

为什么 BGP 邻居在“空闲”、“连接”和“活动”状态之间切换？

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[Introduction](#)

只有当他们建立他们之间的对等体连接BGP路由器能交换路由信息。BGP对等体建立从TCP连接的创建设备之间的开始。在TCP已建立连接以后，BGP设备尝试由BGP开放消息交换创建BGP会话，他们交换BGP版本、AS编号、保持时间和BGP标识。

在BGP对等体建立的进程，几件事可以正确地防止BGP邻居设立。本文档将讨论导致该问题的一些可能的原因：

- [邻居声明是不正确的。](#)
- [路由到相邻地址不存在，或者默认路由\(0.0.0.0/0\)用于到达对等体。](#)
- [update-source命令失踪在BGP下。](#)
- 一个打字错误导致在邻居声明或错误的自控系统号的错误IP地址。您需要检查您的配置。
- 单播残破归结于这些原因之一：错误的虚拟电路(VC)映射在极为冗长的网络的一个异步传输模式(ATM)或帧中继环境里。访问列表阻拦单播或TCP信息包。网络地址转换(NAT)在路由器运行和转换单播信息包。第2层发生故障。
- 缺乏**ebgp-multihop**命令是保持从出现的对等体的常见错误。此问题在第二个示例被讨论。

[Prerequisites](#)

[Requirements](#)

There are no specific requirements for this document.

Components Used

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

本文档中的信息都是基于特定实验室环境中的设备创建的。All of the devices used in this document started with a cleared (default) configuration.如果您是在真实网络上操作，请确保您在使用任何命令前已经了解其潜在影响。

Network Diagram

请使用此网络图例如前三个原因：



Conventions

Refer to [Cisco Technical Tips Conventions](#) for more information on document conventions.

邻居声明是不正确的

[show ip bgp summary](#)命令在路由器R1-AGS显示会话是活跃的。

```
R1-AGS(9)#  
show ip bgp summary  
BGP table version is 1, main routing table version 1  
  
Neighbor      V    AS MsgRcvd MsgSent   TblVer  InQ  OutQ Up/Down   State/PfxRcd  
10.10.10.2    4   400     0       0        0    0    0 never     Active
```

这是配置：

R1-AGS	R6-2500
<pre>R1-AGS(9)# show ip bgp summary BGP table version is 1, main routing table version 1 Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down</pre>	<pre>R1-AGS(9)# show ip bgp summary BGP table version is 1, main routing table version 1 Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down</pre>

State/PfxRcd				State/PfxRcd			
10.10.10.2	4	400		10.10.10.2	4	400	
0	0	0	0	0	0	0	0
0	never	Active		0	never	Active	

[debug ip bgp](#)和[debug ip tcp transactions](#) show命令TCP连接失败。

在路由器R1-AGS的调试：

```

BGP: 10.10.10.2 open active, local address 2.2.2.2
TCB00135978 created
TCB00135978 setting property 0 16ABEA
TCB00135978 bound to 2.2.2.2.11039
TCP: sending SYN, seq 3797113156, ack 0
TCP0: Connection to 10.10.10.2:179, advertising MSS 1460
TCP0: state was CLOSED -> SYNSENT [11039 -> 10.10.10.2(179)]
TCP0: state was SYNSENT -> CLOSED [11039 -> 10.10.10.2(179)]
TCP0: bad seg from 10.10.10.2 -- closing connection: seq 0 ack 3797113157 rcvnx 0 rcvwnd 0
TCP0: connection closed - remote sent RST
TCB00135978 destroyed
BGP: 10.10.10.2 open failed: Connection refused by remote host
TCP: sending RST, seq 0, ack 1965664223
TCP: sent RST to 1.1.1.1:11016 from 10.10.10.1:179

```

在路由器R6-2500的调试：

```

TCP: sending RST, seq 0, ack 3797113157
TCP: sent RST to 2.2.2.2:11039 from 10.10.10.2:179
BGP: 10.10.10.1 open active, local address 1.1.1.1
TCB001E030C created
TCB001E030C setting property TCP_WINDOW_SIZE (0) 194F7A
TCB001E030C setting property TCP_TOS (11) 194F79
TCB001E030C bound to 1.1.1.1.11016
TCP: sending SYN, seq 1965664222, ack 0
TCP0: Connection to 10.10.10.1:179, advertising MSS 1460
TCP0: state was CLOSED -> SYNSENT [11016 -> 10.10.10.1(179)]
TCP0: state was SYNSENT -> CLOSED [11016 -> 10.10.10.1(179)]
TCP0: bad seg from 10.10.10.1 -- closing connection: seq 0 ack 1965664223 rcvnx 0 rcvwnd 0
TCP0: connection closed - remote sent RST
TCB 0x1E030C destroyed
BGP: 10.10.10.1 open failed: Connection refused by remote host

