

Chapter 10

Summary of Routing Instances Configuration Statements

This chapter provides a reference for each of the routing instance configuration statements. The statements are organized alphabetically.

description

Syntax	description <i>text</i> ;
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	Provide a text description for the routing instance. If the text includes one or more spaces, enclose it in quotation marks (" "). Any descriptive text you include is displayed in the output of the show route instance detail command and has no effect on the operation of the routing instance.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

forwarding-options

See *JUNOS Internet Software Policy Framework Configuration Guide*

instance-type

Syntax	instance-type (forwarding l2vpn no-forwarding virtual-router vrf);
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	Define the type of routing instance.
Default	no-forwarding
Options	<p>forwarding—Provide support for filter-based forwarding, where interfaces are not associated with instances. All interfaces belong to the default instance. Other instances are used for populating RPD learned routes. See “Configure Filter-Based Forwarding” on page 185.</p> <p>l2vpn—Provide support for Layer 2 VPNs. For more detailed information about configuring VPNs, see the <i>JUNOS Internet Software VPNs Configuration Guide</i>.</p> <p>no-forwarding—This is the default routing instance. Do not create a corresponding forwarding instance.</p> <p>virtual-router—Similar to a VPN routing and forwarding instance type, but used for non-VPN-related applications. There are no VRF import, VRF export, VRF target, or route distinguisher requirements for this instance type.</p> <p>vpls—Virtual private local-area network (LAN) service. Use this routing instance type for point-to-multipoint LAN implementations between a set of sites in a VPN. For more information about configuring VPLS, see the <i>JUNOS Internet Software VPNs Configuration Guide</i>.</p> <p>vrf—VPN routing and forwarding instance. Provides support for Layer 3 VPNs, where interface routes for each instance go into the corresponding forwarding table only. For more information about configuring VPNs, see the <i>JUNOS Internet Software VPNs Configuration Guide</i>.</p>
Usage Guidelines	See “Configure an Instance” on page 179 and the <i>JUNOS Internet Software VPNs Configuration Guide</i> .
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

interface

Syntax	interface <i>interface-name</i> ;
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	Identify the logical, private interface between the provider edge (PE) router and the customer edge (CE) router on the PE side.
Options	<i>interface-name</i> —Name of the interface.
Usage Guidelines	See “Configure an Instance” on page 179.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

no-vrf-advertise

Syntax	no-vrf-advertise;
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	Prevent advertising VPN routes from the primary instance within a hub-and-spoke configuration.
Usage Guidelines	See “Configure a VRF Target” on page 193.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

protocols

```

Syntax protocols {
    bgp {
        bgp-configuration;
    }
    isis {
        isis-configuration;
    }
    ldp {
        ldp-configuration;
    }
    ospf {
        domain-id domain-id;
        domain-vpn-tag number;
        route-type-community (iana | vendor);
        ospf-configuration;
    }
    ospf3 {
        domain-id domain-id;
        domain-vpn-tag number;
        route-type-community (iana | vendor);
        ospf3-configuration;
    }
    pim {
        pim-configuration;
    }
    rip {
        rip-configuration;
    }
}

```

Hierarchy Level [edit routing-instances *routing-instance-name*],
[edit logical-routers *logical-router-name* routing-instances *routing-instance-name*]

Description Specify the protocol for a routing instance. You can configure multiple instances of the following supported protocols: BGP, IS-IS, LDP, OSPF, OSPFv3, PIM, or RIP.

Options bgp—Specify the Border Gateway Protocol for a routing instance. For a description of the BGP configuration statements, see “BGP Configuration Guidelines” on page 443.

isis—Specify the Intermediate System-to-Intermediate System protocol for a routing instance. For a description of the IS-IS configuration statements, see “IS-IS Configuration Guidelines” on page 215.

ldp—Specify the Label Distribution Protocol for a routing instance. For more information about configuring LDP, see the *JUNOS Internet Software MPLS Applications Configuration Guide*.

ospf—Specify the Open Shortest Path First protocol for a routing instance. For a description of the OSPF configuration statements, see “OSPF Configuration Guidelines” on page 287.

ospf3—Specify the Open Shortest Path First Version 3 protocol for a routing instance. For a description of the OSPFv3 configuration statements, see “OSPF Configuration Guidelines” on page 287.



