



Configuring Routed Pseudowire and VPLS



Note

This is *not* applicable on the Cisco ASR 900 RSP3 module.

Routed Pseudowire and VPLS feature routes Layer 3 traffic and Layer 2 frames for pseudowire connections between provider edge (PE) devices using Virtual Private LAN Services (VPLS) multipoint PE.

- [Prerequisites for Routed Pseudowire and VPLS, page 1](#)
- [Restrictions for Routed Pseudowire and VPLS, page 1](#)
- [Information About Routed Pseudowire and VPLS, page 2](#)
- [How to Configure Routed Pseudowire and VPLS, page 2](#)
- [Configuration Examples: Routed Pseudowire and VPLS, page 5](#)

Prerequisites for Routed Pseudowire and VPLS

- MTU must be manually configured for MPLS enabled interfaces.

Restrictions for Routed Pseudowire and VPLS

- Routed Pseudowire is *not* supported on the Cisco ASR 900 RSP3 module.
- Maximum number of routed VPLS supported per system is 128.
- Maximum number of pseudowires supported per bridge domain is 62.
- Layer 2 and Layer 3 multicast are *not* supported.
- ACL on the core network is *not* supported.
- MTU check is *not* supported. MTU must be manually configured for MPLS enabled interfaces.
- MPLS is *not* supported on routed VPLS.

Information About Routed Pseudowire and VPLS

Routed Pseudowire and VPLS

Routed Pseudowire and VPLS configuration can route Layer 3 traffic as well as Layer 2 frames for pseudowire connections between provider edge (PE) devices using Virtual Private LAN Services (VPLS) multipoint PE. The ability to route frames to and from these interfaces supports termination of pseudowires into the Layer 3 network (VPN or global) on the same switch, or to the tunnel Layer 3 frames over a Layer 2 tunnel (VPLS).

To configure routing support for a pseudowire, configure the IP address and other Layer 3 features for the Layer 3 domain in interface configuration mode.


Note

BFDD over BDI is supported with routed VPLS configuration.

How to Configure Routed Pseudowire and VPLS

Assigning IP Addresses For Bridge Domain (BDI)

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `interface bdi bdi-number`
4. `ip address ip address subnet mask`
5. `end`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>enable</code> Example: Device> <code>enable</code>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	<code>configure terminal</code> Example: Device# <code>configure terminal</code>	Enters global configuration mode.

	Command or Action	Purpose
Step 3	interface bdi <i>bdi-number</i> Example: Router(config)# interface bdi 3000	Configures the bridge domain interface.
Step 4	ip address <i>ip address subnet mask</i> Example: Router(config-if)# ip address 24.24.24.24 255.255.255.0	Specifies the IP address for the bridge domain.
Step 5	end Example: Router(config-if)# end	Exits interface configuration mode.

Configuring a VFI on a PE Device

The virtual forwarding interface (VFI) specifies the VPN ID of a Virtual Private LAN Services (VPLS) domain, the addresses of other provider edge (PE) devices in the domain, and the type of tunnel signaling and encapsulation mechanism for each peer.



Note

Only Multiprotocol Label Switching (MPLS) encapsulation is supported.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **l2 vfi** *name manual*
4. **vpn id** *vpn-id*
5. **neighbor** *remote-router-id vc-id* {**encapsulation** *encapsulation-type* | **pw-class** *pw-name*}
[**no-split-horizon**]
6. **bridge-domain** *bd-id*
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	l2 vfi name manual Example: Device(config)# l2 vfi vfi110 manual	Establishes a Layer 2 VPN (L2VPN) virtual forwarding interface (VFI) between two or more separate networks and enters VFI configuration mode.
Step 4	vpn id vpn-id Example: Device(config-vfi)# vpn id 110	Configures a VPN ID for a VPLS domain. <ul style="list-style-type: none"> • The emulated VCs bound to this Layer 2 virtual routing and forwarding (VRF) instance use this VPN ID for signaling.
Step 5	neighbor remote-router-id vc-id {encapsulation encapsulation-type pw-class pw-name} [no-split-horizon] Example: Device(config-vfi)# neighbor 172.16.10.2 4 encapsulation mpls	Specifies the type of tunnel signaling and encapsulation mechanism for each VPLS peer. <p>Note Split horizon is the default configuration to avoid broadcast packet looping and to isolate Layer 2 traffic. Use the no-split-horizon keyword to disable split horizon and to configure multiple VCs per spoke into the same VFI.</p>
Step 6	bridge-domain bd-id Example: Device(config-vfi)# bridge-domain 100	Specifies a bridge domain.
Step 7	end Example: Device(config-vfi)# end	Exits VFI configuration mode and returns to privileged EXEC mode.

Configuration Examples: Routed Pseudowire and VPLS

Example: Configuring Routed Pseudowire and VPLS

The example configures the IP address on a BDI interface and associates the interface to a VFI.

```
!  
interface GigabitEthernet0/0/0  
  service instance 3 ethernet  
  encapsulation dot1q 3000  
  rewrite ingress tag pop 1 symmetric  
  bridge-domain 100  
!  
interface BDI100  
  ip address 24.24.24.24 255.255.255.0  
!  
l2 vfi TEST manual  
  vpn id 100  
  bridge-domain 100  
  neighbor 9.9.9.9 encapsulation mpls  
!
```

