1 Routing Policy Commands

Command	Function
ip as-path access-list	Configure an autonomous system (AS) path filtering rule based on a regular expression.
ip community-list	Configure a community list.
ip extcommunity-list	Configure an extcommunity list to be used by a route map. This route map is used to filter virtual private network (VPN) routes in the BGP application. **standard** defines a standard community list and controls access to this list. **expanded** defines an expanded community list and controls access to this list. After an extcommunity list is created, the system enters the **ip extcommunity-list** configuration mode.
ip prefix-list	Create a prefix list or add a prefix list entry.
ip prefix-list description	Add a text description for a prefix list.
ip prefix-list sequence-number	Enable the function of displaying sequence numbers in a prefix list.
ipv6 prefix-list	Create an IPv6 prefix list or add a prefix list entry.
ipv6 prefix-list description	Add a text description for an IPv6 prefix list.
ipv6 prefix-list sequence-number	Enable the function of displaying sequence numbers in an IPv6 prefix list.
match as-path	Configure the AS path attribute permitted in the ACL to match routes.
match community	Configure the community attribute permitted in the ACL to match routes.
match extcommunity	Configure an extcommunity list to match routes.
match interface	Configure a specified interface as the next-hop outbound interface.
match ip address	Configure the target network routes that are permitted in an ACL or prefix list.
match ip next-hop	Configure the target network routes whose next-hop IP addresses match rules in the ACL or prefix list.

match ip policy	Configure the target network routes that are permitted in the ACL and match a specified L3 authentication traffic diversion domain type.
match ip route-source	Configure the target network routes whose source IP addresses match rules in the ACL or prefix list.
match ipv6 address	Configure the target IPv6 network routes that are permitted in the ACL or prefix list.
match ipv6 next-hop	Configure the target network routes whose next-hop IPv6 addresses match rules in the ACL or prefix list.
match ipv6 route-source	Configure the target network routes whose source IPv6 addresses match rules in the ACL or prefix list.
match metric	Configure the metric values of routes.
match origin	Configure the source type of BGP routes.
match route-type	Configure the route type.
match tag	Configure the tags of routes.
memory-lack exit-policy	Specify the exit policy for the upper-layer routing protocols when the free memory space reaches the lower level.
route-map	Configure a route map and enter the route map configuration mode.
set aggregator as	Specify the AS value of the aggregator for routes that match the rules.
set aigp-metric	Specify the Accumulated IGP Metric Attribute (AIGP) metric for routes that match the rules.
set as-path replace	Replace the AS_PATH values for routes that match the rules with specified values.
set as-path prepend	Add the specified AS_PATH values for routes that match the rules.
set atomic-aggregate	Configure the atomic-aggregate attribute for routes.
set comm-list delete	Delete all community values from routes that match the rules according to the community list.
set community	Specify the community values for routes that match the rules.
set dampening	Configure the flapping parameters for routes that match the rules.

set distance	Configure the management distance for routes that match the rules.
set extcomm-list delete	Delete all extended community values from the routes that match the rules according to the extcommunity list.
set extcommunity	Specify the extended community values for routes that match the rules.
set fast-reroute	Specify the backup outbound interface and backup next hop of FRR for routes that match the rules.
set ip default next-hop	Specify the default next-hop IPv4 address for packets that match the rules.
set ip dscp	Configure the differentiated service code point (DSCP) value for packets matching the rules.
set ip next-hop	Specify the next-hop IPv4 address for packets that match the rules.
set ip next-hop recursive	Specify the recursive next-hop IP address for packets that match the rules.
set ip next-hop self	Set the next hop to the device itself for packets that match the rules.
set ip next-hop unchanged	Set the next hops of routes that match the rules to keep unchanged.
set ip next-hop verify-availability	Verify availability of the next-hop IPv4 address.
set ip precedence	Configure the priority of the IPv4 header for packets that match the rules.
set ip tos	Configure the ToS of the IPv4 header for a packet that matches the rules.
set ipv6 default next-hop	Specify the default next-hop IPv6 address for IPv6 packets that match the rules.
set ipv6 next-hop	Specify the next-hop IPv6 address for IPv6 packets that match the rules.
set ipv6 next-hop recursive	Specify the recursive next-hop IPv6 address for packets that match the rules.
set ipv6 next-hop self	Set the next hop to the device itself for IPv6 routes that match the rules.
set ipv6 next-hop unchanged	Set the next hop to keep unchanged for IPv6 routes

	that match the rules.
set ipv6 next-hop verify-availability	Verify availability of the next-hop IPv6 address.
set ipv6 precedence	Configure the priority of the IPv6 header for packets that match the rules.
set l3vpn nexthop local-vrf	Set the L3 VPN next hop to the local VRF instance for packets matching the match rules.
set level	Specify the type of the destination area to which routes that match the rules will be advertised.
set local-preference	Configure the LOCAL_PREFERENCE value for routes that match the rules.
set metric	Configure the metric value for routes that match the rules.
set metric-type	Configure the metric type for routes that match the rules.
set next-hop	Specify the next-hop IP address for routes that match the rules.
set next-hop self	Set the next hop to the device itself for routes that match the rules.
set next-hop unchanged	Set the next hop to keep unchanged for routes that match the rules.
set origin	Specify the source for routes that match the rules.
set originator-id	Specify the originator address for routes that match the rules.
set qos-id	Specify the QoS ID for routes that match the rules.
set tag	Configure the tag for routes that match the rules.
set weight	Configure the weight for BGP routes that match the rules.
show ip as-path-access-list	Display the AS-path list information.
show ip community-list	Display the community list information.
show ip extcommunity-list	Display the extcommunity list information.
show ip prefix-list	Display the information about a prefix list or prefix list entries.
show ip protocols	Display the status information of the IPv4 routing protocols that are currently running.

show ipv6 prefix-list	Display the information about an IPv6 prefix list or prefix list entries.
show route-map	Display the route map configurations.

1.1 ip as-path access-list

Function

Run the **ip as-path access-list** command to configure an autonomous system (AS) path filtering rule based on a regular expression.

Run the **no** form of this command to remove this configuration.

By default, no AS path filtering rule is configured.

Syntax

ip as-path access-list *path-list-num* { **permit** | **deny** } *regular-expression*

no ip as-path access-list *path-list-num* [{ **permit** | **deny** } *regular-expression*]

Parameter Description

path-list-num: Identifier of an AS path list. The value range is from 1 to 500.

permit: Permits access.

deny: Denies access.

regular-expression: Regular expression. It is a string of 1 to 255 characters.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures an AS path filtering rule to match only the path information containing the AS number of 123.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip as-path access-list 105 deny ^123$
```

Notifications

When you delete an AS path filtering rule, if the entered rule name or the filtering rule does not exist, the following notification will be displayed:

```
% This object doesn't exist
```

If you enter an invalid filtering rule, the following notification will be displayed:

```
% Can't compile regexp
```

When you configure a duplicate AS path filtering rule, the following notification will be displayed:

```
% Insertion failed with duplicate policy
```

Common Errors

N/A

Platform Description

N/A

Related Commands

show ip bgp filter-list (BGP)

1.2 ip community-list

Function

Run the **ip community-list** command to configure a community list.

Run the **no** form of this command to remove this configuration.

By default, no community list is configured.

Syntax

ip community-list { *community-list-number* | **standard** *community-list-name* } { **permit** | **deny** } [{ *community-list-number* | **internet** | **local-AS** | **no-advertise** | **no-export** | **gshut** }]

ip community-list { *community-list-number* | **expanded** *community-list-name* } { **permit** | **deny** } [*regular-expression*]

no ip community-list { { **standard** | **expanded** } *community-list-name* | *community-list-number* }

Parameter Description

standard: Specifies a standard community list.

expanded: Specifies an expanded community list.

community-list-name: Name of a community list. It is a string of less than 80 characters.

community-list-number: Number of a community list. For a standard community list, the range is from 1 to 99. For an expanded community list, the range is from 100 to 199.

permit: Permits access.

deny: Denies access.

community-number: Value of the community attribute. The format is AA:NN (AS number: 2-byte number) or the value is a number. The value range is from 0 to 4294967295.

Internet: Specifies the Internet community. All paths belong to this community.

local-AS: Specifies that the path matching a route in the community list is not advertised to other ASs. When an AS alliance is configured, the path is not advertised to other ASs or sub ASs.

no-advertise: Specifies that the path is not advertised to any Border Gateway Protocol (BGP) peer.

no-export: Specifies that the path is not advertised to External Border Gateway Protocol (EBGP) peers.

gshut: Specifies that the route matching the community list is advertised by a graceful shutdown neighbor.

regular-expression: Regular expression. It is a string of 1 to 255 characters.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

This command is used to define a community list used for BGP. **standard** defines a standard community list and controls access to this list. **expanded** defines an expanded community list and controls access to this list.

A community list supports up to 32 community values, including **internet**, **local-AS**, **no-advertise**, and **no-export**.

Examples

The following example configures the standard community list **test** to reject routes that contain the community attributes of **100:20** and **200:20**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip community-list standard test deny 100:20 200:20
```

The following example configures the standard community list **test2** to allow routes that contain the community attribute of **Internet**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip community-list standard test2 permit internet
```

Notifications

If the name of a specified community list is all numbers, the following notification will be displayed:

```
% Community-list name cannot have all digits
```

If the name of a specified community list contains more than 80 characters, the following notification will be displayed:

```
% Community-list name lengths should be less than 80 chars
```

When you delete a community list but the entered list or filtering rule does not exist, the following notification will be displayed:

```
% This object doesn't exist
```

When you configure a duplicate community filtering rule, the following notification will be displayed:

```
% Insertion failed with duplicate policy
```

When you configure a community filtering rule with a duplicate sequence number, the following notification will be displayed:

```
% Community-list entry with this sequence already exist
```

When you configure both a standard community list and an expanded community list by using the same name, the following notification will be displayed:

```
% Community-list name conflict with previous defined
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.3 ip extcommunity-list

Function

Run the **ip extcommunity-list** command to configure an extcommunity list to be used by a route map. This route map is used to filter virtual private network (VPN) routes in the BGP application. **standard** defines a standard community list and controls access to this list. **expanded** defines an expanded community list and controls access to this list. After an extcommunity list is created, the system enters the **ip extcommunity-list** configuration mode.

Run the **no** form of this command to remove this configuration.

By default, no extcommunity list is configured.

Syntax

ip extcommunity-list { *standard-list* | **standard** *list-name* } { **permit** | **deny** } [**rt** *rt-value* | **soo** *soo-value*]

ip extcommunity-list { *expanded-list* | **expanded** *list-name* } { **permit** | **deny** } [*regular-expression*]

ip extcommunity-list { *expanded-list* | **expanded** *list-name* | *standard-list* | **standard** *list-name* }

no ip extcommunity-list { *expanded-list* | **expanded** *list-name* | *standard-list* | **standard** *list-name* }

Parameter Description

expand-list: ID of an expanded extcommunity list. The value range is from 100 to 199. One extcommunity list may contain multiple rules.

standard-list: ID of a standard extcommunity list. The value range is from 1 to 99. One extcommunity list may contain multiple rules.

expanded *list-name*: Specifies the name of an expanded extcommunity list. When this parameter is used, the system enters the expanded extcommunity list configuration mode. The name contains up to 32 characters.

standard *list-name*: Specifies the name of a standard extcommunity list. When this parameter is used, the system enters the standard extcommunity list configuration mode. The name contains up to 32 characters.

permit: Defines a permit extcommunity rule.

deny: Defines a deny extcommunity rule.

regular-expression: Regular expression used to define a template for matching an extcommunity. It is a string of 1 to 255 characters.

rt *rt-value* | **soo** *soo-value*: Configures the extcommunity attributes to be matched. You can enter the route target (RT) and site of origin (SOO) attributes for multiple times.

rt *rt-value*: Configures the RT attribute. This parameter can be used only for the standard extcommunity configuration, but not for the expanded extcommunity configuration.

soo *soo-value*: Configures the SOO attribute. This parameter can be used only for the standard extcommunity configuration, but not for the expanded extcommunity configuration.

rt-value and *soo-value*: Value of an extended community (extend_community_value).

extend_community_value has three options:

extend_community _value = as_num:nn

as_num is a 2-byte public AS number. nn is configurable. The value range is from 0 to 4294967295.

extend_community_value = ip_addr:nn

ip_addr must be a global IP address. nn is configurable. The value range is from 0 to 65535.

extend_community_value = as4_num:nn

an4_num is a 4-byte public AS number. nn is configurable. The value range is from 1 to 65535. The AS number range is from 1 to 4294967295, or 1 to 65535.65535 in dot mode.

Command Modes

Global configuration mode and ip extcommunity-list configuration mode

Default Level

14

Usage Guidelines

This command is used to create an extcommunity list that has multiple extcommunity values. This list is used in the **match extcommunity** rule in a route map to match the extcommunity attribute of BGP routes, so as to achieve the purpose of route filtering.

In the definition of an expanded extcommunity rule, *regular-expression* is described as follows:

- Character: No special meaning.
- Period (.): Matches any single character.
- Asterisk (*): Matches zero or any sequence in a string.
- Plus sign (+): Matches one or any sequence in a string.
- Question mark (?): Matches zero or one symbol in a string.
- Caret (^): Matches the start of a string.
- Dollar sign ($): Matches the end of a string.
- Underline (_): Matches commas, brackets, start and end of a string, and spaces.
- Square brackets ([]): Matches a single character within a range.

In expanded ip extcommunity-list configuration mode, the following commands are available:

- [*sequence-number*] **deny** *regular-expression*: Defines a deny extcommunity rule.
- [*sequence-number*] **permit** *regular-expression*: Defines a permit extcommunity rule.
- **exit:** Exits the current mode.
- **no** [*sequence-number*] **deny** *regular-expression*: Deletes a deny extcommunity rule.
- **no** [*sequence-number*] **permit** *regular-expression*: Deletes a permit extcommunity rule.

