

CN LAB – WEEK 6

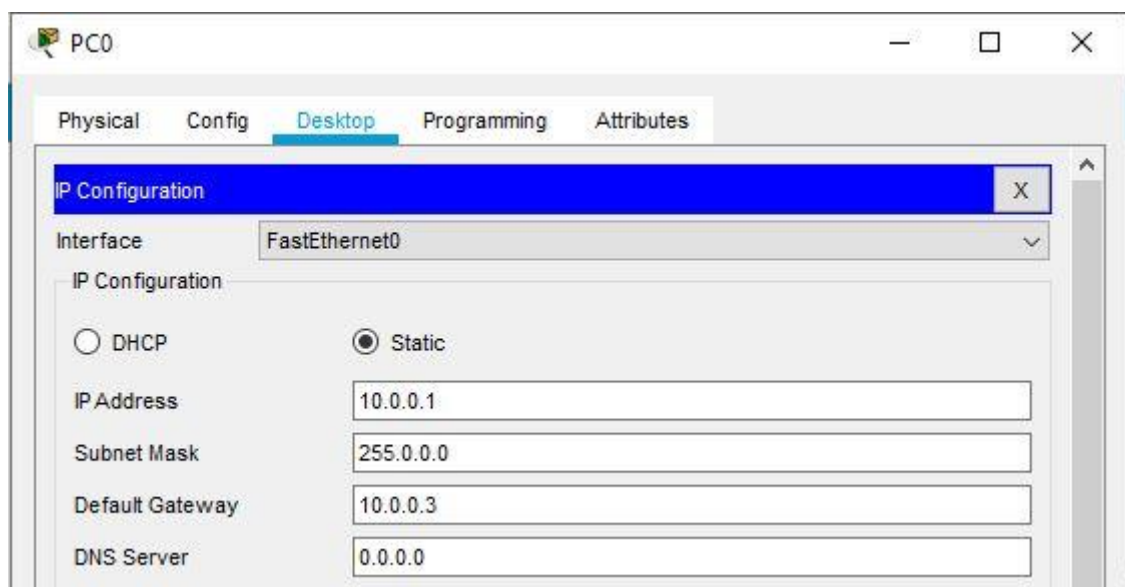
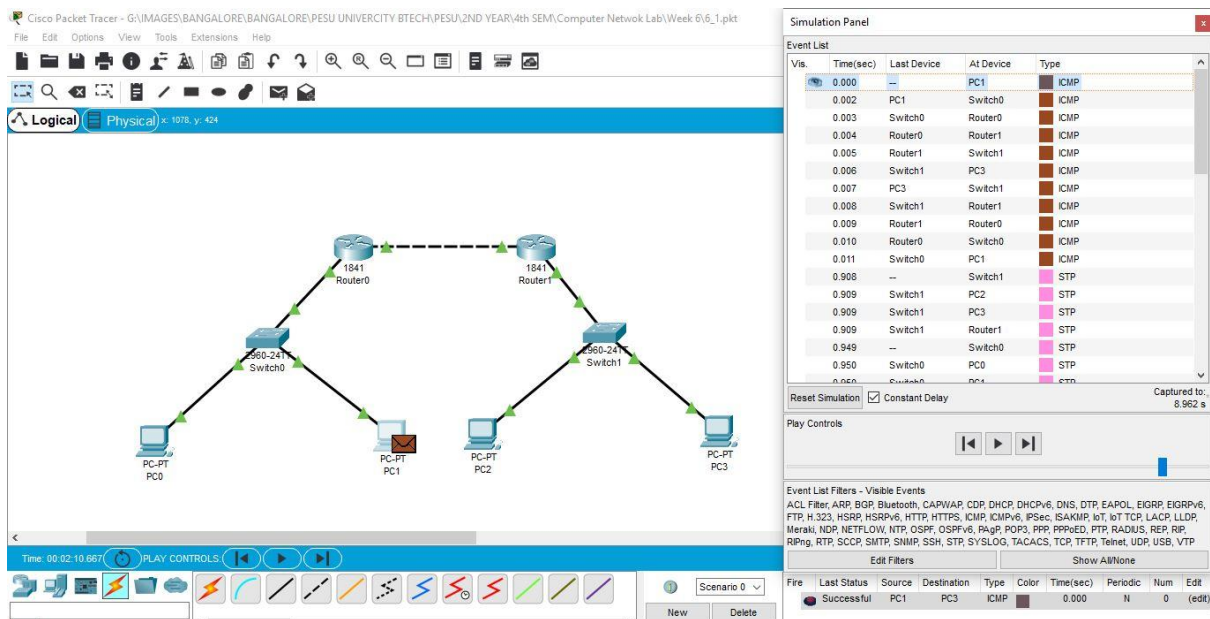
DIVYANSHU SHARMA

PES1UG20CS806

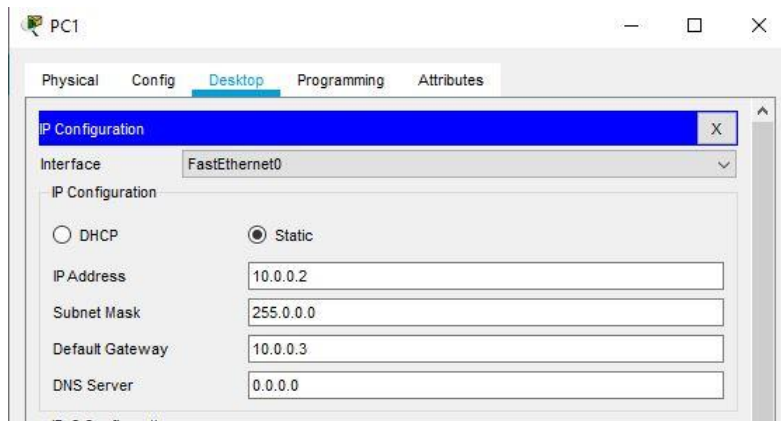
# 1. Task

## 1.1 Configuring Network:

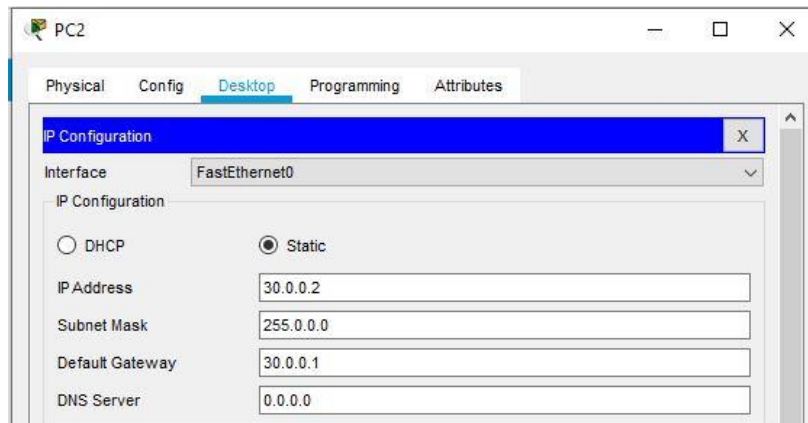
- The network's is organised in the required topology shown below.
- The IP Addresses for different interfaces have been assigned being used on the routers and systems.
- The routing tables are configured manually by adding the required routing information
- A PDU packet is then transferred from one system on a network to another system on a different network.
- If the packet is transfer successfully, a successful message will be shown in the bottom right corner, otherwise unsuccessful message will be shown.



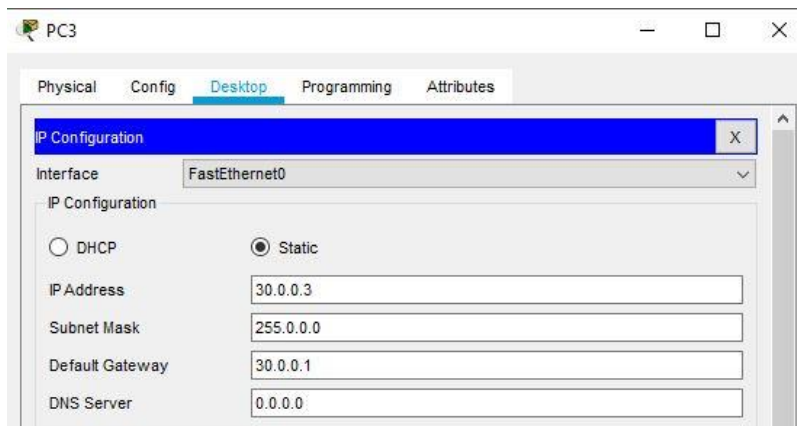
PC0



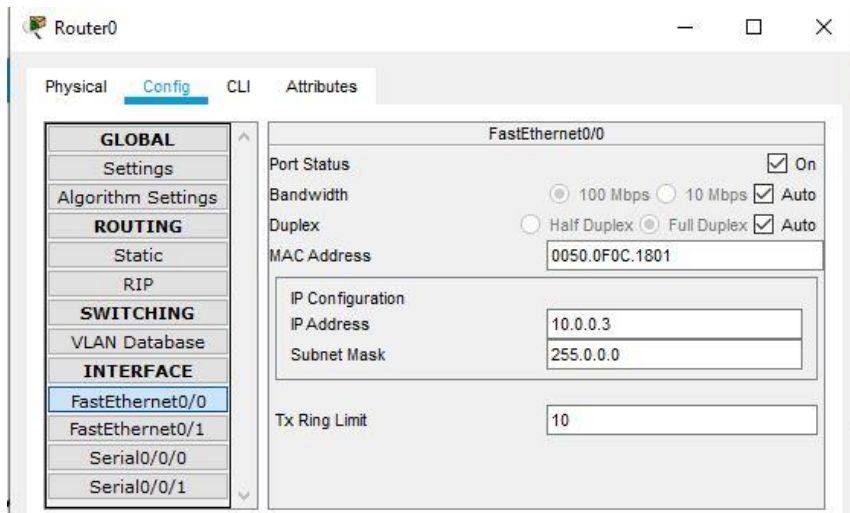
PC1



PC2



PC3



Router0

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings

**ROUTING**

- Static
- RIP

**SWITCHING**

- VLAN Database

**INTERFACE**

- FastEthernet0/0**
- FastEthernet0/1
- Serial0/0/0
- Serial0/0/1

**FastEthernet0/0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0050.0F0C.1801

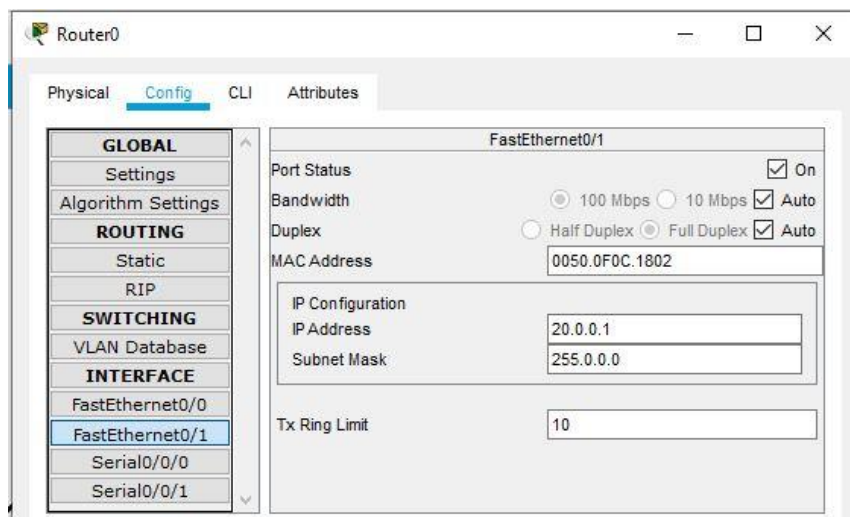
IP Configuration

IP Address 10.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

ROUTER 0 (FastEthernet0/0)



Router0

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings

**ROUTING**

- Static
- RIP

**SWITCHING**

- VLAN Database

**INTERFACE**

- FastEthernet0/0
- FastEthernet0/1**
- Serial0/0/0
- Serial0/0/1

**FastEthernet0/1**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0050.0F0C.1802

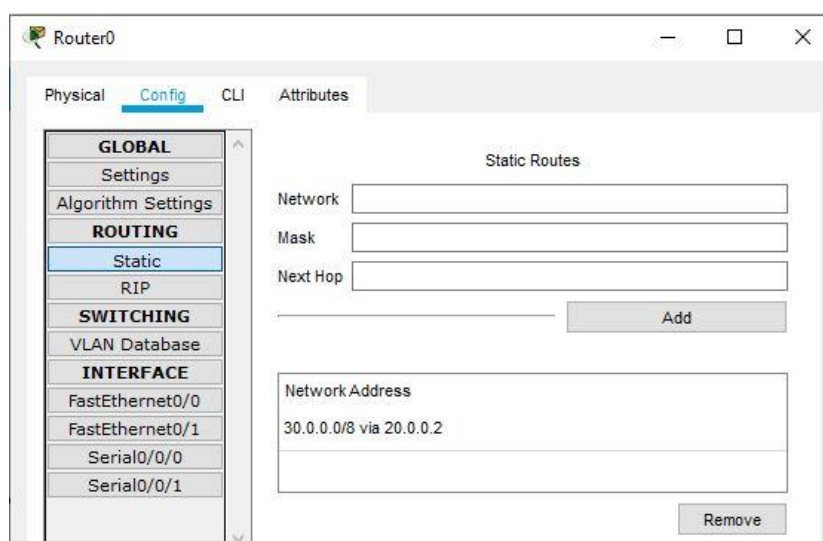
IP Configuration

IP Address 20.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10

ROUTER 0 (FastEthernet0/1)



Router0

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings

**ROUTING**

- Static**
- RIP

**SWITCHING**

- VLAN Database

**INTERFACE**

- FastEthernet0/0
- FastEthernet0/1
- Serial0/0/0
- Serial0/0/1

**Static Routes**

Network

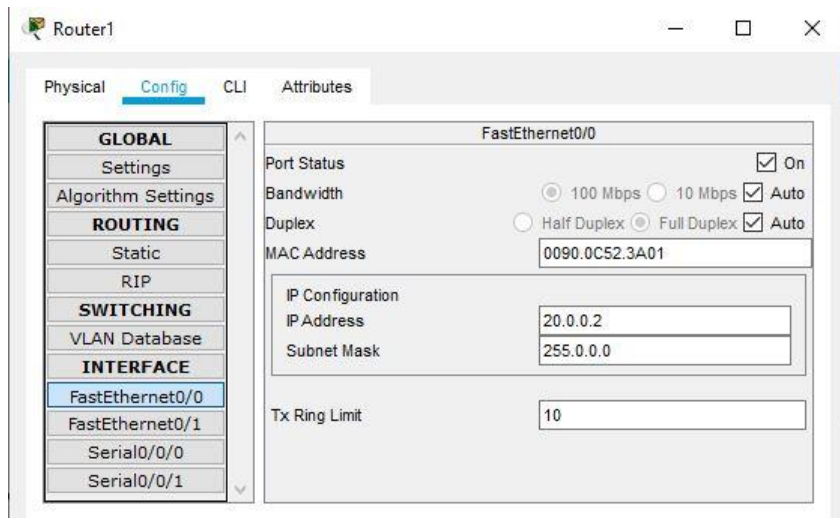
Mask

Next Hop

Network Address

30.0.0.0/8 via 20.0.0.2

ROUTER 0 (static)



Router1

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
  - Static
  - RIP
- SWITCHING**
  - VLAN Database
- INTERFACE**
  - FastEthernet0/0**
  - FastEthernet0/1
  - Serial0/0/0
  - Serial0/0/1

**FastEthernet0/0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.0C52.3A01

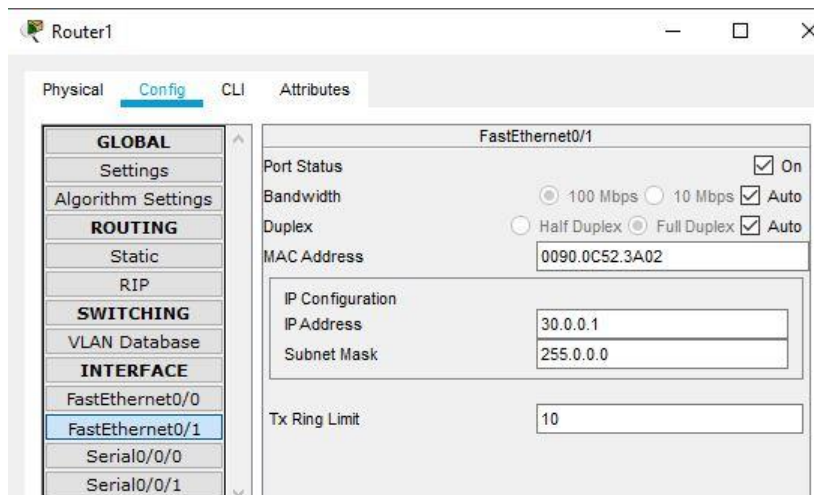
IP Configuration

IP Address 20.0.0.2

Subnet Mask 255.0.0.0

Tx Ring Limit 10

ROUTER 1 (FastEthernet0/0)



Router1

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
  - Static
  - RIP
- SWITCHING**
  - VLAN Database
- INTERFACE**
  - FastEthernet0/0
  - FastEthernet0/1**
  - Serial0/0/0
  - Serial0/0/1

**FastEthernet0/1**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.0C52.3A02

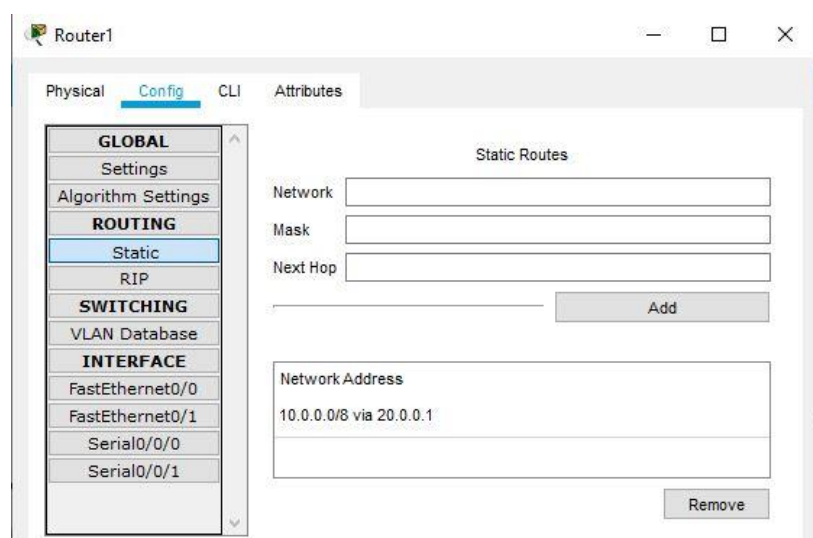
IP Configuration

IP Address 30.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10

ROUTER 1 (FastEthernet0/1)



Router1

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
  - Static**
  - RIP
- SWITCHING**
  - VLAN Database
- INTERFACE**
  - FastEthernet0/0
  - FastEthernet0/1
  - Serial0/0/0
  - Serial0/0/1

**Static Routes**

Network

Mask

Next Hop

Add

Network Address

10.0.0.0/8 via 20.0.0.1

Remove

ROUTER 1 (static)

## 1.2 Network and Routing Tables

### 1.2.1. End Systems

End System	Interface Name	IP Address	Subnet Mask	Gateway
PC0	FastEthernet0	10.0.0.1	255.0.0.0	10.0.0.3
PC1	FastEthernet0	10.0.0.2	255.0.0.0	10.0.0.3
PC2	FastEthernet0	30.0.0.2	255.0.0.0	30.0.0.1
PC3	FastEthernet0	30.0.0.3	255.0.0.0	30.0.0.1

### 1.2.2. Routers

Router	Interface Name	IP Address	Subnet Mask
Router0	FastEthernet0/0	10.0.0.3	255.0.0.0
Router0	FastEthernet0/1	20.0.0.1	255.0.0.0
Router1	FastEthernet0/0	20.0.0.2	255.0.0.0
Router1	FastEthernet0/1	30.0.0.1	255.0.0.0

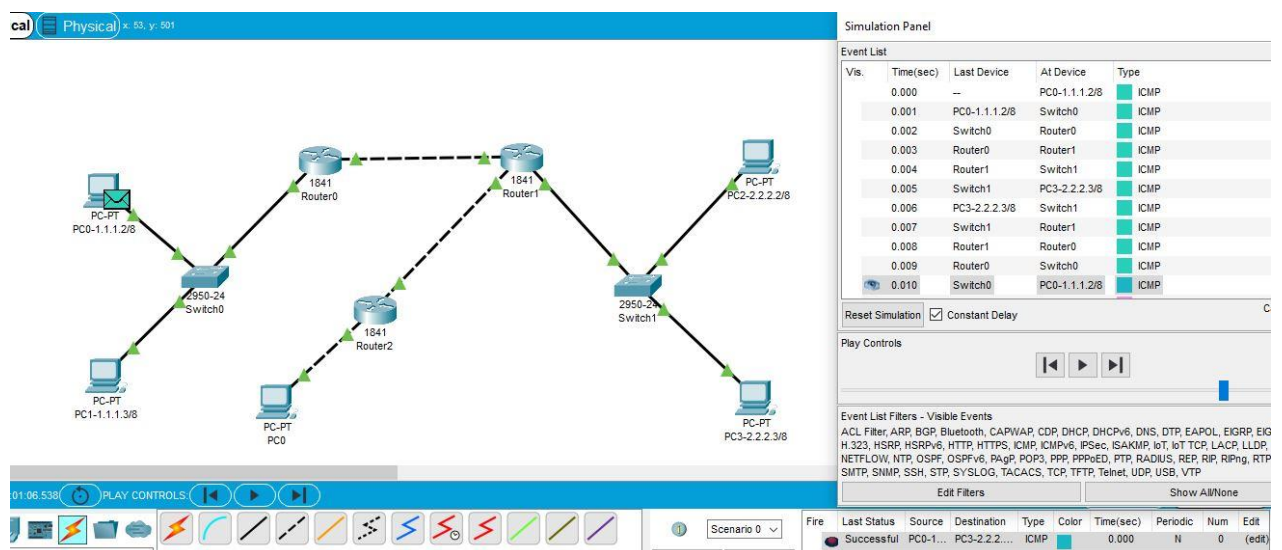
### 1.2.3. Routing Tables

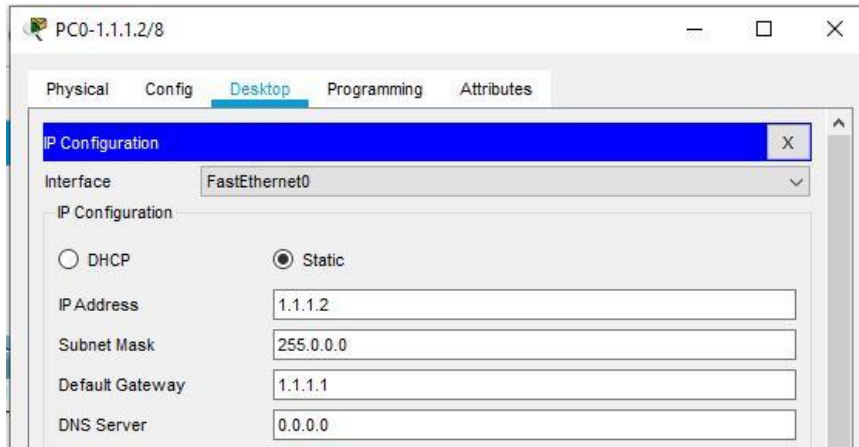
Router	Destination Network	Next Hop
Router0	30.0.0.0	20.0.0.2
Router1	10.0.0.0	20.0.0.1

## 2. Task 2

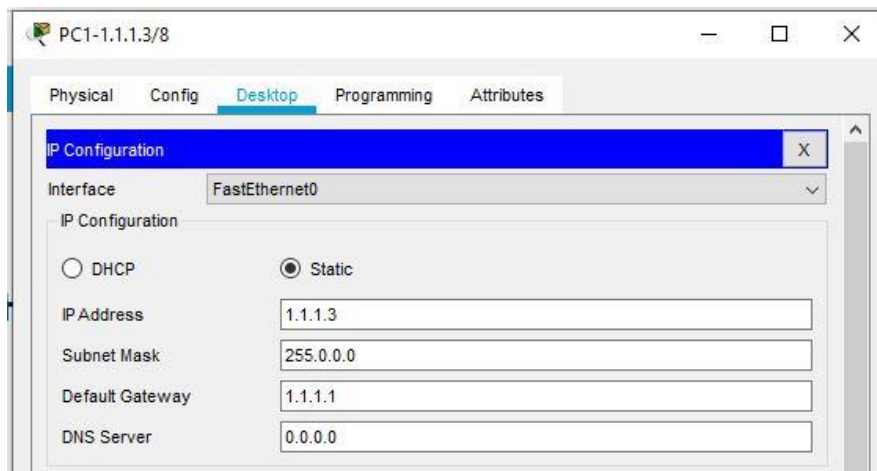
### 2.1 Configuring Topology:

The task performed above is repeated with another topology and with different networks and the routing tables are configured accordingly.

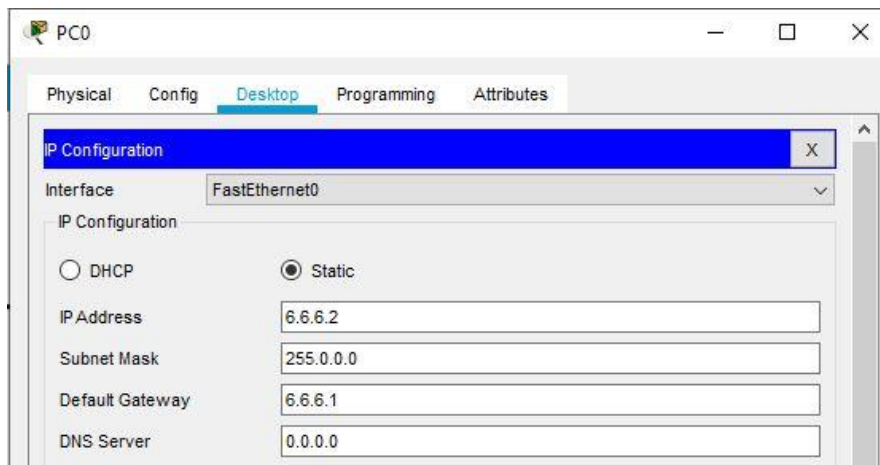




PC0 -1.1.1.2/8

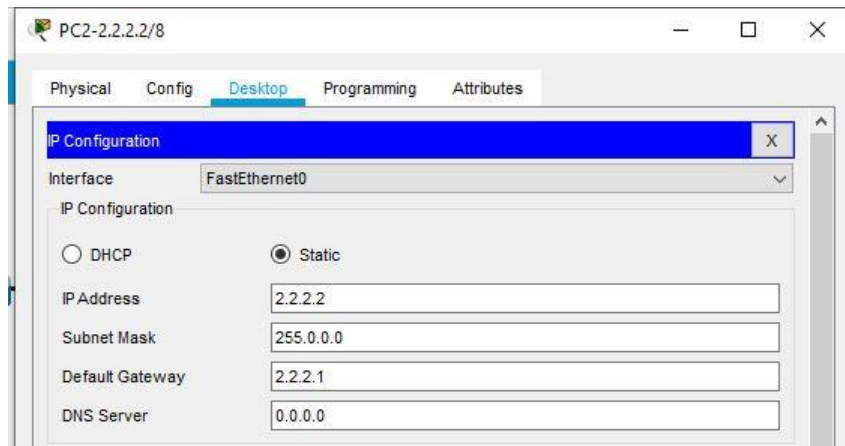


PC1 -1.1.1.3/8

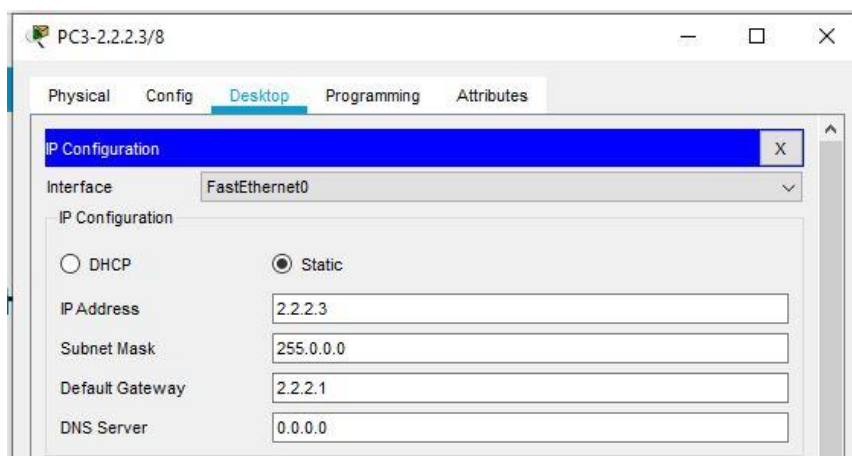


PC0

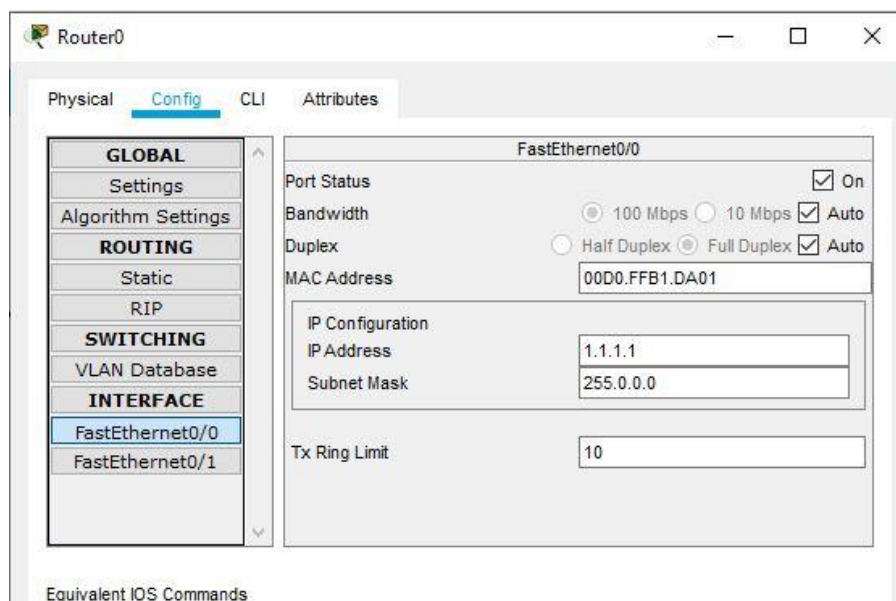




PC2 -2.2.2.2/8



PC3 -2.2.2.3/8



Router0 (FastEthernet0/0)



Router0

Physical **Config** CLI Attributes

**GLOBAL**  
Settings  
Algorithm Settings  
**ROUTING**  
Static  
RIP  
**SWITCHING**  
VLAN Database  
**INTERFACE**  
FastEthernet0/0  
**FastEthernet0/1**

**FastEthernet0/1**  
Port Status ☒ On  
Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto  
Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto  
MAC Address 00D0.FFB1.DA02  
IP Configuration  
IP Address 3.3.3.1  
Subnet Mask 255.0.0.0  
Tx Ring Limit 10

Equivalent IOS Commands

```

Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#

```

Router0 (FastEthernet0/1)

Router0

Physical **Config** CLI Attributes

**GLOBAL**  
Settings  
Algorithm Settings  
**ROUTING**  
**Static**  
RIP  
**SWITCHING**  
VLAN Database  
**INTERFACE**  
FastEthernet0/0  
FastEthernet0/1

**Static Routes**  
Network   
Mask   
Next Hop   
  

Network Address  
2.2.2.0/24 via 3.3.3.2  
5.5.5.0/24 via 3.3.3.2  
6.6.6.0/24 via 3.3.3.2

Router0 (static)

Router1

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- FastEthernet0/0
- FastEthernet0/1
- Ethernet0/0/0

**FastEthernet0/0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.218A.2901

IP Configuration

IP Address 3.3.3.2

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Router1 (FastEthernet0/0)

Router1

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- FastEthernet0/0
- FastEthernet0/1
- Ethernet0/0/0**

**Ethernet0/0/0**

Port Status ☒ On

Bandwidth ☒ 10 Mbps ☐ 100 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 000B.BEB5.4490

IP Configuration

IP Address 2.2.2.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Router1 (Ethernet0/0/0)

Router1

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
- Static**
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- FastEthernet0/0
- FastEthernet0/1
- Ethernet0/0/0

**Static Routes**

Network

Mask

Next Hop

Add

Network Address

1.1.1.0/24 via 3.3.3.1

6.6.6.0/24 via 5.5.5.1

Remove

Router1 (static)

Router2

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

**FastEthernet0/0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 00D0.FF64.0901

IP Configuration

IP Address 5.5.5.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Router2 (FastEthernet0/0)

Router2

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

**FastEthernet0/1**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 00D0.FF64.0902

IP Configuration

IP Address 6.6.6.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Router2 (FastEthernet0/1)

Router2

Physical **Config** CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

**Static Routes**

Network

Mask

Next Hop

Add

Network Address

3.3.3.0/24 via 5.5.5.2

1.1.1.0/24 via 5.5.5.2

2.2.2.0/24 via 5.5.5.2

Remove

Router2 (static)

## 2.2 Configuring Network and Routing Tables

### 2.2.1 End Systems

End System	Interface Name	IP Address	Subnet Mask	Gateway
PC0 -1.1.1.2/8	FastEthernet0	1.1.1.2	255.0.0.0	1.1.1.1
PC1 -1.1.1.3/8	FastEthernet0	1.1.1.3	255.0.0.0	1.1.1.1
PC0	FastEthernet0	6.6.6.2	255.0.0.0	6.6.6.1
PC2 -2.2.2.2/8	FastEthernet0	2.2.2.2	255.0.0.0	2.2.2.1
PC3 -2.2.2.3/8	FastEthernet0	2.2.2.3	255.0.0.0	2.2.2.1

### 2.2.2 Routers

Router	Interface Name	IP Address	Subnet Mask
Router0	FastEthernet0/0	1.1.1.1	255.0.0.0
Router0	FastEthernet0/1	3.3.3.1	255.0.0.0
Router1	FastEthernet0/0	3.3.3.2	255.0.0.0
Router1	FastEthernet0/1	5.5.5.2	255.0.0.0
Router1	Ethernet0/0/0	2.2.2.1	255.0.0.0
Router2	FastEthernet0/0	5.5.5.1	255.255.255.0
Router2	FastEthernet0/1	6.6.6.1	255.255.255.0

### 2.2.3 Routing Table

Router	Destination Network	Next Hop
Router0	2.2.2.0	3.3.3.2
Router0	5.5.5.0	3.3.3.2
Router0	6.6.6.0	3.3.3.2
Router1	1.1.1.0	3.3.3.1
Router1	6.6.6.0	5.5.5.1
Router2	3.3.3.0	5.5.5.2
Router2	1.1.1.0	5.5.5.2
Router2	2.2.2.0	5.5.5.2