

廈門大學



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 2 班

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实验时间 2020 年 4 月 21 日

2020 年 4 月 21 日

1 实验目的

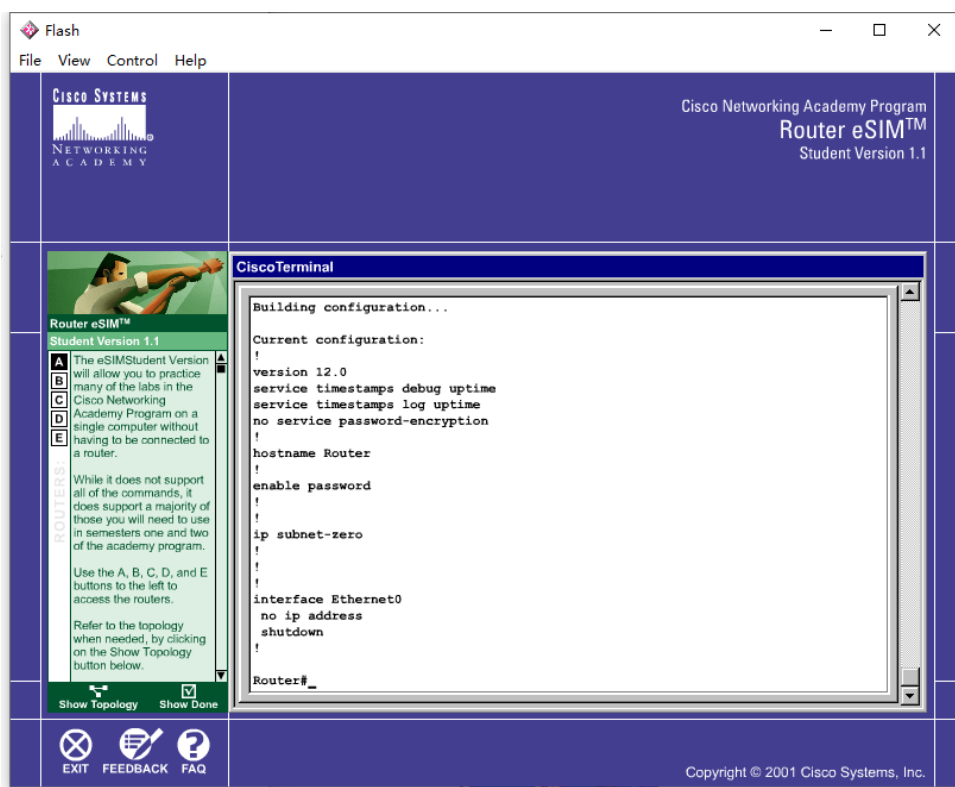
使用 Router eSIM v1.1 模拟器来模拟路由器的配置环境；使用 CCNA Network Visualizer 6.0 配置静态路由、动态路由和交换机端口的 VLAN（虚拟局域网）。

2 实验环境

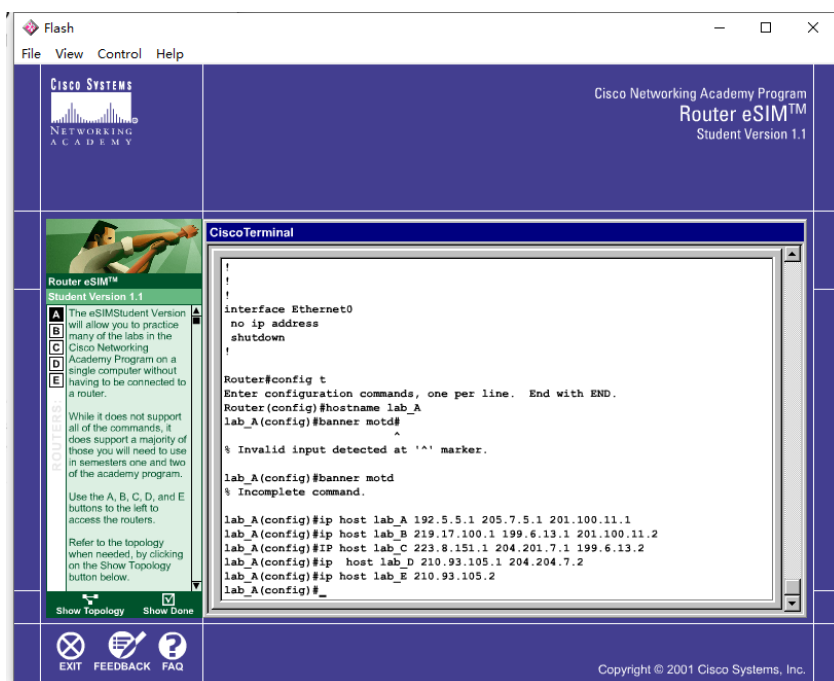
Router eSIM v1.1 模拟器，CCNA Network Visualizer 6.0

3 实验结果

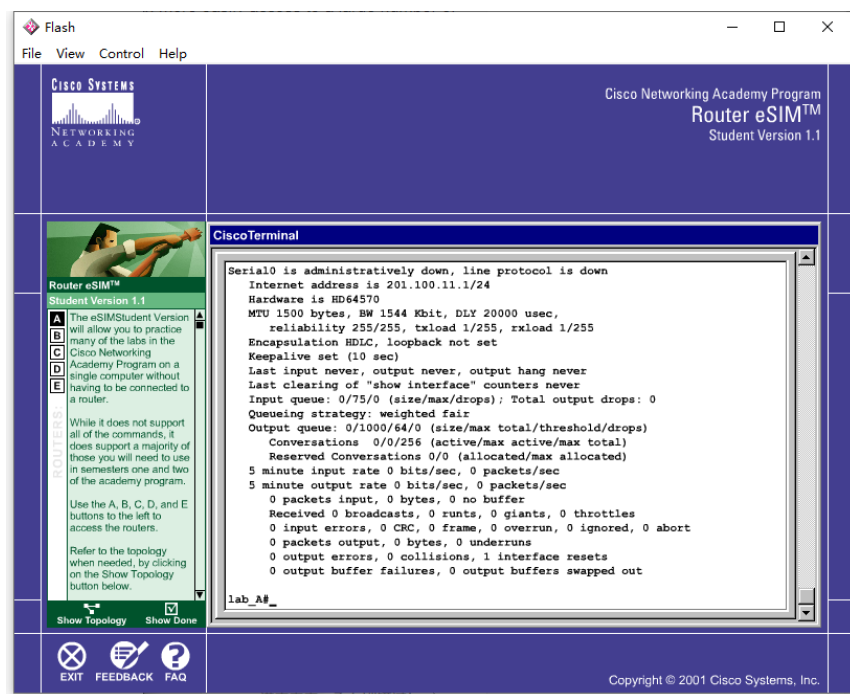
查看路由器状态

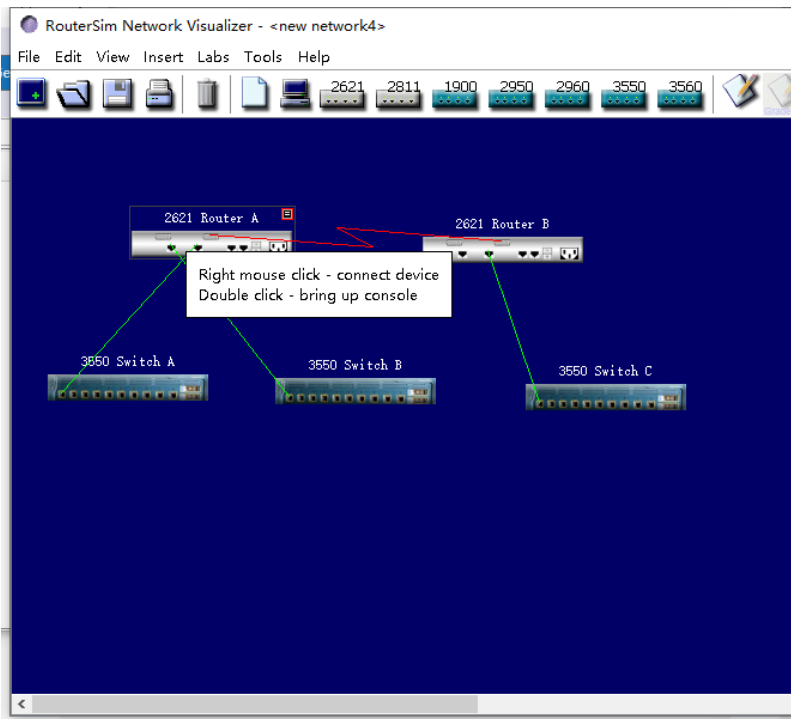


建立 IP 地址映射表

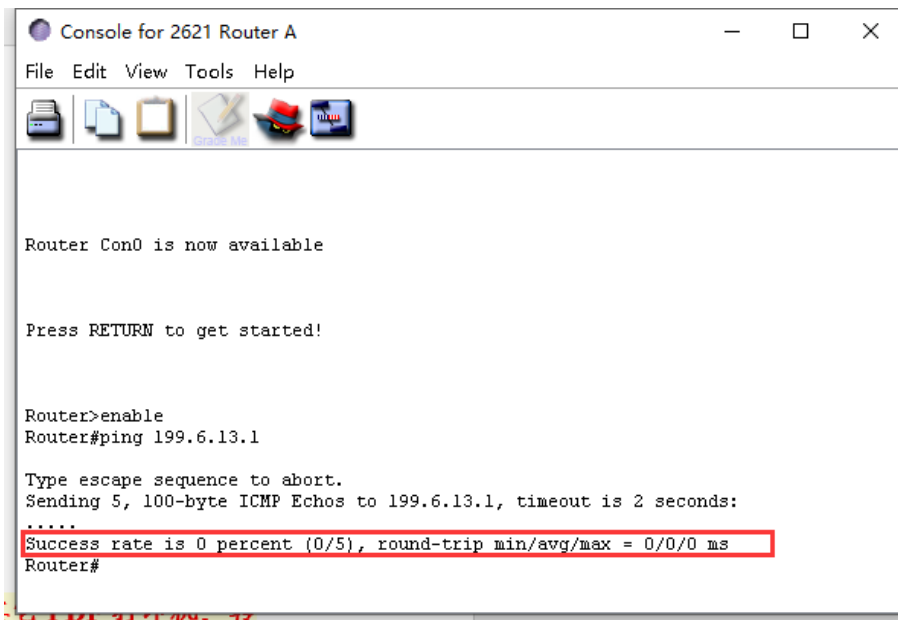


查看串口的配置情况





最初 ping 路由器 B 不成功



配置静态路由

```

Console for 2621 Router A
File Edit View Tools Help

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z
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    192.5.5.0/24 is directly connected, FastEthernet0/0
C    205.7.5.0/24 is directly connected, FastEthernet0/1
C    201.100.11.0/24 is directly connected, Serial0/0
Router#

```

Ping 成功

```

Console for 2621 Router A
File Edit View Tools Help

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    192.5.5.0/24 is directly connected, FastEthernet0/0
C    205.7.5.0/24 is directly connected, FastEthernet0/1
C    201.100.11.0/24 is directly connected, Serial0/0
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
Router#

```

动态路由设置:

```

C    10.1.1.0 is directly connected, Serial0/0
R    10.2.2.0 [120/1] via 10.1.1.2, 00:00:18, Serial0/0
R    192.168.1.0 [120/2] via 10.1.1.2, 00:00:18, Serial0/0
Router#

```

```

Console for 2950 Switch A
File Edit View Tools Help

server Set the device to server mode.
transparent Set the device to transparent mode.

switch(config)#vtp mode
% Incomplete command.
switch(config)#vtp mode ?
client Set the device to client mode.
server Set the device to server mode.
transparent Set the device to transparent mode.

switch(config)#vtp mode
% Incomplete command.
switch(config)#vtp mode ?
client Set the device to client mode.
server Set the device to server mode.
transparent Set the device to transparent mode.

switch(config)#vtp mode client
Setting device to VTP CLIENT mode.
switch(config)#exit
switch#sh 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 V11 (lowest numbered VLAN interface found)
switch#

```

创建 VLAN 并用 show vlan 验证

```

Console for 3550 Switch A
File Edit View Tools Help

3550A(config-vlan)#exit
3550A(config)#sh vlan
% Invalid input detected at '^' marker.
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

VLAN Type  SAID      MTU    Parent RingNo BridgeNo Stp    BrdgMode Transl Trans2
-----
1    enet    100001    1500   -     -     -     -     -     0      0
10   enet    100010    1500   -     -     -     -     -     0      0
20   enet    100020    1500   -     -     -     -     -     0      0
1002 fddi    101002    1500   -     -     -     -     -     0      0
1003 tr     101003    1500   -     -     -     -     -     0      0
1004 fdnet  101004    1500   -     -     -     ieee  -     0      0
1005 trnet  101005    1500   -     -     -     ibm   -     0      0

--More--
3550A#

```

4 实验总结

对于静态路由和动态路由的区别有了更深的理解。熟悉了静态路由、动态路由以及 VLAN 的配置。