Tutorial 7: DHCP Configuration

Abhishek M J - CS21B2018

27-09-2023

What is DHCP?

DHCP, or Dynamic Host Configuration Protocol, is a standardized network protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses for interfaces and services. With DHCP, computers request IP addresses and networking parameters automatically from a DHCP server, reducing the need for a network administrator or a user to configure these settings manually.

Network Setup

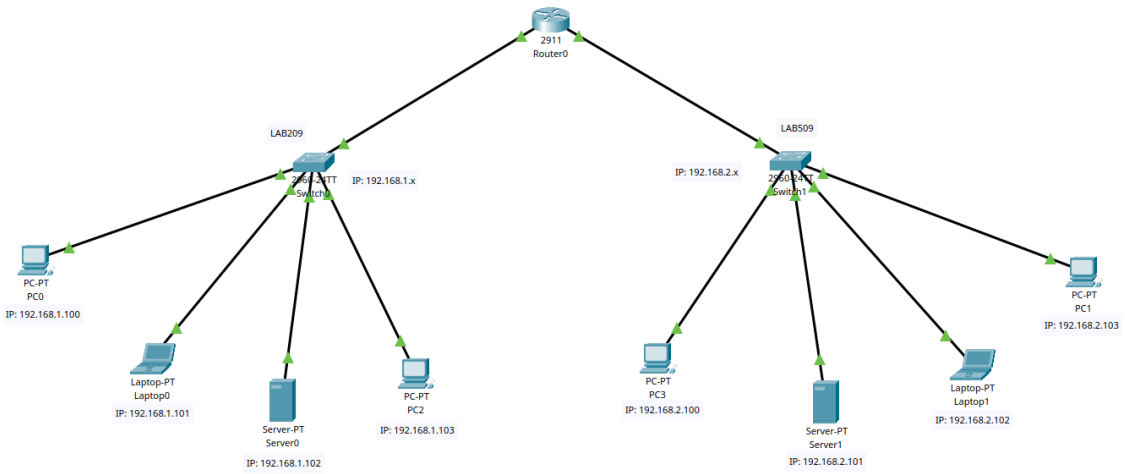

Figure 1: Network Setup

- Router is configured as DHCP Server, connected to 2 different networks
- 2 Switches are connected to the router have separate local networks
  - *LAB209*: `192.168.1.x`
  - *LAB509*: `192.168.2.x`
- Each switch is connected to 4 End Devices: 2 PCs , 1 Laptop and 1 Server

DHCP Server Configuration

Exclude IP Addresses

Exclude the following IP addresses from automatic assignment

```
$ ip dhcp excluded-address 192.168.1.0 192.168.1.99
```

DHCP Pool

Create virtual interface for DHCP pool. Set the default router port, DNS server etc.

```
$ ip dhcp pool LAB209
$ default-router 192.168.1.1
$ dns-server 192.168.1.2
$ option 150 ip 192.168.1.3
$ network 192.168.1.0
```

DHCP Client Configuration

1. Select DHCP as the method of IP address assignment
2. Automatically IP address will be assigned to the client with a message of "DHCP request successfull".

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
	Successful	Laptop0	Server1	ICMP		0.000	N	0
	Successful	Server0	PC2	ICMP		0.000	N	1
	Successful	PC0	PC3	ICMP		0.000	N	2
	Successful	PC2	Laptop1	ICMP		0.000	N	3

Figure 2: Message Flow