In standard ip extcommunity-list configuration modes, the following commands are available:

- [*sequence-number*] **deny** { [**rt** *value*] [**soo** *value*] }: Defines a deny extcommunity rule.
- [*sequence-number*] **permit** { [**rt** *value*] [**soo** *value*] }: Defines a permit extcommunity rule.
- **exit**: Exits the current mode.
- **no** [*sequence-number*] **deny** { [**rt** *value*] [**soo** *value*] }: Deletes a deny extcommunity rule.
- **no** [*sequence-number*] **permit** { [**rt** *value*] [**soo** *value*] }: Deletes a permit extcommunity rule.

Examples

The following example configures the extcommunity list **1** to allow traffic with the RT attribute of 100:1.

The following example configures the standard extcommunity list **aaa** to allow traffic with the RT attribute of 100:2.

The following example configures the expanded extcommunity list **ext1** to allow traffic with the extcommunity attribute of 200:[0~9][0~9].

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip extcommunity-list 1 permit rt 100:1
Hostname(config)# ip extcommunity-list standard aaa permit rt
100:2
Hostname(config)# ip extcommunity-list expanded ext1 permit 200:[0~9][0~9]
```

The following example configures the route map **rt_in_filter** to match routes with the extcommunity lists **1** and **ext1**, and applies the route map to the VPN address family in AS 65000 of BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map rt_in_filter
Hostname(config-route-map)# match extcommunity 1
Hostname(config-route-map)# match extcommunity ext1
Hostname(config)# router bgp 65000
Hostname(config-router)# address-family vpn
Hostname(config-router-af)# neighbor 3.3.3.3 send-community extended
Hostname(config-router-af)# neighbor 3.3.3.3 route-map rt_in_filter in
```

Notifications

When you delete a community list but the entered list or filtering rule does not exist, the following notification will be displayed:

```
% This object doesn't exist
```

When you configure a duplicate extcommunity filtering rule, the following notification will be displayed:

```
% Insertion failed with duplicate policy
```

When you configure an extcommunity filtering rule with a duplicate sequence number, the following notification will be displayed:

```
% Extcommunity-List entry with this sequence already exist
```

When you configure both a standard and expanded extcommunity lists with the same name, the following notification will be displayed:

```
% Extcommunity-list name conflict with previous defined
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.4 ip prefix-list

Function

Run the **ip prefix-list** command to create a prefix list or add a prefix list entry.

Run the **no** form of this command to remove this configuration.

By default, no prefix list is configured.

Syntax

ip prefix-list *prefix-list-name* [**seq** *seq-number*] { **deny** | **permit** } *ipv4-prefix* [**ge** *minimum-prefix-length*] [**le** *maximum-prefix-length*]

no ip prefix-list *prefix-list-name* [**seq** *seq-number*] { **deny** | **permit** } *ipv4-prefix* [**ge** *minimum-prefix-length*] [**le** *maximum-prefix-length*]

Parameter Description

prefix-list-name: Name of a prefix list.

seq-number: Sequence number assigned to a prefix list entry. The value range is from 1 to 2147483647. If no sequence number is specified in this command, the system will assign a default sequence number to the prefix list entry. The default sequence number of the first entry is 5. Subsequently, the default sequence number of each unassigned entry is the first multiple of 5 and greater than the previous sequence number.

deny: Denies access when rules are matched.

permit: Permits access when rules are matched.

ipv4-prefix: Network address and mask. The mask length ranges from 0 to 32.

minimum-prefix-length: Minimum range (namely, the start length of a range).

maximum-prefix-length: Maximum range (namely, the end length of a range).

Note

- The keyword **ge** indicates the greater than or equal to operation.
- The keyword **le** indicates the smaller than or equal to operation.
- If both **ge** and **le** are not configured, rules are matched only when the mask length is exactly the same as the configured mask length.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

The **ip prefix-list** command is used to configure an IP prefix list. The keyword **permit** or **deny** in a prefix list determines the permit or deny action when the prefix list is matched.

The prefix list defines the exact match or range match for a prefix. The keyword **ge** or **le** defines the prefix range used for matching, and provides more flexible matching configuration than *ipv4-prefix*. If the keyword **ge** or **le** is not configured in the command, *ipv4-prefix* provides an accurate prefix range for matching. If only **ge** is configured, the matching range is from *minimum-prefix-length* to 32. If only **le** is configured, the matching range is from *ipv4-prefix* to *maximum-prefix-length*. If both are configured, the matching range is from *minimum-prefix-length* to *maximum-prefix-length*. That is, the relationship between *ipv4-prefix* mask length, *minimum-prefix-length*, and *maximum-prefix-length* is as follows: *ipv4-prefix* mask length < *minimum-prefix-length* < *maximum-prefix-length* <= 32.

Examples

The following example configures the prefix list **pre1** to match the traffic with the address segment 201.1.1.0/24, and filters the routing information output when RIP routes are redistributed to OSPF based on **pre1**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip prefix-list pre1 permit 201.1.1.0/24
Hostname(config)# router ospf
Hostname(config-router)# distribute-list prefix pre1 out rip
Hostname(config-router)# end
```

Notifications

When you configure a prefix list entry with duplicate rules, the following notification will be displayed:

```
% Insertion failed with duplicate policy
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.5 ip prefix-list description

Function

Run the **ip prefix-list description** command to add a text description for a prefix list.

Run the **no** form of this command to remove this configuration.

By default, no text description is configured for a prefix list.

Syntax

ip prefix-list *prefix-list-name* **description** *description-text*

no ip prefix-list *prefix-list-name* **description**

Parameter Description

prefix-list-name: Name of a prefix list.

description-text: Text description of a prefix list.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example adds the text description "Deny routes from Net-A" for the prefix list **pre**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip prefix-list pre description Deny routes from Net-A
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.6 ip prefix-list sequence-number

Function

Run the **ip prefix-list sequence-number** command to enable the function of displaying sequence numbers in a prefix list.

Run the **no** form of this command to disable this feature.

By default, the function of displaying sequence numbers in a prefix list is disabled.

Syntax

ip prefix-list sequence-number

no ip prefix-list sequence-number

Parameter Description

N/A

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example enables the function of displaying sequence numbers in a prefix list.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip prefix-list sequence-number
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.7 ipv6 prefix-list

Function

Run the **ipv6 prefix-list** command to create an IPv6 prefix list or add a prefix list entry.

Run the **no** form of this command to remove this configuration.

By default, no prefix list is configured.

Syntax

ipv6 prefix-list *prefix-list-name* [**seq** *seq-number*] { **deny** | **permit** } *ipv6-prefix* [**ge** *minimum-prefix-length*] [**le** *maximum-prefix-length*]

no ipv6 prefix-list *prefix-list-name* [**seq** *seq-number*] { **deny** | **permit** } *ipv6-prefix* [**ge** *minimum-prefix-length*] [**le** *maximum-prefix-length*]

Parameter Description

prefix-list-name: Name of a prefix list.

seq-number: Sequence number assigned to a prefix list entry. The value range is from 1 to 2147483647. If no sequence number is specified in this command, the system will assign a default sequence number to the prefix list entry. The default sequence number of the first entry is 5. Subsequently, the default sequence number of each entry not assigned a value is the first multiple of 5 greater than the previous sequence number.

deny: Denies access when rules are matched.

permit: Permits access when rules are matched.

ipv6-prefix: Network address and mask. The mask value range is from 0 to 128.

minimum-prefix-length: Minimum range (namely, the start length of a range).

maximum-prefix-length: Maximum range (namely, the end length of a range).

Note

- The keyword **ge** indicates the greater than or equal to operation.
- The keyword **le** indicates the smaller than or equal to operation.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

The **ipv6 prefix-list** command is used to configure an IPv6 prefix list. The keyword **permit** or **deny** in a prefix list determines the permit or deny action when the prefix list is matched.

The prefix list defines the exact match or range match for a prefix. The keyword **ge** or **le** defines the prefix range used for matching, and provides more flexible matching configuration than *ipv6-prefix*. If the keyword **ge** or **le** is not configured in the command, *ipv6-prefix* provides an accurate prefix range for matching. If only **ge** is configured, the matching range is from *minimum-prefix-length* to 128. If only **le** is configured, the matching range is from *ipv6-prefix* to *maximum-prefix-length*. If both are configured, the matching range is from *minimum-prefix-length* to *maximum-prefix-length*. That is, the relationship between *ipv6-prefix* mask length, *minimum-prefix-length*, and *maximum-prefix-length* is as follows: *ipv6-prefix* mask length < *minimum-prefix-length* < *maximum-prefix-length* <= 128.

Examples

The following example configures the IPv6 prefix list **pre** to allow traffic in the address segment 2222::/64, and filters the routing information output when the OSPF process **1** is redistributed to RIP based the IPv6 prefix list **pre**.

```
Hostname> enable
Hostname# configure terminal
```

```
Hostname(config)# ipv6 prefix-list pre permit 2222::/64
Hostname(config)# ipv6 router rip
Hostname(config-router)# redistribute ospf 1
Hostname(config-router)# distribute-list prefix pre out
Hostname(config-router)# end
```

Notifications

When you configure an IPv6 prefix list entry with duplicate rules, the following notification will be displayed:

```
% Insertion failed with duplicate policy
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.8 ipv6 prefix-list description

Function

Run the **ipv6 prefix-list description** command to add a text description for an IPv6 prefix list.

Run the **no** form of this command to remove this configuration.

By default, no text description is configured for a prefix list.

Syntax

ipv6 prefix-list *prefix-list-name* **description** *description-text*

no ipv6 prefix-list *prefix-list-name* **description**

Parameter Description

prefix-list-name: Name of an IPv6 prefix list.

description-text: Text description of an IPv6 prefix list.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example adds the text description "Deny routes from Net-A" for the IPv6 prefix list **pre**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 prefix-list pre description Deny routes from Net-A
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.9 ipv6 prefix-list sequence-number

Function

Run the **ipv6 prefix-list sequence-number** command to enable the function of displaying sequence numbers in an IPv6 prefix list.

Run the **no** form of this command to disable this feature.

By default, the function of displaying sequence numbers in a prefix list is disabled.

Syntax

ipv6 prefix-list sequence-number

no ipv6 prefix-list sequence-number

Parameter Description

N/A

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example enables the function of displaying sequence numbers in an IPv6 prefix list.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 prefix-list sequence-number
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.10 match as-path

Function

Run the **match as-path** command to configure the AS path attribute permitted in the ACL to match routes.

Run the **no** form of this command to remove this configuration.

By default, no AS-path list is configured for packet matching.

Syntax

match as-path *as-path-acl-list-number*&<1-10>

no match as-path *as-path-acl-list-number*&<1-10>

Parameter Description

as-path-acl-list-number&<1-10>: Number of an ACL. The value range is from 1 to 500. &<1-10> indicates that you can enter the parameters up to 10 times in this command.

By default, if you do not specify the ACL number when removing the ACL configurations, all ACLs are removed.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

When using this command in BGP, you can configure multiple ACL numbers in this command.

In a route map policy, one or more **match** or **set** commands can be configured. If no **match** command is configured, all traffic is matched. If no **set** command is configured, no operation is performed.

Examples

The following example configures the route map **ROUTEMAP2IBGP**, and matches routes with the AS-path lists **20** and **30**.

```
Hostname> enable
```

```
Hostname# configure terminal
Hostname(config)# route-map ROUTEMAP2IBGP
Hostname(config-route-map)# match as-path 20 30
```

Notifications

If more than 10 AS-path lists are configured, the following notification will be displayed:

```
% Match as-path command only support 10 aspath-access-list
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.11 match community

Function

Run the **match community** command to configure the community attribute permitted in the ACL to match routes.

Run the **no** form of this command to remove this configuration.

By default, no community list is configured.

Syntax

match community { *community-list-number* | *community-list-name* } [**exact-match** | *community-list-number* | *community-list-name*]&<1-6>

no match community { *community-list-number* | *community-list-name* } [**exact-match** | *community-list-number* | *community-list-name*]&<1-6>

Parameter Description

[**exact-match** | *community-list-number* | *community-list-name*]&<1-6>: &<1-6> indicates that you can enter the parameters up to six times in this command.

community-list-number: Number of a community list. For a standard community list, the range is from 1 to 99. For an extcommunity list, the range is from 100 to 199.

community-list-name: Name of a community list. It is a string of less than 80 characters.

exact-match: Specifies the exact match list.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

When using this command in BGP, you can configure up to six community list numbers or names in total in this command. Every **exact-match** keyword applies only to the previous list, instead of all lists.

In a route map rule, one or more **match** or **set** commands can be configured. If no **match** command is configured, all rules are matched. If no **set** command is configured, no operation is performed.

Examples

The following example configures the community list **1** to allow traffic with the community values of 100:2 and 100:30, and configures the route map **set_lopref** to set the local preference to 20 for routes that exactly match the community list **1** in the route map.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ip community-list 1 permit 100:2 100:30
Hostname(config)# route-map set_lopref
Hostname(config-route-map)# match community 1 exact-match
Hostname(config-route-map)# set local-preference 20
```

Notifications

If the name of a specified community list of the name type is all numbers, the following notification will be displayed:

```
% Community-list name cannot have all digits
```

If the name of a specified community list contains 80 characters or more, the following notification will be displayed:

```
% Community-list name lengths should be less than 80 chars
```

If more than six community lists are configured in a single command, the following notification will be displayed:

```
% Match community command only support six community-list
```

If more than six community lists are configured in total, the following notification will be displayed:

```
% Match community can't exceed 6!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.12 match extcommunity

Function

Run the **match extcommunity** command to configure an extcommunity list to match routes.

Run the **no** form of this command to remove this configuration.

By default, no extcommunity list is configured.

Syntax

match extcommunity { *standard-list-number* | *standard-list-name* | *expanded-list-num* | *expanded-list-name* }&<1-6>

no match extcommunity [*standard-list-number* | *standard-list-name* | *expanded-list-num* | *expanded-list-name*]&<1-6>

Parameter Description

{ *standard-list-number* | *standard-list-name* | *expanded-list-num* | *expanded-list-name* }&<1-6>: &<1-6> indicates that you can enter the parameters up to six times in this command.

standard-list-number: Number of a standard extcommunity list. The value range is from 1 to 99.

standard-list-name: Name of a standard extcommunity list.

expanded-list-num: Number of an expanded extcommunity list. The value range is from 100 to 199.

expanded-list-name: Name of an expanded extcommunity list.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

When using this command in BGP, you can configure multiple extcommunity list numbers or names in this command but ensure that the total count does not exceed six. An extcommunity list may contain multiple extcommunity attribute values.

A route map that uses the extcommunity attributes for matching is applicable to the following scenarios:

- In the route map associated with the **import map** command, the RT attribute is used to filter routes imported to the virtual routing and forwarding (VRF) instance.
- In the route map associated with the **neighbor route-map in** and **neighbor route-map out** commands, if the **match extcommunity** command is configured in VPNv4 address family configuration mode of BGP, the RT attribute is used to filter VPNv4 routes that are received from or will be sent to a BGP peer.

Examples

The following example configures the extcommunity list **1** to allow traffic with the RT values of 100:1 and 100:2.

