



VPLS BGP Signaling

The two primary functions of the Virtual Private LAN Service (VPLS) control plane are autodiscovery and signaling. The VPLS BGP Signaling feature enables you to use BGP as both an autodiscovery and a signaling protocol for VPLS, in accordance with RFC 4761.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Prerequisites for VPLS BGP Signaling

You are familiar with the concepts in the “Configuring Virtual Private LAN Services” and the “VPLS Autodiscovery BGP Based” modules of the *MPLS Layer 2 VPNs Configuration Guide*.

How to Configure VPLS BGP Signaling

Configuring VPLS BGP Signaling

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **l2vpn vfi context *name***
4. **vpn id *vpn-id***
5. **autodiscovery bgp signaling {bgp | ldp} [template *template-name*]**
6. **ve id *ve-id***
7. **ve range *ve-range***
8. **exit**
9. **exit**
10. **router bgp *autonomous-system-number***
11. **bgp graceful-restart**
12. **neighbor *ip-address* remote-as *autonomous-system-number***
13. **address-family l2vpn [vpls]**
14. **neighbor *ip-address* activate**
15. **neighbor *ip-address* send-community [both | standard | extended]**
16. **neighbor *ip-address* suppress-signaling-protocol ldp**
17. **end**
18. **show bgp l2vpn vpls {all | rd *route-distinguisher*}**

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.

	Command or Action	Purpose
Step 3	l2vpn vfi context <i>name</i> Example: Device(config)# l2vpn vfi context vfi1	Establishes a L2VPN virtual forwarding interface (VFI) between two or more separate networks and enters Layer 2 VFI configuration mode.
Step 4	vpn id <i>vpn-id</i> Example: Device(config-vfi)# vpn id 100	Configures a VPN ID for the VPLS domain.
Step 5	autodiscovery bgp signaling { bgp ldp } [template <i>template-name</i>] Example: Device(config-vfi)# autodiscovery bgp signaling bgp	Enables BGP signaling and discovery or LDP signaling and enters L2VPN VFI autodiscovery configuration mode. Note For the VPLS BGP Signaling feature use the autodiscovery bgp signaling bgp command.
Step 6	ve id <i>ve-id</i> Example: Device(config-vfi-autodiscovery)# ve id 1001	Specifies the VPLS endpoint (VE) device ID value. The VE ID identifies a VFI within a VPLS service. The VE device ID value is from 1 to 16384.
Step 7	ve range <i>ve-range</i> Example: Device(config-vfi-autodiscovery)# ve range 12	Specifies the VE device ID range value. The VE range overrides the minimum size of VE blocks. The default minimum size is 10. Any configured VE range must be higher than 10.
Step 8	exit Example: Device(config-vfi-autodiscovery)# exit	Exits L2VPN VFI autodiscovery configuration mode and enters L2VPN VFI configuration mode.
Step 9	exit Example: Device(config-vfi)# exit	Exits L2VPN VFI configuration mode and enters global configuration mode.
Step 10	router bgp <i>autonomous-system-number</i> Example: Device(config)# router bgp 100	Enters router configuration mode to create or configure a BGP routing process.

	Command or Action	Purpose
Step 11	bgp graceful-restart Example: Device(config-router)# bgp graceful-restart	Enables the BGP graceful restart capability and BGP nonstop forwarding (NSF) awareness.
Step 12	neighbor ip-address remote-as autonomous-system-number Example: Device(config-router)# neighbor 10.10.10.1 remote-as 100	Configures peering with a BGP neighbor in the specified autonomous system.
Step 13	address-family l2vpn [vpls] Example: Device(config-router)# address-family l2vpn vpls	Specifies the L2VPN address family and enters address family configuration mode. <ul style="list-style-type: none"> The optional vpls keyword specifies that VPLS endpoint provisioning information is to be distributed to BGP peers. In this example, an L2VPN VPLS address family session is created.
Step 14	neighbor ip-address activate Example: Device(config-router-af)# neighbor 10.10.10.1 activate	Enables the neighbor to exchange information for the L2VPN VPLS address family with the local device.
Step 15	neighbor ip-address send-community [both standard extended] Example: Device(config-router-af)# neighbor 10.10.10.1 send-community extended	Specifies that a communities attribute should be sent to a BGP neighbor. <ul style="list-style-type: none"> In this example, an extended communities attribute is sent to the neighbor at 10.10.10.1.
Step 16	neighbor ip-address suppress-signaling-protocol ldp Example: Device(config-router-af)# neighbor 10.10.10.1 suppress-signaling-protocol ldp	Suppresses LDP signaling and enables BGP signaling. <ul style="list-style-type: none"> In this example LDP signaling is suppressed (and BGP signaling enabled) for the neighbor at 10.10.10.1.
Step 17	end Example: Device(config-router-af)# end	Exits address family configuration mode and returns to privileged EXEC mode.

	Command or Action	Purpose
Step 18	show bgp l2vpn vpls {all rd route-distinguisher} Example: Device# show bgp l2vpn vpls all	(Optional) Displays information about the L2VPN VPLS address family.

Configuration Examples for VPLS BGP Signaling

Example: Configuring and Verifying VPLS BGP Signaling

```

l2vpn vfi context vfil
  vpn id 100
  autodiscovery bgp signaling bgp
  ve id 1001
  ve range 10
!
!
router bgp 100
  bgp graceful-restart
  neighbor 209.165.200.224 remote-as 100
  neighbor 209.165.200.224 update-source Loopback1
!
  address-family l2vpn vpls
    neighbor 209.165.200.224 activate
    neighbor 209.165.200.224 send-community extended
    neighbor 209.165.200.224 suppress-signaling-protocol ldp
  exit-address-family
!
show bgp l2vpn vpls all

Network                               Next Hop                               Metric LocPrf Weight Path
Route Distinguisher: 100:100
*>100:100:VEID-1001:Blk-1001/136      0.0.0.0                               32768  ?
*>i 100:100:VEID-1003:Blk-1000/136    209.165.200.224                       0      100    0      ?

```

Additional References for VPLS BGP Signaling

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
BGP commands: complete command syntax, command mode, defaults, command history, usage guidelines, and examples.	Cisco IOS IP Routing: BGP Command Reference

Related Topic	Document Title
Configuring Virtual Private LAN Services	<i>MPLS Layer 2 VPNs Configuration Guide</i>
VPLS Autodiscovery BGP Based	<i>MPLS Layer 2 VPNs Configuration Guide</i>

Standards and RFCs

Standard/RFC	Title
RFC 4761	<i>Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and Signaling</i>
RFC 6074	<i>Provisioning, Auto-Discovery, and Signaling in Layer 2 Virtual Private Networks (L2VPNs)</i>

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for VPLS BGP Signaling

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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Table 1: Feature Information for VPLS BGP Signaling

Feature Name	Releases	Feature Information
VPLS BGP Signaling		<p>The VPLS BGP Signaling feature enables you to use BGP as both an autodiscovery and signaling protocol for VPLS, in accordance with RFC 4761.</p> <p>The following commands were introduced or modified: autodiscovery (MPLS), neighbor suppress-signaling-protocol, show bgp l2vpn vpls, and ve.</p> <p>In Cisco IOS XE Release 3.8S, support was added for the Cisco ASR 903 router.</p>