Configuring BGP EVPN VXLANv6

This document describes new deployment and migration scenarios for implementing IPv6 in the underlay of a BGP EVPN VXLAN fabric.

- Restrictions for BGP EVPN VXLANv6, on page 1
- Information About BGP EVPN VXLANv6 , on page 1
- How to Configure BGP EVPN VXLANv6, on page 3
- Migration from VXLANv4 to VXLANv6, on page 6
- Configuration Examples for BGP EVPN VXLANv6, on page 9

Restrictions for BGP EVPN VXLANv6

- Optimized Layer 2 overlay multicast is not supported in BGP EVPN VXLANv6.
- BGP EVPN VXLANv6 does not support centralized anycast gateway deployment. Only distributed anycast gateway is supported.
- BGP EVPN VXLANv6 does not support the following features:
  - Multi-Homing
  - Access Virtual Forwarding Interface (VFI)
  - Fabric Netflow

Information About BGP EVPN VXLANv6

The ever-expanding needs of the enterprise networks to enhance the IP addressing capabilities and simplify the network configurations makes it pertinent to adopt IPv6-enabled networks. The larger IPv6 address space allows networks to scale and provide global reachability. The simplified IPv6 packet header format handles packets more efficiently. IPv6 prefix aggregation, simplified network renumbering, and IPv6 site multihoming capabilities provide an IPv6 addressing hierarchy that allows for more efficient routing. When you enable IPv6 in the underlay for VXLAN tunnel endpoints (VTEPS), the overlay traffic is encapsulated with the IPv6 VXLAN encapsulation. IPv6 connectivity between the VTEPS is established by enabling IPv6 unicast routing protocols. For overlay multi-destination traffic (BUM), when underlay multicast is used, IPv6 multicast protocol must be enabled.

For a new deployment, you can build your BGP EVPN VXLAN fabric with IPv6 underlay. For an existing BGP EVPN VXLAN fabric with IPv4 underlay, you can seamlessly migrate to an IPv6 only or dual stack underlay.

BGP EVPN VXLANv6 Fabric Support

In Cisco IOS XE Dublin 17.10.1 and later releases, a BGP EVPN VXLAN fabric with an IPv6 underlay supports the following features:

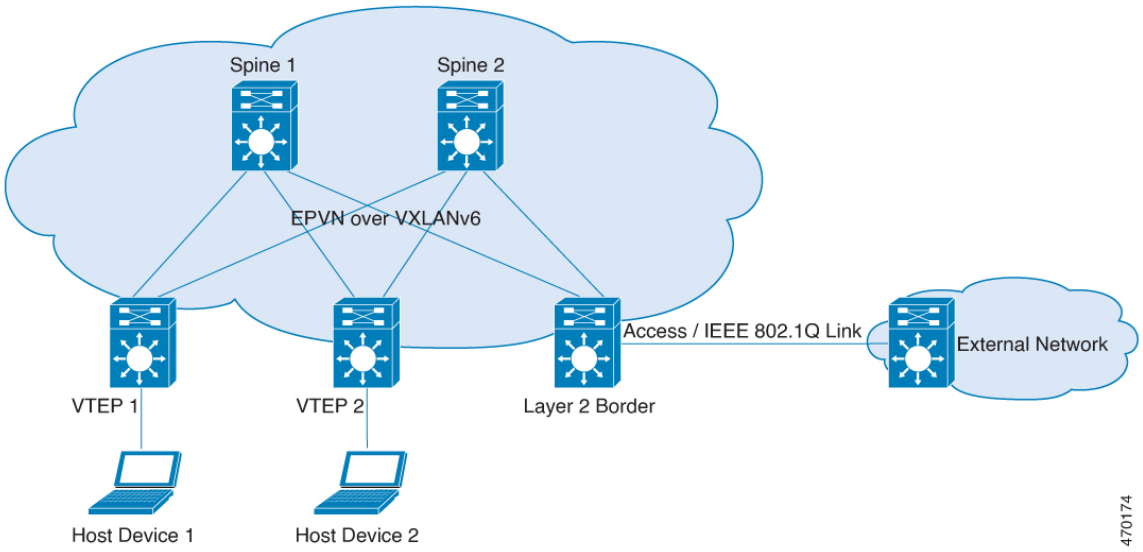
- Ingress Replication or Static Multicast Replication
- Layer 2 Gateway
- Distributed Anycast Gateway with Symmetric Integrated Routing and Bridging
- Layer 2 External connectivity with IEEE 802.1Q network
- Layer 3 External Connectivity with VRF-Lite or MPLS Layer 3 VPN network
- Seamless migration between EVPN VXLANv4 fabric and EVPN VXLANv6 fabric
- IPv6 BGP EVPN Neighbor Peering

EVPN VXLANv6 Layer 2 Overlay

The Layer 2 Gateway with VXLANv6 deployment supports IPv6 transport in the underlay. The VXLAN tunnels and BGP peering between Layer 2 Gateways are both IPv6 based. The overlay has only Layer 2 routes.

A Layer 2 Gateway with VXLANv6 supports Layer 2 bridging between Layer 2 Gateways. Layer 3 Routing is implemented with the external Layer 3 Gateways.

Figure 1: EVPN VXLANv6 Fabric with Layer 2 Gateway



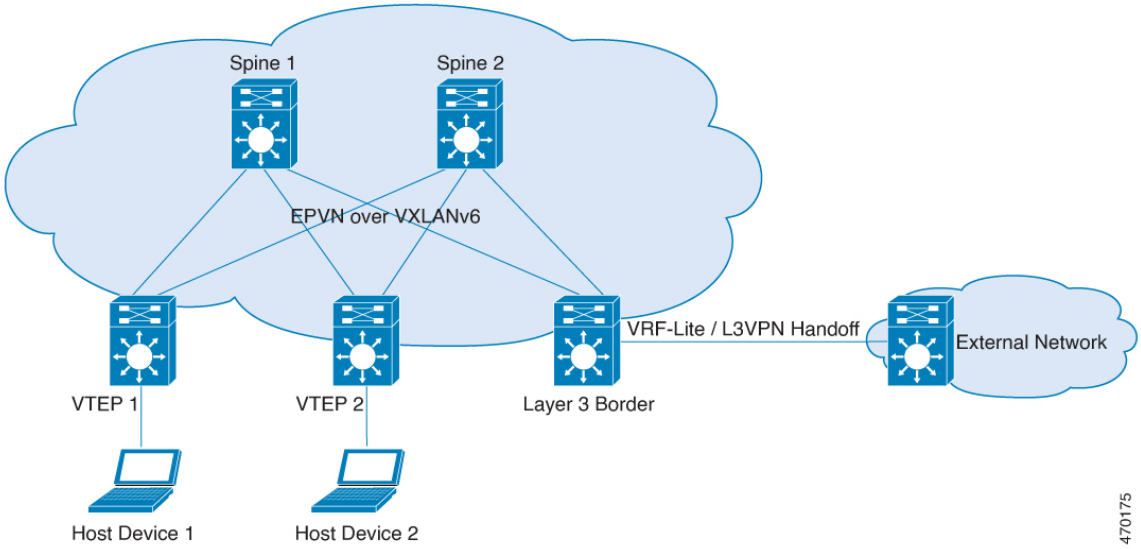
The topology in the Figure 1: EVPN VXLANv6 Fabric with Layer 2 Gateway shows a BGP EVPN VXLAN fabric with a Layer 2 overlay that supports IPv6 underlay. The fabric supports both IPv4 and IPv6 hosts.

EVPN VXLANv6 Overlay with Distributed Anycast Gateway

In a BGP EVPN VXLANv6 fabric with Distributed Anycast Gateway, the underlay supports IPv6 transport. The VXLAN tunnels and BGP peering, both support IPv6 addressing. The overlay has both Layer 2 and Layer 3 routes and supports MAC, IPv4 and IPv6 addressing.

Distributed Anycast Gateway with VXLANv6 supports Layer 2 bridging, Layer 3 routing within the EVPN fabric, and Layer 3 stitching through Layer 3 border gateway with IPv6 underlay. For Layer 3 routing, both IPv4 and IPv6 overlay prefixes are supported over IPv6 underlay.

Figure 2: BGP EVPN VXLANv6 Fabric with Distributed Anycast Gateway



Topology in the Figure 2: BGP EVPN VXLANv6 Fabric with Distributed Anycast Gateway shows a BGP EVPN VXLANv6 fabric with integrated routing and bridging (IRB) using distributed anycast gateway (DAG). The fabric supports both IPv4 and IPv6 hosts, and IPv6 BGP peering.

How to Configure BGP EVPN VXLANv6

This section describes only the changes in the underlay configuration. For the overlay and complete configuration of the fabric, refer How to Configure EVPN VXLAN Layer 2 Overlay Network and Information About EVPN VXLAN Integrated Routing and Bridging.

Configure VXLANv6 for BGP EVPN Fabric with Layer 2 Overlay

Implement the following tasks to configure IPv6 underlay for a BGP EVPN VXLAN fabric with Layer 2 overlay.

Procedure

Step 1 Configure an explicit router-id for L2VPN EVPN.

```
l2vpn
 router-id 1.1.1.3
l2vpn evpn
replication-type ingress
end
```

Step 2 Configure an L2EVPN instance.

```
l2vpn evpn instance 1 vlan-based
encapsulation vxlan
```

Step 3 Configure Loopback interface.

```
interface Loopback1
 ipv6 address ABCD:1::2/128
 ipv6 ospf 1 area 0
```

Step 4 Configure NVE interface.

```
interface nve1
 source-interface Loopback1
 host-reachability protocol bgp
 vxlan encapsulation ipv6
member vni 20011 ingress-replication
member vni 20012 mcast-group FF0E::12
```

Step 5 Configure the VLAN.

```
vlan configuration 11
 member evpn-instance 1 vni 20011
```

Step 6 Configure the L2VPN EVPN BGP peering.

```
interface Loopback0
 description BGP UPDATE SOURCE
 ipv6 address ABCD:1::1/128
 ipv6 ospf 1 area 0
!
router bgp 100
 bgp router-id 1.1.1.1
 bgp log-neighbor-changes
 bgp graceful-restart
 neighbor ABCD:99::99 remote-as 100
 neighbor ABCD:99::99 update-source Loopback0
 !
 address-family l2vpn evpn
  neighbor ABCD:99::99 activate
  neighbor ABCD:99::99 send-community both
 exit-address-family
 !
```

Configure VXLANv6 for BGP EVPN Fabric with Distributed Anycast Gateway

Implement the following tasks to configure IPv6 underlay for a BGP EVPN VXLAN fabric with a Distributed Anycast Gateway (DAG).

Procedure

Step 1 Configure IP-VRF.

```
vrf definition red
 rd 100:1
 !
 address-family ipv4
  route-target export 100:100
  route-target import 100:100
  route-target export 100:100 stitching
  route-target import 100:100 stitching
 exit-address-family
 !
 address-family ipv6
route-target export 100:200
  route-target import 100:200
route-target export 100:200 stitching
  route-target import 100:200 stitching
 exit-address-family
end
```

Step 2 Configure Access SVI IRB interface.

```
interface Vlan11
mac-address 0011.0011.0011
 vrf forwarding red
 ip address 192.168.11.254 255.255.255.0
 ipv6 address 2001:11::254/64
 end
```

Step 3 Configure IPv6 BGP peering.

```
router bgp 100
 bgp router-id 1.1.1.1
 bgp log-neighbor-changes
 bgp graceful-restart
 neighbor ABCD:99::99 remote-as 100
 neighbor ABCD:99::99 update-source Loopback0
 !
 address-family l2vpn evpn
  neighbor ABCD:99::99 activate
  neighbor ABCD:99::99 send-community both
 exit-address-family
 !
address-family ipv4 vrf red
  advertise l2vpn evpn
  redistribute connected
exit-address-family
address-family ipv6 vrf red
  advertise l2vpn evpn
  redistribute connected
exit-address-family
end
```

Step 4 Configure NVE interface.

```
interface nve1
 source-interface Loopback1
 host-reachability protocol bgp
 vxlan encapsulation ipv6
 member vni 30001 vrf red
```

```
 member vni 20011 ingress-replication
 member vni 20012 mcast-group ff0e::12
```

Step 5 Configure the core SVI IRB interface.

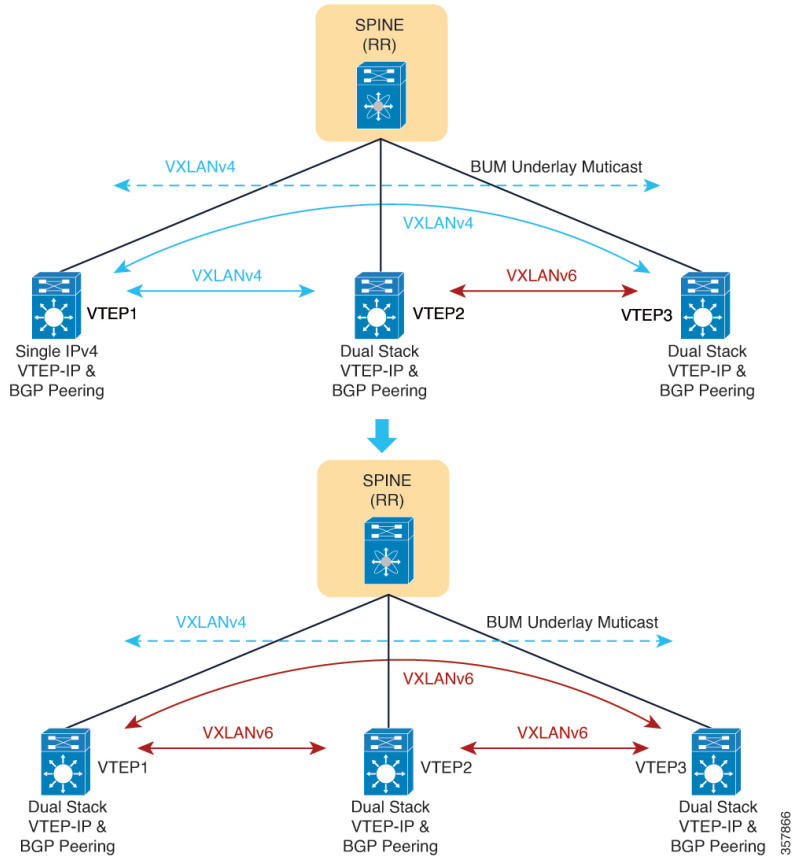
```
vlan configuration 3
 member vni 30001
interface Vlan3
 vrf forwarding red
 ip unnumbered Loopback192
 ip pim sparse-mode
ipv6 unnumbered Loopback192
 no autostate
end
```

Migration from VXLANv4 to VXLANv6

You can seamlessly migrate your existing network from VXLANv4 to VXLANv6 underlay. To achieve a nondisruptive migration, the EVPN VXLAN network should migrate incrementally from IPv4 to IPv6 underlay. During migration, the part of the network that is migrated to IPv6 underlay remains connected with the part of the network that still works with IPv4 underlay.

The incremental migration is achieved by individually making each VTEP dual stack-capable. A dual stack VTEP node has two VTEP addresses (IPv4 and IPv6) associated with the same VXLAN Network Identifier (VNI). During the underlay migration, both these VTEP IP addresses are advertised to peers in a single BGP EVPN dual next-hop update. The receiving nodes in the underlay can choose either IPv4 or IPv6 for traffic forwarding. This ensures connectivity between the IPv4 VTEPs, the dual stack VTEPs and IPv6 VTEPs. After all the VTEPs in the fabric are made dual stack-capable, each VTEP is migrated to IPv6.

Step 1



1. Configure IPv4/IPv6 Loopback interface.

```
VTEP(config)#interface Loopback1
 VTEP(config-if)# ipv6 address ABCD:1::2/128
 VTEP(config-if)# ipv6 ospf 1 area 0
```

2. Enable Dual Stack.

```
VTEP(config)# interface nve1
VTEP(config-if)# vxlan encapsulation dual-stack prefer-ipv6
```

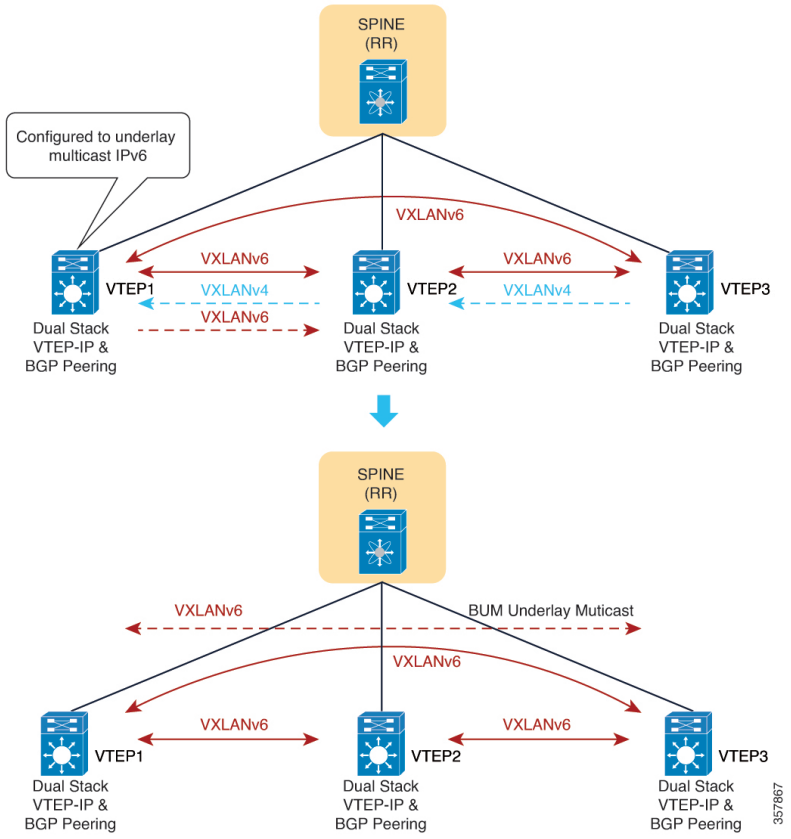
3. For unicast traffic and BUM traffic using ingress replication, the dual stack VTEP communicates with other IPv4 VTEPs using VXLANv4 and with other dual stack VTEPs using VXLANv6.

   Configure static multicast replication for L2VNI.

```
VTEP(config-if)# member vni 20011 mcast-group 239.2.1.11 FF0E::11
```

Step 2

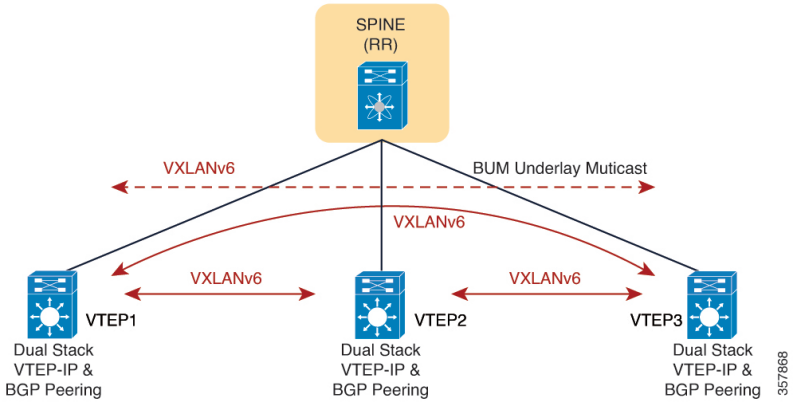
This step is only needed for BUM traffic using Multicast Replication.



- After all the VTEPs are dual stack-capable, underlay multicast switches to IPv6 Multicast.

```
VTEP(config)# interface nve1
VTEP(config-if)# vxlan encapsulation dual-stack prefer-ipv6 underlay-mcast ipv6
```

Step 3



- Configure all VTEPs to support only IPv6.

```
VTEP(config)# interface nve1
VTEP(config-if)# member vni 20011 mcast-group FF0E::11
VTEP(config-if)# vxlan encapsulation ipv6
```

- The fabric switches to IPv6 encapsulations.

See Migrate EVPN VXLAN to IPv6 Underlay on Catalyst 9000 Switches document for detailed steps to migrate from VXLANv4 to VXLANv6.

Configuration Examples for BGP EVPN VXLANv6

The following sections provide examples to show how to configure BGP EVPN VXLAN fabric with an IPv6 underlay and a dual stack underlay.

Example: Configuring BGP EVPN VXLAN with IPv6 Underlay

This example shows how to configure a BGP EVPN VXLAN fabric with only IPv6 in the underlay. The following tables provide sample configuration of the VTEPs (Leaf-01, Leaf-02, Leaf-03) and the Spine nodes (Spine-01, Spine-02) in the topology Figure 3: BGP EVPN VXLAN with IPv6 Underlay.

Figure 3: BGP EVPN VXLAN with IPv6 Underlay

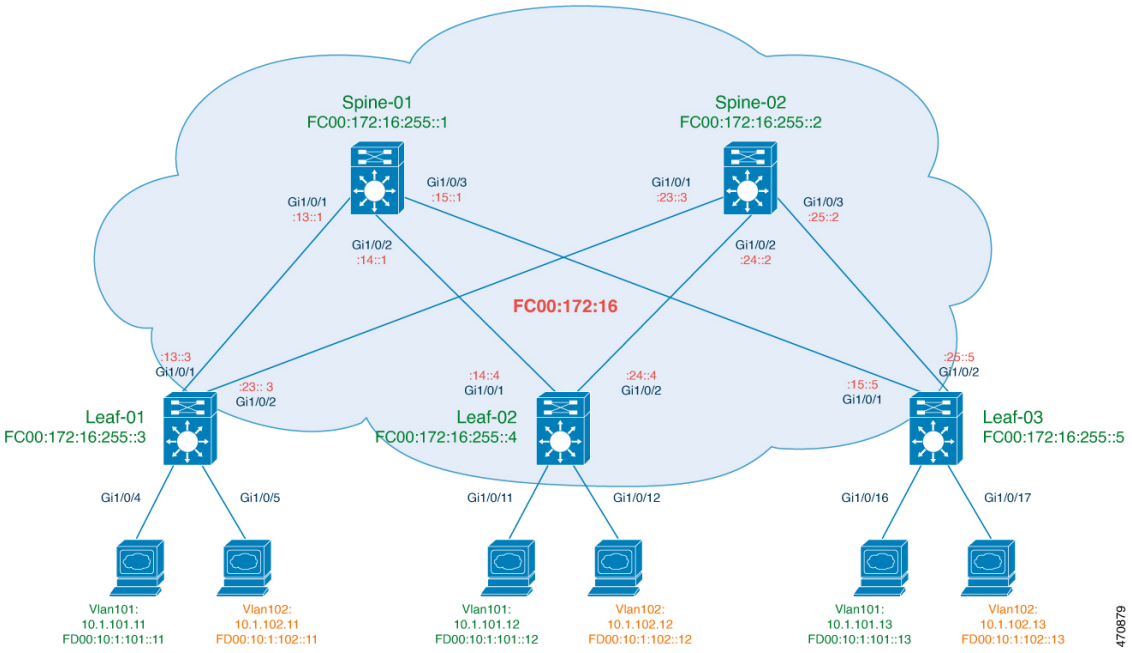


Table 1: Configure the VTEPs

VTEP 1	VTEP 2	VTEP 3

VTEP 1	VTEP 2	VTEP 3
Leaf-01# **show running-config** hostname Leaf-01 ! vrf definition green rd 1:1 ! address-family ipv4 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! address-family ipv6 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! ip routing ! ipv6 unicast-routing ipv6 multicast-routing ! l2vpn evpn router-id Loopback1 replication-type static default-gateway advertise ! l2vpn evpn instance 101 vlan-based encapsulation vxlan ! l2vpn evpn instance 102 vlan-based encapsulation vxlan replication-type ingress ! system mtu 9198 ! vlan configuration 101 member evpn-instance 101 vni 10101 vlan configuration 102 member evpn-instance 102 vni 10102 vlan configuration 901 member vni 50901 ! interface Loopback0 ipv6 address fc00:172:16:255::3/128 ipv6 ospf 1 area 0 ! interface Loopback1 ipv6 address fc00:172:16:254::3/128	Leaf-02# **show running-config** hostname Leaf-02 ! vrf definition green rd 1:1 ! address-family ipv4 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! address-family ipv6 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! ip routing ! ipv6 unicast-routing ipv6 multicast-routing ! l2vpn evpn router-id Loopback1 replication-type static default-gateway advertise ! l2vpn evpn instance 101 vlan-based encapsulation vxlan ! l2vpn evpn instance 102 vlan-based encapsulation vxlan replication-type ingress ! system mtu 9198 ! vlan configuration 101 member evpn-instance 101 vni 10101 vlan configuration 102 member evpn-instance 102 vni 10102 vlan configuration 901 member vni 50901 ! interface Loopback0 ipv6 address fc00:172:16:255::4/128 ipv6 ospf 1 area 0 ! interface Loopback1 ipv6 address fc00:172:16:254::4/128	Leaf-03# **show running-config** hostname Leaf-03 ! vrf definition green rd 1:1 ! address-family ipv4 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! address-family ipv6 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! ip routing ip multicast-routing ! ipv6 unicast-routing ipv6 multicast-routing ! l2vpn evpn router-id Loopback1 replication-type static default-gateway advertise ! l2vpn evpn instance 101 vlan-based encapsulation vxlan ! l2vpn evpn instance 102 vlan-based encapsulation vxlan replication-type ingress ! system mtu 9198 ! vlan configuration 101 member evpn-instance 101 vni 10101 vlan configuration 102 member evpn-instance 102 vni 10102 vlan configuration 901 member vni 50901 ! interface Loopback0 ipv6 address fc00:172:16:255::5/128 ipv6 ospf 1 area 0 ! interface Loopback1 ipv6 address

VTEP 1	VTEP 2	VTEP 3
ip address 172.16.254.3 255.255.255.255 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ipv6 address fc00:172:16:13::3/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ipv6 address fc00:172:16:23::3/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/4 switchport access vlan 101 switchport mode access ! interface GigabitEthernet1/0/5 switchport access vlan 102 switchport mode access ! ipv6 router ospf 1 router-id 172.16.255.3 ! router bgp 65001 bgp router-id 172.16.255.3 neighbor fc00:172:16:255::1 remote-as 65001 neighbor fc00:172:16:255::1 update-source Loopback0 neighbor fc00:172:16:255::2 remote-as 65001 neighbor fc00:172:16:255::2 update-source Loopback0 ! address-family l2vpn evpn neighbor fc00:172:16:255::1 activate neighbor fc00:172:16:255::1 send-community both neighbor fc00:172:16:255::2 activate neighbor fc00:172:16:255::2 send-community both exit-address-family ! address-family ipv4 vrf green advertise l2vpn evpn redistribute connected exit-address-family ! address-family ipv6 vrf green redistribute connected	ip address 172.16.254.4 255.255.255.255 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ipv6 address fc00:172:16:14::4/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ipv6 address fc00:172:16:24::4/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/11 switchport access vlan 101 switchport mode access ! interface GigabitEthernet1/0/12 switchport access vlan 102 switchport mode access ! ipv6 router ospf 1 router-id 172.16.255.4 ! router bgp 65001 bgp router-id 172.16.255.4 neighbor fc00:172:16:255::1 remote-as 65001 neighbor fc00:172:16:255::1 update-source Loopback0 neighbor fc00:172:16:255::2 remote-as 65001 neighbor fc00:172:16:255::2 update-source Loopback0 ! address-family l2vpn evpn neighbor fc00:172:16:255::1 activate neighbor fc00:172:16:255::1 send-community both neighbor fc00:172:16:255::2 activate neighbor fc00:172:16:255::2 send-community both exit-address-family ! address-family ipv4 vrf green advertise l2vpn evpn redistribute connected exit-address-family !	fc00:172:16:254::5/128 ip address 172.16.254.5 255.255.255.255 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ipv6 address fc00:172:16:15::5/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ipv6 address fc00:172:16:25::5/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/16 switchport access vlan 101 switchport mode access ! interface GigabitEthernet1/0/17 switchport access vlan 102 switchport mode access ! ipv6 router ospf 1 router-id 172.16.255.5 ! router bgp 65001 bgp router-id 172.16.255.5 neighbor fc00:172:16:255::1 remote-as 65001 neighbor fc00:172:16:255::1 update-source Loopback0 neighbor fc00:172:16:255::2 remote-as 65001 neighbor fc00:172:16:255::2 update-source Loopback0 ! address-family l2vpn evpn neighbor fc00:172:16:255::1 activate neighbor fc00:172:16:255::1 send-community both neighbor fc00:172:16:255::2 activate neighbor fc00:172:16:255::2 send-community both exit-address-family ! address-family ipv4 vrf green advertise l2vpn evpn redistribute connected exit-address-family

VTEP 1	VTEP 2	VTEP 3
advertise l2vpn evpn exit-address-family ! int vlan101 vrf forwarding green ip address 10.1.101.1 255.255.255.0 ipv6 address fd00:10:1:101::1/64 ipv6 enable ! int vlan102 vrf forwarding green ip address 10.1.102.1 255.255.255.0 ipv6 address fd00:10:1:102::1/64 ipv6 enable ! int vlan901 vrf forwarding green ip unnumbered Loopback1 ipv6 enable no autostate ! interface nve1 no ip address source-interface Loopback1 host-reachability protocol bgp vxlan encapsulation ipv6 member vni 10101 mcast-group FF0E:225::101 member vni 10102 ingress-replication member vni 50901 vrf green ! ipv6 pim rp-address fc00:172:16:255::255 ! end	address-family ipv6 vrf green redistribute connected advertise l2vpn evpn exit-address-family ! int vlan101 vrf forwarding green ip address 10.1.101.1 255.255.255.0 ipv6 address fd00:10:1:101::1/64 ipv6 enable ! int vlan102 vrf forwarding green ip address 10.1.102.1 255.255.255.0 ipv6 address fd00:10:1:102::1/64 ipv6 enable ! int vlan901 vrf forwarding green ip unnumbered Loopback1 ipv6 enable no autostate ! interface nve1 no ip address source-interface Loopback1 host-reachability protocol bgp vxlan encapsulation ipv6 member vni 10101 mcast-group FF0E:225::101 member vni 10102 ingress-replication member vni 50901 vrf green ! ipv6 pim rp-address fc00:172:16:255::255 ! end	! address-family ipv6 vrf green redistribute connected advertise l2vpn evpn exit-address-family ! int vlan101 vrf forwarding green ip address 10.1.101.1 255.255.255.0 ipv6 address fd00:10:1:101::1/64 ipv6 enable ! int vlan102 vrf forwarding green ip address 10.1.102.1 255.255.255.0 ipv6 address fd00:10:1:102::1/64 ipv6 enable ! int vlan901 vrf forwarding green ip unnumbered Loopback1 ipv6 enable no autostate ! interface nve1 no ip address source-interface Loopback1 host-reachability protocol bgp vxlan encapsulation ipv6 member vni 10101 mcast-group FF0E:225::101 member vni 10102 ingress-replication member vni 50901 vrf green ! ipv6 pim rp-address fc00:172:16:255::255 ! end

Table 2: Configure the Spine Nodes

Spine Switch 1	Spine Switch 2

Spine Switch 1	Spine Switch 2
Spine-01# **show running-config** hostname Spine-01 ! ip routing ! ipv6 unicast-routing ipv6 multicast-routing ! system mtu 9198 ! interface Loopback0 ipv6 address fc00:172:16:255::1/128 ipv6 ospf 1 area 0 ! interface Loopback1 ipv6 address fc00:172:16:254::1/128 ipv6 ospf 1 area 0 ! interface Loopback2 ipv6 address fc00:172:16:255::255/128 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ipv6 address fc00:172:16:13::1/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ipv6 address fc00:172:16:14::1/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/3 no switchport ipv6 address fc00:172:16:15::1/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! ipv6 router ospf 1 router-id 172.16.255.1 ! router bgp 65001 bgp router-id 172.16.255.1 neighbor fc00:172:16:255::2 remote-as 65001 neighbor fc00:172:16:255::2 update-source Loopback0 neighbor fc00:172:16:255::3 remote-as 65001 neighbor fc00:172:16:255::3 update-source Loopback0 neighbor fc00:172:16:255::4 remote-as 65001 neighbor fc00:172:16:255::4 update-source Loopback0 neighbor fc00:172:16:255::5 remote-as 65001 neighbor fc00:172:16:255::5 update-source Loopback0 ! address-family l2vpn evpn	Spine-02# **show running-config** hostname Spine-02 ! ip routing ! ipv6 unicast-routing ipv6 multicast-routing ! system mtu 9198 ! interface Loopback0 ipv6 address fc00:172:16:255::2/128 ipv6 ospf 1 area 0 ! interface Loopback1 ipv6 address fc00:172:16:254::2/128 ipv6 ospf 1 area 0 ! interface Loopback2 ipv6 address fc00:172:16:255::255/128 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ipv6 address fc00:172:16:23::2/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ipv6 address fc00:172:16:24::2/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/3 no switchport ipv6 address fc00:172:16:25::2/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! ipv6 router ospf 1 router-id 172.16.255.2 ! router bgp 65001 bgp router-id 172.16.255.2 neighbor fc00:172:16:255::1 remote-as 65001 neighbor fc00:172:16:255::1 update-source Loopback0 neighbor fc00:172:16:255::3 remote-as 65001 neighbor fc00:172:16:255::3 update-source Loopback0 neighbor fc00:172:16:255::4 remote-as 65001 neighbor fc00:172:16:255::4 update-source Loopback0 neighbor fc00:172:16:255::5 remote-as 65001 neighbor fc00:172:16:255::5 update-source Loopback0 ! address-family l2vpn evpn

Spine Switch 1	Spine Switch 2
neighbor fc00:172:16:255::2 activate neighbor fc00:172:16:255::2 send-community both neighbor fc00:172:16:255::2 route-reflector-client neighbor fc00:172:16:255::3 activate neighbor fc00:172:16:255::3 send-community both neighbor fc00:172:16:255::3 route-reflector-client neighbor fc00:172:16:255::4 activate neighbor fc00:172:16:255::4 send-community both neighbor fc00:172:16:255::4 route-reflector-client neighbor fc00:172:16:255::5 activate neighbor fc00:172:16:255::5 send-community both neighbor fc00:172:16:255::5 route-reflector-client exit-address-family ! ipv6 pim rp-address fc00:172:16:255::255 ! ipv6 pim anycast-rp fc00:172:16:255::255 fc00:172:16:254::2 ! end	neighbor fc00:172:16:255::1 activate neighbor fc00:172:16:255::1 send-community both neighbor fc00:172:16:255::1 route-reflector-client neighbor fc00:172:16:255::3 activate neighbor fc00:172:16:255::3 send-community both neighbor fc00:172:16:255::3 route-reflector-client neighbor fc00:172:16:255::4 activate neighbor fc00:172:16:255::4 send-community both neighbor fc00:172:16:255::4 route-reflector-client neighbor fc00:172:16:255::5 activate neighbor fc00:172:16:255::5 send-community both neighbor fc00:172:16:255::5 route-reflector-client exit-address-family ! ipv6 pim rp-address fc00:172:16:255::255 ! ipv6 pim anycast-rp fc00:172:16:255::255 fc00:172:16:254::1 ! end

Verifying BGP EVPN VXLAN with IPv6 Underlay Configuration

The following sections provide sample output of **show** commands to verify the BGP EVPN VXLAN configuration with IPv6 underlay.

- Outputs to Verify Configuration on VTEP 1, on page 16
- Outputs to Verify Configuration on VTEP 2, on page 22
- Outputs to Verify Configuration on VTEP 3, on page 28
- Outputs to Verify Configuration on Spine 1, on page 35
- Outputs to Verify Configuration on Spine 2, on page 40

Outputs to Verify Configuration on VTEP 1

```
Leaf-01# show ipv6 route
IPv6 Routing Table - default - 20 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
C   FC00:172:16:13::/64 [0/0]
```

```
     via GigabitEthernet1/0/1, directly connected
L    FC00:172:16:13::3/128 [0/0]
     via GigabitEthernet1/0/1, receive
O    FC00:172:16:14::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
O    FC00:172:16:15::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
C    FC00:172:16:23::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L    FC00:172:16:23::3/128 [0/0]
     via GigabitEthernet1/0/2, receive
O    FC00:172:16:24::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
O    FC00:172:16:25::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
O    FC00:172:16:254::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
O    FC00:172:16:254::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
LC   FC00:172:16:254::3/128 [0/0]
     via Loopback1, receive
O    FC00:172:16:254::4/128 [110/2]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
O    FC00:172:16:254::5/128 [110/2]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
O    FC00:172:16:255::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
O    FC00:172:16:255::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
LC   FC00:172:16:255::3/128 [0/0]
     via Loopback0, receive
O    FC00:172:16:255::4/128 [110/2]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
O    FC00:172:16:255::5/128 [110/2]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
O    FC00:172:16:255::255/128 [110/1]
     via FE80::7E21:DFF:FE92:B2E4, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CE4, GigabitEthernet1/0/2
L    FF00::/8 [0/0]
     via Null0, receive
```

```
Leaf-01# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 00:05:08/never, RP FC00:172:16:255::255, flags: SCJ
  Incoming interface: GigabitEthernet1/0/2
  RPF nbr: FE80::7E21:DFF:FEBD:2CE4
  Immediate Outgoing interface list:
    Tunnel1, Forward, 00:05:08/never
```

```
(FC00:172:16:254::3, FF0E:225::101), 00:04:36/00:03:01, flags: SFJT
  Incoming interface: Loopback1
  RPF nbr: FE80::12B3:D5FF:FE6A:8F80
  Immediate Outgoing interface list:
    GigabitEthernet1/0/1, Forward, 00:04:36/00:03:02
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:08/never

(FC00:172:16:254::4, FF0E:225::101), 00:04:28/00:02:45, flags: SJT
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::7E21:DFF:FE92:B2E4
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:08/never

(FC00:172:16:254::5, FF0E:225::101), 00:04:22/00:00:12, flags: SJT
  Incoming interface: GigabitEthernet1/0/2
  RPF nbr: FE80::7E21:DFF:FEBD:2CE4
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:08/never


Leaf-01# show nve peer
'M' - MAC entry download flag  'A' - Adjacency download flag
'4' - IPv4 flag  '6' - IPv6 flag

Interface  VNI      Type Peer-IP          RMAC/Num_RTs   eVNI     state flags UP time
nve1       50901    L3CP FC00:172:16:254::5 \
                                         7c21.0dbd.2748 50901      UP  A/-/4 00:03:30
nve1       50901    L3CP FC00:172:16:254::4 \
                                         7c21.0dbd.9548 50901      UP  A/-/4 00:03:30
nve1       50901    L3CP FC00:172:16:254::5 \
                                         7c21.0dbd.2748 50901      UP  A/M/6 00:03:30
nve1       50901    L3CP FC00:172:16:254::4 \
                                         7c21.0dbd.9548 50901      UP  A/M/6 00:03:30
nve1       10101    L2CP FC00:172:16:254::4 \
                                         4              10101      UP   N/A  00:03:29
nve1       10101    L2CP FC00:172:16:254::5 \
                                         4              10101      UP   N/A  00:03:29
nve1       10102    L2CP FC00:172:16:254::4 \
                                         6              10102      UP   N/A  00:03:29
nve1       10102    L2CP FC00:172:16:254::5 \
                                         6              10102      UP   N/A  00:03:29


Leaf-01# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.3, local AS number 65001
BGP table version is 49, main routing table version 49
46 network entries using 17664 bytes of memory
62 path entries using 14384 bytes of memory
18/18 BGP path/bestpath attribute entries using 5328 bytes of memory
4 BGP rrinfo entries using 160 bytes of memory
14 BGP extended community entries using 744 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 38280 total bytes of memory
BGP activity 56/0 prefixes, 82/6 paths, scan interval 60 secs
46 networks peaked at 16:39:55 Oct 31 2022 UTC (00:01:35.087 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
FC00:172:16:255::1
                4        65001      27      15       49    0    0 00:04:40       16
FC00:172:16:255::2
                4        65001      27      15       49    0    0 00:04:30       16
```

```
Leaf-01# show bgp l2vpn evpn
BGP table version is 49, local router ID is 172.16.255.3
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 *>   [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                       ::                                    32768 ?
 *>   [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                       ::                                    32768 ?
 *>i  [2][172.16.254.3:101][0][48][44D3CA286CC1][0][*]/20
                       FC00:172:16:254::4
                                                0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][44D3CA286CC3][0][*]/20
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                       FC00:172:16:254::4
                                                0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                       FC00:172:16:254::4
                                                0    100      0 ?
 *>   [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                       ::                                    32768 ?
 *>   [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                       ::                                    32768 ?
 *>   [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                       ::                                    32768 ?
Route Distinguisher: 172.16.254.3:102
 *>   [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                       ::                                    32768 ?
 *>   [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                       ::                                    32768 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC2][0][*]/20
                       FC00:172:16:254::4
                                                0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                       FC00:172:16:254::4
                                                0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC4][0][*]/20
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                       FC00:172:16:254::4
```

```
                                                    0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>   [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     ::                                    32768 ?
 *>   [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     ::                                    32768 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     FC00:172:16:254::5
```

```
                                                    0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                       FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                       FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                       FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 *>   [3][172.16.254.3:102][0][32][172.16.254.3]/17
                       ::                                 32768 ?
 *>i  [3][172.16.254.3:102][0][32][172.16.254.4]/17
                       FC00:172:16:254::4
                                                    0    100      0 ?
 *>i  [3][172.16.254.3:102][0][32][172.16.254.5]/17
                       FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                       FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                   FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                       FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 1:1 (default for vrf green)
 *>   [5][1:1][0][24][10.1.101.0]/17
                       0.0.0.0                  0         32768 ?
 *>   [5][1:1][0][24][10.1.102.0]/17
                       0.0.0.0                  0         32768 ?
 *>   [5][1:1][0][64][FD00:10:1:101::]/29
                       ::                       0         32768 ?
 *>   [5][1:1][0][64][FD00:10:1:102::]/29
                       ::                       0         32768 ?


Leaf-01# show l2vpn evpn mac ip
IP Address                            EVI   VLAN  MAC Address    Next Hop(s)
------------------------------------- ----- ----- -------------- -----------
10.1.101.11                           101   101   f4cf.e243.34c1 Gi1/0/4:101
FE80::F6CF:E2FF:FE43:34C1             101   101   f4cf.e243.34c1 Gi1/0/4:101
10.1.102.12                           102   102   44d3.ca28.6cc2 FC00:172:16:254::4
10.1.102.13                           102   102   44d3.ca28.6cc4 FC00:172:16:254::5
FE80::F6CF:E2FF:FE43:34C2             102   102   f4cf.e243.34c2 Gi1/0/5:102


Leaf-01# show l2route evpn mac ip
  EVI       ETag  Prod    Mac Address                                Host IP
                           Next Hop(s)
----- ---------- ----- -------------- ---------------------------------------
```

```
------------------------------------------------
  101          0 L2VPN 10b3.d56a.8fc1                              10.1.101.1
                               Vl101:0
  101          0 L2VPN 10b3.d56a.8fc1                          FD00:10:1:101::1
                               Vl101:0
  101          0   BGP 7c21.0dbd.2741                              10.1.101.1
            V:10101 FC00:172:16:254::5
  101          0   BGP 7c21.0dbd.2741                          FD00:10:1:101::1
            V:10101 FC00:172:16:254::5
  101          0   BGP 7c21.0dbd.9541                              10.1.101.1
            V:10101 FC00:172:16:254::4
  101          0   BGP 7c21.0dbd.9541                          FD00:10:1:101::1
            V:10101 FC00:172:16:254::4
  101          0 L2VPN f4cf.e243.34c1                             10.1.101.11
                            Gi1/0/4:101
  101          0 L2VPN f4cf.e243.34c1                  FE80::F6CF:E2FF:FE43:34C1
                            Gi1/0/4:101
  102          0 L2VPN 10b3.d56a.8fcd                              10.1.102.1
                               Vl102:0
  102          0 L2VPN 10b3.d56a.8fcd                          FD00:10:1:102::1
                               Vl102:0
  102          0   BGP 44d3.ca28.6cc2                             10.1.102.12
            V:10102 FC00:172:16:254::4
  102          0   BGP 44d3.ca28.6cc4                             10.1.102.13
            V:10102 FC00:172:16:254::5
  102          0   BGP 7c21.0dbd.274d                              10.1.102.1
            V:10102 FC00:172:16:254::5
  102          0   BGP 7c21.0dbd.274d                          FD00:10:1:102::1
            V:10102 FC00:172:16:254::5
  102          0   BGP 7c21.0dbd.954d                              10.1.102.1
            V:10102 FC00:172:16:254::4
  102          0   BGP 7c21.0dbd.954d                          FD00:10:1:102::1
            V:10102 FC00:172:16:254::4
  102          0 L2VPN f4cf.e243.34c2                  FE80::F6CF:E2FF:FE43:34C2
                            Gi1/0/5:102
```

To return to the configuration example, click Example: Configuring BGP EVPN VXLAN with IPv6 Underlay, on page 9.

Outputs to Verify Configuration on VTEP 2

```
Leaf-02# show ipv6 route
IPv6 Routing Table - default - 20 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
O   FC00:172:16:13::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
C   FC00:172:16:14::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:14::4/128 [0/0]
     via GigabitEthernet1/0/1, receive
O   FC00:172:16:15::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
O   FC00:172:16:23::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
C   FC00:172:16:24::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
```

```
L   FC00:172:16:24::4/128 [0/0]
     via GigabitEthernet1/0/2, receive
O   FC00:172:16:25::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:254::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
O   FC00:172:16:254::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:254::3/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
LC  FC00:172:16:254::4/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:254::5/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:255::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
O   FC00:172:16:255::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:255::3/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
LC  FC00:172:16:255::4/128 [0/0]
     via Loopback0, receive
O   FC00:172:16:255::5/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:255::255/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
L   FF00::/8 [0/0]
     via Null0, receive
```

```
Leaf-02# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 00:05:12/never, RP FC00:172:16:255::255, flags: SCJ
  Incoming interface: GigabitEthernet1/0/2
  RPF nbr: FE80::7E21:DFF:FEBD:2CD6
  Immediate Outgoing interface list:
    Tunnel1, Forward, 00:05:12/never

(FC00:172:16:254::3, FF0E:225::101), 00:03:23/00:01:40, flags: SJT
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::7E21:DFF:FE92:B2D6
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:12/never

(FC00:172:16:254::4, FF0E:225::101), 00:04:40/00:02:41, flags: SFJT
  Incoming interface: Loopback1
  RPF nbr: FE80::7E21:DFF:FEBD:9500
  Immediate Outgoing interface list:
```

```
    GigabitEthernet1/0/1, Forward, 00:04:40/00:02:50
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:12/never

(FC00:172:16:254::5, FF0E:225::101), 00:04:33/00:00:01, flags: SJT
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::7E21:DFF:FE92:B2D6
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:12/never


Leaf-02# show nve peer
'M' - MAC entry download flag  'A' - Adjacency download flag
'4' - IPv4 flag  '6' - IPv6 flag

Interface  VNI      Type Peer-IP          RMAC/Num_RTs   eVNI     state flags UP time
nve1       50901    L3CP FC00:172:16:254::3 \
                                          10b3.d56a.8fc8 50901      UP  A/-/4 00:03:41
nve1       50901    L3CP FC00:172:16:254::5 \
                                          7c21.0dbd.2748 50901      UP  A/-/4 00:03:41
nve1       50901    L3CP FC00:172:16:254::3 \
                                          10b3.d56a.8fc8 50901      UP  A/M/6 00:03:41
nve1       50901    L3CP FC00:172:16:254::5 \
                                          7c21.0dbd.2748 50901      UP  A/M/6 00:03:41
nve1       10101    L2CP FC00:172:16:254::3 \
                                          6              10101      UP   N/A  00:03:41
nve1       10101    L2CP FC00:172:16:254::5 \
                                          4              10101      UP   N/A  00:03:41
nve1       10102    L2CP FC00:172:16:254::3 \
                                          6              10102      UP   N/A  00:03:41
nve1       10102    L2CP FC00:172:16:254::5 \
                                          6              10102      UP   N/A  00:03:41

Leaf-02# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.4, local AS number 65001
BGP table version is 53, main routing table version 53
48 network entries using 18432 bytes of memory
74 path entries using 17168 bytes of memory
19/18 BGP path/bestpath attribute entries using 5624 bytes of memory
4 BGP rrinfo entries using 160 bytes of memory
15 BGP extended community entries using 784 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 42168 total bytes of memory
BGP activity 62/2 prefixes, 113/19 paths, scan interval 60 secs
48 networks peaked at 16:39:55 Oct 31 2022 UTC (00:01:46.413 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
FC00:172:16:255::1
                4        65001      27      14       53    0    0 00:04:49       22
FC00:172:16:255::2
                4        65001      27      14       53    0    0 00:04:39       22


Leaf-02# show bgp l2vpn evpn
BGP table version is 53, local router ID is 172.16.255.4
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
```

```
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 *>i  [2][172.16.254.4:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>   [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     ::                                       32768 ?
 *>i  [2][172.16.254.4:101][0][48][44D3CA286CC3][0][*]/20
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
```

```
 *>   [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                      ::                                    32768 ?
 *>   [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                      ::                                    32768 ?
 *>i  [2][172.16.254.4:101][0][48][F4CFE24334C1][0][*]/20
                      FC00:172:16:254::3
                                                       0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                      FC00:172:16:254::3
                                                       0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                      FC00:172:16:254::3
                                                       0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 *>i  [2][172.16.254.4:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                      FC00:172:16:254::3
                                                       0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                      FC00:172:16:254::3
                                                       0    100      0 ?
 *>   [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                      ::                                    32768 ?
 *>   [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                      ::                                    32768 ?
 *>i  [2][172.16.254.4:102][0][48][44D3CA286CC4][0][*]/20
                      FC00:172:16:254::5
                                                       0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                      FC00:172:16:254::5
                                                       0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                      FC00:172:16:254::5
                                                       0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                      FC00:172:16:254::5
                                                       0    100      0 ?
 *>   [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                      ::                                    32768 ?
 *>   [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                      ::                                    32768 ?
 *>i  [2][172.16.254.4:102][0][48][F4CFE24334C2][0][*]/20
                      FC00:172:16:254::3
                                                       0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                      FC00:172:16:254::3
                                                       0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                      FC00:172:16:254::5
                                                       0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                       0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                      FC00:172:16:254::5
                                                       0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                       0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                      FC00:172:16:254::5
                                                       0    100      0 ?
 *>i                   FC00:172:16:254::5
                                                       0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
```

```
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 *>i  [3][172.16.254.4:102][0][32][172.16.254.3]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>   [3][172.16.254.4:102][0][32][172.16.254.4]/17
                     ::                                  32768 ?
 *>i  [3][172.16.254.4:102][0][32][172.16.254.5]/17
                     FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 1:1 (default for vrf green)
 * i  [5][1:1][0][24][10.1.101.0]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::3
                                                    0    100      0 ?
 *>                   0.0.0.0                       0         32768 ?
 * i  [5][1:1][0][24][10.1.102.0]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::3
                                                    0    100      0 ?
 *>                   0.0.0.0                       0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:101::]/29
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::3
                                                    0    100      0 ?
 *>                   ::                            0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:102::]/29
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::3
                                                    0    100      0 ?
```

```
 *>                    ::                         0         32768 ?


Leaf-02# show l2vpn evpn mac ip
IP Address                              EVI   VLAN  MAC Address    Next Hop(s)
--------------------------------------- ----- ----- -------------- -----------
10.1.101.11                             101   101   f4cf.e243.34c1 FC00:172:16:254::3
FE80::F6CF:E2FF:FE43:34C1               101   101   f4cf.e243.34c1 FC00:172:16:254::3
10.1.102.12                             102   102   44d3.ca28.6cc2 Gi1/0/12:102
10.1.102.13                             102   102   44d3.ca28.6cc4 FC00:172:16:254::5
FE80::F6CF:E2FF:FE43:34C2               102   102   f4cf.e243.34c2 FC00:172:16:254::3

Leaf-02# show l2route evpn mac ip
  EVI       ETag  Prod    Mac Address                                 Host IP
                           Next Hop(s)
----- ---------- ----- -------------- ---------------------------------------
-------------------------------------------------
  101          0   BGP 10b3.d56a.8fc1                              10.1.101.1
           V:10101 FC00:172:16:254::3
  101          0   BGP 10b3.d56a.8fc1                        FD00:10:1:101::1
           V:10101 FC00:172:16:254::3
  101          0   BGP 7c21.0dbd.2741                              10.1.101.1
           V:10101 FC00:172:16:254::5
  101          0   BGP 7c21.0dbd.2741                        FD00:10:1:101::1
           V:10101 FC00:172:16:254::5
  101          0 L2VPN 7c21.0dbd.9541                              10.1.101.1
                             Vl101:0
  101          0 L2VPN 7c21.0dbd.9541                        FD00:10:1:101::1
                             Vl101:0
  101          0   BGP f4cf.e243.34c1                             10.1.101.11
           V:10101 FC00:172:16:254::3
  101          0   BGP f4cf.e243.34c1                FE80::F6CF:E2FF:FE43:34C1
           V:10101 FC00:172:16:254::3
  102          0   BGP 10b3.d56a.8fcd                              10.1.102.1
           V:10102 FC00:172:16:254::3
  102          0   BGP 10b3.d56a.8fcd                        FD00:10:1:102::1
           V:10102 FC00:172:16:254::3
  102          0 L2VPN 44d3.ca28.6cc2                             10.1.102.12
                          Gi1/0/12:102
  102          0   BGP 44d3.ca28.6cc4                             10.1.102.13
           V:10102 FC00:172:16:254::5
  102          0   BGP 7c21.0dbd.274d                              10.1.102.1
           V:10102 FC00:172:16:254::5
  102          0   BGP 7c21.0dbd.274d                        FD00:10:1:102::1
           V:10102 FC00:172:16:254::5
  102          0 L2VPN 7c21.0dbd.954d                              10.1.102.1
                             Vl102:0
  102          0 L2VPN 7c21.0dbd.954d                        FD00:10:1:102::1
                             Vl102:0
  102          0   BGP f4cf.e243.34c2                FE80::F6CF:E2FF:FE43:34C2
           V:10102 FC00:172:16:254::3
```

To return to the configuration example, click Example: Configuring BGP EVPN VXLAN with IPv6 Underlay, on page 9.

Outputs to Verify Configuration on VTEP 3

```
Leaf-03# show ipv6 route
IPv6 Routing Table - default - 20 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
```

```
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
O   FC00:172:16:13::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
O   FC00:172:16:14::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
C   FC00:172:16:15::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:15::5/128 [0/0]
     via GigabitEthernet1/0/1, receive
O   FC00:172:16:23::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O   FC00:172:16:24::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
C   FC00:172:16:25::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L   FC00:172:16:25::5/128 [0/0]
     via GigabitEthernet1/0/2, receive
O   FC00:172:16:254::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
O   FC00:172:16:254::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O   FC00:172:16:254::3/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O   FC00:172:16:254::4/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
LC  FC00:172:16:254::5/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:255::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
O   FC00:172:16:255::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O   FC00:172:16:255::3/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O   FC00:172:16:255::4/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
LC  FC00:172:16:255::5/128 [0/0]
     via Loopback0, receive
O   FC00:172:16:255::255/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
L   FF00::/8 [0/0]
     via Null0, receive

Leaf-03# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
```

```
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 00:05:13/never, RP FC00:172:16:255::255, flags: SCJ
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::7E21:DFF:FE92:B2D8
  Immediate Outgoing interface list:
    Tunnel1, Forward, 00:05:13/never

(FC00:172:16:254::3, FF0E:225::101), 00:04:55/00:02:48, flags: SJT
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::7E21:DFF:FE92:B2D8
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:13/never

(FC00:172:16:254::4, FF0E:225::101), 00:04:48/00:02:24, flags: SJT
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::7E21:DFF:FE92:B2D8
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:13/never

(FC00:172:16:254::5, FF0E:225::101), 00:04:41/00:02:50, flags: SFT
  Incoming interface: Loopback1
  RPF nbr: FE80::7E21:DFF:FEBD:2700
  Immediate Outgoing interface list:
    GigabitEthernet1/0/2, Forward, 00:04:41/00:02:50
  Inherited Outgoing interface list:
    Tunnel1, Forward, 00:05:13/never


Leaf-03# show nve peer
'M' - MAC entry download flag  'A' - Adjacency download flag
'4' - IPv4 flag  '6' - IPv6 flag

Interface  VNI      Type Peer-IP          RMAC/Num_RTs   eVNI     state flags UP time
nve1       50901    L3CP FC00:172:16:254::3 \
                                         10b3.d56a.8fc8 50901      UP  A/-/4 00:03:49
nve1       50901    L3CP FC00:172:16:254::4 \
                                         7c21.0dbd.9548 50901      UP  A/-/4 00:03:49
nve1       50901    L3CP FC00:172:16:254::3 \
                                         10b3.d56a.8fc8 50901      UP  A/M/6 00:03:49
nve1       50901    L3CP FC00:172:16:254::4 \
                                         7c21.0dbd.9548 50901      UP  A/M/6 00:03:49
nve1       10101    L2CP FC00:172:16:254::3 \
                                         6              10101      UP   N/A  00:03:49
nve1       10101    L2CP FC00:172:16:254::4 \
                                         4              10101      UP   N/A  00:03:49
nve1       10102    L2CP FC00:172:16:254::3 \
                                         6              10102      UP   N/A  00:03:49
nve1       10102    L2CP FC00:172:16:254::4 \
                                         6              10102      UP   N/A  00:03:49


Leaf-03# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.5, local AS number 65001
BGP table version is 53, main routing table version 53
48 network entries using 18432 bytes of memory
74 path entries using 17168 bytes of memory
19/18 BGP path/bestpath attribute entries using 5624 bytes of memory
4 BGP rrinfo entries using 160 bytes of memory
15 BGP extended community entries using 784 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 42168 total bytes of memory
BGP activity 60/0 prefixes, 100/6 paths, scan interval 60 secs
```

```
48 networks peaked at 16:39:55 Oct 31 2022 UTC (00:01:54.313 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
FC00:172:16:255::1
                4        65001      28      13       53    0    0 00:04:56       22
FC00:172:16:255::2
                4        65001      28      14       53    0    0 00:04:49       22


Leaf-03#show bgp l2vpn evpn
BGP table version is 53, local router ID is 172.16.255.5
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 * i                  FC00:172:16:254::3
                                                0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 * i                  FC00:172:16:254::3
                                                0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
```

```
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 *>i  [2][172.16.254.5:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][44D3CA286CC1][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>   [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     ::                                      32768 ?
 *>   [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     ::                                      32768 ?
 *>   [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     ::                                      32768 ?
 *>i  [2][172.16.254.5:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][F4CFE24334C1][0][*]/20
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
```

```
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 *>i  [2][172.16.254.5:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][44D3CA286CC2][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>   [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     ::                                       32768 ?
 *>   [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     ::                                       32768 ?
 *>   [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     ::                                       32768 ?
 *>   [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     ::                                       32768 ?
 *>i  [2][172.16.254.5:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][F4CFE24334C2][0][*]/20
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 *>i  [3][172.16.254.5:102][0][32][172.16.254.3]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i  [3][172.16.254.5:102][0][32][172.16.254.4]/17
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>   [3][172.16.254.5:102][0][32][172.16.254.5]/17
                     ::                                   32768 ?
Route Distinguisher: 1:1 (default for vrf green)
 * i  [5][1:1][0][24][10.1.101.0]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::3
```

```
                                                    0    100      0 ?
 *>                    0.0.0.0                      0         32768 ?
 * i  [5][1:1][0][24][10.1.102.0]/17
                      FC00:172:16:254::3
                                                    0    100      0 ?
 * i                   FC00:172:16:254::3
                                                    0    100      0 ?
 *>                    0.0.0.0                      0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:101::]/29
                      FC00:172:16:254::3
                                                    0    100      0 ?
 * i                   FC00:172:16:254::3
                                                    0    100      0 ?
 *>                    ::                           0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:102::]/29
                      FC00:172:16:254::3
                                                    0    100      0 ?
 * i                   FC00:172:16:254::3
                                                    0    100      0 ?
 *>                    ::                           0         32768 ?
```

```
Leaf-03# show l2vpn evpn mac ip
IP Address                            EVI   VLAN  MAC Address    Next Hop(s)
------------------------------------- ----- ----- -------------- -----------
10.1.101.11                           101   101   f4cf.e243.34c1 FC00:172:16:254::3
FE80::F6CF:E2FF:FE43:34C1             101   101   f4cf.e243.34c1 FC00:172:16:254::3
10.1.102.12                           102   102   44d3.ca28.6cc2 FC00:172:16:254::4
10.1.102.13                           102   102   44d3.ca28.6cc4 Gi1/0/17:102
FE80::F6CF:E2FF:FE43:34C2             102   102   f4cf.e243.34c2 FC00:172:16:254::3
```

```
Leaf-03# show l2route evpn mac ip
  EVI       ETag  Prod    Mac Address                                 Host IP
                          Next Hop(s)
----- ---------- ----- -------------- ------------------------------------
-------------------------------------------------
  101          0   BGP 10b3.d56a.8fc1                              10.1.101.1
           V:10101 FC00:172:16:254::3
  101          0   BGP 10b3.d56a.8fc1                        FD00:10:1:101::1
           V:10101 FC00:172:16:254::3
  101          0 L2VPN 7c21.0dbd.2741                              10.1.101.1
                             Vl101:0
  101          0 L2VPN 7c21.0dbd.2741                        FD00:10:1:101::1
                             Vl101:0
  101          0   BGP 7c21.0dbd.9541                              10.1.101.1
           V:10101 FC00:172:16:254::4
  101          0   BGP 7c21.0dbd.9541                        FD00:10:1:101::1
           V:10101 FC00:172:16:254::4
  101          0   BGP f4cf.e243.34c1                             10.1.101.11
           V:10101 FC00:172:16:254::3
  101          0   BGP f4cf.e243.34c1                FE80::F6CF:E2FF:FE43:34C1
           V:10101 FC00:172:16:254::3
  102          0   BGP 10b3.d56a.8fcd                              10.1.102.1
           V:10102 FC00:172:16:254::3
  102          0   BGP 10b3.d56a.8fcd                        FD00:10:1:102::1
           V:10102 FC00:172:16:254::3
  102          0   BGP 44d3.ca28.6cc2                             10.1.102.12
           V:10102 FC00:172:16:254::4
  102          0 L2VPN 44d3.ca28.6cc4                              10.1.102.13
                        Gi1/0/17:102
  102          0 L2VPN 7c21.0dbd.274d                               10.1.102.1
                             Vl102:0
```

```
  102          0 L2VPN 7c21.0dbd.274d                        FD00:10:1:102::1
                                 Vl102:0
  102          0   BGP 7c21.0dbd.954d                              10.1.102.1
           V:10102 FC00:172:16:254::4
  102          0   BGP 7c21.0dbd.954d                        FD00:10:1:102::1
           V:10102 FC00:172:16:254::4
  102          0   BGP f4cf.e243.34c2                FE80::F6CF:E2FF:FE43:34C2
           V:10102 FC00:172:16:254::3
```

To return to the configuration example, click Example: Configuring BGP EVPN VXLAN with IPv6 Underlay, on page 9.

Outputs to Verify Configuration on Spine 1

```
Spine-01# show ipv6 route
IPv6 Routing Table - default - 21 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
C   FC00:172:16:13::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:13::1/128 [0/0]
     via GigabitEthernet1/0/1, receive
C   FC00:172:16:14::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L   FC00:172:16:14::1/128 [0/0]
     via GigabitEthernet1/0/2, receive
C   FC00:172:16:15::/64 [0/0]
     via GigabitEthernet1/0/3, directly connected
L   FC00:172:16:15::1/128 [0/0]
     via GigabitEthernet1/0/3, receive
O   FC00:172:16:23::/64 [110/2]
     via FE80::12B3:D5FF:FE6A:8FE4, GigabitEthernet1/0/1
O   FC00:172:16:24::/64 [110/2]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
O   FC00:172:16:25::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
LC  FC00:172:16:254::1/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:254::2/128 [110/2]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
     via FE80::12B3:D5FF:FE6A:8FE4, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
O   FC00:172:16:254::3/128 [110/1]
     via FE80::12B3:D5FF:FE6A:8FE4, GigabitEthernet1/0/1
O   FC00:172:16:254::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
O   FC00:172:16:254::5/128 [110/1]
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
LC  FC00:172:16:255::1/128 [0/0]
     via Loopback0, receive
O   FC00:172:16:255::2/128 [110/2]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
     via FE80::12B3:D5FF:FE6A:8FE4, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
O   FC00:172:16:255::3/128 [110/1]
```

```
     via FE80::12B3:D5FF:FE6A:8FE4, GigabitEthernet1/0/1
O   FC00:172:16:255::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
O   FC00:172:16:255::5/128 [110/1]
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
LC  FC00:172:16:255::255/128 [0/0]
     via Loopback2, receive
L   FF00::/8 [0/0]
     via Null0, receive


Spine-01# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 00:05:14/00:03:17, RP FC00:172:16:255::255, flags: S
  Incoming interface: Tunnel2
  RPF nbr: FC00:172:16:255::255
  Immediate Outgoing interface list:
    GigabitEthernet1/0/3, Forward, 00:05:14/00:03:17

(FC00:172:16:254::3, FF0E:225::101), 00:05:14/00:01:13, flags: ST
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::12B3:D5FF:FE6A:8FE4
  Immediate Outgoing interface list:
    GigabitEthernet1/0/3, Forward, 00:05:14/00:03:17
    GigabitEthernet1/0/2, Forward, 00:03:49/00:02:40

(FC00:172:16:254::4, FF0E:225::101), 00:05:06/00:02:04, flags: ST
  Incoming interface: GigabitEthernet1/0/2
  RPF nbr: FE80::7E21:DFF:FEBD:9564
  Immediate Outgoing interface list:
    GigabitEthernet1/0/3, Forward, 00:05:06/00:03:27
    GigabitEthernet1/0/1, Forward, 00:05:06/00:03:23

(FC00:172:16:254::5, FF0E:225::101), 00:04:59/00:03:17, RP FC00:172:16:255::255, flags: SPR

  Incoming interface: Tunnel2
  RPF nbr: FC00:172:16:255::255
  Immediate Outgoing interface list:
    GigabitEthernet1/0/3, Null, 00:04:59/00:03:17


Spine-01# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.1, local AS number 65001
BGP table version is 31, main routing table version 31
30 network entries using 11520 bytes of memory
68 path entries using 15776 bytes of memory
18/16 BGP path/bestpath attribute entries using 5328 bytes of memory
3 BGP rrinfo entries using 120 bytes of memory
15 BGP extended community entries using 800 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 33544 total bytes of memory
BGP activity 30/0 prefixes, 68/0 paths, scan interval 60 secs
```

```
30 networks peaked at 16:39:55 Oct 31 2022 UTC (00:02:12.681 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
FC00:172:16:255::2
                4        65001      28      28       31    0    0 00:05:03       30
FC00:172:16:255::3
                4        65001      16      28       31    0    0 00:05:18       14
FC00:172:16:255::4
                4        65001      14      28       31    0    0 00:05:15       12
FC00:172:16:255::5
                4        65001      14      28       31    0    0 00:05:14       12


Spine-01# show bgp l2vpn evpn
BGP table version is 31, local router ID is 172.16.255.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
```

```
                                                    0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
```

```
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 1:1
 * i  [5][1:1][0][24][10.1.101.0]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [5][1:1][0][24][10.1.102.0]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [5][1:1][0][64][FD00:10:1:101::]/29
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [5][1:1][0][64][FD00:10:1:102::]/29
                     FC00:172:16:254::3
```

```
                                                    0    100      0 ?
 * i                   FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                   FC00:172:16:254::3
                                                    0    100      0 ?
 * i                   FC00:172:16:254::5
                                                    0    100      0 ?
```

```
Spine-01# show ipv6 pim anycast-rp
Anycast RP Peers For FC00:172:16:255::255   Last Register/Register-Stop received
  FC00:172:16:254::2 00:05:25/00:05:25
```

To return to the configuration example, click Example: Configuring BGP EVPN VXLAN with IPv6 Underlay, on page 9.

Outputs to Verify Configuration on Spine 2

```
Spine-02# show ipv6 route
IPv6 Routing Table - default - 21 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
O   FC00:172:16:13::/64 [110/2]
     via FE80::12B3:D5FF:FE6A:8FD6, GigabitEthernet1/0/1
O   FC00:172:16:14::/64 [110/2]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
O   FC00:172:16:15::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
C   FC00:172:16:23::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:23::2/128 [0/0]
     via GigabitEthernet1/0/1, receive
C   FC00:172:16:24::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L   FC00:172:16:24::2/128 [0/0]
     via GigabitEthernet1/0/2, receive
C   FC00:172:16:25::/64 [0/0]
     via GigabitEthernet1/0/3, directly connected
L   FC00:172:16:25::2/128 [0/0]
     via GigabitEthernet1/0/3, receive
O   FC00:172:16:254::1/128 [110/2]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
     via FE80::12B3:D5FF:FE6A:8FD6, GigabitEthernet1/0/1
LC  FC00:172:16:254::2/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:254::3/128 [110/1]
     via FE80::12B3:D5FF:FE6A:8FD6, GigabitEthernet1/0/1
O   FC00:172:16:254::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
O   FC00:172:16:254::5/128 [110/1]
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
O   FC00:172:16:255::1/128 [110/2]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
```

```
     via FE80::12B3:D5FF:FE6A:8FD6, GigabitEthernet1/0/1
LC  FC00:172:16:255::2/128 [0/0]
     via Loopback0, receive
O   FC00:172:16:255::3/128 [110/1]
     via FE80::12B3:D5FF:FE6A:8FD6, GigabitEthernet1/0/1
O   FC00:172:16:255::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
O   FC00:172:16:255::5/128 [110/1]
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
LC  FC00:172:16:255::255/128 [0/0]
     via Loopback2, receive
L   FF00::/8 [0/0]
     via Null0, receive


Spine-02# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 00:05:17/00:03:21, RP FC00:172:16:255::255, flags: S
  Incoming interface: Tunnel2
  RPF nbr: FC00:172:16:255::255
  Immediate Outgoing interface list:
    GigabitEthernet1/0/1, Forward, 00:05:17/00:03:14
    GigabitEthernet1/0/2, Forward, 00:05:15/00:03:21

(FC00:172:16:254::3, FF0E:225::101), 00:05:17/00:02:55, RP FC00:172:16:255::255, flags: SPR

  Incoming interface: Tunnel2
  RPF nbr: FC00:172:16:255::255
  Immediate Outgoing interface list:
    GigabitEthernet1/0/1, Null, 00:05:17/00:03:14
    GigabitEthernet1/0/2, Null, 00:02:24/00:03:21

(FC00:172:16:254::3, FF0E:225::101), 00:04:27/00:02:55, flags: S
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::12B3:D5FF:FE6A:8FD6
  Inherited Outgoing interface list:
    GigabitEthernet1/0/2, Forward, 00:05:15/00:03:21

(FC00:172:16:254::4, FF0E:225::101), 00:05:15/00:02:50, RP FC00:172:16:255::255, flags: SPR

  Incoming interface: Tunnel2
  RPF nbr: FC00:172:16:255::255
  Immediate Outgoing interface list:
    GigabitEthernet1/0/2, Null, 00:05:15/00:03:21
    GigabitEthernet1/0/1, Null, 00:05:15/00:03:14

(FC00:172:16:254::4, FF0E:225::101), 00:05:15/00:02:50, flags: S
  Incoming interface: GigabitEthernet1/0/2
  RPF nbr: FE80::7E21:DFF:FEBD:9556
  Inherited Outgoing interface list:
    GigabitEthernet1/0/1, Forward, 00:05:17/00:03:14
```

```
(FC00:172:16:254::5, FF0E:225::101), 00:05:08/00:02:01, flags: ST
  Incoming interface: GigabitEthernet1/0/3
  RPF nbr: FE80::7E21:DFF:FEBD:2756
  Inherited Outgoing interface list:
    GigabitEthernet1/0/1, Forward, 00:05:17/00:03:14
    GigabitEthernet1/0/2, Forward, 00:05:15/00:03:21


Spine-02# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.2, local AS number 65001
BGP table version is 31, main routing table version 31
30 network entries using 11520 bytes of memory
68 path entries using 15776 bytes of memory
18/16 BGP path/bestpath attribute entries using 5328 bytes of memory
3 BGP rrinfo entries using 120 bytes of memory
15 BGP extended community entries using 800 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 33544 total bytes of memory
BGP activity 30/0 prefixes, 68/0 paths, scan interval 60 secs
30 networks peaked at 16:39:55 Oct 31 2022 UTC (00:02:21.575 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
FC00:172:16:255::1
                4        65001      28      28       31    0    0 00:05:12       30
FC00:172:16:255::3
                4        65001      16      28       31    0    0 00:05:16       14
FC00:172:16:255::4
                4        65001      14      28       31    0    0 00:05:15       12
FC00:172:16:255::5
                4        65001      14      28       31    0    0 00:05:16       12

Spine-02# show bgp l2vpn evpn
BGP table version is 31, local router ID is 172.16.255.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     FC00:172:16:254::3
                                                0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                0    100      0 ?
```

```
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:101
```

```
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                     FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::4
                                                    0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::5
                                                    0    100      0 ?
Route Distinguisher: 1:1
 * i  [5][1:1][0][24][10.1.101.0]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::4
                                                    0    100      0 ?
 *>i                  FC00:172:16:254::3
                                                    0    100      0 ?
 * i                  FC00:172:16:254::5
                                                    0    100      0 ?
```

```
* i   [5][1:1][0][24][10.1.102.0]/17
                     FC00:172:16:254::3
                                                    0    100      0 ?
* i                   FC00:172:16:254::4
                                                    0    100      0 ?
*>i                   FC00:172:16:254::3
                                                    0    100      0 ?
* i                   FC00:172:16:254::5
                                                    0    100      0 ?
* i   [5][1:1][0][64][FD00:10:1:101::]/29
                     FC00:172:16:254::3
                                                    0    100      0 ?
* i                   FC00:172:16:254::4
                                                    0    100      0 ?
*>i                   FC00:172:16:254::3
                                                    0    100      0 ?
* i                   FC00:172:16:254::5
                                                    0    100      0 ?
* i   [5][1:1][0][64][FD00:10:1:102::]/29
                     FC00:172:16:254::3
                                                    0    100      0 ?
* i                   FC00:172:16:254::4
                                                    0    100      0 ?
*>i                   FC00:172:16:254::3
                                                    0    100      0 ?
* i                   FC00:172:16:254::5
                                                    0    100      0 ?
```

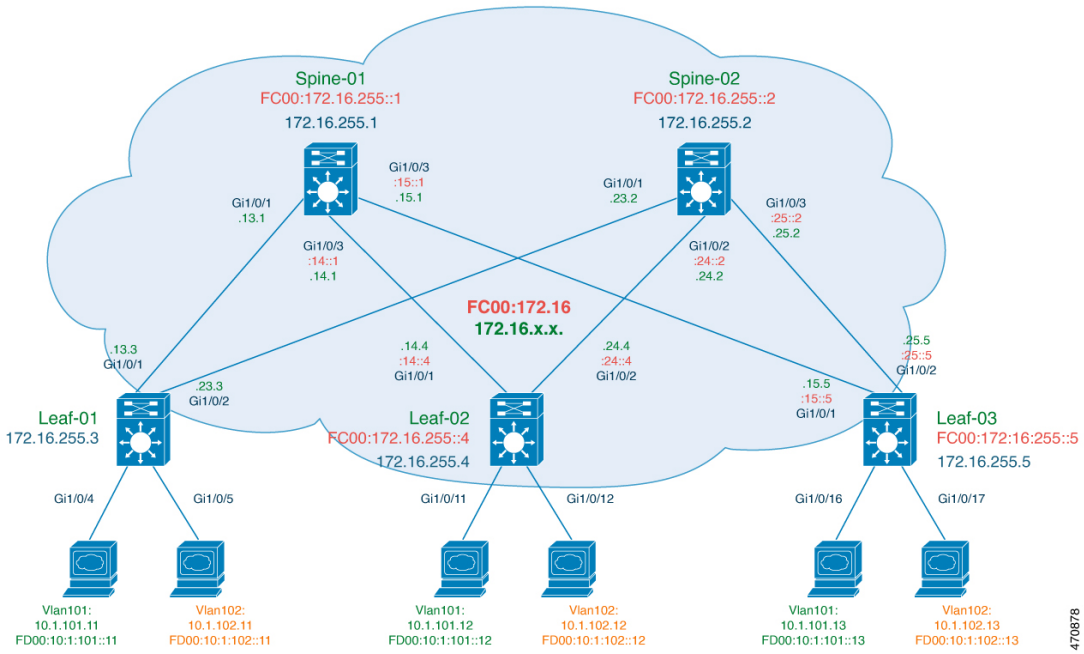
```
Spine-02# show ipv6 pim anycast-rp
Anycast RP Peers For FC00:172:16:255::255   Last Register/Register-Stop received
  FC00:172:16:254::1 00:05:27/00:05:27
```

To return to the configuration example, click Example: Configuring BGP EVPN VXLAN with IPv6 Underlay, on page 9.

Example: Configuring BGP EVPN VXLAN with Dual Stack Underlay

This example shows how to configure a BGP EVPN VXLAN fabric with a dual stack (both IPv4 and IPv6) underlay. The following tables provide sample configuration of the VTEPs (Leaf-01, Leaf-02, Leaf-03) and the Spine nodes (Spine-01, Spine-02) in the topology Figure 4: BGP EVPN VXLAN with a Dual Stack Underlay.

Figure 4: BGP EVPN VXLAN with a Dual Stack Underlay



Configure the VTEPs

VTEP 1	VTEP 2	VTEP 3

VTEP 1	VTEP 2	VTEP 3
Leaf-01# **show running-config** hostname Leaf-01 ! vrf definition green rd 1:1 ! address-family ipv4 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! address-family ipv6 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! ip routing ! ip multicast-routing ! ipv6 unicast-routing ! l2vpn evpn replication-type static router-id Loopback1 default-gateway advertise ! l2vpn evpn instance 101 vlan-based encapsulation vxlan ! l2vpn evpn instance 102 vlan-based encapsulation vxlan replication-type ingress ! system mtu 9198 ! vlan configuration 101 member evpn-instance 101 vni 10101 vlan configuration 102 member evpn-instance 102 vni 10102 vlan configuration 901 member vni 50901 ! interface Loopback0 ip address 172.16.255.3 255.255.255.255 ip ospf 1 area 0 ! interface Loopback1 ip address 172.16.254.3	Leaf-02# **show running-config** hostname Leaf-02 ! vrf definition green rd 1:1 ! address-family ipv4 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! address-family ipv6 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! ip routing ! ip multicast-routing ! ipv6 unicast-routing ipv6 multicast-routing ! l2vpn evpn replication-type static router-id Loopback1 default-gateway advertise ! l2vpn evpn instance 101 vlan-based encapsulation vxlan ! l2vpn evpn instance 102 vlan-based encapsulation vxlan replication-type ingress ! system mtu 9198 ! vlan configuration 101 member evpn-instance 101 vni 10101 vlan configuration 102 member evpn-instance 102 vni 10102 vlan configuration 901 member vni 50901 ! interface Loopback0 ip address 172.16.255.4 255.255.255.255 ip ospf 1 area 0 ipv6 address	Leaf-03# **show running-config** hostname Leaf-03 ! vrf definition green rd 1:1 ! address-family ipv4 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! address-family ipv6 route-target export 1:1 route-target import 1:1 route-target export 1:1 stitching route-target import 1:1 stitching exit-address-family ! ip routing ! ip multicast-routing ! ipv6 unicast-routing ipv6 multicast-routing ! l2vpn evpn replication-type static router-id Loopback1 default-gateway advertise ! l2vpn evpn instance 101 vlan-based encapsulation vxlan ! l2vpn evpn instance 102 vlan-based encapsulation vxlan replication-type ingress ! system mtu 9198 ! vlan configuration 101 member evpn-instance 101 vni 10101 vlan configuration 102 member evpn-instance 102 vni 10102 vlan configuration 901 member vni 50901 ! interface Loopback0 ip address 172.16.255.5 255.255.255.255 ip ospf 1 area 0 ipv6 address

VTEP 1	VTEP 2	VTEP 3
255.255.255.255 ip pim sparse-mode ip ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ip address 172.16.13.3 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ! interface GigabitEthernet1/0/2 no switchport ip address 172.16.23.3 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ! interface GigabitEthernet1/0/4 switchport access vlan 101 switchport mode access ! interface GigabitEthernet1/0/5 switchport access vlan 102 switchport mode access ! interface Vlan101 vrf forwarding green ip address 10.1.101.1 255.255.255.0 ipv6 address FD00:10:1:101::1/64 ipv6 enable ! interface Vlan102 vrf forwarding green ip address 10.1.102.1 255.255.255.0 ipv6 address FD00:10:1:102::1/64 ipv6 enable ! interface Vlan901 vrf forwarding green ip unnumbered Loopback1 ipv6 enable no autostate ! interface nve1 no ip address source-interface Loopback1 host-reachability protocol bgp member vni 10101 mcast-group 225.0.0.101 member vni 10102 ingress-replication member vni 50901 vrf green ! router ospf 1 router-id 172.16.255.3	FC00:172:16:255::4/128 ipv6 ospf 1 area 0 ! interface Loopback1 ip address 172.16.254.4 255.255.255.255 ip pim sparse-mode ip ospf 1 area 0 ipv6 address FC00:172:16:254::4/128 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ip address 172.16.14.4 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:14::4/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ip address 172.16.24.4 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:24::4/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/11 switchport access vlan 101 switchport mode access ! interface GigabitEthernet1/0/12 switchport access vlan 102 switchport mode access ! interface Vlan101 vrf forwarding green ip address 10.1.101.1 255.255.255.0 ipv6 address FD00:10:1:101::1/64 ipv6 enable ! interface Vlan102 vrf forwarding green ip address 10.1.102.1 255.255.255.0	FC00:172:16:255::5/128 ipv6 ospf 1 area 0 ! interface Loopback1 ip address 172.16.254.5 255.255.255.255 ip pim sparse-mode ip ospf 1 area 0 ipv6 address FC00:172:16:254::5/128 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ip address 172.16.15.5 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:15::5/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ip address 172.16.25.5 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:25::5/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/16 switchport access vlan 101 switchport mode access ! interface GigabitEthernet1/0/17 switchport access vlan 102 switchport mode access ! interface Vlan101 vrf forwarding green ip address 10.1.101.1 255.255.255.0 ipv6 address FD00:10:1:101::1/64 ipv6 enable ! interface Vlan102 vrf forwarding green ip address 10.1.102.1 255.255.255.0

VTEP 1	VTEP 2	VTEP 3
!	ipv6 address	ipv6 address
router bgp 65001	FD00:10:1:102::1/64	FD00:10:1:102::1/64
bgp router-id 172.16.255.3	ipv6 enable	ipv6 enable
bgp log-neighbor-changes	!	!
neighbor 172.16.255.1	interface Vlan901	interface Vlan901
remote-as 65001	vrf forwarding green	vrf forwarding green
neighbor 172.16.255.1	ip unnumbered Loopback1	ip unnumbered Loopback1
update-source Loopback0	ipv6 enable	ipv6 enable
neighbor 172.16.255.2	no autostate	no autostate
remote-as 65001	!	!
neighbor 172.16.255.2	interface nve1	interface nve1
update-source Loopback0	no ip address	no ip address
!	source-interface Loopback1	source-interface Loopback1
address-family l2vpn evpn	host-reachability protocol bgp	host-reachability protocol bgp
neighbor 172.16.255.1 activate	vxlan encapsulation dual-stack	vxlan encapsulation dual-stack
neighbor 172.16.255.1	prefer-ipv6 underlay-mcast	prefer-ipv6 underlay-mcast
send-community both	ipv4	ipv4
neighbor 172.16.255.2 activate	member vni 10101 mcast-group	member vni 10101 mcast-group
neighbor 172.16.255.2	225.0.0.101 FF0E:225::101	225.0.0.101 FF0E:225::101
send-community both	member vni 10102	member vni 10102
exit-address-family	ingress-replication	ingress-replication
!	member vni 50901 vrf green	member vni 50901 vrf green
address-family ipv4 vrf green	!	!
advertise l2vpn evpn	router ospf 1	router ospf 1
redistribute connected	router-id 172.16.255.4	router-id 172.16.255.5
exit-address-family	!	!
!	router bgp 65001	router bgp 65001
address-family ipv6 vrf green	bgp router-id 172.16.255.4	bgp router-id 172.16.255.5
redistribute connected	bgp log-neighbor-changes	bgp log-neighbor-changes
advertise l2vpn evpn	neighbor 172.16.255.1	neighbor FC00:172:16:255::1
exit-address-family	remote-as 65001	remote-as 65001
!	neighbor 172.16.255.1	neighbor FC00:172:16:255::1
ip pim rp-address	update-source Loopback0	update-source Loopback0
172.16.255.255	neighbor 172.16.255.2	neighbor FC00:172:16:255::2
!	remote-as 65001	remote-as 65001
end	neighbor 172.16.255.2	neighbor FC00:172:16:255::2
	update-source Loopback0	update-source Loopback0
	neighbor FC00:172:16:255::1	!
	remote-as 65001	address-family l2vpn evpn
	neighbor FC00:172:16:255::1	neighbor FC00:172:16:255::1
	update-source Loopback0	activate
	neighbor FC00:172:16:255::2	neighbor FC00:172:16:255::1
	remote-as 65001	send-community both
	neighbor FC00:172:16:255::2	neighbor FC00:172:16:255::2
	update-source Loopback0	activate
	!	neighbor FC00:172:16:255::2
	address-family l2vpn evpn	send-community both
	neighbor 172.16.255.1 activate	exit-address-family
	neighbor 172.16.255.1	!
	send-community both	address-family ipv4 vrf green
	neighbor 172.16.255.2 activate	advertise l2vpn evpn
	neighbor 172.16.255.2	redistribute connected
	send-community both	exit-address-family
	neighbor FC00:172:16:255::1	!
	activate	address-family ipv6 vrf green
	neighbor FC00:172:16:255::1	redistribute connected
	send-community both	advertise l2vpn evpn
	neighbor FC00:172:16:255::2	exit-address-family
	activate	!
	neighbor FC00:172:16:255::2	ip pim rp-address
	send-community both	172.16.255.255
	exit-address-family	!

VTEP 1	VTEP 2	VTEP 3
	!	ipv6 router ospf 1
	address-family ipv4 vrf green	router-id 172.16.255.5
	advertise l2vpn evpn	!
	redistribute connected	ipv6 pim rp-address
	exit-address-family	FC00:172:16:255::255
	!	!
	address-family ipv6 vrf green	end
	redistribute connected	
	advertise l2vpn evpn	
	exit-address-family	
	!	
	ip pim rp-address	
	172.16.255.255	
	!	
	ipv6 router ospf 1	
	router-id 172.16.255.4	
	!	
	ipv6 pim rp-address	
	FC00:172:16:255::255	
	!	
	end	

Table 3: Configure the Spine Nodes

Spine 1	Spine 2

Spine 1	Spine 2
Spine-01# **show running-config** hostname Spine-01 ! ip routing ! ip multicast-routing ! ipv6 unicast-routing ipv6 multicast-routing ! system mtu 9198 ! interface Loopback0 ip address 172.16.255.1 255.255.255.255 ip ospf 1 area 0 ipv6 address FC00:172:16:255::1/128 ipv6 ospf 1 area 0 ! interface Loopback1 ip address 172.16.254.1 255.255.255.255 ip ospf 1 area 0 ipv6 address FC00:172:16:254::1/128 ipv6 ospf 1 area 0 ! interface Loopback2 ip address 172.16.255.255 255.255.255.255 ip ospf 1 area 0 ipv6 address FC00:172:16:255::255/128 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ip address 172.16.13.1 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:13::1/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ip address 172.16.14.1 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:14::1/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/3 no switchport ip address 172.16.15.1 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:15::1/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point	Spine-02# **show running-config** hostname Spine-02 ! ip routing ! ip multicast-routing ! ipv6 unicast-routing ipv6 multicast-routing ! system mtu 9198 ! interface Loopback0 ip address 172.16.255.2 255.255.255.255 ip ospf 1 area 0 ipv6 address FC00:172:16:255::2/128 ipv6 ospf 1 area 0 ! interface Loopback1 ip address 172.16.254.2 255.255.255.255 ip ospf 1 area 0 ipv6 address FC00:172:16:254::2/128 ipv6 ospf 1 area 0 ! interface Loopback2 ip address 172.16.255.255 255.255.255.255 ip ospf 1 area 0 ipv6 address FC00:172:16:255::255/128 ipv6 ospf 1 area 0 ! interface GigabitEthernet1/0/1 no switchport ip address 172.16.23.2 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:23::2/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/2 no switchport ip address 172.16.24.2 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:24::2/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point ! interface GigabitEthernet1/0/3 no switchport ip address 172.16.25.2 255.255.255.0 ip pim sparse-mode ip ospf network point-to-point ip ospf 1 area 0 ipv6 address FC00:172:16:25::2/64 ipv6 enable ipv6 ospf 1 area 0 ipv6 ospf network point-to-point

Spine 1	Spine 2
!	!
router ospf 1	router ospf 1
router-id 172.16.255.1	router-id 172.16.255.2
!	!
router bgp 65001	router bgp 65001
bgp router-id 172.16.255.1	bgp router-id 172.16.255.2
bgp log-neighbor-changes	bgp log-neighbor-changes
neighbor 172.16.255.3 remote-as 65001	neighbor 172.16.255.3 remote-as 65001
neighbor 172.16.255.3 update-source Loopback0	neighbor 172.16.255.3 update-source Loopback0
neighbor 172.16.255.4 remote-as 65001	neighbor 172.16.255.4 remote-as 65001
neighbor 172.16.255.4 update-source Loopback0	neighbor 172.16.255.4 update-source Loopback0
neighbor FC00:172:16:255::2 remote-as 65001	neighbor FC00:172:16:255::1 remote-as 65001
neighbor FC00:172:16:255::2 update-source Loopback0	neighbor FC00:172:16:255::1 update-source Loopback0
neighbor FC00:172:16:255::4 remote-as 65001	neighbor FC00:172:16:255::4 remote-as 65001
neighbor FC00:172:16:255::4 update-source Loopback0	neighbor FC00:172:16:255::4 update-source Loopback0
neighbor FC00:172:16:255::5 remote-as 65001	neighbor FC00:172:16:255::5 remote-as 65001
neighbor FC00:172:16:255::5 update-source Loopback0	neighbor FC00:172:16:255::5 update-source Loopback0
!	!
address-family l2vpn evpn	address-family l2vpn evpn
neighbor 172.16.255.3 activate	neighbor 172.16.255.3 activate
neighbor 172.16.255.3 send-community both	neighbor 172.16.255.3 send-community both
neighbor 172.16.255.3 route-reflector-client	neighbor 172.16.255.3 route-reflector-client
neighbor 172.16.255.4 activate	neighbor 172.16.255.4 activate
neighbor 172.16.255.4 send-community both	neighbor 172.16.255.4 send-community both
neighbor 172.16.255.4 route-reflector-client	neighbor 172.16.255.4 route-reflector-client
neighbor FC00:172:16:255::2 activate	neighbor FC00:172:16:255::1 activate
neighbor FC00:172:16:255::2 send-community both	neighbor FC00:172:16:255::1 send-community both
neighbor FC00:172:16:255::2 route-reflector-client	neighbor FC00:172:16:255::1 route-reflector-client
neighbor FC00:172:16:255::4 activate	neighbor FC00:172:16:255::4 activate
neighbor FC00:172:16:255::4 send-community both	neighbor FC00:172:16:255::4 send-community both
neighbor FC00:172:16:255::4 route-reflector-client	neighbor FC00:172:16:255::4 route-reflector-client
neighbor FC00:172:16:255::5 activate	neighbor FC00:172:16:255::5 activate
neighbor FC00:172:16:255::5 send-community both	neighbor FC00:172:16:255::5 send-community both
neighbor FC00:172:16:255::5 route-reflector-client	neighbor FC00:172:16:255::5 route-reflector-client
exit-address-family	exit-address-family
!	!
ip pim rp-address 172.16.255.255	ip pim rp-address 172.16.255.255
ip msdp peer 172.16.254.2 connect-source Loopback1 remote-as 65001	ip msdp peer 172.16.254.1 connect-source Loopback1 remote-as 65001
ip msdp cache-sa-state	ip msdp cache-sa-state
!	!
ipv6 router ospf 1	ipv6 router ospf 1
router-id 172.16.255.1	router-id 172.16.255.2
!	!
ipv6 pim rp-address FC00:172:16:255::255	ipv6 pim rp-address FC00:172:16:255::255
ipv6 pim anycast-rp FC00:172:16:255::255 FC00:172:16:254::2	ipv6 pim anycast-rp FC00:172:16:255::255 FC00:172:16:254::1
!	!
end	end

Verifying BGP EVPN VXLAN with Dual Stack Underlay Configuration

The following sections provide sample output of **show** commands to verify the BGP EVPN VXLAN configuration with dual stack underlay.

- Outputs to Verify Configuration on VTEP 1, on page 55
- Outputs to Verify Configuration on VTEP 2, on page 60
- Outputs to Verify Configuration on VTEP 3, on page 68
- Outputs to Verify Configuration on Spine 1, on page 75
- Outputs to Verify the Configuration on Spine 2, on page 81

Outputs to Verify Configuration on VTEP 1

```
Leaf-01# show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
       & - replicated local route overrides by connected

Gateway of last resort is not set

      172.16.0.0/16 is variably subnetted, 19 subnets, 2 masks
C        172.16.13.0/24 is directly connected, GigabitEthernet1/0/1
L        172.16.13.3/32 is directly connected, GigabitEthernet1/0/1
O        172.16.14.0/24
           [110/2] via 172.16.13.1, 02:27:03, GigabitEthernet1/0/1
O        172.16.15.0/24
           [110/2] via 172.16.13.1, 02:27:03, GigabitEthernet1/0/1
C        172.16.23.0/24 is directly connected, GigabitEthernet1/0/2
L        172.16.23.3/32 is directly connected, GigabitEthernet1/0/2
O        172.16.24.0/24
           [110/2] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
O        172.16.25.0/24
           [110/2] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
O        172.16.254.1/32
           [110/2] via 172.16.13.1, 02:27:03, GigabitEthernet1/0/1
O        172.16.254.2/32
           [110/2] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
C        172.16.254.3/32 is directly connected, Loopback1
O        172.16.254.4/32
           [110/3] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
           [110/3] via 172.16.13.1, 02:26:55, GigabitEthernet1/0/1
O        172.16.254.5/32
           [110/3] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
           [110/3] via 172.16.13.1, 02:26:55, GigabitEthernet1/0/1
O        172.16.255.1/32
           [110/2] via 172.16.13.1, 02:27:03, GigabitEthernet1/0/1
O        172.16.255.2/32
           [110/2] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
C        172.16.255.3/32 is directly connected, Loopback0
```

```
O        172.16.255.4/32
           [110/3] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
           [110/3] via 172.16.13.1, 02:26:55, GigabitEthernet1/0/1
O        172.16.255.5/32
           [110/3] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
           [110/3] via 172.16.13.1, 02:26:55, GigabitEthernet1/0/1
O        172.16.255.255/32
           [110/2] via 172.16.23.2, 02:26:55, GigabitEthernet1/0/2
           [110/2] via 172.16.13.1, 02:27:03, GigabitEthernet1/0/1
```

```
Leaf-01# show ipv6 route
IPv6 Routing Table - default - 1 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
L   FF00::/8 [0/0]
     via Null0, receive
```

```
Leaf-01# show ip mroute
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       N - Received BGP Shared-Tree Prune, n - BGP C-Mroute suppressed,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector, p - PIM Joins on route,
       x - VxLAN group, c - PFP-SA cache created entry,
       * - determined by Assert, # - iif-starg configured on rpf intf,
       e - encap-helper tunnel flag, l - LISP decap ref count contributor
Outgoing interface flags: H - Hardware switched, A - Assert winner, p - PIM Join
                          t - LISP transit group
 Timers: Uptime/Expires
 Interface state: Interface, Next-Hop or VCD, State/Mode

(*, 224.0.1.40), 02:28:41/00:02:57, RP 172.16.255.255, flags: SJCL
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.23.2
  Outgoing interface list:
    Loopback1, Forward/Sparse, 02:28:39/00:02:23, flags:
    GigabitEthernet1/0/1, Forward/Sparse, 02:26:54/00:02:50, flags:

(*, 225.0.0.101), 02:28:40/stopped, RP 172.16.255.255, flags: SJCFx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.23.2
  Outgoing interface list:
    Tunnel0, Forward/Sparse-Dense, 02:28:40/stopped, flags:

(172.16.254.5, 225.0.0.101), 01:53:05/00:01:04, flags: JTx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.23.2
  Outgoing interface list:
    Tunnel0, Forward/Sparse-Dense, 01:53:05/stopped, flags:
```

```
(172.16.254.4, 225.0.0.101), 02:20:24/00:01:01, flags: JTx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.23.2
  Outgoing interface list:
    Tunnel0, Forward/Sparse-Dense, 02:20:24/stopped, flags:

(172.16.254.3, 225.0.0.101), 02:28:09/00:03:22, flags: FTx
  Incoming interface: Loopback1, RPF nbr 0.0.0.0
  Outgoing interface list:
    GigabitEthernet1/0/2, Forward/Sparse, 02:25:53/00:02:32, flags: A


Leaf-01# show ipv6 mroute
No mroute entries found.


Leaf-01# show nve peer
'M' - MAC entry download flag  'A' - Adjacency download flag
'4' - IPv4 flag  '6' - IPv6 flag

Interface  VNI      Type Peer-IP          RMAC/Num_RTs   eVNI     state flags UP time
nve1       50901    L3CP 172.16.254.5     7c21.0dbd.2748 50901      UP  A/-/4 02:25:57
nve1       50901    L3CP 172.16.254.4     7c21.0dbd.9548 50901      UP  A/-/4 02:25:57
nve1       50901    L3CP 172.16.254.5     7c21.0dbd.2748 50901      UP  A/M/6 02:25:57
nve1       50901    L3CP 172.16.254.4     7c21.0dbd.9548 50901      UP  A/M/6 02:25:57
nve1       10101    L2CP 172.16.254.4     5              10101      UP   N/A  02:25:57
nve1       10101    L2CP 172.16.254.5     5              10101      UP   N/A  02:25:57
nve1       10102    L2CP 172.16.254.4     6              10102      UP   N/A  02:25:57
nve1       10102    L2CP 172.16.254.5     6              10102      UP   N/A  02:25:57


Leaf-01# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.3, local AS number 65001
BGP table version is 54, main routing table version 54
50 network entries using 19200 bytes of memory
68 path entries using 15776 bytes of memory
22/22 BGP path/bestpath attribute entries using 6512 bytes of memory
4 BGP rrinfo entries using 160 bytes of memory
16 BGP extended community entries using 864 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 42512 total bytes of memory
BGP activity 62/0 prefixes, 90/6 paths, scan interval 60 secs
50 networks peaked at 15:31:23 Oct 31 2022 UTC (00:00:34.727 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.16.255.1    4        65001     186     174       54    0    0 02:26:54       18
172.16.255.2    4        65001     187     174       54    0    0 02:26:53       18


Leaf-01# show bgp l2vpn evpn
BGP table version is 54, local router ID is 172.16.255.3
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 *>   [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                       0.0.0.0                              32768 ?
 *>   [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
```

```
                     0.0.0.0                                32768 ?
 *>i  [2][172.16.254.3:101][0][48][44D3CA286CC1][0][*]/20
                     172.16.254.4             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][44D3CA286CC1][32][10.1.101.12]/24
                     172.16.254.4             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][44D3CA286CC3][0][*]/20
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][44D3CA286CC3][32][10.1.101.13]/24
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     172.16.254.4             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     172.16.254.4             0    100      0 ?
 *>   [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     0.0.0.0                                32768 ?
 *>   [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     0.0.0.0                                32768 ?
 *>   [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     0.0.0.0                                32768 ?
Route Distinguisher: 172.16.254.3:102
 *>   [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     0.0.0.0                                32768 ?
 *>   [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     0.0.0.0                                32768 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC2][0][*]/20
                     172.16.254.4             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     172.16.254.4             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC4][0][*]/20
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     172.16.254.5             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     172.16.254.4             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     172.16.254.4             0    100      0 ?
 *>   [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     0.0.0.0                                32768 ?
 *>   [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     0.0.0.0                                32768 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][44D3CA286CC1][32][10.1.101.12]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     172.16.254.4             0    100      0 ?
```

```
 *>i                    172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                        172.16.254.4             0    100      0 ?
 *>i                    172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                        172.16.254.4             0    100      0 ?
 *>i                    172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                        172.16.254.4             0    100      0 ?
 *>i                    172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][32][10.1.101.13]/24
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 *>   [3][172.16.254.3:102][0][32][172.16.254.3]/17
                        0.0.0.0                            32768 ?
 *>i  [3][172.16.254.3:102][0][32][172.16.254.4]/17
                        172.16.254.4             0    100      0 ?
 *>i  [3][172.16.254.3:102][0][32][172.16.254.5]/17
                        172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                        172.16.254.4             0    100      0 ?
 *>i                    172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                        172.16.254.5             0    100      0 ?
 *>i                    172.16.254.5             0    100      0 ?
Route Distinguisher: 1:1 (default for vrf green)
 *>   [5][1:1][0][24][10.1.101.0]/17
                        0.0.0.0                  0         32768 ?
 *>   [5][1:1][0][24][10.1.102.0]/17
                        0.0.0.0                  0         32768 ?
 *>   [5][1:1][0][64][FD00:10:1:101::]/29
                        ::                       0         32768 ?
 *>   [5][1:1][0][64][FD00:10:1:102::]/29
                        ::                       0         32768 ?

Leaf-01# show l2vpn evpn mac ip
IP Address                            EVI   VLAN  MAC Address    Next Hop(s)
------------------------------------- ----- ----- -------------- -----------
```

```
10.1.101.11                               101   101   f4cf.e243.34c1 Gi1/0/4:101
10.1.101.12                               101   101   44d3.ca28.6cc1 172.16.254.4
10.1.101.13                               101   101   44d3.ca28.6cc3 172.16.254.5
FE80::F6CF:E2FF:FE43:34C1                 101   101   f4cf.e243.34c1 Gi1/0/4:101
10.1.102.12                               102   102   44d3.ca28.6cc2 172.16.254.4
10.1.102.13                               102   102   44d3.ca28.6cc4 172.16.254.5
FE80::F6CF:E2FF:FE43:34C2                 102   102   f4cf.e243.34c2 Gi1/0/5:102


Leaf-01# show l2route evpn mac ip
  EVI       ETag  Prod    Mac Address                              Host IP
                          Next Hop(s)
----- ---------- ----- -------------- ------------------------------------
-------------------------------------------------
  101          0 L2VPN 10b3.d56a.8fc1                             10.1.101.1
                             Vl101:0
  101          0 L2VPN 10b3.d56a.8fc1                 FD00:10:1:101::1
                             Vl101:0
  101          0   BGP 44d3.ca28.6cc1                      10.1.101.12
                  V:10101 172.16.254.4
  101          0   BGP 44d3.ca28.6cc3                      10.1.101.13
                  V:10101 172.16.254.5
  101          0   BGP 7c21.0dbd.2741                       10.1.101.1
                  V:10101 172.16.254.5
  101          0   BGP 7c21.0dbd.2741                 FD00:10:1:101::1
                  V:10101 172.16.254.5
  101          0   BGP 7c21.0dbd.9541                       10.1.101.1
                  V:10101 172.16.254.4
  101          0   BGP 7c21.0dbd.9541                 FD00:10:1:101::1
                  V:10101 172.16.254.4
  101          0 L2VPN f4cf.e243.34c1                      10.1.101.11
                            Gi1/0/4:101
  101          0 L2VPN f4cf.e243.34c1            FE80::F6CF:E2FF:FE43:34C1
                            Gi1/0/4:101
  102          0 L2VPN 10b3.d56a.8fcd                             10.1.102.1
                             Vl102:0
  102          0 L2VPN 10b3.d56a.8fcd                 FD00:10:1:102::1
                             Vl102:0
  102          0   BGP 44d3.ca28.6cc2                      10.1.102.12
                  V:10102 172.16.254.4
  102          0   BGP 44d3.ca28.6cc4                      10.1.102.13
                  V:10102 172.16.254.5
  102          0   BGP 7c21.0dbd.274d                       10.1.102.1
                  V:10102 172.16.254.5
  102          0   BGP 7c21.0dbd.274d                 FD00:10:1:102::1
                  V:10102 172.16.254.5
  102          0   BGP 7c21.0dbd.954d                       10.1.102.1
                  V:10102 172.16.254.4
  102          0   BGP 7c21.0dbd.954d                 FD00:10:1:102::1
                  V:10102 172.16.254.4
  102          0 L2VPN f4cf.e243.34c2            FE80::F6CF:E2FF:FE43:34C2
                            Gi1/0/5:102
```

To return to the example configuration, click Example: Configuring BGP EVPN VXLAN with Dual Stack Underlay, on page 45.

Outputs to Verify Configuration on VTEP 2

```
Leaf-02# show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
```

```
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
       & - replicated local route overrides by connected

Gateway of last resort is not set

      172.16.0.0/16 is variably subnetted, 19 subnets, 2 masks
O        172.16.13.0/24
           [110/2] via 172.16.14.1, 02:29:55, GigabitEthernet1/0/1
C        172.16.14.0/24 is directly connected, GigabitEthernet1/0/1
L        172.16.14.4/32 is directly connected, GigabitEthernet1/0/1
O        172.16.15.0/24
           [110/2] via 172.16.14.1, 02:29:55, GigabitEthernet1/0/1
O        172.16.23.0/24
           [110/2] via 172.16.24.2, 02:29:52, GigabitEthernet1/0/2
C        172.16.24.0/24 is directly connected, GigabitEthernet1/0/2
L        172.16.24.4/32 is directly connected, GigabitEthernet1/0/2
O        172.16.25.0/24
           [110/2] via 172.16.24.2, 02:29:52, GigabitEthernet1/0/2
O        172.16.254.1/32
           [110/2] via 172.16.14.1, 02:29:55, GigabitEthernet1/0/1
O        172.16.254.2/32
           [110/2] via 172.16.24.2, 02:29:52, GigabitEthernet1/0/2
O        172.16.254.3/32
           [110/3] via 172.16.24.2, 02:29:47, GigabitEthernet1/0/2
           [110/3] via 172.16.14.1, 02:29:55, GigabitEthernet1/0/1
C        172.16.254.4/32 is directly connected, Loopback1
O        172.16.254.5/32
           [110/3] via 172.16.24.2, 02:29:47, GigabitEthernet1/0/2
           [110/3] via 172.16.14.1, 02:29:47, GigabitEthernet1/0/1
O        172.16.255.1/32
           [110/2] via 172.16.14.1, 02:29:55, GigabitEthernet1/0/1
O        172.16.255.2/32
           [110/2] via 172.16.24.2, 02:29:52, GigabitEthernet1/0/2
O        172.16.255.3/32
           [110/3] via 172.16.24.2, 02:29:47, GigabitEthernet1/0/2
           [110/3] via 172.16.14.1, 02:29:55, GigabitEthernet1/0/1
C        172.16.255.4/32 is directly connected, Loopback0
O        172.16.255.5/32
           [110/3] via 172.16.24.2, 02:29:47, GigabitEthernet1/0/2
           [110/3] via 172.16.14.1, 02:29:47, GigabitEthernet1/0/1
O        172.16.255.255/32
           [110/2] via 172.16.24.2, 02:29:52, GigabitEthernet1/0/2
           [110/2] via 172.16.14.1, 02:29:55, GigabitEthernet1/0/1


Leaf-02# show ipv6 route
IPv6 Routing Table - default - 18 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
```

```
O   FC00:172:16:13::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
C   FC00:172:16:14::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:14::4/128 [0/0]
     via GigabitEthernet1/0/1, receive
O   FC00:172:16:15::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
O   FC00:172:16:23::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
C   FC00:172:16:24::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L   FC00:172:16:24::4/128 [0/0]
     via GigabitEthernet1/0/2, receive
O   FC00:172:16:25::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:254::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
O   FC00:172:16:254::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
LC  FC00:172:16:254::4/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:254::5/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:255::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
O   FC00:172:16:255::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
LC  FC00:172:16:255::4/128 [0/0]
     via Loopback0, receive
O   FC00:172:16:255::5/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
O   FC00:172:16:255::255/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D6, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD6, GigabitEthernet1/0/2
L   FF00::/8 [0/0]
     via Null0, receive
```

```
Leaf-02# show ip mroute
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       N - Received BGP Shared-Tree Prune, n - BGP C-Mroute suppressed,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector, p - PIM Joins on route,
       x - VxLAN group, c - PFP-SA cache created entry,
       * - determined by Assert, # - iif-starg configured on rpf intf,
       e - encap-helper tunnel flag, l - LISP decap ref count contributor
Outgoing interface flags: H - Hardware switched, A - Assert winner, p - PIM Join
                          t - LISP transit group
 Timers: Uptime/Expires
 Interface state: Interface, Next-Hop or VCD, State/Mode

(*, 224.0.1.40), 02:30:33/00:02:28, RP 172.16.255.255, flags: SJCL
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.24.2
```

```
  Outgoing interface list:
    Loopback1, Forward/Sparse, 02:30:32/00:02:28, flags:

(*, 225.0.0.101), 02:30:33/stopped, RP 172.16.255.255, flags: SJCFx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.24.2
  Outgoing interface list:
    Tunnel1, Forward/Sparse-Dense, 02:30:33/stopped, flags:

(172.16.254.3, 225.0.0.101), 02:22:31/00:02:40, flags: JTx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.24.2
  Outgoing interface list:
    Tunnel1, Forward/Sparse-Dense, 02:22:31/stopped, flags:

(172.16.254.5, 225.0.0.101), 02:22:41/00:01:28, flags: JTx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.24.2
  Outgoing interface list:
    Tunnel1, Forward/Sparse-Dense, 02:22:41/stopped, flags:

(172.16.254.4, 225.0.0.101), 02:30:17/00:01:32, flags: FTx
  Incoming interface: Loopback1, RPF nbr 0.0.0.0, Registering
  Outgoing interface list:
    GigabitEthernet1/0/2, Forward/Sparse, 02:29:51/00:03:28, flags: A


Leaf-02# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 02:30:33/never, RP FC00:172:16:255::255, flags: SCJ
  Incoming interface: GigabitEthernet1/0/2
  RPF nbr: FE80::7E21:DFF:FEBD:2CD6
  Immediate Outgoing interface list:
    Tunnel2, Forward, 02:30:33/never


Leaf-02# show nve peer
'M' - MAC entry download flag  'A' - Adjacency download flag
'4' - IPv4 flag  '6' - IPv6 flag

Interface  VNI      Type Peer-IP          RMAC/Num_RTs   eVNI     state flags UP time
nve1       50901    L3CP 172.16.254.3     10b3.d56a.8fc8 50901      UP  A/-/4 02:28:51
nve1       50901    L3CP FC00:172:16:254::5 \
                                          7c21.0dbd.2748 50901      UP  A/-/4 02:28:51
nve1       50901    L3CP 172.16.254.3     10b3.d56a.8fc8 50901      UP  A/M/6 02:28:51
nve1       50901    L3CP FC00:172:16:254::5 \
                                          7c21.0dbd.2748 50901      UP  A/M/6 02:28:51
nve1       10101    L2CP 172.16.254.3     6              10101      UP   N/A  02:28:51
nve1       10101    L2CP FC00:172:16:254::5 \
                                          5              10101      UP   N/A  02:28:51
nve1       10102    L2CP 172.16.254.3     6              10102      UP   N/A  02:28:51
nve1       10102    L2CP FC00:172:16:254::5 \
                                          6              10102      UP   N/A  02:28:51
```

```
Leaf-02# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.4, local AS number 65001
BGP table version is 76, main routing table version 76
51 network entries using 19584 bytes of memory
124 path entries using 28768 bytes of memory
23/22 BGP path/bestpath attribute entries using 6808 bytes of memory
4 BGP rrinfo entries using 160 bytes of memory
17 BGP extended community entries using 904 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 56224 total bytes of memory
BGP activity 64/0 prefixes, 188/43 paths, scan interval 60 secs
51 networks peaked at 15:31:23 Oct 31 2022 UTC (00:03:28.886 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.16.255.1    4        65001     189     175       76    0    0 02:29:49        23
172.16.255.2    4        65001     189     175       76    0    0 02:29:45        23
FC00:172:16:255::1
                4        65001     188     172       76    0    0 02:30:00        23
FC00:172:16:255::2
                4        65001     189     173       76    0    0 02:29:58        23


Leaf-02# show bgp l2vpn evpn
BGP table version is 76, local router ID is 172.16.255.4
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
```

```
 * i                    172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                       172.16.254.3             0    100      0 ?
 * i                    172.16.254.3             0    100      0 ?
 *>i                    172.16.254.3             0    100      0 ?
 * i                    172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                       172.16.254.3             0    100      0 ?
 * i                    172.16.254.3             0    100      0 ?
 *>i                    172.16.254.3             0    100      0 ?
 * i                    172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                       172.16.254.3             0    100      0 ?
 * i                    172.16.254.3             0    100      0 ?
 * i                    172.16.254.3             0    100      0 ?
 * i                    172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 *>i  [2][172.16.254.4:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                       172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                       172.16.254.3             0    100      0 ?
 *>   [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                       0.0.0.0                            32768 ?
 *>   [2][172.16.254.4:101][0][48][44D3CA286CC1][32][10.1.101.12]/24
                       0.0.0.0                            32768 ?
 *>i  [2][172.16.254.4:101][0][48][44D3CA286CC3][0][*]/20
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][44D3CA286CC3][32][10.1.101.13]/24
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>   [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                       0.0.0.0                            32768 ?
 *>   [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                       0.0.0.0                            32768 ?
 *>i  [2][172.16.254.4:101][0][48][F4CFE24334C1][0][*]/20
                       172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                       172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.4:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                       172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 *>i  [2][172.16.254.4:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                       172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                       172.16.254.3             0    100      0 ?
 *>   [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                       0.0.0.0                            32768 ?
 *>   [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                       0.0.0.0                            32768 ?
 *>i  [2][172.16.254.4:102][0][48][44D3CA286CC4][0][*]/20
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                       FC00:172:16:254::5
                                                0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                       FC00:172:16:254::5
```

```
                                                    0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::5
                                                    0    100      0 ?
 *>   [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     0.0.0.0                                32768 ?
 *>   [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     0.0.0.0                                32768 ?
 *>i  [2][172.16.254.4:102][0][48][F4CFE24334C2][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.4:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][32][10.1.101.13]/24
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 *>i  [3][172.16.254.4:102][0][32][172.16.254.3]/17
                     172.16.254.3             0    100      0 ?
 *>   [3][172.16.254.4:102][0][32][172.16.254.4]/17
```

```
                     0.0.0.0                                32768 ?
 *>i  [3][172.16.254.4:102][0][32][172.16.254.5]/17
                     FC00:172:16:254::5
                                                         0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                     172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 *>i                 172.16.254.5             0    100      0 ?
Route Distinguisher: 1:1 (default for vrf green)
 * i  [5][1:1][0][24][10.1.101.0]/17
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>                  0.0.0.0                  0         32768 ?
 * i  [5][1:1][0][24][10.1.102.0]/17
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>                  0.0.0.0                  0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:101::]/29
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>                  ::                       0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:102::]/29
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 *>                  ::                       0         32768 ?
```

```
Leaf-02# show l2vpn evpn mac ip
IP Address                            EVI   VLAN  MAC Address    Next Hop(s)
------------------------------------- ----- ----- -------------- -----------
10.1.101.11                           101   101   f4cf.e243.34c1 172.16.254.3
10.1.101.12                           101   101   44d3.ca28.6cc1 Gi1/0/11:101
10.1.101.13                           101   101   44d3.ca28.6cc3 FC00:172:16:254::5
FE80::F6CF:E2FF:FE43:34C1             101   101   f4cf.e243.34c1 172.16.254.3
10.1.102.12                           102   102   44d3.ca28.6cc2 Gi1/0/12:102
10.1.102.13                           102   102   44d3.ca28.6cc4 FC00:172:16:254::5
FE80::F6CF:E2FF:FE43:34C2             102   102   f4cf.e243.34c2 172.16.254.3
```

```
Leaf-02# show l2route evpn mac ip
  EVI       ETag  Prod    Mac Address                                 Host IP
                           Next Hop(s)
----- ---------- ----- -------------- ------------------------------------
-------------------------------------------------
  101          0   BGP 10b3.d56a.8fc1                              10.1.101.1
                  V:10101 172.16.254.3
  101          0   BGP 10b3.d56a.8fc1                          FD00:10:1:101::1
                  V:10101 172.16.254.3
  101          0 L2VPN 44d3.ca28.6cc1                             10.1.101.12
                       Gi1/0/11:101
  101          0   BGP 44d3.ca28.6cc3                              10.1.101.13
           V:10101 FC00:172:16:254::5
  101          0   BGP 7c21.0dbd.2741                               10.1.101.1
           V:10101 FC00:172:16:254::5
  101          0   BGP 7c21.0dbd.2741                          FD00:10:1:101::1
```

```
          V:10101 FC00:172:16:254::5
101          0 L2VPN 7c21.0dbd.9541                          10.1.101.1
                           Vl101:0
101          0 L2VPN 7c21.0dbd.9541                    FD00:10:1:101::1
                           Vl101:0
101          0   BGP f4cf.e243.34c1                        10.1.101.11
                 V:10101 172.16.254.3
101          0   BGP f4cf.e243.34c1           FE80::F6CF:E2FF:FE43:34C1
                 V:10101 172.16.254.3
102          0   BGP 10b3.d56a.8fcd                        10.1.102.1
                 V:10102 172.16.254.3
102          0   BGP 10b3.d56a.8fcd                  FD00:10:1:102::1
                 V:10102 172.16.254.3
102          0 L2VPN 44d3.ca28.6cc2                        10.1.102.12
                        Gi1/0/12:102
102          0   BGP 44d3.ca28.6cc4                        10.1.102.13
          V:10102 FC00:172:16:254::5
102          0   BGP 7c21.0dbd.274d                         10.1.102.1
          V:10102 FC00:172:16:254::5
102          0   BGP 7c21.0dbd.274d                  FD00:10:1:102::1
          V:10102 FC00:172:16:254::5
102          0 L2VPN 7c21.0dbd.954d                         10.1.102.1
                           Vl102:0
102          0 L2VPN 7c21.0dbd.954d                    FD00:10:1:102::1
                           Vl102:0
102          0   BGP f4cf.e243.34c2           FE80::F6CF:E2FF:FE43:34C2
                 V:10102 172.16.254.3
```

To return to the example configuration, click Example: Configuring BGP EVPN VXLAN with Dual Stack Underlay, on page 45.

Outputs to Verify Configuration on VTEP 3

```
Leaf-03# show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
       & - replicated local route overrides by connected

Gateway of last resort is not set

      172.16.0.0/16 is variably subnetted, 19 subnets, 2 masks
O        172.16.13.0/24
           [110/2] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
O        172.16.14.0/24
           [110/2] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
C        172.16.15.0/24 is directly connected, GigabitEthernet1/0/1
L        172.16.15.5/32 is directly connected, GigabitEthernet1/0/1
O        172.16.23.0/24
           [110/2] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
O        172.16.24.0/24
           [110/2] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
C        172.16.25.0/24 is directly connected, GigabitEthernet1/0/2
L        172.16.25.5/32 is directly connected, GigabitEthernet1/0/2
```

```
O        172.16.254.1/32
           [110/2] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
O        172.16.254.2/32
           [110/2] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
O        172.16.254.3/32
           [110/3] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
           [110/3] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
O        172.16.254.4/32
           [110/3] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
           [110/3] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
C        172.16.254.5/32 is directly connected, Loopback1
O        172.16.255.1/32
           [110/2] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
O        172.16.255.2/32
           [110/2] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
O        172.16.255.3/32
           [110/3] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
           [110/3] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
O        172.16.255.4/32
           [110/3] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
           [110/3] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
C        172.16.255.5/32 is directly connected, Loopback0
O        172.16.255.255/32
           [110/2] via 172.16.25.2, 02:30:22, GigabitEthernet1/0/2
           [110/2] via 172.16.15.1, 02:30:26, GigabitEthernet1/0/1
```

```
Leaf-03# show ipv6 route
IPv6 Routing Table - default - 18 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
O   FC00:172:16:13::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
O   FC00:172:16:14::/64 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
C   FC00:172:16:15::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:15::5/128 [0/0]
     via GigabitEthernet1/0/1, receive
O   FC00:172:16:23::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O   FC00:172:16:24::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
C   FC00:172:16:25::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L   FC00:172:16:25::5/128 [0/0]
     via GigabitEthernet1/0/2, receive
O   FC00:172:16:254::1/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
O   FC00:172:16:254::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O   FC00:172:16:254::4/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
LC  FC00:172:16:254::5/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:255::1/128 [110/1]
```

```
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
O    FC00:172:16:255::2/128 [110/1]
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
O    FC00:172:16:255::4/128 [110/2]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
LC   FC00:172:16:255::5/128 [0/0]
     via Loopback0, receive
O    FC00:172:16:255::255/128 [110/1]
     via FE80::7E21:DFF:FE92:B2D8, GigabitEthernet1/0/1
     via FE80::7E21:DFF:FEBD:2CD8, GigabitEthernet1/0/2
L    FF00::/8 [0/0]
     via Null0, receive


Leaf-03# show ip mroute
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       N - Received BGP Shared-Tree Prune, n - BGP C-Mroute suppressed,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector, p - PIM Joins on route,
       x - VxLAN group, c - PFP-SA cache created entry,
       * - determined by Assert, # - iif-starg configured on rpf intf,
       e - encap-helper tunnel flag, l - LISP decap ref count contributor
Outgoing interface flags: H - Hardware switched, A - Assert winner, p - PIM Join
                          t - LISP transit group
 Timers: Uptime/Expires
 Interface state: Interface, Next-Hop or VCD, State/Mode

(*, 224.0.1.40), 02:30:48/00:02:16, RP 172.16.255.255, flags: SJCL
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.25.2
  Outgoing interface list:
    Loopback1, Forward/Sparse, 02:30:47/00:02:16, flags:

(*, 225.0.0.101), 02:30:48/stopped, RP 172.16.255.255, flags: SJCFx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.25.2
  Outgoing interface list:
    Tunnel1, Forward/Sparse-Dense, 02:30:48/stopped, flags:

(172.16.254.3, 225.0.0.101), 02:23:01/00:01:57, flags: JTx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.25.2
  Outgoing interface list:
    Tunnel1, Forward/Sparse-Dense, 02:23:01/stopped, flags:

(172.16.254.5, 225.0.0.101), 02:23:11/00:02:03, flags: FTx
  Incoming interface: Loopback1, RPF nbr 0.0.0.0
  Outgoing interface list:
    GigabitEthernet1/0/2, Forward/Sparse, 02:23:11/00:02:56, flags: A

(172.16.254.4, 225.0.0.101), 02:23:49/00:00:40, flags: JTx
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.25.2
  Outgoing interface list:
    Tunnel1, Forward/Sparse-Dense, 02:23:49/stopped, flags:
```

```
Leaf-03# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 02:30:48/never, RP FC00:172:16:255::255, flags: SCJ
  Incoming interface: GigabitEthernet1/0/1
  RPF nbr: FE80::7E21:DFF:FE92:B2D8
  Immediate Outgoing interface list:
    Tunnel2, Forward, 02:30:48/never


Leaf-03# show nve peer
'M' - MAC entry download flag  'A' - Adjacency download flag
'4' - IPv4 flag  '6' - IPv6 flag

Interface  VNI      Type Peer-IP          RMAC/Num_RTs   eVNI     state flags UP time
nve1       50901    L3CP 172.16.254.3     10b3.d56a.8fc8 50901      UP  A/-/4 02:29:22
nve1       50901    L3CP FC00:172:16:254::4 \
                                          7c21.0dbd.9548 50901      UP  A/-/4 02:29:22
nve1       50901    L3CP 172.16.254.3     10b3.d56a.8fc8 50901      UP  A/M/6 02:29:22
nve1       50901    L3CP FC00:172:16:254::4 \
                                          7c21.0dbd.9548 50901      UP  A/M/6 02:29:22
nve1       10101    L2CP 172.16.254.3     6              10101      UP   N/A  02:29:22
nve1       10101    L2CP FC00:172:16:254::4 \
                                          5              10101      UP   N/A  02:29:22
nve1       10102    L2CP 172.16.254.3     6              10102      UP   N/A  02:29:22
nve1       10102    L2CP FC00:172:16:254::4 \
                                          6              10102      UP   N/A  02:29:22

Leaf-03# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.5, local AS number 65001
BGP table version is 56, main routing table version 56
51 network entries using 19584 bytes of memory
78 path entries using 18096 bytes of memory
23/22 BGP path/bestpath attribute entries using 6808 bytes of memory
4 BGP rrinfo entries using 160 bytes of memory
17 BGP extended community entries using 904 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 45552 total bytes of memory
BGP activity 64/0 prefixes, 105/6 paths, scan interval 60 secs
51 networks peaked at 15:31:23 Oct 31 2022 UTC (00:03:59.747 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
FC00:172:16:255::1
                4        65001     191     174       56    0    0 02:30:32       23
FC00:172:16:255::2
                4        65001     191     174       56    0    0 02:30:25       23


Leaf-03# show bgp l2vpn evpn
BGP table version is 56, local router ID is 172.16.255.5
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
```

```
             x best-external, a additional-path, c RIB-compressed,
             t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][32][10.1.101.12]/24
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 *>i  [2][172.16.254.5:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     172.16.254.3             0    100      0 ?
```

```
 *>i  [2][172.16.254.5:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][44D3CA286CC1][0][*]/20
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][44D3CA286CC1][32][10.1.101.12]/24
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>   [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     0.0.0.0                            32768 ?
 *>   [2][172.16.254.5:101][0][48][44D3CA286CC3][32][10.1.101.13]/24
                     0.0.0.0                            32768 ?
 *>   [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     0.0.0.0                            32768 ?
 *>   [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     0.0.0.0                            32768 ?
 *>i  [2][172.16.254.5:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][F4CFE24334C1][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.5:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 *>i  [2][172.16.254.5:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][44D3CA286CC2][0][*]/20
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>   [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     0.0.0.0                            32768 ?
 *>   [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     0.0.0.0                            32768 ?
 *>   [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     0.0.0.0                            32768 ?
 *>   [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     0.0.0.0                            32768 ?
 *>i  [2][172.16.254.5:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     FC00:172:16:254::4
                                              0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][F4CFE24334C2][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i  [2][172.16.254.5:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                     172.16.254.4             0    100      0 ?
```

```
 *>i                   172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 *>i  [3][172.16.254.5:102][0][32][172.16.254.3]/17
                      172.16.254.3             0    100      0 ?
 *>i  [3][172.16.254.5:102][0][32][172.16.254.4]/17
                      FC00:172:16:254::4
                                               0    100      0 ?
 *>   [3][172.16.254.5:102][0][32][172.16.254.5]/17
                      0.0.0.0                       32768 ?
Route Distinguisher: 1:1 (default for vrf green)
 * i  [5][1:1][0][24][10.1.101.0]/17
                      172.16.254.3             0    100      0 ?
 * i                   172.16.254.3             0    100      0 ?
 *>                    0.0.0.0                  0         32768 ?
 * i  [5][1:1][0][24][10.1.102.0]/17
                      172.16.254.3             0    100      0 ?
 * i                   172.16.254.3             0    100      0 ?
 *>                    0.0.0.0                  0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:101::]/29
                      172.16.254.3             0    100      0 ?
 * i                   172.16.254.3             0    100      0 ?
 *>                    ::                       0         32768 ?
 * i  [5][1:1][0][64][FD00:10:1:102::]/29
                      172.16.254.3             0    100      0 ?
 * i                   172.16.254.3             0    100      0 ?
 *>                    ::                       0         32768 ?
```

```
Leaf-03# show l2vpn evpn mac ip
IP Address                            EVI   VLAN  MAC Address    Next Hop(s)
------------------------------------- ----- ----- -------------- -----------
10.1.101.11                           101   101   f4cf.e243.34c1 172.16.254.3
10.1.101.12                           101   101   44d3.ca28.6cc1 FC00:172:16:254::4
10.1.101.13                           101   101   44d3.ca28.6cc3 Gi1/0/16:101
FE80::F6CF:E2FF:FE43:34C1             101   101   f4cf.e243.34c1 172.16.254.3
10.1.102.12                           102   102   44d3.ca28.6cc2 FC00:172:16:254::4
10.1.102.13                           102   102   44d3.ca28.6cc4 Gi1/0/17:102
FE80::F6CF:E2FF:FE43:34C2             102   102   f4cf.e243.34c2 172.16.254.3
```

```
Leaf-03# show l2route evpn mac ip
  EVI       ETag  Prod    Mac Address                              Host IP
                          Next Hop(s)
----- ---------- ----- -------------- ---------------------------------------
-------------------------------------------------
  101          0   BGP 10b3.d56a.8fc1                             10.1.101.1
                  V:10101 172.16.254.3
  101          0   BGP 10b3.d56a.8fc1                        FD00:10:1:101::1
                  V:10101 172.16.254.3
  101          0   BGP 44d3.ca28.6cc1                             10.1.101.12
            V:10101 FC00:172:16:254::4
  101          0 L2VPN 44d3.ca28.6cc3                             10.1.101.13
                       Gi1/0/16:101
  101          0 L2VPN 7c21.0dbd.2741                              10.1.101.1
                            Vl101:0
  101          0 L2VPN 7c21.0dbd.2741                        FD00:10:1:101::1
                            Vl101:0
  101          0   BGP 7c21.0dbd.9541                              10.1.101.1
            V:10101 FC00:172:16:254::4
  101          0   BGP 7c21.0dbd.9541                        FD00:10:1:101::1
            V:10101 FC00:172:16:254::4
  101          0   BGP f4cf.e243.34c1                             10.1.101.11
                  V:10101 172.16.254.3
```

```
  101          0   BGP f4cf.e243.34c1                FE80::F6CF:E2FF:FE43:34C1
                  V:10101 172.16.254.3
  102          0   BGP 10b3.d56a.8fcd                          10.1.102.1
                  V:10102 172.16.254.3
  102          0   BGP 10b3.d56a.8fcd                FD00:10:1:102::1
                  V:10102 172.16.254.3
  102          0   BGP 44d3.ca28.6cc2                    10.1.102.12
            V:10102 FC00:172:16:254::4
  102          0 L2VPN 44d3.ca28.6cc4                    10.1.102.13
                           Gi1/0/17:102
  102          0 L2VPN 7c21.0dbd.274d                     10.1.102.1
                               Vl102:0
  102          0 L2VPN 7c21.0dbd.274d                FD00:10:1:102::1
                               Vl102:0
  102          0   BGP 7c21.0dbd.954d                    10.1.102.1
            V:10102 FC00:172:16:254::4
  102          0   BGP 7c21.0dbd.954d                FD00:10:1:102::1
            V:10102 FC00:172:16:254::4
  102          0   BGP f4cf.e243.34c2                FE80::F6CF:E2FF:FE43:34C2
                  V:10102 172.16.254.3
```

To return to the example configuration, click Example: Configuring BGP EVPN VXLAN with Dual Stack Underlay, on page 45.

Outputs to Verify Configuration on Spine 1

```
Spine-01# show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
       & - replicated local route overrides by connected

Gateway of last resort is not set

      172.16.0.0/16 is variably subnetted, 20 subnets, 2 masks
C        172.16.13.0/24 is directly connected, GigabitEthernet1/0/1
L        172.16.13.1/32 is directly connected, GigabitEthernet1/0/1
C        172.16.14.0/24 is directly connected, GigabitEthernet1/0/2
L        172.16.14.1/32 is directly connected, GigabitEthernet1/0/2
C        172.16.15.0/24 is directly connected, GigabitEthernet1/0/3
L        172.16.15.1/32 is directly connected, GigabitEthernet1/0/3
O        172.16.23.0/24
           [110/2] via 172.16.13.3, 03:11:49, GigabitEthernet1/0/1
O        172.16.24.0/24
           [110/2] via 172.16.14.4, 03:11:49, GigabitEthernet1/0/2
O        172.16.25.0/24
           [110/2] via 172.16.15.5, 03:11:48, GigabitEthernet1/0/3
C        172.16.254.1/32 is directly connected, Loopback1
O        172.16.254.2/32
           [110/3] via 172.16.15.5, 03:11:39, GigabitEthernet1/0/3
           [110/3] via 172.16.14.4, 03:11:43, GigabitEthernet1/0/2
           [110/3] via 172.16.13.3, 03:11:43, GigabitEthernet1/0/1
O        172.16.254.3/32
           [110/2] via 172.16.13.3, 03:11:49, GigabitEthernet1/0/1
O        172.16.254.4/32
```

```
          [110/2] via 172.16.14.4, 03:11:49, GigabitEthernet1/0/2
O        172.16.254.5/32
          [110/2] via 172.16.15.5, 03:11:48, GigabitEthernet1/0/3
C        172.16.255.1/32 is directly connected, Loopback0
O        172.16.255.2/32
          [110/3] via 172.16.15.5, 03:11:39, GigabitEthernet1/0/3
          [110/3] via 172.16.14.4, 03:11:43, GigabitEthernet1/0/2
          [110/3] via 172.16.13.3, 03:11:43, GigabitEthernet1/0/1
O        172.16.255.3/32
          [110/2] via 172.16.13.3, 03:11:49, GigabitEthernet1/0/1
O        172.16.255.4/32
          [110/2] via 172.16.14.4, 03:11:49, GigabitEthernet1/0/2
O        172.16.255.5/32
          [110/2] via 172.16.15.5, 03:11:48, GigabitEthernet1/0/3
C        172.16.255.255/32 is directly connected, Loopback2


Spine-01# show ipv6 route
IPv6 Routing Table - default - 19 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
C   FC00:172:16:13::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:13::1/128 [0/0]
     via GigabitEthernet1/0/1, receive
C   FC00:172:16:14::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L   FC00:172:16:14::1/128 [0/0]
     via GigabitEthernet1/0/2, receive
C   FC00:172:16:15::/64 [0/0]
     via GigabitEthernet1/0/3, directly connected
L   FC00:172:16:15::1/128 [0/0]
     via GigabitEthernet1/0/3, receive
O   FC00:172:16:23::/64 [110/3]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
O   FC00:172:16:24::/64 [110/2]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
O   FC00:172:16:25::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
LC  FC00:172:16:254::1/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:254::2/128 [110/2]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
O   FC00:172:16:254::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
O   FC00:172:16:254::5/128 [110/1]
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
LC  FC00:172:16:255::1/128 [0/0]
     via Loopback0, receive
O   FC00:172:16:255::2/128 [110/2]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
O   FC00:172:16:255::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9564, GigabitEthernet1/0/2
O   FC00:172:16:255::5/128 [110/1]
```

```
     via FE80::7E21:DFF:FEBD:2764, GigabitEthernet1/0/3
LC  FC00:172:16:255::255/128 [0/0]
     via Loopback2, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

```
Spine-01# show ip mroute
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       N - Received BGP Shared-Tree Prune, n - BGP C-Mroute suppressed,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector, p - PIM Joins on route,
       x - VxLAN group, c - PFP-SA cache created entry,
       * - determined by Assert, # - iif-starg configured on rpf intf,
       e - encap-helper tunnel flag, l - LISP decap ref count contributor
Outgoing interface flags: H - Hardware switched, A - Assert winner, p - PIM Join
                          t - LISP transit group
 Timers: Uptime/Expires
 Interface state: Interface, Next-Hop or VCD, State/Mode

(*, 224.0.1.40), 03:11:59/00:02:07, RP 172.16.255.255, flags: SPL
  Incoming interface: Null, RPF nbr 0.0.0.0
  Outgoing interface list: Null

(*, 225.0.0.101), 00:19:24/stopped, RP 172.16.255.255, flags: SP
  Incoming interface: Null, RPF nbr 0.0.0.0
  Outgoing interface list: Null

(172.16.254.4, 225.0.0.101), 00:01:27/00:01:32, flags: PA
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.14.4
  Outgoing interface list: Null

(172.16.254.5, 225.0.0.101), 00:01:56/00:01:03, flags: PA
  Incoming interface: GigabitEthernet1/0/3, RPF nbr 172.16.15.5
  Outgoing interface list: Null
```

```
Spine-01# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 03:11:56/00:02:40, RP FC00:172:16:255::255, flags: S
  Incoming interface: Tunnel2
  RPF nbr: FC00:172:16:255::255
  Immediate Outgoing interface list:
```

```
    GigabitEthernet1/0/3, Forward, 03:11:54/00:02:40


Spine-01# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.1, local AS number 65001
BGP table version is 33, main routing table version 33
32 network entries using 12288 bytes of memory
85 path entries using 19720 bytes of memory
24/22 BGP path/bestpath attribute entries using 7104 bytes of memory
3 BGP rrinfo entries using 120 bytes of memory
17 BGP extended community entries using 920 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 40152 total bytes of memory
BGP activity 32/0 prefixes, 85/0 paths, scan interval 60 secs
32 networks peaked at 15:31:23 Oct 31 2022 UTC (00:45:20.867 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.16.255.3    4        65001     224     236       33    0    0 03:11:40       14
172.16.255.4    4        65001     222     234       33    0    0 03:11:41       13
FC00:172:16:255::2
                4        65001     233     235       33    0    0 03:11:50       32
FC00:172:16:255::4
                4        65001     219     234       33    0    0 03:11:52       13
FC00:172:16:255::5
                4        65001     220     238       33    0    0 03:11:53       13


Spine-01# show bgp l2vpn evpn
BGP table version is 33, local router ID is 172.16.255.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
```

```
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][32][10.1.101.12]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][32][10.1.101.13]/24
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
```

```
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 1:1
 * i  [5][1:1][0][24][10.1.101.0]/17
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [5][1:1][0][24][10.1.102.0]/17
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [5][1:1][0][64][FD00:10:1:101::]/29
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [5][1:1][0][64][FD00:10:1:102::]/29
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
```

```
Spine-01# show ip msdp peer
MSDP Peer 172.16.254.2 (?), AS 65001 (configured AS)
  Connection status:
    State: Up, Resets: 0, Connection source: Loopback1 (172.16.254.1)
    Uptime(Downtime): 03:11:04, Messages sent/received: 249/260
    Output messages discarded: 0
    Connection and counters cleared 03:12:04 ago
  SA Filtering:
    Input (S,G) filter: none, route-map: none
    Input RP filter: none, route-map: none
    Output (S,G) filter: none, route-map: none
    Output RP filter: none, route-map: none
  SA-Requests:
    Input filter: none
  Peer ttl threshold: 0
  SAs learned from this peer: 3
  Number of connection transitions to Established state: 1
    Input queue size: 0, Output queue size: 0
  MD5 signature protection on MSDP TCP connection: not enabled
  Message counters:
    RPF Failure count: 0
    SA Messages in/out: 249/156
    SA Requests in: 0
    SA Responses out: 0
    Data Packets in/out: 36/43
```

```
Spine-01# show ip msdp sa-cache
MSDP Source-Active Cache - 3 entries
(172.16.254.3, 225.0.0.101), RP 172.16.255.255, BGP/AS 0, 03:07:36/00:05:34, Peer 172.16.254.2
(172.16.254.4, 225.0.0.101), RP 172.16.255.255, BGP/AS 0, 00:04:37/00:03:42, Peer 172.16.254.2
(172.16.254.5, 225.0.0.101), RP 172.16.255.255, BGP/AS 0, 00:50:54/00:00:50, Peer 172.16.254.2
```

```
Spine-01# show ipv6 pim anycast-rp
Anycast RP Peers For FC00:172:16:255::255   Last Register/Register-Stop received
  FC00:172:16:254::2 03:12:04/03:12:04
```

To return to the example configuration, click Example: Configuring BGP EVPN VXLAN with Dual Stack Underlay, on page 45.

Outputs to Verify the Configuration on Spine 2

```
Spine-02# show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
       n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       H - NHRP, G - NHRP registered, g - NHRP registration summary
       o - ODR, P - periodic downloaded static route, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
       & - replicated local route overrides by connected

Gateway of last resort is not set

      172.16.0.0/16 is variably subnetted, 20 subnets, 2 masks
O        172.16.13.0/24
           [110/2] via 172.16.23.3, 03:12:16, GigabitEthernet1/0/1
O        172.16.14.0/24
           [110/2] via 172.16.24.4, 03:12:17, GigabitEthernet1/0/2
O        172.16.15.0/24
           [110/2] via 172.16.25.5, 03:12:16, GigabitEthernet1/0/3
C        172.16.23.0/24 is directly connected, GigabitEthernet1/0/1
L        172.16.23.2/32 is directly connected, GigabitEthernet1/0/1
C        172.16.24.0/24 is directly connected, GigabitEthernet1/0/2
L        172.16.24.2/32 is directly connected, GigabitEthernet1/0/2
C        172.16.25.0/24 is directly connected, GigabitEthernet1/0/3
L        172.16.25.2/32 is directly connected, GigabitEthernet1/0/3
O        172.16.254.1/32
           [110/3] via 172.16.25.5, 03:12:16, GigabitEthernet1/0/3
           [110/3] via 172.16.24.4, 03:12:17, GigabitEthernet1/0/2
           [110/3] via 172.16.23.3, 03:12:16, GigabitEthernet1/0/1
C        172.16.254.2/32 is directly connected, Loopback1
O        172.16.254.3/32
           [110/2] via 172.16.23.3, 03:12:16, GigabitEthernet1/0/1
O        172.16.254.4/32
           [110/2] via 172.16.24.4, 03:12:17, GigabitEthernet1/0/2
O        172.16.254.5/32
           [110/2] via 172.16.25.5, 03:12:16, GigabitEthernet1/0/3
O        172.16.255.1/32
           [110/3] via 172.16.25.5, 03:12:16, GigabitEthernet1/0/3
```

```
           [110/3] via 172.16.24.4, 03:12:17, GigabitEthernet1/0/2
           [110/3] via 172.16.23.3, 03:12:16, GigabitEthernet1/0/1
C        172.16.255.2/32 is directly connected, Loopback0
O        172.16.255.3/32
           [110/2] via 172.16.23.3, 03:12:16, GigabitEthernet1/0/1
O        172.16.255.4/32
           [110/2] via 172.16.24.4, 03:12:17, GigabitEthernet1/0/2
O        172.16.255.5/32
           [110/2] via 172.16.25.5, 03:12:16, GigabitEthernet1/0/3
C        172.16.255.255/32 is directly connected, Loopback2

Spine-02# show ipv6 route
IPv6 Routing Table - default - 19 entries
Codes: C - Connected, L - Local, S - Static, U - Per-user Static route
       B - BGP, R - RIP, H - NHRP, I1 - ISIS L1
       I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary, D - EIGRP
       EX - EIGRP external, ND - ND Default, NDp - ND Prefix, DCE - Destination
       NDr - Redirect, RL - RPL, O - OSPF Intra, OI - OSPF Inter
       OE1 - OSPF ext 1, OE2 - OSPF ext 2, ON1 - OSPF NSSA ext 1
       ON2 - OSPF NSSA ext 2, la - LISP alt, lr - LISP site-registrations
       ld - LISP dyn-eid, lA - LISP away, le - LISP extranet-policy
       lp - LISP publications, ls - LISP destinations-summary
O   FC00:172:16:13::/64 [110/3]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
O   FC00:172:16:14::/64 [110/2]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
O   FC00:172:16:15::/64 [110/2]
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
C   FC00:172:16:23::/64 [0/0]
     via GigabitEthernet1/0/1, directly connected
L   FC00:172:16:23::2/128 [0/0]
     via GigabitEthernet1/0/1, receive
C   FC00:172:16:24::/64 [0/0]
     via GigabitEthernet1/0/2, directly connected
L   FC00:172:16:24::2/128 [0/0]
     via GigabitEthernet1/0/2, receive
C   FC00:172:16:25::/64 [0/0]
     via GigabitEthernet1/0/3, directly connected
L   FC00:172:16:25::2/128 [0/0]
     via GigabitEthernet1/0/3, receive
O   FC00:172:16:254::1/128 [110/2]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
LC  FC00:172:16:254::2/128 [0/0]
     via Loopback1, receive
O   FC00:172:16:254::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
O   FC00:172:16:254::5/128 [110/1]
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
O   FC00:172:16:255::1/128 [110/2]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
LC  FC00:172:16:255::2/128 [0/0]
     via Loopback0, receive
O   FC00:172:16:255::4/128 [110/1]
     via FE80::7E21:DFF:FEBD:9556, GigabitEthernet1/0/2
O   FC00:172:16:255::5/128 [110/1]
     via FE80::7E21:DFF:FEBD:2756, GigabitEthernet1/0/3
LC  FC00:172:16:255::255/128 [0/0]
     via Loopback2, receive
L   FF00::/8 [0/0]
     via Null0, receive
```

```
Spine-02# show ip mroute
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group, C - Connected,
       L - Local, P - Pruned, R - RP-bit set, F - Register flag,
       T - SPT-bit set, J - Join SPT, M - MSDP created entry, E - Extranet,
       X - Proxy Join Timer Running, A - Candidate for MSDP Advertisement,
       U - URD, I - Received Source Specific Host Report,
       Z - Multicast Tunnel, z - MDT-data group sender,
       Y - Joined MDT-data group, y - Sending to MDT-data group,
       G - Received BGP C-Mroute, g - Sent BGP C-Mroute,
       N - Received BGP Shared-Tree Prune, n - BGP C-Mroute suppressed,
       Q - Received BGP S-A Route, q - Sent BGP S-A Route,
       V - RD & Vector, v - Vector, p - PIM Joins on route,
       x - VxLAN group, c - PFP-SA cache created entry,
       * - determined by Assert, # - iif-starg configured on rpf intf,
       e - encap-helper tunnel flag, l - LISP decap ref count contributor
Outgoing interface flags: H - Hardware switched, A - Assert winner, p - PIM Join
                          t - LISP transit group
 Timers: Uptime/Expires
 Interface state: Interface, Next-Hop or VCD, State/Mode

(*, 224.0.1.40), 03:12:27/00:03:29, RP 172.16.255.255, flags: SJCL
  Incoming interface: Null, RPF nbr 0.0.0.0
  Outgoing interface list:
    GigabitEthernet1/0/3, Forward/Sparse, 03:12:16/00:03:29, flags:
    GigabitEthernet1/0/2, Forward/Sparse, 03:12:16/00:03:17, flags:
    GigabitEthernet1/0/1, Forward/Sparse, 03:12:27/00:03:14, flags:

(*, 225.0.0.101), 03:12:26/00:03:19, RP 172.16.255.255, flags: S
  Incoming interface: Null, RPF nbr 0.0.0.0
  Outgoing interface list:
    GigabitEthernet1/0/1, Forward/Sparse, 03:12:13/00:03:19, flags:
    GigabitEthernet1/0/3, Forward/Sparse, 03:12:16/00:02:39, flags:
    GigabitEthernet1/0/2, Forward/Sparse, 03:12:16/00:02:31, flags:

(172.16.254.3, 225.0.0.101), 03:05:05/00:02:26, flags: TA
  Incoming interface: GigabitEthernet1/0/1, RPF nbr 172.16.23.3
  Outgoing interface list:
    GigabitEthernet1/0/2, Forward/Sparse, 03:05:05/00:02:37, flags:
    GigabitEthernet1/0/3, Forward/Sparse, 03:05:05/00:02:39, flags:

(172.16.254.5, 225.0.0.101), 03:05:06/00:03:09, flags: T
  Incoming interface: GigabitEthernet1/0/3, RPF nbr 172.16.25.5
  Outgoing interface list:
    GigabitEthernet1/0/2, Forward/Sparse, 03:05:06/00:03:23, flags:
    GigabitEthernet1/0/1, Forward/Sparse, 03:05:06/00:03:19, flags:

(172.16.254.4, 225.0.0.101), 03:09:13/00:00:15, flags: T
  Incoming interface: GigabitEthernet1/0/2, RPF nbr 172.16.24.4
  Outgoing interface list:
    GigabitEthernet1/0/3, Forward/Sparse, 03:09:13/00:02:43, flags:
    GigabitEthernet1/0/1, Forward/Sparse, 03:09:13/00:03:19, flags:



Spine-02# show ipv6 mroute
Multicast Routing Table
Flags: D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, Y - Joined MDT-data group,
       y - Sending to MDT-data group
       g - BGP signal originated, G - BGP Signal received,
       N - BGP Shared-Tree Prune received, n - BGP C-Mroute suppressed,
       q - BGP Src-Active originated, Q - BGP Src-Active received
```

```
       E - Extranet
Timers: Uptime/Expires
Interface state: Interface, State

(*, FF0E:225::101), 03:12:23/00:03:11, RP FC00:172:16:255::255, flags: S
  Incoming interface: Tunnel2
  RPF nbr: FC00:172:16:255::255
  Immediate Outgoing interface list:
    GigabitEthernet1/0/2, Forward, 03:12:23/00:03:11


Spine-02# show bgp l2vpn evpn summary
BGP router identifier 172.16.255.2, local AS number 65001
BGP table version is 33, main routing table version 33
32 network entries using 12288 bytes of memory
85 path entries using 19720 bytes of memory
24/22 BGP path/bestpath attribute entries using 7104 bytes of memory
3 BGP rrinfo entries using 120 bytes of memory
17 BGP extended community entries using 920 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 40152 total bytes of memory
BGP activity 32/0 prefixes, 85/0 paths, scan interval 60 secs
32 networks peaked at 15:31:23 Oct 31 2022 UTC (00:45:53.775 ago)

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
172.16.255.3    4        65001     224     237       33    0    0 03:12:12        14
172.16.255.4    4        65001     223     235       33    0    0 03:12:10        13
FC00:172:16:255::1
                4        65001     235     234       33    0    0 03:12:22        32
FC00:172:16:255::4
                4        65001     220     236       33    0    0 03:12:22        13
FC00:172:16:255::5
                4        65001     220     237       33    0    0 03:12:19        13

Spine-02# show bgp l2vpn evpn
BGP table version is 33, local router ID is 172.16.255.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 172.16.254.3:101
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][32][10.1.101.1]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][10B3D56A8FC1][128][FD00:10:1:101::1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][32][10.1.101.11]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:101][0][48][F4CFE24334C1][128][FE80::F6CF:E2FF:FE43:34C1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][32][10.1.102.1]/24
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
```

```
 * i  [2][172.16.254.3:102][0][48][10B3D56A8FCD][128][FD00:10:1:102::1]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][0][*]/20
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [2][172.16.254.3:102][0][48][F4CFE24334C2][128][FE80::F6CF:E2FF:FE43:34C2]/36
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:101
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][0][*]/20
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][44D3CA286CC1][32][10.1.101.12]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][32][10.1.101.1]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:101][0][48][7C210DBD9541][128][FD00:10:1:101::1]/36
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][0][*]/20
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][44D3CA286CC2][32][10.1.102.12]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][32][10.1.102.1]/24
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
 * i  [2][172.16.254.4:102][0][48][7C210DBD954D][128][FD00:10:1:102::1]/36
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:101
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][0][*]/20
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][44D3CA286CC3][32][10.1.101.13]/24
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][32][10.1.101.1]/24
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:101][0][48][7C210DBD2741][128][FD00:10:1:101::1]/36
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][0][*]/20
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][44D3CA286CC4][32][10.1.102.13]/24
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][32][10.1.102.1]/24
```

```
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
 * i  [2][172.16.254.5:102][0][48][7C210DBD274D][128][FD00:10:1:102::1]/36
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 172.16.254.3:102
 * i  [3][172.16.254.3:102][0][32][172.16.254.3]/17
                     172.16.254.3             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
Route Distinguisher: 172.16.254.4:102
 * i  [3][172.16.254.4:102][0][32][172.16.254.4]/17
                     172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.4             0    100      0 ?
Route Distinguisher: 172.16.254.5:102
 * i  [3][172.16.254.5:102][0][32][172.16.254.5]/17
                     172.16.254.5             0    100      0 ?
 *>i                  172.16.254.5             0    100      0 ?
Route Distinguisher: 1:1
 * i  [5][1:1][0][24][10.1.101.0]/17
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [5][1:1][0][24][10.1.102.0]/17
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [5][1:1][0][64][FD00:10:1:101::]/29
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?
 * i  [5][1:1][0][64][FD00:10:1:102::]/29
                     172.16.254.3             0    100      0 ?
 * i                  172.16.254.5             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 * i                  172.16.254.4             0    100      0 ?
 *>i                  172.16.254.3             0    100      0 ?

Spine-02# show ip msdp peer
MSDP Peer 172.16.254.1 (?), AS 65001 (configured AS)
  Connection status:
    State: Up, Resets: 0, Connection source: Loopback1 (172.16.254.2)
    Uptime(Downtime): 03:11:40, Messages sent/received: 261/250
    Output messages discarded: 0
    Connection and counters cleared 03:12:35 ago
  SA Filtering:
    Input (S,G) filter: none, route-map: none
    Input RP filter: none, route-map: none
    Output (S,G) filter: none, route-map: none
    Output RP filter: none, route-map: none
  SA-Requests:
    Input filter: none
  Peer ttl threshold: 0
  SAs learned from this peer: 2
  Number of connection transitions to Established state: 1
    Input queue size: 0, Output queue size: 0
  MD5 signature protection on MSDP TCP connection: not enabled
  Message counters:
```

```
    RPF Failure count: 0
    SA Messages in/out: 200/196
    SA Requests in: 0
    SA Responses out: 0
    Data Packets in/out: 37/54

Spine-02# show ip msdp sa-cache
MSDP Source-Active Cache - 2 entries
(172.16.254.4, 225.0.0.101), RP 172.16.255.255, BGP/AS 0, 01:18:26/00:05:40, Peer 172.16.254.1
(172.16.254.5, 225.0.0.101), RP 172.16.255.255, BGP/AS 0, 00:02:33/00:05:40, Peer 172.16.254.1



Spine-02# show ipv6 pim anycast-rp
Anycast RP Peers For FC00:172:16:255::255   Last Register/Register-Stop received
  FC00:172:16:254::2 03:12:35/03:12:35
```

To return to the example configuration, click Example: Configuring BGP EVPN VXLAN with Dual Stack Underlay, on page 45.