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UID: 2018130040

Batch: C

Date: 04/09/20

CEL 51, DCCN, Monsoon 2020

Lab 4: Prototyping a Network

Objective:

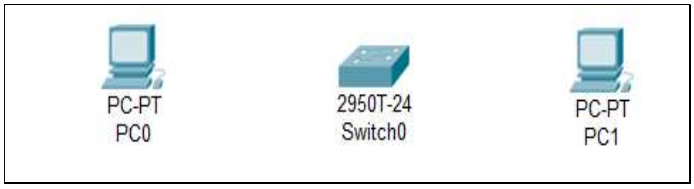
Prototype a network using Packet Tracer

Background

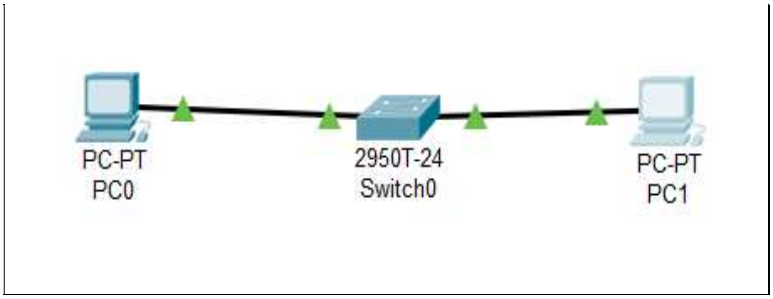
A client has requested that you set up a simple network with two PCs connected to a switch. Verify that the hardware, along with the given configurations, meet the requirements of the client.

Step 1: Set up the network topology

a) Add two PCs and a Cisco 2950T switch

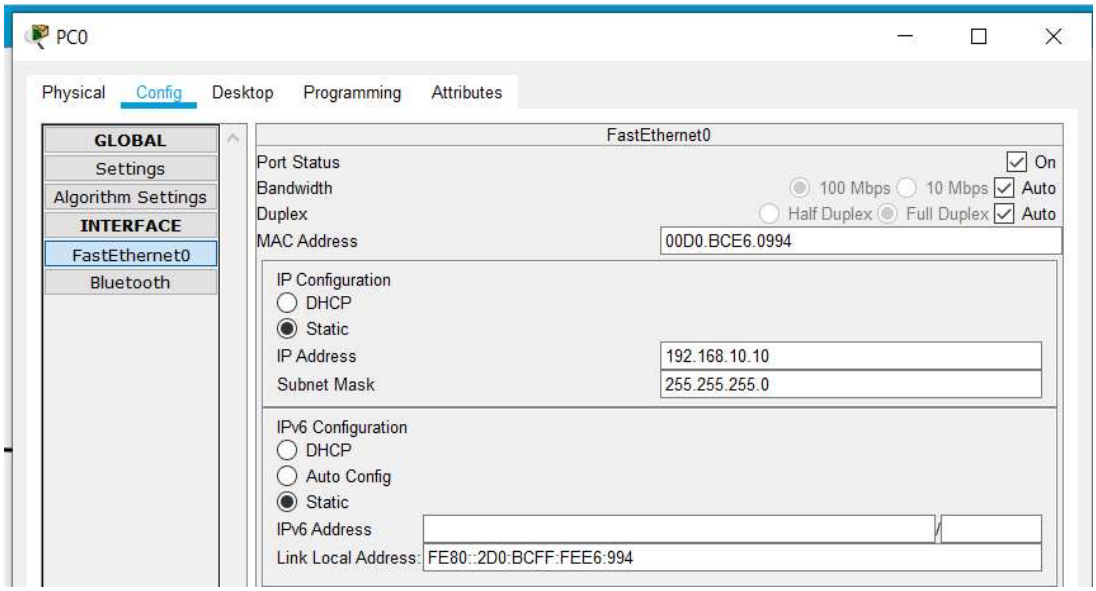


b) Using straight-through cables, connect **PC0** to interface **Fa0/1** on **Switch0** and **PC1** to interface **Fa0/2** on **Switch0**.



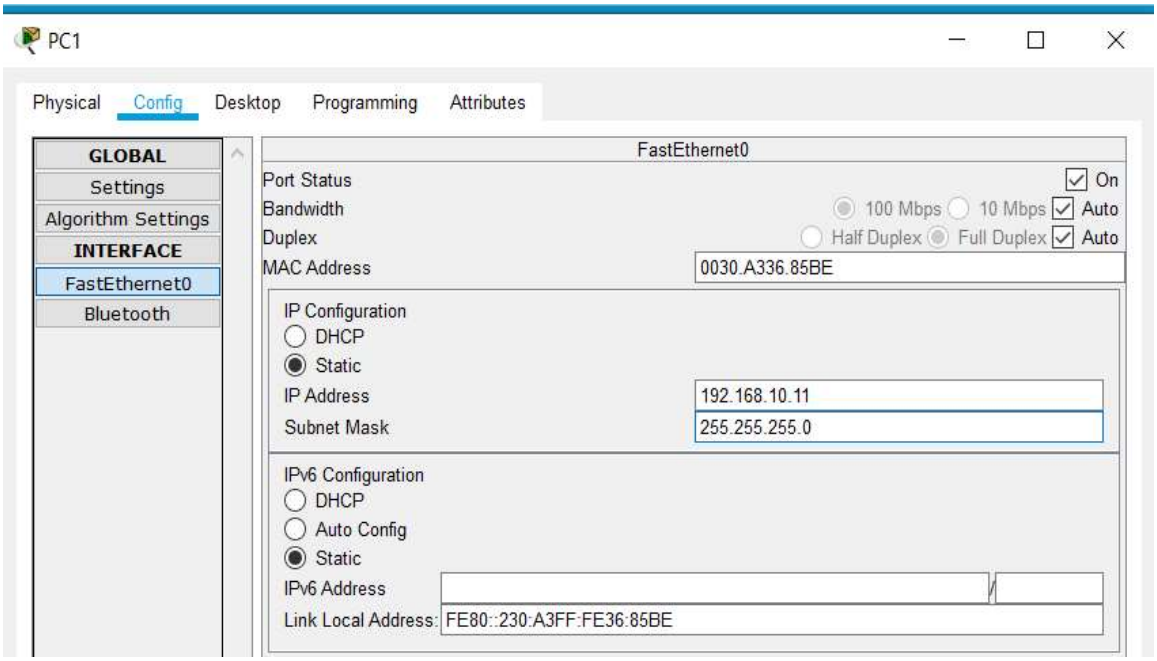
c) Configure PC0 using the **Config** tab in the PC0 configuration window:

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

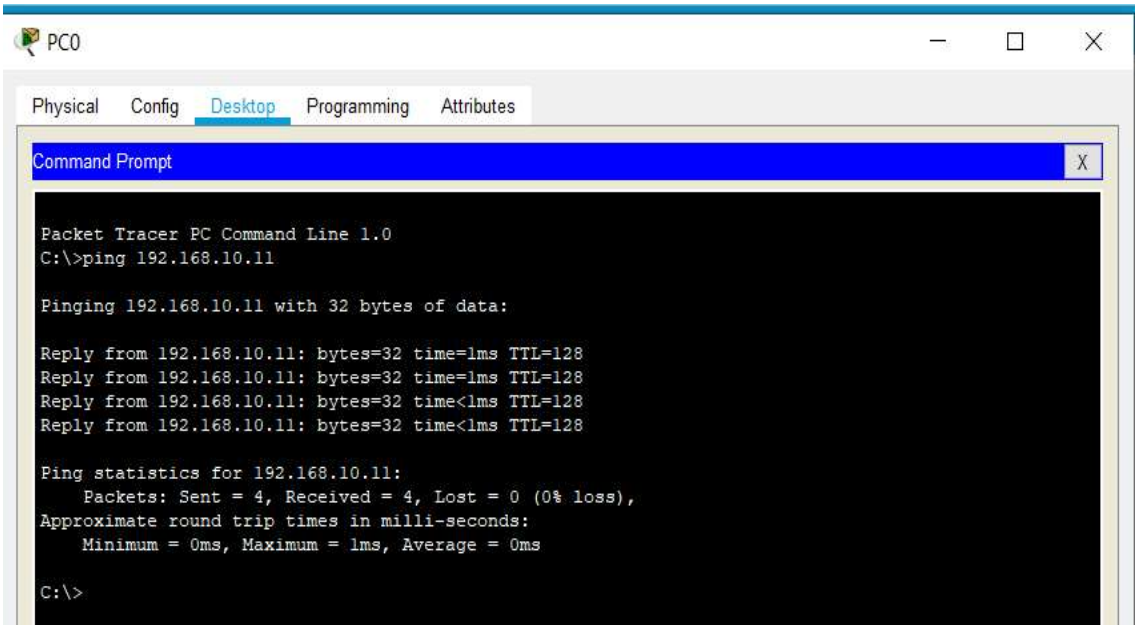
a. IP address: 192.168.10.11
b. Subnet Mask 255.255.255.0



