

# CEL 51, DCCN, Monsoon 2020

## Lab 4: Prototyping a Network

### Objective:

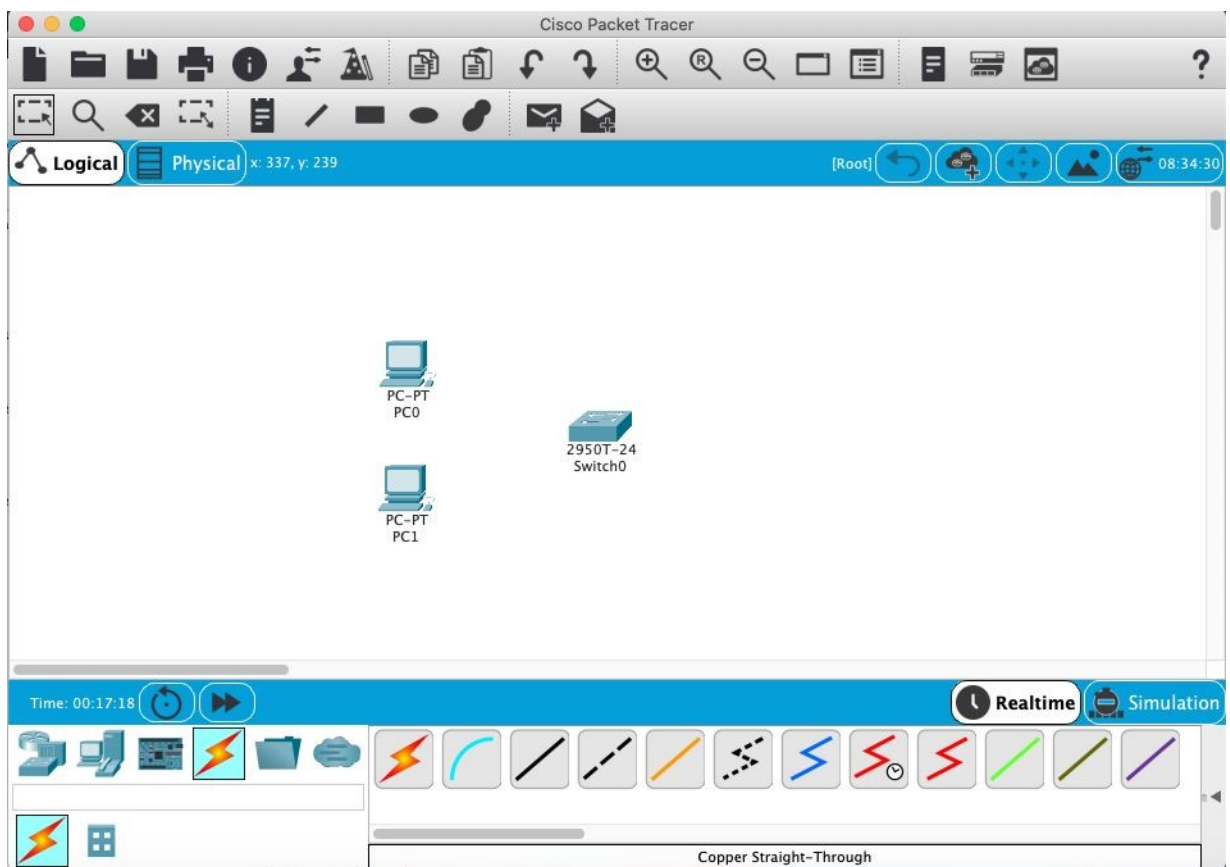
Prototype a network using Packet Tracer

### Background

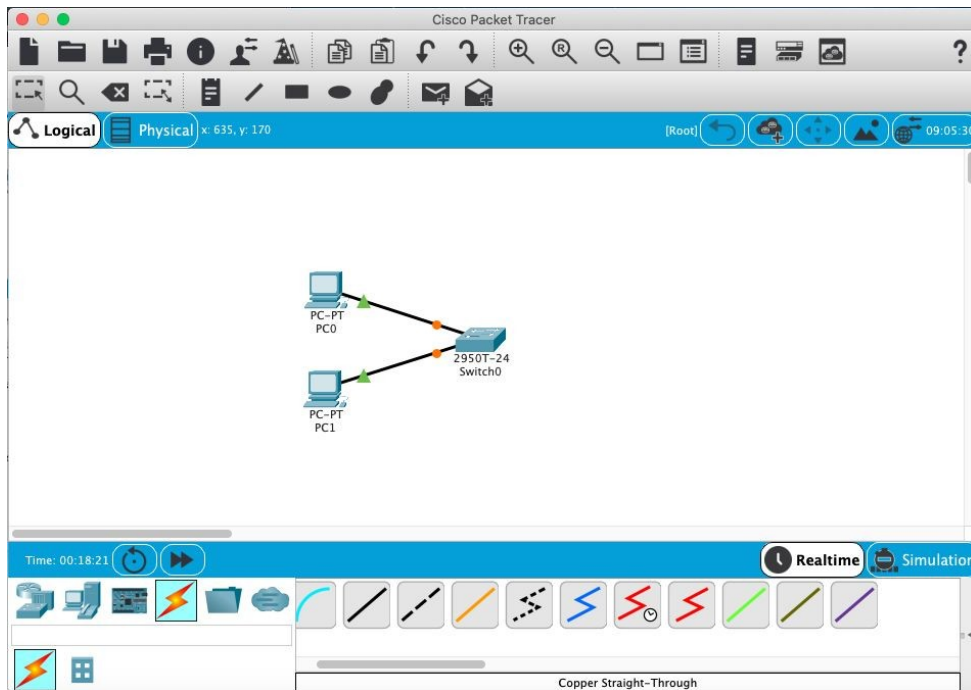
A client has requested that you set up a simple network with two PCs connected to a switch. Verify that the hardware, along with the given configurations, meet the requirements of the client.

### Step 1: Set up the network topology

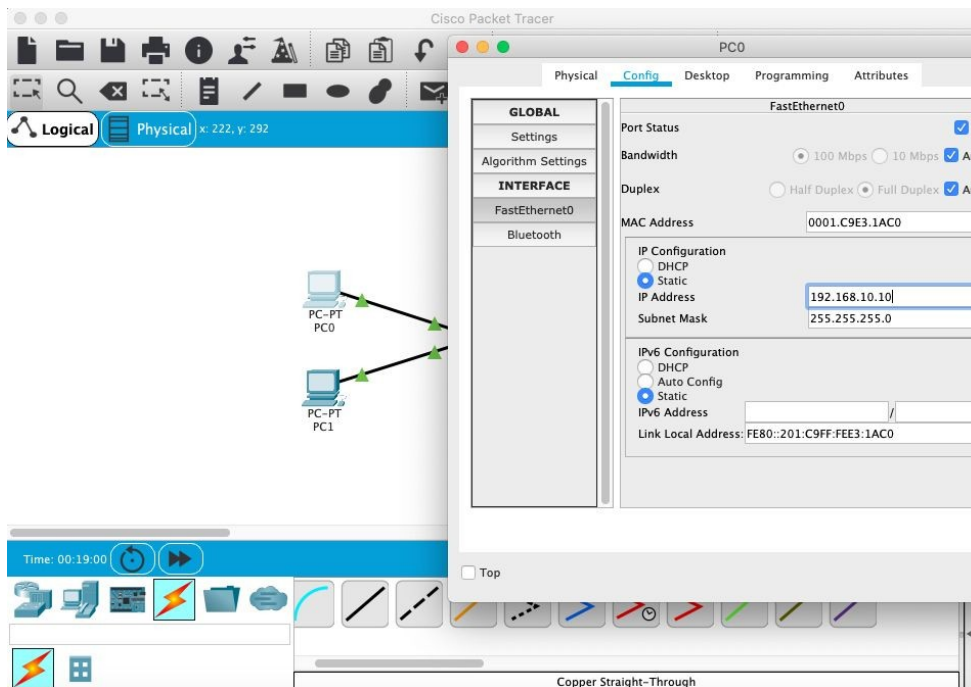
- a) Add two PCs and a Cisco 2950T switch



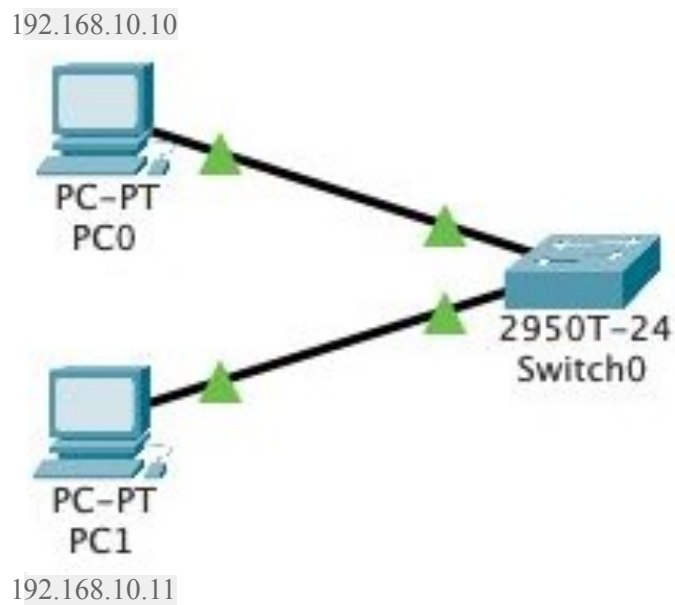
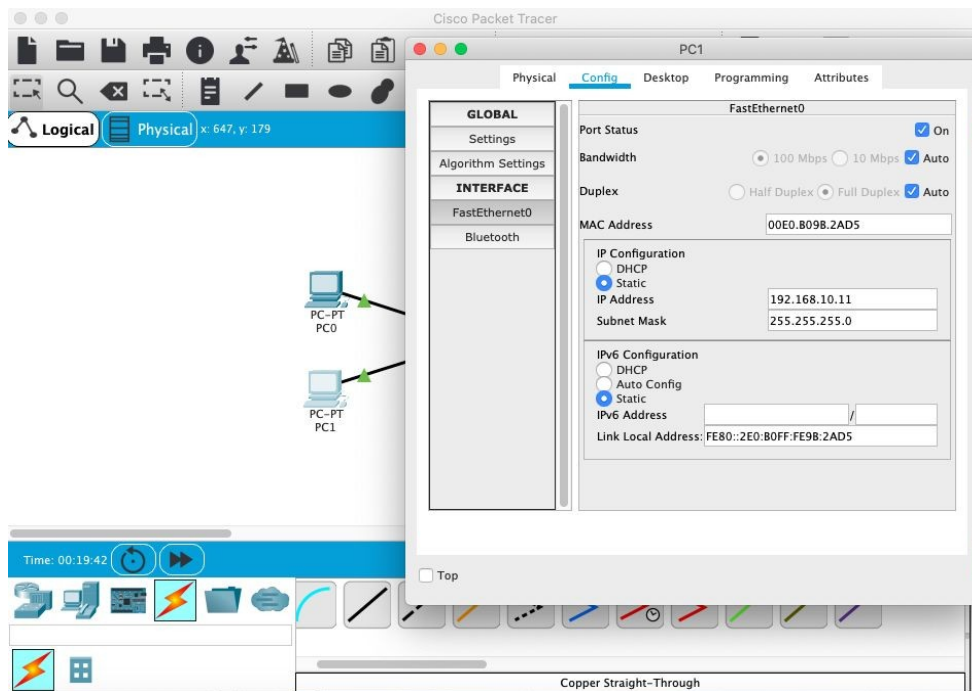
- b) Using straight-through cables, connect **PC0** to interface **Fa0/1** on **Switch0** and **PC1** to interface **Fa0/2** on **Switch0**.



