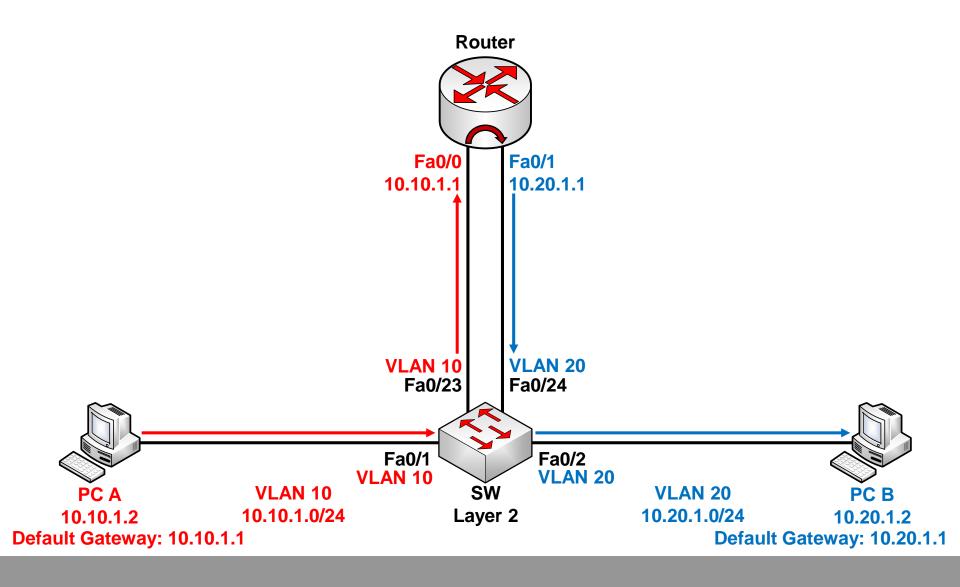


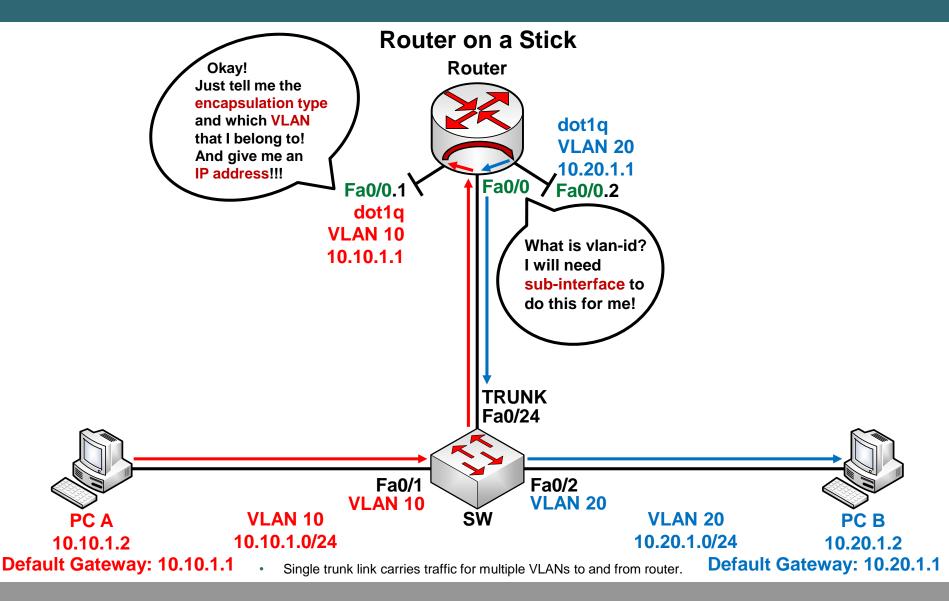
Implementing Inter-VLAN Routing

Describing Routing Between VLANs

Inter-VLAN Routing with External Router 802.1Q Trunk Link



Inter-VLAN Routing with External Router 802.1Q Trunk Link (Cont.)



Inter-VLAN Routing with External Router 802.1Q Trunk Link (Cont.)

