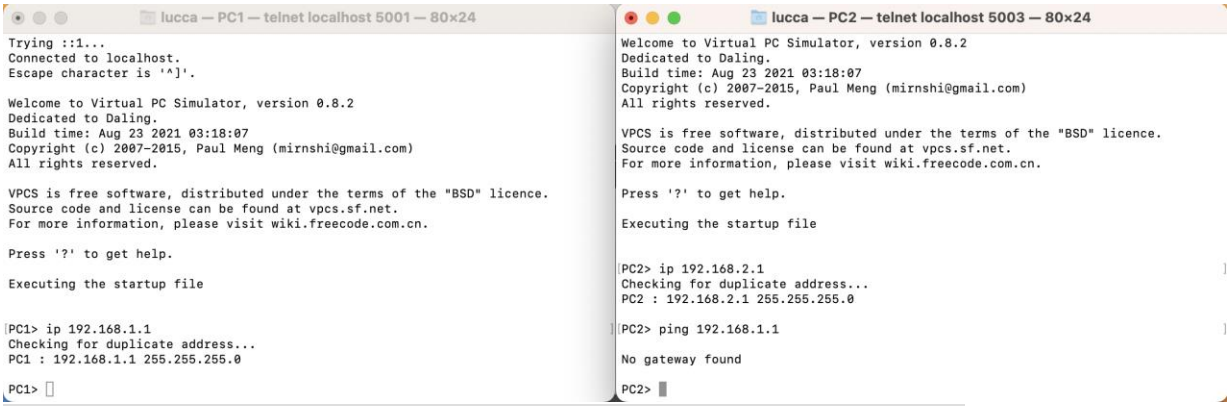
F29DC Lab 2

Question 1:

Configure the PCs with IP addresses 192.168.1.1 and 192.168.2.1. Is PC2 reachable from PC1?

No, it is not. The base subnet mask is /24, which means the network addresses (192.168.1 & 192.168.2) are different. Despite being connected by a router, they are on a different network. This router has not been configured to let IP addresses of separate networks communicate as of now.

Proof of Completion:

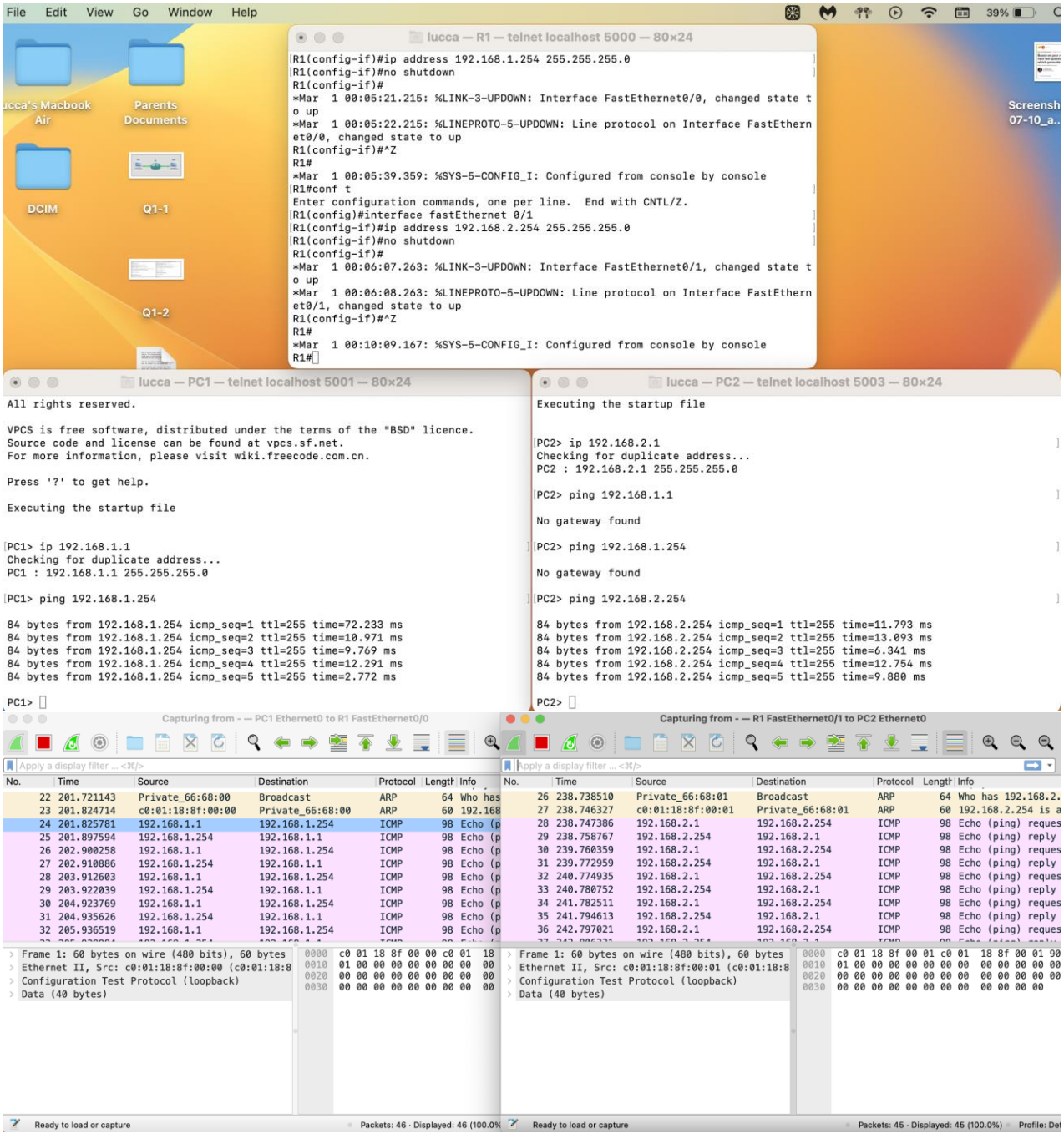


Question 2:

Ping FE0/0 from PC1 and FE0/1 from PC2. Does it work? Why?

It does work because FE0/0 is now on the same Network as PC1 (192.168.1) and FE0/1 is now on the same Network as PC2 (192.168.2).

Proof of Completion:

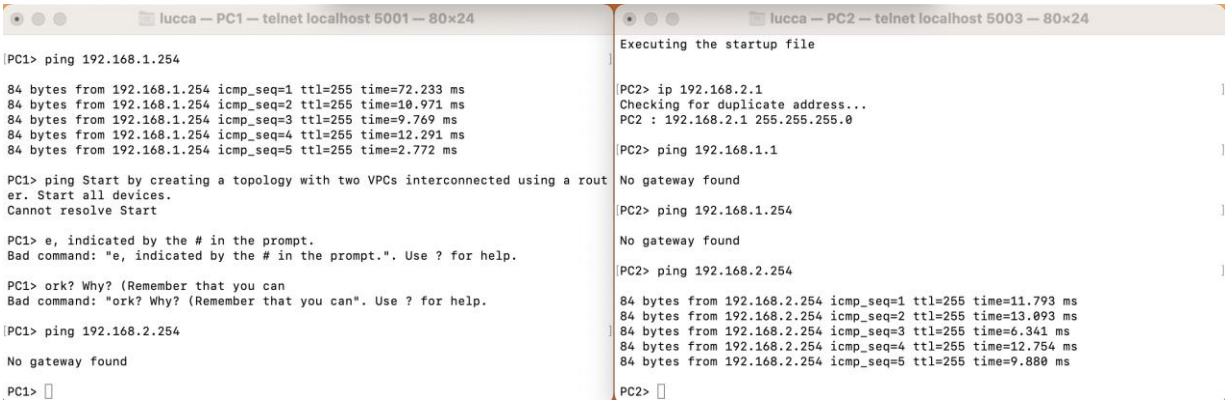


Question 3:

Ping FE0/1 from PC1. Does it work? Why?

It does not. Although PC1 is able to ping FE0/0 as a device on the network, FE0/0 has not been set as a gateway for PC1 yet, so it cannot communicate with other networks, even if they are on the same router.

Proof of Completion:

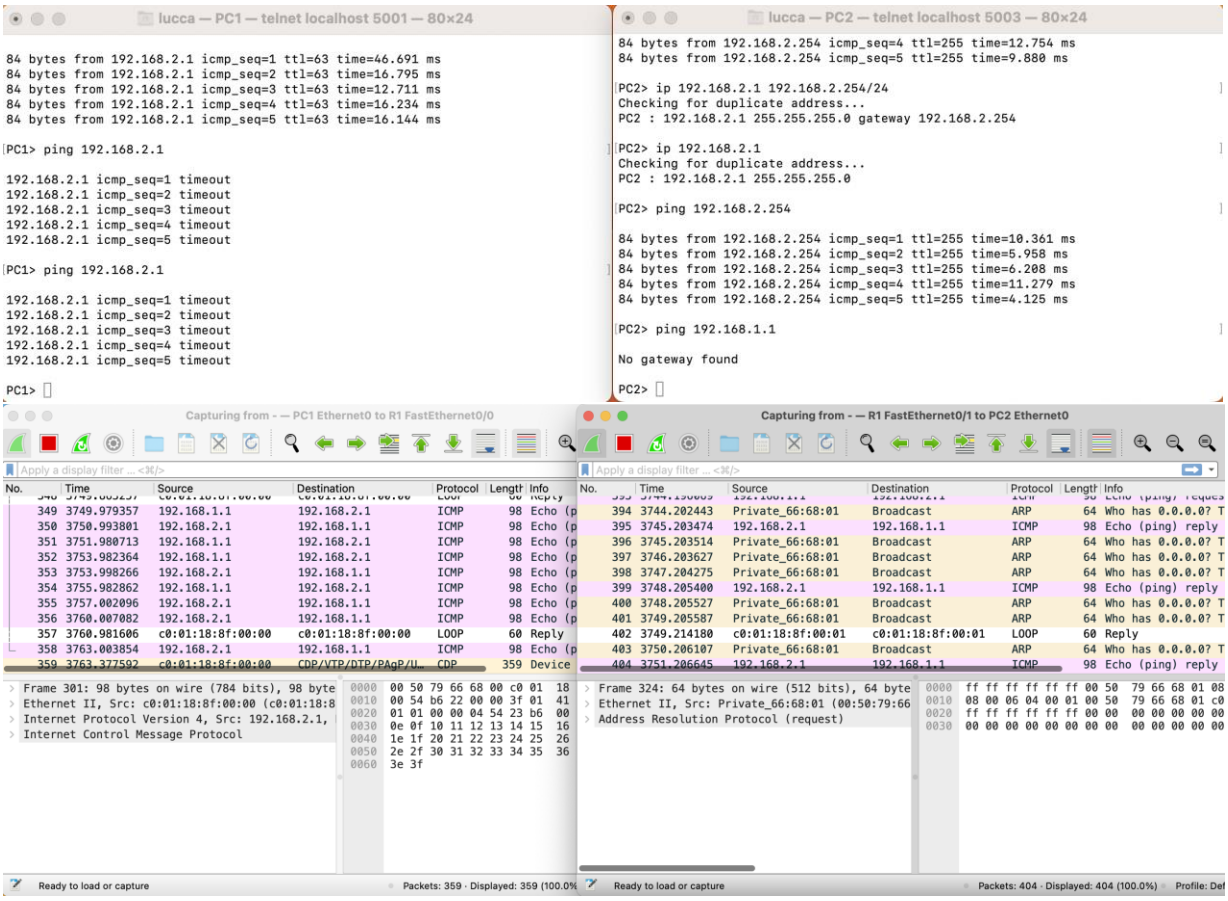


Question 4:

Ping PC2 from PC1. Does it work? Why?

It works somewhat. You can ping it, but it will not give a response, because although there is a gateway set from PC1 to PC2, there is not a gateway set from PC2 to PC1. It needs to be set both ways for it to work properly. As shown in the Wireshark photo below, PC2 tries using ICMP to respond but when it's not able to send the message back to PC1, it resorts to trying to broadcast the info for PC1 to see using the ARP protocol to no avail.

Proof of Completion:


lucca — PC1 — telnet localhost 5001 — 80×24
84 bytes from 192.168.2.1 icmp_seq=1 ttl=63 time=46.691 ms
84 bytes from 192.168.2.1 icmp_seq=2 ttl=63 time=16.795 ms
84 bytes from 192.168.2.1 icmp_seq=3 ttl=63 time=12.711 ms
84 bytes from 192.168.2.1 icmp_seq=4 ttl=63 time=16.234 ms
84 bytes from 192.168.2.1 icmp_seq=5 ttl=63 time=16.144 ms
PC1> ping 192.168.2.1
192.168.2.1 icmp_seq=1 timeout
192.168.2.1 icmp_seq=2 timeout
192.168.2.1 icmp_seq=3 timeout
192.168.2.1 icmp_seq=4 timeout
192.168.2.1 icmp_seq=5 timeout
PC1> ping 192.168.2.1
192.168.2.1 icmp_seq=1 timeout
192.168.2.1 icmp_seq=2 timeout
192.168.2.1 icmp_seq=3 timeout
192.168.2.1 icmp_seq=4 timeout
192.168.2.1 icmp_seq=5 timeout
PC1>
lucca — PC2 — telnet localhost 5003 — 80×24
84 bytes from 192.168.2.254 icmp_seq=4 ttl=255 time=12.754 ms
84 bytes from 192.168.2.254 icmp_seq=5 ttl=255 time=9.880 ms
PC2> ip 192.168.2.1 192.168.2.254/24
Checking for duplicate address...
PC2 : 192.168.2.1 255.255.255.0 gateway 192.168.2.254
PC2> ip 192.168.2.1
Checking for duplicate address...
PC2 : 192.168.2.1 255.255.255.0
PC2> ping 192.168.2.254
84 bytes from 192.168.2.254 icmp_seq=1 ttl=255 time=10.361 ms
84 bytes from 192.168.2.254 icmp_seq=2 ttl=255 time=5.958 ms
84 bytes from 192.168.2.254 icmp_seq=3 ttl=255 time=6.208 ms
84 bytes from 192.168.2.254 icmp_seq=4 ttl=255 time=11.279 ms
84 bytes from 192.168.2.254 icmp_seq=5 ttl=255 time=4.125 ms
PC2> ping 192.168.1.1
No gateway found
PC2>
Capturing from - — PC1 Ethernet0 to R1 FastEthernet0/0
Apply a display filter ... <⌘/>
No. Time Source Destination Protocol Lengtl Info
349 3749.979357 192.168.1.1 192.168.2.1 ICMP 98 Echo (p
350 3750.993801 192.168.2.1 192.168.1.1 ICMP 98 Echo (p
351 3751.980713 192.168.1.1 192.168.2.1 ICMP 98 Echo (p
352 3753.982364 192.168.1.1 192.168.2.1 ICMP 98 Echo (p
353 3753.998266 192.168.2.1 192.168.1.1 ICMP 98 Echo (p
354 3755.982862 192.168.1.1 192.168.2.1 ICMP 98 Echo (p
355 3757.002096 192.168.2.1 192.168.1.1 ICMP 98 Echo (p
356 3760.007082 192.168.2.1 192.168.1.1 ICMP 98 Echo (p
357 3760.981606 c0:01:18:8f:00:00 c0:01:18:8f:00:00 LOOP 60 Reply
358 3763.003854 192.168.2.1 192.168.1.1 ICMP 98 Echo (p
359 3763.377592 c0:01:18:8f:00:00 CDP/VTP/DTP/PAgP/U… CDP 359 Device
Frame 301: 98 bytes on wire (784 bits), 98 byte
Ethernet II, Src: c0:01:18:8f:00:00 (c0:01:18:8
Internet Protocol Version 4, Src: 192.168.2.1,
Internet Control Message Protocol
0000 00 50 79 66 68 00 c0 01 18
0010 00 54 b6 22 00 00 3f 01 41
0020 01 01 00 00 04 54 23 b6 00
0030 0e 0f 10 11 12 13 14 15 16
0040 1e 1f 20 21 22 23 24 25 26
0050 2e 2f 30 31 32 33 34 35 36
0060 3e 3f
Ready to load or capture
Packets: 359 · Displayed: 359 (100.0%
Capturing from - — R1 FastEthernet0/1 to PC2 Ethernet0
Apply a display filter ... <⌘/>
No. Time Source Destination Protocol Lengtl Info
394 3744.202443 Private_66:68:01 Broadcast ARP 64 Who has 0.0.0.0? T
395 3745.203474 192.168.2.1 192.168.1.1 ICMP 98 Echo (ping) reply
396 3745.203514 Private_66:68:01 Broadcast ARP 64 Who has 0.0.0.0? T
397 3746.203627 Private_66:68:01 Broadcast ARP 64 Who has 0.0.0.0? T
398 3747.204275 Private_66:68:01 Broadcast ARP 64 Who has 0.0.0.0? T
399 3748.205400 192.168.2.1 192.168.1.1 ICMP 98 Echo (ping) reply
400 3748.205527 Private_66:68:01 Broadcast ARP 64 Who has 0.0.0.0? T
401 3749.205587 Private_66:68:01 Broadcast ARP 64 Who has 0.0.0.0? T
402 3749.214180 c0:01:18:8f:00:01 c0:01:18:8f:00:01 LOOP 60 Reply
403 3750.206107 Private_66:68:01 Broadcast ARP 64 Who has 0.0.0.0? T
404 3751.206645 192.168.2.1 192.168.1.1 ICMP 98 Echo (ping) reply
Frame 324: 64 bytes on wire (512 bits), 64 byte
Ethernet II, Src: Private_66:68:01 (00:50:79:66
Address Resolution Protocol (request)
0000 ff ff ff ff ff ff 00 50 79 66 68 01 08
0010 08 00 06 04 00 01 00 50 79 66 68 01 c0
0020 ff ff ff ff ff ff 00 00 00 00 00 00
0030 00 00 00 00 00 00 00 00 00 00 00 00 00
Ready to load or capture
Packets: 404 · Displayed: 404 (100.0%)
Profile: Def