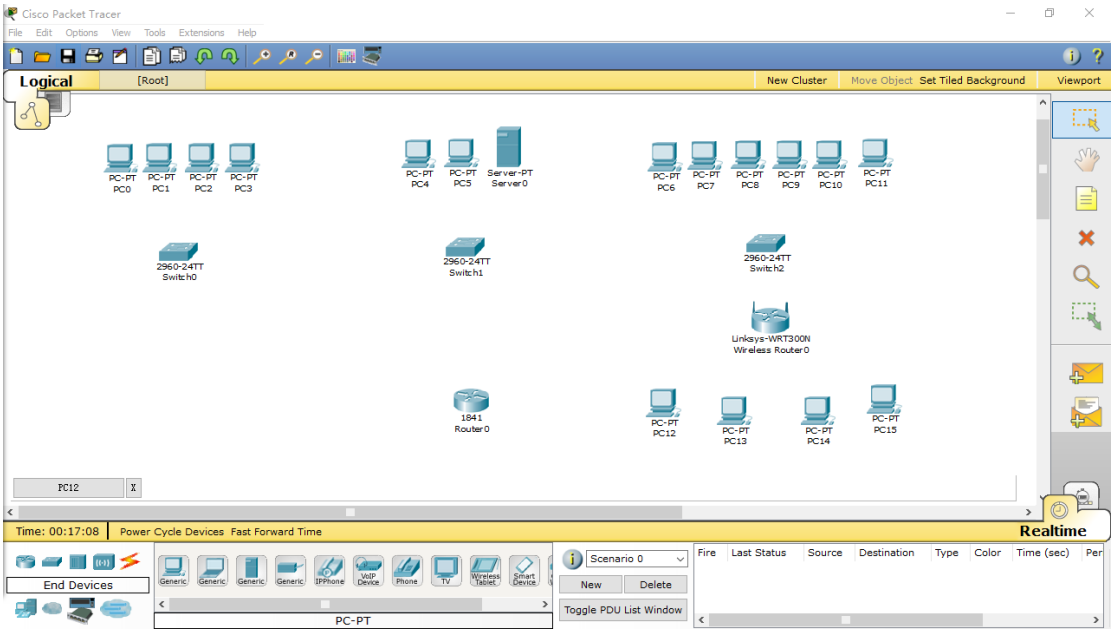
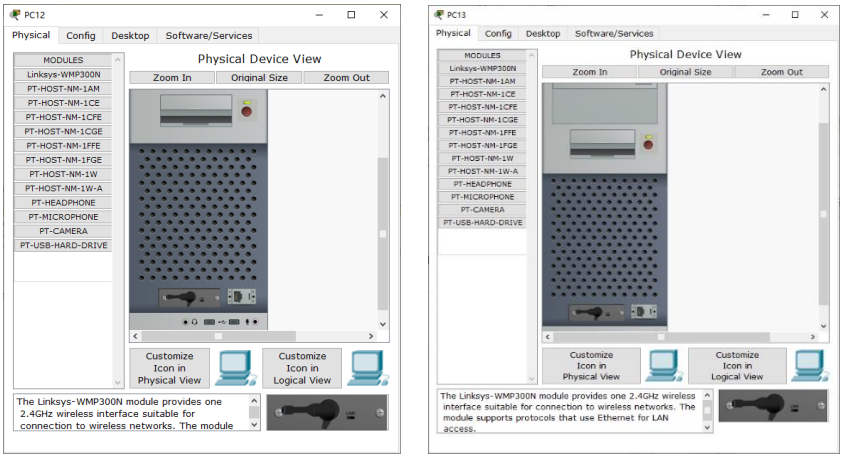
Computer Networks Lab 4

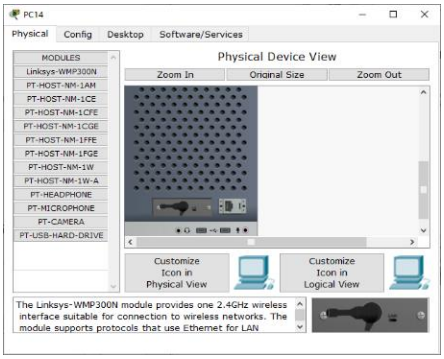
Name: CAO Xinyang
HDU ID: 20321308

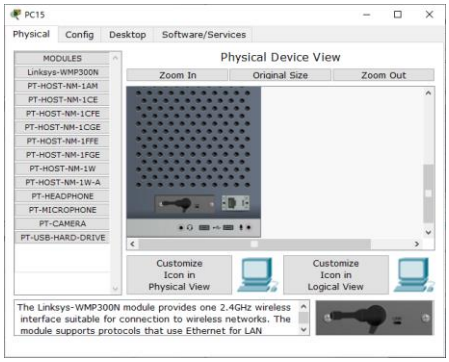
1. Adding equipment.