```
Hostname(config)# ip extcommunity-list 1 permit rt 100:1
Hostname(config)# ip extcommunity-list 1 permit rt 100:2
```

The following example defines a match rule in route map configuration mode.

```
Hostname(config)# route-map rt
Hostname(config-route-map)# match extcommunity 1
```

The following example applies the route map to the VPNV4 address family in BGP 100.

```
Hostname(config)# router bgp 100
Hostname(config-router)# address-family vpnv4
Hostname(config-router-af)# neighbor 3.3.3.3 route-map rt in
```

Notifications

If the name of a specified extcommunity list of the name type is all numbers, the following notification will be displayed:

```
% Extcommunity-list name cannot have all digits
```

If the name of a specified extcommunity list name contains 80 characters or more, the following notification will be displayed:

```
% Extcommunity-list name lengths should be less than 80 chars
```

If more than six extcommunity lists are configured in a single command, the following notification will be displayed:

```
% Match extcommunity command only support six extcommunity-list
```

If more than six extcommunity lists are configured in total, the following notification will be displayed:

```
% Match extcommunity can't exceed 6!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.13 match interface

Function

Run the **match interface** command to configure a specified interface as the next-hop outbound interface.

Run the **no** form of this command to remove this configuration.

By default, no next-hop outbound interface is configured.

Syntax

match interface { *interface-type interface-number* }&<1-4>

no match interface [*interface-type interface-number*]&<1-4>

Parameter Description

interface-type: Interface type.

interface-number: Interface number.

{ *interface-type interface-number* }&<1-4>: &<1-4> indicates that you can enter the parameters up to four times in this command.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

You can configure multiple interfaces in this command.

Note

By default, if you do not specify the interface type or number when removing the configurations, the configurations of all interfaces are removed.

Examples

The following example configures the route map **redrip** to match traffic with the GigabitEthernet 0/1 interface that is used as the outbound interface, and filters RIP routes redistributed to OSPF based on the rule in the route map **redrip**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match interface GigabitEthernet 0/1
```

Notifications

If more than four interface are specified, the following notification will be displayed:

```
% Match interface can't exceed 4!
```

If the specified interface is an L2 interface (for example, L2 interface GigabitEthernet 0/0), the following notification will be displayed:

```
% Invalid parameter: GigabitEthernet 0/0, only support layer 3 interface.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.14 match ip address

Function

Run the **match ip address** command to configure the target network routes that are permitted in an ACL or prefix list.

Run the **no** form of this command to remove this configuration.

By default, no ACL or prefix list used for packet matching is configured.

Syntax

match ip address { { *acl-number* | *acl-name* } &<1-6> | **prefix-list** *prefix-list-name*&<1-6> }

no match ip address [[*acl-number* | *acl-name*]&<1-6> | **prefix-list** *prefix-list-name*&<1-6>]

Parameter Description

acl-number: Number of an ACL. The following value ranges are supported. For a standard IP ACL, the range is from 1 to 99 or from 1300 to 1999. For an extended IP ACL, the range is from 100 to 199 or from 2000 to 2699.

acl-name: Name of an ACL. The value is a case-sensitive string of 1 to 99 characters.

prefix-list *prefix-list-name*&<1-6>: Specifies the name of the prefix list to be matched. &<1-6> indicates that you can enter the parameters up to six times in this command.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

You can configure multiple ACL numbers or names in this command.

Note

By default, if you do not specify the ACL number when removing the ACL configurations, configurations of all ACLs are removed.

Examples

The following example configures a route map to redistribute only RIP routes that match the ACL 10 to OSPF, and sets the route type to the external route type-1 and the initial metric to 40.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# access-list 10 permit 200.168.23.0 0.0.0.255
```

```
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match ip address 10
Hostname(config-route-map)# set metric 40
Hostname(config-route-map)# set metric-type type-1
```

Notifications

If the specified ACL name is invalid, for example, **match ip address 12345**, the following notification will be displayed:

```
% ACL name 12345 is invalid
```

If you configure this command to configure an ACL after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set access-list match with prefix-list exits!
```

If you configure this command to configure a prefix list after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set prefix-list match with access-list exists!
```

If more than six ACLs are specified in a single command, the following notification will be displayed:

```
% Match ip address command only support six IP access-list
```

If more than six ACLs are configured in total, the following notification will be displayed:

```
% ACL can't exceed 6!
```

If more than six prefix lists are specified in a single command, the following notification will be displayed:

```
% Match ip address command only support six IP prefix-list
```

If more than six prefix lists are configured in total, the following notification will be displayed:

```
% Prefix-list can't exceed 6!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.15 match ip next-hop

Function

Run the **match ip next-hop** command to configure the target network routes whose next-hop IP addresses match rules in the ACL or prefix list.

Run the **no** form of this command to remove this configuration.

By default, no ACL or prefix list used for next-hop IP address matching is configured.

Syntax

match ip next-hop { { *acl-number* | *acl-name* } &<1-6> | **prefix-list** *prefix-list-name*&<1-6> }

no match ip next-hop [[*acl-number* | *acl-name*]&<1-6> | **prefix-list** *prefix-list-name*&<1-6>]

Parameter Description

acl-number: Number of an ACL. The following value ranges are supported. For a standard IP ACL, the range is from 1 to 99 or from 1300 to 1999. For an extended IP ACL, the range is from 100 to 199 or from 2000 to 2699.

acl-name: Name of an ACL. The value is a case-sensitive string of 1 to 99 characters.

prefix-list *prefix-list-name*&<1-6>: Specifies the name of the prefix list to be matched. &<1-6> indicates that you can enter the parameters up to six times in this command.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

You can configure multiple ACL numbers or names in this command.

Note

By default, if you do not specify the ACL number when removing the ACL configurations, configurations of all ACLs are removed.

Examples

The following example configures the route map **redrip** to match traffic with the next-hop IP addresses matching ACL 10 or 20, and redistributes RIP routes to OSPF based on the rule in the route map **redrip**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# access-list 10 permit host 192.168.10.1
Hostname(config)# access-list 20 permit host 172.16.20.1
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match ip next-hop 10 20
```

Notifications

If the specified ACL name is invalid, for example, **match ip next-hop 12345**, the following notification will be displayed:

```
% ACL name 12345 is invalid
```

If you use this command to configure an ACL after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set access-list match with prefix-list exits!
```

If you use this command to configure a prefix list after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set prefix-list match with access-list exists!
```

If more than six ACLs are specified in a single command, the following notification will be displayed:

```
% Match ip next-hop command only support six IP access-list
```

If more than six ACLs are configured in total, the following notification will be displayed:

```
% ACL can't exceed 6!
```

If more than six prefix lists are specified in a single command, the following notification will be displayed:

```
% Match ip next-hop command only support six IP prefix-list
```

If more than six prefix lists are configured in total, the following notification will be displayed:

```
% Prefix-list can't exceed 6!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.16 match ip policy

Function

Run the **match ip policy** command to configure the target network routes that are permitted in the ACL and match a specified L3 authentication traffic diversion domain type.

Run the **no** form of this command to remove this configuration.

Syntax

match ip policy { *acl-number* | *acl-name* }&<1-6> **class** *class-id*

no match ip policy [*acl-number* | *acl-name*]&<1-6>

Parameter Description

acl-number: Number of an ACL. The following value ranges are supported. For a standard IP ACL, the range is from 1 to 99 or from 1300 to 1999. For an extended IP ACL, the range is from 100 to 199 or from 2000 to 2699.

acl-name: Name of an ACL. The value is a case-sensitive string of 1 to 99 characters.

class-id: ID of the L3 authentication traffic diversion domain type. The value range is from 1 to 60. The L3 authentication traffic diversion domain type is specified by the Web authentication module.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for policy-based routing (PBR) configuration.

You can configure only one ACL number or name in this command. *class-id* indicates the L3 authentication traffic diversion domain type to be matched. They together describe the packets that match the specific user type.

Examples

The following example configures the route map **pbr1** to match traffic with the L3 authentication traffic diversion domain of **acl1** and set class ID of the domain type to **10**, and applies the route map **pbr1** to GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip policy route-map pbr1
Hostname(config-if-GigabitEthernet 0/1)# exit
Hostname(config)# route-map pbr1 permit 10
Hostname(config-route-map)# match ip policy acl1 class 10
```

Notifications

If the specified ACL name is invalid, for example, **match ip address 12345**, the following notification will be displayed:

```
% ACL name 12345 is invalid
```

If more than one **match ip policy** is configured, the following notification will be displayed:

```
% Match ip policy command only support one rule
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.17 match ip route-source

Function

Run the **match ip route-source** command to configure the target network routes whose source IP addresses match rules in the ACL or prefix list.

Run the **no** form of this command to remove this configuration.

By default, no ACL or prefix list is configured to match the source IP addresses of routes.

Syntax

match ip route-source { { *acl-number* | *acl-name* } &<1-6> | **prefix-list** *prefix-list-name*&<1-6> }

no match ip route-source [[*acl-number* | *acl-name*]&<1-6> | **prefix-list** *prefix-list-name*&<1-6>]

Parameter Description

acl-number: Number of an ACL. The following value ranges are supported. For a standard IP ACL, the range is from 1 to 99 or from 1300 to 1999. For an extended IP ACL, the range is from 100 to 199 or from 2000 to 2699.

acl-name: Name of an ACL. The value is a case-sensitive string of 1 to 99 characters.

prefix-list *prefix-list-name*&<1-6>: Specifies the name of the prefix list to be matched. &<1-6> indicates that you can enter the parameters up to six times in this command.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

You can configure multiple ACL numbers in this command.

Note

By default, if you do not specify the ACL number when removing the ACL configurations, configurations of all ACLs are removed.

Examples

The following example configures the route map **redrip** to match traffic with the source IP addresses matching ACL 5, and redistribute RIP routes that match the rule in the route map **redrip** to OSPF.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets
Hostname(config-router)# route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# access-list 5 permit host 192.168.100.1
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match ip route-source 5
```

Notifications

If the specified ACL name is invalid, for example, **match ip route-source 12345**, the following notification will be displayed:

```
% ACL name 12345 is invalid
```

If you configure this command to configure an ACL after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set access-list match with prefix-list exits!
```

If you configure this command to configure a prefix list after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set prefix-list match with access-list exists!
```

If more than six ACLs are specified in a single command, the following notification will be displayed:

```
% Match ip route-source command only support six IP access-list
```

If more than six ACLs are configured in total, the following notification will be displayed:

```
% ACL can't exceed 6!
```

If more than six prefix lists are specified in a single command, the following notification will be displayed:

```
% Match ip route-source command only support six IP prefix-list
```

If more than six prefix lists are configured in total, the following notification will be displayed:

```
% Prefix-list can't exceed 6!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.18 match ipv6 address

Function

Run the **match ipv6 address** command to configure the target IPv6 network routes that are permitted in the ACL or prefix list.

Run the **no** form of this command to remove this configuration.

By default, no IPv6 ACL or IPv6 prefix list is configured for packet matching.

Syntax

match ipv6 address { *acl-name* | **prefix-list** *prefix-list-name* }

no match ipv6 address

Parameter Description

acl-name: Name of an ACL. The value is a case-sensitive string of 1 to 99 characters.

prefix-list *prefix-list-name*: Specifies the name of an IPv6 prefix list used for matching.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

- The sequence number of a route map can be followed by only one IPv6 ACL.
- The default sequence number of a route map is 10.
- The IPv6 PBR function cannot be used together with the parameter **prefix-list**. If they are used together, this parameter does not take effect.

Examples

The following example configures the route map **redip** to match traffic with the IPv6 ACL **v6acl** and set the metric to **30**, and applies the route map **redip** when RIP routes are redistributed to OSPF.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# exit
Hostname(config)# ipv6 access-list v6acl
Hostname(config-ipv6-acl)# permit ipv6 2620::/64 any
Hostname(config-ipv6-acl)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match ipv6 address v6acl
Hostname(config-route-map)# set metric 30
```

Notifications

If the specified ACL name is invalid, for example, **match ipv6 address 123456**, the following notification will be displayed:

```
% ACL name 123456 is invalid
```

If you configure this command to configure an ACL after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set access-list match with prefix-list exits!
```

If you configure this command to configure a prefix list after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set prefix-list match with access-list exists!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.19 match ipv6 next-hop

Function

Run the **match ipv6 next-hop** command to configure the target network routes whose next-hop IPv6 addresses match rules in the ACL or prefix list.

Run the **no** form of this command to remove this configuration.

By default, no IPv6 ACL or IPv6 prefix list is configured for next-hop IP address matching.