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

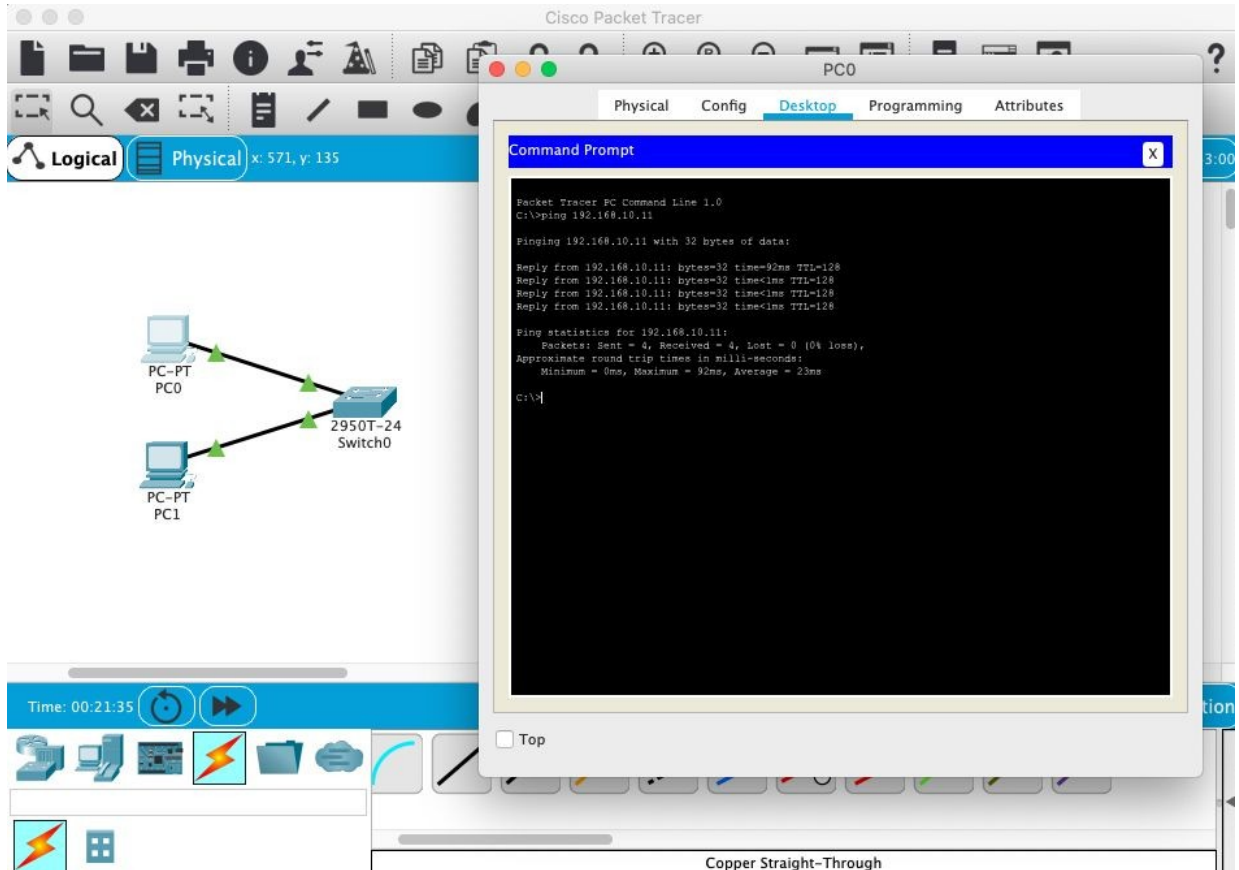


- d) Configure PC1 using the **Config** tab in the PC1 configuration window
- IP address: 192.168.10.11
  - Subnet Mask 255.255.255.0

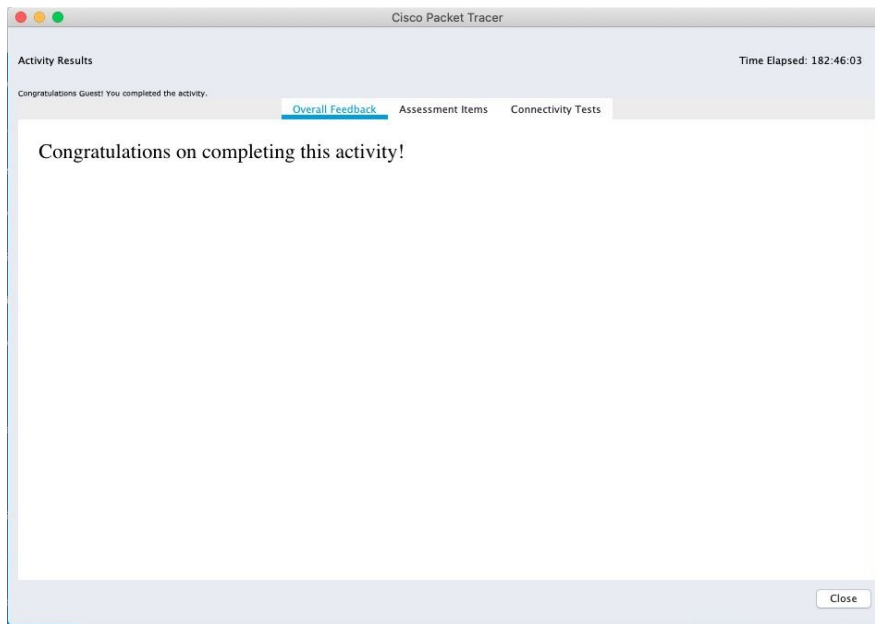


**Step 2: Test connectivity from PC0 to PC1**

- 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:



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

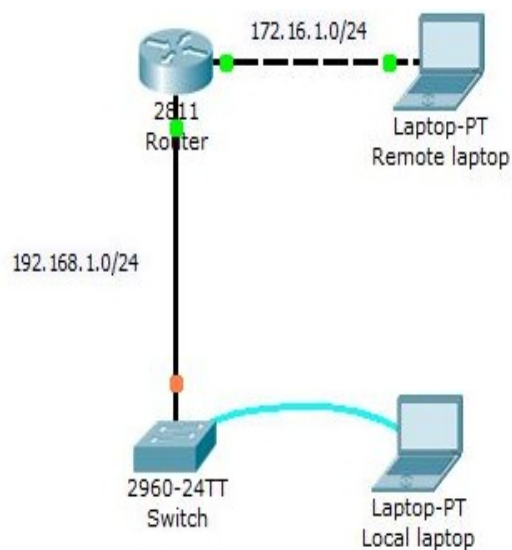


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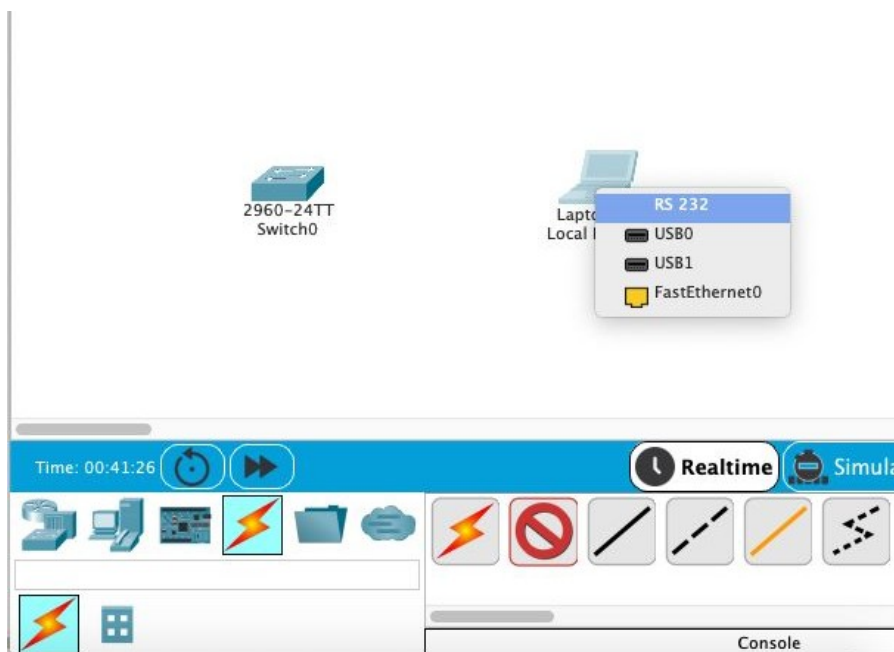
### Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

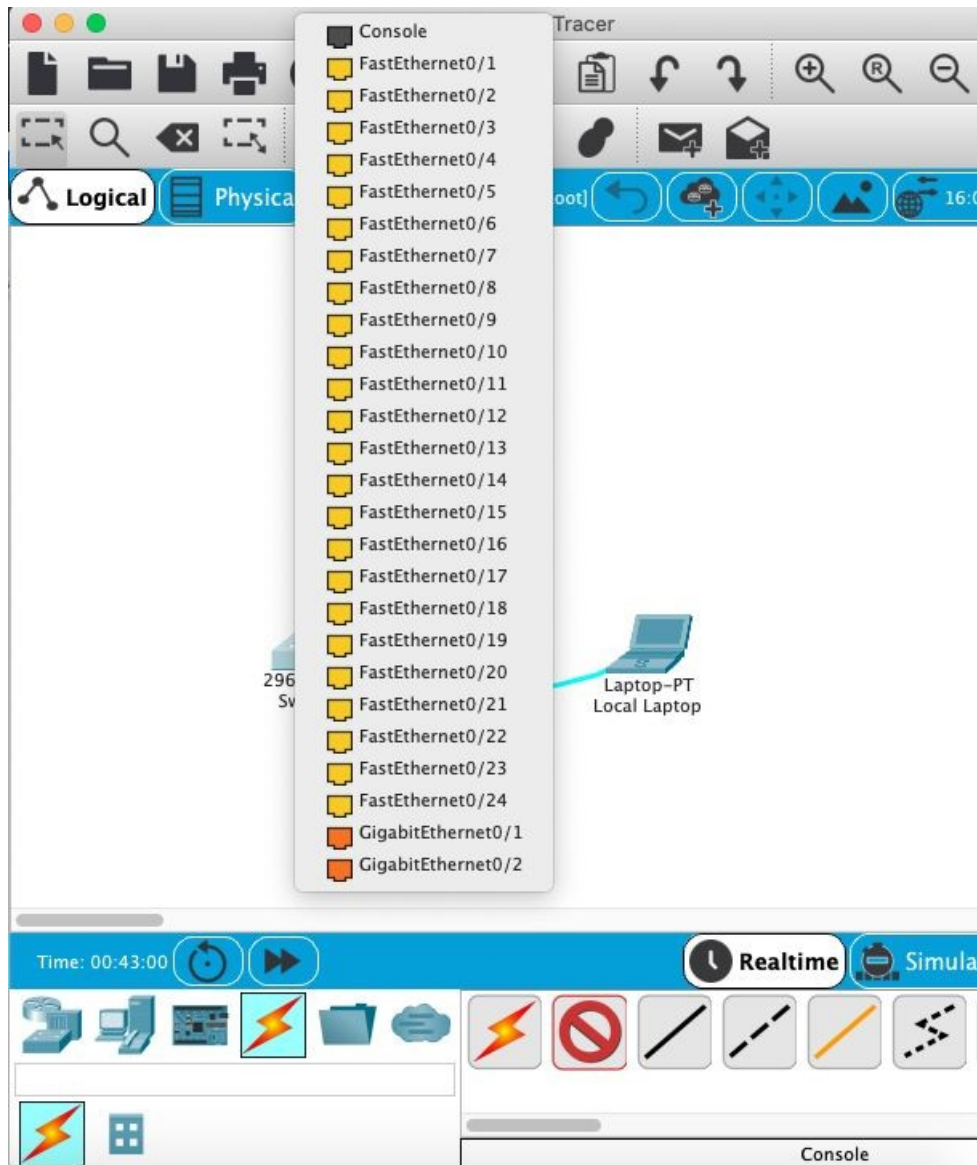
#### **Objective:**

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.



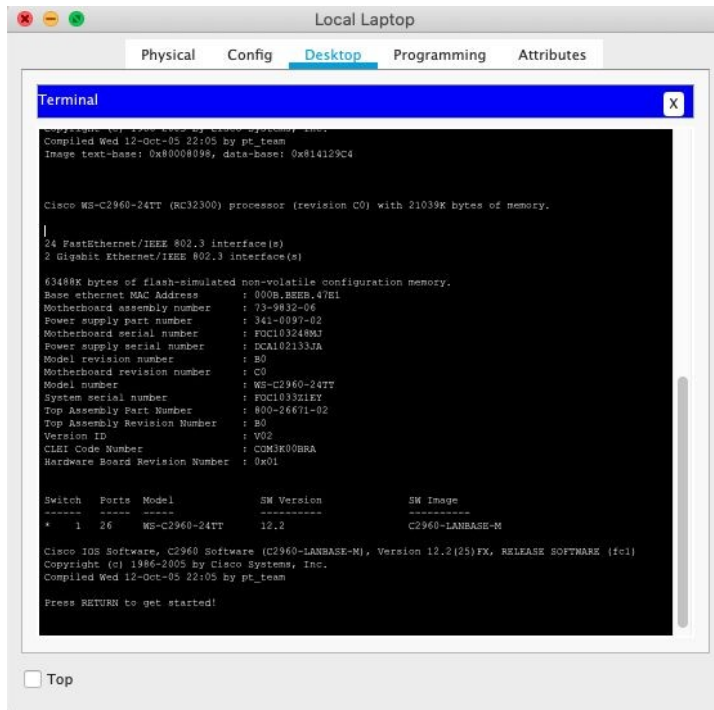
1. Use the local laptop to connect to the switch console.



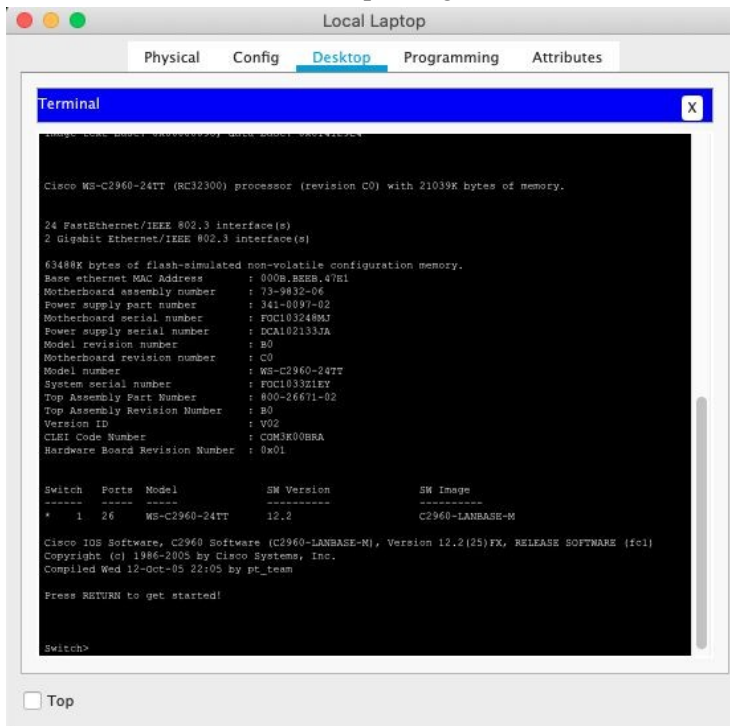


## 2. Configure Switch hostname as LOCAL-SWITCH

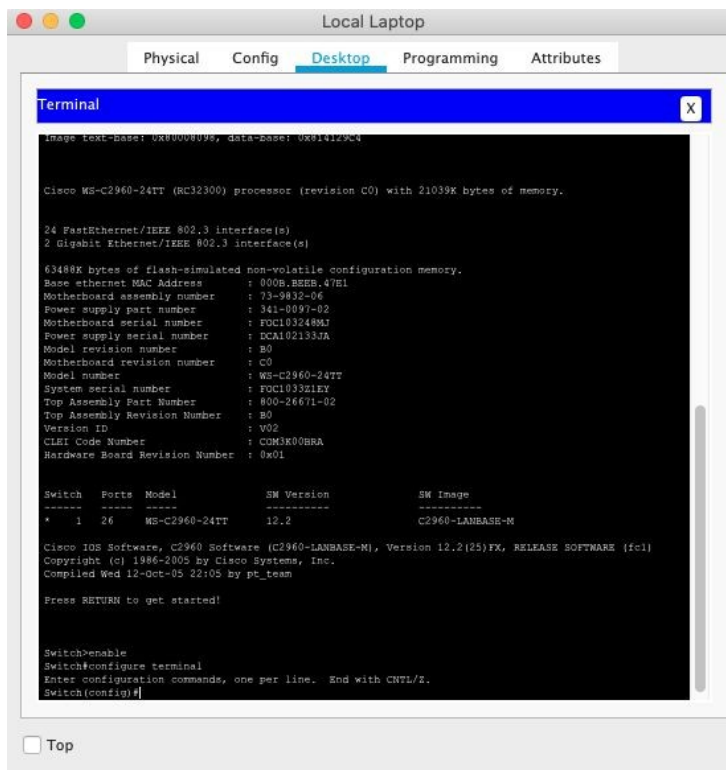
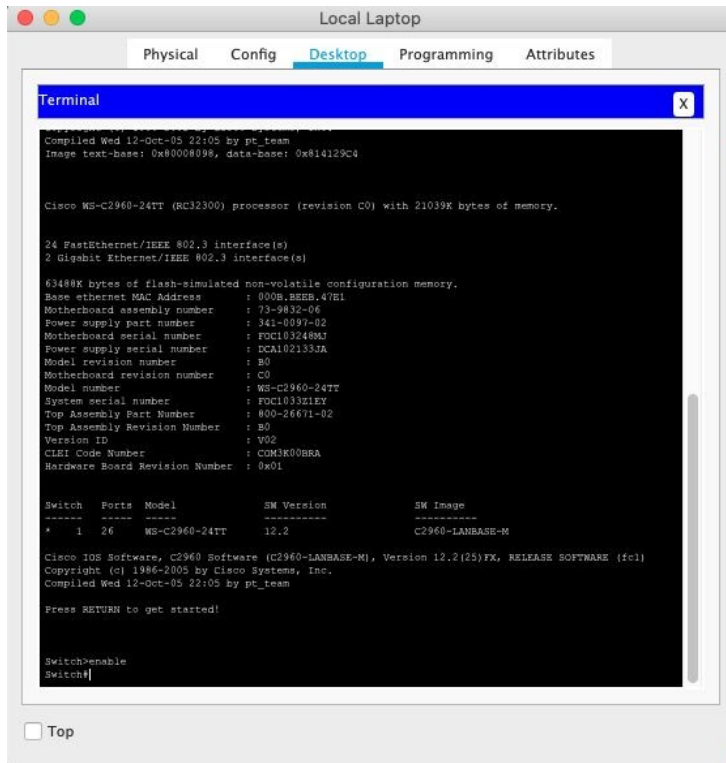
Open terminal of local laptop



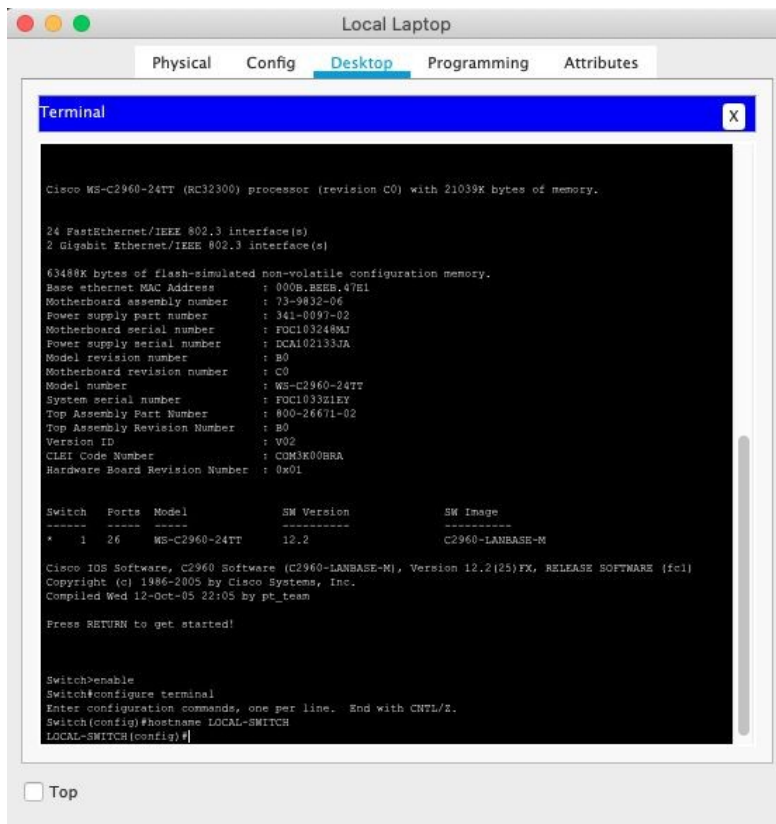
Enable command - To enter in privilege exec mode



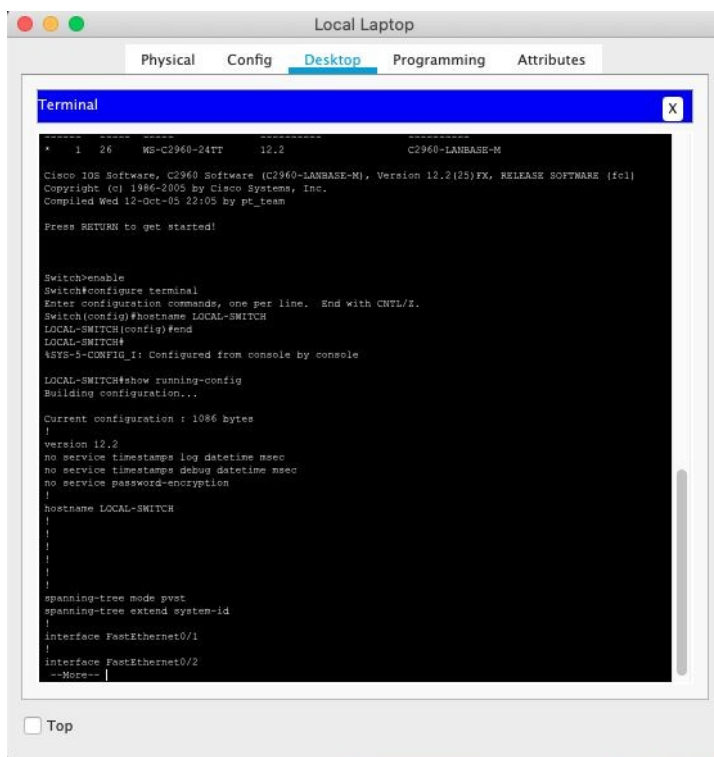
Enter configuration mode Use the configure privileged EXEC command to enter global configuration mode.



