

Ping Network Devices (Steps 1-3)

```
[PC1> ping 192.1.1.2

84 bytes from 192.1.1.2 icmp_seq=1 ttl=254 time=23.930 ms
84 bytes from 192.1.1.2 icmp_seq=2 ttl=254 time=18.407 ms
84 bytes from 192.1.1.2 icmp_seq=3 ttl=254 time=21.681 ms
84 bytes from 192.1.1.2 icmp_seq=4 ttl=254 time=21.908 ms
84 bytes from 192.1.1.2 icmp_seq=5 ttl=254 time=29.958 ms
```

Pinging PC1 to the IP address 192.1.1.2 (R3) because we established the default routes through router 2 and router 3. Before we established the connection between the routers, the IP address 192.1.1.2 was unreachable initially but now that we have that connection, it's able to reach shown above given the number of bytes from , sequence numbers, time-to-live, and time it took in ms to connect.

NAT Inside the access network

```
[R2#debug ip nat
IP NAT debugging is on
```

Pinging PC3 from PC1

```
[PC1> ping 10.2.1.2

84 bytes from 10.2.1.2 icmp_seq=1 ttl=62 time=56.119 ms
84 bytes from 10.2.1.2 icmp_seq=2 ttl=62 time=34.986 ms
84 bytes from 10.2.1.2 icmp_seq=3 ttl=62 time=35.617 ms
84 bytes from 10.2.1.2 icmp_seq=4 ttl=62 time=32.047 ms
84 bytes from 10.2.1.2 icmp_seq=5 ttl=62 time=37.424 ms
```

Nat Table:

```
R2#M-X2T5E6RCMO-L205R6pOLOR
*Mar 1 00:39:22.087: NAT*: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [30139]
*Mar 1 00:39:22.131: NAT*: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [30139]
R2#M-X2T5E6RCMO-L205R6pOLOR
*Mar 1 00:39:23.143: NAT*: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [30140]
*Mar 1 00:39:23.171: NAT*: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [30140]
R2#M-X2T5E6RCMO-L205R6pOLOR
*Mar 1 00:39:24.179: NAT*: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [30141]
*Mar 1 00:39:24.207: NAT*: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [30141]
R2#M-X2T5E6RCMO-L205R6pOLOR
*Mar 1 00:39:25.215: NAT*: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [30142]
*Mar 1 00:39:25.243: NAT*: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [30142]
R2#M-X2T5E6RCMO-L205R6pOLOR
*Mar 1 00:39:26.251: NAT*: s=10.1.1.2->192.1.1.1, d=10.2.1.2 [30143]
*Mar 1 00:39:26.287: NAT*: s=10.2.1.2, d=192.1.1.1->10.1.1.2 [30143]
R2#M-X2T5E6RCMO-L205R6pOLOR
```

GUIDE:

Step 1:

Write up a description of your steps. Imagine you are writing a guide for a class-mate unfamiliar with setting up a GNS3, and providing instructions guiding them to the point where they can simulate different network topologies.

Pinging from PC1 (client) to any router or another client will show if there is a network connection established between all the devices or not that allows the connection from each end/area of the network.

Step 2:

Because we want to ping the IP address “192.1.1.2” which is the IP address of R3, PC1 is supposedly connected to Router 2 which is connected to R3 in this certain topology. Initially, it will not be “reachable” because we haven’t connected the routers and PC through setting its path to the next router’s IP address.

Therefore, we need to configure each router’s default route to where we want it to go. Because this network is bidirectional, we want not only to let R2 know it can go to R3 but also have R3 be able to get to R2.

Step 3:

We want to check the availability of the devices through the network so we can ping different IP addresses of each device through the console of any PC (client/host).

Step 4:

So this step wants us to configure for interface 0/0 in router 2 a NAT inside and NAT outside that will translate the source IP address that will go from inside to outside and also the destination IP address that will go from outside to inside. The NAT outside is just the opposite: it will translate the source IP address that will go from outside to inside and the destination IP address that will go from inside to outside.

Step 5:

We want to create the range of IP addresses inside that will be translated to the address of the interface “f0/1”. So we would first exit out of the configuration and use the list of rules for what is allowed or denied which include what can/can't enter and what can/can't leave the interface of a router.

Step 6:

If we're able to reach a router, user, client, etc, then the routers which were used for the connection should show how the connection was gotten through the source and destination IP addresses after the ping command is made and the connection is running with different sequence numbers, etc.