

# MP-EBGP配置示例

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## 簡介

本文提供如何在Cisco IOS路由器中設定多重通訊協定擴充邊界閘道通訊協定(MP-EBGP)的相關資訊。MP-BGP是一種擴展BGP，允許BGP承載多個網路層協定IPv6、VPNv4和其他協定的路由資訊。MP-BGP允許您使用不同於組播路由拓撲的單播路由拓撲，這有助於控制網路和資源。

## 必要條件

### 需求

本文件沒有特定需求。

### 採用元件

本文件所述內容不限於特定軟體和硬體版本。

本檔案中的組態是根據執行Cisco IOS®軟體版本12.4(15)T 13的Cisco 3700系列路由器。

### 慣例

如需文件慣例的詳細資訊，請參閱[思科技術提示慣例](#)。

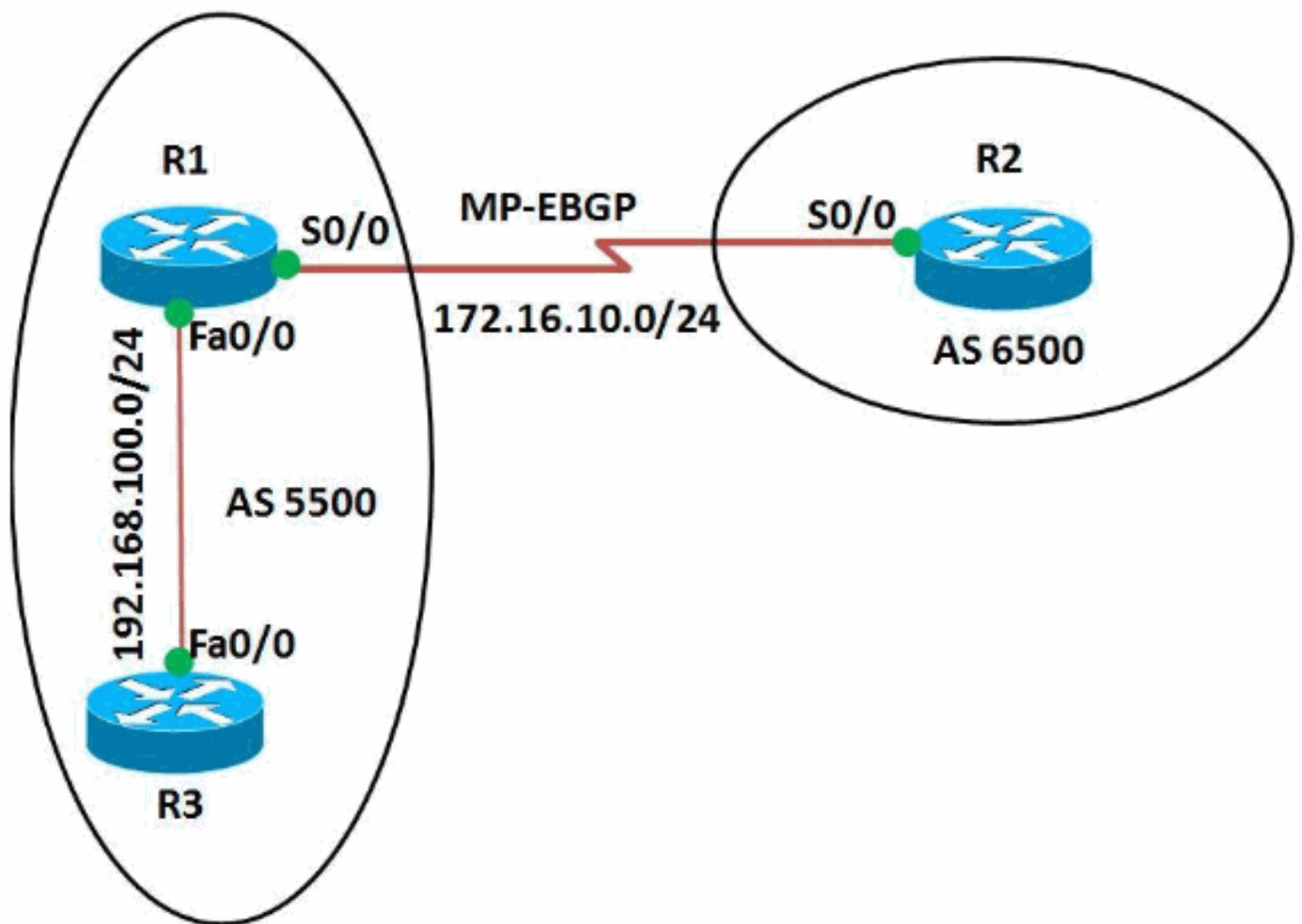
## 設定

在本示例中，R1和R3路由器配置為在AS 5500中形成iBGP。R2路由器配置為AS 6500。R1和R2路由器使用MP-EBGP相互通訊。所有路由器都配置了環回地址。

註：使用[Command Lookup Tool](#)(僅限註冊客戶)查詢有關本文檔中使用的命令的更多資訊。

## 網路圖表

本檔案會使用以下網路設定：



## 組態

本檔案會使用以下設定：

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

### 路由器R1上的配置

```
R1#show run
Building configuration...
!
version 12.4
!
hostname R1
!
ip cef
!
!
```

```

interface Loopback0
 ip address 10.10.10.10 255.255.255.0
!
interface FastEthernet0/0
 ip address 192.168.100.10 255.255.255.0
 duplex auto
 speed auto
!
interface Serial0/0
 ip address 172.16.10.1 255.255.255.0
 mpls ip
 clock rate 2000000
!
router bgp 5500
 no synchronization
 bgp router-id 10.10.10.10
 bgp log-neighbor-changes
 network 192.168.100.0
 redistribute connected
 neighbor 172.16.10.2 remote-as 6500
 neighbor 172.16.10.2 soft-reconfiguration inbound
 neighbor 192.168.100.11 remote-as 5500
 no auto-summary
!
 address-family vpnv4
  neighbor 172.16.10.2 activate
  neighbor 172.16.10.2 send-community both
 !--- Sends the community attribute to a BGP neighbor.
 exit-address-family !! end

```

## 路由器R2上的配置

```

R2#show run
Building configuration...
!
version 12.4
!
hostname R2
!
ip cef
!
ip vrf WAN
 rd 2020:1
  route-target export 2020:1
  route-target import 2020:1
!
!
interface Loopback0
 ip vrf forwarding WAN
 !--- Associates a VRF instance with an interface or
 subinterface. ip address 20.20.20.20 255.255.255.255 !
interface Serial0/0 ip vrf forwarding WAN ip address
172.16.10.2 255.255.255.0 mpls ip clock rate 2000000 !
router bgp 6500 no synchronization bgp router-id
20.20.20.20 bgp log-neighbor-changes neighbor
172.16.10.1 remote-as 5500 no auto-summary !! address-
family vpnv4 neighbor 172.16.10.1 activate neighbor
172.16.10.1 send-community both exit-address-family !
address-family ipv4 vrf WAN redistribute connected
redistribute static neighbor 172.16.10.1 remote-as 5500
neighbor 172.16.10.1 activate no synchronization exit-
address-family !!! end

```

## 路由器R3上的配置

```
R3#show run
Building configuration...
!
version 12.4
!
hostname R3
!
ip cef
!
!
!
interface Loopback0
 ip address 11.11.11.11 255.255.255.255
!
interface FastEthernet0/0
 ip address 192.168.100.11 255.255.255.0
 duplex auto
 speed auto
!
router bgp 5500
 no synchronization
 bgp router-id 11.11.11.11
 bgp log-neighbor-changes
 neighbor 192.168.100.10 remote-as 5500
 no auto-summary
!
end
```

## 驗證

若要顯示(BGP)路由表中的專案，請使用[show ip bgp](#) 命令。

### show ip bgp

#### 在路由器R1中

```
R1#show ip bgp 172.16.10.2
BGP routing table entry for 172.16.10.2/32, version 14
Paths: (1 available, best #1, table Default-IP-Routing-Table)
  Advertised to update-groups:
    1    2
  Local
    0.0.0.0 from 0.0.0.0 (10.10.10.10)
      Origin incomplete, metric 0, localpref 100, weight
32768, valid, sourced, best
!--- Displays the routing table entries for the host
172.16.10.2 R1#sh ip bgp 192.168.100.11 BGP routing
table entry for 192.168.100.0/24, version 4 Paths: (1
available, best #1, table Default-IP-Routing-Table)
Advertised to update-groups: 1 2 Local 0.0.0.0 from
0.0.0.0 (10.10.10.10) Origin IGP, metric 0, localpref
100, weight 32768, valid, sourced, local, best !---
Displays the entries for the host 192.168.100.11
```

#### 在路由器R3中

```
R3#sh ip bgp 192.168.100.10
BGP routing table entry for 192.168.100.0/24, version 4
Paths: (1 available, best #1, table Default-IP-Routing-Table, RIB-failure(17))
  Not advertised to any peer
  Local
```

```
192.168.100.10 from 192.168.100.10 (10.10.10.10)
  Origin IGP, metric 0, localpref 100, valid,
internal, best
!--- Displays the entries for the host 192.168.100.10
```

在路由器R2中，使用[show ip bgp vpnv4](#) 命令顯示(BGP)表中的(VPNv4)地址資訊。

### show ip bgp vpnv4

#### 在路由器R2中

```
R2#sh ip bgp vpnv4 vrf WAN
BGP table version is 24, local router ID is 20.20.20.20
Status codes: s suppressed, d damped, h history, *
valid, > best, I - internal,
               r RIB-failure, S Stale
Origin codes: I - IGP, e - EGP, ? - incomplete

   Network          Next Hop          Metric LocPrf
Weight Path
Route Distinguisher: 2020:1 (default for vrf WAN)
*> 10.10.10.0/24    172.16.10.1        0
0 5500 ?
*> 20.20.20.20/32  0.0.0.0            0
32768 ?
* 172.16.10.0/24   172.16.10.1        0
0 5500 ?
*>                  0.0.0.0            0
32768 ?
r> 172.16.10.2/32  172.16.10.1        0
0 5500 ?
*> 192.168.100.0   172.16.10.1        0
0 5500 I
!--- Displays prefixes associated with the (VRF)
instance WAN.

R2#show ip bgp vpnv4 vrf WAN 172.16.10.1
BGP routing table entry for 2020:1:172.16.10.0/24,
version 7
Paths: (2 available, best #2, table WAN)
  Advertised to update-groups:
    1
  5500
    172.16.10.1 from 172.16.10.1 (10.10.10.10)
      Origin incomplete, metric 0, localpref 100, valid,
external
      Extended Community: RT:2020:1
      mpls labels in/out 18/nolabel
  Local
    0.0.0.0 from 0.0.0.0 (20.20.20.20)
      Origin incomplete, metric 0, localpref 100, weight
32768, valid, sourced, best
      Extended Community: RT:2020:1
      mpls labels in/out 18/aggregate(WAN)
!--- Displays prefixes associated with neighbor
172.16.10.1
```

MP-EBGP建立在R1和R2路由器之間。使用ping命令驗證從R1到R2的可達性，反之亦然。

### ping

#### 在路由器R1中

```
R1#ping 172.16.10.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.10.2, timeout
is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 12/64/208 ms

R1#ping 192.168.100.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.100.11,
timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 12/41/96 ms
!--- Router R1 can successfully ping the routers R2 and
R3.
在路由器R2中
R2#ping vrf WAN 172.16.10.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.10.1, timeout
is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 4/32/96 ms

R2#ping vrf WAN 192.168.100.11

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.100.11,
timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip
min/avg/max = 32/73/204 ms

!--- Router R2 can successfully reach router R1 and R3.
```

## 相關資訊

- [邊界閘道通訊協定\(BGP\)](#)
- [適用於IP多點傳送命令的多重通訊協定BGP擴充模組](#)
- [技術支援與文件 - Cisco Systems](#)