Set hostname as LOCAL-SWITCH using hostname LOCAL-SWITCH command

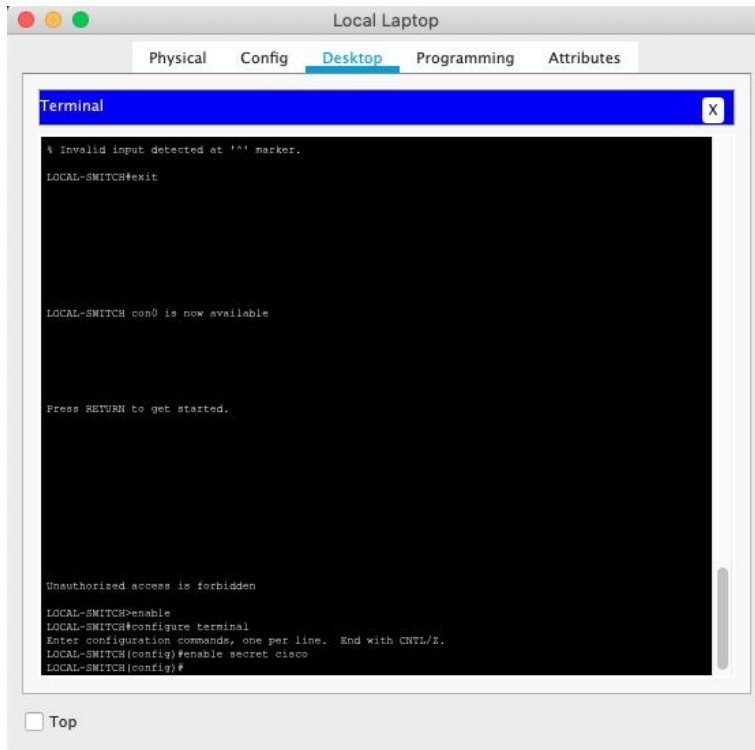


Run show running-config command to check the hostname





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



The screenshot shows a terminal window titled "Local Laptop" with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, and a terminal window is open. The terminal output shows the following commands and responses:

```
% Invalid input detected at '^' marker.
LOCAL-SWITCH#exit

LOCAL-SWITCH con0 is now available

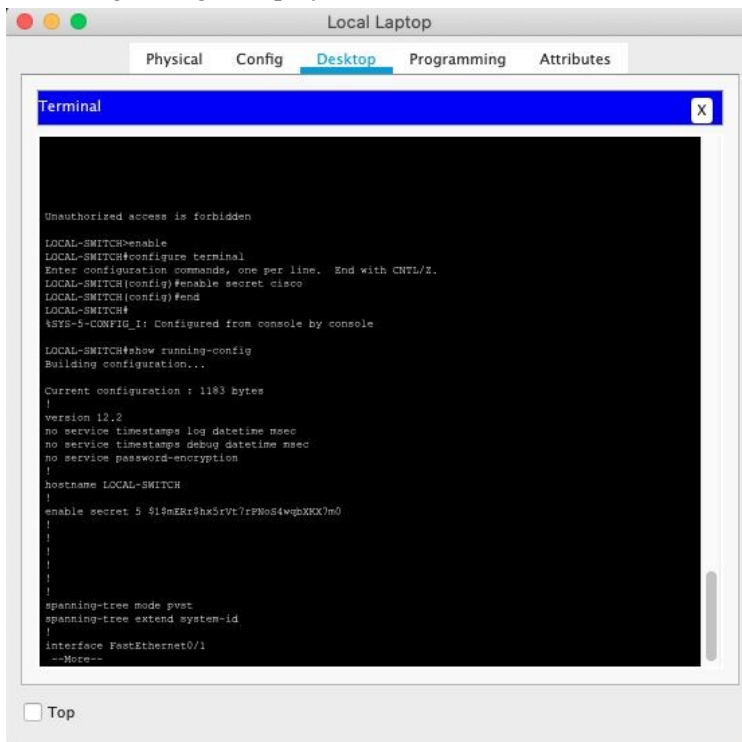
Press RETURN to get started.

Unauthorized access is forbidden

LOCAL-SWITCH#enable
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#enable secret cisco
LOCAL-SWITCH(config)#
```

Below the terminal window, there is a checkbox labeled "Top" which is currently unchecked.

In running-config it displays as enable secret.



The screenshot shows the same terminal window as before, but now displaying the output of the "show running-config" command. The output shows the configuration for the switch, including the enable secret command:

```
Unauthorized access is forbidden

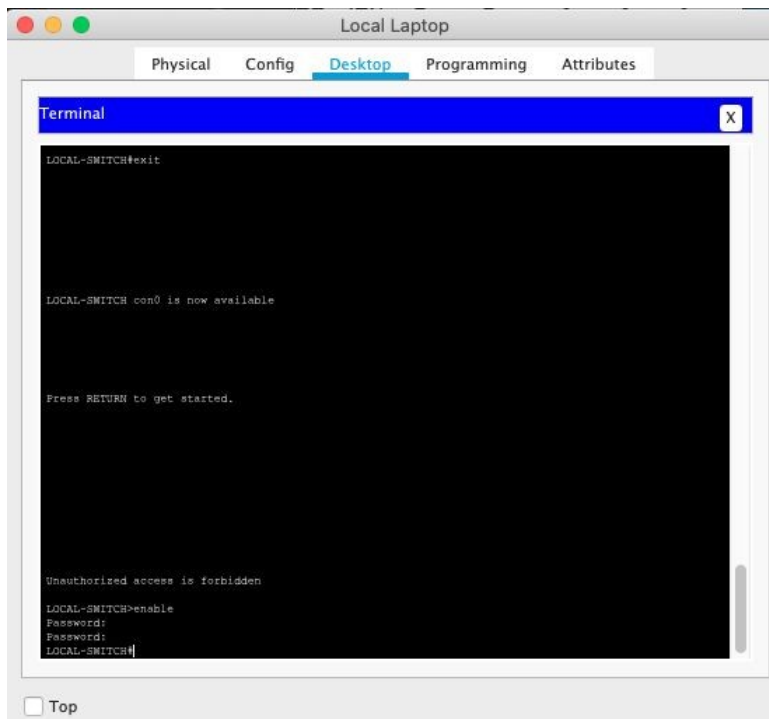
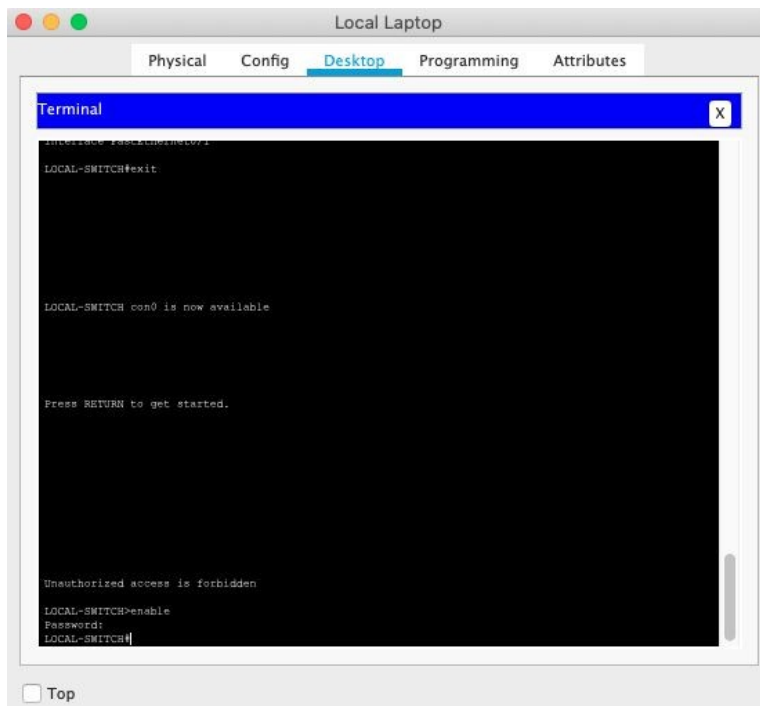
LOCAL-SWITCH#enable
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#enable secret cisco
LOCAL-SWITCH(config)#end
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

LOCAL-SWITCH#show running-config
Building configuration...

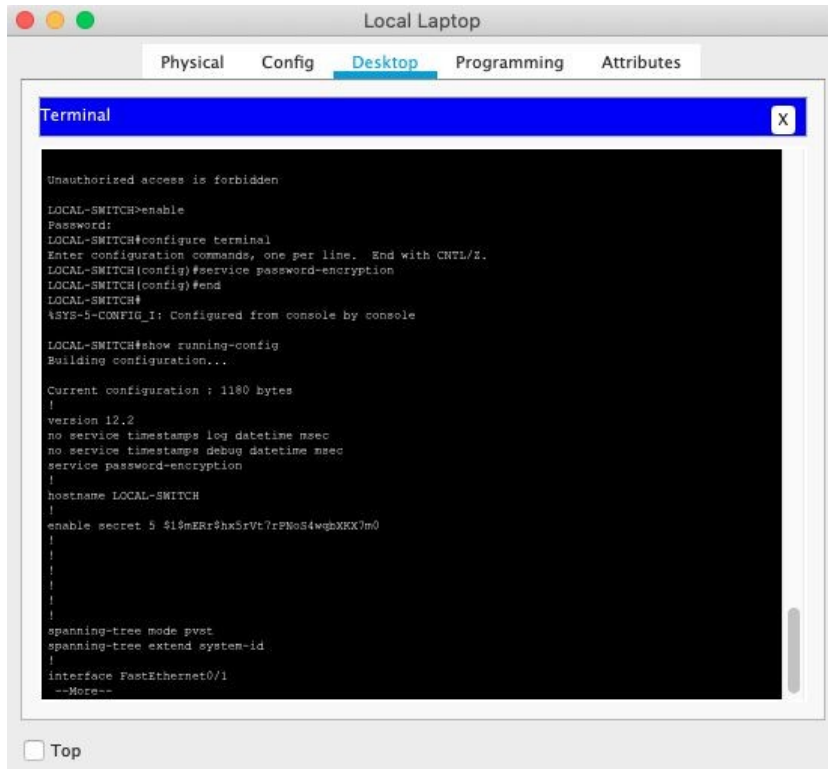
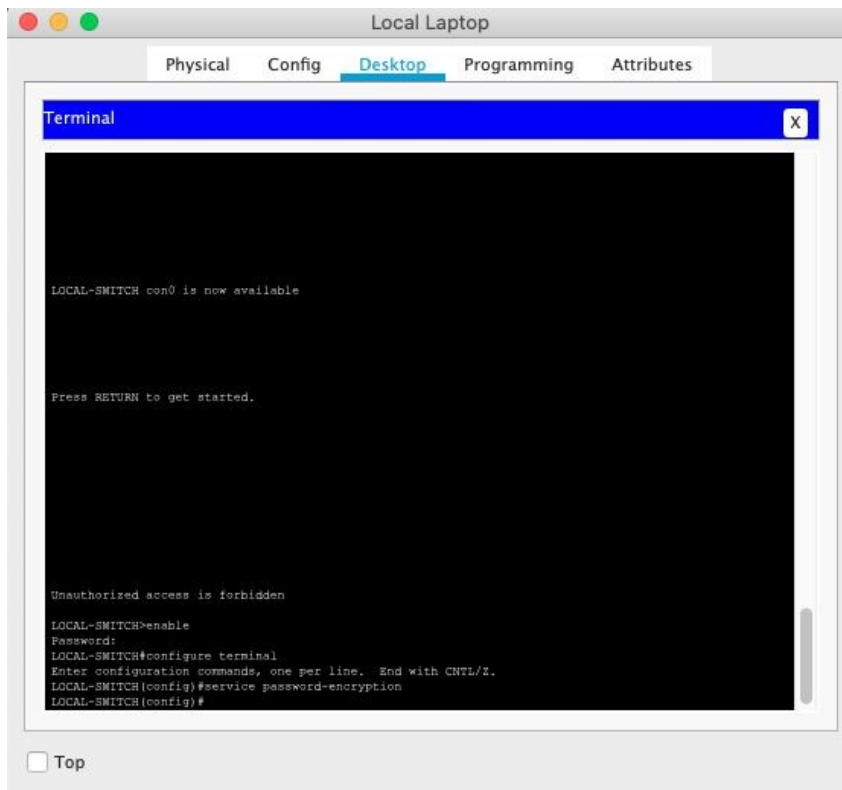
Current configuration : 1183 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname LOCAL-SWITCH
!
enable secret 5 $1$mEKr$ha5rVt7rPN0S4wqbXXX7m0
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
--More--
```

Below the terminal window, there is a checkbox labeled "Top" which is currently unchecked.

When we try to enable switch again, it will ask for password.

