

ACTIVIDAD 2.3.II. DETERMINA EL DR Y EL BDR

Memoria Técnica

Ignacio Andrade Salazar

7 A IELC

CONTENIDO

- 1. Antecedentes
 - 1.1. Objetivo
 - 1.2. Alcance
 - 1.3. Descripción técnica de la solución
- 2. Esquema General
- 3. Script CTC
- 4. Pruebas

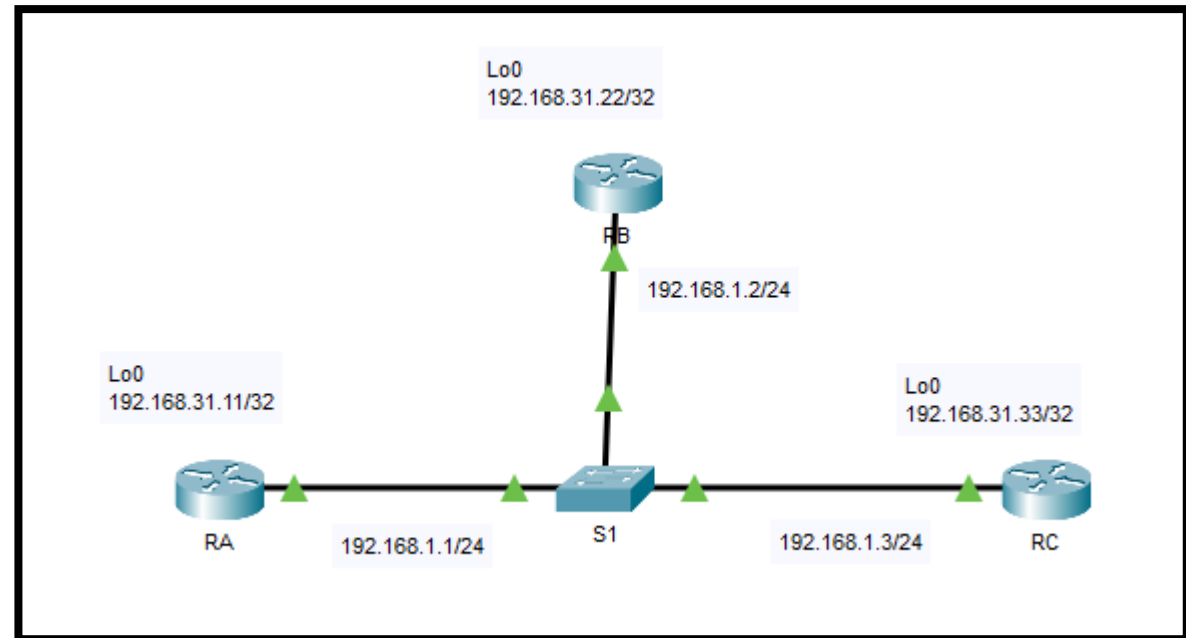
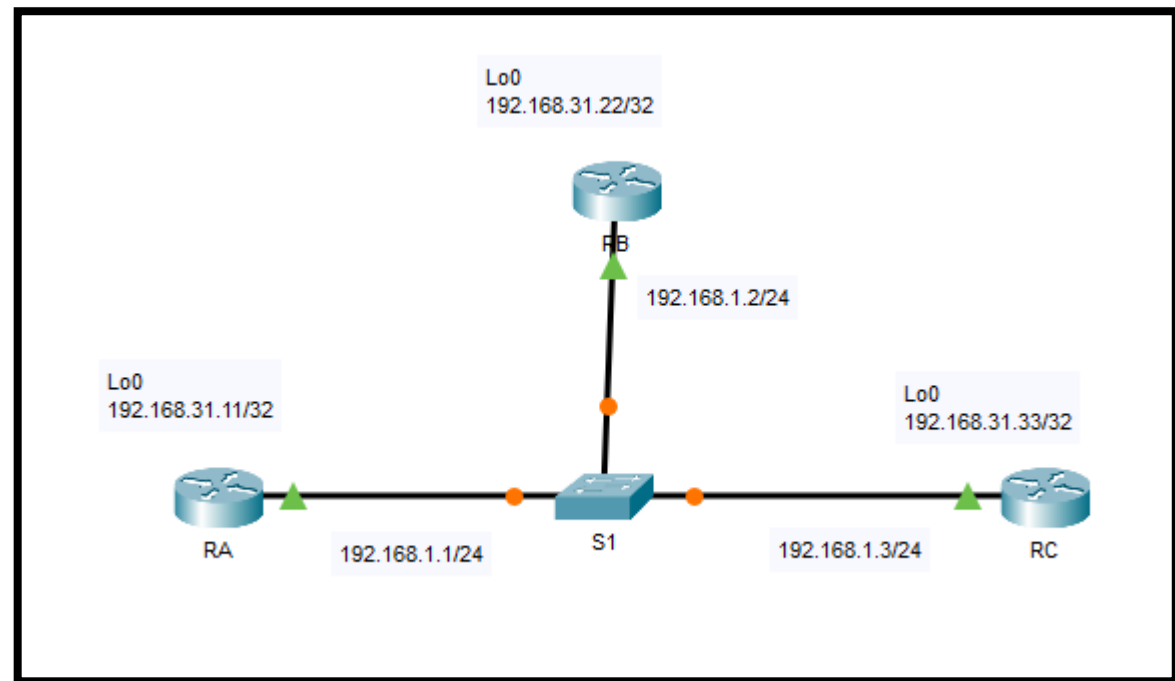
I. ANTECEDENTES

- **I.1. Objetivos**
 - Parte 1. Examinar las funciones cambiantes del DR y el BDR
 - Parte 2. Modificar la prioridad OSPF y forzar las elecciones
- **I.2. Alcance**
 - En esta actividad, examinará las funciones del DR y el BDR y verá el cambio de las funciones cuando hay un cambio en la red. Luego, modificará la prioridad para controlar las funciones y forzará una nueva elección. Por último, verificará que los routers estén desempeñando la función deseada.

