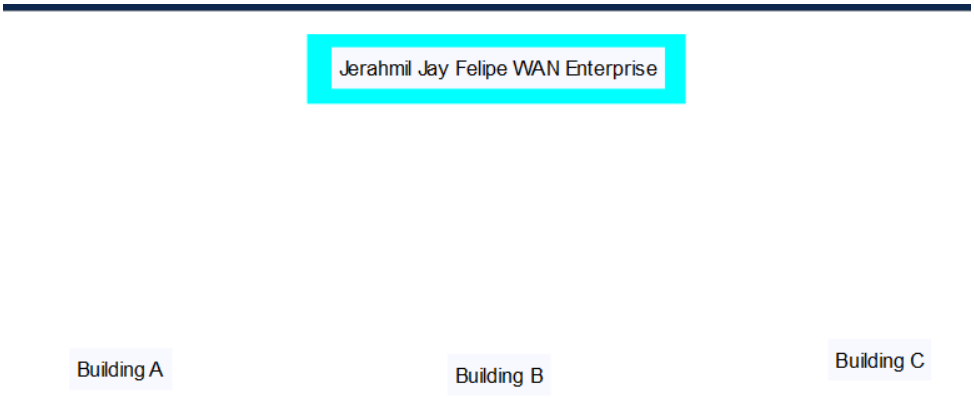
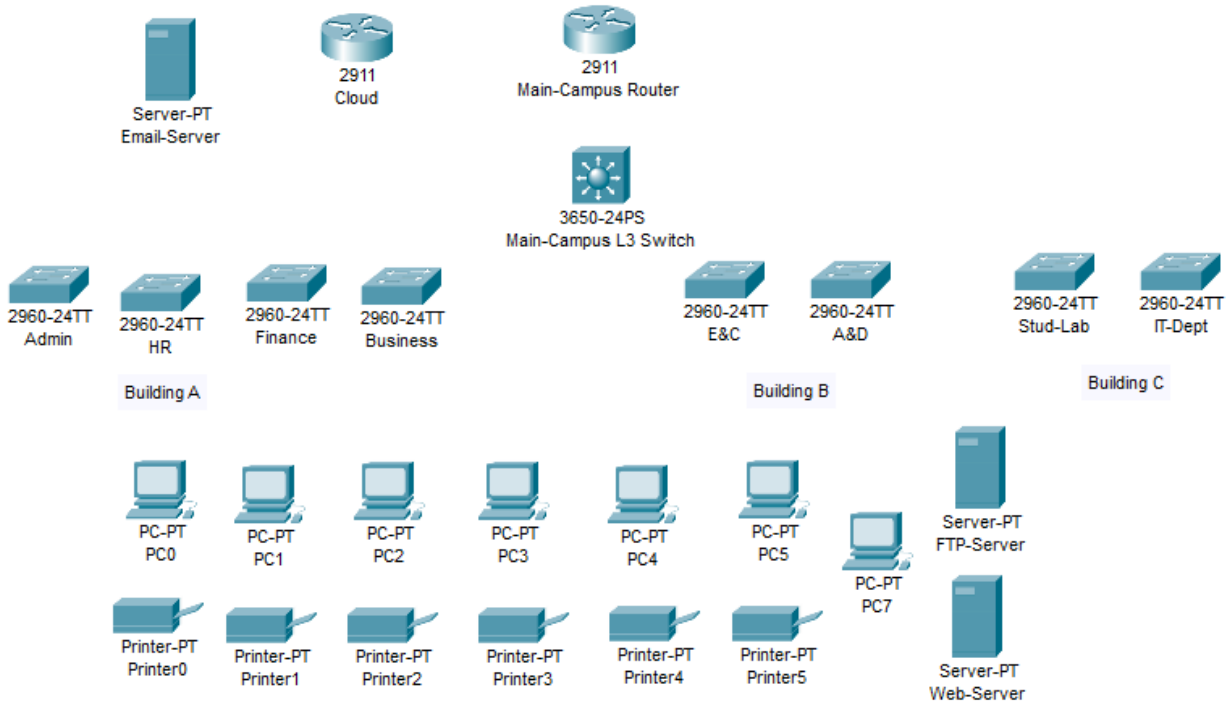
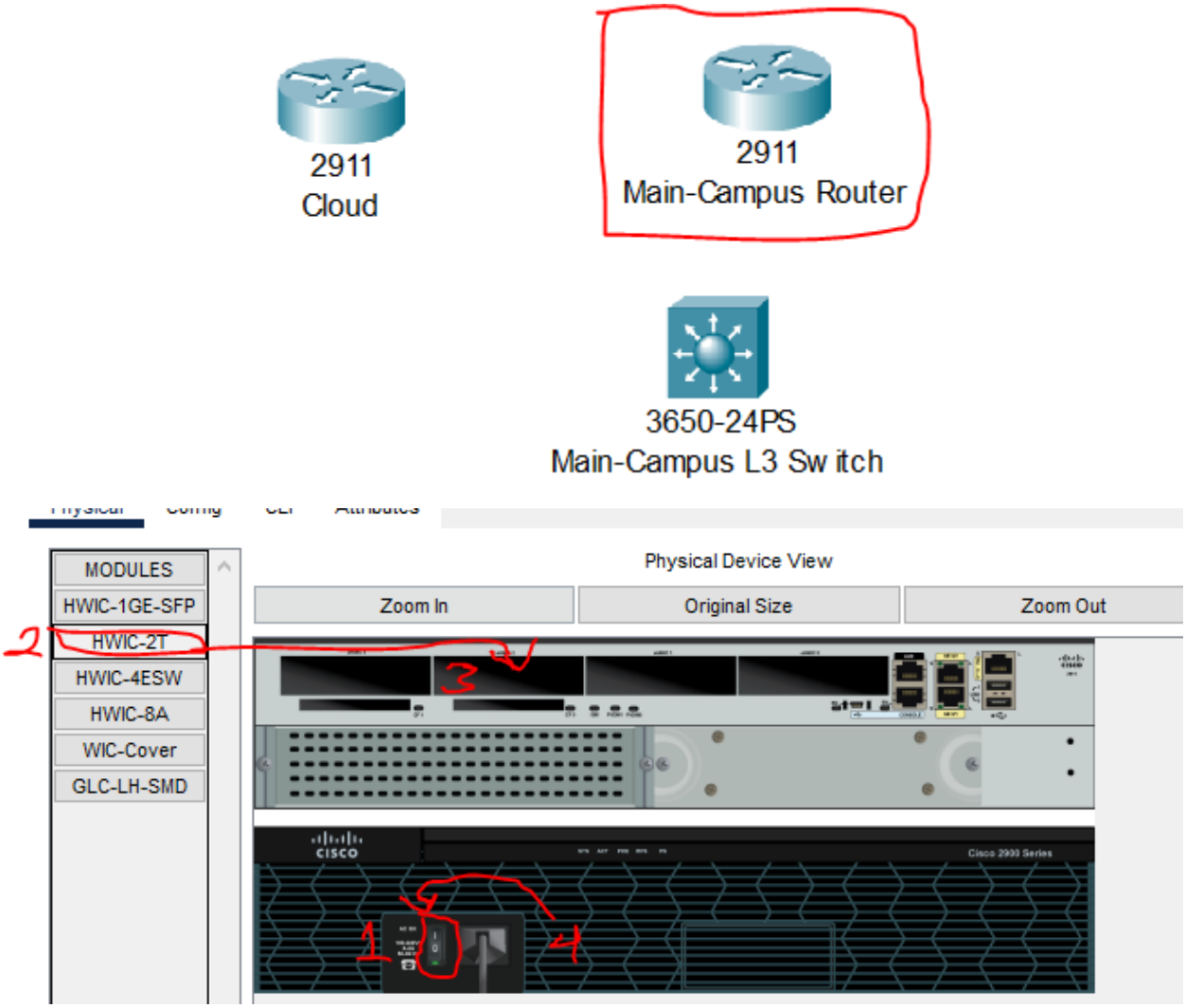
1. Initial Setup.



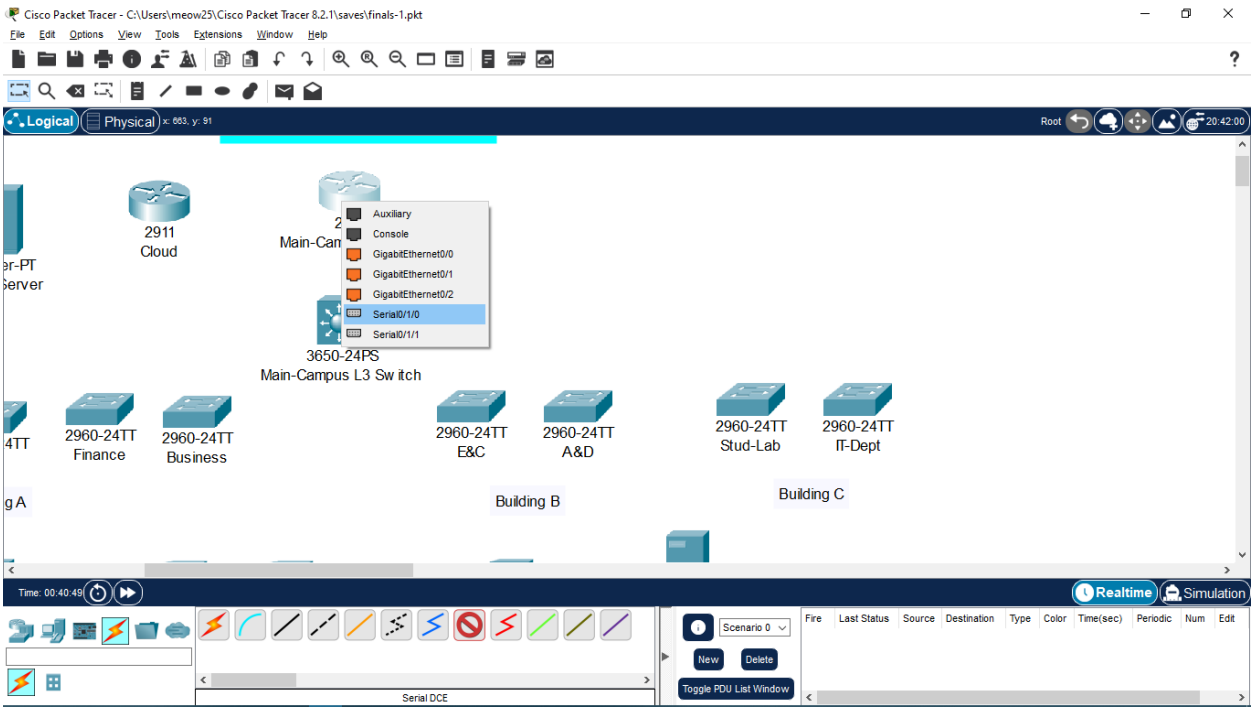
2. Adding components and adding their labels:
   2911-Router - 2
   3650-24PS-Switch – 1
   2960-24TT – 8
   PC - 8
   Server - 3

