
Configure an EVPN IRB Distributed Gateway

 For supported software information, click [here](#).

Ethernet VPN (EVPN) enables connectivity among tenants and end devices that are on the same subnet, called intrasubnet forwarding, over an MPLS IP network. However, some situations require connectivity among tenants and end devices that are on different subnets, called intersubnet forwarding, while still maintaining the multihoming capabilities of EVPN. For these cases, you can use EVPN integrated routing and bridging (IRB).

EVPN IRB supports the following:

- Symmetric IRB—The lookup operation is symmetric on both the ingress and egress provider edge (PE) devices. That is, both ingress and egress PE devices perform lookups on both MAC and IP addresses. The ingress PE device performs a MAC address lookup followed by an IP address lookup, and the egress PE device performs an IP address lookup followed by a MAC address lookup.
- EVPN route type 5 for IP prefixes.
- SD-WAN MPLS encapsulation for Layer 3 traffic.

For more information about EVPN IRB, see the IETF draft [Integrated Routing and Bridging in EVPN](#).

To configure an EVPN IRB distributed gateway, you do the following:

1. Create a virtual switch routing instance.
2. Create a VRF routing instance.
3. Associate the VRF to the EVPN core routing instance.

Create a Virtual Switch Routing Instance

The first step in configuring an EVPN IRB distributed gateway is to create a routing instance of type Virtual Switch that has the entire bridge-domain configuration. You can map a bridge domain to an IRB logical interface.

To create a virtual switch routing instance:

1. In Director view:
 - a. Select the Administration tab in the top menu bar.
 - b. Select Appliances in the left menu bar.
 - c. Select an appliance in the main pane. The view changes to Appliance view.

- Configure Virtual Switch

Virtual Switch Details

Spanning Tree Protocol

EVPN

L2 Learning

Instance Name *

Description

Instance type

Virtual Switch

EVPN Service Type

VLAN Aware Bundle

Route Distinguisher

VRF Import Target

VRF Export Target

VRF Both Target

☐ MPLS Services

☐ Interfaces

+

Interfaces Not Configured
- Bridge Domains

+ < > 25
- ☐

Bridge Domain Name

VLAN ID

No Bridge Domains Added
- OK

Cancel

- https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_EVPN...
Updated: Wed, 23 Oct 2024 08:27:23 GMT
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Add Bridge Domains

Bridge Domain Name *

VLAN ID *

VXLAN VNI

Routing Interface

BD-1

100

1...16777215

irb1.1

L2 Learning

☒ MAC Learning

MAC Limit

MAC Table Aging Time(seconds)

☒ MAC Move

☐ Suppress Unknown Unicast

☐ ARP Suppression

16...131072

300

BD Interfaces For VLAN Translation

Interfaces

--Select--

+

No Records to Display

Logical Interfaces

+
trash
edit
filter
<
25

	Logical Interface Name	MAC Learning	MAC Limit
<input type="checkbox"/>	enet-0/6.1	enable	

OK

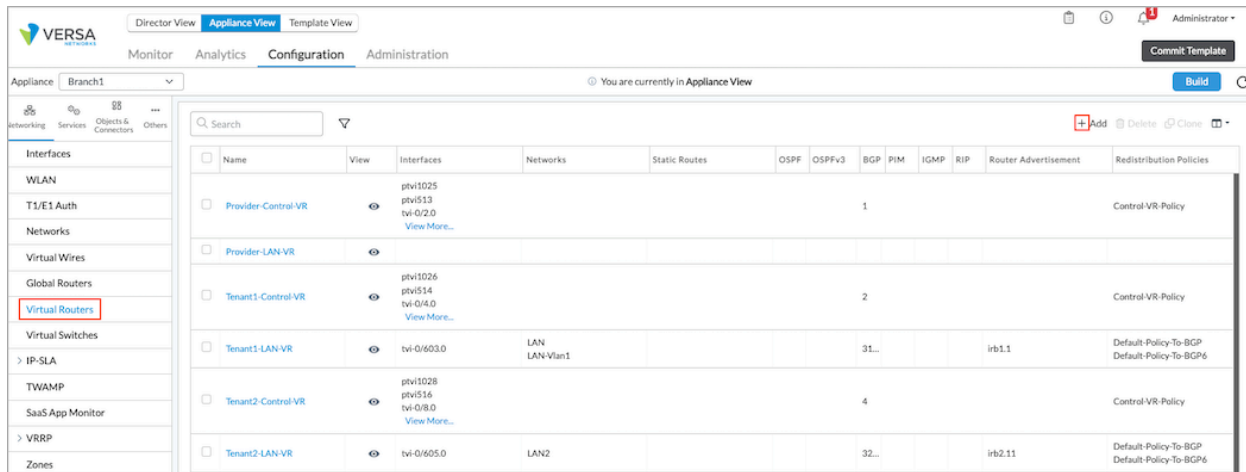
Cancel

Create a VRF Routing Instance

Secondly, you create a separate routing instance of type VRF, and then you associate the IRB interface for a bridge domain, which you defined in the virtual switch, with the VRF routing instance.

To create a VRF routing instance:

- In Director view:
 - Select Administration tab in the top menu.
 - Select Appliances in the left menu bar.
 - Select an appliance in the main pane. The view changes to Appliance view.
- Select the Configuration tab in the top menu bar.
- Select Networking > Virtual Routers in the left menu bar.



- Click the Add icon. In the Configure Virtual Router popup window, select the Virtual Router Details tab, and then in the Instance Name field, enter a name for the virtual router.

- Select the Redistribution Policies tab, select the General tab, and then click the Add icon.

- In the Apply Distribution Policy popup window, enter a name for the policy, and then click the Add icon.

Add Redistribution Policy

Name

Terms

	Term Name	Match					Actions				
		Protocol	Address	Area	Well Known Community	Nexthop	Accept/Reject	Set Community	Set Extended Community	Set Local Preference	Set MED
<input type="checkbox"/>											

No Term Added

OK Cancel

- In the Add Redistribution Policy Add Term popup window, in the Term Name field, enter a name for the term.
- Select the Match tab, and then in the Protocol field select Direct.

Add Redistribution Policy Add Term

Term Name

Match Action

Protocol

Route Type

Address

Area

OSPF Tag

Static Tag

Well Known Community

Community

Extended Community

Prefix Filter

Nexthop Filter

Nexthop

Monitor ☒ Monitor ☐ Monitor Group

Monitor

Monitor Group

State

OK Cancel

- Select the Action tab, and then in the Accept/Reject field, select Accept.

Add Redistribute To

From RIB *

inet-unicast-rib

Destination *

bgp

Policy Name *

L3-routing

OK

Cancel

Field	Description
From RIB	Select inet-unicast-rib.
Destination	Select bgp.
Policy Name	Select the redistribution policy. The redistribution policy sends direct routes in the VRF to the remote PE devices as type 5 routes. IP bindings for a MAC address that are learned through ARP messages are advertised using the type 2 MAC/IP routes to remote PE devices.

13. Click OK.

Associate the VRF with the EVPN Core Routing Instance

The last step is to associate the VRF with the EVPN core routing instance. Doing this allows the routes of VRF to be sent using BGP in the corresponding EVPN core instance. The EVPN core instance can be either EVPN MPLS or EVPN VXLAN.

To associate the VRF with an EVPN core routing instance:

1. Configure an EVPN MPLS EVPN core routing instance:
 - a. Navigate to the Configure Virtual Router popup window as described in Steps 1 through 4 in the previous section.
 - b. In the Configure Virtual Router popup window, select the Virtual Router Details tab, and then enter information for the following fields

Field	Description
VRF Core Instance Type	Select EVPN MPLS.
EVPN control routing instance	Enter a name for the EVPN control routing instance.
Interfaces/Networks	Click the Add icon, and then select an interface. Optionally, click the Add icon again to add a network.

c. Click OK.

2. Configure an EVPN VXLAN VRF core routing instance:

- Navigate to the Configure Virtual Router popup window as described in Steps 1 through 4 in the previous section.
- In the Configure Virtual Router screen, select the Virtual Router Details tab, and enter information for the following fields.

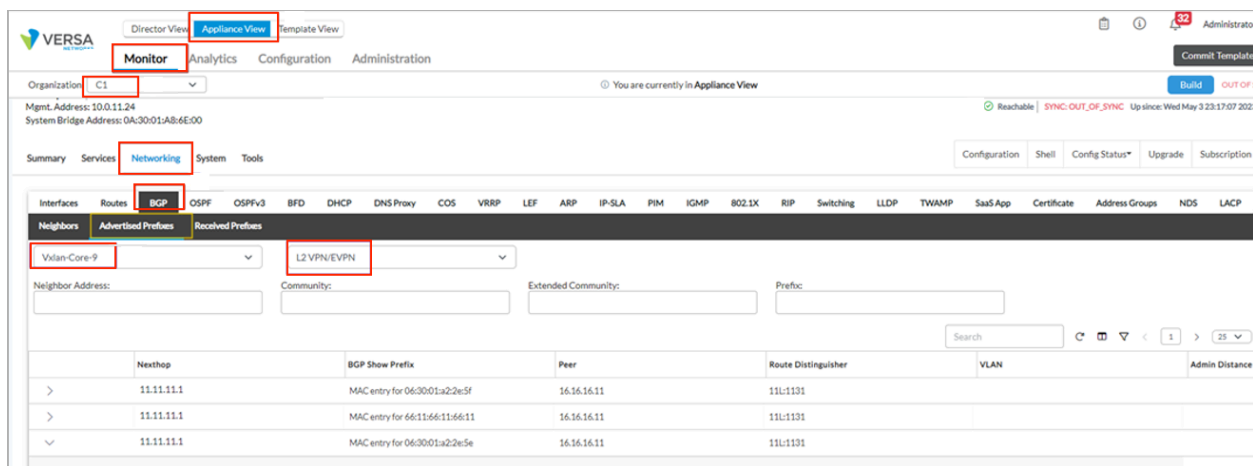
Field	Description
VRF Core Instance Type	Select EVPN VXLAN.
EVPN control routing instance	Enter a name for the EVPN control routing.
VNI	Enter the VNI number of the EVPN core virtual routing instance.
Interfaces/Networks	Click the + Add icon, and then select an interface. Optionally, click the + Add icon again to add a network.

c. Click OK.

Verify an EVPN IRB Gateway

To verify the configuration of an EVPN IRB gateway:

1. In Director view, select Monitor in the top menu bar.
2. Select an organization in the Organization field.
3. Select Devices, and then select a device in the main pane. The view changes to Appliance view.
4. Select Networking > BGP > Advertised Prefixes.



5. Select a routing instance in the first drop-down list, and then select Layer 2 VPN/EVPN in the second drop-down list.

The following screen displays Layer 2 VPN/EVPN routes for type 2 routes.

[Configure EVPN VXLAN for SD-WAN](#)

[Configure EVPN VXLAN for ZT-LAN](#)

[Configure Layer 2 Forwarding](#)

[Integrated Routing and Bridging in EVPN](#) (IETF draft)