Ethernet Interfaces Commands

This module describes the Cisco IOS XR software commands used to configure the Ethernet interfaces on the Cisco CRS Router.

✎

Note   This module does not include the commands for Management Ethernet interfaces and Ethernet OAM. To configure a Management Ethernet interface for routing or modify the configuration of a Management Ethernet interface or to configure Ethernet OAM, use the commands described in the *Interface and Hardware Component Configuration Guide for Cisco CRS Routers*

Refer to the *Interface and Hardware Component Command Reference for Cisco CRS Routers* for more information on the Ethernet Interfaces and Ethernet OAM commands.

encapsulation dot1ad dot1q

To define the matching criteria to be used in order to map single-tagged 802.1ad frames ingress on an interface to the appropriate service instance, use the **encapsulation dot1ad dot1q** command in subinterface configuration mode. To delete the matching criteria to map single-tagged 802.1ad frames ingress on an interface to the appropriate service instance, use the **no** form of this command.

encapsulation dot1ad *vlan-id* **dot1q** {*vlan-id* | **any**}
no encapsulation dot1ad *vlan-id* **dot1q** {*vlan-id* | **any**}

Syntax Description

dot1ad	Indicates that the IEEE 802.1ad provider bridges encapsulation type is used for the outer tag.
dot1q	Indicates that the IEEE 802.1q standard encapsulation type is used for the inner tag.
vlan-id	VLAN ID, integer in the range 1 to 4094.
any	Matches any VLAN ID.

Command Default

No matching criteria are defined.

Command Modes

Subinterface configuration

Command History

Release	Modification
Release 5.1.1	This command was introduced.

Usage Guidelines

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

The outer VLAN tag is an 802.1ad VLAN tag, instead of an 802.1Q tag. An 802.1ad tag has an ethertype value of 0x88A8, instead of 0x8100 that 802.1Q uses.

Some of the fields in the 802.1ad VLAN header are interpreted differently per 802.1ad standard. A **tunneling ethertype** command applied to the main interface does not apply to an 802.1ad subinterface.

An interface with encapsulation dot1ad causes the router to categorize the interface as an 802.1ad interface. This causes special processing for certain protocols and other features:

- MSTP uses the IEEE 802.1ad MAC STP address instead of the STP MAC address.
- Certain QoS functions may use the Drop Eligibility (DE) bit of the IEEE 802.1ad tag.

Examples

The following example shows how to map single-tagged 802.1ad ingress frames to a service instance:

```
RP/0/RP0/CPU0:router(config-subif)# encapsulation dot1ad 100 dot1q 20
```

Related Commands

Command	Description
encapsulation dot1q, on page 4	Defines the matching criteria to map 802.1Q frames ingress on an interface to the appropriate service instance.

encapsulation dot1q

To define the matching criteria to map 802.1Q frames ingress on an interface to the appropriate service instance, use the **encapsulation dot1q** command in the subinterface configuration mode. To delete the matching criteria to map 802.1Q frames ingress on an interface to the appropriate service instance, use the **no** form of this command.

encapsulation dot1q *vlan-id*
no encapsulation

Syntax Description

vlan-id	VLAN ID, integer in the range 1 to 4094.

Command Default

No matching criteria are defined.

Command Modes

Subinterface configuration

Command History

Release	Modification
Release 5.1.1	This command was introduced.

Usage Guidelines

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

Only one encapsulation statement can be applied to a subinterface. Encapsulation statements cannot be applied to main interfaces.

A single encapsulation dot1q statement specifies matching for frames with a single VLAN ID.

Examples

The following example shows how to map 802.1Q frames ingress on an l2transport subinterface:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# interface GigabitEthernet 0/1/0/3.10 l2transport
RP/0/RP0/CPU0:router(config-subif)# encapsulation dot1q 10
```

Related Commands

Command	Description
encapsulation dot1ad dot1q, on page 2	Defines the matching criteria to be used in order to map single-tagged 802.1ad frames ingress on an interface to the appropriate service instance.
encapsulation dot1q second-dot1q, on page 5	Defines the matching criteria to map Q-in-Q ingress frames on an interface to the appropriate service instance.

encapsulation dot1q second-dot1q

To define the matching criteria to map Q-in-Q ingress frames on an interface to the appropriate service instance, use the **encapsulation dot1q second-dot1q** command in the subinterface configuration mode. To delete the matching criteria to map Q-in-Q ingress frames on an interface to the appropriate service instance, use the **no** form of this command.

encapsulation dot1q {**any** | *vlan-id*   **second-dot1q** {**any** | *vlan-id*   }
no encapsulation dot1q {**any** | *vlan-id*   **second-dot1q** {**any** | *vlan-id*   }

Syntax Description	*vlan-id*	VLAN ID, integer in the range 1 to 4094.
		A maximum of nine ranges or individual values may be specified. The values must not overlap.
	second-dot1q	(Optional) Specifies IEEE 802.1Q VLAN tagged packets.
	any	Any second tag in the range 1 to 4094.

Command Default No matching criteria are defined.

Command Modes Subinterface configuration

Command History

Release	Modification
Release 5.1.1	This command was introduced.

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

The criteria for this command are: the outer tag must be unique and the inner tag may be a single VLAN.

QinQ service instance, allows single, multiple or range on second-dot1q.

Only one encapsulation command must be configured per service instance.

Examples The following example shows how to map ingress frames to a service instance:

```
RP/0/RP0/CPU0:router(config-subif)# encapsulation dot1q second-dot1q 20
```

Related Commands

Command	Description
encapsulation dot1ad dot1q, on page 2	Defines the matching criteria to be used in order to map single-tagged 802.1ad frames ingress on an interface to the appropriate service instance.
encapsulation dot1q, on page 4	Defines the matching criteria to map 802.1Q frames ingress on an interface to the appropriate service instance.

l2transport (Ethernet)

To enable Layer 2 transport port mode on an Ethernet interface and enter Layer 2 transport configuration mode, use the **l2transport** command in interface or subinterface configuration mode for an Ethernet interface. To disable Layer 2 transport port mode on an Ethernet interface, use the **no** form of this command.

l2transport
no l2transport

This command has no keywords or arguments.

Command Default

None

Command Modes

Interface or Subinterface configuration

Command History

Release	Modification
Release 5.1.1	This command was introduced.

Usage Guidelines

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

Task ID

Task ID	Operations
l2vpn	read, write

Examples

The following example shows how to use the l2transport command on an Ethernet subinterface:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# interface GigabitEthernet 0/1/0/3.10 l2transport
RP/0/RP0/CPU0:router(config-subif)# encapsulation dot1q 10
```

Related Commands

Command	Description
show interfaces	Displays statistics for all interfaces configured on the router or for a specific node.
show l2vpn xconnect	Displays brief information on configured xconnects.

rewrite ingress tag

To specify the encapsulation adjustment that is to be performed on the frame ingress to the service instance, use the **rewrite ingress tag** command in the subinterface configuration mode. To delete the encapsulation adjustment that is to be performed on the frame ingress to the service instance, use the **no** form of this command.

rewrite ingress tag {**push** {**dot1q** *vlan-id* | **dot1q** *vlan-id* **second-dot1q** *vlan-id* | **dot1ad** *vlan-id* **dot1q** *vlan-id*} | **pop** {**1** | **2**} | **translate** {**1to1** {**dot1q** *vlan-id* | **dot1ad** *vlan-id*} | **2-to-1 dot1q** *vlan-id* | **dot1ad** *vlan-id*} | **1-to-2** {**dot1q** *vlan-id* **second-dot1q** *vlan-id* | **dot1ad** *vlan-id* **dot1q** *vlan-id*} | **2-to-2** {**dot1q** *vlan-id* **second-dot1q** *vlan-id* | **dot1ad** *vlan-id* **dot1q** *vlan-id*}} [**symmetric**]
no rewrite tag [**symmetric**]

Syntax Description		
vlan-id	VLAN ID, integer in the range 1 to 4094.
push dot1q *vlan-id*	Pushes one 802.1Q tag with *vlan-id*.
push dot1q *vlan-id* **second-dot1q** *vlan-id*	Pushes a pair of 802.1Q tags in the order first, second.
**pop {1	2}**	One or two tags are removed from the packet. This command can be combined with a push (pop N and subsequent push *vlan-id*).
translate 1-to-1 dot1q *vlan-id*	Replaces the incoming tag (defined in the encapsulation command) into a different 802.1Q tag at the ingress service instance.
translate 2-to-1 dot1q *vlan-id*	Replaces a pair of tags defined in the **encapsulation** command by vlan-id.
translate 1-to-2 dot1q *vlan-id* **second-dot1q** *vlan-id*	Replaces the incoming tag defined by the encapsulation command by a pair of 802.1Q tags.
translate 2-to-2 dot1q *vlan-id* **second-dot1q** *vlan-id*	Replaces the pair of tags defined by the encapsulation command by a pair of VLANs defined by this rewrite.
symmetric	(Optional) A rewrite operation is applied on both ingress and egress. The operation on egress is the inverse operation as ingress.

Command Default   The frame is left intact on ingress.

Command Modes   Subinterface configuration

Command History

Release	Modification
Release 5.1.1	This command was introduced.

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

The **symmetric** keyword is accepted only when a single VLAN is configured in encapsulation. If a list of VLANs or a range VLAN is configured in encapsulation, the **symmetric** keyword is accepted only for push rewrite operations; all other rewrite operations are rejected.

The **pop** command assumes the elements being popped are defined by the encapsulation type. The exception case should be drop the packet.

The **rewrite ingress tag translate**command assume the tags being translated from are defined by the encapsulation type. In the 2-to-1 option, the "2" means "2 tags of a type defined by the **encapsulation** command. The translation operation requires at least "from" tag in the original packet. If the original packet contains more tags than the ones defined in the "from", then the operation should be done beginning on the outer tag. Exception cases should be dropped.

Examples

The following example shows how to specify the encapsulation adjustment that is to be performed on the frame ingress to the service instance:

```
RP/0/RP0/CPU0:router(config-subif)# rewrite ingress push dot1q 200
```

Related Commands

Command	Description
encapsulation dot1ad dot1q, on page 2	Defines the matching criteria to be used in order to map single-tagged 802.1ad frames ingress on an interface to the appropriate service instance.
encapsulation dot1q, on page 4	Defines the matching criteria to map 802.1Q frames ingress on an interface to the appropriate service instance.
encapsulation dot1q second-dot1q, on page 5	Defines the matching criteria to map Q-in-Q ingress frames on an interface to the appropriate service instance.