

## EXPERIMENT NO.

Aim :- Design VPN and configure the RTP using Cisco Packet tracer.

Theory :-

Routing Information Protocol (RIP) :-

RIP is a dynamic routing protocol that uses hop count as a routing metric to find the best path between the source and the destination network. It is a distance-vector routing protocol that has been working on Network layer of the OSI model. It is majorly used for small to medium-sized networks.

Steps to configure RIP routing in Cisco Packet Tracer :-

1. Create a Network Topology :-

Launch Cisco Packet Tracer and create a network topology. You can add routers and switches to workspace and connect them using appropriate cables.

2. Configure device interfaces :-

Setup IP addresses, networks and gateway addresses for the devices present in the workspace.

3. Configure Router Interfaces :-

Access the router's CLI and configure the interfaces of the router. For example, if you have two routers connected through their Fast Ethernet interfaces, configure them with IP addresses.

#### 4. Enable RIP Routing :

Enable RIP Routing after entering the configuration mode and repeat the same on Router 2.

#### 5. Test Connectivity :

After configuring RIP on both routers, you should be able to ping devices on remote networks.

Test connectivity between devices connected to different routers :

#### 6. Save the configuration and test :

Test the networks in the workspace (both the realtime and simulation mode).

### VLAN : -

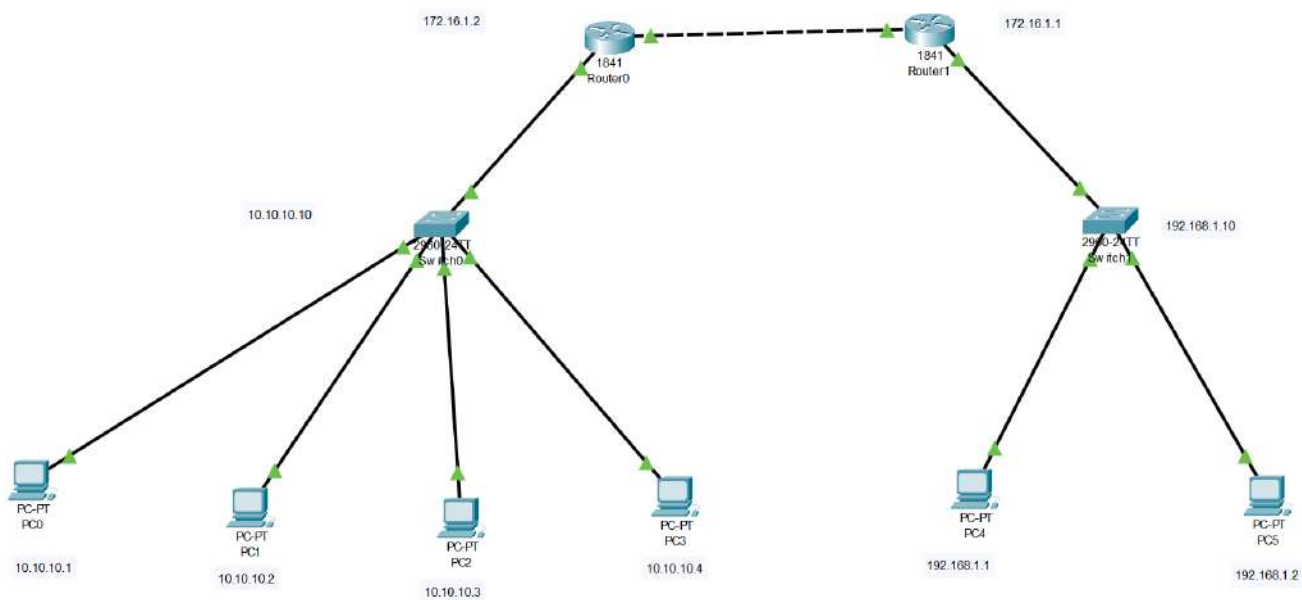
Configuring Virtual LANs (VLANs) in Cisco Packet Tracer and create a network topology that includes switches and devices. You can use the physical workspace to drag and drop switches and connect them using appropriate cables.

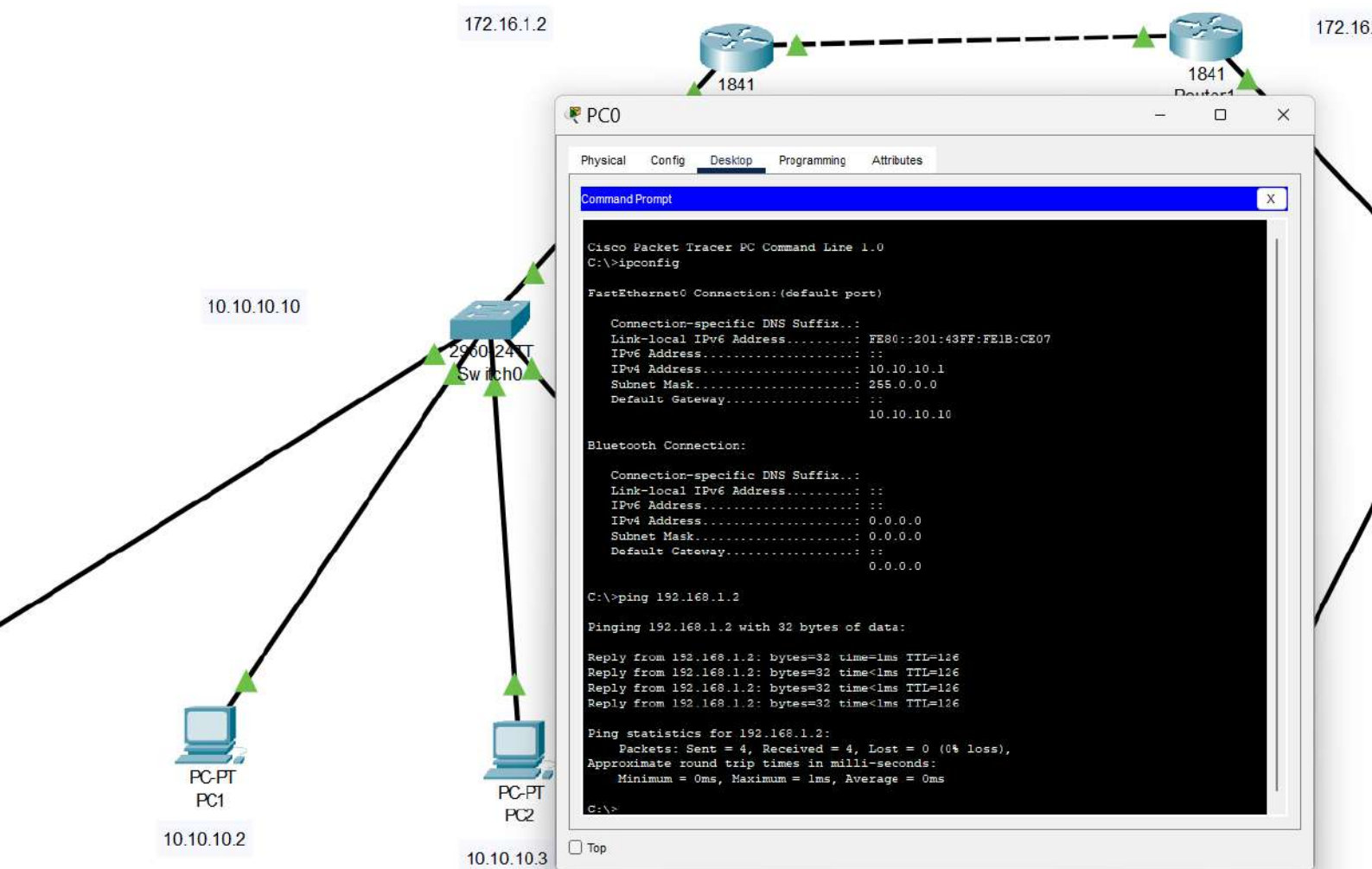
#### Steps to configure VLANs in CPT :

