

NAME: Vishal Shashikant Salvi

UID: 2019230069

BATCH: C

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.

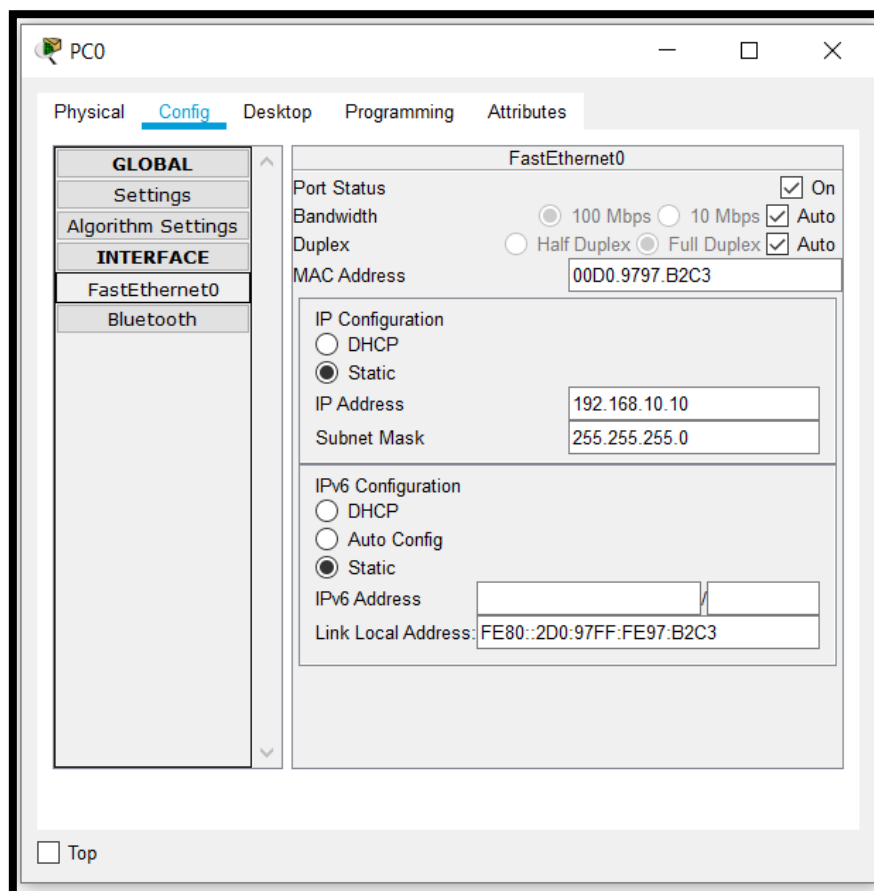
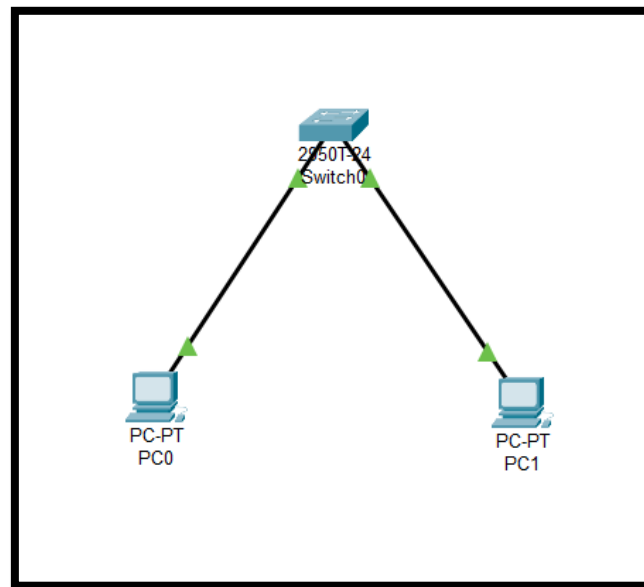
Step 1: Set up the network topology

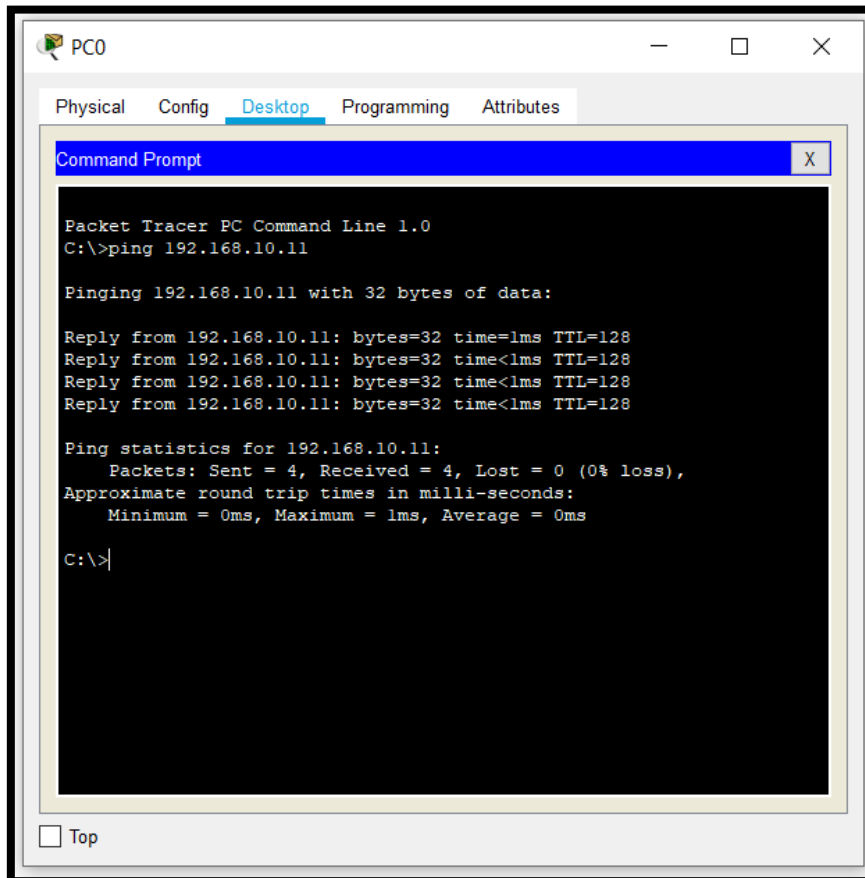
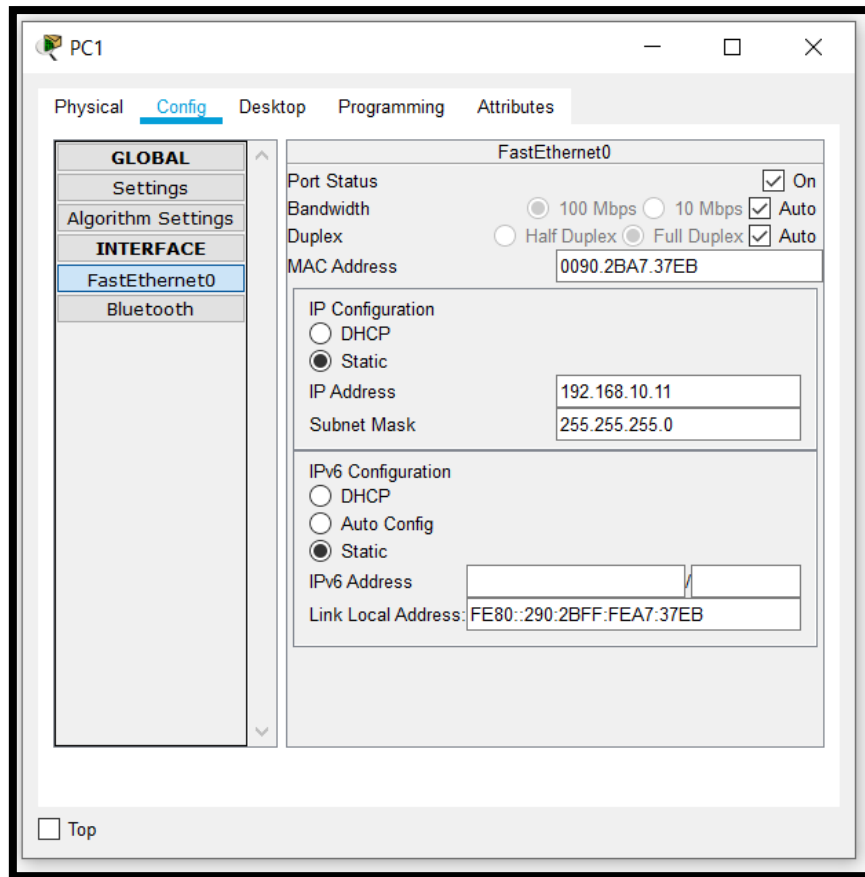
- a) Add two PCs and a Cisco 2950T switch
- b) Using straight-through cables, connect **PC0** to interface **Fa0/1** on **Switch0** and **PC1** to interface **Fa0/2** on **Switch0**.
- c) Configure PC0 using the **Config** tab in the PC0 configuration window:
 - a. IP address: 192.168.10.10
 - b. Subnet 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