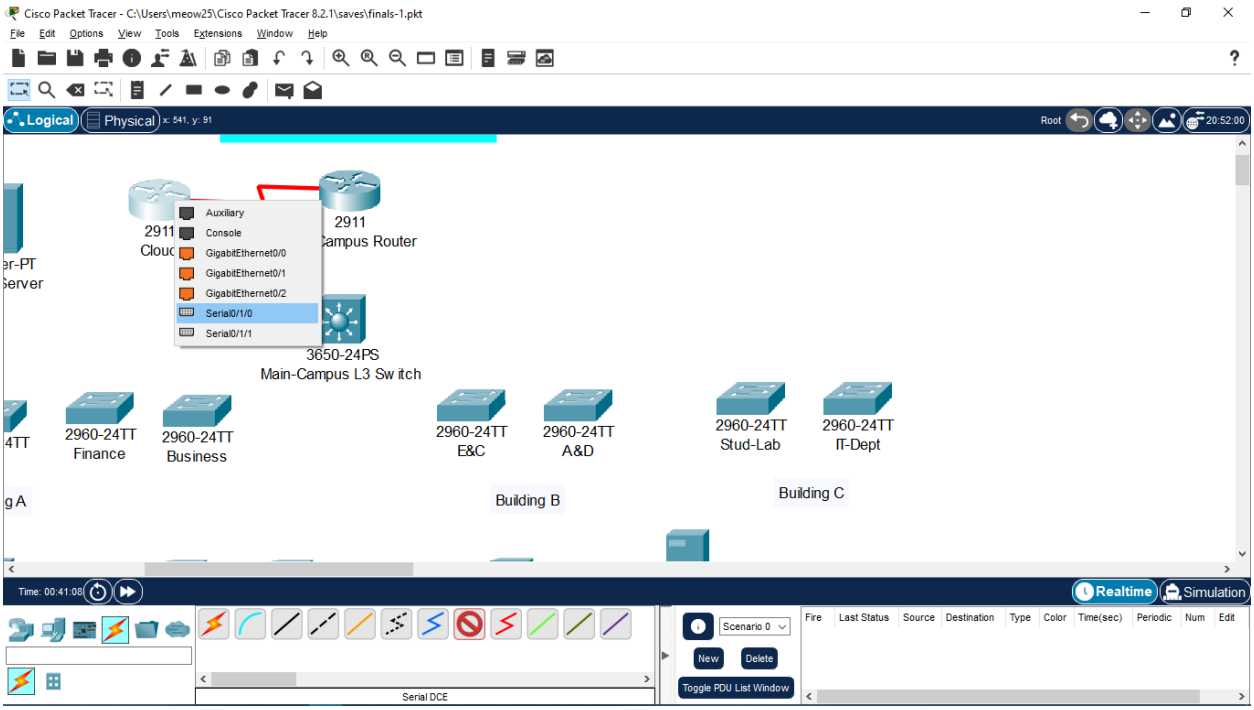


3. Serial Connection to Main Router and Cloud.

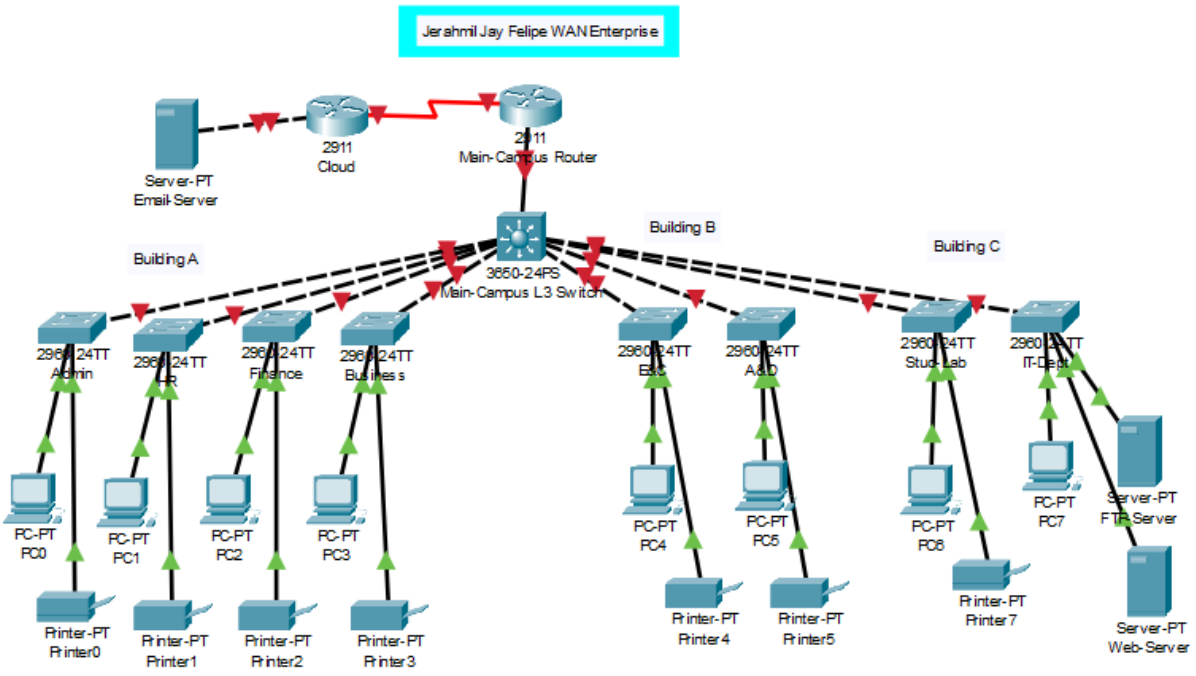


On Main Router, switch it off first, then move the HWIC-2T module to an empty slot then turn on again. Same process to 2911 Cloud Router.

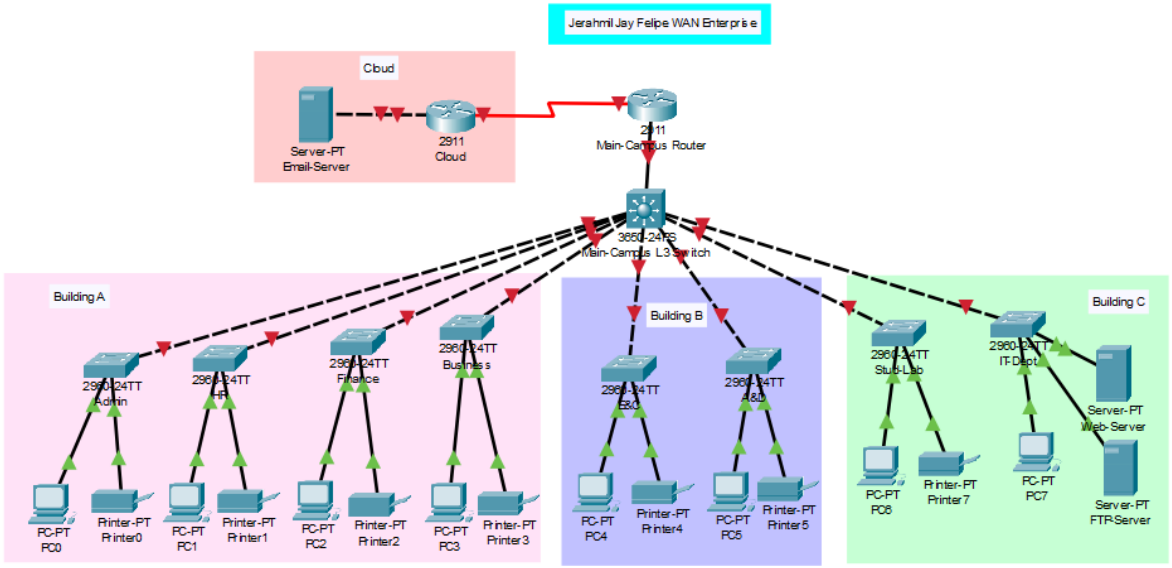

Cisco Packet Tracer - C:\Users\meow25\Cisco Packet Tracer 8.2.1\saves\finals-1.pkt
File Edit Options View Tools Extensions Window Help
Logical Physical
Root
2911
Cloud
Auxiliary
Console
GigabitEthernet0/0
GigabitEthernet0/1
GigabitEthernet0/2
Serial0/1/0
Serial0/1/1
3650-24PS
Main-Campus L3 Switch
2960-24TT
Finance
2960-24TT
Business
2960-24TT
E&C
2960-24TT
A&D
2960-24TT
Stud-Lab
2960-24TT
IT-Dept
Building B
Building C
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Serial DCE


Cisco Packet Tracer - C:\Users\meow25\Cisco Packet Tracer 8.2.1\saves\finals-1.pkt
File Edit Options View Tools Extensions Window Help
Logical Physical
Root
2911
Campus Router
Auxiliary
Console
GigabitEthernet0/0
GigabitEthernet0/1
GigabitEthernet0/2
Serial0/1/0
Serial0/1/1
3650-24PS
Main-Campus L3 Switch
2960-24TT
Finance
2960-24TT
Business
2960-24TT
E&C
2960-24TT
A&D
2960-24TT
Stud-Lab
2960-24TT
IT-Dept
Building B
Building C
Realtime
Simulation
Scenario 0
New
Delete
Toggle PDU List Window
Serial DCE

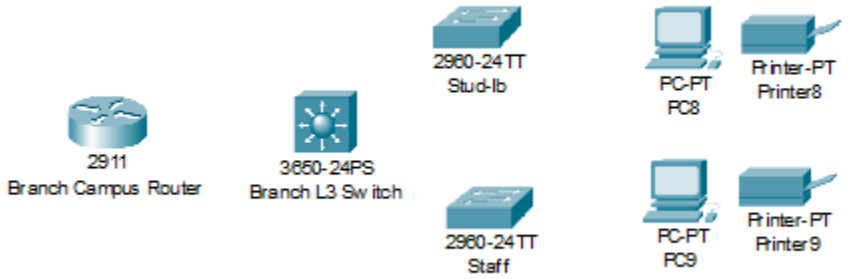
4. Use automatic wires to connect other Devices.



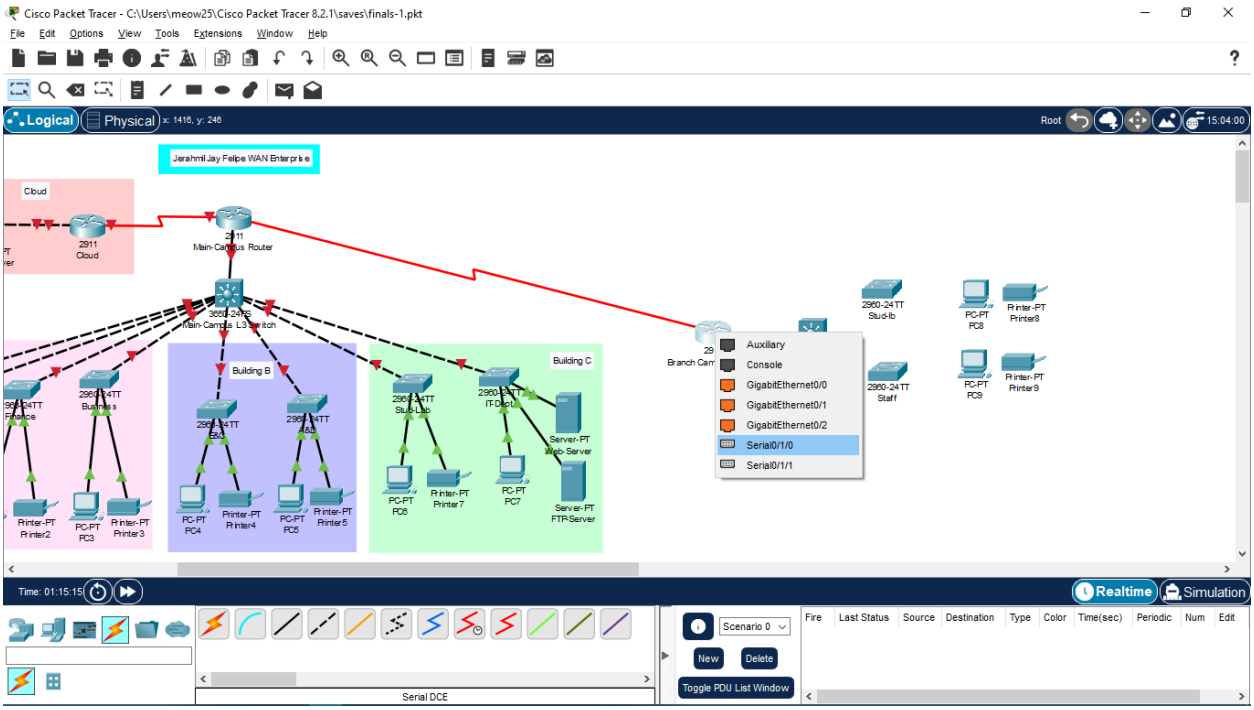
5. Design on preference.



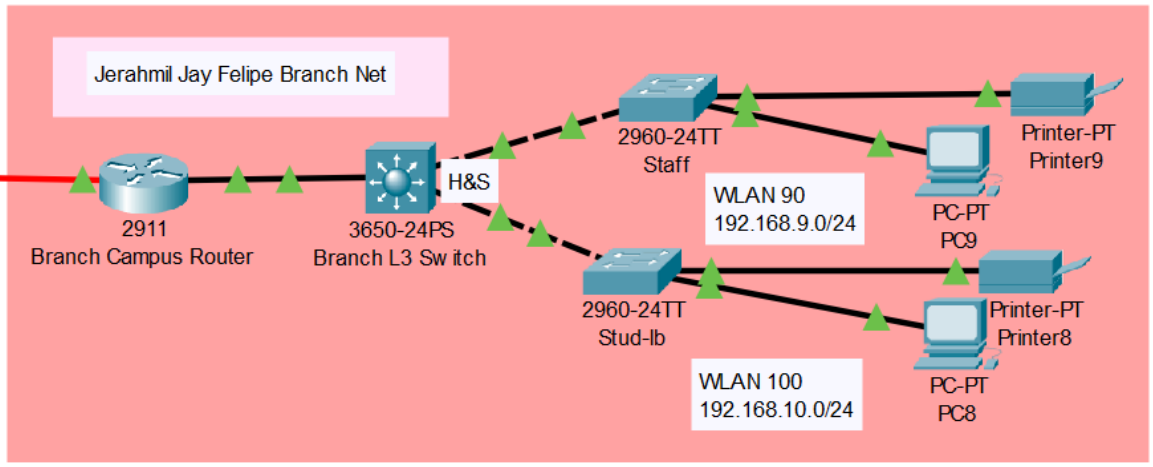
6. Add the Branch Devices.

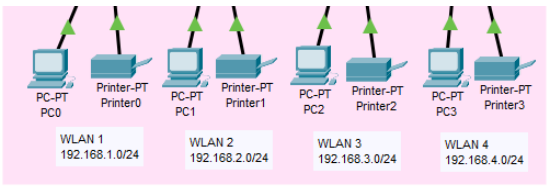


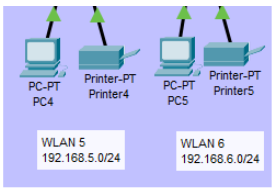
7. Configure the 2911 Switch Branch here as Main-Campus Router to use series connection and connect it.

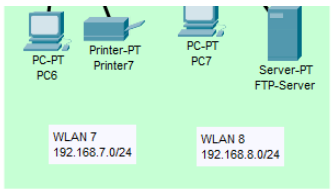


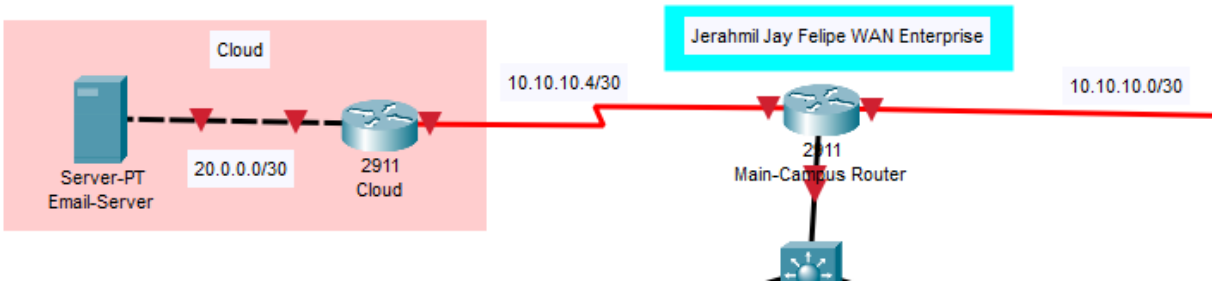
8. Design and Correct Labels for configuration.



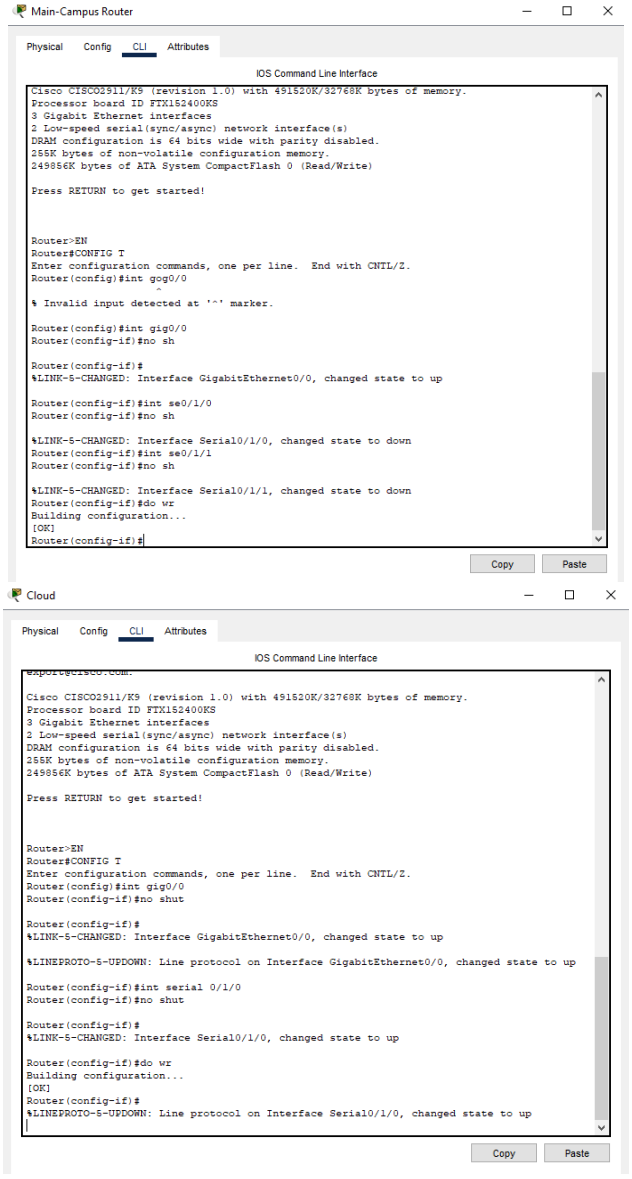


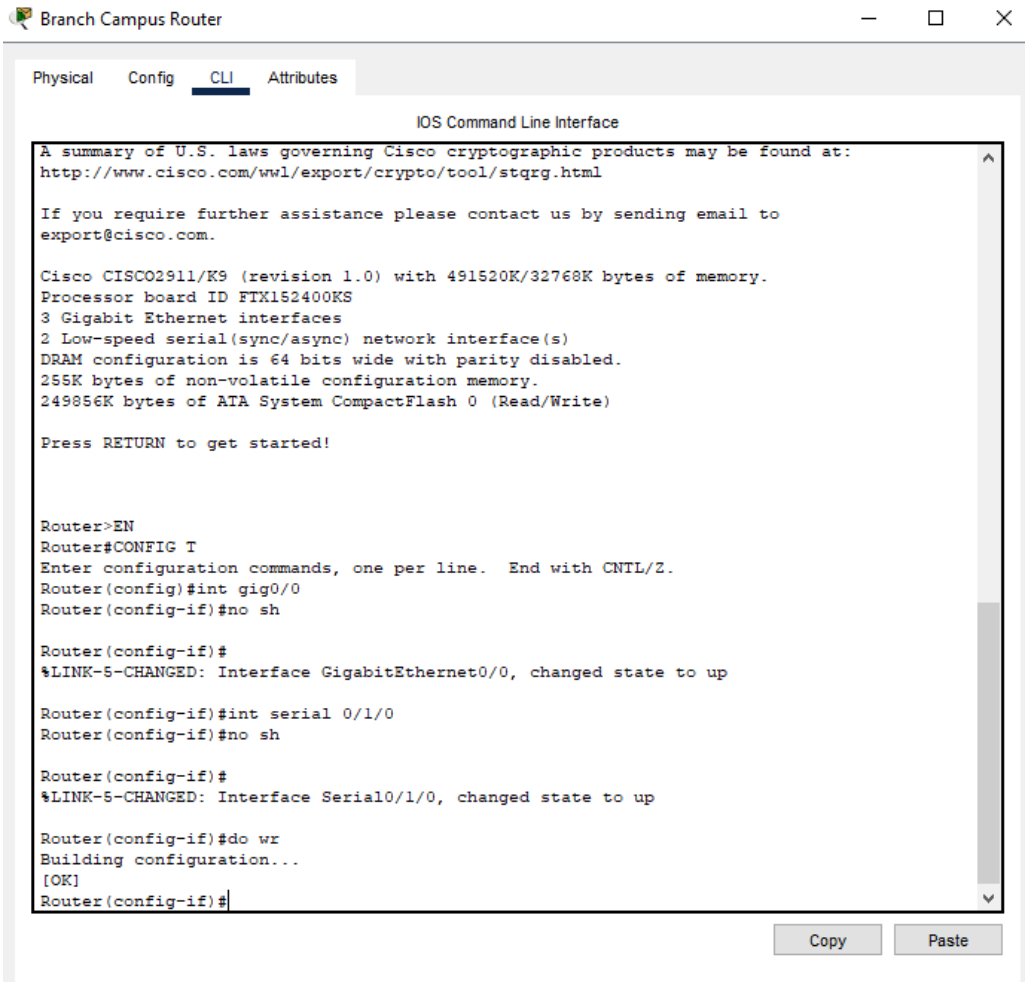




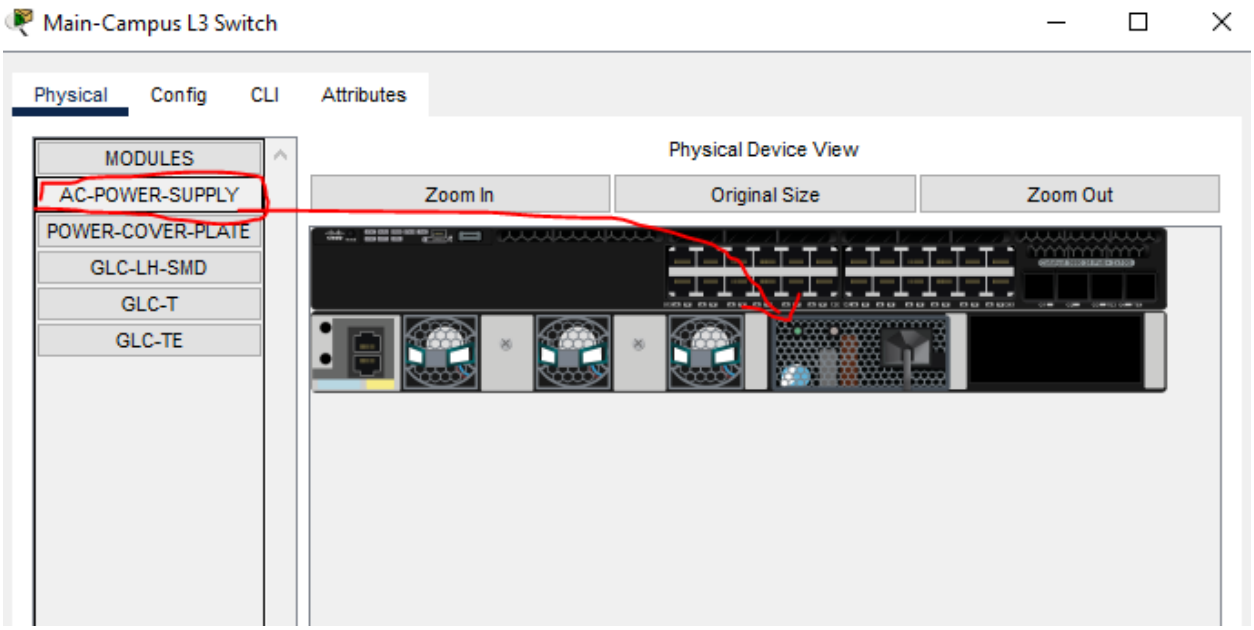


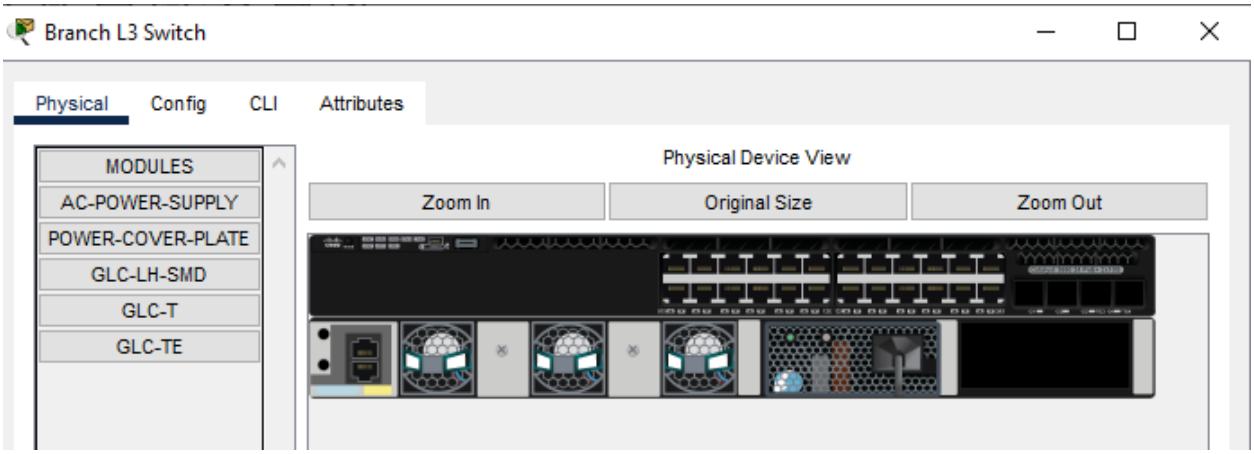
9. Configuration, set routers on.



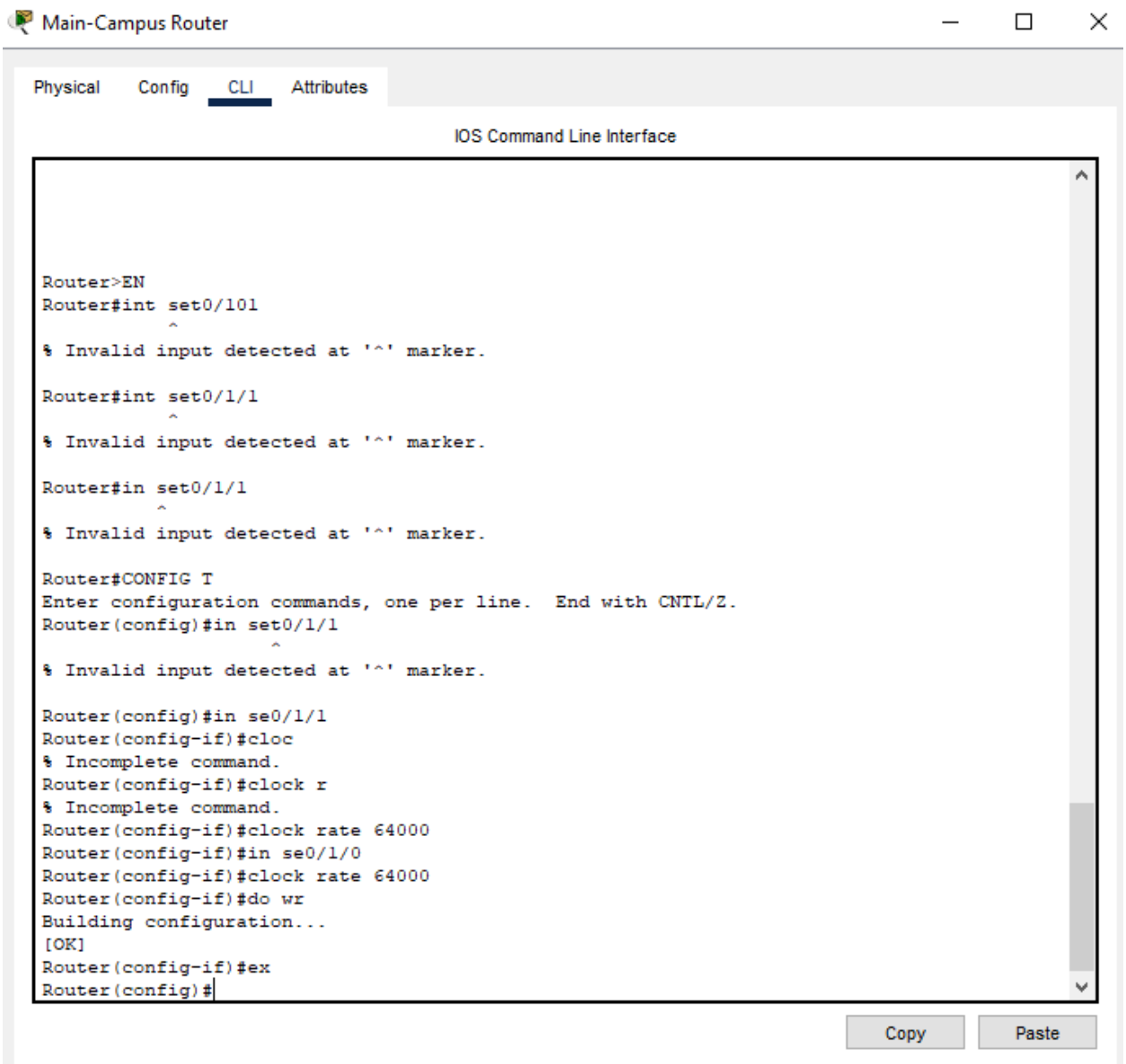


10. Add Powersupply to 3650-24PS-Switches (both for Main and Branch).





11. Configure the main router for its' serial connection.

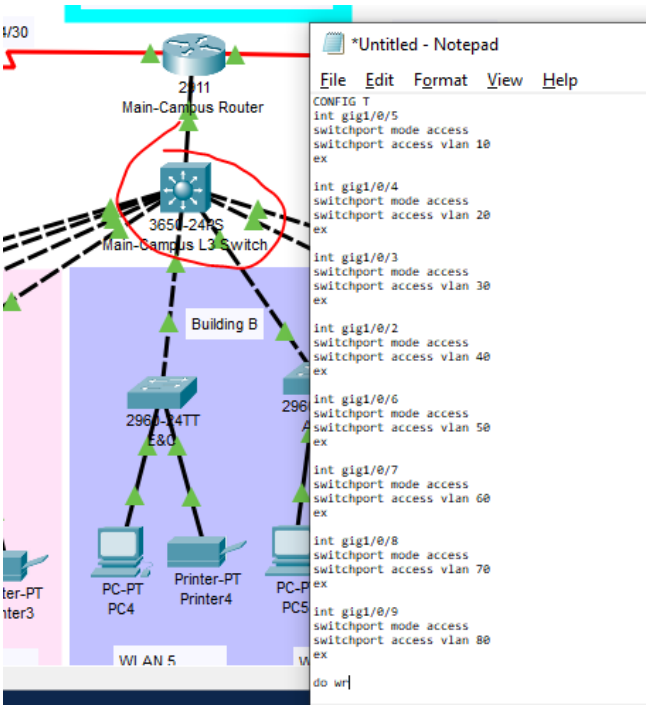


12. VLAN Configuration. (Admin, HR, Finance, Business, E&Q, A&D, Stud-Lab, IT-Dept) Switches.

Copy text from notepad and apply to all switches.

Note: Same configuration is used, it just varies on the WLAN IP Address. If on ADMIN then VLAN is 10, if on HR VLAN is 20, and so on.

13. Configure Main Switch.



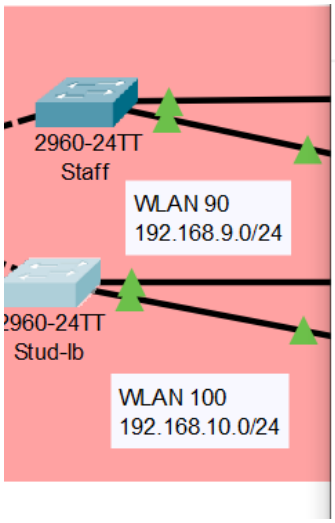
Main-Campus L3 Switch

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch(config)#int gig1/0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 30
% Access VLAN does not exist. Creating vlan 30
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig1/0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 40
% Access VLAN does not exist. Creating vlan 40
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig1/0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 50
% Access VLAN does not exist. Creating vlan 50
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig1/0/7
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 60
% Access VLAN does not exist. Creating vlan 60
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig1/0/8
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 70
% Access VLAN does not exist. Creating vlan 70
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig1/0/9
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 80
% Access VLAN does not exist. Creating vlan 80
Switch(config-if)#ex
Switch(config)#
```

14. Config the Branch Net. Start with Switch.



*Untitled - Notepad

File Edit Format View Help

```
EN
CONFIG T
int range fa0/1-24
switchport mode access
switchport mode access
switchport access vlan 90
do wr
ex


EN
CONFIG T
int range fa0/1-24
switchport mode access
switchport mode access
switchport access vlan 100
do wr
ex
```

Branch L3 Switch

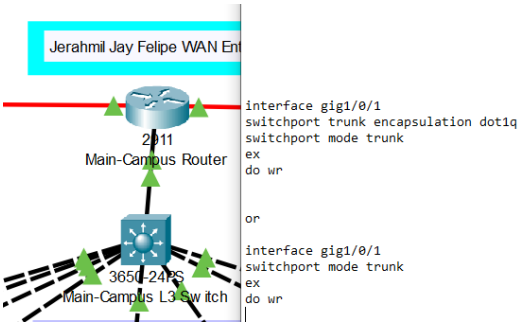
Physical Config CLI Attributes

IOS Command Line Interface

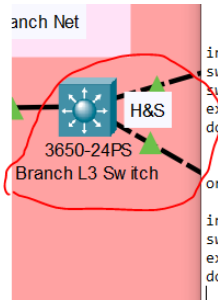
```
% Please answer 'yes' or 'no'.
Would you like to enter the initial configuration dialog? [yes/no]: n


Press RETURN to get started!



Switch>EN
Switch#CONFIG T
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int gig1/0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 90
% Access VLAN does not exist. Creating vlan 90
Switch(config-if)#ex
Switch(config)#
Switch(config)#int gig1/0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 100
% Access VLAN does not exist. Creating vlan 100
Switch(config-if)#ex
Switch(config)#
Switch(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
```

15. Trunk Connection to the Layer Switches

16.



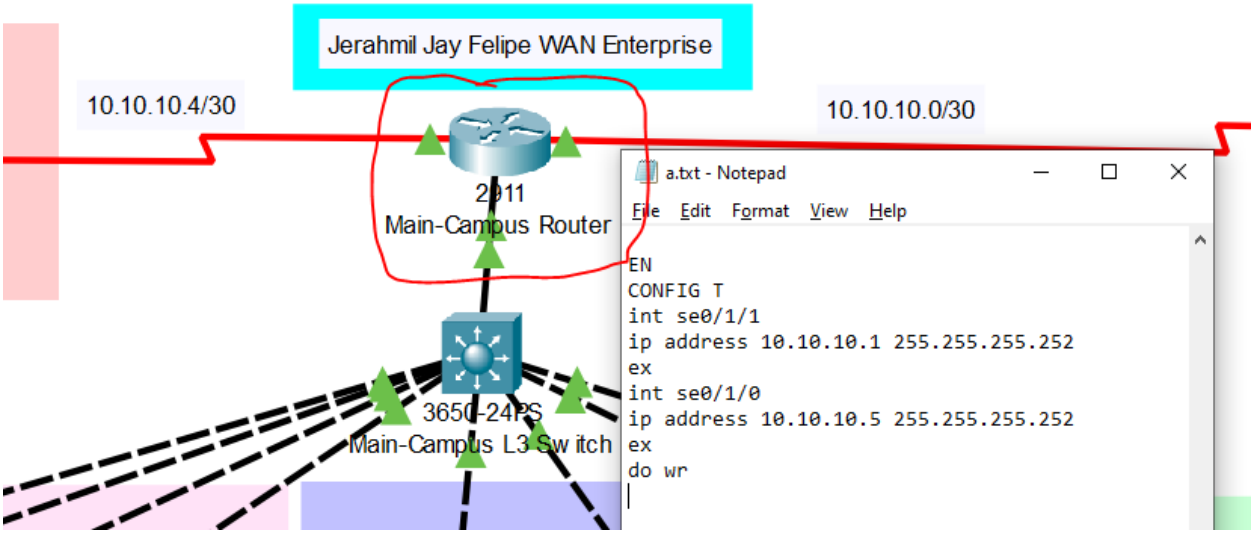

```
interface gig1/0/1
switchport trunk encapsulation dot1q
switchport mode trunk
ex
do wr

or

interface gig1/0/1
switchport mode trunk
ex
do wr
```



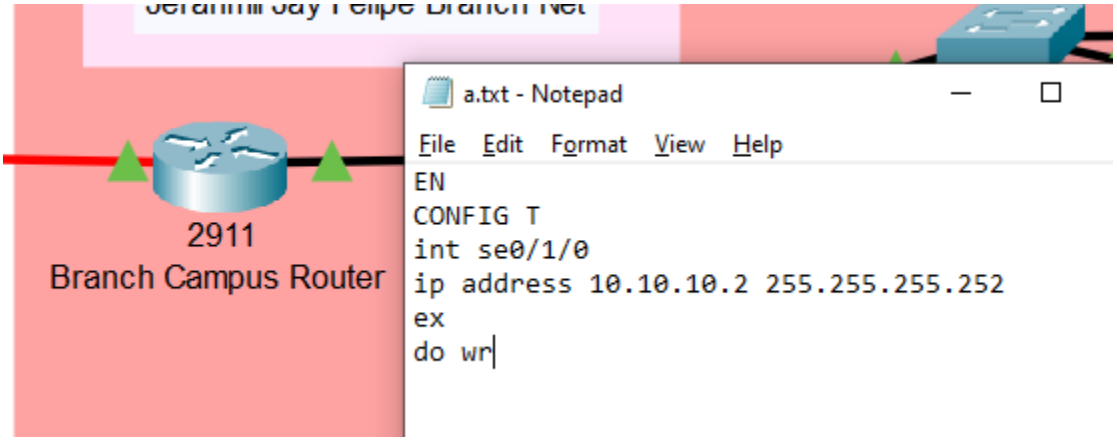

```
interface gig1/0/1
switchport trunk encapsulation dot1q
switchport mode trunk
ex
do wr

or

interface gig1/0/1
switchport mode trunk
ex
do wr
```

17. Sub interface for IP.

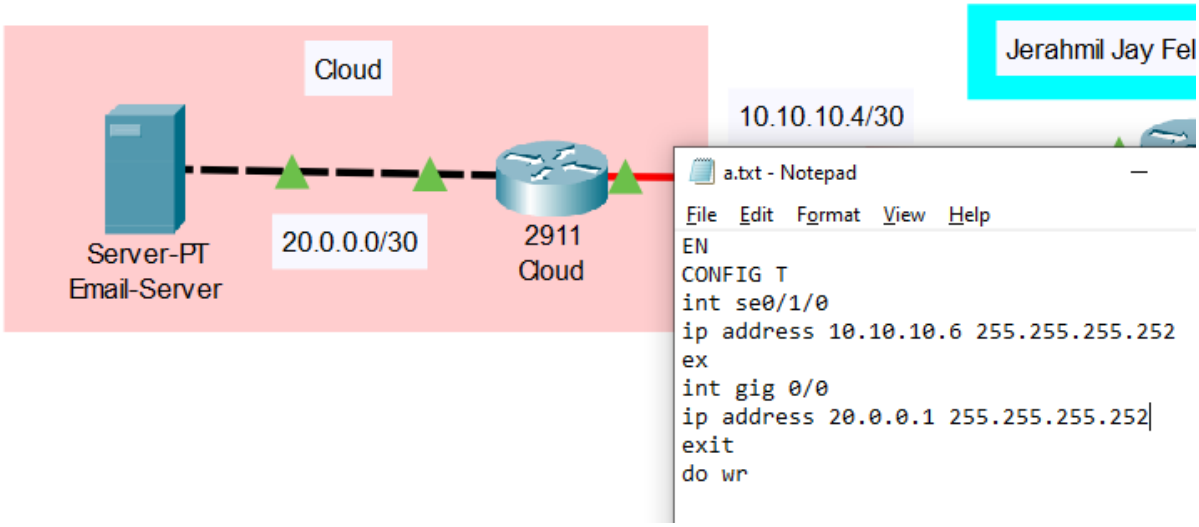
Main Router:



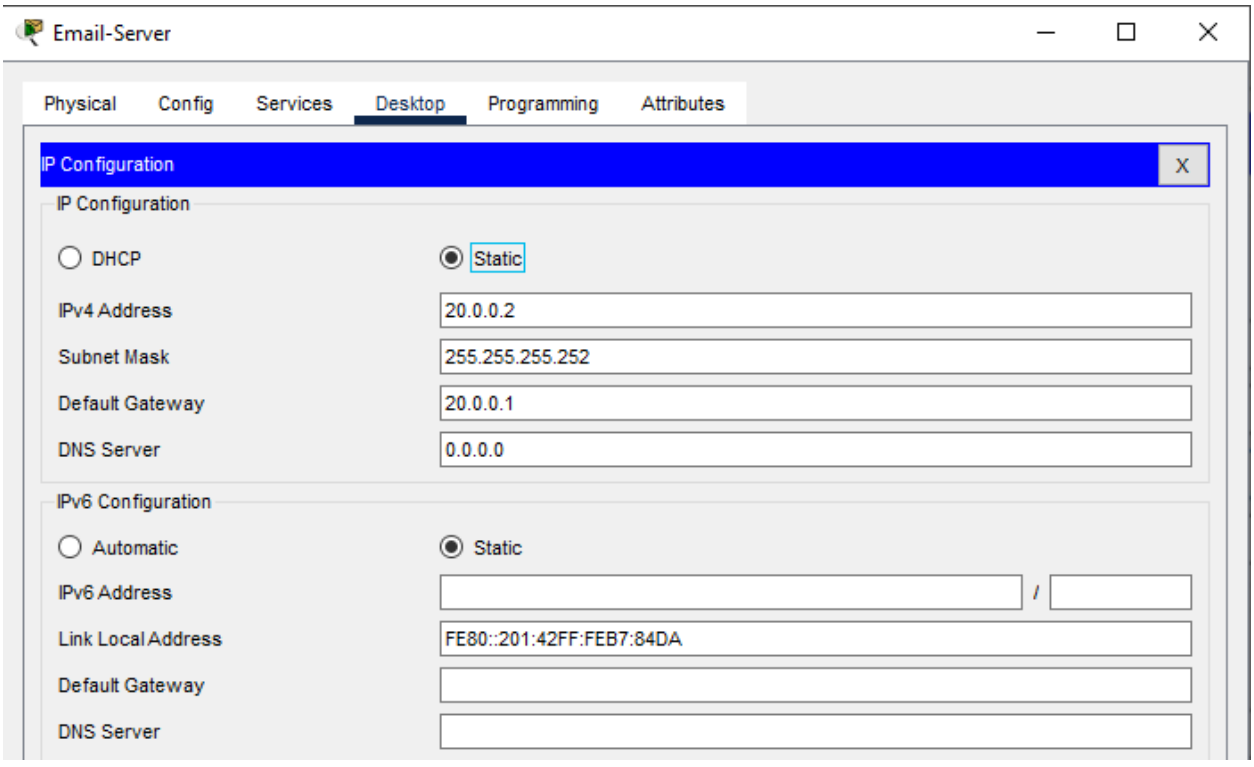
Branch Router:



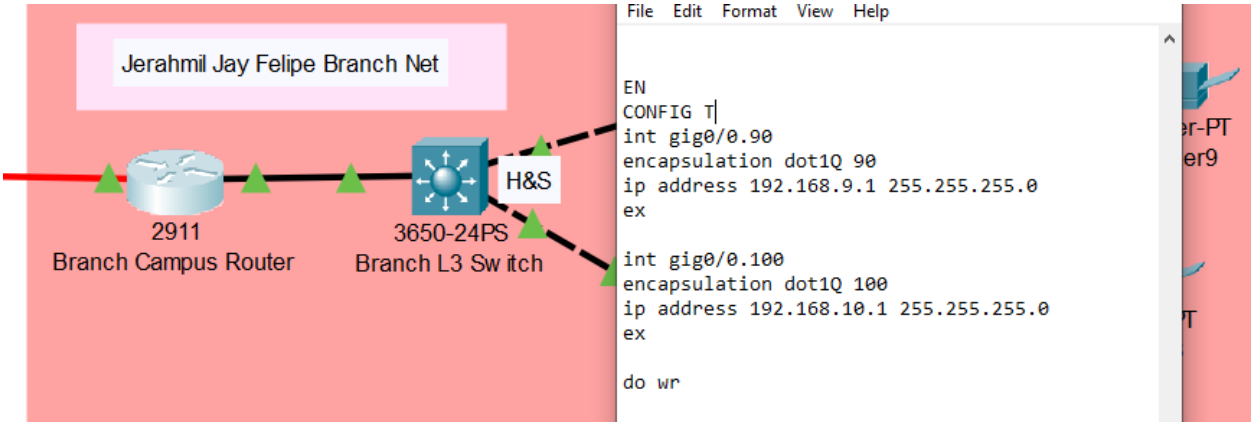
Cloud Router:

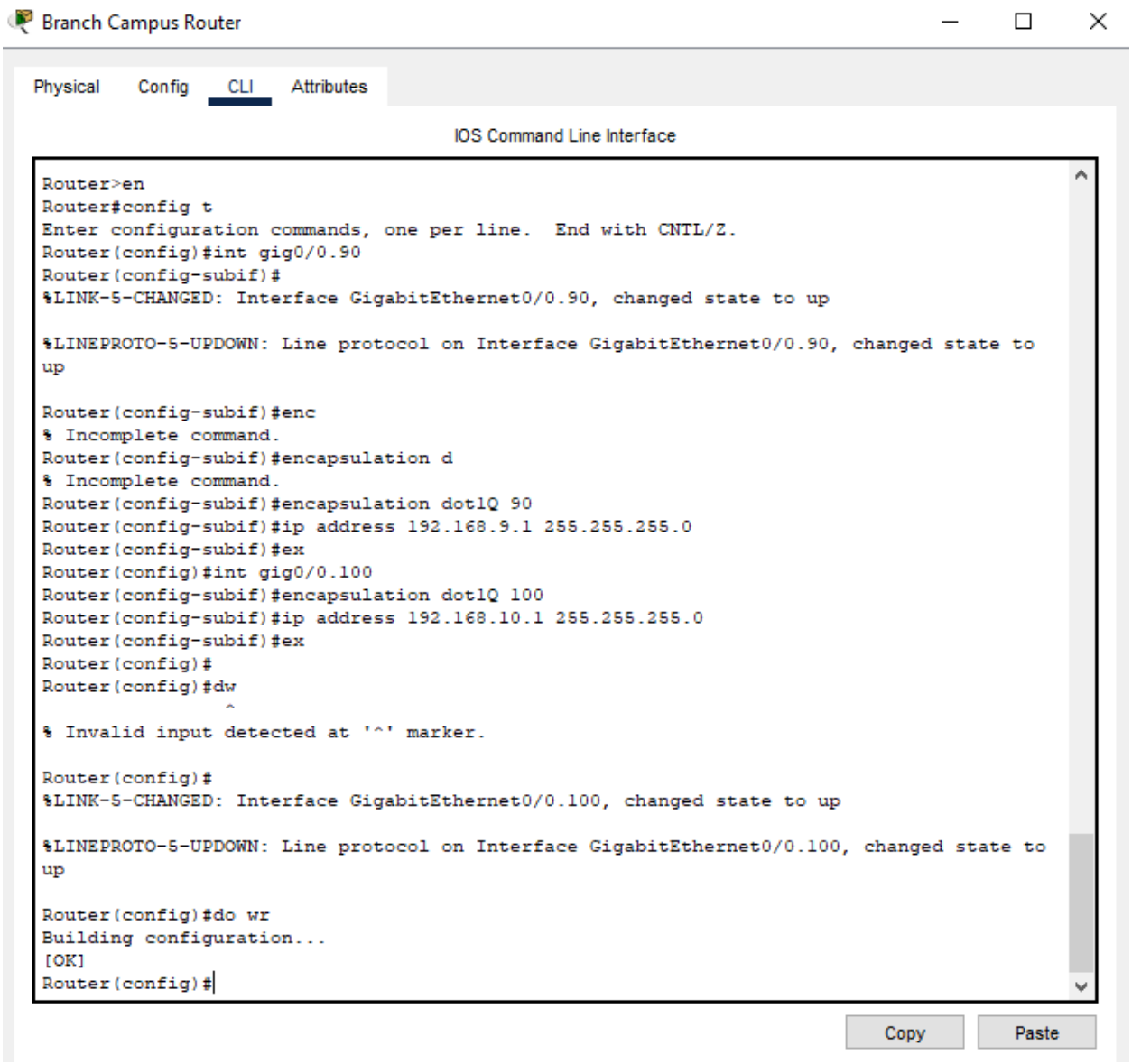


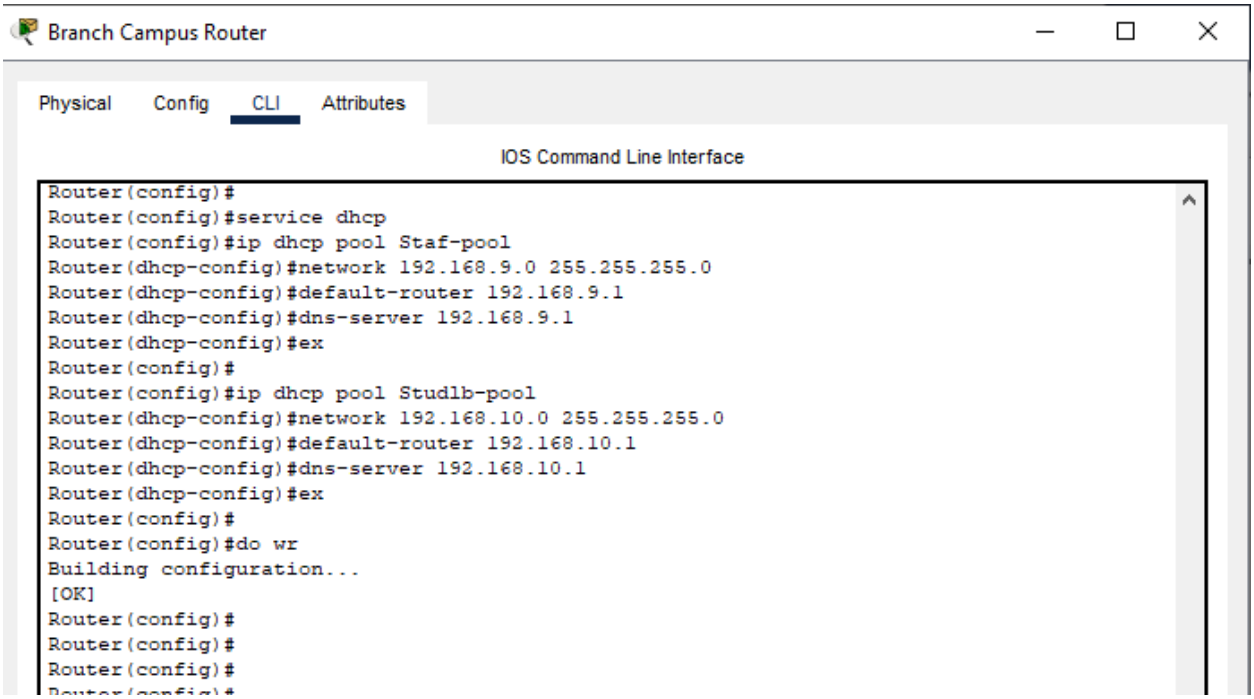
18. Apply IP to server Statically.

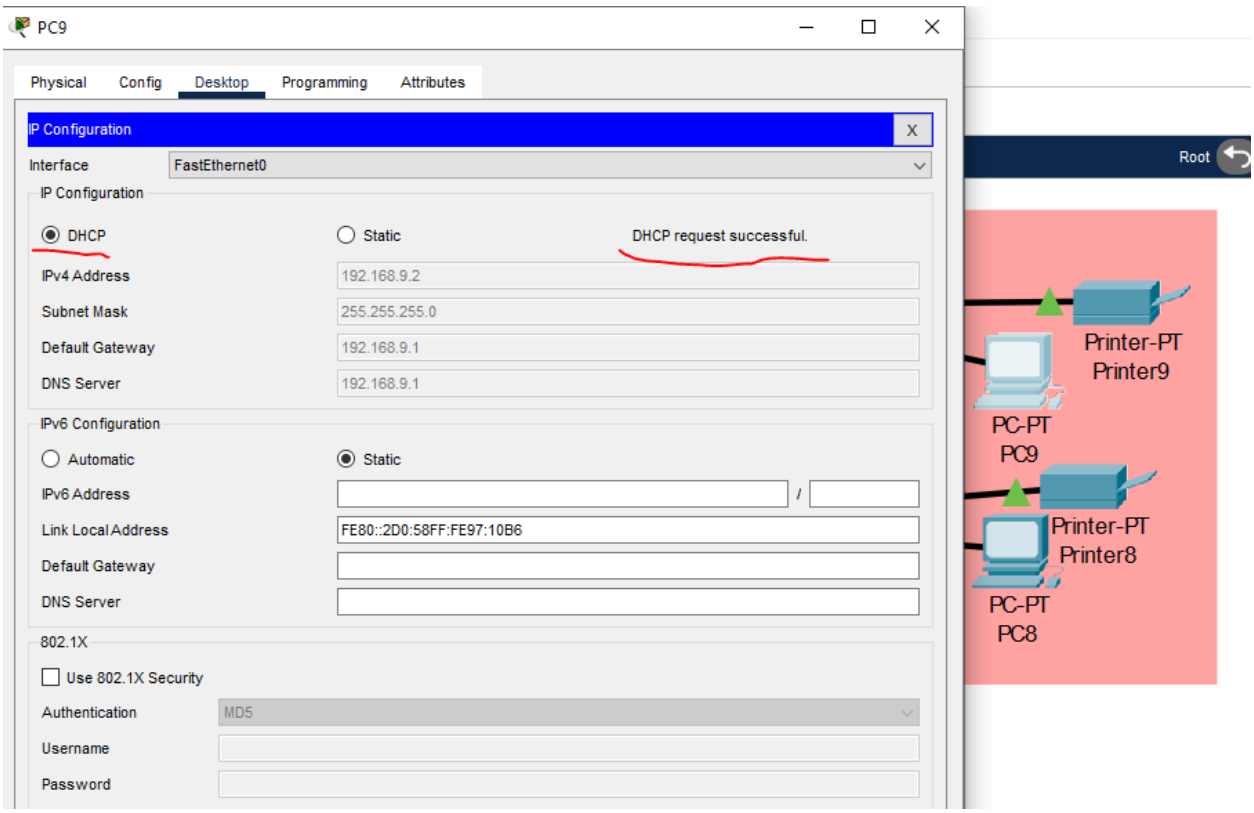


19. Inter-VLAN for Branch devices and use DHCP for dynamic IP Addressing.

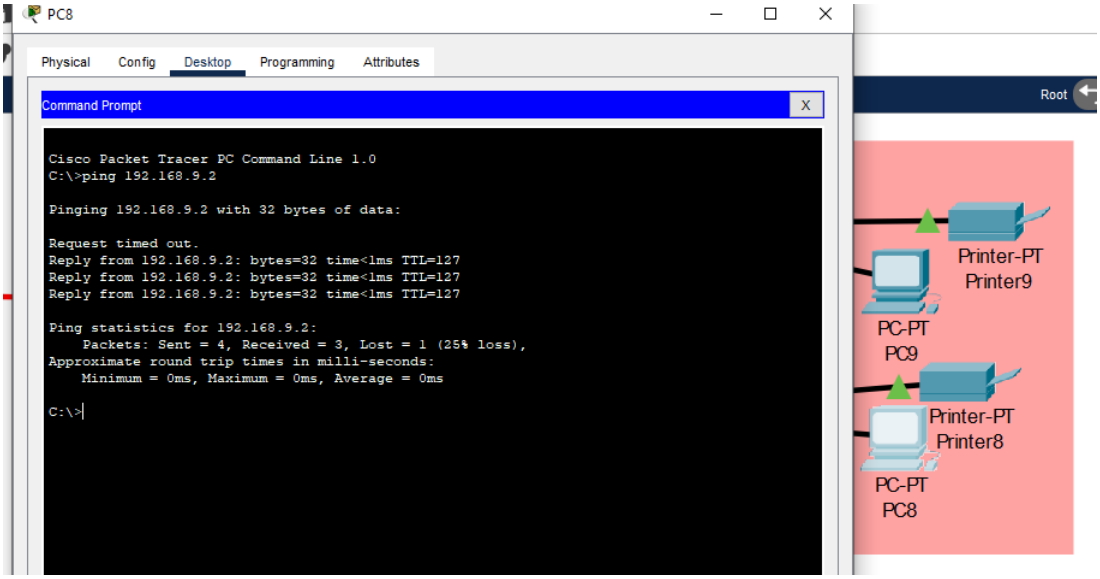




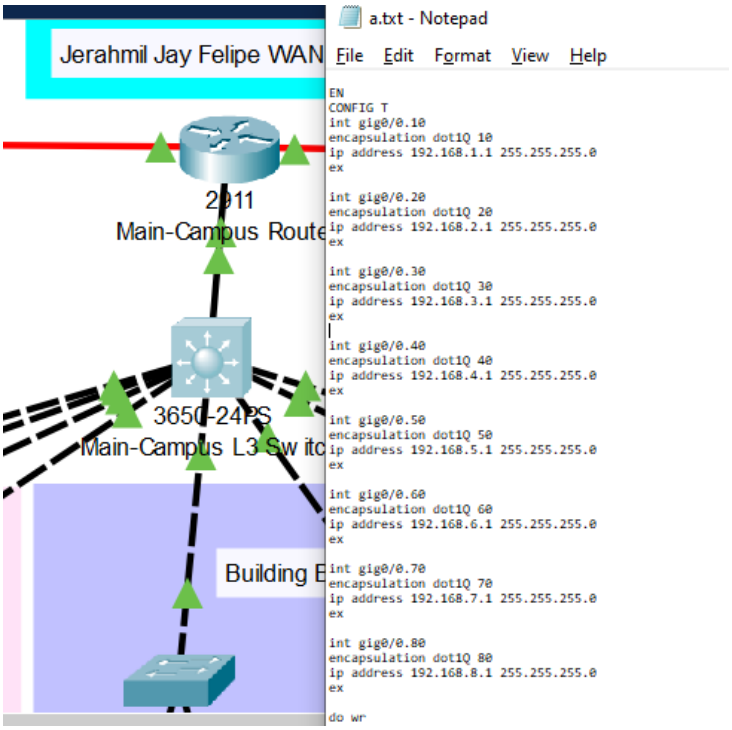

Branch Campus Router
Physical
Config
CLI
Attributes
IOS Command Line Interface
Router(config)#
Router(config)#service dhcp
Router(config)#ip dhcp pool Staf-pool
Router(dhcp-config)#network 192.168.9.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.9.1
Router(dhcp-config)#dns-server 192.168.9.1
Router(dhcp-config)#ex
Router(config)#
Router(config)#ip dhcp pool Studlb-pool
Router(dhcp-config)#network 192.168.10.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.10.1
Router(dhcp-config)#dns-server 192.168.10.1
Router(dhcp-config)#ex
Router(config)#
Router(config)#do wr
Building configuration...
[OK]
Router(config)#
Router(config)#
Router(config)#

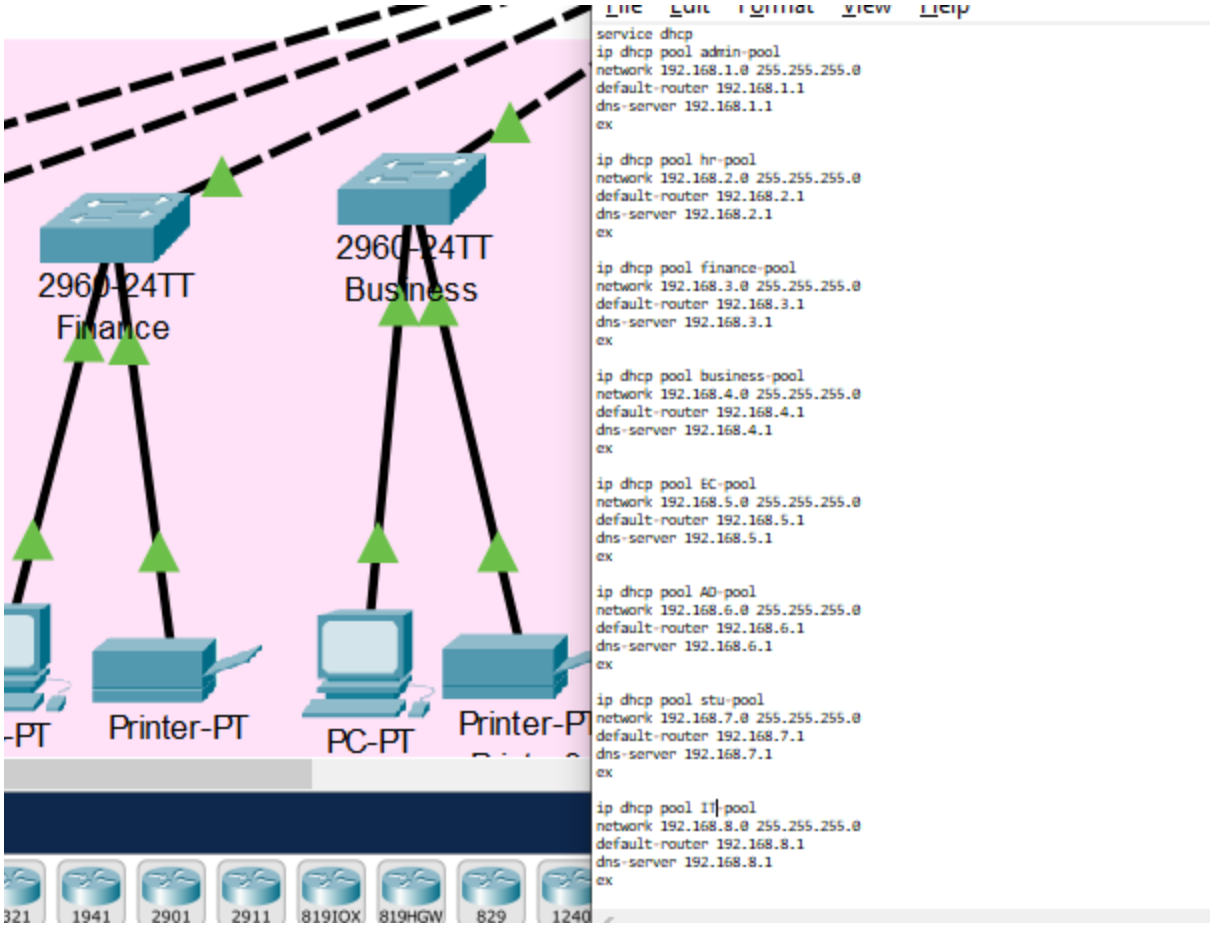

PC9
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
DHCP request successful.
IPv4 Address
192.168.9.2
Subnet Mask
255.255.255.0
Default Gateway
192.168.9.1
DNS Server
192.168.9.1
IPv6 Configuration
Automatic
Static
IPv6 Address
Link Local Address
FE80::2D0:58FF:FE97:10B6
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Root
Printer-PT
Printer9
PC-PT
PC9
Printer-PT
Printer8
PC-PT
PC8

20. Testing Ping: PC9 to PC8

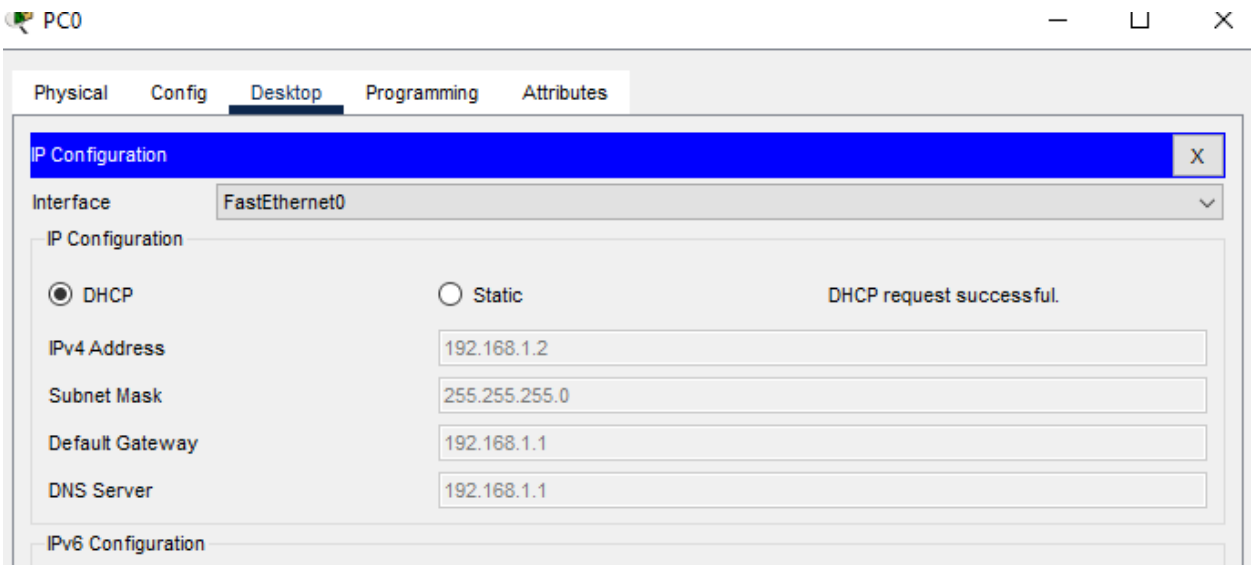


21. Do the same in Main Network: Creating sub interface in the router.



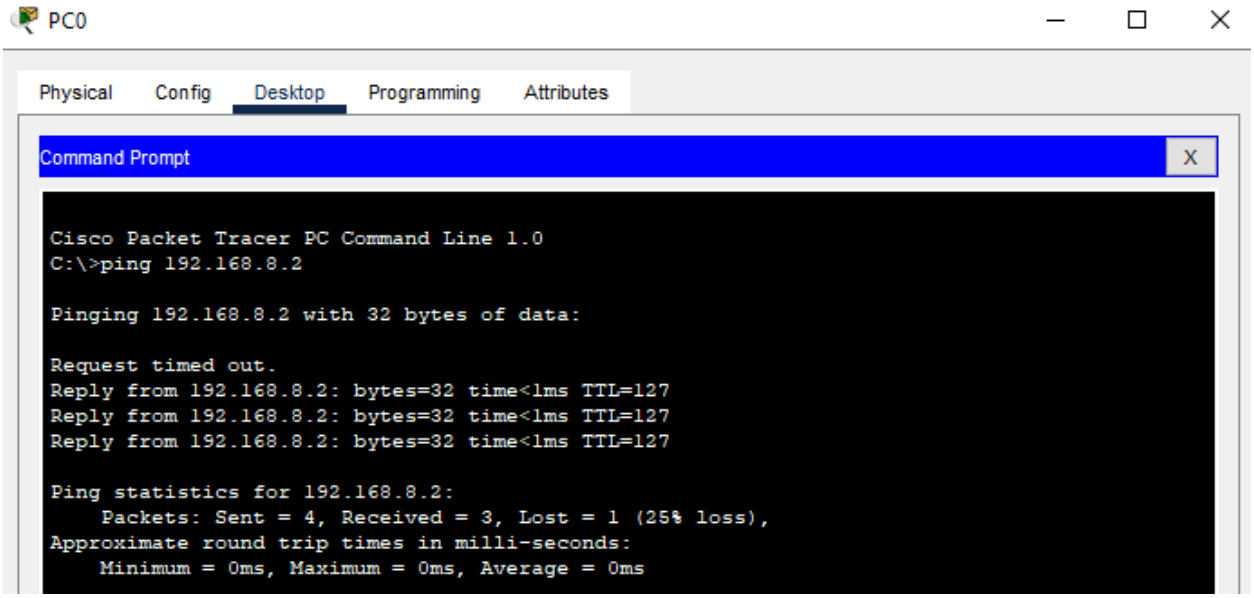


22. Configure all PC with DHCP.

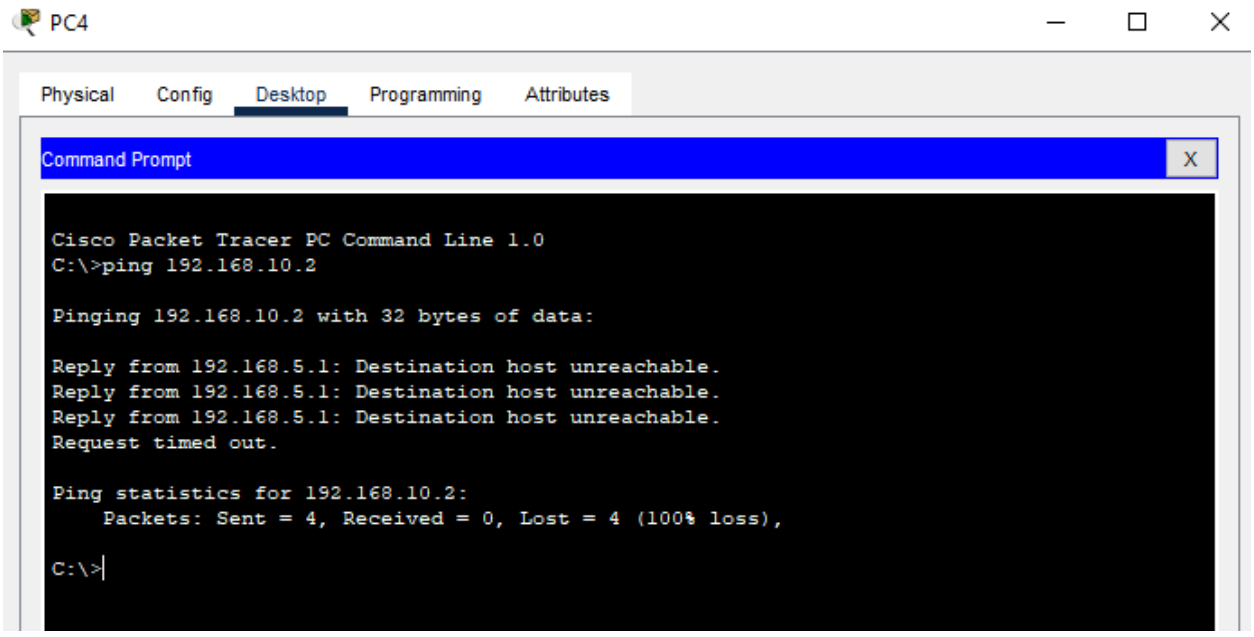


23. Testing Ping.

PC0 to PC7:

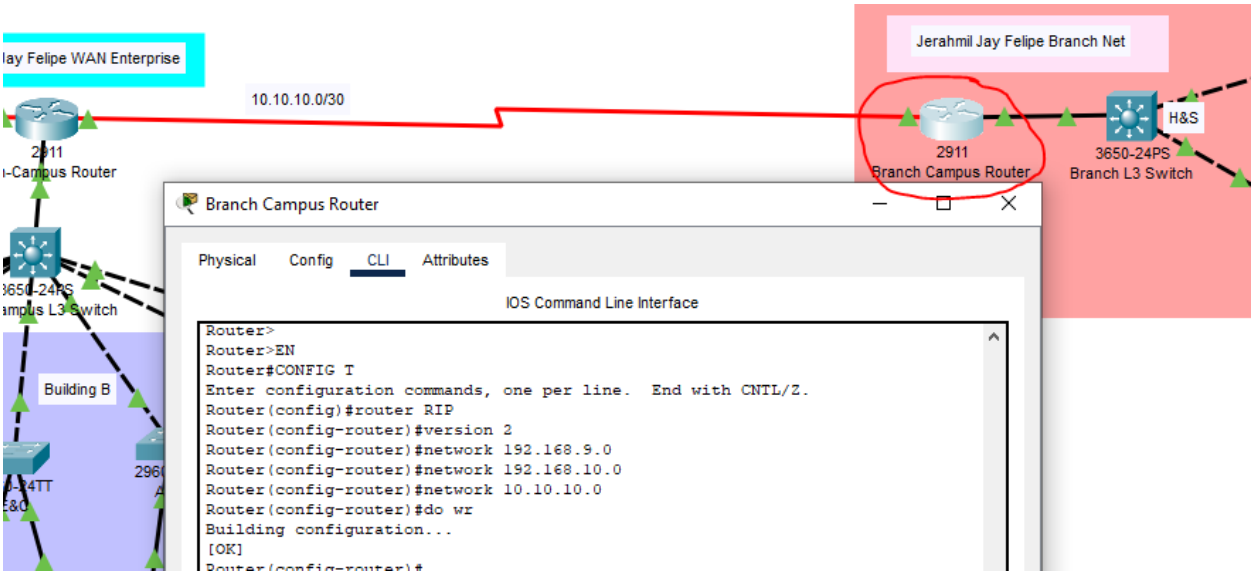


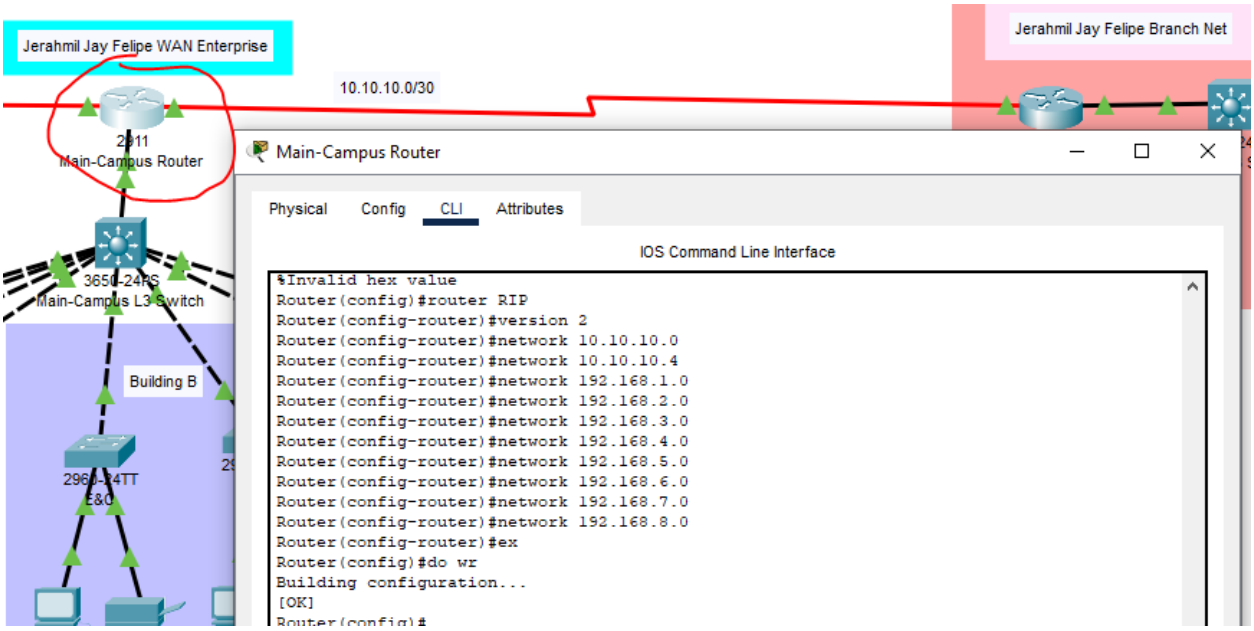
PC4 to PC9:



Note: Communicating to other branch will lead to an unreachable connection.

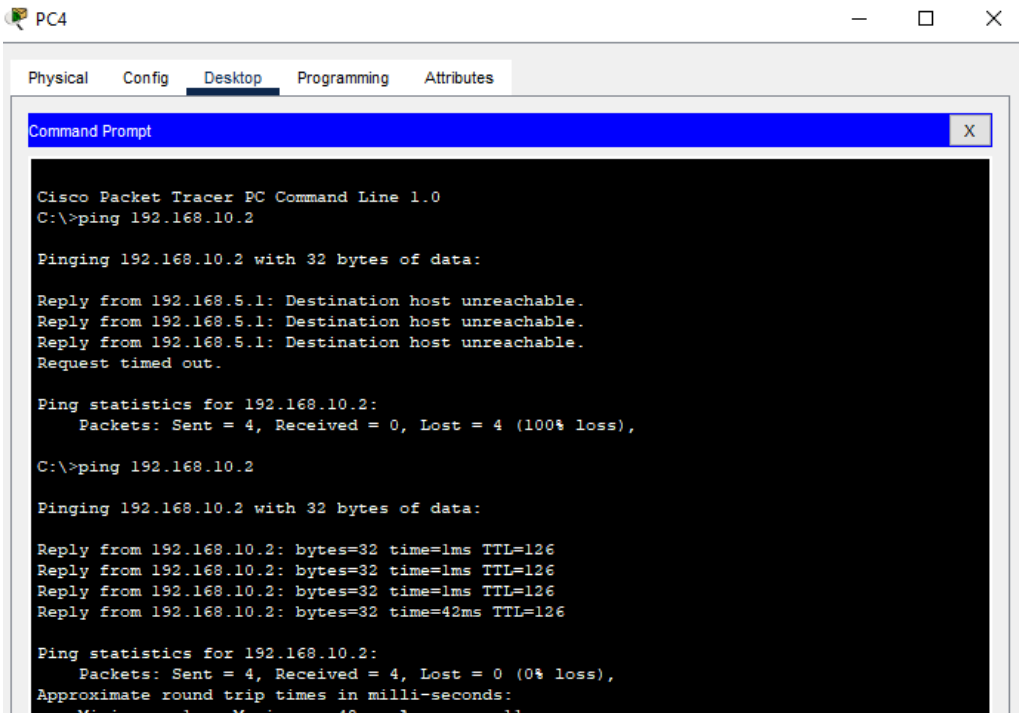
24. Solving the communication problem of Main and Branch network.



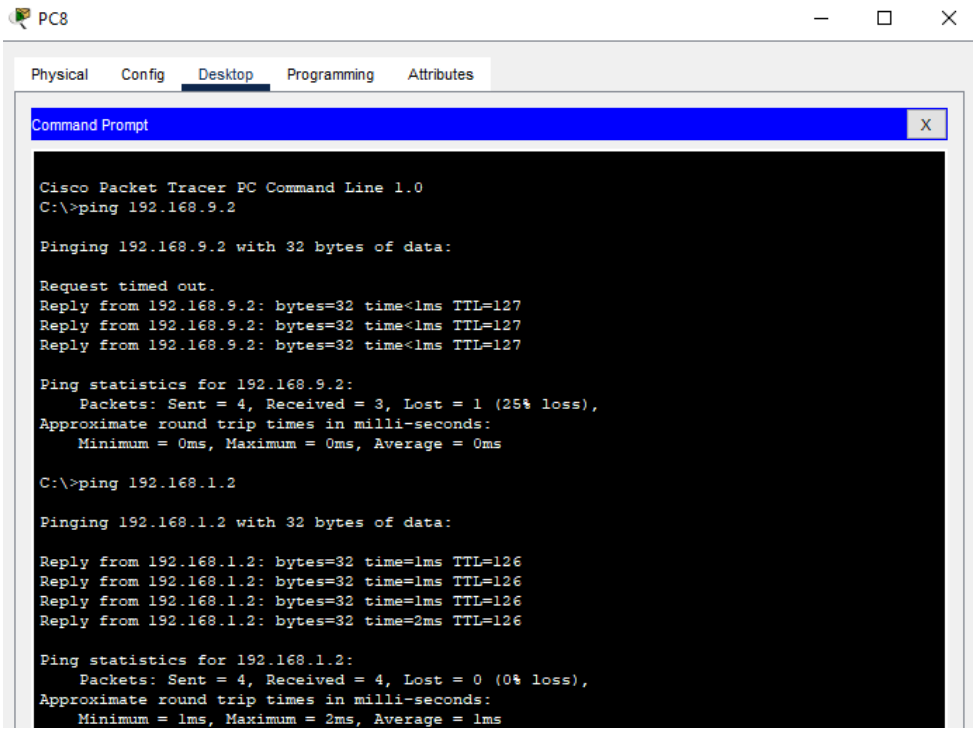


25. Testing Ping.

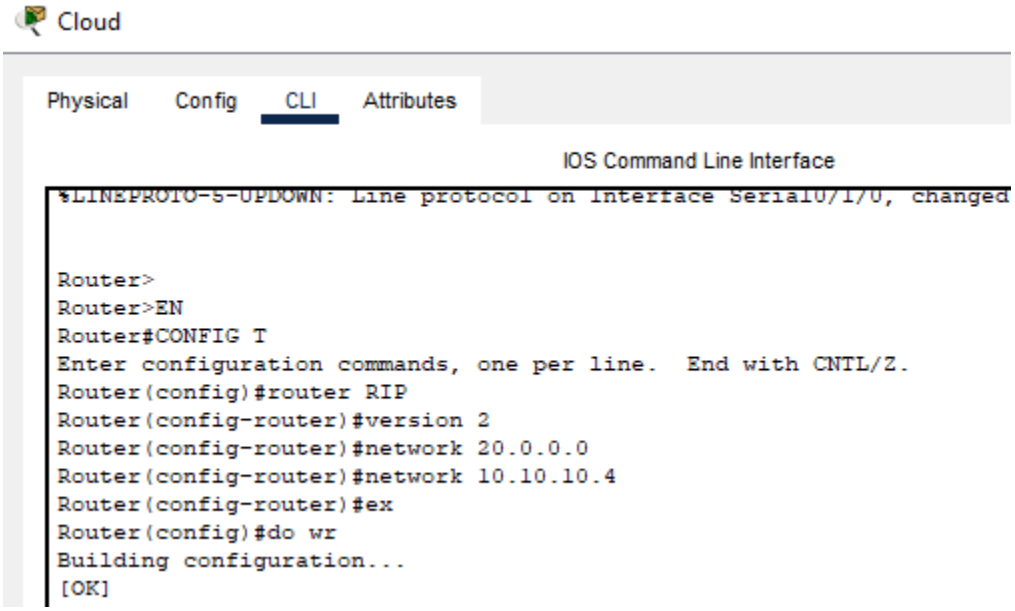
PC4 to PC9:



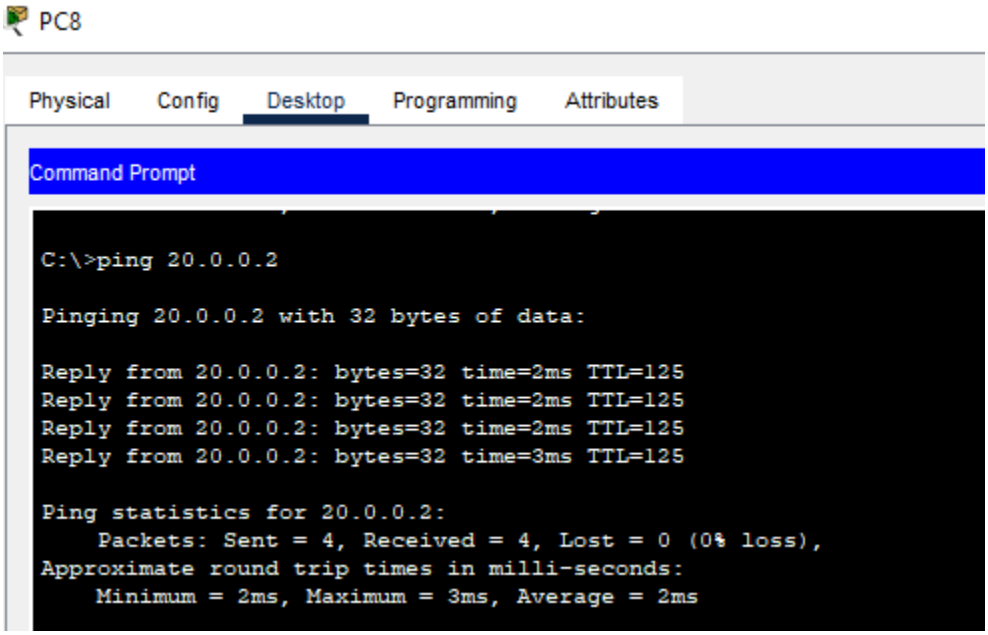
PC8 to PC0:



26. Configure Cloud.



27. Testing Ping to the Cloud. PC 8 to Server.



Overall Output