Routing Policy Language Commands

Note All commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router that is introduced from Cisco IOS XR Release 6.3.2. References to earlier releases in Command History tables apply to only the Cisco NCS 5500 Series Router.

Note

- Starting with Cisco IOS XR Release 6.6.25, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 560 Series Routers.
- Starting with Cisco IOS XR Release 6.3.2, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router.
- References to releases before Cisco IOS XR Release 6.3.2 apply to only the Cisco NCS 5500 Series Router.
- Cisco IOS XR Software Release 7.0.1 specific updates are not applicable for the following variants of Cisco NCS 540 Series Routers:
  - N540-28Z4C-SYS-A
  - N540-28Z4C-SYS-D
  - N540X-16Z4G8Q2C-A
  - N540X-16Z4G8Q2C-D
  - N540X-16Z8Q2C-D
  - N540-12Z20G-SYS-A
  - N540-12Z20G-SYS-D
  - N540X-12Z16G-SYS-A
  - N540X-12Z16G-SYS-D

This module describes the Cisco IOS XR software routing policy language (RPL) commands used to create, modify, monitor, and maintain routing policies.

For detailed information about RPL concepts, configuration tasks, and examples, see the Implementing Routing Policy on Cisco NCS 5500 Series Routers module in the *Routing Configuration Guide for Cisco NCS 5500 Series Routers*.

abort (RPL)

To discard a route policy or set definition and return to XR Config mode, use the **abort** command in the appropriate configuration mode.

abort

Syntax Description

This command has no keywords or arguments.

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Prefix set configuration

Route distinguisher set configuration

AS path set configuration

Community set configuration

Extended community set configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to discard a route policy definition that was started and return to XR Config mode:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# if as-path is-local then
RP/0/RP0/CPU0:router(config-rpl-if)# abort
RP/0/RP0/CPU0:router(config)#
```

The following example shows how to discard a prefix set definition that was started and return to XR Config mode:

```
RP/0/RP0/CPU0:router(config)# prefix-set legal-ipv4-prefix-examples
RP/0/RP0/CPU0:router(config-pfx)# 10.0.1.1,
RP/0/RP0/CPU0:router(config-pfx)# 10.0.2.0/24,
RP/0/RP0/CPU0:router(config-pfx)# abort
RP/0/RP0/CPU0:router(config)#
```

add

To add a value to an Routing Information Protocol (RIP) existing metric, use the **add** command in route-policy configuration mode.

add {**rip-metric** {*numberparameter*}}

Syntax Description

rip-metric	Specifies an RIP metric attribute.
number	Value assigned to a four-bit unsigned integer. Range is from 0 to 16.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

If the add value is greater than the maximum allowed value, the metric is added. If the resulting metric exceeds the maximum for the routing protocol, then the route is dropped (by the client routing protocol).

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to offset the RIP metric value:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# add rip-metric 4
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

apply

To execute a parameterized or unparameterized policy from within another policy, use the **apply** command in route-policy configuration mode.

apply *policy_name* [*argument1, argument2, . . . , argumentN*]

Syntax Description

policy_name	Name of a route policy.
argument	(Optional) Parameter name. The *argument* can be a value (for example, '100') or a parameter (for example, '$parameter')

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **apply** command to execute a policy (either parameterized or unparameterized) from within another policy, which allows for the reuse of common blocks of policy.

Wildcards can be used in apply policy names. This supports the nested wildcard apply scenario. A wildcard is specified by inserting an asterisk (*) in place of one of the portions of the apply policy name; the wildcard indicates that any value for that portion of the apply policy name matches. The nested wildcard apply policy allows wildcard (*) based apply nesting. The wildcard operation permits declaration of a generic apply statement that calls all policies that contain a specific defined set of alphanumeric characters, defined on the router.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the policy CustomerIn applies the route-policy SetLocalPref to conditionally set the local preference on a route. The parameters 20, 30, 40, and 50 are passed to the parameterized policy SetLocalPref, where the local preference is set to:

- 20, if the community 217:20 is present in the route
- 30, if the community 217:30 is present in the route
- 40, if the community 217:40 is present in the route
- 50, if the community 217:50 is present in the route

```
RP/0/RP0/CPU0:router(config)# route-policy SetLocalPref ($lp0, $lp1, $lp2, $lp3, $lp4)
RP/0/RP0/CPU0:router(config-rpl)# if community matches-any ($lp0:$lp1)then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference $lp1
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif community matches-any ($lp0:$lp2) then
```

```
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference $lp2
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif community matches-any ($lp0:$lp3) then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference $lp3
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif community matches-any ($lp0:$lp4) then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference $lp4
RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy

RP/0/RP0/CPU0:router(config)# route-policy CustomerIn($cust)
RP/0/RP0/CPU0:router(config-rpl)# apply SetLocalPref ($cust, 20, 30, 40, 50)
RP/0/RP0/CPU0:router(config-rpl)# end-policy

RP/0/RP0/CPU0:router(config)# route-policy Cust_217
RP/0/RP0/CPU0:router(config-rpl)# apply CustomerIn(217)
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

as-path in

To match the AS path of a route to an AS path set, use the **as-path in** command in route-policy configuration mode.

as-path in {*as-path-set-nameinline-as-path-setparameter*}

Syntax Description

as-path-set-name	Name of an AS path set.
inline-as-path-set	Inline AS path set. The inline AS path set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path in** command as a conditional expression within an **if** statement to match the AS path of a route to an AS path set. The AS path is a sequence of autonomous system numbers traversed by a route.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The **as-path in** command evaluates to true if at least one of the regular expressions defined in the associated AS path set matches the AS path attribute of the route.

In the case where the AS path set is defined but contains no elements in it, the **as-path in** conditional expression command returns false.

Task ID

Task ID	Operations
route-policy	read, write

Examples

For example, assume we have an AS path set named my-as-set defined as follows:

```
RP/0/RP0/CPU0:router(config)# as-path-set my-as-set
RP/0/RP0/CPU0:router(config-as)# ios-regex '_12$',
RP/0/RP0/CPU0:router(config-as)# ios-regex '_13$'
RP/0/RP0/CPU0:router(config-as)# end-set
```

and the following policy excerpt using an *as-path-set-name* argument:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path in my-as-set then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

The AS path in condition evaluates to true if one or more of the regular expression matches in the set my-as-set match the AS path associated with the route. In the case of a defined but empty AS path set, this operator returns false.

The preceding policy excerpt is equivalent to the following version, which uses an *inline-as-path* set variable:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path in (ios-regex ‘_12$,ios-regex ‘_13$’) then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

as-path is-local

To determine if this router or another router within this autonomous system or confederation originated a Border Gateway Protocol (BGP) route, use the **as-path is-local** command in route-policy configuration mode.

as-path is-local

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path is-local** command as a conditional expression within an **if** statement to determine if this router (or another router within this autonomous system or confederation) originated the route.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

Routes that are locally originated within the autonomous system or confederation carry an empty AS path. For the Border Gateway Protocol (BGP) specification, when a route is advertised across the autonomous system boundary or a confederation boundary, the local autonomous system number or confederation ID is appended to the autonomous system path. The AS path of a locally originated aggregate is also empty unless it has been modified by policy.

The **is-local** operator evaluates to true for autonomous system paths that are empty. An empty AS path is how an AS path that is local to our autonomous system is represented in BGP.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the AS path is local, then the local preference is set to 100:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path is-local then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

as-path length

To compare the number of ASN in the AS path of a Border Gateway Protocol (BGP) route, use the **as-path length** command in route-policy configuration mode.

as-path length {**eq** | **is** | **ge** | **le**} {*numberparameter*}

Syntax Description

eq | **is** | **ge** | **le**	Equal to; greater than or equal to; less than or equal to.
number	Value assigned to an 11-bit unsigned integer. Range is from 0 to 2047.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path length** command as a conditional expression within an **if** statement to perform a conditional check based on the length of the AS path.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command takes either a specific integer value or a range of integer values specified with the **ge** and **le** operators. Any or all these integers can be parameterized. The operator counts one for each autonomous system in the path. In the case where the route may be aggregated and contain one or more AS sets, the length operator adds one for each set present, the occurrence of an AS set typically indicates that this route is an aggregated route, and the aggregated route had a component route that contained one of the autonomous systems in the set. Likewise, in the case of confederations, a count of one is added for each confederation in the path or each confederation set in the path. A null AS path has a length of zero.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the AS path length equals 10, then the local preference is set to 100:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path length eq 10 then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

as-path neighbor-is

To test autonomous system numbers at the head of the AS path against a sequence of one or more values or parameters, use the **as-path neighbor-is** command in route-policy configuration mode.

as-path neighbor-is *as-number-list* [**exact**]

Syntax Description

as-number-list	Numbers or parameters, enclosed in single quotation marks, that represent a sequence of autonomous system numbers. • Range for 2-byte Autonomous system numbers (ASNs) is 1 to 65535. • Range for 4-byte Autonomous system numbers (ASNs) in asplain format is 1 to 4294967295. • Range for 4-byte Autonomous system numbers (ASNs) is asdot format is 1.0 to 65535.65535.
exact	(Optional) Specifies that with the **exact** keyword, the *as-number-list* value must identically match the AS path for the route; without the **exact** keyword, any element in the *as-number-list* argument matches one or more occurrences of that element in the AS path for the route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path neighbor-is** command as a conditional expression within an **if** statement to test the autonomous system number or numbers at the head of the AS path against a sequence of one or more integral values or parameters. In other words, to test to learn if the sequence of autonomous system numbers matches the path beginning with the neighboring autonomous system from which this route was heard.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command has an equivalent regular expression (ios-regex). For example, AS path neighbor-is '**1**' would be '**^1_**'.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following are incomplete configuration examples:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path neighbor-is '10' then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path neighbor-is '$asnum' then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path neighbor-is '10 20' then
```

These statements evaluate to true when the first autonomous system numbers on the AS path match, in the same order, the supplied parameters or integer values in the **neighbor-is** statement. If the neighboring autonomous system location happens to be an AS-set, the operator evaluates to true if the corresponding argument to the **neighbor-is** operator is an element of the AS-set.

Without the **exact** keyword, repeated autonomous system numbers in the AS path are ignored. For example,

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path neighbor-is '10 20' then
```

matches an AS path beginning

```
10 10 10 20 ...
```

and an AS path beginning:

```
10 20 ....
```

With the **exact** keyword, repetitions are not ignored, therefore

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path neighbor-is '10 20' exact then
```

matches the second of these AS paths but not the first.

as-path originates-from

To compare an AS path against the AS sequence beginning with the AS number that originated a route, use the **as-path originates-from** command in route-policy configuration mode.

as-path originates-from *as-number-list* [**exact**]

Syntax Description

as-number-list	Numbers or parameters, enclosed in single quotation marks, that represent a sequence of autonomous system numbers. • Range for 2-byte Autonomous system numbers (ASNs) is 1 to 65535. • Range for 4-byte Autonomous system numbers (ASNs) in asplain format is 1 to 4294967295. • Range for 4-byte Autonomous system numbers (ASNs) is asdot format is 1.0 to 65535.65535.
exact	(Optional) Specifies that with the **exact** keyword, the *as-number-list* value must identically match the AS path for the route; without the **exact** keyword, any element in the *as-number-list* argument matches one or more occurrences of that element in the AS path for the route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path originates-from** command as a conditional expression within an **if** statement to compare an AS path to the autonomous system sequence.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The **originates-from** operator is similar to the **neighbor-is** operator, except that it looks at the autonomous system number at the opposite end of the AS path. In other words, it is comparing to the autonomous system that originated the route. It can take numbers or parameters, enclosed in single quotation marks, that represent a sequence of autonomous system numbers. When more than one number is specified in the list, the sequence of autonomous system numbers listed must appear as a subsequence in the AS path, with the last number corresponding to the autonomous system that originated the route.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following are incomplete configuration examples:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path originates-from '10 11' then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path originates-from '$asnum 11' then
```

The first line of the preceding example evaluates to true if autonomous system 11 originated the route and then advertised it to autonomous system 10, from which the route was eventually propagated to us. In the case where the route has been aggregated, and the location of the originating autonomous system contains an AS-set, the **originates-from** operator evaluates to true if the argument to the **originates-from** operator is contained in the AS-set.

Without the **exact** keyword, repeated autonomous system numbers in the AS path are ignored. For example,

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path originates-from '10 11' then
```

matches an autonomous system path ending

```
...10 10 10 11
```

and an autonomous system path ending

```
...10 11
```

With the **exact** keyword, repetitions are not ignored, therefore

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path originates-from '10 11' exact then
```

matches the second of these autonomous system paths but not the first.

as-path passes-through

To verify if the supplied integer or parameter appears anywhere in the AS path or if the supplied sequence of integers and parameters appears, in the same order, anywhere in the AS path, use the **as-path passes-through** command in route-policy configuration mode.

as-path passes-through *as-number-list* [**exact**]

Syntax Description

as-number-list	Numbers or parameters, enclosed in single quotation marks, that represent a sequence of autonomous system numbers. • Range for 2-byte Autonomous system numbers (ASNs) is 1 to 65535. • Range for 4-byte Autonomous system numbers (ASNs) in asplain format is 1 to 4294967295. • Range for 4-byte Autonomous system numbers (ASNs) is asdot format is 1.0 to 65535.65535.
exact	(Optional) Specifies that with the **exact** keyword, the *as-number-list* value must identically match the AS path for the route; without the **exact** keyword, any element in the *as-number-list* argument matches one or more occurrences of that element in the AS path for the route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path passes-through** command as a conditional expression within an **if** statement to verify if the specified integer or parameter appears anywhere in the AS path or if the sequence of integers and parameters appears.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The **passes-through** operator takes a sequence of integers or parameters, enclosed in single quotation marks, as an argument. It can also take a single integer or parameter as an argument. It evaluates to true if the supplied integer or parameter appears anywhere in the AS path, or if the supplied sequence of integers and parameters appears, in the same order, anywhere in the AS path. This includes the **originates-from** or **neighbor-is** location in the AS path.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following are incomplete configuration examples:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path passes-through '10' then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path passes-through '$asnum' then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path passes-through '10 11' then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path passes-through '10 $asnum 12' then
```

Without the **exact** keyword, repeated autonomous system numbers in the AS path are ignored. For example:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path passes-through '9 10 11' then
```

matches an AS path containing

```
...9 10 10 10 11 ....
```

and an AS path containing:

```
...9 10 11...
```

With the **exact** keyword, repetitions are not ignored. Therefore:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path passes-through '9 10 11' exact then
```

matches the second of these AS paths but not the first.

as-path-set

To create a named AS path set, use the **as-path-set** command in XR Config mode. To remove the named AS path set, use the **no** form of this command.

as-path-set *name*
no as-path-set *name*

Syntax Description

name	Name of the AS path set.

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path-set** command to create a named AS path set.

An AS path set comprises operations for matching an AS path attribute.

This command enters AS path set configuration mode, in which you can use any of the below option to specify an operation.

Options	Description
dfa-regex	Indicates the DFA (deterministic finite automata) style regular expression. It performs better for complex regular expressions. Single quotation marks are required around the regular expression.
ios-regex	Indicates the traditional IOS style regular expression. It performs better with simpler regular expressions. Single quotation marks are required around the regular expression.
length	Indicates the number of ASN (Autonomous System Number) in the AS path of a Border Gateway Protocol (BGP) route.
neighbor-is	Indicates the neighbor's AS-path number that can be matched with.
originates-from	Indicates the BGP AS from which the route originated.
passes-through	Indicates if the supplied integer or parameter appears anywhere in the AS path, or if the supplied sequence of integers and parameters appear, in the same order, anywhere in the AS path.

Options	Description
unique-length	Indicates the length of BGP AS-path, ignoring duplicates.

The above options can also be used as an inline set in a parenthesized list of comma-separated expressions.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following is a sample definition of an AS path set named aset1. This AS path set is composed of two elements. When used in a matching operation, this AS path set matches any route whose AS path ends with either the autonomous system number 42 or 127.

```
RP/0/RP0/CPU0:router(config)# as-path-set aset1
RP/0/RP0/CPU0:router(config-as)# ios-regex '_42$',
RP/0/RP0/CPU0:router(config-as)# ios-regex '_127$'
RP/0/RP0/CPU0:router(config-as)# end-set
```

The following is a sample of the as-path options used as an inline set.

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path in (ios-regex '_42$', ios-regex$ '_127$')
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

as-path unique-length

To perform specific checks based on the length of the AS path (match against the number of unique ASNs in the AS path), use the **as-path unique-length** command in route-policy configuration mode.

as-path unique-length {**eq** | **is** | **ge** | **le**} {*numberparameter*}

Syntax Description

eq | **is** | **ge** | **le**	Equal to; greater than or equal to; less than or equal to.
number	Value assigned to an 11-bit unsigned integer. Range is from 0 to 2047.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **as-path unique-length** command as a conditional expression within an **if** statement to perform a match based on the length of the AS path.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The **unique-length** operator is similar to the length operator, except that when an AS path has been padded with the same autonomous system number multiple times, the operator counts only one when the route is padded. Therefore, given an AS path of 333 333 111 222 123 444 444 444, the **unique-length** operator would return a value of 5, whereas the length operator would return a value of 8.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows show to perform checks based on the AS path length. If the AS path matches the specified values, the local preference is set to 100:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path unique-length eq 10 then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path unique-length ge 10 then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path unique-length le 10 then

RP/0/RP0/CPU0:router(config-rpl)# if as-path unique-length eq $integerparam then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path unique-length ge $geparam then
RP/0/RP0/CPU0:router(config-rpl-if)# if as-path unique-length le $leparam then
```

```
RP/0/RP0/CPU0:router(config-rpl)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl)# endif
```

community is-empty

To check if a route has no community attributes associated with it, use the **community is-empty** command in route-policy configuration mode.

community is-empty

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **community is-empty** command as a conditional expression within an **if** statement to check if a route has community attributes associated with it.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command takes no arguments and evaluates to true only if the route has no community attributes associated with it.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the route has no community attributes associated with it, then the local preference is set to 100:

```
RP/0/RP0/CPU0:router(config-rpl)# if community is-empty then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
```

community matches-any

To match any elements of a community set, use the **community matches-any** command in route-policy configuration mode.

community matches-any {*community-set-nameinline-community-setparameter*}

Syntax Description

community-set-name	Name of a community set.
inline-community-set	Inline community set. The inline community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **community matches-any** command as a conditional expression within an **if** statement to match any element of a community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

A simple condition using the **matches-any** operator evaluates as true if at least one community element of the community attribute for the route matches an element in the community set operand. If no community in the route matches any of the specifications in the named or inline set, then the condition evaluates to false. Likewise, when there is no community at all in the route, the condition evaluates to false.

Matching of a community in the route to a specification in a named or an inline set is intuitive. If the community specification in a set is the familiar colon-separated decimal 16-bit numbers specification, or one of the well-known communities, the community matches the specification if the specification denotes the same 32-bit number as that in the route. If the community specification uses a wildcard, then the community in the route matches if it is one of the many communities denoted by the wildcard specification. In inline sets, community specifications may be parameterized, in which case the relevant matching is done when the value of the parameter has been supplied.

Communities may also be matched using range and regular expression operators. Range specifications are entered as follows: [*low-value* .. *high-value*]. Either or both colon-separated halves of a community value may contain a range. The following are valid range specifications:

```
10:[100..1000]
[10..100]:80
[10..100]:[100..2000]
```

In addition, the **private-as** keyword may be used to specify the range from 64512 to 65534. Regular expressions are specified as the **ios-regex** keyword followed by a valid regular expression string.

Community values from the route are matched one at a time to the match specifications. Therefore, regex match specifications are expected to represent one individual community value and not a sequence of community values.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, a named community set called my-community-set and a route policy called community-matches-any-example are created. The policy sets the local-preference to 100 for any route that has one or more of the communities in the my-community-set community set. If the route does not have any of these communities, the policy checks whether it has any communities whose first half is in the range from 10 to 25 and whose second half is the value 35, in which case it sets the local-preference to 200. Otherwise, it checks for a community value in the range of 30:100 to 30:500, in which case it sets the local-preference to 300.

```
  RP/0/RP0/CPU0:router(config)# community-set my-community-set
  RP/0/RP0/CPU0:router(config-comm)# 10:20,
  RP/0/RP0/CPU0:router(config-comm)# 10:30,
  RP/0/RP0/CPU0:router(config-comm)# 10:40
  RP/0/RP0/CPU0:router(config-comm)# end-set

  RP/0/RP0/CPU0:router(config)# route-policy community-matches-any-example
  RP/0/RP0/CPU0:router(config-rpl)# if community matches-any my-community-set then
  RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
  RP/0/RP0/CPU0:router(config-rpl-if)# elseif community matches-any ([10..25]:35) then
  RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 200
  RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif community matches-any (30:[100..500])
then
  RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 300
  RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
  RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

community matches-every

To match every element of a community set, use the **community matches-every** command in route-policy configuration mode.

community matches-every {*community-set-nameinline-community-setparameter*}

Syntax Description

community-set-name	Name of a community set.
inline-community-set	Inline community set. The inline community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **community matches-every** command as a conditional expression within an **if** statement to match every element of a community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

A simple condition using the **matches-every** operator evaluates as true if every specification in the named set or inline set specified matches at least one community value in the route. If any community specification in the named or inline set is not matched, then the operation evaluates to false.

Matching of a community in the route to a specification in a named or an inline set is intuitive. If the community-specification in a set is the familiar colon-separated decimal 16-bit numbers specification, or one of the well-known communities, the community matches the specification if the specification denotes the same 32-bit number as that in the route. If the community specification uses a wildcard, then the community in the route matches if it is one of the many communities denoted by the wildcard specification. In inline sets, community specifications may be parameterized, in which case the relevant matching is done when the value of the parameter has been supplied.

Communities may also be matched using range and regular expression operators. Range specifications are entered as follows: [*low-value* .. *high-value*]. Either or both colon-separated halves of a community value may contain a range. The following are valid range specifications:

```
10:[100..1000]
[10..100]:80
[10..100]:[100..2000]
```

Therefore, a **matches-every** operation with two community range specifications means that a community must be present in the route that corresponds to each range. For example, in the following statement:

```
if community matches-every (10:[100..200],20:[100..200]) then
```

the statement evaluates as true if one or more communities in the route lie in the range 10:[100.200] and one or more communities in the route lie in the range 20:[100..200].

In addition, the **private-as** keyword may be used to specify the range from 64512 to 65534.

Regular expressions are specified as the **ios-regex** keyword followed by a valid single-quoted regular expression string. Community values from the route are matched one at a time against the match specifications. Therefore, regex match specifications are expected to represent one individual community value and not a sequence of community values.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the route policy named community-matches-every-example sets the local-preference value to 100 for all routes that have all three communities in the my-community-set community set. Routes that do not have all three communities but have a community that matches the first regular expression match have the local-preference value set to 200. Finally, any remaining routes that match the last regular expression have the local-preference values set to 300.

```
  RP/0/RP0/CPU0:router(config)# community-set my-community-set
  RP/0/RP0/CPU0:router(config-comm)# 10:20,
  RP/0/RP0/CPU0:router(config-comm)# 10:30,
  RP/0/RP0/CPU0:router(config-comm)# 10:40
  RP/0/RP0/CPU0:router(config-comm)# end-set

  RP/0/RP0/CPU0:router(config)# route-policy community-matches-every-example
  RP/0/RP0/CPU0:router(config-rpl)# if community matches-every my-community-set then
  RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
  RP/0/RP0/CPU0:router(config-rp-elseif)# elseif community matches-every (ios-regex
'_10:[0-9]0_') then
  RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 200
  RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif community matches-every
(ios-regex'_20:[0-9]0_') then
  RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 300
  RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
  RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

community matches-within

To configure a route policy to match within a community set, use the **community matches-within** command in route-policy configuration mode.

`community matches-within` { *community-set-name or inline-community-set* | `parameter` }

Syntax Description

community-set-name	Name of a community set.
inline-community-set	Inline community set. The inline community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Task ID

Task ID	Operations
route-policy	read, write

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

This command is similar to the **community matches-any** command, but every community in the route must match at least one match specification. If the route has no communities, then it matches.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

Task ID

Task ID	Operations
route-policy	read, write

The following example shows how to configure a route policy to match within the elements of a community set.

```
RP/0/RP0/CPU0:router#config
RP/0/RP0/CPU0:router(config)#route-policy bob
RP/0/RP0/CPU0:router(config-rpl)#if community matches-within (*:3, 5:*) then
RP/0/RP0/CPU0:router(config-rpl)#set local-preference 94
RP/0/RP0/CPU0:router(config-rpl)#endif
RP/0/RP0/CPU0:router(config-rpl)#end-policy
```

For example, routes with these sets of communities return TRUE:

- (1:3, 5:10)
- (5:3)
- (2:3, 6:3, 4:3)

Routes with the following set of communities return FALSE:

(1:3, 5:10, 6:5) —The community (6:5) does not match

community-set

To define a community set, use the **community-set** command in XR Config mode. To remove the community set, use the **no** form of this command.

community-set *name*
no community-set *name*

Syntax Description

name	Name of the community set.

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Regular expressions and ranges can be specified to match the communities. An attempt to use a community set that contains a range or regular expression to set a community value is rejected when an attempt to attach such a policy is made.

A community set holds community values for matching against the Border Gateway Protocol (BGP) community attribute. A community is a 32-bit quantity. For notational convenience, each community value must be split in half and expressed as two unsigned decimal integers in the range from 0 to 65535, separated by a colon.

The inline form of a community set also supports parameterization. Each 16-bit portion of the community may be parameterized.

The routing policy language (RPL) provides symbolic names for the standard well-known community values: **accept-own** is 0xFFFF0001, **internet** is 0:0, **no-export** is 65535:65281, **no-advertise** is 65535:65282, and **local-as** is 65535:65283.

RPL also provides a facility for using wildcards in community specifications. A wildcard is specified by inserting an asterisk (*) in place of one of the 16-bit portions of the community specification, which indicates that any value for that portion of the community matches.

Every community set must contain at least one community value. An empty community set is invalid and the policy configuration system rejects it.

Community sets can be entered in these formats:

Format	Description
#-remark	Remark beginning with '#'
*****	Wildcard (any community or part thereof)
0-65535	16-bit half-community number
[	Left bracket to begin range
accept-own	Accept-Own (BGP well-known community)

Format	Description
dfa-regex	DFA (deterministic finite automata) style regular expression
internet	Internet (BGP well-known community)
ios-regex	Traditional IOS style regular expression
local-AS	Do not send outside local AS (BGP well-known community)
no-advertise	Do not advertise to any peer (BGP well-known community)
no-export	Do not export to next AS (BGP well-known community)
private-as	Match within BGP private AS range [64512..65534]

Note The dfa-regex and ios-regex syntax for community set is *"['][^':&<>]*:[^':&<>]*[']"*. This means that regex starts with a single-quote (") followed by a string of any character (that does not include single-quote, colon, ampersand, less-than, greater-than, or space) followed by a colon, and a string of any characters (that does not include single-quote, colon, ampersand, less-than, greater-than, or space) followed by single-quote.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, a community set named cset_accept_own is created:

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#community-set cset_accept_own
RP/0/RP0/CPU0:router(config-comm)#accept-own
RP/0/RP0/CPU0:router(config-comm)#end-set
```

In the following example, a community set named cset1 is created:

```
  RP/0/RP0/CPU0:router(config)# community-set cset1
  RP/0/RP0/CPU0:router(config-comm)# 12:34,
  RP/0/RP0/CPU0:router(config-comm)# 12:56,
  RP/0/RP0/CPU0:router(config-comm)# 12:78,
  RP/0/RP0/CPU0:router(config-comm)# internet
  RP/0/RP0/CPU0:router(config-comm)# end-set
```

In the following example, a community set named cset2 is created:

```
  RP/0/RP0/CPU0:router(config)# community-set cset2
  RP/0/RP0/CPU0:router(config-comm)# 123:456,
  RP/0/RP0/CPU0:router(config-comm)# no-advertise,
RP/0/RP0/CPU0:router(config-comm)# end-set
```

In the following example, a community set named cset3 is created. This policy uses wildcards and matches all communities where the autonomous system part of the community is 123.

