

Chapter 14

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).

dynamic-tunnels

Syntax	<pre>dynamic-tunnels <i>tunnel-name</i> { destination-networks <i>prefix</i>; source-address <i>address</i>; tunnel-type <i>tunnel-type</i>; }</pre>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> routing-options], [edit routing-options]
Description	Enables dynamic tunnel creation.
Options	<p><i>destination-networks</i>—Specifies the IPv4 prefix range for the destination network by including the <i>destination-networks</i> statement. Only tunnels within the specified IPv4 prefix range are allowed to be initiated.</p> <p><i>source-address</i>—Specifies the source address for the GRE tunnels. The source address specifies the address used as the source for the local tunnel endpoint. This could be any local address on the router (typically the router ID or the loopback address).</p> <p><i>tunnel-name</i>—Specifies the name of the dynamic tunnel.</p> <p><i>tunnel-type</i>—Specifies the type of tunnel to be dynamically created. The only currently valid value is <i>gre</i> (for GRE tunnels).</p>
Usage Guidelines	See “Configuring GRE Tunnels Dynamically” on page 165 and the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	<i>routing</i> —To view this statement in the configuration. <i>routing-control</i> —To add this statement to the configuration.

independent-domain

Syntax	independent-domain;
Hierarchy Level	[edit routing-instances <i>routing-instance-name</i> autonomous-system <i>number</i>]
Description	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.
Usage Guidelines	See "Configuring Layer 3 VPNs to Carry IBGP Traffic" on page 154 and the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

inet6-vpn

Syntax	inet6-vpn (unicast multicast any) { prefix-limit <i>maximum</i> ; rib-group <i>rib-group-name</i> ; }
Hierarchy Level	[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]
Description	Enable Internet Protocol version 6 (IPv6) on the provider edge (PE) router for the Layer 3 VPN.
Options	prefix-limit—Maximum prefix limit. Range: 1 through 4,294,967,295 Default: 1 rib-group—The name of the routing table group.
Usage Guidelines	See "Configuring IPv6 Between the PE and CE Routers" on page 150 and the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

metric

Syntax	metric <i>value</i> ;
Hierarchy Level	[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]
Description	Specify the cost of using the Open Shortest Path First (OSPF) sham link. Range: 1 through 65,535 Default: 1
Usage Guidelines	See “Configuring OSPF Sham Links” on page 143.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

multihop

Syntax	multihop <i>ttl-value</i> ;
Hierarchy Level	[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>]
Description	Configure an external BGP (EBGP) or internal BGP (IBGP) multihop session between the PE and customer edge (CE) routers of a Layer 3 VPN.
Usage Guidelines	See “Configuring EBGP or IBGP Multihop Between PE and CE Routers” on page 154.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

multipath

Syntax	<pre>multipath { vpn-unequal-cost; }</pre>
Hierarchy Level	<p>[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i>]</p>
Description	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.
Options	<p>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.</p>
Usage Guidelines	See “Protocol-Independent Load Balancing for Layer 3 VPNs” on page 173.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

sham-link

Syntax	<pre>sham-link { local <i>address</i>; no-advertise-local; }</pre>
Hierarchy Level	<p>[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols ospf],</p> <p>[edit routing-instances <i>routing-instance-name</i> protocols ospf]</p>
Description	Configure a sham link for the Layer 3 VPN routing instance.
Options	<p>local <i>address</i>—The address for the local endpoint of the sham link.</p> <p>no-advertise-local—Prevents OSPF from advertising the address for the local endpoint of the sham link.</p>
Usage Guidelines	See “Configuring OSPF Sham Links” on page 143 and the <i>JUNOS Routing Protocols 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>

sham-link-remote

Syntax	sham-link-remote <i>address</i> <metric <i>number</i> >;
Hierarchy Level	[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>]
Description	Configure the address for the remote end point of the sham link. The metric statement is explained separately.
Usage Guidelines	See “Configuring OSPF Sham Links for Layer 3 VPNs” on page 142 and the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

vpn-group-address

Syntax	vpn-group-address <i>address</i> ;
Hierarchy Level	[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]
Description	Configure the group address for the Layer 3 VPN in the service provider’s network.
Usage Guidelines	See “Configuring Multicast over Layer 3 VPNs” on page 161 and the <i>JUNOS Multicast Protocols Configuration Guide</i> .
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 logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i>], [edit routing-instances <i>routing-instance-name</i>]
Description	Map the inner label of a packet to a specific VRF routing table. This allows the examination of the encapsulated IP header.
Usage Guidelines	See “Filtering Traffic Based on the IP Header” on page 155.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

