-num

Multinode. A numeric identifier for the standard BGP community list.

A standard community lists number ranges from 1 through 99 and list name and an expanded community list ranges from 100 through 199.

list-name

A string identifier for the community list.

The string is a set of characters.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    community-list {
        standard [list-num | list-name ]
        expanded [list-num | list-name ]
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a standard BGP community list.

NOTE
You can create multiple community lists by creating multiple policy community-list configuration nodes.

Use the **delete** form of this command to delete a standard BGP community list.

Use the **show** form of this command to display standard BGP community list.

NOTE
For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route community-list [standard | expanded] { <list-num> | <list-name> } description <desc>

Provides a brief description of a standard community list.

Syntax

set policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **description** *desc*

delete policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **description**

show policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **description**

Parameters

list-num

The number of a defined community list.

A standard community lists number ranges from 1 through 99 and list name and an expanded community list ranges from 100 through 199.

list-name

A name, which is a character string, identifier for the community list.

The string is a set of characters.

desc

A brief text description of the community list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        community-list {
            standard [list-num | list-name]
            expanded [list-num | list-name]
                {
                    description desc
                }
           }
        }
}
```

Usage Guidelines

Use the **set** form of this command to provide a brief description of a community list.

Use the **delete** form of this command to delete the description of a community list.

Use the **show** form of this command to display the description of a community list.

NOTE
For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route community-list [standard | expanded] { <list-num> | <list-name> } rule <rule-num>

Creates a rule for a community list.

Syntax

set policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num*

delete policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num*

show policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num*

Parameters

list-num

The number of a defined community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

list-name

A string identifier for the community list.

The string is a set of characters.

rule-num

Multinode. A numeric identifier for the rule that is being created. The identifier ranges from 1 through 4294967295.

You can define multiple rules by creating multiple **rule** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
    community-list {
            standard [list-num | list-name ]
            expanded [list-num | list-name ]
                {
                   rule rule-num
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a rule for community list.

Use the **delete** form of this command to delete a rule for community list.

Use the **show** form of this command to display the configuration of a rule for a community list.

NOTE
For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route community-list standard { <list-num> | <list-name> } rule <rule-num> community <community>

Creates multiple rules for a single community list with different community values.

Syntax

set policy route community-list standard { *list-num* | *list-name* } **rule** *rule-num1* **community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

set policy route community-list standard { *list-num* | *list-name* } **rule** *rule-num2* **community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

Parameters

list-num

The number of a defined community list.

A standard community lists number ranges from 1 through 99 and list name and an expanded community list ranges from 100 through 199.

list-name

A name, which is a character string, for the community list.

The string is a set of characters.

rule-num

Multinode. A numeric identifier for the rule that is being created. The identifier ranges from 1 through 4294967295.

You can define multiple rules by creating multiple **rule** configuration nodes.

AA:NN

A community in 4-octet, AS-value format.

local-AS

Advertises communities in local AS only. (NO_EXPORT_SUBCONFED).

no-advertise

Does not advertise this route to any peer (NO_ADVERTISE).

no-export

Does not advertise outside of this AS of confederation boundary (NO_EXPORT).

internet

Specifies the 0 symbolic Internet community.

none

Specifies no communities.

Configuration Statement

```
policy {
    route {
    community-list {
              standard [list-num | list-name ]
              {
                 rule rule-num1 {
                        AA:NN
                        local-AS
                        no-advertise
                        no-export
                        internet
                        none
                    rule rule-num2 {
                        AA:NN
                        local-AS
                        no-advertise
                        no-export
                        internet
                        none
                    }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a rule for a community list.

Use the **delete** form of this command to delete a rule for a community list.

Use the **show** form of this command to display a rule for a community list.

> NOTE
> For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route community-list [standard | expanded] { <list-num> | <list-name> } rule <rule-num> action

Specifies the action to take when packets match a community list rule.

Syntax

set policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **action** { **deny** | **permit** }

delete policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **action**

show policy route community-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **action**

Command Default

Packets that match this rule are forwarded.

Parameters

list-num

The number of a defined community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

list-name

A string identifier for the community list.

The string is a set of characters.

rule-num

The rule number for a defined community-list.

deny

Silently drops the packet that match this rule.

permit

Forwards packets that match this rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        community-list {
                standard [list-num | list-name ]
                expanded [list-num | list-name ]
                    {
                       rule rule-num {
                          action {
                             deny
                             permit
                             }
                          }
                       }
```

```
                                }
        }
}
```

Usage Guidelines

Use the **set** form of this command to specify the action to take when packets match a community list rule.

If the action for a rule is **deny**, packets that meet the match criteria of the rule are silently dropped. If the action for the rule is **permit**, destination-based routing is performed; that is, packets are sent by using the normal forwarding channels.

Use the **delete** form of this command to restore the default action to take for packets that match a community list rule.

Use the **show** form of this command to display the action settings to take when packets match a community list rule.

> NOTE
>
> For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route community-list expanded { <list-num> | <list-name> } rule <rule-num> regex <regex>

Configures a standard community list to define the match criteria for a community list rule, which is based on a regular expression for a community list.

Syntax

set policy route community-list expanded { *list-num* | *list-name* } **rule** *rule-num* **regex** *regex*

delete policy route community-list expanded { *list-num* | *list-name* } **rule** *rule-num* **regex**

show policy route community-list expanded { *list-num* | *list-name* } **rule** *rule-num* **regex**

Command Default

If no regular expression is defined, all packets are considered to match the rule.

Parameters

list-num

The number of a defined extended community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

list-name

A string identifier for the extended community list.

The string is a set of characters.

rule-num

The number of a defined community list rule.

regex

A POSIX-style regular expression that represents a BGP community list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        community-list {
               expanded [list-num | list-name ] {
                     rule rule-num {
                        regex regex
                     }
                }
            }
        }
    }
```

Usage Guidelines

Use the **set** form of this command to configure a community list to define the match criteria for a community list rule, which is based on a regular expression for a community list.

Packets are matched based on whether the communities listed in the packet match the regular expression that is defined by using this command. Depending on the action that is defined for the rule by using policy route community-list [standard | expanded] { list-num | list-name } rule <rule-num> action on page 62, matched packets are either permitted or denied.

Use the **delete** form of this command to delete the regular expression for a rule. If no regular expression is defined, all packets are considered to match the rule.

Use the **show** form of this command to display the regular expression for a rule.

> NOTE
> For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route extcommunity-list [standard | expanded] { <list-num> | <list-name> } rule <rule-num> action

Specifies the action to take when packets match an extended community list rule.

Syntax

set policy route extcommunity-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **action** { **deny** | **permit** }

delete policy route extcommunity-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **action**

show policy route extcommunity-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **action**

Command Default

Packets that match this rule are forwarded.

Parameters

list-num

The number of a defined community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

list-name

A string identifier for the community list.

The string is a set of characters.

rule-num

The rule number for a defined community list.

deny

Silently drops the packets that match.

permit

Forward packets that match the rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        extcommunity-list {
                standard [list-num | list-name ]
                expanded [list-num | list-name ]
                    {
                         rule rule-num {
                            action {
                                deny
                                permit
                                }
                         }
                    }
                    }
            }
    }
```

Usage Guidelines

Use the **set** form of this command to define the action to specify the action to take when packets match an extended community list rule.

If the action for a rule is **deny**, packets that match the criteria of the rule are silently dropped. If the action for the rule is **permit**, destination-based routing is performed; that is, packets are sent by using the normal forwarding channels.

Use the **delete** form of this command to restore the default action to take for packets that match the criteria for a rule.

Use the **show** form of this command to display the action to take for a rule.

NOTE
For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route extcommunity-list [standard | expanded] { <list-num> | <list-name> } rule <rule-num> description <desc>

Specifies a brief description of an extended community list rule.

Syntax

set policy route extcommunity-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **description** *desc*

delete policy extcommunity-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **description**

show policy extcommunity-list [**standard** | **expanded**] { *list-num* | *list-name* } **rule** *rule-num* **description**

Parameters

list-num

The number of a defined community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

list-name

A string identifier for the community list.

The string is a set of characters.

rule-num

The rule number of a defined community list.

desc

A brief description for the community list rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    extcommunity-list {
         standard [list-num | list-name ]
         expanded [list-num | list-name ]
            {
                 rule rule-num {
                      description desc
                            }
                }
        }
}
```

Usage Guidelines

Use the **set** form of this command to create a description of an extended community list rule.