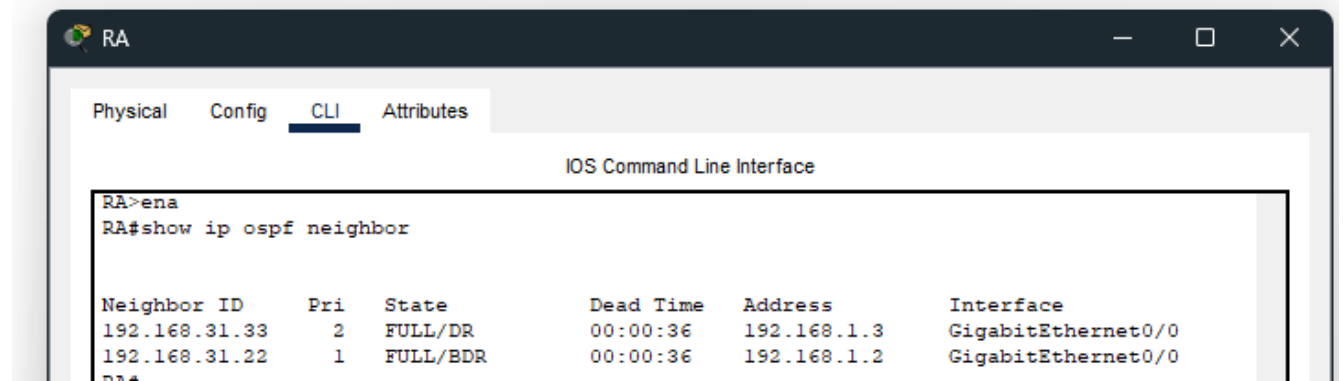
2. DESCRIPCIÓN TÉCNICA DE LA SOLUCIÓN

**Parte 1: Examine DR y BDR
Cambio de roles**

**PASO 1: ESPERE
HASTA QUE LAS
LUCES DE ENLACE
ÁMBAR SE VUELVAN
VERDES.**



PASO 2: VERIFICAR LOS ESTADOS ACTUALES DE LOS VECINOS OSPF.



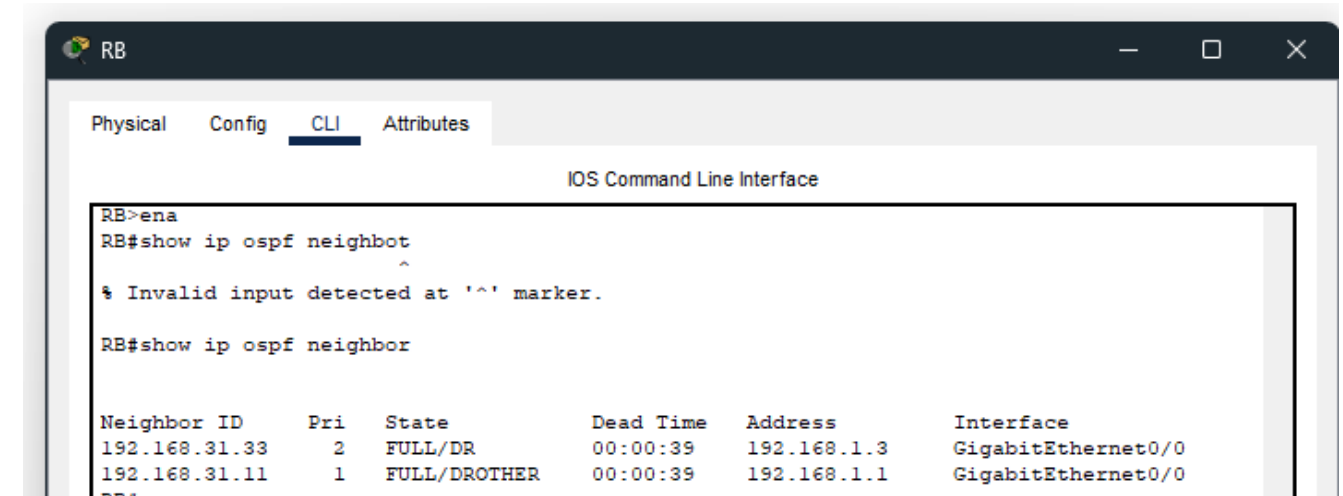
RA

Physical Config CLI Attributes

IOS Command Line Interface

```
RA>ena
RA#show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.33	2	FULL/DR	00:00:36	192.168.1.3	GigabitEthernet0/0
192.168.31.22	1	FULL/BDR	00:00:36	192.168.1.2	GigabitEthernet0/0



RB

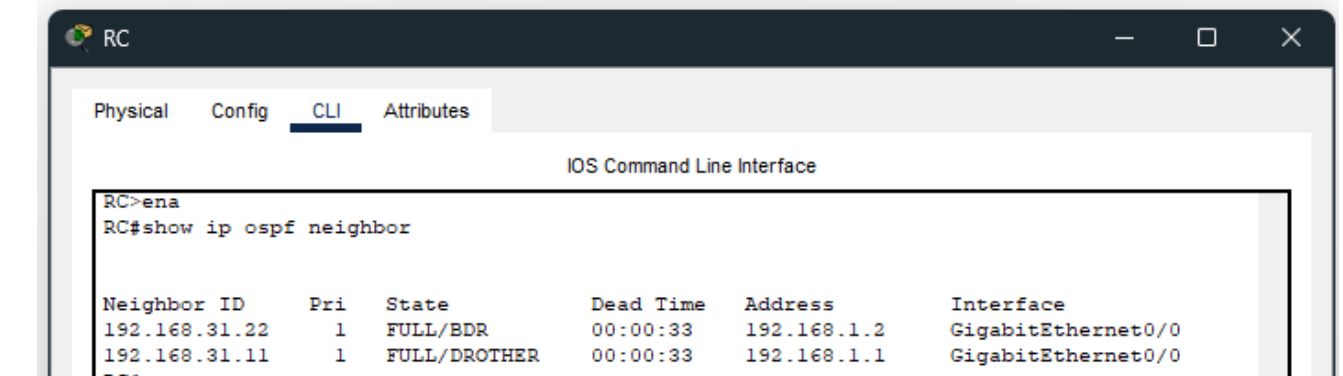
Physical Config CLI Attributes

IOS Command Line Interface

