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## CEL 51, DCCN, Monsoon 2020

### Lab 4: Prototyping a Network

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**Objective:**

Prototype a network using Packet Tracer

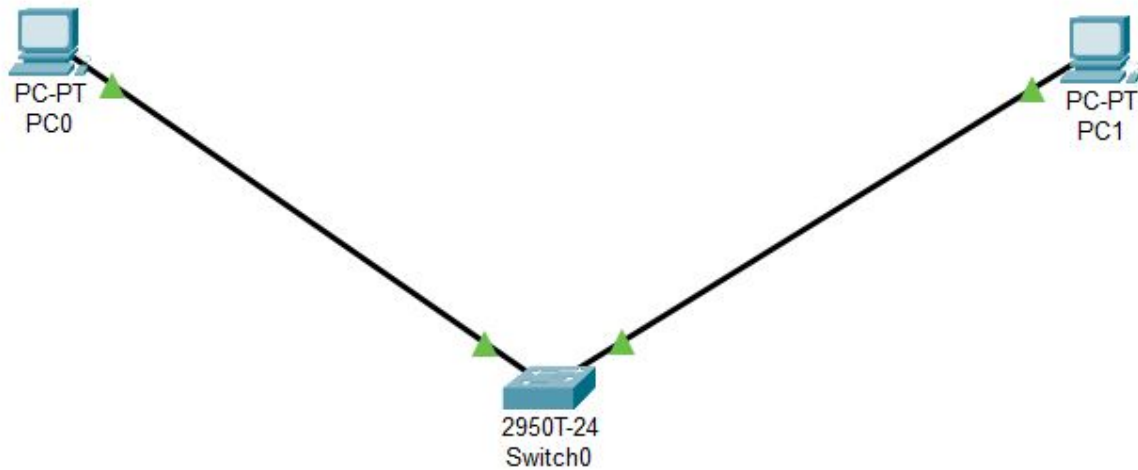
**Background**

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

Outcome :



PC0

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 0002.1604.ED48

**IP Configuration**

☐ DHCP

☒ Static

IPv4 Address 192.168.10.10

Subnet Mask 255.255.255.0

**IPv6 Configuration**

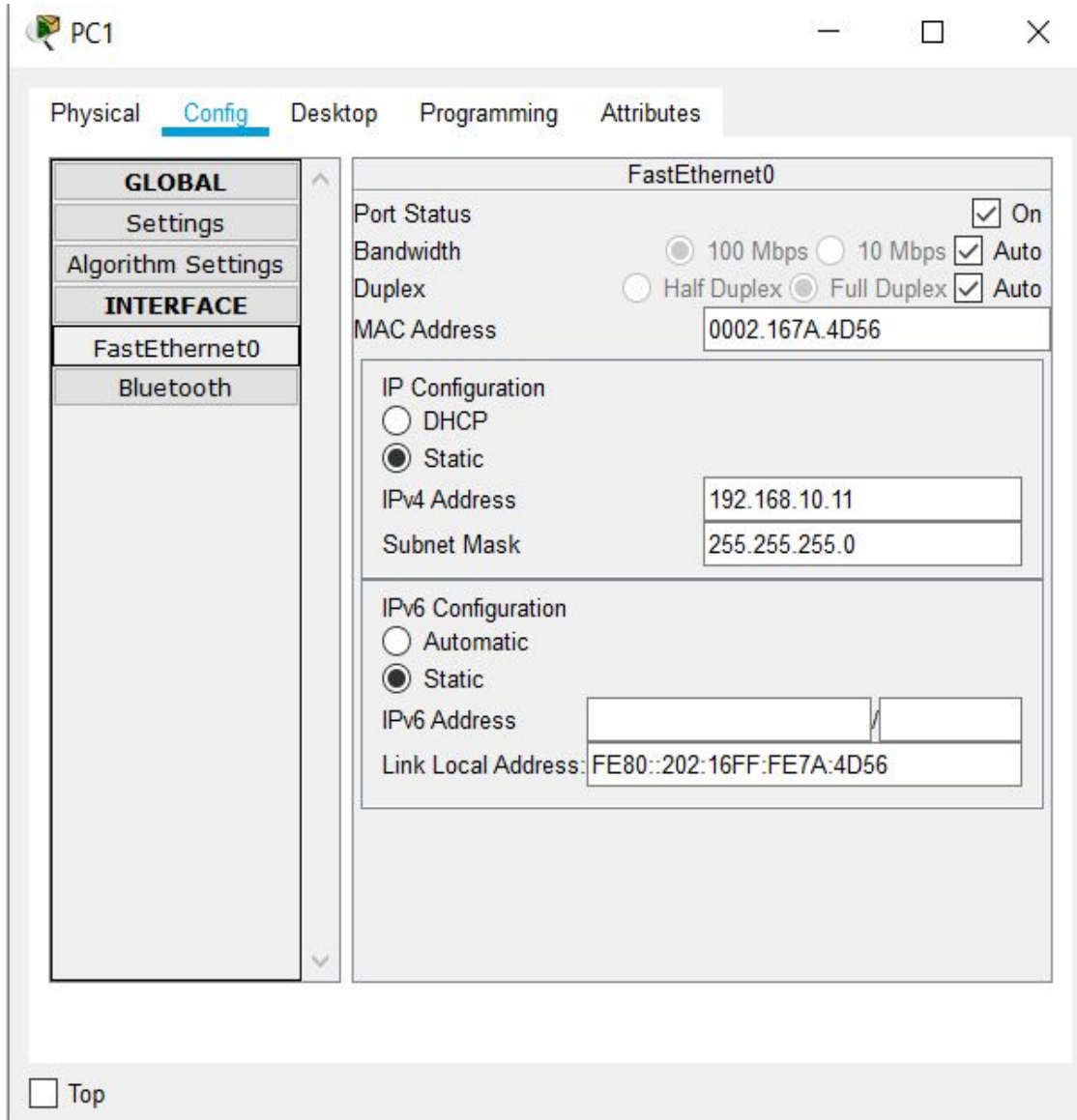
☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::202:16FF:FE04:ED48