Use the **delete** form of this command to remove the description of an extended community list.

Use the **show** form of this command to display the description of an extended community list rule.

NOTE

For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route extcommunity-list expanded { <list-num> | <list-name> } rule <rule-num> regex <regex>

Configures an extended community list to define the match criteria for a community list rule, which is based on a regular expression for a community list.

Syntax

set policy route extcommunity-list expanded { *list-num* | *list-name* } **rule** *rule-num* **regex** *regex*

delete policy route extcommunity-list expanded { *list-num* | *list-name* } **rule** *rule-num* **regex**

show policy route extcommunity-list expanded { *list-num* | *list-name* } **rule** *rule-num* **regex**

Command Default

If no regular expression is defined, all packets are considered to match the rule.

Parameters

list-num

The number of a defined extended community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

list-name

A string identifier for the extended community list.

The string is a set of characters.

rule-num

The number of a defined community list rule.

regex

A POSIX-style regular expression that represents a BGP community list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
       extcommunity-list {
              expanded [list-num | list-name
                  {
                     rule rule-num {
                        regex regex
                           }
                   }
              }
         }
       }
```

Usage Guidelines

Use the **set** form of this command to configure an expanded community list to define the match criteria for a community list rule, which is based on a regular expression for a community list.

Packets are matched based on whether the communities listed in the packet match the regular expression that is defined by using this command. Depending on the action that is defined for the rule by using policy route community-list [standard | expanded] { list-num | list-name } rule <rule-num> action on page 62, matched packets are either permitted or denied.

Use the **delete** form of this command to delete the regular expression for a rule. If no regular expression is defined, all packets are considered to match the rule.

Use the **show** form of this command to display the regular expression for a rule.

NOTE
For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route extcommunity-list standard { <list-num> | <list-name> } rule <rule-num> rt <route-target>

Configures an extended community list with a route target.

Syntax

set policy route extcommunity-list standard { *list-num* | *list-name* } **rule** *rule-num* **rt** *route-target*

delete policy route extcommunity-list standard { *list-num* | *list-name* } **rule** *rule-num* **rt** *route-target*

show policy route extcommunity-list standard { *list-num* | *list-name* } **rule** *rule-num* **rt** *route-target*

Parameters

list-num

The number of a defined extended community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

list-name

A string identifier for the extended community list.

The string is a set of characters.

rule-num

The rule number of defined extended community list.

route-target

A route target for an extended community list in either the AA:NN or IPaddress:NN format.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        extcommunity-list {
                standard [list-num | list-name]
                 {
                    rule rule-num {
                        rt route-target
                           }
                 }
            }
        }
    }
```

Usage Guidelines

Use the **set** form of this command to configure an extended community list with a route target.

Use the **delete** form of this command to delete an extended community list with a route target.

Use the **show** form of this command to display an extended community list with a route target.

NOTE

For more information about BGP community list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route extcommunity-list standard { <list-num> | <list-name> } rule <rule-num> soo <site-of-origin>

Configures an extended community list with a site of origin.

Syntax

set policy route extcommunity-list standard { *list-num* | *list-name* } **rule** *rule-num* **soo** *site-of-origin-value*

delete policy route extcommunity-list standard { *list-num* | *list-name* } **rule** *rule-num* **soo** *site-of-origin-value*

show policy route extcommunity-list standard { *list-num* | *list-name* } **rule** *rule-num* **soo** *site-of-origin-value*

Parameters

list-num

The number of a defined extended community list.

A standard community list number ranges from 1 through 99 and an expanded community list number ranges from 100 through 199.

rule-num

The rule number of a defined extended-community list.

site-of-origin-value

A site-of-origin for an extended community list in either the *AA:NN* or *IPaddress:NN* format.

Modes

Configuration mode

Configuration Statement

```
policy {
   route {
      extcommunity-list {
             standard [list-num | list-name]
              {
                rule rule-num {
                   soo site-of-origin-value
                 }
              }
           }
        }
    }
```

Usage Guidelines

Use the **set** form of this command to configure an extended community list with site-of-origin.

Use the **delete** form of this command to delete an extended community list with site-of-origin.

Use the **show** form of this command to display an extended community list with a site-of-origin.

NOTE
For more information about BGP community-list, see the "*BGP Communities*" section in *Brocade 5600 vRouter BGP Reference Guide*.

policy route prefix-list <list-name>

Defines a prefix list.

Syntax

set policy route prefix-list *list-name*

delete policy route prefix-list *list-name*

show policy route prefix-list *list-name*

Parameters

list-name

Multi-node. A text identifier for the prefix list.

You can create multiple prefix lists by creating multiple **policy route prefix-list** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list list-name {
        }
     }
}
```

Usage Guidelines

Use the **set** form of this command to create a prefix list for use in policy-based routing.

Use the **delete** form of this command to remove a prefix list.

Use the **show** form of this command to display prefix list configuration.

policy route prefix-list <list-name> description <desc>

Allows you to specify a brief description for a prefix list.

Syntax

set policy route prefix-list *list-name* **description** *desc*

delete policy route prefix-list *list-name* **description**

show policy route prefix-list *list-name* **description**

Parameters

list-name

The name of a defined prefix list.

desc

A brief text description for the prefix list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list list-name {
        description desc
         }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for a prefix list.

Use the **delete** form of this command to remove a prefix list description.

Use the **show** form of this command to display the description for a prefix list.

policy route prefix-list <list-name> rule <rule-num>

Creates a rule for a prefix list.

Syntax

set policy route prefix-list *list-name* **rule** *rule-num*

delete policy route prefix-list *list-name* **rule** *rule-num*

show policy route prefix-list *list-name* **rule** *rule-num*

Parameters

list-name

The name of a defined prefix list.

rule-num

Multi-node. A numeric identifier for the rule. The range is 1 to 4294967295.

You can define multiple rules by creating multiple **rule** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list list-name {
        rule rule-num {
         }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a prefix list rule.

Use the **delete** form of this command to remove a prefix list rule.

Use the **show** form of this command to display configuration settings for a prefix list rule.

policy route prefix-list <list-name> rule <rule-num> action

Specifies the action to be taken for packets matching a prefix list rule.

Syntax

set policy route prefix-list *list-name* **rule** *rule-num* **action** { **deny** | **permit** }

delete policy route prefix-list *list-name* **rule** *rule-num* **action**

show policy route prefix-list *list-name* **rule** *rule-num* **action**

Command Default

Packets matching this rule are forwarded.

Parameters

list-name

The name of a defined prefix list.

rule-num

The number of a defined prefix list rule.

deny

Packets matching this rule are silently dropped.

permit

Packets matching this rule are forwarded.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list list-name {
        rule rule-num {
            action {
                deny
                permit
                                                     }
          }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define the action taken when received packets satisfy the match criteria for this rule.

If the action for a rule is **deny**, packets meeting the match criteria of the rule are silently dropped. If the action for the rule is **permit**, destination-based routing is performed; that is, packets are sent using the normal forwarding channels.

Use the **delete** form of this command to restore the default action for packets satisfying the match criteria.

Use the **show** form of this command to display action settings for this rule.

policy route prefix-list <list-name> rule <rule-num> description <desc>

Allows you to specify a brief description for a prefix list rule.

Syntax

set policy route prefix-list *list-name* **rule** *rule-num* **description** *desc*

delete policy route prefix-list *list-name* **rule** *rule-num* **description**

show policy route prefix-list *list-name* **rule** *rule-num* **description**

Parameters

list-name

The name of a defined prefix list.

rule-num

The number of a defined prefix list rule.

desc

A brief text description for the prefix list rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list list-name {
        rule rule-num {
             description desc
          }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for a prefix list rule.

Use the **delete** form of this command to remove a prefix list rule description.

Use the **show** form of this command to display the description for a prefix list rule.

policy route prefix-list <list-name> rule <rule-num> ge <value>

Defines match criteria for a prefix list rule based on a “greater-than-or-equal-to” numeric comparison.

Syntax

set policy route prefix-list *list-name* **rule** *rule-num* **ge** *value*

delete policy route prefix-list *list-name* **rule** *rule-num* **ge**

show policy route prefix-list *list-name* **rule** *rule-num* **ge**

Command Default

If no prefix is specified, all network prefixes are considered to match the rule.

Parameters

list-name

The name of a defined prefix list.

rule-num

The number of a defined prefix list rule.

value

A number representing a network prefix. Network prefixes greater than or equal to this number will match this rule. The range of values is 0 to 32.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list list-name {
        rule rule-num {
            ge value
          }
       }
   }
}
```

Usage Guidelines

Use the **set** form of this command to specify a network prefix for determining routing. The network prefixes of incoming packets are compared with this value; if the prefix is greater than or equal to the specified prefix, the rule is matched and the action specified for the rule is taken.

Exactly one comparison (**ge**, **le**, or **prefix**) may be specified for a prefix list rule.

Use the **delete** form of this command to remove the specified “ge” prefix. If no prefix is specified, all network prefixes are considered to match the rule.

Use the **show** form of this command to display the value specified as “ge” prefix.

policy route prefix-list <list-name> rule <rule-num> le <value>

Defines a match criterion based on a "less-than-or-equal-to" numeric comparison for a prefix list rule.

Syntax

set policy route prefix-list *list-name* **rule** *rule-num* **le** *value*

delete policy route prefix-list *list-name* **rule** *rule-num* **le**

show policy route prefix-list *list-name* **rule** *rule-num* **le**

Command Default

If no prefix is specified, all network prefixes are considered to match the rule.

Parameters

list-name

The name of a defined prefix list.

rule-num

The number of a defined prefix list rule.

value

A number representing a network prefix. Network prefixes less than or equal to this number will match this rule. The range of values is 0 to 32.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list list-name {
        rule rule-num {
            le value
          }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify a network prefix for determining routing policy. The network prefixes of incoming packets are compared with this value; if the prefix is less than or equal to the specified prefix, the rule is matched and the action specified for the rule is taken.

Exactly one comparison (**ge**, **le**, or **prefix**) may be specified for a prefix list rule.

Use the **delete** form of this command to remove the specified "le" prefix. If no prefix is specified, all network prefixes are considered to match the rule.

Use the **show** form of this command to display the value specified as "le" prefix.

policy route prefix-list <list-name> rule <rule-num> prefix <ipv4net>

Defines match criteria for a prefix list rule based on an IPv4 network.

Syntax

set policy route prefix-list *list-name* **rule** *rule-number* **prefix** *ipv4net*

delete policy route prefix-list *list-name* **rule** *rule-num* **prefix**

show policy route prefix-list *list-name* **rule** *rule-num* **prefix**

Command Default

If no network is specified, all networks are considered to match the rule.

Parameters

list-name

The name of a defined prefix list.

rule-num

The number of a defined prefix list rule.

ipv4net

An IPv4 network. Networks exactly matching this network will match this rule. The format is *ip-address/prefix*.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
       prefix-list list-name {
          rule rule-number {
            prefix ipv4net
           }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify a network for determining routing policy. The network specified in incoming packets are compared with this value; if it exactly matches the network specified in this command, the rule is matched and the action specified for the rule is taken.

Exactly one comparison (**ge**, **le**, or **prefix**) may be specified for a prefix list rule.

Use the **delete** form of this command to remove the specified “ge” prefix. If no prefix is specified, all network prefixes are considered to match the rule.

Use the **show** form of this command to display the value specified as “ge” prefix.

policy route prefix-list6 <list-name>

Defines an IPv6 prefix list.

Syntax

set policy route prefix-list6 *list-name*

delete policy route prefix-list6 *list-name*

show policy route prefix-list6 *list-name*

Parameters

list-name

Multi-node. A text identifier for the IPv6 prefix list.

You can create multiple IPv6 prefix lists by creating multiple **policy route prefix-list6** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list6 list-name {
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a prefix list for use in policy-based routing.

Use the **delete** form of this command to remove a prefix list.

Use the **show** form of this command to display prefix list configuration.

policy route prefix-list6 <list-name> description <desc>

Allows you to specify a brief description for an IPv6 prefix list.

Syntax

set policy route prefix-list6 *list-name* **description** *desc*

delete policy route prefix-list6 *list-name* **description**

show policy route prefix-list6 *list-name* **description**

Parameters

list-name

The name of a defined IPv6 prefix list.

desc

A brief text description for the prefix list.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list6 list-name {
        description desc
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for a prefix list.

Use the **delete** form of this command to remove a prefix list description.

Use the **show** form of this command to display the description for a prefix list.

policy route prefix-list6 <list-name> rule <rule-num>

Creates a rule for an IPv6 prefix list.

Syntax

set policy route prefix-list6 *list-name* **rule** *rule-num*

delete policy route prefix-list6 *list-name* **rule** *rule-num*

show policy route prefix-list6 *list-name* **rule** *rule-num*

Parameters

list-name

The name of a defined IPv6 prefix list.

rule-num

Multi-node. A numeric identifier for the rule. The range is 1 to 4294967295.

You can define multiple rules by creating multiple **rule** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list6 list-name {
        rule rule-num {
         }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a prefix list rule.

Use the **delete** form of this command to remove a prefix list rule.

Use the **show** form of this command to display configuration settings for a prefix list rule.

policy route prefix-list6 <list-name> rule <rule-num> action

Specifies the action to be taken for packets matching an IPv6 prefix list rule.

Syntax

set policy route prefix-list6 *list-name* **rule** *rule-num* **action** { **deny** | **permit** }

delete policy route prefix-list6 *list-name* **rule** *rule-num* **action**

show policy route prefix-list6 *list-name* **rule** *rule-num* **action**

Command Default

Packets matching this rule are forwarded.

Parameters

list-name

The name of a defined IPv6 prefix list.

rule-num

The number of a defined IPv6 prefix list rule.

deny

Packets matching this rule are silently dropped.

permit

Packets matching this rule are forwarded.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list6 list-name {
        rule rule-num {
            action {
                deny
                permit
             }
          }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define the action taken when received packets satisfy the match criteria for this rule.

If the action for a rule is **deny**, packets meeting the match criteria of the rule are silently dropped. If the action for the rule is **permit**, destination-based routing is performed; that is, packets are sent using the normal forwarding channels.

Use the **delete** form of this command to restore the default action for packets satisfying the match criteria.

Use the **show** form of this command to display action settings for this rule.

policy route prefix-list6 <list-name> rule <rule-num> description <desc>

Allows you to specify a brief description for an IPv6 prefix list rule.

Syntax

set policy route prefix-list6 *list-name* **rule** *rule-num* **description** *desc*

delete policy route prefix-list6 *list-name* **rule** *rule-num* **description**

show policy route prefix-list6 *list-name* **rule** *rule-num* **description**

Parameters

list-name

The name of a defined IPv6 prefix list.

rule-num

The number of a defined IPv6 prefix list rule.

desc

A brief text description for the prefix list rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
       prefix-list6 list-name {
        rule rule-num {
            description desc
          }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for a prefix list rule.

Use the **delete** form of this command to remove a prefix list rule description.

Use the **show** form of this command to display the description for a prefix list rule.

policy route prefix-list6 <list-name> rule <rule-num> ge <value>

Defines match criteria for an IPv6 prefix list rule based on a "greater-than-or-equal-to" numeric comparison.

Syntax

set policy route prefix-list6 *list-name* **rule** *rule-num* **ge** *value*

delete policy route prefix-list6 *list-name* **rule** *rule-num* **ge**

show policy route prefix-list6 *list-name* **rule** *rule-num* **ge**

Command Default

If no prefix is specified, all network prefixes are considered to match the rule.

Parameters

list-name

The name of a defined IPv6 prefix list.

rule-num

The number of a defined IPv6 prefix list rule.

value

A number representing a network prefix. Network prefixes greater than or equal to this number will match this rule. The range of values is 0 to 128.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list6 list-name {
        rule rule-num {
            ge value
          }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify a network prefix for determining routing. The network prefixes of incoming packets are compared with this value; if the prefix is greater than or equal to the specified prefix, the rule is matched and the action specified for the rule is taken.

Exactly one comparison (**ge**, **le**, or **prefix**) may be specified for a prefix list rule.

Use the **delete** form of this command to remove the specified "ge" prefix. If no prefix is specified, all network prefixes are considered to match the rule.

