

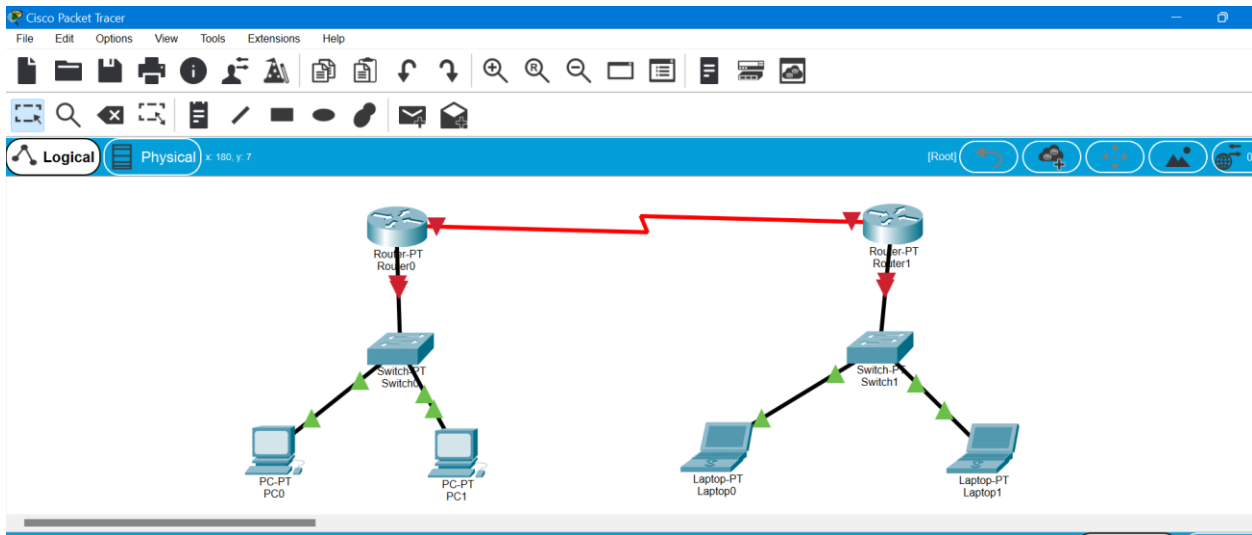
WSN Practical 6

Aim: Implement a Wireless sensor network simulation.

Steps:-

A) Router Configuration through CLI commands:-

1. Take 2 PC's, 2 Laptop & 2 Routers (Router-PT) & Switch -PT & arrange them.



Configuration of Router0:-

CLI commands for Router0:-

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int Fa0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shut

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#int Fa1/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

Router(config-if)#exit
Router(config)#int Se2/0
Router(config-if)#ip address 30.0.0.1 255.0.0.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#network 30.0.0.0
Router(config-router)#network 40.0.0.0
Router(config-router)#network 50.0.0.0
```

Configuration of Router1:-

CLI commands for Router1:-

```
Router(config-if)#ip address 40.0.0.1 255.0.0.0
Router(config-if)#no shut

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#int Fa1/0
Router(config-if)#ip address 50.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

Router(config-if)#exit
Router(config)#int Se2/0
Router(config-if)#ip address 30.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#exit
Router(config)#router
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

