# Virtual Private LAN Services Commands

This module describes the commands used to configure, monitor, and troubleshoot Virtual Private LAN Services (VPLS).

For detailed information about virtual private network concepts, configuration tasks, and examples, refer to the *Virtual Private Configuration Guide*.

# action (VPLS)

To configure the bridge behavior when the number of learned MAC addresses reaches the MAC limit configured, use the **action** command in L2VPN bridge group bridge domain MAC limit configuration mode. To disable this feature, use the **no** form of this command.

**action** {**flood** | **no-flood** | **shutdown**}
**no action** {**flood** | **no-flood** | **shutdown**}

## Syntax Description

| | |
|---|---|
| **flood** | Configures the action to flood all unknown unicast packets when the MAC limit is reached. If the action is set to flood, all unknown unicast packets, with unknown destinations addresses, are flooded over the bridge. |
| **no-flood** | Configures the action to no-flood so all unknown unicast packets are dropped when the MAC limit is reached. If the action is set to no-flood, all unknown unicast packets, with unknown destination addresses, are dropped. |
| **shutdown** | Stops forwarding when the MAC limit is reached. If the action is set to shutdown, all packets are dropped. |

## Command Default

No action is taken when the MAC address limit is reached.

## Command Modes

L2VPN bridge group bridge domain MAC limit configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **action** command to specify the type of action to be taken when the action is violated.

The configured action has no impact if the MAC limit has not been reached.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to configure the bridge bar to flood all unknown unicast packets when the number of MAC addresses learned by the bridge reaches 10:

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)#bridge group 1
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg)#bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)#mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)#limit
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)#action flood
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)#maximum 10
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | Creates a bridge group so that it can contain bridge domains and then to assign network interfaces to the bridge domain. |
| limit (VPLS), on page 15 | Sets the MAC address limit for action, maximum, and notification and enters L2VPN bridge group bridge domain MAC limit configuration mode. |
| l2vpn | Enters L2VPN configuration mode. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| maximum (VPLS), on page 19 | Configures the specified action when the number of MAC addresses learned on a bridge is reached. |
| notification (VPLS), on page 27 | Specifies the type of notification that is sent when the number of learned MAC addresses exceeds the configured limit. |

# aging (VPLS)

To enter the MAC aging configuration submode to set the aging parameters such as time and type, use the **aging** command in L2VPN bridge group bridge domain configuration mode. To return to the default value for all parameters that are attached to this configuration submode, use the **no** form of this command.

**aging**
**no aging**

## Syntax Description

This command has no keywords or arguments.

## Command Default

No defaults are attached to this parameter since it is used as a configuration submode. See defaults that are assigned to the time (VPLS), on page 76 and the type (VPLS), on page 78 parameters.

## Command Modes

L2VPN bridge group bridge domain MAC configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **aging** command to enter L2VPN bridge group bridge domain MAC aging configuration mode.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to enter MAC aging configuration submode and to set the MAC aging time to 120 seconds:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# aging
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-aging)# time 120
```

## Related Commands

| Commands | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain and enters L2VPN bridge group bridge domain configuration mode. |

| Commands | Description |
|---|---|
| bridge group (VPLS), on page 7 | Creates a bridge group so that it can contain bridge domains and then assigns network interfaces to the bridge domain. |
| l2vpn | Enters L2VPN configuration mode. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| time (VPLS), on page 76 | Configures the maximum aging time. |
| type (VPLS), on page 78 | Configures the type for MAC address aging. |

# bridge-domain (VPLS)

To establish a bridge domain and to enter L2VPN bridge group bridge domain configuration mode, use the **bridge-domain** command in L2VPN bridge group configuration mode. To return to a single bridge domain, use the **no** form of this command.

**bridge-domain** *bridge-domain-name*
**no bridge-domain** *bridge-domain-name*

## Syntax Description

| | |
|---|---|
| *bridge-domain-name* | Name of the bridge domain. |

**Note** The maximum number of characters that can be specified in the bridge domain name is 27.

## Command Default

The default value is a single bridge domain.

## Command Modes

L2VPN bridge group configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | This command was introduced. |

## Usage Guidelines

Use the **bridge-domain** command to enter L2VPN bridge group bridge domain configuration mode.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to configure a bridge domain:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)#
```

## Related Commands

| Command | Description |
|---|---|
| bridge group (VPLS), on page 7 | 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. |

# bridge group (VPLS)

To create a bridge group so that it can contain bridge domains and then to assign network interfaces to the bridge domain, use the **bridge group** command in L2VPN configuration mode. To remove all the bridge domains that are created under this bridge group and to remove all network interfaces that are assigned under this bridge group, use the **no** form of this command.

**bridge group** *bridge-group-name*
**no bridge-group** *bridge-group-name*

## Syntax Description

| | |
|---|---|
| *bridge-group-name* | Number of the bridge group to which the interface belongs. |

## Command Default

No bridge group is created.

## Command Modes

L2VPN configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **bridge group** command to enter L2VPN bridge group configuration mode.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows that bridge group 1 is assigned:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)#
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| l2vpn | Enters L2VPN configuration mode. |

# clear l2vpn bridge-domain (VPLS)

To clear the MAC addresses and to restart the bridge domains on the router, use the **clear l2vpn bridge-domain** command in EXEC mode.

**clear l2vpn bridge-domain** {**all** | **bd-name** *name* | **group** *group*}

## Syntax Description

| | |
|---|---|
| **all** | Clears and restarts all the bridge domains on the router. |
| **bd-name** *name* | Clears and restarts the specified bridge domain. The *name* argument specifies the name of the bridge-domain. |
| **group** *group* | Clears and restarts all the bridge domains that are part of the bridge group. |

## Command Default

None

## Command Modes

EXEC

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

This is the method that allows a bridge to forward again after it was put in Shutdown state as a result of exceeding the configured MAC limit.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to clear all the MAC addresses and to restart all the bridge domains on the router:

```
RP/0/RP0/CPU0:router# clear l2vpn bridge-domain all
```

## Related Commands

| Command | Description |
|---|---|
| show l2vpn bridge-domain (VPLS), on page 33 | Display information for the bridge ports such as attachment circuits and pseudowires for the specific bridge domains. |

# flooding disable

To configure flooding for traffic at the bridge domain level or at the bridge port level, use the **flooding disable** command in L2VPN bridge group bridge domain configuration mode. To return the bridge to normal flooding behavior when all unknown unicast packets, all broadcast packets, and all multicast packets are flooded over all other bridge domain network interfaces, use the **no** form of this command.

**flooding disable**
**no flooding disable**

This command has no keywords or arguments.

## Command Default

The default behavior is that packets are flooded when their destination MAC address is not found.

## Command Modes

L2VPN bridge group bridge domain configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **flooding disable** command to override the parent bridge configuration.

By default, bridge ports inherit the flooding behavior of the bridge domain.

When flooding is disabled, all unknown unicast packets, all broadcast packets, and all multicast packets are discarded.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to disable flooding on the bridge domain called bar:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# flooding disable
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |

| Command | Description |
| --- | --- |
| bridge group (VPLS), on page 7 | 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. |
| mtu (VPLS), on page 23 | Adjusts the maximum packet size or maximum transmission unit (MTU) size for the bridge domain. |

# interface (VPLS)

To add an interface to a bridge domain that allows packets to be forwarded and received from other interfaces that are part of the same bridge domain, use the **interface** command in L2VPN bridge group bridge domain configuration mode. To remove an interface from a bridge domain, use the **no** form of this command.

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

## Syntax Description

| | |
|---|---|
| *type* | Interface type. For more information, use the question mark (**?**) online help function. |
| *interface-path-id* | Physical interface or virtual interface.<br>**Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router.<br>For more information about the syntax for the router, use the question mark (**?**) online help function. |

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **interface** command to enter L2VPN bridge group bridge domain attachment circuit configuration mode. In addition, the **interface** command enters the interface configuration submode to configure parameters specific to the interface.

By default, an interface is not part of a bridge.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to configure the bundle Ethernet interface as an attachment circuit:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# interface gigabitethernet 0/1/0/9
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-ac)#
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |

# learning disable (VPLS)

To override the MAC learning configuration of a parent bridge or to set the MAC learning configuration of a bridge, use the **learning disable** command in L2VPN bridge group bridge domain MAC configuration mode. To disable this feature, use the **no** form of this command.

**learning disable**
**no learning disable**

## Syntax Description

This command has no keywords or arguments.

## Command Default

By default, learning is enabled on all bridge domains and all interfaces on that bridge inherits this behavior.

## Command Modes

L2VPN bridge group bridge domain MAC configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

When set, the **learning disable** command stops all MAC learning either on the specified interface or the bridge domain.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

In the following example, MAC learning is disabled on all ports in the bridge domain called bar, which is applied to all interfaces in the bridge unless the interface has its own MAC learning enable command.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# learning disable
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |

| Command | Description |
|---|---|
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |

# limit (VPLS)

To set the MAC address limit for action, maximum, and notification and to enter L2VPN bridge group bridge domain MAC limit configuration mode, use the **limit** command in L2VPN bridge group bridge domain MAC configuration mode. To remove all limits that were previously configured under the MAC configuration submodes, use the **no** form of this command.

**limit**
**no limit**

## Syntax Description

This command has no keywords or arguments.

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain MAC configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **limit** command to enter L2VPN bridge group bridge domain MAC limit configuration mode. The **limit** command specifies that one syslog message is sent or a corresponding trap is generated with the MAC limit when the action is violated.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how the MAC limit for the bridge bar is set to 100 with an action of shutdown. After the configuration, the bridge stops all forwarding after 100 MAC addresses are learned. When this happens, a syslog message and an SNMP trap are created.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# limit
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)# maximum 100
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)# action shutdown
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)# notification both
```

## Related Commands

| Command | Description |
|---|---|
| action (VPLS), on page 2 | Configures bridge behavior when the number of learned MAC addresses reaches the MAC limit configured. |
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| maximum (VPLS), on page 19 | Configures the specified action when the number of MAC addresses learned on a bridge is reached. |
| notification (VPLS), on page 27 | Specifies the type of notification that is sent when the number of learned MAC addresses exceeds the configured limit. |

# mac (VPLS)

To enter L2VPN bridge group bridge domain MAC configuration mode, use the **mac** command in L2VPN bridge group bridge domain configuration mode. To disable all configurations added under the MAC configuration submodes, use the **no** form of this command.

**mac**
**no mac**

## Syntax Description

This command has no keywords or arguments.

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **mac** command to enter L2VPN bridge group bridge domain MAC configuration mode.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to enter L2VPN bridge group bridge domain MAC configuration mode:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)#
```

## Related Commands

| Command | Description |
|---|---|
| aging (VPLS), on page 4 | Enters the MAC aging configuration submode to set the aging parameters such as time and type. |
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |

| Command | Description |
|---|---|
| bridge group (VPLS), on page 7 | 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. |
| learning disable (VPLS), on page 13 | Overrides the MAC learning configuration of a parent bridge or sets the MAC learning configuration of a bridge. |
| limit (VPLS), on page 15 | Sets the MAC address limit for action, maximum, and notification and enters L2VPN bridge group bridge domain MAC limit configuration mode. |
| static-address (VPLS), on page 72 | Adds static entries to the MAC address for filtering. |
| withdraw (VPLS), on page 82 | Disables MAC address withdrawal for a specified bridge domain |

# maximum (VPLS)

To configure the specified action when the number of MAC addresses learned on a bridge is reached, use the **maximum** command in L2VPN bridge group bridge domain MAC limit configuration mode. To disable this feature, use the **no** form of this command.

**maximum** *value*
**no maximum** *value*

## Syntax Description

| | |
|---|---|
| *value* | Maximum number of learned MAC addresses.<br>The range is from 5 to 512000. |

## Command Default

The default maximum value is 4000.

