

EVPN Commands

This section describes the commands used to configure Ethernet VPN (EVPN) services for Layer 2 VPNs.

Note All commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router that is introduced from Cisco IOS XR Release 6.3.2. References to earlier releases in Command History tables apply to only the Cisco NCS 5500 Series Router.

Note

- Starting with Cisco IOS XR Release 6.6.25, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 560 Series Routers.
- Starting with Cisco IOS XR Release 6.3.2, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router.
- References to releases before Cisco IOS XR Release 6.3.2 apply to only the Cisco NCS 5500 Series Router.
- Cisco IOS XR Software Release 7.0.1 specific updates are not applicable for the following variants of Cisco NCS 540 Series Routers:
  - N540-28Z4C-SYS-A
  - N540-28Z4C-SYS-D
  - N540X-16Z4G8Q2C-A
  - N540X-16Z4G8Q2C-D
  - N540X-16Z8Q2C-D
  - N540-12Z20G-SYS-A
  - N540-12Z20G-SYS-D
  - N540X-12Z16G-SYS-A
  - N540X-12Z16G-SYS-D

For detailed information about concepts, configuration tasks, and examples, see the *EVPN Features* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 5500 Series Routers*.

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ac-aware-vlan-bundling

To configure AC-aware VLAN bundling, use the **ac-aware-vlan-bundling** command in the EVPN configuration mode.

ac-aware-vlan-bundling

Syntax Description This command has no keywords or arguments.

Command Default None.

Command Modes EVPN configuration mode

Command History

Release	Modification
Release 6.6.1	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to configure AC-aware VLAN bundling :

```
Router(config)# evpn
Router(config-evpn)# evi 1
Router(config-evpn-instance)# ac-aware-vlan-bundling
Router(config-evpn-instance)# commit
```

access-signal out-of-service

To override the default signal sent to bring down the AC and to transition the interface to Out-of-Service (OOS) state, use the **access-signal out-of-service** command in the EVPN interface configuration mode. To return to the default behavior, use the **no** form of this command.

access-signal out-of-service

Command Default

None

Command Modes

EVPN interface configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

Starting from Cisco IOS XR Release 7.10.1, the EVPN port-active configuration supports hot standby where all the main and subinterfaces up in a Standby node. To revert to the previous behavior of transitioning through the OOS state, use this command.

Task ID

Task ID	Operation
l2vpn	read, write

Example

The following example shows how to configure the access signal mode to enable the OOS functionality.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface Bundle-Ether1
Router(config-evpn-ac)# ethernet-segment
Router(config-evpn-ac-es)# identifier type 0 01.00.01.00.01.09.01.00.09
Router(config-evpn-ac-es)# load-balancing-mode port-active
Router(config-evpn-ac-es)# exit
Router(config-evpn-ac)# access-signal out-of-service
Router(config-evpn-ac)# commit
```

access-signal

To configure control signaling messages in access circuits, use the **access-signal** command in the EVPN configuration mode.

access-signal [bundle-down | out-of-service]

Syntax Description

bundle-down	Initiates Access Signal Bundle Down.
out-of-service	Initiates Access signal bundle out of service.

Command Default

None.

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
l2vpn	read, write

This example shows how to configure **access-signal** command in EVPN configuration mode:

```
RP/0/RP0/CPU0:R1#config
RP/0/RP0/CPU0:R1(config)#evpn
RP/0/RP0/CPU0:R1(config-evpn)#interface Bundle-Ether 1
RP/0/RP0/CPU0:R1(config-evpn-ac)#access-signal bundle-down
```

advertise gateway-ip-disable

To disable advertisement of non-zero EVPN gateway IP address, use the **advertise gateway-ip-disable** command in the EVPN address-family configuration mode.

advertise gateway-ip-disable

Syntax Description

This command has no keywords or arguments.

Command Default

None.

Command Modes

EVPN address-family configuration mode

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to disable advertisement of non-zero EVPN gateway IP address:

```
Router(config)# router bgp 100
Router(config-bgp)# neighbor 10.10.10.10
Router(config-bgp-nbr)# remote-as 200
Router(config-bgp-nbr)# update-source Loopback 0
Router(config-bgp-nbr)# address-family l2vpn evpn
Router(config-bgp-nbr-af)# advertise gateway-ip-disable
Router(config-bgp-nbr-af)# commit
```

advertise-mac

To advertise local MAC to the peers, use **advertise-mac** command in the EVPN configuration mode. The local MAC is advertised to the peer in control plane using BGP.

advertise-mac

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

EVPN

Command History

Release	Modification
Release 6.2.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

The following example shows how to advertise local MAC.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# evi 1
Router(config-evpn-evi)# bgp
Router(config-evpn-evi-bgp)# route-target import 100:6005
Router(config-evpn-evi-bgp)# route-target export 100:6005
Router(config-evpn-evi-bgp)# exit
Router(config-evpn-evi)# advertise-mac
```

arp-entry-override

To enable the relay agent to forward DHCP Offers and ACKs as unicast whenever possible, even when EVPN-synced ARP entries are present, use the **arp-entry-override** command in DHCPv4 relay-profile configuration mode.

arp-entry-override

Syntax Description

This command has no keywords or arguments.

Command Default

ARP entry override is disabled by default and the relay agent sends the DHCP reply as a broadcast message.

Command Modes

DHCPv4 relay-profile configuration sub mode

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines

The `arp-entry-override` configuration is effective only when the relay profile is configured with `broadcast-flag policy check`, honoring the client's broadcast flag. If the profile uses `broadcast-flag policy ignore` or `unicast-always`, the override does not apply.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This example shows the configuration of DHCPv4 relay profile with arp-entry-override enabled.

```
Router#configure
Router(config)#dhcp ipv4
Router(config-dhcpv4)#relay profile EVPN_RELAY_Profile
Router(config-dhcpv4-relay-profile)#helper-address vrf default 192.0.2.100
Router(config-dhcpv4-relay-profile)#broadcast-flag policy check
Router(config-dhcpv4-relay-profile)#arp-entry-override
Router(config-dhcpv4-relay-profile)#commit
```

arp evpn-proxy mode

To fully or partially suppress the Address Resolution Protocol (ARP) messages on EVPN-IRB network, use the **arp evpn-proxy mode** command in BVI interface configuration mode.

arp evpn-proxy mode { **full-suppression** | **partial-suppression** }

Syntax Description

full-suppression	Instructs the router to drop the ARP request if the target entry is not available in the ARP table on the EVPN control plane, preventing the ARP request from flooding the network.
partial-suppression	Instructs the router to broadcast the packet to all devices within the EVPN Bridge Domain (BD) if the target entry is not available in the ARP table on the EVPN control plane, ensuring connectivity even if the information isn't immediately available in the EVPN control plane.

Command Default

None

Command Modes

BVI Interface configuration

Command History

Release	Modification
Release 24.4.1	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
network	read, write

Examples

This example shows configuration of EVPN-IRB ARP proxy full suppression:

```
Router#(config)# interface BVI1
Router#(config-if)# arp evpn-proxy mode full-suppression
```

This example shows configuration of EVPN-IRB ARP proxy partial suppression:

```
Router#(config)# interface BVI1
Router#(config-if)# arp evpn-proxy mode partial-suppression
```

arp probe pace

To configure the ARP probe rate in packets per second (pps), use **arp probe pace** command in the global configuration mode.

arp probe pace [rate <*value*> **]**

Syntax Description

Syntax Description

rate <*value*>	Specifies the rate of ARP probes in packets per second. Accepted values range from 1 to 1000.

Command Default

The default value for ARP probe pacing is 500pps.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 25.2.1	This command was introduced.

Usage Guidelines

Use this command to control the rate of ARP probes sent out to reduce congestion or optimize ARP operation in your network. This rate is measured in packets per second and is divided by 5 to distribute the load evenly using 200ms granular timers. This helps in efficiently managing ARP probe traffic in high-density network environments.

- The following example shows how to configure ARP probe pacing with a rate of 500 pps:

```
Router(config)# arp probe pace rate 500
Router(config)# commit
```

This configuration sets the ARP probe rate to 500 pps. Internally, the rate will be divided by 5, resulting in 100 packets every 200ms.

- The following example shows how to reset ARP probe pacing to default:

```
Router(config)# no arp probe pace
Router(config)# commit
```

This command removes the custom configuration and restores the default ARP probe pacing behavior.

bgp-gateway

To enable BGP gateway monitoring for host tracking on the Bridge-Group Virtual Interface (BVI) and the bridge domain , use the **bgp-gateway** command on the interface configuration mode on the BVI.

bgp-gateway

Syntax Description

This command has no keywords or arguments.

Command Default

BVI does not monitor the status of the BGP gateways.

Command Modes

Host-tracking configuration

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

You must configure the **host-tracking** command before you configure the **bgp-gateway** command.

Task ID

Task ID	Operation
bfd	read, write

Example

The following example shows how to create a BVI interface, enable host tracking, and enable BVI to monitor the status of the BGP gateways:

```
Router#(config)# interface BVI1
Router#(config-if)# host-routing
Router#(config-if)# vrf vrf_1
Router#(config-if)# ipv4 address 10.0.0.1 255.255.0.0
Router#(config-if)# mac-address 0.dc1.dc2
Router#(config-if)# host-tracking
Router#(config-if-host-tracking)# bgp-gateway
```

clear l2route evpn ipv4

To clear either duplicate or frozen flags, or both, from EVPN MAC-IPv4 routes and re-enable local route learning for the corresponding IPv4 addresses, use **clear l2route evpn ipv4** command in EXEC mode.

clear l2route evpn ipv4 { *ipv4-address* } | **all** [**evi** *evi*] **frozen-flag**

Syntax Description

ipv4*ipv4-address*	Clears the route for the specified IPv4 address.
all	Clears all EVPN MAC-IPv4 routes that are marked as duplicate or permanently frozen.
evi *evi*	Clears EVPN MAC -IPv4 routes for the specified topology only.
frozen-flag	Clears either duplicate or frozen flag for the MAC-IPv4 routes that are identified by the specified options.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 6.6.1	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to clear duplicate or frozen flags, or both from EVPN MAC-IPv4 routes:

```
Router# clear l2route evpn ipv4 192.0.2.1 evi 1 frozen-flag
```

clear l2route evpn ipv6

To clear either duplicate or frozen flags, or both, from EVPN MAC-IPv6 routes and re-enable local route learning for the corresponding IPv6 addresses, use **clear l2route evpn ipv6** command in EXEC mode.

clear l2route evpn ipv6 { *ipv6-address* } | **all** [**evi** *evi*] **frozen-flag**

Syntax Description

ipv6 *ipv6-address*	Clears the route for the specified IPv6 address.
all	Clears all EVPN MAC-IPv6 routes that are marked as duplicate or permanently frozen.
evi *evi*	Clears EVPN MAC-IPv6 routes for the specified topology only.
frozen-flag	Clear duplicate or frozen flag for the MAC-IPv6 routes that are identified by the specified options.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 6.6.1	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to clear either duplicate or frozen flags, or both, from EVPN MAC-IPv6 routes:

```
Router# clear l2route evpn IPv6 2001:DB8::1 evi 1 frozen-flag
```

clear l2route evpn mac

To clear either duplicate or frozen flags, or both, from EVPN MAC routes and re-enable local route learning for the corresponding MAC addresses, use **clear l2route evpn mac** command in EXEC mode.

clear l2route evpn mac {*mac-address*} | **all** [**evi** *evi*] **frozen-flag**

Syntax Description

mac *mac-address*	Clears the route for the specified MAC address.
all	Clears all EVPN MAC routes that are marked as duplicate or permanently frozen.
evi *evi*	Clears EVPN MAC routes for the specified topology only.
frozen-flag	Clears duplicate or frozen flag for the MAC routes that are identified by the specified options.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 6.6.1	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to clear duplicate or frozen flags, or both, from EVPN MAC routes:

```
Router# clear l2route evpn mac 0.12.3456 evi 1 frozen-flag
```

convergence

To enable the switchover of a failed primary link from one PE device to another, use the **convergence** command in the EVPN configuration submode.

convergence { **mac-mobility** | **reroute** | **nexthop-tracking** }

Syntax Description

mac-mobility	Enables the MAC mobility convergence.
reroute	Redirects the unicast traffic to backup peer.
nexthop-tracking	Enables the EVPN procedures to be influenced by BGP nexthop reachability.

