

# Computer Network Lab – 3

**Aditya Agarwal**

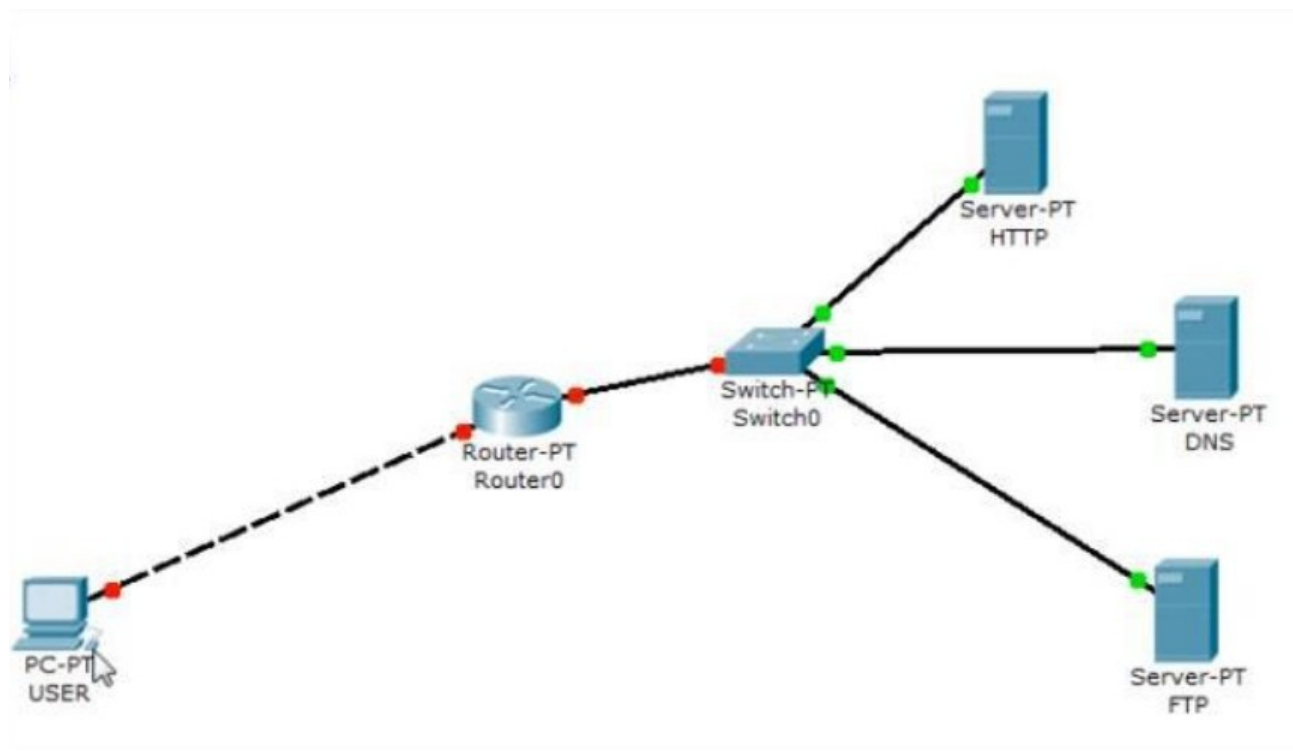
**Roll No - 14**

## 1. Network Design

Components:

- HTTP Server
- FTP Server
- DNS Server
- Switch
- Router
- PC

Network Diagram:



## 2. Configuration of the PC

Steps:

1. **Open Packet Tracer.**
2. **Select the PC:**
  - Click on the PC icon in the workspace.
  - Go to the **Desktop** tab.
  - Click on **IP Configuration**.
3. **Assign IP Address:**
  - Enter the IP address, subnet mask, and default gateway as specified. For example:
    - **IP Address:** 192 . 168 . 1 . 10
    - **Subnet Mask:** 255 . 255 . 255 . 0

- **Default Gateway: 192.168.1.1**

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.1

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.2

DNS Server 0.0.0.0

### 3. Configuration of the Router

#### Steps:

##### 1. Open Router CLI:

- Click on the router icon in the workspace.
- Select the **CLI** tab.