% Incomplete command.
Router(config)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#network 30.0.0.0
Router(config-router)#network 40.0.0.0
Router(config-router)#network 50.0.0.0
```

2. Click on PC0 and click on physical tab.
3. Turn off the CPU and Remove the fastethernet module and install PT-HOST-NM-1W-A and turn on the CPU.
4. A connection will be made between AccessPoint and PC0.
5. Click on PC1 and click on physical tab.
6. Repeat step3 and see if the connection is done between PC1 and AccessPoint.
7. Click on PC0 and set the IP config.

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 10.0.0.2

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::206:2AFF:FE52:E945

IPv6 Gateway

IPv6 DNS Server

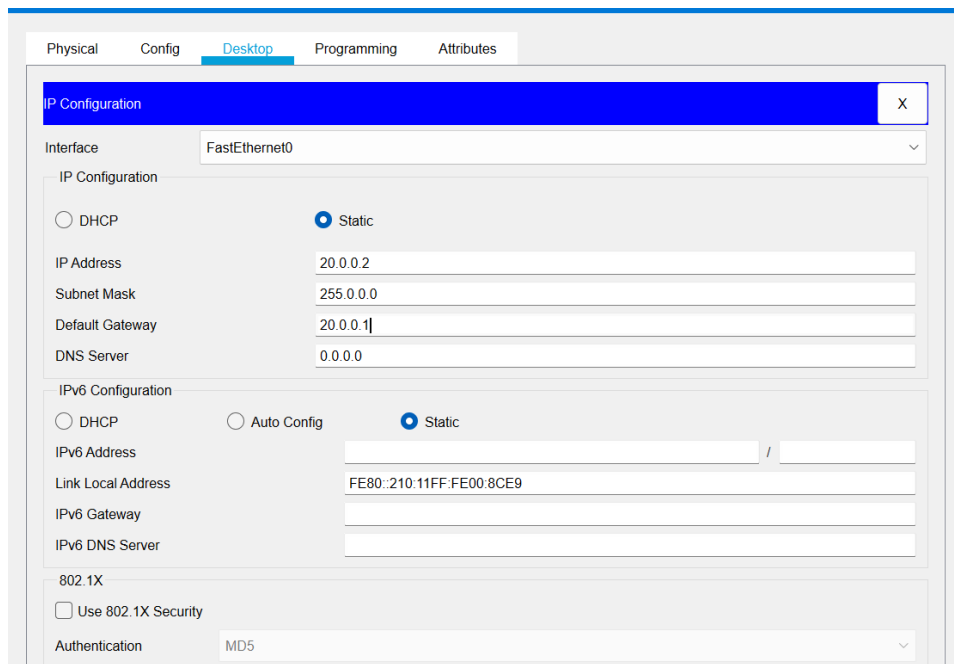
802.1X

☐ Use 802.1X Security

Authentication MD5

Username

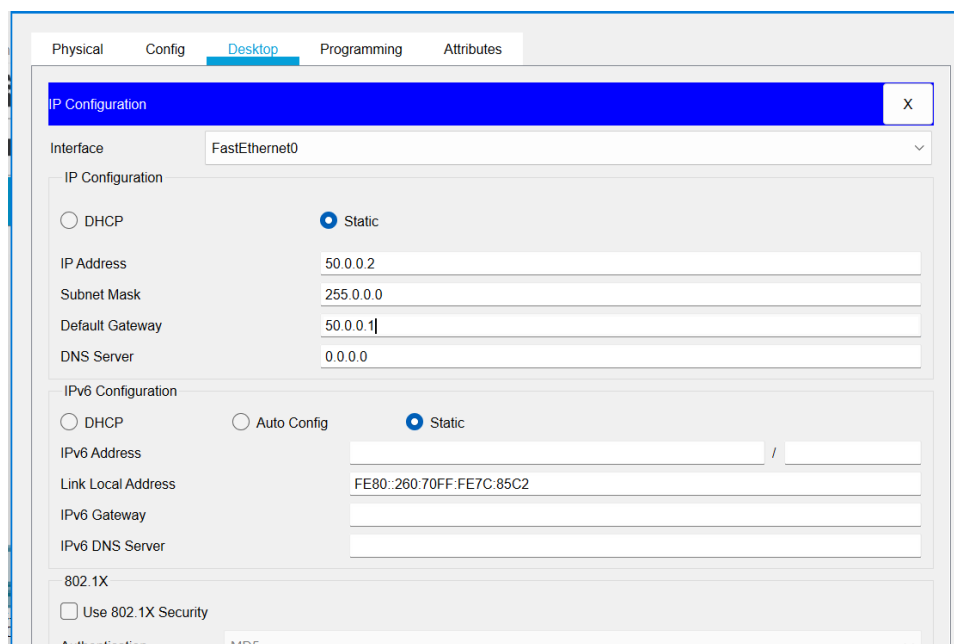
8. Click on PC1 and set the IP config.



The screenshot shows the 'IP Configuration' window for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The fields are filled with: IP Address: 20.0.0.2, Subnet Mask: 255.0.0.0, Default Gateway: 20.0.0.1, and DNS Server: 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also selected, with Link Local Address: FE80::210:11FF:FE00:8CE9. The '802.1X' section has 'Use 802.1X Security' unchecked and 'Authentication' set to 'MD5'.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	20.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	20.0.0.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::210:11FF:FE00:8CE9
IPv6 Gateway	
IPv6 DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5

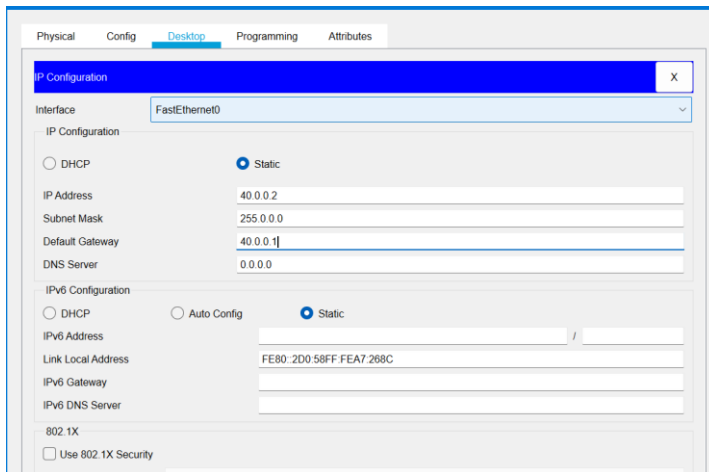
9. Click on Laptop0 and set the IP config.



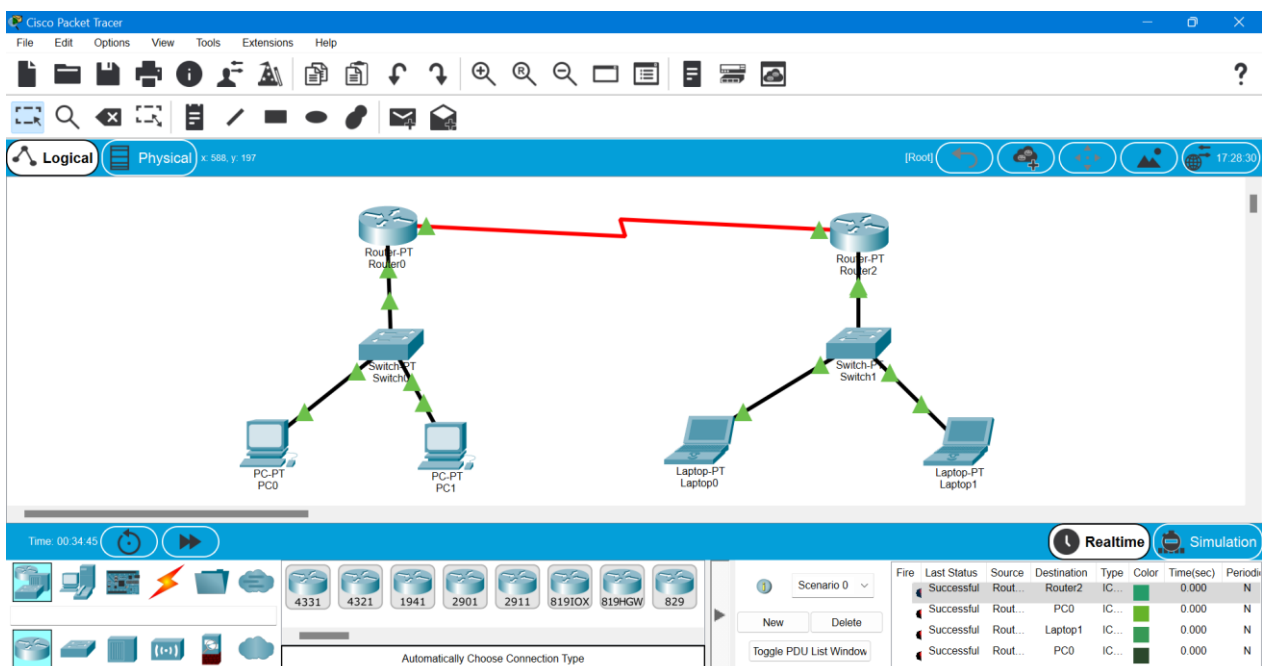
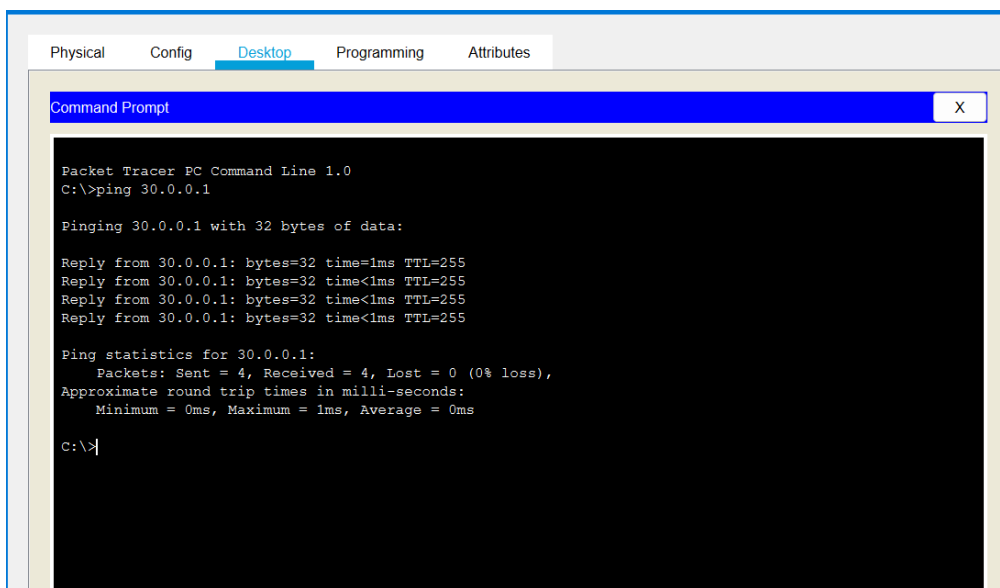
The screenshot shows the 'IP Configuration' window for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The fields are filled with: IP Address: 50.0.0.2, Subnet Mask: 255.0.0.0, Default Gateway: 50.0.0.1, and DNS Server: 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also selected, with Link Local Address: FE80::260:70FF:FE7C:85C2. The '802.1X' section has 'Use 802.1X Security' unchecked and 'Authentication' set to 'MD5'.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	50.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	50.0.0.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::260:70FF:FE7C:85C2
IPv6 Gateway	
IPv6 DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5

10. Click on Laptop1 and set the IP config.

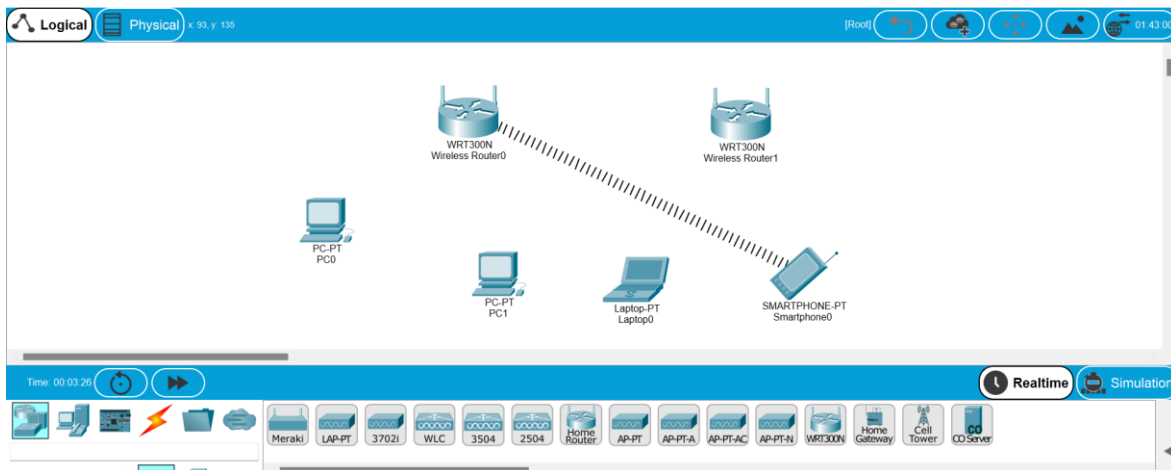


Ping Command & Via Message:-

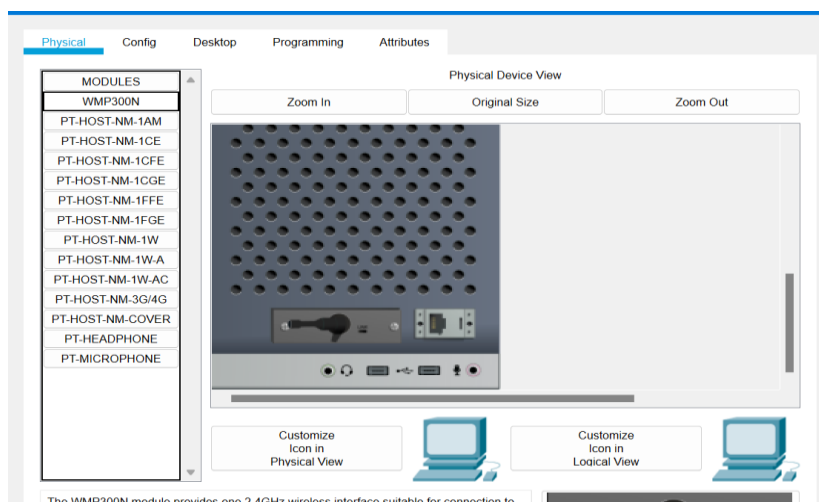
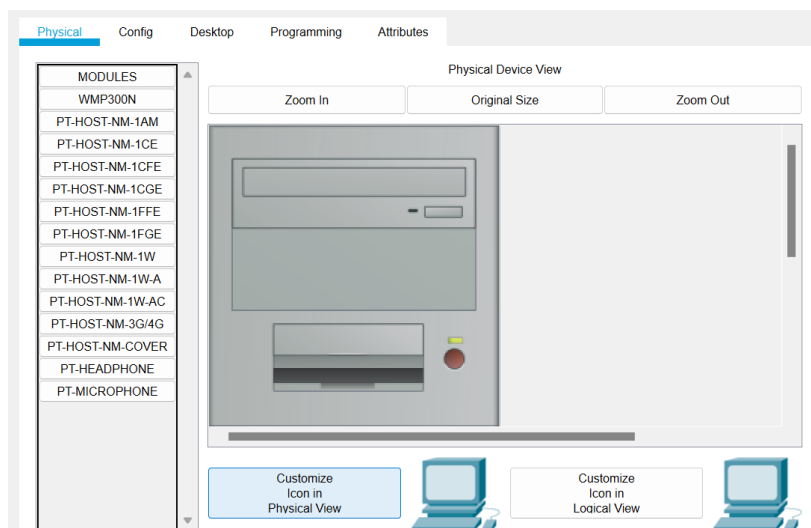


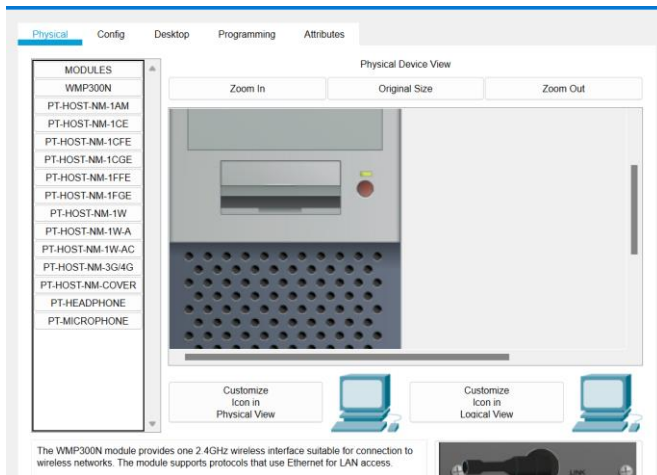
B) Wireless Connection:-

1. Drag & Drop 2 PC's, 1 Laptop, 1 Smartphone & 2 wireless Routers(WRT300N) & arrange them.

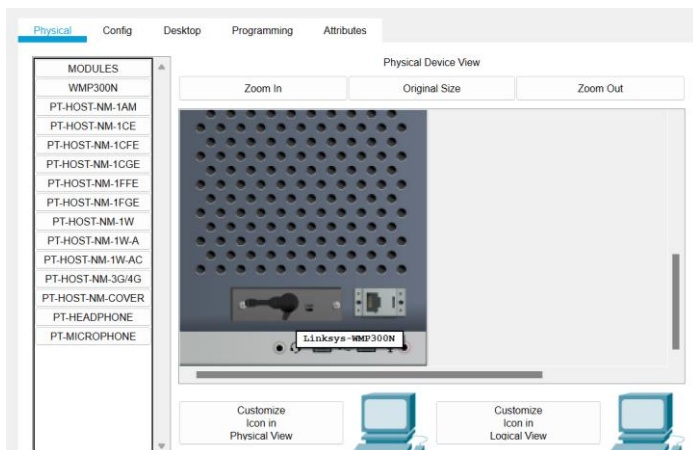
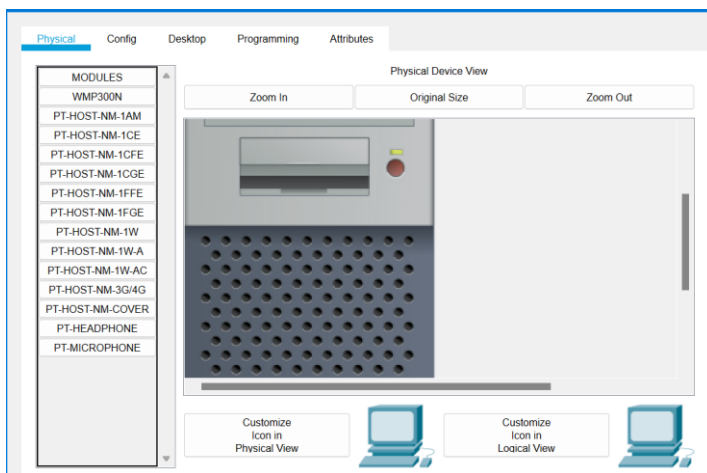


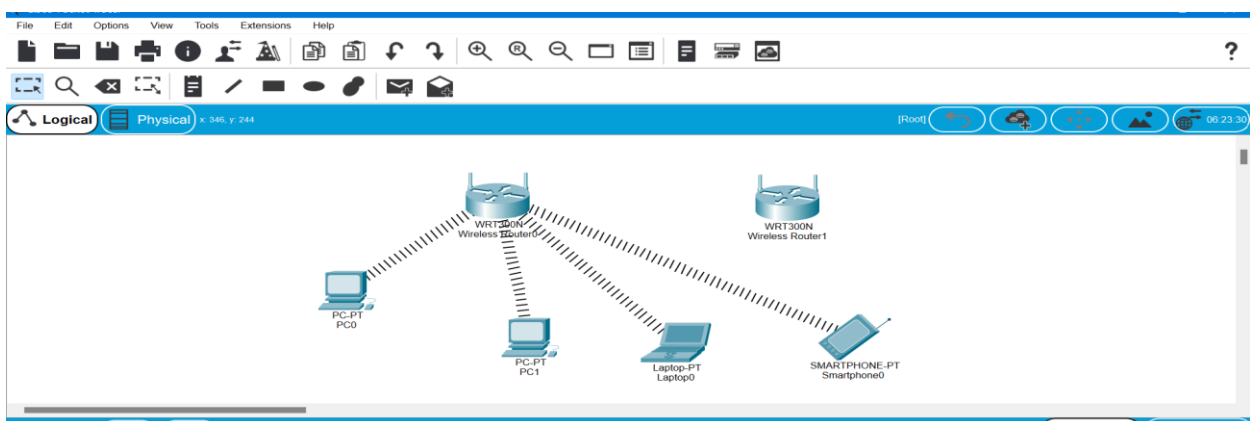
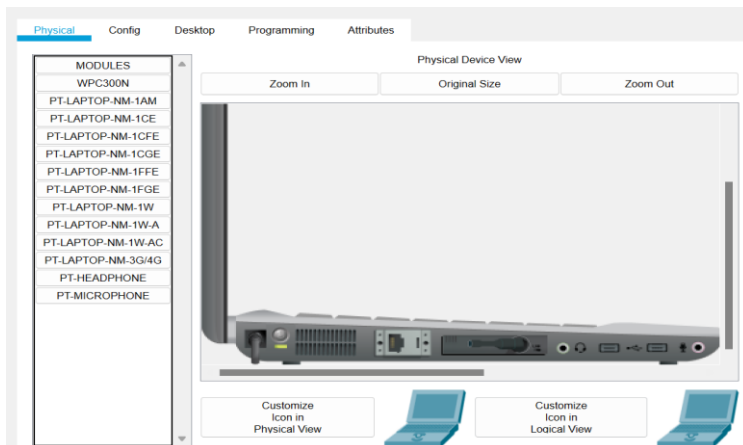
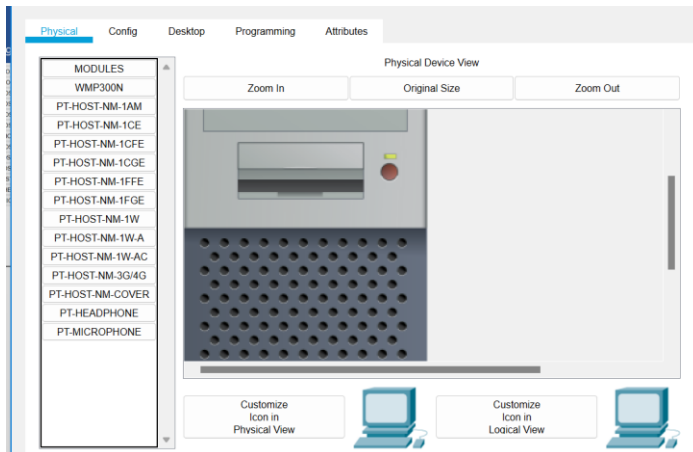
2. Now click on PC0-> Physical turn off CPU & then remove existing module from that CPU & then Drag & WMP 300N Module in place of it.





3. Follow same steps For Laptop0, PC1.





4. Click on Wireless Router0->Config-> Wireless. Give SSID as R1.

Wireless Router1->Config-> Wireless. Give SSID as R2.

Physical **Config** GUI Attributes

GLOBAL

- Settings
- Algorithm Settings
- INTERFACE**
- Internet
- LAN
- Wireless

Wireless Settings

SSID: R1

2.4 GHz Channel: 6 - 2.437GHz

Authentication: ☒ Disabled ☐ WEP ☐ WPA-PSK ☐ WPA2-PSK ☐ WPA ☐ WPA2

WEP Key:

PSK Pass Phrase:

RADIUS Server Settings

IP Address:

Shared Secret:

Encryption Type: Disabled

Physical **Config** GUI Attributes

GLOBAL

- Settings
- Algorithm Settings
- INTERFACE**
- Internet
- LAN
- Wireless

Wireless Settings

SSID: R2

2.4 GHz Channel: 1 - 2.412GHz

Authentication: ☒ Disabled ☐ WEP ☐ WPA-PSK ☐ WPA2-PSK ☐ WPA ☐ WPA2

WEP Key:

PSK Pass Phrase:

RADIUS Server Settings

IP Address:

Shared Secret:

Encryption Type: Disabled

5. Click on PC0-> Config->Wireless0 &SSID give as SSID as R1.Same FOR Laptop0.

. Click on PC1-> Config->Wireless0 &SSID give as SSID as R1.Same FOR Smartphone0.

Physical **Config** Desktop Programming Attributes

GLOBAL

- Settings
- Algorithm Settings
- INTERFACE**
- Wireless0
- Bluetooth

Wireless0

Port Status: ☒ On

Bandwidth: 300 Mbps

MAC Address: 0002.1709.2721

SSID: R1

Authentication: ☒ Disabled ☐ WEP ☐ WPA-PSK ☐ WPA2-PSK ☐ WPA ☐ WPA2 ☐ 802.1X

WEP Key:

PSK Pass Phrase:

User ID:

Password:

Method: MD5

User Name:

Password:

The screenshot displays the configuration of a Wireless0 interface in Packet Tracer. The 'Config' tab is active, showing the following settings:

- Port Status:** On
- Bandwidth:** 300 Mbps
- MAC Address:** 0090.2113.5419
- SSID:** R2
- Authentication:** Disabled (selected), WEP, WPA-PSK, WPA, 802.1X, WPA2-PSK, WPA2, Method: MD5
- Encryption Type:** Disabled

Below the configuration window, a network diagram is shown. It features two wireless routers, WRT300N Wireless Router0 and WRT300N Wireless Router1. Router0 is connected to PC-PT PC0. Router1 is connected to PC-PT PC1, Laptop-PT Laptop0, and SMARTPHONE-PT Smartphone0. The diagram also shows a connection between the two routers.

6. Give IPv4 Address, Subnet Mask & SSID to used devices.

Ping Command & Via Message:-

The screenshot shows a Command Prompt window titled 'Command Prompt' with the following output:

```

Packet Tracer PC Command Line 1.0
C:\>ping 192.168.0.104\
Ping request could not find host 192.168.0.104\. Please check the name and try again.
C:\>ping 192.168.0.104

Pinging 192.168.0.104 with 32 bytes of data:

Reply from 192.168.0.104: bytes=32 time=6ms TTL=128
Reply from 192.168.0.104: bytes=32 time=5ms TTL=128
Reply from 192.168.0.104: bytes=32 time=19ms TTL=128
Reply from 192.168.0.104: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.104:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 19ms, Average = 7ms

c:\>

```

