

Understand the Redistribution of OSPF Routes into BGP

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Introduction

This document describes the behavior of Open Shortest Path First (OSPF) to Border Gateway Protocol (BGP) redistribution on Cisco routers.

Prerequisites

Requirements

Cisco recommends that you have knowledge of the OSPF route types before you use this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Conventions

For more information on document conventions, see the [Cisco Technical Tips Conventions](#).

Background Information

This Tech Note explains the behavior of the OSPF to BGP redistribution on Cisco routers. The behavior of OSPF to BGP redistribution is outlined in [RFC 1403](#). There are several types of OSPF routes:

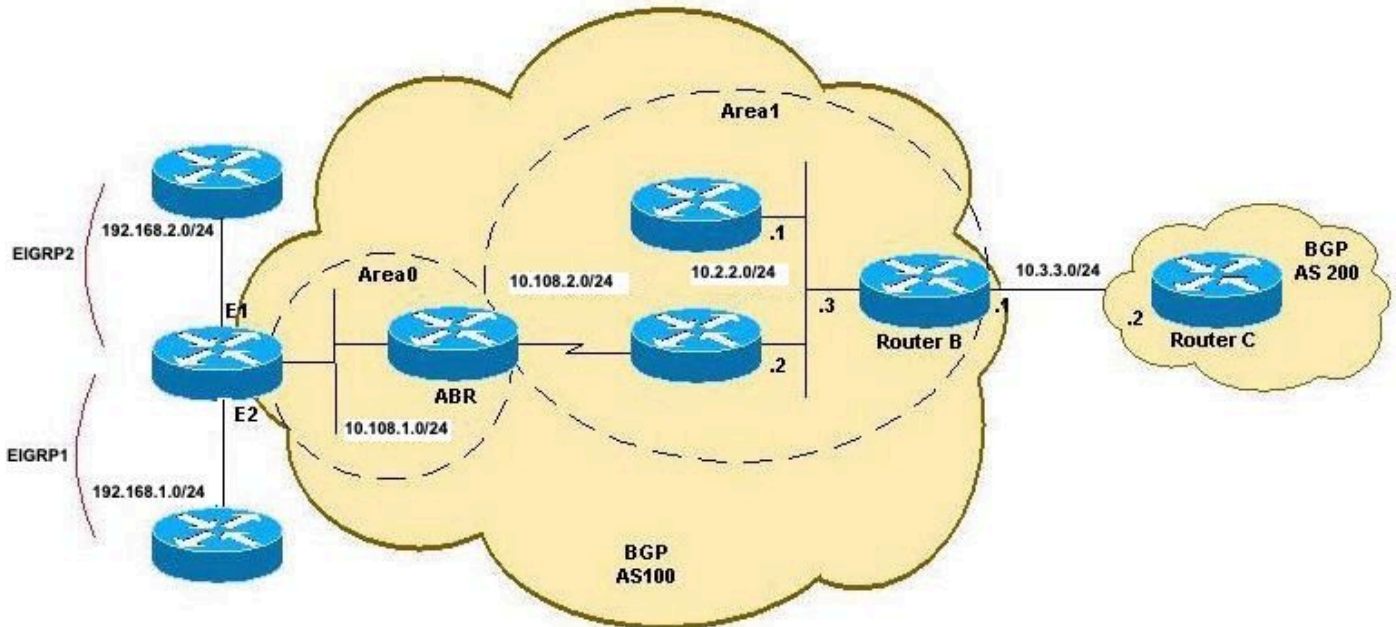
- Intra-Area — In a multiarea OSPF network, routes that originate within an area are known by the routers in the same area as Intra-Area routes. These routes are flagged as O in the `show ip route` command output.
- Inter-Area — When a route crosses an OSPF Area Border Router (ABR), the route is known as an OSPF Inter-Area route. These routes are flagged as O IA in the `show ip route` command output. Both Intra and Inter-Area routes are also called OSPF Internal routes, as they are generated by OSPF itself when an interface is covered with the `OSPF network` command.
- External Type-2 or External Type-1 — Routes that were redistributed into OSPF, such as Connected, Static, or other Routing Protocol, are known as External Type-2 or External Type-1. These routes are flagged as O E2 or O E1 in the `show ip route` command output.
- NSSA External Type-2 or NSSA External Type 1 — When an area is configured as a Not-So-Stub Area (NSSA), and routes are redistributed into OSPF, the routes are known as NSSA External Type-2 or NSSA External Type-1. These routes are flagged as O N2 or O N1 in the `show ip route` command output.

The explanation of the differences between External and NSSA Type 2 or 1 is beyond the scope of this document — refer to the OSPF Design Guide for more information.

The default behavior is not to redistribute any routes from OSPF into BGP. Redistribution must be configured. You can use the `route-map` command to filter routes during OSPF to BGP redistribution. To complete the redistribution, specific keywords like `internal`, `external`, and `nssa-external` are required to redistribute respective routes.

Network Setup

There are four redistribution cases of OSPF routes into BGP discussed below. The network diagram applies to the first three cases. The diagram and set up for the fourth case can be found in the [Redistribution of OSPF NSSA-External Routes into BGP](#) section.



Redistribution OSPF to BGP Topology A

Redistribution of Only OSPF Internal (Intra and Inter-Area) Routes into BGP

If you configure the redistribution of OSPF into BGP without keywords, only OSPF intra-area and inter-area routes are redistributed into BGP, by default. You can use the `internal` keyword along with the `redistribute` command under `router bgp` to redistribute OSPF Intra and Inter-area routes.

This configuration is a new configuration of Router B that redistributes only the Intra-area route (10.108.2.0/24) and Inter-area route (10.108.1.0/24) into BGP and only OSPF Internal (Intra-area and Inter-area) routes are redistributed into BGP:

RTB

```
hostname RTB
!
interface GigabitEthernet0/0 ip address 10.3.3.1 255.255.255.0 duplex auto speed auto media-type rj45 ! interface GigabitEthernet0/1 ip address
10.2.2.3 255.255.255.0 duplex auto speed auto media-type rj45
!
router ospf 1 network 10.2.2.0 0.0.0.255 area 1
!
router bgp 100
redistribute ospf 1

!-- This redistributes only OSPF intra-area and inter-area routes into BGP.

neighbor 10.3.3.2 remote-as 200
!
end
```

RTB#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
```

a - application route
+ - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

```
10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C    10.2.2.0/24 is directly connected, GigabitEthernet0/1
L    10.2.2.3/32 is directly connected, GigabitEthernet0/1
C    10.3.3.0/24 is directly connected, GigabitEthernet0/0
L    10.3.3.1/32 is directly connected, GigabitEthernet0/0
O IA  10.108.1.0/24 [110/3] via 10.2.2.2, 00:08:38, GigabitEthernet0/1
O     10.108.2.0/24 [110/2] via 10.2.2.2, 00:39:13, GigabitEthernet0/1
O E2  192.168.1.0/24 [110/20] via 10.2.2.2, 00:07:39, GigabitEthernet0/1
O E1  192.168.2.0/24 [110/23] via 10.2.2.2, 00:07:38, GigabitEthernet0/1
RTB#
```

Router B redistributes only OSPF Internal routes:

RTB#show ip bgp

```
BGP table version is 12, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
               t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	10.2.2.0/24	0.0.0.0	0		32768	?
*>	10.108.1.0/24	10.2.2.2	3		32768	?
*>	10.108.2.0/24	10.2.2.2	2		32768	?

RTB#

Router C learns these routes from BGP:

RTC#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
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
```

Gateway of last resort is not set

```
10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
B    10.2.2.0/24 [20/0] via 10.3.3.1, 00:07:07
C    10.3.3.0/24 is directly connected, GigabitEthernet0/0
L    10.3.3.2/32 is directly connected, GigabitEthernet0/0
B    10.108.1.0/24 [20/3] via 10.3.3.1, 00:07:07
B    10.108.2.0/24 [20/2] via 10.3.3.1, 00:07:07
RTC#
```

RTC#show ip bgp

```
BGP table version is 8, local router ID is 10.3.3.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
```

```

r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, c RIB-compressed,
t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

```

```

Network          Next Hop          Metric LocPrf Weight Path
*> 10.2.2.0/24    10.3.3.1          0           0 100 ?
*> 10.108.1.0/24 10.3.3.1          3           0 100 ?
*> 10.108.2.0/24 10.3.3.1          2           0 100 ?

```

RTC#

Redistribution of Only OSPF External (Type 1 and 2) Routes into BGP

Use the `external` keyword along with the `redistribute` command under `router bgp` to redistribute OSPF external routes into BGP. With the `external` keyword, you have three choices:

- Redistribute both External Type-1 and Type-2 (Default)
- Redistribute Type-1
- Redistribute Type-2

Enter the commands in the configuration mode as described here:

```

RTB(config-router)#router bgp 100
RTB(config-router)#redistribute ospf 1 match external

```

In this configuration of Router B, redistribute only OSPF External routes, but both Type-1 and Type-2:

RTB

```

hostname RTB ! interface GigabitEthernet0/0 ip address 10.3.3.1 255.255.255.0 duplex auto speed auto media-type rj45 ! interface
GigabitEthernet0/1 ip address 10.2.2.3 255.255.255.0 duplex auto speed auto media-type rj45 ! router ospf 1 network 10.2.2.0 0.0.0.255 are
router bgp 100

```

```

redistribute ospf 1 match external 1 external 2

```

!--- This redistributes ONLY OSPF External routes, but both type-1 and type-2.

```

neighbor 10.3.3.2 remote-as 200
!
end

```

Note: The configuration shows `match external 1 external 2` and the command entered was `redistribute ospf 1 match external`. This is normal because OSPF automatically appends `external 1 external 2` in the configuration. It matches both OSPF external 1 and external 2 routes and it redistributes both routes into BGP.

Router B redistributes only the OSPF external routes:

RTB#show ip bgp

```
BGP table version is 25, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
               t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	192.168.1.0	10.2.2.2	20		32768	?
*>	192.168.2.0	10.2.2.2	23		32768	?

RTB#

Router C learns about these two OSPF external routes from BGP:

RTC#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
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR
```

Gateway of last resort is not set

```
10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    10.3.3.0/24 is directly connected, GigabitEthernet0/0
L    10.3.3.2/32 is directly connected, GigabitEthernet0/0
B    192.168.1.0/24 [20/20] via 10.3.3.1, 00:02:16
B    192.168.2.0/24 [20/23] via 10.3.3.1, 00:02:16
```

RTC#show ip bgp

```
BGP table version is 21, local router ID is 10.3.3.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
               t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	192.168.1.0	10.3.3.1	20		0 100	?
*>	192.168.2.0	10.3.3.1	23		0 100	?

RTC#

Redistribution of Only OSPF External Type 1 or Type 2 Routes into BGP

Enter this command under the `router bgp 100` command on Router B to redistribute only OSPF External 1 routes:

```
RTB(config)#router bgp 100
```

```
RTB(config-router)#redistribute ospf 1 match external 1
```

With the previous configuration Router B (RTB) BGP table shows that it is only able to redistribute external 1 routes into BGP and all other OSPF routes are not redistributed into BGP:

```
RTB#show ip bgp
```

```
BGP table version is 28, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
               t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

```
      Network          Next Hop          Metric LocPrf Weight Path
* >  192.168.2.0        10.2.2.2          23             32768 ?
RTB#
```

In the same way, enter this command under `router bgp 100` on Router B to redistribute only OSPF external 2 routes:

```
RTB(config)#router bgp 100
RTB(config-router)#redistribute ospf 1 match external 2
```

Redistribution of OSPF Internal and External Routes into BGP

In this case, all OSPF routes are redistributed into BGP with the use of both the `internal` and `external` keywords within the command `redistribute ospf <process> match internal external`, as shown in this Router B configuration:

RTB

```
hostname RTB ! interface GigabitEthernet0/0 ip address 10.3.3.1 255.255.255.0 duplex auto speed auto media-type rj45 ! interface
GigabitEthernet0/1 ip address 10.2.2.3 255.255.255.0 duplex auto speed auto media-type rj45 ! router ospf 1 network 10.2.2.0 0.0.0.255 are
router bgp 100
  redistribute ospf 1 match internal external 1 external 2

!--- This redistributes all OSPF routes into BGP.

neighbor 10.3.3.2 remote-as 200
!
end
```

Again, `external` is replaced with `external 1 external 2` in the configuration. This is normal unless you specify which specific external routes you want to redistribute into BGP. After the configuration change is completed, Router B redistributes all OSPF routes and Router C starts to learn all routes from BGP:

RTB#show ip bgp

BGP table version is 6, local router ID is 10.3.3.1

Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, c RIB-compressed,
t secondary path,

Origin codes: i - IGP, e - EGP, ? - incomplete

RPKI validation codes: V valid, I invalid, N Not found

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	10.2.2.0/24	0.0.0.0	0		32768	?
*>	10.108.1.0/24	10.2.2.2	3		32768	?
*>	10.108.2.0/24	10.2.2.2	2		32768	?
*>	192.168.1.0	10.2.2.2	20		32768	?
*>	192.168.2.0	10.2.2.2	23		32768	?

RTB# RTC#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 a - application route + - replicated route, % - next hop override, p - overrides from PfR Gateway of last resort is not set 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks B 10.2.2.0/24

[20/0] via 10.3.3.1, 00:03:27

C 10.3.3.0/24 is directly connected, GigabitEthernet0/0

L 10.3.3.2/32 is directly connected, GigabitEthernet0/0

B 10.108.1.0/24 [20/3] via 10.3.3.1, 00:03:27

B 10.108.2.0/24 [20/2] via 10.3.3.1, 00:03:27

B 192.168.1.0/24 [20/20] via 10.3.3.1, 00:03:27

B 192.168.2.0/24 [20/23] via 10.3.3.1, 00:03:27

RTC#

Redistribution of OSPF NSSA-External Routes into BGP

This is a special case in which only NSSA routes are redistributed into BGP. This case is very similar to the case described in the [Redistribution of only OSPF External \(Type 1 and 2\) Routes into BGP](#) section. The only difference is that OSPF now matches NSSA-external routes instead of just external routes. The routing table of Router B shows these OSPF NSSA-external routes:

RTB#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

a - application route

+ - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks

C 10.2.2.0/24 is directly connected, GigabitEthernet0/1

L 10.2.2.3/32 is directly connected, GigabitEthernet0/1

C 10.3.3.0/24 is directly connected, GigabitEthernet0/0

L 10.3.3.1/32 is directly connected, GigabitEthernet0/0

O IA 10.108.1.0/24 [110/3] via 10.2.2.2, 00:05:00, GigabitEthernet0/1

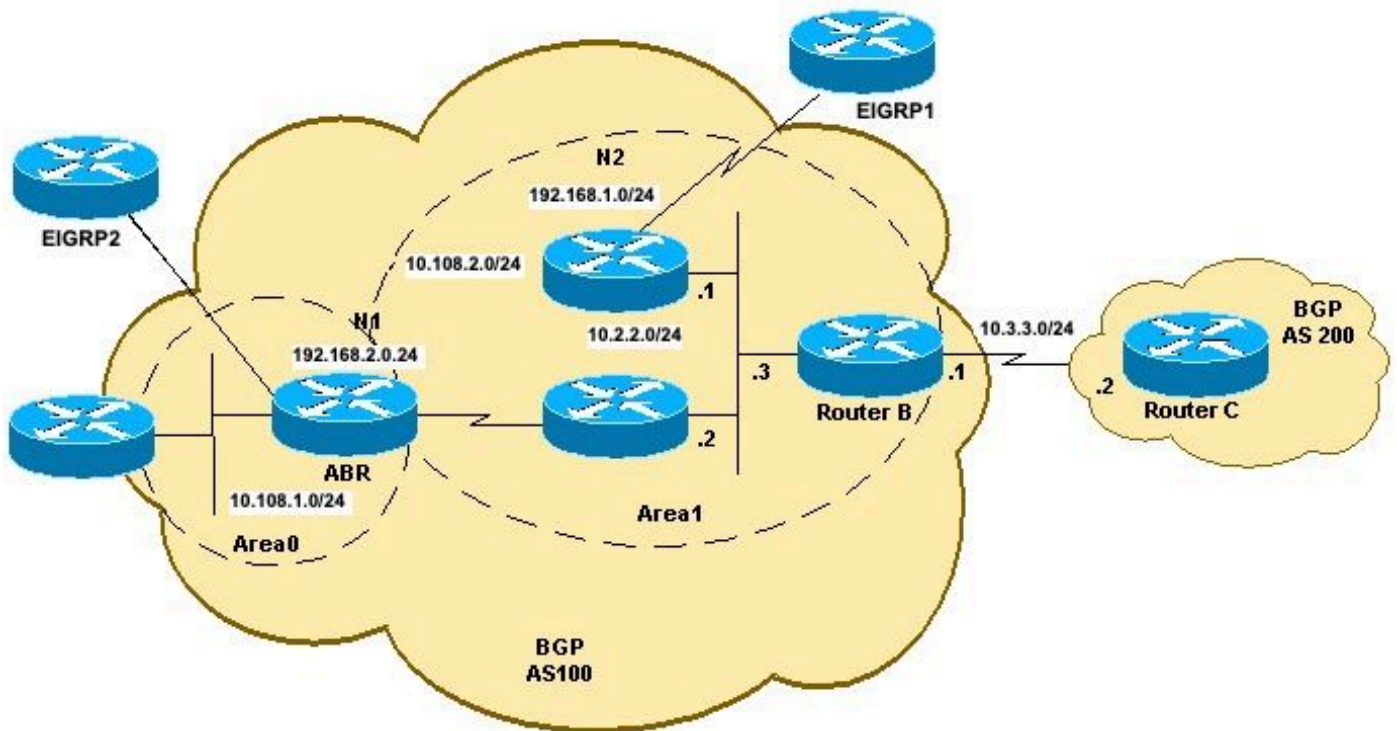
O 10.108.2.0/24 [110/2] via 10.2.2.2, 00:05:00, GigabitEthernet0/1

O N2 192.168.1.0/24 [110/20] via 10.2.2.1, 00:10:14, GigabitEthernet0/1

O N1 192.168.2.0/24 [110/22] via 10.2.2.2, 00:03:43, GigabitEthernet0/1

RTB#

This network diagram is used for this case:



Redistribution OSPF to BGP Topology B

The network diagram shows that Router B receives both OSPF N1 and N2 routes. The default behavior is to redistribute both N1 and N2 routes if only the `nssa-external` keyword is used. This configuration of Router B allows us to redistribute OSPF N2 (192.168.1.0/24) and OSPF N1 (192.168.2.0/24) routes into BGP:

RTB

```
hostname RTB ! interface GigabitEthernet0/0 ip address 10.3.3.1 255.255.255.0 duplex auto speed auto media-type rj45 ! interface
GigabitEthernet0/1 ip address 10.2.2.3 255.255.255.0 duplex auto speed auto media-type rj45 ! router ospf 1
area 1 nssa network 10.2.2.0 0.0.0.255 area 1
!
router bgp 100
redistribute ospf 1 match nssa-external 1 nssa-external 2

!--- This redistributes only OSPF NSSA-external routes Type-1 and Type-2 into BGP.

neighbor 10.3.3.2 remote-as 200
!
end
```

Note: Like the OSPF external configuration, the previous configuration displays `match nssa-external 1 nssa-external 2` and the command entered was `redistribute ospf 1 match nssa-external`. This is normal because OSPF automatically appends `nssa-external 1 nssa-external 2` in the configuration. It matches both OSPF N1 and OSPF N2 routes and redistributes both routes into BGP.

After the configuration change on Router B, it redistributes OSPF NSSA-external routes, and Router C learns OSPF NSSA-external routes from BGP:

RTB#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
a - application route
+ - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C 10.2.2.0/24 is directly connected, GigabitEthernet0/1
L 10.2.2.3/32 is directly connected, GigabitEthernet0/1
C 10.3.3.0/24 is directly connected, GigabitEthernet0/0
L 10.3.3.1/32 is directly connected, GigabitEthernet0/0
O IA 10.108.1.0/24 [110/3] via 10.2.2.2, 00:09:40, GigabitEthernet0/1
O 10.108.2.0/24 [110/2] via 10.2.2.2, 00:09:40, GigabitEthernet0/1
O N2 192.168.1.0/24 [110/20] via 10.2.2.1, 00:14:54, GigabitEthernet0/1
O N1 192.168.2.0/24 [110/22] via 10.2.2.2, 00:08:23, GigabitEthernet0/1

RTB#

RTB#show ip bgp

BGP table version is 17, local router ID is 10.3.3.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, c RIB-compressed,
t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	192.168.1.0	10.2.2.1	20		32768	?
*>	192.168.2.0	10.2.2.2	22		32768	?

RTB# **RTC#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
a - application route
+ - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 10.3.3.0/24 is directly connected, GigabitEthernet0/0
L 10.3.3.2/32 is directly connected, GigabitEthernet0/0
B 192.168.1.0/24 [20/20] via 10.3.3.1, 00:01:29
B 192.168.2.0/24 [20/22] via 10.3.3.1, 00:01:29

RTC#

RTC#show ip bgp

BGP table version is 41, local router ID is 10.3.3.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, c RIB-compressed,
t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	192.168.1.0	10.3.3.1	20		0	100 ?
*>	192.168.2.0	10.3.3.1	22		0	100 ?

RTC#

In the same way as with OSPF External routes, to redistribute only OSPF N1 routes, enter this command under router BGP 100 on Router B:

```
RTB(config)#router bgp 100
RTB(config-router)#redistribute ospf 1 match nssa-external 1

!--- This redistributes only OSPF NSSA-external Type-1 routes into BGP.
```

To redistribute only OSPF N2 routes, enter this command under router BGP 100 on Router B:

```
RTB(config)#router bgp 100
RTB(config-router)#redistribute ospf 1 match nssa-external 2

!--- This redistributes only OSPF NSSA-external Type-2 routes into BGP.
```

Note: Route-Maps can also be used to redistribute OSPF Type 1/2 into BGP. Refer to [Redistribute OSPF E2 Routes in BGP](#) for more information.

Modify the Redistribution Option in OSPF

It is important to understand how successive configuration change alters your configuration. A new command with the match option does not overwrite the previous one but is added to it. The next example explains how the configuration command sequence can have an impact on redistribution:

```
R4#configure terminal
R4(config)#router bgp 100
R4(config-router)#redistribute ospf 1 match internal
R4(config-router)#^Z

!--- Initially, you redistribute internal OSPF routes into BGP 100. R4#show run |
include redistribute ospf
  redistribute ospf 1 match internal
R4#configure terminal
R4(config)#router bgp 100
R4(config-router)#redistribute ospf 1 match external
R4(config-router)#^Z

!--- With this second command, you tell BGP to also redistribute external OSPF
routes. R4#show run | include redistribute ospf
  redistribute ospf 1 match internal external 1 external 2
R4#
R4#configure terminal
R4(config)#router bgp 100
R4(config-router)#no redistribute ospf 1 match external 2
R4(config-router)#^Z

!--- With this no command, you only disable the redistribution of external type 2
```

```

into BGP.
!--- All other types of routes previously configured remain. R4#show run | include
redistribute ospf
 redistribute ospf 1 match internal external 1

!--- As you can see, internal and external type 1 remain. R4#configure terminal
R4(config)#router bgp 100
R4(config-router)#no redistribute ospf 1 match internal external 1
R4(config-router)#^Z

!--- Now, with this no command, which includes all configured keywords, it is
important to note that you
!--- still do not disable the redistribution fully. you only removed the keyword.
After this,
!--- the IOS still acts as default-redistributing internal routes only. R4#show run |
include redistribute ospf
 redistribute ospf 1
R4#configure terminal
R4(config)#router bgp 100
R4(config-router)#no redistribute ospf 1

!--- Always use the previous command in order to completely disable redistribution.
R4(config-router)# ^Z
R4#show run | include redistribute ospf
R4#

```

Unable to Redistribute iBGP Learnt Routes into an IGP such as EIGRP and OSPF

Route Redistribution is used to propagate routes learned with the use of one protocol, into another routing protocol. When BGP is redistributed into an IGP, only eBGP learned routes get redistributed. The internal Border Gateway Protocol (iBGP) learned routes known on the router are not introduced into the IGP in order to prevent the creation of routing loops.

By default, the iBGP redistribution into IGP is disabled. Issue the `bgp redistribute-internal` command in order to enable redistribution of iBGP routes into IGP. Precautions need to be taken to redistribute specific routes with the use of route maps into IGP.

A sample configuration for redistribution of iBGP routes into OSPF is shown here:

```

Router(config)#router bgp 65345
Router(config-router)#bgp redistribute-internal
!
Router(config)#router ospf 100
Router(config-router)#redistribute bgp 65345 subnets

```

Note: The redistribution of iBGP routes into an Interior Gateway Protocol can cause routing loops within the Autonomous System (AS). This is not recommended. Route filters need to be set in order to control the information, which is imported into the IGP.

Redistribute OSPF Default Routes into BGP

In order to redistribute default routes into BGP, use the `network` statement and `default-information originate`. In this example, the OSPF default routes are redistributed into BGP. This is done with the creation of a route map and the distribution of the default network, which is permitted by the standard ACL.

```
!  
route-map map_default_only permit 10  
  match ip address acl_default_only  
!  
ip access-list standard acl_default_only  
  permit 0.0.0.0  
!  
router bgp 64601  
  network 0.0.0.0  
  redistribute ospf 1 route-map map_default_only  
  default-information originate  
!  
  
!--- Distributes the default route in bgp
```

After the configuration, clear the bgp sessions with the `clear ip bgp *` command.

Related Information

- [OSPF: Frequently Asked Questions](#)
- [Frequently Asked Questions BGP](#)
- [Technical Support & Documentation - Cisco Systems](#)