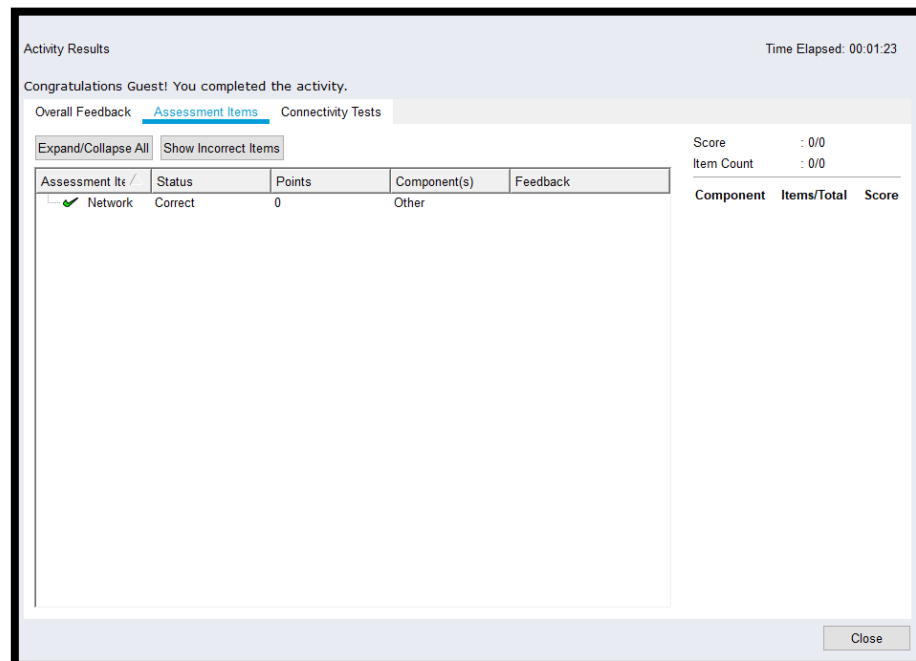
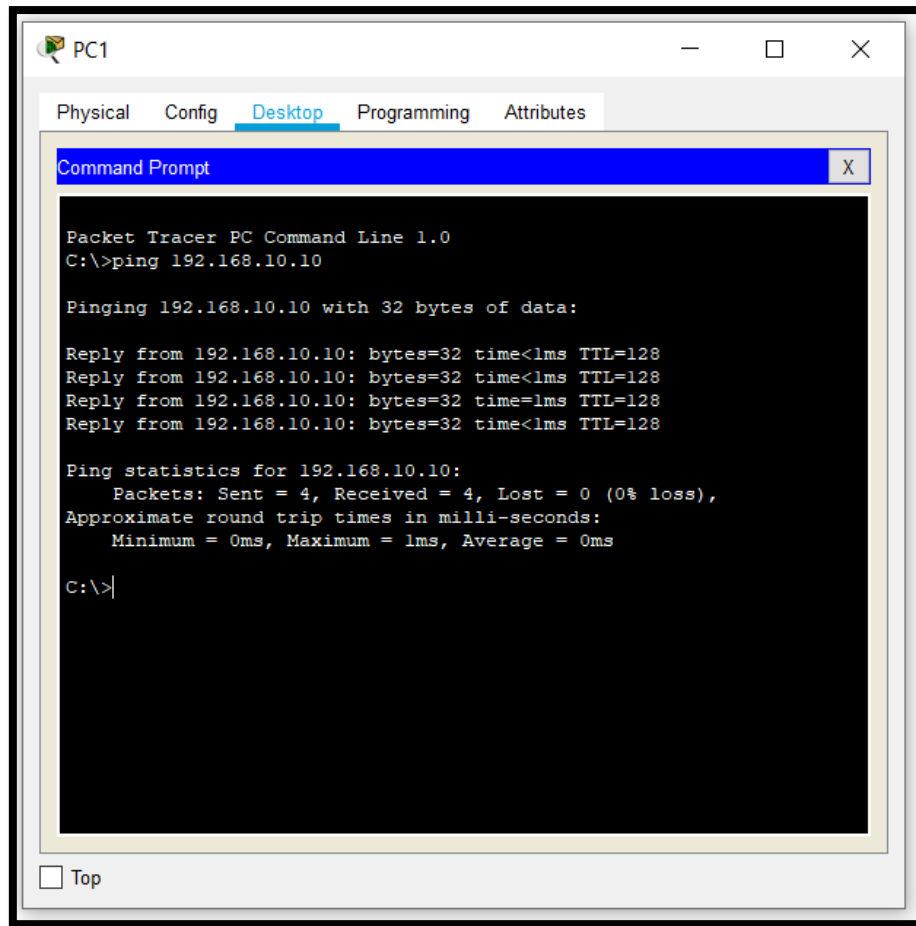
Step 2: Test connectivity from PC0 to PC1

- 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..





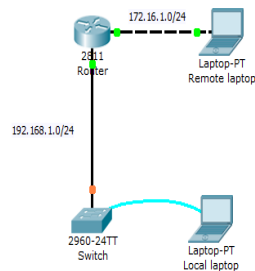


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Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

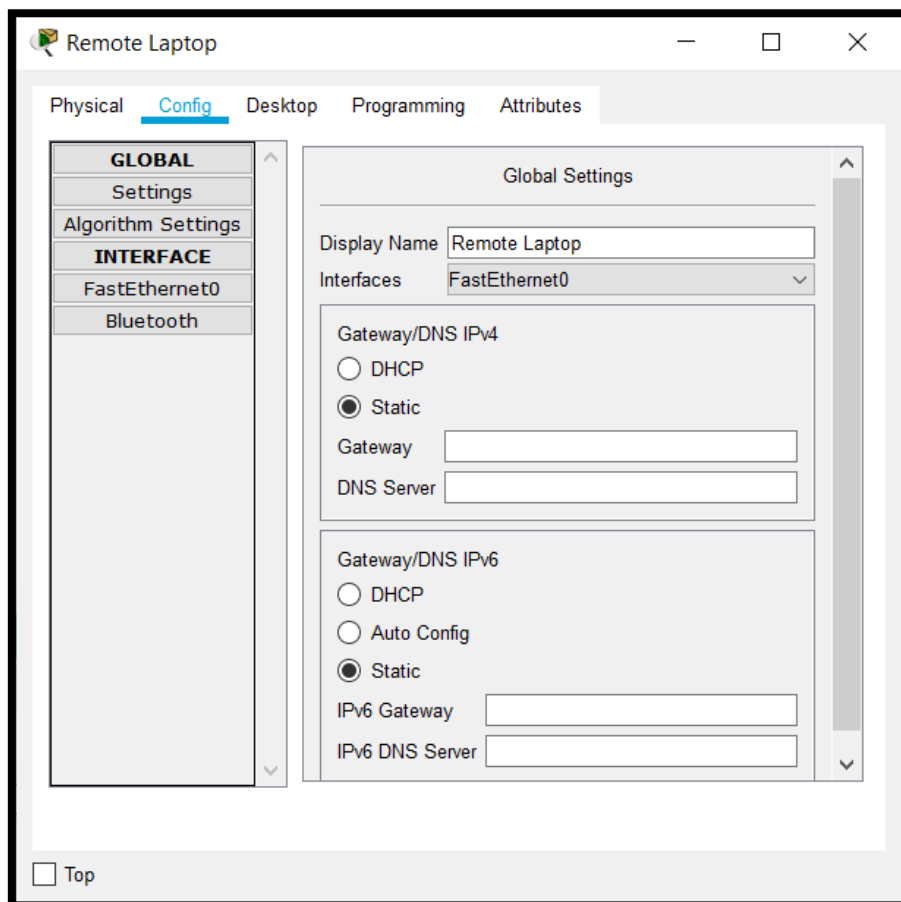
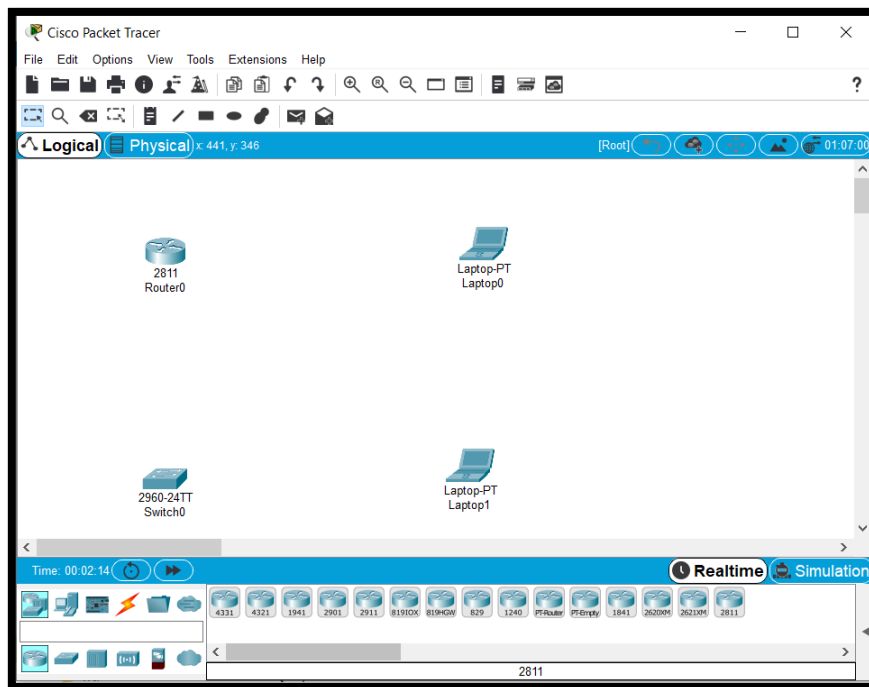
Objective:

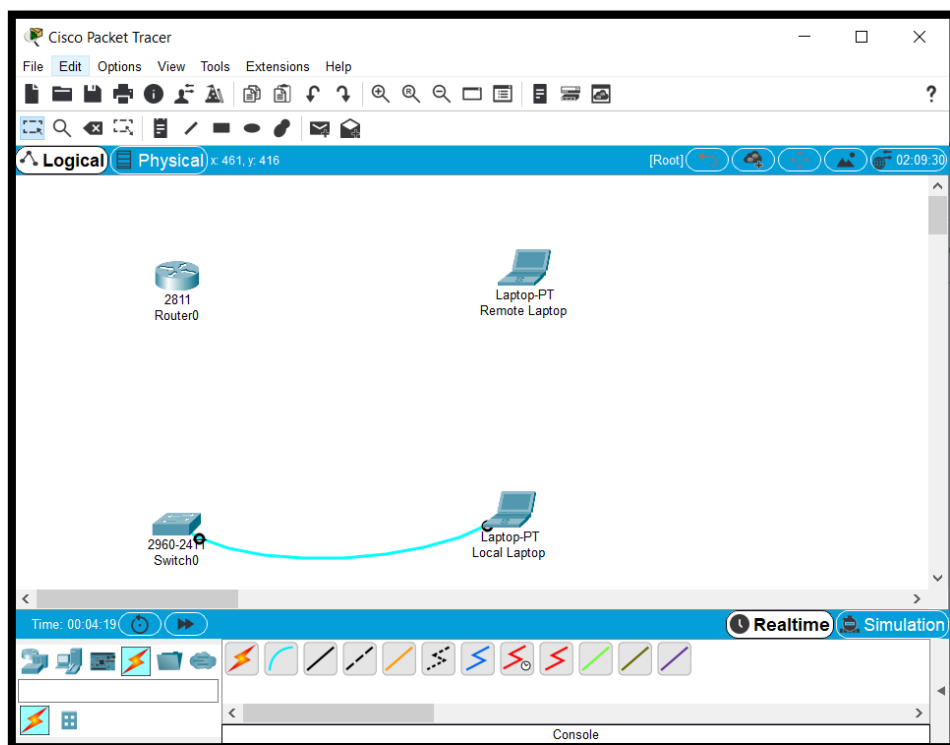
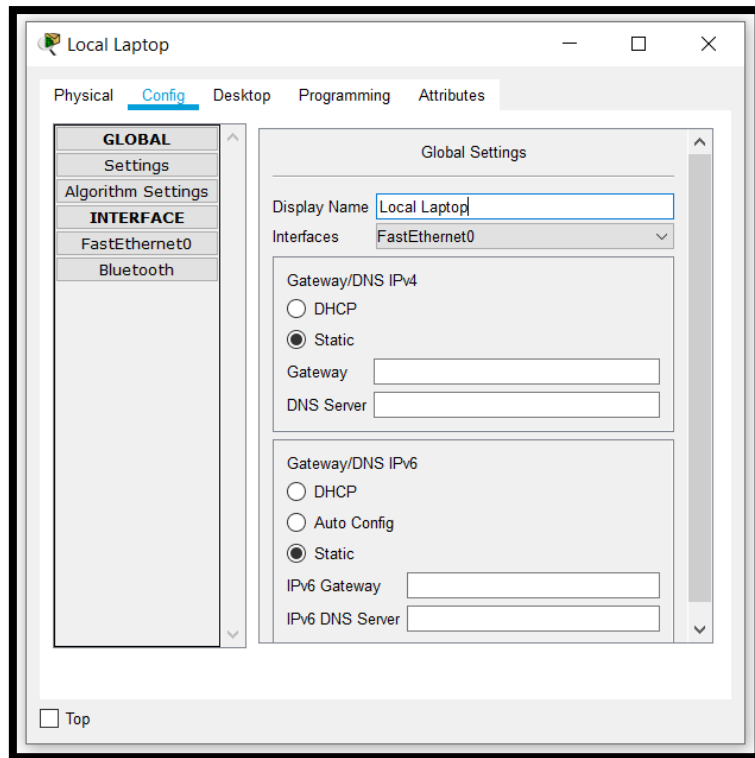
This lab will test your ability to configure basic settings such as hostname, motd banner, encrypted passwords, and terminal options on a Packet Tracer 6.2 simulated Cisco Catalyst switch.

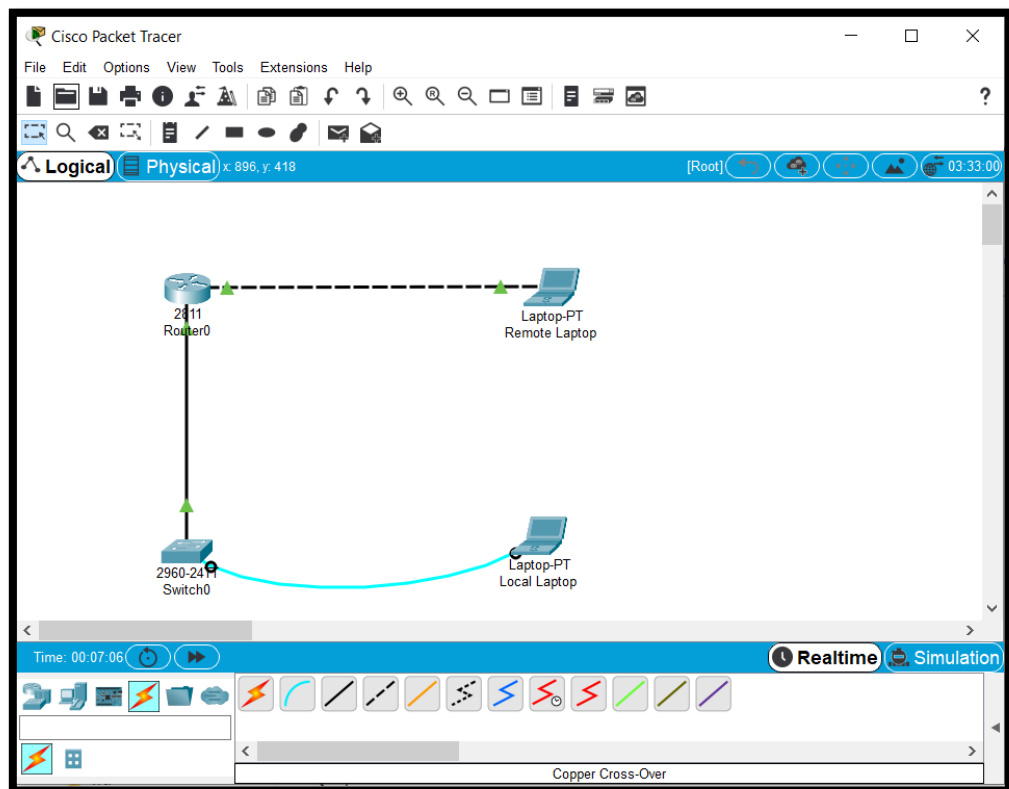
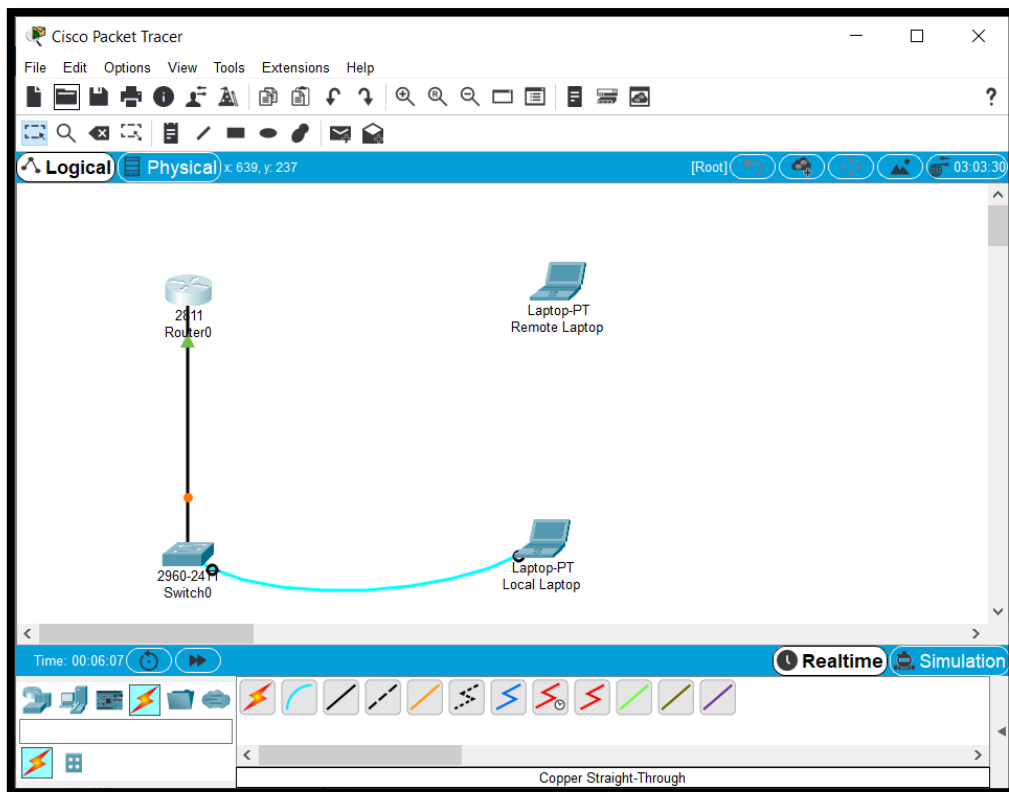


1. Use the local laptop connect to the switch console.
2. Configure Switch hostname as LOCAL-SWITCH
3. Configure the message of the day as "Unauthorized access is forbidden"
4. Configure the password for privileged mode access as "cisco". The password must be md5 encrypted
5. Configure password encryption 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
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 it's default gateway IP (192.168.1.1).
8. Test telnet connectivity from the Remote Laptop using the telnet client.

Use the local laptop connect to the switch console.







Remote Laptop

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

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::202:4AFF:FEED:DD84

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top

Router0

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 0040.0B54.8C01

IP Configuration

IP Address 172.16.1.0

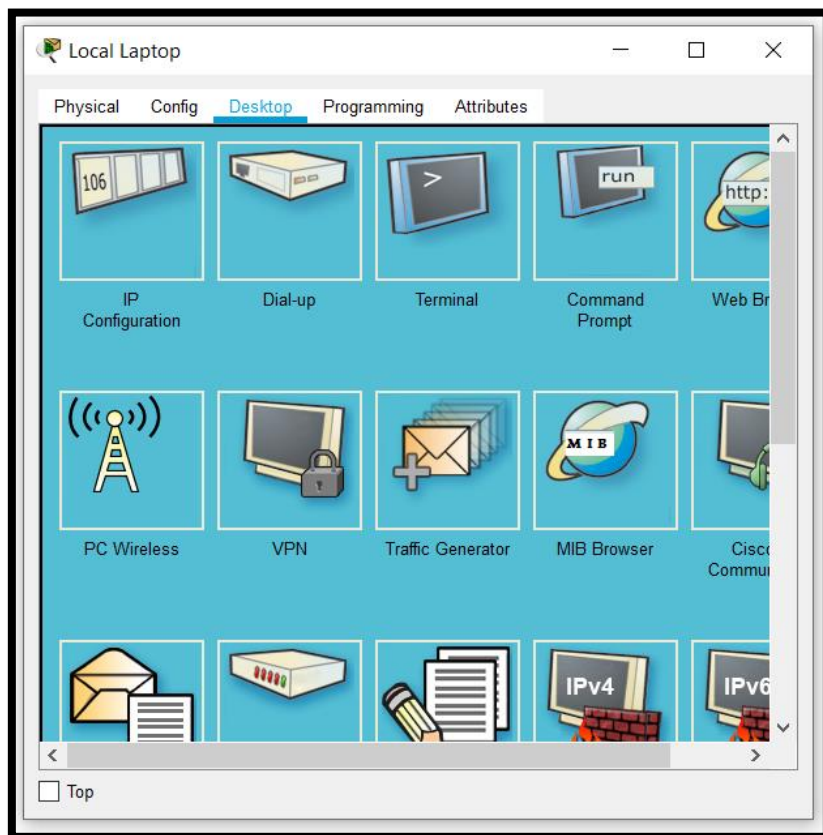
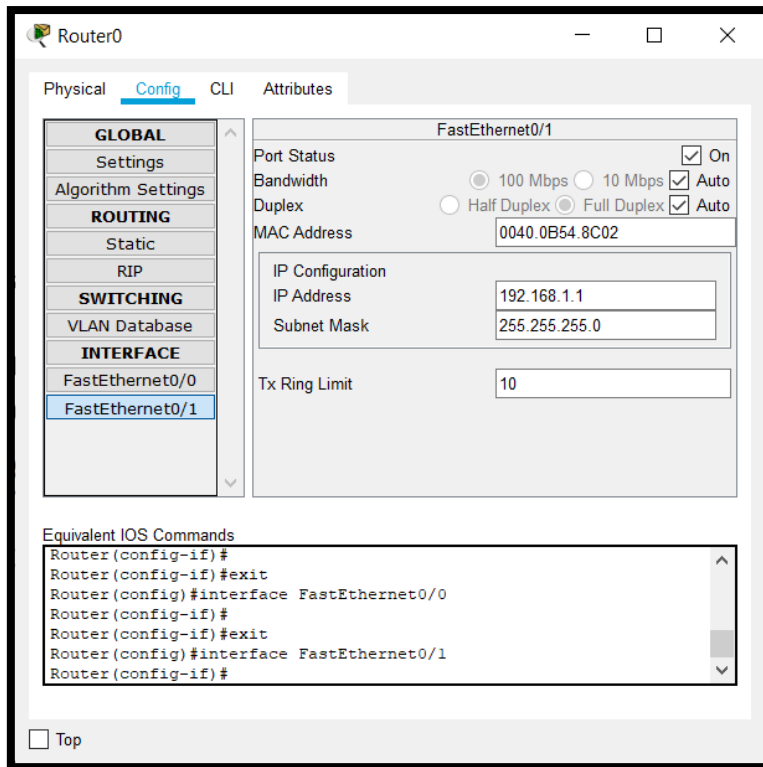
Subnet Mask 255.255.0.0

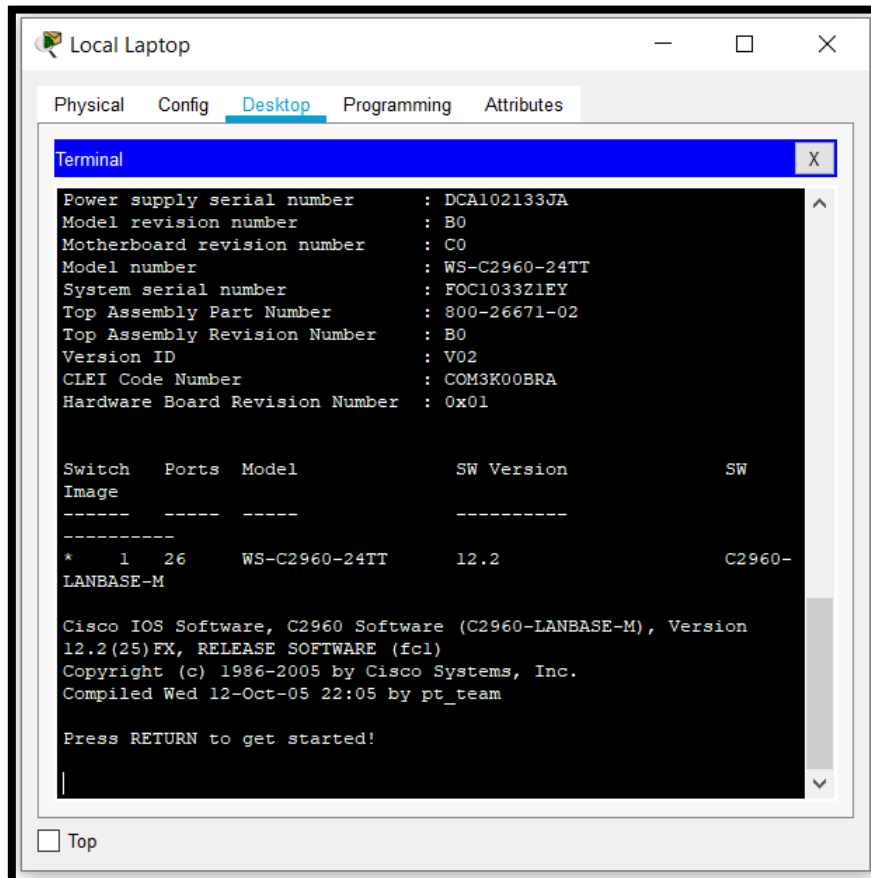
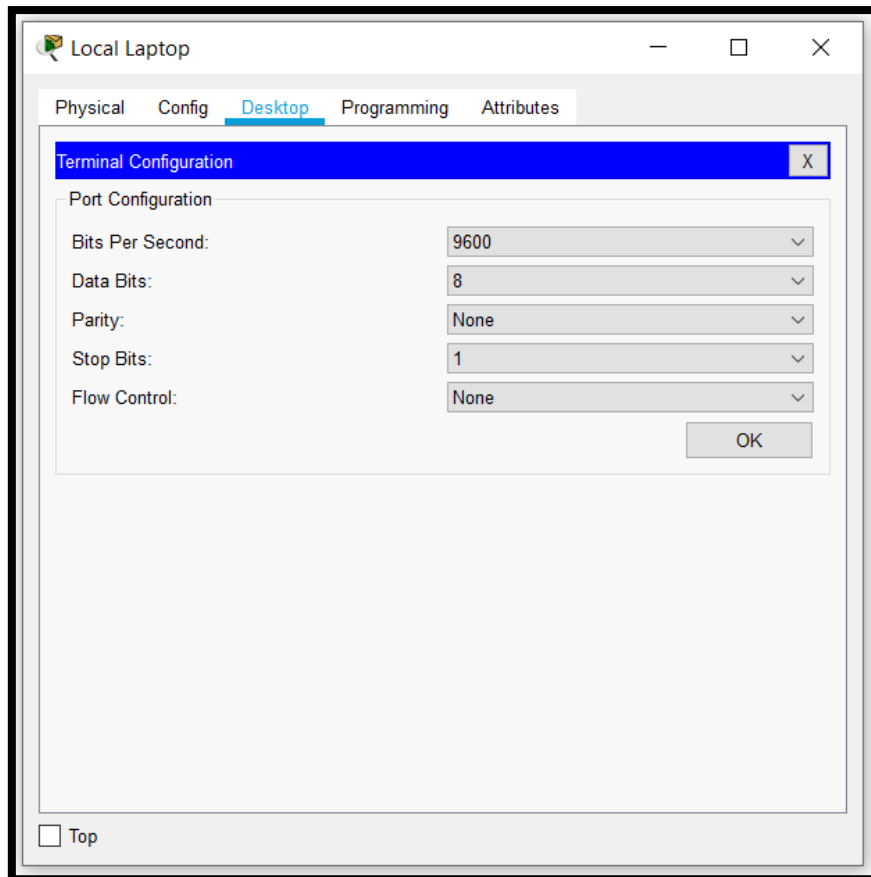
Tx Ring Limit 10

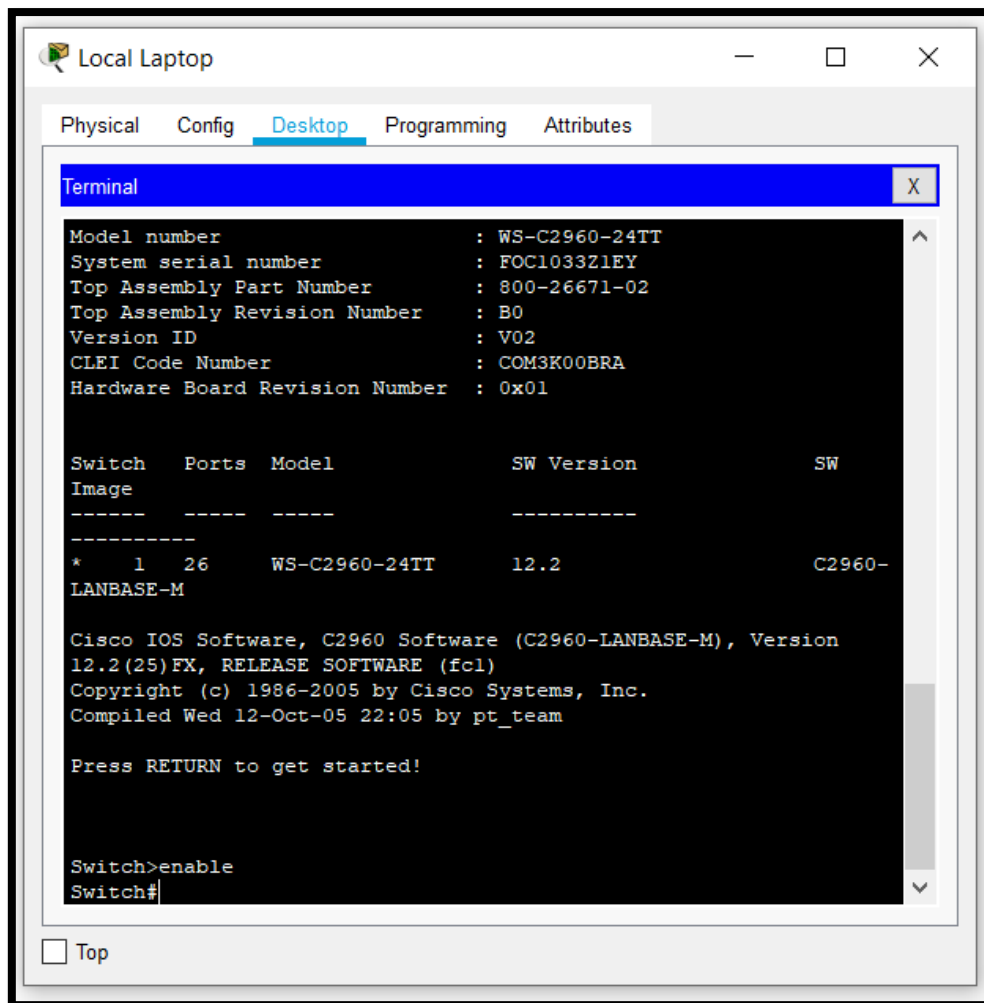
Equivalent IOS Commands

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







Configure Switch hostname as LOCAL-SWITCH



Terminal

```
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 (fcl)
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
```

```
LOCAL-SWITCH#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--
```

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

 Local Laptop

PhysicalConfigDesktopProgrammingAttributes

Terminal

```
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

LOCAL-SWITCH#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

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 '#'.
Unauthorized access is forbidden#

LOCAL-SWITCH(config)#
```

☐ Top

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

```
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 : 1180 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-- |
```

```
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#|
```


Configure CONSOLE access with the following settings :

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

```
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 ciscopktconsole
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...

Current configuration : 1290 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
```

```
interface Vlan1
  no ip address
  shutdown
!
banner motd ^C
Unauthorized access is forbidden ^C
!
!
!
line con 0
  password 7 0822455D0A16151C0608030A3924282D
  logging synchronous
  login
  history size 15
  exec-timeout 6 45
!
line vty 0 4
  login
line vty 5 15
  login
!
!
!
!
end
```

Configure TELNET access with the following settings :

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

```
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 ciscopkttelnet
LOCAL-SWITCH(config-line)#logging synchronous
LOCAL-SWITCH(config-line)#login
LOCAL-SWITCH(config-line)#history size 15
LOCAL-SWITCH(config-line)#^Z
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

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

Current configuration : 1490 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
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
```

```

banner motd ^C
Unauthorized access is forbidden ^C
!
!
!
line con 0
password 7 0822455D0A16151C0608030A3924282D
logging synchronous
login
history size 15
exec-timeout 6 45
!
line vty 0 4
exec-timeout 8 20
password 7 0822455D0A16151C061F0908242E30
logging synchronous
login
history size 15
line vty 5 15
exec-timeout 8 20
password 7 0822455D0A16151C061F0908242E30
logging synchronous
login
history size 15
!
!
!
!
end

```

```

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

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

Current configuration : 1546 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
!
interface FastEthernet0/2
!
interface FastEthernet0/3
!
!
!
!
!

```

```

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 0822455D0A16151C0608030A3924282D
  logging synchronous
  login
  history size 15
  exec-timeout 6 45
!
line vty 0 4
  exec-timeout 8 20
  password 7 0822455D0A16151C061F0908242E30
  logging synchronous
  login
  history size 15
line vty 5 15
  exec-timeout 8 20
  password 7 0822455D0A16151C061F0908242E30
  logging synchronous
  login
  history size 15
!
!
!
!
end

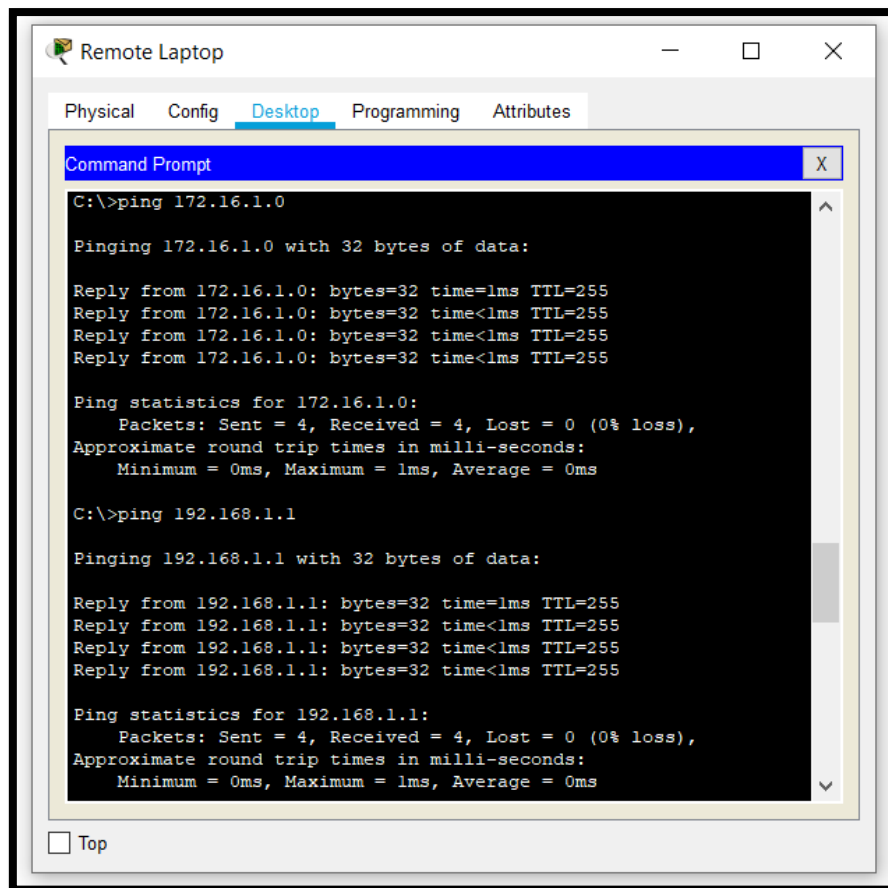
```

```

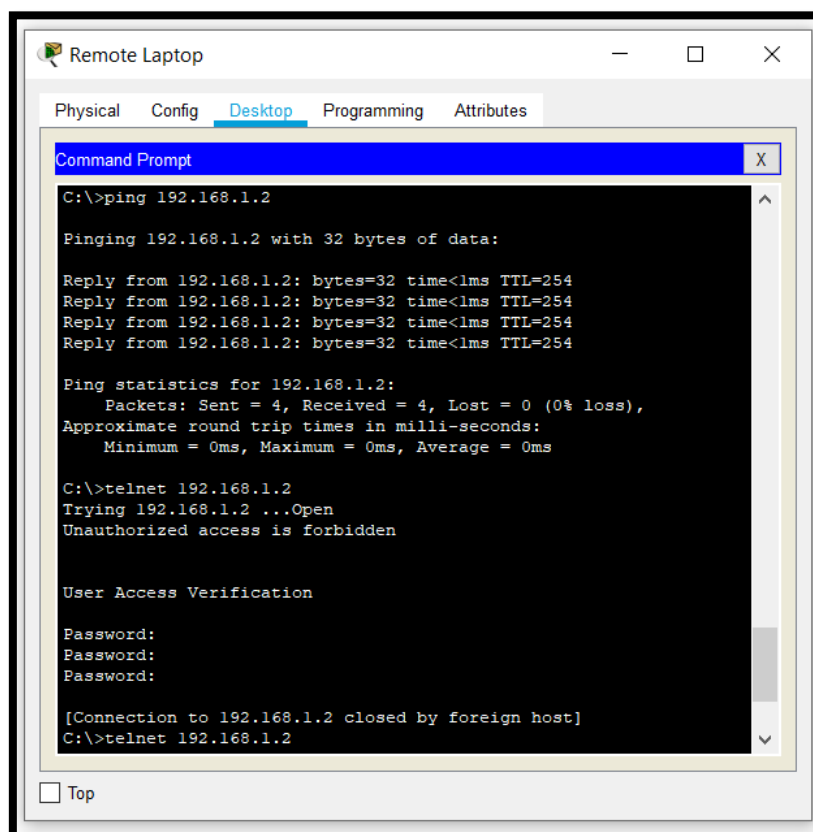
LOCAL-SWITCH#
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#interface vlan1
LOCAL-SWITCH(config-if)#no shutdown

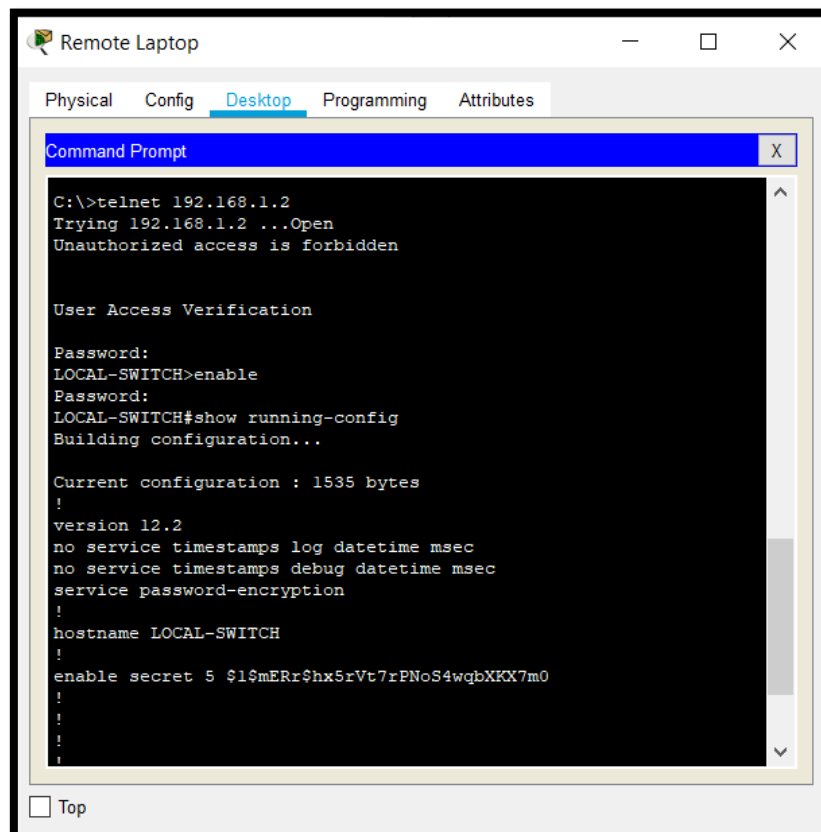
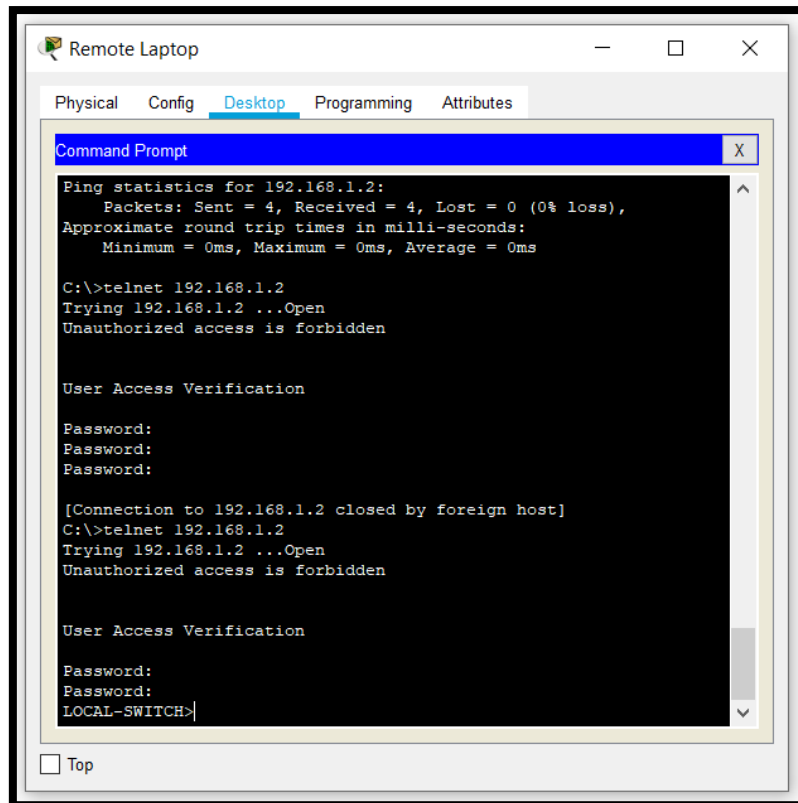
LOCAL-SWITCH(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up
LOCAL-SWITCH(config-if)#

```



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

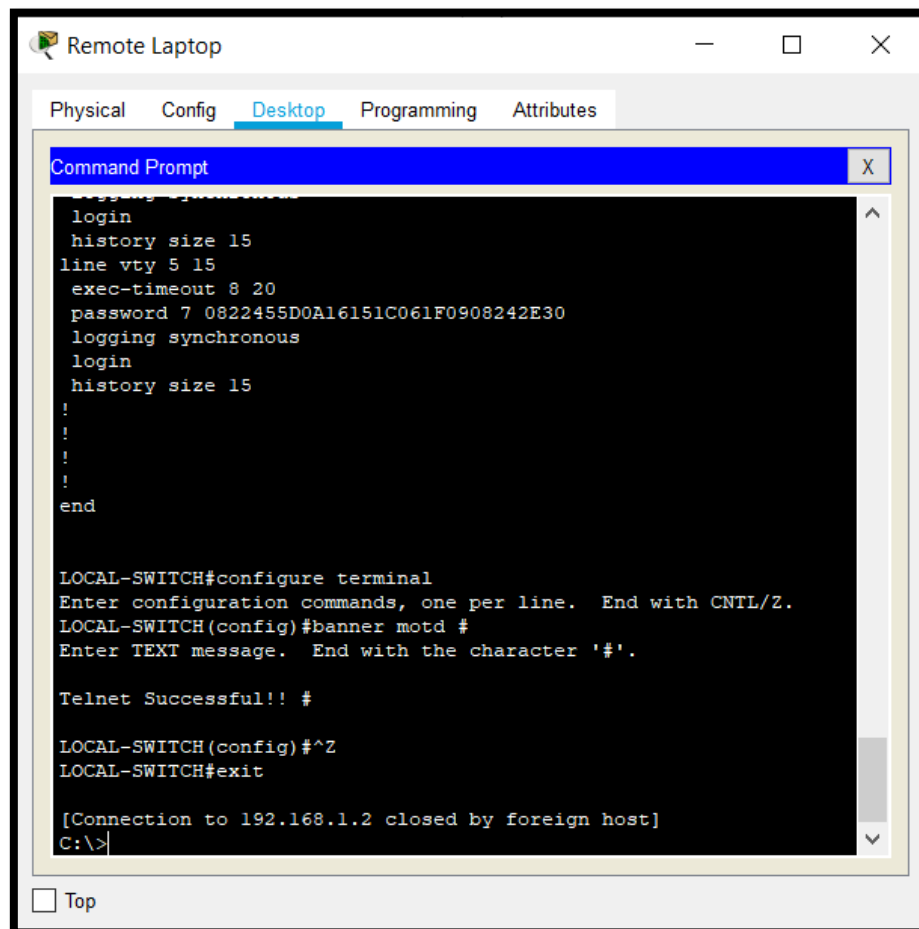


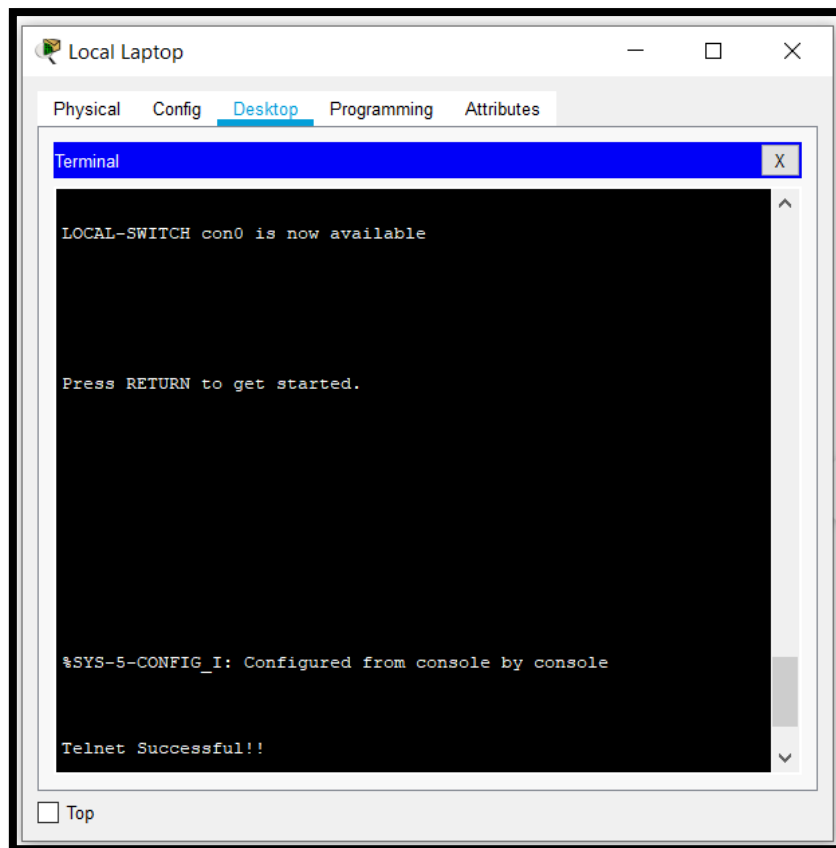


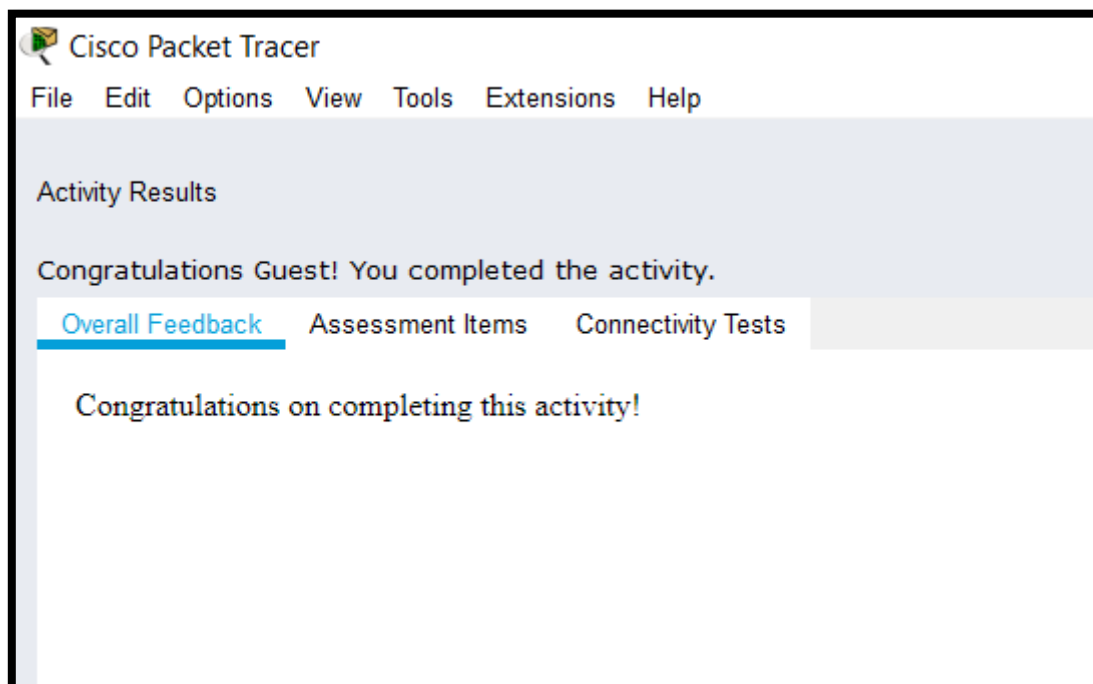
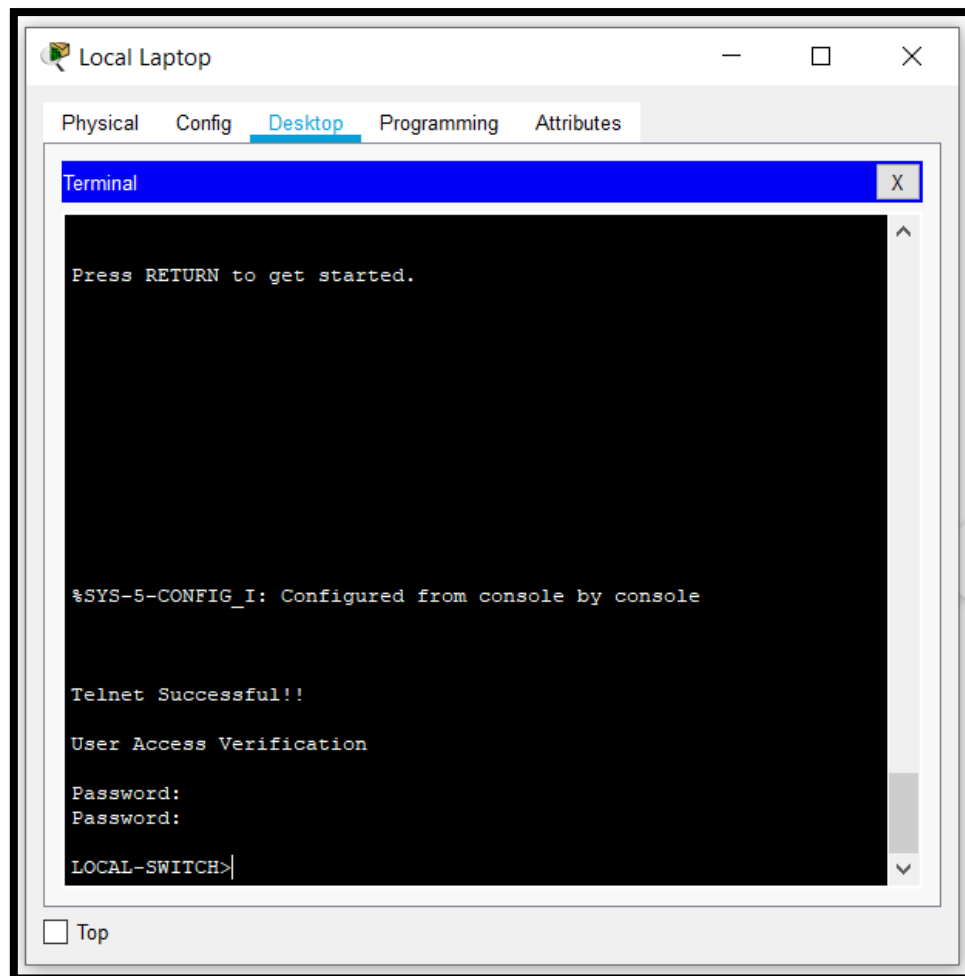
```

interface Vlan1
  ip address 192.168.1.2 255.255.255.0
  !
ip default-gateway 192.168.1.1
  !
  !
  !
  banner motd ^C
  Unauthorized access is forbidden^C
  !
  !
  !
line con 0
  password 7 0822455D0A16151C0608030A3924282D
  logging synchronous
  login
  history size 15
  exec-timeout 6 45
  !
line vty 0 4
  exec-timeout 8 20
  password 7 0822455D0A16151C061F0908242E30
  logging synchronous
  login
  history size 15
line vty 5 15
  exec-timeout 8 20
  password 7 0822455D0A16151C061F0908242E30
  logging synchronous
  login
  history size 15
  !
  !
  !
  !
end
--More-- |

```







Conclusion:

Thus, I came to know how to setup a network, testing connection from one PC to another, and the implementation of a prototype of network and successfully configured basic settings of router and switch like hostname, password etc.