WIPRO NGA Program – Data Center- Batch 2

Capstone Project Presentation – 6th Dec & 7th Dec 2024

Project Title Here – Small organization Setup in Cisco Packet Tracer

Presented by – SUVENDU DAS

Cisco Packet Tracer

Cisco Packet Tracer is a powerful **network simulation software** developed by **Cisco Systems**. It enables users to **design**, **configure**, and **troubleshoot networks** in a virtual environment.

Key Features

Simulation:

- Simulates network devices, protocols, and topologies.
- Enables experimentation without impacting physical networks.

Drag-and-Drop Interface:

- Allows easy addition and removal of simulated devices like routers, switches, and servers.

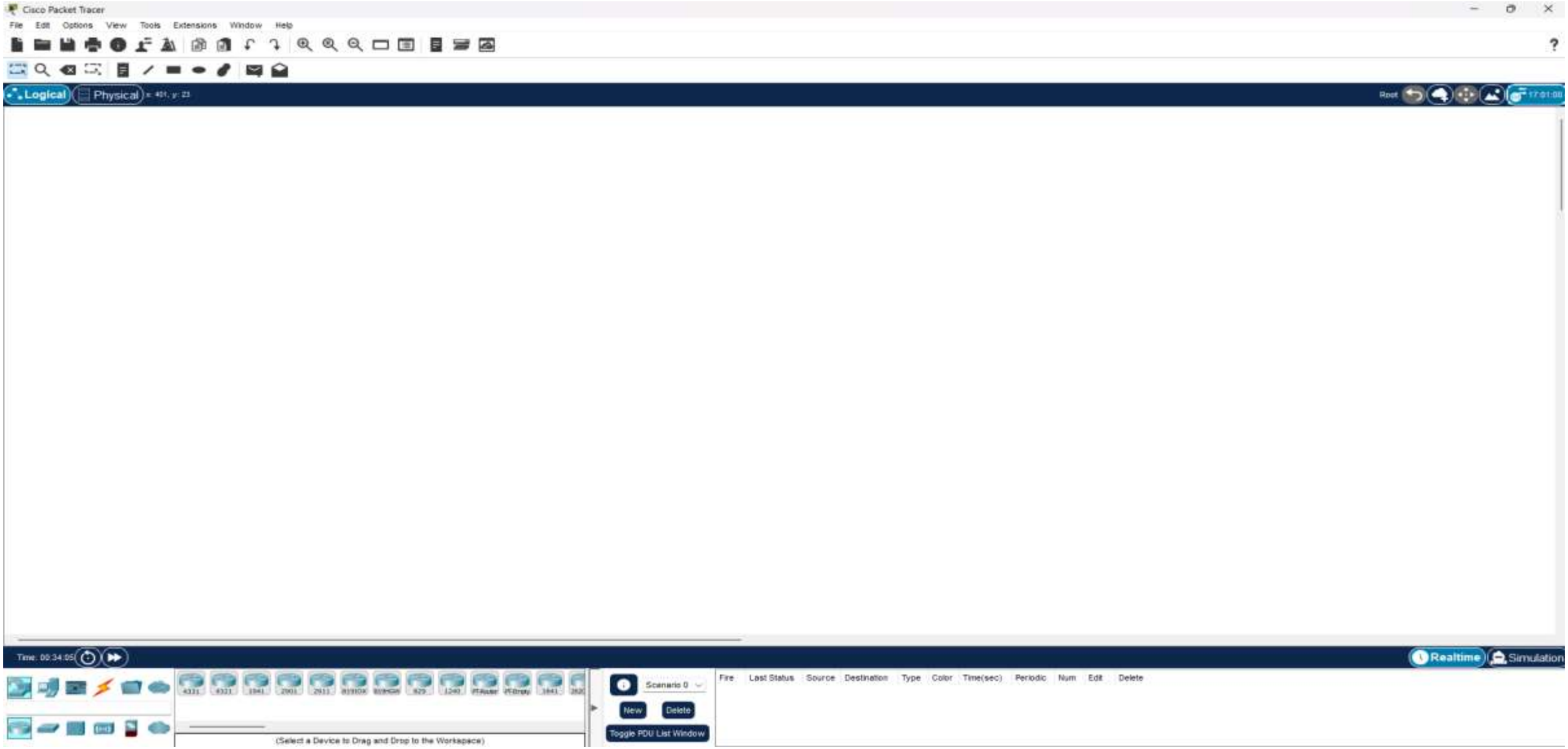
Multi-User Collaboration:

- Supports teamwork in **Packet Tracer 5.0 and later**.
- Multiple users can connect and collaborate on different network topologies.

Activity Creation:

- Educators can create activities for students to complete.
- Facilitates learning and assessment of networking concepts.

Interface of Cisco Packet Tracer



Small Organization Network Setup

Components:
1 Server
1 Router
4 Switches
6 PCs

Organizational Sections:
Administration
Accounts and Finance
Information Technology (IT)
Database

Network Addressing:
Network 1: 192.168.1.0/24
Network 2: 192.168.2.0/24
Network 3: 192.168.3.0/24
Network 4: 192.168.4.0/24

Connections

Router

- Connect the router to 4 switches via 4 interfaces, each for a different subnetwork.

- **Steps:**

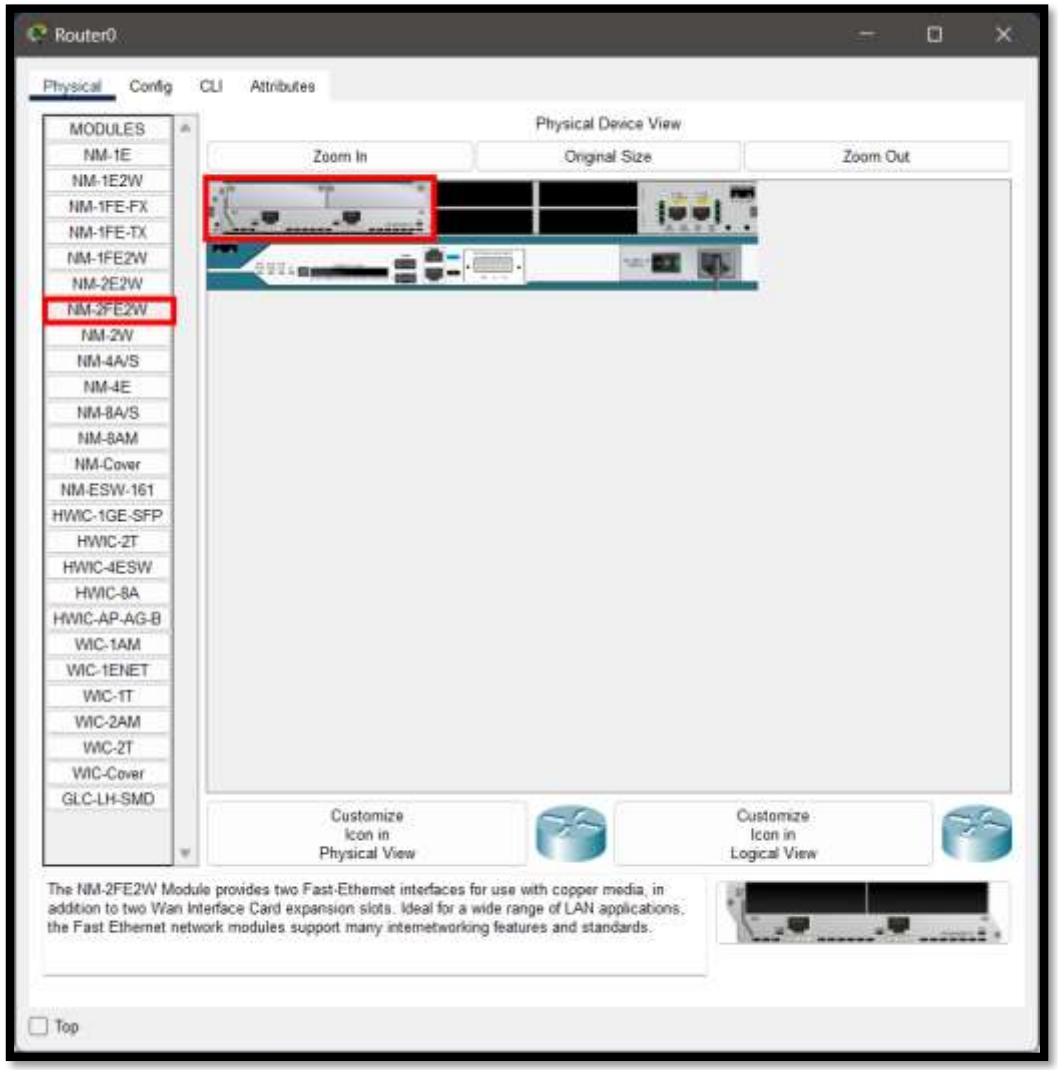
1. Power off the router and insert the **NM-2FE2W** module.
2. Power the router back on.
3. Use copper straight-through cables to connect the router interfaces to the switches.

Switches:
Switch 1: Connects 2 PCs (Network 2: 192.168.2.0/24).
Switch 2: Connects 2 PCs (Network 3: 192.168.3.0/24).
Switch 3: Connects 2 PCs (Network 4: 192.168.4.0/24).
Switch 4: Connects to the server (Network 1: 192.168.1.0/24).

