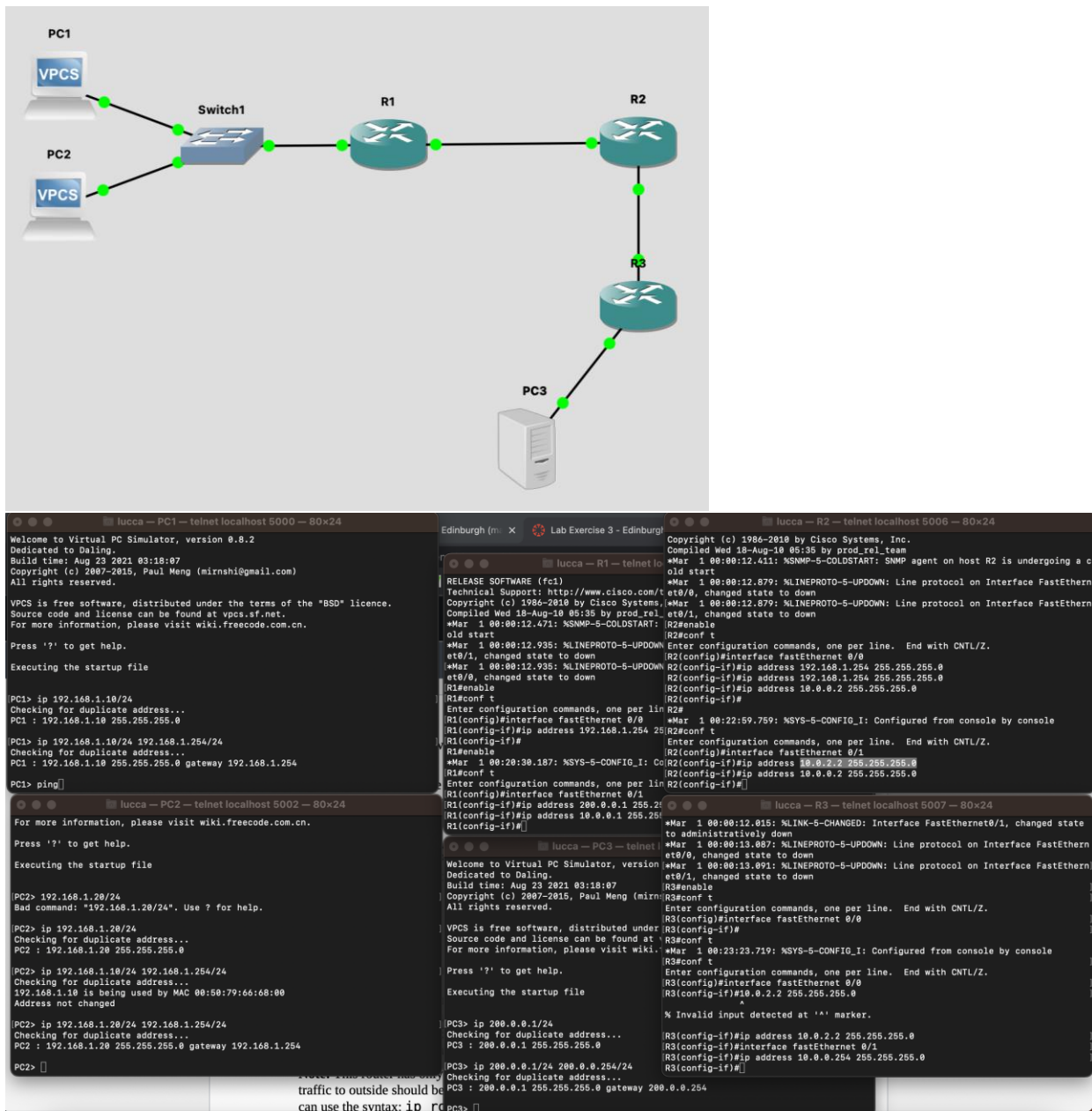


F29DC Lab 3

Part 1:

Proof of Completion:



Part 2:

If you only configured R1 with the command above (and didn't set up any other routes), would a ping from PC1 to R2 work? Why?

It will ping the router, but a response will not be sent to the ping. The reason why is because a route has been set from PC1 to R2, but not from R2 to PC1.

Proof of Completion:

```
lucica - PC1 - telnet localhost 5000 - 80x24
200.0.0.1 icmp_seq=1 timeout
200.0.0.1 icmp_seq=2 timeout
200.0.0.1 icmp_seq=3 timeout
200.0.0.1 icmp_seq=4 timeout
200.0.0.1 icmp_seq=5 timeout

PC1> ping 200.0.0.1

84 bytes from 200.0.0.1 icmp_seq=1 ttl=61 time=68.187 ms
84 bytes from 200.0.0.1 icmp_seq=2 ttl=61 time=45.161 ms
84 bytes from 200.0.0.1 icmp_seq=3 ttl=61 time=56.147 ms
84 bytes from 200.0.0.1 icmp_seq=4 ttl=61 time=38.287 ms
84 bytes from 200.0.0.1 icmp_seq=5 ttl=61 time=58.728 ms

PC1>

lucica - PC2 - telnet localhost 5002 - 80x24
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC2> 192.168.1.20/24
Bad command: "192.168.1.20/24". Use ? for help.

PC2> ip 192.168.1.20/24
Checking for duplicate address...
PC2 : 192.168.1.20 255.255.255.0

PC2> ip 192.168.1.10/24 192.168.1.254/24
Checking for duplicate address...
192.168.1.10 is being used by MAC 00:50:79:66:68:08
Address not changed

PC2> ip 192.168.1.20/24 192.168.1.254/24
Checking for duplicate address...
PC2 : 192.168.1.20 255.255.255.0 gateway 192.168.1.254

PC2>

lucica - R1 - telnet localhost 5001 - 80x24
R1(config-if)#
R1#no
*Mar 1 06:08:15.794: NSYS-5-CONFIG_I: Configured from console by console
R1#no shutdown
% Invalid input detected at '^' marker.

R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 06:08:38.554: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 06:08:39.554: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 06:08:56.486: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 06:08:57.486: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
R1(config-if)#

lucica - R2 - telnet localhost 5006 - 80x24
R2(config-if)#ip address 10.0.2.2 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#
*Mar 1 06:05:26.998: NLINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 06:05:27.998: NLINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 06:05:42.694: NIP-4-DUPADDR: Duplicate address 10.0.2.2 on FastEthernet0/1, sourced by c003.5f69.0000
R2(config-if)#
*Mar 1 06:06:13.350: NIP-4-DUPADDR: Duplicate address 10.0.2.2 on FastEthernet0/1, sourced by c003.5f69.0000
R2(config-if)#interface fastEthernet 0/1
R2(config-if)#ip address 10.0.2.1 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#
*Mar 1 06:18:32.150: NSYS-5-CONFIG_I: Configured from console by console
R2#
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
R2(config)#ip route 200.0.0.0 255.255.255.0 10.0.2.2
R2(config)#

lucica - R3 - telnet localhost 5007 - 80x24
R3(config-if)#
R3#conf t
*Mar 1 06:21:24.102: NSYS-5-CONFIG_I: Configured from console by console
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#route 10.0.0.0 255.255.255.0 10.0.2.1
R3(config)#
% Invalid input detected at '^' marker.

R3(config)#ip route 10.0.0.0 255.255.255.0 10.0.2.1
R3(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
R3(config)#interface fastEthernet 0/1
R3(config-if)#interface fastEthernet 0/0
R3(config-if)#no shutdown
R3(config-if)#10.0.2.2 255.255.255.0
R3(config-if)#
% Invalid input detected at '^' marker.

R3(config-if)#ip address 10.0.2.2 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#interface fastEthernet 0/1
R3(config-if)#ip address 200.0.0.254 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#

lucica - PC1 - telnet localhost 5000 - 80x24
84 bytes from 200.0.0.1 icmp_seq=1 ttl=61 time=68.187 ms
84 bytes from 200.0.0.1 icmp_seq=2 ttl=61 time=45.161 ms
84 bytes from 200.0.0.1 icmp_seq=3 ttl=61 time=56.147 ms
84 bytes from 200.0.0.1 icmp_seq=4 ttl=61 time=38.287 ms
84 bytes from 200.0.0.1 icmp_seq=5 ttl=61 time=58.728 ms

PC1> ping 10.0.0.2

84 bytes from 10.0.0.2 icmp_seq=1 ttl=254 time=57.827 ms
84 bytes from 10.0.0.2 icmp_seq=2 ttl=254 time=24.146 ms
84 bytes from 10.0.0.2 icmp_seq=3 ttl=254 time=22.377 ms
84 bytes from 10.0.0.2 icmp_seq=4 ttl=254 time=16.366 ms
84 bytes from 10.0.0.2 icmp_seq=5 ttl=254 time=28.569 ms

PC1> ping 10.0.0.2

10.0.0.2 icmp_seq=1 timeout
10.0.0.2 icmp_seq=2 timeout
10.0.0.2 icmp_seq=3 timeout
10.0.0.2 icmp_seq=4 timeout
10.0.0.2 icmp_seq=5 timeout

PC1>

lucica - PC2 - telnet localhost 5002 - 80x24
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC2> 192.168.1.20/24
Bad command: "192.168.1.20/24". Use ? for help.

PC2> ip 192.168.1.20/24
Checking for duplicate address...
PC2 : 192.168.1.20 255.255.255.0

PC2> ip 192.168.1.10/24 192.168.1.254/24
Checking for duplicate address...
192.168.1.10 is being used by MAC 00:50:79:66:68:08
Address not changed

PC2> ip 192.168.1.20/24 192.168.1.254/24
Checking for duplicate address...
PC2 : 192.168.1.20 255.255.255.0 gateway 192.168.1.254

PC2>

lucica - R1 - telnet localhost 5001 - 80x24
R1(config-if)#
R1#no
*Mar 1 06:08:15.794: NSYS-5-CONFIG_I: Configured from console by console
R1#no shutdown
% Invalid input detected at '^' marker.

R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface fastEthernet 0/0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 06:08:38.554: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 06:08:39.554: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 06:08:56.486: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*Mar 1 06:08:57.486: NLINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
R1(config-if)#

lucica - R2 - telnet localhost 5006 - 80x24
R2(config-if)#ip address 10.0.2.2 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#
*Mar 1 06:05:26.998: NLINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 06:05:27.998: NLINK-3-UPDOWN: Interface FastEthernet0/1, changed state to up
*Mar 1 06:05:42.694: NIP-4-DUPADDR: Duplicate address 10.0.2.2 on FastEthernet0/1, sourced by c003.5f69.0000
R2(config-if)#
*Mar 1 06:06:13.350: NIP-4-DUPADDR: Duplicate address 10.0.2.2 on FastEthernet0/1, sourced by c003.5f69.0000
R2(config-if)#interface fastEthernet 0/1
R2(config-if)#ip address 10.0.2.1 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#
*Mar 1 06:18:32.150: NSYS-5-CONFIG_I: Configured from console by console
R2#
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
R2(config)#ip route 200.0.0.0 255.255.255.0 10.0.2.2
R2(config)#

lucica - R3 - telnet localhost 5007 - 80x24
R3(config-if)#
R3#conf t
*Mar 1 06:21:24.102: NSYS-5-CONFIG_I: Configured from console by console
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#route 10.0.0.0 255.255.255.0 10.0.2.1
R3(config)#
% Invalid input detected at '^' marker.

R3(config)#ip route 10.0.0.0 255.255.255.0 10.0.2.1
R3(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
R3(config)#interface fastEthernet 0/1
R3(config-if)#interface fastEthernet 0/0
R3(config-if)#no shutdown
R3(config-if)#10.0.2.2 255.255.255.0
R3(config-if)#
% Invalid input detected at '^' marker.

R3(config-if)#ip address 10.0.2.2 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#interface fastEthernet 0/1
R3(config-if)#ip address 200.0.0.254 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#
```

Part 3:

Use Wireshark to observe the traffic on one of the links between two routers for a couple of minutes. Look at the contents of the packets as well. What do you notice?

What I've noticed is that most of the packets are 40 byte pings to other routers to make sure they're all up to date (TCP Acknowledgements). There's also CDP (Cisco Discovery Protocols) which share information about other directly connected Cisco equipment. (These are all Cisco routers, and one is directly connected to at least another router).

Proof of Completion:

```
hucca - PC1 - telnet localhost 5000 - 80x24
Welcome to Virtual PC Simulator, version 0.8.2
Dedicated to Daling.
Build time: Aug 23 2021 03:18:07
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
All rights reserved.

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC1> ip 192.168.1.10/24
Checking for duplicate address...
PC1 : 192.168.1.10 255.255.255.0

PC1> ping 200.0.0.1/24
No gateway found

PC1> []

hucca - PC2 - telnet localhost 5002 - 80x24
Trying :!...
Connected to localhost.
Escape character is '^J'.

Welcome to Virtual PC Simulator, version 0.8.2
Dedicated to Daling.
Build time: Aug 23 2021 03:18:07
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
All rights reserved.

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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC2> ip 192.168.1.20/24
Checking for duplicate address...
PC2 : 192.168.1.20 255.255.255.0

PC2> []

hucca - PC3 - telnet localhost 5004 - 80x24
Trying :!...
Connected to localhost.
Escape character is '^J'.

Welcome to Virtual PC Simulator, version 0.8.2
Dedicated to Daling.
Build time: Aug 23 2021 03:18:07
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
All rights reserved.

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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC3> ip 200.0.0.1/24
Checking for duplicate address...
PC3 : 200.0.0.1 255.255.255.0

PC3> []

hucca - R1 - telnet localhost 5004 - 80x24
e10/0, changed state to down
*Mar 1 00:06:06.123: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet
e10/2, changed state to down
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#router RIP
R1(config-router)#version 2
R1(config-router)#network 192.168.1.0
R1(config-router)#network 10.0.0.0
R1(config-router)#
*Mar 1 00:05:36.095: NSYS-S-CONFIG_I: Configured from console by console
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface FastEthernet 0/0
R1(config-if)#ip address 192.168.1.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:07:28.139: NLINK-S-UPDOWN: Interface FastEthernet0/0, changed state t
0 up
*Mar 1 00:07:29.139: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet
e10/0, changed state to up
R1(config-if)#interface FastEthernet 0/1
R1(config-if)#ip address 10.0.0.1 255.255.255.0

hucca - PC3 - telnet localhost 5006 - 80x24
Trying :!...
Connected to localhost.
Escape character is '^J'.

Welcome to Virtual PC Simulator, version 0.8.2
Dedicated to Daling.
Build time: Aug 23 2021 03:18:07
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
All rights reserved.

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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC3> ip 200.0.0.1/24
Checking for duplicate address...
PC3 : 200.0.0.1 255.255.255.0

PC3> []

hucca - R2 - telnet localhost 5006 - 80x24
*Mar 1 00:06:06.083: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet
e10/2, changed state to down
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#router RIP
R2(config-router)#version 2
R2(config-router)#network 10.0.0.0
R2(config-router)#network 10.0.2.0
R2(config-router)#
*Mar 1 00:05:41.287: NSYS-S-CONFIG_I: Configured from console by console
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface FastEthernet 0/0
R2(config-if)#ip address 10.0.0.2 255.255.255.0
R2(config-if)#no shutdown
R2(config-if)#
*Mar 1 00:07:33.747: NLINK-S-UPDOWN: Interface FastEthernet0/0, changed state t
0 up
*Mar 1 00:07:34.747: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet
e10/0, changed state to up
R2(config-if)#interface FastEthernet 0/1
R2(config-if)#ip address 10.0.2.1 255.255.255.0
R2(config-if)#no shutdown

hucca - R3 - telnet localhost 5007 - 80x24
*Mar 1 00:06:06.071: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet
e10/0, changed state to down
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#router RIP
R3(config-router)#version 2
R3(config-router)#network 10.0.2.0
R3(config-router)#network 200.0.0.0
R3(config-router)#
*Mar 1 00:05:40.131: NSYS-S-CONFIG_I: Configured from console by console
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface FastEthernet 0/0
R3(config-if)#ip address 10.0.2.2 255.255.255.0
R3(config-if)#no shutdown
R3(config-if)#
*Mar 1 00:07:36.683: NLINK-S-UPDOWN: Interface FastEthernet0/0, changed state t
0 up
*Mar 1 00:07:37.683: NLINKPROTO-S-UPDOWN: Line protocol on Interface FastEthernet
e10/0, changed state to up
R3(config-if)#interface FastEthernet 0/1
R3(config-if)#ip address 200.0.0.254 255.255.255.0
R3(config-if)#no shutdown
```