```

解决方案

为了补救此情况，任一正确在邻居声明的环回地址或者从配置删除update-source命令。

在本例中，更正地址。

R1-AGS	R6-2500
<pre> router bgp 400 neighbor 1.1.1.1 remote-as 400 neighbor 1.1.1.1 update- source Loopback0 ! ip route 1.1.1.1 </pre>	<pre> router bgp 400 neighbor 2.2.2.2 remote-as 400 neighbor 2.2.2.2 update- source Loopback0 ! ip route 2.2.2.2 </pre>

255.255.255.255 10.10.10.2	255.255.255.255 10.10.10.1
----------------------------	----------------------------

看看[show ip bgp summary命令](#)显示路由器R1-AGS在已建状态。

```
R1-AGS(9)#
show ip bgp summary
BGP table version is 1, main routing table version 1

Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd
1.1.1.1       4   400     3      3        1    0    0 00:00:26    0
```

Note: 如果BGP会话没有在路由器重新载入以后established，请配置[邻接软重新配置](#)语句在BGP为了软复位下。

[路由到相邻地址不存在或默认路由用于到达对等体](#)

[show ip bgp summary命令](#)在路由器R1-AGS显示会话当前活跃的。

```
R1-AGS(9)#
show ip bgp summary
BGP table version is 1, main routing table version 1

Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd
1.1.1.1       4   400     0      0        0    0    0 never      Active
```

这是配置：

R1-AGS	R6-2500
<pre>R1-AGS(9)# show ip bgp summary BGP table version is 1, main routing table version 1 Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd 1.1.1.1 4 400 0 0 0 0 0 never Active</pre>	<pre>R1-AGS(9)# show ip bgp summary BGP table version is 1, main routing table version 1 Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd 1.1.1.1 4 400 0 0 0 0 0 never Active</pre>

如果运行调试指令，它显示没有路由给相邻。

在路由器R1-AGS的调试：

```
R1-AGS(9)#
show ip bgp summary
BGP table version is 1, main routing table version 1

Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd
1.1.1.1       4   400     0      0        0    0    0 never      Active
```

在路由器R6-2500的调试：

```
R1-AGS(9)#
show ip bgp summary
BGP table version is 1, main routing table version 1

Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd
1.1.1.1       4   400      0      0       0    0    0 never    Active
```

解决方案

解决方案将包括路由对下一跳在BGP邻居语句。您能根据情况使用静态或动态路由。在(iBGP)的内部BGP环境里您有更多控制使用路由协议，您能动态地传播路由。在外部BGP (EBGP)情况下，推荐配置静态路由到达下一跳。

请使用[neighbor ebgp-multihop命令](#)，**只有**当您与在您的eBGP对等体时并列的IP地址没有直接地被连接。

在本例中，使用了静态路由。

R1-AGS	R6-2500
<pre>router bgp 300 neighbor 1.1.1.1 remote-as 400 neighbor 1.1.1.1 ebgp-multihop 2 neighbor 1.1.1.1 update-source Loopback0 ! ip route 1.1.1.1 255.255.255.255 10.10.10.2</pre>	<pre>router bgp 400 neighbor 2.2.2.2 remote-as 300 neighbor 2.2.2.2 ebgp-multihop 2 neighbor 2.2.2.2 update-source Loopback0 ! ip route 2.2.2.2 255.255.255.255 10.10.10.1</pre>

[show ip bgp summary命令](#)显示路由器R1-AGS在已建状态。

```
R1-AGS(9)#
show ip bgp summary
BGP table version is 1, main routing table version 1

Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd
1.1.1.1       4   400      3      3       1    0    0 00:00:26    0
```

Note: 默认路由从未用于建立BGP会话(iBGP/eBGP)，并且您看到在调试(没有路由)输出的同样，虽然您能ping BGP邻居。解决方案再将添加路由到BGP邻居。

update-source命令失踪在BGP下

[show ip bgp summary命令](#)在路由器R1-AGS显示会话是活跃的。

```
R1-AGS(9)#
show ip bgp summary
BGP table version is 1, main routing table version 1

Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ  OutQ  Up/Down  State/PfxRcd
1.1.1.1       4   400      0      0       0    0    0 never    Active
```

这是配置：

R1-AGS	R6-2500
<pre> R1-AGS(9)# show ip bgp summary BGP table version is 1, main routing table version 1 Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd 1.1.1.1 4 400 0 0 0 0 never Active </pre>	<pre> R1-AGS(9)# show ip bgp summary BGP table version is 1, main routing table version 1 Neighbor V AS MsgRcvd MsgSent TblVer InQ OutQ Up/Down State/PfxRcd 1.1.1.1 4 400 0 0 0 0 never Active </pre>

如果运行调试指令，它显示TCP连接发生故障。

在路由器R1-AGS的调试：

```

TCP: sending RST, seq 0, ack 2248020754
TCP: sent RST to 10.10.10.2:11018 from 2.2.2.2:179
BGP: 1.1.1.1 open active, local address 10.10.10.1
TCB0016B06C created
TCB0016B06C setting property 0 16ADEA
TCB0016B06C bound to 10.10.10.1.11042
TCP: sending SYN, seq 4099938541, ack 0
TCP0: Connection to 1.1.1.1:179, advertising MSS 536
TCP0: state was CLOSED -> SYNSENT [11042 -> 1.1.1.1(179)]
TCP0: state was SYNSENT -> CLOSED [11042 -> 1.1.1.1(179)]
TCP0: bad seg from 1.1.1.1 -- closing connection: seq 0 ack 4099938542 rcvnxt 0 rcvwnd 0
TCP0: connection closed - remote sent RST
TCB0016B06C destroyed
BGP: 1.1.1.1 open failed: Connection refused by remote host

```

在路由器R6-2500的调试：

```

BGP: 2.2.2.2 open active, local address 10.10.10.2
TCB00194800 created
TCB00194800 setting property TCP_WINDOW_SIZE (0) E6572
TCB00194800 setting property TCP_TOS (11) E6571
TCB00194800 bound to 10.10.10.2.11018
TCP: sending SYN, seq 2248020753, ack 0
TCP0: Connection to 2.2.2.2:179, advertising MSS 556
TCP0: state was CLOSED -> SYNSENT [11018 -> 2.2.2.2(179)]
TCP0: state was SYNSENT -> CLOSED [11018 -> 2.2.2.2(179)]
TCP0: bad seg from 2.2.2.2 -- closing connection: seq 0 ack 2248020754 rcvnxt 0 rcvwnd 0
TCP0: connection closed - remote sent RST
TCB 0x194800 destroyed
BGP: 2.2.2.2 open failed: Connection refused by remote host
TCP: sending RST, seq 0, ack 4099938542
TCP: sent RST to 10.10.10.1:11042 from 1.1.1.1:179

```

解决方案

为了解决此问题，配置update-source命令在两路由器或者删除update-source命令和更改关于两路

由器的邻居声明。这些是两个解决方案示例。

这里， **update-source**命令在两路由器被配置。

R1-AGS	R6-2500
<pre>interface Loopback0 ip address 2.2.2.2 255.255.255.255 ! interface Serial1 ip address 10.10.10.1 255.255.255.0 ! router bgp 400 neighbor 1.1.1.1 remote-as 400 neighbor 1.1.1.1 update- source Loopback0 ! ip route 1.1.1.1 255.255.255.255 10.10.10.2</pre>	<pre>interface Loopback0 ip address 1.1.1.1 255.255.255.255 ! interface Serial0 ip address 10.10.10.2 255.255.255.0 ! router bgp 400 neighbor 2.2.2.2 remote-as 400 neighbor 2.2.2.2 update- source Loopback0 ! ip route 2.2.2.2 255.255.255.255 10.10.10.1</pre>

[show ip bgp summary](#)命令显示路由器R1-AGS在已建状态。

R1-AGS(9)#

[show ip bgp summary](#)

BGP table version is 1, main routing table version 1

```
Neighbor      V    AS MsgRcvd MsgSent  TblVer  InQ OutQ Up/Down  State/PfxRcd
2.2.2.2       4   400     3      3       1    0   0 00:00:26    0
```

当某人与您的环回地址时，并列您必须只使用**update-source**命令。这是可靠对于iBGP对等体和eBGP对等体。

这里，删除**update-source**命令，并且邻居声明在两路由器更改。

R1-AGS	R6-2500
<pre>interface Loopback0 ip address 2.2.2.2 255.255.255.255 ! interface Serial1 ip address 10.10.10.1 255.255.255.0 ! router bgp 400 neighbor 10.10.10.2 remote-as 400</pre>	<pre>interface Loopback0 ip address 1.1.1.1 255.255.255.255 ! interface Serial0 ip address 10.10.10.2 255.255.255.0 ! router bgp 400 neighbor 10.10.10.1 remote-as 400</pre>

[show ip bgp summary](#)命令显示路由器R1-AGS在已建状态。

R1-AGS(9)#

[show ip bgp summary](#)

BGP table version is 1, main routing table version 1

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
10.10.10.2	4	400	3	3	1	0	0	00:00:26	0

[Related Information](#)

- [BGP 支持页](#)
- [Technical Support & Documentation - Cisco Systems](#)