# Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP)

This chapter contains these sections:



# Information About Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP)

Data center deployments have adopted VXLAN EVPN for its benefits like EVPN control-plane learning, multitenancy, seamless mobility, redundancy, and easier POD additions. Similarly, the Core is either an LDP-based MPLS L3VPN network or transitioning from a traditional MPLS L3VPN LDP-based underlay to a more sophisticated solution like segment routing (SR). Segment routing is adopted for its benefits like unified IGP and MPLS control planes, simpler traffic engineering methods, easier configuration, and SDN adoption.

- EVPN control-plane learning
- Multitenancy, seamless mobility, redundancy
- Easier POD additions

#### Handoff from VXLAN to MPLS-based Core at DCI Nodes

# Guidelines and Limitations for Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP)

## Supported Features

The following features are supported:

- Cisco Nexus 9504 and 9508 switches with -R and -RX line cards.
- Layer 3 orphans
- 256 peers or nodes within a VXLAN DC domain
- 24,000 ECMP routes are supported on -RX line cards.

**Note** If you enter the **no hardware profile mpls extended-ecmp** command, the mode switches to 4K ECMP routes. This applies only when the line card is -RX and the ECMP group has exactly two paths.

- The Egress RACL (e-RACL) TCAM and MPLS Extended ECMP features are mutually exclusive. To enable MPLS Extended ECMP (**hardware profile mpls extended-ecmp**) on the Cisco Nexus N9K-X9636C-RX line card, set the e-RACL TCAM carving to 0.
- When configuring MPLS LDP, it is strongly recommended to use the **router-id force** command. Specify the router ID with a loopback interface to ensure consistent LDP operation and avoid issues with the order of interface initialization.

## Unsupported Features

The following features are not supported:

- Subnet stretches across the DC domain
- vPC
- SVI or subinterfaces

# Configuring Seamless Integration of EVPN with L3VPN (MPLS LDP)

These configuration steps are required on a Border Leaf switch to import and re-originate the routes from a VXLAN domain to an MPLS domain and back to a VXLAN domain.

### Procedure

**Step 1** **configure terminal**

**Example:**

```
switch# configure terminal
```

Enters global configuration mode.

**Step 2** **feature mpls l3vpn**

**Example:**

```
switch# feature mpls l3vpn
```

Enables the MPLS Layer 3 VPN feature.

a) **feature mpls ldp**

**Example:**

```
switch# feature mpls ldp
```

Enables the MPLS Label Distribution Protocol (LDP).

**Step 3** **nv overlay evpn**

**Example:**

```
switch(config)# nv overlay evpn
```

Enables the EVPN control plane for VXLAN.

**Step 4** **router bgp** *number*

**Example:**

```
switch(config)# router bgp 100
```

Configures BGP. The value of the *number* argument is from 1 to 4294967295.

a) **address-family ipv4 unicast**

**Example:**

```
switch(config-router)# address-family ipv4 unicast
```

Configures the address family for IPv4.

b) **redistribute direct route-map** *route-map-name*

**Example:**

```
switch(config-router-af)# redistribute direct route-map passall
```

Configures the directly connected route map.

c) **exit**

**Example:**

```
switch(config-router-af)# exit
```

Exits command mode.

d) **address-family l2vpn evpn**

**Example:**

```
switch(config-router)# address-family l2vpn evpn
```

Configures the L2VPN address family.

e) **exit**

**Example:**

```
switch(config-router-af)# exit
```

Exits command mode.

**Step 5** **neighbor** *address* **remote-as** *number*

**Example:**

```
switch(config-router)# neighbor 108.108.108.108 remote-as 22
```

Configures a BGP neighbor. The range of the *number* argument is from 1 to 65535.

a) **update-source** *type/id*

**Example:**

```
switch(config-router-neighbor)# update-source loopback100
```

Specifies the source of the BGP session and updates.

b) **ebgp-multihop** *ttl-value*

**Example:**

```
switch(config-router-neighbor)# ebgp-multihop 10
```

Specifies the multihop TTL for the remote peer. The range of *ttl-value* is from 2 to 255.

c) **address-family ipv4 unicast**

**Example:**

```
switch(config-router-neighbor)# address-family ipv4 unicast
```

Configures the unicast sub-address family.

d) **send-community extended**

**Example:**

```
switch(config-router-neighbor-af)# send-community extended
```

Configures the community attribute for this neighbor.

e) **exit**

**Example:**

```
switch(config-router-neighbor-af)# exit
```

Exits command mode.

f) **exit**

**Example:**

```
switch(config-router-neighbor-af)# exit
```

Exits command mode.

**Step 6** **address-family vpnv4 unicast**

**Example:**

```
switch(config-router-neighbor)# address-family vpnv4 unicast
```

Configures the address family for IPv4.

a) **send-community extended**

**Example:**

```
switch(config-router)# send-community extended
```

Sends the extended community attribute.

b) **import l2vpn evpn reoriginate**

**Example:**

```
switch(config-router)# import l2vpn evpn reoriginate
```

Reoriginates the route with a new RT.

**Step 7** **neighbor** *address* **remote-as** *number*

**Example:**

```
switch(config-router)# neighbor 175.175.175.2 remote-as 1
```

Defines the neighbor.

a) **address-family ipv4 unicast**

**Example:**

```
switch(config-router)# address-family ipv4 unicast
```

Configures the address family for IPv4.

b) **send-community extended**

**Example:**

```
switch(config-router)# send-community extended
```

Configures the community for BGP neighbors.

**Step 8** **address-family ipv6 unicast**

**Example:**

```
switch(config-router)# address-family ipv6 unicast
```

Configures the IPv6 unicast address family. This is required for IPv6 over VXLAN with an IPv4 underlay.

a) **send-community extended**

**Example:**

```
switch(config-router)# send-community extended
```

Configures the community for BGP neighbors.

b) **address-family l2vpn evpn**

**Example:**

```
switch(config-router)# address-family l2vpn evpn
```

Configures the L2VPN address family.

c) **send-community extended**

**Example:**

```
switch(config-router)# send-community extended
```

Configures the community for BGP neighbors.

**Step 9** **import vpn unicast reoriginate**

**Example:**

```
switch(config-router)# import vpn unicast reoriginate
```

Reoriginates the route with a new RT.