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EXPERIMENT 4

Lab 4: Prototyping a Network

Objective:

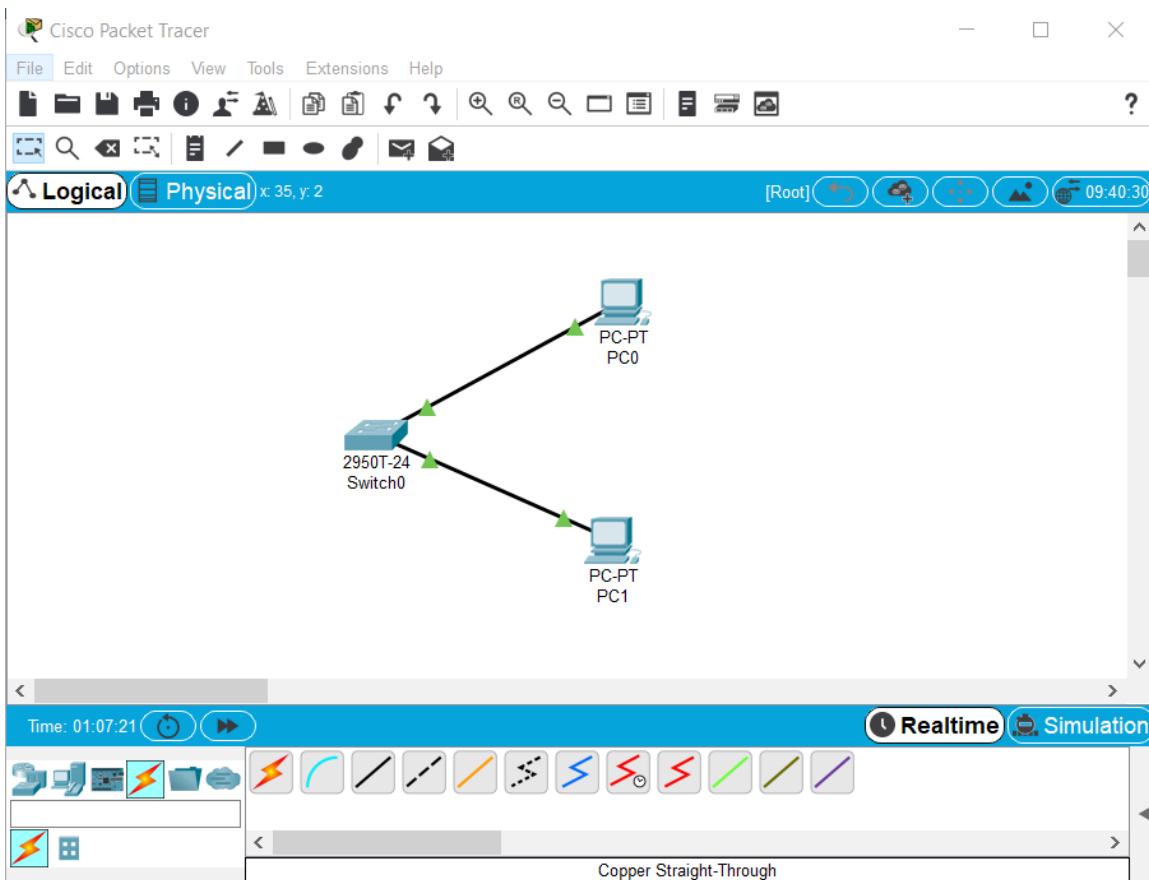
Prototype a network using Packet Tracer

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:

- a. IP address: 192.168.10.10
- b. Subnet Mask 255.255.255.0

The screenshot shows the PC0 configuration window with the 'Config' tab selected. The left sidebar contains a tree view with 'GLOBAL' (Settings, Algorithm Settings) and 'INTERFACE' (FastEthernet0, Bluetooth) sections. The main area displays the configuration for 'FastEthernet0'. The 'Port Status' is 'On'. 'Bandwidth' is set to '100 Mbps' and 'Duplex' is 'Full Duplex', both with 'Auto' checkboxes. The 'MAC Address' is '0060.2FE9.35D8'. Under 'IP Configuration', 'Static' is selected, with 'IP Address' set to '192.168.10.10' and 'Subnet Mask' set to '255.255.255.0'. Under 'IPv6 Configuration', 'Static' is selected, with 'IPv6 Address' left empty and 'Link Local Address' set to 'FE80::260:2FFF:FEE9:35D8'. A 'Top' button is at the bottom left.

FastEthernet0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	0060.2FE9.35D8
IP Configuration	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
IP Address	192.168.10.10
Subnet Mask	255.255.255.0
IPv6 Configuration	
<input type="radio"/> DHCP	
<input type="radio"/> Auto Config	
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::260:2FFF:FEE9:35D8

d) Configure PC1 using the **Config** tab in the PC1 configuration window

- a. IP address: 192.168.10.11
- b. Subnet Mask 255.255.255.0

The image shows a PC1 configuration window with a blue title bar and standard window controls. The 'Config' tab is selected, showing a sidebar with 'GLOBAL' and 'INTERFACE' sections. Under 'INTERFACE', 'FastEthernet0' is selected. The main area displays settings for 'FastEthernet0', including Port Status (On), Bandwidth (100 Mbps), Duplex (Full Duplex), and MAC Address (0090.21C5.2027). The IP Configuration section has 'Static' selected, with IP Address set to 192.168.10.11 and Subnet Mask set to 255.255.255.0. The IPv6 Configuration section has 'Static' selected, with an empty IPv6 Address field and a Link Local Address of FE80::290:21FF:FEC5:2027. A 'Top' button is at the bottom left.

