

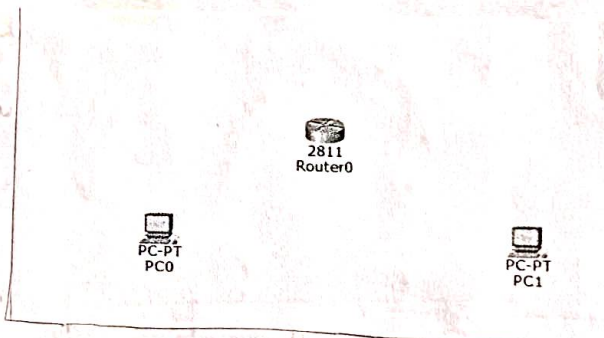
Expt: 10a, b

Date: 6.10.25

### AIM:

- a) Internetworking with routers in  
CISCO PACKET TRACER simulator

In this network, a router and 2 PCs  
are used. Computers are connected with  
the routers using a copper straight  
through cable



### Procedure:

1. Configure Router

```
Router0
Physical Config CLI
IOS Command Line Interface
Router>enable
Router#config t
Enter configuration commands, one per line. End with
CNTL/Z.
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state
to up

Router(config-if)#interface fastEthernet 0/1
Router(config-if)#ip address 192.168.20.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state
to up

Router(config-if)#
```

## 2. configure PCs

PC1

Physical Config Desktop Custom Interface

**IP Configuration**

IP Configuration  
☐ DHCP ☒ Static  
 IP Address 192.168.20.2  
 Subnet Mask 255.255.255.0  
 Default Gateway 192.168.20.1

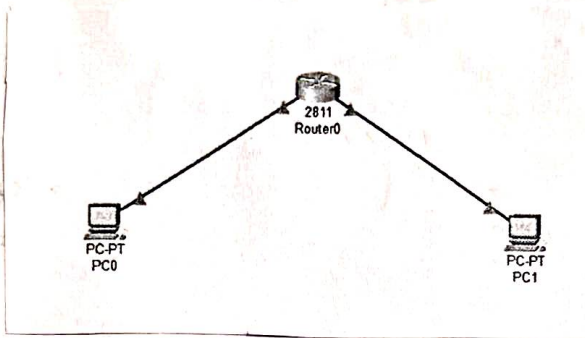
PC0

Physical Config Desktop Custom Interface

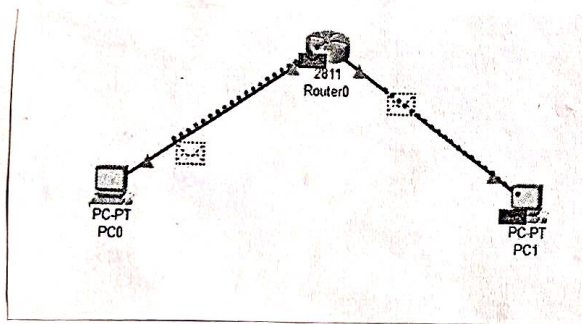
**IP Configuration**

IP Configuration  
☐ DHCP ☒ Static  
 IP Address 192.168.10.2  
 Subnet Mask 255.255.255.0  
 Default Gateway 192.168.10.1  
 DNS Server

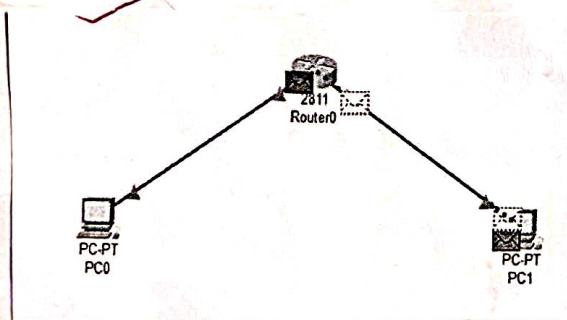
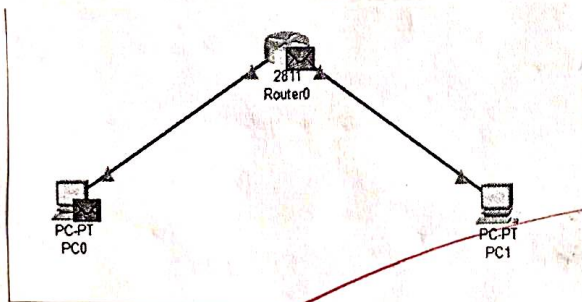
## 3. connect PCs with Router



sending a PDU from PC0 to PC1



In the simulation tab, auto-capture of the packets is done.





### AIM:

b) Design and configure an internetwork using wireless router, DHCP-server and internet cloud

### Addressing Table:

Device	Interface	IP Addr.	Subnet Mask	Default Gateway
PC	Ethernet ( )	DHCP		
Wireless Router	LAN	192.168.0.1	255.255.255.0	
Wireless Router	Internet	DHCP		
Cisco.Com Server	Ethernet ( )	208.67.220.220	255.255.255.0	
Laptop	Wireless ( )	DHCP		

### Objectives

1. Build a simple Network in the Logical Topology Workspace

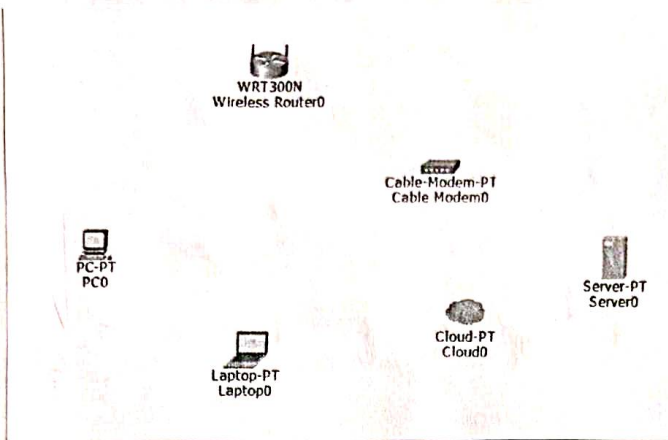
Step 1: Launch Packet Tracer

Step 2: Build the Topology

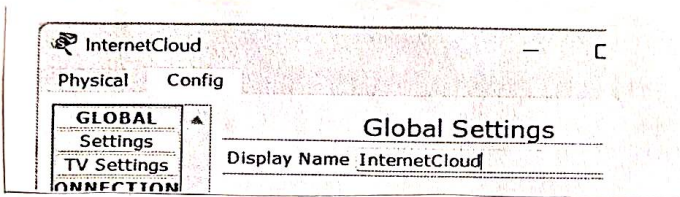
- a) Add the devices
- b) Change display names

c) Add the physical cabling between devices

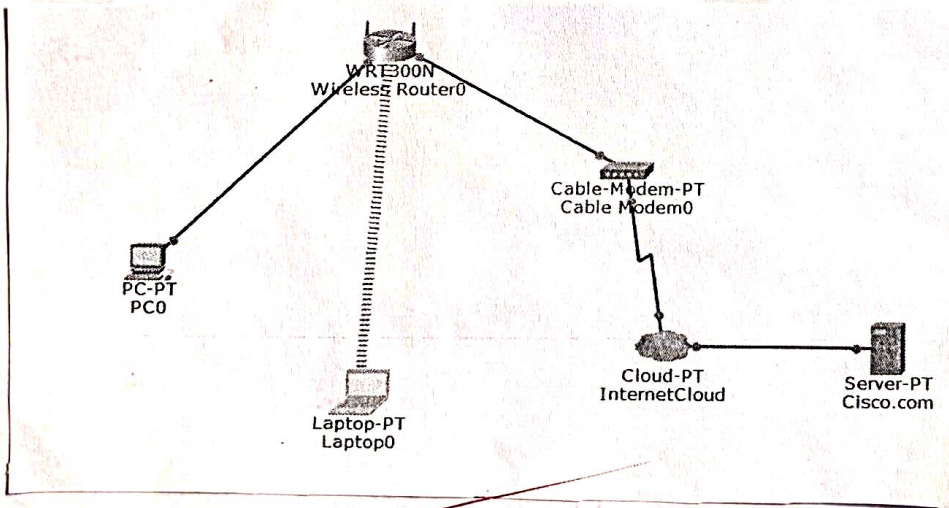
Devices:



Rename the display name:



Physical connection:





## 2. Configure the Network Devices

### 4. Configure the Wireless Router

a) Create Wireless Network on the Wireless Router

- Click Wireless Router Device
- In the Wireless tab, changed Network Name to Home Network
- In Setup tab, configured the static IP address of the DNS server as 208.67.220.220
- Saved Settings

Wireless Router0

Physical Config GUI

Automatic Configuration

Host Name: [ ] Domain Name: [ ] MTU: [ ] Size: 1500

**Network**

Router IP: IP Address 192.168.0.1 Subnet Mask 255.255.255.0

DHCP Server: ☒ Enable ☐ Disable DHCP Static IP: [ ]

Start IP Address 192.168.0.100 Maximum number 50

IP Address 192.168.0.10-14

Client Lease 0 minutes (0 means one)

Static DNS 208.67.220.220

Static DNS 0.0.0.0

Static DNS 0.0.0.0

Static DNS 0.0.0.0

WINS: 0.0.0.0

Wireless Router0

Physical Config GUI

Wireless-N Broadband Router

**Wireless** Setup Wireless Security Wireless Access Restrictions

**Basic**

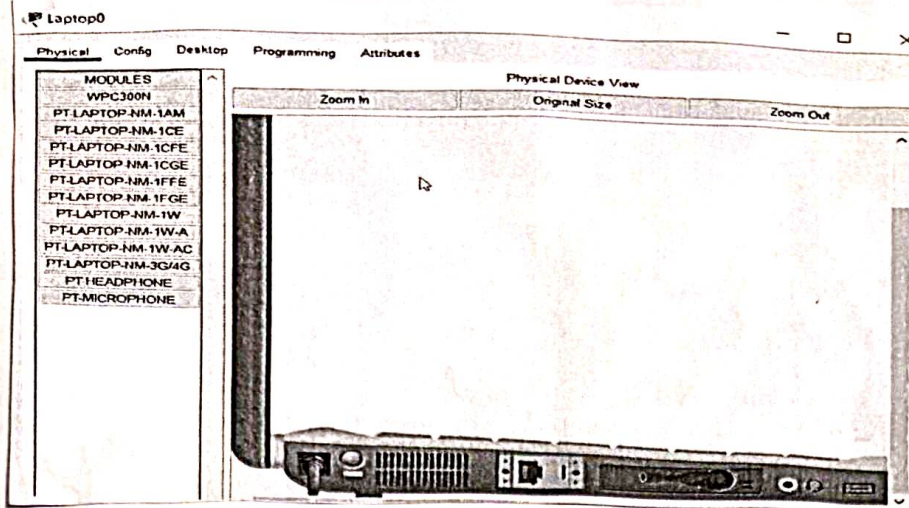
Network Mode: Mixed

Network Name: HomeNetwork

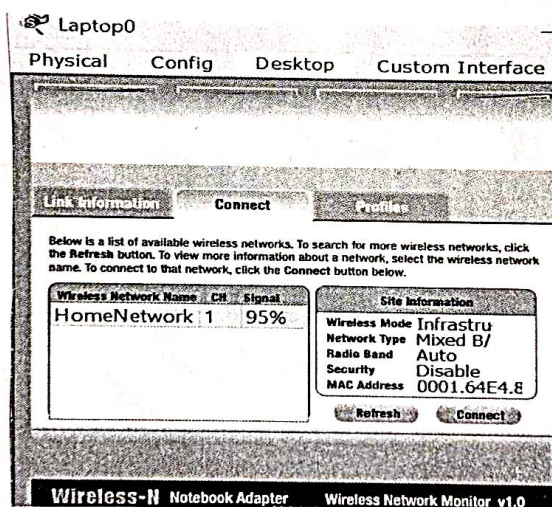
Radio Band: Auto

## 2. Configure the Laptop

- Clicked Laptop device and selected Physical tab.
- Remove the Ethernet copper module and replace it with the Wireless WPC300N module



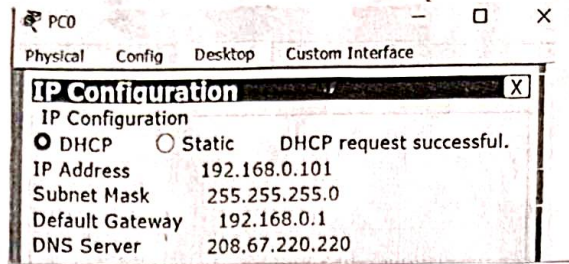
- In the desktop tab, select PC wireless icon.
- In the connect tab, the wireless network 'HomeNetwork' should be visible. select the network and click connect button



### 3. Configure the PC

Click on PC icon → Desktop Tab → IP config  
 Select the DHCP button. The PC will use DHCP to receive an IPv4 address from the wireless router.





#### 4. Configure the Internet Cloud

##### a) Network Modules

click on Internet cloud device. click the Physical tab.

##### b) Identify the From and To ports

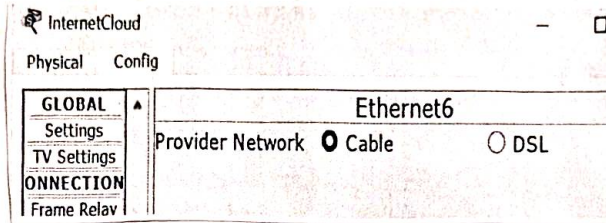
In the config tab → click cable in the panel

Add the From Port and To Port

Cable	
Coaxial7	<-> Ethernet6
Port	Port
From Port	To Port
Coaxial7	Ethernet6

c) Identify the type of provider

In the left pane, click Ethernet6 and select cable.



InternetCloud

Physical Config

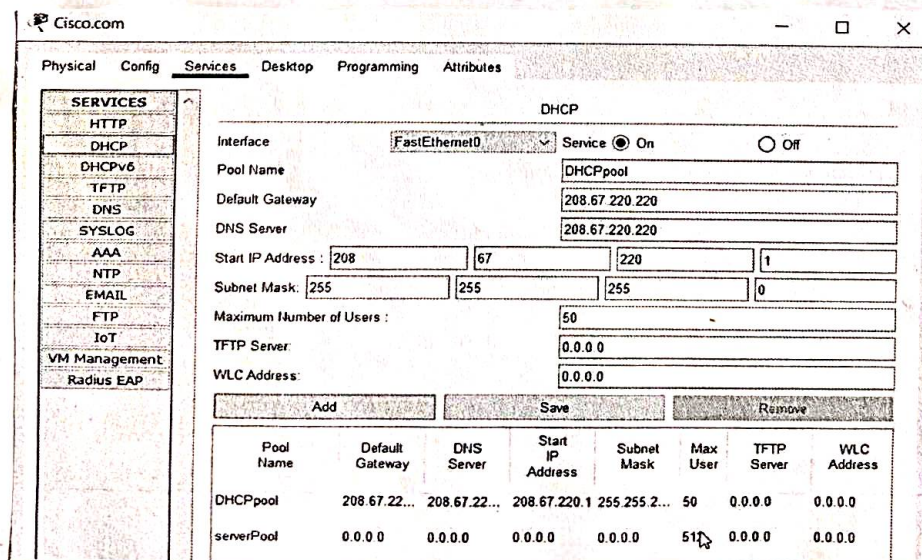
GLOBAL Settings TV Settings CONNECTION Frame Relay

Ethernet6

Provider Network ☒ Cable ☐ DSL

5) configure the Cisco.com server

- configure the Cisco.com server as DHCP server
- configure the Cisco.com server as a DNS server
- configure the Cisco.com server Global settings
- configure the FastEthernet() interface settings



Cisco.com

Physical Config Services Desktop Programming Attributes

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

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: DHCPpool

Default Gateway: 208.67.220.220

DNS Server: 208.67.220.220

Start IP Address: 208 67 220 1

Subnet Mask: 255 255 255 0

Maximum Number of Users: 50

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
DHCPpool	208.67.22...	208.67.22...	208.67.220.1	255.255.2...	50	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	51	0.0.0.0	0.0.0.0



Global Settings	
Display Name	Cisco.com
Gateway/DNS IPv4	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
Default Gateway	208.67.220.1
DNS Server	208.67.220.220
Gateway/DNS IPv6	
<input type="radio"/> Automatic	
<input checked="" type="radio"/> Static	
Default Gateway	

### Part 3: Verify Connectivity

a) click on the PC device

→ ipconfig /release

```

IP address ..... : 0.0.0.0
Subnet Mask ..... : 0.0.0.0
Def Gateway ..... : 0.0.0.0
DNS server ..... : 0.0.0.0
  
```

→ ipconfig /renew

```

IP address ..... : 192.168.0.101
Subnet Mask ..... : 255.255.255.0
Default Gateway .... : 192.168.0.1
DNS server ..... : 208.67.220.220
  
```

b) Test connectivity to the Cisco.com server from the PC

From the Command Prompt, issue the command

ping cisco.com

```

C:\>ping cisco.com

Pinging 208.67.220.220 with 32 bytes of data:

Reply from 208.67.220.220: bytes=32 time=2ms TTL=127
Reply from 208.67.220.220: bytes=32 time=5ms TTL=127
Reply from 208.67.220.220: bytes=32 time=6ms TTL=127
Reply from 208.67.220.220: bytes=32 time=8ms TTL=127

Ping statistics for 208.67.220.220:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 8ms, Average = 5ms

C:\>

```

Student      Observation

1. Write down the key features of configuring Wireless Router and DHCP server

A:

Wireless router provides Wi-Fi connectivity, IP routing, and network security

DHCP server automatically assigns IP address to connected devices

2. Significance of DHCP server in internetworking

A:

DHCP server simplifies IP address management across networks. It avoids IP conflicts and saves time by automatic IP addr. allocation

RESULT:

The Internetwork was successfully designed and configured using wireless router, DHCP server and internet cloud in Cisco Packet Tracer.

*Handwritten signature*  
9/10/18