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CEL 51, DCCN, Monsoon 2020

Lab 4: Prototyping a Network

Objective:

Prototype a network using Packet Tracer

Background

A client has requested that you set up a simple network with two PCs connected to a switch. Verify that the hardware, along with the given configurations, meet the requirements of the client.

Step 1: Set up the network topology

- Add two PCs and a Cisco 2950T switch
- Using straight-through cables, connect **PC0** to interface **Fa0/1** on **Switch0** and **PC1** to interface **Fa0/2** on **Switch0**.

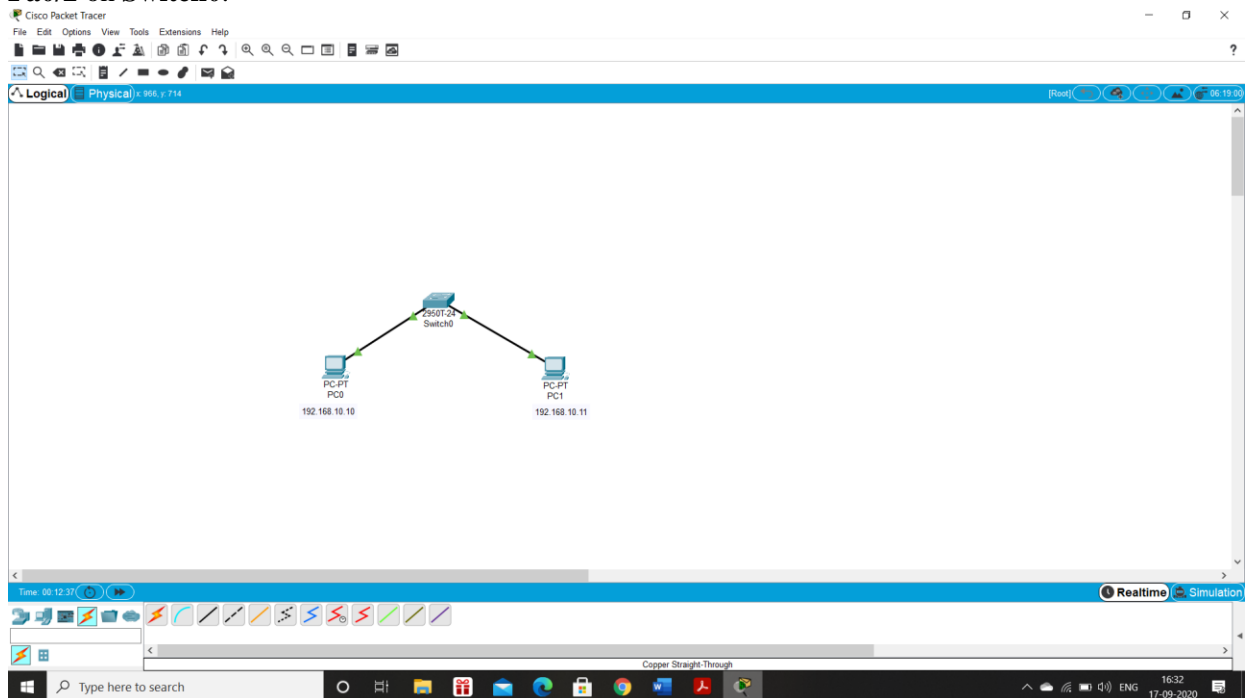


Fig 1. Shows 2 PC's i.e. PC-1 and PC-2 connected to switch via copper straight-cable

- Configure PC0 using the **Config** tab in the PC0 configuration window:
 - IP address: 192.168.10.10
 - Subnet Mask 255.255.255.0

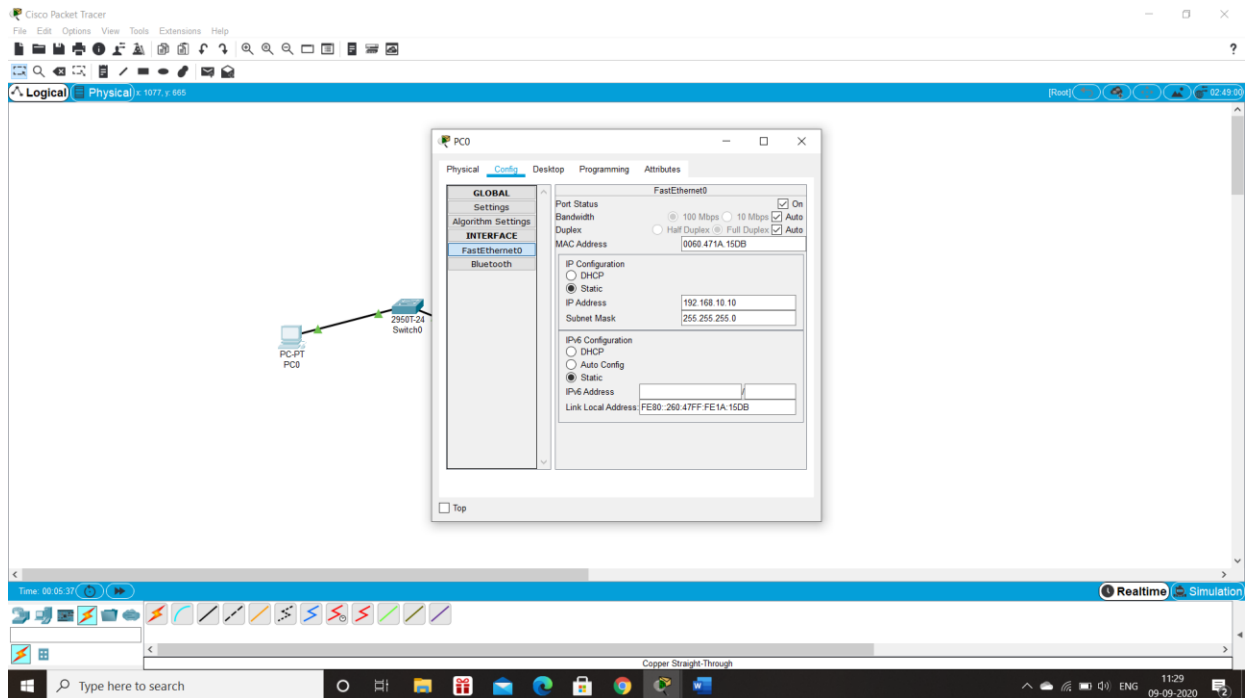


Fig 2. Shows the config tab of PC-0 with fast ethernet settings. The ip address and subnet mask have been added as 192.168.10.10 and 255.255.255.0 respectively

- d) Configure PC1 using the **Config** tab in the PC1 configuration window
- IP address: 192.168.10.11
 - Subnet Mask 255.255.255.0

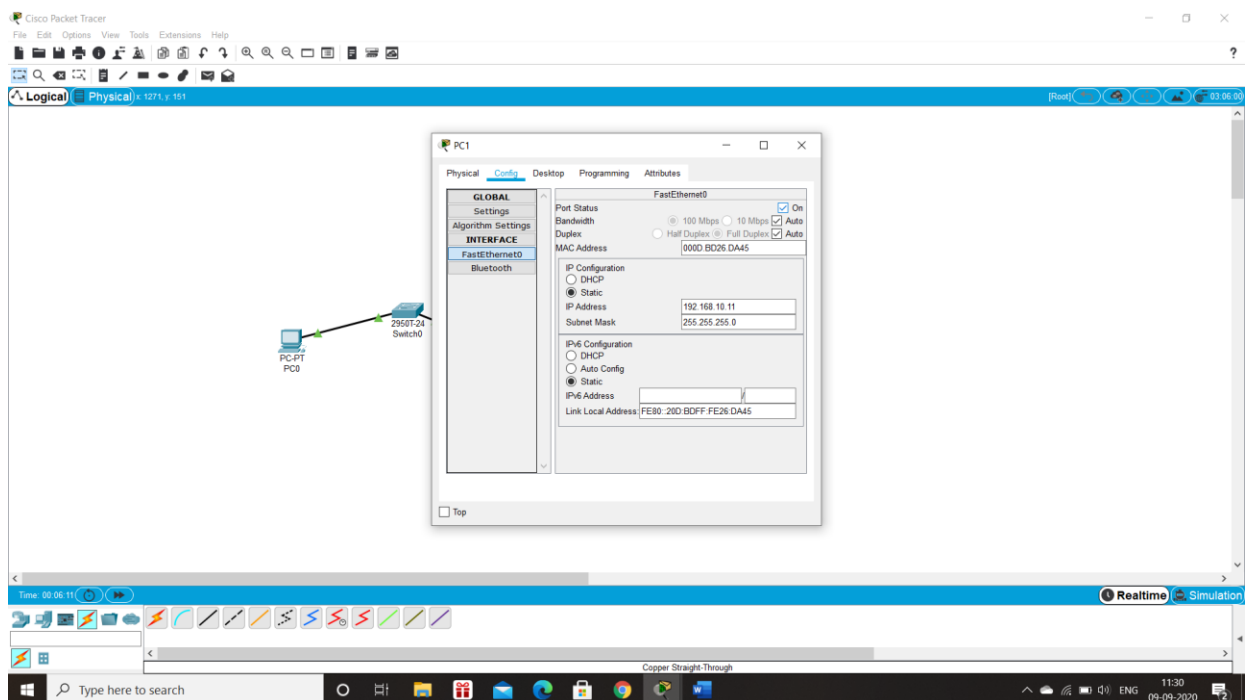


Fig 3. shows the config tab of PC-1 with fast ethernet settings. The ip address and subnet mask have been added as 192.168.10.11 and 255.255.255.0 respectively

Step 2: Test connectivity from PC0 to PC1

- a) Use the **ping** command to test connectivity.
 - a. Click PC0.
 - b. Choose the **Desktop** tab.
 - c. Choose **Command Prompt**.
 - d. Type: **ping 192.168.10.11** and press **enter**.
- b) A successful **ping** indicates the network was configured correctly and the prototype validates the hardware and software configurations. A successful ping should resemble the below output:

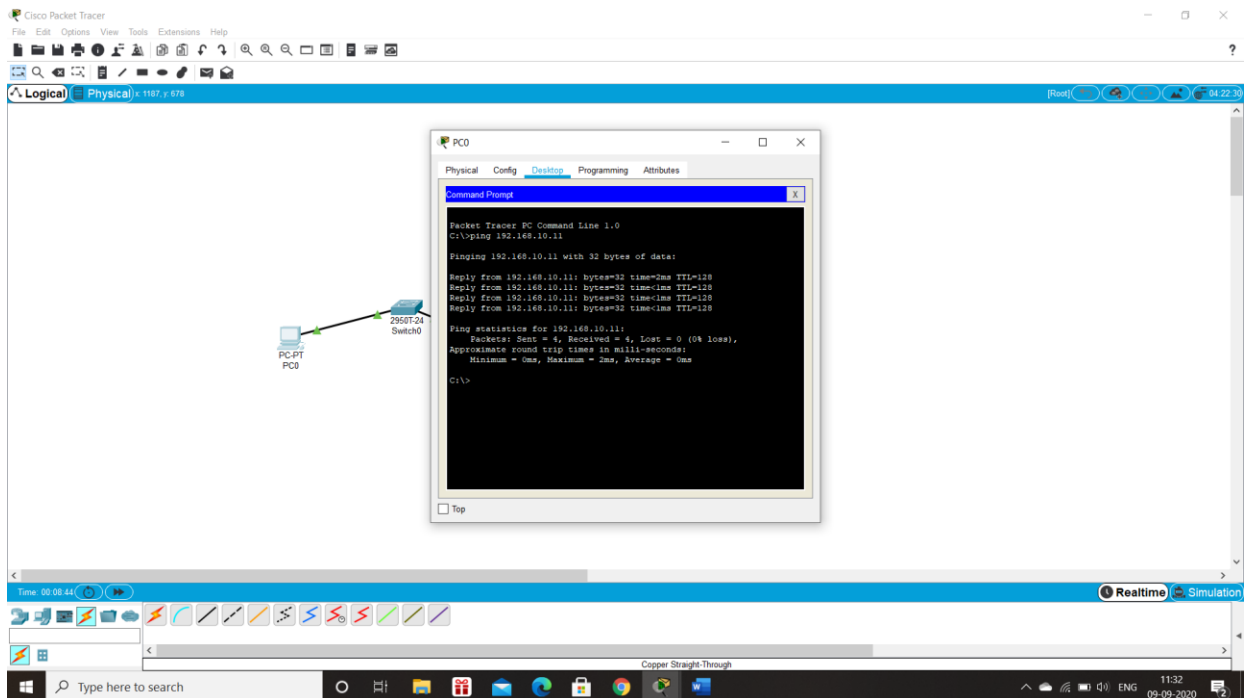


Fig 4. Shows the ping command on ip address 192.168.10.11

- c) Close the configuration window.
- d) Click the **Check Results** button at the bottom of the instruction window to check your work..

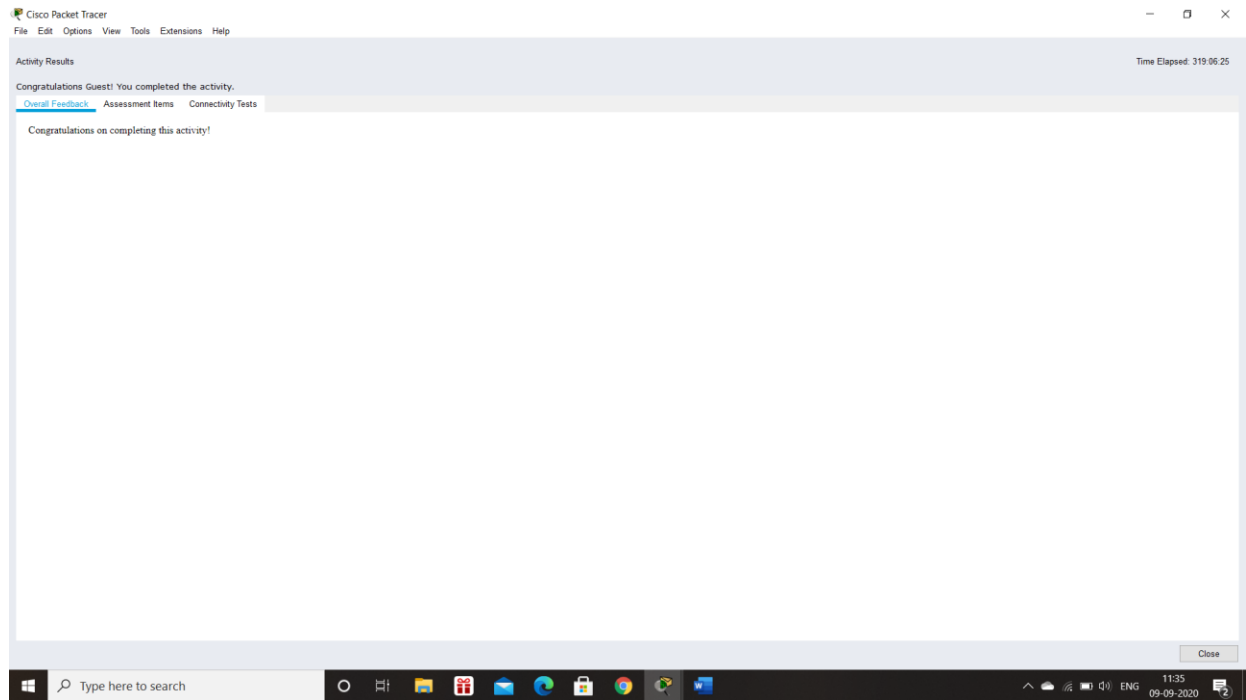


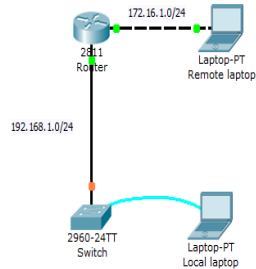
Fig 5. Shows the check result tab to check our work

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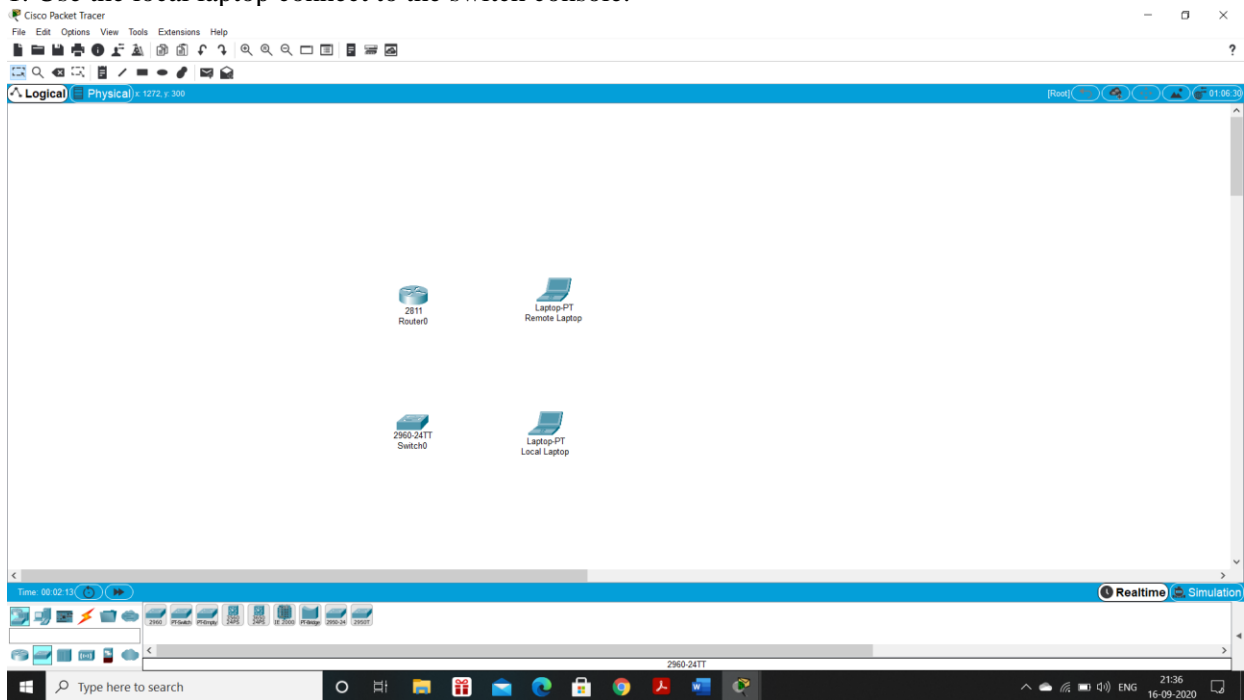
Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

Objective:

This lab will test your ability to configure basic settings such as hostname, motd banner, encrypted passwords, and terminal options on a Packet Tracer 6.2 simulated Cisco Catalyst switch.



1. Use the local laptop connect to the switch console.



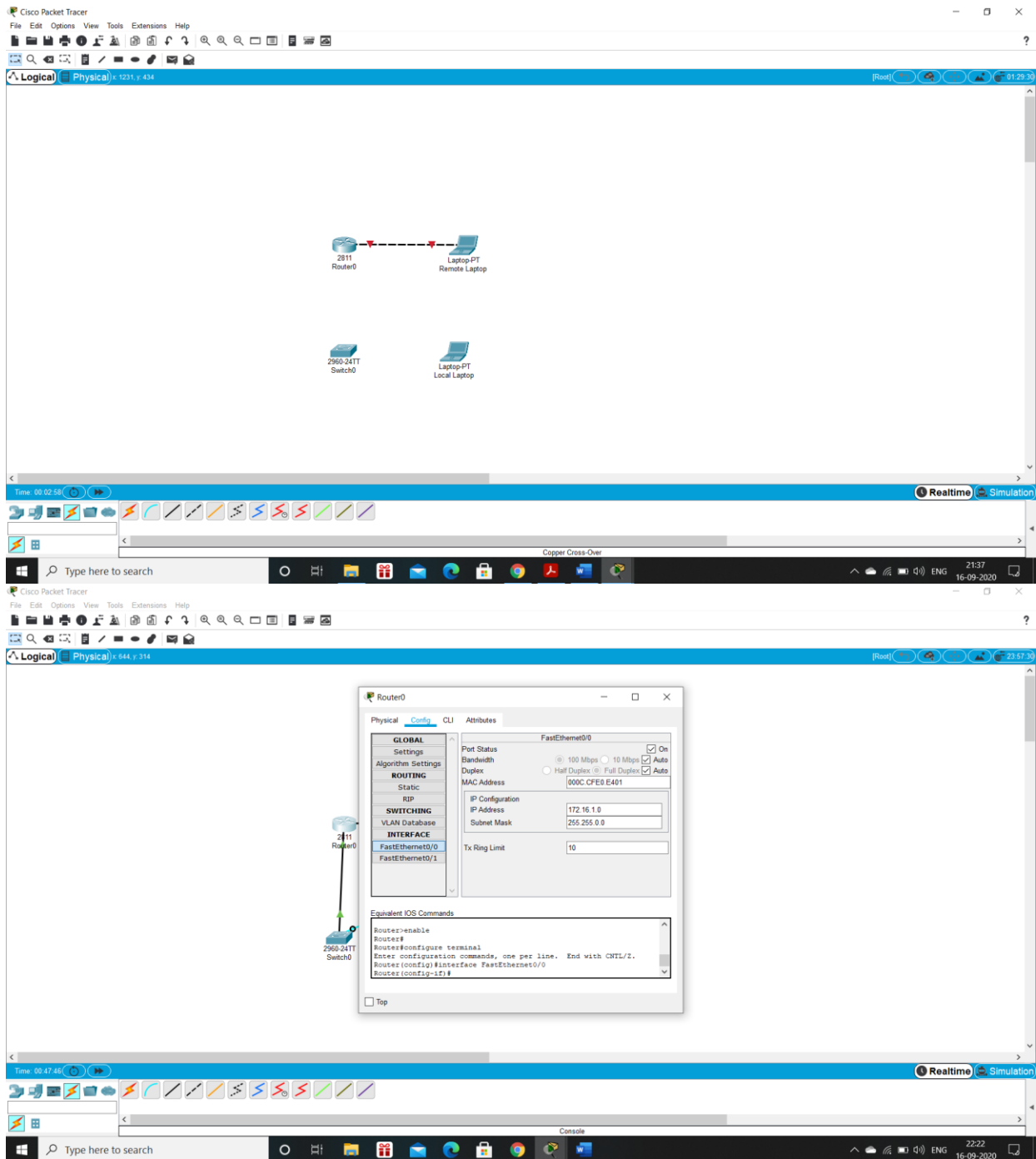


Fig 4.1.1 Shows the Fast ethernet Settings of Router connecting the Remote Laptop where we turn the Post Status to ON

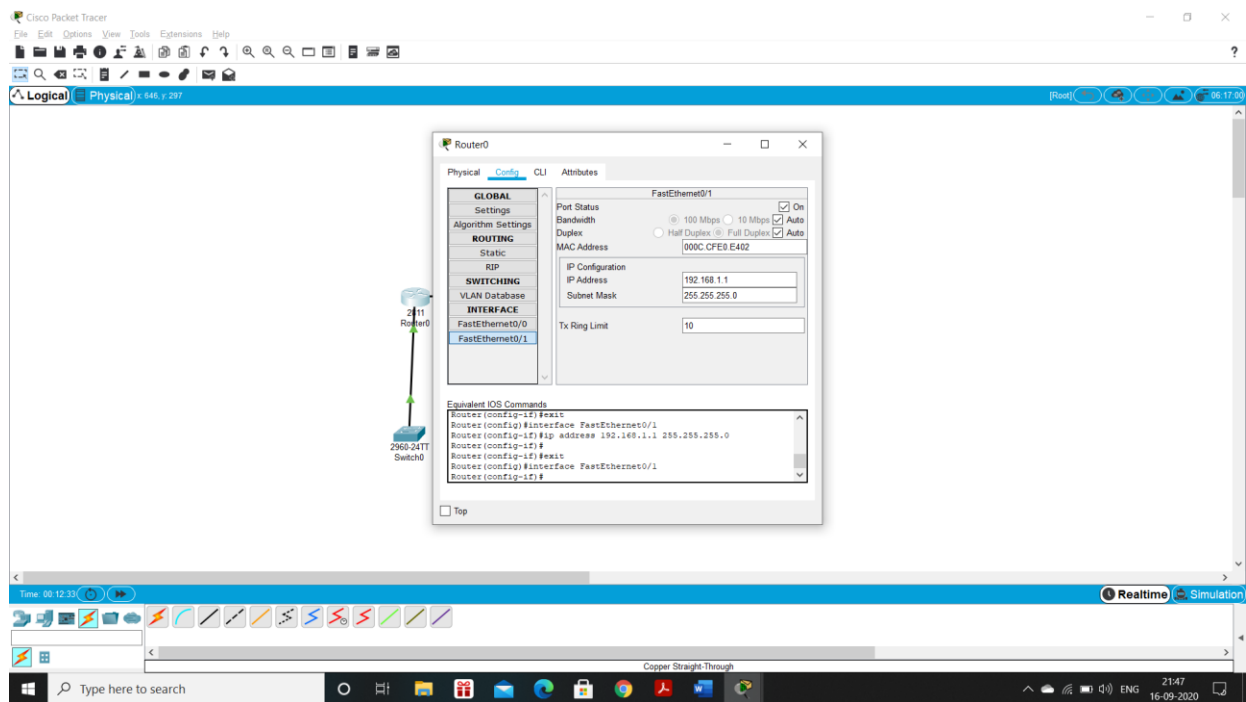
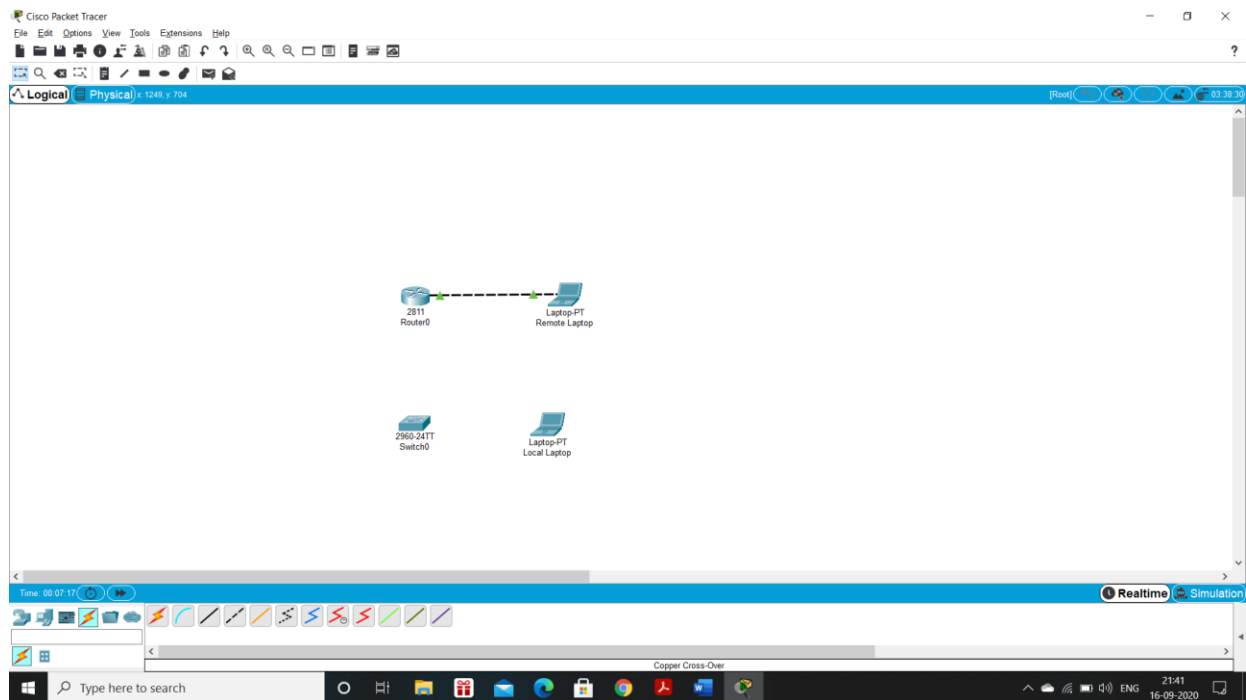


Fig 4.1.2 Shows the Fast ethernet Settings of Router connecting the switch where we turn the Post Status to ON

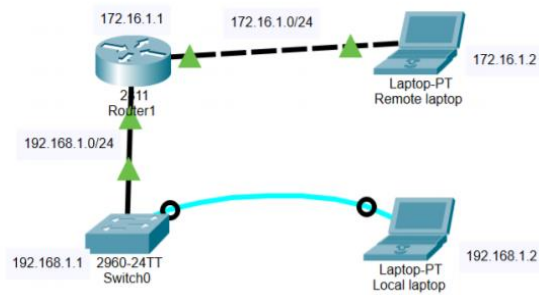


Fig 4.1.1 Shows 2 Laptops ,Remote Laptop connected to router via copper cross-over wire ,Local Laptop connected to Switch via console and router is connected to switch via copper straight wire

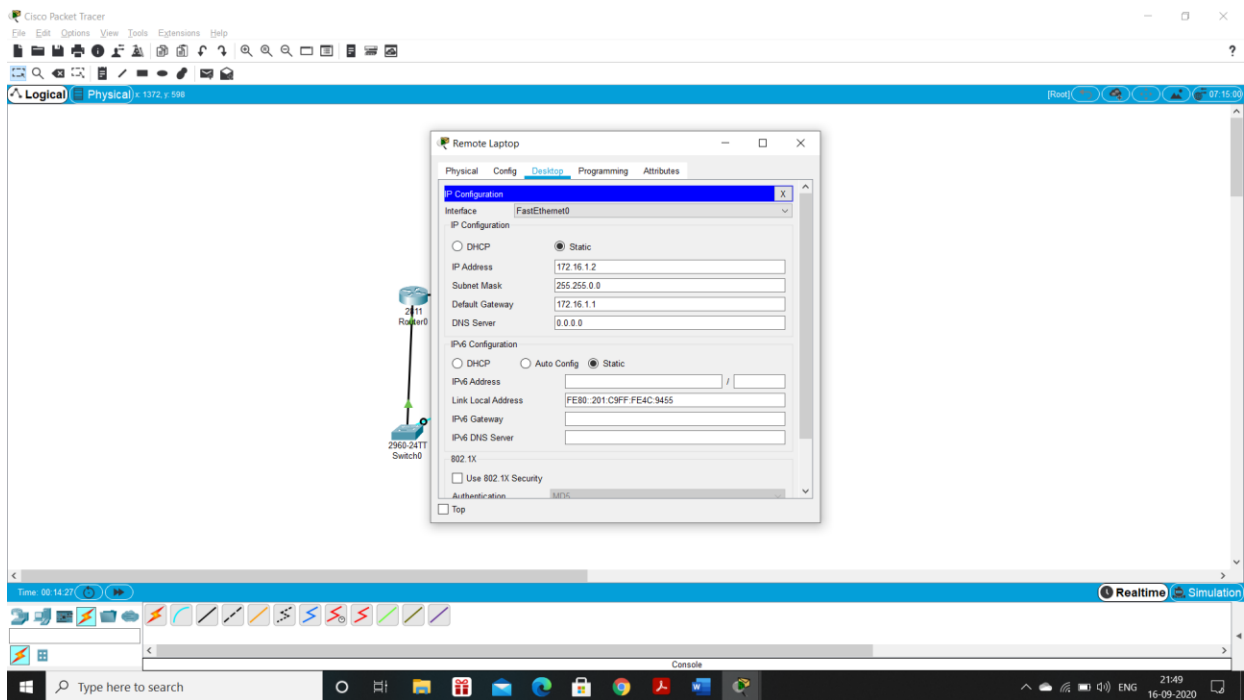


Fig 4.1.4 Shows the IP configuration of remote laptop where IP address is 172.16.1.2 and Default Gateway is 172.16.1.1

2. Configure Switch hostname as LOCAL-SWITCH

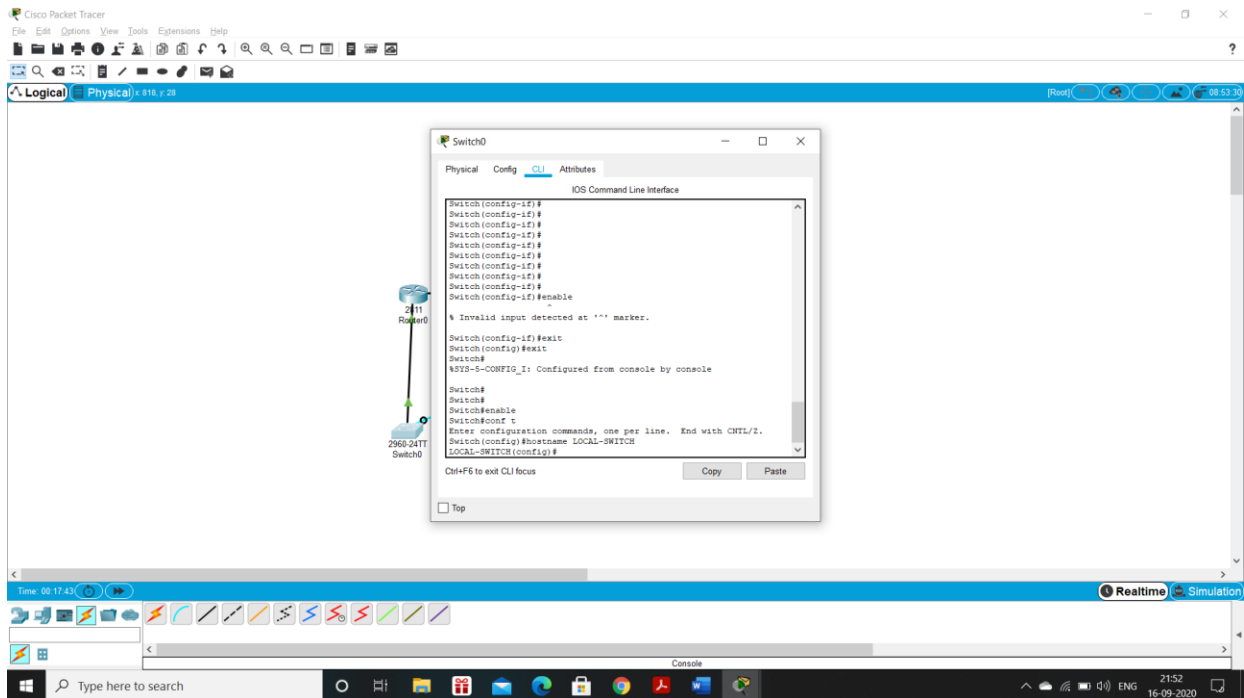


Fig 4.1.5 Shows the CLI of switch where we configure switch hostname as LOCAL-SWITCH

3. Configure the message of the day as "Unauthorized access is forbidden"

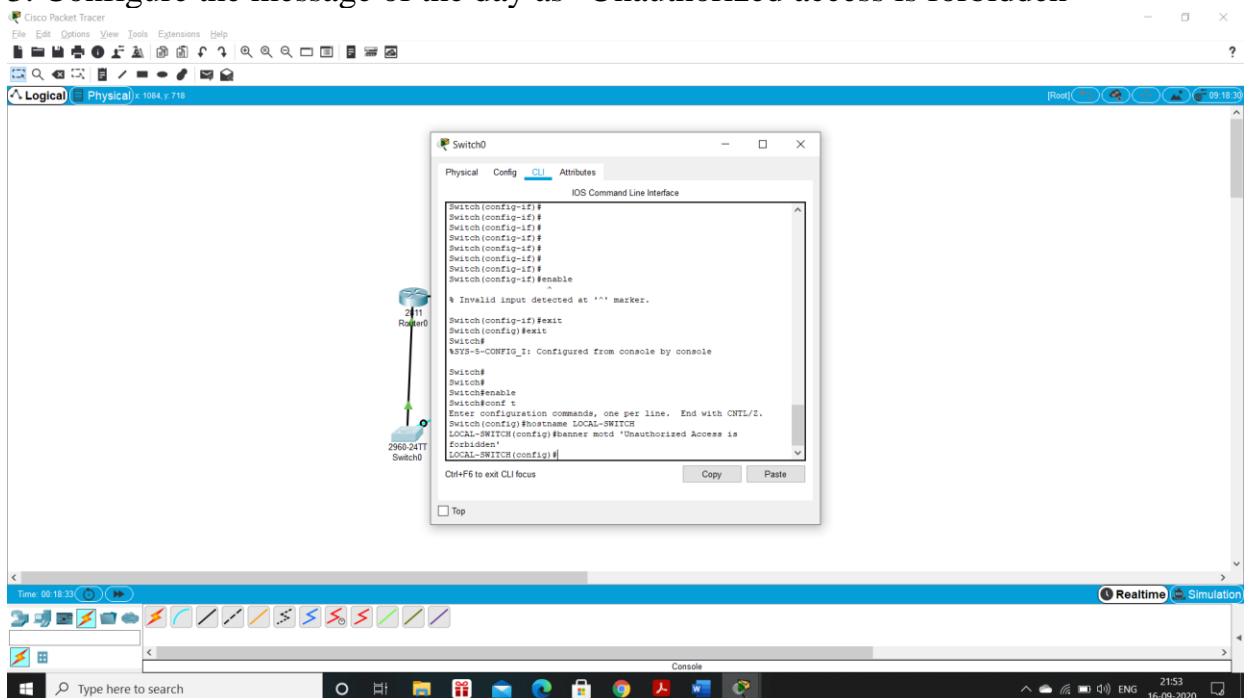


Fig 4.1.6 Shows the CLI of switch to configure the message of the day as Unauthorized access is forbidden

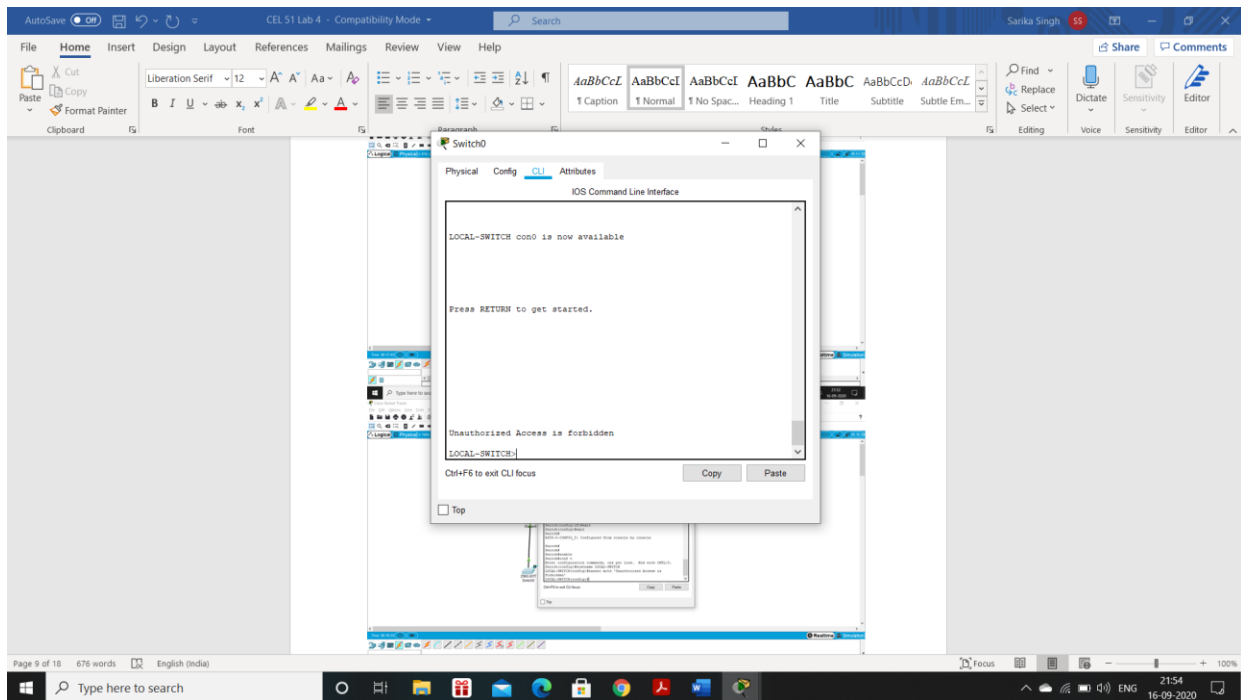


Fig 4.1.7 Shows the Message on using the show run command

4. Configure the password for privileged mode access as "cisco". The password must be md5 encrypted

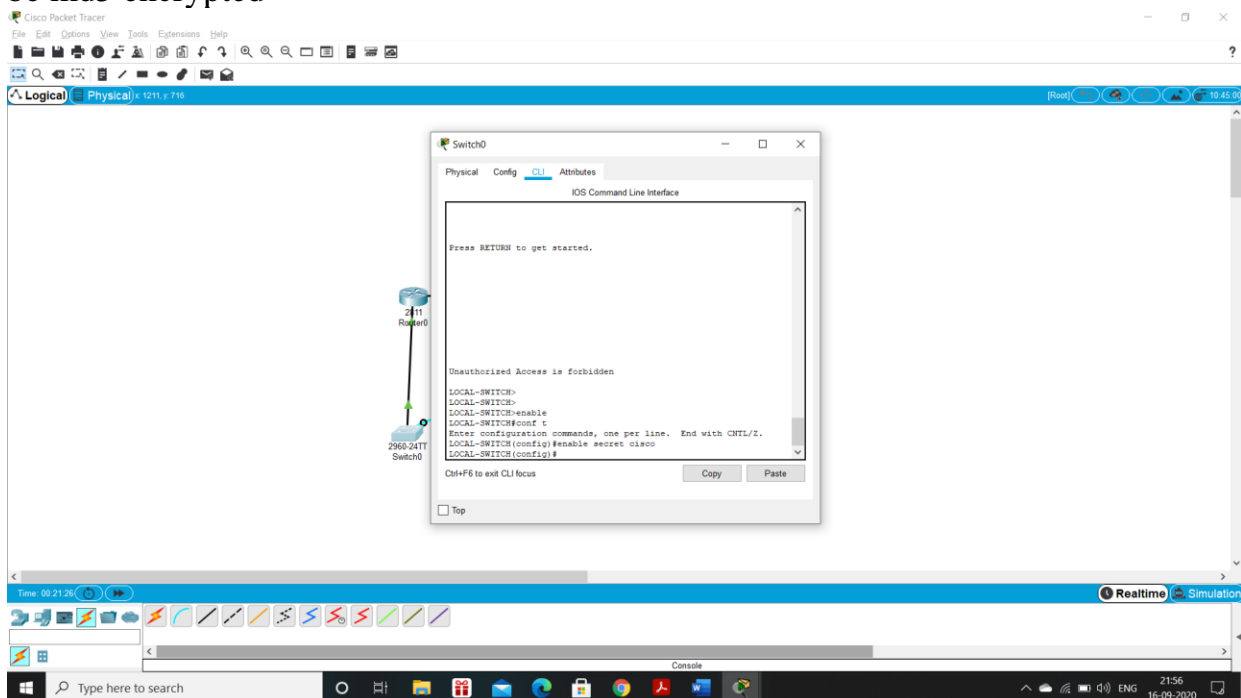


Fig 4.1.8 Shows the CLI to configure the password for privileged mode access as cisco

The screenshot shows the Cisco Packet Tracer interface. In the network diagram, a 2960-24TT Switch is connected to a 2811 Router. A console window for the switch is open, displaying the IOS Command Line Interface. The window has tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, showing the prompt 'LOCAL-SWITCH>' and a list of configuration commands: 'enable', 'secret cisco', 'service password-encryption', and 'local-switch(config)#'. The console also displays the message 'Unauthorized Access is forbidden' and 'Press RETURN to get started.'

The screenshot shows the Cisco Packet Tracer interface. In the network diagram, a 2811 Router is connected to a 2960-24TT Switch. A configuration window for the switch is open, displaying the running configuration. The configuration includes the following commands:

```

LOCAL-SWITCH#show run
Building configuration...

Current configuration : 1179 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname LOCAL-SWITCH
!
enable secret 5 $1sEzRzDh4tRv7zPN0s94wgXKX7m0
!
!
!
spanning-tree mode pvt
spanning-tree extend system-id
interface FastEthernet0/1
  no-mo
  
```

The window also shows a "CLI" tab and a "Physical" tab. The "CLI" tab is selected, and the "IOS Command Line Interface" is displayed. The "Physical" tab shows the switch's physical attributes.

Fig 4.1.10 Shows the encrypted password when I use the show run command

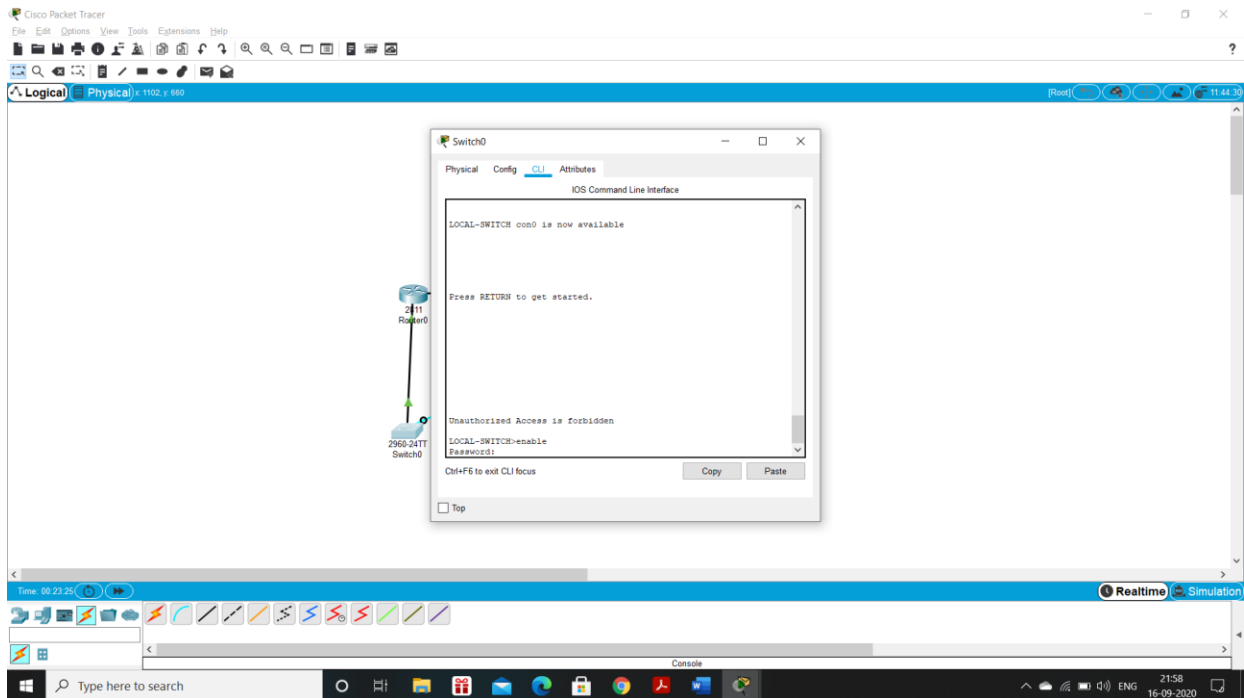


Fig 4.1.11 Shows that the CLI asks for password when I try to go to privileged mode

6. Configure CONSOLE access with the following settings :

- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 6'45"
- Synchronous login

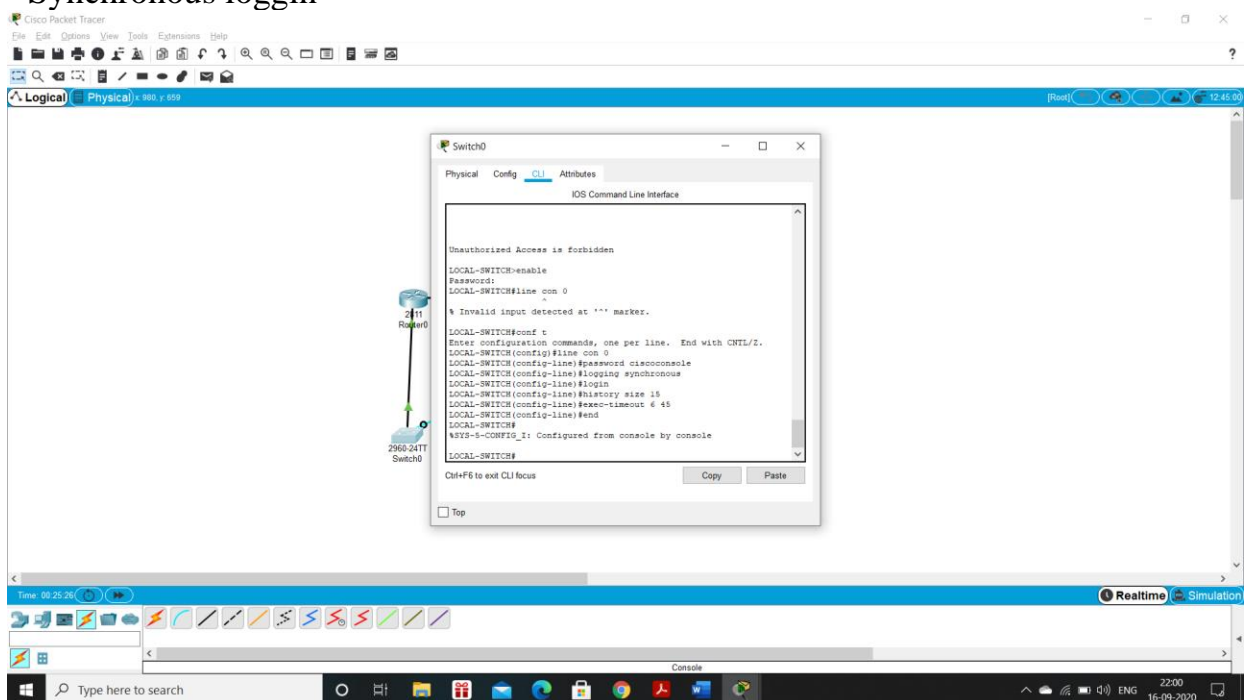


Fig 4.1.12 Shows to configure console access with following settings- Login enabled, Password : whatever you like,History size : 15 commands,Timeout : 6'45",Synchronous logging

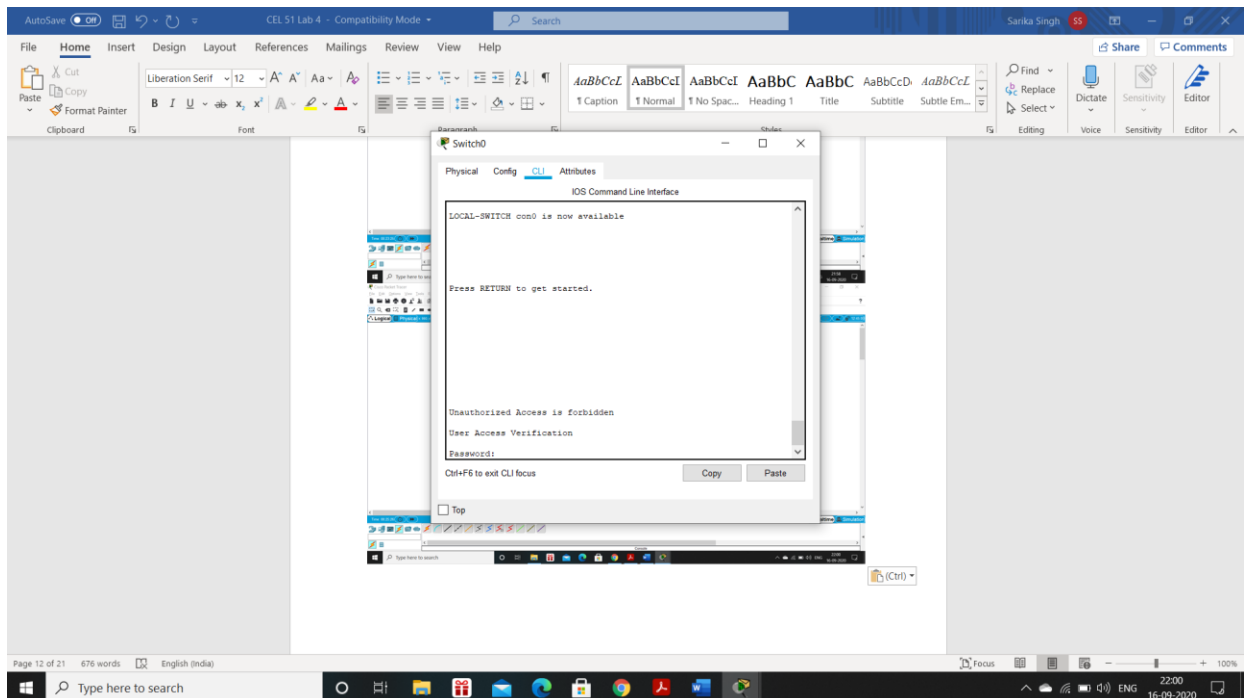


Fig 4.1.13 Shows that the CLI asks for password before it goes to console

6. Configure TELNET access with the following settings :

- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 8'20"
- Synchronous logging

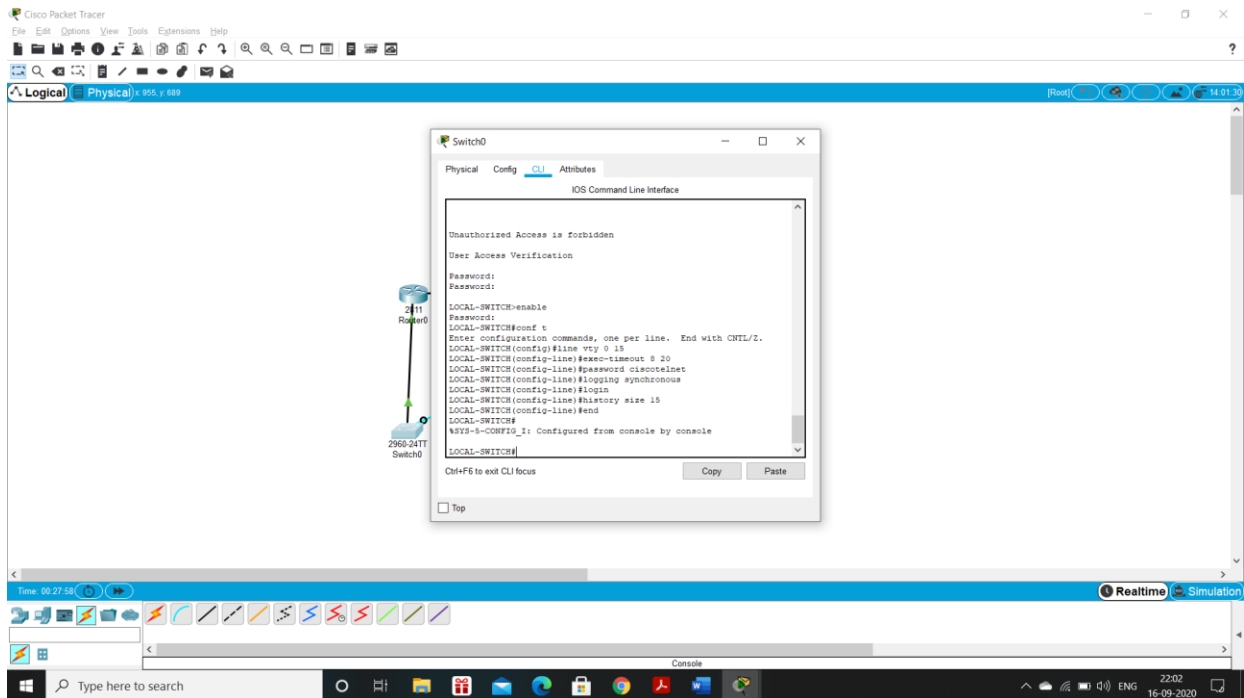


Fig 4.1.14 Shows to configure Telnet access with following settings- Login enabled, Password : whatever you like, History size : 15 commands, Timeout : 8'20", Synchronous logging

7. Configure the IP address of the switch as 192.168.1.2/24 and it's default gateway IP (192.168.1.1).

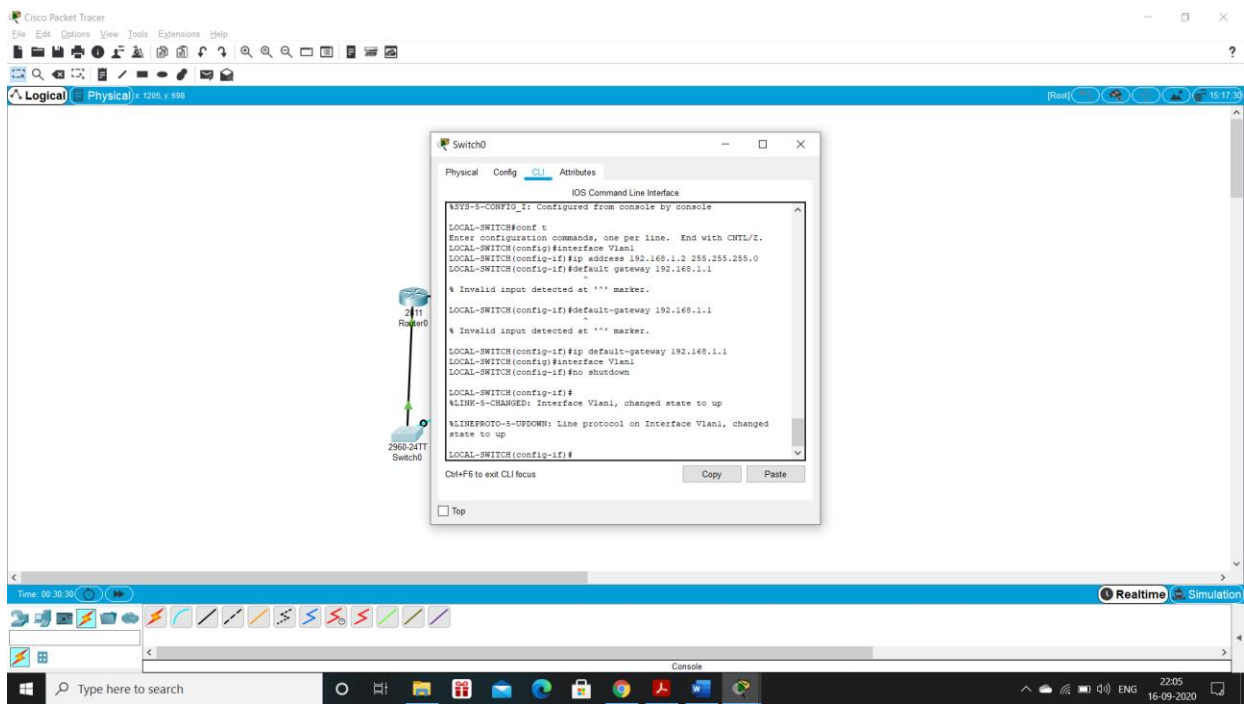


Fig 4.1.15 Shows the CLI to configure the IP address of the switch as 192.168.1.2/24 and it's

default gateway IP (192.168.1.1).

8. Test telnet connectivity from the Remote Laptop using the telnet client.

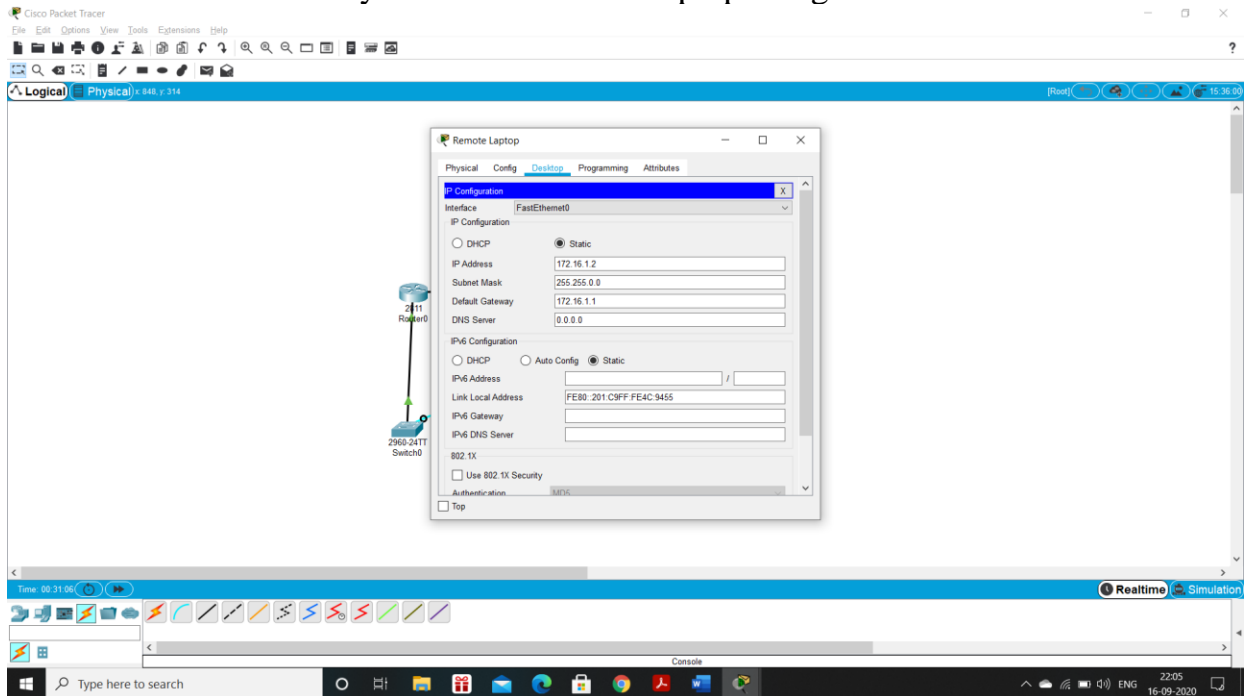


Fig 4.1.16 Shows configuration of Remote Laptop

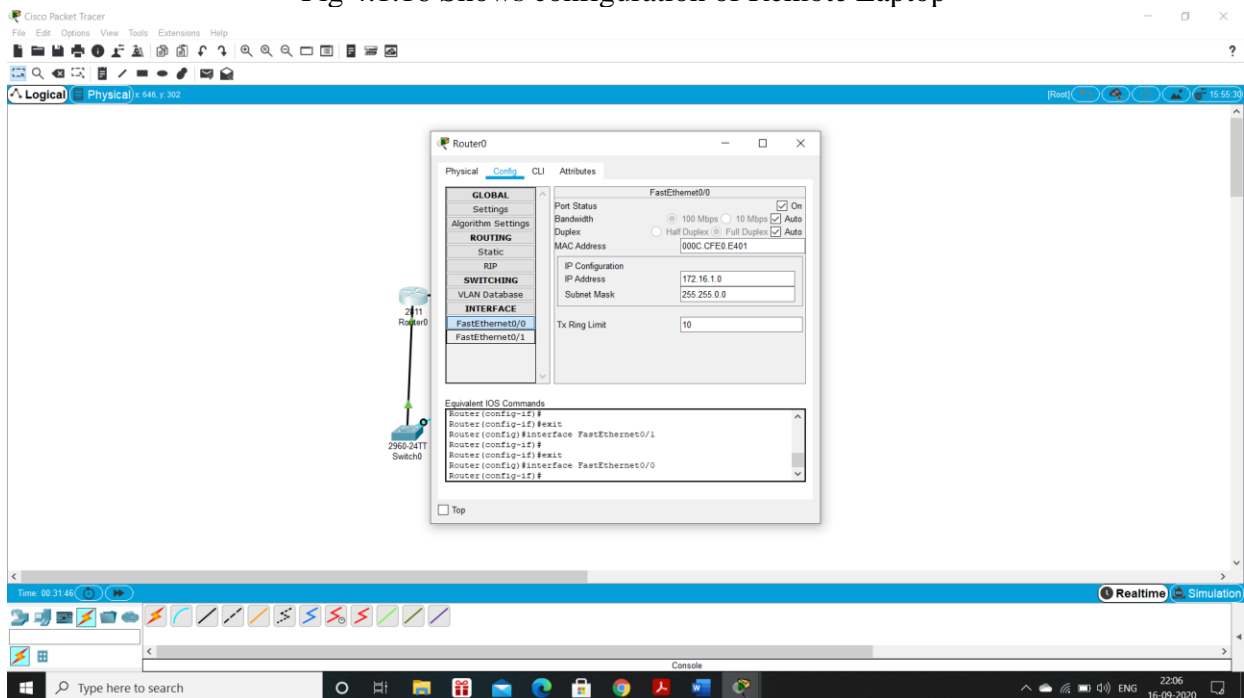


Fig 4.1.17 Shows Configuration of Router

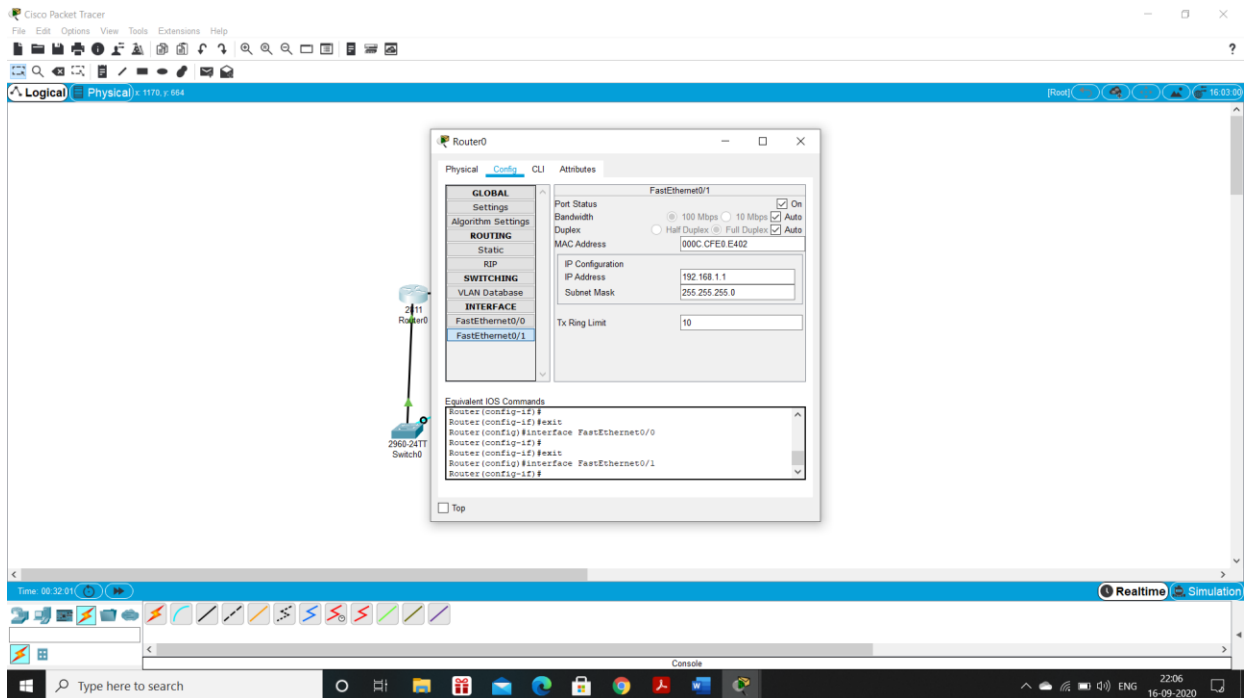


Fig 4.1.18 Shows Configuration of Router

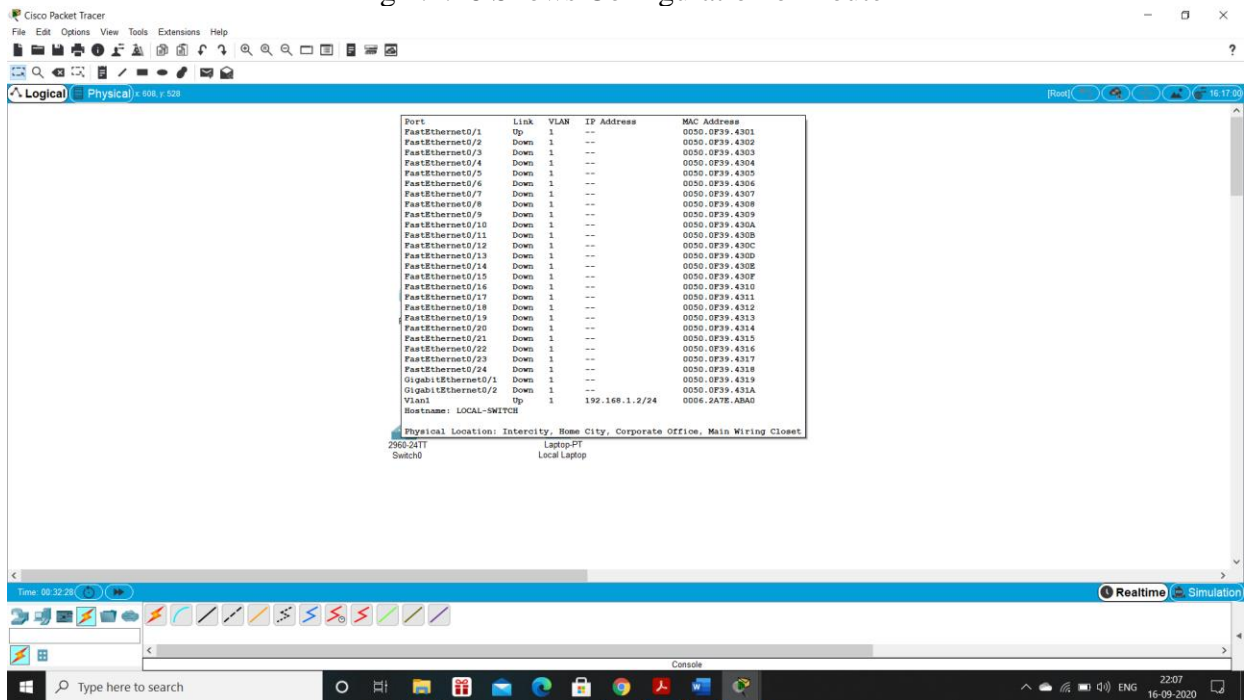


Fig 4.1.19 Shows Configuration of Switch

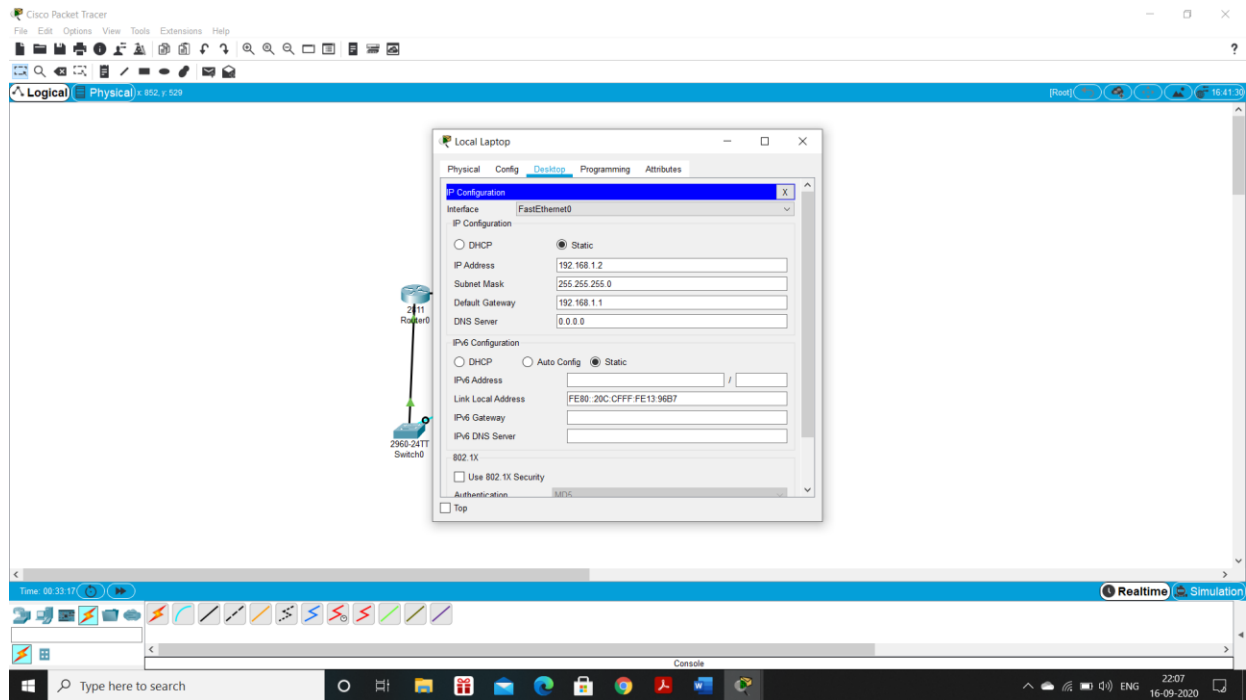


Fig 4.1.20 Shows Configuration of Local Laptop

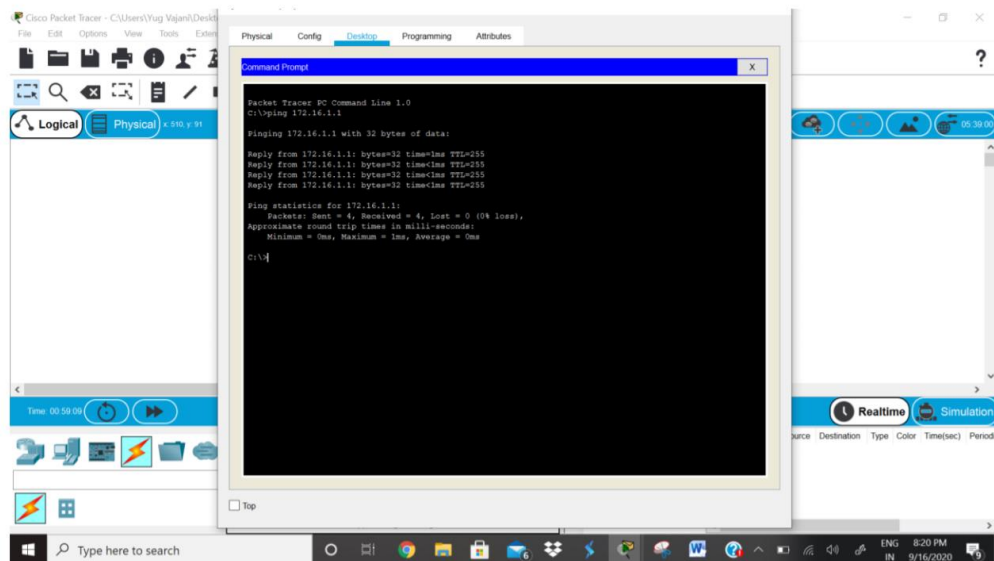
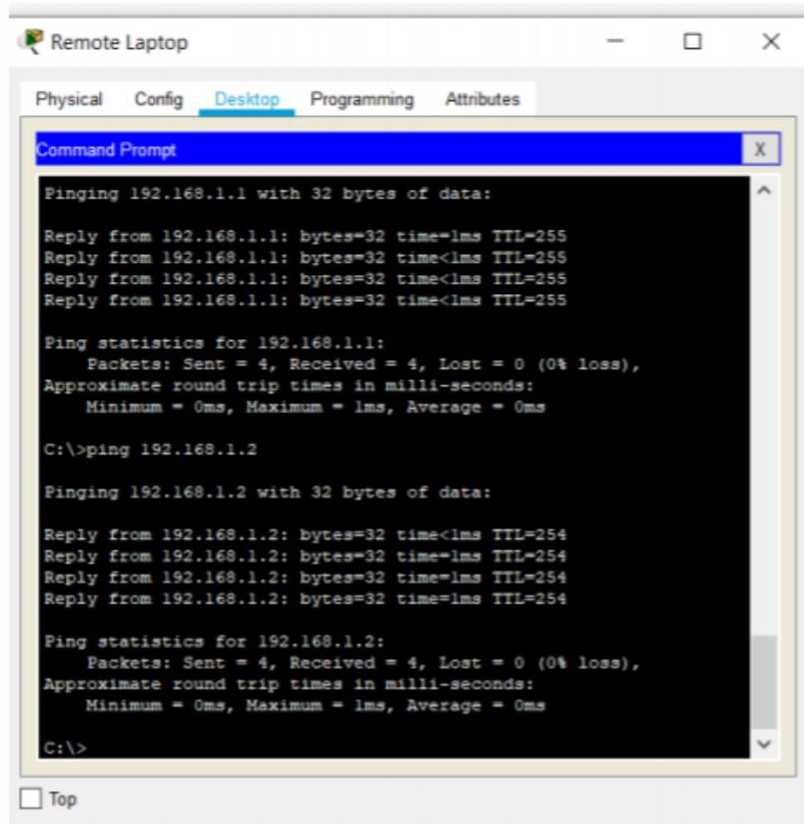


Fig 4.1.21 Shows Pinging Router from Remote Laptop



The screenshot shows a window titled "Remote Laptop" with tabs for Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is active, displaying a Command Prompt window. The Command Prompt shows the results of two ping commands. The first command is "ping 192.168.1.1", which returns four replies with 32 bytes of data, a time of 1ms, and a TTL of 255. The statistics for 192.168.1.1 show 4 packets sent, 4 received, 0% loss, and round trip times of 0ms minimum, 1ms maximum, and 0ms average. The second command is "ping 192.168.1.2", which