排除eBGP邻接建立故障

目录

问题

防火墙和对等设备之间的外部边界网关协议(eBGP)邻接失败。观察到以下症状：

1.防火墙上的对等体状态为空闲：

<#root>

fw#

show bgp summary

BGP router identifier 192.0.2.2, local AS number 65001
BGP table version is 1, main routing table version 1

Neighbor   V   AS MsgRcvd MsgSent   TblVer InQ OutQ Up/Down State/PfxRcd

198.51.100.2

    4   65002 0   0   1   0   0 never

Idle

2.在接口捕获中只能看到来自对等设备的TCP SYN数据包：

<#root>

fw#

cap capo interface WAN-Telekom

fw#

show cap capo

```
26 packets captured

   1: 06:22:44.990595       198.51.100.2.31242 > 192.0.2.2.179: S 2838607371:2838607371(0) win 16384 <m
   2: 06:22:46.990152       198.51.100.2.31242 > 192.0.2.2.179: S 2838607371:2838607371(0) win 16384 <m
   3: 06:22:50.991007       198.51.100.2.31242 > 192.0.2.2.179: S 2838607371:2838607371(0) win 16384 <m
   4: 06:22:58.991281       198.51.100.2.31242 > 192.0.2.2.179: S 2838607371:2838607371(0) win 16384 <m
```

3.成功建立到对等设备的IP地址的ICMP连接：

```
<#root>

fw#

ping 198.51.100.2


Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 198.51.100.2, timeout is 2 seconds:

!!!!!


Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/10 ms
```

这可以确认防火墙和对等设备之间的IP网络级别可达性。

4.调试级别的系统日志消息表示从对等设备丢弃的TCP请求：

```
<#root>

fw#

show logging

…

May 20 2026 06:32:58: %FTD-7-710005: TCP request discarded from 198.51.100.2/20217 to WAN-Telekom:192.0.


May 20 2026 06:33:00: %FTD-7-710005: TCP request discarded from 198.51.100.2/20217 to WAN-Telekom:192.0
May 20 2026 06:33:04: %FTD-7-710005: TCP request discarded from 198.51.100.2/20217 to WAN-Telekom:192.0
May 20 2026 06:33:12: %FTD-7-710005: TCP request discarded from 198.51.100.2/20217 to WAN-Telekom:192.0
```

5. BGP调试显示“no route to peer”消息：

<#root>

fw#

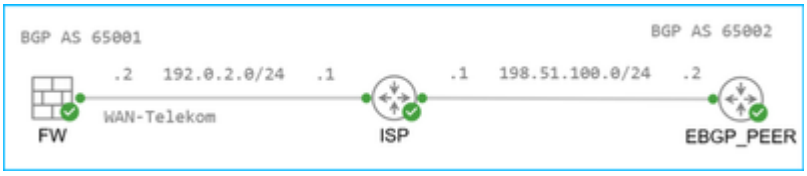
debug ip bgp

```
BGP debugging is on
    for address family: IPv4 Unicast
Successfully set for module BGP at level 1
```

BGP: 198.51.100.2 Active open failed - no route to peer, open active delayed 21504ms (35000ms max, 60% j

环境

拓扑



- 运行FTD 7.4.4并由安全防火墙管理中心(FMC)管理的Firepower 2110。 其他硬件平台和软件版本也可能受到影响。
- 防火墙通过连接到Internet服务提供商(ISP)的WAN-Telekom接口具有到对等地址的静态路由：

