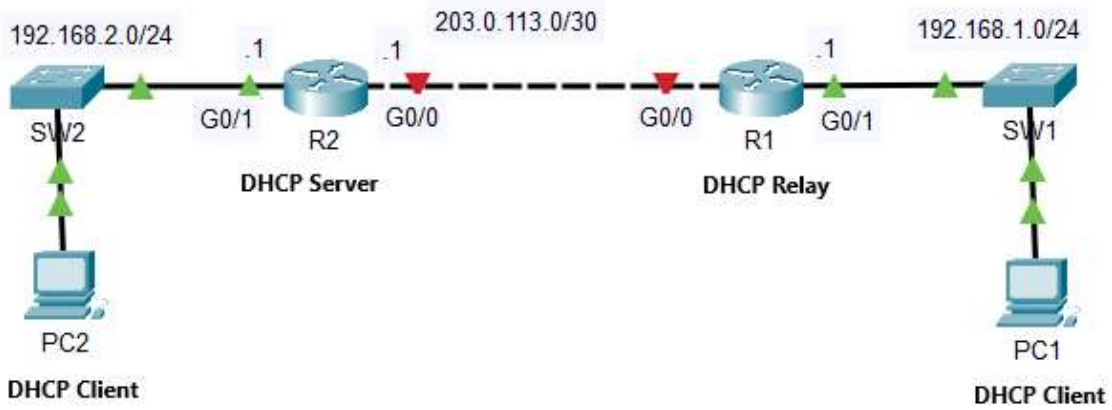
4.6 Configure and verify DHCP client and relay

- DHCP Server Configuration:
  - Range of addresses that will not be given to clients:
    (config)#ip dhcp excluded-address [start-ip] [end-ip]
  - Create a DHCP pool and enter DHCP config mode: **(config)#ip dhcp pool [pool-name]**
  - Specify the subnet of addresses to be assigned to clients:
    (dhcp-config)#network [network-ip] [/prefix, or network-mask]
  - Set up DNS server: **(dhcp-config)#dns-server [ip-address]**
  - Set up the domain name of the network: **(dhcp-config)#domain-name [domain-name]**
  - Specify the default gateway: **(dhcp-config)#default-router [gateway-ip]**
  - Specify the lease time:
    (dhcp-config)#lease [days] [hours] [minutes] or **(dhcp-config)#lease infinite**
  - Show all DHCP binding: **#show ip dhcp binding**
- DHCP Relay Agent Configuration:
  - Enter the configuration mode of the interface connected to the subnet of the client devies:
    (config)#interface [interface-id]
  - Configure the IP address of the DHCP server:
    (config-if)#ip helper-address [DHCP-server-ip]
- DHCP client configuration:
  - On Cisco devices: **(config-if)#ip address dhcp**
  - On Windows: **>ipconfig /release** and **>ipconfig /renew**.

Config Router2 to be a DHCP Server and Router1 to act as a DHCP Relay Agent



1. Configure the following DHCP pools on R2:
POOL1: 192.168.1.0/24 (reserve .1 to .10)
DNS 8.8.8.8
Domain: jeremysitlab.com
Default Gateway: R1
POOL2: 192.168.2.0/24 (reserve .1 to .10)
DNS 8.8.8.8
Domain: jeremysitlab.com
Default Gateway: R2
POOL3: 203.0.113.0/30 (reserve .1)

2. Configure R1's G0/0 interface as a DHCP client.
What IP address did it configure?

3. Configure R1 as a DHCP relay agent for the 192.168.1.0/24 subnet.

4. Use the CLI of PC1 and PC2 to make them request an IP address from their DHCP server.

`R2(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10`
`R2(config)#ip dhcp excluded-address 192.168.2.1 192.168.2.10`
`R2(config)#ip dhcp excluded-address 203.0.113.1`
	The IP range that a DHCP Server should not assign to DHCP Clients. Notice this command is configured under global configuration mode

`R2(config)#ip dhcp pool POOL1`
`R2(dhcp-config)#network 192.168.1.0 255.255.255.0`
`R2(dhcp-config)#dns-server 8.8.8.8`
`R2(dhcp-config)#domain-name jeremysitlab.com`
`R2(dhcp-config)#default-router 192.168.1.1`
	- Create a DHCP Pool named POOL1
	- Specifies the subnet and mask of the DHCP address pool
	- Configure a Domain Name Server (DNS)
	- Configure a domain-name
	- Set the default gateway of the DHCP Clients

`R2(config)#ip dhcp pool POOL2`
`R2(dhcp-config)#network 192.168.2.0 255.255.255.0`
`R2(dhcp-config)#dns-server 8.8.8.8`
`R2(dhcp-config)#domain-name jeremysitlab.com`
`R2(dhcp-config)#default-router 192.168.2.1`
	- Create a DHCP Pool named POOL2
	- Specifies the subnet and mask of the DHCP address pool
	- Configure a Domain Name Server (DNS)
	- Configure a domain-name
	- Set the default gateway of the DHCP Clients

`R2(config)#ip dhcp pool POOL3` `R2(dhcp-config)#network 203.0.113.0 255.255.255.252`	- Create a DHCP Pool named POOL3 - Specifies the subnet and mask of the DHCP address pool

`R2#show run | include dhcp`
`ip dhcp excluded-address 192.168.1.1 192.168.1.10`
`ip dhcp excluded-address 192.168.2.1 192.168.2.10`
`ip dhcp excluded-address 203.0.113.1`
`ip dhcp pool POOL1`
`ip dhcp pool POOL2`
`ip dhcp pool POOL3`
	Verify

`R1(config)#int g0/0`
`R1(config-if)#ip address dhcp`
`R1(config-if)#no shut`
 	
`R1(config-if)#`
`%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up`
 	
`%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up`
 	
`%DHCP-6-ADDRESS_ASSIGN: Interface GigabitEthernet0/0 assigned DHCP address 203.0.113.2, mask 255.255.255.252, hostname R1`
	Configure R1's G0/0 interface as a DHCP client.
	
	What IP address did it configure?
	
	203.0.113.2

`R1(config)#int g0/1` `R1(config-if)#ip helper-address 203.0.113.1`	Configure R1 as a DHCP relay agent for the 192.168.1.0/24 subnet.

`C:\>ipconfig /release`
 	
`IP Address.....: 0.0.0.0`
`Subnet Mask.....: 0.0.0.0`
`Default Gateway.....: 0.0.0.0`
`DNS Server.....: 0.0.0.0`
 	
`C:\>ipconfig /renew`
 	
`IP Address.....: 192.168.1.11`
`Subnet Mask.....: 255.255.255.0`
`Default Gateway.....: 192.168.1.1`
`DNS Server.....: 8.8.8.8`
	Use the CLI of PC1 and PC2 to make them request an IP address from their DHCP server.