

Configuring VLAN Encapsulation

Gigabit Ethernet IQ, Gigabit Ethernet PICs with small form-factor pluggable optics (SFPs), and MX-series router Gigabit Ethernet, Tri-Rate Ethernet copper, and 10-Gigabit Ethernet interfaces with VLAN tagging enabled can use flexible Ethernet services, VLAN CCC, or VLAN virtual private LAN service (VPLS) encapsulation.

Aggregated Ethernet interfaces configured for VPLS can use Ethernet VPLS or VLAN VPLS.

To configure the encapsulation on a Gigabit Ethernet IQ or Gigabit Ethernet physical interface, include the `encapsulation` statement at the `[edit interfaces interface-name]` hierarchy level, specifying `flexible-ethernet-services`, `vlan-ccc`, or `vlan-vpls`:

```
[edit interfaces interface-name]  
encapsulation (flexible-ethernet-services | vlan-ccc | vlan-vpls);
```

To configure the encapsulation on an aggregated Ethernet interface, include the `encapsulation` statement at the `[edit interfaces interface-name]` hierarchy level, specifying `ethernet-vpls` or `vlan-vpls`:

```
[edit interfaces interface-name]  
encapsulation (ethernet-vpls | vlan-vpls);
```

Ethernet interfaces in VLAN mode can have multiple logical interfaces. In CCC and VPLS modes, VLAN IDs from 1 through 511 are reserved for normal VLANs, and VLAN IDs 512 through 4094 are reserved for CCC or VPLS VLANs. For 4-port Fast Ethernet interfaces, you can use VLAN IDs 512 through 1024 for CCC or VPLS VLANs.

For encapsulation type `flexible-ethernet-services`, all VLAN IDs are valid.

In general, you configure an interface's encapsulation at the `[edit interfaces interface-name]` hierarchy level. However, for some encapsulation types, including flexible Ethernet services, Ethernet VLAN CCC and VLAN VPLS, you can also configure the encapsulation type that is used inside the VLAN circuit itself. To do this, include the `encapsulation` statement:

```
encapsulation (vlan-ccc | vlan-tcc | vlan-vpls);
```

You can include this statement at the following hierarchy levels:

- `[edit interfaces interface-name unit logical-unit-number]`
- `[edit logical-systems logical-system-name interfaces interface-name unit logical-unit-number]`

You cannot configure a logical interface with VLAN CCC or VLAN VPLS encapsulation unless you also configure the physical device with the same encapsulation or with flexible Ethernet services encapsulation. In general, the logical interface must have a VLAN ID of 512 or higher; if the VLAN ID is 511 or lower, it will be subject to the normal destination filter lookups in addition to source address filtering. However if you configure flexible Ethernet services encapsulation, this VLAN ID restriction is removed.

Example: Configuring VLAN Encapsulation on a Gigabit Ethernet Interface

Configure VLAN CCC encapsulation on a Gigabit Ethernet interface:

```
interfaces ge-2/1/0 {  
  vlan-tagging;  
  encapsulation vlan-ccc;  
  unit 0 {  
    encapsulation vlan-ccc;  
    vlan-id 600;  
  }  
}
```

Example: Configuring VLAN Encapsulation on an Aggregated Ethernet Interface

Configure VLAN CCC encapsulation on an aggregated Gigabit Ethernet interface:

```
interfaces ae0 {  
  vlan-tagging;  
  encapsulation vlan-vpls;  
  unit 0 {  
    vlan-id 100;  
  }  
}
```