

Assignment 3 → Connection between two separate channel (Using 2960 switch & a single router)

→ To connect two separate channels (VLANs) using a Cisco 2960 switch & a single router in Cisco Packet Tracer, you're essentially implementing Router-on-a-stick.

★ Objective →

Connect two VLANs (say VLAN 10 & VLAN 20) using a single router & one switch (2960) so that devices in both VLANs can communicate.

★ Devices Required →

- 1) 1 router (e.g. 1941)
- 2) 2 switch (e.g. 2960)
- 3) At least 2 PCs (one for each VLAN)
- 4) Copper straight through cables.

Step-1

★ Connection of Devices

In the experiment I have connected the devices as following →

- 1) 1941 router connected with two 2960 switches using copper straight through cables in GigabitEthernet 0/0 & GigabitEthernet 0/1 ports.
- 2) I have connected 3 PCs with each switch using copper straight through cables. It means each channel has 3 PCs in it connected via 2960 switch.

step-2

★ Configure Interfaces on Router

→ Open or click on the router.

→ Then select the CLI tab & follow the steps →

i) First click enter / press enter key two times.

ii) Then write the following instructions →

```
Router > enable
```

```
Router # configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Router (config) # interface g0/0
```

```
Router (config-if) # ip address 192.168.1.1 255.255.255.0
```

```
Router (config-if) # no shutdown
```

```
Router (config-if) #
```

```
%LINK-5-CHANGED: Interface GigabitEthernet 0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet 0/0, changed state to up
```

```
exit
```

```
Router (config) # interface g0/1
```

```
Router (config-if) # ip address 192.168.2.1 255.255.255.0
```

```
Router (config-if) # no shutdown
```

```
Router (config-if) #
```

```
%LINK-5-CHANGED: Interface GigabitEthernet 0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet 0/1, changed state to up
```

```
exit
```


Step-3

★ Set IP addresses on PCs

a) On (VLAN 10)

- Set IP for 3 PCs like 192.168.1.2, 192.168.1.3, & 192.168.1.4
- Subnet mask will be same → 255.255.255.0
- Default gateway for this network will be
→ 192.168.1.1

b) On (VLAN 20)

- Set IP for 3 PCs like 192.168.2.2, 192.168.2.3, 192.168.2.4
- Subnet mask will be same → 255.255.255.0
- Default gateway for this network will be
→ 192.168.2.1

Step-4

★ Test Connection by Sending Messages

- 1. Click the message (Envelope) Icon present in the top. It looks like a closed envelope. This is called "Add simple PDU". (Basic Ping)
- 2. Now after clicking click on the source PC.
- 3. Now after that click the destination PC.
- 4. Now view the result.

★ The test done in the Cisco packet tracer application & the printout of the entire test is shown in the next page.

