

Configurez redistribuer les routes BGP internes dans l'IGP

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Introduction

Ce document décrit comment redistribuer des artères de l'Internal Border Gateway Protocol (BGP) dans le processus de Protocole OSPF (Open Shortest Path First). Comme dans l'autre Protocole IGP (Interior Gateway Protocol) à la redistribution d'IGP, le comportement est différent quand BGP interne (IBGP) est redistribué dans l'OSPF. Des routes acquises IBGP ne sont pas expédiées à un protocole de routage d'IGP par la commande de redistribuer. [Le BGP de](#) commande d'utilisation redistribuent-internalunder le processus BGP sur le routeur redistribuant.

Conditions préalables

Exigences

Cisco recommande que vous ayez la connaissance de la configuration BGP et de la compréhension de base des protocoles de routage – Protocole EIGRP (Enhanced Interior Gateway Routing Protocol) BGP, OSPF et Protocole RIP (Routing Information Protocol).

Le pour en savoir plus, se rapportent à des [études de cas de BGP](#) et [BGP de configurer](#).

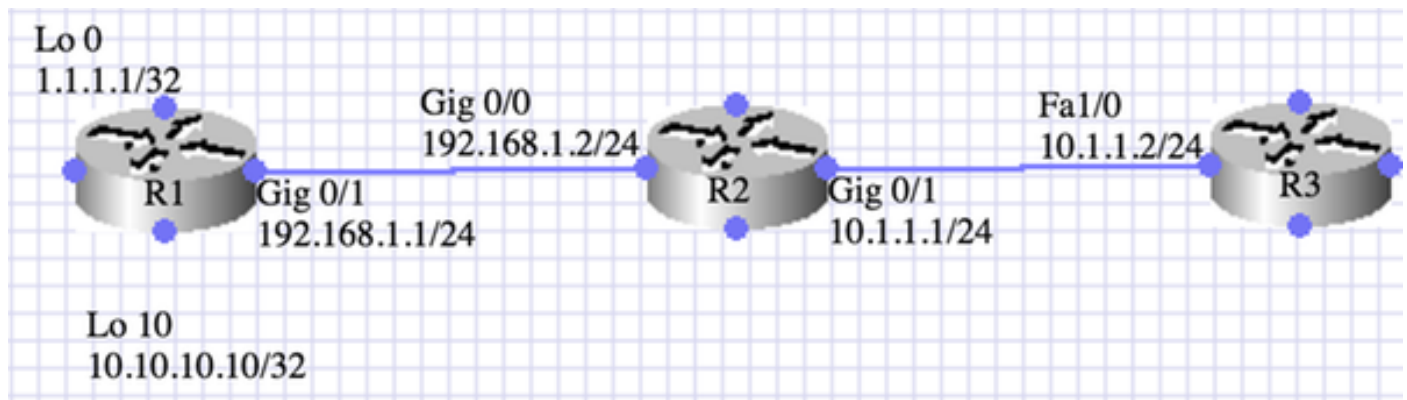
[Composants utilisés](#)

Les informations dans ce document sont basées sur la version de logiciel 15.1(4)M5 de Cisco IOS®

Les informations contenues dans ce document ont été créées à partir des périphériques d'un environnement de laboratoire spécifique. Tous les périphériques utilisés dans ce document ont démarré avec une configuration effacée (par défaut). Si votre réseau est opérationnel, assurez-vous que vous comprenez l'effet potentiel de toute commande.

Configurer

[Diagramme du réseau](#)



Configurations

OSPF

Configurez l'OSPF entre R2 et R3

Dans le scénario représenté ici, le routeur R1 et les R2 exécutent IBGP et routeur que R2/R3 exécutant la zone 0. R1 OSPF annonce deux artères (1.1.1.1 /32 et 10.10.10.10/32) par la commande réseau.

R2 redistribue le BGP dans la zone 0 OSPF. On l'exige pour redistribuer les routes internes sélectionnées (10.10.10.10/32).

La tâche est réalisée en se servant du prefix-list et du route-map.

R1

```
interface Loopback0
ip address 1.1.1.1 255.255.255.255
!
interface Loopback10
ip address 10.10.10.10 255.255.255.255
!
interface GigabitEthernet0/1
ip address 192.168.1.1 255.255.255.0
duplex auto
speed auto
!
router bgp 10
no synchronization
bgp router-id 1.1.1.1
bgp log-neighbor-changes
```

```
network 1.1.1.1 mask 255.255.255.255
network 10.10.10.10 mask 255.255.255.255
neighbor 192.168.1.2 remote-as 100
no auto-summary
```

```
R1#show ip bgp summary
```

```
BGP router identifier 10.10.10.10, local AS number 10
BGP table version is 3, main routing table version 3
2 network entries using 296 bytes of memory
2 path entries using 128 bytes of memory
1/1 BGP path/bestpath attribute entries using 136 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 560 total bytes of memory
BGP activity 2/0 prefixes, 2/0 paths, scan interval 60 secs
Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd
192.168.1.2 4 10 6 7 3 0 0 00:03:10 0
```

R2

```
interface Loopback0
ip address 2.2.2.2 255.255.255.255
!
interface GigabitEthernet0/0
ip address 192.168.1.2 255.255.255.0
duplex auto
speed auto
!
interface GigabitEthernet0/1
ip address 10.1.1.1 255.255.255.0
duplex auto
speed auto
!
```

```
router ospf 1
router-id 2.2.2.2
log-adjacency-changes
redistribute bgp 100 metric 100 metric-type 1 subnets route-map BGP-To_OSPF
network 10.1.1.1 0.0.0.0 area 0
```

```
R2#show ip ospf neighbor
Neighbor ID Pri State Dead Time Address Interface
3.3.3.3 1 FULL/BDR 00:00:38 10.1.1.2 GigabitEthernet0/1
```

```
router bgp 10
no synchronization
bgp router-id 2.2.2.2
bgp log-neighbor-changes
bgp redistribute-internal
neighbor 192.168.12.1 remote-as 10
no auto-summary
!
ip prefix-list BGP-to-ospf seq 5 permit 172.16.0.0/16
!
route-map BGP-To_OSPF permit 10
match ip address prefix-list BGP-to-ospf
```

```
R2#show ip bgp summary
BGP router identifier 192.168.1.2, local AS number 10
BGP table version is 3, main routing table version 3
2 network entries using 272 bytes of memory
2 path entries using 112 bytes of memory
1/1 BGP path/bestpath attribute entries using 128 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 512 total bytes of memory
BGP activity 2/0 prefixes, 2/0 paths, scan interval 60 secs
Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd
192.168.1.1 4 10 8 7 3 0 0 00:03:52 2
```

```
R2#show ip bgp
BGP table version is 3, local router ID is 192.168.1.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
r RIB-failure, S Stale, m multipath, b backup-path, x best-external, f RT-Filter
Origin codes: i - IGP, e - EGP, ? - incomplete
Network Next Hop Metric LocPrf Weight Path
*>i1.1.1.1/32 192.168.1.1 0 100 0 i
*>i10.10.10.10/32 192.168.1.1 0 100 0 i
```

```
R2#show ip route 1.1.1.1
Routing entry for 1.1.1.1/32
Known via "bgp 10", distance 200, metric 0, type internal
Last update from 192.168.1.1 00:04:53 ago
Routing Descriptor Blocks:
* 192.168.1.1, from 192.168.1.1, 00:04:53 ago
Route metric is 0, traffic share count is 1
AS Hops 0
MPLS label: none
```

```
R2#show ip route 10.10.10.10
Routing entry for 10.10.10.10/32
Known via "bgp 10", distance 200, metric 0, type internal
Last update from 192.168.1.1 00:04:56 ago
Routing Descriptor Blocks:
* 192.168.1.1, from 192.168.1.1, 00:04:56 ago
Route metric is 0, traffic share count is 1
AS Hops 0
MPLS label: none
```

R3

```
interface FastEthernet1/0
ip address 10.1.1.2 255.255.255.0
duplex auto
speed auto
```

```
router ospf 1
log-adjacency-changes
network 10.1.1.2 0.0.0.0 area 0
```

```
R3#show ip ospf neighbor
Neighbor ID Pri State Dead Time Address Interface
192.168.1.2 1 FULL/DR 00:00:36 10.1.1.1 GigabitEthernet0/1
```

La table de routage dans R3 avant bgp redistribute-internal est ajoutée sur R2 sous BGP 10 de

routeur :

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
```

R2

```
router bgp 10
bgp redistribute-internal
```

Vérifiez

R3

La table de routage pour R3 après bgp redistribute-internal est ajoutée sur R2 sous BGP 10 de routeur :

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
O E1 10.10.10.10/32 [110/11] via 10.1.1.1, 00:00:06, GigabitEthernet0/1
```

EIGRP

Configurez l'EIGRP entre R2 et R3

Dans le scénario représenté ici, le routeur R1 et les R2 exécutent IBGP et routeur R2/R3 le système d'EIGRP autonome que courant 1. R1 annonce deux artères (1.1.1.1 /32 et 10.10.10.10/32) par la commande réseau.

R2 redistribue le BGP dans l'EIGRP EN TANT QUE 1. On l'exige pour redistribuer les routes internes sélectionnées (10.10.10.10/32).

La tâche est réalisée en se servant du prefix-list et du route-map.

R2

```
R3#show ip route
```

```
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
O E1 10.10.10.10/32 [110/11] via 10.1.1.1, 00:00:06, GigabitEthernet0/1
```

```
R3#show ip route
```

```
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
O E1 10.10.10.10/32 [110/11] via 10.1.1.1, 00:00:06, GigabitEthernet0/1
```

R3

```
R3#show ip route
```

```
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
O E1 10.10.10.10/32 [110/11] via 10.1.1.1, 00:00:06, GigabitEthernet0/1
```

La sortie du show ip route sur R3 avant bgp redistribute-internal est ajoutée sur R2 sous BGP 10 de routeur :

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
O E1 10.10.10.10/32 [110/11] via 10.1.1.1, 00:00:06, GigabitEthernet0/1
```

R2

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
O E1 10.10.10.10/32 [110/11] via 10.1.1.1, 00:00:06, GigabitEthernet0/1
```

Vérifiez

La sortie du show ip route sur R3 après bgp redistribute-internal est ajoutée sur R2 sous BGP 10 de routeur :

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
```

```
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
D EX 10.10.10.10/32
[170/1660672] via 10.1.1.1, 00:00:04, GigabitEthernet0/1
```

RIP

Configurez le RIP entre R2 et R3

Dans le scénario représenté ici, le routeur R1 et les R2 exécutent IBGP et routeur R2/R3 exécutant RIPv2.

R1 annonce deux artères (1.1.1.1 /32 et 10.10.10.10/32) par la commande réseau.
R2 redistribue le BGP dans RIPv2. On l'exige pour redistribuer les routes internes sélectionnées (10.10.10.10/32).
La tâche est réalisée en se servant du prefix-list et du route-map.

R2

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
D EX 10.10.10.10/32
[170/1660672] via 10.1.1.1, 00:00:04, GigabitEthernet0/1
```

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
D EX 10.10.10.10/32
[170/1660672] via 10.1.1.1, 00:00:04, GigabitEthernet0/1
```

R3


```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
D EX 10.10.10.10/32
[170/1660672] via 10.1.1.1, 00:00:04, GigabitEthernet0/1
```

Sortie sur R3 avant que vous activiez bgp redistribute-internal sur R2 sous BGP 10 de routeur :

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
D EX 10.10.10.10/32
[170/1660672] via 10.1.1.1, 00:00:04, GigabitEthernet0/1
```

R2

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
D EX 10.10.10.10/32
[170/1660672] via 10.1.1.1, 00:00:04, GigabitEthernet0/1
```

Vérifiez

Sortie sur R3 après que vous activez bgp redistribute-internal sur R2 sous BGP 10 de routeur :

```
R3#show ip route
Codes: L - local, C - connected, S - static, 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
i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
+ - replicated route, % - next hop override
Gateway of last resort is not set
3.0.0.0/32 is subnetted, 1 subnets
C 3.3.3.3 is directly connected, Loopback0
10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C 10.1.1.0/24 is directly connected, GigabitEthernet0/1
L 10.1.1.2/32 is directly connected, GigabitEthernet0/1
D EX 10.10.10.10/32
[170/1660672] via 10.1.1.1, 00:00:04, GigabitEthernet0/1
```

Dépanner

Il n'existe actuellement aucune information de dépannage spécifique pour cette configuration.