

## Packet Tracer - Determine the DR and BDR

### Addressing Table

Device	Interface	IP Address	Subnet Mask
RA	G0/0	192.168.1.1	255.255.255.0
	Lo0	192.168.31.11	255.255.255.255
RB	G0/0	192.168.1.2	255.255.255.0
	Lo0	192.168.31.22	255.255.255.255
RC	G0/0	192.168.1.3	255.255.255.0
	Lo0	192.168.31.33	255.255.255.255

### Objectives

**Part 1: Examine DR and BDR Changing Roles**

**Part 2: Modify OSPF Priority and Force Elections**

### Scenario

In this activity, you will examine DR and BDR roles and watch the roles change when there is a change in the network. You will then modify the priority to control the roles and force a new election. Finally, you will verify routers are filling the desired roles.

### Instructions

#### Part 1: Examine DR and BDR Changing Roles

##### Step 1: Wait until the amber link lights turn green.

When you first open the file in Packet Tracer, you may notice that the link lights for the switch are amber. These link lights will stay amber for 50 seconds while the STP protocol on the switch makes sure that one of the routers is not another switch. Alternatively, you can click **Fast Forward Time** to bypass this process.

##### Step 2: Verify the current OSPF neighbor states.

Use the appropriate command on each router to examine the current DR and BDR. If a router shows FULL/DROTHER it means that the router is not a DR or a BDR.

RA# **show ip ospf neighbor**

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.33	2	FULL/DR	00:00:35	192.168.1.3	GigabitEthernet0/0
192.168.31.22	1	FULL/BDR	00:00:35	192.168.1.2	GigabitEthernet0/0

RB# **show ip ospf neighbor**

Neighbor ID	Pri	State	Dead Time	Address	Interface
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192.168.31.11	1	FULL/DROTHER	00:00:36	192.168.1.1	GigabitEthernet0/0
192.168.31.33	2	FULL/DR	00:00:36	192.168.1.3	GigabitEthernet0/0

RC# **show ip ospf neighbor**

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.11	1	FULL/DROTHER	00:00:39	192.168.1.1	GigabitEthernet0/0
192.168.31.22	1	FULL/BDR	00:00:38	192.168.1.2	GigabitEthernet0/0

Which router is the DR?

**R:** The router RC is the DR

Which router is the BDR?

**R:** The router RB is the BDR

What is the OSPF state of router RA?

**R:** The router has the Drother state.

### Step 3: Turn on IP OSPF adjacency debugging.

You can monitor the DR and BDR election process with a **debug** command. On **RA** and **RB**, enter the following command.

RA# **debug ip ospf adj**

RB# **debug ip ospf adj**

### Step 4: Disable the Gigabit Ethernet 0/0 interface on RC.

- Use the **shutdown** command to disable the link between **RC** and the switch to cause roles to change.
- Wait about 30 seconds for the dead timers to expire on **RA** and **RB**.

According to the debug output, which router was elected DR and which router was elected BDR?

**R:** The router RB is the new DR

**R:** The router RA is the BDR

### Step 5: Restore the Gigabit Ethernet 0/0 interface on RC.

- Re-enable the link between **RC** and the switch.
- Wait for the new DR/BDR elections to occur.

Did DR and BDR roles change? Explain.

**R:** The roles of the routers don't change, because ospf don't update it's state when it's working.

- Verify the DR and BDR assignments using the **show ip ospf neighbor** command on router **RC**.

RC# **show ip ospf neighbor**

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.22	1	FULL/DR	00:00:34	192.168.1.2	GigabitEthernet0/0
192.168.31.11	1	FULL/BDR	00:00:34	192.168.1.1	GigabitEthernet0/0

**Note:** if the **show ip ospf neighbor** command does not return RB as the DR and RA as the BDR, turn off debugging on RA and RB with the **undebug all** command and retry steps 4 and 5.

### Step 6: Disable the GigabitEthernet0/0 interface on RB.

- Disable the link between **RB** and the switch to cause roles to change.
- Wait about 30 seconds for the holddown timers to expire on **RA** and **RC**.

According to the debug output on **RA**, which router was elected DR and which router was elected BDR?

**R:** Now RA is the new DR.

**R:** The RC router is the new BDR.

### Step 7: Restore the GigabitEthernet0/0 interface on RB.

- Re-enable the link between **RB** and the switch.

Wait for the new DR/BDR elections to occur. Did DR and BDR roles change? Explain.

**R:** The roles of the routers don't change, because ospf don't update it's state when it's working.

- Use the **show ip ospf interface** command on router RC.

What is the status of router RC now?

**R:** The state is BDR in RC

### Step 8: Turn off Debugging.

Enter the command **undebg all** on **RA** and **RB** to disable debugging.

## Part 2: Modify OSPF Priority and Force Elections

### Step 1: Configure OSPF priorities on each router.

- To change the DR and BDR, use the **ip ospf priority** command to configure the GigabitEthernet 0/0 port of each router with the following OSPF interface priorities:

- RA:** 200
- RB:** 100
- RC:** 1 (This is the default priority)

```
RA(config)# interface g0/0
```

```
RA(config-if)# ip ospf priority 200
```

- Set the priority on router **RB** and **RC**.

### Step 2: Force an election by resetting the OSPF process on the routers.

Starting with router **RA**, issue the **clear ip ospf process** on each router to reset the OSPF process.

### Step 3: Verify DR and BDR elections were successful.

Wait long enough for OSPF to converge and for the DR/BDR election to occur. This should take a few minutes. You can click **Fast Forward Time** to speed up the process.

According to output from the **show ip ospf neighbor** command on the routers, which router is now DR and which router is now BDR?

**Note:** If the routers do not elect the correct DR and BDR after setting the OSPF priorities try restarting Packet Tracer.

# Packet Tracer - Determine the DR and BDR

Cisco Packet Tracer - C:/Users/Enrique/Documents/Universidad/Redes 2/semana 3/deber 2.3.11/2.3.11 Packet Tracer - Determine the DR and BDR.pka - Luis Enrique Perez Señalín - 2024-05-07 22:25:53

Activity Results

Time Elapsed: 00:32:55

Congratulations Luis Enrique Perez Señalín! You completed the activity.

Overall Feedback **Assessment Items** Connectivity Tests

Expand/Collapse All Show Incorrect Items

Assessment Items	Status	Points	Component(s)	Feedback
Network		0	Other	
RA		0	Other	
Ports		0	Other	
GigabitEthernet0/0		0	Other	
OSPF Priority	Correct	10	Modify OSPF Inte...	
RB		0	Other	
Ports		0	Other	
GigabitEthernet0/0		0	Other	
OSPF Priority	Correct	10	Modify OSPF Inte...	
RC		0	Other	
Ports		0	Other	
GigabitEthernet0/0		0	Other	
OSPF Priority	Correct	10	Modify OSPF Inte...	

Score	: 30/30
Item Count	: 3/3
Component	Items/Total Score
Modify OSPF Interface Priority	3/3 30/30

Close