```
RP/0/RP0/CPU0:router(config)# community-set cset3
RP/0/RP0/CPU0:router(config-comm)# 123:*
RP/0/RP0/CPU0:router(config-comm)# end-set
```

delete community

To delete community attributes associated with a Border Gateway Protocol (BGP) route, use the **delete community** command in route-policy configuration mode.

delete community {**all** | **in** {*community-set-nameinline-community-setparameter*} | **not in** {*community-set-nameinline-community-setparameter*}}

Syntax Description

all	Removes all communities except the well-known communities.
in	Removes any communities associated with the route that are listed in either the named community set or the inline community set.
community-set-name	Name of a community set.
inline-community-set	Inline community set. The inline community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."
not in	Removes all communities that are not listed in either the named community set or the inline community set, and are not well-known communities.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **delete community** command to delete community attributes associated with a BGP route.

Note The **delete community** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Communities are 32-bit values carried in Border Gateway Protocol (BGP) routes. Each route may have zero or more communities in an unordered list.

You can remove a well-known community (internet, no-export, no-advertise, or local-as) from a route, but this removal must be done explicitly. This command should be used with a degree of caution. In general, few circumstances exist in which you would need to remove a well-known community.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to delete any communities associated with the routes that are listed in either the named community set or inline community set, respectively.

```
RP/0/RP0/CPU0:router(config-rpl)# delete community in my_community_set
RP/0/RP0/CPU0:router(config-rpl)# delete community in (10:[0..50],20:[60..80])
```

The following example shows how to remove all communities including well-known communities.

```
RP/0/RP0/CPU0:router(config-rpl)# delete community in (internet, no-export, no-advertise,
local- as, *:*)
```

The following example shows how to remove all communities except for the well-known communities.

```
RP/0/RP0/CPU0:router(config-rpl)# delete community all
```

The following example shows how to delete the well-known community value internet from a route:

```
RP/0/RP0/CPU0:router(config-rpl)# delete community in (internet)
```

delete extcommunity rt

To delete route target (RT) extended community attributes associated with a Border Gateway Protocol (route), use the **delete extcommunity rt** command in route-policy configuration mode.

delete extcommunity rt {**all** | **in** {*extcommunity-set-nameinline-extcommunity-setparameter*} | **not in** {*extcommunity-set-nameinline-extcommunity-setparameter*}}

Syntax Description

all	Removes all extended communities.
in	Removes any extended communities associated with the routes that are listed in either the named extended community set or the inline extended community set.
extcommunity-set-name	Name of an extended community set.
inline-extcommunity-set	Inline extended community set. The inline extended community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”
not in	Removes all extended communities that are not listed in either the named extended community set or the inline extended community set, and are not well-known extended communities.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **delete extcommunity rt** command to delete extended community values from a BGP route target extended community list in a route.

Note The **delete extcommunity rt** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Extended communities are similar to regular Border Gateway Protocol (BGP) communities but contain more data and have a richer structure for encoding information in them.

Extended communities can be in the following forms: SoO:AS:tag, SoO:IP:tag, RT:AS:tag, or RT:IP:tag.

Wildcards (*) and regular expressions are allowed for extended community set elements.

The forms of this command that take a named extended community set or an inline extended community set value as arguments are equivalent. They delete any extended communities that are listed in either the named set or the inline set, respectively.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, all extended communities are deleted:

```
RP/0/RP0/CPU0:router(config-rpl)# delete extcommunity rt all
```

In this example, any extended communities that are listed in my-extcommunity-set are deleted:

```
  RP/0/RP0/CPU0:router(config-rpl)# delete extcommunity rt in my-extcommunity-set
```

In this example, extended communities associated with the route listed in the named inline extended community sets are deleted:

```
RP/0/RP0/CPU0:router(config-rpl)# delete extcommunity rt in (67:29, 67:55)
```

delete large-community

To delete the specified large-communities from a route policy, use the **delete large-community** command in the route-policy configuration mode.

```
delete large-community {all |[not] in {named or inline-large-community-set |
parameter} }
```

Syntax Description

all	Removes all large communities.
in	Removes any large communities associated with the route that are listed in either the named large community set or the inline large community set.
large-community-set-name	Name of a large community set.
inline-large-community-set	Inline large community set. The inline community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”
not	Removes all communities that are not listed in either the named large community set or the inline large community set.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

The large communities are specified as three non negative decimal integers separated by colons. For example, 1:2:3. Each integer is stored in 32 bits. The possible range for each integer is 0 to 4294967295.

In route-policy statements, each integer in the BGP large community can be replaced by any of the following expressions:

- [x..y] — This expression specifies a range between x and y, inclusive.
- * — This expression stands for any number.
- peeras — This expression is replaced by the AS number of the neigbhor from which the community is received or to which the community is sent, as appropriate.
- not-peeras — This expression matches any number other than the peeras.
- private-as — This expression specifies any number in the private ASN range: [64512..65534] and [4200000000..4294967294].

Note The peeras and not-peeras expressions can only be used in delete statements that appear in route policies that are applied at the neighbor-in or neighbor-out attach points.

IOS regular expression (ios-regex) and DFA style regular expression (dfa-regex) can be used in the delete statements. For example, the IOS regular expression ios-regex '^5:.*:7$' is equivalent to the expression 5:*:7.

Task ID

Task ID	Operations
route-policy	read, write

The following example shows how to delete specified BGP large-communities from a route policy using the delete large-community command.

```
RP/0/RP/0/RP0/CPU0:router#config
RP/0/RP0/CPU0:router(config)#route-policy lrg_comm_rp2S
RP/0/RP0/CPU0:router(config-rpl)#delete large-community in (ios-regex '^100000:')
RP/0/RP0/CPU0:router(config-rpl)#delete large-community not in (peeras:*:*, 41289:*:*)
RP/0/RP0/CPU0:router(config-rpl)#delete large-community in catbert
RP/0/RP0/CPU0:router(config-rpl)#end-policy
```

destination in

To match a destination entry in a named prefix set or inline prefix set, use the **destination in** command in route-policy configuration mode.

destination in {*prefix-set-nameinline-prefix-setparameter*}

Syntax Description

prefix-set-name	Name of a prefix set.
inline-prefix-set	Inline prefix set. The inline prefix set must be enclosed in parentheses.
parameter parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **destination in** command as a conditional expression within an **if** statement to match a destination entry in a named prefix set or inline prefix set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command takes either a named prefix set or an inline prefix set value as an argument. The condition returns true if the destination entry matches any entry in the prefix set or inline prefix set. An attempt to match a destination using a prefix set that is defined but contains no elements returns false.

The routing policy language (RPL) provides the ability to test destinations for a match to a list of prefix match specifications using the **in** operator. The **destination in** command is protocol-independent.

In Border Gateway Protocol (BGP), the destination of a route is also known as its network-layer reachability information (NLRI). It comprises a prefix value and a mask length.

RPL supports both 32-bit IPv4 prefixes, specified in dotted-decimal format, and 128-bit IPv6 prefixes, specified in colon-separated hexadecimal format.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, a prefix set named my-prefix-set is defined and a route policy named use-destination-in is created. Within the use-destination-in route policy, the **destination in** command is used within an **if** statement to learn if the destination is in the prefix-set named my-prefix-set. If it is, then local preference is set to 100. If it is not in my-prefix-set but does match the next prefix specifications, then local preference is set to 200.

```
  RP/0/RP0/CPU0:router(config)# prefix-set my-prefix-set
  RP/0/RP0/CPU0:router(config-pfx)# 10.0.0.1/32,
  RP/0/RP0/CPU0:router(config-pfx)# fe80::203:0:0:0/64,
  RP/0/RP0/CPU0:router(config-pfx)# 10.0.0.2/24 le 32
  RP/0/RP0/CPU0:router(config-pfx)# end-set

  RP/0/RP0/CPU0:router(config)# route-policy use-destination-in
  RP/0/RP0/CPU0:router(config-rpl)# if destination in my-prefix-set then
  RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
  RP/0/RP0/CPU0:router(config-rpl-if)# elseif destination in (10.0.0.1/32, 10.0.0.2/24 le
32) then
  RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 200
  RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
  RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

In the following example, a prefix set named ipv6-prefix-set is defined and a route policy named ipv6-destination-in is created. Within the ipv6-destination-in route policy, the **destination in** command is used within an **if** statement to learn if the destination is in the prefix-set named ipv6-prefix-set. If it is, then the next-hop is set to 2001:abcd:fedc::1. If it is not in ipv6-prefix-set but does match the next prefix specifications, then the next-hop is set to 1111:2222:3333:4444:5555:6666:7777:8888.

```
  RP/0/RP0/CPU0:router(config)# prefix-set ipv6-prefix-set
  RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:1::/64,
  RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:2::/64,
  RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:3::/64,
  RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:4::/64
  RP/0/RP0/CPU0:router(config-pfx)# end-set

  RP/0/RP0/CPU0:router(config)# route-policy ipv6-destination-in
  RP/0/RP0/CPU0:router(config-rpl)# if destination in ipv6-prefix-set then
  RP/0/RP0/CPU0:router(config-rpl-if)# set next-hop 2001:abcd:fedc::1
  RP/0/RP0/CPU0:router(config-rpl-if)# elseif destination in (2001::1, 2002:1:2:3::/64)
then
  RP/0/RP0/CPU0:router(config-rpl-elseif)# set next-hop
1111:2222:3333:4444:5555:6666:7777:8888
  RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
  RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

done

To stop executing a policy and accept the route, use the **done** command in route-policy configuration mode.

done

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **done** command to stop executing the policy and accept the route.

Note The **done** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

When encountering a **done** statement the route is passed and no further policy statements are executed. All modifications made to the route prior to the **done** statement are still valid.

Note The default action of a route policy is to drop or discard any routes that have not been either explicitly passed or for which no attempt has been made to modify with an action. The routing policy language (RPL) does not have specific "match clauses," which means the default drop behavior is controlled by whether a route has been explicitly passed or an attempt has been to modify the route using an action statement.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the destination match succeeds for 29.0.0.0/8 le 32, the execution continues past set community 102:12 and onto the next statement. If the destination match succeeds for 39.0.0.0/8 le 32 execution, then the policy execution stops when in encounters the *done* statement.

```
RP/0/RP0/CPU0:router(config)# route-policy done_st_example
RP/0/RP0/CPU0:router(config-rpl)# if destination in (29.0.0.0/8 le 32) then
RP/0/RP0/CPU0:router(config-rpl-if)# set community 102:12
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# if destination in (39.0.0.0/8 le 32) then
RP/0/RP0/CPU0:router(config-rpl-if)# set community 102:39
RP/0/RP0/CPU0:router(config-rpl-if)# done
```

```
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# if destination in (49.0.0.0/8 le 32) then
RP/0/RP0/CPU0:router(config-rpl-if)# set community 102:49
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# if destination in (59.0.0.0/8 le 32) then
RP/0/RP0/CPU0:router(config-rpl-if)# set community 102:59
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

drop

To discard a route, use the **drop** command in route-policy configuration mode.

drop

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **drop** command within a route policy to drop a route.

Note The **drop** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

This command causes the route to be dropped. After a route is dropped, no further execution of policy occurs. Therefore, if after executing the first two statements of a policy the **drop** statement is encountered, the route is discarded and execution stops immediately even when the policy contains further statements.

Note The default action of a route policy is to drop or discard any routes that have not been either explicitly passed or attempted to be modified with an action. The routing policy language (RPL) does not have specific "match clauses," which means the default drop behavior is controlled by whether a route has been explicitly passed or an attempt has been to modify the route using an action statement.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, any route with a destination address contained within the prefix set pset1 is dropped:

```
RP/0/RP0/CPU0:router(config-rpl)# if destination in pset1 then
RP/0/RP0/CPU0:router(config-rpl-if)# drop
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

edit

To edit the contents of a route policy, a prefix set, an AS path set, a community set, or an extended community set, use the **edit** command in XR EXEC mode.

edit {**route-policy** | **prefix-set** | **as-path-set** | **community-set** | **extcommunity-set** {**rt** | **soo**} | **policy-global** | **rd-set**} *name* [**nano** | **emacs** | **vim** | **inline** {**add** | **prepend** | **remove**} *set-element*]

Syntax Description

route-policy	Edits the contents of a route policy.
prefix-set	Edits the contents of a prefix set.
as-path-set	Edits the contents of an AS path set.
community-set	Edits the contents of a community set.
extcommunity-set	Edits the contents of an extended community set of the specified type.
rt	Edits the BGP route target (RT) extended community.
soo	Edits the BGP site of origin (SoS) extended community.
policy-global	Edits the contents of policy-global definitions.
rd-set	Edits the contents of a route-distinguisher set.
name	Name of a route policy, a prefix set, an AS path set, a community set, or an extended community set, RD set, or global parameters.
nano	(Optional) Uses GNU Nano text editor.
emacs	(Optional) Uses Micro Emacs editor.
vim	(Optional) Uses VI Improved editor.
inline	(Optional) Uses the command line.
add	Appends the element to the set.
prepend	Prepends the element to the set.
remove	Removes the element from the set.
set-element	Value of the set element. **Note** To inline edit multiple set elements separated with comma, use quotes to club the entries as a single argument. Example: `edit extcommunity-set rt rt_set inline add "4:4,5:4"`

Command Default

Default editor is GNU vim text editor

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.
Release 7.11.1	The **Nano** and **Emacs** keyword was deprecated.

Usage Guidelines

Use the **edit** command to edit the contents of a route policy, a prefix set, an AS path set, a community set, an extended community set, a global policy, or a route destination set.

After editing with Nano, save the edit buffer and exit the editor using the Ctrl-X keystroke.

After editing with Emacs, save the editor buffer by using the Ctrl-X and Ctrl-S keystrokes. To save and exit the editor, use the Ctrl-X and Ctrl-C keystrokes.

After editing with VIM, to write to a current file and exit use the :wq or :x or ZZ keystrokes. To quit and confirm, use the :q keystrokes. To quit and discard changes, use the :q! keystrokes.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the policy_A policy is opened in the editor:

```
RP/0/RP0/CPU0:router# edit route-policy policy_A

----------------------------------------
== MicroEMACS 3.8b () == rpl_edit.139281 ==
  if destination in (2001::/8) then
    drop
  endif
end-policy
!

== MicroEMACS 3.8b () == rpl_edit.139281 ==
Parsing.
83 bytes parsed in 1 sec (82)bytes/sec
Committing.
1 items committed in 1 sec (0)items/sec
Updating.
Updated Commit database in 1 sec
```

If there are parse errors, you are asked whether editing should continue:

```
RP/0/RP0/CPU0:router#edit route-policy policy_B
== MicroEMACS 3.8b () == rpl_edit.141738
route-policy policy_B
 set metric-type type_1
 if destination in (2001::/8) then
    drop
  endif
end-policy
!
== MicroEMACS 3.8b () == rpl_edit.141738 ==
Parsing.
```

```
105 bytes parsed in 1 sec (103)bytes/sec

% Syntax/Authorization errors in one or more commands.!! CONFIGURATION
FAILED DUE TO SYNTAX/AUTHORIZATION ERRORS
 set metric-type type_1
 if destination in (2001::/8) then
    drop
  endif
end-policy
!

Continue editing? [no]:
```

If you answer **yes** , the editor continues on the text buffer from where you left off. If you answer **no**, the running configuration is not changed and the editing session is ended.

After the policy is opened, it may be manipulated using normal editor commands, then saved and committed to the running configuration.

end-global

To end the definition of global parameters and exit global parameter configuration mode, use the **end-global** command in global parameter configuration mode.

end-global

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Global parameter configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **end-global** command to end the definition of global parameters and exit global parameter configuration mode.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the **end-global** command ends the definition of global parameters:

```
RP/0/RP0/CPU0:router(config)#policy-global
RP/0/RP0/CPU0:router(config-rp-gl)# glbpathtype ‘ebgp’
RP/0/RP0/CPU0:router(config-rp-gl)# glbtag ‘100’
RP/0/RP0/CPU0:router(config-rp-gl)# end-global
```

end-policy

To end the definition of a route policy and exit route-policy configuration mode, use the **end-policy** command in route-policy configuration mode.

end-policy

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **end-policy** command to end the definition of a route policy and exit route-policy configuration mode.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the **end-policy** command ends the definition of a route policy:

```
RP/0/RP0/CPU0:router(config)#route-policy med-to-local-pref
RP/0/RP0/CPU0:router(config-rpl)#if med eq 150 then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 10
RP/0/RP0/CPU0:router(config-rpl-if)# elseif med eq 200 then
RP/0/RP0/CPU0:router(config-elseif)# set local-preference 60
RP/0/RP0/CPU0:router(config-elseif)# elseif med eq 250 then
RP/0/RP0/CPU0:router(config-elseif)# set local-preference 0

RP/0/RP0/CPU0:router(config-elseif)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

end-set

To end the definition of an AS path set, a prefix set, a community set, an extended community set, or an RD set and return to XR Config mode, use the **end-set** command in route-policy configuration mode.

end-set

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

AS path set configuration

Prefix set configuration

Community set configuration

Extended community set configuration

Route distinguisher set configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **end-set** command to end the definition of an AS path set, a prefix set, a community set, or an extended community set.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the **end-set** command ends the definition of an AS path set named aset1:

```
RP/0/RP0/CPU0:router(config)# as-path-set aset1
RP/0/RP0/CPU0:router(config-as)# ios-regex '_42$',
RP/0/RP0/CPU0:router(config-as)# ios-regex '_127$'

RP/0/RP0/CPU0:router(config-as)# end-set
RP/0/RP0/CPU0:router(config)#
```

The following example shows how to create an RD set called my_rd_set and use the **end-set** command to end the definition:

```
RP/0/RP0/CPU0:router(config)# rd-set my_rd_set
RP/0/RP0/CPU0:router(config-rd)# 172.16.0.0/16:*,
RP/0/RP0/CPU0:router(config-rd)# 172.17.0.0/16:100,
RP/0/RP0/CPU0:router(config-rd)# 192:*,
RP/0/RP0/CPU0:router(config-rd)# 192:100
```

```
RP/0/RP0/CPU0:router(config-rd)# end-set
```

extcommunity rt is-empty

To check if a Border Gateway Protocol (BGP) route has route target (RT) extended community attributes associated with it, use the **extcommunity rt is-empty** command in route-policy configuration mode.

extcommunity rt is-empty

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or value

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity rt is-empty** command as a conditional expression within an **if** statement to check if a BGP route has extended community attributes associated with it.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The **is-empty** operator takes no arguments and evaluates to true if the route has no extended community attributes associated with it.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the extended community is empty, then the local preference is set to 100:

```
RP/0/RP0/CPU0:router(config)# route-policy extcommunity-is-empty-example
RP/0/RP0/CPU0:router(config-rpl)# if extcommunity rt is-empty then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100

RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

extcommunity rt matches-any

To match any element of a Border Gateway Protocol (BGP) route target (RT) extended community set, use the **extcommunity rt matches-any** command in route-policy configuration mode.

extcommunity rt matches-any {*extcommunity-set-nameinline-extcommunity-setparameter*}

Syntax Description

extcommunity-set-name	Name of an RT extended community set.
inline-extcommunity-set	Inline RT extended community set. The inline extended community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity rt matches-any** command as a conditional expression within an **if** statement to match elements of an extended community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

A simple condition using the **matches-any** operator evaluates as true if at least one extended community in the route matches an extended community specification in the named or inline set. If no extended community in the route matches any of the specifications in the named or inline set, then this simple condition evaluates to false. Likewise, when there is no extended community at all in the route, the condition evaluates to false.

Matching an extended community in the route to a specification in a named or an inline set is intuitive. In inline sets, extended community specifications may be parameterized, in which case the relevant matching is done when the value of the parameter has been supplied.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, an extended community set named my-extcommunity-set and a parameterized route-policy named my-extcommunity-set-example($tag,$ip) are defined. The **extcommunity rt matches-any** command is used in an if statement such that if at least one extended community in the route matches an extended community specification in the named set, then the local preference is set to 100. If there is no extended community in the route that matches any of the specifications in the named set, then the condition evaluates as false and the extended community is compared to the inline extended sets.

```
RP/0/RP0/CPU0:router(config)# extcommunity-set rt my-extcommunity-set
RP/0/RP0/CPU0:router(config-ext)# 10:615,
RP/0/RP0/CPU0:router(config-ext)# 10:6150,
RP/0/RP0/CPU0:router(config-ext)# 15.15.15.15:15
RP/0/RP0/CPU0:router(config-ext)# end-set

RP/0/RP0/CPU0:router(config)# route-policy my-extcommunity-set-example($tag,$ip)
RP/0/RP0/CPU0:router(config-rpl)# if extcommunity rt matches-any my-extcommunity-set then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# elseif extcommunity rt matches-any (10:20, 10:$tag)
then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 200
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif extcommunity rt matches-any ($ip:$tag) then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 300
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif extcommunity rt matches-any (2.3.4.5:$tag)
 then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 400
RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

extcommunity rt matches-every

To match every element of a Border Gateway Protocol (BGP) route target (RT) extended community set, use the **extcommunity rt matches-every** command in route-policy configuration mode.

extcommunity rt matches-every {*extcommunity-set-nameinline-extcommunity-setparameter*}

Syntax Description

extcommunity-set-name	Name of an RT extended community set.
inline-extcommunity-set	Inline RT extended community set. The inline extended community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity rt matches-every** command as a conditional expression within an **if** statement to match every element of an RT extended community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

A simple condition using the **matches-every** operator evaluates as true if every extended community value in the extended community attribute for the route matches at least one element of the extended community set or inline set. If no extended community in the route matches any of the specifications in the named or inline set, then this simple condition evaluates to false. Likewise, when there is no extended community at all in the route, the condition evaluates to false.

Matching an extended community in the route to a specification in a named or an inline set is intuitive. In inline sets, extended community specifications may be parameterized, in which case the relevant matching is done when the value of the parameter has been supplied.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, an extended community set named my-extcommunity-set and a parameterized route policy named extcommunity-matches-every-example ($as, $tag) are defined. The condition extcommunity rt matches-every is used in an if statement in this policy. If it evaluates to true, the local-preference value is set to 100. If it evaluates to false, the extended community is evaluated using an inline set. If that condition evaluates to true, the local-preference value is set to 200. If it evaluates to false, the local-preference value is set to 300.

```
RP/0/RP0/CPU0:router(config)# extcommunity-set rt my-extcommunity-set
RP/0/RP0/CPU0:router(config-ext)# 10:20,
RP/0/RP0/CPU0:router(config-ext)# 10:30,
RP/0/RP0/CPU0:router(config-ext)# 10:40
RP/0/RP0/CPU0:router(config-ext)# end-set
RP/0/RP0/CPU0:router(config)# route-policy extcommunity-matches-every-example($as,$tag)
RP/0/RP0/CPU0:router(config-rpl)# if extcommunity rt matches-every my-extcommunity-set then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# elseif extcommunity rt matches-every (10:20, 10:$tag,
 $as:30) then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 200
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 300
RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

extcommunity rt matches-within

To match at least one element of an extended community set of a Border Gateway Protocol (BGP) route target (RT), use the **extcommunity rt matches-within** command in route-policy configuration mode.

extcommunity rt matches-within {*rt-type-extcommunity-set-nameinline-extcommunity-setparameter*}

Syntax Description

rt-type-extcommunity-set-name	Name of an RT extended community set.
inline-extcommunity-set	Inline RT extended community set, enclosed in parentheses.
parameter	Parameter name preceded with a “$” symbol.

Command Default

None

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the extcommunity rt matches-within command as a conditional expression within an if statement to match elements of an extended community set.

Note For a list of all conditional expressions available within an if statement, see the if command.

A simple condition using the matches-within operator evaluates as true if all the elements in extended community from the route match any element in the extended community set. For example, let 'c' be the RTs from the route and 'm' be the RT set from the policy. With the **extcommunity rt matches-within** configuration, each value in 'c' must match any (or at least one) value in 'm'.

Matching an extended community in the route to a specification in a named or an inline set is intuitive. In inline sets, extended community specifications may be parameterized, in which case the relevant matching is done when the value of the parameter has been supplied.

Task ID

Task ID	Operation
route-policy	read, write

In the following example, an extended community set named *my-extcommunity-set* and a parameterized route-policy named *my-extcommunity-set-example($tag,$ip)* are defined. The **extcommunity rt matches-within** command is used in an if statement such that if all extended community values in the route match any element of the extended community specification in the named set, then the local preference is set to 100.