Syntax

match ipv6 next-hop { *acl-name* | **prefix-list** *prefix-list-name* }

no match ipv6 next-hop

Parameter Description

acl-name: Name of an ACL. The value is a case-sensitive string of 1 to 99 characters.

prefix-list *prefix-list-name*: Specifies the name of an IPv6 prefix list to be matched.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures the route map **redip** to match routes with the next hop matching the IPv6 ACL **v6acl** and set the metric to **40**, and applies the route map **redip** when RIP routes are redistributed to OSPF.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# exit
Hostname(config)# ipv6 access-list v6acl
Hostname(config-ipv6-acl)# 10 permit ipv6 2720::/64 any
Hostname(config-ipv6-acl)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match ipv6 next-hop v6acl
Hostname(config-route-map)# set metric 40
```

Notifications

If the specified ACL name is invalid, for example, **match ipv6 next-hop 123456**, the following notification will be displayed:

```
% ACL name 123456 is invalid
```

If you configure this command to configure an ACL after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set access-list match with prefix-list exits!
```

If you configure this command to configure a prefix list after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set prefix-list match with access-list exists!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.20 match ipv6 route-source

Function

Run the **match ipv6 route-source** command to configure the target network routes whose source IPv6 addresses match rules in the ACL or prefix list.

Run the **no** form of this command to remove this configuration.

By default, no IPv6 ACL or IPv6 prefix list is configured to match the source IP addresses of routes.

Syntax

match ipv6 route-source { *acl-name* | **prefix-list** *prefix-list-name* }

no match ipv6 route-source

Parameter Description

acl-name: Name of an ACL. The value is a case-sensitive string of 1 to 99 characters.

prefix-list *prefix-list-name*: Specifies the name of an IPv6 prefix list to be matched.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures the route map **redip** to match traffic with the source IP addresses matching the IPv6 ACL **v6acl** and set the metric to **50**, and applies the route map **redip** when RIP routes are redistributed to OSPF.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# exit
Hostname(config)# ipv6 access-list v6acl
Hostname(config-ipv6-acl)# 10 permit ipv6 5200::/64 any
Hostname(config-ipv6-acl)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match ipv6 route-source v6acl
Hostname(config-route-map)# set metric 50
```

Notifications

If the specified ACL name is invalid, for example, **match ipv6 route-source 123456**, the following notification will be displayed:

```
% ACL name 123456 is invalid
```

If you configure this command to configure an ACL after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set access-list match with prefix-list exits!
```

If you configure this command to configure a prefix list after you have configured a prefix list by using this command, the following notification will be displayed:

```
% Can't set prefix-list match with access-list exists!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.21 match metric

Function

Run the **match metric** command to configure the metric values of routes.

Run the **no** form of this command to remove this configuration.

By default, no metric values of routes are configured.

Syntax

match metric *metric*

no match metric

Parameter Description

metric: Value of the metric. The value range is from 0 to 4294967295.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures the route map **redist-rip** to match traffic with the metric value of **10**, and configures OSPF to redistribute RIP routes based on the route map **redist-rip**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redist-rip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# route-map redist-rip permit 10
Hostname(config-route-map)# match metric 10
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.22 match origin

Function

Run the **match origin** command to configure the source type of BGP routes.

Run the **no** form of this command to remove this configuration.

By default, no source type of BGP routes is configured.

Syntax

match origin { **egp** | **igp** | **incomplete** }

no match origin [**egp** | **igp** | **incomplete**]

Parameter Description

egp: Specifies that the source is the remote Exterior Gateway Protocol (EGP).

igp: Specifies that the source is the local Interior Gateway Protocol (IGP).

incomplete: Specifies that the source is incomplete.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

Only routes with a single type of source can be matched. Routes with different source types cannot be matched simultaneously.

This command is used to set the route source for matching.

Examples

The following example configures the route map **MY_MAP** to match routes with the source **egp** and sets the community to **109**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map MY_MAP 10 permit
Hostname(config-route-map)# match origin egp
Hostname(config-route-map)# set community 109
Hostname(config-route-map)# exit
```

The following example configures the route map **MAP20** to match routes with the source **incomplete** and sets the community to **no-export**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map MAP20 20 permit
Hostname(config-route-map)# match origin incomplete
Hostname(config-route-map)# set community no-export
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.23 match route-type

Function

Run the **match route-type** command to configure the route type.

Run the **no** form of this command to remove this configuration.

By default, no rule is configured to match any route type.

Syntax

match route-type { **static** | **connect** | **rip** | **local** | **internal** | **external** [**type-1** | **type-2**] | **nssa-external** [**type-1** | **type-2**] | **level-1** | **level-2** | **evpn-type-1** | **evpn-type-2** | **evpn-type-3** | **evpn-type-4** | **evpn-type-5** }&<1-6>

no match route-type [**static** | **connect** | **rip** | **local** | **internal** | **external** [**type-1** | **type-2**] | **nssa-external** [**type-1** | **type-2**] | **level-1** | **level-2** | **evpn-type-1** | **evpn-type-2** | **evpn-type-3** | **evpn-type-4** | **evpn-type-5**]&<1-n>

Parameter Description

[**static** | **connect** | **rip** | **local** | **internal** | **external** [**type-1** | **type-2**] | **nssa-external** [**type-1** | **type-2**] | **level-1** | **level-2** | **evpn-type-1** | **evpn-type-2** | **evpn-type-3** | **evpn-type-4** | **evpn-type-5**]&<1-16>: &<1-16> indicates that you can enter the parameters up to 16 times in this command, with only once for each route type.

static: Specifies a static route.

connect: Specifies a direct route.

rip: Specifies an RIP route.

local: Specifies a local route.

internal: Specifies an OSPF internal route.

external: Specifies an external route (BGP or OSPF external route).

nssa-external: Specifies an OSPF NSSA external route.

type-1 | **type-2**: Specifies a type-1 or type-2 external route of OSPF.

level-1 | **level-2**: Specifies a level-1 or level-2 route of ISIS.

evpn-type-1 | **evpn-type-2** | **evpn-type-3** | **evpn-type-4** | **evpn-type-5**: Specifies the five route types of BGP EVPN.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures the route map **redrip** to match traffic with the route type **internal**, and applies the route map **redip** when OSPF routes are redistributed to RIP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router rip
Hostname(config-router)# redistribute ospf route-map redrip
Hostname(config-router)# network 192.168.12.0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match route-type internal
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.24 match tag

Function

Run the **match tag** command to configure the tags of routes.

Run the **no** form of this command to remove this configuration.

By default, no routes with tags are matched.

Syntax

match tag *tag*&<1-4>

no match tag [*tag*&<1-4>]

Parameter Description

tag: Tag value of a route. The value range is from 0 to 4294967295. & <1-4> indicates that up to four tags can be configured.

By default, if you do not specify the optional parameter when removing the configurations, all route tag configurations are removed.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures the route map **redrip** to match routes with tags 50 and 80, and applies the route map **redip** when OSPF routes are redistributed to RIP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router rip
Hostname(config-router)# redistribute ospf 100 route-map redrip
Hostname(config-router)# network 192.168.12.0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match tag 50 80
```

Notifications

If more than four tags are configured in total, the following notification will be displayed:

```
% Match tag can't exceed 4!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.25 memory-lack exit-policy

Function

Run the **memory-lack exit-policy** command to specify the exit policy for the upper-layer routing protocols when the free memory space reaches the lower level.

Run the **no** form of this command to restore the default configuration.

By default, the routing protocol with the highest memory usage exits.

Syntax

memory-lack exit-policy { **bgp** | **ospf** | **pim-sm** | **rip** }

no memory-lack exit-policy

Parameter Description

bgp: Specifies that BGP exits first when the memory is insufficient.

ospf: Specifies that OSPF exits first when the memory is insufficient.

pim-sm: Specifies that PIM-SM exits first when the memory is insufficient.

rip: Specifies that RIP exits first when the memory is insufficient.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

When the free memory space reaches the lower level, this command can disable one routing protocol to release the memory resources and protect the operation of other protocols in the system.

You should know routing protocols that support the main network services, and in the case of insufficient memory, disable one of the least important protocols to protect main services in this extreme situation. If you set a disabled routing protocol to exit first when the memory is sufficient, the system still cannot obtain sufficient memory resources.

Specifying a routing protocol to exit first can, to some extent, protect main network services when the system memory is insufficient. If the memory is further consumed, all routing protocols need to exit and stop running.

Examples

The following example configures a policy that enables BGP to exit first.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# memory-lack exit-policy bgp
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.26 route-map

Function

Run the **route-map** command to configure a route map and enter the route map configuration mode.

Run the **no** form of this command to remove this configuration.

By default, no route map is configured.

Syntax

route-map *route-map-name* [**permit** | **deny**] [*sequence-number*]

no route-map *route-map-name* [{ **permit** | **deny** } *sequence-number*]

Parameter Description

route-map-name: Name of a route map. You can define a name that is easy to remember. With this name, you can use the route map in the redistribution configuration commands in the routing process. Multiple policies can be defined in a route map, and one policy corresponds to one sequence number.

permit: If the **permit** keyword is defined, and the rule defined in **match** is matched, the **set** command controls route redistribution. For PBR, the **set** command controls packet forwarding and exit of the route map.

If the **permit** keyword is defined, but the rule defined in **match** is not matched, the system switches to the next route map policy until the **set** command is executed.

deny: If the **deny** keyword is defined, and the rule defined in **match** is matched, no operation is performed. This route map policy does not allow route redistribution or PBR, and the system exits the route map.

If the **deny** keyword is defined, but the rule defined in **match** is not matched, the system switches to the next route map policy until the **set** command is executed.

sequence-number: Sequence number of a route map policy. A policy with a smaller sequence number is used first. The value range is from 0 to 65535.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

The route map is currently used for:

- Route redistribution control

  Route redistribution control redistributes routes from one routing process to another. For example, the routes in the OSPF routing domain can be redistributed and then advertised to the RIP routing domain, or vice versa. Mutual redistribution of routes can be carried out among all IP routing protocols.

  In route redistribution, mutual distribution of routes between two routing domains is often controlled conditionally through the application of a route map. In a route map policy, one or more **match** and **set** commands can be configured. If no **match** command is configured, all traffic is matched. If no **set** command is configured, no operation is performed.

- PBR

The PBR provides a data packet routing and forwarding mechanism that is more flexible than target network-based routing. After PBR is applied on a device, the device determines how to process packets that need to be routed according to a route map. The route map determines the next hop forwarding device of a packet.

To apply PBR, you must specify a route map for PBR, and create this map. A route map consists of multiple policies, and one or more match rules and relevant actions are defined for each policy. After PBR is applied to an interface, all packets received by the interface are checked. Packets that do not match any policy in the route map are routed and forwarded as usual. Packets that match a policy in the route map are processed based on the action defined in the policy.

When configuring a route map, use the sequence number of the route map as follows:

- If you do not specify *sequence-number* when creating the first route map policy, the default sequence number is 10.
- If only one route map policy exists and you do not specify *sequence-number*, a new route map policy is not created. Instead, the existing route map policy is configured.
- If multiple route map policies exist, you must specify *sequence-number*; otherwise, an error prompt is displayed.

Examples

The following example configures the route map **redrip** to match traffic with the metric value of 4, set the initial metric value to **40**, the route type to the external route **type-1**, and the route tag to **40**, and applies the route map **redip** when RIP routes are redistributed in OSPF.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match metric 4
Hostname(config-route-map)# set metric 40
Hostname(config-route-map)# set metric-type type-1
Hostname(config-route-map)# set tag 40
```

Notifications

If the specified route map name contains more than 32 characters, the following notification will be displayed:

```
% Route-map name string length can not exceed 32.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.27 set aggregator as

Function

Run the **set aggregator as** command to specify the AS value of the aggregator for routes that match the rules.

Run the **no** of this command to remove this configuration.

By default, no aggregator AS value is specified.

Syntax

set aggregator as *as-number ipv4-address*

no set aggregator as [*as-number ipv4-address*]

Parameter Description

as-number: AS number of the aggregator. The AS number range is from 1 to 4294967295, or 1.0 to 65535.65535 in dot mode.

ipv4-address: Address of the aggregator.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used for PBR configuration in BGP to set the aggregator attributes of routes.

This command has only one set of parameters: *as-number* and *ipv4-address*, and does not support multiple sets of parameters.

Examples

The following example configures the route map **set-as-path** to set the AS number of the route aggregator to **3** and IP address to **2.2.2.2**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map set-as-path
Hostname(config-route-map)# match as-path 1
Hostname(config-route-map)# set aggregator as 3 2.2.2.2
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.28 set aigp-metric

Function

Run the **set aigp-metric** command to specify the Accumulated IGP Metric Attribute (AIGP) metric for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no AIGP metric attribute is configured for routes.

Syntax

set aigp-metric { *metric-number* | **igp-metric** }

no set aigp-metric

Parameter Description

metric-number: AIGP metric value. The value range is from 0 to 4294967295.

igp-metric: Configures the AIGP metric to the IGP metric type.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used for PBR configuration in EGP to configure the AIGP metric of routes.

This command has only one set of parameters, and does not support multiple sets of parameters.

Examples

The following example configures the route map **test** to set the AIGP metric of routes to **100**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map test
Hostname(config-route-map)# set aigp-metric 100
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.29 set as-path replace

Function

Run the **set as-path replace** command to replace the AS_PATH values for routes that match the rules with specified values.

Run the **no** form of this command to remove this configuration.

By default, the AS_PATH values of matched routes will not be replaced.

Syntax

set as-path replace *as-number*&<1-10>

no set as-path replace

Parameter Description

as-number&<1-10>: AS number of the AS_PATH value to be replaced. &<1-10> indicates that you can enter the parameter up to 10 times in this command.

Note

The AS number range is from 1 to 4294967295, or 1.0 to 65535.65535 in dot mode.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration to replace the AS_PATH values of matched routes. Up to 10 AS_PATH values can be replaced at a time.

Examples

The following example configures the route map **set-as-path** to replace the AS_PATH values with "100 101 102" for routes that match the AS-path list 1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map set-as-path
Hostname(config-route-map)# match as-path 1
Hostname(config-route-map)# set as-path replace 100 101 102
```

Notifications

If more than 10 AS_PATH values are configured in total, the following notification will be displayed:

```
% Cannot have more than 10 as-paths replaced
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.30 set as-path prepend

Function

Run the **set as-path prepend** command to add the specified AS_PATH values for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no rule is configured to add AS_PATH values for routes.

