

# 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 3 班

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实验时间 2020 年 4 月 8 日

2020 年 4 月 21 日

## 1 实验目的

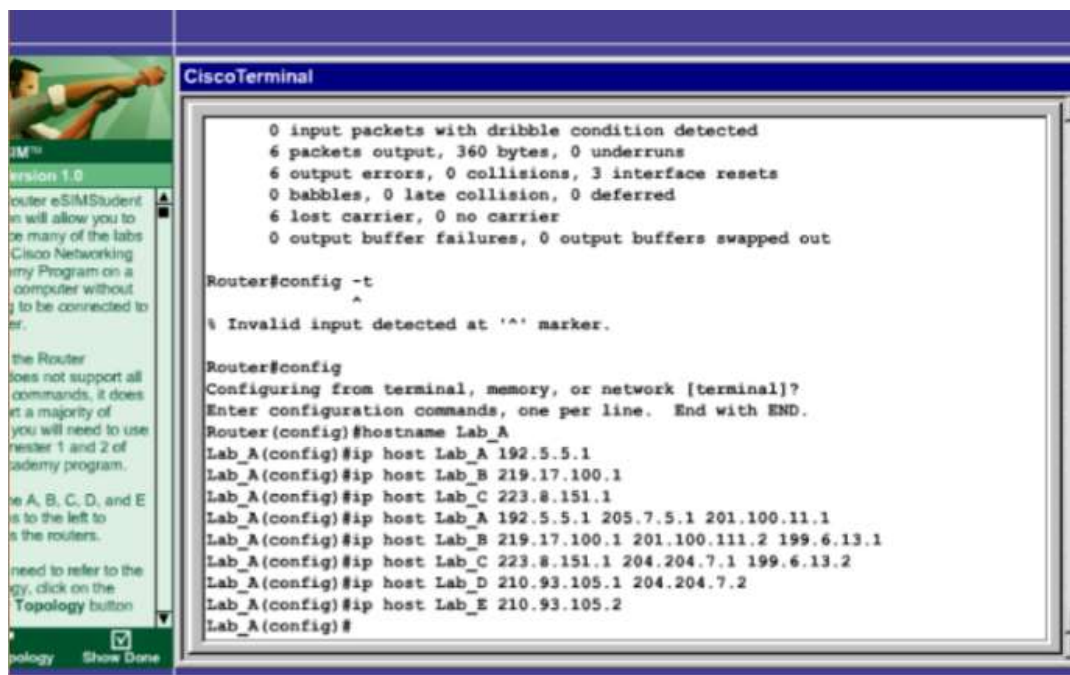
模拟路由器配置环境，配置静态路由，动态路由和 VLAN

## 2 实验环境

Win10

## 3 实验结果

1. 配置各路由器 IP 地址，实现要求的拓扑结构，完成配置结果



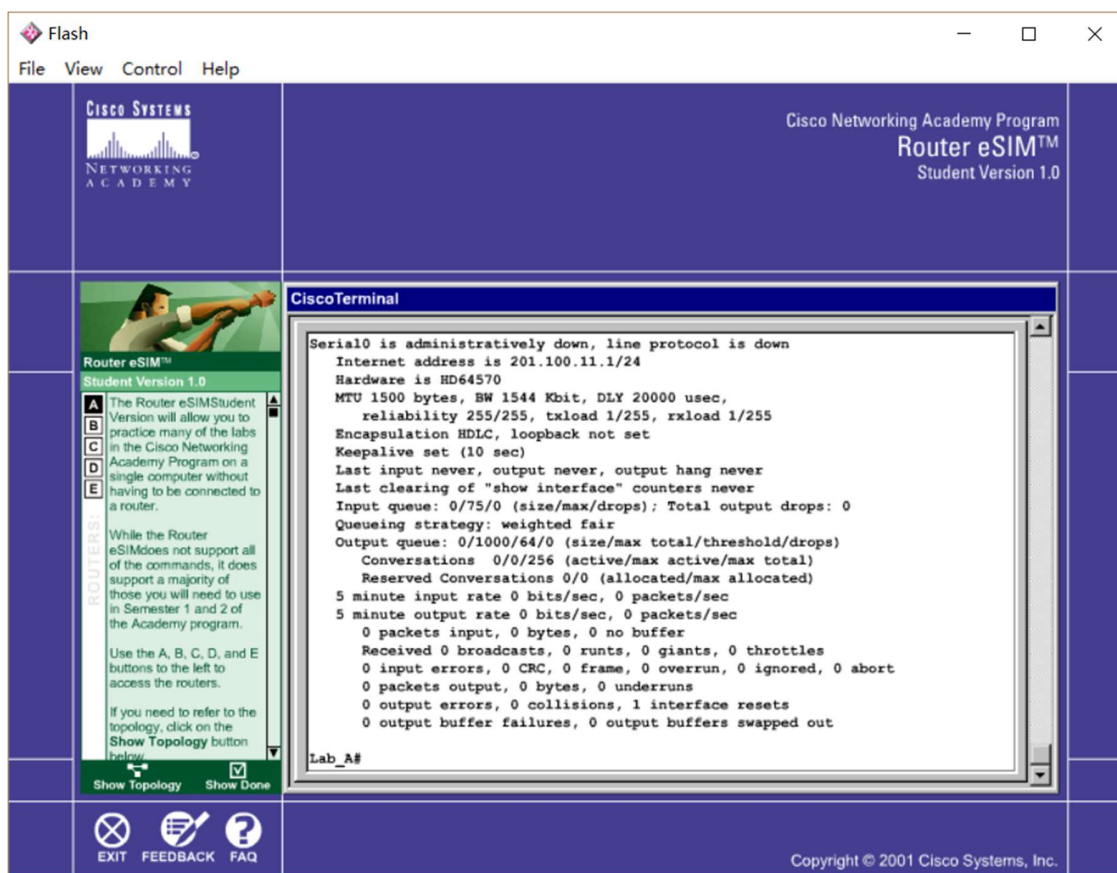
```
CiscoTerminal

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

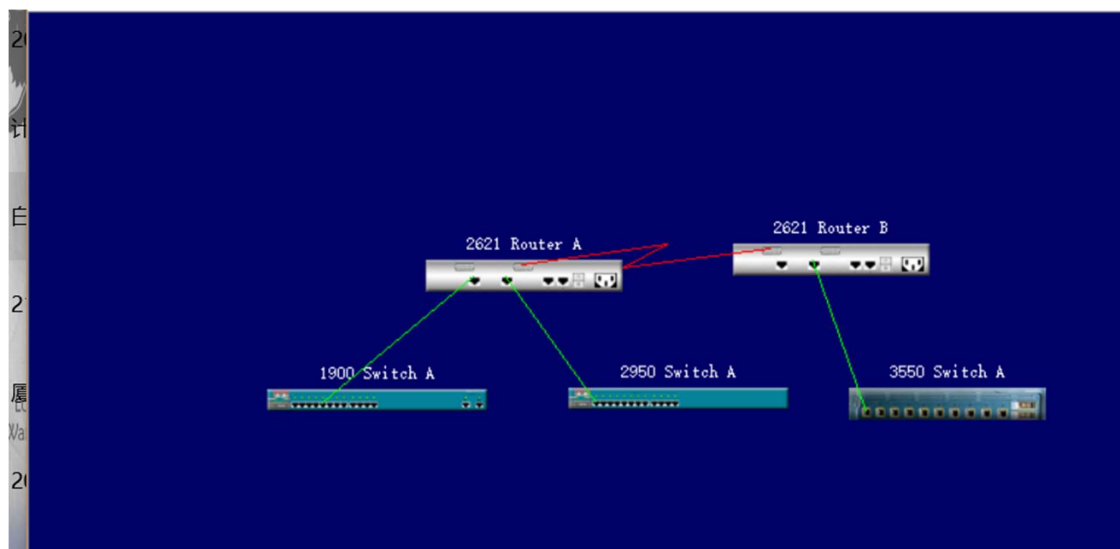
Router#config -t
^
% Invalid input detected at '^' marker.

Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with END.
Router(config)#hostname Lab_A
Lab_A(config)#ip host Lab_A 192.5.5.1
Lab_A(config)#ip host Lab_B 219.17.100.1
Lab_A(config)#ip host Lab_C 223.8.151.1
Lab_A(config)#ip host Lab_A 192.5.5.1 205.7.5.1 201.100.11.1
Lab_A(config)#ip host Lab_B 219.17.100.1 201.100.111.2 199.6.13.1
Lab_A(config)#ip host Lab_C 223.8.151.1 204.204.7.1 199.6.13.2
Lab_A(config)#ip host Lab_D 210.93.105.1 204.204.7.2
Lab_A(config)#ip host Lab_E 210.93.105.2
Lab_A(config)#
```

```
Lab_C(config)#int eth 0
Lab_C(config-if)#ip address 223.8.151.1 255.255.255.0
Lab_C(config-if)#int serial 0
Lab_C(config-if)#ip address 204.204.7.1 255.255.255.0
Lab_C(config-if)#int serial 1
Lab_C(config-if)#ip address 199.6.13.2 255.255.255.0
Lab_C(config-if)#int serial 0
Lab_C(config-if)#clock rate 56000
Lab_C(config-if)#_
```



## 2. 构建拓扑结构，完成静态路由配置，完成 Ping 操作



```
Translating "RouterA"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address
Router#config t
Enter configuration commands, one per line. End with CNTL/Z
Router(config)#int f0/0
Router(config-if)#ip address 192.5.5.1 255.255.255.0
Router(config-if)#no shutdown
13:12:06 %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
13:12:06 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, change

Router(config-if)#int f0/1
Router(config-if)#ip addr 205.7.5.1 255.255.255.0
Router(config-if)#no shutdown
13:12:34 %LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
13:12:34 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, change

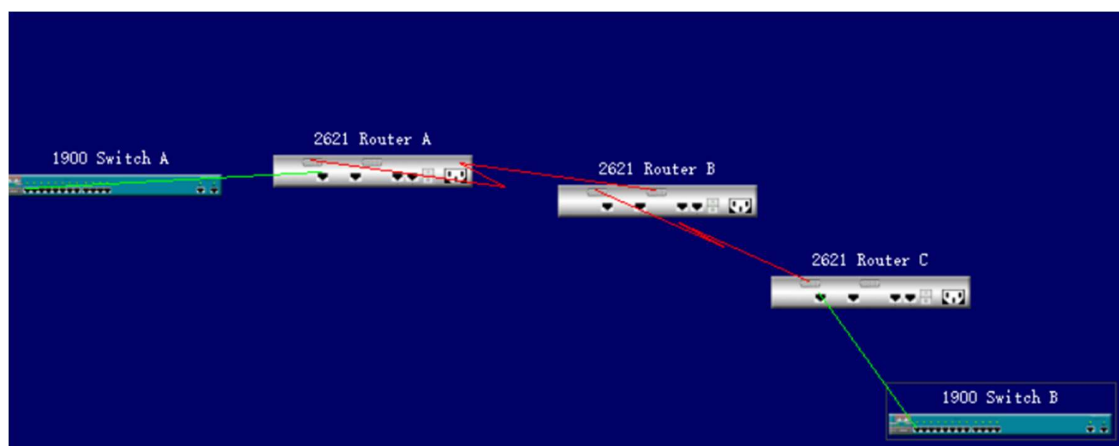
Router(config-if)#int s0/0
Router(config-if)#ip addr 201.100.11.1 255.255.255.0
Router(config-if)#no shutdown
13:13:03 %LINK-3-UPDOWN: Interface Serial0/0, changed state to up
13:13:03 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed stat

Router(config-if)#exit
Router(config)#exit
Router#config -t
^
% Invalid input detected at '^' marker.
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
Router(config-if)#

S      199.6.13.0 [1/0] via 201.100.11.2
Router#ping 199.6.13.1

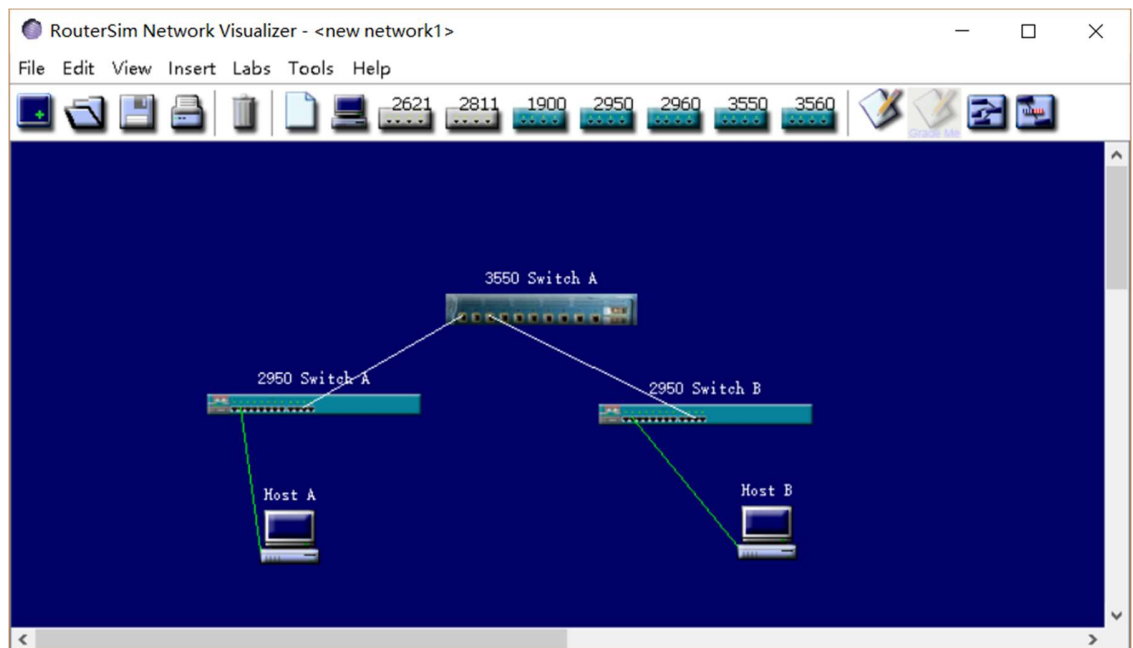
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 199.6.13.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
Router#
```

### 3.进行动态路由配置，完成路由表获取



```
Router# show ip rip
Interface                Send  Recv  Triggered RIP
Serial0/1                 1     1 2
FastEthernet0/1          1     1 2
Automatic network summarization is in effect
Maximum path: 4
Routing for networks:
 10.0.0.0
192.168.1.0
Routing information sources:
 Gateway      Distance    Last Update
 10.2.2.2      120        00:00:07
Distance: <default is 120>
```

#### 4.完成两个样例的 VLAN 配置



```
Console for 3550 Switch A
File Edit View Tools Help

SWITCH#
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 V11 (lowest numbered VLAN interface found)
3550A#
```

```

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#config t
Enter configuration commands, one per line.  End with CNTL/Z
2950B(config)#int fa0/11
2950B(config-if)#swit mode trunk
2950B(config-if)#

```

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

```

(C) Copyright 1983-1999 Microsoft Corp.

C:\>ping 172.16.20.1

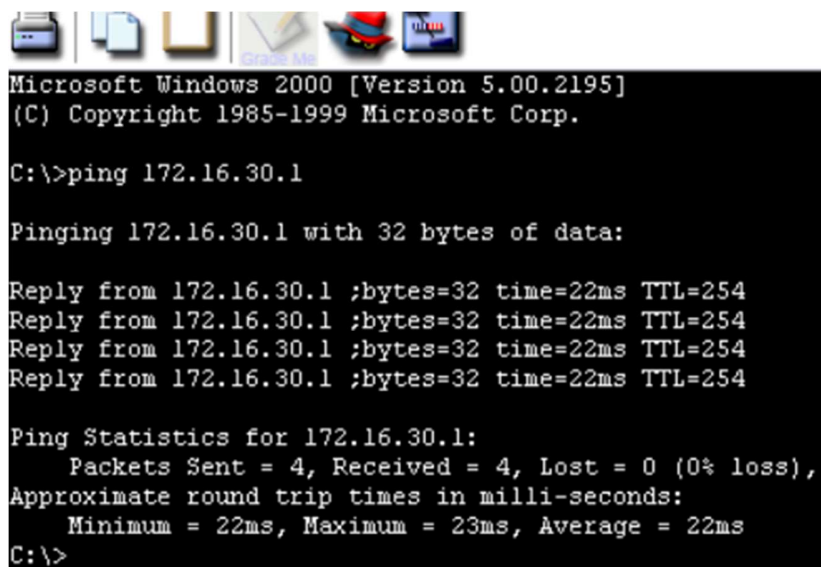
Pinging 172.16.20.1 with 32 bytes of data:

Reply from 172.16.20.1 :bytes=32 time=22ms TTL=254
Reply from 172.16.20.1 :bytes=32 time=22ms TTL=254
Reply from 172.16.20.1 :bytes=32 time=22ms TTL=254
Reply from 172.16.20.1 :bytes=32 time=22ms TTL=254

Ping Statistics for 172.16.20.1:
    Packets Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 22ms, Maximum = 23ms, Average = 22ms

```





The screenshot shows a Windows 2000 desktop with a taskbar at the top containing icons for a printer, a folder, a document, a 'Grade Me' application, and a network status icon. The command prompt window is open, displaying the following text:

```
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-1999 Microsoft Corp.

C:\>ping 172.16.30.1

Pinging 172.16.30.1 with 32 bytes of data:

Reply from 172.16.30.1 :bytes=32 time=22ms TTL=254
Reply from 172.16.30.1 :bytes=32 time=22ms TTL=254
Reply from 172.16.30.1 :bytes=32 time=22ms TTL=254
Reply from 172.16.30.1 :bytes=32 time=22ms TTL=254

Ping Statistics for 172.16.30.1:
    Packets Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 22ms, Maximum = 23ms, Average = 22ms
C:\>
```

## 4 实验总结

通过这次试验，体会到了静态路由配置和动态路由配置的较大区别，在大范围的网络中，通过静态路由配置方法来配置网络十分耗费时间，因此在大规模网络上使用动态路由较好。