## Command Modes

L2VPN bridge group bridge domain MAC limit configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

The action can either be flood, no flood, or shutdown. Depending on the configuration, a syslog, an SNMP trap notification, or both are issued.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows when the number of MAC address learned on the bridge reaches 5000 and the bridge stops learning but continues flooding:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# limit
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)# maximum 5000
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)# action no-flood
```

## Related Commands

| Command | Description |
|---|---|
| action (VPLS), on page 2 | Configures bridge behavior when the number of learned MAC addresses reaches the MAC limit configured. |
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| limit (VPLS), on page 15 | Sets the MAC address limit for action, maximum, and notification and enters L2VPN bridge group bridge domain MAC limit configuration mode. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| notification (VPLS), on page 27 | Specifies the type of notification that is sent when the number of learned MAC addresses exceeds the configured limit. |

# mpls static label (VPLS)

To configure the MPLS static labels and the static labels for the access pseudowire configuration, use the **mpls static label** command in L2VPN bridge group bridge domain VFI pseudowire configuration mode. To assign the dynamic MPLS labels to either the virtual forwarding interface (VFI) pseudowire or the access pseudowire, use the **no** form of this command.

**mpls static label local** *value value* **remote** *value*
**no mpls static label local** *value value* **remote** *value*

## Syntax Description

| | |
|---|---|
| **local** *value* | Configures the local pseudowire label.<br>**Note** Use the **show mpls label range** command to obtain the range for the local labels. |
| **remote** *value* | Configures the remote pseudowire label.<br>**Note** The range of values for the remote labels depends on the label allocator of the remote router. |

## Command Default

By default, the router attempts to assign dynamic labels to the pseudowire.

## Command Modes

L2VPN bridge group bridge domain Access/VFI pseudowire configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Ensure that both ends of the pseudowire have matching static labels.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to configure the VFI pseudowire 10.1.1.2 with pseudowire ID of 1000 to use MPLS label 800 and remote MPLS label 500:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# vfi model
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi)# neighbor 10.1.1.2 pw-id 1000
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi-pw)# mpls static label local 800 remote 500
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| neighbor (VPLS), on page 25 | Adds an access pseudowire port to a bridge domain or a pseudowire to a bridge virtual forwarding interface (VFI). |
| pw-class (VFI), on page 31 | Configures the pseudowire class template name to use for the pseudowire. |
| vfi (VPLS), on page 80 | Configures virtual forwarding interface (VFI) parameters. |

# mtu (VPLS)

To adjust the maximum packet size or maximum transmission unit (MTU) size for the bridge domain, use the **mtu** command in L2VPN bridge group bridge domain configuration mode. To disable this feature, use the **no** form of this command.

**mtu** *bytes*
**no mtu**

## Syntax Description

| | |
|---|---|
| *bytes* | MTU size, in bytes. The range is from 46 to 65535. |

## Command Default

The default MTU value is 1500.

## Command Modes

L2VPN bridge group bridge domain configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Each interface has a default maximum packet size or MTU size. This number generally defaults to the largest size possible for that interface type. On serial interfaces, the MTU size varies, but cannot be set smaller than 64 bytes.

The MTU for the bridge domain includes only the payload of the packet. For example, a configured bridge MTU of 1500 allows tagged packets of 1518 bytes (6 bytes DA, 6 bytes SA, 2 bytes ethertype, or 4 bytes qtag).

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example specifies an MTU of 1000 bytes:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mtu 1000
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | Creates a bridge group so that it can contain bridge domains and then to assign network interfaces to the bridge domain. |
| flooding disable, on page 9 | Configures flooding for traffic at the bridge domain level or at the bridge port level. |
| l2vpn | Enters L2VPN configuration mode. |

# neighbor (VPLS)

To add an access pseudowire port to a bridge domain or a pseudowire to a bridge virtual forwarding interface (VFI), use the **neighbor** command in the appropriate L2VPN bridge group bridge domain configuration submode. To remove the pseudowire either from the bridge or from the VFI, use the **no** form of this command.

**neighbor** *A.B.C.D* **pw-id** *value*
**no neighbor** *A.B.C.D* **pw-id** *value*

## Syntax Description

| | |
|---|---|
| *A.B.C.D* | IP address of the cross-connect peer. |
| **pw-id** *value* | Configures the pseudowire ID and ID value. Range is 1 to 4294967295. |

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain configuration

L2VPN bridge group bridge domain VFI configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **neighbor** command to enter L2VPN bridge group bridge domain VFI pseudowire configuration mode. Alternatively, use the **neighbor** command to enter L2VPN bridge group bridge domain access pseudowire configuration mode.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to configure an access pseudowire directly under a bridge domain in L2VPN bridge group bridge domain configuration mode:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# neighbor 10.1.1.2 pw-id 1000
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-pw)#
```

The following example shows how to configure the parameters for any pseudowire in L2VPN bridge group bridge domain VFI configuration mode:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# vfi v1
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi)# neighbor 10.1.1.2 pw-id 1000
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi-pw)#
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mpls static label (VPLS), on page 21 | Configures the MPLS static labels and the static labels for the access pseudowire configuration. |
| pw-class (VFI), on page 31 | Configures the pseudowire class template name to use for the pseudowire. |
| static-mac-address (VPLS), on page 74 | Configures the static MAC address to associate a remote MAC address with a pseudowire or any other bridge interface. |
| vfi (VPLS), on page 80 | Configures virtual forwarding interface (VFI) parameters. |

# notification (VPLS)

To specify the type of notification that is sent when the number of learned MAC addresses exceeds the configured limit, use the **notification** command in L2VPN bridge group bridge domain MAC limit configuration mode. To use the notification as only a syslog entry, use the **no** form of this command.

**notification** {**both** | **none** | **trap**}
**no notification** {**both** | **none** | **trap**}

## Syntax Description

| | |
|---|---|
| **both** | Sends syslog and trap notifications when the action is violated. |
| **none** | Specifies no notification. |
| **trap** | Sends trap notifications when the action is violated. |

## Command Default

By default, only a syslog message is sent when the number of learned MAC addresses reaches the maximum configured.

## Command Modes

L2VPN bridge group bridge domain MAC limit configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

A syslog message and an SNMP trap is generated. Alternatively, an SNMP trap is generated. Finally, no notification is generated.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how both a syslog message and an SNMP trap are generated with the bridge bar and learns more MAC addresses than the configured limit:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# limit
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-limit)# notification both
```

## Related Commands

| Command | Description |
|---|---|
| action (VPLS), on page 2 | Configures bridge behavior when the number of learned MAC addresses reaches the MAC limit configured. |
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| maximum (VPLS), on page 19 | Configures the specified action when the number of MAC addresses learned on a bridge is reached. |

# port-down flush disable (VPLS)

To disable MAC flush when the bridge port is nonfunctional, use the **port-down flush disable** command in the L2VPN bridge group bridge domain MAC configuration mode. Use the **no** form of this command to enable the MAC flush when the bridge port is nonfunctional.

**port-down flush disable**
**no port-down flush disable**

## Syntax Description

This command has no keywords or arguments.

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain MAC configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.9.0 | 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.

The **port-down flush disable** command disables the MAC flush when the bridge port is nonfunctional.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to disable MAC flush when the bridge port is nonfunctional:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# port-down flush disable
```

## Related Commands

| Command | Description |
|---|---|
| action (VPLS), on page 2 | Configures bridge behavior when the number of learned MAC addresses reaches the MAC limit configured. |
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |

| Command | Description |
|---|---|
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| maximum (VPLS), on page 19 | Configures the specified action when the number of MAC addresses learned on a bridge is reached. |
| notification (VPLS), on page 27 | Specifies the type of notification that is sent when the number of learned MAC addresses exceeds the configured limit. |

# pw-class (VFI)

To configure the pseudowire class template name to use for the pseudowire, use the **pw-class** command in L2VPN bridge group bridge domain VFI pseudowire configuration mode. To delete the pseudowire class, use the **no** form of this command.

**pw-class** *class-name*
**no pw-class** *class-name*

## Syntax Description

| | |
|---|---|
| *class-name* | Pseudowire class name. |

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain VFI pseudowire configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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 attach the pseudowire class to the pseudowire:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# vfi v1
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi)# neighbor 10.1.1.2 pw-id 1000
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi-pw)# pw-class canada
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | Creates a bridge group so that it can contain bridge domains and then to assign network interfaces to the bridge domain. |

| Command | Description |
|---|---|
| l2vpn | Enters L2VPN configuration mode. |
| mpls static label (VPLS), on page 21 | Configures the MPLS static labels and the static labels for the access pseudowire configuration. |
| neighbor (VPLS), on page 25 | Adds an access pseudowire port to a bridge domain or a pseudowire to a bridge virtual forwarding interface (VFI). |
| vfi (VPLS), on page 80 | Configures virtual forwarding interface (VFI) parameters. |

# show l2vpn bridge-domain (VPLS)

To display information for the bridge ports such as attachment circuits and pseudowires for the specific bridge domains, use the **show l2vpn bridge-domain** command in EXEC mode.

**show l2vpn bridge-domain** [{**bd-name** *bridge-domain-name* | **brief** | **detail** | **group** *bridge-domain-group-name* | **interface** *type interface-path-id* | **pw-id** *value* }] **neighbor IP-address** [{**pw-id** *value* | **summary**}]

## Syntax Description

| | |
|---|---|
| **bd-name** *bridge-domain-name* | (Optional) Displays the bridges by the bridge ID. The *bridge-domain-name* argument is used to name a bridge domain. |
| **brief** | (Optional) Displays brief information about the bridges. |
| **detail** | (Optional) Displays the output for the Layer 2 VPN (L2VPN) to indicate whether or not the MAC withdrawal feature is enabled and the number of MAC withdrawal messages that are sent or received from the pseudowire. |
| **group** *bridge-domain-group-name* | (Optional) Displays filter information on the bridge-domain group name. The *bridge-domain-group-name* argument is used to name the bridge domain group. |
| **interface** | (Optional) Displays the filter information for the interface on the bridge domain. |
| *type* | Interface type. For more information, use the question mark (?) online help function. |
| *interface-path-id* | Physical interface or virtual interface.<br>**Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router.<br>For more information about the syntax for the router, use the question mark (**?**) online help function. |
| **neighbor** *IP-address* | (Optional) Displays only the bridge domain that contains the pseudowires to match the filter for the neighbor. The *IP-address* argument is used to configure IP address of the neighbor. |
| **pw-id** *value* | (Optional) Displays the filter for the pseudowire ID. The range is from 1 to 4294967295. |
| **summary** | (Optional) Displays the summary information for the bridge domain. |

## Command Default

None

## Command Modes

EXEC mode

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | This command was introduced. |

| Release | Modification |
|---|---|
| Release 5.1.2 | This command was modified to enable filtering the command output for specific pseudowire with just the pseudowire ID. |

## Usage Guidelines

To use commands of this module, 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 any command, contact your AAA administrator for assistance.

Use the **interface** keyword to display only the bridge domain that contains the specified interface as an attachment circuit. In the sample output, only the attachment circuit matches the filter that is displayed. No pseudowires are displayed.

**Note** For Cisco IOS XR software Release 5.1.2 and above, you can filter the command output for a specific pseudowire with just the pseudowire ID. However, in case of configurations with BGP Auto-discovery with BGP or LDP signaling (in VPLS), you can specify the pseudowire only with the combination of the neighbor filter and the pseudowire ID.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read |

## Examples

This is the sample output for **show l2vpn bridge-domain** command with VxLAN parameters configured:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain bd-name bg1_bd1 detail
Legend: pp = Partially Programmed.
Bridge group: bg1, bridge-domain: bg1_bd1, id: 0, state: up, ShgId: 0, MSTi: 0
  Coupled state: disabled
  MAC learning: enabled
  MAC withdraw: enabled
    MAC withdraw for Access PW: enabled
    MAC withdraw sent on: bridge port up
    MAC withdraw relaying (access to access): disabled
  Flooding:
    Broadcast & Multicast: enabled
    Unknown unicast: enabled
  MAC aging time: 300 s, Type: inactivity
  MAC limit: 4000, Action: none, Notification: syslog
  MAC limit reached: no
  MAC port down flush: enabled
  MAC Secure: disabled, Logging: disabled
  Split Horizon Group: none
  Dynamic ARP Inspection: disabled, Logging: disabled
  IP Source Guard: disabled, Logging: disabled
  DHCPv4 snooping: disabled
  IGMP Snooping: enabled
  IGMP Snooping profile: none
  MLD Snooping profile: none
```

