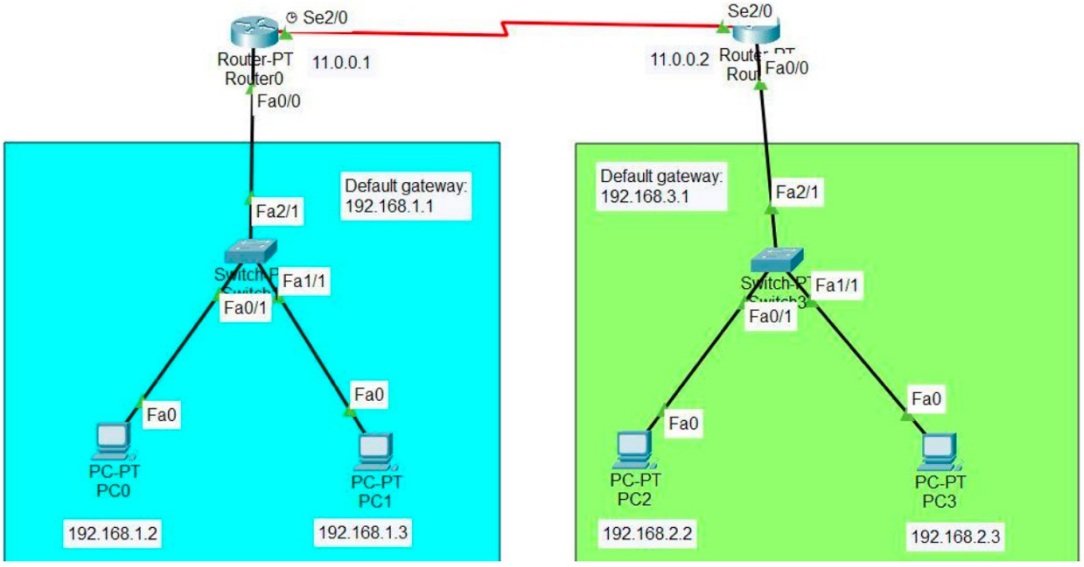
Lab 4: Static Routing and Application Layer Protocols

Lab Exercise 1

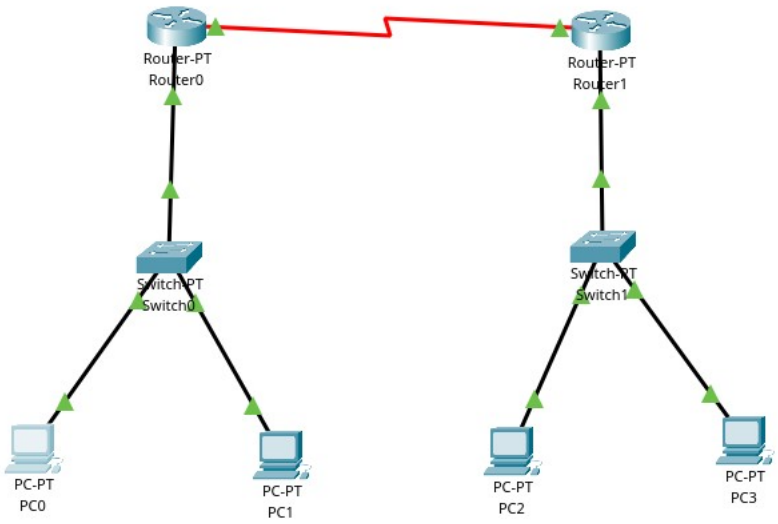
Configure the PCs (hosts) with IPv4 address and Subnet Mask according to the IP addressing table given above.



Configure router with IP address and subnet mask.

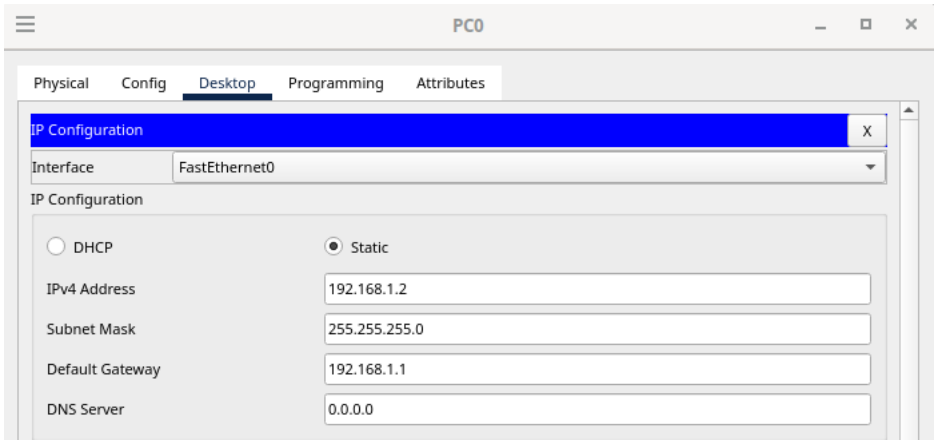
Device	Interface	IPv4 Addressing	Subnet Mask
router0	FastEthernet0/0	192.168.1.1	255.255.255.0
	Serial2/0	11.0.0.1	255.255.255.0
router1	FastEthernet0/0	192.168.2.1	255.255.255.0
	Serial2/0	11.0.0.2	255.255.255.0

