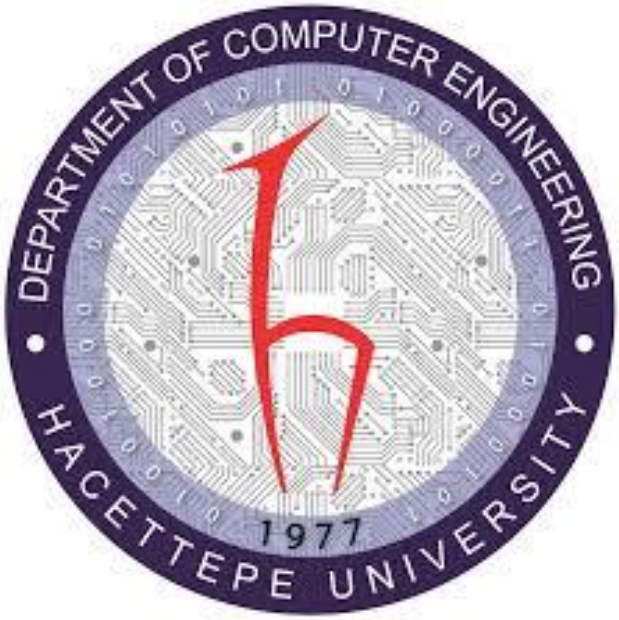
HACETTEPE UNIVERSITY

COMPUTER ENGINEERING DEPARTMENT

COMPUTER NETWORKS LABORATORY



EXPERIMENT

Dynamic Routing

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Group No:12

AIM OF EXPERIMENT:

In this lab experiment, we learned how to work with dynamic routing protocols by adding to and testing on the topology we created on Routing experiment.

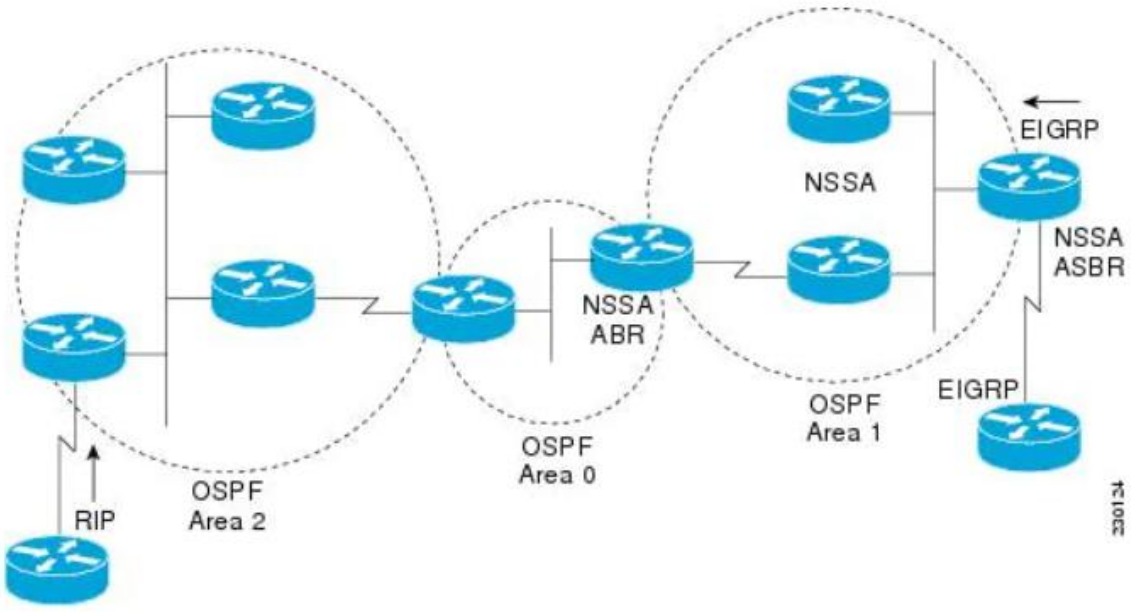
DEFINITIONS AND EXPLANATIONS:

IP ROUTING RIP CONFIGURATION: RIP (Routing Information Protocol) uses hop count as the measurement to find the different routers' values. In RIP directly connected devices' count is zero and too far away networks' count is 16 because there is a limitation for too far away networks, RIP is not convenient for large networks. The RIP uses UDP packets to exchange information about routing.

IP ROUTING OSPF CONFIGURATION: OSPF (Open Shortest Path First) was found by IETF (Internet Engineering Task Force). OSPF supports IP subnetting and packet authentication. OSPF also requires the coordination of inner routers some of which are connected to multiple routers.

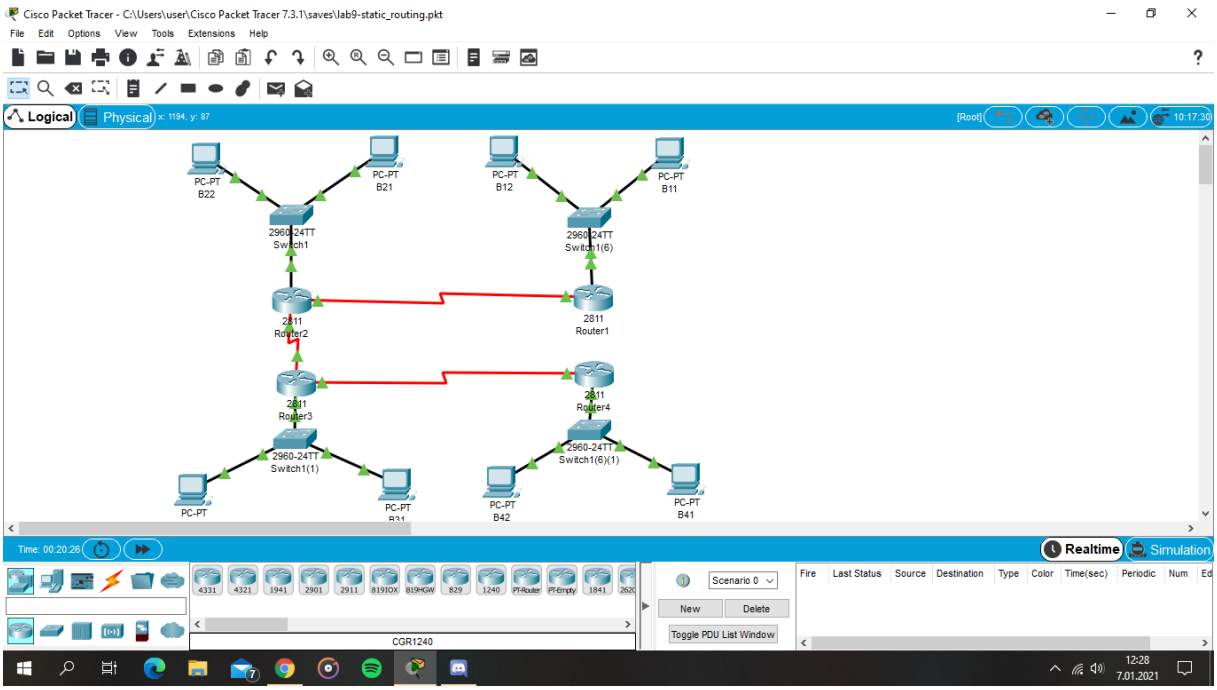
IP ROUTING EIGRP CONFIGURATION: EIGRP (Enhanced Interior Gateway Routing Protocol) is based on Diffuse Update Algorithm which is an algorithm that lets all of the devices in the topology to synchronize.

Figure 1. OSPF NSSA

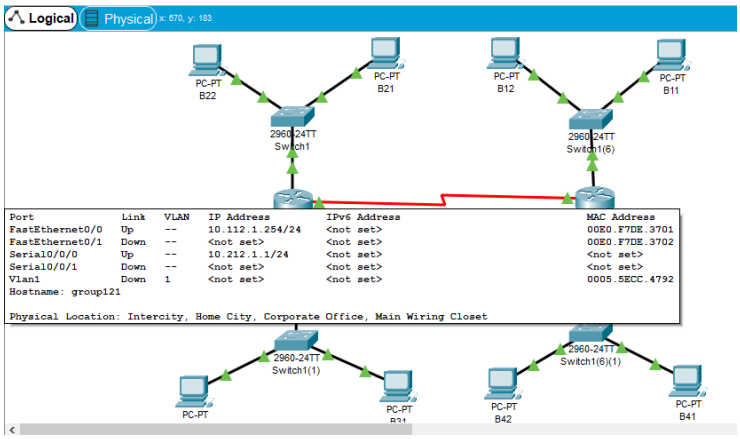


[1]. Figure reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_ospf/configuration/xe-16/iro-xe-16-book/iro-cfg.html

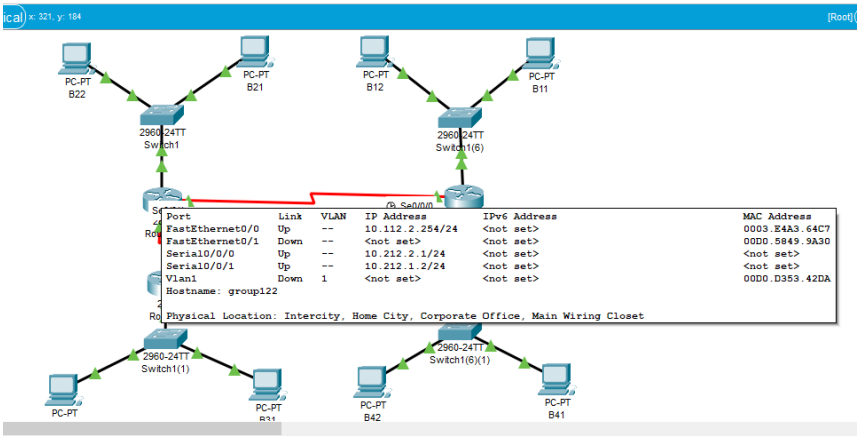
STEPS TAKEN:



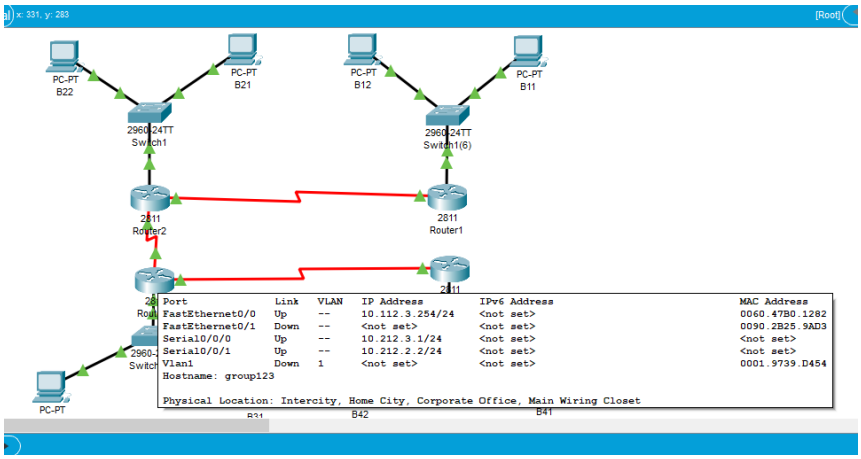
Topology



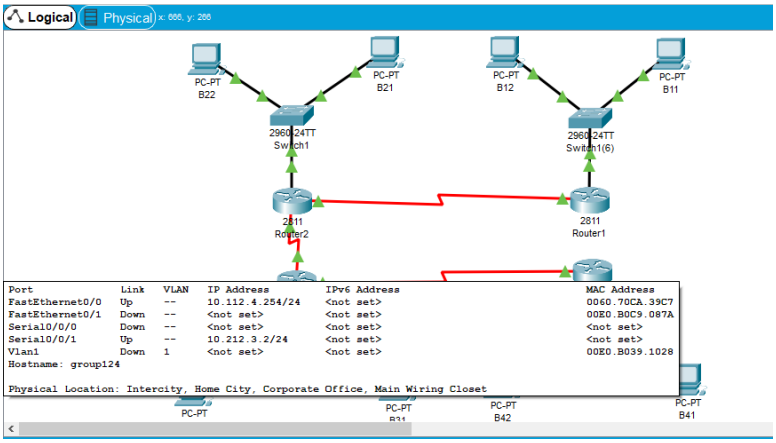
Router 1 interface



Router 2 interface

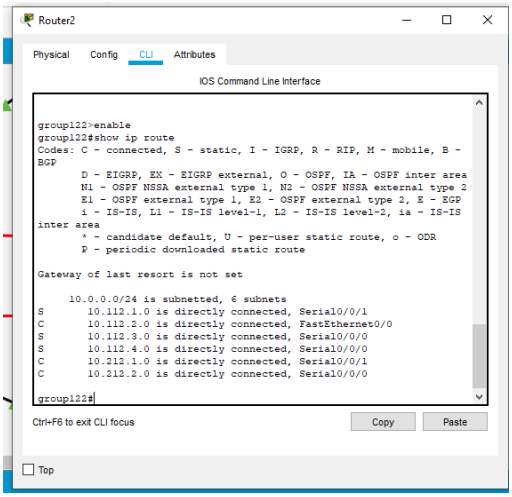


Router 3 interface

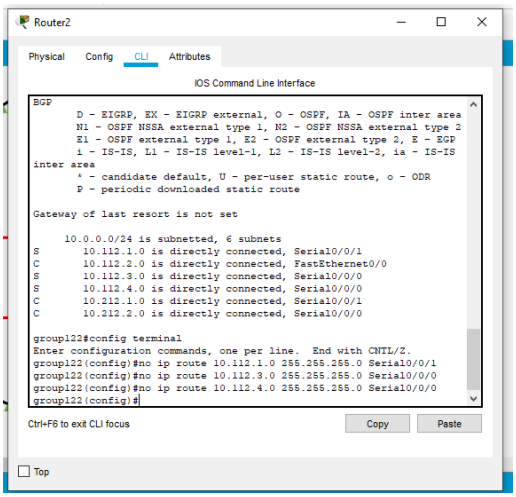


Router 4 interface

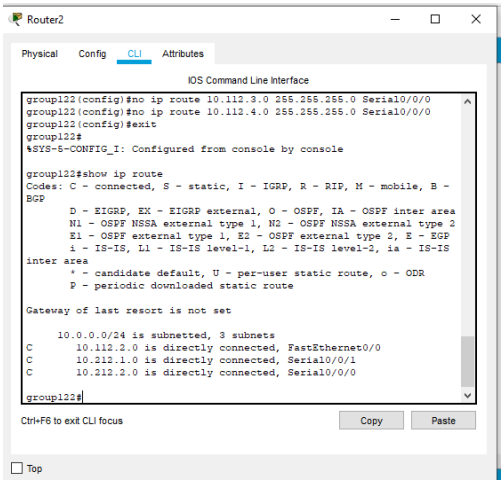
Deleted the static routing. For example:



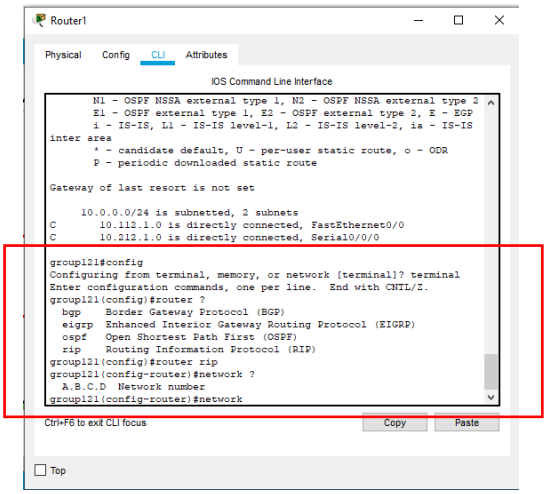
Router 2 before configuration deletion



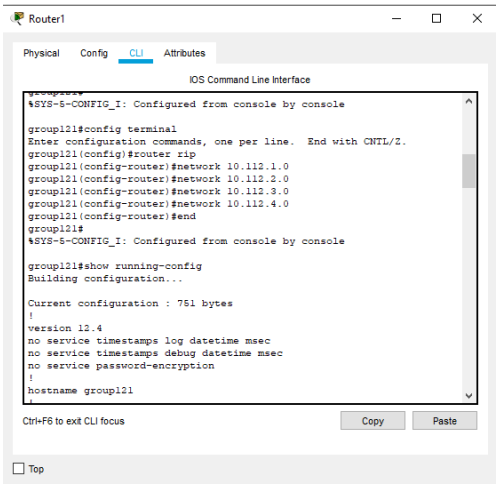
Router 2 after configuration deletion



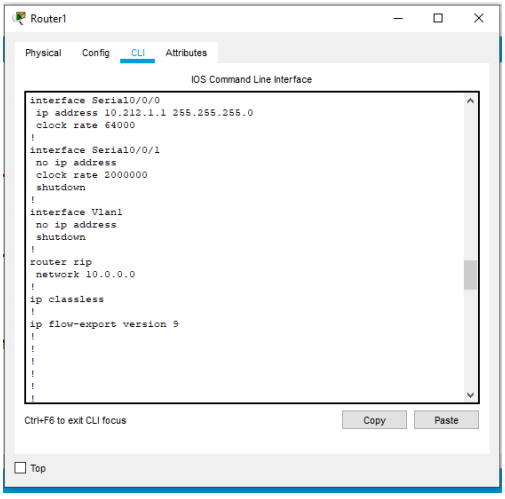
The Show IP route after deletion



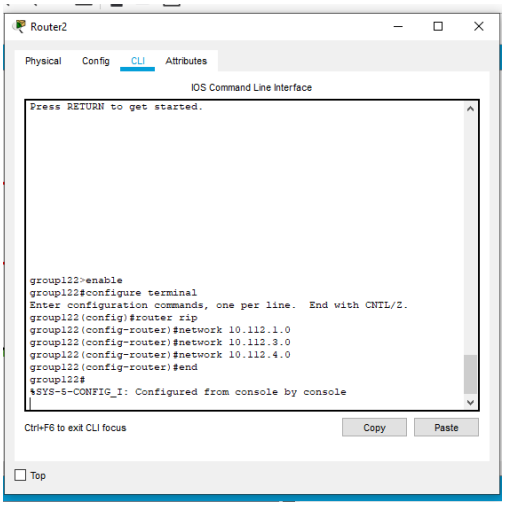
Config command



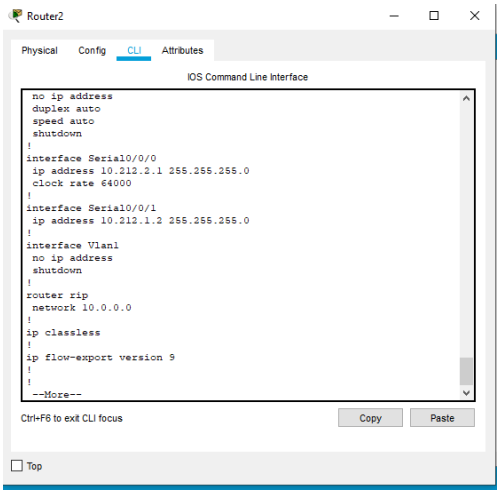
Router 1 RIP configuration



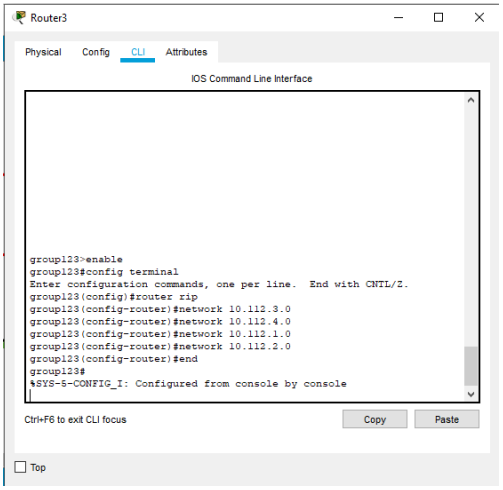
Router 1 show running-config command



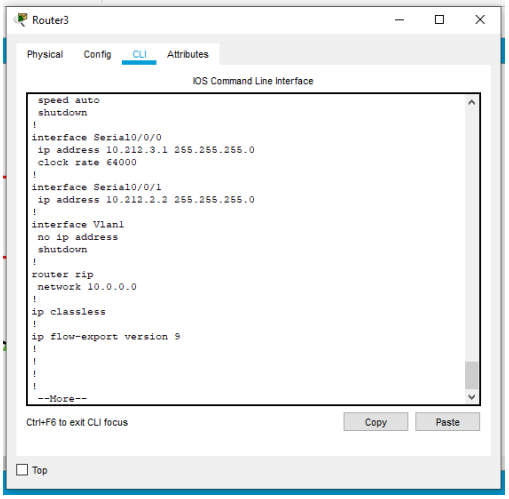
Router 2 RIP configuration



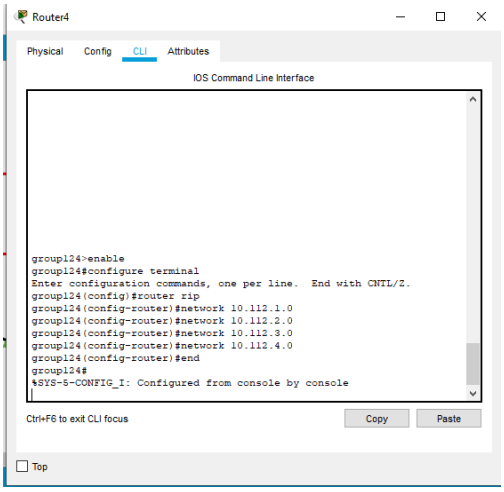
Router 2 show running-config command



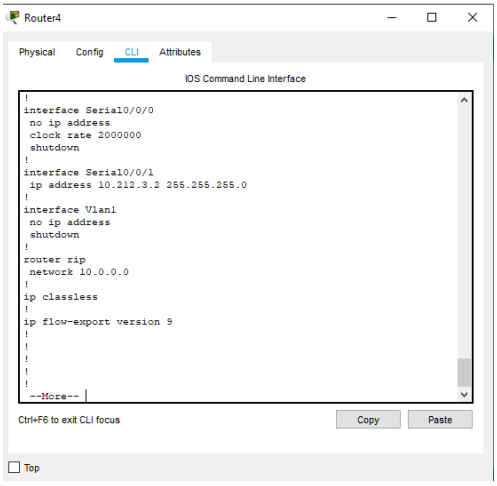
Router 3 RIP configuration



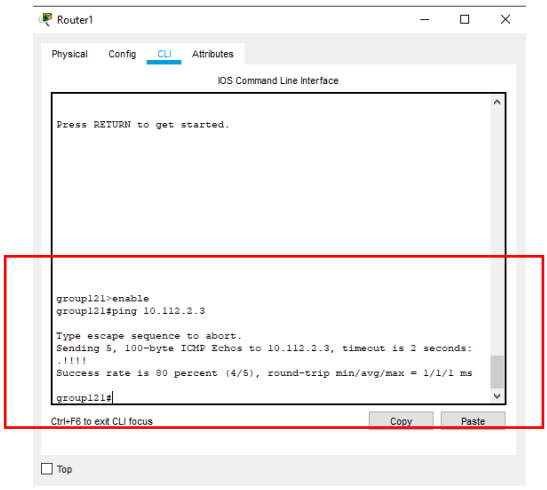
Router 3 show running-config command



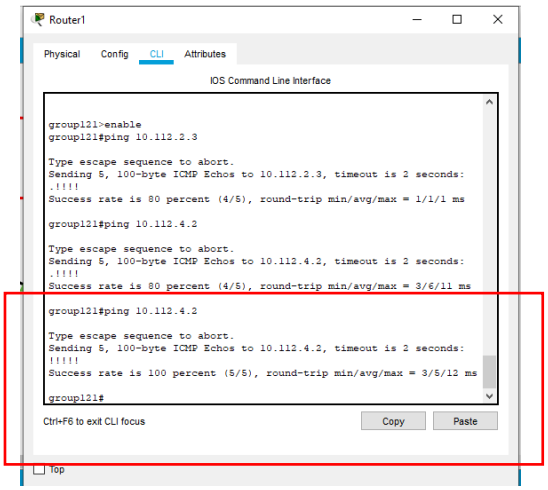
Router 4 RIP configuration



Router 4 show running-config command



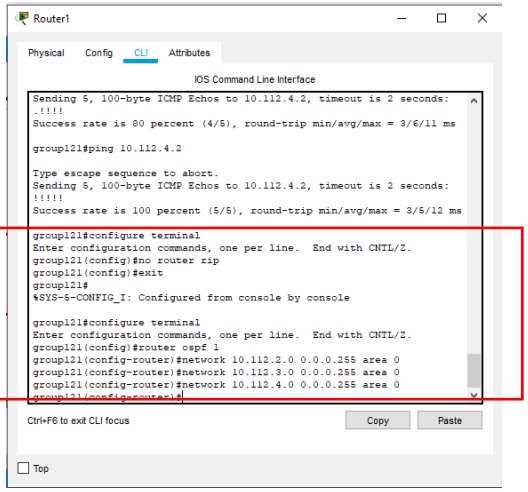
Ping from r1 to b22



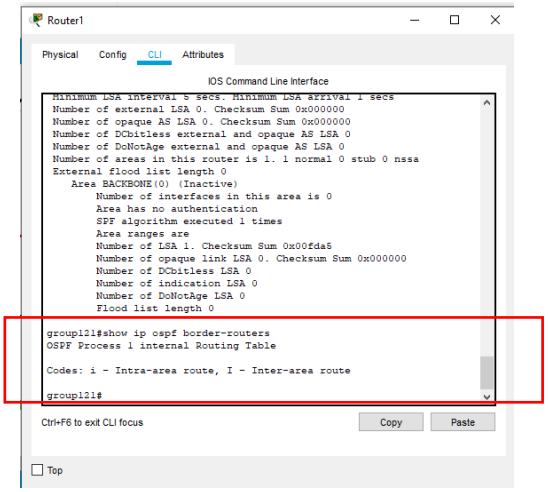
Ping from r1 to b41

Our widcard mask:

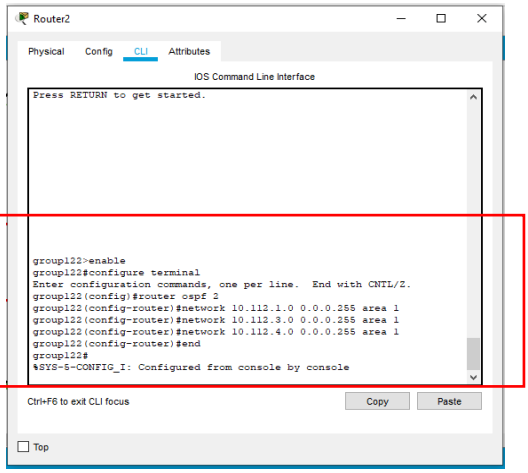
255.255.255.255 – 255.255.255.0 (our subnet mask) = 0.0.0.255



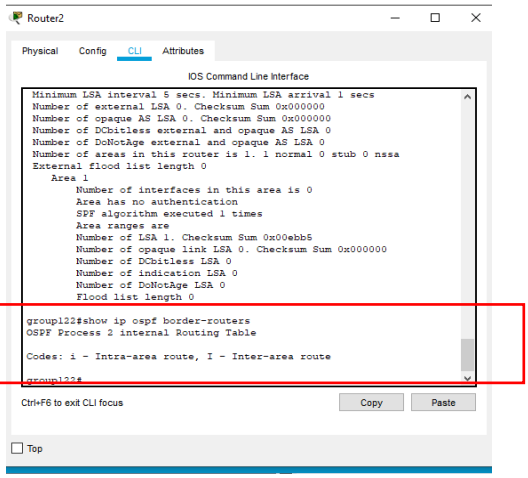
Router 1 OSPF configuration



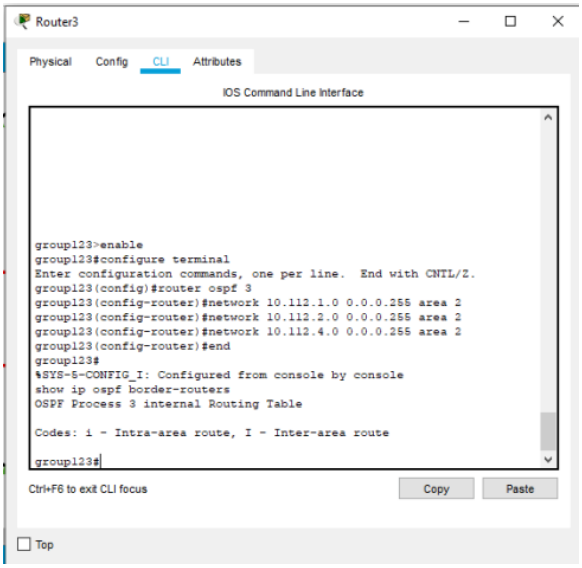
Router 1 show ıp ospf border-routers command (routing table)



Router 2 OSPF configuration

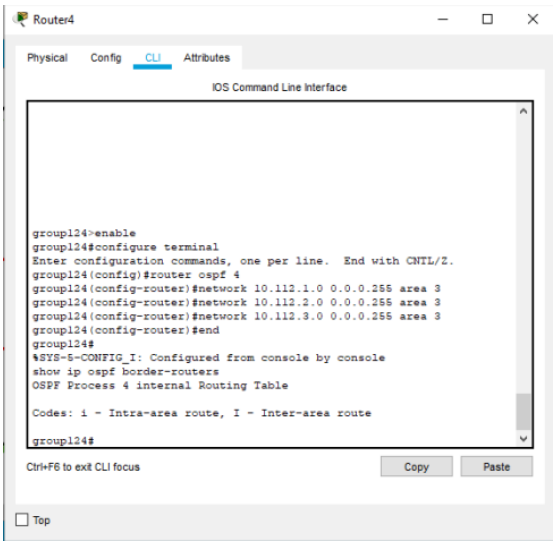


Router 2 show ıp ospf border-routers command (routing table)



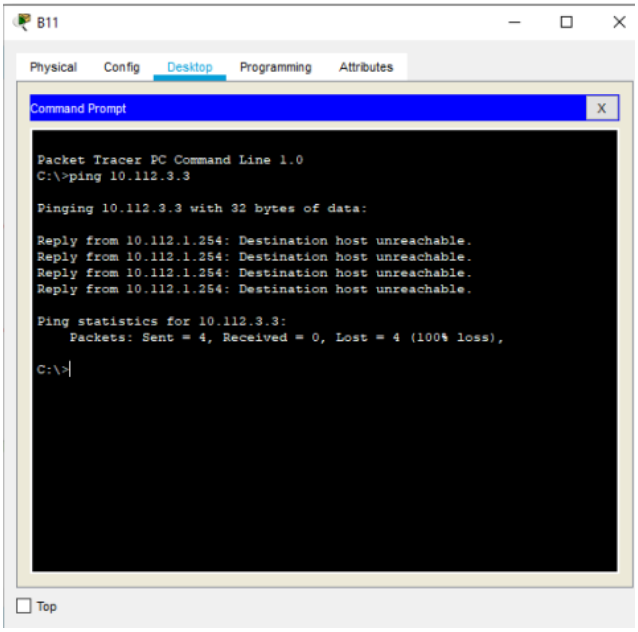
Router 3 OSPF configuration and show

ıp ospf border-routers command (routing table)

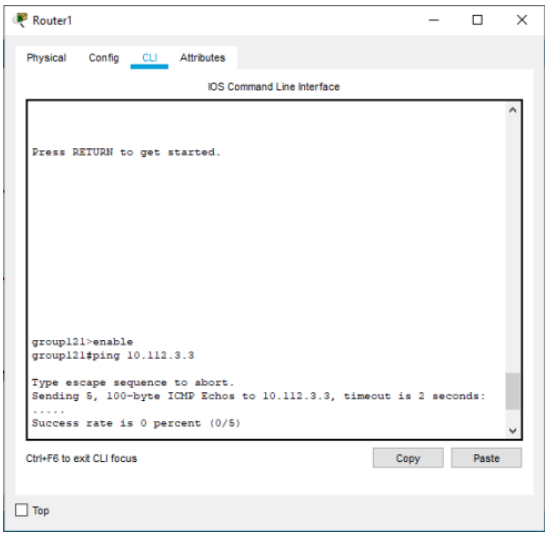


Router 4 OSPF configuration and show

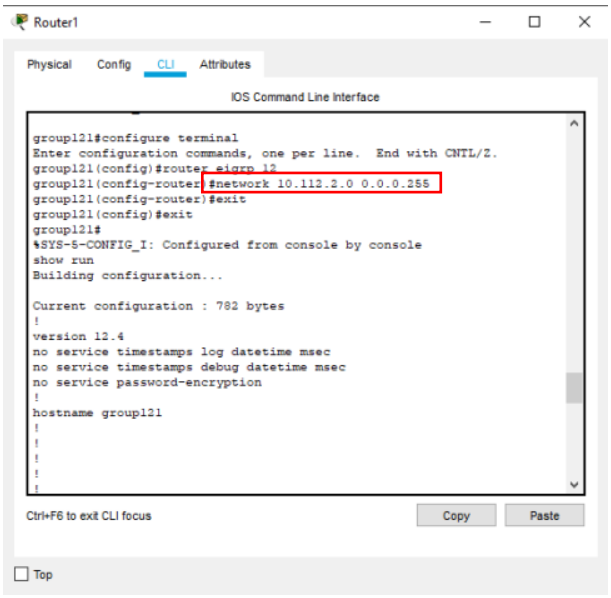
ıp ospf border-routers command (routing table)

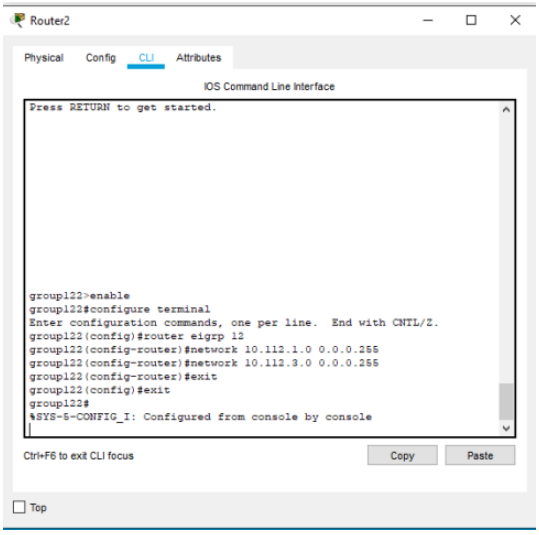


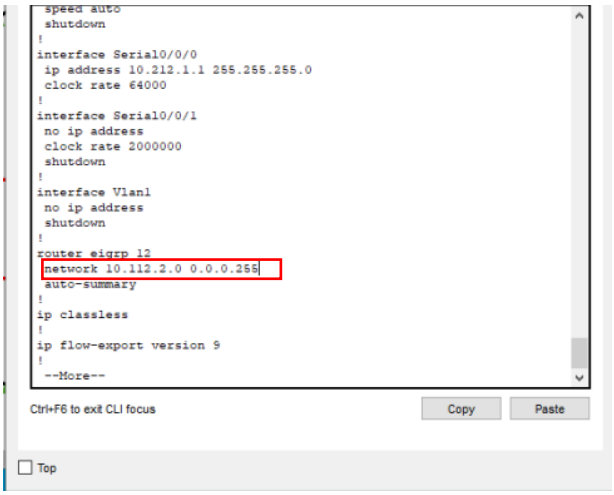
Ping from b11 to b33



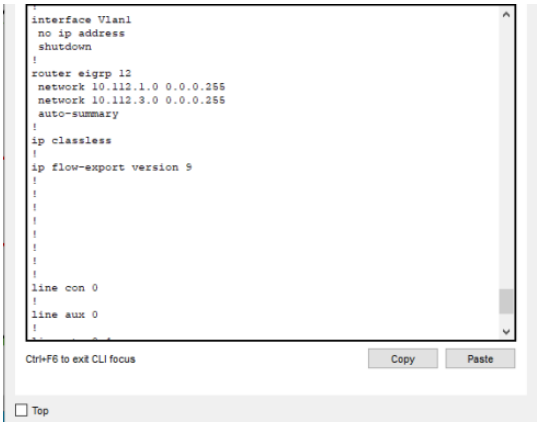
ping from r1 to b33



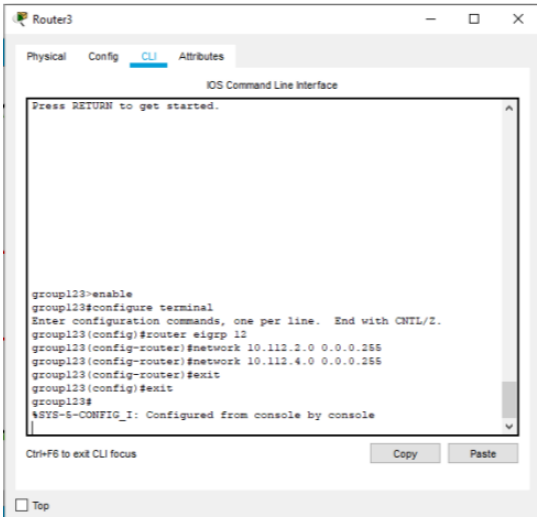


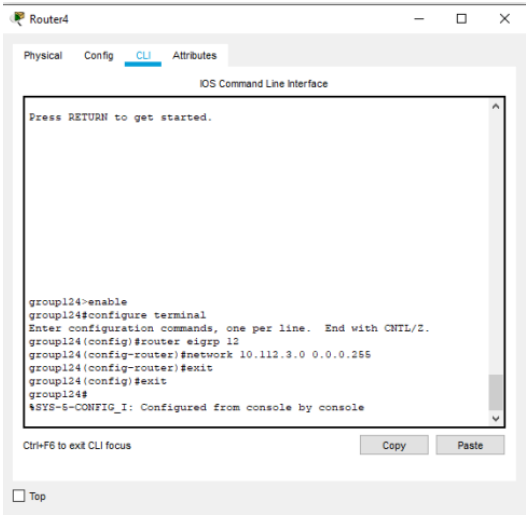


Router 1 EIGRP configuration and show run command



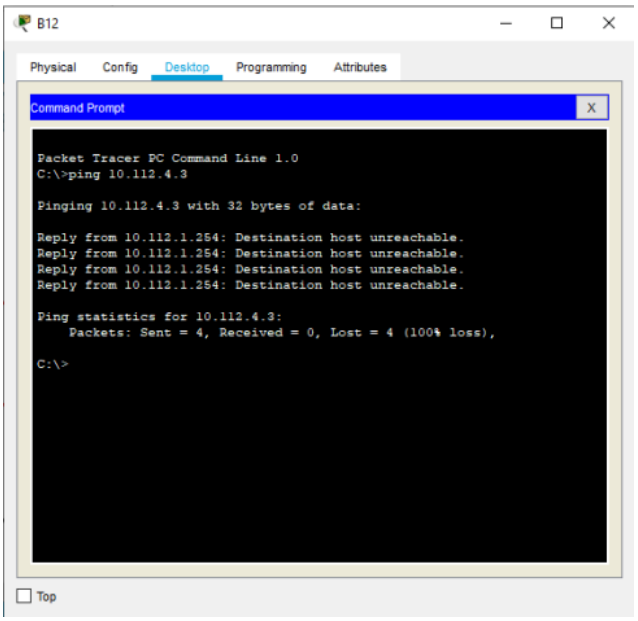
Router 1 EIGRP configuration and show run command



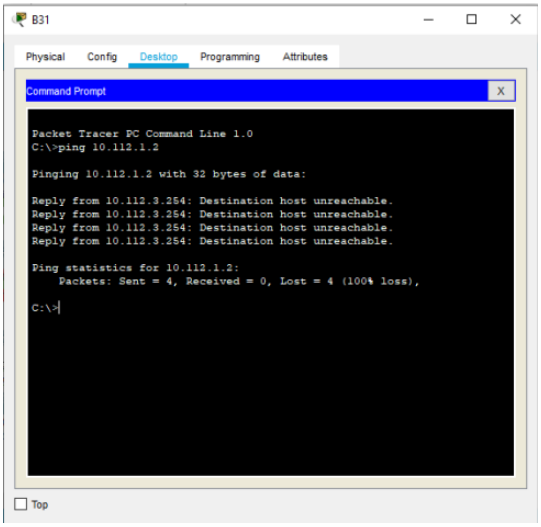


Router 2 EIGRP configuration and show run command

Router 2 EIGRP configuration and show run command



Ping from b12 to b42



ping from b31 to b11