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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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

Windows 10、Router eSIM v1.1 模拟器、CCNA Network Visualizer 6.0

3 实验结果

Cisco IOS 的基本操作和路由器的常规配置

进入全局配置模式

```
Router>enable
Router#config terminal
Enter configuration commands, one per line.  End with END.
```

改名字

```
Router(config)#hostname router_A
router_A(config)#_
```

```
router_A(config)#hostname lab_A
lab_A(config)#
```

设置消息标题

```
router_A(config)#banner motd #
Enter TEXT message.  End with the character '#'.
Accounting Department
You have entered a secured system
Authorized access only! #
router_A(config)#_
```

建立名字解析的 映射表

```
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 219.17.100.1 199.6.13.1 201.100.11.2
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)#
```

路由器接口配置IP地址

```
lab_A(config)#int eth 0
lab_A(config-if)#ip address 192.5.5.1 255.255.255.0
lab_A(config-if)#int eth 1
lab_A(config-if)#ip address 205.7.5.1 255.255.255.0
lab_A(config-if)#int serial 0
lab_A(config-if)#ip address 201.100.11.1 255.255.255.0
lab A(config-if)#
```

配置充当DEC端的串行端口（查看串行端口不支持此命令）

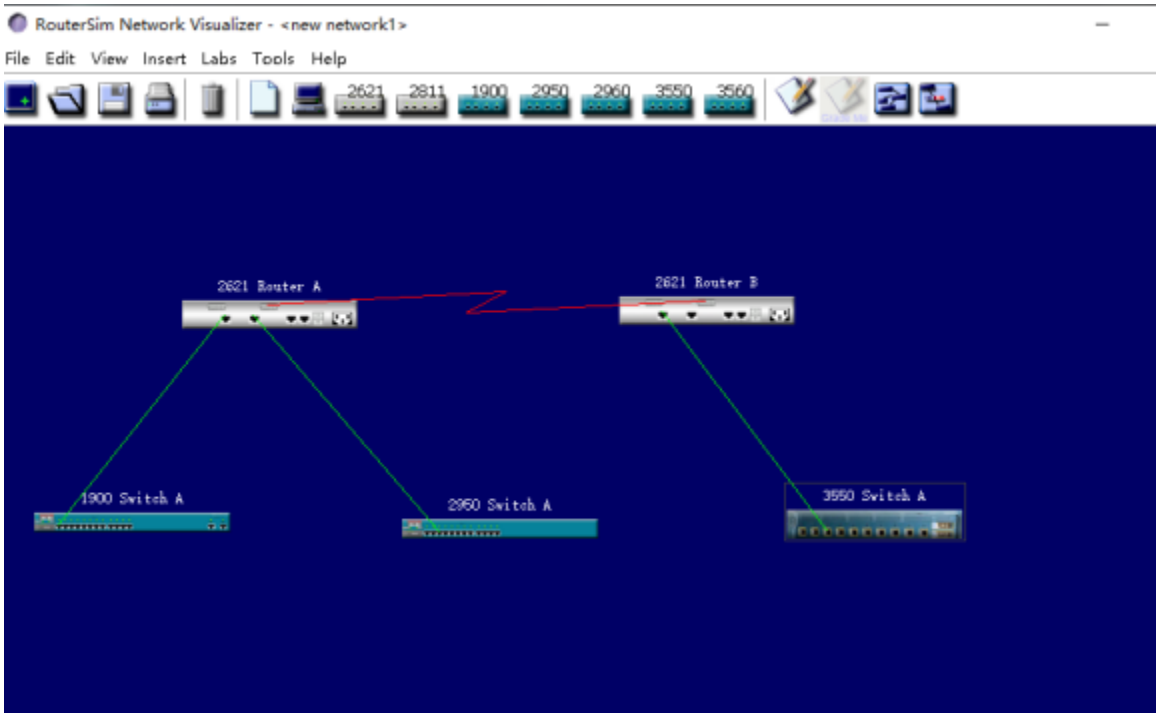
```
lab_A#show controller serial 0
lab_A#config t
Enter configuration commands, one per line.  End with END.
lab_A(config)#interface serial 0
lab_A(config-if)#clock rate 56000
lab_A(config-if)#_
```

查看串口配置情况

```
lab_A#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
 --More--
```