```
RB>ena
RB#show ip ospf neighbot
^
% Invalid input detected at '^' marker.

RB#show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.33	2	FULL/DR	00:00:39	192.168.1.3	GigabitEthernet0/0
192.168.31.11	1	FULL/DROTHER	00:00:39	192.168.1.1	GigabitEthernet0/0



RC

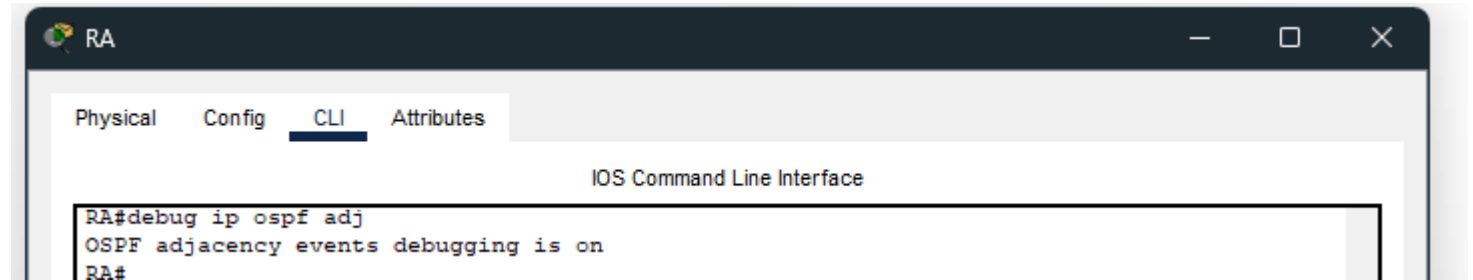
Physical Config CLI Attributes

IOS Command Line Interface

```
RC>ena
RC#show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.22	1	FULL/BDR	00:00:33	192.168.1.2	GigabitEthernet0/0
192.168.31.11	1	FULL/DROTHER	00:00:33	192.168.1.1	GigabitEthernet0/0

PASO 3: ACTIVAR LA DEPURACIÓN DE ADYACENCIAS OSPF IP.

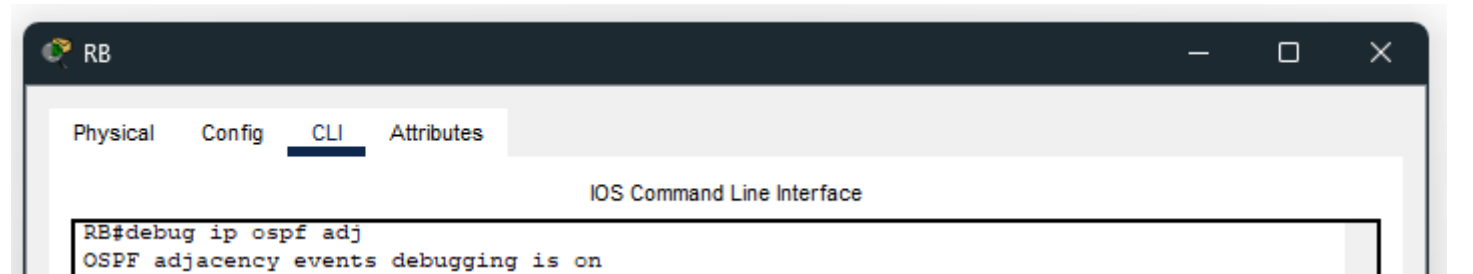


RA

Physical Config CLI Attributes

IOS Command Line Interface

```
RA#debug ip ospf adj
OSPF adjacency events debugging is on
RA#
```

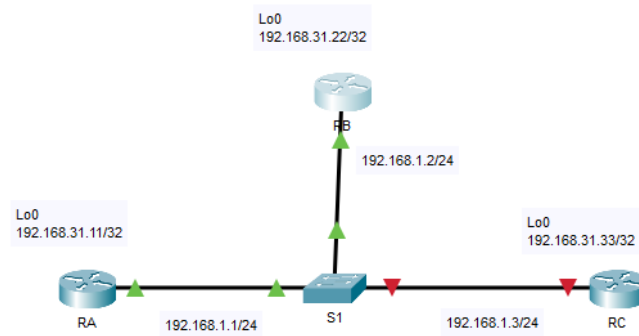


RB

Physical Config CLI Attributes

IOS Command Line Interface

```
RB#debug ip ospf adj
OSPF adjacency events debugging is on
```



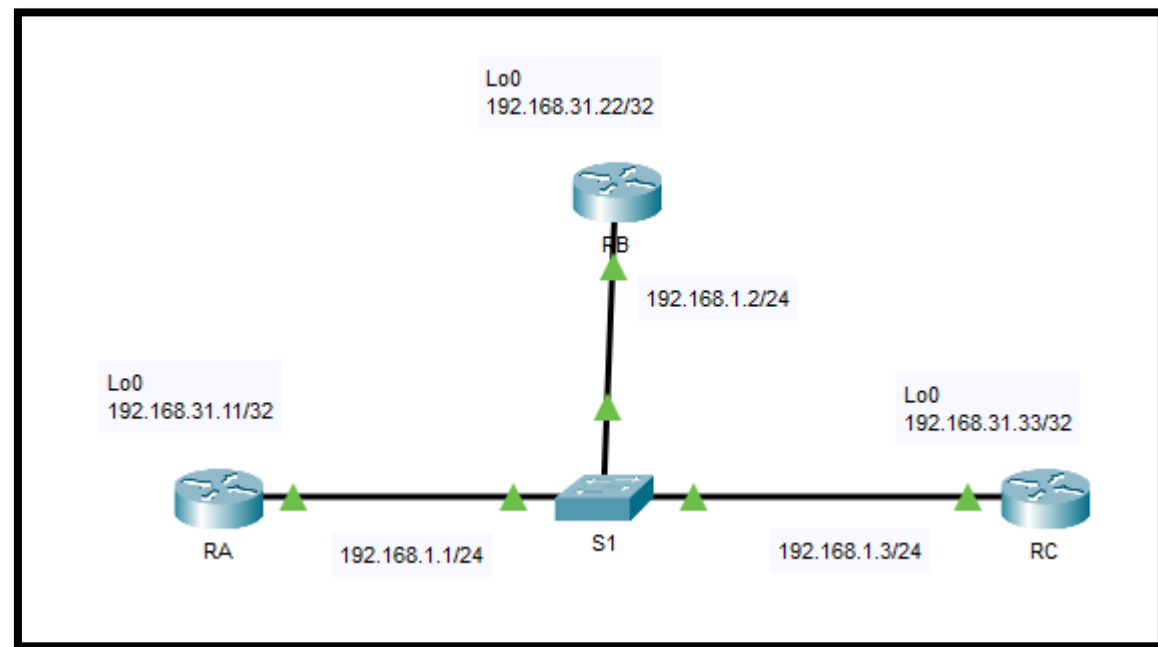
IOS Command Line Interface

```
23:18:50: OSPF: Elect DR 192.168.31.22
23:18:50:      DR: 192.168.31.22 (Id)   BDR: 192.168.31.11 (Id)
23:18:50: OSPF: Build router LSA for area 0, router ID 192.168.31.22, seq
0xffffffff80000004
23:18:50: OSPF: Build net LSA for area 0, router ID 192.168.31.22, seq 0xffffffff80000001
23:18:50: OSPF: Build router LSA for area 0, router ID 192.168.31.22, seq
0xffffffff80000005
23:18:50: OSPF: Build net LSA for area 0, router ID 192.168.31.22, seq 0xffffffff80000002
23:18:50: OSPF: DR/BDR election on GigabitEthernet0/0
23:18:50: OSPF: Elect BDR 192.168.31.11
23:18:50: OSPF: Elect DR 192.168.31.22
23:18:50:      DR: 192.168.31.22 (Id)   BDR: 192.168.31.11 (Id)
23:19:00: OSPF: DR/BDR election on GigabitEthernet0/0
23:19:00: OSPF: Elect BDR 192.168.31.11
23:19:00: OSPF: Elect DR 192.168.31.22
23:19:00:      DR: 192.168.31.22 (Id)   BDR: 192.168.31.11 (Id)
```

Copy Paste

**PASO 4: DESHABILITAR LA INTERFAZ GIGABIT
ETHERNET 0/0 INTERFACE EN EL RC.**

PASO 5: RESTAURAR LA INTERFAZ GIGABIT ETHERNET 0/0 INTERFACE EN EL RC.



```

Neighbor ID    Pri   State           Dead Time   Address      Interface
192.168.31.11  1     FULL/BDR        00:00:39   192.168.1.1  GigabitEthernet0/0
192.168.31.33  2     FULL/DR         00:00:32   192.168.1.3  GigabitEthernet0/0
RB#
  
```

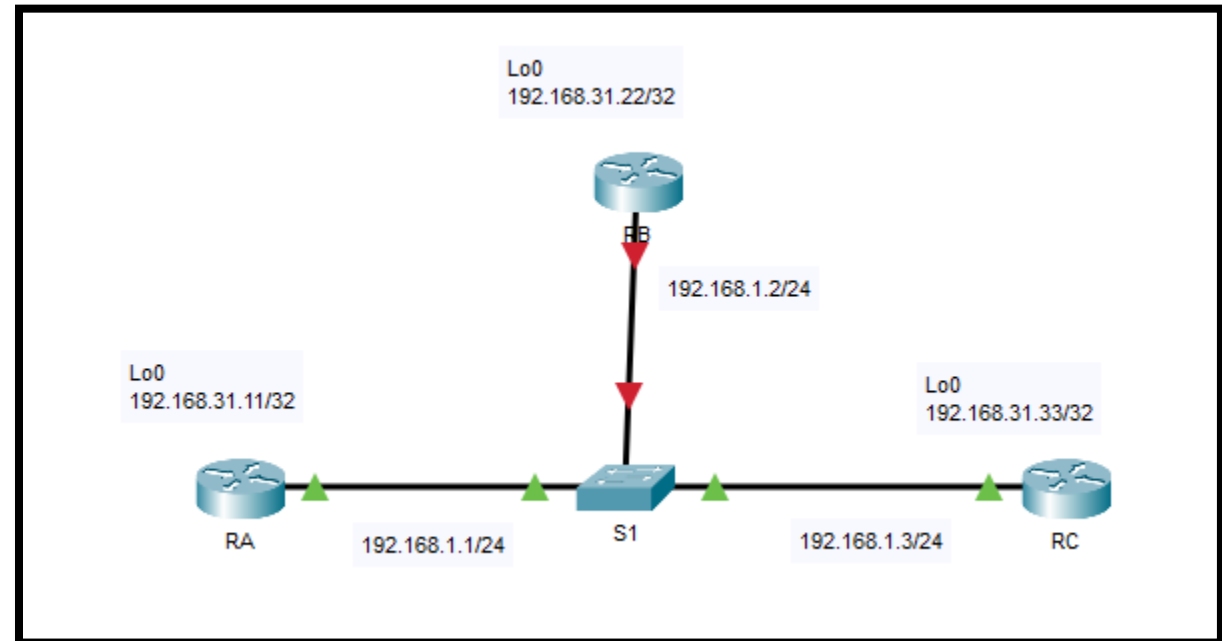
```

