

**PRACTICAL BOOK**  
**MSC CS (PART II) SEMESTER - III**  
**2022-23**

**SUBJECT**

**Wireless Networking**  
**SUBMITTED BY**

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**Seat No. CS21019**

Submitted in partial fulfilment of the requirement for  
Qualifying

M.Sc. CS Part II Semester III Examination  
2022-23

University of Mumbai  
Department of Computer Science  
R.D & S.H National & W.A Science College  
Linking Road, Bandra (w), Mumbai-50

# Wireless Networking

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# R. D. National & W. A. Science College

Bandra (W), Mumbai – 4000 50

Department of Computer Science  
M.Sc. (CS)

## Certificate

This is to certify that **Raeen Samreen bano** of **M.Sc Part II(Sem III)** class has satisfactorily completed **8** Practical in the subject of **Wireless Networking** as a part of M.Sc. Degree Course in Computer Science during the academic year 2022 – 2023.

Lecturer In charge

External Examiner

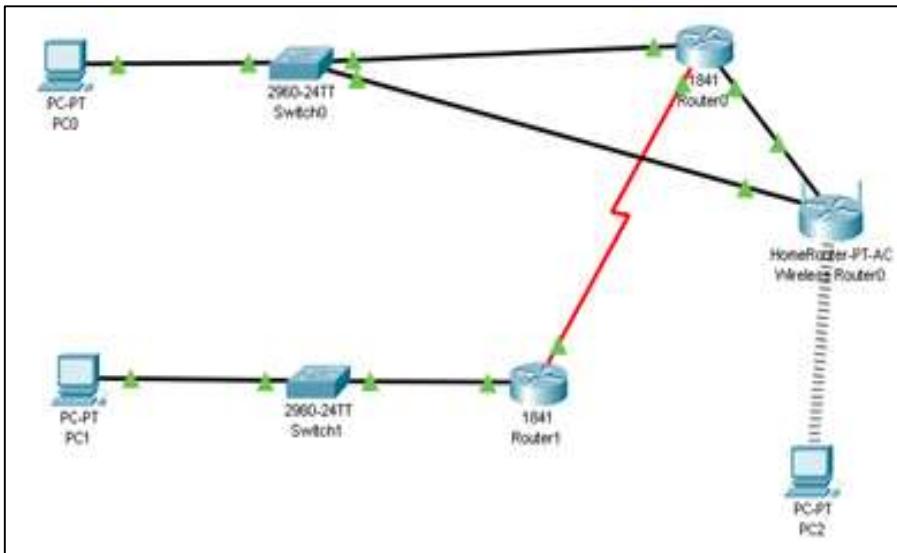
Head of  
Department

College Stamp

# Practical 1

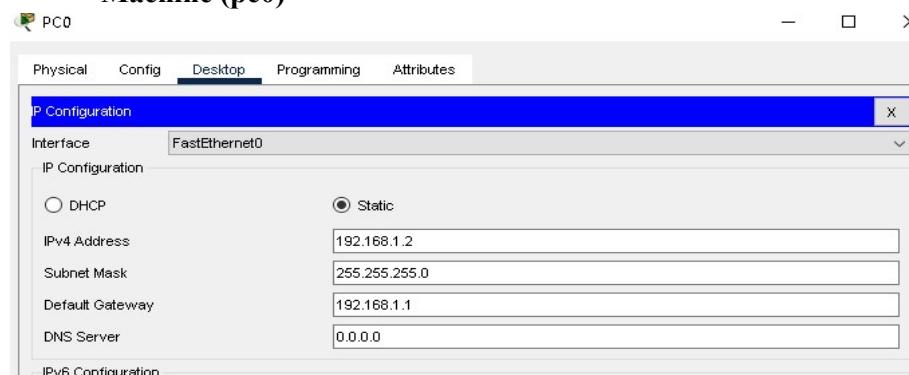
Aim: Configuring WEP on a wireless Router

- Diagram:



- Device:
- 3 Machine
- 2 switch (2960-24TT)
- 2 Router
- 1 Wirless homeRouter-pt-ac

- Machine (pc0)



- Machine (pc1)

PC1

Physical Config Desktop Programming Attributes

P Configuration

Interface FastEthernet0

IP Configuration

DHCP  Static

IPv4 Address 192.168.2.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.2.1

DNS Server 0.0.0.0

IPv6 Configuration

- Router 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

FastEthernet0/0

Port Status  On  100 Mbps  10 Mbps  Auto  Half Duplex  Full Duplex  Auto

MAC Address 000A.414D.A401

IP Configuration

IPv4 Address 192.168.1.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

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  100 Mbps  10 Mbps  Auto  Half Duplex  Full Duplex  Auto

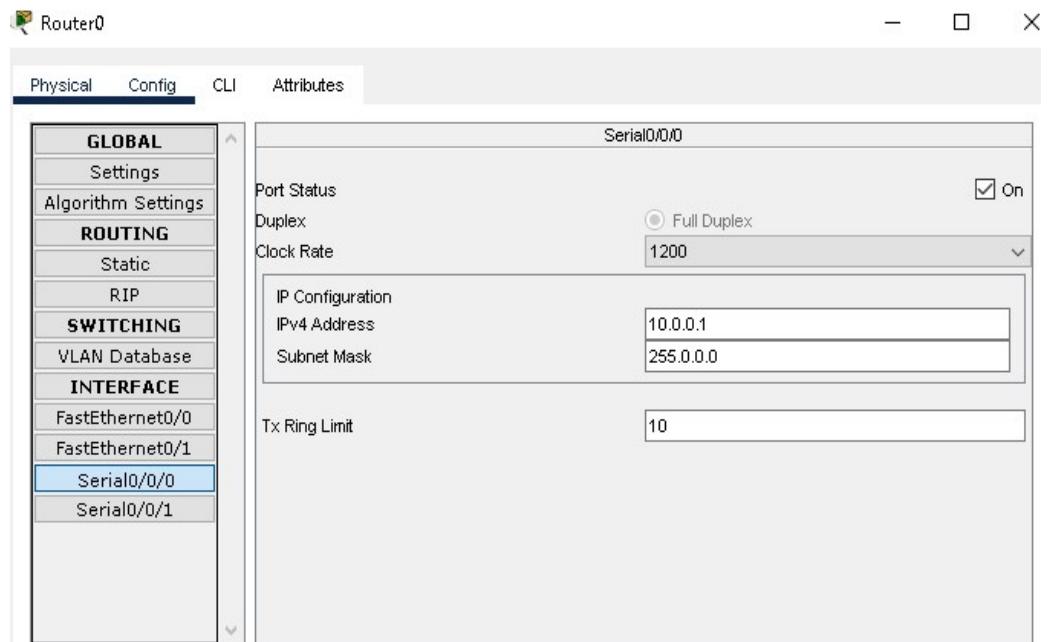
MAC Address 000A.414D.A402

IP Configuration

IPv4 Address 20.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10



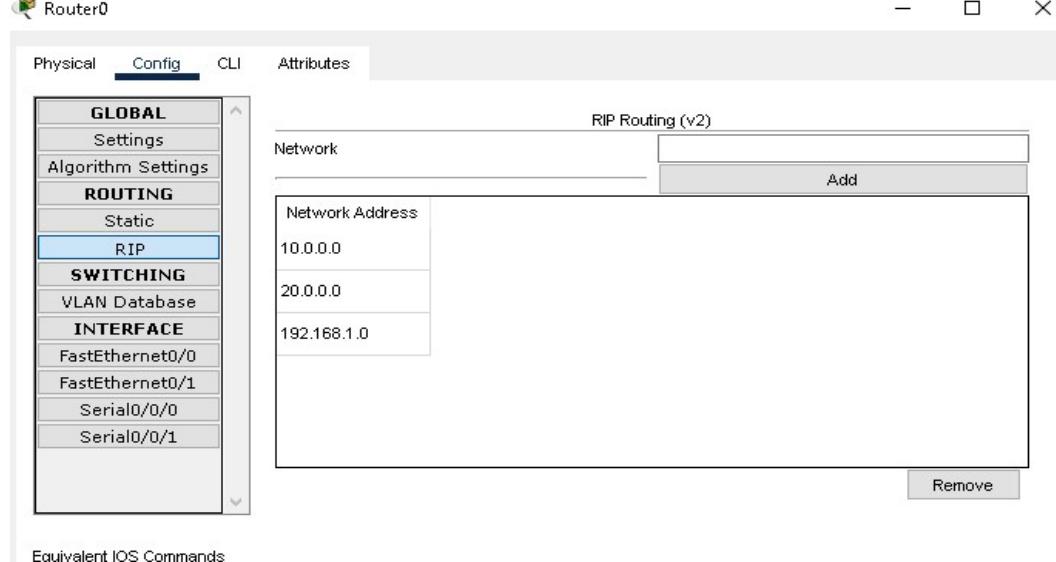
Go to config → rip → cli → type version 2

```

Press RETURN to get started!

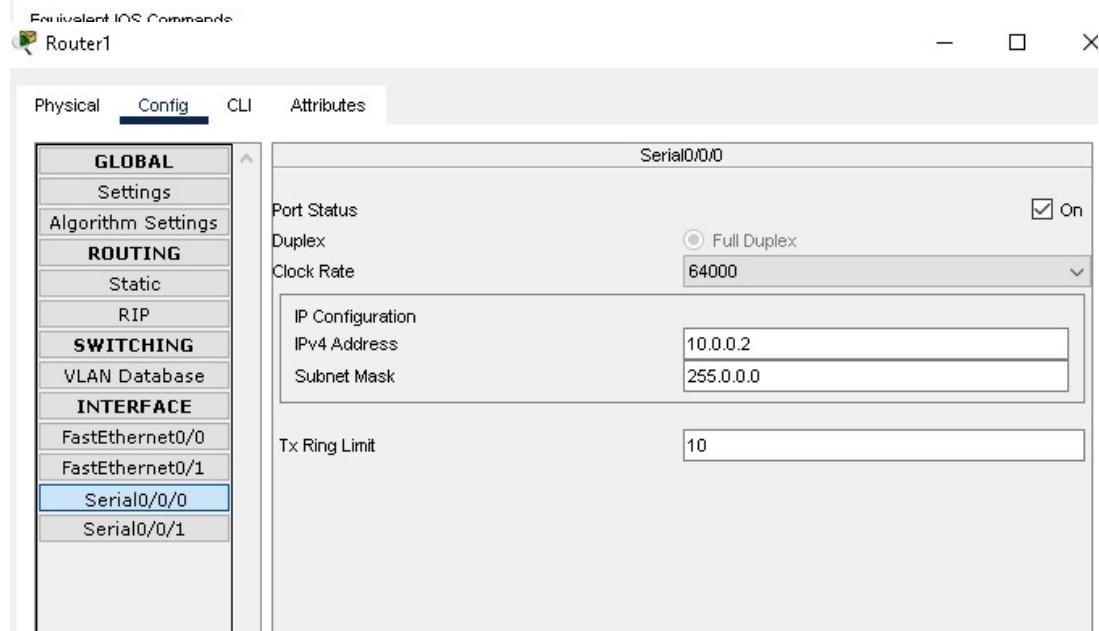
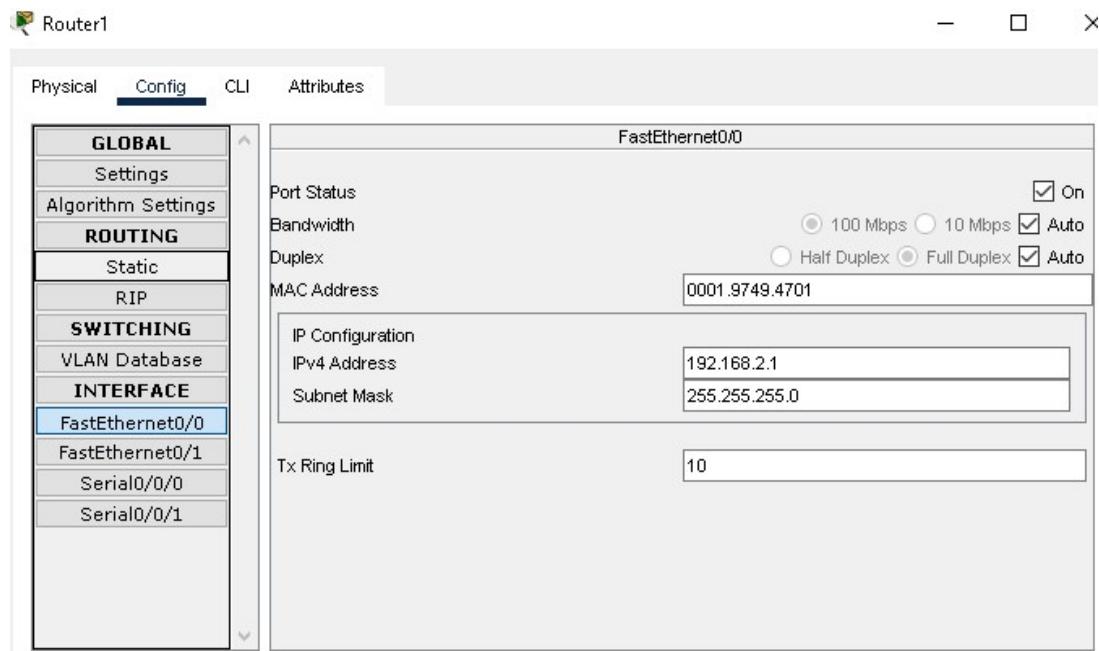
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#version 2]

```



Equivalent IOS Commands

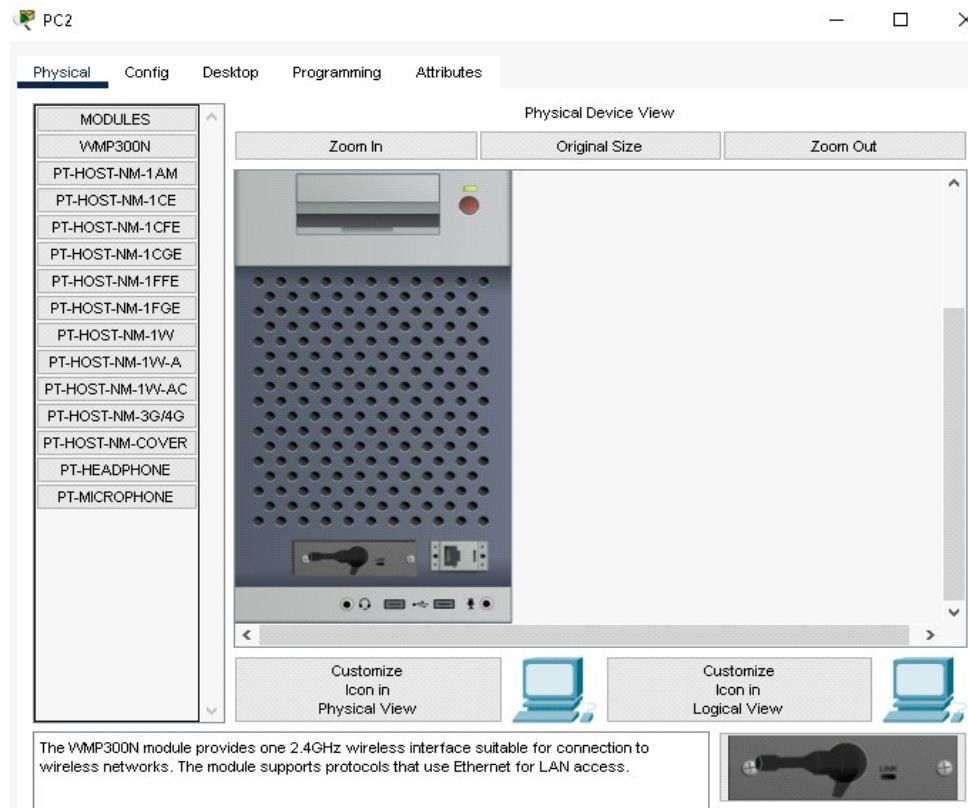
- Router 1



Equivalent IOS Commands



- Machine (pc2)



PC2

Physical	Config	Desktop	Programming	Attributes
<b>IP Configuration</b>				
Interface	VWireless0			
IP Configuration				
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static			
IPv4 Address	192.168.1.3			
Subnet Mask	255.255.255.0			
Default Gateway	192.168.1.1			
DNS Server	0.0.0.0			
IPv6 Configuration				
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static			
IPv6 Address				
Link Local Address	FE80::202:4AFF:FE75:33EE			
Default Gateway				
DNS Server				

PC2

Physical	Config	Desktop	Programming	Attributes
<b>GLOBAL</b> Settings Algorithm Settings <b>INTERFACE</b> <input checked="" type="radio"/> Wireless0 Bluetooth				
Wireless0				
Port Status <input checked="" type="checkbox"/> On Bandwidth 300 Mbps MAC Address 0002.4A75.33EE SSID Default				
Authentication <input type="radio"/> Disabled <input type="radio"/> WPA-PSK <input type="radio"/> WPA <input type="radio"/> 802.1X <input checked="" type="radio"/> WEP <input type="radio"/> WPA2-PSK <input type="radio"/> WPA2 Method: MD5 User Name Password				
WEP Key 2a2a2a2a2a PSK Pass Phrase User ID Password Encryption Type 40/64-Bits (10 Hex digits)				
IP Configuration <input type="radio"/> DHCP <input checked="" type="radio"/> Static IPv4 Address 192.168.1.3 Subnet Mask 255.255.255.0				
IPv6 Configuration <input type="radio"/> Automatic <input checked="" type="radio"/> Static IPv6 Address Link Local Address: FE80::202:4AFF:FE75:33EE				

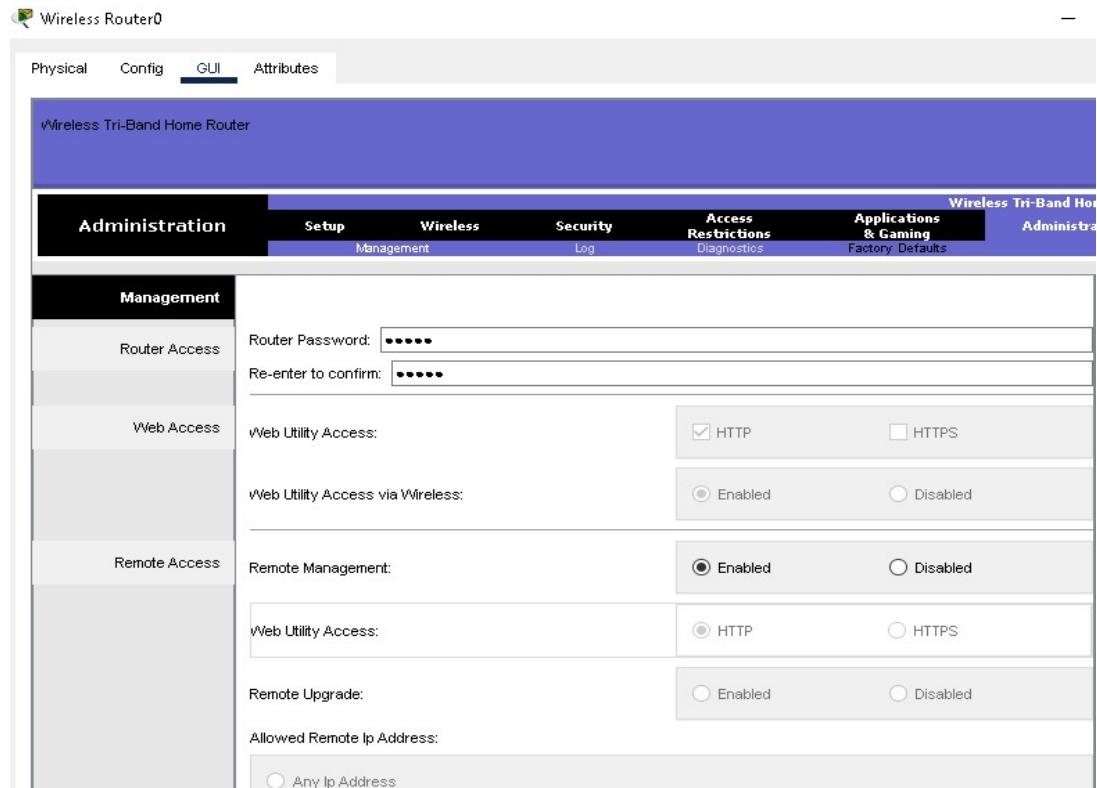
- HomeRouter(wireless router 0)

Wireless Router0

Physical	Config	GUI	Attributes
vWireless Tri-Band Home Router			
<b>Setup</b> <b>Wireless</b> <b>Security</b> <b>Access Restrictions</b> <b>Applications &amp; Gaming</b> <b>Administration</b>			
Basic Setup      DDNS      MAC Address Clone      Advanced Router			
<b>Internet Setup</b>			
Internet Connection type: Automatic Configuration - DHCP			
Host Name: <input type="text"/> Domain Name: <input type="text"/> MTU: <input type="text"/> Size: 1500			
<b>Network Setup</b>			
Router IP: IP Address: 192.168.1.1 Subnet Mask: 255.255.255.0			
DHCP Server Settings: Enabled (radio button selected) Disabled (radio button)			
Start IP Address: 192.168.1.100 Maximum number of Users: 50			

Wireless Router0

Physical	Config	GUI	Attributes
vWireless Tri-Band Home Router			
<b>Wireless</b> <b>Setup</b> <b>Wireless</b> <b>Security</b> <b>Access Restrictions</b> <b>Applications &amp; Gaming</b> <b>Administration</b>			
Basic Wireless Settings      Wireless Security      Guest Network      Wireless MAC Filter			
<b>Wireless Security</b>			
<b>2.4 GHz</b>			
Security Mode: WEP 40/64-Bits (10 Hex digits): <input type="text"/> Encryption: Passphrase: <input type="text"/> Generate			
Key1: 2a2a2a2a Key2: Key3: Key4: TX Key: 1			
<b>5 GHz - 1</b>			
Security Mode: Disabled			
<b>5 GHz - 2</b>			



- Output:**

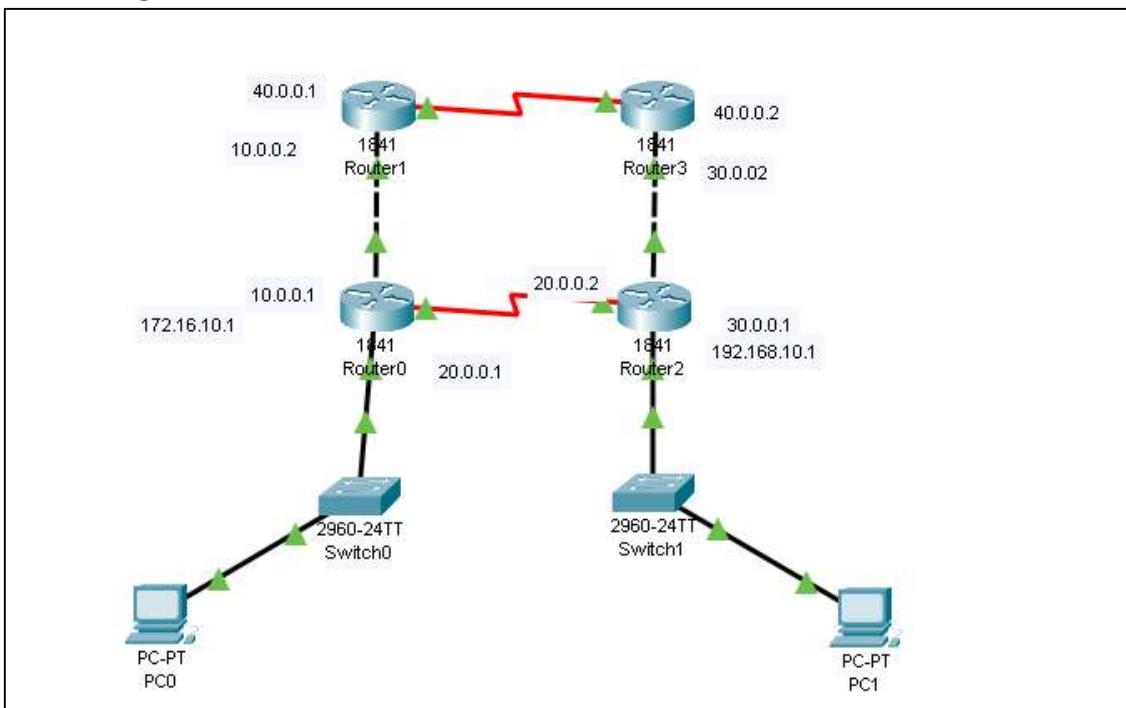
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
●	Successful	PC0	Router0	ICMP	<span style="background-color: #800000;">█</span>	0.000	N	0	(edi)
●	Successful	PC1	Router1	ICMP	<span style="background-color: #008000;">█</span>	0.000	N	1	(edi)
●	Successful	PC2	Wireless R...	ICMP	<span style="background-color: #00FFFF;">█</span>	0.000	N	2	(edi)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
●	Successful	PC2	Wireless R...	ICMP	<span style="background-color: #00FFFF;">█</span>	0.000	N	2	(edi)
●	Successful	Router1	Router0	ICMP	<span style="background-color: #00008B;">█</span>	0.000	N	3	(edi)
●	Successful	PC0	PC1	ICMP	<span style="background-color: #B8A02B;">█</span>	0.000	N	4	(edi)

# Practical 2

## Aim: Demonstrating Distribution Layer Function

- Diagram:



- Device:

Machine (2)

Switch 2960-24TT (2)

Router 1841 (4)

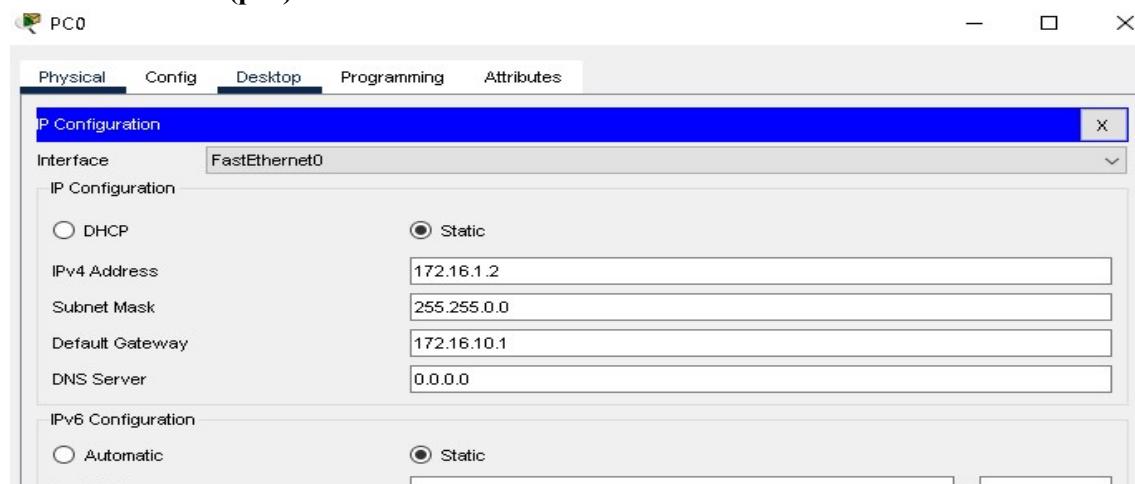
- Wire used :

Copper straight wire

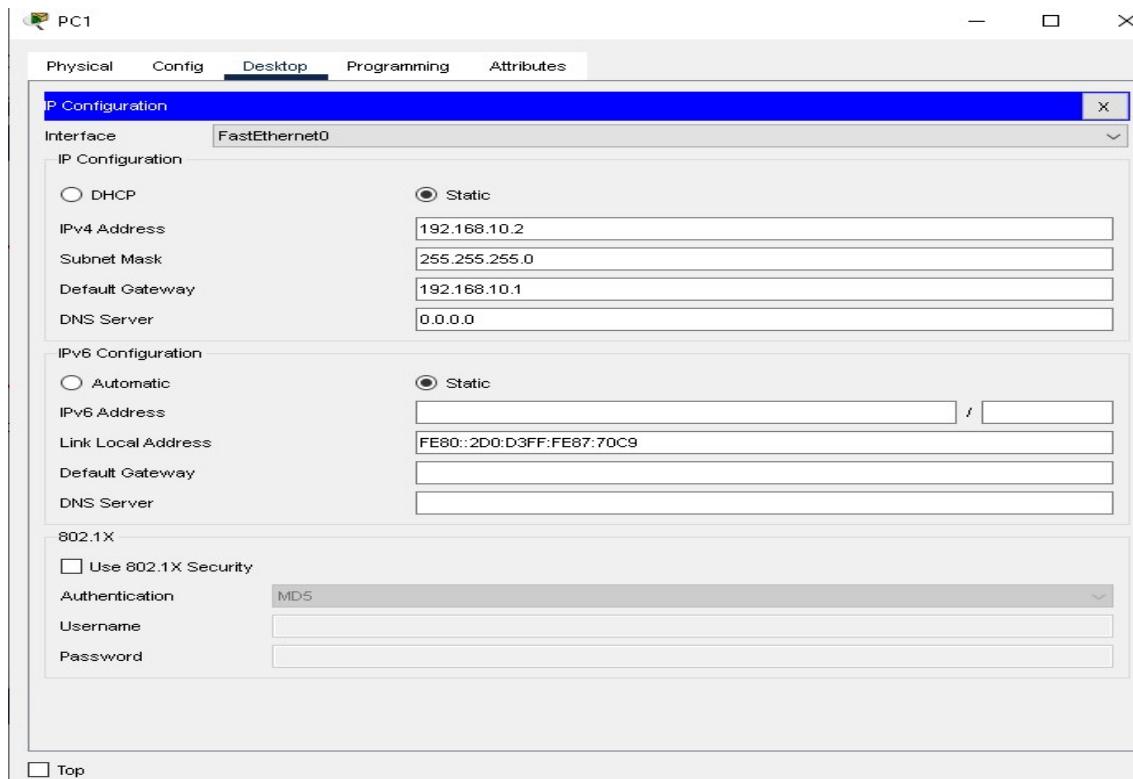
Serial DCE

Copper cross over

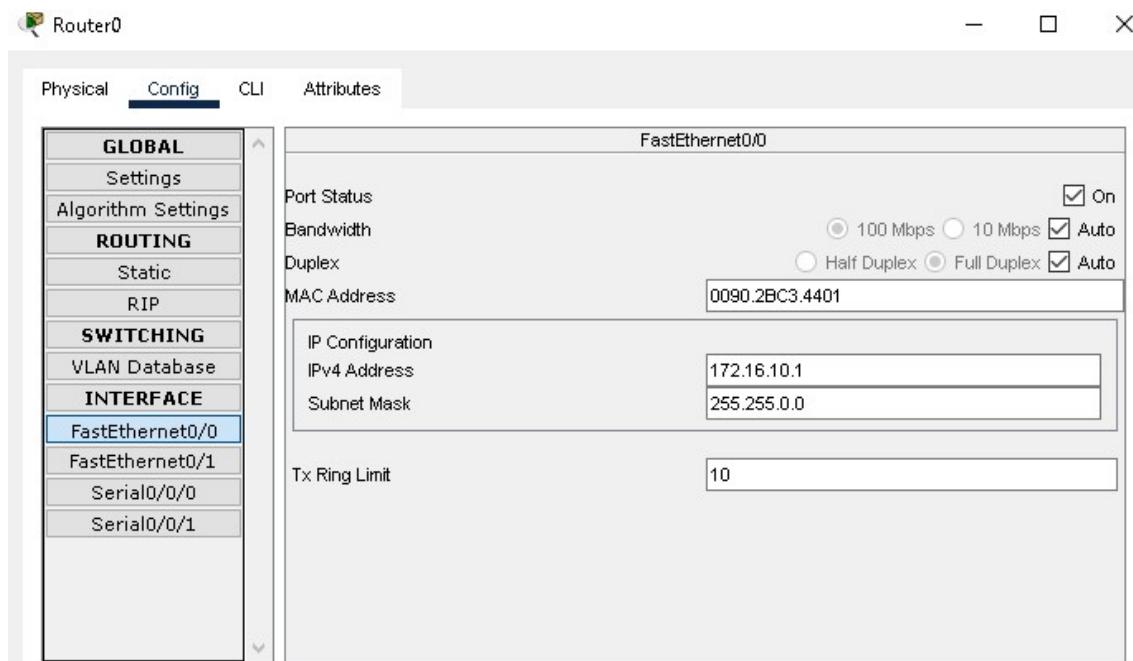
- Machine (pc0):

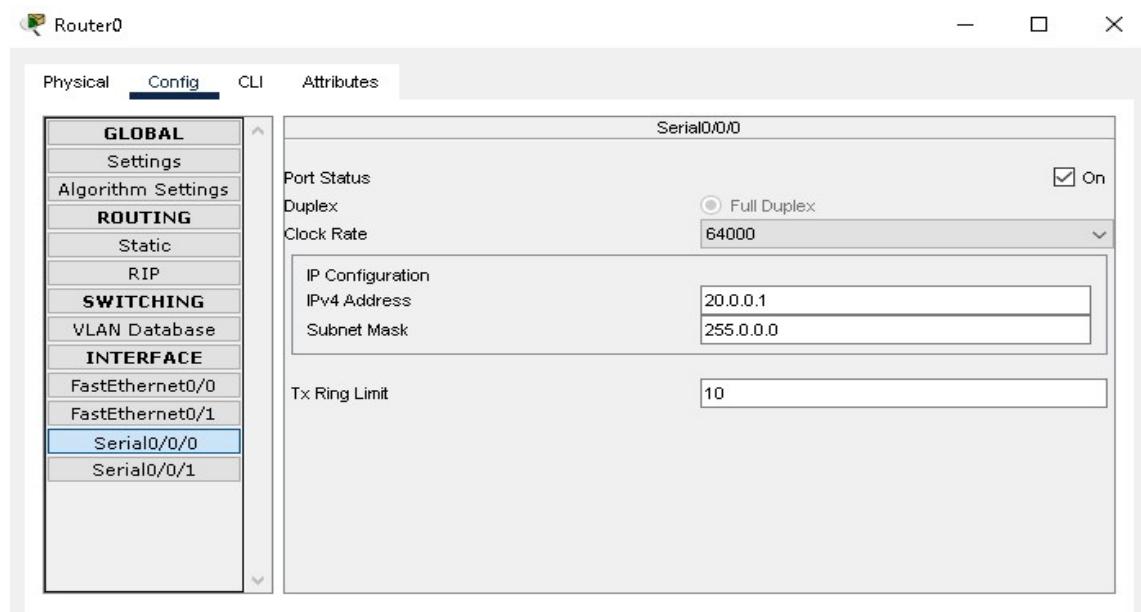
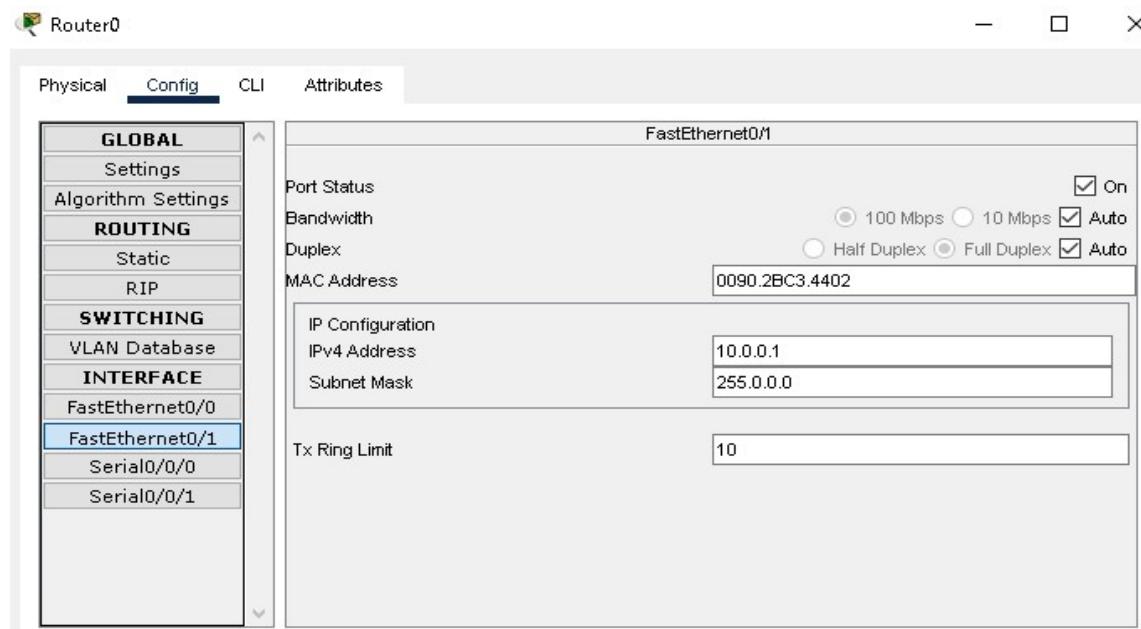


- Machine (pc1)

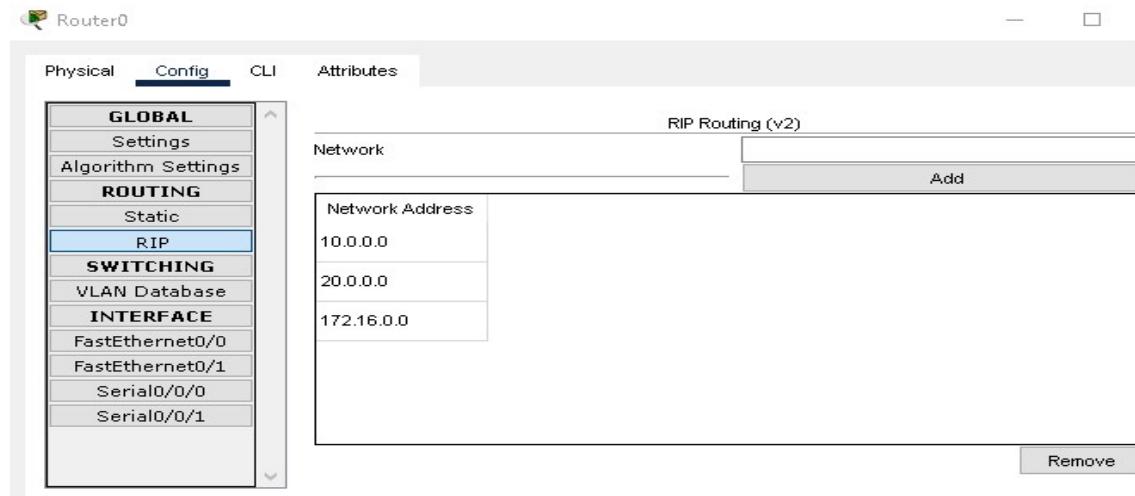


- Router (0)

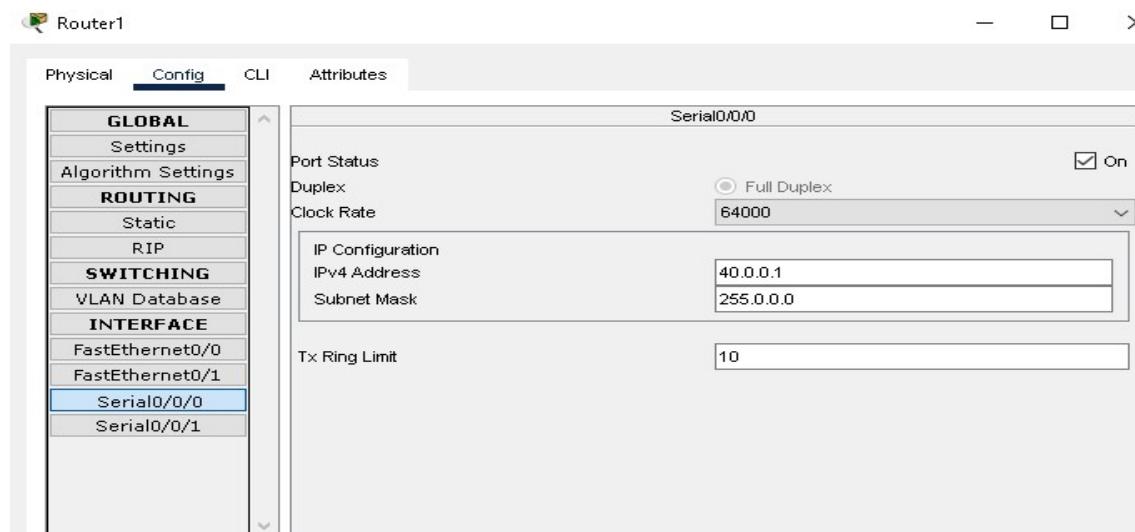
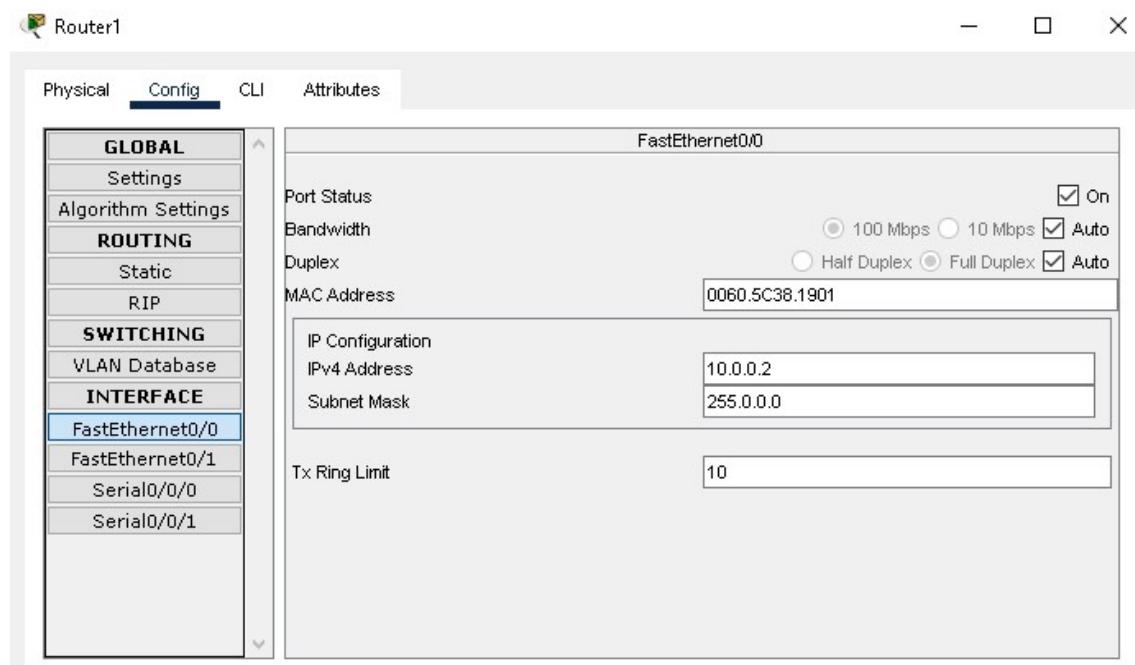




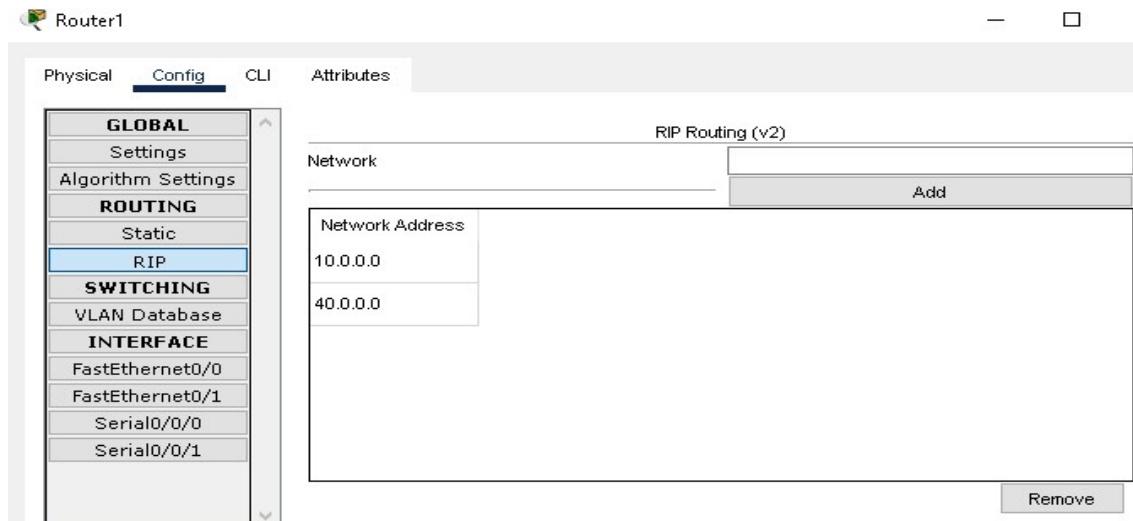
## Adding network address in RIP



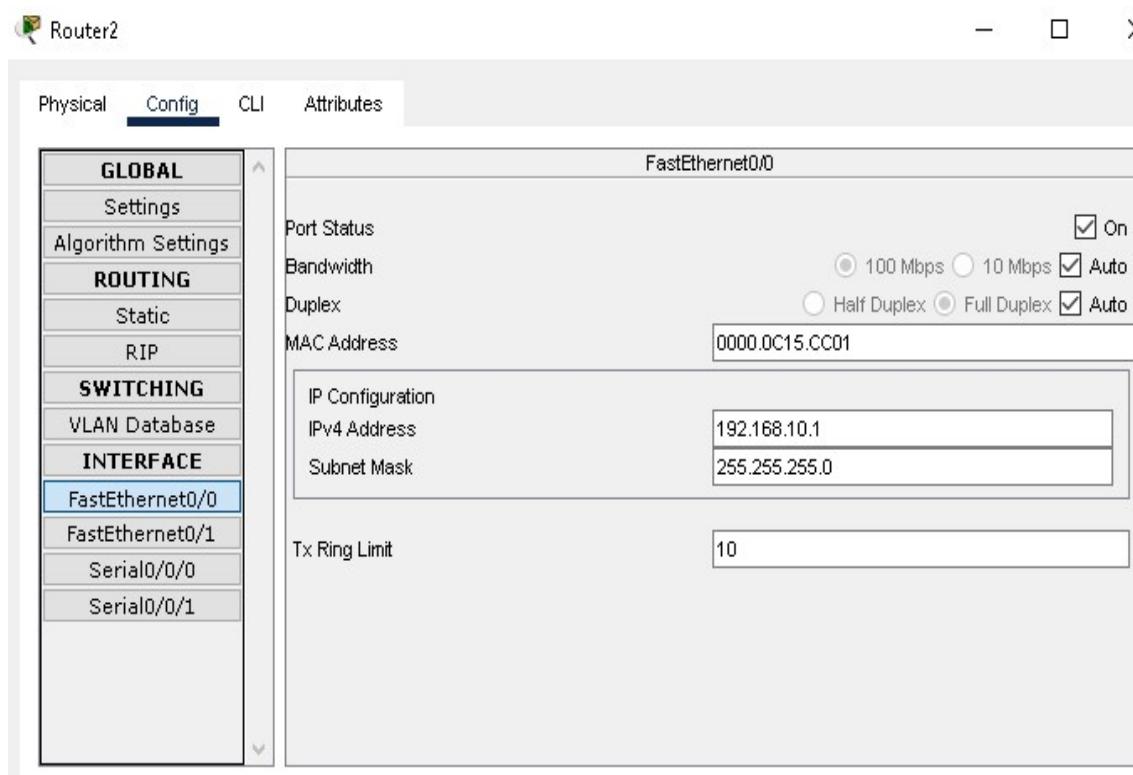
- **Router (1)**

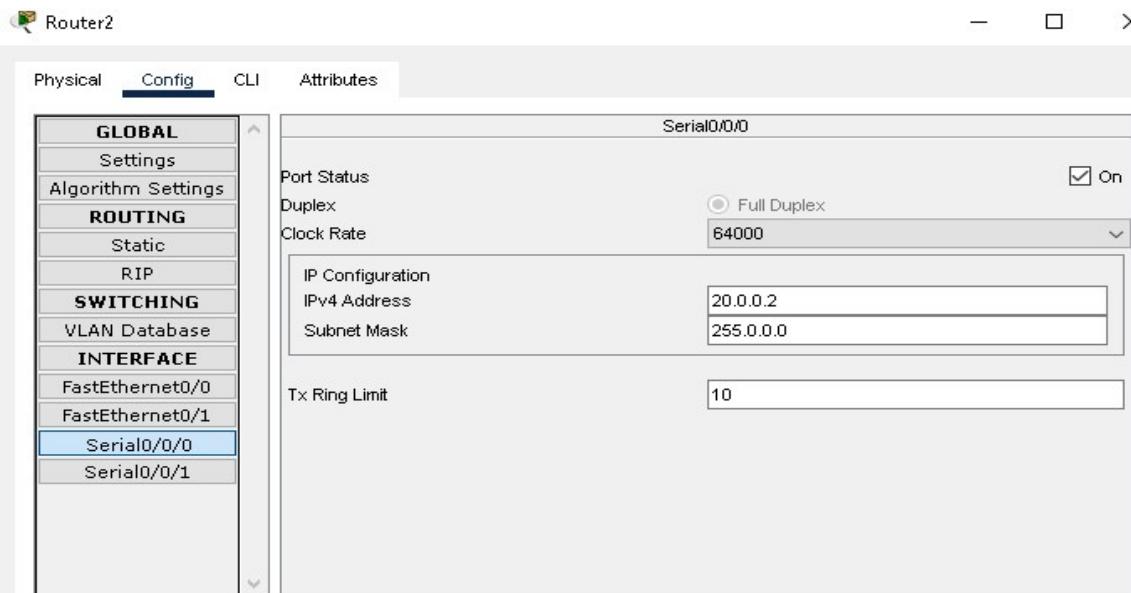
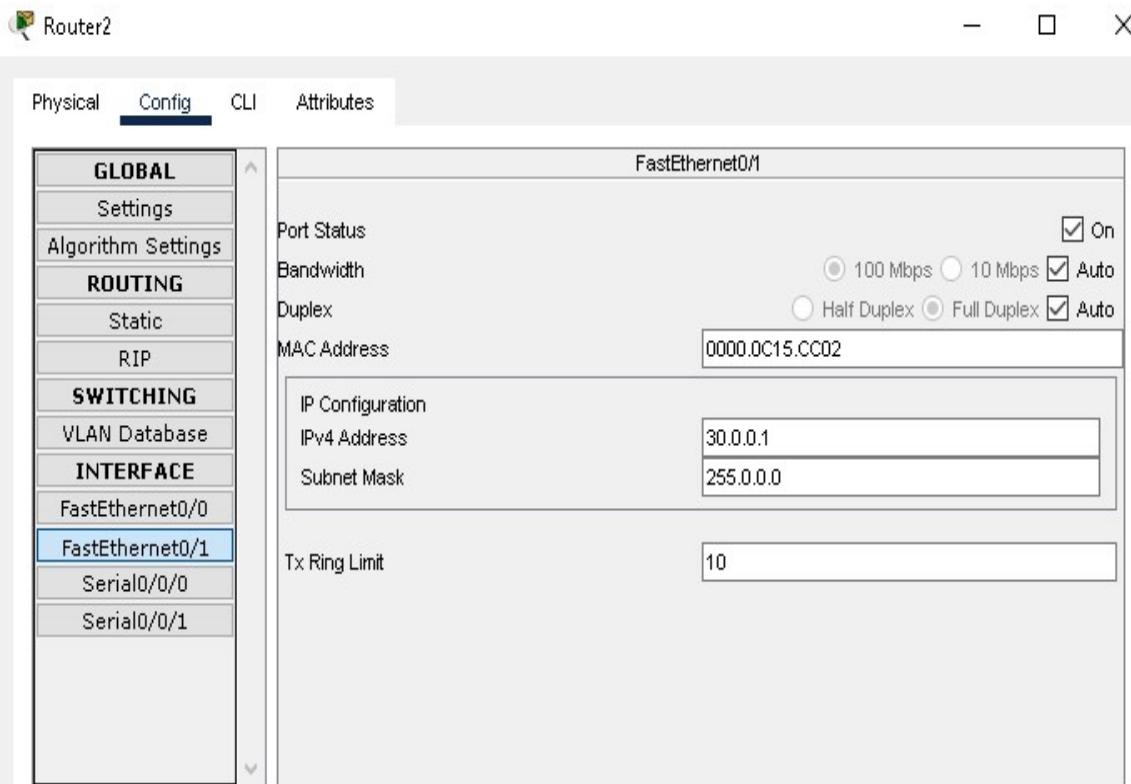


## Adding network address in RIP

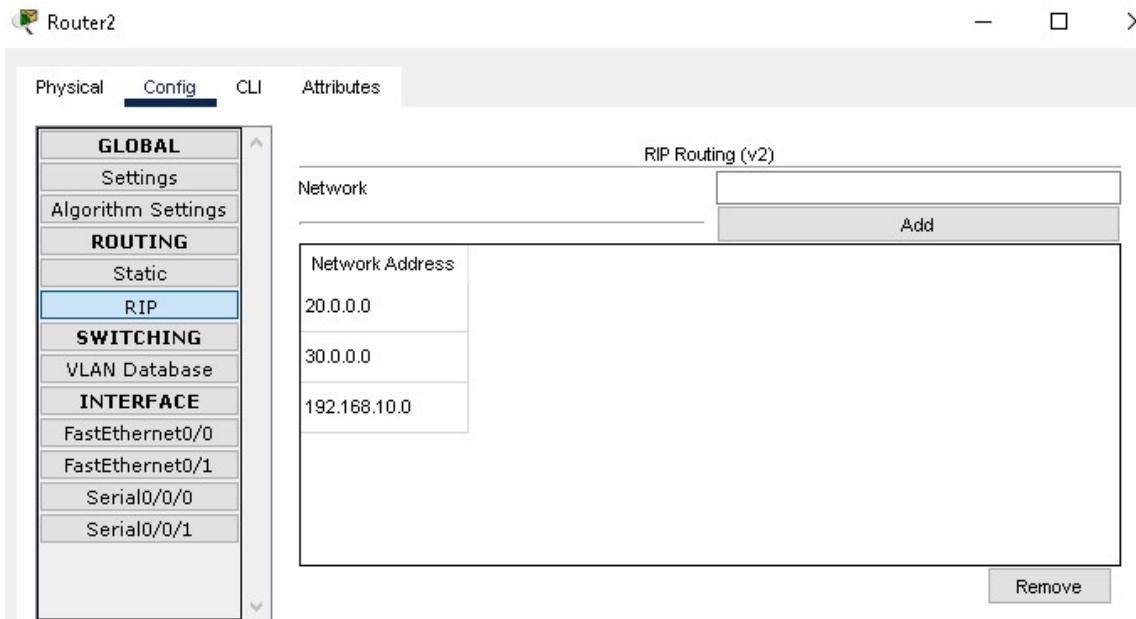


- Router (2)

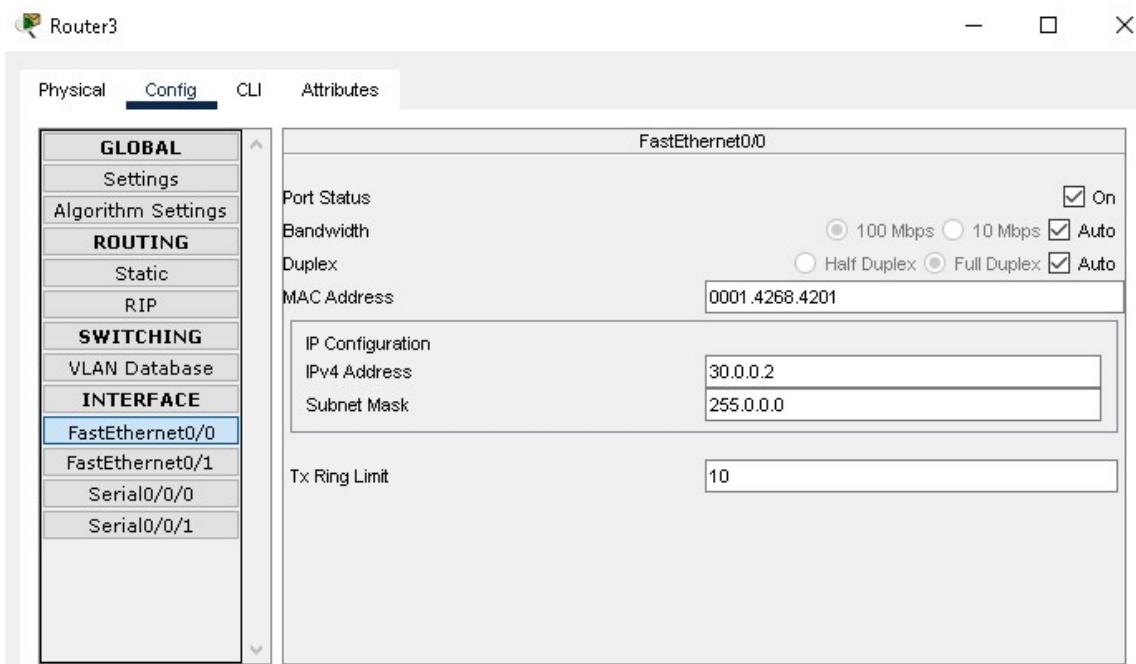


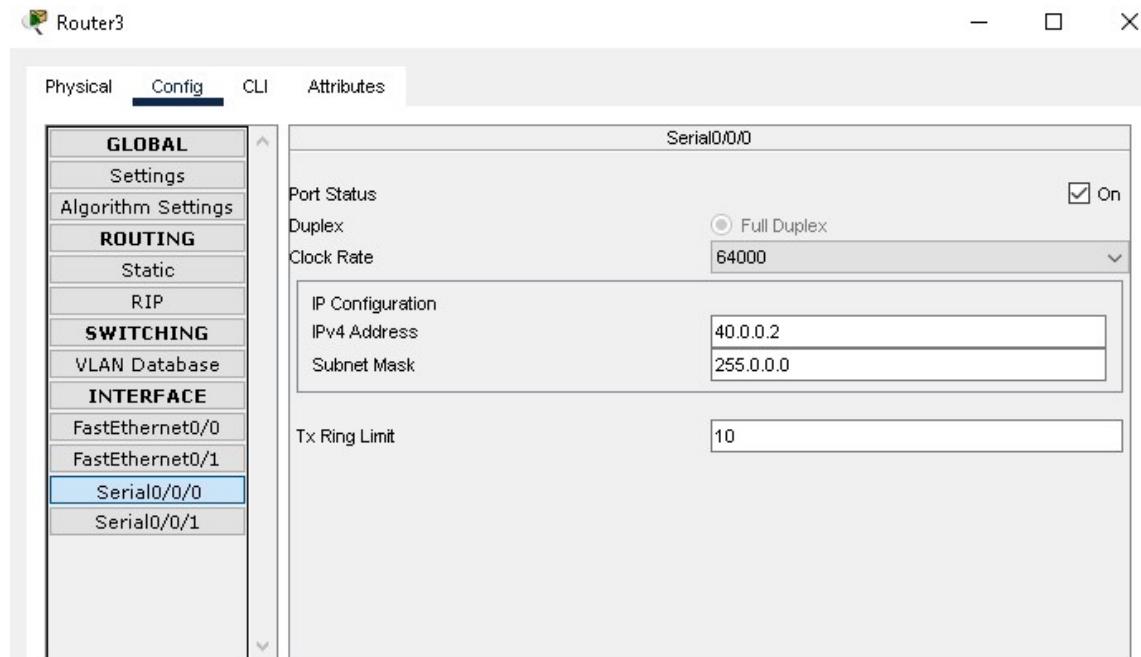


### Adding network address in RIP

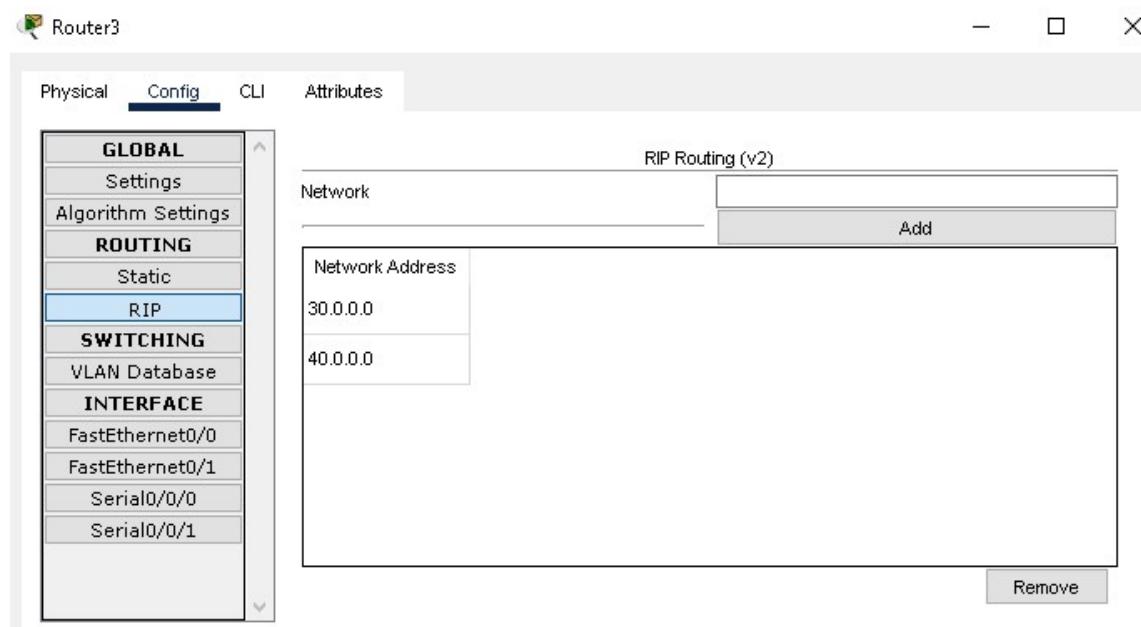


- **Router (3)**





### Adding network address in RIP



- **OUTPUT**

### Router connection successful

Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
Successful	Router1	Router3	ICMP	purple	0.000	N	0
Successful	Router3	Router2	ICMP	magenta	0.000	N	1
Successful	Router1	Router0	ICMP	green	0.000	N	2
Successful	Router0	Router2	ICMP	dark blue	0.000	N	3

Router to pc connection is successful

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	Router0	PC0	ICMP		0.000	N	0	(edit)
	Successful	Router2	PC1	ICMP		0.000	N	1	(edit)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	Router1	PC1	ICMP		0.000	N	0	(edit)
	Successful	Router3	PC0	ICMP		0.000	N	1	(edit)

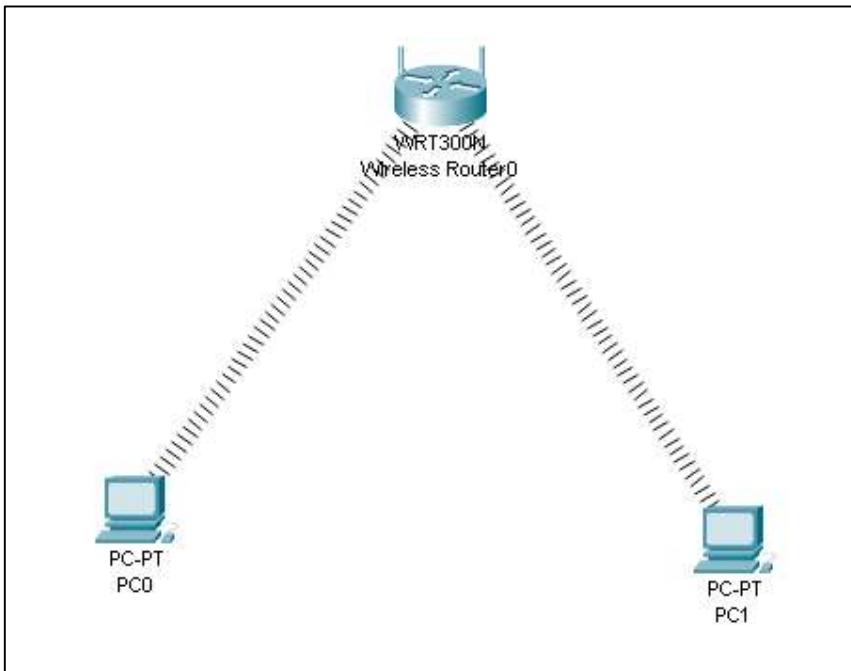
Pc to pc connection is successful

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	PC1	ICMP		0.000	N	0	(edit)

## Practical 3

Aim: Placing ACLs

- Diagram



- Device
  - 2 Machine
  - 1 wireless router
- Wireless Router 1

Wireless Router0

Physical Config GUI Attributes

Wireless Setup Wireless Security Access Restrictions Applications & Gaming

Basic Wireless Settings Wireless Security Guest Network Wireless MAC Filter

Basic Wireless Settings

Network Mode: Mixed

Network Name (SSID): CS

Radio Band: Auto

Wide Channel: Auto

Standard Channel: 1 - 2.412GHz

SSID Broadcast:  Enabled  Disabled

This screenshot shows the configuration interface for a WRT300N wireless router. The top navigation bar includes tabs for Physical, Config, GUI, and Attributes. Below that is a secondary navigation bar with tabs for Wireless, Setup, Wireless Security, Access Restrictions, and Applications & Gaming. The 'Basic Wireless Settings' tab is currently selected under the Wireless category. On the left, a sidebar titled 'Basic Wireless Settings' lists several configuration options with their current values: Network Mode (Mixed), Network Name (SSID) (CS), Radio Band (Auto), Wide Channel (Auto), Standard Channel (1 - 2.412GHz), and SSID Broadcast (Enabled). The 'SSID Broadcast' section contains two radio buttons, one for 'Enabled' and one for 'Disabled', with 'Enabled' being selected.

Wireless Router0

Physical Config GUI Attributes

**Administration**

- Setup**
- Wireless**
- Security**
- Access Restrictions**
- Applications & Gaming**

**Management**

Router Access:

Router Password:  Re-enter to confirm:

Web Access:

Web Utility Access:  HTTP  HTTPS

Web Utility Access via Wireless:  Enabled  Disabled

Remote Access:

Remote Management:  Enabled  Disabled

Web Utility Access:  HTTP  HTTPS

Wireless Router0

Physical Config GUI Attributes

**Access Restrictions**

- Setup**
- Wireless**
- Security**
- Access Restrictions**
- Applications & Gaming**

**Internet Setup**

Internet Access Policy:

Access Policy: 1(RDNC)

Enter Policy Name: RDNC

Status:  Enabled  Disabled

Applied PCs:  (This Policy applies only to PCs on the network)

Access Restriction:

Always  Never  Specific Time

Schedule:

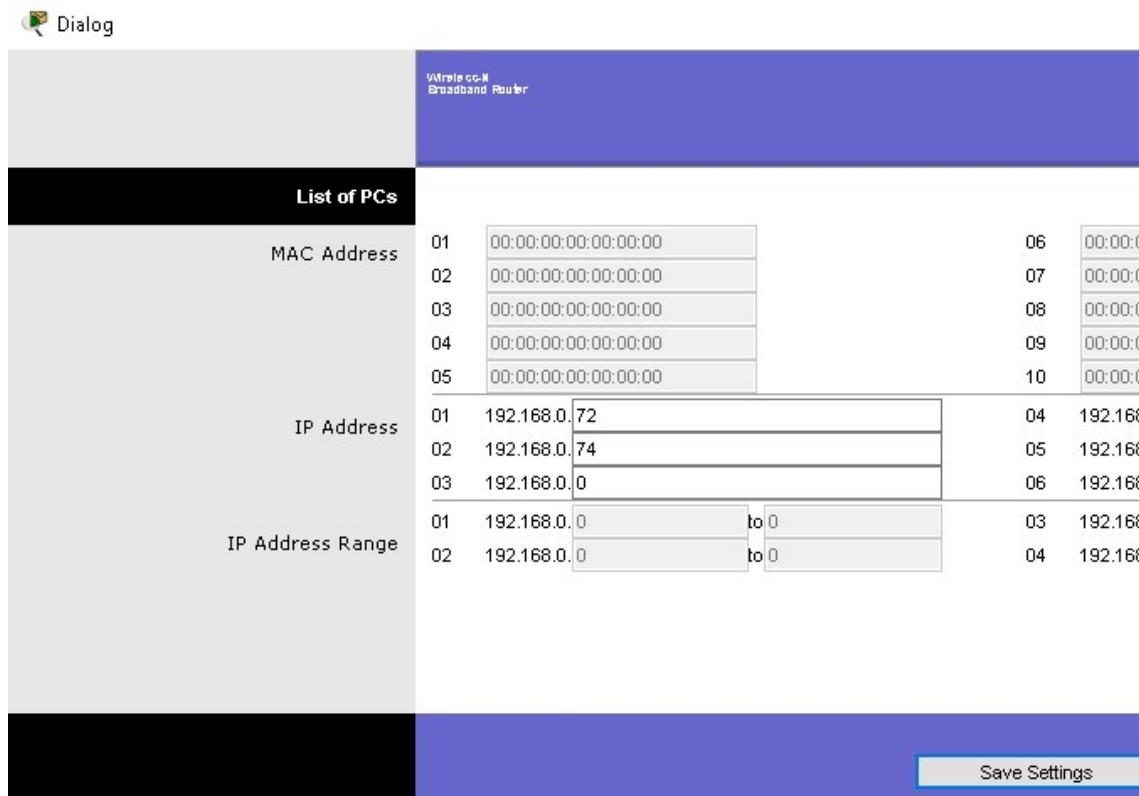
Days:  EveryDay  Mon  Tue  
 Thu  Fri  Sat

Times: 00 : 00 to 00 :

Website Blocking by URL Address:

URL 1: URL 3:  
URL 2: URL 4:

**Go to edit list and add ur ip address of both machine**



- **Machine 1** (Change the system into wireless to both the pc )



PC1

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>
ipconfig

Bluetooth Connection: (default port)
|
Connection-specific DNS Suffix...:
Link-local IPv6 Address.....:::
IPv6 Address.....:::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....:
                           0.0.0.0

Wireless0 Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: FE80::205:5EFF:FE85:B048
IPv6 Address.....:::
Autoconfiguration IPv4 Address..: 169.254.176.72
Subnet Mask.....: 255.255.0.0
Default Gateway.....:
                           0.0.0.0
```

- Machine 2

PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>
ipconfig

Bluetooth Connection: (default port)

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....:::
IPv6 Address.....:::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....:
                           0.0.0.0

Wireless0 Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: FE80::201:C9FF:FEA2:B94A
IPv6 Address.....:::
Autoconfiguration IPv4 Address..: 169.254.185.74
Subnet Mask.....: 255.255.0.0
Default Gateway.....:
                           0.0.0.0
```

## OUTPUT

Ping pc1 to pc0 it should not connected with each other

```
C:\>ping 169.254.185.74

Pinging 169.254.185.74 with 32 bytes of data:

Reply from 192.168.0.1: Destination host unreachable.

Ping statistics for 169.254.185.74:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Ping pc0 to pc1 it should not connected with each other

```
C:\>
C:\>ping 169.254.176.72

Pinging 169.254.176.72 with 32 bytes of data:

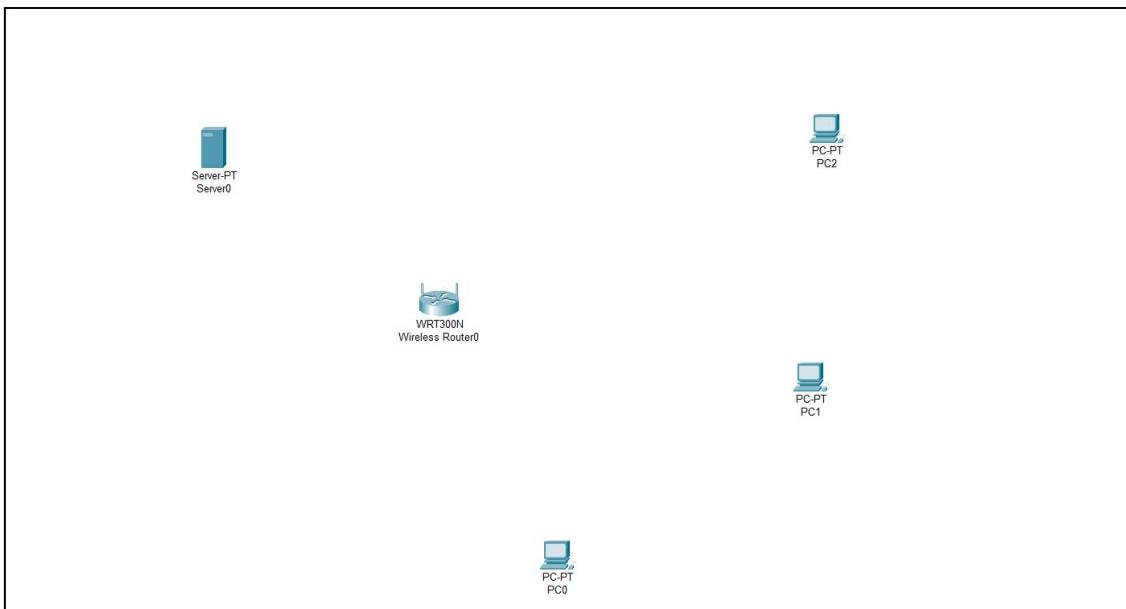
Reply from 192.168.0.1: Destination host unreachable.

Ping statistics for 169.254.176.72:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

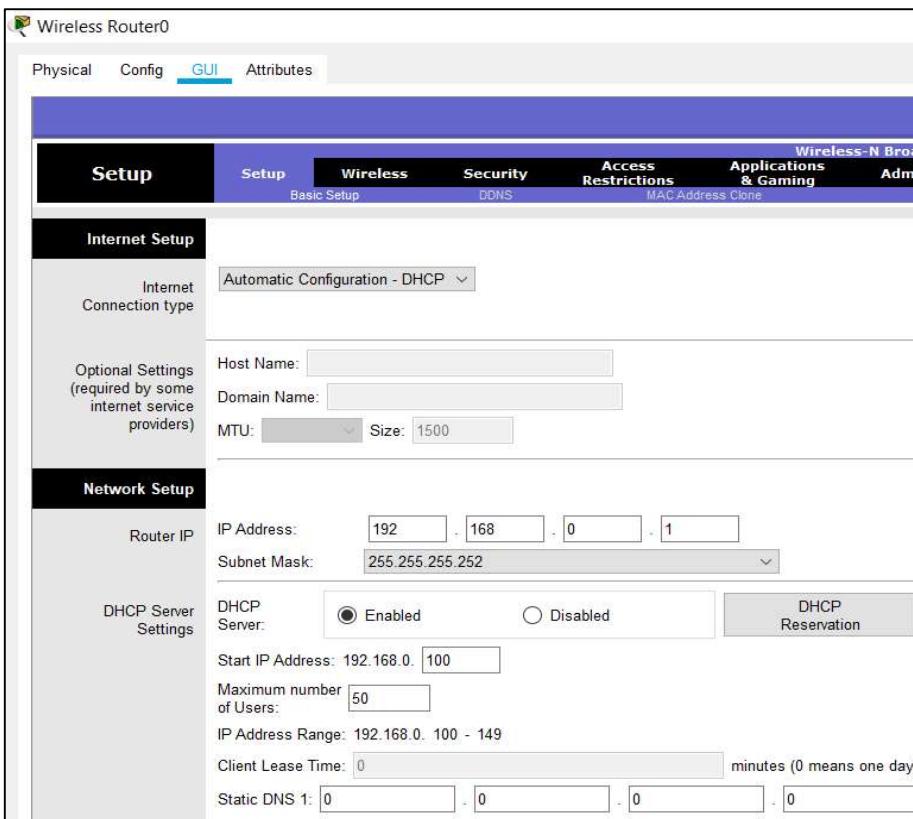
## Practical 4

**Aim:** Using Firewalls services in wireless Technologies.

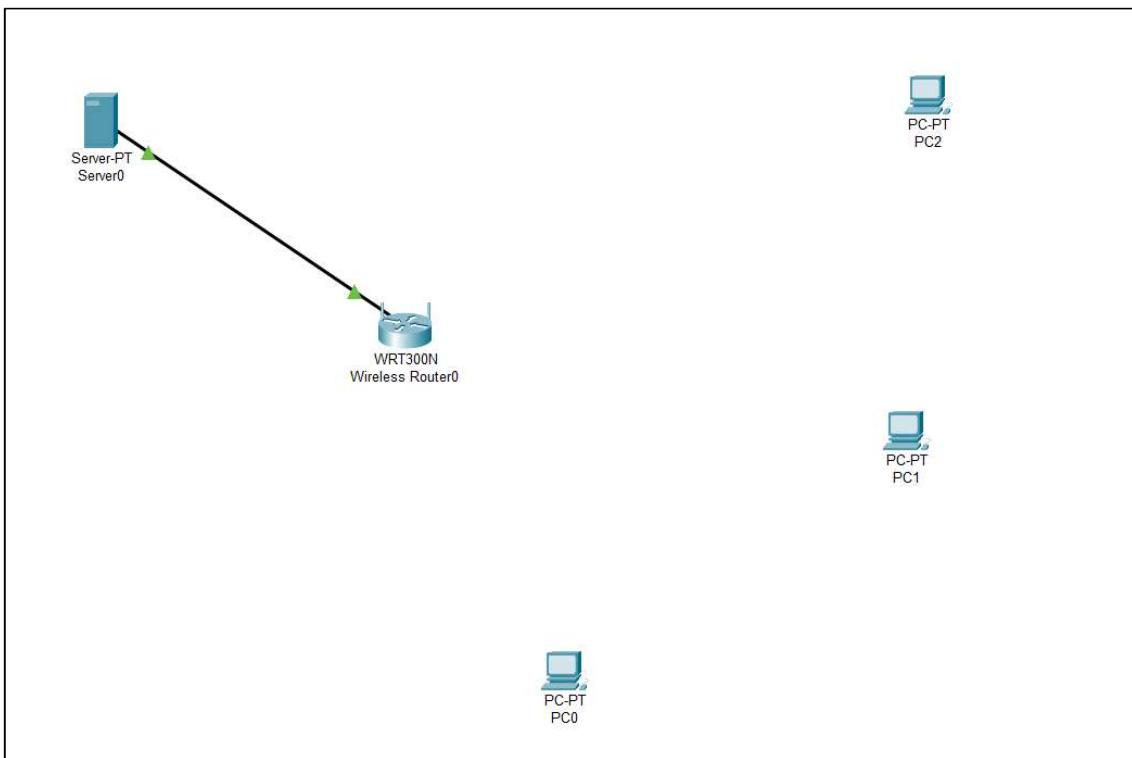
Open a New Project and create the below scenario



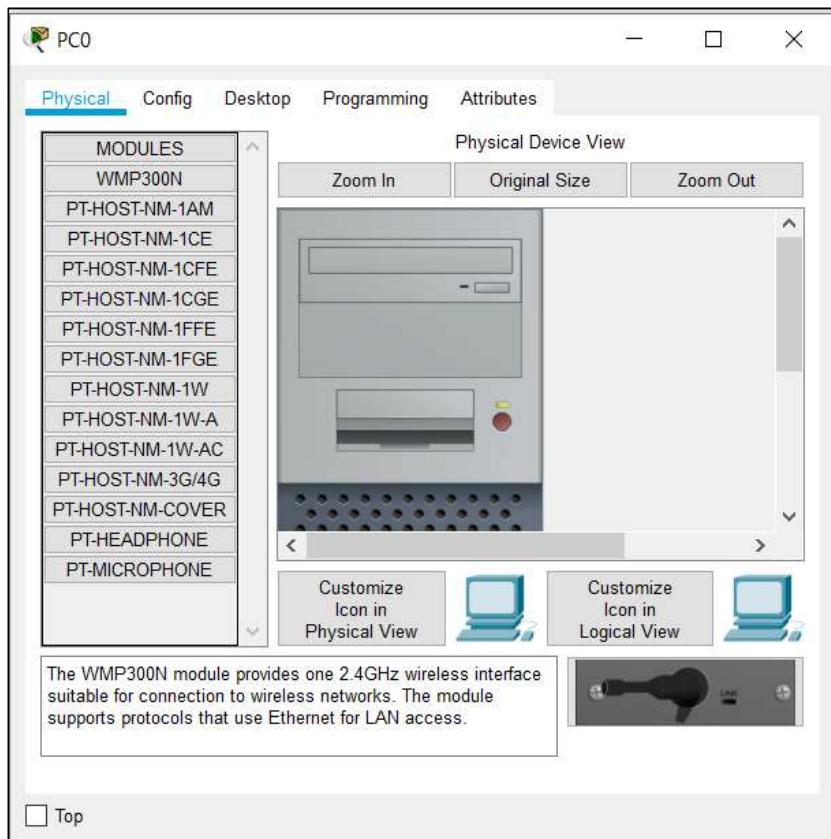
Now verify the routers details by clicking on router and checking the Properties of router (through GUI)



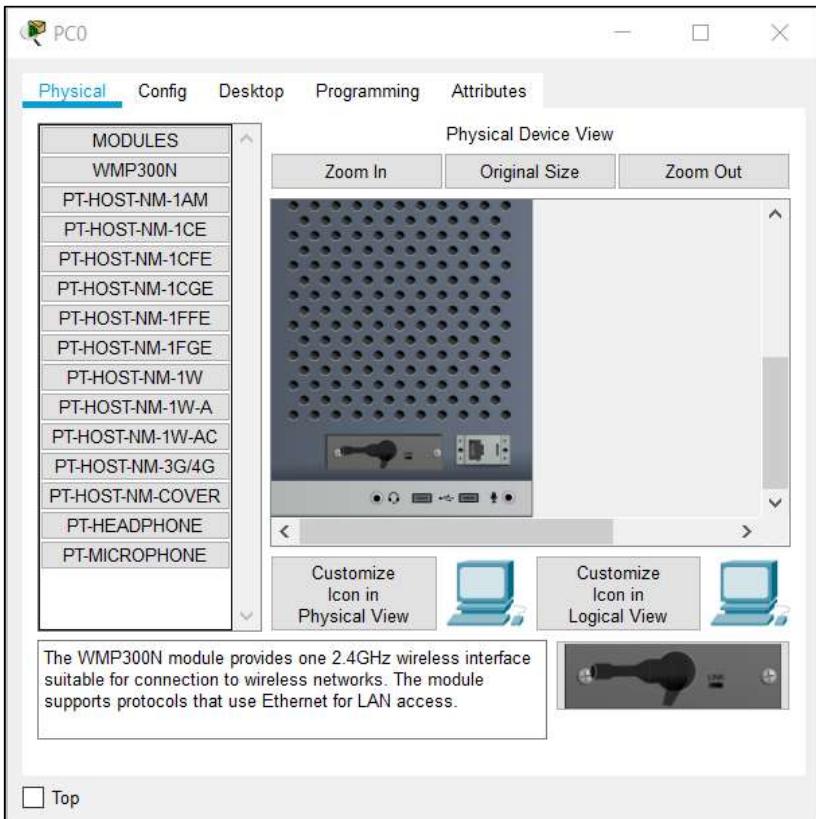
Now connect the router and server through a cable (Fast Ethernet 0 to Ethernet 0)



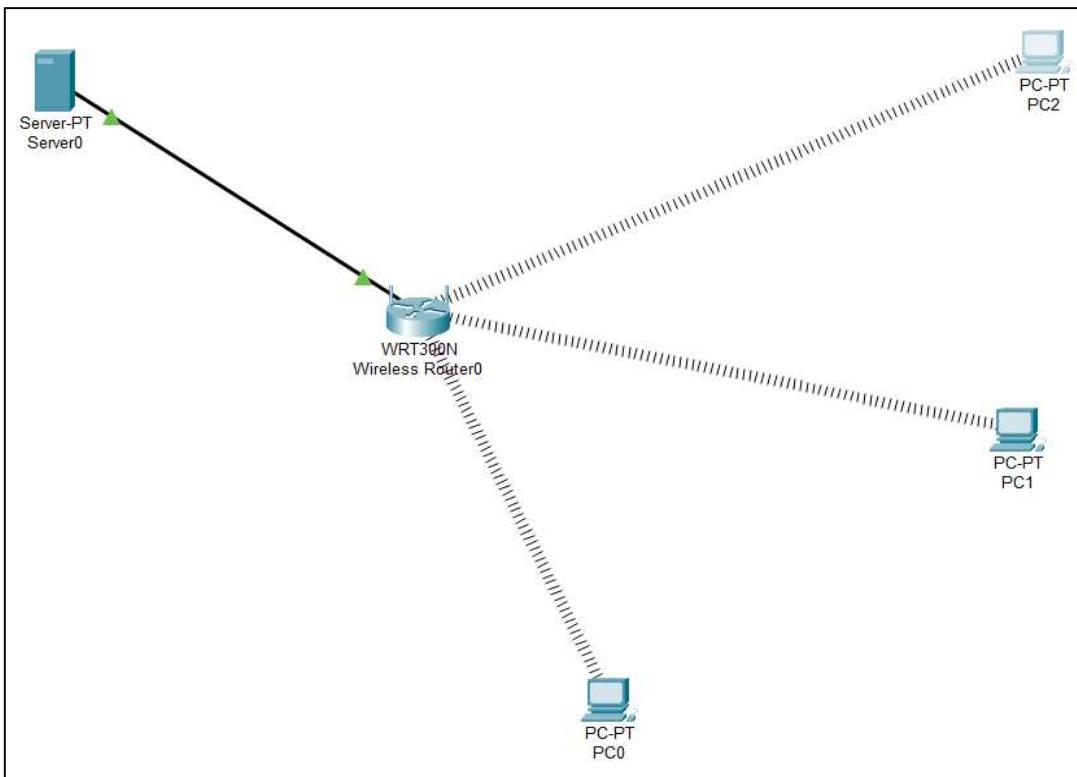
For making our PC wireless, we need to perform below steps.



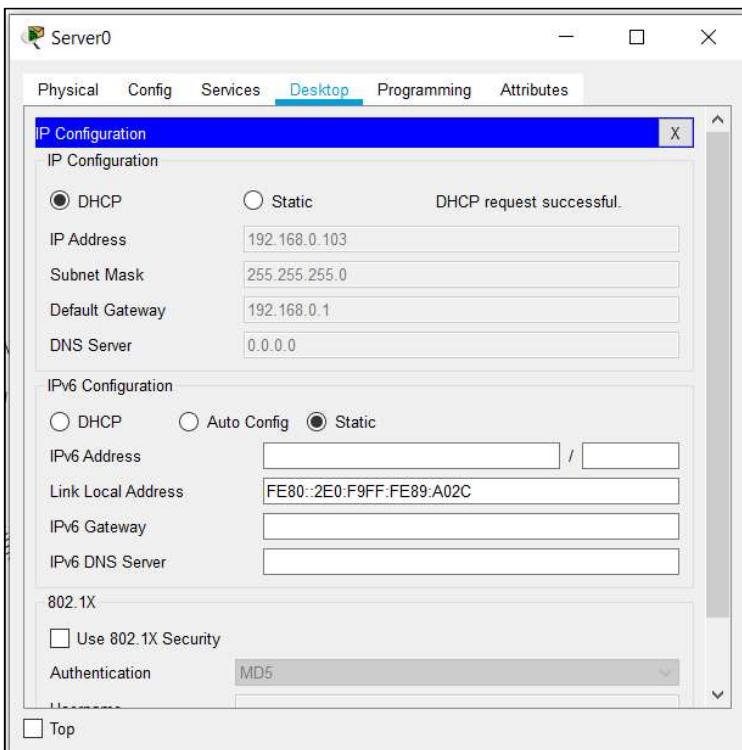
And restart the machine.



And now you will able view the connection between all the machines and server.



Now double click on server and navigate to Desktop tab and change the IP Configuration from Static to DHCP



Try to check the connectivity by pinging the server through PC.

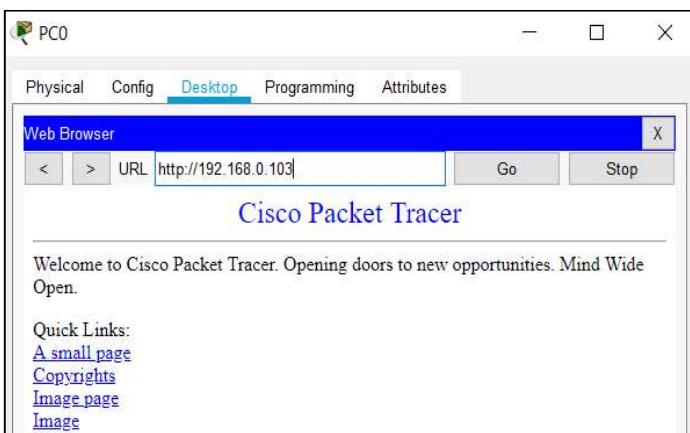
```
C:\>ping 192.168.0.103

Pinging 192.168.0.103 with 32 bytes of data:

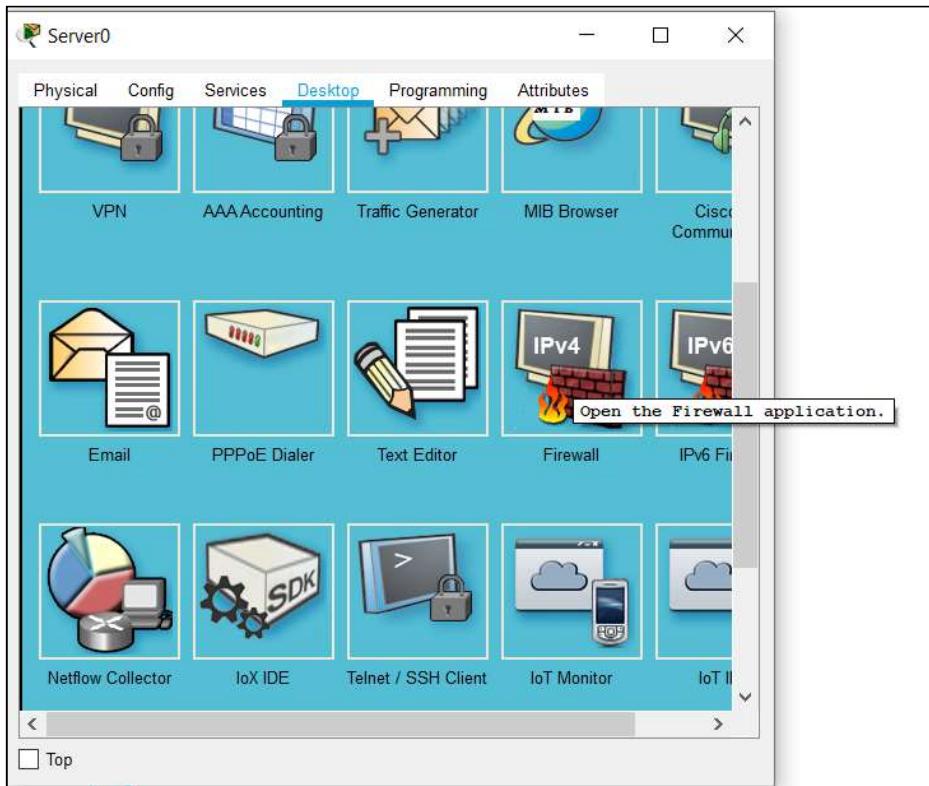
Reply from 192.168.0.103: bytes=32 time=12ms TTL=128
Reply from 192.168.0.103: bytes=32 time=18ms TTL=128
Reply from 192.168.0.103: bytes=32 time=17ms TTL=128
Reply from 192.168.0.103: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.0.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 18ms, Average = 13ms

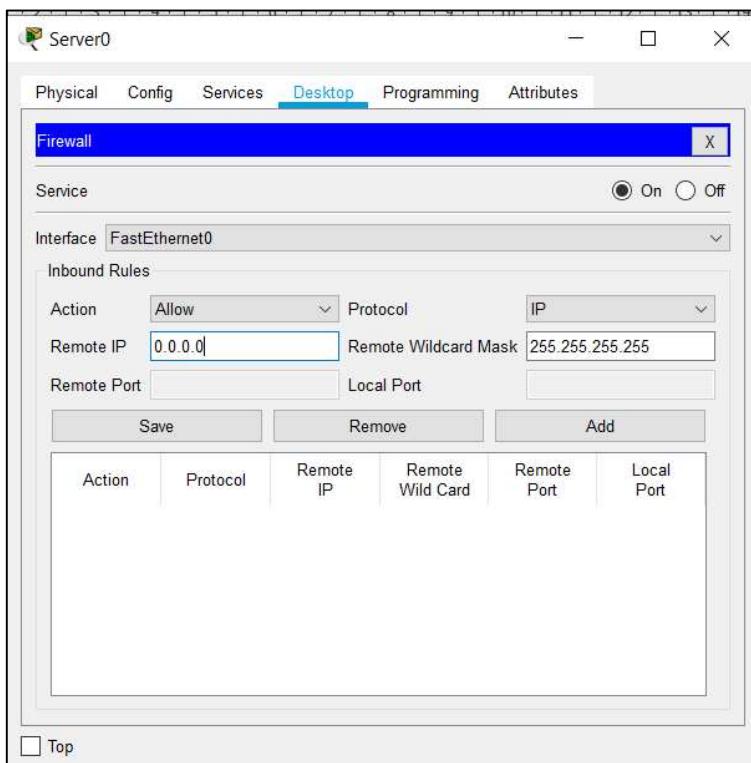
c:\>
```



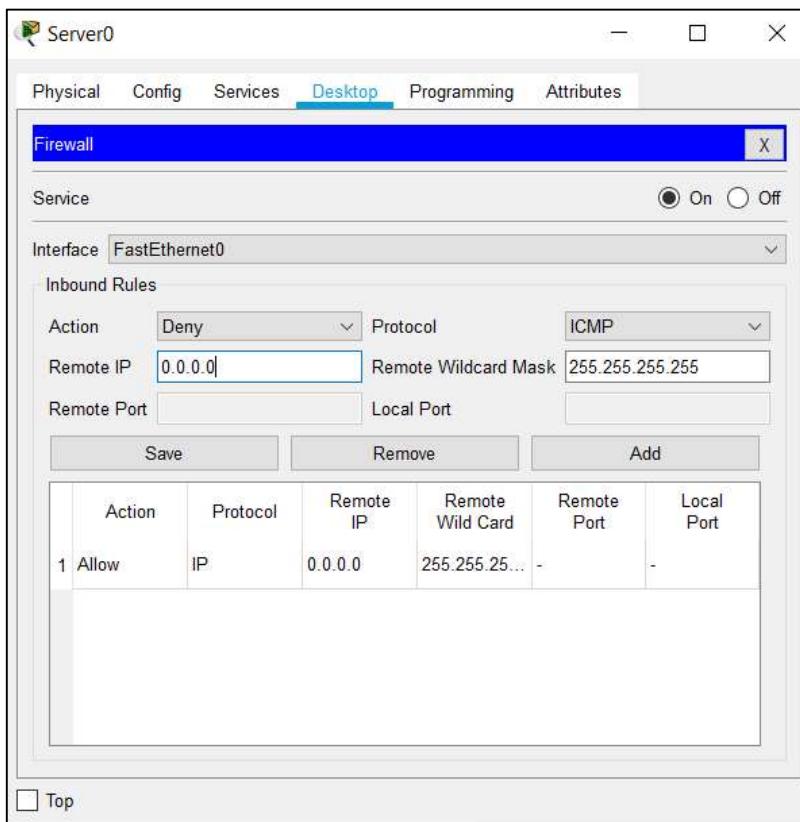
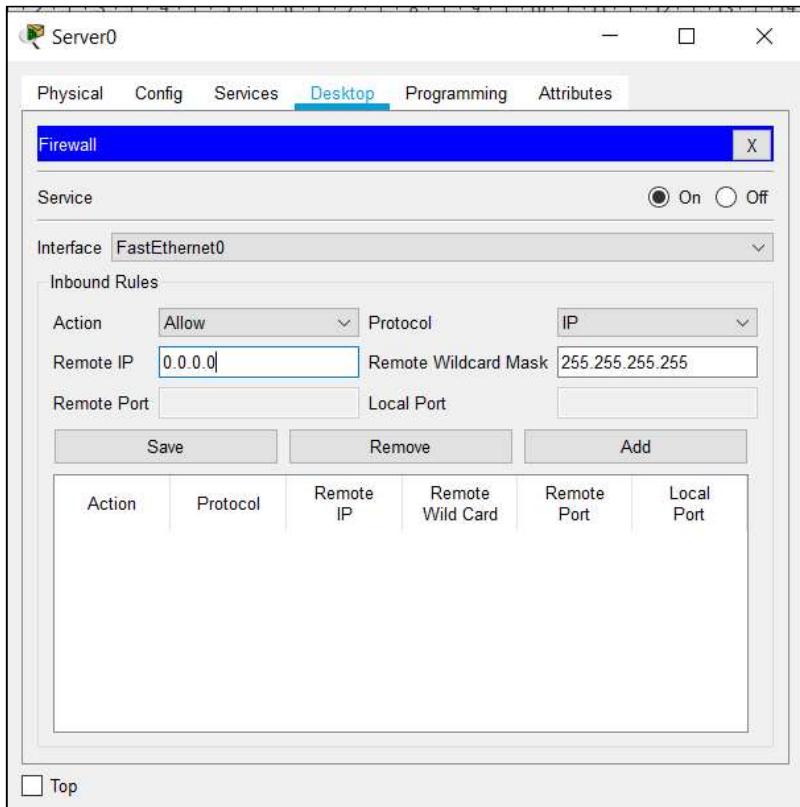
Click IPv4 Firewall



Firstly, switch On the services and add the below mentioned rules.



For blocking the ICMP Protocol through Firewall and allowing IP Protocol.



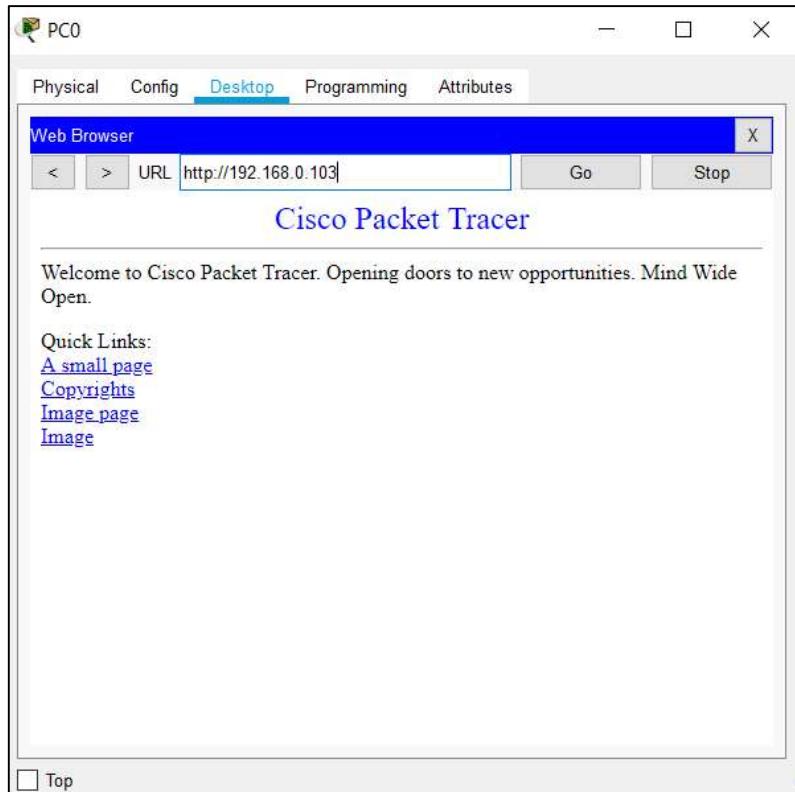
Now try to ping PC to verify.

```
C:\>ping 192.168.0.103

Pinging 192.168.0.103 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

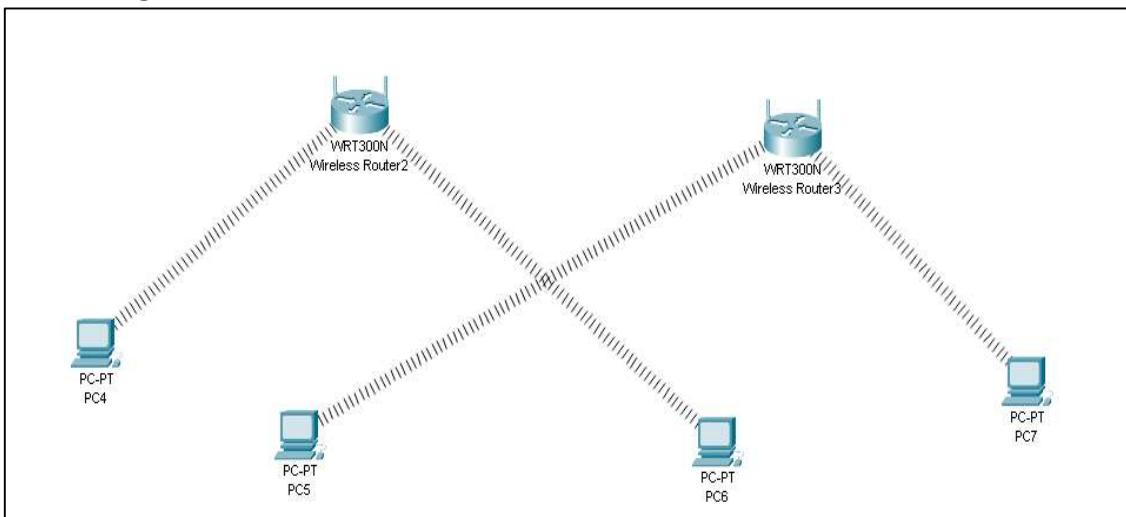
Ping statistics for 192.168.0.103:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```



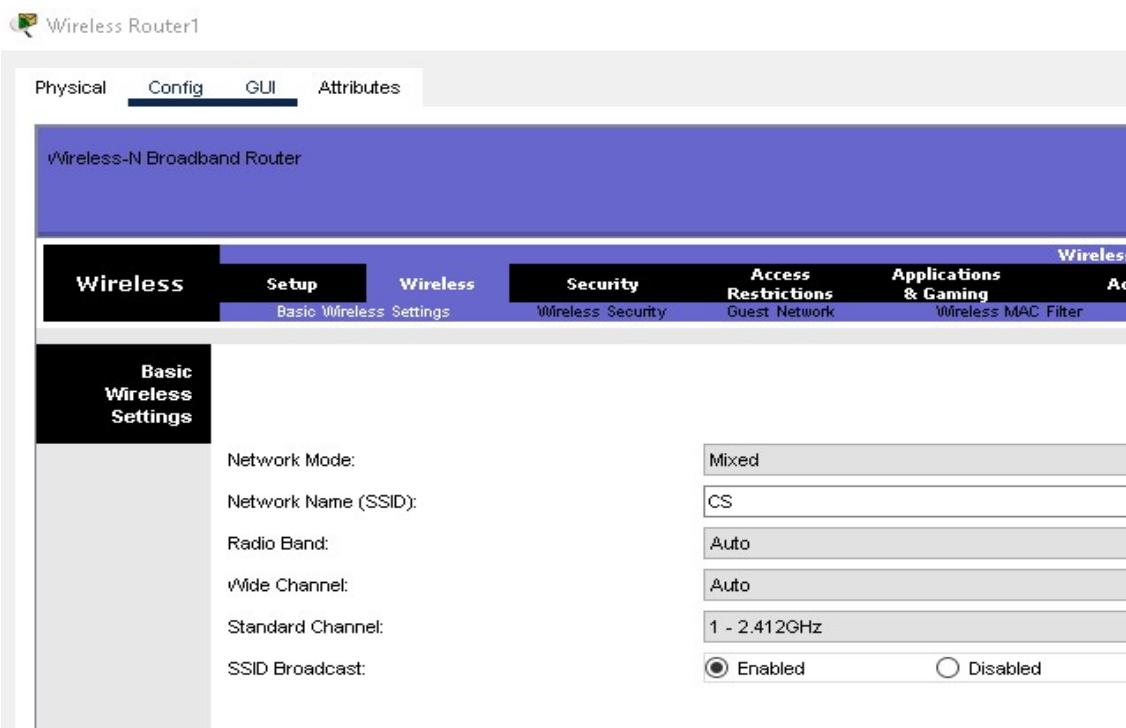
## Practical 5

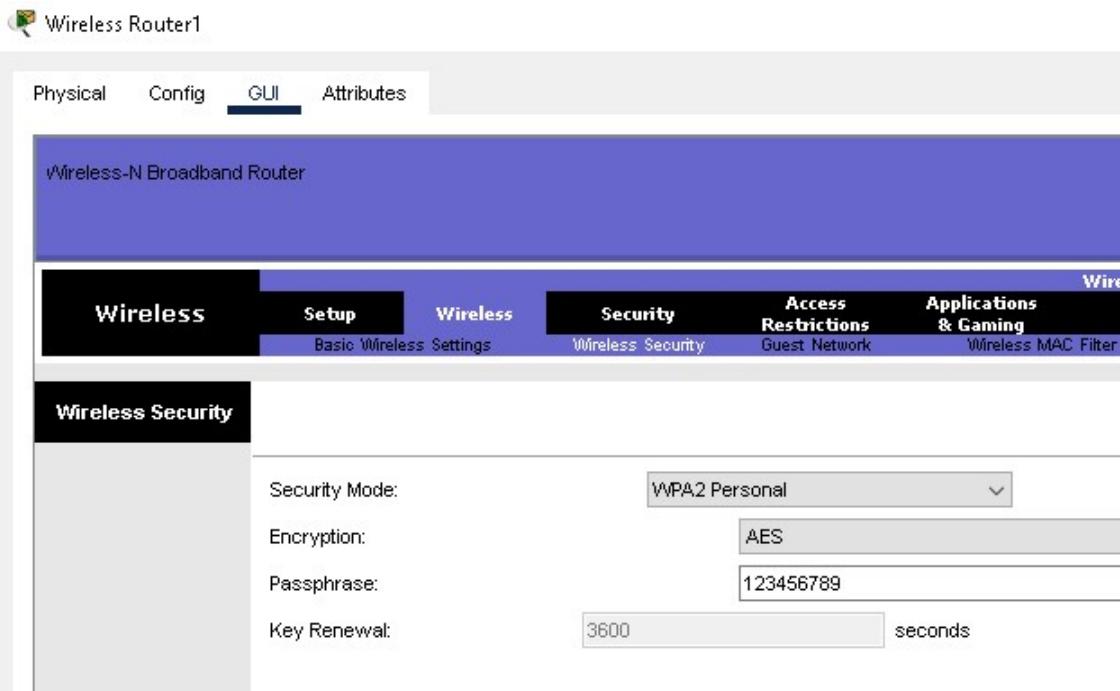
Aim : Configure Auto Profiles ACU Utilities

- Diagram:

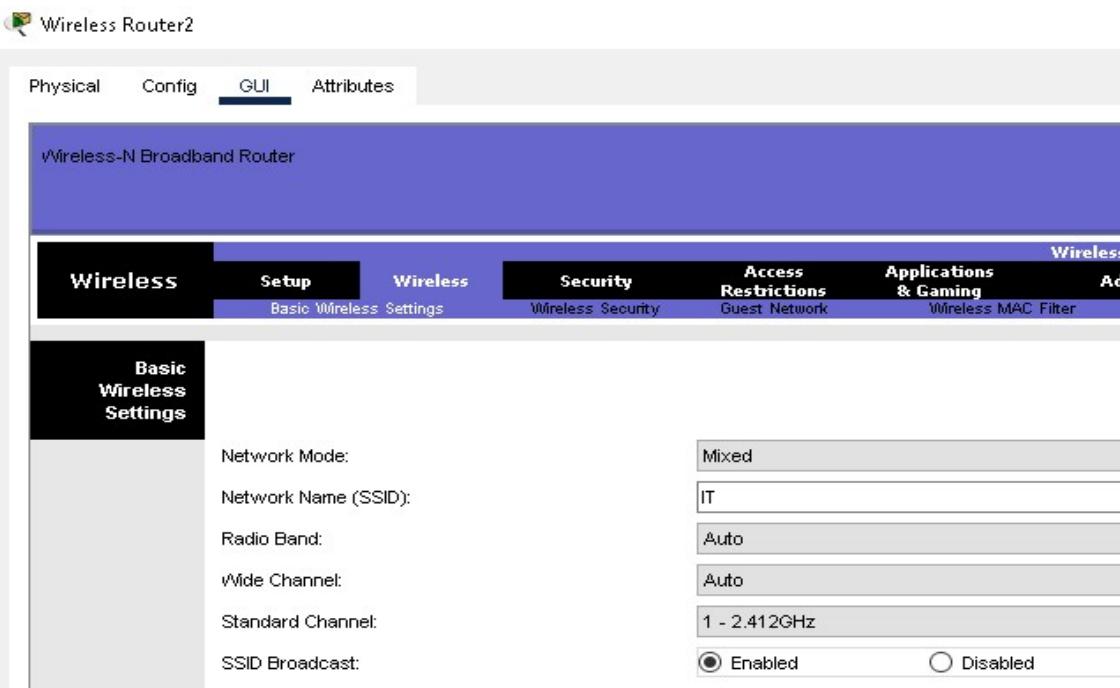


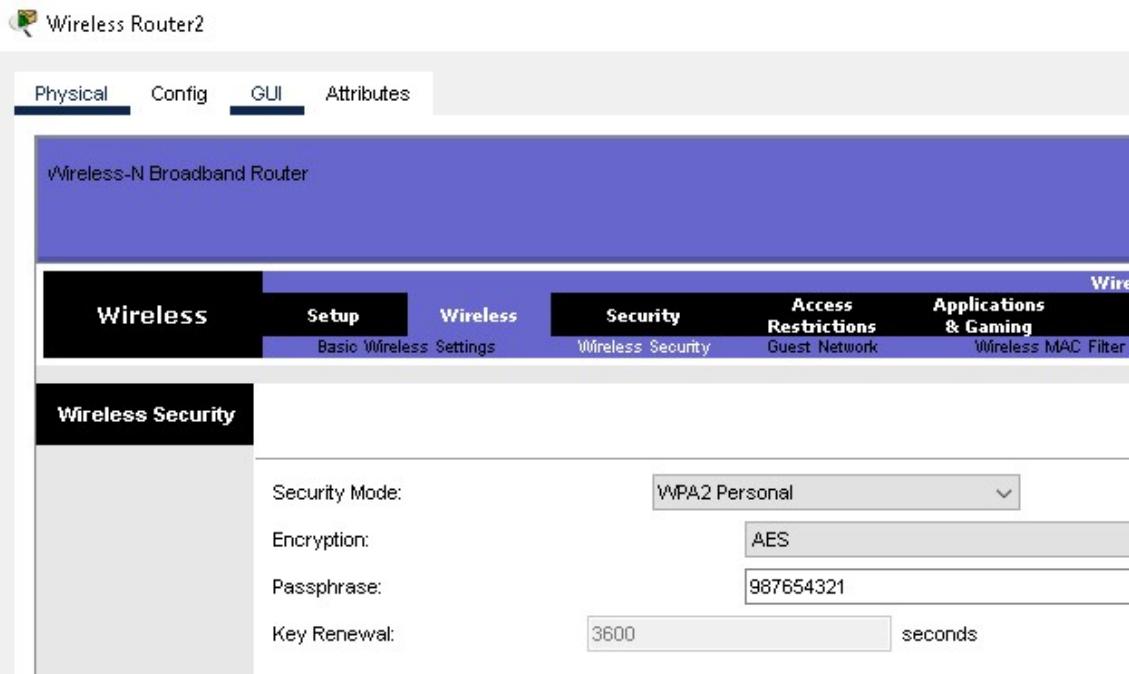
- Device:
- 4 Machine
- 2 wireless Router
- **Wireless Router 1**



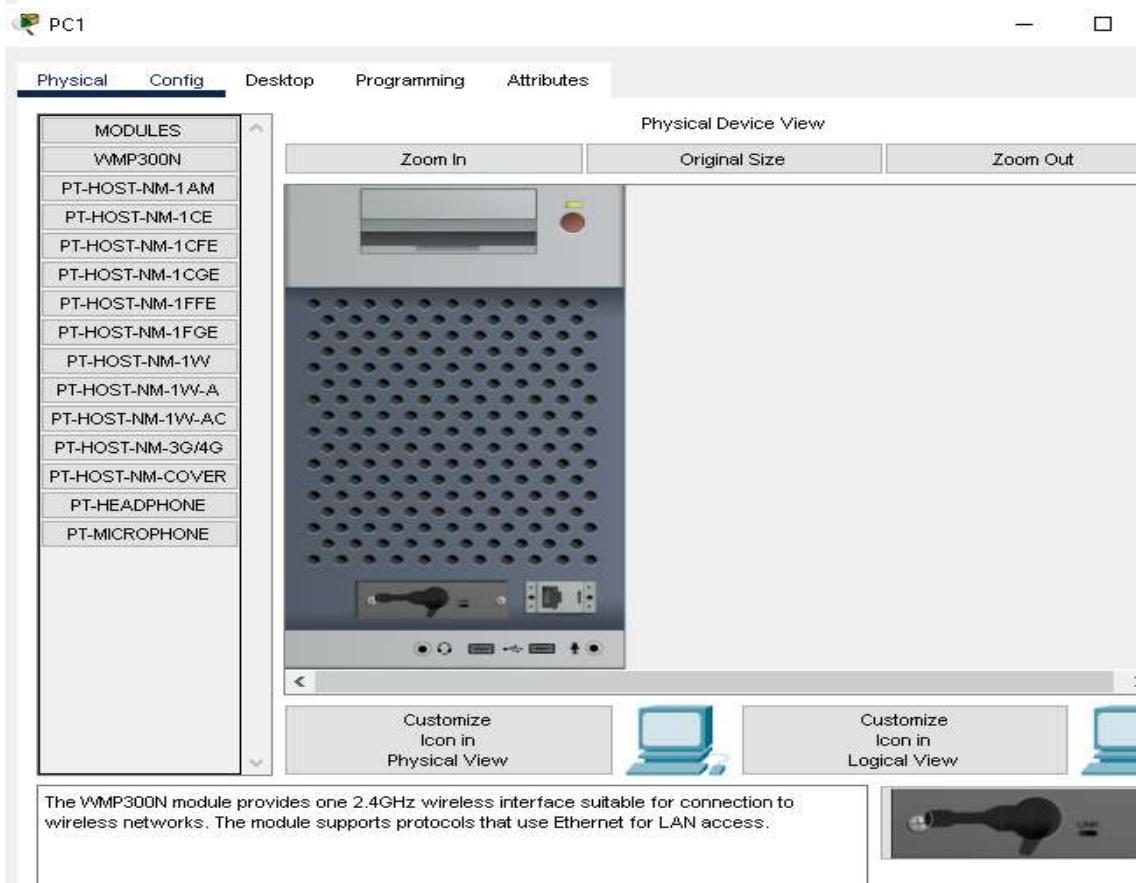
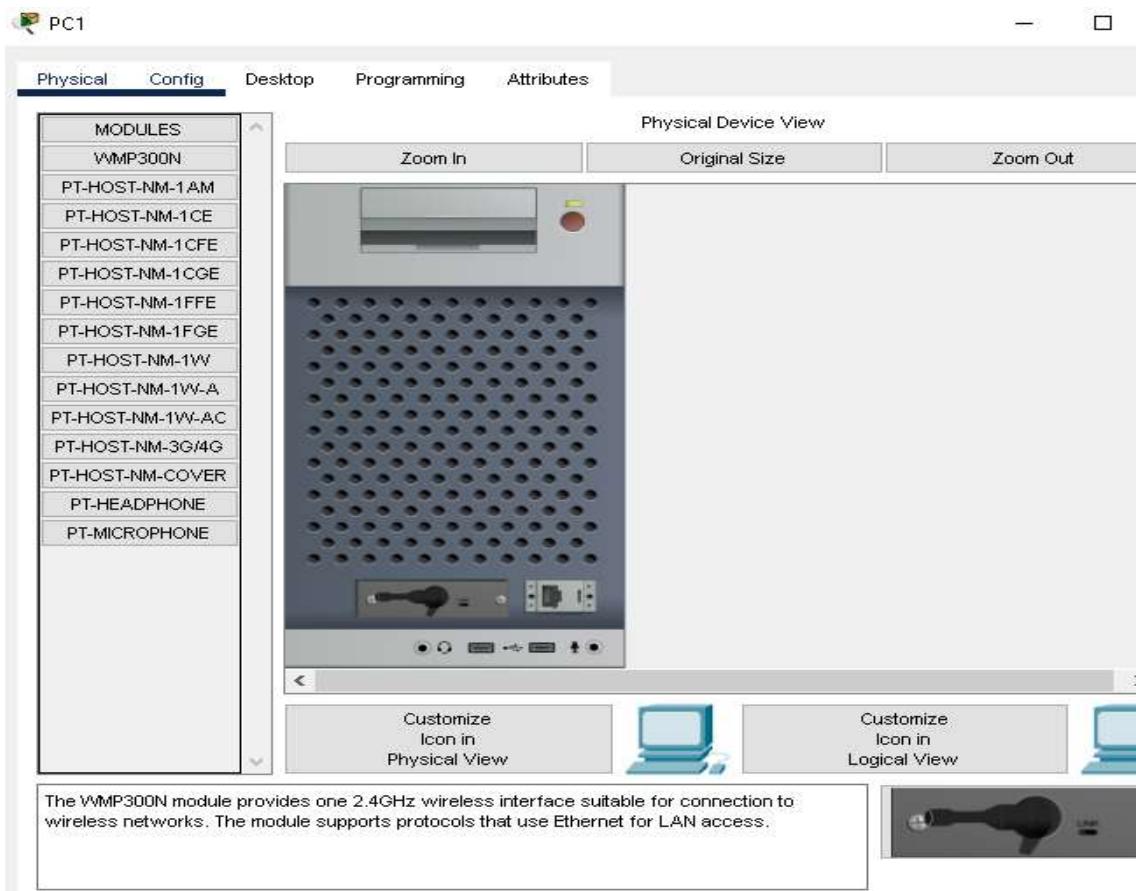


## • Wireless Router 2

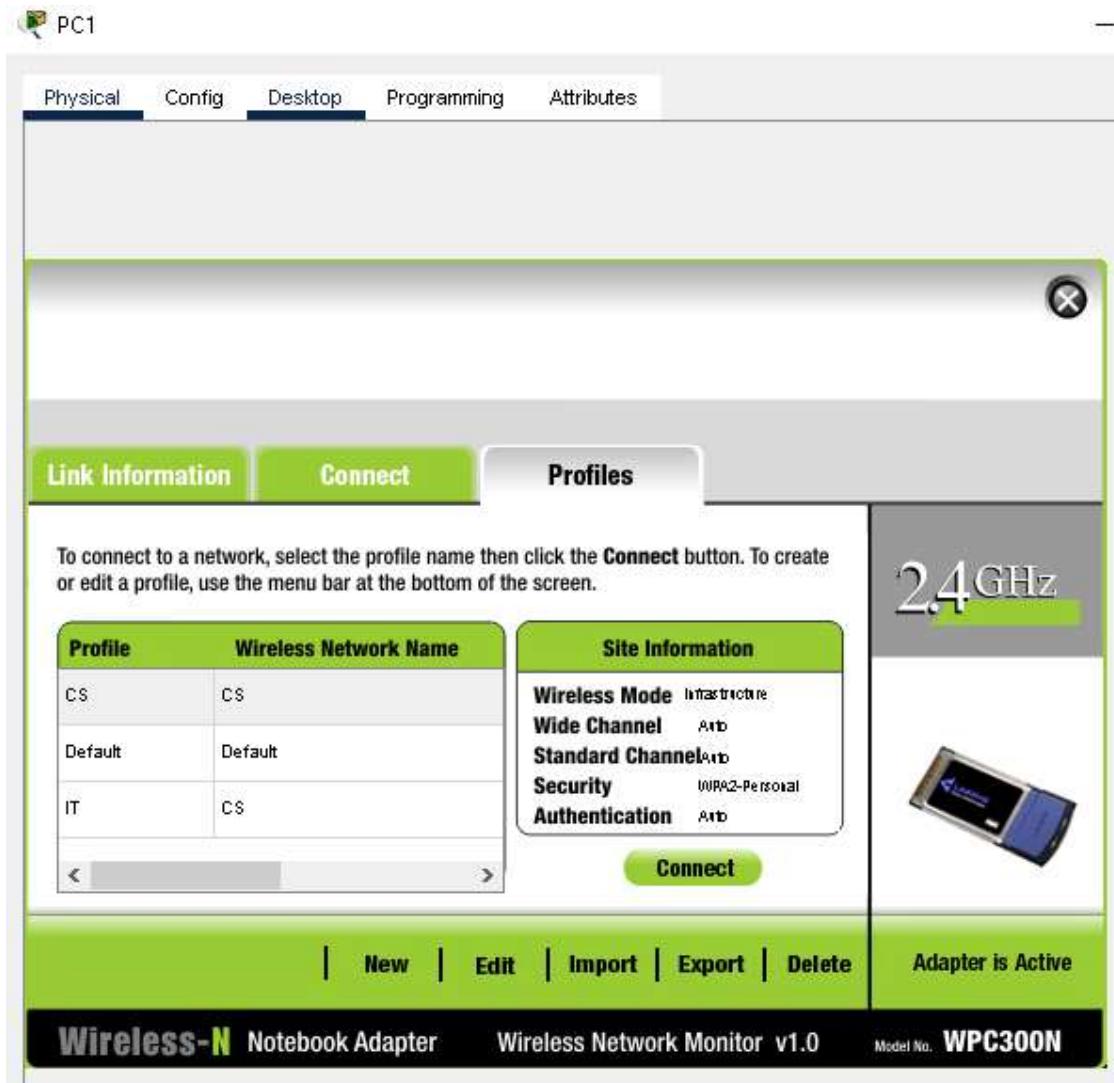




- **Machine 1**

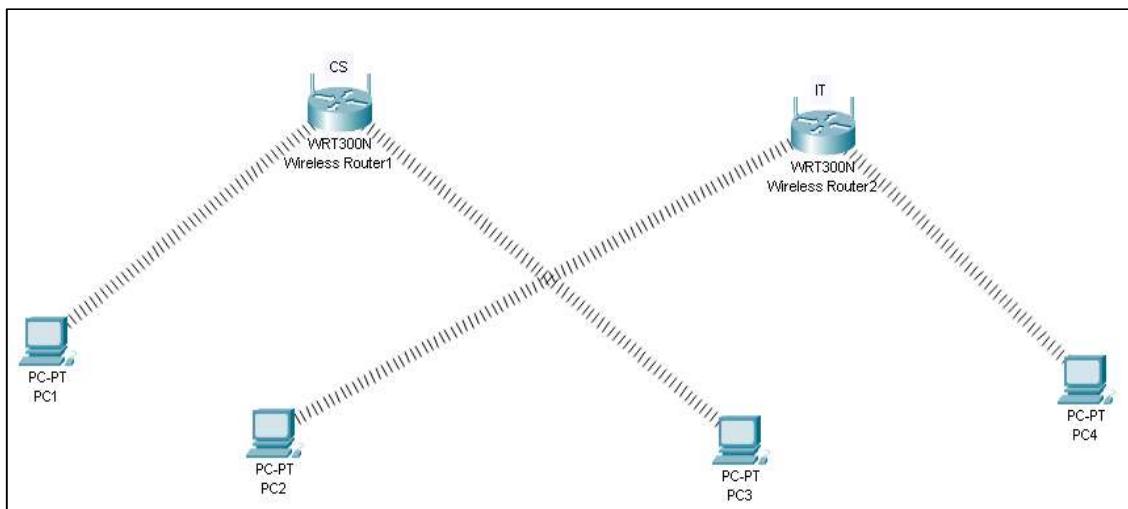


Go to pc wireless and then create profiles



**Note:** repeat all the step for all pc and create profile then connect 2 pc to CS and 2 pc to IT profile

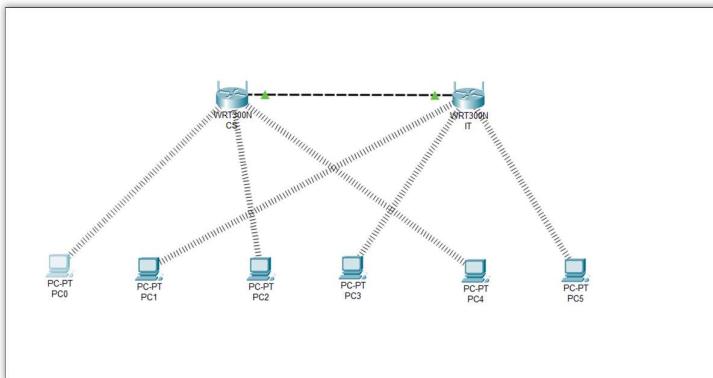
#### OUTPUT:



# Practical 6

**Aim:** Creating an Adhoc Network.

**Diagram:**

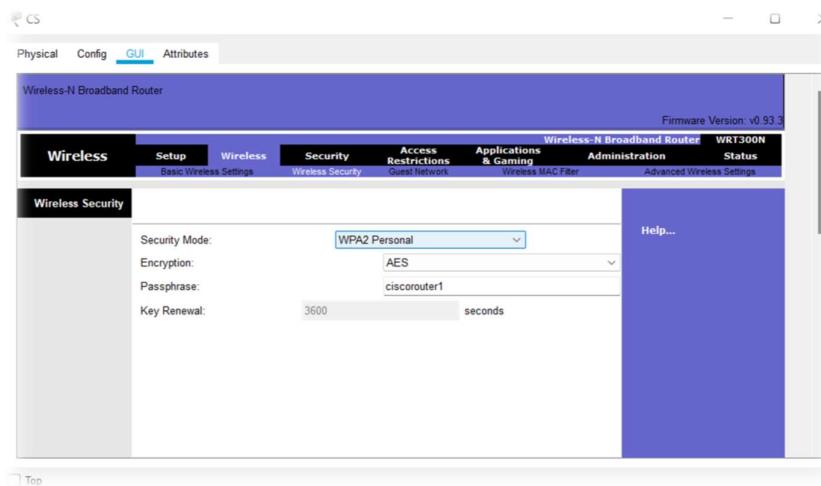


## Device

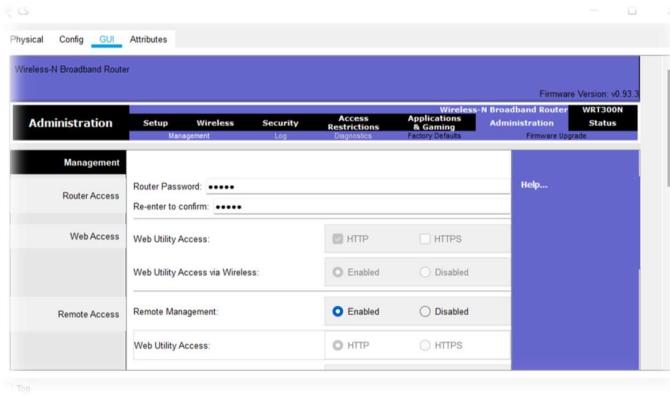
- 2 Router(Wireless)
- 6 Machine(PC)

## Router 1(CS):-

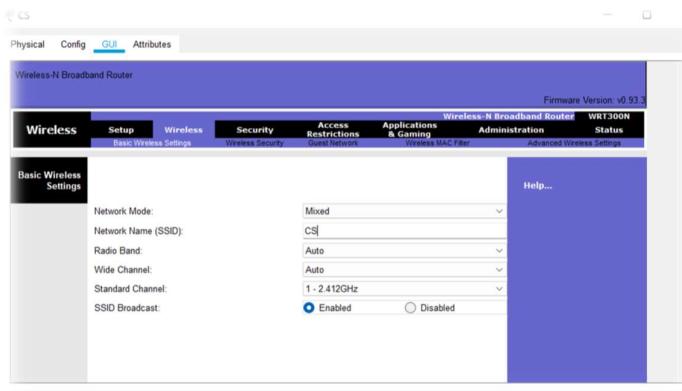
Click on router1 and go to > wireless > wireless security. Change the security mode and add password as shown below and then save the settings.



After that go to Administration > Enabled > Save the settings.

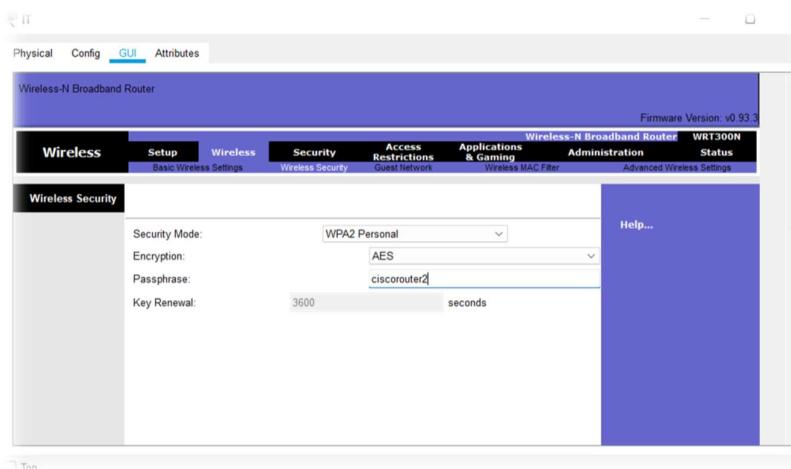


Now go to Wireless > Basic Wireless Settings and change SSID from Default to CS after that save the settings.

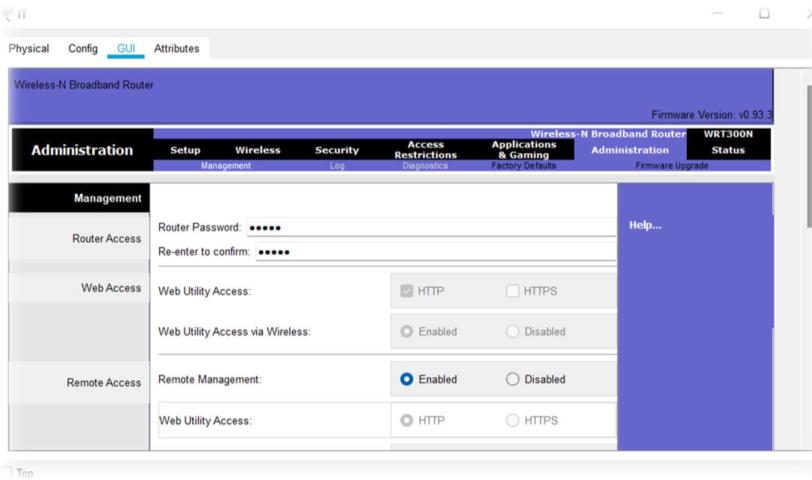


## Router 2(IT):-

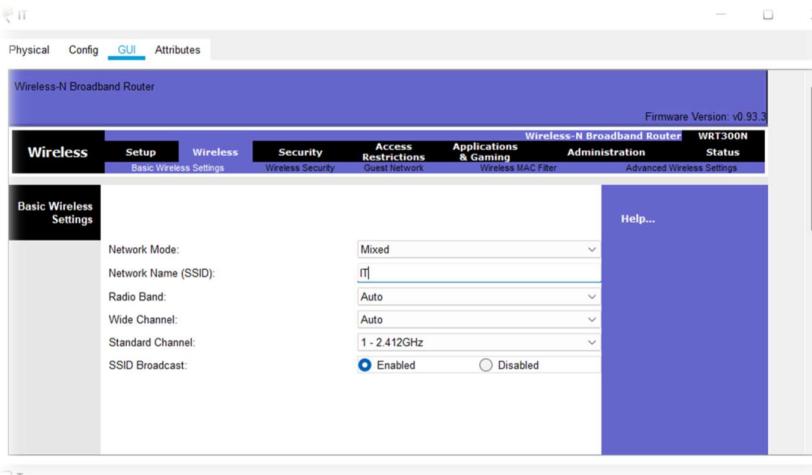
Click on router2 and go to > wireless > wireless security. Change the security mode and add password as shown below and then save the settings.



After that go to Administration > Enabled > Save the settings.

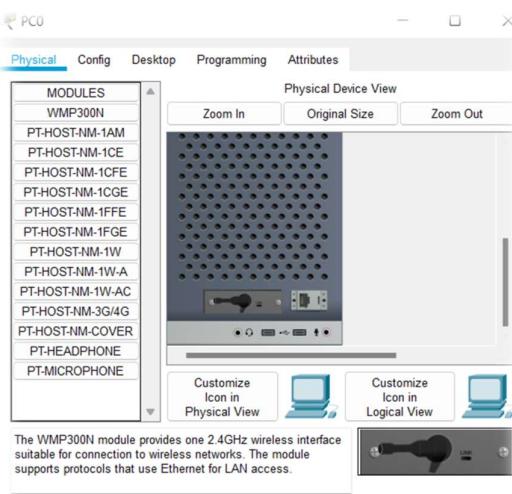


Now go to Wireless > Basic Wireless Settings and change SSID from Default to IT after that save the settings.

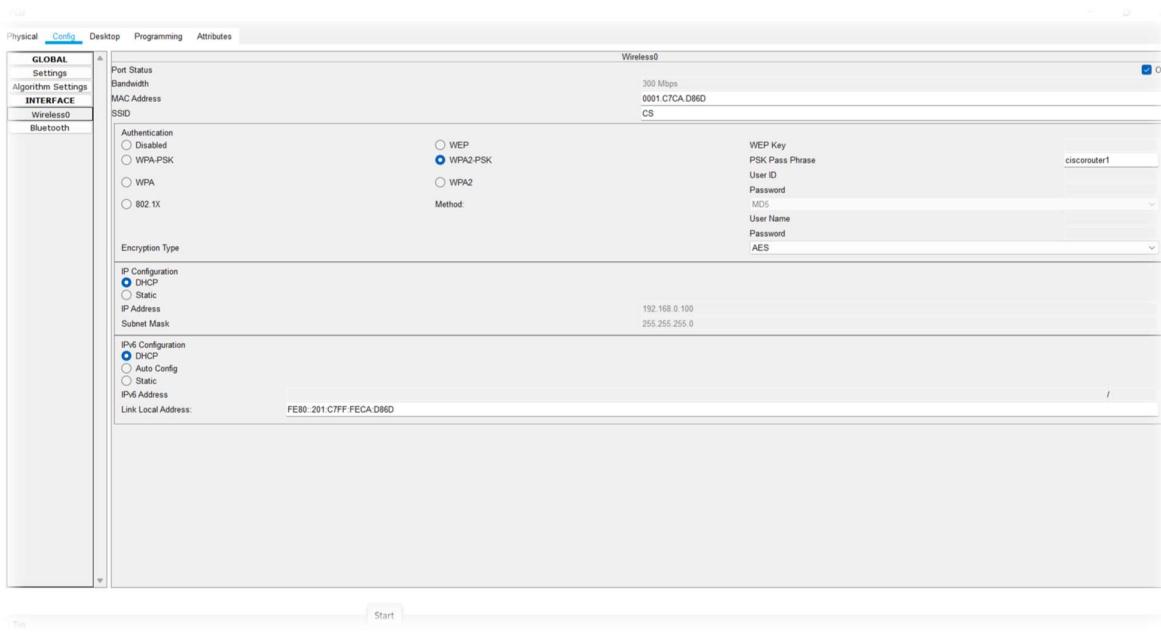


### Machine (PC):-

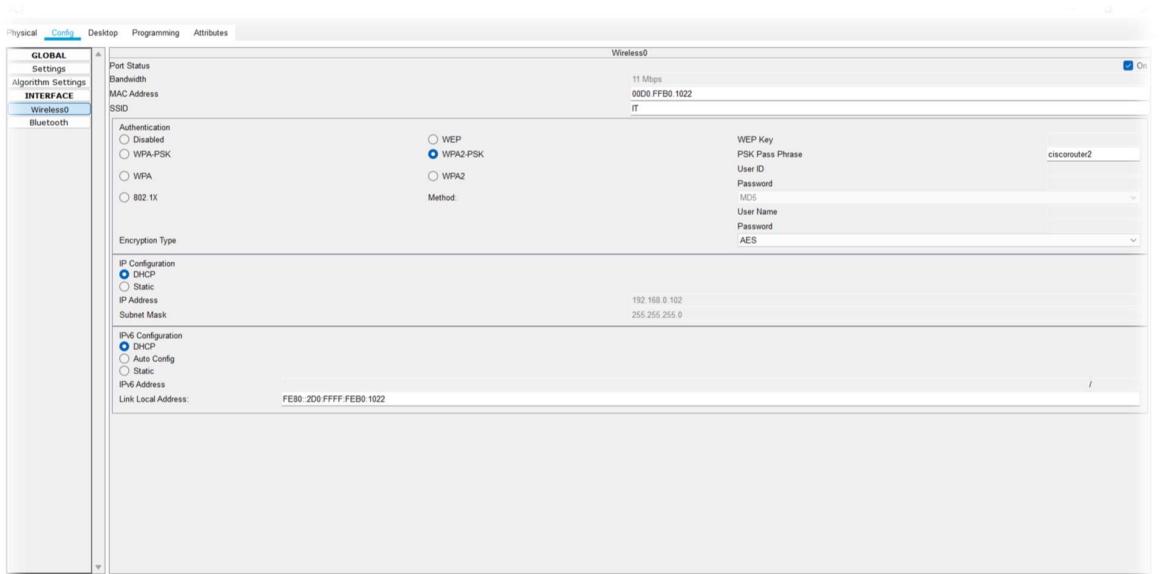
Switch off the machine remove wired infrastructure and place wireless for all the machines after that switch on. As shown below.



For Machine 1(PC0) change the SSID as CS and enter the password which is ciscorouter1.



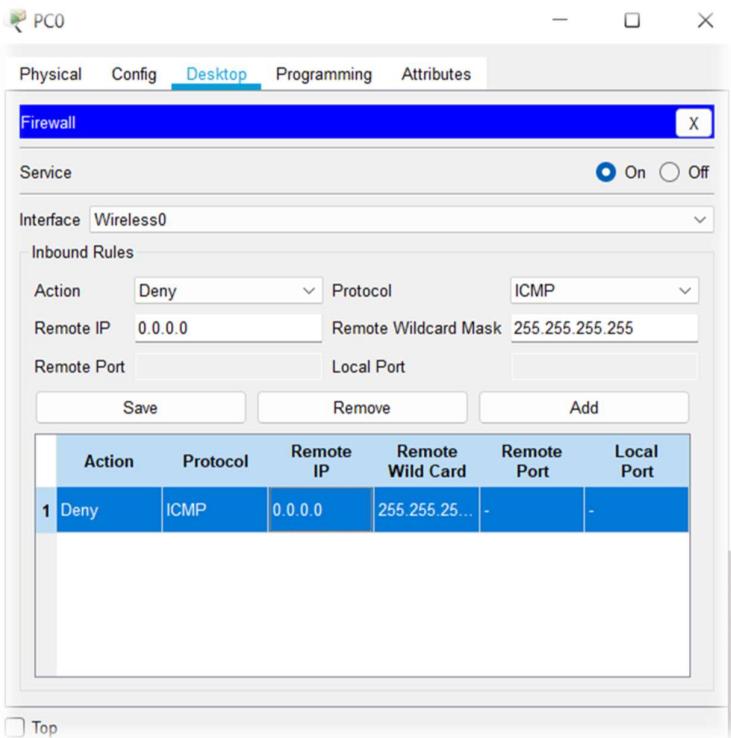
For Machine 2(PC1) change the SSID as IT and enter the password which is ciscorouter2.



Follow the same steps for all the machines alternately one is CS another IT.

#### How to Block the ping protocol in PC0?

Go to IPV4 and change the setting as given below.



Check the IP address while using command ipconfig.

```
Packet Tracer PC Command Line 1.0
C:\>

ipconfig

Bluetooth Connection:(default port)

Link-local IPv6 Address.....::;
IP Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: 0.0.0.0

Wireless0 Connection:

Link-local IPv6 Address.....: FE80::201:C7FF:FECA:D86D
IP Address.....: 192.168.0.100
Subnet Mask.....: 255.255.255.0
Default Gateway.....: 192.168.0.1

C:\>|
```

Now we can pass ping command and its blocked after sometime.

PC3

Physical Config Desktop Programming Attributes

Command Prompt X

```
ping 192.168.0.100
Pinging 192.168.0.100 with 32 bytes of data:
Reply from 192.168.0.100: bytes=32 time=42ms TTL=128
Reply from 192.168.0.100: bytes=32 time=15ms TTL=128
Reply from 192.168.0.100: bytes=32 time=14ms TTL=128
Reply from 192.168.0.100: bytes=32 time=28ms TTL=128

Ping statistics for 192.168.0.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 14ms, Maximum = 42ms, Average = 24ms

C:\>ping 192.168.0.100
Pinging 192.168.0.100 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

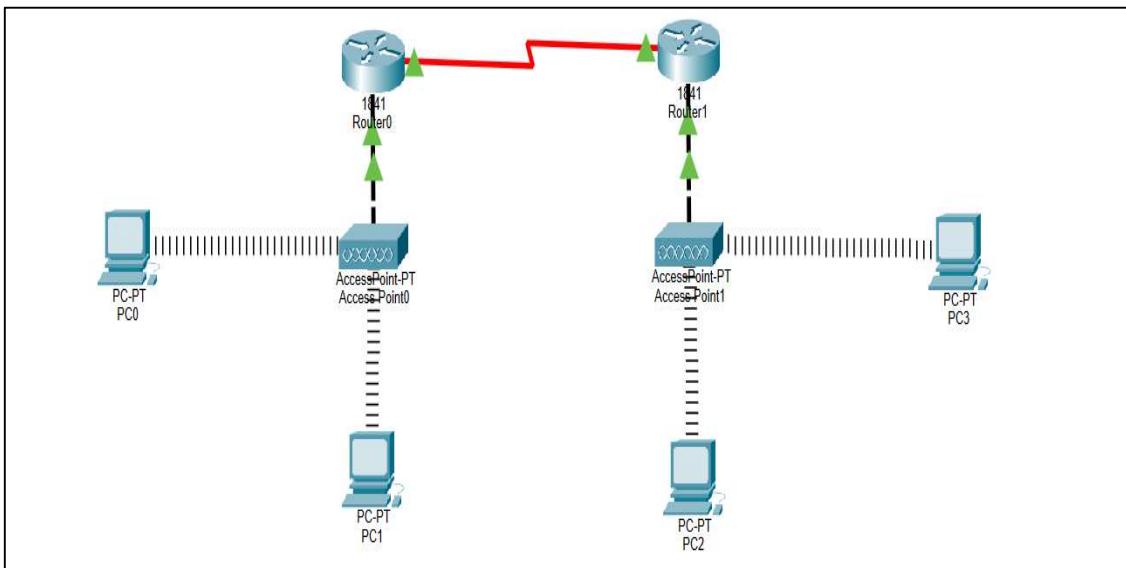
Ping statistics for 192.168.0.100:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Top

# Practical 7

Aim: Configuring Basic AP Setting

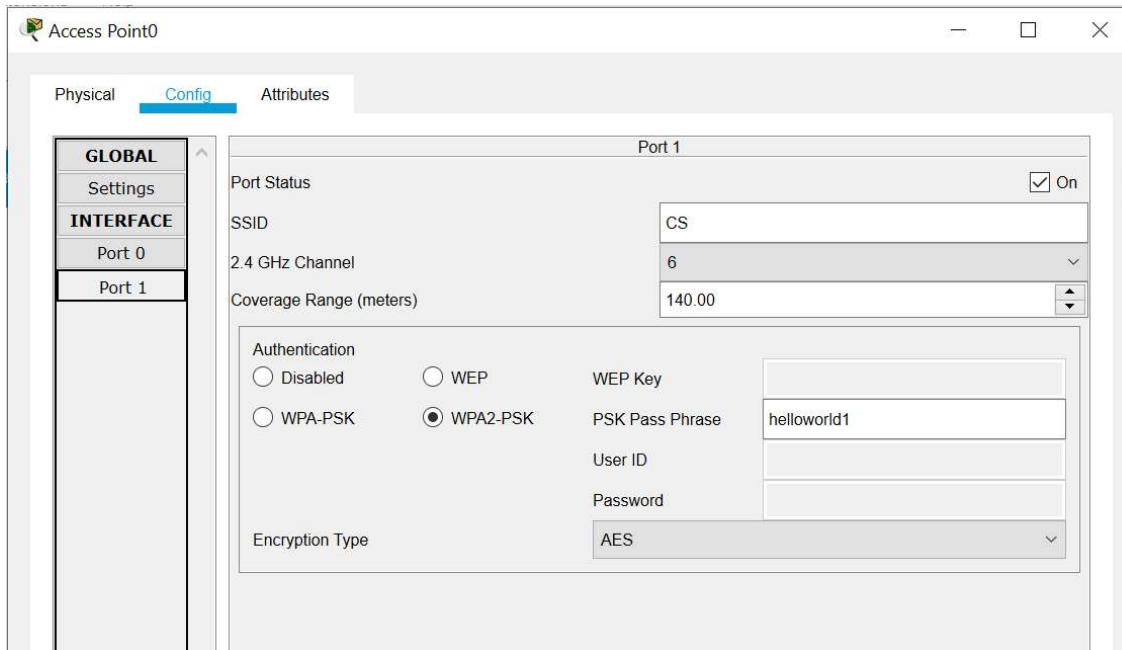
- Diagram



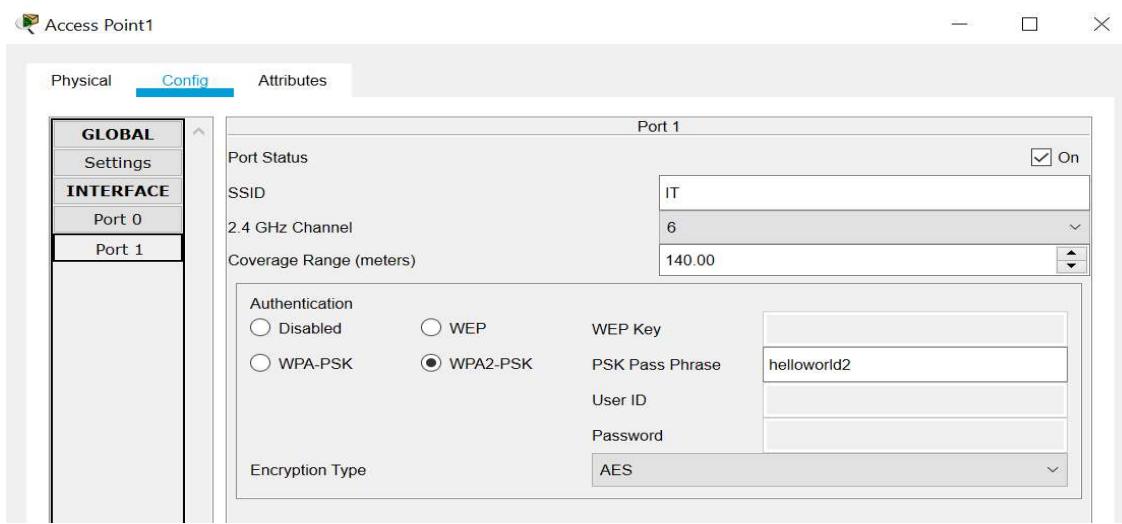
- Device

4 PC  
2 Access Point-PT  
1841 Router

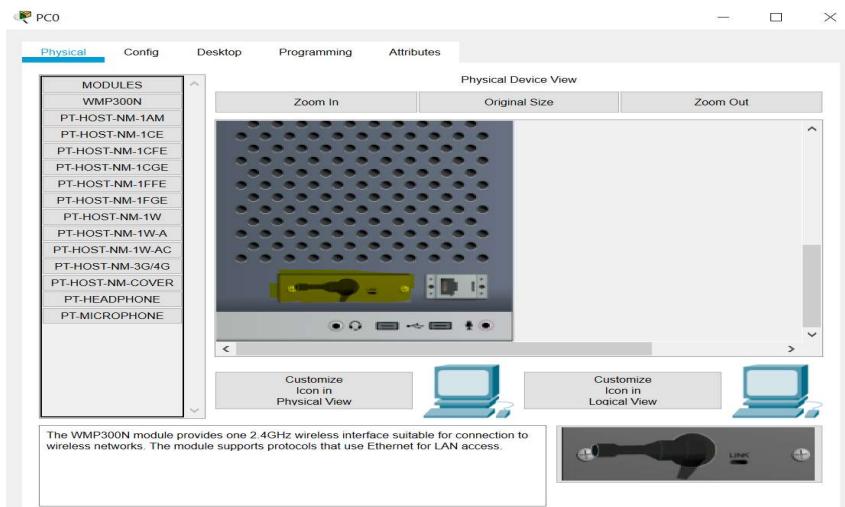
Set SSID of Access Point0 and Passphrase



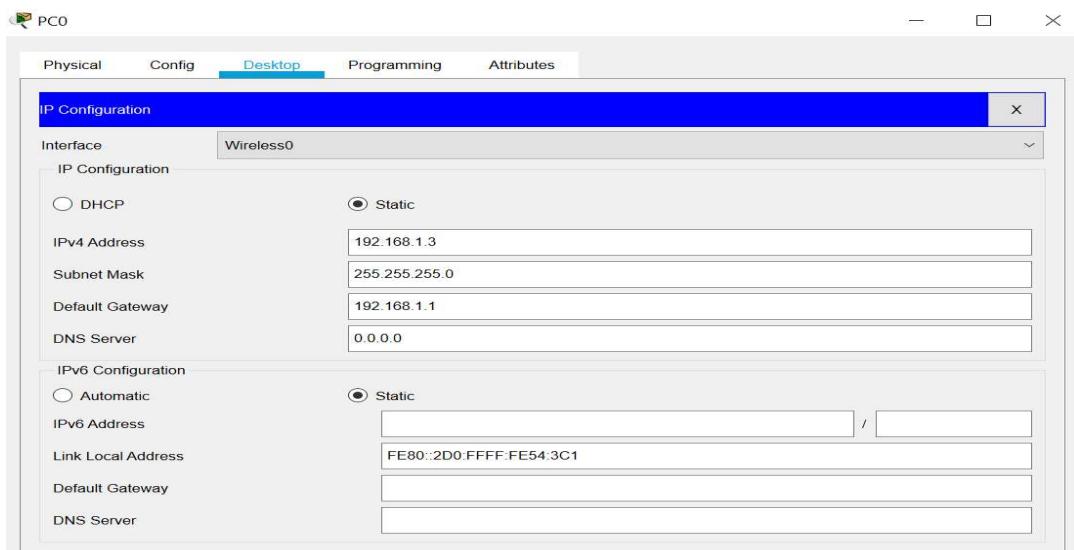
Set SSID of Access Point1 and Passphrase



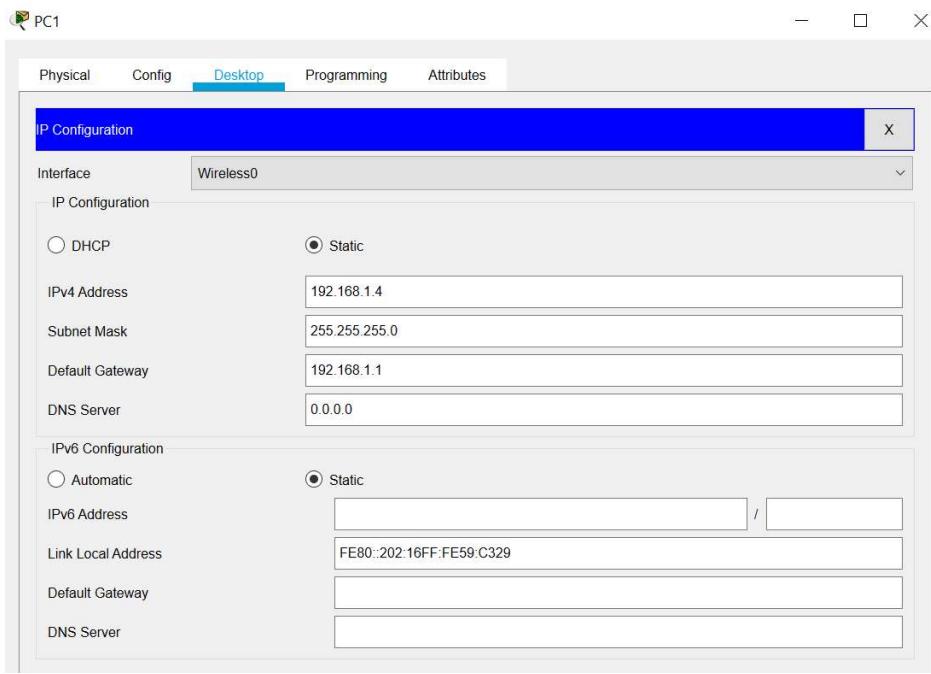
change all 4 PC to Wireless.



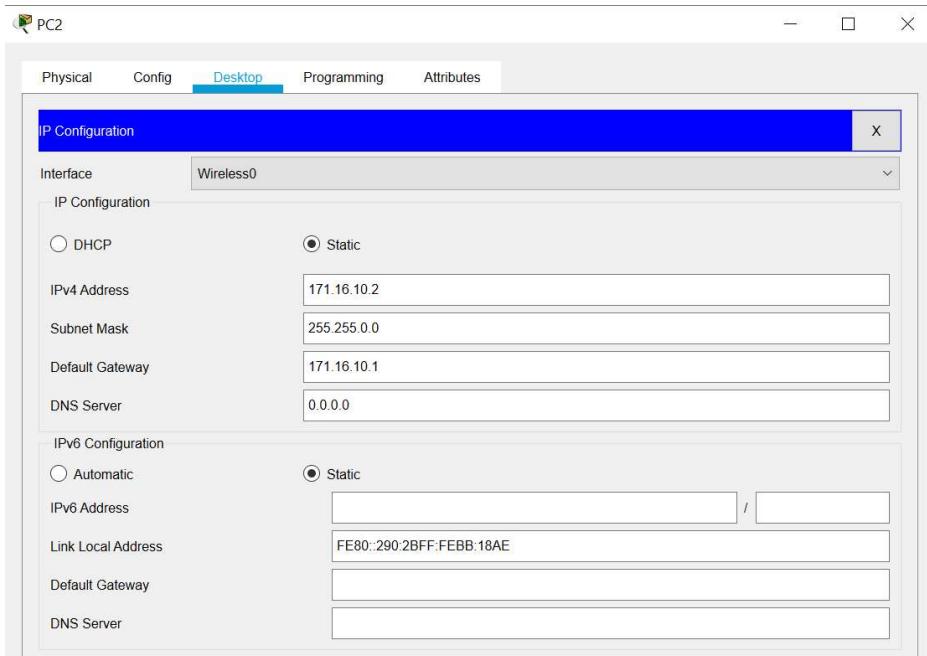
Set IP address of PC0.



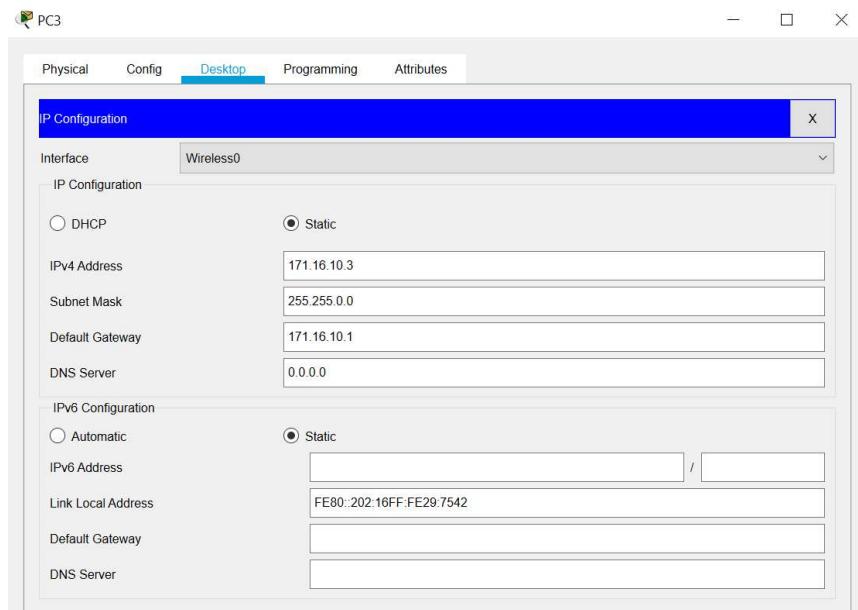
Set IP address of PC1.



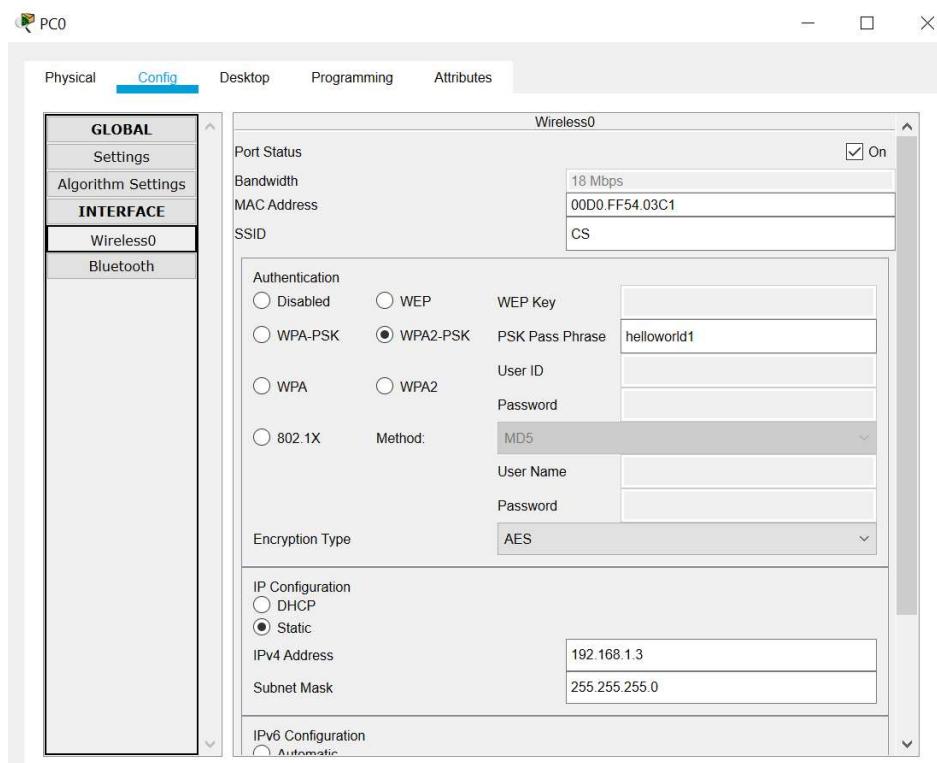
Set IP address of PC2.



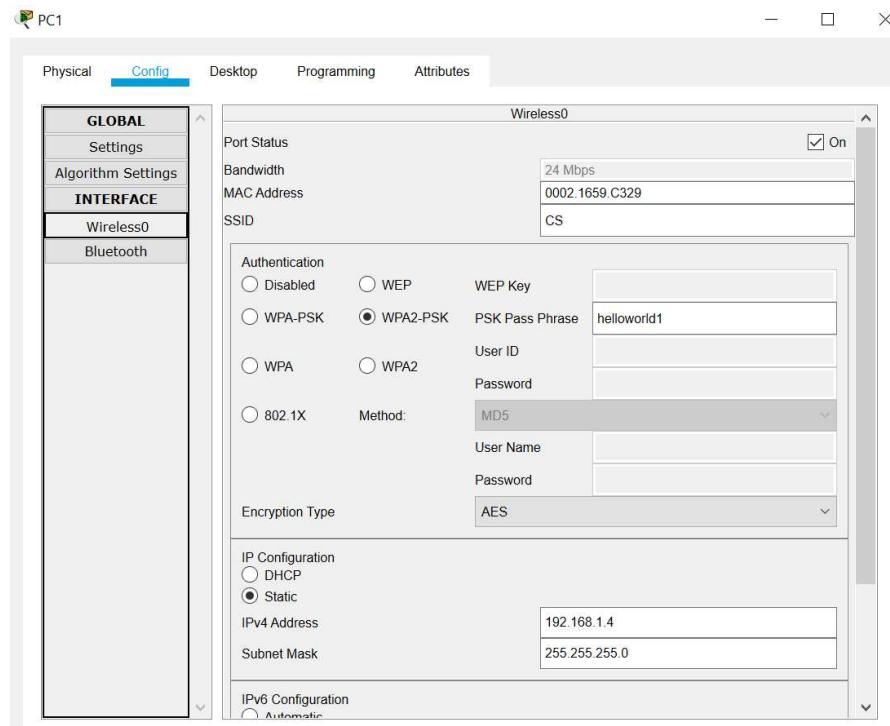
Set IP address of PC3.



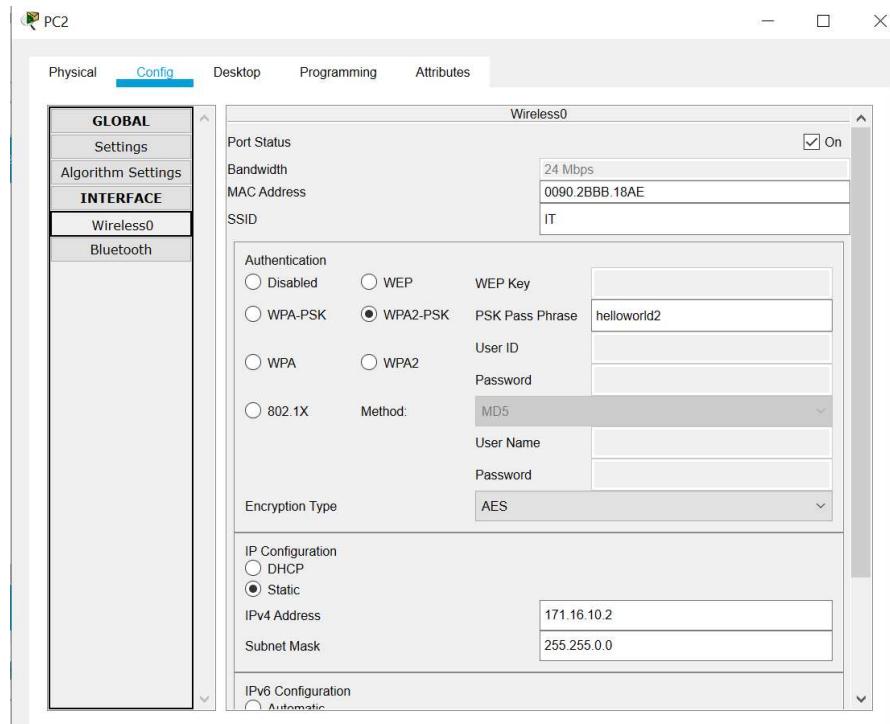
Connect PC0 to AccessPoint0.



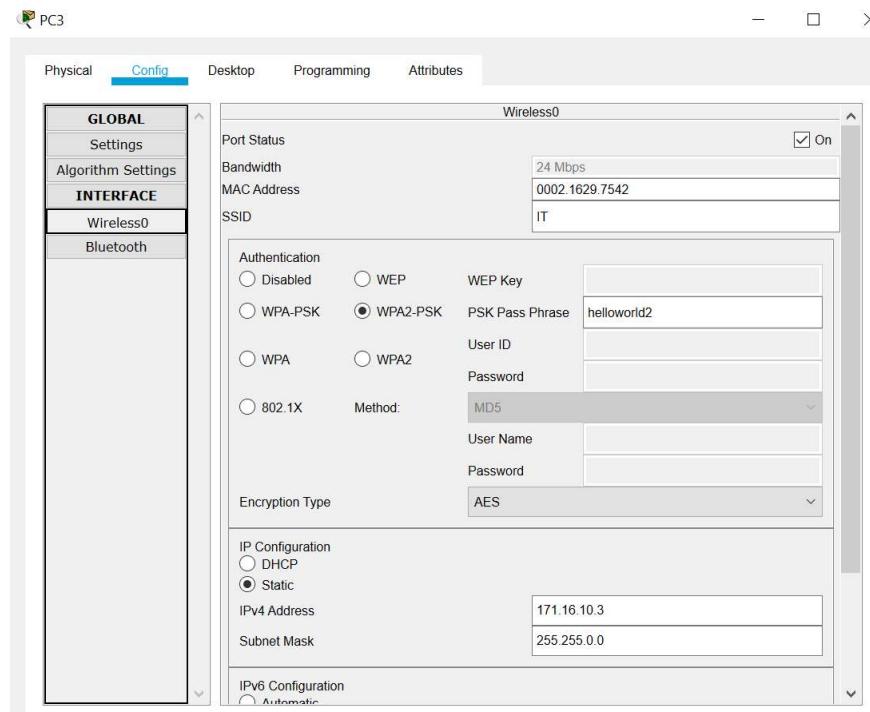
Connect PC1 to AccessPoint0.



Connect PC2 to AccessPoint1.

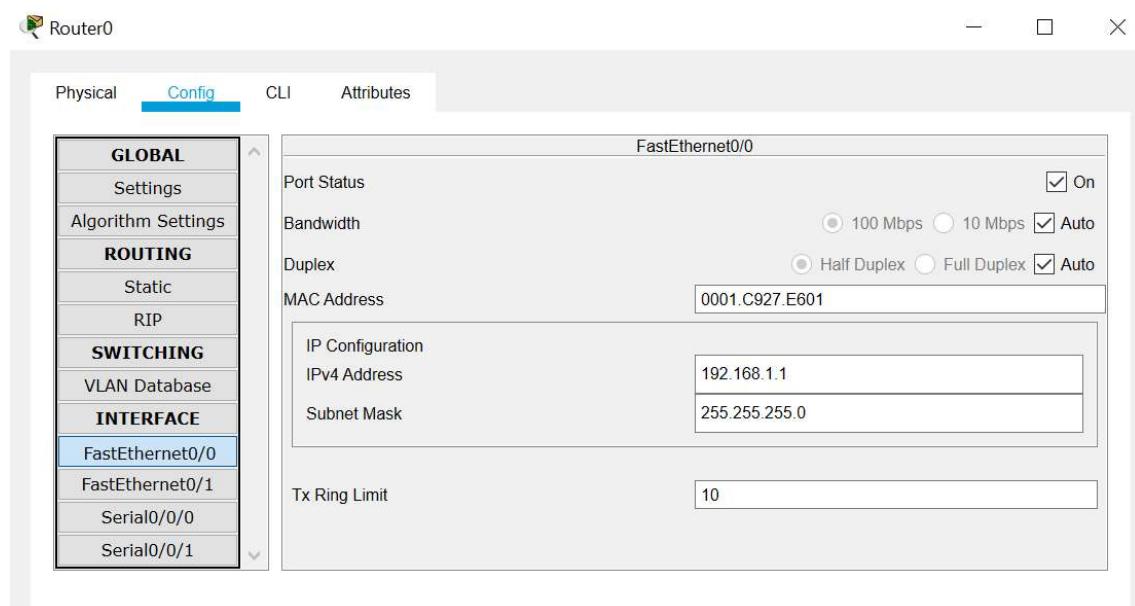


Connect PC3 to AccessPoint1.

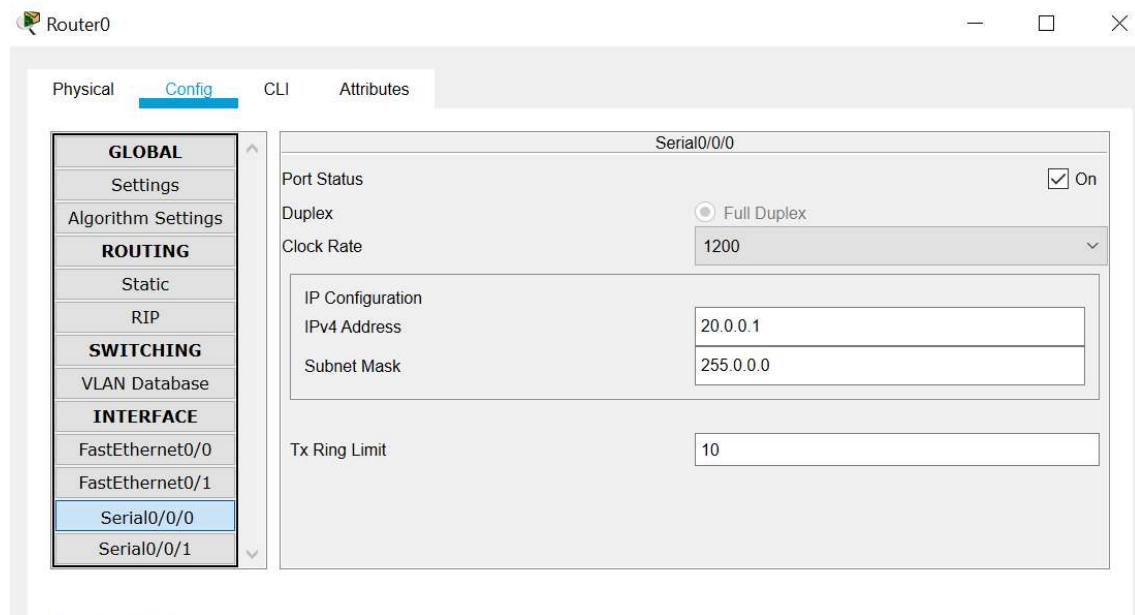


## Config wireless router0

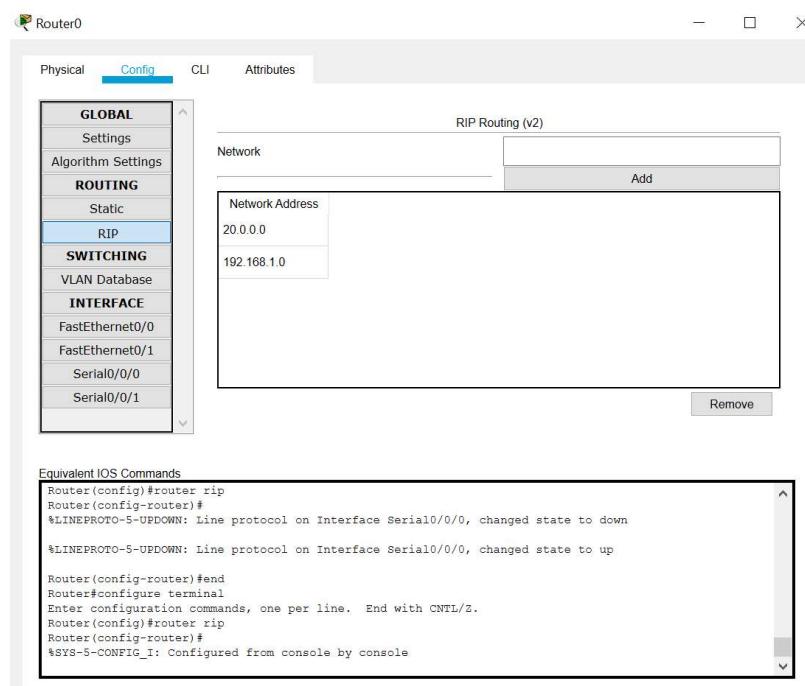
Set IP address of FastEthernet0/0.



Set IP address of Serial0/0/0.

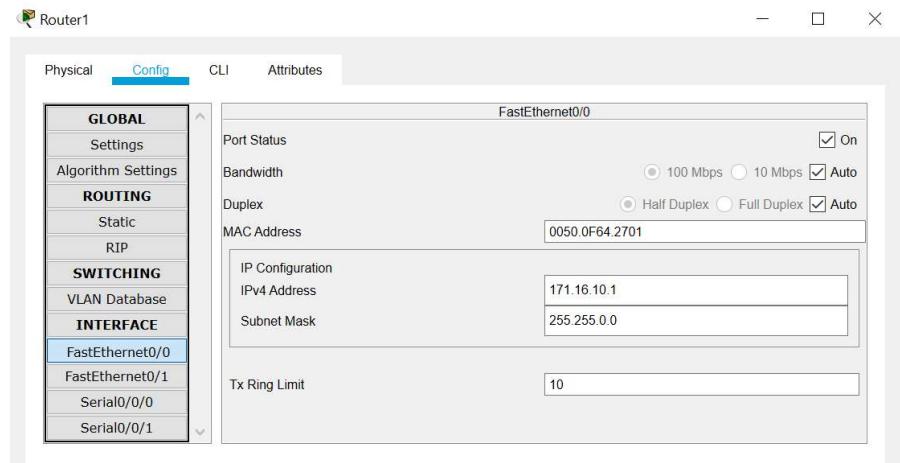


Set RIP of Access- Point 0 IP address and Router address.

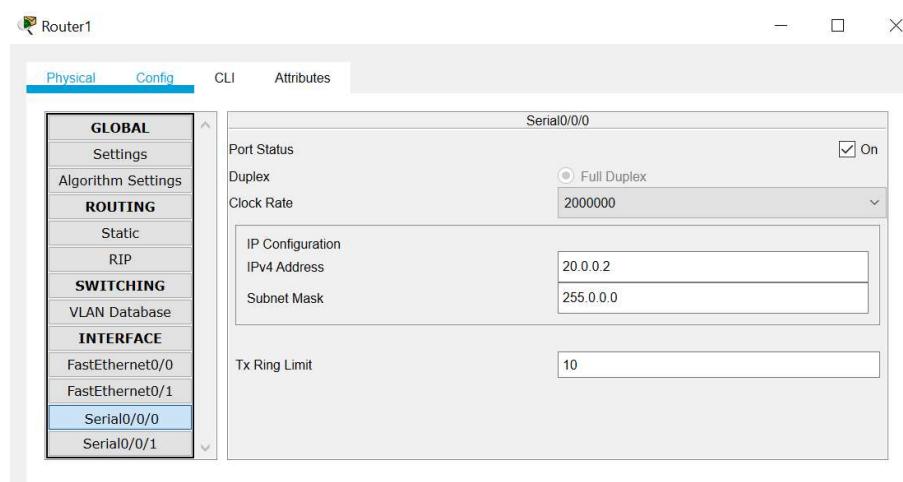


## Config wireless router1

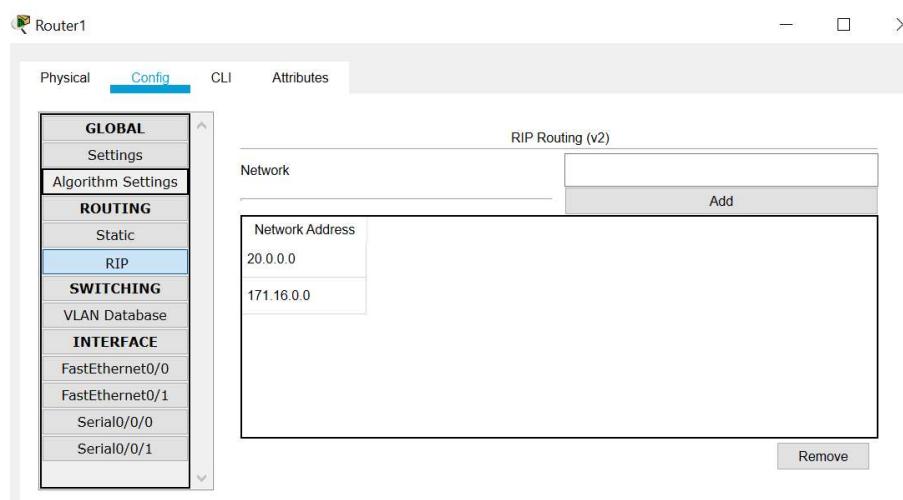
Set IP address of FastEthernet0/0.



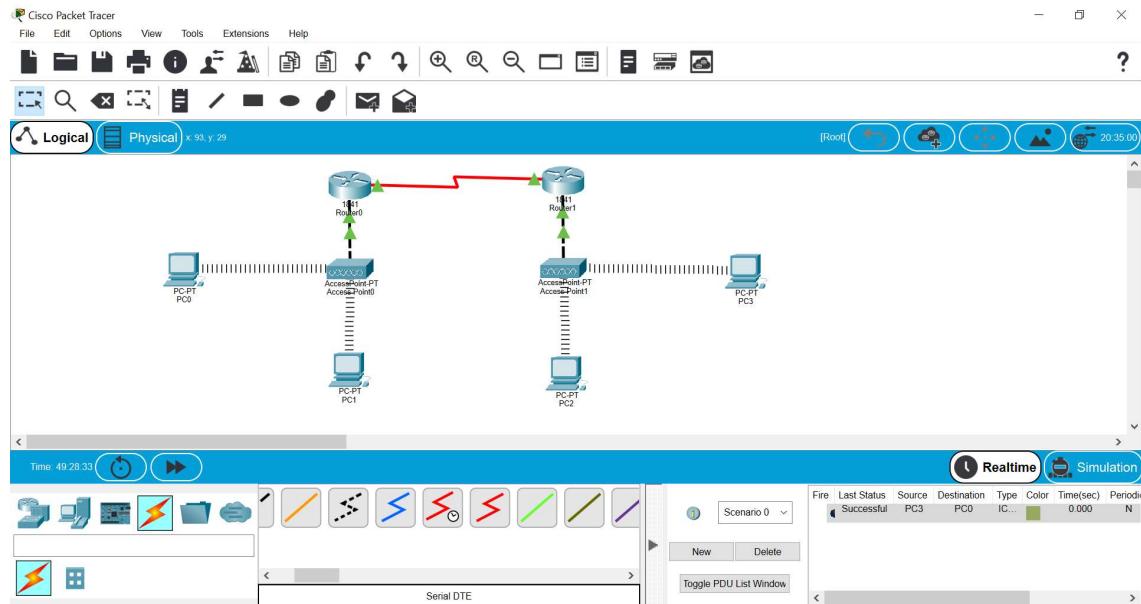
Set IP address of Serial0/0/0.



Set RIP of Access- Point 1 and Router IP address.



Try to send packet/message from PC0 to PC2 and Vice versa.

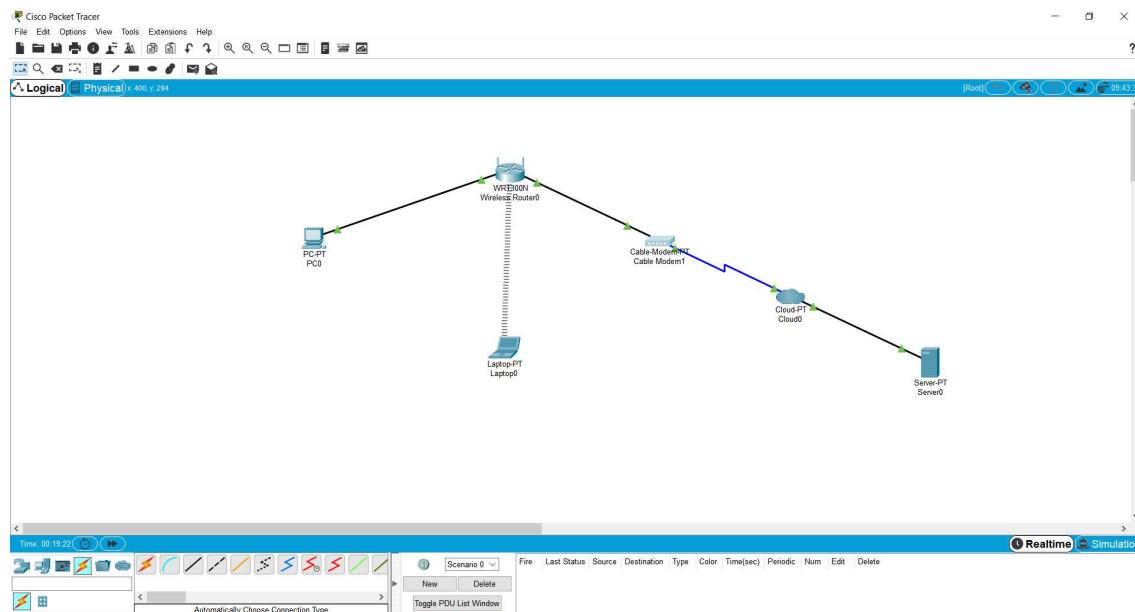


## Practical 8

**Aim:** Packet Tracer – Create a Simple Network Using Packet Tracer.

Topology:

- **Diagram**



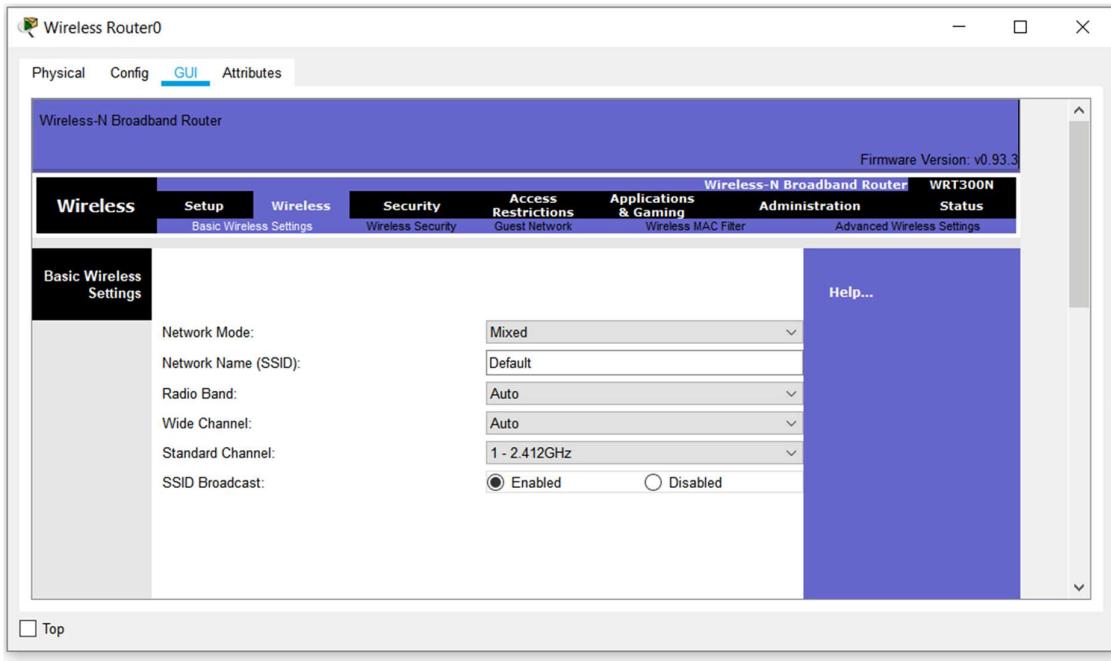
- **Device**

- 1 Machine
- 1 Wireless router
- 1 Laptop
- 1 Cable –modem
- 1 Cloud server

Addressing Table:

Device	Interface	IP Address	Subnet Mask	Default Gateway
PC	Ethernet0	DHCP		192.168.0.1
Wireless Router	LAN	192.168.0.1	255.255.255.0	
Wireless Router	Internet	DHCP		
Cisco.com Server	Ethernet0	208.67.220.220	255.255.255.0	
Laptop	Wireless0	DHCP		

## Configure the Network Devices:



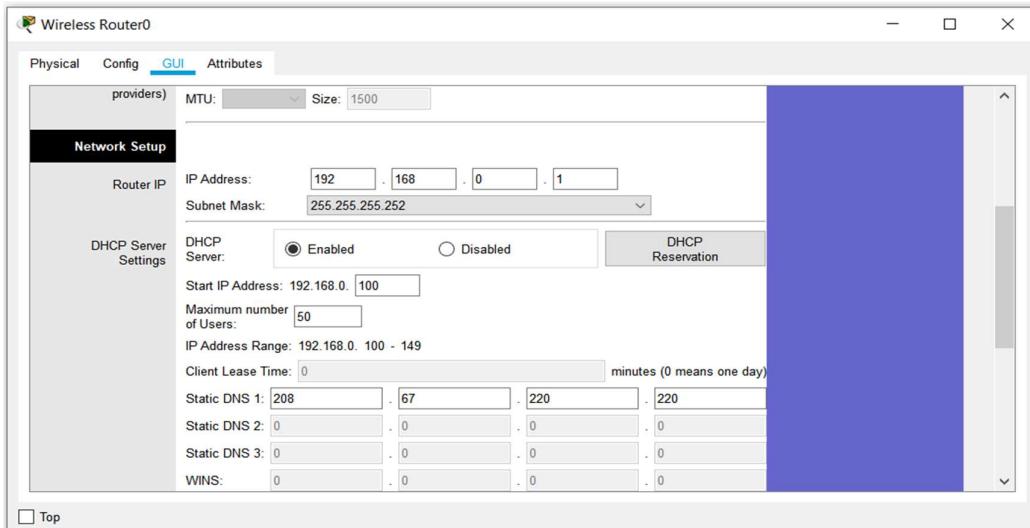
Configure the Internet connection on the wireless router

Click on the Setup tab in the wireless router GUI.

In the DHCP Server settings verify that the Enabled button is selected and configure the static IP

address of the DNS server as 208.67.220.220 as shown in the figure.

Click on the Save Settings tab.



Configure the Cisco.com server

Configure the Cisco.com server as a DHCP server

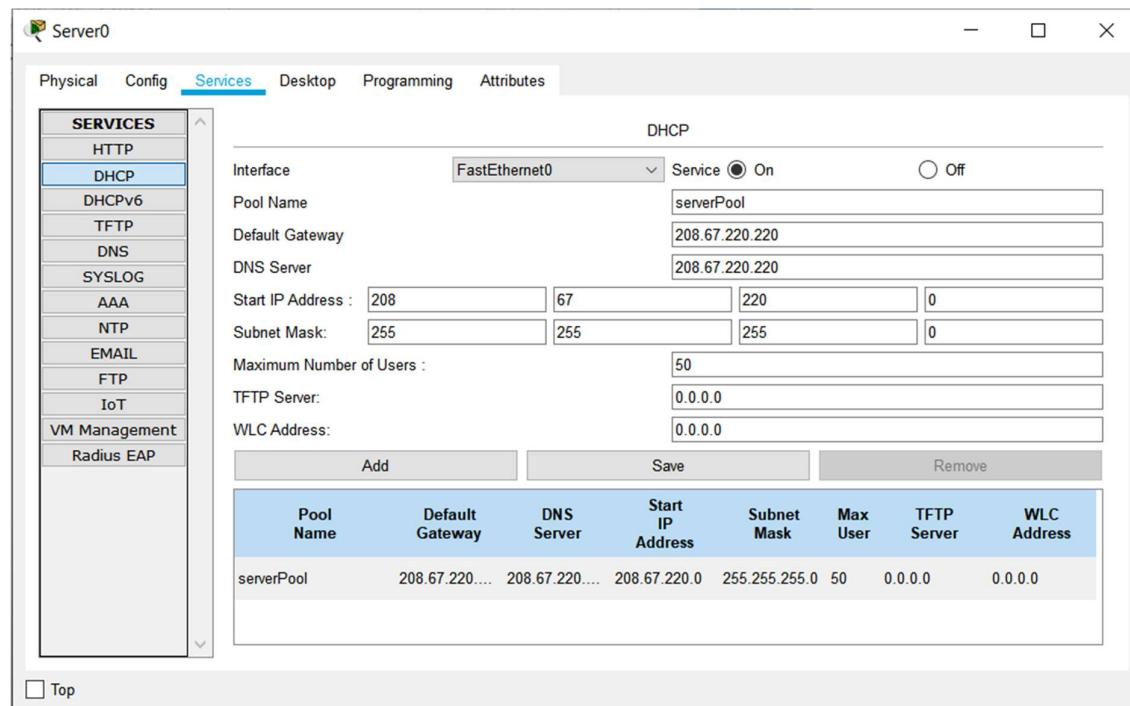
Click on the Cisco.com server icon on the Packet Tracer Logical workspace and select the Services tab.

Select DHCP from the SERVICES list in the left pane.

In the DHCP configuration window, configure a DHCP as shown in the figure with the following settings.

- Click On to turn the DCHP service on
- Pool name: DHCPpool
- Default Gateway: 208.67.220.220
- DNS Server: 208.67.220.220
- Starting IP Address: 208.67.220.1
- Subnet Mask 255.255.255.0
- Maximum number of Users: 50

Click Add to add the pool.



Configure the Cisco.com server as a DNS server to provide domain name to IPv4 address resolution.

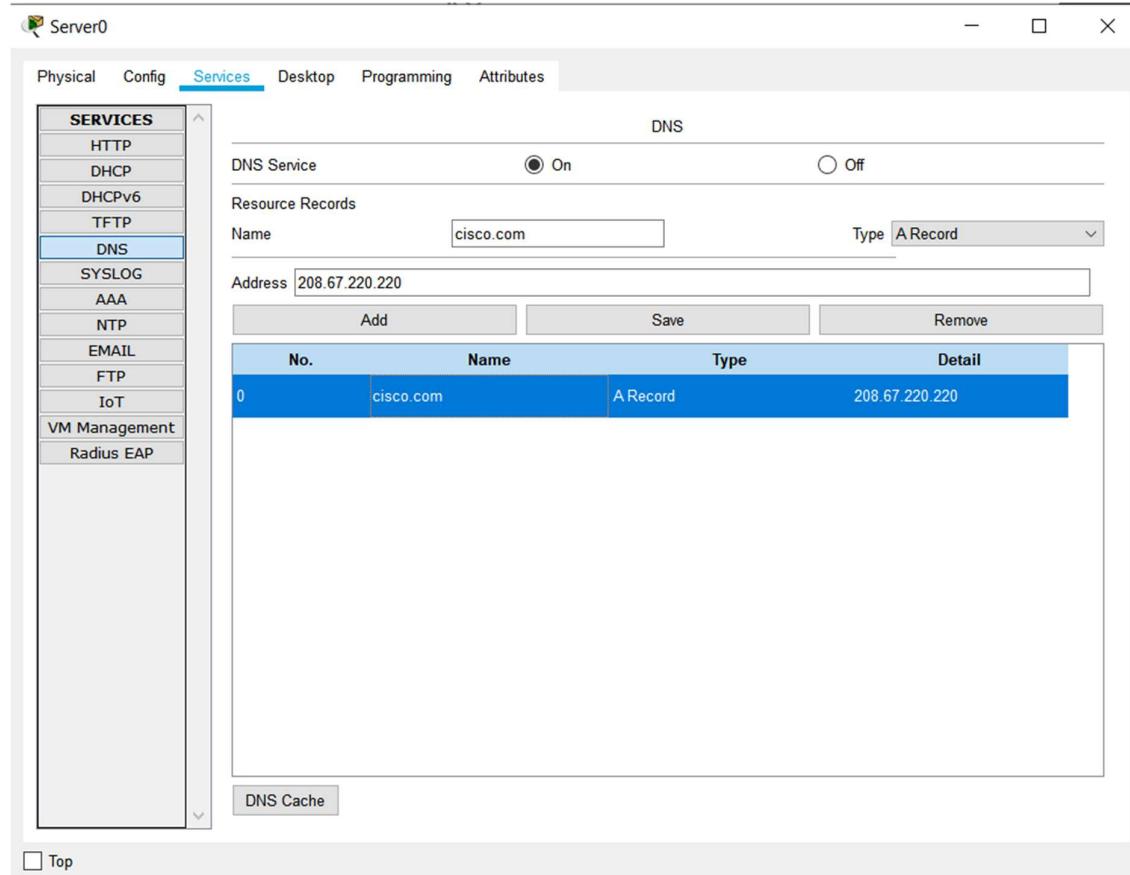
While still in the Services tab, select DNS from the SERVICES listed in the left pane.

Configure the DNS service using the following settings as shown in the figure.

- Click On to turn the DNS service on

- Name: Cisco.com
- Type: A Record
- Address: 208.67.220.220

Click Add to add the DNS service settings.



### Configure the Internet cloud:

- a. Install network modules if necessary

Click on the Internet Cloud icon on the Packet Tracer Logical workspace and then click on the Physical

tab. The cloud device will need two modules if they are not already installed. The PT-CLOUD-NM-1CX

which is for the cable modem service connection and the PT-CLOUD-NM-1CFE which is for a copper

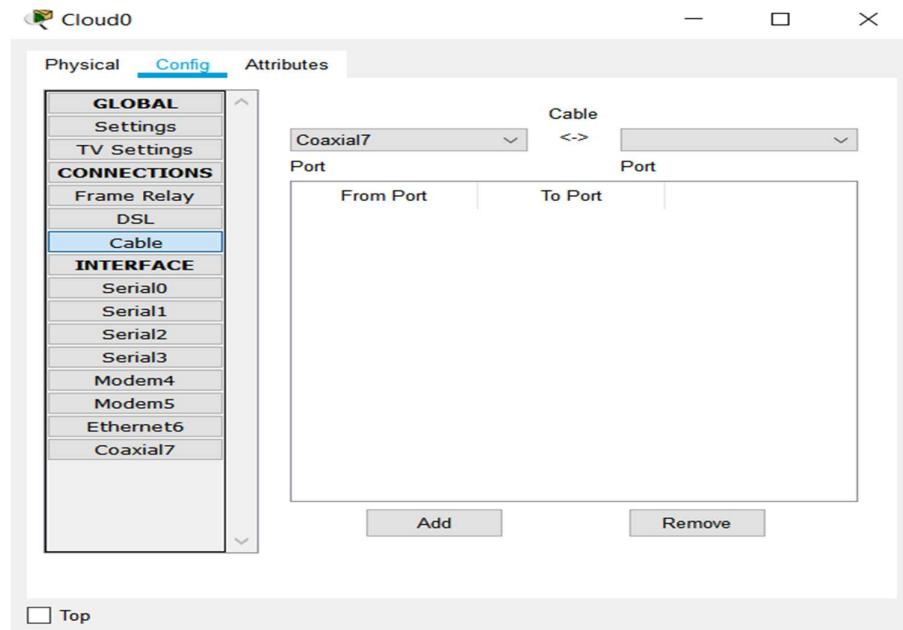
Ethernet cable connection. If these modules are missing, power off the physical cloud devices by clicking

on the power button and drag each module to an empty module port on the device and then power the device back on.

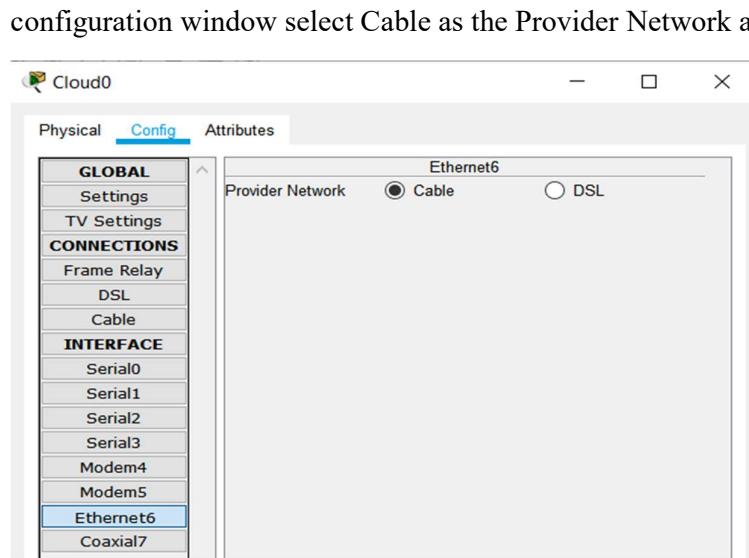
**b. Identify the From and To Ports**

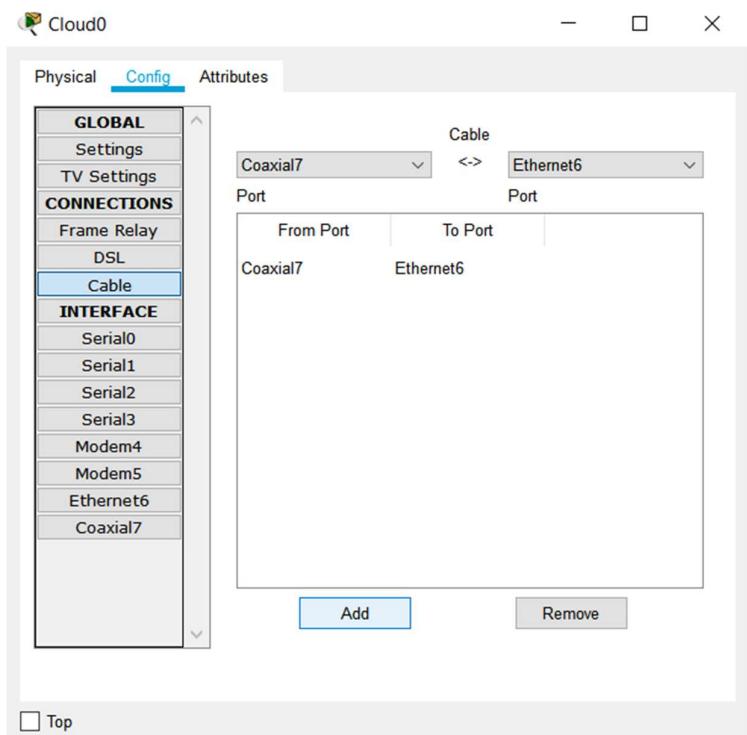
Click on the Config tab in the Cloud device window. In the left pane click on Cable under CONNECTIONS. In the first drop down box choose Coaxial and in the second drop down box choose Ethernet then click the Add button to add these as the From Port and To Port as shown in the figure.

Ethernet then click the Add button to add these as the From Port and To Port as shown in the figure.



**c. Identify the type of provider** While still in the Config tab click Ethernet under INTERFACE in the left pane. In the Ethernet configuration window select Cable as the Provider Network as shown in the figure.



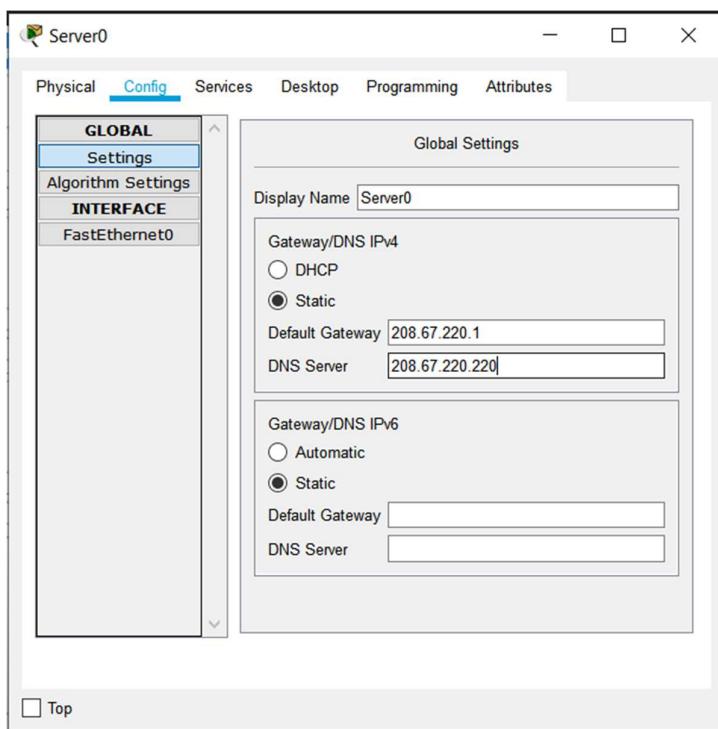


d. Configure the Cisco.com server FastEthernet0 Interface settings.

Click on FastEthernet in left pane of the Config tab

Configure the FastEthernet Interface settings of the server as follows:

- Select Static under IP Configuration
- IP Address: 208.67.220.220
- Subnet Mask: 255.255.255.0



## Verify Connectivity

### Step 1: Refresh the IPv4 settings on the PC

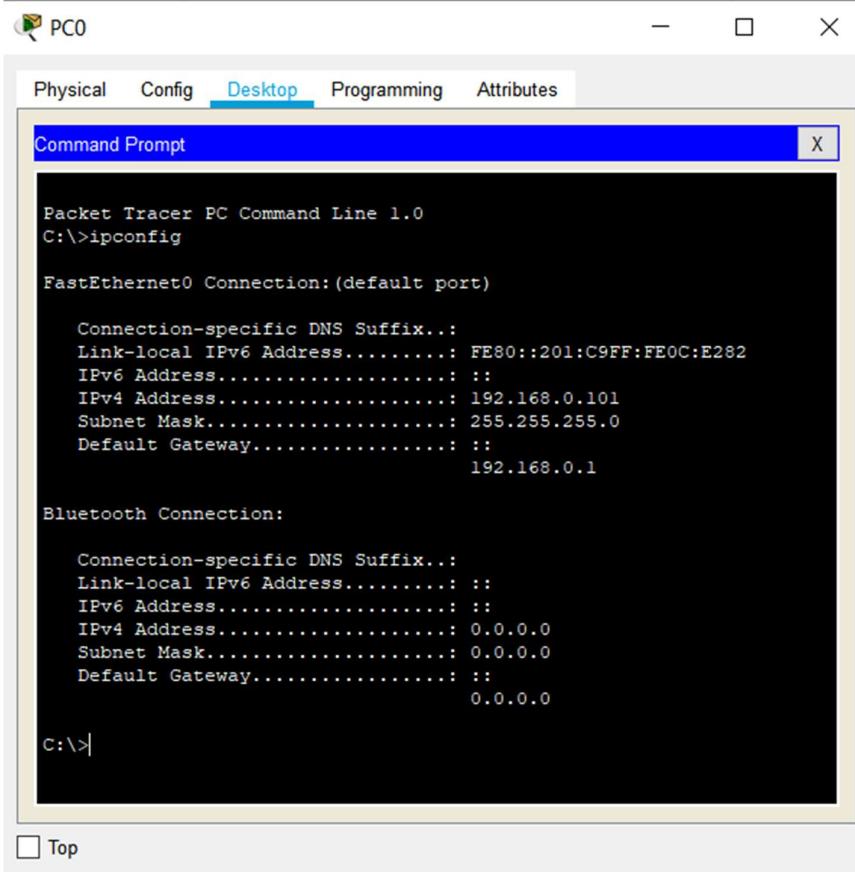
- Verify that the PC is receiving IPv4 configuration information from DHCP.

Click on the PC on the Packet Tracer Logical workspace and then the select the Desktop tab of the PC

configuration window.

Click on the Command Prompt icon.

In the command prompt refresh the IP settings by issuing the commands ipconfig /release and then ipconfig /renew. The output should show that the PC has an IP address in the 192.168.0.x range, a subnet mask, a default gateway, and DNS server address as shown in the figure.



The screenshot shows a Windows-style desktop window titled "PC0". The "Desktop" tab is selected in the top menu bar. A "Command Prompt" window is open, showing the output of the "ipconfig /renew" command. The output details the configuration for two network connections: "FastEthernet0 Connection: (default port)" and "Bluetooth Connection". Both connections have their IP addresses renewed to 192.168.0.101, subnet mask 255.255.255.0, and default gateway 192.168.0.1. The "Link-local IPv6 Address" for FastEthernet0 is FE80::201:C9FF:FE0C:E282. The Command Prompt window also shows the prompt "C:\>".

```
Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: FE80::201:C9FF:FE0C:E282
IPv6 Address.....: ::
IPv4 Address.....: 192.168.0.101
Subnet Mask.....: 255.255.255.0
Default Gateway.....: ::1
                           192.168.0.1

Bluetooth Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::1
                           0.0.0.0

C:\>
```

## Verify Connectivity

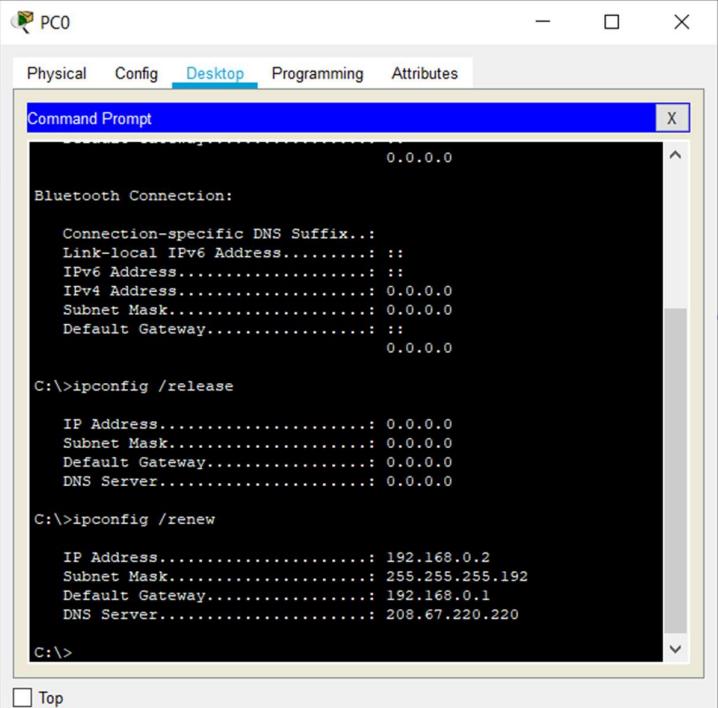
### Step 1: Refresh the IPv4 settings on the PC

- Verify that the PC is receiving IPv4 configuration information from DHCP.

Click on the PC on the Packet Tracer Logical workspace and then the select the Desktop tab of the PC configuration window.

Click on the Command Prompt icon.

In the command prompt refresh the IP settings by issuing the commands ipconfig /release and then ipconfig /renew. The output should show that the PC has an IP address in the 192.168.0.x range, a subnet mask, a default gateway, and DNS server address as shown in the figure.



The screenshot shows a Windows Command Prompt window titled "Command Prompt". The window is part of a software interface with tabs like Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is selected. The command prompt itself displays the following text:

```
0.0.0.0

Bluetooth Connection:

Connection-specific DNS Suffix...:
Link-local IPv6 Address..... :: :
IPv6 Address..... :: :
IPv4 Address..... 0.0.0.0
Subnet Mask..... 0.0.0.0
Default Gateway..... :: 0.0.0.0

C:\>ipconfig /release

IP Address..... 0.0.0.0
Subnet Mask..... 0.0.0.0
Default Gateway..... 0.0.0.0
DNS Server..... 0.0.0.0

C:\>ipconfig /renew

IP Address..... 192.168.0.2
Subnet Mask..... 255.255.255.192
Default Gateway..... 192.168.0.1
DNS Server..... 208.67.220.220

C:\>
```

Test connectivity to the Cisco.com server from the PC

From the command prompt, issue the command ping Cisco.com. It may take a few seconds for the ping to return. Four replies should be received as shown in the figure.

The screenshot shows a software application window titled "PCO". The menu bar includes "Physical", "Config", "Desktop" (which is underlined), "Programming", and "Attributes". Below the menu is a "Command Prompt" window with the title bar also reading "Command Prompt". The command prompt output is as follows:

```
IP Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway...: 0.0.0.0
DNS Server.....: 0.0.0.0

C:\>ipconfig /renew

IP Address.....: 192.168.0.2
Subnet Mask.....: 255.255.255.192
Default Gateway...: 192.168.0.1
DNS Server.....: 208.67.220.220

C:\>ping 208.67.220.220

Pinging 208.67.220.220 with 32 bytes of data:

Request timed out.
Reply from 208.67.220.220: bytes=32 time=lms TTL=127
Reply from 208.67.220.220: bytes=32 time=lms TTL=127
Reply from 208.67.220.220: bytes=32 time=lms TTL=127

Ping statistics for 208.67.220.220:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = lms, Maximum = lms, Average = lms

C:\>
```

Top