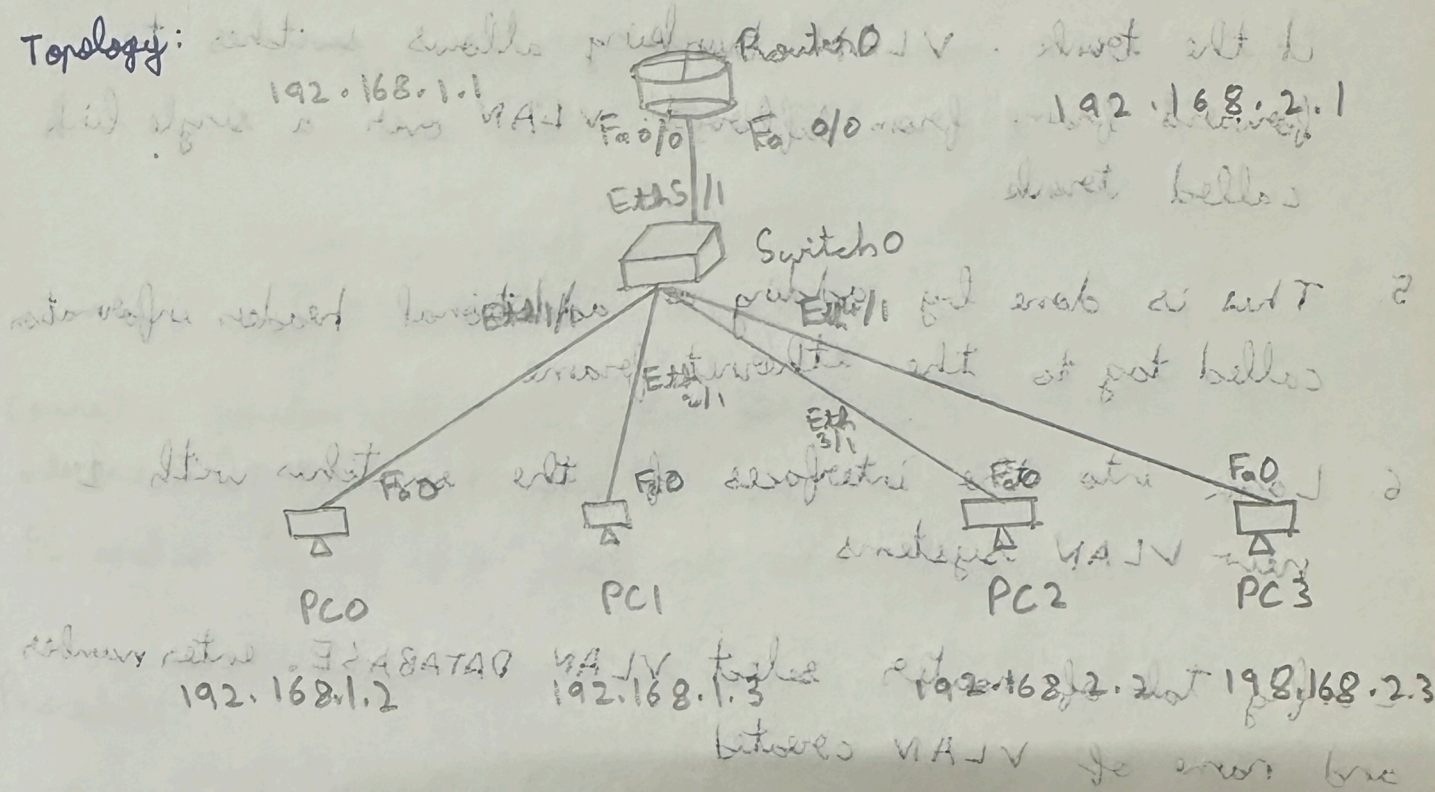


Exp-10: To construct VLAN and the PCs communicate along a VLAN

Aim: Construct a VLAN and enable communication between PCs among a VLAN

Topology:



Connect 4 PCs to the switch and a router as well to the switch. Assign the IP addresses to the PCs and set default gateway

Procedure:

1. Choose the 1841 router & connect to a switch and 4 PC's via ethernet interface and fastethernet interface respectively.
2. Set the IP addresses of the PCs and configure the router with IP address 192.168.1.1

Router > enable

Router # config terminal

Router (config) # interface Fa0/0

Router (config-if) # ip address 192.168.1.1

255.255.255.0



Router (config-if) # no shut

3. In the switch, go to config tab and select VLAN Database

4. Set the VLAN number and VLAN name  
Select the interface. i.e., fastethernet 5/1 and make it the trunk. VLAN trunking allows switches to forward frame from different VLAN over a single link called trunk.

5. This is done by adding an additional header information called tag to the ethernet frame.

6. Look into the interfaces of the switches with 2 new VLAN systems

Config tab of router select VLAN DATABASE enter number and name of VLAN created

Router (vlan) # exit

Router # config t

Router (config) # interface fast ethernet 0/0.1

Router (config-subif) # encapsulation dot1q 2

Router (config-subif) # ip address 192.168.2.1 255.255.255.0

Router (config-subif) # no shut

Router (config-subif) # exit

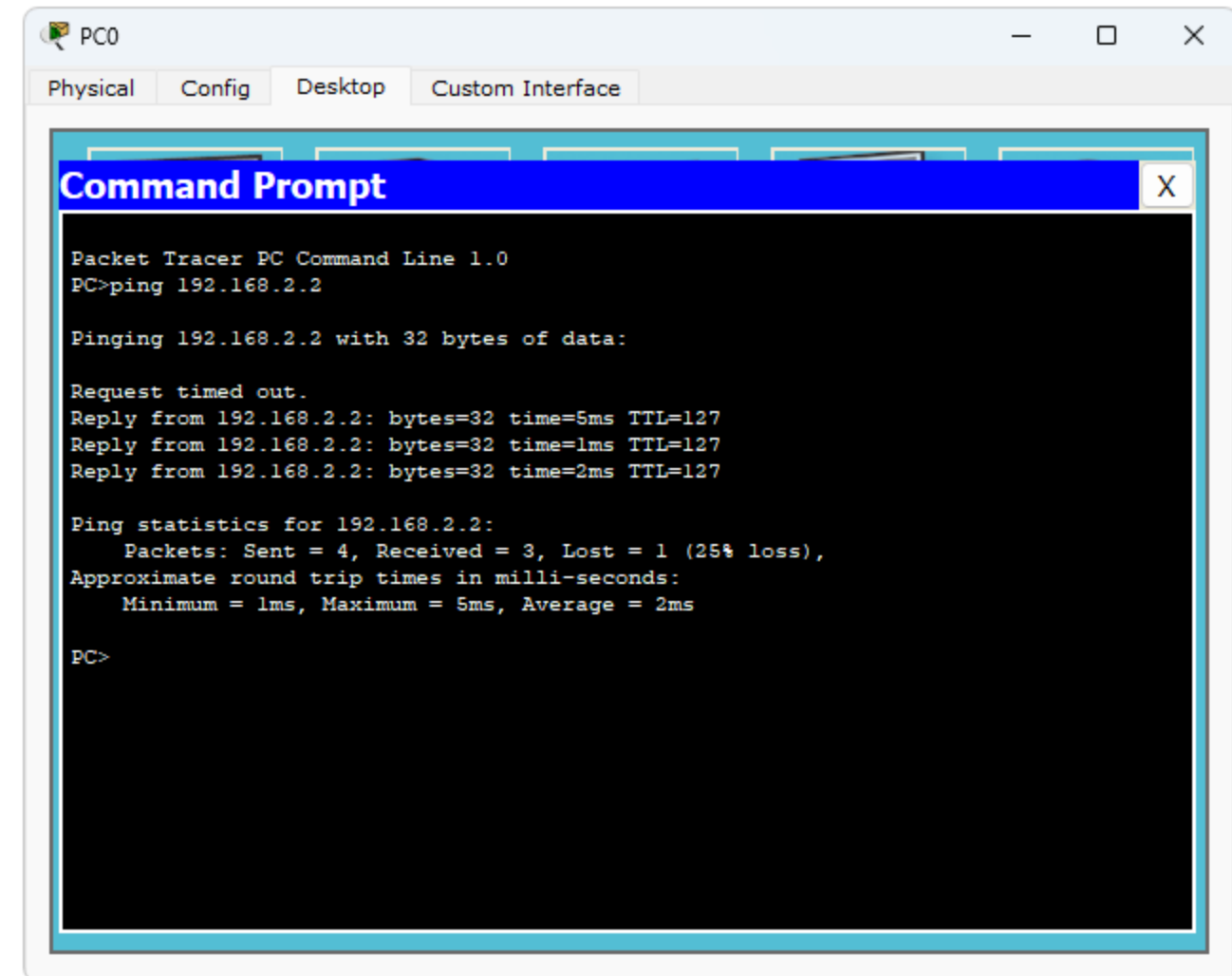
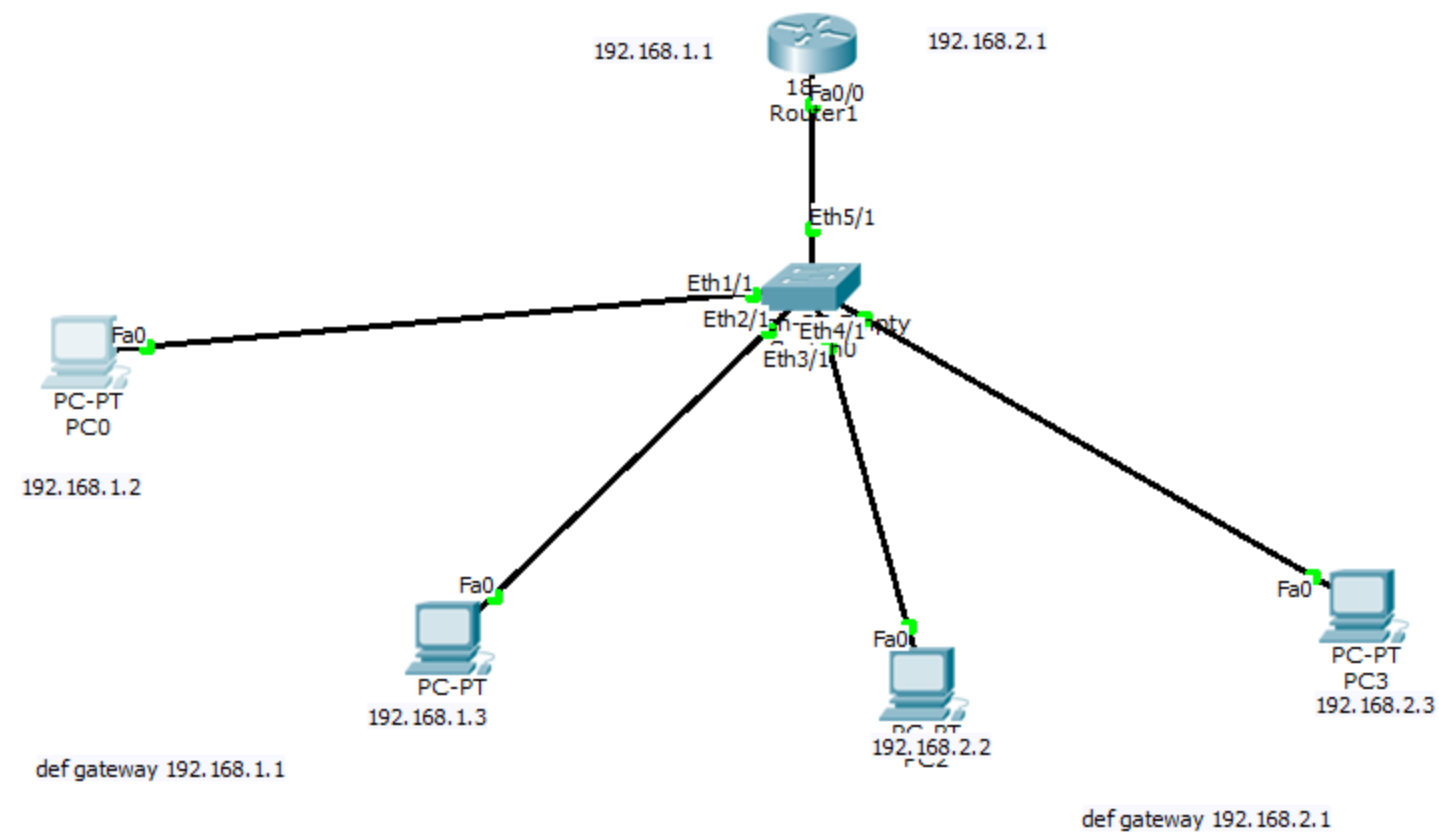
Router (config) # exit

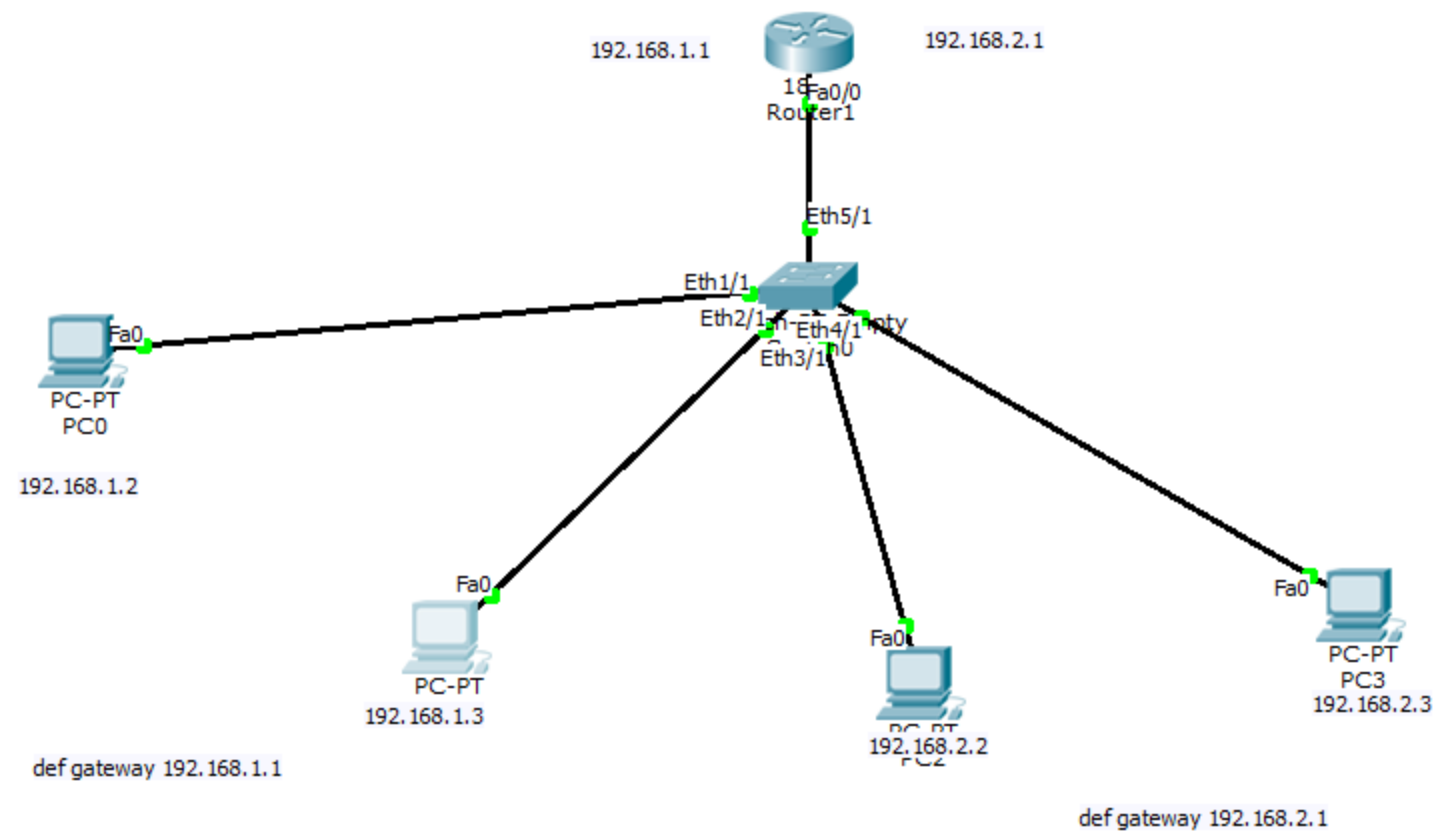
Observation:

A VLAN segments a network into virtual groups. It enhances security and reduces broadcast traffic. On pinging over the VLAN the PCs are able to communicate

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PC1

Physical Config Desktop Custom Interface

### Command Prompt

```
Pinging 192.168.2.3 with 32 bytes of data:  
  
Request timed out.  
Reply from 192.168.2.3: bytes=32 time=4ms TTL=127  
Reply from 192.168.2.3: bytes=32 time=2ms TTL=127  
Reply from 192.168.2.3: bytes=32 time=3ms TTL=127  
  
Ping statistics for 192.168.2.3:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 2ms, Maximum = 4ms, Average = 3ms  
  
PC>ping 192.168.2.3  
  
Pinging 192.168.2.3 with 32 bytes of data:  
  
Reply from 192.168.2.3: bytes=32 time=0ms TTL=127  
Reply from 192.168.2.3: bytes=32 time=4ms TTL=127  
Reply from 192.168.2.3: bytes=32 time=1ms TTL=127  
Reply from 192.168.2.3: bytes=32 time=2ms TTL=127  
  
Ping statistics for 192.168.2.3:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 0ms, Maximum = 4ms, Average = 1ms  
  
PC>
```