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CEL 51, DCCN, Monsoon 2020

Lab 4: Prototyping a Network

Objective:

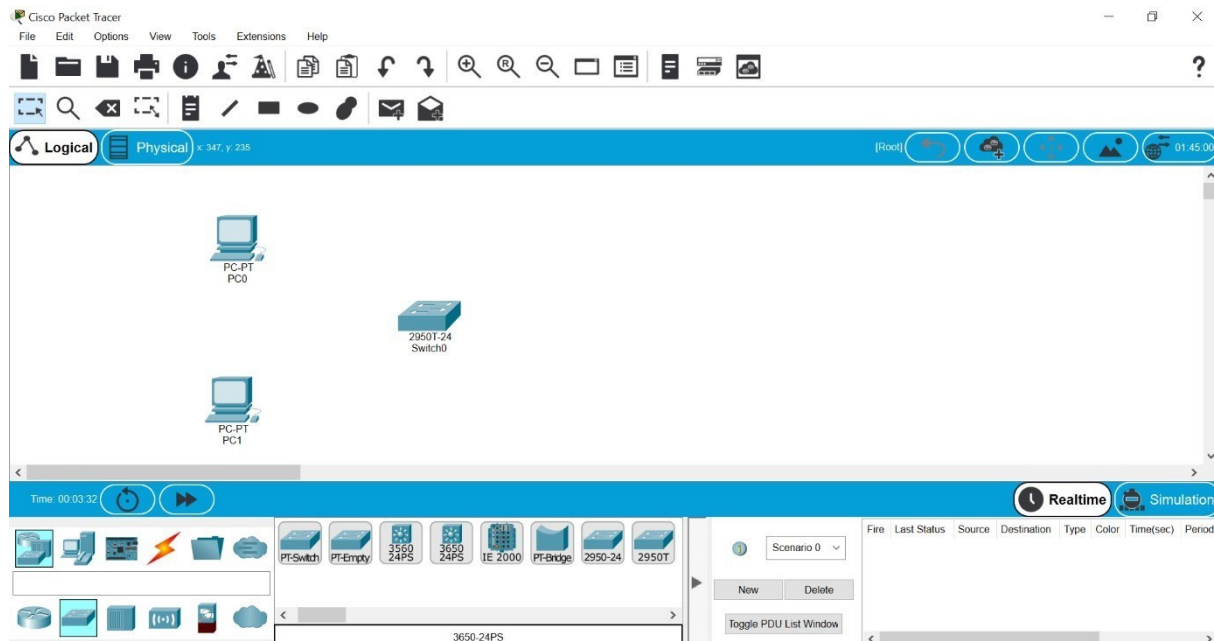
Prototype a network using Packet Tracer

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.

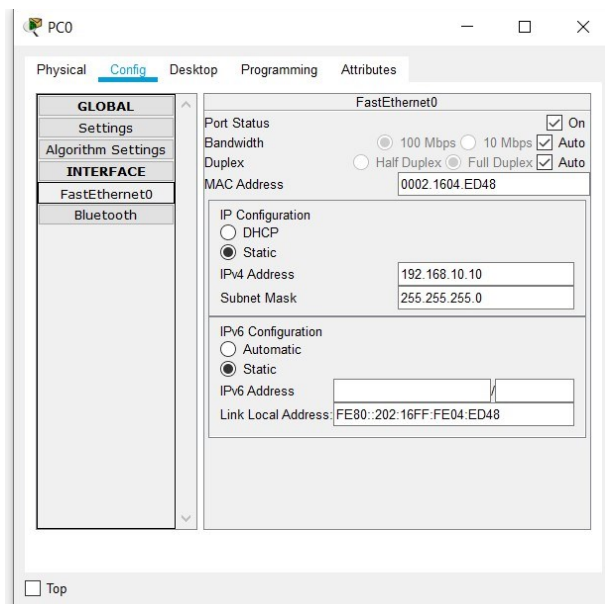
Step 1: Set up the network topology

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

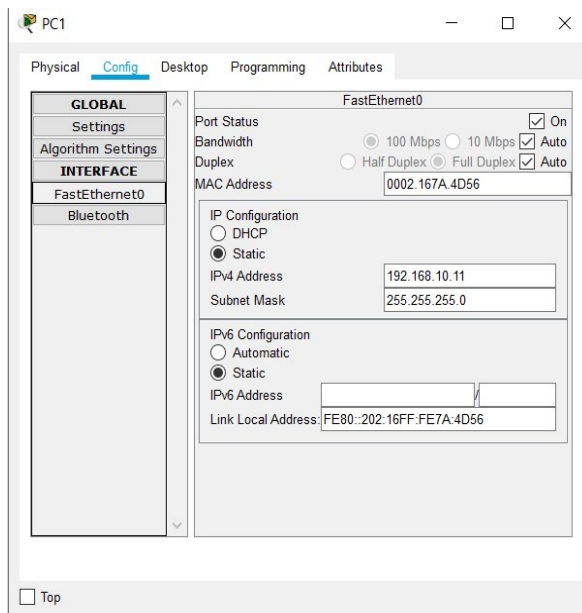


-
- The screenshot displays the Cisco Packet Tracer application window. At the top, there is a menu bar with options: File, Edit, Options, View, Tools, Extensions, and Help. Below the menu bar is a toolbar containing icons for file operations (save, open, print), navigation (home, back, forward), and simulation controls (start, stop, reset). The main workspace shows a network topology with two PCs, PC-PT PC0 and PC-PT PC1, connected to a central switch labeled 2950T-24 SwitchC0. The interface includes a top status bar with tabs for Logical and Physical views, and a bottom toolbar with various simulation and configuration tools. The bottom status bar shows the time as 02:39:18 and the simulation mode as Realtime.

