

**NST21022 - Practical for  
Network Switching and  
Routing**

Department of Information  
and Communication  
Technology  
Faculty of Technology



**Lab sheet :02**  
**Reg. Number: SEU/IS/20/ICT/084**  
**Academic Year :2020/2021**  
**Practical No :02**

**Title:**

- Basic Switch and End Device Configuration

**Aims:**

- Get familiar with IOS command structure
- Get familiar with basic nodes (Device) configuration

**Tasks:**

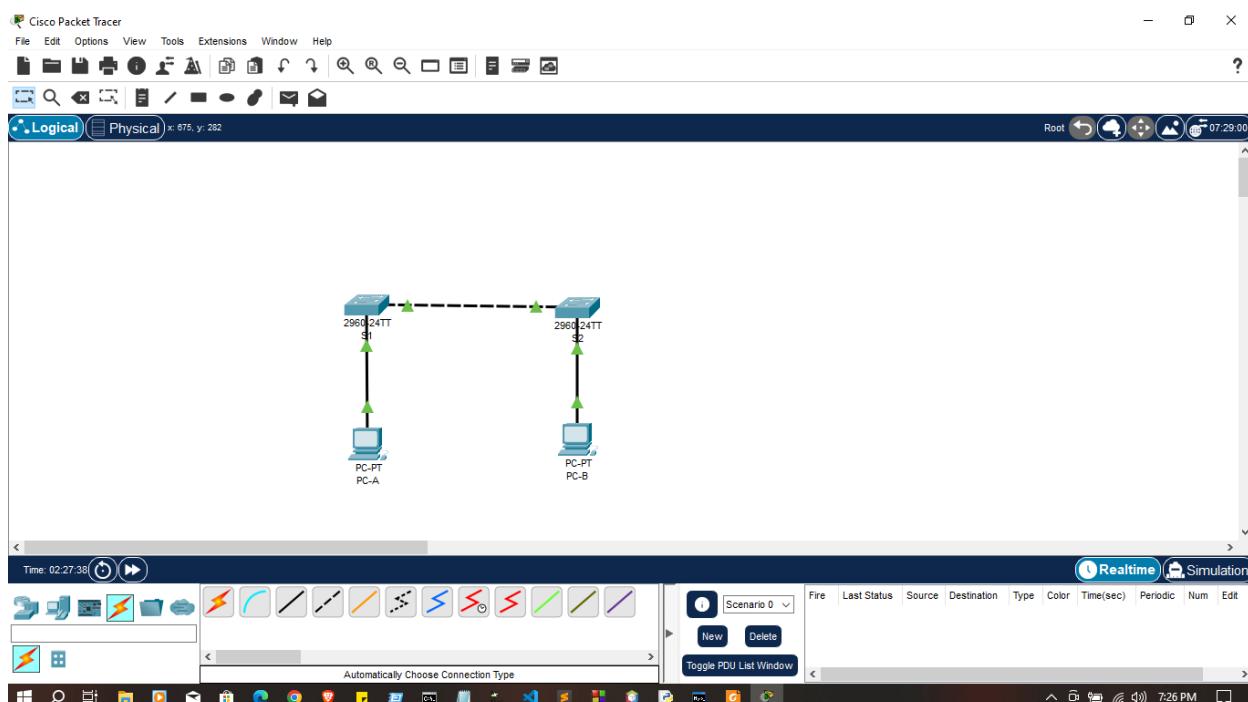
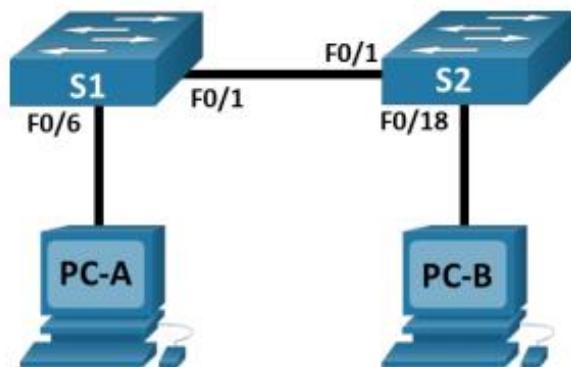
- Set Up the Network Topology
- Configure PC Hosts
- Configure and Verify Basic Switch Settings

## Activities

### Addressing Table

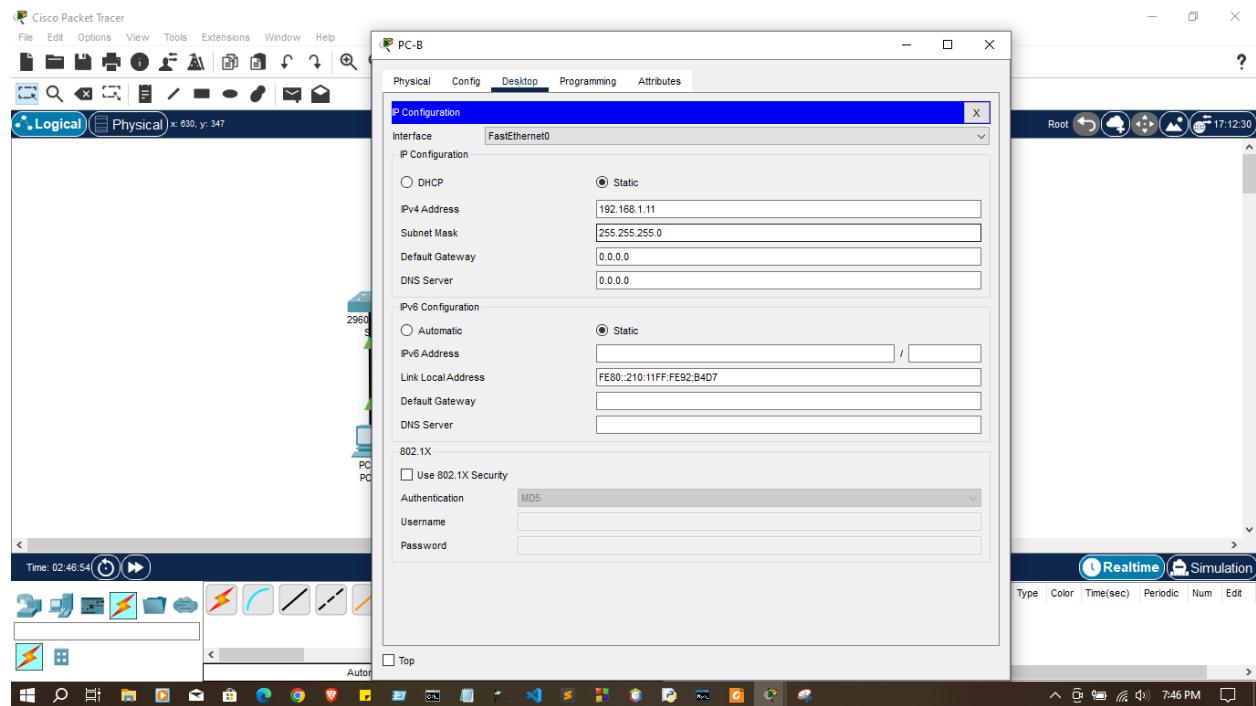
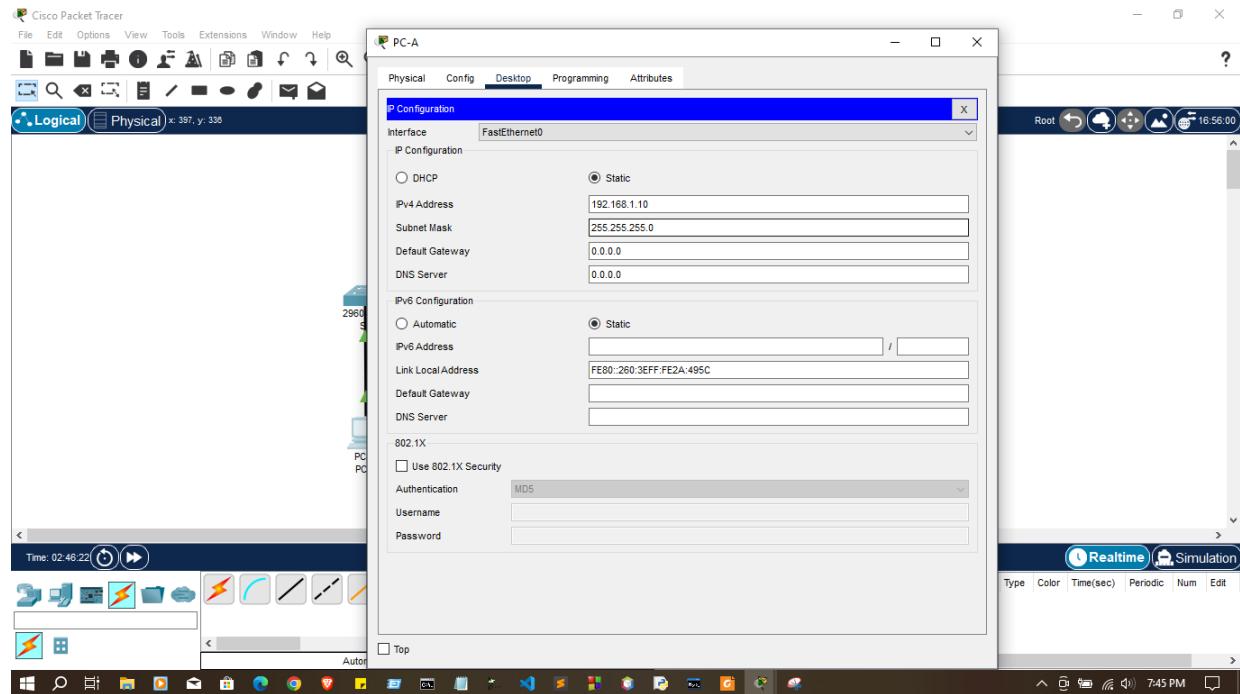
Device	Interface	IP Address	Subnet Mask
RegNo-S1	VLAN 1	192.168.1.1	255.255.255.0
RegNo-S2	VLAN 1	192.168.1.2	255.255.255.0
RegNo-PC-A	NIC	192.168.1.10	255.255.255.0
RegNo-PC-B	NIC	192.168.1.11	255.255.255.0

1. Set Up the Network Topology
  - a. Power on the devices.
  - b. Connect the two switches.
  - c. Connect the PCs to their respective switches.
  - d. Visually inspect network connections.



## 2. Configure PC Hosts

- Configure static IP address information on the PCs according to the Addressing Table.
- Verify PC settings and connectivity



## 03.Configure and Verify Basic Switch Settings

- Console into the switch. Enter the global configuration mode.

**Switch>enable Switch#**

```
Press RETURN to get started!

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
%LINK-3-UPDOWN: Interface FastEthernet0/2, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

Switch>
Switch>en
Switch#
Switch#
Switch#
```

- Go global configure mode - command:

**configure terminal**

```
Switch>
Switch>en
Switch#
Switch#
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
Switch(config)#

```

- Give the switch a name according to the Addressing Table.

**Switch#configure terminal**

**Switch(config)#hostname RegNo-S1**

**S1(config)#**

```
Switch>
Switch>en
Switch#
Switch#
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
Switch(config)#hostname RegNo-S1
RegNo-S1(config)#
RegNo-S1(config)#[
```

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d. Prevent unwanted DNS lookups.

**Switch(config)#no ip domain-lookup**

```
RegNo-S1(config)#
RegNo-S1(config)#no ip domain-lookup
RegNo-S1(config)#
RegNo-S1(config)#[
```

e. Configure password for console access

f. enter line console configuration mode command: **line console 0**

(The zero is used to represent the first (and in most cases the only) console interface)

g. Set password for CLI command:

```
S1#configure terminal
S1(config)#line console 0
S1(config-line)#password 1234
S1(config-line)#login
S1(config-line)#end
```

```
RegNo-S1>en
RegNo-S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
RegNo-S1(config)#
RegNo-S1(config)#no ip domain-lookup
RegNo-S1(config)#
RegNo-S1(config)#line console 0
RegNo-S1(config-line)#
RegNo-S1(config-line)#password 1234
RegNo-S1(config-line)#login
RegNo-S1(config-line)#exit
RegNo-S1(config)#
RegNo-S1#
%SYS-5-CONFIG_I: Configured from console by console

RegNo-S1#
RegNo-S1#exit
```

```
RegNo-S1#
RegNo-S1#exit

RegNo-S1 con0 is now available

Press RETURN to get started.

User Access Verification

Password:
RegNo-S1>
```

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- h. Use **class** as the privileged EXEC password  
**S1(config)#enable secret class**

```
RegNo-S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
RegNo-S1(config)#
RegNo-S1(config)#
RegNo-S1(config)#enable secret class
RegNo-S1(config)#[
```

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- i. Encrypt the password  
**S1#configure terminal**  
**S1(config)#service password-encryption**  
**S1(config)#**

```
RegNo-S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
RegNo-S1(config)#
RegNo-S1(config)#
RegNo-S1(config)#enable secret class
RegNo-S1(config)#service password-encryption
RegNo-S1(config)#[
```

