



VLAN 0 Priority Tagging Support

Last Updated: December 4, 2012

The VLAN 0 Priority Tagging Support feature enables 802.1Q Ethernet frames to be transmitted with the VLAN ID tag set to zero. These frames are called priority tagged frames. Setting the VLAN ID tag to zero allows the VLAN ID tag to be ignored and the Ethernet frame to be processed according to the priority configured in the 802.1P bits of the 802.1Q Ethernet frame header.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

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

Restrictions for VLAN 0 Priority Tagging Support

- QinQ is not supported with this feature.

Information About VLAN 0 Priority Tagging Support



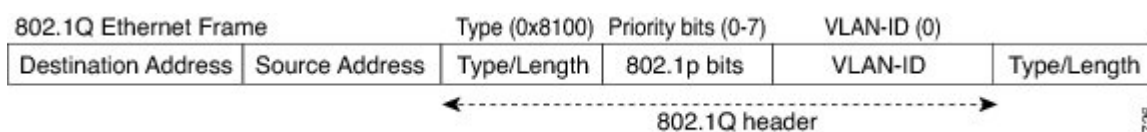
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802.1Q Tagging

The 802.1Q standard defines a system of VLAN tagging for Ethernet frames and also contains a provision for a quality of service (QoS) prioritization scheme known as 802.1P, which indicates the priority level of the frame. The 802.1Q standard adds this information to the Ethernet header, as shown in the figure below. The priority level values range from zero (best effort) to seven (highest). These values can be used to prioritize different classes of traffic such as voice and video. The VLAN ID tag specifies the VLAN to which the frame belongs. The priority bits define the priority with which the frames are processed.

Figure 1 802.1Q Ethernet Frame



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Native VLANs

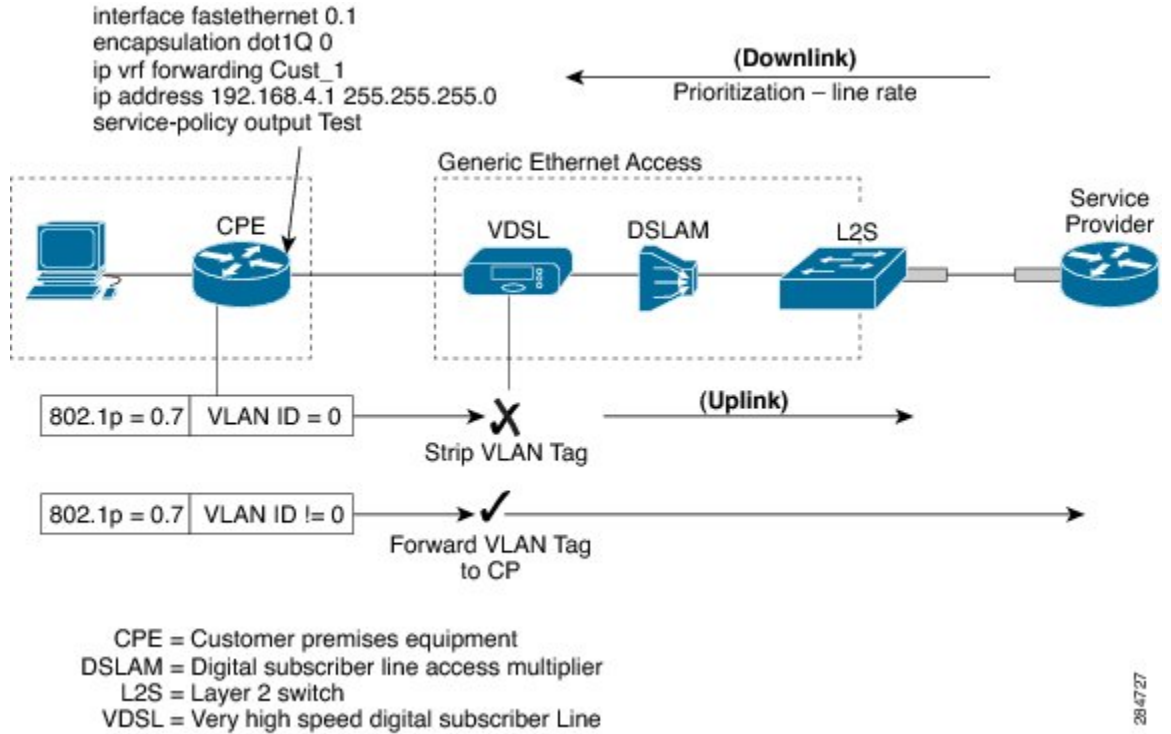
When a particular VLAN ID is assigned as a native VLAN, frames that are sent from that native VLAN subinterface are not tagged. Similarly, any untagged frames received on that subinterface are associated with the native VLAN. A native VLAN sends only untagged frames, but can receive both tagged and untagged frames.