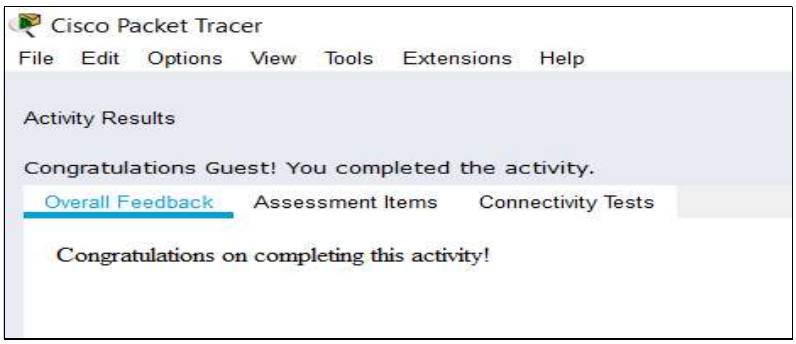
Step 2: Test connectivity from PC0 to PC1

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.



CEL51, DCCN, Monsoon 2020

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

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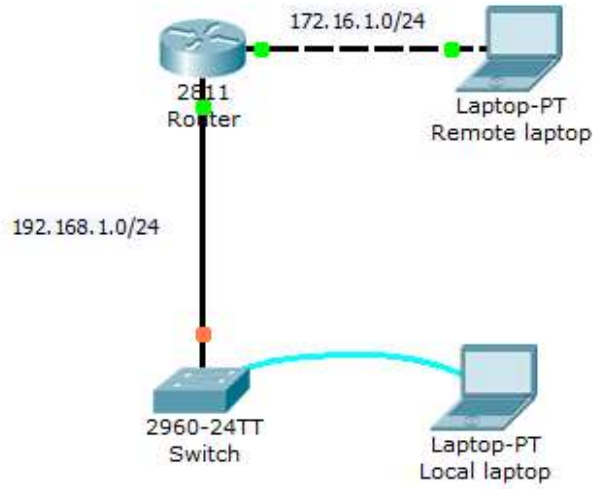
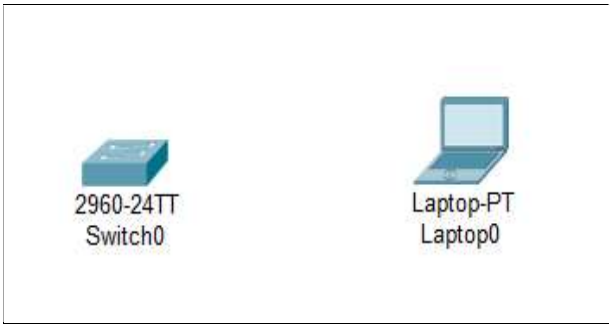
Objective:

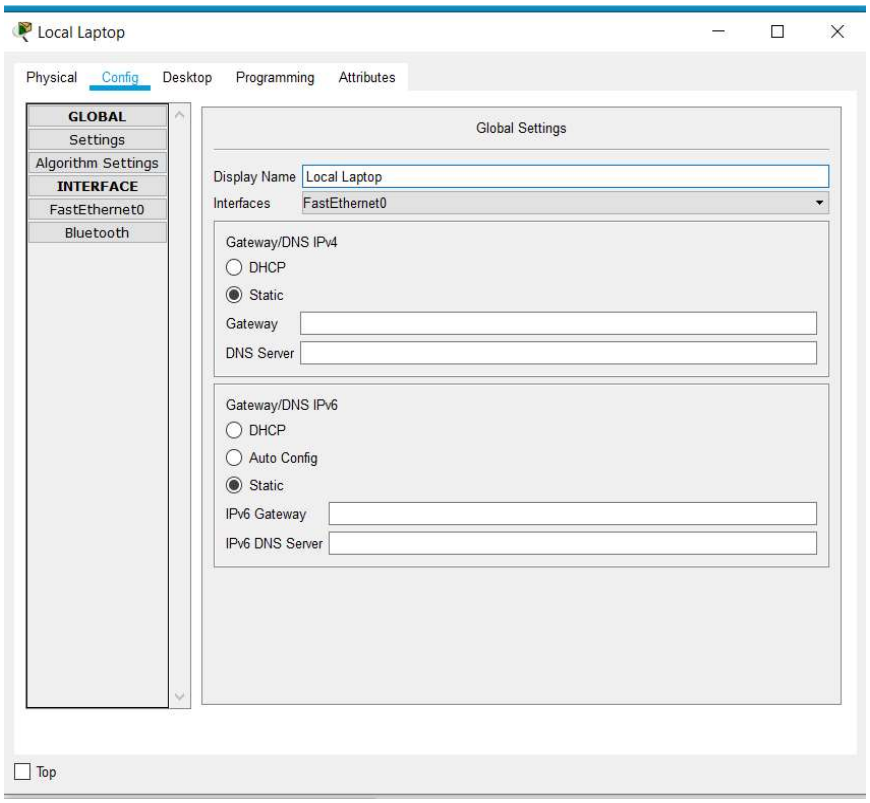
This lab will test your ability to configure basic settings such as hostname, motd banner, encrypted passwords, and terminal options on a Packet Tracer 6.2 simulated Cisco Catalyst switch.

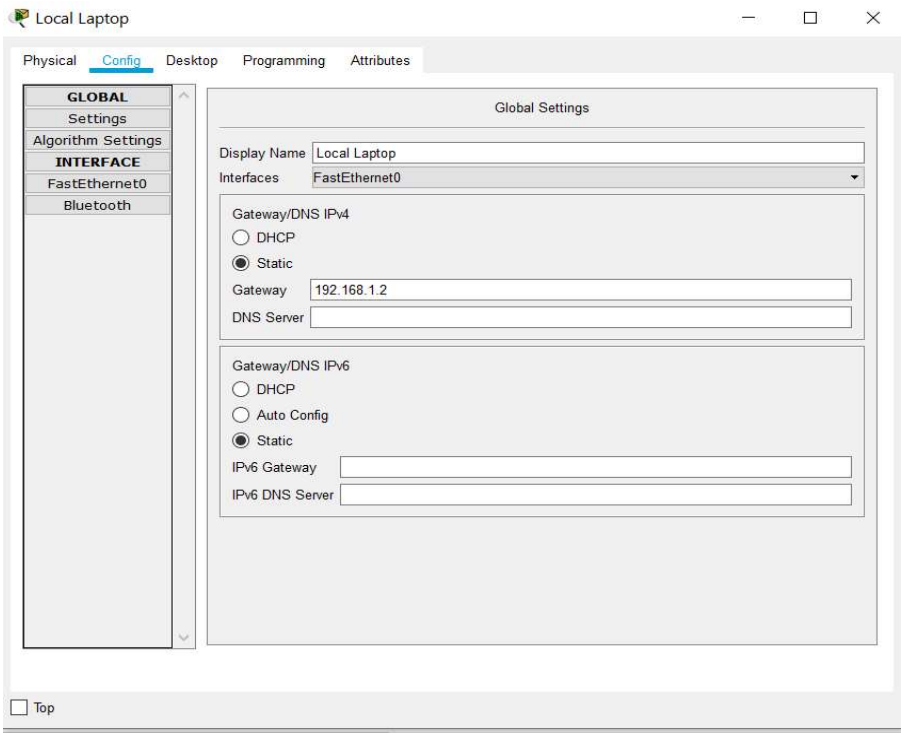


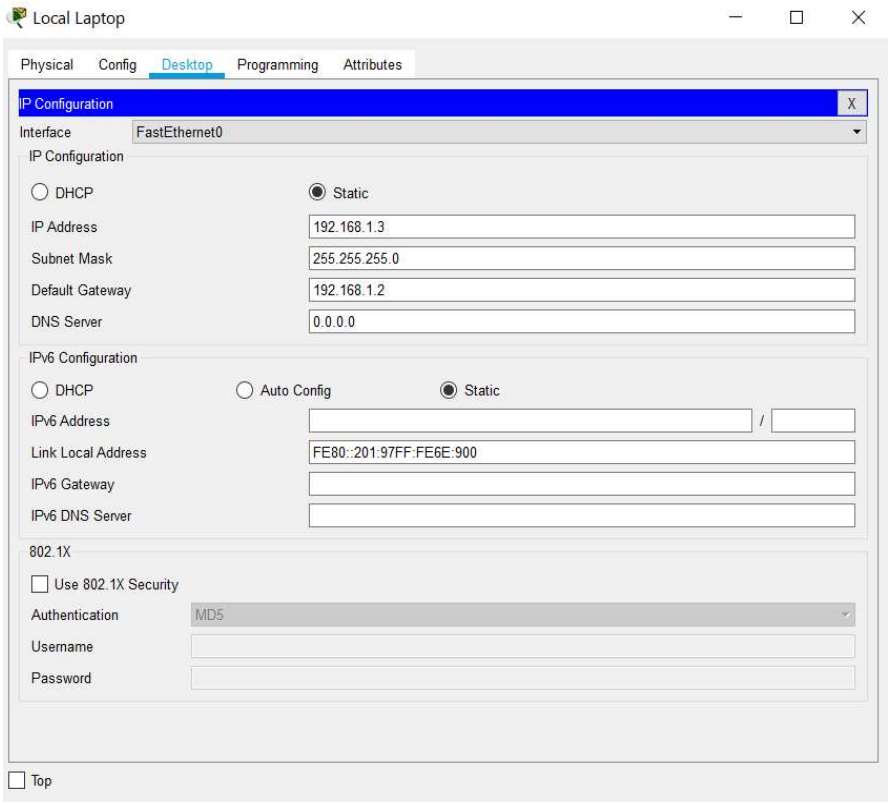
1. Use the local laptop connect to the switch console.



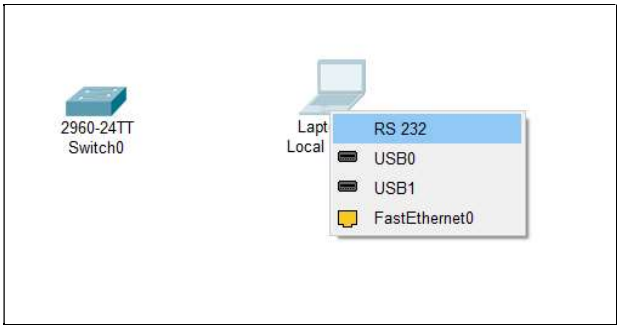
- Changed the name of laptop:

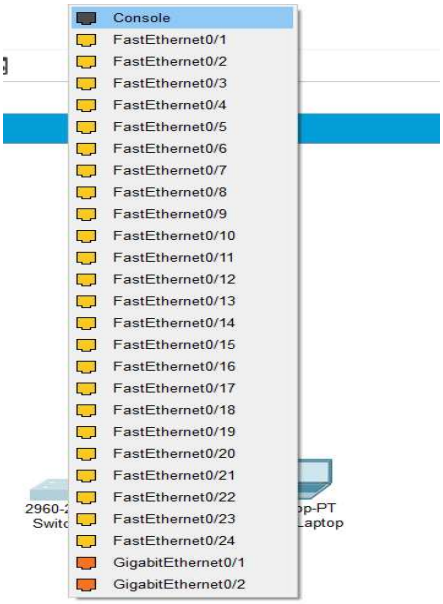


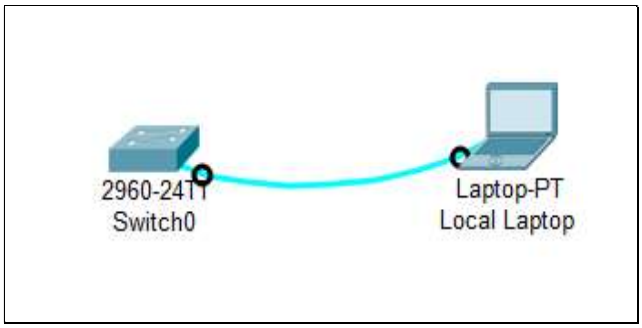




- Connect Local laptops RS232 with Switch 0 console using console:

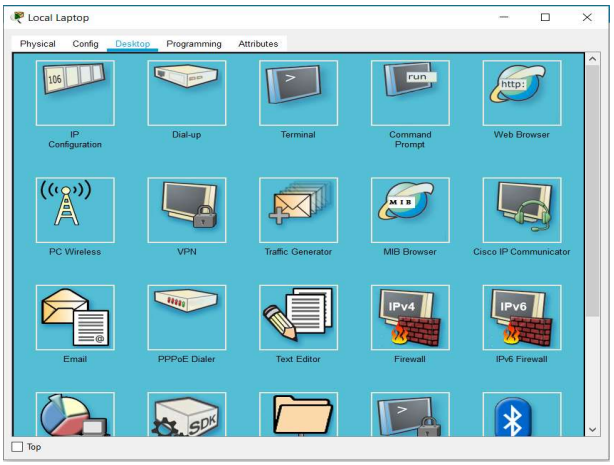




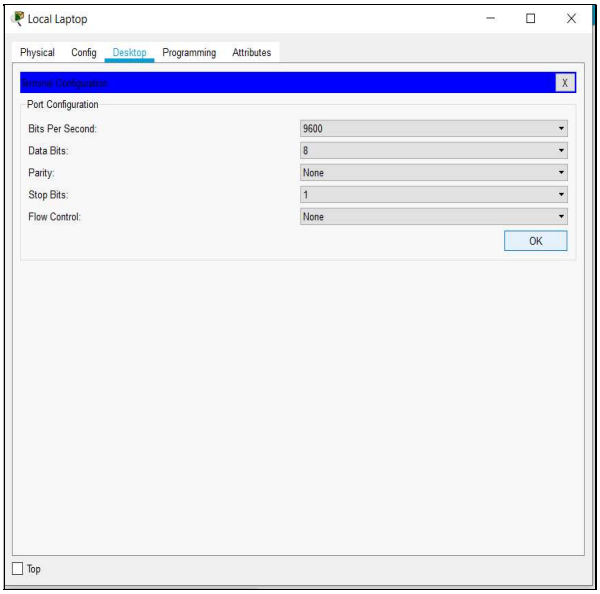


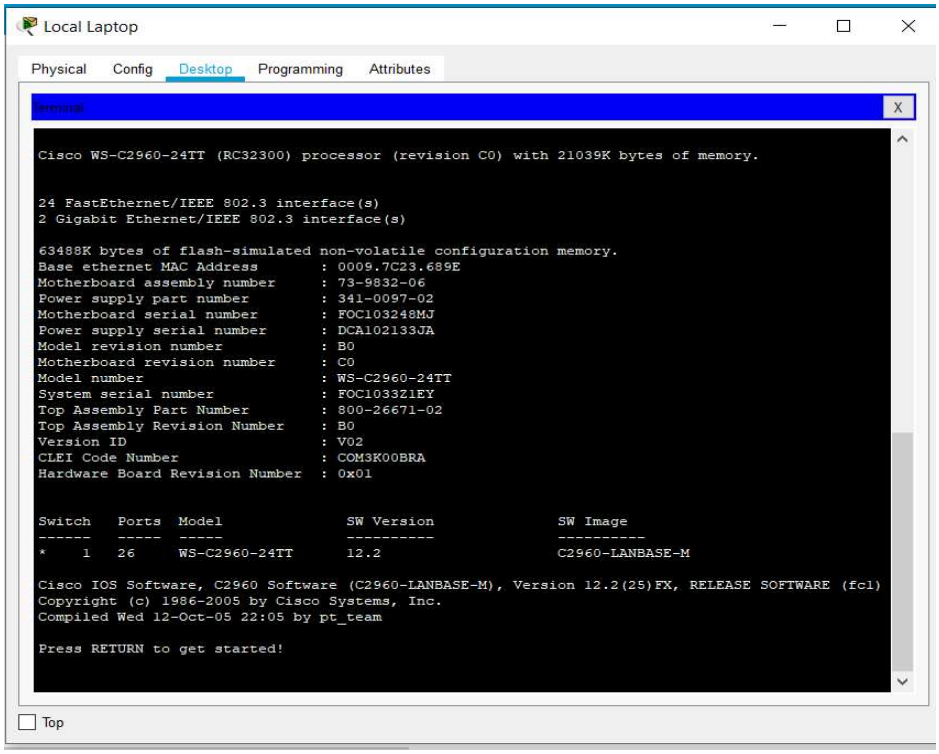
2. Configure Switch hostname as LOCAL-SWITCH

- Click on Local Laptop and go to Desktop:

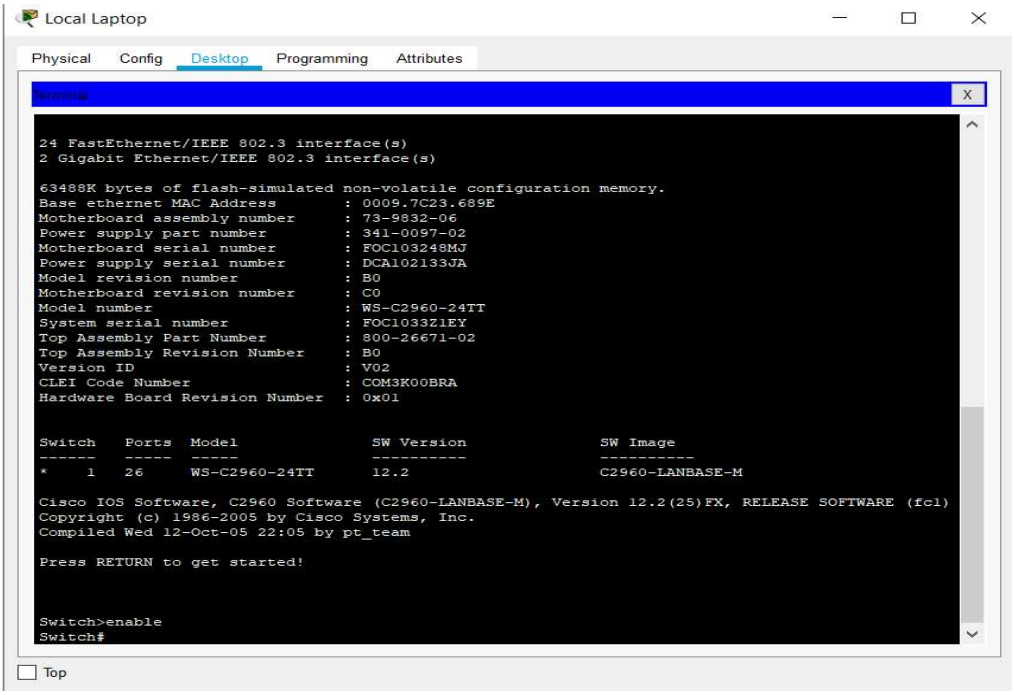


- Select Terminal and click ok:

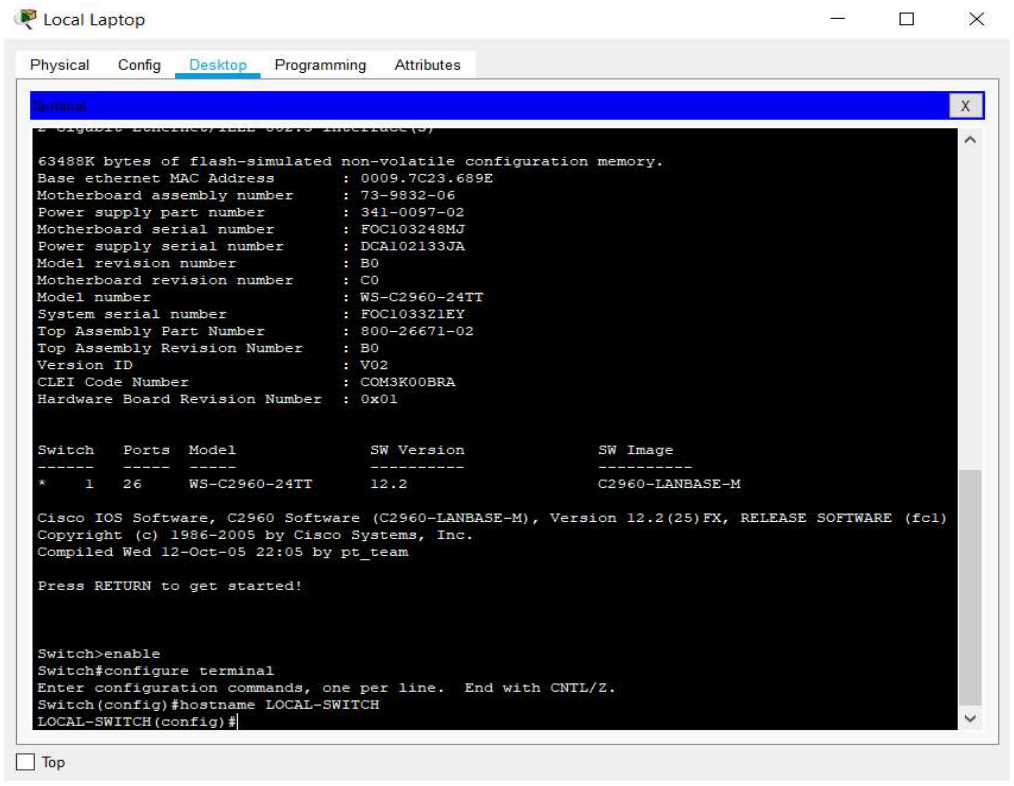




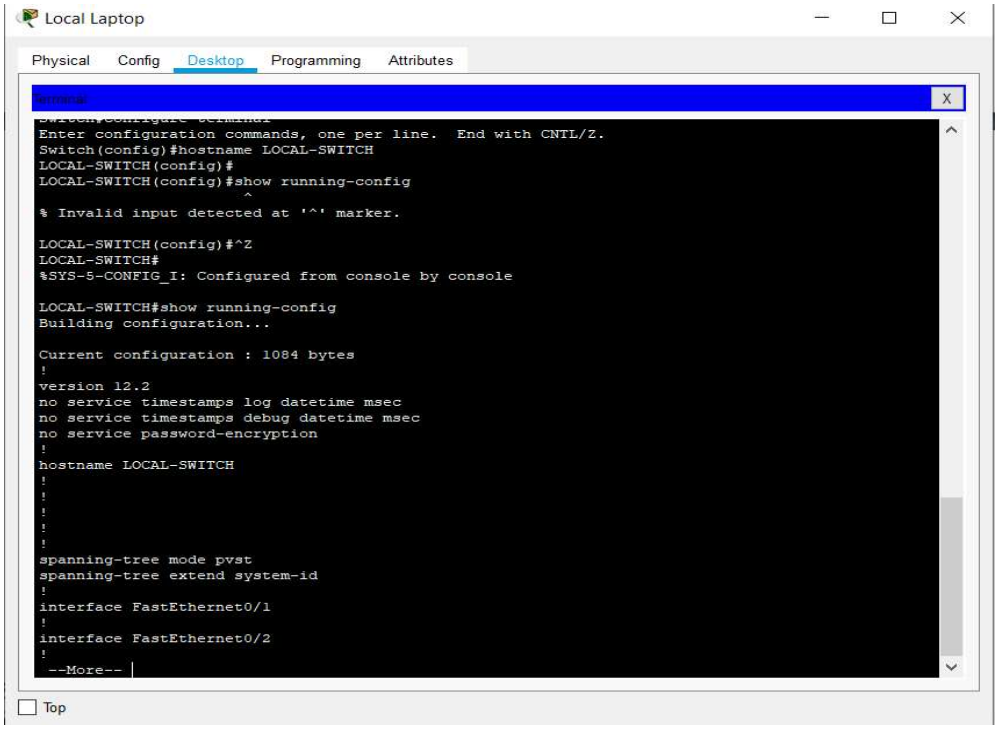
- Press Enter and write enable:



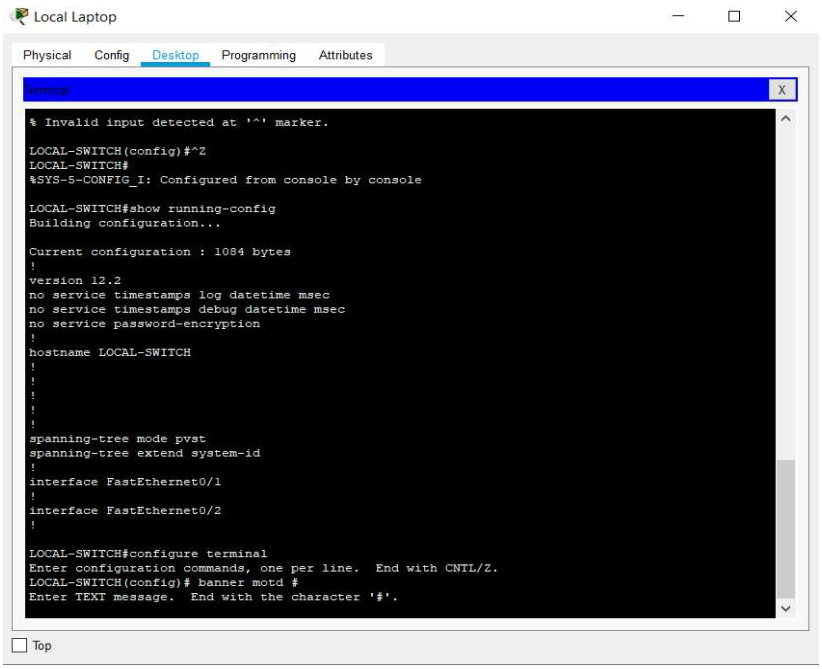
- Write configure terminal and give command hostname LOCAL_SWITCH



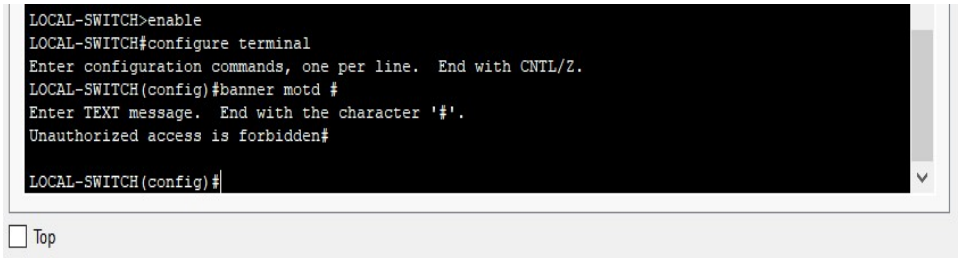
- Exit configuration with CTRL+Z, and run show running-config command to check the new hostname:



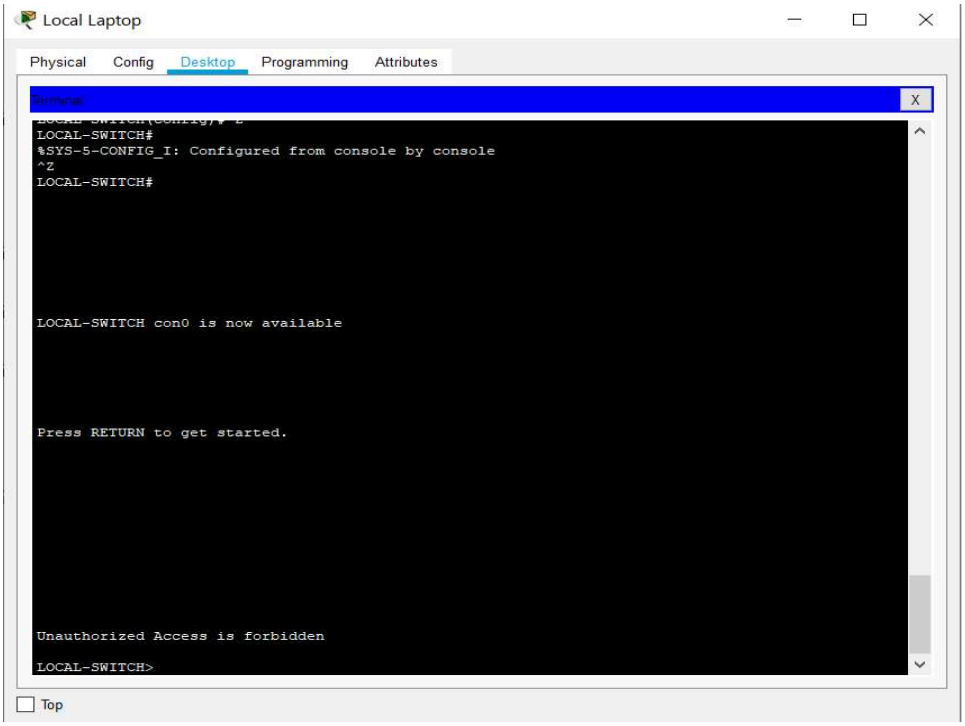
3. Configure the message of the day as "Unauthorized access is forbidden"



- Run banner motd # command and enter the message :



- The message of the day is set



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

- Run enable secret cisco and check if set using show running-config command. The password is md5 encrypted.

```
LOCAL-SWITCH(config)#enable secret cisco
LOCAL-SWITCH(config)#^Z
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

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

Current configuration : 1181 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 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
```

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

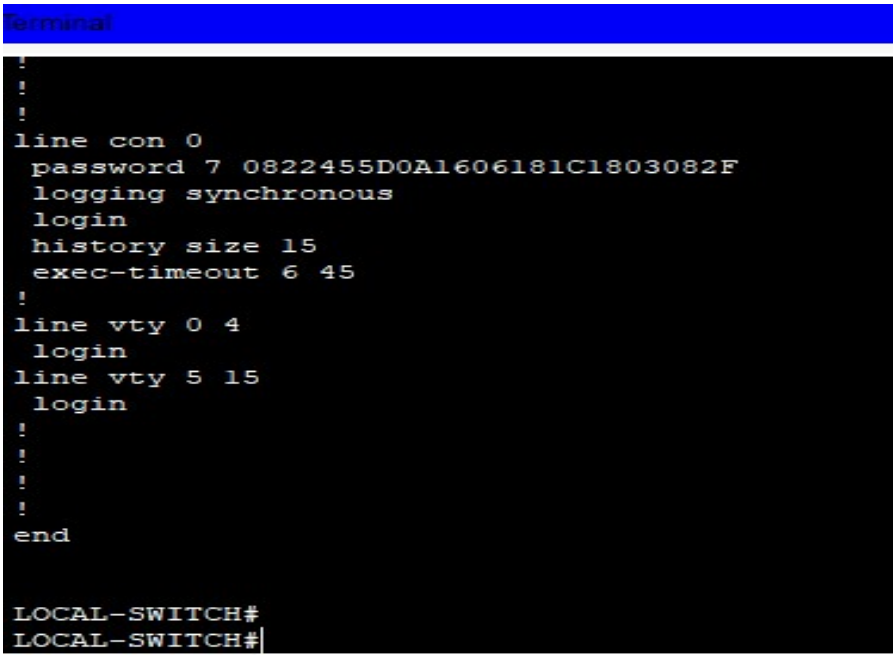
- Run service password-encryption command:

```
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#service password-encryption
LOCAL-SWITCH(config)#^Z
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

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

Current configuration : 1178 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 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
 --More--
```