Neighbor ID    Pri   State           Dead Time   Address      Interface
192.168.31.11  1     FULL/BDR        00:00:30   192.168.1.1  GigabitEthernet0/0
192.168.31.22  1     FULL/DROTHER    00:00:30   192.168.1.2  GigabitEthernet0/0
RC(config-if)#
  
```

```

Neighbor ID    Pri   State           Dead Time   Address      Interface
192.168.31.22  1     FULL/DROTHER    00:00:33   192.168.1.2  GigabitEthernet0/0
192.168.31.33  2     FULL/DR         00:00:36   192.168.1.3  GigabitEthernet0/0
RA#
  
```

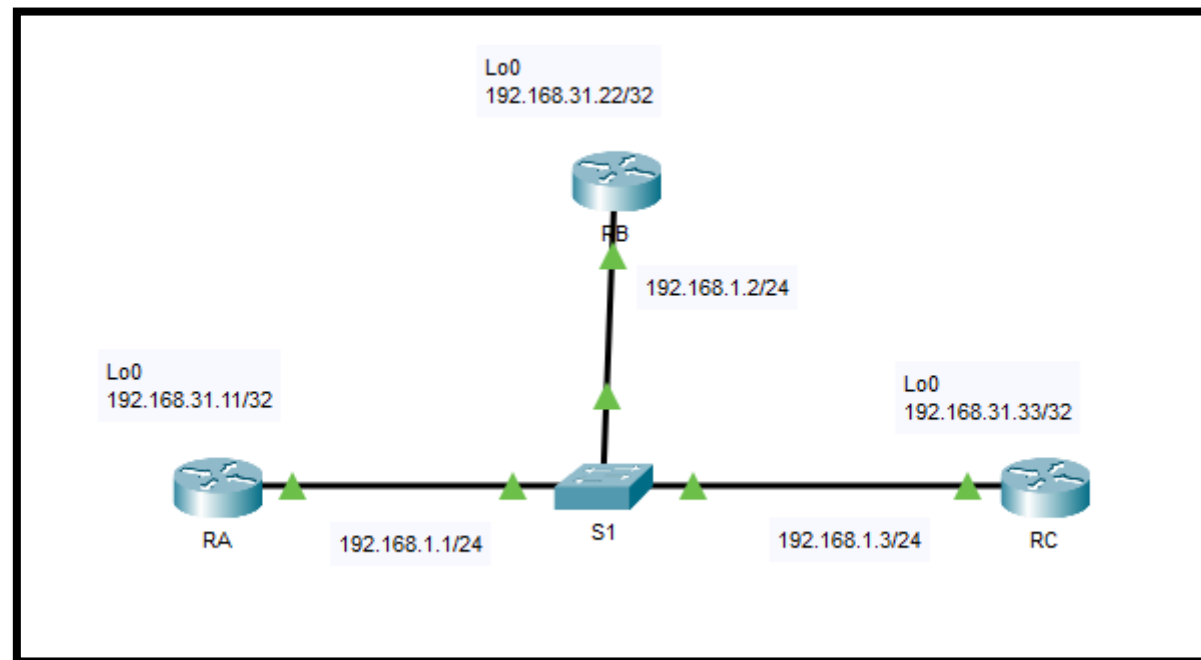
**PASO 6:
DESHABILITAR LA
INTERFAZ GIGABIT
ETHERNET 0/0 EN EL
RB.**



Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.33	2	FULL/DR	00:00:34	192.168.1.3	GigabitEthernet0/0
RA#					

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.11	1	FULL/BDR	00:00:31	192.168.1.1	GigabitEthernet0/0
RC#					

PASO 7: RESTAURAR LA INTERFAZ GIGABIT ETHERNET 0/0 EN EL RB



```

Neighbor ID    Pri   State           Dead Time   Address      Interface
192.168.31.33  2     FULL/DR         00:00:31    192.168.1.3  GigabitEthernet0/0
192.168.31.22  1     FULL/DROTHER    00:00:32    192.168.1.2  GigabitEthernet0/0
RA#
  
```

Copy

Paste

```

Neighbor ID    Pri   State           Dead Time   Address      Interface
192.168.31.11  1     FULL/BDR        00:00:30    192.168.1.1  GigabitEthernet0/0
192.168.31.22  1     FULL/DROTHER    00:00:34    192.168.1.2  GigabitEthernet0/0
RC#
  
```

PASO 8 DESACTIVAR LA DEPURACIÓN.

```
RA#undebug all  
All possible debugging has been turned off  
RA#
```

Copy

Paste

```
RB(config-if)#do undebug all  
All possible debugging has been turned off  
RB(config-if)#
```

Copy

Paste

2. DESCRIPCIÓN TÉCNICA DE LA SOLUCIÓN

Parte 2: Modificar la prioridad OSPF y forzar elecciones

PASO 1: CONFIGURAR LAS PRIORIDADES OSPF EN CADA ROUTER.

```
RA#config t
Enter configuration commands, one per line.  End with CNTL/Z.
RA(config)#int g0/0
RA(config-if)#ip ospf priority 200
RA(config-if)#
```

```
RB(config-if)#ip ospf priority 100
RB(config-if)#
```

```
RC#
RC#config t
Enter configuration commands, one per line.  End with CNTL/Z.
RC(config)#int g0/0
RC(config-if)#ip ospf priority 1
RC(config-if)#
```

PASO 2: FORZAR UNA ELECCIÓN RESTABLECIENDO EL PROCESO OSPF EN LOS ROUTERS.

