CFM Over Double-Tagged Layer 3 VLANs with EVC

The CFM over double-tagged Layer 3 VLANs with EVC feature explains the implementation of Connectivity Fault Management (CFM) on double-VLAN-tagged Layer 3 subinterfaces.

Restrictions for CFM Over Double-Tagged Layer 3 VLANs with EVC

- Connectivity Fault Management (CFM) over double-tagged Layer 3 VLANs with EVC features is supported only on Cisco Integrated Services Routers (ISR) G2.
- You cannot configure multiple CFM Maintenance Associations (MA) using different VLAN-IDs and the same Ethernet Virtual Circuit (EVC).
- EVC names for different VLANs must be unique.
- Multiple CFM MAs using different EVCs but the same VLAN tags are not permitted.
- The EVC name must always be specified when configuring a CFM MA.

Information about CFM over double-tagged Layer 3 VLANs with EVC

Down MEPs over Double-VLAN-Tagged Layer 3 Subinterfaces

In Connectivity Fault Management (CFM) configuration, to configure a down maintenance endpoint (MEP) on a single-VLAN-tagged L3 subinterfaces, first a CFM maintenance association (MA) service is associated with a VLAN. When a down MEP is configured on a trunk Ethernet interface using the maintenance association ID, the MEP is associated with the Layer 3 subinterface that has the configured VLAN ID.

To support configuration of down MEPs on double-VLAN-tagged L3 sub-interfaces, a CFM MA service is associated with an additional VLAN. The additional VLAN is configured using the inner-vlan <vlan-id> keyword-argument pair.

When the associated MA is configured with an inner VLAN-ID, then the MEP is associated with the Layer 3 subinterface that matches the outer and inner VLAN IDs.

Note Double-VLAN-tagged L2 service-instances are already supported on provide edge devices to allow service providers to use a single VLAN to support customers who have multiple VLANs.

How to Configure CFM over double-tagged Layer 3 VLANs with EVC

Configuring Down MEPs over Double-VLAN-Tagged Layer 3 Subinterfaces

SUMMARY STEPS

1. **enable**
2. **configure   terminal**
3. **ethernet cfm domain**   *domain-id*   **level** *level*
4. **service** *service-name* **evc** *evc-name* **vlan***vlan-id*   **inner-vlan***inner-vlan-id*   **direction down**{ | }
5. **exit** [
6. **interface** *type*/*number*
7. **ethernet cfm mep domain**   *domain-id*   **mpid** *mp-id* **service**   *service-name*
8. **interface** *type*/*number*
9. **encapsulation dot1q**   *vlan-id*   **second-dot1q** *inner-vlan-id*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**ethernet cfm domain** *domain-id* **level** *level* **Example:** `Router(config)# ethernet cfm domain d level 3`	Configures Ethernet CFM domain.
Step 4	**service** *service-name* **evc** *evc-name* **vlan***vlan-id* **inner-vlan***inner-vlan-id* **direction down**{ | } **Example:** `Router(config)# service service1 evc bar vlan 100 inner-vlan 200 direction down`	Configures an Ethernet service instance on an interface and enters Ethernet service configuration mode.
Step 5	**exit** [**Example:** `Router(config-srv)# exit`	Exits service configuration mode and enters global configuration mode.
Step 6	**interface** *type*/*number* **Example:** `Router(config-vfi-neighbor)# int Ethernet0/0`	Specifies an interface and enters interface configuration mode.
Step 7	**ethernet cfm mep domain** *domain-id* **mpid** *mp-id* **service** *service-name* **Example:** `Router(config-if)# ethernet cfm mep domain domain1 mpid 1 service service1`	Configures Ethernet CFM domain.
Step 8	**interface** *type*/*number* **Example:** `Router(config-if)# int Ethernet0/0.2`	Specifies a subinterface and subinterface configuration mode.

	Command or Action	Purpose
Step 9	**encapsulation dot1q** *vlan-id* **second-dot1q** *inner-vlan-id* **Example:** `Router(config-if)# encapsulation dot1q 100 second-dot1q 200`	Sets the encapsulation method used by the interface.

Examples for Configuring CFM over double-tagged Layer 3 VLANs with EVC

Example for Configuring Down MEPs over Double-VLAN-Tagged Layer 3 Subinterfaces

```
ethernet cfm domain d level 3
  service foo evc bar vlan 100 inner-vlan 200 direction down

int Ethernet0/0
  ethernet cfm mep domain d mpid 1 service foo
  int Ethernet0/0.2
    encap dot1q 100 second-dot1q 200
```

Example for Double-VLAN-tagged L2 service-instances

```
ethernet cfm domain d level 3
  service foo evc bar vlan 2 direction down

int Ethernet0/0
    service instance 1 ethernet bar
      bridge-domain 2
      encap dot1q 100 second-dot1q 200
      cfm mep domain d mpid 1
```

Additional References for CFM over double-tagged Layer 3 VLANs with EVC

Related Documents

Related Topic	Document Title
Carrier Ethernet Command Reference	*Cisco IOS Carrier Ethernet Command Reference*

Related Topic	Document Title
Cisco IOS Master Command List	Cisco IOS Master Command List, All Releases
Configuring Ethernet connectivity fault management in a service provider network (Cisco pre-Standard CFM Draft 1)	"Configuring Ethernet Connectivity Fault Management in a Service Provider Network" module in the *Cisco IOS Carrier Ethernet Configuration Guide*
IP SLAs for Metro Ethernet	"IP SLAs for Metro Ethernet"

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

MIBs

MIB	MIBs Link
CISCO-ETHER-CFM-MIB	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified.	--

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for CFM over double-tagged Layer 3 VLANs with EVC

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to . An account on Cisco.com is not required.

Table 1: Feature Information for CFM over double-tagged Layer 3 VLANs with EVC

Feature Name	Releases	Feature Information
CFM over double-tagged Layer 3 VLANs with EVC	15.5(2)T	The CFM over double-tagged Layer 3 VLANs with EVC feature explains the implementation of Connectivity Fault Management (CFM) on double-VLAN-tagged Layer 3 subinterfaces. In Cisco IOS Release 15.5(2)T, this feature was introduced on Integrated Services Routers Generation 2 (ISR G2). No commands was introduced or modified.