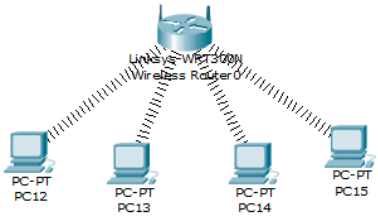


2. Installing the Wi-Fi module in the PC.

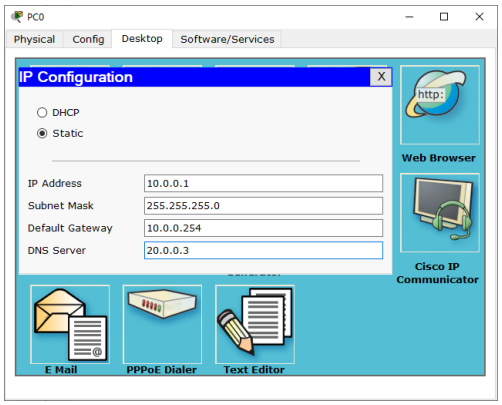


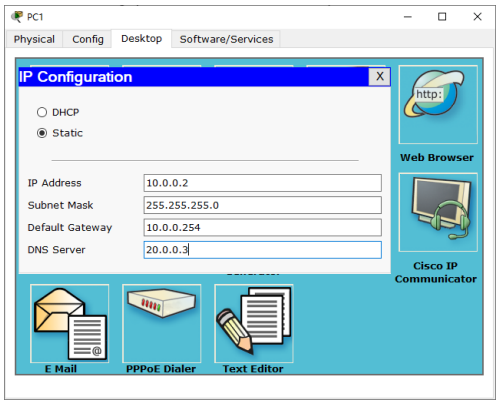


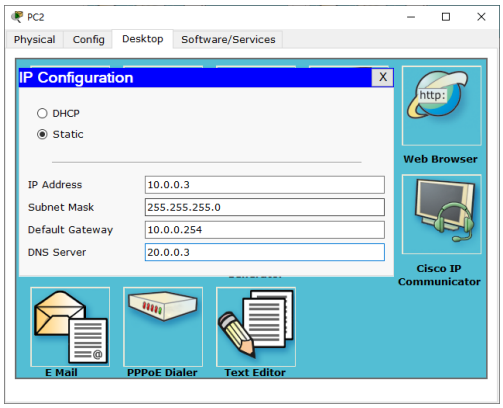


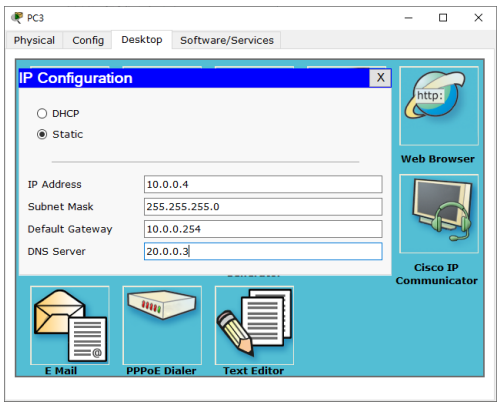


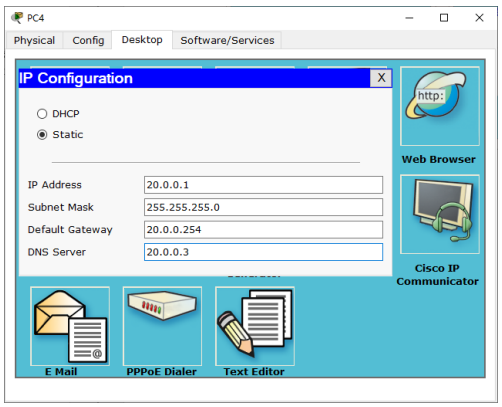
3. Setting up the PCs of the first and second departments.

