EVPN Commands

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

For detailed information about EVPN concepts, configuration tasks, and examples, see the *EVPN Features* module in the *L2VPN and Ethernet Services Configuration Guide for Cisco ASR 9000 Series Routers*.

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 7.10.1	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

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.

The following example shows how to advertise local MAC.

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# evpn
RP/0/RSP0/CPU0:router(config-evpn)# evi 1
RP/0/RSP0/CPU0:router(config-evpn-evi)# bgp
RP/0/RSP0/CPU0:router(config-evpn-evi-bgp)# table-policy spp-basic-6
RP/0/RSP0/CPU0:router(config-evpn-evi-bgp)# route-target import 100:6005
RP/0/RSP0/CPU0:router(config-evpn-evi-bgp)# route-target export 100:6005
RP/0/RSP0/CPU0:router(config-evpn-evi-bgp)# exit
RP/0/RSP0/CPU0:router(config-evpn-evi)# advertise-mac
```

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

mac *mac-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

mac *mac-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
```

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 4.3.2	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

Example

This example shows how to enter the EVPN configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# evpn
RP/0/RSP0/CPU0:router(config-evpn)#
```

Related Commands

Command	Description
evpn evi, on page 11	
bgp (EVPN)	Enables BGP in the PBB EVPN configuration.

Command	Description
interface (EVPN), on page 18	Enters the EVPN Interface configuration mode.
timers (EVPN)	Configures timers that affect the convergence of PBB EVPN in failure scenarios.

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)#
```

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 4.3.2	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 enter the EVPN interface ethernet segment configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# evpn
RP/0/RSP0/CPU0:router(config-evpn)# interface bundle-ether 1
RP/0/RSP0/CPU0:router(config-evpn-ac)# ethernet-segment
RP/0/RSP0/CPU0:router(config-evpn-ac-es)#
```

Related Commands

Command	Description
interface (EVPN), on page 18	Enters the EVPN Interface configuration mode.
backbone-source-mac	Configures the backbone source MAC address.

Command	Description
load-balancing-mode	Sets the load balancing mode of a physical port or bundle to active-active.

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
```

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 or virtual 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 following interface types connected to the CE device: • Physical ethernet interface • Bundle ethernet For more information about the syntax for the router, use the question mark (**?**) online help function.
interface path-id	Physical or virtual interface 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 4.3.2	This command was introduced.
Release 7.3.1	The **PW-Ether** keyword 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.

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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# evpn
RP/0/RSP0/CPU0:router(config-evpn)# interface bundle-ether 1
RP/0/RSP0/CPU0:router(config-evpn-ac)#
```

Related Commands

Command	Description
evpn, on page 9	Enters EVPN configuration mode.
ethernet-segment, on page 14	Enters EVPN interface ethernet segment configuration mode.
#unique_253	
timers (EVPN)	Configures timers that affect the convergence of PBB EVPN in failure scenarios.

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** | **ethernet-segment interface** *interface-name* **pref-switchover** }

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.
ethernet-segment interface *interface-name* **pref-switchover**	Initiates an immediate switchover of the Designated Forwarder (DF) on the specified bundle service, swapping the DF role between the active router and the standby router.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 25.2.1	The **ethernet-segment interface** *interface-name* **pref-switchover** keyword was added.
Release 24.1.1	The **ethernet-segment interface** *interface-name* **revert** keyword was added.
Release 6.0.1	This command was introduced.

Usage Guidelines

For ethernet-segment interface *interface-name* pref-switchover command:

- Use the **l2vpn evpn ethernet-segment interface***interface-name* **pref-switchover** command to initiate the switchover mechanism only if you cannot manually configure a new weight on the router.
- If you have access to the router configuration, manually updating the Ethernet Segment (ES) weight is a more effective way to manage the DF role than using the **l2vpn evpn ethernet-segment interface***interface-name* **pref-switchover** command.
- A standby PE router must be available to perform a switchover operation. If there is no standby PE router, the IOS XR software performs these operations:
  1. Ignores the **l2vpn evpn ethernet-segment interface***interface-name* **pref-switchover** command.
  2. No DF election occurs and the current active PE router remains active.

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 how to initiate an immediate EVPN port-active manual switchover of the DF on the specified bundle service, swapping the DF role between the active router and the standby router.

```
Router# l2vpn evpn ethernet-segment interface Bundle-Ether1 pref-switchover
```

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

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

This example shows how to revert the manual switchover mechanism and switch the DF role back to the previous active router.

- On the previously active router, you can run **l2vpn evpn ethernet-segment interface***interface-name* **revert** command.

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

- Optionally, on the current active router, you can run **l2vpn evpn ethernet-segment interface***interface-name* **pref-switchover** command.

  ```
  Router# l2vpn evpn ethernet-segment interface Bundle-Ether10 pref-switchover
  ```

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)#
```

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 service { service-id | vlan-aware } 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.
vlan-aware	Specifies the vlan-aware service.

Command Default

None

Command Modes

p2p configuration submode

Command History

Release	Modification
Release 6.1.21	This command was introduced.
Release 7.11.1	The **vlan-aware** keyword was added.

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
```

The following example shows how to configure vlan-aware PW Head end:

```
Router(config)#l2vpn
Router(config-l2vpn)#xconnect group evpn-headend
Router(config-l2vpn-xc)#p2p headend-va-1002
Router(config-l2vpn-xc-p2p)#interface PW-Ether 1002
Router(config-l2vpn-xc-p2p)# neighbor evpn evi 1002 service vlan-aware
Router(config-l2vpn-xc-p2p)#root
```

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
```

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 VFI, use the **route-target** command in the BGP autodiscovery 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 Modes

BGP autodiscovery configuration

Command History

Release	Modification
Release 4.0.0	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	Operations
l2vpn	read, write

Examples

The following example shows how to configure a bridge domain:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# l2vpn
RP/0/RSP0/CPU0:router(config-l2vpn)# bridge group EGroup
RP/0/RSP0/CPU0:router(config-l2vpn-bg)# bridge-domain eastdomain
RP/0/RSP0/CPU0:router(config-l2vpn-bg-bd)# vfi eastvfi
```

```
RP/0/RSP0/CPU0:router(config-l2vpn-bg-bd-vfi)# autodiscovery bgp
RP/0/RSP0/CPU0:router(config-l2vpn-bg-bd-vfi-ad)#route-target 100:20
```

Related Commands

Command	Description
bridge-domain (VPLS)	Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode.
bridge group (VPLS)	Creates a bridge group so that it can contain bridge domains and then to assign network interfaces to the bridge domain.
l2vpn	Enters L2VPN configuration mode.

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 7.10.1	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

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
```

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* | **srg-driven** }]

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.
srg-driven	Enables the Subscriber Redundancy Group, BNG DF Election.

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**
Release 7.11.1	The **srg-driven** keyword was added.

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
```

This example shows how to specify 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
```

This example shows how to enable BNG SRG driven DF election for EVPN:

```
Router#configure
Router(config)#evpn
Router(config-evpn)#interface PW-Ether1002
Router(config-evpn-ac)#ethernet-segment
Router(config-evpn-ac-es)#identifier type 0 00.10.02.00.00.00.00.10.02
Router(config-evpn-ac-es)#service-carving preference-based
Router(config-evpn-ac-es-sc-pref)# srg-driven
Router(config-evpn-ac-es-sc-pref)#commit
Router(config-evpn-ac-es-sc-pref)#root
```

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**]

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.

Command Default

None.

Command Modes

EXEC

Command History

Release	Modification
Release 4.3.2	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

Example

This sample output shows the EVPN Ethernet segment with interface filter:

```
RP/0/RSP0/CPU0:router#show evpn ethernet-segment interface gigabitethernet 0/3/0/0 detail
Ethernet Segment Id      Interface      Nexthops
------------------------ -------------- ----------------------------------------
0210.0300.9e00.0210.0000 Gi0/3/0/0      1.100.100.100
                                        2.100.100.100
be01.0300.be01.ce00.0001 BE1            1.100.100.100
                                        2.100.100.100
be02.0300.be02.0101.0002 BE2            1.100.100.100
                                        2.100.100.100
```

```
N/A                     Gi0/3/0/3      N/A
```

This sample output shows the EVPN Ethernet segment detailed information:

```
RP/0/RSP0/CPU0: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
```

Related Commands

Command	Description
evpn, on page 9	Enters EVPN configuration mode.
ethernet-segment, on page 14	Enters EVPN interface ethernet segment configuration mode.

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 4.3.2	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

Example

This sample output shows the EVPN summary:

```
RP/0/RSP0/CPU0: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
```

Related Commands

Command	Description
evpn, on page 9	Enters EVPN configuration mode.

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 4.3.2	This command was introduced.
Release 6.1.2	The show command output is enhanced to display the Service Path Preference parameters.
Release 25.1.1	The **show evpn evi mac** command output is enhanced to display the multi-paths internal ID.

Task ID

Task ID	Operation
l2vpn	read

Example

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

```
RP/0/RSP0/CPU0: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:

```
RP/0/RSP0/CPU0: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:

```
RP/0/RSP0/CPU0: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:

```
RP/0/RSP0/CPU0: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:

```
RP/0/RSP0/CPU0: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
```

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
```

Related Commands

Command	Description
evpn, on page 9	Enters EVPN configuration mode.
evpn evi, on page 11	

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
```

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
```