



HACETTEPE UNIVERSITY

DEPARTMENT OF
COMPUTER ENGINEERING

BBM453: Computer Networks Laboratory Lab 10: Static Routing

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Group 14
Source IP : 192.168.0.27

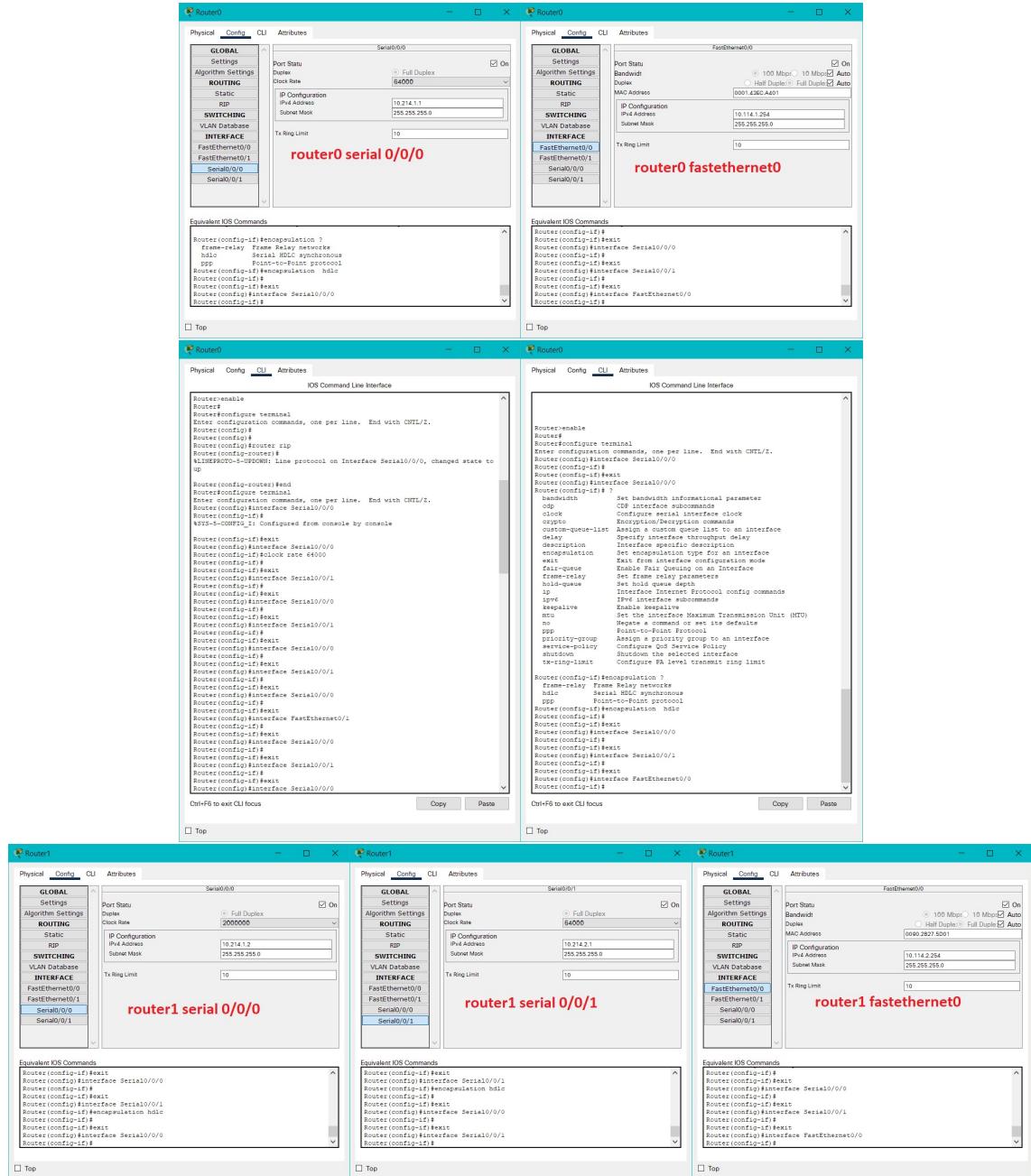
Dec 15,2021

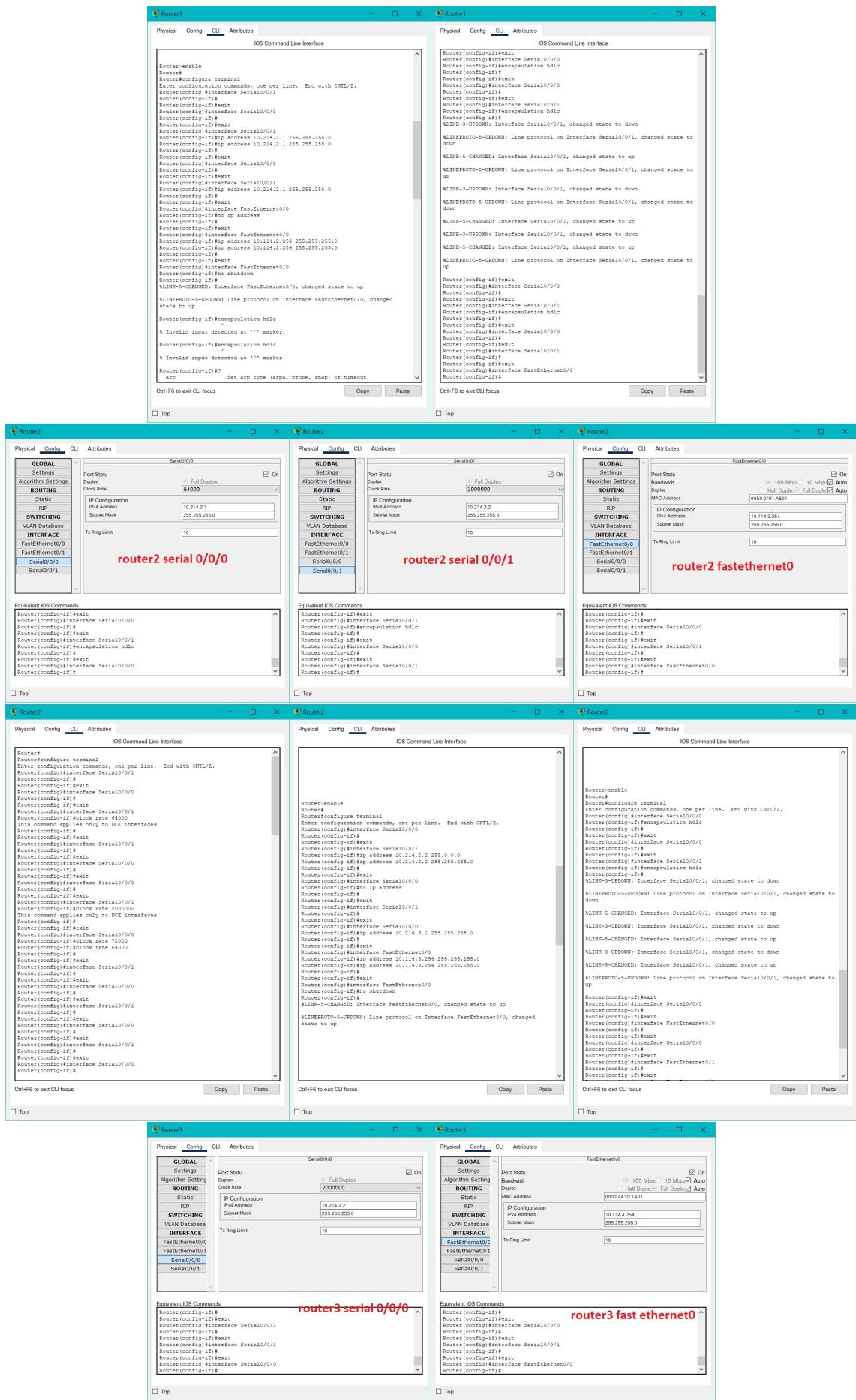
SOLUTIONS

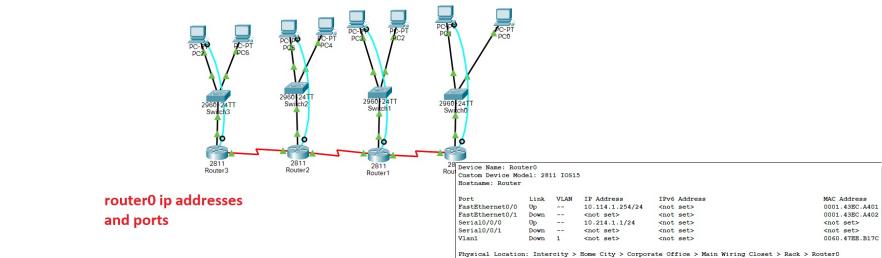
EXPERIMENT STEPS

Configuring interfaces

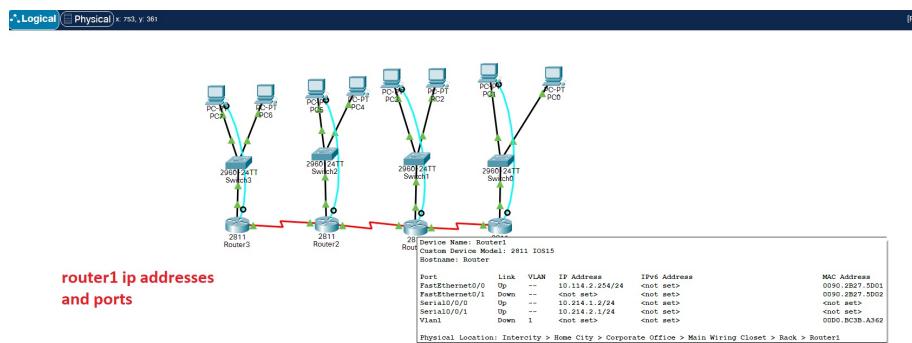
We created a network as described in the pdf and TA's video explanation. Everything is set and ready to move to next step.



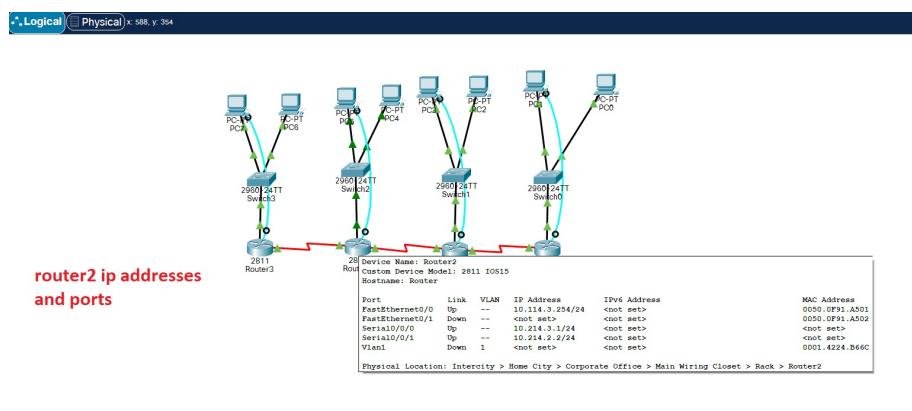




**router0 ip addresses
and ports**

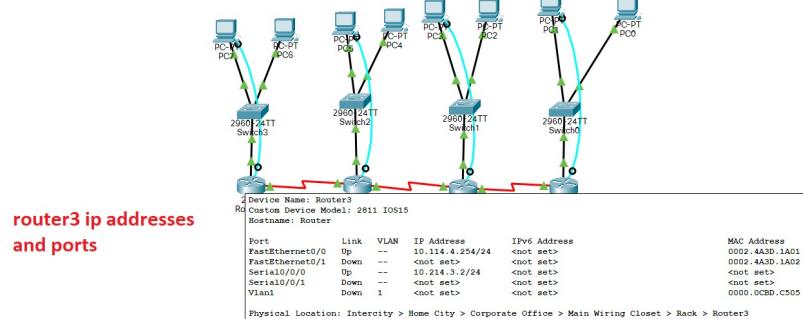


**router1 ip addresses
and ports**

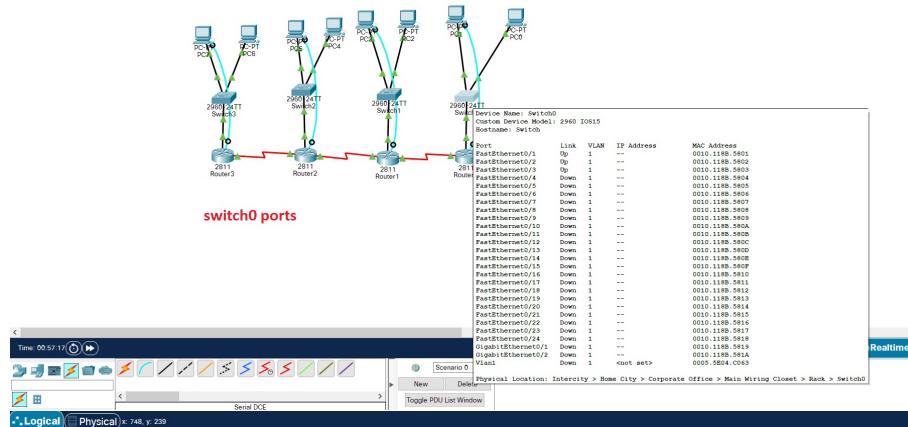


**router2 ip addresses
and ports**

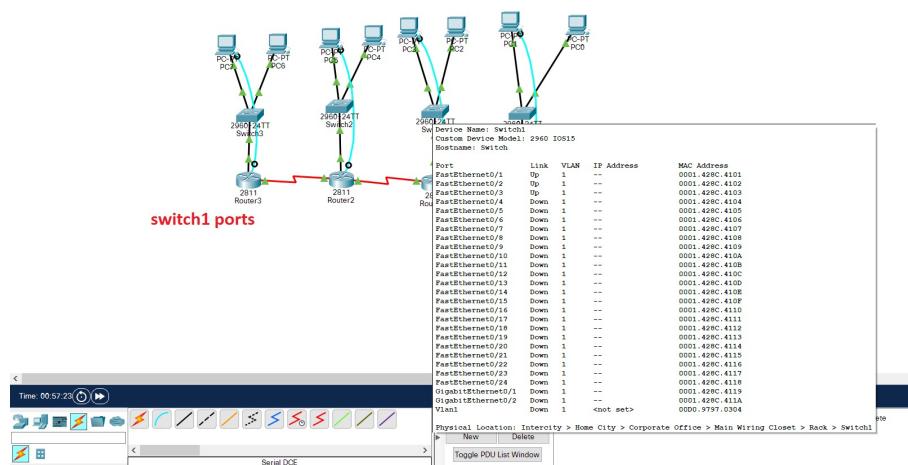
Logical Physical x 412, y 351

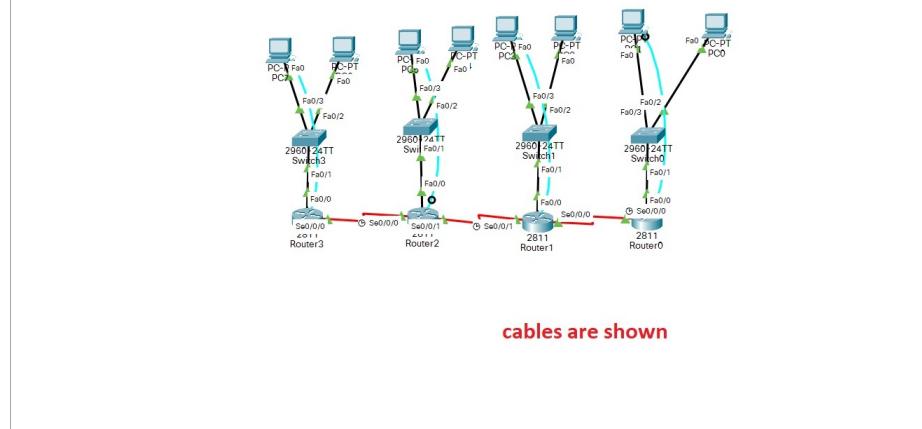
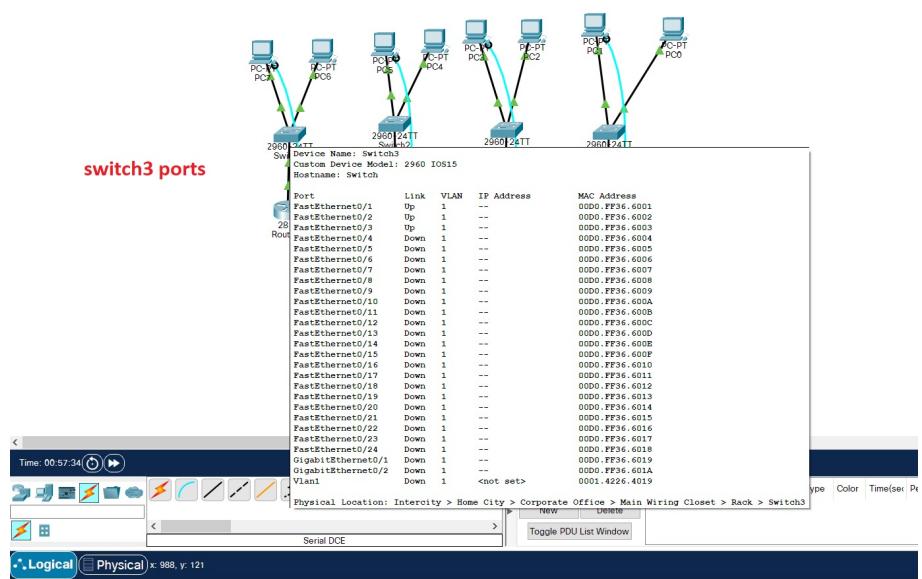
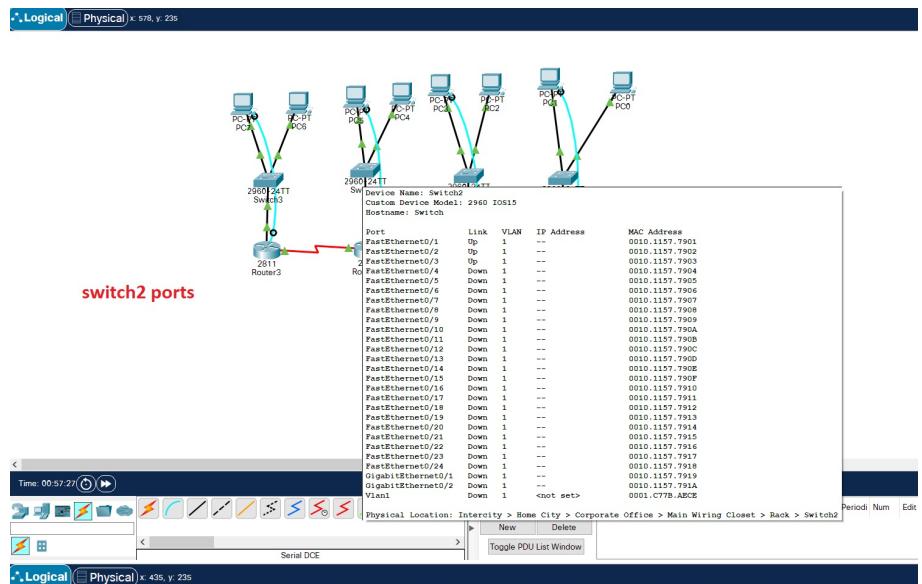


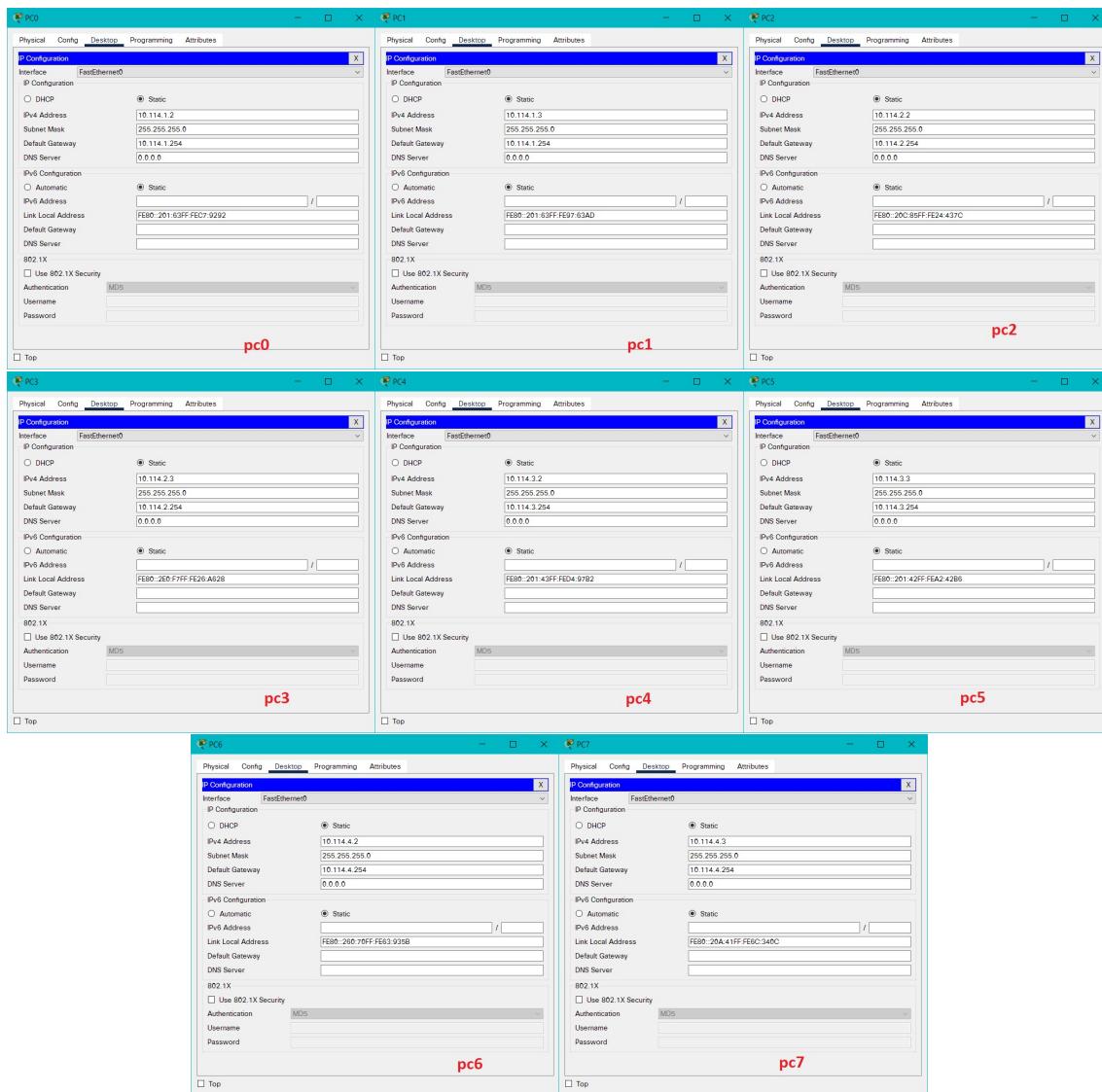
Logical Physical x 920, y 245



Logical Physical x 748, y 239

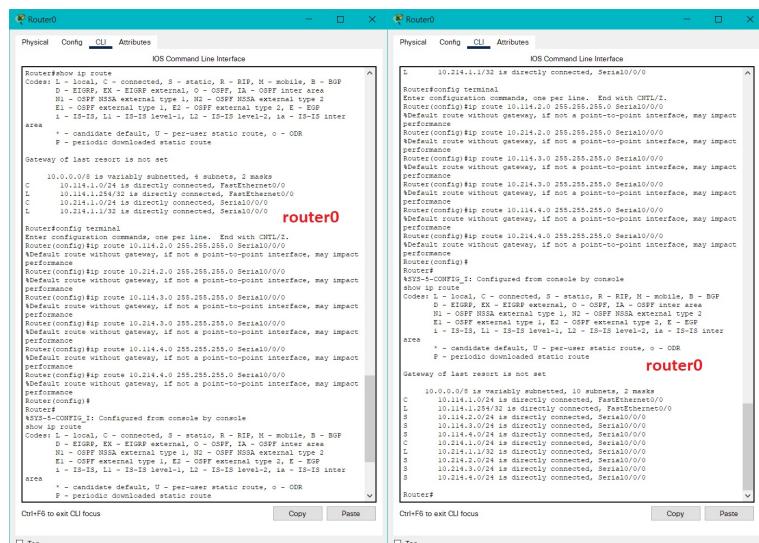






Configuring routings

We have routed the routers according to Topology. PC should be able to ping all other PCs and even routers.



Testing all connections

We have tested several conditions with traceroutes. From PCs we used tracert command. From routers traceroute. We pinged PC to neighbour PC, other group PCs, routers, default gateway, both enterances of other routers. Also from routers we pinged their PCs, other PCs, other routers, defualt gateways and both enterances. After every ping we also tracerouted. Of course other than these ones shown here we have done at least 50 pings to have better understanding. We also ping invalid adresses like 10.214.4.0 and tracerouted them to observe results. You can check some of the tests below:

The image displays four separate windows of a terminal application, likely Cisco's IOS Command Line Interface (CLI). Each window shows a series of network traces and ping statistics between two hosts, 10.114.1.3 and 10.114.4.2. The windows are arranged horizontally, each showing a different part of the session or a different run of the command. The terminal interface includes tabs for Physical, Config, Desktop, Programming, and Attributes, and a Command Prompt window where commands like 'ping' and 'traceroute' are entered. The output shows detailed network statistics such as round trip times, loss percentages, and maximum transmission unit (MTU) sizes.

We observed the hop counts and the max valid hop count was 5 from far away PCs. These hops were router0, router1, router2, router3, and target PC. We observed switches do not count to hops since they operate at link layer and they are unpingable. When we pinged neighbour PC it was 1 hop count meaning direct access via switch and link layer without going to router. So basically passing through a router was decreasing TTL as it should do and resulted in more hops.

REFERENCES

LaTex Tutorials
Assignment Paper
Cisco Networking Academy Introduction
Cisco IOS Lan Book
Cisco VLAN Configuration
DTE Explanation
DCT Explanation
Serial Cables Configuration