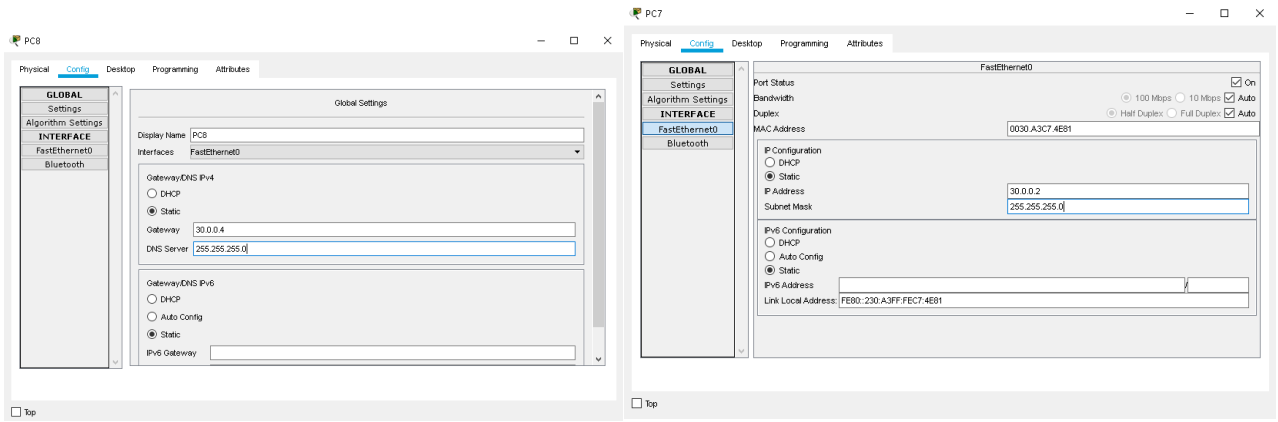
Abhishek Iyengar
07 - MSc. CS. Part – 1
Advanced Networking Concepts

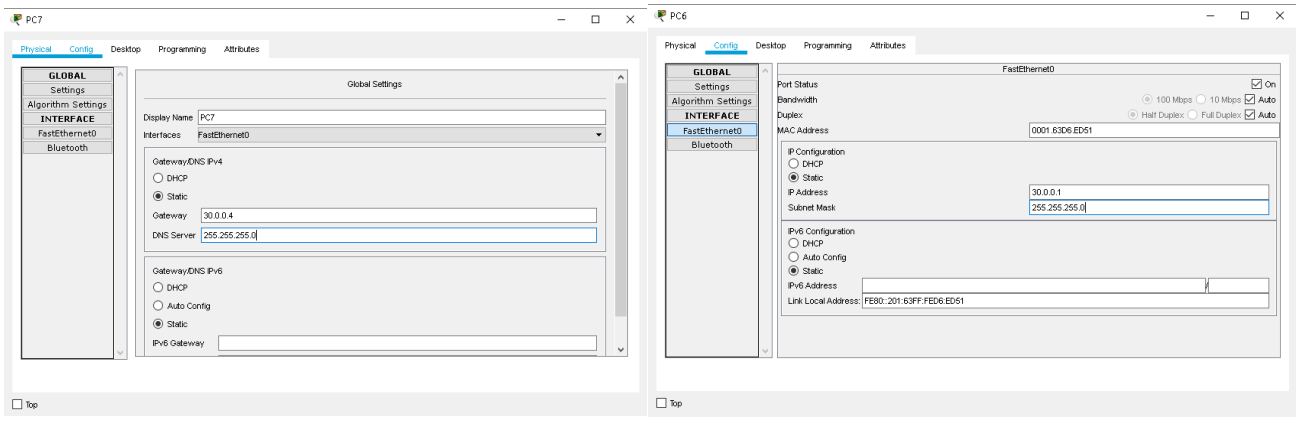
PRACTICAL 1

Aim - Create a network with three routers with RIPv2 and each router associated network will have minimum three PC. Show connectivity.

1. Align 9 end-devices as follows:

2. Set the DNS, Gateway and Fast Ethernet connections for all the PCs as follows:





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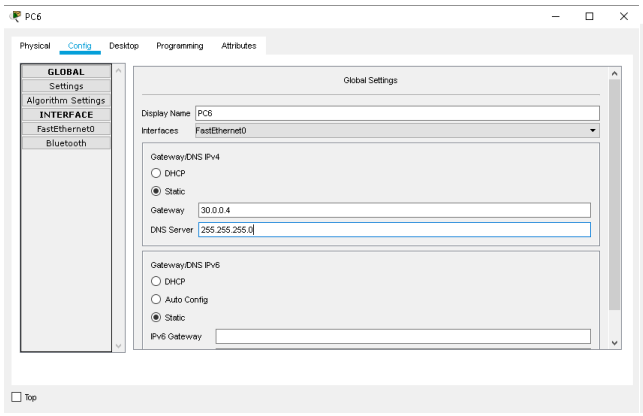

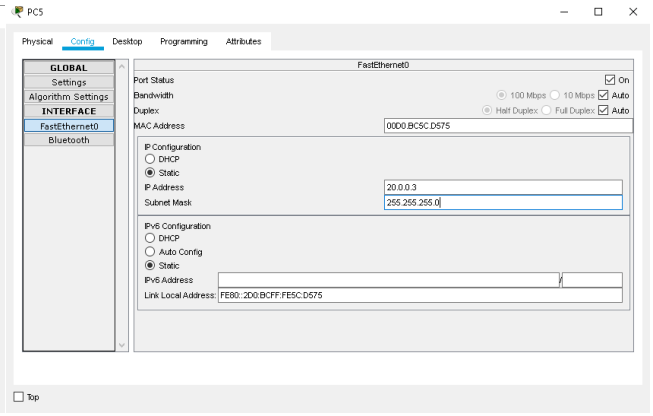

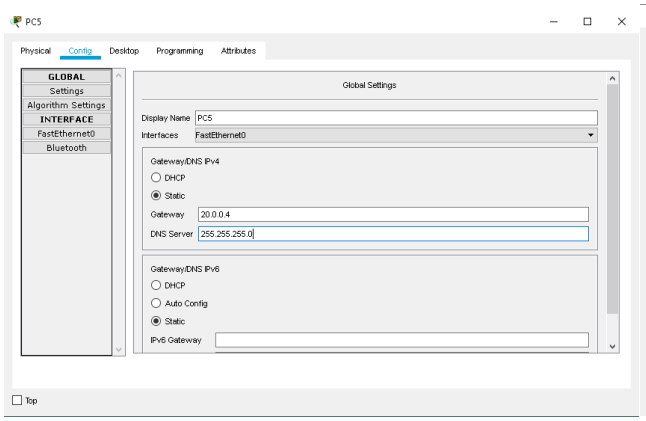

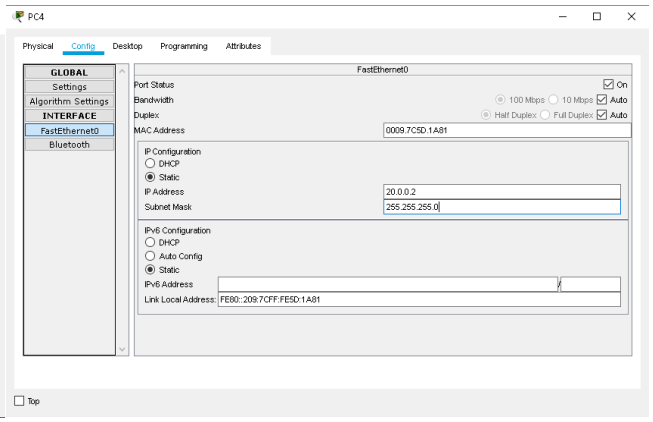

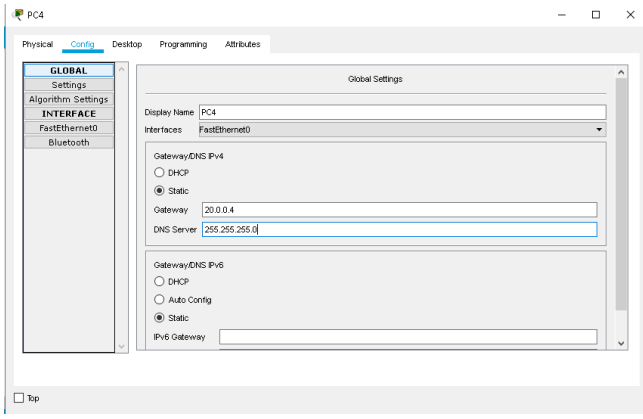

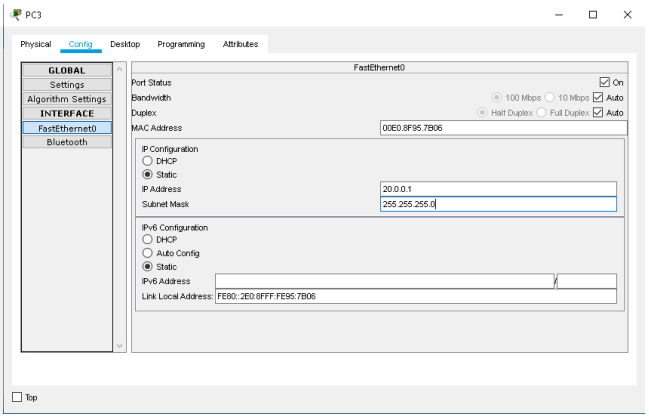

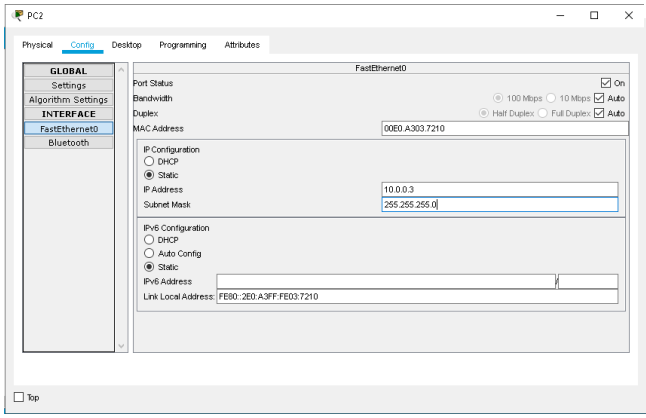

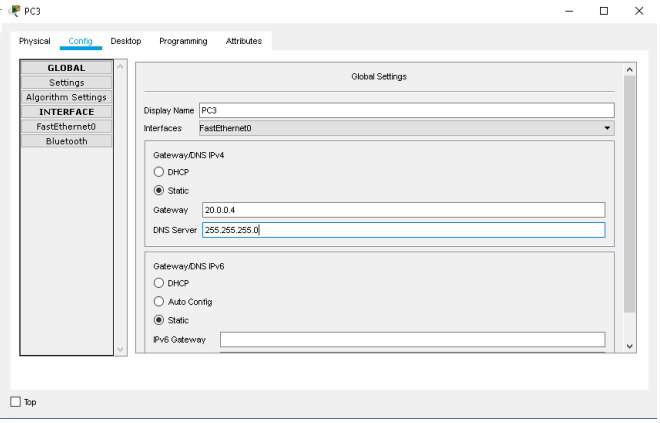

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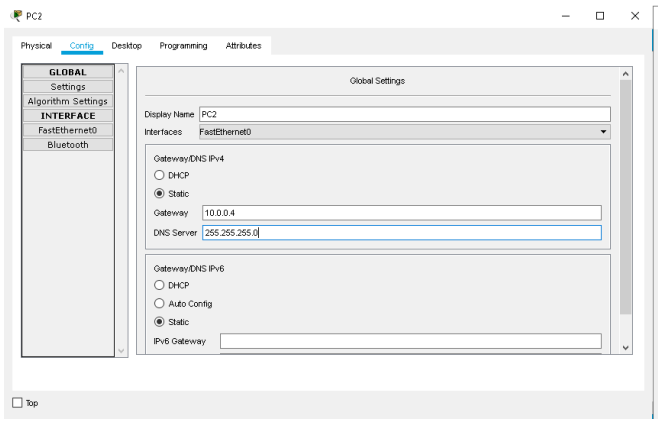
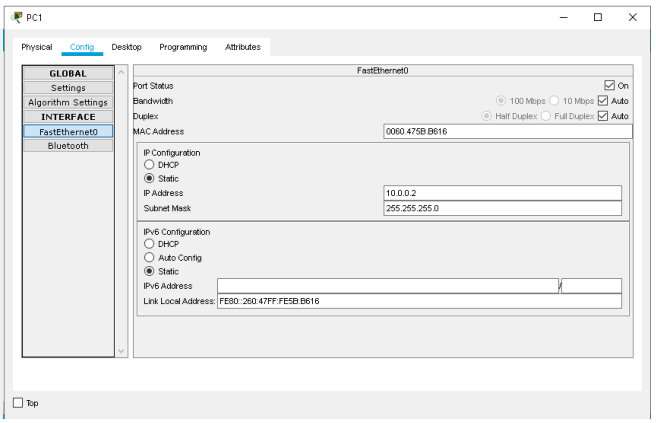
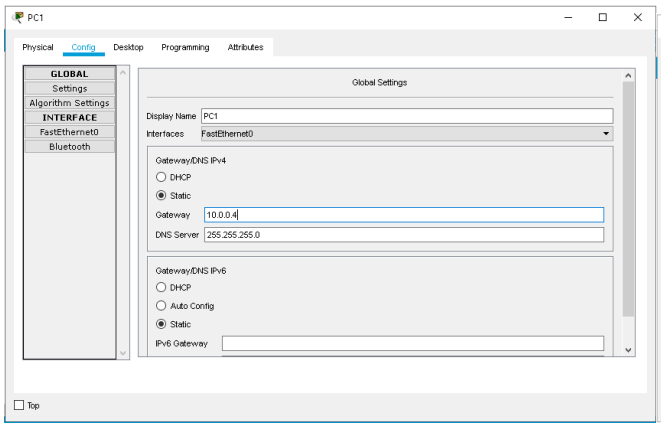
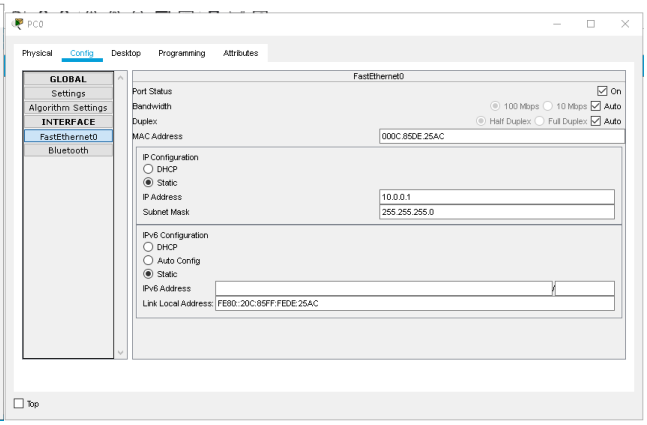
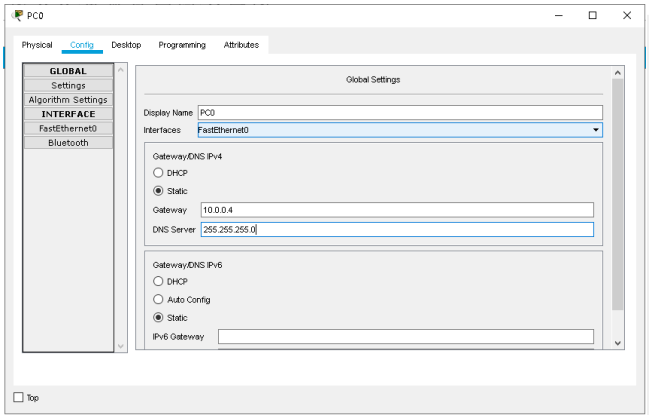
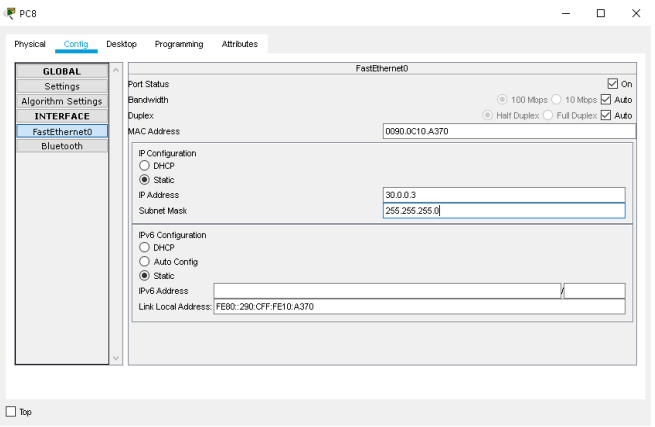




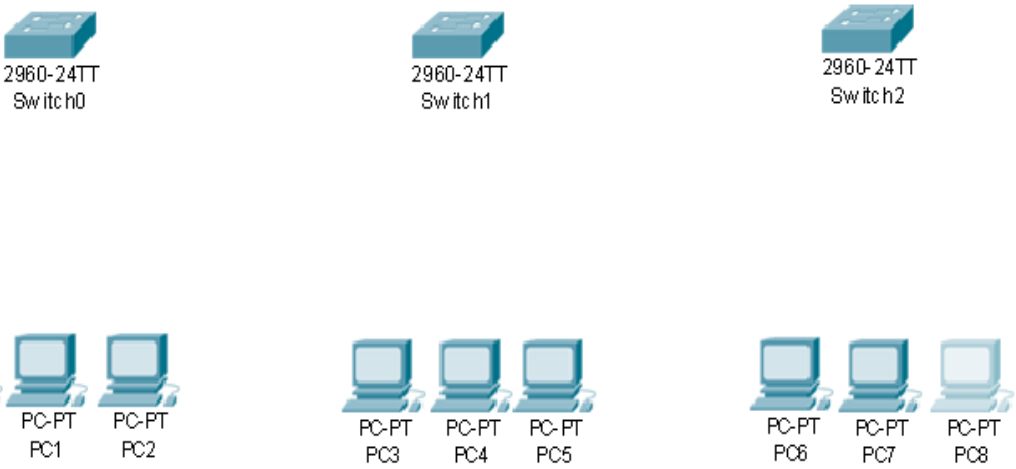




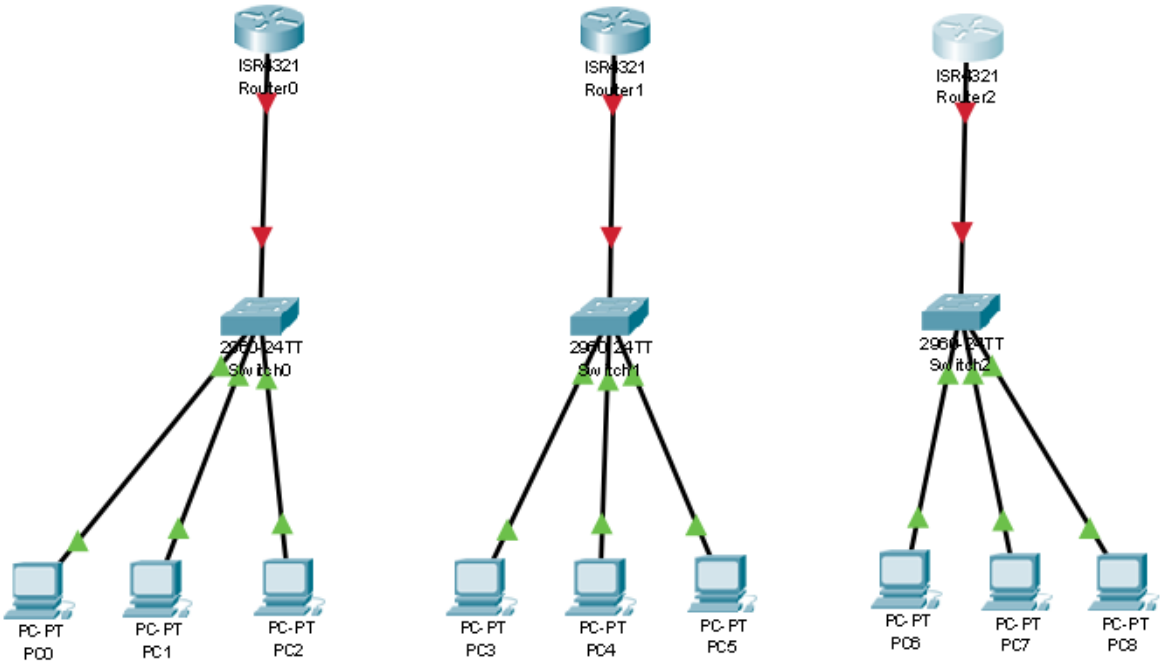




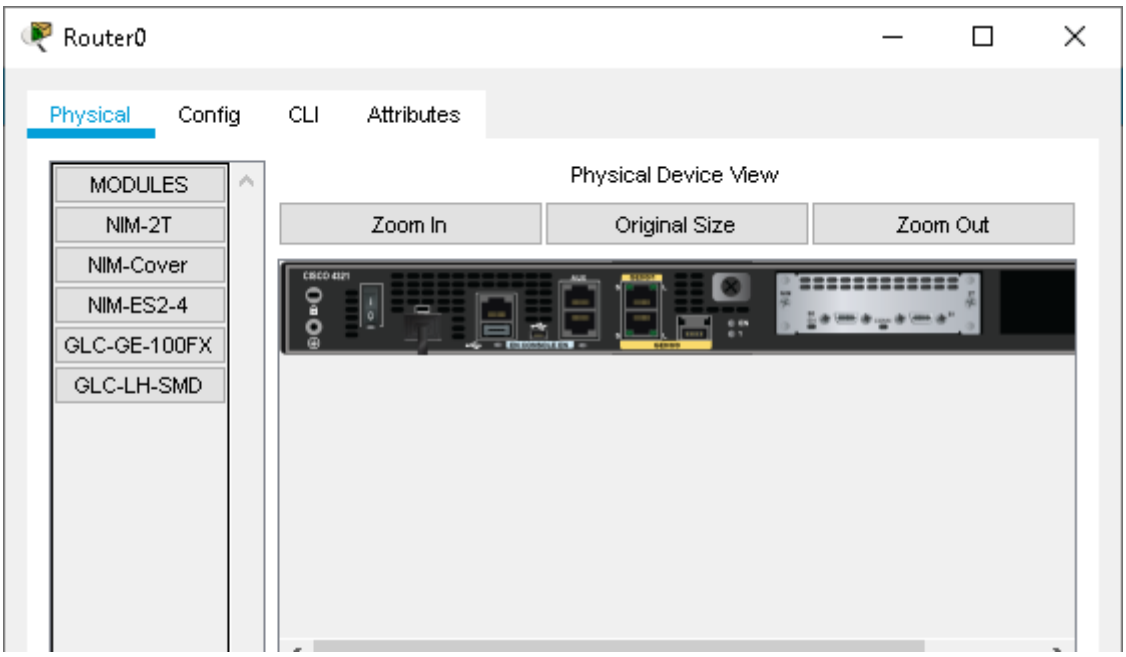
3. Add 3 Switches as follows:



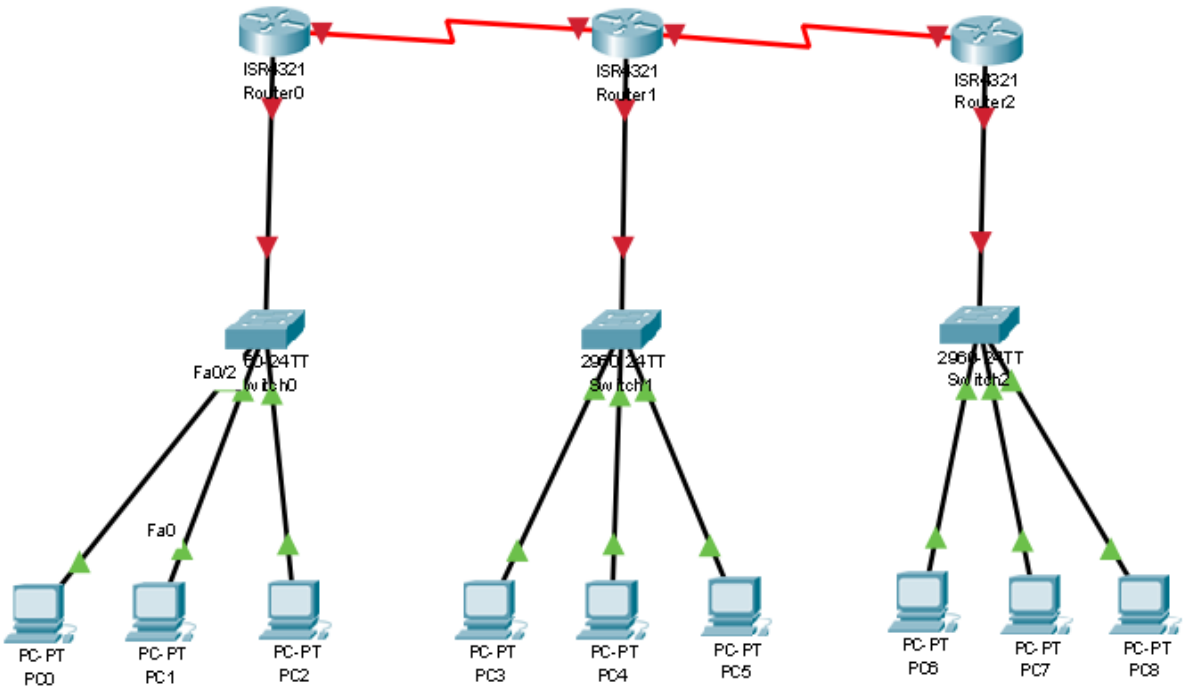
4. Add 3 Routers and connect all the components using Fast Ethernet connection as follows:



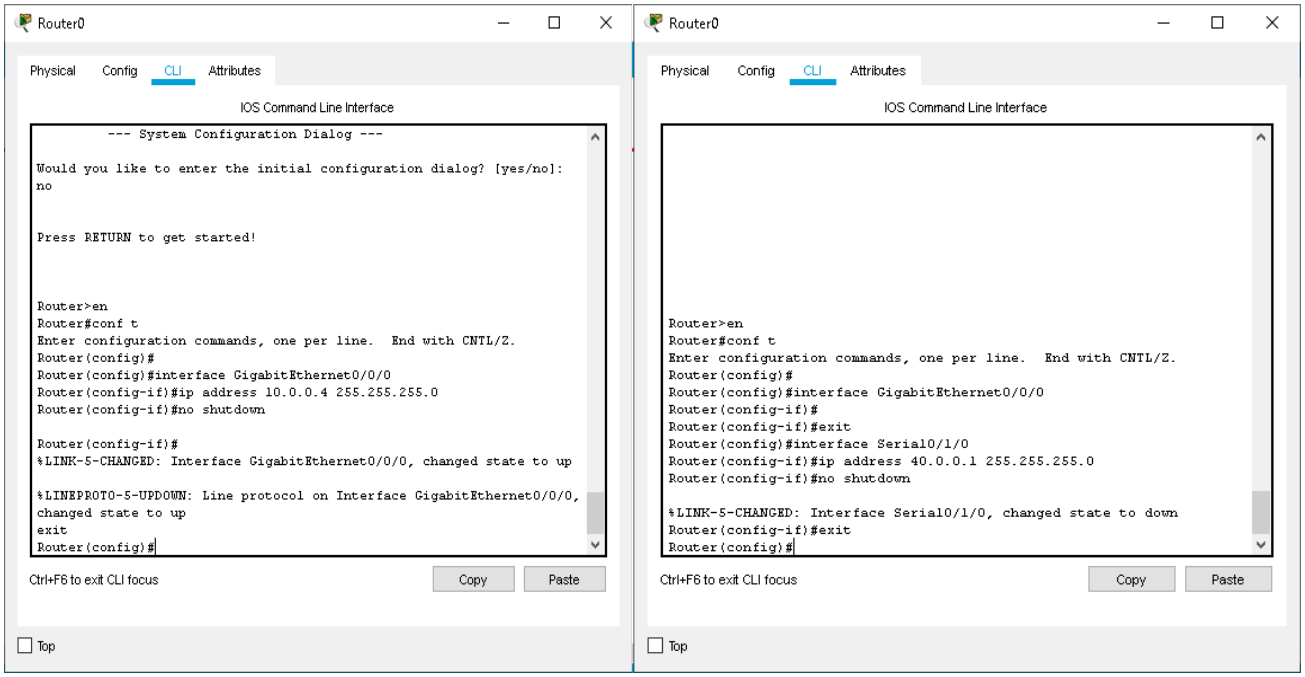
5. Power off each of the Routers and add the NIM-2T Module to all the Routers as follows:



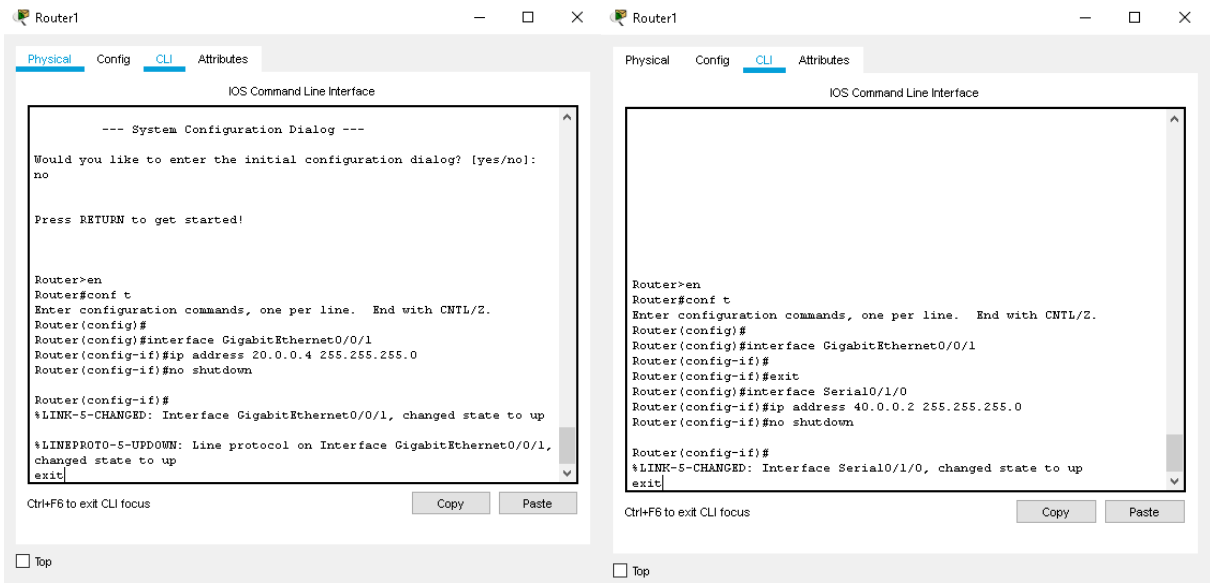
6. Connect the Routers using Serial DTE wires as shown:

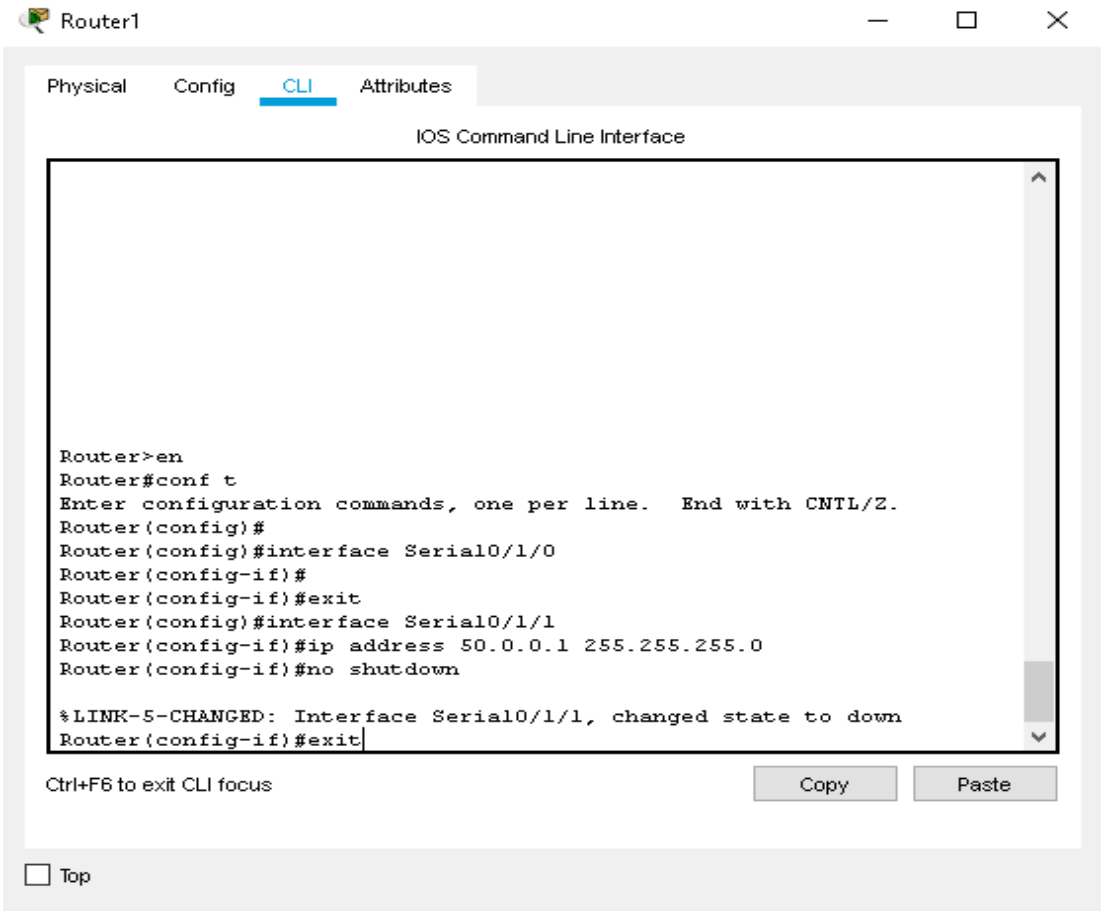


7. Configure Router 0 using the Command Line Interface as follows:

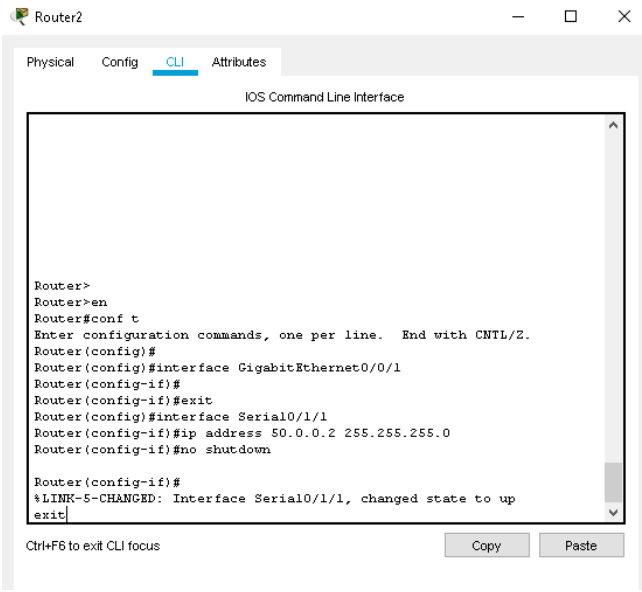


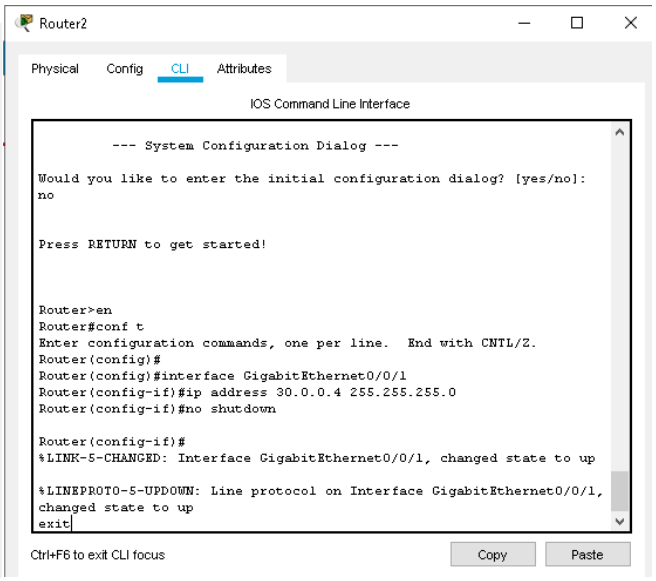
8. Configure Router 0 using the Command Line Interface as follows:



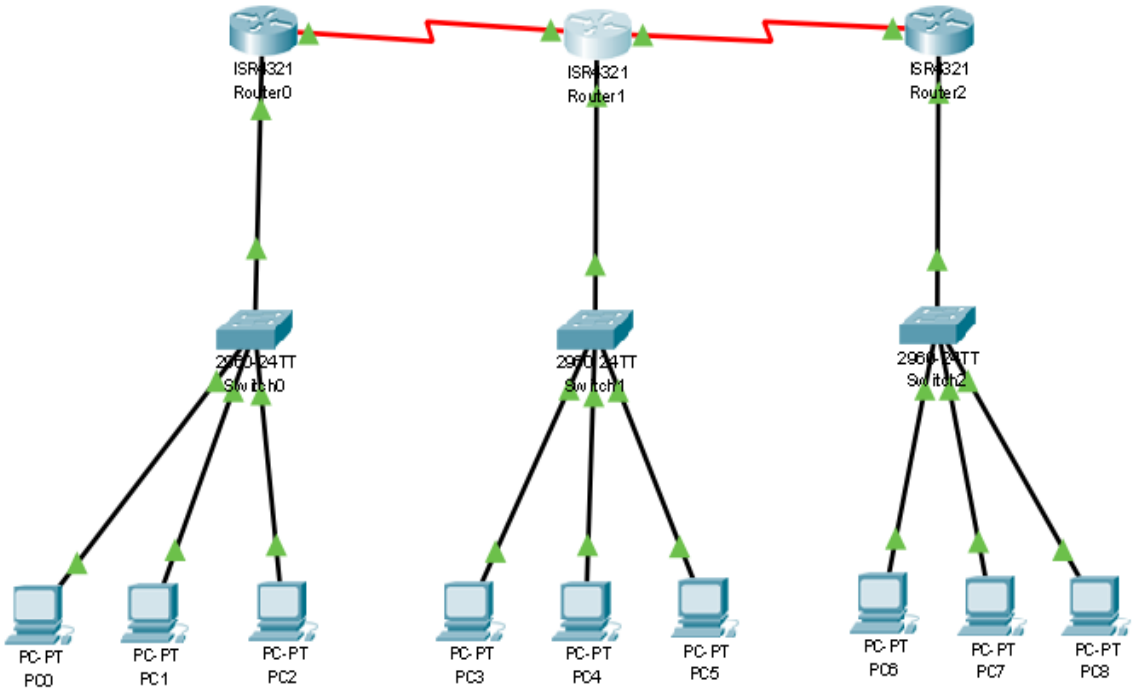


9. Configure Router 0 using the Command Line Interface as follows:





10. The Final connection will look as shown:



11. Note how intra-connection packet sending succeeds and inter-connection fails:

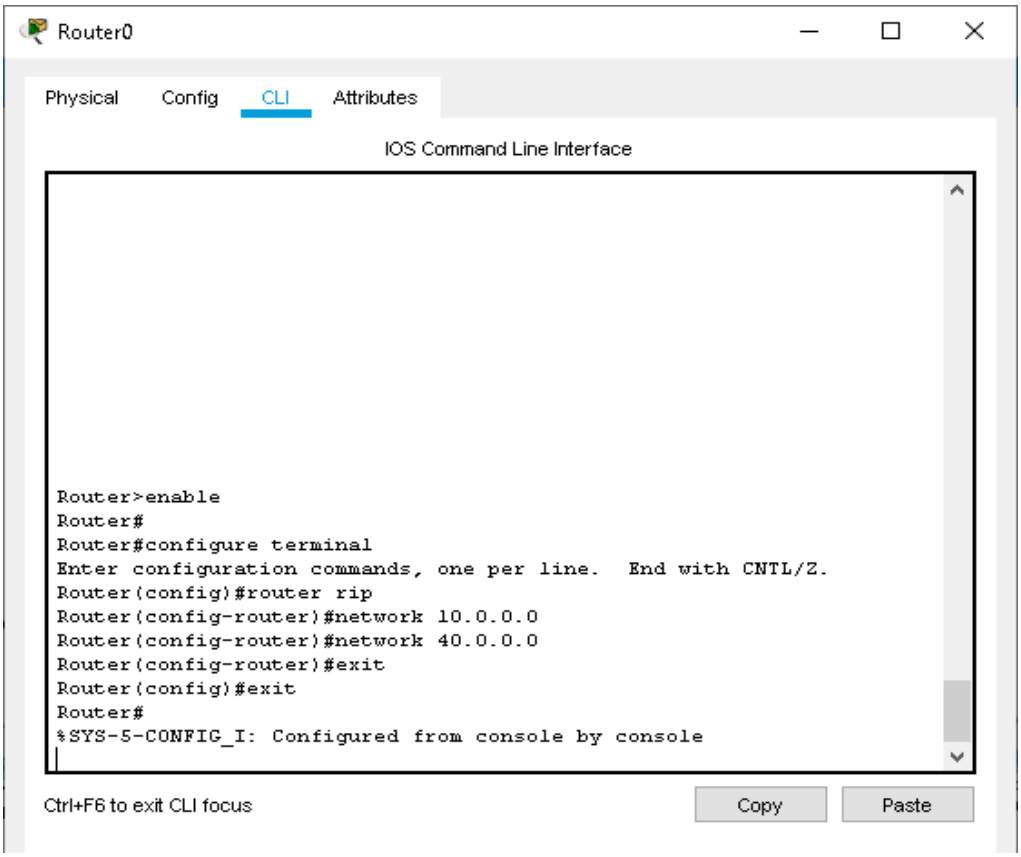
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	PC1	ICMP		0.000	N	0	(edit)
	Successful	PC3	PC4	ICMP		0.000	N	1	(edit)
	Successful	PC6	PC7	ICMP		0.000	N	2	(edit)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	Router0	Router1	ICMP		0.000	N	0	(edit)
	Successful	Router1	Router2	ICMP		0.000	N	1	(edit)

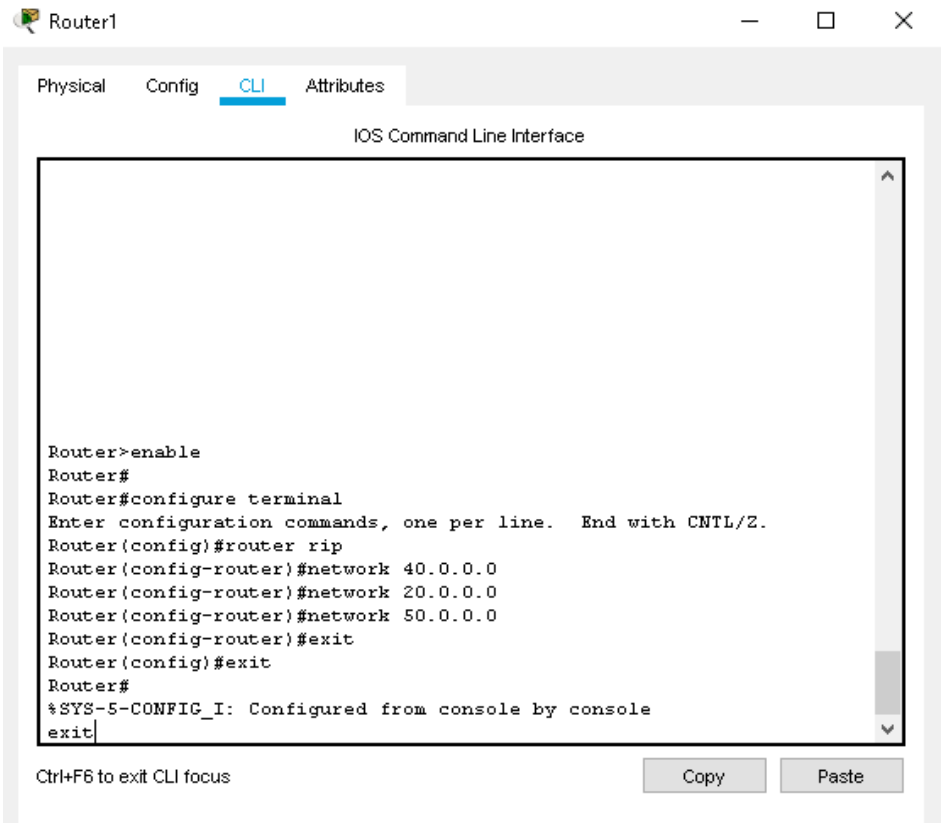
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Failed	PC0	PC3	ICMP		0.000	N	0	(edit)
	Failed	PC3	PC6	ICMP		0.000	N	1	(edit)
	Failed	PC8	PC2	ICMP		0.000	N	2	(edit)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Failed	Router0	Router2	ICMP		0.000	N	0	(edit)

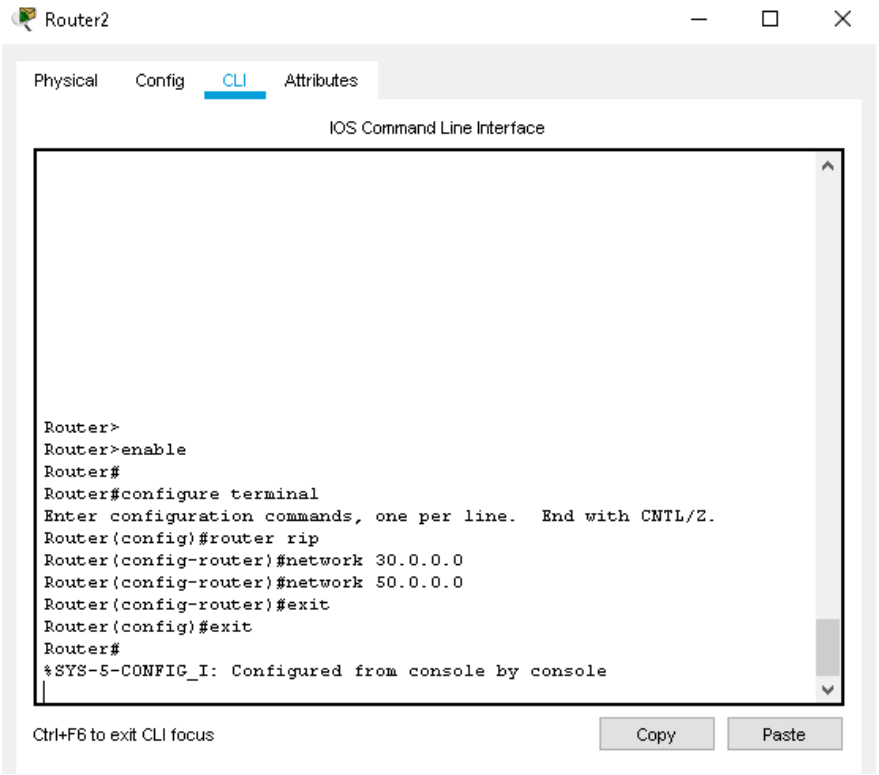
12. Configure RIP Routing in Router 0 as follows:



13. Configure RIP Routing in Router 3 as follows:



14. Configure RIP Routing in Router 2 as follows:



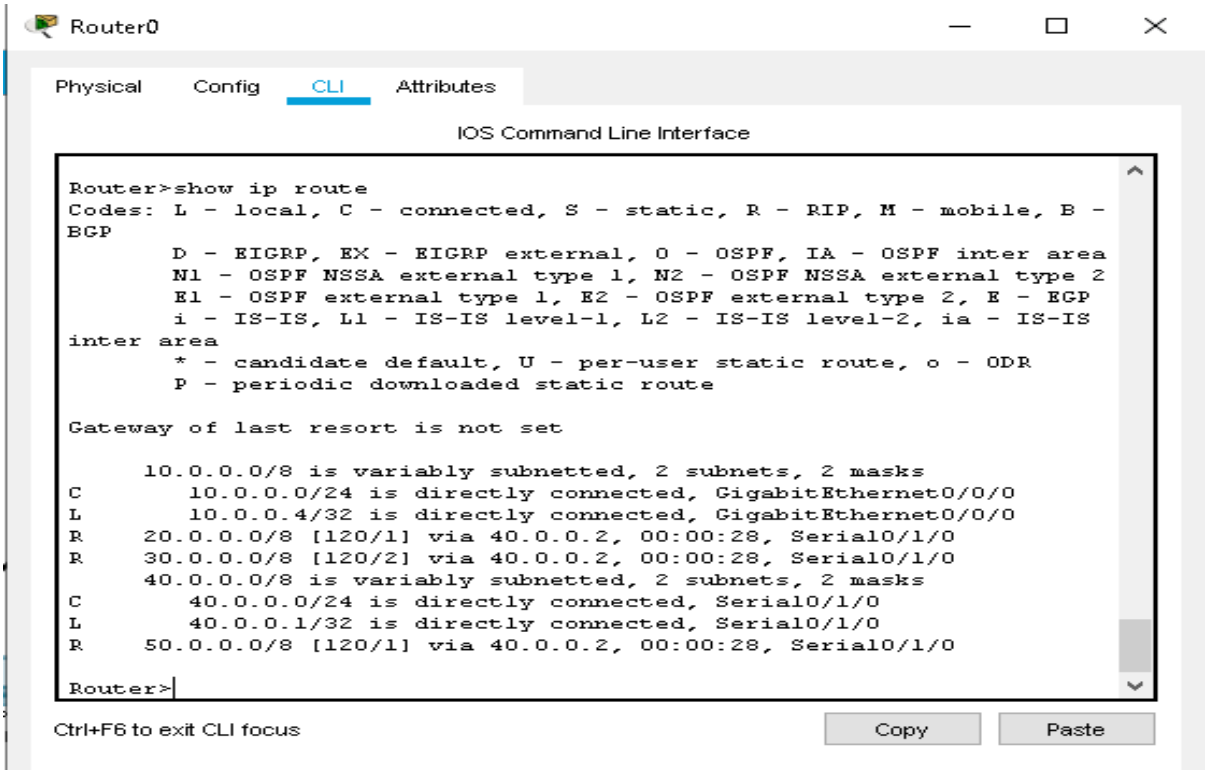
15. Sending packets after RIP routing gives the following result:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	PC3	ICMP		0.000	N	0	(edit)
	Failed	PC0	PC6	ICMP		0.000	N	1	(edit)
	Successful	PC0	PC6	ICMP		0.000	N	2	(edit)

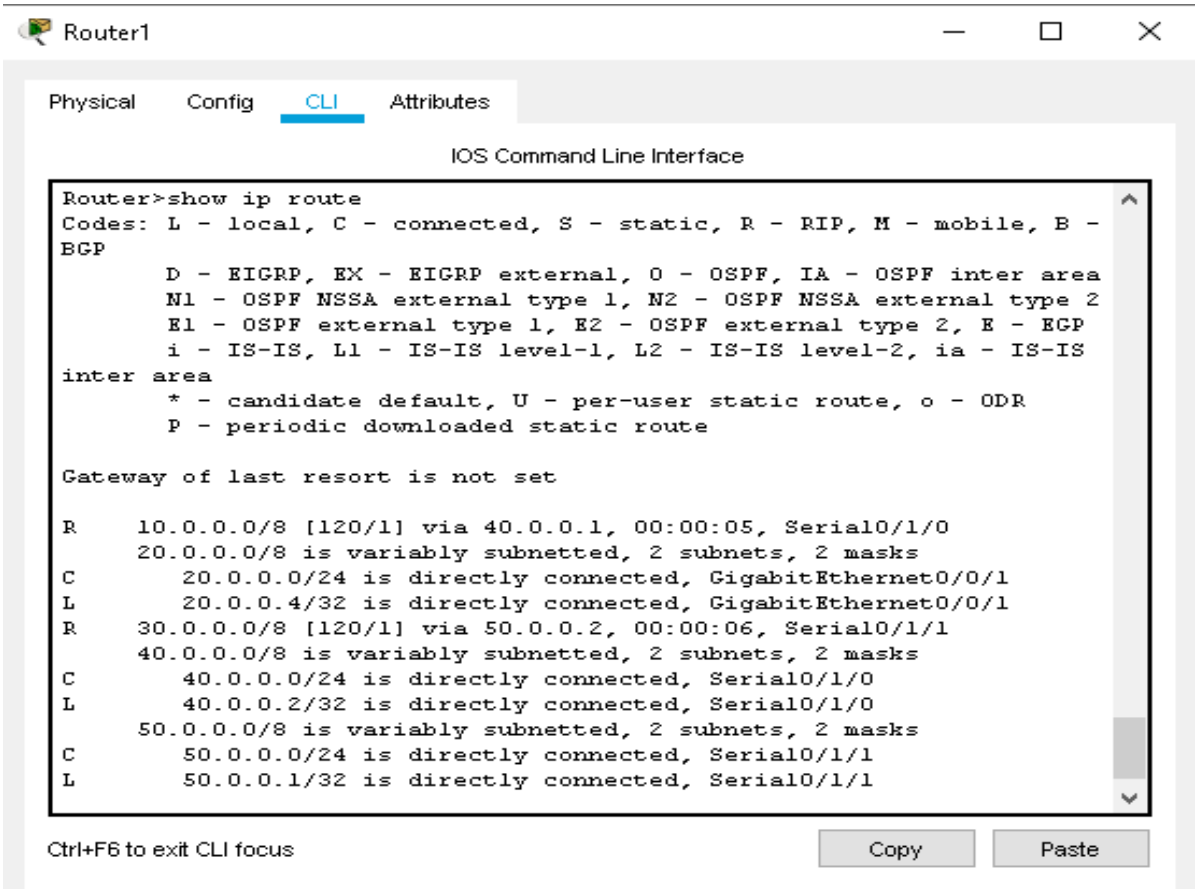
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	Router0	Router2	ICMP		0.000	N	0	(edit)
	Successful	Router1	Router0	ICMP		0.000	N	1	(edit)
	Successful	Router2	Router0	ICMP		0.000	N	2	(edit)

16. Finally, type ‘show ip route’ in the Router’s CLI to obtain the IP route results:

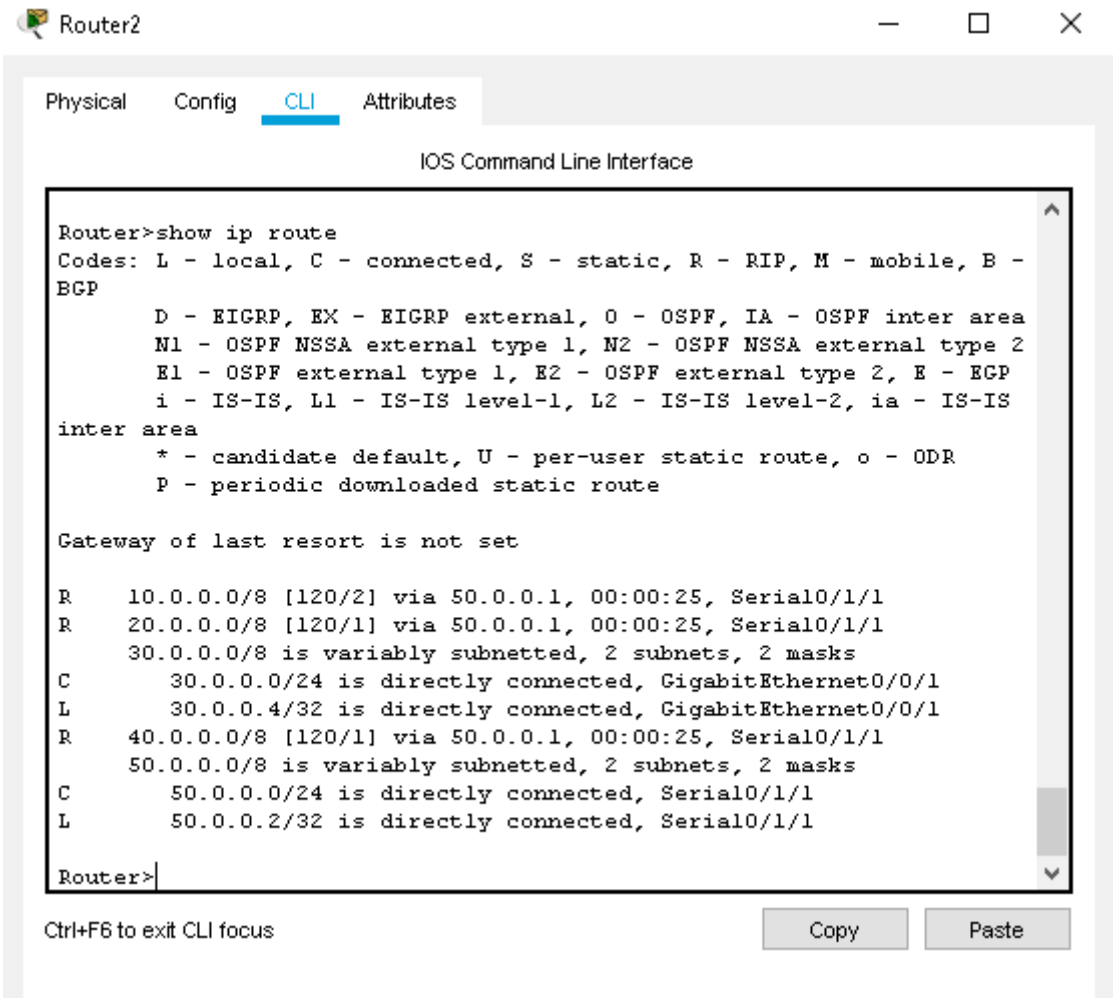
ROUTER 0



ROUTER 1



ROUTER 2


Router2
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router>show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
R 10.0.0.0/8 [120/2] via 50.0.0.1, 00:00:25, Serial0/1/1
R 20.0.0.0/8 [120/1] via 50.0.0.1, 00:00:25, Serial0/1/1
30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 30.0.0.0/24 is directly connected, GigabitEthernet0/0/1
L 30.0.0.4/32 is directly connected, GigabitEthernet0/0/1
R 40.0.0.0/8 [120/1] via 50.0.0.1, 00:00:25, Serial0/1/1
50.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 50.0.0.0/24 is directly connected, Serial0/1/1
L 50.0.0.2/32 is directly connected, Serial0/1/1
Router>
Ctrl+F6 to exit CLI focus
Copy
Paste