```
RP/0/RP0/CPU0:router(config)#extcommunity-set rt my-extcommunity-set
```

```
RP/0/RP0/CPU0:router(config-ext)#10:615,
RP/0/RP0/CPU0:router(config-ext)#10:6150,
RP/0/RP0/CPU0:router(config-ext)#15.15.15.15:15
RP/0/RP0/CPU0:router(config-ext)#end-set
RP/0/RP0/CPU0:router(config)#route-policy my-extcommunity-set-example($tag,$ip)
RP/0/RP0/CPU0:router(config-rpl)#if extcommunity rt matches-within my-extcommunity-set then
RP/0/RP0/CPU0:router(config-rpl-if)#set local-preference 100
```

extcommunity-set cost

To define a cost extended community set, use the **extcommunity-set cost** command in XR Config mode. To remove the cost extended community set, use the **no** form of this command.

extcommunity-set cost *name*
no extcommunity-set cost *name*

Syntax Description

name	Name of a cost extended community set. The *name* argument is case sensitive, can contain any alphanumeric characters, and can be up to 63 characters in length.

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity-set cost** command to define a cost extended community set.

An extended community set is analogous to a community set except that it contains extended community values instead of regular community values. Extended community values are 64-bit structured values. An extended community set also supports named forms and inline forms.

Cost extended communities can be entered in these formats:

- *#-remark* ---Remark beginning with '#'
- *0-255*---Decimal number
- **abort** ---Discard RPL definition and return to top level config
- **end-set** ---End of set definition
- **exit** ---Exit from the submode
- **igp:**---Cost Community with IGP as point of insertion
- **pre-bestpath:** ---Cost Community with Pre-Bestpath as point of insertion
- **show** ---Show partial RPL configuration

Multiple cost community set clauses can be configured in each route policy block or sequence. Each cost community set clause must have a different ID (0-255). The cost community set clause with the lowest cost-value is preferred by the best path selection process when all other attributes are equal.

As with community sets, the inline form supports parameterization within parameterized policies. Either portion of the extended community value can be parameterized.

Every extended community set must contain at least one extended community value. Empty extended community sets are invalid and the policy configuration system rejects them.

Wildcards (*) and regular expressions are allowed for extended community set elements.

Examples

In the following example, a cost extended community set named extcomm-cost is defined:

```
RP/0/RP0/CPU0:router(config)# extcommunity-set cost extcomm-cost
RP/0/RP0/CPU0:router(config-ext)# IGP:90:914,
RP/0/RP0/CPU0:router(config-ext)# Pre-Bestpath:91:915
RP/0/RP0/CPU0:router(config-ext)# end-set
```

extcommunity-set rt

To define a Border Gateway Protocol (BGP) route target (RT) extended community set, use the **extcommunity-set rt** command in XR Config mode. To remove the RT community set, use the **no** form of this command.

extcommunity-set rt *name*
no extcommunity-set rt *name*

Syntax Description

name	Name of an RT extended community set.

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity-set rt** command to define an RT extended community set for BGP.

Regular expressions and ranges can be specified to match the extended communities. Regular expressions and ranges can be specified in an extended community set to support the matching of communities. An attempt to use an extended community set that contains a range or regular expression to set an extended community set value is rejected when an attempt to attach such a policy is made.

An extcommunity set RT holds RT extended community values to match against the Border Gateway Protocol (BGP) RT extended community attribute. RT extended communities can be entered in these formats:

- *#-remark* ---Remark beginning with '#'
- *****--- Wildcard (any community or part thereof)
- *1-4294967295*---32-bit decimal number
- *1-65535* ---16-bit decimal number
- *A.B.C.D/M:N* ---Extended community - IPv4 prefix format
- *A.B.C.D:N*---Extended community - IPv4 format
- *ASN:N* ---Extended community - ASPLAIN format
- *X.Y:N* ---Extended community - ASDOT format
- **dfa-regex** ---DFA (deterministic finite automata) style regular expression
- **ios-regex** ---Traditional IOS style regular expression

Note The dfa-regex and ios-regex syntax for community set is *"['][^':&<>]*:[^':&<>]*[']"*. This means that regex starts with a single-quote (") followed by a string of any character (that does not include single-quote, colon, ampersand, less-than, greater-than, or space) followed by a colon, and a string of any characters (that does not include single-quote, colon, ampersand, less-than, greater-than, or space) followed by single-quote.

N is a number within the range of 1 to 65535.

Examples

In the following example, an RT extended community set named extcomm-rt is defined:

```
RP/0/RP0/CPU0:router(config)# extcommunity-set rt extcomm-rt
RP/0/RP0/CPU0:router(config-ext)# 10002:666
RP/0/RP0/CPU0:router(config-ext)# 10.0.0.2:666
RP/0/RP0/CPU0:router(config-ext)# end-set
```

extcommunity-set soo

To define a Border Gateway Protocol (BGP) Site-of-Origin (SoO) extended community set, use the **extcommunity-set soo** command in XR Config mode mode. To remove the SoO extended community set, use the **no** form of this command.

extcommunity-set soo *name*
no extcommunity-set soo *name*

Syntax Description

name	Name of an SoO extended community set.

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity-set soo** command to define an SoO extended community set.

An extcommunity set soo holds SoO extended community values to match against the Border Gateway Protocol (BGP) SoO extended community attribute. SoO extended communities can be entered in these formats:

- *#-remark* ---Remark beginning with '#'
- *****--- Wildcard (any community or part thereof)
- *1-4294967295*---32-bit decimal number
- *1-65535* ---16-bit decimal number
- *A.B.C.D/M:N* ---Extended community - IPv4 prefix format
- *A.B.C.D:N*---Extended community - IPv4 format
- *ASN:N* ---Extended community - ASPLAIN format
- *X.Y:N* ---Extended community - ASDOT format
- **abort** ---Discard RPL definition and return to top level config
- **dfa-regex** ---DFA style regular expression
- **end-set** ---End of set definition
- **exit** ---Exit from the submode
- **ios-regex** ---Traditional IOS style regular expression
- **show** ---Show partial RPL configuration

N is a site-specific number.

Examples

In the following example, a SoO extended community set named extcomm-soo is defined:

```
RP/0/RP0/CPU0:router(config)# extcommunity-set soo extcomm-soo
RP/0/RP0/CPU0:router(config-ext)# 66:60001,
RP/0/RP0/CPU0:router(config-ext)# 77:70001,
RP/0/RP0/CPU0:router(config-ext)# 88:80001,
RP/0/RP0/CPU0:router(config-ext)# 99:90001,

RP/0/RP0/CPU0:router(config-ext)# 100.100.100.1:153
RP/0/RP0/CPU0:router(config-ext)# end-set
```

extcommunity soo is-empty

To determine if a Border Gateway Protocol (BGP) route has any Site-of-Origin (SoO) extended communities associated with it, use the **extcommunity soo is-empty** command in route-policy configuration mode.

extcommunity soo is-empty

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity soo is-empty** command as a conditional expression within an **if** statement to check if a BGP SoO route has extended community attributes associated with it.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The **is-empty** operator takes no arguments and evaluates to true if the route has no SoO extended community attributes associated with it.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if a route has no SoO extended communities associated with it, the local preference is set to 100:

```
RP/0/RP0/CPU0:router(config)# route-policy extcommunity-is-empty-example
RP/0/RP0/CPU0:router(config-rpl)# if extcommunity soo is-empty then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

extcommunity soo matches-any

To match any element of a Border Gateway Protocol (BGP) Site-of-Origin (SoO) extended community set, use the **extcommunity soo matches-any** command in route-policy configuration mode.

extcommunity soo matches-any {*extcommunity-set-nameinline-extcommunity-setparameter*}

Syntax Description

extcommunity-set-name	Name of a SoO extended community set.
inline-extcommunity-set	Inline SoO extended community set. The inline extended community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity soo matches-any** command as a conditional expression within an **if** statement to match elements of an extended community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

A simple condition using the **matches-any** operator evaluates as true if at least one extended community in the route matches an extended community specification in the named or inline set. If no extended community in the route matches any of the specifications in the named or inline set, then this simple condition evaluates to false. Likewise, when there is no extended community at all in the route, the condition evaluates to false.

Matching an extended community in the route to a specification in a named or an inline set is intuitive. In inline sets, extended community specifications may be parameterized, in which case the relevant matching is done when the value of the parameter has been supplied.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, an SoO extended community set named extcomm-soo and a parameterized route policy named my-extcommunity-set-example($tag,$ip) are defined.

The condition route policy named extcommunity soo matches-any is used in an if statement in this policy. If it evaluates to true, the local preference value is set to 100.

If it evaluates to false, the SoO extended community is evaluated using an inline set. If it evaluates to true, the local preference value is set to 200.

If it evaluates to false, the SoO extended community is evaluated using a different inline set. If it evaluates to true, the local preference value is set to 300.

If it evaluates to false, the SoO extended community is evaluated using a different inline set. If it evaluates to true, the local preference value is set to 400.

```
RP/0/RP0/CPU0:router(config)# extcommunity-set soo extcomm-soo
RP/0/RP0/CPU0:router(config-ext)# 66:60001,
RP/0/RP0/CPU0:router(config-ext)# 77:70001,
RP/0/RP0/CPU0:router(config-ext)# 88:80001,
RP/0/RP0/CPU0:router(config-ext)# 99:90001,
RP/0/RP0/CPU0:router(config-ext)# 100.100.100.1:153
RP/0/RP0/CPU0:router(config-ext)# end-set

RP/0/RP0/CPU0:router(config)# route-policy my-extcommunity-set-example($tag,$ip)
RP/0/RP0/CPU0:router(config-rpl)# if extcommunity soo matches-any extcomm-soo then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# elseif extcommunity soo matches-any (10:20, 10:$tag)
then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 200
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif extcommunity soo matches-any ($ip:$tag)
then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 300
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif extcommunity soo matches-any (2.3.4.5:$tag)
 then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 400
RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

extcommunity soo matches-every

To match every element of a Border Gateway Protocol (BGP) Site-of-Origin (SoO) extended community set, use the **extcommunity soo matches-every** command in route-policy configuration mode.

extcommunity soo matches-every {*extcommunity-set-nameinline-extcommunity-setparameter*}

Syntax Description

extcommunity-set-name	Name of a SoO extended community set.
inline-extcommunity-set	Inline SoO extended community set. The inline extended community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **extcommunity soo matches-every** command as a conditional expression within an **if** statement to match every element of a SoO extended community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

A simple condition using the **matches-every** operator evaluates as true if every extended community value in the extended community attribute for the route matches at least one element of the extended community set or inline set. If no extended community in the route matches any of the specifications in the named or inline set, then this simple condition evaluates to false. Likewise, when there is no extended community at all in the route, the condition evaluates to false.

Matching an extended community in the route to a specification in a named or an inline set is intuitive. In inline sets, extended community specifications may be parameterized, in which case the relevant matching is done when the value of the parameter has been supplied.

Examples

In the following example, an extended community set named my-extcomm-rt-set and a parameterized route policy named extcommunity-matches-every-example($as, $tag) are defined. The condition extcommunity soo matches-every is used in an if statement in this policy and if it evaluates to true, the local-preference value is set to 100. If it evaluates to false, the extended community is evaluated using an inline set. If that condition evaluates to true, the local-preference value is set to 200. If it evaluates to false, the local-preference value is set to 300.

```
RP/0/RP0/CPU0:router(config)# extcommunity-set soo my-extcomm-rt-set
RP/0/RP0/CPU0:router(config-ext)# 10:20,
RP/0/RP0/CPU0:router(config-ext)# 10:30,
RP/0/RP0/CPU0:router(config-ext)# 10:40
RP/0/RP0/CPU0:router(config-ext)# end-set

RP/0/RP0/CPU0:router(config)# route-policy extcommunity-matches-every-example($as, $tag)
RP/0/RP0/CPU0:router(config-rpl)# if extcommunity soo matches-every my-extcomm-rt-set then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# elseif extcommunity soo matches-every (10:20, 10:$tag,
 $as:30) then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 200
RP/0/RP0/CPU0:router(config-rpl-elseif)# else
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 300
RP/0/RP0/CPU0:router(config-rpl-elseif)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

if

To decide which actions or dispositions should be taken for a given route, use the **if** command in route-policy configuration mode.

if *conditional-expression* **then** *action-statement* [*action-statement*] [**elseif** *conditional-expression* **then** *action-statement* [*action-statement*]] [**else** *action-statement* [*action-statement*]] **endif**

Syntax Description

conditional-expression	Expression to decide which actions or dispositions should be taken for the given route.
then	Executes an action statement if the **if** condition is true.
elseif	Strings together a sequence of tests.
else	Executes an action statement if the **if** condition is false.
endif	Ends the **if** statement.
action-statement	Sequence of operations that modify a route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The **if** command uses a conditional expression to decide which actions or dispositions should be taken for a given route. Table 1: Conditional Expressions, on page 72 lists the conditional expressions.

An action statement is a sequence of operations that modify a route, most of which are distinguished by the **set** keyword. In a route policy, these operations can be grouped. Table 2: Action Statements, on page 73 lists the action statements.

Apply Condition policies allow usage of a route-policy in an "if" statement of another route-policy.

```
Route-policy policy_name
If apply policyA and apply policyB then
Set med 100
Else if not apply policyD then
Set med 200
Else
Set med 300
Endif
End-policy
```

Table 1: Conditional Expressions

Command	Description
as-path in, on page 11	Matches the AS path of a route to an AS path set. The AS path is a sequence of autonomous system numbers traversed by a route.
as-path is-local, on page 13	Determines if the router (or another router within this autonomous system or confederation) originated the route.
as-path length, on page 14	Performs a conditional check based on the length of the AS path.
as-path neighbor-is, on page 15	Tests the autonomous system number or numbers at the head of the AS path against a sequence of one or more integral values or parameters.
as-path originates-from, on page 17	Tests an AS path against the AS sequence beginning with the AS number that originated a route.
as-path passes-through, on page 19	Tests to learn if the specified integer or parameter appears anywhere in the AS path or if the sequence of integers and parameters appears.
as-path unique-length, on page 23	Performs specific checks based on the length of the AS path.
community is-empty, on page 25	Learns if a route has community attributes associated with it.
community matches-any, on page 26	Matches any element of a community set.
community matches-every, on page 28	Matches every element of a community set.
destination in, on page 41	Matches a destination entry in a named prefix set or inline prefix set.
extcommunity rt is-empty, on page 53	Learns if a route has RT extended community attributes associated with it.
extcommunity rt matches-any, on page 54	Matches elements of an RT extended community set.
extcommunity rt matches-every, on page 56	Matches every element of an RT extended community set.
extcommunity rt matches-within, on page 58	Matches at least one element of a Border Gateway Protocol (BGP) route target (RT) extended community set.
extcommunity soo is-empty, on page 66	Learns if a route has SoO extended community attributes associated with it.
extcommunity soo matches-any, on page 67	Matches elements of an SoO extended community set.
extcommunity soo matches-every, on page 69	Matches every element of an SoO extended community set.

Command	Description
local-preference, on page 82	Specifies BGP local-preference attribute
med, on page 91	Compares the MED to an integer value or a parameterized value.
next-hop in, on page 92	Compares the next-hop associated with the route to data contained in either a named or an inline prefix set.
orf prefix in, on page 93	Matches a prefix in a prefix set or an inline prefix set.
origin is, on page 95	Tests the value of the origin attribute.
path-type is, on page 100	Tests the path type.
protocol, on page 107	Checks if a protocol is installing the route.
rd in, on page 109	Compares the RD associated with the route to data contained in either a named or an inline RD set.
rib-has-route, on page 115	Checks if a route is in the RIB.
route-has-label, on page 116	Checks if a route has a Multiprotocol Label Switching (MPLS) label.
route-type is, on page 119	Compares route types when redistribution is being performed into BGP, OSPF, or IS-IS.
source in, on page 248	Tests the source of the route against the data in either a named or an inline prefix set.
tag, on page 251	Matches a specific tag value.
tag in, on page 252	Conditionally compares tag-route against tag-set.
vpn-distinguisher is, on page 256	Compares the VPN distinguisher against a specified value.

Table 2: Action Statements

Command	Description
abort (RPL), on page 6	Discards a route policy definition and returns to XR Config mode.
add, on page 8	Adds an offset to an existing value.
apply, on page 9	Executes a parameterized or an unparameterized policy from within another policy.
delete community, on page 35	Deletes community values from a community list in a route.
delete extcommunity rt, on page 37	Deletes extended community values from an extended community list in a route.
done, on page 43	Accepts this route with no further processing

Command	Description
drop, on page 45	Drops a route.
end-policy, on page 50	Ends the definition of a route policy and exits route-policy configuration mode.
pass, on page 99	Signifies that even though the route has not been modified, the user wants to continue executing in the policy block.
prepend as-path, on page 105	Prepends the AS path with additional autonomous system numbers.
replace as-path, on page 112	Replaces a sequence of AS numbers or private AS numbers in the AS path with the configured local AS.
set community, on page 125	Sets the BGP community attribute.
set dampening, on page 128	Configures BGP route dampening.
set extcommunity cost, on page 130	Replaces or adds the extended communities for a cost on the route.
set extcommunity rt, on page 132	Replaces or adds the extended communities for an RT on the route.
set ip-precedence, on page 134	Sets the IP precedence to classify packets.
set isis-metric, on page 135	Sets the IS-IS metric attribute value.
set label, on page 136	Sets the BGP label attribute value.
set level, on page 141	Configures the IS-IS level in which redistributed routes should be sent.
set local-preference, on page 142	Specifies a preference value for the autonomous system path.
set med, on page 143	Sets the MED value.
set metric-type (IS-IS), on page 145	Controls whether IS-IS treats the metric as an internal or external metric.
set metric-type (OSPF), on page 147	Controls whether OSPF treats the cost as a Type 1 or Type 2 metric.
set next-hop, on page 148	Replaces the next-hop associated with a given route.
set origin, on page 150	Changes the origin attribute.
set ospf-metric, on page 151	Sets an OSPF protocol metric attribute value.
set qos-group (RPL), on page 153	Sets the QoS group to classify packets.
set rib-metric, on page 154	Sets a RIB metric attribute value for a table policy.
set rip-metric, on page 155	Sets RIP metric attributes.
set rip-tag, on page 156	Sets route tag attribute.
set tag, on page 161	Sets the tag attribute.

Command	Description
set traffic-index, on page 162	Sets the traffic index attribute.
set weight, on page 165	Sets the weight value for BGP routes.
suppress-route, on page 250	Indicates that a given component of an aggregate should be suppressed, that is, not advertised.
unsuppress-route, on page 255	Indicates that a given component of an aggregate should be unsuppressed.
set vpn-distinguisher, on page 164	Sets the VPN distinguisher value.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, any route whose AS path is in the set as-path-set-1 is dropped:

```
RP/0/RP0/CPU0:router(config-rpl)# if as-path in as-path-set-1 then
RP/0/RP0/CPU0:router(config-rpl-if)# drop
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

The contents of the **then** clause may be an arbitrary sequence of action statements.

The following example shows an **if** statement with two action statements:

```
RP/0/RP0/CPU0:router(config-rpl)# if origin is igp then
RP/0/RP0/CPU0:router(config-rpl-if)# set med 42
RP/0/RP0/CPU0:router(config-rpl-if)# prepend as-path 73 5
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

The **if** command also permits an **else** clause to be executed if the expression is false, as follows:

```
RP/0/RP0/CPU0:router(config-rpl)# if med eq 200 then
RP/0/RP0/CPU0:router(config-rpl-if)# set community (12:34) additive
RP/0/RP0/CPU0:router(config-rpl-if)# else
RP/0/RP0/CPU0:router(config-rpl-else)# set community (12:56) additive
RP/0/RP0/CPU0:router(config-rpl-else)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

The routing policy language (RPL) also provides syntax using the **elseif** command to string together a sequence of tests, as shown in the following example:

```
RP/0/RP0/CPU0:router(config-rpl)# if med eq 150 then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 10
RP/0/RP0/CPU0:router(config-rpl-if)# elseif med eq 200 then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 60
```

```
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif med eq 250 then
RP/0/RP0/CPU0:router(config-rpl-elseif)# set local-preference 110
RP/0/RP0/CPU0:router(config-rpl-elseif)# else
RP/0/RP0/CPU0:router(config-rpl-else)# set local-preference 0
RP/0/RP0/CPU0:router(config-rpl-else)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

The statements within an **if** statement may themselves be **if** statements, as shown in this example:

```
RP/0/RP0/CPU0:router(config-rpl)# if community matches-any (12:34, 56:78) then
RP/0/RP0/CPU0:router(config-rpl-if)# if med eq 150 then
RP/0/RP0/CPU0:router(config-rpl-if)# drop
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

The policy configuration shown sets the value of the local preference attribute to 100 on any route that has a community value of 12:34 or 56:78 associated with it. However, if any of these routes has a Multi Exit Descriminator (MED) value of 150, then each route with both the community value of 12:34 or 56:78 and a MED of 150 is dropped.

if route-aggregated

To match the aggregated routes from the other routes, use the **if route-aggregated** command in route policy configuration mode.

if route-aggregated

Syntax Description

route-aggregated	Checks if route is an aggregation of multiple routes.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

This example shows how to match the aggregated routes from other routes:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# route-policy  route-policy atomic_agg
RP/0/RP0/CPU0:router(config-rpl)# if route-aggregated then
RP/0/RP0/CPU0:router(config-rpl-if)# set extcommunity rt (1:1)
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

if track is

To track whether the state of the object is up or down, use the **if track is** command in route-policy configuration mode.

if track *track-id* **is** { **up** | **down** }

Syntax Description

If track *track-id* **is up**	Evaluates to TRUE if the track status is UP.
If track *track-id* **is down**	Evaluates to TRUE if the track status is DOWN.
is {**up** | **down**}	Specifies the state of the object which evaluates to TRUE.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 7.2.1	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operations
route-policy	read, write

Examples

```
Router#configure
Router(configl)#route-policy rpl
Router(config-rpl)# if track bgp-nbr1 is up
```

is-best-path

To tag the path selected as the best path use the**is-best-path** command in route policy configuration mode.

is-best-path

Syntax Description

is-best-path	Checks and tags the path selected as best-path.

Command Default

No default behavior or values.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

Example

```
  RP/0/RSP0RP00/CPU0:router(config)# route-policy
  WORD  Route Policy name
  RP/0/RSP0RP00/CPU0:router(config)# route-policy sample
  RP/0/RSP0RP00/CPU0:router(config-rpl)# if destination i
  in   is-backup-path  is-best-external  is-best-path

  if destination is-best-path then
    set community community
  endif
end-policy
!
RP/0/RSP0RP00/CPU0:router# sh version
Wed Jul  8 16:08:34.286 IST
Cisco IOS XR Software, Version 5.3.2.14I[EnXR]
Copyright (c) 2015 by Cisco Systems, Inc.
    Built on Fri Jun 26 17:35:45 IST 2015
    By router in RP/0/RSP0RP00/CPU0
```

is-backup-path

To tag all the paths equal to the back up path use, **is-backup-path** command in route policy configuration mode.

is-backup-path

Syntax Description

is-backup-path	Checks and tags the path selected as backup path.

Command Default

No default behavior or values.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

Example

```
RP/0/RSP0RP00/CPU0:router(config)# route-policy
  WORD  Route Policy name
RP/0/RSP0RP00/CPU0:router(config)# route-policy sample
RP/0/RSP0RP00/CPU0:router(config-rpl)# if destination i
in      is-backup-path  is-best-external  is-best-path

RP/0/RSP0RP00/CPU0:router(config)# route-policy
WORD  Route Policy name
RP/0/RSP0RP00/CPU0:router(config)# route-policy sample
RP/0/RSP0RP00/CPU0:router(config-rpl)# if destination i
in     is-backup-path  is-best-external  is-best-path
```

is-multi-path

To tag all the paths equal to the best path based on multi-path context use, **is-multi-path** command in route policy configuration mode.

is-multi-path

Syntax Description

is-multi-path	Checks and tag all the path equal to the as best-path.

Command Default

No default behavior or values.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

Example

```
RP/0/RSP0RP00/CPU0:router(config)#route-policy
WORD  Route Policy name
RP/0/RSP0RP00/CPU0:router(config)#route-policy sample
RP/0/RSP0RP00/CPU0:router(config-rpl)#if destination i
in              is-backup-path  is-best-external  is-best-path

is-multi-path
RP/0/RSP0RP00/CPU0:router(config-rpl)#if destination is-
is-backup-path  is-best-external  is-best-path  is-multi-path
RP/0/RSP0RP00/CPU0:router(config-rpl)#if destination is-best-path then
RP/0/RSP0RP00/CPU0:router(config-rpl-if)#set l
label            label-index  label-mode  level
community  lsm-root
RP/0/RSP0RP00/CPU0:router(config-rpl-if)#set community community
RP/0/RSP0RP00/CPU0:router(config-rpl-if)#endif
RP/0/RSP0RP00/CPU0:router(config-rpl)#end-policy
RP/0/RSP0RP00/CPU0:router(config)#commit
Wed Jul  8 16:08:23.436 IST
```

local-preference

To compare the local-preference attribute of a BGP route to an integer value or a parameterized value, use the local-preference command in route-policy configuration mode.

local-preference {**eq** | **is** | **ge** | **le**} {*numberparameter*}

Syntax Description

eq | **is** | **ge** | **le**	Equal to; exact match; greater than or equal to; less than or equal to.
number	Value assigned to a 32-bit unsigned integer. Range is 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **local- preference** command as a conditional expression within an **if** statement to compare the local-preference attribute to an integer value or a parameterized value.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The MED is a 32-bit unsigned integer. The **eq** operation compares the local-preference to either a static value or a parameterized value passed to a parameterized policy for equality with that value. A greater than or equal to comparison can also be done with the **ge** operator, and a less than or equal to comparison can be performed using the **le** operator.

Examples

The following example shows that if the **local-preference** is 10, local-preference is set to 100:

```
RP/0/RSP0RP0/CPU0:router(config-rpl)# if local-preference eq 10 then
RP/0/RSP0RP0/CPU0:router(config-rpl-if)# set weight 100
RP/0/RSP0RP0/CPU0:router(config-rpl-if)# endif
RP/0/RSP0RP0/CPU0:router(config-rpl)#
```

large-community is-empty

To check if a route has no large community attributes associated with it, use the **large-community is-empty** command in route-policy configuration mode.

large-community is-empty

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Task ID

Task ID	Operations
route-policy	read, write

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

Use the **large community is-empty** command as a conditional expression within an **if** statement to check if a route has community attributes associated with it.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command takes no arguments and evaluates to true only if the route has no community attributes associated with it.

Task ID

Task ID	Operations
route-policy	read, write

The following example shows using the **large-community is-empty** clause to filter routes that do not have the large-community attribute set.

```
RP/0/RP0/CPU0:router#config
RP/0/RP0/CPU0:router(config)#route-policy lrg_comm_rp4
RP/0/RP0/CPU0:router(config-rpl)#if large-community is-empty then
RP/0/RP0/CPU0:router(config-rpl)#set local-preference 104
RP/0/RP0/CPU0:router(config-rpl)#endif
RP/0/RP0/CPU0:router(config-rpl)#end-policy
```

large-community matches-any

To configure the route policy to match any elements of a large-community set, use the **large-community matches-any** command in route-policy configuration mode.

`large-community matches-any` { *large-community-set-name or inline-large-community-set* | `parameter` }

Syntax Description

large-community-set-name	Name of a large community set.
inline-large-community-set	Inline large community set. The inline large community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Task ID

Task ID	Operations
route-policy	read, write

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

Use the **large-community matches-any** command as a conditional expression within an **if** statement in the route policy statements to match any element of a large-community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The large communities are specified as three non negative decimal integers separated by colons. For example, 1:2:3. Each integer is stored in 32 bits. The possible range for each integer is 0 to 4294967295.

In route-policy statements, each integer in the BGP large community can be replaced by any of the following expressions:

- [x..y] — This expression specifies a range between x and y, inclusive.
- * — This expression stands for any number.
- peeras — This expression is replaced by the AS number of the neigbhor from which the community is received or to which the community is sent, as appropriate.
- not-peeras — This expression matches any number other than the peeras.

- private-as — This expression specifies any number in the private ASN range: [64512..65534] and [4200000000..4294967294].

Note The peeras and not-peeras expressions can only be used in large-community match statements that appear in route policies that are applied at the neighbor-in or neighbor-out attach points.

IOS regular expression (ios-regex) and DFA style regular expression (dfa-regex) can be used in any of the large-community policy match statements. For example, the IOS regular expression ios-regex '^5:.*:7$' is equivalent to the expression 5:*:7.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to configure a route policy to match any element of a large -community set. This is a boolean condition and returns true if any of the large communities in the route match any of the large communities in the match condition.

```
RP/0/RP0/CPU0:router#config
RP/0/RP0/CPU0:router(config)#route-policy elbonia
RP/0/RP0/CPU0:router(config-rpl)#if large-community matches-any (1:2:3, 4:5:*) then
RP/0/RP0/CPU0:router(config-rpl)#set local-preference 94
RP/0/RP0/CPU0:router(config-rpl)#endif
RP/0/RP0/CPU0:router(config-rpl)#end-policy
```

large-community matches-every

To configure the route policy to match every element of a large-community set, use the **large-community matches-every** command in route-policy configuration mode.

`large-community matches-every` { *large-community-set-name or inline-large-community-set* |`parameter`}

Syntax Description

large-community-set-name	Name of a large community set.
inline-large-community-set	Inline large community set. The inline large community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Task ID

Task ID	Operations
route-policy	read, write

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Use the **large-community matches-every** command as a conditional expression within an **if** statement in the route policy statements to match every element of a large-community set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The large communities are specified as three non negative decimal integers separated by colons. For example, 1:2:3. Each integer is stored in 32 bits. The possible range for each integer is 0 to 4294967295.

In route-policy statements, each integer in the BGP large community can be replaced by any of the following expressions:

- [x..y] — This expression specifies a range between x and y, inclusive.
- * — This expression stands for any number.
- peeras — This expression is replaced by the AS number of the neigbhor from which the community is received or to which the community is sent, as appropriate.
- not-peeras — This expression matches any number other than the peeras.

- private-as — This expression specifies any number in the private ASN range: [64512..65534] and [4200000000..4294967294].

Note The peeras and not-peeras expressions can only be used in large-community match statements that appear in route policies that are applied at the neighbor-in or neighbor-out attach points.

IOS regular expression (ios-regex) and DFA style regular expression (dfa-regex) can be used in any of the large-community policy match statements. For example, the IOS regular expression ios-regex '^5:.*:7$' is equivalent to the expression 5:*:7.

Task ID

Task ID	Operations
route-policy	read, write

The following example shows how to configure a route policy where every match specification in the statement must be matched by at least one large community in the route.

