Course work

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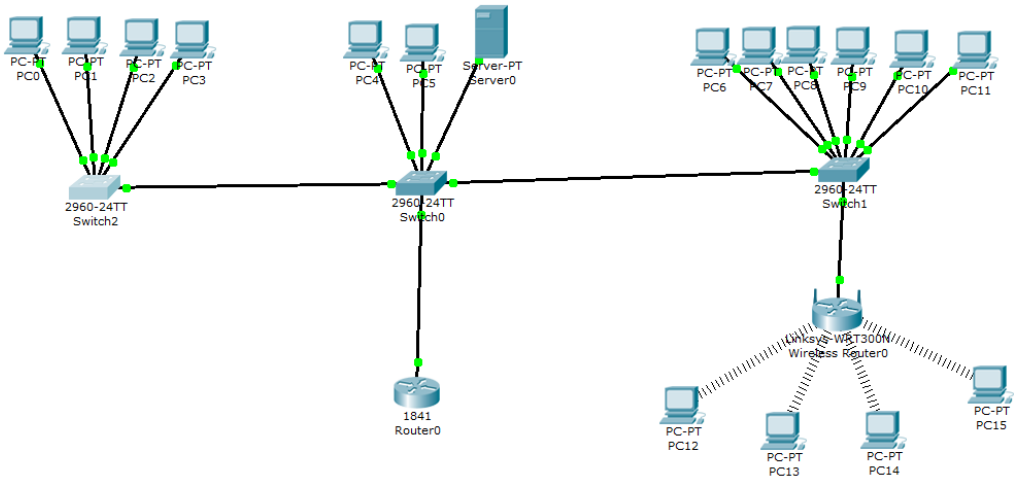
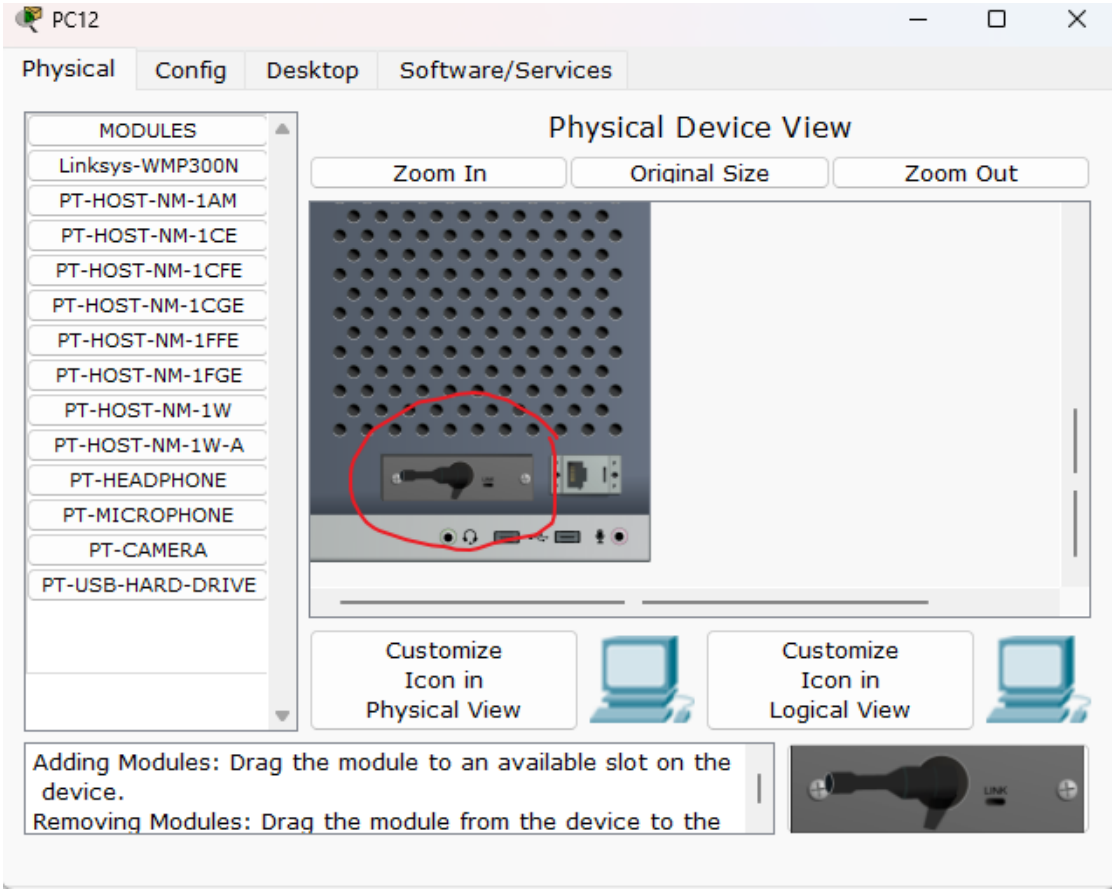
1. Adding equipment

   I have added 22 devices as instruction says. The only difference is that the version of Cisco Packet Tracer is so low that it does not contain Cisco 1941 Router. I substitute it by 1841 Router. There is no much difference between two kinds of router in this task except for the commands used to connect the departments.



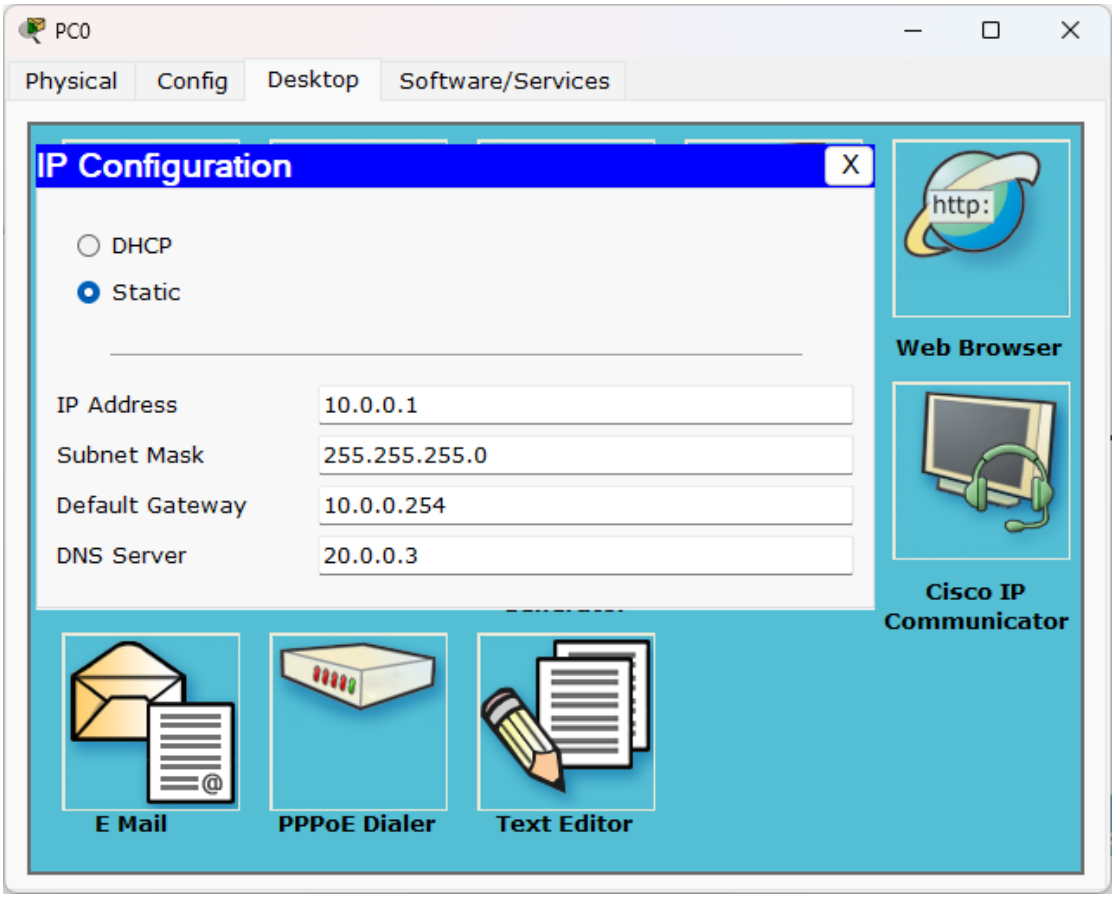
2. Installing the Wi-Fi module in the PC

