

实验名称：RIP 路由协议基本配置

实验台号：

实验时间：

实验小组：张楷

实验目的：

- 理解路由协议的工作原理；
- 掌握在路由器上如何配置 RIP 路由协议。

实验环境说明：装有 eNSP 的 PC

实验拓扑：

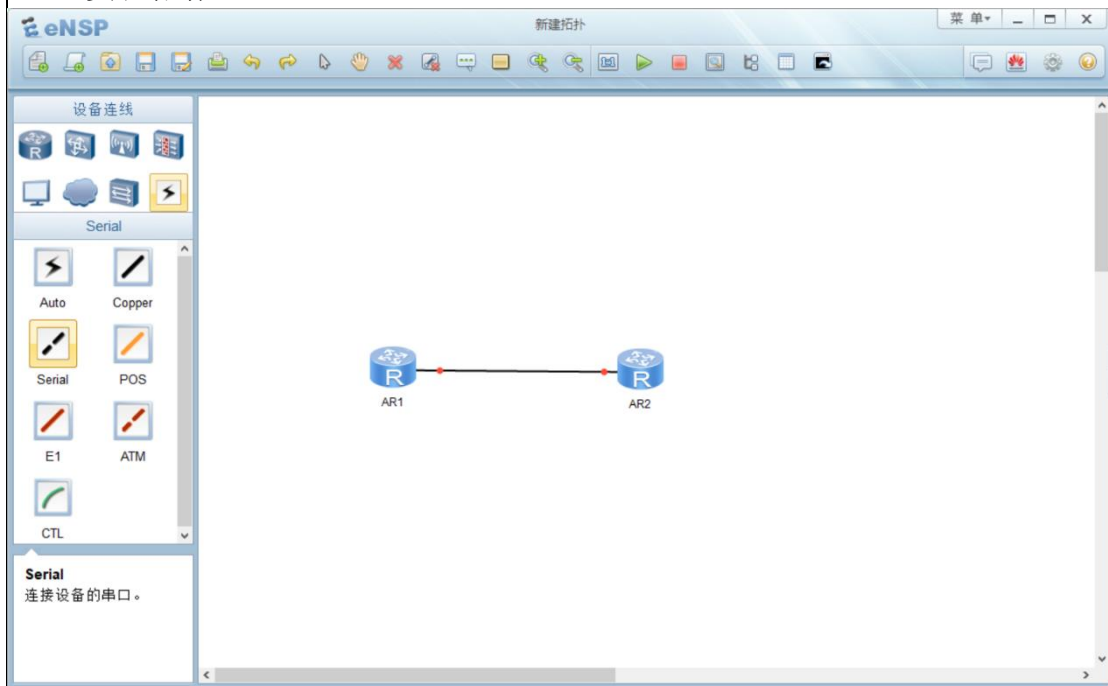
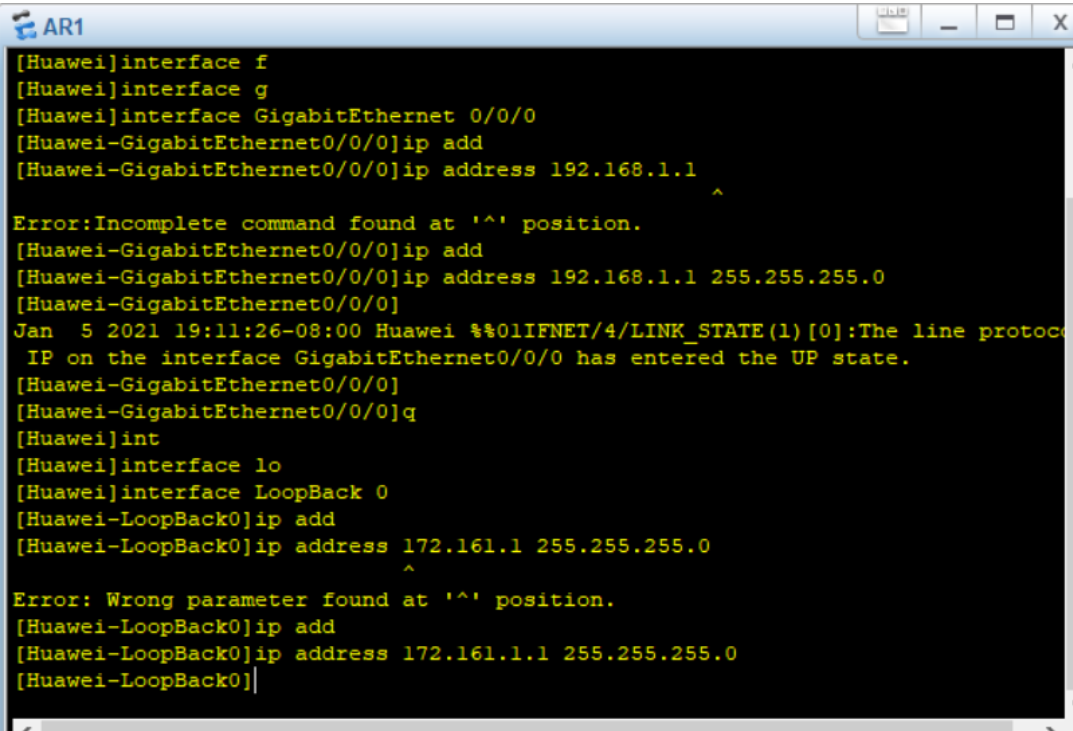


图 1 实验拓扑

实验过程、步骤（可另附页、使用网络拓扑图等辅助说明）及结果：

一、基本配置

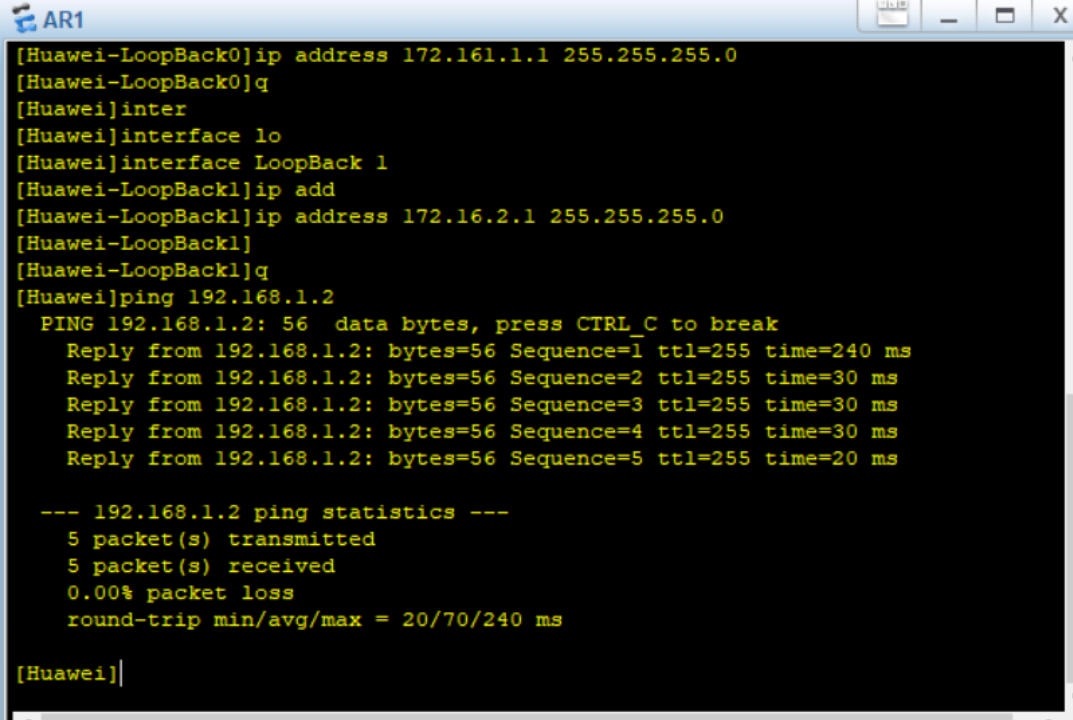
- 1) 配置 Loopback 端口。在对路由器基本配置后，首先对 AR1 的 Loopback 端口进行配置。



```
[Huawei]interface f
[Huawei]interface g
[Huawei]interface GigabitEthernet 0/0/0
[Huawei-GigabitEthernet0/0/0]ip add
[Huawei-GigabitEthernet0/0/0]ip address 192.168.1.1
^
Error:Incomplete command found at '^' position.
[Huawei-GigabitEthernet0/0/0]ip add
[Huawei-GigabitEthernet0/0/0]ip address 192.168.1.1 255.255.255.0
[Huawei-GigabitEthernet0/0/0]
Jan 5 2021 19:11:26-08:00 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]
[Huawei-GigabitEthernet0/0/0]q
[Huawei]int
[Huawei]interface lo
[Huawei]interface LoopBack 0
[Huawei-LoopBack0]ip add
[Huawei-LoopBack0]ip address 172.161.1.1 255.255.255.0
^
Error: Wrong parameter found at '^' position.
[Huawei-LoopBack0]ip add
[Huawei-LoopBack0]ip address 172.161.1.1 255.255.255.0
[Huawei-LoopBack0]
```

图 2AR1Loopback 端口配置

- 2) 对 AR1 另一个 loopback 端口和 AR2 的 2 个端口进行相似配置。
- 3) 在 AR1 上对个直连链路进行测试，可连通。



```
[Huawei-LoopBack0]ip address 172.161.1.1 255.255.255.0
[Huawei-LoopBack0]q
[Huawei]inter
[Huawei]interface lo
[Huawei]interface LoopBack 1
[Huawei-LoopBack1]ip add
[Huawei-LoopBack1]ip address 172.16.2.1 255.255.255.0
[Huawei-LoopBack1]
[Huawei-LoopBack1]q
[Huawei]ping 192.168.1.2
  PING 192.168.1.2: 56 data bytes, press CTRL_C to break
    Reply from 192.168.1.2: bytes=56 Sequence=1 ttl=255 time=240 ms
    Reply from 192.168.1.2: bytes=56 Sequence=2 ttl=255 time=30 ms
    Reply from 192.168.1.2: bytes=56 Sequence=3 ttl=255 time=30 ms
    Reply from 192.168.1.2: bytes=56 Sequence=4 ttl=255 time=30 ms
    Reply from 192.168.1.2: bytes=56 Sequence=5 ttl=255 time=20 ms

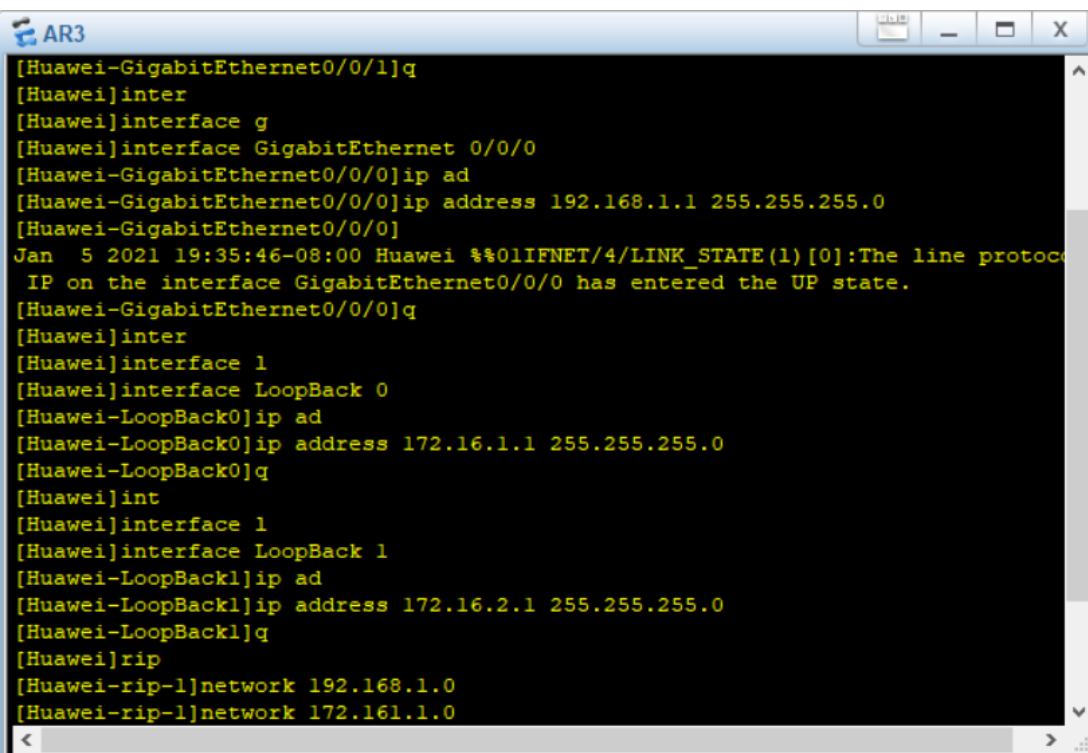
  --- 192.168.1.2 ping statistics ---
    5 packet(s) transmitted
    5 packet(s) received
    0.00% packet loss
    round-trip min/avg/max = 20/70/240 ms

[Huawei]
```

图 3 连通性测试

二、配置 RIP 协议

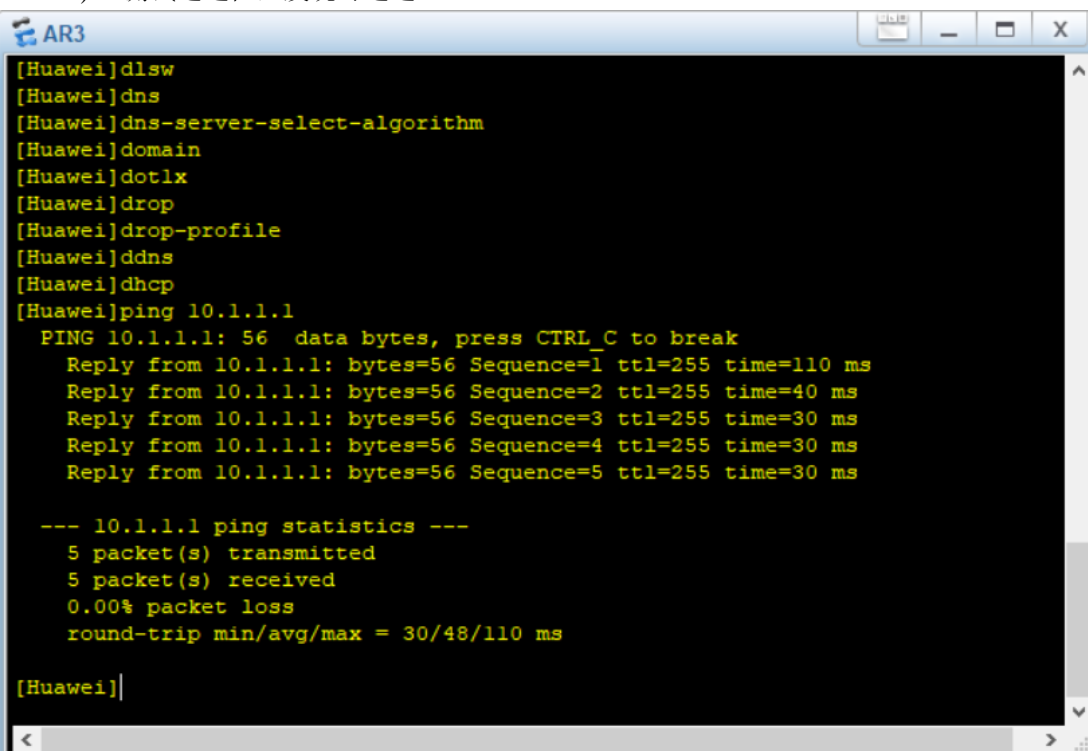
- 1) 在 AR1 配置 RIP 协议。



```
[Huawei-GigabitEthernet0/0/1]q
[Huawei]inter
[Huawei]interface g
[Huawei]interface GigabitEthernet 0/0/0
[Huawei-GigabitEthernet0/0/0]ip ad
[Huawei-GigabitEthernet0/0/0]ip address 192.168.1.1 255.255.255.0
[Huawei-GigabitEthernet0/0/0]
Jan 5 2021 19:35:46-08:00 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]q
[Huawei]inter
[Huawei]interface 1
[Huawei]interface LoopBack 0
[Huawei-LoopBack0]ip ad
[Huawei-LoopBack0]ip address 172.16.1.1 255.255.255.0
[Huawei-LoopBack0]q
[Huawei]int
[Huawei]interface 1
[Huawei]interface LoopBack 1
[Huawei-LoopBack1]ip ad
[Huawei-LoopBack1]ip address 172.16.2.1 255.255.255.0
[Huawei-LoopBack1]q
[Huawei]rip
[Huawei-rip-1]network 192.168.1.0
[Huawei-rip-1]network 172.16.1.0
```

图 4AR1 的 RIP 设置

- 2) 对 AR2 进行相似操作。
- 3) 测试连通性，发现可连通。



```
[Huawei]dls
[Huawei]dns
[Huawei]dns-server-select-algorithm
[Huawei]domain
[Huawei]dot1x
[Huawei]drop
[Huawei]drop-profile
[Huawei]ddns
[Huawei]dhcp
[Huawei]ping 10.1.1.1
PING 10.1.1.1: 56 data bytes, press CTRL_C to break
  Reply from 10.1.1.1: bytes=56 Sequence=1 ttl=255 time=110 ms
  Reply from 10.1.1.1: bytes=56 Sequence=2 ttl=255 time=40 ms
  Reply from 10.1.1.1: bytes=56 Sequence=3 ttl=255 time=30 ms
  Reply from 10.1.1.1: bytes=56 Sequence=4 ttl=255 time=30 ms
  Reply from 10.1.1.1: bytes=56 Sequence=5 ttl=255 time=30 ms

--- 10.1.1.1 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
  round-trip min/avg/max = 30/48/110 ms

[Huawei]
```

图 5 连通性测试

三、启用 RIPv2

启用 RIPv2，并查看连通性，可连通。

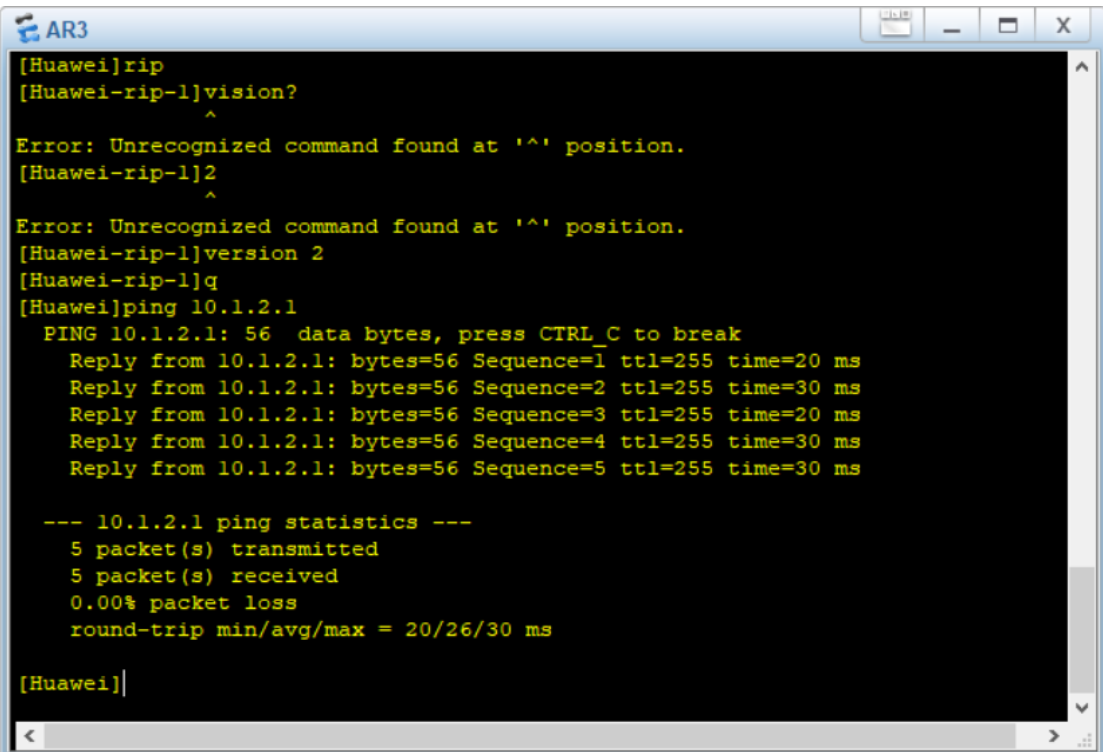


图 6RIPv2

实验总结（遇到的问题及解决办法、体会）：
了解了 RIP 的工作原理和如何在路由器中实现。

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张楷

验收人：

成绩评定：