厦門大學

信息学院软件工程系

《计算机网络》实验报告

题　　目 实验五　CISCO IOS 路由器基本配置

班　　级 软件工程 2018 级 1 班

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实验时间 2020 年 4 月 8 日

2020 年 4 月 8 日

1 实验目的

实验使用 Router eSIM v1.1 模拟器来模拟路由器的配置环境;使用 CCNA Network

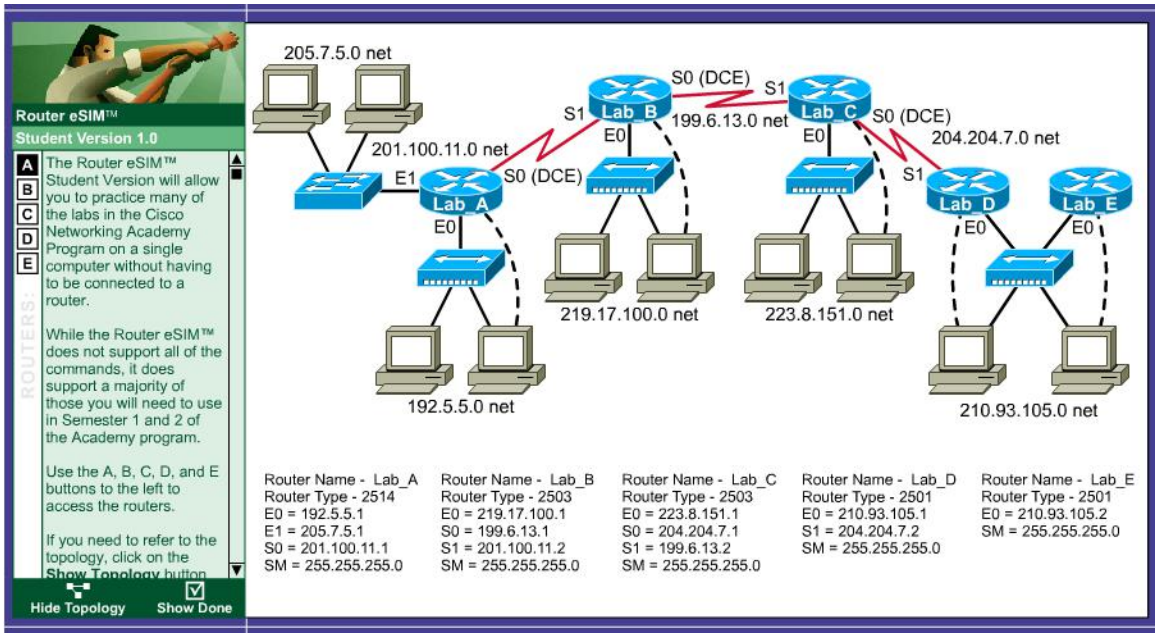
Visualizer 6.0 配置静态路由、动态路由和交换机端口的 VLAN(虚拟局域网)。

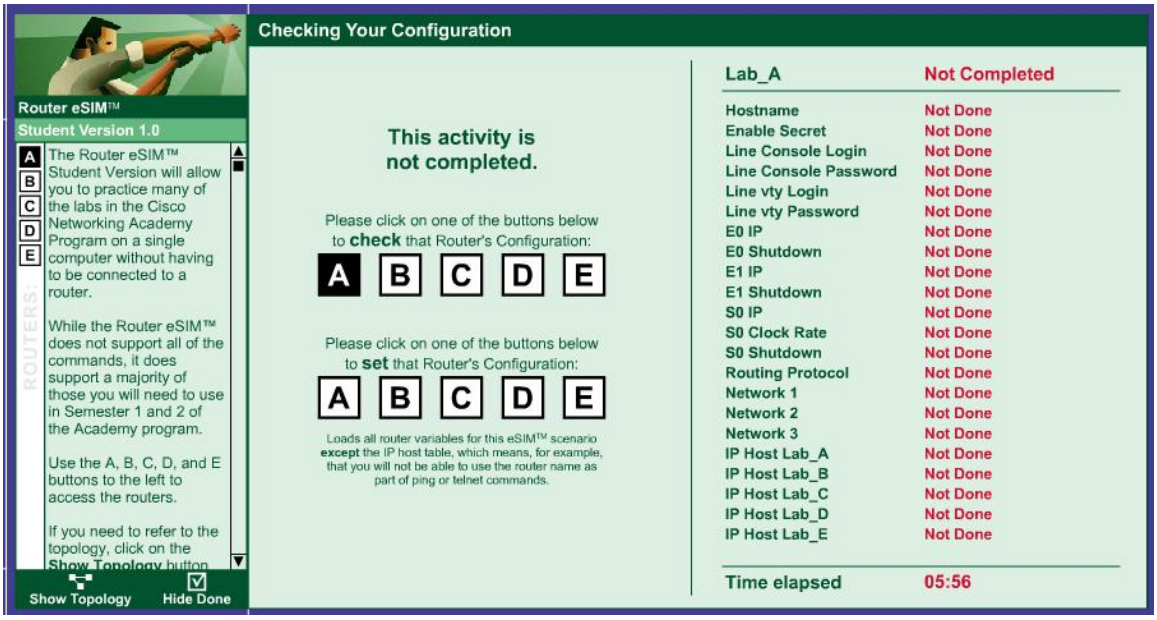
2 实验环境

Ubuntu19.10, deepin-wine。

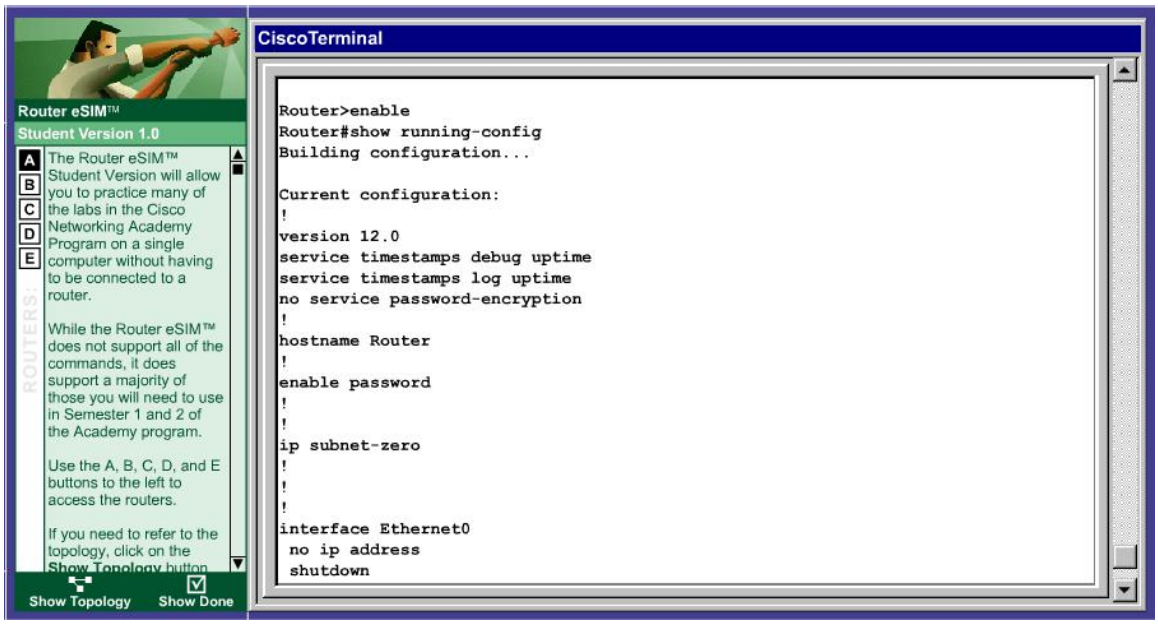
3 实验结果

1.进入 Router eSIM 软件界面





2.查看路由器的运行状态




```
Router#show startup-config
 %% Non-volatile configuration memory is not present
Router#_
```

```
Router#show interfaces
Ethernet0 is administratively down, line protocol is down
   Hardware is Lance, address is 0010.7b81.4e2c(bia 0010.7b81.4e2c)
   MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec,
      reliability 252/255, txload 1/255, rxload 1/255
   Encapsulation ARPA, loopback not set
   Keepalive set (10 sec)
   ARP type: ARPA, ARP Timeout 04:00:00
   Last input never, output 00:00:20, output hang never
   Last clearing of "show interface" counters never
   Queueing strategy: fifo
   Output queue 0/40, 0 drops; input queue 0/75, 0 drops
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
      0 packets input, 0 bytes, 0 no buffer
      Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
      0 input packets with dribble condition detected
      6 packets output, 360 bytes, 0 underruns
      6 output errors, 0 collisions, 3 interface resets
      0 babbles, 0 late collision, 0 deferred
      6 lost carrier, 0 no carrier
      0 output buffer failures, 0 output buffers swapped out
```

```
Router#show version
Cisco Internetwork Operating System Software
IOS (tm) 2500 Software (C2500-IS-L), Version 12.0(5), RELEASE SOFTWARE (fc1)
Copyright (c) 1986-1999 by cisco Systems, Inc.
Copyright (c) 1986-1999 by cisco Systems, Inc.
Image text-base: 0x0303D744, data-base: 0x00001000

ROM: System Bootstrap, Version 5.2(8a), RELEASE SOFTWARE
BOOTFLASH: 3000 Bootstrap Software (IGS-RXBOOT), Version 10.2(8a), RELEASE SOFTW
ARE (fc1)

Router uptime is 0 hours, 10 minutes
System restarted by power-on
System image file is "flash:ip.plus.c2500-is-l_120-5.bin"

cisco 2500 (68030) processor (revision D) with 4096K/2048K bytes of memory.
Processor board ID 02930235, with hardware revision 00000000
Bridging software.
X.25 software, Version 3.0.0.
2 Ethernet/IEEE 802.3 interface(s)
2 Serial network interface(s)
32K bytes of non-volatile configuration memory.
8192K bytes of processor board System flash (Read ONLY)
```

3.建立 IP 地址映射表

```
Router#configure
Configuring from terminal, memory, or network [terminal]? terminal
Enter configuration commands, one per line.  End with END.
Router(config)#ip host lab_A 192.5.5.1 205.7.5.1 201.100.11.1
Router(config)#ip host lab_B 219.17.100.1 199.6.13.1 201.100.11.2
Router(config)#ip host lab_C 223.8.151.1 204.204.7.1 199.6.13.2
Router(config)#ip host lab_D 210.93.105.1 204.204.7.2
Router(config)#ip host lab_E 210.93.105.2
Router(config)#_
```

4.给路由器接口配置 IP 地址

```
Router(config)#int eth 0
Router(config-if)#ip address 192.5.5.1 255.255.255.0

Router(config-if)#int eth 1
Router(config-if)#ip address 205.7.5.1 255.255.255.0
Router(config-if)#int serial 0
Router(config-if)#ip address 201.100.11.1 255.255.255.0
```

5.配置充当 DCE 端的串行端口

```
Router(config)#interface serial 0
Router(config-if)#clock rate 56000
```