静态路由配置

模拟网络拓扑



配置各个端口的IP地址

A:

```
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#hostname RounterA
RounterA(config)#int f0/0
RounterA(config-if)#ip address 192.5.5.1 255.255.255.0
RounterA(config-if)#no shutdown
09:26:03 %LINK-3-UPDOWN:  Interface FastEthernet0/0, changed state to up
09:26:03 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

RounterA(config-if)#int f0/1
RounterA(config-if)#ip addr 205.7.5.1 255.255.255.0
RounterA(config-if)#no shutdown
09:26:31 %LINK-3-UPDOWN:  Interface FastEthernet0/1, changed state to up
09:26:31 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

RounterA(config-if)#int s0/0
RounterA(config-if)#ip addr 201.100.11.1 255.255.255.0
RounterA(config-if)#clock rate 56000
RounterA(config-if)#no shutdown
09:26:56 %LINK-3-UPDOWN:  Interface Serial0/0, changed state to up
09:26:56 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

RounterA(config-if)#exit
RounterA(config)#exit
RounterA#
```

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

B：

```
Enter configuration commands, one per line.  End with CNTL/Z
RouterB(config)#int f0/0
RouterB(config-if)#ip addr 199.6.13.1 255.255.255.0
RouterB(config-if)#no shutdown
RouterB(config-if)#int s0/1
RouterB(config-if)#ip addr 201.100.11.1 255.255.255.0
RouterB(config-if)#no shutdown
RouterB(config-if)#exit
RouterB(config)#exit
RouterB#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     201.100.11.0/24 is directly connected, Serial0/1
C     199.6.13.0/24 is directly connected, FastEthernet0/0
RouterB#
```

查看连通：

```
RounterA#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
RounterA#
```

配置静态路由：

```
RounterA(config)#ip route 199.6.13.0 255.255.255.0 201.100.11.2
RounterA(config)#exit
RounterA#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     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
S     199.6.13.0 [1/0] via 201.100.11.2
RounterA#
```

测试连通性：连通性良好

```
RounterA#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
RounterA#
```

动态路由协议RIP配置

RIP配置完成

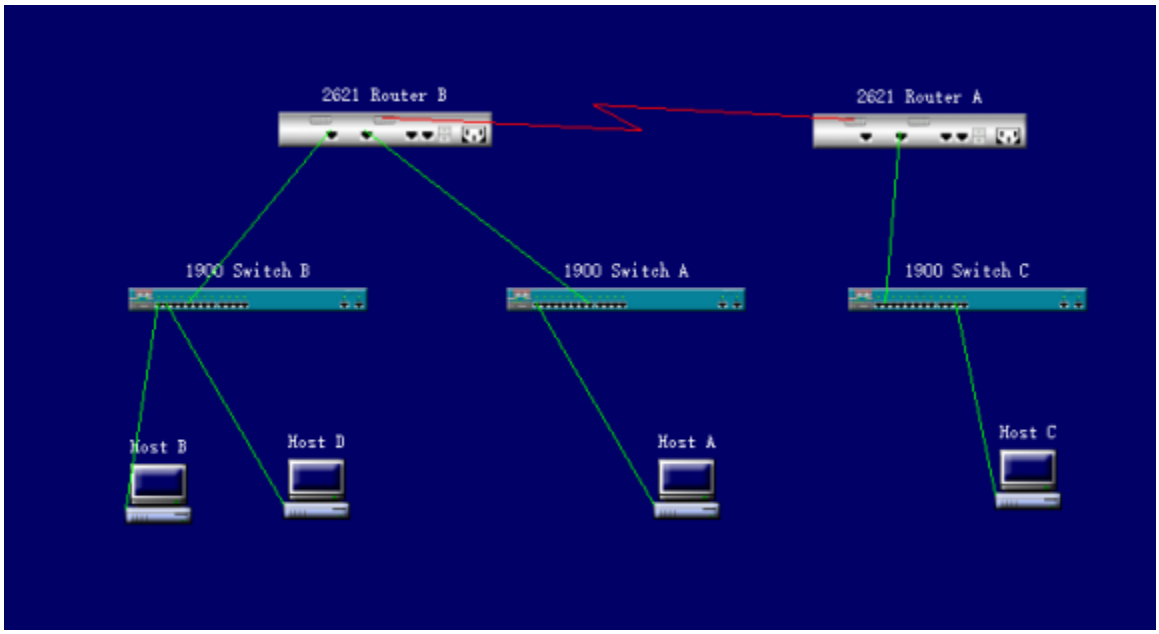
```
RouterA>enable
RouterA#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external 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

    172.16.0.0/24 is subnetted, 1 subnets
C      172.16.1.0 is directly connected, FastEthernet0/0
    10.0.0.0/24 is subnetted, 2 subnets
C      10.1.1.0 is directly connected, Serial0/0
R      10.2.2.0 [120/1] via 10.2.2.2, 00:00:01, Serial0/0
R      192.168.1.0 [120/2] via 10.2.2.2, 00:00:01, Serial0/0
RouterA#
```

```
RouterB>enable
RouterB#sh 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

    172.16.0.0/24 is subnetted, 1 subnets
R      172.16.1.0 [120/1] via 10.1.1.1, 00:00:27, Serial0/1
    10.0.0.0/24 is subnetted, 2 subnets
C      10.1.1.0 is directly connected, Serial0/0
C      10.2.2.0 is directly connected, Serial0/1
R      192.168.1.0 [120/1] via 10.2.2.3, 00:00:27, Serial0/0
RouterB#
```

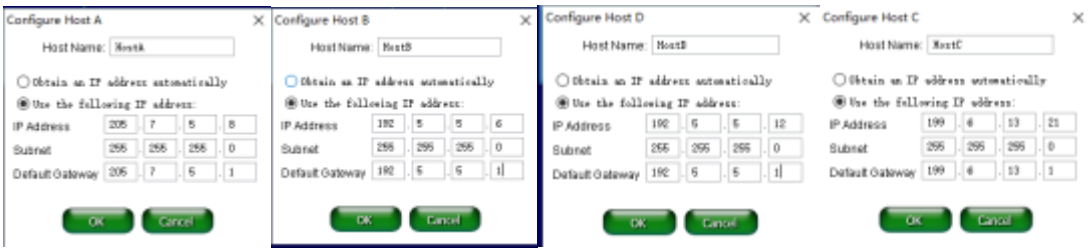
```
RouterC(config-if)#exit
RouterC(config)#exit
RouterC#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external 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

    172.16.0.0/24 is subnetted, 1 subnets
R      172.16.1.0 [120/2] via 10.1.1.2, 00:00:13, Serial0/0
    10.0.0.0/24 is subnetted, 2 subnets
R      10.1.1.0 [120/1] via 10.1.1.2, 00:00:13, Serial0/0
C      10.2.2.0 is directly connected, Serial0/0
C      192.168.1.0/24 is directly connected, FastEthernet0/0
RouterC#
```

Cisco路由器访问列表配置

模拟器设备连接



计算机IP地址配置



路由器配置

A：

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#hostname RouterA
RouterA(config)#line console 0
RouterA(config-line)#password koalaA
RouterA(config-line)#login
RouterA(config-line)#exit
RouterA(config)#line vty 0 4
RouterA(config-line)#password tigerA
RouterA(config-line)#exit
RouterA(config)#enable secret ciscoA
RouterA(config)#int f0/0
RouterA(config-if)#ip addr 199.6.13.1 255.255.255.0
RouterA(config-if)#no shutdown
10:45:37 %LINK-3-UPDOWN:  Interface FastEthernet0/0, changed state to up
10:45:37 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

RouterA(config-if)#int s0/1
RouterA(config-if)#ip addr 201.100.11.2 255.255.255.0
RouterA(config-if)#nu shutdown
                   ^
% Invalid input detected at '^' marker.
RouterA(config-if)#no shutdown
10:46:01 %LINK-3-UPDOWN:  Interface Serial0/1, changed state to up
10:46:01 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1, changed state to up

RouterA(config-if)#exit
RouterA(config)#router rip
RouterA(config-router)#network 201.100.11.0
RouterA(config-router)#network 199.6.13.0
RouterA(config-router)#exit
RouterA(config)#_
```

B：

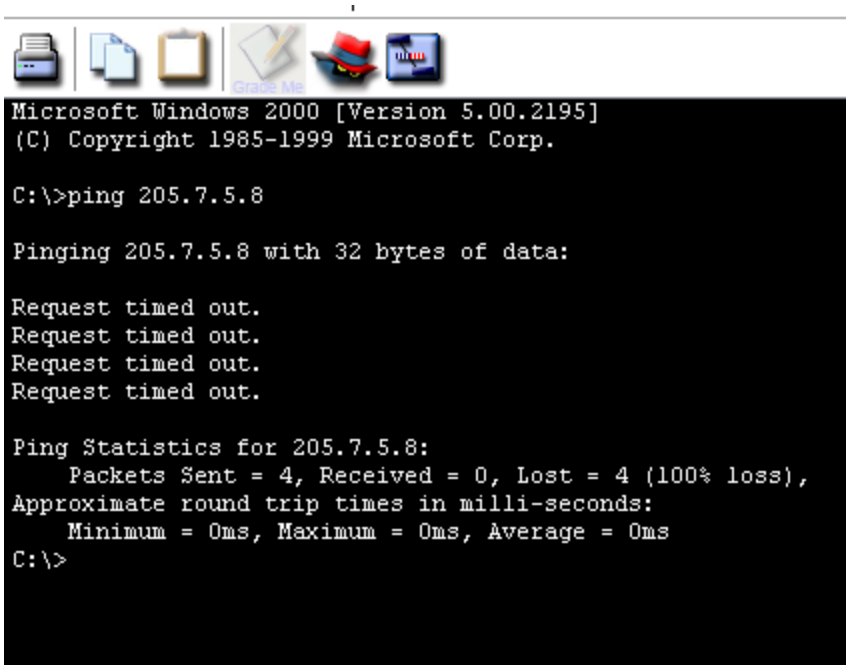
```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z
Router(config)#hostname RouterB
RouterB(config)#line console 0
RouterB(config-line)#password koalaB
RouterB(config-line)#login
RouterB(config-line)#exit
RouterB(config)#line vty 0 4
RouterB(config-line)#password tigerB
RouterB(config-line)#exit
RouterB(config)#enable secret ciscoB
RouterB(config)#int f0/0
RouterB(config-if)#ip addr 192.5.5.1 255.255.255.0
RouterB(config-if)#no shutdown
10:42:04 %LINK-3-UPDOWN:  Interface FastEthernet0/0, changed state to up
10:42:04 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

RouterB(config-if)#int f0/1
RouterB(config-if)#ip addr 205.7.5.1 255.255.255.0
RouterB(config-if)#no shutdown
10:42:23 %LINK-3-UPDOWN:  Interface FastEthernet0/1, changed state to up
10:42:23 %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

RouterB(config-if)#int s0/0
RouterB(config-if)#ip addr 201.100.11.1 255.255.255.0
RouterB(config-if)#clock rate 56000
RouterB(config-if)#no shutdown
10:42:46 %LINK-3-UPDOWN:  Interface Serial0/0, changed state to up
10:42:46 %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up

RouterB(config-if)#
```

```
RouterB(config-if)#exit
RouterB(config)#router rip
RouterB(config-router)#network 192.5.5.0
RouterB(config-router)#newwork 205.7.5.0
                           ^
% Invalid input detected at '^' marker.
RouterB(config-router)#network 205.7.5.0
RouterB(config-router)#network 201.100.11.0
```

配置标准 访问列表：

对主机的访问列表控制

```
RouterB(config-router)#network 205.7.5.0
RouterB(config-router)#network 201.100.11.0
RouterB(config-router)#exit
RouterB(config)#access-list 50 deny host 192.5.5.6
RouterB(config)#access-list 50 permit any
RouterB(config)#int f0/1
RouterB(config-if)#ip access-group 50 out
RouterB(config-if)#_
```



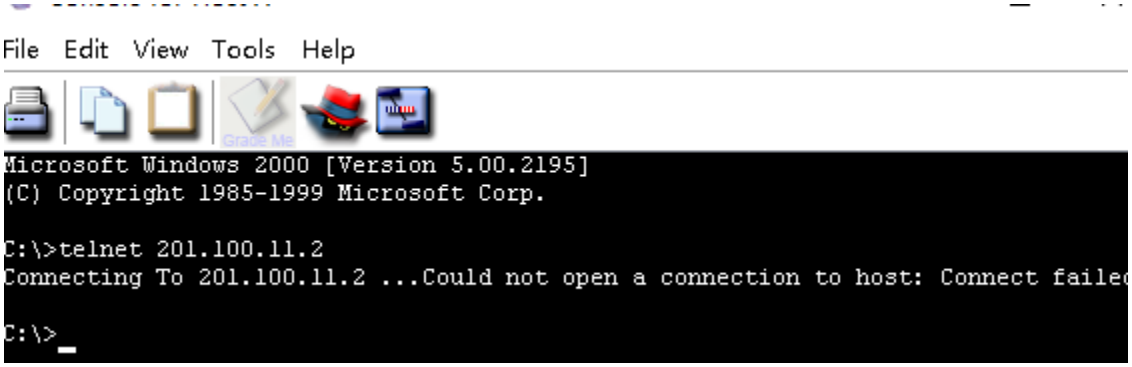
```
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-1999 Microsoft Corp.

C:\>ping 205.7.5.8

Pinging 205.7.5.8 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping Statistics for 205.7.5.8:
    Packets Sent = 4, Received = 0, Lost = 4 (100% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
```

对子网的访问列表控制

```
RouterB(config)#access-list 50 deny host 192.5.5.6
RouterB(config)#access-list 50 permit any
RouterB(config)#int f0/1
RouterB(config-if)#ip access-group 50 out
RouterB(config-if)#exit
RouterB(config)#access-list 51 deny 192.5.5.8 255.255.255.248
RouterB(config)#access-list 51 permit any
RouterB(config)#int s0/0
RouterB(config-if)#ip access-group 51 out
RouterB(config-if)#exit
```

```
C:\>ping 199.6.13.0

Pinging 199.6.13.0 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping Statistics for 199.6.13.0:
    Packets Sent = 4, Received = 0, Lost = 4 (100% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>
```

使主机A不能远程登录到RouterA



基于交换机端口的VLAN配置

实例1：

设置VTP域

```
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 Vl1 (lowest numbered VLAN interface
found)
3550A#
```

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

2950A(config)#vtp mode client
Setting device to VTP CLIENT mode.
2950A(config)#exit
2950A#sh vtp status
VTP Version                     : 2
Configuration Revision          : 0
Maximum VLANs supported locally : 64
Number of existing VLANs        : 4
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: 0.0.0.0 at 11-29-93 20:39:24
Local updater ID is 0.0.0.0 on interface Vl1 (lowest numbered VLAN interface
found)
2950A#
```

```
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#
```

配置Trunk

```
3550A(config-if)#switchport trunk encapsulation dotlq
11:31:29: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state
to down
11:31:29: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
3550A(config-if)#switchport mode trunk
3550A(config-if)#interface fa0/3
3550A(config-if)#switchport trunk encapsulation dotlq
11:34:24: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state
to down
11:34:24: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
3550A(config-if)#switchport mode trunk
3550A(config-if)#
```

```
2950A(config)#interface fa0/11
2950A(config-if)#switchport mode trunk
```

```
2950B(config)#interface fa0/11
2950B(config-if)#switchport mode trunk
```

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

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 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
```

分配交换机端口加入VLAN

```
2950A(config)#interface fa0/2
2950A(config-if)#switchport access vlan 10
```

```
2950B(config)#interface fa0/2
2950B(config-if)#switchport access vlan 20
2950B(config-if)#
```

配置第三层交换机

```
3550A#conf t
Enter configuration commands, one per line.  End with CNTL/Z
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
3550A(config-if)#exit
3550A(config)#ip routing
3550A(config)#
```

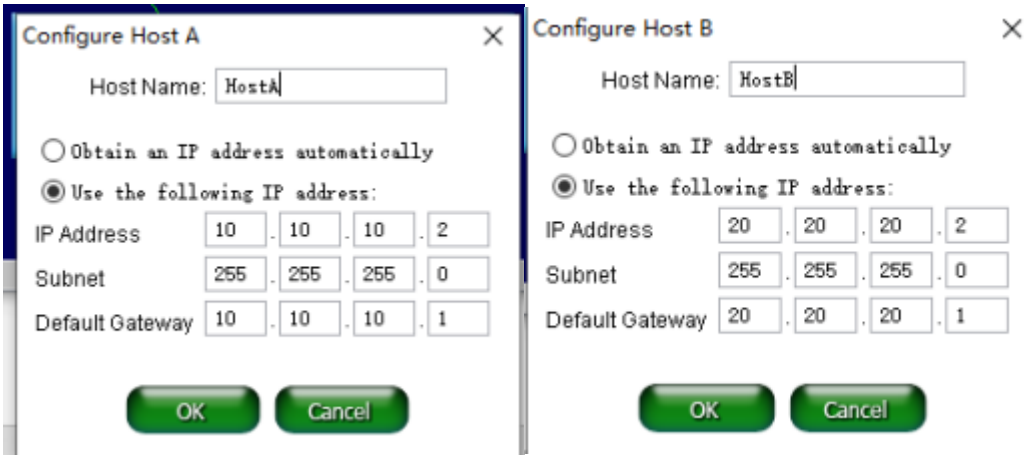
配置各交换机的管理地址

```
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
```

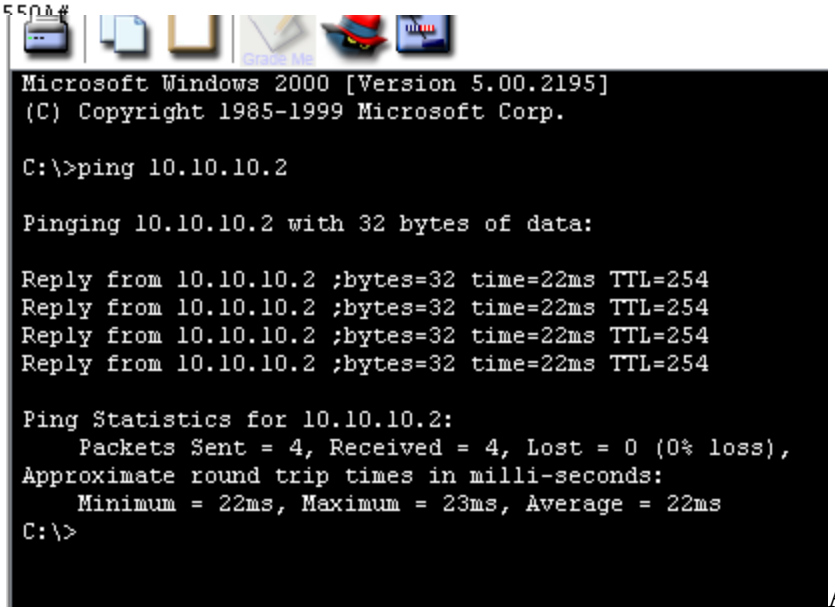
```
2950B(config)#int vlan 1
2950B(config-if)#ip addr 192.168.10.3 255.255.255.0
2950B(config-if)#no shut
2950B(config-if)#
```

配置主机HostA和HostB

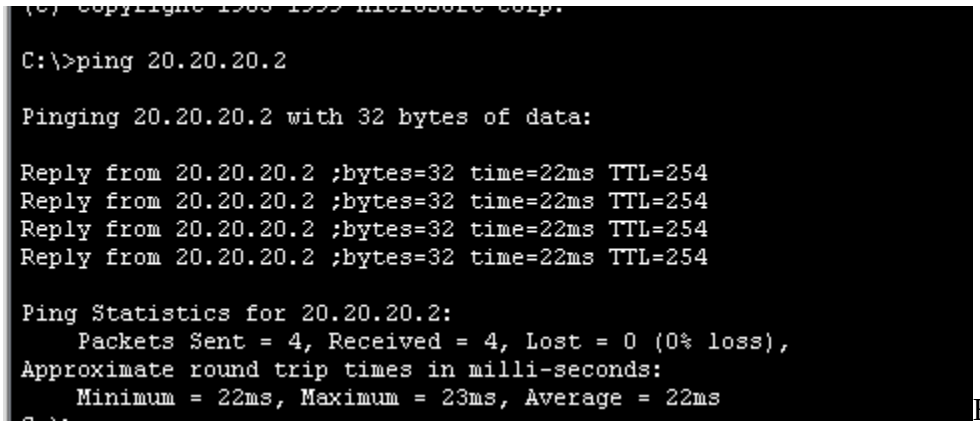


测试：

```
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 0 percent (0/5), round-trip min/avg/max = 0/0/0 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 0 percent (0/5), round-trip min/avg/max = 0/0/0 ms
3550A#
```



、A ping B



B ping A

实例2：

配置VTP

```
switch>en
switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z
switch(config)#hostname 2950A
2950A(config)#vtp domain Test
Changing VTP domain name from NULL to Test
2950A(config)#vtp mode server
Device mode already VTP SERVER.
2950A(config)#exit
2950A#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                 : Test
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 Vl1 (lowest numbered VLAN interface
found)
2950A#
```

```
2950A#conf t
Enter configuration commands, one per line.  End with CNTL/Z
2950A(config)#interface fa0/12
2950A(config-if)#switchport mode trunk
2950A(config-if)#interface fa0/11
2950A(config-if)#switchport mode trunk
2950A(config-if)#
```

```
switch>en
switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z
switch(config)#hostname 2950B
2950B(config)#interface fa0/12
2950B(config-if)#switchport mode trunk
2950B(config-if)#
```

创建VLAN

```
2950A#vlan database
2950A(vlan)#vlan 2 name vlan2
VLAN 2 added:
    Name: vlan2
2950A(vlan)#vlan 3 name vlan3
VLAN 3 added:
    Name: vlan3
2950A(vlan)#exit
APPLY completed.
Exiting....
2950A#
```

分配端口到VLAN

```
2950A(config)#interface fastethernet 0/2
2950A(config-if)#switchport access vlan 2
2950A(config-if)#switchport mode access
2950A(config-if)#interface fastethernet 0/6
2950A(config-if)#switchport access vlan 3
2950A(config-if)#switchport mode access
2950A(config-if)#
```

```
2950A#sh vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/3, Fa0/4, Fa0/5
                                                 Fa0/7, Fa0/8, Fa0/9, Fa0/10
2    vlan2                             active    Fa0/2
3    vlan3                             active    Fa0/6
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 Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     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--
2950A#
```

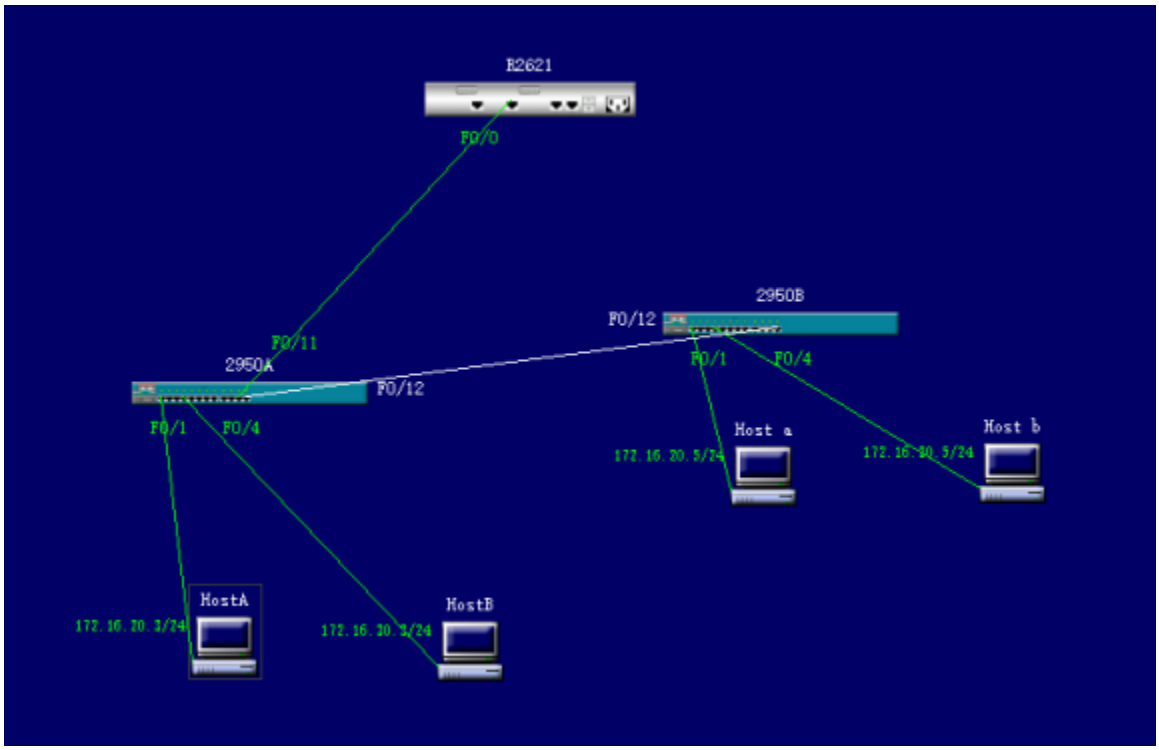
```
2950B(config)#vtp domain Test
Changing VTP domain name from NULL to Test
2950B(config)#vtp mode client
Setting device to VTP CLIENT mode.
2950B(config)#
```

```
2950B(config)#interface fastethernet 0/2
2950B(config-if)#switchport access vlan 2
2950B(config-if)#switchport mode access
2950B(config-if)#interface fastethernet 0/6
2950B(config-if)#switchport access vlan 3
2950B(config-if)#switchport mode access
2950B(config-if)#
```

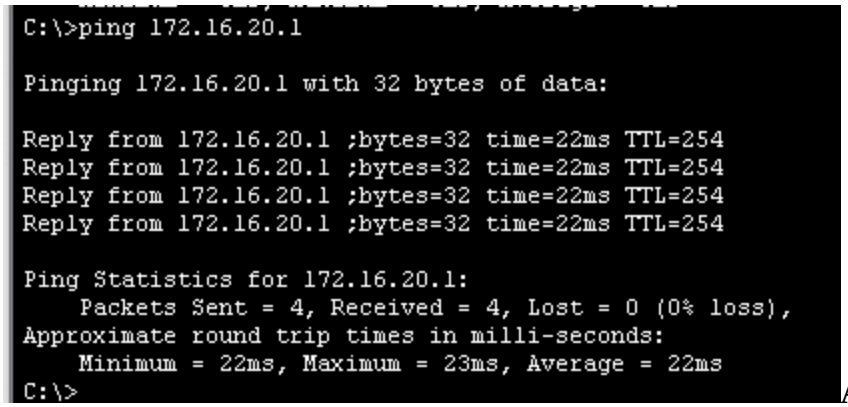
配置VLAN间的路由

```
R2621(config-if)#interface fastethernet 0/0.1
R2621(config-subif)#encapsulation dotlq 1
R2621(config-subif)#ip addr 172.16.10.1 255.255.255.0
R2621(config-subif)#interface fastethernet 0/0.2
R2621(config-subif)#encapsulation dotlq 2
R2621(config-subif)#ip addr 172.16.20.1 255.255.255.0
R2621(config-subif)#interface fastethernet 0/0.3
R2621(config-subif)#ip addr 172.16.30.1 255.255.255.0
R2621(config-subif)#exit
R2621(config)#
```

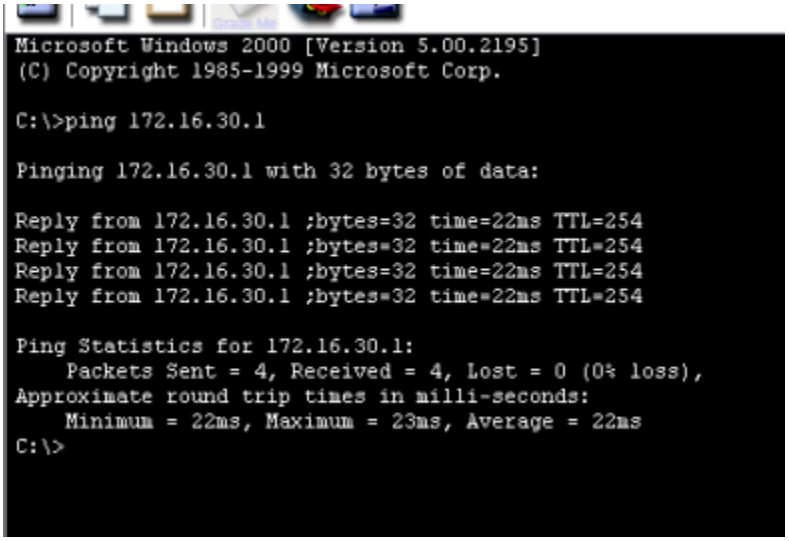
配置主机：



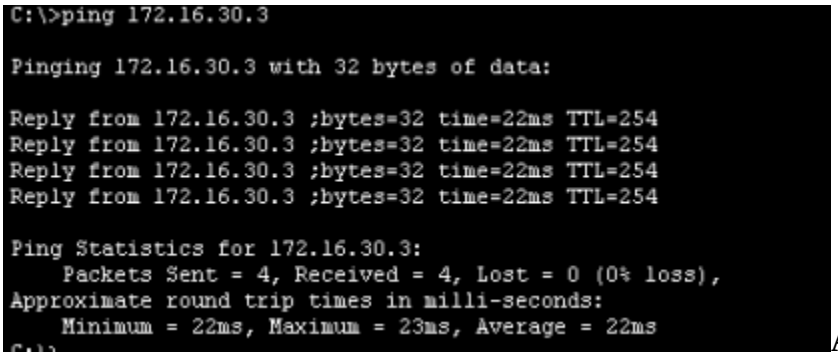
验证连通性：



A ping 172.16.20.1



B ping 172.16.30.1



A ping B

4 实验总结

学习到了基本的IOS命令，按照手册的示例实现了一系列简单的配置，对路由器的 工作原理和协议有了更深的了解，最后了解到了VLAN的含义，能够进行简单的VLAN配置