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CEL 51, DCCN, Monsoon 2020

Lab 4: Prototyping a Network

Objective:

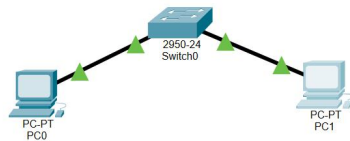
Prototype a network using Packet Tracer

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

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 0090.2B84.5A23

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.10.10

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

Link Local Address: FE80::290:2BFF:FE84:5A23

☐ Top

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

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 0004.9A7E.E911

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.10.11

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

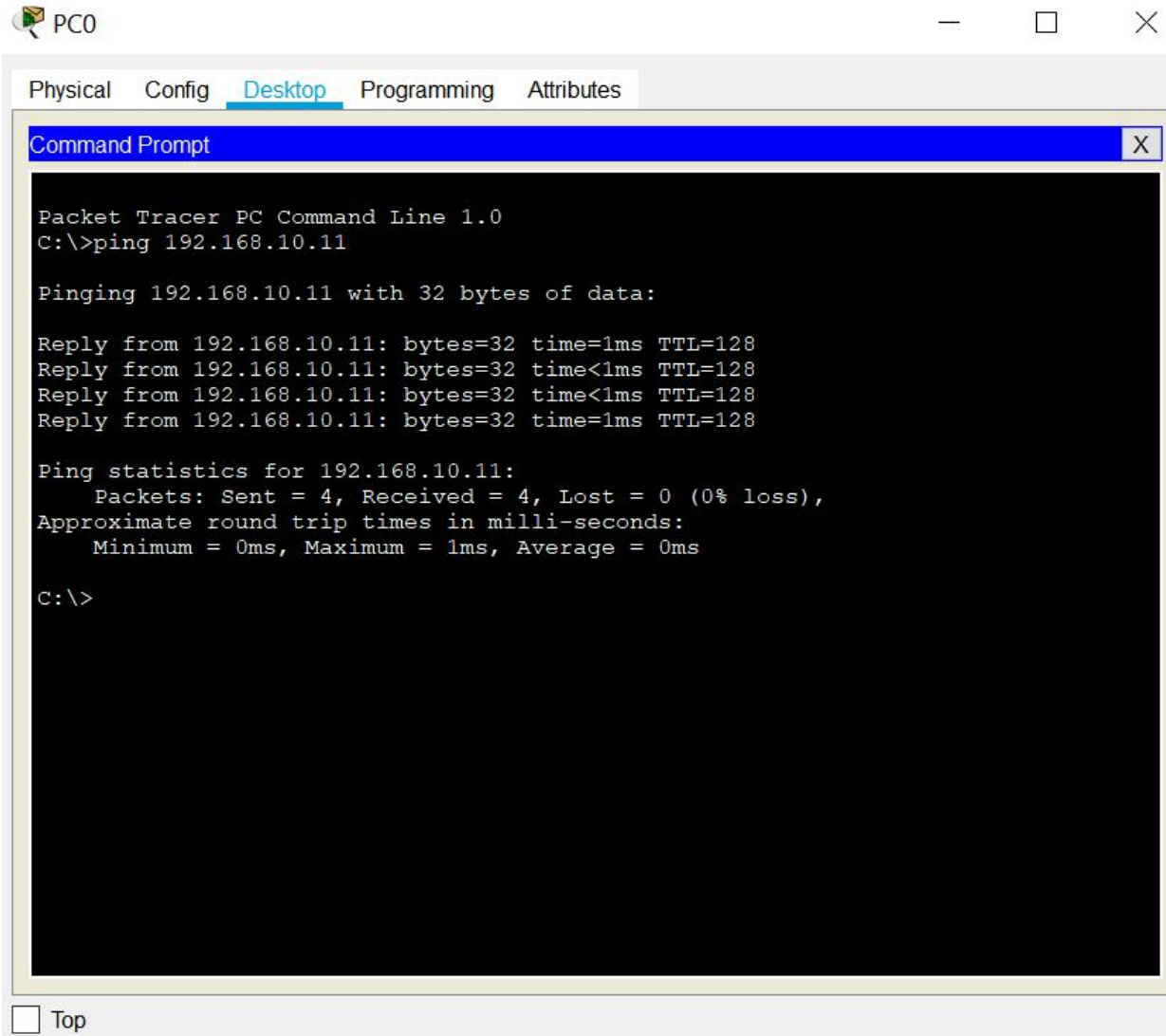
IPv6 Address

Link Local Address: FE80::204:9AFF:FE7E:E911

☐ Top

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*.



The screenshot shows a Packet Tracer interface with a PC0 icon and a window titled "PC0". The window has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a "Command Prompt" window. The command prompt shows the execution of a ping command to 192.168.10.11, resulting in four successful replies with 0% loss. The output text is as follows:

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

C:\>
```

At the bottom of the window, there is a "Top" button.

- 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.

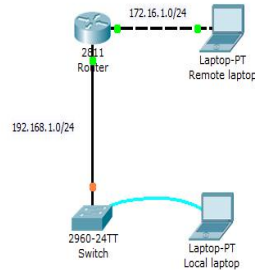
Congratulations on completing this activity!

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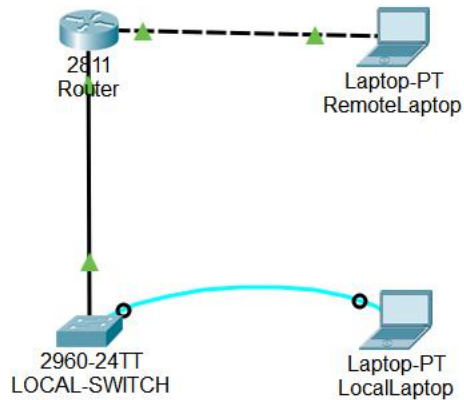
Lab 4.1: Basic configuration - hostname, motd banner, passwd etc

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.



Physical Config Desktop Programming Attributes**GLOBAL**

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

Global Settings

Display Name RemoteLaptop

Interfaces FastEthernet0

Gateway/DNS IPv4

☐ DHCP☒ Static

Gateway 172.16.1.0

DNS Server

Gateway/DNS IPv6

☐ DHCP☐ Auto Config☒ Static

IPv6 Gateway

IPv6 DNS Server

GLOBAL	Global Settings
Settings	Display Name <input type="text" value="LocalLaptop"/>
Algorithm Settings	Interfaces <input type="text" value="FastEthernet0"/>
INTERFACE	
FastEthernet0	Gateway/DNS IPv4
Bluetooth	<input type="radio"/> DHCP
	<input checked="" type="radio"/> Static
	Gateway <input type="text"/>
	DNS Server <input type="text"/>
	Gateway/DNS IPv6
	<input type="radio"/> DHCP
	<input type="radio"/> Auto Config
	<input checked="" type="radio"/> Static
	IPv6 Gateway <input type="text"/>
	IPv6 DNS Server <input type="text"/>

RemoteLaptop

PhysicalConfigDesktopProgrammingAttributes

IP Configuration X

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IP Address172.16.1.1

Subnet Mask255.255.0.0

Default Gateway0.0.0.0

DNS Server0.0.0.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address /

Link Local AddressFE80::20D:BDFF:FEAB:B01A

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

AuthenticationMD5

Username

Password

☐ 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 0030.A34D.B402
IP Configuration
IP Address
Subnet Mask
Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config)#interface FastEthernet0/1
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
```

☐ 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 0030.A34D.B401
IP Configuration
IP Address
Subnet Mask
Tx Ring Limit 10

Equivalent IOS Commands

```
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

2. Configure Switch hostname as LOCAL-SWITCH

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with
CNTL/Z.
Switch(config)#hostname LOCAL-SWITCH
LOCAL-SWITCH(config)#
```

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

```
LOCAL-SWITCH(config)#banner motd #
Enter TEXT message. End with the character '#'.
Unauthorized access is forbidden#

LOCAL-SWITCH(config)#
```

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

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

Ctrl-F5 to exit CLI focus

Copy Paste

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

```
LOCAL-SWITCH#conf t
Enter configuration commands, one per line. End with
CNTL/Z.
LOCAL-SWITCH(config)#service password-encryption
LOCAL-SWITCH(config)#
```

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>enable
Password:
LOCAL-SWITCH#config
Configuring from terminal, memory, or network [terminal]?
terminal
Enter configuration commands, one per line. End with
CNTL/Z.
LOCAL-SWITCH(config)#line con 0
LOCAL-SWITCH(config-line)#password ciscoc
LOCAL-SWITCH(config-line)#logging synchronous
LOCAL-SWITCH(config-line)#login
LOCAL-SWITCH(config-line)#history size 15
LOCAL-SWITCH(config-line)#exec-timeout
% Incomplete command.
LOCAL-SWITCH(config-line)#exec-timeout 6 45
LOCAL-SWITCH(config-line)#
```

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-line)#line vty 0 15
LOCAL-SWITCH(config-line)#exec-timeout 8 20
LOCAL-SWITCH(config-line)#password ciscot
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 it's default gateway IP (192.168.1.1).

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

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

```
LOCAL-SWITCH(config)#interface Vlan1
LOCAL-SWITCH(config-if)#no shutdown

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state
to up
```

```
Packet Tracer PC Command Line 1.0
C:\>telnet 192.168.1.2
Trying 192.168.1.2 ...OpenUnauthorized access is forbidden

User Access Verification

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

[Connection to 192.168.1.2 closed by foreign host]
```