Use the **show** form of this command to display the value specified as "ge" prefix.

policy route prefix-list6 <list-name> rule <rule-num> le <value>

Defines a match criterion based on a “less-than-or-equal-to” numeric comparison for an IPv6 prefix list rule.

Syntax

set policy route prefix-list6 *list-name* **rule** *rule-num* **le** *value*

delete policy route prefix-list6 *list-name* **rule** *rule-num* **le**

show policy route prefix-list6 *list-name* **rule** *rule-num* **le**

Command Default

If no prefix is specified, all network prefixes are considered to match the rule.

Parameters

list-name

The name of a defined IPv6 prefix list.

rule-num

The number of a defined IPv6 prefix list rule.

value

A number representing a network prefix. Network prefixes less than or equal to this number will match this rule. The range of values is 0 to 128.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
     prefix-list6 list-name {
        rule rule-num {
            le value
          }
       }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify a network prefix for determining routing policy. The network prefixes of incoming packets are compared with this value; if the prefix is less than or equal to the specified prefix, the rule is matched and the action specified for the rule is taken.

Exactly one comparison (**ge**, **le**, or **prefix**) may be specified for a prefix list rule.

Use the **delete** form of this command to remove the specified “le” prefix. If no prefix is specified, all network prefixes are considered to match the rule.

Use the **show** form of this command to display the value specified as “le” prefix.

policy route prefix-list6 <list-name> rule <rule-num> prefix <ipv6net>

Defines match criteria for a prefix list rule based on an IPv6 network.

Syntax

set policy route prefix-list6 *list-name* **rule** *rule-number* **prefix** *ipv6net*

delete policy route prefix-list6 *list-name* **rule** *rule-num* **prefix**

show policy route prefix-list6 *list-name* **rule** *rule-num* **prefix**

Command Default

If no network is specified, all networks are considered to match the rule.

Parameters

list-name

The name of a defined prefix list.

rule-num

The number of a defined prefix list rule.

ipv6net

An IPv6 network. Networks exactly matching this network will match this rule. The format is *ipv6-address/prefix* (that is *x:x:x:x:x:x:x:x*/0-128).

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
      prefix-list6 list-name {
        rule rule-number {
            prefix ipv6net
        }
      }
    }
}
```

Usage Guidelines

Use the **set** form of this command to specify a network for determining routing policy. The network specified in incoming packets are compared with this value; if it exactly matches the network specified in this command, the rule is matched and the action specified for the rule is taken.

Exactly one comparison (**ge**, **le**, or **prefix**) may be specified for a prefix list rule.

Use the **delete** form of this command to remove the specified “ge” prefix. If no prefix is specified, all network prefixes are considered to match the rule.

Use the **show** form of this command to display the value specified as “ge” prefix.

policy route route-map <map-name>

Defines a route map for policy-based routing.

Syntax

set policy route route-map *map-name*

delete policy route route-map *map-name*

show policy route route-map *map-name*

Parameters

map-name

Multi-node. A text identifier for the route map.

You can create multiple route maps by creating multiple **policy route route-map** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {}
}
```

Usage Guidelines

Use the **set** form of this command to create a route map for policy-based routing.

Use the **delete** form of this command to remove a route map.

Use the **show** form of this command to display route map configuration.

policy route route-map <map-name> description <desc>

Allows you to specify a brief description for a route map.

Syntax

set policy route route-map *map-name* **description** *desc*

delete policy route route-map *map-name* **description**

show policy route route-map *map-name* **description**

Parameters

map-name

The name of a defined route map.

desc

A brief text description for the route map.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        description desc
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for a route map.

Use the **delete** form of this command to remove a route map policy description.

Use the **show** form of this command to display the description for a route map.

policy route route-map <map-name> rule <rule-num>

Creates a rule for a route map.

Syntax

set policy route route-map *map-name* **rule** *rule-num*

delete policy route route-map *map-name* **rule** *rule-num*

show policy route route-map *map-name* **rule** *rule-num*

Parameters

map-name

The name of a defined route map.

rule-num

Multi-node. A numeric identifier for the rule. The range is 1 to 4294967295.

You can define multiple rules by creating multiple **rule** configuration nodes.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {}
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a route map rule.

Use the **delete** form of this command to remove a route map rule.

Use the **show** form of this command to display configuration settings for a route map rule.

NOTE

Apply the route-map to neighbor for the policies to take affect.

policy route route-map <map-name> rule <rule-num> action

Specifies the action to be taken for packets matching a route map rule.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **action** { **deny** | **permit** }

delete policy route route-map *map-name* **rule** *rule-num* **action**

show policy route route-map *map-name* **rule** *rule-num* **action**

Command Default

Routes are denied.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

deny

Packets matching this rule are silently dropped.

permit

Packets matching this rule are forwarded.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            action {
                deny
                permit
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define the action taken when received packets satisfy the match criteria for this rule.

If the action for a rule is **deny**, packets meeting the match criteria of the rule are silently dropped. If the action for the rule is **permit**, destination-based routing is performed; that is, packets are sent using the normal forwarding channels.

The default action of a route map is to deny; that is, if no entries satisfy the match criteria, the route is denied. To change this behavior, specify an empty **permit** rule as the last entry in the route map.

Use the **delete** form of this command to restore the default action for packets satisfying the match criteria.

Use the **show** form of this command to display action settings for this rule.

policy route route-map <map-name> rule <rule-num> continue <target-num>

Calls to another rule within the current route map.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **continue** *target-num*

delete policy route route-map *map-name* **rule** *rule-num* **continue**

show policy route route-map *map-name* **rule** *rule-num* **continue**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

target

The identifier of the route map rule being called.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            continue target-num
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to call to another rule within the current route map. The new route map rule is called after all **set** actions specified in the route map rule have been performed.

Use the **delete** form of this command to remove this statement from the route map.

Use the **show** form of this command to display route map rule configuration settings.

policy route route-map <map-name> rule <rule-num> description <desc>

Allows you to specify a brief description for a route map rule.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **description** *desc*

delete policy route route-map *map-name* **rule** *rule-num* **description**

show policy route route-map *map-name* **rule** *rule-num* **description**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

desc

A brief text description for the route map rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            description desc
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to create a description for a route map rule.

Use the **delete** form of this command to remove a route map rule description.

Use the **show** form of this command to display the description for a route map rule.

policy route route-map <map-name> rule <rule-num> match as-path <list-name>

Defines a match condition for a route map based on an AS path list.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match as-path** *list-name*

delete policy route route-map *map-name* **rule** *rule-num* **match as-path**

show policy route route-map *map-name* **rule** *rule-num* **match as-path**

Command Default

If no AS path match condition is specified, packets are not filtered by AS path.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

list-name

Matches the AS paths in the route with those permitted by the specified AS path list. The AS path list must already be defined.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                as-path list-name
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on an AS path list.

Packets are matched based on whether the AS path listed in the route match the AS path defined by this command. Depending on the action defined for the rule using policy route route-map map-name rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the AS path match condition.

Use the **show** form of this command to display AS path match condition configuration.

policy route route-map <map-name> rule <rule-num> match community

Defines a match condition for a route map based on BGP communities.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match community** { **community-list** *list-num* | **exact-match** }

delete policy route route-map *map-name* **rule** *rule-num* **match community**

show policy route route-map *map-name* **rule** *rule-num* **match community**

Command Default

If no community list match condition is specified, packets are not filtered by BGP community.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

community-list *list-num*

Matches the BGP communities in the route with those permitted by the specified community list. The community list policy must already be defined. Either **community-list** or **exact-match** must be specified.

exact-match

BGP communities are to be matched exactly. Either **community-list** or **exact-match** must be specified.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                community {
                    community-list list-num
                    exact-match
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on BGP communities.

Packets are matched based on whether the BGP communities listed in the route match the communities defined by this command. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the BGP community match condition.

Use the **show** form of this command to display BGP community match condition configuration.

policy route route-map <map-name> rule <rule-num> match extcommunity

Defines a match condition for a route map based on BGP extended communities.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match extcommunity** { **community-list** *list-num* | **exact-match** }

delete policy route route-map *map-name* **rule** *rule-num* **match extcommunity**

show policy route route-map *map-name* **rule** *rule-num* **match extcommunity**

Command Default

If no community list match condition is specified, packets are not filtered by BGP extended community.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

extcommunity-list *list-num*

Matches the BGP extended communities in the route with those permitted by the specified community list. The community list policy must already be defined. Either **extcommunity-list** or **exact-match** must be specified.

exact-match

BGP communities are to be matched exactly. Either **extcommunity-list** or **exact-match** must be specified.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                extcommunity {
                    extcommunity-list list-num
                    exact-match
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on BGP extended communities.

Packets are matched based on whether the BGP communities listed in the route match the communities defined by this command. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the BGP extended community match condition.

Use the **show** form of this command to display BGP extended community match condition configuration.

policy route route-map <map-name> rule <rule-num> match interface <interface-name>

Defines a match condition for a route map based on the first-hop interface.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match interface** *interface-name*

delete policy route route-map *map-name* **rule** *rule-num* **match interface** *interface-name*

show policy route route-map *map-name* **rule** *rule-num* **match interface** *interface-name*

Command Default

If no interface match condition is specified, packets are not filtered by interface.

Parameters

map-name

The name of a defined route map.

rule-number

The number of a defined route map rule.

interface-name

Matches first hop interface specified in the route against the interface name.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                interface interface-name
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on first-hop interface.

Packets are matched based on whether the first-hop interface of the route matches the interface specified by this command. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the interface match condition.

Use the **show** form of this command to display interface match condition configuration.

policy route route-map <map-name> rule <rule-num> match ip address

Defines a match condition for a route map based on IP address.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match ip address** { **access-list** *list-num* | **prefix-list** *list-name* }

delete policy route route-map *map-name* **rule** *rule-num* **match ip address**

show policy route route-map *map-name* **rule** *rule-num* **match ip address**

Command Default

If no IP address match condition is specified, packets are not filtered by IP address.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

access-list *list-num*

Matches the source or destination IP address of the route against those permitted by the specified access list. The access list must already be defined. Either **access-list** or **prefix-list** must be specified.

prefix-list *list-name*

Matches the source or destination network of the route against those permitted by the specified prefix list. The prefix list must already be defined. Either **access-list** or **prefix-list** must be specified.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                ip address {
                        access-list list-num
                        prefix-list list-name
                    }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on IP address.

Packets are matched based on whether the source or destination IP address of the route matches an address contained in the specified access list or prefix list. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the IP address match condition.

Use the **show** form of this command to display IP address match condition configuration.

policy route route-map <map-name> rule <rule-num> match ip nexthop

Defines a match condition for a route map based on the next-hop address.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match ip nexthop** { **access-list** *list-num* | **prefix-list** *list-name* }

delete policy route route-map *map-name* **rule** *rule-num* **match ip nexthop**

show policy route route-map *map-name* **rule** *rule-num* **match ip nexthop**

Command Default

If no next-hop match condition is specified, packets are not filtered by next hop.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

access-list *list-num*

Matches the next-hop IP address in the route against those permitted by the specified access list. The access list must already be defined. Either **access-list** or **prefix-list** must be specified.

prefix-list *list-name*

Matches next-hop IP address in the route against those permitted by the specified prefix list. The prefix list must already be defined. Either **access-list** or **prefix-list** must be specified.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                ip {
                    nexthop {
                        access-list list-num
                        prefix-list list-name
                    }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on next-hop IP address.

Packets are matched based on whether the next-hop IP address of the route matches an address contained in the specified access list or prefix list. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the next-hop IP address match condition.

Use the **show** form of this command to display next-hop IP address match condition configuration.

policy route route-map <map-name> rule <rule-num> match ip peer access-list <list-num>

Defines a match condition for a route map based on a list.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match ip peer access-list** *list-num*

delete policy route route-map *map-name* **rule** *rule-num* **match ip peer access-list** *list-num*

show policy route route-map *map-name* **rule** *rule-num* **match ip peer**

Command Default

If no list is specified, packets are not filtered by IP address.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

access-list *list-num*

Matches the source or destination IP address of the route against those permitted by the specified access list. The access list must already be defined.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                ip {
                    peer {
                            access-list list-num
                         }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map based on a list.

Packets are matched based on whether the source or destination IP address of the route matches an address contained in the specified access list .

Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the IP list match condition.

Use the **show** form of this command to display IP list match condition configuration.

policy route route-map <map-name> rule <rule-num> match ipv6 address

Defines a match condition for a route map based on IPv6 address.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match ipv6 address** { **access-list6** *list-num* | **prefix-list6** *list-name* }

delete policy route route-map *map-name* **rule** *rule-num* **match ipv6 address**

show policy route route-map *map-name* **rule** *rule-num* **match ipv6 address**

Command Default

If no IPv6 address match condition is specified, packets are not filtered by IPv6 address.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

access-list6 *list-num*

Matches the source or destination IP address of the route against those permitted by the specified access list. The access list must already be defined. Either **access-list6** or **prefix-list6** must be specified.

prefix-list6 *list-name*

Matches the source or destination network of the route against those permitted by the specified prefix list. The prefix list must already be defined. Either **access-list6** or **prefix-list6** must be specified.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                ipv6 address {
                        access-list6 list-num
                        prefix-list6 list-name

                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on IPv6 address.

Packets are matched based on whether the source or destination IPv6 address of the route matches an address contained in the specified access list or prefix list. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the IPv6 address match condition.

Use the **show** form of this command to display IPv6 address match condition configuration.

policy route route-map <map-name> rule <rule-num> match ipv6 nexthop

Defines a match condition for a route map based on the next-hop IPv6 address.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match ipv6 nexthop** { **access-list6** *list-num* | **prefix-list6** *list-name* }

delete policy route route-map *map-name* **rule** *rule-num* **match ipv6 nexthop**

show policy route route-map *map-name* **rule** *rule-num* **match ipv6 nexthop**

Command Default

If no next-hop match condition is specified, packets are not filtered by next hop.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

access-list6 *list-num*

Matches the next-hop IPv6 address in the route against those permitted by the specified access list. The access list must already be defined. Either **access-list6** or **prefix-list6** must be specified.

prefix-list6 *list-name*

Matches next-hop IPv6 address in the route against those permitted by the specified prefix list. The prefix list must already be defined. Either **access-list6** or **prefix-list6** must be specified.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                ipv6 {
                    nexthop {
                        access-list6 list-num
                        prefix-list6 list-name
                    }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based on next-hop IPv6 address.

Packets are matched based on whether the next-hop IPv6 address of the route matches an address contained in the specified access list or prefix list. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the next-hop IPv6 address match condition.

Use the **show** form of this command to display next-hop IPv6 address match condition configuration.

policy route route-map <map-name> rule <rule-num> match metric <metric>

Defines a match condition for a route map based on the route's metric.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match metric** *metric*

delete policy route route-map *map-name* **rule** *rule-num* **match metric**

show policy route route-map *map-name* **rule** *rule-num* **match metric**

Command Default

If no metric match condition is specified, packets are not filtered by metric.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

metric

A number representing a route metric. This value is matched against the metric in the route.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                metric metric
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based route metric.

Packets are matched based on whether the route metric matches that specified by this command. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the route source match condition.

Use the **show** form of this command to display route source match condition configuration.

policy route route-map <map-name> rule <rule-num> match origin

Defines a match condition for a route map based on the route's origin.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match origin { egp | igp | incomplete }**

delete policy route route-map *map-name* **rule** *rule-num* **match origin**

show policy route route-map *map-name* **rule** *rule-num* **match origin**

Command Default

If no origin match condition is specified, packets are not filtered by BGP origin code.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

egp

Matches routes whose origin is an Exterior Gateway Protocol.

igp

Matches routes whose origin is an Interior Gateway Protocol.

incomplete

Matches routes whose BGP origin code is incomplete.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                origin {
                    origin-code [egp|igp|incomplete]
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define a match condition for a route map policy based BGP origin.

Packets are matched based on whether the BGP origin code in the route matches that specified by this command. Depending on the action defined for the rule using policy route route-map <map-name> rule <rule-num> action on page 96, matched packets are either permitted or denied. Based on the forwarding information specified by the **set** statements in the route map rule, permitted packets are forwarded to their various destinations.

If more than one match condition is defined in a route map rule, the packet must match all conditions to count as a match. If no match condition is defined for the route map rule, all packets are considered to match the rule.

Use the **delete** form of this command to remove the origin match condition.

Use the **show** form of this command to display origin match condition configuration.

policy route route-map <map-name> rule <rule-num> match tag <tag>

Defines a match condition for a route map based on OSPF tag.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **match tag** *tag*

delete policy route route-map *map-name* **rule** *rule-num* **match tag**

show policy route route-map *map-name* **rule** *rule-num* **match tag**

Command Default

If no tag match condition is specified, packets are not filtered by tag.

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

tag

A 32-bit value representing an OSPF tag. This value is matched against the contents of the OSPF external Link-State Advertisement (LSA) 32-bit tag field in the route.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            match {
                tag tag
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to define an exit policy for a route map entry, by specifying the route map rule to be executed when a match occurs. When all the match conditions specified by the route map rule succeed, the route map rule specified by this command is invoked and executed.

Normally, when a route map is matched, the route map is exited and the route is permitted. This command allows you to specify an alternative exit policy, by directing execution to a specified route map rule or to the next rule in the sequence.

Use the **delete** form of this command to remove the exit policy.

Use the **show** form of this command to display route map exit policy configuration.

policy route route-map <map-name> rule <rule-num> set aggregator

Modifies the BGP aggregator attribute of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set aggregator** { **as** *asn* | **ip** *ipv4* }

delete policy route route-map *map-name* **rule** *rule-num* **set aggregator**

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

as *asn*

Modifies the autonomous system number of the BGP aggregator in the route to the specified value. The range is 1 to 65535.

ip *ipv4*

Modifies the IP address of the BGP aggregator in the route to the specified IPv4 address.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                aggregator {
                    as asn
                    ip ipv4
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to modify the aggregator attribute of a route. When all the match conditions in the route map rule succeed, the aggregator attribute is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set as-path-prepend <prepend>

Sets or prepends to the AS path of the route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set as-path-prepend** *prepend*

delete policy route route-map *map-name* **rule** *rule-num* **set as-path-prepend**

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

prepend

A string representing an AS path.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                as-path-prepend prepend
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to prepend a string to the AS path list in a route. When all the match conditions in the route map rule succeed, the specified string is prepended to the AS path in the route.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set atomic-aggregate

Sets the BGP atomic-aggregate attribute in a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set atomic-aggregate**

delete policy route route-map *map-name* **rule** *rule-num* **set atomic-aggregate**

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                atomic-aggregate
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to set the BGP atomic aggregate attribute in a route. When all the match conditions in the route map rule succeed, the BGP atomic aggregate attribute is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set community

Modifies the BGP community list in a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

delete policy route route-map *map-name* **rule** *rule-num* **set community** [*AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none**]

show policy route route-map *map-name* **rule** *rule-num* **set community**

Parameters

map-name
The name of a defined route map.

rule-num
The number of a defined route map rule.

aa:nn
Specifies the community in 4-octet, AS-value format.

local-AS
Advertises communities in local AS only (NO_EXPORT_SUBCONFED).

no-advertise
Does not advertise this route to any peer (NO_ADVERTISE).

no-export
Does not advertise outside of this AS of confederation boundary (NO_EXPORT).

internet
Specifies the 0 symbolic Internet community.

none
Specifies no communities.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                community AA:NN
                    local-AS
                    no-advertise
                    no-export
                    internet
                    none
            }
        }
        }
}
```

Usage Guidelines

Use the **set** form of this command to modify the BGP community list in a route. When all the match conditions in the route map rule succeed, the community list is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

NOTE
The community list must already be defined.

policy route route-map <map-name> rule <rule-num> set add-community <community>

Adds a BGP community to an existing community.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **action** [**permit** | **deny**]

set policy route route-map *map-name* **rule** *rule-num* **match ip address prefix-list** *prefix-num*

set policy route route-map *map-name* **rule** *rule-num* **set add-community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

delete policy route route-map *map-name* **rule** *rule-num* **set add-community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

show policy route route-map *map-name* **rule** *rule-num* **set add-community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

Parameters

map-name
The name of a defined route map.

list-num
The number of a defined community list.

rule-num
The number of a defined community list rule.

aa:nn
Specifies the community in 4-octet, AS-value format.

local-AS
Advertises communities in local AS only. (NO_EXPORT_SUBCONFED).

no-advertise
Does not advertise this route to any peer (NO_ADVERTISE).

no-export
Does not advertise outside of this AS of confederation boundary. (NO_EXPORT).

internet
Specifies the 0 symbolic Internet community.

none
Specifies no communities.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        route-map map-name {
            rule rule-num {
                action {
                        deny
                        permit
                match {
                    ip {
                        address {
                            prefix-list prefix-num {
                                set {
                                     add-community AA:NN
                                     local-AS
                                     no-advertise
                                     no-export
                                     internet
                                     none
                                     }
                                 }
                             }
                        }
                    }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to add a BGP community to an existing community.

Use the **delete** form of this command to delete the newly added BGP community from an existing community.

Use the **show** form of this command to display the configuration for route maps.

> NOTE
> You cannot configure this command and **set policy route route-map** *map-name* **rule** *rule-num* **set community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** } at the same time.

policy route route-map <map-name> rule <rule-num> set community <community>

Modifies a BGP community only if it matches a prefix-list.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **action [permit | deny]**

set policy route route-map *map-name* **rule** *rule-num* **match ip address prefix-list** *prefix-num*

set policy route route-map *map-name* **rule** *rule-num* **set community {** *AA:NN* **| local-AS | no-advertise | no-export | internet | none }**

Parameters

map-name

The name of a defined route map.

list-num

The number of a defined community list.

rule-num

The number of a defined community list rule.

aa:nn

Specifies the community in 4-octet, AS-value format.

local-AS

Advertises communities in local AS only (NO_EXPORT_SUBCONFED).

no-advertise

Does not advertise this route to any peer (NO_ADVERTISE).

no-export

Does not advertise outside of this AS of confederation boundary (NO_EXPORT).

internet

Specifies the 0 symbolic Internet community.

none

Specifies no communities.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        route-map map-name {
            rule rule-num {
                action {
                        deny
                        permit
                match {
                    ip {
                        address {
                            prefix-list prefix-num {
                               set {
                                   community AA:NN
                                   local-AS
                                   no-advertise
                                   no-export
                                   internet
                                   none
                                   }
                              }
                           }
                        }
                    }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to to modify the BGP community attribute in a route.

NOTE
The community list must already be defined.

policy route route-map <map-name> rule <rule-num> set ext-community <community>

Modifies a BGP extended community only if it matches a prefix-list.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **action [permit | deny]**

set policy route route-map *map-name* **rule** *rule-num* **match ip address prefix-list** *prefix-num*

set policy route route-map *map-name* **rule** *rule-num* **set extcommunity {** *AA:NN* **| local-AS | no-advertise | no-export | internet | none }**

Parameters

map-name

The name of a defined route map.

list-num

The number of a defined community list.

rule-num

The number of a defined community list rule.

aa:nn

Specifies the community in 4-octet, AS-value format.

local-AS

Advertises communities in local AS only (NO_EXPORT_SUBCONFED).

no-advertise

Does not advertise this route to any peer (NO_ADVERTISE).

no-export

Does not advertise outside of this AS of confederation boundary (NO_EXPORT).

internet

Specifies the 0 symbolic Internet community.

none

Specifies no communities.

Modes

Configuration mode

Configuration Statement

```
policy {
    route {
        route-map map-name {
            rule rule-num {
                action {
                        deny
                        permit
                match {
                    ip {
                               address {
                              prefix-list prefix-num {
                                 set { extcommunity AA:NN
                                            local-AS
                                            no-advertise
                                            no-export
                                            internet
                                            none
                                    }
                                 }
                            }
                        }
                    }
                }
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to modify the BGP extended-community attribute in a route.

policy route route-map <map-name> rule <rule-num> set community <action>

Modifies the BGP communities attribute in a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

delete policy route route-map *map-name* **rule** *rule-num* **set community** [*AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none**]

show policy route route-map *map-name* **rule** *rule-num* **set community**

Command Default

When the **additive** keyword is not used, the specified community replaces the existing communities in the route.

