



Green University of Bangladesh
Department of Computer Science and Engineering(CSE)

Faculty of Sciences and Engineering
Semester: (Spring , Year:2024), B.Sc. in CSE (Day)

LAB REPORT NO #02

Course Title: Computer Networking Lab

Course Code: CSE - 312

Section: 213_D5

Lab Experiment Name: Configuration of Static and Dynamic Routing Protocols.

Student Details

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Lab Date : 23– 03 - 2024

Submission Date : 30– 03 - 2024

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<u>Lab Report Status</u>	
Marks:	Signature:.....
Comments:.....	Date:.....

1. TITLE OF THE LAB EXPERIMENT

In the previous task, messages are transferred to only three networks. In the given task, there are 4 different networks. The networks are interconnected by five routers. The routers are interconnected by serial ports. Then configure the static routes from the router config mode.

2. OBJECTIVES/AIM

- To understand the static and dynamic routing.
- Configure static routes on each router to allow communication between all clients.
- Configure dynamic routes on each router to allow communication between all clients.

3. PROCEDURE / ANALYSIS / DESIGN

1. Create a network topology by setting up all the necessary devices in Cisco Packet Tracer.
2. Configure static IP addresses on the PC, and other devices.
3. Configure the Fast Ethernet and Serial interfaces of all the Router.
4. For static routing, enable the static protocol from the router configuration mode. Then set the destination network address, subnet mask and next hop for all the network.
5. For dynamic routing, enable the RIP routing protocol from the router configuration mode. Then, add all the required network addresses for all of the routers.

4. IMPLEMENTATION

4.1 IP Configuration

Configure static IP addresses on the PC, Router and server.

Click the device and go to the Desktop tab > IP Configuration.