- IP address: 192.168.10.10
- Subnet Mask 255.255.255.0

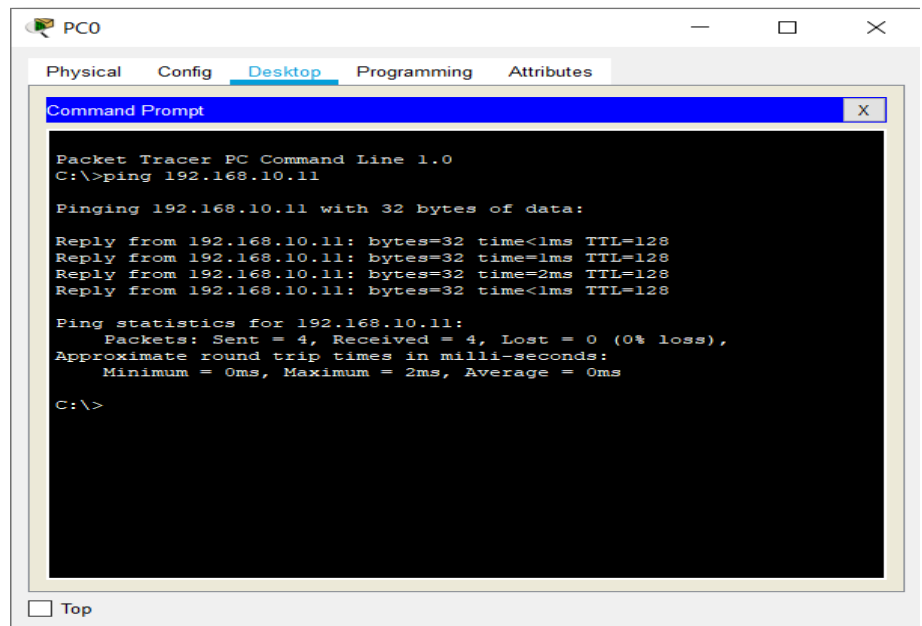


- IP address: 192.168.10.11
- Subnet Mask 255.255.255.0

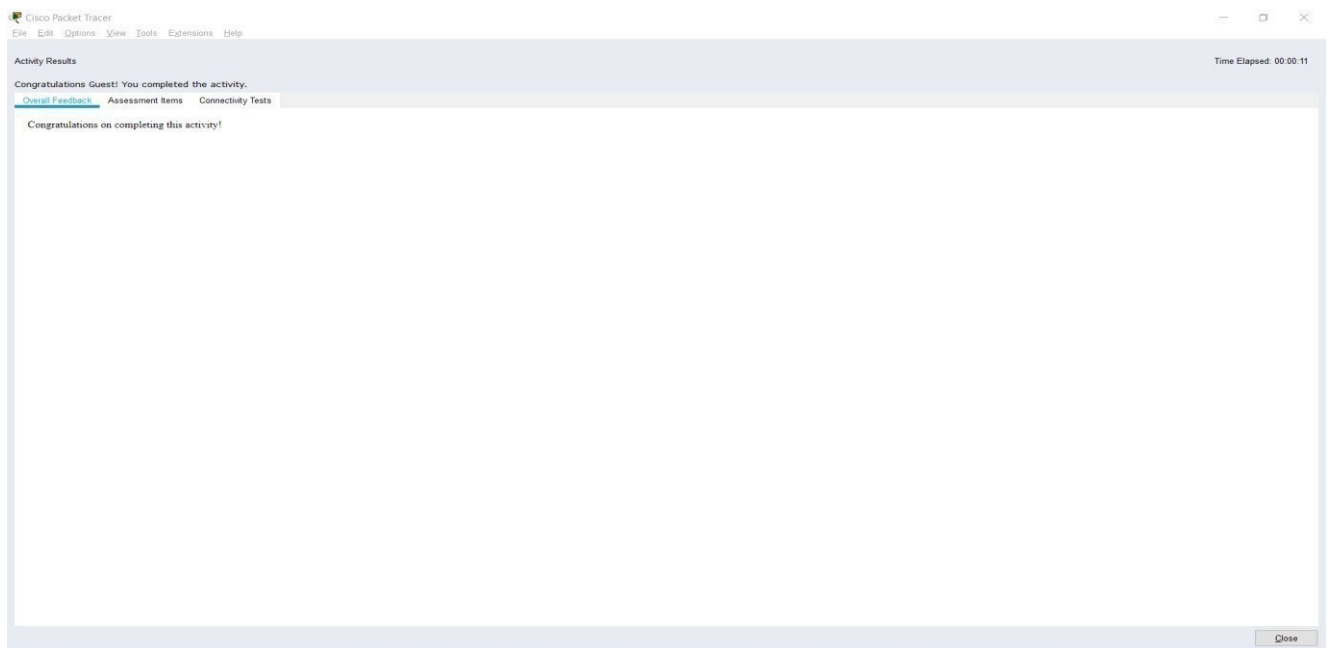


Step 2: Test connectivity from PC0 to PC1

- 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.

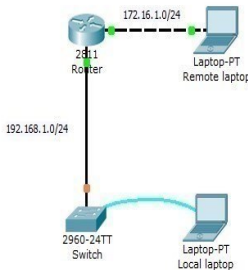


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Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

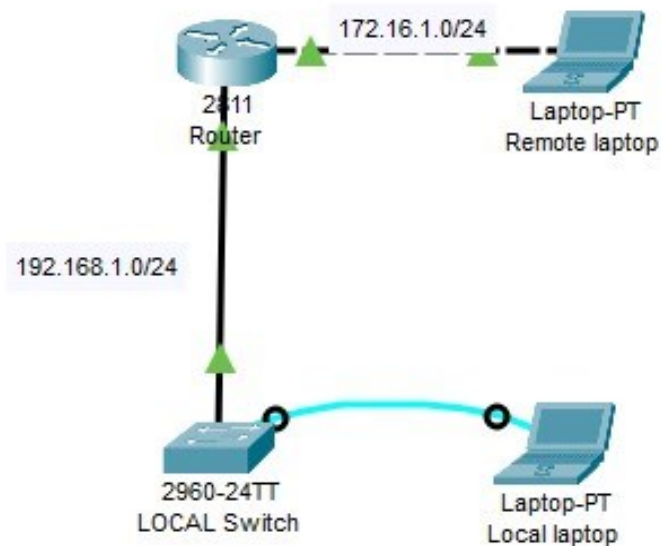
Objective:

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.



Empty working space

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



2. Configure Switch hostname as LOCAL-SWITCH

Local Laptop

Physical Config Desktop Programming Attributes

Terminal

```
Model revision number       : B0
Motherboard revision number : C0
Model number                : WS-C2960-24TT
System serial number        : FOC103321EY
Top Assembly Part Number    : S00-26671-02
Top Assembly Revision Number : B0
Version ID                  : V02
CLEI Code Number            : COM3K00BRA
Hardware Board Revision Number : 0x01

Switch  Ports  Model      SW Version      SW Image
-----  -
* 1      24      WS-C2960-24TT    12.2             C2960-LANBASE-M

Cisco IOS Software, C2960 Software (C2960-LANBASE-M), Version 12.2(25)FX, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 12-Oct-05 22:05 by p5_team

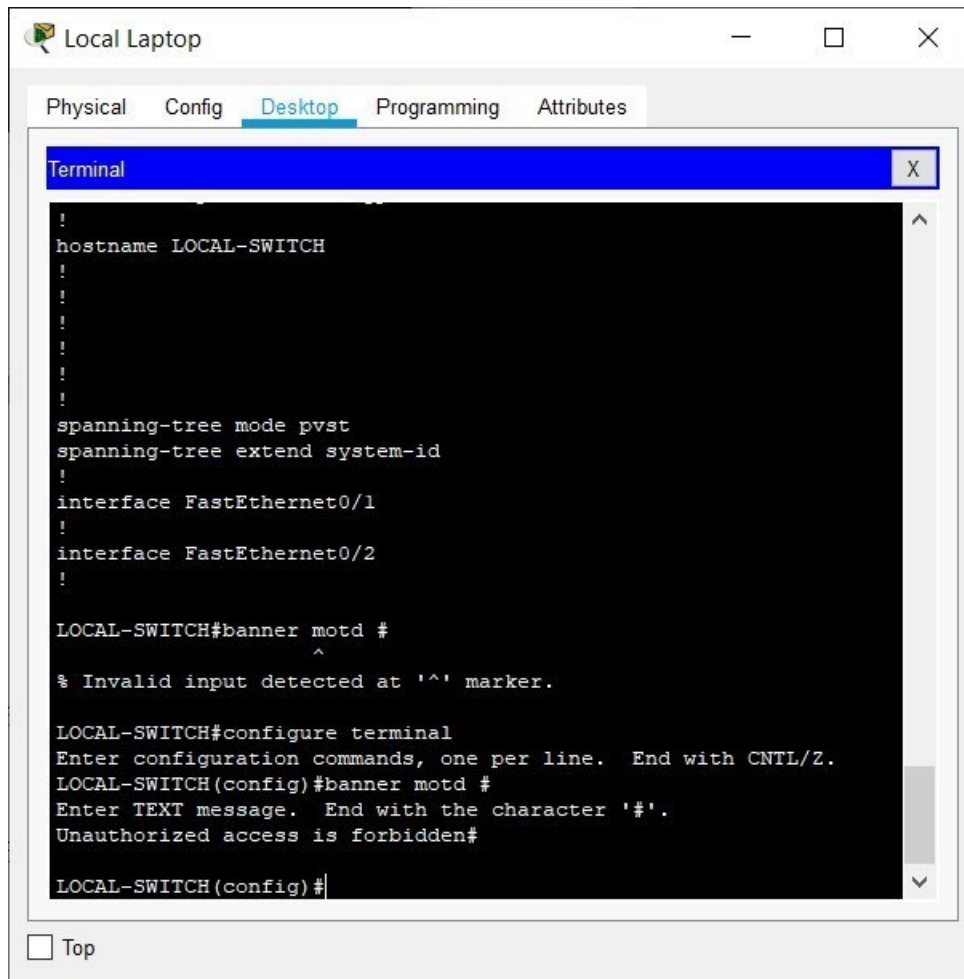
Press RETURN to get started!

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname LOCAL-SWITCH
LOCAL-SWITCH(config)#^Z
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console
show running-config
Building configuration...

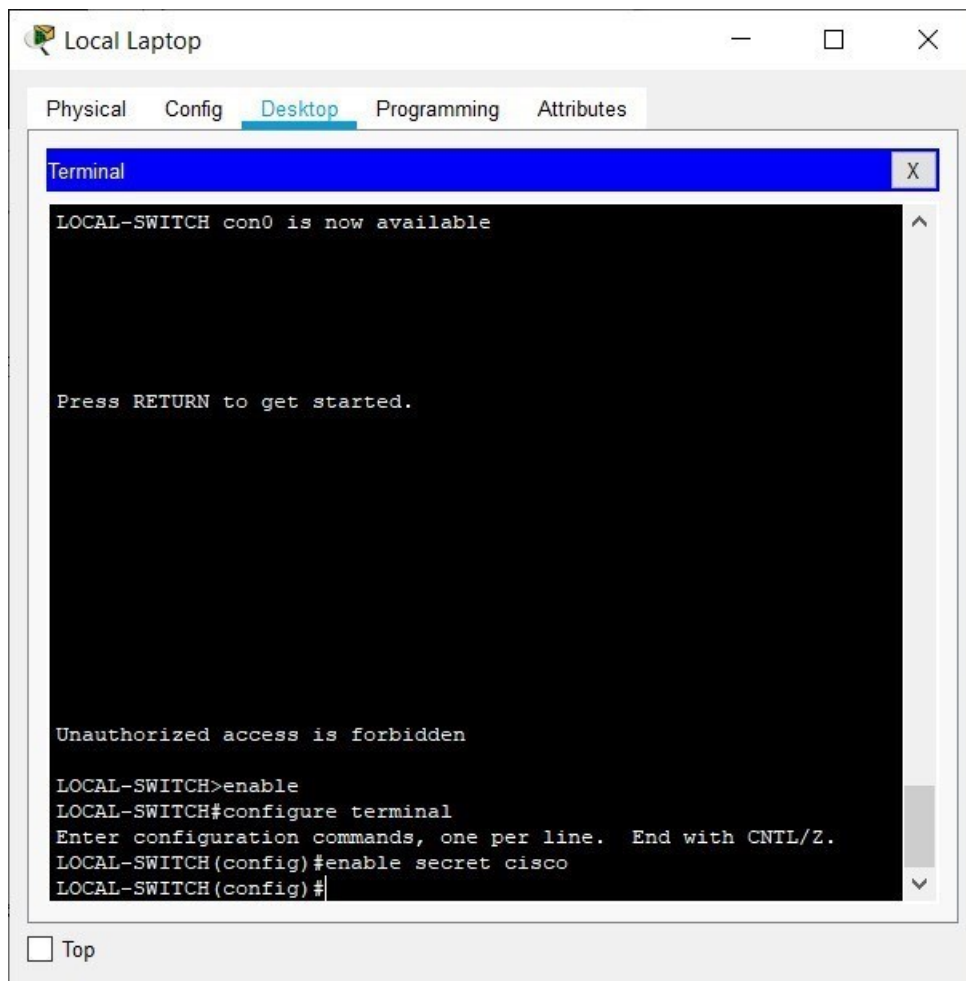
Current configuration : 1086 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname LOCAL-SWITCH
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
--More--
```