☐ Top



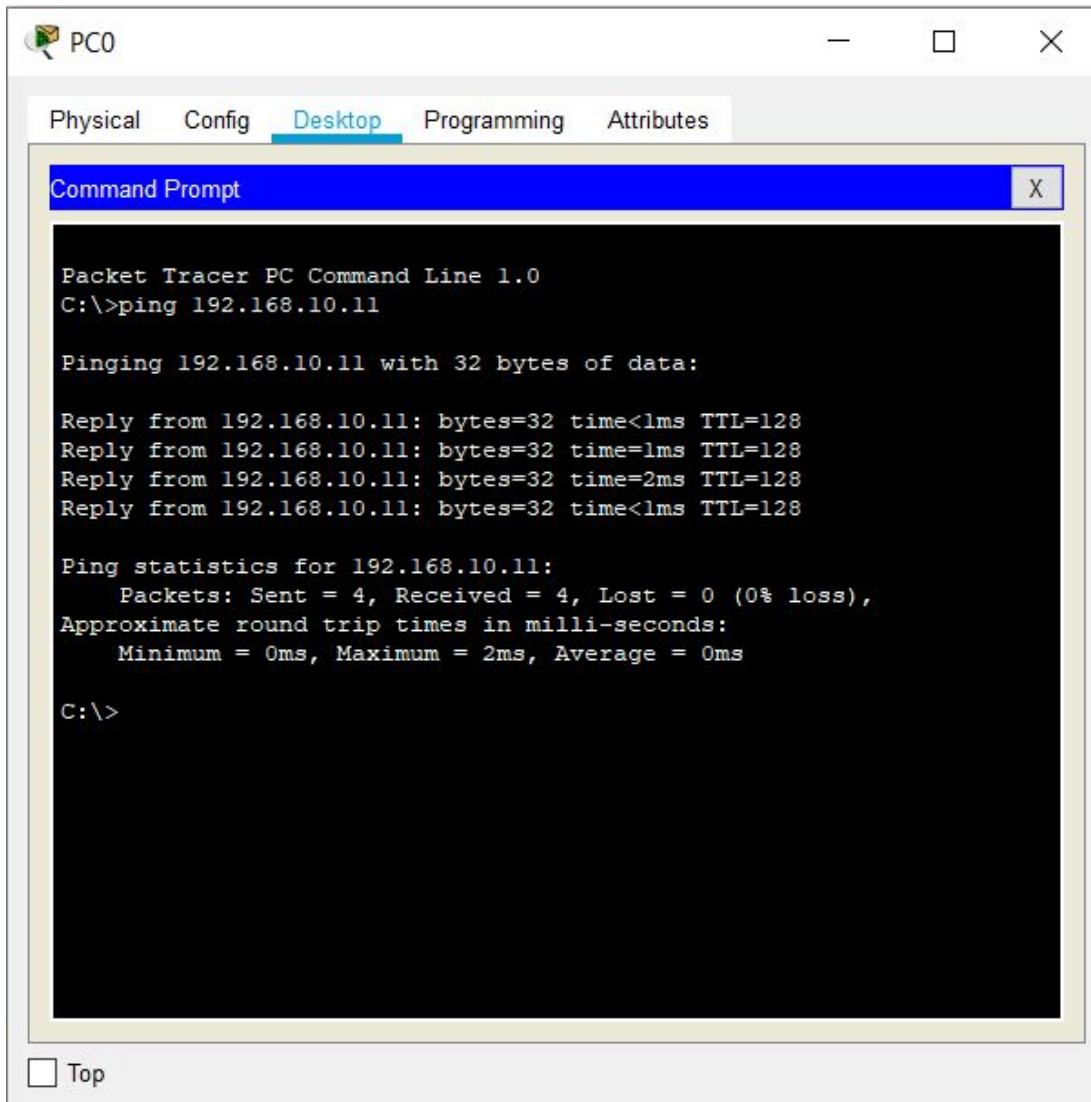
The images show the outcome of step 1. In this step, a network of two generic personal computers and a Cisco 2950T switch is created and the computers are connected to the switch by means of a Copper straight-through cable. This creates a small Ethernet network with a copper medium for the ethernet cable. The configuration of both the personal computers are also shown above.

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

Outcome :



The screenshot shows a Packet Tracer PC Command Line window for PC0. The window has tabs for Physical, Config, Desktop (selected), Programming, and Attributes. The Command Prompt displays the following text:

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

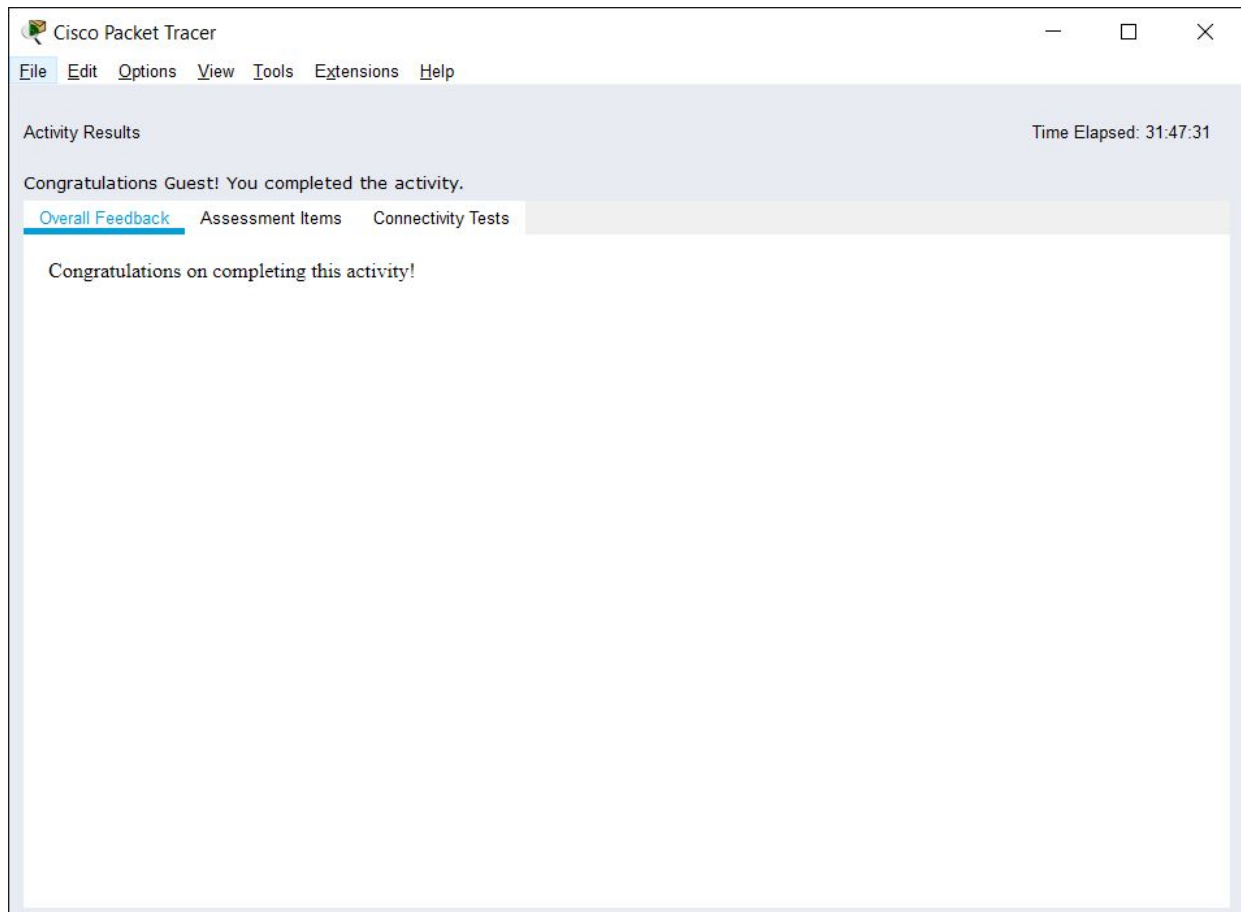
Pinging 192.168.10.11 with 32 bytes of data:

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=2ms 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 = 2ms, Average = 0ms

C:\>
```

At the bottom left of the window, there is a checkbox labeled "Top".



The CLI interface for PC0 in the above image shows that a connection was established correctly between the two personal computers via the switch as the ping command receives the response packets sent by PC0 to PC1. On checking the results, we can see a successful activity completion message as shown in the image above at the right.

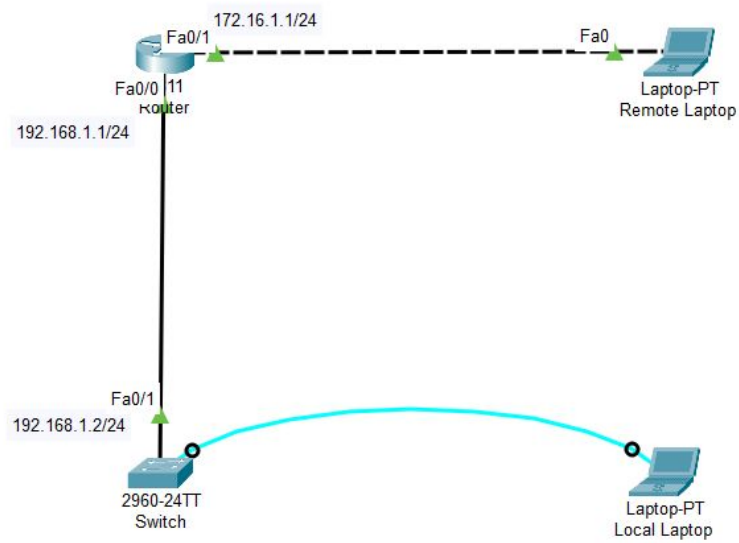
## CEL51, DCCN, Monsoon 2020

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

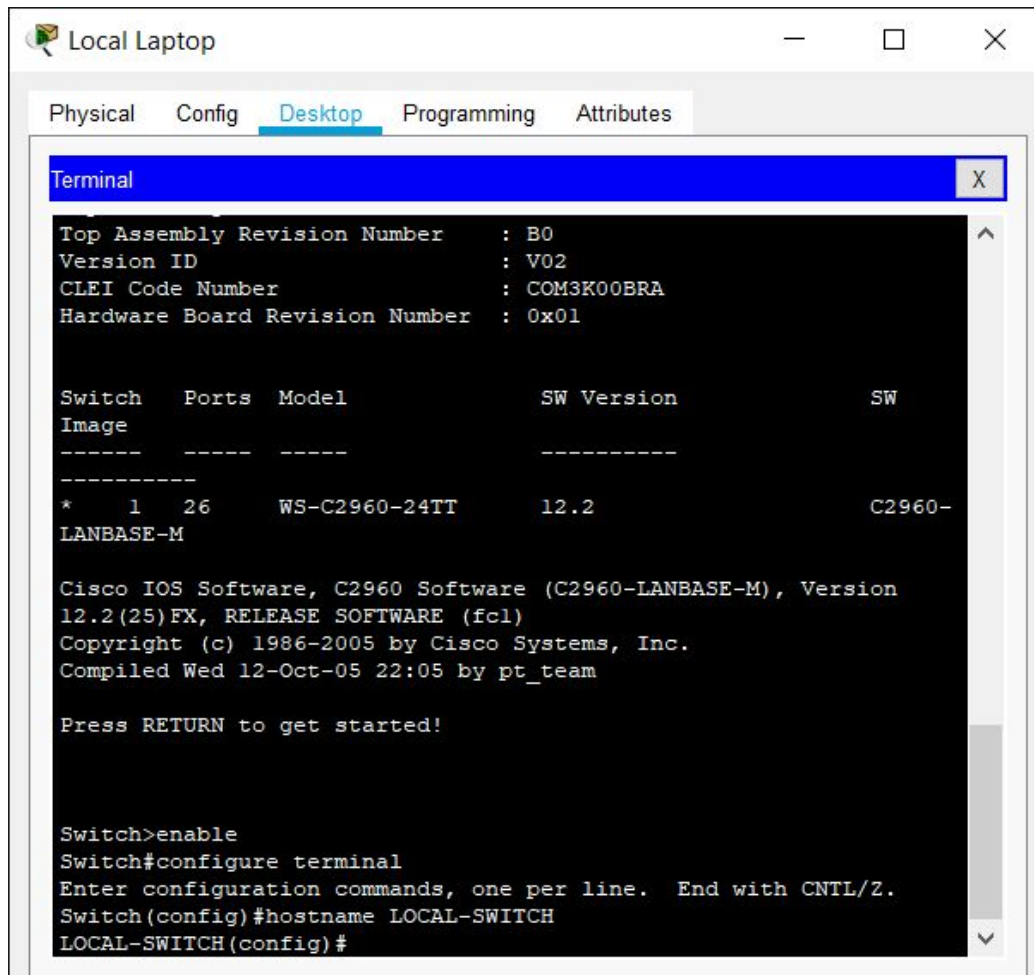
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#### **Objective:**

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 to connect to the switch console.
2. Configure Switch hostname as LOCAL-SWITCH



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

```
LOCAL-SWITCH>enable
LOCAL-SWITCH#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#banner motd "Unauthorized access is forbidden"
LOCAL-SWITCH(config)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

```
LOCAL-SWITCH con0 is now available
```

```
Press RETURN to get started.
```

```
Unauthorized access is forbidden
```

```
LOCAL-SWITCH>|
```

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



Local Laptop

Physical Config Desktop Programming Attributes

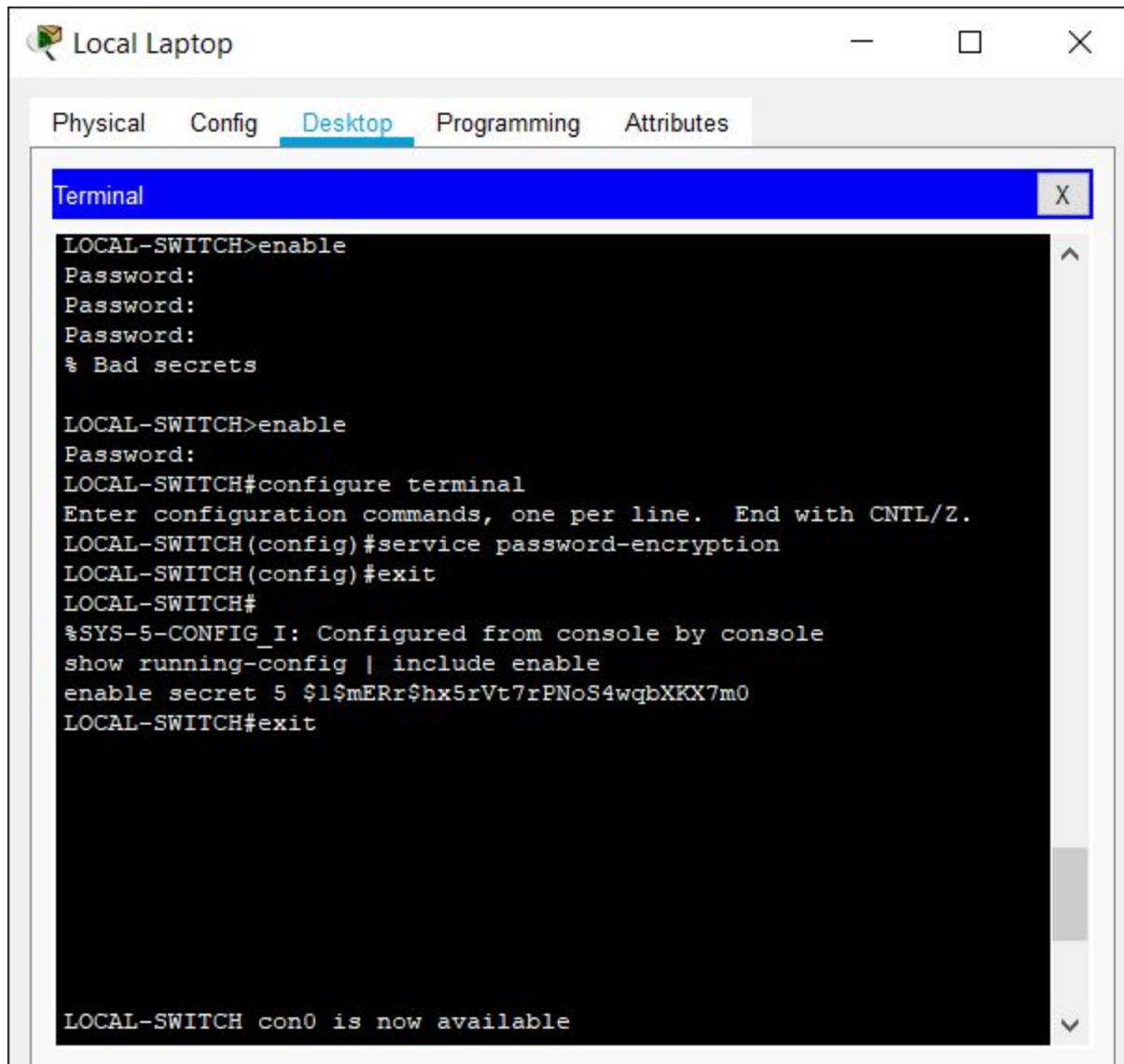
Terminal

```
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)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console
show running-config | include enable
enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0
LOCAL-SWITCH#exit

LOCAL-SWITCH con0 is now available

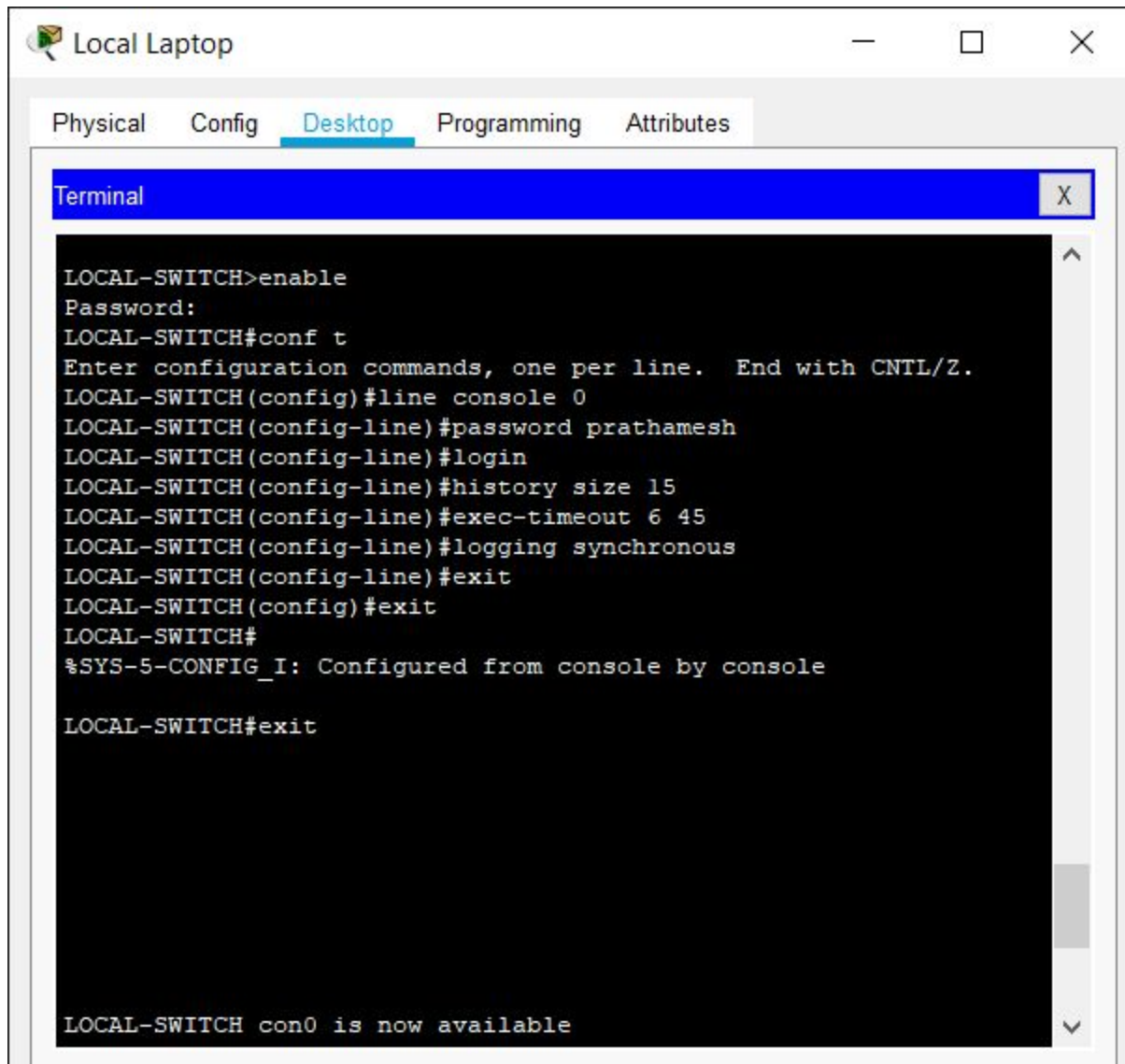
Press RETURN to get started.
```

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



The screenshot shows a window titled 'Local Laptop' with a tabbed interface. The 'Desktop' tab is active, displaying a terminal window. The terminal shows a sequence of commands to configure a switch named 'LOCAL-SWITCH'. The commands include enabling the console, setting a password, configuring login, history size, exec-timeout, and logging. The session ends with an 'exit' command, and a message indicates that the console is now available.

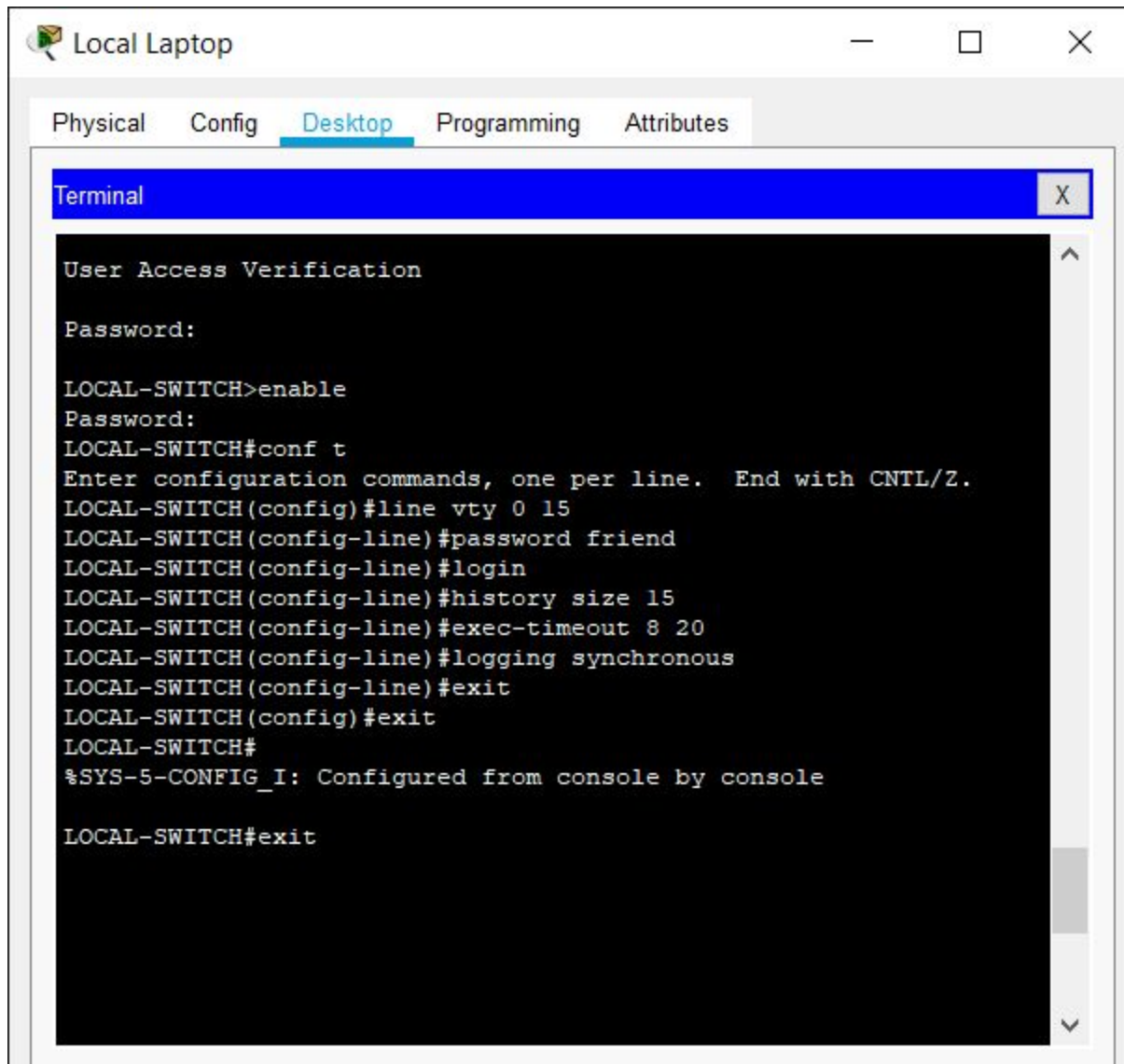
```
LOCAL-SWITCH>enable
Password:
LOCAL-SWITCH#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#line console 0
LOCAL-SWITCH(config-line)#password prathamesh
LOCAL-SWITCH(config-line)#login
LOCAL-SWITCH(config-line)#history size 15
LOCAL-SWITCH(config-line)#exec-timeout 6 45
LOCAL-SWITCH(config-line)#logging synchronous
LOCAL-SWITCH(config-line)#exit
LOCAL-SWITCH(config)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

LOCAL-SWITCH#exit

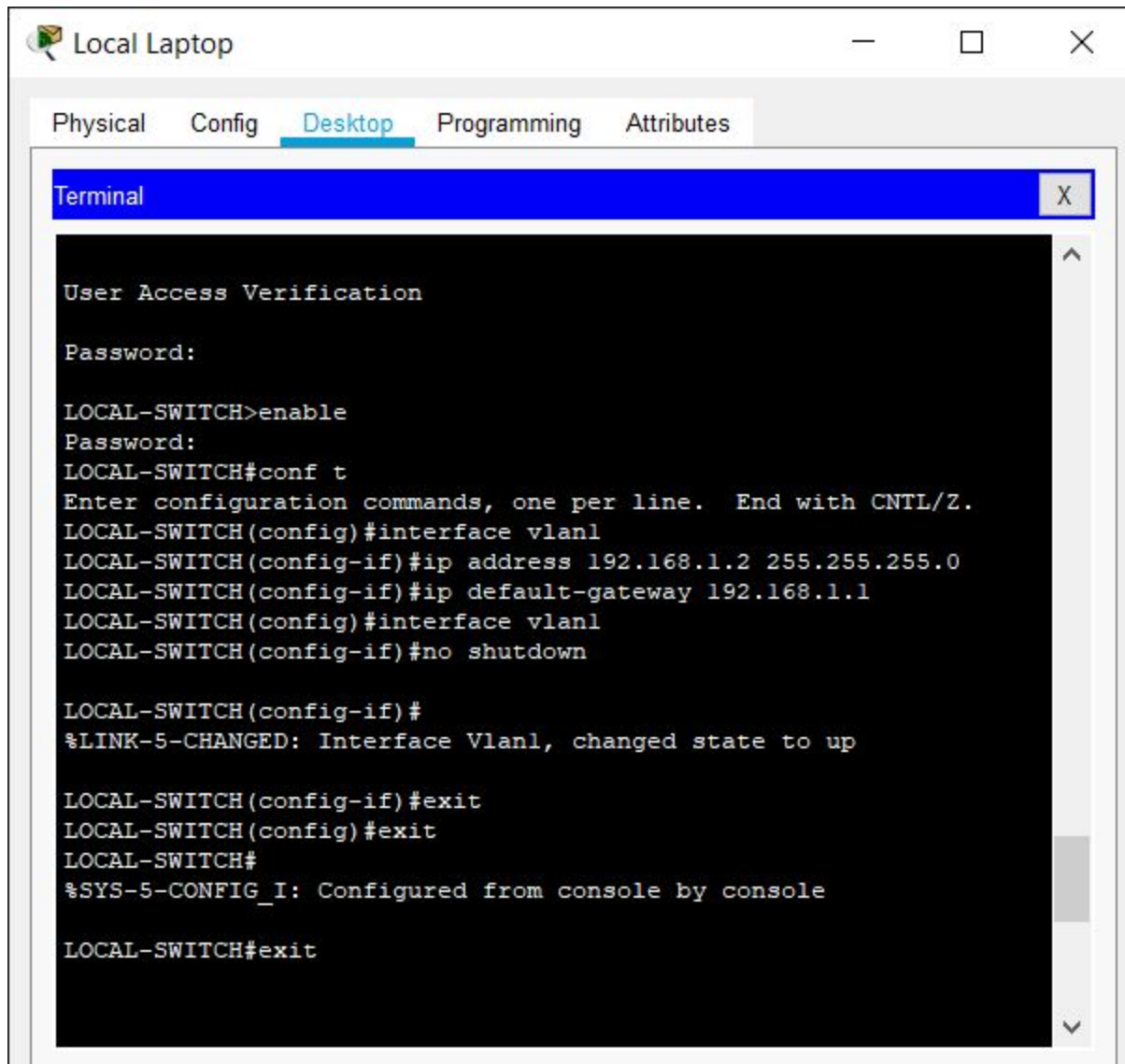
LOCAL-SWITCH con0 is now available
```

