DHCP In Router

Configuration Network and topology

Network engineering/
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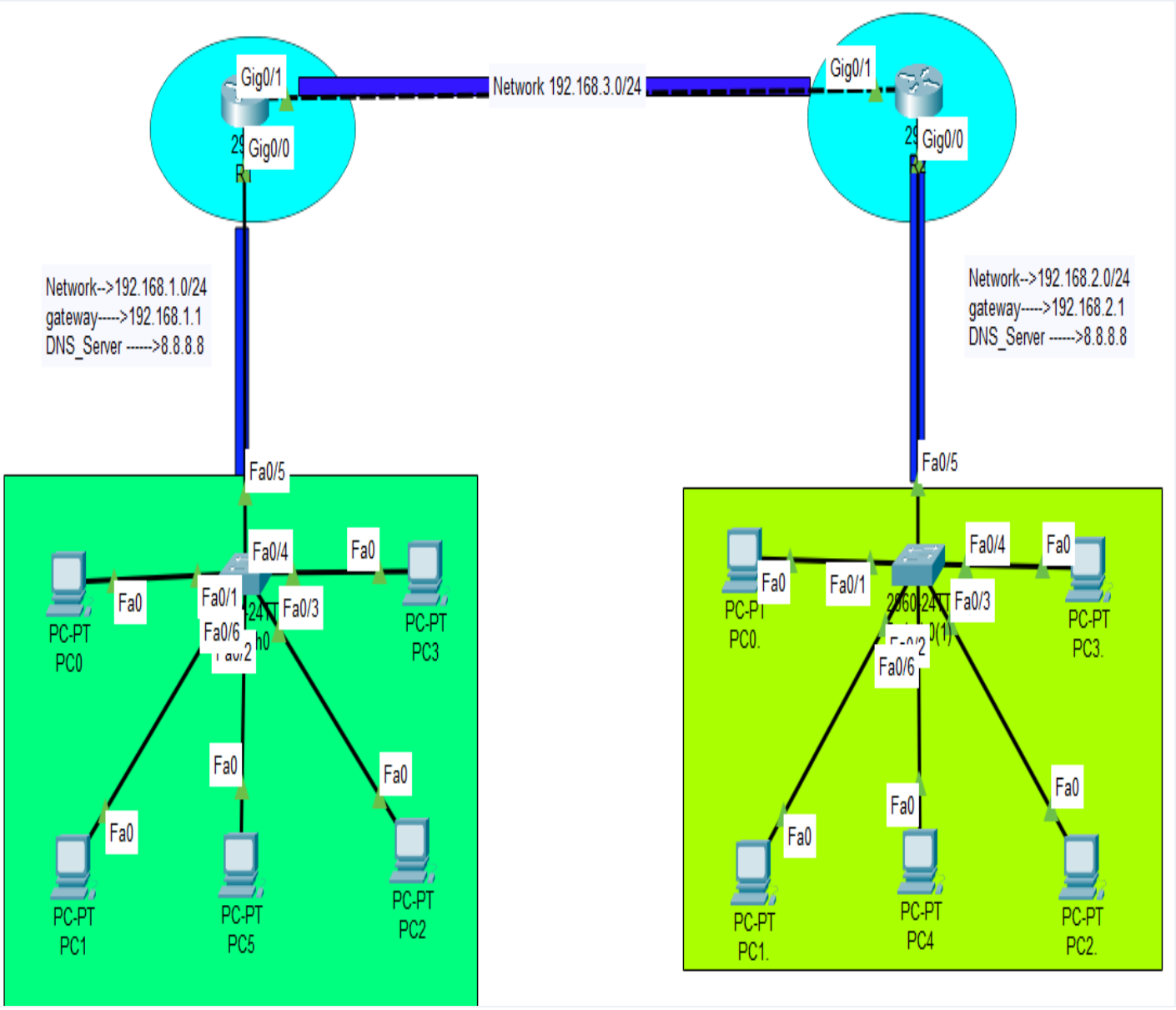
LAB:

- Distribute Ips to PCs using DHCP in router.
- Each Router distributes Ips.
- Using Static Routing Between Routers.
    - o R1 distribute Ips in range 192.168.1.0/24
        - ▪ Gateway 192.168.1.1
        - ▪ DNS 8.8.8.8
    - o R2 distribute Ips in range 192.168.2.0/24
        - ▪ Gateway 192.168.2.1
        - ▪ DNS 8.8.8.8



What is the DHCP In Router?

- **DHCP stands for "Dynamic Host Configuration Protocol." But what does that really mean? Basically, DHCP is like the "modern manager" of your network, responsible for assigning IP addresses to devices that connect to your router. 💻📱**
- **Imagine you're at a big party, and every guest asks the host, "Where should I sit?" The host (which is DHCP in this case) hands each guest a card saying, "Here's your seat." The same thing happens with DHCP: when a device connects to the network, the router uses DHCP to give it an IP address automatically, so you don't have to manually type in any numbers.**
- **This not only makes your life easier but also prevents conflicts or issues that might arise if two devices tried to use the same IP address.**

***So, in short, DHCP is the network hero that keeps everything running smoothly while you sit back and relax. 😉✨**

CONFIGURATION:-

Network Setup:

- **Router 1 (R1)** connected to **Switch 1,** and **Switch 1** is connected to **five** devices.
- **Router 2 (R2)** connected to **Switch 2**, and **Switch 2** is connected to **five** devices.
- **IPs** are distributed using **DHCP** for each subnet.

Configuration Steps:

1. Configuring DHCP on Router 1 (R1):

```
# Access Router 1
      R1> enable
      R1# configure terminal

# Configure DHCP on Router 1
      R1(config)# ip dhcp pool (any name)
      R1(dhcp-config)# network 192.168.1.0 255.255.255.0
      R1(dhcp-config)# default-router 192.168.1.1
      R1(dhcp-config)# dns-server 8.8.8.8

# Assign IP address to the interface
      R1(config)# interface GigabitEthernet0/0
      R1(config-if)# ip address 192.168.1.1 255.255.255.0
      R1(config-if)# no shutdown
      R1(config-if)# interface GigabitEthernet0/1
      R1(config-if)# ip address 192.168.3.1 255.255.255.0
      R1(config-if)# no shutdown

# Exit configuration mode
      R1(config-if)# exit
      R1(config)# exit
      R1# write memory
```

2. *Configuring DHCP on Router 2 (R2):*

```
# Access Router 2
      R2> enable
      R2# configure terminal

# Configure DHCP on Router 2
      R2(config)# ip dhcp pool LAN2
      R2(dhcp-config)# network 192.168.2.0 255.255.255.0
      R2(dhcp-config)# default-router 192.168.2.1
      R2(dhcp-config)# dns-server 8.8.8.8

# Assign IP address to the interface
      R2(config)# interface GigabitEthernet0/0
      R2(config-if)# ip address 192.168.2.1 255.255.255.0
      R2(config-if)# no shutdown
      R2(config)# interface GigabitEthernet0/1
      R2(config-if)# ip address 192.168.3.2 255.255.255.0
      R2(config-if)# no shutdown


# Exit configuration mode
      R2(config-if)# exit
      R2(config)# exit
      R2# write memory
```

3. *Setting up Static Routing Between Routers:*

- **Each router needs to know how to reach the network of the other router.**
- **In network the connection between the routers is through the GigabitEthernet1/0 interface on each router.**

On Router 1 (R1):

```
# Access Router 1
      R1> enable
      R1# configure terminal

# Define a static route for R2's network
      R1(config)# ip route 192.168.2.0 255.255.255.0
      [IP address of the connection to R2]

# Exit configuration mode
      R1(config)# exit
      R1# write memory
```

On Router 2 (R2):

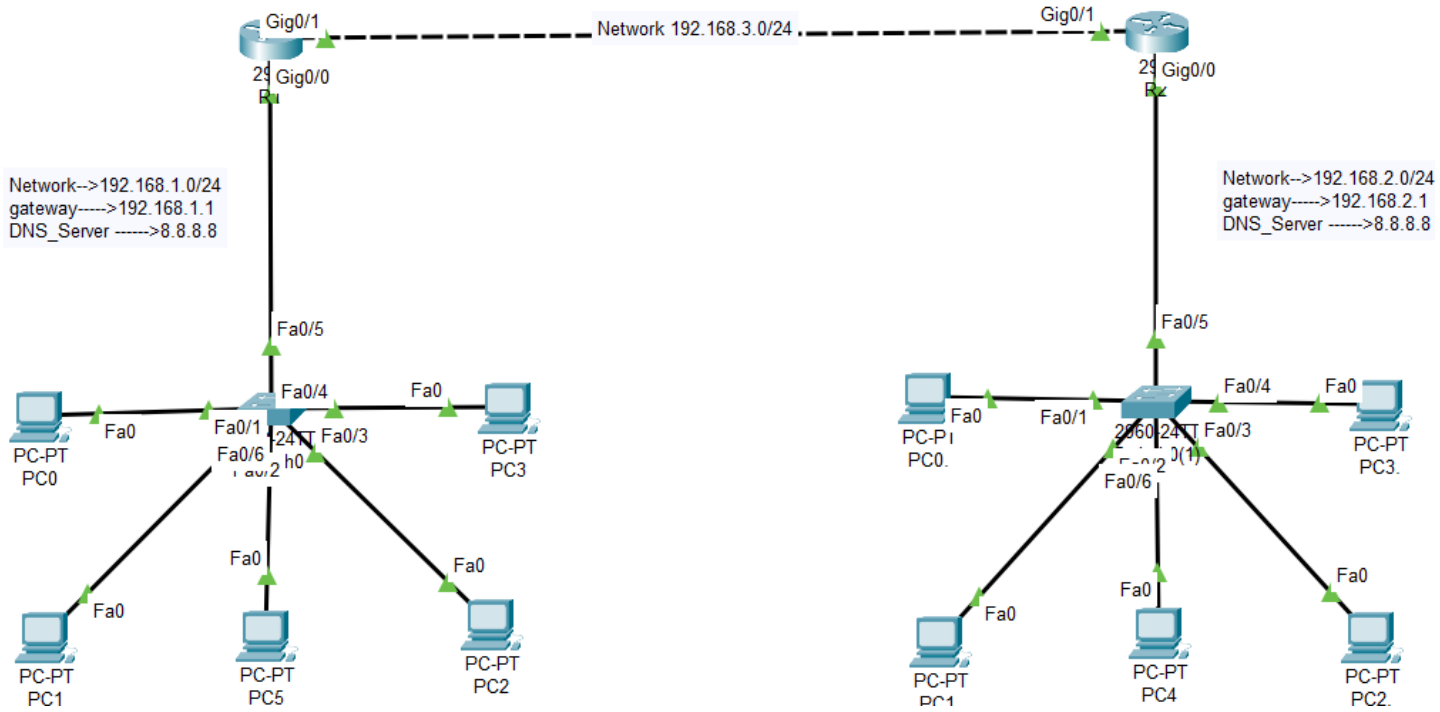
```
# Access Router 1
      R2> enable
      R2# configure terminal

# Define a static route for R1's network
      R2(config)# ip route 192.168.1.0 255.255.255.0
        [IP address of the connection to R1]
# Exit configuration mode
      R2(config)# exit
      R2# write memory
```

And that's it! 🚀

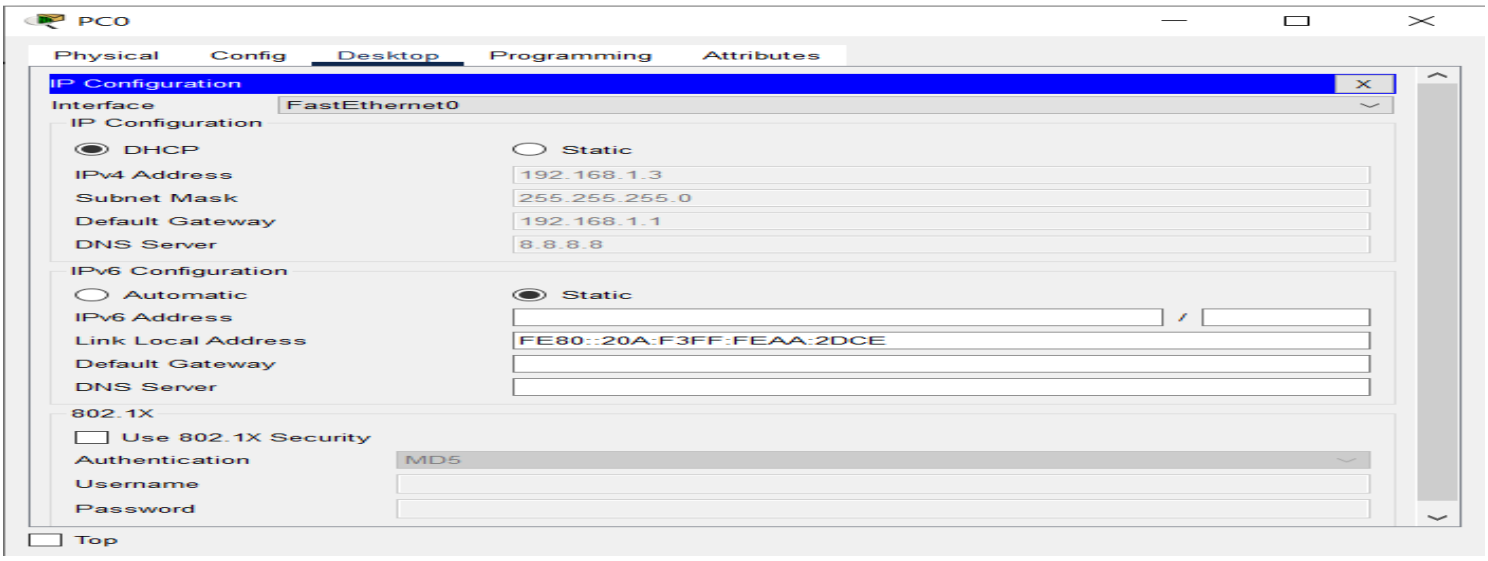
Now, each device connected to the switches will automatically receive an IP address via DHCP, and the connection between routers is set up using Static Routing.

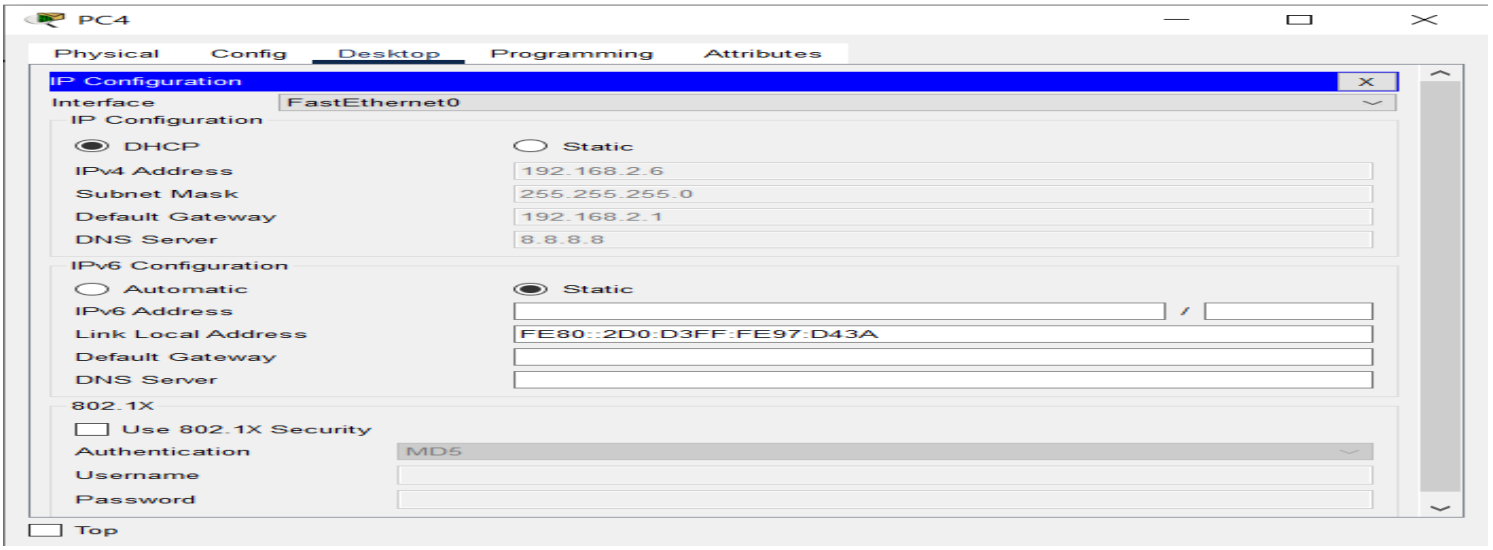
If you have any questions or need further assistance, Don't worry!

NETWORK TOPOLOGY:



SHOW IP ROUTING





Thank You