

# Chapter 7

## IPv6 Routing Policy

All routing protocols store their routing information in a common routing table that is maintained by the JUNOS software. From the collected routing information, the JUNOS software calculates the best routes to each destination. These routes are used to forward traffic through the router, and they can be advertised to neighbors through one or more routing protocols.

Routing policy allows you to control the routing information that is transferred between different routing databases. You can filter the routing information so that only some of it is transferred, and you can set properties associated with the routes.

This chapter discusses the following topics that provide information for configuring IPv6 routing policy:

Routing Policy Overview on page 67

IPv6 Routing Policy Configuration Guidelines on page 68

Summary of Routing Policy Configuration Statements on page 69

For a complete discussion of routing policy, see the *JUNOS Software Configuration Guide: Policy Framework*.

### Routing Policy Overview

A routing policy consists of policy terms. Each term consists of two components:

**Match conditions**—Circumstances that a route must match. If a route matches the conditions, an action is applied to that route. You can define various match conditions, including a route's source and destination; the interface on which the route was received; the Intermediate System to Intermediate System (IS-IS) level; the autonomous system (AS) path; and various Border Gateway Protocol (BGP) path attributes, including community, local preference, and origin. You can also specify lists of routes.

**Action**—What to do if the route matches. The action can specify whether to accept or reject the route, control how a series of policies is evaluated, and allow you to set various properties associated with the route, such as the AS path and BGP community value.

## IPv6 Routing Policy Configuration Guidelines

You configure IPv6 routing policies the same way you configure IPv4 routing policies. In the route-filter statement, you can specify an IPv6 prefix or an IPv4 prefix. The JUNOS software automatically creates a route filter of the correct type. To configure a routing policy, include the following statements in the configuration:

```
[edit]
policy-options {
  policy-statement policy-name {
    term term-name {
      from {
        match-conditions;
        route-filter destination-prefix match-type <actions>;
        source-address-filter destination-prefix match-type <actions>;
        prefix-list name;
      }
      then {
        actions;
      }
    }
  }
}
```

In the route-filter statement, you can specify a 128-bit IPv6 prefix or an IPv4 prefix. The router interprets the prefix and creates an IPv6 or IPv4 route filter, as appropriate.

All the route-filter statements within a policy term must be of the same address family. You cannot specify both IPv6 and IPv4 prefixes within the same policy term.

### **Example: Configure Policy**

Configure a policy that accepts routes with the destination prefixes fe80::90:69ff:fea0:8000/64 and fe80::90:69ff:fea0:8001/64:

```
[edit policy-options]
policy-statement export_exact {
  term a {
    from {
      protocol bgp;
      route-filter 2000::2/126 exact;
      route-filter 5555::1/127 exact;
    }
    then {
      accept;
    }
  }
  term b {
    then {
      reject;
    }
  }
}
```

## Configure Prefix Lists

A *prefix list* is a named list of IPv6 addresses. You can specify an exact match with incoming routes and apply a common action to all matching prefixes in the list.



**Note**

Because the configuration of prefix lists includes setting up prefixes and prefix lengths, we strongly recommend that you have a thorough understanding of IP addressing, including supernetting, before proceeding with the configuration.

You cannot specify IP addresses other than host addresses. For a complete discussion of prefix lists, see the *JUNOS Software Configuration Guide: Policy Framework*.

## Summary of Routing Policy Configuration Statements

The following sections explain each of the routing policy configuration statements discussed in “IPv6 Routing Policy Configuration Guidelines” on page 68. The statements are organized alphabetically.

### ***policy-options***

<b>Syntax</b>	policy-options { ... }
<b>Hierarchy Level</b>	[edit]
<b>Description</b>	Configure routing policy.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	For more information about configuring routing policy, see the <i>JUNOS Internet Software Configuration Guide: Routing and Routing Protocols</i> .
<b>Required Privilege Level</b>	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 {
                    match-conditions;
                    route-filter destination-prefix match-type <actions>;
                    source-address-filter destination-prefix match-type <actions>;
                    prefix-list name;
                }
                to {
                    match-conditions;
                }
                then actions;
            }
        }

```

**Hierarchy Level** [edit policy-options]

**Description** Define a routing policy.

**Options** *actions*—(Optional) One or more actions to take if the conditions match.

*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.

*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 (" ").

*prefix-list name*—Name of a list of IP address prefixes. You cannot specify any IPv6 networks other than host addresses.

*route-filter destination-prefix match-type <actions>*—(Optional) List of routes on which to perform an immediate match. *destination-prefix* is the route prefix to match, and *match-type* is the type of match. Specify either an IPv6 address or an IPv4 address.

*source-address-filter destination-prefix match-type <actions>*—An action for a source address in a routing list, matching the specified route prefix with the corresponding match type. This action is taken immediately.

*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.

**Usage Guidelines** See "IPv6 Routing Policy Configuration Guidelines" on page 68. For more information about configuring routing policy, see the *JUNOS Internet Software Configuration Guide: Routing and Routing Protocols*.

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

**prefix-list**

<b>Syntax</b>	prefix-list <i>name</i> { <i>ip-addresses</i> ;
<b>Hierarchy Level</b>	[edit policy-options]
<b>Description</b>	Define a list of IPv4 or IPv6 address prefixes for use in a routing policy statement.
<b>Options</b>	<i>name</i> —Name that identifies the list of IPv4 or IPv6 address prefixes.
<b>Usage Guidelines</b>	See “IPv6 Routing Policy Configuration Guidelines” on page 68. For more information about configuring routing policy, see the <i>JUNOS Internet Software Configuration Guide: Routing and Routing Protocols</i> .
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

.....