```
RA#
%SYS-5-CONFIG_I: Configured from console by console

RA#clear ip ospf process
Reset ALL OSPF processes? [no]: y

RA#
23:56:03: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.33 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Adjacency forced to reset

23:56:03: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.22 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Adjacency forced to reset

23:56:03: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.33 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached

23:56:03: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.22 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached

23:56:04: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.33 on GigabitEthernet0/0 from LOADING
to FULL, Loading Done
```

Copy

Paste

```
RB#clear ip ospf process
Reset ALL OSPF processes? [no]: y

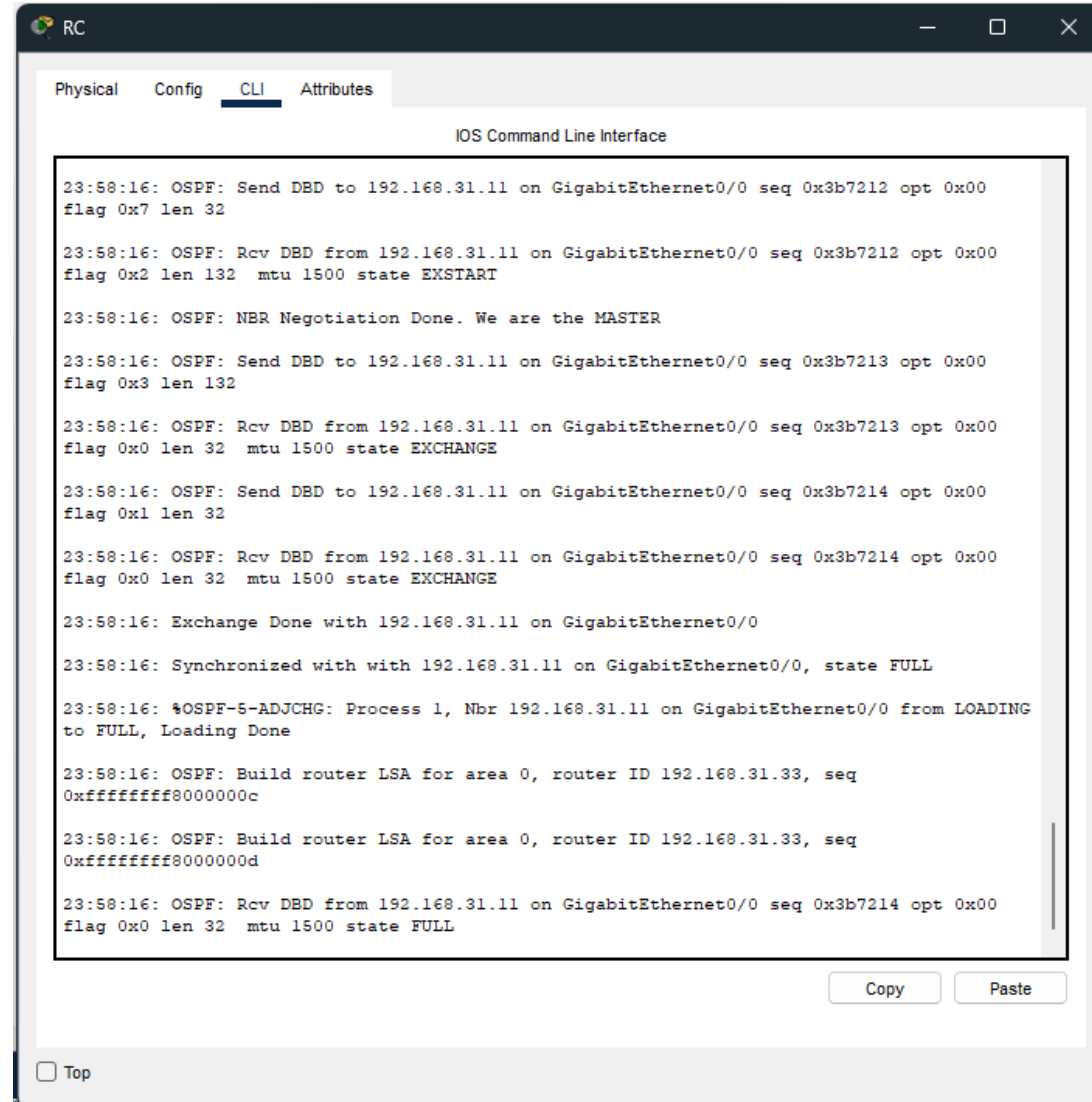
RB#
23:57:31: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.11 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Adjacency forced to reset

23:57:31: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.33 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Adjacency forced to reset

23:57:31: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.11 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached

23:57:31: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.33 on GigabitEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached
```

PASO 2: FORZAR UNA ELECCIÓN RESTABLECIENDO EL PROCESO OSPF EN LOS ROUTERS.



The screenshot shows a network device's CLI window with the title bar 'RC'. The window has tabs for 'Physical', 'Config', 'CLI', and 'Attributes', with 'CLI' selected. The main area is titled 'IOS Command Line Interface' and displays a series of OSPF log messages. The messages show the process of OSPF negotiation between two routers (192.168.31.11 and 192.168.31.13) on GigabitEthernet0/0. The process starts with sending and receiving Database Description (DBD) packets, followed by Neighbor (NBR) negotiation, and finally reaching the FULL state. The logs also show the building of router LSAs for area 0.

```
23:58:16: OSPF: Send DBD to 192.168.31.11 on GigabitEthernet0/0 seq 0x3b7212 opt 0x00  
flag 0x7 len 32  
23:58:16: OSPF: Rcv DBD from 192.168.31.11 on GigabitEthernet0/0 seq 0x3b7212 opt 0x00  
flag 0x2 len 132 mtu 1500 state EXSTART  
23:58:16: OSPF: NBR Negotiation Done. We are the MASTER  
23:58:16: OSPF: Send DBD to 192.168.31.11 on GigabitEthernet0/0 seq 0x3b7213 opt 0x00  
flag 0x3 len 132  
23:58:16: OSPF: Rcv DBD from 192.168.31.11 on GigabitEthernet0/0 seq 0x3b7213 opt 0x00  
flag 0x0 len 32 mtu 1500 state EXCHANGE  
23:58:16: OSPF: Send DBD to 192.168.31.11 on GigabitEthernet0/0 seq 0x3b7214 opt 0x00  
flag 0x1 len 32  
23:58:16: OSPF: Rcv DBD from 192.168.31.11 on GigabitEthernet0/0 seq 0x3b7214 opt 0x00  
flag 0x0 len 32 mtu 1500 state EXCHANGE  
23:58:16: Exchange Done with 192.168.31.11 on GigabitEthernet0/0  
23:58:16: Synchronized with with 192.168.31.11 on GigabitEthernet0/0, state FULL  
23:58:16: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.11 on GigabitEthernet0/0 from LOADING  
to FULL, Loading Done  
23:58:16: OSPF: Build router LSA for area 0, router ID 192.168.31.33, seq  
0xffffffff8000000c  
23:58:16: OSPF: Build router LSA for area 0, router ID 192.168.31.33, seq  
0xffffffff8000000d  
23:58:16: OSPF: Rcv DBD from 192.168.31.11 on GigabitEthernet0/0 seq 0x3b7214 opt 0x00  
flag 0x0 len 32 mtu 1500 state FULL
```

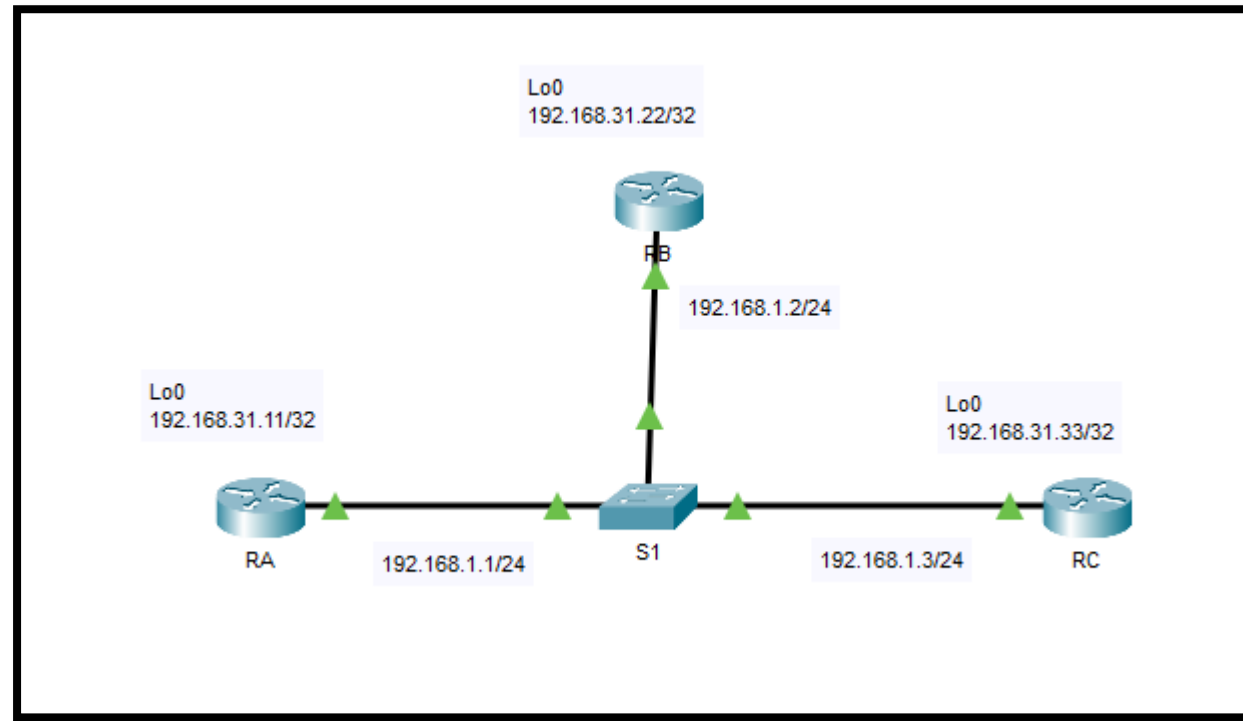
At the bottom right of the CLI window, there are 'Copy' and 'Paste' buttons. At the bottom left, there is a 'Top' button with a small square icon next to it.

**PASO 3: VERIFICAR
SI LAS ELECCIONES
DEL DR Y EL BDR SE
REALIZARON
CORRECTAMENTE.**

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.33	1	FULL/DROTHER	00:00:32	192.168.1.3	GigabitEthernet0/0
192.168.31.22	100	FULL/BDR	00:00:34	192.168.1.2	GigabitEthernet0/0
RA#					

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.33	1	FULL/DROTHER	00:00:31	192.168.1.3	GigabitEthernet0/0
192.168.31.11	200	FULL/DR	00:00:37	192.168.1.1	GigabitEthernet0/0
RB#					

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.31.22	100	FULL/BDR	00:00:39	192.168.1.2	GigabitEthernet0/0
192.168.31.11	200	FULL/DR	00:00:34	192.168.1.1	GigabitEthernet0/0
RC#					

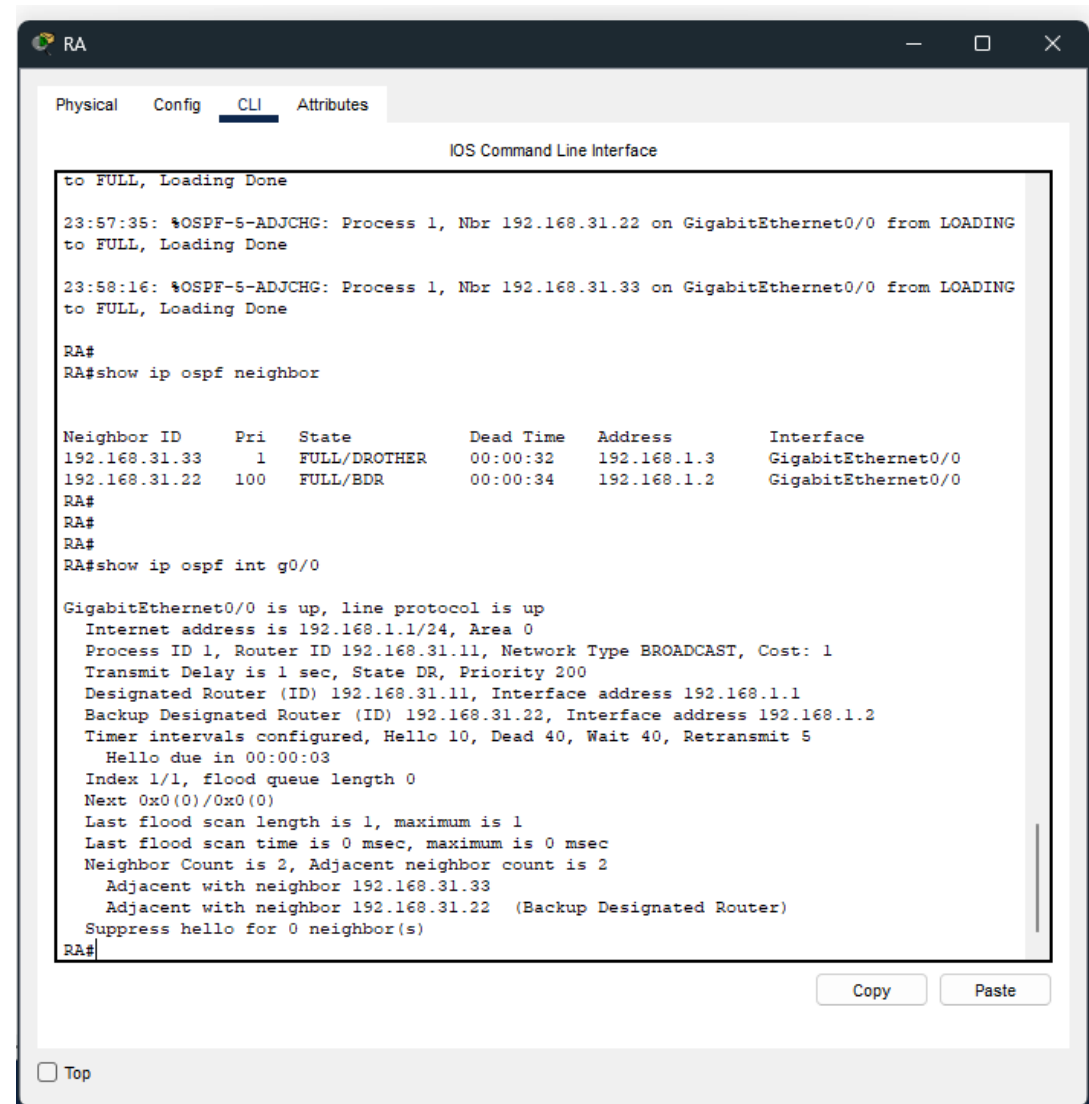


3.ESQUEMA GENERAL

Dispositivo	Interfaz	Dirección IP	Máscara de subred
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

4.SCRIPT CTC

5. PRUEBAS



The screenshot shows a network simulator window titled "RA" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The output shows the router transitioning from a loading state to FULL for two OSPF neighbors (192.168.31.22 and 192.168.31.33) on GigabitEthernet0/0. Subsequent commands show the neighbor list and interface details.