```
Storm Control: disabled
Bridge MTU: 1500
MIB cvplsConfigIndex: 1
Filter MAC addresses:
P2MP PW: disabled
Create time: 30/03/2015 22:25:38 (00:26:08 ago)
No status change since creation
ACs: 2 (2 up), VFIs: 1, PWs: 0 (0 up), PBBs: 0 (0 up)
List of ACs:
  AC: BVI1, state is up
    Type Routed-Interface
    MTU 1514; XC ID 0x80000001; interworking none
    BVI MAC address:
      1000.4444.0001
  AC: GigabitEthernet0/8/0/0.1, state is up
    Type VLAN; Num Ranges: 1
    Outer Tag: 1
    VLAN ranges: [1001, 1001]
    MTU 1508; XC ID 0x508000a; interworking none
    MAC learning: enabled
    Flooding:
      Broadcast & Multicast: enabled
      Unknown unicast: enabled
    MAC aging time: 300 s, Type: inactivity
    MAC limit: 4000, Action: none, Notification: syslog
    MAC limit reached: no
    MAC port down flush: enabled
    MAC Secure: disabled, Logging: disabled
    Split Horizon Group: none
    Dynamic ARP Inspection: disabled, Logging: disabled
    IP Source Guard: disabled, Logging: disabled
    DHCPv4 snooping: disabled
    IGMP Snooping: enabled
    IGMP Snooping profile: none
    MLD Snooping profile: none
    Storm Control: bridge-domain policer
    Static MAC addresses:

    Storm control drop counters:
      packets: broadcast 0, multicast 0, unknown unicast 0
      bytes: broadcast 0, multicast 0, unknown unicast 0
    Dynamic ARP inspection drop counters:
      packets: 0, bytes: 0
    IP source guard drop counters:
      packets: 0, bytes: 0
List of VNIs:
  VNI 1, state is up
    XC ID 0x80000014
    Encap type VXLAN
    Overlay nve100, Source 1.1.1.1, Multicast Group 225.1.1.1, UDP Port 4789
    Anycast VTEP 100.1.1.1, Anycast Multicast Group 224.10.10.1
    MAC learning: enabled
    Flooding:
      Broadcast & Multicast: enabled
      Unknown unicast: enabled
    MAC aging time: 300 s, Type: inactivity
    MAC limit: 4000, Action: none, Notification: syslog
    MAC limit reached: no
    MAC port down flush: enabled
    MAC Secure: disabled, Logging: disabled
    Split Horizon Group: none
    Dynamic ARP Inspection: disabled, Logging: disabled
    IP Source Guard: disabled, Logging: disabled
    DHCPv4 snooping: disabled
```

```
      IGMP Snooping: enabled
      IGMP Snooping profile: none
      MLD Snooping profile: none
      Storm Control: bridge-domain policer

  List of Access PWs:
  List of VFIs:
    VFI bg1_bd1_vfi (up)
      VFI Statistics:
        drops: illegal VLAN 0, illegal length 0
```

This table describes the significant fields shown in the display.

The following sample output shows information for the bridge ports such as attachment circuits and pseudowires for the specific bridge domains:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain

Bridge group: g1, bridge-domain: bd1, id: 0, state: up, ShgId: 0, MSTi: 0
  Aging: 300 s, MAC limit: 4000, Action: none, Notification: syslog
  Filter MAC addresses: 0
  ACs: 1 (1 up), VFIs: 1, PWs: 1 (1 up)
  List of ACs:
    Gi0/1/0/0, state: up, Static MAC addresses: 2, MSTi: 0 (unprotected)
  List of Access PWs:
  List of VFIs:
    VFI 1
      Neighbor 10.1.1.1 pw-id 1, state: up, Static MAC addresses: 0
```

This table describes the significant fields shown in the display.

***Table 1: show l2vpn bridge-domain Command Field Descriptions***

| Field | Description |
|---|---|
| Bridge group | Name of bridge domain group is displayed. |
| bridge-domain | Name of bridge domain is displayed. |
| id | ID assigned to this bridge domain is displayed. |
| state | Current state of the bridge domain is displayed. |

The following example shows sample output for a bridge named bd1:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain bd-name bd1

Bridge group: g1, bridge-domain: bd1, id: 0, state: up, ShgId: 0, MSTi: 0
  Aging: 300 s, MAC limit: 4000, Action: none, Notification: syslog
  Filter MAC addresses: 0
  ACs: 1 (1 up), VFIs: 1, PWs: 1 (1 up)
  List of ACs:
    Gi0/1/0/0, state: up, Static MAC addresses: 2, MSTi: 0 (unprotected)
  List of Access PWs:
  List of VFIs:
    VFI 1
      Neighbor 10.1.1.1 pw-id 1, state: up, Static MAC addresses: 0
```

The following sample output shows brief information about the bridges:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain brief

Bridge Group/Bridge-Domain Name  ID    State      Num ACs/up     Num PWs/up
-------------------------------- ----- ---------- -------------- --------------
g1/bd1                           0     up         1/1            1/1
```

This table describes the significant fields shown in the display.

***Table 2: show l2vpn bridge-domain brief Command Field Descriptions***

| Field | Description |
|---|---|
| Bridge Group/Bridge-Domain Name | Bridge domain group name followed by the bridge domain name are displayed. |
| ID | ID assigned to this bridge domain is displayed. |
| State | Current state of the bridge domain is displayed. |
| Num ACs/up | Total number of attachment circuits that are up in this bridge domain is displayed. |
| Num PWs/up | Total number of pseudowires that are up in this bridge domain is displayed. The count includes both VFI pseudowires and access pseudowires. |

The following sample output shows detailed information:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain detail

Bridge group: g1, bridge-domain: bd1, id: 0, state: up, ShgId: 0, MSTi: 0
  MAC learning: enabled
  MAC withdraw: disabled
  Flooding:
    Broadcast & Multicast: enabled
    Unknown unicast: enabled
  MAC aging time: 300 s, Type: inactivity
  MAC limit: 4000, Action: none, Notification: syslog
  MAC limit reached: yes
  Security: disabled
  DHCPv4 snooping: disabled
  MTU: 1500
  Filter MAC addresses:
  ACs: 1 (1 up), VFIs: 1, PWs: 1 (1 up)
  List of ACs:
    AC: GigabitEthernet0/1/0/0, state is up
      Type Ethernet
      MTU 1500; XC ID 0x2000001; interworking none; MSTi 0 (unprotected)
      MAC learning: enabled
      Flooding:
        Broadcast & Multicast: enabled
        Unknown unicast: enabled
      MAC aging time: 300 s, Type: inactivity
      MAC limit: 4000, Action: none, Notification: syslog
      MAC limit reached: yes
      Security: disabled
      DHCPv4 snooping: disabled
      Static MAC addresses:
        0000.0000.0000
        0001.0002.0003
```

```
    Statistics:
      packet totals: receive 3919680,send 9328
      byte totals: receive 305735040,send 15022146
  List of Access PWs:
  List of VFIs:
    VFI 1
      PW: neighbor 1.1.1.1, PW ID 1, state is up ( established )
        PW class mpls, XC ID 0xff000001
        Encapsulation MPLS, protocol LDP
        PW type Ethernet, control word disabled, interworking none
        PW backup disable delay 0 sec
        Sequencing not set
                MPLS         Local                          Remote
          ------------ ------------------------------ -------------------------
          Label        16003                          16003
          Group ID     0x0                            0x0
          Interface    1                              1
          MTU          1500                           1500
          Control word disabled                       disabled
          PW type      Ethernet                       Ethernet
          VCCV CV type 0x2                            0x2
                       (LSP ping verification)        (LSP ping verification)
          VCCV CC type 0x2                            0x2
                       (router alert label)           (router alert label)
          ------------ ------------------------------ -------------------------
        Create time: 12/03/2008 14:03:00 (17:17:30 ago)
        Last time status changed: 13/03/2008 05:57:58 (01:22:31 ago)
        MAC withdraw message: send 0 receive 0
        Static MAC addresses:
        Statistics:
          packet totals: receive 3918814, send 3918024
          byte totals: receive 305667492, send 321277968
      VFI Statistics:
        drops: illegal VLAN 0, illegal length 0
```

The following sample output shows that when a bridge operates in VPWS mode, the irrelevant information for MAC learning is suppressed:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain detail

Bridge group: foo_group, bridge-domain: foo_bd, id: 0, state: up, ShgId: 0
  VPWS Mode
  MTU: 1500
  ACs: 1 (0 up), VFIs: 1, PWs: 2 (2 up)
  List of ACs:
    AC: GigabitEthernet0/5/1/4, state is admin down
      Type Ethernet      MTU 1500; XC ID 1; interworking none
    Static MAC addresses:
      Statistics:
        packet totals: receive 0,send 0
        byte totals: receive 0,send 0
  List of VFIs:
    VFI foo_vfi
      PW: neighbor 1.1.1.1, PW ID 1, state is up ( established )
        PW class not set
        Encapsulation MPLS, protocol LDP
        PW type Ethernet, control word enabled, interworking none
        Sequencing not set
          MPLS         Local                          Remote
          ------------ ------------------------------ ------------------------------
          Label        16001                          16001
          Group ID   unassigned                   unknown
          Interface    siva/vfi                       siva/vfi
```

```
    MTU          1500                          1500
    Control word enabled                       enabled
    PW type      Ethernet                      Ethernet
    VCCV CV type 0x2                           0x2
                 (LSP ping verification)       (LSP ping verification)
    VCCV CC type 0x3                           0x3
                (control word)                (control word)
                 (router alert label)          (router alert label)
    ------------ ------------------------------ ------------------------------
  Create time: 25/06/2007 05:29:42 (2w0d ago)
  Last time status changed: 27/06/2007 06:50:35 (1w5d ago)
Static MAC addresses:
PW: neighbor 1.1.1.1, PW ID 2, state is up ( established )
  PW class not set
  Encapsulation MPLS, protocol LDP
  PW type Ethernet, control word enabled, interworking none
  Sequencing not set
    MPLS         Local                         Remote
    ------------ ------------------------------ ------------------------------
    Label        16002                         16002
    Group ID     unassigned                    unknown
    Interface    siva/vfi                      siva/vfi
    MTU          1500                          1500
    Control word enabled                       enabled
    PW type      Ethernet                      Ethernet
    VCCV CV type 0x2                           0x2
                 (LSP ping verification)       (LSP ping verification)
    VCCV CC type 0x3                           0x3
                (control word)                (control word)
                 (router alert label)          (router alert label)
    ------------ ------------------------------ ------------------------------
  Create time: 25/06/2007 05:29:42 (2w0d ago)
  Last time status changed: 27/06/2007 06:50:35 (1w5d ago)
Static MAC addresses:
Statistics:
  drops: illegal VLAN 0, illegal length 0
```

This table describes the significant fields shown in the display.

***Table 3: show l2vpn bridge-domain detail Command Field Descriptions***

| Field | Description |
|---|---|
| Bridge group | Name of bridge domain group is displayed. |
| bridge-domain | Name of bridge domain is displayed. |
| ID | ID assigned to this bridge domain is displayed. |
| state | Current state of the bridge domain is displayed. |
| MSTi | ID for the Multiple Spanning Tree. |

The following sample output shows filter information about the bridge-domain group named g1:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain group g1

Bridge group: g1, bridge-domain: bd1, id: 0, state: up, ShgId: 0, MSTi: 0
  Aging: 300 s, MAC limit: 4000, Action: none, Notification: syslog
  Filter MAC addresses: 0
  ACs: 1 (1 up), VFIs: 1, PWs: 1 (1 up)
```

```
  List of ACs:
    Gi0/1/0/0, state: up, Static MAC addresses: 2, MSTi: 0 (unprotected)
  List of Access PWs:
  List of VFIs:
    VFI 1
      Neighbor 1.1.1.1 pw-id 1, state: up, Static MAC addresses: 0
```

The following sample output shows display the filter information for the interface on the bridge domain:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain interface gigabitEthernet 0/1/0/0

Bridge group: g1, bridge-domain: bd1, id: 0, state: up, ShgId: 0, MSTi: 0
  Aging: 300 s, MAC limit: 4000, Action: none, Notification: syslog
  Filter MAC addresses: 0
  ACs: 1 (1 up), VFIs: 1, PWs: 1 (1 up)
  List of ACs:
    Gi0/1/0/0, state: up, Static MAC addresses: 2, MSTi: 0 (unprotected)
```

The following sample output shows that the bridge domain contains the pseudowires to match the filter for the neighbor:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain neighbor 1.1.1.1

Bridge group: g1, bridge-domain: bd1, id: 0, state: up, ShgId: 0, MSTi: 0
  Aging: 300 s, MAC limit: 4000, Action: none, Notification: syslog
  Filter MAC addresses: 0
  ACs: 1 (1 up), VFIs: 1, PWs: 1 (1 up)
  List of Access PWs:
  List of VFIs:
    VFI 1
      Neighbor 1.1.1.1 pw-id 1, state: up, Static MAC addresses: 0
```

The following sample output shows the summary information for the bridge domain:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain summary

Number of groups: 1, bridge-domains: 1, Up: 1, Shutdown: 0
Number of ACs: 1 Up: 1, Down: 0
Number of PWs: 1 Up: 1, Down: 0
```

This example shows the sample output of a configured flow label:

```
RP/0/RP0/CPU0:router# show l2vpn bridge-domain detail
Bridge group: g1, bridge-domain: d1, id: 0, state: up, ShgId: 0, MSTi: 0
 ......
  PW: neighbor 3.3.3.3, PW ID 2, state is up ( established )
    PW class class1, XC ID 0x1000002
    Encapsulation MPLS, protocol LDP
    PW type Ethernet, control word disabled, interworking none
    PW backup disable delay 0 sec
  Sequencing not set
    Flow label flags configured (Rx=1,Tx=1), negotiated (Rx=0,Tx=1)
```

This table describes the significant fields shown in the display.

