UEMF
الجامعة الأورومتوسطية بفاس
EUROMED UNIVERSITY OF FES
UNIVERSITÉ EUROMED DE FÈS

EIDIA
École d'Ingénierie Digitale et d'Intelligence Artificielle

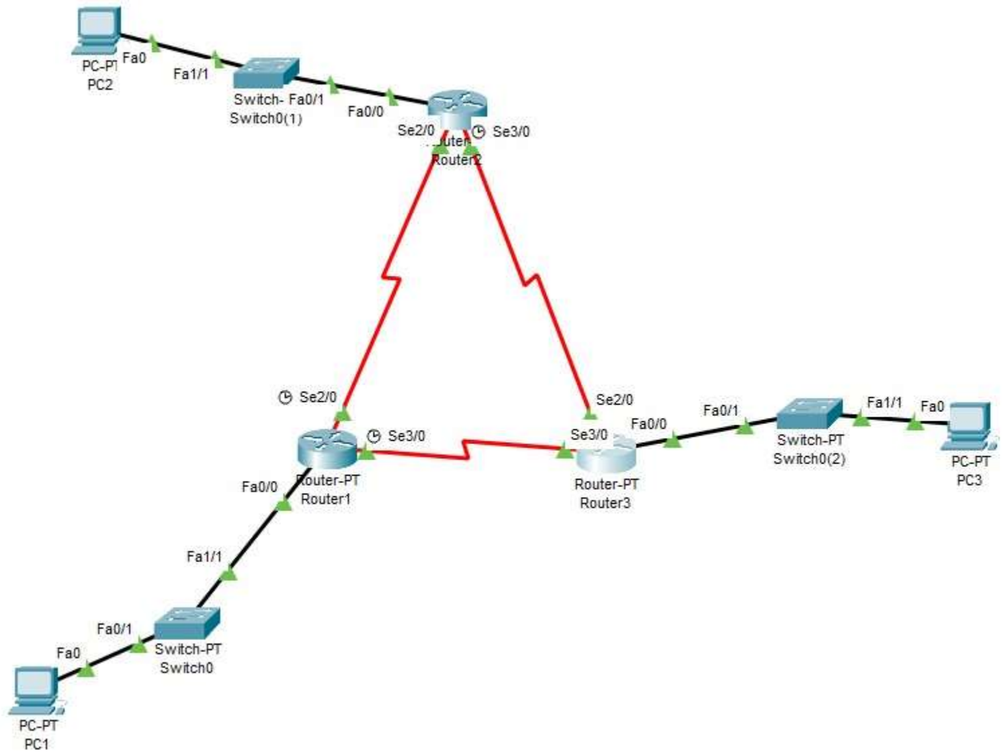
TP-OSPF

By Mohamed Alaoui Mhamdi

PARTIE 1

SENARIO:A

tache 1 :



tache 2:

```
Press RETURN to get started!



Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R3
R3(config)#
```

```
R3(config)#
R3(config)#no ip domain-lookup
R3(config)#
```

Cop

Top

tache 3:

```
R1(config)#no ip domain-lookup
R1(config)#
R1(config)#
R1(config)#interface FastEthernet0/0
R1(config-if)#ip address 172.16.1.17 255.255.0.0
R1(config-if)#ip address 172.16.1.17 255.255.255.240
R1(config-if)#no shutdown
R1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R1(config-if)#exit
R1(config)#interface Serial2/0
R1(config-if)#ip address 192.168.10.1 255.255.255.0
R1(config-if)#ip address 192.168.10.1 255.255.255.252
R1(config-if)#no shutdown
R1(config-if)#
R1(config-if)#exit
R1(config)#interface Serial3/0
R1(config-if)#ip address 192.168.10.5 255.255.255.252
R1(config-if)#no shutdown
R1(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

R1(config-if)#
```

```
R3(config)#interface FastEthernet0/0
R3(config-if)#ip address 172.16.1.33 255.255.0.0
R3(config-if)#ip address 172.16.1.33 255.255.255.248
R3(config-if)#no shutdown
R3(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed

R3(config-if)#
R3(config-if)#exit
R3(config)#interface Serial3/0
R3(config-if)#ip address 192.168.10.6 255.255.255.0
R3(config-if)#ip address 192.168.10.6 255.255.255.252
R3(config-if)#no shutdown
R3(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

R3(config-if)#exit
R3(config)#interface Serial2/0
R3(config-if)#
R3(config-if)#exit
R3(config)#interface Serial2/0
R3(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state
ip address 192.168.10.10 255.255.255.252
R3(config-if)#ip address 192.168.10.10 255.255.255.252
R3(config-if)#no shutdown
R3(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state
```