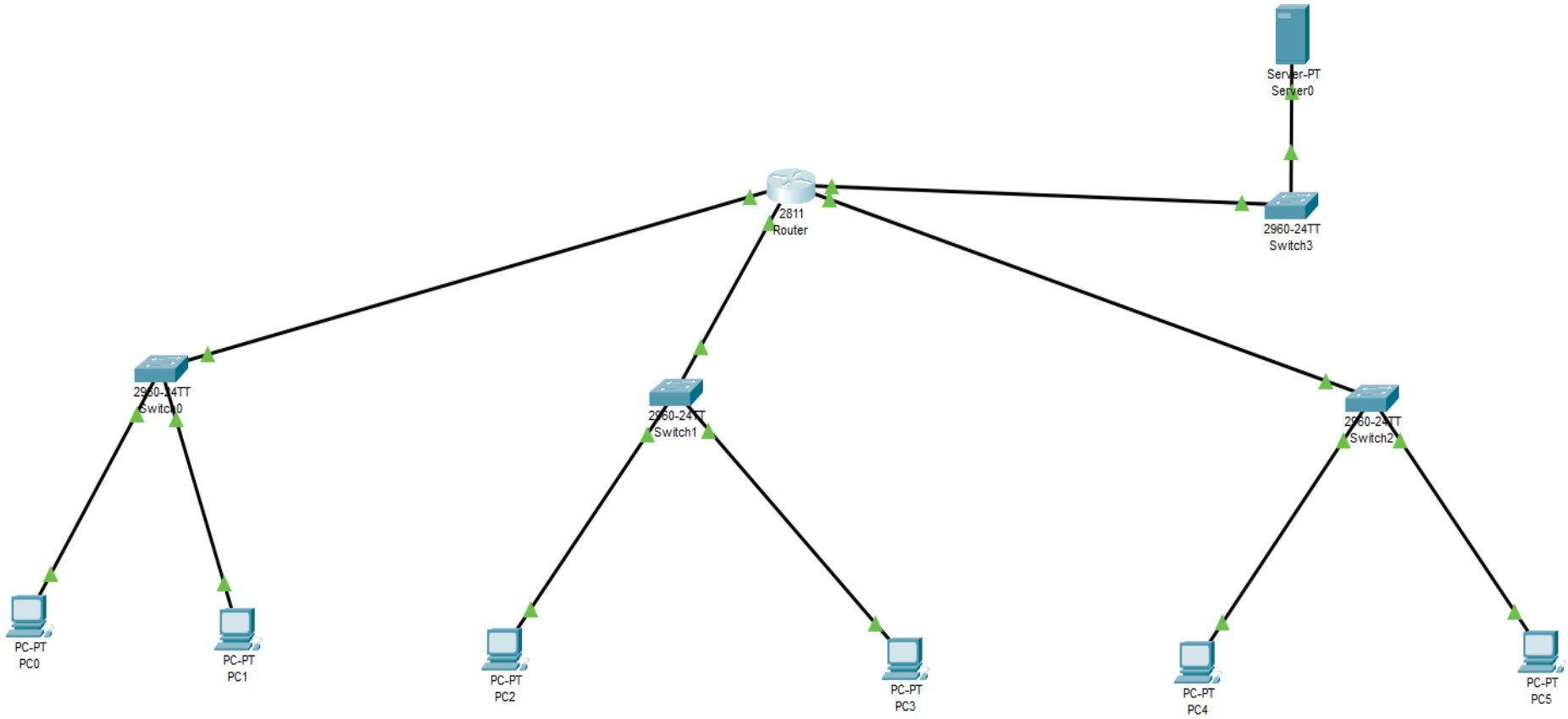
Server:
Provides services such as DNS and HTTP.
Connected to Switch 4 in the **192.168.1.0/24** network.

Adding NM-2FE2W Module for 4 Ports

- Power off the router before inserting the **NM-2FE2W** module.
- Drag and drop the **NM-2FE2W** module into the available port slot.
- Power on the router once the module is securely in place.



