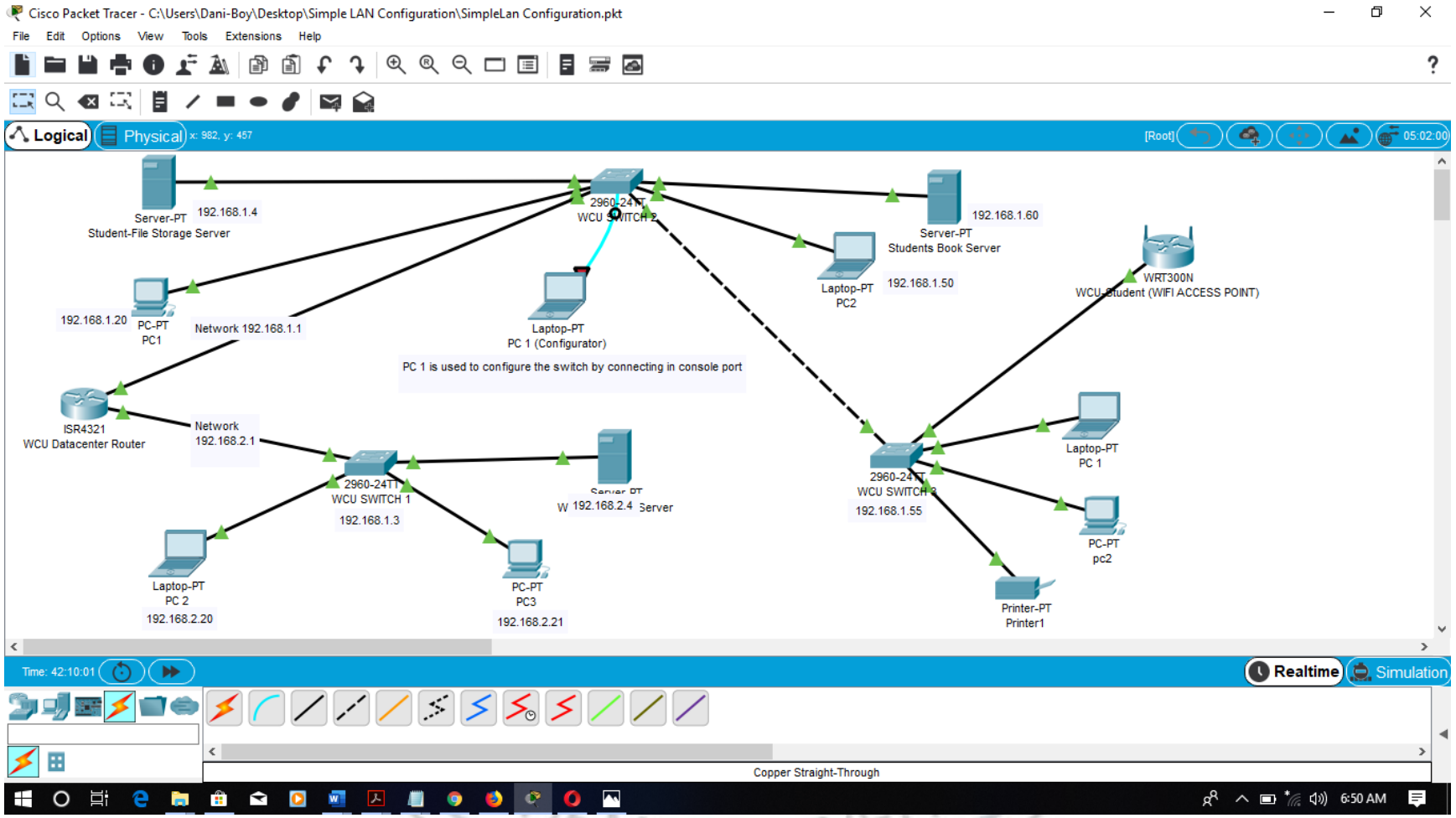
Question 1 create simple LAN (Local area Network)



☞Here we created simple local area network. By using such as ✓Router

✓ Switches

✓Computers, servers, WIFI access points and printers.

☞In our project there is one router that displayed name is known as WCU Datacenter router and there are three switches in our local area network.

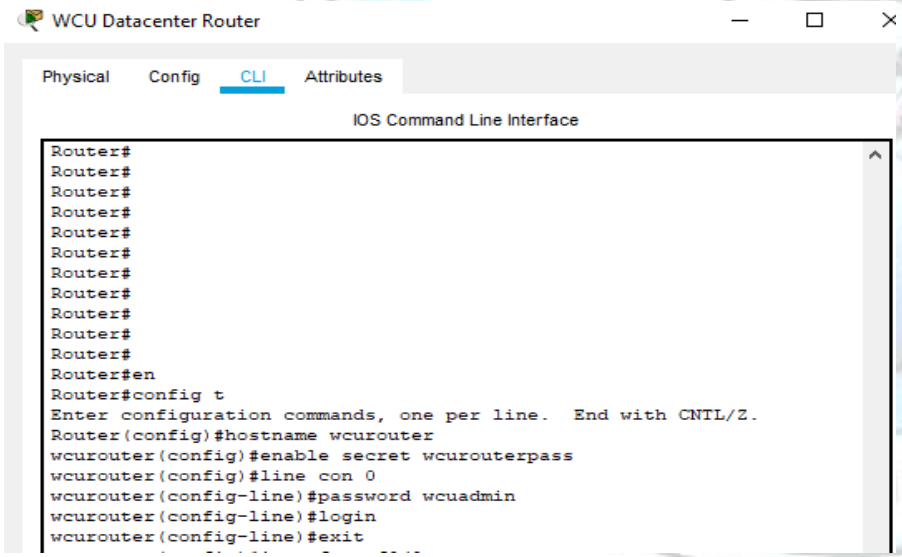
The router connects two different networks in our LAN that addressed by Network 192.168.1.1 with 255.255.255.0 subnet Mask and Network 192.168.2.1 with 255.255.255.0 subnet Mask.

Now let's see below Router and switch configuration by assigning hostname, password and ip address.

2.Configure username and password with privilege levels.

➢Router Configuration

☞In this project we have one router that displayed name is WCU Datacenter Router so now let's configure this router by assigning hostname, password and ip address for each interface of router.



⌛Here the first host name of the router is **Router** but we changed to **wcurouter** by entering into privilege mode.

✓The command **enable** or **en** is used to enter into privilege. Then we should have to write the command **config t**

✓The command **configure terminal** or **config t** is used to enter configuration mode. When we configure router and switch, we should have to write configure terminal command then we can configure in configure terminal mode otherwise it will not work.

✓Router (config) # hostname **wcurouter**

- Here we assigned the host name of the router.

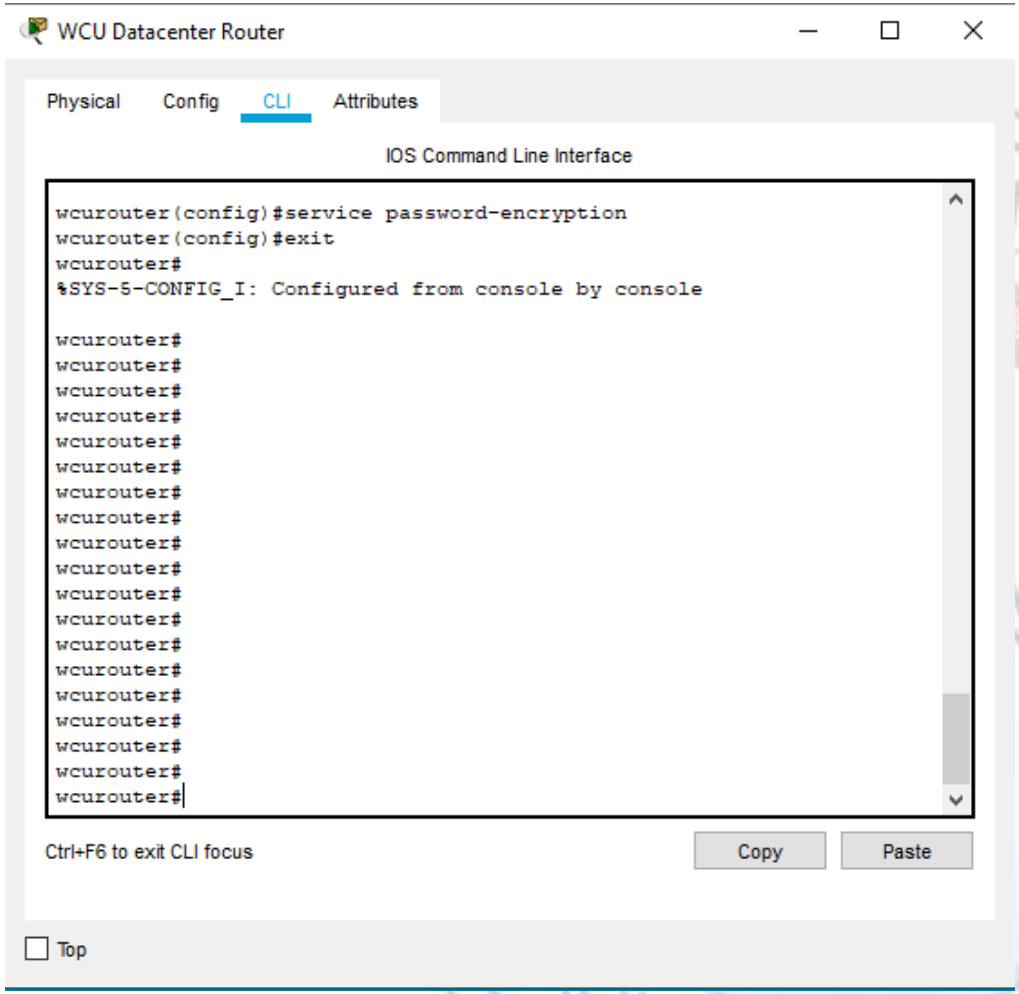
✓Now the hostname of the router is changed to **wcurouter** now we should have to assign password to the router for secure Authorized access only.

- wcurouter(config) #enable secret wcurouterpass
- wcurouter(config)#line console 0 // console is the configuration port of cisco router and switch.
- wcurouter(config-line)#password **wcuadmin**
- wcurouter(config-line)#login //This command is used to login into the system by assigned address.

// Here we assigned the router password. The password is **wcuadmin.**

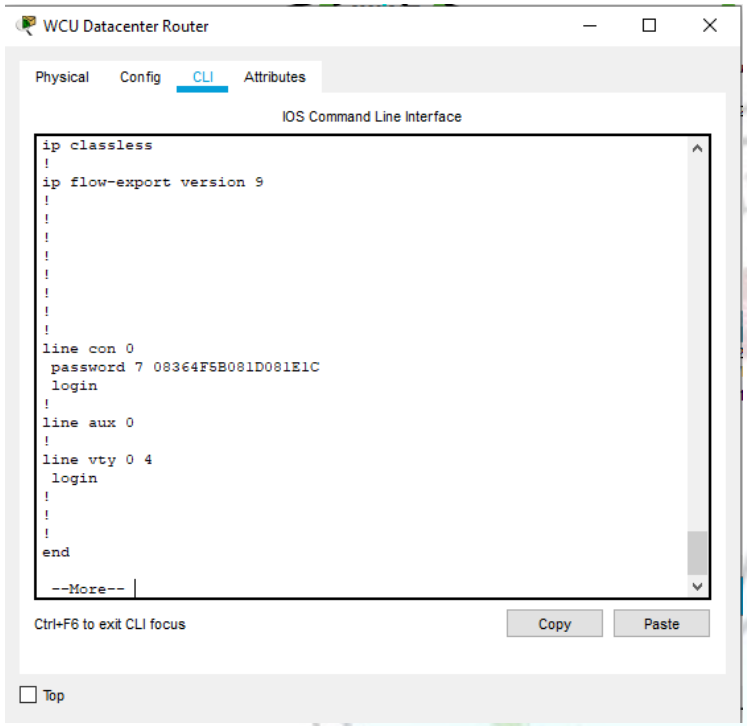
Now we should encrypt the password by using command : wcurouter (Config)# service password-encryption

Lets see the picture below



➢Here the password is encrypted.

Now we can see all about our router by using the command **show run**.



➢The password we assigned for our router is wcuadmin. But it encrypted into 08364F5B081D081E1C.

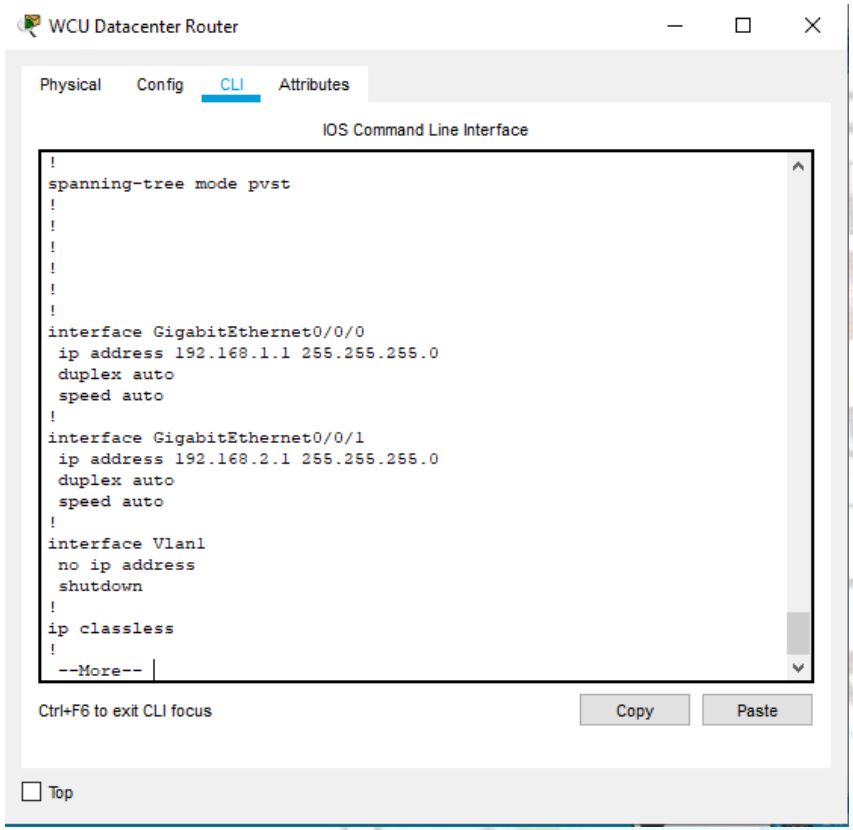
⇨ Now username and password already set so we should have to assign ip address in each interface of router.

⇨ On this router we have to interface such as

☞GigabitEthernet 0/0/0

☞GigabitEthernet 0/0/1

⇨ We should have to assign ip address for these interfaces. Then the router routes the network.



➢in our project we assigned ip address for these interfaces by using the following command.

```
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#
wcurouter1#en
wcurouter1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
wcurouter1(config)#interface
% Incomplete command.
wcurouter1(config)#interface GigabitEthernet0/0
wcurouter1(config-if)#
wcurouter1(config-if)#exit
wcurouter1(config)#interface GigabitEthernet0/0
wcurouter1(config-if)#ip address 192.168.1.1 255.255.255.0
wcurouter1(config-if)#no shutdown

wcurouter1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
```

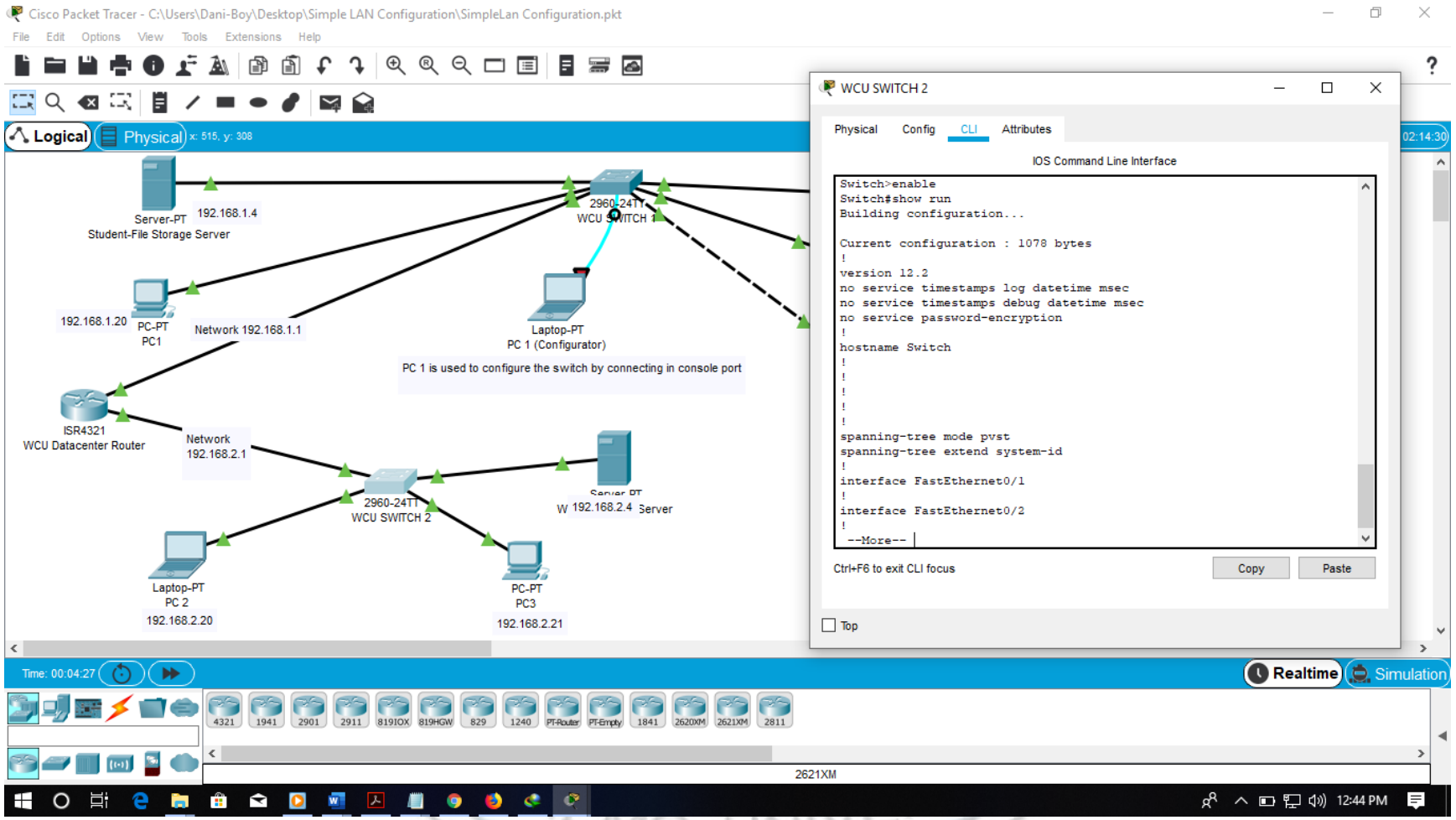
☞After configuration

➢Configuring the process.

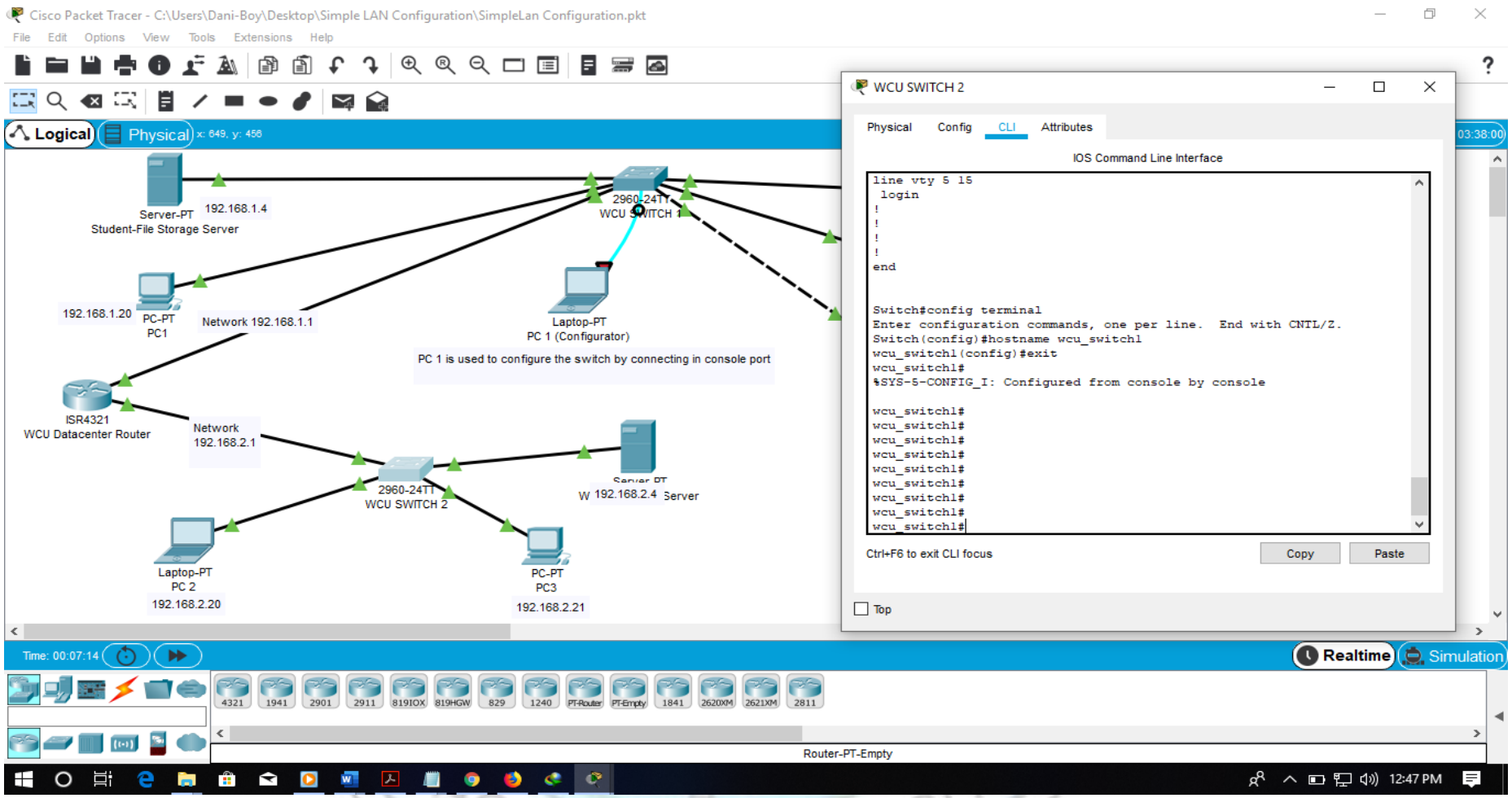
After configure the ip address we should have to **on** port status.

// Now we have two network 192.168.1.1 and 192.168.2.1 and it is working properly. Now we should configure switches.

☞Now we can configure the switches. Let's configure the switch which displayed name is WCU SWITCH 1.



☞Here this switch is not configured. The above picture shows default switch information. Let's configure the switch below.

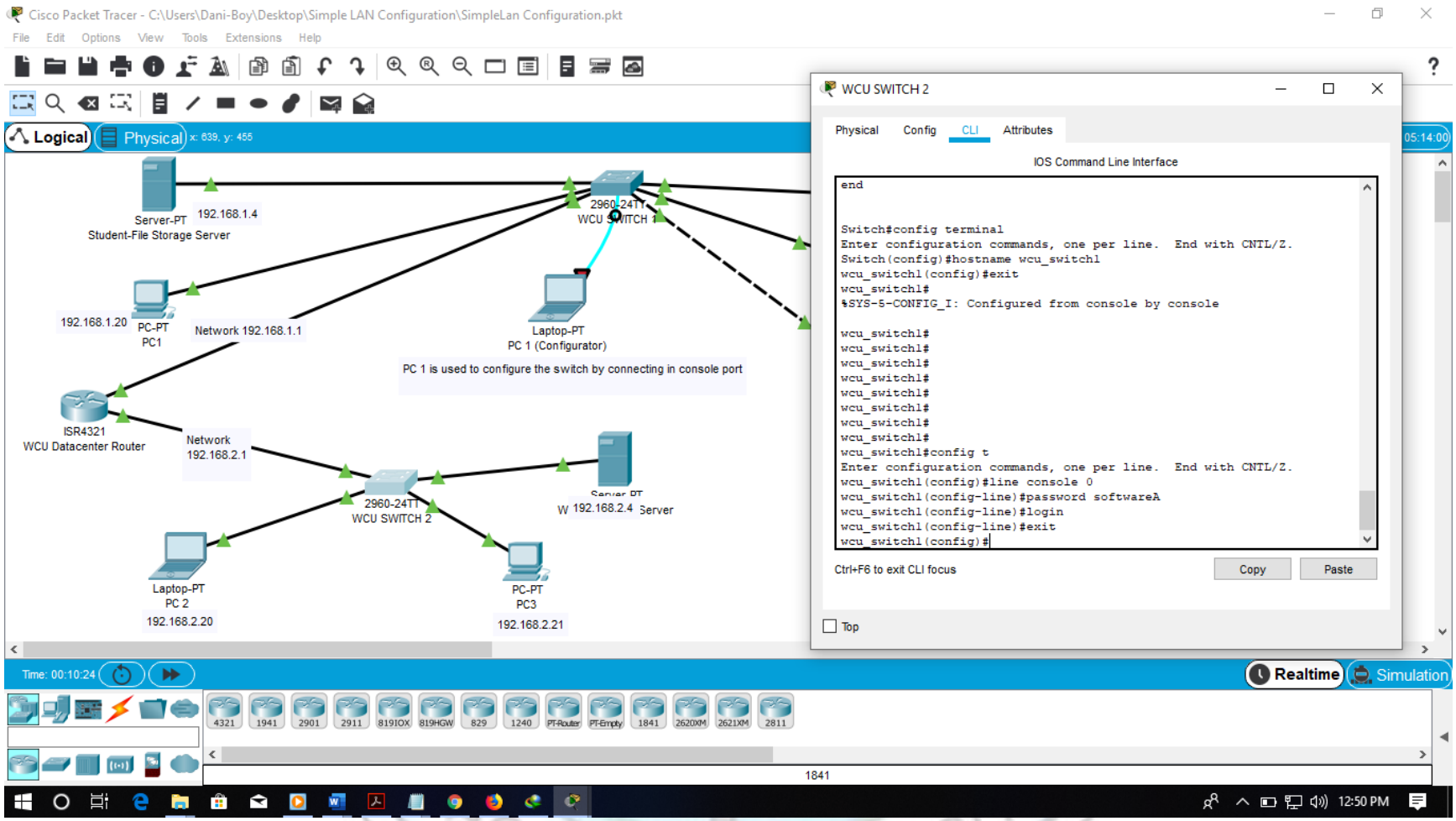


`Switch# enable //` it is used to enter into privilege mode

`Switch# configure terminal`

`Switch(config)# hostname wcu_switch1 //`Here we assigned the hostname of switch.

`Wcu_switch1# exit //`Here it returns into back.

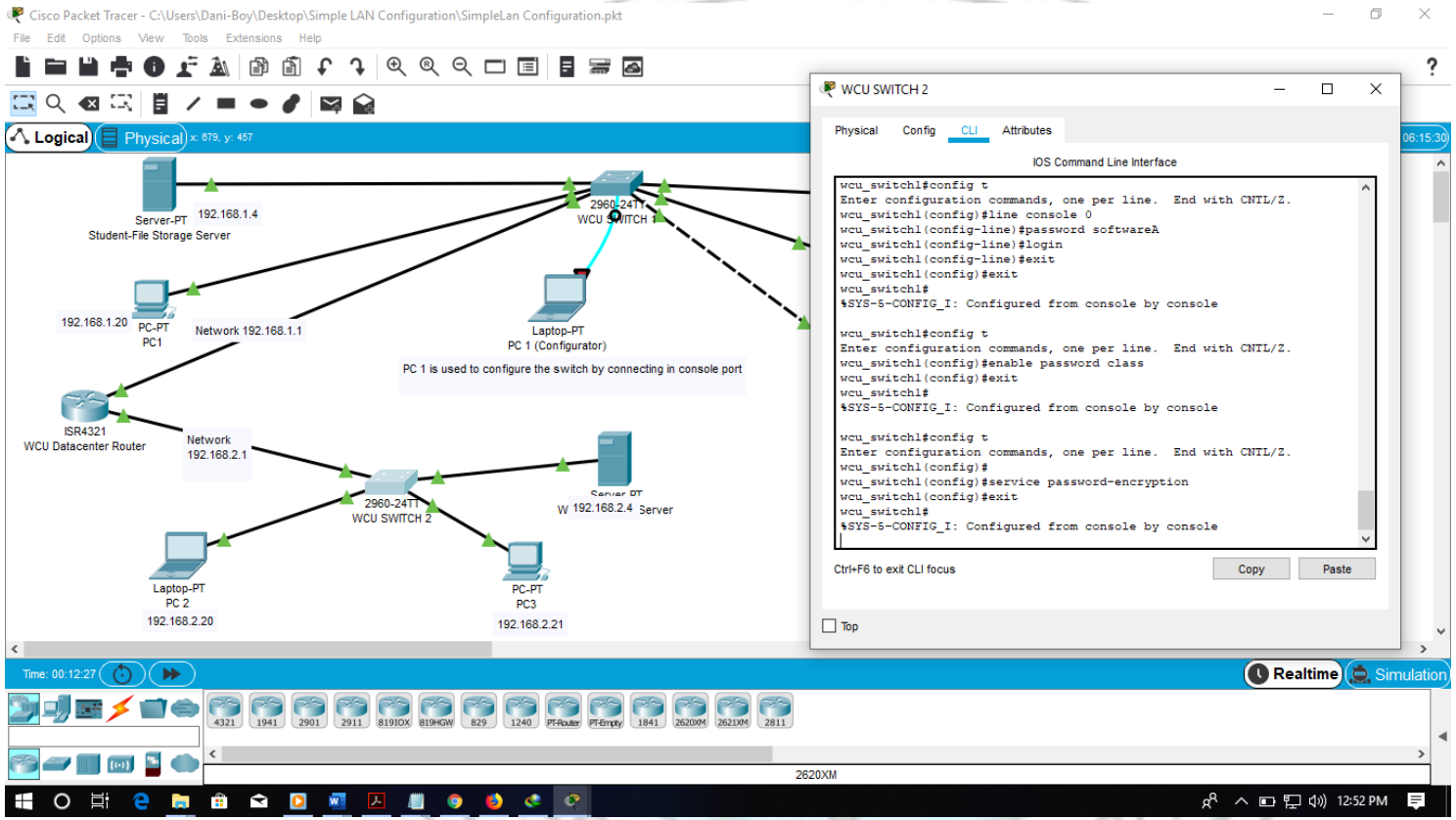


⇨ Here we assigned password to our switch by using the following command.

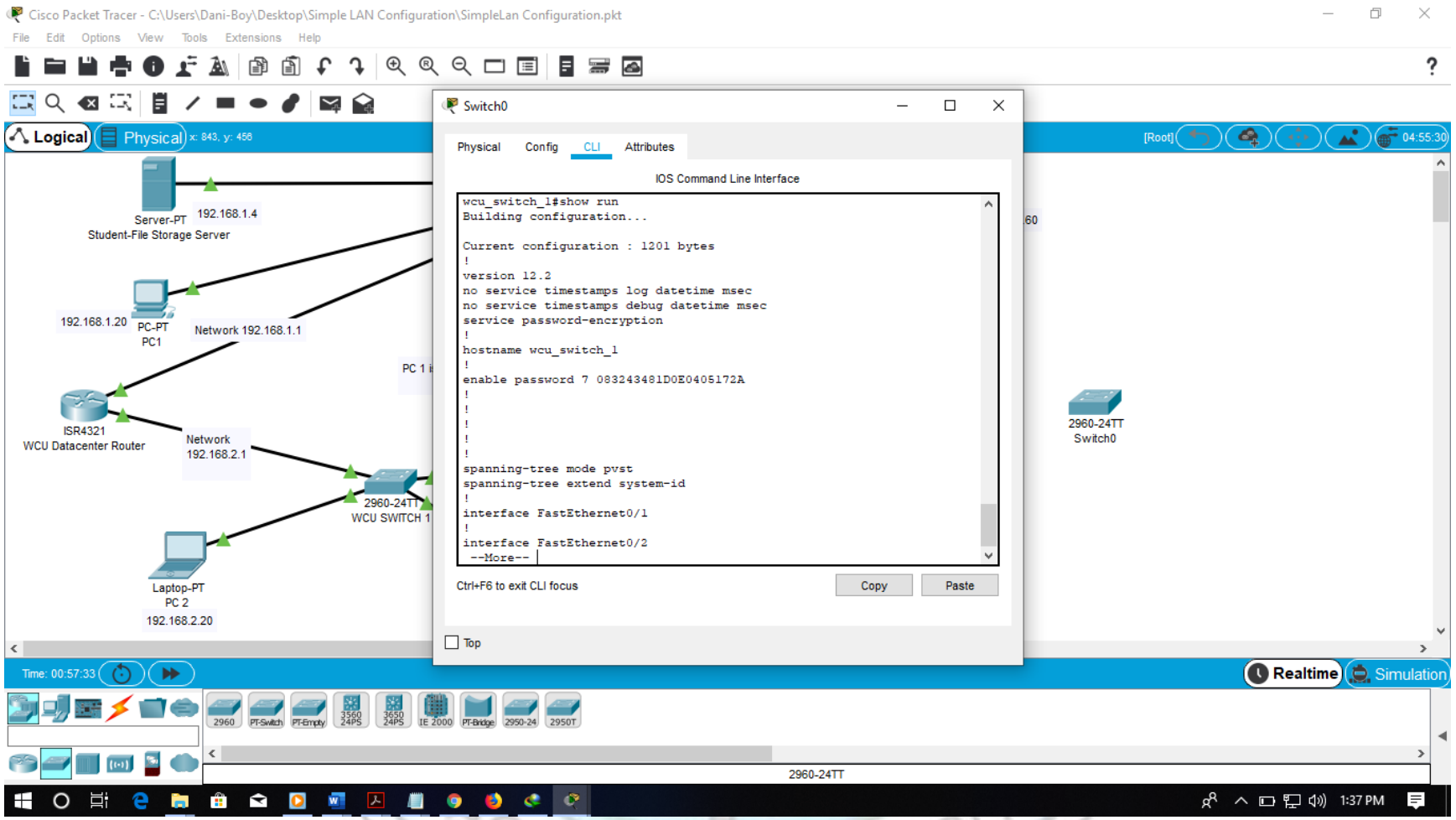
```
Wcu_switch1#enable
Wcu_switch1#config t
Wcu_switch1(config)#line console 0
Wcu_switch1(config-line)#password softwareA
//The password is set here softwareA
```

```
Wcu_switch1(config-line)#login
Wcu_switch1(config-line)#exit
```

⇨ Here we should encrypt the password by using the following commands.

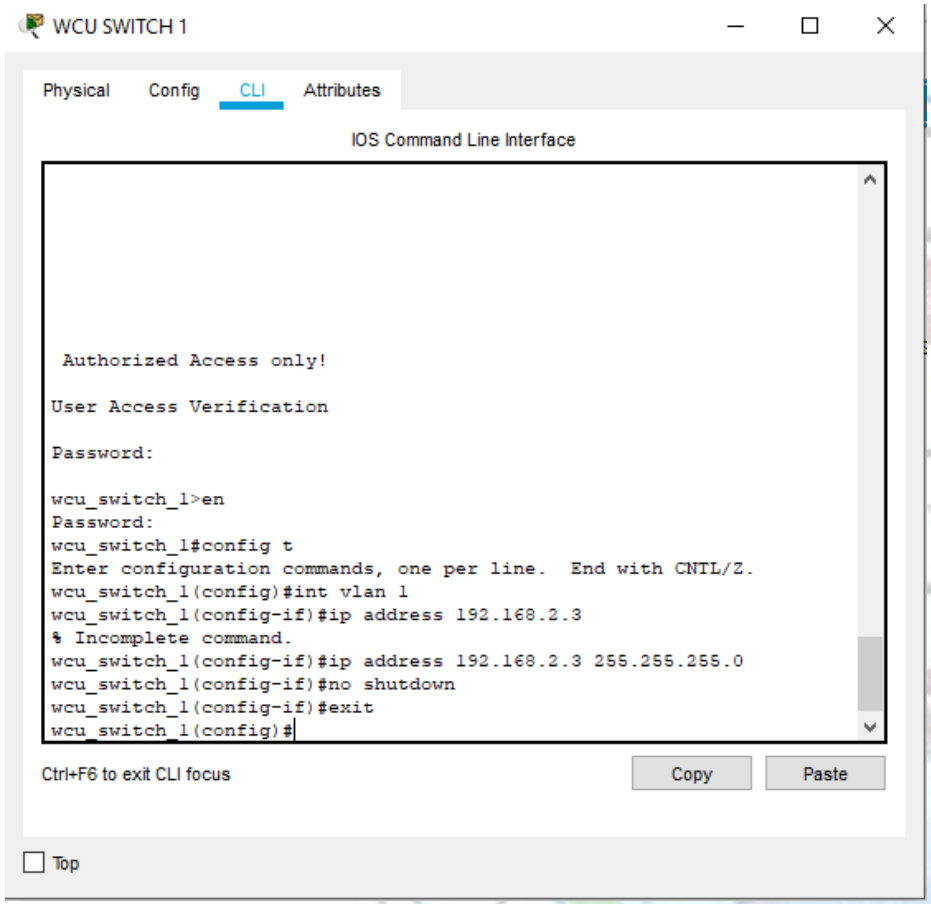



```
Wcu_switch1#en
Wcu_switch1#config t
Wcu_switch1(config)#service password-encryption //It is used to encrypt the password
Wcu_switch1(config)exit
```



⇨ The password is already configured and encrypted.
⇨ The next step is assigning ip address.

Follow the following step to assign ip address.



☞ Here we assigned ip address for switch 1

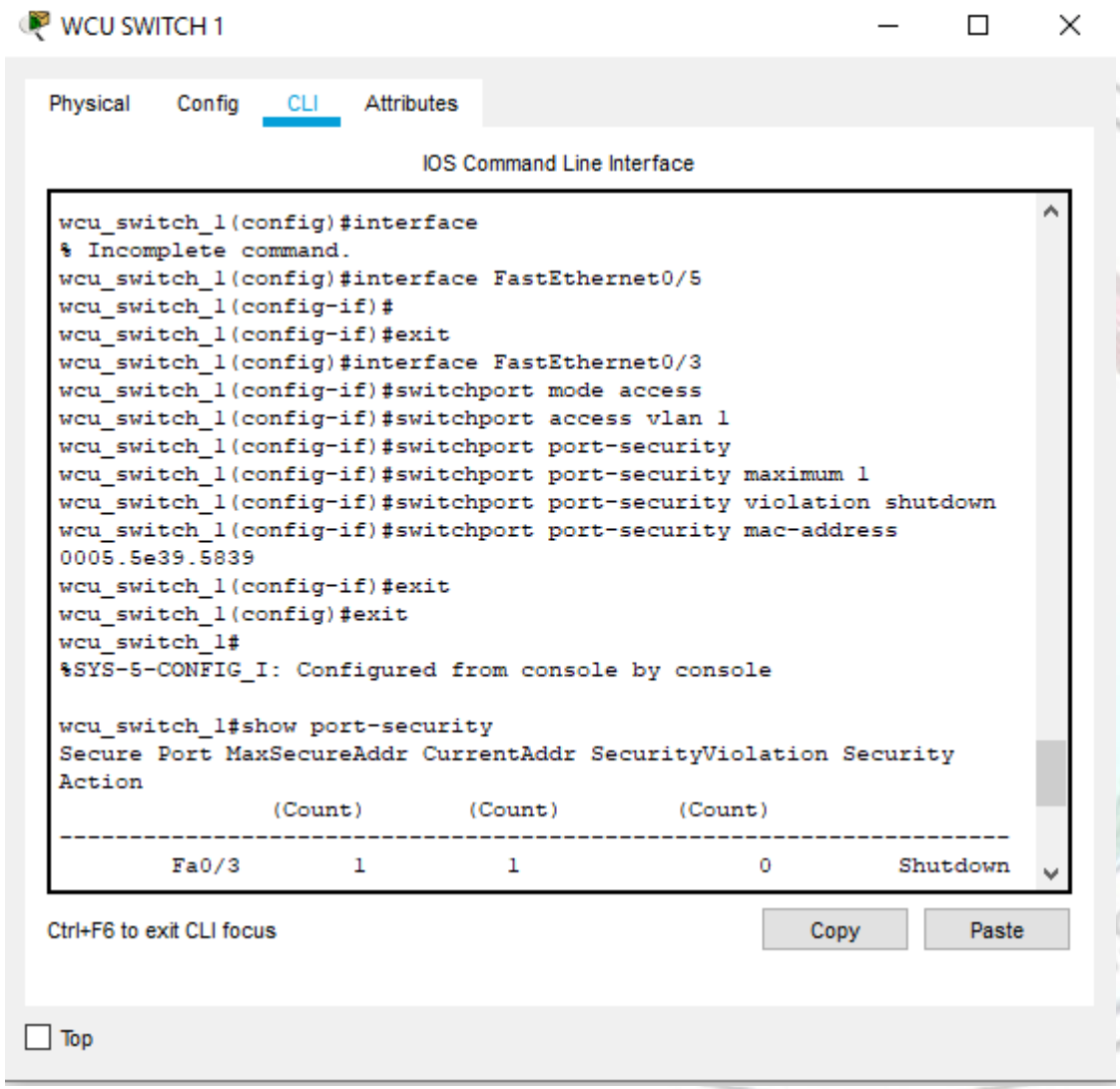
Command:

```
Wcu_switch_1>en
Wcu_switch_1#config t
Wcu_switch_1(config)#int vlan 1
Wcu_switch_1(config-if)#ip address 192.168.2.3
255.255.255.0
Wcu_switch_1(config-if)#no shutdown
Wcu_switch_1(config-if)#exit
Wcu_switch_1(config)#
```

So general switch configuration commands listed below. It is including configure Username, password, encrypt password and assign ip address.

```
Switch>enable
Switch# configure terminal
Switch(config)# hostname wcu_switch_1
wcu_switch_1(config)#line console 0
wcu_switch_1(config-line) #password softwareA
wcu_switch_1(config-line)# login
wcu_switch_1(config-line)# exit
wcu_switch_1(config)#enable password softwareA
wcu_switch_1(config)#service password-encryption
wcu_switch_1(config)#exit
wcu_switch_1#config t
wcu_switch_1(config)# banner motd#This is a secure system.Authorized Access Only!#
wcu_switch_1(config)#exit
wcu_switch_1#config t
wcu_switch_1(config)# int vlan 1
wcu_switch_1(config-if)# ip address 192.168.1.3 255.255.255.0
wcu_switch_1(config-if)# no shutdown
wcu_switch_1(config-if)# exit
wcu_switch_1(config)#exit
wcu_switch_1#
```

3. configure switch port security




```
wcu_switch_1>en

wcu_switch_1(config)#interface F0/3

wcu_switch_1(config-if)#switchport mode
access
```

// Assign port as host port

```
wcu_switch_1(config-if)#switchport
access vlan 1

wcu_switch_1(config-if)#switchport port-
security
```

// Enable port security feature on this port

```
wcu_switch_1(config-if)#switchport port-
security maximum 1
```

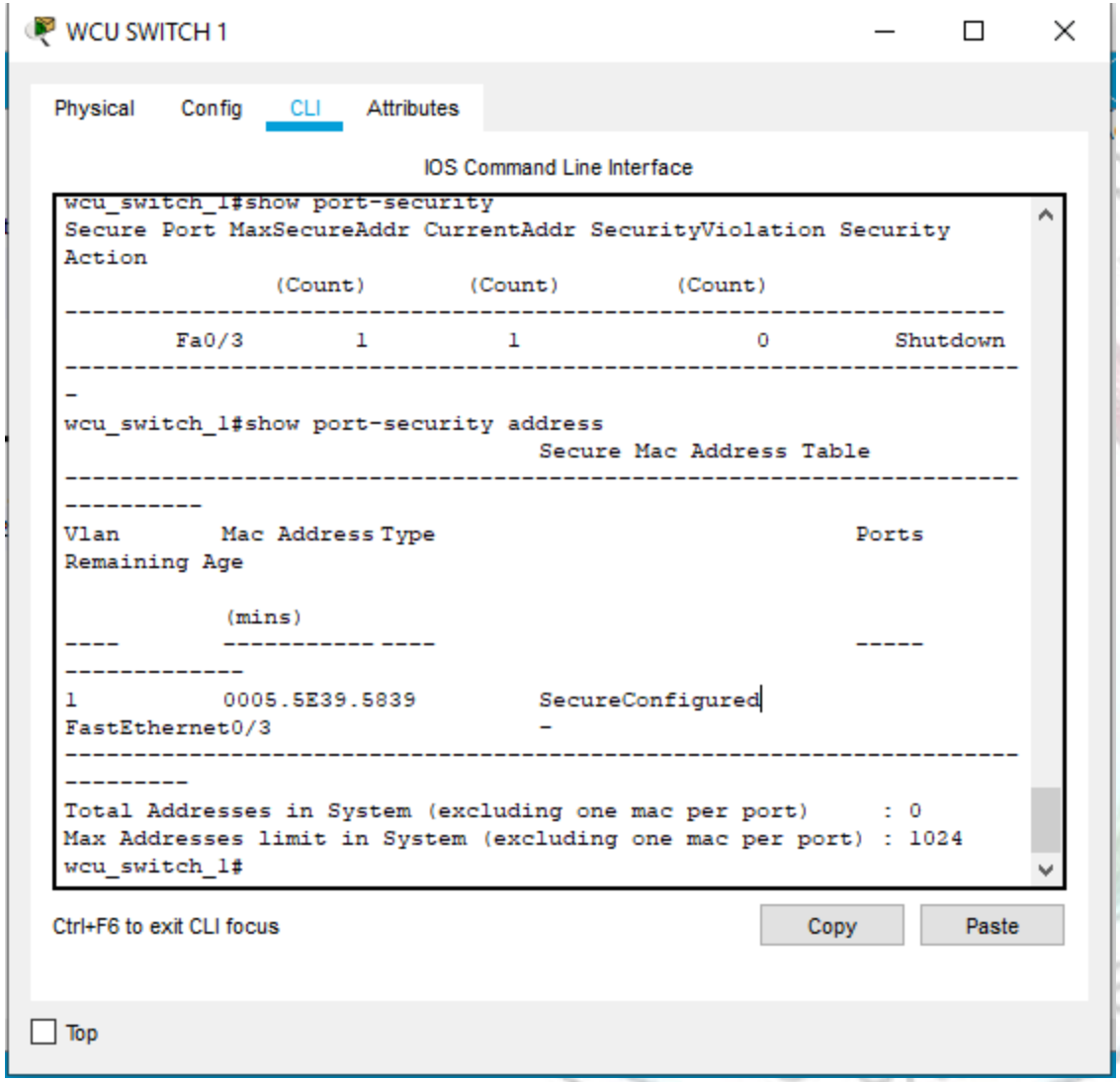
//Set limit for hosts that can be associated with interface. Default value is 1. Skip this command to use default value.

```
wcu_switch_1(config-if)#switchport port-
security violation shutdown
```

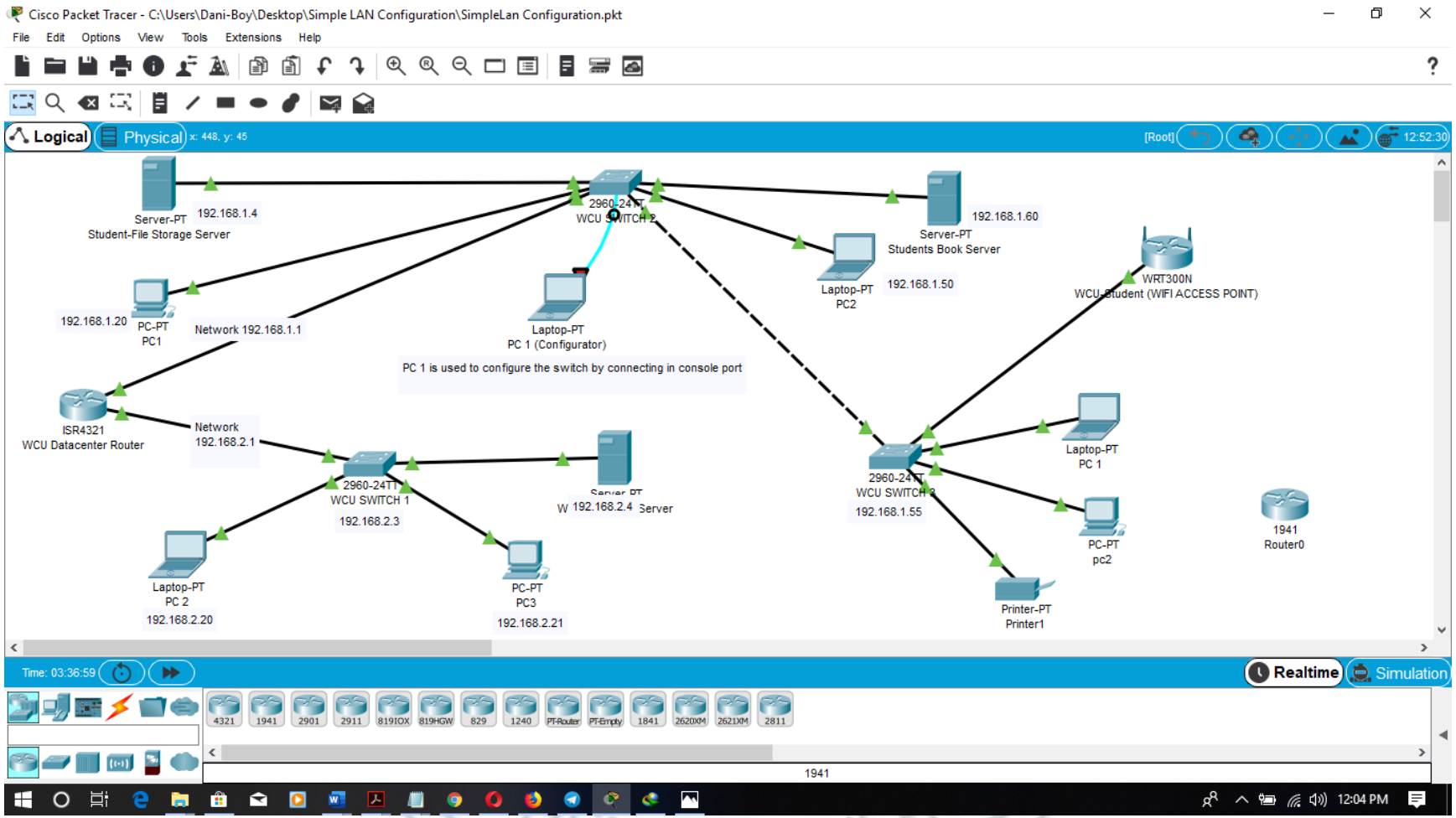
//Set security violation mode. Default mode is shutdown. Skip this command to use default mode.

```
wcu_switch_1(config-if)#switchport port-
security mac-address 0005.5e39.5839
```

//set mac address of the device



☞port switch configuration is configured already. We can see the picture.


Cisco Packet Tracer - C:\Users\Dani-Boy\Desktop\Simple LAN Configuration\SimpleLan Configuration.pkt
File Edit Options View Tools Extensions Help
Logical
Physical
[Root]
12:52:30
Server-PT
Student-File Storage Server
192.168.1.4
2960-24TT
WCU SWITCH 2
192.168.1.60
Server-PT
Students Book Server
Laptop-PT
PC2
192.168.1.50
WRT300N
WCU-Student (WIFI ACCESS POINT)
192.168.1.20
PC-PT
PC1
Network 192.168.1.1
Laptop-PT
PC 1 (Configurator)
PC 1 is used to configure the switch by connecting in console port
ISR4321
WCU Datacenter Router
Network
192.168.2.1
2960-24TT
WCU SWITCH 1
192.168.2.3
Server-PT
W 192.168.2.4 Server
2960-24TT
WCU SWITCH 3
192.168.1.55
Laptop-PT
PC 1
PC-PT
pc2
1941
Router0
Laptop-PT
PC 2
192.168.2.20
PC-PT
PC3
192.168.2.21
Printer-PT
Printer1
Time: 03:36:59
Realtime
Simulation
4321
1941
2901
2911
819IOX
819HGW
829
1240
PT-Router
PT-Empty
1841
2620XM
2621XM
2811
1941
12:04 PM

THE END

3RD YEAR INFORMATION SECURITY PROJECT

Group TWO