

## Experiemnt-4

To configure Dynamic Host Configuration Protocol (DHCP) in Cisco Packet Tracer for automatic IP address allocation and test using multiple client PCs.

**DHCP Discover Message:** From CLIENT to SERVER

**DHCP Offer Message:** From SERVER to CLIENT

**DHCP Request Message:** From CLIENT to SERVER

**DHCP Acknowledgement:** From Server to CLIENT

### Part A: DHCP Server in the Same Network

1. Configure a DHCP server in the same network as the clients.

#### Answer the following questions:

1. What is the source IP address when the client first sends a DHCP Discover message?
2. What is the destination IP address in the DHCP Discover message?
3. Which UDP source port number is used by the client in the initial request?
4. Which UDP destination port number does the request go to?
5. What happens if all addresses from the pool are consumed?

### Part B: DHCP Server in a Different Network (Relay Agent)

1. Configure the router interface (relay agent) with the command:

**ip helper-address <DHCP-server-IP>**

#### Answer the following questions.

1. What is the destination IP address before relay (client's perspective)?
2. What does the router change as it forwards the packet to the DHCP server?
3. What is the client's UDP source port during the first request?
4. Which UDP port does the DHCP server listen on?

### Part C: No DHCP Server Available

1. Turn off DHCP server

#### Answer the following questions:

2. What IP address does the PC get when there is no DHCP server available? (In CISCO Packet Tracer).