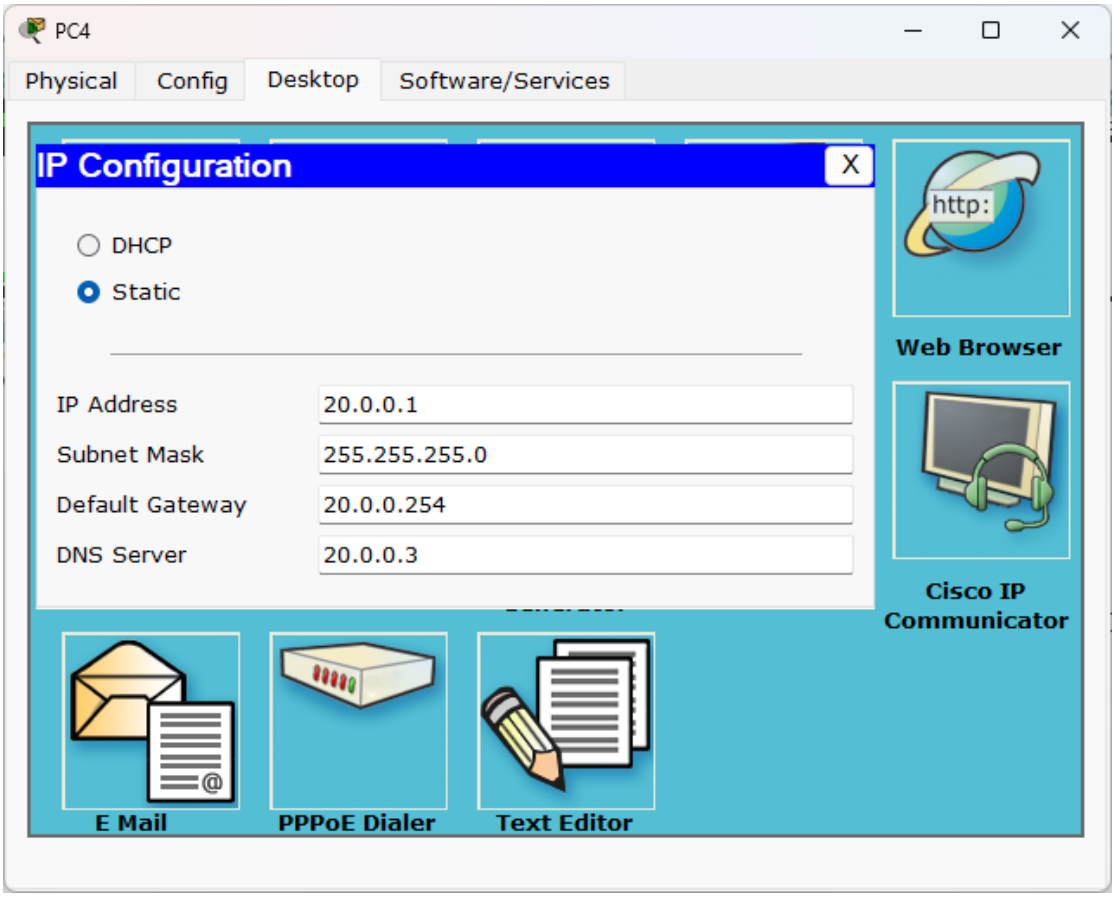


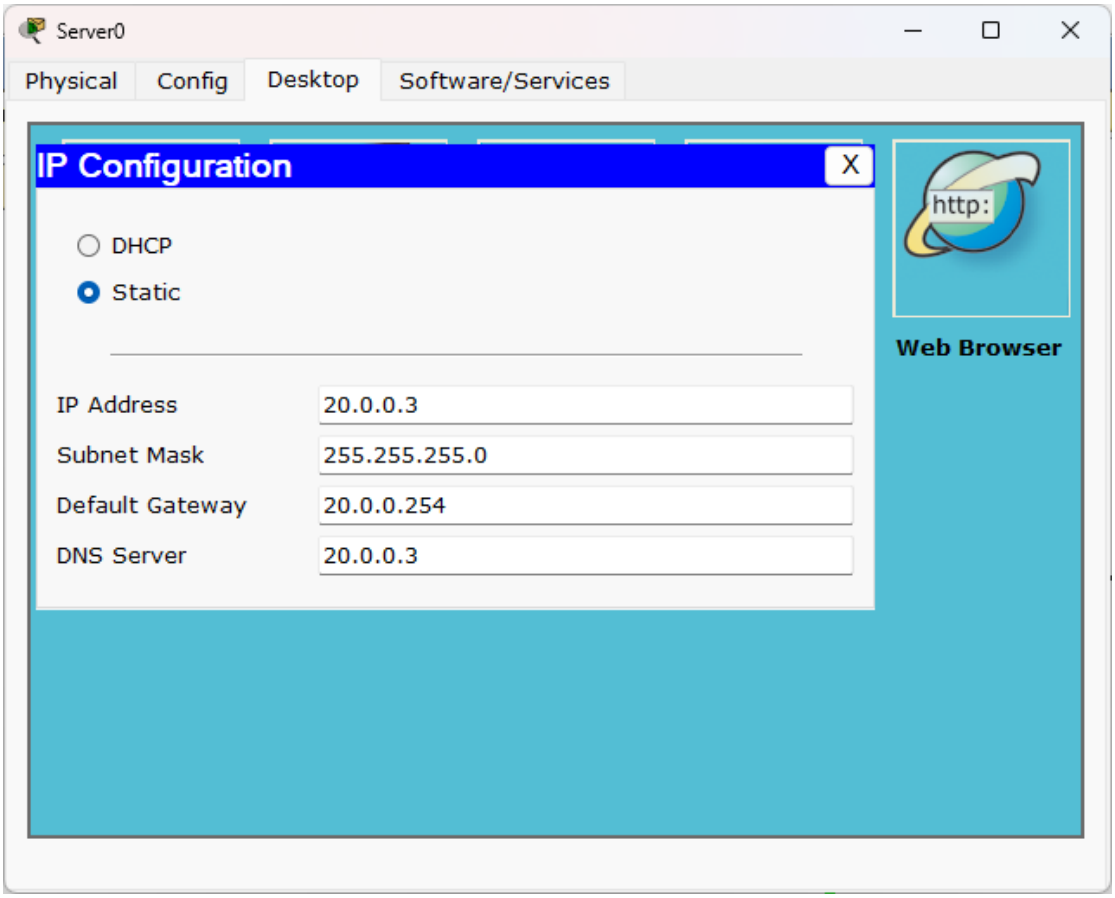
In order to make PC12-15 be able to connect to Wi-Fi, we need to change the physical device of the machines. The device in the red circle is the part to connect the PC to network. It is initialed like  . I firstly drag it off the machine, and then put the WMP300N to the right position. To emphasize, the operations described above can be done only if the device is showdown by clicking the red button like  to make the green light switched off.

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

   Set IP Address, Subnet Mask, Default Gateway and DNS Server exactly as instruction says. Below are the examples.