Parameters

map-name
The name of a defined route map.

rule-num
The number of a defined route map rule.

aa:nn
Specifies the community in 4-octet, AS-value format.

local-AS
Advertises communities in local AS only (NO_EXPORT_SUBCONFED).

no-advertise
Does not advertise this route to any peer (NO_ADVERTISE).

no-export
Does not advertise outside of this AS of confederation boundary (NO_EXPORT).

internet
Specifies the 0 symbolic Internet community.

none
Specifies no communities.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                community
                    AA:NN
                    local-AS
                    no-advertise
                    no-export
                    internet
                    none
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to modify the BGP communities attribute in a route. When all the match conditions in the route map rule succeed, the communities attribute is modified as specified by the rule.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display set statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set delete-community <action>

Deletes a BGP communities attribute from a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set delete-community** { *AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none** }

delete policy route route-map *map-name* **rule** *rule-num* **set delete-community** [*AA:NN* | **local-AS** | **no-advertise** | **no-export** | **internet** | **none**]

show policy route route-map *map-name* **rule** *rule-num* **set delete-community**

Command Default

When the **additive** keyword is not used, the specified community replaces the existing communities in the route.

Parameters

map-name
: The name of a defined route map.

rule-num
: The number of a defined route map rule.

aa:nn
: Specifies the community in 4-octet, AS-value format.

local-AS
: Advertises communities in local AS only (NO_EXPORT_SUBCONFED).

no-advertise
: Does not advertise this route to any peer (NO_ADVERTISE).

no-export
: Does not advertise outside of this AS of confederation boundary (NO_EXPORT).

internet
: Specifies the 0 symbolic Internet community.

none
: Specifies no communities.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                delete-community
                    AA:NN
                    local-AS
                    no-advertise
                    no-export
                    internet
                    none
            }
        }
    }
}
```

Usage Guidelines

Removes the communities from the community list of the route. The community list must already be defined.

Use the **set** form of this command to modify the BGP communities attribute in a route. When all the match conditions in the route map rule succeed, the communities attribute is modified as specified by the rule.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set ip-next-hop <ipv4>

Modifies the next hop destination of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set ip-next-hop** *ipv4*

delete policy route route-map *map-name* **rule** *rule-num* **set ip-next-hop** [*ipv4*]

show policy route route-map *map-name* **rule** *rule-num* **set ip-next-hop**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

ipv4

The IPv4 address of the next hop.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                ip-next-hop ipv4
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to modify the next hop destination for packets that traverse a route map. When all the match conditions in the route map rule succeed, the next hop of the route is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set ipv6-next-hop <scope> <ipv6>

Modifies the IPv6 next hop destination of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set ipv6-next-hop** { **global** | **local** } *ipv6*

delete policy route route-map *map-name* **rule** *rule-num* **set ipv6-next-hop** [**global** | **local**]

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

global

The next hop address is an IPv6 global address.

local

The next hop address is an IPv6 local address.

ipv6

The IPv6 address of the next hop.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                ipv6-next-hop {
                    global ipv6
                    local ipv6
                }
            }
        }
    }
}
```

Usage Guidelines

When all the match conditions in the route map rule succeed, the next hop of the route is modified as specified.

Use the **set** form of this command to modify the IPv6 next hop destination address for packets that traverse a route map.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set local-preference <local-pref>

Modifies the BGP local-pref attribute in a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set local-preference** *local-pref*

delete policy route route-map *map-name* **rule** *rule-num* **set local-preference** [*local-pref*]

show policy route route-map *map-name* **rule** *rule-num* **set local-preference**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

local-pref

The new value for the BGP local preference path attribute. The numbers range from 0 through 4294967295.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                local-preference local-pref
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to modify the BGP local-pref attribute for packets that traverse a route map. When all the match conditions in the route map rule succeed, the local-pref attribute of the route is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set metric <metric>

Modifies the metric of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set metric** *metric*

delete policy route route-map *map-name* **rule** *rule-num* **set metric**

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

metric

A number representing the new metric to be used in the route.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                metric metric
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to modify the route metric for packets that traverse a route map. When all the match conditions in the route map rule succeed, the route metric is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set metric-type <type>

Specifies the OSPF external metric-type for a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set metric-type** [*type-1*| *type-2*]

delete policy route route-map *map-name* **rule** *rule-num* **set metric-type** [*type-1*| *type-2*]

show policy route route-map *map-name* **rule** *rule-num* **set metric-type**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

type-1

OSPF external type 1 metric. This metric uses both internal and external costs when calculating the cost to access an external network.

type-2

OSPF external type 2 metric. This metric uses only external cost when calculating the cost to access an external network.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                metric-type
                     type-1
                     type-2
            }
        }
    }
}
```

Usage Guidelines

The metric OSPF calculates the cost of accessing an external network.

Use the **set** form of this command to specify the OSPF external metric type for a route.

Use the **delete** form of this command to delete the metric type.

Use the **show** form of this command to display the metric type.

policy route route-map <map-name> rule <rule-num> set prepend-as { last-as <as-count> | own-as <as-count> }

Prepends the **last-as**, that is, the previous ASN or the **own-as**, that is, the user's ASN to the as-path of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set prepend-as** { **last-as** *as-count* | **own-as** *as-count* }

delete policy route route-map *map-name* **rule** *rule-num* **set prepend-as** [**last-as** | **own-as**]

show policy route route-map *map-name* **rule** *rule-num* **set prepend-as**

Command Default

None

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

as-count

The number of times the last-as or own-as is prepended.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                prepend-as {
                   last-as as-count
                   own-as as-count
                 }
             }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to prepend the last-as or the own-as to the existing as-path of a route. When all the match conditions in the route map rule are met, the last-as or own-as is prepended a specified number of times to the as-path of the route.

Use the **delete** form of this command to delete the prepend-as configuration from a route map rule.

Use the **show** form of this command to display the configuration for route maps.

NOTE
You can configure either the **last-as** or **own-as** option under a route map rule but not both.

policy route route-map <map-name> rule <rule-num> set origin

Modifies the BGP origin code of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set origin** { **igp** | **egp** | **incomplete** }

delete policy route route-map *map-name* **rule** *rule-num* **set origin** [**igp** | **egp** | **incomplete**]

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

egp

Sets the BGP origin code to egp (Exterior Gateway Protocol).

igp

Sets the BGP origin code to igp (Interior Gateway Protocol).

incomplete

Sets the BGP origin code to incomplete.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                origin
                    igp
                    egp
                    incomplete
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to set the BGP origin code for packets that traverse a route map. When all the match conditions in the route map rule succeed, the BGP origin code is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set originator-id <ipv4>

Modifies the BGP originator ID attribute of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set originator-id** *ipv4*

delete policy route route-map *map-name* **rule** *rule-num* **set originator-id** [*ipv4*]

show policy route route-map *map-name* **rule** *rule-num* **set originator-id**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

ipv4

The IPv4 address to be used as the new originator ID.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                originator-id ipv4
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to set the BGP originator ID for packets that traverse a route map. When all the match conditions in the route map rule succeed, the BGP originator ID is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set tag <tag>

Modifies the OSPF tag value of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set tag** *tag*

delete policy route route-map *map-name* **rule** *rule-num* **set tag**

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

tag

A 32-bit number representing the new value of the OSPF external Link-State Advertisement (LSA) tag field.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                tag tag
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to set the OSPF tag value for packets that traverse a route map. When all the match conditions in the route map rule succeed, the route tag is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

policy route route-map <map-name> rule <rule-num> set weight <weight>

Modifies the BGP weight of a route.

Syntax

set policy route route-map *map-name* **rule** *rule-num* **set weight** *weight*

delete policy route route-map *map-name* **rule** *rule-num* **set weight**

show policy route route-map *map-name* **rule** *rule-num* **set**

Parameters

map-name

The name of a defined route map.

rule-num

The number of a defined route map rule.

weight

The BGP weight to be recorded in the routing table. The range is 0 to 65535.

Modes

Configuration mode

Configuration Statement

```
policy {
    route-map map-name {
        rule rule-num {
            set {
                weight weight
            }
        }
    }
}
```

Usage Guidelines

Use the **set** form of this command to set the BGP weight for routes. When all the match conditions in the route map rule succeed, the route weight is modified as specified.

Use the **delete** form of this command to delete this statement from the route map rule.

Use the **show** form of this command to display **set** statement configuration for route maps.

show ip access-list

Displays all IP access lists.

Syntax

show ip access-list

Modes

Operational mode

Usage Guidelines

Use this command to display IP access lists.

Examples

The following example shows IP access lists.