##### 2. Configure the Router Interfaces:

###### • **First Interface (e.g., GigabitEthernet0/0):**

```
plaintext
Copy code
Router> enable
Router# configure terminal
Router(config)# interface gigabitethernet0/0
Router(config-if)# ip address 192.168.1.1 255.255.255.0
Router(config-if)# no shutdown
Router(config-if)# exit
```

###### • **Second Interface (e.g., GigabitEthernet0/1):**

```
plaintext
Copy code
Router(config)# interface gigabitethernet0/1
Router(config-if)# ip address 192.168.2.1 255.255.255.0
Router(config-if)# no shutdown
Router(config-if)# exit
```

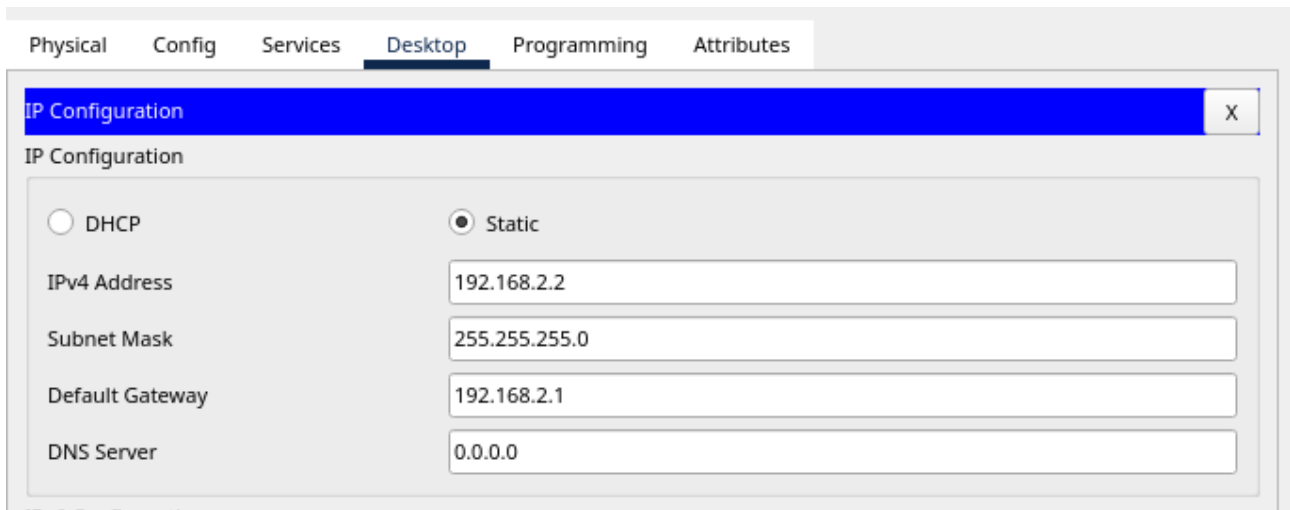
### 4. Configuration of Servers

#### HTTP Server Configuration

##### 1. Open HTTP Server:

- Click on the HTTP server icon in the workspace.
- Go to the **Desktop** tab.

- Click on **IP Configuration**.
2. **Assign Static IP Address:**
    - Enter the IP address, subnet mask, and default gateway. For example:
      - **IP Address:** 192 . 168 . 1 . 2
      - **Subnet Mask:** 255 . 255 . 255 . 0
      - **Default Gateway:** 192 . 168 . 1 . 1
  3. **Disable Other Services:**
    - In the HTTP server's **Services** tab, ensure that only HTTP is enabled. Disable other services such as FTP and DNS if they are available on this server.



The screenshot shows a network management interface with tabs: Physical, Config, Services, Desktop, Programming, and Attributes. The 'Desktop' tab is selected. Below it, the 'IP Configuration' window is open. It has a title bar 'IP Configuration' with a close button 'X'. Inside, there are two radio buttons: 'DHCP' (unselected) and 'Static' (selected). Below the radio buttons are four text input fields: 'IPv4 Address' (192.168.2.2), 'Subnet Mask' (255.255.255.0), 'Default Gateway' (192.168.2.1), and 'DNS Server' (0.0.0.0).

## FTP Server Configuration

1. **Open FTP Server:**
  - Click on the FTP server icon in the workspace.
  - Go to the **Desktop** tab.
  - Click on **IP Configuration**.
2. **Assign Static IP Address:**
  - Enter the IP address, subnet mask, and default gateway. For example:
    - **IP Address:** 192 . 168 . 1 . 3
    - **Subnet Mask:** 255 . 255 . 255 . 0
    - **Default Gateway:** 192 . 168 . 1 . 1
3. **Disable Other Services:**
  - In the FTP server's **Services** tab, ensure that only FTP is enabled. Disable other services such as HTTP and DNS if they are available on this server.

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP**
- IoT
- VM Management
- Radius EAP

FTP

Service ☒ On ☐ Off

User Setup

Username  Password

☒ Write ☒ Read ☐ Delete ☐ Rename ☐ List

	Username	Password	Permission
1	cisco	cisco	RWDNL
2	student	student	RW

Add

Save

Remove

Physical Config Services **Desktop** Programming Attributes

**IP Configuration** X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address

Subnet Mask

Default Gateway

DNS Server

## DNS Server Configuration

### 1. Open DNS Server:

- Click on the DNS server icon in the workspace.
- Go to the **Desktop** tab.
- Click on **IP Configuration**.

The screenshot shows the 'DNS' configuration window. On the left, a 'SERVICES' list includes HTTP, DHCP, DHCPv6, TFTP, DNS (selected), SYSLOG, AAA, NTP, EMAIL, FTP, and IoT. The main area is titled 'DNS' and shows 'DNS Service' as 'On'. Under 'Resource Records', a record for 'lab1.com' is added with 'Type' 'A Record' and 'Address' '192.168.2.2'. Below this is a table with one entry:

No.	Name	Type	Detail
0	lab1.com	A Record	192.168.2.2

## 2. Assign Static IP Address:

- Enter the IP address, subnet mask, and default gateway. For example:
  - IP Address:** 192.168.1.4
  - Subnet Mask:** 255.255.255.0
  - Default Gateway:** 192.168.1.1

## 3. Disable Other Services:

- In the DNS server's **Services** tab, ensure that only DNS is enabled. Disable other services such as HTTP and FTP if they are available on this server.

The screenshot shows the 'IP Configuration' window. The 'Desktop' tab is selected. It shows 'DHCP' disabled and 'Static' selected. The following fields are filled:

IPv4 Address	192.168.2.3
Subnet Mask	255.255.255.0
Default Gateway	192.168.2.1
DNS Server	0.0.0.0

# 5. Testing Connectivity

## 1. Ping Test:

- From the PC, use the Command Prompt to ping each server:

## 2. Access Services:

- **HTTP Server:**

```
Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time=10ms TTL=128
Reply from 192.168.1.2: bytes=32 time=9ms TTL=128
Reply from 192.168.1.2: bytes=32 time=10ms TTL=128
Reply from 192.168.1.2: bytes=32 time=10ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milliseconds:
    Minimum = 9ms, Maximum = 10ms, Average = 9ms
```

- **FTP Server:**

```
Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time=12ms TTL=128
Reply from 192.168.1.3: bytes=32 time=11ms TTL=128
Reply from 192.168.1.3: bytes=32 time=12ms TTL=128
Reply from 192.168.1.3: bytes=32 time=11ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milliseconds:
    Minimum = 11ms, Maximum = 12ms, Average = 11ms
```

- **DNS Server:**

```
Pinging 192.168.1.4 with 32 bytes of data:
Reply from 192.168.1.4: bytes=32 time=8ms TTL=128
Reply from 192.168.1.4: bytes=32 time=8ms TTL=128
Reply from 192.168.1.4: bytes=32 time=9ms TTL=128
Reply from 192.168.1.4: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milliseconds:
    Minimum = 8ms, Maximum = 9ms, Average = 8ms
```

## **Conclusion**

The network has been successfully configured with an HTTP server, FTP server, DNS server, switch, router, and PC. The router interfaces were set up with appropriate IP addresses, and all servers were configured with static IPs and specific services. Connectivity and functionality were verified through ping tests and service access.