

## Chapter 13

# Summary of Layer 3 VPN Configuration Statements

The following section explains the major routing-instances configuration statements that apply specifically to Layer 3 virtual private networks (VPNs).

### independent-domain

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<b>Syntax</b>	independent-domain;
<b>Hierarchy Level</b>	[edit routing-instances <i>routing-instance-name</i> autonomous-system <i>number</i> ]
<b>Description</b>	Improves the transparency of Layer 3 VPN services for customer networks by preventing the IBGP routes that originate within an AS in the customer network from being sent to a service provider's AS. Similarly, IBGP routes that originate within an AS in the service provider's network are prevented from being sent to a customer AS.
<b>Usage Guidelines</b>	See "Configure Layer 3 VPNs to Carry IBGP Traffic" on page 136 and <i>JUNOS Internet Software Routing Protocols Configuration Guide</i> .
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

inet6-vpn

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<b>Syntax</b>	inet6-vpn (unicast   multicast   any) { prefix-limit <i>maximum</i> ; rib-group <i>rib-group-name</i> ; }
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> protocols bgp], [edit logical-routers <i>logical-router-name</i> protocols bgp group <i>group-name</i> family], [edit protocols bgp], [edit protocols bgp group <i>group-name</i> family]
<b>Description</b>	Enable Internet Protocol version 6 (IPv6) on the provider edge (PE) router for the Layer 3 VPN.
<b>Options</b>	prefix-limit—Maximum prefix limit.  <b>Range:</b> 1 through 4,294,967,295 <b>Default:</b> 1  rib-group—The name of the routing table group.
<b>Usage Guidelines</b>	See “Configure IPv6 between the PE and CE Routers” on page 132 and <i>JUNOS Internet Software Routing Protocols Configuration Guide</i> .
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

metric

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<b>Syntax</b>	metric <i>value</i> ;
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols ospf area <i>address</i> sham-link-remote], [edit routing-instances <i>routing-instance-name</i> protocols ospf area <i>address</i> sham-link-remote]
<b>Description</b>	Specify the cost of using the Open Shortest Path First (OSPF) sham link.  <b>Range:</b> 1 through 65,535 <b>Default:</b> 1
<b>Usage Guidelines</b>	See “Configure OSPF Sham Links” on page 125.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## multihop

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<b>Syntax</b>	multihop <i>ttl-value</i> ;
<b>Hierarchy Level</b>	[edit logical routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols bgp], [edit logical routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> ], [edit logical routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> neighbor <i>address</i> ], [edit routing-instances <i>routing-instance-name</i> protocols bgp], [edit routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> ], [edit routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> neighbor <i>address</i> ]
<b>Description</b>	Configure an external BGP (EBGP) or internal BGP (IBGP) multihop session between the PE and customer edge (CE) routers of a Layer 3 VPN.
<b>Usage Guidelines</b>	See “Configure EBGP or IBGP Multihop between PE and CE Routers” on page 135.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## multipath

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<b>Syntax</b>	multipath { vpn-unequal-cost; }
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> ], [edit routing-instances <i>routing-instance-name</i> routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> ]
<b>Description</b>	Enable protocol-independent load balancing for Layer 3 VPNs. This allows the forwarding next hops for both the active route and alternative paths to be used for load balancing.
<b>Options</b>	vpn-unequal-cost—Apply protocol-independent load balancing to VPN routes that are equal until their interior gateway protocol (IGP) metrics with regard to route selection. If you do not configure the vpn-unequal-cost statement, protocol-independent load balancing is applied to VPN routes that are equal until their router identifiers with regard to route selection.
<b>Usage Guidelines</b>	See “Protocol-Independent Load Balancing for Layer 3 VPNs” on page 153.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## sham-link local

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<b>Syntax</b>	sham-link local <i>address</i> ;
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols ospf], [edit routing-instances <i>routing-instance-name</i> protocols ospf]
<b>Description</b>	Configure a sham link for the Layer 3 VPN routing instance.
<b>Options</b>	local <i>address</i> —The address for the local endpoint of the sham link.
<b>Usage Guidelines</b>	See “Configure OSPF Sham Links for Layer 3 VPNs” on page 124 and the <i>JUNOS Internet Software Routing Protocols Configuration Guide</i> .
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## sham-link-remote

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<b>Syntax</b>	sham-link-remote <i>address</i> <i>metric value</i> ;
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols ospf area <i>address</i> ], [edit routing-instances <i>routing-instance-name</i> protocols ospf area <i>address</i> ]
<b>Description</b>	Configure the address for the remote end point of the sham link. The metric statement is explained separately.
<b>Usage Guidelines</b>	See “Configure OSPF Sham Links for Layer 3 VPNs” on page 124 and the <i>JUNOS Internet Software Routing Protocols Configuration Guide</i> .
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## vpn-group-address

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<b>Syntax</b>	vpn-group-address <i>address</i> ;
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim], [edit routing-instances <i>routing-instance-name</i> protocols pim]
<b>Description</b>	Configure the group address for the Layer 3 VPN in the service provider’s network.
<b>Usage Guidelines</b>	See “Configure Multicast over Layer 3 VPNs” on page 142 and <i>JUNOS Internet Software Multicast Protocols Configuration Guide</i> .
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## vrf-table-label

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<b>Syntax</b>	vrf-table-label;
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> ], [edit routing-instances <i>routing-instance-name</i> ]
<b>Description</b>	Map the inner label of a packet to a specific VRF routing table. This allows the examination of the encapsulated IP header.
<b>Usage Guidelines</b>	See “Filter Traffic Based on the IP Header” on page 137.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

