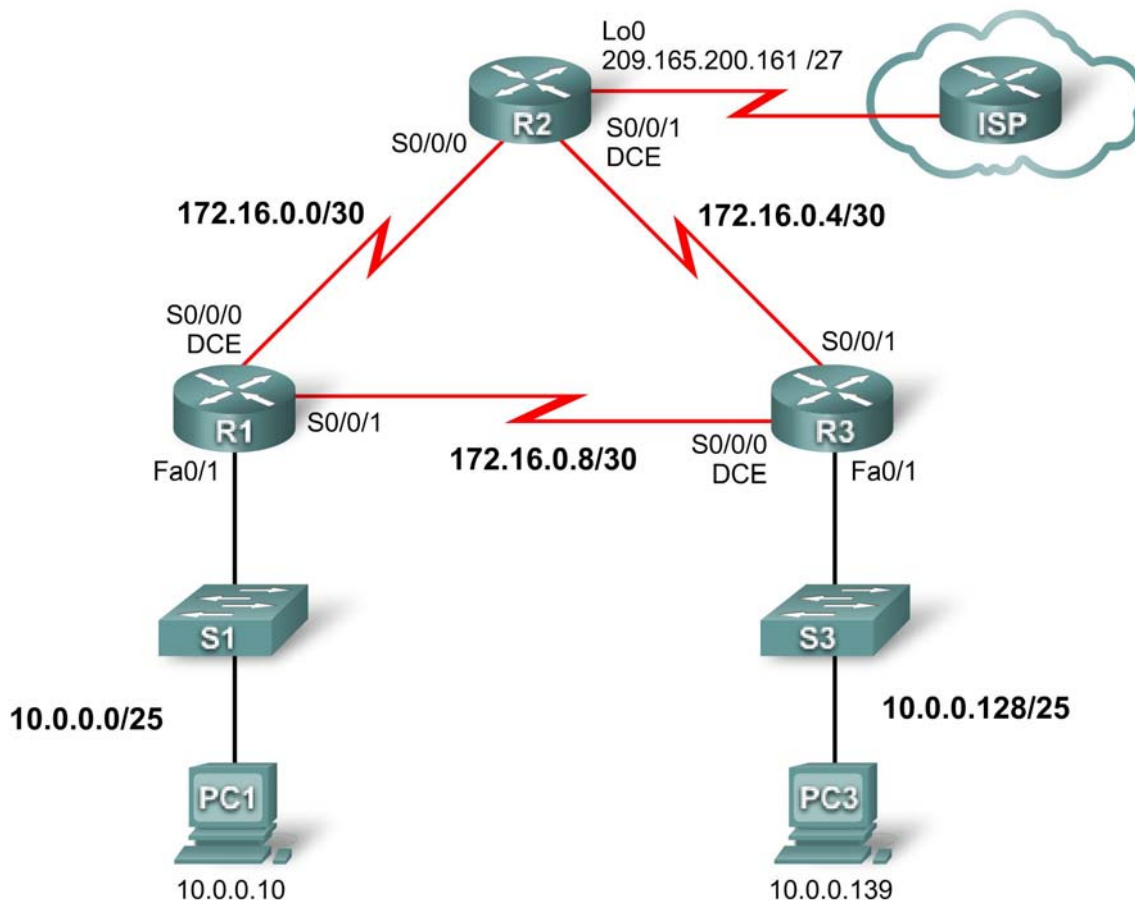


## Lab 2.5.2: Challenge PPP Configuration

### Topology Diagram



### Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	Fa0/1	10.0.0.1	255.255.255.128	N/A
	S0/0/0	172.16.0.1	255.255.255.252	N/A
	S0/0/1	172.16.0.9	255.255.255.252	N/A
R2	Lo0	209.165.200.161	255.255.255.224	N/A
	S0/0/0	172.16.0.2	255.255.255.252	N/A
	S0/0/1	172.16.0.5	255.255.255.252	N/A
R3	Fa0/1	10.0.0.129	255.255.255.128	N/A

	<b>S0/0/0</b>	172.16.0.10	255.255.255.252	N/A
	<b>S0/0/1</b>	172.16.0.6	255.255.255.252	N/A
<b>PC1</b>	<b>NIC</b>	10.0.0.10	255.255.255.128	10.0.0.1
<b>PC3</b>	<b>NIC</b>	10.0.0.139	255.255.255.128	10.0.0.129

## Learning Objectives

To complete this lab:

- Cable a network according to the topology diagram.
- Erase the startup configuration and reload a router to the default state.
- Perform basic configuration tasks on a router.
- Configure and activate interfaces.
- Configure OSPF routing on all routers.
- Configure PPP encapsulation on all serial interfaces.
- Change the encapsulation on the serial interfaces from PPP to HDLC.
- Intentionally break and restore PPP encapsulation.
- Configure PPP CHAP authentication.
- Intentionally break and restore PPP CHAP authentication.

## Scenario

In this lab, you will learn how to configure PPP encapsulation on serial links using the network shown in the topology diagram. You will also configure PPP CHAP authentication. If you need assistance, refer back to the Basic PPP Configuration lab, but try to do as much on your own as possible.

## Task 1: Prepare the Network

**Step 1: Cable a network that is similar to the one in the topology diagram.**

**Step 2: Clear any existing configurations on the routers.**

## Task 2: Perform Basic Router Configuration

Configure the R1, R2, and R3 routers according to the following guidelines:

- Configure the router hostname.
- Disable DNS lookup.
- Configure an EXEC mode password.
- Configure a message-of-the-day banner.
- Configure a password for console connections.
- Configure synchronous logging.
- Configure a password for vty connections.

### **Task 3: Configure and Activate Serial and Ethernet Addresses**

**Step 1: Configure interfaces on R1, R2, and R3.**

**Step 2: Verify IP addressing and interfaces.**

**Step 3: Configure the Ethernet interfaces of PC1 and PC3.**

**Step 4: Test connectivity between the PCs.**

### **Task 4: Configure OSPF on Routers**

**Step 1: Enable OSPF routing on the routers.**

**Step 2: Verify that you have full network connectivity.**

### **Task 5: Configure PPP Encapsulation on Serial Interfaces**

**Step 1: Configure PPP on the serial interfaces of all three routers.**

**Step 2: Verify that all serial interfaces are using PPP encapsulation.**

### **Task 6: Intentionally Break and Restore PPP Encapsulation**

**Step 1: Choose a way to break PPP encapsulation on the network.**

**Step 2: Restore full connectivity to your network.**

**Step 3: Verify full connectivity to your network.**

### **Task 7: Configure PPP CHAP Authentication**

**Step 1: Configure PPP CHAP authentication on all serial links.**

**Step 2: Verify PPP CHAP authentication on all serial links.**

### **Task 8: Intentionally Break and Restore PPP CHAP Authentication**

**Step 1: Choose a way to break PPP CHAP authentication on one or more serial links.**

**Step 2: Verify that PPP CHAP authentication is broken.**

**Step 3: Restore PPP CHAP authentication on all serial links.**

**Step 4: Verify PPP CHAP authentication on all serial links.**

### **Task 9: Document the Router Configurations**

### **Task 10: Clean Up**

Erase the configurations and reload the routers. Disconnect and store the cabling. For PC hosts that are normally connected to other networks, such as the school LAN or the Internet, reconnect the appropriate cabling and restore the TCP/IP settings.