

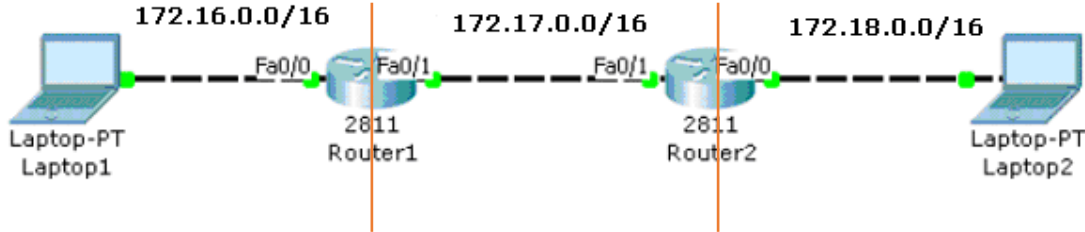
# Lab - Guideline

## Topics

- A. IPv4 routing
- B. DHCP IPv4

### A. IPv4 routing

Laboratory test configuration:



**Step1:** Assign static IPv4 addresses to router interfaces and computers

Device	Interface	IP	NM	GW
Router1	Fa0/0	172.16.0.1	255.255.0.0	-
	Fa0/1	172.17.0.1	255.255.0.0	-
Router2	Fa0/0	172.18.0.1	255.255.0.0	-
	Fa0/1	172.17.0.2	255.255.0.0	-
Laptop1	Fa0	172.16.0.2	255.255.0.0	172.16.0.1
Laptop2	Fa0	172.18.0.2	255.255.0.0	172.18.0.1

Router1>enable

Router1#configure terminal

Router1(config)#**interface fastethernet 0/0**

Router1(config-if)#ip address 172.16.0.1 255.255.0.0

Router1(config-if)#no shutdown

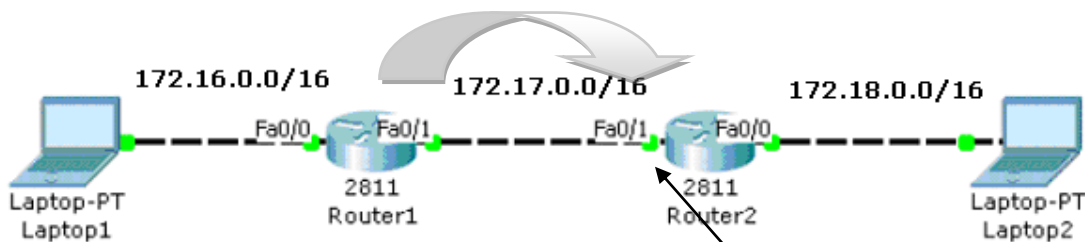
Router1(config-if)#exit

Description: Add an IP address on Fa0/0 interface

### Step2: Set static routes

General syntax:

Router(config)#**ip route netw\_dest\_address next\_hop\_address/interface**



Router1(config)#ip route 172.18.0.0 255.255.0.0 172.17.0.2

Destination Network (Network Address)

Next\_Hop Address

Router1#show ip route

Description: Visualize the routing table

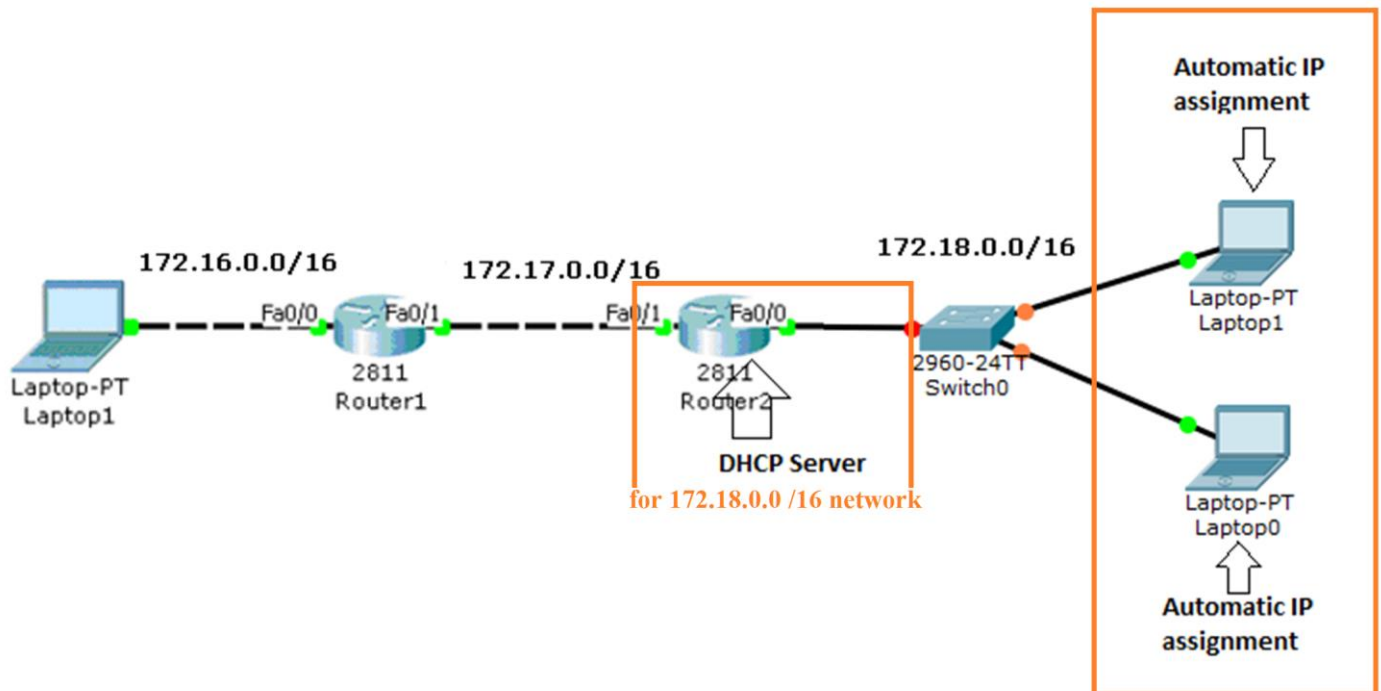
Test the connectivity.

- a. ping <target IP>
- b. tracert <target IP>

## B. DHCP

A Dynamic Host Configuration Protocol (DHCP) server assigns and manages IP addresses from specified address pools within the device to DHCP clients.

Laboratory test configuration:



### Step: Configure DHCP (commands)

Configure the pool name

```
Router(config)# ip dhcp pool name
```

Configure the addresses

```
Router(dhcp-config)# network network-number [mask|prefix-length]
```

Setting up the IP Domain Name System Servers for the Client

```
Router(dhcp-config)# dns-server address [address2 ...address5]
```

Configuring the Default Router for the Client (!the default router has to be on the same subnet as the DHCP client)

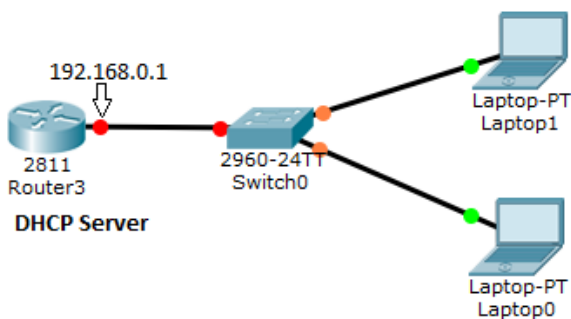
```
Router(dhcp-config)# default-router address
```

Exclude IP addresses

```
Router(config)#ip dhcp excluded-address start_address end_address
```

(Exclude IP addresses that were statically assigned)

### Example:



```
Router(config)# ip dhcp pool MY_DHCP
Router(dhcp-config)# network 192.168.0.0 255.255.255.0
Router(dhcp-config)# dns-server 8.8.8.8
Router(dhcp-config)# default-router 192.168.0.1
Router(dhcp-config)# exit
Router(config)#ip dhcp excluded-address 192.168.0.1
```

Test the connectivity.

- a. check IP addresses oh hosts computers*
- b. ping <target IP>*