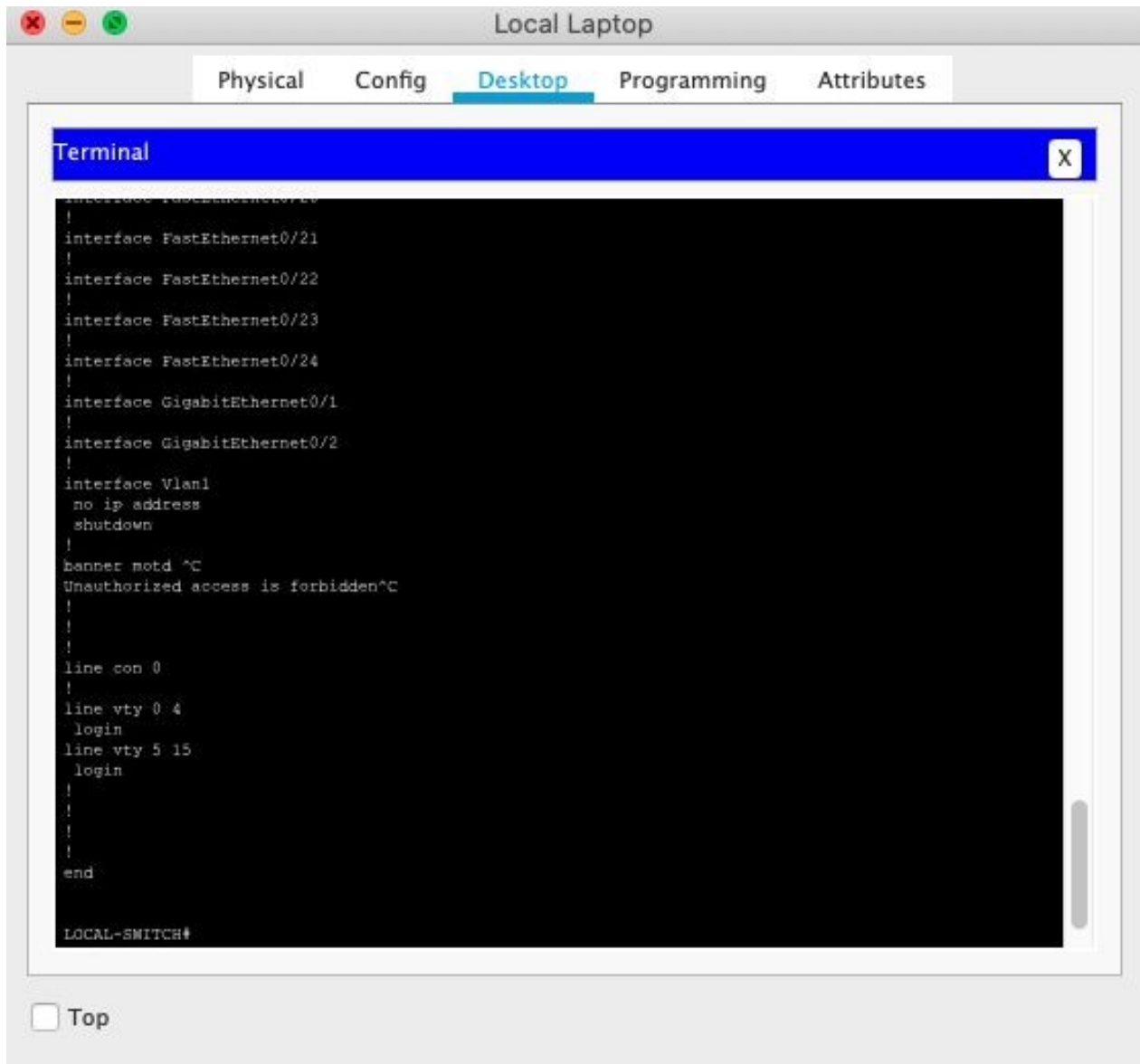


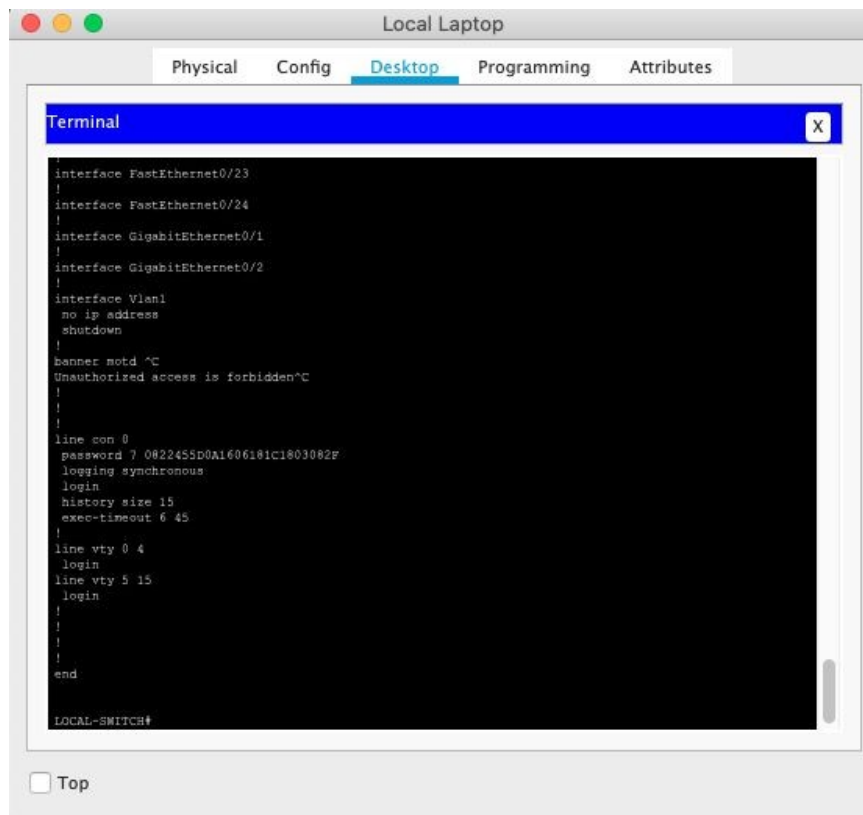
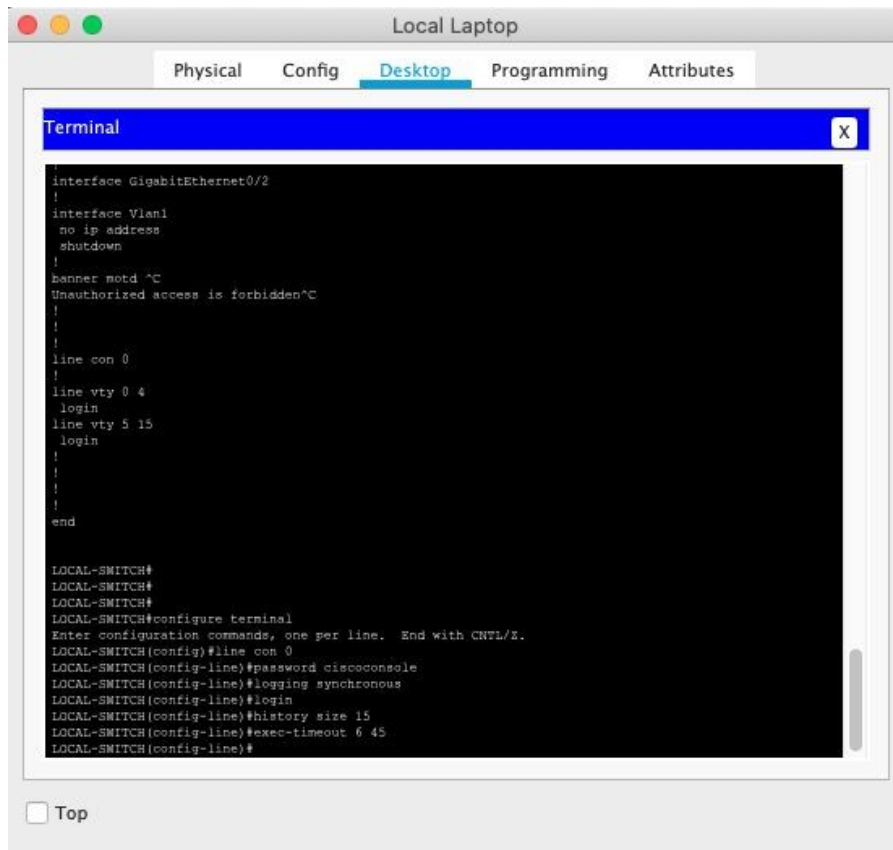
5. Configure password encryption on the switch using the global configuration command



6. Configure CONSOLE access with the following settings :

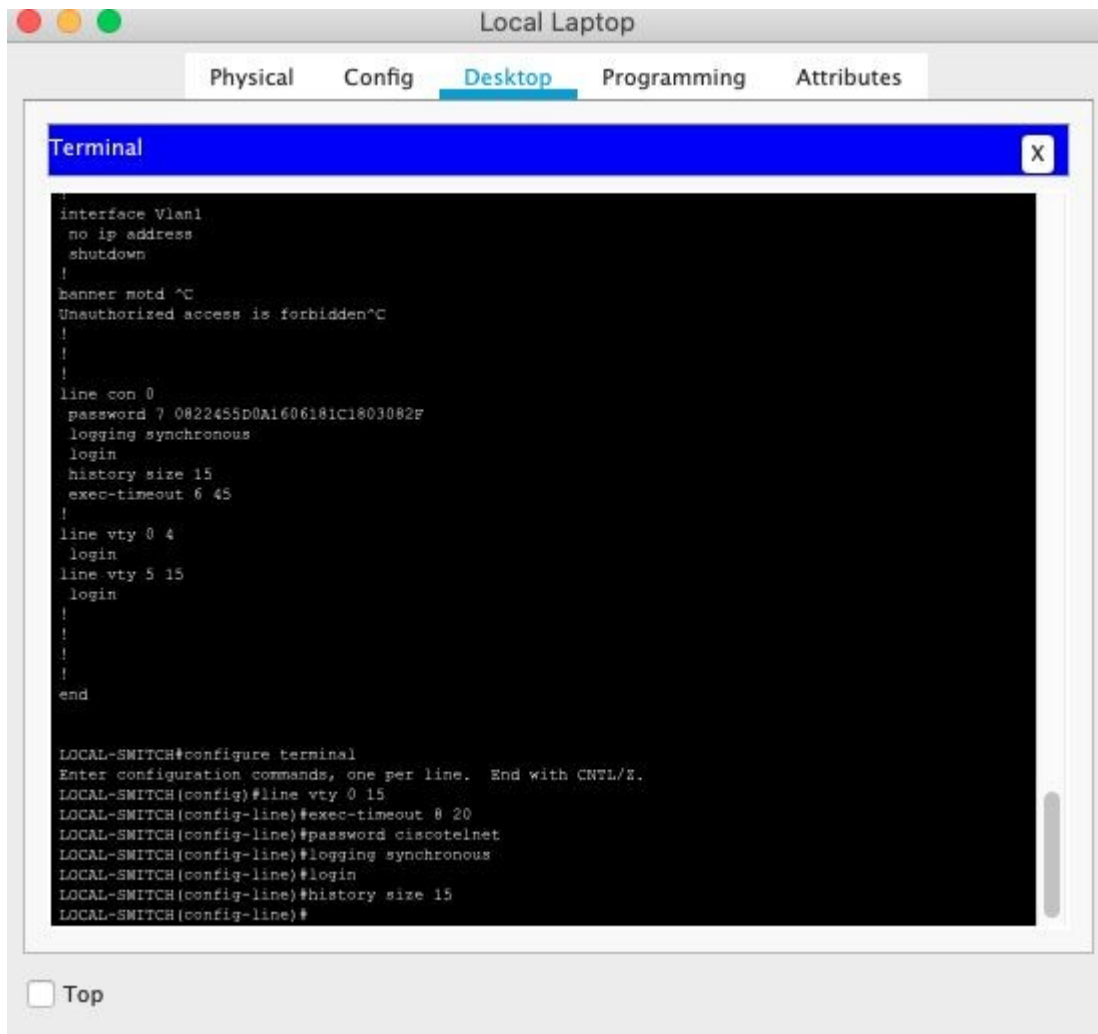
- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 6'45"
- Synchronous logging

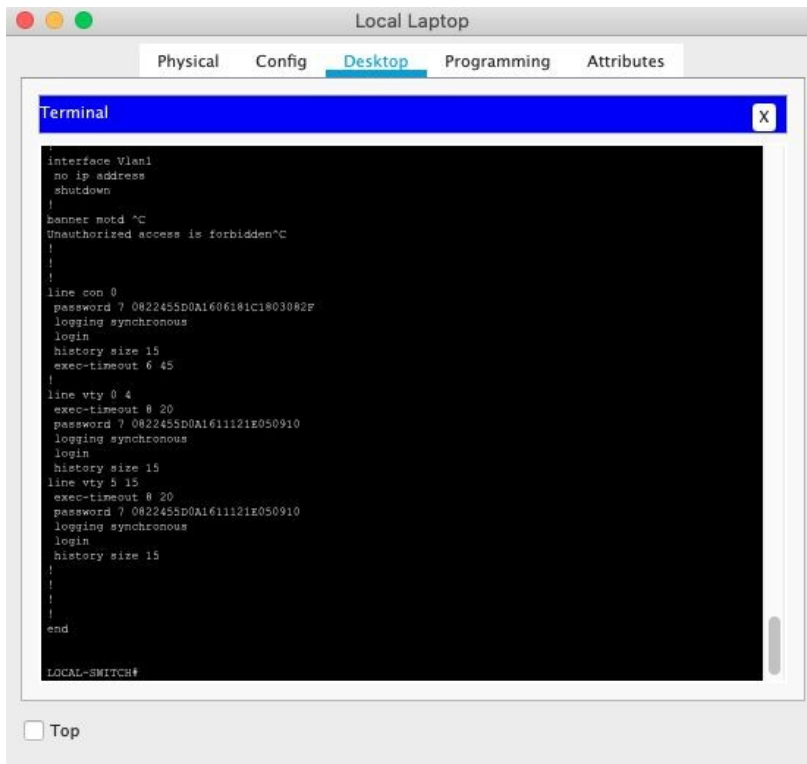




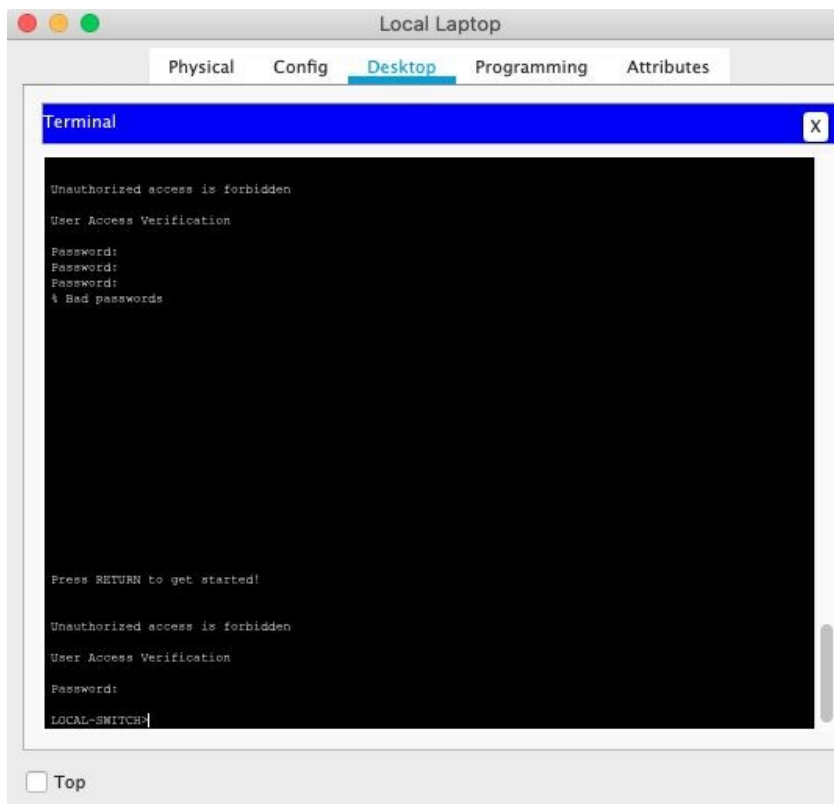
6. Configure TELNET access with the following settings :

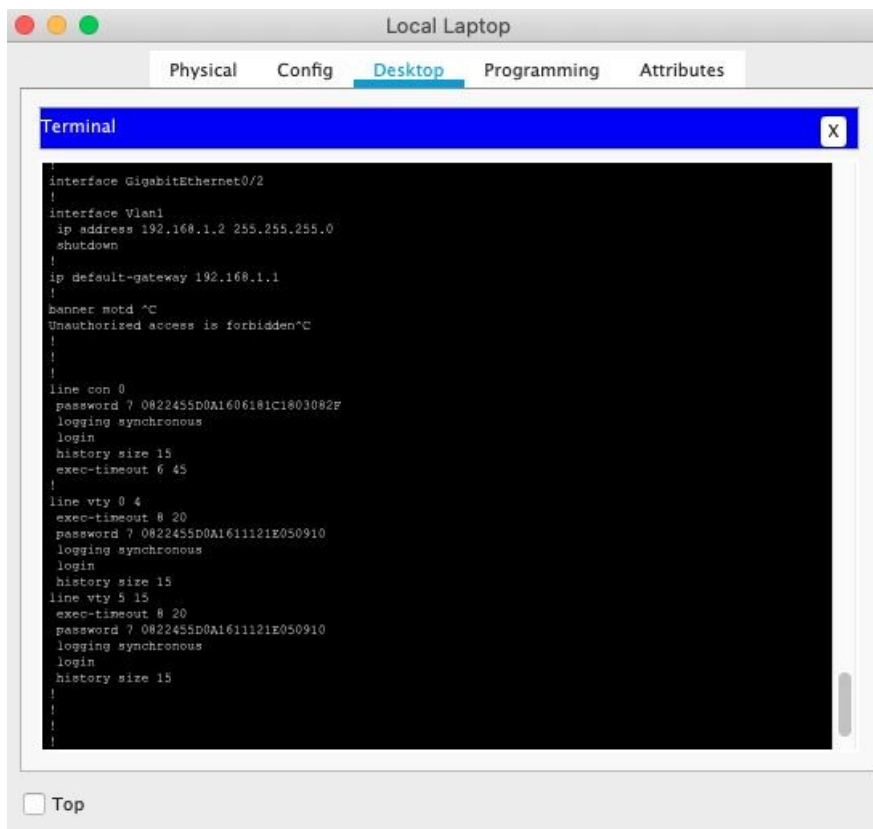
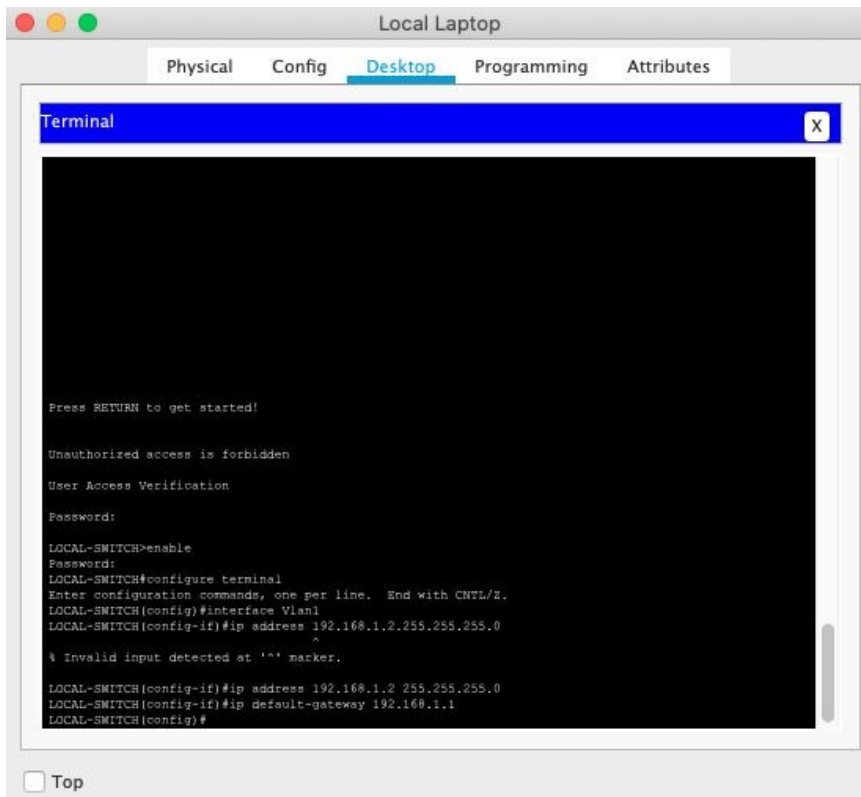
- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 8'20"
- Synchronous logging

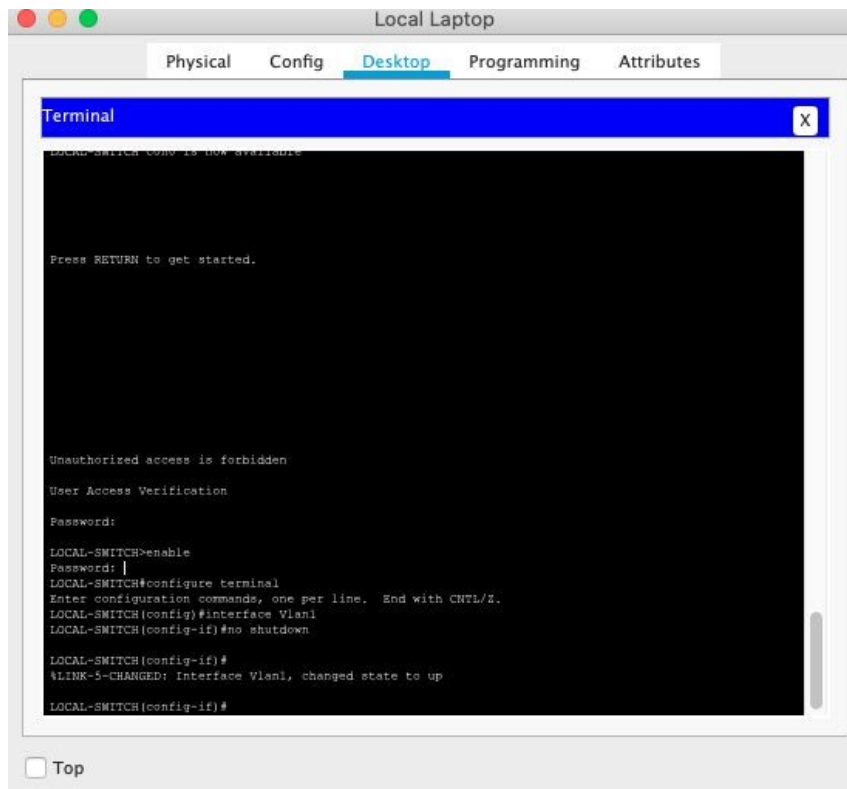




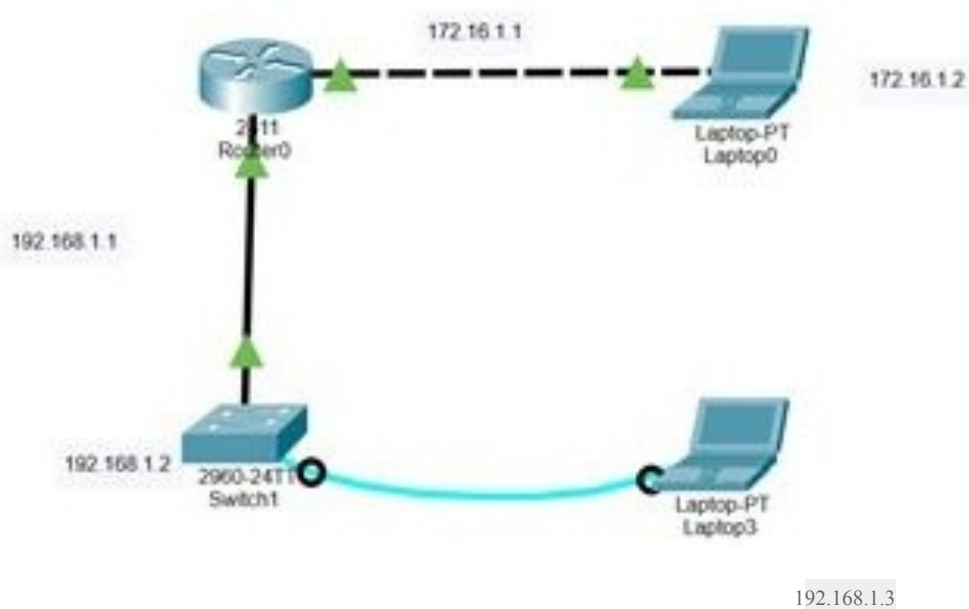
7. Configure the IP address of the switch as 192.168.1.2/24 and its default gateway IP (192.168.1.1).







