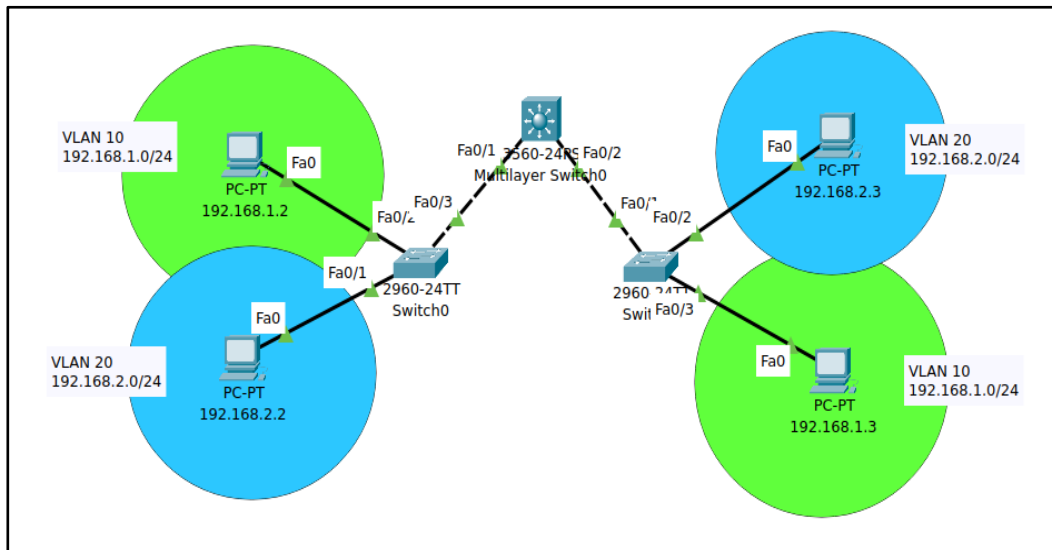


## Purpose of Lab

Creating a similar network which is similar to shown in image below.



Each area that is shown in different colors indicates a different vlan. Subnets of these vlans are also indicated in the image. In this topology devices in different vlans **are able to communicate** with each other since there is a **multilayer switch** at the center of network.

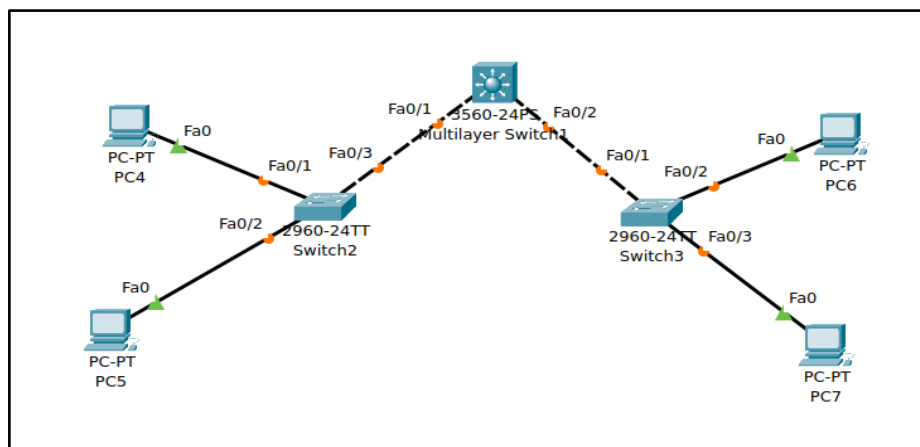
## Step 1 – Deploying Devices

From bottom left corner of packet tracer's interface pick following network devices:

- 2 Layer-2 Switch
- 1 Multilayer Switch
- 4 Computers

After putting every device in blank screen, connect them with each other with using cable tab within bottom left interface. *(You can use the one have lightning symbol on. It finds the proper cable automatically for you)*

When you completed all steps so far, you network should look like following:



In order to get rid of orange circles, you can just wait or press the forward button which is located in bottom left corner.

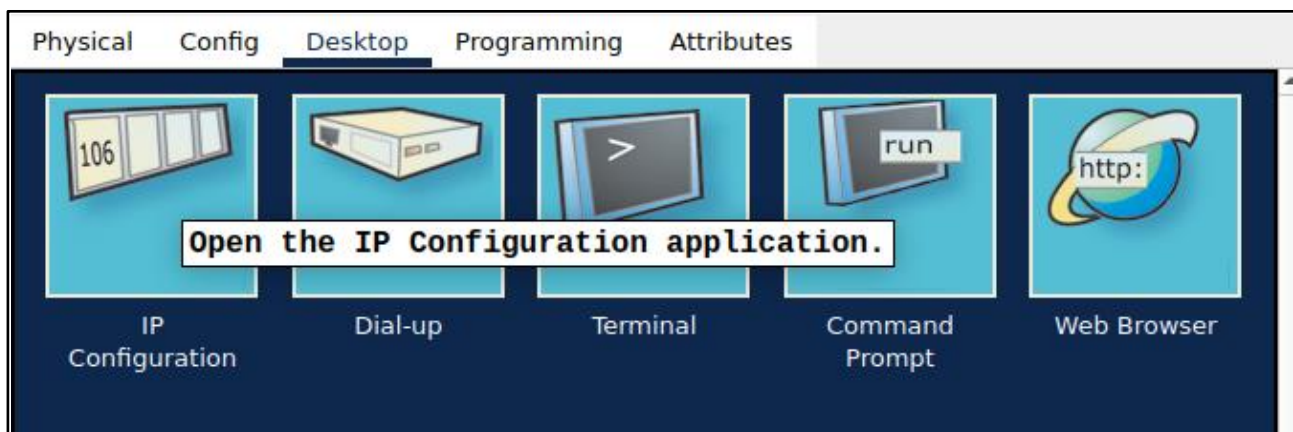
## Step 2 – Configuring Computers

The Computer PC4, PC5, PC6, PC7's network information should be configured as following:

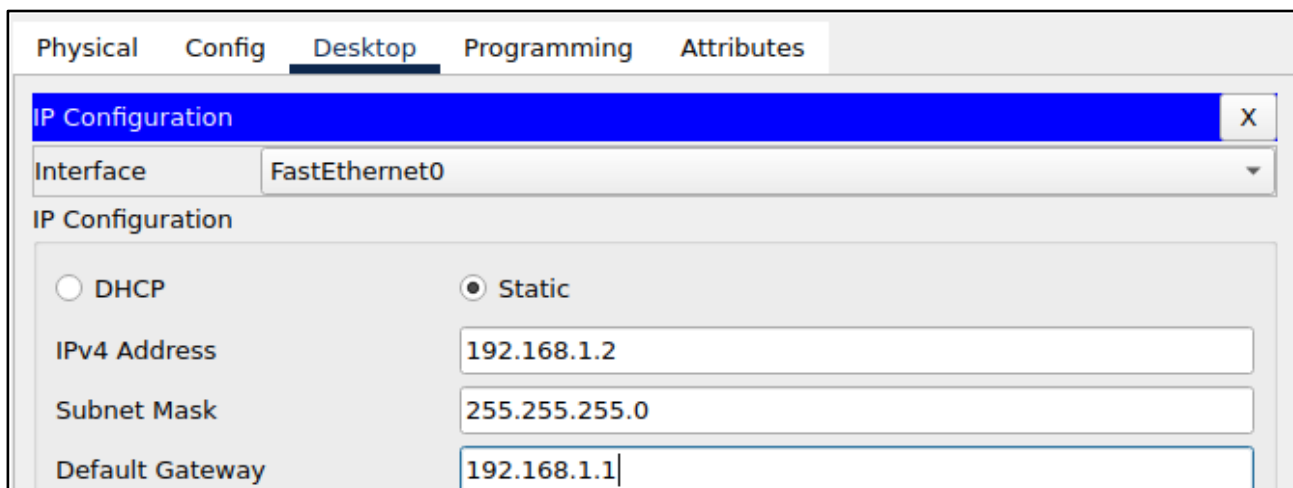
	IP Address	Subnet Mask	Default Gateway	Vlan
PC4	192.168.1.2	255.255.255.0	192.168.1.1	10
PC5	192.168.2.2	255.255.255.0	192.168.2.1	20
PC6	192.168.2.3	255.255.255.0	192.168.2.1	20
PC7	192.168.1.3	255.255.255.0	192.168.1.1	10

Since each process of setting these configurations up on every computer is almost same, I'm going to showcase only one of them.

