PRACTICAL 1

Aim: Demonstrate the connection between two LAN connections with one router using cisco packet tracer.

Theory:

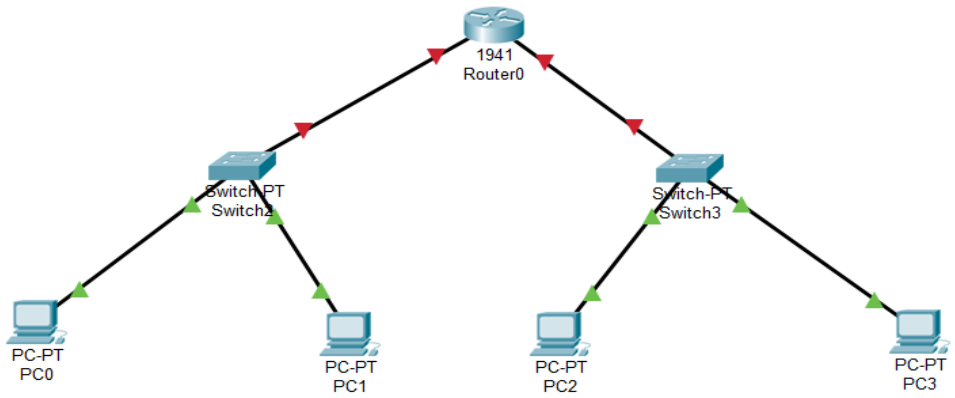
❖ Router:

- It is a networking device that forwards data packets between computer networks.
- It performs the traffic directing functions on the Internet.
- The main purpose of a router is to connect multiple networks and forward packets to its destination either for its own networks or other networks.
- Router is connected to many data lines from different networks. When a data packet comes in one of the lines, the router reads the network address (IP address) information in the packet to determine the ultimate destination.
- Router operates at the Network layer.

❖ LAN:

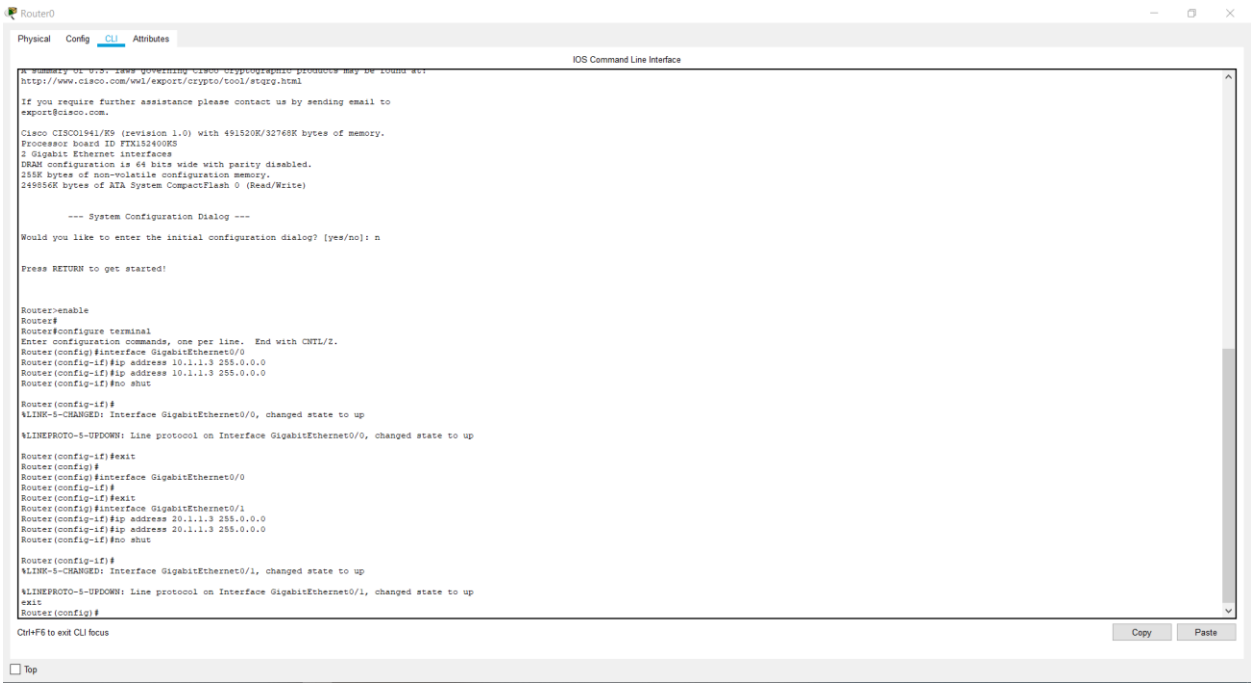
- A Local Area Network (LAN) is a group of computer and associated devices that share a common communications line or wireless link to a server.
- A LAN can be small or large, ranging from a home network with one user to an enterprise network with several users and devices in an office or school.
- Its single defining characteristic is that it connects devices that are in a single, limited area.
- Ethernet and Wi-Fi are the two primary ways to enable LAN connections.

Topology:

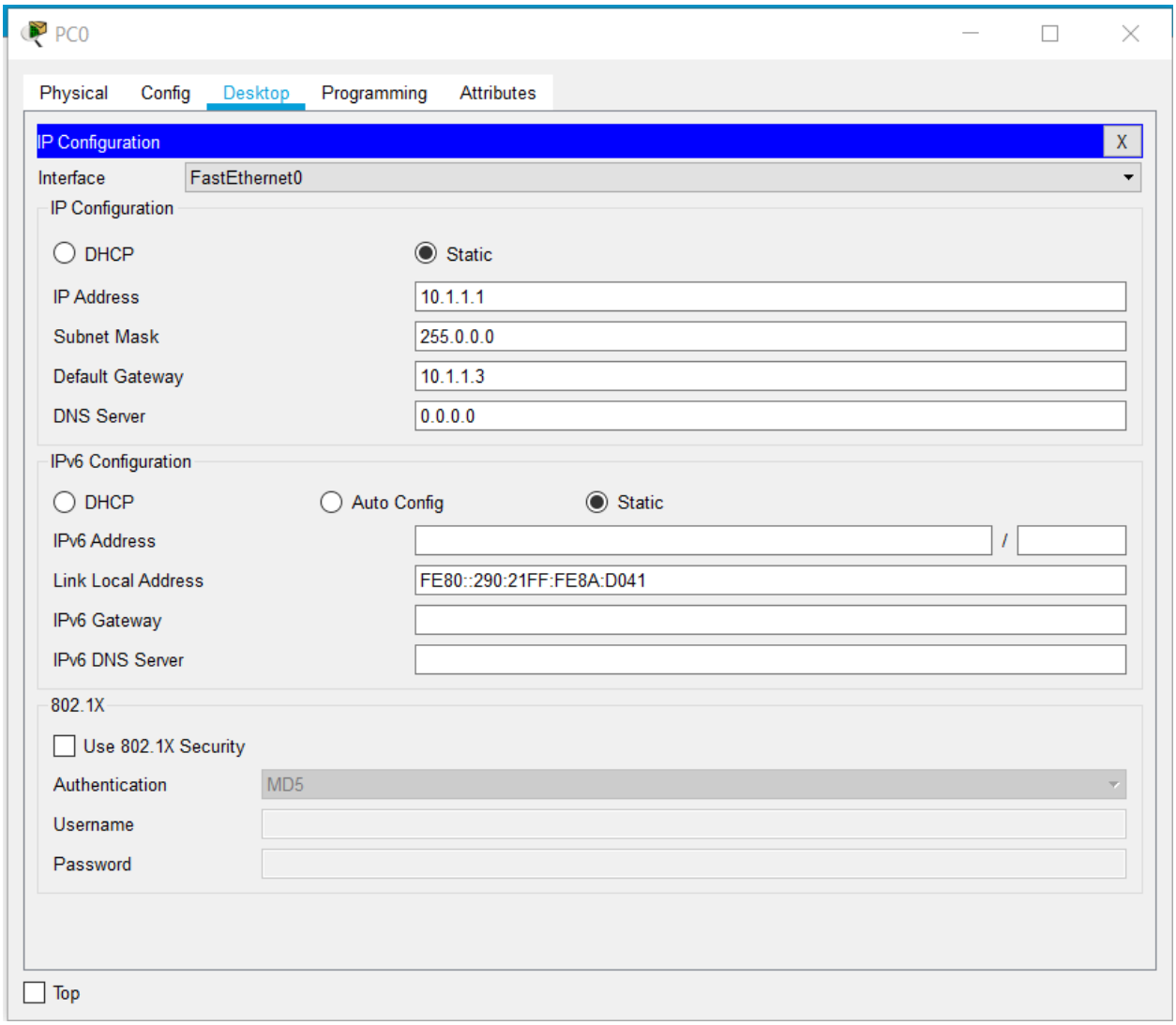


Steps of Configuration:

- First step is to create the topology. For that click on the devices and drop on workplace and connect all the devices with the necessary cables.
- Next step is to configure the router using CLI
  - ✓ Click on router and go to the CLI tab.
  - ✓ To get in to the configuration mode, write router > enable
  - ✓ To configure the terminal, write router # configure terminal
  - ✓ To get into privilege mode, write router (config) # interface gigabitEthernet 0/0
  - ✓ To set the IP address, write router (config-if) # ip address 10.1.1.3 255.0.0.0
  - ✓ To switch on the router, write router (config-if) # no shut.

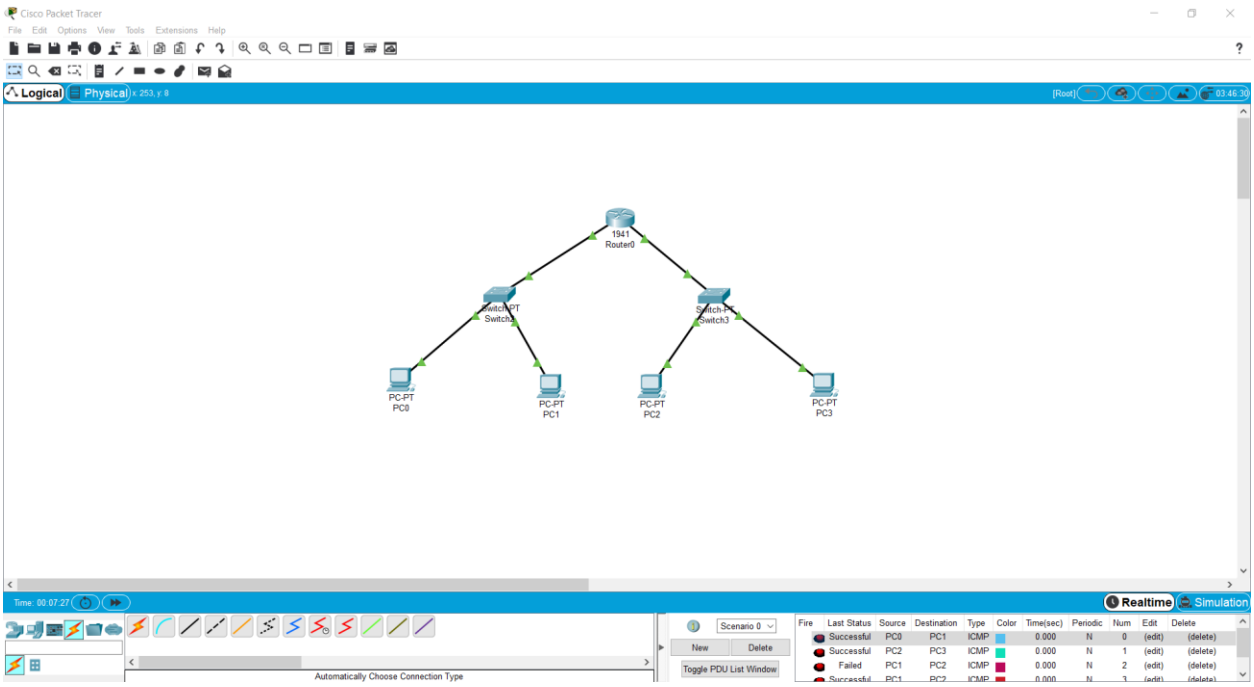


- Follow the same steps to provide IP Address 20.1.1.3 to interface 0/1.
- Provide IP address to all the PC connected in LAN
  - ✓ Click on PC, go to Desktop tab in that IP Configuration option
  - ✓ Provide IP address and default gateway. Here default gateway is the address of router interface 0/0 for the network 1 and for network 2 default gateway is the IP address of router interface 0/1.

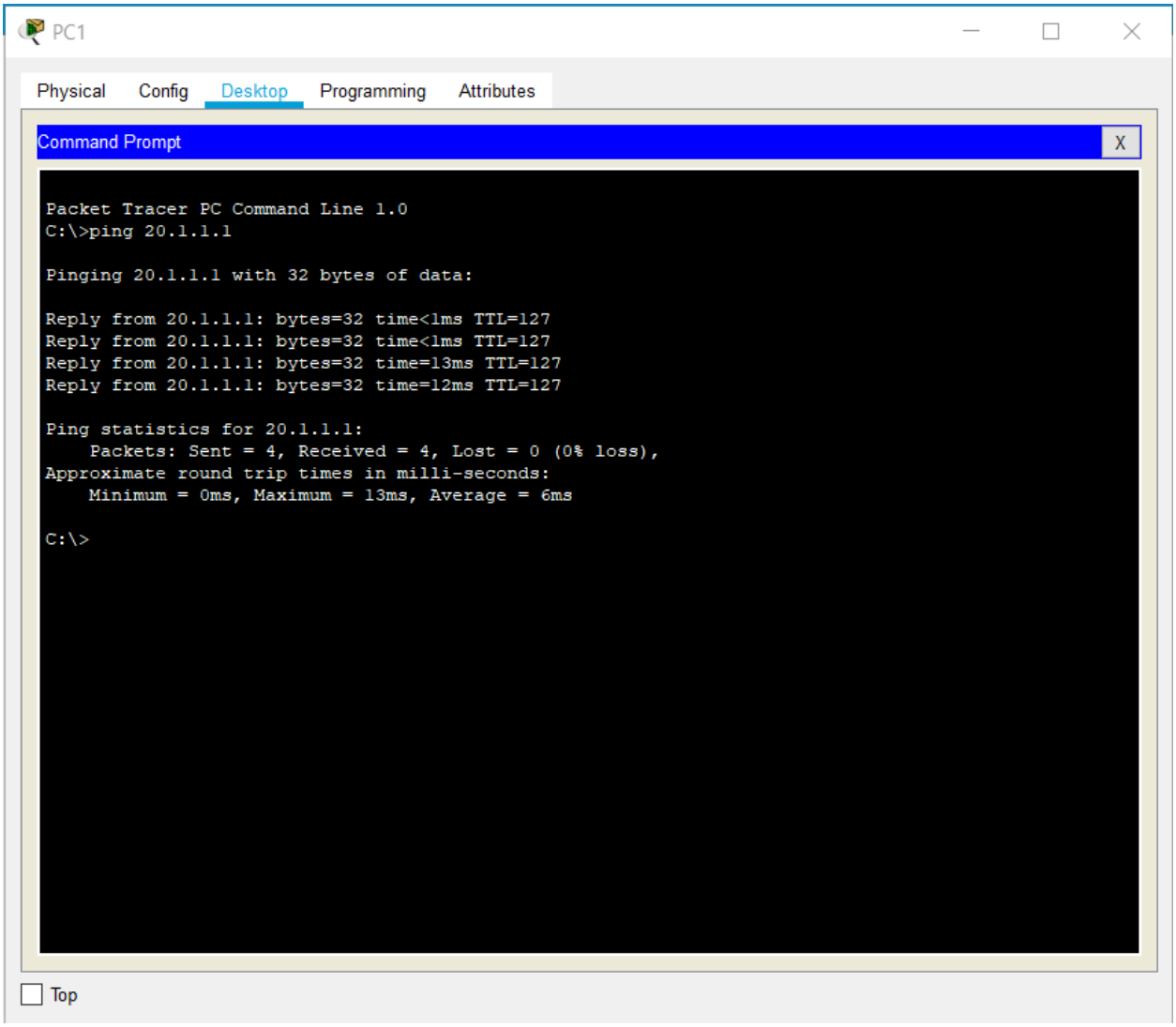


Check Network Topology:

- To check the connection are working properly or not drop one package on the PC of network 1 and receive it from the PC of network 2.



- You can also check if the connections are working properly or not by following these steps;
  - ✓ Click on PC of Network 1, go to Desktop tab in that Command Prompt option
  - ✓ Then simply write C: \ > ping 20.1.1.1 (// IP address of PC from Network 2)



Conclusion:

From this practical, we are able to understand to modes of router and how to configure the router with the help of CLI. We also learn the use of gateway while working with two different networks