Syntax

set as-path prepend *as-number*&<1-10>

no set as-path prepend

Parameter Description

as-number&<1-10>: AS number of the AS_PATH to be added. &<1-10> indicates that you can enter the parameter up to 10 times in this command. The AS number range is from 1 to 4294967295, or 1.0 to 65535.65535 in dot mode.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration to add the AS_PATH values to the matched routes. Up to 10 AS_PATH values can be added at a time.

Examples

The following example configures the route map **set-as-path** to add the AS_PATH values "100 101 102" for routes that match the AS-path list 1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map set-as-path
Hostname(config-route-map)# match as-path 1
```

```
Hostname(config-route-map)# set as-path prepend 100 101 102
```

Notifications

If more than 10 AS_PATH values are configured in total, the following notification will be displayed:

```
% Cannot have more than 10 as-paths prepended
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.31 set atomic-aggregate

Function

Run the **set atomic-aggregate** command to configure the atomic-aggregate attribute for routes.

Run the **no** form of this command to remove this configuration.

By default, no atomic-aggregate attribute is configured for routes.

Syntax

set atomic-aggregate

no set atomic-aggregate

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used in BGP to configure the atomic-aggregate attribute for routes.

Examples

The following example configures the route map **test** to configure the atomic-aggregate attribute for routes.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map test
Hostname(config-route-map)# set atomic-aggregate
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.32 set comm-list delete

Function

Run the **set comm-list delete** command to delete all community values from routes that match the rules according to the community list.

Run the **no** form of this command to remove this configuration.

By default, no community value is deleted from matched routes according to the community list.

Syntax

set comm-list { *community-list-number* | *community-list-name* } **delete**

no set comm-list { *community-list-number* | *community-list-name* } **delete**

Parameter Description

community-list-number: Number of the community list. For a standard community list, the range is from 1 to 99. For an expanded community list, the range is from 100 to 199.

community-list-name: Name of a community list, comprising less than 80 characters.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used for PBR configuration to delete the community values from matched routes.

Examples

The following example configures the route map **ROUTEMAPIN** to delete the community values (100:10 and 100:2) from matched routes according to Community-List 500, configures the route map **ROUTEMAPOUT** to delete the community values (not 100:50 or 100:.*) from matched routes according to Community-List 120,

applies the route map **ROUTEMAPIN** to the inbound direction of the neighbor 172.16.233.33 in AS 100 of BGP,

and applies the route map **ROUTEMAPOUT** to the outbound direction of the neighbor 172.16.233.33 in AS 100 of BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router bgp 100
Hostname(config-router)# neighbor 172.16.233.33 remote-as 120
Hostname(config-router)# neighbor 172.16.233.33 route-map ROUTEMAPIN in
Hostname(config-router)# neighbor 172.16.233.33 route-map ROUTEMAPOUT out
Hostname(config-router)# exit
Hostname(config)# ip community-list 500 permit 100:10
Hostname(config)# ip community-list 500 permit 100:20
Hostname(config)# ip community-list 120 deny 100:50
Hostname(config)# ip community-list 120 permit 100:.*
Hostname(config)# route-map ROUTEMAPIN permit 10
Hostname(config-route-map)# set comm-list 500 delete
Hostname(config-route-map)# exit
Hostname(config)# route-map ROUTEMAPOUT permit 10
Hostname(config-route-map)# set comm-list 120 delete
```

Notifications

If the name of a specified community list of the name type is all numbers, the following notification will be displayed:

```
% Community-list name cannot have all digits
```

If the name of a specified community list contains 80 characters or more, the following notification will be displayed:

```
% Community-list name lengths should be less than 80 chars
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.33 set community

Function

Run the **set community** command to specify the community values for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no community value is specified for a route.

Syntax

set community { **none** | { *community-number* | **internet** | **local-AS** | **no-advertise** | **no-export** }&<1-32> [**additive**] }

no set community

Parameter Description

{ *community-number* | **internet** | **local-AS** | **no-advertise** | **no-export** }&<1-32>: &<1-32> indicates that you can enter the parameter up to 32 times in this command.

community-number: Value of the community attribute.

The format is AA:NN (AS number: 2-byte number) or the value is a number. The value range is from 0 to 4294967295.

Internet: Specifies the Internet community. All paths belong to this community.

local-as: Specifies that a path is not advertised to other ASs. When an AS alliance is configured, the path is not advertised to other ASs or sub ASs.

no-advertise: Specifies that the path is not advertised to any BGP peer.

no-export: Specifies that the path is not advertised to EBGP peers.

additive: Adds a community value based on the original community attribute.

none: Keeps the community attribute empty.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure the community attribute for matched routes.

Examples

The following example configures the route map **SET_COMMUNITY**, sets the community attribute to **109:10** for routes that match as-path 1 in a policy with the sequence number of 10, and sets the community attribute to **no-export** for routes that match as-path 2 in a policy with the sequence number of 20.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map SET_COMMUNITY 10 permit
Hostname(config-route-map)# match as-path 1
Hostname(config-route-map)# set community 109:10
Hostname(config-route-map)# exit
Hostname(config)# route-map SET_COMMUNITY 20 permit
Hostname(config-route-map)# match as-path 2
Hostname(config-route-map)# set community no-export
```

Notifications

If more than 32 community values are configured, the following notification will be displayed:

```
% Cannot have more than 32 community attributes
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.34 set dampening

Function

Run the **set dampening** command to configure the flapping parameters for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, when the half-life period is 15 minutes, and the penalty value of a route is lower than 750, route suppression is canceled. When the penalty value of a route exceeds 2000, the route is suppressed. A route can be suppressed for a maximum of 60 minutes.

Syntax

set dampening *half-life reuse suppress max-suppress-time*

no set dampening

Parameter Description

half-life: Half-life period when a route is accessible or not accessible, in minutes. The value range is from 1 to 45.

reuse: When the penalty value of a route is smaller than this value, route suppression is canceled. The value range is from 1 to 20000.

suppress: When the penalty value of a route is greater than this value, the route is suppressed. The value range is from 1 to 20000.

max-suppress-time: Longest time that a route can be suppressed, in minutes. The value range is from 1 to 255.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure the flapping parameters for matched routes.

Examples

The following example configures a route map to set the route flapping parameters (*half-life*: **30** min, *reuse*: **1500**, *suppress*: **10000**, and *max-suppress-time*: **120** min), and applies the route map to BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map tag
Hostname(config-route-map)# match as path 10
Hostname(config-route-map)# set dampening 30 1500 10000 120
Hostname(config-route-map)# exit
Hostname(config)# router bgp 65000
Hostname(config-router)# neighbor 172.16.233.52 route-map tag in
```

Notifications

If the configured *suppress* is smaller than *reuse* or the configured *max-suppress-time* is smaller than *half-life*, the following notification will be displayed:

```
% Invalid value
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.35 set distance

Function

Run the **set distance** command to configure the management distance for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no management distance is modified for matched routes.

Syntax

set distance *distance-number*

no set distance

Parameter Description

distance-number: Route management distance. The value range is from 1 to 255.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

The route management distance affects route selection. Therefore, configure it carefully based on the actual network topology.

Examples

The following example configures the route map **test** to set the management distance of routes that match the rules to **112**, and applies the route map to the OSPF process.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map test
Hostname(config-route-map)# set distance 112
Hostname(config)#exit
Hostname(config)# router ospf 1
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# distance 111 route-map test
Hostname(config-router)# exit
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.36 set extcomm-list delete

Function

Run the **set extcomm-list delete** command to delete all extended community values from the routes that match the rules according to the extcommunity list.

Run the **no** form of this command to remove this configuration.

By default, the extended community values of matched routes are not deleted.

Syntax

set extcomm-list { *extcommunity-list-number* | *extcommunity-list-name* } **delete**

no set extcomm-list { *extcommunity-list-number* | *extcommunity-list-name* } **delete**

Parameter Description

extcommunity-list-number: Number of an extcommunity list. For a standard extcommunity list, the range is from 1 to 99. For an expanded extcommunity list, the range is from 100 to 199.

extcommunity-list-name: Name of an extcommunity list. It is a string of less than 80 characters.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used for PBR configuration to delete the extended community values from matched routes.

Examples

The following example configures the route map **ROUTEMAPIN** to delete all extended community values from routes that match the rules according to the extcommunity list 10.

The following example configures the route map **ROUTEMAPOUT** to delete all extended community values from routes that match the rules according to the extcommunity list 120.

The following example applies the route maps **ROUTEMAPIN** and **ROUTEMAPOUT** to AS 65000 in BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router bgp 65000
Hostname(config-router)# neighbor 172.16.233.33 remote-as 65531
Hostname(config-router)# address-family vpnv4 unicast
Hostname(config-router-af)# neighbor 172.16.233.33 activate
Hostname(config-router-af)# neighbor 172.16.233.33 route-map ROUTEMAPIN in
Hostname(config-router-af)# neighbor 172.16.233.33 route-map ROUTEMAPOUT out
Hostname(config-router)# exit
Hostname(config)# ip extcommunity-list 10 permit rt 100:10
Hostname(config)# ip extcommunity-list 10 permit rt 100:20
Hostname(config)# ip extcommunity-list 120 deny 100:50
Hostname(config)# ip extcommunity-list 120 permit 100:.*
Hostname(config)# route-map ROUTEMAPIN permit 10
Hostname(config-route-map)# set extcomm-list 10 delete
Hostname(config-route-map)# exit
Hostname(config)# route-map ROUTEMAPOUT permit 10
Hostname(config-route-map)# set extcomm-list 120 delete
```

Notifications

If the name of a specified extcommunity list of the name type is all numbers, the following notification will be displayed:

```
% Extcommunity-list name cannot have all digits
```

If the specified extcommunity list name contains 80 characters or more, the following notification will be displayed:

```
% Extcommunity-list name lengths should be less than 80 chars
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.37 set extcommunity

Function

Run the **set extcommunity** command to specify the extended community values for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no extended community values are specified for matched routes.

Syntax

set extcommunity { **rt** *extend-community-value* | **soo** *extend-community-value* }

no set extcommunity { **rt** | **soo** }

Parameter Description

rt: Configures the RT value of a route.

soo: Configures the SOO value of a route.

extend-community-value: Value of an extended community.

extend_community_value has three options:

extend_community _value = as_num:nn

as_num is a 2-byte public AS number. nn is configurable. The value range is from 0 to 4294967295.

extend_community_value = ip_addr:nn

ip_addr must be a global IP address. nn is configurable. The value range is from 0 to 65535.

extend_community_value = as4_num:nn

an4_num is a 4-byte public AS number. nn is configurable. The value range is from 0 to 65535.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used for PBR configuration to configure the extended community values for matched routes.

Note

- You can configure the AS4 extended community, that is, the extended community with the 4-byte AS number. The format of the AS4 extended community is AS4:NN. AS4 can be expressed in decimal or dot

mode. AS4 ranges from 1 to 4294967295, which is 1 to 65535.65535 in dot mode. The NN range is from 0 to 65535.

- The AS number in the range of 1 to 65535 is displayed the same in both decimal mode and dot mode. Therefore, save the AS number in the range of 1 to 65535 as a 2-byte AS number.

Examples

The following example configures the route map **MAP_NAME**, matches routes with ACL 2, and sets the extended community attribute RT to 100:2.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# access-list 2 permit 192.168.78.0 255.255.255.0
Hostname(config)# route-map MAP_NAME permit 10
Hostname(config-route-map)# match ip address 2
Hostname(config-route-map)# set extcommunity rt 100:2
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.38 set fast-reroute

Function

Run the **set fast-reroute** command to specify the backup outbound interface and backup next hop of FRR for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no backup outbound interface and backup next hop of FRR are specified for matched routes.

Syntax

set fast-reroute backup-interface *interface-type interface-number* **backup-nexthop** *ipv4-address*

no set fast-reroute

Parameter Description

interface-type interface-number: Backup outbound interface.

ipv4-address: Backup next hop, which is mandatory for non-P2P interfaces.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used in FRR configuration to configure the backup outbound interface and backup next hop of IP FRR. If the current software version supports only one backup route, only one set of <interface, next hop> parameters can be configured in this command.

Note

FRR backup entries should not be the direct or local host routes.

Examples

The following example configures the route map **frr** to set the backup outbound interface to **GigabitEthernet 0/1** and the backup next hop to **192.168.1.2** for routes matching ACL 2.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# access-list 2 permit 192.168.78.0 255.255.255.0
Hostname(config)# route-map frr permit 10
Hostname(config-route-map)# match ipv4-address 2
Hostname(config-route-map)# set fast-reroute backup-interface GigabitEthernet 0/1
backup-nexthop 192.168.1.2
```

Notifications

If the specified interface is an L2 interface (for example, L2 interface GigabitEthernet 0/0), the following notification will be displayed:

```
% Invalid parameter: GigabitEthernet 0/0, only support layer 3 interface.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.39 set ip default next-hop

Function

Run the **set ip default next-hop** command to specify the default next-hop IPv4 address for packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no default next-hop IPv4 address is specified for matched routes.

Syntax

set ip default next-hop { *ipv4-address* [*weight*] }&<1-32>

no set ip default next-hop [*ipv4-address* [*weight*]&<1-32>

Parameter Description

{ *ipv4-address* [*weight*] }&<1-32>: &<1-32> indicates that you can enter the parameter up to 32 times in this command.

ipv4-address: IP address of the next hop.

weight: Weight of the next hop.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command supports two operation modes: weighted cost multipath (WCMP) load balancing mode and non-WCMP load balancing mode. In WCMP load balancing mode, the system performs WCMP load balancing on traffic based on the configured *weight*.

You can configure up to 32 IP addresses in this command.

If you add the *weight* value after *ipv4 address*, you can configure up to four **next-hop** addresses.

If **vrf** *vrf-name* is specified, packets are forwarded across VRF instances. If **global** is specified, packets are forwarded from the VRF instance to the public network. If [**vrf** *vrf-name* | **global**] is not specified, the VRF instance is inherited, that is, the next hop belongs to the VRF instance that receives the packets.

