

Computer Networks

Lab Task #7

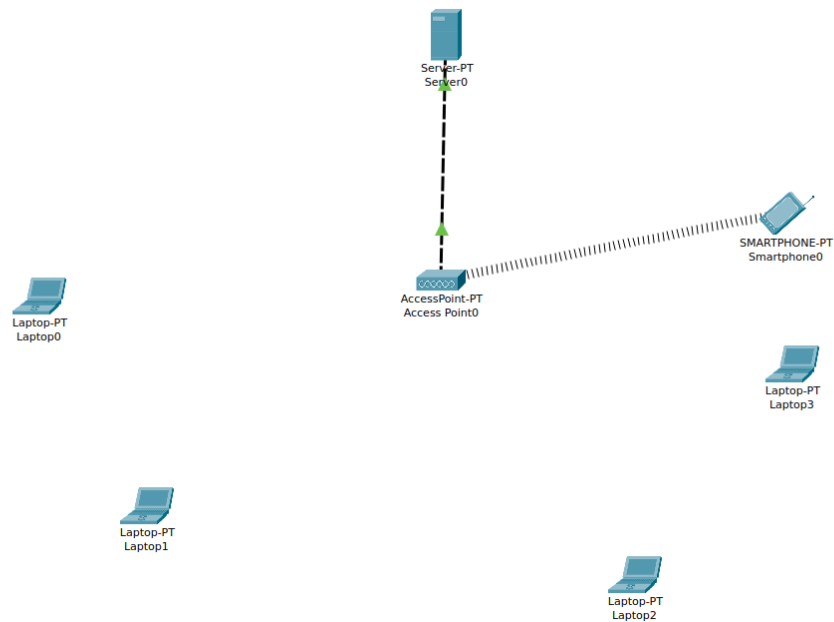
Saad Ahmad

20P-0051

Task#1

Add 4x Laptops, 1x Access point and 1x Server.

Connect them with cables.



Now assign the static IP to the DHCP Server

IP: 192.168.1.2

Subnet mask: 255.255.255.0

Server0

Physical Config Services **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ 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

And now create the pool in DHCP

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: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 192 168 1 0

Subnet Mask: 255 255 255 0

Maximum Number of Users: 240

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

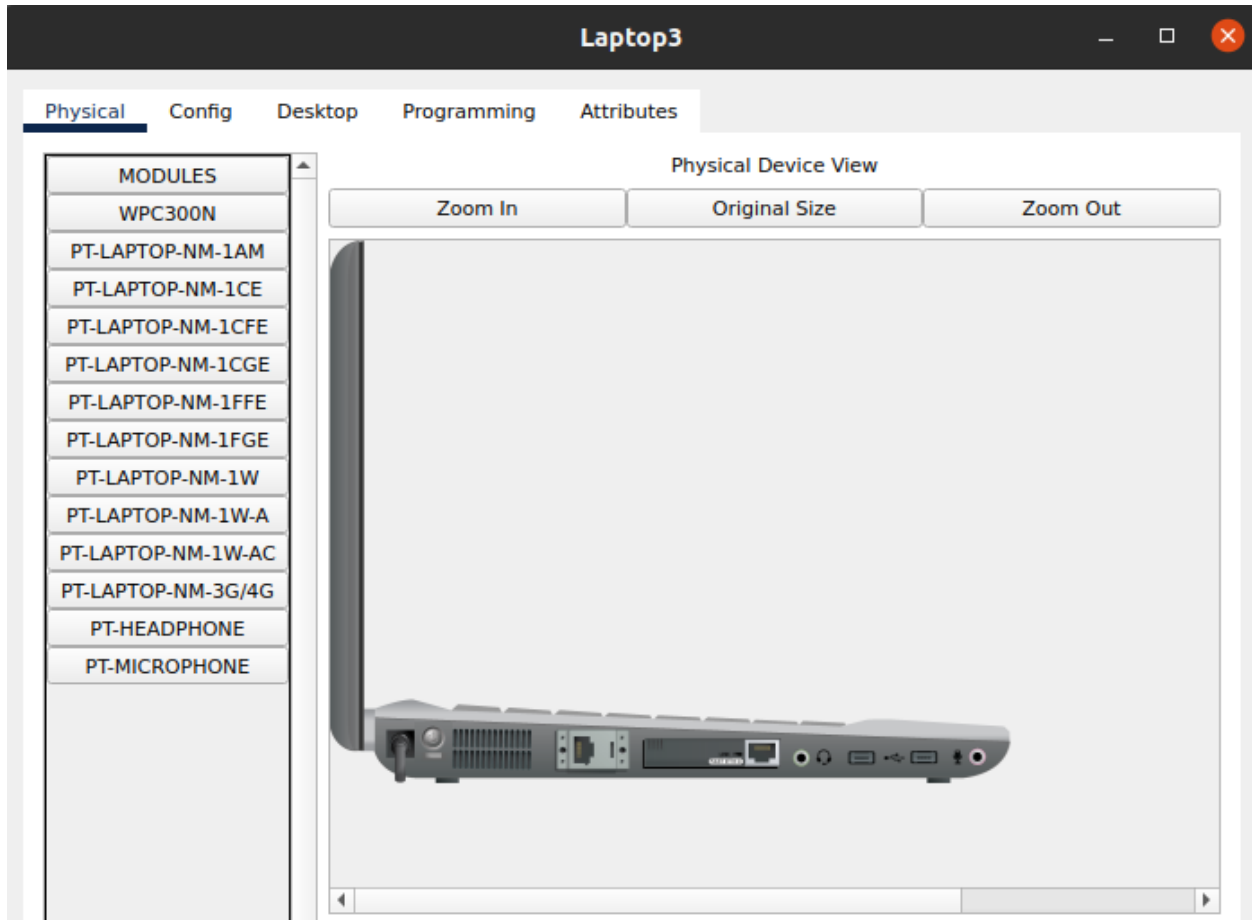
Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	192.168.1.0	255.255.25...	255	0.0.0.0	0.0.0.0

☐ Top

Placing the Wireless Interface Card to the Laptops:

Turn off the laptop and remove the classical Ethernet and instead of it place Wireless Interface Card (WPC300N) and then power on the laptop again.



Laptop3

Physical

Config

Desktop

Programming

Attributes

MODULES

WPC300N

PT-LAPTOP-NM-1AM

PT-LAPTOP-NM-1CE

PT-LAPTOP-NM-1CFE

PT-LAPTOP-NM-1CGE

PT-LAPTOP-NM-1FFE

PT-LAPTOP-NM-1FGE

PT-LAPTOP-NM-1W

PT-LAPTOP-NM-1W-A

PT-LAPTOP-NM-1W-AC

PT-LAPTOP-NM-3G/4G

PT-HEADPHONE


PT-MICROPHONE

Physical Device View

Zoom In

Original Size


Zoom Out



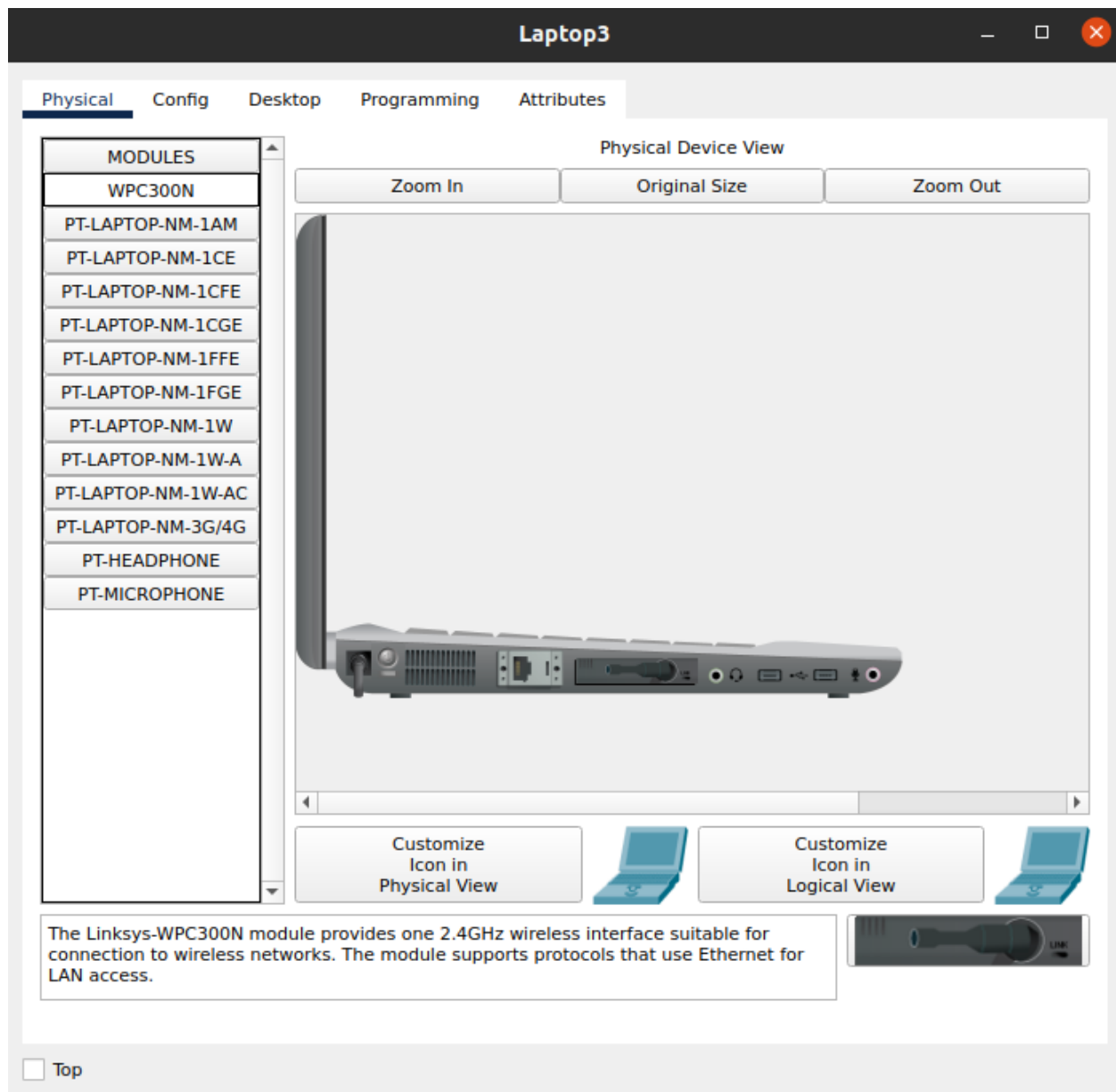
Customize Icon in Physical View

Customize Icon in Logical View

The Linksys-WPC300N module provides one 2.4GHz wireless interface suitable for connection to wireless networks. The module supports protocols that use Ethernet for LAN access.

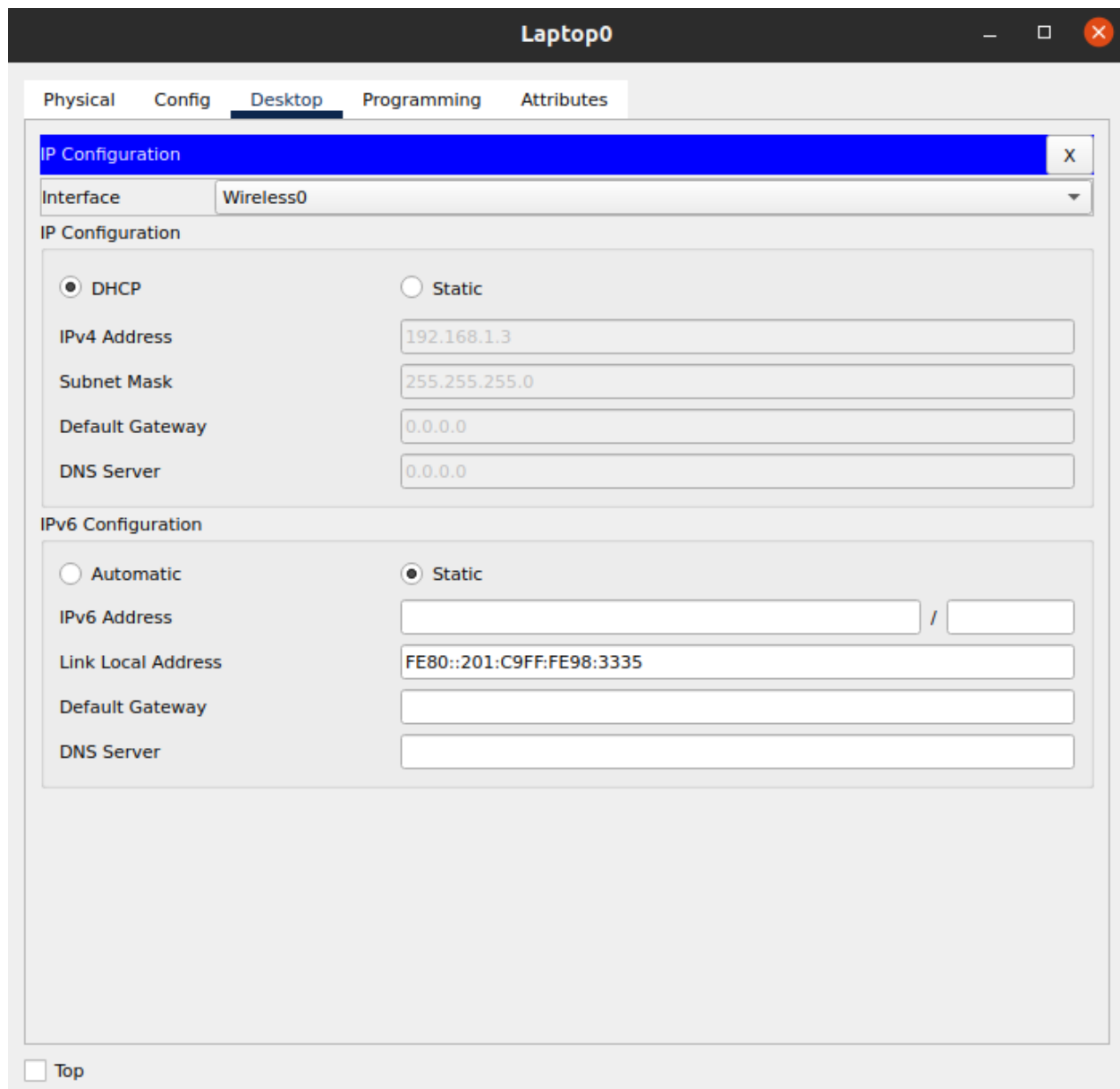


☐ Top



Do this for all the remaining laptops.

Now the assign the laptops IPs using the DHCP pool which we had created.



Laptop1

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

Wireless0

IP Configuration

☒ DHCP

☐ Static

IPv4 Address

192.168.1.5

Subnet Mask

255.255.255.0

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

/

Link Local Address

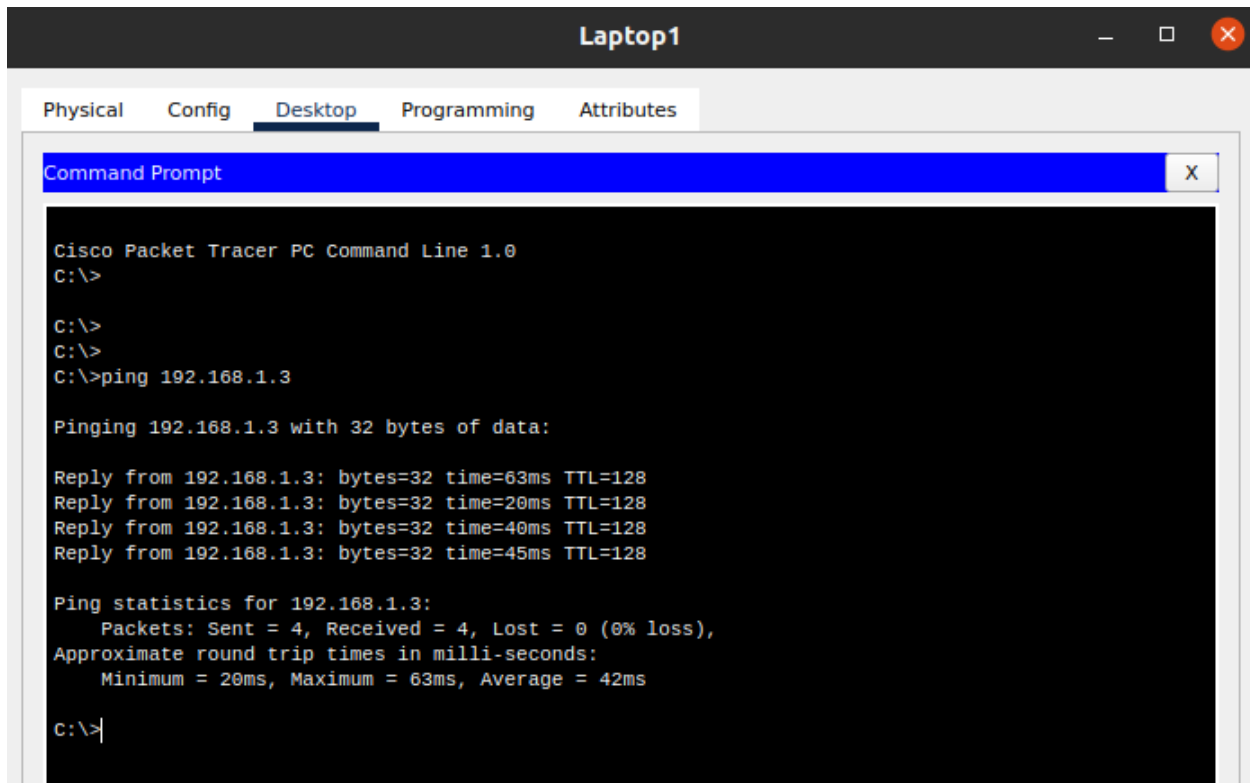
FE80::290:21FF:FEA6:2905

Default Gateway

DNS Server

☐ Top

And now ping the laptop to check the connection.



The screenshot shows a window titled "Laptop1" with a dark gray title bar and standard window controls. Below the title bar is a tabbed interface with four tabs: "Physical", "Config", "Desktop", and "Attributes". The "Desktop" tab is selected and highlighted. Inside the "Desktop" tab, there is a "Command Prompt" window with a blue title bar and a close button. The command prompt has a black background with white text. The text shows the user at the "C:\>" prompt, typing "ping 192.168.1.3". The output shows four successful replies from 192.168.1.3 with varying times (63ms, 20ms, 40ms, 45ms) and a TTL of 128. The ping statistics show 4 packets sent, 4 received, and 0% loss, with an average round trip time of 42ms.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>
C:\>
C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=63ms TTL=128
Reply from 192.168.1.3: bytes=32 time=20ms TTL=128
Reply from 192.168.1.3: bytes=32 time=40ms TTL=128
Reply from 192.168.1.3: bytes=32 time=45ms TTL=128

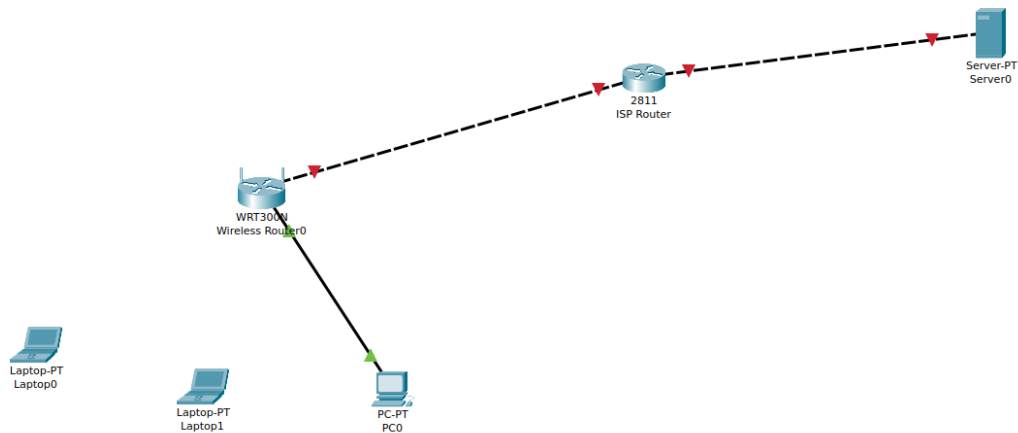
Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 20ms, Maximum = 63ms, Average = 42ms

C:\>|
```

Task #2

Add 2x Laptops, 1x PCs, 1x Wireless Router, 1x Router and 1x Server.

Connect them with cables.



Placing the Wireless Interface Card to the Laptops:

Turn off the laptop and remove the classical Ethernet and instead of it place Wireless Interface Card (WPC300N) and then power on the laptop again.

Laptop0

Physical

Config

Desktop

Programming

Attributes

MODULES

WPC300N

PT-LAPTOP-NM-1AM

PT-LAPTOP-NM-1CE

PT-LAPTOP-NM-1CFE

PT-LAPTOP-NM-1CGE

PT-LAPTOP-NM-1FFE

PT-LAPTOP-NM-1FGE

PT-LAPTOP-NM-1W

PT-LAPTOP-NM-1W-A

PT-LAPTOP-NM-1W-AC

PT-LAPTOP-NM-3G/4G

PT-HEADPHONE


PT-MICROPHONE

Physical Device View


Zoom In

Original Size


Zoom Out




Customize Icon in Physical View



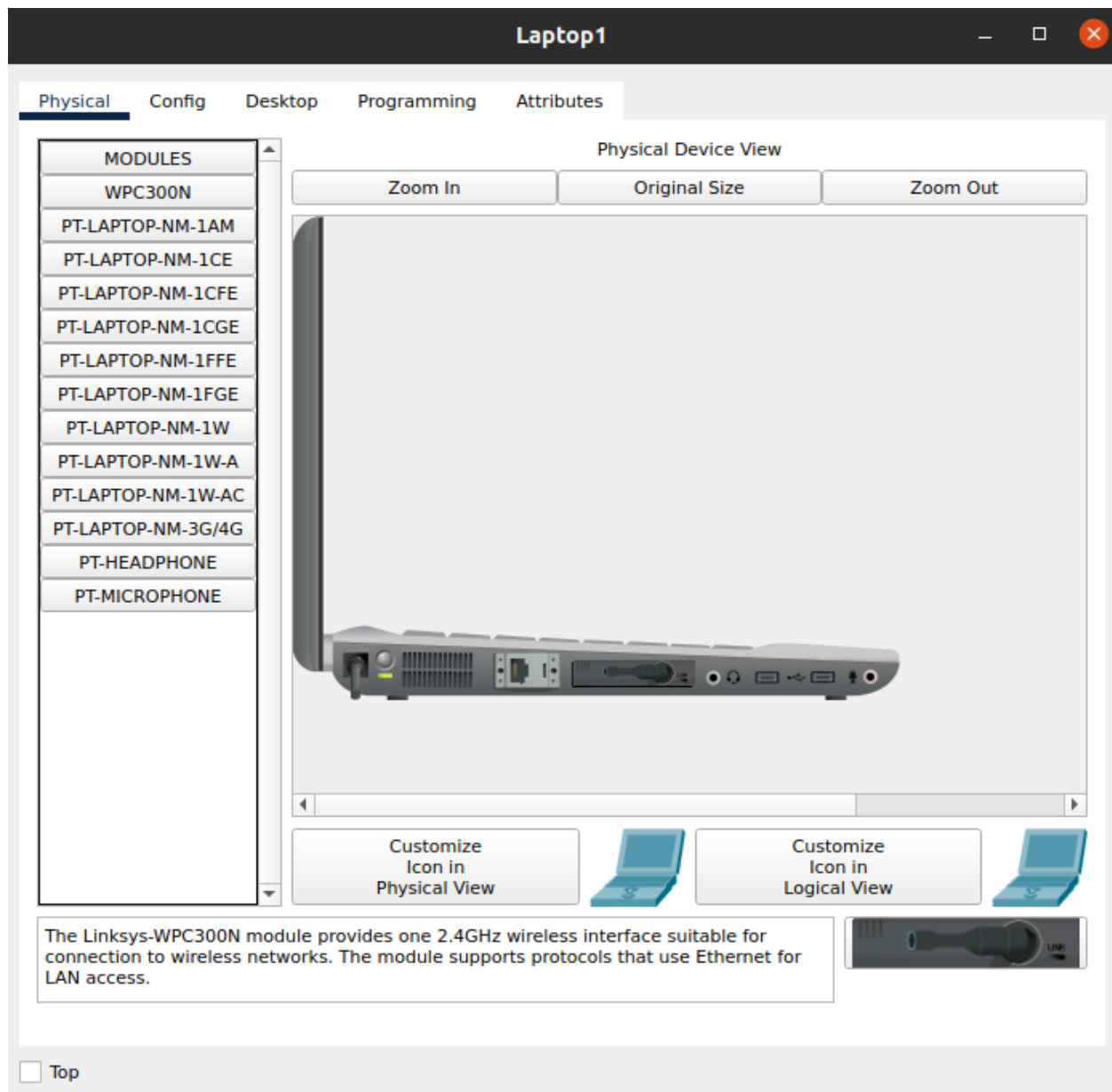
Customize Icon in Logical View



The Linksys-WPC300N module provides one 2.4GHz wireless interface suitable for connection to wireless networks. The module supports protocols that use Ethernet for LAN access.



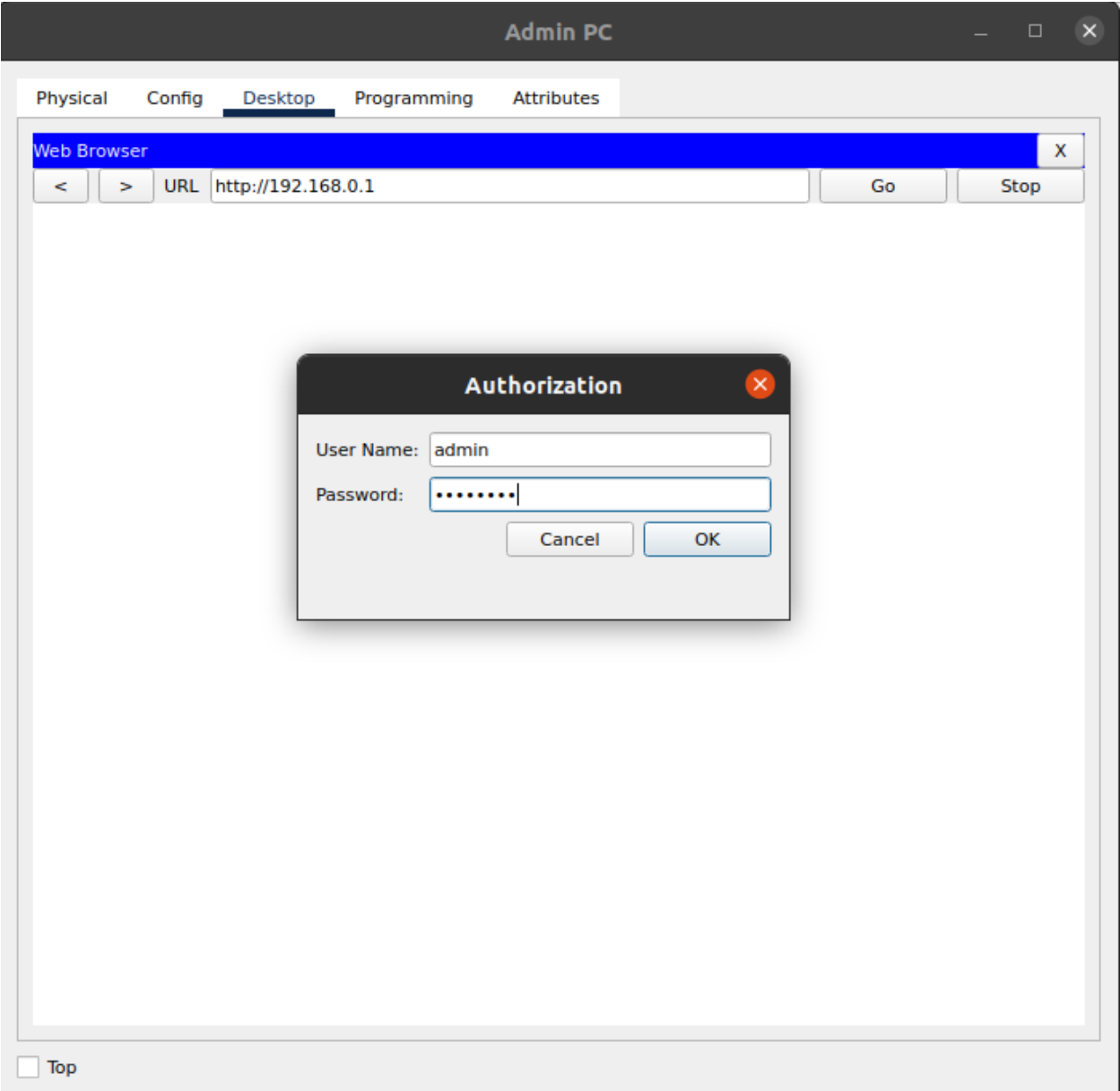
☐ Top



Next, we're going to do some settings on the wireless router to create a LAN then connect it to the internet.

So, for that go to the admin PC and open the browser and type the IP in the address bar

IP: 192.168.0.1



And now you will see the following window

The screenshot displays the configuration interface for a 'Wireless Router0'. The window title is 'Wireless Router0'. The main menu includes 'Physical', 'Config', 'GUI' (selected), and 'Attributes'. The 'Wireless-N Broadband Router' header shows 'Firmware Version: v0.93.3'. The navigation bar includes 'Setup' (selected), 'Wireless', 'Security', 'Access Restrictions', 'Applications & Gaming', 'Administration', and 'Status'. Below the navigation bar, the 'Internet Setup' section is active, showing 'Internet Connection type' set to 'Automatic Configuration - DHCP'. The 'Optional Settings' section includes fields for 'Host Name', 'Domain Name', 'MTU' (set to 1500), and 'Size' (set to 1500). The 'Network Setup' section is also visible, showing 'Router IP' set to '192.168.0.1' and 'Subnet Mask' set to '255.255.255.0'. The 'DHCP Server Settings' section shows 'DHCP Server' set to 'Enabled' and 'Start IP Address' set to '192.168.0.100'. A 'DHCP Reservation' button is present. A 'Help...' button is located on the right side of the 'Internet Setup' section. A 'Top' link is at the bottom left.

Wireless Router0

Physical Config **GUI** Attributes

Wireless-N Broadband Router

Firmware Version: v0.93.3

Setup Setup Wireless Security Access Restrictions Applications & Gaming Administration Status

Basic Setup DDNS MAC Address Clone Advanced Routing

Internet Setup

Internet Connection type: Automatic Configuration - DHCP

Optional Settings (required by some internet service providers)

Host Name:

Domain Name:

MTU: Size:

Network Setup

Router IP: IP Address: . . .

Subnet Mask:

DHCP Server Settings

DHCP Server: ☒ Enabled ☐ Disabled

DHCP Reservation

Start IP Address:

Maximum number of Users:

Help...

☐ Top

And now assign the IPs to the laptops:

Laptop0

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

Wireless0

IP Configuration

☒ DHCP

☐ Static

IPv4 Address

192.168.0.101

Subnet Mask

255.255.255.0

Default Gateway

192.168.0.1

DNS Server

0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

/

Link Local Address

FE80::230:A3FF:FE4B:9838

Default Gateway

DNS Server

☐ Top

Laptop1

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

InterfaceWireless0

IP Configuration

☒ DHCP

☐ Static

IPv4 Address192.168.0.102

Subnet Mask255.255.255.0

Default Gateway192.168.0.1

DNS Server0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local AddressFE80::250:FFF:FE6B:25E7

Default Gateway

DNS Server

☐ Top

Now by default the router password is admin so we can change it in the Administration tab

Wireless Router0

Physical Config **GUI** Attributes

Wireless-N Broadband Router

Firmware Version: v0.93.3

Administration Setup Wireless Security Access Restrictions Applications & Gaming Administration Status

Management Log Diagnostics Factory Defaults Firmware Upgrade

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

Remote Upgrade: ☐ Enabled ☐ Disabled

Allowed Remote Ip Address:

Help...

☐ Top

Plus, we can change the DHCP server setting in the wireless router under the setup tab:

Wireless Router0

Physical Config GUI Attributes

Wireless-N Broadband Router

Firmware Version: v0.93.3

Administration

Setup Wireless Security Access Restrictions Applications & Gaming Administration Status

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

Remote Upgrade:

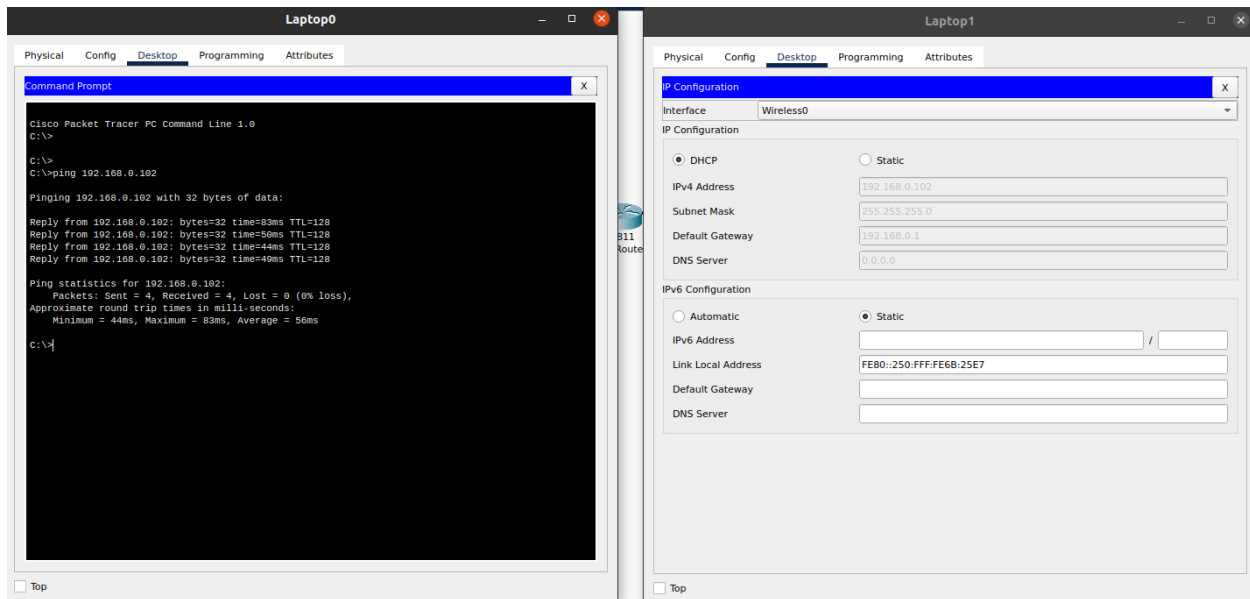
☐ Enabled ☐ Disabled

Allowed Remote Ip Address:

Help...

☐ Top

Now to check the connection between the two laptops:



we can also change the name of our Wi-Fi and add the security to our network:

go to the wireless setting and change the SSID and go to the sub tab of wireless setting and select wireless security and select the security mode WPA Personal and then add the Passphrase:

Wireless Router0

Physical

Config

GUI

Attributes

Wireless-N Broadband Router

Firmware Version: v0.93.3

Wireless

Setup

Wireless

Security

Access Restrictions

Applications & Gaming

Administration

Status

Basic Wireless Settings

Wireless Security

Guest Network

Wireless MAC Filter

Advanced Wireless Settings

Basic Wireless Settings

Network Mode:

Mixed

Network Name (SSID):

Saad

Radio Band:

Auto

Wide Channel:

Auto

Standard Channel:

1 - 2.412GHz

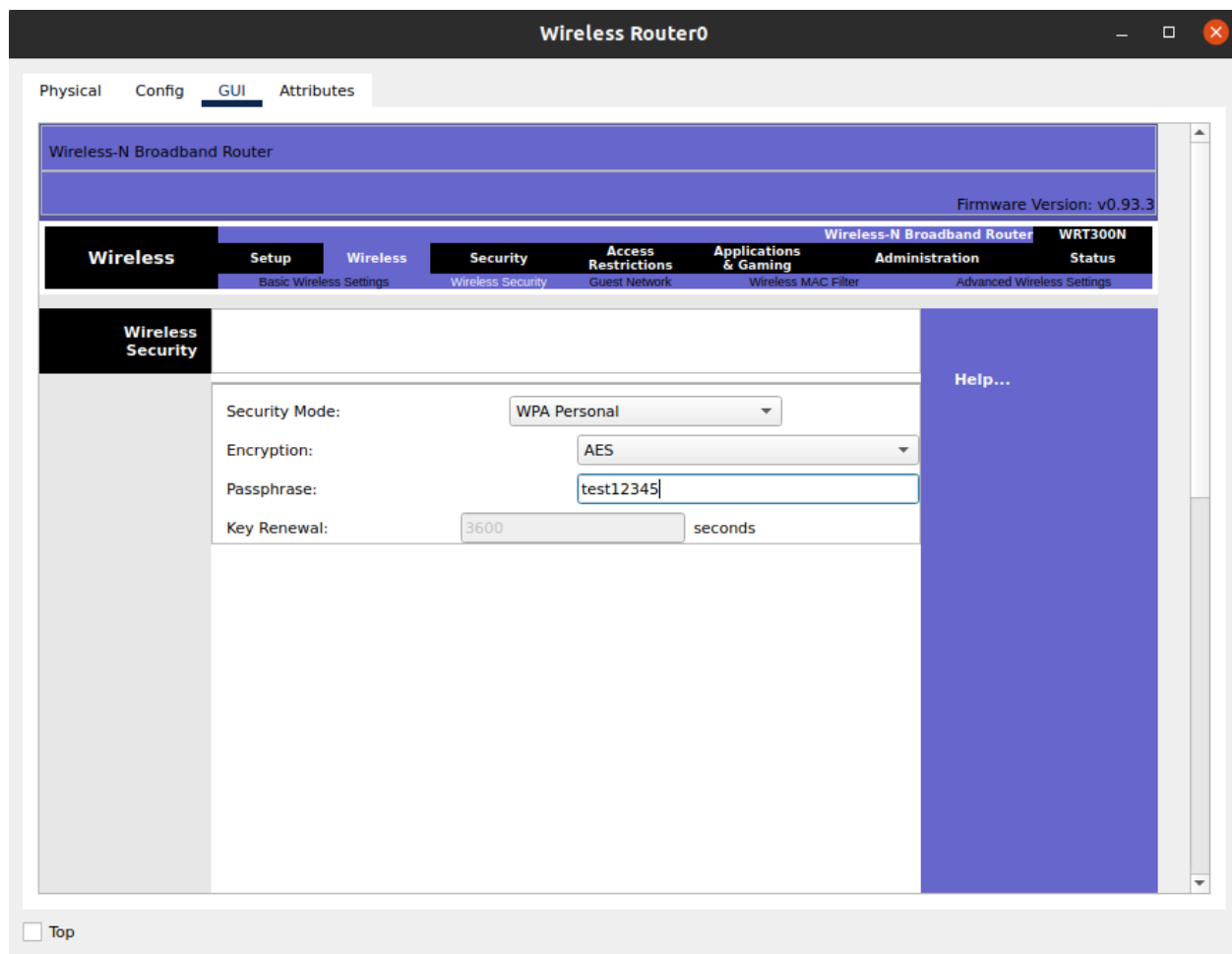
SSID Broadcast:

Enabled

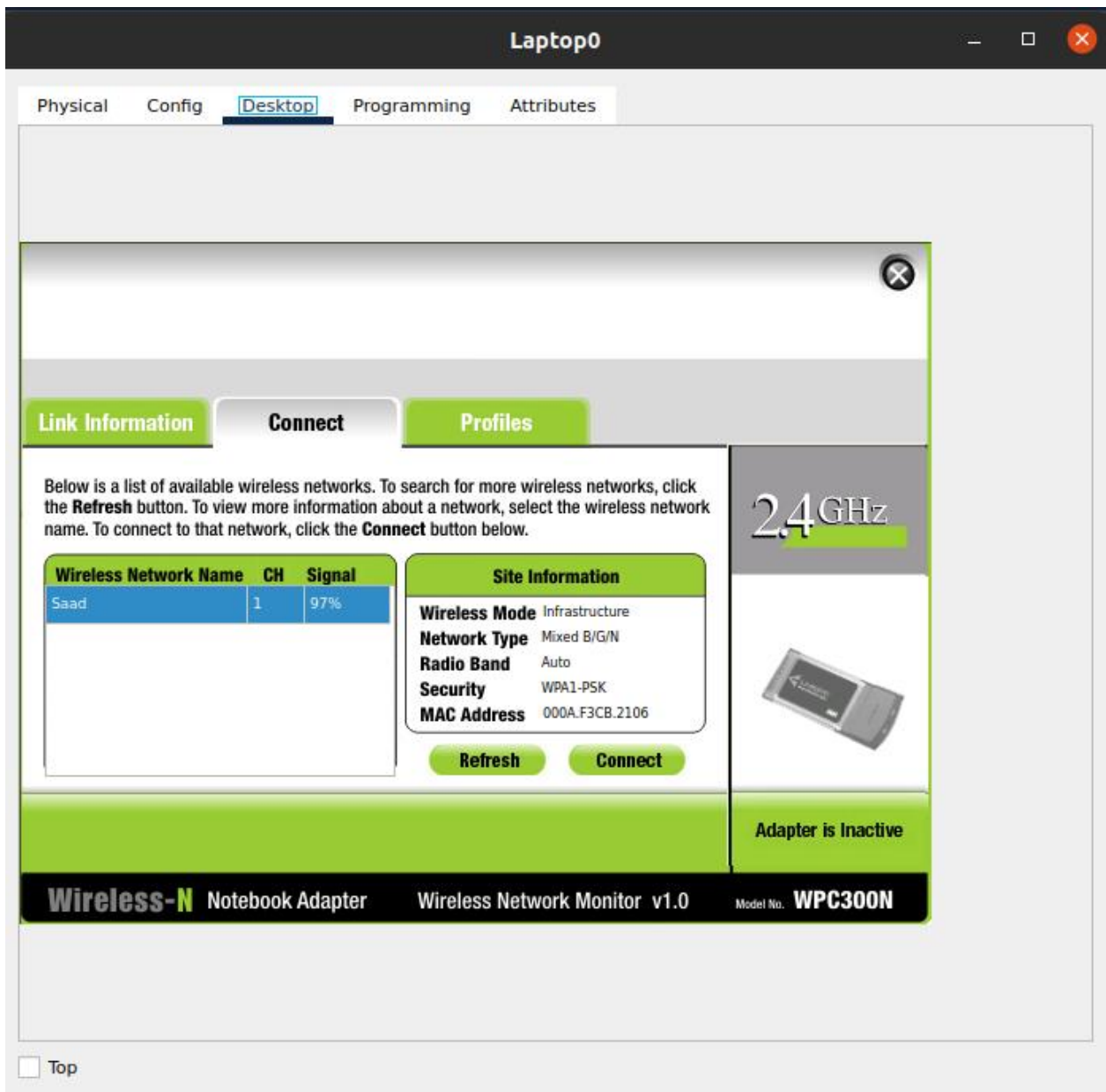
Disabled

Help...

Top



As we have added the security to our network now go to the laptop and select PC Wireless and select the connect tab and there you will see you network name:



Now select the network and click on connect and then enter your password:

Laptop0

PhysicalConfigDesktopProgrammingAttributes

WPA-Personal Needed for Connection

This wireless network has WPA-Personal, also know as Pre-Shared Key, enabled. To connect to this network, select the encryption type. Enter the required Pre-Shared Key in the appropriate field below. Then click the **Connect**.

SecurityWPA-Personal

Please select the wireless security method used by your existing wireless network.

EncryptionAES

Please select an encryption type used to protect your wireless data transmissions.

Pre-shared Keytest12345

Please enter a Pre-shared Key that is 8 to 63 characters in length.

Cancel

Connect

Active

Wireless-N Notebook Adapter

Wireless Network Monitor v1.0

Model No. WPC300N

☐ Top

and now we will configure our router:

```
Router(config)#int
Router(config)#interface fas
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip add 155.21.21.1 255.255.0.0
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)#
Router(config-if)#exit
Router(config)#interfa
Router(config)#interface fas
Router(config)#interface fastEthernet 0/1
Router(config-if)#ip add 1
                        ^
% Invalid input detected at '^' marker.

Router(config-if)#ip add 192.168.2.1 255.255.255.0
Router(config-if)#no shut

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router(config-if)#ip dhcp pool mypool
Router(dhcp-config)#net 155.21.0.0 255.255.0.0
Router(dhcp-config)#default-router 155.21.21.1
Router(dhcp-config)#dns-server 0.0.0.0
Router(dhcp-config)#|
```

assign the static IP to you sever:

example.com

Physical

Config

Services

Desktop

Programming

Attributes

IP Configuration

X

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

☐ Automatic

☒ Static

IPv6 Address

/

Link Local Address

FE80::210:11FF:FEDD:B990

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication

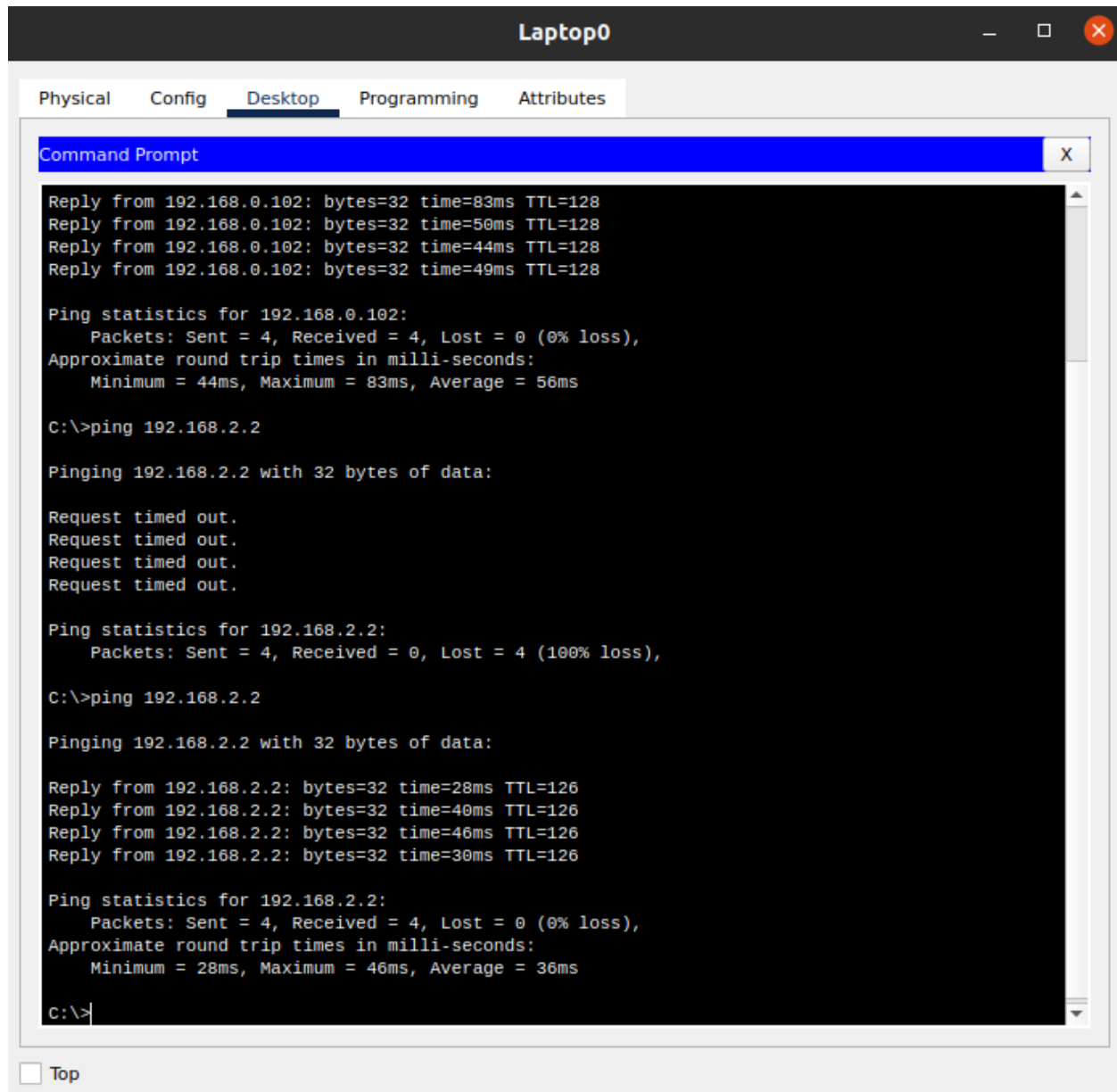
MD5

Username

Password

☐ Top

and finally, we will check the connection whether it work or not so for that ping the server from laptop:



Ta da it's working.