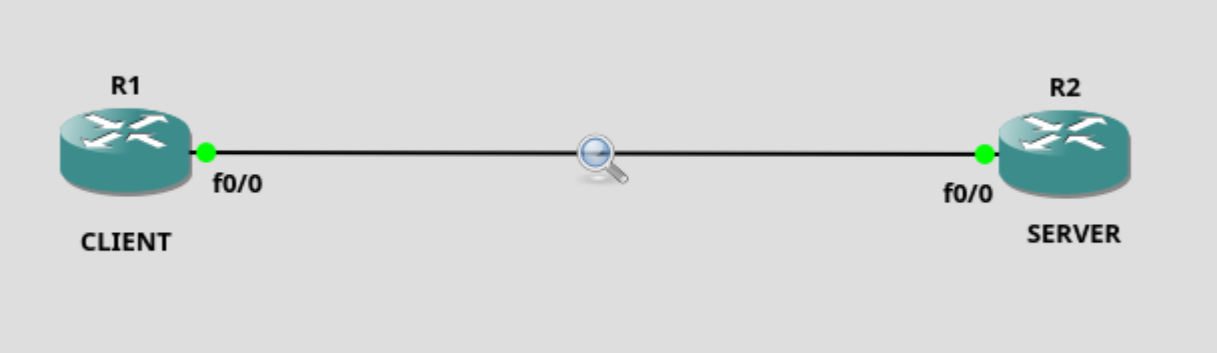
CN Lab: Week 3

Komal Mathur, CSE B2, 220905546

Configuring a router as a web server



At SERVER end: (use router c3600)

config t
ip http server
ip http path flash: // flash is a folder in server to place files
ip http max-connections 5
ip http port 5001
ip http access-class 1
access-list 1 permit 192.168.12.0 0.0.0.255 //network address (>1024) and wildcard of mask
username student privilege 15 password student
ip http authentication local
do copy running-config flash:startup-config // content of $show running-config
end

dir flash: // to verify contents
config t
int f0/0
ip address 192.168.12.2 255.255.255.0
no shut
do wr
end

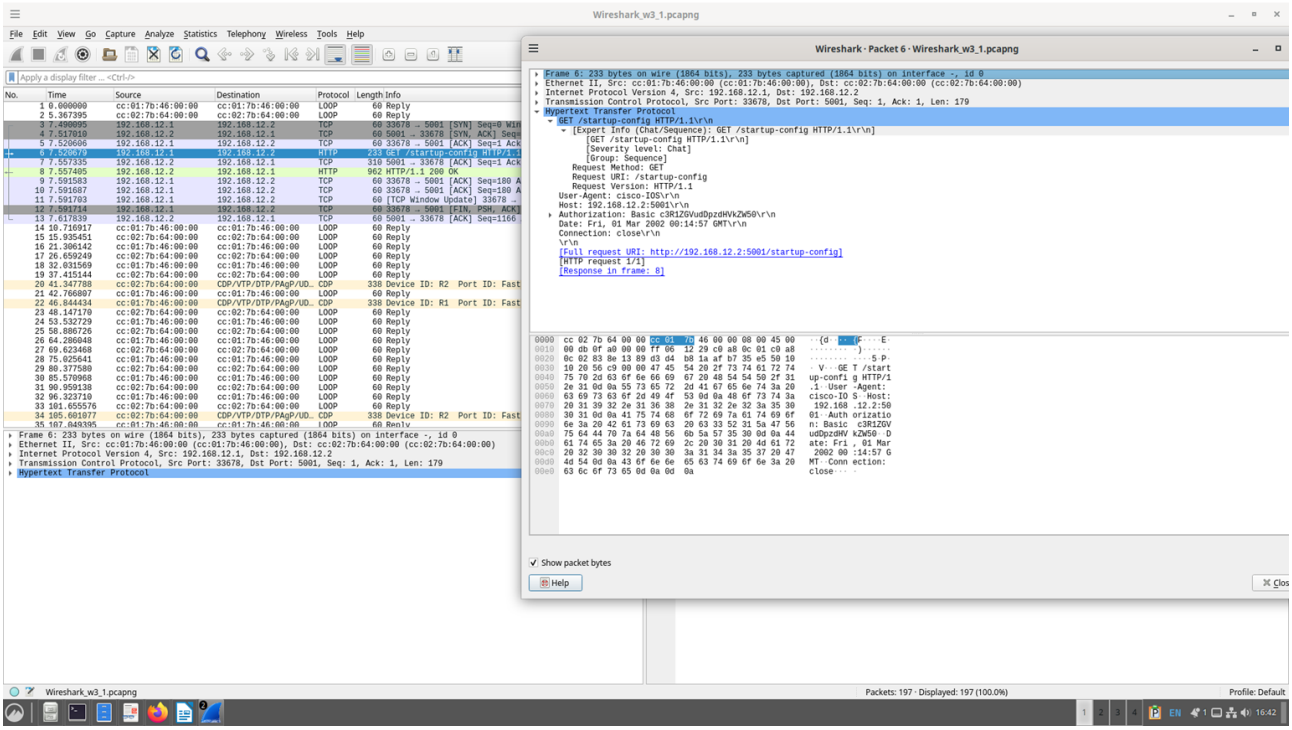
At CLIENT end:

Config t
int f0/0
ip address 192.168.12.1 255.255.255.0
no shut
end
config t
ip http client username student
ip http client password student
do wr
end
copy http://192.168.12.2:5001/startup-config null: // asking server for file corresponding to URL

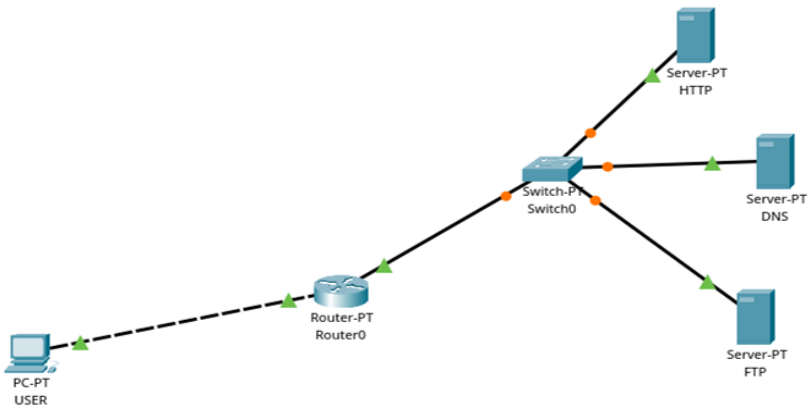
#Note: Another option is to use a Virtual Machine

Analysing TCP in Wireshark

3 TCP packets are visible in the beginning, which indicates the "**3-way Handshaking Protocol**" to establish connection (SYN, ACK, ACK)

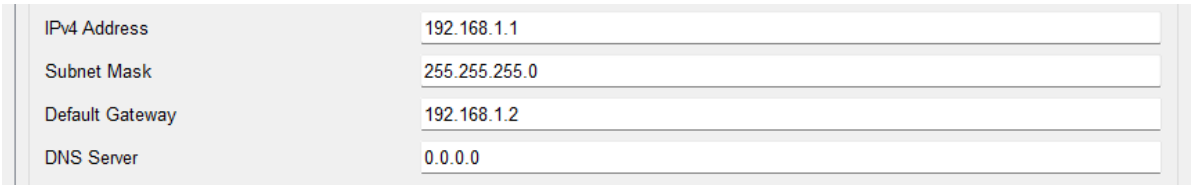


Q1. Design the network which consist of
a) HTTP server.
b) FTP server. c) DNS server.
d) Switch.
e) Router.
f) PC



Configuration Details:
The following details outline the IP addressing scheme, subnetting, and configuration for each device:

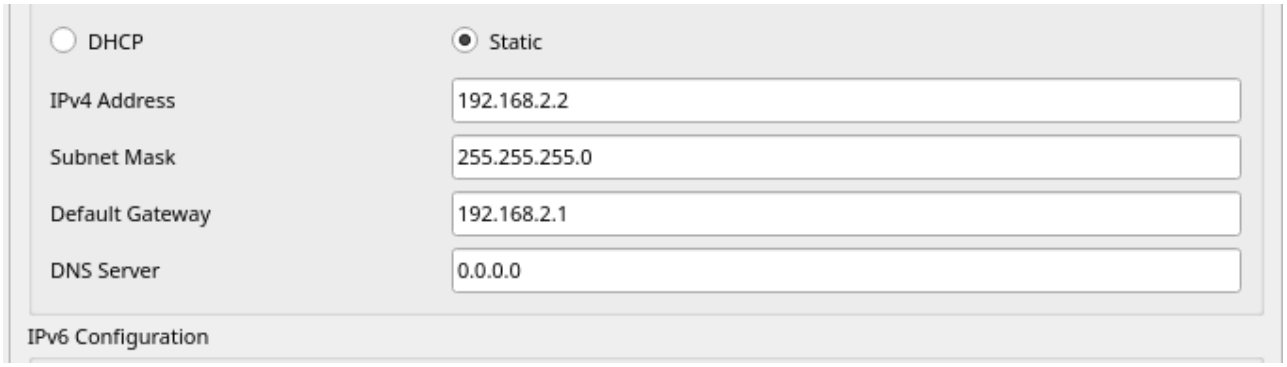
PC Configuration:



- **PC0:**
  - IP Address: 192.168.1.1/24
  - Subnet Mask: 255.255.255.0
  - Default Gateway: 192.168.1.2

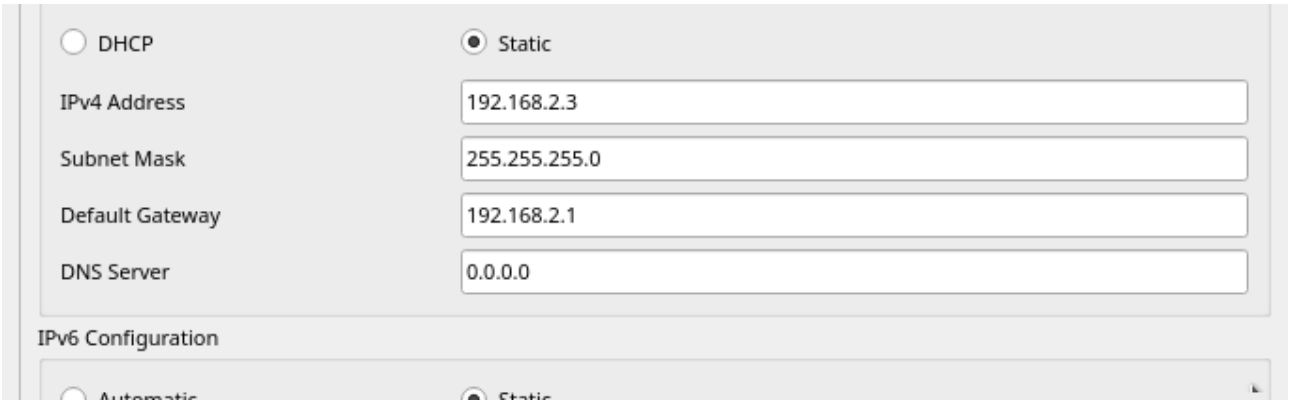
Server Configurations:

- **HTTP Server:**



  - IP Address: 192.168.2.2/24
  - Subnet Mask: 255.255.255.0
  - Default Gateway: 192.168.2.1

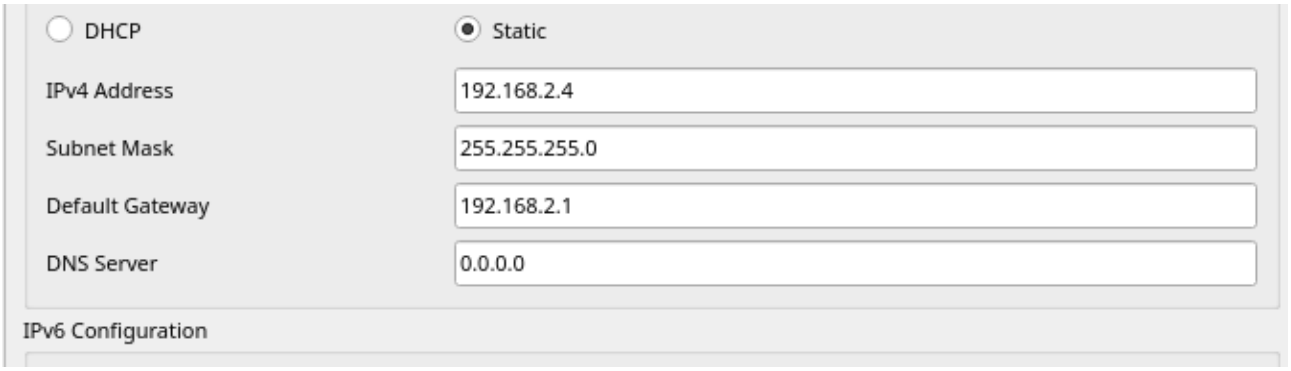
- **DNS Server:**



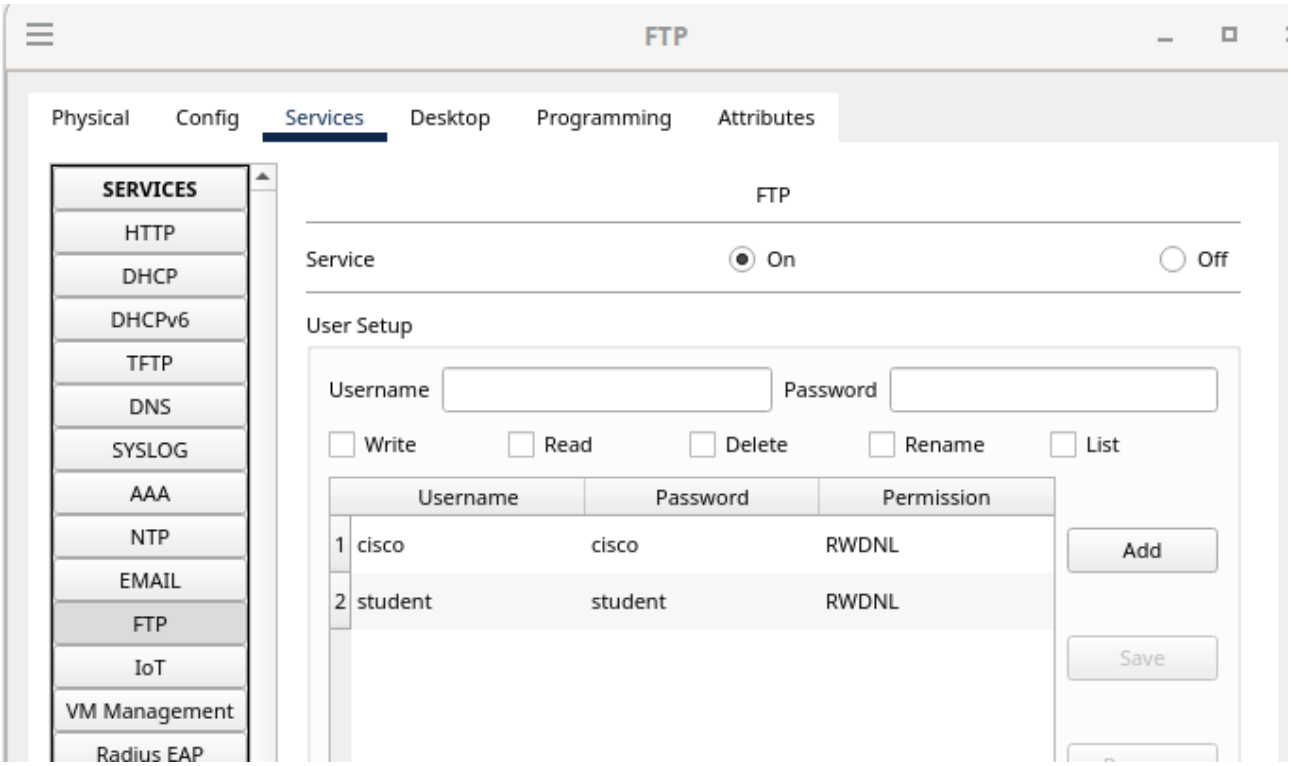
  - IP Address: 192.168.2.3/24

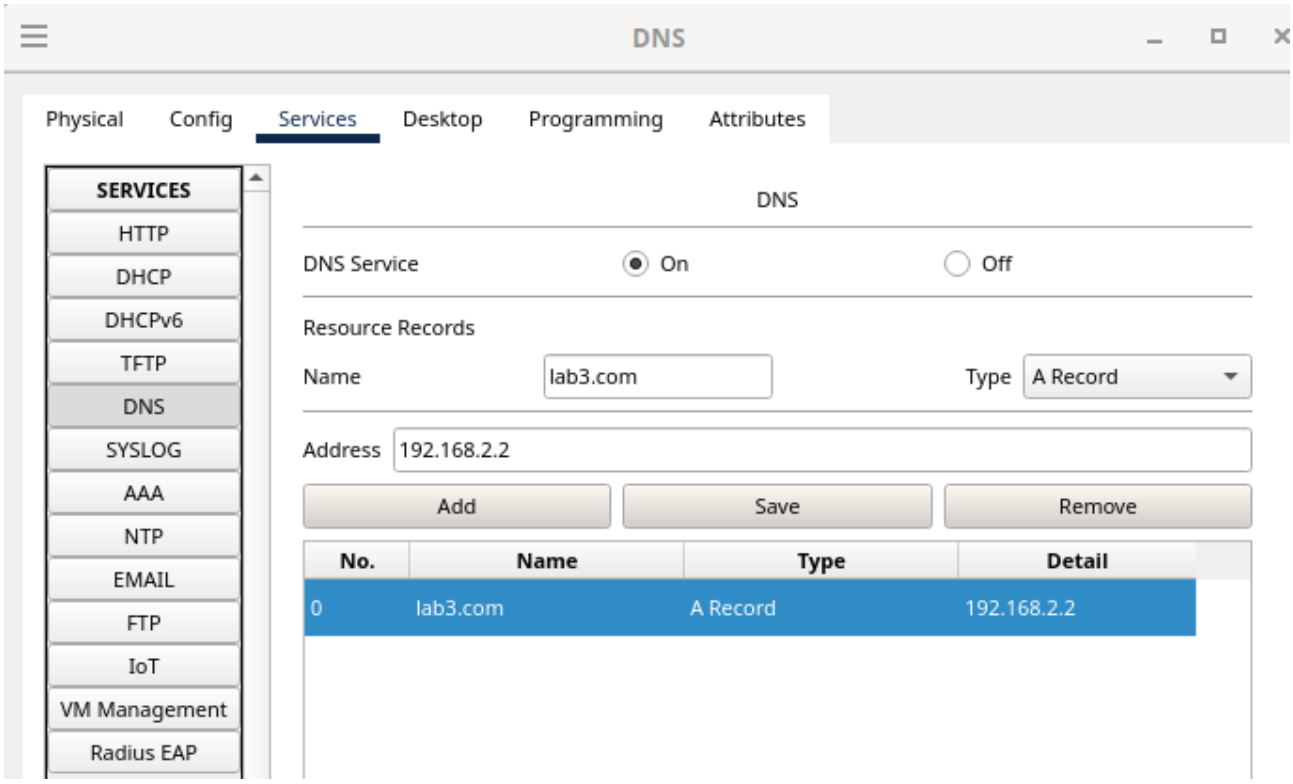
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.2.1
- DNS Record: lab3.com -> 192.168.2.2

- **FTP Server:**



- IP Address: 192.168.2.4/24
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.2.1
- User Setup:
  - Username: cisco, Password: cisco
  - Username: student, Password: student





Router Configuration:
Interfaces were configured to connect with the switch and manage the routing between the networks.
Testing and Verification:
Ping Tests:

- **From PC0 to HTTP Server (192.168.2.2):** Result: *Success*
- **From PC0 to DNS Server (192.168.2.3):** Result: *Success*
- **From PC0 to FTP Server (192.168.2.4):** Result: *Success*

Questions

1. **What is the main function of router?**
   Routers manage traffic between networks by directing data packets to their intended IP addresses, ensuring that the data reaches its correct destination. This is accomplished using Routing algorithms. Routers also provide security by blocking certain types of traffic, acting as a firewall, and managing network resources efficiently. They also act as a checkpoint to ensure correct transmission of data.

2. **What is the operation can perform on any file using FTP server?**
   Using an FTP (File Transfer Protocol) server:

- Upload files from your local machine to the server.
- Download files from the server to your local machine.
- Delete files on the server.
- Move or transfer files between directories on the server.
- View and list files and directories on the server.

3. **Why we use static addressing for all servers?**

Static addressing is used for servers to ensure they always have the same IP address. This consistency is important for:

- **Reliability:** Clients and other devices in the network can always connect to the server using the same IP address, ensuring consistent communication.
- **DNS Configuration:** Domain Name Systems (DNS) need a fixed IP to point to the server. If the IP changes, DNS records would need to be updated frequently, which could cause disruptions.
- **Stability:** Dynamic IPs can change, leading to potential downtime or access issues when the server's IP changes.