```
to FULL, Loading Done

23:57:35: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.22 on GigabitEthernet0/0 from LOADING
to FULL, Loading Done

23:58:16: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.31.33 on GigabitEthernet0/0 from LOADING
to FULL, Loading Done

RA#
RA#show ip ospf neighbor

Neighbor ID      Pri   State           Dead Time   Address       Interface
192.168.31.33    1     FULL/DROTHER    00:00:32    192.168.1.3   GigabitEthernet0/0
192.168.31.22    100   FULL/BDR        00:00:34    192.168.1.2   GigabitEthernet0/0
RA#
RA#
RA#show ip ospf int g0/0

GigabitEthernet0/0 is up, line protocol is up
Internet address is 192.168.1.1/24, Area 0
Process ID 1, Router ID 192.168.31.11, Network Type BROADCAST, Cost: 1
Transmit Delay is 1 sec, State DR, Priority 200
Designated Router (ID) 192.168.31.11, Interface address 192.168.1.1
Backup Designated Router (ID) 192.168.31.22, Interface address 192.168.1.2
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 00:00:03
Index 1/1, flood queue length 0
Next 0x0(0)/0x0(0)
Last flood scan length is 1, maximum is 1
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 2, Adjacent neighbor count is 2
  Adjacent with neighbor 192.168.31.33
  Adjacent with neighbor 192.168.31.22 (Backup Designated Router)
Suppress hello for 0 neighbor(s)
RA#
```