

## Chapter 4

# Summary of VPN Configuration Statements

This chapter summarizes the statements used in the configuration of virtual private networks (VPNs) and virtual private LAN service (VPLS). The statements are organized alphabetically.

Statements configured at the [edit routing-instances] and the [edit protocols] hierarchy levels are explained in complete detail in the *JUNOS Routing Protocols Configuration Guide*.

Statements configured at the [edit policy-options] hierarchy level are explained in complete detail in the *JUNOS Policy Framework Configuration Guide*.

Statements configured at the [edit interfaces] hierarchy level are explained in complete detail in the *JUNOS Network Interfaces 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 inet6 labeled-unicast], [edit logical-routers <i>logical-router-name</i> protocols bgp family inet-vpn unicast], [edit logical-routers <i>logical-router-name</i> protocols bgp family inet-vpn6 unicast], [edit protocols bgp family inet labeled-unicast], [edit protocols bgp family inet6 labeled-unicast], [edit protocols bgp family inet-vpn unicast], [edit protocols bgp family inet6-vpn unicast]
<b>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Specifies a matching criteria (in the form of a community) such that all routes which match are assigned the same VPN label, selected from one of the several routes in the set defined by this criteria. This reduces the number of VPN labels that the router must consider, and aggregates the received labels.
<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>	description <i>text</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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Describe the VPN or VPLS routing instance.
<b>Options</b>	<i>text</i> —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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Enable Border Gateway Protocol (BGP) route target filtering on the Layer 3 VPN.
<b>Options</b>	<p><b>advertise-default</b>—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 on BGP groups consisting of neighbors that act as provider edge (PE) routers only. PE routers often need to advertise all routes to the route reflector.</p> <p>Suppressing all route target advertisements other than the default route reduces the amount of information exchanged between the route reflector 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><b>external-paths <i>number</i></b>—Cause the router to advertise the VPN routes that reference a given route target. The number you specify with the <b>external-paths</b> 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><b>prefix-limit <i>number</i></b>—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>	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

## 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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<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>	instance-type <i>type</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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Define the type of routing instance.
<b>Options</b>	<p><i>type</i>—Can be one of the following:</p> <ul style="list-style-type: none"> <li>■ <i>l2vpn</i>—Enable a Layer 2 VPN on the routing instance. You must configure the <i>interface</i>, <i>route-distinguisher</i>, <i>vrf-import</i>, and <i>vrf-export</i> statements for this type of routing instance.</li> <li>■ <i>virtual-router</i>—Enable a virtual router routing instance. You must configure the <i>interface</i> statement for this type of routing instance. You do not need to configure the <i>route-distinguisher</i>, <i>vrf-import</i>, and <i>vrf-export</i> statements.</li> <li>■ <i>vpls</i>—Enable VPLS on the routing instance. You must configure the <i>interface</i>, <i>route-distinguisher</i>, <i>vrf-import</i>, and <i>vrf-export</i> statements for this type of routing instance.</li> <li>■ <i>vrf</i>—VPN routing and forwarding (VRF) instance. Required to create a Layer 3 VPN. Creates a 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 <i>interface</i>, <i>route-distinguisher</i>, <i>vrf-import</i>, and <i>vrf-export</i> statements for this type of routing instance.</li> </ul>
<b>Usage Guidelines</b>	See “Configuring the Instance Type” on page 18.
<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.

## interface

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<b>Syntax</b>	interface <i>interface-name</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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<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 <b>instance-type</b> statement is configured as <b>vrf</b> (see <b>instance-type</b> on page 61), this statement is required.
<b>Options</b>	<i>interface-name</i> —Name of the interface.
<b>Usage Guidelines</b>	See “Configuring Interfaces for VPN Routing” on page 19.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## no-forwarding

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<b>Syntax</b>	no-forwarding;
<b>Hierarchy Level</b>	[edit logical-routers <i>logical-router-name</i> protocols ldp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols ldp], [edit protocols ldp], [edit routing-instances <i>routing-instance-name</i> protocols ldp]
<b>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Do not add ingress routes to the inet.0 routing table even if <b>traffic-engineering bgp-igp</b> (configured at the [edit protocols mpls] hierarchy level) is enabled.
<b>Default</b>	The <b>no-forwarding</b> statement is disabled. Ingress routes are added to the inet.0 routing table instead of the inet.3 routing table when <b>traffic-engineering bgp-igp</b> is enabled.
<b>Usage Guidelines</b>	See “Configuring a Routing Protocol Between the Service Provider Routers” on page 31.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## route-distinguisher

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<b>Syntax</b>	route-distinguisher ( <i>as-number:id</i>   <i>ip-address:id</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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<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:id</i> — <i>as-number</i> is your assigned autonomous system (AS) number (a 2-byte value) and <i>id</i> is any 4-byte value. The AS number can be in the range from 1 through 65,535.  <i>ip-address:id</i> — <i>ip-address</i> is an IP address in your assigned prefix range (a 4-byte value) and <i>id</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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Automatically assign a route distinguisher to the routing instance. If you configure the <code>route-distinguisher</code> statement in addition to the <code>route-distinguisher-id</code> statement, the value configured for <code>route-distinguisher</code> supersedes the value generated from <code>route-distinguisher-id</code> .
<b>Options</b>	<i>ip-address</i> —Address for routing instance.
<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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Apply both the VRF export and BGP group or neighbor export policies (VRF first, then BGP) before routes from the <i>vrf</i> or <i>l2vpn</i> 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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Specify 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 <i>instance-type</i> statement is configured as <i>vrf</i> (see <i>instance-type</i> on page 61), this statement is required.  You can configure multiple export policies on the PE router.
<b>Options</b>	<i>policy-names</i> —Names for the export policies
<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>	vrf-import [ <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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Specify 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 61), this statement is required.  You can configure multiple import policies on the PE router.
<b>Options</b>	<i>policy-names</i> —Names for the export policies
<b>Usage Guidelines</b>	See “Configuring Import Policy for the PE Router’s VRF Table” on page 25.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## vrf-target

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<b>Syntax</b>	vrf-target { <i>community</i> ; import <i>community-name</i> ; export <i>community-name</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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	If you configure the <i>community</i> only, default VRF import and export policies are generated that accept and tag routes with the specified target community, helping to simplify the VPN configuration process.  You can also explicitly configure VRF import and export policies using the <i>import</i> and <i>export</i> options.
<b>Options</b>	<i>community</i> —Community name.  <i>import community-name</i> —The allowed communities to accept from neighbors.  <i>export community-name</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>	routing—To view this statement in the configuration. routing-control—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>Release Information</b>	Statement introduced before JUNOS Release 7.4.
<b>Description</b>	Enable 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.