```
RP/0/RP0/CPU0:router#config
RP/0/RP0/CPU0:router(config)#route-policy bob
RP/0/RP0/CPU0:router(config-rpl)#if large-community matches-any (*:*:3, 4:5:*) then
RP/0/RP0/CPU0:router(config-rpl)#set local-preference 94
RP/0/RP0/CPU0:router(config-rpl)#endif
RP/0/RP0/CPU0:router(config-rpl)#end-policy
```

In this example, routes with these sets of large communities return TRUE:

- (1:1:3, 4:5:10)
- (4:5:3) —This single large community matches both specifications.
- (1:1:3, 4:5:10, 7:6:5)

Routes with the following set of large communities return FALSE:

(1:1:3, 5:5:10)—The specification (4:5:*) is not matched.

large-community matches-within

To configure a route policy to match within a large community set, use the **large-community matches-within** command in route-policy configuration mode.

`large-community matches-within` { *large-community-set-name or inline-large-community-set* | `parameter` }

Syntax Description

large-community-set-name	Name of a large community set.
inline-large-community-set	Inline large community set. The inline large community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Task ID

Task ID	Operations
route-policy	read, write

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

This command is similar to the **large-community matches-any** command but every large community in the route must match at least one match specification. Note that if the route has no large communities, then it matches.

When large communities are specified in other commands, they are specified as three non negative decimal integers separated by colons. For example, 1:2:3. Each integer is stored in 32 bits. The possible range for each integer is 0 to 4294967295.

In route-policy statements, each integer in the BGP large community can be replaced by any of the following expressions:

- [x..y] — This expression specifies a range between x and y, inclusive.
- * — This expression stands for any number.
- peeras — This expression is replaced by the AS number of the neigbhor from which the community is received or to which the community is sent, as appropriate.
- not-peeras — This expression matches any number other than the peeras.
- private-as — This expression specifies any number in the private ASN range: [64512..65534] and [4200000000..4294967294].

Note The peeras and not-peeras expressions can only be used in large-community match statements that appear in route policies that are applied at the neighbor-in or neighbor-out attach points.

IOS regular expression (ios-regex) and DFA style regular expression (dfa-regex) can be used in any of the large-community policy match statements. For example, the IOS regular expression ios-regex '^5:.*:7$' is equivalent to the expression 5:*:7.

Task ID

Task ID	Operations
route-policy	read, write

The following example shows how to configure a route policy to match within a large community set.

```
RP/0/RP0/CPU0:router#config
RP/0/RP0/CPU0:router(config)#route-policy bob
RP/0/RP0/CPU0:router(config-rpl)#if large-community matches-within (*:*:3, 4:5:*) then
RP/0/RP0/CPU0:router(config-rpl)#set local-preference 103
RP/0/RP0/CPU0:router(config-rpl)#endif
RP/0/RP0/CPU0:router(config-rpl)#end-policy
```

In this example, routes with these sets of large communities return TRUE:

- (1:1:3, 4:5:10)
- (4:5:3)
- (1:2:3, 6:6:3, 9:4:3)

Routes with the following set of large communities return FALSE:

(1:1:3, 4:5:10, 7:6:5) —The large community (7:6:5) does not match

large-community-set

To define a set of large-communities, use the **large-community-set** command in XR Config mode. To remove the large-community set, use the **no** form of this command.

large-community-set *name*
no **large-community-set** *name*

Syntax Description

name	Name of the large-community set. Named large-community sets are used in route-policy match and set statements.

Command Default

No default behavior or values

Command Modes

XR Config

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

The large communities are specified as three non negative decimal integers separated by colons. For example, 1:2:3. Each integer is stored in 32 bits. The possible range for each integer is 0 to 4294967295.

In route-policy statements, each integer in the BGP large community can be replaced by any of the following expressions:

- [x..y] — This expression specifies a range between x and y, inclusive.
- * — This expression stands for any number.
- private-as — This expression specifies any number in the private ASN range: [64512..65534] and [4200000000..4294967294].

Task ID

Task ID	Operations
route-policy	read, write

Examples

This example shows how to create a named large-community set:

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#large-community-set catbert
RP/0/RP0/CPU0:router(config-largecomm)#1:2:3,
RP/0/RP0/CPU0:router(config-largecomm)#[5..9]:2:3
RP/0/RP0/CPU0:router(config-largecomm)#1:3:*
RP/0/RP0/CPU0:router(config-largecomm)#end-set
```

med

To compare the Multi Exit Discriminator (MED) to an integer value or a parameterized value or compare the MED attribute of a BGP route to an integer value, use the **med** command in route-policy configuration mode.

med {**eq** | **is** | **ge** | **le**} {*numberparameter*}

Syntax Description

eq | **is** | **ge** | **le**	Equal to; exact match; greater than or equal to; less than or equal to.
number	Value assigned to a 32-bit unsigned integer. Range is 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **med** command as a conditional expression within an **if** statement to compare the MED to an integer value or a parameterized value.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The MED is a 32-bit unsigned integer. The **eq** operation compares the MED to either a static value or a parameterized value passed to a parameterized policy for equality with that value. A greater than or equal to comparison can also be done with the **ge** operator, and a less than or equal to comparison can be performed using the **le** operator.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows that if the **med** commands match, the local preference is set to 100:

```
RP/0/RP0/CPU0:router(config-rpl)# if med eq 10 then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

next-hop in

To compare the next-hop associated with the route to data contained in either an inline or a named prefix set, use the **next-hop in** command in route-policy configuration mode.

next-hop in {*prefix-set-nameinline-prefix-setparameter*}

Syntax Description

prefix-set-name	Name of a prefix set.
inline-prefix-set	Inline prefix set. The inline prefix set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **next-hop in** command as a conditional expression within an **if** statement to compare the next-hop associated with the route to data contained in either an inline or a named prefix set. The result is true if any value in the prefix set matches the next-hop of the route. A comparison that refers to a named prefix set that has no elements in it returns false.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The next-hop is an IPv4 address entered as a dotted-decimal or an IPv6 address entered as a colon-separated hexadecimal.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows that if the **next-hop in** commands match, the local preference is set to 100

```
RP/0/RP0/CPU0:router(config-rpl)# if next-hop in some-prefix-set then
RP/0/RP0/CPU0:router(config-rpl-if)# if next-hop in (10.0.0.5, fe80::230/64) then
RP/0/RP0/CPU0:router(config-rpl-if)# set local-preference 0
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

orf prefix in

To configure an outbound route filter (ORF), use the **orf prefix in** command in route-policy configuration mode.

orf prefix in {*prefix-set-nameinline-prefix-set*}

Syntax Description

prefix-set-name	Name of a prefix set.
inline-prefix-set	Inline prefix set. The inline prefix set must be enclosed in parentheses.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **orf prefix in** command to match a prefix in a prefix set or an inline prefix set.

This command takes either a named prefix set or an inline prefix set value as an argument. It returns true if the destination NLRI matches any entry in the prefix set. An attempt to match destination using a prefix set that is defined but contains no elements returns false.

This command is used in the context of the orf route-policy attach point in BGP. The destination of a route is also known in Border Gateway Protocol (BGP) as its network-layer reachability information (NLRI). It comprises a prefix value and a mask length. The routing policy language (RPL) provides one operation on prefixes, testing them for matching against a list of prefix-match specifications using the **in** operator.

Examples

In the following example, the prefix set orfpreset1 and the route policy named orfpolicy are defined. Next, the orfpolicy is applied to the neighbor orf attach point.

If the prefix of the route matches any of the prefixes specified in orfpreset1 (211.105.1.0/24, 211.105.5.0/24, 211.105.11.0/24), then the prefix is dropped. If the prefix matches in(211.105.3.0/24, 211.105.7.0/24, 211.105.13.0/24), then the prefix is accepted. In addition to this inbound filtering, BGP sends these prefix entries to the upstream neighbor indicating a permit or deny so that the neighbor can make the same filter updates.

```
RP/0/RP0/CPU0:router(config)# prefix-set orfpreset1
RP/0/RP0/CPU0:router(config-pfx)# 211.105.1.0/24,
RP/0/RP0/CPU0:router(config-pfx)# 211.105.5.0/24,
RP/0/RP0/CPU0:router(config-pfx)# 211.105.11.0/24
RP/0/RP0/CPU0:router(config-pfx)# end-set
!
!
RP/0/RP0/CPU0:router(config)# route-policy orfpolicy
RP/0/RP0/CPU0:router(config-rpl)# if orf prefix in orfpreset1 then
RP/0/RP0/CPU0:router(config-rpl-if)# drop
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# if orf prefix in (211.105.3.0/24, 211.105.7.0/24,
211.105.13.0/24) then
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
!
!
RP/0/RP0/CPU0:router(config)# router bgp 2
RP/0/RP0/CPU0:router(config-bgp)# neighbor 1.1.1.1
RP/0/RP0/CPU0:router(config-bgp-nbr)# remote-as 3
RP/0/RP0/CPU0:router(config-bgp-nbr)# address-family ipv4 unicast
RP/0/RP0/CPU0:router(config-bgp-nbr-af)# orf route-policy orfpolicy
```

origin is

To match a specific origin type, use the **origin is** command in route-policy configuration mode.

origin is {**igp** | **egp** | **incomplete***parameter*}

Syntax Description

igp	Specifies Interior Gateway Protocol.
egp	Specifies Exterior Gateway Protocol.
incomplete	Specifies that Border Gateway Protocol (BGP) first learned the route by means other than BGP or Interior Gateway Protocol (IGP); for example, the route is learned through configuration.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **origin is** command as a conditional expression within an **if** statement to test the value of the origin attribute.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The origin of a BGP route is an enumeration; it is **igp** , **egp** , or **incomplete** .

This command can be parameterized.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the origin is tested within an **if** statement to learn if it is either **igp** or **egp** :

```
RP/0/RP0/CPU0:router(config-rpl)# if origin is igp or origin is egp then
```

In the following example, a parameter is used to match a specific origin type:

```
RP/0/RP0/CPU0:router(config)# route-policy bar($origin)
RP/0/RP0/CPU0:router(config-rpl)# if origin is $origin then
```

```
RP/0/RP0/CPU0:router(config-rpl-if)# set med 20
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

ospf-area

To match a specific ospf area, use the **ospf-area** command in route-policy configuration mode.

ospf-area [**all-paths**] {**in** | **is**}

Syntax Description

is	Specify the explicit *area-id* .
in	Specify a list of *area-id* or *area-set*. Multiple areas can be specified separated by a comma (,).
all-paths	Used for routes with multiple paths. A match is made if area for every path of the route is configured in the route-policy.

Command Default

None

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The route policy define by using **ospf-area** is useful in redistributing routes from a specific area of a routing domain into OSPF. After the route policy is crated, use the **redistribute ospf route-policy** command for route redistribution.

Task ID

Task ID	Operations
route-policy	read, write

Example

In the following example, an explicit area is specified as the matching criteria.

```
RP/0/RP0/CPU0:router(config-rpl)# if ospf-area is 10 then pass else drop endif
```

In the following example, a collection of areas is specified as the matching criteria.

```
RP/0/RP0/CPU0:router(config-rpl)# if ospf-area in (5,6,255.255.10.2) then pass else drop
endif
```

In the following example, an area set is specified as the matching criteria. As a pre-requisite, the area set must be defined.

```
RP/0/RP0/CPU0:router(config)# ospf-area-set S1
RP/0/RP0/CPU0:router(config-ospf-area)# 1 , 2.2.2.2 end-set
RP/0/RP0/CPU0:router(config)# route-policy P1
```

```
RP/0/RP0/CPU0:router(config-rpl)# if ospf-area in S1 then pass else drop endif
```

pass

To pass a route for further processing, use the **pass** command in route-policy configuration mode.

pass

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **pass** command to signify that even though this route has not been modified, the user wants to continue executing in this policy block.

Note The **pass** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

When a policy block has finished executing, any route that has been modified in this policy block or has received a pass disposition in this policy block passes the policy and execution finishes for that policy. If this policy block is applied from within another policy block and the route is either passed or modified, then execution continues in the policy block that applied this policy block.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to accept the route unconditionally without modifying it:

```
RP/0/RP0/CPU0:router(config-rpl)# pass
```

This example accepts the route unconditionally, without modifying it, if the destination is in prefix-set permitted:

```
RP/0/RP0/CPU0:router(config-rpl)# if destination in permitted then
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

path-type is

To match path types, use the **path-type is** command in route-policy configuration mode.

path-type is {**ibgp** | **ebgp***parameter*}

Syntax Description

ibgp	Specifies an internal BGP path.
ebgp	Specifies an external BGP path.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **path-type is** command as a conditional expression within an **if** statement to match path types.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the path is an external BGP path the route is accepted:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_A
RP/0/RP0/CPU0:router(config-rpl)# if path-type is ebgp then
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# else
RP/0/RP0/CPU0:router(config-rpl-else)# drop
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

policy-global

To define global parameters and enter global parameter configuration mode, use the **policy-global** command in XR Config mode. To remove global parameters, use the **no** form of this command.

policy-global
no policy-global

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **policy-global** command to define global parameters and enter global parameter configuration mode.

RPL supports the definition of systemwide global parameters that can be used inside a policy definition. The global parameter values can be used directly inside a policy definition similar to the local parameters of parameterized policy. When a parameterized policy has a parameter name "collision" with a global parameter name, parameters local to policy definition take precedence, effectively 'masking off' global parameters. In addition, a validation mechanism is in place to prevent the deletion of a particular global parameter if it is referred by any policy. For more information on global parameters and parameterization, see the *Implementing Routing Policy* module of the *Routing Configuration Guide for Cisco NCS 5500 Series RoutersRouting Configuration Guide for Cisco NCS 540 Series RoutersRouting Configuration Guide*

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to configure global parameters:

```
RP/0/RP0/CPU0:router(config)# policy-global
RP/0/RP0/CPU0:router(config-rp-gl)# glbpathtype 'ebgp'
RP/0/RP0/CPU0:router(config-rp-gl)# glbtag '100'
RP/0/RP0/CPU0:router(config-rp-gl)# end-global
```

In the following example, the *globalparam* argument makes use of the global parameters gbpathtype and glbtag defined above and is defined for a nonparameterized policy:

```
RP/0/RP0/CPU0:router(config)# route-policy globalparam
RP/0/RP0/CPU0:router(config-rpl)# if path-type is $glbpathtype then
RP/0/RP0/CPU0:router(config-rpl)# set tag $glbtag
RP/0/RP0/CPU0:router(config-rpl)# endif
```

```
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

prefix-set

To enter prefix set configuration mode and define a prefix set for contiguous and non-contiguous set of bits, use the **prefix-set** command in XR Config mode. To remove a named prefix set, use the **no** form of this command.

prefix-set *name*
no prefix-set *name*

Syntax Description

name	Name of a prefix set.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **prefix-set** command to enter prefix set configuration mode and define a prefix set.

A prefix set is a comma-separated list of prefix match specifications. It holds IPv4 or IPv6 prefix match specifications, each of which has four parts: an address, a mask length, a minimum matching length, and a maximum matching length. The address is required, but the other three parts are optional. The address is a standard four-part, dotted-decimal numeric IPv4 address or a colon-separated hexadecimal IPv6 address. The mask length, if present, is a nonnegative decimal integer in the range from 0 to 32 for IPv4 prefixes or 0 to 128 for IPv6 prefixes following the address and separated from it by a slash. The optional minimum matching length follows the address and optional mask length and is expressed as the keyword **ge** (mnemonic for **g**reater than or **e**qual to), followed by a nonnegative decimal integer in the range from 0 to 32 for IPv4 or 0 to 128 for IPv6. The optional maximum matching length follows the rest and is expressed by the keyword **le** (mnemonic for **l**ess than or **e**qual to), followed by yet another nonnegative decimal integer in the range from 0 to 32 for IPv4 or 0 to 128 for IPv6. A syntactic shortcut for specifying an exact length for prefixes to match is the **eq** keyword, mnemonic for **eq**ual to.

If a prefix match specification has no mask length, then the default mask length is 32 for IPv4 or 128 for IPv6. The default minimum matching length is the mask length. If a minimum matching length is specified, then the default maximum matching length must be less than 32 for IPv4 prefixes or 128 for IPv6 prefixes. Otherwise, if neither a minimum nor maximum length is specified, the default maximum length is the mask length.

A prefix set is a list of prefix match specifications. It holds IPv4 or IPv6 prefix match specifications, each of which has two parts: an address and a mask. The address and mask is a standard dotted-decimal IPv4 or colon-separated hexadecimal IPv6 address. The prefix set allows the specifying of contiguous and non-contiguous set of bits that mus be matched in any route. The set of bits to be matched are provided in the form of a mask in which a binary 0 means a mandatory match and a binary 1 means a 'do not match' condition.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows a prefix set named legal-ipv4-prefix-examples:

```
RP/0/RP0/CPU0:router(config)# prefix-set legal-ipv4-prefix-examples
RP/0/RP0/CPU0:router(config-pfx)# 10.0.1.1,
RP/0/RP0/CPU0:router(config-pfx)# 10.0.2.0/24,
RP/0/RP0/CPU0:router(config-pfx)# 10.0.3.0/24 ge 28,
RP/0/RP0/CPU0:router(config-pfx)# 10.0.4.0/24 le 28,
RP/0/RP0/CPU0:router(config-pfx)# 10.0.5.0/24 ge 26 le 30,
RP/0/RP0/CPU0:router(config-pfx)# 10.0.6.0/24 eq 28
RP/0/RP0/CPU0:router(config-pfx)# end-set
```

The first element of the prefix set matches only one possible value, 10.0.1.1/32 or the host address 10.0.1.1. The second element matches only one possible value, 10.0.2.0/24. The third element matches a range of prefix values, from 10.0.3.0/28 to 10.0.3.255/32. The fourth element matches a range of values, from 10.0.4.0/24 to 10.0.4.240/28. The fifth element matches prefixes in the range from 10.0.5.0/26 to 10.0.5.252/30. The sixth element matches any prefix of length 28 in the range from 10.0.6.0/28 through 10.0.6.240/28.

The following prefix set consists entirely of invalid prefix match specifications:

```
RP/0/RP0/CPU0:router(config)# prefix-set INVALID-PREFIX-EXAMPLES
RP/0/RP0/CPU0:router(config-pfx)# 10.1.1.1 ge 16,
RP/0/RP0/CPU0:router(config-pfx)# 10.1.2.1 le 16,
RP/0/RP0/CPU0:router(config-pfx)# 10.1.3.0/24 le 23,
RP/0/RP0/CPU0:router(config-pfx)# 10.1.4.0/24 ge 33,
RP/0/RP0/CPU0:router(config-pfx)# 10.1.5.0/25 ge 29 le 28
RP/0/RP0/CPU0:router(config-pfx)# end-set
```

Neither the minimum length nor the maximum length is legal without a mask length. The maximum length must be at least the mask length. The minimum length must be less than 32, the maximum length of an IPv4 prefix. The maximum length must be equal to or greater than the minimum length.

The following example shows a valid IPv6 prefix set named legal-ipv6-prefix-examples:

```
RP/0/RP0/CPU0:router(config)# prefix-set legal-ipv6-prefix-examples
RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:1::/64,
RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:2::/64,
RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:3::/64,
RP/0/RP0/CPU0:router(config-pfx)# 2001:0:0:4::/64
RP/0/RP0/CPU0:router(config-pfx)# end-set
```

This example shows a prefix set named legal-ipv4-prefix:

```
RP/0/RP0/CPU0:router(config)# prefix-set legal-ipv4-prefix
RP/0/RP0/CPU0:router(config-pfx)# 10.1.1.1  0.255.0.255
RP/0/RP0/CPU0:router(config-pfx)# 10.2.2.2 0.0.0.0
RP/0/RP0/CPU0:router(config-pfx)# 10.3.3.3 255.255.255.254
RP/0/RP0/CPU0:router(config-pfx)# 10.4.4.4 255.255.255.255
```

In the above example, In the above example, the command defines the prefix-set named acl-prefix-set. The first element specifies to match all routes having 10 in first octet and 1 in third octet. The second element matches all routes having prefix as 10.2.2.2 (that is, matches all conditions). The third element matches all routes having odd numbers in the last octets and the fourth element matches all routes with any prefix.

prepend as-path

To prepend the AS path with additional autonomous system numbers, use the **prepend as-path** command in route-policy configuration mode.

prepend as-path {*as-numberparameter* | **most-recent**} [*numberparameter*]

Syntax Description

as-number	Autonomous system number to prepend to the path. • Range for 2-byte Autonomous system numbers (ASNs) is 1 to 65535. • Range for 4-byte Autonomous system numbers (ASNs) in asplain format is 1 to 4294967295. • Range for 4-byte Autonomous system numbers (ASNs) is asdot format is 1.0 to 65535.65535.
parameter	Parameter name. The parameter name must be preceded with a "$."
most-recent	Specifies that the most recent autonomous system number should be prepended.
number	(Optional) Number of times the autonomous system number should be prepended. Range is 1 to 63.

Command Default

The default *number* is 1.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **prepend as-path** command to prepend the AS path with additional autonomous system numbers.

Note The **prepend as-path** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

This command can take one or two arguments. The first argument (either a number or parameter) is the autonomous system number to prepend to the path. The optional second argument (either a number or parameter) is the number of times the autonomous system number should be prepended.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to prepend the autonomous system number 666.1 to the AS path three times:

```
RP/0/RP0/CPU0:router(config-rpl)# prepend as-path 666.1 3
```

The following example shows how to prepend the autonomous system number 666.0 to the AS path one time:

```
RP/0/RP0/CPU0:router(config-rpl)# prepend as-path 666.0 1
```

protocol

To check the protocol that installs the route, use the **protocol** command in route-policy configuration mode.

protocol {**in**(*protocol-set)* | **is***protocol-name*}

Syntax Description

in **(** *protocol-set* **)**	Specifies a member of a set. The *protocol-set* argument accepts the following keywords within parentheses: • **bgp** —Border Gateway Protocol (BGP) • **connected** —Connected routes • **isis** —ISO Intermediate System-to-Intermediate System (IS-IS) • **ospf** —Open Shortest Path First (OSPF) • **ospfv3** —Open Shortest Path First version 3 (OSPFv3) • **rip** —Routing Information Protocol (RIP) • **static** —Static routes. Keywords must be separated by a comma.
is *protocol-name*	Specifies a single protocol name, and accepted keywords are similar to the *protocol-set* argument.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **protocol** command as a conditional expression within an if statement to specify a protocol to install a route.

Use the **in** keyword to determine if a protocol listed in the *protocol-set* is the originator of the route being filtered.

Use the **is** keyword to determine if *protocol-name* is an exact match.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to use the **protocol** command as a conditional expression within if statements:

```
RP/0/RP0/CPU0:router(config)# route-policy rip1
RP/0/RP0/CPU0:router(config-rpl)# if protocol in (connected, static) then
RP/0/RP0/CPU0:router(config-rpl-if)# add rip-metric 2
RP/0/RP0/CPU0:router(config-rpl-if)# elseif protocol is bgp 1 then
RP/0/RP0/CPU0:router(config-rpl-elseif)# add rip-metric 3
RP/0/RP0/CPU0:router(config-rpl-elseif)# elseif protocol is ospf 2 then
RP/0/RP0/CPU0:router(config-rpl-elseif)# add rip-metric 4
RP/0/RP0/CPU0:router(config-rpl-elseif)# else
RP/0/RP0/CPU0:router(config-rpl-else)# add rip-metric 5
RP/0/RP0/CPU0:router(config-rpl-else)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy

RP/0/RP0/CPU0:router(config)# router rip
RP/0/RP0/CPU0:router(config-rip)# interface HundredGigE 0/1/0/1
RP/0/RP0/CPU0:router(config-rip-if)# route-policy rip1 out
```

rd in

To compare the route distinguisher (RD) associated with the route to RDs contained in either a named or an inline RD set, use the **rd in** command in route-policy configuration mode.

rd in {*rd-set-nameinline-rd-setparameter*}

Syntax Description

rd-set-name	Name of an RD set.
inline-rd-set	Inline RD set. The inline RD set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **rd in** command as a conditional expression within an **if** statement to match a destination entry in a named prefix set or inline prefix set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command takes either a named RD set or an inline RD set value as an argument. The condition returns true if the destination entry matches any entry in the RD set or inline RD set. An attempt to match an RD using an RD set that is defined but contains no elements returns false.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows the **rd in** command with an inline RD set value as an argument:

```
RP/0/RP0/CPU0:router(config)# route-policy
RP/0/RP0/CPU0:router(config-rpl)# if rd in (128.1.0.0/16:100) then
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

rd-set

To define a route distinguisher (RD) set and enter RD configuration mode, use the **rd-set** command in XR Config mode.

rd-set *name*
no rd-set *name*

Syntax Description

name	Name of an RD community set.

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **rd-set** command to create a set with RD elements and enter RD configuration mode. An RD set is a 64-bit value prepended to an IPv4 address to create a globally unique Border Gateway Protocol (BGP) VPN IPv4 address.

Note For *m*, the mask length is supported.

You can define RD values with the following commands:

- *a.b.c.d/m:**—BGP VPN RD in IPv4 format with a wildcard character. For example, 10.0.0.2/24.0:*.
- *a.b.c.d/m:n*—BGP VPN RD in IPv4 format with a mask. For example, 10.0.0.2/24:666.
- *a.b.c.d:** —BGP VPN RD in IPv4 format with a wildcard character. For example, 10.0.0.2:*.
- *a.b.c.d:n*—BGP VPN RD in IPv4 format. For example, 10.0.0.2:666.
- *asn:**—BGP VPN RD in ASN format with a wildcard character. For example, 10002:*.
- *asn:n*—BGP VPN RD in ASN format. For example, 10002:666.
- *x.y:**—BGP VPN RD in 4-byte ASN format with a wildcard character. For example, 10002.101:*.
- *x.y:n*—BGP VPN RD in 4-byte ASN format. For example, 10002.101:666.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to create an RD set called my_rd_set:

```
RP/0/RP0/CPU0:router(config)# rd-set my_rd_set
RP/0/RP0/CPU0:router(config-rd)# 172.16.0.0/16:*,
RP/0/RP0/CPU0:router(config-rd)# 172.17.0.0/16:100,
RP/0/RP0/CPU0:router(config-rd)# 192:*,
RP/0/RP0/CPU0:router(config-rd)# 192:100
RP/0/RP0/CPU0:router(config-rd)# end-set
```

replace as-path

To replace a sequence of AS numbers or private AS numbers in the AS path with the configured local AS number, use the **replace as-path** command in route-policy configuration mode.

replace as-path {[*as-number-list parameter*] | **private-as**}

Syntax Description

as-number-list	(Optional) Sequence of AS numbers to replace. The sequence must be enclosed in single quotes (‘ ’). You can use 2-byte or 4-byte AS numbers. • The 2-byte value is entered as a 16-bit unsigned decimal value. The range is 0 to 65535. • The 4-byte value is entered as two 16-bit unsigned decimal values separated by a period. The range is 1.0 to 65535.65535.
parameter	(Optional) Parameter name. The parameter name must be preceded with a “$.”
private-as	Matches within the BGP private AS range. Range is from 64512 to 65534.

Command Default

None.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **replace as-path** command to replace a sequence of AS numbers or private AS numbers in the AS path with the local AS numbers. For example, if the AS path is ‘67 65534 100 65533 5 78 89 90’ and the local AS number is 900, then:

```
replace as-path ‘5 78’
```

replaces‘5 78’ in the AS path with 900 (from the local AS), and the new path would be‘67 65534 100 65533 900 89 90’.

Consider following statement:

```
replace as-path private-as
```

Because 65534 and 65533 are within the private AS range, they are replaced with 900. The path is ‘67 900 100 900 5 78 89 90’. The length of the path remains the same.

The **replace as-path** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Caution The **replace as-path** command changes the AS path content which can lead to routing loops.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows how to use the **replace as-path** command to replace AS numbers in the AS path:

```
RP/0/RP0/CPU0:router(config)# route-policy drop-as-1234
RP/0/RP0/CPU0:router(config-rpl)# replace as-path '90 78 45 $asnum'
RP/0/RP0/CPU0:router(config-rpl)# replace as-path private-as
RP/0/RP0/CPU0:router(config-rpl)# replace as-path '9.9 7.89 14.15 $asnum'
RP/0/RP0/CPU0:router(config-rpl)# replace as-path '9 89 14.15 $asnum'
```

remove as-path private-as

To remove BGP private AS numbers from as-path structure used by BGP, use the **remove as-path private-as** command under route policy configuration mode.

remove as-path private-as [entire-aspath]

Syntax Description

entire-aspath	(Optional) Removes the entire private autonomous system numbers from an autonomous system path only if all the autonomous systems in the path are private.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

This example shows how to remove BGP private AS numbers from as-path structure:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# route-policy rm_private_as
RP/0/RP0/CPU0:router(config-rpl)# remove as-path private-as entire-aspath
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

rib-has-route

To check if a route listed in the prefix set exists in the Routing Information Base (RIB), use the **rib-has-route** command in route-policy configuration mode.

rib-has-route in {*prefix-set-nameinline-prefix-setparameter*}

Syntax Description

prefix-set-name	Name of a prefix set.
inline-prefix-set	Inline prefix set. The inline prefix set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

If routes are active, then they are advertised. Routes are considered active if they are already installed in the Routing Information Base (RIB).

The prefix sets used in the **rib-has-route** command contain two match specifications. The first is where an exact route match is requested (for example, 10.10.0.0/16 will match exactly one route) and the second is where a route match or any more-specific route match is allowed (for example, 10.10.0.0/16 le 32 will match the 10.10.0.0/16 route and any longer prefix).

Use the **rib-has-route** command as a conditional expression within an **if** statement to check if there is an active route with a specific prefix contained in the RIB. If the statement reveals an active route that meets that criteria, additional actions are executed.

For a list of all conditional expressions available within an **if** statement, see the **if** command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, an **if** statement is used to learn if a route contained in a prefix set 10.10.0.0/16 is in the RIB:

```
RP/0/RP0/CPU0:router(config-rpl)# if rib-has-route in (10.10.0.0/16 ge 16) then
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

route-has-label

To check if there is a Multiprotocol Label Switching (MPLS) label in a route during redistribution, use the **route-has-label** command in route-policy configuration mode.

route-has-label

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **route-has-label** command as a conditional expression within an **if** statement to check if there is an MPLS label in a route during redistribution.

For a list of all conditional expressions available within an **if** statement, see the **if** command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, an **if** statement learns if an MPLS label is present in a route:

```
RP/0/RP0/CPU0:router(config-rpl)# if route-has-label then
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

route-policy (RPL)

To define a route policy and enter route-policy configuration mode, use the **route-policy** command in XR Config mode. To remove a policy definition, use the **no** form of this command.

route-policy *name* [*(parameter1, parameter2, . . . , parameterN)*]
no **route-policy** *name*
(parameter1, parameter2, . . . , parameterN)

Syntax Description

name	Name of a route policy.
parameter	(Optional) Parameter name. The parameter name must be preceded with a "$." The *parameters* must be enclosed in parenthesis "()".

Command Default

No default behavior or values

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **route-policy** command to define a route policy and enter route-policy configuration mode.

Policy definitions create named bundles of policy statements. A policy definition consists of the **route-policy** command followed by a name, a group of policy statements, and the **end-policy** command.

The policy name serves as a handle for binding the policy to protocols.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following example shows a simple policy named drop-everything that drops any route it encounters:

```
RP/0/RP0/CPU0:router(config)# route-policy drop-everything
RP/0/RP0/CPU0:router(config-rpl)# drop
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

Policies may also refer to other policies such that common blocks of policy can be reused. This reference to other policies is accomplished by using the **apply** command. The following is a simple example:

```
RP/0/RP0/CPU0:router(config)# route-policy drop-as-1234
RP/0/RP0/CPU0:router(config-rpl)# if as-path passes-through '1234' then
RP/0/RP0/CPU0:router(config-rpl-if)# apply check-communities
```

```
RP/0/RP0/CPU0:router(config-rpl-if)# else
RP/0/RP0/CPU0:router(config-rpl-else)# pass
RP/0/RP0/CPU0:router(config-rpl-else)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

The **apply** command indicates that the policy check-communities should be executed if the route under consideration passed through autonomous system 1234 before it was received. If so, the communities of the route are checked, and based on the findings the route may be accepted unmodified, accepted with changes, or dropped.

route-type is

To match route types when redistribution is being performed into Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), or Integrated Intermediate System-to-Intermediate System (IS-IS), use the **route-type is** command in route-policy configuration mode.

route-type is {**local** | **interarea** | **internal** | **type-1** | **type-2** | **level-l** | **level-2***parameter*}

Syntax Description

local	Uses a local value to match locally generated BGP routes.
interarea	Uses an interarea value to match IS-IS interarea routes.
internal	Uses an internal value to match OSPF intra- and interarea routes.
type-1	Uses a Type 1 value to match Type 1 OSPF routes.
type-2	Uses a Type 2 value to match Type 2 OSPF routes.
level-1	Uses a Level 1 value to match Level 1 IS-IS routes.
level-2	Uses a Level 2 value to match Level 2 IS-IS routes.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **route-type is** command as a conditional expression within an **if** statement to compare route types when redistribution is being performed into BGP, OSPF, or IS-IS.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The valid keywords are **local** , **internal** , **interarea** , **type-1** , **type-2** , **level-1** , and **level-2** . A parameterized value that fills in one of these values may also be used. The **local** value is used to match locally generated BGP routes. The internal value is used to match OSPF intra- and interarea routes. The **type-1** and **type-2** values are used to match Type 1 and Type 2 OSPF external routes. The **level-1** , **level-2** , and **interarea** values are used to match IS-IS routes of those respective types.

Because the route type is a matching operator, it appears in conditional clauses of **if** and **then** statements.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, non-local routes are dropped:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_A
RP/0/RP0/CPU0:router(config-rpl)# if route-type is local then
RP/0/RP0/CPU0:router(config-rpl-if)# pass
RP/0/RP0/CPU0:router(config-rpl-if)# else
RP/0/RP0/CPU0:router(config-rpl-else)# drop
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

rpl editor

To set the default routing policy language (RPL) editor, use the **rpl editor** command in XR Config mode.

rpl editor {**nano** | **emacs** | **vim**}

Syntax Description

nano	Sets the default RPL editor to GNU nano.
emacs	Sets the default RPL editor to EMACS.
vim	Sets the default RPL editor to VIM.

Command Default

The Vim editor is the default.

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.
Release 7.11.1	This command was deprecated.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the default RPL editor is set to Nano:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# rpl editor nano
```

In the following example, the default RPL editor is set to EMACS:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# rpl editor emacs
```

In the following example, the default RPL editor is set to VIM:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# rpl editor vim
```

rpl maximum

To configure system limits on the routing policy subsystem, use the **rpl maximum** command in XR Config mode.

rpl maximum {**lines** | **policies**} *number*

Syntax Description

lines *number*	Configures the number of lines of configuration limit. Range is from 1 to 131072.
policies *number*	Configures the number of policies limit. Range is from 1 to 5000.

Command Default

lines *number* : 65536

policies *numbers* : 3500

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **rpl maximum** command to configure system limits on the routing policy subsystem. As such, **rpl maximum** configuration lines do not appear as statements within a routing policy. This command places resource limits on the routing policy subsystem. Use the **rpl maximum** command to configure the maximum number of lines of configuration and number of policies.

The number of lines of configuration includes the beginning and ending statements**,** for example, **route-policy** and **end-policy** . Each line of configuration for sets is also counted.

A line of configuration is counted only once; it is not counted each time it is used. Similarly, any multiple use of policy in an apply statement counts only as one policy.

A user can change the default values for lines and policies but cannot exceed the maximum value, nor can the value for lines and policies be configured lower than the number of lines or policies that are currently configured.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the maximum number of RPL system limits are modified:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# rpl maximum lines 50
RP/0/RP0/CPU0:router(config)# rpl maximum policies 6
```

rpl set-exit-as-abort

To change the default exit behavior under RPL configuration mode to abort from the RPL configuration mode without saving the configuration, use the **rpl set-exit-as-abort** command in XR Config mode.

rpl set-exit-as-abort

Syntax Description

This command has no keywords or arguments.

Command Modes

XR Config mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The default **exit** command acts as end-policy, end-set, or end-if. If the **exit** command is executed under route policy configuration mode, the changes are applied and configuration is updated. This destructs the existing policy. The **rpl set-exit-as-abort** command allows to overwrite the default behavior of the **exit** command under the route policy configuration mode.

Task ID

Task ID	Operations
route-policy	read, write

Examples

This example shows how change the default exit behavior:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# rpl set-exit-as-abort
```

set administrative-distance

To set a route with lower administrative distance such that it is preferred to a route with higher administrative distance, use the **set administrative-distance** command in route policy configuration mode.

set administrative-distance [**number** | **parameter**]

Syntax Description

number	Value assigned to a 8-bit unsigned integer. Range is from 1 to 255.
parameter	Parameter name. The parameter name must be preceded with a "$".

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

This example shows how to set a route with an administrative value such that it is preferred to a route with higher administrative distance.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# route-policy sample
RP/0/RP0/CPU0:router(config-rpl)# set administrative-distance 34
RP/0/RP0/CPU0:router(config-rpl)# end-policy
RP/0/RP0/CPU0:router(config-rpl)# exit
RP/0/RP0/CPU0:router(config)# route bgp 100
RP/0/RP0/CPU0:router(config-bgp)# address family ipv4 unicast
RP/0/RP0/CPU0:router(config-bgp-af)# table-policy sample
RP/0/RP0/CPU0:router(config-bgp-af)# exit
RP/0/RP0/CPU0:router(config-bgp)# exit
RP/0/RP0/CPU0:router(config)# end
```

set community

To set the Border Gateway Protocol (BGP) community attributes in a route, use the **set community** command in route-policy configuration mode.

set community {*community-set-nameinline-community-setparameter*} [**additive**]

Syntax Description

community-set-name	Community set name.
inline-community-set	Inline community set. The inline community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”
additive	(Optional) Adds communities to communities in the route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set community** command to set the BGP community attribute.

Note The **set community** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Communities are 32-bit values carried in BGP routes. Each route may have zero or more communities in an unordered list.

Use this command to replace the communities in a route or add to them using the optional **additive** keyword.

As with the other community forms that support inline sets, either or both 16-bit portions of the community can be parameterized. Likewise, the names of the well-known communities **internet** (0:0), **no-advertise** (65535:65281), **no-export** (65535:65282), and **local-AS** (65535:65283) can also be used. In an inline community set, each 16-bit portion can also be specified as the **peeras** to express the AS number of the neighbor from which the route was received. If the neighbor AS employs a 4-byte ASN, the IANA-assigned 16-bit value 23456 (AS_TRANS) is used as **peeras** instead.

Without the **additive** keyword, any existing communities (other than the well-known communities) are removed and replaced with the given communities. The **additive** keyword specifies that all communities already present in the route be maintained and the list of communities be added to them.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following are incomplete configuration examples using the **set community** command:

```
RP/0/RP0/CPU0:router(config-rpl)# set community (10:24)
RP/0/RP0/CPU0:router(config-rpl)# set community (10:24, $as:24, $as:$tag)
RP/0/RP0/CPU0:router(config-rpl)# set community (10:24, internet) additive
RP/0/RP0/CPU0:router(config-rpl)# set community (10:24, $as:24) additive
RP/0/RP0/CPU0:router(config-rpl)# set community (10:24, peeras:24) additive
```

set core-tree

To set a Multicast Distribution Tree (MDT) type, use the **set core-tree** command in route-policy configuration mode.

set core-tree {**gre-rosen** | **mldp-inband** | **mldp-partitioned-mp2mp** | **mldp-partitioned-p2mp** | **mldp-rosen** | **rsvp-te-partitioned-p2mp***parameter*}

Syntax Description

gre-rosen	Specifies the IP GRE Rosen core MDT type
mldp-inband	Specifies the MLDP InBand core MDT type
mldp-partitioned-mp2mp	Specifies theMLDP Partitioned MP2MP core MDT type
mldp-partitioned-p2mp	Specifies the MLDP Partitioned P2MP core MDT type
mldp-rosen	Specifies the MLDP Rosen core MDT type
rsvp-te-partitioned-p2mp	Specifies the RSVP TE core core MDT type
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

None

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

In this example, the Multicast Distribution Tree type is set to IP GRE Rosen core:

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#route-policy policy_mdt_type
RP/0/RP0/CPU0:router(config-rpl)#set core-tree gre-rosen
```

set dampening

To configure Border Gateway Protocol (BGP) route dampening, use the **set dampening** command in route-policy configuration mode.

set dampening {**halflife** {*minutesparameter*} | **max-suppress** {*minutesparameter*} | **reuse** {*secondsparameter*} | **suppress** {*penalty-unitsparameter*} | **others default**}

Syntax Description

halflife *minutes*	Specifies the time (in minutes) after which a penalty is decreased. After the route has been assigned a penalty, the penalty is decreased by half after the half-life period. The process of reducing the penalty happens every 5 seconds. Range is 1 to 45 minutes.
parameter	Parameter name. The parameter name must be preceded with a "$."
max-suppress *minutes*	Specifies the maximum time (in minutes) a route can be suppressed. Range is 1 to 20000. If the half-life value is allowed to default, the maximum suppress time defaults to 60 minutes.
reuse *seconds*	Unsuppresses a route if the penalty for flapping the route decreases enough to fall below the configured value (in seconds). The process of unsuppressing routes occurs at 10-second increments. Range is 1 to 20000.
suppress *penalty-units*	Specifies a penalty of 1000 each time a route flaps. When a route penalty exceeds the configured limit, it is suppressed. Range is 1 to 20000.
others default	If all four keyword values are not specified in the command, then the command *must* end with **others default** . This designation indicates that any keyword not defined is set to its default.

Command Default

half-life : 15 minutes

max-suppress : 60 minutes (four times the half-life)

reuse : 750 seconds

suppress : 2000 penalty units

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The BGP protocol supports route dampening using an exponential backoff algorithm. The algorithm is controlled by setting the four supported BGP values: half-life, max-suppress, reuse, and suppress. Use the **set dampening** command to configure BGP route dampening.

Note The **set dampening** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

A value for at least one of the four keywords must be set. If the **set dampening** command defines values for three or fewer of the supported keywords, then the configuration must end with the **others default** , which indicates that any keyword value not defined in the command is set to its default value.

The keywords may appear in the command in any order.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following examples, the half-life is set to 20 minutes and the maximum suppress time is set to

90 minutes. Each command must end with **others default** because three or fewer keywords are defined.

```
RP/0/RP0/CPU0:router(config-rpl)# set dampening halflife 20 others default
RP/0/RP0/CPU0:router(config-rpl)# set dampening max-suppress 90 others default
```

In this example, all four keywords are defined, which means the command does not use **others default** .

```
RP/0/RP0/CPU0:router(config-rpl)# set dampening halflife 15 max-suppress 60 reuse 750
suppress 2000
```

The following command is invalid because it is missing **others default.**

```
RP/0/RP0/CPU0:router(config-rpl)# set dampening reuse 700
```

In the following example, the parameters are used.

```
RP/0/RP0/CPU0:router(config-rpl)# set dampening halflife $p1 suppress $p4 reuse $p3
max-suppress $p2
```

set extcommunity cost

To set the Border Gateway Protocol (BGP) cost extended community attributes, use the **set extcommunity cost** command in route-policy configuration mode.

set extcommunity cost {*cost-extcommunity-set-namecost-inline-extcommunity-setparameter*} [**additive**]

Syntax Description

cost-extcommunity-set-name	Cost extended community set name.
cost-inline-extcommunity-set	Inline cost extended community set. The inline cost extended community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."
additive	(Optional) Adds extended communities for cost to extended communities in the route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set extcommunity cost** command to either replace the extended communities on the route or add to them using the optional **additive** keyword. Cost community is an extended community used to tie break the best path selection process in BGP so as to have a localized custom decision for packet forwarding. The extended community format defines generic points of insertion (POI) that influence the decision at different points of the bestpath algorithm.

Note The **set extcommunity cost** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

As with the other extended community forms that support inline sets, either or both portions of the community can be parameterized. Similarly to regular communities, the **additive** keyword can be used to signify adding these extended communities to those that are already present, as opposed to replacing them. Without the **additive** keyword, any existing extended communities for cost (other than the well-known communities) are removed and replaced with the given communities. The **additive** keyword specifies that all extended communities for cost already present in the route be maintained and the set of extended communities be added to them. Well-known communities include internet, local-AS, no-advertise, and no-export.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following are incomplete configuration examples using the **set extcommunity cost** command:

```
RP/0/RP0/CPU0:router(config-rpl)# set extcommunity cost (IGP:10:20)
RP/0/RP0/CPU0:router(config-rpl)# set extcommunity cost (Pre-Bestpath:33:44)
RP/0/RP0/CPU0:router(config-rpl)# set extcommunity cost (IGP:11:21)
```

set extcommunity rt

To set the Border Gateway Protocol (BGP) route target (RT) extended community attributes, use the **set extcommunity rt** command in route-policy configuration mode.

set extcommunity rt {*rt-extcommunity-set-namert-inline-extcommunity-setparameter*} **additive**

Syntax Description

rt-extcommunity-set-name	Route target extended community set name.
rt-inline-extcommunity-set	Inline route target extended community set. The inline route target extended community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a “$.”
additive	(Optional) Adds extended communities for an RT to extended communities in the route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set extcommunity rt** command to either replace the extended communities on the route or add to them using the optional **additive** keyword.

Note The **set extcommunity rt** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

As with the other extended community forms that support inline sets, either or both portions of the community can be parameterized. Similarly to regular communities, the **additive** keyword can be used to signify adding these extended communities to those that are already present, as opposed to replacing them.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following are incomplete configuration examples using the **set extcommunity rt** command:

```
RP/0/RP0/CPU0:router(config-rpl)# set extcommunity rt (10:24)
RP/0/RP0/CPU0:router(config-rpl)# set extcommunity rt (10:24, $as:24, $as:$tag)
RP/0/RP0/CPU0:router(config-rpl)# set extcommunity rt (10:24, internet) additive
```

```
RP/0/RP0/CPU0:router(config-rpl)# set extcommunity rt (10:24, $as:24) additive
```

Without the **additive** keyword, any existing extended communities for cost (other than the well-known communities) are removed and replaced with the given communities. The **additive** keyword specifies that all extended communities for cost already present in the route be maintained and the list of extended communities be added to them.

set ip-precedence

To set the IP precedence, use the **set ip-precedence** command in route-policy configuration mode.

set ip-precedence {*numberparameter*}

Syntax Description

number	Value of the precedence. The precedence value can be a number from 0 to 7: • **7** —network (set packets with network control precedence) • **6** —internet (set packets with internetwork control precedence) • **5** —critical (set packets with critical precedence) • **4** —flash-override (set packets with flash override precedence) • **3** —flash (set packets with flash precedence) • **2** —immediate (set packets with immediate precedence) • **1** —priority (set packets with priority precedence) • **0** —routine (set packets with routine precedence)
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set ip-precedence** command to set the IP precedence to classify packets. This command is supported at the BGP table-policy attachpoint. Prefixes are marked for subsequent processing in the forwarding plane. After QoS Policy Propagation through Border Gateway Protocol (BGP) (QPPB) is enabled on an interface, corresponding traffic shaping and policing is completed using packet classification based on the IP precedence or QoS group ID. See *Modular QoS Configuration Guide for Cisco NCS 5500 Series RoutersModular QoS Configuration Guide for Cisco NCS 540 Series RoutersModular QoS Configuration Guide for Cisco NCS 560 Series Routers* for information on QPPB.

Task ID

Task ID	Operations
route-policy	read, write

Examples

This example shows how use **set ip-precedence** command:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# set ip-precedence 3
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set isis-metric

To set the Intermediate System-to-Intermediate System (IS-IS) metric attribute value, use the **set is-is metric** command in route-policy configuration mode.

set isis-metric {*numberparameter*}

Syntax Description

number	24-bit integer number. Range is from 0 to 16777215.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set isis-metric** command to set the IS-IS metric attribute value for routes that are redistributed into IS-IS.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the IS-IS metric attribute value is set to 1000:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# set isis-metric 1000
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set label

To set the Border Gateway Protocol (BGP) label attribute value, use the **set label** command in route-policy configuration mode.

set label {**explicit-null** | **implicit-null***parameter*}

Syntax Description

explicit-null	Sets the label to the well-known explicit value of 0.
implicit-null	Sets the label to the well-known implicit value of 3.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set label** command in a route policy at the allocate label attachpoint to set the label to explicit-null or implicit-null based on deployment preference. During inter-AS operation, the ASBR sends some of its own loopbacks to other its peers and labels them either implicit null or explicit null.

Examples

The following example shows how to set the labels:

```
RP/0/RP0/CPU0:router(config)# route-policy labelpolicy
RP/0/RP0/CPU0:router(config-rpl)# if destination in (206.141.1.0/24) then
RP/0/RP0/CPU0:router(config-rpl)# set label explicit-null
RP/0/RP0/CPU0:router(config-rpl)# elseif destination in (206.141.3.0/24) then
RP/0/RP0/CPU0:router(config-rpl)# drop
RP/0/RP0/CPU0:router(config-rpl)# elseif destination in (206.141.4.0/24) then
RP/0/RP0/CPU0:router(config-rpl)# set label explicit-null
RP/0/RP0/CPU0:router(config-rpl)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set label-mode

To set the type of Border Gateway Protocol (BGP) label mode, use the **set label-mode** command in route-policy configuration mode. This command does not have a **no** form.

set label-mode {**per-ce** | **per-vrf** | **per-prefix**}

Syntax Description

per-ce	Specifies that the same label is used for all routes advertised from a unique customer edge (CE) peer or router.
per-vrf	Specifies that the same label is used for all routes advertised from a unique VRF.
per-prefix	Specifies that the same label is used for all routes advertised from a unique prefix.

Command Default

Per-prefix label mode.

If a policy attached at label-mode attachpoint evaluates to pass and a **label mode** is not explicitly set, **per-prefix** is used as a default label mode.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set label-mode** command in a route policy at the label-mode attachpoint to set the type of label mode to per-ce or per-vrf or per-prefix, based on deployment preference.

Per-vrf label mode is not supported for Carrier Supporting Carrier (CSC) network with internal and external BGP multipath setup.

Task ID

Task ID	Operation
route-policy	read, write

This example shows how to set the type of label-mode to per-ce:

```
RP/0/RP0/CPU0:router(config)# route-policy set_label_mode
RP/0/RP0/CPU0:router(config-rpl)# set label-mode per-ce
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

This example shows how to set the type of label-mode to per-vrf:

```
RP/0/RP0/CPU0:router(config)# route-policy set_label_mode
RP/0/RP0/CPU0:router(config-rpl)# set label-mode per-vrf
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

This example shows how to set the type of label-mode to per-prefix:

```
RP/0/RP0/CPU0:router(config)# route-policy set_label_mode
RP/0/RP0/CPU0:router(config-rpl)# set label-mode per-prefix
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set large-community

To set the Border Gateway Protocol (BGP) large-community attributes in a route, use the **set large-community** command in route-policy configuration mode.

set large-community { *large-community-set-name inline-large-community-set parameter* } [**additive**]

Syntax Description

large-community-set-name	Large-community set name.
inline-large-community-set	Inline large-community set. The inline large-community set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."
additive	(Optional) Adds large-communities to large-communities in the route.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

The large communities are specified as three non negative decimal integers separated by colons. For example, 1:2:3. Each integer is stored in 32 bits. The possible range for each integer is 0 to 4294967295.

In route-policy statements, each integer in the BGP large community can be replaced by the following expression:

- peeras — This expression is replaced by the AS number of the neigbhor from which the community is received or to which the community is sent, as appropriate.

Note The **set large-community** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Without the **additive** keyword, any existing large communities are removed and replaced with the given large communities. The **additive** keyword specifies that all communities already present in the route be maintained and the list of communities be added to them. However the **additive** keyword does not result in duplicate entries. If a particular large community is attached to a route and you specify the same large community again with the **additive** keyword in the set statement, then the specified large community is not added again. The merging operation removes duplicate entries. This also applies to the **peeras** keyword.

Task ID

Task ID	Operations
route-policy	read, write

The peeras expression in this example is replaced by the AS number of the neighbor from which the BGP large community is received or to which the community is sent, as appropriate.

In this example, if the route-policy mordac is applied to a neighbor, the ASN of which is 1, then the large community (1:2:3) is set only once.

```
RP/0/RP/0/RP0/CPU0:router#config
RP/0/RP0/CPU0:router(config)#route-policy mordac
RP/0/RP0/CPU0:router(config-rpl)#set large-community (1:2:3, peeras:2:3)
RP/0/RP0/CPU0:router(config-rpl)#end-set
RP/0/RP0/CPU0:router(config)#large-community-set catbert
RP/0/RP0/CPU0:router(config-largecomm)#1:2:3,
RP/0/RP0/CPU0:router(config-largecomm)#5:2:3
RP/0/RP0/CPU0:router(config-largecomm)#end-set
RP/0/RP0/CPU0:router(config)#route-policy wally
RP/0/RP0/CPU0:router(config-rpl)#set large-community catbert additive
RP/0/RP0/CPU0:router(config-rpl)#end-set
```

Note You should configure the **send-community-ebgp** command to send large communities to ebgp neighbors.

set level

To configure the Intermediate System-to-Intermediate System (IS-IS) link-state packet (LSP) level advertised to redistributed routes, use the **set level** command in route-policy configuration mode.

set level {**level-1** | **level-2** | **level-1-2***parameter*}

Syntax Description

level-1	Specifies that redistributed routes are advertised in the Level 1 LSP of the router.
level-2	Specifies that redistributed routes are advertised in the Level 2 LSP of the router.
level-1-2	Specifies that redistributed routes are advertised in Level 1 and Level 2 LSPs of the router.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the IS-IS **set level** command to configure the LSP level advertised to redistributed routes.

Note The **set level** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

This command supports parameterization of the **level** keyword.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the level is set to Level 2:

```
RP/0/RP0/CPU0:router(config)# route-policy bgp_isis_redist
RP/0/RP0/CPU0:router(config-rpl)# if destination in (172.2.0.0/16 ge 16) then
RP/0/RP0/CPU0:router(config-rpl)# set level level-2
RP/0/RP0/CPU0:router(config-rpl)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set local-preference

To set the Border Gateway Protocol (BGP) local preference attribute in a route, use the **set local-preference** command in route-policy configuration mode.

set local-preference {*numberparameter*}

Syntax Description

number	Value assigned to a 32-bit unsigned integer. Range is 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

Default value is 100.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set local-preference** command to specify a preference value for the autonomous system path. Local preference is a nontransitive (does not cross autonomous system boundaries) attribute and is the second metric considered in the BGP best path calculation (the highest local preference is chosen). Weight is the first metric evaluated for best path, but it is local to the router and propagates only to iBGP peers. See the *Implementing BGP* module of the *Routing Configuration Guide for Cisco NCS 5500 Series RoutersRouting Configuration Guide for Cisco NCS 540 Series RoutersRouting Configuration Guide* for information on the BGP best path calculation.

Note The **set local-preference** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

The local preference is a 32-bit unsigned integer.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the local preference value is set to 10:

```
RP/0/RP0/CPU0:router(config-rpl)# set local-preference 10
```

set med

To set the Border Gateway Protocol (BGP) Multi Exit Discriminator (MED) attribute, use the **set med** command in route-policy configuration mode.

set med {*numberparameter* | **igp-cost** | {+ | {*numberparameter*} | **-** | {*numberparameter*}} | **max-reachable**}

Syntax Description

number	Value assigned to a 32-bit unsigned integer. Range is 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."
igp-cost	Sets the MED value to the cost for the Interior Gateway Protocol (IGP) route to resolve the next-hop of the BGP route.
+ | -	Sets the MED to the MED plus or minus a static offset. An integer or parameter must follow the plus or minus.
max-reachable	Sets the MED value to the maximum possible value of 4294967295.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set med** command to set the MED value, which is a 32-bit unsigned integer.

