



EXEMPLES DE CONFIGURATION

Des Routeurs BDCOM

Configuration Routage statique

Rappel: Configuration d'une route par défaut :

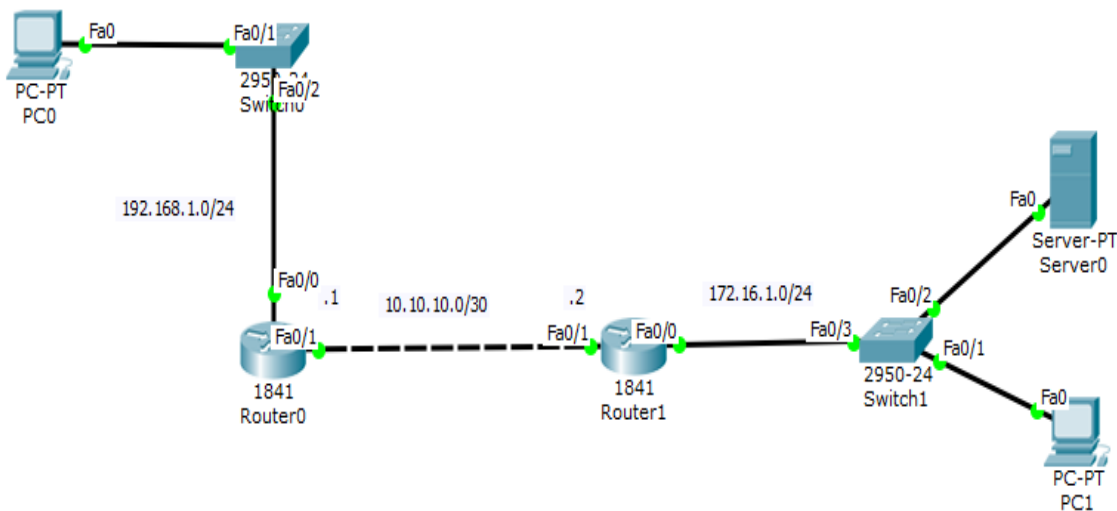
La passerelle par défaut dans l'exemple suivant est : 192.168.0.1

```
R1(config)#ip route 0.0.0.0 0.0.0.0 192.168.0.1
```

Suppression de la route par défaut :

```
R1(config)#no ip route 0.0.0.0 0.0.0.0 192.168.0.1
```

Exemple de configuration

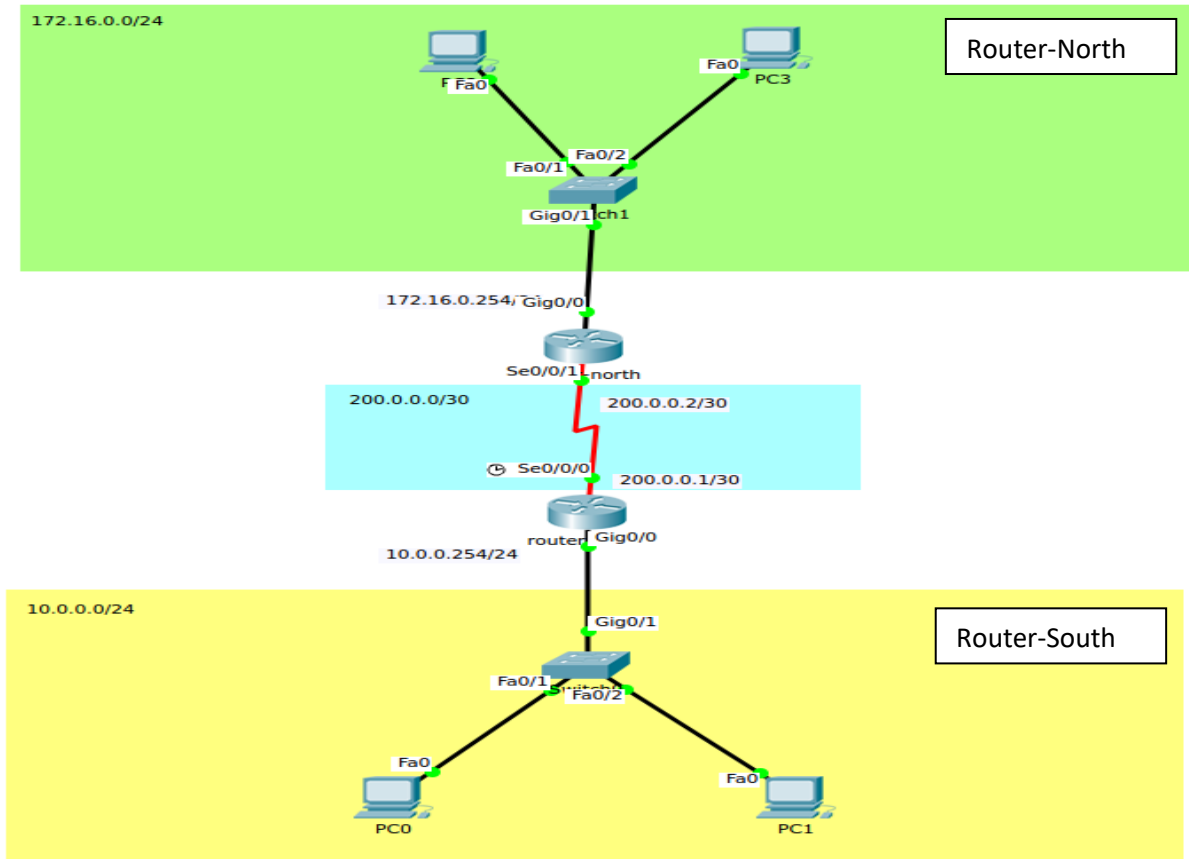


```
Router 1 (config)#ip route 192.168.1.0 255.255.255.0 10.10.10.1
```

Configuration Routage dynamique RIP

Configuration :

Considérant le schéma suivant, en vert le réseau 172.16.0.0/24, en jaune le réseau 10.0.0.0/24 et en bleu le réseau 200.0.0.0/30 permettant aux router de communiquer entre eux.
Les interfaces des clients (ici PC0 à PC3) ont des IP statiques.



I- Configuration des interfaces

1. Configuration du router-south

```
Router>enable
Router#configure
Router(config)#hostname router-south
router-south(config)#interface gigabitEthernet 0/0
router-south(config-if)#ip address 10.0.0.254 255.255.255.0
router-south(config-if)#no shutdown
router-south(config-if)#exit
router-south(config)#interface serial 0/0/0
```

```
router-south(config-if)#ip address 200.0.0.1 255.255.255.252
router-south(config-if)#no shutdown
router-south(config-if)#exit
```

2. Configuration du router-north :

```
Router>enable
Router# configure
Router(config)#hostname router-south
router-north(config)#interface gigabitEthernet 0/0
router-north(config-if)#ip address 172.16.0.254 255.255.255.0
router-north(config-if)#no shutdown
router-north(config-if)#exit
router-north(config)#interface serial 0/0/0
router-north(config-if)#ip address 200.0.0.2 255.255.255.252
router-north(config-if)#no shutdown
router-north(config-if)#exit
```

II- Configuration de RIP v2

1. Sur le router-south :

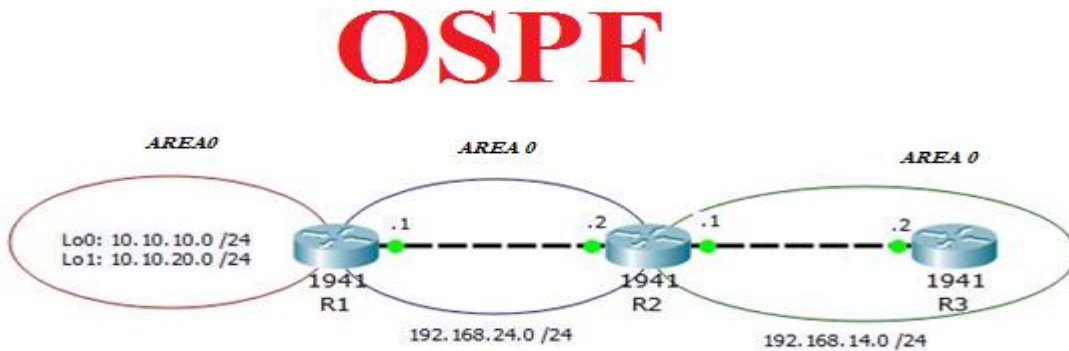
```
router-south(config)# interface serial 0/0/0
router-south(conf-if)# ip rip 2 enable
router-south(conf-if)# router rip 2
router-south(conf-if)# version 2
router-south(conf-if)# no auto-summary
```

2. Sur le router-north :

```
router-north(config) : interface serial 0/0/0
router-north(config-if)# ip rip 2 enable
router-north(config-if)# router rip 2
router-north(config-if)# version 2
router-north(config-if)# no auto-summary
```

ROUTAGE DYNAMIQUE OSPF

Configuration :



Sur R1

Les actions que nous mènerons sur ce routeur sont les suivantes :

- Configuration des interfaces
- Activation du protocole de routage OSPF

```
Router>enable
Router#configure
Router(config)#hostname R1
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#ip address 192.168.24.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#interface loopback 0
R1(config-if)#ip address 10.10.10.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#interface loopback 1
R1(config-if)#ip address 10.10.20.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
```

Configuration OSPF

```
R1(config)#router ospf 1
R1(config-router)#network 10.10.10.0 255.255.255.0 area 0
R1(config-router)#network 10.10.20.0 255.255.255.0 area 0
R1(config-router)#network 192.168.24.0 255.255.255.0 area 0
R1(config-router)# exit
R1(config)#
```

Sur R2

Les actions que nous mènerons sur ce routeur sont les suivantes :

Configuration des interfaces

Activation du protocole de routage OSPF.

```
Router>enable
Router#configure
Router(config)#hostname R2
R2(config)#interface gigabitEthernet 0/0
R2(config-if)#ip address 192.168.24.2 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#interface gigabitEthernet 0/1
R2(config-if)#ip address 192.168.14.1 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#exit
```

Configuration OSPF

```
R2(config)#router ospf 1
R2(config-router)#network 192.168.24.0 255.255.255.0 area 0
R2(config-router)#network 192.168.14.0 255.255.255.0 area 0
R2(config-router)# exit
R2(config)#
```

Sur R3

Les actions que nous mènerons sur ce routeur sont les suivantes :

Configuration des interfaces

Activation du protocole de routage OSPF :

```
Router>enable
Router#configure
Router(config)#hostname R3
```

```
R3(config)#interface gigabitEthernet 0/1
R3(config-if)#ip address 192.168.14.2 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#exit
```

Configuration OSPF

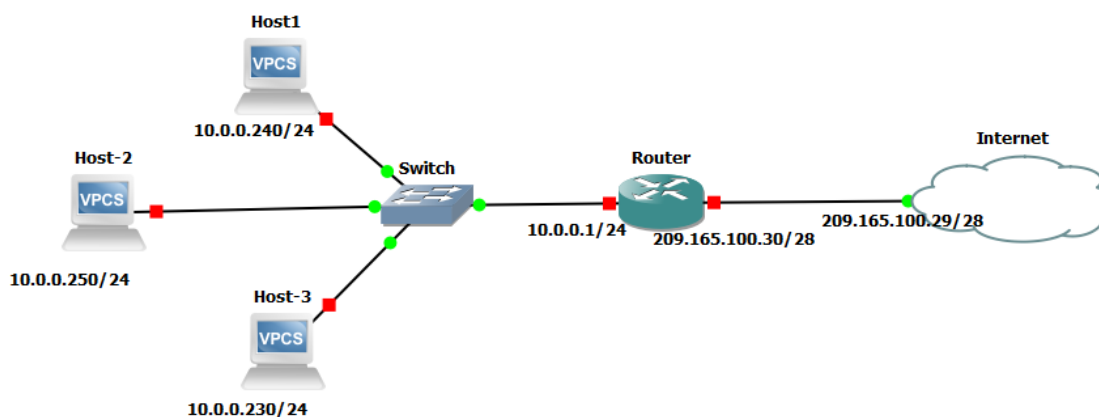
```
R3(config)#router ospf 1
R3(config-router)#network 192.168.14.0 255.255.255.0 area 0
R3(config-router)# exit
R3(config)#
```

Routage dynamique NAT

Configuration NAT :

A- Le NAT Statique : Le NAT Statique permet de traduire/transformer une adresse IP par une autre adresse IP.

Topology



Configuration :

Goal 1: 10.0.0.240 will be translate by IP address 209.165.100.30

```
Router_config#show running-config
```

Building configuration...

!

interface GigaEthernet0/0

ip address 209.165.100.30 255.255.255.240

no ip directed-broadcast

ip nat outside

ip http firewalltype 0

!

interface GigaEthernet0/1

ip address 10.0.0.1 255.255.255.0

no ip directed-broadcast

ip nat inside

ip http firewalltype 0

!

ip route cache

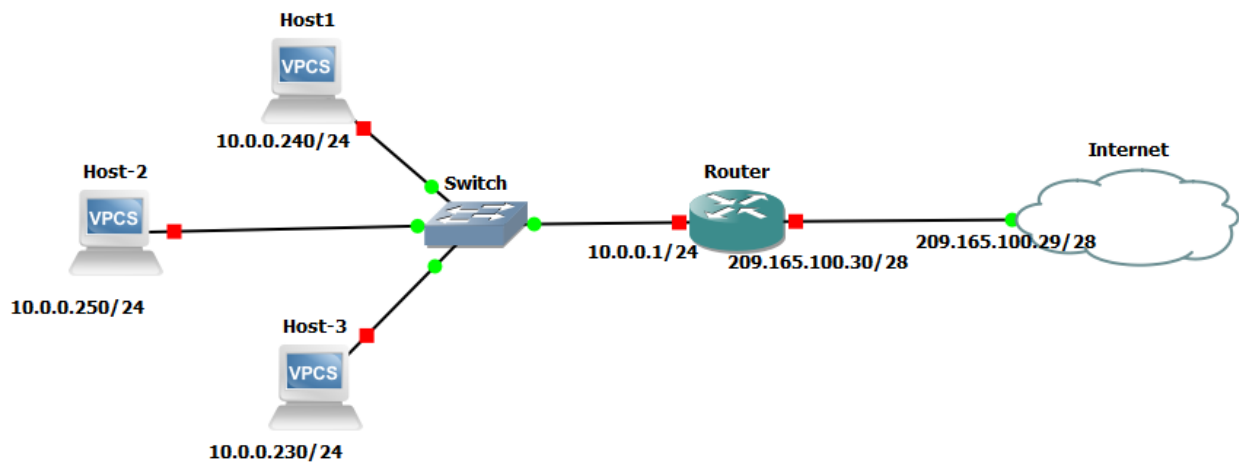
ip route default 209.165.100.29

!

ip nat inside source static 10.0.0.240 209.165.100.30

B- Le NAT Dynamique : Le NAT Dynamique permet de traduire plusieurs adresses IP par un pool d'adresses.

Topology



Configuration

Goal 2: 10.0.0.0/24 will be translating by IP address 209.165.100.30

```
Router_config# show running-config
```

```
Building configuration...
```

```
!
```

```
interface GigaEthernet0/0
```

```
ip address 209.165.100.30 255.255.255.240
```

```
no ip directed-broadcast
```

```
ip nat outside
```

```
ip http firewalltype 0
```

```
!
```

```
interface GigaEthernet0/1
```

```
ip address 10.0.0.1 255.255.255.0
```

```
no ip directed-broadcast
```

```
ip nat inside
```

```
ip http firewalltype 0
```

```
!
```

ip route cache

ip route default 209.165.100.29

!

ip access-list standard nat

permit any sequence 10

!

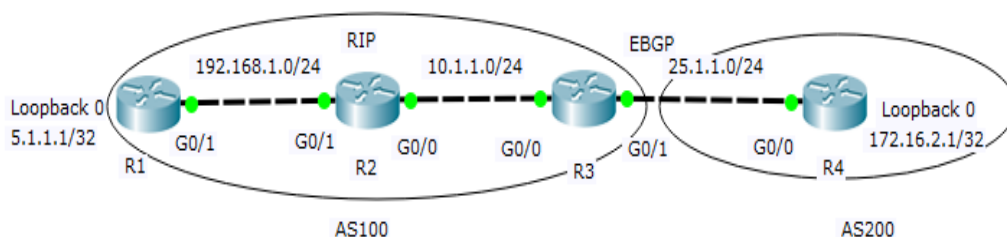
ip nat inside source list nat interface GigaEthernet0/0

Routing dynamique BGP

- Protocole de routage BGP (Border Gateway Protocol) :

Border Gateway Protocol (**BGP**) est un protocole d'échange de route externe (un EGP), utilisé notamment sur le réseau Internet. Son objectif principal est d'échanger des informations de routage et d'accessibilité de réseaux (appelés préfixes) entre Autonomous Systems (AS).

1. Topologie



2. Configuration :

Configuration

(1) R1

```
R1#show run
Building configuration...
Current configuration:
!
hostname R1
interface Loopback0
```

```
ip address 5.1.1.1 255.255.255.0
no ip directed-broadcast
ip rip 2 enable
!
interface GigaEthernet0/1
ip address 192.168.1.1 255.255.255.0
no ip directed-broadcast
ip rip 2 enable
ip http firewalltype 0
!
router rip 2
version 2
no auto-summary
```

(2) R2

```
R2#show run
Building configuration...
Current configuration:
!
hostname R2
interface GigaEthernet0/0
ip address 10.1.1.1 255.255.255.0
no ip directed-broadcast
ip rip 1 enable
ip http firewalltype 0
!
interface GigaEthernet0/1
ip address 192.168.1.2 255.255.255.0
no ip directed-broadcast
ip rip 1 enable
ip http firewalltype 0
!
interface GigaEthernet0/2
no ip address
no ip directed-broadcast
ip rip 1 enable
ip http firewalltype 0
!
!
router rip 1
version 2
no auto-summary
```

(3) R3

```
R3#show run
Building configuration...
```

Current configuration:

```
!  
hostname R3  
interface GigaEthernet0/0  
ip address 10.1.1.2 255.255.255.0  
no ip directed-broadcast  
ip rip 1 enable  
ip http firewalltype 0  
!  
interface GigaEthernet0/1  
ip address 25.1.1.1 255.255.255.0  
no ip directed-broadcast  
ip http firewalltype 0  
router rip 1  
version 2  
no auto-summary  
redistribute bgp 100  
redistribute connect  
!  
router bgp 100  
no synchronization  
bgp log-neighbor-changes  
network 10.1.1.0/24  
network 25.1.1.0/24  
redistribute connected  
redistribute rip 1  
neighbor 25.1.1.2 remote-as 200
```

(4) R4

```
R4#show run  
Building configuration...  
Current configuration:  
!  
hostname R4  
interface Loopback0  
ip address 172.16.2.1 255.255.255.0
```

```

no ip directed-broadcast
!
interface GigaEthernet0/0
ip address 25.1.1.2 255.255.255.0
no ip directed-broadcast
ip http firewalltype 0
!
router bgp 200
no synchronization
bgp log-neighbor-changes
network 25.1.1.0/24
network 172.16.2.0/24
redistribute connected
neighbor 25.1.1.1 remote-as 100

```

```

R3#show ip bgp neighbors
BGP neighbor is 25.1.1.2, remote AS 200, local AS 100, external link
  BGP version 4, remote router ID 172.16.2.1
  BGP state = Established, up for 18:02:29
  Last read 1d21h05m, hold time is 90, keepalive interval is 30 seconds
  wait EOR:none
  Sync time 15:39:44
  Neighbor capabilities:
    Four-octet AS: advertised and received
    Route refresh: advertised and received (old and new)
    Address family IPv4 Unicast: advertised and received
  Received 5171 messages, 4 notifications, 0 in queue
  Sent 5217 messages, 2 notifications, 0 in queue
  Route refresh request: received 0, sent 0
  Minimum time between advertisement runs is 30 seconds

For address family: IPv4 Unicast
  36 sended prefixes, 2 accepted prefixes

  Connections established 10; dropped 9
  Last reset 18:02:34, due to BGP Notification received
  Local host: 25.1.1.1, Local port: 179
  Foreign host: 25.1.1.2, Foreign port: 20301
  Nexthop: 25.1.1.1
  Nexthop global: ::ffff:25.1.1.1
  Nexthop local: ::
  BGP connection: non shared network
  Read thread: on  write thread: off

```

[1] R1

```

R1#show ip rout
route          -- Show route table
R1#show ip route
Codes: C - connected, S - static, R - RIP, B - BGP, BC - BGP connected
       D - BEIGRP, DEX - external BEIGRP, O - OSPF, OIA - OSPF inter area
       ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2
       OE1 - OSPF external type 1, OE2 - OSPF external type 2, L - Local
       DHCP - DHCP type, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - ISIS inter-level, I - IPSEC type

VRF ID: 0

C       5.1.1.0/24          is directly connected, Loopback0
R       10.1.1.0/24         [120,1] via 192.168.1.2(on GigaEthernet0/1)
R       25.1.1.0/24         [120,2] via 192.168.1.2(on GigaEthernet0/1)
R       172.16.2.0/24       [120,2] via 192.168.1.2(on GigaEthernet0/1)
C       192.168.1.0/24      is directly connected, GigaEthernet0/1

```

[2] R2

```
R2#show ip route
Codes: C - connected, S - static, R - RIP, B - BGP, BC - BGP connected
       D - BEIGRP, DEX - external BEIGRP, O - OSPF, OIA - OSPF inter area
       ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2
       OE1 - OSPF external type 1, OE2 - OSPF external type 2, L - Local
       DHCP - DHCP type, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - ISIS inter-level, I - IPSEC type

VRF ID: 0

R    5.1.1.0/24          [120,1] via 192.168.1.1(on GigaEthernet0/1)
C    10.1.1.0/24         is directly connected, GigaEthernet0/0
R    25.1.1.0/24         [120,1] via 10.1.1.2(on GigaEthernet0/0)
R    172.16.2.0/24      [120,1] via 10.1.1.2(on GigaEthernet0/0)
C    _ 192.168.1.0/24   is directly connected, GigaEthernet0/1
```

[3] R3

```
R3#show ip route
Codes: C - connected, S - static, R - RIP, B - BGP, BC - BGP connected
       D - BEIGRP, DEX - external BEIGRP, O - OSPF, OIA - OSPF inter area
       ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2
       OE1 - OSPF external type 1, OE2 - OSPF external type 2, L - Local
       DHCP - DHCP type, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - ISIS inter-level, I - IPSEC type

VRF ID: 0

R    5.1.1.0/24          [120,2] via 10.1.1.1(on GigaEthernet0/0)
C    10.1.1.0/24         is directly connected, GigaEthernet0/0
C    25.1.1.0/24         is directly connected, GigaEthernet0/1
B    172.16.2.0/24      [20,0] via 25.1.1.2
R    _ 192.168.1.0/24   [120,1] via 10.1.1.1(on GigaEthernet0/0)
```

[4] R4

```
R4#show ip route
Codes: C - connected, S - static, R - RIP, B - BGP, BC - BGP connected
       D - BEIGRP, DEX - external BEIGRP, O - OSPF, OIA - OSPF inter area
       ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2
       OE1 - OSPF external type 1, OE2 - OSPF external type 2, L - Local
       DHCP - DHCP type, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - ISIS inter-level, I - IPSEC type

VRF ID: 0

B    5.1.1.0/24          [20,2] via 25.1.1.1
B    10.1.1.0/24         [20,0] via 25.1.1.1
C    25.1.1.0/24         is directly connected, GigaEthernet0/0
C    172.16.2.0/24      is directly connected, Loopback0
B    192.168.1.0/24     [20,1] via 25.1.1.1
```