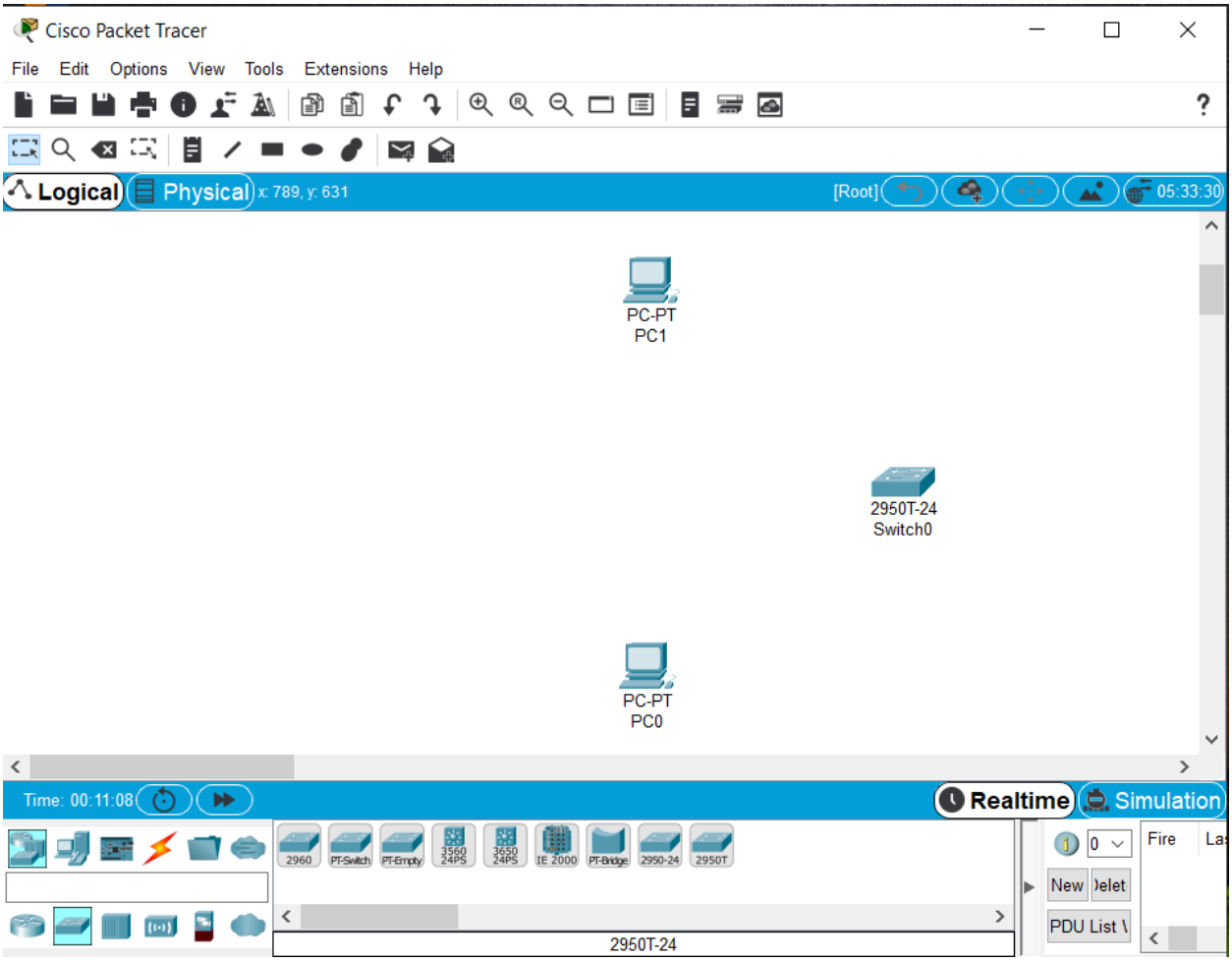
CEL 51, DCCN, Monsoon 2020
Lab 4: Prototyping a Network

Objective:
Prototype a network using Packet Tracer

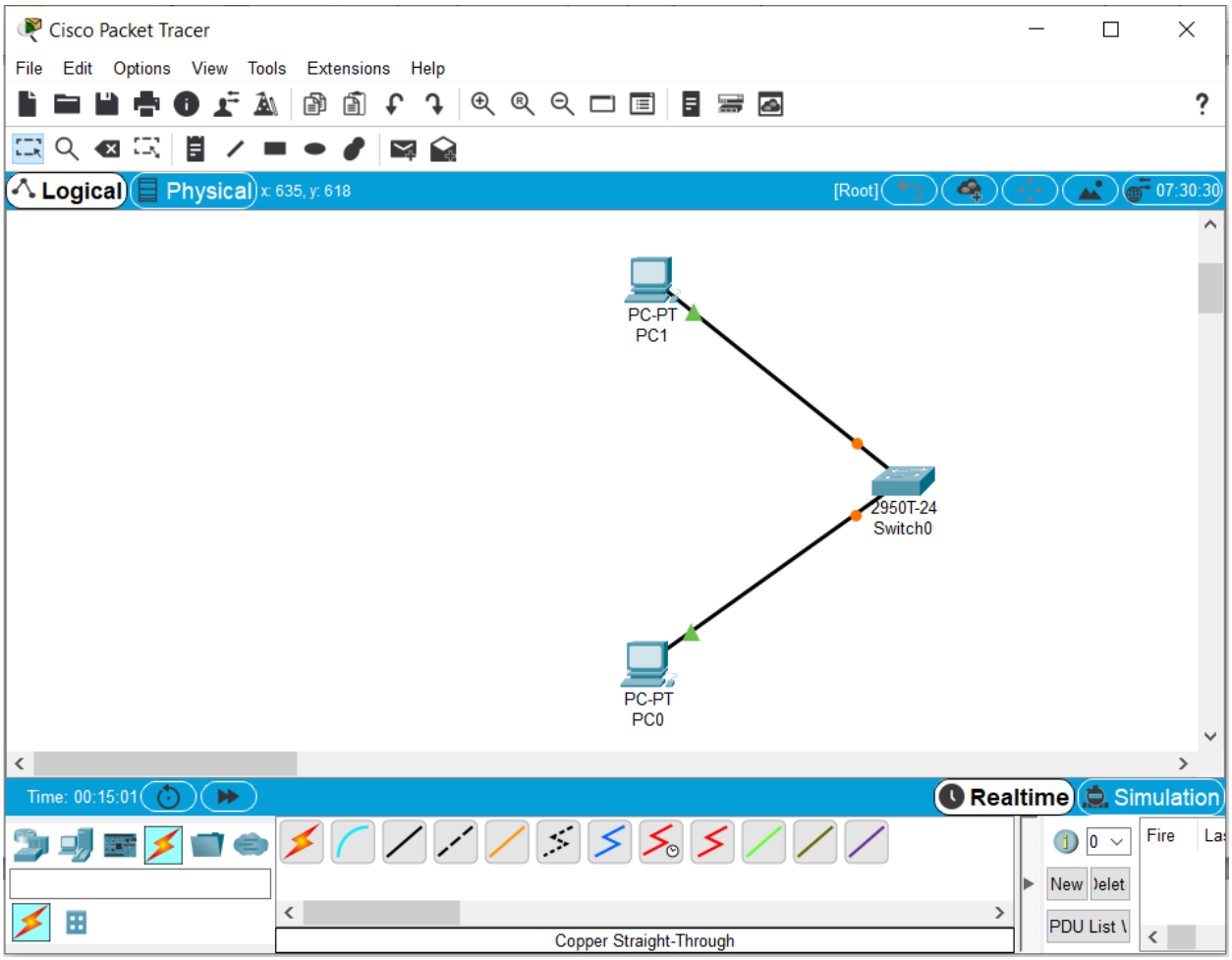
Background
A client has requested that you set up a simple network with two PCs connected to a switch. Verify that the hardware, along with the given configurations, meet the requirements of the client.

Step 1: Set up the network topology

a) Add two PCs and a Cisco 2950T switch

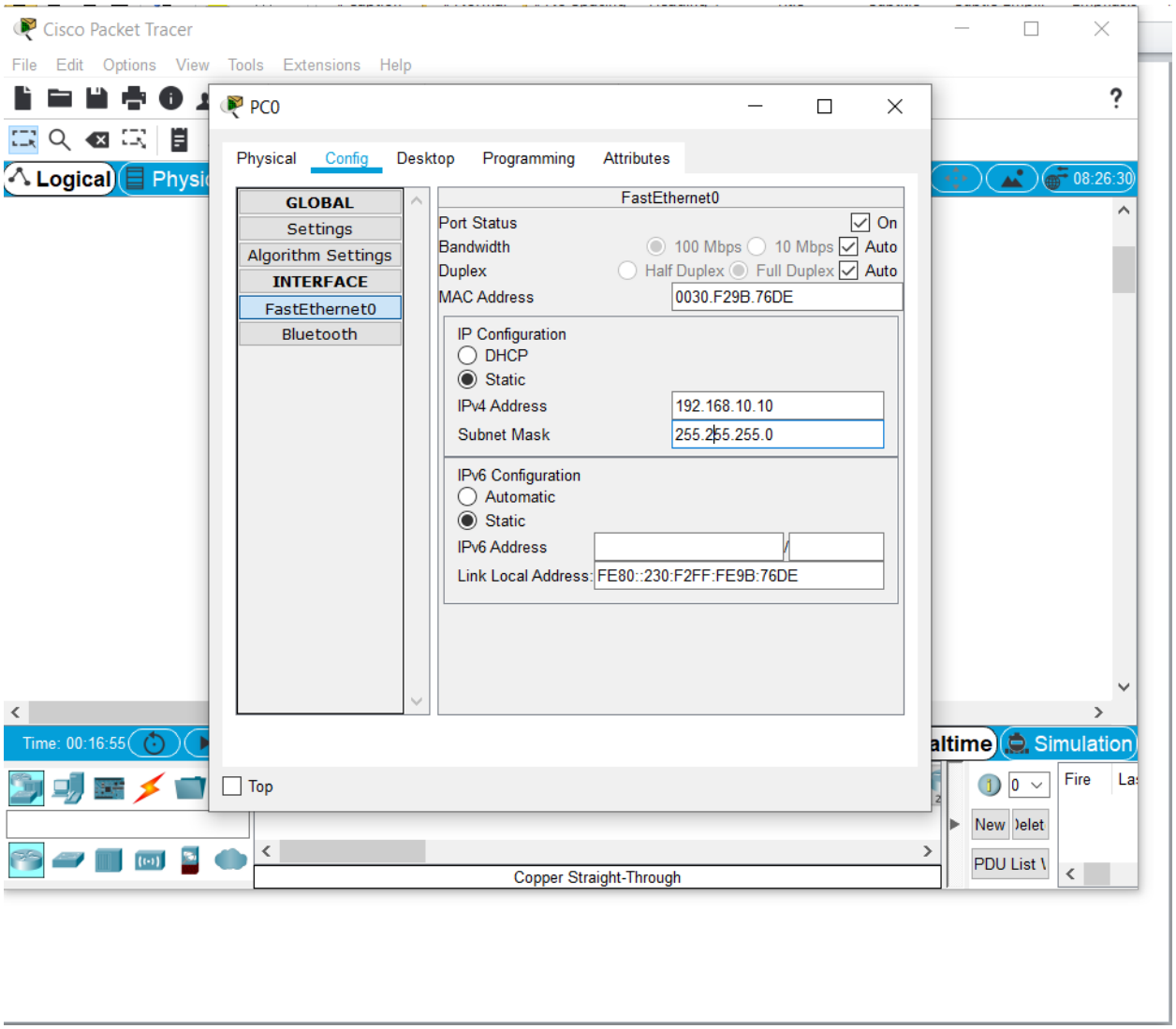


b) Using straight-through cables, connect **PC0** to interface **Fa0/1** on **Switch0** and **PC1** to interface **Fa0/2** on **Switch0**.



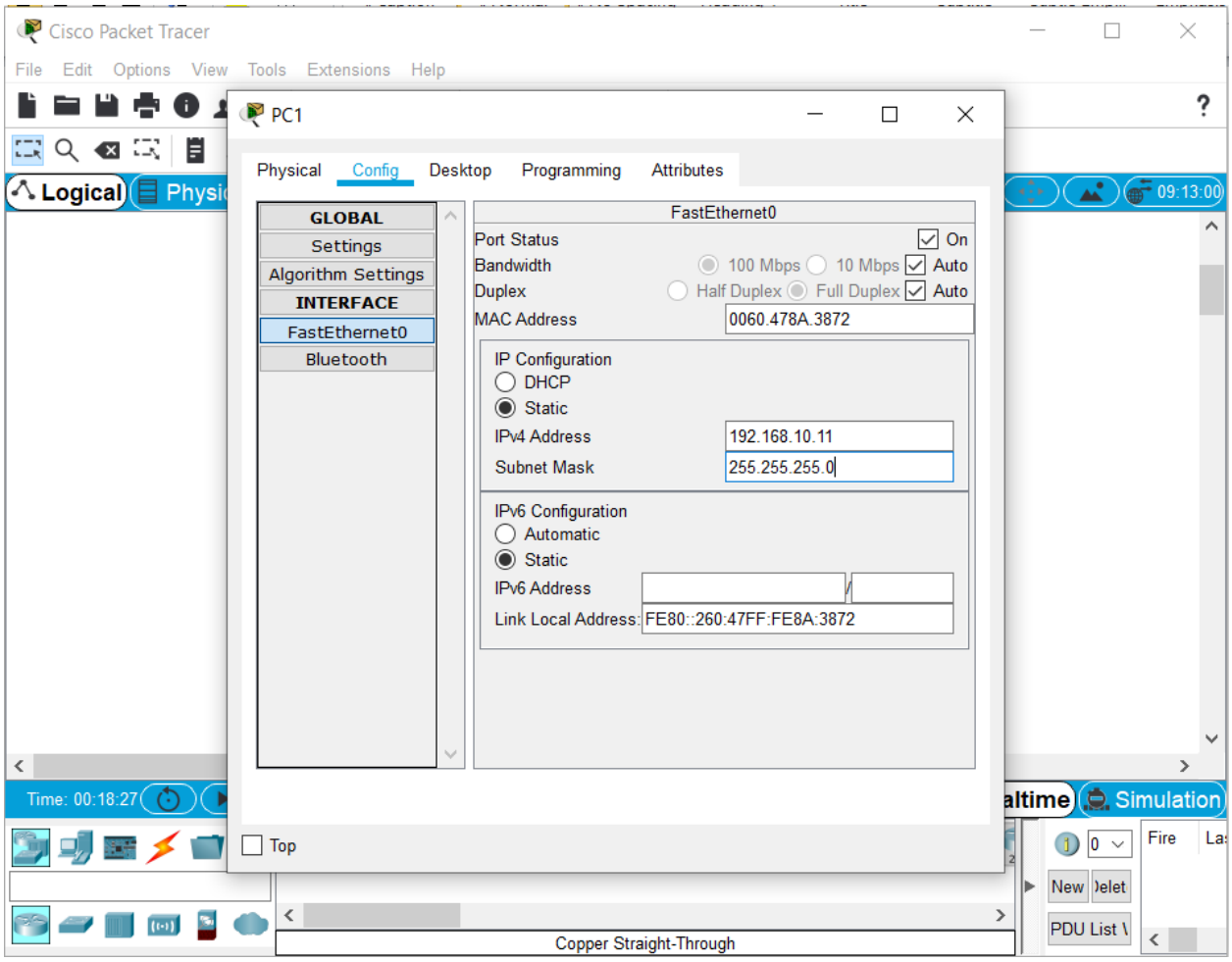
c) Configure PC0 using the **Config** tab in the PC0 configuration window:

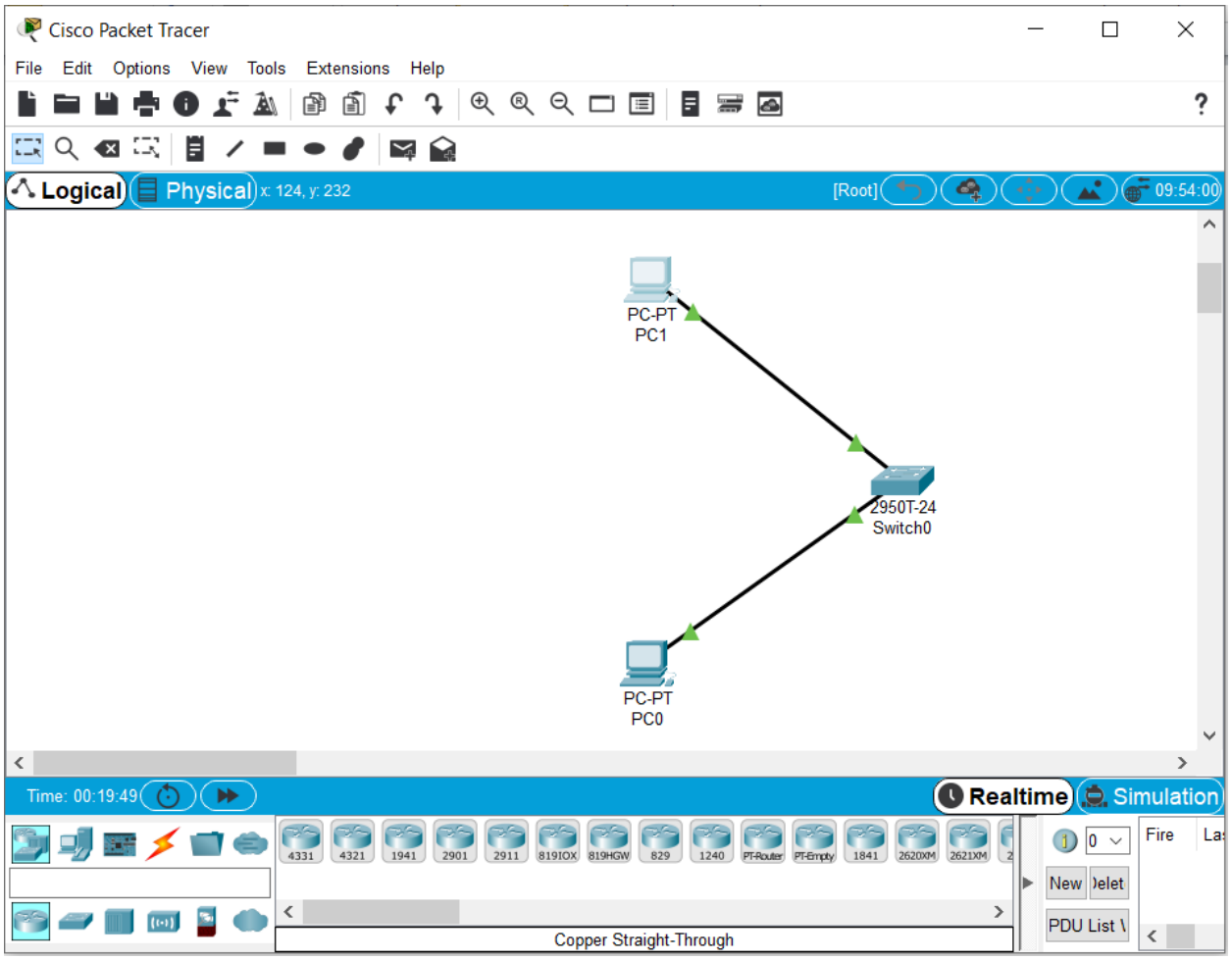
   a. IP address: 192.168.10.10
   b. Subnet Mask 255.255.255.0