PC1

Physical **Config** Desktop Programming Attributes

GLOBAL

- Settings
- Algorithm Settings

INTERFACE

- FastEthernet0**
- Bluetooth

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.21C5.2027

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.10.11

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

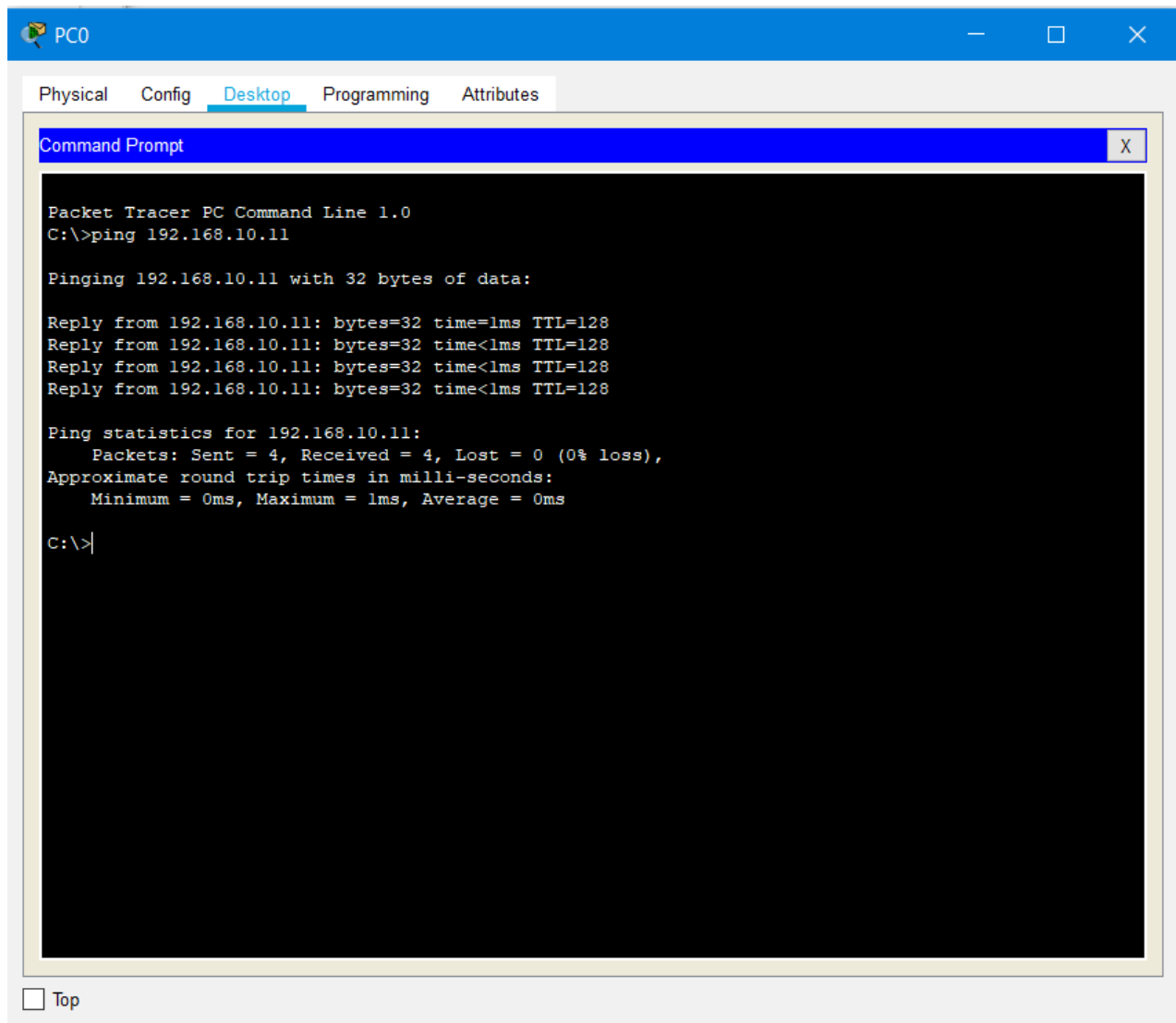
Link Local Address: FE80::290:21FF:FEC5:2027

☐ Top

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:



The screenshot shows the Packet Tracer interface for PC0. The 'Desktop' tab is selected, and the 'Command Prompt' application is open. The command prompt displays the output of the 'ping 192.168.10.11' command, which is successful. The output shows four replies from 192.168.10.11 with 32 bytes of data, a time of 1ms, and a TTL of 128. The ping statistics show 4 packets sent, 4 received, and 0% loss.

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.11

Pinging 192.168.10.11 with 32 bytes of data:

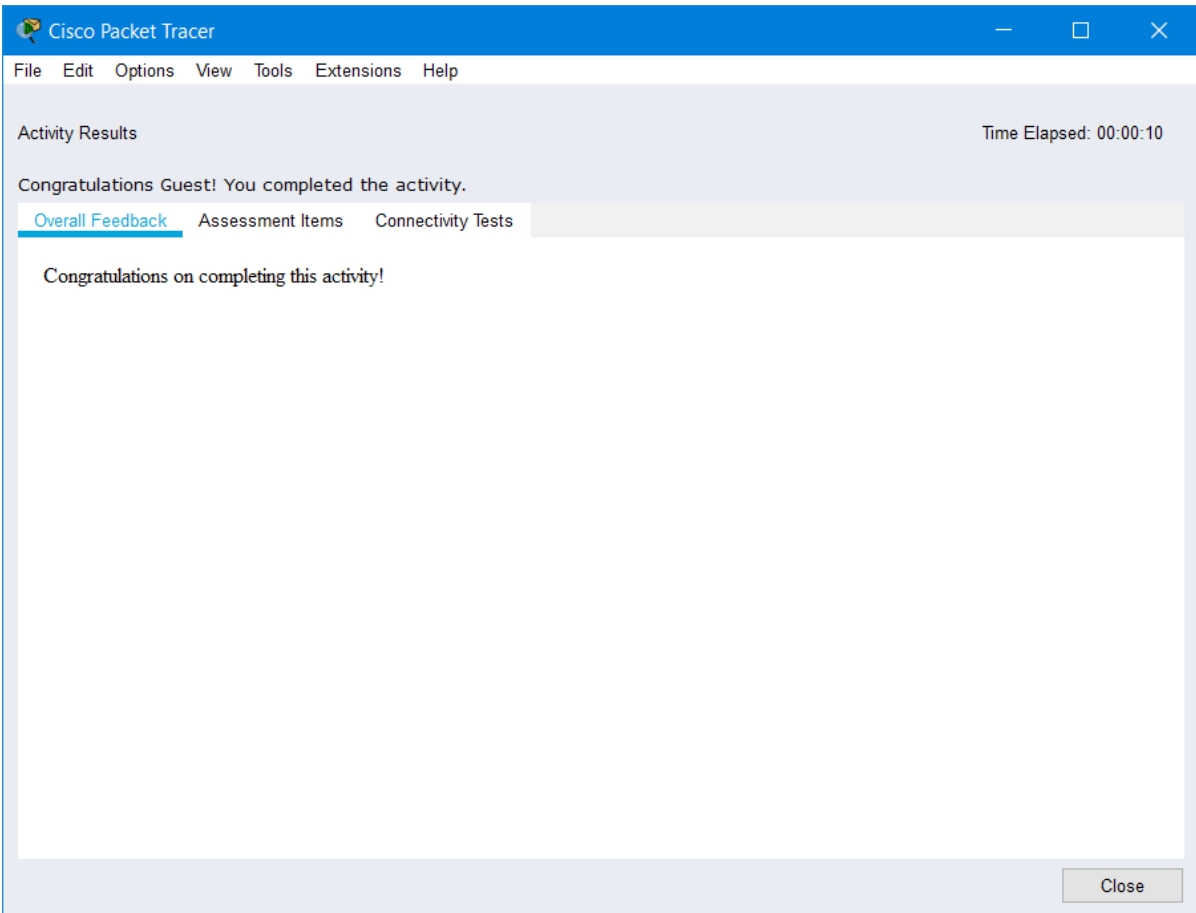
Reply from 192.168.10.11: bytes=32 time=1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128
Reply from 192.168.10.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.10.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>|
```

☐ Top

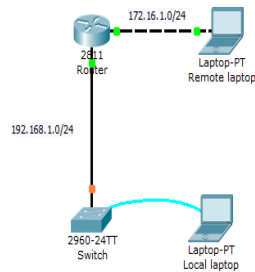
- c) Close the configuration window.
- d) Click the **Check Results** button at the bottom of the instruction window to check your work..



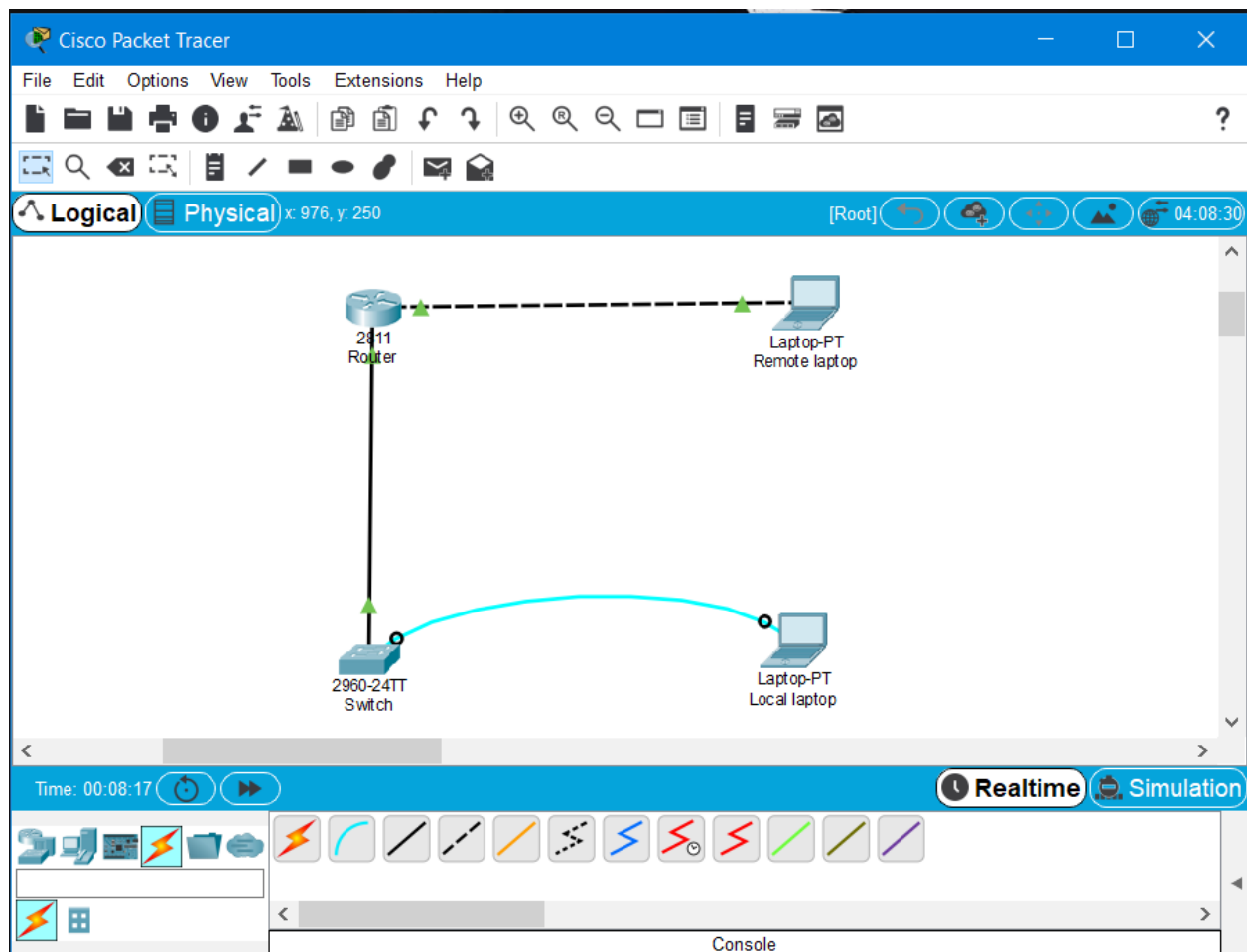
Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

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.



Remote laptop

Physical

Config

Desktop

Programming

Attributes

IP Configuration

InterfaceFastEthernet0

IP Configuration

DHCP

Static

IP Address

172.16.1.1

Subnet Mask

255.255.0.0

Default Gateway

172.16.1.0

DNS Server

0.0.0.0

IPv6 Configuration

DHCP

Auto Config

Static

IPv6 Address

/

Link Local Address

FE80::204:9AFF:FEC1:41D5

IPv6 Gateway

IPv6 DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

Top

Router

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings

ROUTING

- Static
- RIP

SWITCHING

- VLAN Database

INTERFACE

- FastEthernet0/0
- FastEthernet0/1

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0040.0B97.8B01

IP Configuration

IP Address 172.16.1.0

Subnet Mask 255.255.0.0

Tx Ring Limit 10

Equivalent IOS Commands

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

Router

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings

ROUTING

- Static
- RIP

SWITCHING

- VLAN Database

INTERFACE

- FastEthernet0/0
- FastEthernet0/1

FastEthernet0/1

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0040.0B97.8B02

IP Configuration

IP Address 192.168.1.1

Subnet Mask 255.255.255.0

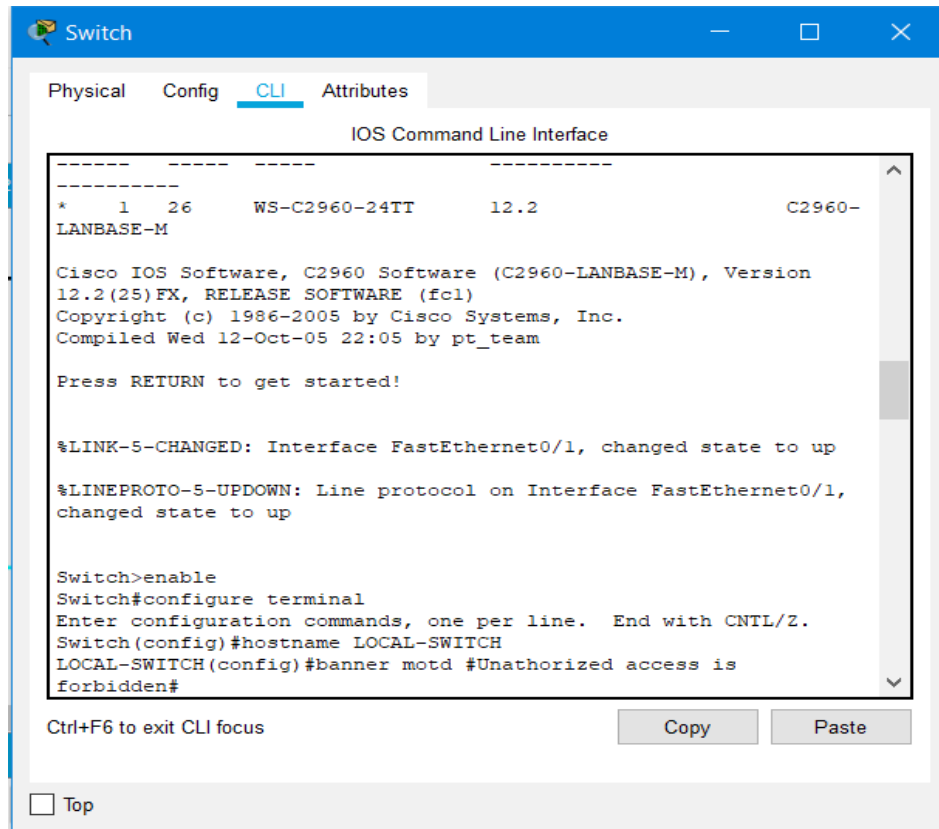
Tx Ring Limit 10

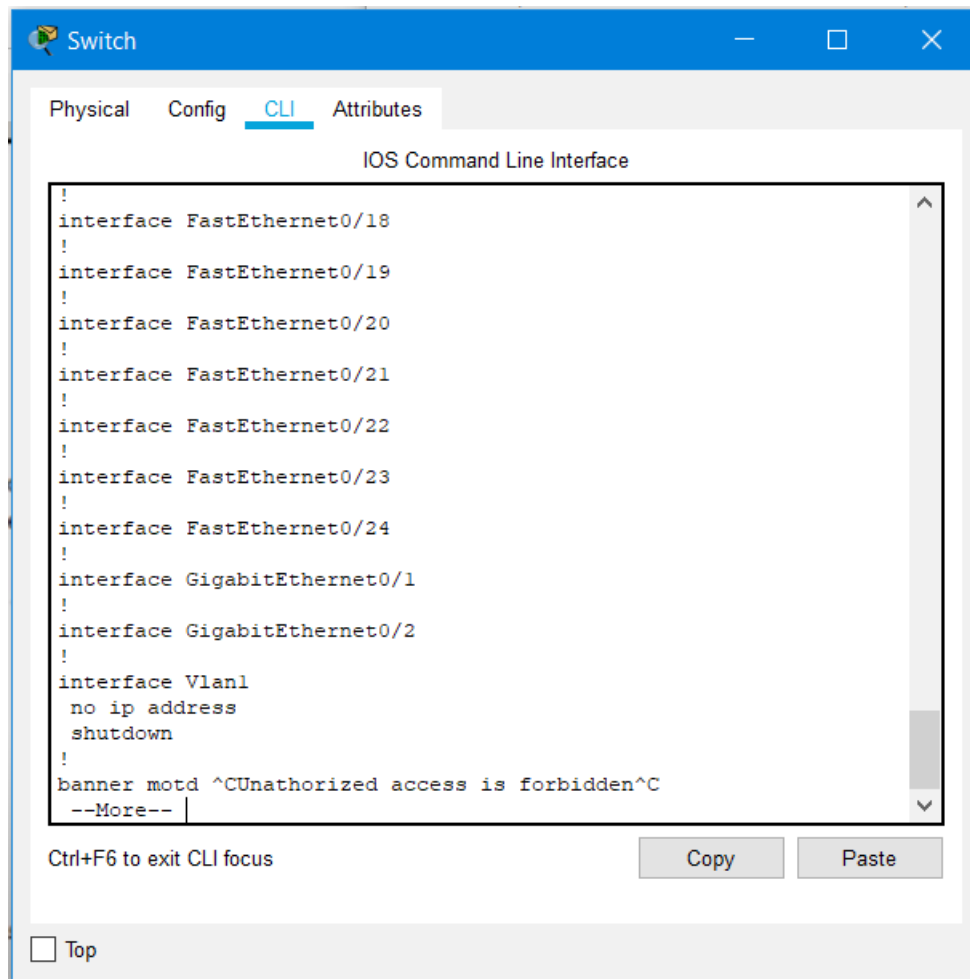
Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

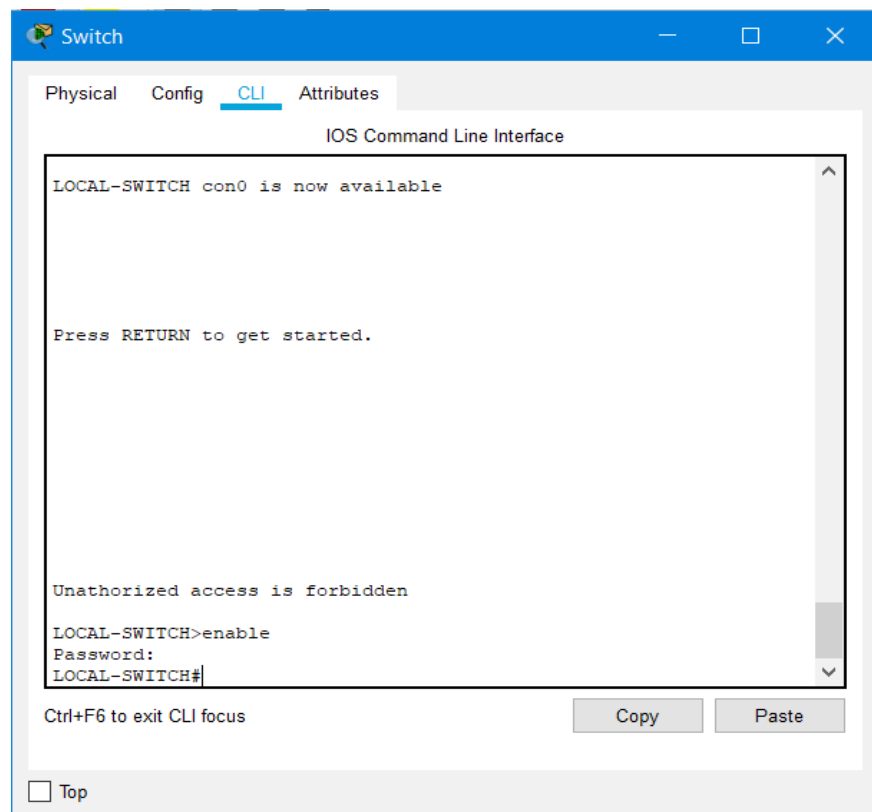
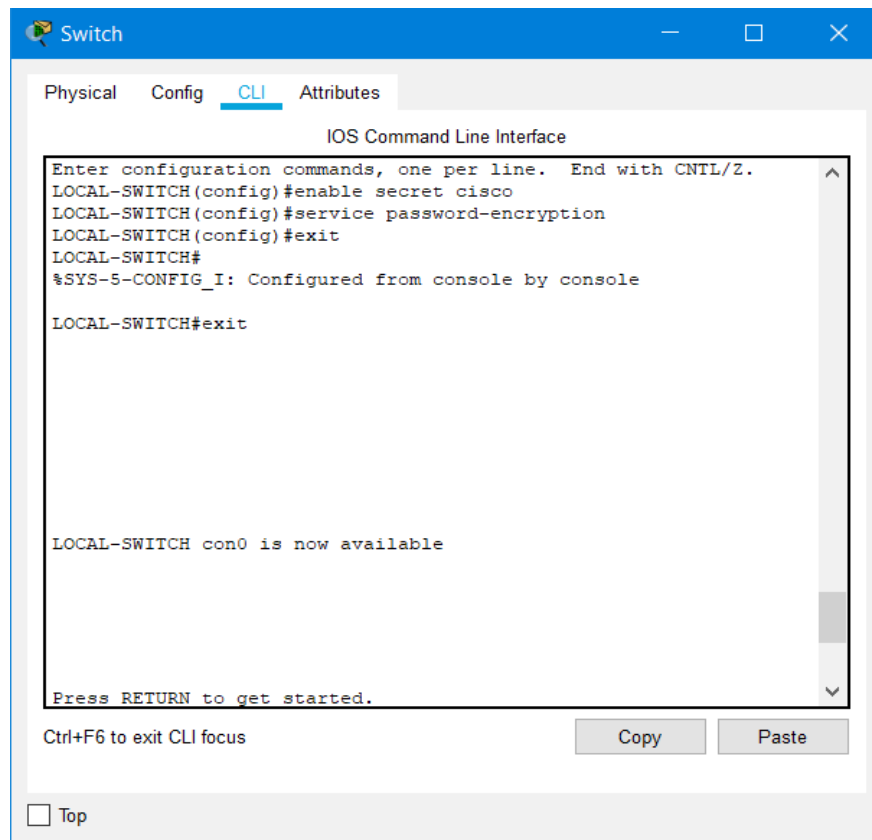
☐ Top

2. Configure Switch hostname as LOCAL-SWITCH
3. Configure the message of the day as "Unauthorized access is forbidden"



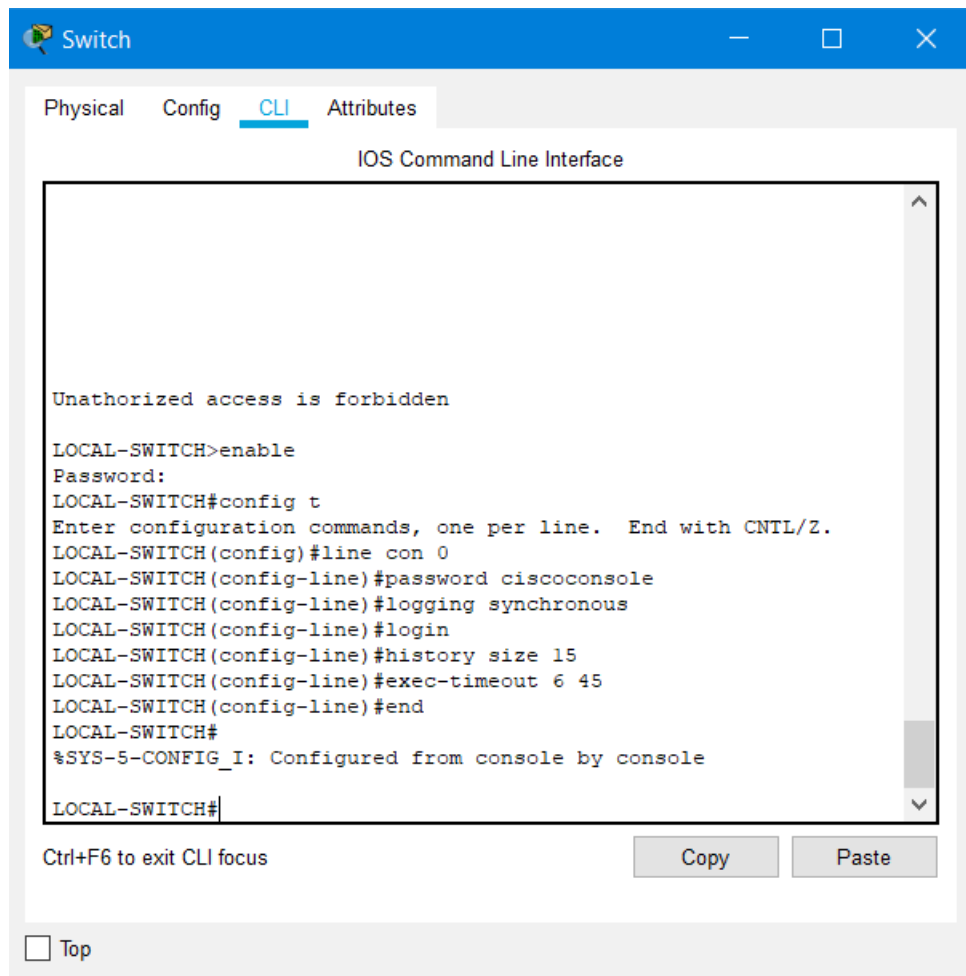


4. Configure the password for privileged mode access as "cisco". The password must be md5 encrypted
5. Configure password encryption on the switch using the global configuration command.



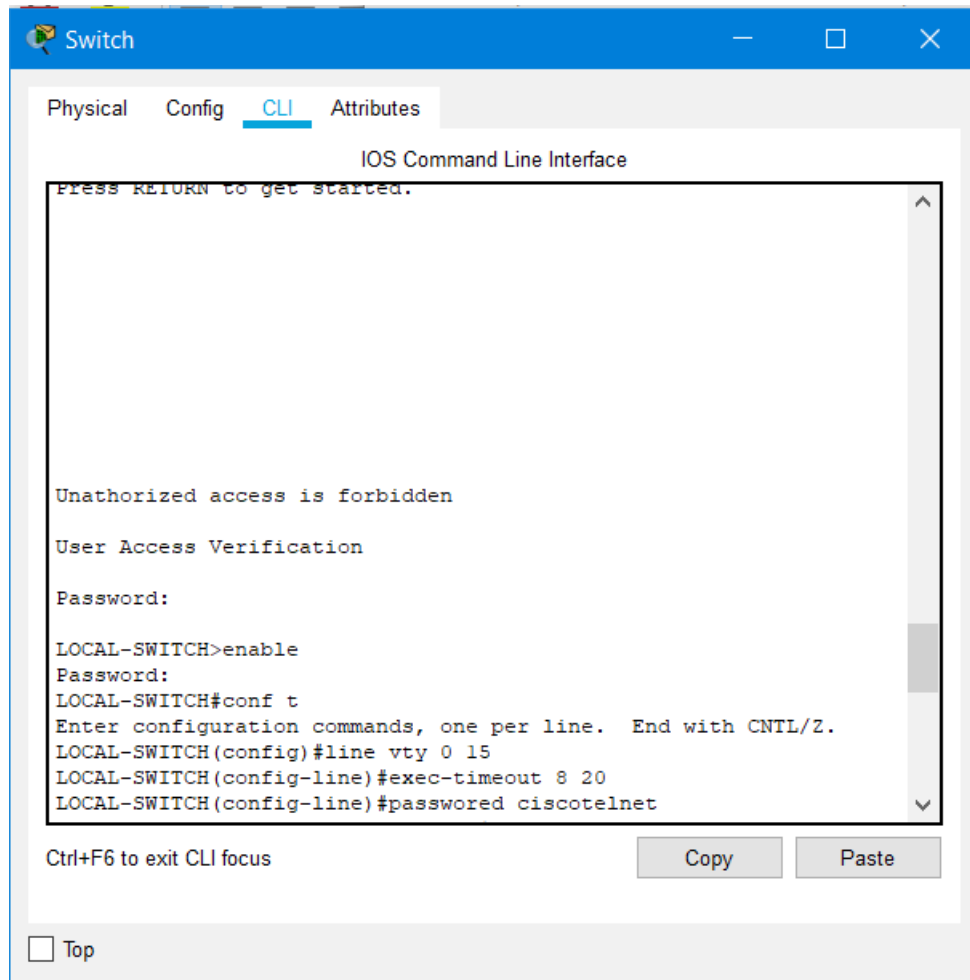
6. Configure CONSOLE access with the following settings :

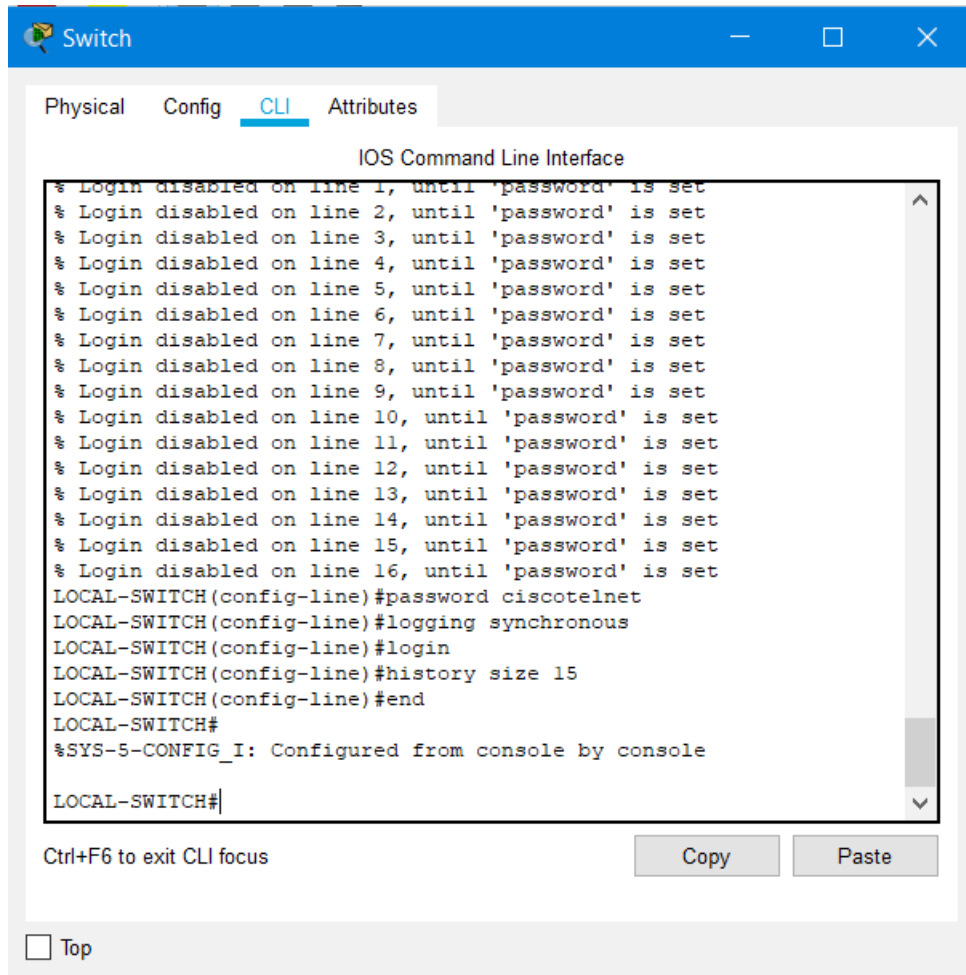
- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 6'45"
- Synchronous logging



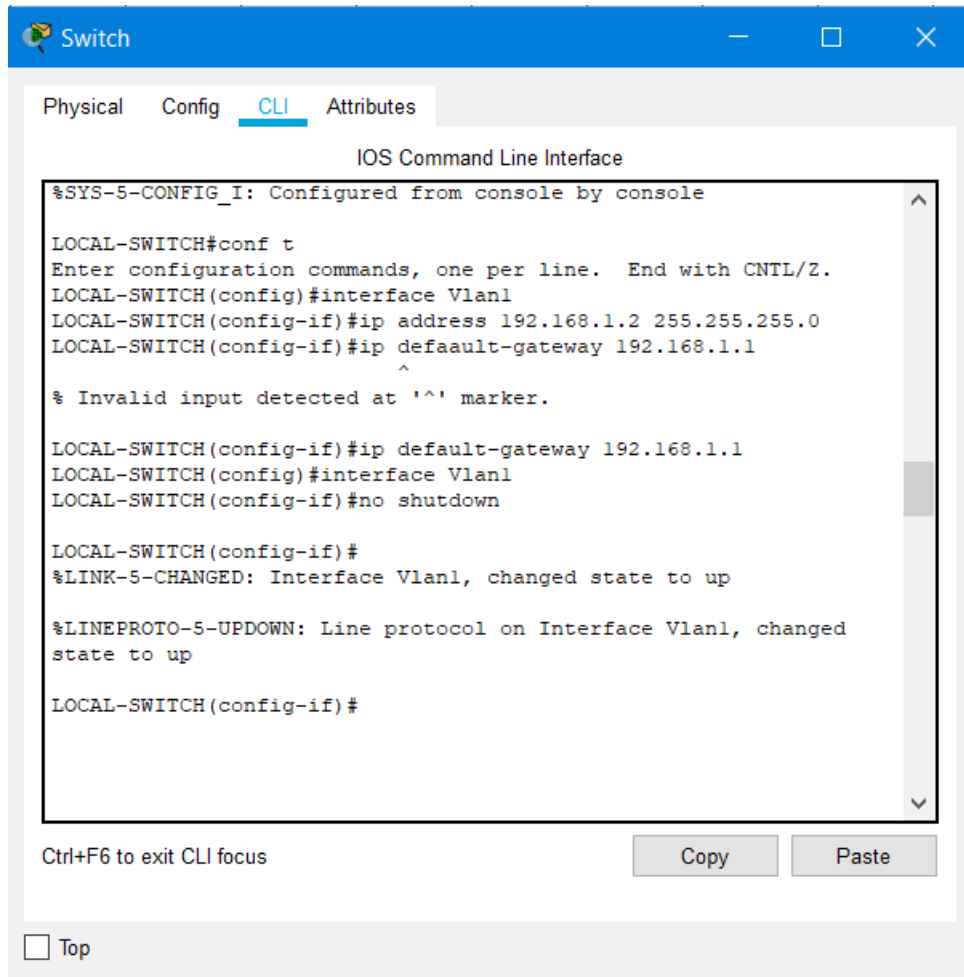
