Ambiguous VLAN Support for IP sessions over ISG

The Ambiguous VLAN Support for IP Sessions over ISG feature allows network service providers to define a range or ranges of inner VLANs and create queue-in-queue (QinQ) VLANs on demand. This is done by specifying a range for the inner VLAN tag in the IEEE 802.1Q-in-Q while maintaining a single outer VLAN tag for each subinterface. This module explains the Ambiguous VLAN Support for IP Sessions over ISG feature and how to configure it.

- Finding Feature Information, on page 1
- Restrictions for Ambiguous VLAN Support for IP Sessions over ISG, on page 1
- Information About Configuring Ambiguous VLAN Support for IP Sessions over ISG, on page 2
- Configuring Ambiguous VLAN Support for IP Sessions over ISG, on page 2
- Verifying Ambiguous VLAN Support for IP Sessions over ISG Configuration, on page 3
- Additional References for Ambiguous VLAN Support for IP Sessions over ISG, on page 3
- Feature Information for Ambiguous VLAN Support for IP Sessions over ISG, on page 4

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.

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 Ambiguous VLAN Support for IP Sessions over ISG

- Ambiguous VLANs are currently supported only for Inteliigent Services Gateway (ISG) sessions.
- IP sessions and PPP sessions are not supported on the same ambiguous subinterfaces. Hence, different ranges need to be specified for the outer VLAN tags for both IP sessions and PPP sessions.

- Only a limited feature set will be applied to each queue-in-queue (QinQ) pair as no subinterfaces are created for each QinQ pair. The available features include those applicable to the ISG session and those applicable to the ambiguous VLAN interface.
- This feature is restricted to Layer 2 unclassified MAC and DHCP-initiated ISG sessions.
- IPv6 sessions are not supported.
- This feature supports only Ethertype 0x8100. Other Ethertypes such as 0x88A8, 0x9100 and 0x9200 are not supported.
- This feature does not support Virtual Routing and Forwarding (VRF).

Information About Configuring Ambiguous VLAN Support for IP Sessions over ISG

Benefits of Ambiguous VLAN Support for IP Sessions over ISG

Ambiguous VLAN implementation for IP sessions in Intelligent Services Gateway (ISG) has the following benefits:

- The service provider only needs to know the end-user VLAN ranges instead of the individual end-user VLAN IDs.
- The ambiguous VLAN feature allows the configuration of multiple VLANs under one subinterface which leads to better Interface Descriptor Block (IDB) utilization.

Configuring Ambiguous VLAN Support for IP Sessions over ISG

You can define a range of inner VLANS and create QinQ VLANS, or you can use the keyword **any** for the system to assign any inner VLAN ID that has not been used elsewhere.

To configure a range of inner VLANS:

```
configure terminal
interface GigabitEthernet1/0.200
 encapsulation dot1q 200 second-dot1q 1000-2000,3000,3500-4000
```

or

```
configure terminal
interface GigabitEthernet1/0.200
 encapsulation dot1q 200 second-dot1q 1000-2000
```

To configure the sub-interface for ambiguous VLAN:

```
configure terminal
interface GigabitEthernet1/0.200
 encapsulation dot1q 200 second-dot1q any
```

Verifying Ambiguous VLAN Support for IP Sessions over ISG Configuration

Use **show subscriber session** command to verify the configuration of Ambiguous VLAN Support for IP Sessions over ISG feature.

```
Device# show subscriber session uid 6

Type: IP, UID: 6, State: unauthen, Identity: 12.12.12.2
IPv4 Address: 12.12.12.2
Session Up-time: 00:00:34, Last Changed: 00:00:34
Switch-ID: 8221

Policy information:
  Authentication status: unauthen

Classifiers:
Class-id    Dir   Packets    Bytes                  Pri.  Definition
0           In    4          488                    0    Match Any
1           Out   4          488                    0    Match Any

Configuration Sources:
Type  Active Time  AAA Service ID  Name
INT   00:00:34     -               GigabitEthernet0/1/3.1
```

Additional References for Ambiguous VLAN Support for IP Sessions over ISG

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
ISG commands	Cisco IOS Intelligent Services Gateway Command Reference

Technical Assistance

Description	Link
The Cisco Support website provides extensive 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/c/en/us/support/index.html

Feature Information for Ambiguous VLAN Support for IP Sessions over ISG

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 Ambiguous VLAN Support for IP Sessions over ISG

Feature Name	Releases	Feature Information
Ambiguous VLAN Support for IP Sessions over ISG	Cisco IOS XE Release 3.8S	The Ambiguous VLAN Support for IP Sessions over ISG feature allows network service providers to define a range or ranges of inner VLANs and create queue-in-queue (QinQ) VLANs on demand. This is done by specifying a range for the inner VLAN tag in the IEEE 802.1Q-in-Q while maintaining a single outer VLAN tag for each subinterface. This module explains the Ambiguous VLAN Support for IP Sessions over ISG feature and how to configure it. The following commands were introduced or modified by this feature: **encapsulation dot1q**.