*Table 4: show l2vpn bridge-domain summary Command Field Descriptions*

| Field | Description |
|---|---|
| Number of groups | Number of configured bridge domain groups is displayed. |
| bridge-domains | Number of configured bridge domains is displayed. |
| Shutdown | Number of bridge domains that are in Shutdown state is displayed. |
| Number of ACs | Number of attachment circuits that are in Up state and Down state are displayed. |
| Number of PWs | Number of pseudowires that are in Up state and Down state are displayed. This includes the VFI pseudowire and the access pseudowire. |

## Related Commands

| Command | Description |
|---|---|
| clear l2vpn bridge-domain (VPLS), on page 8 | Clears the MAC addresses and restarts the bridge domains on the router. |

# show l2vpn forwarding bridge-domain (VPLS)

To display information on the bridge that is used by the forwarding layer, use the **show l2vpn forwarding bridge-domain** command in EXEC mode.

**show l2vpn forwarding bridge-domain** [*bridge-domain-name*] {**detail** | **hardware** {**egress** | **ingress**}} **location** *node-id*

## Syntax Description

| | |
|---|---|
| *bridge-domain-name* | (Optional) Name of a bridge domain. |
| **detail** | Displays all the detailed information on the attachment circuits and pseudowires. |
| **hardware** | Displays the hardware location entry. |
| **egress** | Reads information from the egress PSE. |
| **ingress** | Reads information from the ingress PSE. |
| **location** *node-id* | Displays the bridge-domain information for the specified location. The *node-id* argument is entered in the *rack/slot/module* notation. |

## Command Default

None

## Command Modes

EXEC

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

For each bridge, you can display summary information about the number of bridge ports, number of MAC addresses, configured VXLANs and so forth.

The **detail** keyword displays detailed information on the attachment circuits and pseudowires, and is meant for field investigation by a specialized Cisco engineer.

**Note** All bridge ports in the bridge domain on that line card are displayed. Therefore, if the bridge domain contains non-local bridge ports, those are displayed as well.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read |

## Examples

The following sample output shows bridge-domain information for location 0/1/CPU0:

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain location 0/1/CPU0

Bridge-Domain Name               ID     Ports addr   Flooding Learning State
-------------------------------- ------ ----- ------ -------- -------- ---------
g1:bd1

Bridge-domain name: g1:bd1, id: 0, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: yes
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 2
 Number of MAC addresses: 65536
 Multi-spanning tree instance: 0

  GigabitEthernet0/1/0/0, state: oper up
    Number of MAC: 32770
    Sent(Packets/Bytes): 0/21838568
    Received(Packets/Bytes): 5704781/444972918

  Nbor 1.1.1.1 pw-id 1
    Number of MAC: 32766
    Sent(Packets/Bytes): 0/0
    Received(Packets/Bytes): 5703987/444910986
            0      2     65536  Enabled  Enabled  UP
```

The following sample output shows detailed information for hardware location 0/1/CPU0 from the egress pse:

```
RP/0/RP0/CPU0:router

Bridge-domain name: g1:bd1, id: 0, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: yes
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 2
 Number of MAC addresses: 65536
 Multi-spanning tree instance: 0

================ GSR HW Information ================

------------------------------------------------
           SHG-TX rewrite details
------------------------------------------------
------------------------------------------------
 HW Rewrite 0 Detail :
------------------------------------------------
```

```
    Rewrite HW Address  : 0x00060000
    packets 0  bytes 0
 Raw data:
[ 0x04018180 04018190 040181a0 040181b0 ]
[ 0x04018170 00000000 80360000 000bfff4 ]
[ 0x00000000 00000000 00000000 00000000 ]

------------------------------------------------
           SHG-TX encap details
------------------------------------------------
outer_etype:                    0
outer_vlan_id:                  0
gather_profile:                 0
inner_vlan_id:                  0
so_l2_len_adjust:               0
------------------------------------------------
           SHG-TX mgid details
------------------------------------------------
          Base MGIDs for default mgid
base_mgid[0]:              0x0003fffb
base_mgid[1]:              0x0003fffb
base_mgid[2]:              0x0003fffb
base_mgid[3]:              0x0003fffb
base_mgid[4]:              0x0003fffb
base_mgid[5]:              0x0003fffb
base_mgid[6]:              0x0003fffb
base_mgid[7]:              0x0003fffb
         MGID Entries for default mgid
oi[0]:             0
oq[0]:             16384
xc_id[0]:          1
mgid_idx[0]:       0x00000000
next_mgid[0]:      0x00000000
------------------------------------------------
 VMR 0 Details
------------------------------------------------
vmrid: 0x5f002010
Value: 0xc0 0x00 0x1f 0xff 0xff 0xff 0xff 0xff 0xfd
Mask : 0x00 0x00 0x1f 0xff 0xff 0xff 0xff 0xff 0xe0
Result 0x32003000
================================================

  GigabitEthernet0/1/0/0, state: oper up
    Number of MAC: 32770
    Sent(Packets/Bytes): 749/22989834
    Received(Packets/Bytes): 5732104/447104112

================ GSR HW Information ================

------------------------------------------------
           BP-TX-AC rewrite details
------------------------------------------------

 BP is local


------------------------------------------------
 BP L2 Uidb Details
------------------------------------------------
l2fwd_enabled:                  true
plim_enabled:                   true
l2fwd_type:                     4
l2_ac_type:                     0
xconn_id:                       0
```

```
bridge_id:                      0
shg id:                         0
unicast flooding enabled:       0
multicast flooding enabled:     0
broadcast flooding enabled:     0
mac learning enabled:           0
Is AC Port mode?:           0
-------------------------------------------------
 HW Rewrite 0 Detail :
-------------------------------------------------
    Rewrite HW Address  : 0x59eff314
    packets 0  bytes 0
    HFA Bits 0x0 gp 0 mtu 1580  (REW)
    OI 0x3fffc OutputQ 0 Output-port 0x36 local_outputq 0x0
 Raw data:
[ 0x00000000 0036062c 0003fffc 00000000 ]
[ 0x00000000 00000000 0d103600 00000010 ]
[ 0x00000000 00000000 00000000 00000000 ]

-------------------------------------------------
 BP OI/OQ Details
-------------------------------------------------
oi[0]:         0x00000000        oq[0]            16384
oi[1]:         0x00000000        oq[1]            65535
oi[2]:         0x00000000        oq[2]            65535
oi[3]:         0x00000000        oq[3]            65535
oi[4]:         0x00000000        oq[4]            65535
oi[5]:         0x00000000        oq[5]            65535
oi[6]:         0x00000000        oq[6]            65535
oi[7]:         0x00000000        oq[7]            65535
-------------------------------------------------
 Sram table entry details
-------------------------------------------------
sram_data: 0xa000400c
=================================================

  Nbor 1.1.1.1 pw-id 1
    Number of MAC: 32766
    Sent(Packets/Bytes): 0/0
    Received(Packets/Bytes): 5731250/447037500

================ GSR HW Information ================

-------------------------------------------------
           BP-TX-AC rewrite details
-------------------------------------------------
-------------------------------------------------
 BP OI/OQ Details
-------------------------------------------------
oi[0]:         0x00000000        oq[0]            65535
oi[1]:         0x00000000        oq[1]            65535
oi[2]:         0x00000000        oq[2]            65535
oi[3]:         0x00000000        oq[3]            65535
oi[4]:         0x00000000        oq[4]            65535
oi[5]:         0x00000000        oq[5]            65535
oi[6]:         0x00000000        oq[6]            65535
oi[7]:         0x00000000        oq[7]            65535
-------------------------------------------------
 BP Encap Info
-------------------------------------------------
mac_length:   0
mac_string:
egress_slot:  2
num_tags:     1
```

```
 tags:        {16001, }
if_handle:    0x03000500
==================================================
```

The following sample output shows the bridge-domain information for the specified location:

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain g1:bd1 location 0/1/CPU0

Bridge-Domain Name               ID     Ports addr   Flooding Learning State
-------------------------------- ------ ----- ------ -------- -------- ---------
g1:bd1                           0      2     65536  Enabled  Enabled  UP
```

The following sample output shows the hardware information for a specific bridge-domain:

```
RP/0/RP0/CPU0:router#show l2vpn bridge-domain hardware

Bridge group: aa, bridge-domain name: g1, id:0
  FGID Boardcast [version 1]:
   Allocate_count: 2048, Retry_count: 0, Realloc_on: Off
   Status_flag: (0x4) Replay-end
   ALL 44032, VFI 44033

Bridge group: aa, bridge-domain name: g2, id:1
  FGID Boardcast [version 1]:
   Allocate_count: 2048, Retry_count: 0, Realloc_on: Off
   Status_flag: (0x4) Replay-end
   ALL 44034, VFI 44035
```

