

InterVLAN Routing Configuration Commands

The following table lists commands used to configure and verify interVLAN routing:

Command	Action
<pre>Router(config)#interface fa0/1 Router(config-if)#no shutdown Router(config-if)#interface fa0/1.1 Router(config-subif)#</pre>	<p>Enables the interface. Creates a subinterface and enters the subinterface configuration mode for a router-on-a-stick configuration.</p>
<pre>Router(config-subif)#encapsulation dot1q [vlan id] Router(config-subif)#encapsulation isl [vlan id]</pre>	<p>Sets the trunking encapsulation method for the VLAN on the subinterface for a router-on-a-stick configuration. Only some switches support ISL encapsulation. You need to configure the router with the supported trunking encapsulation.</p>
<pre>Router(config-subif)#encapsulation dot1q [vlan id] native</pre>	<p>Configures the VLAN that is sending and receiving untagged traffic on the trunk port when the interface is in 802.1Q trunking mode. This should match the native VLAN on the connected switch for a router-on-a-stick configuration. By default, the native VLAN is 1.</p>
<pre>Router(config-subif)#ip address [a.b.c.d] [a.b.c.d]</pre>	<p>Specifies an IP address and subnet mask on the subinterface for a router-on-a-stick configuration.</p>
<pre>Router(config-subif)#ip helper-address</pre>	<p>Enables the DHCP relay agent feature for a router-on-a-stick configuration.</p>

The router may also need to route packets to other subnets in the network and not just between the subnets off the VLAN trunk. This is called *upstream routing*. If this is the case, you must configure other router interfaces to forward packets to other upstream routes.

The following commands configure a router with a single interface (a *router-on-a-stick* configuration) to perform interVLAN routing for VLAN 1 and VLAN 20:

```
Router(config)#interface fa0/1
Router(config-if)#no shutdown
Router(config-if)#no ip address
Router(config-if)#interface fa0/1.1
Router(config-subif)#description subinterface for VLAN 1
Router(config-subif)#encapsulation dot1Q 1
Router(config-subif)#ip address 192.168.1.1 255.255.255.0
Router(config-subif)#interface fa0/1.20
Router(config-subif)#description subinterface for VLAN 20
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#ip address 192.168.2.1 255.255.255.0
```