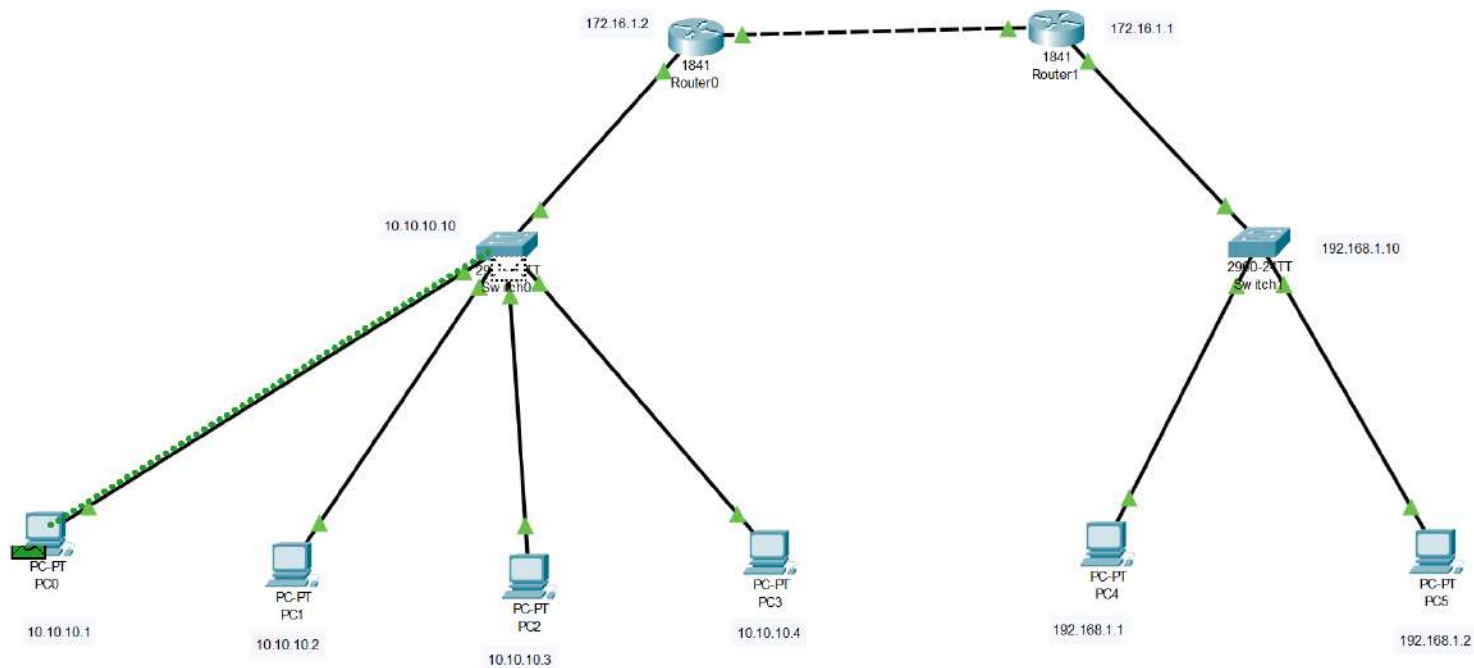


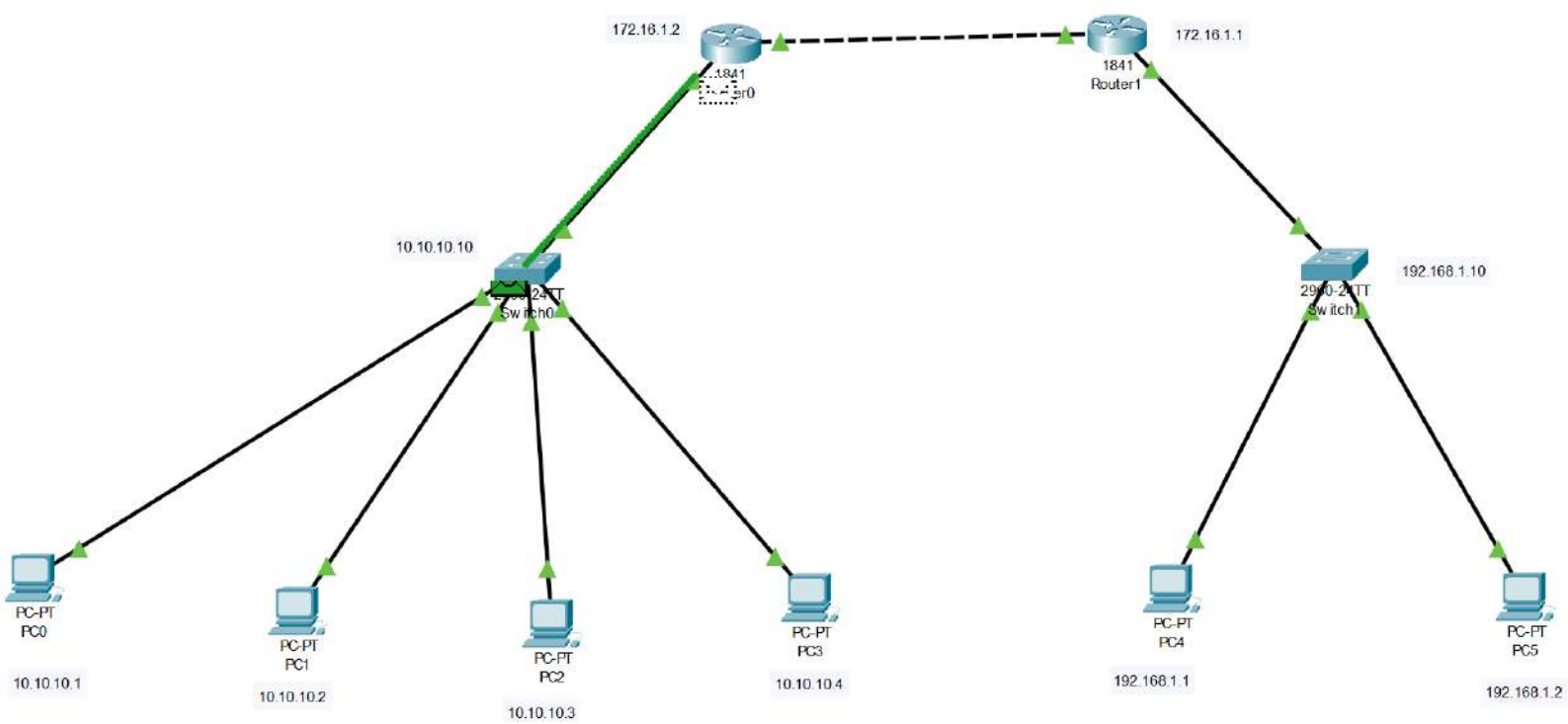
1. Create a Network Topology :  
Launch Cisco Packet Tracer and create a network topology that includes switches and devices, and connect them using appropriate cables.
2. Configure Switch Interfaces and IP addresses :  
After configuring IP, access CLI of each Switch in your topology by clicking on it and selecting CLI. Then use the following commands,  
vlan 10 : Creates VLAN 10  
switchport access vlan 10 : Assigns the interface to the VLAN 10.  
exit : Used to exit.  
Repeat the above steps for all switches and VLANs as needed.
3. Test VLAN configuration :  
Connect devices to the switch ports and verify that devices in the same VLAN can communicate, while devices in the different VLANs cannot communicate directly.
4. Save configuration (Optional) :  
Save your workspace configurations to ensure they persist after a reboot.

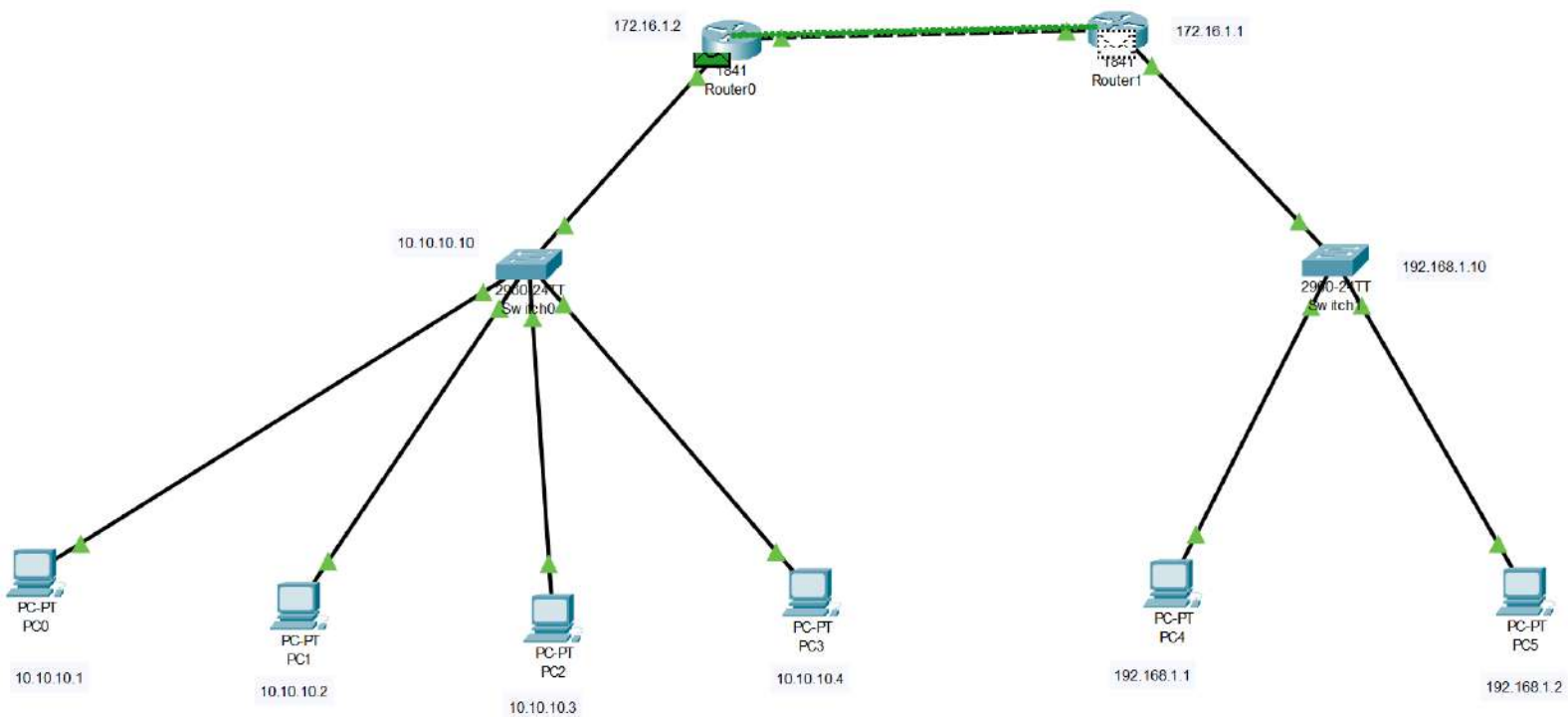
Conclusion :- Thus, we have designed and implemented RIP and VLANs using the Cisco Packet Tracer.



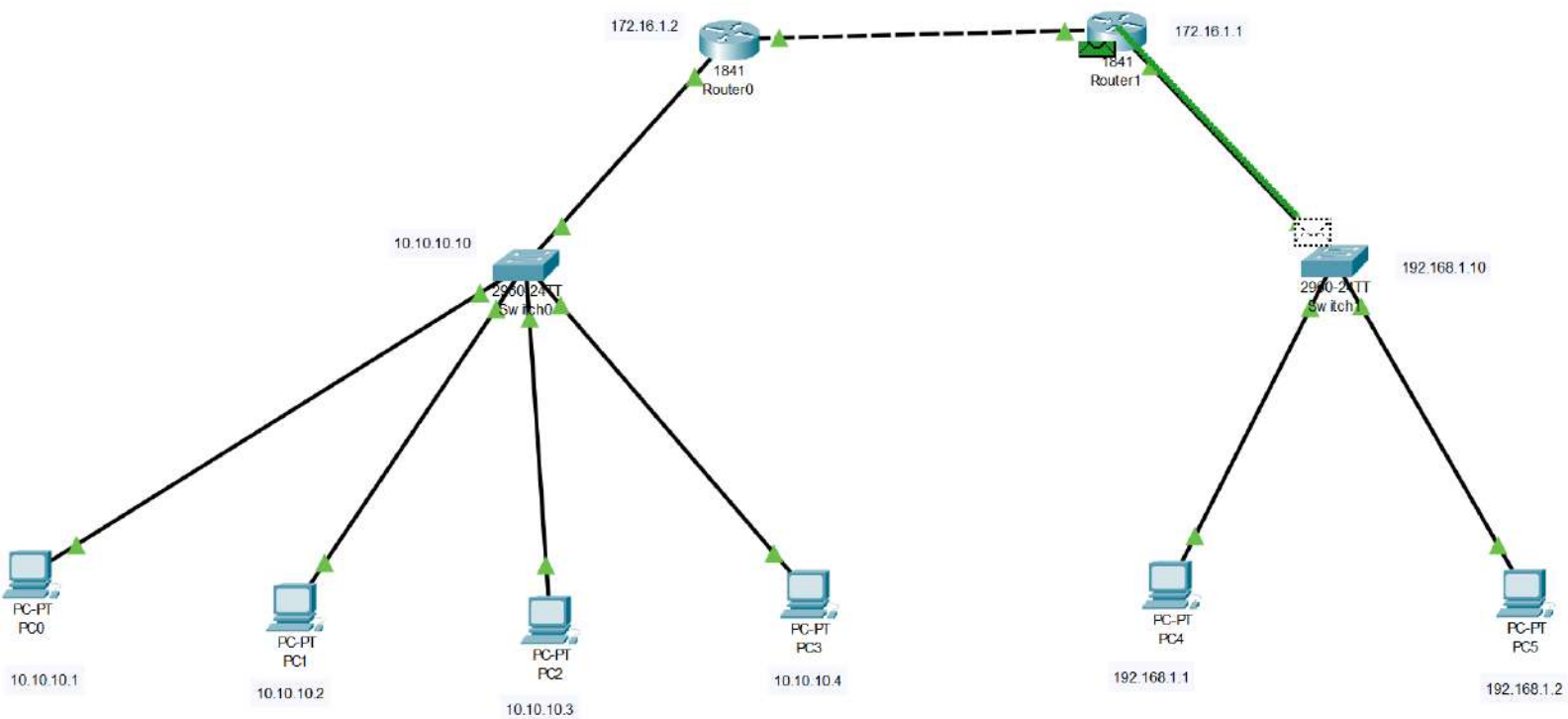


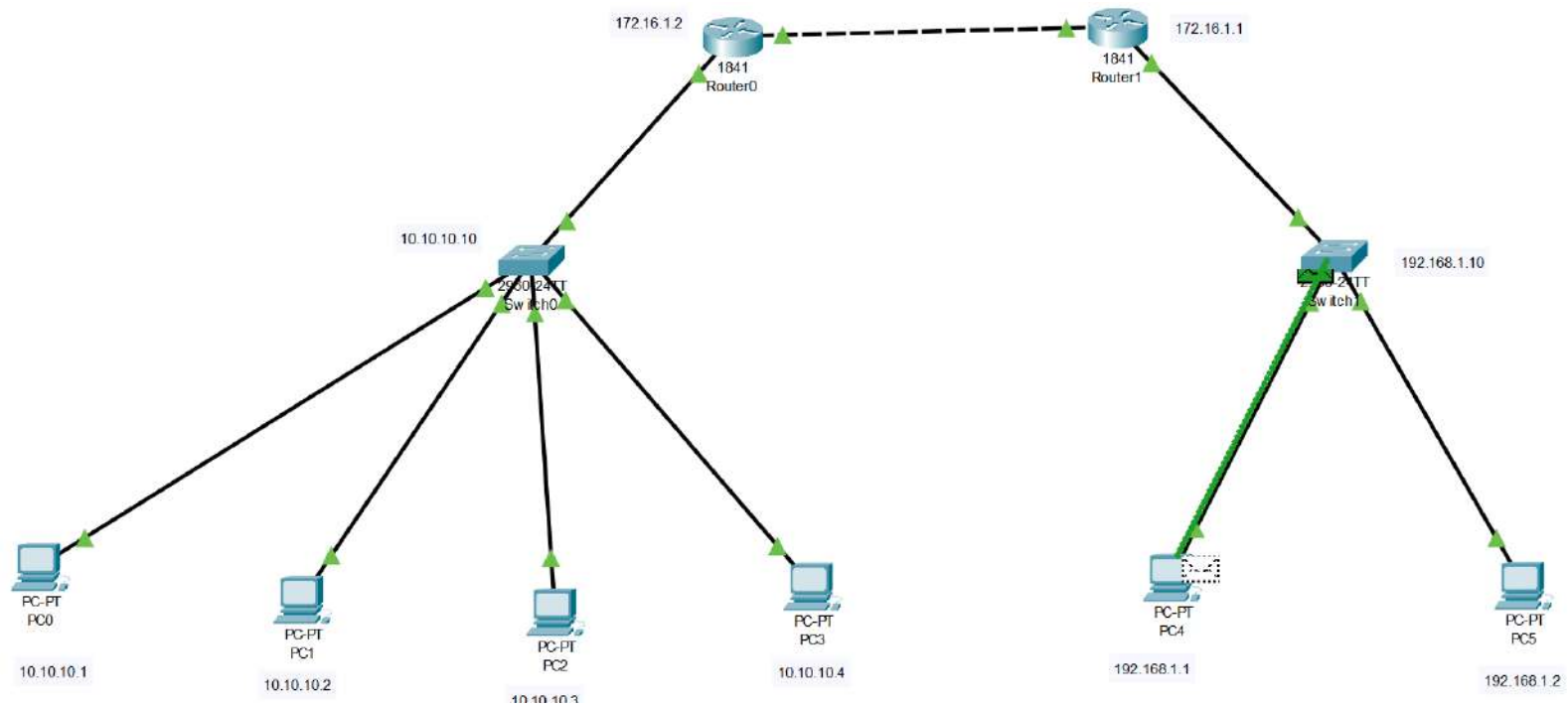


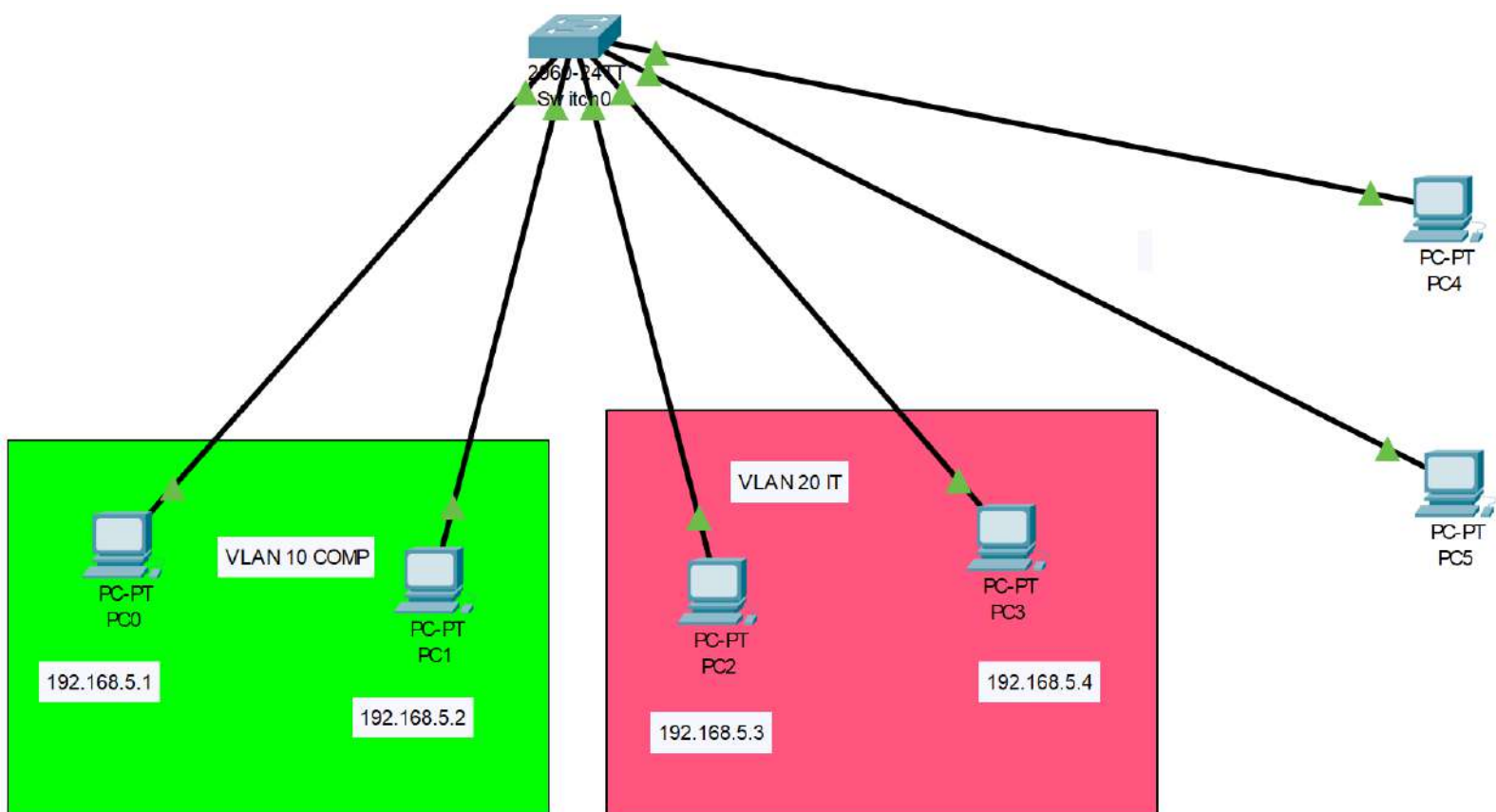


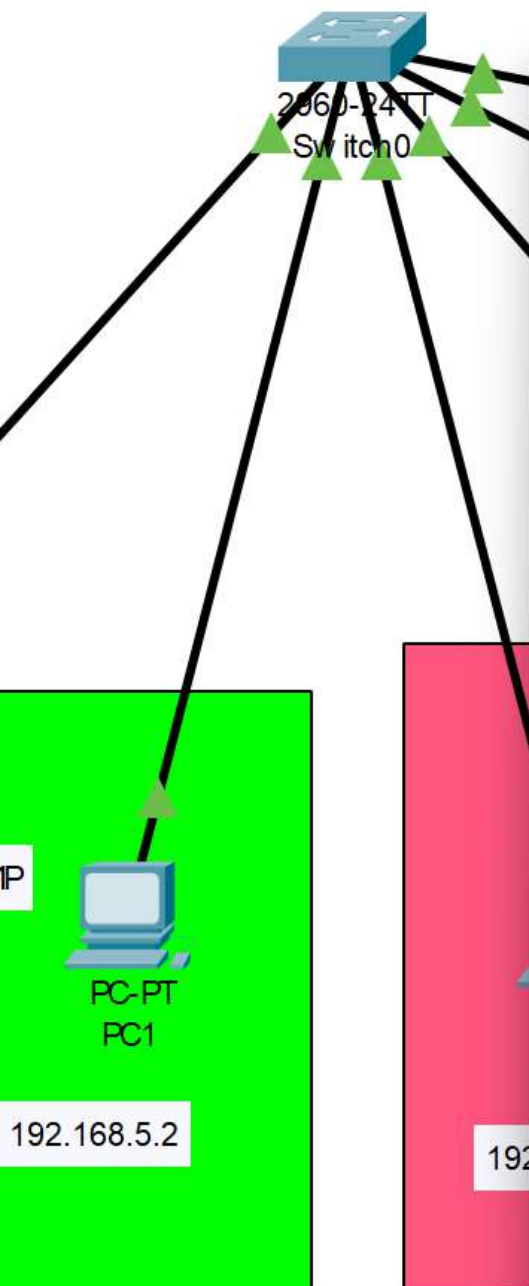












PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::230:F2FF:FEE6:8268
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.5.1
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                0.0.0.0

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 192.168.5.2

Pinging 192.168.5.2 with 32 bytes of data:

Reply from 192.168.5.2: bytes=32 time<lms TTL=128
Reply from 192.168.5.2: bytes=32 time<lms TTL=128
Reply from 192.168.5.2: bytes=32 time<lms TTL=128
Reply from 192.168.5.2: bytes=32 time<lms TTL=128

Ping statistics for 192.168.5.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.5.3

Pinging 192.168.5.3 with 32 bytes of data:

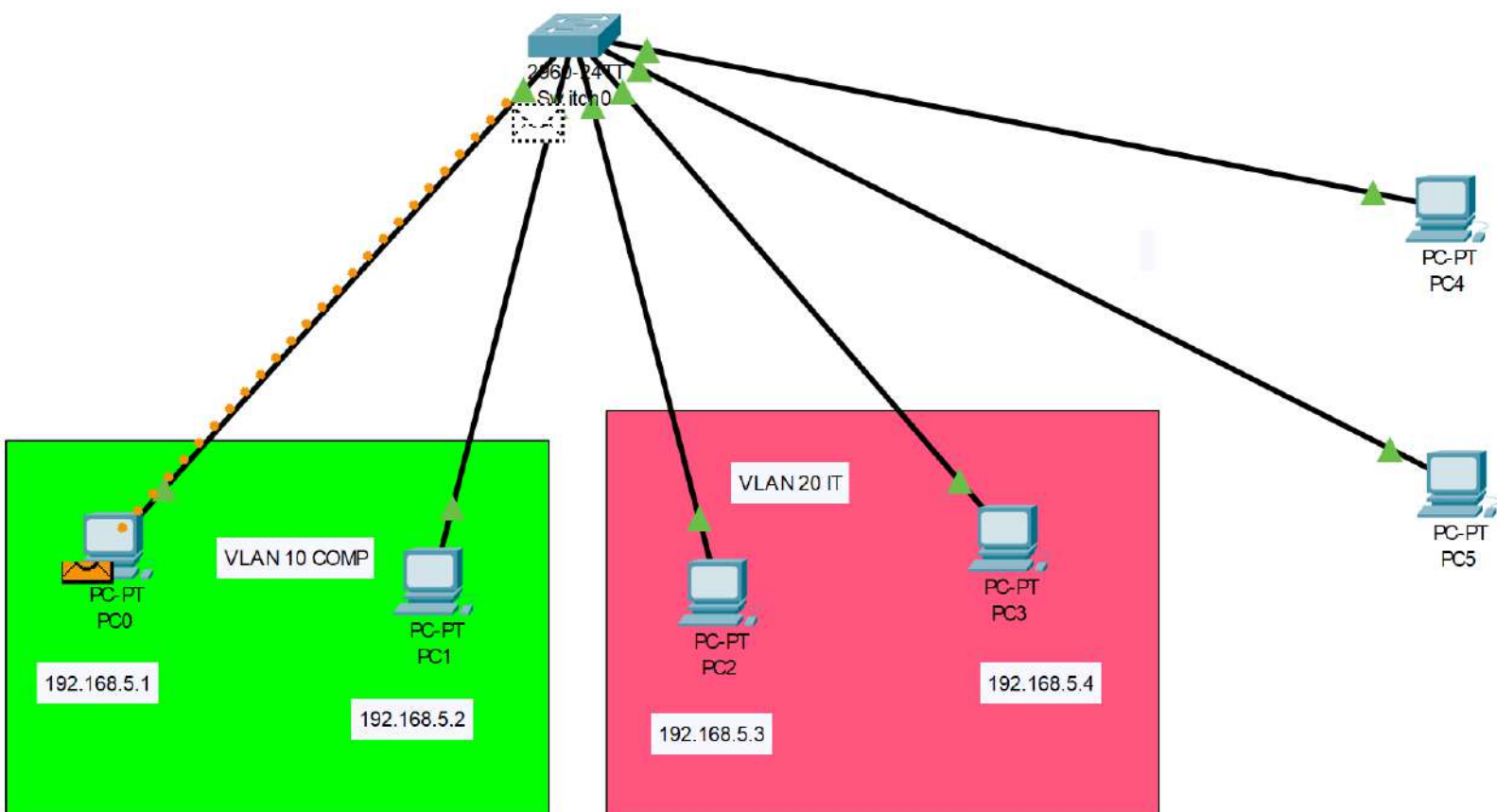
Request timed out.
Request timed out.
Request timed out.
Request timed out.

