



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*.

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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	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 7.10.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 7.10.1	This command was introduced.
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	<table> <tr> <th>Task ID</th><th>Operation</th></tr> <tr> <td>l2vpn</td><td>read, write</td></tr> </table>	Task ID	Operation	l2vpn	read, write
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	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 6.2.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 6.2.1	This command was introduced.
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 <i>mac-address</i> Clears the route for the specified IPv6 address.	
	all Clears all EVPN MAC-IPv6 routes that are marked as duplicate or permanently frozen.	
	evi <i>evi</i> 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 <i>mac-address</i>	Clears the route for the specified MAC address.	
	all	Clears all EVPN MAC routes that are marked as duplicate or permanently frozen.	
	evi <i>evi</i>	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
```


evi

To enter the EVPN EVI configuration mode and configure optional BGP settings for a bridge domain or EVI, use the **evi** command in the EVPN configuration mode. To return to the EVPN configuration mode, use the **no** form of this command.

evi *evi-id*
no evi *evi-id*

Syntax Description	<i>evi-id</i> Specifies the Ethernet VPN ID to set. The range is from 1 to 65534.				
Command Default	None.				
Command Modes	EVPN configuration mode				
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 4.3.2</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 4.3.2	This command was introduced.
Release	Modification				
Release 4.3.2	This command was introduced.				
Usage Guidelines	<p>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.</p> <p>Use this command to configure static BGP route distinguisher or BGP route target for an EVI.</p>				
Task ID	<table> <tr> <th>Task ID</th><th>Operation</th></tr> <tr> <td>l2vpn</td><td>read, write</td></tr> </table>	Task ID	Operation	l2vpn	read, write
Task ID	Operation				
l2vpn	read, write				

Example

This example shows how to enter the EVPN EVI configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# evpn
RP/0/RSP0/CPU0:router(config-evpn)# evi 2
RP/0/RSP0/CPU0:router(config-evpn-evi)#
```

Related Commands	Command	Description
	evpn, on page 10	Enters EVPN configuration mode.
	bgp (EVPN)	Enables BGP in the PBB EVPN configuration.

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
	evi, on page 9	Enters the EVPN EVI configuration mode to configure optional BGP settings for a bridge domain or EVI.
	bgp (EVPN)	Enables BGP in the PBB EVPN configuration.

Command	Description
interface (EVPN), on page 19	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	<i>evi-id</i> Specifies the Ethernet VPN ID to set. The range is from 1 to 65534.	
Command Default	None.	
Command Modes	Global configuration	
Command History	Release	Modification
	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	<i>evi-id</i>	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 19	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-segment type 1 auto-generation-disable
no ethernet-segment type 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	<div> <i>type</i> Specifies the following interface types connected to the CE device: <ul style="list-style-type: none"> • Physical ethernet interface • Bundle ethernet For more information about the syntax for the router, use the question mark (?) online help function. </div>
	<div> <i>interface path-id</i> 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. </div>

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 10	Enters EVPN configuration mode.
	ethernet-segment, on page 15	Enters EVPN interface ethernet segment configuration mode.
	#unique_254	
	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** }

Syntax Description	compute-hrw neighbor <i>neighbor-ip-address</i> esi <i>esi-value</i> service-id <i>evi-value</i> Generates Highest Random Weight (HRW) for a PE, which would be used during the DF election.	
	ethernet-segment interface <i>interface-name</i> 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 <i>interface-name</i> 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
```

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 36.37.00.00.00.00.11.00
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 36.37.00.00.00.00.11.00
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 36.37.00.00.00.00.11.00
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# configure
router# 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	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 24.1.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 24.1.1	This command was introduced.
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	<table> <tr> <th>Task ID</th><th>Operation</th></tr> <tr> <td>l2vpn</td><td>read, write</td></tr> </table>	Task ID	Operation	l2vpn	read, write
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 01.11.00.00.00.00.00.01
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	<i>timer</i> Specify the time interval for the revert timer in seconds. The range is 0 to 3600.				
Command Default	None				
Command Modes	<ul style="list-style-type: none"> • EVPN configuration mode • EVPN interface configuration mode 				
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 24.1.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 24.1.1	This command was introduced.
Release	Modification				
Release 24.1.1	This command was introduced.				
Usage Guidelines	None				
Task ID	<table> <tr> <th>Task ID</th><th>Operation</th></tr> <tr> <td>l2vpn</td><td>read, write</td></tr> </table>	Task ID	Operation	l2vpn	read, write
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 01.11.00.00.00.00.00.01
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.
<i>service-id-range</i>		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 access-driven DF election.
weight		Specifies the preference value.
<i>preference-df-weight</i>		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 following keywords are added: <ul style="list-style-type: none"> • 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 01.11.00.00.00.00.00.01
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
```

show evpn ethernet-segment

```
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 10	Enters EVPN configuration mode.
ethernet-segment, on page 15	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 10	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.

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:	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

show evpn evi

```

165          tbl-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          tbl-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

```

Related Commands

Command	Description
evpn, on page 10	Enters EVPN configuration mode.
evi, on page 9	Enters the EVPN EVI configuration mode to configure optional BGP settings for a bridge domain or EVI.

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	<i>weight-value</i> 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	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Release 7.3.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Release 7.3.1	This command was introduced.
Release	Modification				
Release 7.3.1	This command was introduced.				
Usage Guidelines	None				
Task ID	<table> <tr> <th>Task ID</th><th>Operation</th></tr> <tr> <td>l2vpn</td><td>read, write</td></tr> </table>	Task ID	Operation	l2vpn	read, write
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 01.11.00.00.00.00.00.01
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
```

 weight