Inter-VLAN Routing with a Layer 3 Switch

Cisco Packet Tracer Lab Configuration Guide

Phase 1: VLAN Creation

```
Switch> enable
Switch# configure terminal
Switch(config)# hostname L3-SW

! Create and Name VLAN 10
L3-SW(config)# vlan 10
L3-SW(config-vlan)# name SALES
L3-SW(config-vlan)# exit

! Create and Name VLAN 20
L3-SW(config)# vlan 20
L3-SW(config-vlan)# name MRKT
L3-SW(config-vlan)# exit
```

Phase 2: Interface Port Assignment

```
! Assign Gig1/0/1 - 2 to VLAN 10 (Sales)
L3-SW(config)# interface range gigabitEthernet 1/0/1 - 2
L3-SW(config-if-range)# switchport mode access
L3-SW(config-if-range)# switchport access vlan 10
L3-SW(config-if-range)# exit

! Assign Gig1/0/3 - 4 to VLAN 20 (Marketing)
L3-SW(config)# interface range gigabitEthernet 1/0/3 - 4
L3-SW(config-if-range)# switchport mode access
L3-SW(config-if-range)# switchport access vlan 20
L3-SW(config-if-range)# exit
```

Phase 3: Switched Virtual Interfaces (SVIs) & Layer 3 Routing

```
! Enable Hardware Layer 3 Forwarding
L3-SW(config)# ip routing

! Build Default Gateway for VLAN 10
L3-SW(config)# interface vlan 10
L3-SW(config-if)# ip address 192.168.10.1 255.255.255.0
L3-SW(config-if)# no shutdown
L3-SW(config-if)# exit

! Build Default Gateway for VLAN 20
L3-SW(config)# interface vlan 20
L3-SW(config-if)# ip address 192.168.20.1 255.255.255.0
L3-SW(config-if)# no shutdown
L3-SW(config-if)# end
L3-SW# copy running-config startup-config
```

Phase 4: End-Host IP Addressing

Configure the following inside **Desktop > IP Configuration** on each Packet Tracer PC:

Device	VLAN	IP Address	Subnet Mask	Default Gateway
PC 1	10	192.168.10.10	255.255.255.0	192.168.10.1
PC 2	10	192.168.10.11	255.255.255.0	192.168.10.1
PC 3	20	192.168.20.10	255.255.255.0	192.168.20.1

PC 4	20	192.168.20.11	255.255.255.0	192.168.20.1

Phase 5: Verification Commands

1. Switch Verification (CLI)

```
! Verify ports are correctly mapped to VLANs 10 and 20
L3-SW# show vlan brief

! Verify SVIs are configured and in an "up / up" state
L3-SW# show ip interface brief

! Verify directly connected routes ('C') appear in the routing table
L3-SW# show ip route
```

2. Connectivity Verification (Host Command Prompt)

```
! Test 1: Intra-VLAN Ping (Layer 2 - PC 1 to PC 2)
PC1> ping 192.168.10.11

! Test 2: SVI Reachability (PC 1 to its own Gateway)
PC1> ping 192.168.10.1

! Test 3: Inter-VLAN Ping (Layer 3 - PC 1 to PC 3)
PC1> ping 192.168.20.10
```