

INTRODUCTION:

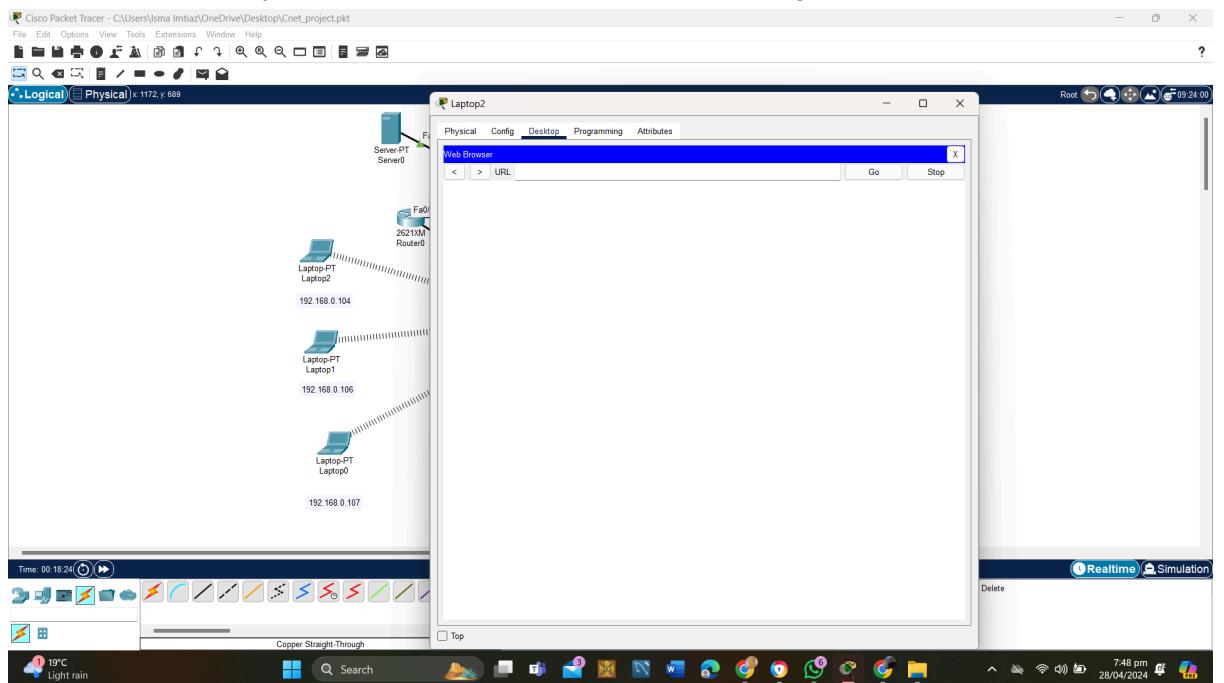
In this project, we were asked to use a wireless router WRT300N and build a connection between 3 laptops and 2 mobile phones and 1 tablet so that they can share packets among each other. We also needed to add a server to a switch and connect that switch with the router such that the wireless router would be able to send packages to the server.

TASKS:

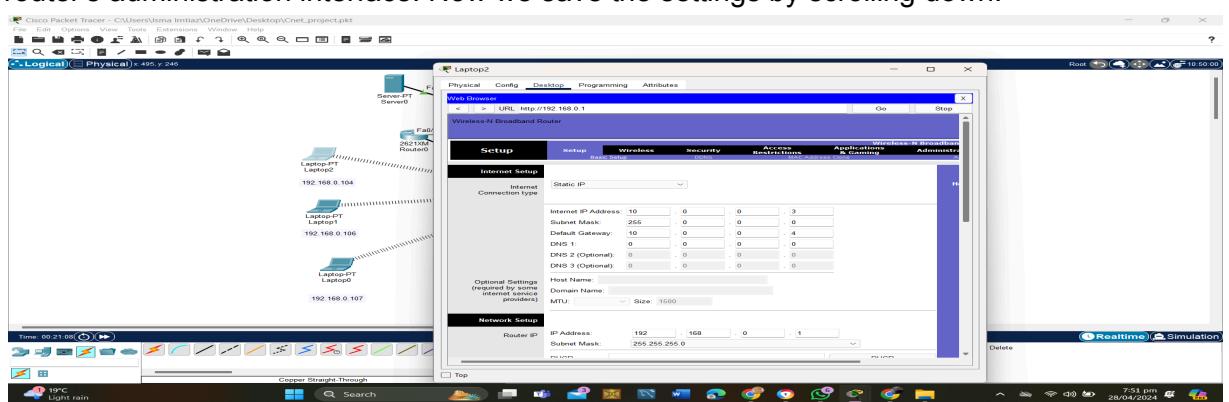
There were a total of 10 tasks to be done to build connection, which we achieved successfully and also did some additional work as well. Here, we have used 10.0.0.3 instead of 10.0.0.2.

1. Task 1: Connect to wireless router WRT300N via browser using Laptop1 (login/pass - admin/admin)

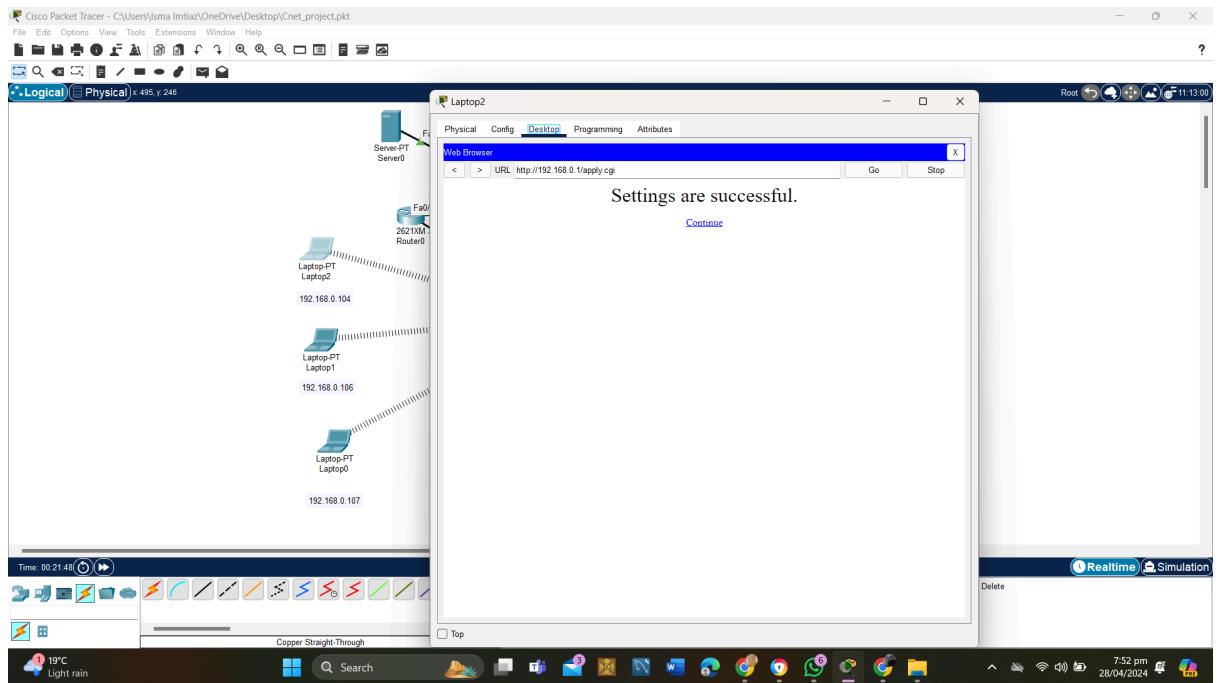
Laptop1 successfully connected to the WRT300N router using a web browser.



Now we add the ip of the router in the url and this is the page and then the default login credentials (Username: admin, Password: admin) were used to access the router's administration interface. Now we save the settings by scrolling down.

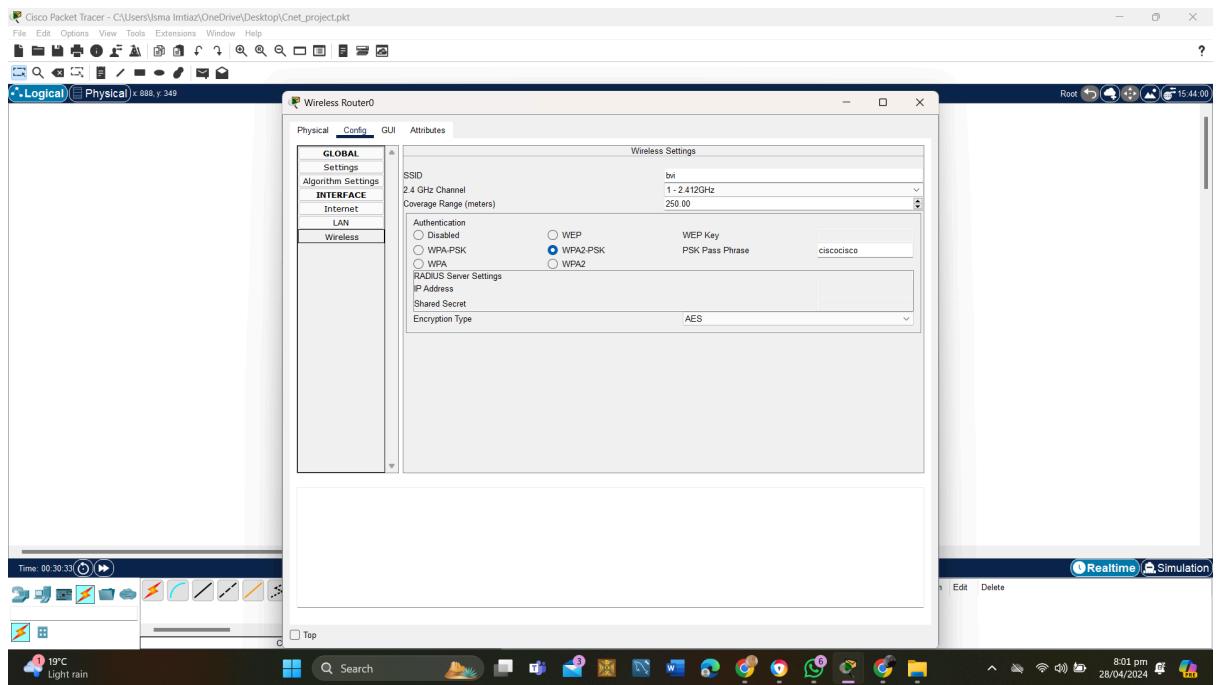


Your browser page should look somehow like this:



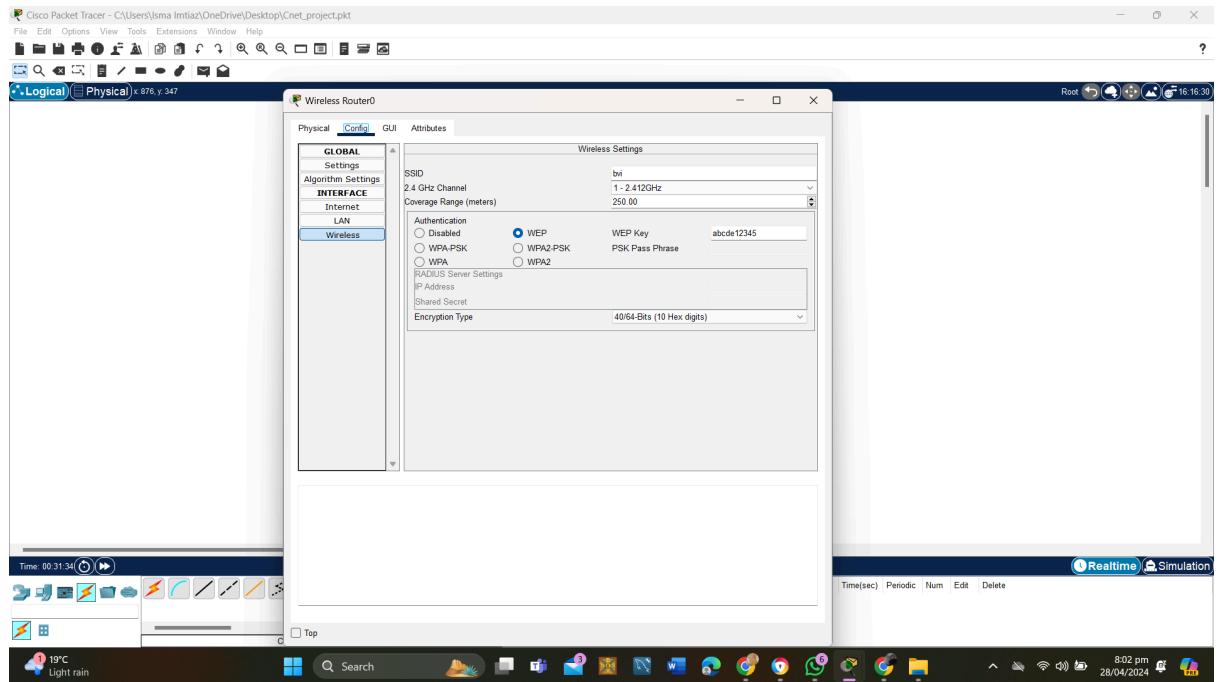
2. Task 2: Change SSID name to "bvi"

After logging into the router's administration interface, the SSID name was successfully changed to "bvi" under the wireless settings.



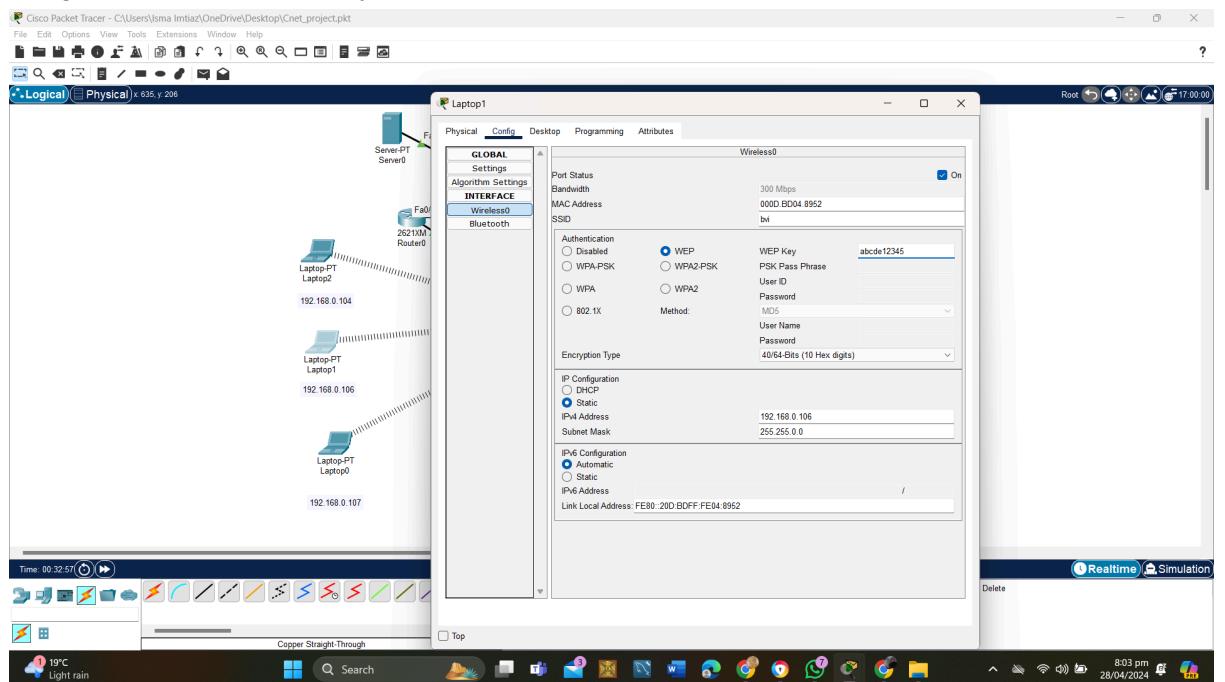
3. Task 3: Enable WEP wireless security using key consisting of 10 Hex digits - "12345abcde"

WEP wireless security was enabled on the router with a 10-character hexadecimal key ("12345abcde") under the wireless security settings.

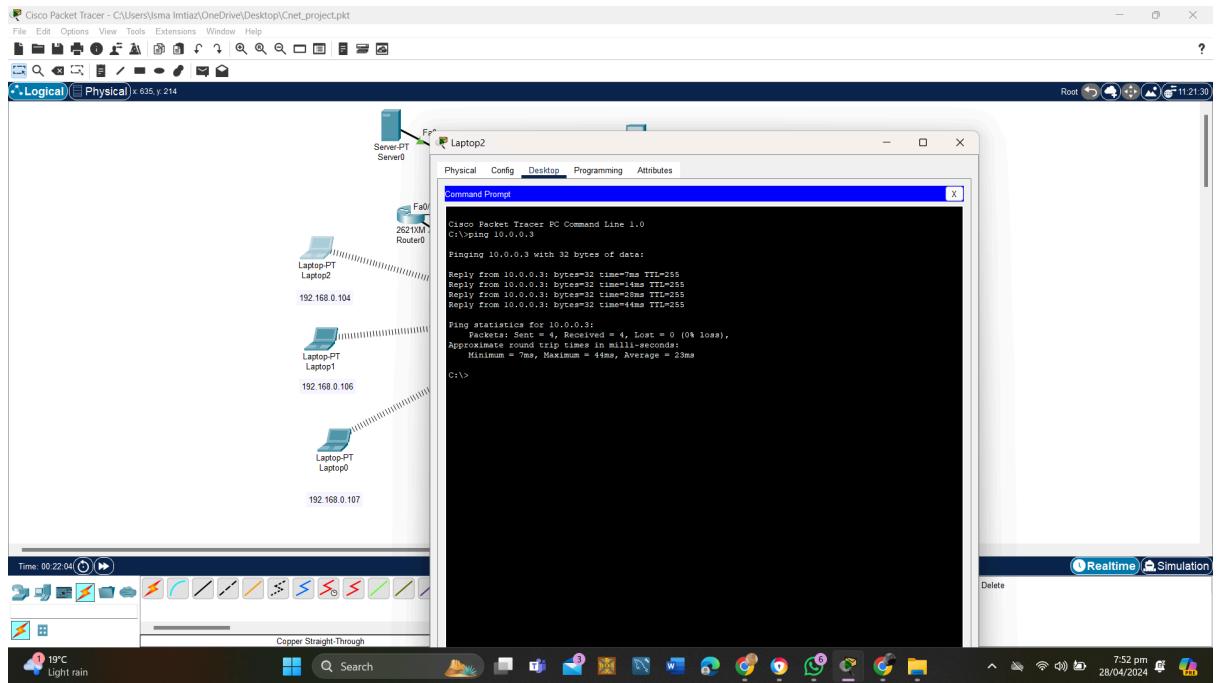


4. Task 4: Connect Laptop1 and Laptop2 to wireless network "bvi" using WEP key. Ping server 10.0.0.3

Both Laptop1 and Laptop2 were successfully connected to the "bvi" wireless network using the provided WEP key ("12345abcde").



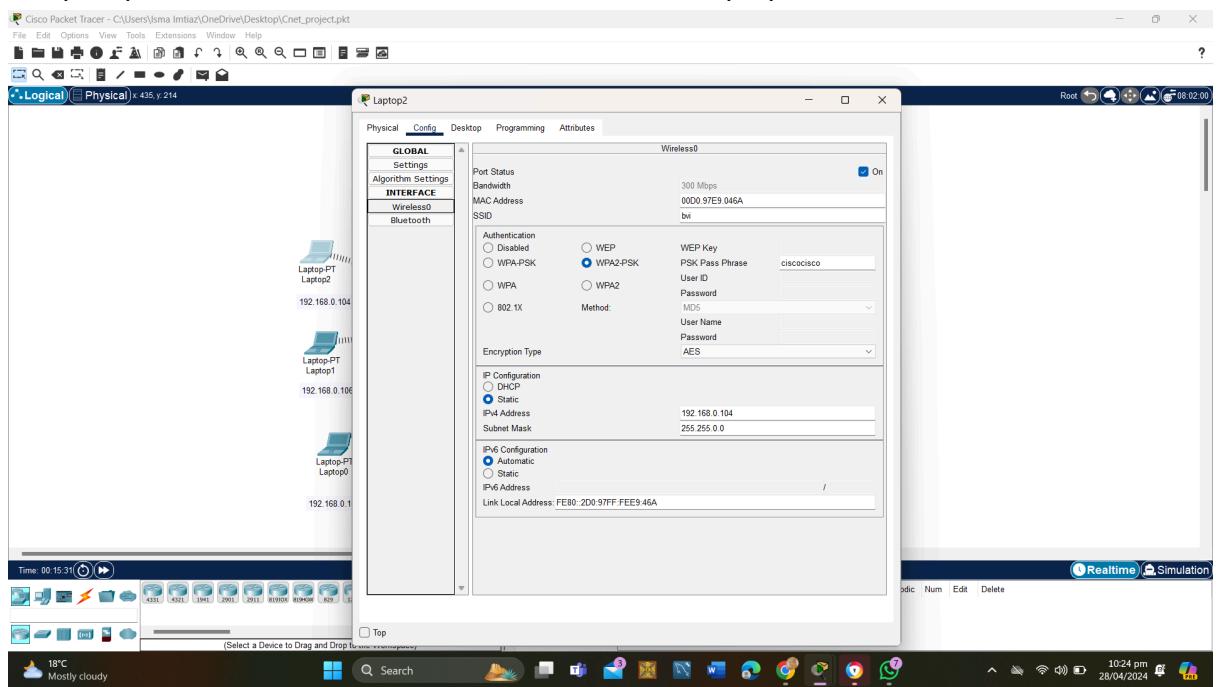
A successful ping test was conducted from both Laptop1 and Laptop2 to server IP address 10.0.0.2, confirming network connectivity.



5. Task 5: Change wireless security on WRT300N to WPA2 PSK AES and set passphrase to - "ciscocisco"

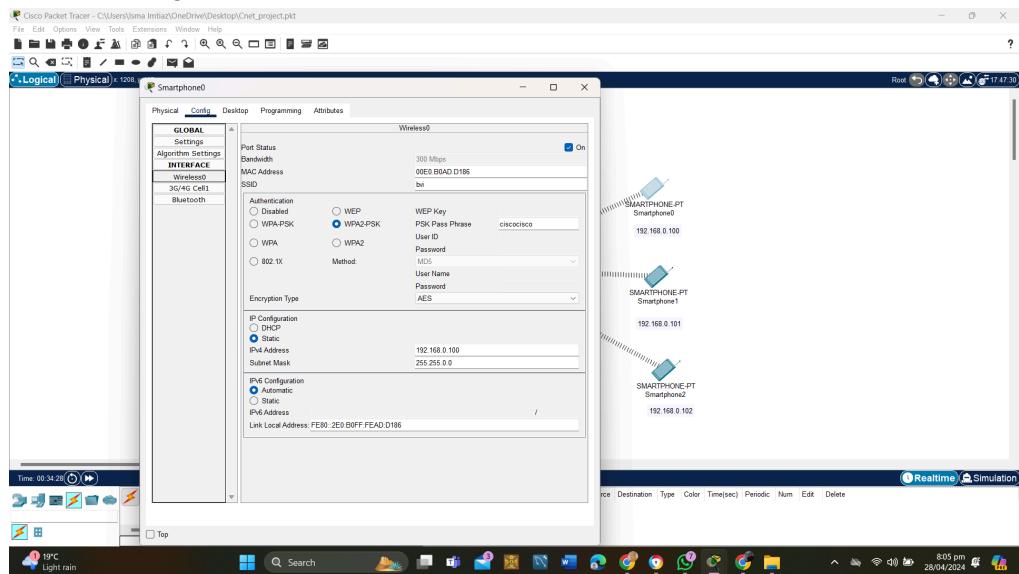
The wireless security settings on the WRT300N router were updated to use WPA2 PSK AES encryption.

The passphrase "ciscocisco" was set for authentication purposes.



6. Task 6: Connect Smartphone1 and Smartphone2 to wireless network "bvi" using WPA2 PSK passphrase. Ping server 10.0.0.3 (here my server was 10.0.0.3)

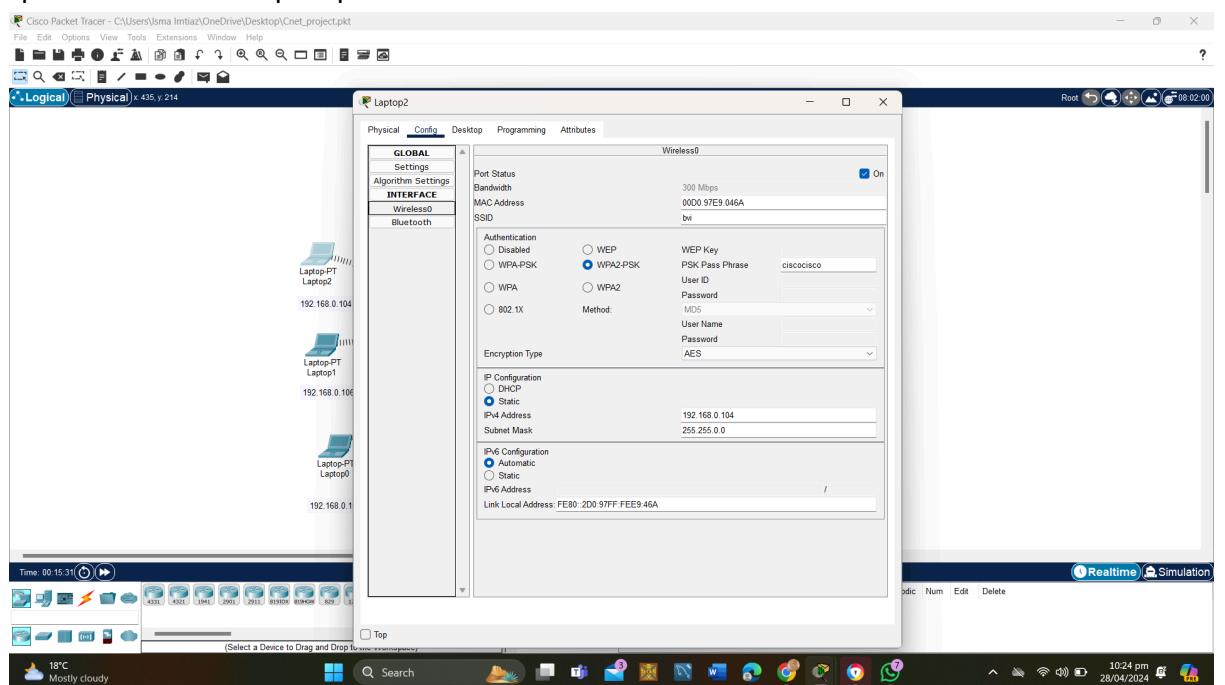
Both Smartphone1 and Smartphone2 successfully connected to the "bvi" wireless network using the WPA2 PSK passphrase "ciscocisco".



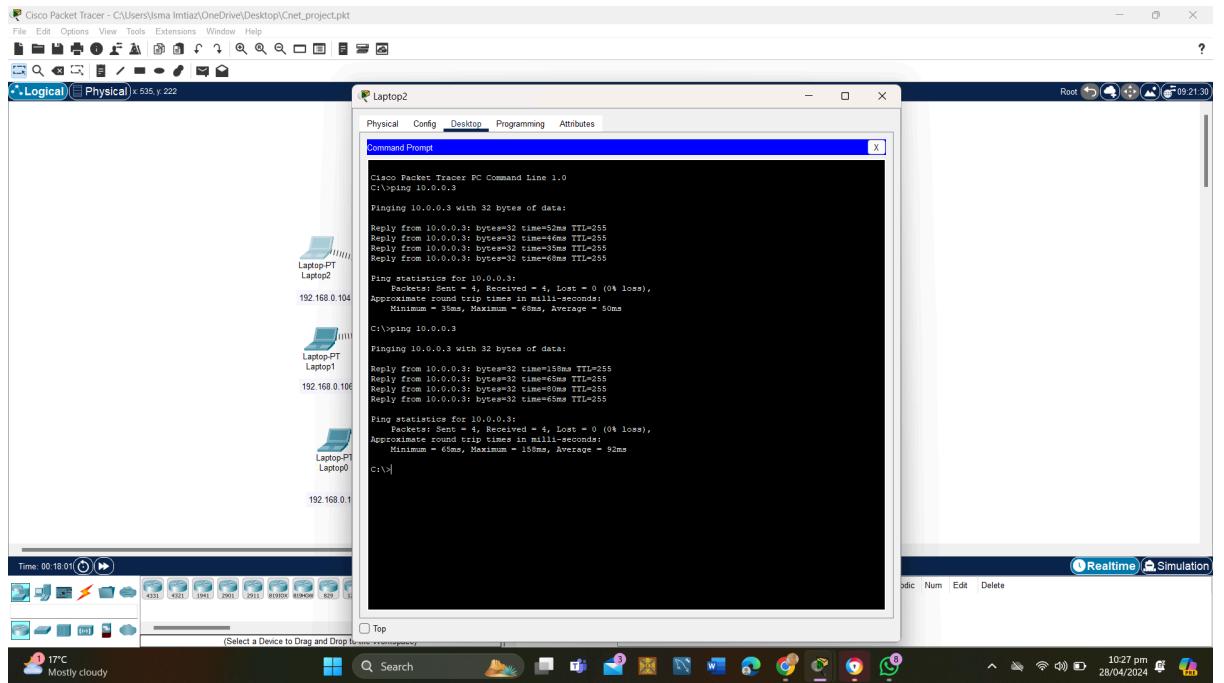
Ping tests from both smartphones to server IP address 10.0.0.2 were successful, indicating network connectivity.

7. Task 7: Connect Laptop1 and Laptop2 to wireless network "bvi" using WPA2 PSK passphrase. Ping server 10.0.0.3

Laptop1 and Laptop2 were reconnected to the "bvi" wireless network using the updated WPA2 PSK passphrase "ciscocisco".

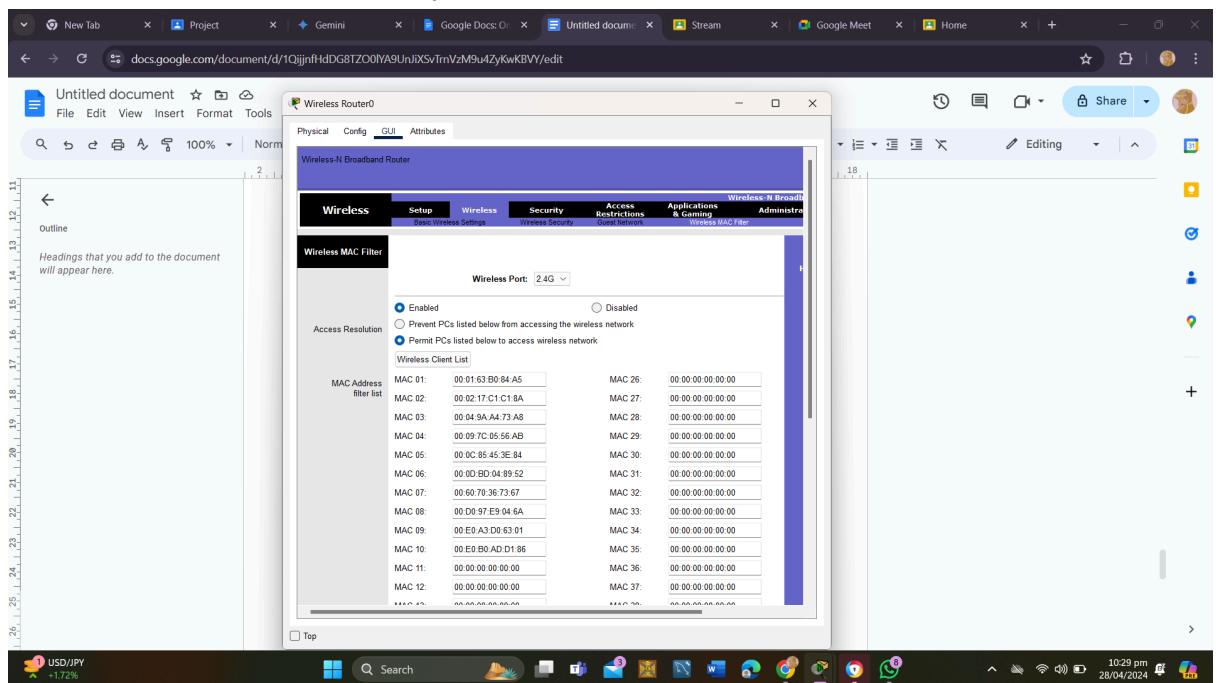


Ping tests from both laptops to server IP address 10.0.0.2 were successful, confirming network connectivity.



8. Task 8: Enable Wireless MAC filter, allow wireless for Laptop1 and Laptop2. Ping server 10.0.0.2 from Laptop1 or Laptop2 and also from Smartphone1 or Smartphone2.

Wireless MAC filtering was enabled on the router, allowing only Laptop1, laptop 2 and Laptop2 to connect wirelessly.



Ping tests were successfully conducted from both Laptop1 and Laptop2, as well as from Smartphone1 and Smartphone2, to server IP address 10.0.0.3.

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Laptop2
Physical Config Desktop Programming Attributes

Command Prompt X

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=52ms TTL=255
Reply from 10.0.0.3: bytes=32 time=46ms TTL=255
Reply from 10.0.0.3: bytes=32 time=35ms TTL=255
Reply from 10.0.0.3: bytes=32 time=64ms TTL=255

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 35ms, Maximum = 68ms, Average = 50ms

C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=159ms TTL=255
Reply from 10.0.0.3: bytes=32 time=65ms TTL=255
Reply from 10.0.0.3: bytes=32 time=80ms TTL=255
Reply from 10.0.0.3: bytes=32 time=65ms TTL=255

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 65ms, Maximum = 159ms, Average = 92ms

C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=57ms TTL=255
Reply from 10.0.0.3: bytes=32 time=50ms TTL=255
Reply from 10.0.0.3: bytes=32 time=50ms TTL=255
Reply from 10.0.0.3: bytes=32 time=88ms TTL=255

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 41ms, Maximum = 88ms, Average = 61ms

C:\>
```

Laptop1

Physical Config Desktop Programming Attributes

Command Prompt X

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Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

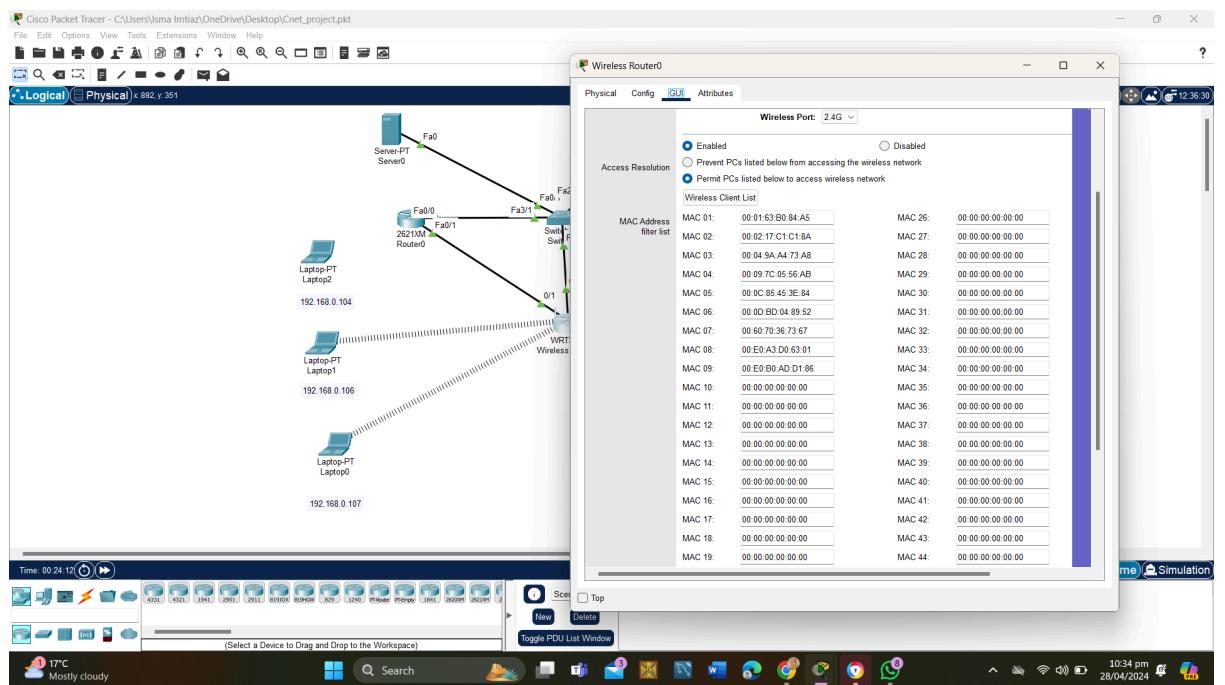
Reply from 10.0.0.3: bytes=32 time=16ms TTL=255
Reply from 10.0.0.3: bytes=32 time=56ms TTL=255
Reply from 10.0.0.3: bytes=32 time=73ms TTL=255
Reply from 10.0.0.3: bytes=32 time=83ms TTL=255

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 56ms, Maximum = 164ms, Average = 89ms

C:\>
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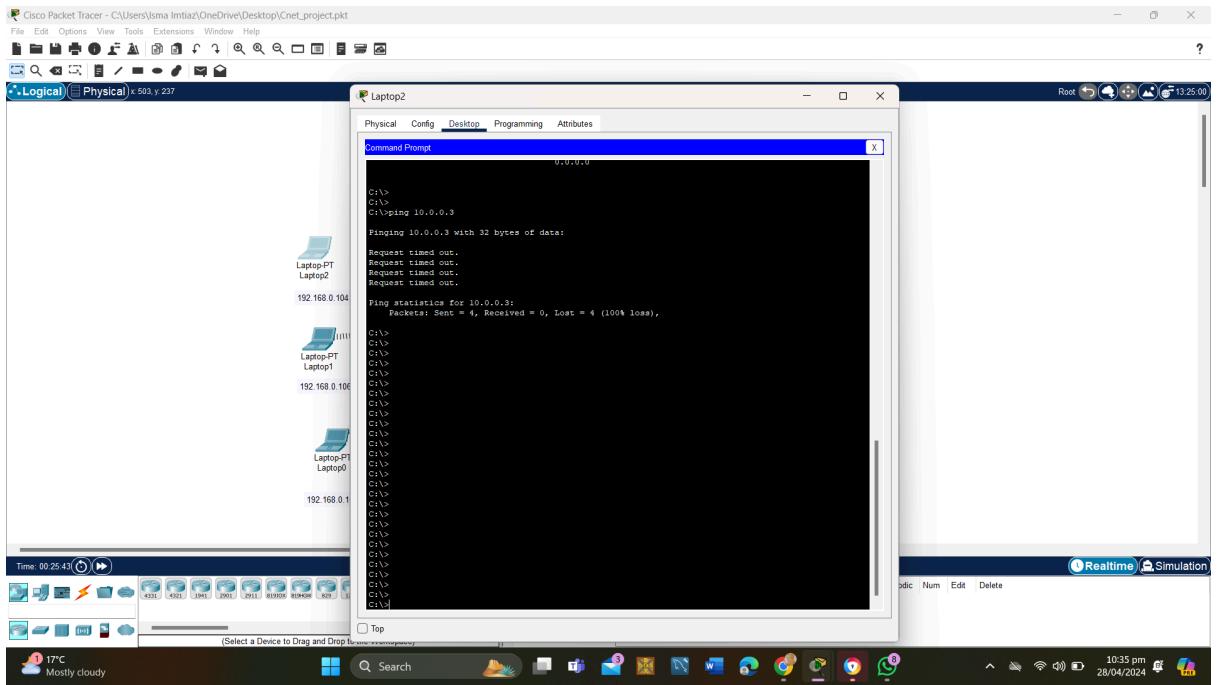
9. Task 9: Change MAC filter to allow all devices except Laptop1. Ping server 10.0.0.3 from Laptop1 and also from Laptop2 or Smartphone1 or Smartphone2.

The MAC filter settings on the router were modified to allow all devices except Laptop1 to connect wirelessly. Down there it can be seen that only the first laptop is not connected where as the rest are connected to the wireless router.



A successful ping test was conducted from Laptop2, Smartphone1, and Smartphone2 to server IP address 10.0.0.2. However, the ping test from Laptop1 failed, as expected due to its MAC address being blocked.

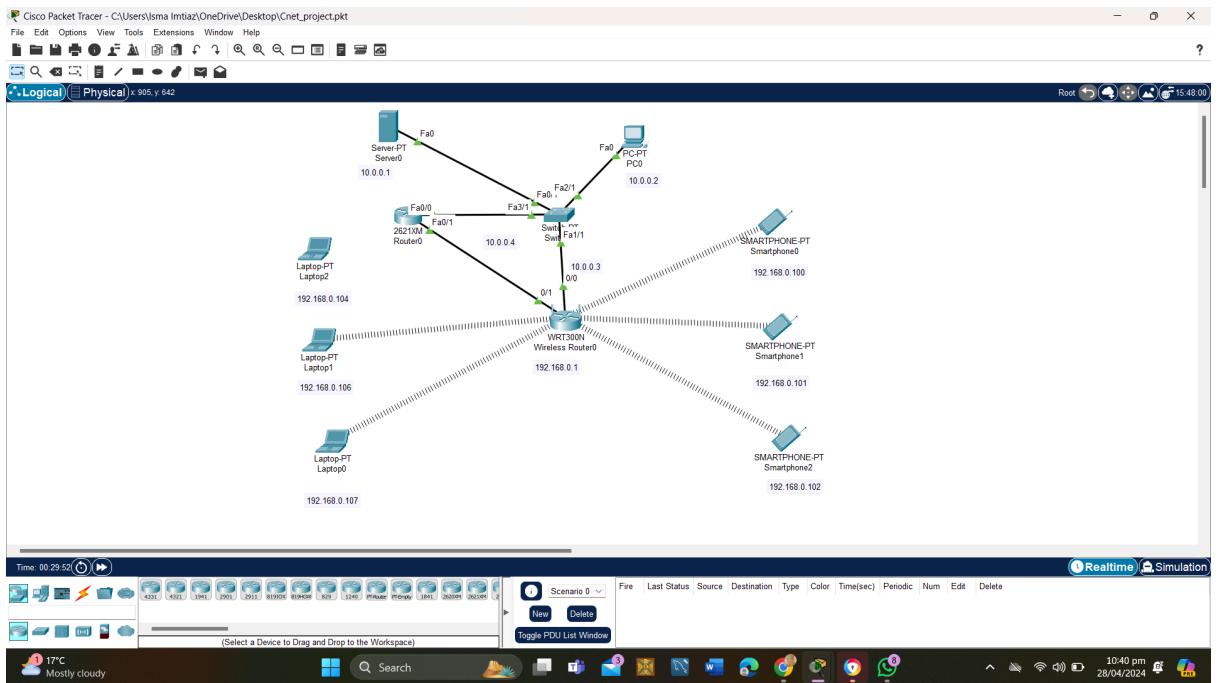
So here you can see that the first laptop doesn't have access to the IP address 10.0.0.2. While the rest are still working.



10. Task 10: Disable SSID broadcast and check visibility from Laptop1.

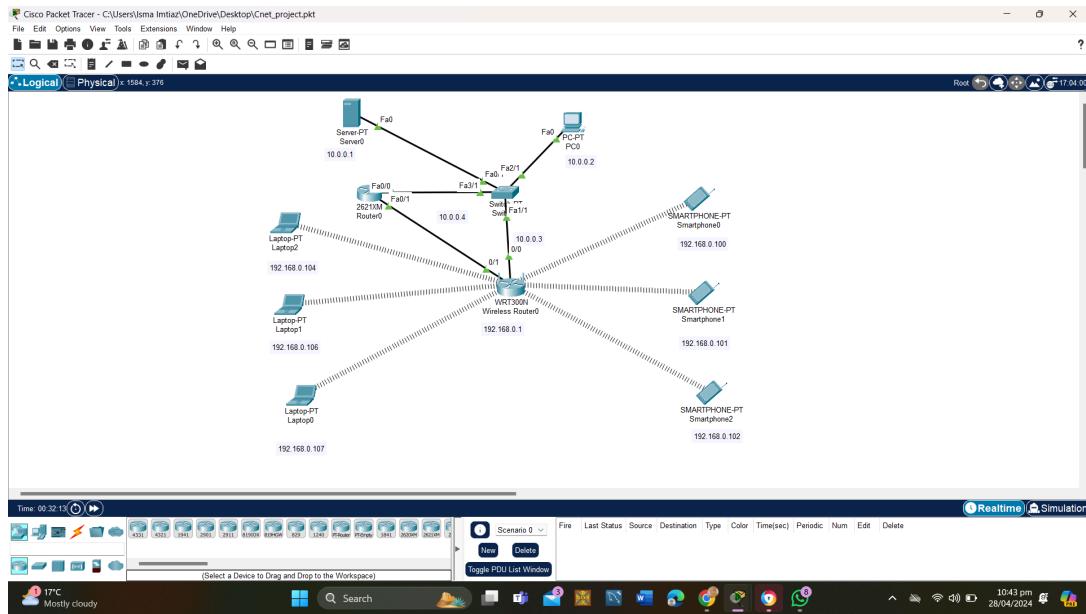
SSID broadcast was disabled on the router to prevent the wireless network name from being broadcasted.

Laptop1 was not able to manually connect to the "bvi" network by entering the SSID because the mac address was not added in the wireless router.



But now here we see that laptop1 was able to connect to "bvi" network by entering ssid demonstrating that the network remains accessible even without SSID broadcast.

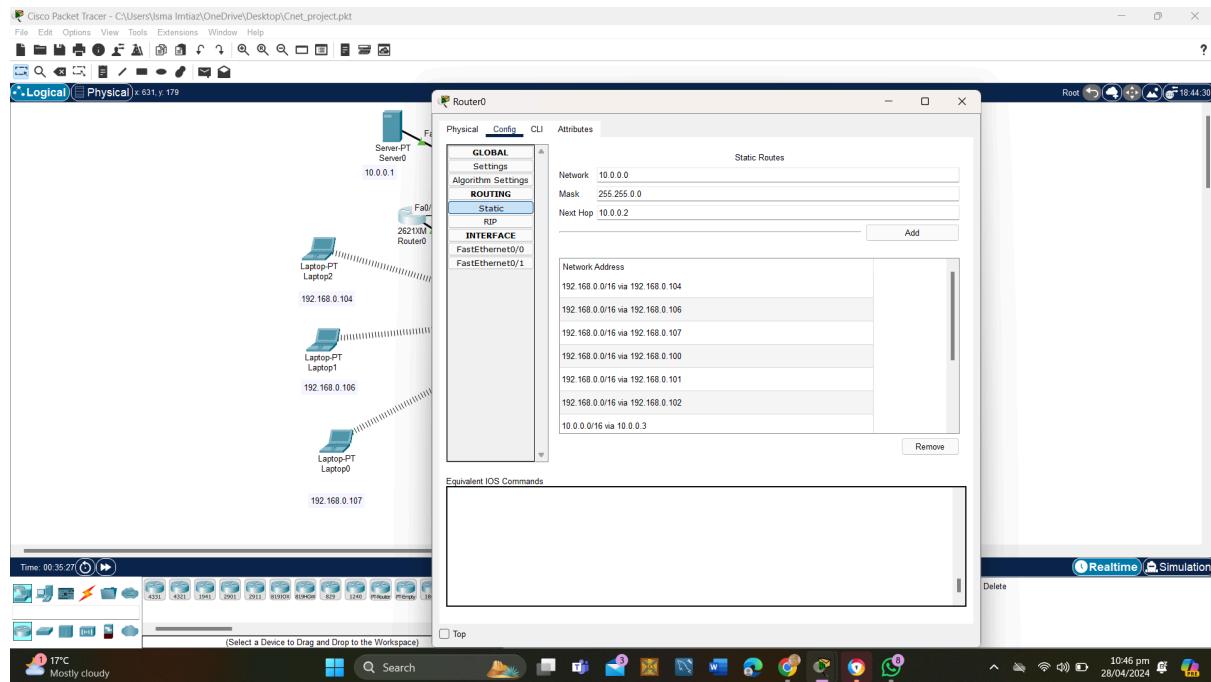
Overall, all tasks were successfully completed according to the provided instructions, and the network configurations were validated through ping tests to ensure proper connectivity.



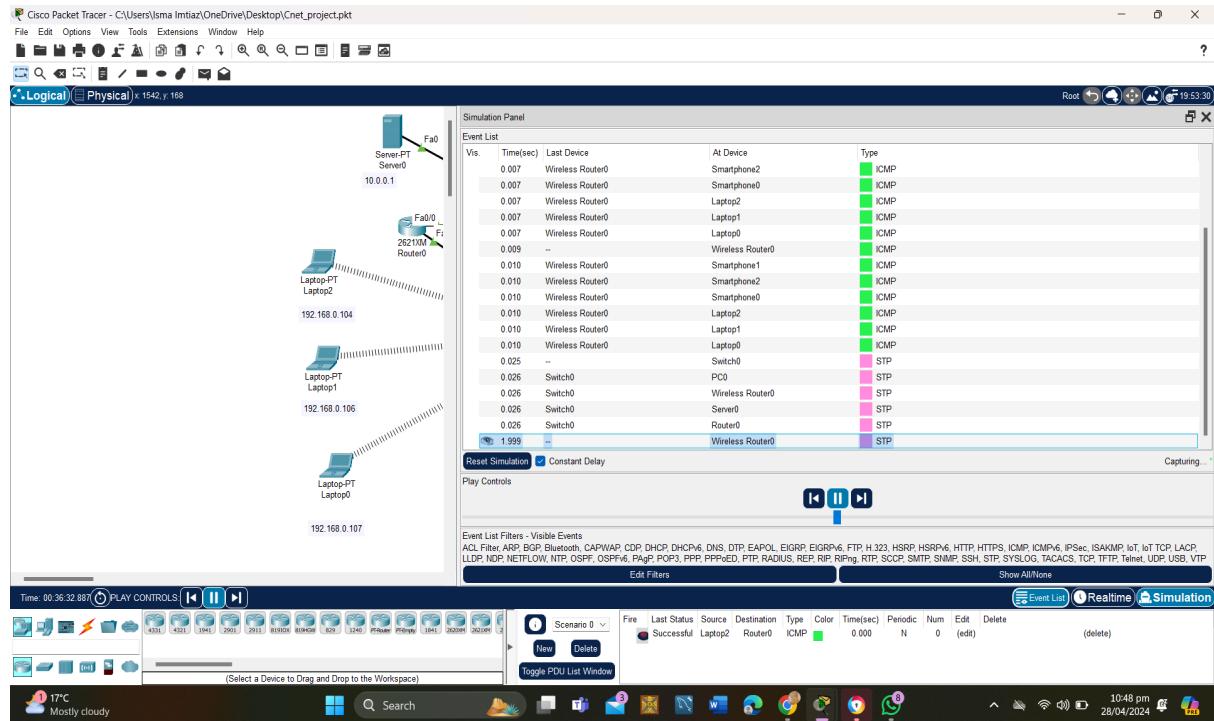
BONUS TASKS:

We added another pc using static ip configuration which sends and receives packets from the server which is connected to it using a switch. The switch is also connected to a router and wireless router as well.

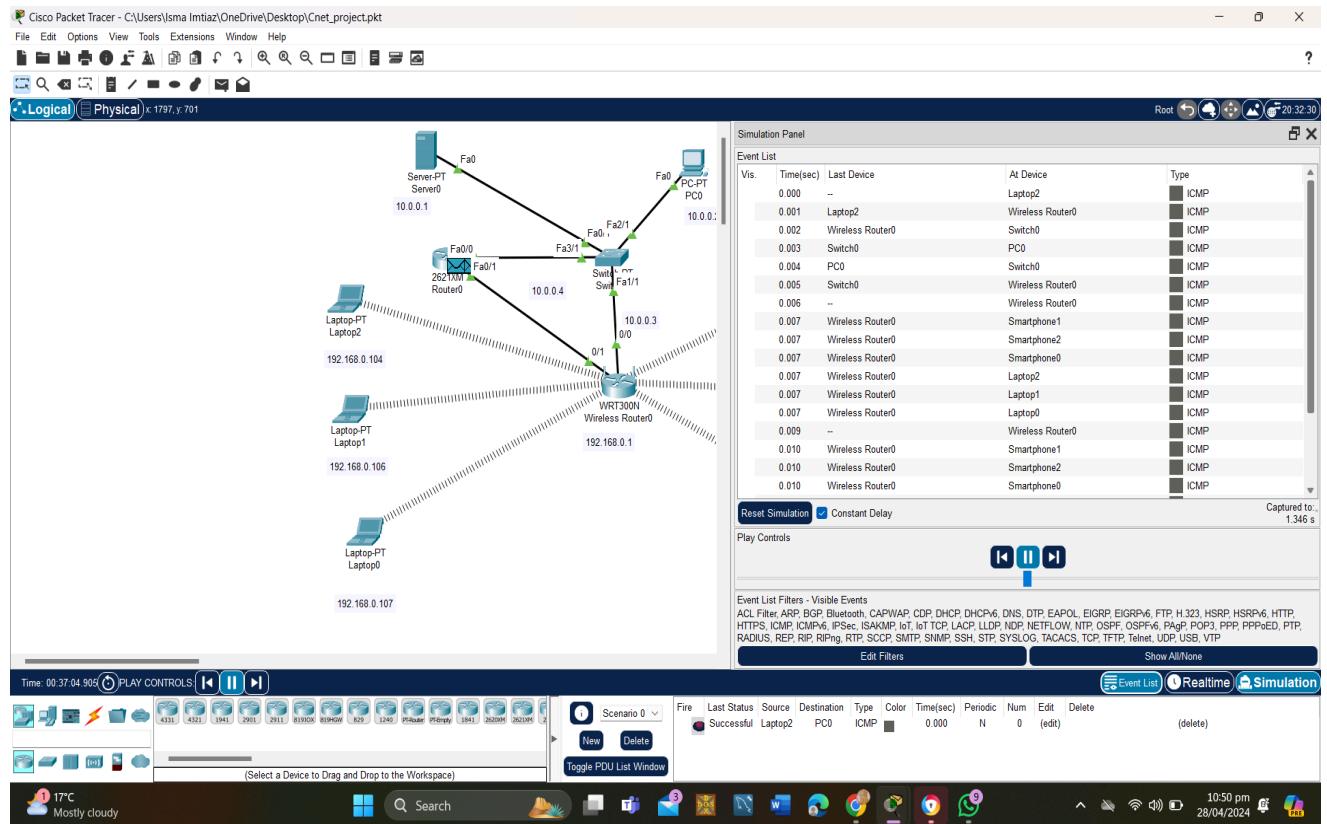
The static ip networks were created in the router so that its easy to send and receive messages from the laptop and smartphones.



Now if i send a packet from laptop to router it will be successful.



Now if i send a packet from my laptop to the pc then it is also successful.



CONCLUSION:

To sum this up, we performed all the tasks. The packets are transferred and the ping 10.0.0.3 shows no packet loss and with the extra tasks, we successfully have done the project in which 3 laptops and 3 cellphones and 1 tablet are wirelessly connected to the router which is connected to the switch and another router and those are connected with the server and a pc. We successfully built the connection between all of these.

Here is the final image of the network:

