VxLEARN Networks

Networking & Cybersecurity Track
Simulated Employment Program

Lab Report:
Configure DHCP on a Wireless Router

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1. Objective

The purpose of this lab is to configure DHCP services on a wireless router and ensure that multiple PCs can automatically receive IP addressing information from the DHCP server. This includes modifying the DHCP scope and verifying communication between devices on the network.

2. Background / Scenario

A home user wishes to connect three PCs to their wireless router. Instead of assigning IP addresses manually, the router is configured to automatically assign IP addresses using DHCP (Dynamic Host Configuration Protocol). The DHCP pool will be customized to a new IP network.

3. Part 1 – Set Up the Network Topology

- Three generic PCs were added to the workspace.
- Each PC was connected to an Ethernet port on the wireless router using straight-through cables.

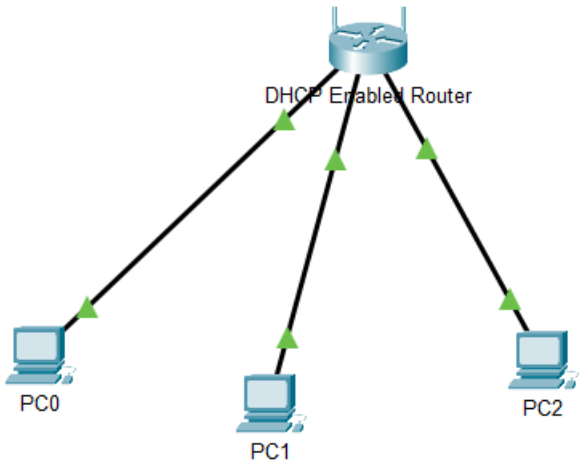


Figure 1: Network Topology

4. Part 2 – Observe Default DHCP Settings

1. On PC0, open Desktop → IP Configuration.
2. Select DHCP to automatically obtain addressing.
3. Record the Default Gateway Address (Router's IP).
   192.168.0.1
4. Open Desktop → Web Browser, and enter the gateway IP.
5. Login using:

   Username: admin

   Password: admin

You should now see the router's default settings page, including:

- Default LAN IP Address
- DHCP Enabled
- Default Address Pool Range

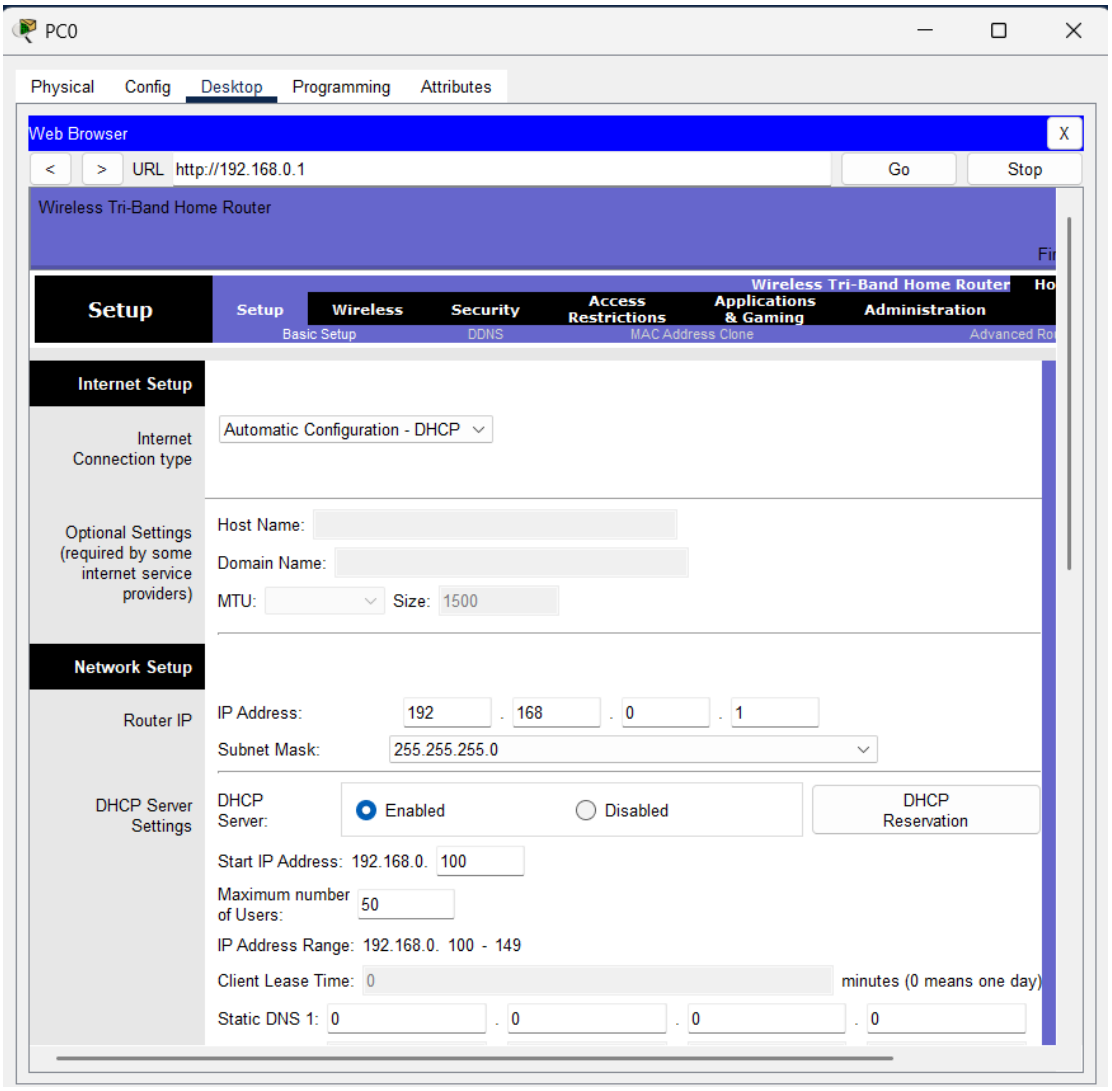


Figure 2: Default Router GUI

5. Part 3 – Change the Wireless Router's IP Address

1. Change the Router IP to:
   192.168.5.1
2. Save Settings — the GUI may disconnect (expected).
3. On PC0, reset IP by switching:

- Static → DHCP

4. Reopen the browser and log in using the new IP:

   192.168.5.1

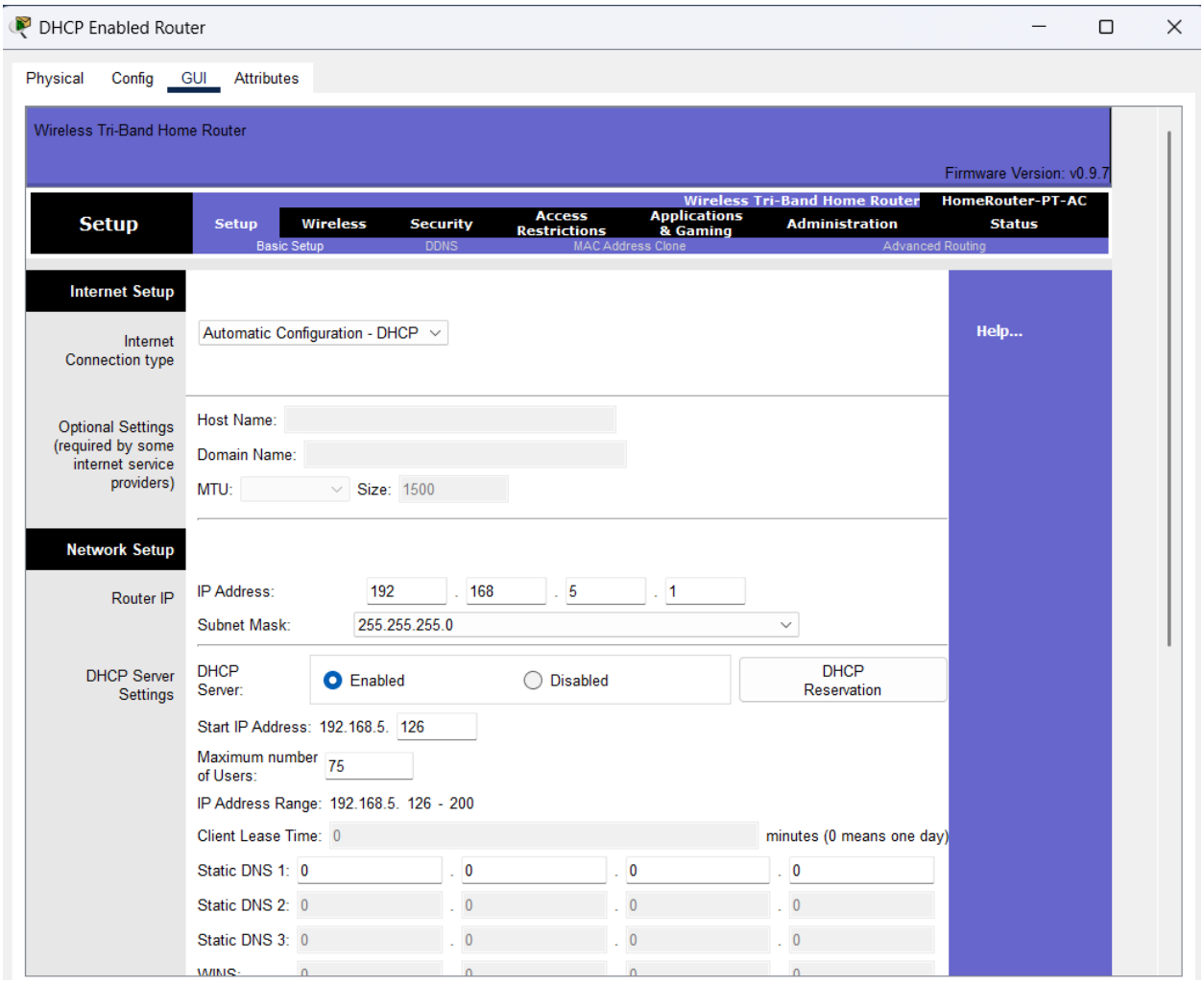


Figure 3: Updated Router IP

6. Part 4 – Modify the DHCP Address Range

1. Ensure DHCP Server Network matches new router subnet.
2. Change:

- Starting IP Address: 192.168.5.126
- Maximum Number of Users: 75

3. Save Settings.
4. Renew PC0 IP by toggling Static → DHCP.
5. Open Command Prompt → ipconfig.

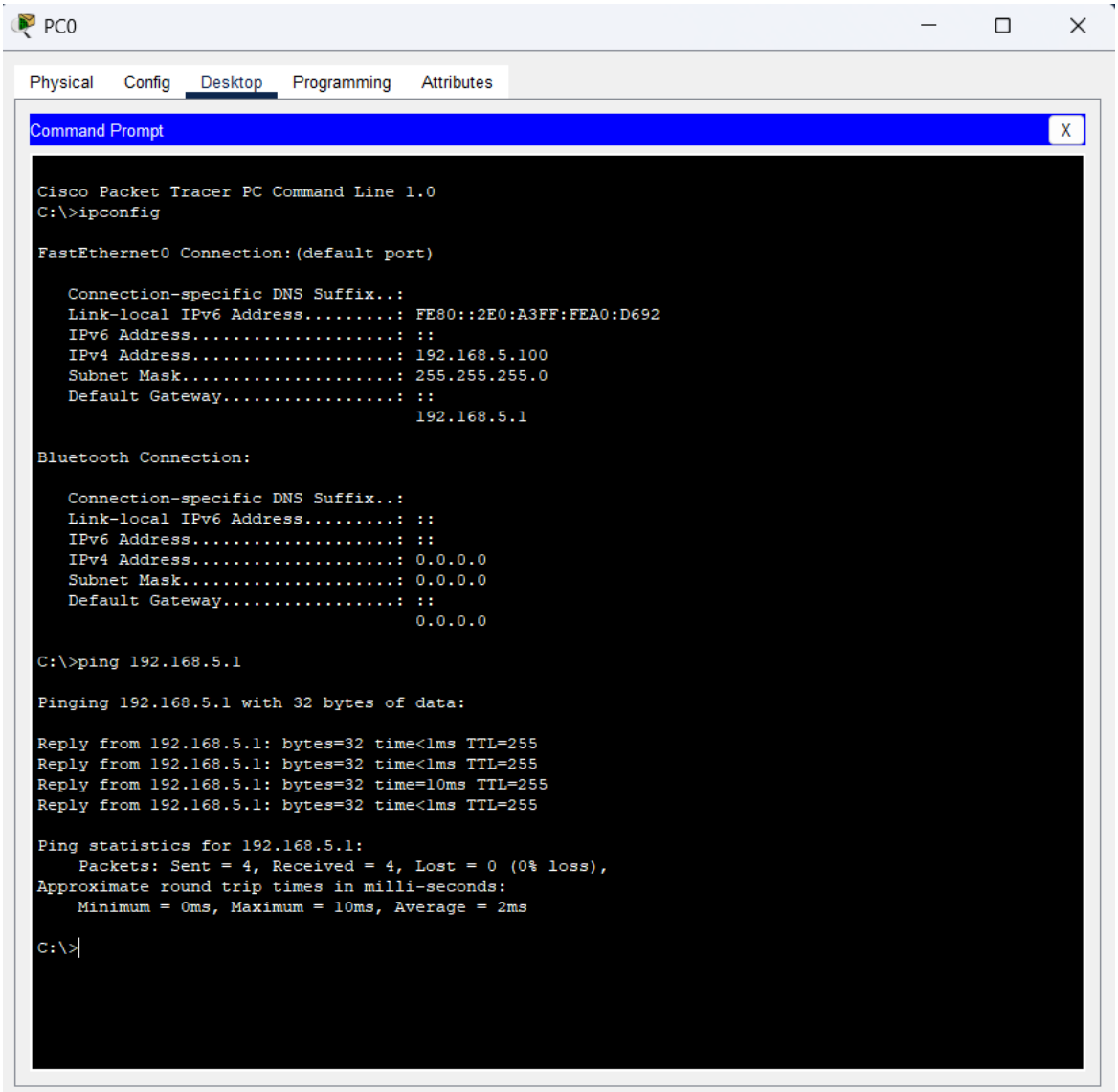


Figure 4: PC0 ipconfig

7. Part 5 – Enable DHCP on Remaining PCs

Repeat on PC1 and PC2:

PC1 IP: 192.168.5.127

PC2 IP: 192.168.5.128

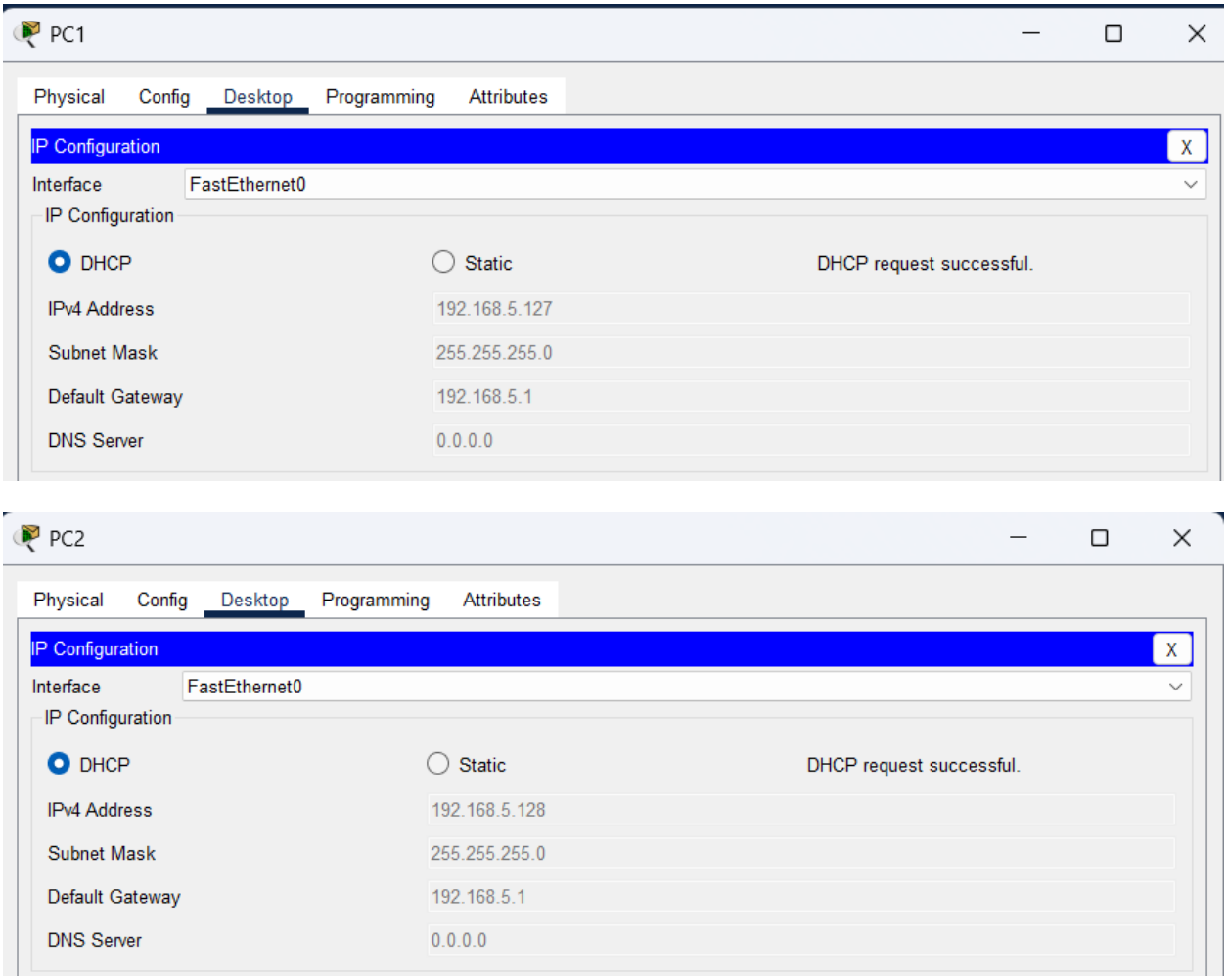


Figure 5: PC1 or PC2 ipconfig

8. Part 6 – Verify Connectivity

In PC2 → Command Prompt, run:

ping 192.168.5.1 (Router)

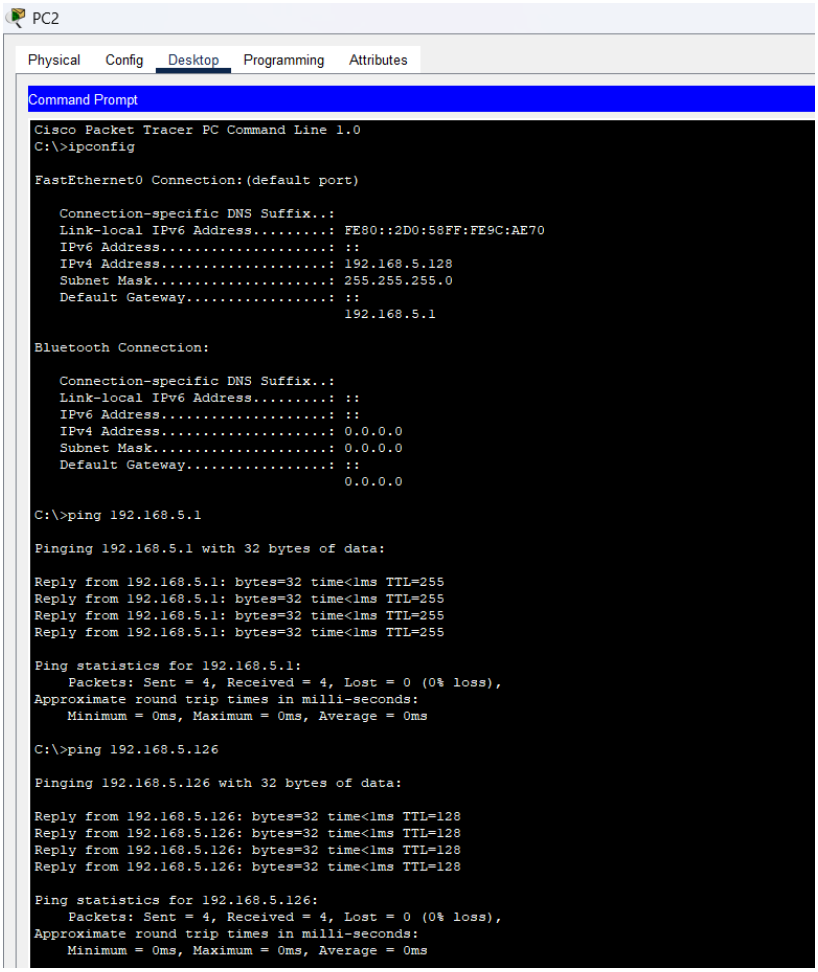
ping 192.168.5.126 (PC0)

ping 192.168.5.127 (PC1)

Expected Result

All pings should return successful replies, confirming:

- DHCP configured correctly
- All devices are on the same network
- Layer 3 connectivity is functioning



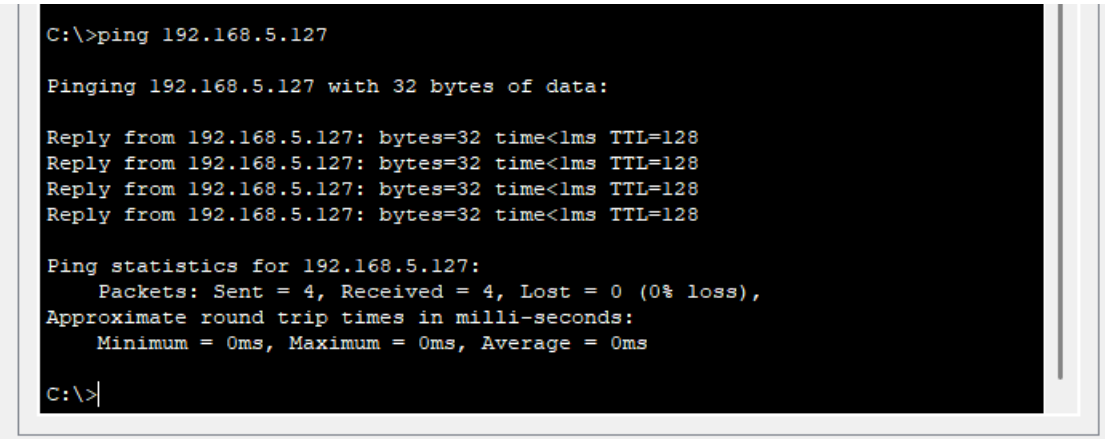


Figure 6: Successful Ping Tests

9. Reflection and Conclusion

This lab demonstrated how DHCP automates IP assignment to devices on a network. I learned how to change router LAN addressing, adjust DHCP pools, and verify addressing using ipconfig. The connectivity tests confirmed that all devices were configured within the same subnet and able to communicate successfully.

This exercise improved my understanding of home network configuration, DHCP leasing, and router interface settings.

Sign-Off

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