Group LabTask

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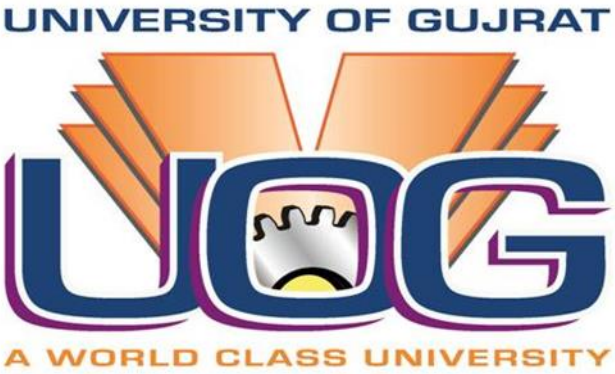

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ABSTRACT:

In this lab task we have covered subnetting of router with 3 VlANS and Lab consists of different hosts vary. the msg sent from one lab pc0 to another lab pc3 and similary form all pc 0 to pc 5 etc and the output result shown in successful.

Lab Task

EXPERIMENT NAME:

Observing Dynamic Host Configuration Protocol With 3-Different VLANs

OBJECTIVE:

The objective of the lab is to configure router and switch to observe DHCP among different networks.

EQUIPMENT:

Packet Tracer is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and imitate modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface.

THEORY:

The Dynamic Host Configuration Protocol is a network management protocol used on Internet Protocol networks for automatically assigning IP addresses and other communication parameters to devices connected to the network using a client–server architecture

ADDRESSING TABLE:

Devices	Interface	IP Address	Subnet Mask	Default gateway
R0	gig0/0.10 gig0/0.20 gig0/0.30	192.168.1.1/29 192.168.2.1/29 192.168.3.1/29	255.255.255.248 255.255.255.248 255.255.255.248	
S0	VLAN 10 VLAN 20 VLAN 30	192.168.10.5/29 192.168.20.5/29 192.168.30.5/29	255.255.255.248 255.255.255.248 255.255.255.248	
PC0	fa0	192.168.10.1/29	255.255.255.248	192.168.1.1
PC1	fa0	192.168.10.2/29	255.255.255.248	192.168.1.1
PC2	fa0	192.168.20.1/29	255.255.255.248	192.168.2.1
PC3	fa0	192.168.20.2/29	255.255.255.248	192.168.2.1
PC4	fa0	192.168.30.1/29	255.255.255.248	192.168.3.1
PC5	fa0	192.168.30.2/29	255.255.255.248	192.168.3.1

SUBNETTING TABLE:

VLAN 10:

Network Address:	192.168.1.0
IP Address:	192.168.1.0
Usable Host IP Range:	192.168.1.1 - 192.168.1.6
Broadcast Address:	192.168.1.7
Total Number of Hosts:	8
Number of Usable Hosts:	6
Subnet Mask:	255.255.255.248
Binary Subnet Mask:	11111111.11111111.11111111.11111000

All 32 of the Possible /29 Networks for 192.168.1.0

Network Address	Usable Host Range	Broadcast Address:
192.168.1.0	192.168.1.1 - 192.168.1.6	192.168.1.7
192.168.1.8	192.168.1.9 - 192.168.1.14	192.168.1.15
…..	……	……
…..	……..	……
192.168.1.240	192.168.1.241 - 192.168.1.246	192.168.1.247
192.168.1.248	192.168.1.249 - 192.168.1.254	192.168.1.255

VLAN 20:

IP Address:	192.168.2.0
Network Address:	192.168.2.0
Usable Host IP Range:	192.168.2.1 - 192.168.2.6
Broadcast Address:	192.168.2.7
Total Number of Hosts:	8
Number of Usable Hosts:	6
Subnet Mask:	255.255.255.248
Binary Subnet Mask:	11111111.11111111.11111111.11111000

Network Address	Usable Host Range	Broadcast Address:
192.168.2.0	192.168.2.1 - 192.168.2.6	192.168.2.7
192.168.2.8	192.168.2.9 - 192.168.2.14	192.168.2.15
…..	……	……
…..	……..	……
192.168.2.240	192.168.2.241 - 192.168.2.246	192.168.2.247
192.168.2.248	192.168.2.249 - 192.168.2.254	192.168.2.255

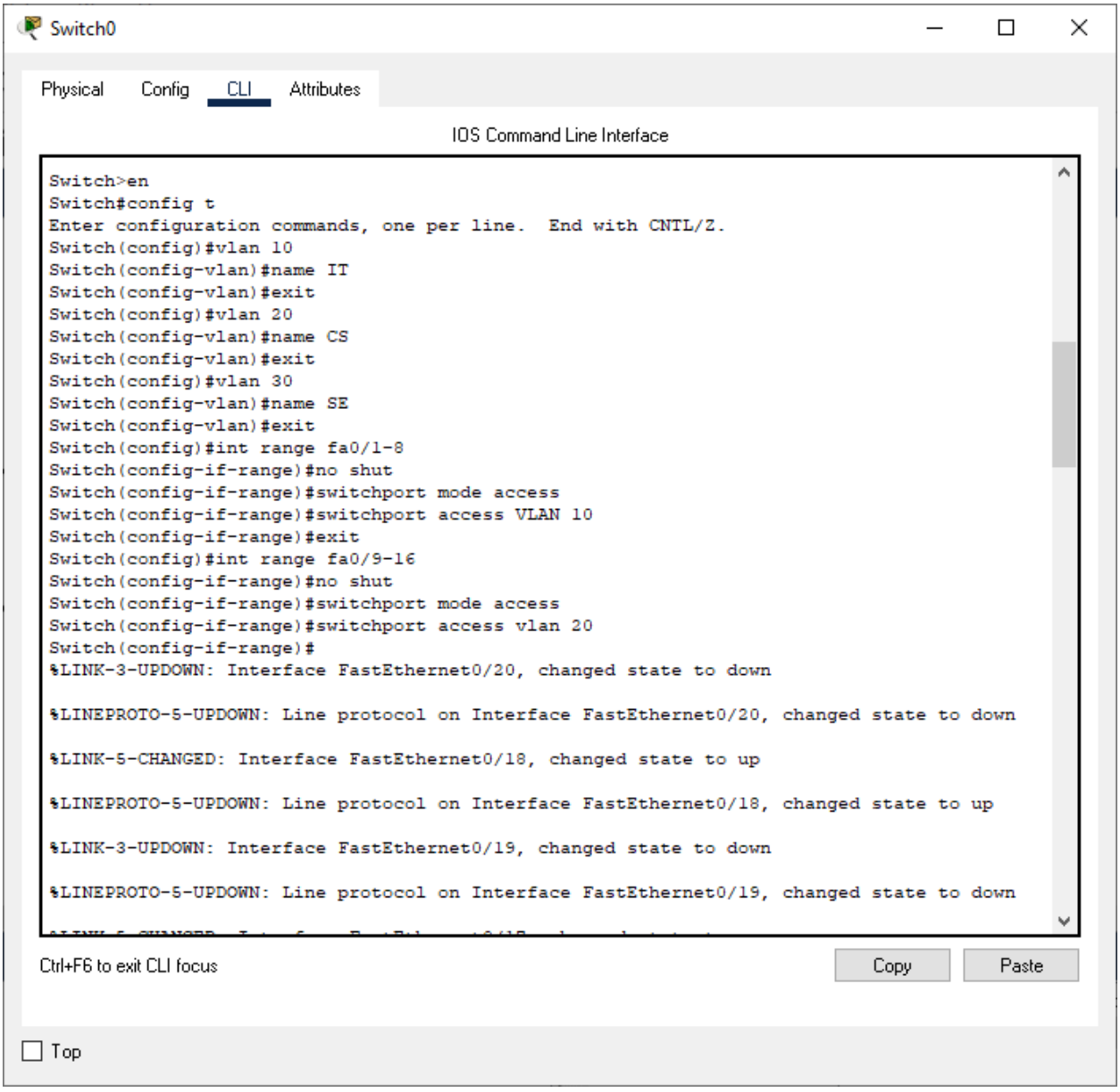
VLAN 30:

IP Address:	192.168.3.0
Network Address:	192.168.3.0
Usable Host IP Range:	192.168.3.1 - 192.168.3.6
Broadcast Address:	192.168.3.7
Total Number of Hosts:	8
Number of Usable Hosts:	6
Subnet Mask:	255.255.255.248
Binary Subnet Mask:	11111111.11111111.11111111.11111000

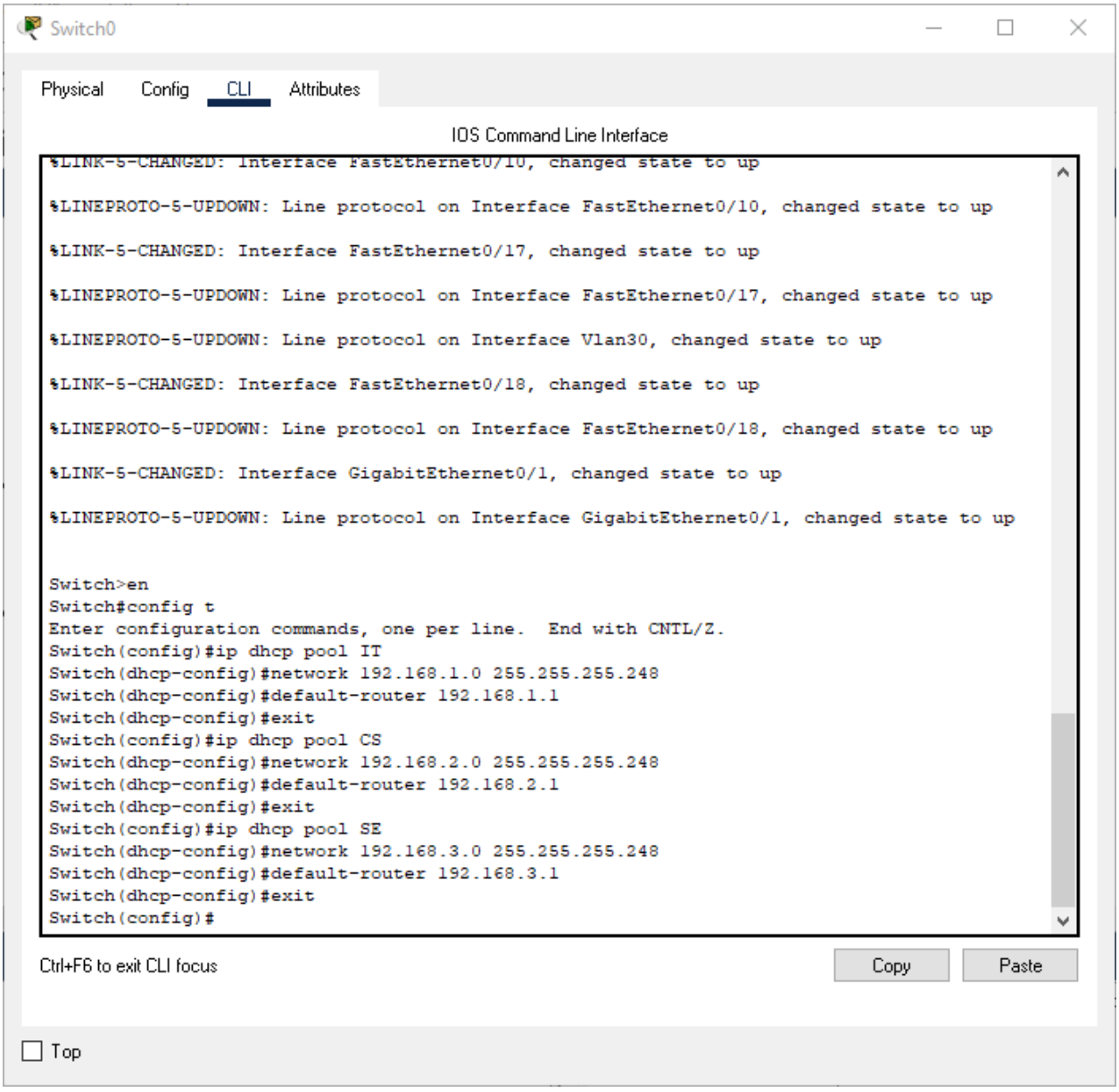
Network Address	Usable Host Range	Broadcast Address:
192.168.3.0	192.168.3.1 - 192.168.3.6	192.168.3.7
192.168.3.8	192.168.3.9 - 192.168.3.14	192.168.3.15
…..	……	……
…..	……...	……
192.168.3.240	192.168.3.241 - 192.168.3.246	192.168.3.247
192.168.3.248	192.168.3.249 - 192.168.3.254	192.168.3.255

CONFIGURATION:

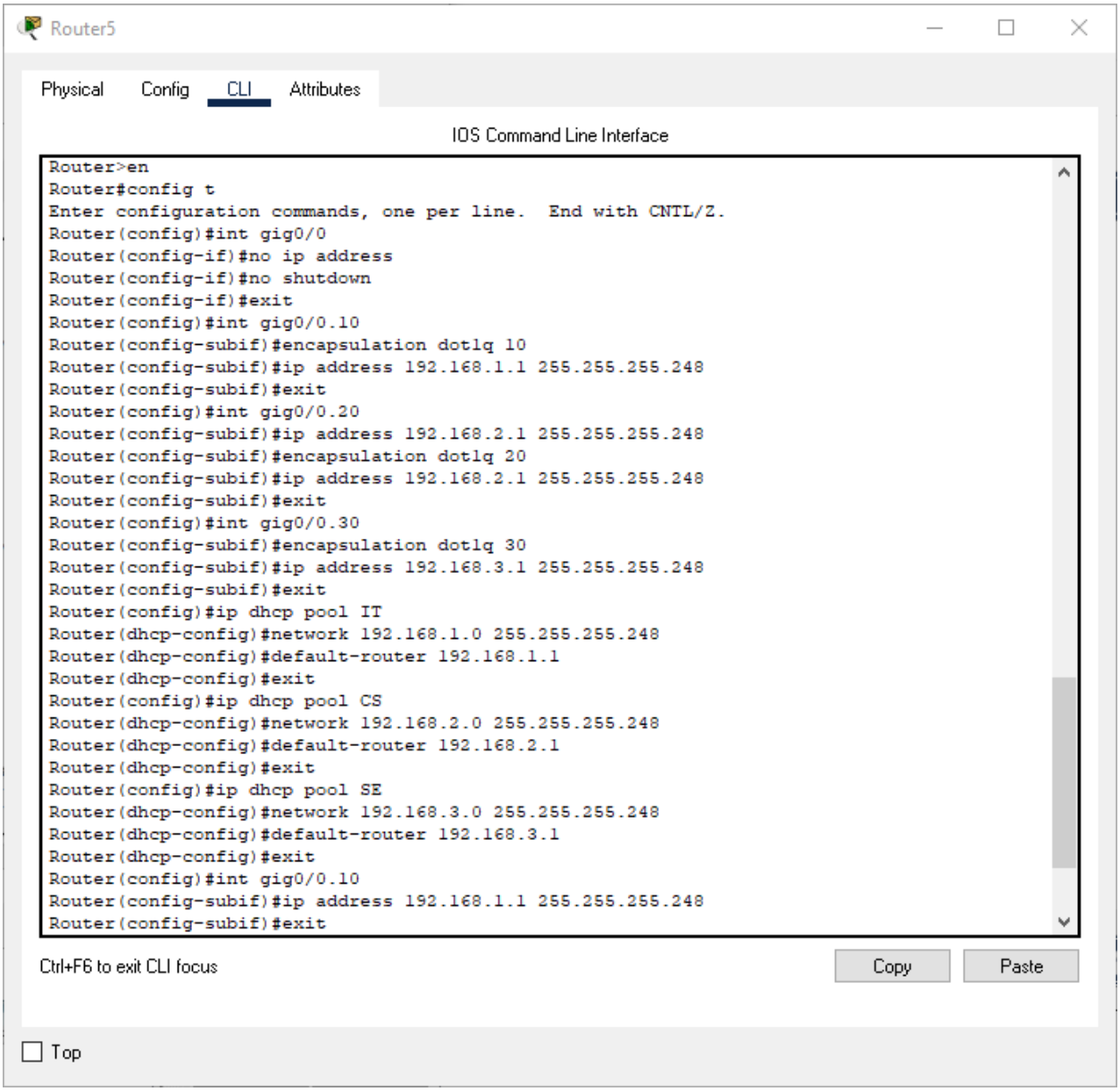
Switch 0:

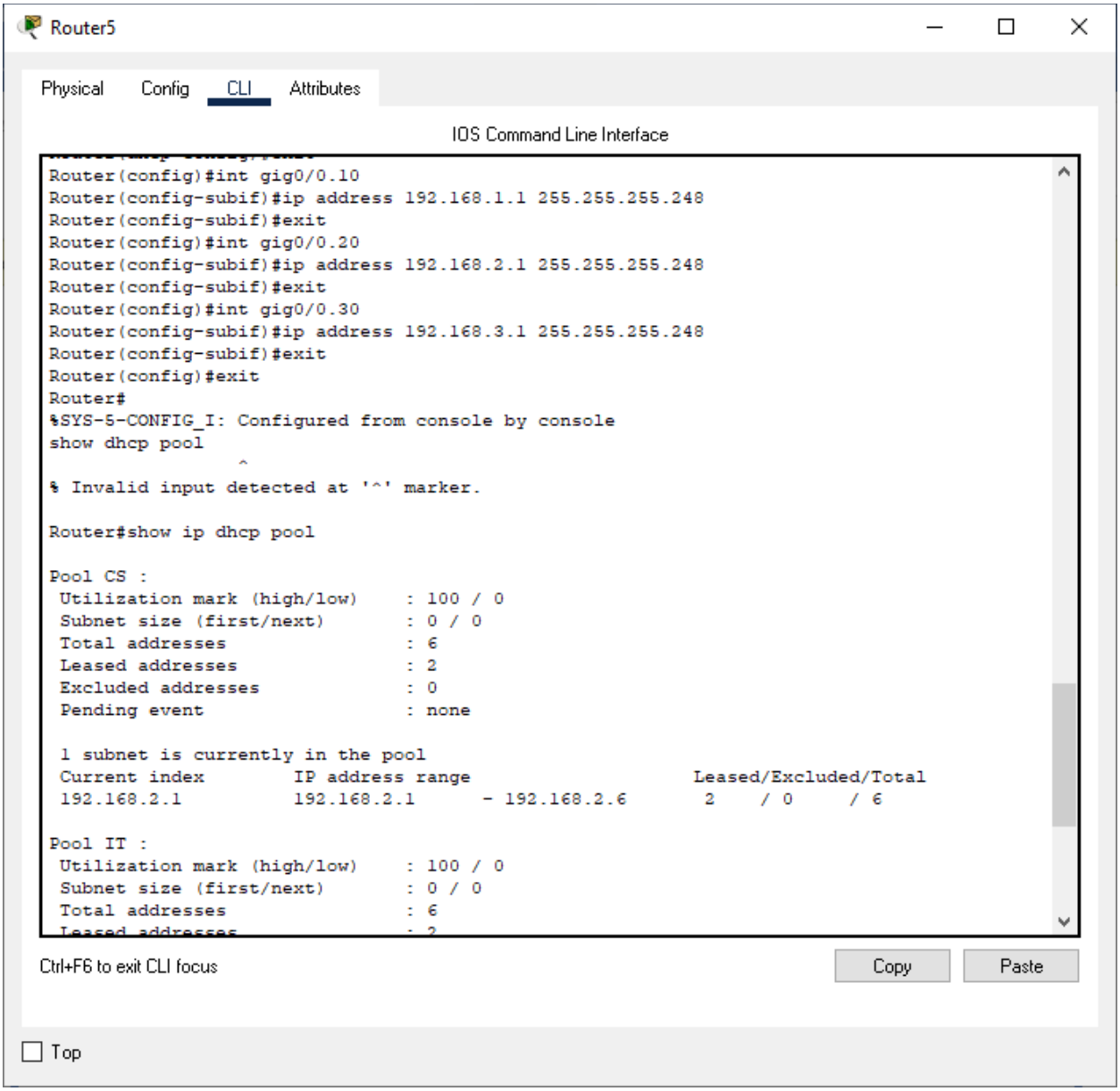


Creating DHCP Pool and assigning IP addresses:

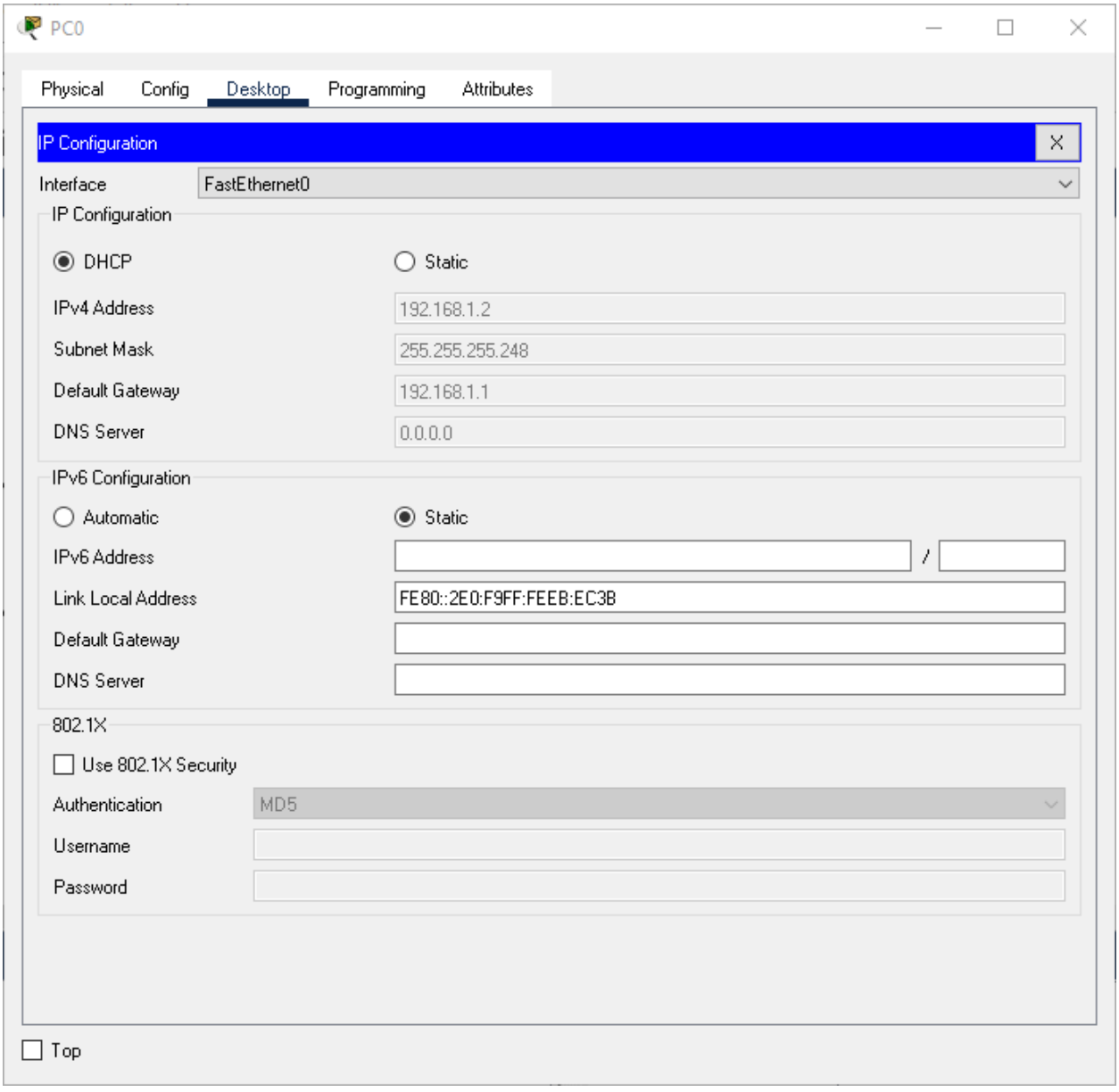


Router 0:


Router5
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int gig0/0
Router(config-if)#no ip address
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#int gig0/0.10
Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#ip address 192.168.1.1 255.255.255.248
Router(config-subif)#exit
Router(config)#int gig0/0.20
Router(config-subif)#ip address 192.168.2.1 255.255.255.248
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.2.1 255.255.255.248
Router(config-subif)#exit
Router(config)#int gig0/0.30
Router(config-subif)#encapsulation dot1q 30
Router(config-subif)#ip address 192.168.3.1 255.255.255.248
Router(config-subif)#exit
Router(config)#ip dhcp pool IT
Router(dhcp-config)#network 192.168.1.0 255.255.255.248
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#exit
Router(config)#ip dhcp pool CS
Router(dhcp-config)#network 192.168.2.0 255.255.255.248
Router(dhcp-config)#default-router 192.168.2.1
Router(dhcp-config)#exit
Router(config)#ip dhcp pool SE
Router(dhcp-config)#network 192.168.3.0 255.255.255.248
Router(dhcp-config)#default-router 192.168.3.1
Router(dhcp-config)#exit
Router(config)#int gig0/0.10
Router(config-subif)#ip address 192.168.1.1 255.255.255.248
Router(config-subif)#exit
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

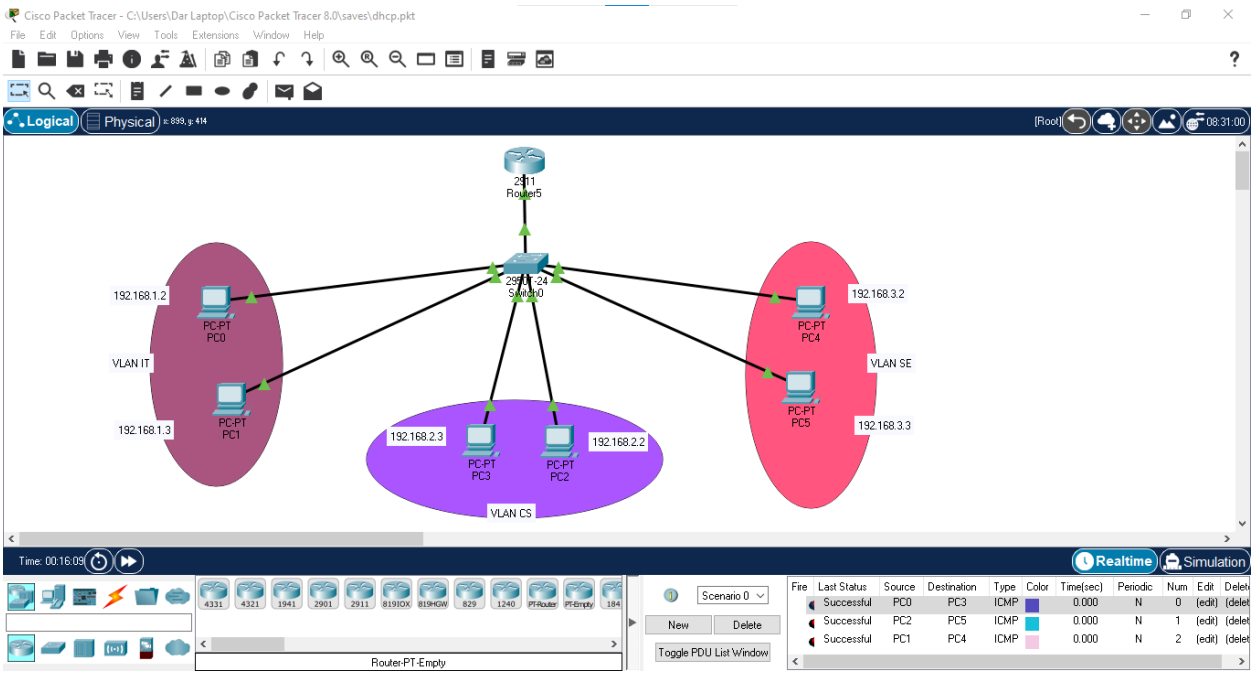

Router5
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router(config)#int gig0/0.10
Router(config-subif)#ip address 192.168.1.1 255.255.255.248
Router(config-subif)#exit
Router(config)#int gig0/0.20
Router(config-subif)#ip address 192.168.2.1 255.255.255.248
Router(config-subif)#exit
Router(config)#int gig0/0.30
Router(config-subif)#ip address 192.168.3.1 255.255.255.248
Router(config-subif)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
show dhcp pool
% Invalid input detected at '^' marker.
Router#show ip dhcp pool
Pool CS :
Utilization mark (high/low) : 100 / 0
Subnet size (first/next) : 0 / 0
Total addresses : 6
Leased addresses : 2
Excluded addresses : 0
Pending event : none
1 subnet is currently in the pool
Current index IP address range Leased/Excluded/Total
192.168.2.1 192.168.2.1 - 192.168.2.6 2 / 0 / 6
Pool IT :
Utilization mark (high/low) : 100 / 0
Subnet size (first/next) : 0 / 0
Total addresses : 6
Ctrl+F6 to exit CLI focus
Copy
Paste
Top

DHCP:



Similarly, all pcs have been configured in the same way .

CONNECTION:



Output:

ire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delet
	Successful	PC1	PC2	ICMP		0.000	N	0	(edit)	(dele
	Successful	PC3	PC5	ICMP		0.000	N	1	(edit)	(dele
	Successful	PC4	PC0	ICMP		0.000	N	2	(edit)	(dele

CONCLUSION:

The routers were configured successfully. It was tested by sending messages several times. The message was received and an acknowledgment was sent back to the sender. The system was built using dynamic routing where I configured the router on command line. The IP route was set by giving destination network, subnet mask, and next hop.

REFERENCES:

1. *Introduction to Computer Network ,Thomas .G*
2. *Network Fundamentals, Mark. A Dye, Rick MacDonald, Antoon W. Rufi*
3. *Data Communication and Networking by Behrouz A. Forouzan*