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

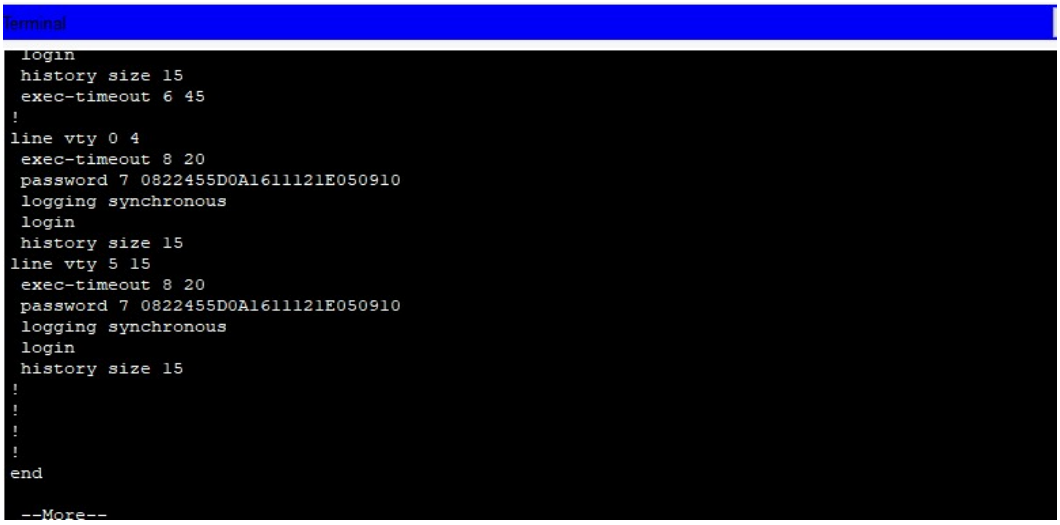
```
interface Vlan1
 no ip address
 shutdown
!
banner motd ^C
Unauthorized access is forbidden^C
!
!
!
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
!
!
end


LOCAL-SWITCH#
LOCAL-SWITCH#
```

```
LOCAL-SWITCH#
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)#^Z
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

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

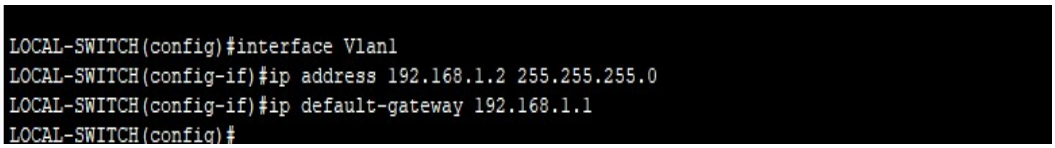


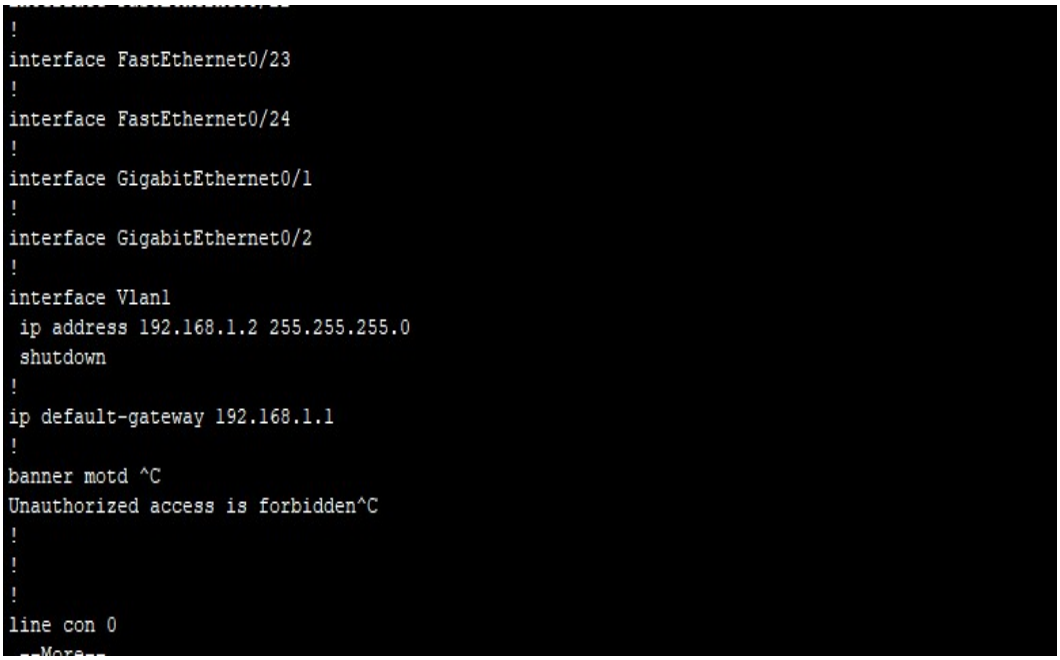
6. Configure TELNET access with the following settings:
- Login enabled
- Password : whatever you like
- History size : 15 commands
- Timeout : 8'20''
- Synchronous logging

```
LOCAL-SWITCH#
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
LOCAL-SWITCH(config-line)#login
LOCAL-SWITCH(config-line)#history size 15
LOCAL-SWITCH(config-line)#
```



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

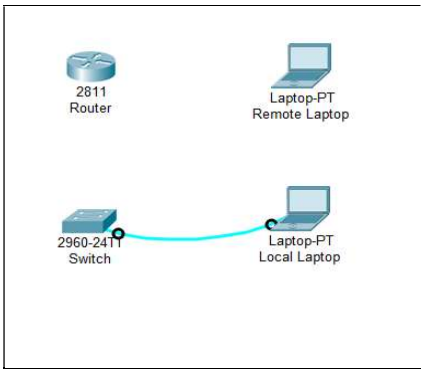




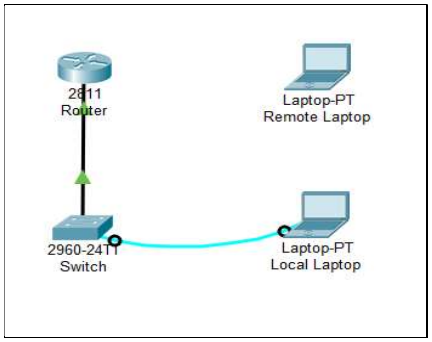
```
!
interface Vlan1
 ip address 192.168.1.2 255.255.255.0
 shutdown
!
ip default-gateway 192.168.1.1
!
banner motd ^C
Unauthorized access is forbidden^C
!
!
!
line con 0

LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#interface vlan1
LOCAL-SWITCH(config-if)#no shutdown