Click on PC4, find IP Configuration part on Desktop tab.



Here, we are going to enter our information specified in table above one by one.



## Step 3 – Configuring Layer 2 Switches

Click on left switch and open CLI tab. First we need to create VLANs via entering following commands on CLI.

- **enable**
- **configure terminal**
- **vlan 10**
- **vlan 20**

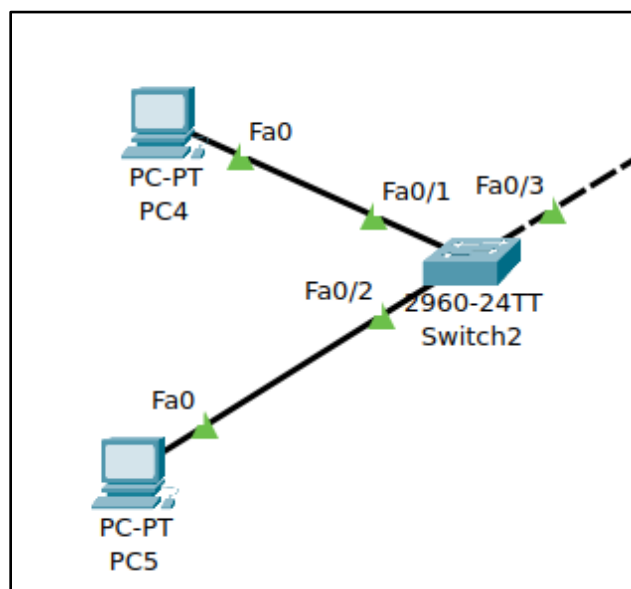
After these operations, you should see created vlans when you enter **show vlan** command in Privileged EXEC mode.

```
Switch#sh vlan br
```

VLAN	Name	Status	Ports
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 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	VLAN0010	active	
20	VLAN0020	active	
1002	fdi1-default	active	
1003	token-ring-default	active	
1004	fdiinet-default	active	
1005	trnet-default	active	

```
Switch#
```

Now, we are going to assign ports(interfaces) to corresponding VLANs.



Since PC4 is going to be a member of VLAN 10, we need to assign Fa0/1 to VLAN 10. In order to achieve this, we need to change mode of this port as access, then we can easily perform assigning operation. Open CLI again and enter following commands:

- **enable**
- **configure terminal**
- **interface fastEthernet 0/1**
- **switchport mode access**
- **switchport access vlan 10**

And we are going to do same thing for PC5, but it's going to be VLAN 20 instead of VLAN 10. Also interface is going to change.

- **interface fastEthernet 0/2**
- **switchport mode access**
- **switchport access vlan 20**

After entered last command, you should be able to see that both interfaces has been assigned to related vlans via entering **show vlan br** command in Privileged EXEC mode.

VLAN	Name	Status	Ports
1	default	active	Fa0/3, Fa0/4, 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	VLAN0010	active	Fa0/1
20	VLAN0020	active	Fa0/2
1002	fdi1-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

Now lastly, we need to change fastEthernet 0/3's mode as trunk since it's the interface that connects to multilayer switch.

- **interface fastEthernet 0/3**
- **switchport mode trunk**

And that's all for this switch, now do same thing for other one and proceed with next step.

## Step 4 – Configuring Multilayer Switch

Open CLI of multilayer switch and enter following commands.

- **enable**
- **configure terminal**
- **vlan 10**
- **vlan 20**

- **interface fastEthernet 0/1**
- **switchport trunk encapsulation dot1q**
- **interface fastEthernet 0/2**
- **switchport trunk encapsulation dot1q**
- **int vlan 10**
- **ip address 192.168.1.1 255.255.255.0**
- **int vlan 20**
- **ip address 192.168.2.1 255.255.255.0**
- **ip routing**

After last command your network should be ready, in order to test it open a random computer and try to ping both gateways and computers from other VLANs. If you get response for each of them, you successfully completed building up this network in packet tracer, otherwise you did something wrong.

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
```

```
C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
```

```
C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.3: bytes=32 time=1ms TTL=127
```