The following sample output shows the hardware information for the line card, for a specific bridge-domain on the ingress detail location:

```
RP/0/RP0/CPU0:router#
show l2vpn forwarding bridge-domain hardware ingress detail location 0/2/CPU0

Bridge-domain name: aa:g1, id: 0, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: no
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 4
 Number of MAC addresses: 0
 Multi-spanning tree instance: 0

  INGRESS BRIDGE [version, state]: [1, CREATED]

        TCAM entry seq#: 1024 Key: [BID: 0 MAC: default]
        HW: 0x4c000000 0x000080ac 0x00010000 0x80ac0100
        SW: 0x4c000000 0x000080ac 0x00010000 0x80ac0100

        SMAC:  action: PUNT  state: NO REFRESH
        DMAC:  action: FLOOD, flood_enable: enable
        FGID:  All: 44032, VFI: 44033, MCAST_Sponge_q: 16
        Fabric_multicast1: 1 Fabric_multicast2: 1

        Admin State: UP
        MTU: 1500
```

```
      Number of MAC addresses: 1 (0 MAC + 1 default)
      ACL NAME (ACL-ID): VPLS Special (4096)
      TCAM region handle : 5


GigabitEthernet0/2/0/1.1, state: oper up
  Number of MAC: 0
  Statistics:
    packets: received 0, sent 0
    bytes: received 0, sent 0

INGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 1 (0x1280001)
      Bridge ID: 0, Split Horizon ID: 0
      RX TLU1   : 0x4c00
      RX TLU2   : 0x1013c00
      RX TLU3   : 0x200ba00
      RX TLU4   : 0x3000c00

 INGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [1] TCAM-Key: (UIDB:0x2 O-vlan:1 I-vlan:0 Ether-Type:0x8100)
      HW: 0x24001000 0x01280001 0x10128000 0xc7ff7d00
      SW: 0x24001000 0x01280001 0x10128000 0xc7ff7d00

      Service type: 4 (bridging pmp)
      Entry type: 1 (fwd)
      Bridge_ID : 0
      ACL_ID : 4096
      Xconnect_ID : 0x1280001
      SplitHorizonGroup_ID : 0
      Rewrite supported: 0 (No)
      PW_mode: 0 (vc-type 5)
      AC-type: 1 (vlan-mode)
      Interface handle: 0x128000
      Ingress AC stats: 0x7ff7d

      SMAC Learning: enable
      DMAC Flooding: enable

GigabitEthernet0/2/0/1.2, state: oper up
  Number of MAC: 0
  Statistics:
    packets: received 0, sent 0
    bytes: received 0, sent 0

INGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 2 (0x1280002)
      Bridge ID: 0, Split Horizon ID: 0
      RX TLU1   : 0x4c01
      RX TLU2   : 0x1013c01
      RX TLU3   : 0x200ba01
      RX TLU4   : 0x3000c01

 INGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [2] TCAM-Key: (UIDB:0x2 O-vlan:2 I-vlan:0 Ether-Type:0x8100)
      HW: 0x24001000 0x01280002 0x10128002 0xc7ff7a00
      SW: 0x24001000 0x01280002 0x10128002 0xc7ff7a00

      Service type: 4 (bridging pmp)
      Entry type: 1 (fwd)
```

```
      Bridge_ID : 0
      ACL_ID : 4096
      Xconnect_ID : 0x1280002
      SplitHorizonGroup_ID : 0
      Rewrite supported: 0 (No)
      PW_mode: 0 (vc-type 5)
      AC-type: 1 (vlan-mode)
      Interface handle: 0x128002
      Ingress AC stats: 0x7ff7a

      SMAC Learning: enable
      DMAC Flooding: enable

  GigabitEthernet0/2/0/1.3, state: oper up
    Number of MAC: 0
    Statistics:
      packets: received 0, sent 0
      bytes: received 0, sent 0

  INGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 3 (0x1280003)
      Bridge ID: 0, Split Horizon ID: 0
      RX TLU1   : 0x4c02
      RX TLU2   : 0x1013c02
      RX TLU3   : 0x200ba02
      RX TLU4   : 0x3000c02

   INGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [3] TCAM-Key: (UIDB:0x2 O-vlan:3 I-vlan:0 Ether-Type:0x8100)
      HW: 0x24001000 0x01280003 0x10128004 0xc7ff7700
      SW: 0x24001000 0x01280003 0x10128004 0xc7ff7700

      Service type: 4 (bridging pmp)
      Entry type: 1 (fwd)
      Bridge_ID : 0
      ACL_ID : 4096
      Xconnect_ID : 0x1280003
      SplitHorizonGroup_ID : 0
      Rewrite supported: 0 (No)
      PW_mode: 0 (vc-type 5)
      AC-type: 1 (vlan-mode)
      Interface handle: 0x128004
      Ingress AC stats: 0x7ff77

      SMAC Learning: enable
      DMAC Flooding: enable

  Nbor 5.0.0.5 pw-id 1
    Number of MAC: 0
    Statistics:
      packets: received 0, sent 0
      bytes: received 0, sent 0


  INGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: ATOM
      XID: 127/15/CPU0 : 1 (0xfff80001)
      Bridge ID: 0, Split Horizon ID: 1
      VC label: 16006
      Control-word supported: No

Bridge-domain name: aa:g2, id: 1, state: up
```

```
MAC learning: enabled
Flooding:
  Broadcast & Multicast: enabled
  Unknown unicast: enabled
MAC aging time: 300 s, Type: inactivity
MAC limit: 4000, Action: none, Notification: syslog
MAC limit reached: no
Security: disabled
DHCPv4 snooping: profile not known on this node
Bridge MTU: 1500 bytes
Number of bridge ports: 2
Number of MAC addresses: 0
Multi-spanning tree instance: 0

 INGRESS BRIDGE [version, state]: [1, CREATED]

       TCAM entry seq#: 1025 Key: [BID: 1 MAC: default]
       HW: 0x4c000000 0x000080ac 0x02010000 0x80ac0300
       SW: 0x4c000000 0x000080ac 0x02010000 0x80ac0300

       SMAC:  action: PUNT  state: NO REFRESH
       DMAC:  action: FLOOD, flood_enable: enable
       FGID:  All: 44034, VFI: 44035, MCAST_Sponge_q: 16
       Fabric_multicast1: 1 Fabric_multicast2: 1

       Admin State: UP
       MTU: 1500
       Number of MAC addresses: 1 (0 MAC + 1 default)
       ACL NAME (ACL-ID): VPLS Special (4097)
       TCAM region handle : 5


 GigabitEthernet0/2/0/1.4, state: oper up
   Number of MAC: 0
   Statistics:
     packets: received 0, sent 0
     bytes: received 0, sent 0

 INGRESS BRIDGE PORT [version, state]: [1, BOUND]
       Bridge Port Type: AC
       XID: 0/2/CPU0 : 4 (0x1280004)
       Bridge ID: 1, Split Horizon ID: 0
       RX TLU1   : 0x4c03
       RX TLU2   : 0x1013c03
       RX TLU3   : 0x200ba03
       RX TLU4   : 0x3000c03

  INGRESS AC [version, state]: [1, BOUND]

       Xconnect-ID: [4] TCAM-Key: (UIDB:0x2 O-vlan:4 I-vlan:0 Ether-Type:0x8100)
       HW: 0x24003001 0x01280004 0x10128006 0xc7ff7400
       SW: 0x24003001 0x01280004 0x10128006 0xc7ff7400

       Service type: 4 (bridging pmp)
       Entry type: 1 (fwd)
       Bridge_ID : 1
       ACL_ID : 4097
       Xconnect_ID : 0x1280004
       SplitHorizonGroup_ID : 0
       Rewrite supported: 0 (No)
       PW_mode: 0 (vc-type 5)
       AC-type: 1 (vlan-mode)
       Interface handle: 0x128006
       Ingress AC stats: 0x7ff74
```

```
      SMAC Learning: enable
      DMAC Flooding: enable

 Nbor 5.0.0.5 pw-id 2
   Number of MAC: 0
   Statistics:
     packets: received 0, sent 0
     bytes: received 0, sent 0

 INGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: ATOM
      XID: 127/15/CPU0 : 2 (0xfff80002)
      Bridge ID: 1, Split Horizon ID: 1
      VC label: 16008
      Control-word supported: No
```

The following sample output shows the hardware information of the route processor, for a specific bridge-domain on the ingress detail location:

```
RP/0/RP0/CPU0:router#show l2vpn forwarding bridge-domain hardware ingress detail location
0/RP0/CPU0

Bridge-domain name: aa:g1, id: 0, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: no
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 4
 Number of MAC addresses: 0
 Multi-spanning tree instance: 0

   BRIDGE [version, state]: [1, CREATED]
        Bridge ID: 0
         FGID1: 44032   NodeCount: 1   Info_len: 24   XID_count: 4
         FGID2: 44033   NodeCount: 1   Info_len: 20   XID_count: 3

        FGID1 Membership list:
         node-id: 0/2/CPU0 (0x21)   RSI: 0x25   XID_count: 4
          XID:  0x1280001       0x1280002       0x1280003       0xfff80001

        FGID2 Membership list:
         node-id: 0/2/CPU0 (0x21)   RSI: 0x25   XID_count: 3
          XID:  0x1280001       0x1280002       0x1280003

  GigabitEthernet0/2/0/1.1, state: oper up
    Number of MAC: 0
    Statistics:
      packets: received 0, sent 0
      bytes: received 0, sent 0

   AC [version, state]: [1, BOUND]
        XID: 0x1280001   RSI: 0x25   Bridging: TRUE


  GigabitEthernet0/2/0/1.2, state: oper up
    Number of MAC: 0
```

```
    Statistics:
      packets: received 0, sent 0
      bytes: received 0, sent 0

   AC [version, state]: [1, BOUND]
        XID: 0x1280002   RSI: 0x25   Bridging: TRUE


  GigabitEthernet0/2/0/1.3, state: oper up
    Number of MAC: 0
    Statistics:
      packets: received 0, sent 0
      bytes: received 0, sent 0

   AC [version, state]: [1, BOUND]
        XID: 0x1280003   RSI: 0x25   Bridging: TRUE


  Nbor 5.0.0.5 pw-id 1
    Number of MAC: 0


Bridge-domain name: aa:g2, id: 1, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: no
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 2
 Number of MAC addresses: 0
 Multi-spanning tree instance: 0

   BRIDGE [version, state]: [1, CREATED]
        Bridge ID: 1
         FGID1: 44034   NodeCount: 1   Info_len: 16   XID_count: 2
         FGID2: 44035   NodeCount: 1   Info_len: 12   XID_count: 1

        FGID1 Membership list:
         node-id: 0/2/CPU0 (0x21)   RSI: 0x25   XID_count: 2
          XID:  0x1280004       0xfff80002

        FGID2 Membership list:
         node-id: 0/2/CPU0 (0x21)   RSI: 0x25   XID_count: 1
          XID:  0x1280004

  GigabitEthernet0/2/0/1.4, state: oper up
    Number of MAC: 0
    Statistics:
      packets: received 0, sent 0
      bytes: received 0, sent 0

   AC [version, state]: [1, BOUND]
        XID: 0x1280004   RSI: 0x25   Bridging: TRUE


  Nbor 5.0.0.5 pw-id 2
    Number of MAC: 0
```

