BIRZEIT UNIVERSITY

Faculty of Engineering and Technology

Electrical and Computer Engineering Department

ENCS4130 || Computer Networks Laboratory

TODO #1 on EXP. No. 2 Router Configuration and Static Routing

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Section: 2

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Table of Contents:

Table of Figures:

Configuration and Static Routing

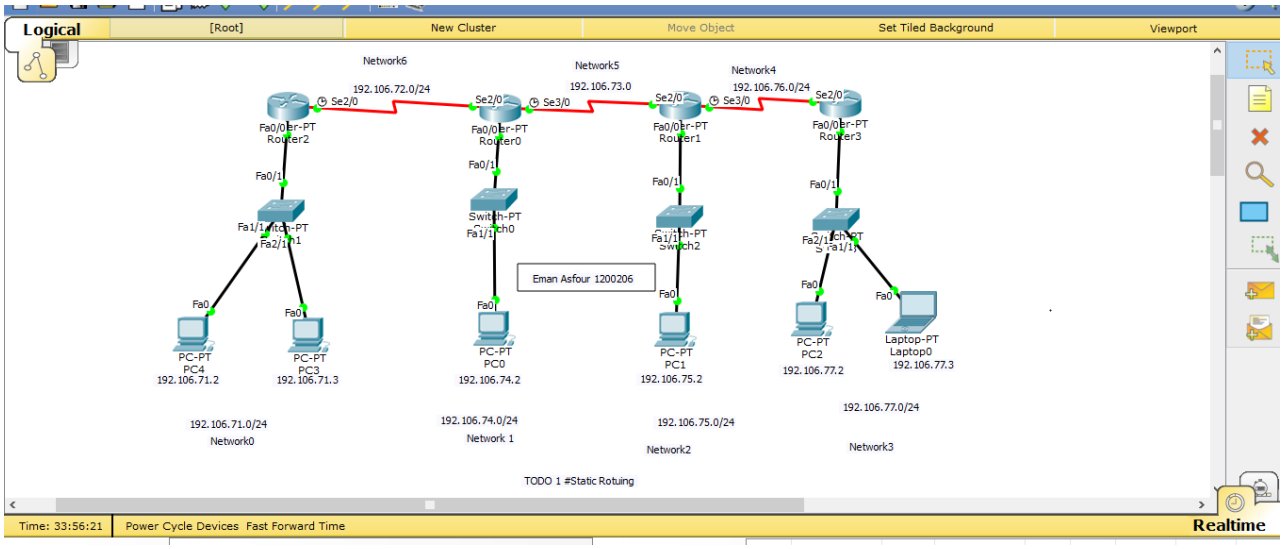

Figure 1: The Network Topology

Network: 192.1AB.71.0/24 (AB is last two digits in your ID: 1200206)
Subnetting:

- Change from 71 to 77 to create 6 networks (192.106.71.0/24 to 192.106.77.0/24).
- Adjust the network0 address to 192.106.71.0/24.
- Assign the router the IP address 192.106.71.1.
- Allocate IP addresses sequentially to devices in each network, starting from PC3 at 192.106.71.2 and PC4 at 192.106.71.3, and so forth.

- ***Configuring IPs for the PCs***

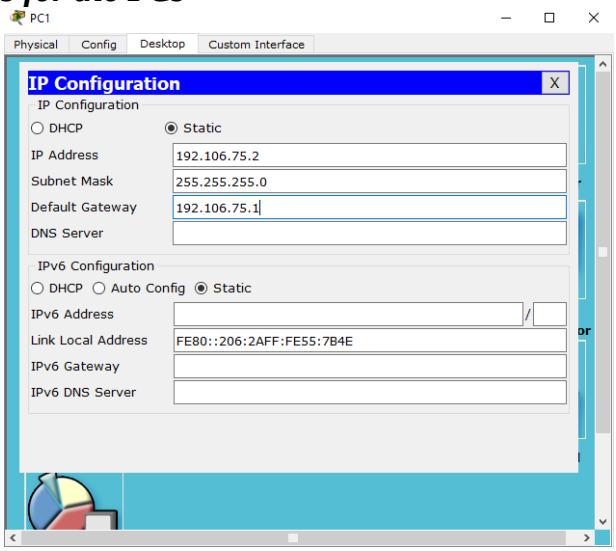

Figure 2: PC1 IP address

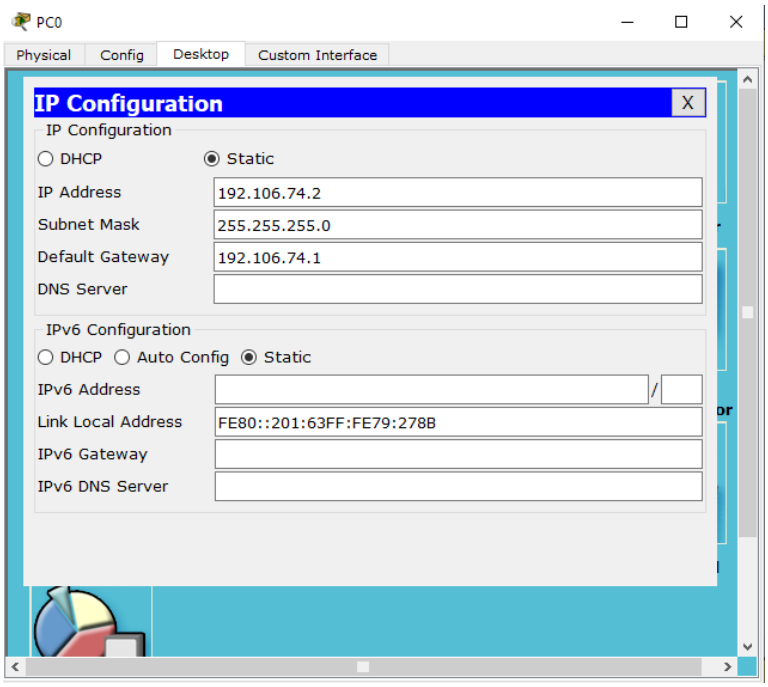

Figure 3: PC0 IP address

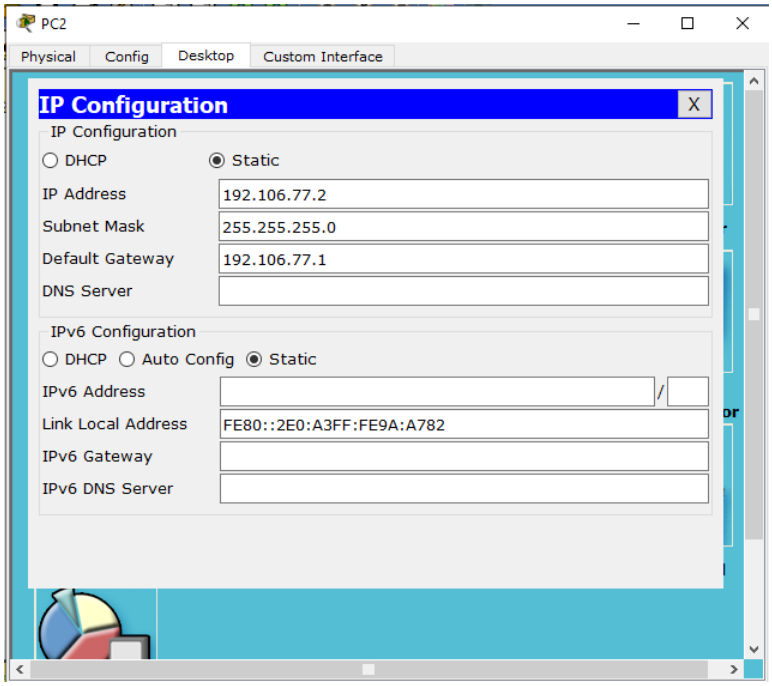

Figure 4: PC2 IP address

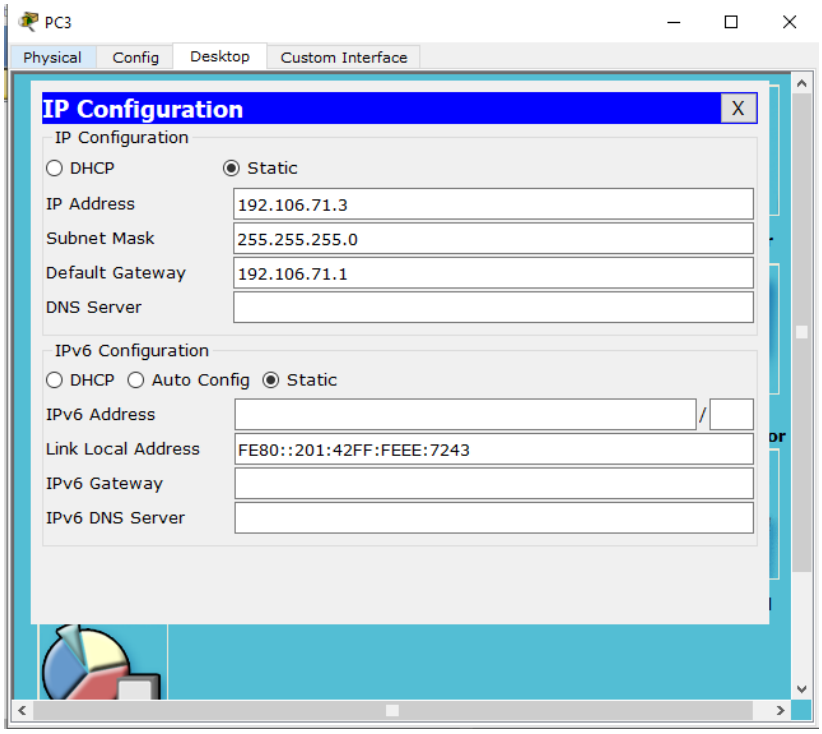

Figure 5: PC3 IP address

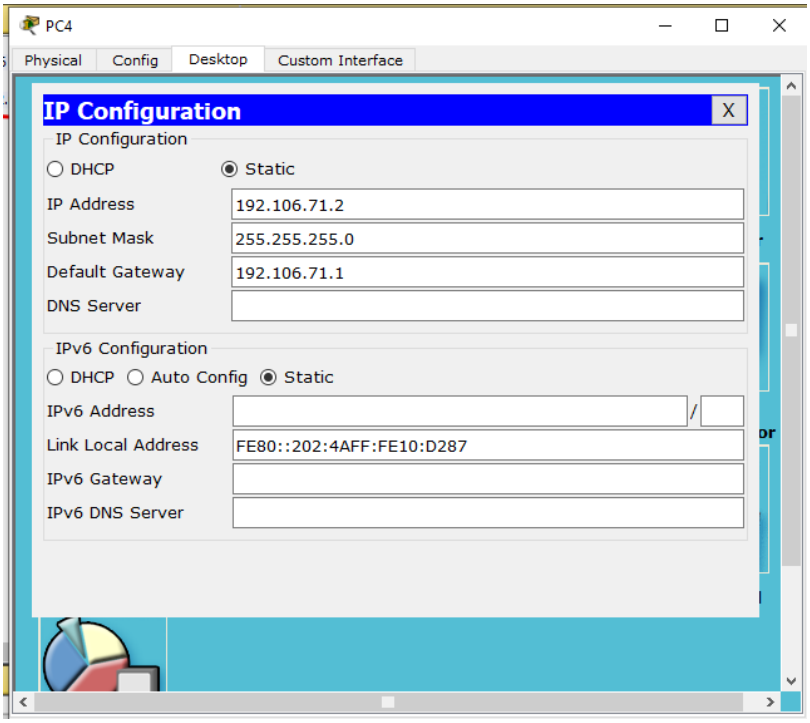

Figure 6: PC4 IP address

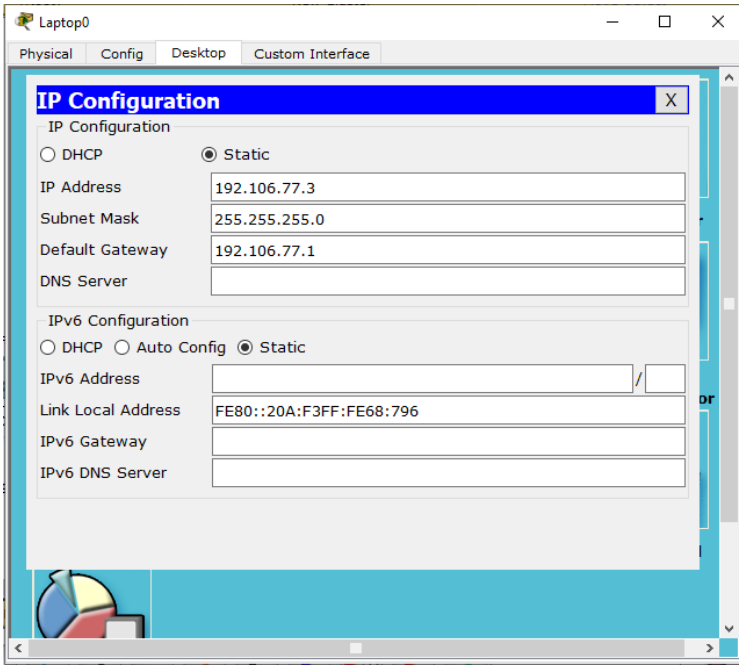

Figure 7: Laptop IP address

- ***Configuring IPs for the Routers***

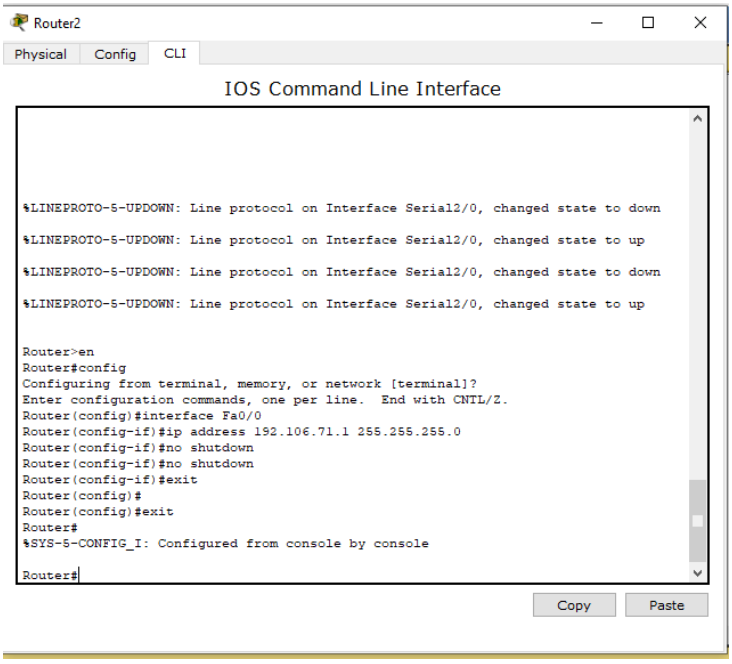

Figure 8: Router 2 CLI

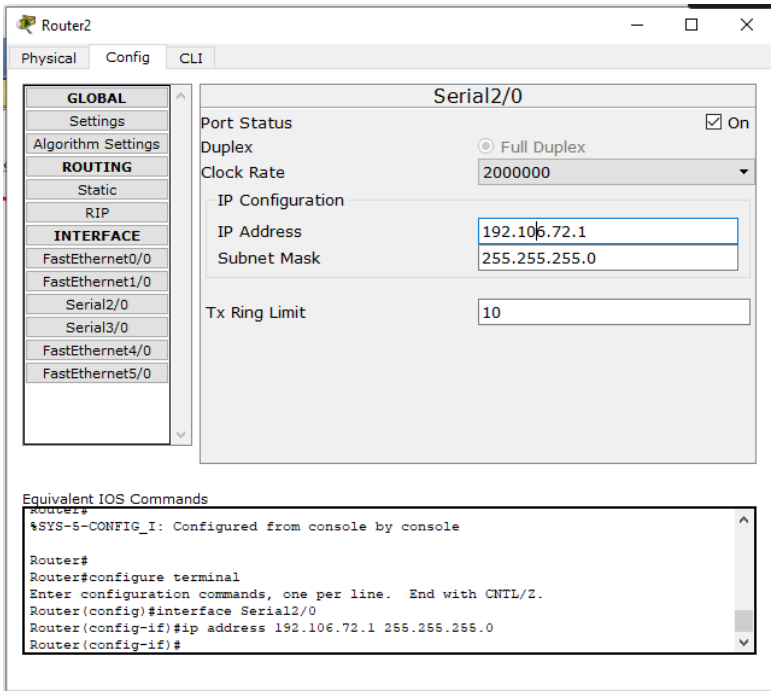

Figure 9: Address serial 2/0

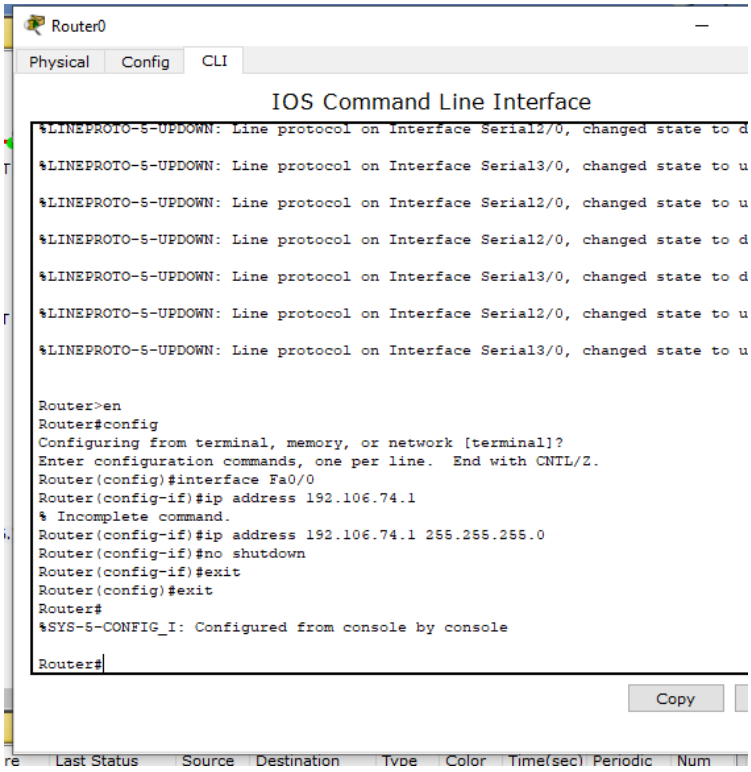

Figure 10: Router 0 CLI

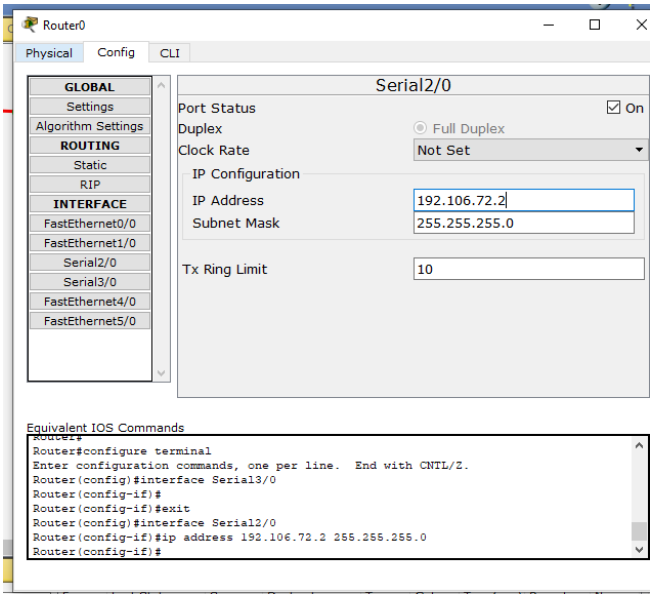

Figure 11: Address Serial 2/0

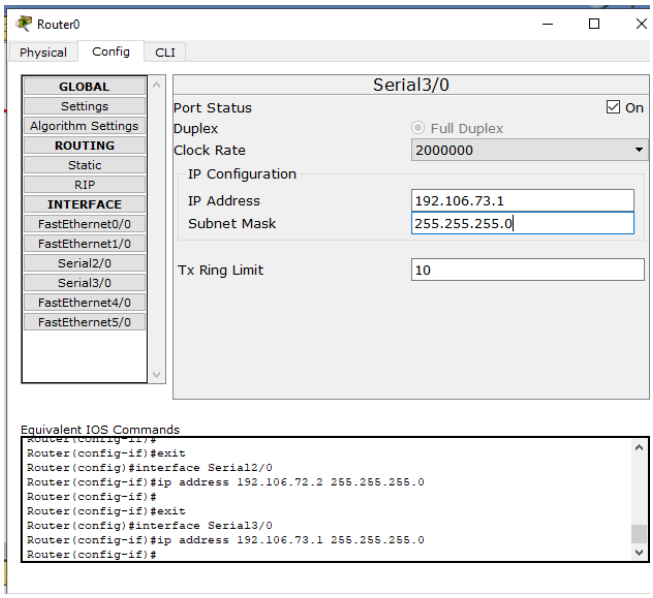

Figure 12: Address Serial3/0

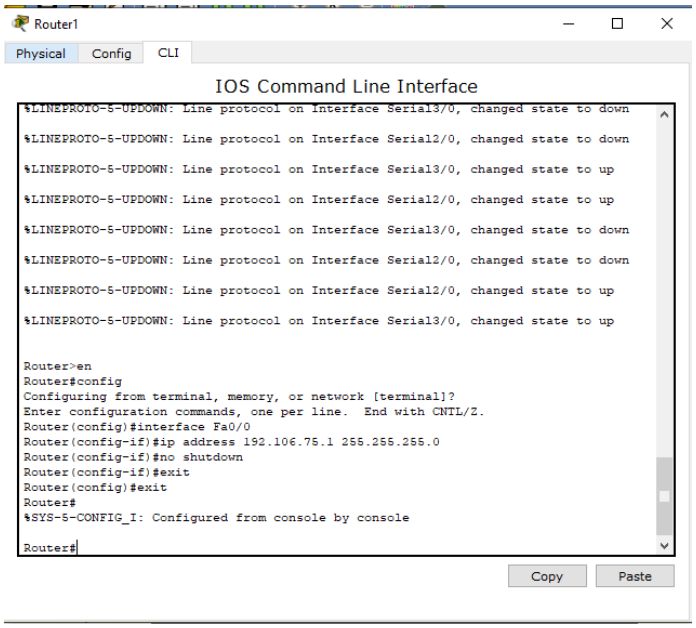

Figure 13: Router 1 CLI

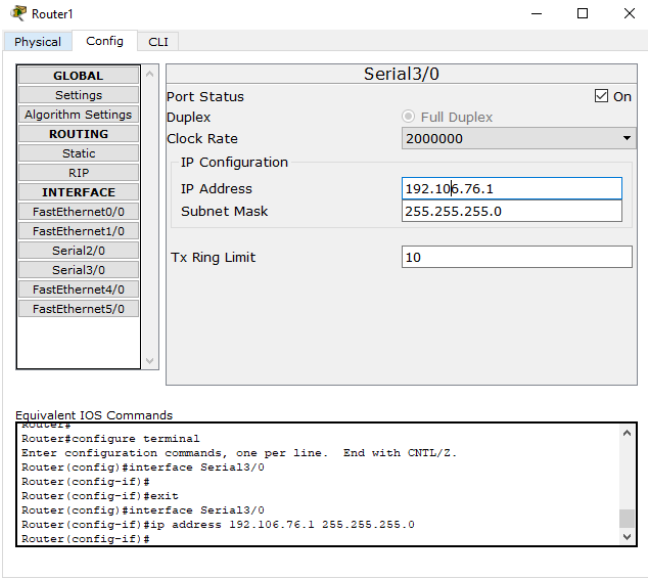

Figure 14: Address Serial3/0

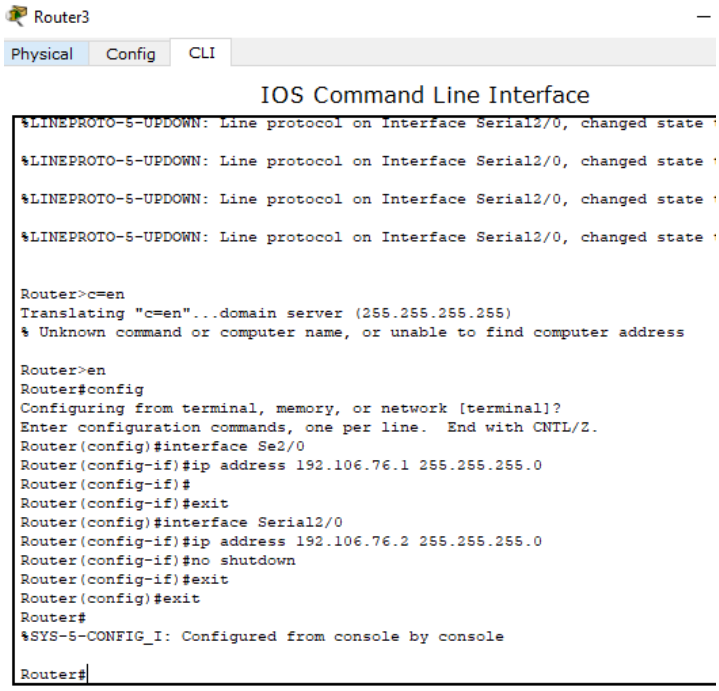

Figure 15: Router 3 CLI

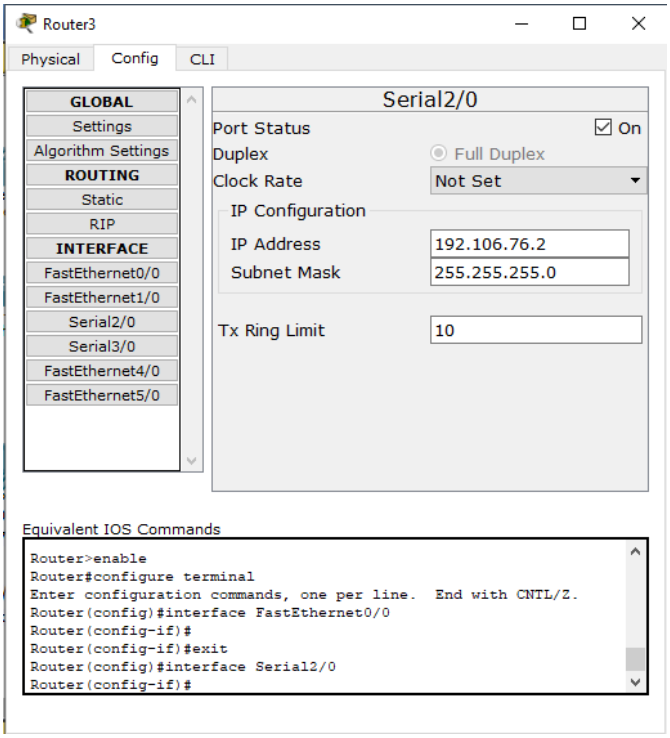

Figure 16: Address Serial2/0

- ***Configuring Static Routing***

From Router 0 to Router 2

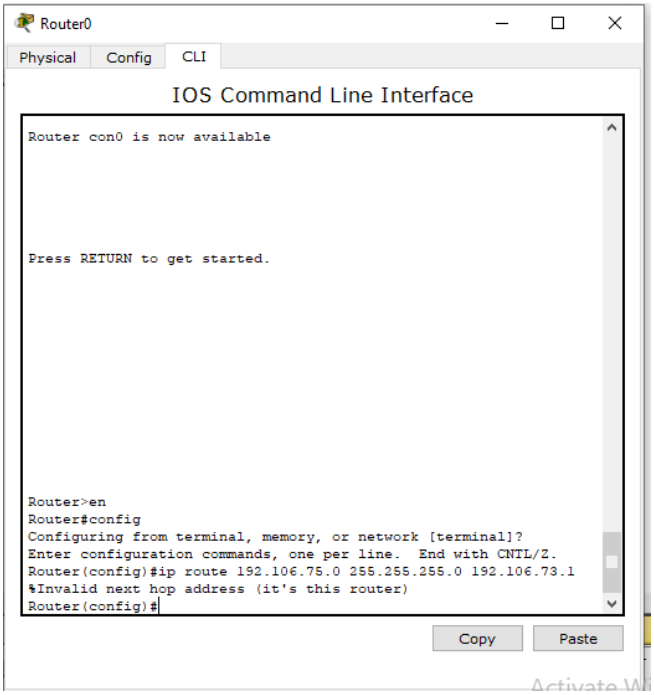

Figure 17: Error in Static routing

After initially struggling with the error "%Invalid next hop address (it's this router)," I tried using the serial interface as the next hop in the static routing setup. Eventually, things clicked, and the static routing worked perfectly. Sometimes, the simplest fixes are the ones that do the trick!

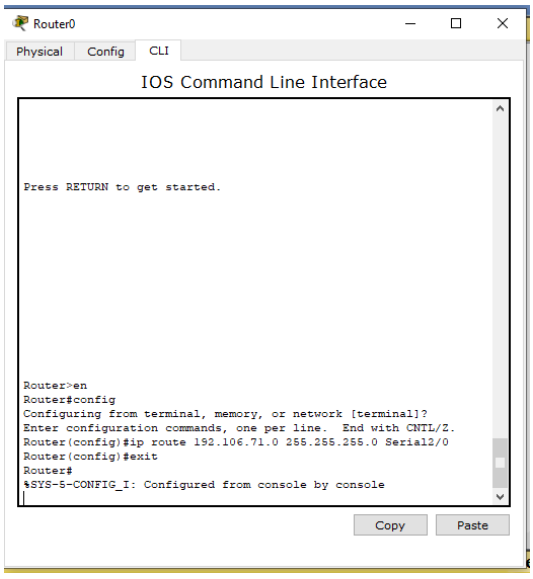

Figure 18: Static routing on Router 0

From R0 to R2

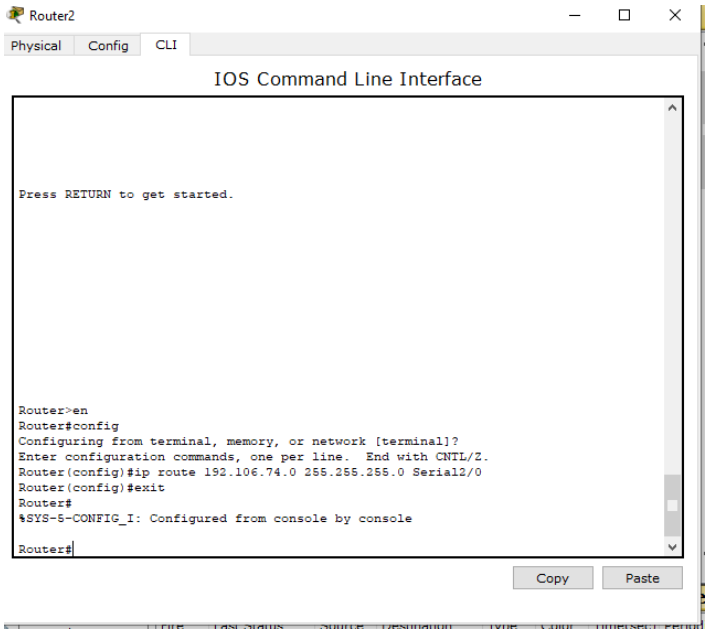

Figure 19: Static routing on Router 2

This Figure show the identity network 0 on router 0 to make user connect with each other

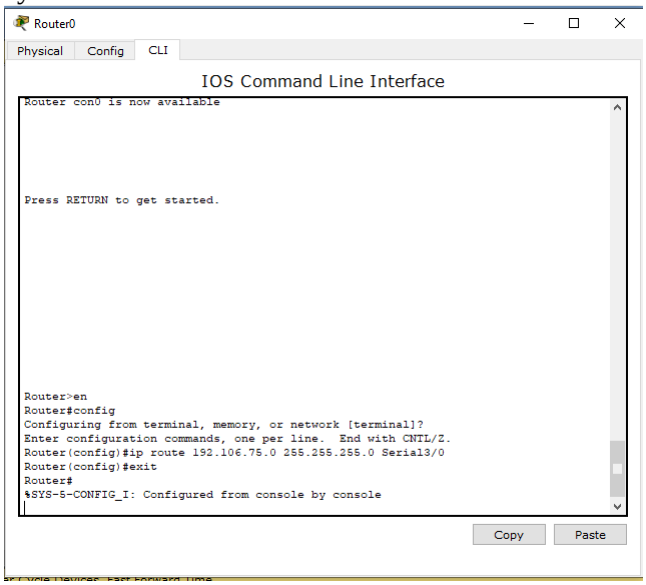

Figure 20: Static routing on R0

Identify network 2 on Router 0

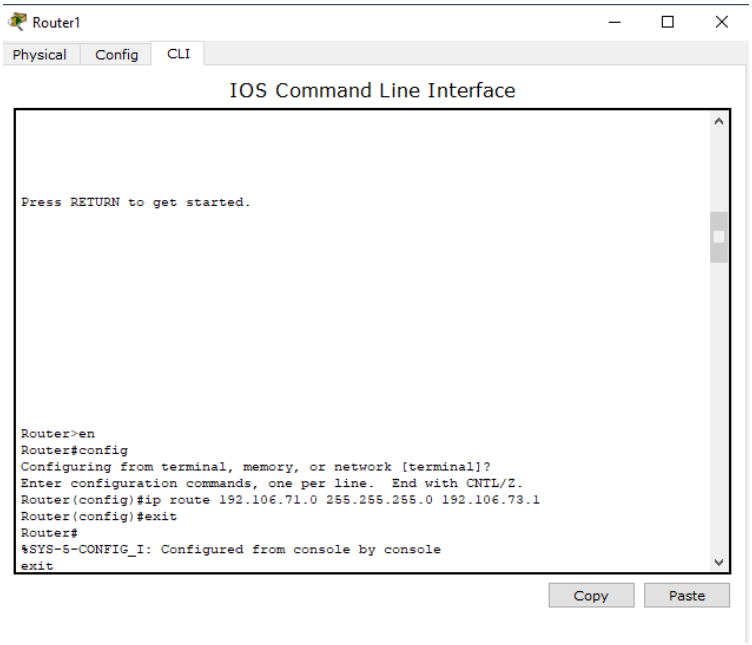

Figure 21: static routing on router 1

From R1 to R3
Identify network 3 on router 1

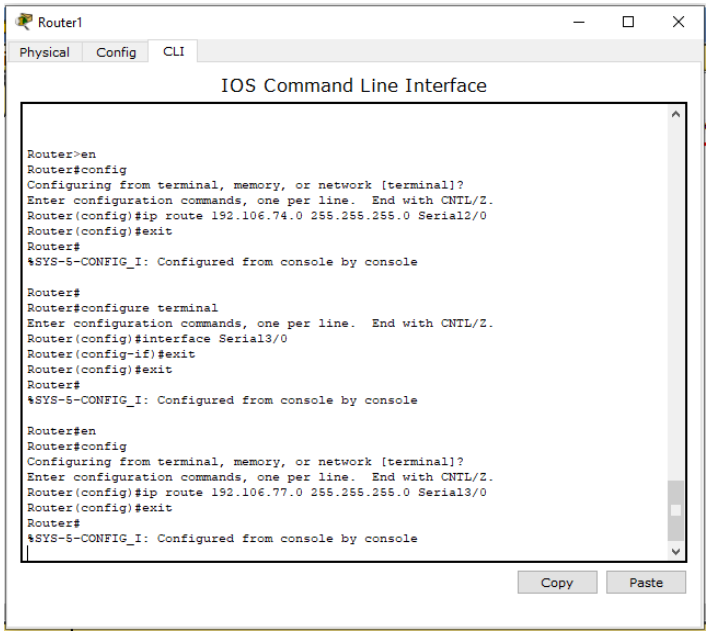

Figure 22: Static Routing on R1

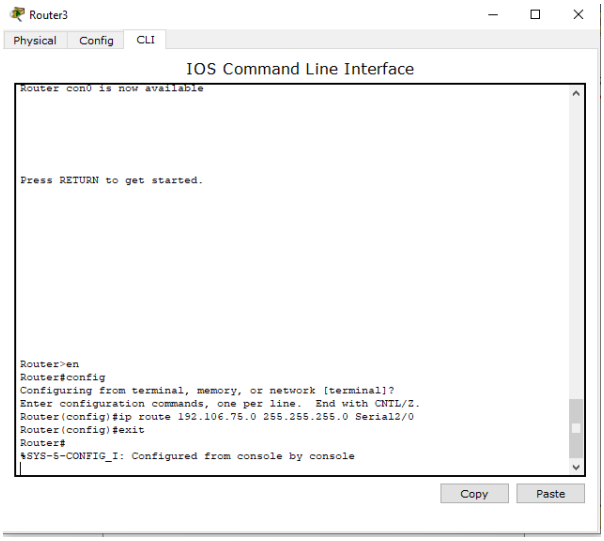

Figure 23: Static routing on R3

Identify network 2 on router 3

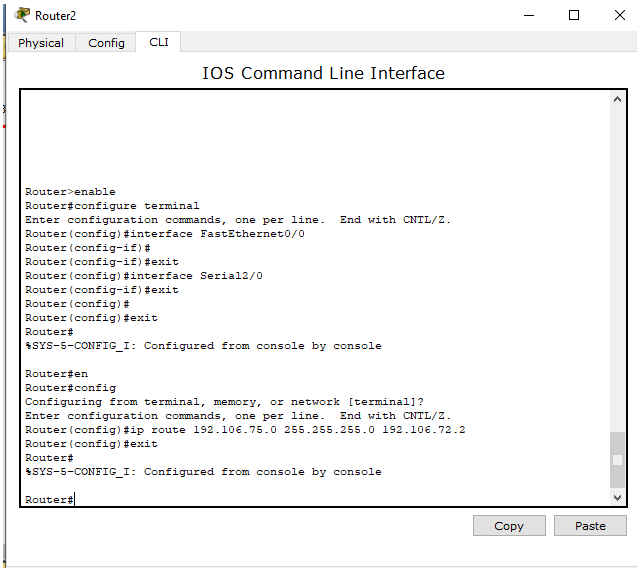

Figure 24: Static Routing on R2

Identify network 2 on router 0

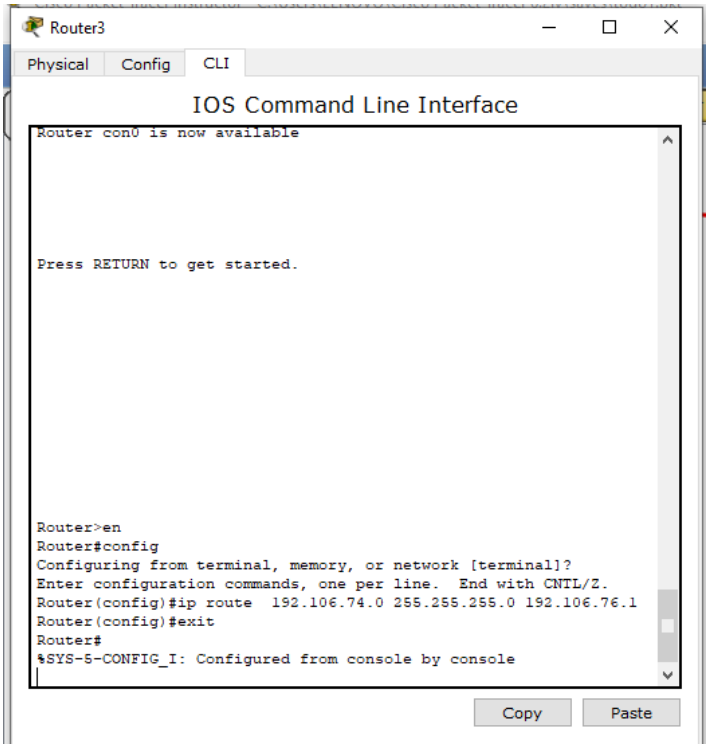

Figure 25: Static Routing on R3

Identify network 1 on router 3

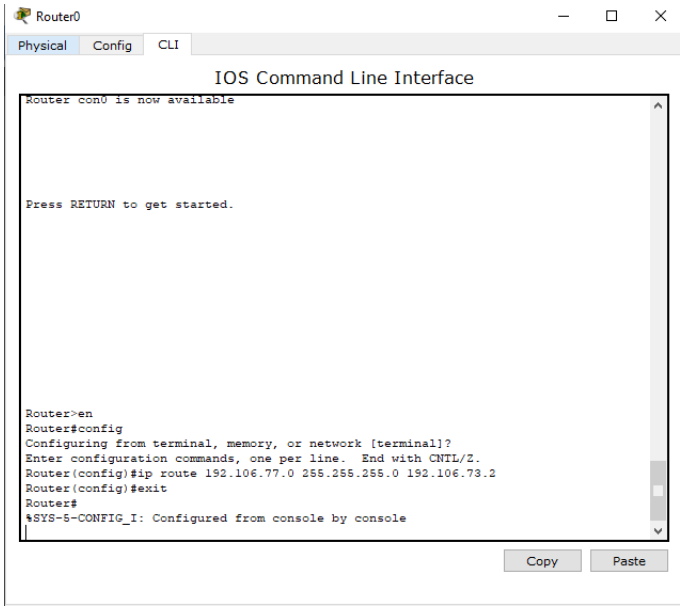

Figure 26: Static routing on R0

Identify network 3 on router 0

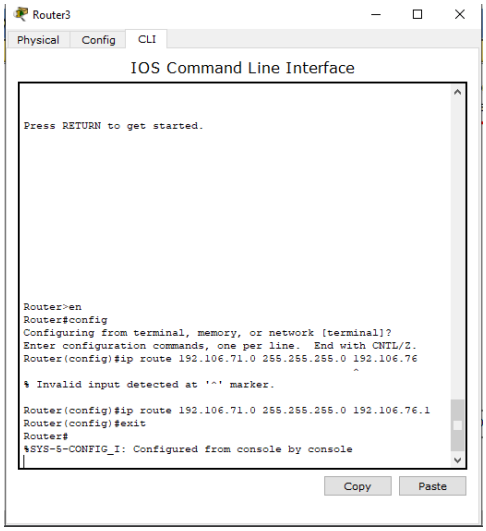

Figure 27: Static Routing on R3

Identify network 0 on router 3

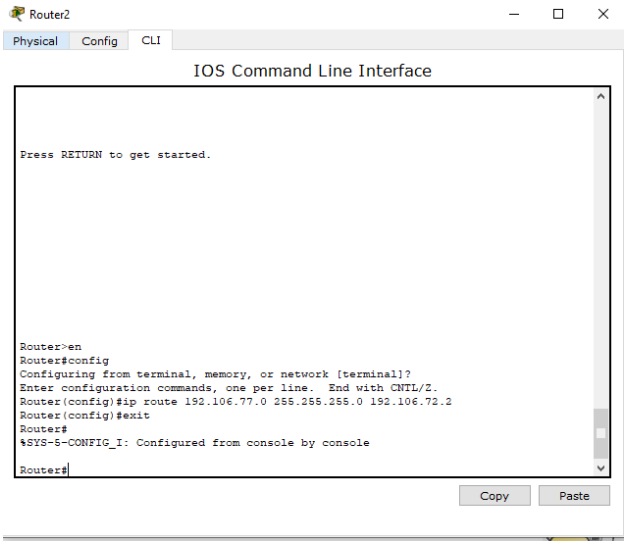

Figure 28: Static Routing on R2

Identify network 3 on router 0

All networks are connected using static routing, as illustrated in the figures. This setup enables seamless communication between all connected networks.

Testing

By Sending packet

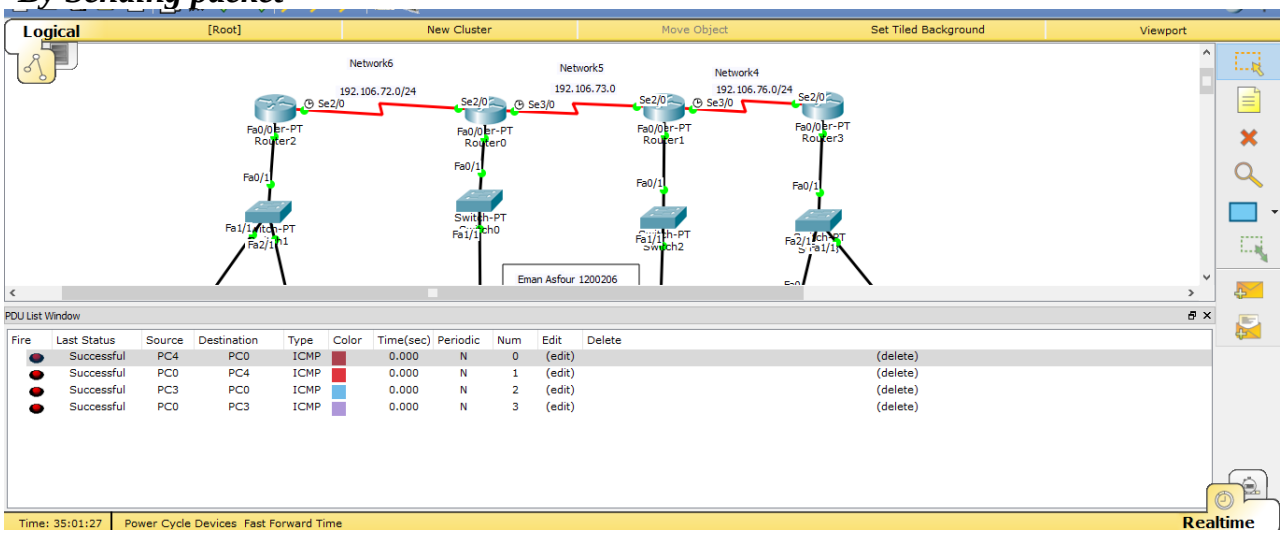

Figure 29: The Communication between Network 0 and 1

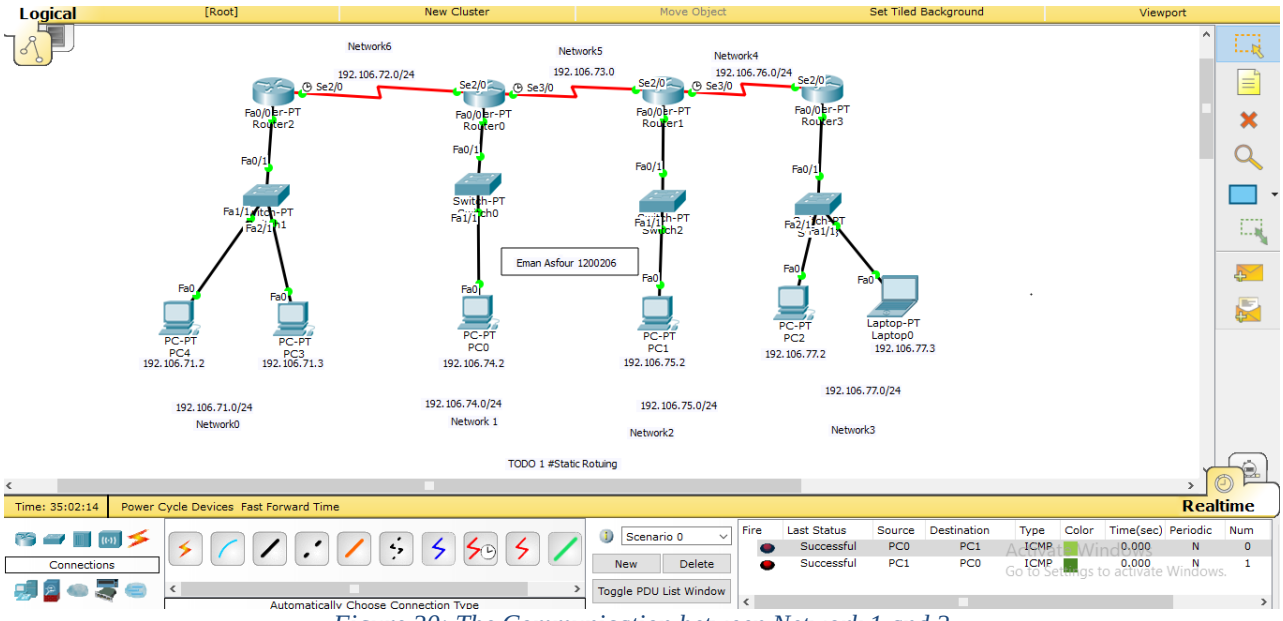

Figure 30: The Communication between Network 1 and 2

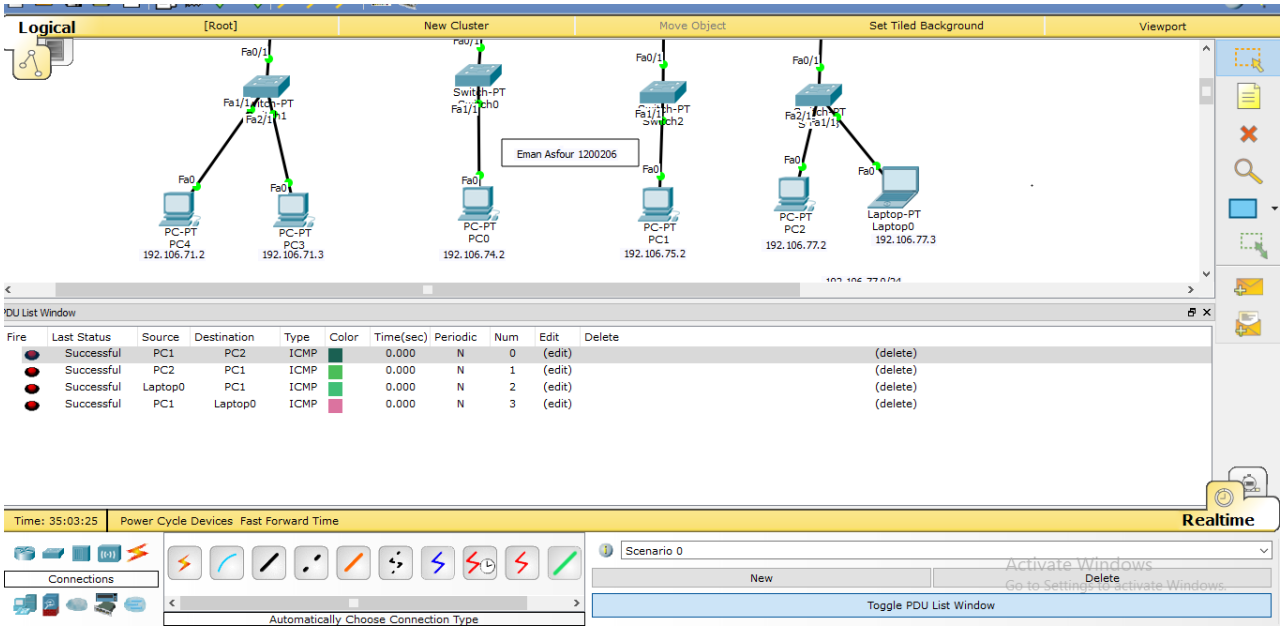

Figure 31: The Communication between Network 2and 3

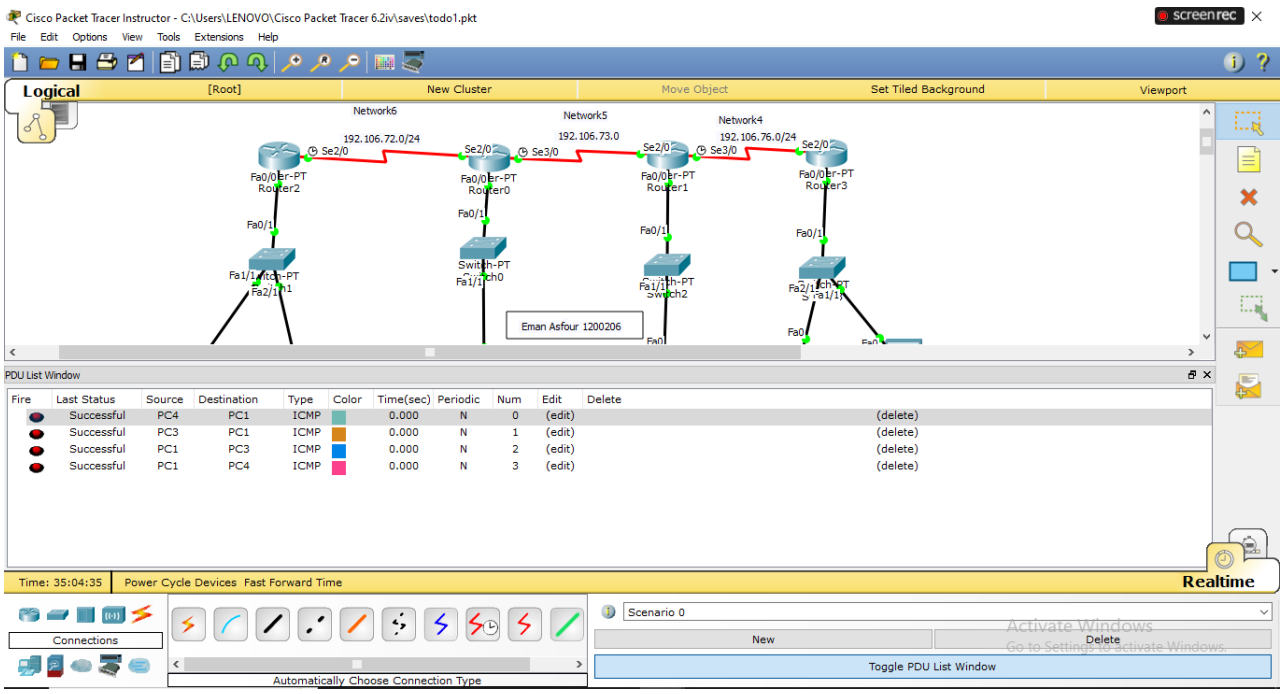

Figure 32: The Communication between Network 0and 2

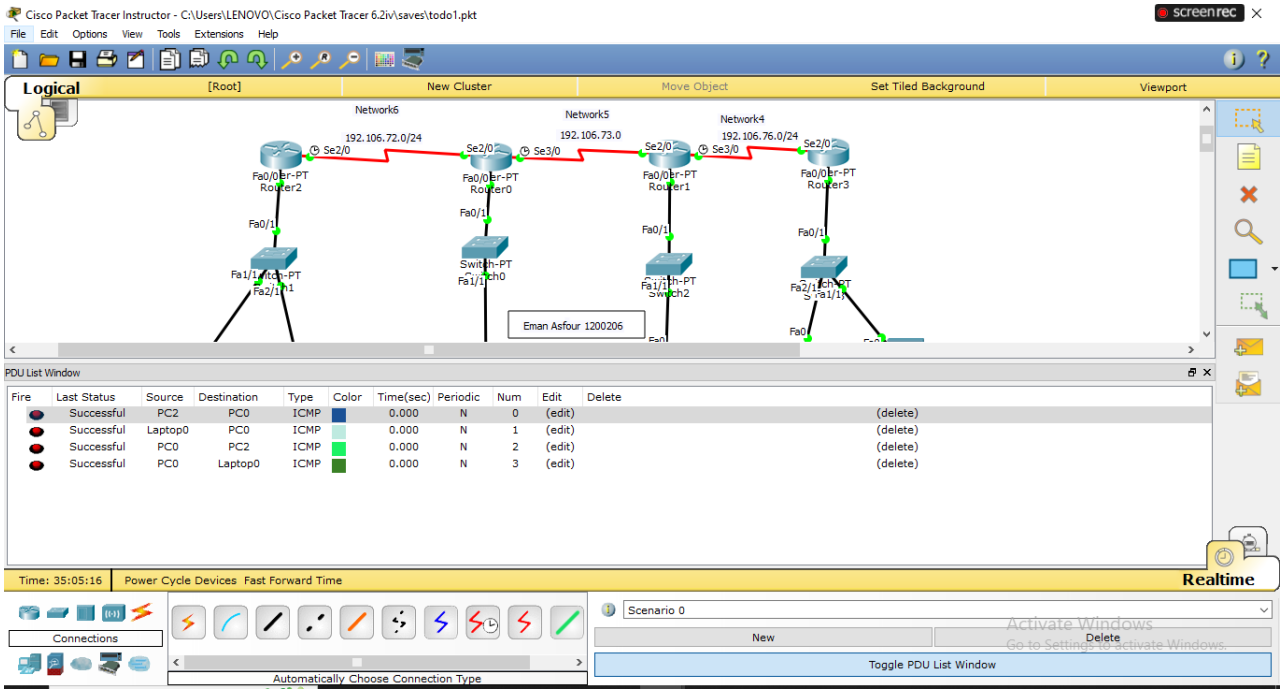

Figure 33: The Communication between Network 1and 3

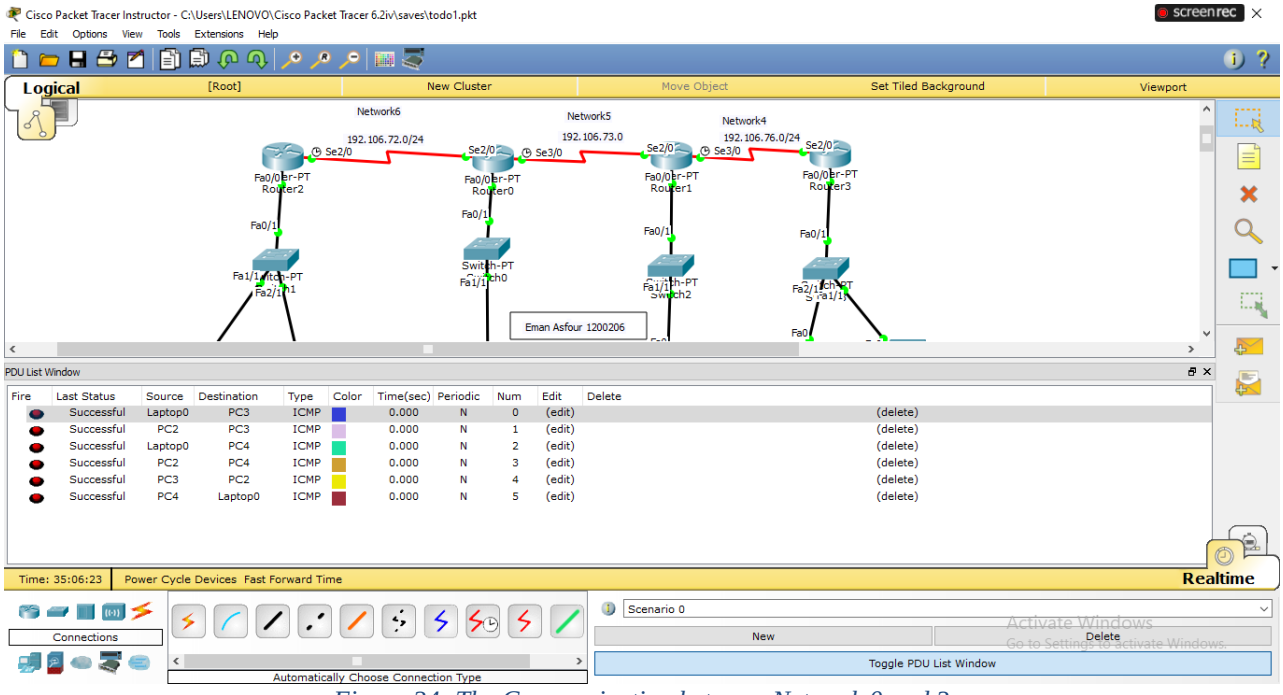

Figure 34: The Communication between Network 0 and 3

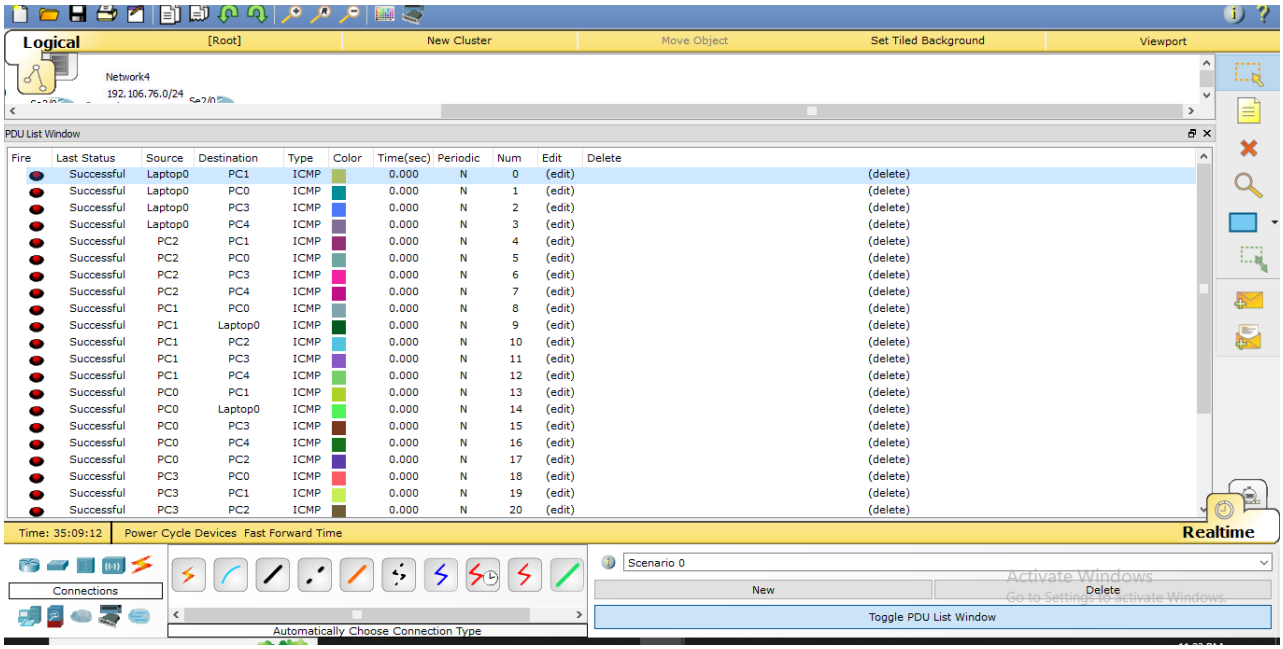

Figure 35: All Packets

PING Command & TRACERT Command

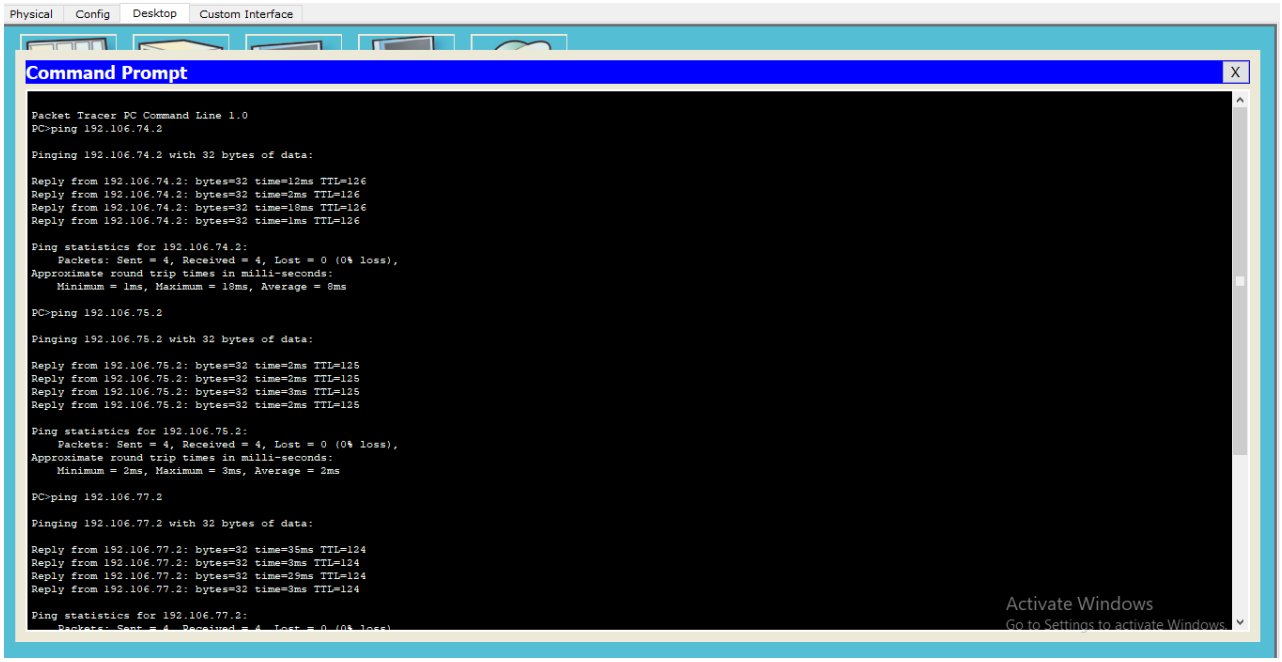

Figure 36: Ping Command on PC4

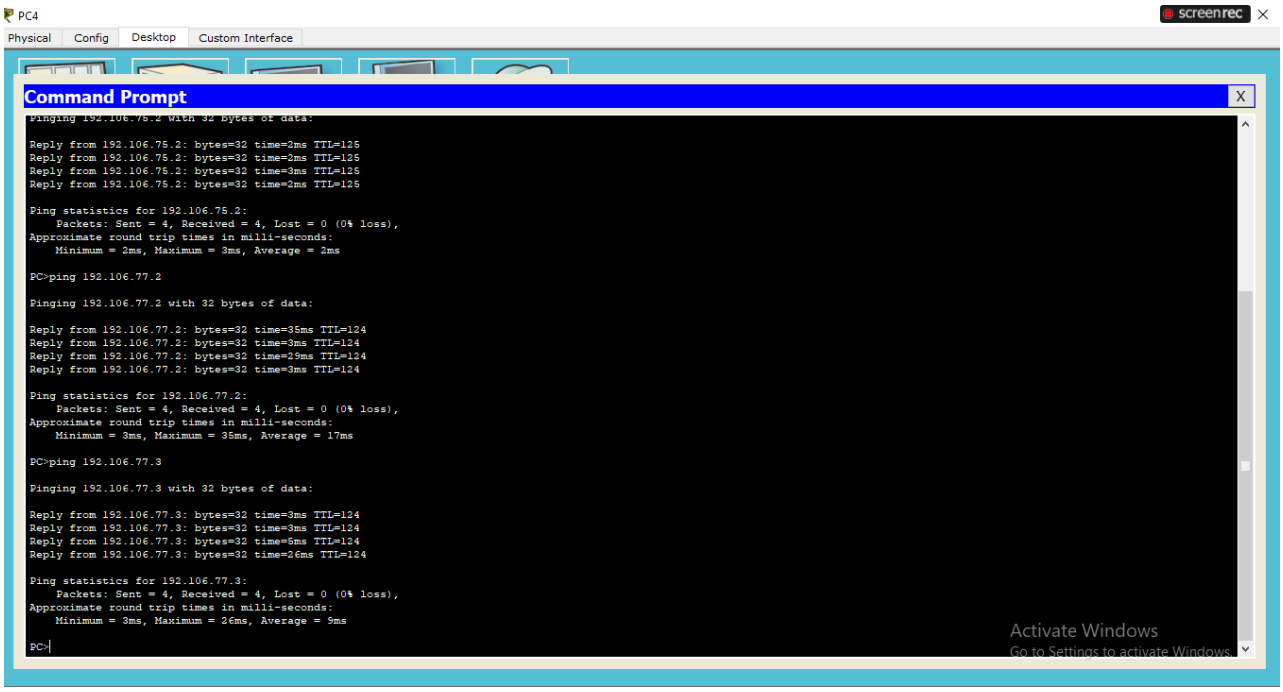

Figure 37: Ping Command

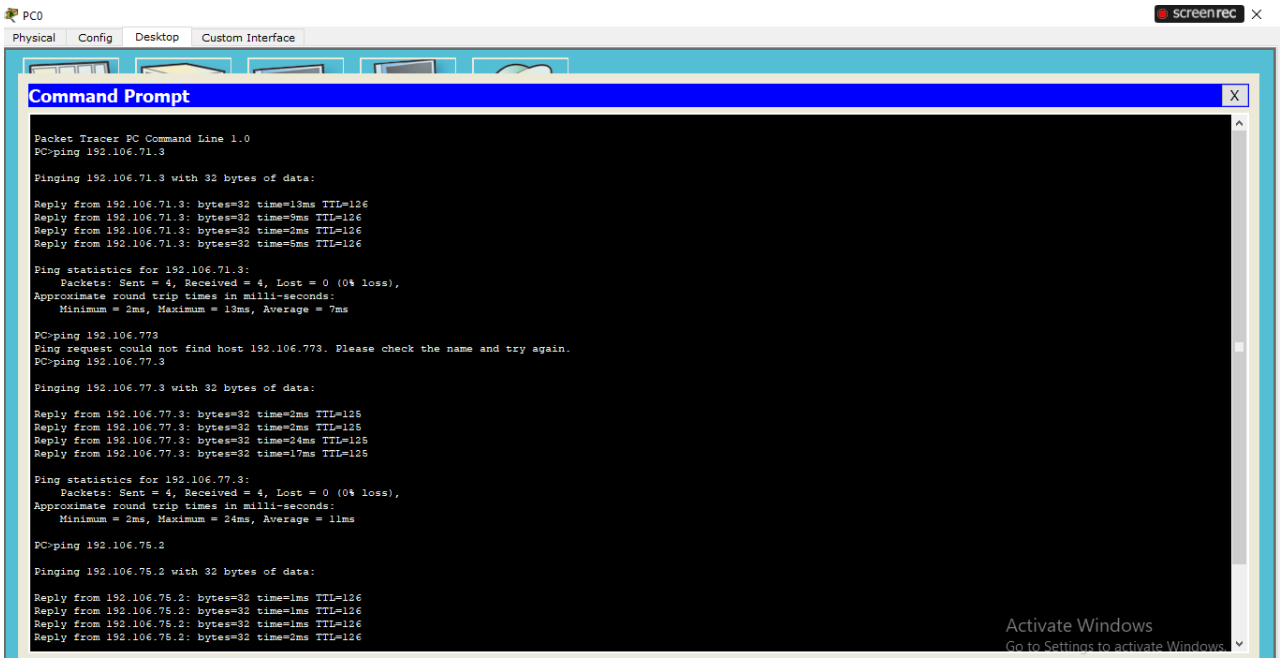

Figure 38: Ping on PC0

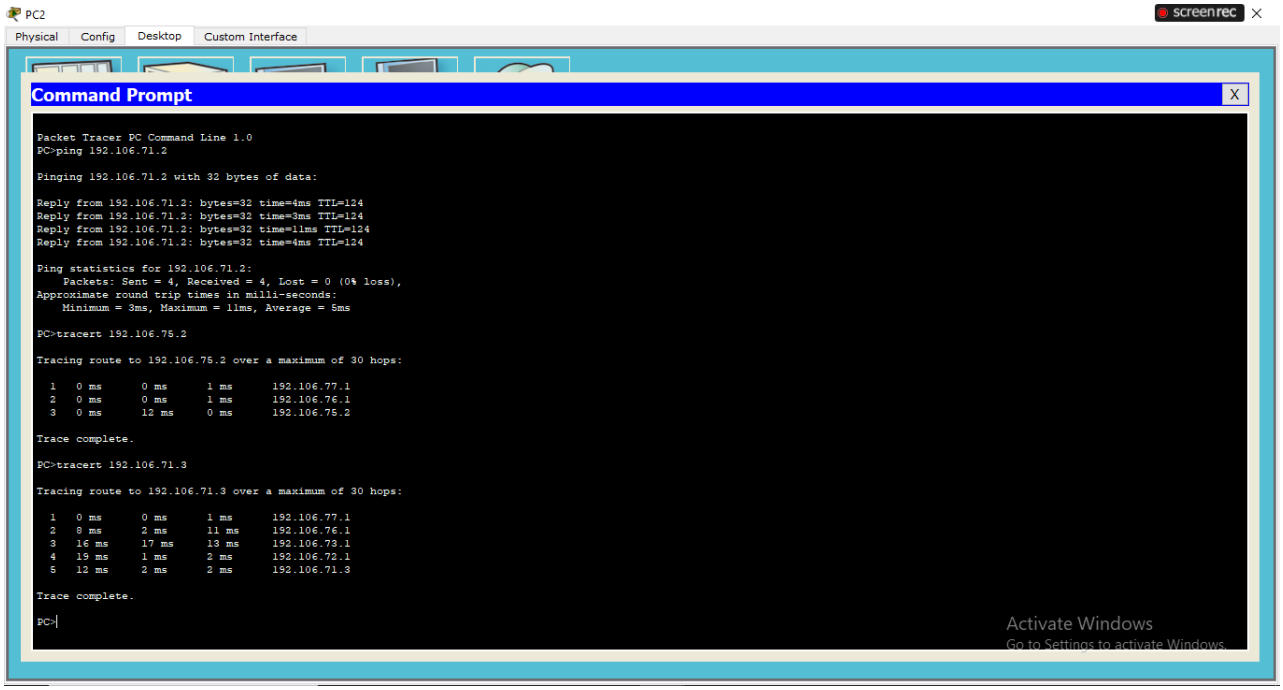

Figure 39: Ping and trace on PC2

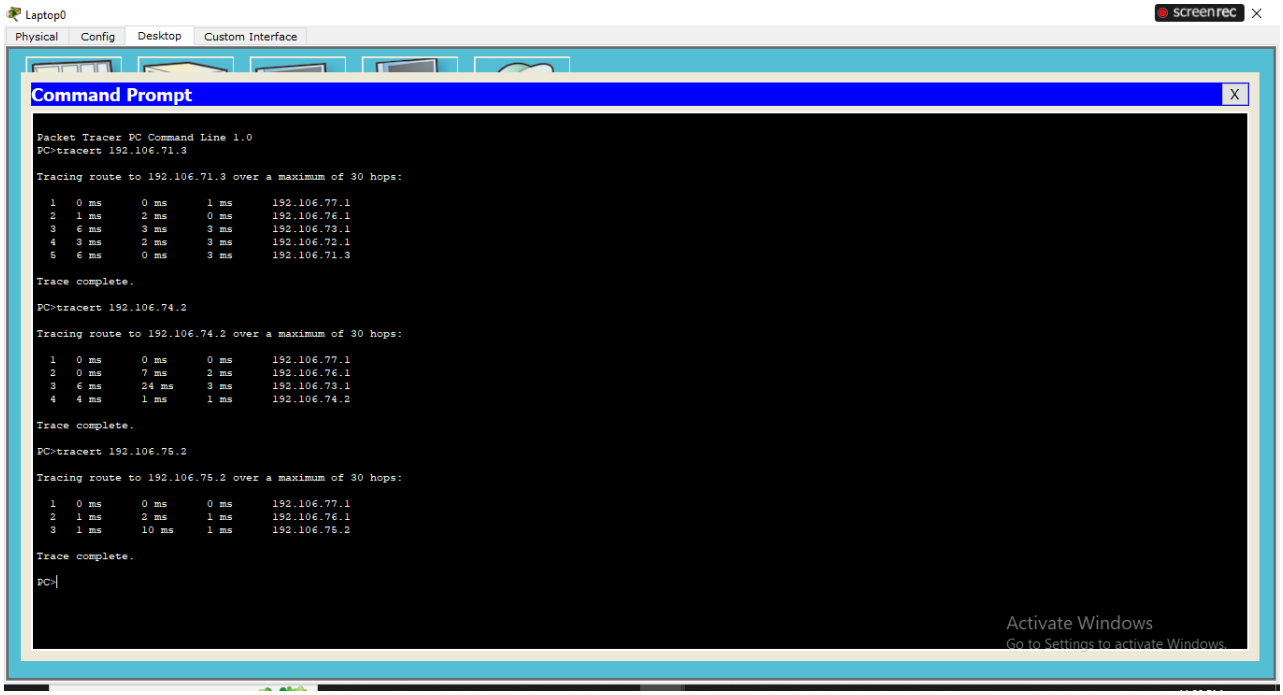

Figure 40: Trace on laptop to check all network connected

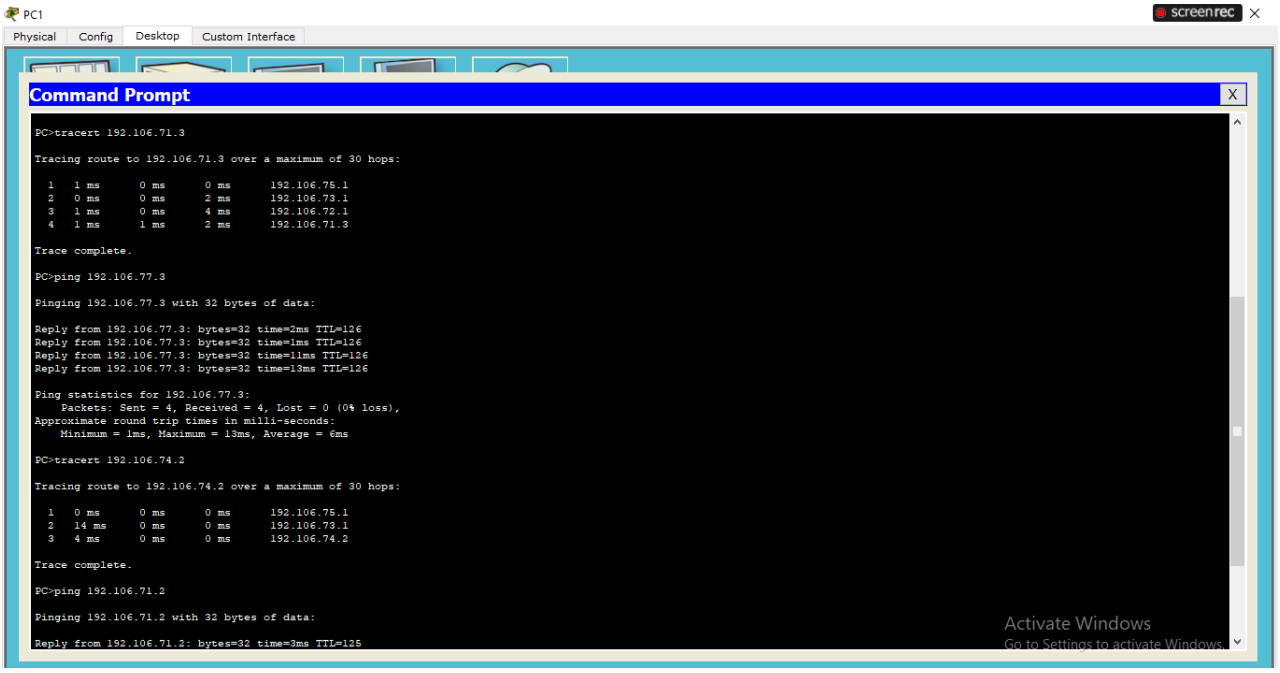

Figure 41: Trace and ping on PC1

All static routing configurations have been successfully completed, along with the assignment of IP addresses to the PCs. To test connectivity, utilize the "ping" and "trace" commands from the PC's command prompt. Additionally, access the CLI of each router to verify their identification.