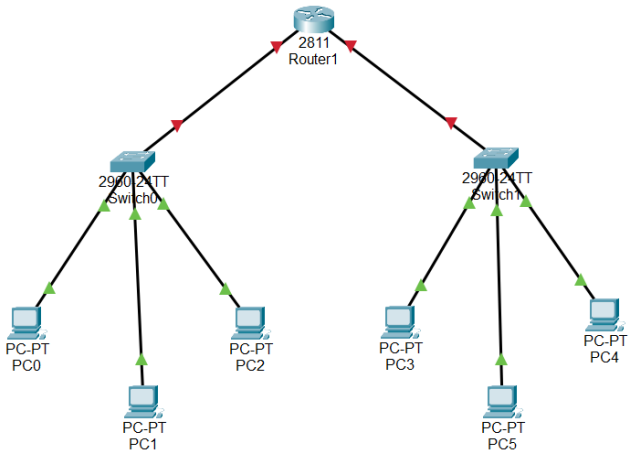
Marwadi University Marwadi Chandarana Group	**Marwadi University** **Faculty of Engineering and Technology** **Department of Information and Communication Technology**	
Subject: Computer Networks (01CT0503)	**Aim: Configure DHCP server**	
Experiment No: 09	**Date: 14-10-2024**	**Enrolment No: 92100133021**



Firsly we added a **router**, **switch**, and **PCs** to simulate a simple network. The router will act as the **DHCP server**, and the PCs will be the clients that need IP addresses. The switch ensures all the devices can communicate with each other.

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip add 192.168.1.1 255.255.255.0
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
```

Using enable and configure terminal, we entered the modes that allow us to configure the router.

```
Router(config-if)#
Router(config-if)#int fa0/1
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)#
```

We assigned an IP address (192.168.1.1) and (192.168.2.1) to the router.
This makes the router the default gateway for the PCs.
no shut command activated the interface so it could start communicating

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```
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip dhcp excluded-address 192.168.1.1
Router(config)#ip dhcp excluded-address 192.168.2.1
Router(config)#ip dhcp pool MA102
Router(dhcp-config)#netwrok 192.168.1.0 255.255.255.0
                    ^
% Invalid input detected at '^' marker.

Router(dhcp-config)#network 192.168.1.0 255.255.255.0
Router(dhcp-config)#defult-route 192.168.1.1
                   ^
% Invalid input detected at '^' marker.

Router(dhcp-config)#default-route 192.168.1.1
Router(dhcp-config)#dns-server 8.8.8.8
Router(dhcp-config)#exit
Router(config)#
Router(config)#
```

```
Router(config)#
Router(config)#ip dhcp pool MA115
Router(dhcp-config)#network 192.168.2.0 255.255.255.0
Router(dhcp-config)#default-route 192.168.2.1
Router(dhcp-config)#dns-server 8.8.8.8
Router(dhcp-config)#exit
Router(config)#
```

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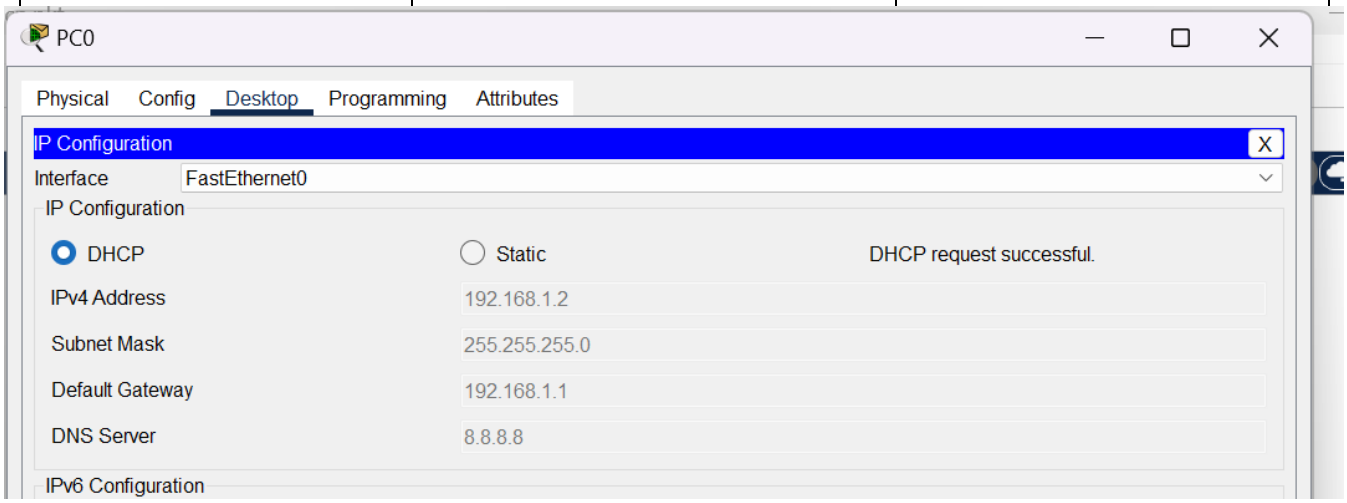
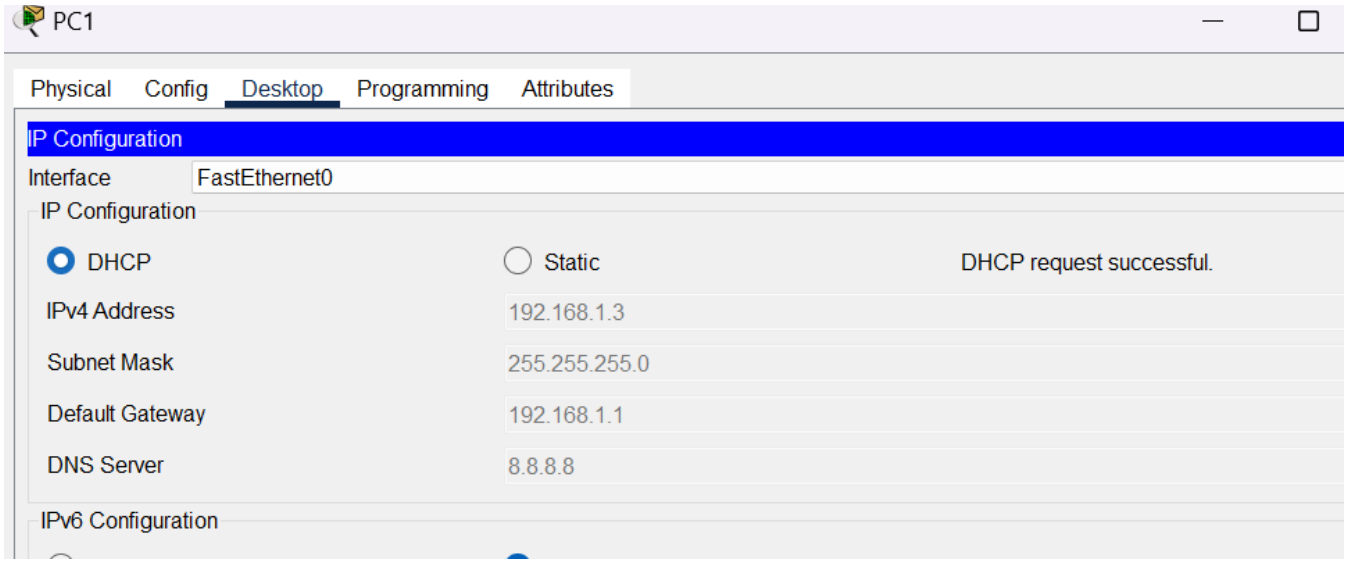
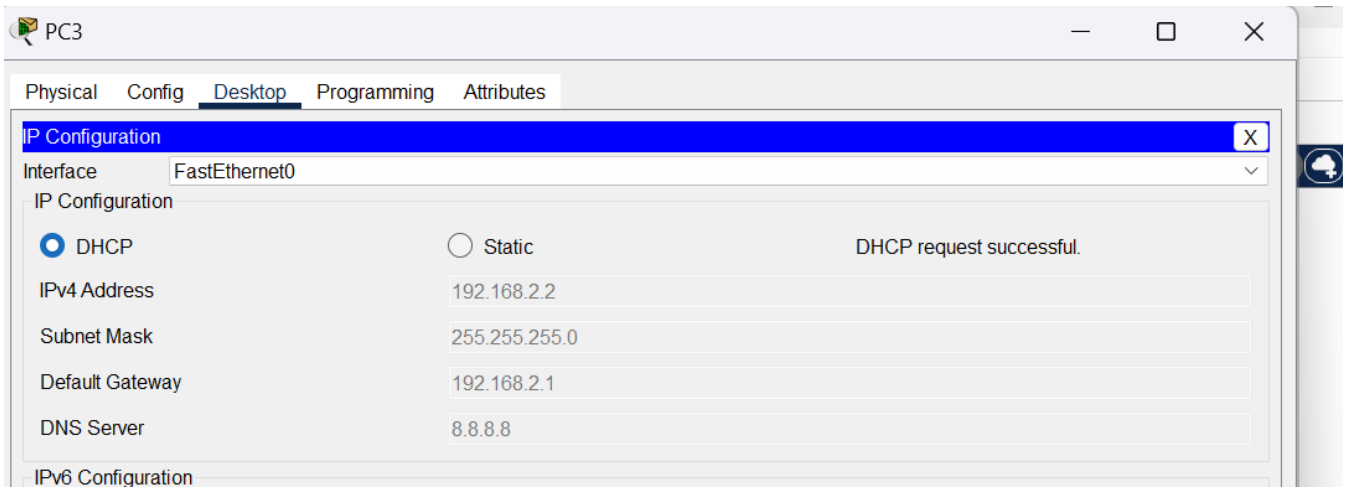


On each PC, we set the IP configuration to **DHCP**. This tells the PC to automatically request an IP address from the DHCP server (the router). Once configured, the PC will communicate with the router to get an IP address.





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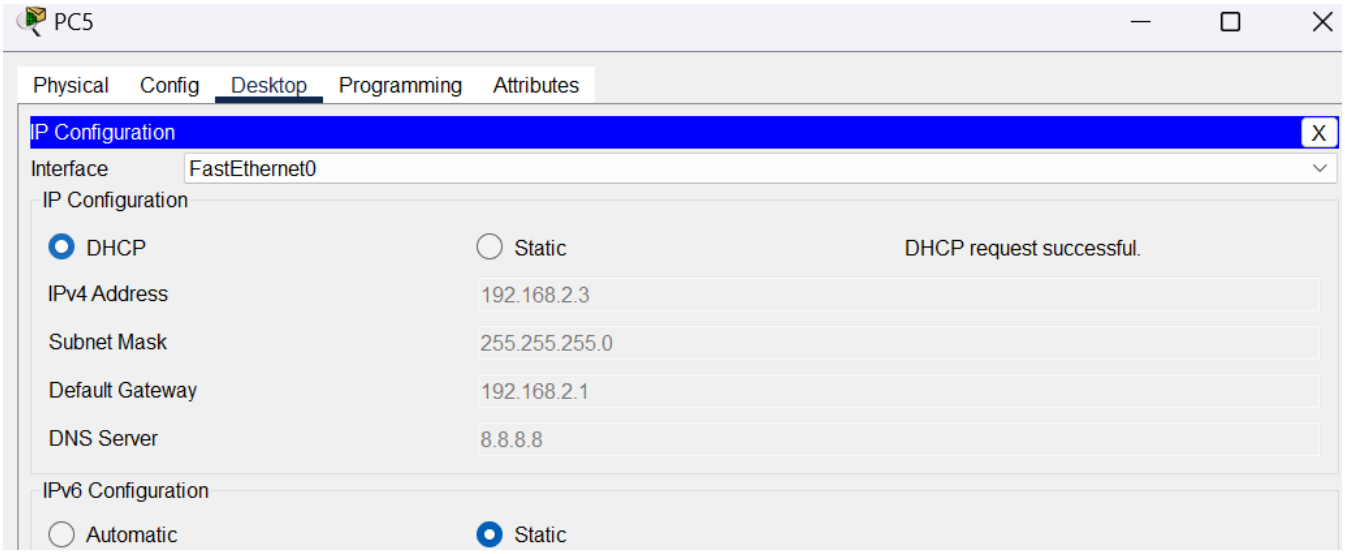
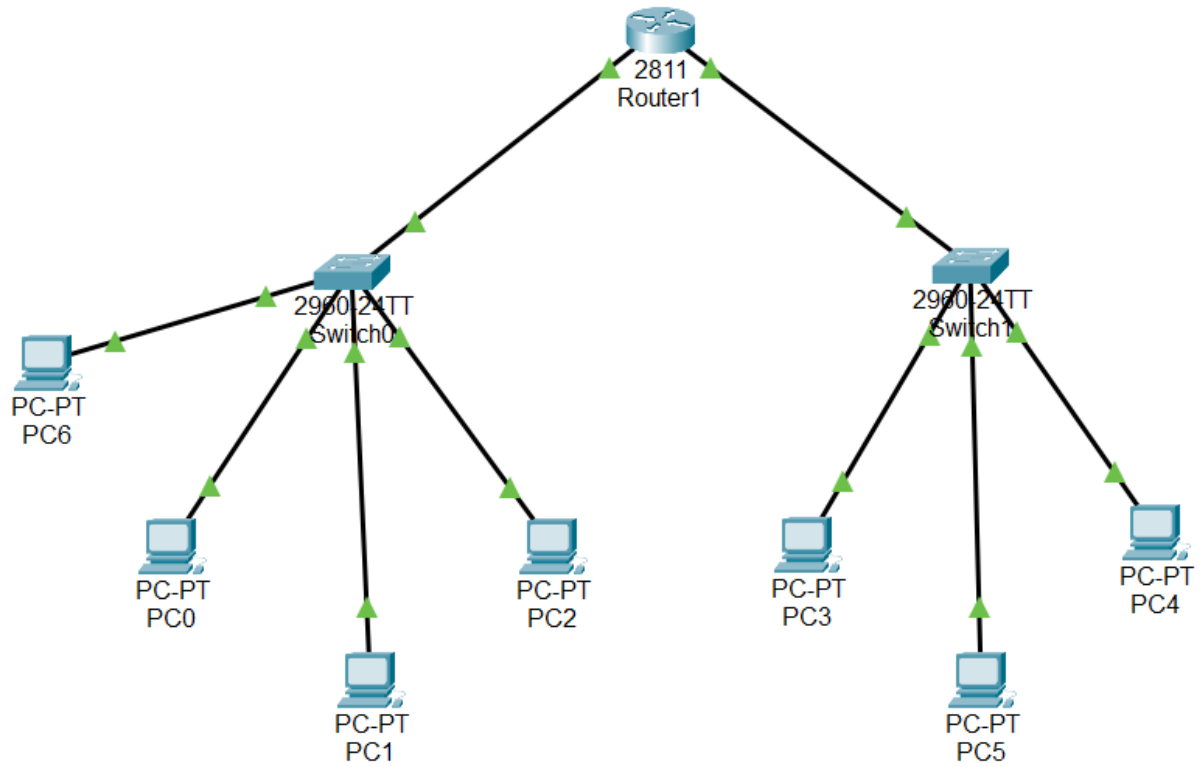


Using the ping command to test if the PC could communicate with the router. Getting a response confirmed that the PC successfully obtained an IP address and could communicate with the router, showing the DHCP configuration is functioning correctly.



Here, we added one more PC to check whether it is configured correctly same as the given PCs.

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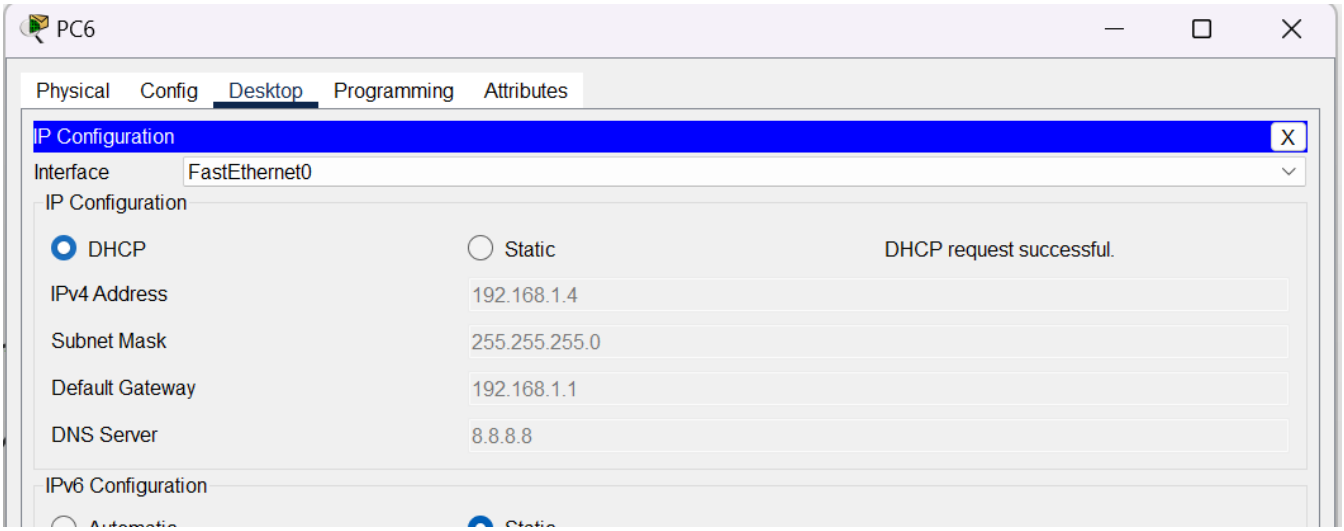

And it is showing the correct IP address in sequence.

Conlcusion:

We successfully set up a DHCP server enabling automatic IP address assignment to connected PCs, tested network connectivity, and verified successful communication between devices by assigning an IP address to the router's interface and created a DHCP pool on the router. The pool included a range of IP addresses that the router could automatically assign to PCs, as well as configuration for the default gateway and DNS server.

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