also returns four replies with 32 bytes of data, a time of 1ms, and a TTL of 254. The statistics for 192.168.1.2 show 4 packets sent, 4 received, 0% loss, and round trip times of 0ms minimum, 1ms maximum, and 0ms average. The Command Prompt prompt is "C:\>".

```
Remote Laptop
Physical Config Desktop Programming Attributes
Command Prompt
Ping 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.1.2

Ping 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=254
Reply from 192.168.1.2: bytes=32 time=1ms TTL=254
Reply from 192.168.1.2: bytes=32 time=1ms TTL=254
Reply from 192.168.1.2: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Fig 4.1.22 Shows Pinging Switch from Remote Laptop

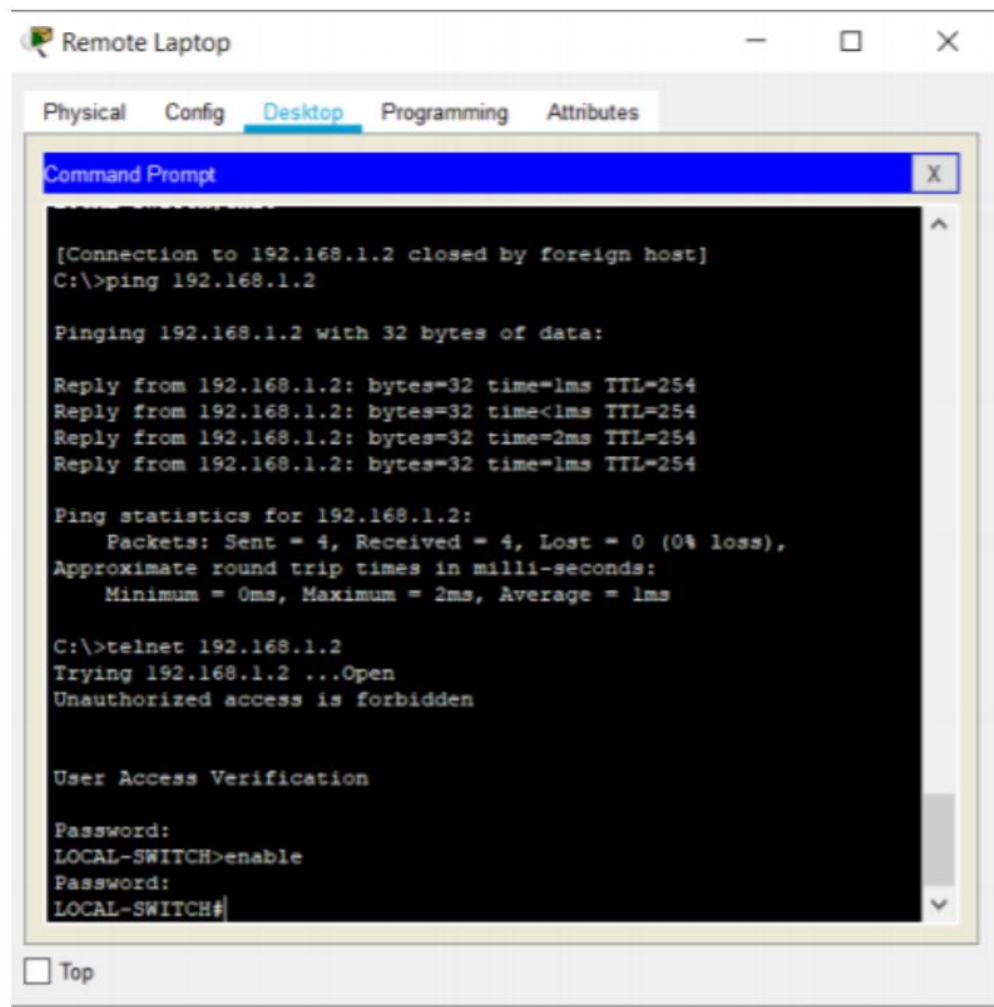


Fig 4.1.23 Telnet Switch from Remote Laptop after entering the password for telnet and enabling switch from Remote Laptop

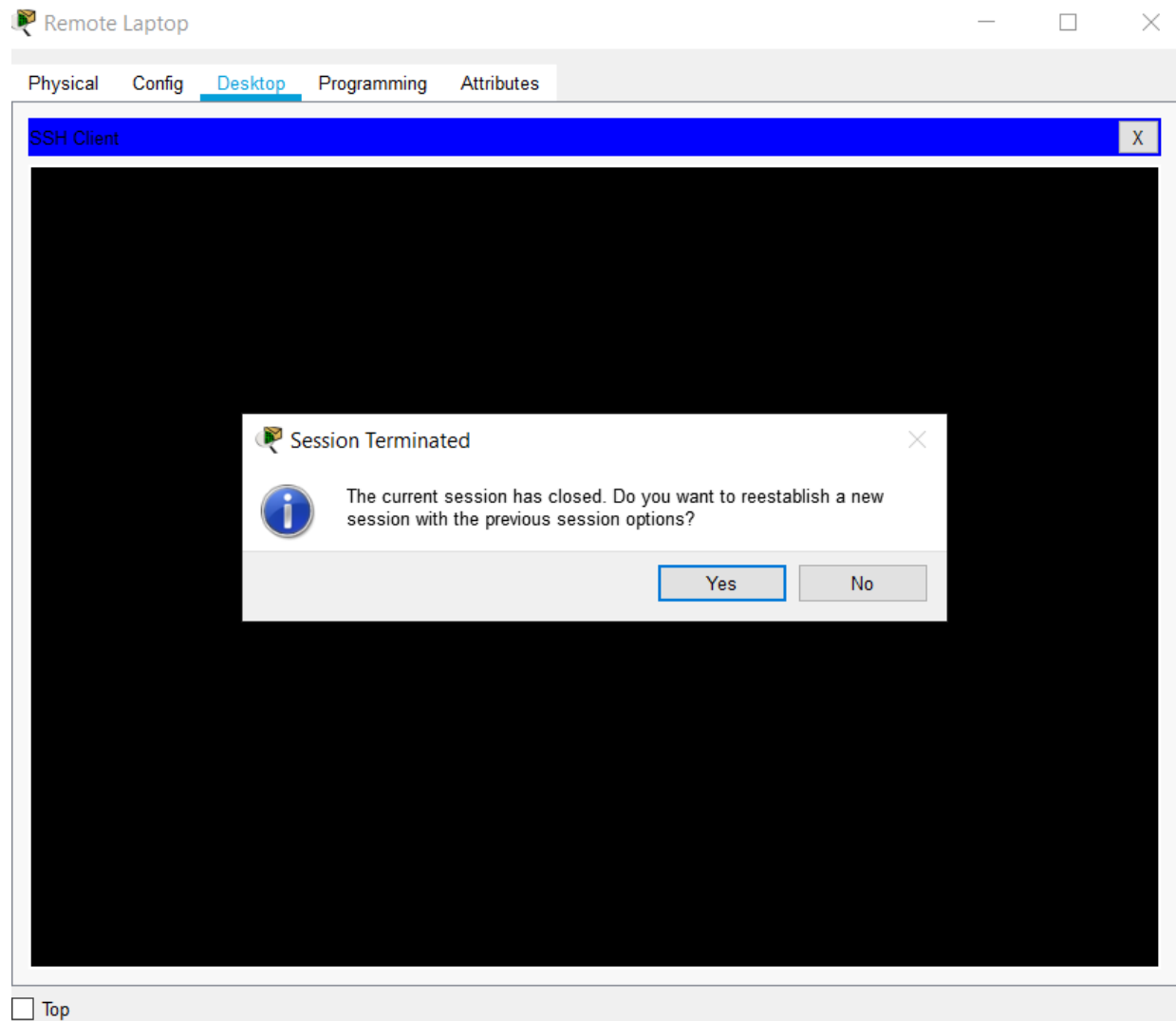


Fig. 4.1.24 - Timeout

CONCLUSION: In this experiment, I learned about setting up network with Router and Switch. I learned to configure Switch using CLI. I understood how to configure terminal. I configured telnet for switch and checked its connectivity from remote laptop