Configuring Routed Pseudowire and VPLS

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.

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Prerequisites for Routed Pseudowire and VPLS

- MTU must be manually configured for MPLS enabled interfaces.

Restrictions for Routed Pseudowire and VPLS

- MPLS is *not* supported over routed VPLS in releases prior to Cisco IOS XE 16.6.1
- 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.
- PBR is *not* supported.
- MTU check is *not* supported. MTU must be manually configured for MPLS enabled interfaces.

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 BFD over BDI is supported with routed VPLS configuration.

How to Configure Routed Pseudowire and VPLS

Assigning IP Addresses For Bridge Domain (BDI)

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**interface bdi** *bdi-number* **Example:** `Router(config)# interface bdi 3000`	Configures the bridge domain interface.
Step 4	**ip address** *ip address subnet mask* **Example:** `Router(config-if)# ip address 24.24.24.24 255.255.255.0`	Specifies the IP address for the bridge domain.

	Command or Action	Purpose
Step 5	**no shut** **Example:** `Router(config-if)# no shutdown`	Enables the bridge domain interface.
Step 6	**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. Perform this task to configure a VFI:

Note Only Multiprotocol Label Switching (MPLS) encapsulation is supported.

Note You must configure BDI on the bridge domain that has the association with the VFI.

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • 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. • The emulated VCs bound to this Layer 2 virtual routing and forwarding (VRF) instance use this VPN ID for signaling.

	Command or Action	Purpose
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. **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.
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
 no shut
!
l2 vfi TEST manual
 vpn id 100
 bridge-domain 100
 neighbor 9.9.9.9 encapsulation mpls
!
```