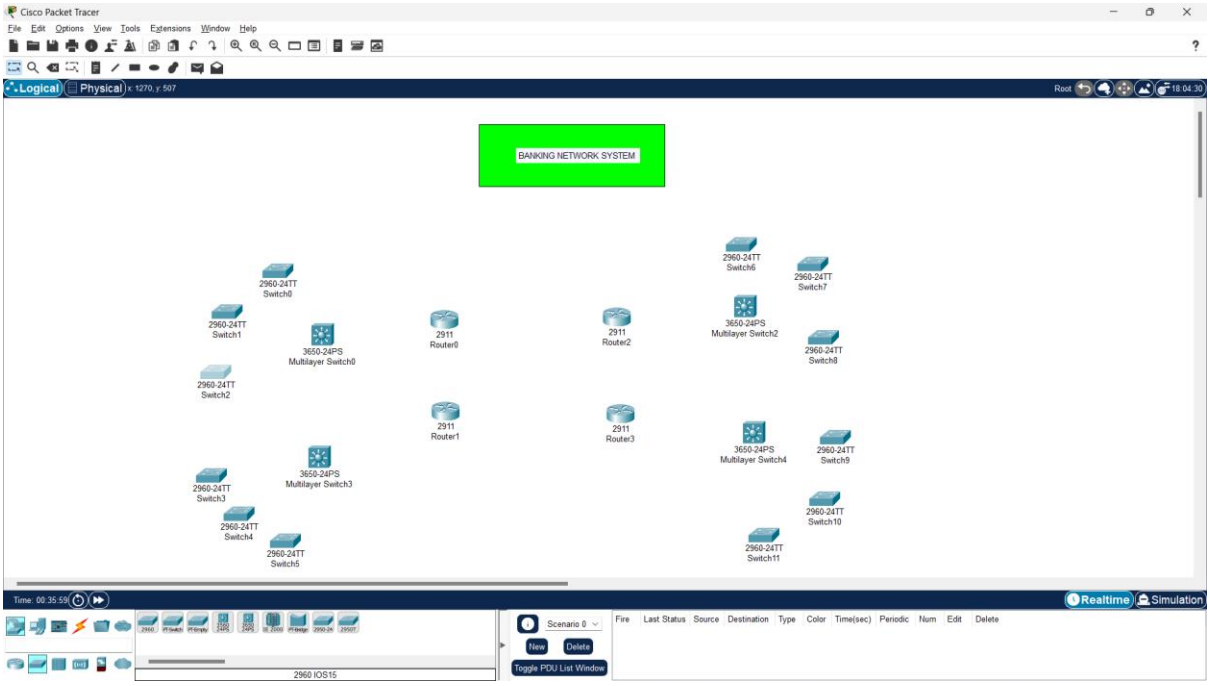
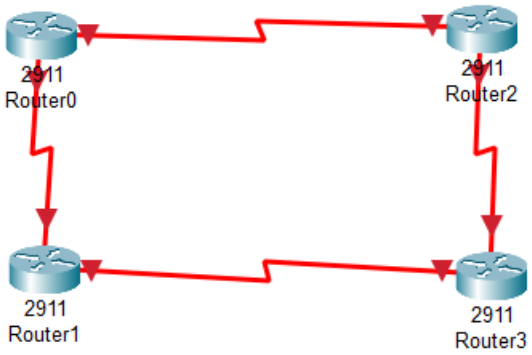
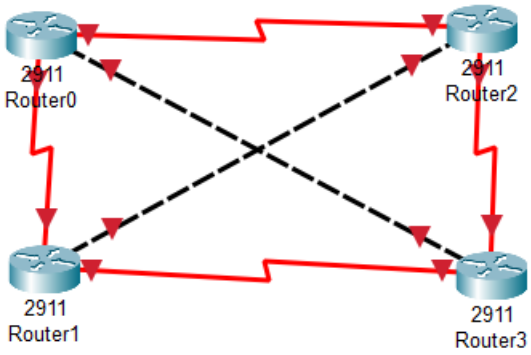
1) s4 routers-2911
2) 4 switches 3650
3) 12 departments—PER SWITCH 3 DEPARTMENTS
4)



5)Switch off the router
6)Drag HWIC-2T to any empty port
7)Turn on the router
8) repeat the same for every router
9)Serial interfaces are made
10)



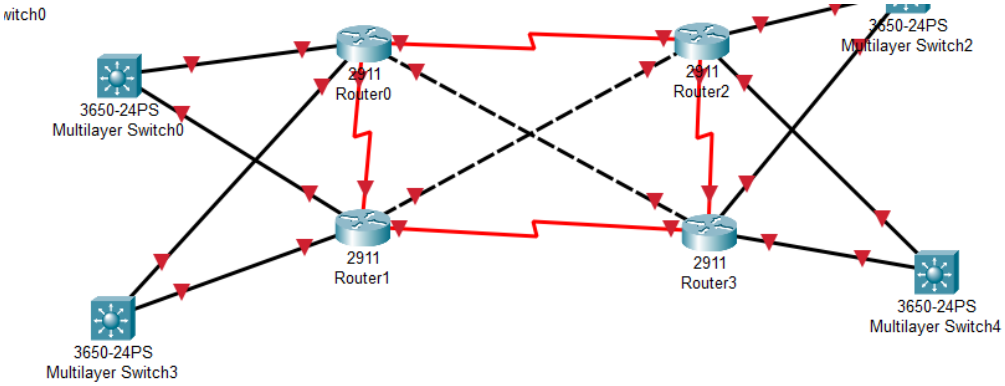
11)Routers using serial connection
12)connect the other routers by cross over cable



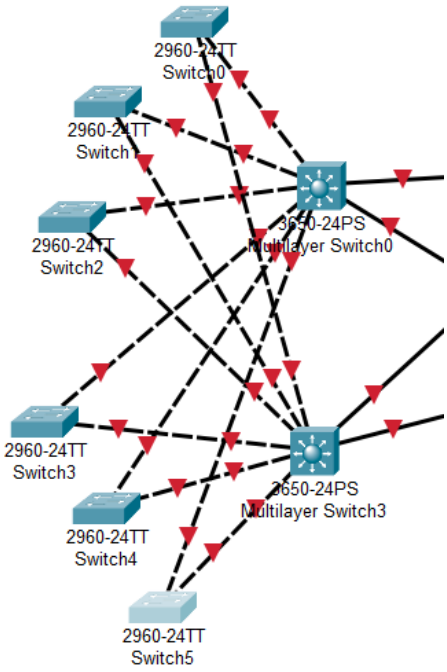
13)Now each switch shd be connected to 2 routers

