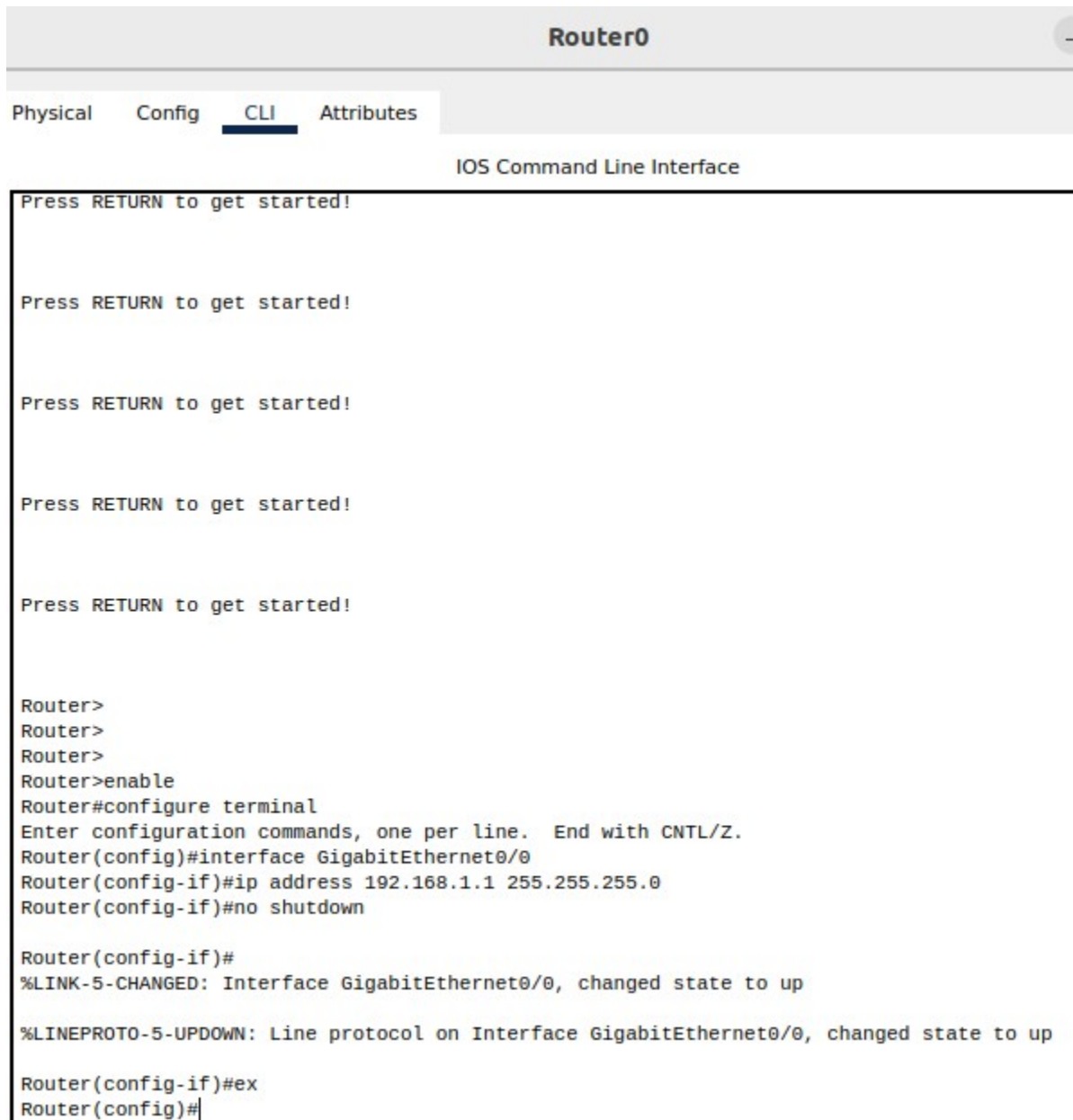


TASK 1:

On the router, configure interface fa0/0 to act as the default gateway for our LAN.



```
Router0
Physical  Config  CLI  Attributes
IOS Command Line Interface
Press RETURN to get started!

Press RETURN to get started!

Press RETURN to get started!

Press RETURN to get started!

Press RETURN to get started!

Router>
Router>
Router>
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
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)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

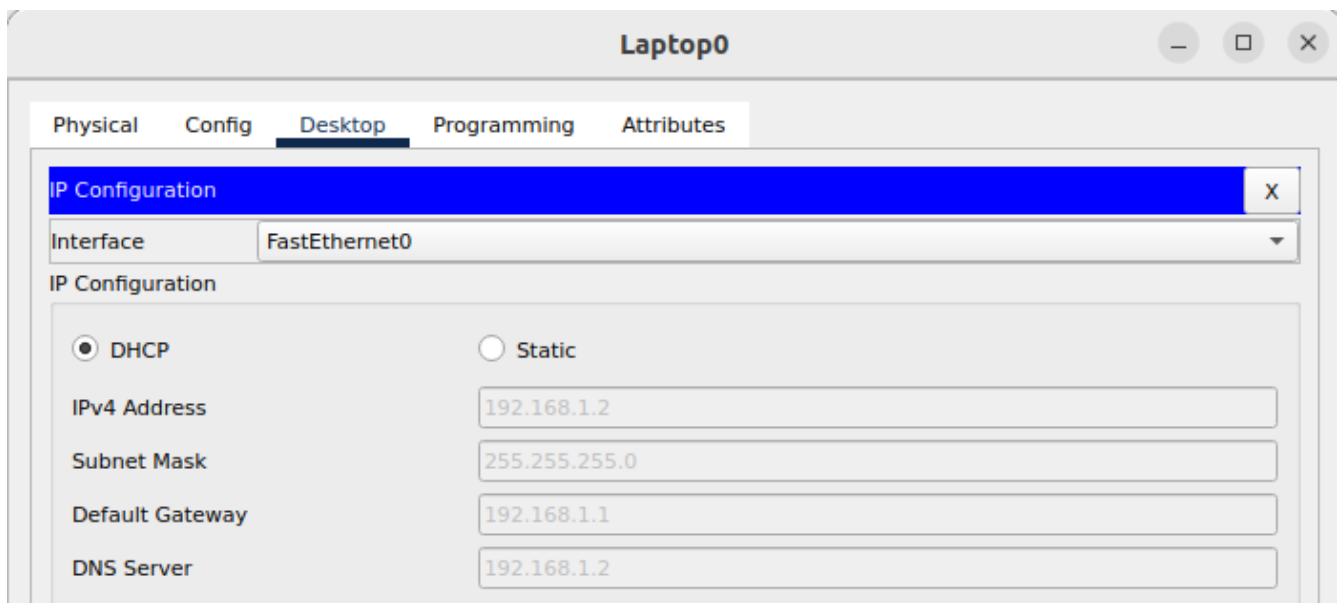
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#ex
Router(config)#|
```

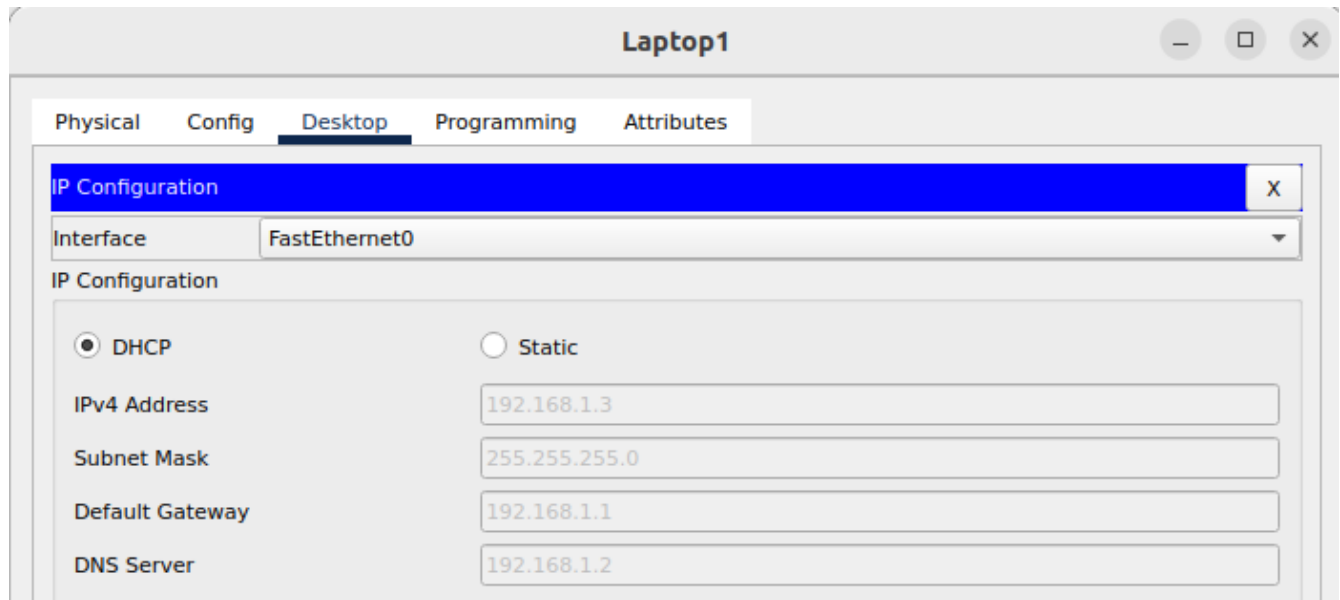
Configure DHCP server on the Router. In the server we will define a DHCP pool of IP addresses to be assigned to hosts, a Default gateway for the LAN and a DNS Server.

```
Router(config-if)#ex
Router(config)#
Router(config)#
Router(config)#ip dhcp pool p1
Router(dhcp-config)#network 192.168.1.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#dns-server 192.168.1.2
Router(dhcp-config)#ex
Router(config)#
```

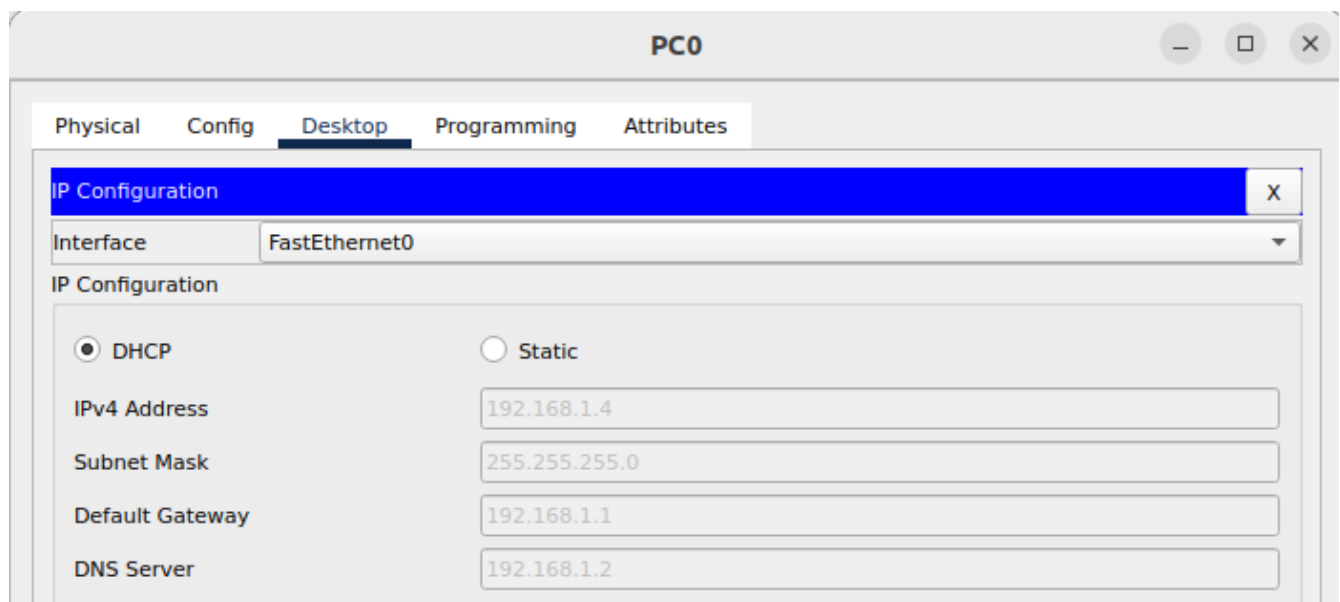
Laptop0->Desktop->IP configuration. Then enable DHCP:







Laptop1->Desktop->IP configuration. Then enable DHCP:



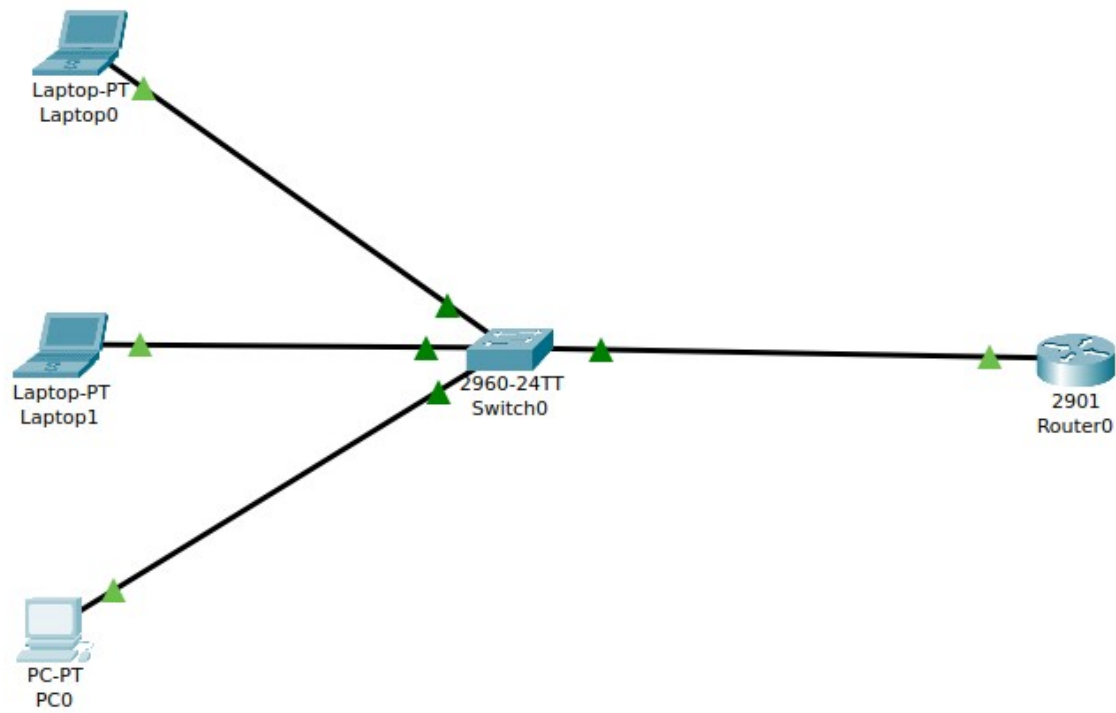
PC0->Desktop->IP configuration. Then enable DHCP:



Successful communication

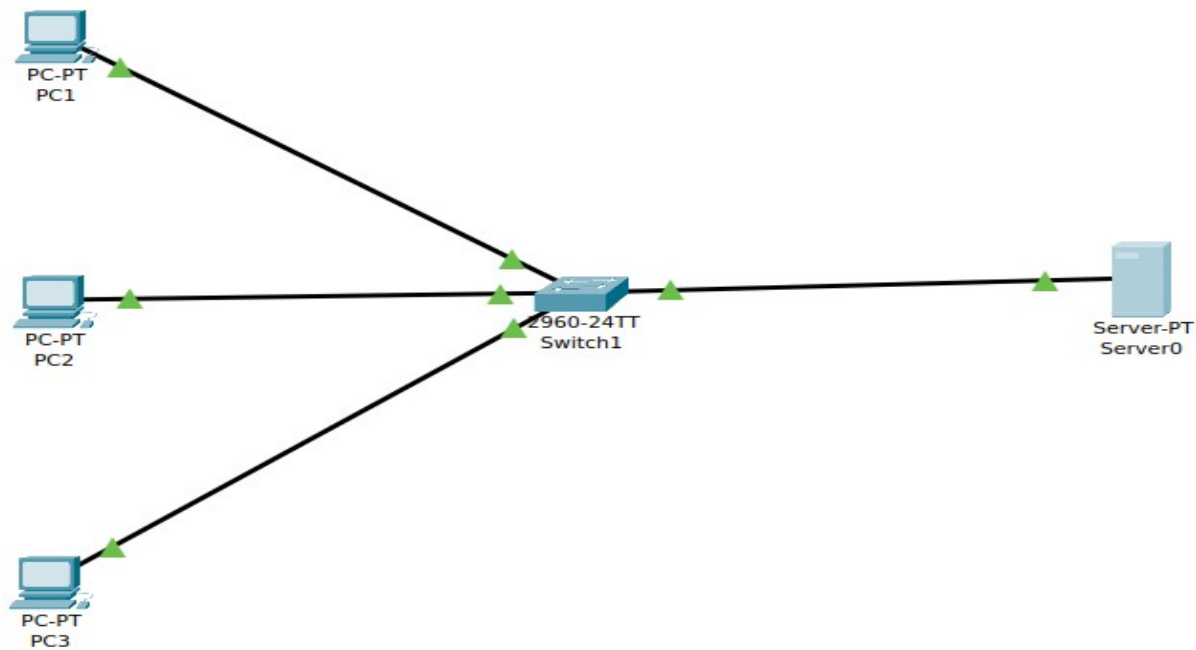
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	Lapt...	Laptop1	IC...		0.000	N	0	(e...	(delete)
	Successful	Lapt...	PC0	IC...		0.000	N	1	(e...	(delete)

Network Topology



TASK 2:

Configuring DHCP server on a Generic server
Network Topology



Server0

Physical Config **Services** Desktop Programming Attributes

SERVICES

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

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool1

Default Gateway: 192.168.1.1

DNS Server: 192.168.1.3

Start IP Address: 192 168 1 11

Subnet Mask: 255 255 255 0

Maximum Number of Users: 245

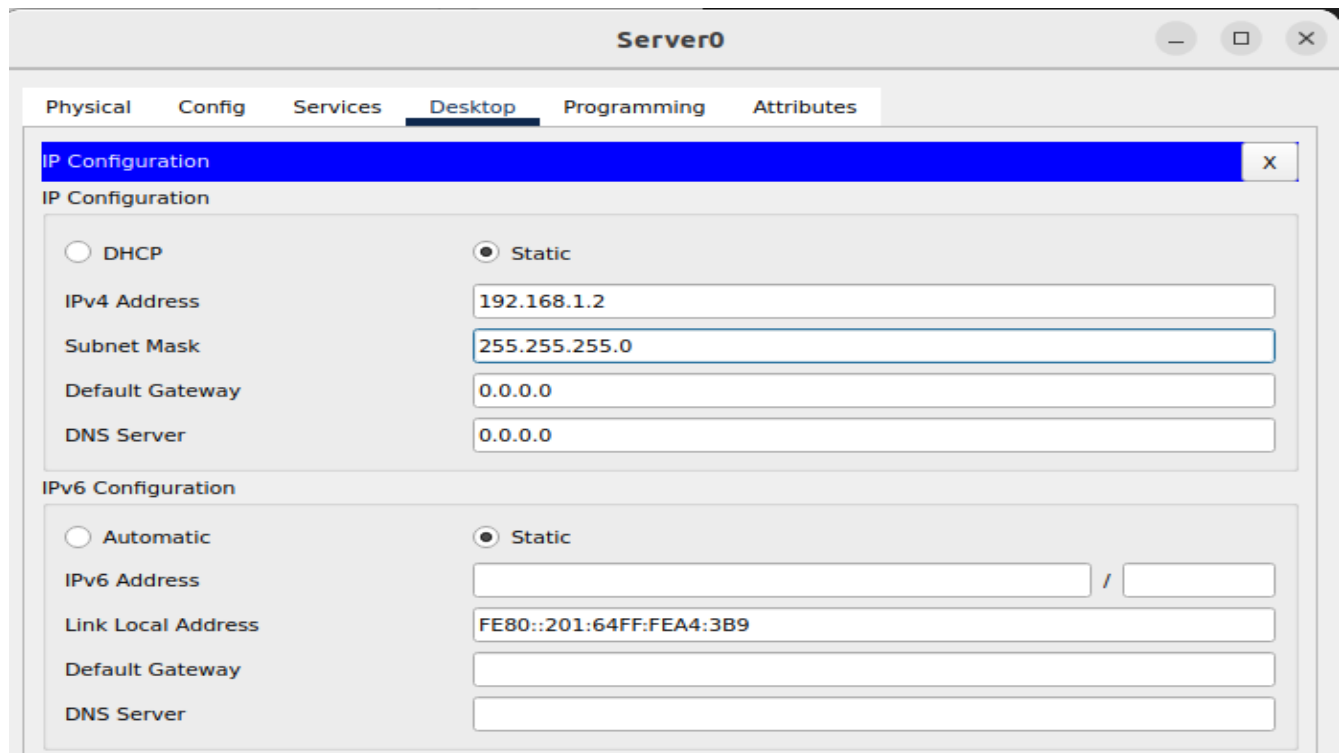
TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool1	192.16...	192.16...	192.16...	255.25...	245	0.0.0.0	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	512	0.0.0.0	0.0.0.0

Assign the Ip Address to DHCP

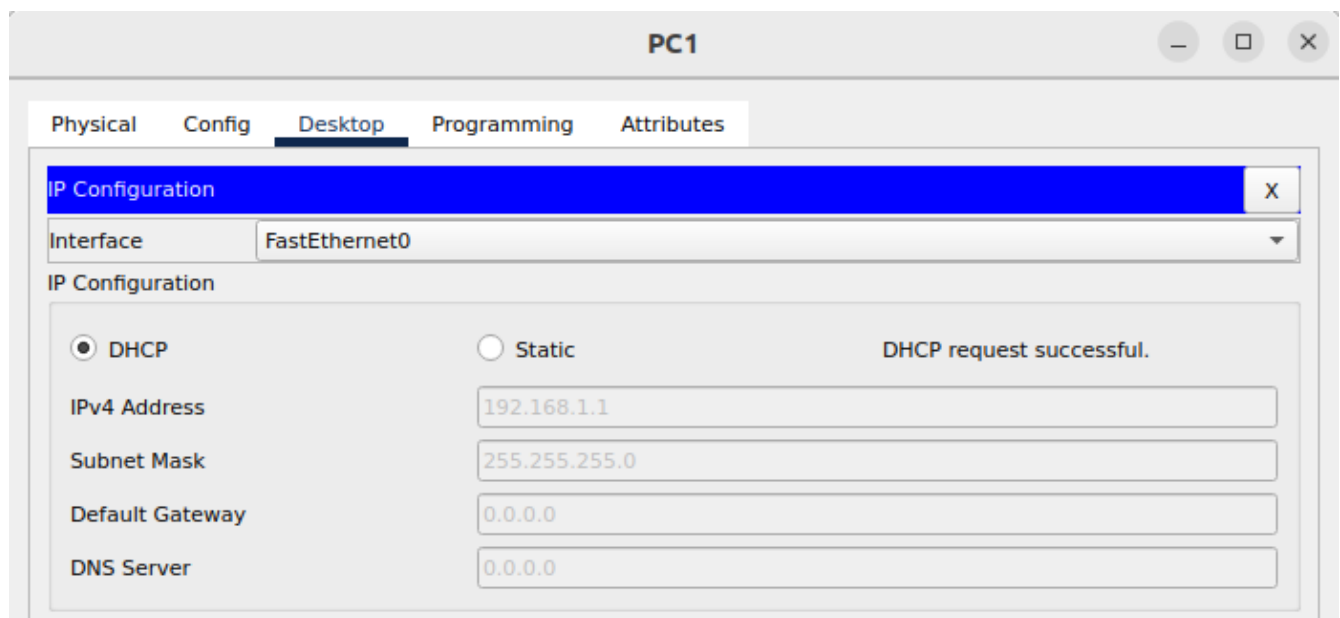


The screenshot shows the 'Server0' window with the 'Desktop' tab selected. The 'IP Configuration' window is open, showing the 'Static' radio button selected for IPv4. The IPv4 Address is 192.168.1.2, Subnet Mask is 255.255.255.0, Default Gateway is 0.0.0.0, and DNS Server is 0.0.0.0. The IPv6 Configuration section shows the 'Static' radio button selected, with a Link Local Address of FE80::201:64FF:FEA4:3B9.

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.1.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::201:64FF:FEA4:3B9
Default Gateway	
DNS Server	

PC1: Click PC1->Desktop->IP configuration. Then enable DHCP:

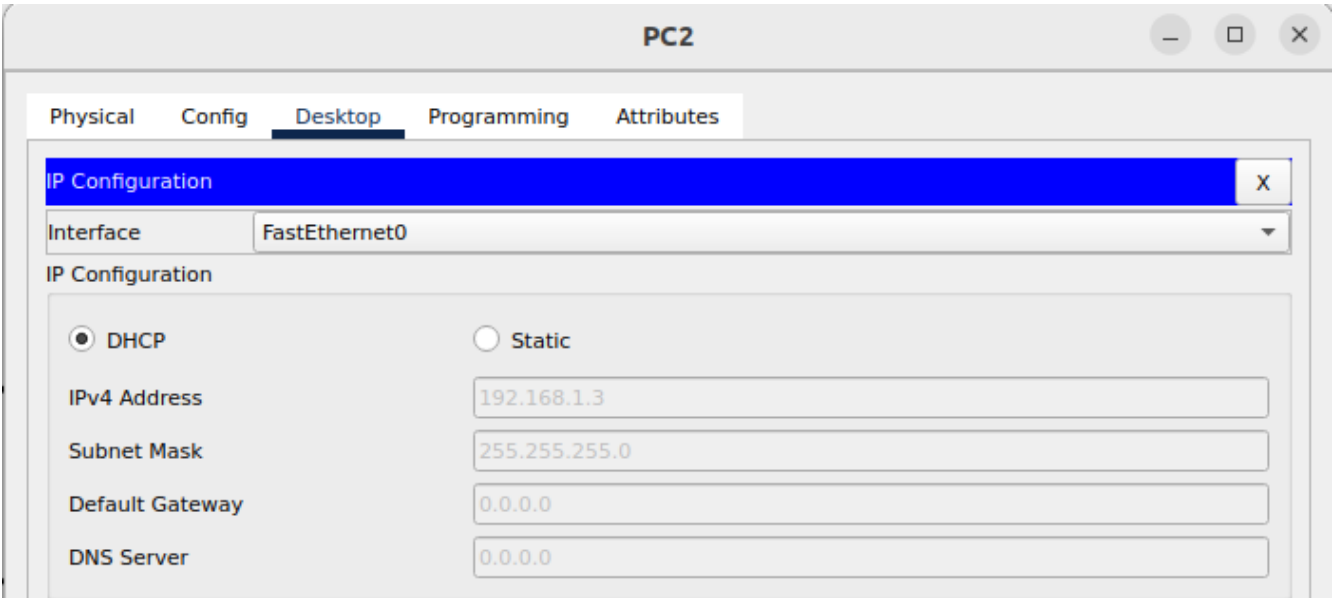


The screenshot shows the 'PC1' window with the 'Desktop' tab selected. The 'IP Configuration' window is open, showing the 'DHCP' radio button selected for IPv4. The IPv4 Address is 192.168.1.1, Subnet Mask is 255.255.255.0, Default Gateway is 0.0.0.0, and DNS Server is 0.0.0.0. The message 'DHCP request successful.' is displayed.



IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

DHCP request successful.

PC2: Click PC2->Desktop->IP configuration. Then enable DHCP:



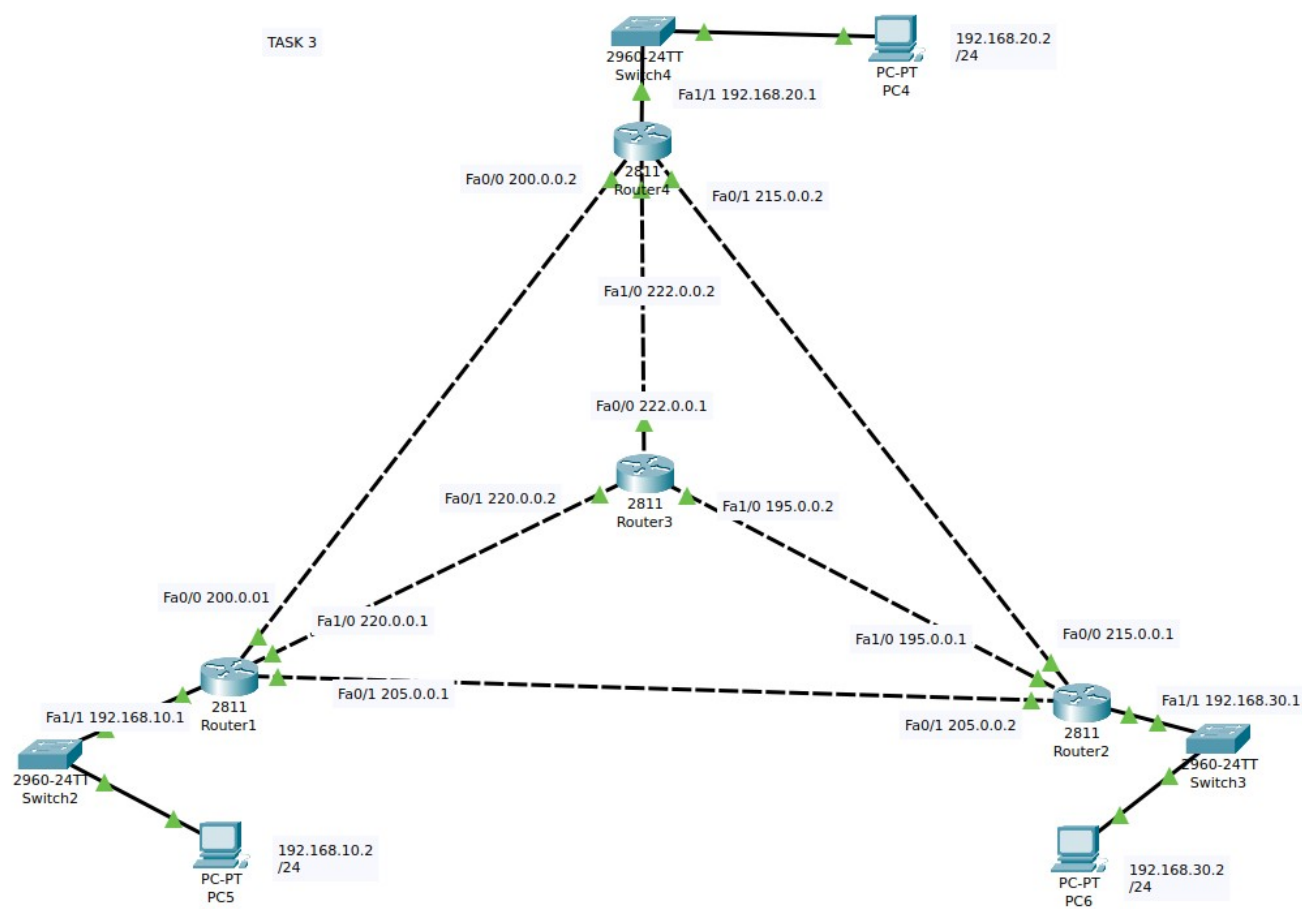
Successful communication

Successful	PC1	PC2	IC...		0.000	N	2	(e...	(delete)
Successful	PC1	PC3	IC...		0.000	N	3	(e...	(delete)

TASK 3:

Configure static path and centralized DHCP server

Network Topology



Successful communication

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC4	PC5	IC...		0.000	N	0	(e...	(delete)
	Successful	PC4	PC6	IC...		0.000	N	1	(e...	(delete)
	Successful	PC5	PC6	IC...		0.000	N	2	(e...	(delete)
	Successful	PC5	PC4	IC...		0.000	N	3	(e...	(delete)
	Successful	PC6	PC4	IC...		0.000	N	4	(e...	(delete)

Configure Static Routes

Router 1

Network Address
192.168.20.0/24 via 200.0.0.2
192.168.30.0/24 via 205.0.0.2

Router 2

Network Address
192.168.10.0/24 via 205.0.0.1
192.168.20.0/24 via 215.0.0.2

Router 3

Network Address
192.168.20.0/24 via 222.0.0.2
192.168.10.0/24 via 220.0.0.1
192.168.30.0/24 via 195.0.0.1

Router 4

Network Address
192.168.30.0/24 via 215.0.0.1
192.168.10.0/24 via 192.168.1.1

Centralized DHCP server

Router 1

```
Router(config)#interface FastEthernet1/1
Router(config-if)#ip add 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
Router(config)#ip dhcp pool haq1
Router(dhcp-config)#network 192.168.10.2 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#dns-server 192.168.1.10
Router(dhcp-config)#dns-server 192.168.10.1
Router(dhcp-config)#sh ip int br
Router(dhcp-config)#^
% Invalid input detected at '^' marker.

Router(dhcp-config)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#sh ip int br
Interface                IP-Address      OK? Method Status        Protocol
FastEthernet0/0          192.168.1.1     YES manual up            up
FastEthernet0/1          205.0.0.1       YES manual up            up
FastEthernet1/0          220.0.0.1       YES manual up            up
FastEthernet1/1          192.168.10.1    YES manual up            up
Vlan1                    unassigned      YES unset  administratively down down
Router#
Router#configure terminal
```

PC5

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.10.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 192.168.10.1

Router 2

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet1/1
      ^
% Invalid input detected at '^' marker.

Router(config)#interface FastEthernet1/1
Router(config-if)#ip add 192.168.30.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#ip dhcp pool haq2
Router(dhcp-config)#network 192.168.30.2 255.255.255.0
Router(dhcp-config)#default-router 192.168.2.1
Router(dhcp-config)#dns-server 192.168.30.1
Router(dhcp-config)#end
Router#
%SYS-5-CONFIG-I: Configured from console by console

Router#sh ip int br
Interface                IP-Address      OK? Method Status              Protocol
FastEthernet0/0          215.0.0.1       YES manual up                  up
FastEthernet0/1          205.0.0.2       YES manual up                  up
FastEthernet1/0          195.0.0.1       YES manual up                  up
FastEthernet1/1          192.168.30.1    YES manual up                  up
Vlan1                    unassigned      YES unset  administratively down down
Router#
```

PC6

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.30.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.2.1

DNS Server 192.168.30.1

Router 3

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet1/1
Router(config-if)#ip add 192.168.20.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
Router(config)#ip dhcp pool haq3
Router(dhcp-config)#network 192.168.20.2 255.255.255.0
Router(dhcp-config)#default-router 192.168.3.1
Router(dhcp-config)#dns-server 192.168.20.1
Router(dhcp-config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#sh ip int br
Interface                IP-Address      OK? Method Status        Protocol
FastEthernet0/0          200.0.0.2       YES manual up            up
FastEthernet0/1          215.0.0.2       YES manual up            up
FastEthernet1/0          222.0.0.2       YES manual up            up
FastEthernet1/1          192.168.20.1    YES manual up            up
Vlan1                    unassigned      YES unset  administratively down down
Router#
```

PC4

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.20.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.3.1

DNS Server 192.168.20.1