7. Configure TELNET access with the following settings :

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

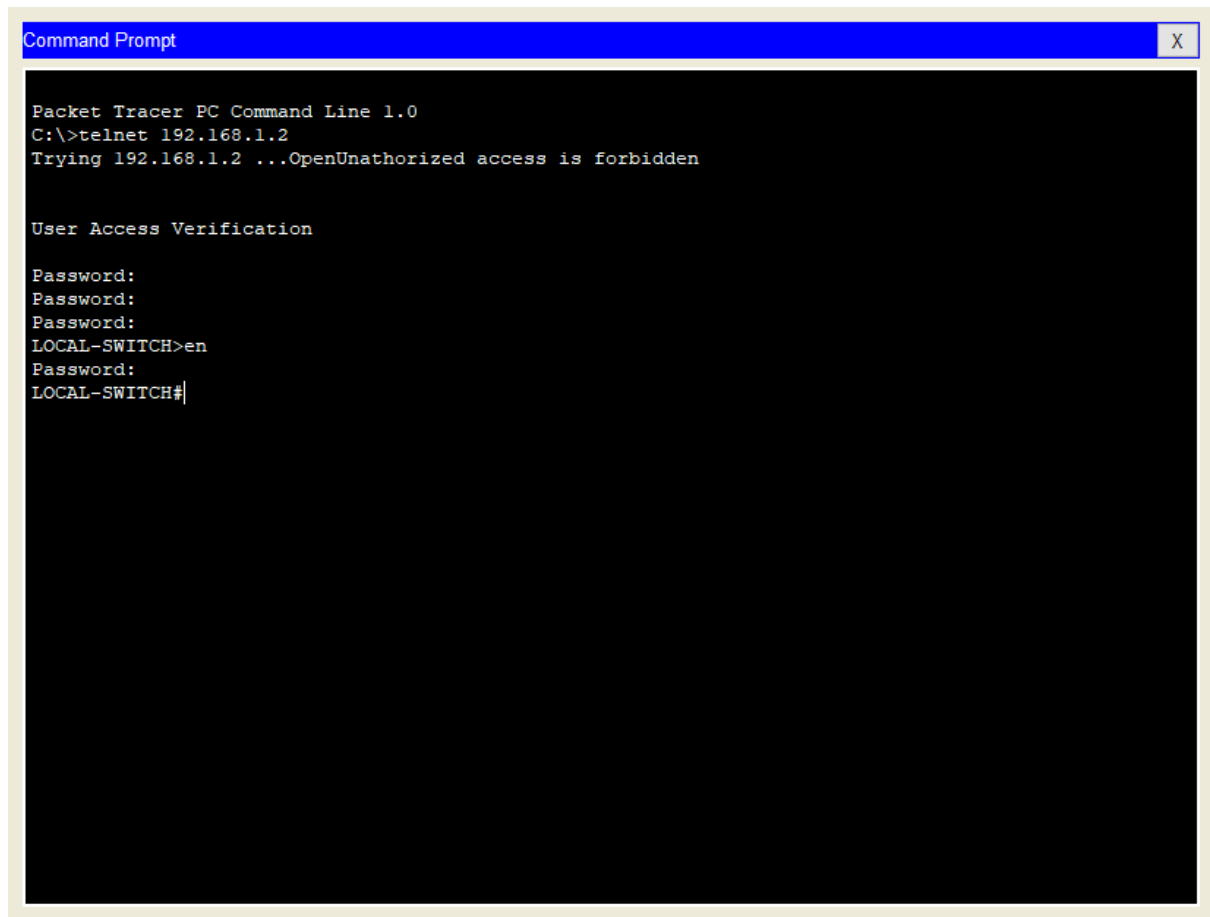




7. Configure the IP address of the switch as 192.168.1.2/24 and its default gateway IP (192.168.1.1).



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



```
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>telnet 192.168.1.2
Trying 192.168.1.2 ...OpenUnauthorized access is forbidden

User Access Verification

Password:
Password:
Password:
LOCAL-SWITCH>en
Password:
LOCAL-SWITCH#
```