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



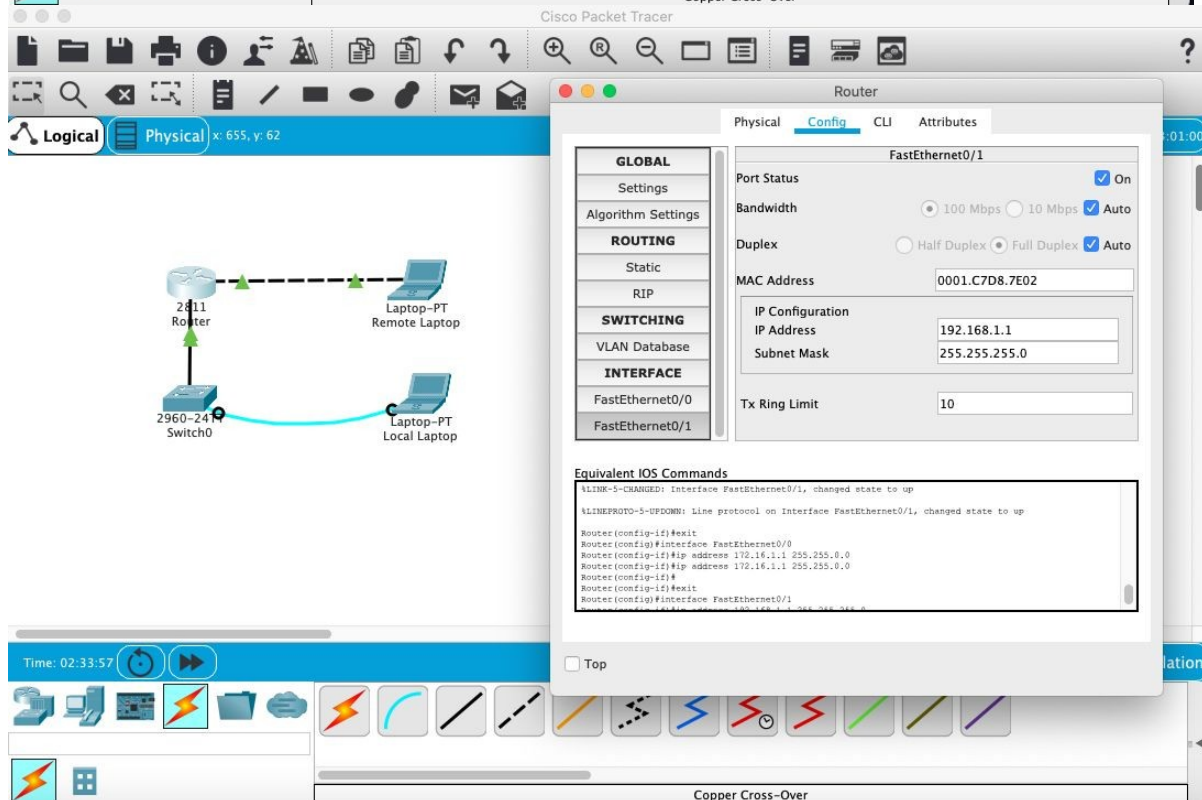
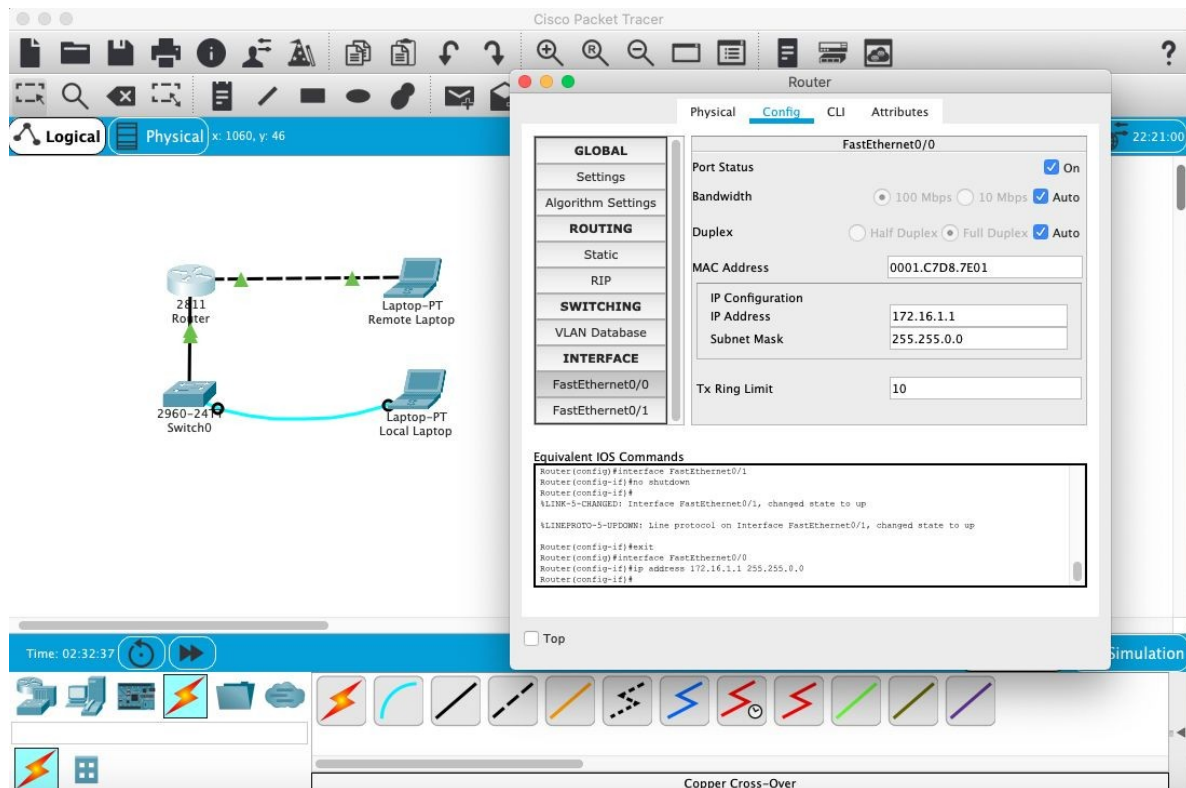
## Configuration of Remote laptop

The image shows the Cisco Packet Tracer interface with the 'Remote Laptop' configuration window open. The main workspace displays a network topology with a 2811 Router connected to a 2960-24 Switch, which is connected to a Laptop-PT Local Laptop. A Remote Laptop is also connected to the 2811 Router. The 'Remote Laptop' configuration window is open, showing the 'Desktop' tab. The 'IP Configuration' section is set to 'Static' with IP Address 172.16.1.2, Subnet Mask 255.255.0.0, Default Gateway 172.16.1.1, and DNS Server 0.0.0.0. The 'IPv6 Configuration' section is also set to 'Static' with a Link Local Address of FE80::2D0:FFFF:FE00:253D. The 'Top' checkbox is unchecked.

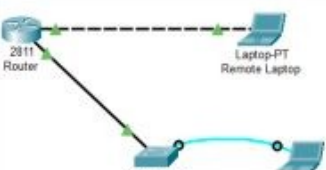
**Remote Laptop Configuration:**

- Interface: FastEthernet0
- IP Configuration:
  - ☐ DHCP
  - ☒ Static
  - IP Address: 172.16.1.2
  - Subnet Mask: 255.255.0.0
  - Default Gateway: 172.16.1.1
  - DNS Server: 0.0.0.0
- IPv6 Configuration:
  - ☐ DHCP
  - ☐ Auto Config
  - ☒ Static
  - IPv6 Address: /
  - Link Local Address: FE80::2D0:FFFF:FE00:253D
  - IPv6 Gateway:
  - IPv6 DNS Server:
- ☐ Top

## Configuration of Router



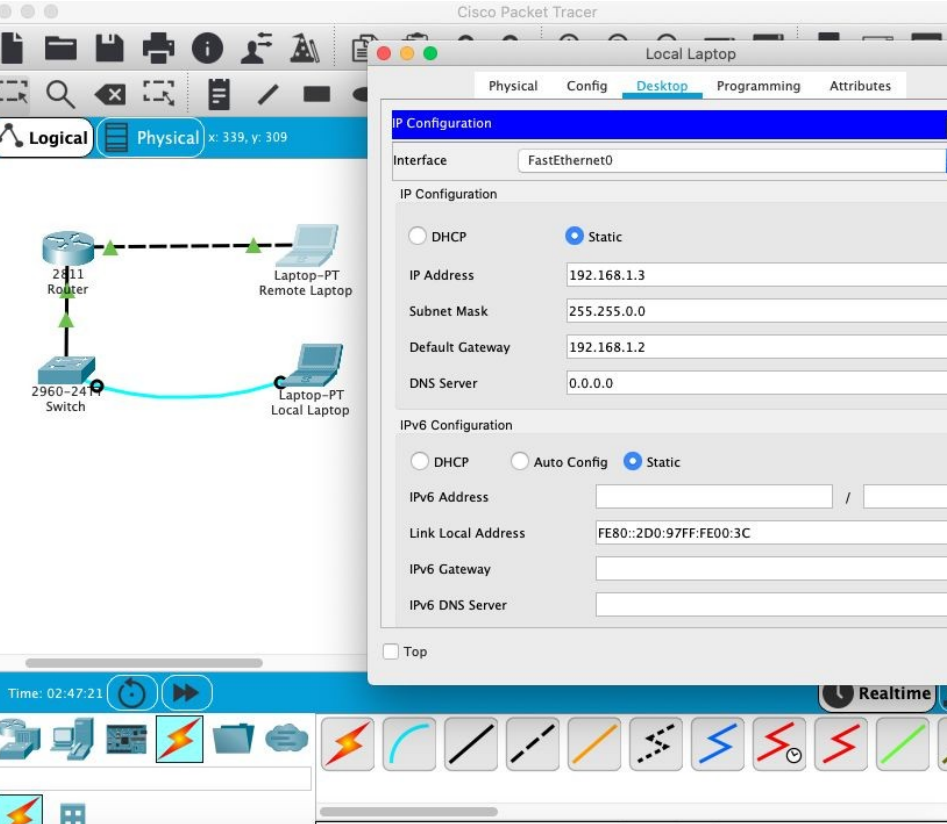
## Configuration of Switch



Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	1	---	0002.4A47.7401
FastEthernet0/2	Down	1	---	0002.4A47.7402
FastEthernet0/3	Down	1	---	0002.4A47.7403
FastEthernet0/4	Down	1	---	0002.4A47.7404
FastEthernet0/5	Down	1	---	0002.4A47.7405
FastEthernet0/6	Down	1	---	0002.4A47.7406
FastEthernet0/7	Down	1	---	0002.4A47.7407
FastEthernet0/8	Down	1	---	0002.4A47.7408
FastEthernet0/9	Down	1	---	0002.4A47.7409
FastEthernet0/10	Down	1	---	0002.4A47.740A
FastEthernet0/11	Down	1	---	0002.4A47.740B
FastEthernet0/12	Down	1	---	0002.4A47.740C
FastEthernet0/13	Down	1	---	0002.4A47.740D
FastEthernet0/14	Down	1	---	0002.4A47.740E
FastEthernet0/15	Down	1	---	0002.4A47.740F
FastEthernet0/16	Down	1	---	0002.4A47.7410
FastEthernet0/17	Down	1	---	0002.4A47.7411
FastEthernet0/18	Down	1	---	0002.4A47.7412
FastEthernet0/19	Down	1	---	0002.4A47.7413
FastEthernet0/20	Down	1	---	0002.4A47.7414
FastEthernet0/21	Down	1	---	0002.4A47.7415
FastEthernet0/22	Down	1	---	0002.4A47.7416
FastEthernet0/23	Down	1	---	0002.4A47.7417
FastEthernet0/24	Down	1	---	0002.4A47.7418
GigabitEthernet0/1	Down	1	---	0002.4A47.7419
GigabitEthernet0/2	Down	1	---	0002.4A47.741A
Vlan1	Up	1	192.168.1.2/24	0002.1741.2E98

Hostname: LOCAL-SWITCH  
Physical Location: Intercity, Home City, Corporate Office, Main Wiring Closet

## Configuration of Remote Laptop



Local Laptop

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.1.3

Subnet Mask 255.255.0.0

Default Gateway 192.168.1.2

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:97FF:FE00:3C

IPv6 Gateway

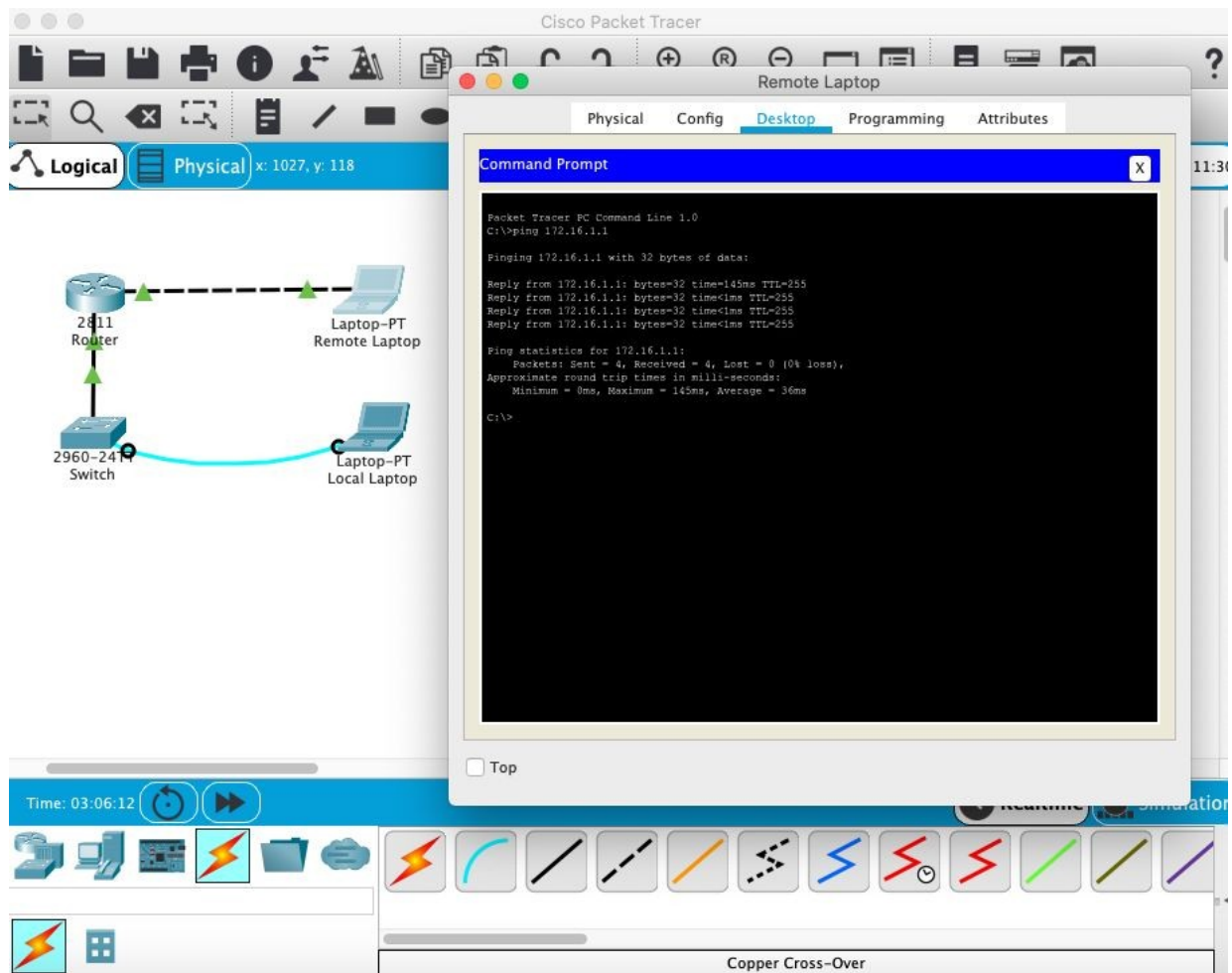
IPv6 DNS Server

☐ Top

Time: 02:47:21 Realtime

Copper Cross-Over

## Pinging Router from Remote Laptop



Cisco Packet Tracer

Logical Physical x: 122, y: 161

2611 Router

2960-24T Switch

Laptop-PT Remote Laptop

Laptop-PT Local Laptop

Time: 03:07:19

Realtime Simulation

Copper Cross-Over

Remote Laptop

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.16.1.1

Pinging 172.16.1.1 with 32 bytes of data:

Reply from 172.16.1.1: bytes=32 time=145ms TTL=255
Reply from 172.16.1.1: bytes=32 time<1ms TTL=255
Reply from 172.16.1.1: bytes=32 time<1ms TTL=255
Reply from 172.16.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 145ms, Average = 36ms

C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

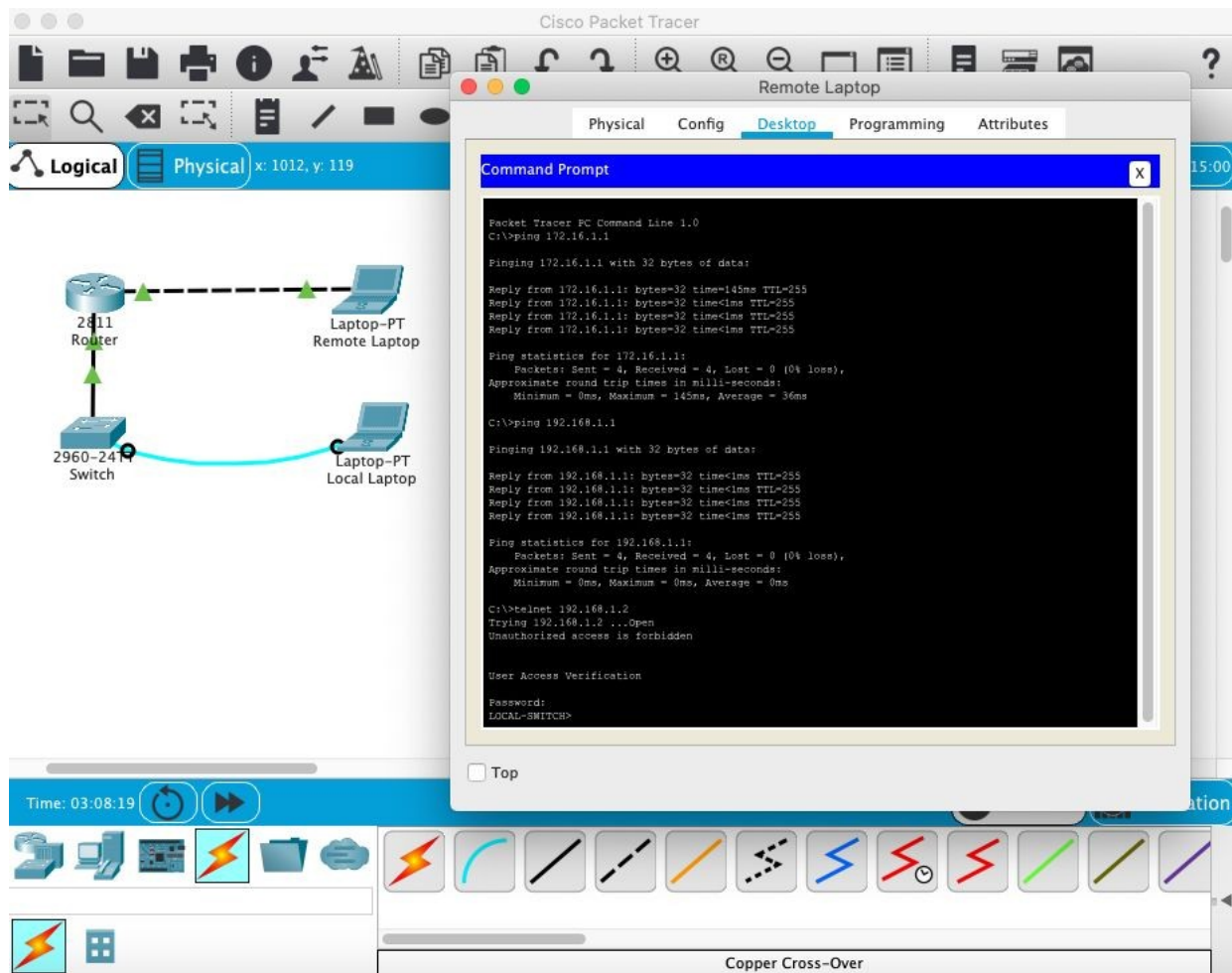
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

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 = 0ms, Average = 0ms

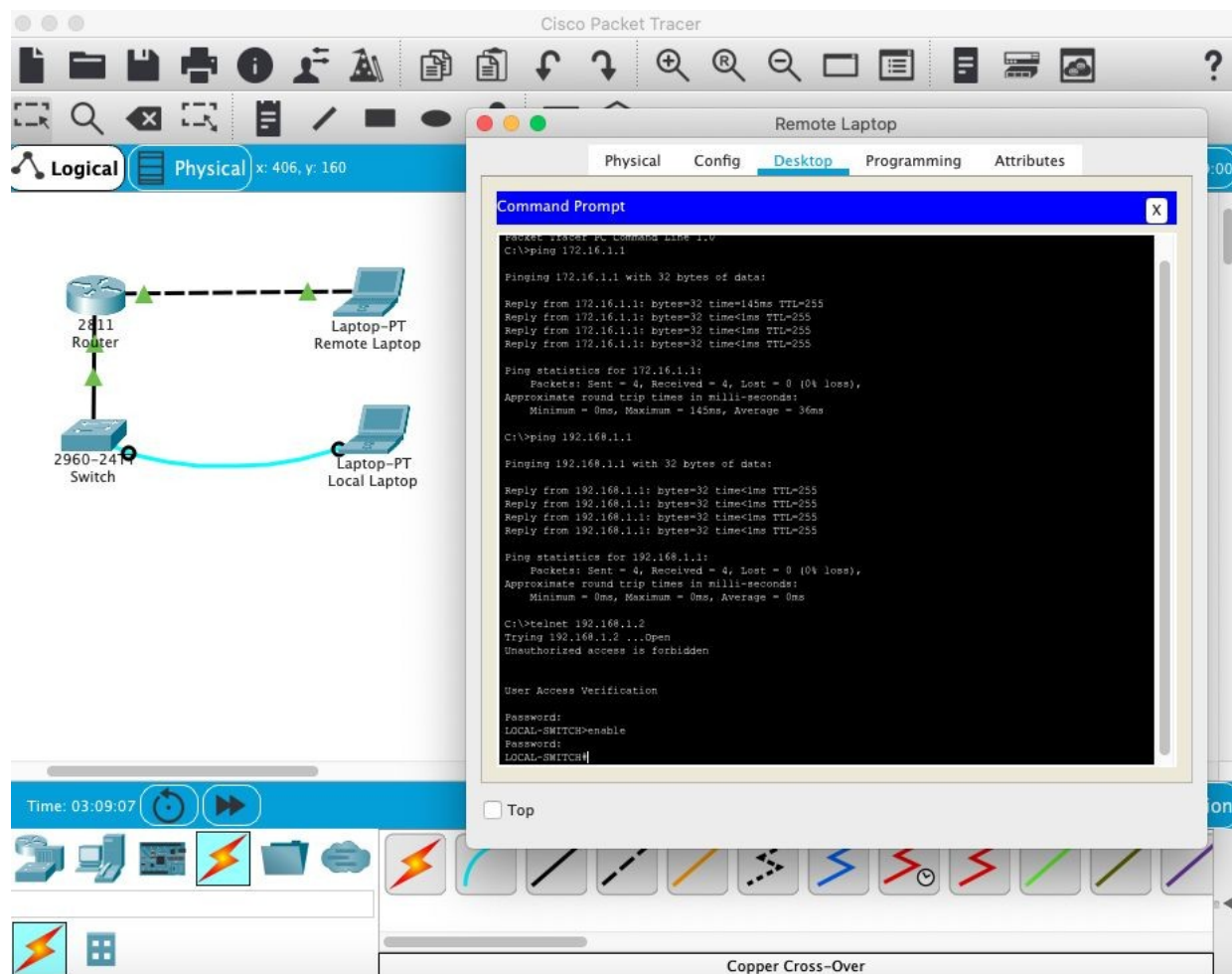
C:\>
```

Top

## Telnet Switch from Remote Laptop



## Enabling switch from Remote Laptop



## Conclusion:

1. In this experiment, I learned about setting up a network with Router and Switch.
2. I learned to configure Switch using the console. I understood how to configure the terminal.
3. I configured telnet for switch and checked its connectivity from remote laptop.