

防止重複的EIGRP路由器ID

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簡介

重複增強型內部網關路由協定(EIGRP)路由器ID可能會導致EIGRP外部路由的重新分配出現問題。本檔案將說明問題，並提供適當的設定以避免問題。

EIGRP路由器ID的選擇方式通常與開放最短路徑優先(OSPF)相同。分配給環回介面的最大IP地址被選為路由器ID。如果沒有配置任何環回地址，則會選擇分配給任何其他介面的最高IP地址作為路由器ID。

必要條件

需求

本文件沒有特定需求。

採用元件

此配置是使用Cisco IOS[®]軟體版本12.2(10b)開發和測試的。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您在即時網路中工作，請確保在使用任何命令之前瞭解其潛在影響。

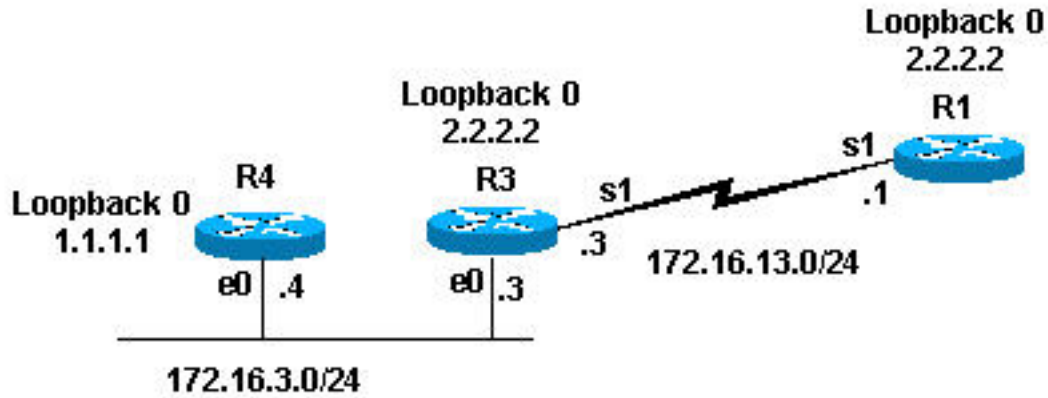
慣例

如需文件慣例的詳細資訊，請參閱[思科技術提示慣例](#)。

問題

通過此網路設定可以瞭解由於存在具有重複EIGRP路由器ID的路由器而導致重分發路由的問題。

網路圖表



組態

路由器4

```
interface Loopback0
 ip address 1.1.1.1 255.255.255.255
!
interface Loopback1
 ip address 10.10.10.10 255.255.255.0
!
interface Ethernet0
 ip address 172.16.3.4 255.255.255.0
!
router rip
 version 2
 network 10.0.0.0
 network 172.16.0.0
```

路由器3

```
interface Loopback0
 ip address 2.2.2.2 255.255.255.255
!
```

```
interface Ethernet0

ip address 172.16.3.3 255.255.255.0

ip pim sparse-dense-mode

!

interface Serial1

ip address 172.16.13.3 255.255.255.0

clockrate 4000000

!

router eigrp 7

redistribute rip metric 1 1 1 1 1

network 172.16.0.0

!

router rip

version 2

network 172.16.0.0
```

路由器1

```
interface Loopback0

ip address 2.2.2.2 255.255.255.0

!

interface Serial1

ip address 172.16.13.1 255.255.255.0

no ip mroute-cache

!

router eigrp 7

network 172.16.0.0

auto-summary

no eigrp log-neighbor-changes
```

顯示命令

如前所示，Router 3將路由資訊協定(RIP)路由重分發到EIGRP。這是3個路由表和EIGRP拓撲表。

```
Router-3#show ip route
```

Codes: C - connected, S - static, I - IGRP, 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, E - EGP
i - IS-IS, 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
```

Gateway of last resort is not set

```
2.0.0.0/32 is subnetted, 1 subnets
C    2.2.2.2 is directly connected, Loopback0
R    10.0.0.0/8 [120/1] via 172.16.3.4, 00:00:25, Ethernet0 !--- Router 3 sees network 10.0.0.0.
172.16.0.0/24 is subnetted, 3 2 subnets C 172.16.13.0 is directly connected, Serial1 C
172.16.3.0 is directly connected, Ethernet0 router-3# router-3#show ip eigrp topology 10.0.0.0
255.0.0.0
IP-EIGRP (AS 7): topology entry for 10.0.0.0/8
  State is Passive, Query origin flag is 1, 1 Successor(s), FD is 2560000256
  Routing Descriptor Blocks:
  0.0.0.0, from Redistributed, Send flag is 0x0
    Composite metric is (2560000256/0), Route is External
    Vector metric:
      Minimum bandwidth is 1 Kbit
      Total delay is 10 microseconds
      Reliability is 1/255
      Load is 1/255
      Minimum MTU is 1
      Hop count is 0
    External data:
      Originating router is 2.2.2.2 (this system)!--- Shows that Router 3 is the originating
router of the external route. AS number of route is 0 External protocol is RIP, external metric
is 1 Administrator tag is 0 (0x00000000) router-3#
```

從上面的輸出中，您可以看到Router3已經通過RIP獲知了網路10.0.0.0。通過重分發，該路由已作為外部路由輸入到EIGRP拓撲表中。路由器3還顯示它是外部路由的始發路由器；其EIGRP路由器ID為2.2.2.2。

由於Router3似乎要重新分發外部路由，因此預計它會在Router 1的路由表中看到它。這是路由器1的路由表和EIGRP拓撲表的顯示。

```
router-1#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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
```

Gateway of last resort is not set

```
2.0.0.0/24 is subnetted, 1 subnets
C    2.2.2.0 is directly connected, Loopback0
172.16.0.0/24 is subnetted, 3 2 subnets
C    172.16.13.0 is directly connected, Serial1
D    172.16.3.0 [90/2195456] via 172.16.13.3, 00:31:59, Serial1
router-1#
```

```
router-1# show ip eigrp topology
IP-EIGRP Topology Table for AS(7)/ID(2.2.2.2)
```

```
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
```

```
r - reply Status, s - sia Status
```

```
P 172.16.13.0/24, 1 successors, FD is 2169856
  via Connected, Serial1
P 172.16.3.0/24, 1 successors, FD is 2195456
  via 172.16.13.3 (2195456/281600), Serial1
router-1#
```

從先前的輸出中，您可以看到10.0.0.0/8的預期路由不在路由器1的路由表或EIGRP拓撲表中。這可能是因為路由器1和3具有相同的EIGRP路由器ID。在Cisco IOS軟體版本12.0(2)及更高版本中，Cisco在EIGRP事件日誌中記錄重複的路由器ID，您可以使用**show ip eigrp events**命令檢視該日誌。以下是Router 1的輸出：

```
router-1 #show ip eigrp events
Event information for AS 7:
1 18:06:15.863 Change queue emptied, entries: 1
2 18:06:15.863 Ignored route, metric: 10.0.0.0 2560512256
3 18:06:15.863 Ignored route, neighbor info: 172.16.13.3 Serial2
4 18:06:15.863 Ignored route, dup router: 2.2.2.2
```

!--- Output suppressed.

從先前的輸出中，您可以看到重複的路由器ID是路由器1不接受來自路由器3的路由的原因。

解決方案

解決方案是通過更改環回介面上的最高IP地址來更改其中一個路由器上的路由器ID。如果使用Cisco IOS軟體版本12.1(6)或更高版本，您還可以使用**eigrp router-id <router-id> router**子命令更改路由器ID。在本例中，我們更改了Router 1中的路由器ID。

```
router-1(config)#router eigrp 7
router-1(config-router)#eigrp router-id 3.3.3.3
```

註：在更改Eigrp路由器ID後，發出clear ip eigrp <Autonomous System>命令。

外部路由現在會出現在路由表中，如下所示。

```
router-1#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is not set
 2.0.0.0/24 is subnetted, 1 subnets
C       2.2.2.0 is directly connected, Loopback0
 172.16.0.0/24 is subnetted, 2 subnets
C       172.16.13.0 is directly connected, Serial1
D       172.16.3.0 [90/2195456] via 172.16.13.3, 00:00:00, Serial1
D EX 10.0.0.0/8 [170/2560512256] via 172.16.13.3, 00:00:00, Serial1
router-1#
```

相關資訊

- [IP路由通訊協定支援](#)
- [IP路由技術支援](#)
- [EIGRP技術支援](#)
- [RIP技術支援](#)
- [路由器產品支援](#)
- [技術支援與文件 - Cisco Systems](#)