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- j. Configure and enable the Switch Virtual Interface according to the Addressing Table.

```
S1(config)# interface vlan 1
S1(config-if)# ip address 192.168.1.1 255.255.255.0 S1
(config-if)# no shutdown
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1,
changed state to up
```

```
RegNo-S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
RegNo-S1(config)#
RegNo-S1(config)#
RegNo-S1(config)#enable secret class
RegNo-S1(config)#service password-encryption
RegNo-S1(config)#interface vlan 1
RegNo-S1(config-if)#
RegNo-S1(config-if)#ip address 192.168.1.1 255.255.255.0 S1
                                         ^
% Invalid input detected at '^' marker.

RegNo-S1(config-if)#ip address 192.168.1.1 255.255.255.0
RegNo-S1(config-if)#no shutdown

RegNo-S1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

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

RegNo-S1(config-if)#

```

k. Configure Banner Messages

**S1#configure terminal**

**S1(config)#banner motd #Authorized Access Only#**

```
RegNo-S1(config)#banner motd #
Enter TEXT message. End with the character '$'.
#####
#####Authorized user Only#####
#####
Switch2

#####
#####
$#
RegNo-S1(config)#
RegNo-S1(config)#
RegNo-S1(config)#
RegNo-S1(config)#

```

1. Verify all configuration

**S1#show running-config**

```
RegNo-S1#show running-config
Building configuration...

Current configuration : 1528 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname RegNo-S1
!
enable secret 5 $1$mERr$9cTjUIEqNGurQiFU.ZeCil
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
```

m. Save configuration

**S1>enable**

**S1#copy running-config**

**startup-config Destination filename [startup- config]?**

**Building configuration...**

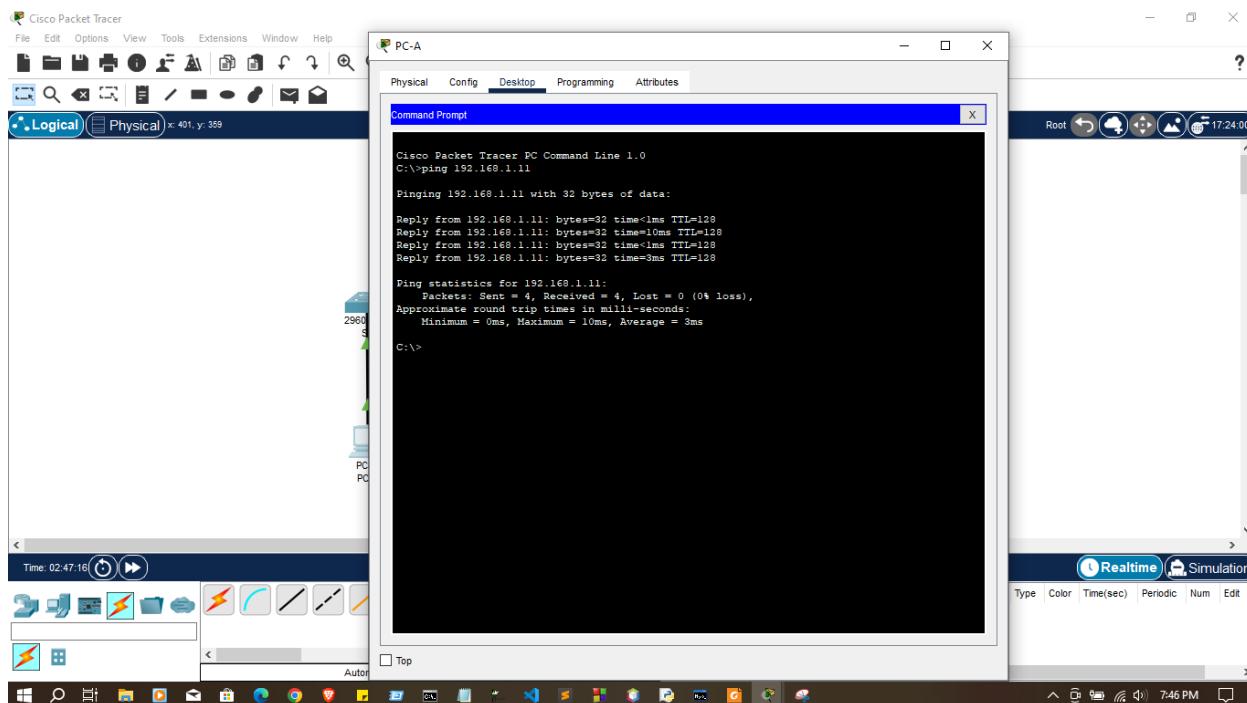
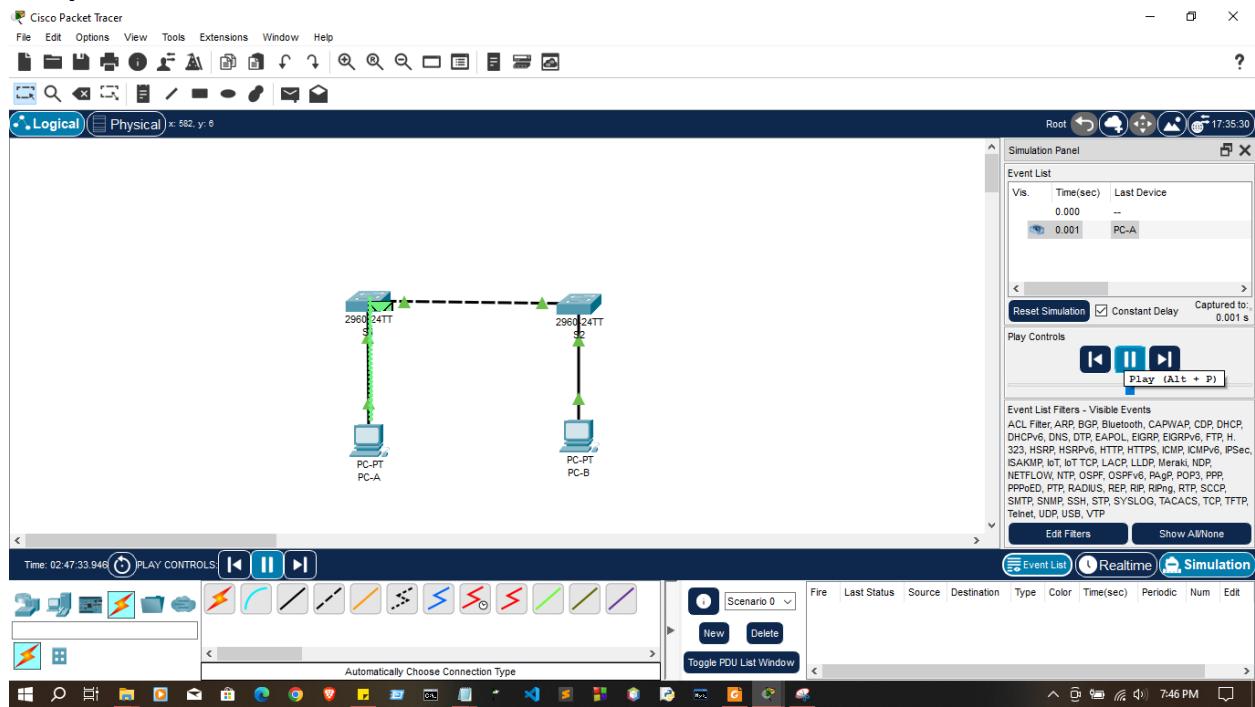
**[OK]**

```
RegNo-S1#
RegNo-S1#
RegNo-S1#en
RegNo-S1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
RegNo-S1#
RegNo-S1#
RegNo-S1#
```

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## Output:-



# **Discussion**

- the discussion outlined the essential steps in setting up a network topology, configuring PC hosts, and ensuring basic switch settings within Cisco Packet Tracer. These fundamental actions are crucial for creating a functional and well-organized network. The main points covered include:

## **1. Network Topology Setup:**

- The initial step involves placing devices such as PCs and switches in the Packet Tracer workspace and establishing connections using appropriate cables. The spatial arrangement and connections determine the overall network design.

## **2. Configuring PC Hosts:**

- The configuration of PC hosts is a critical aspect of network setup. This includes assigning unique IP addresses, configuring subnet masks, setting default gateways, and specifying DNS settings. Proper PC configuration ensures seamless communication within the network and external access.

## **3. Configuring and Verifying Switch Settings:**

- Switches play a vital role in local network connectivity. Basic switch configuration includes assigning a hostname, setting passwords for security, and configuring interfaces. VLAN configuration may also be necessary for logical network segmentation. Verification steps, such as checking configurations and interface status, are essential.

## **4. Discussion Emphasis:**

- The discussion emphasized the significance of IP configuration on PC hosts, including the importance of unique addresses and subnetting for efficient resource allocation. It also highlighted the role of switch configuration in enhancing network security and management. Verification steps and considerations for troubleshooting were discussed to ensure the network operates as intended.

## **5. Summary of Troubleshooting Considerations:**

- The discussion acknowledged potential issues during the configuration process, such as IP conflicts or misconfigurations. It stressed the importance of troubleshooting steps, encouraging learners to use commands like ipconfig on PCs and show running-config on switches to identify and address issues.

**This comprehensive approach to network setup and configuration in Cisco Packet Tracer provides learners with valuable hands-on experience, essential for developing practical skills in networking. The emphasis on verification and troubleshooting enhances the understanding of network functionality and problem-solving in real-world scenarios.**

Thank you..