Note

If you configure *weight* after any **next-hop**, the operation mode of this **set** command automatically switches to WCMP load balancing mode. In WCMP load balancing mode, the default value of *weight* is **1** if *weight* is not specified for the **next-hop** address.

The difference between the **set ip next-hop** and **set ip default next-hop** commands is as follows: If the **set ip next-hop** command is configured, the system uses PBR first to forward packets. If the **set ip default next-hop** command is configured, the system uses the route forwarding table first to forward packets.

You can run this command to configure a customized default route for specific users. If the software cannot find a route to forward packets, these packets are forwarded to the next hop configured in this command.

Examples

The following example configures the route map **equal-access** to forward packets that are received by GigabitEthernet 0/1 from 1.1.1.1 to 6.6.6.6 if the software cannot find a forwarding route for them, to forward packets that are received from 2.2.2.2 to 7.7.7.7 if the software cannot find a forwarding route for them, and to drop other packets if the software cannot find a forwarding route for them.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#access-list 1 permit 1.1.1.1 0.0.0.0
Hostname(config)#access-list 2 permit 2.2.2.2 0.0.0.0
Hostname(config)#interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)#ip policy route-map equal-access
Hostname(config)#route-map equal-access permit 10
Hostname(config- route-map)#match ip address 1
Hostname(config-route-map)#set ip default next-hop 6.6.6.6
Hostname(config)#route-map equal-access permit 20
Hostname(config-route-map)#match ip address 2
Hostname(config-route-map)#set ip default next-hop 7.7.7.7
Hostname(config)#route-map equal-access permit 30
Hostname(config- route-map)#set default interface null 0
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.40 set ip dscp

Function

Run the **set ip dscp** command to configure the differentiated service code point (DSCP) value for packets matching the rules.

Run the **no** form of this command to remove this configuration.

By default, no DSCP is configured in an IPv4 packet for matched routes.

Syntax

set ip dscp *dscp_value*

no set ip dscp

Parameter Description

dscp_value: DSCP value in the IP header of an IP packet.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures the route map **smallpak** to set the DSCP value to **20** for packets that are received by GigabitEthernet 0/1 and smaller than 500 bytes.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip policy route-map smallpak
Hostname(config)# route-map smallpak permit 10
Hostname(config-route-map)# match length 0 500
Hostname(config-route-map)# set ip dscp 20
```

Notifications

If you configure this command after the **set ip tos** or **set ip precedence** command has been configured, the following notification will be displayed:

```
% Route-map: can not set ip dscp.
% Remove set ip tos/precedence clause before set ip dscp.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.41 set ip next-hop

Function

Run the **set ip next-hop** command to specify the next-hop IPv4 address for packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no next-hop IPv4 address is specified for matched packets.

Syntax

set ip next-hop { *ipv4-address* [*weight*] }&<1-32>

no set ip next-hop [*ipv4-address* [*weight*]&<1-32>

Parameter Description

{ *ipv4-address* [*weight*] }&<1-32>: &<1-32> indicates that you can enter the parameter up to 32 times in this command.

ipv4-address: IP address of the next hop.

weight: Weight of the next hop. The value range is from 1 to 8.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration.

This command supports two operation modes: WCMP load balancing mode and non-WCMP load balancing mode. In WCMP load balancing mode, the system performs WCMP load balancing on traffic based on the configured weight.

You can configure up to 32 IP addresses in this command.

If you add the *weight* value after *ipv4 address*, you can configure up to four **next-hop** addresses.

If **vrf** *vrf-name* is specified, packets are forwarded across VRF instances. If **global** is specified, packets are forwarded from the VRF instance to the public network. If [**vrf** *vrf-name* | **global**] is not specified, the VRF instance is inherited, that is, the next hop belongs to the VRF instance that receives the packets.

Note

If you configure *weight* after any **next-hop**, the operation mode of this **set** command automatically switches to WCMP load balancing mode. In WCMP load balancing mode, the default value of *weight* is **1** if *weight* is not specified for the **next-hop** address.

Examples

The following example configures the route map **load-balance** to forward packets received by GigabitEthernet 0/1 from the network segment 10.0.0.0/8, to 192.168.100.1, forward packets received from the network segment 172.16.0.0/16 to 172.16.100.1, and drop other packets.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip policy route-map load-balance
Hostname(config)# access-list 10 permit 10.0.0.0 0.255.255.255
Hostname(config)# access-list 20 permit 172.16.0.0 0.0.255.255
Hostname(config)#route-map load-balance permit 10
```

```
Hostname(config-route-map)# match ip address 10
Hostname(config-route-map)# set ip next-hop 192.168.100.1
Hostname(config)#route-map load-balance permit 20
Hostname(config-route-map)# match ip address 20
Hostname(config-route-map)# set ip next-hop 172.16.100.1
Hostname(config)#route-map load-balance permit 30
Hostname(config-route-map)# set interface Null 0
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.42 set ip next-hop recursive

Function

Run the **set ip next-hop recursive** command to specify the recursive next-hop IP address for packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no recursive next-hop IPv4 address is specified for matched packets.

Syntax

set ip next-hop recursive *ipv4-address*

no set ip next-hop recursive

Parameter Description

ipv4-address: Recursive next-hop IP address.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration. You can configure only one such **set** command in a route map policy.

The recursive next-hop IP addresses can be recursively sought in static or dynamic routes that have an outbound interface and a next-hop IP address. Recursion can be performed up to 32 times. If the recursive next-hop IP address is sought in a static route, recursion can be performed only once.

Examples

The following example configures the route map **load-balance** to forward packets received by GigabitEthernet 0/1 from the network segment 10.0.0.0/8 to the recursive next hop 192.168.100.1, forward packets received from the network segment 172.16.0.0/16 to the recursive next hop 172.16.100.1, and forward other packets based on the common routes by default.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)#ip policy route-map load-balance
Hostname(config)#access-list 10 permit 10.0.0.0 0.255.255.255
Hostname(config)#access-list 20 permit 172.16.0.0 0.0.255.255
Hostname(config)#route-map load-balance permit 10
Hostname(config-route-map)#match ip address 10
Hostname(config-route-map)#set ip next-hop recursive 192.168.100.1
Hostname(config)#route-map load-balance permit 20
Hostname(config-route-map)#match ip address 20
Hostname(config-route-map)#set ip next-hop recursive 172.16.100.1
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **show ip pbr route** (PBR)

1.43 set ip next-hop self

Function

Run the **set ip next-hop self** command to set the next hop to the device itself for packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, the next hop is not set to the device itself for matched packets.

Syntax

set ip next-hop self

no set ip next-hop self

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure a route map to associate with BGP, and set the next hops of routes to be sent to the device itself.

Examples

The following example configures the route map **abc** to set the next hop to the device itself, and applies this route map to routes advertised to the neighbor 1.1.1.1 in AS 65000 in BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#route-map abc
Hostname(config-route-map)#set ip next-hop self
Hostname(config)#router bgp 65000
Hostname(config-router)#neighbor 1.1.1.1 route-map abc out
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.44 set ip next-hop unchanged

Function

Run the **set ip next-hop unchanged** command to set the next hops of routes that match the rules to keep unchanged.

Run the **no** form of this command to remove this configuration.

By default, the next hop is not set to keep unchanged for a matched packet. This command is used for route map management in BGP.

Syntax

set ip next-hop unchanged

no set ip next-hop unchanged

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure a route map to associate with BGP, and set the next hops of routes to be sent to keep unchanged.

Examples

The following example configures the route map **abc** to set the next hop to keep unchanged, and applies this route map to the routes sent to the neighbor 1.1.1.1 in AS 65000 in BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#route-map abc
Hostname(config-route-map)#set ip next-hop unchanged
Hostname(config)#router bgp 65000
Hostname(config-router)#neighbor 1.1.1.1 route-map abc out
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.45 set ip next-hop verify-availability

Function

Run the **set ip next-hop verify-availability** command to verify availability of the next-hop IPv4 address.

Run the **no** form of this command to remove this configuration.

By default, availability of the next-hop IPv4 address is not verified for matched packets.

Syntax

set ip next-hop verify-availability *ipv4-address* [*weight*] { **track** *track-obj-number* | **bfd** *interface-type interface-number gateway* }

no set ip next-hop verify-availability *ipv4-address* [*weight*] { **track** *track-obj-number* | **bfd** *interface-type interface-number gateway* }

Parameter Description

ipv4-address: IP address of the next hop.

weight: Weight in the load balancing mode. The value range is from 1 to 8.

track: Checks whether the next hop is effective by means of tracking.

track-obj-number: Number of the tracked object. The value range is from 1 to 700.

bfd: Specifies that Bidirectional Forwarding Detection (BFD) is used for neighbor detection.

interface-type: Interface type.

interface-number: Interface number.

gateway: IP address of the gateway, which is the neighbor IP address of BFD. If the next hop is set to the neighbor, BFD is used to detect availability of the forwarding path.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration to verify availability of the next-hop IPv4 address.

Examples

The following example configures the route map **rmap** to verify availability of the next hop 192.168.1.2 by using a tracked object with the number of 1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map rmap permit 10
Hostname(config-route-map)# set ip next-hop verify-availability 192.168.1.2 track
1
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.46 set ip precedence

Function

Run the **set ip precedence** command to configure the priority of the IPv4 header for packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no IPv4 header priority is configured for matched packets.

Syntax

set ip precedence { *precedence* | **critical** | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine** }

no set ip precedence

Parameter Description

precedence: Priority of an IPv4 header indicated by a number. The value range is from 0 to 7.

7: critical

6: flash

5: flash-override

4: immediate

3: internet

2: network

1: priority

0: routine

critical | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine**: Specifies the priority of an IP header.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

The priority of the IP packet header is configured so that IP packets are routed based on different priorities during PBR.

You can configure multiple **set ip precedence** commands in a route map policy, but only the last command takes effect, and a priority is specified for the header of a matched IP packet during PBR.

Examples

The following example configures the route map **name** to set the precedence of packets matching ACL 1 (source address: 192.168.217.68) to 4, and applies the route map to GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# access-list 1 permit 192.168.217.68 0.0.0.0
Hostname(config)# route-map name
Hostname(config-route-map)# match ip address 1
Hostname(config-route-map)# set ip precedence 4
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip policy route-map name
```

Notifications

If you configure this command after the **set ip dscp** command has been configured, the following notification will be displayed:

```
% Route-map: can not set ip precedence.
% Remove set ip dscp clause before set ip precedence.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.47 set ip tos

Function

Run the **set ip tos** command to configure the ToS of the IPv4 header for a packet that matches the rules.

Run the **no** form of this command to remove this configuration.

By default, no ToS is configured for the IP header of a matched packet.

Syntax

set ip tos { *tos-number* | **max-reliability** | **max-throughput** | **min-delay** | **min-monetary-cost** | **normal** }

no set ip tos

Parameter Description

tos-number: ToS of an IPv4 header indicated by a number. The value range is from 0 to 15.

max-reliability | **max-throughput** | **min-delay** | **min-monetary-cost** | **normal**: ToS of an IPv4 header. The ToS values correspond to numbers as follows:

max-reliability: 2

max-throughput: 4

min-delay: 8

min-monetary-cost: 1

normal: 0

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

The ToS of the IP packet header is configured to deliver different quality of service (QoS) for IP packets that are routed using PBR. A ToS value is specified for the header of a matched IP packet during PBR.

Examples

The following example configures the route map **name** to set the ToS of packets matching ACL 1 (source address: 192.168.217.68) to 4, and applies the route map to GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# access-list 1 permit 192.168.217.68 0.0.0.0
Hostname(config)# route-map name
Hostname(config-route-map)# match ip address 1
Hostname(config-route-map)# set ip tos 4
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ip policy route-map name
```

Notifications

If you configure this command after the **set ip dscp** command has been configured, the following notification will be displayed:

```
% Route-map: can not set ip tos.
% Remove set ip dscp clause before set ip tos.
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.48 set ipv6 default next-hop

Function

Run the **set ipv6 default next-hop** command to specify the default next-hop IPv6 address for IPv6 packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no default next-hop IPv6 address is specified for matched routes.

Syntax

set ipv6 default next-hop { *ipv6-address* [*weight*] }&<1-32>

no set ipv6 default next-hop [*ipv6-address* [*weight*]]&<1-32>

Parameter Description

{ *ipv6-address* [*weight*] }&<1-32>: &<1-32> indicates that you can enter the parameter up to 32 times in this command.

ipv6-address: Next-hop IPv6 address for packet forwarding. The next hop must be an adjacent device.

weight: Weight in load balancing mode. The value range is from 1 to 8.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration. After PBR is applied to an interface, if the routing table does not contain the common route (that is, non-default route) to the destination address of an IPv6 packet that matches the related rules, the packet is forwarded to the next hop specified by the **set ipv6 default nexthop** command; otherwise, the packet is forwarded based on the common route. Note that the rules here are IPv6-related rules.

This command supports two operation modes: WCMP load balancing mode and non-WCMP load balancing mode. In WCMP load balancing mode, the system performs WCMP load balancing on traffic based on the configured *weight*.

Restrictions and guidelines:

- You can configure up to 32 IP addresses in this command.
- If the weight of the next hop is specified, you can configure up to four next-hop addresses.
- If **vrf** *vrf-name* is specified, packets are forwarded across VRF instances.
- If **global** is specified, packets are forwarded from the VRF instance to the public network.
- If [**vrf** *vrf-name* | **global**] is not specified, the VRF instance is inherited when the IPv6 packet is forwarded, that is, the next hop belongs to the VRF instance that receives the IPv6 packet.

When an egress of packets is selected based on policy-based routing and the routing table, the priorities are as follows:

set ipv6 next-hop > Common route (non-default route) > **set ipv6 default next-hop** > Default route.

Note

- This function does not take effect on network segments with the mask length exceeding 64.
- When you configure this command together with **set ipv6 next-hop verify-availability**, the next hop configured in **set ipv6 next-hop verify-availability** takes effect first.