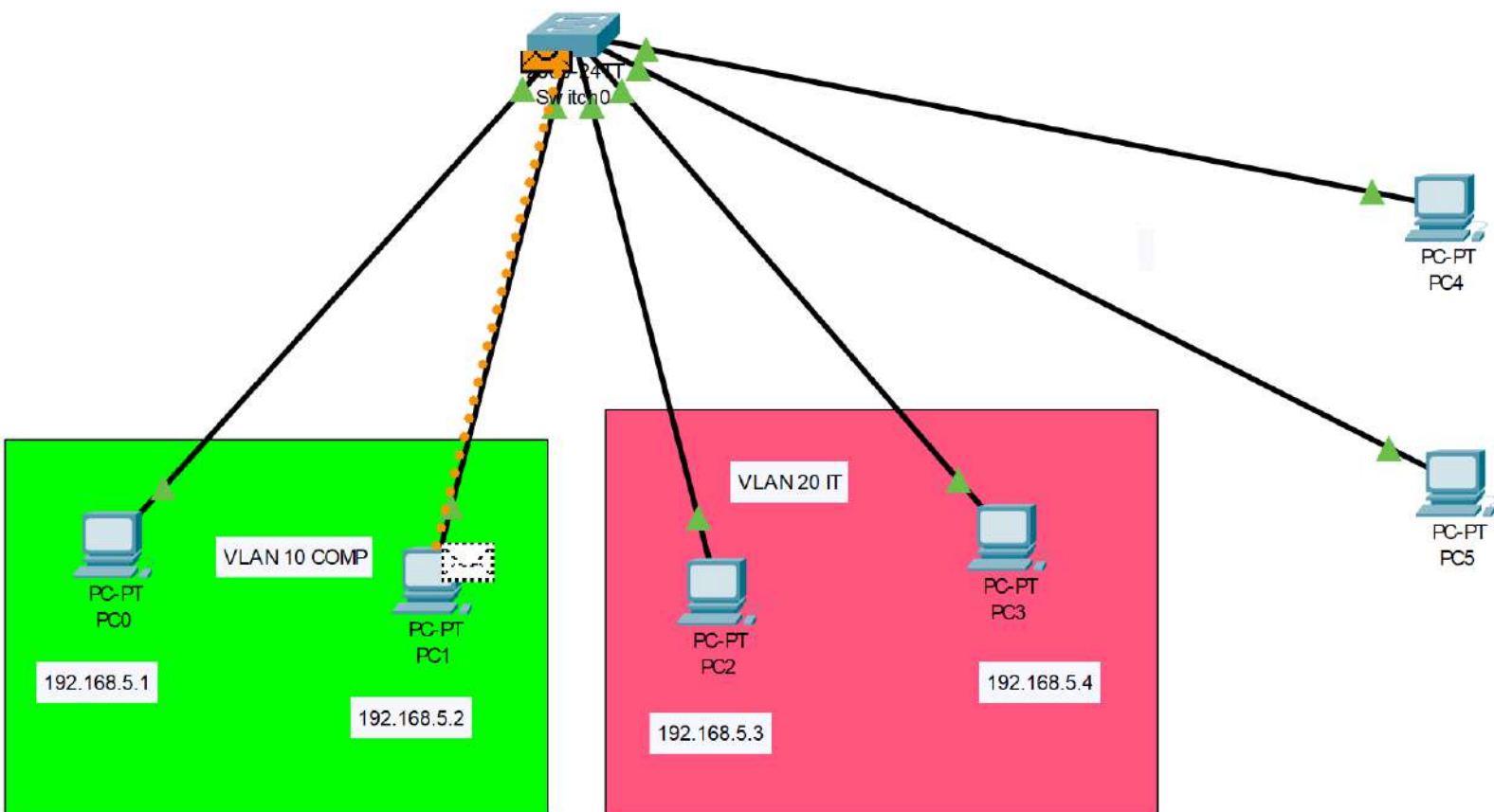
Ping statistics for 192.168.5.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