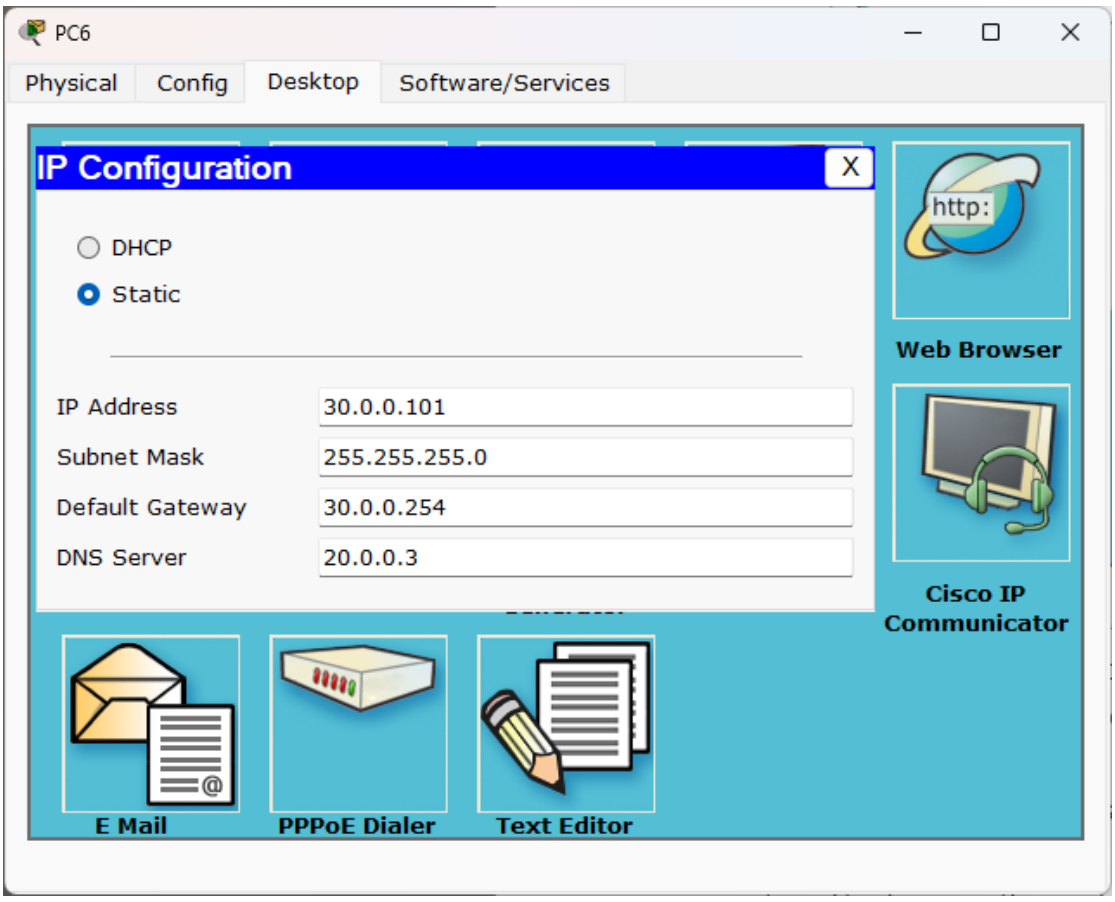

PC0
Physical
Config
Desktop
Software/Services
IP Configuration
X
DHCP
Static
IP Address
10.0.0.1
Subnet Mask
255.255.255.0
Default Gateway
10.0.0.254
DNS Server
20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor

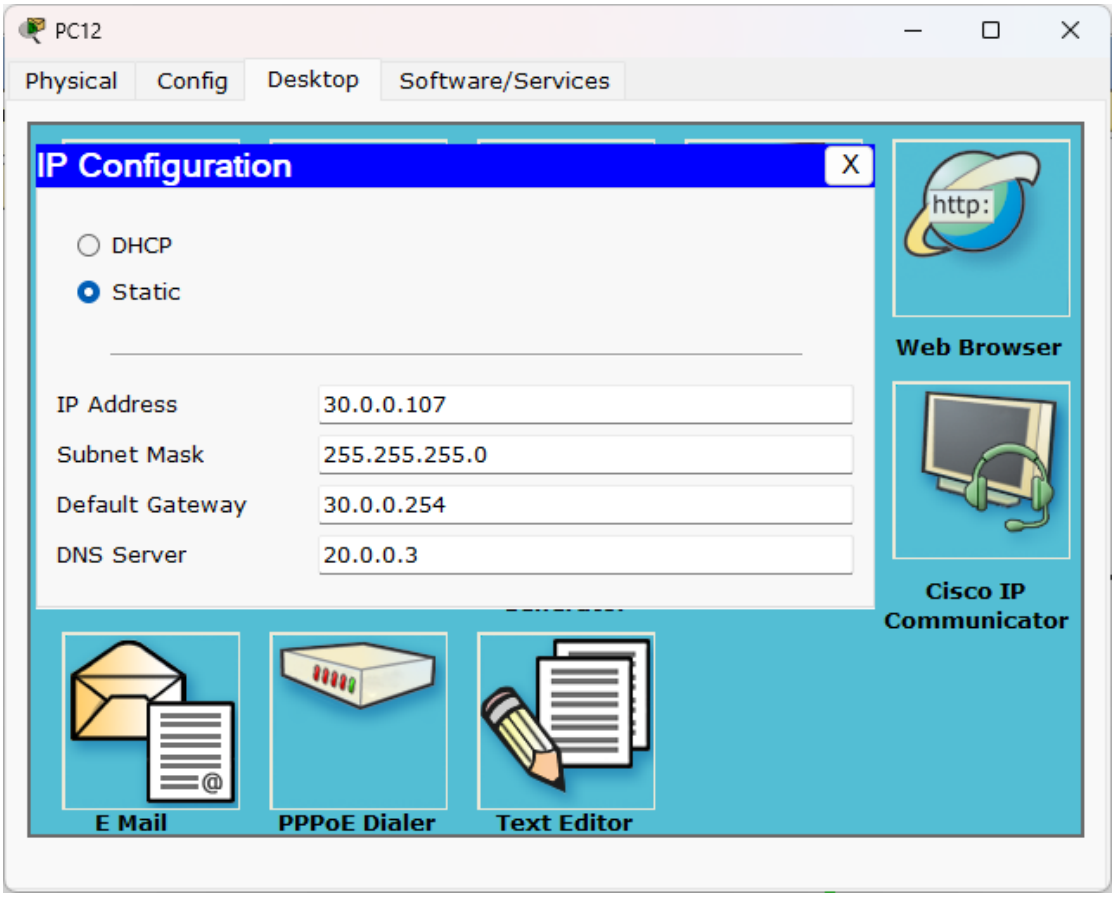

PC4
Physical
Config
Desktop
Software/Services
IP Configuration
X
DHCP
Static
IP Address
20.0.0.1
Subnet Mask
255.255.255.0
Default Gateway
20.0.0.254
DNS Server
20.0.0.3
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor



4. Setting up the third department

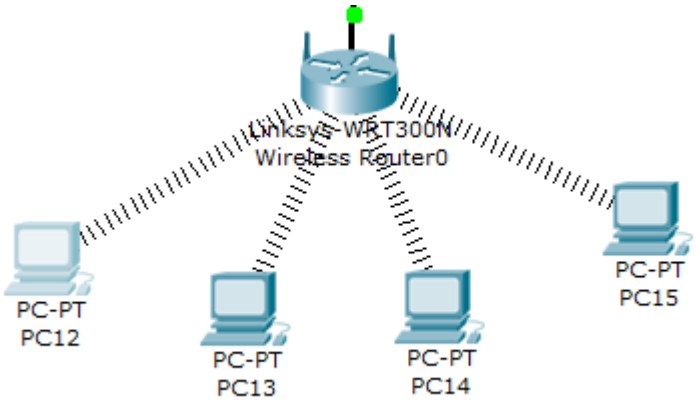
The IP set of third department is a little different from others of two department. The PCs connect to Wireless Router do not have inference FastEthernet. Instead, we need to config the IP address which is set DHCP as default in inference Wireless. Below are examples.


PC6
Physical
Config
Desktop
Software/Services
IP Configuration
X
DHCP
Static
IP Address
30.0.0.101
Subnet Mask
255.255.255.0
Default Gateway
30.0.0.254
DNS Server
20.0.0.3
http:
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor


PC12
Physical
Config
Desktop
Software/Services
IP Configuration
X
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
http:
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor

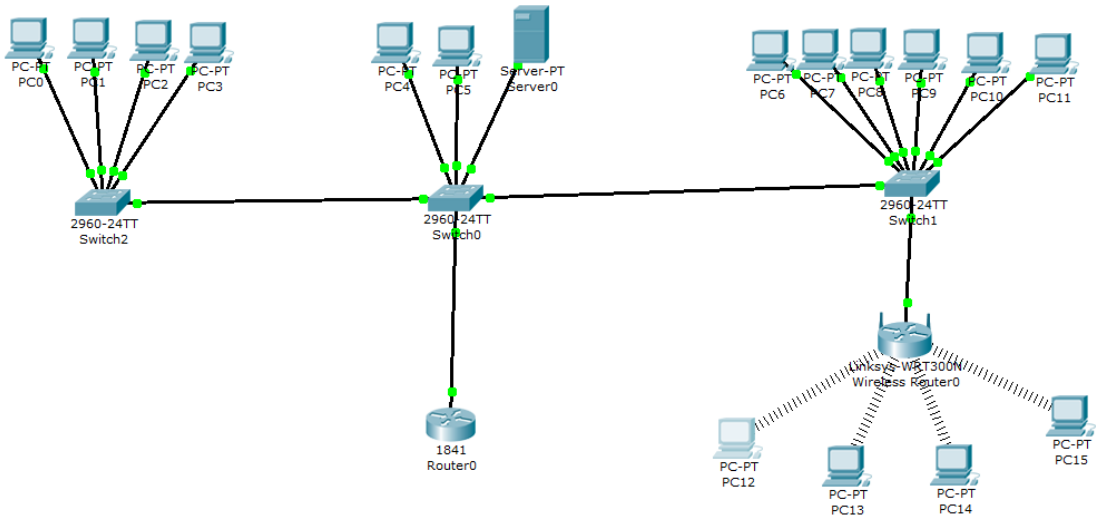
5. Configuring the router

After following the instruction rightly, there will appear connection lines similar to Wi-Fi signal.

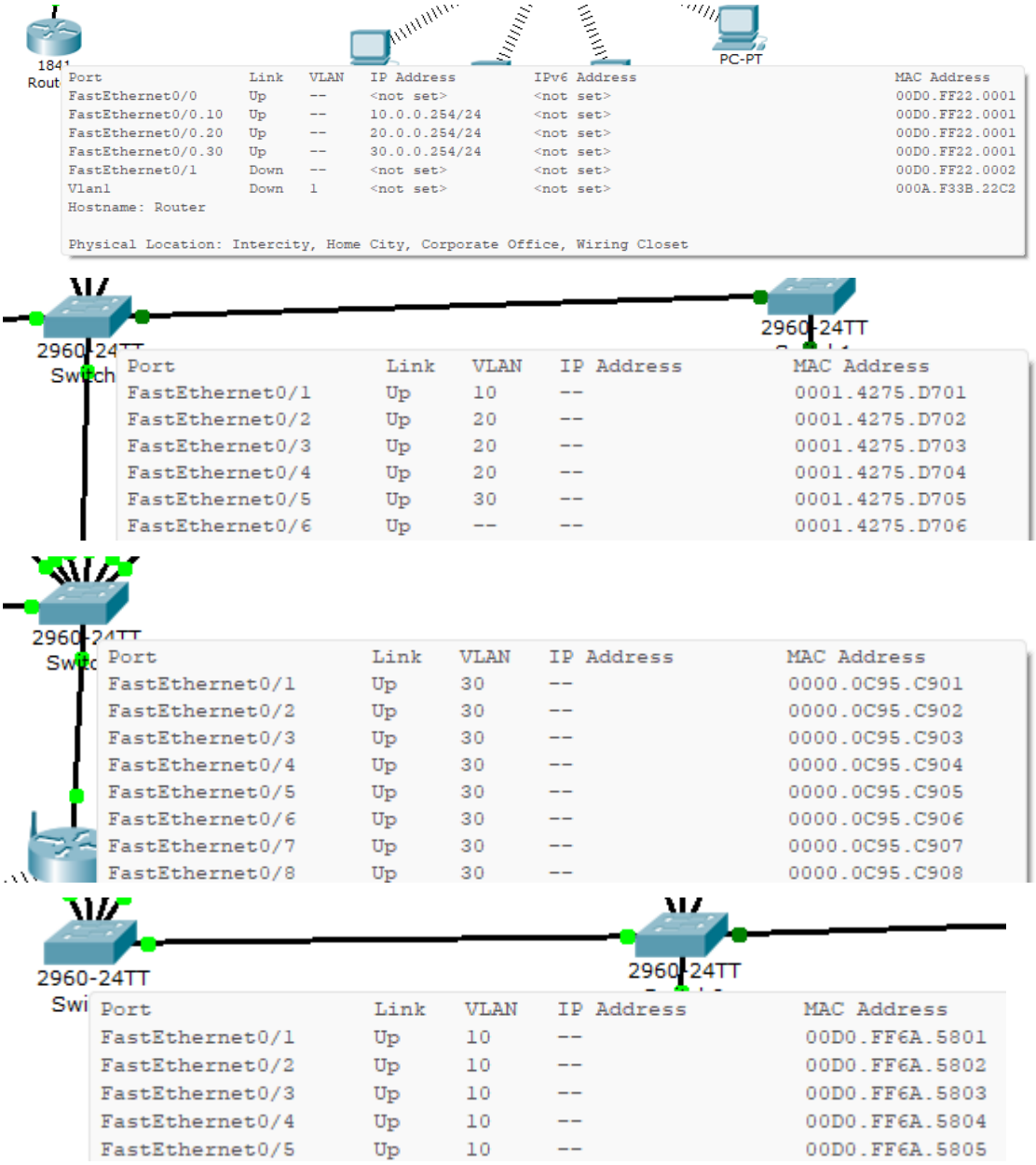


6. Connect the cables and connect the departments

Connect the cables using Copper Straight-Through.



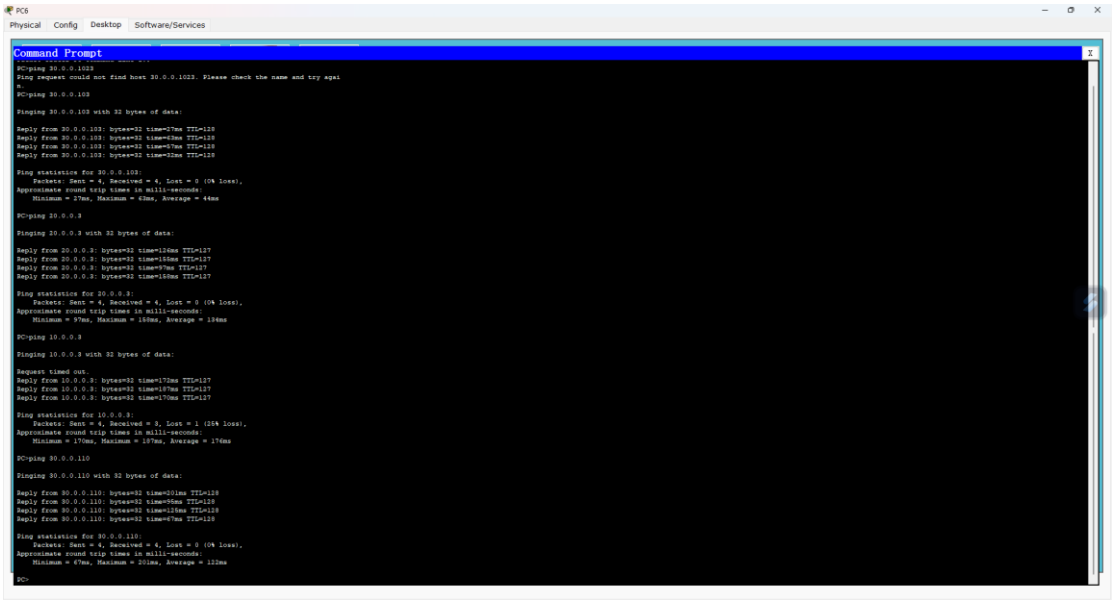
Then, follow the instruction to create 4 different VLANs. And set the right VLAN in the inferences of each switch. Specially, the inference connects switch and router needs to be set to Trunk mode so that messages from all VLANs can be transferred to the router. We also need to create sub inference for router because messages from all VLANs will send to the same inference in this task. We distinguish different VLAN using different sub inference.

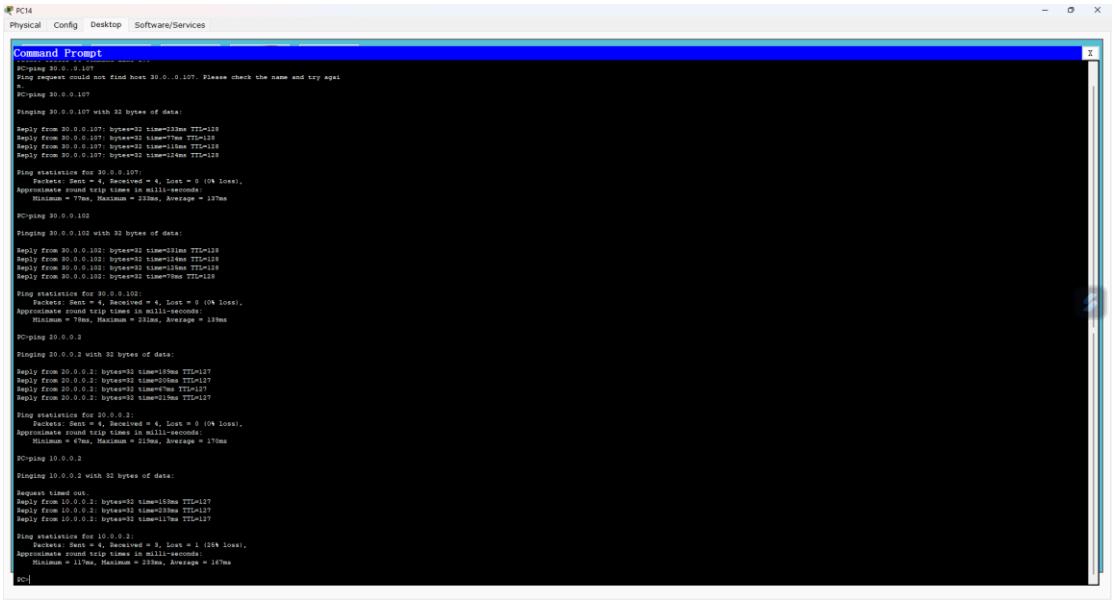


The ping results are showing below.

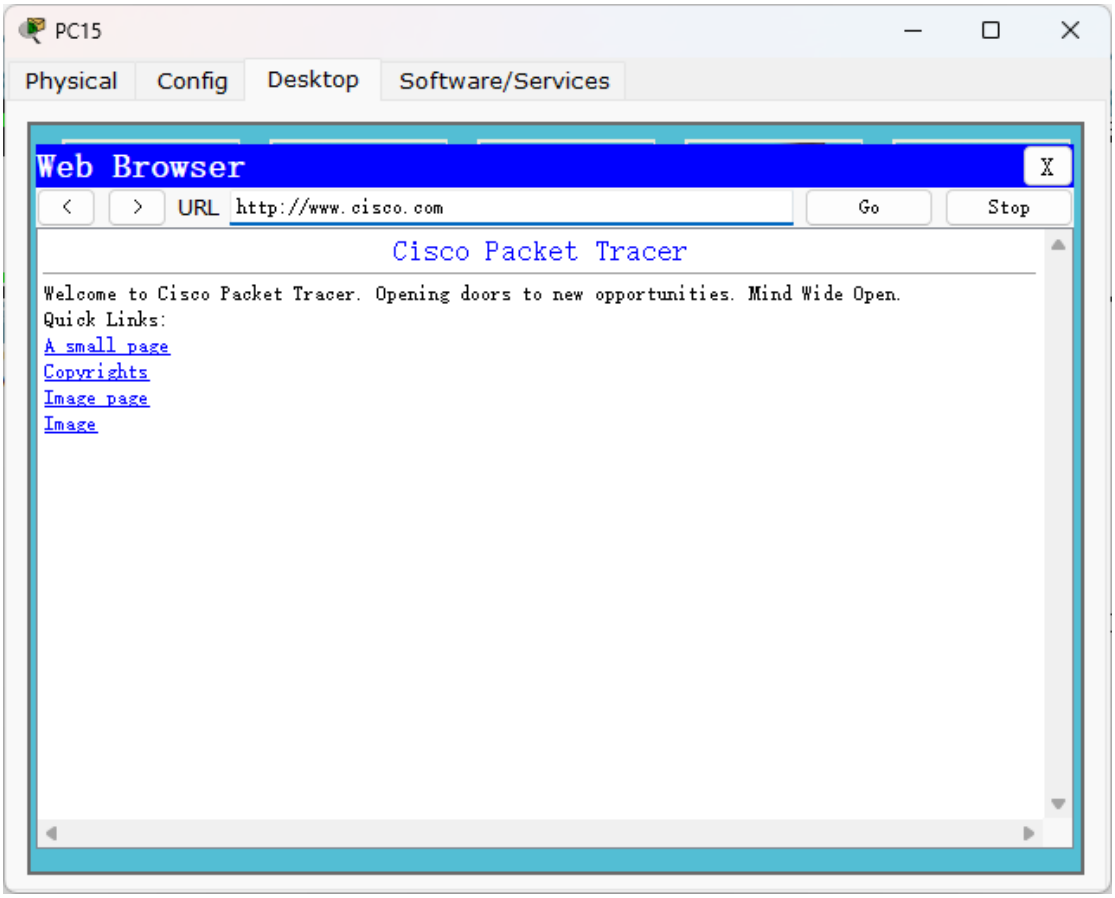

PC0
Physical
Config
Desktop
Software/Services
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.2
Pinging 10.0.0.2 with 32 bytes of data:
Reply from 10.0.0.2: bytes=32 time=109ms TTL=128
Reply from 10.0.0.2: bytes=32 time=42ms TTL=128
Reply from 10.0.0.2: bytes=32 time=62ms TTL=128
Reply from 10.0.0.2: bytes=32 time=62ms TTL=128
Ping statistics for 10.0.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 42ms, Maximum = 109ms, Average = 78ms
PC>ping 20.0.0.2
Pinging 20.0.0.2 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.2: bytes=32 time=188ms TTL=127
Reply from 20.0.0.2: bytes=32 time=136ms TTL=127
Reply from 20.0.0.2: bytes=32 time=128ms TTL=127
Ping statistics for 20.0.0.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 128ms, Maximum = 188ms, Average = 150ms
PC>ping 30.0.0.102
Pinging 30.0.0.102 with 32 bytes of data:
Request timed out.
Reply from 30.0.0.102: bytes=32 time=188ms TTL=127
Reply from 30.0.0.102: bytes=32 time=159ms TTL=127
Reply from 30.0.0.102: bytes=32 time=176ms TTL=127
Ping statistics for 30.0.0.102:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 159ms, Maximum = 188ms, Average = 174ms
PC>ping 30.0.0.110
Pinging 30.0.0.110 with 32 bytes of data:
Request timed out.
Reply from 30.0.0.110: bytes=32 time=249ms TTL=127
Reply from 30.0.0.110: bytes=32 time=249ms TTL=127
Reply from 30.0.0.110: bytes=32 time=178ms TTL=127
Ping statistics for 30.0.0.110:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 178ms, Maximum = 249ms, Average = 225ms
PC>


PC5
Physical
Config
Desktop
Software/Services
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Reply from 20.0.0.1: bytes=32 time=128ms TTL=128
Reply from 20.0.0.1: bytes=32 time=62ms TTL=128
Reply from 20.0.0.1: bytes=32 time=47ms TTL=128
Reply from 20.0.0.1: bytes=32 time=28ms TTL=128
Ping statistics for 20.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 28ms, Maximum = 125ms, Average = 66ms
PC>ping 10.0.0.1
Pinging 10.0.0.1 with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time=129ms TTL=127
Reply from 10.0.0.1: bytes=32 time=156ms TTL=127
Reply from 10.0.0.1: bytes=32 time=158ms TTL=127
Reply from 10.0.0.1: bytes=32 time=139ms TTL=127
Ping statistics for 10.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 129ms, Maximum = 156ms, Average = 144ms
PC>ping 30.0.0.101
Pinging 30.0.0.101 with 32 bytes of data:
Request timed out.
Reply from 30.0.0.101: bytes=32 time=140ms TTL=127
Reply from 30.0.0.101: bytes=32 time=141ms TTL=127
Reply from 30.0.0.101: bytes=32 time=111ms TTL=127
Ping statistics for 30.0.0.101:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 111ms, Maximum = 141ms, Average = 130ms
PC>ping 30.0.0.110
Pinging 30.0.0.110 with 32 bytes of data:
Reply from 30.0.0.110: bytes=32 time=116ms TTL=127
Reply from 30.0.0.110: bytes=32 time=139ms TTL=127
Reply from 30.0.0.110: bytes=32 time=106ms TTL=127
Reply from 30.0.0.110: bytes=32 time=202ms TTL=127
Ping statistics for 30.0.0.110:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 116ms, Maximum = 202ms, Average = 140ms
PC>





7. Server setup



8. Configure SSH
9. Configure the protection against on each switch

final result: