

查看本机IP与MAC地址

```
sanboot@A34:~$ sudo su
[sudo] password for sanboot:
root@A34:/home/sanboot# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 8c:89:a5:7b:66:ac
          inet addr:192.168.133.29  Bcast:192.168.133.255  Mask:255.255.255.0
          inet6 addr: fe80::8e89:a5ff:fe7b:66ac/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:254435 errors:0 dropped:60 overruns:0 frame:0
          TX packets:48859 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:362467781 (362.4 MB)  TX bytes:22384538 (22.3 MB)
```

查看ARP缓存

```
root@A34:/home/sanboot# arp -n
```

Address	Hwtype	Hwaddress	Flags	Mask	Iface
192.168.133.254	ether	78:58:60:7b:6c:64	C		eth0
192.168.133.250	ether	f8:bc:12:35:fa:d8	C		eth0

ping临近主机

```
root@A34:/home/sanboot# ping 192.168.133.30
PING 192.168.133.30 (192.168.133.30) 56(84) bytes of data.
64 bytes from 192.168.133.30: icmp_req=1 ttl=64 time=0.389 ms
64 bytes from 192.168.133.30: icmp_req=2 ttl=64 time=0.181 ms
64 bytes from 192.168.133.30: icmp_req=3 ttl=64 time=0.172 ms
64 bytes from 192.168.133.30: icmp_req=4 ttl=64 time=0.173 ms
^C
--- 192.168.133.30 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.172/0.228/0.389/0.094 ms
```

重新查看arp缓存

```
root@A34:/home/sanboot# arp -n
```

Address	Hwtype	Hwaddress	Flags	Mask	Iface
192.168.133.30	ether	8c:89:a5:7b:60:b4	C		eth0
192.168.133.254	ether	78:58:60:7b:6c:64	C		eth0
192.168.133.250	ether	f8:bc:12:35:fa:d8	C		eth0

查看本机IPv4路由表与路由配置

```
root@A34:/home/sanboot# route -n
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
0.0.0.0          192.168.133.254 0.0.0.0          UG      0      0        0 eth0
192.168.133.0    0.0.0.0          255.255.255.0    U        0      0        0 eth0
```

查看 /proc/sys/net/ipv4/ip_forward 文件内容

[illegible]

寻找到bbs.ustc.edu.cn的路由路径(windows)

Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.

C:\Documents and Settings\stl>tracert bbs.ustc.edu.cn

Tracing route to bbs.ustc.edu.cn [202.38.64.3]
over a maximum of 30 hops:

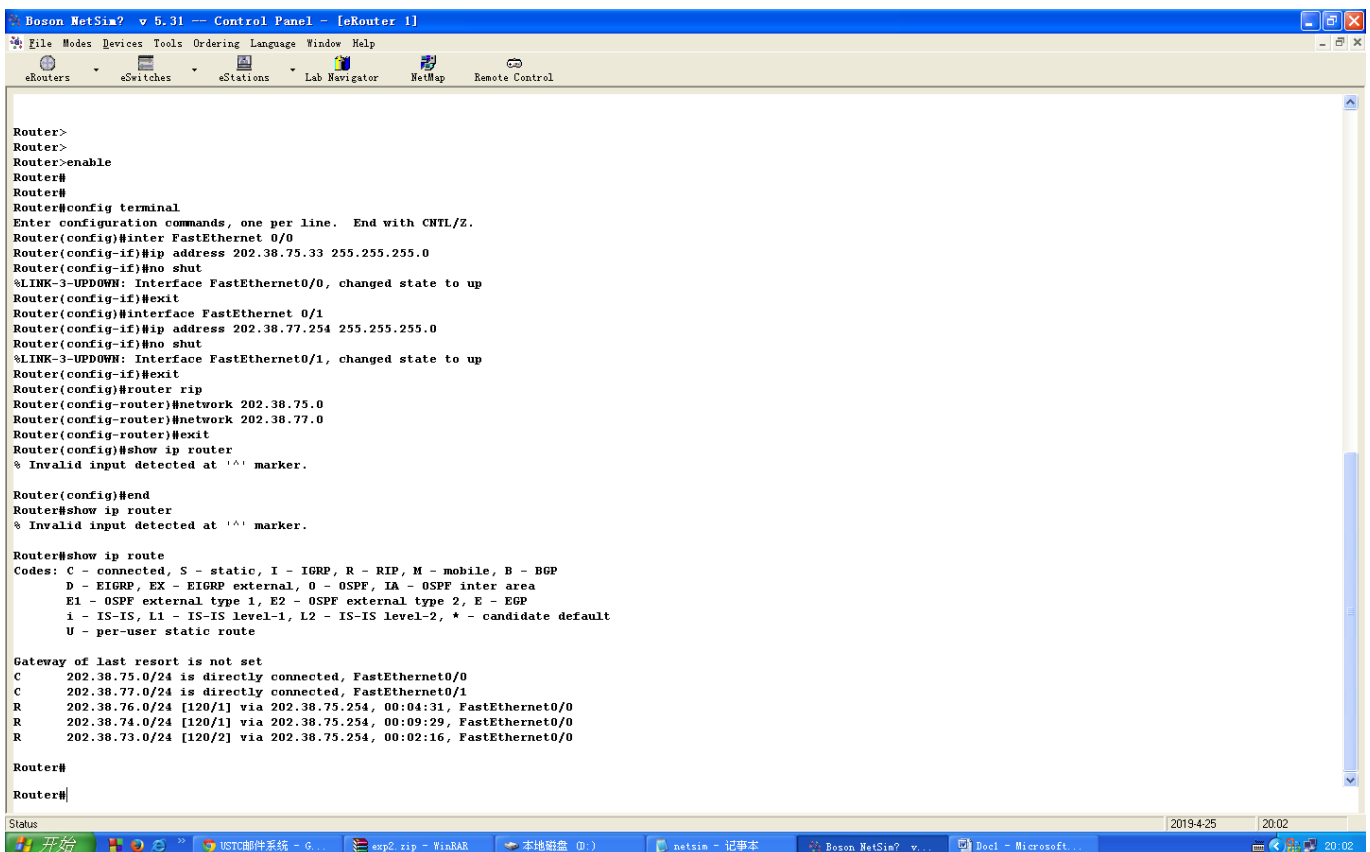
1	1 ms	1 ms	1 ms	192.168.133.254
2	<1 ms	<1 ms	<1 ms	172.16.0.1
3	<1 ms	<1 ms	<1 ms	202.38.88.94
4	263 ms	58 ms	3 ms	202.38.96.60
5	<1 ms	<1 ms	<1 ms	bbs.ustc.edu.cn [202.38.64.3]

Trace complete.

路由器IP组网模拟

动态路由

RouterA



```
Router>
Router>
Router>enable
Router#
Router#
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#inter FastEthernet 0/0
Router(config-if)#ip address 202.38.75.33 255.255.255.0
Router(config-if)#no shut
%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet 0/1
Router(config-if)#ip address 202.38.77.254 255.255.255.0
Router(config-if)#no shut
%LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 202.38.75.0
Router(config-router)#network 202.38.77.0
Router(config-router)#exit
Router(config)#show ip route
% Invalid input detected at '^' marker.

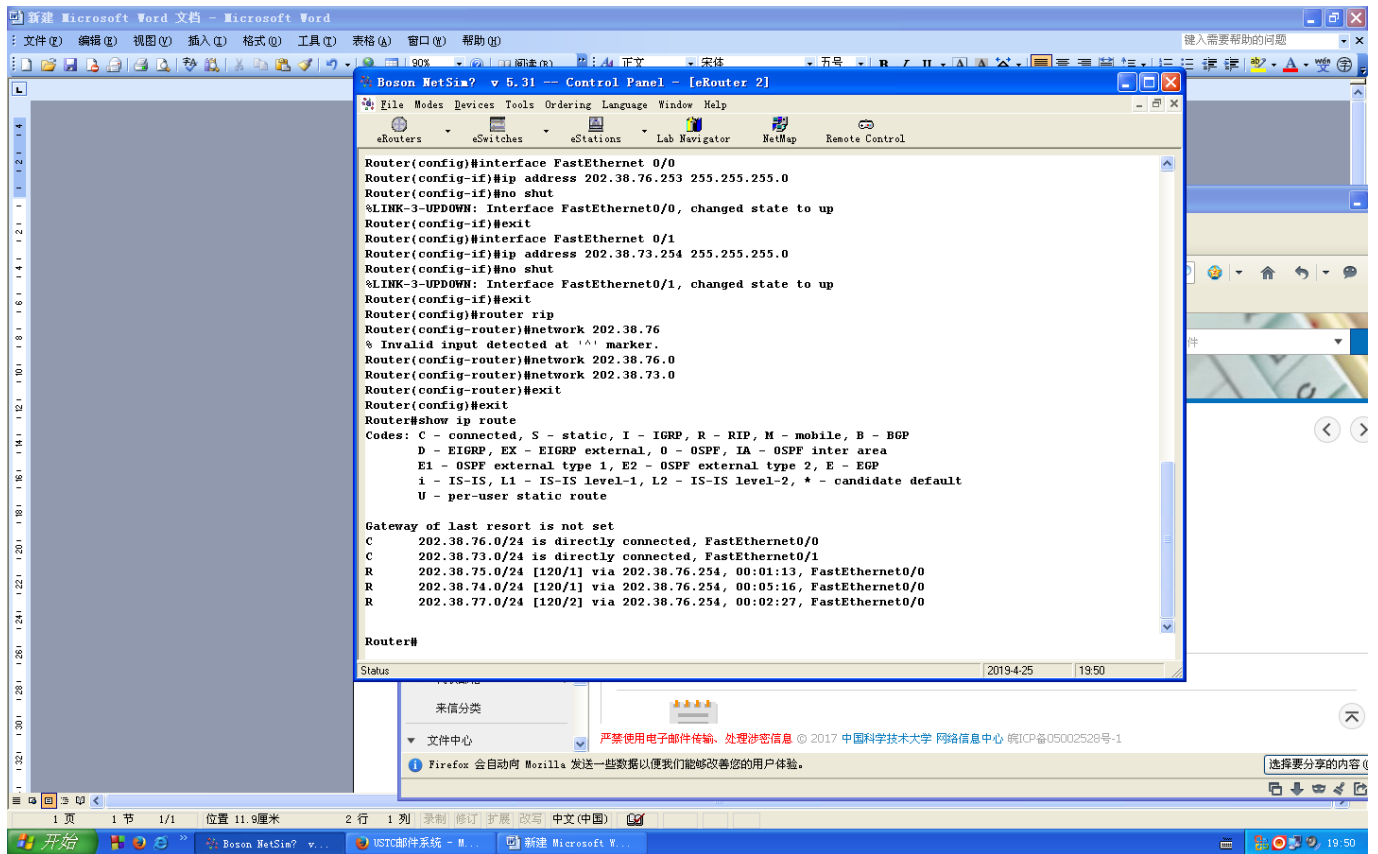
Router(config)#end
Router#show ip route
% Invalid input detected at '^' marker.

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
       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

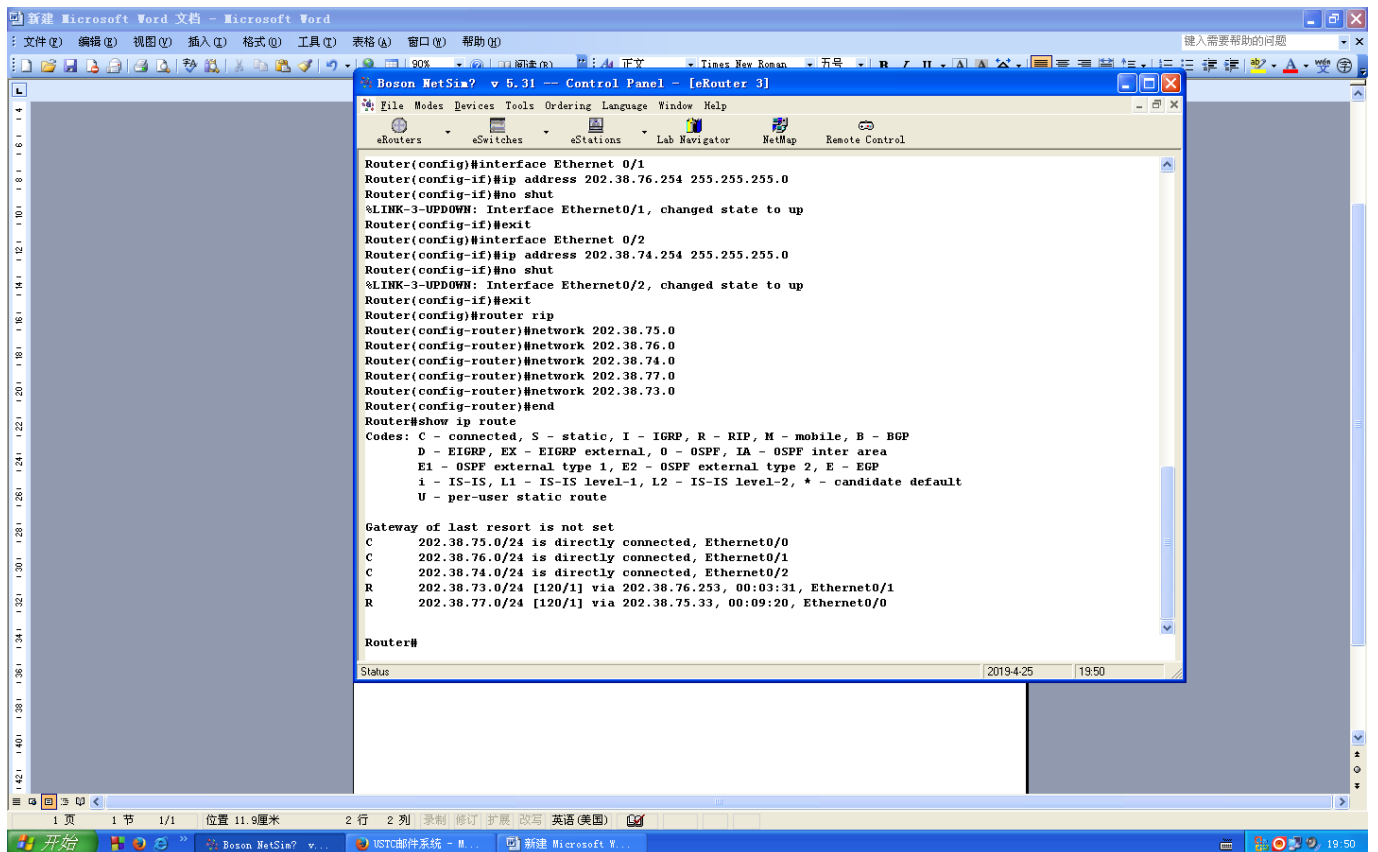
Gateway of last resort is not set
C    202.38.75.0/24 is directly connected, FastEthernet0/0
C    202.38.77.0/24 is directly connected, FastEthernet0/1
R    202.38.76.0/24 [120/1] via 202.38.75.254, 00:04:31, FastEthernet0/0
R    202.38.74.0/24 [120/1] via 202.38.75.254, 00:09:29, FastEthernet0/0
R    202.38.73.0/24 [120/2] via 202.38.75.254, 00:02:16, FastEthernet0/0

Router#
Router#
```

RouterB



RouterC



静态路由

Router A

```
Boson NetSim? v 5.31 -- Control Panel - [eRouter 1]
File Modes Devices Tools Ordering Language Window Help
eRouters eSwitches eStations Lab Navigator NetMap Remote Control

Press Enter to Start

Router>
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet 0/0
Router(config-if)#ip address 202.38.75.33 255.255.255.0
Router(config-if)#no shut
%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet 0/1
Router(config-if)#ip address 202.38.77.254 255.255.255.0
Router(config-if)#no shut
%LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#ip route 202.38.76.0 255.255.255.0 202.38.75.254
Router(config)#ip route 202.38.74.0 255.255.255.0 202.38.75.254
Router(config)#ip route 202.38.73.0 255.255.255.0 202.38.75.254
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
       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

Gateway of last resort is not set
C    202.38.75.0/24 is directly connected, FastEthernet0/0
C    202.38.77.0/24 is directly connected, FastEthernet0/1
S    202.38.76.0/24 [1/0] via 202.38.75.254
S    202.38.74.0/24 [1/0] via 202.38.75.254
S    202.38.73.0/24 [1/0] via 202.38.75.254

Router#
```

Router B

```
Boson NetSim? v 5.31 -- Control Panel - [eRouter 2]
File Modes Devices Tools Ordering Language Window Help
eRouters eSwitches eStations Lab Navigator NetMap Remote Control

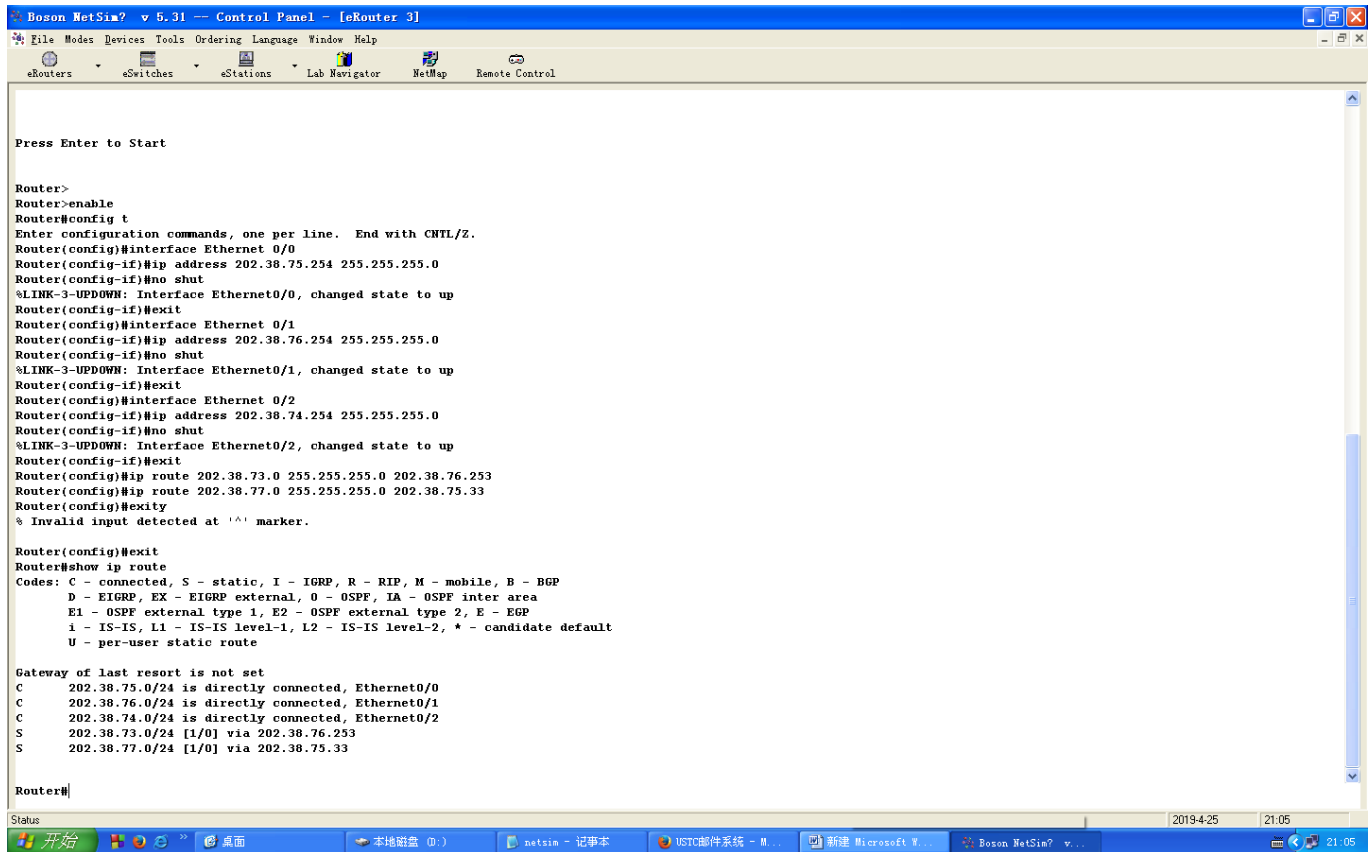
Press Enter to Start

Router>
Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet 0/0
Invalid Command
Router(config)#interface FastEthernet 0/0
Router(config-if)#ip address 202.38.76.253 255.255.255.0
Router(config-if)#no shut
%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet 0/1
Router(config-if)#ip address 202.38.73.254 255.255.255.0
Router(config-if)#no shut
%LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
Router(config-if)#exit
Router(config)#ip route 202.38.75.0 255.255.255.0 202.38.76.254
Router(config)#ip route 202.38.74.0 255.255.255.0 202.38.76.254
Router(config)#ip route 202.38.77.0 255.255.255.0 202.38.76.254
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
       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

Gateway of last resort is not set
C    202.38.76.0/24 is directly connected, FastEthernet0/0
C    202.38.73.0/24 is directly connected, FastEthernet0/1
S    202.38.75.0/24 [1/0] via 202.38.76.254
S    202.38.74.0/24 [1/0] via 202.38.76.254
S    202.38.77.0/24 [1/0] via 202.38.76.254

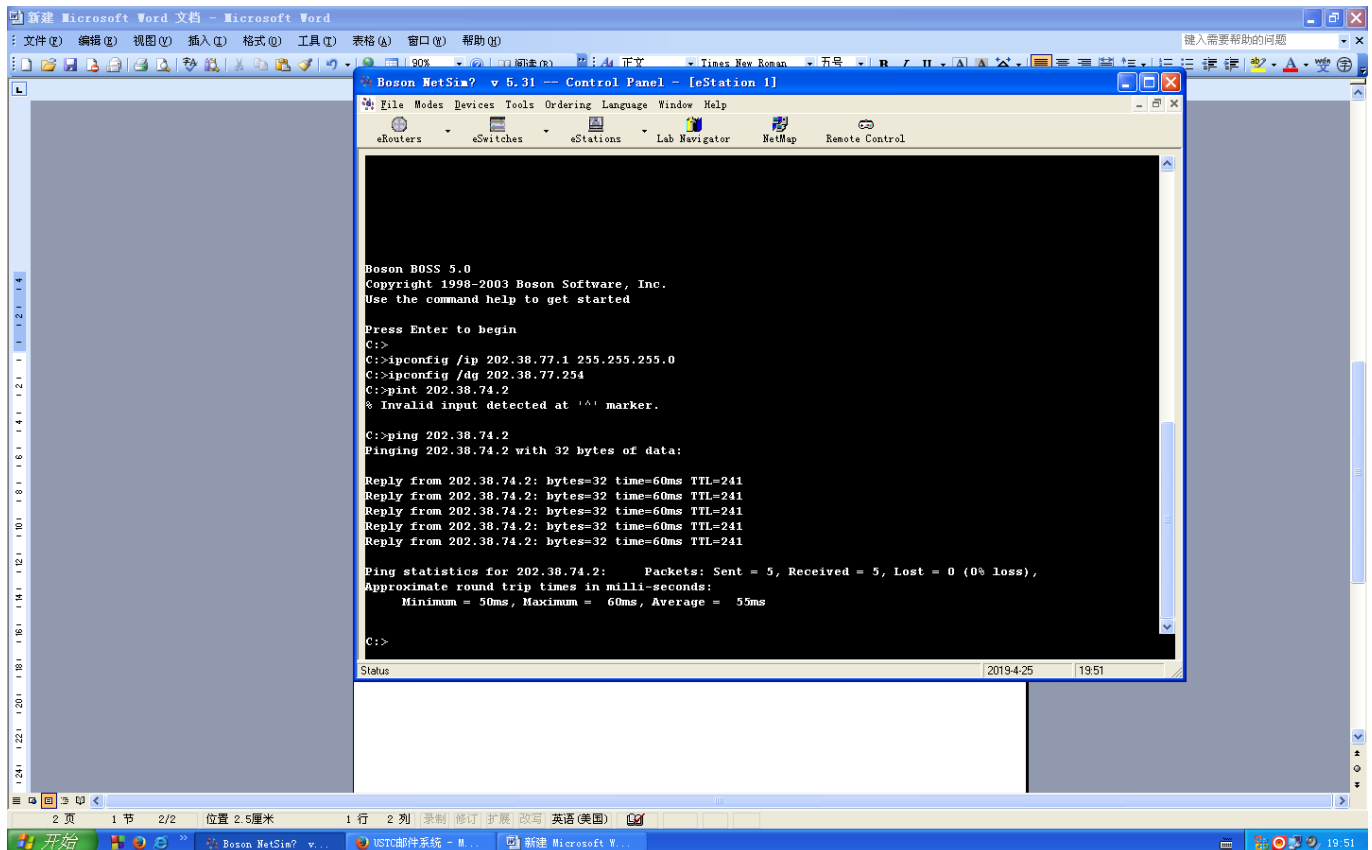
Router#
Router#
Router#
Router#
```

Router C

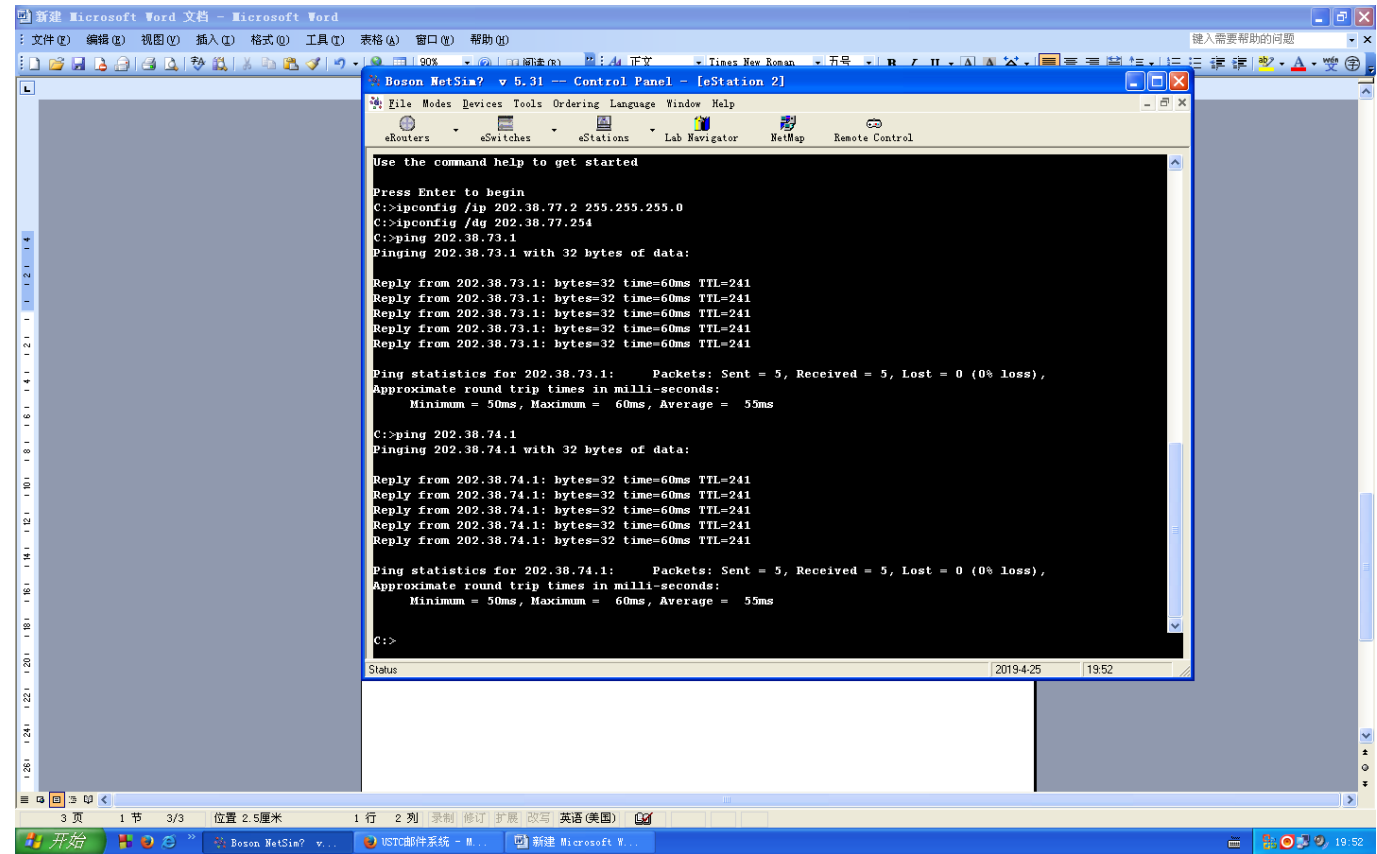


ping结果

A1主机



A2主机



C1主机