Network Design:



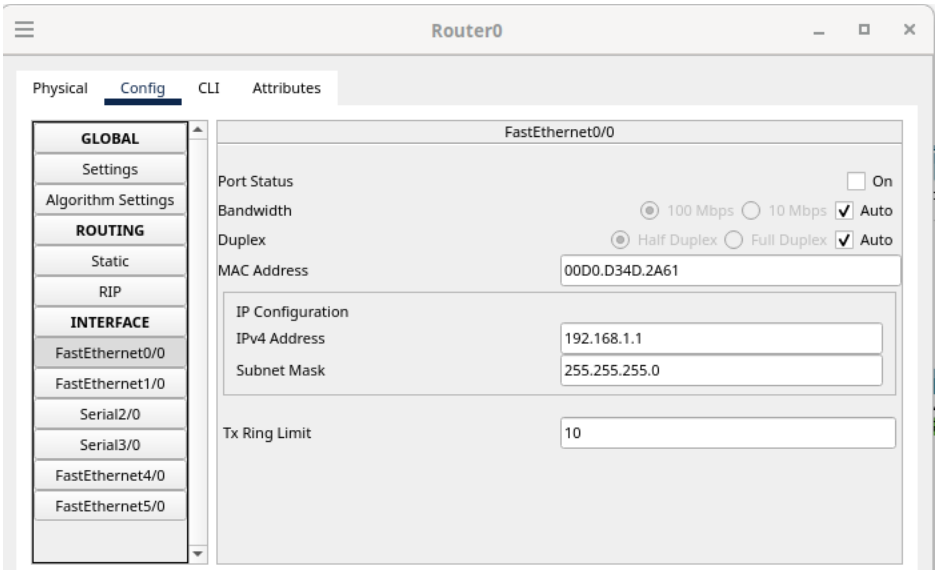
Configuring PCs:

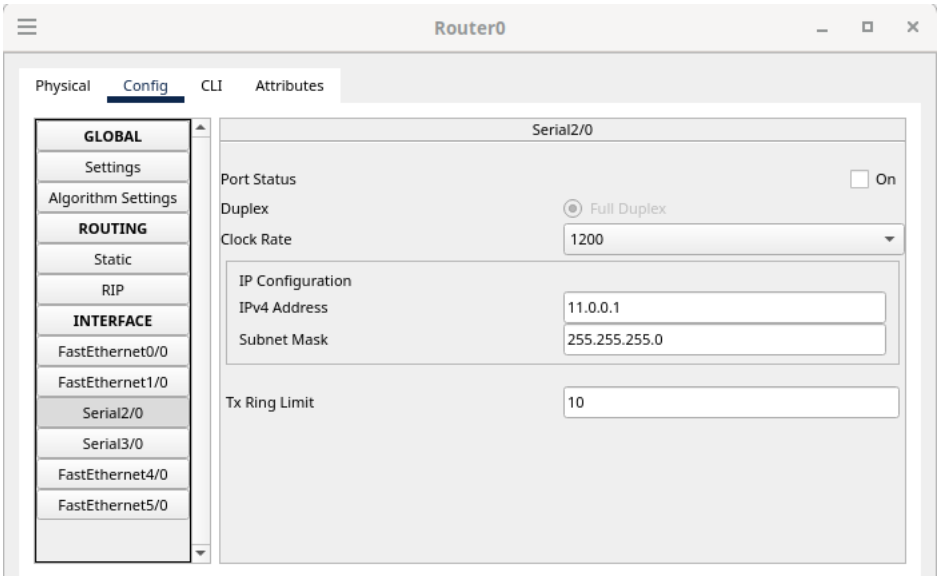
- Click on the PC > Desktop > IP Configuration



Similarly, configure all other PCs

Configuring Routers:

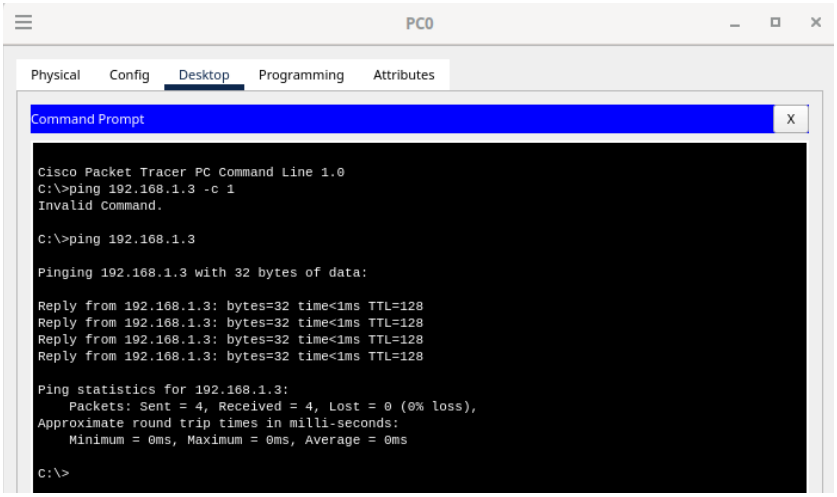




Static routing is not yet configured. Answer the following:

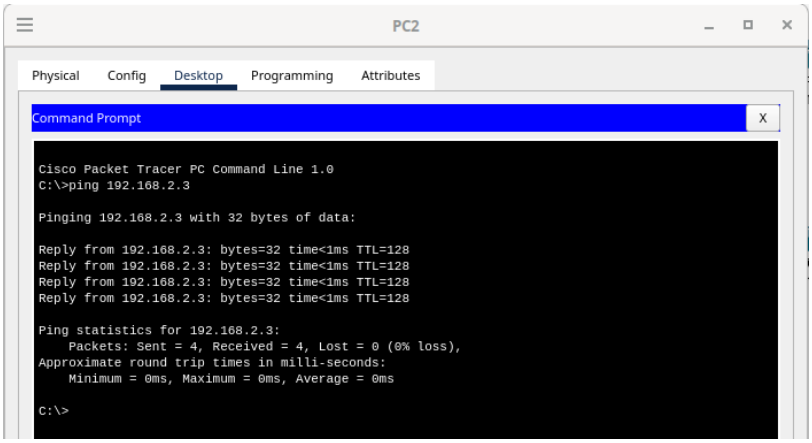
a. Can PC0 ping to PC1?

Ans. Yes, since they belong to the same network.



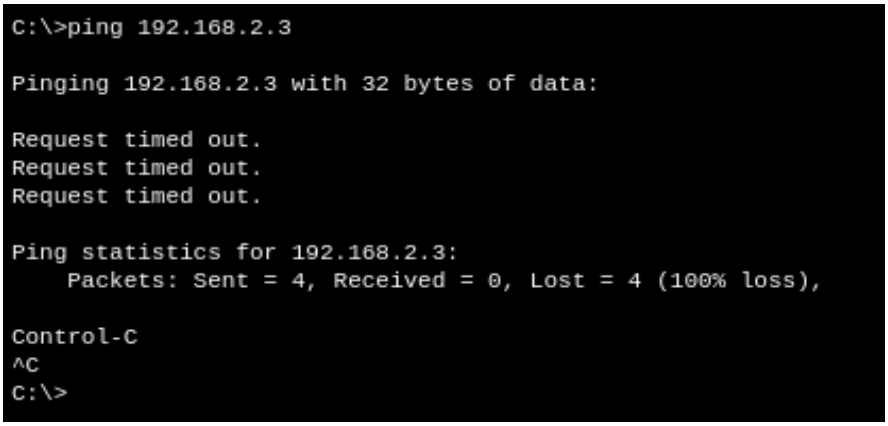
b. Can PC2 ping to PC3?

Ans. Yes, since they belong to the same network.



c. Can PC0 ping to PC3? Why not?

Ans. No, because the static routes are not configured and the routers don't know which path to send the data over.