LOCAL-SWITCH(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

LOCAL-SWITCH(config-if)#
```

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

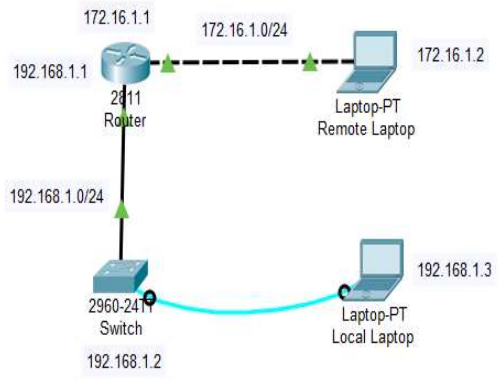
- Take 2811 Router and Laptop and change their name to Router and Remote Laptop:



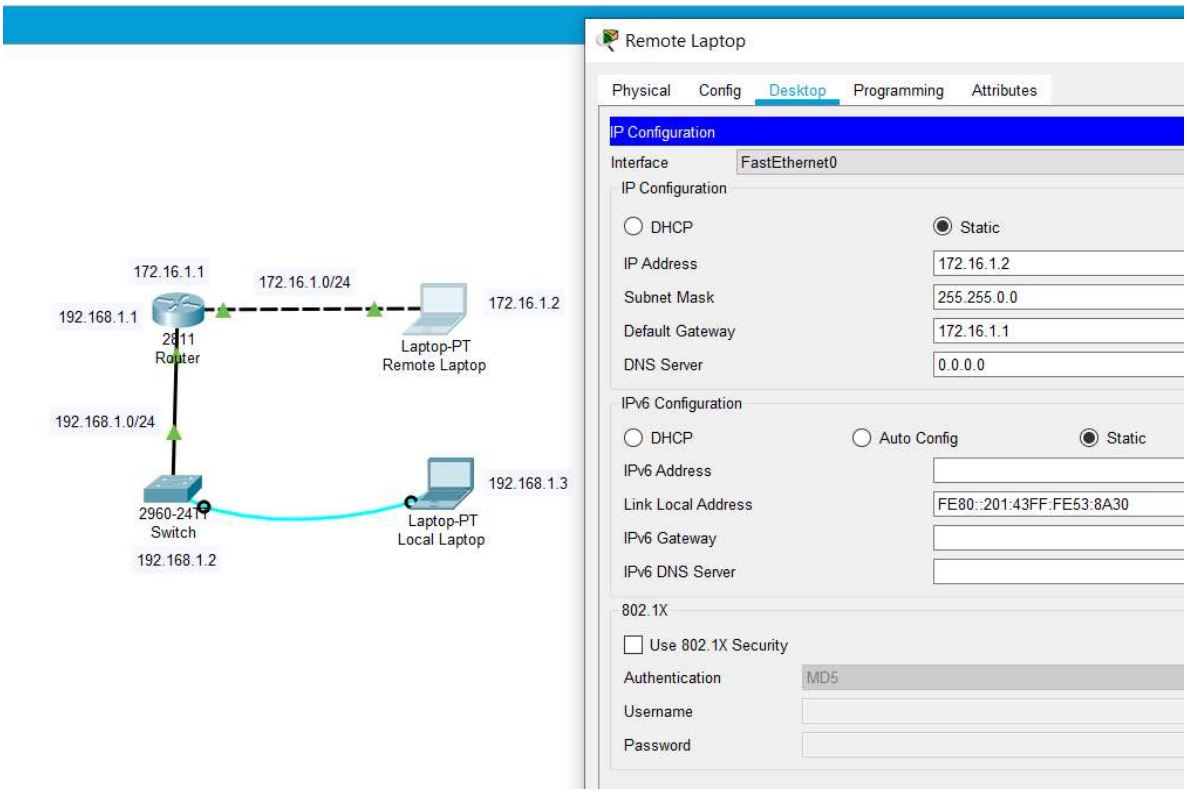
- Connect Switch and Router using Copper straight through cable at FastEthernet0/1 for both of them:

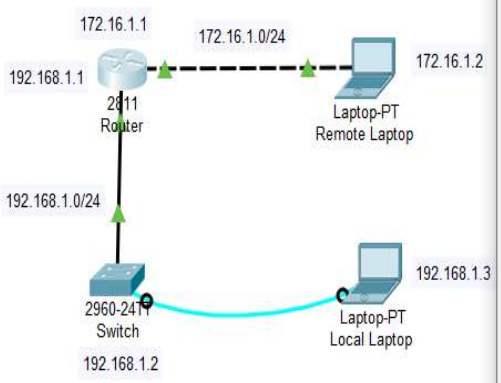


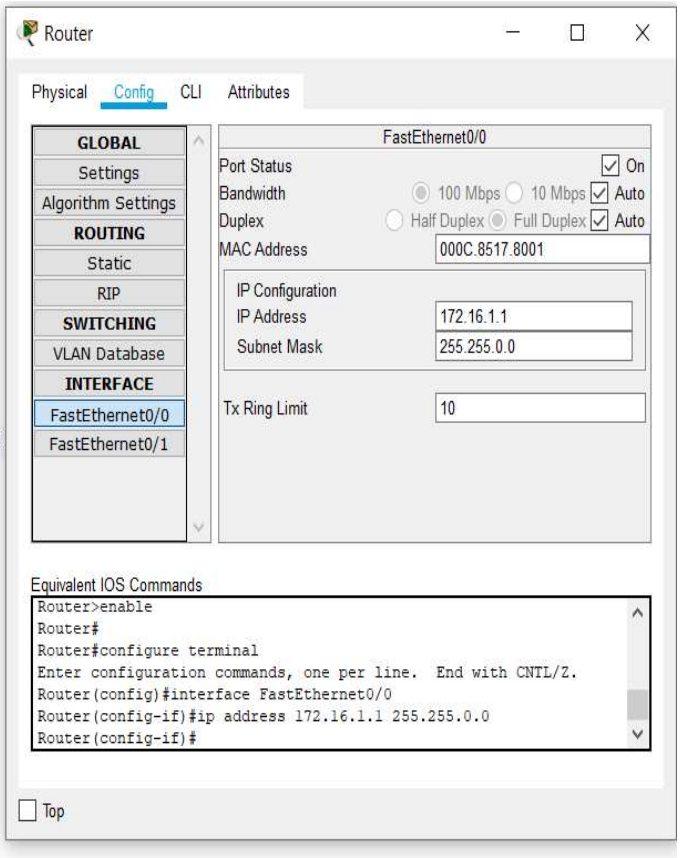
- Connect Remote Laptop and Router using Copper cross-over cable at FastEthernet0/0 for both of them:

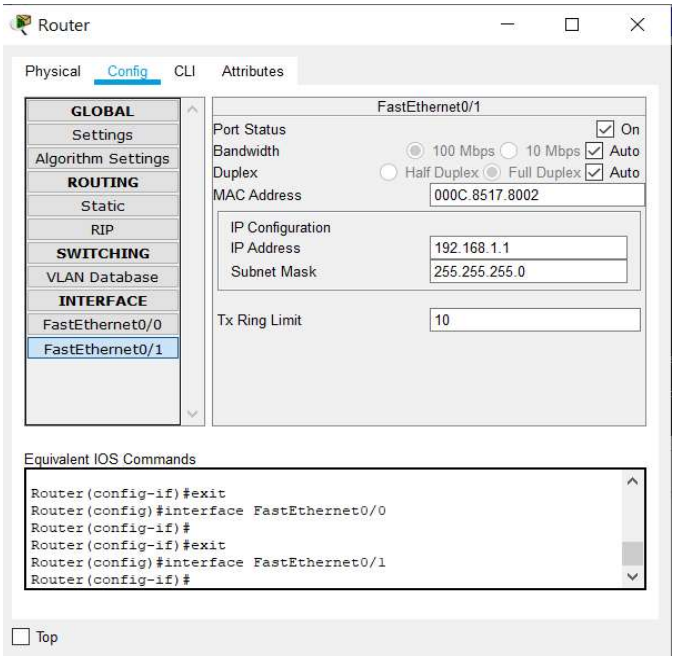


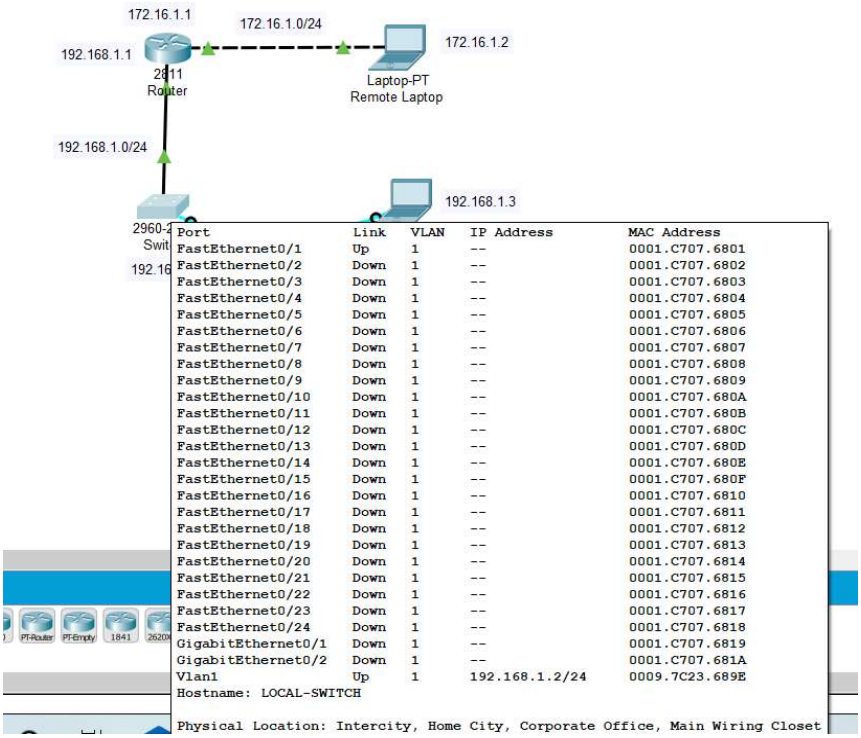
- Setup the IP configurations of Remote laptop and Router:



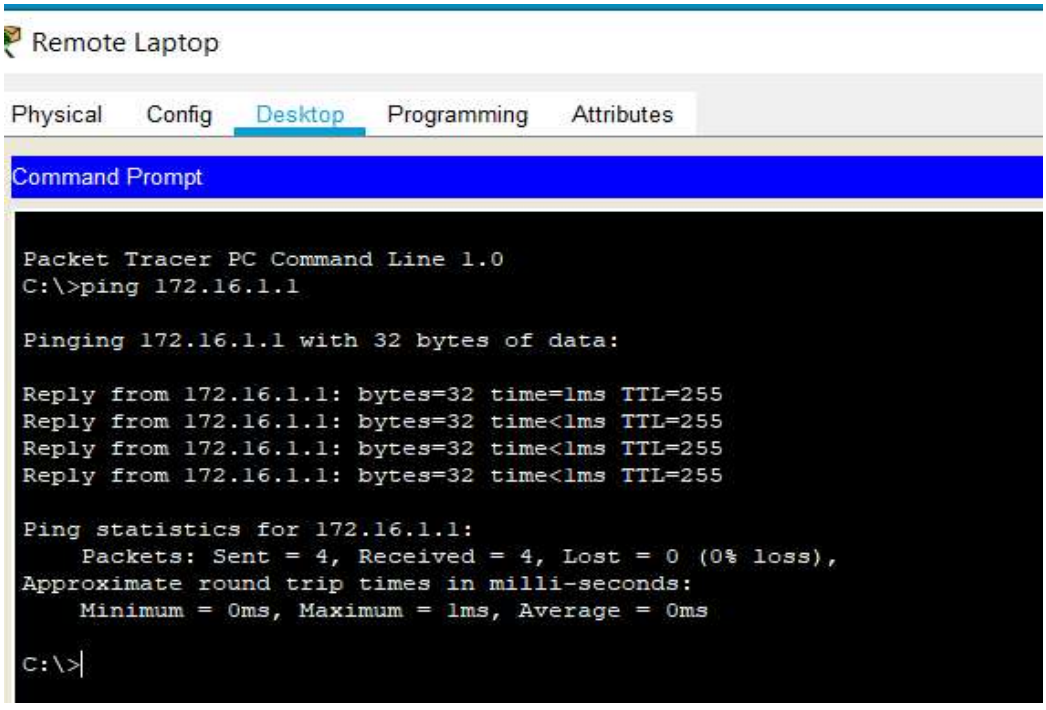

172.16.1.1
172.16.1.0/24
172.16.1.2
192.168.1.1
2811
Router
Laptop-PT
Remote Laptop
192.168.1.0/24
192.168.1.3
2960-24TT
Switch
Laptop-PT
Local Laptop
192.168.1.2


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
000C.8517.8001
IP Configuration
IP Address
172.16.1.1
Subnet Mask
255.255.0.0
Tx Ring Limit
10
Equivalent IOS Commands
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 172.16.1.1 255.255.0.0
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
000C.8517.8002
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



- Check the connectivity using PING from REMOTE LAPTOP:



```
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 = 1ms, Average = 0ms
```

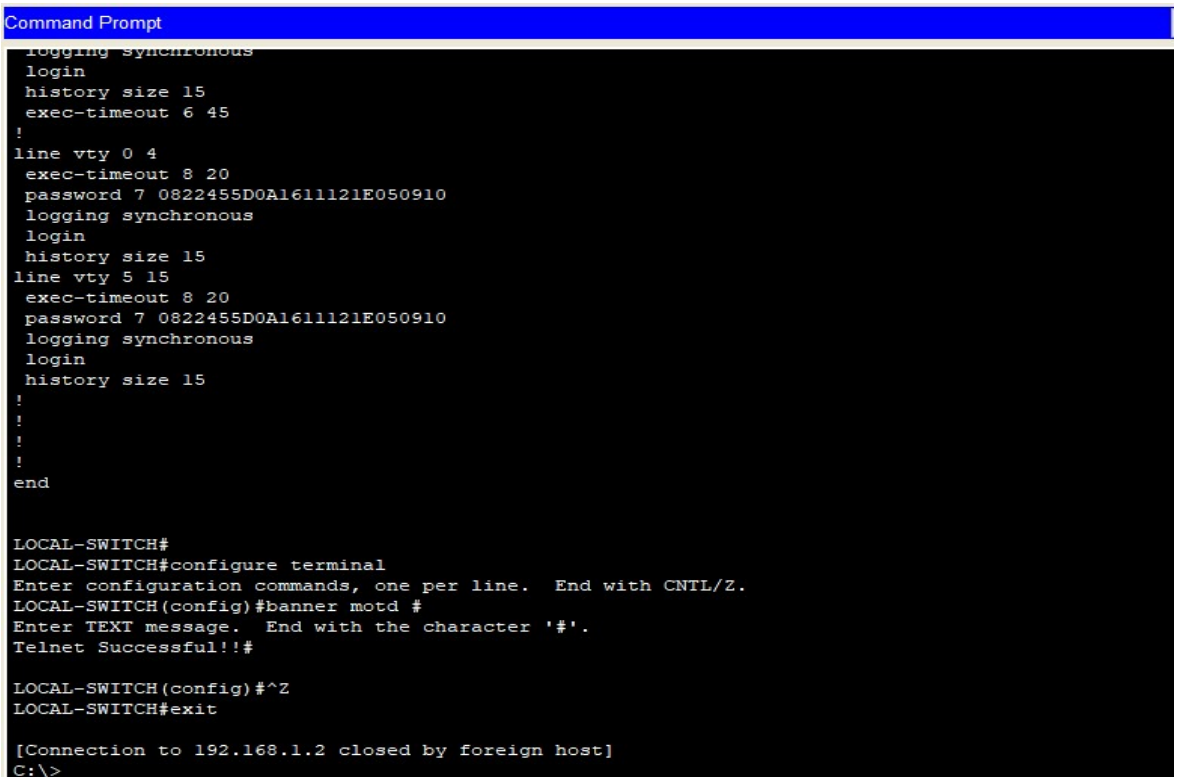
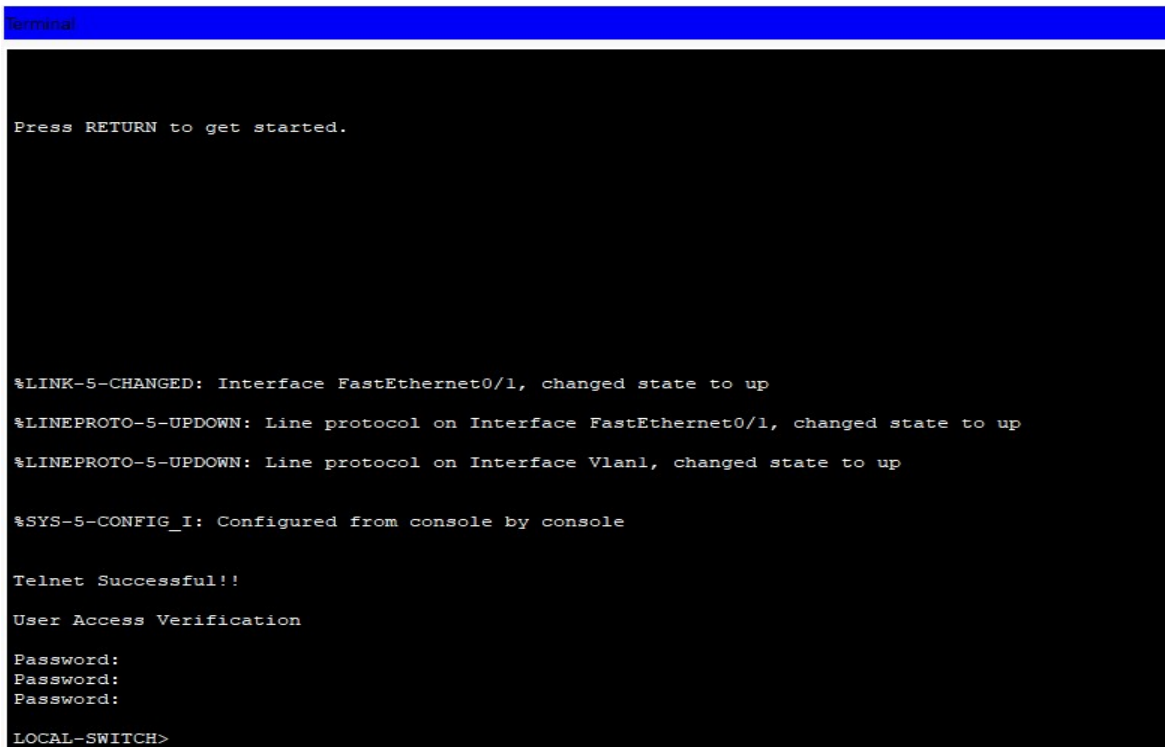
```
C:\>ping 192.168.1.2

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:\>
```

- Checking connectivity using telnet:

```
C:\>telnet 192.168.1.2
Trying 192.168.1.2 ...Open
Unauthorized access is forbidden


User Access Verification

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

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

Current configuration : 1515 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 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
 --More--
```

```
!
line con 0
 password 7 0822455D0A1606181C1803082F
 logging synchronous
 login
 history size 15
 exec-timeout 6 45
!
line vty 0 4
 exec-timeout 8 20
 password 7 0822455D0A1611121E050910
 logging synchronous
 login
 history size 15
line vty 5 15
 exec-timeout 8 20
 password 7 0822455D0A1611121E050910
 logging synchronous
 login
 history size 15
!
!
!
!
end


LOCAL-SWITCH#
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#banner motd #
Enter TEXT message.  End with the character '#'.
Telnet Successful!!#

LOCAL-SWITCH(config)#
```



- Checking motd from Local Laptop terminal :