Sub-Interface & VLANs

Router on a Stick

Router

dot1a **VLAN 10** 10.10.1.1

Fa0/0.1

dot1q **VLAN 20** 10.20.1.1

Fa0/0 $\gamma_{\text{Fa0/0.2}}$

Router(config)# interface Fa0/0 Router(config-if)# no shutdown

Router(config-if)# exit

Router(config)# interface Fa0/0.1

Router(config-if)# encapsulation dot1q 10

Router(config-if)# ip address 10.10.1.1

255.255.255.0

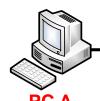
Router(config)# interface Fa0/0.2

Router(config-if)# encapsulation dot1q 20

Router(config-if)# ip address 10.20.1.1

255.255.255.0

TRUNK Fa0/24



10.10.1.2

VLAN 10 10.10.1.0/24

Fa0/1 Fa0/2 **VLAN 20 VLAN 10** SW

VLAN 20 10.20.1.0/24

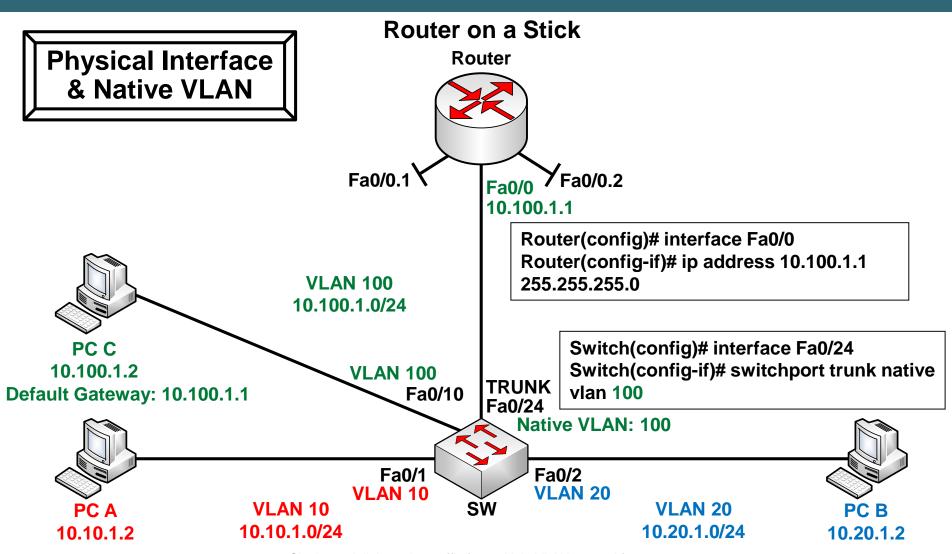
10.20.1.2

Default Gateway: 10.10.1.1

Single trunk link carries traffic for multiple VLANs to and from router.

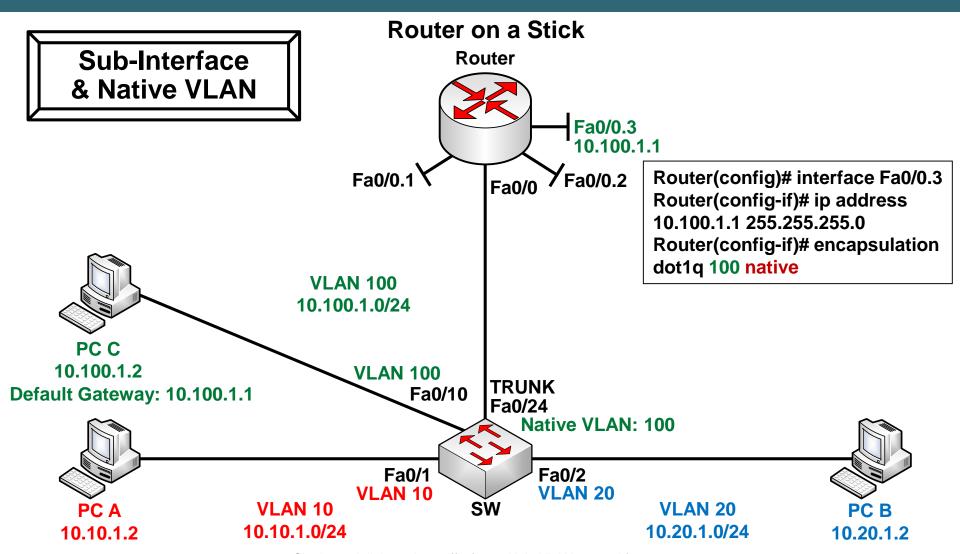
Default Gateway: 10.20.1.1

Inter-VLAN Routing with External Router 802.1Q Trunk Link (Cont.)



Single trunk link carries traffic for multiple VLANs to and from router.

Inter-VLAN Routing with External Router 802.1Q Trunk Link (Cont.)



Single trunk link carries traffic for multiple VLANs to and from router.

Inter-VLAN Routing with External Router **ISL Trunk Link**



Router on a Stick

Router

dot1a **VLAN 10** 10.10.1.1

VLAN 20 10.20.1.1

Fa0/0.1

Fa0/0 $\gamma_{\text{Fa0/0.2}}$

Router(config)# interface Fa0/0

Router(config-if)# no shutdown

Router(config-if)# exit

Router(config)# interface Fa0/0.1

Router(config-if)# encapsulation isl 10

Router(config-if)# ip address 10.10.1.1

255.255.255.0

Router(config)# interface Fa0/0.2 Router(config-if)# encapsulation isl 20

Router(config-if)# ip address 10.20.1.1

255.255.255.0

dot1q

ISL TRUNK

Fa0/24



VLAN 10 10.10.1.0/24 10.10.1.2

Fa0/1 Fa0/2 **VLAN 20 VLAN 10** SW

VLAN 20 10.20.1.0/24



PC B 10.20.1.2

Default Gateway: 10.10.1.1 Single trunk link carries traffic for multiple VLANs to and from router.