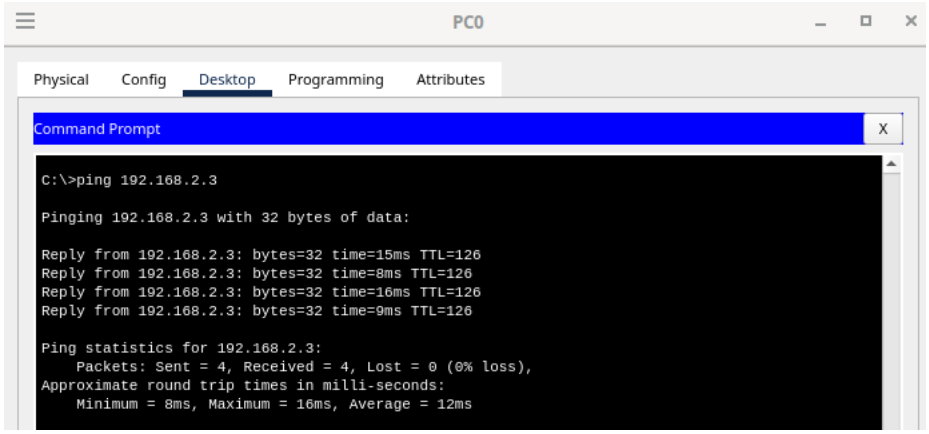
Configuring the Static routes:

Static Routes for Router0 are given below:
Router(config)#ip route 192.168.2.0 255.255.255.0 11.0.0.2
Static Routes for Router1 are given below:
Router(config)#ip route 192.168.1.0 255.255.255.0 11.0.0.1

```
Router#
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 192.168.1.0 255.255.255.0 11.0.0.1
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

d. Can PC0 ping to PC3?

Ans. Yes, pinging works after configuring the static routes.



Lab Exercise 2

Configure a web server within the network, create a simple web page, and ensure HTTP access from PCs located in a different LAN.

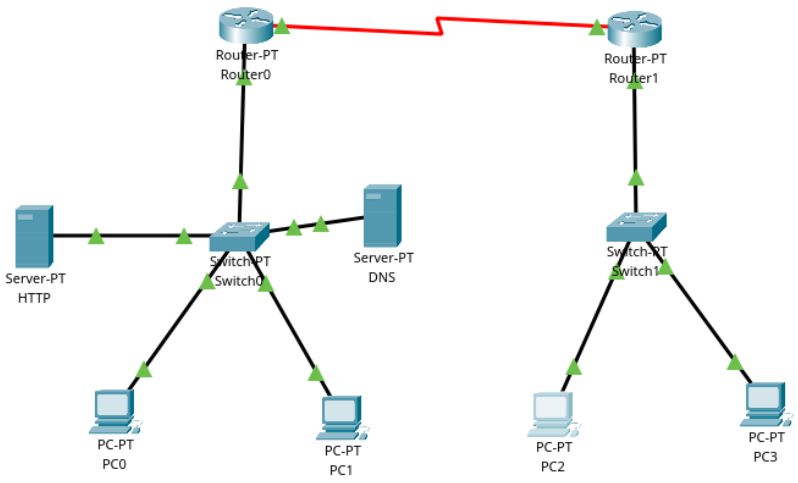
Add a Server (Web Server) to the LAN in Router 0

- IP Address: 192.168.1.100
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1 (Router0's FastEthernet0/0 IP)

Ensure that the server can ping PCs in the other LAN.

Create a basic HTML file (e.g., index.html) with the personalized content. Save the file. Enable the HTTP Service and ensure the web server service is running.

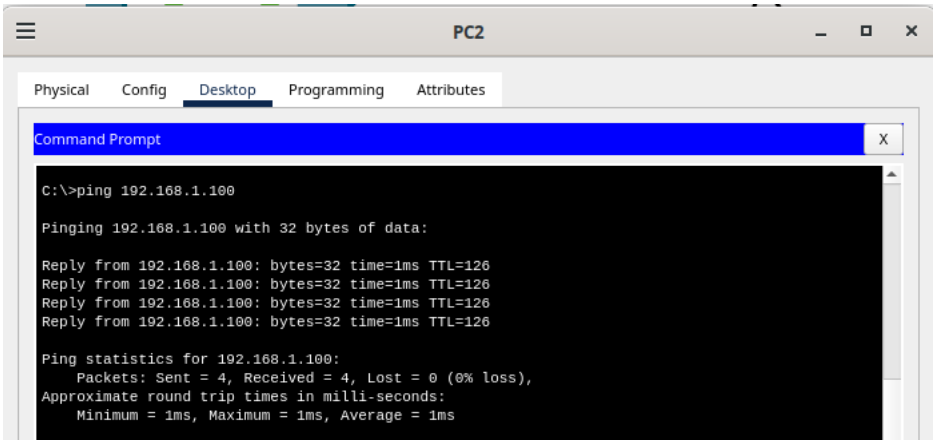
Network Design:



NOTE: You need to add another interface in switch to accomodate the DNS server.

- Click the switch
- Under physical, switch off the switch

Pinging HTTP server to check configuration:

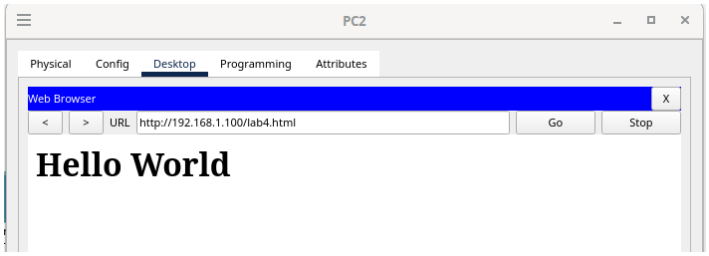


Making HTML file:

- Click on the HTTP server
- Go to Services > HTTP
- Click on new file and give it a name and write HTML code

Accessing webpage hosted on the web server:

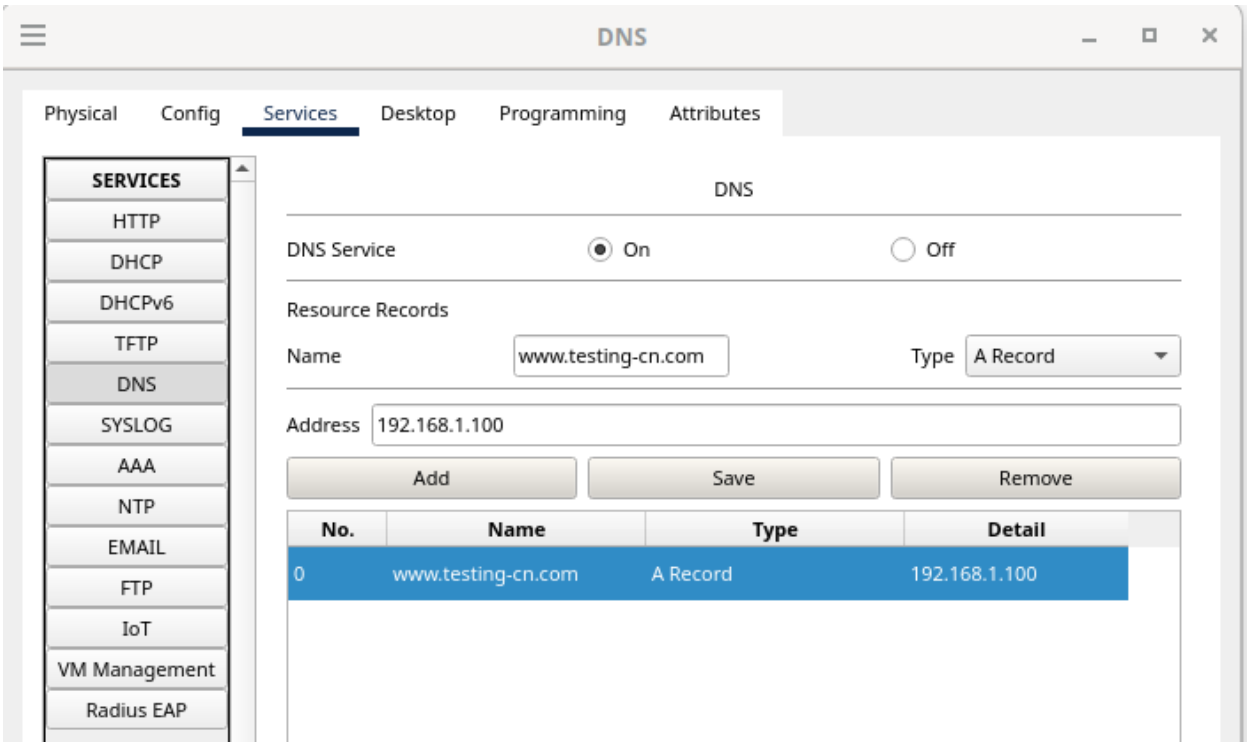
- Go to PC > Desktop > Web Browser
- Type “http://” followed by the IP address of the HTTP server and then the name of the html file.



Configure a DNS server within the network to resolve a domain name to the web server's IP address.
DNS Server:

- IP Address: 192.168.1.200
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1 (Router0's FastEthernet0/0 IP)

Create an 'A' record for the domain name www.testing-cn.com and point it to the web server's IP address (192.168.1.100).
On each PC, set the DNS server IP to 192.168.1.200 in the network settings.



Accessing the domain from PC: