

EXPERIMENT NO: Lab 1 Design and configure an Internetwork using wireless router, DHCP server and Internet cloud

AIM:

Design and configure an Internetwork using wireless router, DHCP server and Internet Cloud.

Physical	Config	Services	Desktop	Programming	Attributes																																																													
		DHCP <table border="1"> <tr> <td>Interface</td> <td>FastEthernet0</td> <td>Service <input checked="" type="radio"/> On <input type="radio"/> Off</td> </tr> <tr> <td>Pool Name</td> <td colspan="3">DHCPpool</td> </tr> <tr> <td>Default Gateway</td> <td colspan="3">208.67.220.220</td> </tr> <tr> <td>DNS Server</td> <td colspan="3">208.67.220.220</td> </tr> <tr> <td>Start IP Address</td> <td>208</td> <td>67</td> <td>220</td> </tr> <tr> <td>Subnet Mask</td> <td>255</td> <td>255</td> <td>255</td> </tr> <tr> <td>Maximum Number of Users</td> <td colspan="3">50</td> </tr> <tr> <td>TFTP Server</td> <td colspan="3">0.0.0.0</td> </tr> <tr> <td>WLC Address</td> <td colspan="3">0.0.0.0</td> </tr> <tr> <td colspan="2" style="text-align: center;"> <input type="button" value="Add"/> <input type="button" value="Save"/> <input type="button" value="Remove"/> </td> </tr> <tr> <td>Pool Name</td> <td>Default Gateway</td> <td>DNS Server</td> <td>Start IP Address</td> <td>Subnet Mask</td> <td>Max User</td> <td>TFTP Server</td> <td>WLC Address</td> </tr> <tr> <td>DHCPpool</td> <td>208.67.220.1</td> <td>208.67.220.1</td> <td>208.67.220.1</td> <td>255.255.255.0</td> <td>50</td> <td>0.0.0.0</td> <td>0.0.0.0</td> </tr> <tr> <td>serverPool</td> <td>0.0.0.0</td> <td>0.0.0.0</td> <td>0.0.0.0</td> <td>0.0.0.0</td> <td>512</td> <td>0.0.0.0</td> <td>0.0.0.0</td> </tr> </table>				Interface	FastEthernet0	Service <input checked="" type="radio"/> On <input type="radio"/> Off	Pool Name	DHCPpool			Default Gateway	208.67.220.220			DNS Server	208.67.220.220			Start IP Address	208	67	220	Subnet Mask	255	255	255	Maximum Number of Users	50			TFTP Server	0.0.0.0			WLC Address	0.0.0.0			<input type="button" value="Add"/> <input type="button" value="Save"/> <input type="button" value="Remove"/>		Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address	DHCPpool	208.67.220.1	208.67.220.1	208.67.220.1	255.255.255.0	50	0.0.0.0	0.0.0.0	serverPool	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	512	0.0.0.0	0.0.0.0
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Device	Interface	IP Address	Subnet Mask	Default Gateway
PC	Ethernet0	DHCP		192.168.0.1
Wireless Router	LAN	192.168.0.1	255.255.255.0	192.168.0.1
Wireless Router	Internet	DHCP		
Cisco.com Server	Ethernet	208.67.220.220	255.255.255.0	208.67.220.220
Laptop	Ethernet	DHCP		

Objectives:

Part 1: Build a simple Network in the logical Topology workspace.

Part 2: Configure the Network Devices

Part 3: Test connectivity between Network Devices

Part 4: Save the file and Close Packet Tracer

Part -1

Step 1:- Launch Packet Tracer.

Step 2: Build the topology.

- Add network devices to the workspace.
- Change display names of the network devices.
- Add the physical cabling between devices on the workspace.

Part -2.

Step-1 Configure the wireless router.

- Create the wireless network on the wireless router.
- Click on the save setting tab.

Step-2 Configure the laptop.

- Configure the laptop to access the wireless network.

Step 3: Configure the PC.

- Configure the PC for the wired network.

Step 4: Configure the Internet cloud.

- Install network modules if necessary.
- Identify the from and To ports.
- Identify the type of provider.

Step 5: Configure the Cisco.com Server.

- Configure the Cisco.com server as a DHCP Server
- Configure the Cisco.com server as a DNS Server

to provide domain name to IPv4 address resolution

- Configure the Cisco.com server Global settings.
- Configure the Cisco.com server for Ethernet Intergrate setting.

1.
After taking down gate
propagate with link 3 and 4

```
C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time=26ms TTL=255
Reply from 192.168.0.1: bytes=32 time=9ms TTL=255
Reply from 192.168.0.1: bytes=32 time=8ms TTL=255
Reply from 192.168.0.1: bytes=32 time=11ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 26ms, Average = 13ms
```

Part 3: Verify connectivity with original config

Step 1: Refresh the IPv4 settings on the PC

- Verify that the PC is receiving IPv4 configuration information from DHCP.
- Test connectivity to the Cisco.com server from PC.

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface s0/0/0
Router(config-if)#ip address 192.168.1.250 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
Router(config-if)#exit
Router(config)#interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
% Incomplete command.
Router(config)#interface s0/0/1
Router(config-if)#ip address 192.168.1.246 255.255.255.252
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/0/1, changed state to down
Router(config-if)#exit
Router(config)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up

Router(config)#router rip
Router(config-router)#network 192.168.1.244
Router(config-router)#network 192.168.1.248
Router(config-router)#

```

Student observation:

1. Write down the key features of configuring wireless router and DHCP servers.

Wireless router configuration includes setting SSID, security key, IP range, and enabling DHCP for automatic IP assignment.

2. Isheet Is the significance of DHCP server in networking.

DHCP Server simplifies networking by automatically assigning IP addresses, reducing manual configuration errors.

3. Design and configure an internetwork in your Lab using switch, Router and Ethernet cables.

A network was designed using a Router, Switch and PCs connected via Ethernet cables. Each device configured with unique IP address for communication.

Result:

The internetwork was successfully designed and configured using a wireless router, DHCP server, and Internet Cloud.

Mr. M. A. 26