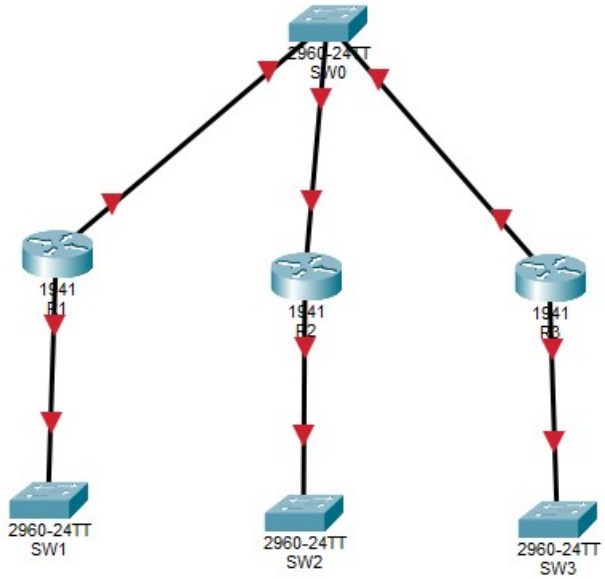
SOMMAIRE

1. Fonctionnement d'OSPF....2
a. Paquet Hello....9
Examen des paramètres OSPF par défaut....10
Vérification des paramètres de protocole OSPF....11

1. Fonctionnement d’OSPF

Je fais la topologie comme indiqué sur le shéma



Configuration de R1 :

Je désactive la recherche DNS

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#
```

J'attribue un mot de passe pour le mode privilégié

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#enable secret class
Router(config)#
```

Je change le nom du Routeur

```
Router(config)#hostname R1
R1(config)#
```

Je mets une bannière MOTD

```
R1(config)#banner motd #Configuration modifiee#
R1(config)#
```

J'attribue un mot de passe pour vty

```
R1(config)#line vty 0 4
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#exec-timeout 5 0
R1(config-line)#logging synchronous
R1(config-line)#exit
R1(config)#
```

Configuration de l'interface F0/0

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int f0/0
R1(config-if)#ip address 192.168.10.254 255.255.255.0
```

Configuration de l'interface F0/1

```
R1(config-if)#int f0/1
R1(config-if)#ip address 19.16.2.1 255.255.255.248
```

```
R1#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.10.254  YES NVRAM  up                    up
FastEthernet0/1        19.16.2.1       YES NVRAM  up                    up
Serial0/0/0            unassigned      YES NVRAM  administratively down down
Serial0/0/1            unassigned      YES NVRAM  administratively down down
Vlan1                  unassigned      YES NVRAM  administratively down down
R1#
```

Configuration de R2 :

Je désactive la recherche DNS

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#
```

J'attribue un mot de passe pour le mode privilégié

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#enable secret class
Router(config)#
```

Je modifie le nom du routeur en mettant R2

```
Router(config)#hostname R2
R2(config)#
```

J'attribue un mot de passe pour vty

```
R2(config)#line vty 0 4
R2(config-line)#password cisco
R2(config-line)#login
R2(config-line)#exec-timeout 5 0
R2(config-line)#exit
R2(config)#
```

Configuration de l'interface f0/0

```
R2(config-if)#int f0/0
R2(config-if)#ip address 192.168.30.254 255.255.255.0
```

Configuration de l'interface f0/1

```
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int f0/1
R2(config-if)#ip address 19.16.2.2 255.255.255.248
```

```
R2#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.20.254  YES NVRAM  up                    up
FastEthernet0/1        19.16.2.2       YES NVRAM  up                    up
Serial0/0/0            unassigned      YES NVRAM  administratively down down
Serial0/0/1            unassigned      YES NVRAM  administratively down down
Vlan1                  unassigned      YES NVRAM  administratively down down
R2#
```

Configuration de R3 :

Je désactive la recherche DNS

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#
```

J'attribue un mot de passe pour le mode privilégié

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#enable secret class
Router(config)#
```

Je change le nom du routeur en mettant R3

```
Router(config)#hostname R3
R3(config)#
```

J'attribue un mot de passe pour vty

```
R3(config)#line vty 0 4
R3(config-line)#password cisco
R3(config-line)#login
R3(config-line)#exec-timeout 5 0
R3(config-line)#exit
R3(config)#
```

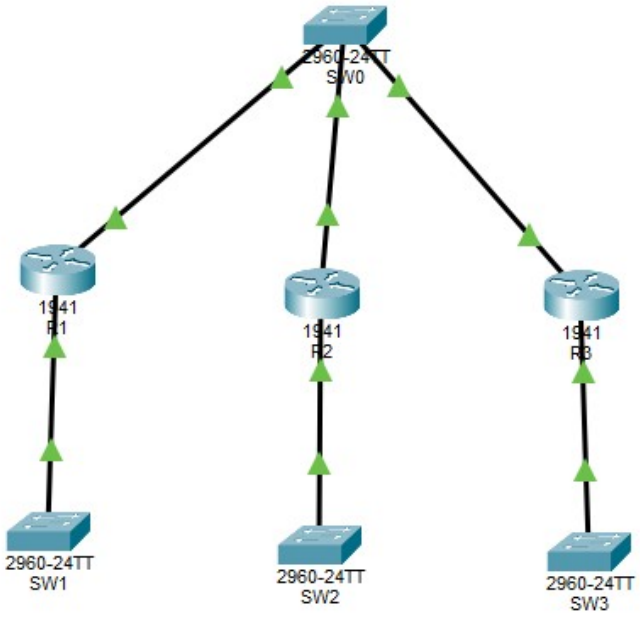
Configuration de l'interface f0/1

```
R3(config)#int f0/1
R3(config-if)#ip address 19.16.2.3 255.255.255.248
```

Configuration de l’interface f0/0

```
R3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#int f0/0
R3(config-if)#ip address 192.168.30.254 255.255.255.0
```

```
R3#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.30.254  YES manual up                    up
FastEthernet0/1        19.16.2.3       YES NVRAM  up                    up
Serial0/0/0            unassigned      YES NVRAM  administratively down down
Serial0/0/1            unassigned      YES NVRAM  administratively down down
Vlan1                  unassigned      YES NVRAM  administratively down down
R3#
```



a. Paquet Hello

J'active OSPF sur R1

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#router ospf 1
R1(config-router)#network 19.16.2.0 0.0.0.7 area 0
R1(config-router)#network 192.166.10.0 0.0.0.255 area 0
R1(config-router)#passive-interface f0/0
R1(config-router)#
```

J'active OSPF sur R2

```
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#router ospf 1
R2(config-router)#network 19.16.2.0 0.0.0.7 area 0
R2(config-router)#network 192.168.20.0 0.0.0.255 area 0
R2(config-router)#passive-interface f0/0
R2(config-router)#
```

J'active OSPF sur R3

```
R3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#router ospf 1
R3(config-router)#network 19.16.2.0 0.0.0.7 area 0
R3(config-router)#network 192.168.30.0 0.0.0.255 area 0
R3(config-router)#passive-interface f0/0
R3(config-router)#
```

Examen des paramètres OSPF par défaut

Je mets la priorité du routeur R3 à 0

```
R3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#int f0/1
R3(config-if)#ip ospf priority 0
R3(config-if)#
```

Sur R1 je tape la commande sh ip protocols

```
R1#sh 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 192.168.10.254
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    19.16.2.0 0.0.0.7 area 0
    192.168.10.0 0.0.0.255 area 0
  Passive Interface(s):
    GigabitEthernet0/1
  Routing Information Sources:
    Gateway         Distance      Last Update
    192.168.10.254       110      00:06:09
    192.168.20.254       110      00:05:43
    192.168.30.254       110      00:03:18
  Distance: (default is 110)

R1#
```

Vérification des paramètres de protocole OSPF

```
  FastEthernet0/1 is up, line protocol is up
    Internet address is 19.16.2.1/29, Area 0
    Process ID 1, Router ID 192.168.10.254, Network Type BROADCAST, Cost: 1
    Transmit Delay is 1 sec, State BDR, Priority 1
    Designated Router (ID) 192.168.20.254, Interface address 19.16.2.2
    Backup Designated Router (ID) 192.168.10.254, Interface address 19.16.2.1
    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 2, Adjacent neighbor count is 2
      Adjacent with neighbor 192.168.20.254  (Designated Router)
      Adjacent with neighbor 192.168.30.254
    Suppress hello for 0 neighbor(s)
  R1#
```

Je tape la commande sh ip route

```
R1#sh 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

     19.0.0.0/29 is subnetted, 1 subnets
C       19.16.2.0 is directly connected, FastEthernet0/1
C    192.168.10.0/24 is directly connected, FastEthernet0/0
O    192.168.20.0/24 [110/2] via 19.16.2.2, 00:03:19, FastEthernet0/1
O    192.168.30.0/24 [110/2] via 19.16.2.3, 00:03:19, FastEthernet0/1

R1#
```

je tape la commande sh ip route 192.168.30.0

```
R1#sh ip route 192.168.30.0
Routing entry for 192.168.30.0/24
Known via "ospf 1", distance 110, metric 2, type intra area
  Last update from 19.16.2.3 on FastEthernet0/1, 00:04:14 ago
  Routing Descriptor Blocks:
  * 19.16.2.3, from 192.168.30.254, 00:04:14 ago, via FastEthernet0/1
      Route metric is 2, traffic share count is 1

R1#
```

Les voisins de R1

```
R1#sh ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.20.254    1   FULL/DR         00:00:36    19.16.2.2       FastEthernet0/1
192.168.30.254    0   FULL/DROTHER    00:00:38    19.16.2.3       FastEthernet0/1
R1#
```

Les voisins de R2

```
R2#sh ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.10.254    1   FULL/BDR        00:00:31    19.16.2.1       FastEthernet0/1
192.168.30.254    0   FULL/DROTHER    00:00:31    19.16.2.3       FastEthernet0/1
R2#
```

Les voisins de R3

```
R3#sh ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
192.168.20.254    1   FULL/DR         00:00:31    19.16.2.2       FastEthernet0/1
192.168.10.254    1   FULL/BDR        00:00:32    19.16.2.1       FastEthernet0/1
R3#
```