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

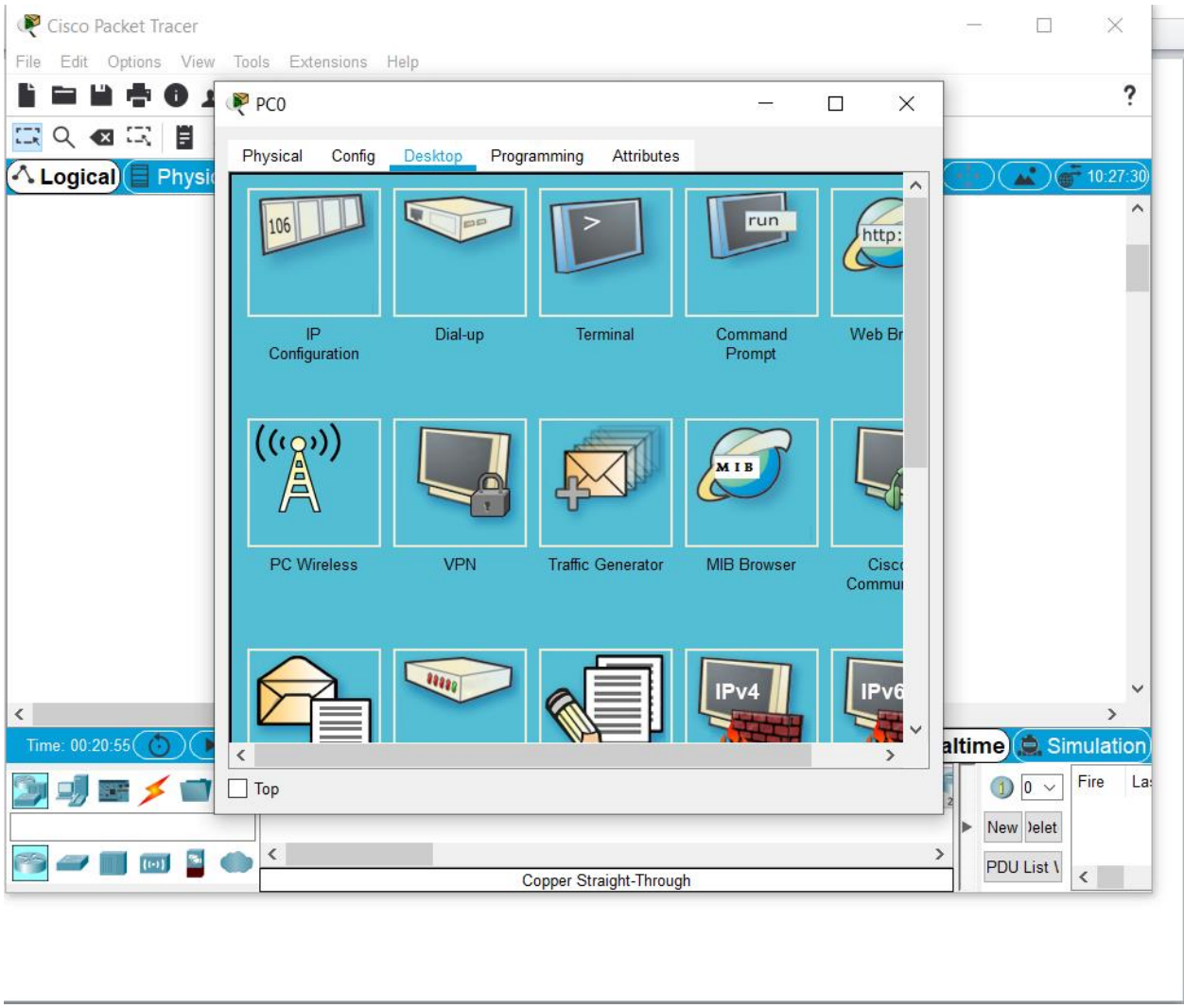
a. IP address: 192.168.10.11
b. Subnet Mask 255.255.255.0


Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
09:13:00
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 0060.478A.3872
IP Configuration
DHCP
Static
IPv4 Address 192.168.10.11
Subnet Mask 255.255.255.0
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address FE80::260:47FF:FE8A:3872
Top
Time: 00:18:27
Simulation
Fire
New
PDU List
Copper Straight-Through



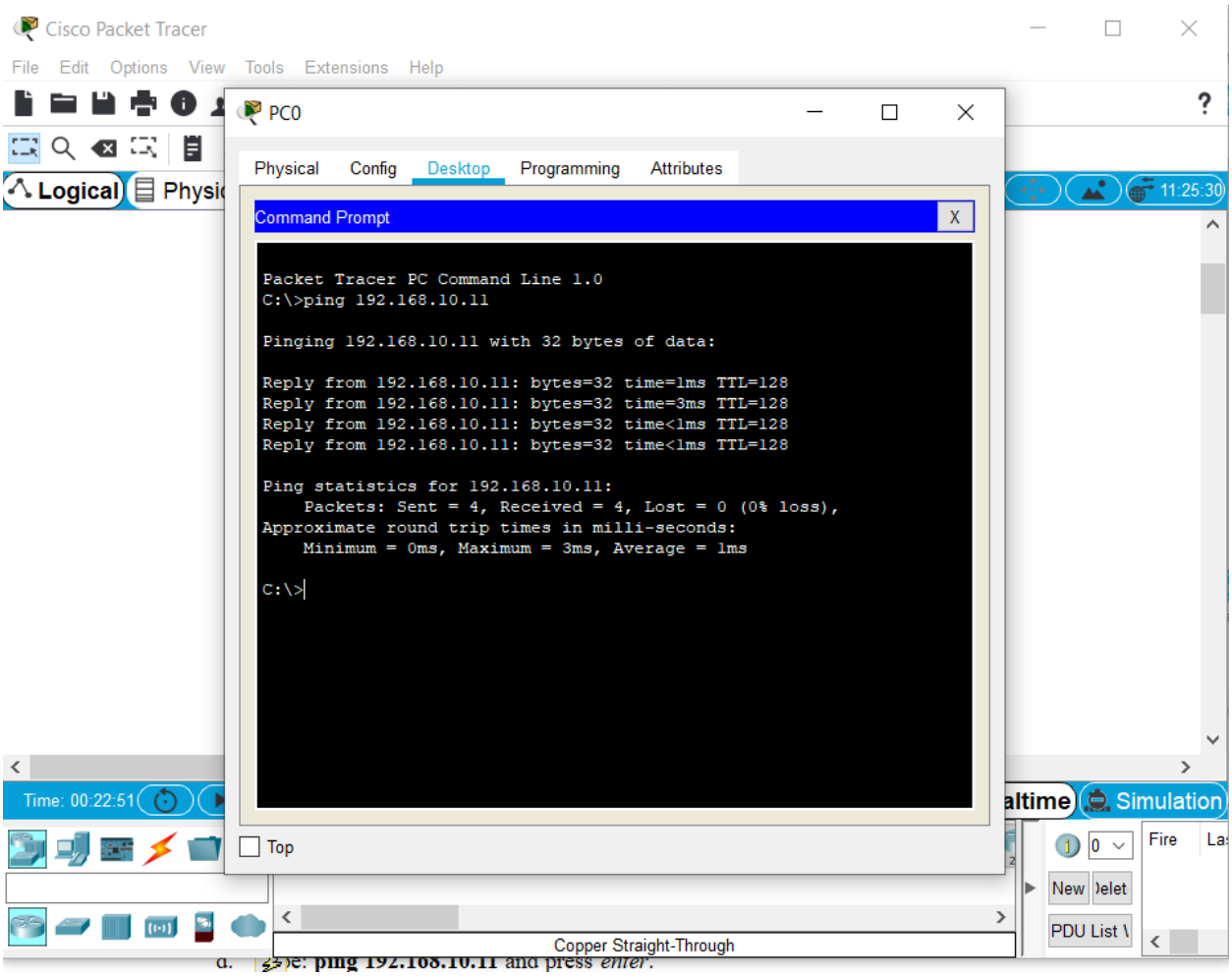
Step 2: Test connectivity from PC0 to PC1

a) Use the **ping** command to test connectivity.
   a. Click PC0.
   b. Choose the **Desktop** tab.

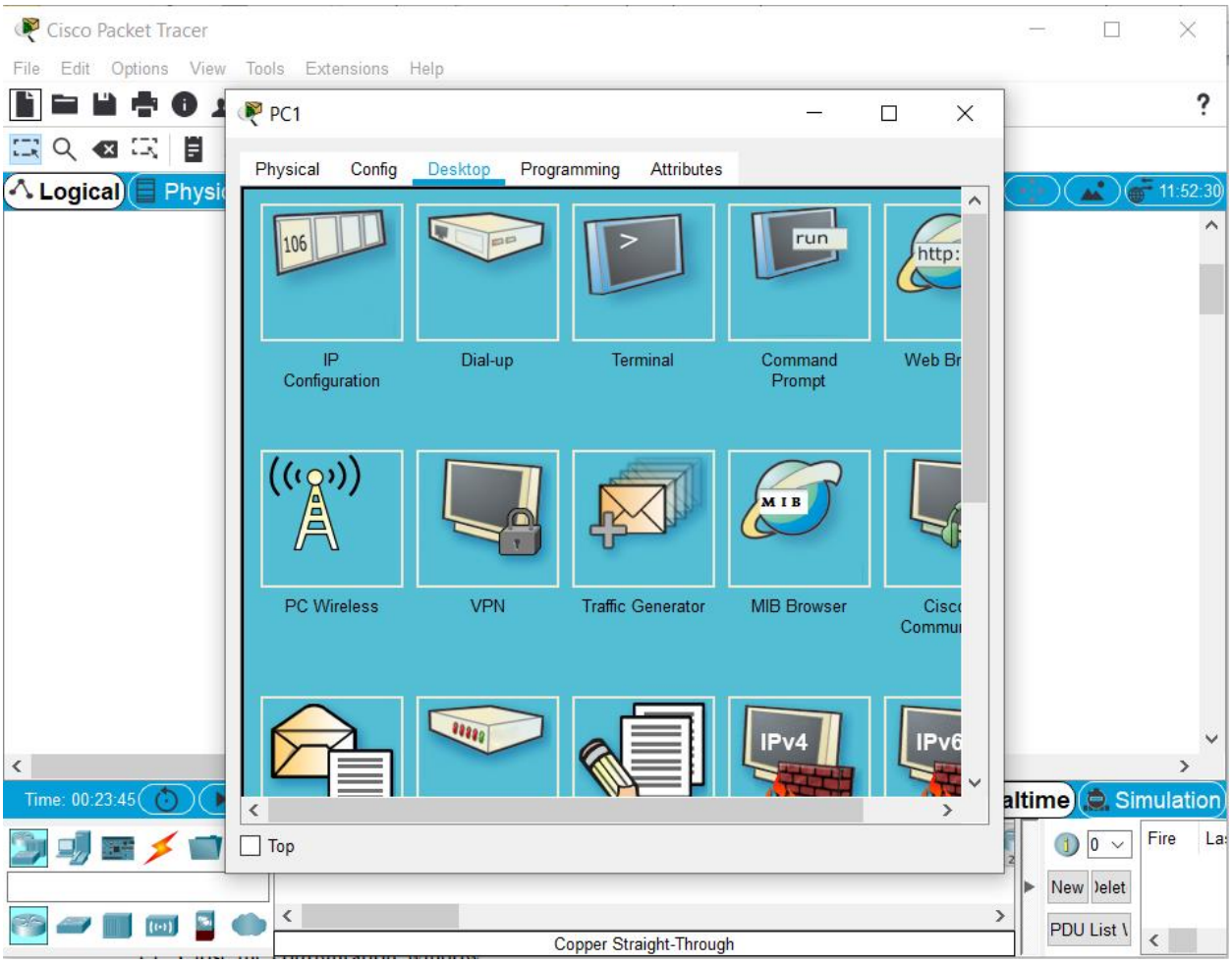


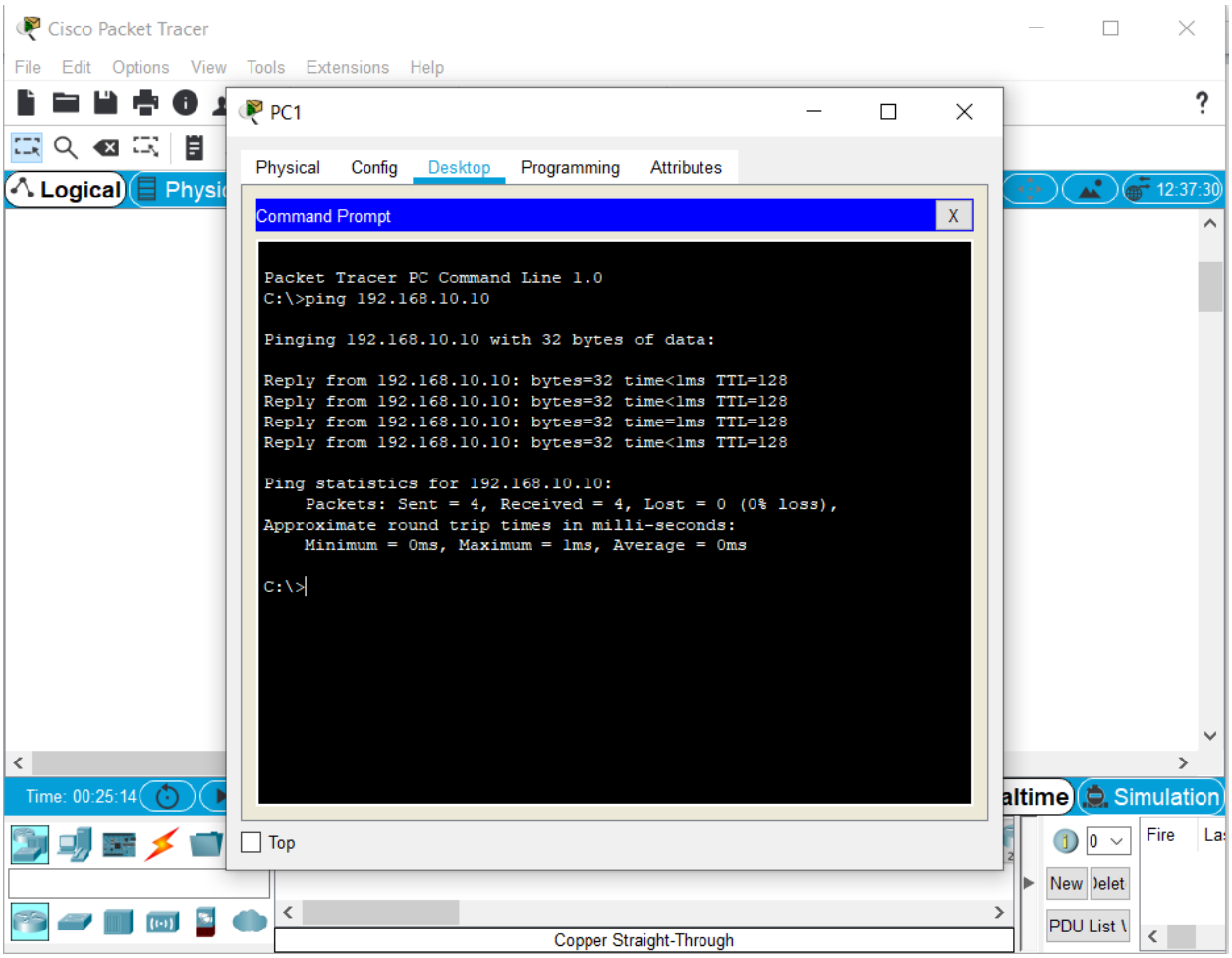
c. Choose **Command Prompt**.
d. Type: **ping 192.168.10.11** and press *enter*.

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:

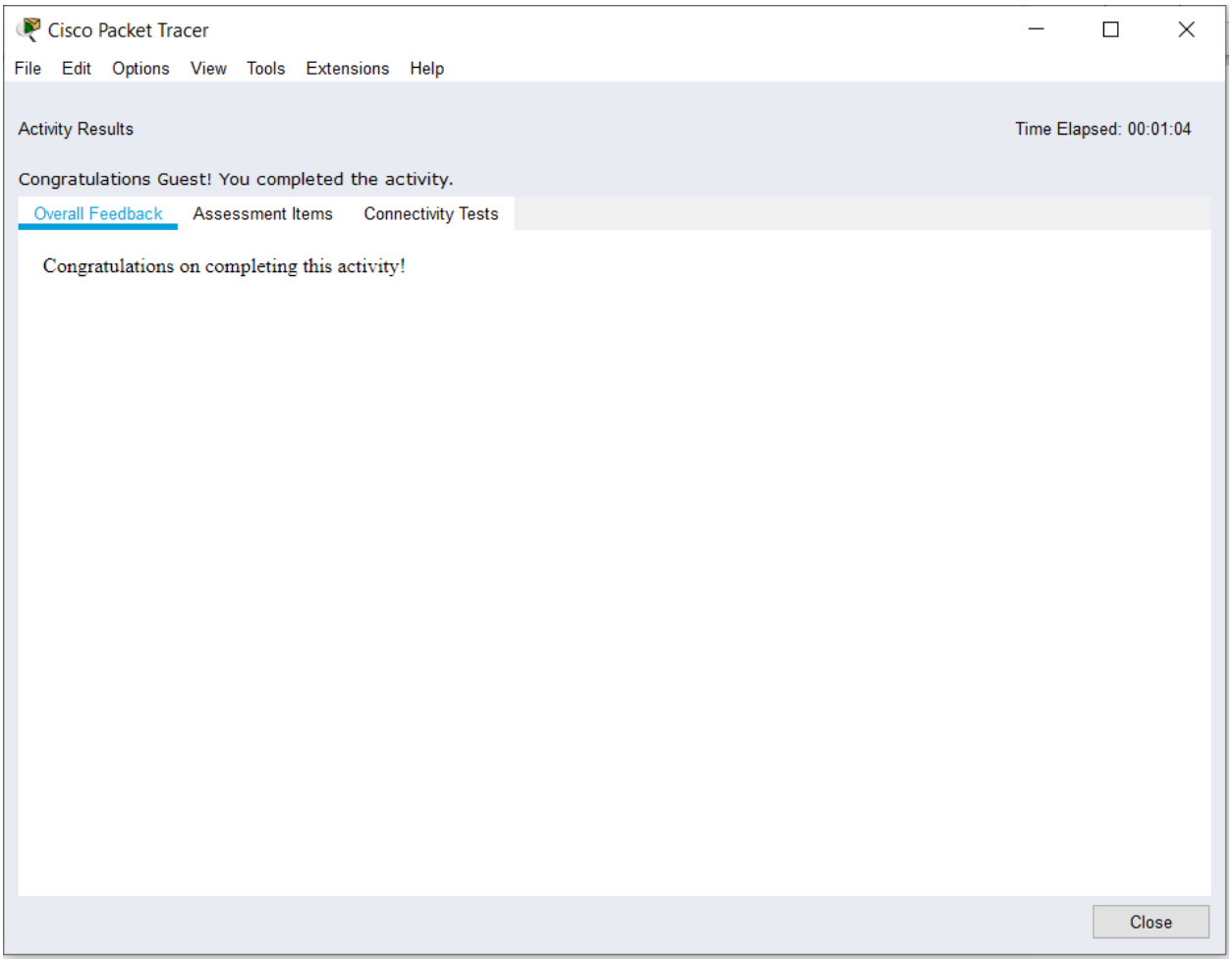


d. Type: **ping 192.168.10.11** and press *enter*.


Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
11:52:30
PC1
Physical Config Desktop Programming Attributes
IP Configuration
Dial-up
Terminal
Command Prompt
Web Br
PC Wireless
VPN
Traffic Generator
MIB Browser
IPv4
IPv6
Top
Time: 00:23:45
Simulation
Fire
New
PDU List
Copper Straight-Through



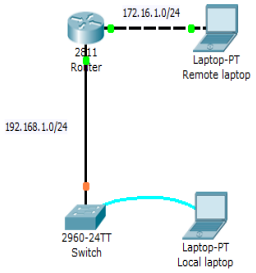
c) Close the configuration window.
d) Click the **Check Results** button at the bottom of the instruction window to check your work..



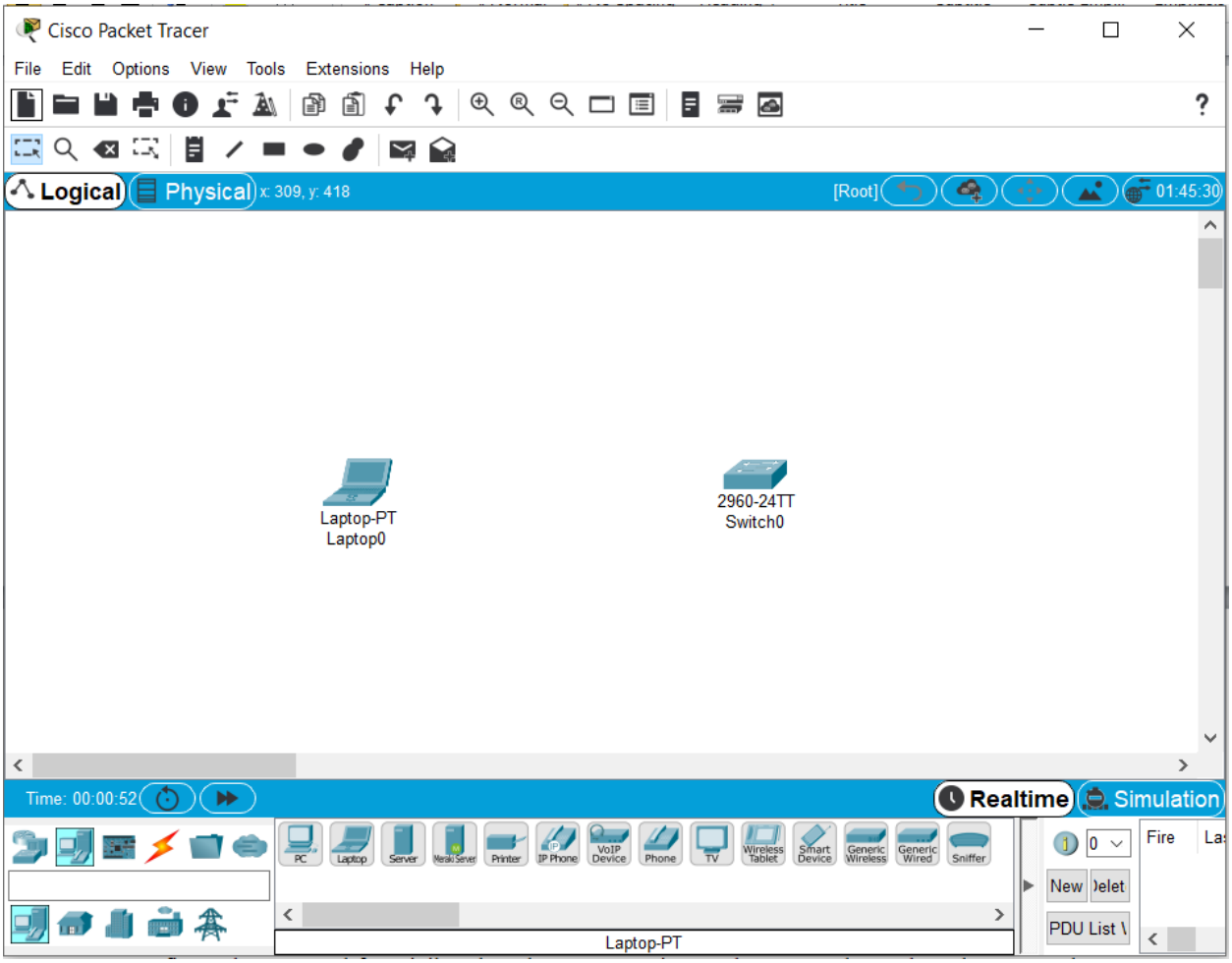
CEL51, DCCN, Monsoon 2020

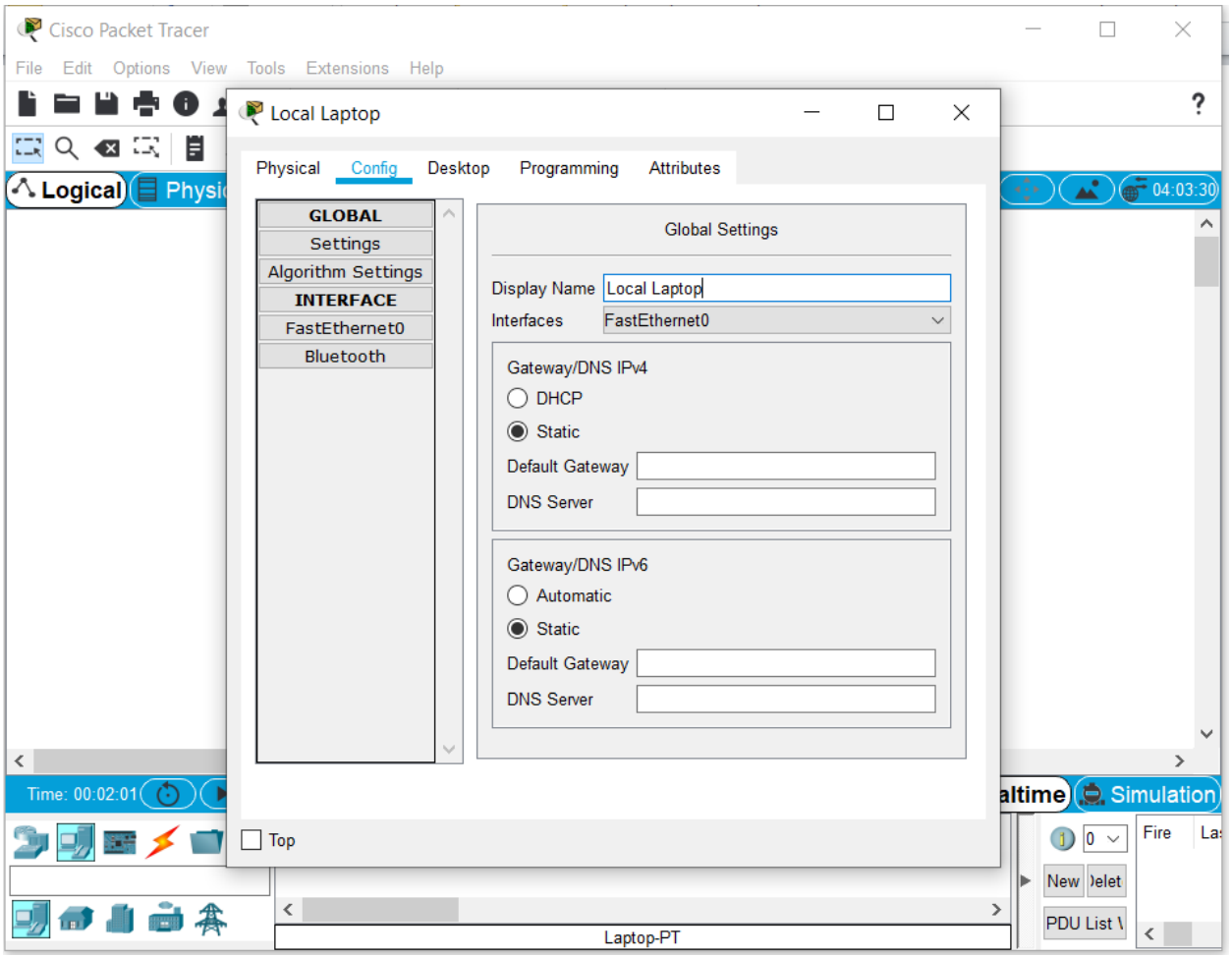
Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

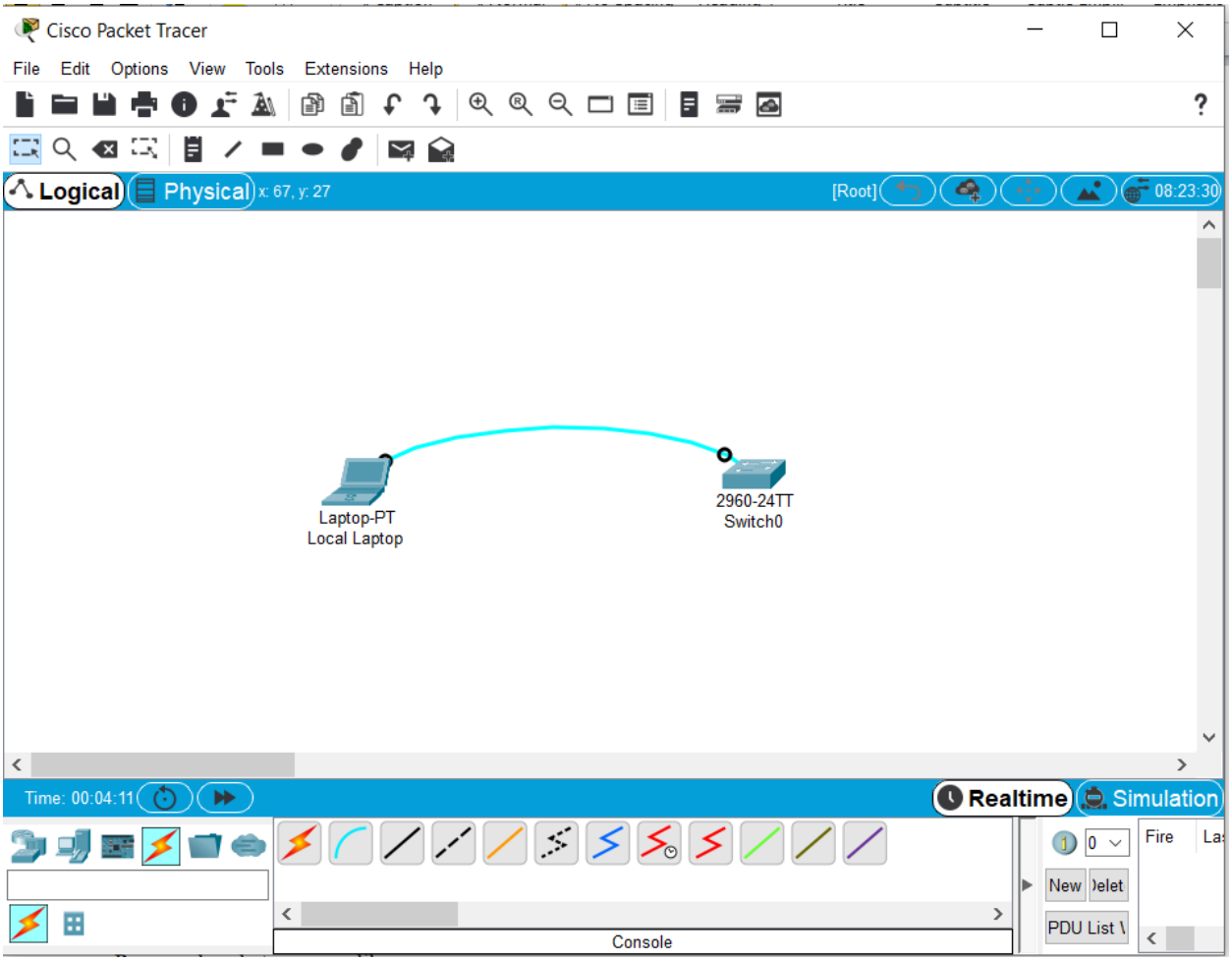
Objective:
This lab will test your ability to configure basic settings such as hostname, motd banner, encrypted passwords, and terminal options on a Packet Tracer 6.2 simulated Cisco Catalyst switch.

