Chapter 7

Summary of Routing Policy Configuration Statements

The following sections explain each of the routing policy configuration statements. The statements are organized alphabetically.

apply-path

Syntax apply-path *path*;

Hierarchy Level [edit logical-routers *logical-router-name* policy-options prefix-list *name*],
[edit policy-options prefix-list *name*]

Description Expand a prefix-list to include all prefixes pointed to by a defined path.

Options *path*—A string of elements composed of identifiers or configuration keywords that points to a set of prefixes. You can include wildcards (enclosed in angle brackets) to match more than one identifier.

prefix-list *name*—Name of a list of IP version 4 (IPv4) or IP version 6 (IPv6) prefixes. To create a named list of IP address prefixes, see “Extended Match Conditions Configuration” on page 93.

Usage Guidelines See “Defining Prefix Lists” on page 113.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

as-path

Syntax as-path *name regular-expression*;

Hierarchy Level [edit logical-routers *logical-router-name* policy-options],
[edit policy-options]

Description Define an autonomous system (AS) path regular expression for use in a routing policy match condition.

Options *name*—Name that identifies the regular expression. The name can contain letters, numbers, and hyphens (–) and can be up to 255 characters long. To include spaces in the name, enclose it in quotation marks (double quotes).

regular-expression—One or more regular expressions used to match the AS path.

Usage Guidelines See “Configuring AS Path Regular Expressions” on page 93.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

as-path-group

Syntax
```
as-path-group group-name {
    [ as-path name regular-expression ];
}
```

Hierarchy Level [edit logical-routers *logical-router-name* policy-options],
[edit policy-options]

Description Define a group containing multiple AS path regular expression for use in a routing policy match condition.

Options *group-name*—Name that identifies the AS path group. One or more AS path regular expressions must be listed below the as-path-group hierarchy.

name—Name that identifies the regular expression. The name can contain letters, numbers, and hyphens (–) and can be up to 255 characters long. To include spaces in the name, enclose it in quotation marks (double quotes).

regular-expression—One or more regular expressions used to match the AS path.

Usage Guidelines See “Configuring AS Path Regular Expressions” on page 93.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

community

Syntax

```
community name {
    bandwidth as:bandwidth;
    invert-match;
    members [ community-ids ];
}
```

Hierarchy Level [edit logical-routers *logical-router-name* policy-options],
[edit policy-options]

Description Define a community or extended community for use in a routing policy match condition.

Options *name*—Name that identifies the regular expression. The name can contain letters, numbers, and hyphens (-) and can be up to 255 characters. To include spaces in the name, enclose it in quotation marks (double quotes).

bandwidth *as*:*bandwidth*—Link bandwidth community attribute. as specifies the autonomous system and bandwidth specifies bandwidth in bytes per second.

invert-match—Invert the results of the community expression matching.

members *community-ids*—One or more community members. If you specify more than one member, you must enclose all members in brackets.

The format for community identifiers is:

as-number:*community-value*

as-number is the AS number and can be a value in the range 0 through 65,535. *community-value* is the community identifier and can be a number in the range 0 through 65,535.

You also can specify *community-ids* for communities as one of the following well-known community names, which are defined in RFC 1997, *BGP Communities A ttribute*:

no-export—Routes containing this community name are not advertised outside a Border Gateway Protocol (BGP) confederation boundary.

no-advertise—Routes containing this community name are not advertised to other BGP peers.

no-export-subconfed—Routes containing this community name are not advertised to external BGP peers, including peers in other members' ASs inside a BGP confederation.

You can explicitly exclude BGP community information with a static route using the none option. Include none when configuring an individual route in the route portion of the static statement to override a community option specified in the defaults portion of the statement.

The format for extended community identifiers is the following:

type:*administrator*:*assigned-number*

type is the type of extended community and can be either a target, origin, or domain-id community. The target community identifies the destination to which the route is going. The origin community identifies where the route originated. The domain-id community identifies the Open Shortest Path First (OSPF) domain from which the route originated.

administrator is the administrator. It is either an AS number or an IPv4 address prefix, depending on the type of extended community.

assigned-number identifies the local provider.

Usage Guidelines See “Configuring Communities” on page 100.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

damping

Syntax

```
damping name {
    disable;
    half-life minutes;
    max-suppress minutes;
    reuse number;
    suppress number;
}
```

Hierarchy Level [edit logical-routers *logical-router-name* policy-options],
[edit policy-options]

Description Define route flap damping properties to set on BGP routes.

