Lab 1- Configuring Basic DHCPv4 on a Router

Topology

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0	192.168.0.1	255.255.255.0	N/A
PC0	NIC	DHCP	DHCP	DHCP

Objectives

Part 1: Build the Network and Configure Basic Device Settings

Part 2: Configure a DHCPv4 Server and a DHCP Relay Agent

Background / Scenario

The Dynamic Host Configuration Protocol (DHCP) is a network protocol that lets network administrators manage and automate the assignment of IP addresses. Without DHCP, the administrator must manually assign and configure IP addresses, preferred DNS servers, and default gateways. As the network grows in size, this becomes an administrative problem when devices are moved from one internal network to another.

Part 1: Build the Network and Configure Basic Device Settings

In Part 1, you will set up the network topology and configure the routers and switches with basic settings such as IP addresses. You will also configure the IP settings for the PCs in the topology.

Step 1: Cable the network as shown in the topology.

Step 2: Initialize the router and switch.

Step 3: Configure basic settings for the router.

a. Console into the router and enter global configuration mode.

```
Router(config)#interface fastEthernet 0/1
Router(config-if)#ip address 192.168.0.1 255.255.255.0
Router(config-if)#no shut

Router(config)#ip dhcp excluded-address 192.168.0.1 192.168.0.9
Router(config)#ip dhcp pool CCT
Router(dhcp-config)#network 192.168.0.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.0.1
Router(dhcp-config)#dns-server 8.8.8.8
Router(dhcp-config)#exit
```

Explanation of commands:

Router(config)#ip dhcp excluded-address 192.168.0.1 192.168.0.9
Specifies the range of addresses not to be leased out to clients.

Router(config)#ip dhcp pool CCT
Creates a DHCP pool named in this case CCT. The name can be anything of your choosing.

Router(dhcp-config)#network 192.168.0.0 255.255.255.0
Defines the range of addresses to be leased.

Router(dhcp-config)#default-router 192.168.0.1
Defines the address of the default router for the client.

Router(dhcp-config)#dns-server 8.8.8.8
Defines the address of the Domain Name Server for the client

Not support in PacketTracer:
Router(dhcp-config)#domain-name fakedoaminname.com: Defines the domain name for the client.

Step 4: Go to PC0 and set its IP configuration to Dynamic.

Step 5: Use the simulation mode to walk through the DHCP process.

Step 6: Add another PC to the switch again, walk through the DHCP process. Go back into Realtime mode and enter into the command prompt of the new PC. Use the commands ipconfig /release and then ipconfig /renew (to release IP address and then to renew again).

Reference: Modified from Cisco Networking Academy site