Step 1: PC1 is able to ping 10.1.1.3 but is not able to ping 192.1.1.2
Step 2/3: After setting up the IP route between R2 and R3, PC1 was now able to ping 192.1.1.2. In addition, PC1 was also able to ping 10.2.1.2/24 (PC3).
Step 4/5/6:
IP NAT debugging is on
R1#
Mar 1 00:09:47.699: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40691]
R1#
Mar 1 00:09:49.715: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40692]
R1#
Mar 1 00:09:50.779: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40691]
Mar 1 00:09:50.795: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40692]
Mar 1 00:09:51.731: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40693]
Mar 1 00:09:51.771: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40693]
R1#
Mar 1 00:09:55.223: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40699]
Mar 1 00:09:55.267: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40699]
R1#
Mar 1 00:09:56.303: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40700]
Mar 1 00:09:56.347: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40700]
R1#
Mar 1 00:09:57.383: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40701]
Mar 1 00:09:57.435: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40701]
R1#
Mar 1 00:09:58.467: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40702]
Mar 1 00:09:58.519: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40702]
R1#
Mar 1 00:09:59.555: NAT: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [40703]
Mar 1 00:09:59.599: NAT: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [40703]
R1#
*Mar 1 00:10:51.259: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 62366 (62366)
*Mar 1 00:10:51.259: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 62878 (62878)
*Mar 1 00:10:51.771: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 63390 (63390)
R1#
*Mar 1 00:10:55.355: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 64414 (64414)
R1#
*Mar 1 00:10:56.379: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 64670 (64670)
R1#
*Mar 1 00:10:57.915: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 64926 (64926)
R1#
*Mar 1 00:10:58.939: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 65182 (65182)
R1#
*Mar 1 00:10:59.963: NAT: expiring 192.1.1.1 (10.1.1.2) icmp 65438 (65438)

Instructions:

1. Drag in 3 VPCSs, two 2 routers, and one ethernet switch
2. Connect PC1 and PC2 to Switch1 e1 and e0 respectively
3. Connect Switch1 e2 to R1 f0/0
4. Connect R1 f0/1 to R2 f0/0
5. Connect R2 f0/1 to PC3 e0
6. Start R2 and open the R2 console
    a. Type config t to enter configure mode
    b. Type interface FastEthernet0/0 to select interface f0/0
    c. Type ip addr 10.1.1.1 255.255.255.0 to assign an IP address and mask
    d. Type no shut to bring up the interface
    e. Type exit twice to exit config mode
    f. Type show ip interface to bring up details and check the IP address
7. Start PC1 and open the PC1 console
    a. Type ip 10.1.1.2/24
    b. Type ip 10.1.1.2/24 10.1.1.1
    c. Type show ip to check changes
8. Set R1's f0/1 interface to address 192.1.1.1/24 using the same steps as step 6
9. Set R2's f0/0 interface to address 192.1.1.1/24 using the same steps as step 6
10. Set R2's f0/1 interface to address 10.2.1.1/24 using the same steps as step 6
11. Assign e0 on PC3 IP address 10.2.1.2/24 using the same steps as step 7
12. Now that the network topology is complete, go into the PC1 console and ping the other IP addresses (10.1.1.3/24, 192.1.1.2/24, 10.2.1.2/24) and write down your observations
13. For PC1 to ping 192.1.1.2/24, we must establish a route between the multiple routers; go into R1's console and enter config mode
    a. Type ip route 0.0.0.0 0.0.0.0 192.1.1.2
14. Then enter R2's console and enter config mode
    a. Type ip route 0.0.0.0 0.0.0.0 192.1.1.1
15. Now try pinging the other IP addresses again and note your observations
16. Go back into R1's console and enter configuration mode
    a. To configure interface f0/0 as a NAT inside and f0/1 as a NAT outside, type the following
    b. interface f0/0
    c. ip nat inside
    d. interface f0/1
    e. ip nat outside
17. Create the range of addresses inside that will be translated to the address of f0/1
    a. exit
    b. access-list 10 permit 10.1.1.0 0.0.0.255
    c. ip nat inside source list 10 interface f0/1 overload
18. Type exit to exit config mode and type debug ip nat
19. Now go back to PC1 or PC2's console and ping PC3 and observe R1's console
20. Write down the NAT table and record your observations