Default Gateway: 10.20.1.1

Verifying the Inter-VLAN Routing Configuration

Router#show vlans

Displays the current IP configuration per VLAN

Router#show ip route

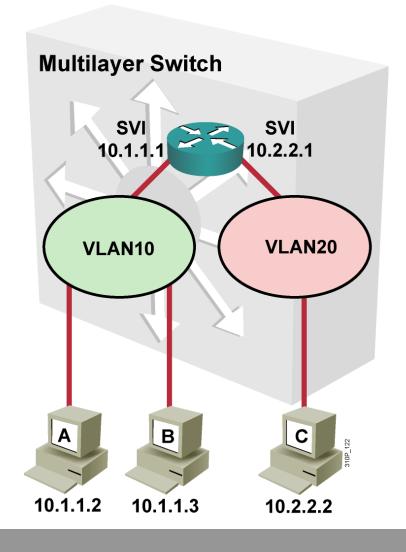
Displays IP route table information

Router#show ip interface brief

Displays IP address on interfaces and current state of interface

Layer 3 SVI

SVI (Switched Virtual Interface)



Configuring Inter-VLAN Routing Through an SVI

Step 1: Configure IP routing.

```
Switch (config) #ip routing
```

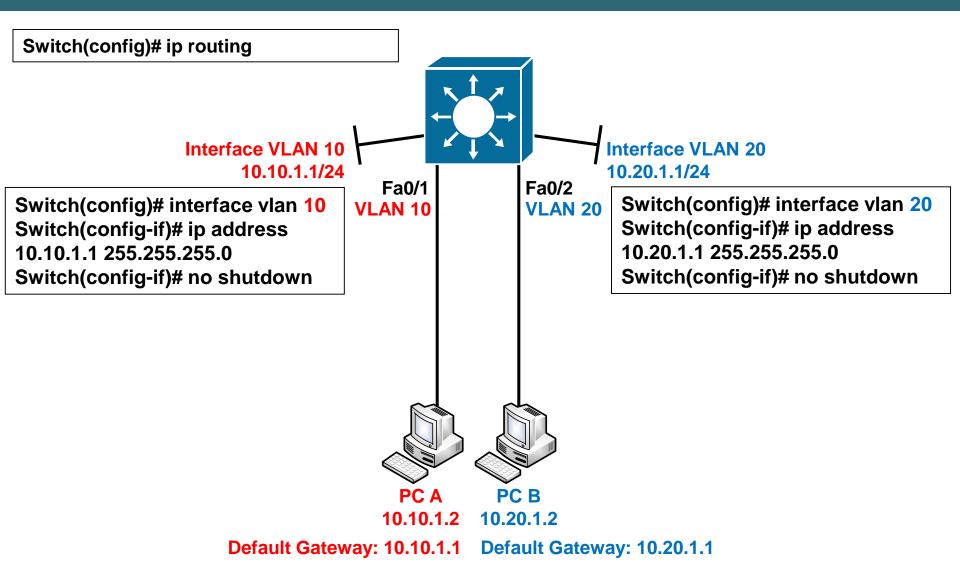
Step 2: Create an SVI interface.

Switch (config) #interface vlan vlan-id

Step 3: Assign an IP address to the SVI.

Switch(config-if) #ip address ip-address mask

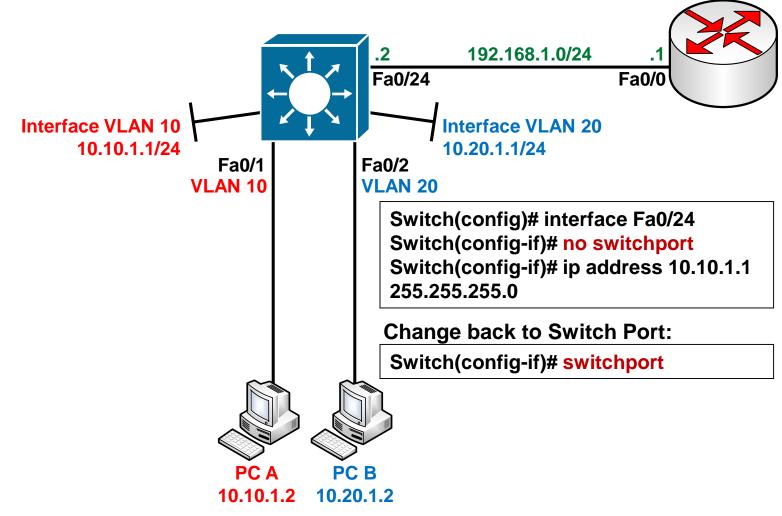
SVI on a Multilayer Switch



Routed Ports on a Multilayer Switch

- A routed port is a physical port that acts like a port on a router.
- A routed port is not associated with a particular VLAN.
- A routed port behaves like a regular router interface, except that it does not support VLAN subinterfaces.
- Routed ports can be configured with a Layer 3 routing protocol.
- A routed port is a Layer 3 interface only and does not support Layer 2 protocols, such as DTP and STP.

Routed Ports on a Multilayer Switch (Cont.)



Default Gateway: 10.10.1.1 Default Gateway: 10.20.1.1

#