The following sample output shows the hardware information of the line card, for a specific bridge-domain on the egress detail location:

```
RP/0/RP0/CPU0:router#show l2vpn forwarding bridge-domain hardware egress detail location
0/2/CPU0

Bridge-domain name: aa:g1, id: 0, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: no
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 4
 Number of MAC addresses: 0
 Multi-spanning tree instance: 0

  EGRESS BRIDGE [version, state]: [1, CREATED]

        BID: 0   Total_oif_count: 4
        AC:  oif_count: 3  head_ptr: 0x9ff6e4f8  tail_ptr: 0x9ff6e480
        PW:  oif_count: 1  head_ptr: 0x9ff6e570

        PLU RESULT Key[Bridge-ID: 0]
        HW: 0x04008000 0x000a01c0 0x00000000 0x00000000
        SW: 0x04008000 0x000a01c0 0x00000000 0x00000000
        Entry_type: 1
        OLIST pointer: 0xa01
        OLIST channel: 3
        OLIST count: 4

        OIF[0] seg_type: AC xid: 0x1280003 Gi0/2/0/1.3 (ifh: 0x1280042)
        TLU RESULT tlu_addr: 0x3000a01 ch: 3 seg_type: 1
        HW: 0x80000002 0x00ba0080 0x01280003 0x00000000
        SW: 0x80000002 0x00ba0080 0x01280003 0x00000000
        SHG: 0
        UIDB: 2
        XID: 0x1280003
        OLIST pointer: 0xba00
        OLIST channel: 2

        OIF[1] seg_type: AC xid: 0x1280002 Gi0/2/0/1.2 (ifh: 0x1280022)
        TLU RESULT tlu_addr: 0x200ba00 ch: 2 seg_type: 1
        HW: 0x80000002 0x000a00c0 0x01280002 0x00000000
        SW: 0x80000002 0x000a00c0 0x01280002 0x00000000
        SHG: 0
        UIDB: 2
        XID: 0x1280002
        OLIST pointer: 0xa00
        OLIST channel: 3

        OIF[2] seg_type: AC xid: 0x1280001 Gi0/2/0/1.1 (ifh: 0x1280002)
        TLU RESULT tlu_addr: 0x3000a00 ch: 3 seg_type: 1
        HW: 0x80000002 0x00ba0180 0x01280001 0x00000000
        SW: 0x80000002 0x00ba0180 0x01280001 0x00000000
        SHG: 0
        UIDB: 2
        XID: 0x1280001
        OLIST pointer: 0xba01
```

```
      OLIST channel: 2

      OIF[3] seg_type: PW xid: 0xfff80001 ecd_ptr: 0x5206
      TLU RESULT tlu_addr: 0x200ba01 ch: 2 seg_type: 0
      HW: 0x01005206 0x00000000 0xfff80001 0x03e86000
      SW: 0x01005206 0x00000000 0xfff80001 0x03e86000
      SHG: 1
      XID: 0xfff80001
      OLIST pointer: 0x0
      OLIST channel: 0
      Control Word: Disabled
      VC label: 16006
      ECD/TLU1 pointer: 0x5206

GigabitEthernet0/2/0/1.1, state: oper up
  Number of MAC: 0
  Statistics:
    packets: received 0, sent 0
    bytes: received 0, sent 0

EGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 1 (0x1280001)
      Bridge ID: 0, Split Horizon ID: 0
      RX TLU1   : 0x4c00
      RX TLU2   : 0x1013c00
      RX TLU3   : 0x200ba00
      RX TLU4   : 0x3000c00

 EGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [1] TLU2-entry-addr: [0x200a001]
      HW: 0x8018b000 0x0000000b 0x00004001 0xfb7ba000
      SW: 0x8018b000 0x0000000b 0x00004001 0xfb7ba000

      Entry status: 1 (Fwd)
      AC_type: 1 (vlan-mode)
      Outer-vlan: 1
      Inner-vlan: 0
      Outer Ether Type: 0 (dot1q)
      AC_mtu: 1580
      Adjacency_type: 0
      Default EgressQ (SharqQ): 11
      PW mode: 0 (vc-type 5)
      Rewrite supported: 0 (No)
      Control-word supported: 0 (No)
      Egress AC stats: 0x7dbdd


GigabitEthernet0/2/0/1.2, state: oper up
  Number of MAC: 0
  Statistics:
    packets: received 0, sent 0
    bytes: received 0, sent 0

EGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 2 (0x1280002)
      Bridge ID: 0, Split Horizon ID: 0
      RX TLU1   : 0x4c01
      RX TLU2   : 0x1013c01
      RX TLU3   : 0x200ba01
      RX TLU4   : 0x3000c01
```

```
 EGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [2] TLU2-entry-addr: [0x200a002]
      HW: 0x8018b000 0x0000000b 0x00004002 0xfb7b4000
      SW: 0x8018b000 0x0000000b 0x00004002 0xfb7b4000

      Entry status: 1 (Fwd)
      AC_type: 1 (vlan-mode)
      Outer-vlan: 2
      Inner-vlan: 0
      Outer Ether Type: 0 (dot1q)
      AC_mtu: 1580
      Adjacency_type: 0
      Default EgressQ (SharqQ): 11
      PW mode: 0 (vc-type 5)
      Rewrite supported: 0 (No)
      Control-word supported: 0 (No)
      Egress AC stats: 0x7dbda


GigabitEthernet0/2/0/1.3, state: oper up
  Number of MAC: 0
  Statistics:
    packets: received 0, sent 0
    bytes: received 0, sent 0

EGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 3 (0x1280003)
      Bridge ID: 0, Split Horizon ID: 0
      RX TLU1   : 0x4c02
      RX TLU2   : 0x1013c02
      RX TLU3   : 0x200ba02
      RX TLU4   : 0x3000c02

 EGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [3] TLU2-entry-addr: [0x200a003]
      HW: 0x8018b000 0x0000000b 0x00004003 0xfb7ae000
      SW: 0x8018b000 0x0000000b 0x00004003 0xfb7ae000

      Entry status: 1 (Fwd)
      AC_type: 1 (vlan-mode)
      Outer-vlan: 3
      Inner-vlan: 0
      Outer Ether Type: 0 (dot1q)
      AC_mtu: 1580
      Adjacency_type: 0
      Default EgressQ (SharqQ): 11
      PW mode: 0 (vc-type 5)
      Rewrite supported: 0 (No)
      Control-word supported: 0 (No)
      Egress AC stats: 0x7dbd7


Nbor 5.0.0.5 pw-id 1
  Number of MAC: 0
  Statistics:
    packets: received 0, sent 0
    bytes: received 0, sent 0


EGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: ATOM
```

```
        XID: 127/15/CPU0 : 1 (0xfff80001)
        Bridge ID: 0, Split Horizon ID: 1
        VC label: 16006
        Control-word supported: No



Bridge-domain name: aa:g2, id: 1, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: no
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 2
 Number of MAC addresses: 0
 Multi-spanning tree instance: 0

  EGRESS BRIDGE [version, state]: [1, CREATED]

        BID: 1   Total_oif_count: 2
        AC:  oif_count: 1  head_ptr: 0x9ff6e534  tail_ptr: 0x9ff6e534
        PW:  oif_count: 1  head_ptr: 0x9ff6e5ac

        PLU RESULT Key[Bridge-ID: 1]
        HW: 0x04004000 0x000a02c0 0x00000000 0x00000000
        SW: 0x04004000 0x000a02c0 0x00000000 0x00000000
        Entry_type: 1
        OLIST pointer: 0xa02
        OLIST channel: 3
        OLIST count: 2

        OIF[0] seg_type: AC xid: 0x1280004 Gi0/2/0/1.4 (ifh: 0x1280062)
        TLU RESULT tlu_addr: 0x3000a02 ch: 3 seg_type: 1
        HW: 0x80000002 0x00ba0280 0x01280004 0x00000000
        SW: 0x80000002 0x00ba0280 0x01280004 0x00000000
        SHG: 0
        UIDB: 2
        XID: 0x1280004
        OLIST pointer: 0xba02
        OLIST channel: 2

        OIF[1] seg_type: PW xid: 0xfff80002 ecd_ptr: 0x5200
        TLU RESULT tlu_addr: 0x200ba02 ch: 2 seg_type: 0
        HW: 0x01005200 0x00000000 0xfff80002 0x03e88000
        SW: 0x01005200 0x00000000 0xfff80002 0x03e88000
        SHG: 1
        XID: 0xfff80002
        OLIST pointer: 0x0
        OLIST channel: 0
        Control Word: Disabled
        VC label: 16008
        ECD/TLU1 pointer: 0x5200

  GigabitEthernet0/2/0/1.4, state: oper up
    Number of MAC: 0
    Statistics:
      packets: received 0, sent 0
      bytes: received 0, sent 0
```

```
EGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 4 (0x1280004)
      Bridge ID: 1, Split Horizon ID: 0
      RX TLU1   : 0x4c03
      RX TLU2   : 0x1013c03
      RX TLU3   : 0x200ba03
      RX TLU4   : 0x3000c03

 EGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [4] TLU2-entry-addr: [0x200a004]
      HW: 0x8018b000 0x0000000b 0x00004004 0xfb7a8000
      SW: 0x8018b000 0x0000000b 0x00004004 0xfb7a8000

      Entry status: 1 (Fwd)
      AC_type: 1 (vlan-mode)
      Outer-vlan: 4
      Inner-vlan: 0
      Outer Ether Type: 0 (dot1q)
      AC_mtu: 1580
      Adjacency_type: 0
      Default EgressQ (SharqQ): 11
      PW mode: 0 (vc-type 5)
      Rewrite supported: 0 (No)
      Control-word supported: 0 (No)
      Egress AC stats: 0x7dbd4


Nbor 5.0.0.5 pw-id 2
  Number of MAC: 0
  Statistics:
    packets: received 0, sent 0
    bytes: received 0, sent 0


EGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: ATOM
      XID: 127/15/CPU0 : 2 (0xfff80002)
      Bridge ID: 1, Split Horizon ID: 1
      VC label: 16008
      Control-word supported: No
```

This table describes the significant fields shown in the display.

***Table 5: show l2vpn forwarding bridge-domain Command Field Descriptions***

| Field | Description |
|---|---|
| Bridge-Domain Name | Name of bridge domain is displayed. |
| Bridge ID | ID assigned to this bridge domain is displayed. |
| Ports | Number of ports that are part of this bridge domain is displayed. |
| MAC Addr | Number of MAC addresses that are learned on this bridge domain is displayed. |
| Flooding | Flooding of packets are displayed if they are enabled on this bridge domain. |
| Learning | Learning of MAC addresses are displayed if they are enabled on this bridge domain. |
| State | Current state of the bridge domain is displayed. |

**Related Commands**

| Command | Description |
|---|---|
| clear l2vpn bridge-domain (VPLS), on page 8 | Clears the MAC addresses and restarts the bridge domains on the router. |

# show l2vpn forwarding bridge-domain mac-address (VPLS)

To display the summary information for the MAC address, use the **show l2vpn forwarding bridge-domain mac-address** command in EXEC mode.

**show l2vpn forwarding bridge-domain** [*bridge-domain-name*] **mac-address** {*MAC-address* | **detail** | **hardware** {**egress** | **ingress**} | **interface** *type interface-path-id* | **neighbor** *address* **pw-id** *pw-id*} **location** *node-id*

## Syntax Description

| | |
|---|---|
| *bridge-domain-name* | (Optional) Name of a bridge domain. |
| *MAC-address* | MAC address. |
| **detail** | Displays detailed information for the MAC address. |
| **hardware** | Reads information from the hardware. |
| **egress** | Reads information from the egress PSE. |
| **ingress** | Reads information from the ingress PSE. |
| **interface** | Displays the match for the attachment circuit subinterface. |
| *type* | Interface type. For more information, use the question mark (?) online help function. |
| *interface-path-id* | Physical interface or virtual interface.<br>**Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router.<br>For more information about the syntax for the router, use the question mark (**?**) online help function. |
| **neighbor** *address* | Displays the match for the neighbor IP address. |
| **pw-id** *pw-id* | Displays the match for the pseudowire ID. |
| **location** *node-id* | Displays the bridge-domain information for the MAC address of the specified location. The *node-id* argument is entered in the *rack/slot/module* notation. |

## Command Default

None

## Command Modes

EXEC

## Command History

| Release | Modification |
|---|---|
| Release 3.7.0 | This command was introduced. |
| Release 3.7.2 | This command was introduced. |
| Release 3.8.0 | 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 |

## Examples

The following sample output shows the specified location of the bridge-domain name g1:bd1 for the MAC address:

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain g1:bd1 location 0/1/CPU0
                                Bridge       MAC
Bridge-Domain Name              ID     Ports addr   Flooding Learning State
------------------------------- ------ ----- ------ -------- -------- ---------
g1:bd1                          0      2     65536  Enabled  Enabled  UP
```

The following sample output shows the list of MAC addresses that are learned on a specified bridge and summary information for the addresses:

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain mac-address location 0/1/CPU0

Mac Address    Type    Learned from/Filtered on    LC learned Age
-------------------------------------------------------------------------------
0000.0000.0000 static  Gi0/1/0/0                   N/A        N/A
0000.0001.0101 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0102 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0103 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0104 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0105 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0106 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0107 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0108 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0109 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.010a dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.010b dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.010c dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.010d dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.010e dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.010f dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0110 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0111 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
0000.0001.0112 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 22s
....
```

The following sample output shows the MAC address on a specified interface on a specified bridge:

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain g1:bd1 mac-address 1.2.3 location
 0/1/CPU0

Mac Address    Type    Learned from/Filtered on    LC learned Age
-------------------------------------------------------------------------------
0001.0002.0003 static  Gi0/1/0/0                   N/A        N/A
```

The following sample output shows the hardware information from the egress pse:

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain g1:bd1 mac-address hardware egress
```

```
 location 0/1/CPU0

Mac Address    Type    Learned from/Filtered on    LC learned Age
------------------------------------------------------------------------------
0000.0000.0000 static  Gi0/1/0/0                   N/A        N/A
0000.0001.0101 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0102 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0103 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0104 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0105 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0106 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0107 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0108 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0109 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.010a dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.010b dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.010c dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.010d dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.010e dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.010f dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0110 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0111 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0112 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0113 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
0000.0001.0114 dynamic Gi0/1/0/0                   0/1/CPU0   0d 0h 2m 24s
...
```

The following sample output shows the MAC addresses that are learned on a specified pseudowire on a specified bridge:

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain mac-address neighbor 1.1.1.1 pw-id
 1 location 0/1/CPU0

Mac Address    Type    Learned from/Filtered on    LC learned Age
------------------------------------------------------------------------------
0000.0003.0101 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0102 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0103 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0104 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0105 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0106 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0107 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0108 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0109 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.010a dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.010b dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.010c dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.010d dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.010e dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.010f dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0110 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0111 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0112 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0113 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0114 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
0000.0003.0115 dynamic 1.1.1.1, 1                  0/1/CPU0   0d 0h 0m 30s
...
```

The following sample output shows the detailed information for MAC addresses that are learned on a specified interface and on specified bridge of a specified interface card. The sample output lists all the MAC addresses, the learned location, and the current age.