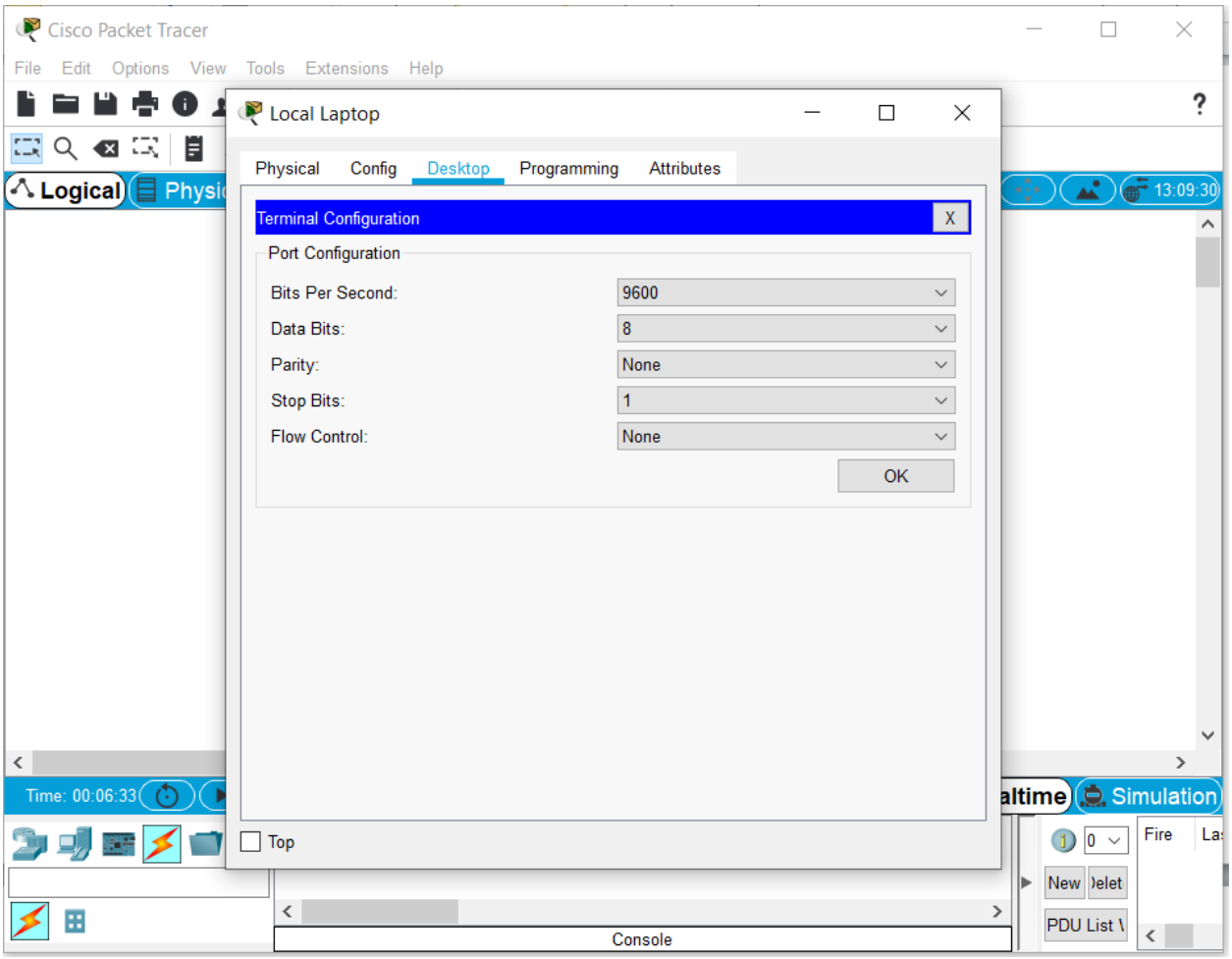


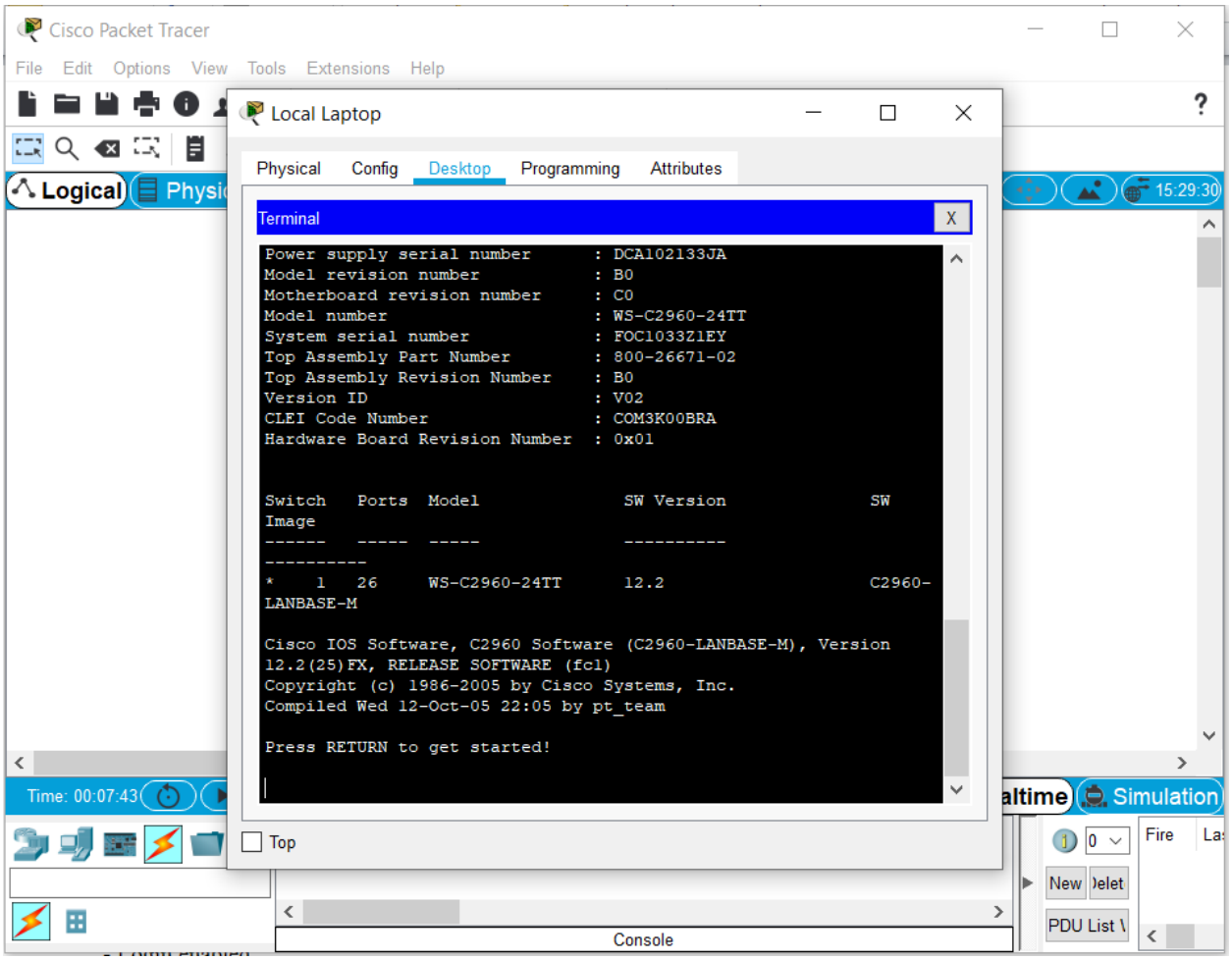
1. Use the local laptop connect to the switch console.

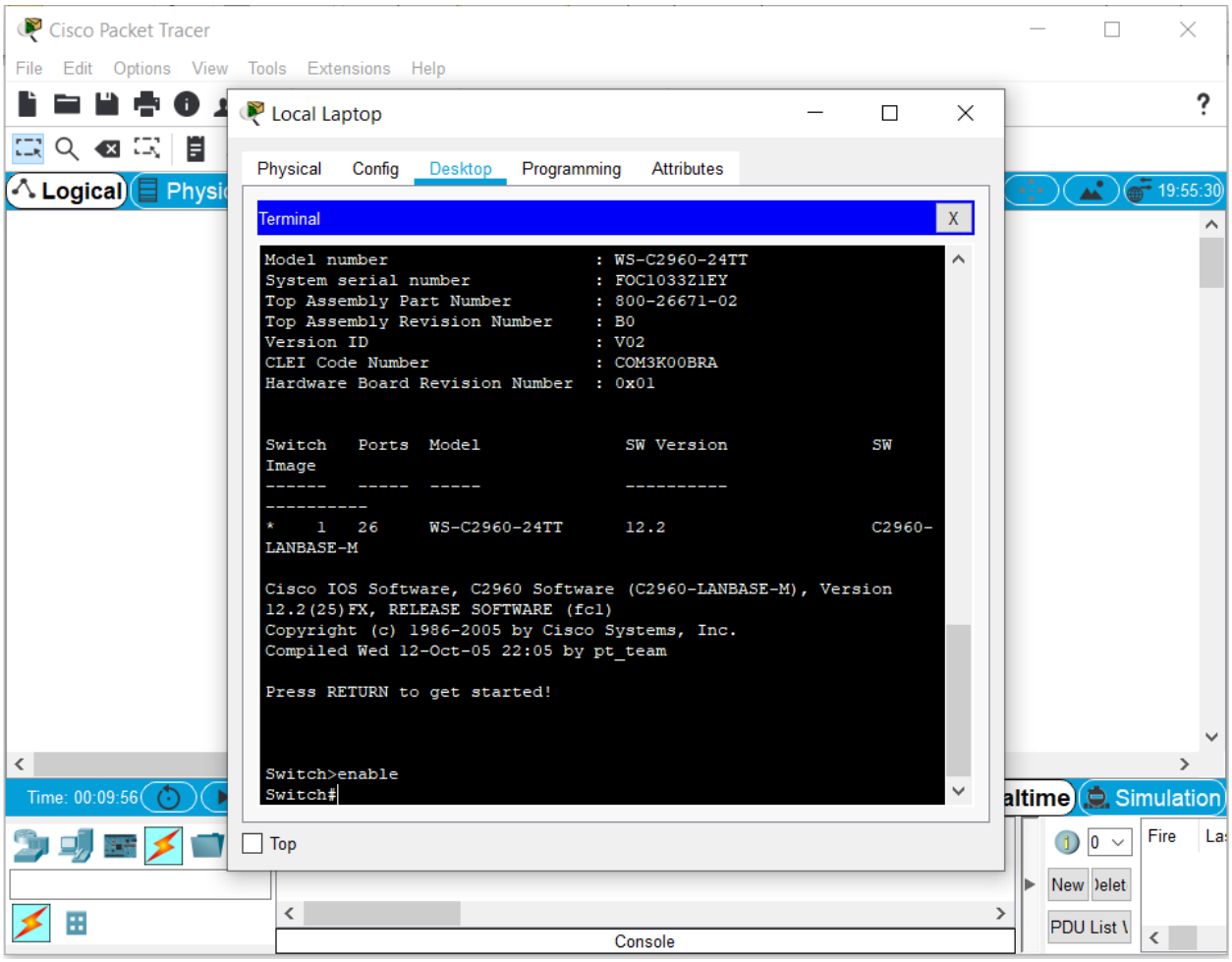



Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Local Laptop
Physical Config Desktop Programming Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name Local Laptop
Interfaces FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
DNS Server
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
Top
Logical
04:03:30
Time: 00:02:01
Simulation
Laptop-PT
New
PDU List

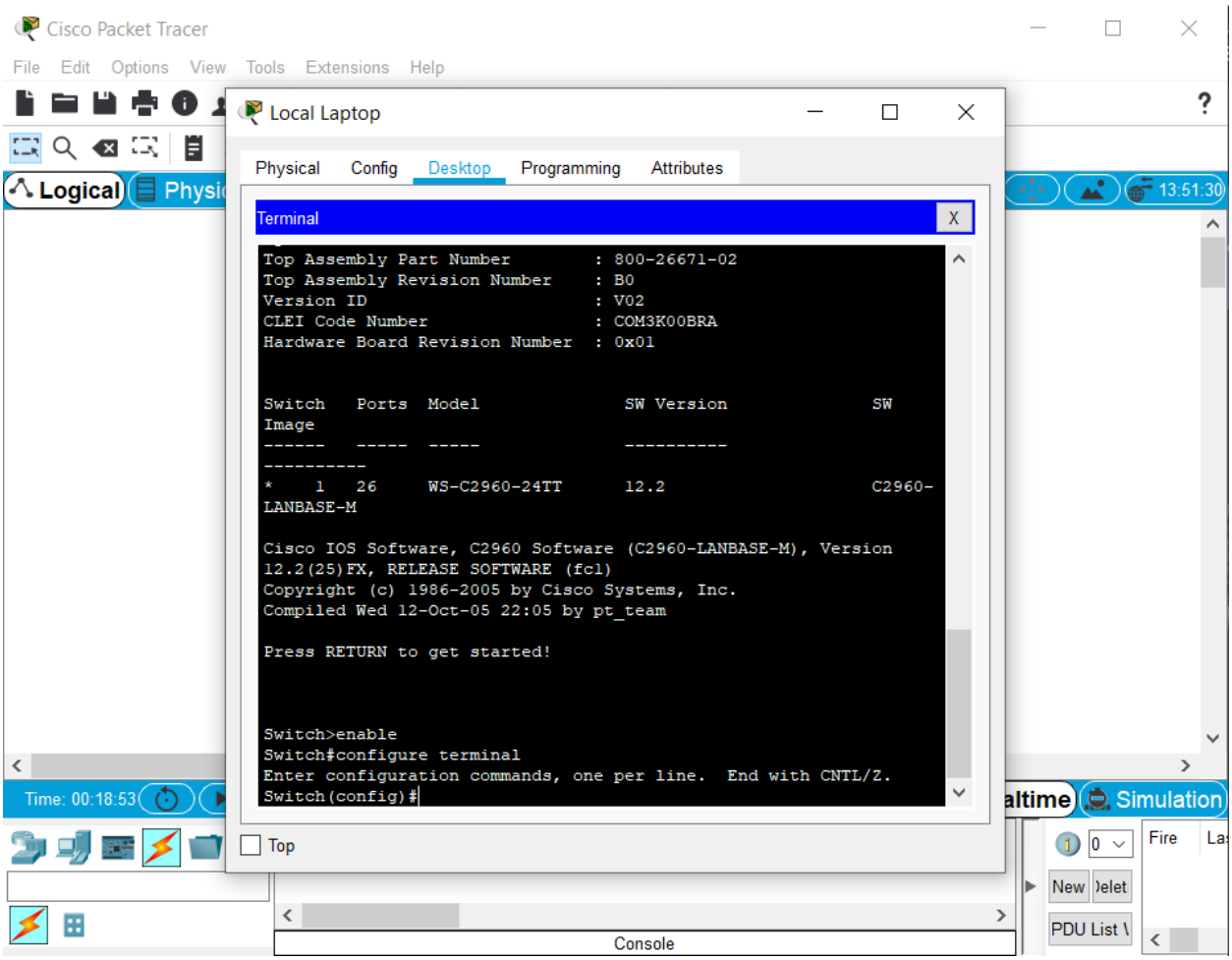

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
Physical
x: 67, y: 27
[Root]
08:23:30
Laptop-PT
Local Laptop
2960-24TT
Switch0
Time: 00:04:11
Realtime
Simulation
Console
Fire
New
PDU List

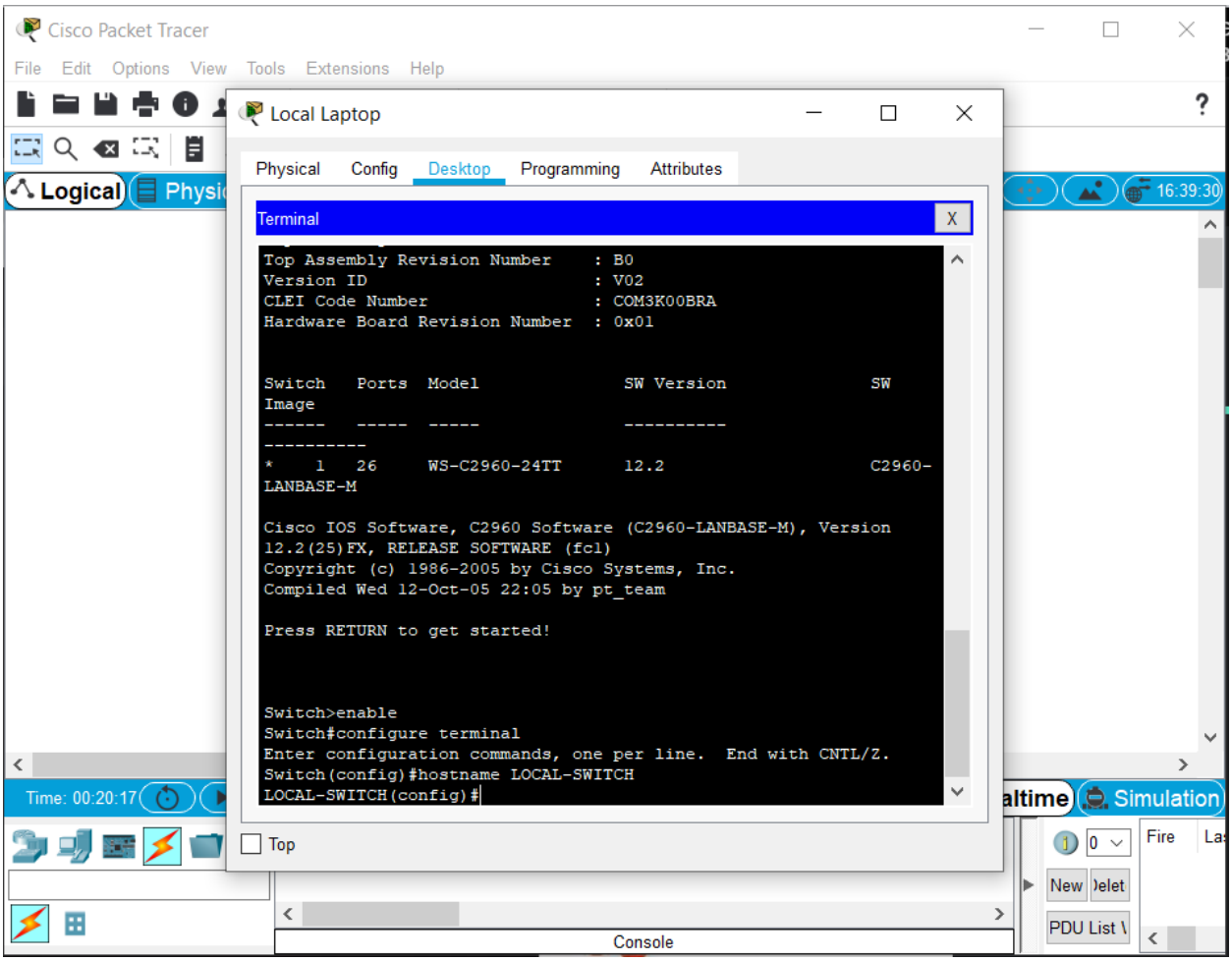

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
13:09:30
Local Laptop
Physical Config Desktop Programming Attributes
Terminal Configuration
X
Port Configuration
Bits Per Second: 9600
Data Bits: 8
Parity: None
Stop Bits: 1
Flow Control: None
OK
Top
Time: 00:06:33
Simulation
Console
New
PDU List

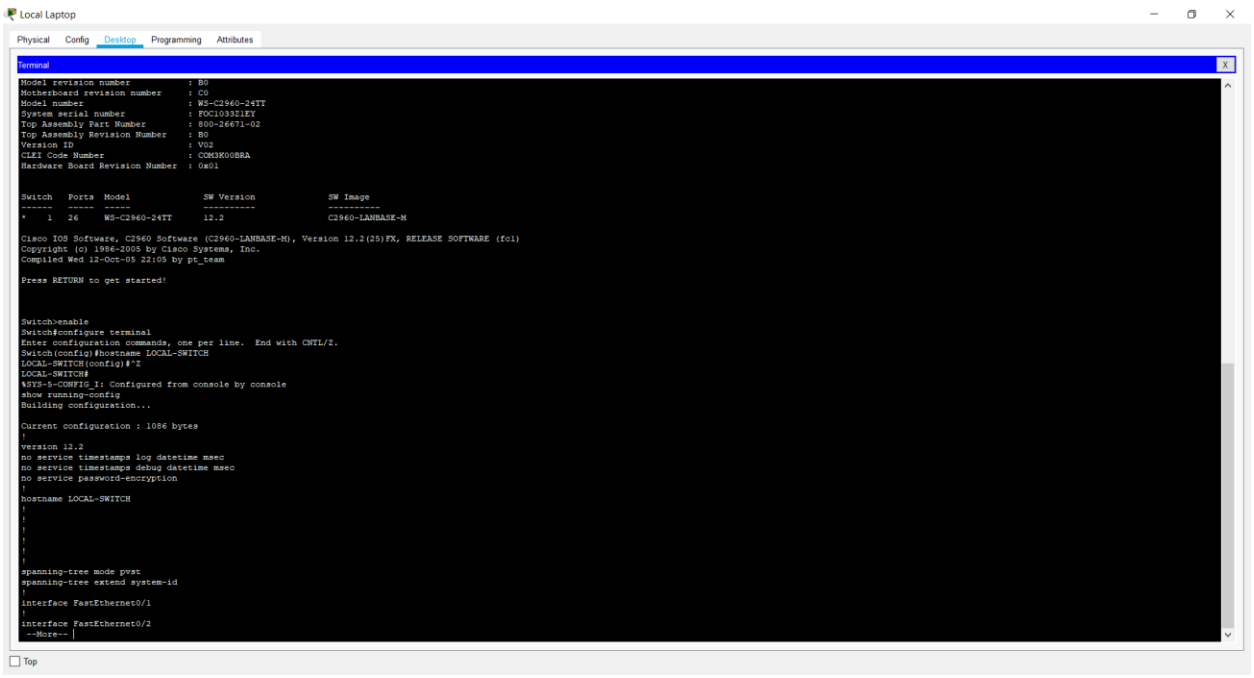

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Local Laptop
Physical Config Desktop Programming Attributes
Terminal
X
Power supply serial number : DCA102133JA
Model revision number : B0
Motherboard revision number : C0
Model number : WS-C2960-24TT
System serial number : FOC1033Z1EY
Top Assembly Part Number : 800-26671-02
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 26 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 pt_team
Press RETURN to get started!
Top
Logical
15:29:30
Time: 00:07:43
Simulation
Console
PDU List



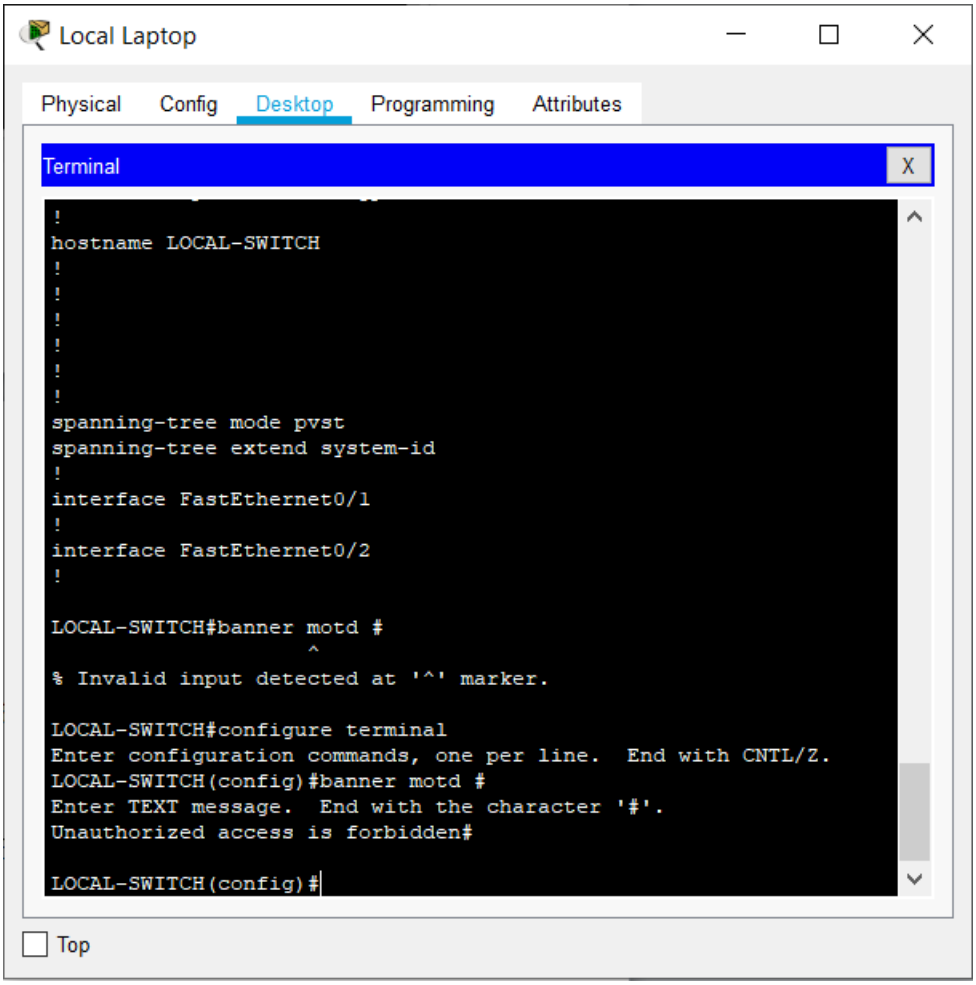
2. Configure Switch hostname as LOCAL-SWITCH

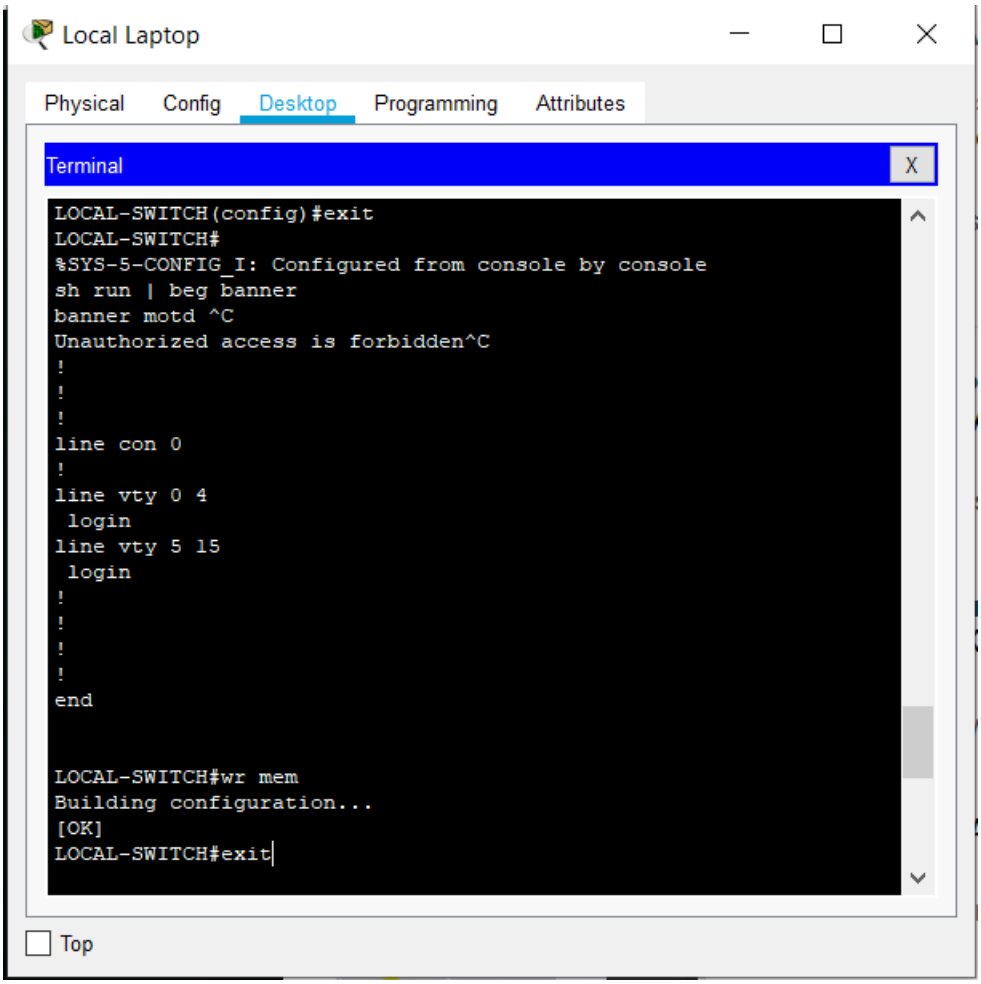

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Local Laptop
Physical Config Desktop Programming Attributes
Terminal
X
Top Assembly Part Number : 800-26671-02
Top Assembly Revision Number : B0
Version ID : V02
CLEI Code Number : COM3K00BRA
Hardware Board Revision Number : 0x01
Switch Ports Model SW Version SW Image
------ ----- ----- ---------- ----------
* 1 26 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 pt_team
Press RETURN to get started!
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
Top
Logical
13:51:30
Time: 00:18:53
Simulation
Fire
New
PDU List
Console

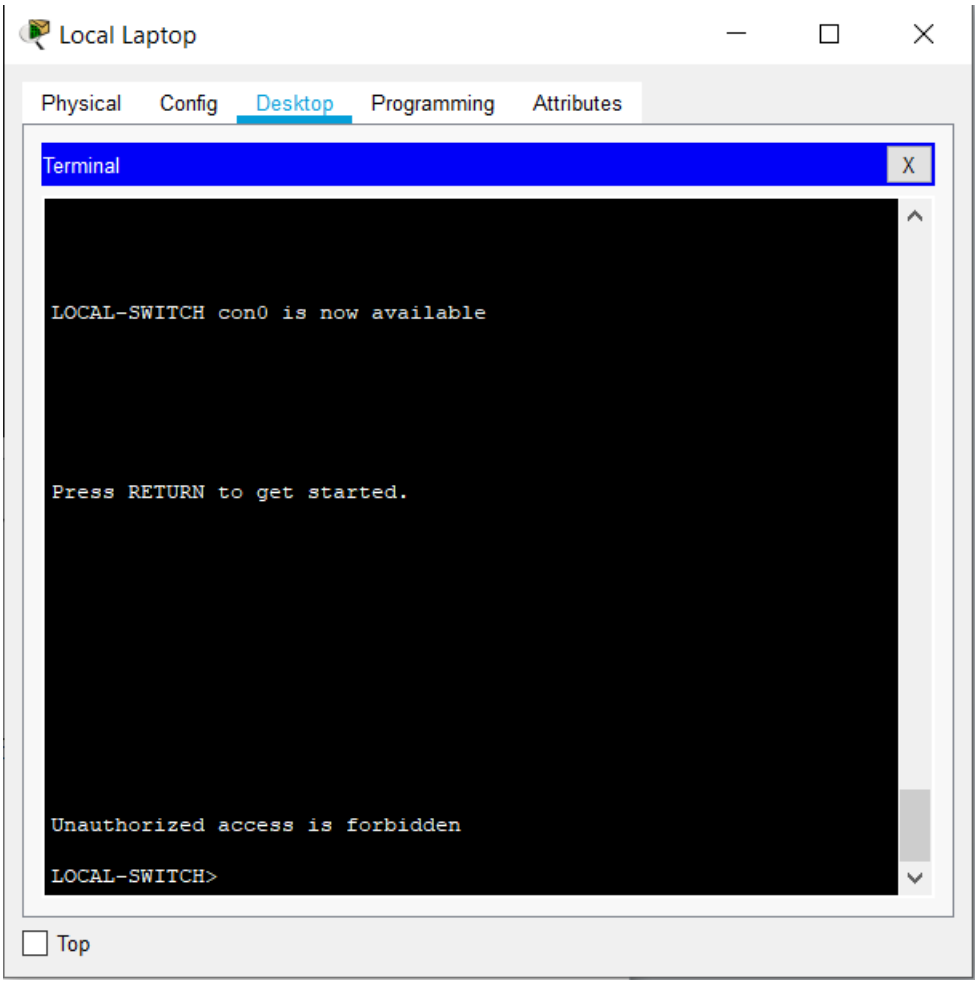

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Local Laptop
Physical Config Desktop Programming Attributes
Terminal
Top Assembly Revision Number : B0
Version ID : V02
CLEI Code Number : COM3K00BRA
Hardware Board Revision Number : 0x01
Switch Ports Model SW Version SW Image
* 1 26 WS-C2960-24TT 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 pt_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)#
Top
Logical
Time: 00:20:17
Simulation
Console


Local Laptop
Physical Config Desktop Programming Attributes
Terminal
Model revision number : B0
Motherboard revision number : C0
Model number : WS-C2960-24TT
System serial number : FOC1033Z1EY
Top Assembly Part Number : 800-26671-02
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 26 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 pt_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

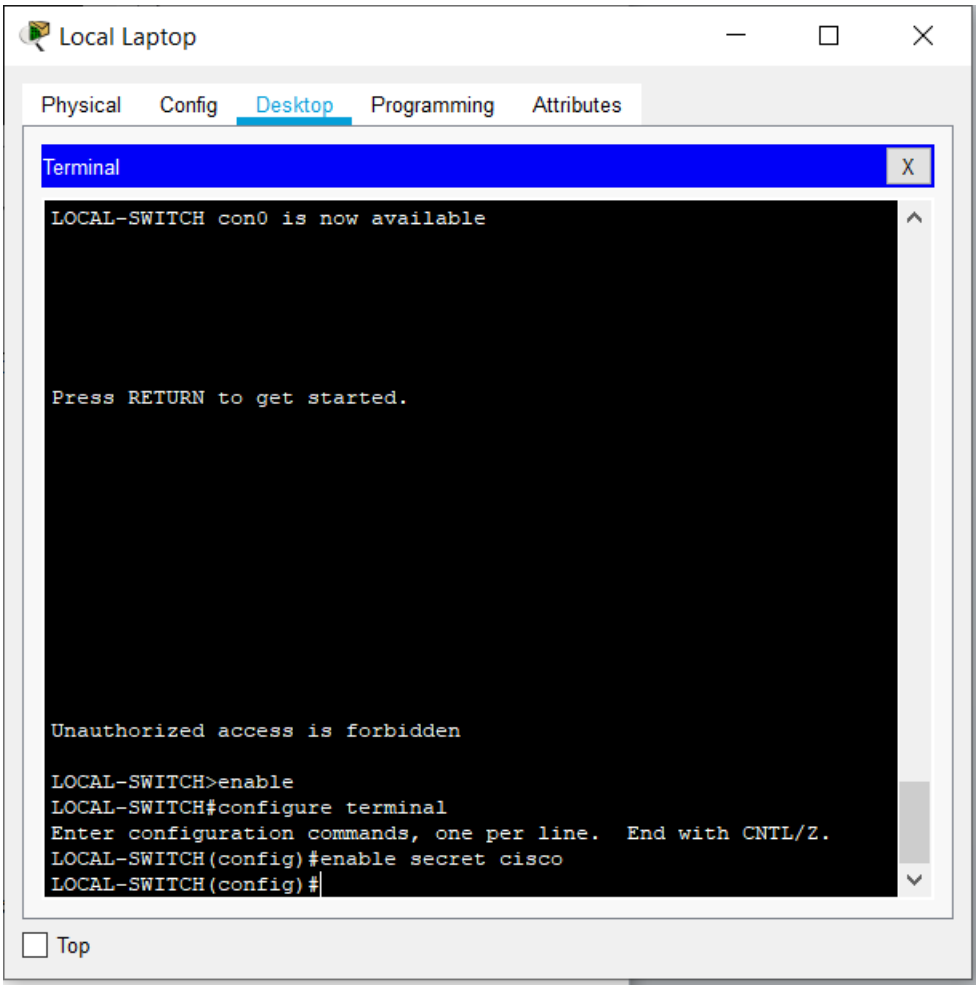
3. Configure the message of the day as "Unauthorized access is forbidden"

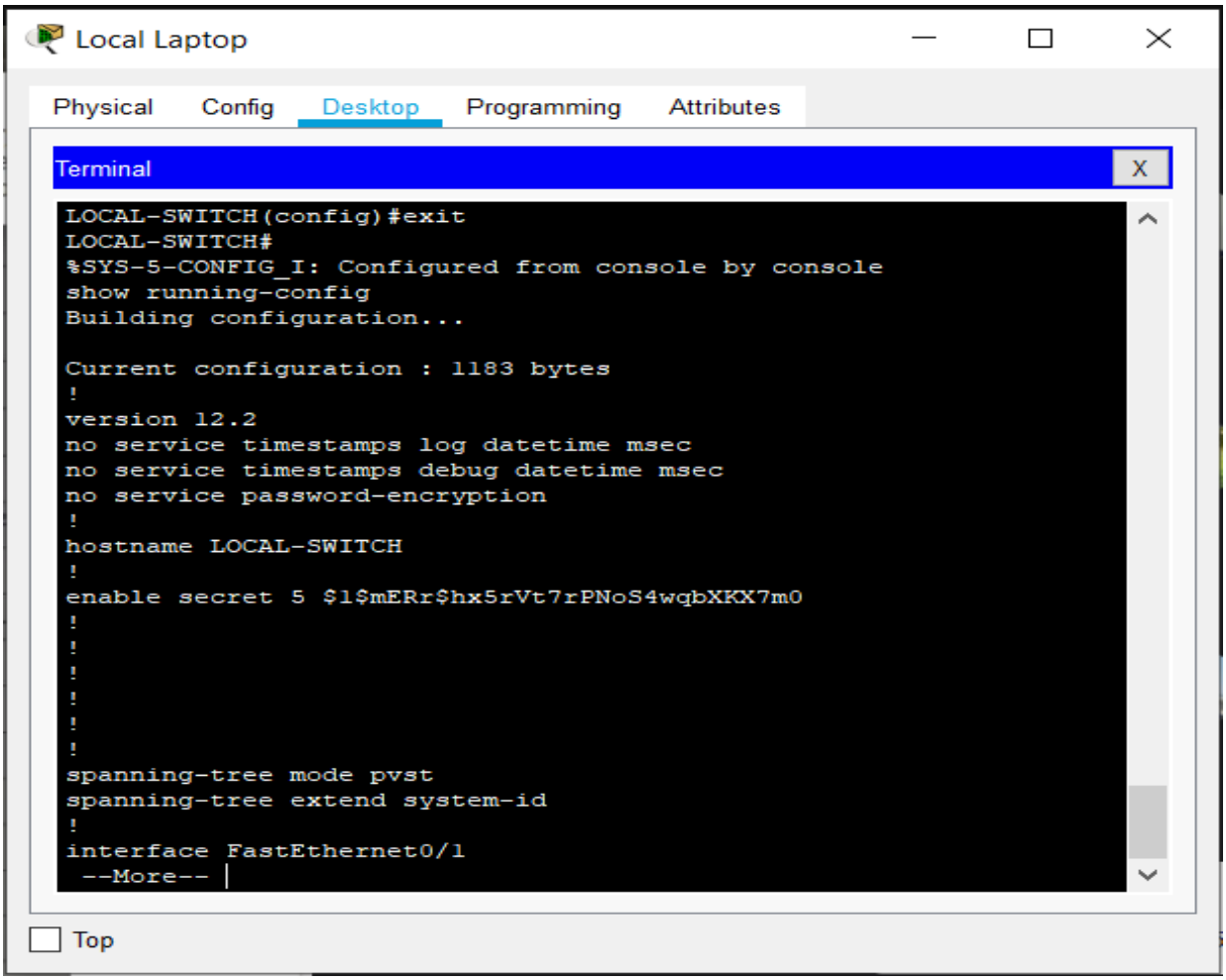


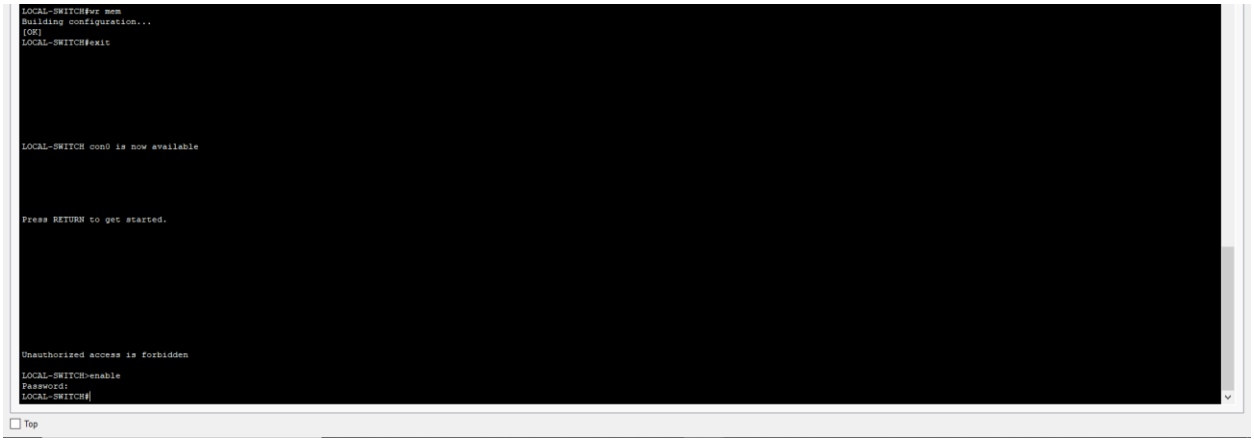

Local Laptop
Physical
Config
Desktop
Programming
Attributes
Terminal
X
LOCAL-SWITCH(config)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console
sh run | beg banner
banner motd ^C
Unauthorized access is forbidden^C
!
!
!
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
!
!
end
LOCAL-SWITCH#wr mem
Building configuration...
[OK]
LOCAL-SWITCH#exit
Top



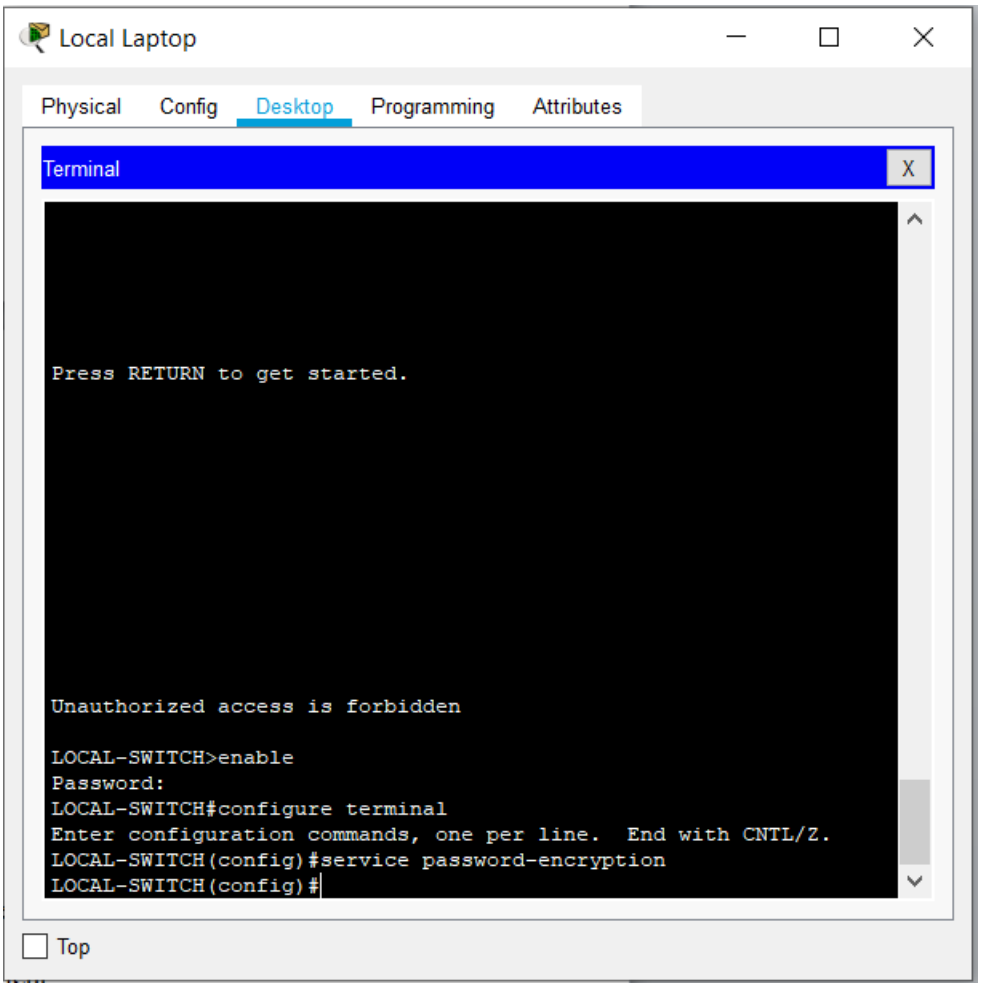
4. Configure the password for privileged mode access as "cisco". The password must be md5 encrypted

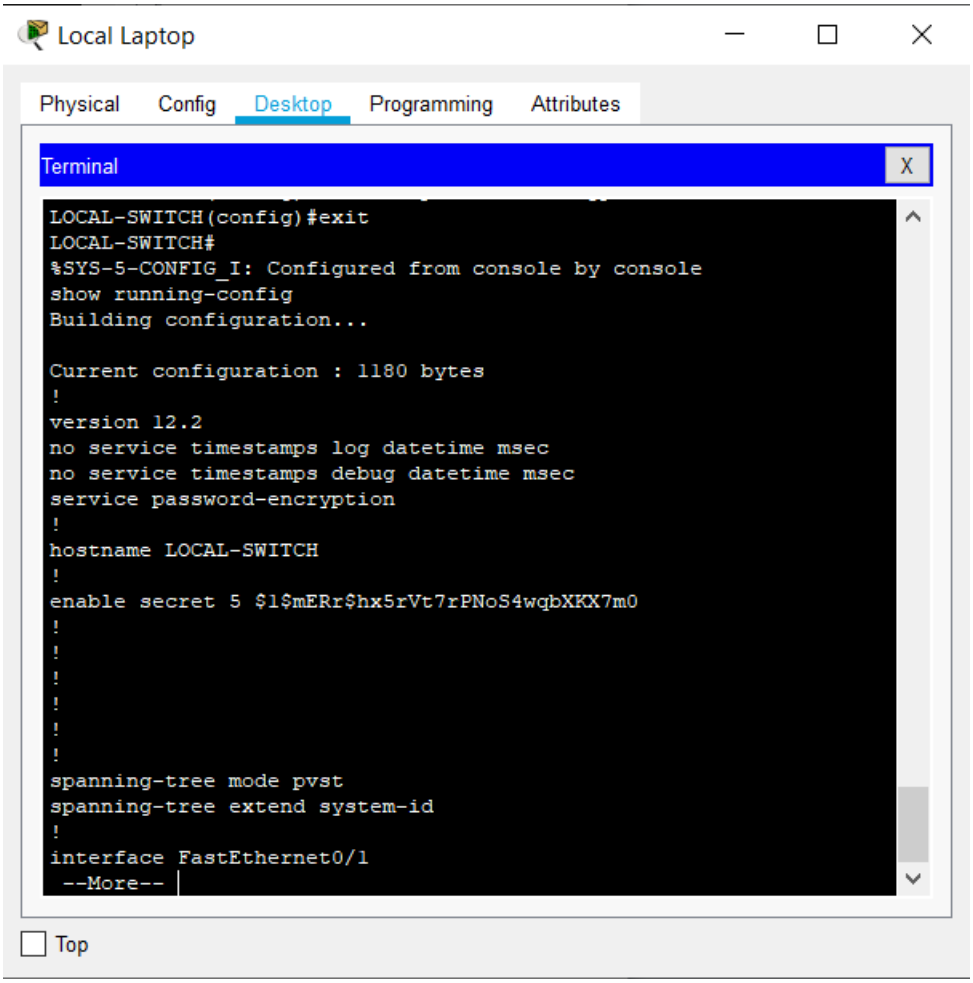

Local Laptop
Physical
Config
Desktop
Programming
Attributes
Terminal
X
LOCAL-SWITCH con0 is now available
Press RETURN to get started.
Unauthorized access is forbidden
LOCAL-SWITCH>enable
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#enable secret cisco
LOCAL-SWITCH(config)#
Top



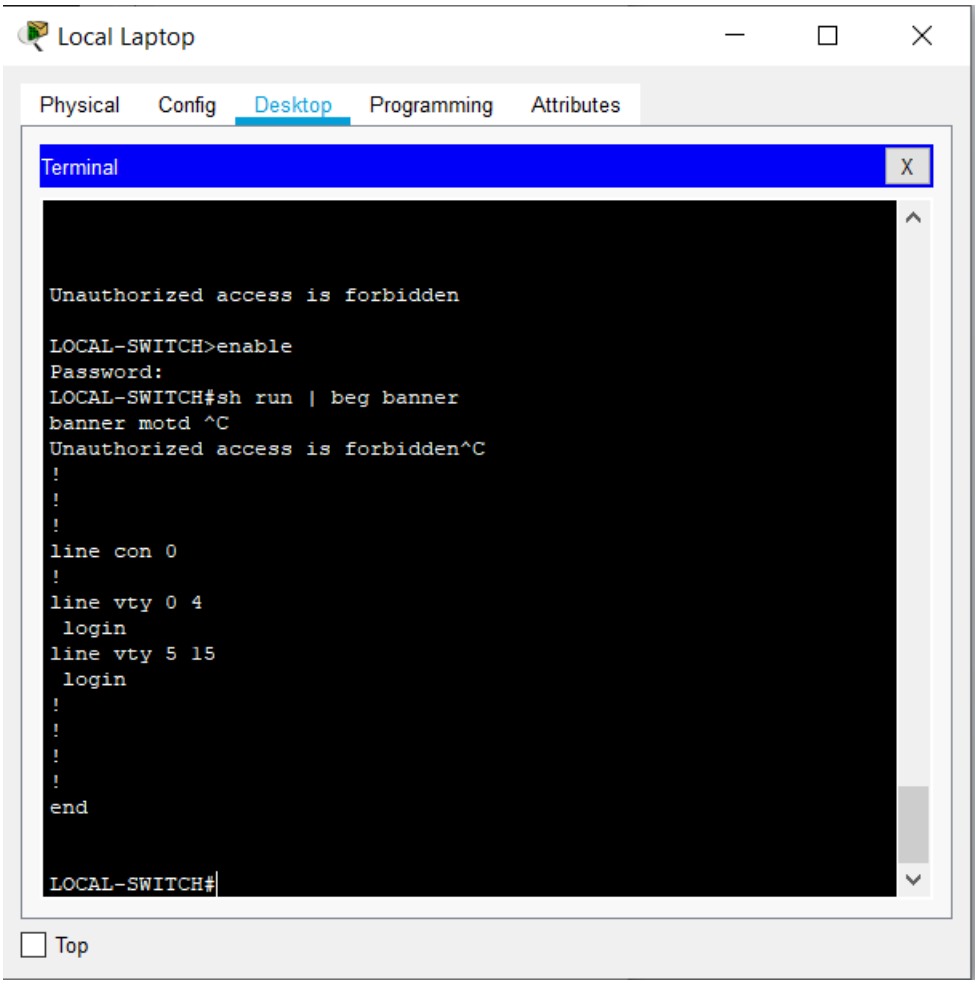


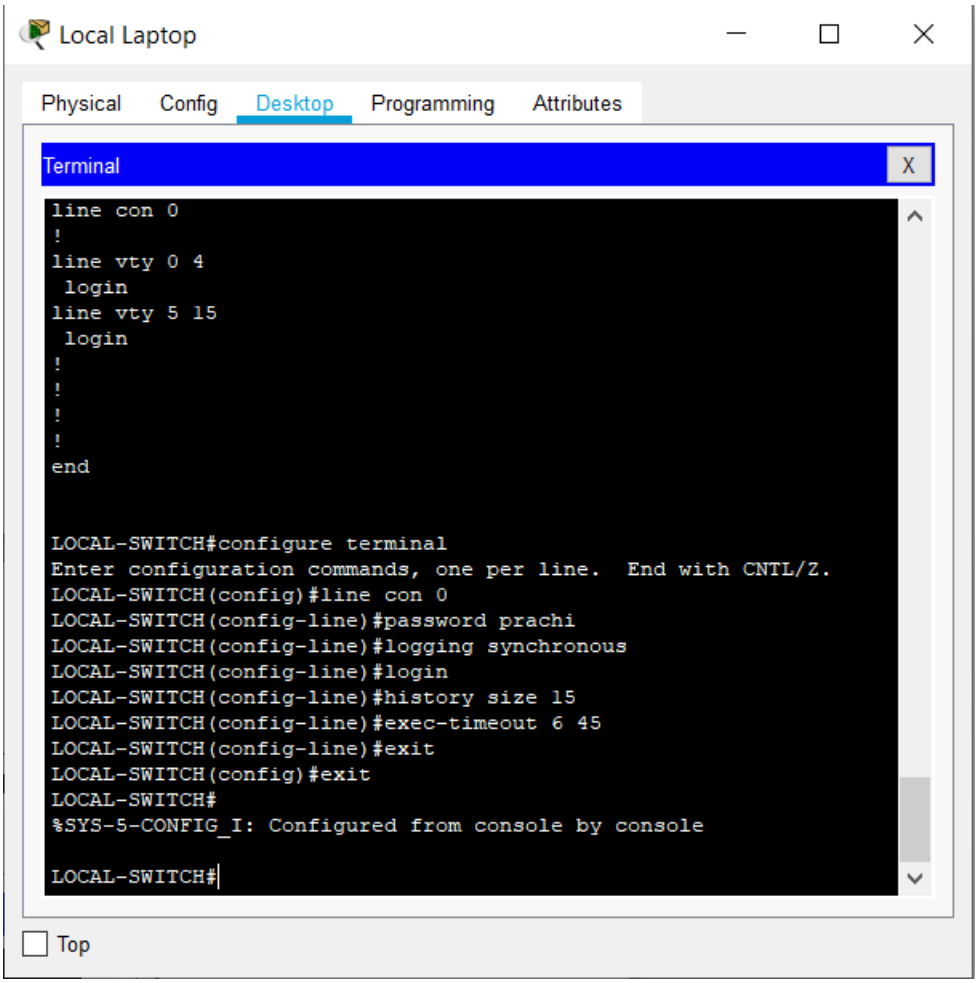
5. Configure password encryption on the switch using the global configuration command

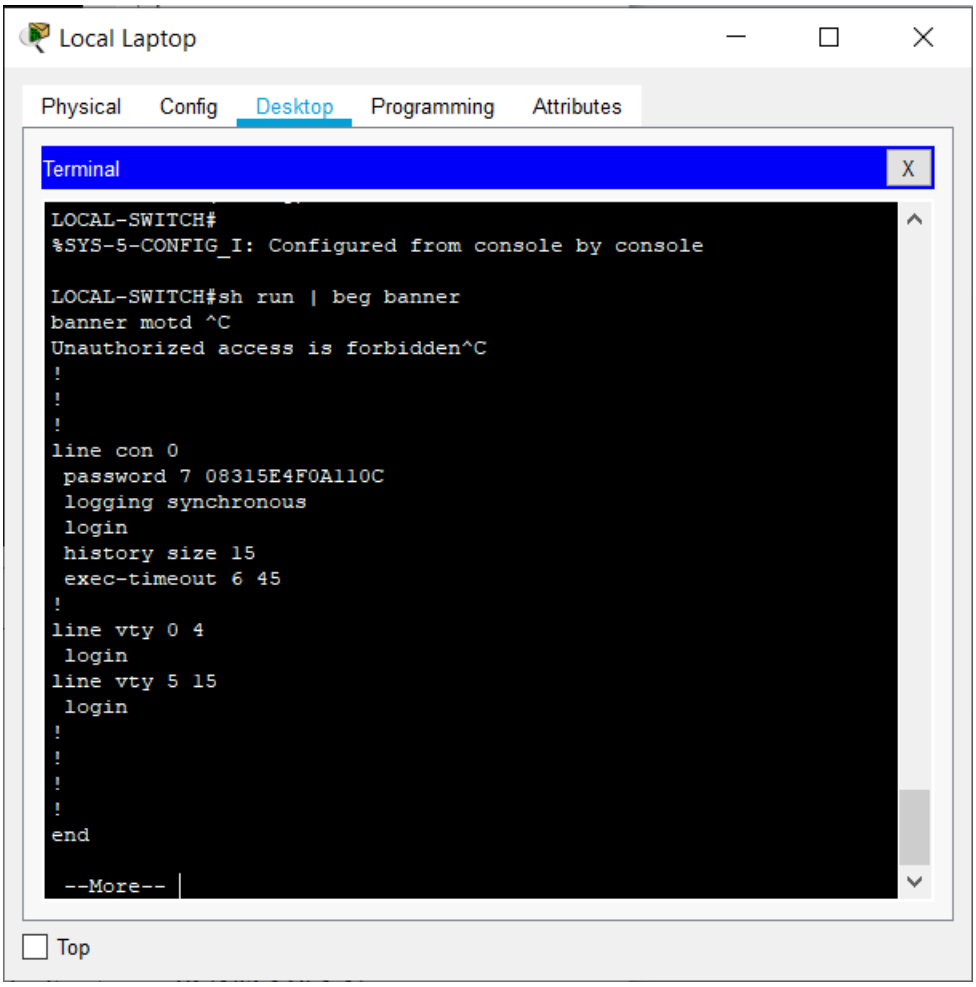

Local Laptop
Physical
Config
Desktop
Programming
Attributes
Terminal
X
Press RETURN to get started.
Unauthorized access is forbidden
LOCAL-SWITCH>enable
Password:
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#service password-encryption
LOCAL-SWITCH(config)#
Top



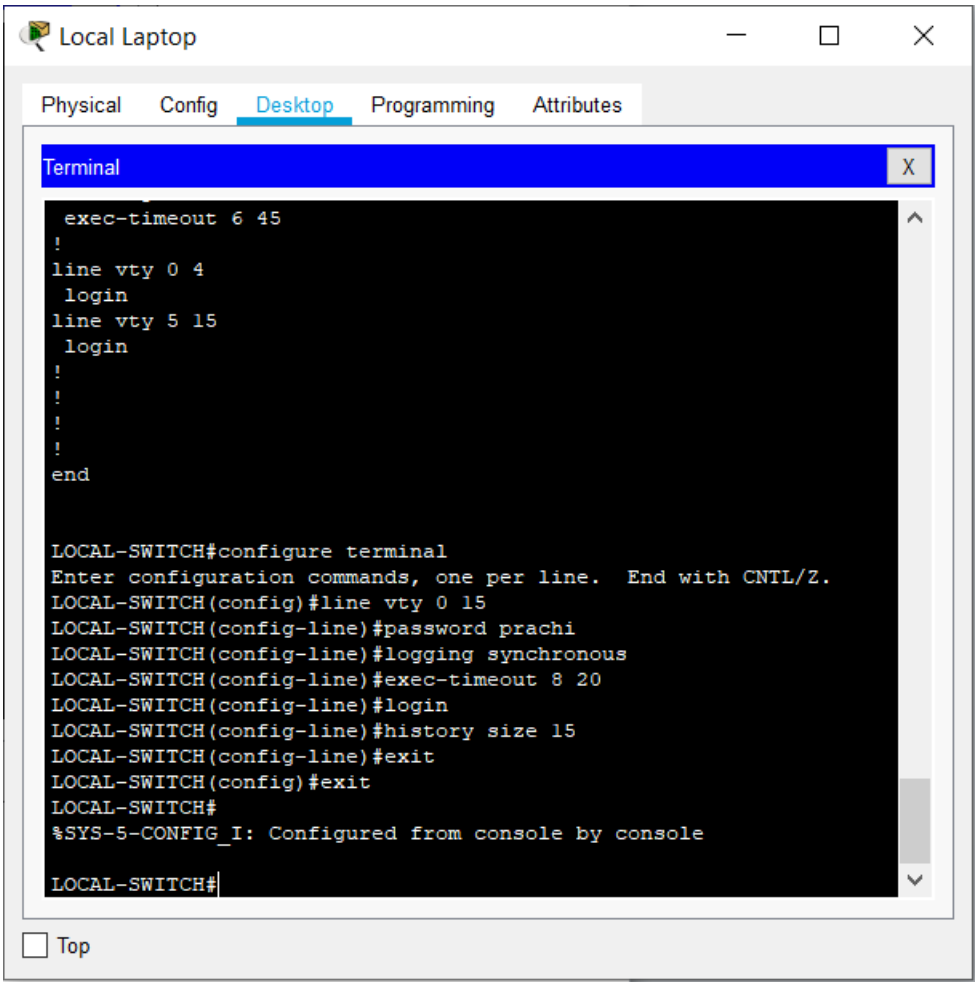
6. Configure CONSOLE access with the following settings :
- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 6'45"
- Synchronous logging

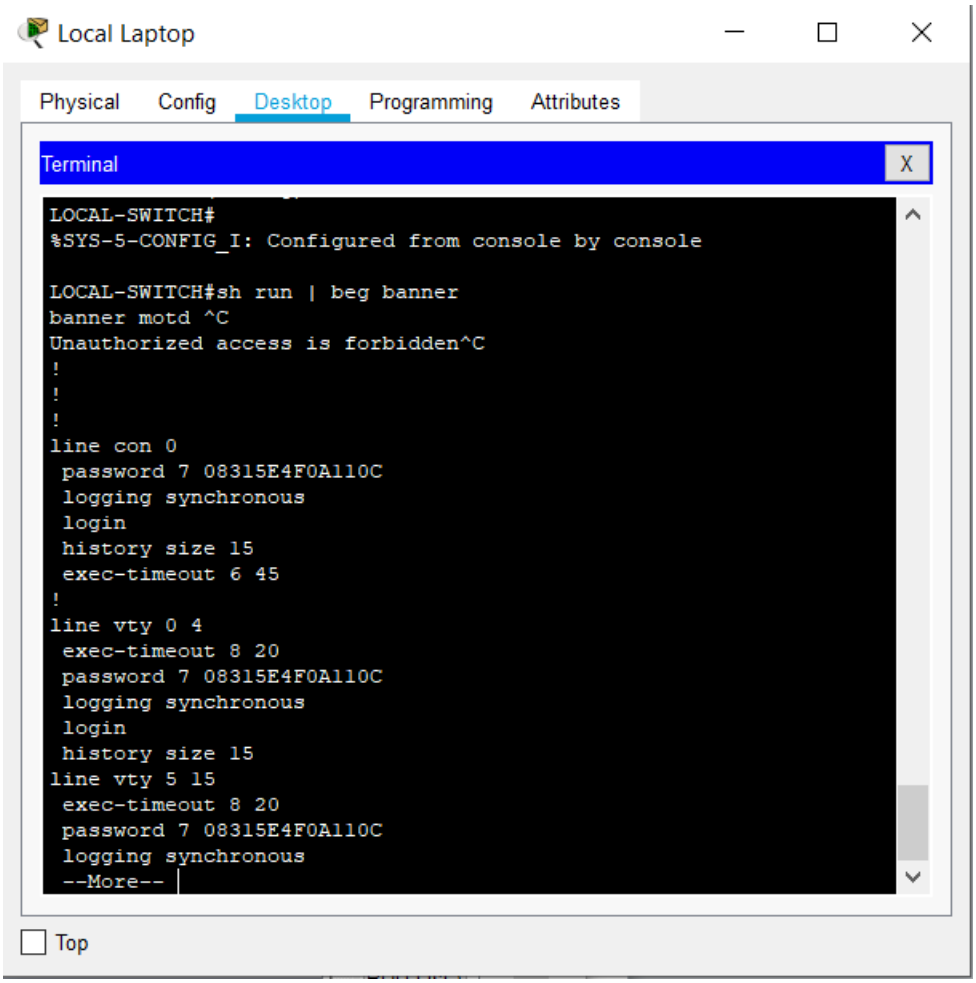

Local Laptop
Physical
Config
Desktop
Programming
Attributes
Terminal
X
Unauthorized access is forbidden
LOCAL-SWITCH>enable
Password:
LOCAL-SWITCH#sh run | beg banner
banner motd ^C
Unauthorized access is forbidden^C
!
!
!
line con 0
!
line vty 0 4
login
line vty 5 15
login
!
!
!
!
end
LOCAL-SWITCH#
Top


Local Laptop
Physical
Config
Desktop
Programming
Attributes
Terminal
X
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
!
!
end
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 prachi
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#
Top

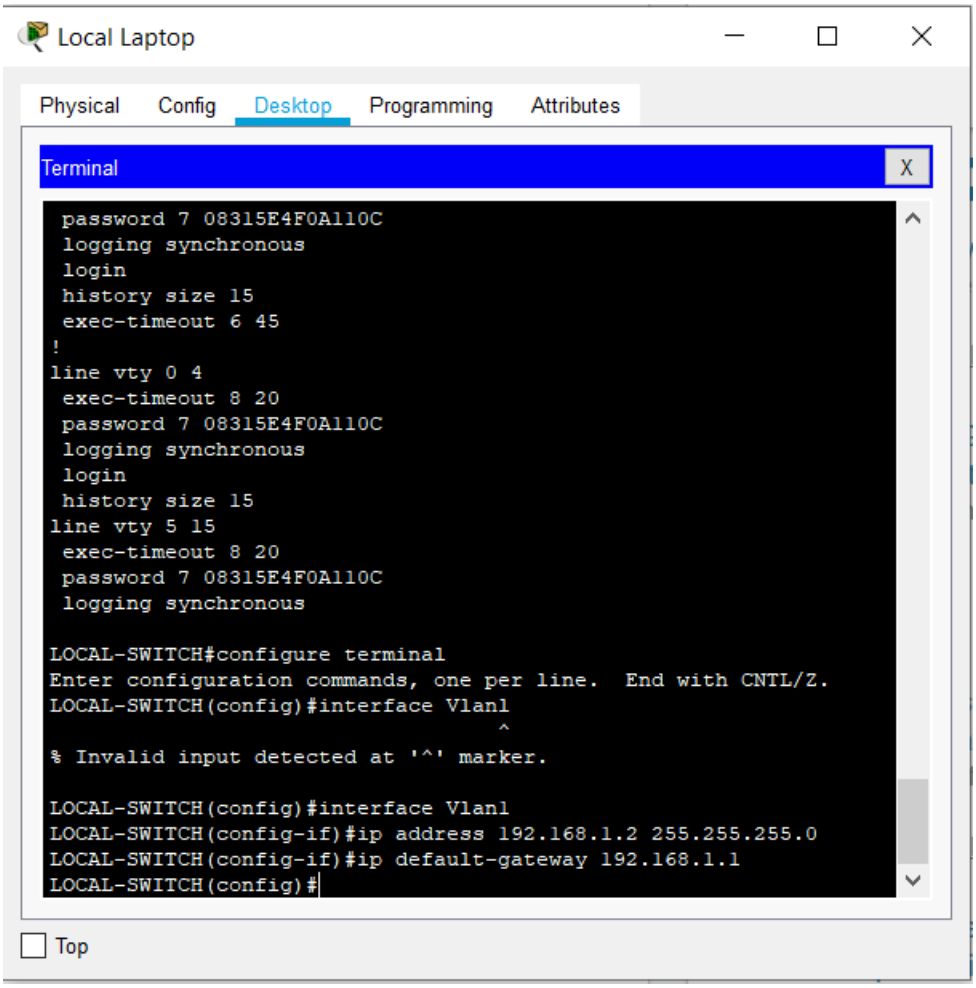


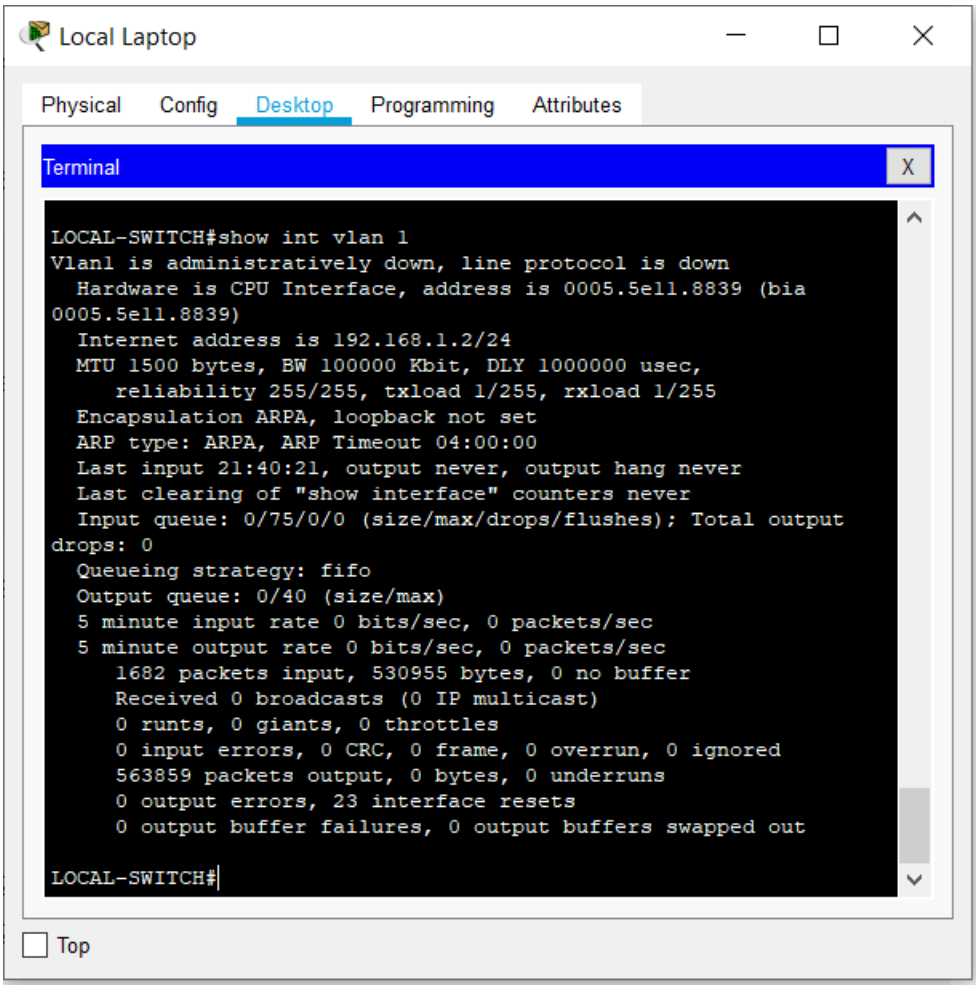
6. Configure TELNET access with the following settings :
- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 8'20"
- Synchronous logging


Local Laptop
Physical
Config
Desktop
Programming
Attributes
Terminal
X
exec-timeout 6 45
!
line vty 0 4
login
line vty 5 15
login
!
!
!
!
end
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)#password prachi
LOCAL-SWITCH(config-line)#logging synchronous
LOCAL-SWITCH(config-line)#exec-timeout 8 20
LOCAL-SWITCH(config-line)#login
LOCAL-SWITCH(config-line)#history size 15
LOCAL-SWITCH(config-line)#exit
LOCAL-SWITCH(config)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console
LOCAL-SWITCH#
Top

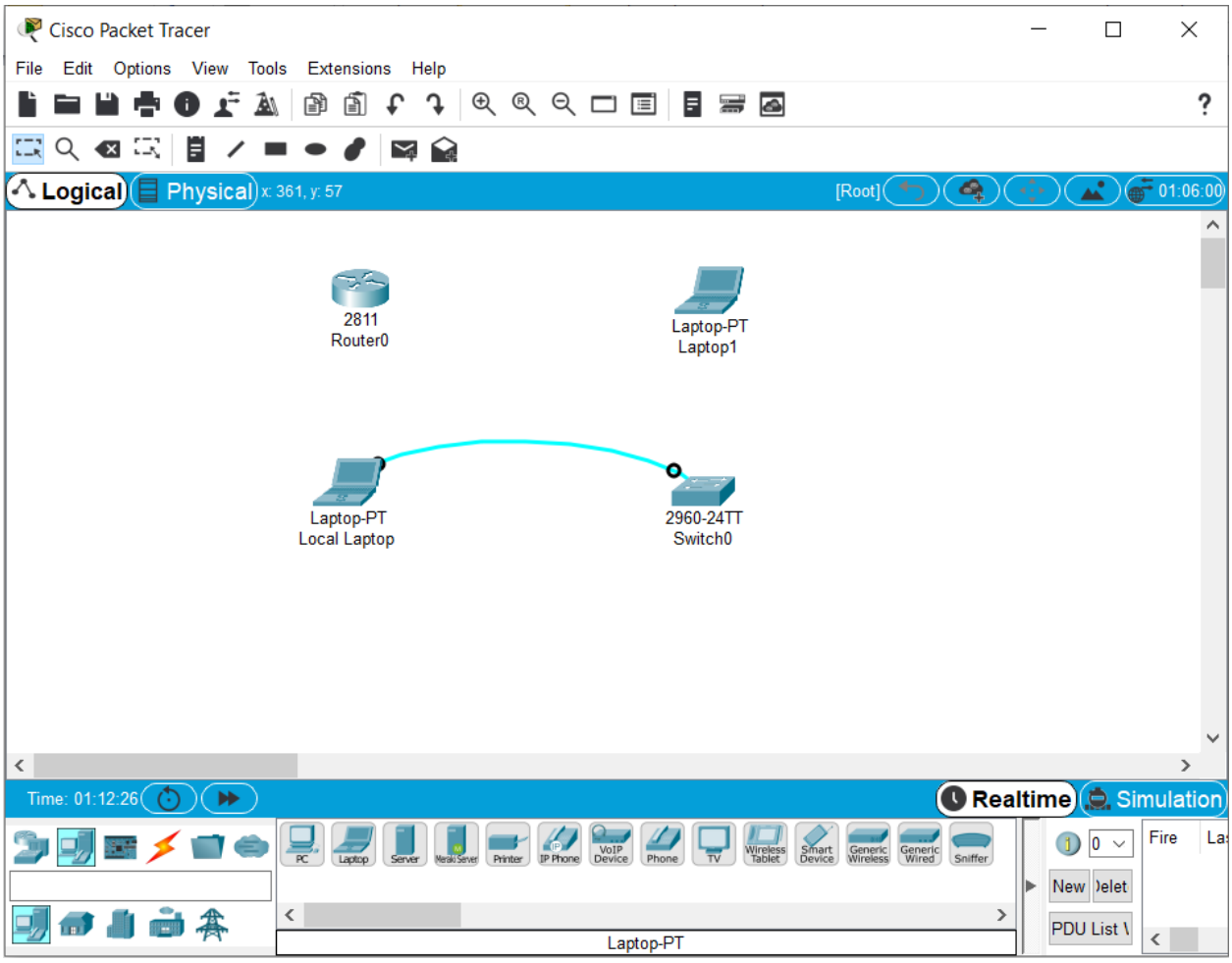


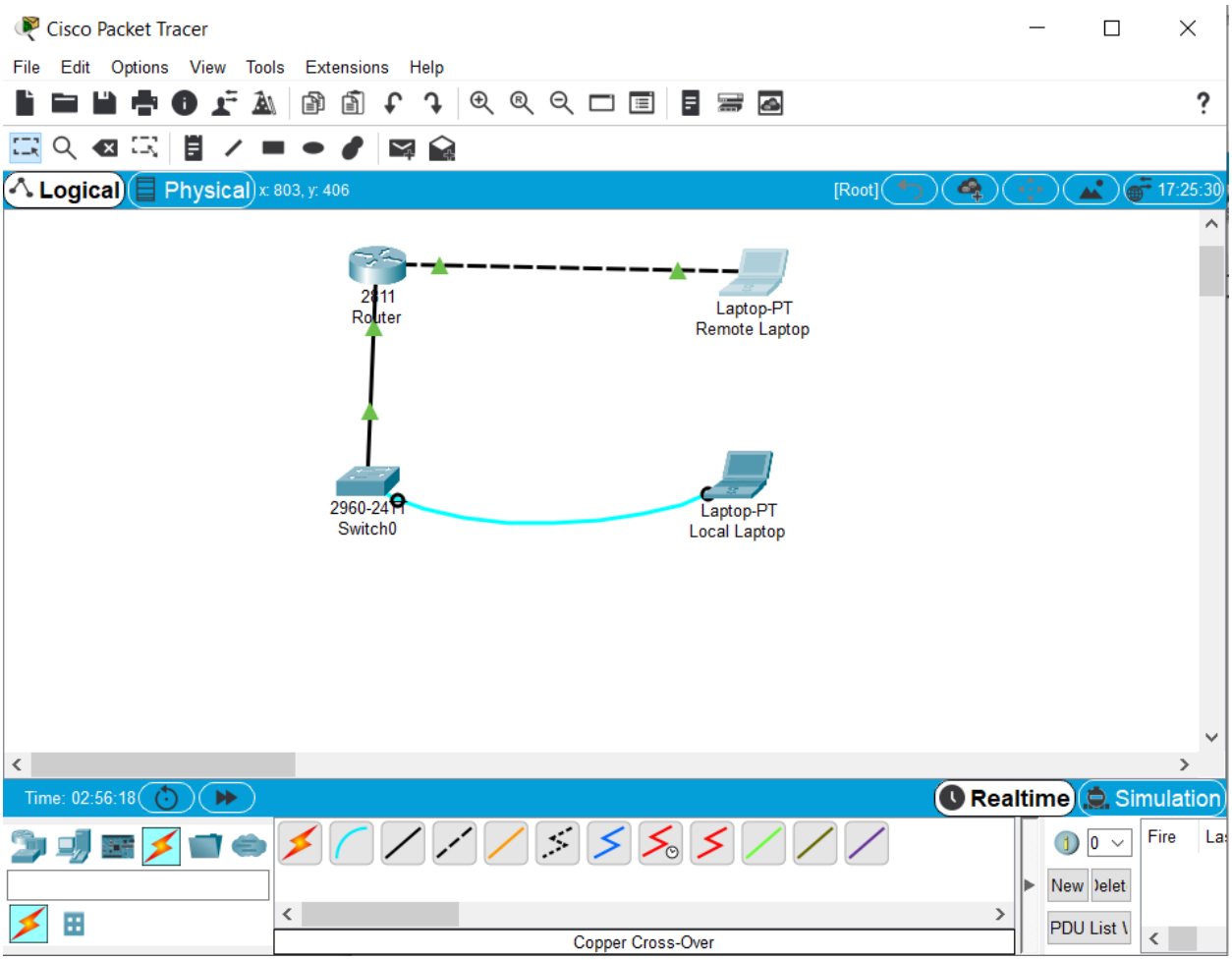
7. Configure the IP address of the switch as 192.168.1.2/24 and it's default gateway IP (192.168.1.1).

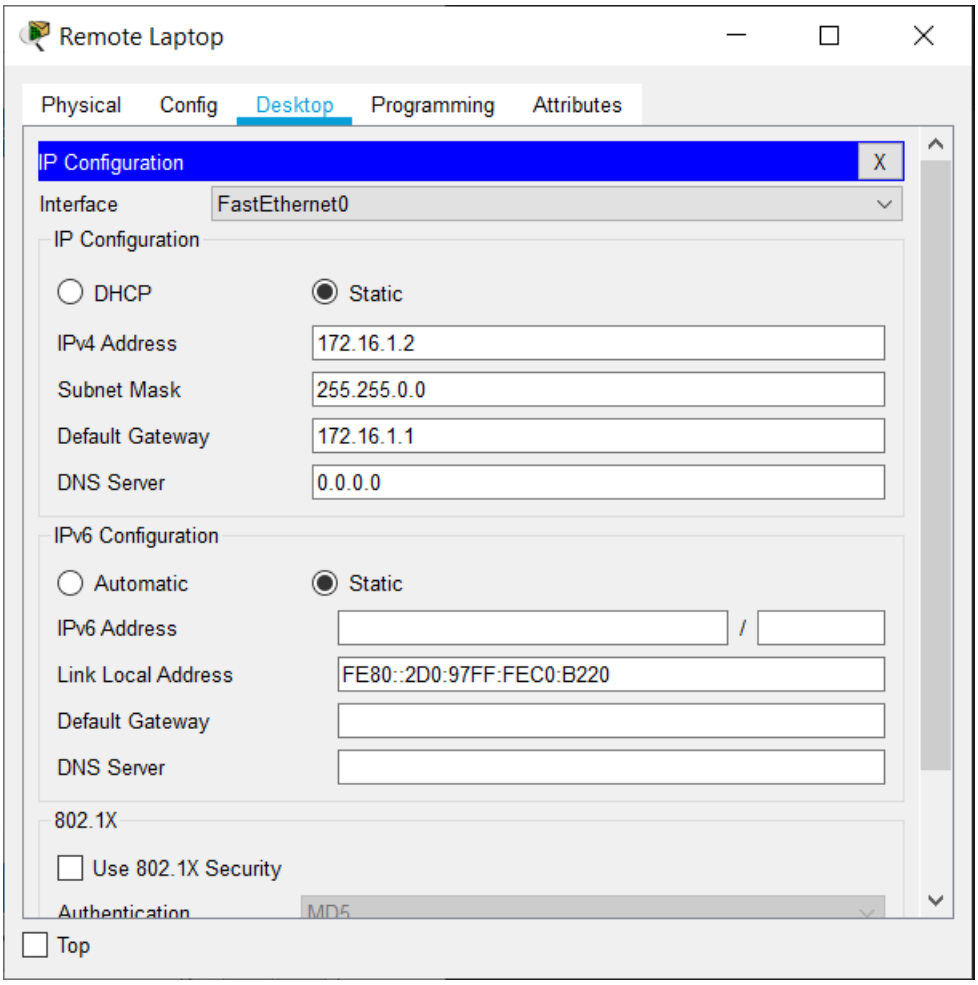

Local Laptop
Physical
Config
Desktop
Programming
Attributes
Terminal
X
password 7 08315E4F0A110C
logging synchronous
login
history size 15
exec-timeout 6 45
!
line vty 0 4
exec-timeout 8 20
password 7 08315E4F0A110C
logging synchronous
login
history size 15
line vty 5 15
exec-timeout 8 20
password 7 08315E4F0A110C
logging synchronous
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#interface Vlanl
^
% Invalid input detected at '^' marker.
LOCAL-SWITCH(config)#interface Vlanl
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
LOCAL-SWITCH(config)#
Top

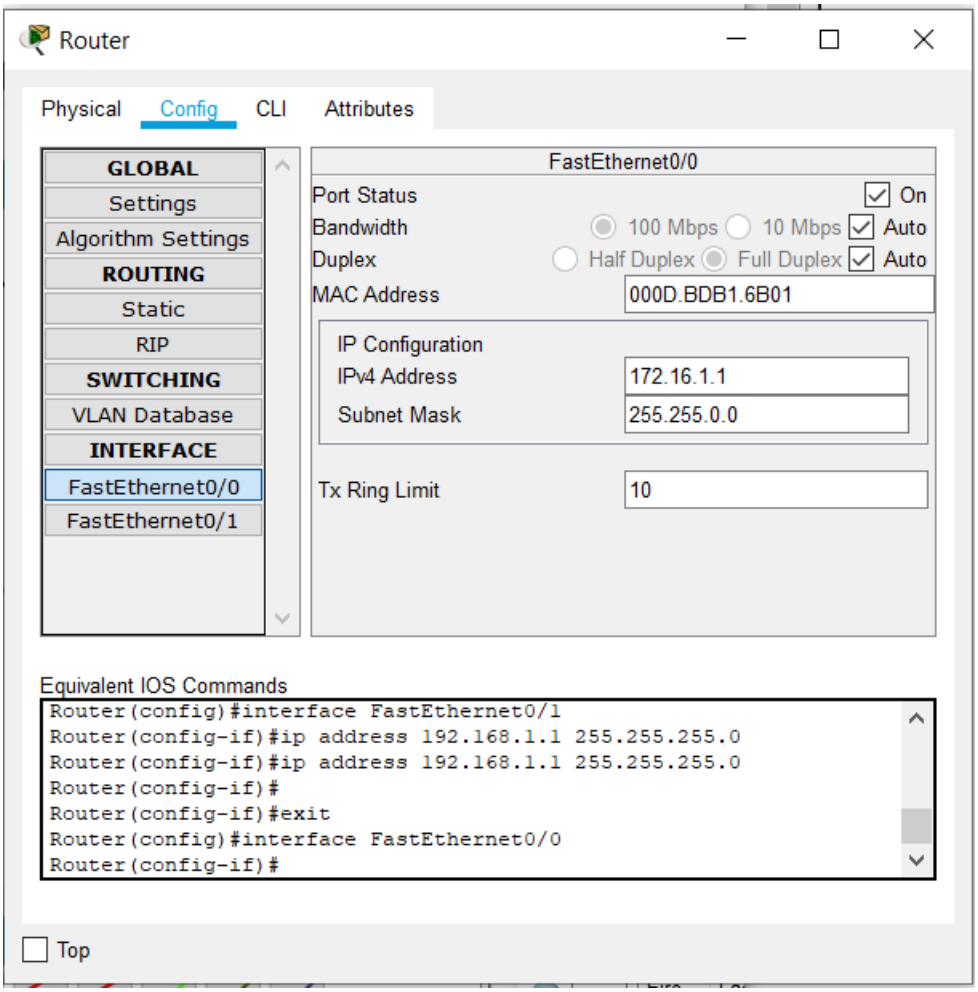


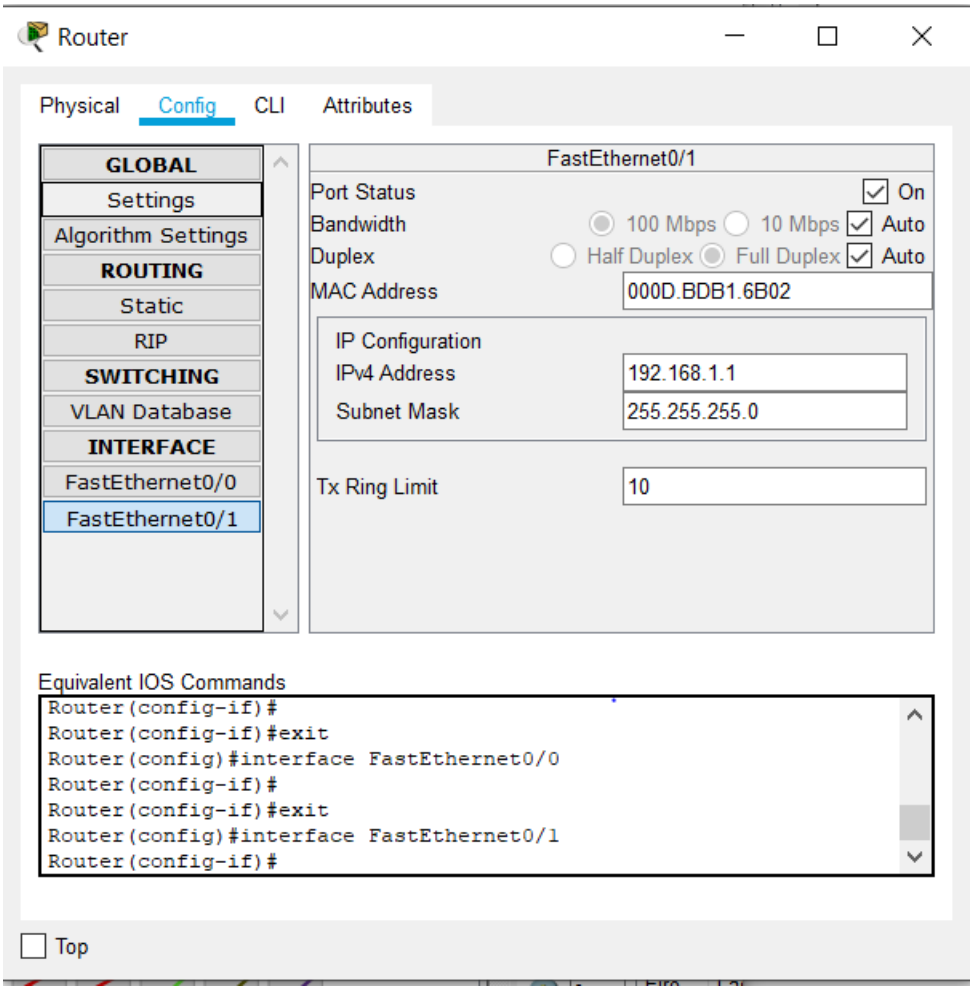
8. Test telnet connectivity from the Remote Laptop using the telnet client.

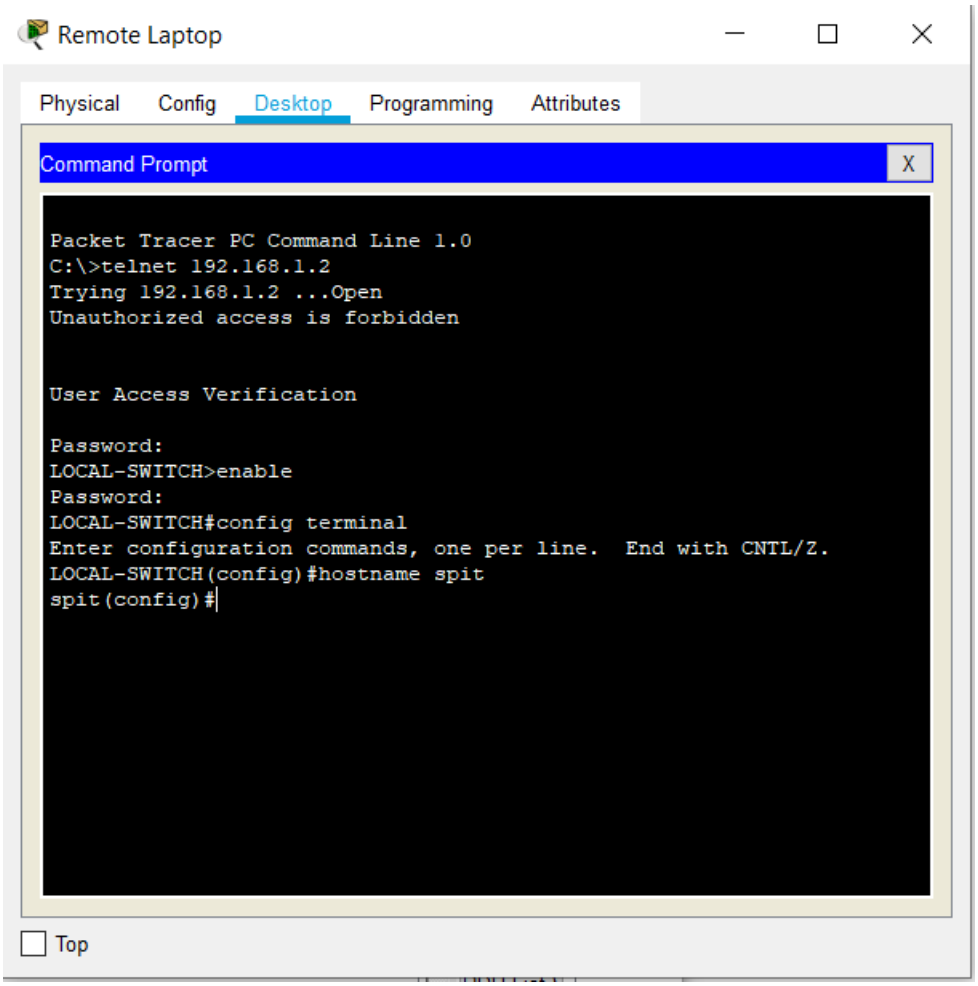

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
Physical
x: 361, y: 57
[Root]
01:06:00
2811
Router0
Laptop-PT
Laptop1
Laptop-PT
Local Laptop
2960-24TT
Switch0
Time: 01:12:26
Realtime
Simulation
PC
Laptop
Server
Printer
IP Phone
VoIP Device
Phone
TV
Wireless Tablet
Smart Device
Generic Wireless
Generic Wired
Sniffer
Fire
New
PDU List
Laptop-PT

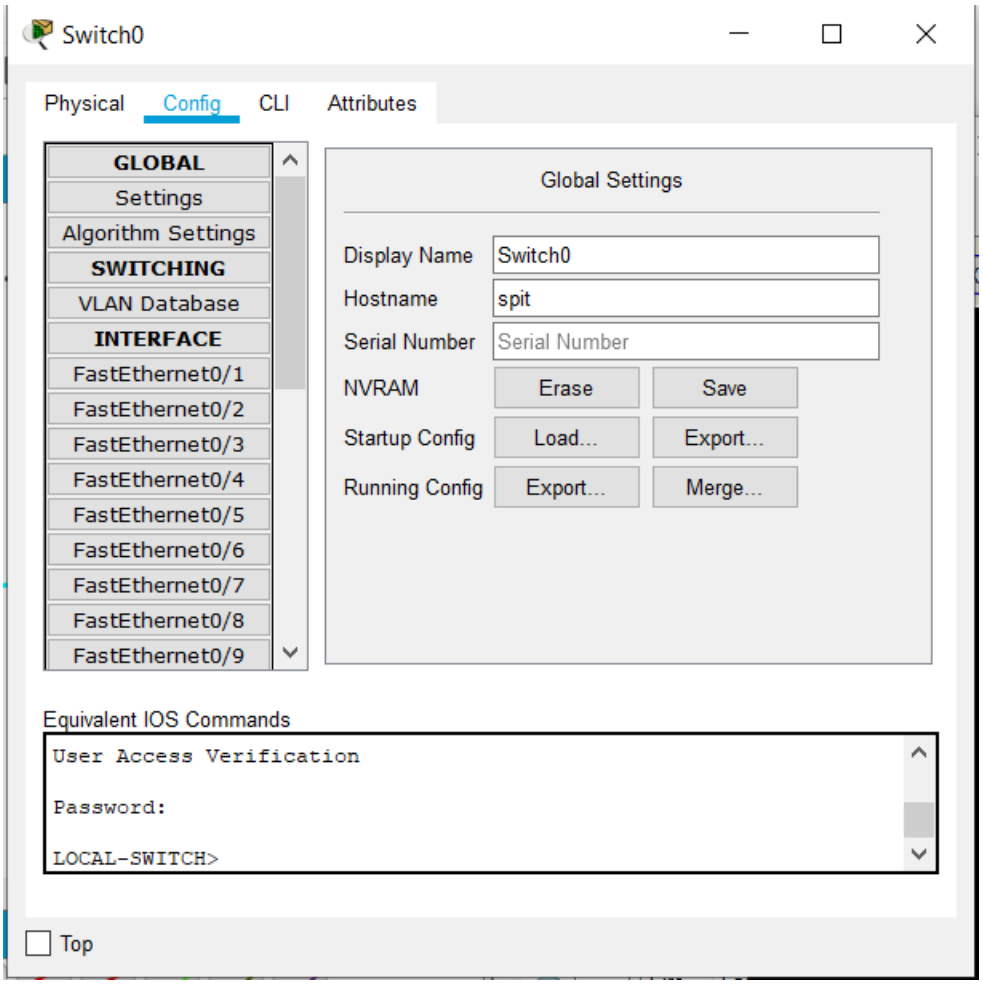

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
Physical
x: 803, y: 406
[Root]
17:25:30
2911
Router
Laptop-PT
Remote Laptop
2960-24TT
Switch0
Laptop-PT
Local Laptop
Time: 02:56:18
Realtime
Simulation
Fire
New
PDU List
Copper Cross-Over


Remote Laptop
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 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
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::2D0:97FF:FEC0:B220
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
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
000D.BDB1.6B01
IP Configuration
IPv4 Address
172.16.1.1
Subnet Mask
255.255.0.0
Tx Ring Limit
10
Equivalent IOS Commands
Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#
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
000D.BDB1.6B02
IP Configuration
IPv4 Address
192.168.1.1
Subnet Mask
255.255.255.0
Tx Ring Limit
10
Equivalent IOS Commands
Router(config-if)#
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


Remote Laptop
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Packet Tracer PC Command Line 1.0
C:\>telnet 192.168.1.2
Trying 192.168.1.2 ...Open
Unauthorized access is forbidden
User Access Verification
Password:
LOCAL-SWITCH>enable
Password:
LOCAL-SWITCH#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
LOCAL-SWITCH(config)#hostname spit
spit(config)#
Top



Conclusion:

In this experiment I understood how to setup network between router and switch and to configure telnet for switch and accessing it from remote laptop