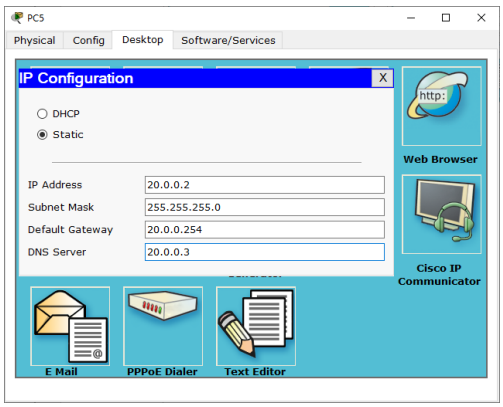




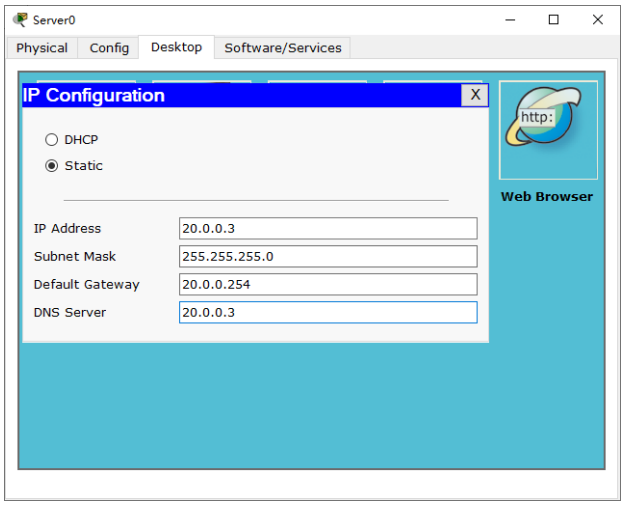




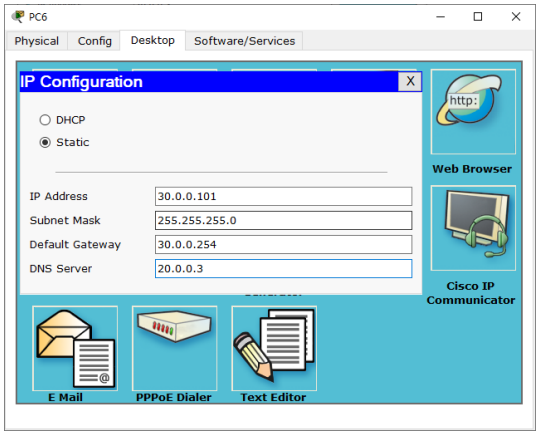


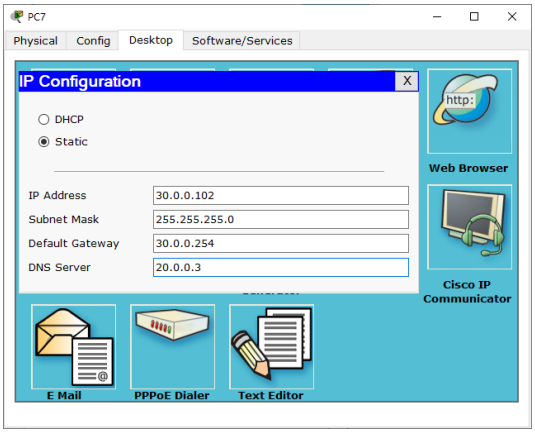


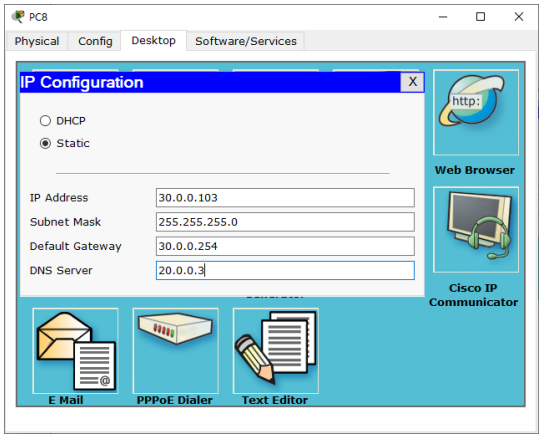
set the following settings on the server:

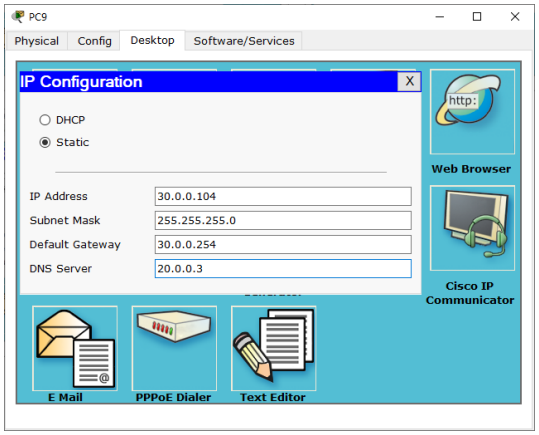


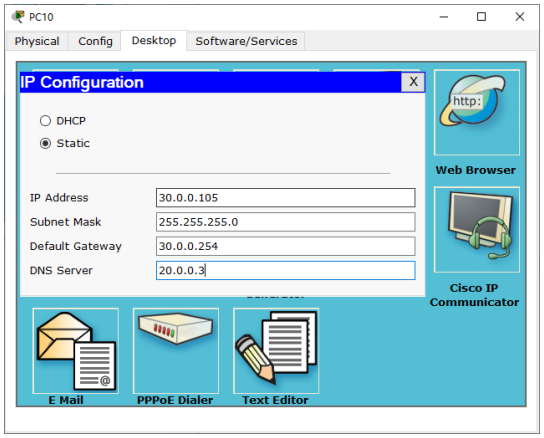
4. Setting up the third department.

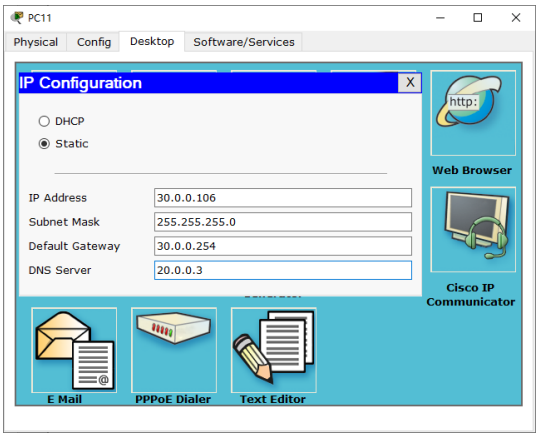


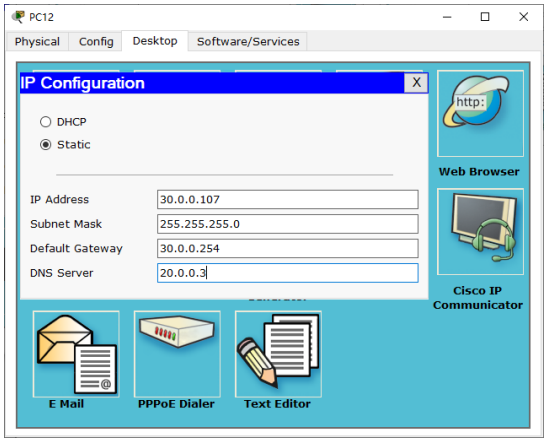


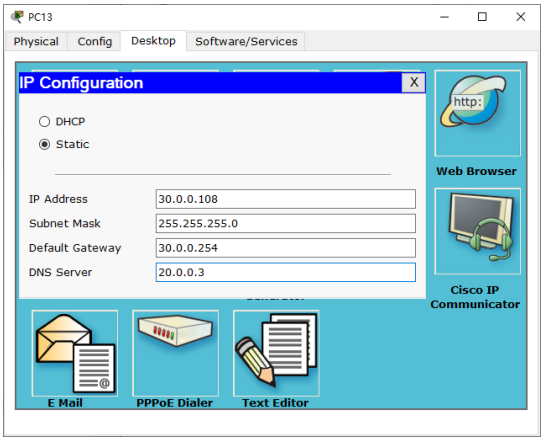


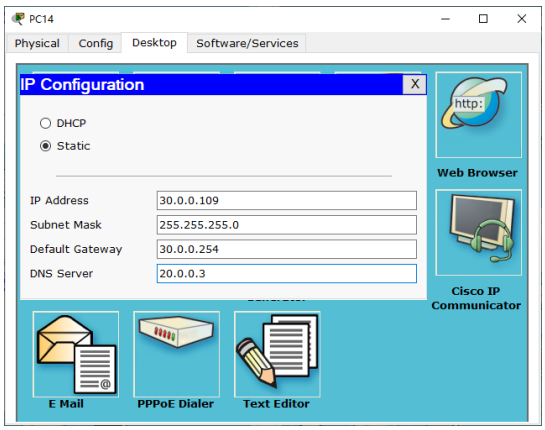


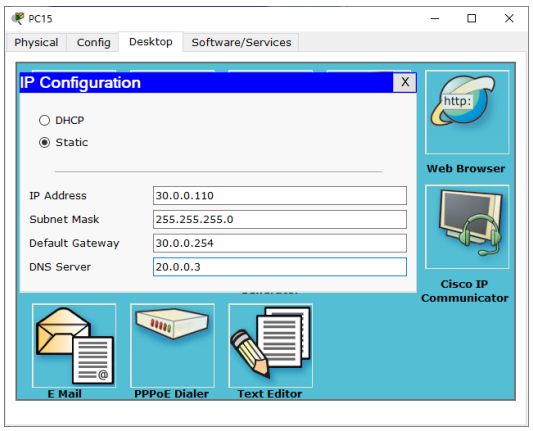

PC10
Physical
Config
Desktop
Software/Services
IP Configuration
DHCP
Static
IP Address 30.0.0.105
Subnet Mask 255.255.255.0
Default Gateway 30.0.0.254
DNS Server 20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor


PC11
Physical
Config
Desktop
Software/Services
IP Configuration
DHCP
Static
IP Address 30.0.0.106
Subnet Mask 255.255.255.0
Default Gateway 30.0.0.254
DNS Server 20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor

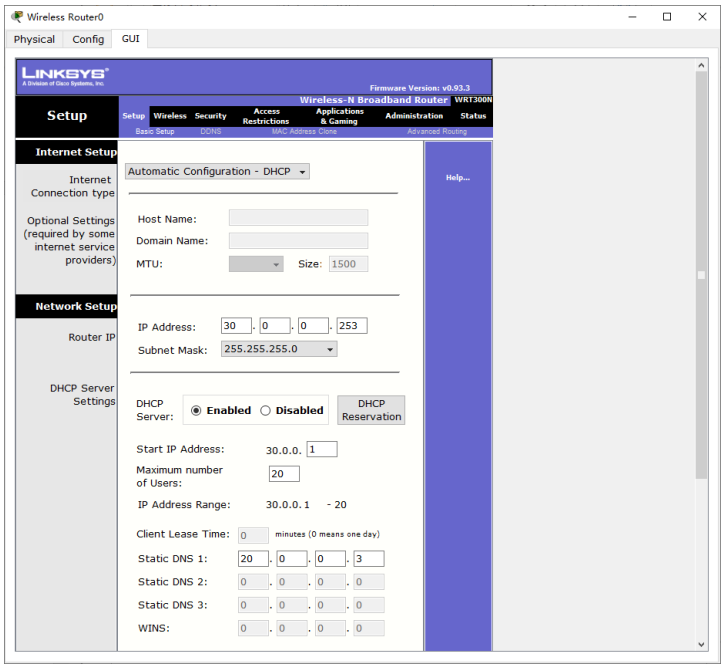

PC12
Physical
Config
Desktop
Software/Services
IP Configuration
DHCP
Static
IP Address 30.0.0.107
Subnet Mask 255.255.255.0
Default Gateway 30.0.0.254
DNS Server 20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor

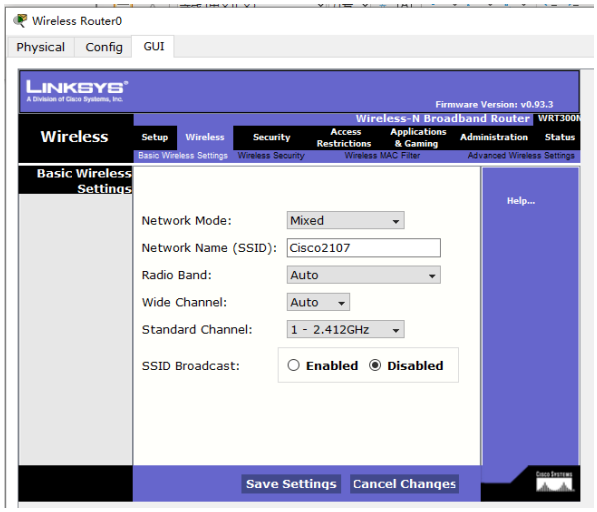

PC13
Physical
Config
Desktop
Software/Services
IP Configuration
DHCP
Static
IP Address 30.0.0.108
Subnet Mask 255.255.255.0
Default Gateway 30.0.0.254
DNS Server 20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor

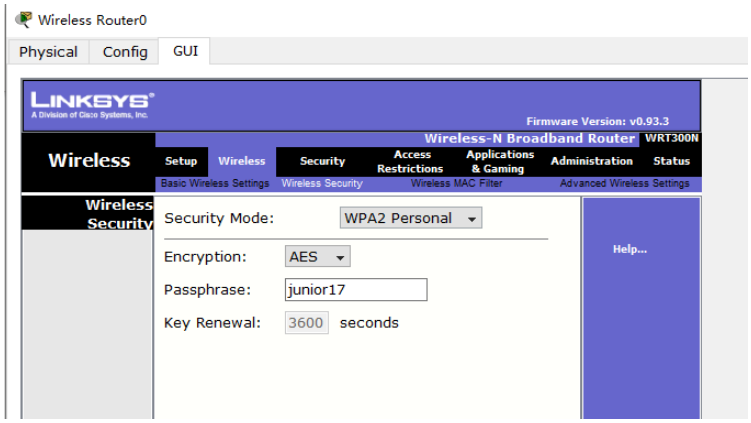

PC14
Physical
Config
Desktop
Software/Services
IP Configuration
DHCP
Static
IP Address 30.0.0.109
Subnet Mask 255.255.255.0
Default Gateway 30.0.0.254
DNS Server 20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor


PC15
Physical
Config
Desktop
Software/Services
IP Configuration
DHCP
Static
IP Address 30.0.0.110
Subnet Mask 255.255.255.0
Default Gateway 30.0.0.254
DNS Server 20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor

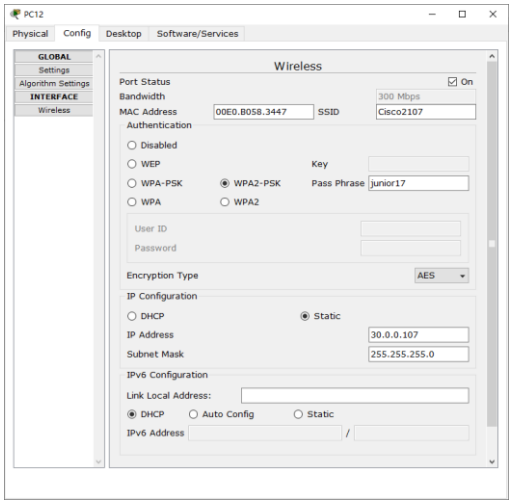
5. Configuring the router.

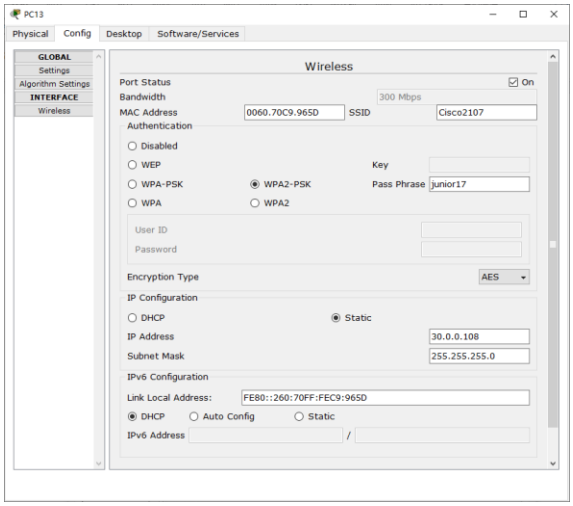


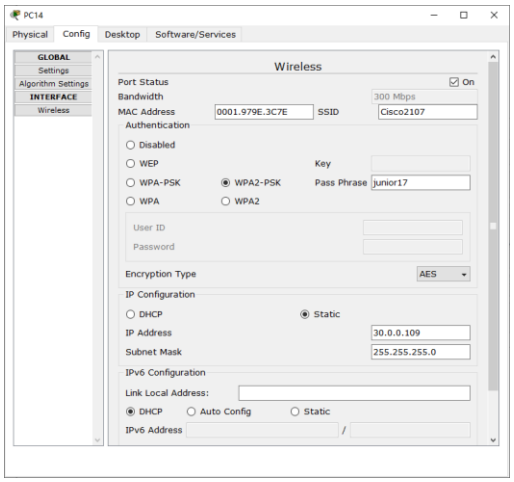


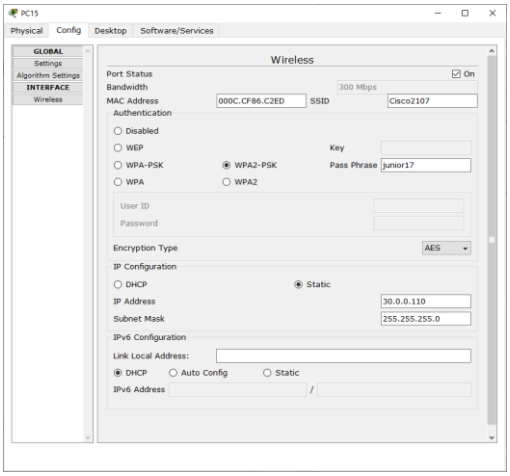


Setting up wireless PCs.





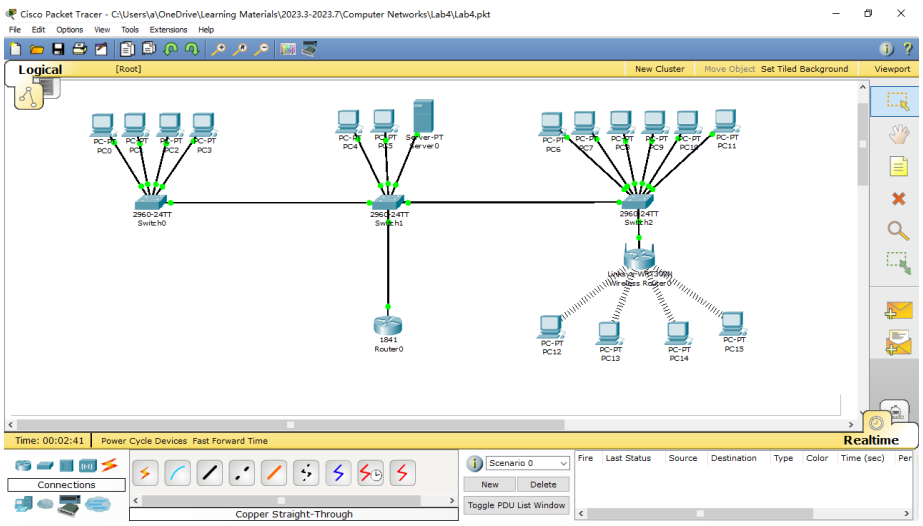




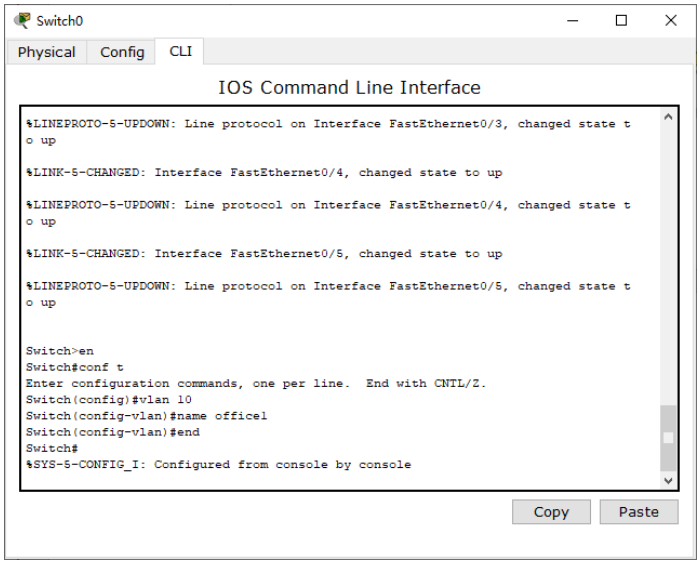
6. Connect the cables and connect the departments.

Connect the PC with a twisted pair.

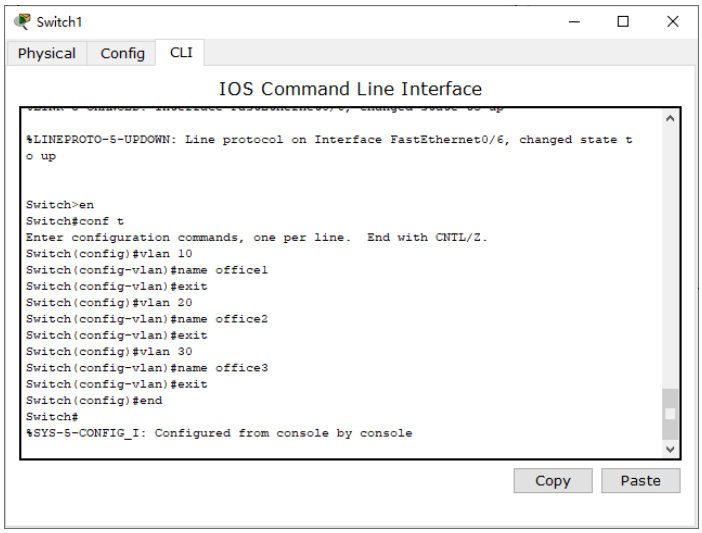
In all switches, connect the cables to FastEthernet clockwise. In the router, connect to the gigabit connector, having previously turned it on.



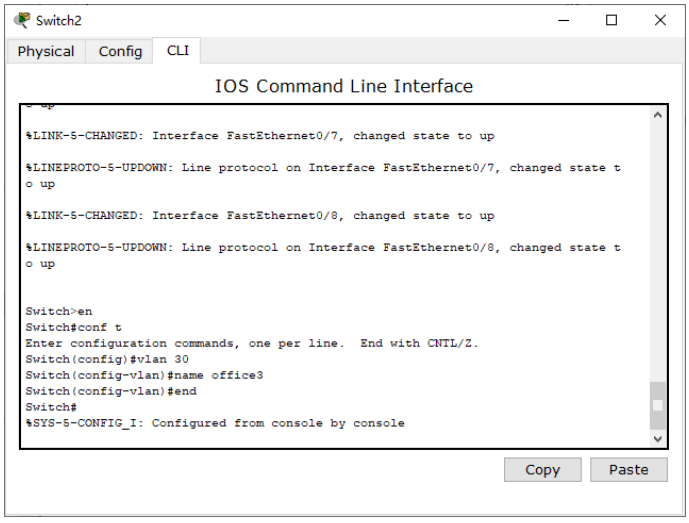
configure VLANs on all switches



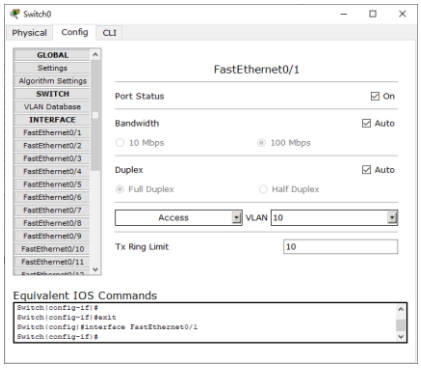
Open the switchboard in the second department and write the following commands:



Open the switchboard in the third department and write the following commands:

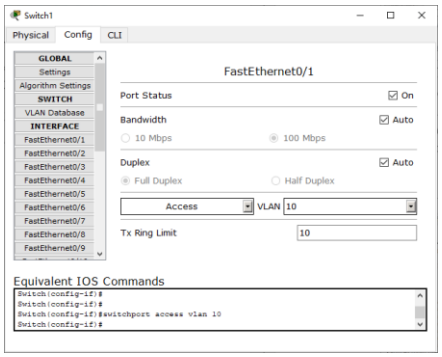


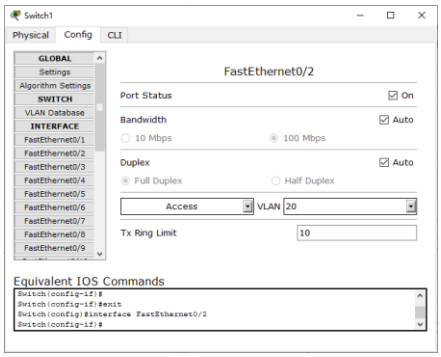
set VLAN 10 on the first switch for all ports to which there is a connection



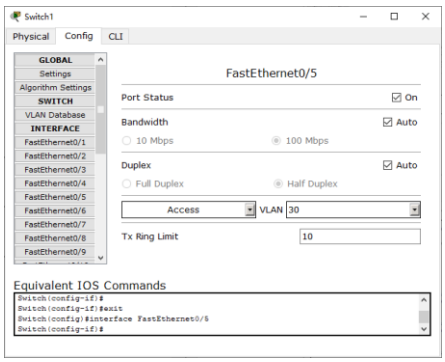
...(Fa0/2-Fa0/5 is the same as Fa0/1)

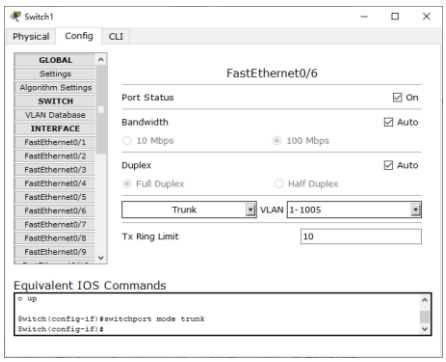
On the second switch, you need to set the port to which the switch from the first department of VLAN – 10 is connected, from the third VLAN – 30, and 2 PCs and the server of the second department of VLAN – 20. That is, Fa0/1 – VLAN 10, Fa0/2- Fa0/4 – VLAN 20, Fa0/5 – VLAN 30. Fa0/6, connecting the switch and the router are set to Trunk mode.



