# 2.5.3: Removing and Configuring Static Routes

| Device | Interface | IP Address | Subnet Mask | Default Gateway |
|---|---|---|---|---|
| **R1** | **Fa0/0** | 172.16.3.1 | 255.255.255.0 | N/A |
| | **S0/0/0** | 172.16.2.1 | 255.255.255.0 | N/A |
| **R2** | **Fa0/0** | 172.16.1.1 | 255.255.255.0 | N/A |
| | **S0/0/0** | 172.16.2.2 | 255.255.255.0 | N/A |
| | **S0/0/1** | 192.168.1.2 | 255.255.255.0 | N/A |
| **R3** | **Fa0/0** | 192.168.2.1 | 255.255.255.0 | N/A |
| | **S0/0/1** | 192.168.1.1 | 255.255.255.0 | N/A |
| **PC1** | **NIC** | 172.16.3.10 | 255.255.255.0 | 172.16.3.1 |
| **PC2** | **NIC** | 172.16.1.10 | 255.255.255.0 | 172.16.1.1 |
| **PC3** | **NIC** | 192.168.2.10 | 255.255.255.0 | 192.168.2.1 |

## Introduction:

In this activity, we will examine the chapter topology configured with static routes that reference the next hop IP address and require a recursive lookup. We will replace these static routes with static routes that specify the outbound interfaces and do not require a recursive lookup and examine the results of the change.

## Learning Objectives:

- Examine the network with next hop static routes.
- View the configuration.
- Verify connectivity.
- Update the network with outbound interface static routes.
- Remove the next hop static routes.
- Configure outbound interface static routes.
- Examine the network with outbound interface static routes.
- View the configuration.
- Verify connectivity.

## Task 1: Examine the network with next hop static routes.

### Step 1 ? View the configuration.

On each of the three routers:

- Login to the router using password **cisco**. Enter privileged exec mode using password **class**.
- Enter the command **show running-config** to see how static routing is currently configured.

- Enter the command **show ip route** to see the effect of the configuration. Each static route must do a recursive lookup to a connected route to forward a packet.

**Step 2 ? Verify connectivity.**

From the command line prompt on each of the three PCs, ping the other two PCs. All pings should succeed.

## Task 2: Update the network with outbound interface static routes.

**Step 1 ? Remove the next hop static routes.**

On each of the three routers enter global configuration mode and enter the following commands:

**R1**

- R1(config)#**no ip route 172.16.1.0 255.255.255.0 172.16.2.2**
- R1(config)#**no ip route 192.168.1.0 255.255.255.0 172.16.2.2**
- R1(config)#**no ip route 192.168.2.0 255.255.255.0 172.16.2.2**

**R2**

- R2(config)#**no ip route 172.16.3.0 255.255.255.0 172.16.2.1**
- R2(config)#**no ip route 192.168.2.0 255.255.255.0 192.168.1.1**

**R3**

- R3(config)#**no ip route 172.16.1.0 255.255.255.0 192.168.1.2**
- R3(config)#**no ip route 172.16.2.0 255.255.255.0 192.168.1.2**
- R3(config)#**no ip route 172.16.3.0 255.255.255.0 192.168.1.2**

**Step 2 ? Configure outbound interface static routes.**

On each of the three routers, enter the following commands:

**R1**

- R1(config)#**ip route 172.16.1.0 255.255.255.0 s0/0/0**
- R1(config)#**ip route 192.168.1.0 255.255.255.0 s0/0/0**
- R1(config)#**ip route 192.168.2.0 255.255.255.0 s0/0/0**

**R2**

- R2(config)#**ip route 172.16.3.0 255.255.255.0 s0/0/0**
- R2(config)#**ip route 192.168.2.0 255.255.255.0 s0/0/1**

**R3**

- R3(config)#**ip route 172.16.1.0 255.255.255.0 s0/0/1**
- R3(config)#**ip route 172.16.2.0 255.255.255.0 s0/0/1**
- R3(config)#**ip route 172.16.3.0 255.255.255.0 s0/0/1**

**Step 3 ? Save the updated configurations.**

On each of the three routers, exit configuration mode by hitting **Ctrl+z**. Save the configuration by issuing the command **copy run start**.

## Task 3: Examine the network with outbound interface static routes.

**Step 1 ? View the configuration.**

On each of the three routers:

- Enter the command **show running-config** to see the revised configuration.
- Enter the command **show ip route** to see the effect of the changed configuration. Each static route appears as directly connected and no recursive lookup is needed to forward a packet.

**Step 2 ? Verify connectivity.**

From the command line prompt on each of the three PCs, ping the other two PCs. All pings should succeed, if not troubleshoot the static routes.

At the end of this activity your completion rate should be 100%. If the completion rate is not 100%, use the **Check Results** button and troubleshoot as necessary.