VLAN 0 Priority Tagging Overview

The VLAN 0 Priority Tagging feature is installed on the customer premises equipment (CPE). In the illustration below, the 802.1Q frames are sent in the upstream direction from the CPE to the internet service provider (ISP). The frames are transmitted with the 802.1Q VLAN tag set to zero and the 802.1P priority bits configured as per the priority with which the frames are to be processed. When these frames are received at the ISP end, the header is stripped off and the frame is processed as per the configuration of the 802.1P priority bits. If the VLAN ID has a nonzero value, the header is retained and the frame is transmitted to the specified VLAN subinterface. High priority frames are sent ahead of low priority frames,

and this prioritization is weighted, that is, low priority traffic is not completely suppressed even if high priority traffic exceeds the line rate.

Figure 2 VLAN 0 Priority Tagging



The VLAN 0 Priority Tagging Support feature also allows VLAN 0 to be set as a native VLAN using the **encapsulation priority-tagged native** command. Setting the VLAN 0 subinterface as a native VLAN allows this subinterface to receive both tagged and untagged frames but transmit only untagged frames. The **encapsulation priority-tagged native tx-tagged** command configures the native VLAN with VLAN 0 to receive both tagged and untagged frames but to transmit only tagged frames.

How to Configure VLAN 0 Priority Tagging Support

- [Configuring VLAN 0 Priority Tagging, page 3](#)
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Configuring VLAN 0 Priority Tagging

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **encapsulation priority-tagged**
5. **end**

DETAILED STEPS

Command or Action	Purpose
Step 1 enable Example: Device> enable	Enters privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2 configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3 interface <i>type number</i> Example: Device(config)# interface Ethernet 0/0.1	Configures an interface and enters subinterface configuration mode.
Step 4 encapsulation priority-tagged Example: Device(config-subif)# encapsulation priority-tagged	Sets the VLAN ID tag of the subinterface to zero.
Step 5 end Example: Device(config-subif)# end	Exits subinterface configuration mode and returns to privileged EXEC mode.

Configuring a VLAN 0 Subinterface as a Native VLAN

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **encapsulation priority-tagged**
5. **encapsulation priority-tagged native**
6. **end**

DETAILED STEPS

Command or Action	Purpose
<p>Step 1 enable</p> <p>Example:</p> <pre>Device> enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> • Enter your password if prompted.
<p>Step 2 configure terminal</p> <p>Example:</p> <pre>Device# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p>Step 3 interface <i>type number</i></p> <p>Example:</p> <pre>Device(config)# interface Ethernet 0/0.1</pre>	<p>Configures an interface and enters subinterface configuration mode.</p>
<p>Step 4 encapsulation priority-tagged</p> <p>Example:</p> <pre>Device(config-subif)# encapsulation priority-tagged</pre>	<p>Sets the VLAN ID tag of the subinterface to zero.</p>
<p>Step 5 encapsulation priority-tagged native</p> <p>Example:</p> <pre>Device(config-subif)# encapsulation priority-tagged native</pre>	<p>Configures the priority-tagged subinterface as a native VLAN.</p>
<p>Step 6 end</p> <p>Example:</p> <pre>Device(config-subif)# end</pre>	<p>Exits subinterface configuration mode and returns to privileged EXEC mode.</p>

Configuring Native VLAN to Transmit Tagged Frames

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface *type number***
4. **encapsulation priority-tagged**
5. **encapsulation priority-tagged native**
6. **encapsulation priority-tagged native tx-tagged**
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enters privileged EXEC mode. • Enter your password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	interface <i>type number</i> Example: Device(config)# interface Ethernet 0/0.1	Configures an interface and enters subinterface configuration mode.
Step 4	encapsulation priority-tagged Example: Device(config-subif)# encapsulation priority-tagged	Sets the VLAN ID tag of the subinterface to zero.
Step 5	encapsulation priority-tagged native Example: Device(config-subif)# encapsulation priority-tagged native	Configures the priority tagged subinterface as a native VLAN.

Command or Action	Purpose
Step 6 <code>encapsulation priority-tagged native tx-tagged</code> Example: <pre>Device(config-subif)# encapsulation priority-tagged native tx-tagged</pre>	Configures the priority tagged native VLAN interface to transmit tagged frames.
Step 7 <code>end</code> Example: <pre>Device(config-subif)# end</pre>	Exits subinterface configuration mode and returns to privileged EXEC mode.

Configuration Examples for VLAN 0 Priority Tagging Support

- [Example: Configuring a Priority Tagged Native VLAN Interface to Transmit Tagged Frames, page 7](#)

Example: Configuring a Priority Tagged Native VLAN Interface to Transmit Tagged Frames

```
Device> enable
Device# configure terminal
Device(config)# interface Ethernet 0/0.1
Device(config-subif)# encapsulation priority tagged
Device(config-subif)# encapsulation priority-tagged native
Device(config-subif)# encapsulation priority-tagged native tx-tagged
Device(config-subif)# end
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
ATM commands	Cisco IOS Asynchronous Transfer Mode Command Reference

MIBs

MIB	MIBs Link
None	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

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 VLAN 0 Priority Tagging Support

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 www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1 *Feature Information for VLAN 0 Priority Tagging Support*

Feature Name	Releases	Feature Information
VLAN 0 Priority Tagging Support	15.2(3)T	The VLAN 0 Priority Tagging Support feature enables 802.1Q Ethernet frames to be transmitted with the VLAN ID tag set to zero. The following command was introduced or modified: encapsulation priority-tagged.

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