1. For PC 1: Set 172.16.0.2 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.16.0.1 (Figure 1).

2. For PC 2: Set 172.17.0.2 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.17.0.1

3. For PC 3: Set 172.18.0.2 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.18.0.1

4. For PC 4: Set 172.19.0.2 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.19.0.1

5. For Server 1 : Set 172.16.0.1 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.16.0.1 (Figure 2).

6. For Server 2: Set 172.17.0.1 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.17.0.1

7. For Server 3: Set 172.18.0.1 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.18.0.1

8. For Server 4: Set 172.19.0.1 as IP address , 255.255.0.0 as Subnet Mask & Gateway is 172.19.0.1

9. For Router 0/0 :

01. First Ethernet set 172.16.0.1 as IP address and 255.255.0.0 as Subnet Mask (Figure 3).

02. For serial 0/0/0: Set 11.0.0.1 as IP address and 255.0.0.0 as Subnet Mask (Figure 4).

03. For serial 0/0/1: Set 12.0.0.1 as IP address and 255.0.0.0 as Subnet Mask (Figure 5).

10. For Router 0/1 :

04. First Ethernet set 172.17.0.1 as IP address and 255.255.0.0 as Subnet Mask .

05. For serial 0/1/0: Set 13.0.0.1 as IP address and 255.0.0.0 as Subnet Mask.

06. For serial 0/0/1: Set 12.0.0.2 as IP address and 255.0.0.0 as Subnet Mask.

11. For Router 0/2 :

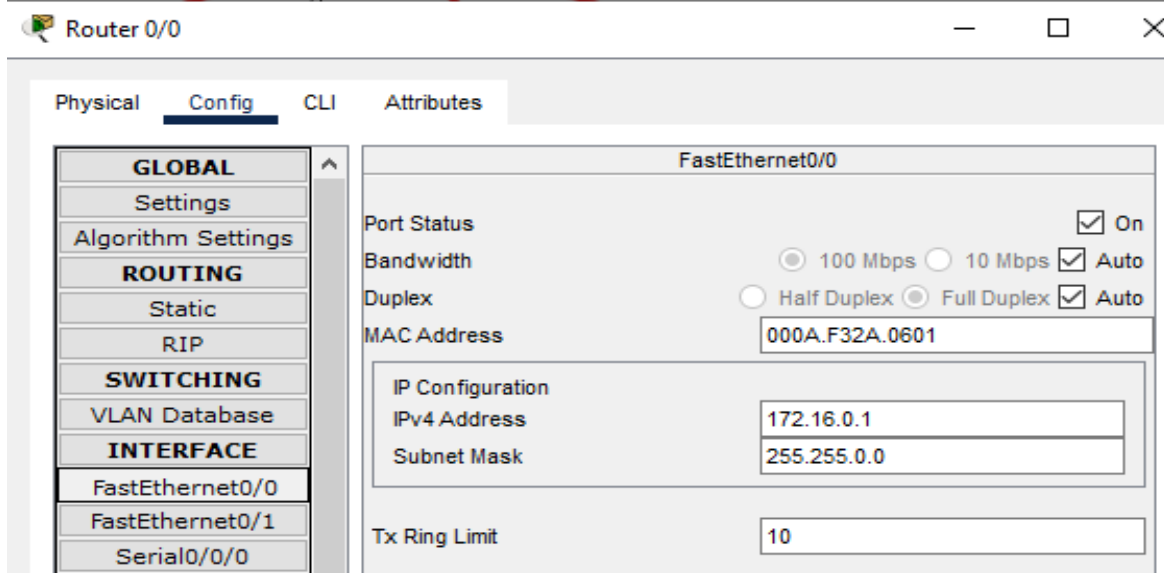
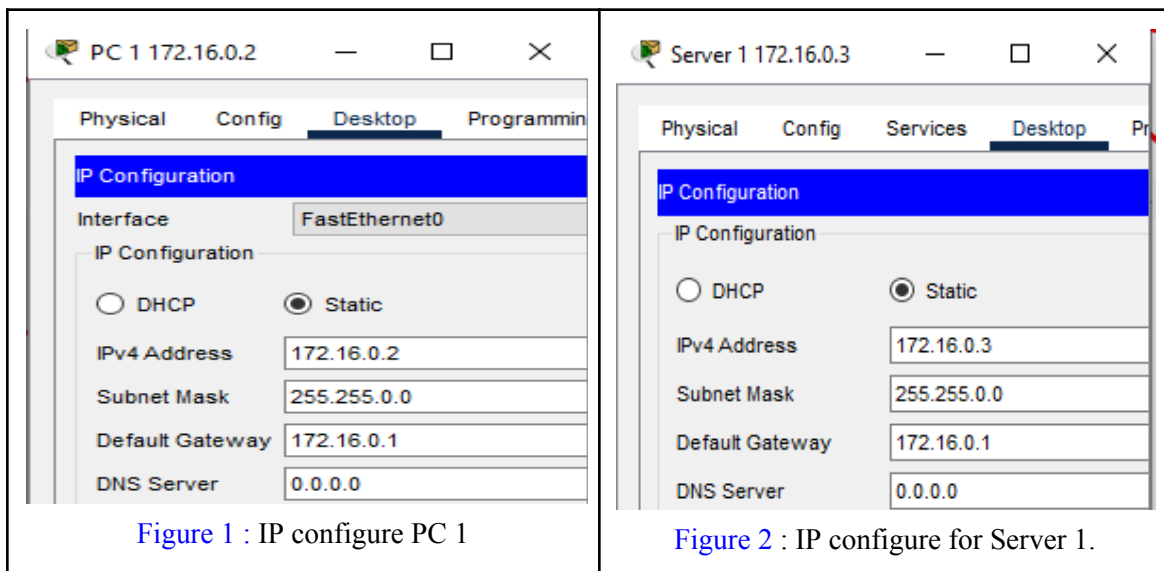
- 07. First Ethernet set 172.18.0.1 as IP address and 255.255.0.0 as Subnet Mask .
- 08. For serial 0/2/0: Set 14.0.0.1 as IP address and 255.0.0.0 as Subnet Mask.
- 09. For serial 0/2/1: Set 16.0.0.1 as IP address and 255.0.0.0 as Subnet Mask.

12. For Router 0/3 :

- 10. First Ethernet set 172.19.0.1 as IP address and 255.255.0.0 as Subnet Mask .
- 11. For serial 0/3/0: Set 16.0.0.2 as IP address and 255.0.0.0 as Subnet Mask.
- 12. For serial 0/2/1: Set 15.0.0.2 as IP address and 255.0.0.0 as Subnet Mask.

13. For Router 0 :

- 13. For serial 0/0/0: Set 11.0.0.2 as IP address and 255.0.0.0 as Subnet Mask.
- 14. For serial 0/1/0: Set 13.0.0.2 as IP address and 255.0.0.0 as Subnet Mask.
- 15. For serial 0/2/0: Set 14.0.0.2 as IP address and 255.0.0.0 as Subnet Mask.
- 16. For serial 0/3/0: Set 15.0.0.2 as IP address and 255.0.0.0 as Subnet Mask.



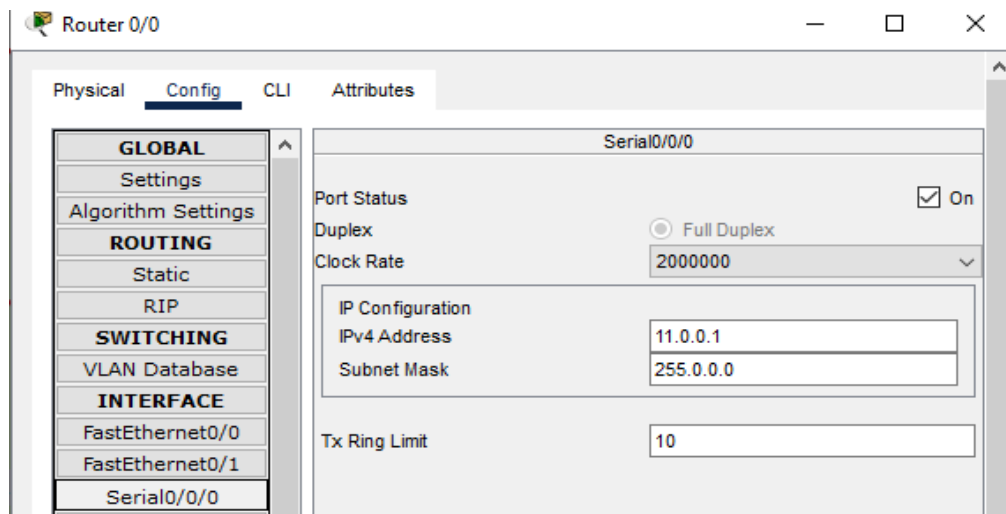


Figure 4 : IP configure Serial 0/0/0.

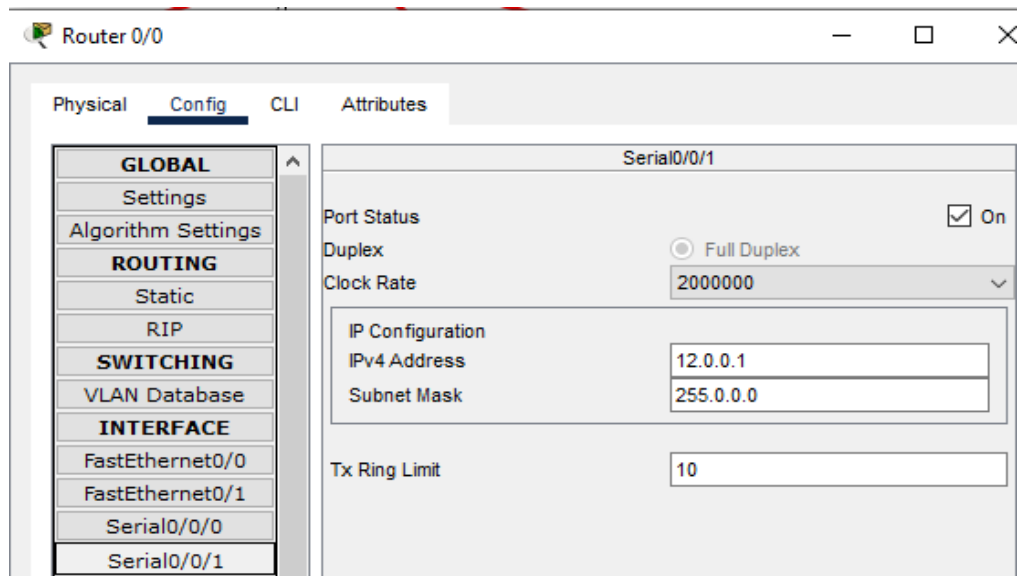


Figure 5 : IP configure Serial 0/0/1 .

4.2 Routing

Dynamic or RIP :

For Router 0/0 , 0/1 , 0/2 , 0/3 and 0 . All the router add all the network address like 11.0.0.0 , 12.0.0.0 , 13.0.0.0 , 14.0.0.0 , 15.0.0.0 , 16.0.0.0 , 172.16.0.0 , 172.17.0.0 , 172.18.0.0 and 172.19.0.0 (Figure 6).

Static :

For Router 0/0 172.17.0.0 via 12.0.0.2 , 172.18.0.0 via 14.0.0.1 and 172.19.0.0 via 15.0.0.1 (Figure 7).

For others router 0/1 , 0/2 , 0/3 and 0 connect same way . (Figure 7).

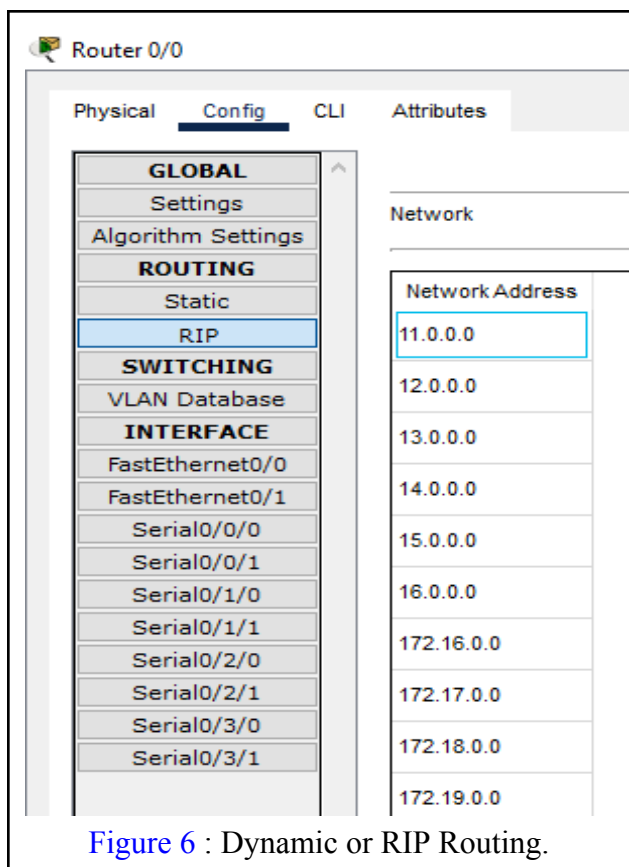


Figure 6 : Dynamic or RIP Routing.

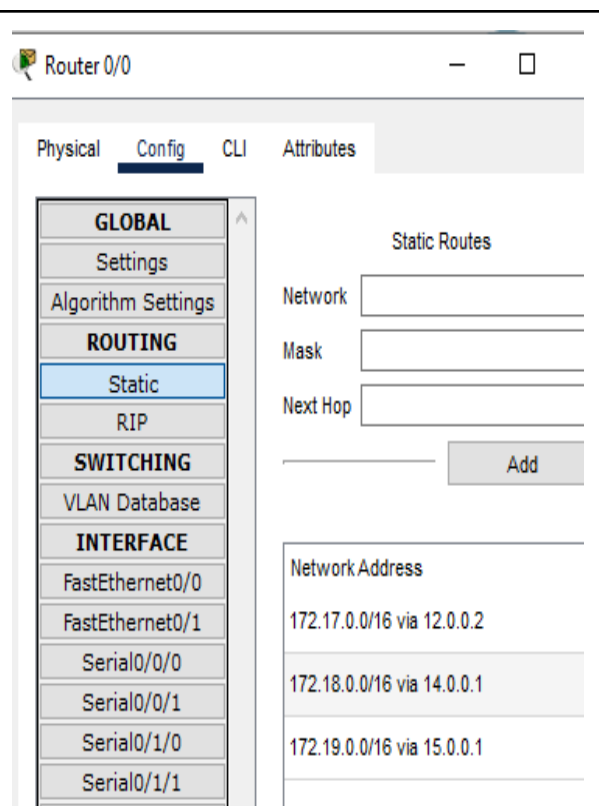


Figure 7 : Static Routing.

5. TEST RESULT / OUTPUT

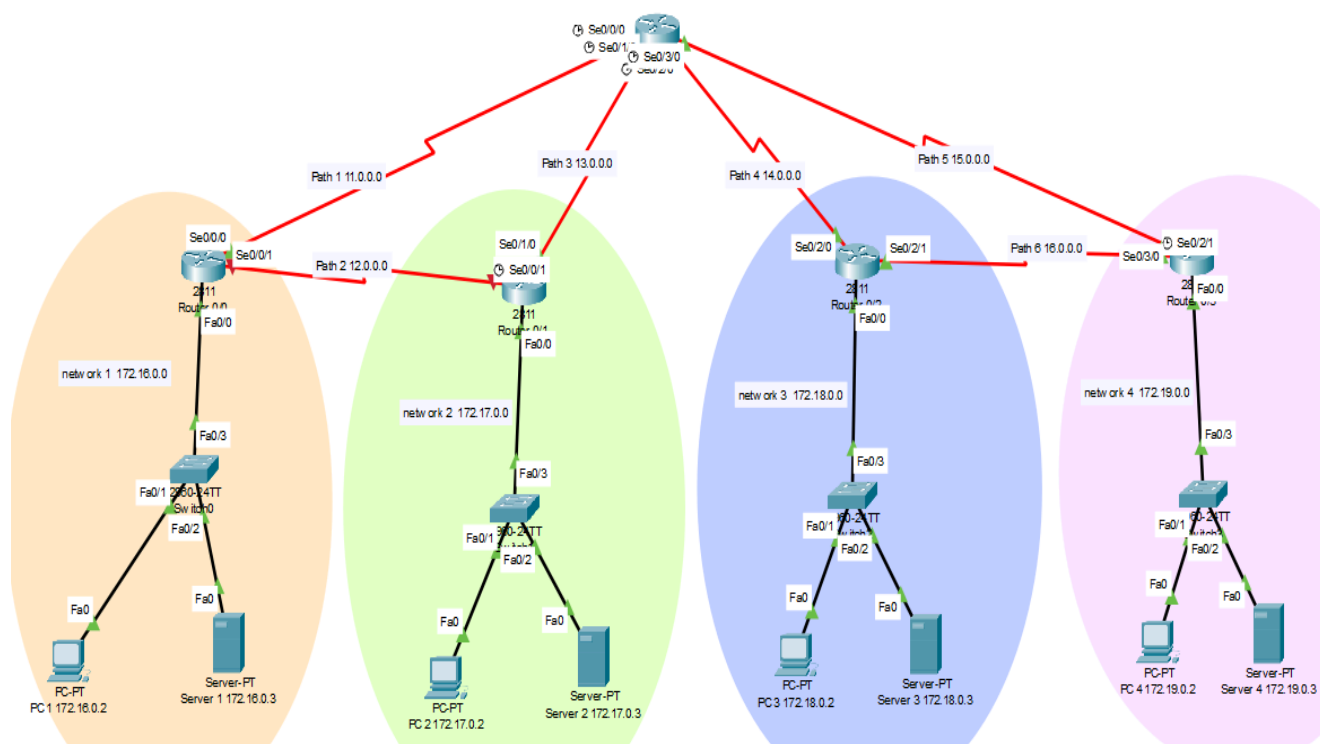


Figure 8 : A network Check Static & Dynamic Routing Protocols.

5.1 Static Test









Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC 2 172.17.0.2	PC 3 172.18.0.2	ICMP		0.000	N	0	(edit)
	Successful	PC 2 172.17.0.2	PC 4 172.19.0.2	ICMP		0.020	N	1	(edit)
	Successful	PC 2 172.17.0.2	PC 1 172.16.0.2	ICMP		0.000	N	2	(edit)
	Successful	PC 3 172.18.0.2	PC 1 172.16.0.2	ICMP		0.000	N	3	(edit)

Figure 9 : Static all mail sent successfully.

5.2 Dynamic or RIP Test









Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
	Successful	PC 1 172.16.0.2	PC 2 172.17.0.2	ICMP		0.000	N	0
	Successful	PC 1 172.16.0.2	PC 3 172.18.0.2	ICMP		0.000	N	1
	Successful	PC 1 172.16.0.2	PC 4 172.19.0.2	ICMP		0.000	N	2
	Successful	PC 2 172.17.0.2	PC 4 172.19.0.2	ICMP		0.000	N	3

Figure 10 : Dynamic or RIP all mail sent successfully.

6. ANALYSIS AND DISCUSSION

With a focused objective on understanding static and dynamic routing configurations, we aim to grasp the process of directing packets from one device to another across networks. This task involves configuring both static and dynamic routes to facilitate packet transmission between devices. Engaging in additional lab exercises enhances our confidence in achieving these objectives effectively, ensuring competence in routing procedures. [So we say that our lab report work 100% properly.](#)