Task 5: Layer 2 Route Discovery **CO2, K3**

Configure a layer 2 switch to send a packet from one LAN (Local Area Network) to another LAN by Link Layer Address

Step 1 : Create and implement the following:

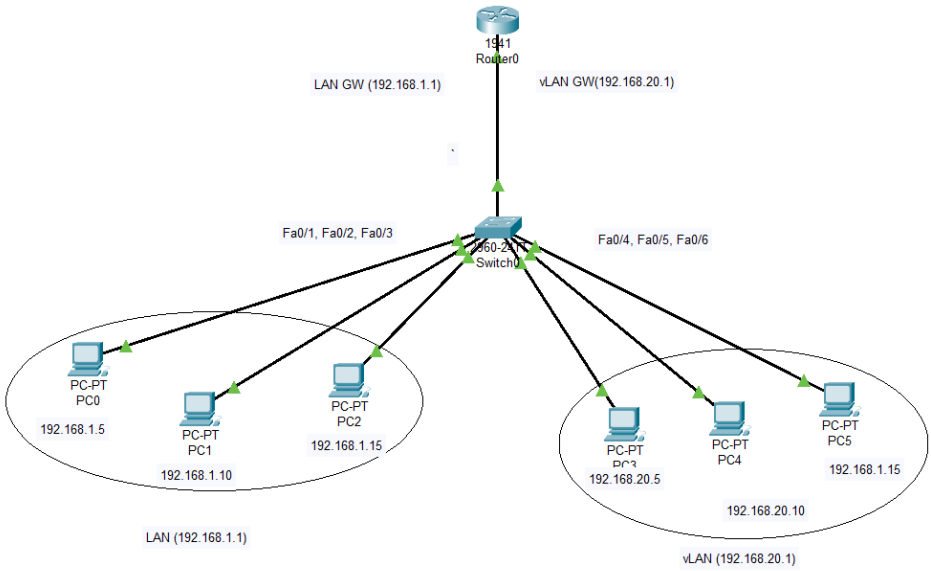
- 1 Router
- 1 Switch
- 6 PC's
- 1 VLAN

Execute the Packet Delivery from 'PC1' to 'PC3' successfully

Configuring and Verifying VLANs in Cisco: VLAN is the abbreviation for Virtual LAN, i.e. Virtual Local Area Network. This is a custom network we create from one or more existing LANs. It enables a group of devices from multiple networks (both wired and wireless) to be combined into a single Logical network. The result is a VLAN that can be administered like a physical area network. The network equipment like routers or switches must support the VLAN configurations to create a VLAN.

Let us create a network in Cisco Packet Tracer and configure VLAN in it. Here we create 2 LANs with three hosts per LAN, and we create 1 VLAN and try to communicate between them.

Step 1 : Open the CISCO Packet tracer and draw this scenario



Step 2 : Give the gateway address to Router0

Click Router0 -------> Go to config -------> Click FastEthernet 0/0 ------->

put IPV4 as : 192.168.1.1

Subnet mask as : 255.255.255.0

Put Port status as [✓] On

Step 3 : Give the IP addresses to All PCs as per the below table

Device	Ip Addresses	Subnet mask	Gateway Address
Network 1			
PC0	192.168.1.2	255.255.255.0	192.168.1.1
PC1	192.168.1.3	255.255.255.0	192.168.1.1
PC2	192.168.1.4	255.255.255.0	192.168.1.1
Network 2			
PC3	192.168.20.2	255.255.255.0	192.168.20.1
PC4	192.168.20.3	255.255.255.0	192.168.20.1
PC5	192.168.20.4	255.255.255.0	192.168.20.1

Step 4 : Configure the switch as per the following procedure.

Click the switch1 -------> Go to config -------> Click VLAN Database ------->

Enter VLAN Number : 20

Enter VLAN Name : CNLAB

Click ADD

Step 5 : find the VLAN System port that is connected to the Switch

In our case : PC3, PC4, PC5 are connected to the VLAN System, hence the port line for these PCs are

Interface	Status	Vlan State	Status Select
Fa0/4	ACCESS	VLAN	20
Fa0/5	ACCESS	VLAN	20
Fa0/6	ACCESS	VLAN	20

Step 6 : : Configure the Router0 as per the following procedure.

Click the Router0 -------> Go to config -------> Click VLAN Database ------->

Enter VLAN Number : 20

Enter VLAN Name : CNLAB

Click ADD

Step 7 : Click the Router0 -------> Go to CLI

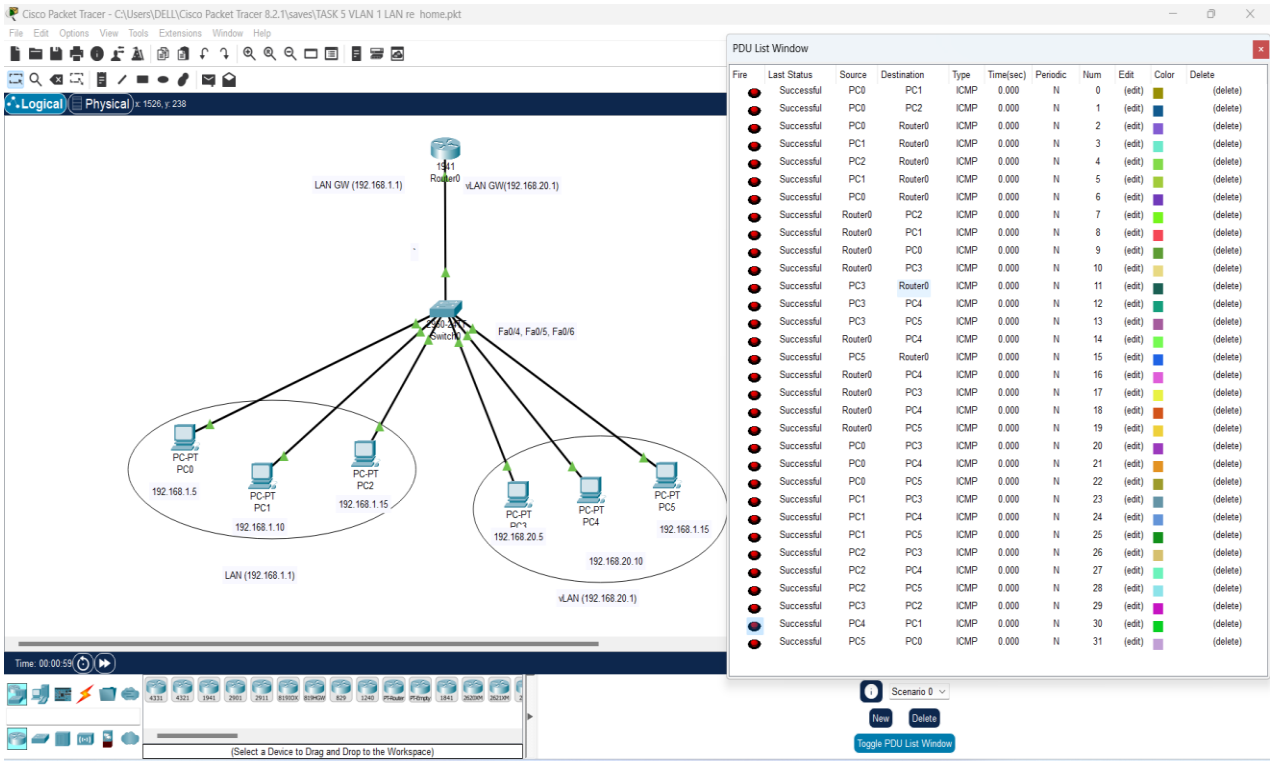
Do the following routing configuration based on the following scenario

```
Router(vlan)#
Router(vlan)#exit
APPLY completed.
Exiting....
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#Interface GigabitEthernet0/0.1
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#exit

Router(config)#exit
Router#
```

Step 8: Now check with the Different PDUs- for Data communication between the Wired LAN with the VLAN Scenario

Step 9 : also check the ping command from ‘PC1’ to ‘PC3’ successfully.

Output:
Now We will check IP Address from ‘PC1’ to ‘PC3’ successfully and also all PDU Transaction



Therefore, the Layer 2 Route Discovery must be executed, and it is imperative to configure a layer 2 switch to send a packet from one LAN to another VLAN by using Link Layer Address with the assistance of a single router.

Result :

Thus, the Configuration of the layer 2 switch is created and sends packets from one LAN (Local Area Network) to another LAN by Link Layer Address using Virtual LAN.