

Lab 3: Configuring a Router for Inter-VLAN Routing

Aim: Configure a router to handle traffic between different VLANs for inter-VLAN communication.

Objectives:

1. Setup VLANs on a switch.
2. Configure router interfaces for each VLAN.
3. Test inter-VLAN communication.

Steps:

1. Open Cisco Packet Tracer:
 - Start a new project.
2. Add Devices:
 - Add a Router: Drag a router (e.g., 2911) to the workspace.
 - Add a Switch: Drag a switch (e.g., 2960).
 - Add PCs: Drag multiple PCs and connect them to the switch.
3. Configure VLANs on the Switch:

Access the switch CLI and create VLANs:

```
Switch> enable
Switch# configure terminal
Switch(config)# vlan 10
Switch(config-vlan)# name Sales
Switch(config-vlan)# exit
Switch(config)# vlan 20
Switch(config-vlan)# name HR
Switch(config-vlan)# exit
```

Assign switch ports to VLANs:

```
Switch(config)# interface range fa0/1 - 2
Switch(config-if-range)# switchport mode access
Switch(config-if-range)# switchport access vlan 10
Switch(config)# interface range fa0/3 - 4
Switch(config-if-range)# switchport mode access
Switch(config-if-range)# switchport access vlan 20
```



4. Configure Router for Inter-VLAN Routing:

Configure sub-interfaces on the router:

```
Router> enable
Router# configure terminal
Router(config)# interface gig0/1.10
Router(config-subif)# encapsulation dot1Q 10
Router(config-subif)# ip address 192.168.10.1 255.255.255.0
Router(config-subif)# exit
Router(config)# interface gig0/1.20
Router(config-subif)# encapsulation dot1Q 20
Router(config-subif)# ip address 192.168.20.1 255.255.255.0
Router(config-subif)# exit
```



5. Test Inter-VLAN Communication:

- ☐ Assign IP addresses to PCs in VLAN 10 and VLAN 20.
- ☐ Use the ping command to test connectivity between PCs in different VLANs.