```
RP/0/RP0/CPU0:router# show l2vpn forwarding bridge-domain g1:bd1 mac-address interface
gigabitEthernet 0/1/0/0 location 0/1/CPU0

Mac Address    Type    Learned from/Filtered on    LC learned Age
-------------------------------------------------------------------------------
0000.0000.0000 static  Gi0/1/0/0                  N/A        N/A
0000.0001.0101 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0102 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0103 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0104 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0105 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0106 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0107 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0108 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0109 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.010a dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.010b dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.010c dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.010d dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.010e dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.010f dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0110 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0111 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0112 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0113 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
0000.0001.0114 dynamic Gi0/1/0/0                  0/1/CPU0   0d 0h 2m 14s
```

The following sample output shows the MAC address hardware information on the line card, for a specific bridge-domain on the ingress detail location:

```
RP/0/RP0/CPU0:router#show l2vpn forwarding bridge-domain mac hardware ingress detail location
 0/2/CPU0


Bridge-domain name: aa:g1, id: 0, state: up
 MAC learning: enabled
 Flooding:
   Broadcast & Multicast: enabled
   Unknown unicast: enabled
 MAC aging time: 300 s, Type: inactivity
 MAC limit: 4000, Action: none, Notification: syslog
 MAC limit reached: no
 Security: disabled
 DHCPv4 snooping: profile not known on this node
 Bridge MTU: 1500 bytes
 Number of bridge ports: 4
 Number of MAC addresses: 10
 Multi-spanning tree instance: 0

  INGRESS BRIDGE [version, state]: [1, CREATED]

        TCAM entry seq#: 1024 Key: [BID: 0 MAC: default]
        HW: 0x4c000000 0x000080ac 0x00010000 0x80ac0100
        SW: 0x4c000000 0x000080ac 0x00010000 0x80ac0100

        SMAC:  action: PUNT  state: NO REFRESH
        DMAC:  action: FLOOD, flood_enable: enable
        FGID:  All: 44032, VFI: 44033, MCAST_Sponge_q: 16
        Fabric_multicast1: 1 Fabric_multicast2: 1

        Admin State: UP
        MTU: 1500
```

```
      Number of MAC addresses: 11 (10 MAC + 1 default)
      ACL NAME (ACL-ID): VPLS Special (4096)
      TCAM region handle : 5


 GigabitEthernet0/2/0/1.1, state: oper up
   Number of MAC: 10
   Statistics:
     packets: received 0, sent 121515
     bytes: received 0, sent 7290900

 INGRESS BRIDGE PORT [version, state]: [1, BOUND]
      Bridge Port Type: AC
      XID: 0/2/CPU0 : 1 (0x1280001)
      Bridge ID: 0, Split Horizon ID: 0
      RX TLU1   : 0x4c00
      RX TLU2   : 0x1013c00
      RX TLU3   : 0x200ba00
      RX TLU4   : 0x3000c00

  INGRESS AC [version, state]: [1, BOUND]

      Xconnect-ID: [1] TCAM-Key: (UIDB:0x2 O-vlan:1 I-vlan:0 Ether-Type:0x8100)
      HW: 0x24001000 0x01280001 0x10128000 0xc7ff7d00
      SW: 0x24001000 0x01280001 0x10128000 0xc7ff7d00

      Service type: 4 (bridging pmp)
      Entry type: 1 (fwd)
      Bridge_ID : 0
      ACL_ID : 4096
      Xconnect_ID : 0x1280001
      SplitHorizonGroup_ID : 0
      Rewrite supported: 0 (No)
      PW_mode: 0 (vc-type 5)
      AC-type: 1 (vlan-mode)
      Interface handle: 0x128000
      Ingress AC stats: 0x7ff7d

      SMAC Learning: enable
      DMAC Flooding: enable

Mac Address: 0000.0022.2222, LC learned: 0/2/CPU0
  Age: 0d 0h 0m 21s, Flag: local


 INGRESS MAC [version, state]: [1, CREATED]

      TCAM entry seq#: 0 Key: [BID: 0 MAC: 0000.0022.2222]
      HW: 0x22004c00 0x00000001 0x00000000 0x01280001
      SW: 0x22004c00 0x00000001 0x00000000 0x01280001

      SMAC:  action: FWD  state: REFRESH
      XID: 0/2/CPU0 : 1 (0x1280001)
      DMAC:  action: FWD, BridgePort type: AC
      SHG ID     : 0
      Entry Flag : FWD
      Entry Type : DYNAMIC
      Local Switching: enabled
      Next (tlu0) addr: 0x4c00
      Control-word supported: No

      Destination AC: Gi0/2/0/1.1 (ifh: 0x1280002)

      TLU1            : 0x4c00
```

```
        [HW: 0x00000000 0x00013c00 0x00000000 0x00000100]
             label:             0     num of labels:         0
             entry type:      FWD     next ptr:     0x00013c00
             num of entries:    1
             BGP next-hop:   0.0.0.0

        TLU2            : 0x1013c00
        [HW: 0x00000008 0x00000000 0x00001000 0x00ba0000]
             label1:            1     label2:            0
             num of labels:     1     next ptr: 0x0000ba00

        TLU3            : 0x200ba00
        [HW: 0x00010000 0x00000000 0x00000000 0x000c0000]
            num. entries  : 1
            num. labels   : 0
            label 1       : 0
            label 2       : 0
            next ptr      : 0xc00

        TLU4            : 0x3000c00
        [HW: 0x00000000 0x20082000 0x01280040 0x00020000]
            dest. addr    : 0x20
            sponge queue  : 130
            egress port   : 0x128004
            rp destined   : no
            rp drop       : no
            hash type     : 0
            uidb index    : 0x2

Mac Address: 0000.0022.2223, LC learned: 0/2/CPU0
  Age: 0d 0h 0m 21s, Flag: local


 INGRESS MAC [version, state]: [1, CREATED]

        TCAM entry seq#: 1 Key: [BID: 0 MAC: 0000.0022.2223]
        HW: 0x22004c00 0x00000001 0x00000000 0x01280001
        SW: 0x22004c00 0x00000001 0x00000000 0x01280001

        SMAC:  action: FWD  state: REFRESH
        XID: 0/2/CPU0 : 1 (0x1280001)
        DMAC:  action: FWD, BridgePort type: AC
        SHG ID     : 0
        Entry Flag : FWD
        Entry Type : DYNAMIC
        Local Switching: enabled
        Next (tlu0) addr: 0x4c00
        Control-word supported: No

        Destination AC: Gi0/2/0/1.1 (ifh: 0x1280002)

        TLU1            : 0x4c00
        [HW: 0x00000000 0x00013c00 0x00000000 0x00000100]
             label:             0     num of labels:         0
             entry type:      FWD     next ptr:     0x00013c00
             num of entries:    1
             BGP next-hop:   0.0.0.0

        TLU2            : 0x1013c00
        [HW: 0x00000008 0x00000000 0x00001000 0x00ba0000]
             label1:            1     label2:            0
             num of labels:     1     next ptr: 0x0000ba00

        TLU3            : 0x200ba00
```

```
        [HW: 0x00010000 0x00000000 0x00000000 0x000c0000]
            num. entries  : 1
            num. labels   : 0
            label 1       : 0
            label 2       : 0
            next ptr      : 0xc00

        TLU4            : 0x3000c00
        [HW: 0x00000000 0x20082000 0x01280040 0x00020000]
            dest. addr    : 0x20
            sponge queue  : 130
            egress port   : 0x128004
            rp destined   : no
            rp drop       : no
            hash type     : 0
            uidb index    : 0x2

Mac Address: 0000.0022.2224, LC learned: 0/2/CPU0
  Age: 0d 0h 0m 21s, Flag: local


 INGRESS MAC [version, state]: [1, CREATED]

        TCAM entry seq#: 2 Key: [BID: 0 MAC: 0000.0022.2224]
        HW: 0x22004c00 0x00000001 0x00000000 0x01280001
        SW: 0x22004c00 0x00000001 0x00000000 0x01280001

        SMAC:  action: FWD  state: REFRESH
        XID: 0/2/CPU0 : 1 (0x1280001)
        DMAC:  action: FWD, BridgePort type: AC
        SHG ID     : 0
        Entry Flag : FWD
        Entry Type : DYNAMIC
        Local Switching: enabled
        Next (tlu0) addr: 0x4c00
        Control-word supported: No

        Destination AC: Gi0/2/0/1.1 (ifh: 0x1280002)

        TLU1            : 0x4c00
        [HW: 0x00000000 0x00013c00 0x00000000 0x00000100]
             label:             0     num of labels:         0
             entry type:      FWD     next ptr:     0x00013c00
             num of entries:    1
             BGP next-hop:   0.0.0.0

        TLU2            : 0x1013c00
        [HW: 0x00000008 0x00000000 0x00001000 0x00ba0000]
             label1:            1     label2:            0
             num of labels:     1     next ptr: 0x0000ba00

        TLU3            : 0x200ba00
        [HW: 0x00010000 0x00000000 0x00000000 0x000c0000]
            num. entries  : 1
            num. labels   : 0
            label 1       : 0
            label 2       : 0
            next ptr      : 0xc00

        TLU4            : 0x3000c00
        [HW: 0x00000000 0x20082000 0x01280040 0x00020000]
            dest. addr    : 0x20
            sponge queue  : 130
            egress port   : 0x128004
```

```
           rp destined   : no
           rp drop       : no
           hash type     : 0
           uidb index    : 0x2

Mac Address: 0000.0022.2225, LC learned: 0/2/CPU0
  Age: 0d 0h 0m 21s, Flag: local


 INGRESS MAC [version, state]: [1, CREATED]

       TCAM entry seq#: 3 Key: [BID: 0 MAC: 0000.0022.2225]
       HW: 0x22004c00 0x00000001 0x00000000 0x01280001
       SW: 0x22004c00 0x00000001 0x00000000 0x01280001

       SMAC:  action: FWD  state: REFRESH
       XID: 0/2/CPU0 : 1 (0x1280001)
       DMAC:  action: FWD, BridgePort type: AC
       SHG ID     : 0
       Entry Flag : FWD
       Entry Type : DYNAMIC
       Local Switching: enabled
       Next (tlu0) addr: 0x4c00
       Control-word supported: No

       Destination AC: Gi0/2/0/1.1 (ifh: 0x1280002)

       TLU1            : 0x4c00
       [HW: 0x00000000 0x00013c00 0x00000000 0x00000100]
            label:             0     num of labels:         0
            entry type:      FWD     next ptr:     0x00013c00
            num of entries:    1
            BGP next-hop:   0.0.0.0

       TLU2            : 0x1013c00
       [HW: 0x00000008 0x00000000 0x00001000 0x00ba0000]
            label1:            1     label2:            0
            num of labels:     1     next ptr: 0x0000ba00

       TLU3            : 0x200ba00
       [HW: 0x00010000 0x00000000 0x00000000 0x000c0000]
           num. entries  : 1
           num. labels   : 0
           label 1       : 0
           label 2       : 0
           next ptr      : 0xc00

       TLU4            : 0x3000c00
       [HW: 0x00000000 0x20082000 0x01280040 0x00020000]
           dest. addr    : 0x20
           sponge queue  : 130
           egress port   : 0x128004
           rp destined   : no
           rp drop       : no
           hash type     : 0
           uidb index    : 0x2

Mac Address: 0000.0022.2226, LC learned: 0/2/CPU0
  Age: 0d 0h 0m 21s, Flag: local


 INGRESS MAC [version, state]: [1, CREATED]

       TCAM entry seq#: 4 Key: [BID: 0 MAC: 0000.0022.2226]
```

```
        HW: 0x22004c00 0x00000001 0x00000000 0x01280001
        SW: 0x22004c00 0x00000001 0x00000000 0x01280001

        SMAC:  action: FWD  state: REFRESH
        XID: 0/2/CPU0 : 1 (0x1280001)
        DMAC:  action: FWD, BridgePort type: AC
        SHG ID     : 0
        Entry Flag : FWD
        Entry Type : DYNAMIC
        Local Switching: enabled
        Next (tlu0) addr: 0x4c00
        Control-word supported: No

        Destination AC: Gi0/2/0/1.1 (ifh: 0x1280002)

        TLU1            : 0x4c00
        [HW: 0x00000000 0x00013c00 0x00000000 0x00000100]
             label:             0     num of labels:         0
             entry type:      FWD     next ptr:     0x00013c00
             num of entries:    1
             BGP next-hop:   0.0.0.0

        TLU2            : 0x1013c00
        [HW: 0x00000008 0x00000000 0x00001000 0x00ba0000]
             label1:            1     label2:            0
             num of labels:     1     next ptr: 0x0000ba00

        TLU3            : 0x200ba00
        [HW: 0x00010000 0x00000000 0x00000000 0x000c0000]
            num. entries  : 1
            num. labels   : 0
            label 1       : 0
            label 2       : 0
            next ptr      : 0xc00

        TLU4            : 0x3000c00
        [HW: 0x00000000 0x20082000 0x01280040 0x00020000]
            dest. addr    : 0x20
            sponge queue  : 130
            egress port   : 0x128004
            rp destined   : no
            rp drop       : no
            hash type     : 0
            uidb index    : 0x2

    Mac Address: 0000.0022.2227, LC learned: 0/2/CPU0
      Age: 0d 0h 0m 21s, Flag: local


     INGRESS MAC [version, state]: [1, CREATED]

        TCAM entry seq#: 5 Key: [BID: 0 MAC: 0000.0022.2227]
        HW: 0x22004c00 0x00000001 0x00000000 0x01280001
        SW: 0x22004c00 0x00000001 0x00000000 0x01280001