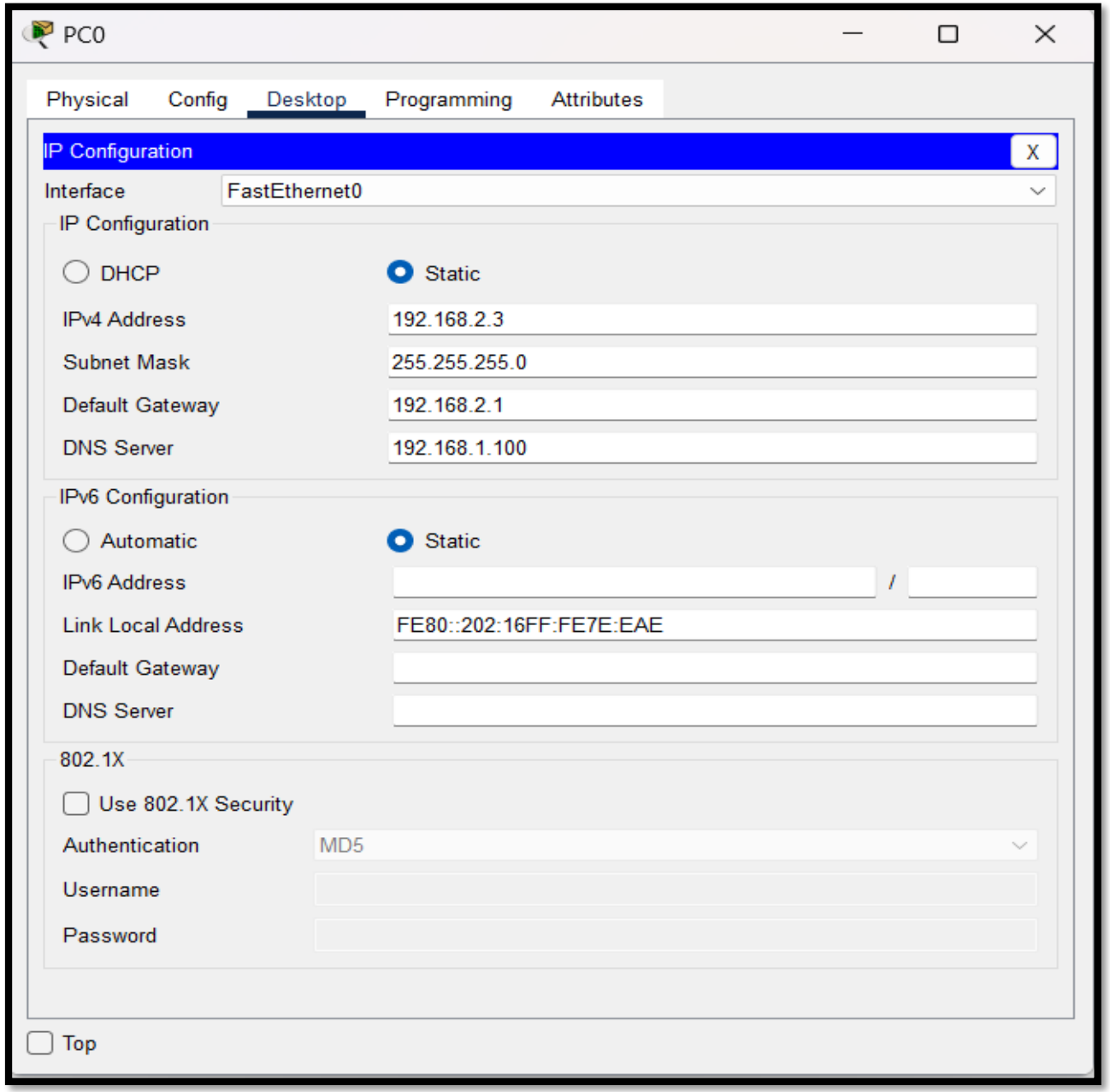
Connections



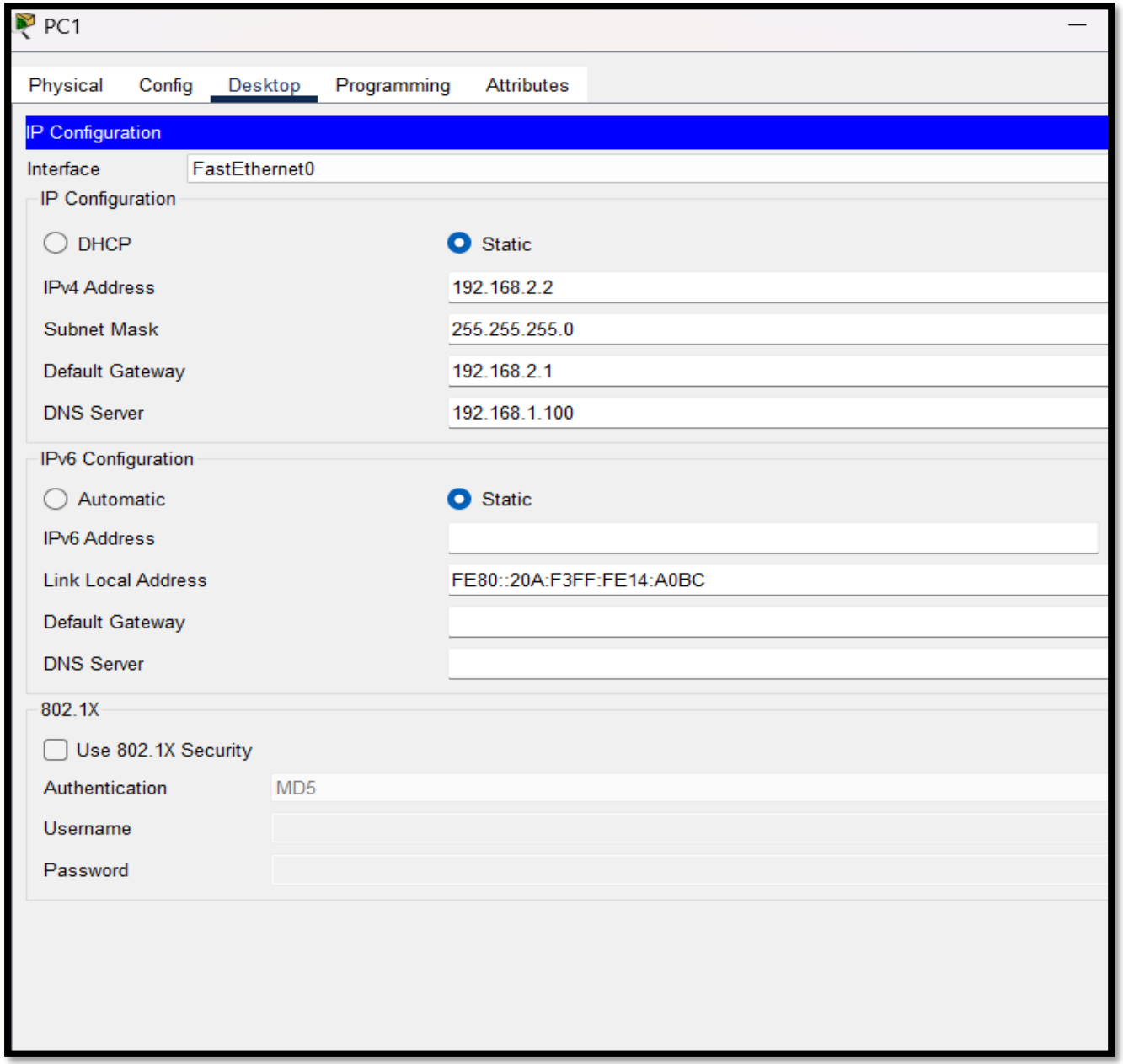
IP Configuration Table

Components	IP Address	Subnet Mask	Default Gateway	DNS server
PC0	192.168.2.3	255.255.255.0	192.168.2.1	192.168..1.100
PC1	192.168.2.2	255.255.255.0	192.168.2.1	192.168.1.100
PC2	192.168.3.3	255.255.255.0	192.168.3.1	192.168.1.100
PC3	192.168.3.2	255.255.255.0	192.168.3.1	192.168.1.100
PC4	192.168.4.3	255.255.255.0	192.168.4.1	192.168.1.100
PC5	192.168.4.2	255.255.255.0	192.168.4.1	192.168.1.100
Server	192.168.1.100	255.255.255.0	192.168.1.1	192.168.1.100

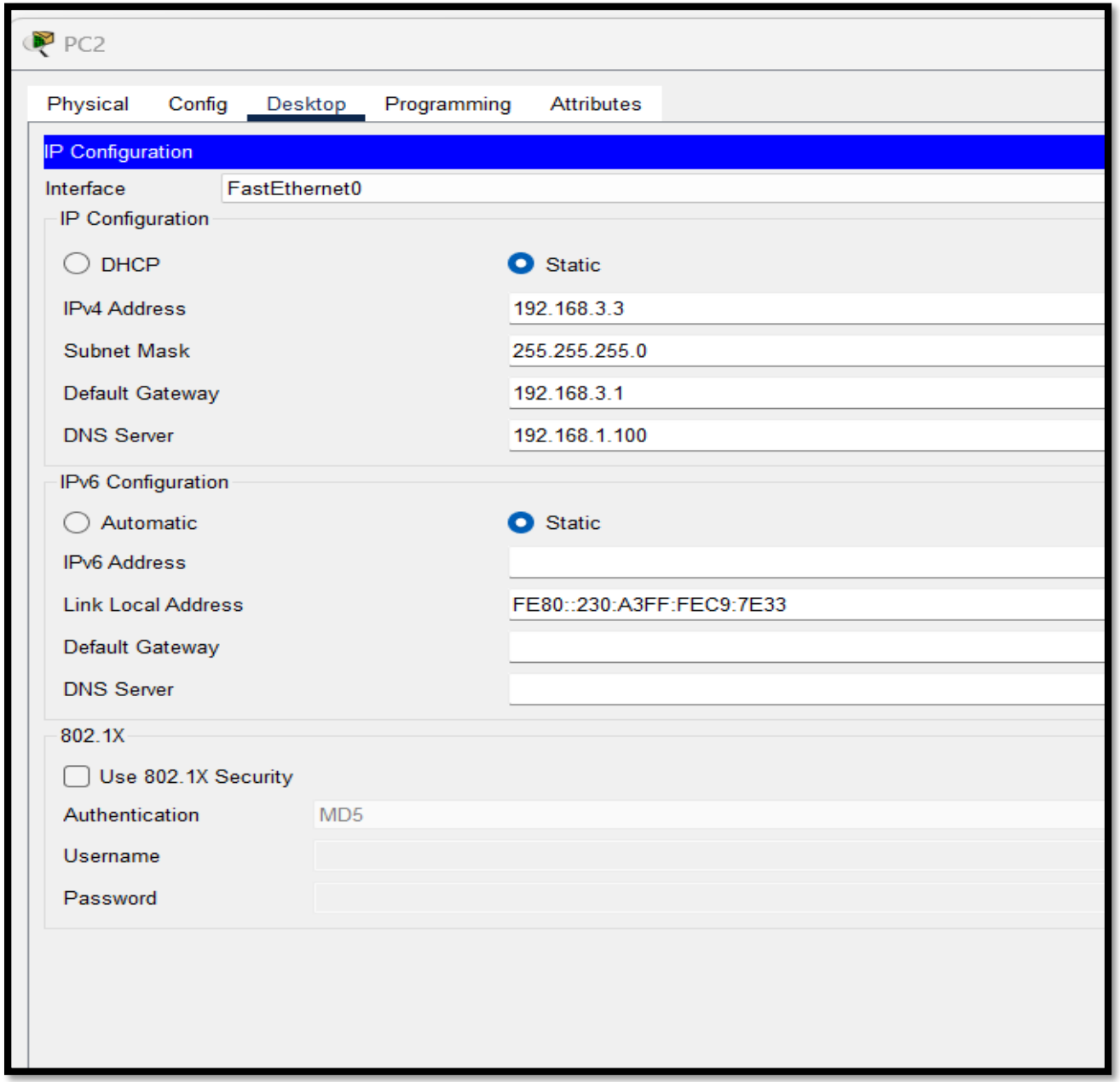
PC0:
IPV4-192.168.2.3
Default Gateway-192.168.2.1
DNS server-192.168.1.100



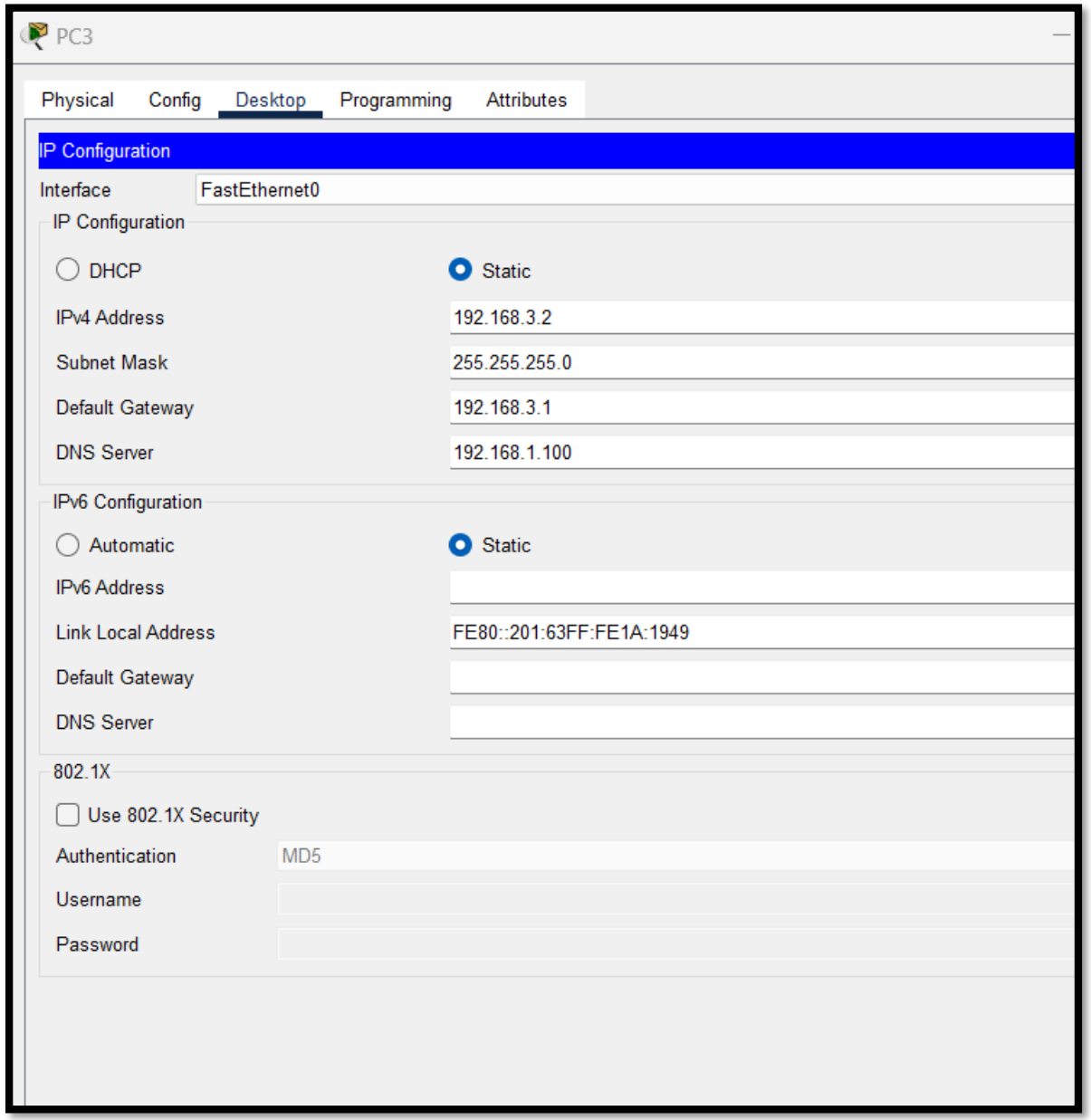
PC1:
IPV4-192.168.2.2
Default Gateway-192.168.2.1
DNS server-192.168.1.100



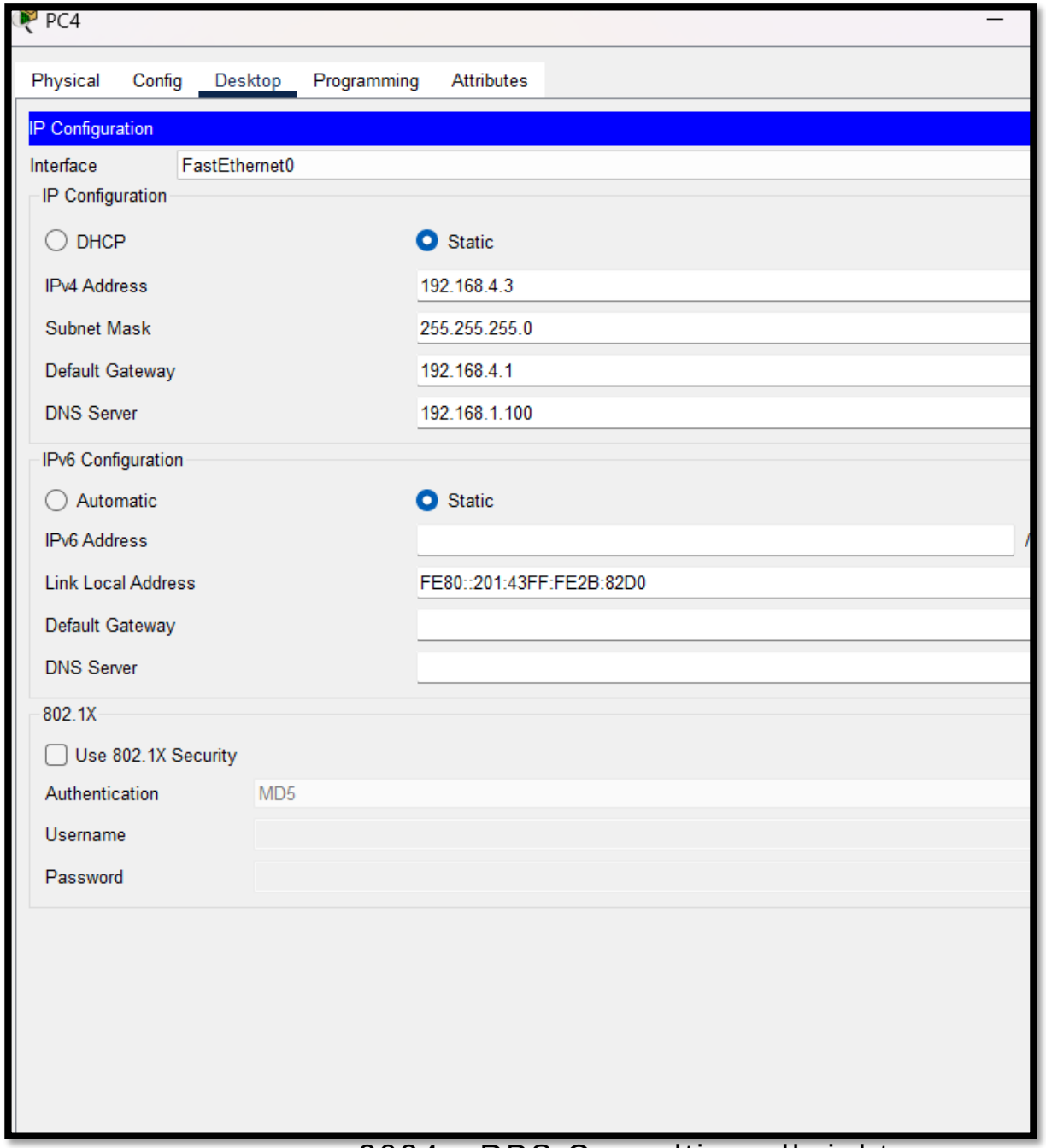
PC2:
IPV4-192.168.3.3
Default Gateway-192.168.3.1
DNS server-192.168.1.100



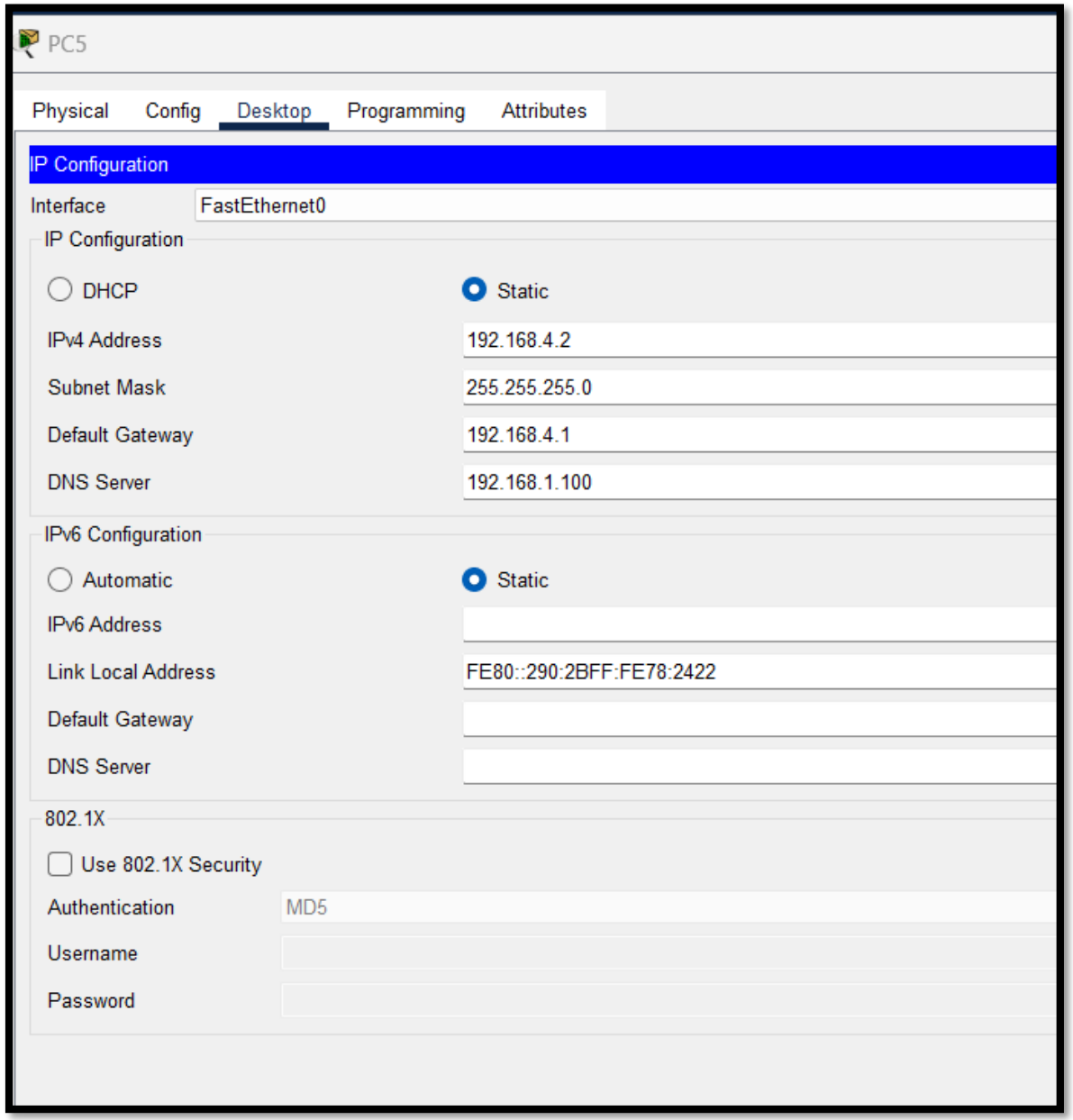
PC3:
IPV4-192.168.3.2
Default Gateway-192.168.3.1
DNS server-192.168.1.100



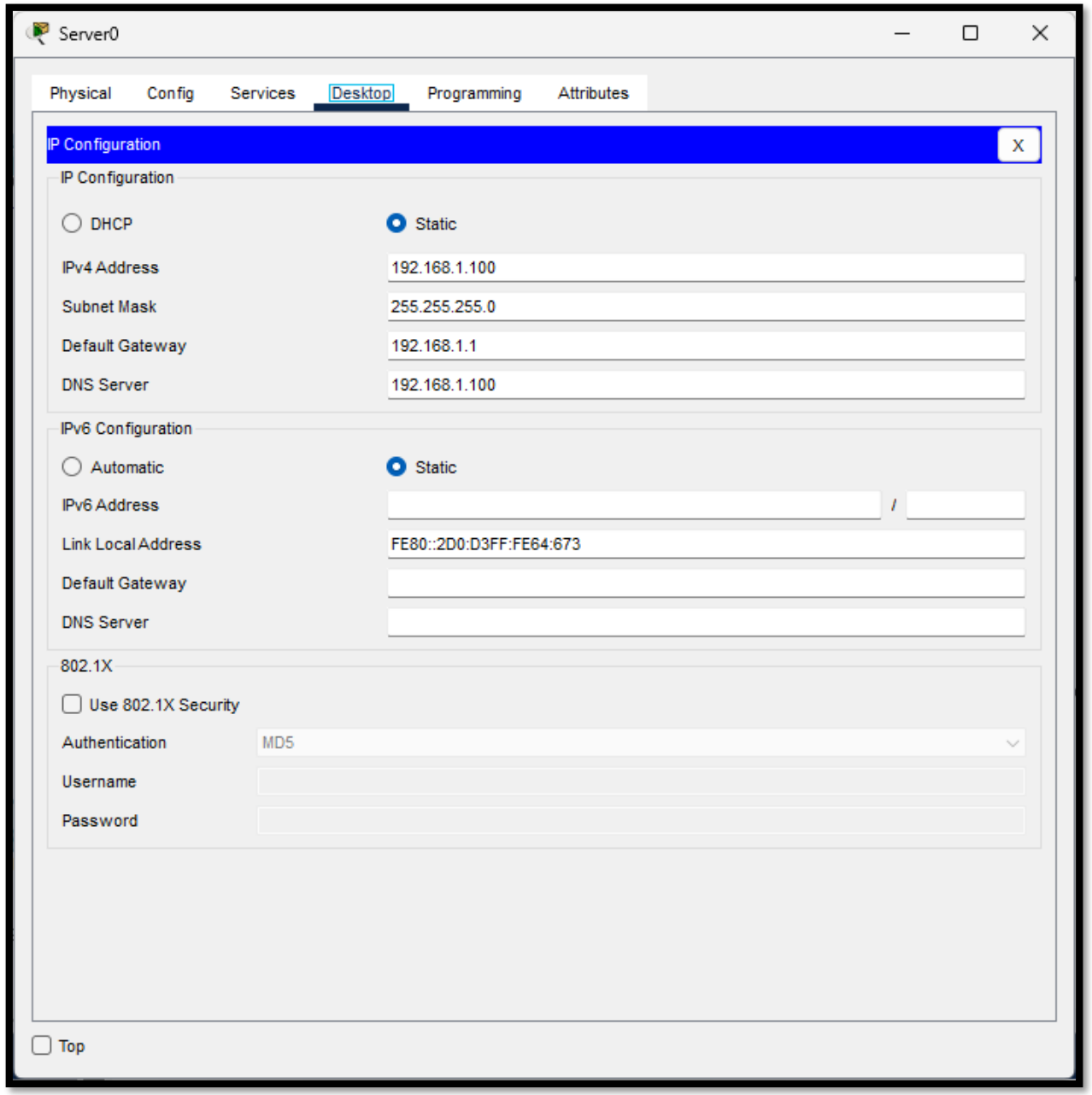
PC4:
IPV4-192.168.4.3
Default Gateway-192.168.4.1
DNS server-192.168.1.100



PC5:
IPV4-192.168.4.2
Default Gateway-192.168.4.1
DNS server-192.168.1.100



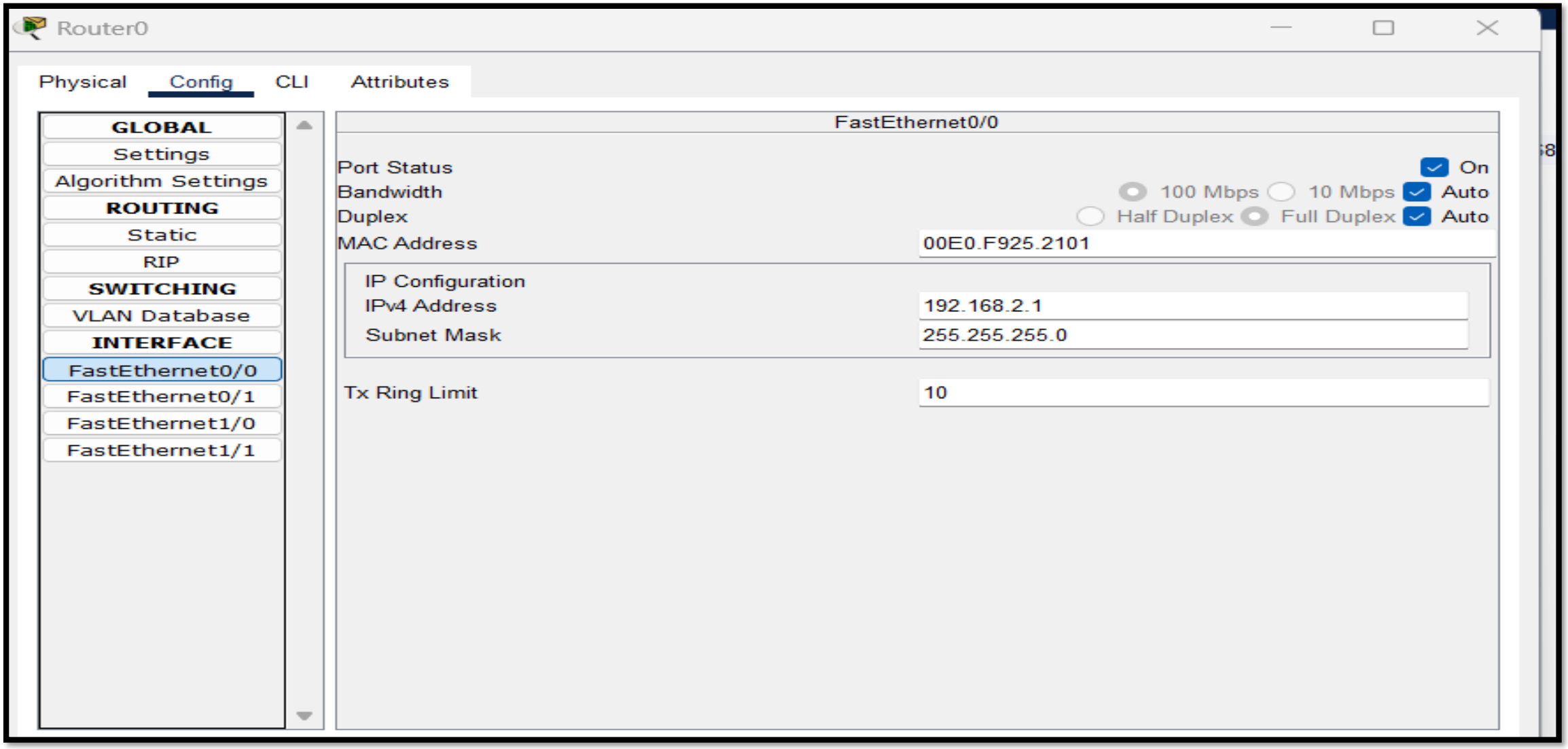
SERVER:
IPV4-192.168.1.100
Default Gateway-192.168.1.1
DNS server-192.168.1.100



Router Configuration

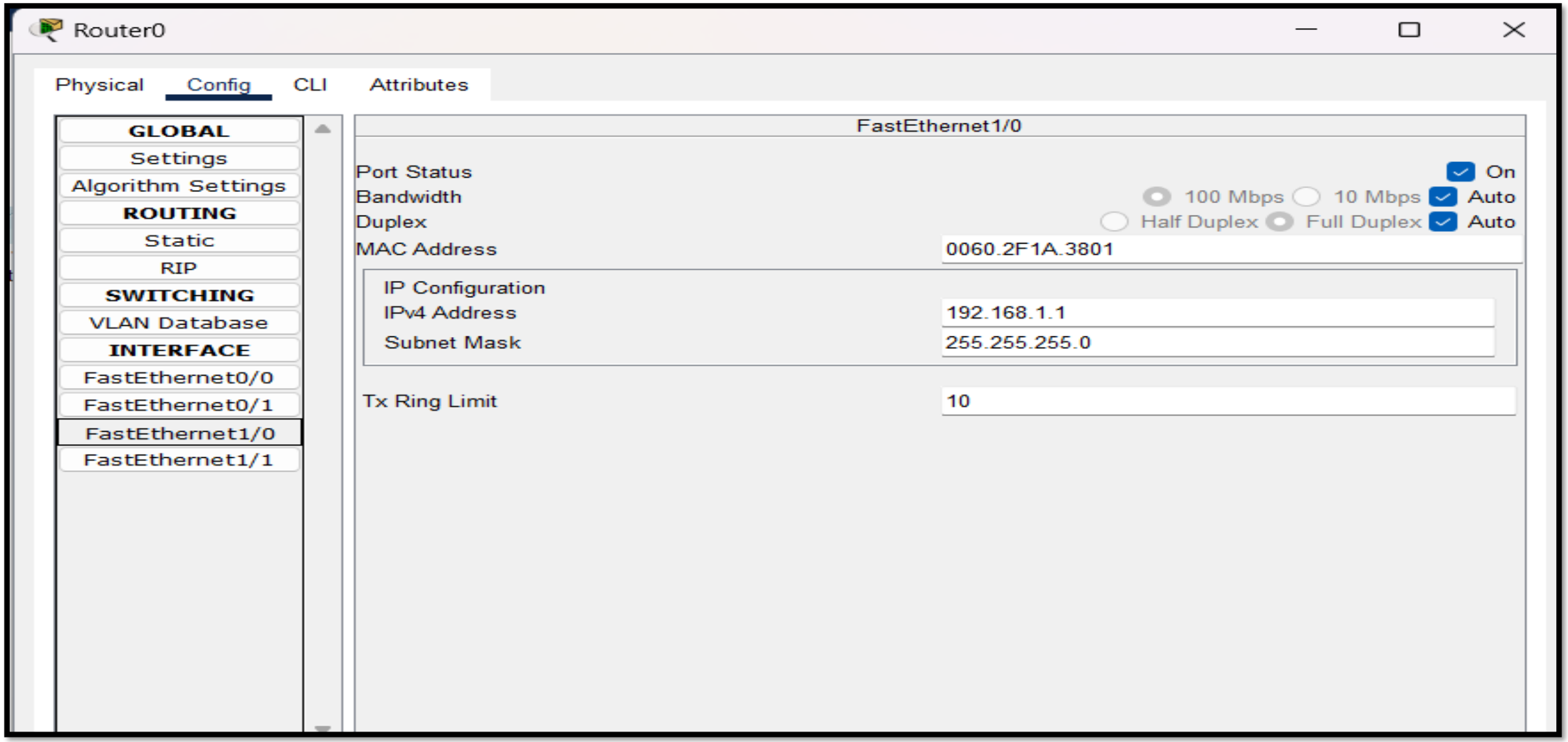
FastEthernet0/0	192.168.2.1	255.255.255.0
FastEthernet0/1	192.168.3.1	255.255.255.0
FastEthernet1/0	192.168.1.1	255.255.255.0
FastEthernet1/1	192.168.4.1	255.255.255.0

Router0 FastEthernet0/0

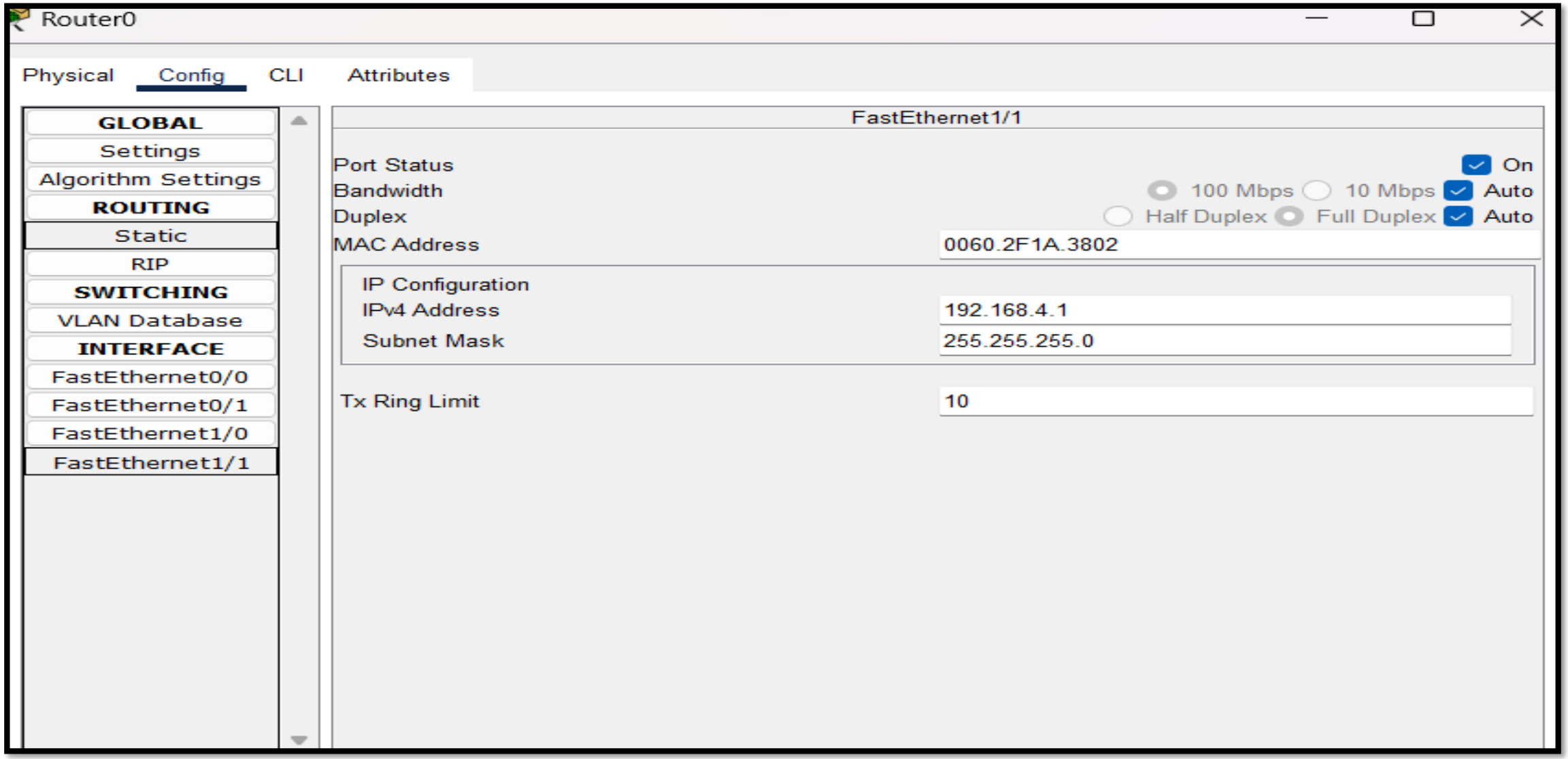


Router0 FastEthernet0/1

Router0 FastEthernet1/0



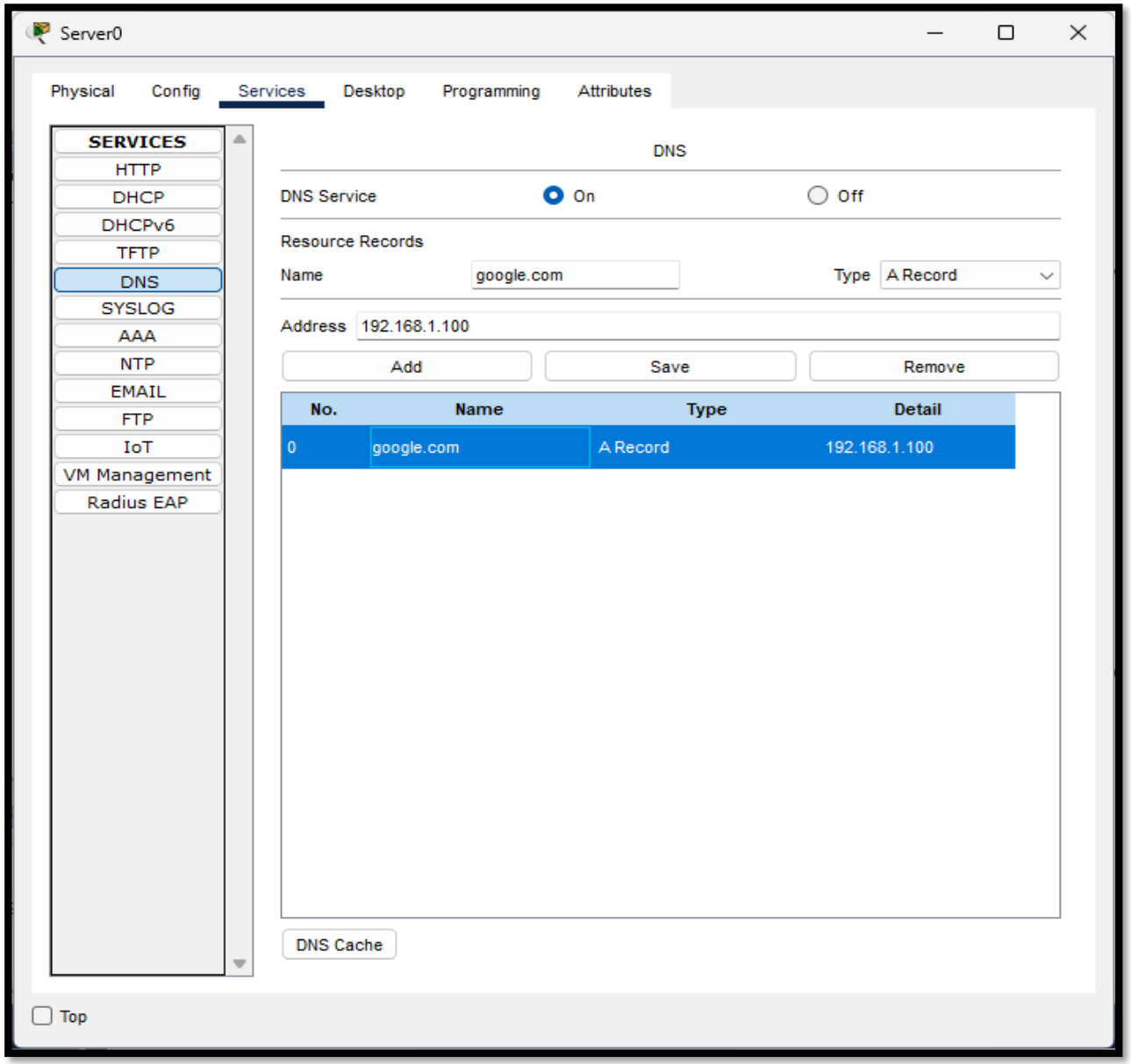
Router0 FastEthernet1/1



Server Configuration

Configure DNS Server

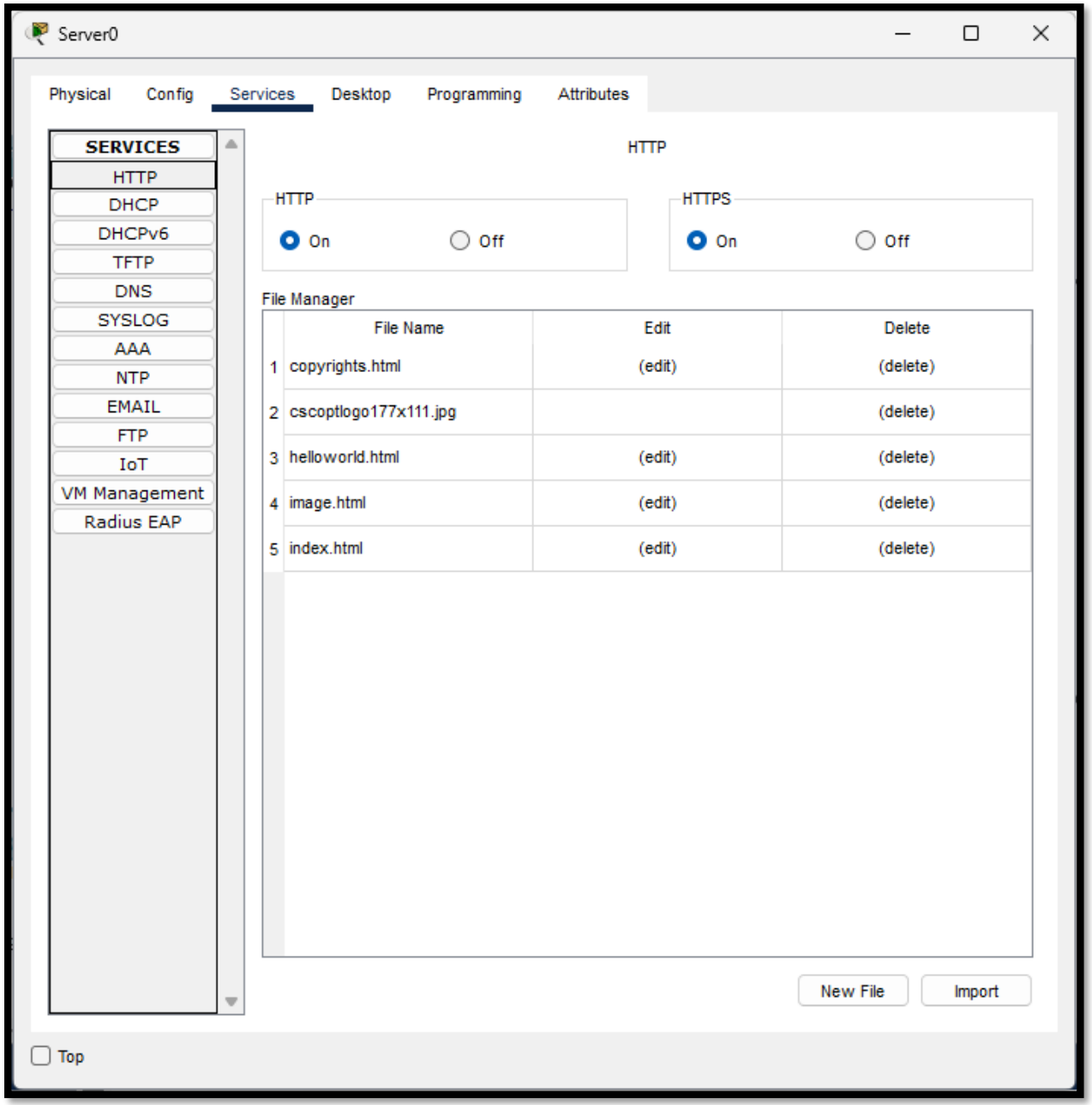
Click on the Server.
Navigate to the Services section and select DNS.
Turn on the DNS service.
In the Name field, enter a domain name
In the Address field, enter the server's IP address
Click Save to apply the settings.



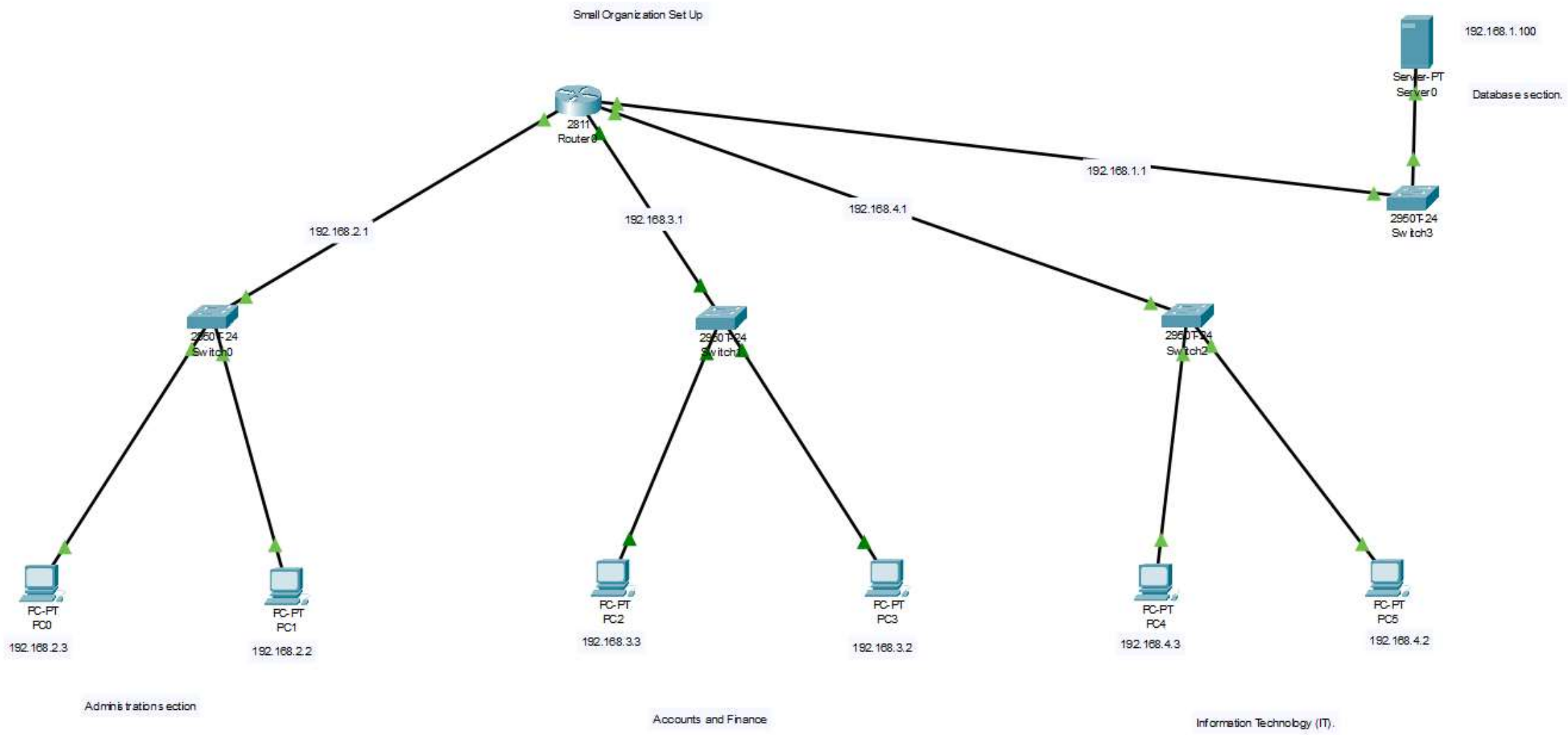
Server Configuration

Enable HTTP/HTTPS Services

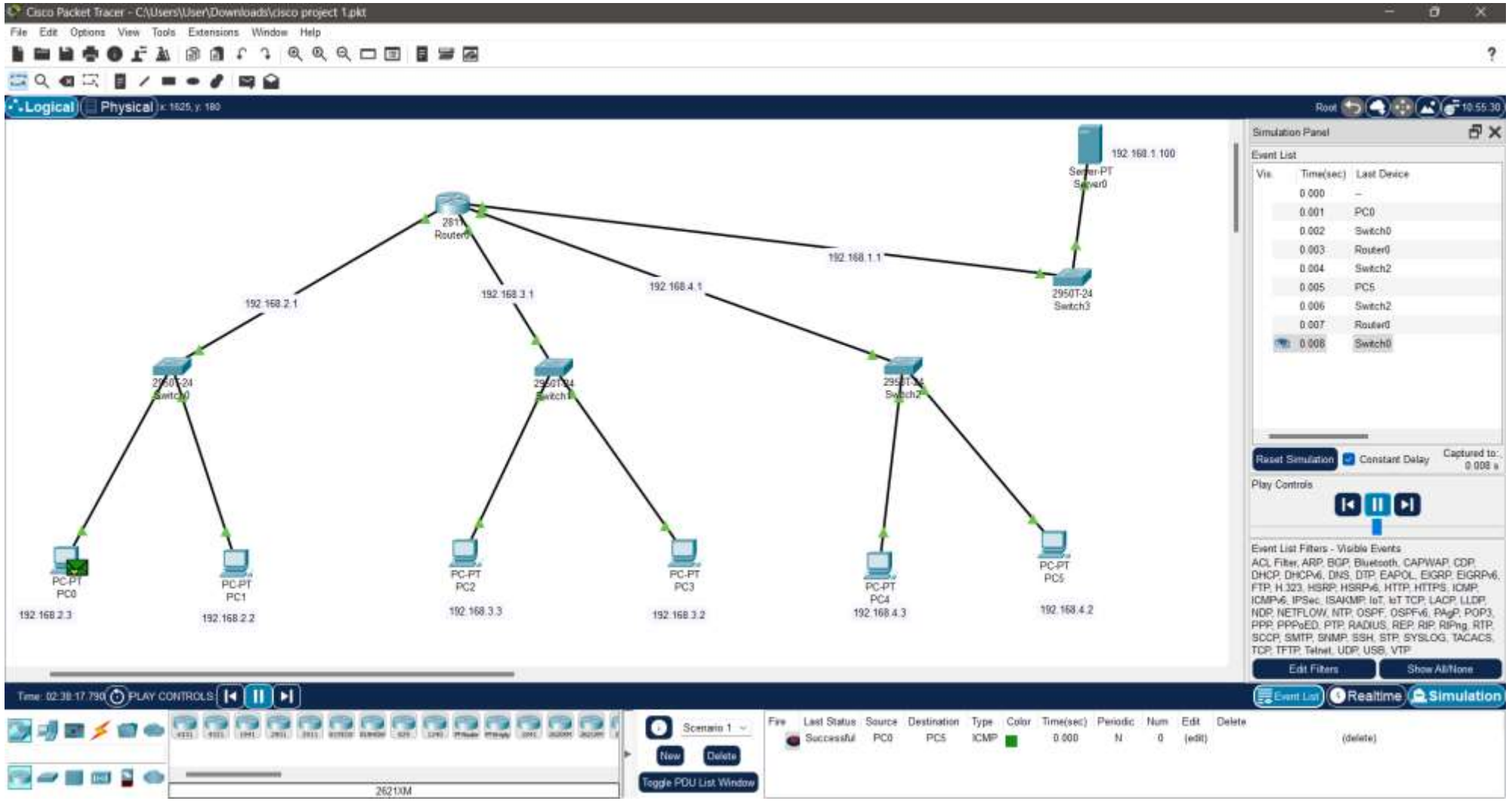
Go back to the Services section of the Server.
Select HTTP and HTTPS services.
Turn both services ON.
Optionally, Edit index.html to customize the webpage displayed in browser.



Final Network Configuration in Cisco Packet Tracer

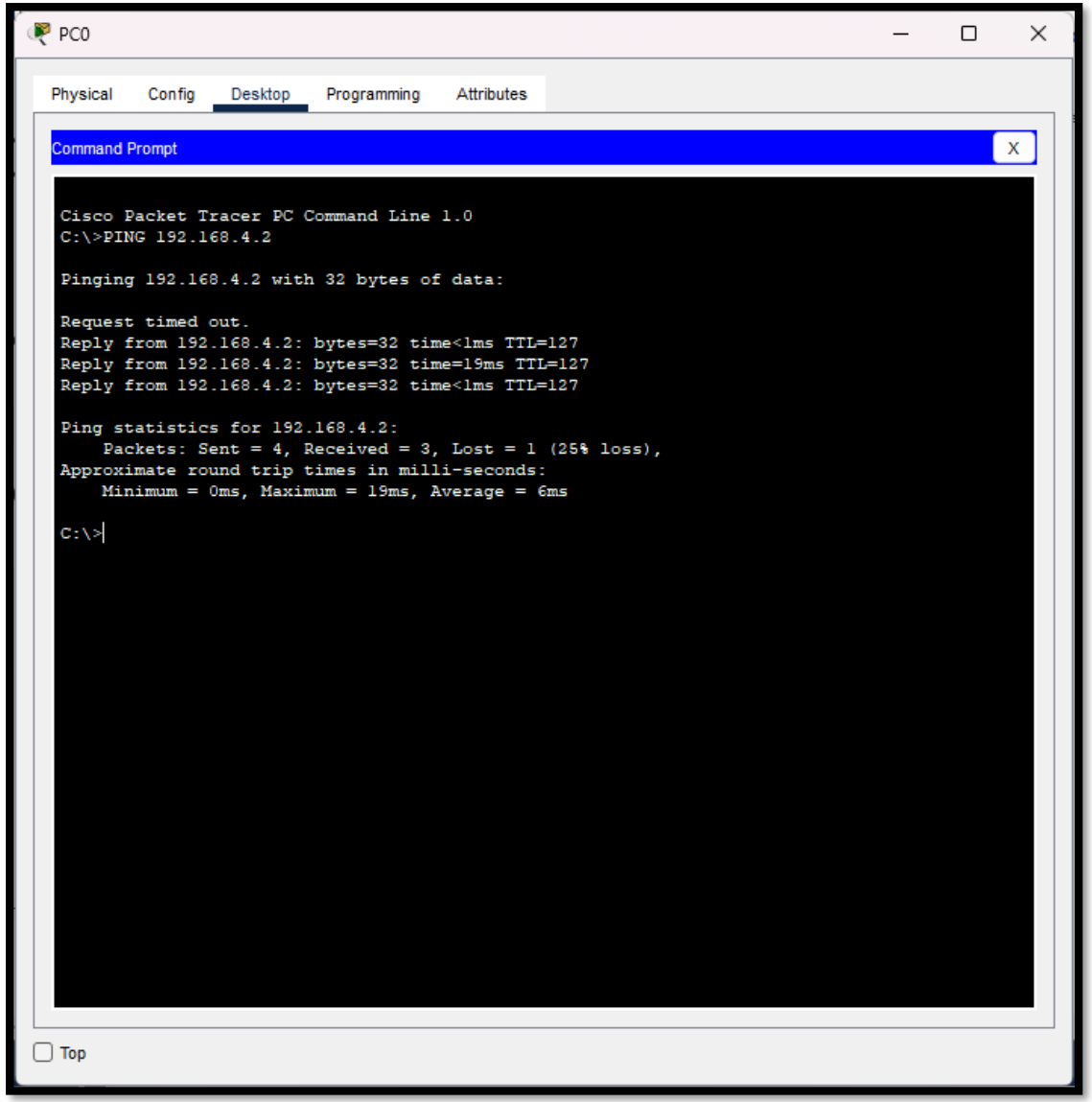


Verify Network Configuration in Cisco Packet Tracer

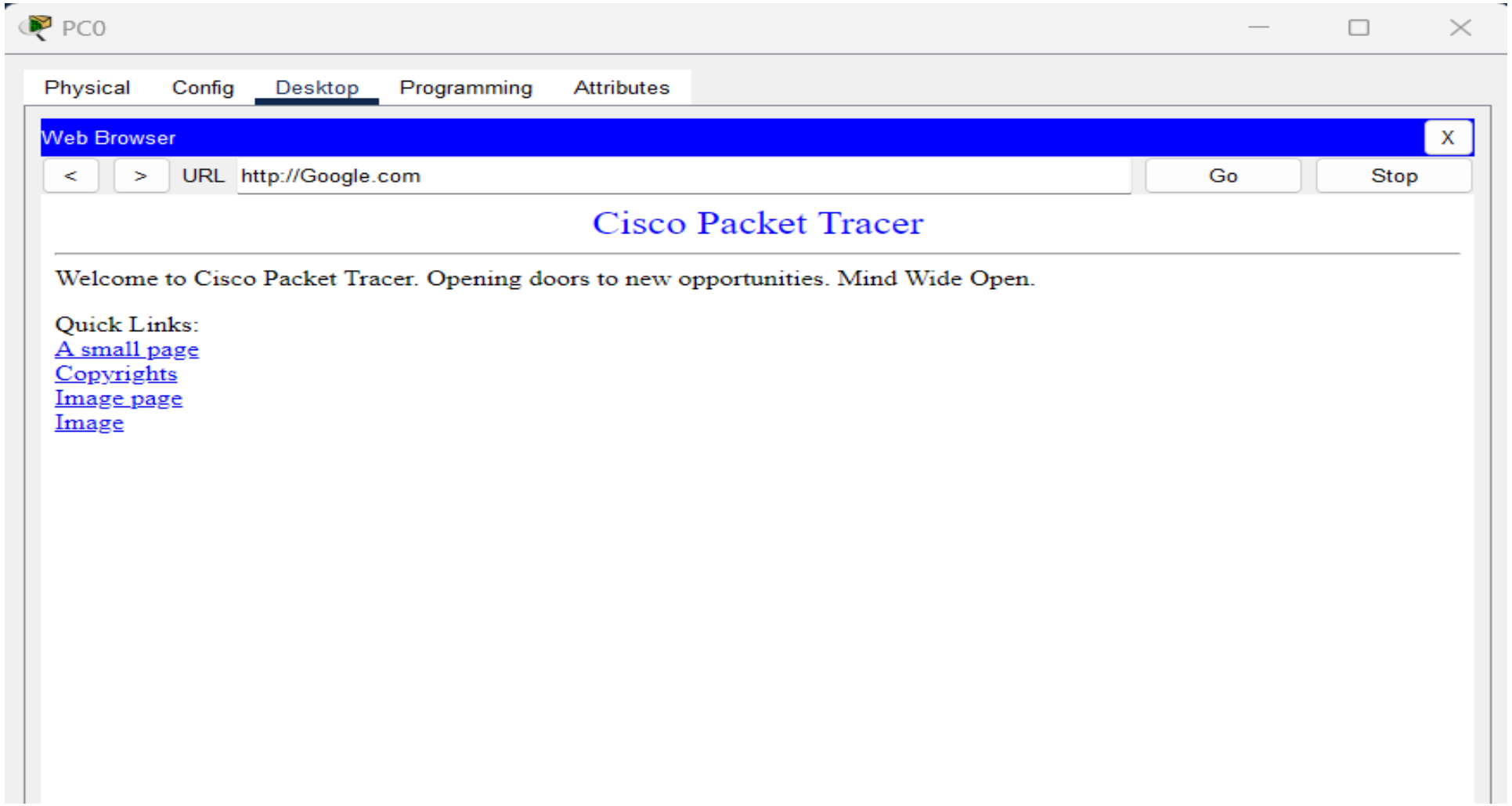


Checking Network Connectivity Between PCs

Open Command Prompt on any PC.
Use the ping command to test connectivity
Verify communication across different networks.



Web Services from PC



Conclusion

A small organizational network was set up in Cisco Packet Tracer with four sections, each having its own subnet. The router connected to 4 switches, and IP addresses were assigned to PCs and the server. DNS and HTTP services were configured on the server for domain resolution and web access. Connectivity was verified using the ping command and web browser. This project reinforced networking principles, including configuration, resource sharing, and troubleshooting.

THANK YOU