Command Default

None

Command Modes

EVPN configuration submode

Command History

Release	Modification
Release 7.3.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enable mac-mobility reconvergence:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# ethernet-segment
Router(config-evpn-es)# load-balancing-mode single-flow-active
Router(config-evpn-es)# convergence mac-mobility
```

This example shows how to redirect the unicast traffic to backup peer.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface Bundle-Ether100
Router(config-evpn-ac)# ethernet-segment
Router(config-evpn-ac-es)# identifier type 0 00.00.00.00.00.00.05.01.02
Router(config-evpn-ac-es)# convergence
Router(config-evpn-ac-es-conv)# reroute
```

core-de-isolation

To configure the recovery time for the EVPN core isolation group after the core interfaces recover from a network failure, use the **core-de-isolation** command in the EVPN Timers configuration mode.

core-de-isolation *timer value*

Syntax Description

core-de-isolation *timer value*	Specifies the core isolation group recovery delay timer. The range is from 60 to 300 seconds. The default timer value is 60 seconds.

Command Default

None.

Command Modes

EVPN Timers configuration mode

Command History

Release	Modification
Release 7.6.1	This command was introduced.

Usage Guidelines

When the core links recover, the default recovery delay timer begins. The access interfaces become active after the core-de-isolation timer expires.

Example

This example shows how to configure the recovery time for the EVPN core isolation group.

```
Router# configure
Router(config)# evpn timers
Router(config-evpn-timers)# core-de-isolation 120
Router(config-evpn-timers)# commit
```

cost-out

To bring down all the bundle interfaces belonging to an Ethernet VPN (EVPN) Ethernet segments on a node, use the **cost-out** command in EVPN configuration mode. To bring up the node into service, use the **no** form of this command.

cost-out
no cost-out

Command Default

None

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.1.31	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
EVPN	read, write

Examples

The following example shows how to bring up or bring down the bundle Ethernet Segments on a node:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# cost-out
Router(config-evpn)commit

Router# configure
Router(config)# evpn
Router(config-evpn)# no cost-out
Router(config-evpn)commit
```

delete extcommunity evpn-link-bandwidth

To remove an existing extended community set for EVPN link bandwidth from a route policy, use the **delete extcommunity evpn-link-bandwidth** in route-policy configuration mode.

delete extcommunity evpn-link-bandwidth { **all** | *extcommunity-set* }

Syntax Description

all	All the existing extended community set.
extcommunity-set	The extended community set for EVPN link bandwidth. The set is enclosed in parentheses.

Command Default

None.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

Example

The following example shows how to remove an extended community set for EVPN link bandwidth from a route policy.

```
Router(config)# route-policy evpn-rpl
Router(config-rpl)# delete extcommunity evpn-link-bandwidth all
Router(config-rpl)# end-policy
```

ethernet-segment

To enter the EVPN interface ethernet segment configuration mode, use the **ethernet-segment** command in the EVPN interface configuration mode. To disable the Ethernet segment configuration, use the **no** form of this command.

ethernet-segment [**backbone-source-mac** | **identifier** | **load-balancing-mode** | **service-carving**]
no ethernet-segment [**backbone-source-mac** | **identifier** | **load-balancing-mode** | **service-carving**]

Syntax Description

backbone-source-mac	Specifies Backbone Source MAC.
identifier	Specifies Ethernet Segment Identifier.
load-balancing-mode	Specifies load balancing mode.
service-carving	Specifies service carving.

Command Default

None.

Command Modes

EVPN interface configuration

Command History

Release	Modification
Release 6.1.21	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

This example shows how to enter the EVPN interface ethernet segment configuration mode:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface bundle-ether 1
Router(config-evpn-ac)# ethernet-segment
Router(config-evpn-ac-es)#
```

ethernet-segment (evpn)

To disable ESI auto-generation value for LACP ESI type 1, use the **ethernet-segment** command in the EVPN configuration mode. To enable ESI auto-generation, use the **no** form of this command.

ethernet-segmenttype 1 auto-generation-disable
no ethernet-segmenttype 1 auto-generation-disable

Syntax Description

type 1	Specifies LACP ESI-auto-generation for ESI type 1.
auto-generation-disable	Disables ESI auto-generation.

Command Default

By default, EVPN auto-generates an ESI value for the bundle interfaces by retrieving LACP information.

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

This command allows mLACP to decide to either forward or stop EVPN multipath resolution on remote ESI.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to disable auto-generation ESI type 1:

```
Router# configure
Router(config)# evpn
Router(config-evpn)#ethernet-segment
Router(config-evpn-es)#type 1 auto-generation-disable
```

etree leaf

To enable EVPN Ethernet Tree (E-Tree) services on an EVPN Instance VPN ID and enable an EVPN Instance VPN ID as E-Tree leaf, use the **etree leaf** command in the EVPN configuration mode.

etree leaf

Syntax Description

This command has no keywords or arguments.

Command Default

None.

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.6.1	This command was introduced.

Usage Guidelines

If a PE is not configured as E-Tree leaf, it is considered as root by default.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to configure EVPN E-Tree leaf:

```
Router(config)# evpn
Router(config-evpn)# evi 1
Router(config-evpn-instance)# etree leaf
Router(config-evpn-instance)# commit
```

etree rt-leaf

To enable EVPN all-active multihoming support with EVPN E-Tree using BGP Route Target (RT) import and export policies, use the **etree rt-leaf** command in the EVPN EVI configuration submode.

etree rt-leaf

no etree rt-leaf

Syntax Description

This command has no keywords or arguments.

Command Default

None.

Command Modes

EVI configuration submode

Command History

Release	Modification
Release 7.2.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to designate EVPN instance as EVPN E-Tree Route-Target leaf site.

```
Router(config)# evpn
Router(config-evpn)# evi 15
Router(config-evpn-instance)# etree
Router(config-evpn-instance-etree)# rt-leaf
```

evpn

To enter EVPN configuration mode, use the **evpn** command in the global configuration mode. To return to the global configuration mode, use the **no** form of this command.

evpn [**bgp** | **evi** | **interface** | **timers**]
no evpn [**bgp** | **evi** | **interface** | **timers**]

Syntax Description

bgp	Configures BGP.
evi	Configures Ethernet VPN ID (EVI).
interface	Assigns an interface to EVPN.
timers	Configures global EVPN timers.

Command Default

None.

Command Modes

Global configuration

Command History

Release	Modification
Release 6.1.21	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enter the EVPN configuration mode:

```
Router# configure
Router(config)# evpn
Router(config-evpn)#
```

evpn evi

To configure EVPN instance (EVI) use the **evpn evi** command in the global configuration mode. To remove the configuration, use the **no** form of this command.

evpn evi *evi-id*

Syntax Description

evi-id	Specifies the Ethernet VPN ID to set. Before Release 25.2.1, The range is from 1 to 65534. From Release 25.2.1, The range is from 1 to 16777215.

Command Default

None.

Command Modes

Global configuration

Command History

Release	Modification
Release 25.2.1	Extending the Ethernet VPN ID range to 16777215.
Release 6.6.3	This command was introduced.

Usage Guidelines

The EVI is represented by the virtual network identifier (VNI). An EVI represents a VPN on a PE router. It serves the same role of an IP VPN Routing and Forwarding (VRF), and EVIs are assigned to import/export Route Targets. This command configures the EVI and enters the EVPN Instance configuration mode, where you can configure EVPN settings.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to configure EVPN EVI that enters the EVPN Instance configuration mode.

```
Router# configure
Router(config)# evpn evi 10
Router((config-evpn-instance)#
```

evpn evi multicast source-connected

To configure EVPN multicast instance with a locally connected multicast source, use the **evpn evi** *evi-id* **multicast source-connected** command in the Global configuration mode or EVPN instance configuration mode. To remove the configuration, use the **no** form of this command.

evpn evi *evi-id* [**multicast**] [**source-connected**]

Syntax Description

evi-id	Specifies the Ethernet VPN ID to set. The range is from 1 to 65534.
multicast	(Optional) Configures EVPN instance multicast.
source-connected	(Optional) Connects multicast traffic source.

Command Default

None.

Command Modes

Global configuration

EVPN instance configuration mode

Command History

Release	Modification
Release 6.6.3	This command was introduced.
Release 24.1.1	This command is deprecated

Usage Guidelines

This command is used in all-active dual-homed PE scenarios with BVI interfaces and host-routing for EVPN enabled networks.

This command installs an IPv4 or IPv6 host route in the routing table when a locally connected multicast source is available. This ensures that the Protocol Independent Multicast (PIM) has correct Reverse Path Forwarding (RPF) towards the local source and not to the EVPN-injected host route of the other PE.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to configure a multicast instance in global configuration mode.

```
Router# configure
Router(config)# evpn evi 10 multicast source-connected
Router(config)#
```

This example shows how to configure a multicast instance in EVPN Instance configuration mode.

```
Router# configure
Router(config)# evpn evi 10
Router(config-evpn-instance)# multicast source-connected
Router(config-evpn-instance)#
```

evpn-link-bandwidth

To configure EVPN link bandwidth, use the **evpn-link-bandwidth** command in VRF neighbor address family configuration mode.

evpn-link-bandwidth [**per-path** *unit*]

Syntax Description

per-path	(Optional) EVPN link bandwidth uses per path.
unit	Unit value per path. The range is from 1 to 65535.

Command Default

None.

Command Modes

VRF neighbor address family configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
bgp	read, write

Example

The following example shows configuration of EVPN link bandwidth on a VRF neighbor.

```
Router(config)# router bgp 100
Router(config-bgp)# vrf vrf1
Router(config-bgp-vrf)# neighbor 172.16.1.3
Router(config-bgp-vrf-nbr)# evpn-link-bandwidth per-path 100
```

flood mode ac-shg-optimized

To avoid the replication of BUM flood traffic towards attachment circuits (AC) in a split-horizon group (SHG), use the **flood mode ac-shg-optimized** command in the L2VPN bridge group bridge domain configuration mode. To return to the default behavior, use the **no** form of this command.

flood mode ac-shg-optimized

Command Default

None

Command Modes

L2VPN bridge group bridge domain configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

To enable the optimization of AC-to-AC replication of BUM flood traffic, ensure that all the ACs are available in a split-horizon group. In addition, ensure that you have already configured the **hw-module l2-replication core-optimized** command and restarted the router, so that the command takes effect.



Note The **flood mode ac-shg-optimized** command works only after you configure the **hw-module l2-replication core-optimized** command and restart the router.

Task ID

Task ID	Operation
l2vpn	read, write

Example

The following example shows configuration of flood mode optimization, which avoids the AC-to-AC replication of BUM flood traffic.

```
Router# configure
Router(config)# l2vpn
Router(config-l2vpn)# bridge group bg0
Router(config-l2vpn-bg)# bridge-domain bd0
Router(config-l2vpn-bg-bd)# flood mode ac-shg-optimized
```

force single-homed

To configure force single-homed, use **force single-homed** command in the global configuration mode. To return to the default behavior, use the **no** form of this command.

force single-homed
no force single-homed

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
Release 6.0.1	This command was introduced.

Usage Guidelines

All EVPN-based access redundancy (EVLAG) designated forwarder elections are disregarded in favor of the legacy MCLAG access protection protocol.

When CE is directly connected to a PE through a physical or bundle port and the redundant connection to another PE is operating an MCLAG redundancy group.

Specifically, the ESI assignment to the interface is no longer used for EVPN-based access redundancy and protection mechanisms and the MCLAG redundancy protocol will control the state of this interface.

With this command only the access protection is relinquished, and EVPN core mechanisms remain operational including any core functionality requiring the use of an ESI. This command is different than assigning ESI-0 to the interface, and functions also with an assigned ESI. With MCLAG control of the interface state, those EVPN core procedures that depend on interface state remain the same.

Use this command to force the interface into single homed EVPN mode and interoperate with MCLAG access protection.

The following example shows how to configure force single-homed.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface GigabitEthernet0/0/0/0
Router(config-evpn-ac)# ethernet-segment force single-homed
```

host ipv4-address duplicate-detection

To enable duplicate detection of host IPv4 address, use the **host ipv4-address duplicate-detection** command in the EVPN configuration mode.

host ipv4-address duplicate-detection [**freeze-time** *freeze-time* | **move-count** *move-count* | **move-interval** *move-interval* | **retry-count** *retry-count* | **infinity** | **reset-freeze-count-interval** *interval*] **disable**

Syntax Description

freeze-time *freeze-time*	Length of time to lock the IPv4 address after it has been detected as duplicate. Default is 30 seconds.
move-count *move-count*	Number of moves to occur witin the specified **move-interval** before freezing the IPv4 address. Default is 5.
move-interval *move-interval*	Interval to watch for subsequent MAC moves before freezing the IPv4 address. Default is 180 seconds.
retry-count *retry-count*	Number of times to unfreeze an IPv4 address before freezing it permanently. Default is three times.
infinite	Infinite retry count. Prevents freezing of the duplicate IP address permanently.
reset-freeze-count-interval *interval*	Interval after which the count of duplicate detection events is reset. Default is 24 hours. The range is from is 1 hour to 48 hours.
disable	Disable duplicate detection of IPv4 addresses.

Command Default

None

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.6.1	This command was introduced.
Release 7.2.1	**infinite** and **reset-freeze-count-interval** keywords were added.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enable duplicate detection of host IPv4 address:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host ipv4-address duplicate-detection
Router(config-evpn-host-ipv4-addr)# move-count 2
Router(config-evpn-host-ipv4-addr)# freeze-time 10
Router(config-evpn-host-ipv4-addr)# retry-count 2
Router(config-evpn-host-ipv4-addr)# commit
```

This example shows how to prevent permanent freezing of duplicate host IPv4 address:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host ipv4-address duplicate-detection
Router(config-evpn-host-ipv4-addr)# retry-count infinity
Router(config-evpn-host-ipv4-addr)# commit
```

This example shows how to reset the interval after which the count of duplicate detection events are permanently frozen.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host ipv4-address duplicate-detection
Router(config-evpn-host-ipv4-addr)# reset-freeze-count-interval 20
Router(config-evpn-host-ipv4-addr)# commit
```

host ipv6-address duplicate-detection

To enable duplicate detection of host IPv6 address, use the **host ipv6-address duplicate-detection** command in the EVPN configuration mode.

host ipv6-address duplicate-detection [**freeze-time** *freeze-time* | **move-count** *move-count* | **move-interval** *move-interval* | **retry-count** *retry-count* | **infinity** | **reset-freeze-count-interval** *interval*] **disable**

Syntax Description

freeze-time *freeze-time*	Length of time to lock the IPv6 address after it has been detected as duplicate. Default is 30 seconds.
move-count *move-count*	Number of moves to occur witin the specified **move-interval** before freezing the IPv6 address. Default is 5.
move-interval *move-interval*	Interval to watch for subsequent MAC moves before freezing the IPv6 address. Default is 180 seconds.
retry-count *retry-count*	Number of times to unfreeze an IPv6 address before freezing it permanently. Default is three times.
infinite	Infinite retry count. Prevents freezing of the duplicate IP address permanently.
reset-freeze-count-interval *interval*	Interval after which the count of duplicate detection events is reset. Default is 24 hours. The range is from is 1 hour to 48 hours.
disable	Disable duplicate detection of IPv6 addresses.

Command Default

None

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.6.1	This command was introduced.
Release 7.2.1	**infinite** and **reset-freeze-count-interval** keywords were added.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enable duplicate detection of host IPv6 address:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host ipv6-address duplicate-detection
Router(config-evpn-host-ipv6-addr)# move-count 2
Router(config-evpn-host-ipv6-addr)# freeze-time 10
Router(config-evpn-host-ipv6-addr)# retry-count 2
Router(config-evpn-host-ipv6-addr)# commit
```

This example shows how to prevent permanent freezing of duplicate host IPv6 address:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host ipv6-address duplicate-detection
Router(config-evpn-host-ipv6-addr)# retry-count infinity
Router(config-evpn-host-ipv6-addr)# commit
```

This example shows how to reset the interval after which the count of duplicate detection events are permanently frozen.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host ipv6-address duplicate-detection
Router(config-evpn-host-ipv6-addr)# reset-freeze-count-interval 20
Router(config-evpn-host-ipv6-addr)# commit
```

host mac-address duplicate-detection

To enable duplicate detection of host MAC address, use the **host mac-address duplicate-detection** command in the EVPN configuration mode.

host mac-address duplicate-detection [**freeze-time** *freeze-time* | **move-count** *move-count* | **move-interval** *move-interval* | **retry-count** *retry-count* | **infinity** | **reset-freeze-count-interval** *interval*] **disable**

Syntax Description

freeze-time *freeze-time*	Length of time to lock the MAC address after it has been detected as duplicate. Default is 30 seconds.
move-count *move-count*	Number of moves to occur witin the specified **move-interval** before freezing the MAC address. Default is 5.
move-interval *move-interval*	Interval to watch for subsequent MAC moves before freezing the MAC address. Default is 180 seconds.
retry-count *retry-count*	Number of times to unfreeze an MAC address before freezing it permanently. Default is three times.
infinite	Infinite retry count. Prevents freezing of the duplicate MAC address permanently.
reset-freeze-count-interval *interval*	Interval after which the count of duplicate detection events is reset. Default is 24 hours. The range is from is 1 hour to 48 hours.
disable	Disable duplicate detection of MAC addresses.

Command Default

None

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.6.1	This command was introduced.
Release 7.2.1	**infinite** and **reset-freeze-count-interval** keywords were added.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enable duplicate detection of host MAC address:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host MAC-address duplicate-detection
Router(config-evpn-host-mac-addr-dup-detection)# move-count 2
Router(config-evpn-host-mac-addr-dup-detection)# freeze-time 10
Router(config-evpn-host-mac-addr-dup-detection)# retry-count 2
Router(config-evpn-host-mac-addr-dup-detection)# commit
```

This example shows how to prevent permanent freezing of duplicate host MAC address:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host MAC-address duplicate-detection
Router(config-evpn-host-mac-addr-dup-detection)# retry-count infinity
Router(config-evpn-host-mac-addr-dup-detection)# commit
```

This example shows how to reset the interval after which the count of duplicate detection events are permanently frozen.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# host MAC-address duplicate-detection
Router(config-evpn-host-mac-addr-dup-detection)# reset-freeze-count-interval 20
Router(config-evpn-host-mac-addr-dup-detection)# commit
```

host-tracking

To enable host tracking on a Bridged Virtual Interface (BVI), allowing a device to keep track of hosts directly connected to it, use the **host-tracking** command.

host-tracking [*bgp-gateway*]

Syntax Description

bgp-gateway	Specifies that the BVI monitors the status of hosts that are considered to be gateways for BGP and adjusts its behavior based on the availability or reachability of those gateways.

Command Default

Disabled by default.

Command Modes

Interface configuration

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

None.

Task ID

Task ID	Operation
bfd	read, write

Example

The following example shows how to create a BVI and enable host tracking:

```
Router#(config)# interface BVI1
Router#(config-if)# host-tracking
Router#(config-if-host-tracking)# bgp-gateway
Router#(config-if-host-tracking)# arp
Router#(config-if-host-tracking-arp)# bfd fast-detect
```

hw-module l2-replication core-optimized

By default, the BUM traffic from the core is replicated not only towards the attachment circuits (AC) but also towards the remote PEs in the Ingress pipeline. The packets replicated towards the remote PEs are dropped in the Egress Pipeline by applying the Split-Horizon rule. Even though these replicated packets get dropped in the Egress Pipeline, it results in recycle bandwidth being utilised.

For optimising the recycle bandwidth utilization, enable the **hw-module l2-replication core-optimized** command in the global configuration mode. Once you enable this command, the BUM traffic received from the core will:

- No longer be replicated to remote PEs in the Ingress pipeline.
- Only be replicated to the attachment circuits.

To return to the default behaviour, use **no hw-module l2-replication core-opitmized**.

hw-module l2-replication core-optimized

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

You must manually reload the router to activate the **hw-module l2-replication core-optimized** command.

Task ID

Task ID	Operation
root-lr	read, write

Example

The following example shows how to enable the command for optimising the recycle bandwidth utilization during the BUM traffic replication from the core.

```
Router# configure
Router(config)# hw-module l2-replication core-optimized
```

hw-module profile bgp-pic level-3 l2services

To enable hardware-level prefix-independent convergence (PIC) for L2 services when the nexthop is reachable over BGP-LU, use the **hw-module profile bgp-pic level-3 l2services** command in the global configuration mode. Currently this command supports only EVPN as L2 service.

This command has no keywords or arguments.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines

- NCS 5700 line cards do not support the **hw-module profile bgp-pic level-3 l2services** command.
- This command is applicable only for EVPN-PIC over BGP-LU; it is not applicable for EVPN-PIC over IGP.
- A hardware reload or chassis reload is required for the configuration to become active.

Task ID

Task ID	Operations
config-services	read, write
root-lr	read, write

Example

The following example shows how to enable hardware-level PIC for EVPN services.

```
Router# configure
Router(config)# hw-module fib bgp-pic level-3 l2services
Router(config)# commit
```

hw-module profile l2cp tunnel lacp

To enable tunneling of LACP packets received over the physical attachment circuit of P2MP services, use the **hw-module profile l2cp tunnel lacp** command in configuration mode.

The LACP packets are dropped by default.

hw-module profile l2cp tunnel lacp

Syntax Description

lacp	Enables LACP transparent tunneling.

Command Default

The LACP packets are dropped by default

Command Modes

Global configuration mode

Command History

Release	Modification
Release 25.1.1	The command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
npu profile	read

This example shows how to enable lacp transparent tunneling on the router:

```
Router# hw-module profile l2cp tunnels lacp
In order to activate this new npu profile, you must manually reload the chassis
Router#(config)#commit
Router#(config)#exit
Router#reload location all
```

import from bridge-domain

To import IPv4 or IPv6 host routes from all the EVPN bridge domains in a router, use the **import from bridge-domain** in BGP address family configuration mode. To remove the configuration, use the **no** form of this command.

import from bridge-domain

Command Default

None.

Command Modes

BGP address family configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
bgp	read, write

Example

The following example shows configuration to import IPv4 host routes as IPv4 unicast routes from EVPN bridge domains.

```
Router(config)# router bgp
Router(config-bgp)# address-family ipv4 unicast
Router(config-bgp-af)# import from bridge-domain
```

import from bridge-domain advertise-as-vpn

To import EVPN route type-2 routes from EVI bridge domain into the L3VPN VRF, and advertise as VPNv4 or VPNv6 routes, use the **import from bridge-domain advertise-as-vpn** command in the global configuration mode.

import from bridge-domain advertise-as-vpn

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
Release 6.6.1	This command was introduced.

Usage Guidelines

The route target of the EVI (BD) must match with at least one import route-target of the L3 VRF.

If the remote node uses BGP VPNv4 or VPNv6 address-family instead of EVPN address-family, use the **import from bridge-domain advertise-as-vpn** command under VRF address-family that allows you to advertise the host-route as BGP VPNv4 or VPNv6 instead of EVPN address-family.

The following example shows how to configure import from bridge-domain advertise-as-vpn.

```
Router# configure
Router(config)# vrf A
Router(config-vrf)# address-family ipv4 unicast
Router(config-vrf-af)# import from bridge-domain advertise-as-vpn
Router(config-vrf-af)# import route-target 30:30
Router(config-vrf-af)# export route-target 30:30
Router(config-vrf-af)# commit
```

implicit-import

To import EVPN routes in BGP routing table, use **implicit-import** command in the EVPN configuration mode.

implicit-import

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
l2vpn	read, write

This example shows how to configure **implicit-import** command in EVPN configuration mode.

```
RP/0/RP0/CPU0:R1#config
RP/0/RP0/CPU0:R1(config)#evpn
RP/0/RP0/CPU0:R1(config-evpn)#evi 1
RP/0/RP0/CPU0:R1(config-evpn-instance)#bgp
RP/0/RP0/CPU0:R1(config-evpn-instance-bgp)#implicit-import
```

interface (EVPN)

To enter the physical port interface or the bundle name interface configuration mode, use the **interface** command in the EVPN configuration mode. To return to the EVPN configuration mode, use the **no** form of this command.

interface *type interface path-id*
no interface *type interface path-id*

Syntax Description

type	Specifies the physical ethernet interface or bundle ethernet Interface type connected to the CE device. For more information about the syntax for the router, use the question mark (**?**) online help function.
interface path-id	Physical port name or main bundle name. The range for the bundle name is from 1 to 65535. **Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (**?**) online help function.

Command Default

None.

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.1.21	This command was introduced.

Usage Guidelines

To specify a physical interface, the notation for the *interface-path-id* is *rack/slot/module/port*. The slash between values is required as part of the notation. An explanation of each component of the naming notation is as follows:

- *rack*: Chassis number of the rack.
- *slot*: Physical slot number of the line card.
- *module*: Module number. A physical layer interface module (PLIM) is always 0.
- *port*: Physical port number of the interface.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enter the EVPN Interface configuration mode for bundle-ether 1:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface bundle-ether 1
Router(config-evpn-ac)#
```

ipv6 nd evpn-proxy mode

To fully or partially suppress the ipv6 Neighbor Discovery (ND) messages on EVPN-IRB network, use the **ipv6 nd evpn-proxy mode** command in BVI interface configuration mode.

ipv6 nd evpn-proxy mode { **full-suppression** | **partial-suppression** }

Syntax Description

full-suppression	Instructs the router to drop the ND request if the target entry is not available in the ND table on the EVPN control plane, preventing the ND request from flooding the network.
partial-suppression	Instructs the router to broadcast the packet to all devices within the EVPN Bridge Domain (BD) if the target entry is not available in the ND table on the EVPN control plane, ensuring connectivity even if the information isn't immediately available in the EVPN control plane.

Command Default

None

Command Modes

BVI Interface configuration

Command History

Release	Modification
Release 24.4.1	This command was introduced.

Usage Guidelines

You must enable the IPv6 before configuring the EVPN-IRB ND proxy suppression mode.

Task ID

Task ID	Operation
network	read, write

Examples

This example shows configuration of EVPN-IRB ND proxy full suppression:

```
Router# configure
Router(config)# interface BVI1
Router(config-if)# ipv6 enable
Router(config-if)# ipv6 nd evpn-proxy mode full-suppression
```

This example shows configuration of EVPN-IRB ND proxy partial suppression:

```
Router# configure
Router(config)# interface BVI1
Router(config-if)# ipv6 enable
Router(config-if)# ipv6 nd evpn-proxy mode partial-suppression
```

l2vpn evpn

To execute EVPN commands in L2VPN mode, use the **l2vpn evpn** command in the EXEC mode.

l2vpn evpn { **compute-hrw neighbor** *neighbor-ip-address* **esi** *esi-value* **service-id** *evi-value* | **ethernet-segment interface** *interface-name* **revert** }

Syntax Description

compute-hrw neighbor *neighbor-ip-address* **esi** *esi-value* **service-id***evi-value*	Generates Highest Random Weight (HRW) for a PE, which would be used during the DF election.
ethernet-segment interface *interface-name* **revert**	Disables the non-revertive mode and returns to the revertive mode of DF election.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 6.0.1	This command was introduced.
Release 24.1.1	The **ethernet-segment interface** *interface-name* **revert** keyword was added.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows configuration to compute HRW.

```
Router# l2vpn evpn compute-hrw neighbor 10.1.1.1 esi 11.1111.1111.0011.1111 service-id 10
```

This example shows configuration to disable the non-revertive mode of DF election.

```
Router# l2vpn evpn ethernet-segment interface Bundle-Ether1 revert
```

load-balancing-mode

To enable the load-balancing mode, use the **load-balancing-mode** command in the EVPN interface configuration mode. To disable the load-balancing mode, use the **no** form of this command.

load-balancing-mode { **port-active** | **single-active** | **single-flow-active** }

Syntax Description

port-active	Enables the port-active load-balancing mode
single-active	Enables the single-active load-balancing mode.
single-flow-active	Enables the single-flow-active load-balancing mode.

Command Default

None

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.2.1	This command was introduced.
Release 7.1.15	Port-active keyword was added.
Release 7.3.1	single-flow-active keyword was added.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enable the single-active load-balancing mode:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# ethernet-segment
Router(config-evpn-es)# load-balancing-mode single-active
```

This example shows how to enable the single-flow-active load-balancing mode:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# ethernet-segment
Router(config-evpn-es)# load-balancing-mode single-flow-active
```

mac-flush

To perform a MAC flush on an Ethernet-segment, use the **mac-flush** command in the EVPN interface configuration mode. To disable the MAC flush setting, use the **no** form of this command.

mac-flush mvrp

Starting from Cisco IOS XR Release 7.11.2, the command has been replaced as follows:

mac-flush-message { **mvrp** | **disable** }

Syntax Description

mvrp	Specifies the MAC flush over MVRP.
disable	Disables the MAC flush messages.

Command Default

STP-TCN

Command Modes

EVPN interface configuration

Command History

Release	Modification
Release 4.3.2	This command was introduced.
Release 7.11.2	This command was replaced by the **mac-flush-message** command. The keyword **disable** was added.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
l2vpn	read, write

This example shows how to perform the MAC flush over MVRP on an Ethernet segment:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface bundle-ether 1
Router(config-evpn-ac)#ethernet-segment
Router(config-evpn-ac-es)#identifier type 0 36.37.00.00.00.00.00.11.00
Router(config-evpn-ac-es)#exit
Router(config-evpn-ac)# mac-flush mvrp
Router(config-evpn-ac)#
```

This example shows how to perform the MAC flush over MVRP on an Ethernet segment, starting from release 7.11.2:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface bundle-ether 1
Router(config-evpn-ac)#ethernet-segment
Router(config-evpn-ac-es)#identifier type 0 36.37.00.00.00.00.00.11.00
Router(config-evpn-ac-es)#exit
Router(config-evpn-ac)# mac-flush-message mvrp
Router(config-evpn-ac)#
```

This example shows how to disable the MAC flush messages on an Ethernet segment:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface bundle-ether 1
Router(config-evpn-ac)#ethernet-segment
Router(config-evpn-ac-es)#identifier type 0 36.37.00.00.00.00.00.11.00
Router(config-evpn-ac-es)#load-balancing-mode single-active
Router(config-evpn-ac-es)#exit
Router(config-evpn-ac)# mac-flush-message disable
Router(config-evpn-ac)#
```

mpls static label (EVPN ELAN)

To configure the MPLS static labels for unicast IP traffic, use the **mpls static label** command in EVPN EVI configuration mode.

mpls static label unicast *label*

Syntax Description

unicast *label*	Configures a static MPLS label for unicast IP traffic. Range is 16 to 1,048,575.

Command Default

None

Command Modes

EVPN EVI configuration

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines

Use static MPLS labels within the range of 16 to 15,000 to avoid conflicts with existing dynamic labels and the default Segment Routing Local Block (SRLB) range of 15,000 to 15,999. For more information, see About the Segment Routing Local Block in the *Segment Routing Configuration Guide for NCS 5500 Series Routers*.

Task ID

Task ID	Operations
l2vpn	read, write

Examples

The following example shows how to configures a static MPLS label for unicast IP traffic:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# evi 1001
Router(config-evpn-evi)# advertise-mac
Router(config-evpn-evi)# mpls static label unicast 55555
```

mpls static label (EVPN VPWS)

To configure the MPLS static labels for EVPN VPWS, use the **mpls static label** command in L2VPN cross-connect P2P EVPN EVI configuration mode.

mpls static label local *label*

Syntax Description

local *label*	Configures a local EVPN EVI label. Range is 16 to 1,048,575.

Command Default

None

Command Modes

L2VPN cross-connect P2P EVPN EVI configuration

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines

Use static MPLS labels within the range of 16 to 15,000 to avoid conflicts with existing dynamic labels and the default Segment Routing Local Block (SRLB) range of 15,000 to 15,999. For more information, see About the Segment Routing Local Block in the *Segment Routing Configuration Guide for NCS 5500 Series Routers*.

Task ID

Task ID	Operations
l2vpn	read, write

Examples

The following example shows how to configures a static MPLS label for EVPN VPWS in L2VPN cross-connect P2P EVPN EVI configuration mode:

```
Router# configure
Router(config)# l2vpn
Router(config-l2vpn)# xconnect group g1
Router(config-l2vpn-xc)# p2p p2p1
Router(config-l2vpn-xc-p2p)# neighbor evpn evi 1 service 1
Router(config-l2vpn-xc-p2p-evpn-instance)# mpls static label local 55555
```

neighbor evpn

To enable EVPN-VPWS endpoint on the p2p cross-connect, use the **neighbor evpn** command in the p2p configuration submode.

neighbor evpn evi *vpn-id* **target** *ac-id*

Syntax Description

evi *vpn-id*	Virtual Private Network Identifier where this p2p xconnect is setup.
target *ac-id*	Specifies the targeted remote attachment circuit id of the EVPN.

Command Default

None

Command Modes

p2p configuration submode

Command History

Release	Modification
Release 6.1.21	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

The following example shows how to enable EVPN-VPWS endpoint on the p2p cross-connect.

```
Router# configurerouter# interface TenGigE0/1/0/12
Router(config)# l2vpn
Router(config-l2vpn)# xconnect group xc1
Router(config-l2vpn-xc)# p2p vpws
Router(config-l2vpn-xc-p2p)# interface gigabitethernet 0/1/0/9
Router(config-l2vpn-xc-p2p)# neighbor evpn evi 100 target 80
```

non-revertive

To enable the non-revertive mode of DF election, use the **non-revertive** command in the EVPN ethernet segment service carving configuration mode.

non-revertive

Command Default

None

Command Modes

EVPN interface Ethernet segment service carving configuration mode

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

You can enable the non-revertive mode only on preference-based DF election. It is recommended to configure the non-revertive mode on all the nodes in the network.

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to enable non-revertive mode:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface Bundle-Ether1
Router(config-evpn-ac)# ethernet-segment
Router(config-evpn-ac-es)# identifier type 0 01.11.00.00.00.00.00.00.01
Router(config-evpn-ac-es)# load-balancing-mode port-active
Router(config-evpn-ac-es)# service-carving preference-based
Router(config-evpn-ac-es-sc-pref)# non-revertive
Router(config-evpn-ac-es-sc-pref)# weight 100
Router(config-evpn-ac-es-sc-pref)# commit
```

option-b-asbr-only

To enter option-b-asbr-only configuration mode, use the **option-b-asbr-only** command under the address-family L2VPN EVPN global configuration mode.

option-b-asbr-only

Syntax Description

option-b-asbr-only	Enables Inter-AS option-B for L2VPN EVPN address-family identifier (AFI) and subsequent address-family identifier (SAFI).

Syntax Description

This command has no keywords or arguments.

Command Default

None.

Command Modes

Global configuration mode

Command History

Release	Modification
Release 7.4.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

This example shows how to enable the ASBR router for option-B label exchange:

```
Router(config)# router bgp 300
Router(config-bgp)# address-family l2vpn evpn
Router(config-bgp-af)# option-b-asbr-only
Router(config-evpn-instance)# commit
```

preferred-nexthop

To choose a particular remote PE in a dual-homed mode to be the nexthop, use the **preferred-nexthop** command in the EVPN configuration submode.

preferred-nexthop [**highest-ip** | **lowest-ip** | **modulo**]

Syntax Description

highest-ip	Selects the highest IP address as the primary nexthop.
lowest-ip	Selects the lowest IP address as the primary nexthop.
modulo	Determines which remote is primary using the formula EVI % 2.

Command Default

None

Command Modes

EVPN configuration submode

Command History

Release	Modification
Release 7.3.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

This example shows how to configure the highest IP address as the primary nexthop.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# evi 100
Router(config-evpn-evi)# preferred-nexthop highest-ip
Router(config-evpn-evi)# commit
```

This example shows how to configure the lowest IP address as the backup nexthop.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# evi 100
Router(config-evpn-evi)# preferred-nexthop lowest-ip
Router(config-evpn-evi)# commit
```

This example shows how to configure the primary nexthop using the modulo keyword.

```
Router# configure
```

```
Router(config)# evpn
Router(config-evpn)# evi 100
Router(config-evpn-evi)# preferred-nexthop modulo
Router(config-evpn-evi)# commit
```

revert

To set a timer to switchover from non-revertive mode to revertive mode of DF election, use the **revert** *timer* command in the EVPN configuration mode or EVPN interface configuration mode.

revert *timer*

Syntax Description

timer	Specify the time interval for the revert timer in seconds. The range is 0 to 3600.

Command Default

None

Command Modes

- EVPN configuration mode
- EVPN interface configuration mode

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows revert timer configuration for a specific interface:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface Bundle-Ether1
Router(config-evpn-ac)# ethernet-segment
Router(config-evpn-ac-es)# identifier type 0 01.11.00.00.00.00.00.00.01
Router(config-evpn-ac-es)# load-balancing-mode port-active
Router(config-evpn-ac-es)# service-carving preference-based
Router(config-evpn-ac-es-sc-pref)# non-revertive
Router(config-evpn-ac-es-sc-pref)# weight 100
Router(config-evpn-ac-es-sc-pref)# exit
Router(config-evpn-ac-es)# exit
Router(config-evpn-ac)# timers
Router(config-evpn-ac-timers)# revert 300
Router(config-evpn-ac-es)# commit
```

This example shows global configuration for revert timer:

```
Router# configure
```

```
Router(config)# evpn
Router(config-evpn)# timers
Router(config-evpn-timers)# revert 300
Router(config-evpn-timers)# commit
```

route-target

To specify a route target for the EVPN bridge domain, use the **route-target** command in the EVPN EVI BGP configuration mode. To return to the default value, use the **no** form of this command.

route-target {*as-number:nn* *ip-address:nn* }
no route-target {*as-number:nn* *ip-address:nn* }

Syntax Description

as-number:nn Autonomous system (AS) number of the route distinguisher.

- as-number—16-bit AS number

  Range for 2-byte numbers is 1 to 65535. Range for 4-byte numbers is 1.0 to 65535.65535.

- nn—32-bit number

ip-address:nn IP address of the route distinguisher.

- ip-address—32-bit IP address
- nn—16-bit number

Command Default

None.

Command History

Task ID

Task ID	Operations
l2vpn	read, write

Examples

serg-add-route-when-l2ac-down

To enable DHCPv6 to add PD routes to the RIB during SERG synchronization post reload if the L2 AC is down but the BVI is up, use the **serg-add-route-when-l2ac-down** command in DHCPv6 relay-profile configuration mode.

serg-add-route-when-l2ac-down

Syntax Description

This command has no keywords or arguments.

Command Default

DHCPv6 does not add PD routes to the RIB during SERG synchronization post reload if the L2 AC is down and the BVI is up.

Command Modes

DHCPv6 relay-profile configuration sub mode

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines

- A route is added if both the BVI (access interface) and its L2 AC are up, regardless of the status of the `serg-add-route-when-l2ac-down` configuration.
- When the L2 AC is down,
  - a route is added if `serg-add-route-when-l2ac-down` is enabled.
  - a route is not added if `serg-add-route-when-l2ac-down` is disabled.
- When the BVI is down,
  - a route is added if `route-add-disable` is not configured, regardless of the status of the `serg-add-route-when-l2ac-down` configuration.
  - a route is not added if `route-add-disable` is configured, regardless of the status of the `serg-add-route-when-l2ac-down` configuration.

Task ID

Task ID	Operation
ip-services	read, write

Examples

This example shows configuration of DHCPv6 PD route addition when L2 AC is down.

```
Router(config)#dhcp ipv6
Router(config-dhcpv6)#profile r2 relay
Router(config-dhcpv6-relay-profile)#helper-address vrf default 2011::3
Router(config-dhcpv6-relay-profile)#serg-add-route-when-l2ac-down With
serg-add-route-when-l2ac-down configured and route-add-disable not configured, the profile
 r2 permits the addition of PD routes to the RIB.
Router(config-dhcpv6-relay-profile)#exit
```

```
Router(config-dhcpv6)#interface BVI1 relay profile r2
Router(config-dhcpv6)#commit
```

service-carving

To specify a list of service identifiers as active and standby services, use the **service-carving** command in the EVPN Ethernet segment configuration mode.

service-carving { **manual** [**primary** *service-id-range* **secondary** *service-id-range*] } | { **preference-based** [**access-driven** | **weight** *preference-df-weight* }]

Syntax Description

manual	Specifies service identifiers or EVI-list services manually.
primary	Specifies the primary services list.
secondary	Specifies the secondary services list.
service-id-range	Specifies the services list notation in the range 100, 201-300, 401. The range is within 256 to 16777214.
preference-based	Specifies preference-based service carving.
access-driven	Specifies acess-driven DF election.
weight	Specifies the preference value.
preference-df-weight	Specifies the preference DF weight. The range is from 0 to 65535 unless **access-driven** is configured, in which case it will be 0 to 32767. Default is 32767 when not configured.

Command Default

Automatic service carving

Command Modes

EVPN interface Ethernet segment configuration mode

Command History

Release	Modification
Release 6.1.2	This command was introduced.
Release 7.3.1	The follwing keywords are added: • **preference-based** • **access-driven**

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

This example shows how to specify a list of service identifiers as active and standby services:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface bundle-ether 1
Router(config-evpn-ac)# ethernet segment
Router(config-evpn-ac-es)# service-carving manual primary 201-300 secondary 400-500
Router(config-evpn-ac-es)# commit
```

Example

This example shows how to sepcify EVPN access-driven DF election:

```
Router#configure
Router(config)#evpn
Router(config-evpn)#interface Bundle-Ether1
Router(config-evpn-ac)#ethernet-segment
Router(config-evpn-ac-es)#identifier type 0 01.11.00.00.00.00.00.00.01
Router(config-evpn-ac-es)#load-balancing-mode port-active
Router(config-evpn-ac-es)#service-carving preference-based
Router(config-evpn-ac-es-sc-pref)#weight 100
Router(config-evpn-ac-es-sc-pref)#access-driven
Router(config-evpn-ac-es-sc-pref)#commit
```

set advertise-evpn-gw-ip

To advertise the EVPN gateway IP address as a next-hop IP address,, use the **set advertise-evpn-gw-ip** command in the route-policy configuration mode.

set advertise-evpn-gw-ip { **A.B.C.D** | **X:X::X** | **parameter** | **use-next-hop** }

Syntax Description

A.B.C.D	Specify an IPv4 address.
X:X::X	Specify an IPv6 address.
parameter	Identifier specified in the format: '$' followed by alphanumeric. characters
use-next-hop	Set advertise EVPN gateway IP as next-hop IP address.

Command Default

None

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

Example

This example shows how to configure EVPN gateway IP address as a next-hop IP address:

```
Router(config)# route-policy gw
Router(config-rpl)# set advertise-evpn-gw-ip use-next-hop
Router(config-rpl)# end-policy
Router(config)# vrf VRF1
Router(config-vrf)# address-family ipv4 unicast
Router(config-vrf-af)# import route-target
Router(config-vrf-import-rt)# 10:10
Router(config-vrf-import-rt)# exit
Router(config-vrf-af)# export route-policy gw
Router(config-vrf-af)# export route-target
Router(config-vrf-export-rt)# 10:10
Router(config-vrf-export-rt)#commit
```

set extcommunity evpn-link-bandwidth

To set the extended community attribute for EVPN link bandwidth, use the **set extcommunity evpn-link-bandwidth** in route-policy configuration mode.

set extcommunity evpn-link-bandwidth { *extcommunity-set* | *parameter* }

Syntax Description

extcommunity-set	The extended community set for EVPN link bandwidth. The set is enclosed in parentheses.
parameter	Parameter name. The parameter name must be preceded by a "$."

Command Default

None.

Command Modes

Route-policy configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
route-policy	read, write

Example

The following example shows how to set the extended community attribute for EVPN link bandwidth using an extended community set.

```
Router(config)# route-policy evpn-rpl
Router(config-rpl)# set extcommunity evpn-link-bandwidth (1 : 8000)
Router(config-rpl)# end-policy
```

show bgp l2vpn evpn

To display BGP routes associated with EVPN under L2VPN address family, use the **show bgp l2vpn evpn** command in EXEC mode.

show bgp l2vpn evpn {**bridge-domain** *bridge-domain-name* | **rd** { **all** *IPv4 address:nn* *4-byte as-number:nn* *2-byte as-number:nn* } | **gateway-track** { **interface BVI identifier** | **standby** } }

Syntax Description

bridge-domain *bridge-domain-name*	Displays the bridges by the bridge ID. The bridge-domain-name argument is used to name a bridge domain.
rd	Displays routes with specific route distinguisher.
all	Displays specified routes in all RDs.
IPv4 address:nn	Specifies the IPv4 address of the route distinguisher. nn: 16-bit number
4-byte as-number:nn	Specifies 4-byte AS number in asdot (X.Y) format or in asplain format. • For 4-byte AS number in asdot (X.Y) format, the range is from 1 to 65535. The format is: <1-65535>.<0-65535>:<0-65535> • For 4-byte AS number in asplain format, the range is from 65536 to 4294967295. The format is: <65536-4294967295>: nn: 32-bit number
2-byte as-number:nn	Specifies 2-byte as-number. The range is from 1 to 65535. nn: 32-bit number
gateway-track	Displays tracking status of the EVPN gateways.
interface	Displays the interface.
BVI	Displays the Bridge-Group Virtual Interface (BVI).
identifier	BVI Identifier
standby	Displays information related to standby gateways.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 6.1.21	This command was introduced.

Release	Modification
Release 7.11.1	The control word and flow label signaling attributes were added.
Release 24.1.1	This command was modified. The keywords: **gateway-track** , **interface**, **BVI** *identifier*, and **standby** were added.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
bgp	read

Example

This sample output shows the BGP routes associated with EVPN with bridge-domain filter:

```
show bgp l2vpn evpn bridge-domain bd1
Network            Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 192.0.2.1:1 (default for vrf bd1)
*>i[1][0077.0000.0000.0000.0001][0]/120
                     198.51.100.1                  100      0 i
*>i[1][0077.0000.0000.0000.0001][4294967295]/120
                     198.51.100.1                  100      0 i
*>i[1][0088.0000.0000.0000.0001][0]/120
                     203.0.113.1                   100      0 i
* i                  209.165.200.225               100      0 i
*>i[1][0088.0000.0000.0000.0001][4294967295]/120
                     203.0.113.1                   100      0 i
* i                  209.165.200.225               100      0 I
*  [2][0][48][0001.0000.0001][0]/104
*>                   209.165.201.1                          0 101 i
*>i[2][0][48][0002.0000.0001][0]/104
                     203.0.113.1                   100      0 102 i
* i                  209.165.200.225               100      0 102 i
*>i[3][0][32][203.0.113.1]/80
                     203.0.113.1                   100      0 i
*>i[3][0][32][209.165.200.225]/80
                     209.165.200.225               100      0 i
```

Example

The following sample output displays the control word and flow label signaling attributes. Mismatch in EVPN L2 attributes between the local and remote nodes can impact the EVPN-VPWS PW or E-LAN service.

The following table describes the EVPN L2 attributes.

EVPN L2 Attributes	Description
0x01	Indicates that the PE functions a backup router.
0x02	Indicates that the PE functions as a primary router.

EVPN L2 Attributes	Description
0x04	Indicates that the control word is enabled and flow label signalling is disabled on the PE.
0x08	Indicates that the flow label signalling is enabled and control word is disabled on the PE.

The following output indicates that the control word is enabled and flow label signalling is disabled on the PE.

```
Router# show bgp l2vpn evpn rd 192.168.10.1:2705 [3][0][32][192.168.10.1]/80 detail
BGP routing table entry for [3][0][32][192.168.10.1]/80, Route Distinguisher:
192.168.10.1:2705
Versions:
  Process           bRIB/RIB  SendTblVer
  Speaker              286721       286721
    Flags: 0x00140001+0x00000000;
Paths: (1 available, best #1)
  Advertised to update-groups (with more than one peer):
    0.2
  Path #1: Received by speaker 0
  Flags: 0x202000000504000b+0x00, import: 0x000, EVPN: 0x0
  Advertised to update-groups (with more than one peer):
    0.2
  Local
    0.0.0.0 from 0.0.0.0 (192.168.1.1), if-handle 0x00000000
      Origin IGP, localpref 100, valid, redistributed, best, group-best, import-candidate
      Received Path ID 0, Local Path ID 1, version 286721
      Extended community: EVPN L2 ATTRS:0x04:0 RT:64600:2705
      IMET PMSI Originator Nexthop Address : 192.168.10.1 (reachable)
      PMSI: flags 0x00, type 6, label 24004, ID 0xc0a80a01
```

The following output indicates that the EVPN gateway is enabled. The output displays the interface identifier, the bridge associated with the interface, and the VRF instance associated with the interface.

```
Router# show bgp l2vpn evpn gateway-track interface BVI 1
Interface       Bridge                VRF
BVI1            evpn1                 vrf1
```

show evpn ethernet-segment

To display the EVPN Ethernet segment information, use the **show evpn ethernet-segment** command in the EXEC mode.

show evpn ethernet-segment [**detail** | **esi** | **interface** | **location** | **private** | **standby** | **carving**]

Syntax Description

detail	Displays detailed information.
esi	Filters by Ethernet Segment identifier.
interface	Filters by interface name.
location	Displays location specific information.
private	Displays private information.
standby	Displays standby node specific information.
carving	Filters by carving details.

Command Default

None.

Command Modes

EXEC

Command History

Release	Modification
Release 6.1.21	This command was introduced.
Release 7.3.1	The **carving** keyword was added.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read

Example

This sample output shows the EVPN Ethernet segment detailed information:

```
Router#show evpn ethernet-segment detail
Tue Jun 25 14:17:09.610 EDT
Legend:
  A- PBB-EVPN load-balancing mode and Access Protection incompatible,
  B- no Bridge Ports PBB-EVPN enabled,
  C- Backbone Source MAC missing,
  E- ESI missing,
  H- Interface handle missing,
```

```
  I- Interface name missing,
  M- Interface in Down state,
  O- BGP End of Download missing,
  P- Interface already Access Protected,
  Pf-Interface forced single-homed,
  R- BGP RID not received,
  S- Interface in redundancy standby state,
  X- ESI-extracted MAC Conflict

Ethernet Segment Id      Interface      Nexthops
------------------------ -------------- ----------------------------------------
0210.0300.9e00.0210.0000 Gi0/3/0/0      1.100.100.100
                                        2.100.100.100
  ES to BGP Gates   : Ready
  ES to L2FIB Gates : Ready
  Main port         :
     Interface name : GigabitEthernet0/3/0/0
     IfHandle       : 0x1800300
     State          : Up
     Redundancy     : Not Defined
  Source MAC        : 0001.ed9e.0001 (PBB BSA)
  Topology          :
     Operational    : MHN
     Configured     : A/A per service (default)
  Primary Services  : Auto-selection
  Secondary Services: Auto-selection
  Service Carving Results:
     Bridge ports   : 3
     Elected        : 0
     Not Elected    : 3
          I-Sid NE  :  1450101, 1650205, 1850309
  MAC Flushing mode : STP-TCN
  Peering timer     : 45 sec [not running]
  Recovery timer    : 20 sec [not running]
  Flushagain timer  : 60 sec

be01.0300.be01.ce00.0001 BE1            1.100.100.100
                                        2.100.100.100
  ES to BGP Gates   : Ready
  ES to L2FIB Gates : Ready
  Main port         :
     Interface name : Bundle-Ether1
     IfHandle       : 0x000480
     State          : Up
     Redundancy     : Active
  Source MAC        : 0024.be01.ce00 (Local)
  Topology          :
     Operational    : MHN
     Configured     : A/A per flow (default)
  Primary Services  : Auto-selection
  Secondary Services: Auto-selection
  Service Carving Results:
     Bridge ports   : 3
     Elected        : 3
          I-Sid E   :  1450102, 1650206, 1850310
     Not Elected    : 0
  MAC Flushing mode : STP-TCN
  Peering timer     : 45 sec [not running]
  Recovery timer    : 20 sec [not running]
  Flushagain timer  : 60 sec
```

This sample output shows the EVPN Ethernet segment carving detailed information with Single-Flow-Active mode enabled.

```
Router# show evpn ethernet-segment carving detail
Thu Aug  6 13:00:37.988 IST
Legend:
  B   - No Forwarders EVPN-enabled,
  C   - Backbone Source MAC missing (PBB-EVPN),
  RT  - ES-Import Route Target missing,
  E   - ESI missing,
  H   - Interface handle missing,
  I   - Name (Interface or Virtual Access) missing,
  M   - Interface in Down state,
  O   - BGP End of Download missing,
  P   - Interface already Access Protected,
  Pf  - Interface forced single-homed,
  R   - BGP RID not received,
  S   - Interface in redundancy standby state,
  X   - ESI-extracted MAC Conflict
  SHG - No local split-horizon-group label allocated

Ethernet Segment Id      Interface                         Nexthops
------------------------ --------------------------------- --------------------
0000.0000.0000.0000.0001 BE1                               10.0.0.1
                                                           172.16.0.1
  ES to BGP Gates   : Ready
  ES to L2FIB Gates : Ready
  Main port         :
     Interface name : Bundle-Ether1
     Interface MAC  : 008a.96ee.88dc
     IfHandle       : 0x20005f5c
     State          : Up
     Redundancy     : Not Defined
  ESI type          : 0
     Value          : 00.0000.0000.0000.0001
  ES Import RT      : 0000.0000.0001 (Local)
  Source MAC        : 0000.0000.0000 (N/A)
  Topology          :
     Operational    : MH, Single-flow-active
     Configured     : Single-flow-active
  Service Carving   : Auto-selection
     Multicast      : Disabled
  Convergence       : MAC-Mobility,
     Mobility-Flush : Debounce 13 sec, Count 1, Skip 1499
                    : Last 01/01 05:57:42.468
  Peering Details   : 2 Nexthops
  10.0.0.1[MOD:P:00:T]
    172.16.0.1 [MOD:P:7fff:T]
  Service Carving Synchronization:
     Mode           : NONE
     Peer Updates   :
  Service Carving Results:
     Forwarders     : 1000
     Elected        : 1000
            EVI E   :        1,       2,       3,       4,       5,       6
            EVI E   :        7,       8,       9,      10,      11,      12,
            EVI E   :       13,      14,      15,      16,      17,      18,
            EVI E   :       19,      20,      21,      22,      23,      24,
[........]
            EVI E   :      979,     980,     981,     982,     983,     984,
            EVI E   :      985,     986,     987,     988,     989,     990,
            EVI E   :      991,     992,     993,     994,     995,     996,
            EVI E   :      997,     998,     999,    1000
     Not Elected    : 0
  EVPN-VPWS Service Carving Results:
     Primary        : 0
     Backup         : 0
```

```
   Non-DF         : 0
MAC Flushing mode : STP-TCN
Peering timer     : 3 sec [not running]
Recovery timer    : 30 sec [not running]
Carving timer     : 0 sec [not running]
Local SHG label   : 29096
Remote SHG labels : 1
            29096 : nexthop 10.0.0.1
Access signal mode: Bundle OOS (Default)
```

show evpn evi

To display the EVPN E-VPN ID information, use the **show evpn evi** command in the EXEC mode.

show evpn evi [**bridge-domain** | **detail** | **inclusive-multicast** | **location** | **mac** | **standby** | **vpn-id**]

Syntax Description

bridge-domain	Displays information for a specified bridge-domain..
detail	Displays detailed information.
inclusive-multicast	Displays EVPN Inclusive Multicast information.
location	Displays location specific information.
mac	Displays EVI MAC route associated configuration information.
standby	Displays standby node specific information.
vpn-id	Displays information for a specified E-VPN Identifier.

Command Default

None.

