

F1060路由模式典型组网配置案例10 (IBGP)

设备部署方式 H3C模拟器 韦家宁 2020-03-29 发表

组网及说明



组网说明：

本案例采用H3C HCL模拟器的F1060防火墙来模拟防火墙路由模式的典型部署。为了实现PC之间能够相互通信，因此需要分别在FW、FW2采用三层互联，同时FW1、FW2采用路由模式，最终实现PC之间能够相互PING通。

配置步骤

- 1、按照网络拓扑图正确配置IP地址
- 2、FW1、FW2建立OSPF邻居关系，为建立IBGP邻居关系奠定基础。
- 3、FW1、FW2建立IBGP邻居关系

配置关键点

FW1：
<H3C>sys
System View: return to User View with Ctrl+Z.
[H3C]sysname FW1
[FW1]acl basic 2002
[FW1-acl-ipv4-basic-2002]rule 0 permit source any
[FW1-acl-ipv4-basic-2002]quit
[FW1]
[FW1]zone-pair security source trust destination untrust
[FW1-zone-pair-security-Trust-Untrust]packet-filter 2002
[FW1-zone-pair-security-Trust-Untrust]quit
[FW1]
[FW1]zone-pair security source untrust destination trust
[FW1-zone-pair-security-Untrust-Trust]packet-filter 2002
[FW1-zone-pair-security-Untrust-Trust]quit
[FW1]
[FW1]zone-pair security source trust destination local
[FW1-zone-pair-security-Trust-Local]packet-filter 2002
[FW1-zone-pair-security-Trust-Local]quit
[FW1]
[FW1]zone-pair security source local destination trust
[FW1-zone-pair-security-Local-Trust]packet-filter 2002
[FW1-zone-pair-security-Local-Trust]quit
[FW1]
[FW1]zone-pair security source untrust destination local
[FW1-zone-pair-security-Untrust-Local]packet-filter 2002
[FW1-zone-pair-security-Untrust-Local]quit
[FW1]
[FW1]zone-pair security source local destination untrust
[FW1-zone-pair-security-Local-Untrust]packet-filter 2002
[FW1-zone-pair-security-Local-Untrust]quit
[FW1]
[FW1]zone-pair security source trust destination trust
[FW1-zone-pair-security-Trust-Trust]packet-filter 2002
[FW1-zone-pair-security-Trust-Trust]quit
[FW1]
[FW1]zone-pair security source untrust destination untrust

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[FW1-zone-pair-security-Untrust]packet-filter 2002
[FW1-zone-pair-security-Untrust-Untrust]quit
[FW1]int loopback 0
[FW1-LoopBack0]ip address 1.1.1.1 32
[FW1-LoopBack0]quit
[FW1]int gi 1/0/2
[FW1-GigabitEthernet1/0/2]ip address 192.168.1.1 24
[FW1-GigabitEthernet1/0/2]quit
[FW1]int gi 1/0/3
[FW1-GigabitEthernet1/0/3]des <connect to FW2>
[FW1-GigabitEthernet1/0/3]ip address 10.0.0.1 30
[FW1-GigabitEthernet1/0/3]quit
[FW1]security-zone name Trust
[FW1-security-zone-Trust]import interface GigabitEthernet 1/0/2
[FW1-security-zone-Trust]quit
[FW1]security-zone name Untrust
[FW1-security-zone-Untrust]import interface GigabitEthernet 1/0/3
[FW1-security-zone-Untrust]import interface LoopBack 0
[FW1-security-zone-Untrust]quit
[FW1]ospf 1 router-id 1.1.1.1
[FW1-ospf-1]area 0.0.0.0
[FW1-ospf-1-area-0.0.0.0]network 10.0.0.1 0.0.0.0
[FW1-ospf-1-area-0.0.0.0]network 1.1.1.1 0.0.0.0
[FW1-ospf-1-area-0.0.0.0]quit
[FW1-ospf-1]quit
[FW1]bgp 100
[FW1-bgp-default]router-id 1.1.1.1
[FW1-bgp-default]peer 2.2.2.2 as-number 100
[FW1-bgp-default]peer 2.2.2.2 connect-interface LoopBack 0
[FW1-bgp-default]address-family ipv4 unicast
[FW1-bgp-default-ipv4]peer 2.2.2.2 enable
[FW1-bgp-default-ipv4]network 192.168.1.0 255.255.255.0
[FW1-bgp-default-ipv4]quit
[FW1-bgp-default]quit
```

FW2:

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<H3C>sys
System View: return to User View with Ctrl+Z.
[H3C]sysname FW2
[FW2]acl basic 2002
[FW2-acl-ipv4-basic-2002]rule 0 permit source any
[FW2-acl-ipv4-basic-2002]quit
[FW2]
[FW2]zone-pair security source trust destination untrust
[FW2-zone-pair-security-Trust-Untrust]packet-filter 2002
[FW2-zone-pair-security-Trust-Untrust]quit
[FW2]
[FW2]zone-pair security source untrust destination trust
[FW2-zone-pair-security-Untrust-Trust]packet-filter 2002
[FW2-zone-pair-security-Untrust-Trust]quit
[FW2]
[FW2]zone-pair security source trust destination local
[FW2-zone-pair-security-Trust-Local]packet-filter 2002
[FW2-zone-pair-security-Trust-Local]quit
[FW2]
[FW2]zone-pair security source local destination trust
[FW2-zone-pair-security-Local-Trust]packet-filter 2002
[FW2-zone-pair-security-Local-Trust]quit
[FW2]
[FW2]zone-pair security source untrust destination local
[FW2-zone-pair-security-Untrust-Local]packet-filter 2002
[FW2-zone-pair-security-Untrust-Local]quit
[FW2]
```

```

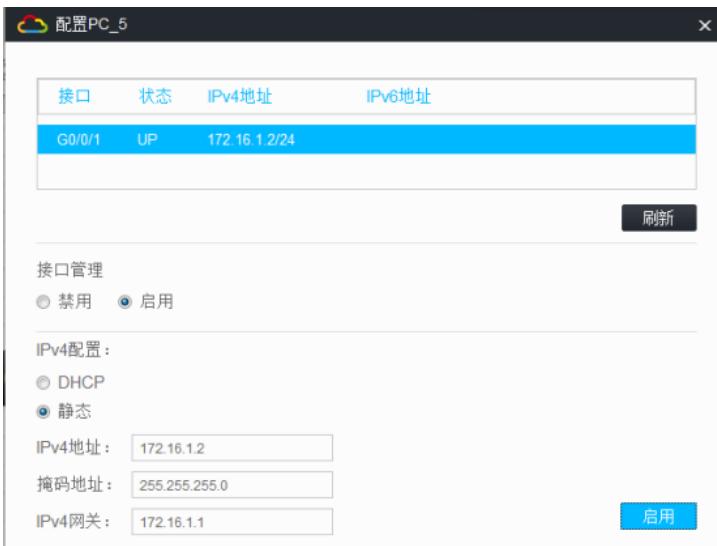
[FW2]zone-pair security source local destination untrust
[FW2-zone-pair-security-Local-Untrust]packet-filter 2002
[FW2-zone-pair-security-Local-Untrust]quit
[FW2]
[FW2]zone-pair security source trust destination trust
[FW2-zone-pair-security-Trust-Trust]packet-filter 2002
[FW2-zone-pair-security-Trust-Trust]quit
[FW2]
[FW2]zone-pair security source untrust destination untrust
[FW2-zone-pair-security-Untrust-Untrust]packet-filter 2002
[FW2-zone-pair-security-Untrust-Untrust]quit
[FW2]int loopback 0
[FW2-LoopBack0]ip address 2.2.2.2 32
[FW2-LoopBack0]quit
[FW2]int gi 1/0/2
[FW2-GigabitEthernet1/0/2]ip address 172.16.1.1 24
[FW2-GigabitEthernet1/0/2]quit
[FW2]int gi 1/0/3
[FW2-GigabitEthernet1/0/3]des <connect to FW1>
[FW2-GigabitEthernet1/0/3]ip address 10.0.0.2 30
[FW2-GigabitEthernet1/0/3]quit
[FW2]security-zone name Trust
[FW2-security-zone-Trust]import interface GigabitEthernet 1/0/2
[FW2-security-zone-Trust]quit
[FW2]security-zone name Untrust
[FW2-security-zone-Untrust]import interface GigabitEthernet 1/0/3
[FW2-security-zone-Untrust]import interface LoopBack 0
[FW2-security-zone-Untrust]quit
[FW2]ospf 1 router-id 2.2.2.2
[FW2-ospf-1]area 0.0.0.0
[FW2-ospf-1-area-0.0.0.0]network 10.0.0.2 0.0.0.0
[FW2-ospf-1-area-0.0.0.0]network 2.2.2.2 0.0.0.0
[FW2-ospf-1-area-0.0.0.0]quit
[FW2-ospf-1]quit
[FW2]bgp 100
[FW2-bgp-default]router-id 2.2.2.2
[FW2-bgp-default]peer 1.1.1.1 as-number 100
[FW2-bgp-default]peer 1.1.1.1 connect-interface LoopBack 0
[FW2-bgp-default]address-family ipv4 unicast
[FW2-bgp-default-ipv4]peer 1.1.1.1 enable
[FW2-bgp-default-ipv4]network 172.16.1.0 255.255.255.0
[FW2-bgp-default-ipv4]quit
[FW2-bgp-default]quit

```

测试：

PC都填写IP地址：





PC之间可以相互PING通：

```

hcl_qcwmny
MSR36-20_1  MSR36-20_2  F1080_3  PC_4  PC_5
<H3C>%Mar 29 09:23:35:581 2020 H3C SHELL/5/SHELL_LOGIN: Console logged in from con0.

<H3C>
<H3C>
<H3C>ping 172.16.1.2
Ping 172.16.1.2 (172.16.1.2): 56 data bytes, press CTRL_C to break
56 bytes from 172.16.1.2: icmp_seq=0 ttl=252 time=3.000 ms
56 bytes from 172.16.1.2: icmp_seq=1 ttl=252 time=3.000 ms
56 bytes from 172.16.1.2: icmp_seq=2 ttl=252 time=4.000 ms
56 bytes from 172.16.1.2: icmp_seq=3 ttl=252 time=3.000 ms
56 bytes from 172.16.1.2: icmp_seq=4 ttl=252 time=3.000 ms
--- Ping statistics for 172.16.1.2 ---
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss
round-trip min/avg/max/std-dev = 3.000/3.200/4.000/0.400 ms
<H3C>%Mar 29 09:23:48:465 2020 H3C PING/6/PING_STATISTICS: Ping statistics for 172.16.1.2:
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss, round-trip min/avg/max/
std-dev = 3.000/3.200/4.000/0.400 ms.

```

```

hcl_qcwmny
MSR36-20_1  MSR36-20_2  F1080_3  PC_4  PC_5
<H3C>%Mar 29 09:23:42:560 2020 H3C SHELL/5/SHELL_LOGIN: Console logged in from con0.

<H3C>
<H3C>
<H3C>ping 192.168.1.2
Ping 192.168.1.2 (192.168.1.2): 56 data bytes, press CTRL_C to break
56 bytes from 192.168.1.2: icmp_seq=0 ttl=252 time=5.000 ms
56 bytes from 192.168.1.2: icmp_seq=1 ttl=252 time=3.000 ms
56 bytes from 192.168.1.2: icmp_seq=2 ttl=252 time=3.000 ms
56 bytes from 192.168.1.2: icmp_seq=3 ttl=252 time=4.000 ms
56 bytes from 192.168.1.2: icmp_seq=4 ttl=252 time=4.000 ms
--- Ping statistics for 192.168.1.2 ---
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss
round-trip min/avg/max/std-dev = 3.000/3.800/5.000/0.748 ms
<H3C>%Mar 29 09:24:06:924 2020 H3C PING/6/PING_STATISTICS: Ping statistics for 192.168.1.2:
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss, round-trip min/avg/max/
std-dev = 3.000/3.800/5.000/0.748 ms.

```

分别查看FW1、FW2的BGP邻居信息：

```

[FW1]dis bgp peer ipv4
BGP local router ID: 1.1.1.1
Local AS number: 100
Total number of peers: 1          Peers in established state: 1
* - Dynamically created peer
Peer           AS  MsgRcvd  MsgSent OutQ PrefRcv Up/Down  State
2.2.2.2        100      5       4     0    1 00:00:20 Established
[FW1]

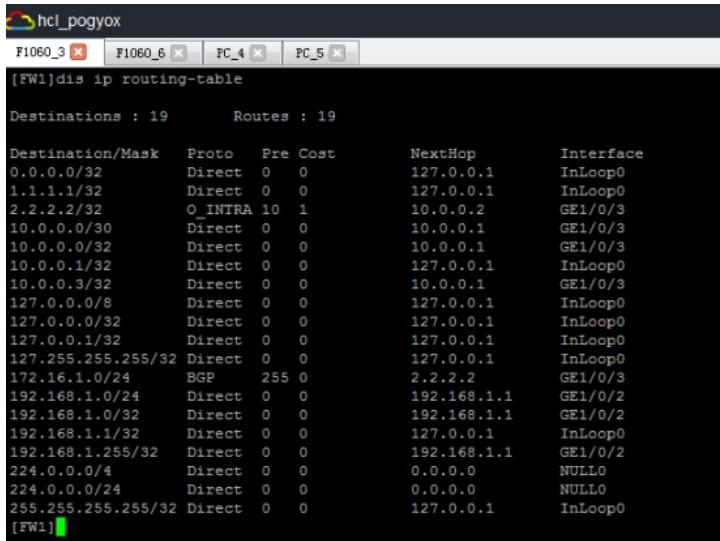
```

```

[FW2]dis bgp peer ipv4
BGP local router ID: 2.2.2.2
Local AS number: 100
Total number of peers: 1          Peers in established state: 1
* - Dynamically created peer
Peer           AS  MsgRcvd  MsgSent OutQ PrefRcv Up/Down  State
1.1.1.1        100      4       4     0    1 00:00:37 Established
[FW2]

```

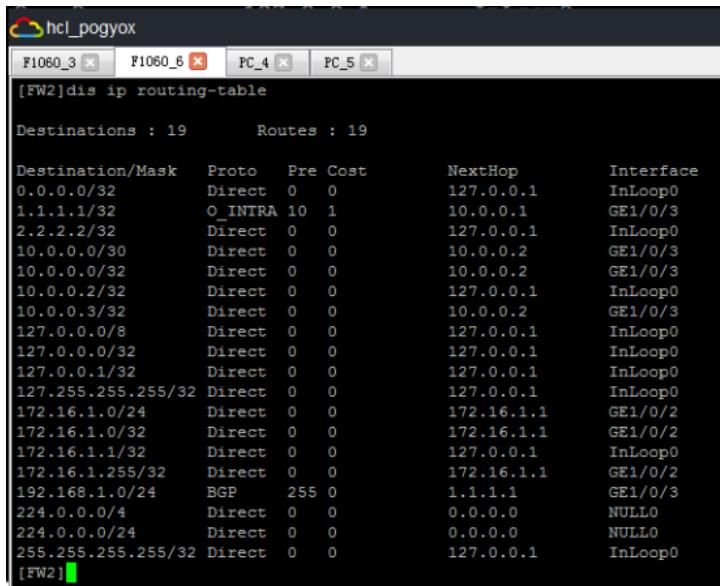
分别查看FW1、FW2的路由表：



[FW1]dis ip routing-table

Destinations	Routes		
0.0.0.0/32	Direct 0 0	127.0.0.1	InLoop0
1.1.1.1/32	Direct 0 0	127.0.0.1	InLoop0
2.2.2.2/32	O_INTRA 10 1	10.0.0.2	GE1/0/3
10.0.0.0/30	Direct 0 0	10.0.0.1	GE1/0/3
10.0.0.0/32	Direct 0 0	10.0.0.1	GE1/0/3
10.0.0.1/32	Direct 0 0	127.0.0.1	InLoop0
10.0.0.3/32	Direct 0 0	10.0.0.1	GE1/0/3
127.0.0.0/8	Direct 0 0	127.0.0.1	InLoop0
127.0.0.0/32	Direct 0 0	127.0.0.1	InLoop0
127.0.0.1/32	Direct 0 0	127.0.0.1	InLoop0
127.255.255.255/32	Direct 0 0	127.0.0.1	InLoop0
172.16.1.0/24	BGP 255 0	2.2.2.2	GE1/0/3
192.168.1.0/24	Direct 0 0	192.168.1.1	GE1/0/2
192.168.1.0/32	Direct 0 0	192.168.1.1	GE1/0/2
192.168.1.1/32	Direct 0 0	127.0.0.1	InLoop0
192.168.1.255/32	Direct 0 0	192.168.1.1	GE1/0/2
224.0.0.0/4	Direct 0 0	0.0.0.0	NULL0
224.0.0.0/24	Direct 0 0	0.0.0.0	NULL0
255.255.255.255/32	Direct 0 0	127.0.0.1	InLoop0

[FW1]



[FW2]dis ip routing-table

Destinations	Routes		
0.0.0.0/32	Direct 0 0	127.0.0.1	InLoop0
1.1.1.1/32	O_INTRA 10 1	10.0.0.1	GE1/0/3
2.2.2.2/32	Direct 0 0	127.0.0.1	InLoop0
10.0.0.0/30	Direct 0 0	10.0.0.2	GE1/0/3
10.0.0.0/32	Direct 0 0	10.0.0.2	GE1/0/3
10.0.0.2/32	Direct 0 0	127.0.0.1	InLoop0
10.0.0.3/32	Direct 0 0	10.0.0.2	GE1/0/3
127.0.0.0/8	Direct 0 0	127.0.0.1	InLoop0
127.0.0.0/32	Direct 0 0	127.0.0.1	InLoop0
127.0.0.1/32	Direct 0 0	127.0.0.1	InLoop0
127.255.255.255/32	Direct 0 0	127.0.0.1	InLoop0
172.16.1.0/24	Direct 0 0	172.16.1.1	GE1/0/2
172.16.1.0/32	Direct 0 0	172.16.1.1	GE1/0/2
172.16.1.1/32	Direct 0 0	127.0.0.1	InLoop0
172.16.1.255/32	Direct 0 0	172.16.1.1	GE1/0/2
192.168.1.0/24	BGP 255 0	1.1.1.1	GE1/0/3
224.0.0.0/4	Direct 0 0	0.0.0.0	NULL0
224.0.0.0/24	Direct 0 0	0.0.0.0	NULL0
255.255.255.255/32	Direct 0 0	127.0.0.1	InLoop0

[FW2]

至此，F1060路由模式典型组网配置案例10（IBGP）已完成！