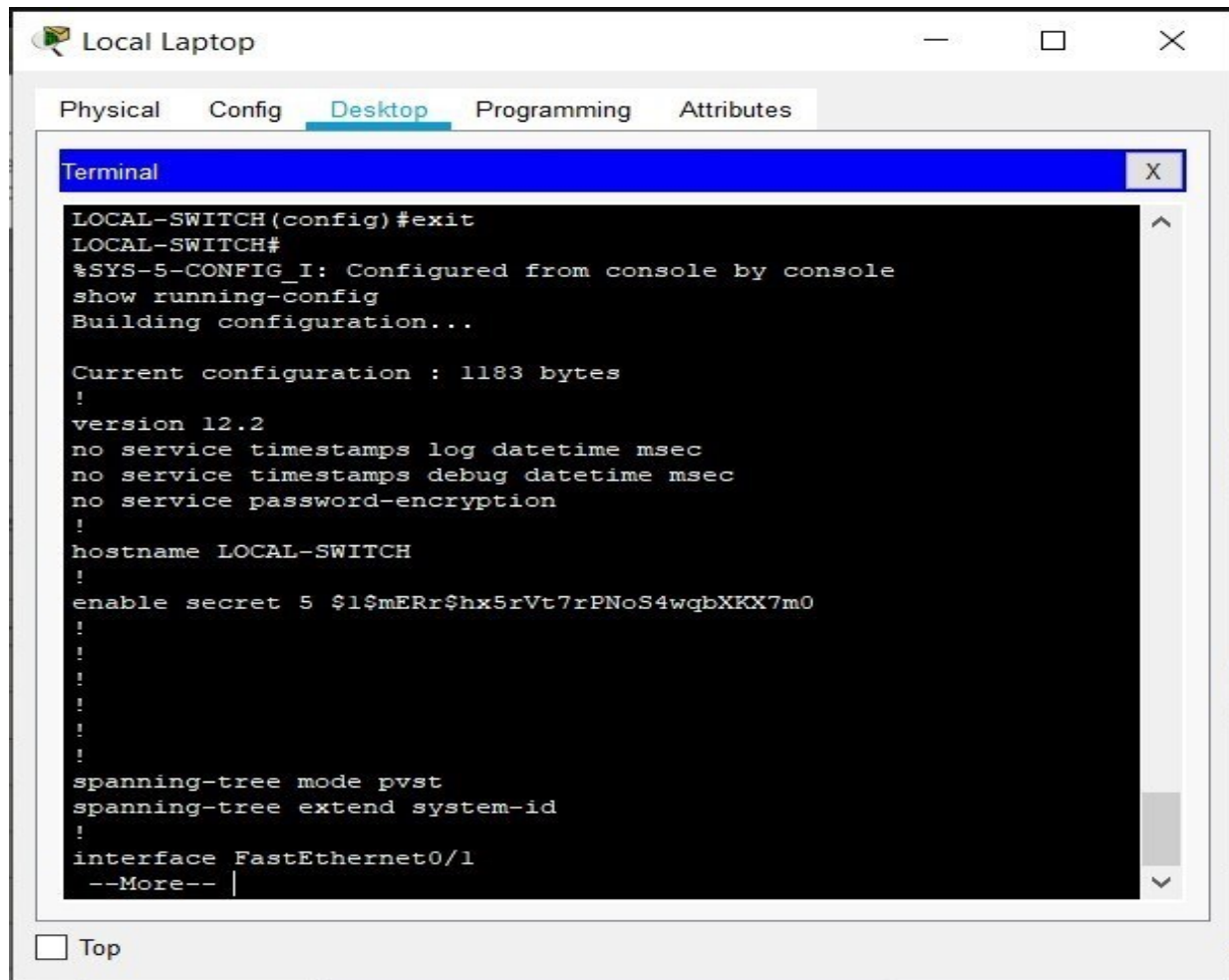
☐ Top

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





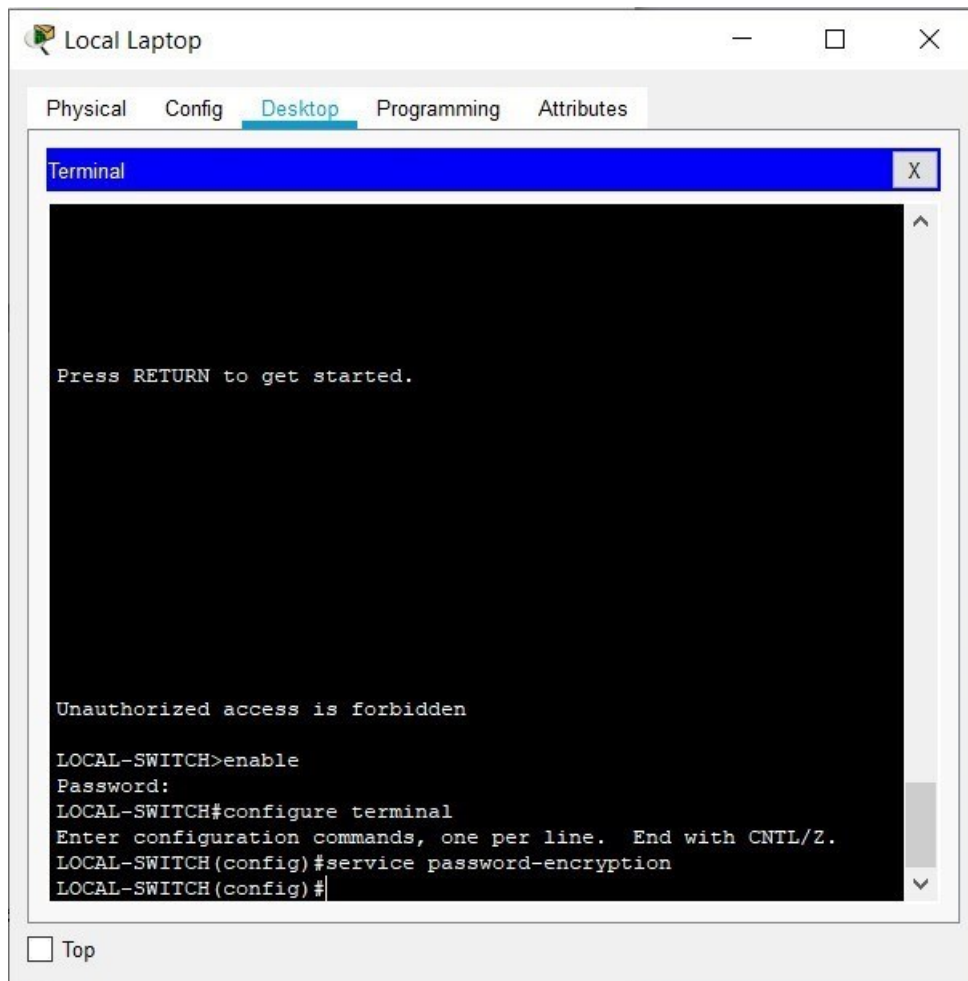
The screenshot shows a window titled "Local Laptop" with four tabs: "Physical", "Config", "Desktop" (which is selected), and "Programming". Inside the "Desktop" tab is a terminal window titled "Terminal". The terminal displays the following text:

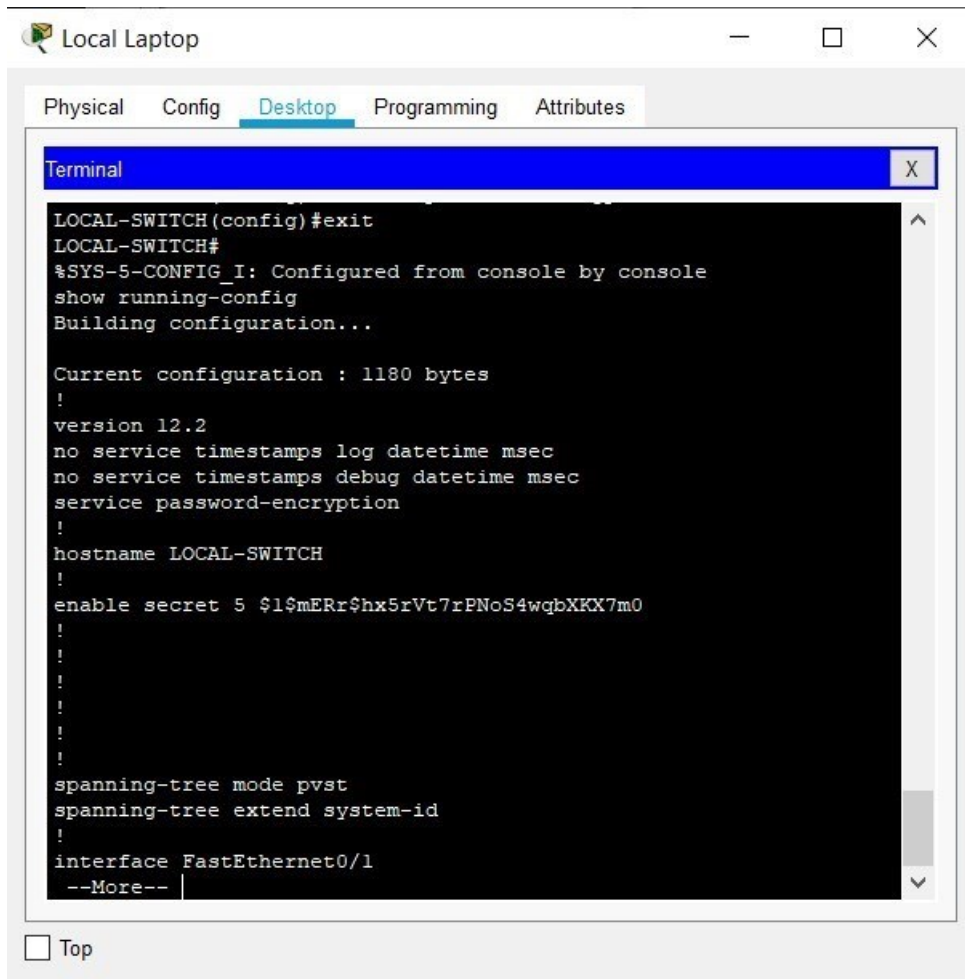
```
LOCAL-SWITCH(config)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console
show running-config
Building configuration...

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 $l$mERr$hX5rVt7rPNoS4wqbXKX7m0
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
--More-- |
```

At the bottom of the "Local Laptop" window, there is a checkbox labeled "Top" which is currently unchecked.

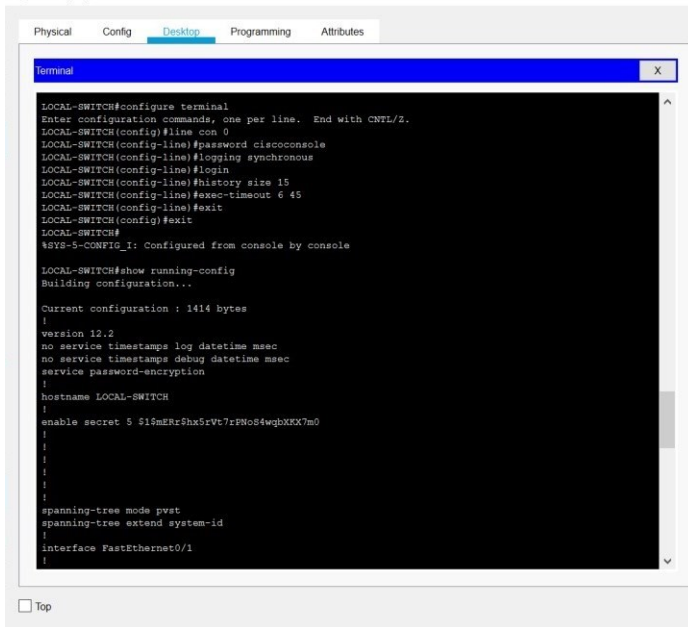
5. Configure password encryption on the switch using the global configuration command





6. Configure CONSOLE access with the following settings:

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



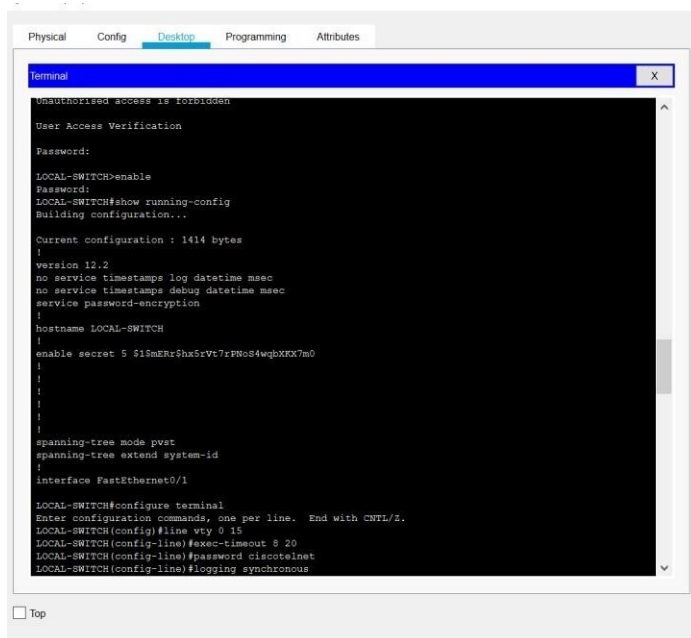
```
Physical Config Desktop Programming Attributes
Terminal
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#line con 0
LOCAL-SWITCH(config-line)#password ciscoconsole
LOCAL-SWITCH(config-line)#logging synchronous
LOCAL-SWITCH(config-line)#login
LOCAL-SWITCH(config-line)#history size 15
LOCAL-SWITCH(config-line)#exec-timeout 6 45
LOCAL-SWITCH(config-line)#exit
LOCAL-SWITCH(config)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

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

Current configuration : 1414 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 $1$mEr$hx5rVt7rPN0s4wqbXKX7m0
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
```

7. Configure TELNET access with the following settings:

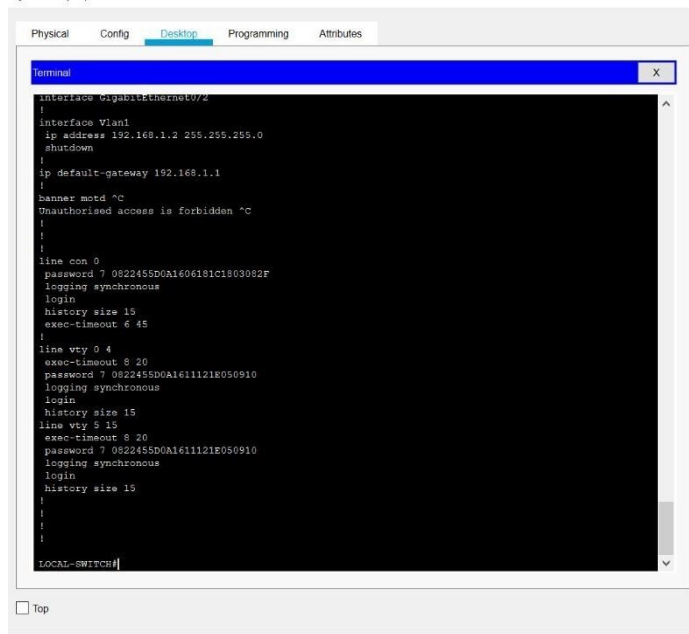
- Login enabled
- Password: whatever you like
- History size: 15 commands
- Timeout: 8'20"
- Synchronous logging



```
Physical Config Desktop Programming Attributes
Terminal
Unauthorised access is forbidden
User Access Verification
Password:
LOCAL-SWITCH#enable
LOCAL-SWITCH#show running-config
Building configuration...

Current configuration : 1414 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 $1$mEr$hx5rVt7rPN0s4wqbXKX7m0
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!

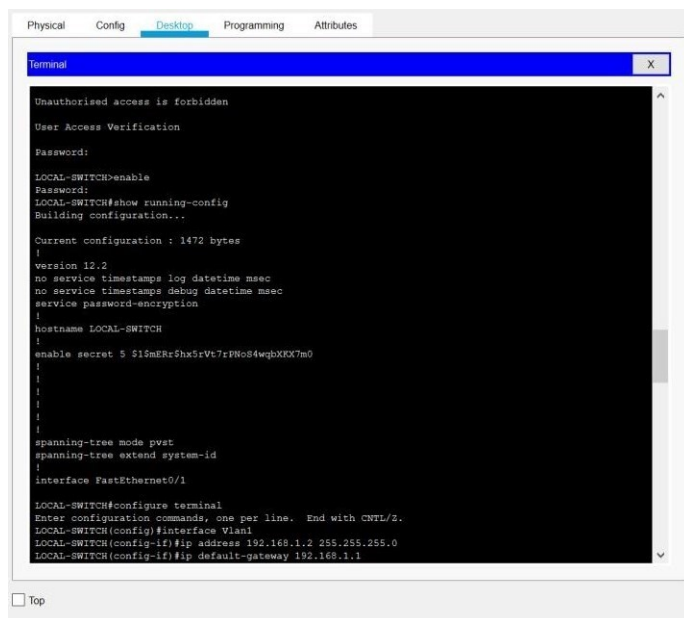
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#line vty 0 15
LOCAL-SWITCH(config-line)#exec-timeout 8 20
LOCAL-SWITCH(config-line)#password ciscotelnet
LOCAL-SWITCH(config-line)#logging synchronous
```



The screenshot shows a terminal window with the following configuration commands:

```
interface GigabitEthernet0/2
!
interface Vlan1
ip address 192.168.1.2 255.255.255.0
shutdown
!
ip default-gateway 192.168.1.1
!
banner motd ^C
Unauthorized access is forbidden ^C
!
!
line con 0
password 7 082245SD0A1606181C1803082F
logging synchronous
login
history size 15
exec-timeout 6 45
!
line vty 0 4
exec-timeout 8 20
password 7 082245SD0A1611121E050910
logging synchronous
login
history size 15
line vty 5 15
exec-timeout 8 20
password 7 082245SD0A1611121E050910
logging synchronous
login
history size 15
!
!
!
!
LOCAL-SWITCH#
```

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



The screenshot shows a terminal window displaying the running configuration of a switch:

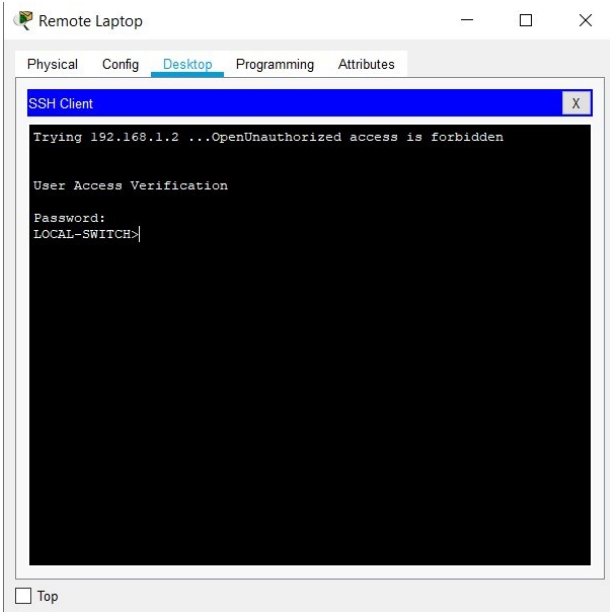
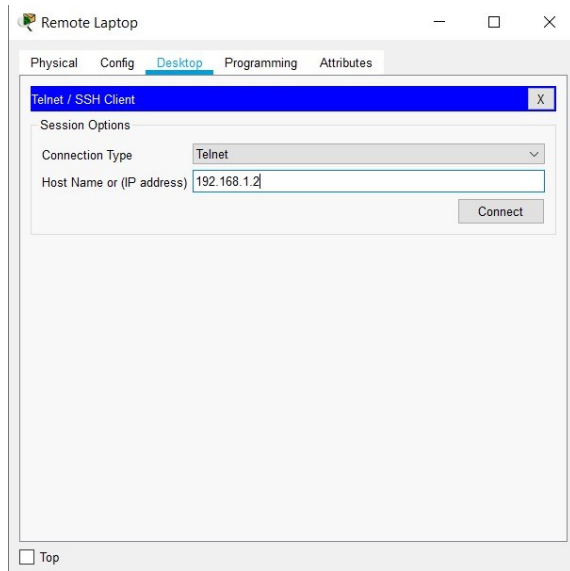
```
Unauthorized access is forbidden

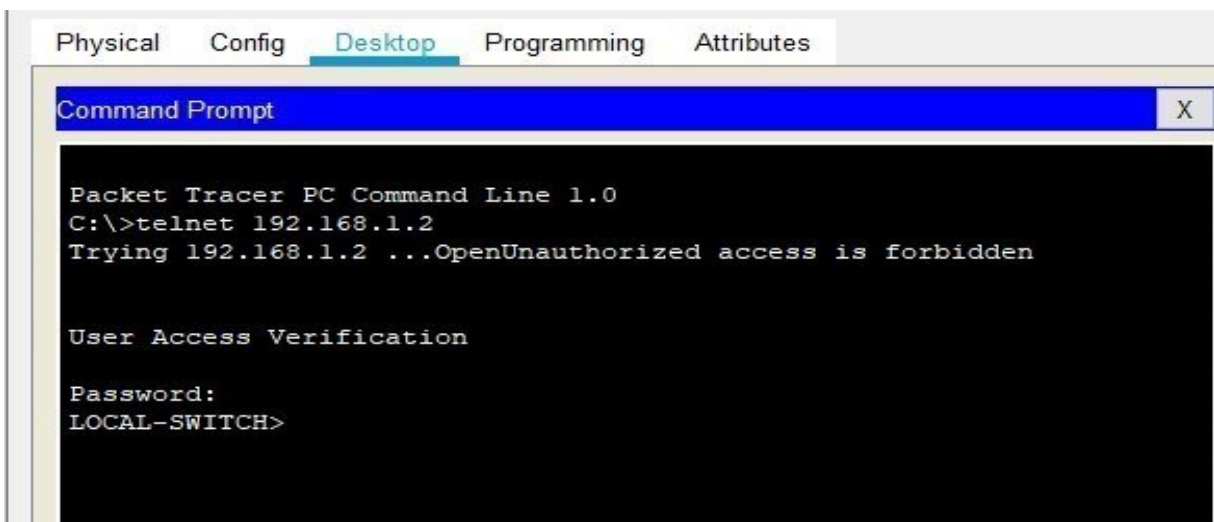
User Access Verification

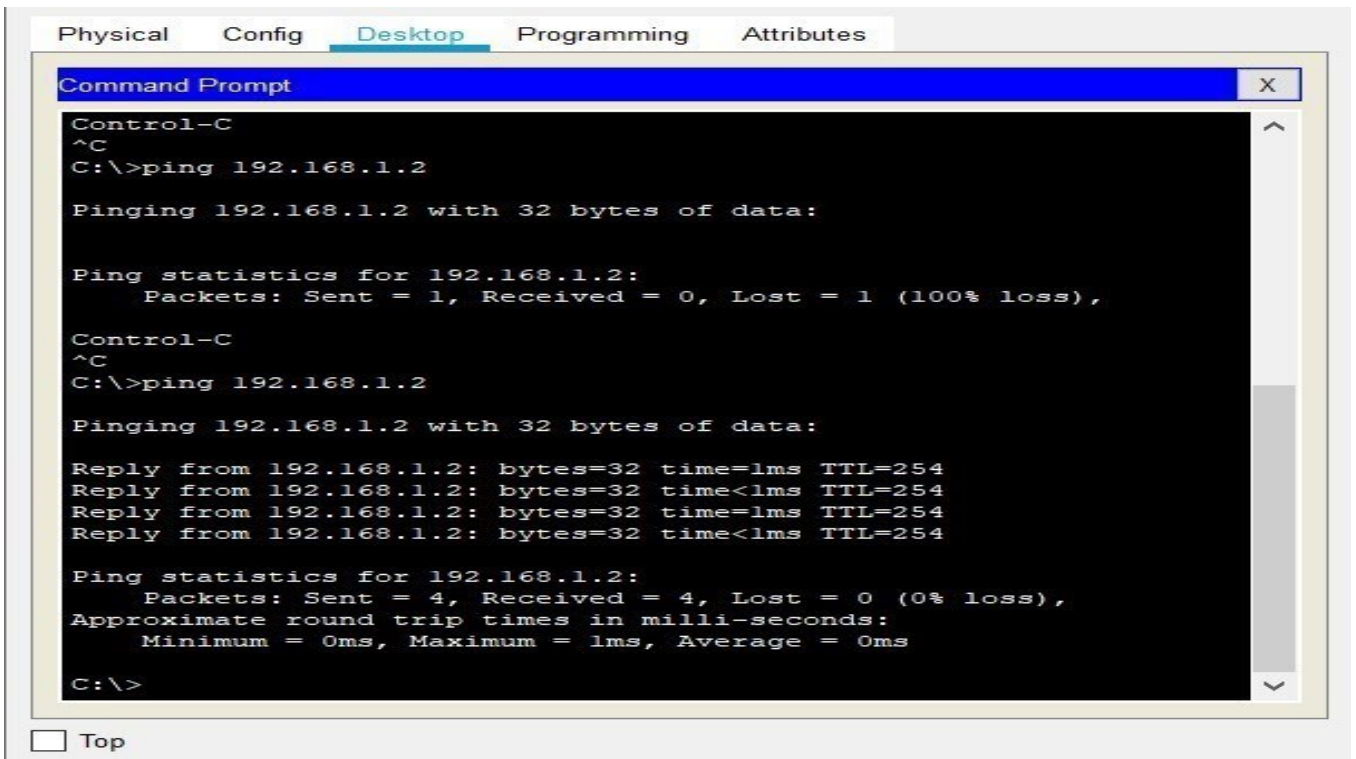
Password:
LOCAL-SWITCH#enable
Password:
LOCAL-SWITCH#show running-config
Building configuration...

Current configuration : 1472 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 $1$mRr5hx5rV7zrPHoS4wqbXfX7m0
!
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#interface Vlan1
LOCAL-SWITCH(config-if)#ip address 192.168.1.2 255.255.255.0
LOCAL-SWITCH(config-if)#ip default-gateway 192.168.1.1
```

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







The screenshot shows a Packet Tracer interface with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window titled "Command Prompt". The window contains the following text:

```
Control-C
^C
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Ping statistics for 192.168.1.2:
    Packets: Sent = 1, Received = 0, Lost = 1 (100% loss),

Control-C
^C
C:\>ping 192.168.1.2

Pinging 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:\>
```

At the bottom left of the Packet Tracer window, there is a checkbox labeled "Top" which is currently unchecked.

Conclusion – After completing the above experiment, I understood the connectivity of router and switch with end devices and also understood how to configure the telnet.