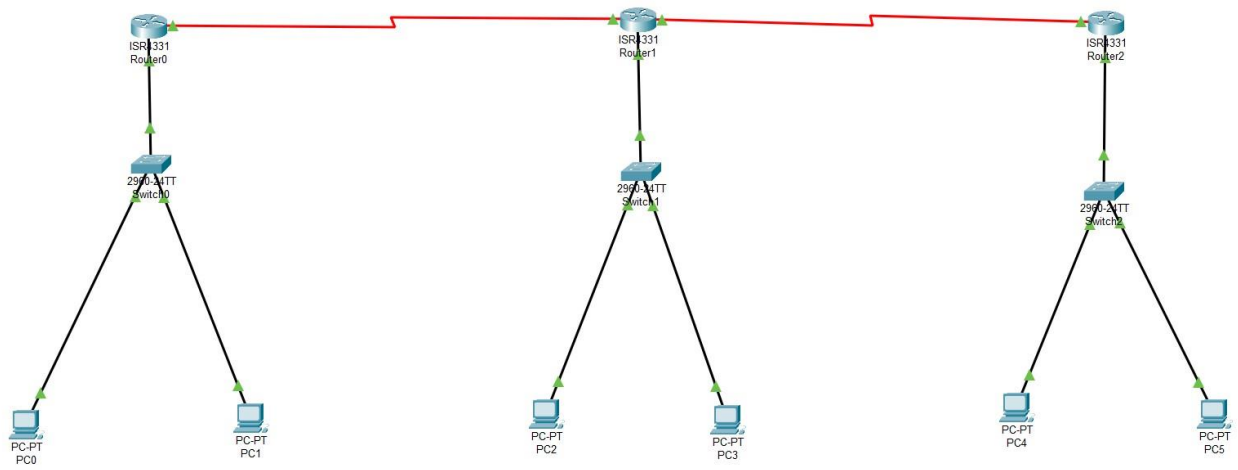
Marwadi University Marwadi Chandarana Group	**Marwadi University** **Faculty of Engineering and Technology** **Department of Information and Communication Technology**	
Subject: Computer Networks (01CT0503)	**Aim: Simulate star topology and check the connectivity between devices.**	
Experiment No: 05	**Date: 01-08-2024**	**Enrolment No: 92200133021**

Aim: Perform static routing protocol and analyze the results.

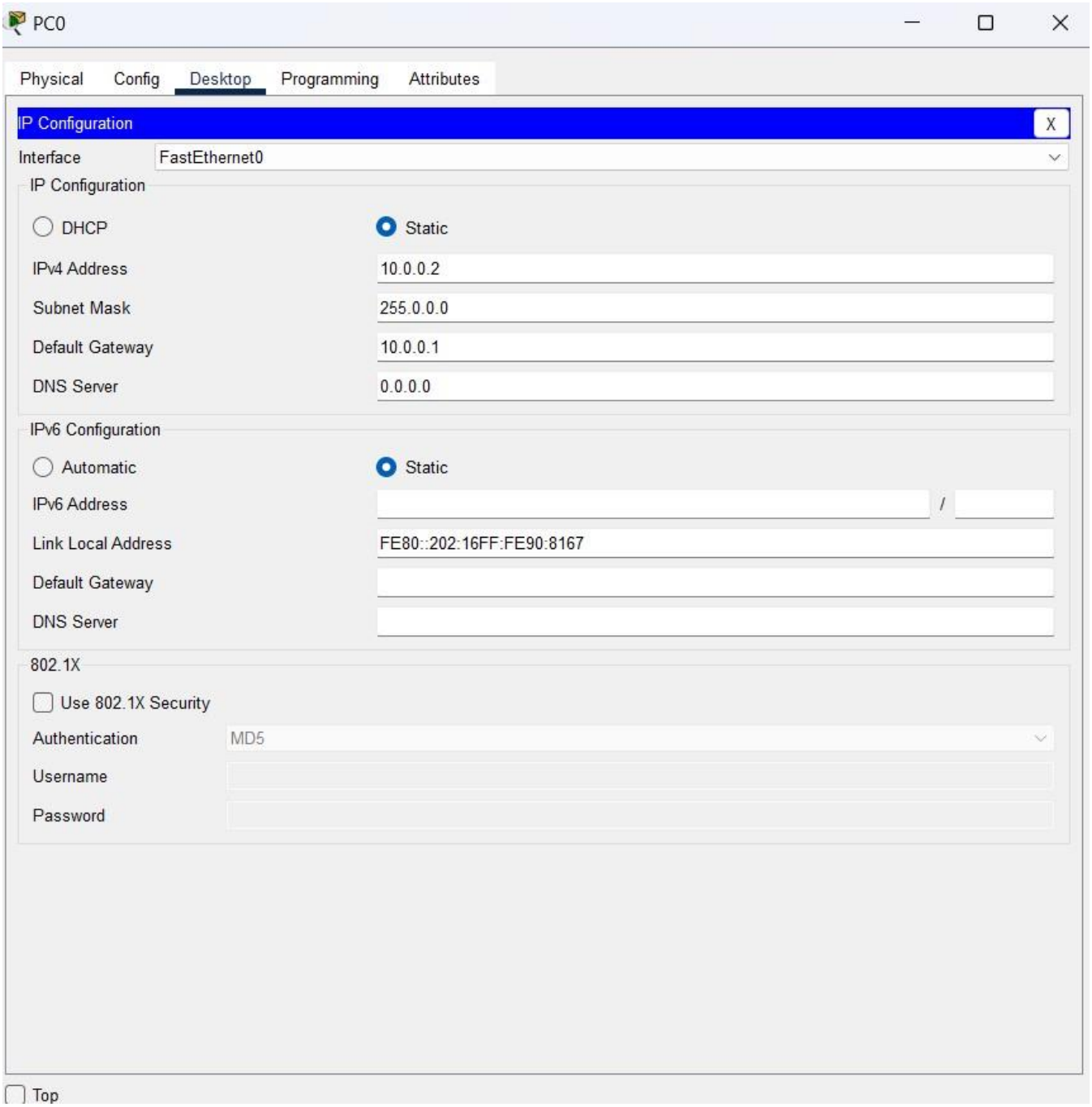
Step 1: Do the connections. Get the 3 switches and connect them with the 3 routers using copper straight cables after that connect all the routers with each other using serial cable. In-order to do this you need to put a module that has the serial port as router doesn't have it<The module is NIM-T2>. connect pc with switches. After the doing all the connect the network should looks like this.



Now we need to give IP each networking device in the network as we can see there are in total 5 networks in this topology. There are 3 network of pcs and 2 networks that connect routers that connects with each other <Think as each port of router is a network.>

Marwadi University Marwadi Chandarana Group	**Marwadi University** **Faculty of Engineering and Technology** **Department of Information and Communication Technology**	
Subject: Computer Networks (01CT0503)	**Aim: Simulate star topology and check the connectivity between devices.**	
Experiment No: 05	**Date: 01-08-2024**	**Enrolment No: 92200133021**

We give Ip to pc by going in to the clicking on the icon of pc and selecting the desktop section and clicking on IP Configuration. We can configure Ip address from there.



