

Practical 8

AIM: -

a) Simulate Virtual LAN configuration using CISCO Packet Tracer Simulation.

Step 1: Set Up Devices in Cisco Packet Tracer

1. Add Devices

- Open Cisco Packet Tracer.
- At the bottom left, find the **Switches** category.
- Drag **2 switches (S1 and S2)** into the workspace.
- Next, find the **End Devices** category and drag **2 PCs (PC-A and PC-B)** into the workspace.

2. Connect Devices

- Click the **Connections** icon (lightning bolt) at the bottom left to see cable options.
- Select **Copper Straight-Through Cable** and connect:
 - **PC-A to S1** (PC-A to S1's FastEthernet0/1).
 - **PC-B to S2** (PC-B to S2's FastEthernet0/1).
- Choose **Console Cable** (also found under Connections) to connect:
 - **PC-A to S1's console port**
 - **PC-B to S2's console port**

Step 2: Configure Basic Switch Settings

1. Access Switch CLI via Console Connections

- Click **PC-A > Desktop > Terminal**.
- Click **OK** in the Terminal settings window to access S1's CLI (Command Line Interface).
- Repeat this for **PC-B** to access **S2's** CLI.

2. Enter Configuration Mode on Each Switch

- For each switch, enter the following commands:

```
enable  
configure terminal  
hostname <SwitchName>
```

3. Set Console and Enable Passwords

- Still in global configuration mode, type:

```
line console 0  
password <console_password>  
login  
exit  
enable secret <enable_password>
```

4. Set IP Address on Switch VLAN Interface

- Type the following commands:

```
interface vlan 1  
ip address <IP_address> <subnet_mask>  
no shutdown  
exit
```

5. Save Configuration

- Exit back to privileged EXEC mode by typing exit.
- Save the configuration with write memory or copy running-config startup-config.

Step 3: Configure IP Address on PCs

1. Configure PC-A

- Click **PC-A > Desktop > IP Configuration**.
- Set the **IP Address** to 192.168.1.2, **Subnet Mask** to 255.255.255.0, and **Default Gateway** to 192.168.1.1.

2. Configure PC-B

- Click **PC-B > Desktop > IP Configuration**.
- Set the **IP Address** to 192.168.1.3, **Subnet Mask** to 255.255.255.0, and **Default Gateway** to 192.168.1.1.

Step 4: Create VLANs on Each Switch

1. Create VLANs on S1 and S2

- Access each switch's CLI through **PC-A** and **PC-B** respectively, and enter the following commands:

```
enable
configure terminal
vlan 10
name SALES
exit
vlan 20
name HR
exit
```

2. Assign Ports to VLANs

- For **S1**:

```
interface range fa0/1 - 12
switchport mode access
switchport access vlan 10
exit
interface range fa0/13 - 24
switchport mode access
switchport access vlan 20
```

exit

- For **S2**:

interface range fa0/1 – 12

switchport mode access

switchport access vlan 10

exit

interface range fa0/13 - 24

switchport mode access

switchport access vlan 20

exit

3. Verify VLAN Configuration

- Type show vlan brief on each switch to verify that VLANs 10 and 20 have been created and that ports are correctly assigned.

Step 5: Configure Trunking Between Switches

1. Enable Trunk Ports on Both Switches

- Access **S1** through **PC-A** and **S2** through **PC-B**.
- Set port **FastEthernet0/1** to trunk mode on both switches:

interface fa0/1

switchport mode trunk

exit

2. Verify Trunking

- Type show interfaces trunk to confirm that **FastEthernet0/1** is operating as a trunk port on each switch.

Step 6: Testing Connectivity

1. Ping Between PCs

- Click **PC-A > Desktop > Command Prompt**.

- Type ping 192.168.1.3 (PC-B's IP address) to test connectivity.

2. Troubleshooting

- If the ping fails, verify the VLAN and trunk configurations on each switch and ensure the correct IP settings on each PC.

OUTPUT:

```
Switch#show vlan brief
```

VLAN	Name	Status	Ports
1	default	active	Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2
10	Marketing	active	Fa0/1, Fa0/2
20	Sales	active	Fa0/3, Fa0/4
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

```
Switch#
```