Course Name: Networks & Communications

Course Code: CSE 205

Practice Assignments 3.3

Student's Full Name:

Student ID:

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Instruction:

* Students are allowed to write their answers in a word file (Answer sheet) provided by instructor. After finishing the assignment, students must convert the word file (Answer sheet) into a PDF file. The PDF file should have name in the following format "Mã số SV_Họ và tên SV_LabX.Y.pdf". Finally, students upload the file in Moodle.

* PDF file should have screenshot of network design, screenshot or written code of each network and device configuration (like router, switch, etc.) and screenshot of the output of every instruction.

Configuring Multiarea OSPFv2

Topology
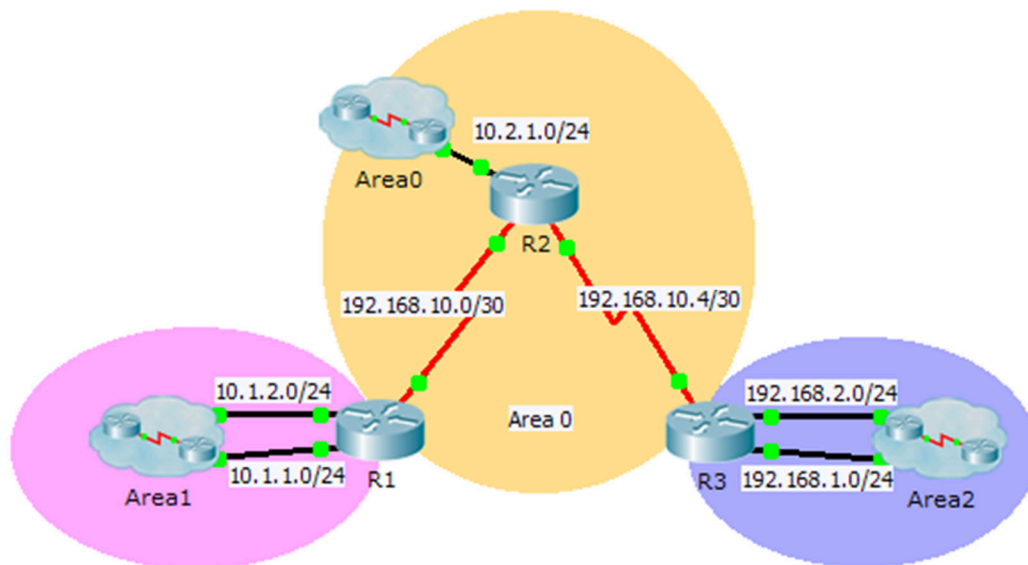
Addressing Table

Device	Interface	IP Address	Subnet Mask	OSPFv2 Area
R1	G0/0	10.1.1.1	255.255.255.0	1
	G0/1	10.1.2.1	255.255.255.0	1
	S0/0/0	192.168.10.2	255.255.255.252	0
R2	G0/0	10.2.1.1	255.255.255.0	0
	S0/0/0	192.168.10.1	255.255.255.252	0
	S0/0/1	192.168.10.5	255.255.255.252	0
R3	G0/0	192.168.2.1	255.255.255.0	2
	G0/1	192.168.1.1	255.255.255.0	2
	S0/0/1	192.168.10.6	255.255.255.252	0

Objectives

Part 1: Configure Multiarea OSPFv2

Part 2: Verify and Examine Multiarea OSPFv2

Background

In this activity, you will configure multiarea OSPFv2. The network is already connected and interfaces are configured with IPv4 addressing. Your job is to enable multiarea OSPFv2, verify connectivity, and examine the operation of multiarea OSPFv2.

Part 1: Configure OSPFv2

Step 1: Configure OSPFv2 on R1.

Configure OSPFv2 on R1 with a process ID of 1 and a router ID of 1.1.1.1.

Step 2: Advertise each directly connected network in OSPFv2 on R1.

Configure each network in OSPFv2 assigning areas according to the **Addressing Table**.

```
R1(config-router)# network 10.1.1.0 0.0.0.255 area 1
R1(config-router)# network 10.1.2.0 0.0.0.255 area 1
R1(config-router)# network 192.168.10.0 0.0.0.3 area 0
```

Step 3: Configure OSPFv2 on R2 and R3.

Repeat the steps above for **R2** and **R3** using a router ID of 2.2.2.2 and 3.3.3.3, respectively.

Part 2: Verify and Examine Multiarea OSPFv2

Step 1: Verify connectivity to each of the OSPFv2 areas.

From R1, ping each of the following remote devices in area 0 and area 2: 192.168.1.2, 192.168.2.2, and 10.2.1.2.

Step 2: Use show commands to examine the current OSPFv2 operations.

Use the following commands to gather information about your OSPFv2 multiarea implementation.

```
show ip protocols
show ip route
show ip ospf database
show ip ospf interface
show ip ospf neighbor
```

Reflection Questions

1. Which router(s) are internal routers? _____

2. Which router(s) are backbone routers? _____

3. Which router(s) are area border routers? _____

4. Which router(s) are autonomous system routers? _____

5. Which routers are generating Type 1 LSAs? _____

6. Which routers are generating Type 2 LSAs? _____

7. Which routers are generating Type 3 LSAs? _____

8. Which routers are generating Type 4 and 5 LSAs? _____

9. How many inter area routes does each router have? _____

10. Why would there usually be an ASBR in this type of network? _____

Suggested Scoring Rubric

Packet Tracer scores 80 points. Each of the Reflection Questions is worth 2 points.