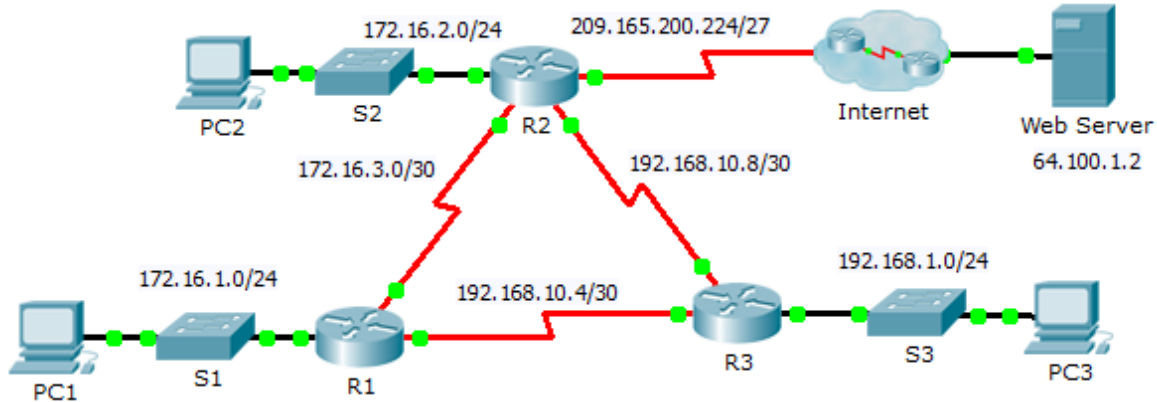


# Packet Tracer - Configuring OSPF Advanced Features

## Topology



## Addressing Table

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
R1	G0/0	172.16.1.1	255.255.255.0	N/A
	S0/0/0	172.16.3.1	255.255.255.252	N/A
	S0/0/1	192.168.10.5	255.255.255.252	N/A
R2	G0/0	172.16.2.1	255.255.255.0	N/A
	S0/0/0	172.16.3.2	255.255.255.252	N/A
	S0/1/0	209.165.200.225	255.255.255.224	N/A
R3	G0/0	192.168.1.1	255.255.255.0	N/A
	S0/0/0	192.168.10.6	255.255.255.252	N/A
	S0/0/1	192.168.10.10	255.255.255.252	N/A
PC1	NIC	172.16.1.2	255.255.255.0	172.16.1.1
PC2	NIC	172.16.2.2	255.255.255.0	172.16.2.1
PC3	NIC	192.168.1.2	255.255.255.0	192.168.1.1

## Objectives

**Part 1: Modify OSPF Default Settings**

**Part 2: Verify Connectivity**

## Scenario

In this activity, OSPF is already configured and all end devices currently have full connectivity. You will modify the default OSPF routing configuration by changing the hello and dead timers, adjusting the bandwidth of a

link, and enabling OSPF authentication. Then you will verify that full connectivity is restored for all end devices.

### Part 1: Modify OSPF Default Settings

#### Step 1: Test connectivity between all end devices.

Before modifying the OSPF settings, verify that all PCs can ping the web server and each other.

#### Step 2: Adjust the hello and dead timers between R1 and R2.

- a. Enter the following commands on **R1**.

```
R1(config)# interface s0/0/0
R1(config-if)# ip ospf hello-interval 15
R1(config-if)# ip ospf dead-interval 60
```

- b. After a short period of time, the OSPF connection with **R2** will fail. Both sides of the connection need to have the same timers in order for the adjacency to be maintained. Adjust the timers on **R2**.

#### Step 3: Adjust the bandwidth setting on R1.

- a. Trace the path between **PC1** and the web server located at 64.100.1.2. Notice that the path from **PC1** to 64.100.1.2 is routed through **R2**. OSPF prefers the lower cost path.
- b. On the **R1** Serial 0/0/0 interface, set the bandwidth to 64 Kb/s. This does not change the actual port speed, only the metric that the OSPF process on **R1** will use to calculate best routes.

```
R1(config-if)# bandwidth 64
```

- c. Trace the path between **PC1** and the web server located at 64.100.1.2. Notice that the path from **PC1** to 64.100.1.2 is redirected through **R3**. OSPF prefers the lower cost path.

#### Step 4: Enable OSPF authentication on all serial interfaces.

- a. Use the following commands to configure authentication between **R1** and **R2**.

**Note:** The key text **R1-R2** is case-sensitive.

```
R1(config-router)# area 0 authentication message-digest
R1(config)# interface serial 0/0/0
R1(config-if)# ip ospf message-digest-key 1 md5 R1-R2
```

- b. After the dead interval expires, neighbor adjacency between **R1** and **R2** will be lost. Repeat the authentication commands on **R2**.
- c. Use the following command to configure authentication on **R1** for the link it shares with **R3**.

```
R1(config-if)# ip ospf message-digest-key 1 md5 R1-R3
```

- d. Finish the authentication configurations necessary to restore full connectivity. The password for the link between **R2** and **R3** is **R2-R3**.
- e. Verify that authentication is working between each router.

```
R1# show ip ospf interface
Message digest authentication enabled
```

### Part 2: Verify Connectivity

Verify all PCs can ping the web server and each other.