NOTE: OSPFv3 supports the no-forwarding and vrf routing instance types only.

pim—Specify the Protocol Independent Multicast protocol for a routing instance. For more information about configuring PIM, see the *JUNOS Internet Software Multicast Protocols Configuration Guide*.

rip—Specify the Routing Information Protocol for a routing instance. For a description of the RIP configuration statements, see “RIP Configuration Guidelines” on page 347.

Usage Guidelines See “Configure Multiple Instances of BGP” on page 166, “Configure Multiple Instances of IS-IS” on page 167, “Configure Multiple Instances of LDP” on page 173, “Configure Multiple Instances of OSPF” on page 173, “Configure Multiple Instances of PIM” on page 178, and “Configure Multiple Instances of RIP” on page 178.

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

route-distinguisher

Syntax route-distinguisher (*as-number:number* | *ip-address:number*);

Hierarchy Level [edit routing-instances *routing-instance-name*],
[edit logical-routers *logical-router-name* routing-instances *routing-instance-name*]

Description An identifier attached to a route, enabling you to distinguish to which VPN the route belongs. Each routing instance must have a unique route distinguisher associated with it. The route distinguisher is used to place bounds around a VPN so that the same IP address prefixes can be used in different VPNs without having them overlap. If the instance type is vrf, the route-distinguisher statement is required.

Options *as-number:number*—*as-number* is an assigned AS number (a 2-byte value) and *number* is any 4-byte value. The AS number can be from 1 through 65,535.

ip-address:number—*ip-address* is an IP address in your assigned prefix range (a 4-byte value) and *number* is any 2-byte value. The IP address can be from 0 through 4,294,967,295 ($2^{32} - 1$).

Usage Guidelines See “Configure a Route Distinguisher” on page 184.

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

routing-instances

Syntax	<code>routing-instances routing-instance-name { ... }</code>
Hierarchy Level	[edit], [edit logical-routers logical-router-name]
Description	Configure an additional routing entity for a router. You can create multiple instances of BGP, IS-IS, OSPF, OSPFv3, and RIP for a router.
Default	Routing instances are disabled for the router.
Options	<i>routing-instance-name</i> —Name of the routing instance, a maximum of 31 characters. The remaining statements are explained separately.
Usage Guidelines	See “Routing Instances Configuration Guidelines” on page 155 and the <i>JUNOS Internet Software Policy Framework Configuration Guide</i> .
Required Privilege Level	<code>routing</code> —To view this statement in the configuration. <code>routing-control</code> —To add this statement to the configuration.

routing-options

See `routing-options` on page 142


vrf-export

Syntax	<code>vrf-export [policy-names];</code>
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	Define which routes will be exported from a local instance table— <i>instance-name.inet.0</i> —to a remote PE router. Specify one or more policy names.
Default	If the instance-type is <code>vrf</code> , <code>vrf-export</code> is a required statement. The default action is to reject.
Options	<i>policy-names</i> —Specify one or more policy names.
Usage Guidelines	See “Configure Secondary VRF Import and Export Policy” on page 188.
Required Privilege Level	<code>routing</code> —To view this statement in the configuration. <code>routing-control</code> —To add this statement to the configuration.

vrf-import

Syntax	vrf-import [<i>policy-names</i>];
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	How routes are imported into the local PE router's VPN routing table— <i>instance-name.inet.0</i> —from the remote PE router.
Default	If the instance-type is vrf, vrf-import is a required statement. The default action is to accept.
Options	<i>policy-names</i> —Specify one or more policy names.
Usage Guidelines	See “Configure Secondary VRF Import and Export Policy” on page 188.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

vrf-table-label

Syntax	vrf-table-label;
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	Enable mapping of the inner label of a packet to a specific VRF, thereby allowing the examination of the encapsulated IP header. All routes in the VRF configured with this option are advertised with the label allocated per VRF.
	CAUTION: This statement does not support IPv6 VPNs.
Usage Guidelines	See “Configure a VRF Table Label” on page 193.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

vrf-target

Syntax	<pre>vrf-target { community; import community; export community;</pre>
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>]
Description	Configure a single policy for import and a single policy for export to replace the per-VRF policies for every community.
Options	<i>community</i> —Community name. <i>import</i> —Specifies the allowed communities to accept from neighbors. <i>export</i> —Specifies the allowed communities to send to neighbors.
Usage Guidelines	See “Configure a VRF Target” on page 193.
Required Privilege Level	<i>routing</i> —To view this statement in the configuration. <i>routing-control</i> —To add this statement to the configuration.