

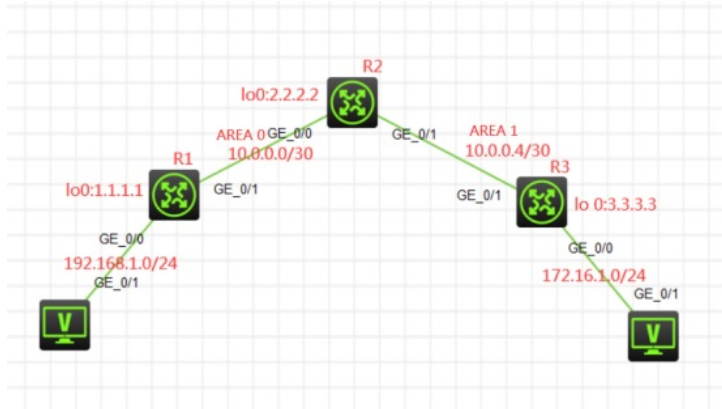
## 知 多区域OSPF典型配置案例

OSPF H3C模拟器 韦家宁 2019-12-14 发表

### 组网及说明

在实际组网中，经常会遇到OSPF组网的案例，比如单区域OSPF、多区域OSPF、OSPF虚链路、OSPF NSSA、OSPF STUB等需求，以下是多区域OSPF典型组网的配置案例。

网络拓扑图：



互联地址、业务地址、loopback0地址如上图所示，全网均采用OSPF进程1，其中R1与R2路由器属于OSPF的区域0，R2与R3路由器属于OSPF区域1，实现全网互联互通。

### 配置步骤

- 1、配置loopback0地址
- 2、配置各互联地址
- 3、创建OSPF进程1，并将各地址在区域0中发布
- 4、查看OSPF邻居的状态
- 5、测试PC之间能互联互通

### 配置关键点

R1：

```
<H3C>system-view
[H3C]sysname R1
[R1]int LoopBack 0
[R1-LoopBack0]ip add
[R1-LoopBack0]ip address 1.1.1.1 32
[R1-LoopBack0]quit
[R1]int gi 0/0
[R1-GigabitEthernet0/0]ip address 192.168.1.1 24
[R1-GigabitEthernet0/0]description <connect to PC>
[R1-GigabitEthernet0/0]quit
[R1]int gi 0/1
[R1-GigabitEthernet0/1]ip address 10.0.0.1 30
[R1-GigabitEthernet0/1]description <connect to R2>
[R1-GigabitEthernet0/1]quit
[R1]ospf 1 router-id 1.1.1.1
[R1-ospf-1]area 0.0.0.0
[R1-ospf-1-area-0.0.0.0]network 10.0.0.1 0.0.0.0
[R1-ospf-1-area-0.0.0.0]network 1.1.1.1 0.0.0.0
[R1-ospf-1-area-0.0.0.0]network 192.168.1.0 0.0.0.255
[R1-ospf-1-area-0.0.0.0]quit
[R1-ospf-1]quit
```

R2：

```
<H3C>system-view
[H3C]sysname R2
[R2]int LoopBack 0
[R2-LoopBack0]ip address 2.2.2.2 32
[R2-LoopBack0]quit
```

```

[R2]int gi 0/0
[R2-GigabitEthernet0/0]ip address 10.0.0.2 30
[R2-GigabitEthernet0/0]description <connect to R1>
[R2-GigabitEthernet0/0]quit
[R2]int gi 0/1
[R2-GigabitEthernet0/1]description <connect to R3>
[R2-GigabitEthernet0/1]ip address 10.0.0.5 30
[R2-GigabitEthernet0/1]quit
[R2]ospf 1 router-id 2.2.2.2
[R2-ospf-1]area 0.0.0.0
[R2-ospf-1-area-0.0.0.0]network 10.0.0.2 0.0.0.0
[R2-ospf-1-area-0.0.0.0]network 2.2.2.2 0.0.0.0
[R2-ospf-1-area-0.0.0.0]quit
[R2-ospf-1]area 0.0.0.1
[R2-ospf-1-area-0.0.0.1]network 10.0.0.5 0.0.0.0
[R2-ospf-1-area-0.0.0.1]quit
[R2-ospf-1]quit

```

R3:

```

<H3C>system-view
[H3C]sysname R3
[R3]int LoopBack 0
[R3-LoopBack0]ip address 3.3.3.3 32
[R3-LoopBack0]quit
[R3]int gi 0/0
[R3-GigabitEthernet0/0]description <connect to PC>
[R3-GigabitEthernet0/0]ip address 172.16.1.1 24
[R3-GigabitEthernet0/0]quit
[R3]int gi 0/1
[R3-GigabitEthernet0/1]description <connect to R2>
[R3-GigabitEthernet0/1]ip address 10.0.0.6 30
[R3-GigabitEthernet0/1]quit
[R3]ospf 1 router-id 3.3.3.3
[R3-ospf-1]area 0.0.0.1
[R3-ospf-1-area-0.0.0.1]network 10.0.0.6 0.0.0.0
[R3-ospf-1-area-0.0.0.1]network 3.3.3.3 0.0.0.0
[R3-ospf-1-area-0.0.0.1]network 172.16.1.0 0.0.0.255
[R3-ospf-1-area-0.0.0.1]quit
[R3-ospf-1]quit

```

测试各路由器的OSPF邻居建立情况:

```
[R1]dis ospf peer
```

```

      OSPF Process 1 with Router ID 1.1.1.1
      Neighbor Brief Information

```

Area: 0.0.0.0

Router ID	Address	Pri	Dead-Time	State	Interface
2.2.2.2	10.0.0.2	1	31	Full/BDR	GE0/1

```
[R1]
```

```
[R2]dis ospf peer
```

```

      OSPF Process 1 with Router ID 2.2.2.2
      Neighbor Brief Information

```

Area: 0.0.0.0

Router ID	Address	Pri	Dead-Time	State	Interface
1.1.1.1	10.0.0.1	1	35	Full/DR	GE0/0

Area: 0.0.0.1

Router ID	Address	Pri	Dead-Time	State	Interface
3.3.3.3	10.0.0.6	1	33	Full/BDR	GE0/1

```
[R2]
```

[R3]dis ospf peer

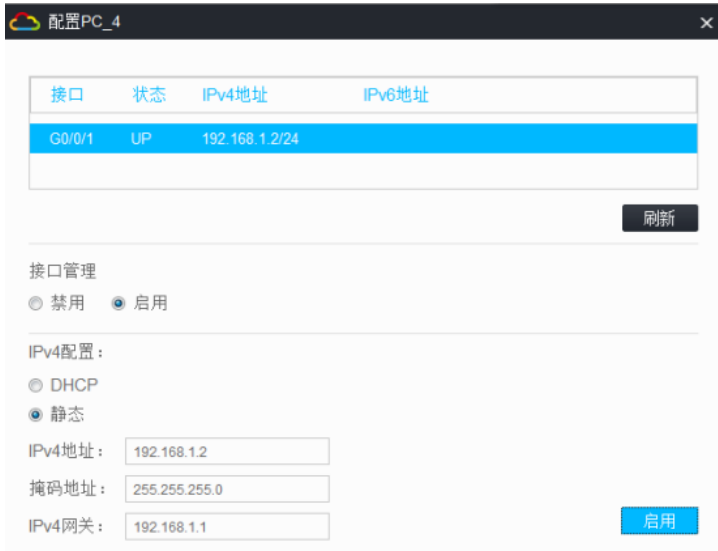
OSPF Process 1 with Router ID 3.3.3.3  
Neighbor Brief Information

Area: 0.0.0.1

Router ID	Address	Pri	Dead-Time	State	Interface
2.2.2.2	10.0.0.5	1	32	Full/DR	GE0/1

[R3]

PC之间能PING通:



配置PC\_4

接口	状态	IPv4地址	IPv6地址
G0/0/1	UP	192.168.1.2/24	

刷新

接口管理  
 禁用  启用

IPv4配置:  
 DHCP  
 静态

IPv4地址:   
掩码地址:   
IPv4网关:

启用



配置PC\_5

接口	状态	IPv4地址	IPv6地址
G0/0/1	UP	172.16.1.2/24	

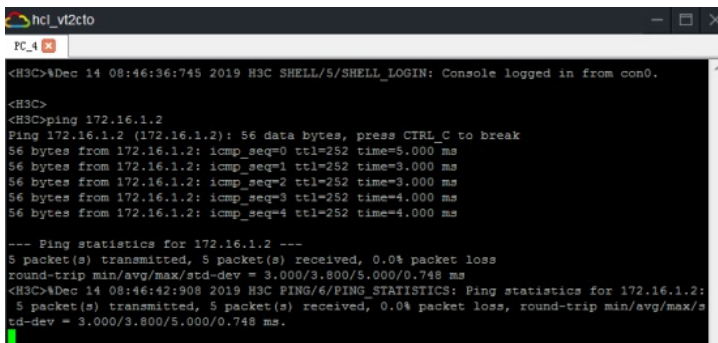
刷新

接口管理  
 禁用  启用

IPv4配置:  
 DHCP  
 静态

IPv4地址:   
掩码地址:   
IPv4网关:

启用



h3c\_vl2cto

```
<H3C>*Dec 14 08:46:36:745 2019 H3C SHELL/5/SHELL_LOGIN: Console logged in from con0.
<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=3.000 ms
56 bytes from 172.16.1.2: icmp_seq=3 ttl=252 time=4.000 ms
56 bytes from 172.16.1.2: icmp_seq=4 ttl=252 time=4.000 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 = 3.000/3.800/5.000/0.748 ms
<H3C>*Dec 14 08:46:42:908 2019 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/s
td-dev = 3.000/3.800/5.000/0.748 ms.
```

```
hcl_vt2cto
PC_4 PC_5
<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=4.000 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=3.000 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 = 3.000/3.400/4.000/0.490 ms
<H3C>+Dec 14 08:47:13:252 2019 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 = 3.000/3.400/4.000/0.490 ms.
```

至此多区域OSPF配置已完成!