tache 4:

```
R3>
R3>enable
R3#config t
Enter configuration commands, one per line.  End with CNTL/Z
R3(config)#router ospf
% Incomplete command.
R3(config)#router ospf 3
```

```
R2(config)#router ospf 2
R2(config-router)#network 10.10.10.0 0.0.0.255 area 0
```

```
Enter configuration commands, one per line.
R1(config)#router ospf
% Incomplete command.
R1(config)#router ospf 1
```

tache 5:

```
% Incomplete command.
R3(config)#router ospf 3
R3(config-router)#network 172.16.1.32 0.0.0.7 area 0
R3(config-router)#network 192.168.10.8 0.0.0.3 area 0
R3(config-router)#
00:34:39: %OSPF-5-ADJCHG: Process 3, Nbr 192.168.10.9 on Serial2/0 from LOADING to FULL,
Loading Done

R3(config-router)#network 192.168.10.4 0.0.0.3 area 0
R3(config-router)#
00:35:09: %OSPF-5-ADJCHG: Process 3, Nbr 192.168.10.5 on Serial3/0 from LOADING to FULL,
Loading Done

R3(config-router)#
```

```
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#router ospf
% Incomplete command.
R1(config)#router ospf 1
R1(config-router)#network 172.16.1.16 0.0.0.15 area 0
R1(config-router)#network 192.168.10.4 0.0.0.3 area 0
R1(config-router)#network 192.168.10.0 0.0.0.3 area 0
R1(config-router)#
```

```
R2(config)#router ospf 2
R2(config-router)#network 10.10.10.0 0.0.0.255 area 0
R2(config-router)#network 192.168.10.0 0.0.0.3 area 0
R2(config-router)#
00:32:12: %OSPF-5-ADJCHG: Process 2, Nbr 192.168.10.5 on Serial2/0 from LOADING to FULL,
Loading Done

R2(config-router)#network 192.168.10.8 0.0.0.3 area 0
R2(config-router)#
00:34:40: %OSPF-5-ADJCHG: Process 2, Nbr 192.168.10.10 on Serial3/0 from LOADING to FULL,
Loading Done
```

tache 6:

ID de router 1 :

```
R1#show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 192.168.10.5
```

ID de router 2 :

```
R2#show ip protocols

Routing Protocol is "ospf 2"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 192.168.10.9
```

ID de router 3 :

```
R3#show ip protocols

Routing Protocol is "ospf 3"
  Outgoing update filter list for all interfaces is no
  Incoming update filter list for all interfaces is no
  Router ID 192.168.10.10
  Number of areas in this router is 1. 1 normal 0 stub
```

etape 2

router 1

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, change

R1(config-if)#ip address 10.1.1.1 255.255.255.255
R1(config-if)#end
R1#
%SYS-5-CONFIG_I: Configured from console by console
```

router 2

```
R2(config)#interface loopback 0

R2(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed

R2(config-if)#ip address 10.2.2.2 255.255.255.255
R2(config-if)#end
```

router 3

```
R3(config-if)#
%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state t

R3(config-if)#ip address 10.3.3.3 255.255.255.255
R3(config-if)#
```

etape 3

```
R1#
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#
```

router 1

```
R1#show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 10.1.1.1
```

router 2

```
R2>show ip protocols

Routing Protocol is "ospf 2"
  Outgoing update filter list for all interfac
  Incoming update filter list for all interfac
  Router ID 10.2.2.2
```

router 3

```
R3>show ip protocols

Routing Protocol is "ospf 3"
  Outgoing update filter list fo
  Incoming update filter list fo
  Router ID 10.3.3.3
```

etape 4

```
Loading Done

R1#
R1#show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 10.4.4.4
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.16.1.16 0.0.0.15 area 0
    192.168.10.4 0.0.0.3 area 0
    192.168.10.0 0.0.0.3 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    10.1.1.1             110      00:14:57
    10.2.2.2             110      00:00:09
    10.3.3.3             110      00:14:57
    10.4.4.4             110      00:00:09
    192.168.10.9         110      00:34:36
```

apres reload router id de router est de loopback

```
R1>show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 10.1.1.1
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.16.1.16 0.0.0.15 area 0
    192.168.10.4 0.0.0.3 area 0
    192.168.10.0 0.0.0.3 area 0
```

tache 7

23

```
R1>show ip ospf neighbor


Neighbor ID     Pri   State           Dead Time   Address         Interface
10.3.3.3          0   FULL/  -        00:00:38    192.168.10.6    Serial3/0
10.2.2.2          0   FULL/  -        00:00:34    192.168.10.2    Serial2/0
```

24

```
R1>show ip protocols

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 10.1.1.1
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    172.16.1.16 0.0.0.15 area 0
    192.168.10.4 0.0.0.3 area 0
    192.168.10.0 0.0.0.3 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    10.1.1.1             110      00:03:48
    10.2.2.2             110      00:03:50
    10.3.3.3             110      00:03:48
    10.4.4.4             110      00:05:15
    192.168.10.9         110      00:45:36
    192.168.10.10        110      00:43:31
  Distance: (default is 110)
```

tache 8

25

```
R1>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.1.1.1/32 is directly connected, Loopback0
O       10.10.10.0/24 [110/65] via 192.168.10.2, 00:12:41, Serial2/0
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.1.16/28 is directly connected, FastEthernet0/0
O       172.16.1.32/29 [110/65] via 192.168.10.6, 00:12:41, Serial3/0
     192.168.10.0/30 is subnetted, 3 subnets
C       192.168.10.0 is directly connected, Serial2/0
C       192.168.10.4 is directly connected, Serial3/0
O       192.168.10.8 [110/128] via 192.168.10.6, 00:12:41, Serial3/0
                     [110/128] via 192.168.10.2, 00:12:41, Serial2/0

R1>
```

tache 9

26

```
R1>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.1.1.1/32 is directly connected, Loopback0
O       10.10.10.0/24 [110/65] via 192.168.10.2, 00:12:41, Serial2/0
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.16.1.16/28 is directly connected, FastEthernet0/0
O       172.16.1.32/29 [110/65] via 192.168.10.6, 00:12:41, Serial3/0
     192.168.10.0/30 is subnetted, 3 subnets
C       192.168.10.0 is directly connected, Serial2/0
```

cout 65

27

```
R1>show interface se2/0
Serial2/0 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 192.168.10.1/30
  MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set, keepalive set (10 sec)
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 96 kilobits/sec
  5 minute input rate 57 bits/sec, 0 packets/sec
  5 minute output rate 56 bits/sec, 0 packets/sec
     129 packets input, 9556 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     127 packets output, 8816 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 output buffer failures, 0 output buffers swapped out
 --More--
```

bw 128kbit

28

```
R1#config t
Enter configuration commands, one per
R1(config)#interface se2/0
R1(config-if)#bandwidth 64
R1(config-if)#exit
R1(config)#
```

```
R2>
R2>
R2>enable
R2#config t
Enter configuration commands,
R2(config)#interface se2/0
R2(config-if)#bandwidth 64
```

29

```
  Process ID 2, Router ID 10.2.2.2, Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 10.2.2.2, Interface address 10.10.10.1
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:08
  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 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
Serial3/0 is up, line protocol is up
  Internet address is 192.168.10.9/30, Area 0
  Process ID 2, Router ID 10.2.2.2, Network Type POINT-TO-POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:08
  Index 2/2, 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 1 , Adjacent neighbor count is 1
    Adjacent with neighbor 10.3.3.3
  Suppress hello for 0 neighbor(s)
Serial2/0 is up, line protocol is up
  Internet address is 192.168.10.2/30, Area 0
  Process ID 2, Router ID 10.2.2.2, Network Type POINT-TO-POINT, Cost: 1562
  Transmit Delay is 1 sec, State POINT-TO-POINT,
```

29

```
R3>
R3>enable
R3#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#interface se3/0
R3(config-if)#ip ospf cost 1562
R3(config-if)#exit
R3(config)#interface se2/0
R3(config-if)#ip ospf cost 1562
R3(config-if)#end
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#
```

30

```
FastEthernet0/0 is up, line protocol is up
  Internet address is 172.16.1.33/29, Area 0
  Process ID 3, Router ID 10.3.3.3, Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 10.3.3.3, Interface address 172.16.1.33
  No backup designated router on this network
  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 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
Serial2/0 is up, line protocol is up
  Internet address is 192.168.10.10/30, Area 0
  Process ID 3, Router ID 10.3.3.3, Network Type POINT-TO-POINT, Cost: 1562
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:03
  Index 2/2, 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 1 , Adjacent neighbor count is 1
    Adjacent with neighbor 10.2.2.2
  Suppress hello for 0 neighbor(s)
Serial3/0 is up, line protocol is up
  Internet address is 192.168.10.6/30, Area 0
  Process ID 3, Router ID 10.3.3.3, Network Type POINT-TO-POINT, Cost: 1562
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
```

tache 10

31

```
R1>
R1>enable
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface loopback 1

R1(config-if)#
%LINK-5-CHANGED: Interface Loopback1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback1, changed state to

R1(config-if)#ip address 170.30.1.1 255.255.255.255
R1(config-if)#exit
```

32

```
R1(config)#ip route 0.0.0.0 0.0.0.0 loopback 1
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#default-information originate
```

33

```
R1(config)#router ospf 1
R1(config-router)#default-information originate
R1(config-router)#
R1(config-router)#
```

34

```
R2#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 192.168.10.1 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.2.2.2/32 is directly connected, Loopback0
C       10.10.10.0/24 is directly connected, FastEthernet0/0
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
O       172.16.1.16/28 [110/1563] via 192.168.10.1, 00:35:06, Serial2/0
O       172.16.1.32/29 [110/65] via 192.168.10.10, 01:33:33, Serial3/0
     192.168.10.0/30 is subnetted, 3 subnets
C       192.168.10.0 is directly connected, Serial2/0
O       192.168.10.4 [110/1626] via 192.168.10.10, 00:35:06, Serial3/0
C       192.168.10.8 is directly connected, Serial3/0
O*E2 0.0.0.0/0 [110/1] via 192.168.10.1, 00:00:22, Serial2/0

R2#
```

```
R3>
R3>
R3>enable
R3#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 192.168.10.5 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.3.3.3/32 is directly connected, Loopback0
O       10.10.10.0/24 [110/1563] via 192.168.10.9, 00:37:44, Serial2/0
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
O       172.16.1.16/28 [110/1563] via 192.168.10.5, 00:38:08, Serial3/0
C       172.16.1.32/29 is directly connected, FastEthernet0/0
     192.168.10.0/30 is subnetted, 3 subnets
O       192.168.10.0 [110/3124] via 192.168.10.9, 00:37:44, Serial2/0
                     [110/3124] via 192.168.10.5, 00:37:44, Serial3/0
C       192.168.10.4 is directly connected, Serial3/0
C       192.168.10.8 is directly connected, Serial2/0
O*E2 0.0.0.0/0 [110/1] via 192.168.10.5, 00:03:24, Serial3/0
 --More--
```

scenario B

tache 1

1

Fire	Destination	Last Status	Source	Type	Color	Time(sec)	Periodic	Num	Edit	Delet
	R1_1	Successful	R1_2	ICMP		0.000	N	10	(edit)	
	R1_3	Successful	R1_6	ICMP		0.000	N	11	(edit)	
	R2_1	Successful	R2_3	ICMP		0.000	N	12	(edit)	
	R2_2	Successful	R2_5	ICMP		0.000	N	13	(edit)	

2

```
R1_1#show ip interface
FastEthernet0/0 is up, line protocol is up (connected)
  Internet address is 192.168.1.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound  access list is not set
  Proxy ARP is enabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachables are always sent
  ICMP mask replies are never sent
  IP fast switching is disabled
  IP fast switching on the same interface is disabled
```

3

```
Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 100.100.100.1
  It is an autonomous system boundary router
  Redistributing External Routes from,
  Number of areas in this router is 2. 2 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    192.168.1.0 0.0.0.255 area 1
    192.168.255.0 0.0.0.255 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    100.100.100.1         110      00:09:26
    192.168.1.2           110      00:08:40
    192.168.1.3           110      00:08:41
    192.168.1.4           110      00:08:40
    192.168.1.5           110      00:08:50
    192.168.1.6           110      00:08:50
    192.168.255.2         110      00:09:26
  Distance: (default is 110)
 --More--
```

tache 2

4

1 ere topologie

```
R1_4>enable
R1_4#show ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.1.5       1   FULL/BDR        00:00:33    192.168.1.5     FastEthernet0/0
100.100.100.1     1   2WAY/DROTHER    00:00:33    192.168.1.1     FastEthernet0/0
192.168.1.3       1   2WAY/DROTHER    00:00:33    192.168.1.3     FastEthernet0/0
192.168.1.2       1   2WAY/DROTHER    00:00:33    192.168.1.2     FastEthernet0/0
192.168.1.6       1   FULL/DR         00:00:33    192.168.1.6     FastEthernet0/0
R1_4#
```

Copy Paste

2 ere topologie

```
R2_2>
R2_2>enable
R2_2#show ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.2.4       1   2WAY/DROTHER    00:00:32    192.168.2.4     FastEthernet0/0
192.168.2.3       1   FULL/BDR        00:00:32    192.168.2.3     FastEthernet0/0
192.168.2.5       1   2WAY/DROTHER    00:00:32    192.168.2.5     FastEthernet0/0
192.168.255.2     1   FULL/DR         00:00:32    192.168.2.1     FastEthernet0/0
R2_2#
```

Copy Paste

5

```
192.168.255.2      0   FULL/  -        00:00:33    192.168.255.2    Serial
R1_1#debug ip ospf adj
OSPF adjacency events debugging is on
R1_1#
```

```
R1_6(config-if)#exit
R1_6(config)#interface FastEthernet0/0
R1_6(config-if)#shutdown
R1_6(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down
```

6

```
00:21:39: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.5 on FastEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached

00:21:39: %OSPF-5-ADJCHG: Process 1, Nbr 100.100.100.1 on FastEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached

00:21:39: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.3 on FastEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached

00:21:39: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.4 on FastEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached

00:21:39: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.2 on FastEthernet0/0 from FULL to
DOWN, Neighbor Down: Interface down or detached
```

7

```
Neighbor ID      Pri   State           Dead Time   Address         Interface
192.168.1.5        1   FULL/DR         00:00:39    192.168.1.5     FastEthernet0/0
100.100.100.1      1   2WAY/DROTHER    00:00:39    192.168.1.1     FastEthernet0/0
192.168.1.3        1   2WAY/DROTHER    00:00:39    192.168.1.3     FastEthernet0/0
192.168.1.4        1   FULL/BDR        00:00:39    192.168.1.4     FastEthernet0/0
R1_2>
```

8

```
Neighbor ID      Pri   State           Dead Time   Address         Interface
192.168.1.5        1   FULL/DR         00:00:36    192.168.1.5     FastEthernet0/0
100.100.100.1      1   2WAY/DROTHER    00:00:36    192.168.1.1     FastEthernet0/0
192.168.1.3        1   2WAY/DROTHER    00:00:36    192.168.1.3     FastEthernet0/0
192.168.1.4        1   FULL/BDR        00:00:36    192.168.1.4     FastEthernet0/0
R1_2>
```

le DR ne plus fonction alors le BDR devient un DR et les routers faisent une nouvelle selection

meme si on active le router 6 les DR et BDR reste les memes car ont pas tember enpaine

10

```
R1_5#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1_5(config)#interface FastEthernet0/0
R1_5(config-if)#shutdown
R1_5(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to dow
```

11

```
Neighbor ID     Pri   State           Dead Time   Address         Interface
100.100.100.1     1   2WAY/DROTHER    00:00:39    192.168.1.1     FastEthernet0/0
192.168.1.3       1   2WAY/DROTHER    00:00:39    192.168.1.3     FastEthernet0/0
192.168.1.4       1   FULL/DR         00:00:39    192.168.1.4     FastEthernet0/0
192.168.1.6       1   FULL/BDR        00:00:33    192.168.1.6     FastEthernet0/0
R1_2>
```

Copy Paste

quant le DR ne plus fonction on remplace le BDR par le DR
ET LES ROUTER fait une nouvele selection

```
00:27:31:        DR: 192.168.1.4 (Id)   BDR: 192.168.1.6 (Id)

R1_1#
R1_1#undebug all
All possible debugging has been turned off
R1_1#
```

Partie 2 : OSPFv3

tache 1

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ipv6 router ospf 1
%OSPFv3-4-NORTRID: OSPFv3 process 1 could not pick a router-id,please configure manually
Router(config-rtr)#
```

Copy Paste

```
Router(config-rtr)#router-id 1.1.1.1
Router(config-rtr)#
%LINK-3-UPDOWN: Interface Serial1/0, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/0, changed state to down

%LINK-5-CHANGED: Interface Serial1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/0, changed state to up
```

2

```
Router(config-rtr)#exit
Router(config)#interface Se1/0
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#interface Se1/1
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#interface Fa0/0
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#
```

```
Loading Done

Router(config-if)#interface Se1/1
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#interface Fa0/0
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#
```

Copy

```
Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ipv6 router ospf 1
Router(config-rtr)#router-id 3.3.3.3
Router(config-rtr)#exit
Router(config)#
Router(config)#interface Fa0/0
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#interface Fa1/0
%Invalid interface type and number
Router(config)#interface Fa0/1
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#interface Se1/0
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#interface Se1/
01:32:26: %OSPFv3-5-ADJCHG: Process 1, Nbr 2.2.2.2 on Serial1/0 from LOADING to FULL,
Router(config-if)#interface Se1/1
Router(config-if)#ipv6 ospf 1 area 100
Router(config-if)#
01:32:47: %OSPFv3-5-ADJCHG: Process 1, Nbr 1.1.1.1 on Serial1/1 from LOADING to FULL,
Loading Done
```

Copy Paste

3

```
Router# show ipv6 route
IPv6 Routing Table - 11 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
C   2001:DB8:1:10::/64 [0/0]
     via FastEthernet0/0, directly connected
L   2001:DB8:1:10::1/128 [0/0]
     via FastEthernet0/0, receive
O   2001:DB8:1:20::/64 [110/65]
     via FE80::20A:41FF:FED8:3001, Serial1/0
O   2001:DB8:1:30::/64 [110/65]
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
C   2001:DB8:1:100::/64 [0/0]
     via Serial1/0, directly connected
L   2001:DB8:1:100::1/128 [0/0]
     via Serial1/0, receive
O   2001:DB8:1:200::/64 [110/128]
     via FE80::20A:41FF:FED8:3001, Serial1/0
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
O   2001:DB8:2:100::/64 [110/65]
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
C   2011:DB8:1:300::/64 [0/0]
     via Serial1/1, directly connected
L   2011:DB8:1:300::1/128 [0/0]
     via Serial1/1, receive
L   FF00::/8 [0/0]
     via Null0, receive
Router#
Router#
```

tache 3

1

```
Router# show ipv6 protocols
IPv6 Routing Protocol is "connected"
IPv6 Routing Protocol is "ND"
IPv6 Routing Protocol is "ospf 1"
  Interfaces (Area 100)
    Serial1/0
    Serial1/1
    FastEthernet0/0
  Redistribution:
    None

Router#
```

2

```
Router#debug ipv6 ospf events
OSPFv3 events debugging is on
Router#
01:41:07: OSPF: Rcv hello from 2.2.2.2 area 100 from Serial1/0 FE80::20A:41FF:FED8:3001

01:41:15: OSPF: Rcv hello from 3.3.3.3 area 100 from Serial1/1 FE80::201:C7FF:FEAB:AC01

Router#
01:41:17: OSPF: Rcv hello from 2.2.2.2 area 100 from Serial1/0 FE80::20A:41FF:FED8:3001
```

Copy Paste

```
Router#debug ipv6 ospf events
OSPFv3 events debugging is on
Router#
01:42:07: OSPF: Rcv hello from 3.3.3.3 area 100 from Serial1/1 FE80::201:C7FF:FEAB:AC01

01:42:11: OSPF: Rcv hello from 1.1.1.1 area 100 from Serial1/0 FE80::200:CFF:FEBD:8601
```

Copy Paste

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

Copy

4

```
Router#show ipv6 route
IPv6 Routing Table - 11 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
C   2001:DB8:1:10::/64 [0/0]
     via FastEthernet0/0, directly connected
L   2001:DB8:1:10::1/128 [0/0]
     via FastEthernet0/0, receive
O   2001:DB8:1:20::/64 [110/65]
     via FE80::20A:41FF:FED8:3001, Serial1/0
O   2001:DB8:1:30::/64 [110/65]
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
C   2001:DB8:1:100::/64 [0/0]
     via Serial1/0, directly connected
L   2001:DB8:1:100::1/128 [0/0]
     via Serial1/0, receive
```

5

```
Router#show ipv6 route
IPv6 Routing Table - 11 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
C   2001:DB8:1:10::/64 [0/0]
     via FastEthernet0/0, directly connected
L   2001:DB8:1:10::1/128 [0/0]
     via FastEthernet0/0, receive
O   2001:DB8:1:20::/64 [110/65]
     via FE80::20A:41FF:FED8:3001, Serial1/0
O   2001:DB8:1:30::/64 [110/65]
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
C   2001:DB8:1:100::/64 [0/0]
     via Serial1/0, directly connected
L   2001:DB8:1:100::1/128 [0/0]
     via Serial1/0, receive
O   2001:DB8:1:200::/64 [110/128]
```

7

```
Router#
Router#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
Router#
```

Tâche 5

```
Router>enable
Router#show ipv6 route
IPv6 Routing Table - 5 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
C   2001:DB8:2:100::/64 [0/0]
     via FastEthernet0/1, directly connected
L   2001:DB8:2:100::2/128 [0/0]
     via FastEthernet0/1, receive
C   2011:DB8:2:200::/64 [0/0]
     via FastEthernet0/0, directly connected
L   2011:DB8:2:200::1/128 [0/0]
     via FastEthernet0/0, receive
L   FF00::/8 [0/0]
     via Null0, receive
Router#
```

```
Router(config)#ipv6 route 2001:db8:1::/48 FastEthernet0/1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ipv6 route
IPv6 Routing Table - 6 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
S   2001:DB8:1::/48 [1/0]
     via FastEthernet0/1, directly connected
C   2001:DB8:2:100::/64 [0/0]
     via FastEthernet0/1, directly connected
L   2001:DB8:2:100::2/128 [0/0]
     via FastEthernet0/1, receive
C   2011:DB8:2:200::/64 [0/0]
     via FastEthernet0/0, directly connected
L   2011:DB8:2:200::1/128 [0/0]
     via FastEthernet0/0, receive
L   FF00::/8 [0/0]
     via Null0, receive
Router#
```

Tâche 6

```
Router#
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ipv6 route ::/0 Fa0/0
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ipv6 route
IPv6 Routing Table - 13 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
S   ::/0 [1/0]
     via FastEthernet0/0, directly connected
O   2001:DB8:1:10::/64 [110/65]
     via FE80::200:CFF:FEBD:8601, Serial1/1
O   2001:DB8:1:20::/64 [110/65]
     via FE80::20A:41FF:FED8:3001, Serial1/0
C   2001:DB8:1:30::/64 [0/0]
     via FastEthernet0/1, directly connected
L   2001:DB8:1:30::1/128 [0/0]
     via FastEthernet0/1, receive
O   2001:DB8:1:100::/64 [110/128]
     via FE80::20A:41FF:FED8:3001, Serial1/0
     via FE80::200:CFF:FEBD:8601, Serial1/1
C   2001:DB8:1:200::/64 [0/0]
 --More--
```

```
Router>enable
Router#show ipv6 route
IPv6 Routing Table - 12 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route, M - MIPv6
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary
       ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
       ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
       D - EIGRP, EX - EIGRP external
OE2 ::/0 [110/1]
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
C   2001:DB8:1:10::/64 [0/0]
     via FastEthernet0/0, directly connected
L   2001:DB8:1:10::1/128 [0/0]
     via FastEthernet0/0, receive
O   2001:DB8:1:20::/64 [110/65]
     via FE80::20A:41FF:FED8:3001, Serial1/0
O   2001:DB8:1:30::/64 [110/65]
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
C   2001:DB8:1:100::/64 [0/0]
     via Serial1/0, directly connected
L   2001:DB8:1:100::1/128 [0/0]
     via Serial1/0, receive
O   2001:DB8:1:200::/64 [110/128]
     via FE80::20A:41FF:FED8:3001, Serial1/0
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
O   2001:DB8:2:100::/64 [110/65]
     via FE80::201:C7FF:FEAB:AC01, Serial1/1
C   2011:DB8:1:300::/64 [0/0]
```

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ipv6 router ospf 1
Router(config-rtr)#default-information originat
Router(config-rtr)#
```