Command Modes

EXEC

Command History

Release	Modification
Release 6.1.21	This command was introduced.
Release 7.11.1	The control word and flow label signaling attributes were added.
Release 25.1.1	The **show evpn evi mac** command output is enhanced to display the multi-paths internal ID.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read

Example

This sample output shows the EVPN EVI information with the VPN-ID and MAC address filter:

```
Router#show evpn evi vpn-id 185 mac 0024.be03.ce01
MAC address    Nexthop                                 Label    vpn-id
-------------- --------------------------------------- -------- --------
0024.be03.ce01 3.100.100.100                           16004    185
```

```
             4.100.100.100                          16004    185
   ESI port key : 0x0000
   Source       : Remote
   Flush Count  : 0
```

This sample output shows the EVPN EVI information with the VPN-ID and inclusive-multicast filter:

```
Router#show evpn evi vpn-id 185 inclusive-multicast service-id 1850312 orig-ip 1.100.100.100
ISID           Originating IP                 vpn-id
-------------- ------------------------------ ----------
1850312        1.100.100.100                           185
1850312        2.100.100.100                           185
1850312        3.100.100.100                           185
1850312        4.100.100.100                           185
```

This sample output shows the EVPN EVI inclusive-multicast information:

```
Router#show evpn evi inclusive-multicast detail
ISID: 1850312, Originating IP: 1.100.100.100                          185
    Nexthop: ::
    Label  : 16005
    Source : Local
ISID: 1850312, Originating IP: 2.100.100.100                          185
    Nexthop: 2.100.100.100
    Label  : 16005
    Source : Remote
ISID: 1850312, Originating IP: 3.100.100.100                          185
    Nexthop: 3.100.100.100
    Label  : 16005
    Source : Remote
ISID: 1850312, Originating IP: 4.100.100.100                          185
    Nexthop: 4.100.100.100
    Label  : 16005
    Source : Remote
```

This sample output shows the EVPN EVI information with the bridge-domain filter:

```
Router#show evpn evi bridge-domain tb1-core1 detail
EVI        Bridge Domain                Type
---------- ---------------------------- -------
145        tb1-core1                    PBB
165        tb1-core2                    PBB
185        tb1-core3                    PBB
65535      ES:GLOBAL                    BD
```

This sample output shows the EVPN EVI detailed information:

```
Router#show evpn evi detail
EVI        Bridge Domain                Type
---------- ---------------------------- -------
145        tb1-core1                    PBB
   Unicast Label  : 16000
   Multicast Label: 16001
   RD Config: none
   RD Auto  : (auto) 1.100.100.100:145
   RT Auto  : 100:145
   Route Targets in Use           Type
```

```
   ------------------------------ -------
   100:145                        Import
   100:145                        Export

165        tb1-core2                    PBB
   Unicast Label  : 16002
   Multicast Label: 16003
   RD Config: none
   RD Auto  : (auto) 1.100.100.100:165
   RT Auto  : 100:165
   Route Targets in Use           Type
   ------------------------------ -------
   100:165                        Import
   100:165                        Export

185        tb1-core3                    PBB
   Unicast Label  : 16004
   Multicast Label: 16005
   RD Config: none
   RD Auto  : (auto) 1.100.100.100:185
   RT Auto  : 100:185
   Route Targets in Use           Type
   ------------------------------ -------
   100:185                        Import
   100:185                        Export

65535      ES:GLOBAL                    BD
   Unicast Label  : 0
   Multicast Label: 0
   RD Config: none
   RD Auto  : (auto) 1.100.100.100:0
   RT Auto  : none
   Route Targets in Use           Type
   ------------------------------ -------
   0100.9e00.0210                 Import
   0100.be01.ce00                 Import
   0100.be02.0101                 Import
```

Example

The following sample output displays the control word and flow label signaling attributes. The output shows whether the control word and flow label signaling are locally enabled.

```
Router# show evpn evi vpn-id 2705 inclusive-multicast detail
VPN-ID     Encap  EtherTag   Originating IP
---------- ------ ---------- ---------------------------------------
2705       MPLS   0          192.168.10.1
    TEPid  : 0xffffffff
    PMSI Type: 6
    Nexthop: ::
    Label  : 24004
    SR-TE Info: N/A
    Source : Local
    E-Tree : Root
    Layer 2 Attributes:
     DF Role : Not Specified
     CW      : Disabled
     FL      : Disabled
     MTU     : 0
     Sig DF  : Not Specified
2705       MPLS   0          192.168.20.1
```

```
    TEPid  : 0x02000002
    PMSI Type: 6
    Nexthop: 192.168.20.1
    Label  : 24004
    SR-TE Info: N/A
    Source : Remote
    E-Tree : Root
    Layer 2 Attributes:
     DF Role : NDF
     CW      : Disabled
     FL      : Disabled
     MTU     : 0
     Sig DF  : NDF
2705       MPLS   0          192.168.30.1
    TEPid  : 0x02000001
    PMSI Type: 6
    Nexthop: 192.168.30.1
    Label  : 24004
    SR-TE Info: N/A
    Source : Remote
    E-Tree : Root
    Layer 2 Attributes:
     DF Role : NDF
     CW   : enabled
     FL   : enabled
     MTU     : 0
     Sig DF  : NDF

Router# show evpn evi inclusive-multicast detail
18         MPLS   0000.0000.0000.0000.0000 0x2   ::  24222
   EtherTag: 2
   Source: Local, MPLS
   Local:
      FRR Label: 0
      Layer 2 Attributes:
       DF Role : Primary
       CW      : Enabled
       FL      : Not Specified
       MTU     : 0
   Num Nexthops: 0
   Path Attributes:
```

This sample output shows the EVPN EVI information with the MAC address filter:

```
Router# show evpn evi mac ee04.0700.0450 detail

VPN-ID     Encap      MAC address    IP address                              Nexthop
                           Label    SID
---------- ---------- -------------- ----------------------------------------
---------------------------------------- -------- ----------------------------------------
12         MPLS       ee04.0700.0450 ::                                      192.168.0.4
                           24171
   Ethernet Tag                          : 0
   Multi-paths Resolved                  : True
   Multi-paths Internal label            : 29022
   Service Group ID                      : None
   Local Static                          : No
   Remote Static                         : Yes
   Local Ethernet Segment                : N/A
   Remote Ethernet Segment               : 0001.0001.0001.0701.0007
   Local Sequence Number                 : N/A
   Remote Sequence Number                : 0
   Local Encapsulation                   : N/A
   Remote Encapsulation                  : MPLS
```

```
   Local E-Tree                          : Root
   Remote E-Tree                         : Root
   Remote matching E-Tree RT             : No
   Local AC-ID                           : 0x0
   Remote AC-ID                          : 0x45
   Local ARP/ND Information              : N/A
   Remote ARP/ND Information             : N/A
```

From Release 25.1.1, the command output displays multi-paths internal ID. In this example, the multi-paths internal ID shows "none", but for SRv6 MACs, it displays a specific value.

```
Router# show evpn evi mac ee04.0700.0450 detail

VPN-ID     Encap      MAC address    IP address                              Nexthop
                           Label    SID
---------- ---------- -------------- ----------------------------------------
--------------------------------------- -------- ----------------------------------------
12         MPLS       ee04.0700.0450 ::                                      192.168.0.4
                           24171
   Ethernet Tag                          : 0
   Multi-paths Resolved                  : True
   Multi-paths Internal label            : 29022
   Multi-paths Internal ID               : None
   Service Group ID                      : None
   Local Static                          : No
   Remote Static                         : Yes
   Local Ethernet Segment                : N/A
   Remote Ethernet Segment               : 0001.0001.0001.0701.0007
   Local Sequence Number                 : N/A
   Remote Sequence Number                : 0
   Local Encapsulation                   : N/A
   Remote Encapsulation                  : MPLS
   Local E-Tree                          : Root
   Remote E-Tree                         : Root
   Remote matching E-Tree RT             : No
   Local AC-ID                           : 0x0
   Remote AC-ID                          : 0x45
   Local ARP/ND Information              : N/A
   Remote ARP/ND Information             : N/A
```

show evpn evi ead

To display the EVPN instance (EVI) information, use the **show evpn evi ead** command in the EXEC mode.

show evpn evi ead [**detail** ! **private**]

Syntax Description

evi	Specifies the EVPN Instance Identifier. This is used to derive the default Route Distinguisher and Route Targets.
ead	Specifies the EVPN ead routes.
detail	Displays detailed information.
private	Displays private information.

Command Default

None.

Command Modes

EXEC

Command History

Release	Modification
Release 6.1.21	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read

Example

This sample output shows the EVPN EVI detailed information:

```
Router#show evpn evi ead detail
Mon Apr 18 13:19:44.311 EDT

EVI   Ethernet Segment Id      EtherTag Nexthop                                Label
----- ----------------------- -------- ------------------------------------- --------
1     00a1.a2a3.a4a5.a6a7.a8a9 0        ::                                    24006
                                        2.2.2.2                               24007
   Source: Local, Remote, MPLS, VXLAN
1     00a1.a2a3.a4a5.a6a7.a8a9 ffffffff 2.2.2.2                               0
   Source: Remote, Unknown encap
200   0000.0000.0000.0000.0000 1        ::                                    24025
   Source: Local, MPLS
200   0000.0000.0000.0000.0000 4        ::                                    24026
   Source: Local, MPLS
200   0000.0000.0000.0000.0000 11       ::                                    24027
   Source: Local, MPLS
300   00a1.a2a3.a4a5.a6a7.a8a9 0        ::                                    24004
```

```
                                    2.2.2.2                                 24005
   Source: Local, Remote, MPLS, VXLAN
300   00a1.a2a3.a4a5.a6a7.a8a9 ffffffff 2.2.2.2                             0
   Source: Remote, Unknown encap
302   00a1.a2a3.a4a5.a6a7.a8a9 0        ::                                  24008
   Source: Local, MPLS, VXLAN
400   00b1.b2b3.b4b5.b6b7.b8b9 0        ::                                  24010
   Source: Local, MPLS
```

This sample output shows the EVPN EVI EAD private information:

```
Router#show evpn evi ead private
Mon Apr 18 13:20:31.465 EDT

EVI   Ethernet Segment Id      EtherTag Nexthop                                Label
----- ----------------------- -------- ------------------------------------- --------
1     00a1.a2a3.a4a5.a6a7.a8a9 0        ::                                  24006
                                    2.2.2.2                                 24007
   Source: Local, Remote, MPLS, VXLAN
   EVI: 1
   Num Nexthops: 1

   Object: EVPN EAD
   Base info: version=0xdbdb0013, flags=0x6100, type=24832, reserved=0
   EVPN EAD event history  [Num events: 16]
   ------------------------------------------------------------------------------
     Time                Event                          Flags      Flags
     ====                =====                          =====      =====
     Apr 18 10:55:49.248 Got BGP update                 00000000, 00000001 -  -
     Apr 18 10:55:49.248 Modify_RED                     00000000, 00000000 M  -
     Apr 18 10:55:49.248 Got BGP update                 00000000, 00000001 -  -
     Apr 18 10:55:49.248 Modify_RED                     00000000, 00000000 -  -
     Apr 18 12:03:48.352 Got BGP update                 00000000, 00000001 -  -
     Apr 18 12:04:39.552 Modify_RED                     00000000, 00000000 M  -
     Apr 18 12:04:39.552 Got BGP update                 00000000, 00000001 -  -
     Apr 18 12:04:39.552 Modify_RED                     00000000, 00000000 -  -
     Apr 18 12:15:08.800 Got BGP update                 00000000, 00000001 -  -
     Apr 18 12:15:08.800 Modify_RED                     00000000, 00000000 -  -
     Apr 18 12:15:59.488 Got BGP update                 00000000, 00000001 -  -
     Apr 18 12:19:34.016 Modify_RED                     00000000, 00000000 M  -
     Apr 18 12:19:34.528 Got BGP update                 00000000, 00000001 -  -
     Apr 18 12:19:34.528 Modify_RED                     00000000, 00000000 -  -
     Apr 18 12:19:34.528 Got BGP update                 00000000, 00000001 -  -
     Apr 18 12:19:34.528 Modify_RED                     00000000, 00000000 -  -
   ------------------------------------------------------------------------------

1     00a1.a2a3.a4a5.a6a7.a8a9 ffffffff 2.2.2.2                              0
   Source: Remote, Unknown encap
   EVI: 1
   Num Nexthops: 1

   Object: EVPN EAD
   Base info: version=0xdbdb0013, flags=0x4000, type=16384, reserved=0
   EVPN EAD event history  [Num events: 16]
   ------------------------------------------------------------------------------
     Time                Event                          Flags      Flags
     ====                =====                          =====      =====
     Apr 18 10:55:49.248 Got ESI LABEL                  00000000, 00000000 -  -
     Apr 18 10:55:49.248 Got BGP update                 00000000, 00000001 -  -
     Apr 18 10:55:49.248 Modify_RED                     00000000, 00000000 -  -
     Apr 18 10:55:49.248 Got ESI LABEL                  00000000, 00000000 -  -
     Apr 18 12:03:48.352 Got BGP update                 00000000, 00000001 -  -
     Apr 18 12:03:48.352 Modify_RED                     00000000, 00000000 -  -
     Apr 18 12:03:48.352 Got ESI LABEL                  00000000, 00000000 -  -
     Apr 18 12:04:39.552 Got BGP update                 00000000, 00000001 -  -
```

```
  Apr 18 12:04:39.552 Modify_RED                  00000000, 00000000 -  -
  Apr 18 12:04:39.552 Got ESI LABEL               00000000, 00000000 -  -
  Apr 18 12:15:08.800 Got BGP update              00000000, 00000001 -  -
  Apr 18 12:15:08.800 Modify_RED                  00000000, 00000000 -  -
  Apr 18 12:15:08.800 Got ESI LABEL               00000000, 00000000 -  -
  Apr 18 12:19:34.528 Got BGP update              00000000, 00000001 -  -
  Apr 18 12:19:34.528 Modify_RED                  00000000, 00000000 -  -
  Apr 18 12:19:34.528 Got ESI LABEL               00000000, 00000000 -  -
 ------------------------------------------------------------------------------

200   0000.0000.0000.0000.0000 1        ::                                  24025
 Source: Local, MPLS
 EVI: 200
 Num Nexthops: 0

 Object: EVPN EAD
 Base info: version=0xdbdb0013, flags=0x2100, type=8448, reserved=0
 EVPN EAD event history  [Num events: 4]
 ------------------------------------------------------------------------------
  Time                Event                       Flags      Flags
  ====                =====                       =====      =====
  Apr 18 10:55:45.664 Create                      00000001, 00000000 -  -
  Apr 18 10:55:45.664 Adv to BGP filtered         00002100, 00000000 -  -
  Apr 18 10:55:49.248 EVI REPLAY TO BGP           00000000, 00000000 -  -
  Apr 18 10:55:49.248 Advertise to BGP            00002110, 00000000 -  -
 ------------------------------------------------------------------------------

200   0000.0000.0000.0000.0000 4        ::                                  24026
 Source: Local, MPLS
 EVI: 200
 Num Nexthops: 0

 Object: EVPN EAD
 Base info: version=0xdbdb0013, flags=0x2100, type=8448, reserved=0
 EVPN EAD event history  [Num events: 4]
 ------------------------------------------------------------------------------
  Time                Event                       Flags      Flags
  ====                =====                       =====      =====
  Apr 18 10:55:45.664 Create                      00000001, 00000000 -  -
  Apr 18 10:55:45.664 Adv to BGP filtered         00002100, 00000000 -  -
  Apr 18 10:55:49.248 EVI REPLAY TO BGP           00000000, 00000000 -  -
  Apr 18 10:55:49.248 Advertise to BGP            00002110, 00000000 -  -
 ------------------------------------------------------------------------------

200   0000.0000.0000.0000.0000 11       ::                                  24027
 Source: Local, MPLS
 EVI: 200
 Num Nexthops: 0

 Object: EVPN EAD
 Base info: version=0xdbdb0013, flags=0x2100, type=8448, reserved=0
 EVPN EAD event history  [Num events: 4]
 ------------------------------------------------------------------------------
  Time                Event                       Flags      Flags
  ====                =====                       =====      =====
  Apr 18 10:55:45.664 Create                      00000001, 00000000 -  -
  Apr 18 10:55:45.664 Adv to BGP filtered         00002100, 00000000 -  -
  Apr 18 10:55:49.248 EVI REPLAY TO BGP           00000000, 00000000 -  -
  Apr 18 10:55:49.248 Advertise to BGP            00002110, 00000000 -  -
 ------------------------------------------------------------------------------
```

show evpn internal-label

To display EVPN internal label associated configuration information, use the **show evpn internal-label** command in the EXEC mode.

show evpn internal-label [**vpn-id** *evi* [**detail**]]

Syntax Description

vpn-id *evi*	Displays information for a specified E-VPN Identifier.
detail	Displays detailed information.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 6.1.21	This command was introduced.
Release 25.1.1	The command output is enhanced to display the path version.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read

Example

This sample output shows the EVPN internal label associated configuration information.

```
Router# show evpn internal-label vpn-id 15 tag 60 detail

VPN-ID     Encap  Ethernet Segment Id         EtherTag     Label
---------- ------ -------------------------- ----------   --------
15         MPLS   0001.0001.0001.1101.0011    60           28665
   Multi-paths resolved: TRUE (Remote port-active)
   Multi-paths Internal label: 28665
    EAD/ES  (ID:0x00000000000014c0)
            (P) 192.168.0.3                               0
    EAD/EVI (ID:0x00000000000014bf)
            (P) SR-TE BSID 28470
   Summary pathlist (ID 0x00000000000014c2):
 0x02000009 (P) SR-TE BSID 28470
```

From Release 25.1.1, the command output displays path version.

```
Router# show evpn internal-label vpn-id 15 tag 60 detail
```

```
VPN-ID     Encap  Ethernet Segment Id         EtherTag     Label
---------- ------ -------------------------- ----------   --------
15         MPLS   0001.0001.0001.1101.0011    60           28665
   Multi-paths resolved: TRUE (Remote port-active)
   Multi-paths Internal label: 28665
    EAD/ES  (ID:0x00000000000014c0)
            (P) 192.168.0.3                               0
                  Path Version:2, Originating PE:::
    EAD/EVI (ID:0x00000000000014bf)
            (P) SR-TE BSID 28470
   Summary pathlist (ID 0x00000000000014c2):
 0x02000009 (P) SR-TE BSID 28470
```

show evpn summary

To display the EVPN summary, use the **show evpn summary** command in the EXEC mode.

show evpn summary[**location** | **private** | **standby**]

Syntax Description

location	Displays location specific information.
private	Displays private information.
standby	Displays standby node specific information.

Command Default

None.

Command Modes

EXEC

Command History

Release	Modification
Release 6.1.21	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read

Example

This sample output shows the EVPN summary:

```
Router#show evpn summary
Thu Jul  4 01:34:58.838 DST
-----------------------------
Global Information
-----------------------------
Number of EVIs                : 1
Number of Local MAC Routes    : 1
Number of Remote MAC Routes   : 0
Number of Local IMCAST Routes : 0
Number of Remote IMCAST Routes: 0
Number of Internal Labels     : 0
Number of ES Entries          : 0
BGP Router ID                 : ::
BGP ASN                       : Invalid
PBB BSA MAC address           : f866.f214.abd7
Global peering timer          :     45 seconds
Global recovery timer         :     20 seconds
Global programming timer      :   1500 microseconds
Global flushagain timer       :     60 seconds
-----------------------------
```

```
High Availability Information
-----------------------------
BGP EOD                       : N
Number of Marked MAC Routes   : 0
Number of Swept MAC Routes    : 0
Number of Marked IMCAST Routes: 0
Number of Swept IMCAST Routes : 0
```

staggered-bringup-timer

To stagger the bring-up of bundle interfaces after startup-cost-in timer expiry, use the **staggered-bringup-timer** command in the EVPN configuration mode.



Note The **staggered-bringup-timer** commad is supported in Cisco NCS 5500 Series and Cisco NCS 540 Series Routers.

staggered-bringup-timer *duration*

Syntax Description

duration	Specify the stagger time period. By default, the stagger time is 5000ms and maximum configurable stagger time is 300s.

Command Default

By default, the stagger time is 5000 miliseconds.

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 7.2.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
l2vpn	read, write

This example shows how to configure stagger period:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# staggered-bringup-timer 200s
Router(config-evpn-es)# commit
```

startup-cost-in

To bring up the node into service after the specified time on reload, use the **startup-cost-in** command in EVPN configuration mode. To stop the startup-cost-in timer, use the **no** form of this command.

startup-cost-in *timer*
no startup-cost-in

Syntax Description

startup-cost-in *timer*	Brings up the node into service after the specified time on reload. Specify the time in seconds. Range is from 30 to 86400 seconds.

Command Default

None

Command Modes

EVPN configuration mode

Command History

Release	Modification
Release 6.1.31	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
EVPN	read, write

Examples

The following example shows how to bring up the node into service after the specified time on reload:

```
Router# configure
Router(config)# evpn
Router(config-evpn)# startup-cost-in 6000
Router(config)commit
```

vpws-seamless-integration

To enable EVPN-VPWS seamless integration, use the **vpws-seamless-integration** command in L2VPN configuration mode. To disable EVPN-VPWS seamless integration, use the **no** form of this command.

vpws-seamless-integration

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

L2VPN configuration mode

Command History

Release	Modification
Release 7.4.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
L2VPN	read, write

Examples

The following example shows how to enable EVPN-VPWS integration on an edge device for BGP PW.

```
Router# configure
Router(config)# l2vpn xconnect group 1
Router(config-l2vpn-xc)# mp2mp 2
Router(config-l2vpn-xc-mp2mp)# autodiscovery bgp
Router(config-l2vpn-xc-mp2mp-ad)# signaling-protocol bgp
Router(config-l2vpn-xc-mp2mp-ad-sig)# ce-id 3
Router(config-l2vpn-xc-mp2mp-ad-sig-ce)# vpws-seamless-integration
Router(config-l2vpn-xc-mp2mp-ad-sig-ce)#
```

The following example shows how to enable EVPN-VPWS integration for TLDP PW.

```
Router# configure
Router(config)# l2vpn xconnect group 1
Router(config-l2vpn-xc)# p2p p1
Router(config-l2vpn-xc-p2p)# interface BE1.1
Router(config-l2vpn-xc-p2p)# neighbor 1.1.1.1 pw-id 1
Router(config-l2vpn-xc-p2p)# vpws-seamless-integration
```

weight

To configure the weight of a PE that can be used for EVPN Designated Forwarder (DF) election, use the **weight** command in the EVPN interface Ethernet segment service carving configuration mode.

weight *weight-value*

Syntax Description

weight-value	Specifies the preference DF weight. The range is from 0 to 65535 unless access-driven is configured, in which case it will be 0 to 32767. Default is 32767 when not configured.

Command Default

None

Command Modes

EVPN interface Ethernet segment service carving configuration mode

Command History

Release	Modification
Release 7.3.1	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
l2vpn	read, write

Example

The following example shows configuration of DF weight.

```
Router# configure
Router(config)# evpn
Router(config-evpn)# interface Bundle-Ether1
Router(config-evpn-ac)# ethernet-segment
Router(config-evpn-ac-es)# identifier type 0 01.11.00.00.00.00.00.00.01
Router(config-evpn-ac-es)# load-balancing-mode port-active
Router(config-evpn-ac-es)# service-carving preference-based
Router(config-evpn-ac-es-sc-pref)# weight 100
Router(config-evpn-ac-es-sc-pref)# commit
```