6.手动开启和关闭端口

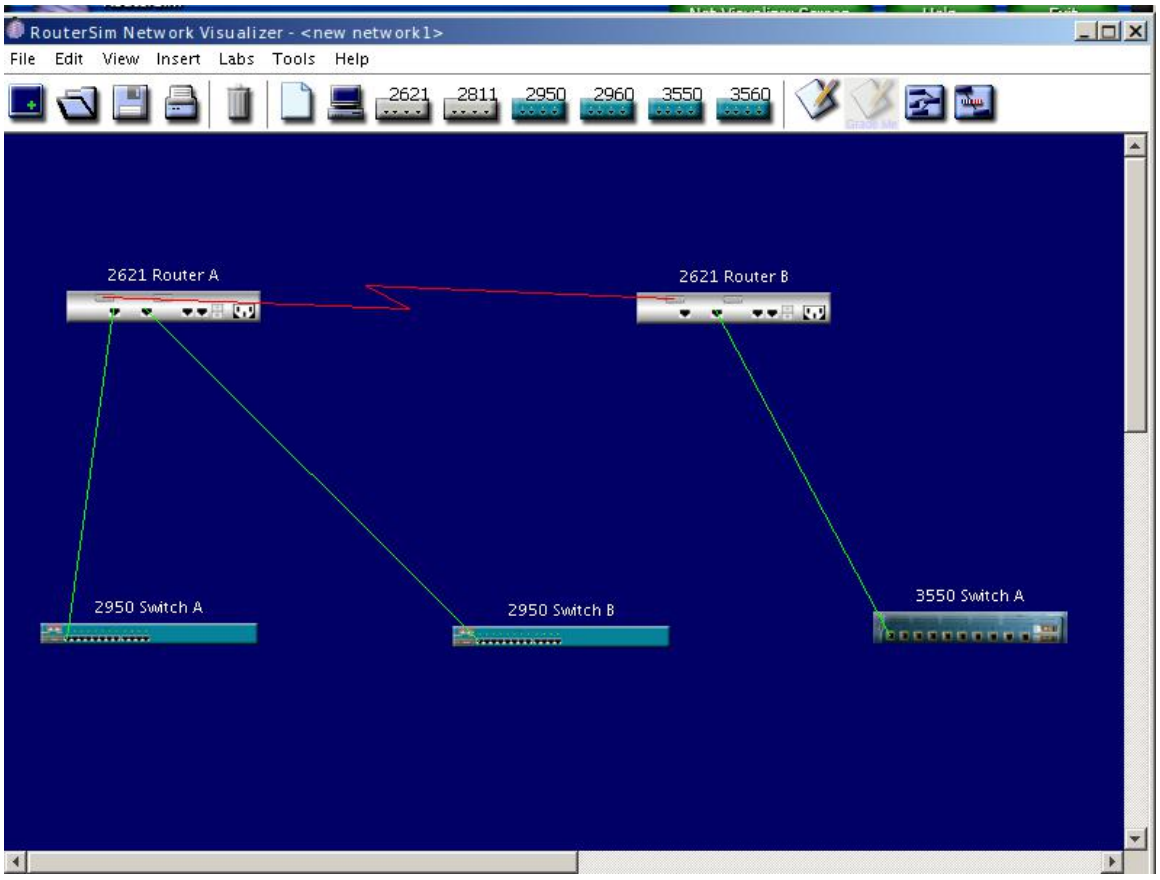
```
Router#configure term
Enter configuration commands, one per line.  End with END.
Router(config)#interface serial 0
Router(config-if)#no shut down
                  ^
% Invalid input detected at '^' marker.

Router(config-if)#no shutdown
Router(config-if)#END
```

```
Router#show interface serial 0
Serial0 is up, line protocol is up
   Internet address is 201.100.11.1/24
   Hardware is HD64570
   MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
      reliability 255/255, txload 1/255, rxload 1/255
   Encapsulation HDLC, loopback not set
   Keepalive set (10 sec)
   Last input never, output never, output hang never
   Last clearing of "show interface" counters never
   Input queue: 0/75/0 (size/max/drops); Total output drops: 0
   Queueing strategy: weighted fair
   Output queue: 0/1000/64/0 (size/max total/threshold/drops)
      Conversations  0/0/256 (active/max active/max total)
      Reserved Conversations 0/0 (allocated/max allocated)
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
      0 packets input, 0 bytes, 0 no buffer
      Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      0 packets output, 0 bytes, 0 underruns
      0 output errors, 0 collisions, 1 interface resets
      0 output buffer failures, 0 output buffers swapped out
```

```
Router#configure term
Enter configuration commands, one per line.  End with END.
Router(config)#interface serial 0
Router(config-if)#shutdown
```

```
Router#show interface serial 0
Serial0 is administratively down, line protocol is down
   Internet address is 201.100.11.1/24
   Hardware is HD64570
   MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
      reliability 255/255, txload 1/255, rxload 1/255
   Encapsulation HDLC, loopback not set
   Keepalive set (10 sec)
   Last input never, output never, output hang never
   Last clearing of "show interface" counters never
   Input queue: 0/75/0 (size/max/drops); Total output drops: 0
   Queueing strategy: weighted fair
   Output queue: 0/1000/64/0 (size/max total/threshold/drops)
      Conversations  0/0/256 (active/max active/max total)
      Reserved Conversations 0/0 (allocated/max allocated)
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
      0 packets input, 0 bytes, 0 no buffer
      Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      0 packets output, 0 bytes, 0 underruns
      0 output errors, 0 collisions, 1 interface resets
      0 output buffer failures, 0 output buffers swapped out
```

7.Routersim netvis 设备连接



8.静态路由配置之前的准备工作

路由器 A

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
% Invalid input detected at '^' marker.
Router(config-if)#ip address 192.5.5.1 255.255.255.0
Router(config-if)#Router Con0 is now available

Router(config-if)#no shutdown
01:35:30 %LINK-3-UPDOWN:  Interface FastEthernet0/0, changed state to up
01:35:30 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to

Router(config)#int f0/1
Router(config-if)#ip addr 205.7.5.1 255.255.255.0
Router(config-if)#no shutdown
01:40:47 %LINK-3-UPDOWN:  Interface FastEthernet0/1, changed state to up
01:40:47 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to
```

```
Router(config-if)#int s0/0
Router(config-if)#ip addr 201.100.11.1
% Incomplete command.
Router(config-if)#ip addr 201.100.11.1 255.255.255.0
Router(config-if)#clock rate 56000
Router(config-if)#no shutdown
01:41:34 %LINK-3-UPDOWN:  Interface Serial0/0, changed state to up
01:41:34 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up
```

路由器 B

```
Router(config)#int s0/1
Router(config-if)#ip addr  201.100.11.0 255.255.255.0
Bad mask/24 for address 201.100.11.0
Router(config-if)#ip addr 201.100.11.1 255.255.255.0
Router(config-if)#int f0/0
Router(config-if)#ip addr 199.6.13.1 255.255.255.0

Router(config)#int f0/0
Router(config-if)#no shutdown
07:07:24 %LINK-3-UPDOWN:  Interface FastEthernet0/0, changed state to up
07:07:24 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#int s0/1
Router(config-if)#no shutdown
07:07:35 %LINK-3-UPDOWN:  Interface Serial0/1, changed state to up
07:07:35 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1, changed state to up

Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR, P - periodic downloaded static route
       T - traffic engineered route

Gateway of last resort is not set
C    199.6.13.0/24 is directly connected, FastEthernet0/0
C    201.100.11.0/24 is directly connected, Serial0/1
```

检查是否连通

```
Router>enable
Router#ping 199.6.13.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 199.6.13.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5), round-trip min/avg/max = 0/0/0 ms
```

9.配置静态路由

```
Router(config)#ip route 199.6.13.0 255.255.255.0 201.100.11.2
Router(config)#exit
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR, P - periodic downloaded static route
       T - traffic engineered route

Gateway of last resort is not set
S    199.6.13.0 [1/0] via 201.100.11.2
C    205.7.5.0/24 is directly connected, FastEthernet0/1
C    201.100.11.0/24 is directly connected, Serial0/0
C    192.5.5.0/24 is directly connected, FastEthernet0/0
```

测试连接

```
Router#ping 199.6.13.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 199.6.13.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
```

10. RIP 的配置

网络拓扑

Router A 的路由表

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR, P - periodic downloaded static route
       T - traffic engineered route

Gateway of last resort is not set
C    10.0.0.0/8 is directly connected, Serial0/0
C    172.16.0.0/16 is directly connected, FastEthernet0/0
```

Router B 的路由表

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR, P - periodic downloaded static route
       T - traffic engineered route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.2.2.0/24 is directly connected, Serial0/0
C       10.0.0.0/8 is directly connected, Serial0/1
```

Router C 的路由表

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR, P - periodic downloaded static route
       T - traffic engineered route

Gateway of last resort is not set
C    192.168.0.0/16 is directly connected, FastEthernet0/0
C    10.0.0.0/8 is directly connected, Serial0/1
```

Router A 配置 RIP

```
Router(config)#router rip
Router(config-router)#network 172.16.0.0
Router(config-router)#network 10.0.0.0
```

Router B 配置 RIP

```
% Incomplete command.
Router(config)#router rip
Router(config-router)#network 10.0.0.0
```

Router C 配置 RIP

```
Router(config)#router rip
Router(config-router)#network 192.168.1.0
Router(config-router)#network 10.0.0.0
```

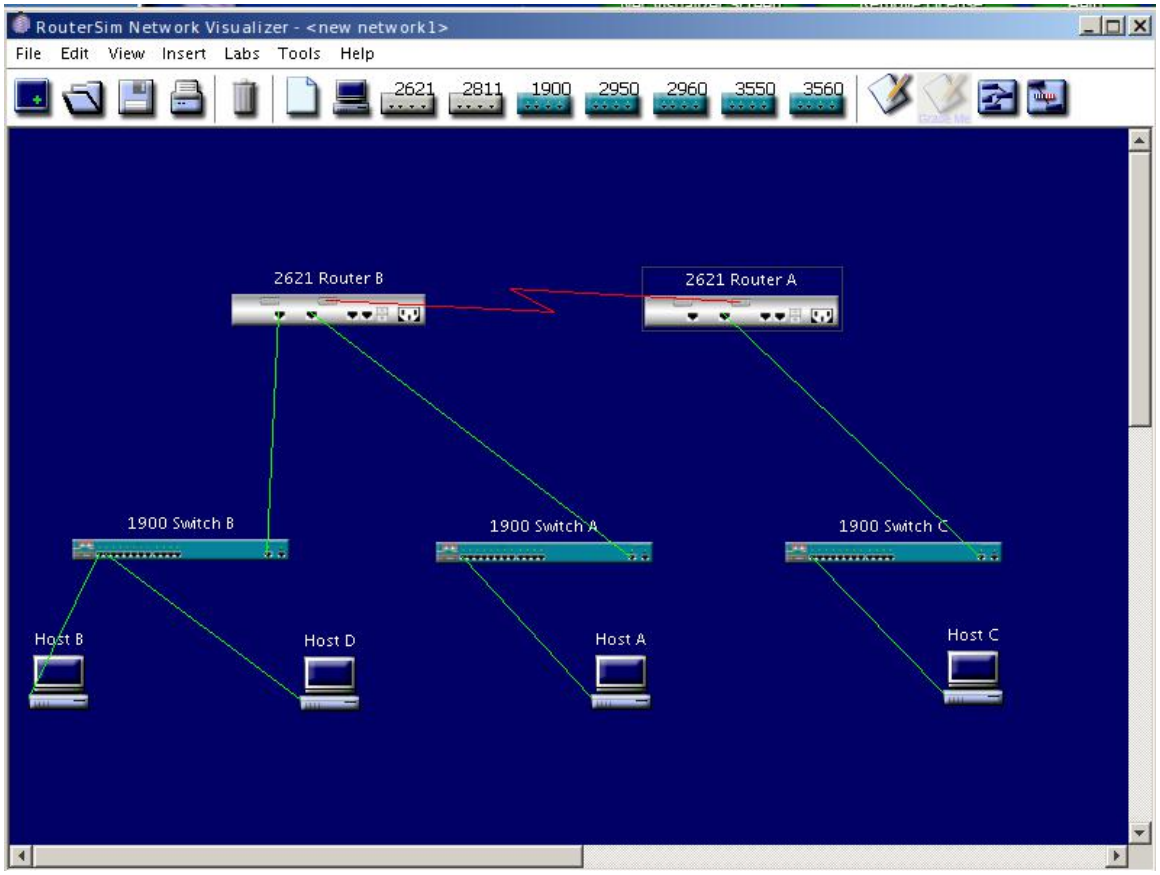
检查 RIP 工作情况（从 Router A）

```
Routing Protocol is "rip"
  Sending updates every 30 seconds, next due in 19 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Redistributing: rip
  Default version control: send version 1, receive any version
    Interface          Send  Recv  Triggered RIP  Key-chain
    Serial0/0          1     1 2
    FastEthernet0/0    1     1 2
  Automatic network summarization is in effect
  Maximum path: 4
  Routing for networks:
    10.0.0.0
    172.16.0.0
  Routing information sources:
    Gateway         Distance      Last Update
    10.1.1.2          120      00:00:11
  Distance: <default is 120>
```

```
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR, P - periodic downloaded static route
       T - traffic engineered route

Gateway of last resort is not set
R    192.168.1.0 [120/2] via 10.1.1.2, 00:00:03, Serial0/0
C    10.0.0.0/8 is directly connected, Serial0/0
C    172.16.0.0/16 is directly connected, FastEthernet0/0
```

11. 访问列表配置

网络拓扑



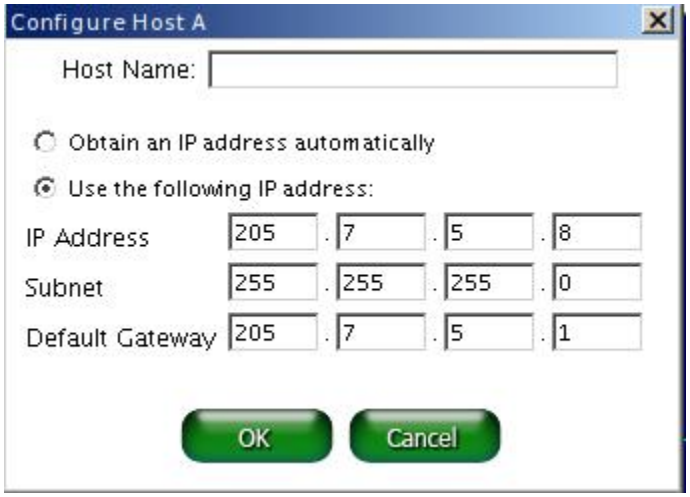
路由器 A 配置

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#int s0/0
Router(config-if)#ip addr 201.100.11.2 255.255.255.0
Router(config-if)#no shutdown
07:54:42 %LINK-3-UPDOWN:  Interface Serial0/0, changed state to up
07:54:42 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

Router(config-if)#int  f0/0
Router(config-if)#ip addr 199.6.13.1 255.255.255.0
Router(config-if)#no shutdown
07:55:21 %LINK-3-UPDOWN:  Interface FastEthernet0/0, changed state to up
07:55:21 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

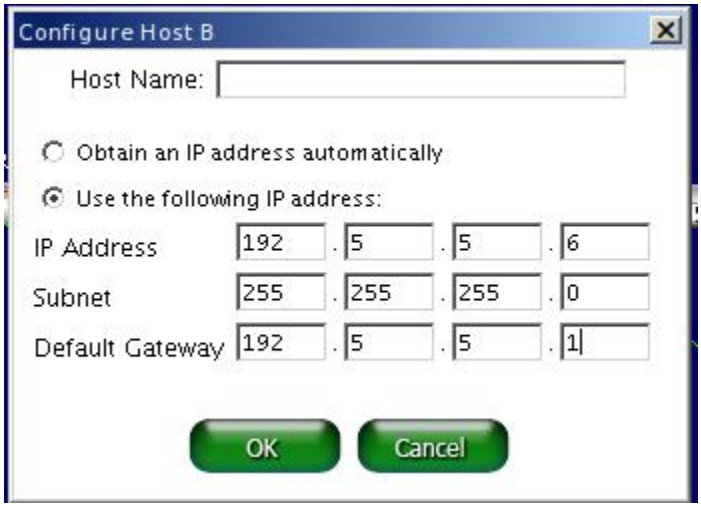
路由器 B 配置

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#int s0/0
Router(config-if)#ip addr 201.100.11.1 255.255.255.0
Router(config-if)#clock rate 56000
Router(config-if)#no shutdown
07:57:25 %LINK-3-UPDOWN:  Interface Serial0/0, changed state to up
07:57:25 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

Router(config-if)#int f0/1
Router(config-if)#ip addr 192.5.5.1 255.255.255.0
Router(config-if)#no shutdown
07:58:04 %LINK-3-UPDOWN:  Interface FastEthernet0/1, changed state to up
07:58:04 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to

Router(config-if)#int f0/0
Router(config-if)#ip addr 205.7.5.1 255.255.255.0
Router(config-if)#no shutdown
07:58:28 %LINK-3-UPDOWN:  Interface FastEthernet0/0, changed state to up
07:58:28 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
```

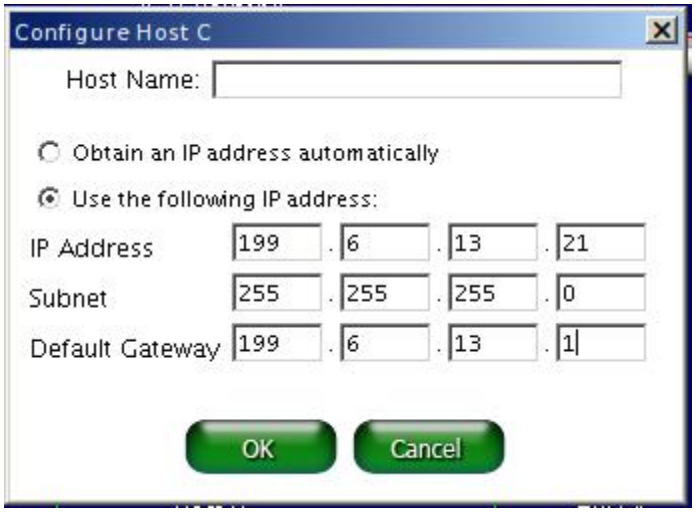
主机 A 配置



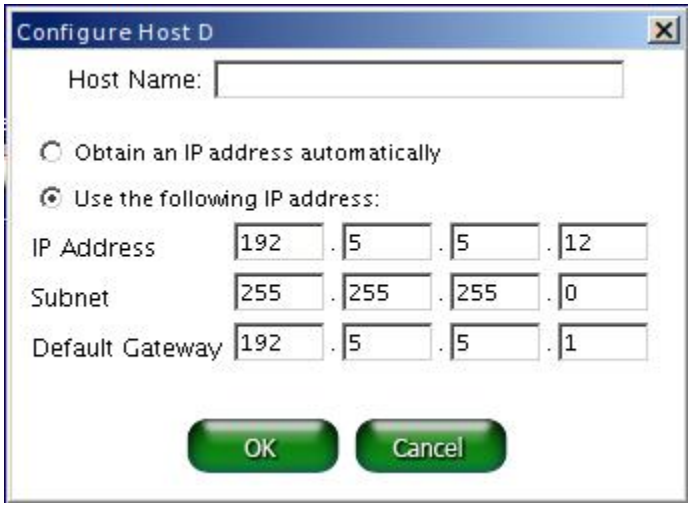
主机 B 配置


Configure Host B
Host Name:
Obtain an IP address automatically
Use the following IP address:
IP Address 192 . 5 . 5 . 6
Subnet 255 . 255 . 255 . 0
Default Gateway 192 . 5 . 5 . 1
OK
Cancel

主机 C 配置


Configure Host C
Host Name:
Obtain an IP address automatically
Use the following IP address:
IP Address 199 . 6 . 13 . 21
Subnet 255 . 255 . 255 . 0
Default Gateway 199 . 6 . 13 . 1
OK
Cancel

主机 D 配置



路由器 A RIP 配置

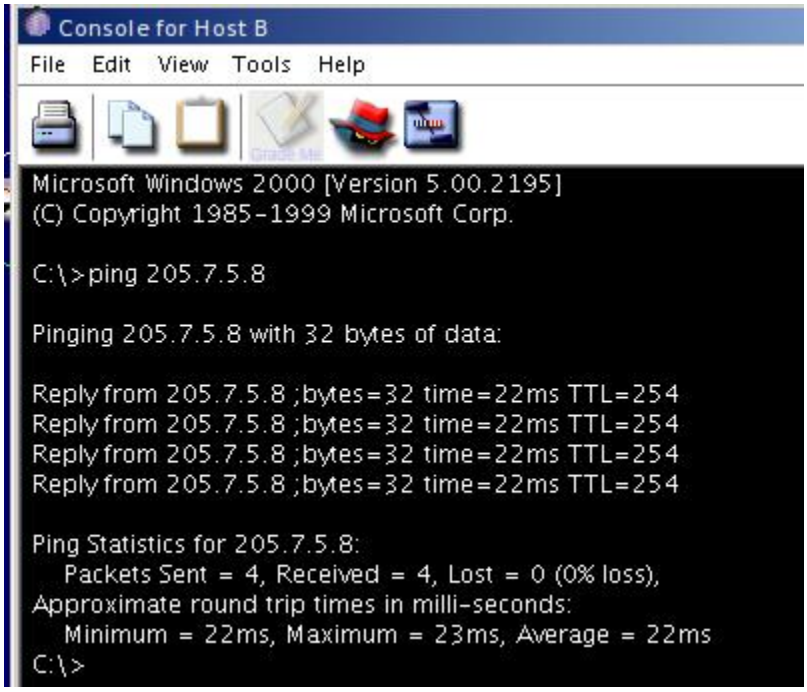
```
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#router rip
Router(config-router)#network 201.100.11.0
Router(config-router)#network 199.6.13.0
```

路由器 B RIP 配置

```
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#router rip
Router(config-router)#network 201.100.11.0
Router(config-router)#network 192.5.5.0
Router(config-router)#network 205.7.5.0
```

12. 配置标准访问列表

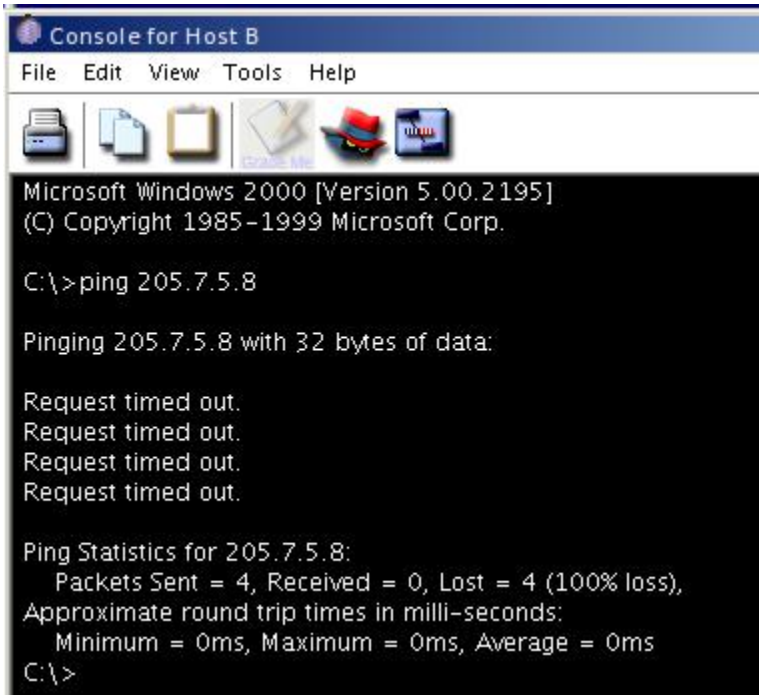
限制前，从主机 B ping 主机 A



在路由器 B 上添加访问限制

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#access-list 50 deny host 192.5.5.6
Router(config)#access-list 50 permit any
Router(config)#int f0/0
Router(config-if)#ip access-group 50 out
Router(config-if)#exit
Router(config)#
```

再次使用主机 B ping 主机 A

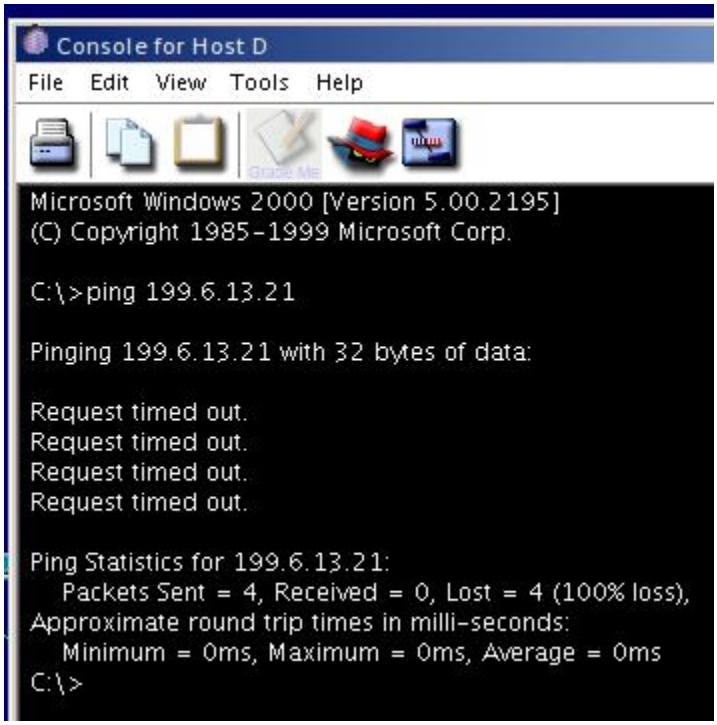


13. 限制子网对子网的访问

对路由器 B 设置访问列表

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#access-list 51 deny 192.5.5.8 255.255.255.248
Router(config)#access-list permit any
                           ^
% Invalid input detected at '^' marker.
Router(config)#access 51 permit any
Router(config)#int s0/0
Router(config-if)#ip access-group 51 out
Router(config-if)#exit
```

主机 D ping 主机 C 进行验证



14. 在 Router A 建立访问列表，使主机 A 不能远程登录 Router A

限制前

Router A 配置访问列表

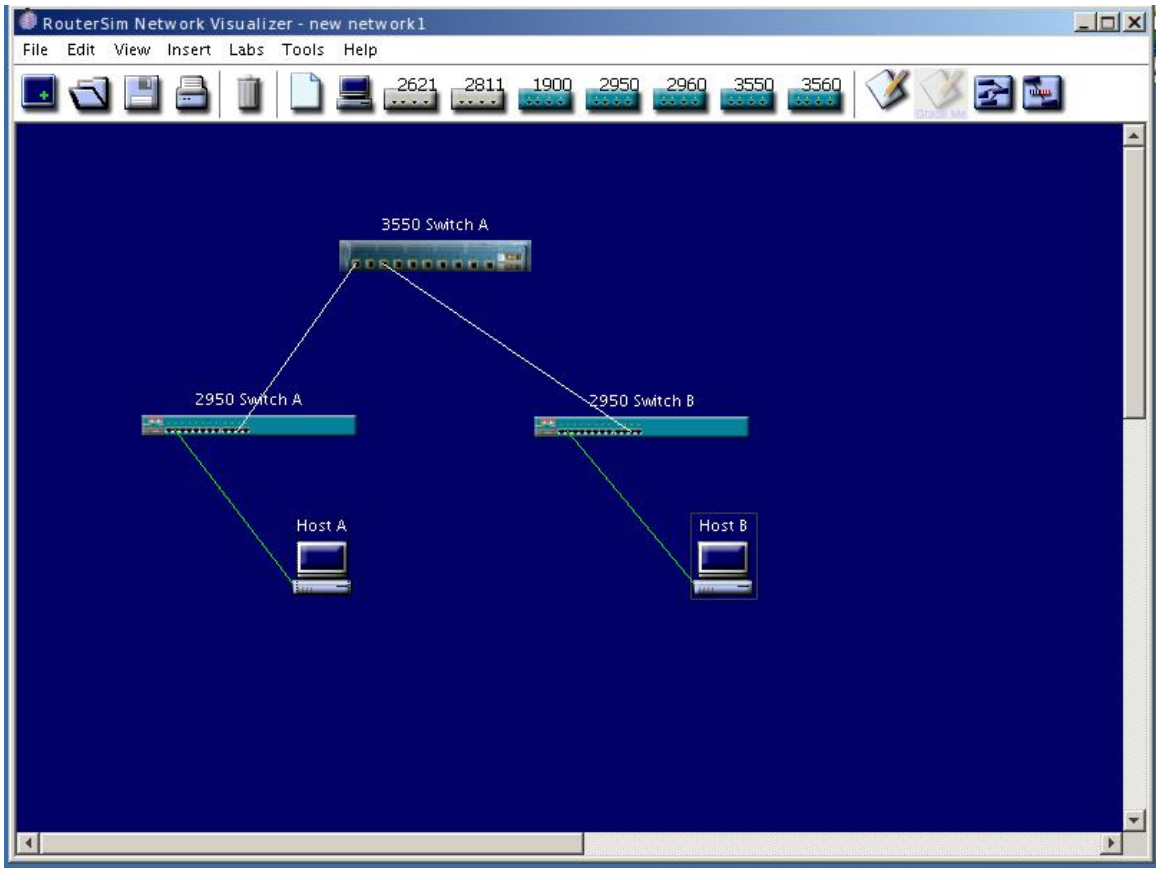
```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#access-list 50 deny host 205.7.5.8
Router(config)#access-list 50 permit any
Router(config)#line vty 0 4
Router(config-line)#access-class 50 in
Router(config-line)#exit
Router(config)#exit
```

测试结果

```
C:\>telnet 201.100.11.2
Connecting To 201.100.11.2 ...Could not open a connection to host: Connect failed
```

15. VLAN 的配置

网络拓扑



16. 设置 VTP 域

配置 Cisco 3550 Switch A

```
switch>en
switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z
switch(config)#hostname 3550A
3550A(config)#vtp domain Cisco
Changing VTP domain name from NULL to Cisco
3550A(config)#exit
3550A#sh vtp status
VTP Version                     : 2
Configuration Revision          : 1
Maximum VLANs supported locally : 64
Number of existing VLANs        : 5
VTP Operating Mode              : Server
VTP Domain Name                 : Cisco
VTP Pruning Mode                : Disabled
VTP V2 Mode                     : Disabled
VTP Traps Generation            : Disabled
MD5 digest                      : 0x70 0x01 0xF2 0x72 0x97 0xA1 0x35 0xEB
Configuration last modified by: 0.0.0.0 at 11-29-93 20:39:24
Local updater ID is 0.0.0.0 on interface VI1 (lowest numbered VLAN interface
found)
```

配置 Cisco 2950 Switch A

```
switch>en
switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z
switch(config)#hostname 2950A
2950A(config)#vtp domain Cisco
Changing VTP domain name from NULL to Cisco
2950A(config)#vtp mode client
Setting device to VTP CLIENT mode.
2950A(config)#exit
2950A#show vtp status
VTP Version                     : 2
Configuration Revision          : 1
Maximum VLANs supported locally : 64
Number of existing VLANs        : 5
VTP Operating Mode              : Client
VTP Domain Name                 : Cisco
VTP Pruning Mode                : Disabled
VTP V2 Mode                     : Disabled
VTP Traps Generation            : Disabled
MD5 digest                      : 0x70 0x01 0xF2 0x72 0x97 0xA1 0x35 0xEB
Configuration last modified by: 2950 SwitchA at 11-29-93 20:39:24
Local updater ID is 2950 SwitchA on interface VI1 (lowest numbered VLAN interface
found)
```

配置 Cisco 2950 Switch B

```
switch>en
switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z
switch(config)#hostname 2950B
2950B(config)#vtp domain Cisco
Changing VTP domain name from NULL to Cisco
2950B(config)#vtp mode client
Setting device to VTP CLIENT mode.
2950B(config)#exit
2950B#
```

17. 配置 Trunk

将 3550A 的 f0/1 和 f0/3 配置为 trunk，并用 802.1q 封装

```
3550A(config)#int f0/1

3550A(config-if)#switchport trunk encapsulation dot1q
09:27:08: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state
to down
09:27:08: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to

3550A(config-if)#int f0/3
3550A(config-if)#switchport trunk encapsulation dot1q
09:28:50: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state
to down
09:28:50: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to
```

将 2950A 和 2950B 的 f0/11 配置为 trunk

```
2950A(config)#int f0/11
2950A(config-if)#switchport mode trunk
```

```
2950B(config)#int f0/11
2950B(config-if)#switchport mode trunk
```

18. 创建 VLAN

```
3550A(config)#vlan 10
3550A(config-vlan)#vlan 20
3550A(config-vlan)#exit
3550A(config)#exit
3550A#sh vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/2, Fa0/4, Fa0/5, Fa0/6
                                                 Fa0/7, Fa0/8, Fa0/9, Fa0/10
10   VLAN0010                          active
20   VLAN0020                          active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
```

19. 将交换机端口加入 VLAN

```
2950A(config)#int f0/2
2950A(config-if)#switchport access vlan 10

2950B(config)#int f0/2
2950B(config-if)#switchport access vlan 20
```

20. 配置第三层交换机

在 3550 上设置 VLAN 的接口 IP

```
3550A(config)#int vlan 10
3550A(config-if)#ip addr 10.10.10.1 255.255.255.0
3550A(config-if)#no shut
3550A(config-if)#int vlan 20
3550A(config-if)#ip addr 20.20.20.1 255.255.255.0
3550A(config-if)#no shut
```

启用路由

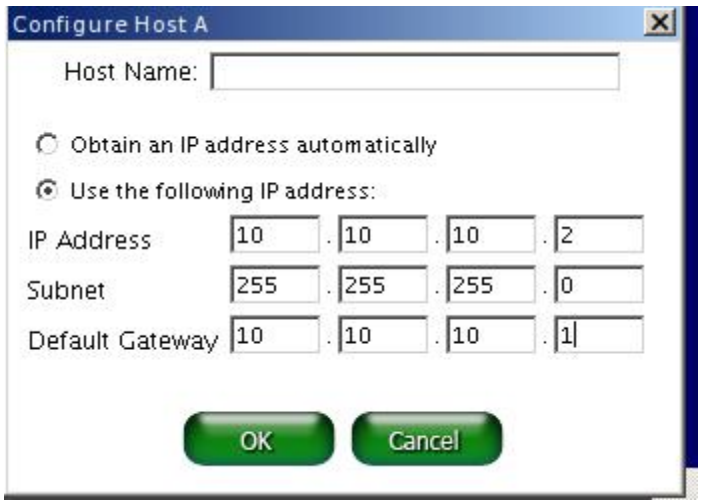
```
3550A(config)#ip routing
```

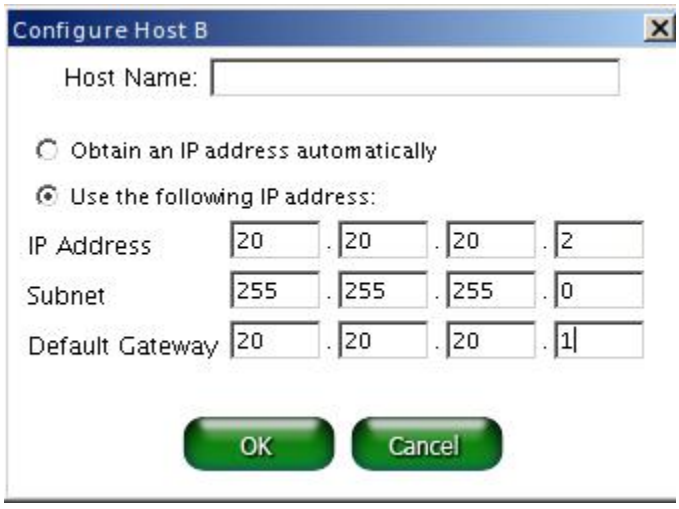
21. 配置各交换机的管理地址

```
3550A(config)#int vlan 1
3550A(config-if)#ip addr 192.168.10.1 255.255.255.0
3550A(config-if)#no shut
```

```
2950A(config)#int vlan 1
2950A(config-if)#ip addr 192.168.10.2 255.255.255.0
2950A(config-if)#no shut

2950B(config)#int vlan 1
2950B(config-if)#ip addr 192.168.10.3 255.255.255.0
2950B(config-if)#no shut
```

22. 配置主机



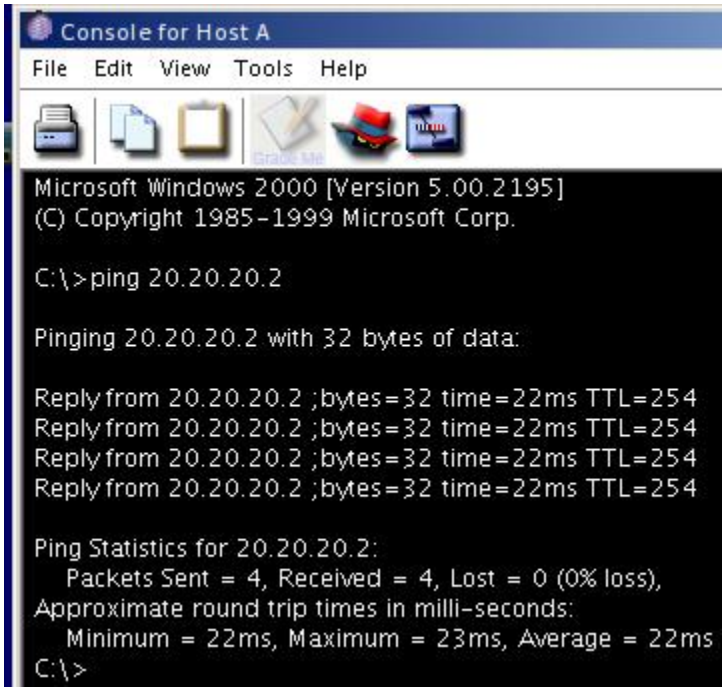


23. 测试

3550 ping 两台 2950

```
3550A#ping 192.168.10.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
3550A#ping 192.168.10.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
```

主机 A ping 主机 B



4 实验总结

学习了路由器基本配置、静态路由配置、默认路由配置、动态路由配置、RIP 配置、访问列表配置及 VLAN 配置。