

Name : Soham Vaidya

Branch : TE Computer

Batch : D

UID : 2018130058

CEL 51, DCCN, Monsoon 2020

Lab 4: Prototyping a Network

Objective:

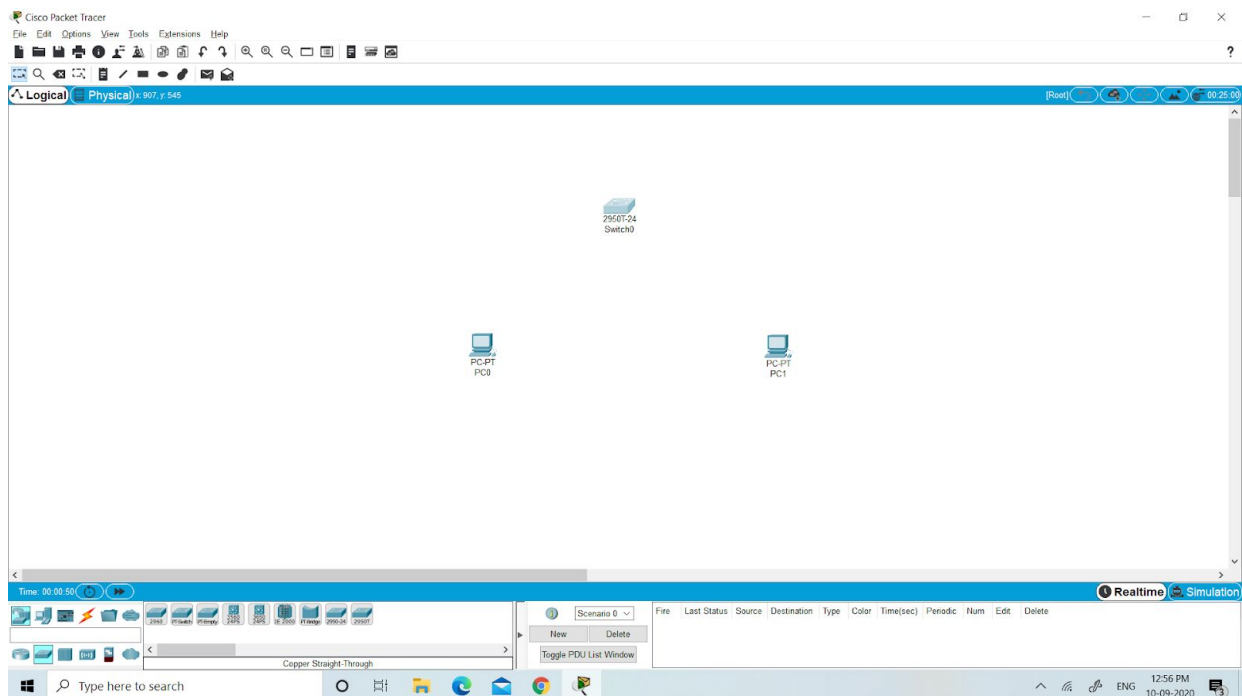
Prototype a network using Packet Tracer

Background

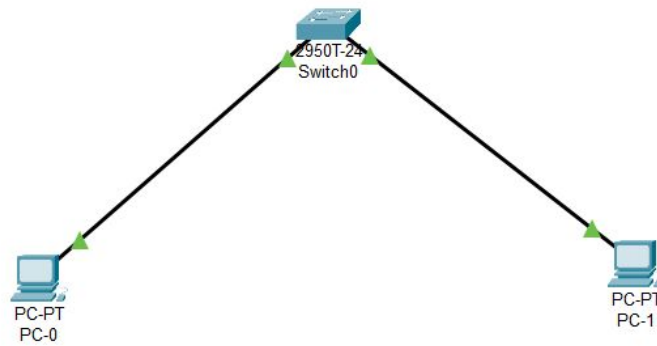
A client has requested that you set up a simple network with two PCs connected to a switch. Verify that the hardware, from the given configurations, meet the requirements of the client.

Step 1: Set up the network topology

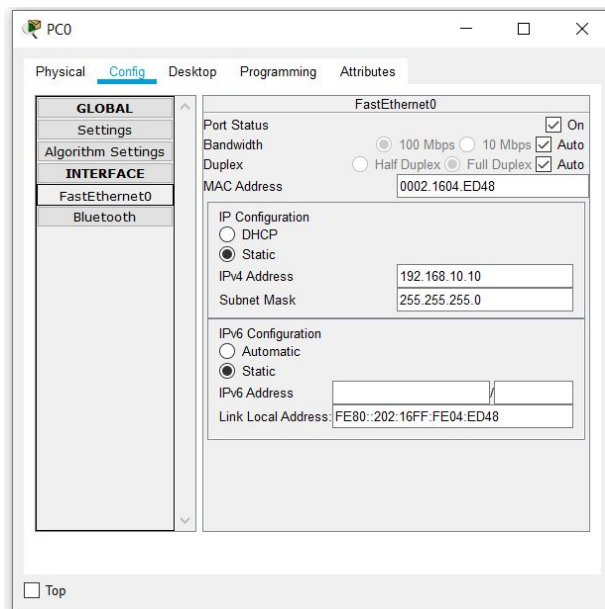
- a) Add two PCs and a Cisco 2950T switch



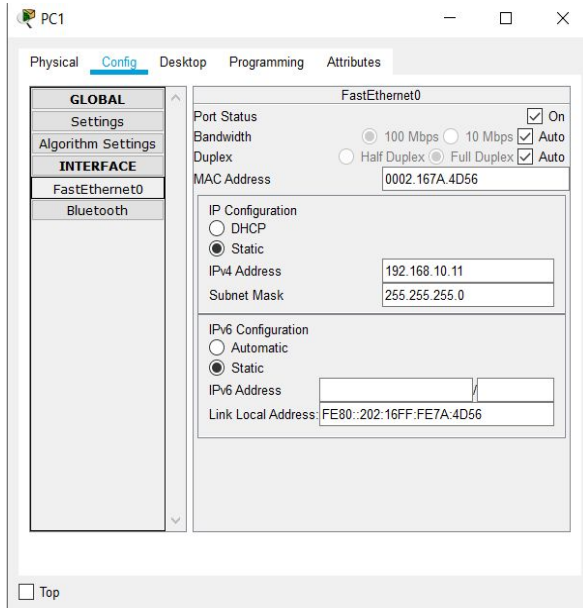
- b) Using straight-through cables, connect **PC0** to interface **Fa0/1** on **Switch0** and **PC1** to interface **Fa0/2** on **Switch0**.



- c) Configure PC0 using the **Config** tab in the PC0 configuration window:
- IP address: 192.168.10.10
 - Subnet Mask 255.255.255.0



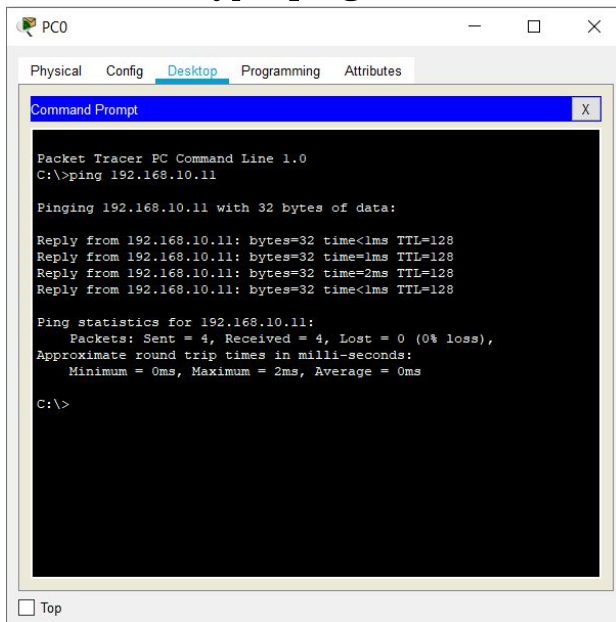
- d) Configure PC1 using the **Config** tab in the PC1 configuration window
- IP address: 192.168.10.11
 - Subnet Mask 255.255.255.0



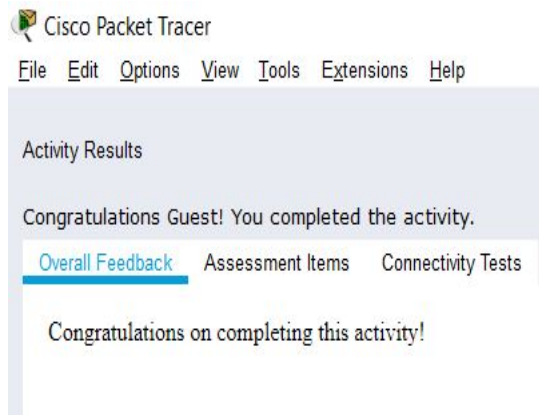
The images show the outcome of step 1. In this step, a network of two generic personal computers and a Cisco 2950T switch is created and the computers are connected to the switch by means of a Copper straight-through cable. This creates a small Ethernet network with a copper medium for the ethernet cable.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



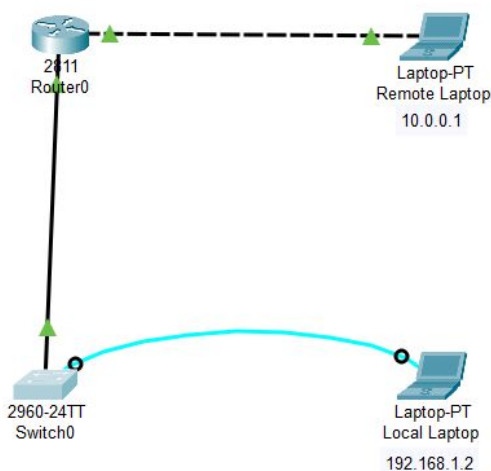
The CLI interface for PC0 in the above image shows that a connection was established correctly between the two personal computers via the switch as the ping command receives the response packets sent by PC0 to PC1. On checking the results, we can see a successful activity completion message as shown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

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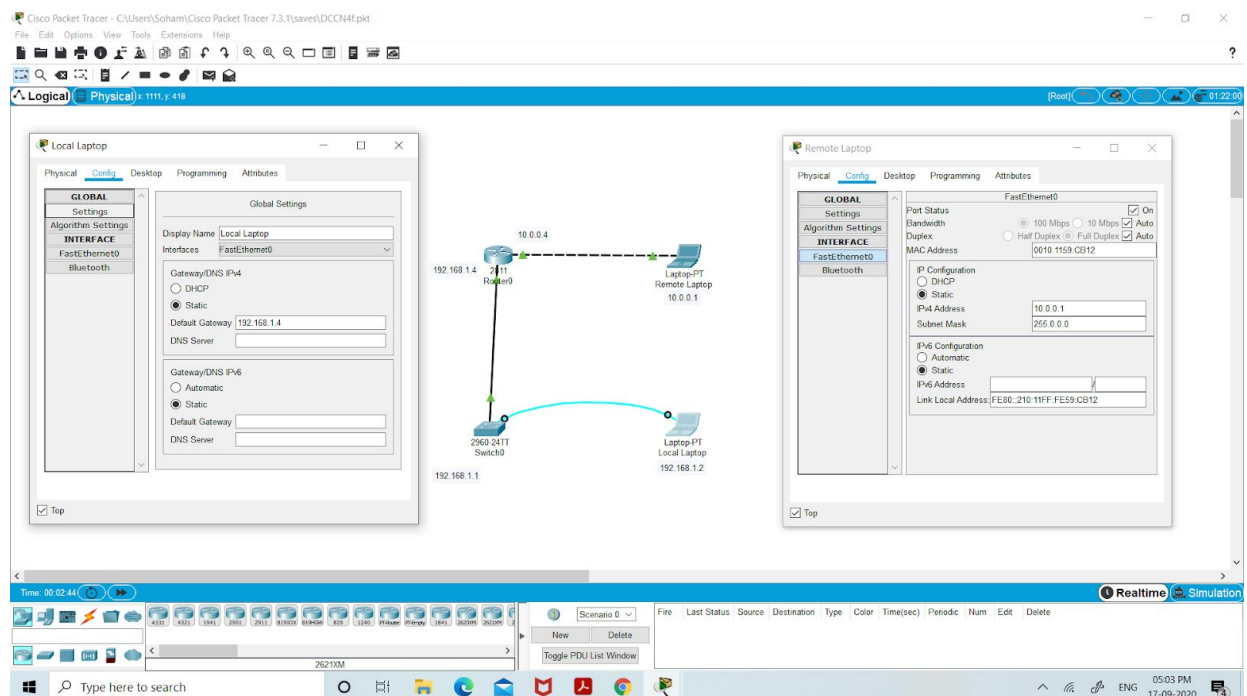
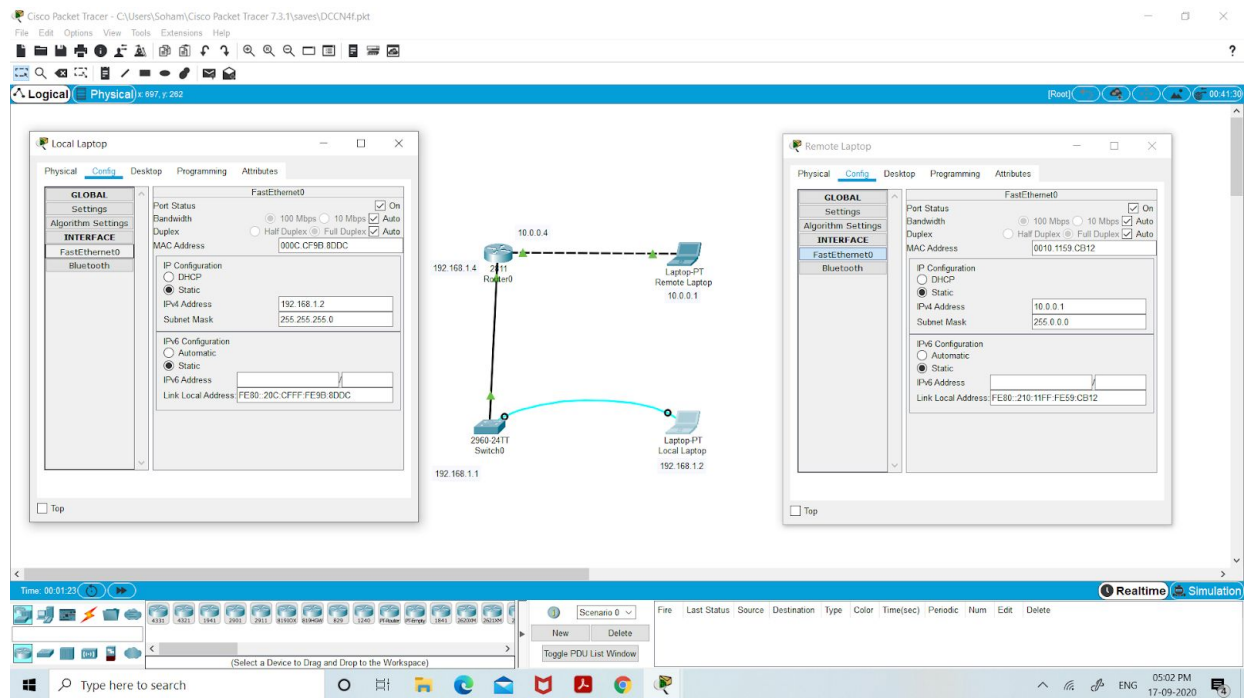
Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

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 to connect to the switch console.



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 0001.42DB.EA01

IP Configuration

IPv4 Address 192.168.1.4

Subnet Mask 255.255.255.0

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)#
```

☐ Top

Router0

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 0001.42DB.EA02

IP Configuration

IPv4 Address 10.0.0.4

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

☐ Top

2. Configure Switch hostname as LOCAL-SWITCH

```
Switch(config)#  
Switch(config)#hostname LOCAL-SWITCH  
LOCAL-SWITCH(config)#
```

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

```
LOCAL-SWITCH#config t  
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)#exit  
LOCAL-SWITCH#  
%SYS-5-CONFIG_I: Configured from console by console  
  
LOCAL-SWITCH#exit
```

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

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

```
Unauthorized access is forbidden
```

```
User Access Verification
```

```
Password:
```

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

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


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

```
LOCAL-SWITCH#show running-config | include enable
enable secret 5 $1$mERr$hx5rVt7rPNoS4wqbXKX7m0
enable password 7 08204843001725464058
LOCAL-SWITCH#
```

6. Configure CONSOLE access with the following settings :

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

```
LOCAL-SWITCH#config
Configuring from terminal, memory, or network [terminal]? t
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#password password
      ^
% Invalid input detected at '^' marker.

LOCAL-SWITCH(config)#line console 0
LOCAL-SWITCH(config-line)#password password
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#
```

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#config t
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL-SWITCH(config)#line vty 0 15
LOCAL-SWITCH(config-line)#password password
LOCAL-SWITCH(config-line)#login
LOCAL-SWITCH(config-line)#history size 15
LOCAL-SWITCH(config-line)#exec-timeout 8 20
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#

```

7. Configure the IP address of the switch as 192.168.1.1/24 and it's default gateway IP (192.168.1.4).

```

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname LOCAL-SWITCH
LOCAL-SWITCH(config)#interface vlan1
LOCAL-SWITCH(config-if)#ip address 192.168.1.1 255.255.255.0
LOCAL-SWITCH(config-if)#ip default-gateway 192.168.1.4
LOCAL-SWITCH(config)#exit
LOCAL-SWITCH#
%SYS-5-CONFIG_I: Configured from console by console

LOCAL-SWITCH#

```

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