```
vyatta@vyatta:~$show ip access-list
ZEBRA:
Standard IP access list 1
    permit any
RIP:
Standard IP access list 1
    permit any
OSPF:
Standard IP access list 1
    permit any
BGP:
Standard IP access list 1
    permit any
```

show ip as-path-access-list

Displays all AS-path access lists.

Syntax

show ip as-path-access-list

Modes

Operational mode

Usage Guidelines

Use this command to display AS-path access lists.

Examples

The following example shows AS-path access lists.

```
vyatta@vyatta:~$ show ip as-path-access-list
AS path access list IN
    permit 50:1
vyatta@vyatta:~$
```

show ip community-list

Displays all IP community lists.

Syntax

show ip community-list

Modes

Operational mode

Usage Guidelines

Use this command to display community lists.

Examples

The following example shows community lists.

```
vyatta@vyatta:~$ show ip community-list
Community (expanded) access list 101
    permit AB*
vyatta@vyatta:~$
```

show ip extcommunity-list

Displays all extended IP community lists.

Syntax

show ip extcommunity-list

Modes

Operational mode

Usage Guidelines

Use this command to display extended IP community lists.

Examples

The following example shows extended IP community lists.

```
vyatta@vyatta:~$ show ip extcommunity-list
Community (expanded) access list 101
    permit AB*
vyatta@vyatta:~$
```

show ip prefix-list

Displays IP prefix lists.

Syntax

show ip prefix-list [**detail** | **summary** | *list-name* [**seq** *seq-num* | *ipv4net* [**first-match** | **longer**]]]

Parameters

detail

Displays detailed information for all IP prefix lists.

summary

Displays summary information for all IP prefix lists.

list-name

Displays information about the named IP prefix list.

seq-num

Displays the specified sequence from the named IP prefix list.

ipv4net

Displays the select prefix of the named IP prefix list.

first-match

Displays the first match from the select prefix of the named IP prefix list.

longer

Displays the longer match of the select prefix from the named IP prefix list.

Modes

Operational mode

Usage Guidelines

Use this command to display prefix lists.

Examples

The following example shows prefix lists.

```
vyatta@vyatta:~$ show ip prefix-list
ZEBRA: ip prefix-list ABC: 1 entries
   seq 1 permit 192.168.2.0/24 ge 25
RIP: ip prefix-list ABC: 1 entries
   seq 1 permit 192.168.2.0/24 ge 25
OSPF: ip prefix-list ABC: 1 entries
   seq 1 permit 192.168.2.0/24 ge 25
BGP: ip prefix-list ABC: 1 entries
   seq 1 permit 192.168.2.0/24 ge 25
vyatta@vyatta:~$
```

show ip protocol

Displays IP route maps per protocol.

Syntax

show ip protocol

Modes

Operational mode

Usage Guidelines

Use this command to display IP route maps per protocol.

Examples

The following example shows IP route maps by protocol.

```
vyatta@vyatta:~$ show ip protocol
Protocol    : route-map
------------------------
system      : none
kernel      : none
connected   : none
static      : none
rip         : none
ripng       : none
ospf        : none
ospf6       : none
isis        : none
bgp         : none
hsls        : none
any         : none
vyatta@vyatta:~$
```

show route-map

Displays route map information.

Syntax

show route-map [*map-name*]

Parameters

map-name

The name for the route map.

Modes

Operational mode

Usage Guidelines

Use this command to display route map information.

Examples

The following example shows route map information.

```
vyatta@vyatta:~$ show route-map
route-map rt1, permit, sequence 10
  Match clauses:
    ip address prefix-list: p1
  Set clauses:
```

List of Acronyms

Acronym	Description
ACL	access control list
ADSL	Asymmetric Digital Subscriber Line
AH	Authentication Header
AMI	Amazon Machine Image
API	Application Programming Interface
AS	autonomous system
ARP	Address Resolution Protocol
AWS	Amazon Web Services
BGP	Border Gateway Protocol
BIOS	Basic Input Output System
BPDU	Bridge Protocol Data Unit
CA	certificate authority
CCMP	AES in counter mode with CBC-MAC
CHAP	Challenge Handshake Authentication Protocol
CLI	command-line interface
DDNS	dynamic DNS
DHCP	Dynamic Host Configuration Protocol
DHCPv6	Dynamic Host Configuration Protocol version 6
DLCI	data-link connection identifier
DMI	desktop management interface
DMVPN	dynamic multipoint VPN
DMZ	demilitarized zone
DN	distinguished name
DNS	Domain Name System
DSCP	Differentiated Services Code Point
DSL	Digital Subscriber Line
eBGP	external BGP
EBS	Amazon Elastic Block Storage
EC2	Amazon Elastic Compute Cloud
EGP	Exterior Gateway Protocol
ECMP	equal-cost multipath
ESP	Encapsulating Security Payload
FIB	Forwarding Information Base
FTP	File Transfer Protocol
GRE	Generic Routing Encapsulation
HDLC	High-Level Data Link Control
I/O	Input/Output
ICMP	Internet Control Message Protocol

Acronym	Description
IDS	Intrusion Detection System
IEEE	Institute of Electrical and Electronics Engineers
IGMP	Internet Group Management Protocol
IGP	Interior Gateway Protocol
IPS	Intrusion Protection System
IKE	Internet Key Exchange
IP	Internet Protocol
IPOA	IP over ATM
IPsec	IP Security
IPv4	IP Version 4
IPv6	IP Version 6
ISAKMP	Internet Security Association and Key Management Protocol
ISM	Internet Standard Multicast
ISP	Internet Service Provider
KVM	Kernel-Based Virtual Machine
L2TP	Layer 2 Tunneling Protocol
LACP	Link Aggregation Control Protocol
LAN	local area network
LDAP	Lightweight Directory Access Protocol
LLDP	Link Layer Discovery Protocol
MAC	medium access control
mGRE	multipoint GRE
MIB	Management Information Base
MLD	Multicast Listener Discovery
MLPPP	multilink PPP
MRRU	maximum received reconstructed unit
MTU	maximum transmission unit
NAT	Network Address Translation
NBMA	Non-Broadcast Multi-Access
ND	Neighbor Discovery
NHRP	Next Hop Resolution Protocol
NIC	network interface card
NTP	Network Time Protocol
OSPF	Open Shortest Path First
OSPFv2	OSPF Version 2
OSPFv3	OSPF Version 3
PAM	Pluggable Authentication Module
PAP	Password Authentication Protocol
PAT	Port Address Translation
PCI	peripheral component interconnect
PIM	Protocol Independent Multicast
PIM-DM	PIM Dense Mode

Acronym	Description
PIM-SM	PIM Sparse Mode
PKI	Public Key Infrastructure
PPP	Point-to-Point Protocol
PPPoA	PPP over ATM
PPPoE	PPP over Ethernet
PPTP	Point-to-Point Tunneling Protocol
PTMU	Path Maximum Transfer Unit
PVC	permanent virtual circuit
QoS	quality of service
RADIUS	Remote Authentication Dial-In User Service
RHEL	Red Hat Enterprise Linux
RIB	Routing Information Base
RIP	Routing Information Protocol
RIPng	RIP next generation
RP	Rendezvous Point
RPF	Reverse Path Forwarding
RSA	Rivest, Shamir, and Adleman
Rx	receive
S3	Amazon Simple Storage Service
SLAAC	Stateless Address Auto-Configuration
SNMP	Simple Network Management Protocol
SMTP	Simple Mail Transfer Protocol
SONET	Synchronous Optical Network
SPT	Shortest Path Tree
SSH	Secure Shell
SSID	Service Set Identifier
SSM	Source-Specific Multicast
STP	Spanning Tree Protocol
TACACS+	Terminal Access Controller Access Control System Plus
TBF	Token Bucket Filter
TCP	Transmission Control Protocol
TKIP	Temporal Key Integrity Protocol
ToS	Type of Service
TSS	TCP Maximum Segment Size
Tx	transmit
UDP	User Datagram Protocol
VHD	virtual hard disk
vif	virtual interface
VLAN	virtual LAN
VPC	Amazon virtual private cloud
VPN	virtual private network
VRRP	Virtual Router Redundancy Protocol

Acronym	Description
WAN	wide area network
WAP	wireless access point
WPA	Wired Protected Access