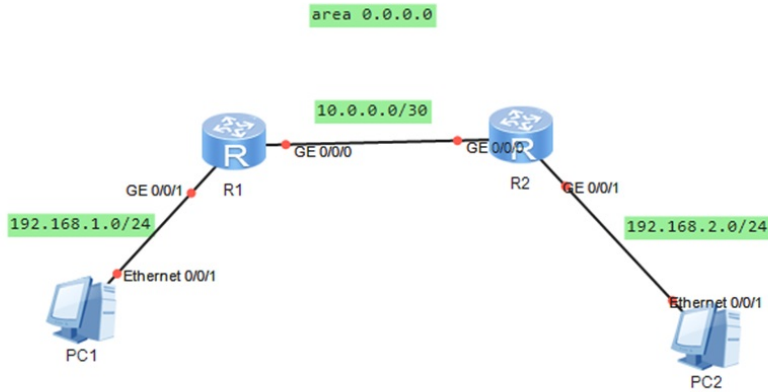


组网及说明



本案例采用ENSP来模拟华为路由器OSPF区域hmac-md5认证，通过区域认证确保路由器之间互联的合法性，保障网络互联的安全。

配置步骤

- 1、按照网络拓扑图配置IP地址。
- 2、分别配置R1与R2的OSPF，并配置区域hmac-md5认证。

配置关键点

R1:

```
<Huawei>u t m
Info: Current terminal monitor is off.
<Huawei>u t d
Info: Current terminal debugging is off.
<Huawei>sys
Enter system view, return user view with Ctrl+Z.
[Huawei]sysname R1
[R1]int gi 0/0/1
[R1-GigabitEthernet0/0/1]ip address 192.168.1.1 24
[R1-GigabitEthernet0/0/1]quit
[R1]int gi 0/0/0
[R1-GigabitEthernet0/0/0]ip address 10.0.0.1 30
[R1-GigabitEthernet0/0/0]quit
[R1]ospf 1
[R1-ospf-1]area 0.0.0.0
[R1-ospf-1-area-0.0.0.0]authentication-mode hmac-md5 1 plain weijianing
//在区域area 0.0.0.0中配置认证模式为hmac-md5认证，密钥为weijianing
[R1-ospf-1-area-0.0.0.0]network 10.0.0.0 0.0.0.3
[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:

```
<Huawei>u t m
Info: Current terminal monitor is off.
<Huawei>u t d
Info: Current terminal debugging is off.
<Huawei>sys
Enter system view, return user view with Ctrl+Z.
[Huawei]sysname R2
[R2]int gi 0/0/1
[R2-GigabitEthernet0/0/1]ip address 192.168.2.1 24
[R2-GigabitEthernet0/0/1]quit
[R2]int gi 0/0/0
[R2-GigabitEthernet0/0/0]ip address 10.0.0.2 30
[R2-GigabitEthernet0/0/0]quit
[R2]ospf 1
```

```
[R2-ospf-1]area 0.0.0.0
[R2-ospf-1-area-0.0.0.0]authentication-mode hmac-md5 1 plain weijianing
[R2-ospf-1-area-0.0.0.0]network 10.0.0.0 0.0.0.3
[R2-ospf-1-area-0.0.0.0]network 192.168.2.0 0.0.0.255
[R2-ospf-1-area-0.0.0.0]quit
[R2-ospf-1]quit
```

检查R1与R2已经建立了OSPF邻居关系:

```
[R1]dis ospf peer

      OSPF Process 1 with Router ID 192.168.1.1
        Neighbors

Area 0.0.0.0 interface 10.0.0.1(GigabitEthernet0/0/0)'s neighbors
Router ID: 192.168.2.1      Address: 10.0.0.2
  State: Full Mode:Nbr is Master Priority: 1
  DR: 10.0.0.1 BDR: 10.0.0.2 MTU: 0
  Dead timer due in 37 sec
  Retrans timer interval: 5
  Neighbor is up for 00:01:33
  Authentication Sequence: [ 144]

[R1]
```

```
[R2]dis ospf peer

      OSPF Process 1 with Router ID 192.168.2.1
        Neighbors

Area 0.0.0.0 interface 10.0.0.2(GigabitEthernet0/0/0)'s neighbors
Router ID: 192.168.1.1      Address: 10.0.0.1
  State: Full Mode:Nbr is Slave Priority: 1
  DR: 10.0.0.1 BDR: 10.0.0.2 MTU: 0
  Dead timer due in 38 sec
  Retrans timer interval: 5
  Neighbor is up for 00:01:45
  Authentication Sequence: [ 636]

[R2]
```

检查R1与R2已经学习到对端的业务路由:

```
[R1]dis ip routing-table
Route Flags: R - relay, D - download to fib
-----
Routing Tables: Public
  Destinations : 7      Routes : 7

Destination/Mask    Proto  Pre  Cost    Flags NextHop         Interface
-----
10.0.0.0/30         Direct  0    0        D   10.0.0.1         GigabitEthernet0/0/0
10.0.0.1/32         Direct  0    0        D   127.0.0.1         GigabitEthernet0/0/0
127.0.0.0/8         Direct  0    0        D   127.0.0.1         InLoopBack0
127.0.0.1/32        Direct  0    0        D   127.0.0.1         InLoopBack0
192.168.1.0/24      Direct  0    0        D   192.168.1.1       GigabitEthernet0/0/1
192.168.1.1/32      Direct  0    0        D   127.0.0.1         GigabitEthernet0/0/1
192.168.2.0/24      OSPF    10   2        D   10.0.0.2         GigabitEthernet0/0/0

[R1]
```

```
[R2]dis ip routing-table
Route Flags: R - relay, D - download to fib
-----
Routing Tables: Public
Destinations : 7      Routes : 7

Destination/Mask    Proto  Pre  Cost    Flags NextHop         Interface
-----
0/0/0              10.0.0.0/30 Direct 0    0        D  10.0.0.2          GigabitEthernet0/0/0
0/0/0              10.0.0.2/32 Direct 0    0        D  127.0.0.1         GigabitEthernet0/0/0
                  127.0.0.0/8 Direct 0    0        D  127.0.0.1         InLoopBack0
                  127.0.0.1/32 Direct 0    0        D  127.0.0.1         InLoopBack0
192.168.1.0/24     OSPF   10   2        D  10.0.0.1          GigabitEthernet0/0/0
0/0/0
192.168.2.0/24     Direct 0    0        D  192.168.2.1       GigabitEthernet0/0/1
0/0/1
192.168.2.1/32     Direct 0    0        D  127.0.0.1         GigabitEthernet0/0/1

[R2]
```

终端分别填写IP地址，且能相互PING通：

PC1

基础配置 | 命令行 | 组播 | UDP发包工具 | 串口

主机名:

MAC 地址: 54-89-98-0D-4A-BE

IPv4 配置

静态 DHCP 自动获取 DNS 服务器地址

IP 地址: 192.168.1.2 DNS1: 0.0.0.0

子网掩码: 255.255.255.0 DNS2: 0.0.0.0

网关: 192.168.1.1

PC2

基础配置 | 命令行 | 组播 | UDP发包工具 | 串口

主机名:

MAC 地址: 54-89-98-95-23-9F

IPv4 配置

静态 DHCP 自动获取 DNS 服务器地址

IP 地址: 192.168.2.2 DNS1: 0.0.0.0

子网掩码: 255.255.255.0 DNS2: 0.0.0.0

网关: 192.168.2.1

PC1

基础配置 | 命令行 | 组播 | UDP发包工具 | 串口

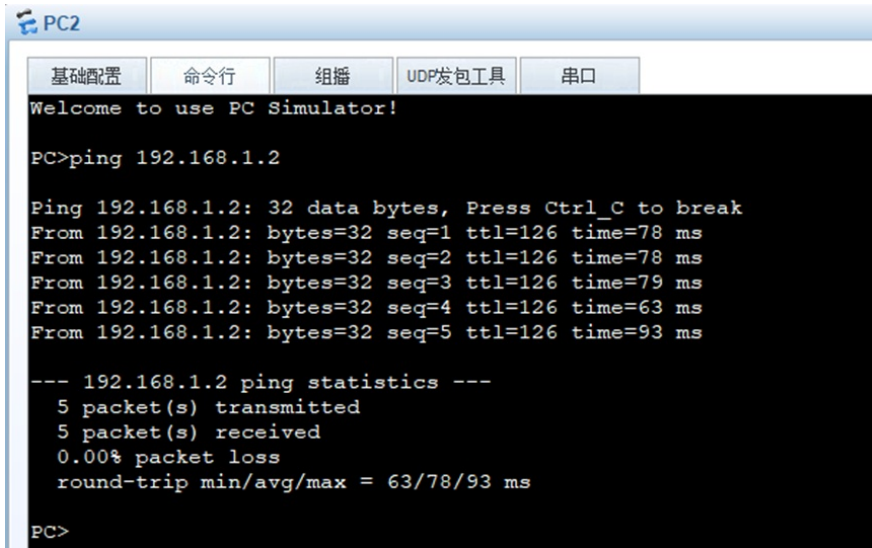
```
Welcome to use PC Simulator!

PC>ping 192.168.2.2

Ping 192.168.2.2: 32 data bytes, Press Ctrl_C to break
From 192.168.2.2: bytes=32 seq=1 ttl=126 time=109 ms
From 192.168.2.2: bytes=32 seq=2 ttl=126 time=78 ms
From 192.168.2.2: bytes=32 seq=3 ttl=126 time=94 ms
From 192.168.2.2: bytes=32 seq=4 ttl=126 time=94 ms
From 192.168.2.2: bytes=32 seq=5 ttl=126 time=78 ms

--- 192.168.2.2 ping statistics ---
 5 packet(s) transmitted
 5 packet(s) received
 0.00% packet loss
 round-trip min/avg/max = 78/90/109 ms

PC>
```



The image shows a terminal window titled "PC2" with a menu bar containing "基础配置", "命令行", "组播", "UDP发包工具", and "串口". The terminal text is as follows:

```
Welcome to use PC Simulator!  
  
PC>ping 192.168.1.2  
  
Ping 192.168.1.2: 32 data bytes, Press Ctrl_C to break  
From 192.168.1.2: bytes=32 seq=1 ttl=126 time=78 ms  
From 192.168.1.2: bytes=32 seq=2 ttl=126 time=78 ms  
From 192.168.1.2: bytes=32 seq=3 ttl=126 time=79 ms  
From 192.168.1.2: bytes=32 seq=4 ttl=126 time=63 ms  
From 192.168.1.2: bytes=32 seq=5 ttl=126 time=93 ms  
  
--- 192.168.1.2 ping statistics ---  
 5 packet(s) transmitted  
 5 packet(s) received  
 0.00% packet loss  
 round-trip min/avg/max = 63/78/93 ms  
  
PC>
```

至此，华为路由器OSPF区域hmac-md5认证典型组网配置案例已完成！