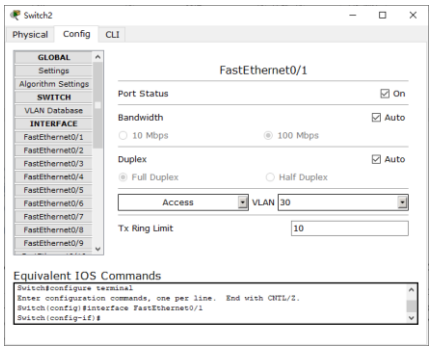


...(Fa0/3- Fa0/4 are as same as Fa0/2)



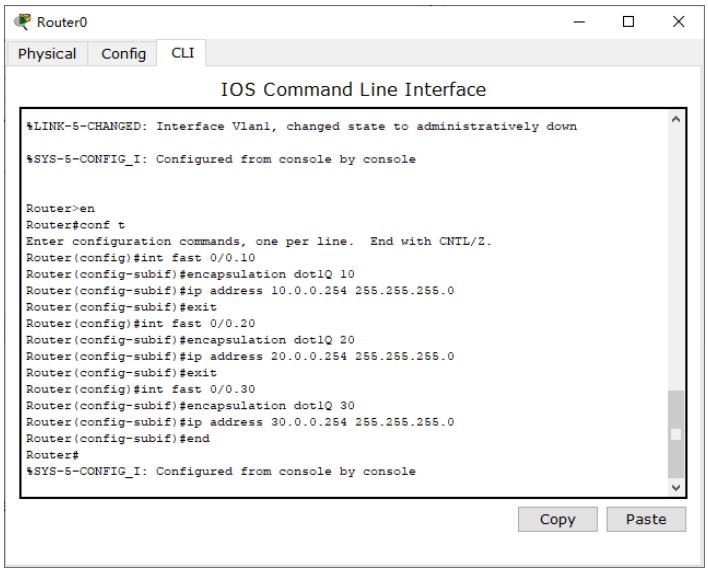


On the third switch, set VLAN 30 (Fa0/1-Fa0/8) to all ports.



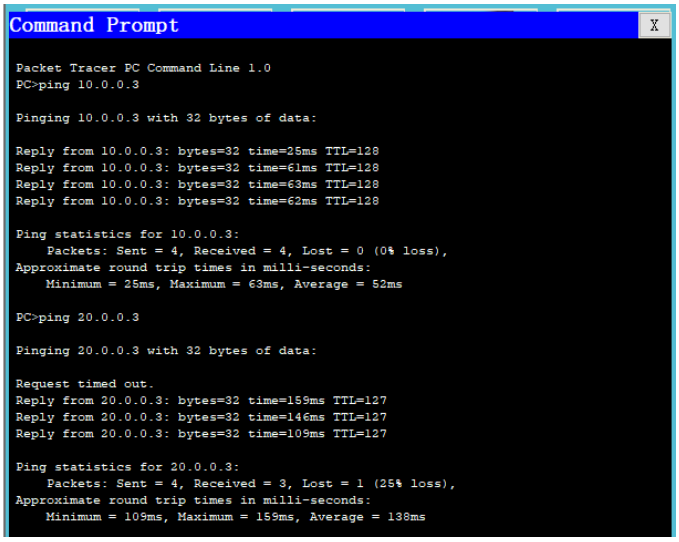
...(Fa0/2-Fa0/8 are as same as Fa0/1)

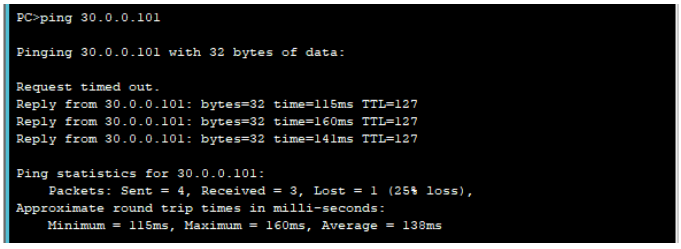
configure the router to work with the VLAN, go to the CLI tab and prescribes commands there:

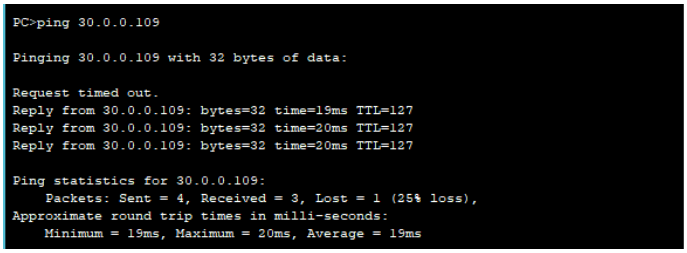


test the network with the ping command.

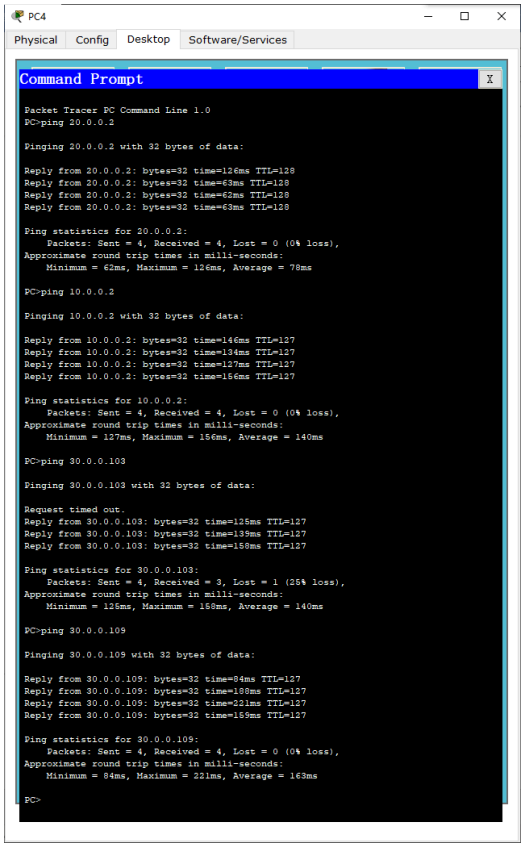
The first department:



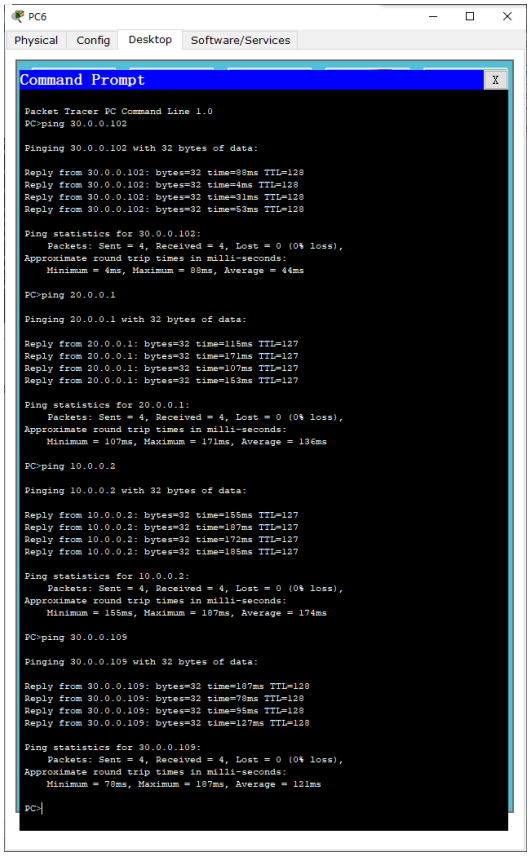




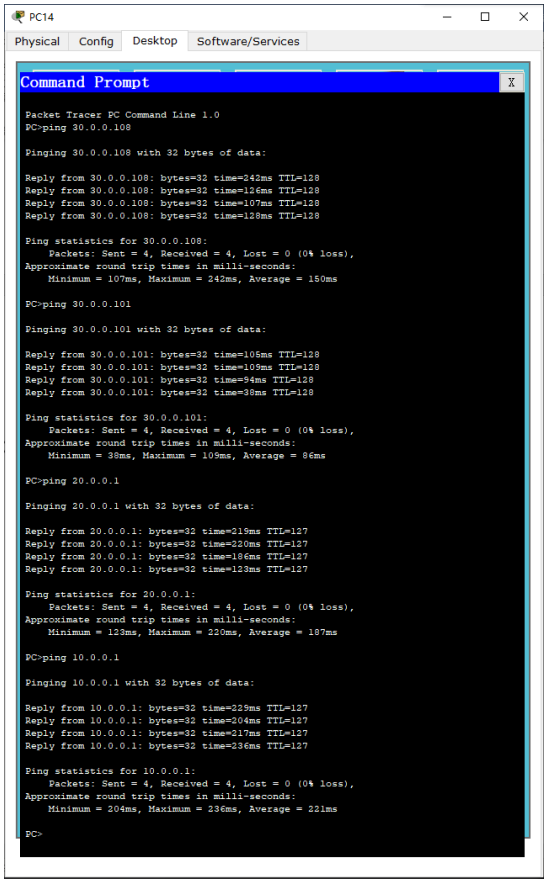
Second department:



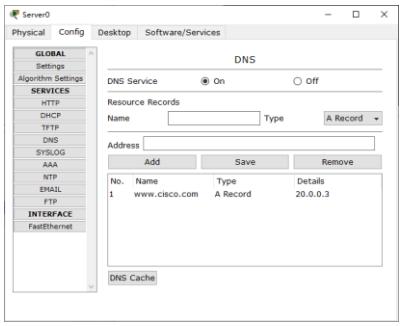
Third department (cable):

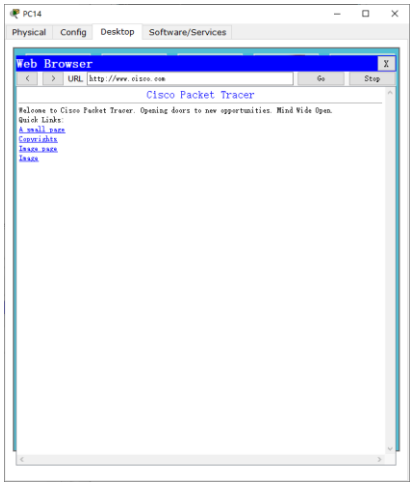


Third Department (Wi-Fi):



7. Server setup.





8. (Done) Configure SSH.

go into the router and write commands:

```
Router>en
Router#clock set 10:10:00 13 Oct 2017
Router#conf t
Router(config)#ip domain name ssh.dom
Router(config)#crypto key generate rsa
Router(config)#service password-encryption
Router(config)#username Valery privilege 15 password 8 junior17
Router(config)#aaa new-model
Router(config)#line vty 0 4
Router(config-line)#transport input ssh
Router(config-line)#logging synchronous
Router(config-line)#exec-timeout 60 0
Router(config-line)#exit
Router(config)#exit
Router#copy running-config startup-config
```

9. (Done) Configure the protection against on each switch.

open the switch and write commands:

```
Switch>en
Switch#conf t
Switch(config)#interface range fastEthernet 0/X-Y
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport port-security
Switch(config-if-range)#switchport port-security maximum K
Switch(config-if-range)#switchport port-security mac-address sticky
Switch(config-if-range)#switchport port-security violation shutdown
Switch(config-if-range)#end
```

As a result , the work was done as follows: