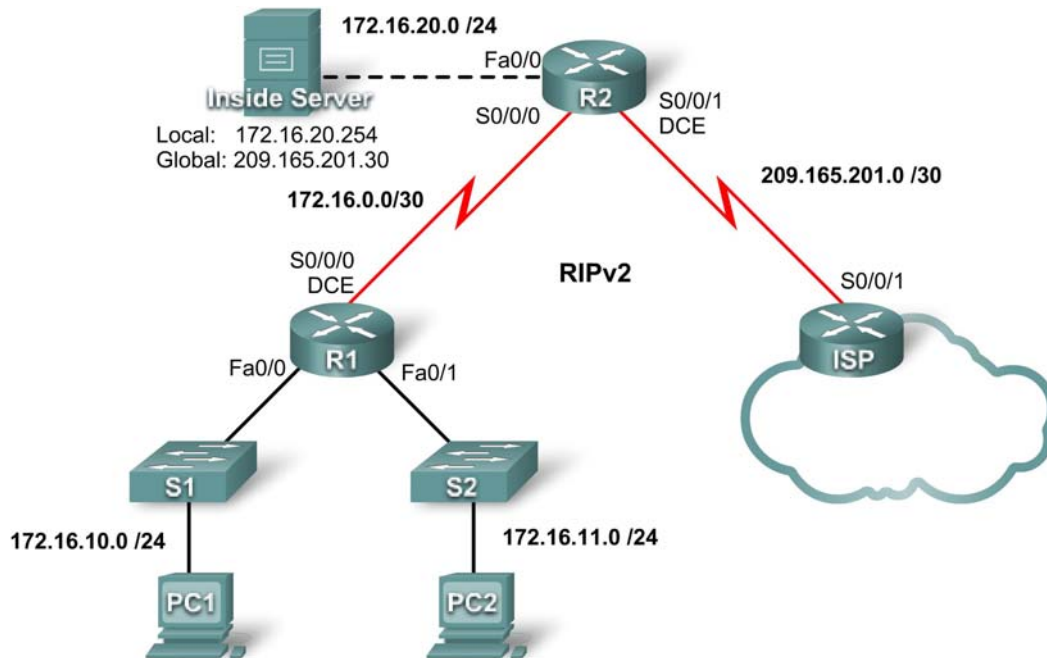


## PT Activity 7.4.2: Challenge DHCP and NAT Configuration

### Topology Diagram



### Addressing Table

Device	Interface	IP Address	Subnet Mask
R1	S0/0/0	172.16.0.1	255.255.255.252
	Fa0/0	172.16.10.1	255.255.255.0
	Fa0/1	172.16.11.1	255.255.255.0
R2	S0/0/0	172.16.0.2	255.255.255.252
	S0/0/1	209.165.201.1	255.255.255.252
	Fa0/0	172.16.20.1	255.255.255.0
ISP	S0/0/1	209.165.201.2	255.255.255.252

### Learning Objectives

Upon completion of this lab, you will be able to:

- Prepare the network.
- Perform basic router configurations.
- Configure a Cisco IOS DHCP server.
- Configure static and default routing.

- Configure static NAT.
- Configure dynamic NAT with a pool of addresses.
- Configure NAT overload.

## Scenario

In this lab, configure the IP address services using the network shown in the topology diagram. If you need assistance, refer back to the basic DHCP and NAT configuration lab. However, try to do as much on your own as possible.

## Task 1: Perform Basic Router Configurations

### Step 1. Configure the routers.

Configure the R1, R2, and ISP routers according to the following guidelines:

- Configure the device hostname.
- Disable DNS lookup.
- Configure a privileged EXEC mode password.
- Configure a message-of-the-day banner.
- Configure a password for the console connections.
- Configure a password for all vty connections.
- Configure IP addresses on all routers. The PCs receive IP addressing from DHCP later in the lab.
- Enable RIPv2 on R1 and R2. Do not advertise the 209.165.200.224/27 network.

### Step 2. Check results.

Your completion percentage should be 57%. If not, click **Check Results** to see which required components are not yet completed.

## Task 2: Configure a Cisco IOS DHCP Server

Configure R1 as the DHCP server for the two directly attached LANs.

### Step 1. Exclude statically assigned addresses.

Exclude the first three addresses from each pool.

### Step 2. Configure the DHCP pool.

- Create two DHCP pools. Name one of them **R1\_LAN10** for the 172.16.10.0/24 network, and name the other **R1\_LAN11** for the 172.16.11.0/24 network.
- Configure each pool with a default gateway and a simulated DNS at 172.16.20.254.

### Step 3. Verify the DHCP configuration.

### Step 4. Check results.

Your completion percentage should be 73%. If not, click **Check Results** to see which required components are not yet completed.

### Task 3: Configure Static and Default Routing

#### Step 1. Configure the static and default routes.

- Configure ISP with a static route for the 209.165.201.0/27 network. Use the exit interface as an argument.
- Configure a default route on R2 and propagate the route in RIP. Use the next-hop IP address as an argument.

#### Step 2. Check results.

Your completion percentage should be 81%. If not, click **Check Results** to see which required components are not yet completed.

### Task 4: Configure Static NAT

#### Step 1. Statically map a public IP address to a private IP address.

Statically map the inside server IP address to the public address 209.165.201.30.

#### Step 2. Specify inside and outside NAT interfaces.

#### Step 3. Verify the static NAT configuration.

#### Step 4. Check results.

Your completion percentage should be 89%. If not, click **Check Results** to see which required components are not yet completed.

### Task 5: Configure Dynamic NAT with a Pool of Addresses

#### Step 1. Define a pool of global addresses.

Create a pool named **NAT\_POOL** for the IP addresses 209.165.201.9 through 209.165.201.14 using a /29 subnet mask.

#### Step 2. Create a standard named access control list to identify which inside addresses are translated.

Use the name **NAT\_ACL** and allow all hosts attached to the two LANs on R1.

Note: The .10 LAN must be configured first, then the .11 LAN. Otherwise, Packet Tracer will not grade the ACL as correct.

#### Step 3. Establish dynamic source translation.

Bind the NAT pool to the ACL and allow NAT overloading.

#### Step 4. Specify the inside and outside NAT interfaces.

Verify that the inside and outside interfaces are all correctly specified.

#### Step 5. Verify the dynamic NAT configuration by pinging from PC1 and PC2 to ISP.

#### Step 6. Check results.

Your completion percentage should be 100%. If not, click **Check Results** to see which required components are not yet completed.

### **Task 6: Document the Network**

On each router, issue the **show run** command and capture the configurations.