NST21022 - Practical for Network Switching and Routing

Department of Information and Communication Technology

Faculty of Technology

Lab sheet :04
Reg. Number: SEU/IS/20/ICT/084
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Practical No :04

Title: Network devices configuration practice

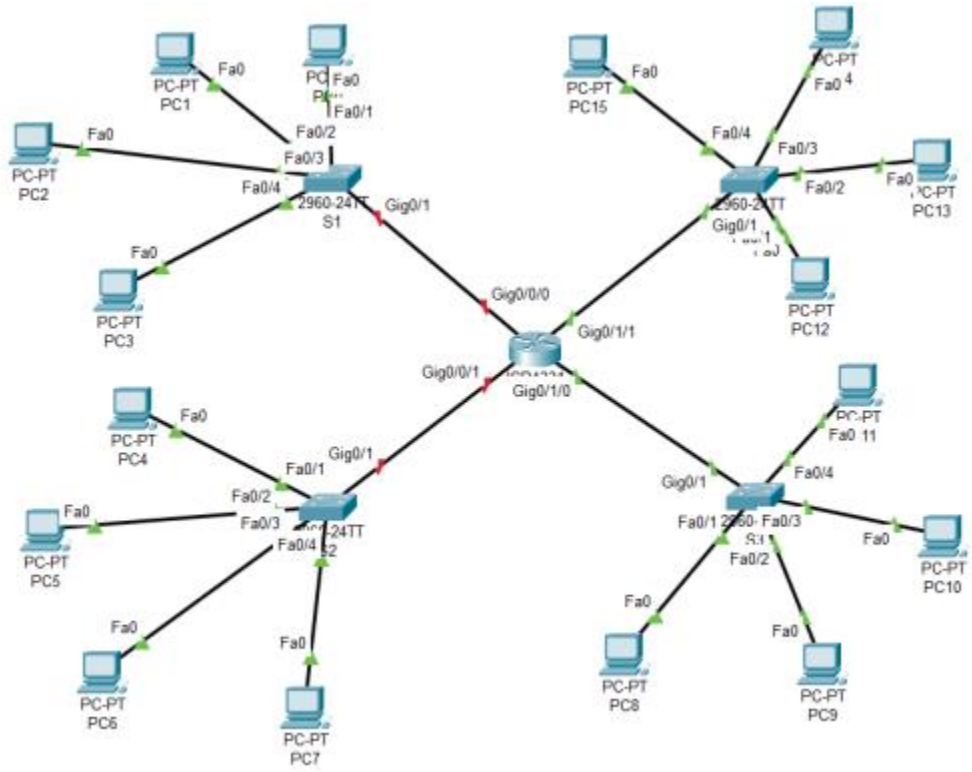
Aim:

- Get practice with basic configuration in Router and Switch

Task:

- Follow the lab sheet and configure network device accordingly

Design a network as follows



Addressing Table

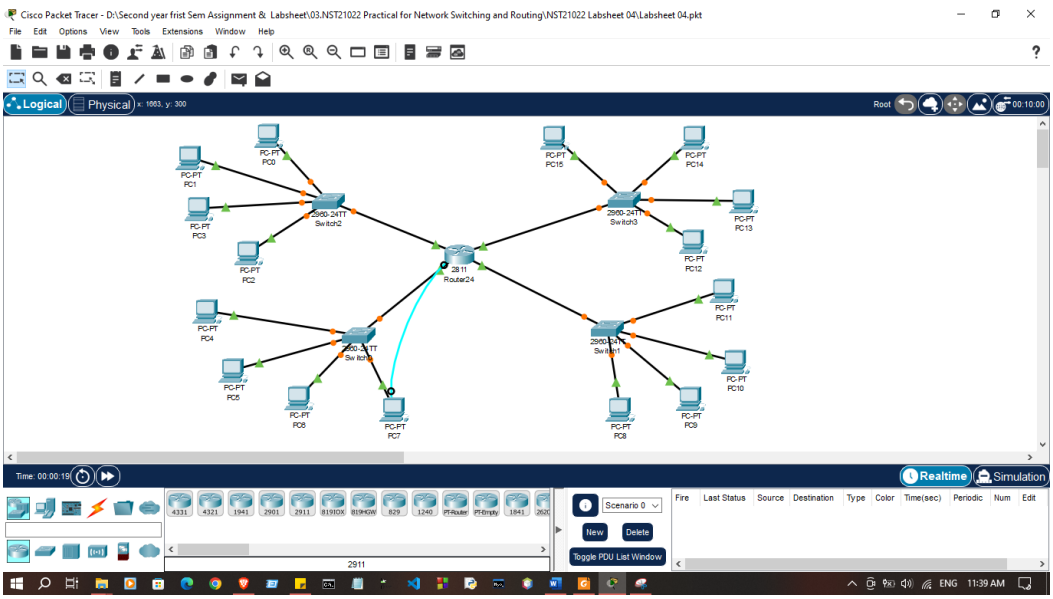
Devices	Interfaces	IP Addresses	Subnet Mask / Default Gateway
R1	G0/0/0	10.1.10.1	255.255.255.0
	G0/0/1	10.1.20.1	255.255.255.0
	G0/1/0	172.6.10.1	255.255.255.0
	G0/1/1	172.6.20.1	255.255.255.0
PC0	NIC	10.1.10.10	

PC1	NIC	10.1.10.11	
PC2	NIC	10.1.10.12	
PC3	NIC	10.1.10.13	
PC4	NIC	10.1.20.10	
PC5	NIC	10.1.20.11	
PC6	NIC	10.1.20.12	
PC7	NIC	10.1.20.13	
PC8	NIC	172.6.10.10	
PC9	NIC	172.6.10.11	
PC10	NIC	172.6.10.12	
PC11	NIC	172.6.10.13	
PC12	NIC	172.6.20.10	
PC13	NIC	172.6.20.11	
PC14	NIC	172.6.20.12	
PC15	NIC	172.6.20.13	

Activities

Exercise 01:

1. Create a topology as mentioned above.



2. **Configure basic configuration on router and switches through console cable from any PC.**

   a. **Configure hostname according to display name**

```
R1>enable
R1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#host R1
R1(config)#
R1(config)#
R1(config)#
```

   b. **Prevent unwanted DNS lookup**

```
R1(config)#host R1
R1(config)#
R1(config)#
R1(config)#no ip domain lookup
R1(config)#
```

   c. **Configure password protection to console line**

```
R1(config)#
R1(config)#
R1(config)#line console 0
R1(config-line)#
R1(config-line)#password 1234
R1(config-line)#login
R1(config-line)#exit
R1(config)#
```

   d. **Configure VTY line password.**

```
R1(config)#line vty 0 15
R1(config-line)#password 1234
R1(config-line)#login
R1(config-line)#exit
R1(config)#
```

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e. Configure password protection to privileged EXEC mode

```
R1(config)#enable secret class
R1(config)#service password-encryption
R1(config)#
```

f. Encrypt all password

```
R1(config)#enable secret class
R1(config)#service password-encryption
R1(config)#
```

g. Assign IP addresses to the interfaces according to the addressing table

```
R1(config)#service password-encryption
R1(config)#interface f0/0
R1(config-if)# ip address 10.1.10.1 255.255.255.0
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R1(config-if)#interface f0/1
R1(config-if)#ip address 10.1.20.1 255.255.255.0
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

R1(config-if)#interface f1/0
R1(config-if)#ip address 172.6.10.1 255.255.255.0
R1(config-if)# no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

R1(config-if)#interface f1/1
R1(config-if)#ip address 172.6.20.1 255.255.255.0
R1(config-if)# no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/1, changed state to up

R1(config-if)#
```

h. Configure proper banner message

```
R1(config-if)#
R1(config-if)#
R1(config-if)#
R1(config-if)#exit
R1(config)#
R1(config)#
R1(config)#
R1(config)#banner motd # Authorized Access Only! #
R1(config)#
```

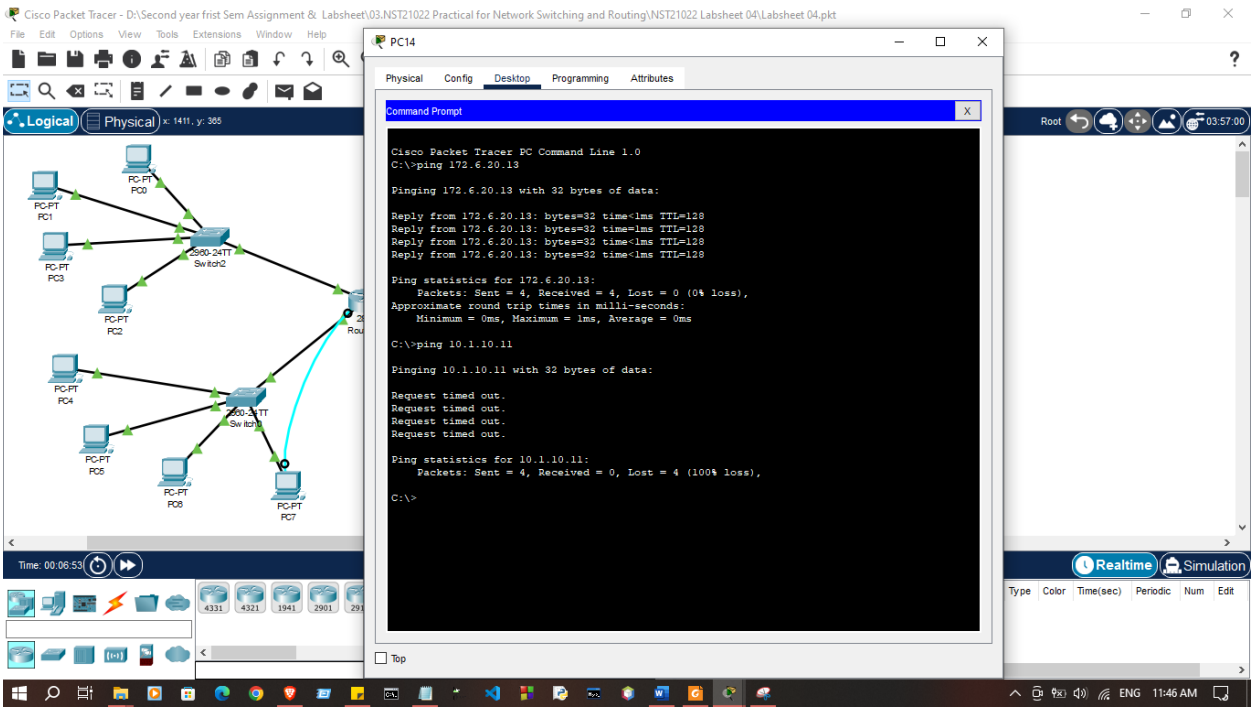
i. Save configurations

```
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#write memory
Building configuration...
[OK]
R1#
R1#
R1#
```

3. Verify running configurations on router

```
R1#show running-config
Building configuration...

Current configuration : 1006 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
```

4. Try to ping between PCs If pinging not success discuss and find a solution



Discussion:

- In this lab session, we focused on practicing basic configurations for routers and switches. Following the lab sheet instructions, we configured network devices step-by-step to set up a functional network. This included tasks such as assigning IP addresses to router interfaces, configuring switch ports, enabling basic routing protocols, and securing access to the devices through passwords. These configurations helped us understand the fundamental setup required for network communication and reinforced our skills in managing and operating network devices like routers and switches.