- If you configure *weight* after any next-hop address, the operation mode of this **set** command is automatically changed to WCMP. In WCMP load balancing mode, the default value of *weight* is **1** if *weight* is not specified for the **next-hop** address.

Examples

The following example configures the route map **rm_if_0_0** to set the default next hop of traffic that matches IPv6 ACL **acl_for_pbr** (destination address: 2001:0db8:2001:1760::/64) to **2002:0db8:2003:1::95**, and applies the route map to GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 access-list acl_for_pbr
Hostname(config -ipv6-acl)# permit ipv6 any 2001:0db8:2001:1760::/64
Hostname(config)# route-map rm_if_0_0
Hostname(config-route-map)# match ipv6 address acl_for_pbr
Hostname(config-route-map)# set ipv6 default next-hop
2002:0db8:2003:1::95
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 policy route-map rm_if_0_0
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.49 set ipv6 next-hop

Function

Run the **set ipv6 next-hop** command to specify the next-hop IPv6 address for IPv6 packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no next-hop IPv6 address is specified for a matched route.

Syntax

set ipv6 next-hop { *ipv6-address* [*weight*] }&<1-32>

no set ipv6 next-hop [*ipv6-address* [*weight*]]&<1-32>

Parameter Description

{ *ipv6-address* [*weight*] }&<1-32>: &<1-32> indicates that you can enter the parameter up to 32 times in this command.

ipv6-address: Next-hop IPv6 address for packet forwarding. The next hop must be an adjacent device.

weight: Weight in load balancing mode. The value range is from 1 to 8.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration. This command supports two operation modes: WCMP load balancing mode and non-WCMP load balancing mode. In WCMP load balancing mode, the system performs WCMP load balancing on traffic based on the configured *weight*.

Restrictions and guidelines:

- You can configure up to 32 IP addresses in this command.
- If the weight of the next hop is specified, you can configure up to four next-hop addresses.
- If **vrf** *vrf-name* is specified, packets are forwarded across VRF instances.
- If **global** is specified, packets are forwarded from the VRF instance to the public network.
- If [**vrf** *vrf-name* | **global**] is not specified, the VRF instance is inherited when the IPv6 packet is forwarded, that is, the next hop belongs to the VRF instance that receives the IPv6 packet.

Note

If you configure *weight* after any next-hop address, the operation mode of this **set** command is automatically changed to WCMP. In WCMP load balancing mode, the default value of *weight* is **1** if *weight* is not specified for the **next-hop** address.

When an egress of packets is selected based on policy-based routing and the routing table, the priorities are as follows:

set ipv6 next-hop > **set ipv6 next-hop recursive >** Common route (non-default route) > **set ipv6 default next-hop** > Default route

Examples

The following example configures the route map **rm_if_0_0** to set the next-hop address of traffic that matches IPv6 ACL **acl_for_pbr** (destination address: 2001:0db8:2001:1760::/64) to **2002:0db8:2003:1::95**, and applies the route map to GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 access-list acl_for_pbr
Hostname(config -ipv6-acl)# permit ipv6 any 2001:0db8:2001:1760::/64
Hostname(config)# route-map rm_if_0_0
```

```
Hostname(config-route-map)# match ip address acl_for_pbr
Hostname(config-route-map)# set ipv6 next-hop 2002:0db8:2003:1::95
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 policy route-map rm_if_0_0
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.50 set ipv6 next-hop recursive

Function

Run the **set ipv6 next-hop recursive** command to specify the recursive next-hop IPv6 address for packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no recursive next-hop IPv6 address is specified for matched packets.

Syntax

set ipv6 next-hop recursive *ipv6-address*

no set ipv6 next-hop recursive

Parameter Description

ipv6-address: Recursive next-hop IPv6 address.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration. You can configure only one such **set** command in a route map policy.

The recursive next-hop IPv6 addresses can be recursively sought in static or dynamic routes that have an outbound interface and a next-hop IPv6 address. Recursion can be performed up to 32 times. If the recursive next-hop IPv6 address is sought in a static route, recursion can be performed only once.

Examples

The following example configures the route map **rm_if_0_0** to set the recursive next-hop address of traffic that matches IPv6 ACL **acl_for_pbr** (destination address: 2001:0db8:2001:1760::/64) to **2002:0db8:2003:1::95**, and applies the route map to GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# ipv6 access-list acl_for_pbr
Hostname(config -ipv6-acl)# permit ipv6 any 2001:0db8:2001:1760::/64
Hostname(config)# route-map rm_if_0_0
Hostname(config-route-map)# match ip address acl_for_pbr
Hostname(config-route-map)# set ipv6 next-hop recursive 2002:0db8:2003:1::95
Hostname(config)# interface GigabitEthernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# ipv6 policy route-map rm_if_0_0
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

- **show ipv6 pbr route** (PBR)

1.51 set ipv6 next-hop self

Function

Run the **set ipv6 next-hop self** command to set the next hop to the device itself for IPv6 routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, the next hop is not set to the device itself for matched packets.

Syntax

set ipv6 next-hop self

no set ipv6 next-hop self

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure a route map to associate with BGP, and set the next hops of routes to be sent to the device itself.

Examples

The following example configures the route map **abc** to set the next hop of routes to the device itself, and applies the rout map to routes advertised to the neighbor 2001::1 in BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#route-map abc
Hostname(config-route-map)#set ipv6 next-hop self
Hostname(config)#router bgp 65000
Hostname(config-router)#neighbor 2001::1 route-map abc out
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.52 set ipv6 next-hop unchanged

Function

Run the **set ipv6 next-hop unchanged** command to set the next hop to keep unchanged for IPv6 routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, the next hop is not set to keep unchanged for a matched packet. This command is used for route map management in BGP.

Syntax

set ipv6 next-hop unchanged

no set ipv6 next-hop unchanged

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure a route map to associate with BGP, and set the next hops of routes to be sent to keep unchanged.

Examples

The following example configures the route map **abc** to set the next hops of routes to keep unchanged, and applies the rout map to routes advertised to the neighbor 2001::1 in BGP.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#route-map abc
Hostname(config-route-map)#set ipv6 next-hop unchanged
Hostname(config)#router bgp 1
Hostname(config-router)#neighbor 2001::1 route-map abc out
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.53 set ipv6 next-hop verify-availability

Function

Run the **set ipv6 next-hop verify-availability** command to verify availability of the next-hop IPv6 address.

Run the **no** form of this command to remove this configuration.

By default, availability of the next-hop IPv6 address is not verified for matched packets.

Syntax

set ipv6 next-hop verify-availability *ipv6-address* [*weight*] **bfd** *interface-type interface-number gateway*

no set ip next-hop verify-availability *ipv6-address* [*weight*] **bfd** *interface-type interface-number gateway*

Parameter Description

ipv6-address: IPv6 address of the next hop.

weight: Weight in load balancing mode. The value range is from 1 to 8.

bfd: Specifies that BFD is used for neighbor detection.

interface-type: Interface type.

interface-number: Interface number.

gateway: IPv6 address of the gateway, that is, the IPv6 address of the BFD neighbor. If the next hop is set to the neighbor, BFD is used to detect availability of the forwarding path.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration to verify availability of the next-hop IPv6 address.

Examples

The following example configures a route map to associate with BFD, and uses BFD to verify availability of 2001:1::2, which is the next hop of the forwarding path.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map rmap permit 10
Hostname(config-route-map)# set ipv6 next-hop verify-availability 2001:1::2 bfd
GigabitEthernet 0/1 2001:1::2
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.54 set ipv6 precedence

Function

Run the **set ipv6 precedence** command to configure the priority of the IPv6 header for packets that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no IPv6 header priority is configured for matched packets.

Syntax

set ipv6 precedence { *precedence-number* | **critical** | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine** }

no set ipv6 precedence

Parameter Description

precedence-number: Priority of an IP header indicated by a number. The value range is from 0 to 7.

7: critical

6: flash

5: flash-override

4: immediate

3: internet

2: network

1: priority

0: routine

critical | **flash** | **flash-override** | **immediate** | **internet** | **network** | **priority** | **routine**: Specifies the priority of an IP header.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

The priority of the IPv6 packet header is often configured so that IP packets are routed based on different priorities during PBR.

You can configure multiple **set ipv6 precedence** commands in a route map policy, but only the last command takes effect, and a priority is specified for the header of a matched IP packet during PBR.

Examples

The following example configures a route map to change the priority of IPv6 packet headers to **3**.

```
Hostname(config)#route-map pbr-aaa permit 10
Hostname(config-route-map)# set ipv6 precedence 3
```

The following example configures a route map to change the priority of IPv6 packet headers to **immediate**.

```
Hostname(config-route-map)# set ipv6 precedence immediate
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.55 set l3vpn nexthop local-vrf

Function

Run the **set l3vpn nexthop local-vrf** command to set the L3 VPN next hop to the local VRF instance for packets matching the match rules.

Run the **no** form of this command to remove this configuration.

By default, the L3 VPN next hop is not set to the local VRF instance for packets matching the rules.

Syntax

set l3vpn nexthop local-vrf

no set l3vpn nexthop local-vrf

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example configures the route map **test** to set the L3 VPN next hop to the local VRF instance.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map test
Hostname(config-route-map)# set l3vpn nexthop local-vrf
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.56 set level

Function

Run the **set level** command to specify the type of the destination area to which routes that match the rules will be advertised.

Run the **no** form of this command to remove this configuration.

By default, the type of the destination area is not specified for matched routes.

Syntax

set level { **level-1** | **level-1-2** | **level-2** | **stub-area** | **backbone** }

no set level

Parameter Description

level-1: Advertises redistributed routes to an IS-IS level-1 area.

level-2: Advertises redistributed routes to an IS-IS level-2 area.

level-1-2: Advertises redistributed routes to IS-IS level-1 and level-2 areas.

stub-area: Advertises redistributed routes to an OSPF stub area.

backbone: Advertises redistributed routes to the OSPF backbone area.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

When routes are redistributed to the OSPF network or IS-IS hierarchical network, this command is used to configure the type of the area to which the redistributed routes are to be advertised.

Examples

The following example configures the route map **redrip** to set the type of the destination area, to which the redistributed routes are to be advertised, to the backbone area, and redistribute RIP routes to the OSPF backbone area.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
```

```
Hostname(config-route-map)# set level backbone
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.57 set local-preference

Function

Run the **set local-preference** command to configure the LOCAL_PREFERENCE value for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no LOCAL_PREFERENCE value is configured for matched routes.

Syntax

set local-preference *precedence-number*

no set local-preference

Parameter Description

precedence-number: LOCAL_PREFERENCE value indicated by a number. The value range is from 0 to 4294967295.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure the local priority for matched routes. You can configure only one LOCAL_PREFERENCE value.

Examples

The following example configures a route map to set LOCAL_PREFERENCE of routes that match ACL 1 to a high priority **6800** in the policy with the sequence number of 10, and set LOCAL_PREFERENCE of routes that match ACL 2 to a low priority **50** in the policy with the sequence number of 20.

```
Hostname> enable
```

```
Hostname# configure terminal
Hostname(config)# route-map SET_PREF permit 10
Hostname(config-route-map)# match as-path 1
Hostname(config-route-map)# set local-preference 6800
Hostname(config-route-map)# exit
Hostname(config)# route-map SET_PREF permit 20
Hostname(config-route-map)# match as-path 2
Hostname(config-route-map)# set local-preference 50
```

Related Commands

N/A

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

1.58 set metric

Function

Run the **set metric** command to configure the metric value for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, the metric of a matched route is not modified.

Syntax

set metric { **+** *metric-value* | **-** *metric-value* | *metric-value* }

no set metric

Parameter Description

+: Increases the metric (on the basis of the metric value of the original route).

-: Decreases the metric (on the basis of the metric value of the original route).

metric-value: Metric value of a redistributed route. The value range is from 0 to 4294967295.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

The route metric affects route selection. Therefore, configure it carefully based on the actual network topology. Pay attention to the upper and lower limits of the metric in each routing protocol when configuring, increasing, or decreasing the metric. For example, when routes of other protocols are redistributed to RIP, the metric falls within the range of 1 to 16 after metric increase/decrease.

Examples

The following example configures the route map **redrip** to set the initial route metric to 40 and change the metric based on the route map **redrip** when RIP routes are redistributed to OSPF.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# set metric 40
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.59 set metric-type

Function

Run the **set metric-type** command to configure the metric type for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, the metric type of a matched route is not modified.

Syntax

set metric-type { **external** | **internal** | **type-1** | **type-2** }

no set metric-type

Parameter Description

external: Specifies the external route type of OSPF.

internal: Specifies the internal route type of OSPF.

type-1: Specifies external OE1 route type of OSPF.

type-2: Specifies the external OE2 route type of OSPF.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to modify the OSPF route type. You can use it for route redistribution or PBR.

Examples

The following example configures the route map **redrip** to set the route type to **type-1**, and change the route type based on the route map **redrip** when RIP routes are redistributed to OSPF.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# set metric-type type-1
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.60 set next-hop

Function

Run the **set next-hop** command to specify the next-hop IP address for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no next-hop IP address is specified for matched routes.

Syntax

set next-hop *ipv4-address*

no set next-hop

Parameter Description

ipv4-address: IPv4 address of the next hop.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used only for PBR configuration. You can use it to flexibly adjust the next hop of a route based on the matching conditions.

Examples

The following example configures the route map **redrip** to set the next hop of routes that match ACL 1 to 192.168.1.2

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# match ip address 1
Hostname(config-route-map)# set next-hop 192.168.1.2
```

Notifications

If the configured IP address is an invalid host address (valid host addresses include class A addresses except those starting with 0 or 127, class B addresses, and class C addresses), the following notification will be displayed:

```
% Can't set invalid nexthop address!
```

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.61 set next-hop self

Function

Run the **set next-hop self** command to set the next hop to the device itself for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, the next hop is not set to the device itself for matched routes.