        SMAC:  action: FWD  state: REFRESH
        XID: 0/2/CPU0 : 1 (0x1280001)
        DMAC:  action: FWD, BridgePort type: AC
        SHG ID     : 0
        Entry Flag : FWD
        Entry Type : DYNAMIC
        Local Switching: enabled
        Next (tlu0) addr: 0x4c00
        Control-word supported: No
```

```
        Destination AC: Gi0/2/0/1.1 (ifh: 0x1280002)

        TLU1            : 0x4c00
        [HW: 0x00000000 0x00013c00 0x00000000 0x00000100]
             label:             0     num of labels:         0
             entry type:      FWD     next ptr:     0x00013c00
             num of entries:    1
             BGP next-hop:   0.0.0.0

        TLU2            : 0x1013c00
        [HW: 0x00000008 0x00000000 0x00001000 0x00ba0000]
             label1:            1     label2:            0
             num of labels:     1     next ptr: 0x0000ba00

        TLU3            : 0x200ba00
        [HW: 0x00010000 0x00000000 0x00000000 0x000c0000]
            num. entries  : 1
            num. labels   : 0
            label 1       : 0
            label 2       : 0
            next ptr      : 0xc00

        TLU4            : 0x3000c00
        [HW: 0x00000000 0x20082000 0x01280040 0x00020000]
            dest. addr    : 0x20
            sponge queue  : 130
            egress port   : 0x128004
            rp destined   : no
            rp drop       : no
            hash type     : 0
            uidb index    : 0x2

Mac Address: 0000.0022.2228, LC learned: 0/2/CPU0
  Age: 0d 0h 0m 21s, Flag: local


 INGRESS MAC [version, state]: [1, CREATED]

        TCAM entry seq#: 6 Key: [BID: 0 MAC: 0000.0022.2228]
        HW: 0x22004c00 0x00000001 0x00000000 0x01280001
        SW: 0x22004c00 0x00000001 0x00000000 0x01280001

        SMAC:  action: FWD  state: REFRESH
        XID: 0/2/CPU0 : 1 (0x1280001)
        DMAC:  action: FWD, BridgePort type: AC
        SHG ID     : 0
        Entry Flag : FWD
        Entry Type : DYNAMIC
        Local Switching: enabled
        Next (tlu0) addr: 0x4c00
        Control-word supported: No

        Destination AC: Gi0/2/0/1.1 (ifh: 0x1280002)

        TLU1            : 0x4c00
        [HW: 0x00000000 0x00013c00 0x00000000 0x00000100]
             label:             0     num of labels:         0
             entry type:      FWD     next ptr:     0x00013c00
             num of entries:    1
             BGP next-hop:   0.0.0.0

        TLU2            : 0x1013c00
        [HW: 0x00000008 0x00000000 0x00001000 0x00ba0000]
```

```
     label1:            1     label2:            0
     num of labels:     1     next ptr: 0x0000ba00

TLU3            : 0x200ba00
[HW: 0x00010000 0x00000000 0x00000000 0x000c0000]
    num. entries  : 1
    num. labels   : 0
    label 1       : 0
    label 2       : 0
    next ptr      : 0xc00

TLU4            : 0x3000c00
[HW: 0x00000000 0x20082000 0x01280040 0x00020000]
    dest. addr    : 0x20
    sponge queue  : 130
    egress port   : 0x128004
    rp destined   : no
    rp drop       : no
    hash type     : 0
    uidb index    : 0x2

Mac Address: 0000.0022.2229, LC learned: 0/2/CPU0
  Age: 0d 0h 0m 21s, Flag: local
```

## Related Commands

| Command | Description |
|---|---|
| show l2vpn forwarding bridge-domain (VPLS), on page 42 | Displays information on the bridge that is used by the forwarding layer. |

# shutdown (Bridge Domain)

To shut down a bridge domain to bring the bridge and all attachment circuits and pseudowires under it to admin down state, use the **shutdown** command in L2VPN bridge group bridge domain configuration mode. To re-enable the bridge domain, use the **no** form of this command.

**shutdown**
**no shutdown**

## Syntax Description

This command has no keywords or arguments.

## Command Default

By default, the bridge is not shutdown.

## Command Modes

L2VPN bridge group bridge domain configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

When a bridge domain is disabled, all VFIs associated with the bridge domain are disabled. You can still attach or detach members to or from the bridge domain as well as the VFIs associated with the bridge domain.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to disable the bridge domain named bar:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# shutdown
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |

# shutdown (VFI)

To disable virtual forwarding interface (VFI), use the **shutdown** command in L2VPN bridge group bridge domain VFI configuration mode. To re-enable VFI, use the **no** form of this command.

**shutdown**
**no shutdown**

## Syntax Description

This command has no keywords or arguments.

## Command Default

By default, the VFI is not shutdown.

## Command Modes

L2VPN bridge group bridge domain VFI configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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 disable VFI:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# vfi v1
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi)# shutdown
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mpls static label (VPLS), on page 21 | Configures the MPLS static labels and the static labels for the access pseudowire configuration. |

| Command | Description |
| --- | --- |
| neighbor (VPLS), on page 25 | Adds an access pseudowire port to a bridge domain or a pseudowire to a bridge virtual forwarding interface (VFI). |

# static-address (VPLS)

To add static entries to the MAC address for filtering, use the **static-address** command in L2VPN bridge group bridge domain MAC configuration mode. To remove entries profiled by the combination of a specified entry information, use the **no** form of this command.

**static-address** *MAC-address* **drop**
**no static-address** *MAC-address* **drop**

## Syntax Description

| | |
|---|---|
| *MAC-address* | Static MAC address that is used to filter on the bridge domain. |
| **drop** | Drops all traffic that is going to the configured MAC address. |

## Command Default

No static MAC address is configured.

## Command Modes

L2VPN bridge group bridge domain MAC configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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 add static MAC entries in L2VPN bridge group bridge domain MAC configuration mode. This entry causes all packets with destination MAC address 1.1.1 to be dropped.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# static-address 1.1.1 drop
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |

| Command | Description |
| --- | --- |
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |

# static-mac-address (VPLS)

To configure the static MAC address to associate a remote MAC address with a pseudowire or any other bridge interface, use the **static-mac-address** command in the appropriate L2VPN bridge group bridge domain configuration submode. To disable this feature, use the **no** form of this command.

**static-mac-address** *MAC-address*
**no static-mac-address** *MAC-address*

## Syntax Description

| | |
|---|---|
| *MAC-address* | Static address to add to the MAC address. |

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain VFI pseudowire configuration

L2VPN bridge group bridge domain attachment circuit configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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 associate a remote MAC address with a pseudowire:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# vfi model
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi)# neighbor 10.1.1.2 pw-id 1000
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi-pw)# static-mac-address 1.1.1
```

The following example shows how to associate a GigabitEthernet interface from a bridge domain to static MAC address 1.1.1:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# interface GigabitEthernet 0/1/0/0
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-ac)# static-mac-address 1.1.1
```

The following example shows how to associate an access pseudowire to static MAC address 2.2.2:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# neighbor 10.1.1.2 pw-id 2000
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-pw)# static-mac-address 2.2.2
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mpls static label (VPLS), on page 21 | Configures the MPLS static labels and the static labels for the access pseudowire configuration. |
| neighbor (VPLS), on page 25 | Adds an access pseudowire port to a bridge domain or a pseudowire to a bridge virtual forwarding interface (VFI). |
| vfi (VPLS), on page 80 | Configures virtual forwarding interface (VFI) parameters. |

# time (VPLS)

To configure the maximum aging time, use the **time** command in L2VPN bridge group bridge domain MAC aging configuration mode. To disable this feature, use the **no** form of this command.

**time** *seconds*
**no time** *seconds*

## Syntax Description

| | |
|---|---|
| *seconds* | MAC address table entry maximum age. The range is from 300 to 30000 seconds. Aging time is counted from the last time that the switch saw the MAC address. The default value is 300 seconds. |

## Command Default

*seconds*: 300

## Command Modes

L2VPN bridge group bridge domain MAC aging configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

If no packets are received from the MAC address for the duration of the maximum aging time, the dynamic MAC entry previously learned is removed from the forwarding table.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to increase the maximum aging time to 600 seconds. After 600 seconds of inactivity from a MAC address, the MAC address is removed form the forwarding table.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# aging
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-aging)# time 600
```

## Related Commands

| Command | Description |
|---|---|
| aging (VPLS), on page 4 | Enters the MAC aging configuration submode to set the aging parameters such as time and type. |

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| type (VPLS), on page 78 | Configures the type for MAC address aging. |

# type (VPLS)

To configure the type for MAC address aging, use the **type** command in L2VPN bridge group bridge domain MAC aging configuration mode. To disable this feature, use the **no** form of this command.

**type** {**absolute** | **inactivity**}
**no type** {**absolute** | **inactivity**}

## Syntax Description

| | |
|---|---|
| **absolute** | Configures the absolute aging type. |
| **inactivity** | Configures the inactivity aging type. |

## Command Default

By default, the inactivity type is configured.

## Command Modes

L2VPN bridge group bridge domain MAC aging configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

In general, the type is set to inactivity. With an inactivity type configuration, a MAC address is removed from the forwarding table after the MAC address is inactive for the configured aging time.

With an absolute type configuration, a MAC address is always removed from the forwarding table after the aging time has elapsed once it is initially learned.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to configure the MAC address aging type to absolute for every member of the bridge domain named bar:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# aging
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac-aging)# type absolute
```

## Related Commands

| Command | Description |
|---|---|
| aging (VPLS), on page 4 | Enters the MAC aging configuration submode to set the aging parameters such as time and type. |
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |
| time (VPLS), on page 76 | Configures the maximum aging time. |

# vfi (VPLS)

To configure virtual forwarding interface (VFI) parameters and to enter L2VPN bridge group bridge domain VFI configuration mode, use the **vfi** command in L2VPN bridge group bridge domain configuration mode. To remove all configurations that are made under the specified VFI, use the **no** form of this command.

**vfi** *vfi-name*
**no vfi** *vfi-name*

## Syntax Description

| | |
|---|---|
| *vfi-name* | Name of the specified virtual forwarding interface. |

## Command Default

None

## Command Modes

L2VPN bridge group bridge domain configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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.

Use the **vfi** command to enter L2VPN bridge group bridge domain VFI configuration mode.

You cannot configure a pseudowire directly under a bridge domain. Therefore, a psuedowire must be configured under a VFI, which is configured under a bridge domain.

## Task ID

| Task ID | Operations |
|---|---|
| l2vpn | read, write |

## Examples

The following example shows how to create a VFI:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# vfi v1
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-vfi)#
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |

| Command | Description |
|---|---|
| bridge group (VPLS), on page 7 | 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. |
| mpls static label (VPLS), on page 21 | Configures the MPLS static labels and the static labels for the access pseudowire configuration. |
| neighbor (VPLS), on page 25 | Adds an access pseudowire port to a bridge domain or a pseudowire to a bridge virtual forwarding interface (VFI). |

# withdraw (VPLS)

To enable MAC address withdrawal for a specified bridge domain, use the **withdraw** command in L2VPN bridge group bridge domain MAC configuration mode. To disable this feature, use the **no** form of this command

**withdraw** { **disable**}
**no withdraw** { **disable** }

## Syntax Description

| | |
|---|---|
| **disable** | Disables MAC address withdrawal. |

## Command Default

By default, MAC address withdrawal is enabled.

## Command Modes

L2VPN bridge group bridge domain MAC configuration

## Command History

| Release | Modification |
|---|---|
| Release 3.8.0 | 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 enable disable MAC withdrawal:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# withdraw disable
```

The following example shows how to disable sending MAC withdrawal messages to access pseudowires:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# l2vpn
RP/0/RP0/CPU0:router(config-l2vpn)# bridge group 1
RP/0/RP0/CPU0:router(config-l2vpn-bg)# bridge-domain bar
```

```
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd)# mac
RP/0/RP0/CPU0:router(config-l2vpn-bg-bd-mac)# withdraw access-pw disable
```

## Related Commands

| Command | Description |
|---|---|
| bridge-domain (VPLS), on page 6 | Establishes a bridge domain, and enters L2VPN bridge group bridge domain configuration mode. |
| bridge group (VPLS), on page 7 | 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. |
| mac (VPLS), on page 17 | Enters L2VPN bridge group bridge domain MAC configuration mode. |