Note The **set med** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

This command can take the following as argument values: an integer, a parameter, the **igp-cost** keyword, or a mathematical operator (either plus or minus) followed by an integer or a parameter. Setting the MED to the IGP cost is supported on outbound BGP policies only. The MED cannot be set to the IGP cost in policies applied to other BGP attach points.

The **max-reachable** keyword sets the MED to the maximum value while leaving the route reachable.

The plus or minus variants allow the user to set the MED to the MED plus or minus a static offset. The variants that allow a user to add or subtract offsets to the MED value are also range checked for underflow or overflow. If the value underflows as a result of subtraction, then the MED value is set to zero. If the value overflows, the value is set to 4294967295, which is the maximum value for MED. when MED is set to 4294967295, the route is unreachable.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following two examples show how to set the MED to a value that is either specified directly (using the integer 156) or passed to the policy as a parameter:

```
RP/0/RP0/CPU0:router(config-rpl)# set med 156
RP/0/RP0/CPU0:router(config-rpl)# set med $med_param
```

The following example shows how to instruct BGP to automatically set the MED value to the cost of the IGP route that resolves the next-hop of the BGP route:

```
RP/0/RP0/CPU0:router(config-rpl)# set med igp-cost
```

set metric-type (IS-IS)

To configure the integrated Intermediate System-to-Intermediate System (IS-IS) metric type, use the **set metric-type** command in route-policy configuration mode.

set metric-type {**internal** | **external** | **rib-metric-as-internal** | **rib-metric-as-external***parameter*}
set metric-type {**internal** | **external***parameter*}

Syntax Description

internal	Sets metric type to internal.
external	Sets the metric type to external.
parameter	Parameter name. The parameter name must be preceded with a "$."

Syntax Description

internal	Sets metric type to internal.
external	Sets the metric type to external.
rib-metric-as-internal	Uses RIB metric and sets IS-IS internal metric type.
rib-metric-as-external	Uses RIB metric and sets IS-IS external metric type.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the IS-IS **set metric-type** command to control whether IS-IS treats the metric as an internal or external metric.

Use the **rib-metric-as-external** and **rib-metric-as-internal** keywords to preserve RIB metrics when redistributing routes from another ISIS router instance or another protocol.

Note The **set metric-type** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

This command does not support parameterization.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the IS-IS metric type is set to internal:

```
RP/0/RP0/CPU0:router(config-rpl)# set metric-type internal
```

set metric-type (OSPF)

To control how Open Shortest Path First (OSPF) computes the cost for a route, use the **set metric-type** command in route-policy configuration mode.

set metric-type {**type-1** | **type-2***parameter*}

Syntax Description

type-1	Uses the cost set on the route plus the topology-related costs in the calculation for Type 1 metrics.
type-2	Uses only the cost set on the route in the calculation for Type 2 metrics.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the OSPF **set metric-type** command to control whether OSPF treats the cost as a Type 1 or Type 2 metric.

Note The **set metric-type** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

The value of Type 1 or Type 2 controls how OSPF computes the cost for this route. For Type 2 metrics, only the cost set on the route is used. For Type 1 metrics, the cost set on the route plus the topology- related costs are used in the calculation.

This command does not support parameterization.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the OSPF metric type is set to Type 1:

```
RP/0/RP0/CPU0:router(config-rpl)# set metric-type type-1
```

set next-hop

To replace the next-hop associated with a given route, use the **set next-hop** command in route-policy configuration mode.

set next-hop {*ipv4-address [destination-vrf] ipv6-address [destination-vrf]* | **discard** *parameter* | **peer-address** | **self**}

Syntax Description

ipv4-address	Valid IPv4 address.
ipv6-address	Valid IPv6 address.
discard	Sets next-hop as Null0 interface.
destination-vrf	(Optional) Specifies that the next-hop of the route should be resolved in destination VRF context. This keyword is available when an IPv4 or IPv6 address or parameter is used.
peer-address	Sets the next-hop to the IP address of the remote Border Gateway Protocol (BGP) peer.
parameter	Parameter name. The parameter name must be preceded with a "$."
self	Sets itself as the next-hop.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set next-hop** command to replace the next-hop associated with a specific address.

The next hop destination is selected according to the address family. Example: for ipv4 address-family, the IPv4 address is used and for ipv6 address-family, the IPv6 address is used.

Note The **set next-hop** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Use the **set next-hop peer-address** command to set the next-hop to the address of the BGP neighbor, where this policy is attached.

The next-hop is a valid IPv4 address entered as a dotted decimal or an IPv6 address entered as a colon-separated hexadecimal.

It is not possible to use this command to set the BGP IPv6 link-local next-hop.

The **destination-vrf** keyword is used mainly in Layer 3 VPN networks when importing routes.

The below address families support the selective setting of 'next-hop-self' via the RPL statement 'set next-hop self' starting in 4.2.1. Previous to this the setting of next-hop-self via an RPL was for all prefixes in the address family or none of the prefixes.

- IPv4 unicast
- IPv4 labeled-unicast
- IPv4 multicast
- IPv6 unicast
- IPv6 multicast

The **set next-hop discard** configuration is used in the neighbor inbound policy. When this config is applied to a path, the primary next-hop is still be associated with the actual path but the RIB is updated with next-hop set to Null0. Even if the primary received nexthop is unreachable, the Remotely Triggered Blackhole (RTBH) path will be considered reachable and will be a candidate in the bestpath selection process. The RTBH path is readvertised to other peers with either the received next-hop or nexthop-self based on normal BGP advertisement rules.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the next-hop is set to a valid IPv4 address:

```
RP/0/RP0/CPU0:router(config-rpl)# set next-hop 10.0.0.5
```

In this example, the next-hop is set to a parameter value $nexthop:

```
RP/0/RP0/CPU0:router(config-rpl)# set next-hop $nexthop
```

In this example, the next-hop is set to a valid IPv4 address with a destination VRF context:

```
RP/0/RP0/CPU0:router(config-rpl)# set next-hop 10.0.0.5 destination-vrf
```

set origin

To change the Border Gateway Protocol (BGP) origin attribute, use the **set origin** command in route-policy configuration mode.

set origin {**igp** | **incomplete** | **egp***parameter*}

Syntax Description

igp	Sets the origin type to Interior Gateway Protocol (IGP).
incomplete	Sets the origin type to incomplete.
egp	Sets the origin type to Exterior Gateway Protocol (EGP).
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set origin** command to change the origin attribute.

Note The **set origin** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

The origin of a Border Gateway Protocol (BGP) route is **igp** , **egp** , or **incomplete** .

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the origin attribute is set to EGP:

```
RP/0/RP0/CPU0:router(config-rpl)# set origin egp
```

set ospf-metric

To set an Open Shortest Path First (OSPF) protocol metric attribute value, use the **set ospf-metric** command in route-policy configuration mode.

set ospf-metric {*numberparameter*}

Syntax Description

number	Value assigned to a 24-bit unsigned integer. Range is 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set ospf-metric** command to set the metric for routes that are redistributed into OSPF. The OSPF metric operator accepts either an integer value or a parameter.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the OSPF metric attribute value is set to 1000:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# set ospf-metric 1000
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set path-selection

To set path selection criteria and install or advertise the path for the Border Gateway Protocol, use the **set path-selection** command in route-policy configuration mode.

set path-selection {**backup** *number* | **group-best** | **all** | **best-path**} [**install**] [**multipath-protect**] [**advertise**]

Syntax Description

backup	Specifies the BGP backup path.
number	Specifies the BGP backup path number. 3 bit decimal number. Range is 0-7.
group-best	Specifies the BGP group best path.
all	Specifies all BGP paths.
best-path	Specifies the BGP best path.
install	Installs the path.
multipath-protect	Installs and advertises the multipath protect.
advertise	Advertises the path.

Command Default

None

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

Examples

The following example shows how to set the path selection as **advertise backup path 3** for route-polcicy *path_selection_plcy*:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# route-policy path_selection_plcy
RP/0/RP0/CPU0:router(config-rpl)# set path-selection backup 3 advertise
```

set qos-group (RPL)

To set the quality of service (QoS) group, use the **set qos-group** command in route-policy configuration mode:

set qos-group {*numberparameter*}

Syntax Description

number	QoS group ID. Range is from 0 to 31.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set qos-group** command to set the QoS group to classify packets.

This command is supported at the BGP table-policy attachpoint. Prefixes are marked for subsequent processing in the forwarding plane. After QoS Policy Propagation through Border Gateway Protocol (BGP) (QPPB) is enabled on an interface, corresponding traffic shaping and policing is completed using packet classification based on the IP precedence or QoS group ID. See the *Modular QoS Configuration Guide for Cisco NCS 5500 Series RoutersModular QoS Configuration Guide for Cisco NCS 540 Series RoutersModular QoS Configuration Guide for Cisco NCS 560 Series Routers* for information on QPPB.

Task ID

Task ID	Operations
route-policy	read, write

Examples

This example shows how to use **set qos-group** command:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# set qos-group 12
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set rib-metric

To set the Routing Information Base (RIB) metric attribute value for a table policy, use the **set rib-metric** command in route-policy configuration mode:

set rib-metric {*numberparameter*}

Syntax Description

number	Value assigned to a 32-bit unsigned integer. Range is 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a “$.”

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set rib-metric** command set the RIB metric attribute value for BGP routes.

Every route in the RIB has a metric associated with it, signifying the cost to reach a specific destination based on link characteristics. The **set rib-metric** command modifies the RIB metric while installing BGP routes into RIB, enabling the upgrading or downgrading of the BGP route installed in RIB.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the RIB metric attribute is set to 1000:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# set rib-metric 1000
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set rip-metric

To set Routing Information Protocol (RIP) metric attributes, use the **set rip-metric** command in route-policy configuration mode.

set rip-metric {*numberparameter*}

Syntax Description

number	Value assigned to a 4-bit unsigned integer. Range is from 0 to 16.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set rip-metric** command to set the cost attribute for routes that are redistributed into RIP.

You can use the **add** command to increment the RIP metric value.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the RIP metric number is adjusted for route policy policy_1:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# set rip-metric 10
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set rip-tag

To set a route tag attribute for Routing Information Protocol (RIP) routes, use the **set rip-tag** command in route-policy configuration mode.

set rip-tag {*numberparameter*}

Syntax Description

number	Value assigned to a 16-bit unsigned integer. Range is from 0 to 65535.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set rip-tag** command to set the RIP tag attribute for routes that are redistributed into RIP. The RIP tag operator accepts either an integer value or a parameter.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the RIP tag is adjusted for route policy policy_1:

```
RP/0/RP0/CPU0:router(config)# route-policy policy_1
RP/0/RP0/CPU0:router(config-rpl)# set rip-tag 1000
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

set rt-set route-limit

To set the VPN route limit, use the **set rt-set route-limit** *limit-value* command in route-policy configuration mode.

set rt-set route-limit *limit-value*

Syntax Description

limit-value	VPN route limit value.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Task ID

Task ID	Operations
route-policy	read, write

This example shows how to set the VPN route limit using the **set rt-set route-limit** command.

```
Router# config
Router(config)# route-policy extcom
Router(config-rpl)# if extcommunity rt matches-any (111:1) then
Router(config-rpl-if)# set rt-set route-limit 5
Router(config-rpl-if)# else
Router(config-rpl-else)# set rt-set route-limit 6
Router(config-rpl-else)# endif
Router(config-rpl)# end-policy
```

set rpf-topology

To set reverse-path forwarding (RPF) to any default or nondefault tables for particular sources and groups, use the **set rpf-topology** command in routing policy configuration mode.

set rpf-topology [**vrf** *vrf-name*] {**ipv4** | **ipv6**} {**unicast** | **multicast***parameter*} **topology** *table-name*

Syntax Description

vrf *vrf-name*	[Optional] Specifies a VPN routing and forwarding (VRF) instance. Required when configuring extranet topologies
ipv4	[Optional] Specifies IPv4 address prefixes.
ipv6	[Optional] Specifies IPv6 address prefixes.
unicast	Specifies unicast address prefixes.
multicast	Specifies multicast address prefixes.
parameter	Parameter name. The parameter name must be preceded with a “$.”
topology	Specifies the default or non-default topology table for the source or group.
table-name	Alphanumeric name string.

Command Default

Default or current topology setting.

Command Modes

Routing policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

When using this command for MVPN extranet routing configuration, only the **vrf** *vrf-name* keyword and argument are required.

When using this command in the context of multitopology routing, all keywords and arguments with the exception of **vrf** *vrf-name* keyword and argument are required.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows how to execute the **set rpf-topology** command:

```
RP/0/RP0/CPU0:router# config
RP/0/RP0/CPU0:router(config)# route-policy green
RP/0/RP0/CPU0:router(config-rpl)# set rpf-topology ipv6 multicast topology t12
```

The following example shows the use of **set rpf-topology** command in the context of creating an RPF for a topology table in multiple topologies:

```
route-policy mt4-p1
  if destination in (225.0.0.1, 225.0.0.11) then
    set rpf-topology ipv4 multicast topology t201
  elseif destination in (225.0.0.2, 225.0.0.12) then
    set rpf-topology ipv4 multicast topology t202
  elseif destination in (225.0.0.3, 225.0.0.13) then
    pass
  endif
end-policy
!


route-policy mt4-p3
  if destination in (225.0.0.8) then
    set rpf-topology ipv4 multicast topology t208
  elseif destination in (225.0.0.9) then
    set rpf-topology ipv4 multicast topology t209
  elseif destination in (225.0.0.10) then
    set rpf-topology ipv4 multicast topology t210
  else
    drop
  endif
end-policy
!
```

set spf-priority

To set OSPF Shortest Path First (SPF) priority, use the set spf-priority command in route-policy configuration mode.

set spf-priority {**critical** | **high** | **medium**}

Syntax Description

critical	Sets critical priority for SPF
high	Sets high priority for SPF
medium	Sets medium priority for SPF

Command Default

None

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

This example sets SPF priority as critical:

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#route-policy policy_spf_priority
RP/0/RP0/CPU0:router(config-rpl)#set spf-priority critical
```

set tag

To set the tag attribute, use the **set tag** command in route-policy configuration mode.

set tag {*numberparameter*}

Syntax Description

number	Value assigned to a 32-bit unsigned integer. Range is from 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set tag** command to set the tag attribute.

Note The **set tag** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Tags are routing-protocol independent 32-bit integers that can be associated with a given route in the Routing Information Base (RIB).

For the Border Gateway Protocol (BGP), the tag attribute can be set only at the table-policy attach point.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the tag attribute is set to 10:

```
RP/0/RP0/CPU0:router(config-rpl)# set tag 10
```

In this example, the tag attribute is set to a parameter value $tag_param:

```
RP/0/RP0/CPU0:router(config-rpl)# set tag $tag_param
```

set traffic-index

To set the traffic index attribute, use the **set traffic-index** command in route-policy configuration mode.

set traffic-index {*numberparameter* | **ignore**}

Syntax Description

number	Integer value assigned to the traffic index attribute. Range is 1 to 63.
parameter	Parameter name. The parameter name must be preceded with a "$."
ignore	Specifies that Border Gateway Protocol (BGP) policy accounting is not done.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set traffic-index** command to set the traffic index attribute.

Note The **set traffic-index** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Traffic index is a special attribute for BGP. It is used as an index to a set of counters that are maintained by forwarding hardware. It is also used to track packet and byte counters that are forwarded using routes with specific attributes. These counters can be enabled and disabled on an individual interface basis.

The traffic index attribute can be set only at the table-policy attach point, and can take a value from 1 to 63, or a value of **ignore** . If the traffic index is set to **ignore** , then BGP policy accounting is not done. Parameterization of this value is also supported.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, a policy is created in which the traffic index is set to 10 for all routes that originated in autonomous system 1234:

```
RP/0/RSP0RP0/CPU0:router(config)# route-policy count-as-1234
RP/0/RSP0RP0/CPU0:router(config-rpl)# if as-path originates-from '1234' then
RP/0/RSP0RP0/CPU0:router(config-rpl-if)# set traffic-index 10
RP/0/RSP0RP0/CPU0:router(config-rpl-if)# else
RP/0/RSP0RP0/CPU0:router(config-rpl-if)# pass
RP/0/RSP0RP0/CPU0:router(config-rpl-if)# endif
```

```
RP/0/RSP0RP0/CPU0:router(config-rpl)# end-policy
```

This policy could then be attached using the BGP **table-policy** command. The counters could then be enabled on various interfaces with the appropriate commands.

set vpn-distinguisher

To change the Border Gateway Protocol (BGP) VPN distinguisher attribute, use the **set vpn-distinguisher** command in route-policy configuration mode.

set vpn-distinguisher {*numberparameter*}

Syntax Description

number	Value assigned to a 32-bit unsigned integer. Range is from 1 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set vpn-distinguisher** command to change the VPN distinguisher attribute.

Note The **set origin** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

A VPN distinguisher is used in Layer 3 VPN networks for enhanced individual VPN control and to avoid route target mapping at AS boundaries in inter-AS VPN networks. Route target extended communities are removed at neighbor outbound, and the VPN distinguisher value is applied on the BGP route as an extended community. When the route is received on a neighboring router in another AS, the VPN distinguisher is removed and mapped to a route target extended community.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the VPN distinguisher attribute is set to 456:

```
RP/0/RP0/CPU0:router(config-rpl)# set vpn-distinguisher 456
```

set weight

To set the weight value for Border Gateway Protocol (BGP) routes, use the **set weight** command in route-policy configuration mode.

set weight {*numberparameter*}

Syntax Description

number	Number assigned to the weight value for BGP routes. Weight is 16 bits. Range is 0 to 65535.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **set weight** command to set the weight value for BGP routes.

Note The **set weight** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

A weight is a value that can be applied to a route to override the BGP local preference. This is not a BGP attribute announced to BGP peer routers. RPL can be used to set the weight value.

Given two BGP routes with the same network layer reachability information (NLRI), a route with a higher weight is selected, no matter what the values of other BGP attributes may be. However, weight only has significance on the local router. It is not sent from one BGP speaker to another, even within the same autonomous system.

On Cisco routers, if a BGP route is sourced by the local router, its weight is automatically set to 32768; if the BGP route is learned from another router, its weight is automatically set to 0. Thus, by default, locally sourced routes are preferred over BGP learned routes.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the weight of the route is set to 10 and then to a parameter value $weight_param:

```
RP/0/RP0/CPU0:router(config-rpl)# set weight 10
RP/0/RP0/CPU0:router(config-rpl)# set weight $weight_param
```

show rpl

To display system-wide RPL configuration, use the **show rpl** command in XR EXEC mode.

show [**running-config**] **rpl** [**maximum** {**lines** *configuration-limit* | **policies** *policies-limit*} | **editor** {**emacs** | **nano** | **vim**}]

Syntax Description

running-config	(Optional) Displays configuration-limit argument.
maximum	(Optional) Displays the maximum number of lines of configuration and number of policies.
lines *configuration-limit*	(Optional) Displays the number of lines to which configuration is limited. Range is 1 to 131072. The *configuration-limit* argument is available if the **running-config** keyword is specified.
policies *policies-limit*	(Optional) Displays the limit on the number of policies. Range is 1 to 5000. The *configuration-limit* argument is available if the **running-config** keyword is specified.
editor	(Optional) Specifies the default RPL editor. This keyword is available if the **running-config** keyword is specified.
emacs	(Optional) Displays the default RPL editor to Micro Emacs.
nano	(Optional) Displays the default RPL editor to nano.
vim	(Optional) Displays the default RPL editor to Vim.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.
Release 7.11.1	The **Nano** and **Emacs** keyword was deprecated.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

The following shows the output of the **show running-config rpl** command:

```
RP/0/RP0/CPU0:router# show running-config rpl

extcommunity-set rt ext_comm_set_rt_ex1
  1.2.3.4:34
end-set
!
prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
route-policy policy_2
  if destination in prefix_set_ex1 then
    if (community matches-any com_set_ex1) then
      set community (10:666) additive
    endif
    if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
      set community (10:999) additive
    endif
  endif
end-policy
!
```

show rpl active as-path-set

To display the AS path sets that are referenced by at least one policy that is being used at an attach point, use the **show rpl active as-path-set** command in XR EXEC mode.

show rpl active as-path-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for active AS path sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl active as-path-set** command to display all AS path sets that are in use in the system and referenced either directly or indirectly at a policy attach point.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
RP/0/RP0/CPU0:router# show rpl route-policy policy_2 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
community-set comm_set_ex1
  65500:1,
  65500:2,
  65500:3
end-set
!
extcommunity-set rt ext_comm_set_rt_ex1
   1.2.3.4:34
end-set
!
route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_1 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
as-path-set as_path_set_ex1
  ios-regex '^_655--$',
  ios-regex '^_65501_$'
end-set
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
```

Given this sample configuration, the **show rpl active as-path-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl active as-path-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following as-path-sets are ACTIVE
-------------------------------------
as_path_set_ex1
```

show rpl active community-set

To display the community sets that are referenced by at least one policy that is being used at an attach point, use the **show rpl active community-set** command in XR EXEC mode.

show rpl active community-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for active community sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl active community-set** command to display all community sets that are in use in the system and referenced either directly or indirectly at a policy attach point.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_2 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
community-set comm_set_ex1
```

```
  65500:1,
  65500:2,
  65500:3
end-set
!
extcommunity-set rt ext_comm_set_rt_ex1
   1.2.3.4:34
end-set
!

route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_1 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
as-path-set as_path_set_ex1
  ios-regex '^_655--$',
  ios-regex '^_65501_$'
end-set
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
```

Given this sample configuration, the **show rpl active community-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl active community-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following community-sets are ACTIVE
---------------------------------------
comm_set_ex1
```

show rpl active extcommunity-set

To display the extended community sets for cost, route target (RT), and Site-of-Origin (SoO) that are referenced by at least one route policy used at an attach point, use the **show rpl active extcommunity-set** command in XR EXEC mode.

show rpl active extcommunity-set [**cost** | **rt** | **soo**] [**detail**]

Syntax Description

cost	(Optional) Displays all extended community cost sets.
rt	(Optional) Displays all extended community RT sets.
soo	(Optional) Displays all extended community SoO sets.
detail	(Optional) Displays the content of the object and all referenced objects for active extended community sets.

Command Default

All extended community sets are displayed.

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl active extcommunity-set** command to display all extended community sets that are in use in the system and referenced either directly or indirectly at a policy attach point.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
```

```
RP/0/RP0/CPU0:router# show rpl route-policy policy_2 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
community-set comm_set_ex1
  65500:1,
  65500:2,
  65500:3
end-set
!
extcommunity-set rt ext_comm_set_rt_ex1
   1.2.3.4:34
end-set
!

route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_1 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
as-path-set as_path_set_ex1
  ios-regex '^_655--$',
  ios-regex '^_65501_$'
end-set
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
```

Given this sample configuration, the **show rpl active extcommunity-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl active extcommunity-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
```

```
UNUSED -- Not attached (directly or indirectly) and not referenced

The following extcommunity-sets are ACTIVE
------------------------------------------
ext_comm_set_rt_ex1
```

show rpl active prefix-set

To display the prefix sets that are referenced by at least one policy that is being used at an attach point, use the **show rpl active prefix-set** command in XR EXEC mode.

show rpl active prefix-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for active prefix sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl active prefix-set** command to display all prefix sets that are in use in the system and referenced either directly or indirectly at a policy attach point.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_2 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
```

```
community-set comm_set_ex1
  65500:1,
  65500:2,
  65500:3
end-set
!
extcommunity-set rt ext_comm_set_rt_ex1
   1.2.3.4:34
end-set
!

route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_1 detail

prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
as-path-set as_path_set_ex1
  ios-regex '^_655--$',
  ios-regex '^_65501_$'
end-set
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
```

The following example displays active prefix sets:

```
RP/0/RP0/CPU0:router# show rpl active prefix-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following prefix-sets are ACTIVE
------------------------------------
prefix_set_1
```

show rpl active rd-set

To display the route distinguisher (RD) sets that are referenced by at least one policy that is being used at an attach point, use the **show rpl active rd-set** command in XR EXEC mode.

show rpl active rd-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for active route policies.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl active rd-set** command to display all RD sets that are in use in the system and that are referenced either directly or indirectly at a policy attach point.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
rd-set rdset1
   10:151,
   100.100.100.1:153,
   100.100.100.62/31:63
end-set
!
rd-set rdset2
   10:152,
   100.100.100.1:154,
   100.100.100.62/31:89
end-set
!
route-policy rdsetmatch
   if rd in rdset1 then
     set community (10:112)
   elseif rd in rdset2 then
     set community (10:223)
   endif
end-policy
!
router bgp 10
  bgp router-id 10.0.0.1
  address-family vpnv4 unicast
neighbor 10.10.10.1
   remote-as 10
   address-family ipv4 unicast
```

```
    route-policy rdsetmatch in
   !
  !
```

Given this sample configuration, the **show rpl active rd-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl active rd-set

ACTIVE -- Referenced by at least one policy which is attached INACTIVE -- Only referenced
by policies which are not attached UNUSED -- Not attached (directly or indirectly) and not
 referenced

The following rd-sets are ACTIVE
------------------------------------------
     rdset1
     rdset2
```

show rpl active route-policy

To display the route policies that are referenced by at least one policy that is being used at an attach point, use the **show rpl active route-policy** command in XR EXEC mode.

show rpl active route-policy [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for active route policies.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl active route-policy** command to display all policies that are in use in the system and that are referenced either directly or indirectly at a policy attach point.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_1

route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
```

```
end-policy
!
RP/0/RP0/CPU0:router# show rpl route-policy policy_2

route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!
```

Given this sample configuration, the **show rpl active route-policy** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl active route-policy

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following policies are (ACTIVE)
-----------------------------------
policy_1
policy_2
```

show rpl as-path-set

To display the contents of AS path sets, use the **show rpl as-path-set** command in XR EXEC mode.

show rpl as-path-set [*name* | **states** | **brief**]

Syntax Description

name	(Optional) Name of the AS path set.
states	(Optional) Displays all unused, inactive, and active states.
brief	(Optional) Limits the display to a list of the names of all AS path sets without their configurations.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the optional **brief** keyword to limit the display to a list of the names of all AS path sets without their configurations.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
RP/0/RP0/CPU0:router# show rpl route-policy policy_1

route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
```

Given this sample configuration, the **show rpl as-path-set as_path_set_ex1** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl as-path-set as_path_set_ex1

as-path-set as_path_set_ex1
  ios-regex '^_65500_$',
  ios-regex '^_65501_$'
end-set
```

show rpl as-path-set attachpoints

To display all of the policies used at an attach point that reference the named AS path set, use the **show rpl as-path-set attachpoints** command in XR EXEC mode.

show rpl as-path-set *name* **attachpoints**

Syntax Description

name	Name of an AS path set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl as-path-set attachpoints** command to display all policies used at an attach point that reference the named set either directly or indirectly.

The AS path set name is required.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_1

route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
```

```
    set community  (10:333) additive
  endif
end-policy
!
RP/0/RP0/CPU0:router# show rpl route-policy policy_2

route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex1) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
```

Given this sample configuration, the **show rpl as-path-set as_path_set_ex1 attachpoints** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl as-path-set as_path_set_ex1 attachpoints

BGP Attachpoint:Neighbor

Neighbor/Group  type  afi/safi   in/out     referring policy attached policy
----------------------------------------------------------------------------
10.0.101.2      --    IPv4/uni    in         policy_1         policy_1
10.0.101.3      --    IPv4/uni    in         policy_2         policy_2
```

This table describes the significant fields shown in the display.

Table 3: show rpl as-path-set attachpoints Field Descriptions

Field	Description
BGP Attachpoint	Location of the attach point.
Neighbor/Group	IP address of the attach point on the neighbor.
type	Displays the address family mode.
afi/safi	Address family identifier or subsequent address family identifier.
in/out	Import or export policy.
referring policy	Policy that refers to the AS path set.
attached policy	Policy used at the attach point.

show rpl as-path-set references

To list all of the policies that reference the named AS path set, use the **show rpl as-path-set references** command in XR EXEC mode.

show rpl as-path-set *name* **references** [**brief**]

Syntax Description

name	Name of the prefix set.
brief	(Optional) Limits the output to just the brief table and not the detailed information for the named AS path set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl as-path-set references** command to display all policies that reference the named AS path set either directly or indirectly.

Use the optional **brief** keyword to limit the output to just a summary table and not the detailed information for the AS path set.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
RP/0/RP0/CPU0:router# show rpl route-policy policy_1

route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
```

```
end-policy
```

Given this sample configuration, the **show rpl as-path-set as_path_set_ex1 references** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl as-path-set as_path_set_ex1 references

Usage Direct -- Reference occurs in this policy
Usage Indirect -- Reference occurs via an apply statement

Status UNUSED -- Policy is not in use at an attachpoint (unattached)
Status ACTIVE -- Policy is actively used at an attachpoint
Status INACTIVE -- Policy is applied by an unattached policy

     Usage/Status         count
--------------------------------------------------------------
     Direct               1
     Indirect             0

     ACTIVE               1
     INACTIVE             0
     UNUSED               0

     route-policy         usage      policy status
--------------------------------------------------------------
    policy_1             Direct     ACTIVE
```

This table describes the significant fields shown in the display.

Table 4: show rpl as-path-set references Field Descriptions

Field	Description
Usage/Status	Displays the usage and status of all policies that reference the AS path set. Values for usage are Direct or Indirect. Values for policy status are ACTIVE, INACTIVE, or UNUSED.
count	Number of policies that match each usage and status option.
route-policy	Name of the route policies that reference the AS path set.
usage	Type of usage for the policy.
policy status	Status of the policy.

show rpl community-set

To display the configuration of community sets, use the **show rpl community-set** command in XR EXEC mode.

show rpl community-set [*name* | **states** | **brief**]

Syntax Description

name	(Optional) Name of the community set.
states	(Optional) Shows all unused, inactive, and active states.
brief	(Optional) Limits the display to a list of the names of all community sets without their configurations.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the optional **brief** keyword to limit the display to a list of the names of community sets without their configurations.

Task ID

Task ID	Operations
route-policy	read

The following is the sample output of the show rpl community-set command with graceful maintenance feature attributes displayed:

```
RP/0/0/CPU0:R5#show rpl community-set
Thu Jan 29 17:55:04.792 PST
Listing for all Community Set objects

community-set gshut
  graceful-shutdown
end-set
```

Examples

This example shows the following sample configuration:

```
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
```

```
end-policy
```

Given this sample configuration, the **show rpl community-set comm_set_ex2** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl community-set comm_set_ex2

community-set comm_set_ex2
  65501:1,
  65501:2,
  65501:3
end-set
```

show rpl community-set attachpoints

To display all the policies used at an attach point that reference the named community set, use the **show rpl community-set attachpoints** command in XR EXEC mode.

show rpl community-set *name* **attachpoints**

Syntax Description

name	Name of a community set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl community-set attachpoints** command to display all the policies used at an attach point that reference the named community set either directly or indirectly.

The community set name is required.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
!
route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then <<<<<
       set community (10:999) additive
     endif
   endif
end-policy
!
```

Given this sample configuration, the **show rpl community-set attachpoints** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl community-set ext_comm_set_rt_ex1 attachpoints

BGP Attachpoint:Neighbor

Neighbor/Group  type  afi/safi   in/out     referring policy attached policy
----------------------------------------------------------------------------
10.0.101.3      --    IPv4/uni   in         policy_2         policy_2
```

This table describes the significant fields shown in the display.

Table 5: show rpl community-set attachpoints Field Descriptions

Field	Description
BGP Attachpoint	Location of the attach point.
Neighbor/Group	IP address of the attach point on the neighbor.
type	Displays the address family mode.
afi/safi	Address family identifier or subsequent address family identifier.
in/out	Import or export policy.
referring policy	Policy that refers to the AS path set.
attached policy	Policy used at the attach point.

show rpl community-set references

To list all the policies that reference the named community set, use the **show rpl community-set references** command in XR EXEC mode.

show **rpl** **community-set** *name* **references** [**brief**]

Syntax Description

name	Name of a community set.
brief	(Optional) Limits the output to just the summary table and not the detailed information for the community set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl community-set references** command to display all the policies that reference the named community set.

Use the optional **brief** keyword to limit the output to just a summary table and not the detailed information for the community set.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex1) then
      set community  (10:999) additive
    endif
  endif
```

```
end-policy
```

Given this sample configuration, the **show rpl extcommunity-set comm_set_ex1 references** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl extcommunity-set comm_set_ex1 references

Usage Direct -- Reference occurs in this policy
Usage Indirect -- Reference occurs via an apply statement

Status UNUSED -- Policy is not in use at an attachpoint (unattached)
Status ACTIVE -- Policy is actively used at an attachpoint
Status INACTIVE -- Policy is applied by an unattached policy

     Usage/Status         count
--------------------------------------------------------------
     Direct               1
     Indirect             0

     ACTIVE               1
     INACTIVE             0
     UNUSED               0


     route-policy         usage      policy status
--------------------------------------------------------------
    policy_2             Direct     ACTIVE
```

This table describes the significant fields shown in the display.

Table 6: show rpl community-set references Field Descriptions

Field	Description
Usage/Status	Displays the usage and status of all policies that reference the community set. Values for usage are Direct or Indirect. Values for status are ACTIVE, INACTIVE, and UNUSED.
count	Number of policies that match each usage and status option.
route-policy	Name of the route policies that reference the community set.
usage	Type of usage for the policy.
policy status	Status of the policy.

show rpl extcommunity-set

To display the configuration of extended community sets, use the **show rpl extcommunity-set** command in XR EXEC mode.

show rpl extcommunity-set [*name* [**attachpoints** | **references**]] [**cost** | **rt** | **soo**] [*name*] [**brief**] [**states**]

Syntax Description

name	(Optional) Name of the community set.
attachpoints	(Optional) Displays all attach points for this community set.
references	(Optional) Displays all policies that use this community set.
cost	(Optional) Displays all extended community cost sets.
rt	(Optional) Displays all extended community RT sets.
soo	(Optional) Displays all extended community SoO sets.
brief	(Optional) Limits the display to a list of the names of all extended community sets without their configurations.
states	(Optional) Displays all unused, inactive, and active states.

Command Default

If an attachpoint or reference is not specified, all configured extended community sets are displayed

If a cost, RT, or SoO sets is not specified, all configured extended community sets are displayed

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the optional **brief** keyword to limit the display to a list of the names of extended community sets without their configurations.

Task ID

Task ID	Operations
route-policy	read

Examples

In the following example, the configuration of an extended community is displayed for the RT community set named ext_comm_set_rt_ex1:

```
RP/0/RP0/CPU0:router# show rpl extcommunity-set rt ext_comm_set_rt_ex1

ext_comm_set_rt_ex1
   1.2.3.4:34
end-set
```

```
!
```

In the following example, the configuration of an extended community is displayed with all RT set objects:

```
RP/0/RP0/CPU0:router# show rpl extcommunity-set rt

Listing for all Extended Community RT Set objects

extcommunity-set rt extrt1
  66:60001
end-set
!
extcommunity-set rt rtset1
  10:615,
  10:6150,
  15.15.15.15:15
end-set
!
extcommunity-set rt rtset3
  11:11,
  11.1.1.1:3
end-set
!
extcommunity-set rt extsoo1
  66:70001
end-set
!
extcommunity-set rt rtset11
  100:121,
  100:122,
  100:123,
  100:124,
  100:125,
  100:126,
  100:127,
  100:128,
  7.7.7.7:21
end-set
!
```

In the following example, the configuration of an extended community is displayed with all cost set objects:

```
RP/0/RP0/CPU0:router# show rpl extcommunity-set cost

Listing for all Extended Community COST Set objects

extcommunity-set cost costset1
  IGP:90:914,
  Pre-Bestpath:91:915
end-set
!
extcommunity-set cost costset2
  IGP:92:916,
  Pre-Bestpath:93:917,
  IGP:94:918,
  Pre-Bestpath:95:919
end-set
!
```

In the following example, the configuration of an extended community is displayed with all SoO set objects:

```
Extended Community SOO Set objects

extcommunity-set soo sooset1
  10:151,
  100.100.100.1:153
end-set
!
extcommunity-set soo sooset3
  11:11,
  11.1.1.1:3
end-set
!
```

show rpl inactive as-path-set

To display the AS path sets that are referenced by a policy but not in any policy that is used at an attach point, use the **show rpl inactive as-path-set** command in XR EXEC mode.

show rpl inactive as-path-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for inactive AS path sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl inactive as-path-set** command to display all AS path sets that are not in use at an attach point either directly or indirectly but are referenced by at least one policy in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
route-policy sample
  if (destination in sample) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample1
  apply policy_3
end-policy
```

Given this sample configuration, the **show rpl inactive as-path-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl inactive as-path-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following as-path-sets are INACTIVE
---------------------------------------
as_path_set_ex2
```

show rpl inactive community-set

To display the community sets that are referenced by a policy but not any policy that is used at an attach point, use the **show rpl inactive community-set** command in XR EXEC mode.

show rpl inactive community-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for inactive community sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl inactive community-set** command to display all community sets that are not in use at an attach point either directly or indirectly but are referenced by at least one policy in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
route-policy sample2
  if (destination in sample2) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample2
  apply policy_3
end-policy
```

Given this sample configuration, the **show rpl inactive community-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl inactive community-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following community-sets are INACTIVE
------------------------------------------
comm_set_ex2
```

show rpl inactive extcommunity-set

To display the extended community sets that are referenced by a policy but not in any policy that is used at an attach point, use the **show rpl inactive extcommunity-set** command in XR EXEC mode.

show rpl inactive extcommunity-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for inactive extended community sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl inactive extcommunity-set** command to display all extended community sets that are not in use at an attach point either directly or indirectly but are referenced by at least one policy in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
route-policy sample3
  if (destination in sample3) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample3
  apply policy_3
end-policy
```

Given this sample configuration, the **show rpl inactive extcommunity-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl inactive extcommunity-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following extcommunity-sets are INACTIVE
--------------------------------------------
ext_comm_set_rt_ex2
```

show rpl inactive prefix-set

To display the prefix sets that are referenced by a policy but not in any policy that is used at an attach point, use the **show rpl inactive prefix-set** command in XR EXEC mode.

show rpl inactive prefix-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for inactive prefix sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl inactive prefix-set** command to display all prefix sets that are not in use at an attach point either directly or indirectly but are referenced by at least one policy in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
route-policy sample4
  if (destination in sample4) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample4
  apply policy_3
end-policy
```

Given this sample configuration, the **show rpl inactive prefix-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl inactive prefix-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following prefix-sets are INACTIVE
--------------------------------------
sample4
prefix_set_ex2
```

show rpl inactive rd-set

To display the route distinguisher (RD) sets that are referenced by a policy but not in any policy that is used at an attach point, use the **show rpl inactive rd-set** command in XR EXEC mode.

show rpl inactive rd-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for inactive RD sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl inactive rd-set** command to display all RD sets that are not in use at an attach point either directly or indirectly but are referenced by at least one policy in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
rd-set rdset1
  10:151,
  100.100.100.1:153,
  100.100.100.62/31:63
end-set
!
rd-set rdset2
  10:152,
  100.100.100.1:154,
  100.100.100.62/31:89
end-set
!
```

Given this sample configuration, the **show rpl inactive rd-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl inactive rd-set

ACTIVE -- Referenced by at least one policy which is attached INACTIVE -- Only referenced
by policies which are not attached UNUSED -- Not attached (directly or indirectly) and not
 referenced

The following rd-sets are INACTIVE
------------------------------------------
    rdset1
```

```
rdset2
```

show rpl inactive route-policy

To display the route policies that are referenced by a policy but not in any policy that is used at an attach point, use the **show rpl inactive route-policy** command in XR EXEC mode.

show rpl inactive route-policy [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for inactive route policies.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl inactive route-policy** command to display all policies that are not in use at an attach point either directly or indirectly but are referenced by at least one other policy in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
route-policy sample3
  if (destination in sample3) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
   if destination in prefix_set_ex1 then
     if (community matches-any comm_set_ex1) then
       set community (10:666) additive
     endif
     if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
       set community (10:999) additive
     endif
   endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample3
  apply policy_3
end-policy
```

Given this sample configuration, the **show rpl inactive route-policy** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl inactive route-policy

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following policies are (INACTIVE)
-------------------------------------
sample3
policy_3
```

show rpl maximum

To display the maximum limits for lines of configuration and number of policies, use the **show rpl maximum** command in XR EXEC mode.

show rpl maximum [**lines** | **policies**]

Syntax Description

lines	(Optional) Displays the number of lines of configuration limit.
policies	(Optional) Displays the number of policies limit.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl maximum** command to display the current total, current limit, and maximum limit for lines of configuration and policies.

Use the optional **lines** keyword to limit the display to the number of lines of configuration limits. Use the optional **policies** keyword to limit the display to the number of policies limits.

Task ID

Task ID	Operations
route-policy	read

Examples

The following example shows sample output from the **show rpl maximum** command:

```
RP/0/RP0/CPU0:router# show rpl maximum
                              Current    Current       Max
                                Total      Limit     Limit
------------------------------------------------------------
Lines of configuration              3      65536    131072
Policies                            1       3500      5000
Compiled policies size (kB)         0
```

Table 7: show rpl maximum Field Descriptions, on page 207 describes the significant fields shown in the display.

Table 7: show rpl maximum Field Descriptions

Field	Description
Lines of configuration	Displays the current total, current limit, and maximum limit of lines for the policy.

Field	Description
Policies	Displays the current total, current limit, and maximum limit of policies.
Compiled policies size (kB)	Displays the current compiled total for policies in kilobytes.

show rpl policy-global references

To display policy-global definitions, use the **show rpl policy-global references** command in XR EXEC mode.

show rpl policy-global references [**brief**]

Syntax Description

brief	(Optional) Limits the display to a list of the policy names.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
policy-global
   infinity '16'
end-global
!
route-policy set-rip-unreachable
   set rip-metric $infinity
end-policy
!
```

Given this sample configuration, the **show rpl policy-global references** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl policy-global references

Usage Direct -- Reference occurs in this policy Usage Indirect -- Reference occurs via an
apply statement

Status UNUSED -- Policy is not in use at an attachpoint (unattached) Status ACTIVE -- Policy
 is actively used at an attachpoint Status INACTIVE -- Policy is applied by an unattached
policy

      Usage/Status         count
--------------------------------------------------------------
      Direct               1
      Indirect             0
      ACTIVE              0
      INACTIVE            0
      UNUSED              1


      Usage      Status     Route-policy
-------------------------------------------------------------

      Direct     UNUSED     set-rip-unreachable
```

show rpl prefix-set

To display the configuration of prefix sets, use the **show rpl prefix-set** command in XR EXEC mode.

show rpl prefix-set [*name* | **states** | **brief**]

Syntax Description

name	(Optional) Name of the prefix set.
states	(Optional) Shows all unused, inactive, and active states.
brief	(Optional) Limits the display to a list of the names of all extended community sets without their configurations.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Because sets cannot hierarchically reference other sets or policies, no **detail** keyword exists as with the **show rpl policy** command.

Task ID

Task ID	Operations
route-policy	read

Examples

In the following example, the configuration of prefix set pset1 is displayed:

```
RP/0/RP0/CPU0:router# show rpl prefix-set pset1
!
prefix-set pset1
 10.0.0.1/0,
 10.0.0.2/0 ge 25 le 32,
 10.0.0.5/8 ge 8 le 32,
 10.168.0.0/16 ge 16 le 32,
 172.16.0.9/20 ge 20 le 32,
 192.168.0.5/20 ge 20 le 32
end-set
```

show rpl prefix-set attachpoints

To display all the policies used at an attach point that reference the named prefix set, use the **show rpl prefix-set attachpoints** command in XR EXEC mode.

show rpl prefix-set *name* **attachpoints**

Syntax Description

name	Name of a prefix set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl prefix-set attachpoints** command to display all the policies used at an attach point that reference the named prefix set either directly or indirectly.

The prefix set name is required.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
```

```
!
route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex1) then
      set community  (10:999) additive
    endif
  endif
end-policy
```

Given this sample configuration, the **show rpl prefix-set prefix_set_ex1 attachpoints** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl prefix-set prefix_set_ex1 attachpoints

BGP Attachpoint:Neighbor

Neighbor/Group  type  afi/safi   in/out     referring policy attached policy
----------------------------------------------------------------------------
10.0.101.2      --    IPv4/uni   in         policy_1         policy_1
10.0.101.3      --    IPv4/uni   in         policy_2         policy_2
```

This table describes the significant fields shown in the display.

Table 8: show rpl prefix-set attachpoints Field Descriptions

Field	Description
BGP Attachpoint	Location of the attach point.
Neighbor/Group	IP address of the attach point on the neighbor.
type	Address family mode.
afi/safi	Address family identifier or subsequent address family identifier.
in/out	Import or export policy.
referring policy	Policy that refers to the AS path set.
attached policy	Policy used at the attach point.

show rpl prefix-set references

To list all the policies that reference the named prefix set, use the **show rpl prefix-set references** command in XR EXEC mode.

show rpl prefix-set *name* **references** [**brief**]

Syntax Description

name	Name of the prefix set.
brief	(Optional) Limits the output to just a summary table and not the detailed information for the named prefix set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl prefix-set references** command to list all the policies that reference the named prefix set.

Use the optional **brief** keyword to limit the output to just a summary table and not the detailed information for the named prefix set.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
prefix-set ten-net
 10.0.0.0/16 le 32
end-set
prefix-set too-specific
 0.0.0.0/0 ge 25 le 32
end-set
route-policy example-one
 if destination in ten-net then
  drop
 else
  set local-preference 200
  apply set-comms
 endif
end-policy
route-policy set-comms
 set community (10:1234) additive
end-policy

route-policy example-three
 if destination in too-specific then
```

```
  drop
 else
  apply example-one
  pass
 endif
end-policy
```

The following example displays information showing the usage and status of each policy that references the prefix set ten-net. The **brief** keyword limits the display to just a summary table and not the detailed information for the prefix set.

```
RP/0/RP0/CPU0:router# show rpl prefix-set ten-net references brief

Usage Direct -- Reference occurs in this policy
Usage Indirect -- Reference occurs via an apply statement

Status UNUSED -- Policy is not in use at an attachpoint (unattached)
Status ACTIVE -- Policy is actively used at an attachpoint
Status INACTIVE -- Policy is applied by an unattached policy

     Usage/Status         count
-------------------------------------------------------------
     Direct                 1
     Indirect               1

     ACTIVE                 0
     INACTIVE               1
     UNUSED                 1
```

This table describes the significant fields shown in the display.

Table 9: show rpl prefix-set name references Field Descriptions

Field	Description
Usage/Status	Displays the usage and status of all policies that reference the prefix set.
count	Number of policies that match each usage and status option.

show rpl rd-set

To display the configuration of route distinguisher (RD) sets, use the **show rpl rd-set** command in XR EXEC mode.

show rpl rd-set [*name* | **states** | **brief**]

Syntax Description

name	(Optional) Name of the RD set.
states	(Optional) Shows all unused, inactive, and active states.
brief	(Optional) Limits the display to a list of the names of all RD sets without their configurations.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Because sets cannot hierarchically reference other sets or policies, no **detail** keyword exists as with the **show rpl policy** command.

Task ID

Task ID	Operations
route-policy	read

Examples

In the following example, the configuration of RD set rdset1 is displayed:

```
RP/0/RP0/CPU0:router# show rpl rd-set rdset1

rd-set rdset1
  10:151,
  100.100.100.1:153,
  100.100.100.62/31:63
end-set
```

show rpl rd-set attachpoints

To display all the policies used at an attach point that reference the named route distinguisher (RD) set, use the **show rpl rd-set attachpoints** command in XR EXEC mode.

show rpl rd-set *name* **attachpoints**

Syntax Description

name	Name of an RD set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl rd-set attachpoints** command to display all the policies used at an attach point that reference the named RD set either directly or indirectly.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
route-policy rdsetmatch
  if rd in rdset1 then
    set community (10:112)
  elseif rd in rdset2 then
    set community (10:223)
  endif
end-policy

router bgp 10
address-family vpnv4 unicast
 exit
 neighbor 10.0.101.1
  remote-as 11
  address-family vpnv4 unicast
   route-policy rdsetmatch in
!
```

Given this sample configuration, the **show rpl rd-set rdset1 attachpoints** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl rd-set rdset attachpoints

BGP Attachpoint: Neighbor

Neighbor/Group  type  afi/safi   in/out   vrf name
```

```
--------------------------------------------------
10.0.101.1      --    IPv4/vpn   in         default
```

This table describes the significant fields shown in the display.

Table 10: show rpl rd-set attachpoints Field Descriptions

Field	Description
Neighbor/Group	BGP neighbor or neighbor group where the specified RD is used.
afi/safi	BGP address family or subaddress family where the RD set is used.
in/out	Direction
vrf name	VRF name where the RD set is used.

show rpl rd-set references

To list all the policies that reference the named route distinguisher (RD) set, use the **show rpl rd-set references** command in XR EXEC mode.

show rpl rd-set *name* **references** [**brief**]

Syntax Description

name	Name of the RD set.
brief	(Optional) Limits the output to just a summary table and not the detailed information for the RD set.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl rd-set references** command to list all the policies that reference the named RD set.

Use the optional **brief** keyword to limit the output to just a summary table and not the detailed information for the named RD set.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
route-policy rdsetmatch
  if rd in rdset1 then
    set community (10:112)
  elseif rd in rdset2 then
    set community (10:223)
  endif
end-policy
!
router bgp 10
 address-family vpnv4 unicast
 !
 neighbor 10.0.101.1
  remote-as 11
  address-family vpnv4 unicast
   route-policy rdsetmatch in
  !
```

Given this sample configuration, the **show rpl rd-set rdset1 references** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl rd-set rdset1 references

Usage Direct -- Reference occurs in this policy
Usage Indirect -- Reference occurs via an apply statement

Status UNUSED -- Policy is not in use at an attachpoint (unattached)
Status ACTIVE -- Policy is actively used at an attachpoint
Status INACTIVE -- Policy is applied by an unattached policy

     Usage/Status         count
--------------------------------------------------------------
     Direct               1
     Indirect             0

     ACTIVE               1
     INACTIVE             0
     UNUSED               0


     route-policy         usage      policy status
--------------------------------------------------------------
    rdsetmatch           Direct     ACTIVE
```

This table describes the significant fields shown in the display.

Table 11: show rpl rd-set name references Field Descriptions

Field	Description
route-policy	Name of the route policy.
usage	Type of reference usage for the route policy.
policy status	Status of the route policy.

show rpl route-policy

To display the configuration of route policies, use the **show rpl route-policy** command in XR EXEC mode.

show rpl route-policy [*name* [**detail**] | **states** | **brief**]

Syntax Description

name	(Optional) Name of a route policy.
detail	(Optional) Displays the configuration of all policies and sets that a policy uses.
states	(Optional) Shows all unused, inactive, and active states.
brief	(Optional) Limits the display to a list of the names of all extended community sets without their configurations.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the optional **brief** keyword to limit the display to a list of the names of policies without their configurations.

Task ID

Task ID	Operations
route-policy	read

Examples

In the following example, the configuration of a route policy named policy_1 is displayed.

```
RP/0/RP0/CPU0:router# show rpl route-policy policy_1

route-policy policy_1
  if destination in prefix_set_1 and not destination in sample1 then
    if as-path in aspath_set_1 then
      set local-preference 300
      set origin igp
    elseif as-path in as_allowed then
      set local-preference 400
      set origin igp
    else
      set origin igp
    endif
  else
    drop
  endif
  set med 120
  set community (8660:612) additive
  apply set_lpref_from_comm
```

```
end-policy
```

If the optional **detail** keyword is used, all routing policy language (RPL) policies and sets that route policy policy_1 uses are displayed, as shown in the following example.

```
RP/0/RP0/CPU0:router# show rpl route-policy policy_1 detail

!
prefix-set sample1
  0.0.0.0/0,
  0.0.0.0/0 ge 25 le 32,
  10.0.0.0/8 ge 8 le 32,
  192.168.0.0/16 ge 16 le 32,
  224.0.0.0/20 ge 20 le 32,
  240.0.0.0/20 ge 20 le 32
end-set
!
prefix-set prefix_set_1
 10.0.0.1/24 ge 24 le 32,
 10.0.0.5/24 ge 24 le 32,
 172.16.0.1/24 ge 24 le 32,
 172.16.5.5/24 ge 24 le 32,
 172.16.20.10/24 ge 24 le 32,
 172.30.0.1/24 ge 24 le 32,
 10.0.20.10/24 ge 24 le 32,
 172.18.0.5/24 ge 24 le 32,
 192.168.0.1/24 ge 24 le 32,
 192.168.20.10/24 ge 24 le 32,
 192.168.200.10/24 ge 24 le 32,
 192.168.255.254/24 ge 24 le 32
end-set
!
as-path-set as_allowed
  ios-regex '.* _1239_ .*',
  ios-regex '.* _3561_ .*',
  ios-regex '.* _701_ .*',
  ios-regex '.* _666_ .*',
  ios-regex '.* _1755_ .*',
  ios-regex '.* _1756_ .*'
end-set
!
as-path-set aspath_set_1
  ios-regex '_9148_',
  ios-regex '_5870_',
  ios-regex '_2408_',
  ios-regex '_2531_',
  ios-regex '_197_',
  ios-regex '_2992_'
end-set
!
route-policy set_lpref_from_comm
  if community matches-any (2:50) then
    set local-preference 50
  elseif community matches-any (2:60) then
    set local-preference 60
  elseif community matches-any (2:70) then
    set local-preference 70
  elseif community matches-any (2:80) then
    set local-preference 80
  elseif community matches-any (2:90) then
    set local-preference 90
  endif
```

```
end-policy
!
route-policy policy_1
  if destination in prefix_set_1 and not destination in sample1 then
    if as-path in aspath_set_1 then
      set local-preference 300
      set origin igp
    elseif as-path in as_allowed then
      set local-preference 400
      set origin igp
    else
      set origin igp
    endif
  else
    drop
  endif
  set med 120
  set community (8660:612) additive
  apply set_lpref_from_comm
end-policy
```

show rpl route-policy attachpoints

To display all the policies used at an attach point that reference the named policy, use the **show rpl route-policy attachpoints** command in XR EXEC mode.

show rpl route-policy *name* **attachpoints**

Syntax Description

name	Name of a policy.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl route-policy attachpoints** command to display all the policies used at an attach point that reference the named policy either directly or indirectly.

The policy name is required.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!

RP/0/RP0/CPU0:router# show rpl route-policy policy_1

route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
RP/0/RP0/CPU0:router# show rpl route-policy policy_2

route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex1) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
```

The following command displays the route policy attach points for policy_2:

```
RP/0/RP0/CPU0:router# show rpl route-policy policy_2 attachpoints

BGP Attachpoint: Neighbor

Neighbor/Group  type  afi/safi   in/out   vrf name
--------------------------------------------------
10.0.101.2      --    IPv4/uni   in         default
10.0.101.2      --    IPv4/uni   out        default
```

This table describes the significant fields shown in the display.

Table 12: show rpl route-policy attachpoints Field Descriptions

Field	Description
BGP Attachpoint	Location of the attach point.
Neighbor/Group	IP address of the attach point on the neighbor.
type	Displays the address family mode.
afi/safi	Address family identifier or subsequent address family identifier.
vrf name	Name of the VPN routing and forwarding (VRF) instance.

show rpl route-policy inline

To display all policies and sets that a policy uses expanded inline, use the **show rpl route-policy inline** command in XR EXEC mode.

show rpl route-policy *name* **inline**

Syntax Description

name	Name of a policy.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl route-policy inline** command to examine the configuration of a specified route policy. All policies and sets that a policy uses are gathered together and displayed expanded inline.

The policy name is required.

Task ID

Task ID	Operations
route-policy	read

Examples

The following command displays the route policy policy_1:

```
RP/0/RP0/CPU0:router# show rpl route-policy policy_1

!
route-policy policy_1
  if destination in prefix_set_1 and not destination in martians then
    if as-path in aspath_set_1 then
      set local-preference 300
      set origin igp
    elseif as-path in as_allowed then
      set local-preference 400
      set origin igp
    else
      set origin igp
    endif
  else
    drop
  endif
  set med 120
  set community (8660:612) additive
  apply set_lpref_from_comm
end-policy
```

The following command displays the route policy policy_1 and all the other sets or policies it refers too inline. Adding the inline keyword causes the configuration to be displayed inline for all RPL objects that the route-policy policy_1 uses.

```
RP/0/RP0/CPU0:router#show rpl policy policy_1 inline

route-policy policy_1
  if destination in (91.5.152.0/24 ge 24 le 32, 91.220.152.0/24 ge 24 le 32, 61.106.52.0/24
 ge 24 le 32, 222.168.199.0/24
  ge 24 le 32, 93.76.114.0/24 ge 24 le 32, 41.195.116.0/24 ge 24 le 32, 35.92.152.0/24 ge
24 le 32, 143.144.96.0/24 ge 24
  le 32, 79.218.81.0/24 ge 24 le 32, 75.213.219.0/24 ge 24 le 32, 178.220.61.0/24 ge 24 le
 32, 27.195.65.0/24 ge 24 le 32)
  and  not destination in (0.0.0.0/0, 0.0.0.0/0 ge 25 le 32, 10.0.0.0/8 ge 8 le 32,
192.168.0.0/16 ge 16 le 32, 224.0.0.0/20
  ge 20 le 32, 240.0.0.0/20 ge 20 le 32) then
    if as-path in (ios-regex '_9148_', ios-regex '_5870_', ios-regex '_2408_', ios-regex
'_2531_', ios-regex '_197_',
 ios-regex '_2992_') then
      set local-preference 300
      set origin igp
    elseif as-path in
 (ios-regex '.* _1239_ .*', ios-regex '.* _3561_ .*', ios-regex '.* _701_ .*', ios-regex
'.* _666_ .*', ios-regex '.* _1755_ .*',
 ios-regex '.* _1756_ .*') then
      set local-preference 400
      set origin igp
    else
      set origin igp
    endif
  else
    drop
  endif
  set med 120
  set community (8660:612) additive
  # apply set_lpref_from_comm
  if community matches-any (2:50) then
    set local-preference 50
  elseif community matches-any (2:60) then
    set local-preference 60
  elseif community matches-any (2:70) then
    set local-preference 70
  elseif community matches-any (2:80) then
    set local-preference 80
  elseif community matches-any (2:90) then
    set local-preference 90
  endif
  # end-apply set_lpref_from_comm
end-policy
```

show rpl route-policy references

To list all the policies that reference the named policy, use the **show rpl route-policy references** command in XR EXEC mode.

show rpl route-policy *name* **references** [**brief**]

Syntax Description

name	Name of a prefix set.
brief	(Optional) Limits the output to just a summary table and not the detailed information for the named policy.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl route-policy references** command to list all the policies that reference the named policy.

Use the optional **brief** keyword to limit the output to just a summary table and not the detailed information for the policy.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
prefix-set ten-net
 10.0.0.0/16 le 32
end-set
prefix-set too-specific
 0.0.0.0/0 ge 25 le 32
end-set
route-policy example-one
 if destination in ten-net then
  drop
 else
  set local-preference 200
  apply set-comms
 endif
end-policy
route-policy set-comms
 set community (10:1234) additive
end-policy
route-policy example-three
 if destination in too-specific then
  drop
 else
  apply example-one
  pass
 endif
end-policy
```

The following command displays information about the policy set-comms and how it is referenced:

```
RP/0/RP0/CPU0:router# show rpl route-policy set-comms references

Usage Direct -- Reference occurs in this policy
Usage Indirect -- Reference occurs via an apply statement

Status UNUSED -- Policy is not in use at an attachpoint (unattached)
Status ACTIVE -- Policy is actively used at an attachpoint
Status INACTIVE -- Policy is applied by an unattached policy

     Usage/Status         count
--------------------------------------------------------------
     Direct               1
     Indirect             1

     ACTIVE               0
     INACTIVE             1
     UNUSED               1

     route-policy         usage  policy status
--------------------------------------------------------------
    example-one          Direct  INACTIVE
    example-three        Indirect UNUSED
```

The direct usage indicates that the route policy example-one directly applies the policy set-comms, that is, example-one has a line in the form apply set-comms. The usage Indirect indicates that the route policy example-three does not directly apply the route policy set-comms. However, the route policy example-three does apply the policy example-one, which in turn applies the policy set-comms, so there is an indirect reference from example-three to the route policy set-comms.

The status column indicates one of three states. A policy is active if it is in use at an attach point. In the example provided, neither example-one nor example-three is in use at an attach point, which leaves two possible states: UNUSED or INACTIVE. The route policy example-one is inactive because it has some other policy (example-three) that references it, but neither example-one nor any of the policies that reference it (example-one) are in use at an attach point. The route policy example-three has a status of unused because it is not used at an attach point and no other route policies in the system refer to it.

This table describes the significant fields shown in the display.

Table 13: show rpl route-policy references Field Descriptions

Field	Description
Usage/Status	Displays the usage and status of all policies that reference the specified policy. Values for usage are Direct or Indirect. Values for status are ACTIVE, INACTIVE, and UNUSED.
count	Number of policies that match each usage and status option.

Field	Description
route-policy	One name for multiple policies that reference the specified policy.
usage	Type of usage for the policy.
policy status	Status of the policy.

show rpl route-policy uses

To display information about a specified named policy, use the **show rpl route-policy uses** command in XR EXEC mode.

show rpl route-policy *name* **uses** {**policies** | **sets** | **all**} [**direct**]

Syntax Description

name	Name of a policy.
policies	Generates a list of all policies that the named policy uses.
sets	Lists all named sets that are used by the policy.
all	Generates a list of both sets and policies that the named policy references.
direct	(Optional) Lists only the policies or sets used directly in the named policy block. Set or policy references that occur as a result of an **apply** statement are not listed.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl route-policy uses** command to display information about a specified named policy.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
prefix-set ten-net
 10.0.0.0/16 le 32
end-set
prefix-set too-specific
 0.0.0.0/0 ge 25 le 32
end-set
route-policy example-one
 if destination in ten-net then
  drop
 else
  set local-preference 200
  apply set-comms
 endif
end-policy
route-policy set-comms
 set community (10:1234) additive
end-policy
```

```
route-policy example-three
 if destination in too-specific then
  drop
 else
  apply example-one
  pass
 endif
end-policy
```

The following command lists the policies one and set-comms. It also lists the prefix sets too-specific and ten-net.

```
RP/0/RP0/CPU0:router# show rpl route-policy example-three uses all

Policies directly and indirectly applied by this policy:
-----------------------------------------------------------
    example-one set-comms

Sets referenced directly and indirectly
 ----------------------------------------
(via applied policies) in this policy:

type prefix-set:
    ten-net too-specific
```

The sets example-one and set-comms are listed as policies that are used by the policy example-three. The policy example-one is listed because route policy example-three uses it in an **apply** statement. The policy set-comms is also listed because example-one applies it. Similarly, the prefix-set too-specific is used directly in the **if** statement in the policy example-three, and the prefix-set ten-net is used in the policy example-one. The optional **direct** keyword can be used to limit the output to just those sets and policies that are used within the example-three block itself, as shown in the following example:

```
RP/0/RP0/CPU0:router# show rpl route-policy example-three uses all direct

Policies directly applied by this policy:
------------------------------------------
    example-one

Sets used directly in this policy
------------------------------------
type prefix-set:
    too-specific
```

As can be seen in the output, the route policy set-comms and the prefix set ten-net are no longer included in the output when the **direct** keyword is used. The **direct** form of the command considers only those sets or policies used in the specified route policy and any additional policies or sets that may be used if you follow the hierarchy of **apply** statements.

This table describes the significant fields shown in the display.

Table 14: show rpl route-policy uses Field Descriptions

Field	Description
type	Displays the type used in the policy configuration. Values for type are prefix-set, community-set, extcommunity-set, and as-path-set.

show rpl unused as-path-set

To display the AS path sets that are defined but not used by a policy at an attach point or referenced in a policy using an **apply** statement, use the **show rpl unused as-path-set** command in XR EXEC mode.

show rpl unused as-path-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for unused AS path sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl unused as-path-set** command to display all AS path sets that are not used in a policy at an attach point either directly or indirectly and are not referenced by any policies in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!
as-path-set as_path_set_ex1
  ios-regex '^_65500_$',
  ios-regex '^_65501_$'
end-set
!
as-path-set as_path_set_ex2
  ios-regex '^_65502_$',
  ios-regex '^_65503_$'
end-set
!
```

```
as-path-set as_path_set_ex3
  ios-regex '^_65504_$',
  ios-regex '^_65505_$'
end-set
!
route-policy sample
  if (destination in sample) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex1) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample
  apply policy_3
end-policy
```

Given this sample configuration, the **show rpl unused as-path-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl unused as-path-set

ACTIVE -- Referenced by at least one policy which is attached
```

```
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following as-path-sets are UNUSED
-------------------------------------
as_path_set_ex3
```

show rpl unused community-set

To display the community sets that are defined but not used by a policy at an attach point or referenced in a policy using an **apply** statement, use the **show rpl unused community-set** command in XR EXEC mode.

show rpl unused community-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for unused community sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl unused community-set** command to display all the community sets that are not used in a policy at an attach point either directly or indirectly and are not referenced by any policies in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!

community-set comm_set_ex1
  65500:1,
  65500:2,
  65500:3
end-set
!
community-set comm_set_ex2
  65501:1,
  65501:2,
  65501:3
end-set
!
community-set comm_set_ex3
  65502:1,
  65502:2,
  65502:3
end-set
!
route-policy sample
  if (destination in sample) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex1) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample
  apply policy_3
end-policy
```

Given this sample configuration, the **show rpl unused community-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl unused community-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following community-sets are UNUSED
---------------------------------------
comm_set_ex3
```

show rpl unused extcommunity-set

To display the extended community sets that are defined but not used by a policy at an attach point or referenced in a policy using an **apply** statement, use the **show rpl unused extcommunity-set** command in XR EXEC mode.

show rpl unused extcommunity-set [**cost** | **detail** | **rt** | **soo**]

Syntax Description

cost	(Optional) Displays the unused extended-community cost objects.
rt	(Optional) Displays the unused extended community RT objects.
soo	(Optional) Displays the unused extended-community SoO objects.
detail	(Optional) Displays the content of the object and all referenced objects for unused extended community sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl unused extcommunity-set** command to display all extended community sets that are not used in a policy at an attach point either directly or indirectly and are not referenced by any policies in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

The following is sample output for the **show rpl unused extcommunity-set** command:

```
RP/0/RP0/CPU0:router:router# show rpl unused extcommunity-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following extcommunity-sets are UNUSED
------------------------------------------
ext_comm_set_ex3
```

show rpl unused prefix-set

To display the prefix sets that are defined but not used by a policy at an attach point or referenced in a policy using an **apply** statement, use the **show rpl unused prefix-set** command in XR EXEC mode.

show rpl unused prefix-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for unused prefix sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl unused prefix-set** command to display all prefix sets that are not used in a policy at an attach point either directly or indirectly and are not referenced by any policies in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
router bgp 2
 address-family ipv4 unicast
 !
 neighbor 10.0.101.2
  remote-as 100
  address-family ipv4 unicast
   route-policy policy_1 in
  !
 !
 neighbor 10.0.101.3
  remote-as 12
  address-family ipv4 unicast
   route-policy policy_2 in
  !
 !
!

prefix-set sample
  0.0.0.0/0,
  0.0.0.0/0 ge 25 le 32,
  10.0.0.0/8 ge 8 le 32,
  192.168.0.0/16 ge 16 le 32,
  224.0.0.0/20 ge 20 le 32,
  240.0.0.0/20 ge 20 le 32
end-set
!
```

```
prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
prefix-set prefix_set_ex2
  220.220.220.0/24 ge 24 le 32,
  220.220.120.0/24 ge 24 le 32,
  220.220.130.0/24 ge 24 le 32
end-set
!
prefix-set prefix_set_ex3
  221.221.220.0/24 ge 24 le 32,
  221.221.120.0/24 ge 24 le 32,
  221.221.130.0/24 ge 24 le 32
end-set
!
route-policy sample
  if (destination in sample) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex1) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community  (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community  (10:666) additive
    endif
    if (extcommunity matches-any ext_comm_set_rt_ex2) then
      set community  (10:999) additive
    endif
  endif
end-policy
!
```

```
route-policy policy_5
  apply sample
  apply policy_3
end-policy
--------------------------
ext_comm_set_ex3
```

Given this sample configuration, the **show rpl unused prefix-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl unused prefix-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following prefix-sets are UNUSED
------------------------------------
prefix_set_ex3
```

show rpl unused rd-set

To display the route distinguisher (RD) sets that are defined but not used by a policy at an attach point or referenced in a policy using an **apply** statement, use the **show rpl unused rd-set** command in XR EXEC mode.

show rpl unused rd-set [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for unused RD sets.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl unused rd-set** command to display all of the RD sets that are not used in a policy at an attach point either directly or indirectly and are not referenced by any policies in the system.

Task ID

Task ID	Operations
route-policy	read

Examples

The **show rpl unused rd-set** command displays the following information:

```
RP/0/RP0/CPU0:router# show rpl unused rd-set

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following rd-sets are UNUSED
------------------------------------------
None found with this status.
```

show rpl unused route-policy

To display the route policies that are defined but not used at an attach point or referenced using an **apply** statement, use the **show rpl unused route-policy** command in XR EXEC mode.

show rpl unused route-policy [**detail**]

Syntax Description

detail	(Optional) Displays the content of the object and all referenced objects for unused route policies.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **show rpl unused route-policy** command to display route policies that are defined but not used at an attach point or referenced from another policy using an **apply** statement.

Task ID

Task ID	Operations
route-policy	read

Examples

This example shows the following sample configuration:

```
RP/0/RP0/CPU0:router# show run | begin prefix-set

Building configuration...
prefix-set prefix_set_ex1
  10.0.0.0/16 ge 16 le 32,
  0.0.0.0/0 ge 25 le 32,
  0.0.0.0/0
end-set
!
prefix-set prefix_set_ex2
  220.220.220.0/24 ge 24 le 32,
  220.220.120.0/24 ge 24 le 32,
  220.220.130.0/24 ge 24 le 32
end-set
!
as-path-set as_path_set_ex1
  ios-regex '^_65500_$',
  ios-regex '^_65501_$'
end-set
!
as-path-set as_path_set_ex2
  ios-regex '^_65502_$',
  ios-regex '^_65503_$'
end-set
!
as-path-set as_path_set_ex3
```

```
  ios-regex '^_65504_$',
  ios-regex '^_65505_$'
end-set
!
community-set comm_set_ex1
  65500:1,
  65500:2,
  65500:3
end-set
!
community-set comm_set_ex2
  65501:1,
  65501:2,
  65501:3
end-set
!
extcommunity-set rt ext_comm_set_rt_ex1
  1.2.3.4:34
end-set
!
extcommunity-set rt ext_comm_set_rt_ex2
  2.3.4.5:36
end-set
!
route-policy sample
  if (destination in sample) then
    drop
  endif
end-policy
!
route-policy policy_1
  if (destination in prefix_set_ex1) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex1) then
    set community (10:333) additive
  endif
end-policy
!
route-policy policy_2
  if (destination in prefix_set_ex1) then
    if (community matches-any comm_set_ex1) then
      set community (10:666) additive
    endif
    if (extcommunity rt matches-any ext_comm_set_rt_ex1) then
      set community (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_3
  if (destination in prefix_set_ex2) then
    set local-preference 100
  endif
  if (as-path in as_path_set_ex2) then
    set community (10:333) additive
  endif
end-policy
!
route-policy policy_4
  if (destination in prefix_set_ex2) then
    if (community matches-any comm_set_ex2) then
      set community (10:666) additive
    endif
    if (extcommunity rt matches-any ext_comm_set_rt_ex2) then
      set community (10:999) additive
    endif
  endif
end-policy
!
route-policy policy_5
  apply sample
  apply policy_3
end-policy
!
route ipv4 0.0.0.0/0 10.91.37.129
route ipv4 10.91.36.0/23 10.91.37.129
route ipv4 10.91.38.0/24 10.91.37.129
end
```

In the following example, route policies that are defined but not used at an attach point or referenced from another policy using an **apply** statement are displayed using the **show rpl unused route-policy** command.

```
RP/0/RP0/CPU0:router# show rpl unused route-policy

ACTIVE -- Referenced by at least one policy which is attached
INACTIVE -- Only referenced by policies which are not attached
UNUSED -- Not attached (directly or indirectly) and not referenced

The following policies are (UNUSED)
-----------------------------------
policy_1
policy_2
policy_4
policy_5
```

source in

To test the source of a Border Gateway Protocol (BGP) route against the address contained in either a named or an inline prefix set, use the **source in** command in route-policy configuration mode.

source in {*prefix-set-nameinline-prefix-setparameter*}

Syntax Description

prefix-set-name	Name of a prefix set.
inline-prefix-set	Inline prefix set. The inline prefix set must be enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **source in** command as a conditional expression within an **if** statement to test the source of the route against the data in either a named or an inline prefix set. A comparison that references a prefix set with zero elements in it returns false.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

The source of a BGP route is the IP peering address of the neighboring router from which the route was received.

The prefix set can contain both IPv4 and IPv6 prefix specifications.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the source of a BGP route is tested against the data in the prefix set my-prefix-set:

```
RP/0/RP0/CPU0:router(config)# route-policy policy-A
RP/0/RP0/CPU0:router(config-rpl)# if source in my-prefix-set then
```

In this example, the source of a BGP route is tested against the data in an inline IPv4 prefix set:

```
RP/0/RP0/CPU0:router(config)# route-policy policy-B
```

```
RP/0/RP0/CPU0:router(config-rpl)# if source in (10.0.0.8, 10.0.0.20) then
```

In this example, the source of a route is tested against the data in an inline IPv6 prefix set:

```
RP/0/RP0/CPU0:router(config)# route-policy policy-C
RP/0/RP0/CPU0:router(config-rpl)# if source in (2001:0:0:1::/64, 2001:0:0:2::/64) then
```

suppress-route

To indicate that a given component of a BGP aggregate should be suppressed, use the **suppress-route** command in route-policy configuration mode.

suppress-route

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **suppress-route** command to indicate that a given component of an aggregate should be suppressed, that is, not advertised by BGP. See the unsuppress-route, on page 255 command for information on overriding the **suppress-route** command for individual neighbors.

The **suppress-route** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the destination is in 10.1.0.0/16, then the route is not advertised:

```
RP/0/RP0/CPU0:router(config)# oute-policy check-aggregater
RP/0/RP0/CPU0:router(config-rpl)# if destination in (10.1.0.0/16) then
RP/0/RP0/CPU0:router(config-rpl-if)# suppress-route

RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl-if)# end-policy
```

tag

To match a specific tag value, use the **tag** command in route-policy configuration mode.

tag {**eq** | **ge** | **le** | **is**} {*integerparameter*}

Syntax Description

eq | **ge** | **le** | **is**	Equal to; greater than or equal to; less than or equal to.
integer	Integer value. Range is 0 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **tag** command as a conditional expression within an **if** statement to match a specific tag value.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

A tag is a 32-bit integer that can be associated with a given route within the RIB.

The **eq** operator matches either a specific tag value or a parameter value. Its variants **ge** and **le** match a range of tag values that are either greater than or equal to or less than or equal to the supplied value or parameter.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the tag equals 10, then the condition returns true:

```
RP/0/RSP0RP0/CPU0:router(config-rpl)# if tag eq 10 then
```

tag in

To match a tag entry in a named tag set or inline tag set, use the **tag in** command in route-policy configuration mode.

tag in {*tag-set-nameinline-tag-setparameter*}

Syntax Description

tag-set-name	Name of a tag set. The tag-set accepts 32-bit Integer value. Range is 0 to 4294967295.
inline-tag-set	Inline tag set. The inline tag set must be enclosed in parentheses.
parameter parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0.0	This command was introduced.

Usage Guidelines

Use the **tag in** command as a conditional expression within an **if** statement to match a tag entry in a named tag set or inline tag set.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command takes either a named tag set or an inline tag set value as an argument. The condition returns true if the tag entry matches any entry in the tag set or inline tag set. An attempt to match a tag using a tag set that is defined but contains no elements returns false.

The routing policy language (RPL) provides the ability to test tags for a match to a list of tag match specifications using the **in** operator. The **tag in** command is protocol-independent.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, a tag set named `my-tag-set` is defined and a route policy named `use-tag-in` is created. Within the `use-tag-in` route policy, the **tag in** command is used within an **if** statement to learn if the tag is in the tag-set named `my-tag-set`. If it is, then local preference is set to 100. If it is not in `my-tag-set` but does match the next tag specifications, then local preference is set to 200.

```
RP/0/RP0/CPU0:router(config)#tag-set my-tag-set
RP/0/RP0/CPU0:router(config-tag)#1000
```

```
RP/0/RP0/CPU0:router(config-tag)#3000
RP/0/RP0/CPU0:router(config-tag)#end-set

RP/0/RP0/CPU0:router(config)#route-policy use-tag-in
RP/0/RP0/CPU0:router(config-rpl)#if tag in my-tag-set then
RP/0/RP0/CPU0:router(config-rpl-if)#set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)#elseif tag in (2000, 4000) then
RP/0/RP0/CPU0:router(config-rpl-elseif)#set local-preference 200
RP/0/RP0/CPU0:router(config-rpl-elseif)#endif
RP/0/RP0/CPU0:router(config-rpl)#end policy
```

tag-set

To enter tag set configuration mode and define a tag set, use the **tag-set** command in XR Config mode. To remove a named tag set, use the **no** form of this command.

tag-set *name*
no tag-set *name*

Syntax Description

name	Name of a tag set.

Command Default

None

Command Modes

XR Config

Command History

Release	Modification
Release 6.0.0	This command was introduced.

Usage Guidelines

Use the **tag-set** command to enter tag set configuration mode and define a tag set. A tag-set is a 32-bit integer that can be associated with a given route within the RIB.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, a tag set named `my-tag-set` is defined and a route policy named `use-tag-in` is created. Within the `use-tag-in` route policy, the **tag in** command is used within an **if** statement to learn if the tag is in the tag-set named `my-tag-set`. If it is, then local preference is set to 100. If it is not in `my-tag-set` but does match the next tag specifications, then local preference is set to 200.

```
RP/0/RP0/CPU0:router(config)#tag-set my-tag-set
RP/0/RP0/CPU0:router(config-tag)#1000
RP/0/RP0/CPU0:router(config-tag)#3000
RP/0/RP0/CPU0:router(config-tag)#end-set

RP/0/RP0/CPU0:router(config)#route-policy use-tag-in
RP/0/RP0/CPU0:router(config-rpl)#if tag in my-tag-set then
RP/0/RP0/CPU0:router(config-rpl-if)#set local-preference 100
RP/0/RP0/CPU0:router(config-rpl-if)#elseif tag in (2000, 4000) then
RP/0/RP0/CPU0:router(config-rpl-elseif)#set local-preference 200
RP/0/RP0/CPU0:router(config-rpl-elseif)#endif
RP/0/RP0/CPU0:router(config-rpl)#end policy
```

unsuppress-route

To indicate that a given component of a BGP aggregate should be unsuppressed, use the **unsuppress-route** command in route-policy configuration mode.

unsuppress-route

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **unsuppress-route** command to indicate that a given component of an aggregate should be unsuppressed, that is, allowed to be advertised by BGP again. This command affects routes that have been suppressed in the generation of BGP aggregates. If the request to unsuppress a route is encountered in a policy at a neighbor-out attach point, it guarantees that the routes that it affects are advertised to that neighbor even if that route was suppressed using the **suppress-route** command in a policy at the aggregation attach point.

The **unsuppress-route** command can be used as an action statement within an **if** statement. For a list of all action statements available within an **if** statement, see the **if** command.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, if the destination is in 10.1.0.0/16, then the route is not advertised:

```
RP/0/RP0/CPU0:router(config)# route-policy check-aggregate
RP/0/RP0/CPU0:router(config-rpl)# if destination in (10.1.0.0/16) then
RP/0/RP0/CPU0:router(config-rpl-if)# unsuppress-route

RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)# end-policy
```

Assuming that the policy is attached at a neighbor-out attach point, if the route 10.1.0.0/16 was suppressed in a policy at an aggregation attach point, 10.1.0.0/16 is advertised to the neighbor. Routes continue to be suppressed in advertisements to other BGP neighbors unless a specific policy is attached to unsuppress the route.

vpn-distinguisher is

To match a specific Border Gateway Protocol (BGP) VPN distinguisher, use the **vpn-distinguisher is** command in route-policy configuration mode.

vpn-distinguisher is {*numberparameter*}

Syntax Description

number	Value assigned to a 32-bit unsigned integer. Range is from 1 to 4294967295.
parameter	Parameter name. The parameter name must be preceded with a "$."

Command Default

No default behavior or values

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

Use the **vpn-distinguisher is** command as a conditional expression within an **if** statement to test the value of the origin attribute.

A VPN distinguisher is used in Layer 3 VPN networks for enhanced individual VPN control and to avoid route target mapping at AS boundaries in inter-AS VPN networks. Route target extended communities are removed at neighbor outbound and the VPN distinguisher value is applied on the BGP route as an extended community. When the route is received on a neighboring router in another AS, the VPN distinguisher is removed and mapped to a route target extended community.

Note For a list of all conditional expressions available within an **if** statement, see the **if** command.

This command can be parameterized.

Task ID

Task ID	Operations
route-policy	read, write

Examples

In the following example, the origin is tested within an **if** statement to learn if it is either **igp** or **egp** :

```
RP/0/RP0/CPU0:router(config-rpl)# if origin is igp or origin is egp then
```

In the following example, a parameter is used to match a specific origin type:

```
RP/0/RP0/CPU0:router(config)# route-policy bar($origin)
```

```
RP/0/RP0/CPU0:router(config-rpl)# if origin is $origin then
RP/0/RP0/CPU0:router(config-rpl-if)# set med 20
RP/0/RP0/CPU0:router(config-rpl-if)# endif
RP/0/RP0/CPU0:router(config-rpl)#
```

set algorithm

To advertise the routes to a particular flex algorithm from IS-IS protocol, configure **set algorithm** in the redistribution routing policy in route-policy configuration mode.

set algorithm *algorithm*

Syntax Description

algorithm	Set an algorithm in RPL. The algorithm range is from 0 to 255. IS-IS protocol handles algorithm 0 and starting from 128 to 255. Algorithms from 1 to 127 are treated as 0.

Command Default

None

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
route-policy	read, write

Define the route-policy using set algorithm to set Flex-Algorithm 128 for prefix-set *PFX_ALGO128*.

```
Router(config)#route-policy BGP_TO_ISIS
Router(config-rpl)# if destination in PFX_ALGO128 then
Router(config-rpl-if)# set tag 200
Router(config-rpl-if)# set algorithm 128
Router(config-rpl-if)# pass
Router(config-rpl-if)# else
Router(config-rpl-else)# drop
Router(config-rpl-else)# endif
Router(config-rpl)#end-policy
Router(config)#commit
```