**DHCPv4 Router**

**Part 1: Build the Network and Configure Basic Device Settings**

1. **Cable the network as shown in the topology**
2. **Initialize and reload the routers and switches**
3. **Configure basic settings for each router**

Disable DNS lookup.

Configure the device name as shown in the topology.

Assign **class** as the encrypted privileged EXEC mode password.

Assign **cisco** as the console and vty passwords.

Configure **logging synchronous** to prevent console messages from interrupting command entry.

Configure the IP addresses for all the router interfaces according to the Addressing Table.

Configure the serial DCE interface on R1 and R2 with a clock rate of 128000.

Configure OSPF for R1.

R1(config)# **router ospf 1**

R1(config-router)# **network 192.168.0.0 0.0.0.255 area 0**

R1(config-router)# **network 192.168.1.0 0.0.0.255 area 0**

R1(config-router)# **network 192.168.2.252 0.0.0.3 area 0**

Configure OSPF and a default route to the ISP on R2.

R2(config)# **router ospf 1**

R2(config-router)# **network 192.168.2.252 0.0.0.3 area 0**

R2(config-router)# **default-information originate**

R2(config-router)# **exit**

R2(config)# **ip route 0.0.0.0 0.0.0.0 209.165.200.225**

Configure a summary static route on ISP to reach the networks on the R1 and R2 routers.

ISP(config)# **ip route 192.168.0.0 255.255.252.0 209.165.200.226**

Copy the running configuration to the startup configuration.

1. **Verify network connectivity between the routers**
2. **Verify the host PCs are configured for DHCP**

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

1. **Config DHCPv4 server settings on router R2**

On R2, you will configure a DHCP address pool for each of the R1 LANs. Use the pool name **R1G0** for the G0/0 LAN and **R1G1** for the G0/1 LAN. You will also configure the addresses to be excluded from the address pools. Best practice dictates that excluded addresses be configured first, to guarantee that they are not accidentally leased to other devices.

Exclude the first 9 addresses in each R1 LAN starting with .1. All other addresses should be available in the DHCP address pool. Make sure that each DHCP address pool includes a default gateway, the domain **ccna-lab.com**, a DNS server (209.165.200.225), and a lease time of 2 days.

R2(config)# **ip dhcp excluded-address 192.168.0.1 192.168.0.9**

R2(config)# **ip dhcp excluded-address 192.168.1.1 192.168.1.9**

R2(config)# **ip dhcp pool R1G1**

R2(dhcp-config)# **network 192.168.1.0 255.255.255.0**

R2(dhcp-config)# **default-router 192.168.1.1**

R2(dhcp-config)# **dns-server 209.165.200.225**

R2(dhcp-config)# **domain-name ccna-lab.com**

R2(dhcp-config)# **lease 2**

R2(dhcp-config)# **exit**

R2(config)# **ip dhcp pool R1G0**

R2(dhcp-config)# **network 192.168.0.0 255.255.255.0**

R2(dhcp-config)# **default-router 192.168.0.1**

R2(dhcp-config)# **dns-server 209.165.200.225**

R2(dhcp-config)# **domain-name ccna-lab.com**

R2(dhcp-config)# **lease 2**

1. **Config R1 as a DHCP relay agent**

Configure IP helper addresses on R1 to forward all DHCP requests to the R2 DHCP server.

R1(config)# **interface g0/0**

R1(config-if)# **ip helper-address 192.168.2.254**

R1(config-if)# **exit**

R1(config)# **interface g0/1**

R1(config-if)# **ip helper-address 192.168.2.254**

1. **Record IP settings for PC-A and PC-B**
2. **Verify DHCP services and address leases on R2**