



Department of Computer Science and Engineering
Islamic University of Technology (IUT)
A subsidiary organ of OIC

Lab Report 01

CSE 4512 : Computer Networks Lab

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Section: B

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Title: Configure router using static routing to connect multiple networks in Cisco Packet Tracer

Objectives:

1. Understand how to operate Cisco Packet Tracer
2. Learn to create and connect multiple networks using static routing
3. Understand wiring of different network components like router, switch, PC etc.
4. Configure router and switch interfaces
5. Verify connectivity of the network
6. Understand the basics of IP Subnetting
7. Learn to subnet a network following given specifications

Diagram of the experiment:

(Provide screenshot of the final network topology. Make sure to label the network components.)

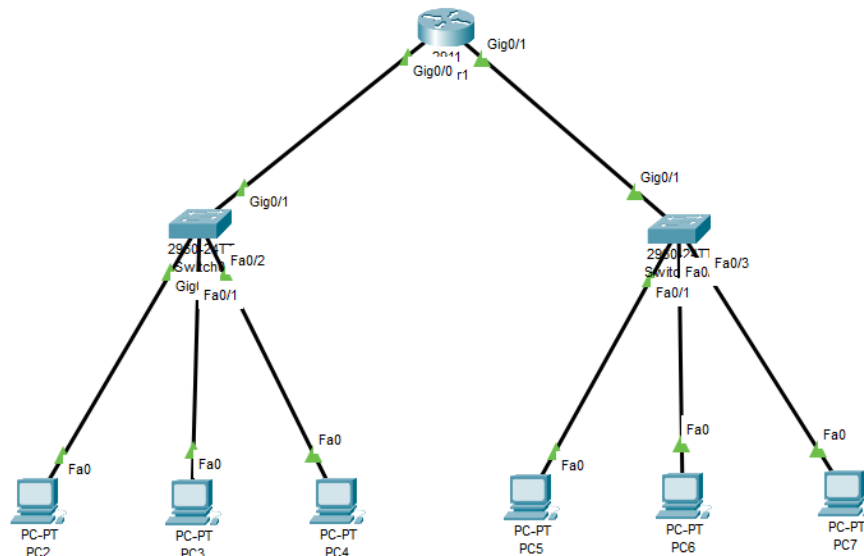


Figure 1 : The experiment

Working Procedure:

(Explain in brief how you completed the tasks. Provide necessary screenshots of used commands for each task.)

1. Created the network tree using following components
 - a. 1 Router 2911
 - b. 2 Switch 2960-24TT
 - c. 6 PC
 - d. Copper Straight Through Wiring

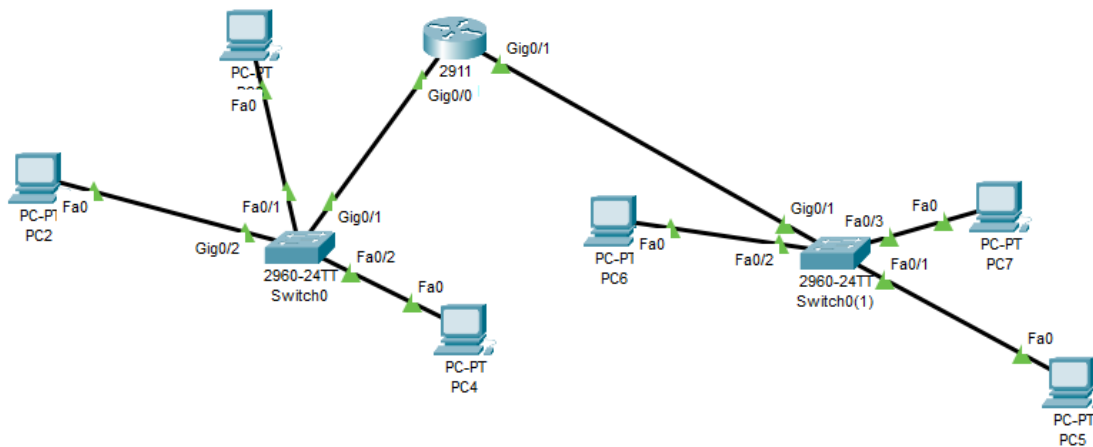


Figure 2 : Network Orientation

2. Assigned IP addresses to the PC's
 - a. PC - 1 : 192.168.6.10
 - b. PC - 2 : 192.168.6.20
 - c. PC - 3 : 192.168.6.30
 - d. PC - 4 : 192.168.16.10
 - e. PC - 5 : 192.168.16.20
 - f. PC - 6 : 192.168.16.30
3. Configured The Router – given the following commands
 - 106> enable
 - 106# configure terminal
 - 106(config)# interface gigabitEthernet 0/0
 - 106(config-if)# ip address 192.168.6.0 255.255.255.0

- 106(config-if)# no shutdown
- 106(config-if)# end
- 106# configure terminal
- 106(config)# interface gigabitEthernet 0/1
- 106(config-if)# ip address 192.168.16.0 255.255.255.0
- 106(config-if)# no shutdown
- 106(config-if)# end
- copy running-config startup-config

4. now run ping command from every pc to every pc to show the connection is successful



















Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
	Successful	PC3	PC6	ICMP		0.000	N	0
	Successful	PC3	PC7	ICMP		0.000	N	1
	Successful	PC3	PC5	ICMP		0.000	N	2
	Successful	PC2	PC6	ICMP		0.000	N	3
	Successful	PC2	PC7	ICMP		0.000	N	4
	Successful	PC2	PC5	ICMP		0.000	N	5
	Successful	PC4	PC6	ICMP		0.000	N	6
	Successful	PC4	PC7	ICMP		0.000	N	7
	Successful	PC4	PC5	ICMP		0.000	N	8

Figure 3 : Ping Results from every PC to every PC

Questions (Answer to the point):

Q1. Write the command to check the status of all interfaces in a router.

Ans: show ip interface brief

```

106>
106>
106>show ip interface brief
Interface          IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0 192.168.6.1     YES manual up          up
GigabitEthernet0/1 192.168.16.1    YES manual up          up

```

Q2. Why do we use switches and not hubs?

Ans: Switches are preferred over hubs due to their ability to create separate collision domains, operate at the data link layer, offer dedicated bandwidth per port, and provide improved security by selectively forwarding data based on MAC addresses.

Q3. How do you make all the configuration changes in a cisco device persistent? What would happen if you don't do this?

Ans: we have to put the command,

```
copy running-config startup-config
```

This is used in Cisco devices to save the current running configuration to the startup configuration. This ensures that any configuration changes made during the current session become persistent and are retained even after a device reboot.

Q4. What are the interfaces of the router? Why are they necessary?

Ans: Interfaces in a router connect it to other devices and networks. They are necessary for facilitating data exchange and communication between different networks, enabling the router to send and receive data through physical or virtual connections.

Q5. Why is default gateway necessary?

Ans: A default gateway is necessary to enable devices on a local network to communicate with devices on other networks. It serves as the routing entry for traffic that doesn't have a specific route in the device's routing table. The default gateway is crucial for sending data to destinations outside the local subnet, acting as the exit point for traffic beyond the immediate network.

Challenges (if any):