14)We use automatic choose connection

15)Connected core layer to distribution layer

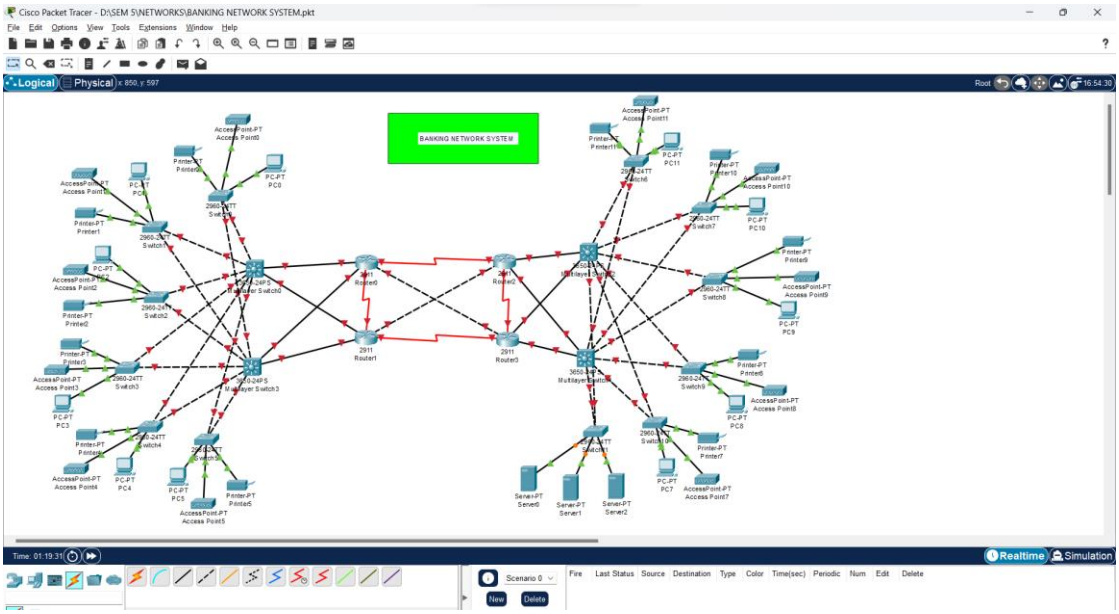


16)For redundancy each multi layer switch is connected to 6 switches



17) Connected access layer to the distribution layer

18)For each switch there is a pc, printer and access point connected

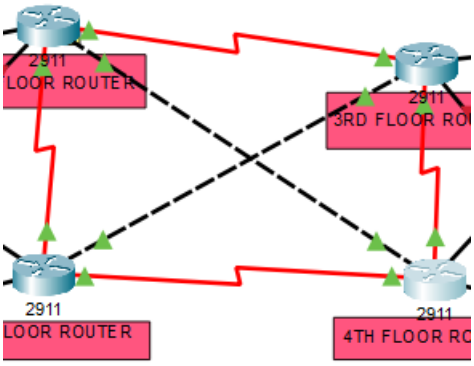


19)Naming of all the routers has been done

20)Now lets turn up the interfaces

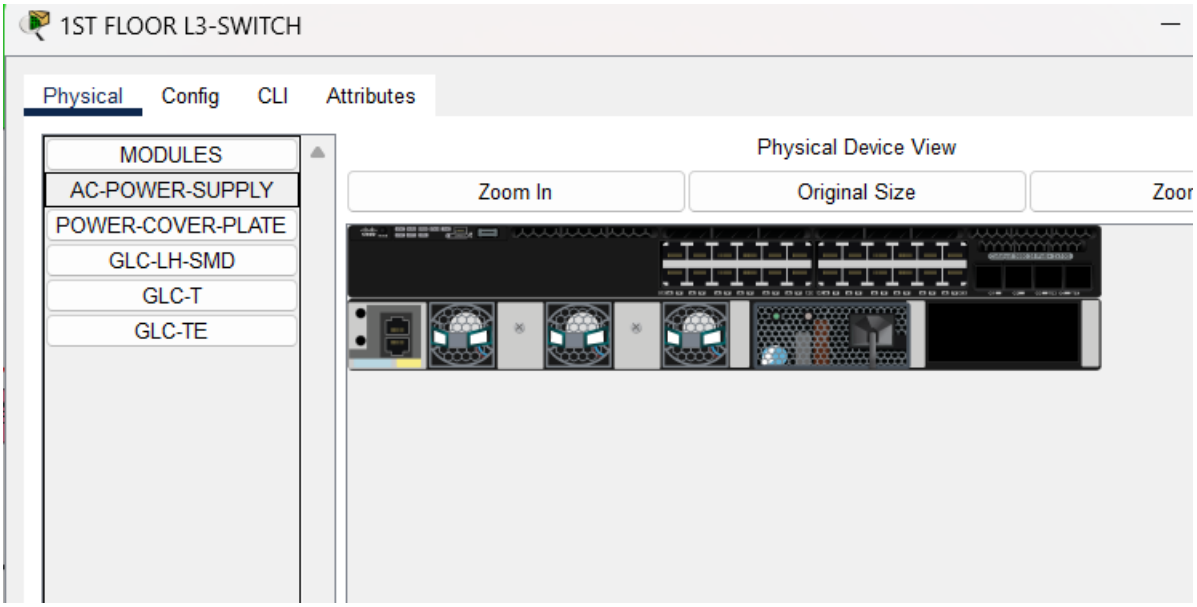
21) Go to router and go to config turn on all the interfaces

22)

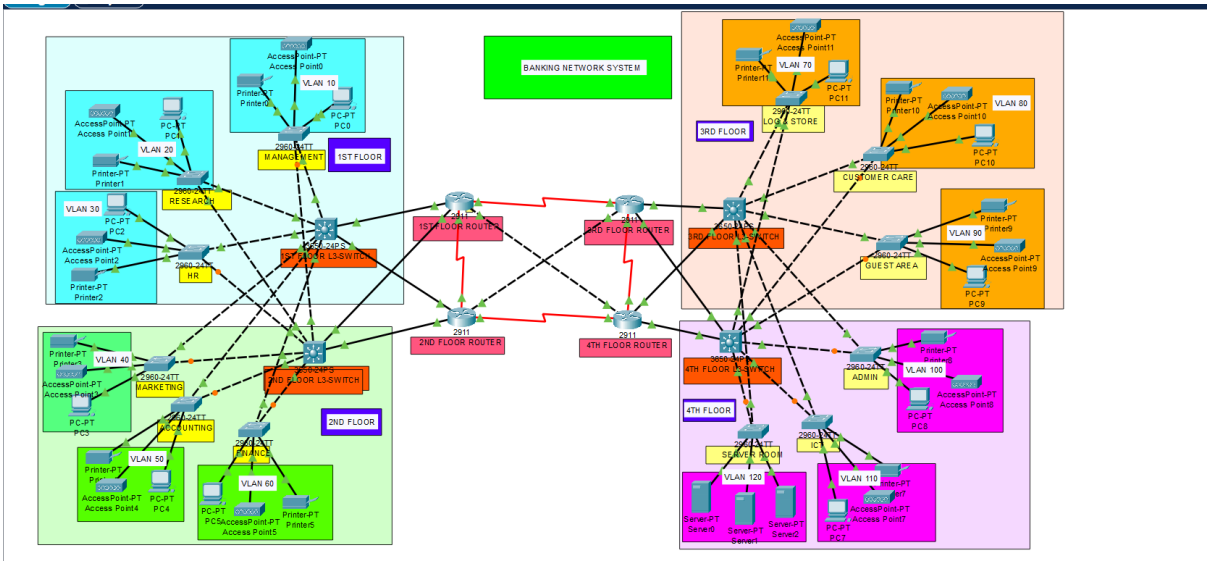


23)Now coming to l3 switches add AC-power supply to any empty port

24)



25)BORDER THE DEPARTMENTS



26) Now coming to basic configurations
Let us start with access layer

Go to management switch

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname Fl-Mgt-SW
Fl-Mgt-SW(config)#banner motd #This Floorl-mgt switch#
Fl-Mgt-SW(config)#line console 0
Fl-Mgt-SW(config-line)#password cisco
Fl-Mgt-SW(config-line)#login
Fl-Mgt-SW(config-line)#exit
Fl-Mgt-SW(config)#line vty 0 15
Fl-Mgt-SW(config-line)#password cisco
Fl-Mgt-SW(config-line)#login
Fl-Mgt-SW(config-line)#exit
Fl-Mgt-SW(config)#no ip domain-lookup
Fl-Mgt-SW(config)#enable password cisco
Fl-Mgt-SW(config)#service password-encryption
Fl-Mgt-SW(config)#do wr
Building configuration...
[OK]
Fl-Mgt-SW(config)#
```

Commands for all switches
en
conf t

hostname Layer-2-Sw
banner motd #This is layer-2-Sw #
line console 0
password cisco
login
exit

line vty 0 15
password cisco
login
exit

no ip domain-lookup
enable password cisco
service password-encryption

do wr

```
############ CONFIG STEPS ###############

1. Basic settings to all devices plus ssh on the routers and l3 switches.
2. VLANs assignment plus all access and trunk ports.
3. Switchport security to all l2 switches.
4. Subnetting and IP addressing
5. OSPF on the routers and l3 switches.
6. Static IP address to serverRoom devices.
7. DHCP server device configuratiuons.
8. Inter-VLAN routing on the l3 switches plus ip dhcp helper addresses.
9. Wireless network configurations.
10. Verifying and testing configurations.
```

27) Configuring SSH—Distributive layer

```
% Incomplete command.
Fl-l3sw(config)#line console 0
Fl-l3sw(config-line)#password cisco
Fl-l3sw(config-line)#login
Fl-l3sw(config-line)#exit
Fl-l3sw(config)#line vty 0 15
Fl-l3sw(config-line)#password cisco
Fl-l3sw(config-line)#login
Fl-l3sw(config-line)#exit
Fl-l3sw(config)#no ip domain-lookup
Fl-l3sw(config)#enable
% Incomplete command.
Fl-l3sw(config)#enable password cisco
Fl-l3sw(config)#service password-encryption
Fl-l3sw(config)#ip domain-name cisco.net
Fl-l3sw(config)#username cisco password cisco
Fl-l3sw(config)#crypto key generate rsa
The name for the keys will be: Fl-l3sw.cisco.net
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

Fl-l3sw(config)#line vty 0 15
*Mar 1 2:26:5.609: %SSH-5-ENABLED: SSH 1.99 has been enabled
Fl-l3sw(config-line)#login local
Fl-l3sw(config-line)#transport input ssh
Fl-l3sw(config-line)#exit
Fl-l3sw(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
```

FOR CORE LAYER

en
conf t

hostname Core-LayerR4
banner motd #This is Core-LayerR4 #
line console 0
password cisco
login
exit

ip domain-name cisco.net
username cisco password cisco
crypto key generate rsa
1024
line vty 0 15
login local
transport input ssh
exit

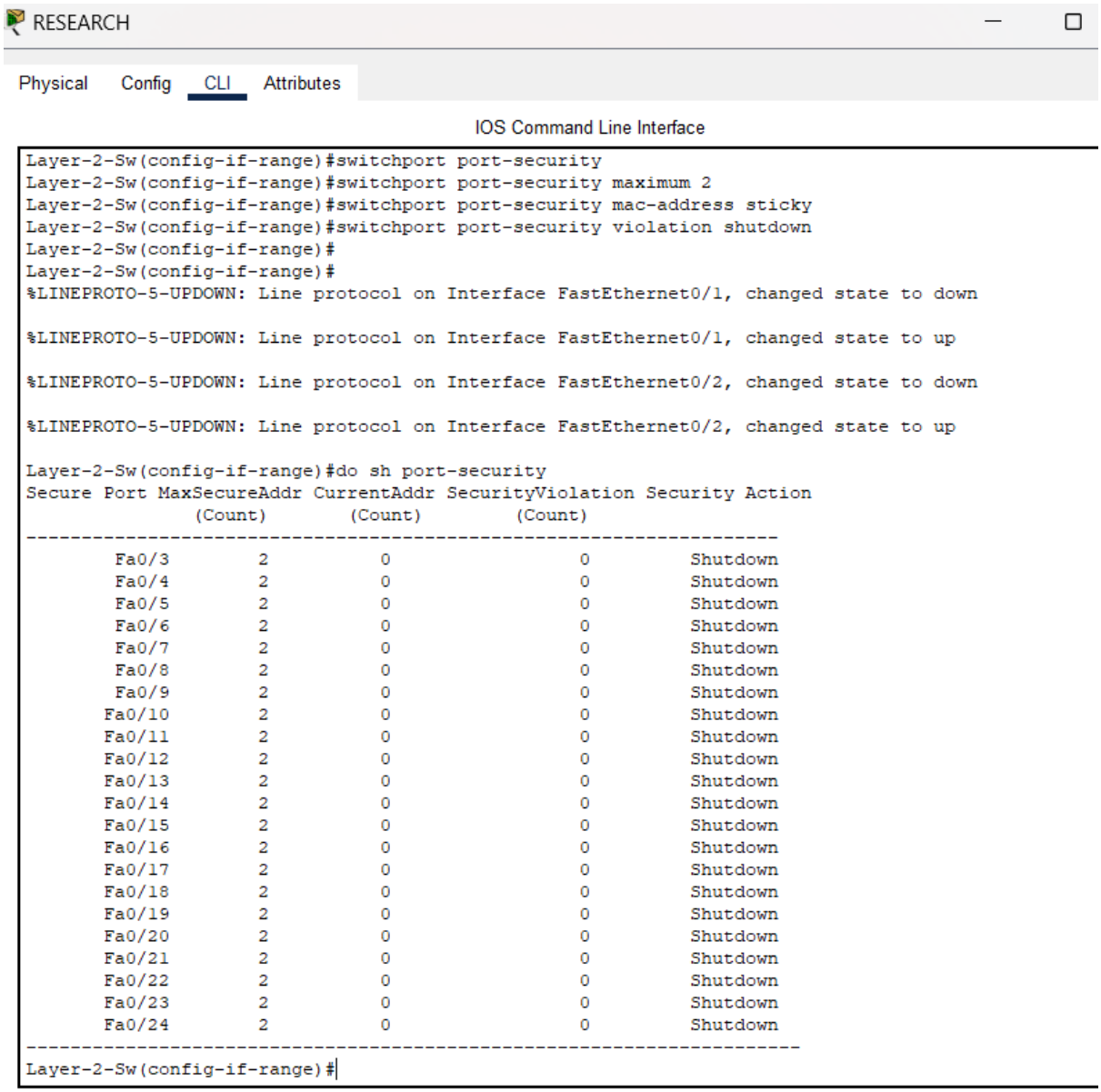
no ip domain-lookup

enable password cisco
service password-encryption

do wr

Step 1 of configuration is done

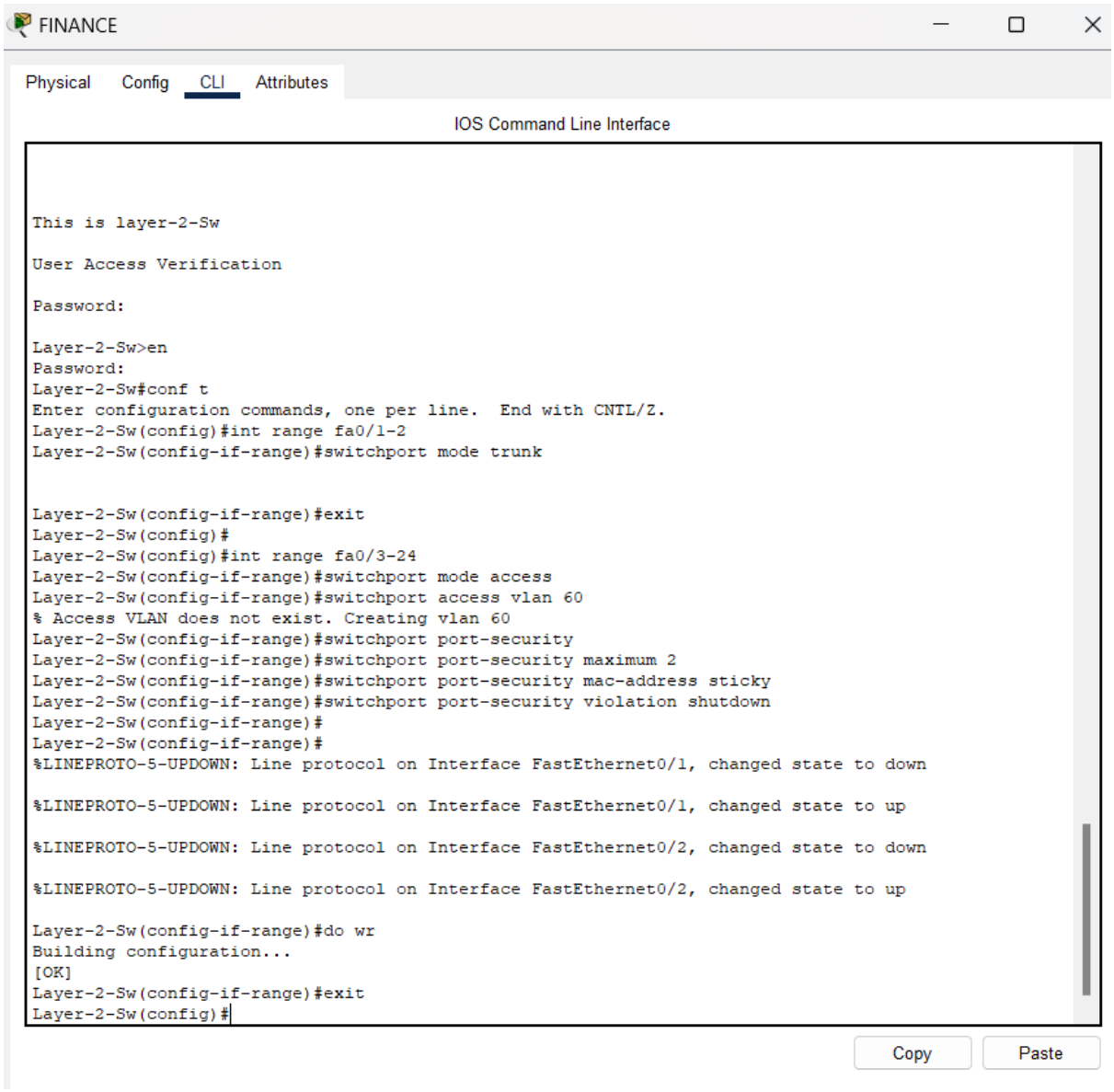
Fa 0/1 and Fa 0/2 shd be trunk ports
Remaining ports shd be access ports since we connect host devices



Instructions:

int range fa0/1-2
switchport mode trunk
exit

int range fa0/3-24
switchport mode access
switchport access vlan 20
switchport port-security
switchport port-security maximum 2
switchport port-security mac-address sticky
switchport port-security violation shutdown



2nd and 3rd steps are completed

SUBNETTING PROCESS

IP Addressing

Base Network: 192.168.10.0

First Floor

Department	Network Address	Subnet Mask	Host Address Range	Broadcast Address
Management	192.168.10.0	255.255.255.192/26	192.168.10.1 to 192.168.10.62	192.168.10.63
Research	192.168.10.64	255.255.255.192/26	192.168.10.65 to 192.168.10.126	192.168.10.127
Human Res	192.168.10.128	255.255.255.192/26	192.168.10.129 to 192.168.10.190	192.168.10.191

Second Floor

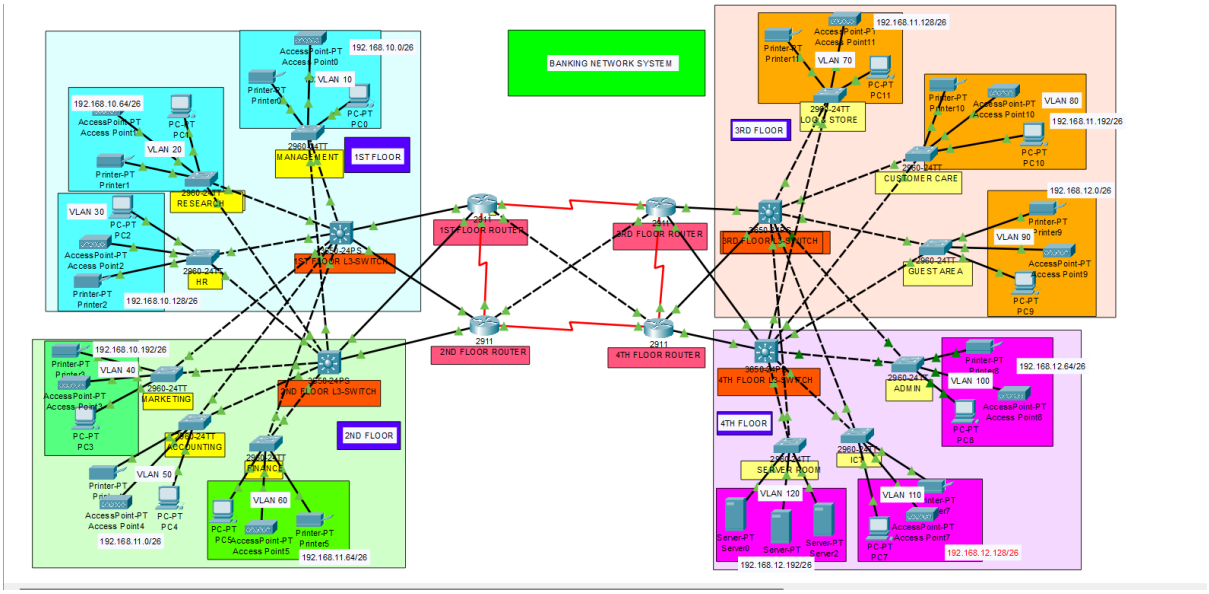
Department	Network Address	Subnet Mask	Host Address Range	Broadcast Address
Marketing	192.168.10.192	255.255.255.192/26	192.168.10.193 to 192.168.10.254	192.168.10.255
Accounts	192.168.11.0	255.255.255.192/26	192.168.11.1 to 192.168.11.62	192.168.11.63
Finance	192.168.11.64	255.255.255.192/26	192.168.11.65 to 192.168.11.126	192.168.11.127

Third Floor

Department	Network Address	Subnet Mask	Host Address Range	Broadcast Address
Logistics	192.168.11.128	255.255.255.192/26	192.168.11.129 to 192.168.11.190	192.168.11.191
Customer	192.168.11.192	255.255.255.192/26	192.168.11.193 to 192.168.11.254	192.168.11.255
Guest	192.168.12.0	255.255.255.192/26	192.168.12.1 to 192.168.12.62	192.168.12.63

Fourth Floor

Department	Network Address	Subnet Mask	Host Address Range	Broadcast Address
Admin	192.168.12.64	255.255.255.192/26	192.168.12.65 to 192.168.12.126	192.168.12.127
ICT	192.168.12.128	255.255.255.192/26	192.168.12.129 to 192.168.12.190	192.168.12.191
ServerRoom	192.168.12.192	255.255.255.192/26	192.168.12.193 to 192.168.12.254	192.168.12.255



Giving subnet addresses

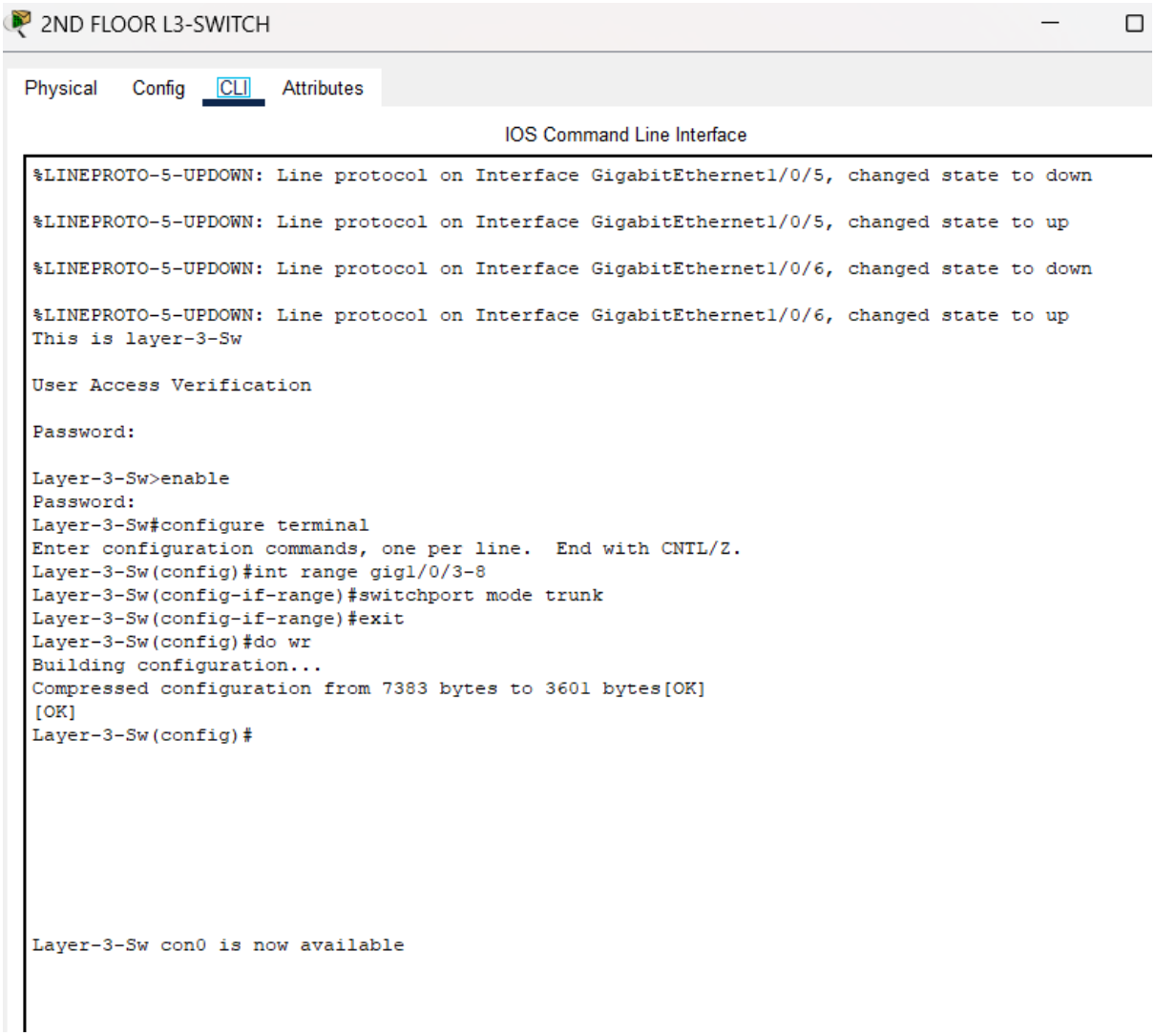
Between the Routers and Layer-3 Switches

Base Network Address: 10.10.10.0

No.	Network Address	Subnet Mask	Host Address Range	Broadcast Address
1	10.10.10.0	255.255.255.252	10.10.10.33 to 10.10.10.34	10.10.10.35
2	10.10.10.4	255.255.255.252	10.10.10.37 to 10.10.10.38	10.10.10.39
3	10.10.10.8	255.255.255.252	10.10.10.41 to 10.10.10.42	10.10.10.43
4	10.10.10.12	255.255.255.252	10.10.10.45 to 10.10.10.46	10.10.10.47
5	10.10.10.16	255.255.255.252	10.10.10.49 to 10.10.10.50	10.10.10.51
6	10.10.10.20	255.255.255.252	10.10.10.53 to 10.10.10.54	10.10.10.55
7	10.10.10.24	255.255.255.252	10.10.10.33 to 10.10.10.34	10.10.10.35
8	10.10.10.28	255.255.255.252	10.10.10.37 to 10.10.10.38	10.10.10.39
9	10.10.10.32	255.255.255.252	10.10.10.41 to 10.10.10.42	10.10.10.43
10	10.10.10.36	255.255.255.252	10.10.10.45 to 10.10.10.46	10.10.10.47
11	10.10.10.40	255.255.255.252	10.10.10.49 to 10.10.10.50	10.10.10.51
12	10.10.10.44	255.255.255.252	10.10.10.53 to 10.10.10.54	10.10.10.55
13	10.10.10.48	255.255.255.252	10.10.10.33 to 10.10.10.34	10.10.10.35
14	10.10.10.52	255.255.255.252	10.10.10.37 to 10.10.10.38	10.10.10.39

LETS CONFIGURE TRUNK PORTS
int range gig1/0/3-8
switchport mode trunk
exit
do wr

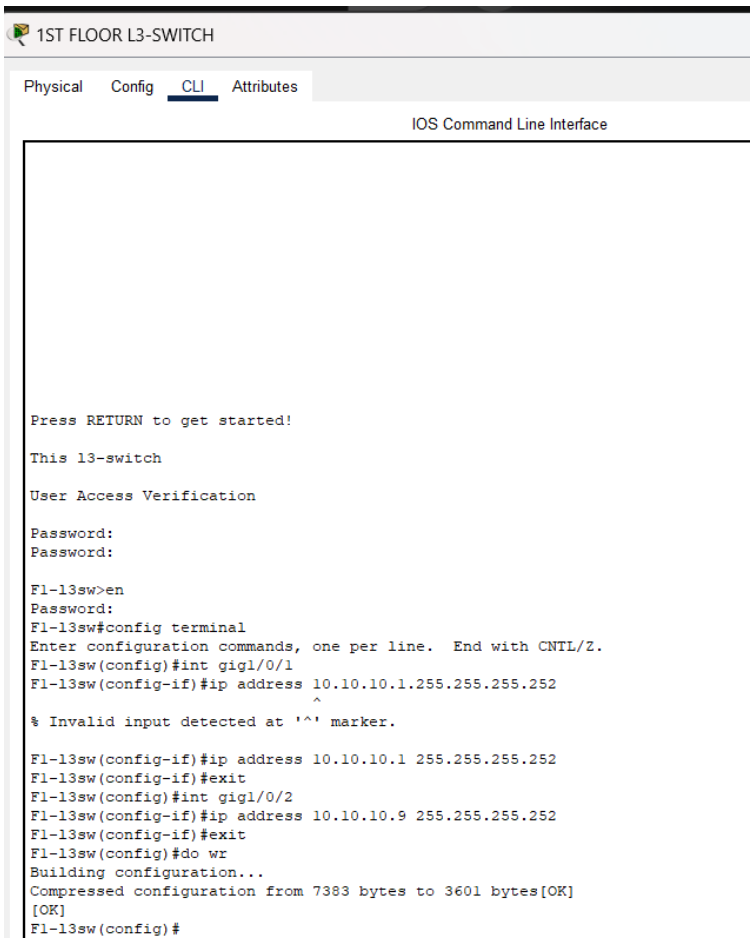
```
Fl-l3sw>enable
Password:
Fl-l3sw#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Fl-l3sw(config)#int range gig1/0/3-8
Fl-l3sw(config-if-range)#switchport mode trunk
Fl-l3sw(config-if-range)#exit
Fl-l3sw(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
Fl-l3sw(config)#
```



Now start configuring ip addresses to these interfaces

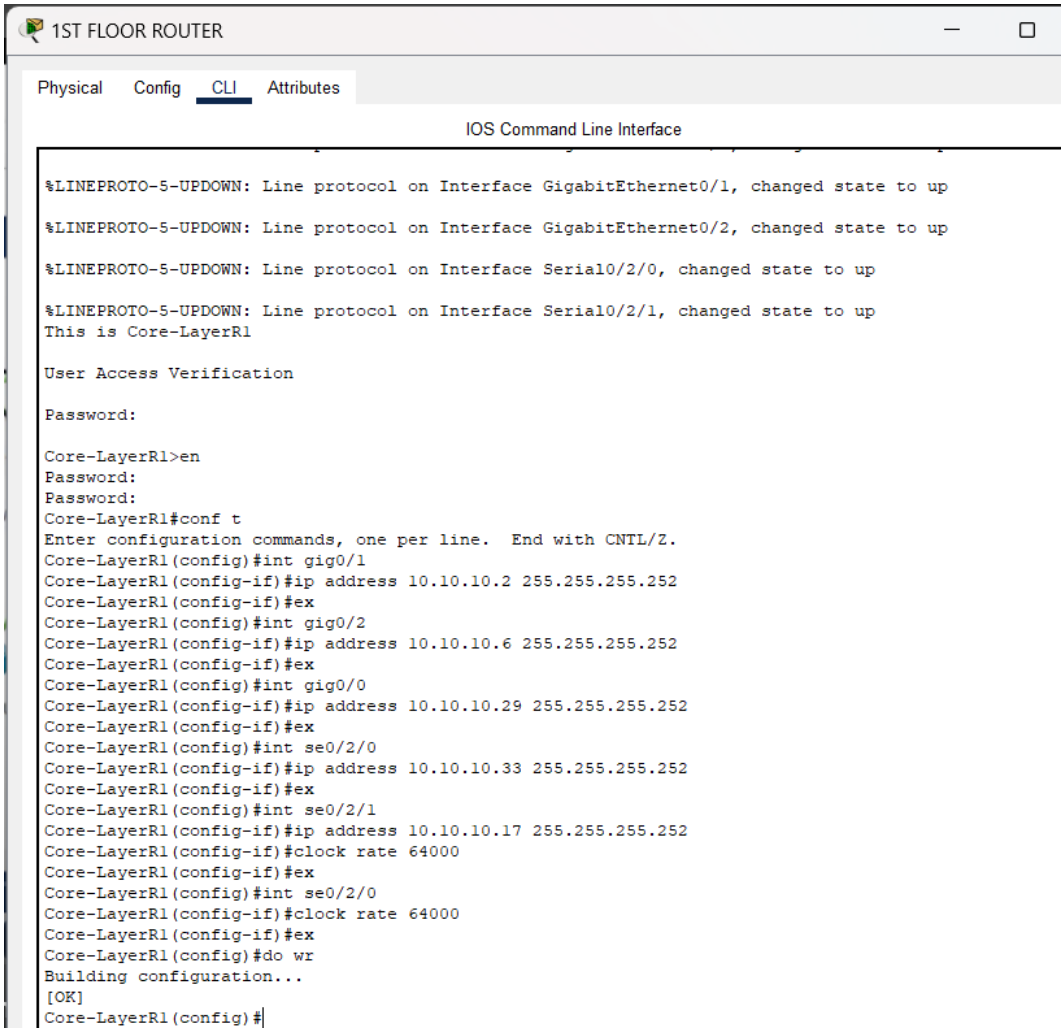
```
This l3-switch

User Access Verification

Password:
Password:

F1-l3sw>en
Password:
F1-l3sw#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
F1-l3sw(config)#int range gig1/0/1-2
F1-l3sw(config-if-range)#no switchport
F1-l3sw(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/2, changed state to up

F1-l3sw(config-if-range)#exit
F1-l3sw(config)#
```

```
Device Name: 1ST FLOOR L3-SWITCH
Device Model: 3650-24PS
Hostname: F1-l3sw

Port                    Link   VLAN   IP Address         IPv6 Address                              MAC Address
GigabitEthernet1/0/1    Up     1      <not set>          <not set>                                 000C.851C.6E01
GigabitEthernet1/0/2    Up     1      <not set>          <not set>                                 000C.851C.6E02
GigabitEthernet1/0/3    Up     --     <not set>          <not set>                                 000C.851C.6E03
GigabitEthernet1/0/4    Up     --     <not set>          <not set>                                 000C.851C.6E04
GigabitEthernet1/0/5    Up     --     <not set>          <not set>                                 000C.851C.6E05
GigabitEthernet1/0/6    Up     --     <not set>          <not set>                                 000C.851C.6E06
GigabitEthernet1/0/7    Up     --     <not set>          <not set>                                 000C.851C.6E07
GigabitEthernet1/0/8    Up     --     <not set>          <not set>                                 000C.851C.6E08
GigabitEthernet1/0/9    Down   1      <not set>          <not set>                                 000C.851C.6E09
GigabitEthernet1/0/10   Down   1      <not set>          <not set>                                 000C.851C.6E0A
GigabitEthernet1/0/11   Down   1      <not set>          <not set>                                 000C.851C.6E0B
GigabitEthernet1/0/12   Down   1      <not set>          <not set>                                 000C.851C.6E0C
GigabitEthernet1/0/13   Down   1      <not set>          <not set>                                 000C.851C.6E0D
GigabitEthernet1/0/14   Down   1      <not set>          <not set>                                 000C.851C.6E0E
GigabitEthernet1/0/15   Down   1      <not set>          <not set>                                 000C.851C.6E0F
GigabitEthernet1/0/16   Down   1      <not set>          <not set>                                 000C.851C.6E10
GigabitEthernet1/0/17   Down   1      <not set>          <not set>                                 000C.851C.6E11
GigabitEthernet1/0/18   Down   1      <not set>          <not set>                                 000C.851C.6E12
GigabitEthernet1/0/19   Down   1      <not set>          <not set>                                 000C.851C.6E13
GigabitEthernet1/0/20   Down   1      <not set>          <not set>                                 000C.851C.6E14
GigabitEthernet1/0/21   Down   1      <not set>          <not set>                                 000C.851C.6E15
GigabitEthernet1/0/22   Down   1      <not set>          <not set>                                 000C.851C.6E16
GigabitEthernet1/0/23   Down   1      <not set>          <not set>                                 000C.851C.6E17
GigabitEthernet1/0/24   Down   1      <not set>          <not set>                                 000C.851C.6E18
GigabitEthernet1/1/1    Down   1      <not set>          <not set>                                 0004.9AE4.D701
GigabitEthernet1/1/2    Down   1      <not set>          <not set>                                 0004.9AE4.D702
GigabitEthernet1/1/3    Down   1      <not set>          <not set>                                 0004.9AE4.D703
GigabitEthernet1/1/4    Down   1      <not set>          <not set>                                 0004.9AE4.D704
Vlan1                   Down   1      <not set>          <not set>                                 0040.0BA6.E399

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > 1ST FLOOR L3-SWITCH
```



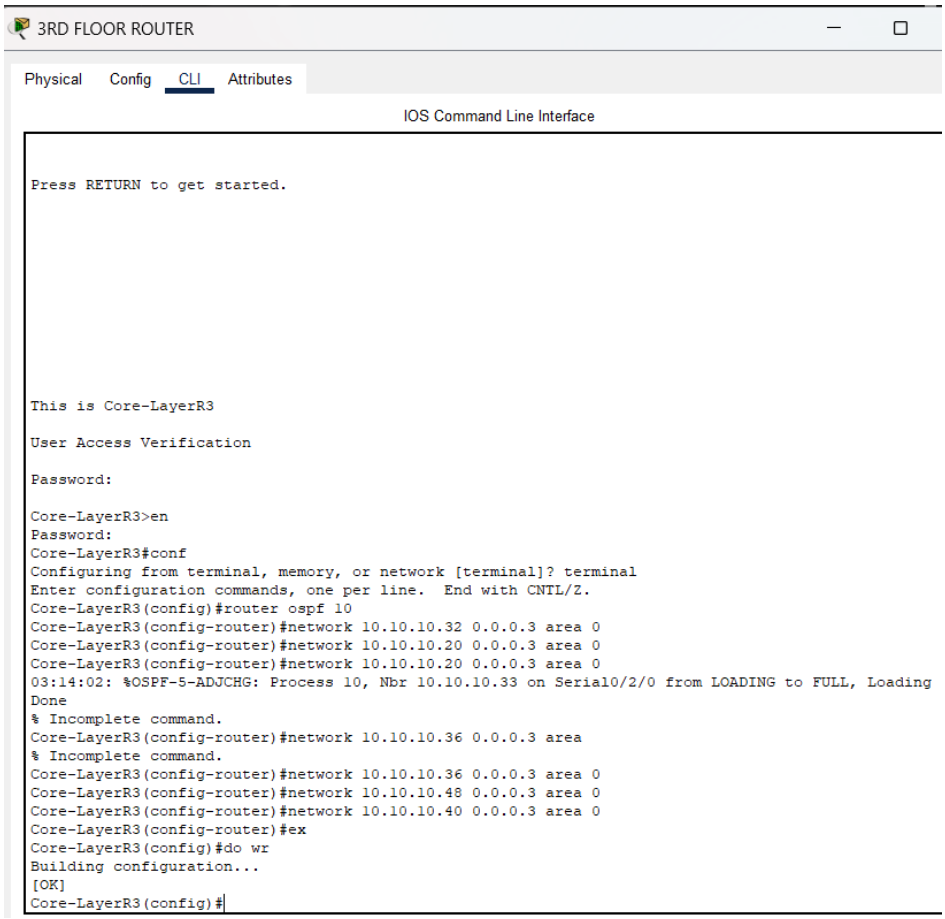

```
Layer-3-Sw>en
Password:
Layer-3-Sw#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Layer-3-Sw(config)#int range gigl/0/1-2
Layer-3-Sw(config-if-range)#no switchport
Layer-3-Sw(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/2, changed state to up

Layer-3-Sw(config-if-range)#exit
Layer-3-Sw(config)#int range gigl/0/1
Layer-3-Sw(config-if-range)#ip address 10.10.10.5 255.255.255.252
Layer-3-Sw(config-if-range)#ex
Layer-3-Sw(config)#int range gigl/0/2
Layer-3-Sw(config-if-range)#ip address 10.10.10.13 255.255.255.252
Layer-3-Sw(config-if-range)#ex
Layer-3-Sw(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
Layer-3-Sw(config)#
```

When u see a clock it is a serial dce



Subnetting and ip addressing are done

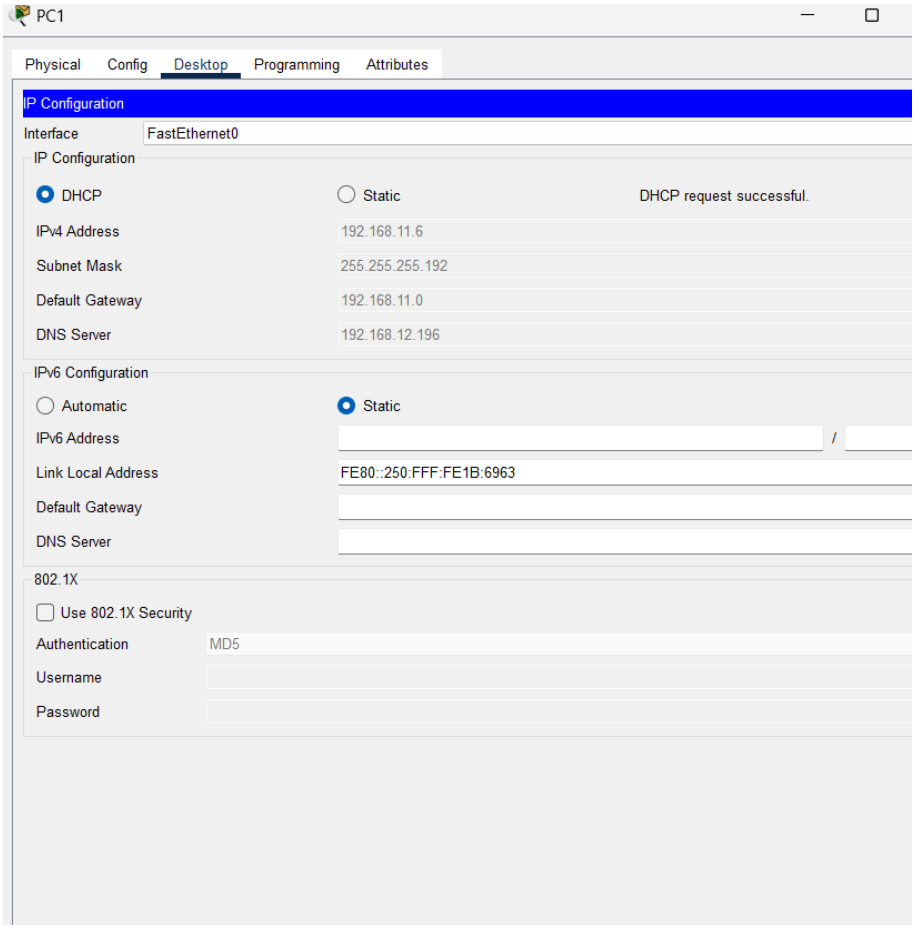
Configuring OSPF(ROUTING PROTOCOL)



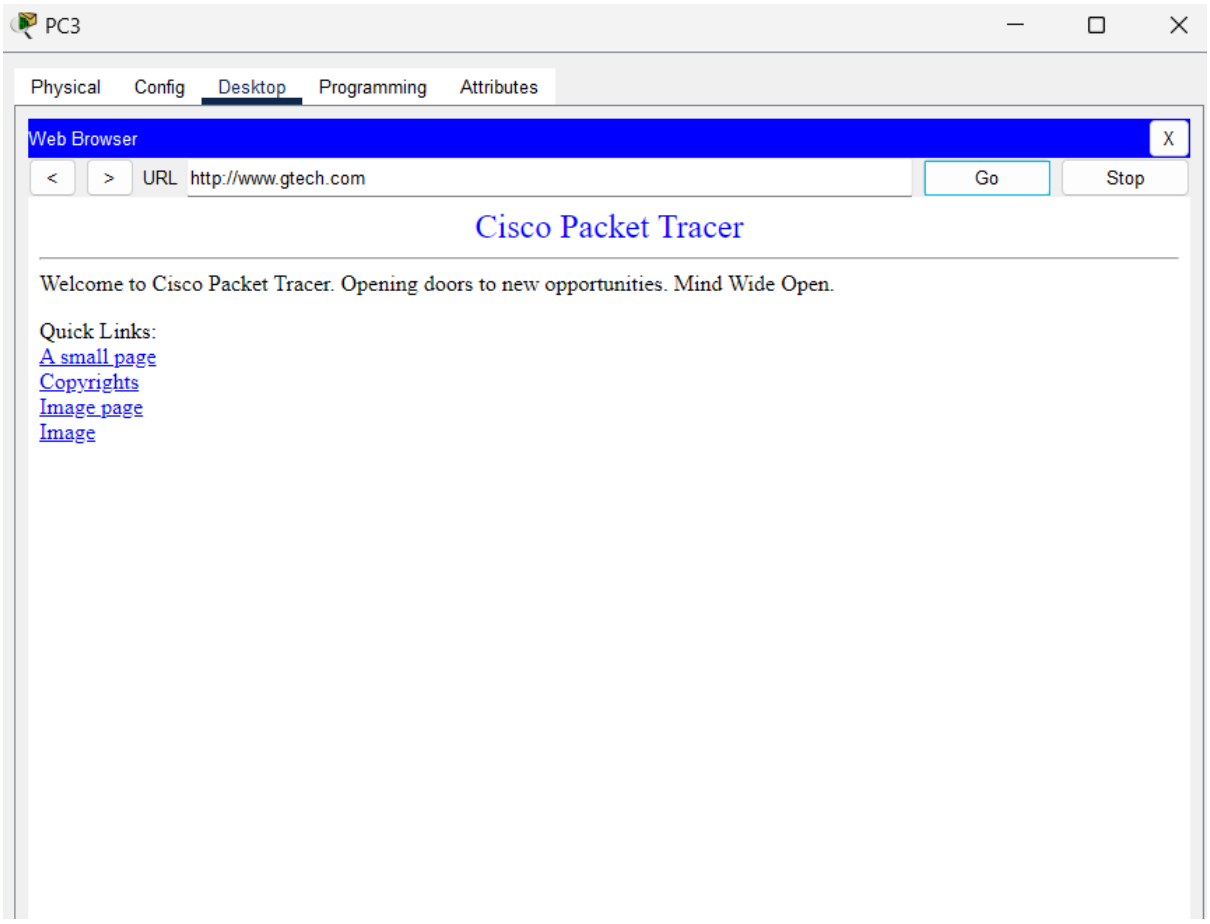

```
Fl-l3sw(config)#ip routing
Fl-l3sw(config)#router ospf 10
Fl-l3sw(config-router)#network 192.168.10.0 0.0.0.63 area 0
Fl-l3sw(config-router)#network 192.168.10.64 0.0.0.63 area 0
Fl-l3sw(config-router)#network 192.168.10.128 0.0.0.63 area 0
Fl-l3sw(config-router)#network 192.168.10.192 0.0.0.63 area 0
Fl-l3sw(config-router)#network 192.168.11.0 0.0.0.63 area 0
Fl-l3sw(config-router)#network 192.168.11.64 0.0.0.63 area 0
Fl-l3sw(config-router)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
Fl-l3sw(config-router)#
```

OSPF ON THE ROUTERS AND LAYER 3 SWITCHES ARE DONE

DHCP CONFIGURATION DONE



DNS SERVER


PC3
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
http://www.gtech.com
Go
Stop
Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image