Options

disable—Disable damping on a per-prefix basis. Any damping state that is present in the routing table for a prefix is deleted if damping is disabled.

half-life *minutes*—Decay half-life. *minutes* is the interval after which the accumulated figure-of-merit value is reduced by half if the route remains stable.
Range: 1 through 45
Default: 15 minutes

max-suppress *minutes*—Maximum hold-down time. *minutes* is the maximum time that a route can be suppressed no matter how unstable it has been.
Range: 1 through 720
Default: 60 minutes

name—Name that identifies the set of damping parameters. The name can contain letters, numbers, and hyphens (–) and can be up to 255 characters long. To include spaces in the name, enclose it in quotation marks (double quotes).

reuse *number*—Reuse threshold. *number* is the figure-of-merit value below which a suppressed route can be used again.
Range: 1 through 20,000
Default: 750 (unitless)

suppress *number*—Cutoff (suppression) threshold. *number* is the figure-of-merit value above which a route is suppressed for use or inclusion in advertisements.
Range: 1 through 20,000
Default: 3000 (unitless)

Usage Guidelines See “Configuring Flap Damping Parameters” on page 134.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

export

Syntax export [*policy-names*];

Hierarchy Level [edit logical-routers *logical-router-name* protocols *protocol-name*],
[edit protocols *protocol-name*]

Description Apply one or more policies to routes being exported from the routing table into a routing protocol.

Options *policy-names*—Names of one or more policies defined with a policy-statement statement.

Usage Guidelines See "Applying a Routing Policy" on page 58.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

import

Syntax import [*policy-names*];

Hierarchy Level [edit logical-routers *logical-router-name* protocols *protocol-name*],
[edit protocols *protocol-name*]

Description Apply one or more policies to routes being imported into the routing table from a routing protocol.

Options *policy-names*—Names of one or more policies defined with a policy-statement statement.

Usage Guidelines See "Applying a Routing Policy" on page 58.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

policy-options

Syntax policy-options { ... }

Hierarchy Level [edit]

Description Configure routing policy.

Options The statements are explained separately.

Usage Guidelines See "Defining Routing Policies" on page 41.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

policy-statement

Syntax

```
policy-statement policy-name {
    term term-name {
        from {
            family family-name;
            match-conditions;
            policy subroutine-policy-name;
            prefix-list name;
            route-filter destination-prefix match-type <actions>;
            source-address-filter destination-prefix match-type <actions>;
        }
        to {
            match-conditions;
            policy subroutine-policy-name;
        }
        then actions;
    }
}
```

Hierarchy Level [edit logical-routers *logical-router-name* policy-options],
[edit policy-options]

Description Define a routing policy, including subroutine policies.

Options

actions—(Optional) One or more actions to take if the conditions match. The actions are described in Table 10 on page 49 and Table 11 on page 49.

family *family-name*—(Optional) Specify an address family protocol. Specify inet for an IPv4 address protocol. Specify inet6 for a 128-bit IPv6 address protocol, and to enable interpretation of IPv6 router filter addresses. When family is not specified, the router uses the default IPv4 setting.

from—(Optional) Match a route based on its source address.

match-conditions—(Optional in from statement; required in to statement) One or more conditions to use to make a match. The qualifiers are described in Table 9 on page 44.

policy *subroutine-policy-name*—Use another policy as a match condition within this policy. The name identifying the subroutine policy can contain letters, numbers, and hyphens (–) and can be up to 255 characters long. To include spaces in the name, enclose it in quotation marks (“ ”). For information about how to configure subroutines, see “Configuring Subroutines” on page 125.

policy-name—Name that identifies the policy. The name can contain letters, numbers, and hyphens (–) and can be up to 255 characters long. To include spaces in the name, enclose it in quotation marks (double quotes).

prefix-list *name*—Name of a list of IPv4 or IPv6 prefixes. To create a named list of IP address prefixes, see “Extended Match Conditions Configuration” on page 93.

route-filter *destination-prefix match-type <actions>*—(Optional) List of routes on which to perform an immediate match. *destination-prefix* is the IPv4 or IPv6 route prefix to match, *match-type* is the type of match (see Table 19 on page 117), and *actions* is the action to take if the *destination-prefix* matches.

source-address-filter *destination-prefix match-type <actions>*—(Optional) Multicast source addresses in multiprotocol BGP (MBGP) and Multicast Source Discovery Protocol (MSDP) environments on which to perform an immediate match. *destination-prefix* is the IPv4 or IPv6 route prefix to match, *match-type* is the type of match (see Table 19 on page 117), and *actions* is the action to take if the *destination-prefix* matches.

term *term-name*—Name that identifies the term.

to—(Optional) Match a route based on its destination address or the protocols into which the route is being advertised.

then—(Optional) Actions to take on matching routes. The actions are described in Table 10 on page 49 and Table 11 on page 49.

Usage Guidelines See "Defining Routing Policies" on page 41 and "Extended Match Conditions Configuration" on page 93.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

prefix-list

Syntax
```
prefix-list name {
    ip-addresses;
    apply-path path;
}
```

Hierarchy Level [edit logical-routers *logical-router-name* policy-options],
[edit policy-options]

Description Define a list of IPv4 or IPv6 address prefixes for use in a routing policy statement or firewall filter statement.

Options *name*—Name that identifies the list of IPv4 or IPv6 address prefixes.

ip-addresses—List of IPv4 or IPv6 address prefixes, one IP address per line in the configuration.

The remaining statement is explained separately in this chapter.

Usage Guidelines See "Configuring Prefix Lists" on page 112.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.