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 its default gateway IP (192.168.1.1).



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

Remote Laptop

Physical

Config

Desktop

Programming

Attributes

Telnet / SSH Client

X

Session Options

Connection Type

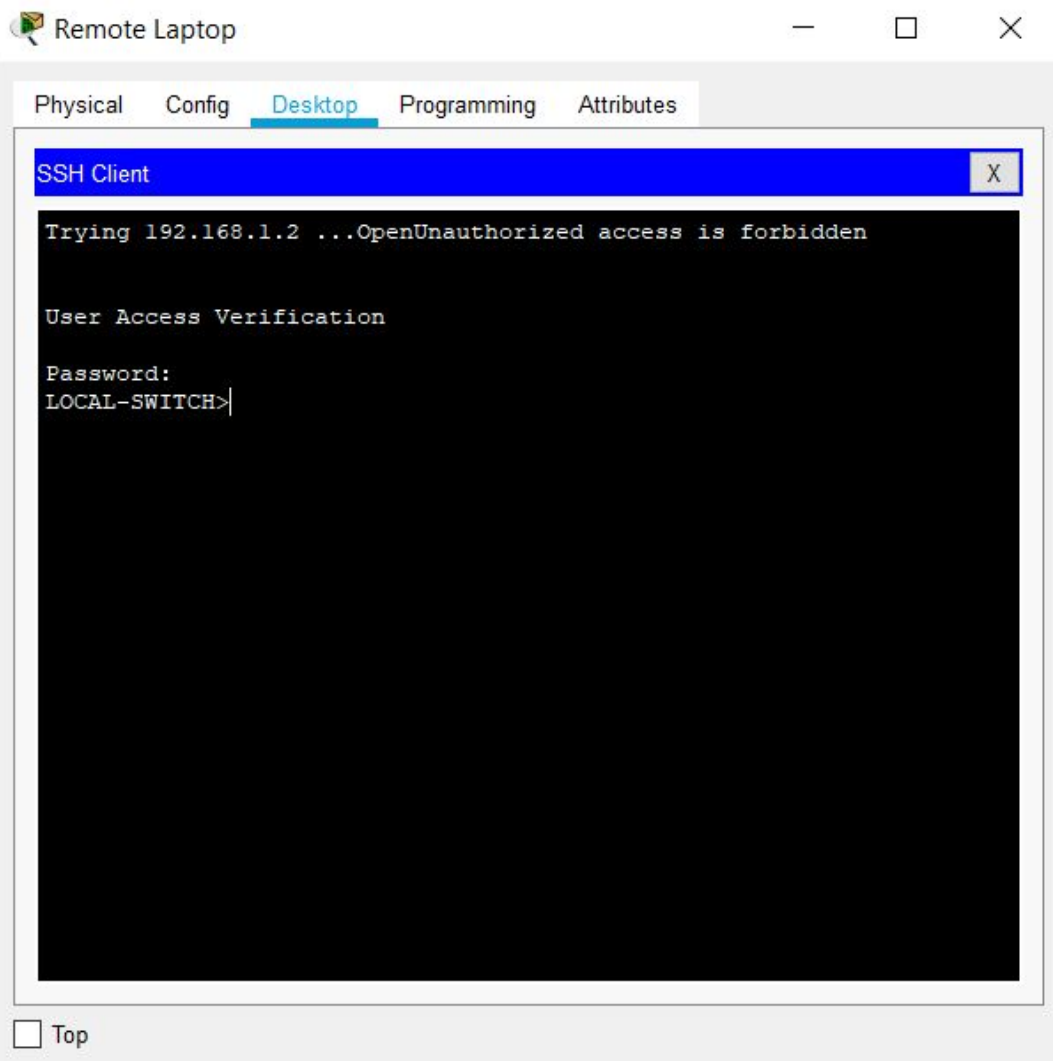
Telnet

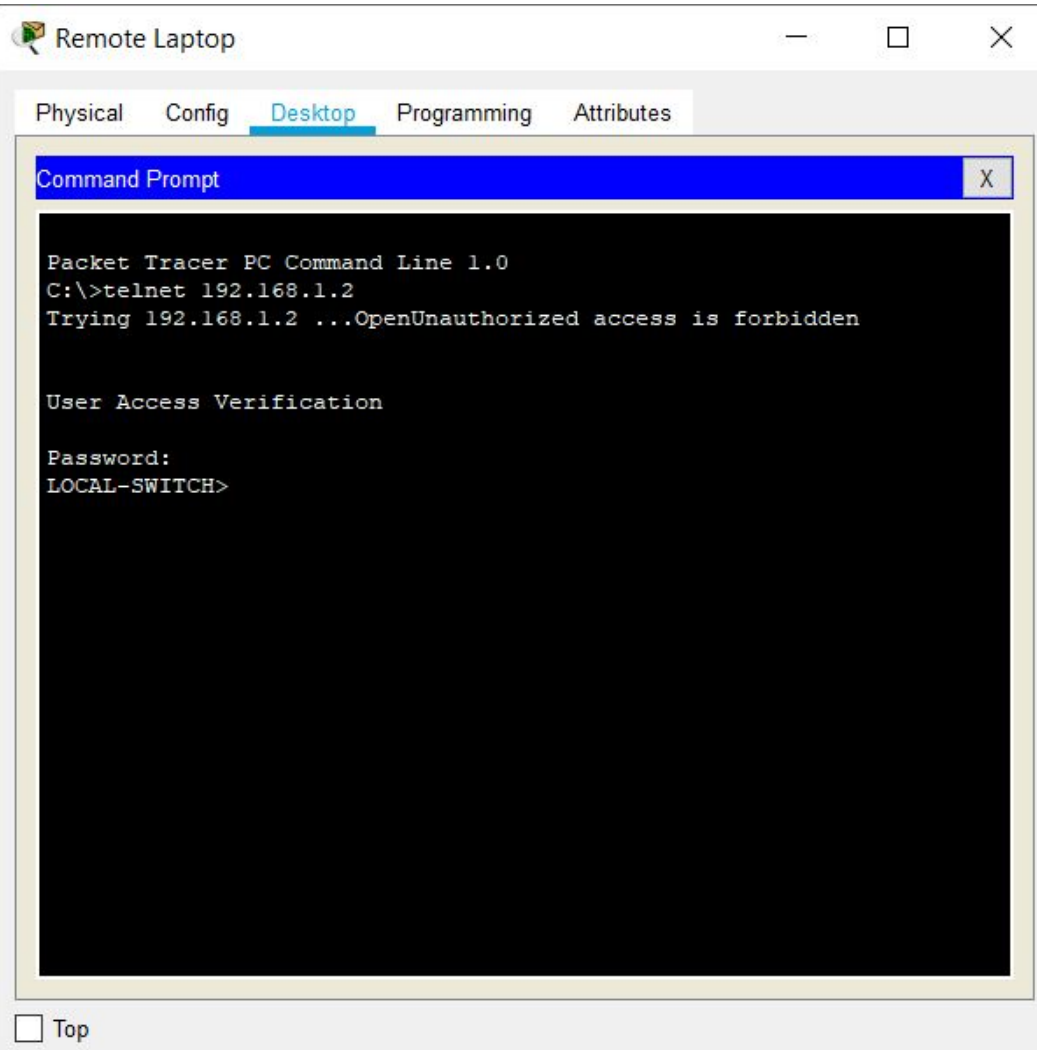
Host Name or (IP address)

192.168.1.2

Connect

☐ Top







## Command Prompt

```
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:\>
```