

## Chapter 4

# Summary of VPN Configuration Statements

This chapter describes the configuration statements that apply specifically to virtual private networks (VPNs) and virtual private LAN service (VPLS). The statements are organized alphabetically.

Routing instances and the statements at the [edit routing-instances *routing-instance-name* routing-options] and [edit routing-instances *routing-instance-name* protocols] hierarchy levels are explained in the *JUNOS Routing Protocols Configuration Guide*.

## aggregate-label

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<b>Syntax</b>	aggregate-label { community <i>community-name</i> ; }
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> protocols bgp family inet labeled-unicast], [edit logical-routers <i>logical-router-name</i> protocols bgp family inet-vpn labeled-unicast], [edit protocols bgp family inet labeled-unicast], [edit protocols bgp family inet-vpn labeled-unicast]
<b>Description</b>	Enables aggregate labels for VPN traffic.
<b>Options</b>	community <i>community-name</i> —Specify the name of the community to which to apply the aggregate label.
<b>Usage Guidelines</b>	See “Configuring Aggregate Labels for VPNs” on page 34.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## description

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<b>Syntax</b>	<code>description <i>text</i>;</code>
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> ], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols l2vpn site <i>site-name</i> interface <i>interface-name</i> ], [edit routing-instances <i>routing-instance-name</i> ], [edit routing-instances <i>routing-instance-name</i> protocols l2vpn site <i>site-name</i> interface <i>interface-name</i> ]
<b>Description</b>	Provide a text description. 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 <code>show route instance detail</code> command and has no effect on operation.
<b>Usage Guidelines</b>	See “Configuring the Description” on page 18.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## family route-target

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<b>Syntax</b>	family route-target { advertise-default; external-paths <i>number</i> ; prefix-limit <i>number</i> ; }
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> protocols bgp group <i>group-name</i> ], [edit logical-routers <i>logical-router-name</i> protocols bgp group <i>group-name</i> neighbor <i>address</i> ], [edit protocols bgp group <i>group-name</i> ], [edit protocols bgp group <i>group-name</i> neighbor <i>address</i> ]
<b>Description</b>	Enables Border Gateway Protocol (BGP) route target filtering on the Layer 3 VPN.
<b>Options</b>	<p>advertise-default—Cause the router to advertise the default route target route (0:0:0/0) and suppress all routes that are more specific. This can be used by a route reflector (RR) on BGP groups consisting of neighbors that act as provider edge (PE) routers only. PE routers often need to advertise all routes to the RR.</p> <p>Suppressing all route target advertisements other than the default route reduces the amount of information exchanged between the RR and the PE routers. The JUNOS software further helps to reduce route target advertisement overhead by not maintaining dependency information unless a nondefault route is received.</p> <p>external-paths <i>number</i>—Cause the router to advertise the VPN routes that reference a given route target. The number you specify with the external-paths statement determines the number of external peer routers (currently advertising that route target) that receive the VPN routes. The default value is 1.</p> <p>prefix-limit <i>number</i>—The number of prefixes that can be received from a peer router.</p>
<b>Usage Guidelines</b>	See “Configuring BGP Route Target Filtering for VPNs” on page 30.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## graceful-restart

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<b>Syntax</b>	<pre>graceful-restart {   disable;   restart-duration <i>time-limit</i>; }</pre>
<b>Hierarchy Level</b>	<p>[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-options],  [edit routing-instances <i>routing-instance-name</i> routing-options],  [edit routing-options]</p>
<b>Description</b>	Allow a router whose VPN control plane is undergoing a restart to continue to forward traffic while recovering its state from neighboring routers.
<b>Options</b>	<p><b>disable</b>—Disable graceful restart.</p> <p><b>restart-duration <i>time-limit</i></b>—Grace period for graceful restart, in seconds.  <b>Default:</b> 300 seconds  <b>Range:</b> 1 through 600 seconds</p>
<b>Usage Guidelines</b>	See “Configuring Graceful Restart” on page 33.
<b>Required Privilege Level</b>	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

## instance-type

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<b>Syntax</b>	<code>instance-type type;</code>
<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>	Define the type of routing instance.
<b>Options</b>	<p><i>type</i>—Can be one of the following:</p> <p><i>l2vpn</i>—Enable a Layer 2 VPN on the routing instance. You must configure the interface, route-distinguisher, vrf-import, and vrf-export statements for this type of routing instance.</p> <p><i>virtual-router</i>—Enable a virtual router routing instance. You must configure the interface statement for this type of routing instance. You do not need to configure the route-distinguisher, vrf-import, and vrf-export statements.</p> <p><i>vpls</i>—Enable VPLS on the routing instance. You must configure the interface, route-distinguisher, vrf-import, and vrf-export statements for this type of routing instance.</p> <p><i>vrf</i>—VPN routing and forwarding instance. Required to create a Layer 3 VPN. Creates a VPN routing and forwarding (VRF) table (<i>instance-name.inet.0</i>), which contains the routes originating from and destined for a particular Layer 3 VPN. You must configure the interface, route-distinguisher, vrf-import, and vrf-export statements for this type of routing instance.</p>
<b>Usage Guidelines</b>	See “Configuring the Instance Type” on page 18.
<b>Required Privilege Level</b>	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

## interface

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<b>Syntax</b>	<code>interface interface-name;</code>
<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>	Interface over which the VPN traffic travels between the PE router and customer edge (CE) router. You configure the interface on the PE router. If the instance-type statement is configured as vrf (see instance-type on page 57), interface statement is required.
<b>Usage Guidelines</b>	See “Configuring Interfaces for VPN Routing” on page 19.
<b>Required Privilege Level</b>	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

## route-distinguisher

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<b>Syntax</b>	route-distinguisher ( <i>as-number:number</i>   <i>ip-address:number</i> );
<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>	Identifier attached to a route that distinguishes to which VPN or VPLS routing instance it belongs. Each routing instance must have a unique distinguisher associated with it. Each route distinguisher is a 6-byte value.
<b>Options</b>	<i>as-number:number</i> — <i>as-number</i> is your assigned autonomous system (AS) number (a 2-byte value) and <i>number</i> is any 4-byte value. The AS number can be in the range of 1 through 65,535.  <i>ip-address:number</i> — <i>ip-address</i> is an IP address in your assigned prefix range (a 4-byte value) and <i>number</i> is any 2-byte value. The IP address can be any globally unique unicast address.
<b>Usage Guidelines</b>	See “Configuring the Route Distinguisher” on page 21.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## route-distinguisher-id

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<b>Syntax</b>	route-distinguisher-id <i>ip-address</i> ;
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> routing-options], [edit routing-options]
<b>Description</b>	Automatically assign a route distinguisher to the routing instance. If you configure the route-distinguisher statement in addition to the route-distinguisher-id statement, the value configured for route-distinguisher supersedes the value generated from route-distinguisher-id.
<b>Usage Guidelines</b>	See “Configuring the Route Distinguisher” on page 21.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## vpn-apply-export

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<b>Syntax</b>	vpn-apply-export;
<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> ], [edit logical-routers <i>logical-router-name</i> protocols bgp group <i>group-name</i> neighbor <i>neighbor</i> ], [edit protocols bgp], [edit protocols bgp group <i>group-name</i> ], [edit protocols bgp group <i>group-name</i> neighbor <i>neighbor</i> ]
<b>Description</b>	Apply both the VRF export and BGP group or neighbor export policies (VRF first, then BGP) before routes from the vrf or l2vpn routing tables are advertised to other PE routers.
<b>Usage Guidelines</b>	See “Applying Both the VRF Export and the BGP Export Policies” on page 27.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## vrf-export

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<b>Syntax</b>	vrf-export [ <i>policy-names</i> ];
<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>	How routes are exported from the local PE router’s VRF table ( <i>routing-instance-name.inet.0</i> ) to the remote PE router. If the instance-type statement is configured as vrf (see instance-type on page 57), the vrf-export statement is required.  You can configure multiple export policies on the PE router.
<b>Usage Guidelines</b>	See “Configuring Export Policy for the PE Router’s VRF Table” on page 26.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## vrf-import

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<b>Syntax</b>	<code>vrf-import [ <i>policy-names</i> ];</code>
<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>	How routes are imported into the local PE router's VRF table ( <i>routing-instance-name.inet.0</i> ) from the remote PE router. If the <i>instance-type</i> statement is configured as <i>vrf</i> ( <i>instance-type</i> on page 57), the <i>vrf-import</i> statement is required.  You can configure multiple import policies on the PE router.
<b>Usage Guidelines</b>	See "Configuring Import Policy for the PE Router's VRF Table" on page 25.
<b>Required Privilege Level</b>	<i>routing</i> —To view this statement in the configuration. <i>routing-control</i> —To add this statement to the configuration.

## vrf-target

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<b>Syntax</b>	<code>vrf-target {     <i>community-name</i>;     import <i>community-name</i>;     export <i>community-name</i>; }</code>
<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>	Configure a single policy for import and a single policy for export to replace the per-VRF policies for every community.
<b>Options</b>	<i>community</i> —Community name.  <i>import</i> —The allowed communities to accept from neighbors.  <i>export</i> —The allowed communities to send to neighbors.
<b>Usage Guidelines</b>	See "Configuring a VRF Target" on page 28.
<b>Required Privilege Level</b>	<i>routing</i> —To view this statement in the configuration. <i>routing-control</i> —To add this statement to the configuration.

## vrf-mtu-check

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<b>Syntax</b>	vrf-mtu-check;
<b>Hierarchy Level</b>	[edit chassis]
<b>Description</b>	Enables path checks on the outgoing interface for unicast traffic routed on a VRF or virtual-router routing instance.
<b>Usage Guidelines</b>	See “Configuring a Path MTU Check for VPNs” on page 37.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