Marwadi University Marwadi Chandarana Group	**Marwadi University** **Faculty of Engineering and Technology** **Department of Information and Communication Technology**	
Subject: Computer Networks (01CT0503)	**Aim: Simulate star topology and check the connectivity between devices.**	
Experiment No: 05	**Date: 01-08-2024**	**Enrolment No: 92200133021**

Now giving for giving the IP addresses to the router we go to CLI using any of the method that you prefer <either use the CLI section or connect a pc using console cable use terminal.>

In command Line of router Use command enable then config terminal to go to prevailed mode then to the config mode now we can add the ip to the router.

```
Router>enable
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int g0/0/0
Router(config-if)#ip add 10.0.0.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed
state to up

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

We select to the interface that connect the router with switch <gigabit ethernet 0/0/0> by int g0/0/0 or int interfaceName then give ip by command ip add ipAddres subnetmask. Then type the command no shut to make this changes parament.

Same way we do this to all the routers that connect with switches.

Now we need to give ip to networks that connects the routers we can do that the same way we did with above commands.

```
Router>
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int s0/0/0
%Invalid interface type and number
Router(config)#int s0/1/0
Router(config-if)#ip add 13.0.0.1
% Incomplete command.
Router(config-if)#ip add 13.0.0.1 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
Router(config-if)#exit
Router(config)#
```

Marwadi University Marwadi Chandarana Group	**Marwadi University** **Faculty of Engineering and Technology** **Department of Information and Communication Technology**	
Subject: Computer Networks (01CT0503)	**Aim: Simulate star topology and check the connectivity between devices.**	
Experiment No: 05	**Date: 01-08-2024**	**Enrolment No: 92200133021**

Now the only thing that is remaining is to do the static routing. In order to do this we will use the following command "IP ROUTE NETWORK_ID/IP SUB-NET_MASK ROUTER_IP<OF NEXT HOP>/USE THE PORT/INTERFACE"

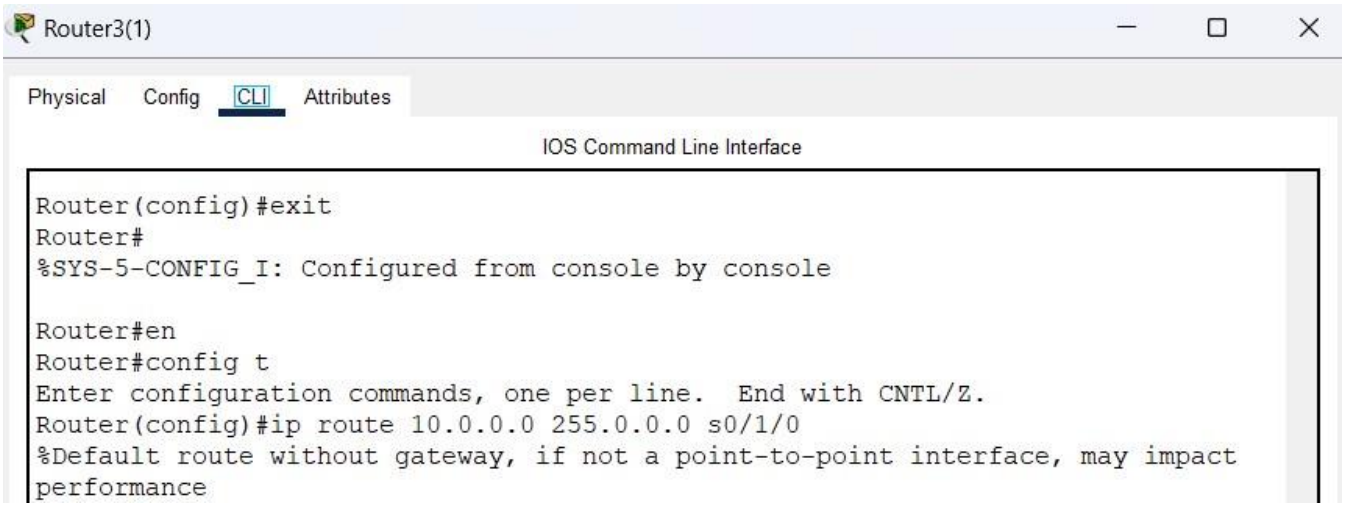
Using the router IP address

```
Router>
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int s0/0/0
%Invalid interface type and number
Router(config)#int s0/1/0
Router(config-if)#ip add 13.0.0.1
% Incomplete command.
Router(config-if)#ip add 13.0.0.1 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
Router(config-if)#exit
Router(config)#A
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1/0, changed state to
up

% Ambiguous command: "A"
Router(config)#ip route 12.0.0.0 255.0.0.0 13.0.0.2
Router(config)#
```

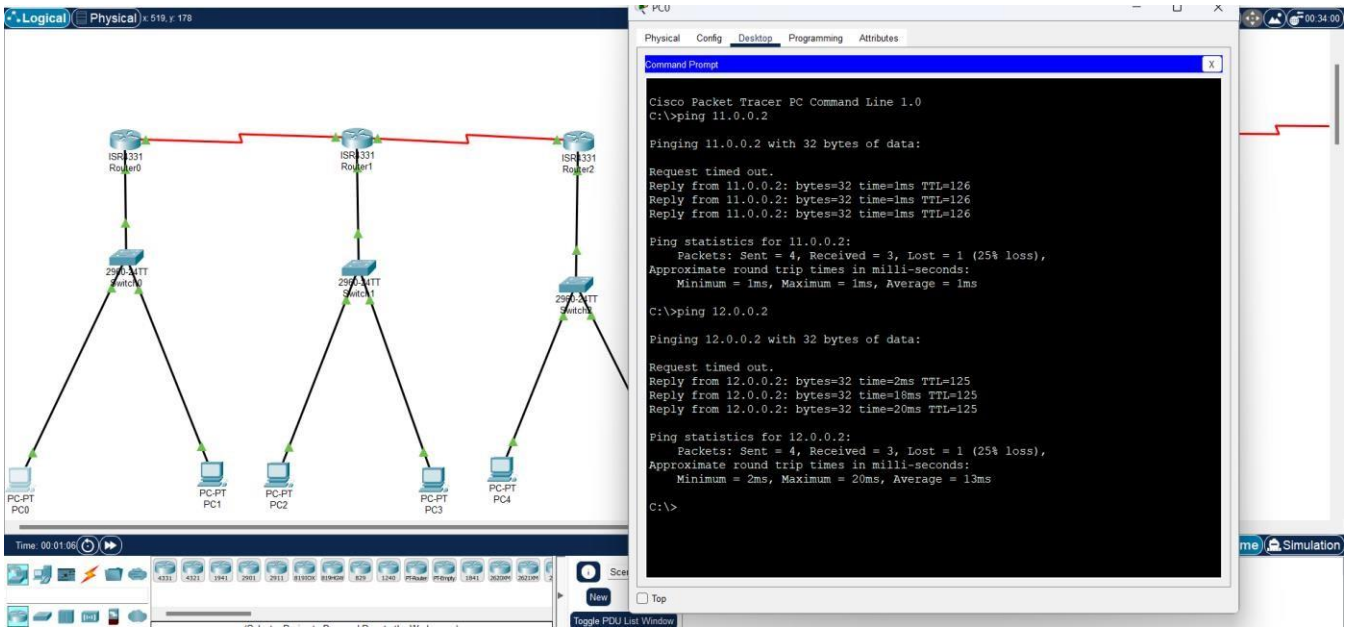
Copy Paste

Using the network Interface/Port

Marwadi University Marwadi Chandarana Group	**Marwadi University** **Faculty of Engineering and Technology** **Department of Information and Communication Technology**	
Subject: Computer Networks (01CT0503)	**Aim: Simulate star topology and check the connectivity between devices.**	
Experiment No: 05	**Date: 01-08-2024**	**Enrolment No: 92200133021**



Now we can see that all the networks are connected with each other.



<u>Conclusion:</u> Connecting networks through static routing can be complex and error-prone. Minor missteps can lead to hard-to-find issues, making the process tedious and requiring careful configuration and troubleshooting for successful implementation.