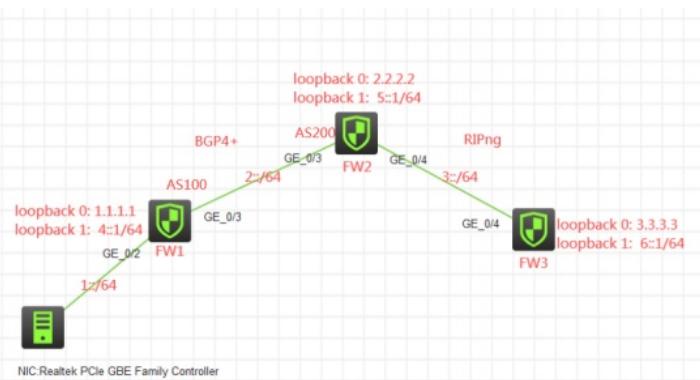


# F1060 IPV6 BGP4+与RIPng路由重分布典型组网配置案例

设备部署方式 H3C模拟器 韦家宁 2020-03-15 发表

## 组网及说明



## 组网说明：

本案例采用H3C HCL模拟器的F1060来模拟IPV6 BGP4+与RIPng路由重分布的典型组网配置。FW1与FW2运行BGP4+路由协议，FW2与FW3运行RIPng路由协议，为了实现物理机能够PING通FW3，因此需要在FW2配置BGP4+与RIPng路由重分布。

## 配置步骤

- 1、按照网络拓扑图正确配置IP地址
- 2、FW1与FW2运行BGP4+路由协议
- 3、FW2与FW3运行RIPng路由协议
- 4、FW2配置BGP4+与RIPng路由重分布

## 配置关键点

FW1:

```
<H3C>sys
System View: return to User View with Ctrl+Z.
[H3C]sysname FW1
[FW1]acl ipv6 basic 2001
[FW1-acl-ipv6-basic-2001]rule 0 permit source any
[FW1-acl-ipv6-basic-2001]quit
[FW1]zone-pair security source trust destination untrust
[FW1-zone-pair-security-Trust-Untrust]packet-filter ipv6 2001
[FW1-zone-pair-security-Trust-Untrust]quit
[FW1]
[FW1]zone-pair security source untrust destination trust
[FW1-zone-pair-security-Untrust-Trust]packet-filter ipv6 2001
[FW1-zone-pair-security-Untrust-Trust]quit
[FW1]
[FW1]zone-pair security source local destination local
[FW1-zone-pair-security-Trust-Local]packet-filter ipv6 2001
[FW1-zone-pair-security-Trust-Local]quit
[FW1]
[FW1]zone-pair security source untrust destination local
[FW1-zone-pair-security-Untrust-Local]packet-filter ipv6 2001
[FW1-zone-pair-security-Untrust-Local]quit
[FW1]
[FW1]zone-pair security source local destination untrust
[FW1-zone-pair-security-Local-Untrust]packet-filter ipv6 2001
[FW1-zone-pair-security-Local-Untrust]quit
[FW1]
[FW1]zone-pair security source trust destination trust
```

```
[FW1-zone-pair-security-Trust-Trust]packet-filter ipv6 2001
[FW1-zone-pair-security-Trust-Trust]quit
[FW1]
[FW1]zone-pair security source untrust destination untrust
[FW1-zone-pair-security-Untrust-Untrust]packet-filter ipv6 2001
[FW1-zone-pair-security-Untrust-Untrust]quit
[FW1]int gi 1/0/2
[FW1-GigabitEthernet1/0/2]ipv6 address 1::1 64
[FW1-GigabitEthernet1/0/2]quit
[FW1]int gi 1/0/3
[FW1-GigabitEthernet1/0/3]des <connect to FW2>
[FW1-GigabitEthernet1/0/3]ipv6 address 2::1 64
[FW1-GigabitEthernet1/0/3]quit
[FW1]int loopback 0
[FW1-LoopBack0]ip address 1.1.1.1 32
[FW1-LoopBack0]quit
[FW1]int loopback 1
[FW1-LoopBack1]ipv6 address 4::1 64
[FW1-LoopBack1]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]import interface LoopBack 1
[FW1-security-zone-Untrust]quit
```

FW1 BGP4+配置关键点:

```
[FW1]bgp 100
[FW1-bgp-default]router-id 1.1.1.1
[FW1-bgp-default]peer 2::2 as-number 200
[FW1-bgp-default]address-family ipv6 unicast
[FW1-bgp-default-ipv6]peer 2::2 enable
[FW1-bgp-default-ipv6]import-route direct
[FW1-bgp-default-ipv6]network 1:: 64
[FW1-bgp-default-ipv6]quit
[FW1-bgp-default]quit
```

FW2:

```
<H3C>sys
System View: return to User View with Ctrl+Z.
[H3C]sysname FW2
[FW2]acl ipv6 basic 2001
[FW2-acl-ipv6-basic-2001]rule 0 permit source any
[FW2-acl-ipv6-basic-2001]quit
[FW2]zone-pair security source trust destination untrust
[FW2-zone-pair-security-Trust-Untrust]packet-filter ipv6 2001
[FW2-zone-pair-security-Trust-Untrust]quit
[FW2]
[FW2]zone-pair security source untrust destination trust
[FW2-zone-pair-security-Untrust-Trust]packet-filter ipv6 2001
[FW2-zone-pair-security-Untrust-Trust]quit
[FW2]
[FW2]zone-pair security source local destination trust
[FW2-zone-pair-security-Local-Trust]packet-filter ipv6 2001
[FW2-zone-pair-security-Local-Trust]quit
[FW2]
[FW2]zone-pair security source untrust destination local
[FW2-zone-pair-security-Untrust-Local]packet-filter ipv6 2001
[FW2-zone-pair-security-Untrust-Local]quit
```

```
[FW2-zone-pair-security-Untrust]quit
[FW2]
[FW2]zone-pair security source local destination untrust
[FW2-zone-pair-security-Local-Untrust]packet-filter ipv6 2001
[FW2-zone-pair-security-Local-Untrust]quit
[FW2]
[FW2]zone-pair security source trust destination trust
[FW2-zone-pair-security-Trust-Trust]packet-filter ipv6 2001
[FW2-zone-pair-security-Trust-Trust]quit
[FW2]
[FW2]zone-pair security source untrust destination untrust
[FW2-zone-pair-security-Untrust-Untrust]packet-filter ipv6 2001
[FW2-zone-pair-security-Untrust-Untrust]quit
[FW2]int gi 1/0/3
[FW2-GigabitEthernet1/0/3]des <connect to FW1>
[FW2-GigabitEthernet1/0/3]ipv6 address 2::2 64
[FW2-GigabitEthernet1/0/3]quit
[FW2]int gi 1/0/4
[FW2-GigabitEthernet1/0/4]des <connect to FW3>
[FW2-GigabitEthernet1/0/4]ipv6 address 3::2 64
[FW2-GigabitEthernet1/0/4]quit
[FW2]int loopback 0
[FW2-LoopBack0]ip address 2.2.2.2 32
[FW2-LoopBack0]quit
[FW2]int loopback 1
[FW2-LoopBack1]ipv6 address 5::1 64
[FW2-LoopBack1]quit
[FW2]security-zone name Trust
[FW2-security-zone-Trust]import interface GigabitEthernet 1/0/3
[FW2-security-zone-Trust]quit
[FW2]security-zone name Untrust
[FW2-security-zone-Untrust]import interface GigabitEthernet 1/0/4
[FW2-security-zone-Untrust]import interface LoopBack 0
[FW2-security-zone-Untrust]import interface LoopBack 1
[FW2-security-zone-Untrust]quit
```

FW2 BGP4+与RIPng重分布配置关键点：

```
[FW2]bgp 200
[FW2-bgp-default]router-id 2.2.2.2
[FW2-bgp-default]peer 2::1 as-number 100
[FW2-bgp-default]address-family ipv6 unicast
[FW2-bgp-default-ipv6]import-route direct
[FW2-bgp-default-ipv6]import-route ripng 1
[FW2-bgp-default-ipv6]peer 2::1 enable
[FW2-bgp-default-ipv6]quit
[FW2-bgp-default]quit
[FW2]ripng 1
[FW2-ripng-1]import-route direct
[FW2-ripng-1]import-route bgp4+
[FW2-ripng-1]quit
[FW2]int gi 1/0/4
[FW2-GigabitEthernet1/0/4]ripng 1 enable
[FW2-GigabitEthernet1/0/4]quit
```

FW3：

```
<H3C>sys
System View: return to User View with Ctrl+Z.
[H3C]sysname FW3
[FW3]acl ipv6 basic 2001
[FW3-acl-ipv6-basic-2001]rule 0 permit source any
[FW3-acl-ipv6-basic-2001]quit
[FW3]zone-pair security source trust destination untrust
[FW3-zone-pair-security-Trust-Untrust]packet-filter ipv6 2001
[FW3-zone-pair-security-Trust-Untrust]quit
```

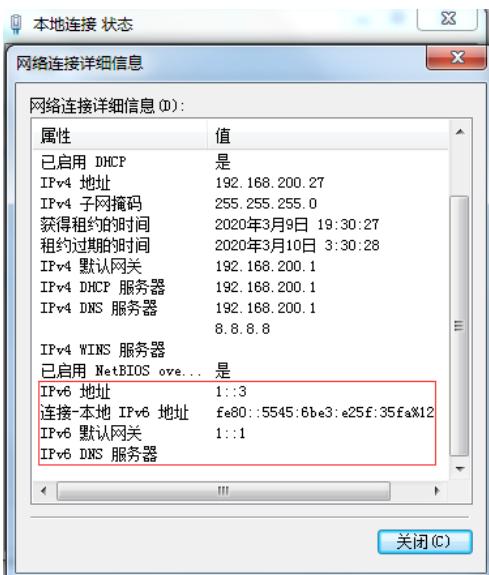
```
[FW3]
[FW3]zone-pair security source untrust destination trust
[FW3-zone-pair-security-Untrust-Trust]packet-filter ipv6 2001
[FW3-zone-pair-security-Untrust-Trust]quit
[FW3]
[FW3]zone-pair security source trust destination local
[FW3-zone-pair-security-Trust-Local]packet-filter ipv6 2001
[FW3-zone-pair-security-Trust-Local]quit
[FW3]
[FW3]zone-pair security source local destination trust
[FW3-zone-pair-security-Local-Trust]packet-filter ipv6 2001
[FW3-zone-pair-security-Local-Trust]quit
[FW3]
[FW3]zone-pair security source untrust destination local
[FW3-zone-pair-security-Untrust-Local]packet-filter ipv6 2001
[FW3-zone-pair-security-Untrust-Local]quit
[FW3]
[FW3]zone-pair security source local destination untrust
[FW3-zone-pair-security-Local-Untrust]packet-filter ipv6 2001
[FW3-zone-pair-security-Local-Untrust]quit
[FW3]
[FW3]zone-pair security source trust destination trust
[FW3-zone-pair-security-Trust-Trust]packet-filter ipv6 2001
[FW3-zone-pair-security-Trust-Trust]quit
[FW3]
[FW3]zone-pair security source untrust destination untrust
[FW3-zone-pair-security-Untrust-Untrust]packet-filter ipv6 2001
[FW3-zone-pair-security-Untrust-Untrust]quit
[FW3]int loopback 0
[FW3-LoopBack0]ip address 3.3.3.3 32
[FW3-LoopBack0]quit
[FW3]int loopback 1
[FW3-LoopBack1]ipv6 address 6::1 64
[FW3-LoopBack1]quit
[FW3]int gi 1/0/4
[FW3-GigabitEthernet1/0/4]des <connect to FW2>
[FW3-GigabitEthernet1/0/4]ipv6 address 3::1 64
[FW3-GigabitEthernet1/0/4]quit
[FW3]security-zone name Untrust
[FW3-security-zone-Untrust]import interface GigabitEthernet 1/0/4
[FW3-security-zone-Untrust]import interface LoopBack 0
[FW3-security-zone-Untrust]import interface LoopBack 1
[FW3-security-zone-Untrust]quit
```

FW3 RIPng关键配置点:

```
[FW3]ripng 1
[FW3-ripng-1]import-route direct
[FW3-ripng-1]quit
[FW3]int loopback 1
[FW3-LoopBack1]ripng 1 enable
[FW3-LoopBack1]quit
[FW3]int gi 1/0/4
[FW3-GigabitEthernet1/0/4]ripng 1 enable
[FW3-GigabitEthernet1/0/4]quit
```

测试:

物理机填写IPV6地址:



物理机能PING通FW3的loopback1：

```
管理员: C:\Windows\system32\cmd.exe
Microsoft Windows [版本 6.1.7601]
版权所有 © 2009 Microsoft Corporation。保留所有权利。
C:\Users\Administrator.USER-20190510MA>ping 6::1

正在 Ping 6::1 具有 32 字节的数据:
来自 6::1 的回复: 时间=2ms
来自 6::1 的回复: 时间=1ms
来自 6::1 的回复: 时间=1ms
来自 6::1 的回复: 时间=1ms

6::1 的 Ping 统计信息:
    数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 <0x 丢失>,
往返行程的估计时间<以毫秒为单位>:
    最短 = 1ms, 最长 = 2ms, 平均 = 1ms

C:\Users\Administrator.USER-20190510MA>
```

分别查看FW1、FW2的BGP4+邻居信息：

```
[FW1]dis bgp peer ipv6
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                  200      6      6      0      4 00:01:21 Established
[FW1]
```

```
[FW2]dis bgp peer ipv6
BGP local router ID: 2.2.2.2
Local AS number: 200
Total number of peers: 1          Peers in established state: 1
* - Dynamically created peer
Peer                  AS MsgRcvd MsgSent OutQ PrefRcv Up/Down State
2::1                  100      6      6      0      3 00:01:35 Established
[FW2]
```

分别查看FW1、FW2、FW3的IPV6路由表：

[FW1]dis ipv6 routing-table

Destinations : 12 Routes : 12

Destination: ::1/128	Protocol : Direct
NextHop : ::1	Preference: 0
Interface : InLoop0	Cost : 0
Destination: 1::/64	Protocol : Direct
NextHop : ::	Preference: 0
Interface : GE1/0/2	Cost : 0

```

Destination: 1::1/128          Protocol : Direct
NextHop  ::1                  Preference: 0
Interface : InLoop0           Cost    : 0

Destination: 2::/64            Protocol : Direct
NextHop  ::::                 Preference: 0
Interface : GE1/0/3           Cost    : 0

Destination: 2::1/128          Protocol : Direct
NextHop  ::1                  Preference: 0
Interface : InLoop0           Cost    : 0

Destination: 3::/64            Protocol : BGP4+
NextHop  :2::2                Preference: 255
Interface : GE1/0/3           Cost    : 0

Destination: 4::/64            Protocol : Direct
NextHop  ::::                 Preference: 0
Interface : Loop1             Cost    : 0

Destination: 4::1/128          Protocol : Direct
NextHop  ::1                  Preference: 0
Interface : InLoop0           Cost    : 0

Destination: 5::/64            Protocol : BGP4+
NextHop  :2::2                Preference: 255
Interface : GE1/0/3           Cost    : 0

Destination: 6::/64            Protocol : BGP4+
NextHop  :2::2                Preference: 255
Interface : GE1/0/3           Cost    : 1

Destination: FE80::/10          Protocol : Direct
NextHop  ::::                 Preference: 0
Interface : InLoop0           Cost    : 0

Destination: FF00::/8           Protocol : Direct
NextHop  ::::                 Preference: 0
Interface : NULL0              Cost    : 0
[FW1]

```

[FW2]dis ipv6 routing-table

Destinations : 12

Routes : 12

```

Destination: ::1/128          Protocol : Direct
NextHop  ::1                  Preference: 0
Interface : InLoop0           Cost    : 0

Destination: 1::/64            Protocol : BGP4+
NextHop  :2::1                Preference: 255
Interface : GE1/0/3           Cost    : 0

Destination: 2::/64            Protocol : Direct
NextHop  ::::                 Preference: 0
Interface : GE1/0/3           Cost    : 0

Destination: 2::1/128          Protocol : Direct
NextHop  ::1                  Preference: 0
Interface : InLoop0           Cost    : 0

Destination: 2::2/128          Protocol : Direct
NextHop  ::1                  Preference: 0
Interface : InLoop0           Cost    : 0

Destination: 3::/64            Protocol : Direct
NextHop  ::::                 Preference: 0

```

```

Interface : GE1/0/4          Cost    : 0

Destination: 3::2/128        Protocol : Direct
NextHop   ::1                 Preference: 0
Interface : InLoop0          Cost    : 0

Destination: 4::/64          Protocol : BGP4+
NextHop   :2::1               Preference: 255
Interface : GE1/0/3          Cost    : 0

Destination: 5::/64          Protocol : Direct
NextHop   ::::                Preference: 0
Interface : Loop1            Cost    : 0

Destination: 5::1/128        Protocol : Direct
NextHop   ::1                 Preference: 0
Interface : InLoop0          Cost    : 0

Destination: 6::/64          Protocol : RIPng
NextHop   : FE80::547B:C7FF:FE20:309      Preference: 100
Interface : GE1/0/4            Cost    : 1

Destination: FE80::/10        Protocol : Direct
NextHop   ::::                Preference: 0
Interface : InLoop0            Cost    : 0

Destination: FF00::/8         Protocol : Direct
NextHop   ::::                Preference: 0
Interface : NULL0             Cost    : 0
[FW2]

[FW3]dis ipv6 routing-table

Destinations : 11      Routes : 11

Destination: ::1/128        Protocol : Direct
NextHop   ::1                 Preference: 0
Interface : InLoop0          Cost    : 0

Destination: 1::/64          Protocol : RIPng
NextHop   : FE80::547B:C2FF:FED7:209      Preference: 100
Interface : GE1/0/4            Cost    : 1

Destination: 2::/64          Protocol : RIPng
NextHop   : FE80::547B:C2FF:FED7:209      Preference: 100
Interface : GE1/0/4            Cost    : 1

Destination: 3::/64          Protocol : Direct
NextHop   ::::                Preference: 0
Interface : GE1/0/4            Cost    : 0

Destination: 3::1/128        Protocol : Direct
NextHop   ::1                 Preference: 0
Interface : InLoop0          Cost    : 0

Destination: 4::/64          Protocol : RIPng
NextHop   : FE80::547B:C2FF:FED7:209      Preference: 100
Interface : GE1/0/4            Cost    : 1

Destination: 5::/64          Protocol : RIPng
NextHop   : FE80::547B:C2FF:FED7:209      Preference: 100
Interface : GE1/0/4            Cost    : 1

Destination: 6::/64          Protocol : Direct

```

```
NextHop  ::          Preference: 0
Interface : Loop1      Cost    : 0

Destination: 6::1/128      Protocol : Direct
NextHop   ::::1          Preference: 0
Interface : InLoop0       Cost    : 0

Destination: FE80::/10      Protocol : Direct
NextHop   ::::           Preference: 0
Interface : InLoop0       Cost    : 0

Destination: FF00::/8       Protocol : Direct
NextHop   ::::           Preference: 0
Interface : NULL0          Cost    : 0
[FW3]
```

至此，F1060 IPV6 BGP4+与RIPng路由重分布典型组网配置案例已完成！