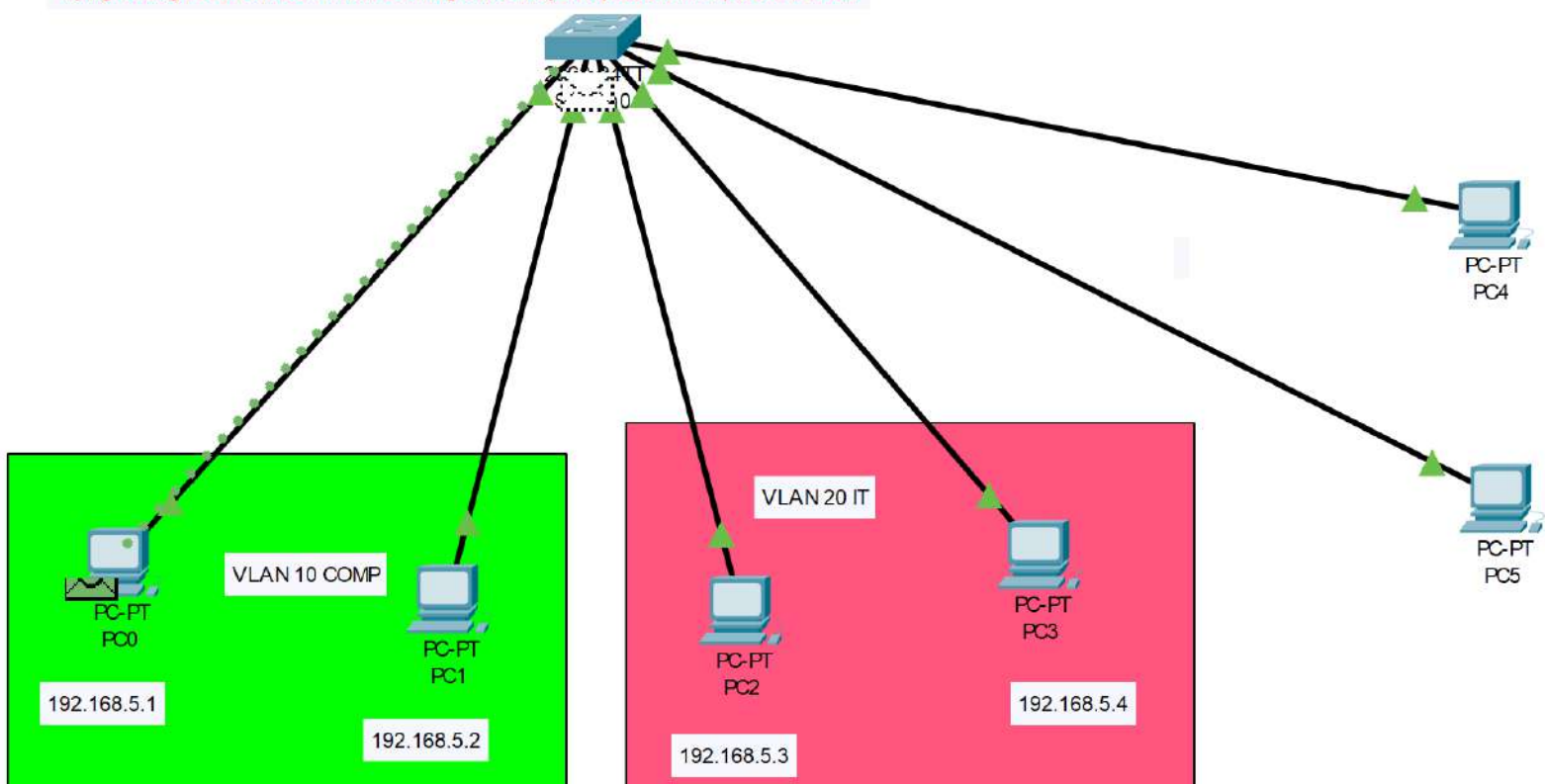
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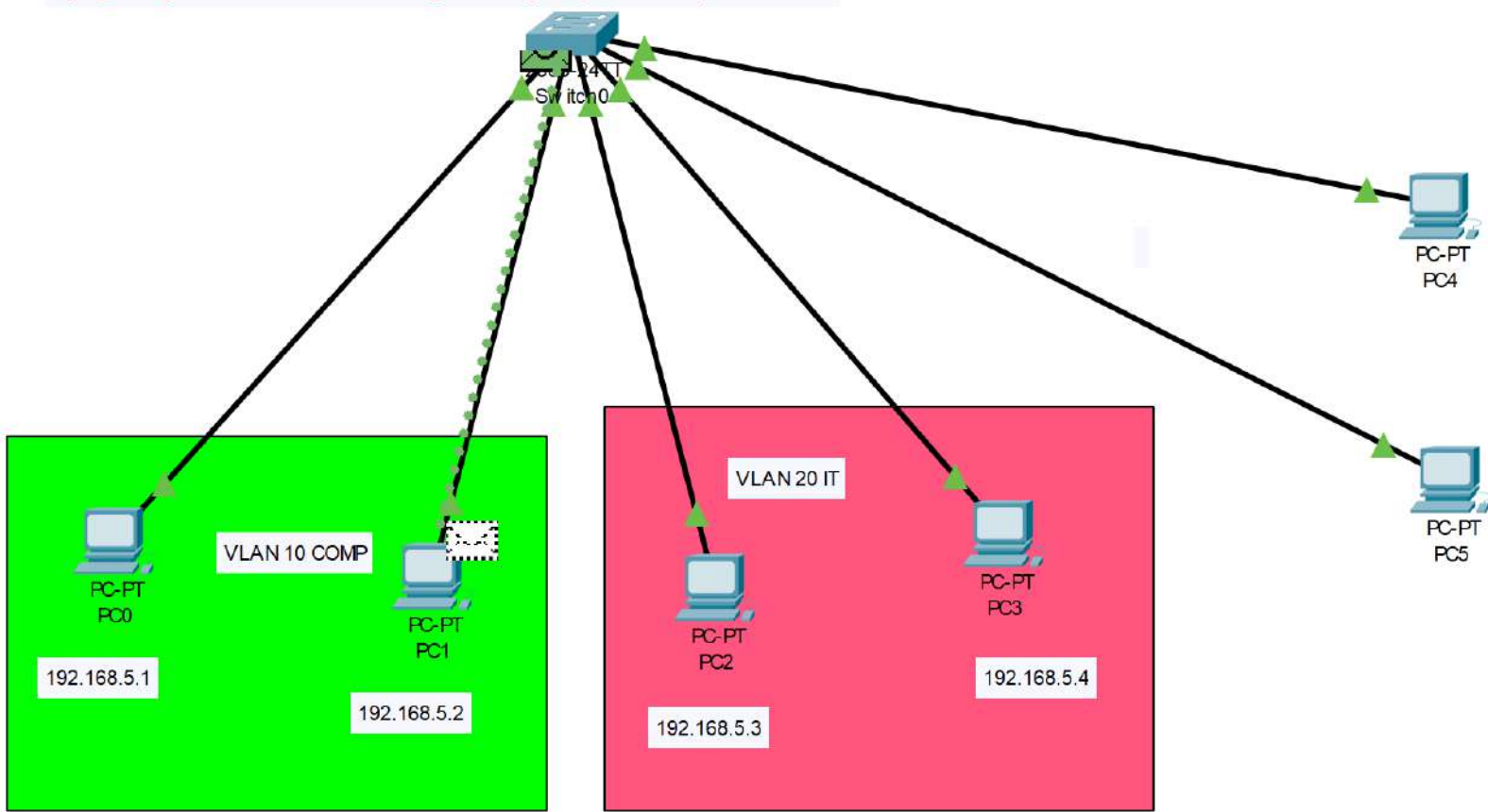




Trying to Ping PC2 from PC0 which is failing since they are present in separate VLANs.



Trying to Ping PC2 from PC0 which is failing since they are present in separate VLANs.





Trying to Ping PC2 from PC0 which is failing since they are present in seperate VLANs.

