

# 再分布在BGP配置示例的OSPFv3路由

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## 简介

本文提供再分布开放最短路径第一个版本3 (OSPFv3)路由示例给多协议BGP为IPv6。OSPFv3在OSPF第2版展开为了为路由前缀和更加大型的IPv6地址的IPv6提供支持。多协议 BGP 是一种增强型 BGP，可以为多个网络层协议地址系列（如 IPv6 地址系列）及 IP 多播路由传送路由信息。

## 先决条件

### 先决条件

尝试进行此配置之前，请确保满足以下要求：

- [OSPFv3的配置示例](#)
- [用于 IPv6 的多协议 BGP 配置示例](#)
- [重新分配路由协议](#)

### 硬件与软件版本

本文档不限于特定的软件和硬件版本。

在本文的配置根据Cisco 3700系列路由器用Cisco IOS软件版本12.4 (15)T1。

### 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

## 配置

在本例中，路由器R2和R3通过serial interfaces连接和配置与多协议BGP。使用OSPFv3，路由器R2和R3用他们的本地路由器R1和R4连通。环回地址在生成的网络路由器创建。路由器R2和R3，运行BGP和OSPFv3，使用[redistribute命令](#)为了再分布OSPFv3路由到BGP。所有路由器配置与IPv6地址。

**注意：** 有关本文档所用命令的详细信息，请使用[命令查找工具](#) ([仅限注册用户](#))。

## 网络图

本文档使用以下网络设置：

## 配置

本文档使用以下配置：

- [路由器 R1](#)
- [路由器 R2](#)
- [路由器 R3](#)
- [路由器R4](#)

### 路由器 R1

```
!  
version 12.4  
!  
hostname R1  
!  
ip cef  
!  
ipv6 unicast-routing  
!--- Enables the forwarding of IPv6 packets. ! interface  
Loopback0 no ip address ipv6 address 2222::1/128 ipv6  
ospf 1 area 0 !--- Enables OSPFv3 on the interface and  
associates !--- the interface loopback0 to area 0. !  
interface FastEthernet0/0 no ip address duplex auto  
speed auto ipv6 address 1010:1:1:1::1/64 ipv6 ospf 1  
area 0 !--- Associates the Interface Fa0/0 to area 0. !  
ipv6 router ospf 1 router-id 1.1.1.1 !--- Router R1 uses  
1.1.1.1 as router ID. log-adjacency-changes ! end
```

### 路由器 R2

```
!  
version 12.4  
!  
hostname R2  
!  
ip cef  
!  
ipv6 unicast-routing  
!  
interface Loopback0  
no ip address  
ipv6 address 2010::1/128  
ipv6 ospf 1 area 1
```

```

!
interface Loopback1
  no ip address
  ipv6 address 2011::1/128
  ipv6 ospf 1 area 1
!
interface Loopback99
  no ip address
  ipv6 address 5050:55:55:55::55/128
!
interface FastEthernet0/0
  no ip address
  duplex auto
  speed auto
  ipv6 address 1010:1:1:1::2/64
  ipv6 ospf 1 area 0
!
interface Serial0/0
  no ip address
  ipv6 address 3030:1:1:1::10/64
  clock rate 2000000
!
router bgp 65000
  bgp router-id 1.1.1.1
  no bgp default ipv4-unicast !--- Without configuring
  "no bgp default ipv4-unicast" only !--- IPv4 will be
  advertised.
  bgp log-neighbor-changes
  neighbor 3030:1:1:1::11 remote-as 65000
  neighbor 3030:1:1:1::11 address-family ipv6
  neighbor 3030:1:1:1::11 activate
  network 5050:55:55:55::55/128
  redistribute connected redistribute ospf 1 match
  internal external 1 external 2 !--- This redistributes
  all OSPF routes into BGP.
  no synchronization
  exit-address-family
  !
  ipv6 router ospf 1
  router-id 2.2.2.2
  log-adjacency-changes
! end

```

### 路由器 R3

```

!
version 12.4
!
hostname R3
!
ip cef
!
ipv6 unicast-routing
!
interface Loopback0
  no ip address
  ipv6 address 1111::1/128
  ipv6 ospf 1 area 1
!
interface Loopback1
  no ip address
  ipv6 address 1112::1/128
  ipv6 ospf 1 area 1
!
interface Loopback99
  no ip address
  ipv6 address 6060:66:66:66::66/128
!
interface FastEthernet0/0
  no ip address
  duplex auto
  speed auto

```

```
ipv6 address 2020:1:1:1::2/64
ipv6 ospf 1 area 0
!
interface Serial0/0
no ip address
ipv6 address 3030:1:1:1::11/64
clock rate 2000000
!
router bgp 65000
bgp router-id 2.2.2.2
no bgp default ipv4-unicast
bgp log-neighbor-changes
neighbor 3030:1:1:1::10 remote-as 65000
neighbor 3030:1:1:1::10 update-source Serial0/0
!
address-family ipv6
neighbor 3030:1:1:1::10 activate
network 6060:66:66:66::66/128
redistribute connected
redistribute ospf 1 match internal external 1 external
2 no synchronization exit-address-family ! ipv6 router
ospf 1 router-id 3.3.3.3 log-adjacency-changes ! end
```

## 路由器R4

```
!
version 12.4
!
hostname R4
!
ip cef
!
ipv6 unicast-routing
!
interface Loopback0
no ip address
ipv6 address 3333::1/128
ipv6 ospf 1 area 0
!
interface FastEthernet0/0
no ip address
duplex auto
speed auto
ipv6 address 2020:1:1:1::1/64
ipv6 ospf 1 area 0
!
ipv6 router ospf 1
router-id 5.5.5.5
log-adjacency-changes
!
end
```

## 验证

使用本部分可确认配置能否正常运行。

[命令输出解释程序 \( 仅限注册用户 \)](#) (OIT) 支持某些 **show** 命令。使用 OIT 可查看对 **show** 命令输出的分析。

这些显示命令使用验证配置：

- [show ipv6 route ospf](#)
- [show ipv6 route bgp](#)

## 验证OSPFv3配置

为了验证OSPFv3适当地配置，请使用[ospf命令的show ipv6 route](#)在路由器R1和R4。

### show ipv6 route ospf

#### 在路由器 R1 中

```
R1#show ipv6 route ospf 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 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 OI 2010::1/128 [110/10]
via FE80::C001:16FF:FEDC:0, FastEthernet0/0 OI
2011::1/128 [110/10] via FE80::C001:16FF:FEDC:0,
```

#### 在路由器R4中

```
R4#show ipv6 route ospf 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 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 OI 1111::1/128 [110/10]
via FE80::C002:16FF:FEDC:0, FastEthernet0/0 OI
1112::1/128 [110/10] via FE80::C002:16FF:FEDC:0,
FastEthernet0/0
```

## 验证BGP配置

为了验证OSPFv3路由是否再分布对BGP，请使用[bgp命令的show ipv6 route](#)在路由器R2和R3。

### show ipv6 route bgp

#### 在路由器 R2 中

```
R2#show ipv6 route bgp IPv6 Routing Table
- 14 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 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 B
1111::1/128 [200/0] via 3030:1:1:1::11 B 1112::1/128
[200/0] via 3030:1:1:1::11 B 2020:1:1:1::/64 [200/0] via
3030:1:1:1::11 B 3333::1/128 [200/10] via 3030:1:1:1::11
!--- The above routes are OSPFv3 routes !--- that are
redistributed in to BGP. B 6060:66:66:66::66/128 [200/0]
via 3030:1:1:1::11
```

#### 在路由器 R3 中

```
R3#show ipv6 route bgp IPv6 Routing Table - 14 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 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 B 1010:1:1:1::/64 [200/0] via
3030:1:1:1::10 B 2010::1/128 [200/0] via 3030:1:1:1::10
B 2011::1/128 [200/0] via 3030:1:1:1::10 B 2222::1/128
[200/10] via 3030:1:1:1::10 !--- The above routes are
```

```
OSPFv3 routes !--- that are redistributed in to BGP. B  
5050:55:55:55::55/128 [200/0] via 3030:1:1:1::10
```

## 相关信息

- [IPv6 支持页面](#)
- [OSPF 支持页](#)
- [BGP 支持页](#)
- [技术支持和文档 - Cisco Systems](#)