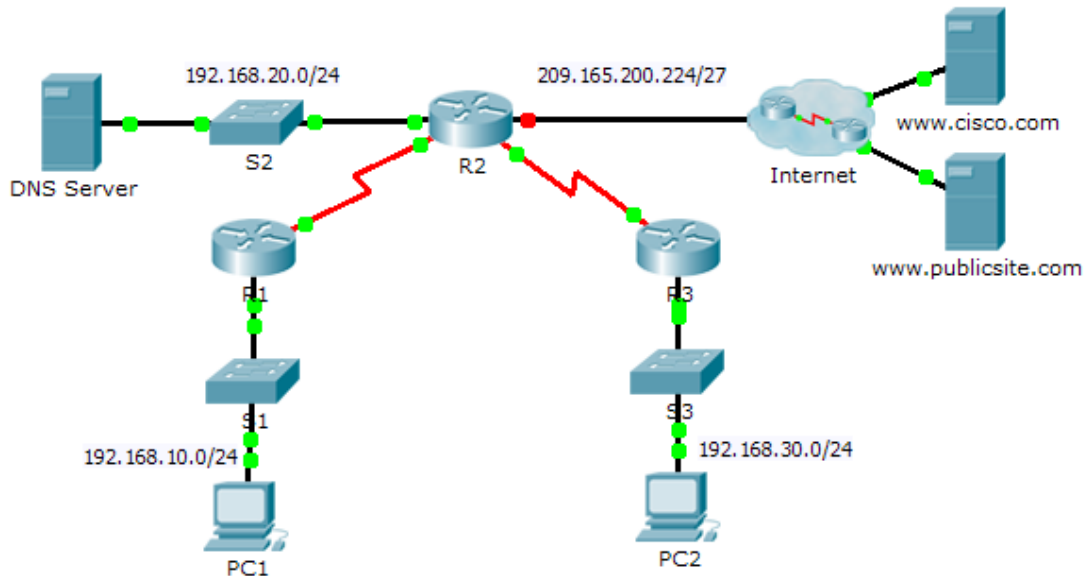


# Packet Tracer - Configuring DHCP Using Cisco IOS

## Topology



## Addressing Table

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
R1	G0/0	192.168.10.1	255.255.255.0	N/A
	S0/0/0	10.1.1.1	255.255.255.252	N/A
R2	G0/0	192.168.20.1	255.255.255.0	N/A
	G0/1	DHCP Assigned	DHCP Assigned	N/A
	S0/0/0	10.1.1.2	255.255.255.252	N/A
R3	S0/0/1	10.2.2.2	255.255.255.252	N/A
	G0/0	192.168.30.1	255.255.255.0	N/A
PC1	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC2	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
DNS Server	NIC	192.168.20.254	255.255.255.0	192.168.20.1

## Objectives

**Part 1: Configure a Router as a DHCP Server**

**Part 2: Configure DHCP Relay**

**Part 3: Configure a Router as a DHCP Client**

**Part 4: Verify DHCP and Connectivity**

## Scenario

A dedicated DHCP server is scalable and relatively easy to manage, but can be costly to have one at every location in a network. However, a Cisco router can be configured to provide DHCP services without the need for a dedicated server. As the network technician for your company, you are tasked with configuring a Cisco router as a DHCP server to provide dynamic allocation of addresses to clients on the network. You are also required to configure the edge router as a DHCP client so that it receives an IP address from the ISP network.

## Part 1: Configure a Router as a DHCP Server

### Step 1: Configure the excluded IPv4 addresses.

Configure R2 to exclude the first 10 addresses from the R1 and R3 LANs. All other addresses should be available in the DHCP address pool.

### Step 2: Create a DHCP pool on R2 for the R1 LAN.

- a. Create a DHCP pool named **R1-LAN** (case-sensitive).
- b. Configure the DHCP pool to include the network address, the default gateway, and the IP address of the DNS server.

### Step 3: Create a DHCP pool on R2 for the R3 LAN.

- a. Create a DHCP pool named **R3-LAN** (case-sensitive).
- b. Configure the DHCP pool to include the network address, the default gateway, and the IP address of the DNS server.

## Part 2: Configure DHCP Relay

### Step 1: Configure R1 and R3 as a DHCP relay agent.

### Step 2: Set PC1 and PC2 to receive IP addressing information from DHCP.

## Part 3: Configure R2 as a DHCP Client

- a. Configure the Gigabit Ethernet 0/1 interface on R2 to receive IP addressing from DHCP and activate the interface.  
**Note:** Use Packet Tracer's **Fast Forward Time** feature to speed up the process or wait until R2 forms an EIGRP adjacency with the ISP router.
- b. Use the **show ip interface brief** command to verify that R2 received an IP address from DHCP.

## Part 4: Verify DHCP and Connectivity

### Step 1: Verify DHCP bindings.

```
R2# show ip dhcp binding
IP address      Client-ID/
                Hardware address
192.168.10.11   0002.4AA5.1470   --
192.168.30.11   0004.9A97.2535   --
                Type
                Automatic
                Automatic
```

**Step 2: Verify configurations.**

Verify that **PC1** and **PC2** can now ping each other and all other devices.