




华为(ensp)RIP实验

原创

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[rip](#)

1 篇文章 0 订阅

订阅专栏

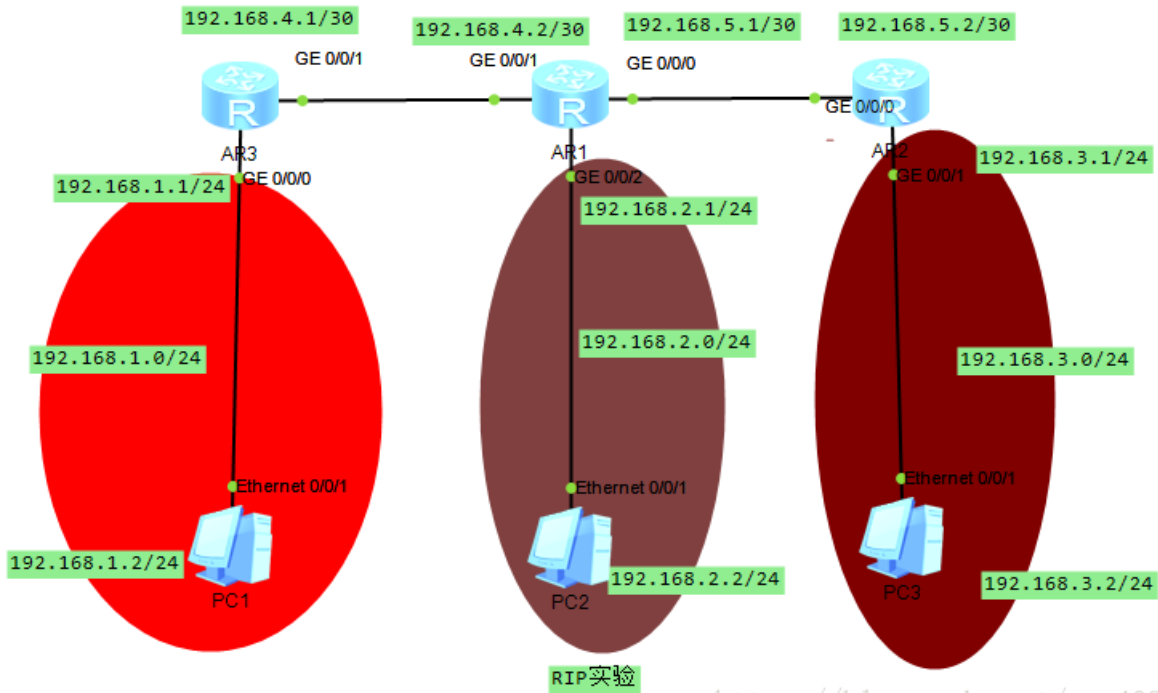
RIP协议简介:

RIP(Routing Information Protocol,路由信息协议)是一种 [内部网关协议](#) (IGP), 是一种 [动态路由选择](#) 协议, 用于自治系统 (AS) 内的路由信息的传递。RIP协议基于距离矢量算法 (DistanceVectorAlgorithms), 使用“跳数”(即metric)来衡量到达目标地址的路由距离。这种协议的 [路由器](#) 只关心自己周围的世界, 只与自己相邻的路由器交换信息, 范围限制在15跳(15度)之内, 再远, 它就不关心了。RIP应用于OSI网络七层模型的网络层。各厂家定义的管理距离 (AD, 即优先级) 如下: 华为定义的优先级是100, 思科定义的优先级是120。

RIP协议特征:

- (1) 不支持可变长子网掩码VLSM (版本1) 采用组播224.0.0.9 (版本2)
- (2) 路由最大支持跳数是16跳。
- (3) 度量值按跳跃技术。
- (4) 不能检测路由环路。
- (5) 配置简单, 占用资源少。
- (6) 路由可用跳数15跳。

本次实验拓扑图:



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我已将ip地址以及网络划分写在这张图上了。

(1) 为PC1、PC2、PC3配置好IP地址、子网掩码以及网关。

PC1

基础配置 | 命令行 | 组播 | UDP发包工具

主机名: _____

MAC 地址: 54-89-98-03-7C-21

IPv4 配置

静态 DHCP

IP 地址: 192 . 168 . 1 . 2

子网掩码: 255 . 255 . 255 . 0

网关: 192 . 168 . 1 . 1

PC2

基础配置 | 命令行 | 组播 | UDP发包工具

主机名: _____

MAC 地址: 54-89-98-6F-59-CF

IPv4 配置

静态 DHCP

IP 地址: 192 . 168 . 2 . 2

子网掩码: 255 . 255 . 255 . 0

网关: 192 . 168 . 2 . 1

PC3

基础配置 | 命令行 | 组播 | UDP发包工具

主机名: _____

MAC 地址: 54-89-98-E5-1C-11

IPv4 配置

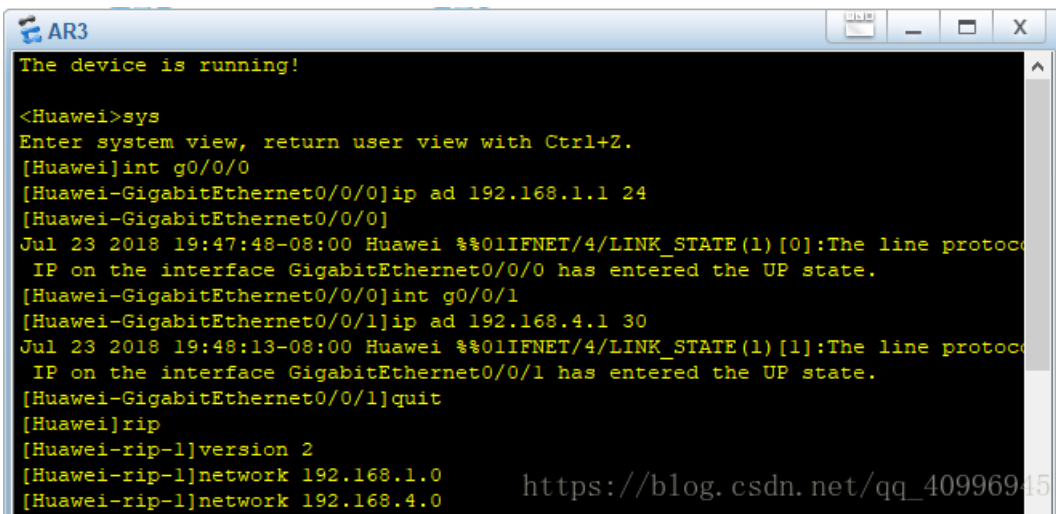
静态 DHCP

IP 地址: 192 . 168 . 3 . 2

子网掩码: 255 . 255 . 255 . 0

网关: 192 . 168 . 3 . 1

(2) 配置路由器AR3



```
AR3
The device is running!

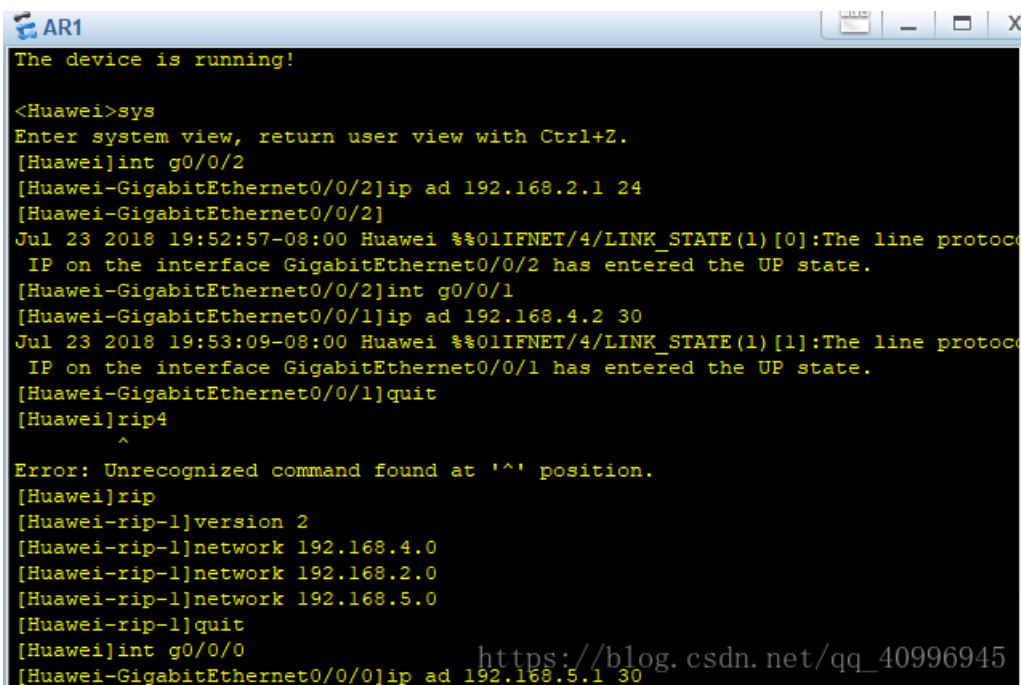
<Huawei>sys
Enter system view, return user view with Ctrl+Z.
[Huawei]int g0/0/0
[Huawei-GigabitEthernet0/0/0]ip ad 192.168.1.1 24
[Huawei-GigabitEthernet0/0/0]
Jul 23 2018 19:47:48-08:00 Huawei %%01IFNET/4/LINK_STATE(1)[0]:The line protocol
IP on the interface GigabitEthernet0/0/0 has entered the UP state.
[Huawei-GigabitEthernet0/0/0]int g0/0/1
[Huawei-GigabitEthernet0/0/1]ip ad 192.168.4.1 30
Jul 23 2018 19:48:13-08:00 Huawei %%01IFNET/4/LINK_STATE(1)[1]:The line protocol
IP on the interface GigabitEthernet0/0/1 has entered the UP state.
[Huawei-GigabitEthernet0/0/1]quit
[Huawei]rip
[Huawei-rip-1]version 2
[Huawei-rip-1]network 192.168.1.0
[Huawei-rip-1]network 192.168.4.0
```

命令:

```
interface GigabitEthernet0/0/0
ip address 192.168.1.1 255.255.255.0
#
interface GigabitEthernet0/0/1
ip address 192.168.4.1 255.255.255.252

rip 1
version 2
network 192.168.1.0
network 192.168.4.0
```

(3) 配置路由器AR1



```
AR1
The device is running!

<Huawei>sys
Enter system view, return user view with Ctrl+Z.
[Huawei]int g0/0/2
[Huawei-GigabitEthernet0/0/2]ip ad 192.168.2.1 24
[Huawei-GigabitEthernet0/0/2]
Jul 23 2018 19:52:57-08:00 Huawei %%01IFNET/4/LINK_STATE(1)[0]:The line protocol
IP on the interface GigabitEthernet0/0/2 has entered the UP state.
[Huawei-GigabitEthernet0/0/2]int g0/0/1
[Huawei-GigabitEthernet0/0/1]ip ad 192.168.4.2 30
Jul 23 2018 19:53:09-08:00 Huawei %%01IFNET/4/LINK_STATE(1)[1]:The line protocol
IP on the interface GigabitEthernet0/0/1 has entered the UP state.
[Huawei-GigabitEthernet0/0/1]quit
[Huawei]rip4
^
Error: Unrecognized command found at '^' position.
[Huawei]rip
[Huawei-rip-1]version 2
[Huawei-rip-1]network 192.168.4.0
[Huawei-rip-1]network 192.168.2.0
[Huawei-rip-1]network 192.168.5.0
[Huawei-rip-1]quit
[Huawei]int g0/0/0
[Huawei-GigabitEthernet0/0/0]ip ad 192.168.5.1 30
```

命令就不在给出了吧，毕竟同上。

(4) 配置路由器AR2

```
AR2
The device is running!

<Huawei>sys
Enter system view, return user view with Ctrl+Z.
[Huawei]int g0/0/0
[Huawei-GigabitEthernet0/0/0]ip ad 192.168.5.2 30
Jul 23 2018 19:55:48-08:00 Huawei %%01IFNET/4/LINK_STATE(1)[0]:The line protocol
IP on the interface GigabitEthernet0/0/0 has entered the UP state.
[Huawei-GigabitEthernet0/0/0]int g0/0/0
[Huawei-GigabitEthernet0/0/0]int g0/0/1
[Huawei-GigabitEthernet0/0/1]ip ad 192.168.3.1 24
Jul 23 2018 19:56:16-08:00 Huawei %%01IFNET/4/LINK_STATE(1)[1]:The line protocol
IP on the interface GigabitEthernet0/0/1 has entered the UP state.
[Huawei-GigabitEthernet0/0/1]quit
[Huawei]rip
[Huawei-rip-1]version 2
[Huawei-rip-1]network 192.168.3.0
[Huawei-rip-1]network 192.168.5.0
```

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(5)打开查看路由器AR3的路由表

```
AR3
[Huawei]dis ip rou
[Huawei]dis ip routing-table pro
[Huawei]dis ip routing-table protocol rip
Route Flags: R - relay, D - download to fib
-----
Public routing table : RIP
Destinations : 3      Routes : 3

RIP routing table status : <Active>
Destinations : 3      Routes : 3

Destination/Mask    Proto    Pre  Cost    Flags NextHop         Interface
-----
192.168.2.0/24     RIP      100  1       D    192.168.4.2        GigabitEthernet0/0/1
192.168.3.0/24     RIP      100  2       D    192.168.4.2        GigabitEthernet0/0/1
192.168.5.0/30     RIP      100  1       D    192.168.4.2        GigabitEthernet0/0/1

RIP routing table status : <Inactive>
Destinations : 0      Routes : 0
```

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由该表得知配置成功

(6) PC1 ping PC2 和 PC1 ping PC3 和 PC2 ping PC3

```
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
Request timeout!
Request timeout!
From 192.168.2.2: bytes=32 seq=3 ttl=126 time=31 ms
From 192.168.2.2: bytes=32 seq=4 ttl=126 time=31 ms
From 192.168.2.2: bytes=32 seq=5 ttl=126 time=32 ms

--- 192.168.2.2 ping statistics ---
 5 packet(s) transmitted
 3 packet(s) received
40.00% packet loss
round-trip min/avg/max = 0/31/32 ms

PC>ping 192.168.3.2

Ping 192.168.3.2: 32 data bytes, Press Ctrl_C to break
Request timeout!
Request timeout!
From 192.168.3.2: bytes=32 seq=3 ttl=125 time=46 ms
From 192.168.3.2: bytes=32 seq=4 ttl=125 time=32 ms
From 192.168.3.2: bytes=32 seq=5 ttl=125 time=31 ms
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```

```
PC2
基础配置  命令行  组播  UDP发包工具  串口
Welcome to use PC Simulator!

PC>ping 192.168.3.2

Ping 192.168.3.2: 32 data bytes, Press Ctrl_C to break
From 192.168.3.2: bytes=32 seq=1 ttl=126 time=31 ms
From 192.168.3.2: bytes=32 seq=2 ttl=126 time=31 ms
From 192.168.3.2: bytes=32 seq=3 ttl=126 time=31 ms
From 192.168.3.2: bytes=32 seq=4 ttl=126 time=16 ms
From 192.168.3.2: bytes=32 seq=5 ttl=126 time=31 ms

--- 192.168.3.2 ping statistics ---
 5 packet(s) transmitted
 5 packet(s) received
 0.00% packet loss
round-trip min/avg/max = 16/28/31 ms
https://blog.csdn.net/qq\_40996945
```