<#root>

fw#

show route 198.51.100.2

```
Routing entry for 198.51.100.2 255.255.255.255
```

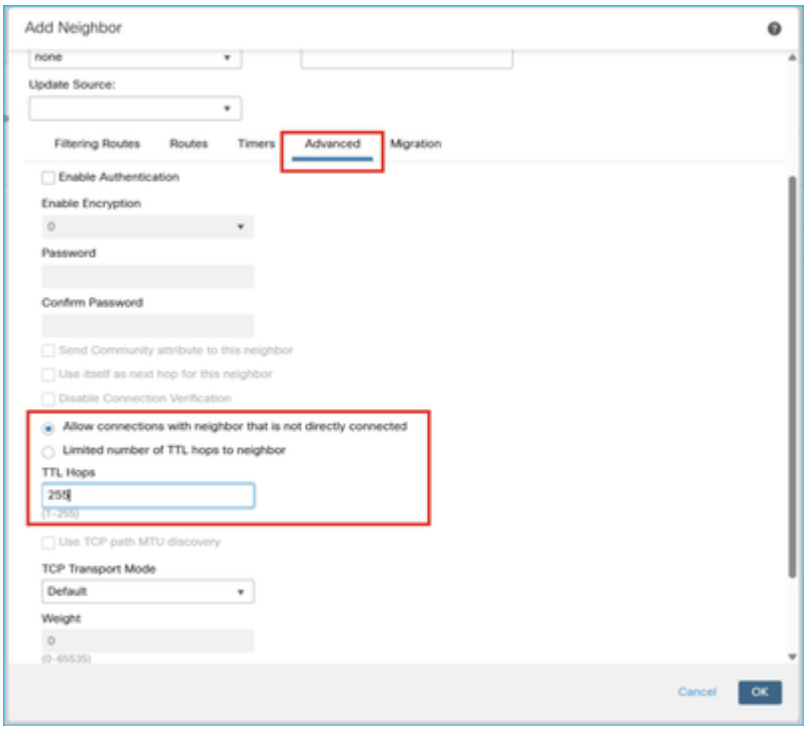
```
  Known via "static", distance 1, metric 0
  Routing Descriptor Blocks:

  * 192.0.2.1, via WAN-Telekom


Route metric is 0, traffic share count is 1
```

- 防火墙具有BGP配置。对等体198.51.100.2具有不同的自治系统编号，因此是外部的：

```
<#root>

fw#

show run router



router bgp 65001


 bgp log-neighbor-changes
 bgp graceful-restart
 address-family ipv4 unicast

  neighbor 198.51.100.2 remote-as 65002


  neighbor 198.51.100.2 transport path-mtu-discovery disable
  neighbor 198.51.100.2 update-source WAN-Telekom
  neighbor 198.51.100.2 activate
```

分辨率

启用BGP邻居配置的Advanced部分中的Allow connections with neighbor that is not directly connected选项并将TTL Hops设置为255后，邻接关系即建立：



原因

默认情况下，防火墙允许直连对等体（即同一子网中的对等体）之间的eBGP邻接。要允许非直连对等体之间的邻接，必须启用允许与未直连的邻居的连接选项。此外，用户可以限制对等体的TTL跳数，并在从对等体收到的TCP数据包的IP报头中设置最小预期生存时间值。默认值为 1。

确认

1.未配置Allow connections with neighbor that is not directly connected选项：

<#root>

fw#

show bgp neighbors 198.51.100.2 | i External

External BGP neighbor not directly connected.

2.配置了Allow connections with neighbor that is not directly connected选项，并且TTL Hops设置为

1:

<#root>

```
fw#

show run router bgp | i 198.51.100.2


  neighbor 198.51.100.2 remote-as 65002

  neighbor 198.51.100.2 ebgp-multihop 1


  neighbor 198.51.100.2 transport path-mtu-discovery disable
  neighbor 198.51.100.2 update-source WAN-Telekom
  neighbor 198.51.100.2 activate


fw#

show bgp neighbors 198.51.100.2 | i External



  External BGP neighbor not directly connected.
```

3.配置了Allow connections with neighbor that is not directly connected选项，并且TTL Hops设置为255:

<#root>

```
fw#

show run router bgp | i 198.51.100.2


  neighbor 198.51.100.2 remote-as 65002

  neighbor 198.51.100.2 ebgp-multihop 255


  neighbor 198.51.100.2 transport path-mtu-discovery disable
  neighbor 198.51.100.2 update-source WAN-Telekom
  neighbor 198.51.100.2 activate


fw#

show bgp neighbors 198.51.100.2 | i External
```

```
External BGP neighbor may be up to 255 hops away.
```

相关内容

- 思科技术支持和下载

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