VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

Information Security Analysis and Audit

Course Code: CSE3501

Slot: L47-48

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Exercise 1:

Experiments in Wireshark software.

What is Wireshark:

Wireshark is the world's foremost and widely-used network protocol analyser. It lets you see what's happening on your network at a microscopic level and is the de facto (and often de jure) standard across many commercial and non-profit enterprises, government agencies, and educational institutions.

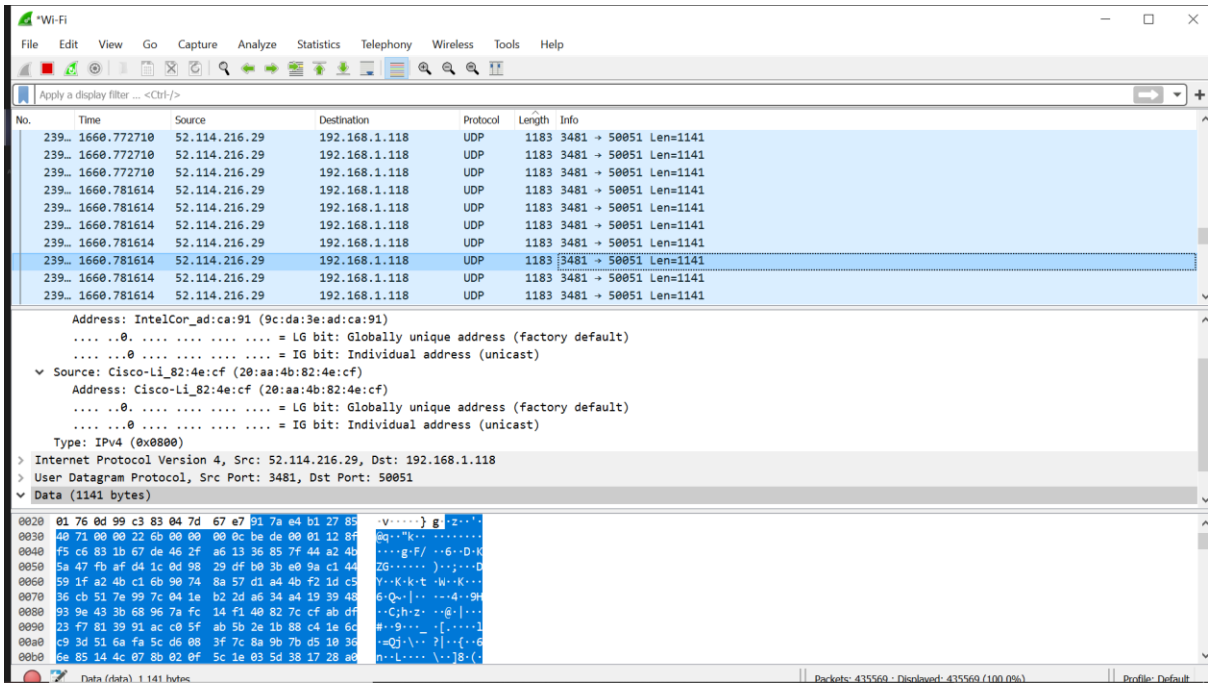
Wireshark has a rich feature set which includes the following:

- Deep inspection of hundreds of protocols, with more being added all the time
- Live capture and offline analysis
- Standard three-pane packet browser
- Multi-platform: Runs on Windows, Linux, macOS, Solaris, etc.

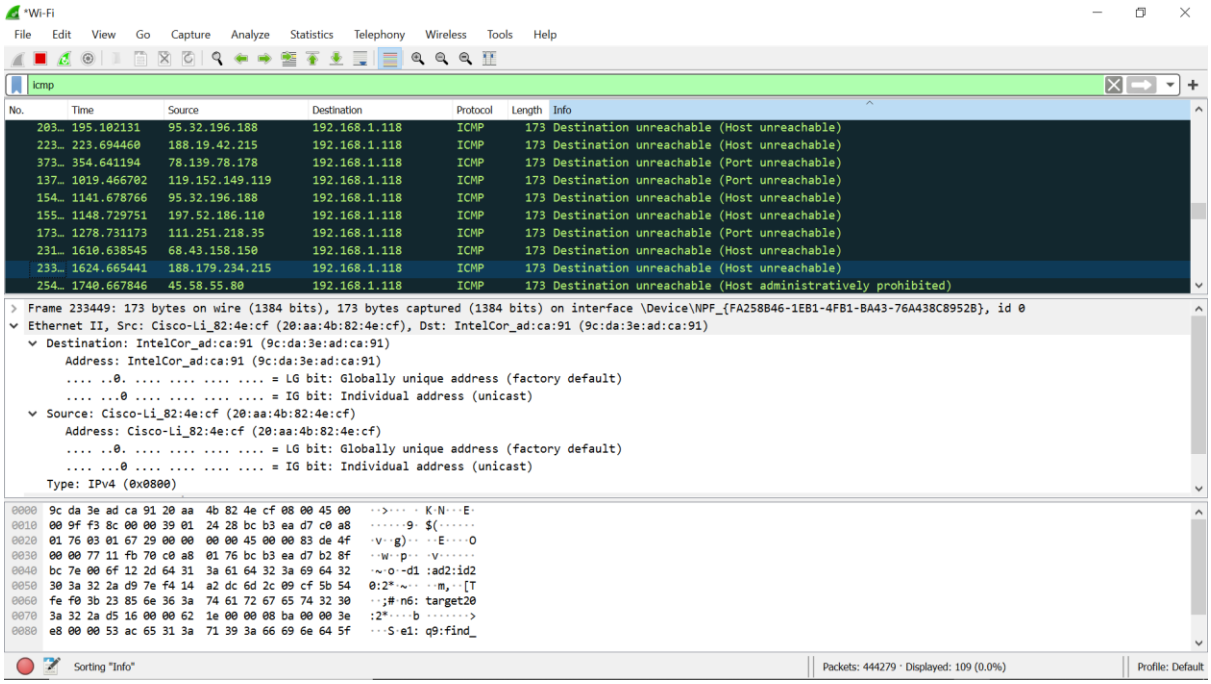
Shows all the general packet information on my WIFI Network and the protocols it uses.

Source and destination IP addresses of the packets are also mentioned

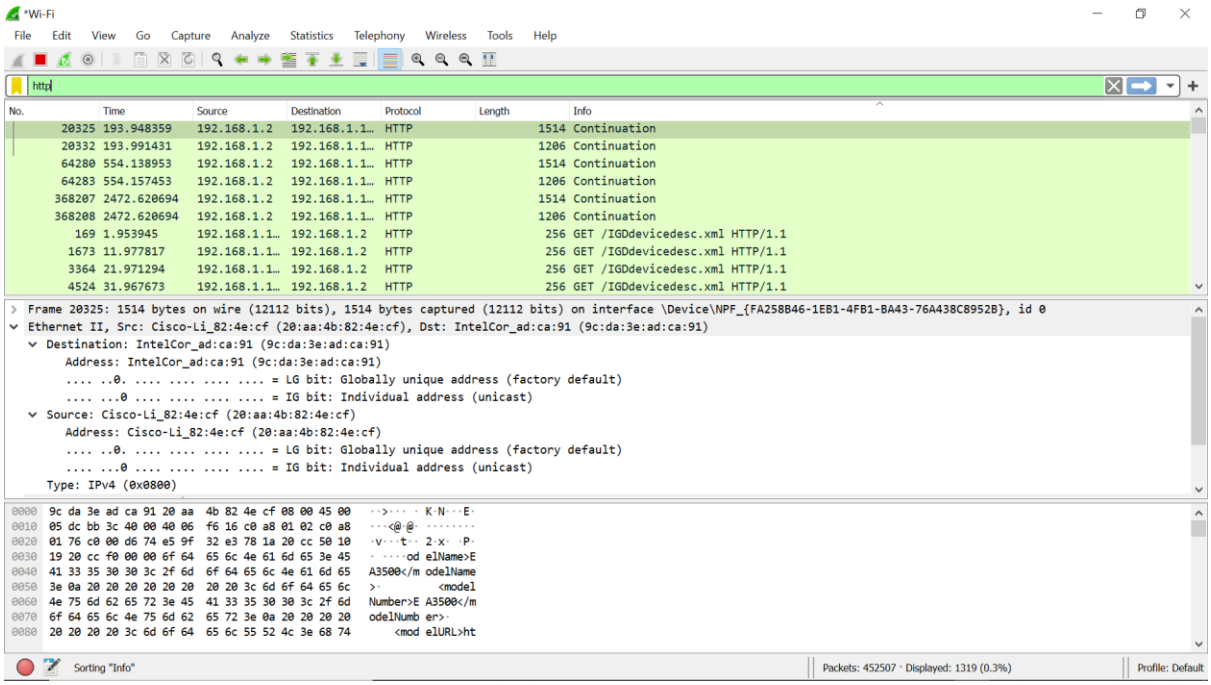
Other info like packet length, additional information is also present.



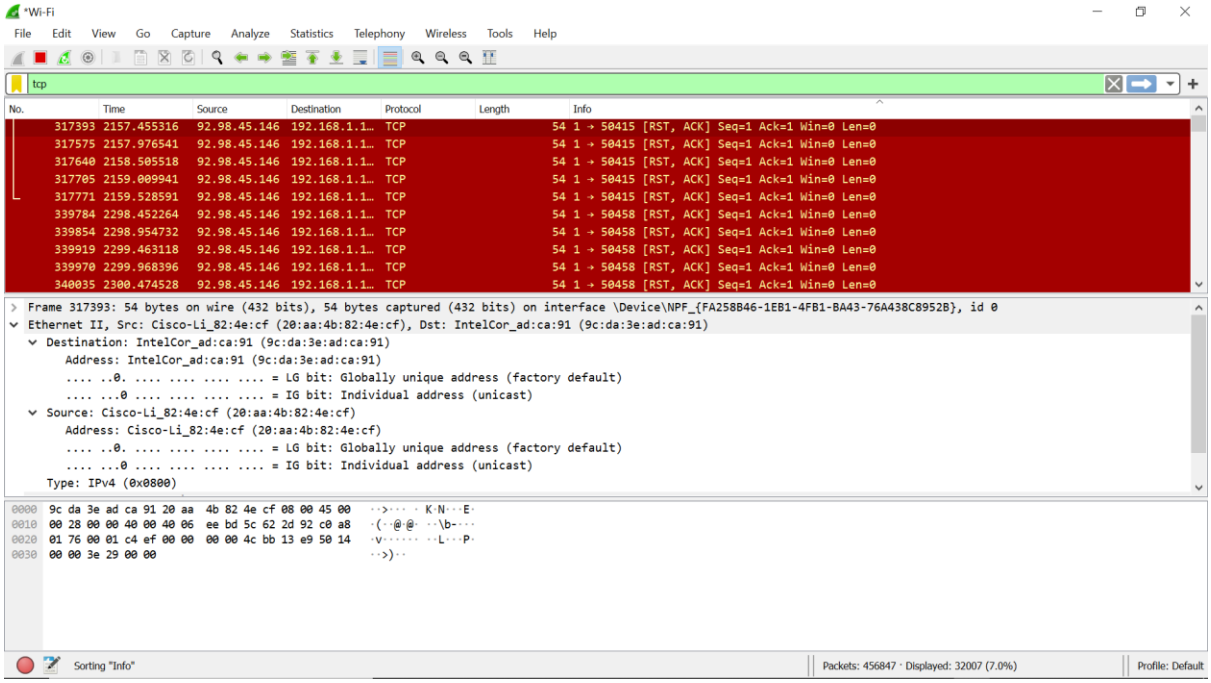
Filtering only icmp protocol packets:



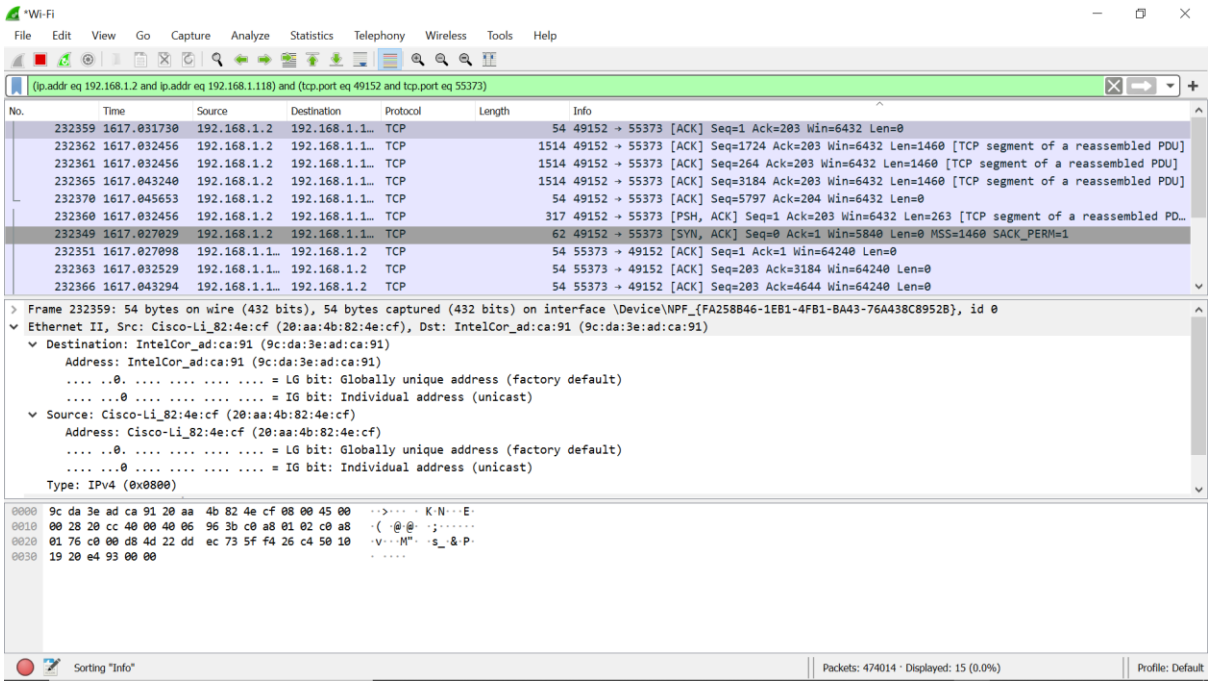
Filtering only http protocol packets:



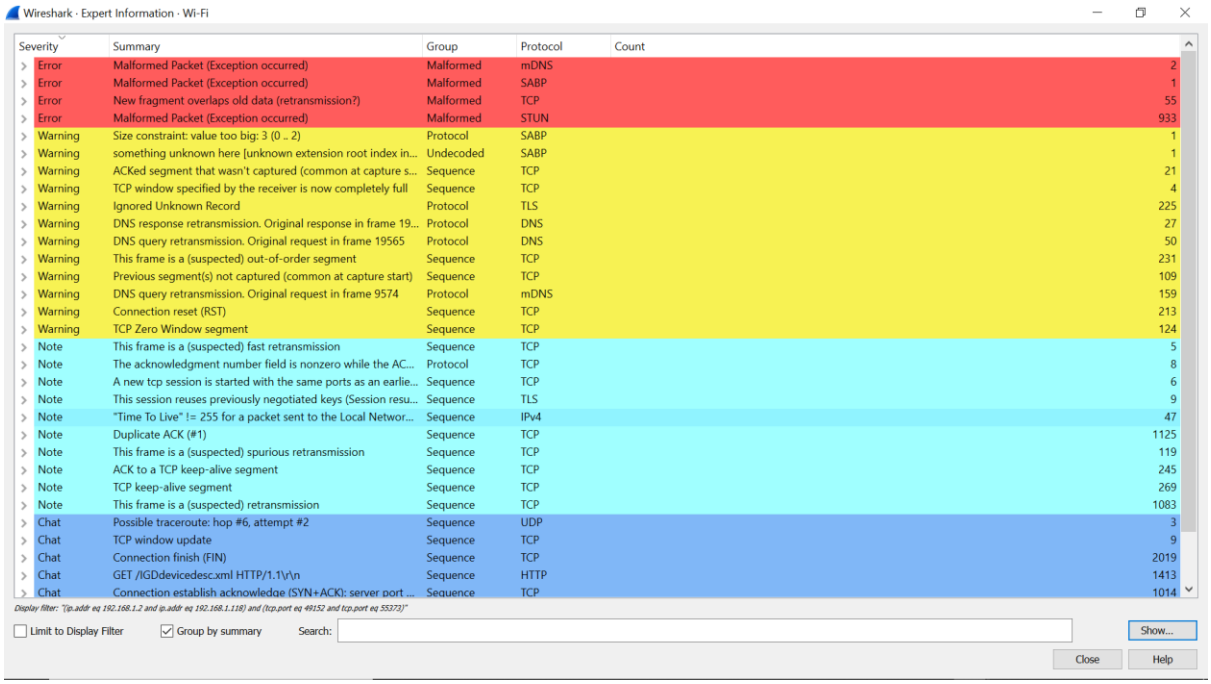
Filtering only tcp protocol packets:



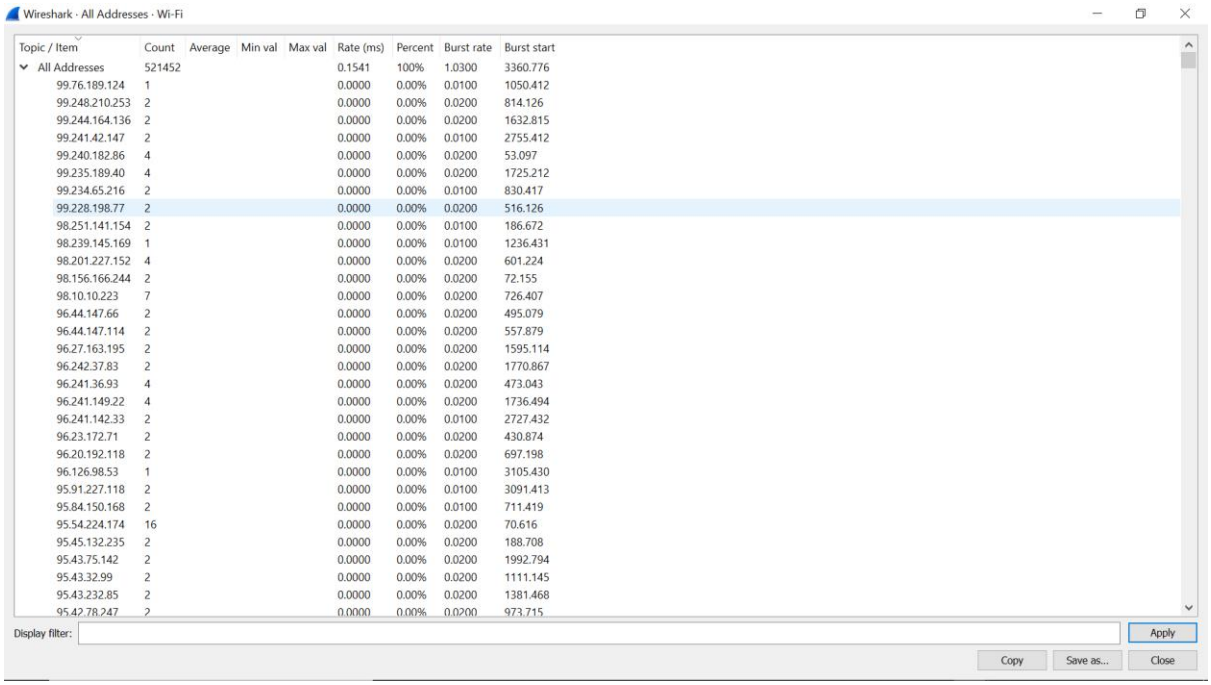
Conversation filter:



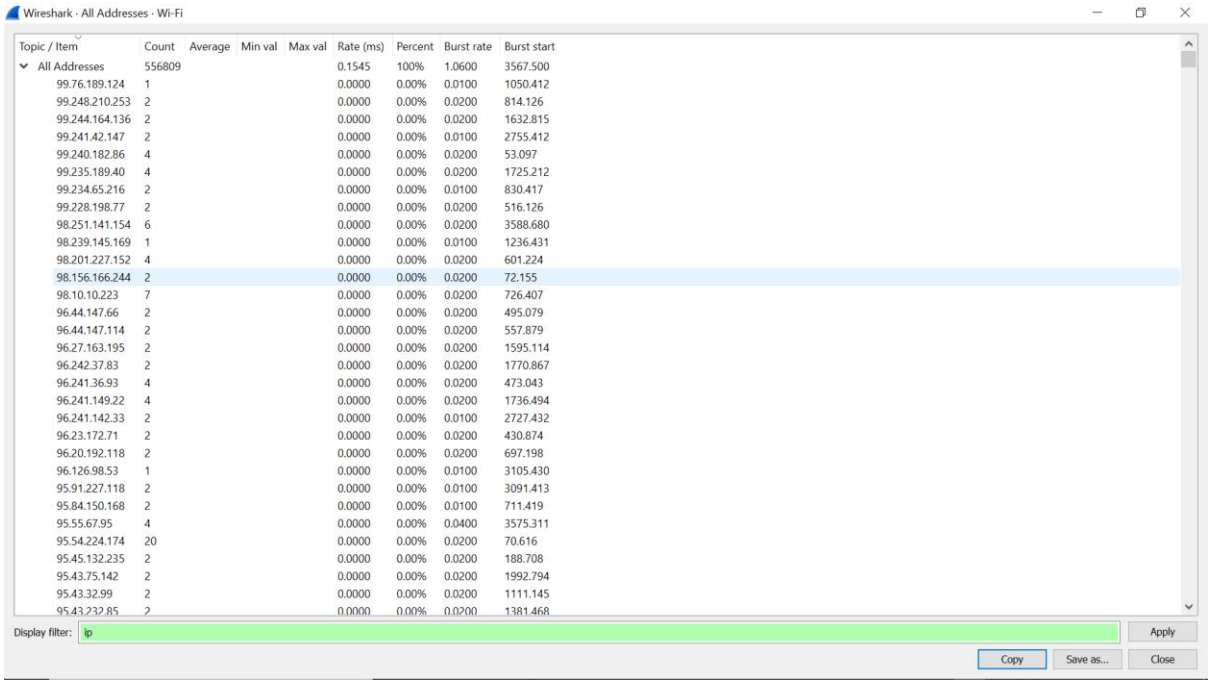
Detailed information about all the packets in my WIFI Network:



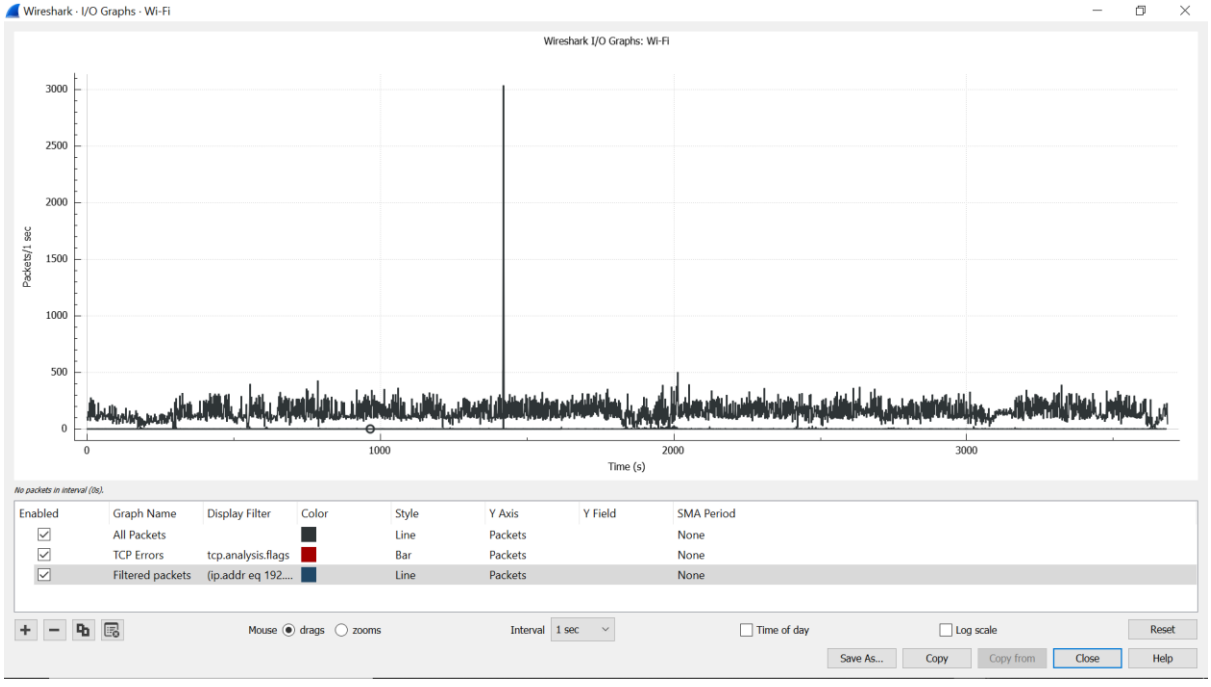
All the IP Address info about all the packets in my WIFI Network:



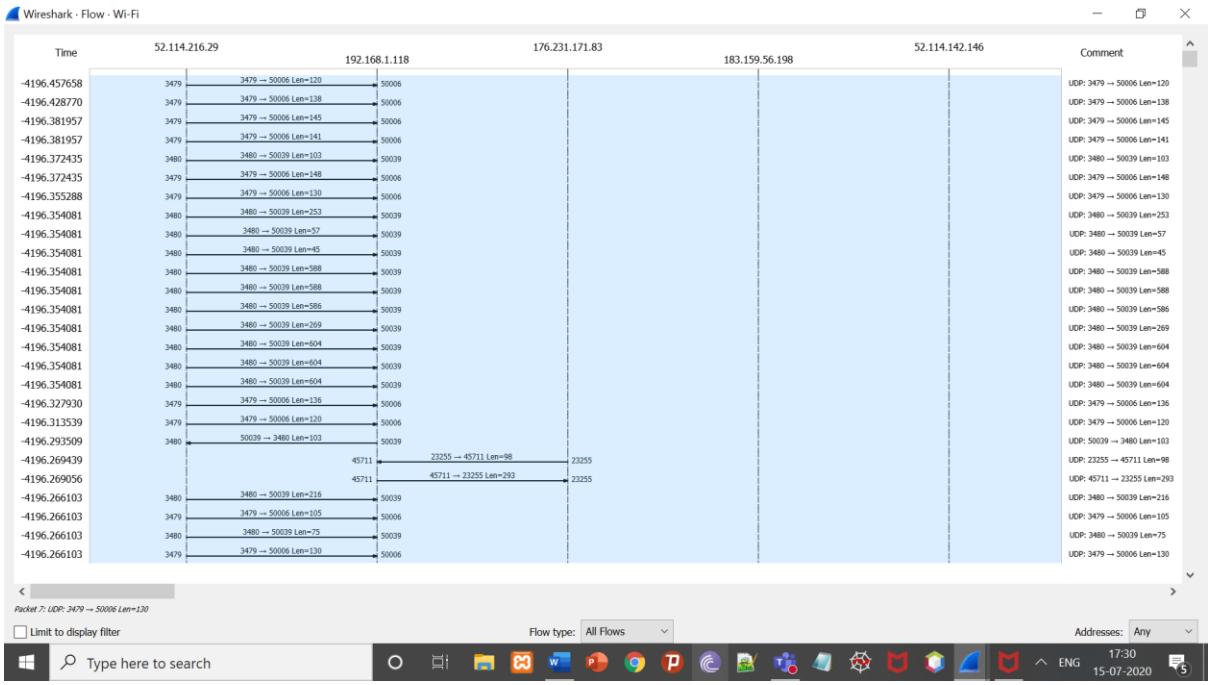
Filtering IP Addresses based on IP Protocol:



I/O Graph showing all the packets and how fast they are transferred/delivered in units of time(seconds)



FlowChart showing all Protocols:



FlowChart showing only TCP Protocol:

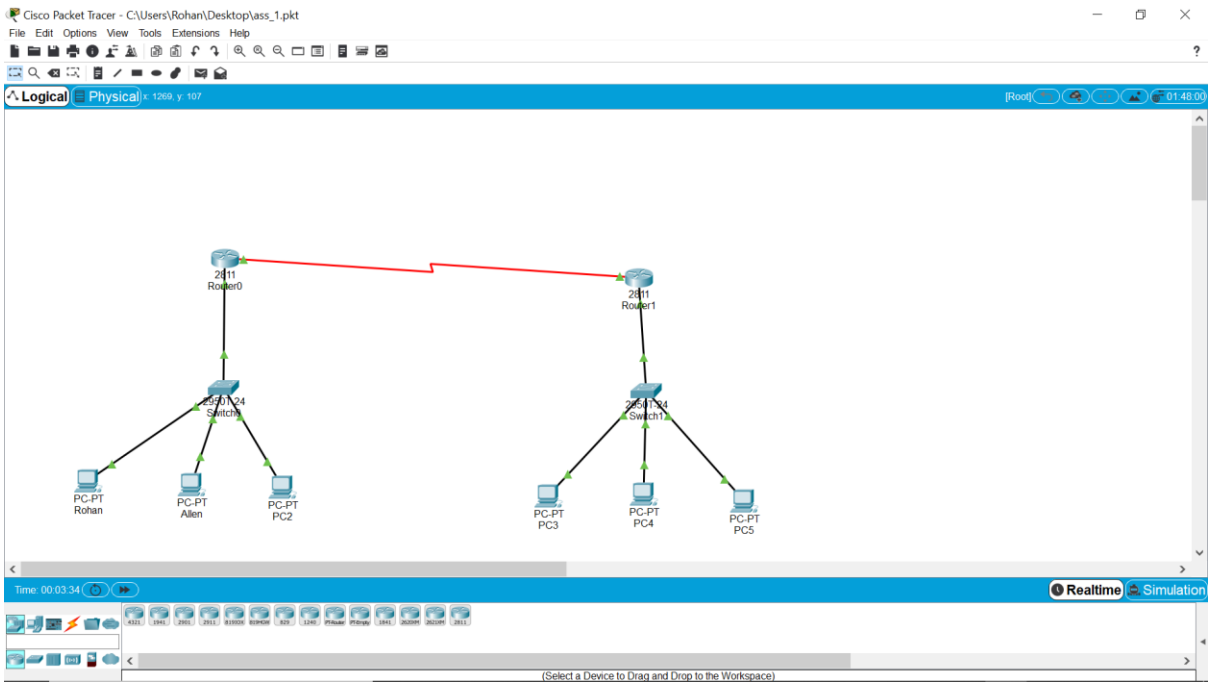
Exercise 2:

Experiments in Cisco Packet Tracer software.

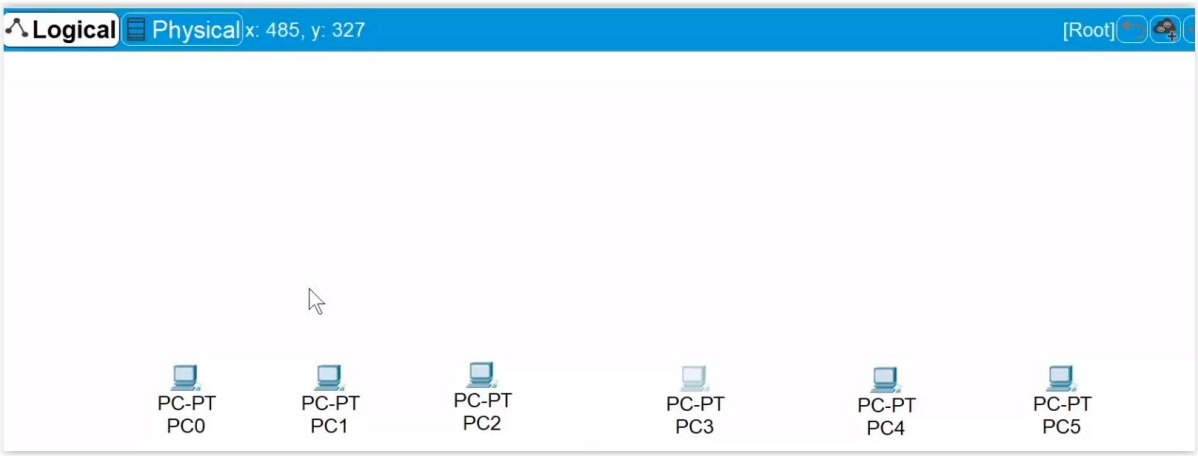
Packet Tracer is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and imitate modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface.

Aim:

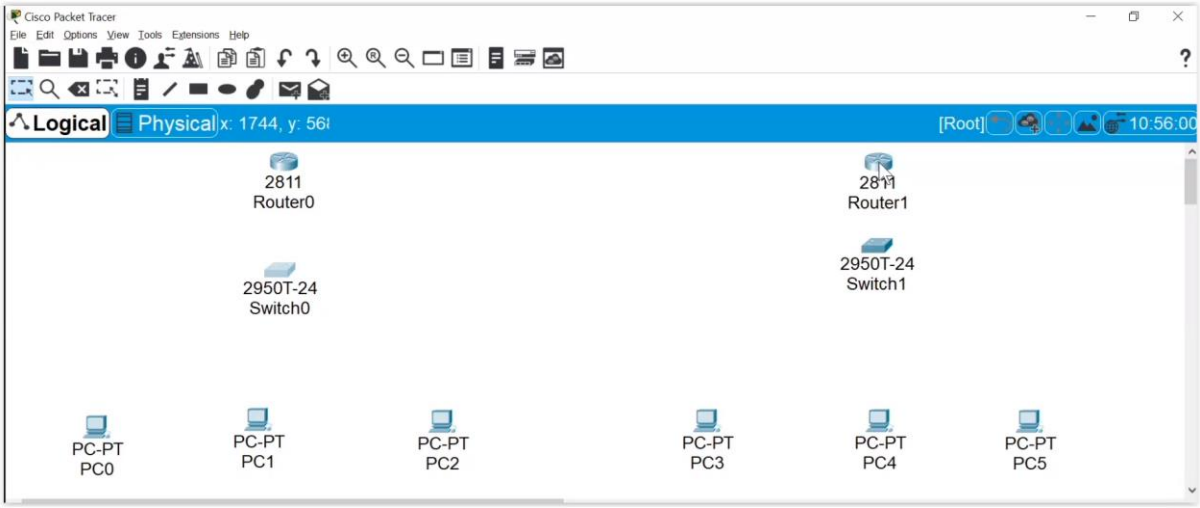
To get this network topology:



First Get 6 PC devices:

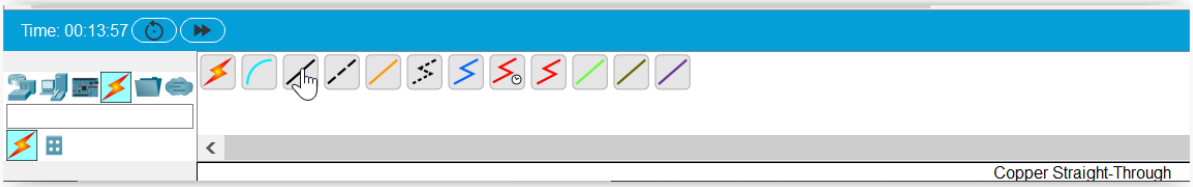


Then get 2 2950T-24 switches and two 2811 routers:



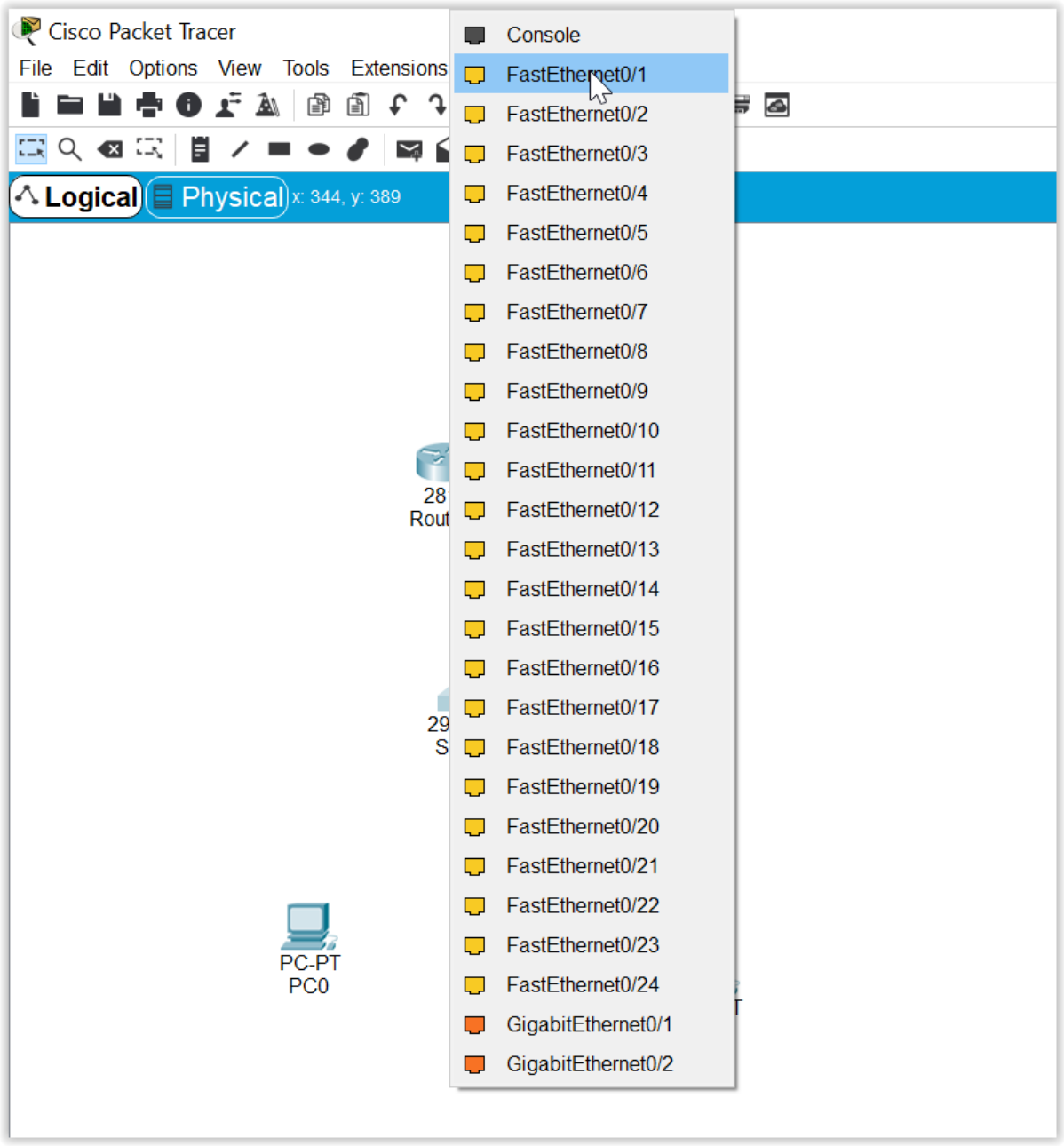
Now we have to configure these devices to get the required network topology.

We choose the copper straight through wires to make the connections.

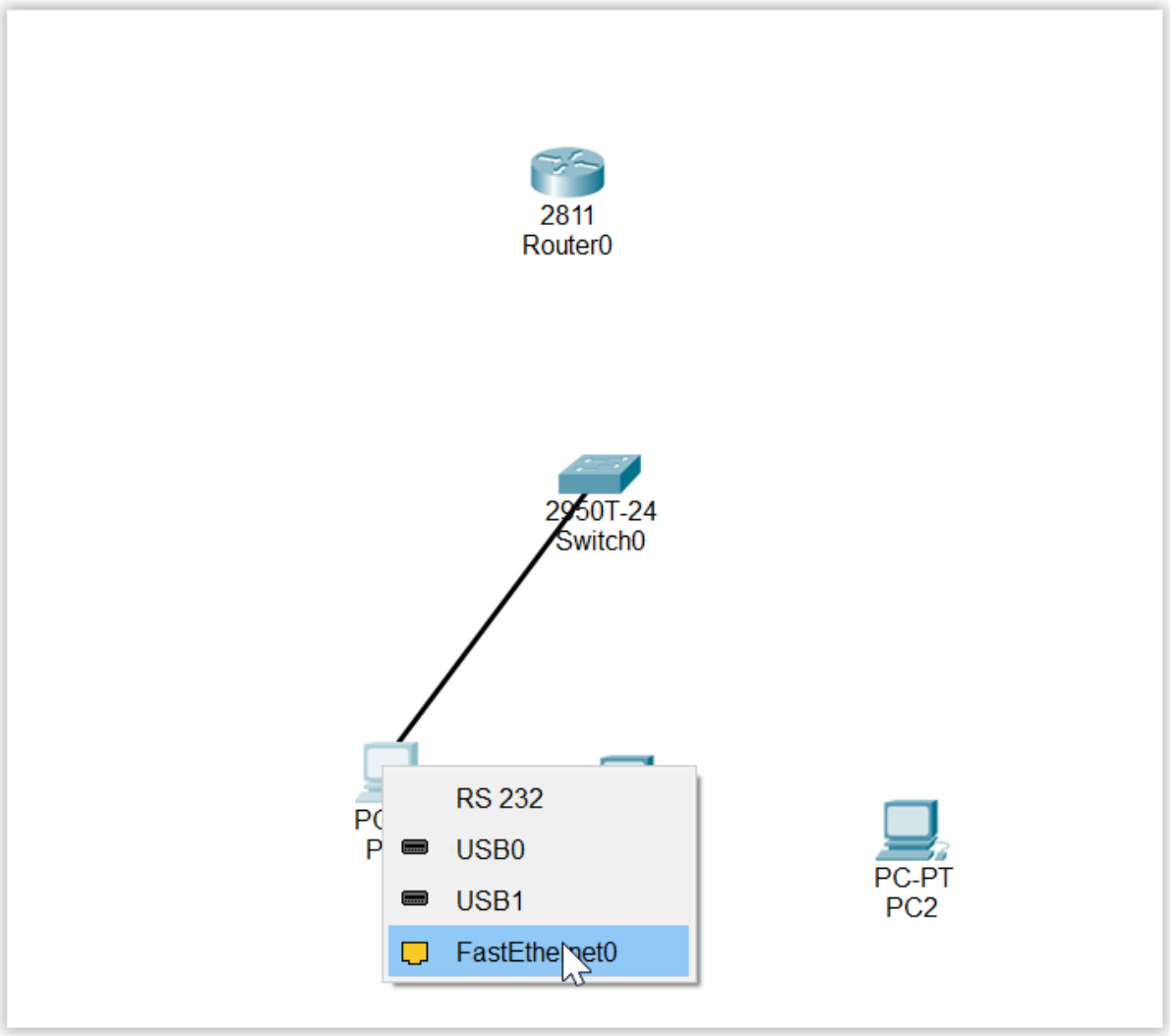


Click on the switch:

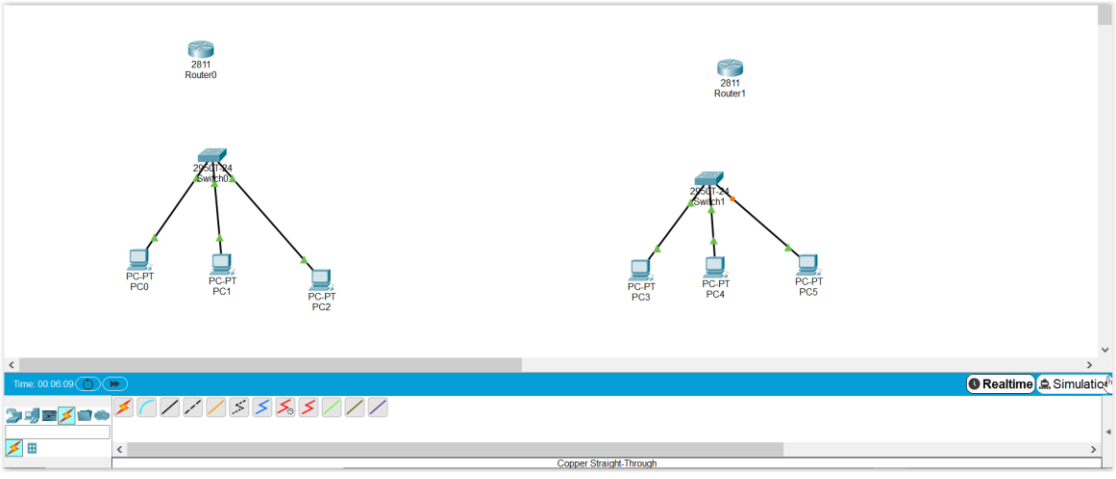
Then select the highlighted option



Click on PC0 Now and select the below highlighted option



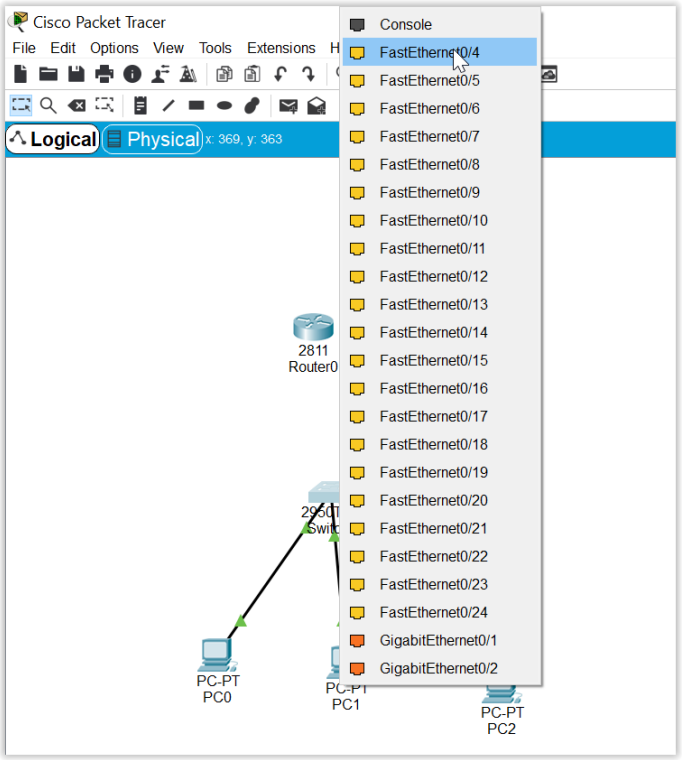
Now to the same connections for all the PCs and switches.



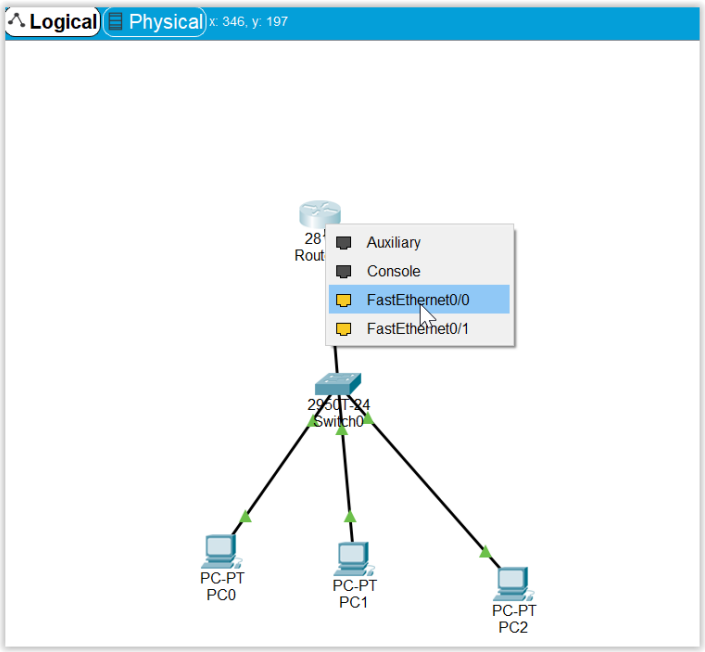
Now for router to switch connection:

Click on switch after choosing appropriate cable

select the below highlighted option

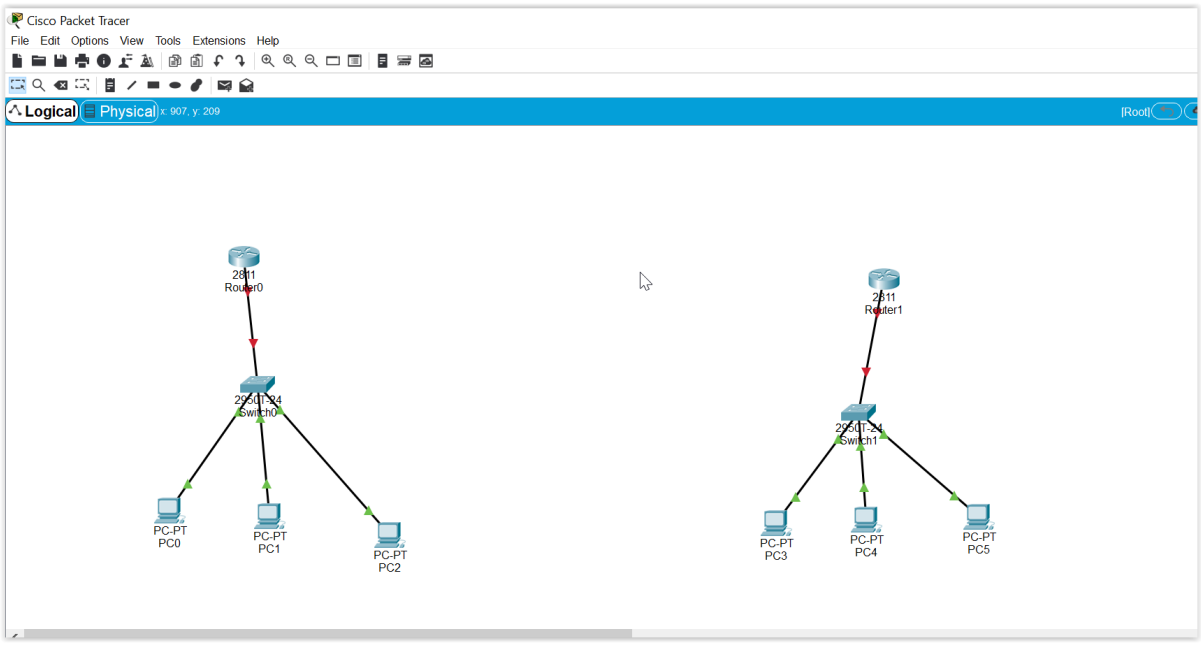


Now click on router and select the below highlighted option



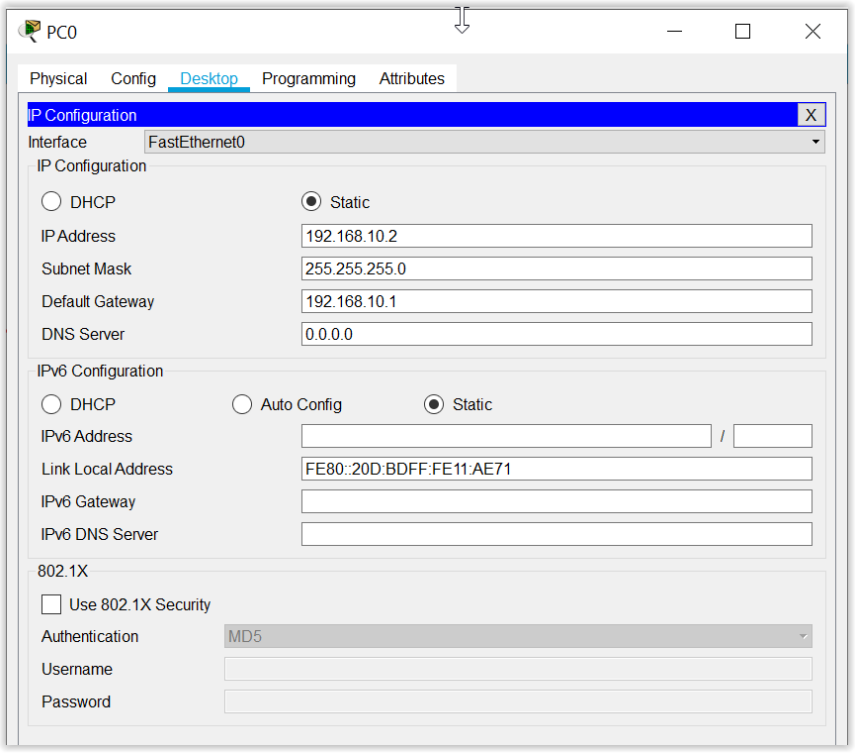
Do this for all routers

Finally, we get



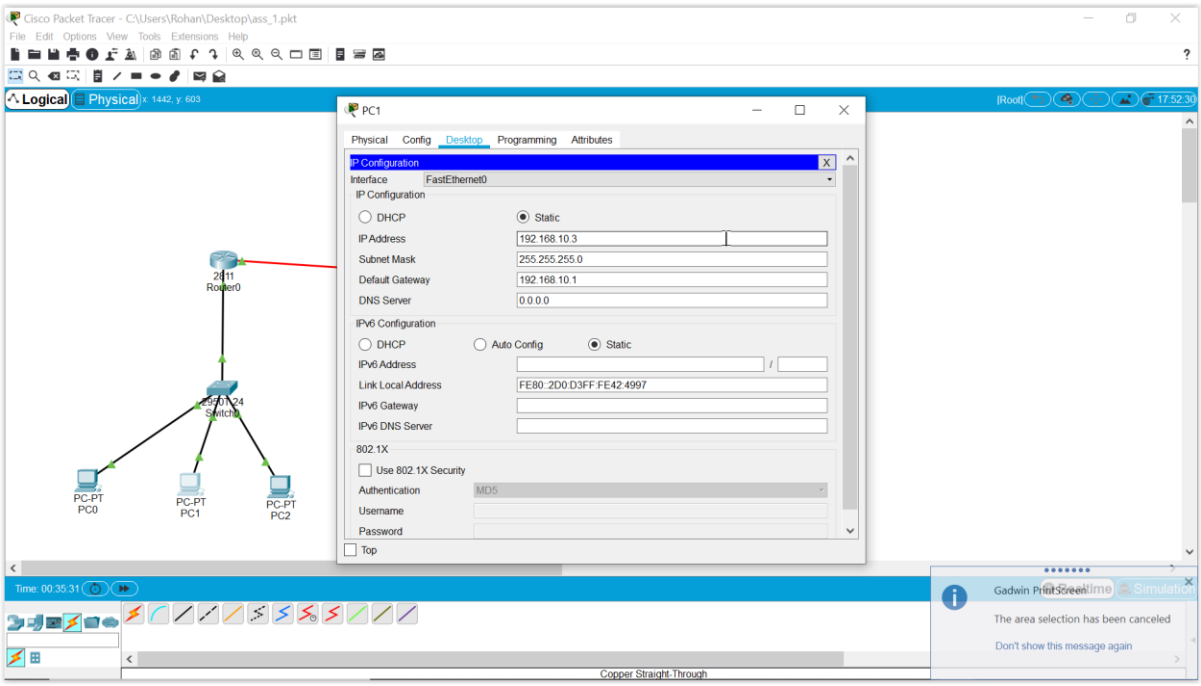
Now we have to configure all the PCs

Double click on PC0 and apply this IP Address and default gateway

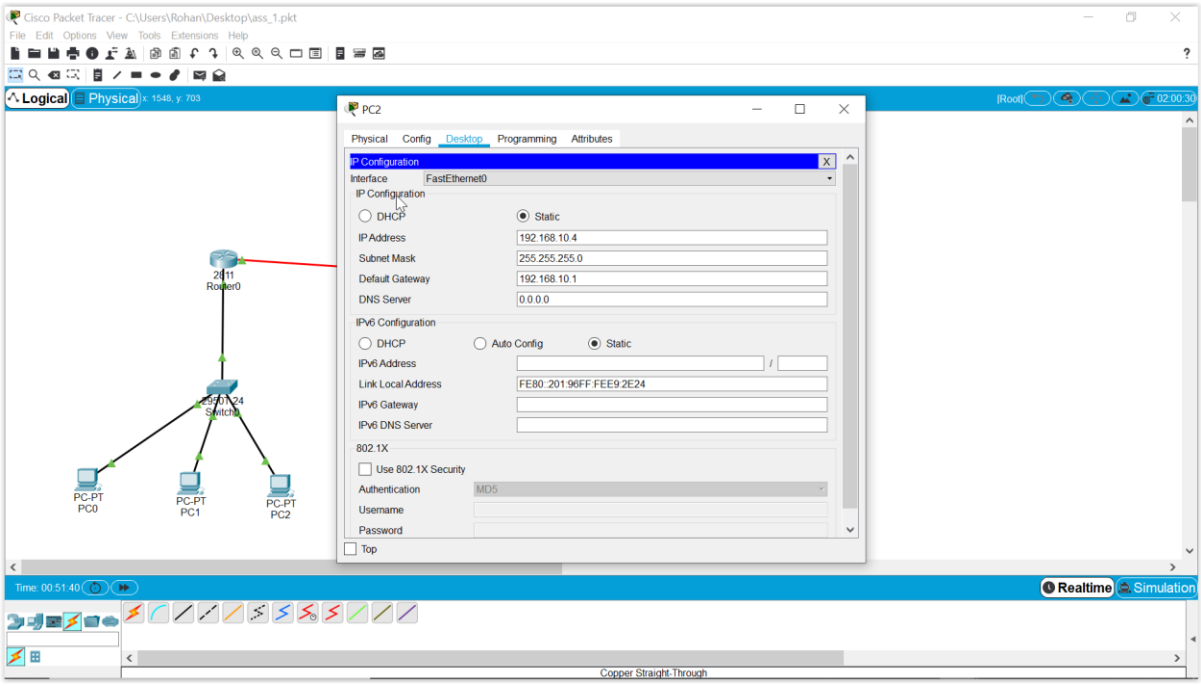


Similarily do for all PCs:

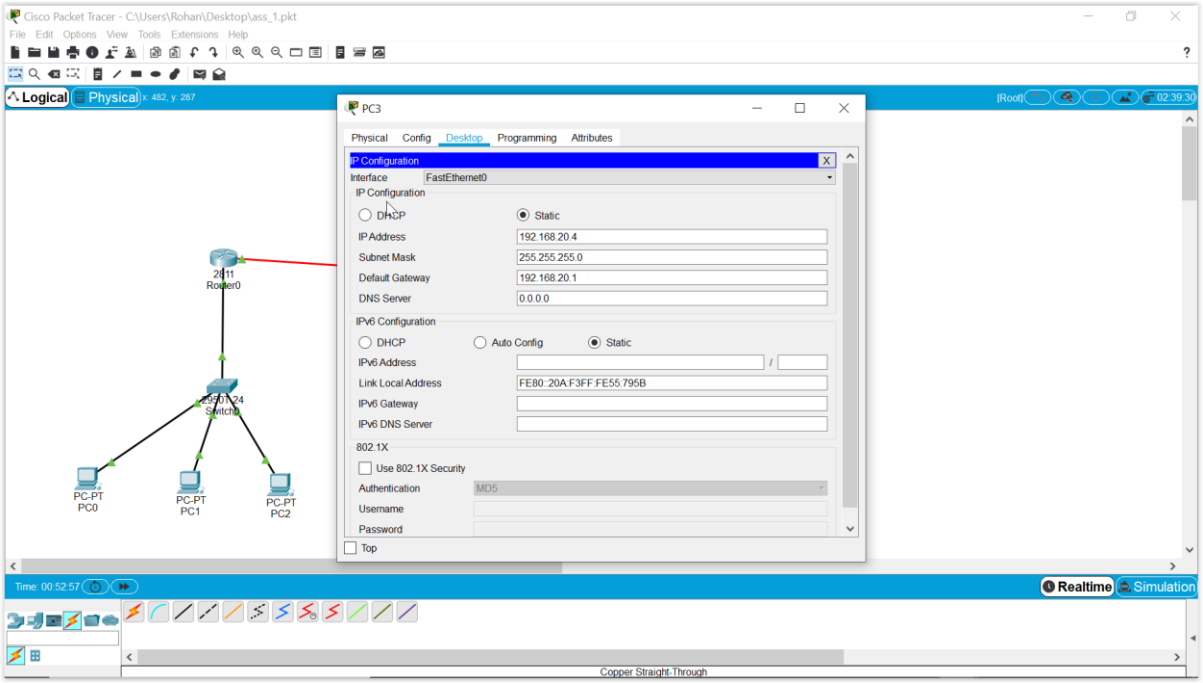
PC1



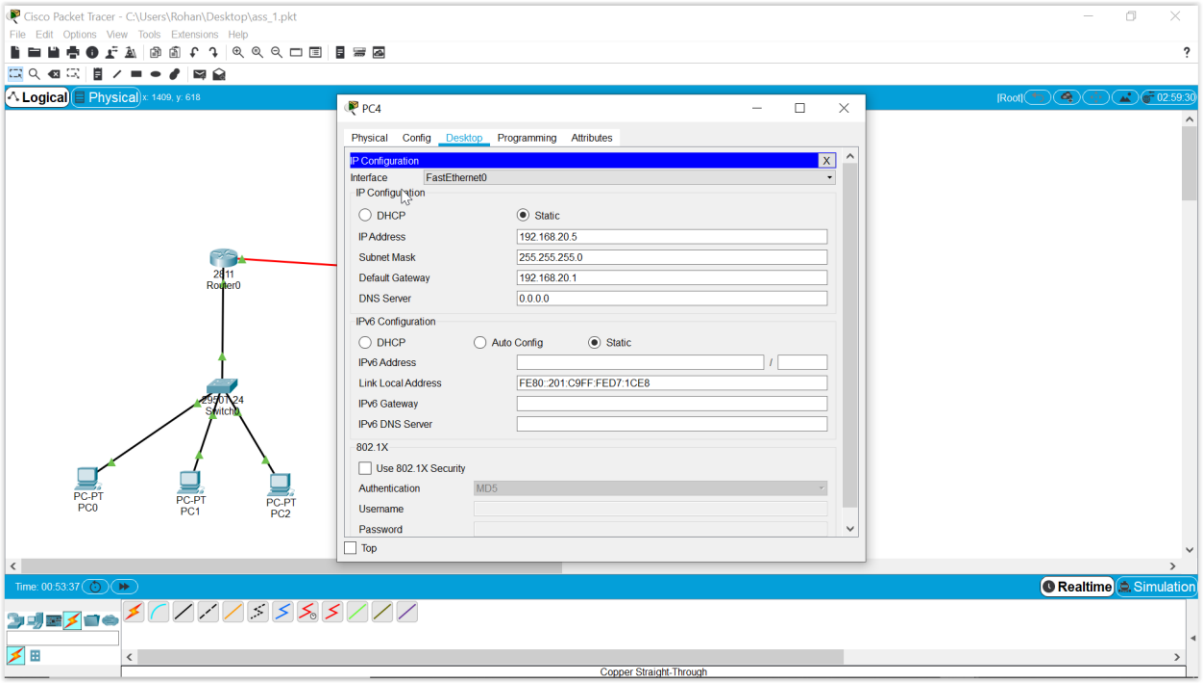
PC2



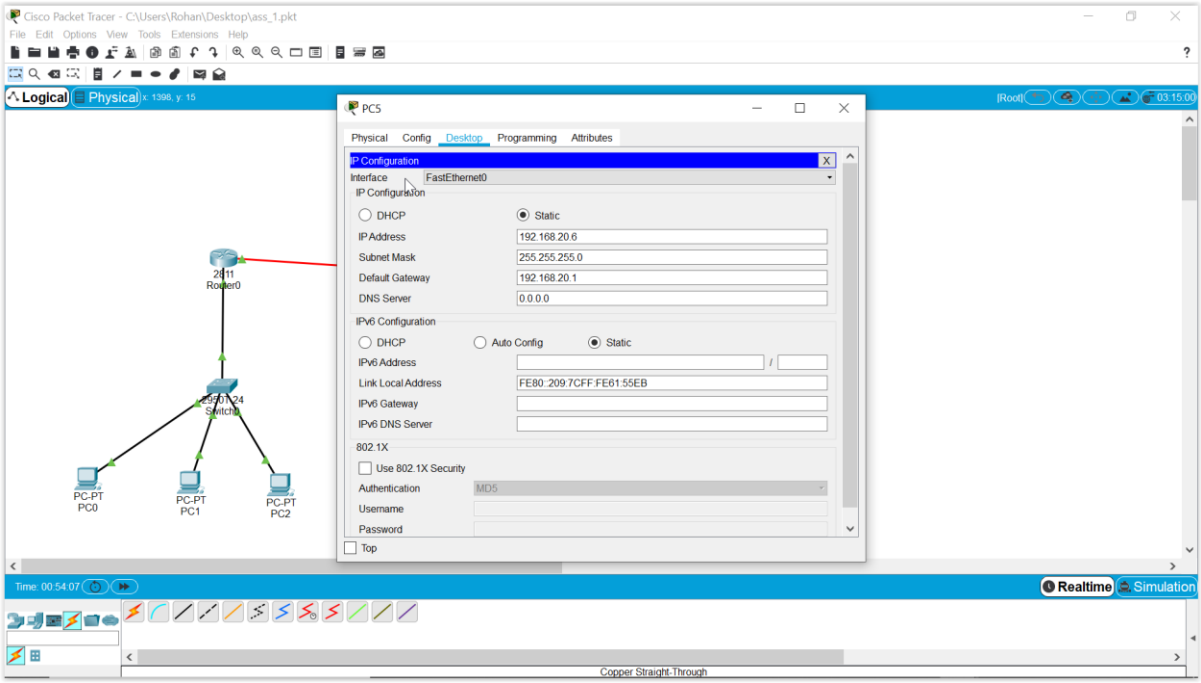
PC3


Cisco Packet Tracer - C:\Users\Rohan\Desktop\ass_1.pkt
File Edit Options View Tools Extensions Help
Logical Physical
PC3
Physical Config Desktop Programming Attributes
IP Configuration
Interface FastEthernet0
IP Configuration
DHCP Static
IP Address 192.168.20.4
Subnet Mask 255.255.255.0
Default Gateway 192.168.20.1
DNS Server 0.0.0.0
IPv6 Configuration
DHCP Auto Config Static
IPv6 Address
Link Local Address FE80::20A:F3FF:FE55:795B
IPv6 Gateway
IPv6 DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Top
2811 Router0
2960-24 Switch0
PC-PT PC0
PC-PT PC1
PC-PT PC2
Realtime Simulation
Copper Straight-Through

PC4


Cisco Packet Tracer - C:\Users\Rohan\Desktop\ass_1.pkt
File Edit Options View Tools Extensions Help
Logical Physical
PC4
Physical Config Desktop Programming Attributes
IP Configuration
Interface FastEthernet0
IP Configuration
DHCP Static
IP Address 192.168.20.5
Subnet Mask 255.255.255.0
Default Gateway 192.168.20.1
DNS Server 0.0.0.0
IPv6 Configuration
DHCP Auto Config Static
IPv6 Address
Link Local Address FE80::201:C9FF:FED7:1CE8
IPv6 Gateway
IPv6 DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Top
2811 Router0
2960-24 Switch0
PC-PT PC0
PC-PT PC1
PC-PT PC2
Realtime Simulation
Copper Straight-Through

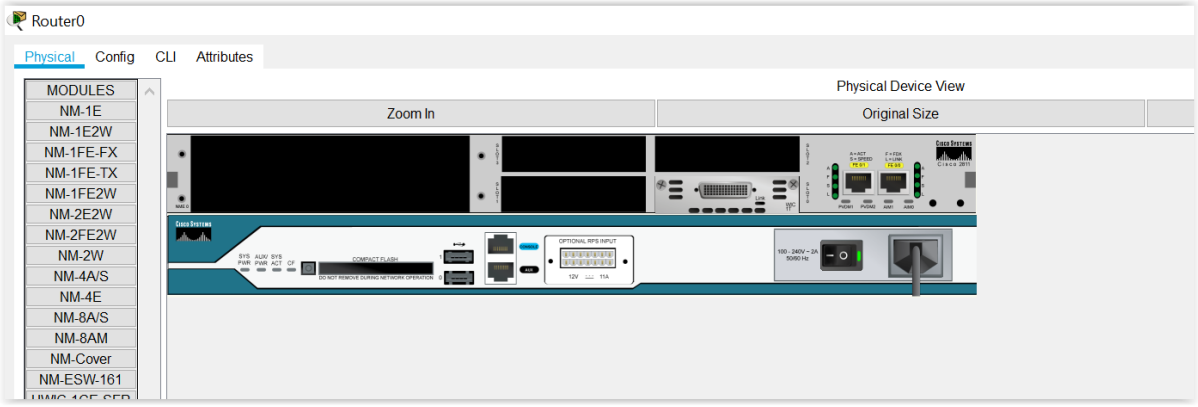
PC5


Cisco Packet Tracer - C:\Users\Rohan\Desktop\ass_1.pkt
File Edit Options View Tools Extensions Help
Logical
Physical
PC5
Physical Config Desktop Programming Attributes
IP Configuration
Interface FastEthernet0
IP Configuration
DHCP
Static
IP Address 192.168.20.6
Subnet Mask 255.255.255.0
Default Gateway 192.168.20.1
DNS Server 0.0.0.0
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
Link Local Address FE80::209:7CFF:FE61:55EB
IPv6 Gateway
IPv6 DNS Server
802.1X
Use 802.1X Security
Authentication MD5
Username
Password
Top
2811
Router0
2960-24
Switch0
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
Time: 00:54:07
Realtime
Simulation
Copper Straight-Through

Now we will configure the routers:

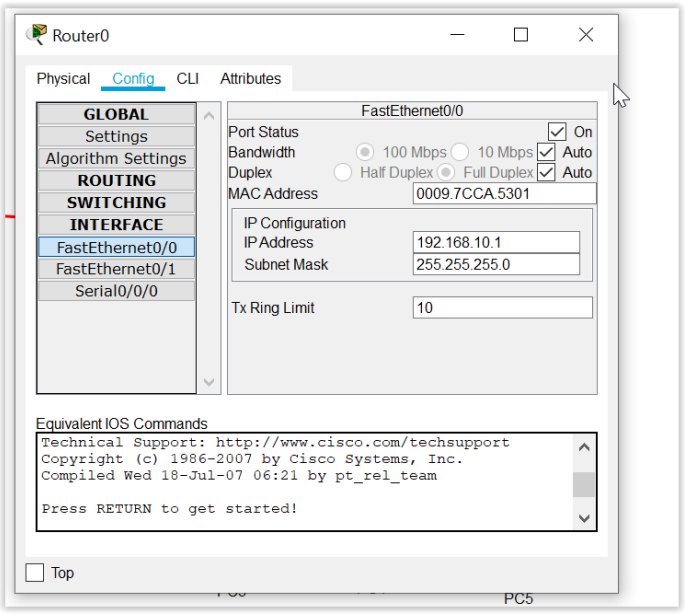
Double click the router and add module WIC-1T. Turn on switch

The WIC-1T provides a single port serial connection to remote sites or legacy serial network devices such as Synchronous Data Link Control (SDLC) concentrators, alarm systems, and packet over SONET (POS) devices.

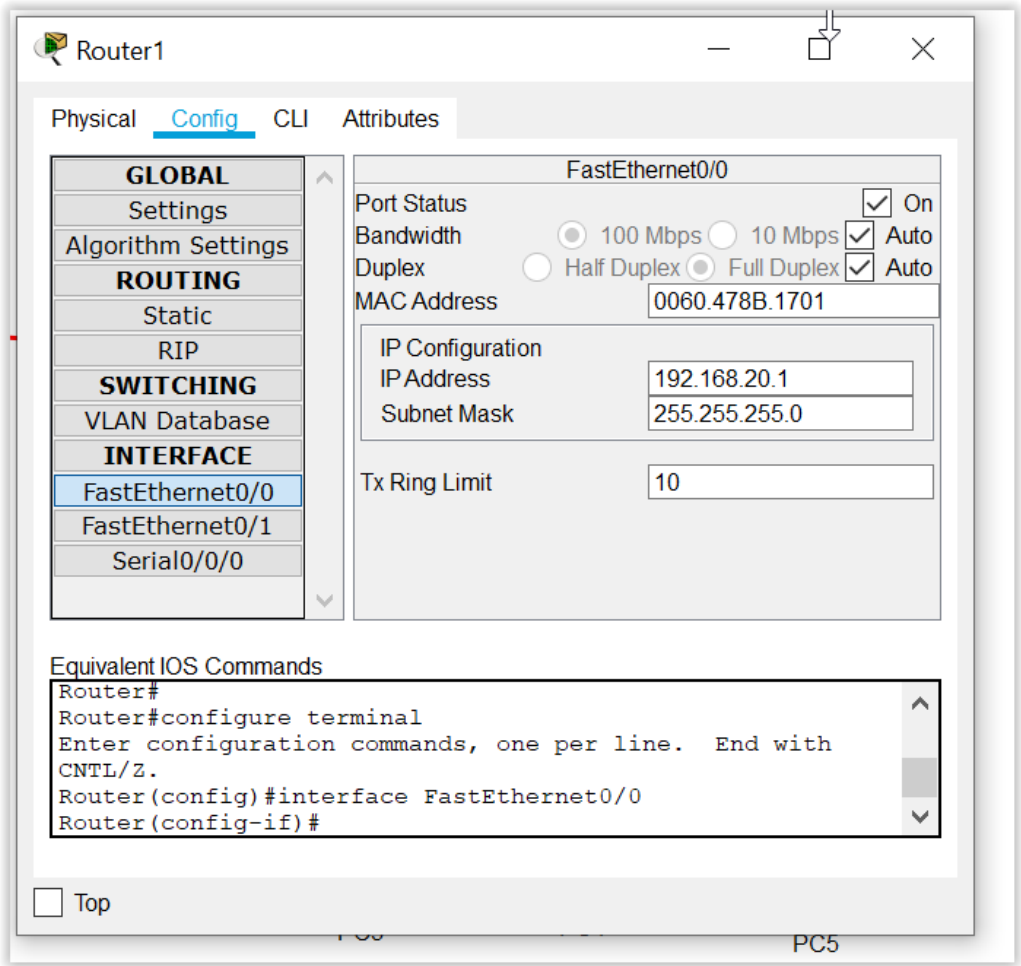


Similarily do for the other router

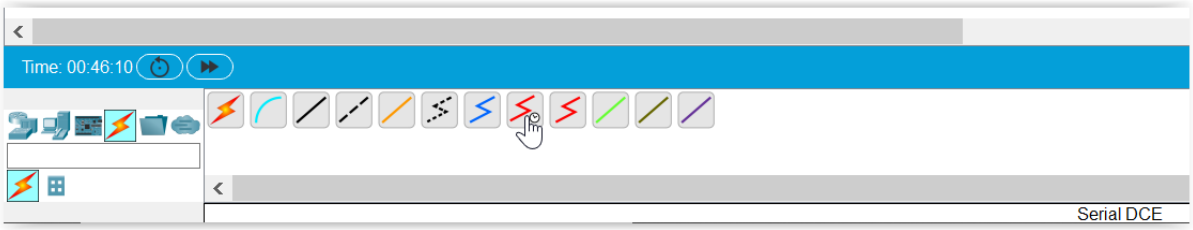
Apply this config for router0:



Router1:



Select Serial DCE cable to connect the routers:



Therefore, finally we get: