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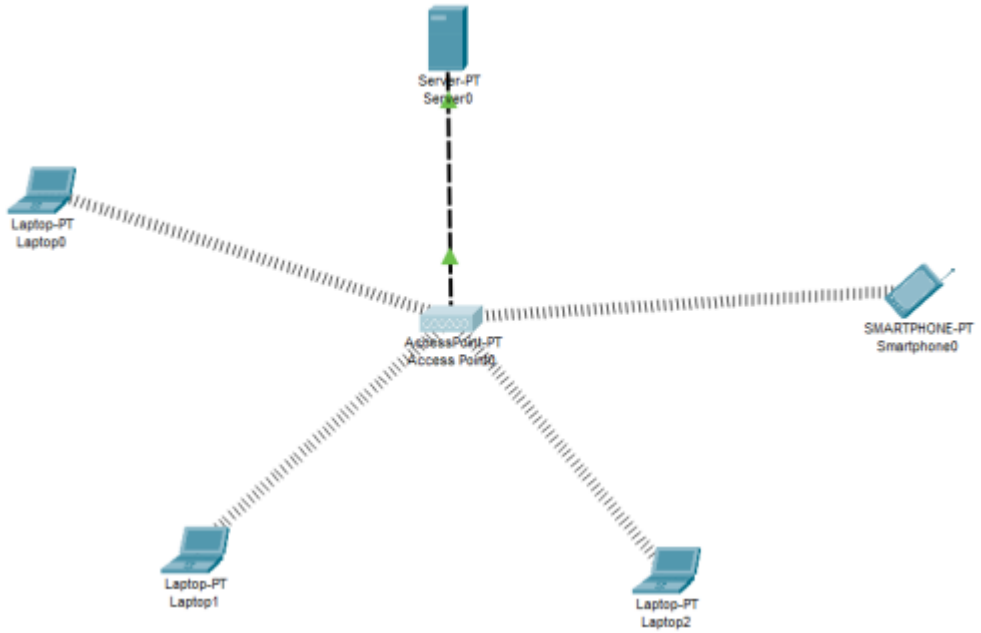
Section:

BSCS-5B

FAST NUCES PWR

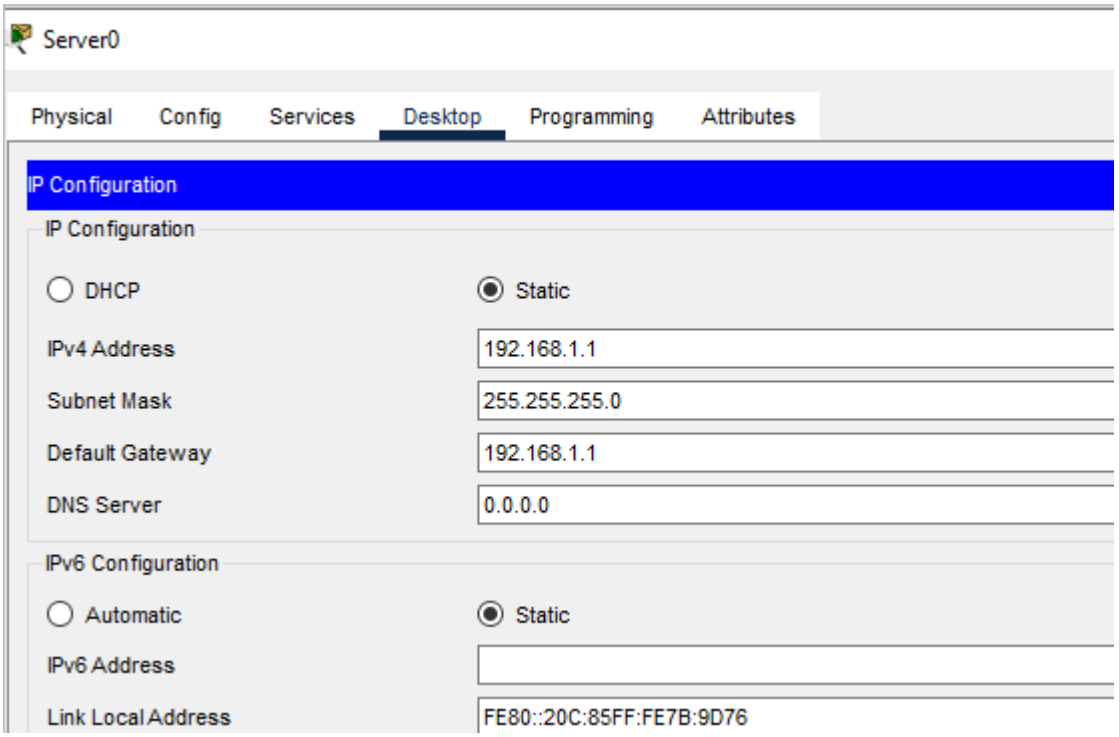
Computer networks lab #07

Task#01: WLAN Configuration on Packet Tracer

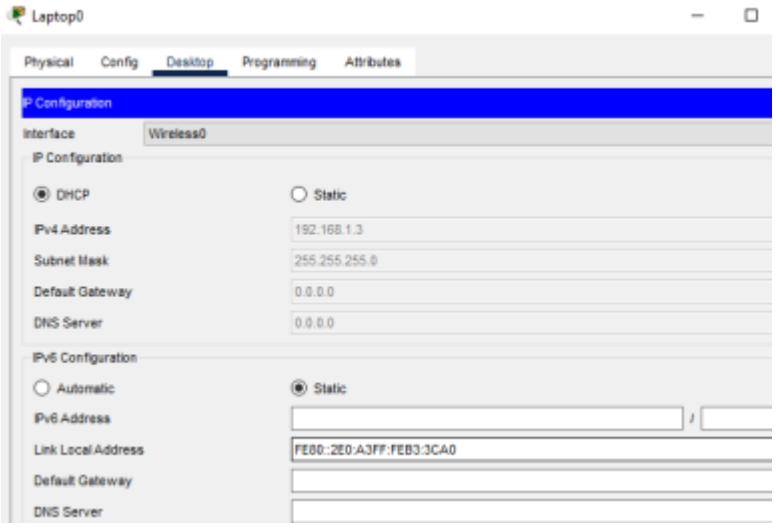


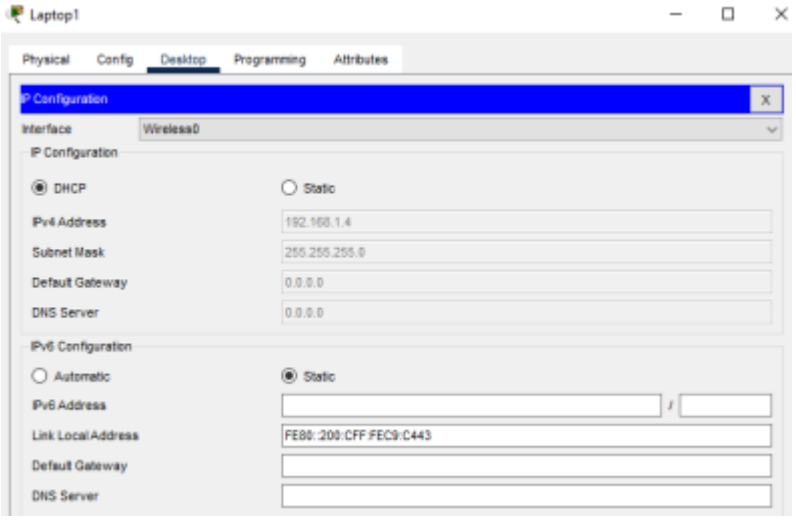
By default laptops has classic Ethernet card. To involve in a wireless network, we should have wireless interface card. So, in each laptop, we should turn off the laptop, remove the classical Ethernet, instead of it we place Wireless Interface Card (WPC300N). Then, we power on the laptop again.

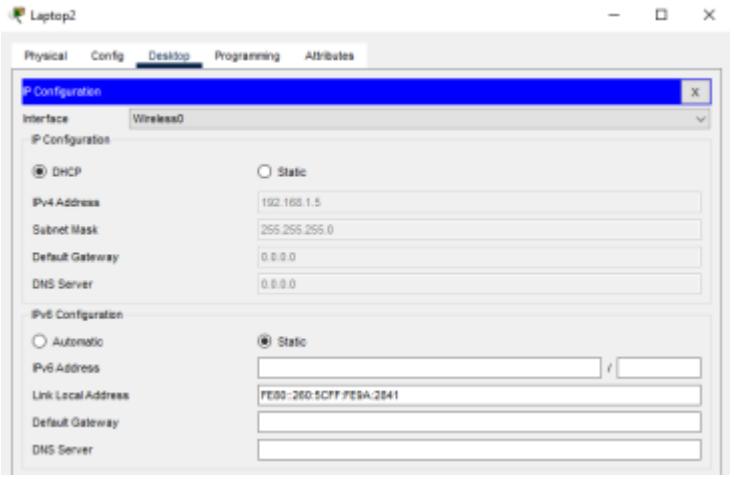
After DHCP Services configuration on DHCP Server, we will configure one more thing on this DHCP Server. This is the IP address and subnet mask of the Server. Here, our Servr IP address will be 172.16.0.1 and the mask will be 255.255.255.0.



We will check the IP addresses of the laptops. For now, checking only one of them is enough. Because, at the beginning if there is no Static IP Configuration and no DHCP, an IP from a special block is assigned to the devices. This is APIPA (Automatic Private IP Addressing) addresses. These addresses are from the block “169.254.x.x/25”. Simple, when we say this type of IP address in a device, we can say that it has no IP address.







Pinging laptop1 form laptop 2

Laptop0

Physical | Config | Desktop | Programming | Attributes

Command Prompt

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


C:\>ping 192.168.1.4

Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time=63ms TTL=128
Reply from 192.168.1.4: bytes=32 time=39ms TTL=128
Reply from 192.168.1.4: bytes=32 time=33ms TTL=128
Reply from 192.168.1.4: bytes=32 time=38ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 33ms, Maximum = 63ms, Average = 43ms

C:\>
```

Server0

Physical | Config | Services | Desktop | Programming | Attributes

IP Configuration

IP Configuration

DHCP	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

IPv6 Configuration

Automatic	Static
IPv6 Address	
Link Local Address	FE80::203:E4FF:FE9B:187C
Default Gateway	

TASK #02

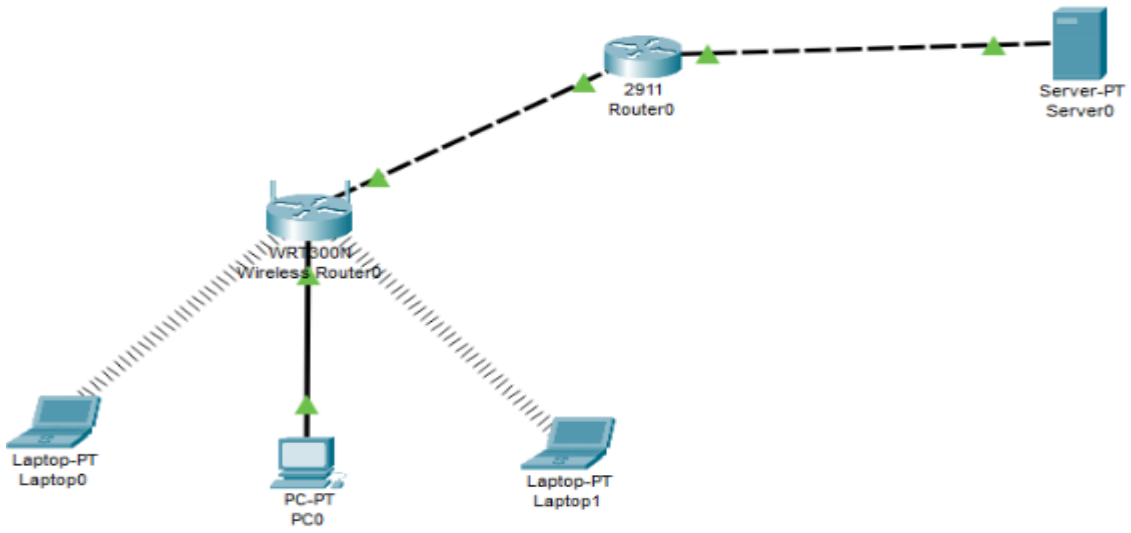
First get into Cisco Packet Tracer and in the physical mode, pick a wireless router and two laptops,a PC, a generic server and a 2800-series router(or just any other router other than wireless).

Connect the PC to the **Ethernet 1** of the wireless router.

For the laptops, replace the already-installed wired LAN module with a wireless adapter module (**WMP 300N**) .

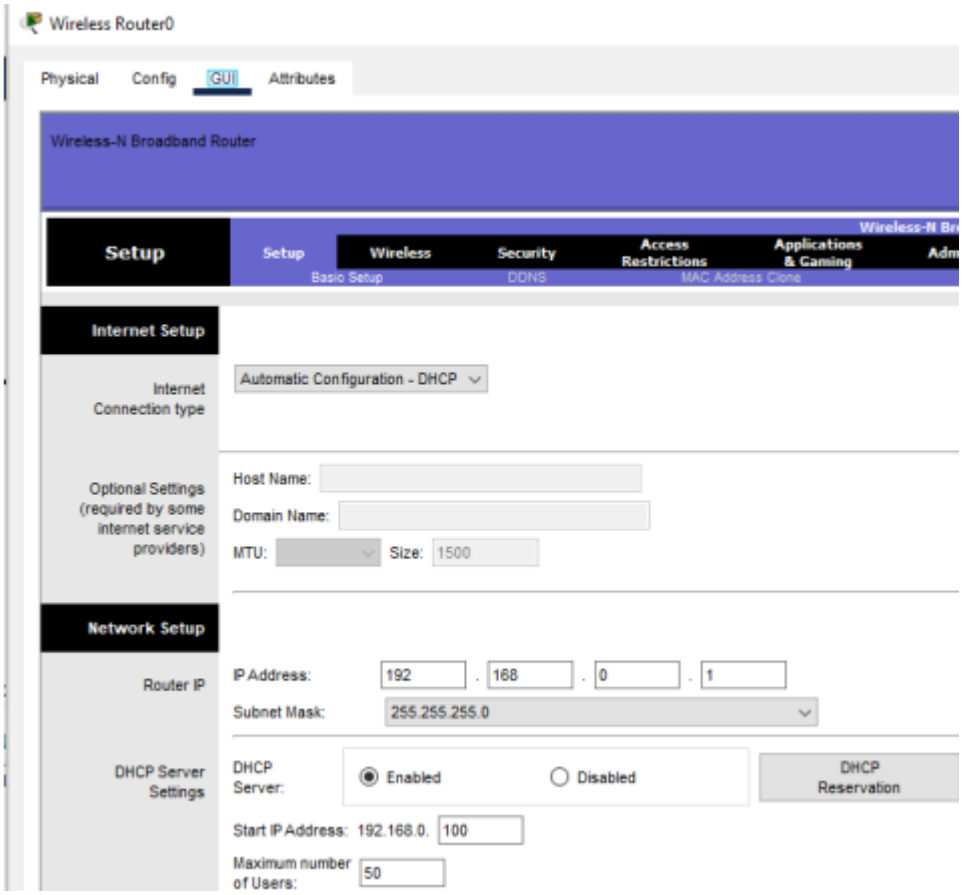
Make sure that you first power off each laptop before you make any replacement then restore the power back after replacement. That's easy to do!

Once you have the wireless modules in place, you'll see the wireless connections come up between the laptops and the wireless router as shown below.

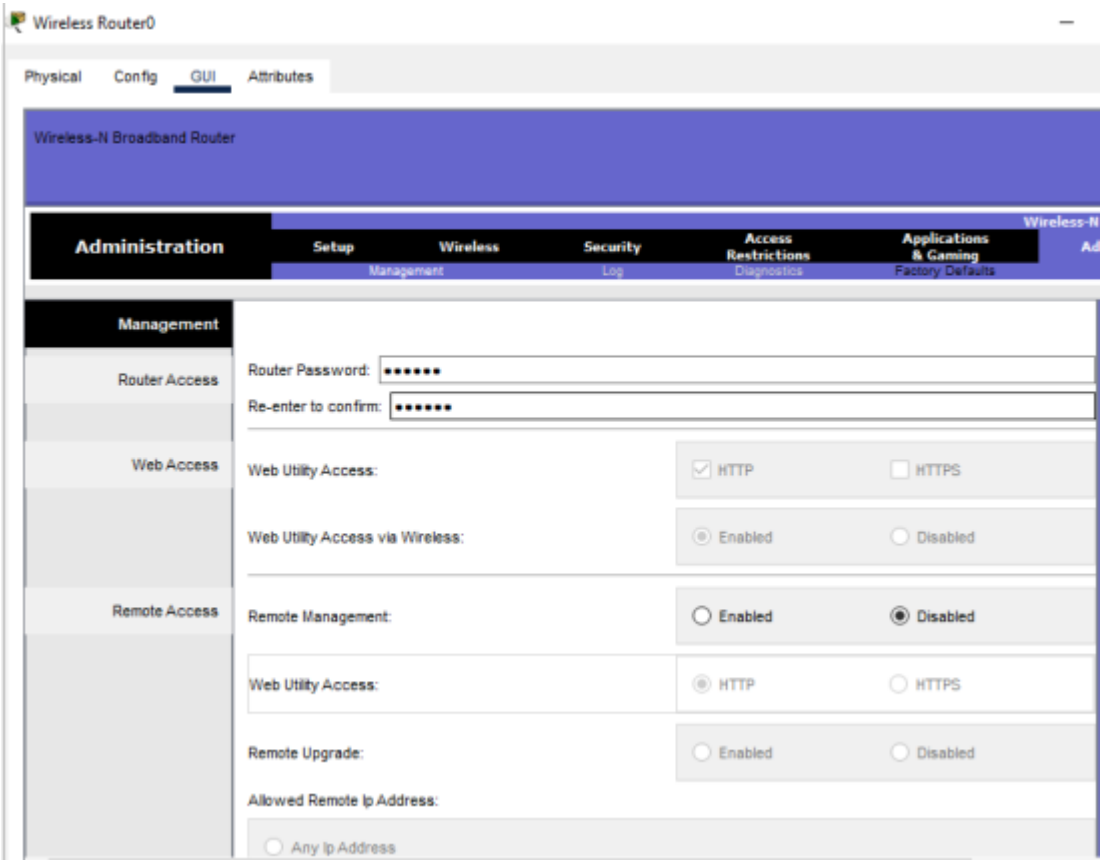


To do any configuration on the wireless router, we'll use its GUI(Graphical User Interface) which we can access either by:

Clicking the Wireless Router icon then **GUI tab**



Click on the **Administration** tab and set a new **password** for administrative access. Scroll down and **Save settings.** You will be prompted for a username and the new password you just set. A new screen appears confirming settings are successful. You can click on **continue** to continue with configurations.



Network setup means LAN setup. Already, we have a PC and three laptops in the LAN.We'll assign the them IP addresses either statically or dynamically.

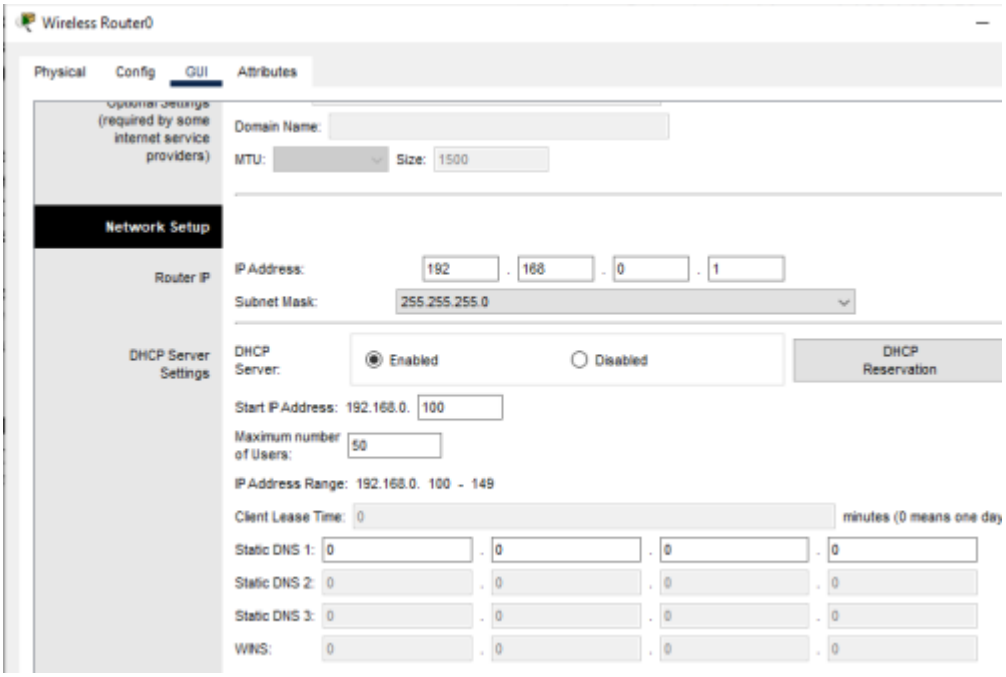
The default LAN network address given here is 192.168.0.0 with a subnet mask of 255.255.255.0 .The first address in this network (192.168.0.1 by default) has been assigned to the LAN interface of the router. It has just been named **IP address.** Obviously, all the PCs in the LAN will use the LAN interface as their default interface

Now, in the router's network settings, you may choose to enable DHCP to dynamically assign IP addresses to the PCs. On the other hand, if you choose to disable DHCP, then obviously, you'll have to configure static IP addresses on the PCs.

When you choose to enable DHCP, set the **start address** for the LAN pool, **maximum hosts** to be allowed in your LAN and the **DNS server** for the LAN. The PCs will receive addresses automatically from the pool.

- Ensure DHCP is checked.
- Leave the **IP address** as 192.168.0.1 (This is the default LAN gateway address).
- Set a start address of 192.168.0.50 and set **maximum users** to 100
- You can leave the DNS server entry as it is (0.0.0.0) or specify the address of a DNS server of your choice.

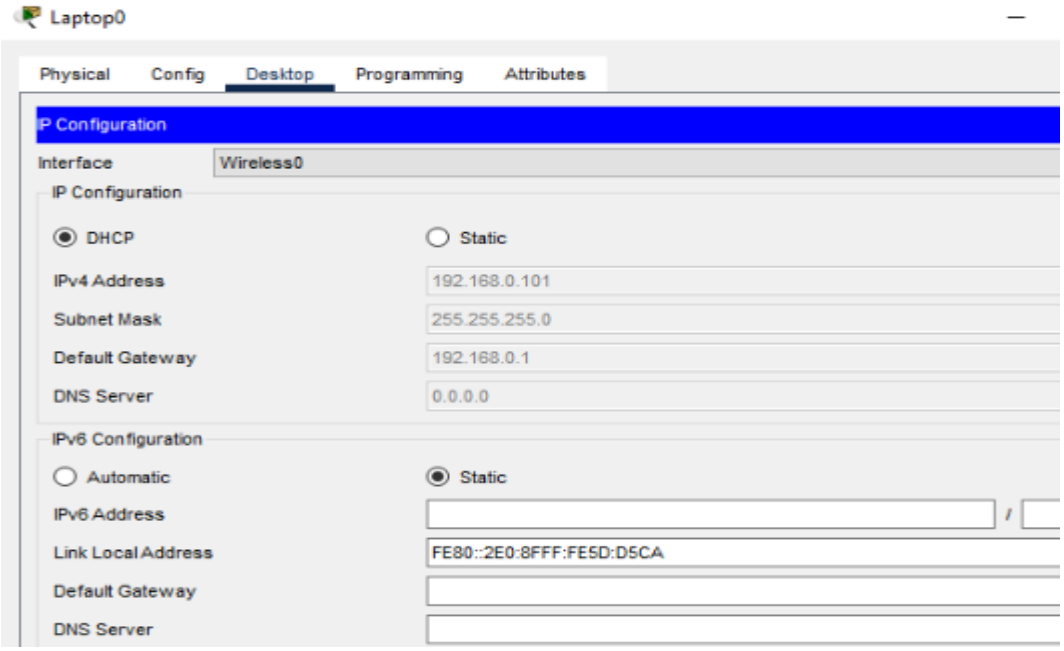
- Scroll down
- **Save settings.**



Enable DHCP on each PC for dynamic configuration. Go to the **IP configuration** tab for each PC and enable DHCP.

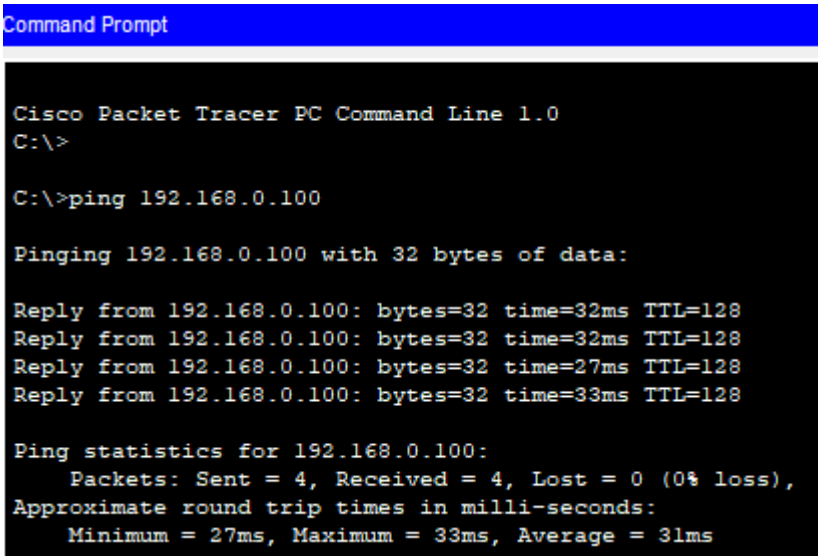
Each PC should automatically obtain an IP address from the router.

IP configuration for **Laptop1:**



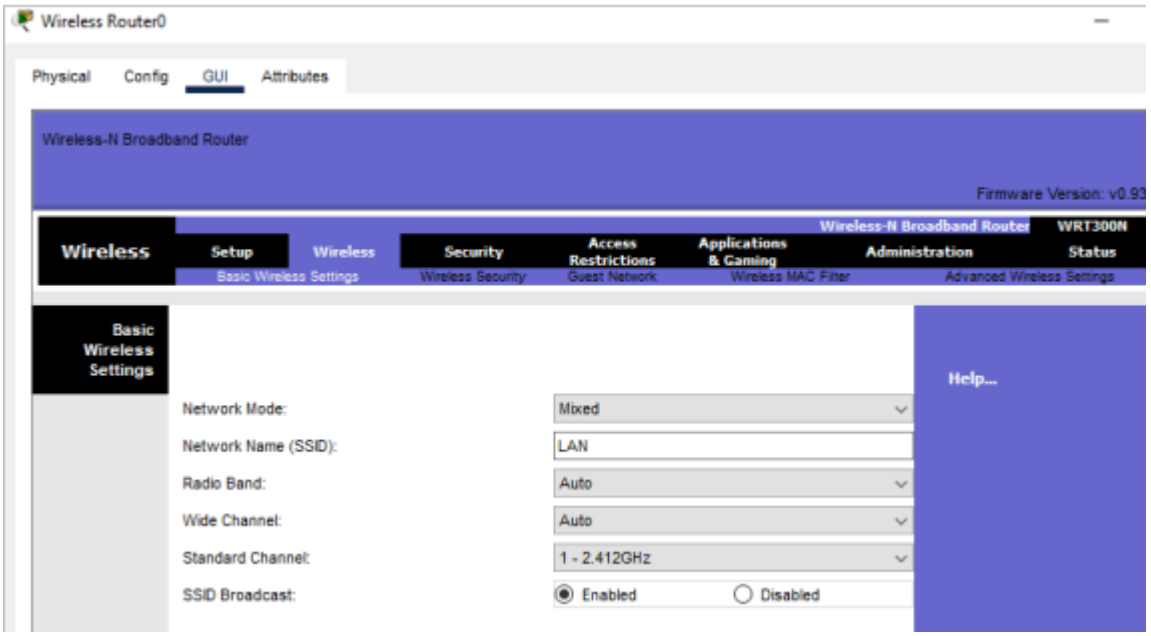
Now let's test our wireless LAN.

Ping PC2 from PC1. Ping succeed

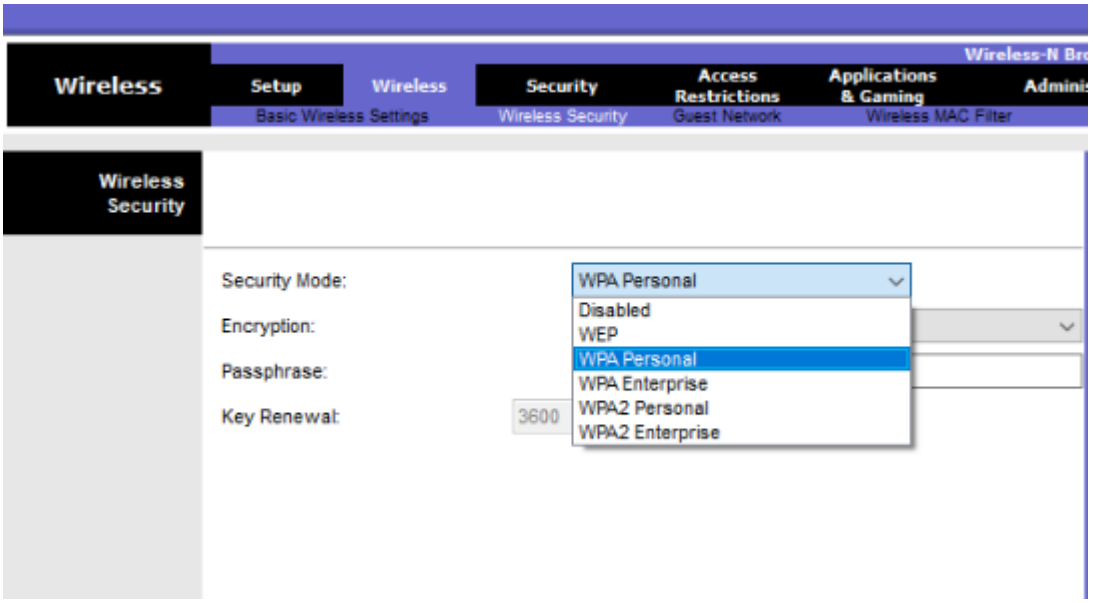


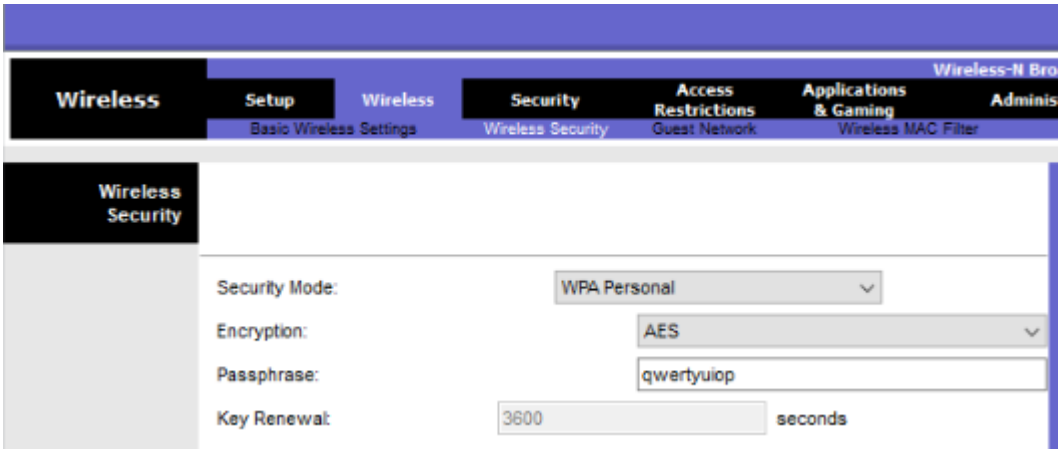
Adding security for wireless LAN access

Access the GUI of wireless router then click on **Wireless** tab. Under the Basic Wireless Settings sub tab, change the default wireless **SSID** to any name of your choice.

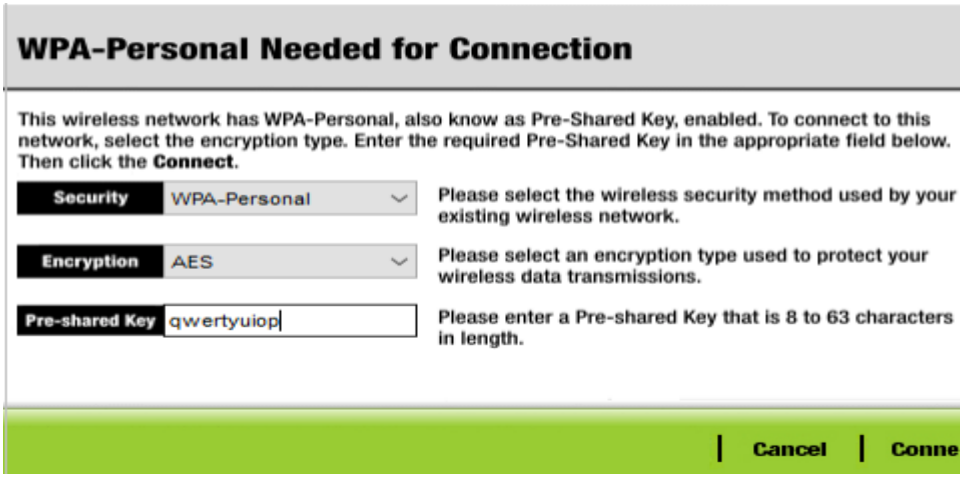


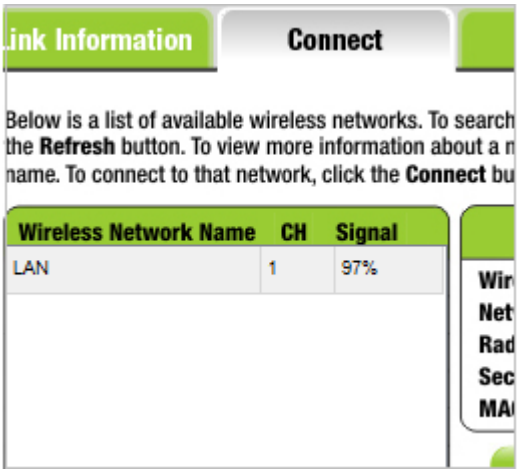
in the **Wireless** tab, under the **Wireless security** sub tab, change security mode to **WPA personal ,** then set **passphrase** field to a password of your choice. Scroll down and **Save settings**





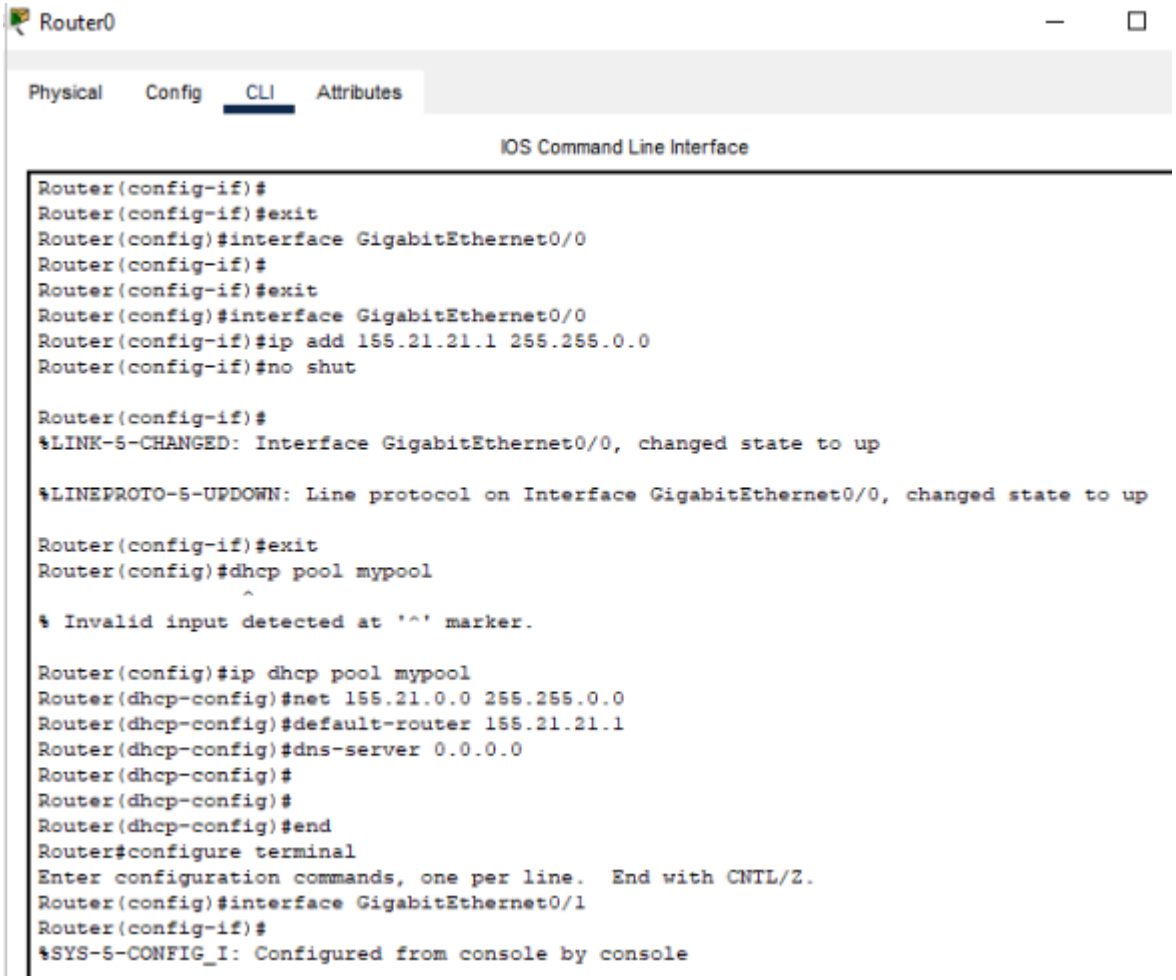
The LAN network is now secured for wireless access. To test whether its really protected, click **Laptop1->Desktop->Wireless.**



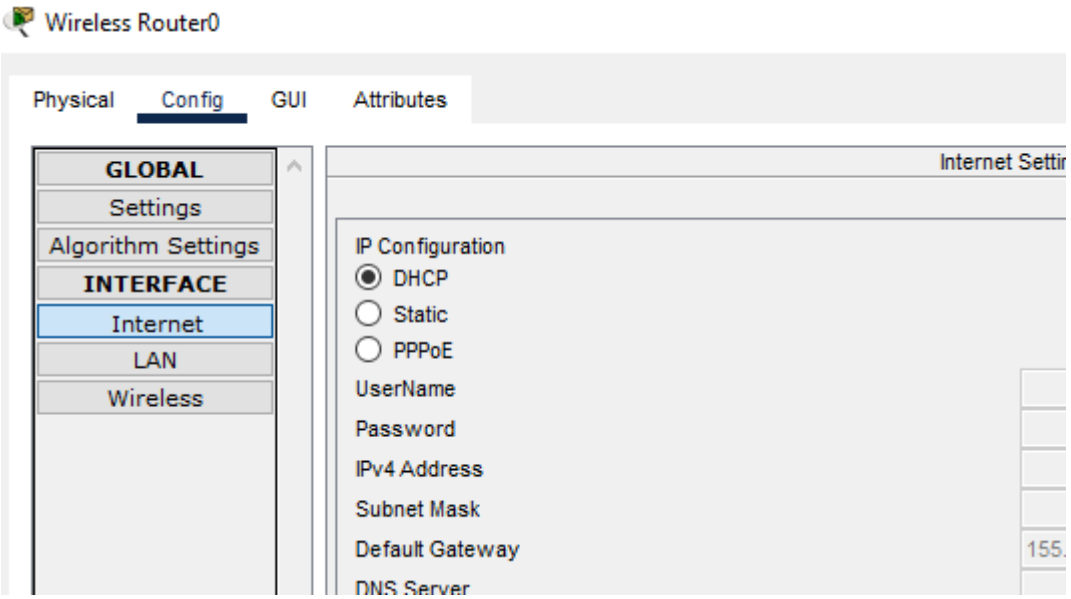


Internet Setup

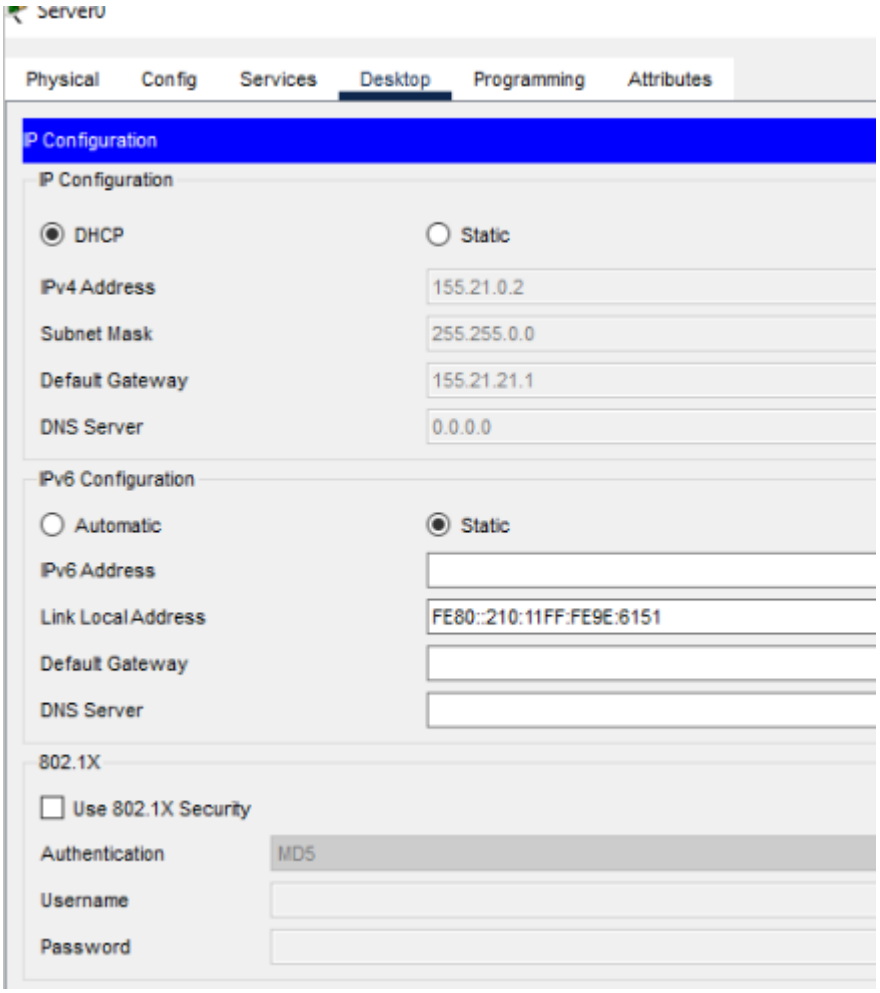
For now, we'll set the internet interface to act as a DHCP client (with the DHCP server configured on the ISP router) For now, we'll set the internet interface to act as a DHCP client (with the DHCP server configured on the ISP router)



Now make the internet interface a DHCP client by enabling DHCP on it.



To verify DHCP configuration,click on the wireless router icon, then go to **Config tab.** Pick **DHCP.** The interface is now configured with an IP address from the pool set in the ISP router.



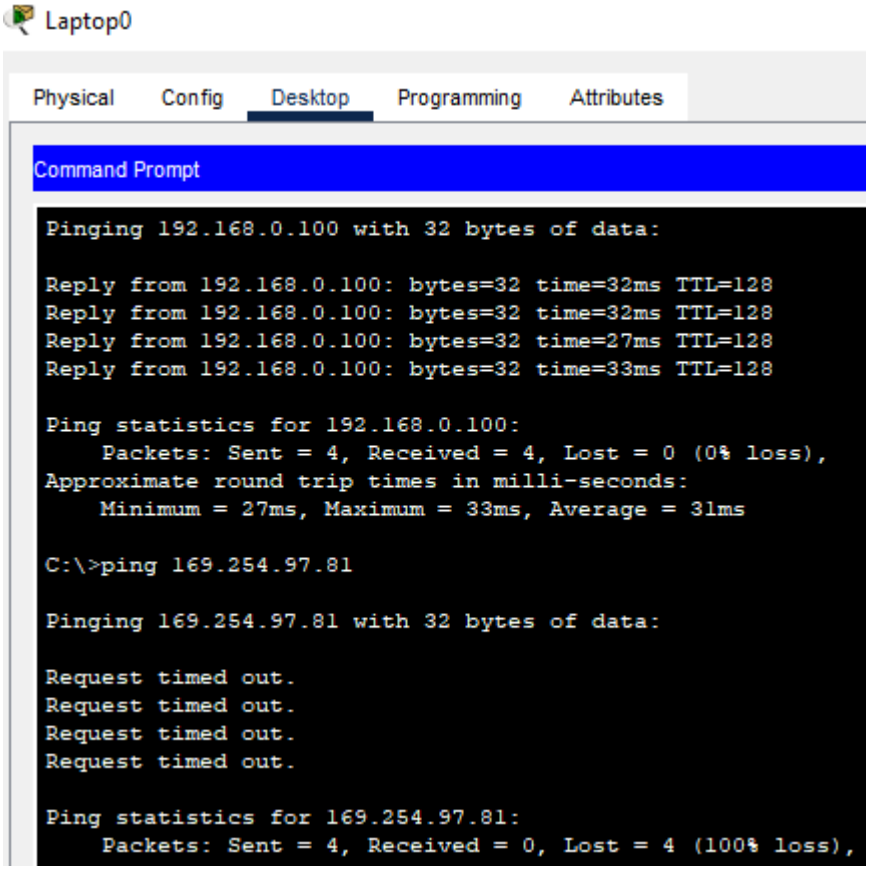
Ping the server from Laptop1. Ping succeed

```
C:\>ping 155.21.0.2

Pinging 155.21.0.2 with 32 bytes of data:

Reply from 192.168.0.1: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.

Ping statistics for 155.21.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```


Laptop0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Pinging 192.168.0.100 with 32 bytes of data:
Reply from 192.168.0.100: bytes=32 time=32ms TTL=128
Reply from 192.168.0.100: bytes=32 time=32ms TTL=128
Reply from 192.168.0.100: bytes=32 time=27ms TTL=128
Reply from 192.168.0.100: bytes=32 time=33ms 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 = 27ms, Maximum = 33ms, Average = 31ms
C:\>ping 169.254.97.81
Pinging 169.254.97.81 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 169.254.97.81:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),