Syntax

set next-hop self

no set next-hop self

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure a route map to associate with BGP, and set the next hops of routes to be sent to the device itself.

Examples

The following example configures the route map **abc** to set the next hop of a BGP route to the device itself, and applies the route map **abc** when BGP 65000 advertises routes to the neighbor 1.1.1.1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#route-map abc
Hostname(config-route-map)#set next-hop self
Hostname(config)#router bgp 65000
Hostname(config-router)#neighbor 1.1.1.1 route-map abc out
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.62 set next-hop unchanged

Function

Run the **set next-hop unchanged** command to set the next hop to keep unchanged for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no next hop is set to keep unchanged for matched routes. This command is used for route map management in BGP.

Syntax

set next-hop unchanged

no set next-hop unchanged

Parameter Description

N/A

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure a route map to associate with BGP, and set the next hops of routes to be sent to keep unchanged.

Examples

The following example configures the route map abc to set the next hop of a BGP route to keep unchanged, and applies the route map when BGP 1 advertises routes to the neighbor 1.1.1.1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)#route-map abc
Hostname(config-route-map)#set next-hop unchanged
Hostname(config)#router bgp 1
Hostname(config-router)#neighbor 1.1.1.1 route-map abc out
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.63 set origin

Function

Run the **set origin** command to specify the source for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no route source is specified for matched routes.

Syntax

set origin { **egp** | **igp** | **incomplete** }

no set origin

Parameter Description

egp: Specifies that the source is the remote EGP.

igp: Specifies that the source is the local IGP.

incomplete: Specifies that the route source is unknown.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure the source for a matched route. You can configure only one route source.

Examples

The following example configures the route map **SET_ORIGIN** to set the route source to **igp** for routes that match ACL 1 in the policy with the sequence number of 10, and set the route source to **egp** for routes that match ACL 2 in the policy with the sequence number of 20.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map SET_ORIGIN 10 permit
Hostname(config-route-map)# match as-path 1
Hostname(config-route-map)# set origin igp
Hostname(config-route-map)# exit
Hostname(config)# route-map SET_ORIGIN 20 permit
Hostname(config-route-map)# match as-path 2
Hostname(config-route-map)# set origin egp
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.64 set originator-id

Function

Run the **set originator-id** command to specify the originator address for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no route originator address is configured for matched routes.

Syntax

set originator-id *ipv4-address*

no set originator-id [*ipv4-address*]

Parameter Description

ipv4-address: Address of the originator.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is used to configure the originator address for a matched route.

Examples

The following example configures the route map **SET_ORIGIN** to set the originator address to **5.5.5.5** for routes that match ACL 1 in the policy with the sequence number of 10 and set the originator address to **5.5.5.6** for routes that match ACL 2 in the policy with the sequence number of 20.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map SET_ORIGIN 10 permit
Hostname(config-route-map)# match as-path 1
Hostname(config-route-map)# set originator-id 5.5.5.5
Hostname(config-route-map)# exit
Hostname(config)# route-map SET_ORIGIN 20 permit
Hostname(config-route-map)# match as-path 2
Hostname(config-route-map)# set originator-id 5.5.5.6
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.65 set qos-id

Function

Run the **set qos-id** command to specify the QoS ID for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no QoS ID is specified for matched routes.

Syntax

set qos-id *qos-id*

no set qos-id

Parameter Description

qos-id: QoS ID of a route. The value range is from 1 to 255.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used for PBR configuration in BGP to set the QoS ID for routes.

This command supports only one parameter (QoS ID), and does not support the configuration of multiple QoS IDs.

Examples

The following example sets the QoS ID of routes that match the rules to **1**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# route-map test
Hostname(config-route-map)# set qos-id 1
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.66 set tag

Function

Run the **set tag** command to configure the tag for routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no route tag is configured for matched routes.

Syntax

set tag *tag*

no set tag

Parameter Description

tag: Tag of a redistributed route. The value range is from 0 to 4294967295.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is applicable only to route redistribution. If this command is not configured, the original route tag is retained.

Examples

The following example configures the route map **redip** to set the tag to **100** for routes that match the rules, configure OSPF to redistribute RIP routes based on the route map **redip**, and set the tag of redistributed routes to **100**.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router ospf
Hostname(config-router)# redistribute rip subnets route-map redrip
Hostname(config-router)# network 192.168.12.0 0.0.0.255 area 0
Hostname(config-router)# exit
Hostname(config)# route-map redrip permit 10
Hostname(config-route-map)# set tag 100
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.67 set weight

Function

Run the **set weight** command to configure the weight for BGP routes that match the rules.

Run the **no** form of this command to remove this configuration.

By default, no weight is configured for matched routes.

Syntax

set weight *weight-number*

no set weight

Parameter Description

weight-number: Weight of a route. The value range is from 0 to 65535.

Command Modes

Route map configuration mode

Default Level

14

Usage Guidelines

This command is only used to modify the weight of a BGP route.

By default, the weight of a route received from a neighbor is obtained based on the configuration of **neighbor weight**, and the weight of a local route is always 32768.

You can run this command to modify the default weight allocated by BGP.

Examples

The following example configures the route map **nei-rmap-in** to set the weight to **100** for BGP routes that match the rules, and applies this route map when routes sent from the BGP neighbor 1.1.1.1 are received.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# router bgp 1
Hostname(config-router)# neighbor 1.1.1.1 route-map nei-rmap-in in
Hostname(config-router)# exit
Hostname(config)# route-map nei-rmap-in permit 10
Hostname(config-route-map)# set weight 100
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.68 show ip as-path-access-list

Function

Run the **show ip as-path-access-list** command to display the AS-path list information.

Syntax

show ip as-path-access-list [*as-path-access-list-num*]

Parameter Description

as-path-access-list-num: Number of an AS-path list. The value range is from 1 to 500.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

This command is used to display the AS-path list information.

Examples

The following example displays the information about all AS path lists.

```
Hostname> enable
Hostname# show ip as-path-access-list
AS path access list 30
permit ^30$
```

Table 1-1Output Fields of the show ip as-path-access-list Command

Field	Description
AS path access list	Name of an AS-path list
permit	Mode of a filtering rule
^30$	Specific rule indicated by a regular expression

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.69 show ip community-list

Function

Run the **show ip community-list** command to display the community list information.

Syntax

show ip community-list [*community-list-number* | *community-list-name*]

Parameter Description

community-list-number: Number of a community list to be displayed. For a standard community list, the range is from 1 to 99. For an expanded community list, the range is from 100 to 199.

community-list-name: Name of a community list to be displayed.

It is a string of less than 80 characters.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

This command is used to display the community list information.

Examples

The following example displays the information about all community lists.

```
Hostname> enable
Hostname# show ip community-list
Community-list standard local
permit local-AS
Community-list standard Red-Giant
permit 0:10
deny 0:20
```

Table 1-1Output Fields of the show ip community-list Command

Field	Description
Community-list standard local	Type and name of a community list

Field	Description
permit	Mode of a filtering rule
local-AS	Value of the community attribute
0:10	Value of the community attribute

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.70 show ip extcommunity-list

Function

Run the **show ip extcommunity-list** command to display the extcommunity list information.

Syntax

show ip extcommunity-list [*extcommunity-list-num* | *extcommunity-list-name*]

Parameter Description

extcommunity-list-num: Number of an extcommunity list, which identifies a standard or expanded extcommunity list. The value range is from 1 to 199. For a standard extcommunity list, the range is from 1 to 99. For an expanded extcommunity list, the range is from 100 to 199.

extcommunity-list-num: Name of a standard or expanded extcommunity list.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays the information about all extcommunity lists.

```
Hostname> enable
Hostname # show ip extcommunity-list
```

```
Standard extended community-list 1
     10 permit RT:1:200
     20 permit RT:1:100
Standard extended community-list 2
     10 permit RT:1:200
Expanded extended community-list rt_filter
     13 permit 1:100
```

Table 1-1Output Fields of the show ip extcommunity-list Command

Field	Description
Standard extended community-list 1	Type and name of an extcommunity list
10	Sequence number of a filtering rule
permit	Mode of a filtering rule
RT:1:200	Value of the extcommunity attribute

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.71 show ip prefix-list

Function

Run the **show ip prefix-list** command to display the information about a prefix list or prefix list entries.

Syntax

show ip prefix-list [*prefix-name*]

Parameter Description

prefix-name: Name of a prefix list.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

If no prefix list name is specified, the configurations of all prefix lists are displayed. Otherwise, only configurations of the specified prefix list are displayed.

Examples

The following example displays the information of all IPv4 prefix lists.

```
Hostname> enable
Hostname# show ip prefix-list
ip prefix-list pre: 2 entries
seq 5 permit 192.168.64.0/24
seq 10 permit 192.2.2.0/24
```

Table 1-1Output Fields of the show ip prefix-list Command

Field	Description
ip prefix-list pre	Name of an IPv4 prefix list
2 entries	Number of rules in the prefix list
seq 5	Sequence number of a filtering rule
permit	Mode of a filtering rule
192.168.64.0/24	IPv4 route prefix

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.72 show ip protocols

Function

Run the **show ip protocols** command to display the status information of the IPv4 routing protocols that are currently running.

Syntax

show ip protocols [**vrf** *vrf-name*] [**bgp** | **isis** | **ospf** | **rip**]

Parameter Description

vrf *vrf-name*: Specifies the name of a VRF instance. If this parameter is not specified, the status information of running routing protocols in the global VRF instance is displayed.

bgp: Displays status information of the BGP protocol.

isis: Displays status information of the ISIS protocol.

ospf: Displays status information of the OSPF protocol.

rip: Displays status information of the RIP protocol.

If no keyword is configured after **protocols**, the status information of all running routing protocols is displayed.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

Only the status information of running routing protocols is displayed, and that of disabled routing protocols is not displayed.

Examples

The following example displays the status information of running routing protocols in the global VRF instance.

```
Hostname> enable
Hostname# show ip protocols
Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 57.57.57.57
  Memory Overflow is enabled
  Router is not in overflow state now
  It is an autonomous system boundary router
  Redistributing External Routes from,
    connected, includes subnets in redistribution
    bgp, includes subnets in redistribution
  Number of areas in this router is 2: 2 normal 0 stub 0 nssa
  Routing for Networks:
    57.57.57.57 0.0.0.0 area 0
    163.18.4.0 0.0.0.255 area 0
    163.18.57.0 0.0.0.255 area 0
    192.100.1.0 0.0.0.255 area 0
    192.101.1.0 0.0.0.255 area 1
    192.102.1.0 0.0.0.255 area 0
  Reference bandwidth unit is 100 mbps
  Distance: (default is 110)
Routing Protocol is "bgp 10"
  IGP synchronization is disabled
  Default-information originate is disabled
  Default local-preference applied to incoming route is 100
  Redistributing: connected
```

```
  Neighbor(s):
    Address            AddressFamily  FiltIn  FiltOut  DistIn  DistOut
RouteMapIn  RouteMapOut  Weight
  Distance: external 20(default) internal 200(default) local 200(default)
```

Table 1-1Output Fields of the show ip protocols Command

Field	Description
Routing Protocol is "ospf 1"	Name of a routing protocol
Redistributing External Routes from	Route redistribution status of the routing protocol
Distance:	Distance of the routing protocol
Router ID	Unique ID of the device
Memory Overflow	Whether the memory overflow alarm function is enabled
Number of areas in this router	Number of areas where the routing protocol is applied
Routing for Networks	Area distribution of interfaces where the current routing protocol is applied
Reference bandwidth unit	Reference bandwidth unit of the interface cost
IGP synchronization	IGP synchronization function
Default-information originate	Allows the BGP speaker to advertise the default route to the peer group.
Default local-preference applied to incoming route	Default local-preference value
Redistributing	Route redistribution type
Neighbor(s)	BGP neighbor list
Address	Address of a BGP neighbor
AddressFamily	Address family of a BGP neighbor
FiltIn	AS filtering in the inbound direction
FiltOut	AS filtering in the outbound direction
DistIn	ACL filtering in the inbound direction
DistOut	ACL filtering in the outbound direction
RouteMapIn	Routing policy in the inbound direction
RouteMapOut	Routing policy in the outbound direction
Weight	Weight used by a neighbor

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.73 show ipv6 prefix-list

Function

Run the **show ipv6 prefix-list** command to display the information about an IPv6 prefix list or prefix list entries.

Syntax

show ipv6 prefix-list [*prefix-name*]

Parameter Description

prefix-name: Name of an IPv6 prefix list.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

If no prefix list name is specified, the configurations of all prefix lists are displayed. Otherwise, only configurations of the specified prefix list are displayed.

Examples

The following example displays the information about all IPv6 prefix lists.

```
Hostname> enable
Hostname# show ipv6 prefix-list
ipv6 prefix-list p6: 2 entries
      seq 5 permit 13::/20
      seq 10 permit 14::/20
```

Table 1-1Output Fields of the show ipv6 prefix-list Command

Field	Description
ipv6 prefix-list p6	Name of an IPv6 prefix list
2 entries	Number of rules in the prefix list
seq 5	Sequence number of a filtering rule

Field	Description
permit	Mode of a filtering rule
13::/20	IPv6 route prefix

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.74 show route-map

Function

Run the **show route-map** command to display the route map configurations.

Syntax

show route-map [*route-map-name*]

Parameter Description

route-map-name: Name of a route map to be displayed.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

If no route map name is specified, the configurations of all route maps are displayed. Otherwise, only configurations of the specified route map are displayed.

Examples

The following example displays the route map information.

```
Hostname> enable
Hostname# show route-map
route-map AAA, permit, sequence 10
Match clauses:
ip address 2
Set clauses:
metric 10
```

Table 1-1Output Fields of the show route-map Command

Field	Description
route-map	Name of a route map
permit	Permit keyword contained in a route map policy
sequence 10	Sequence number of a route map policy
match clauses	Match rule. Whether the **set** operation is performed depends on the **permit** or **deny** keyword in the route map policy.
set clauses	Processing action to be performed after the match rule is matched.

Notifications

N/A

Platform Description

N/A

Related Commands

N/A