PRACTICAL LAB: INTRO TO PACKET TRACER – MY FIRST NETWORK

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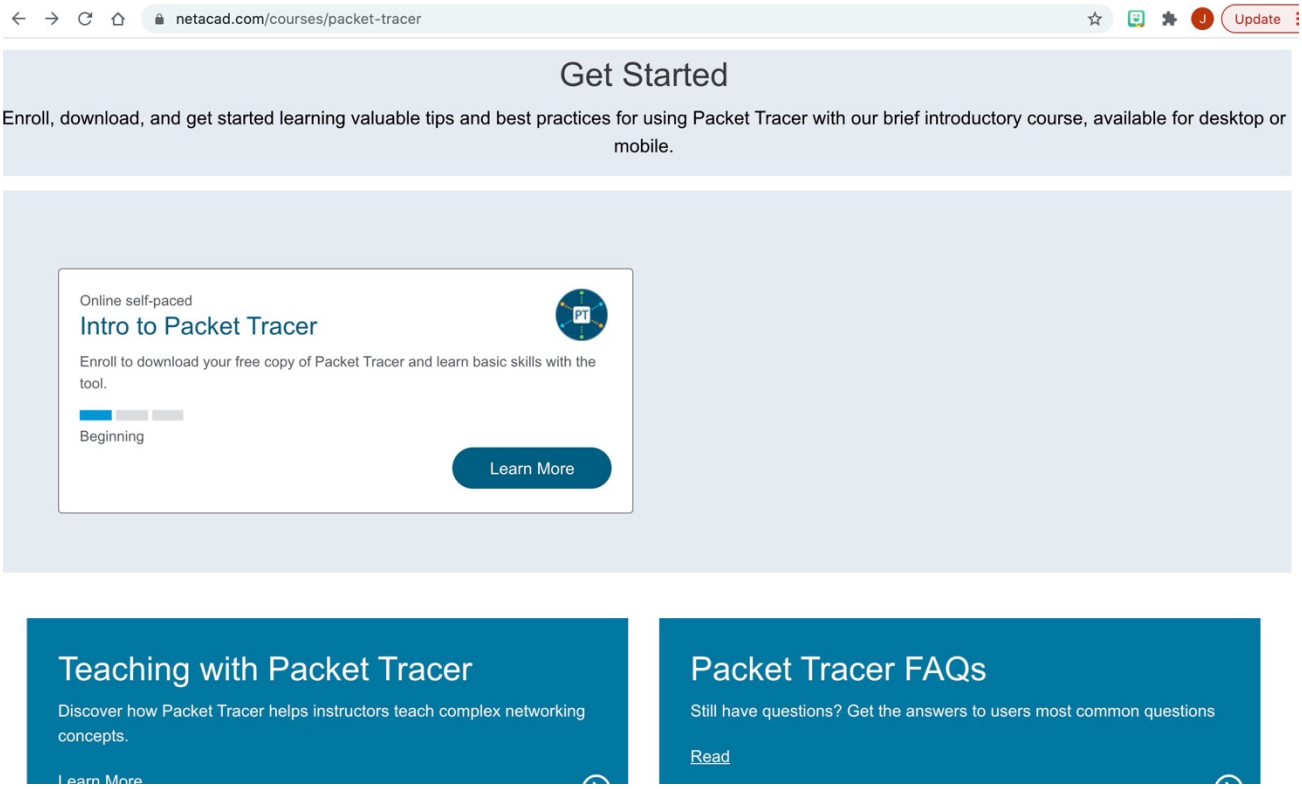
1 Introduction

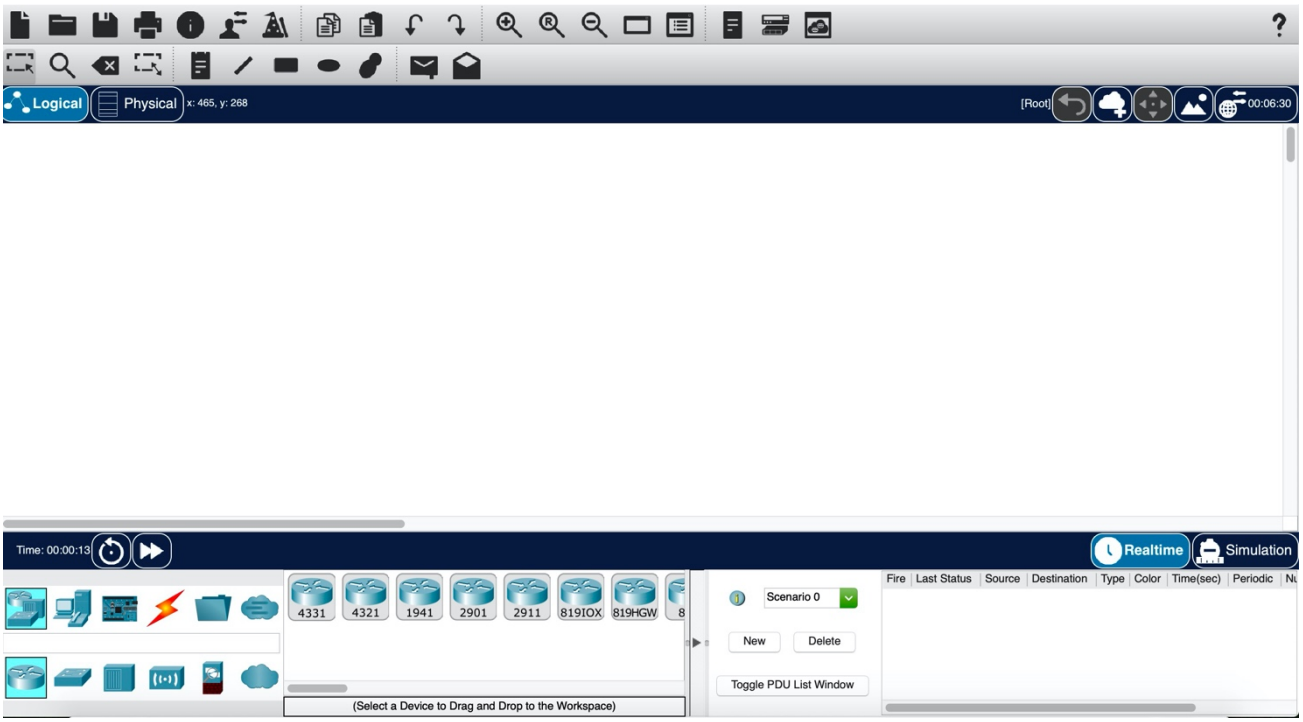
For this practical we will be using *Cisco Packet Tracer (student edition)*, a tool provided by Cisco to build and test Cisco networks.

2 Install Packet Tracer

Please download and install the Packet Tracer application. You can access this on university PCs or you can download it once you have enrolled to the 'Intro to Packet Tracer' on netacad.com (see below).

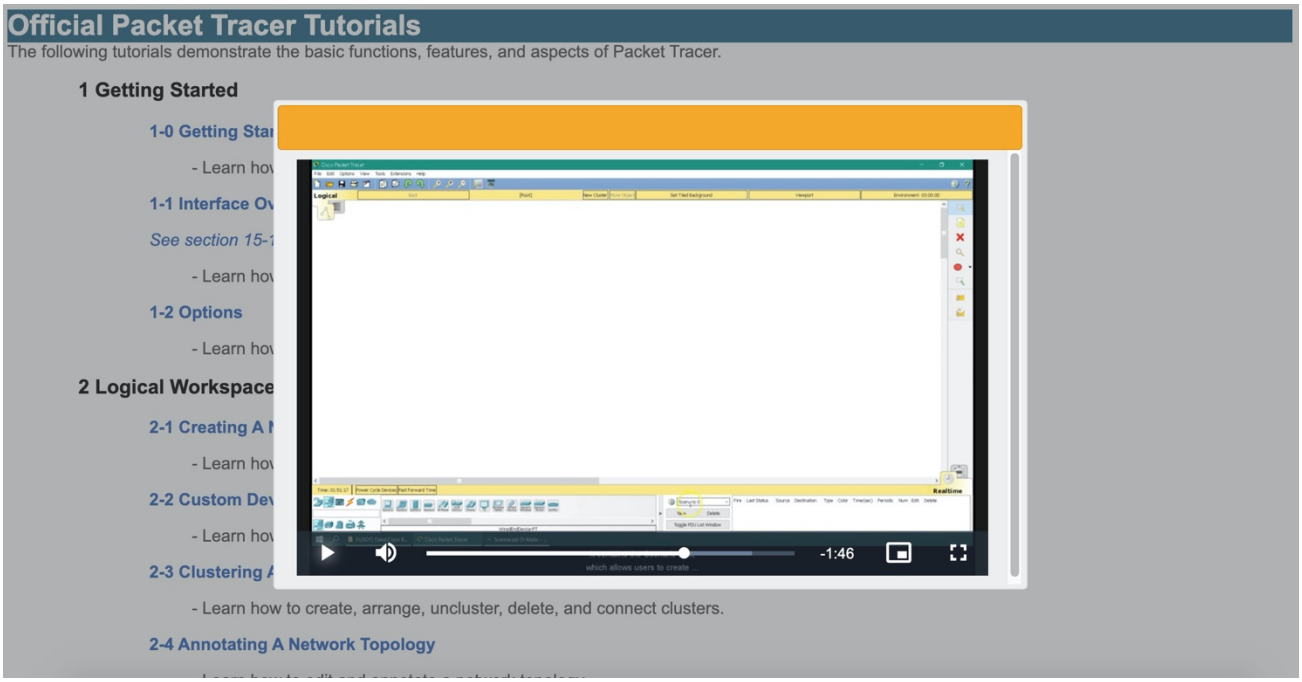


Run the install. Once completed, the *Cisco Packet Tracer Student* shortcut should appear on your desktop. Double click the shortcut, you show have a screen similar appear, as detailed in the figure below.



3 Using Packet Tracer

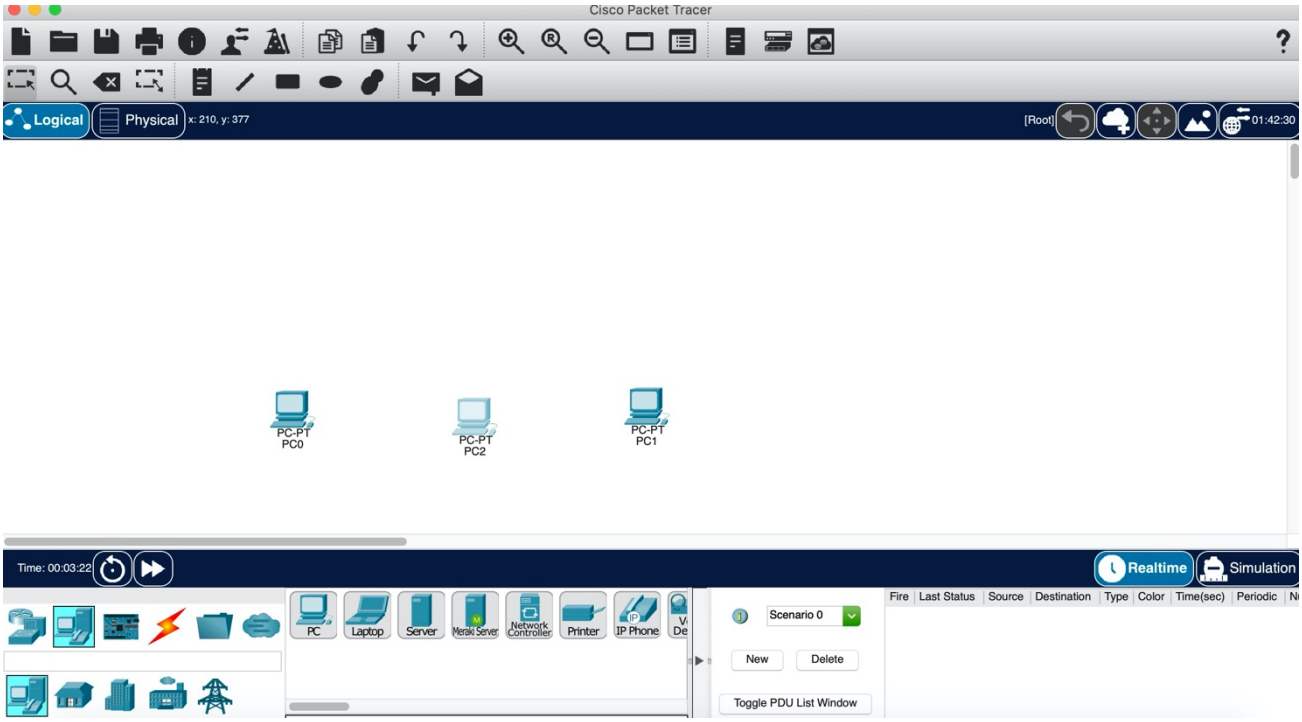
Watch the *Interface Overview* video. This is accessed by clicking Help, Tutorials and selecting Interface Overview in the Getting Started section.



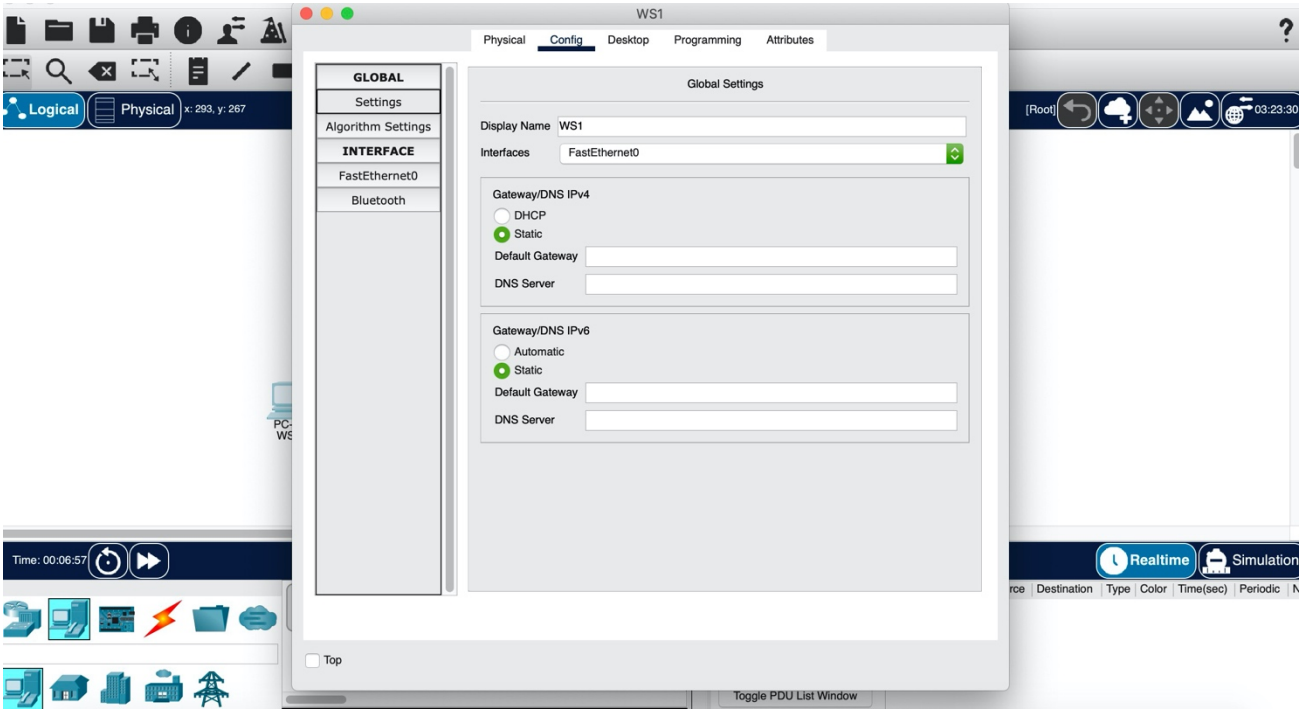
4 Start building your network

4.1 Workstations

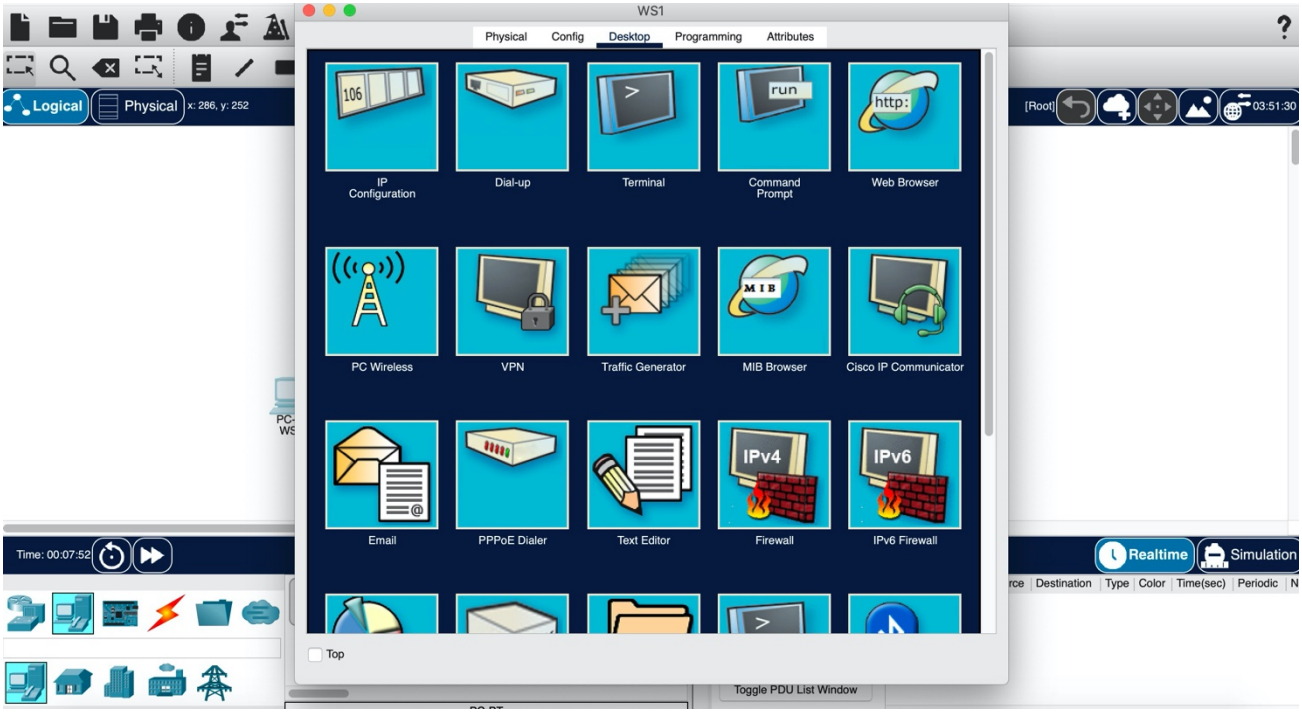
Click on the *End Device* Icon located in the bottom left hand corner. Add the PCs/workstations by dragging and dropping onto the work area. Add 2 more workstations, repeat the drag and drop process.



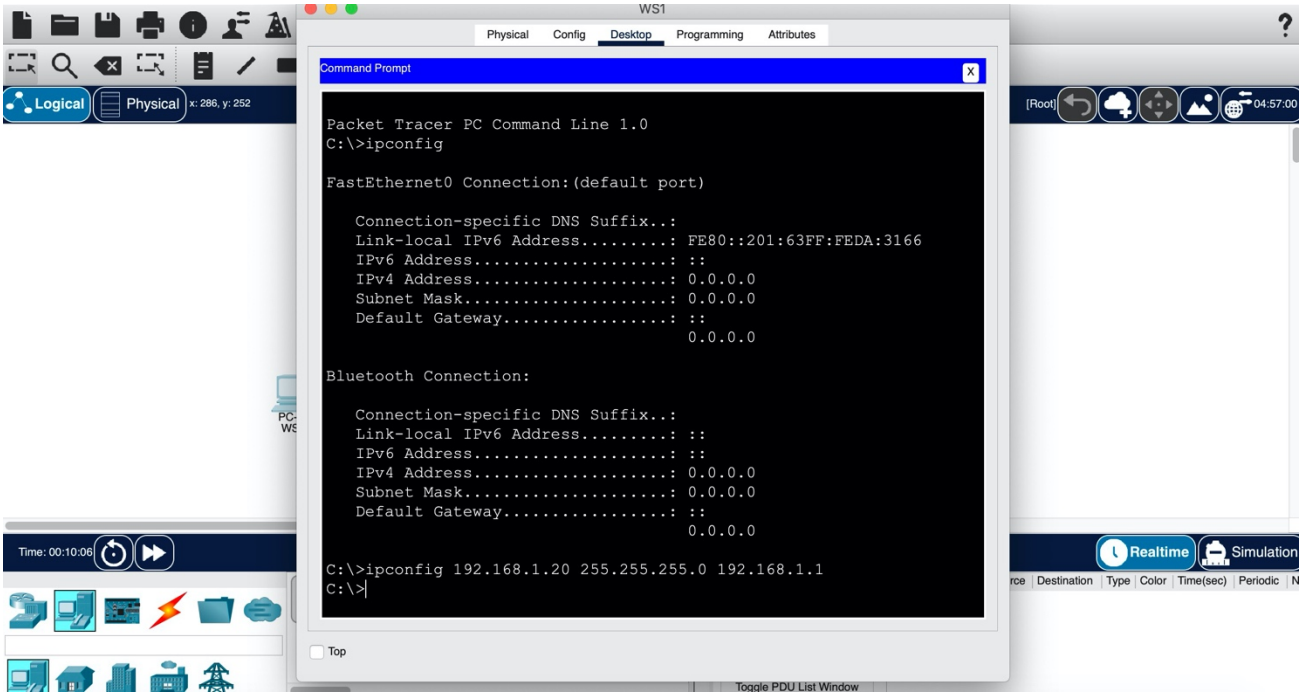
Label each workstation by clicking on it and selecting the *config* tab as detailed in the figure below.



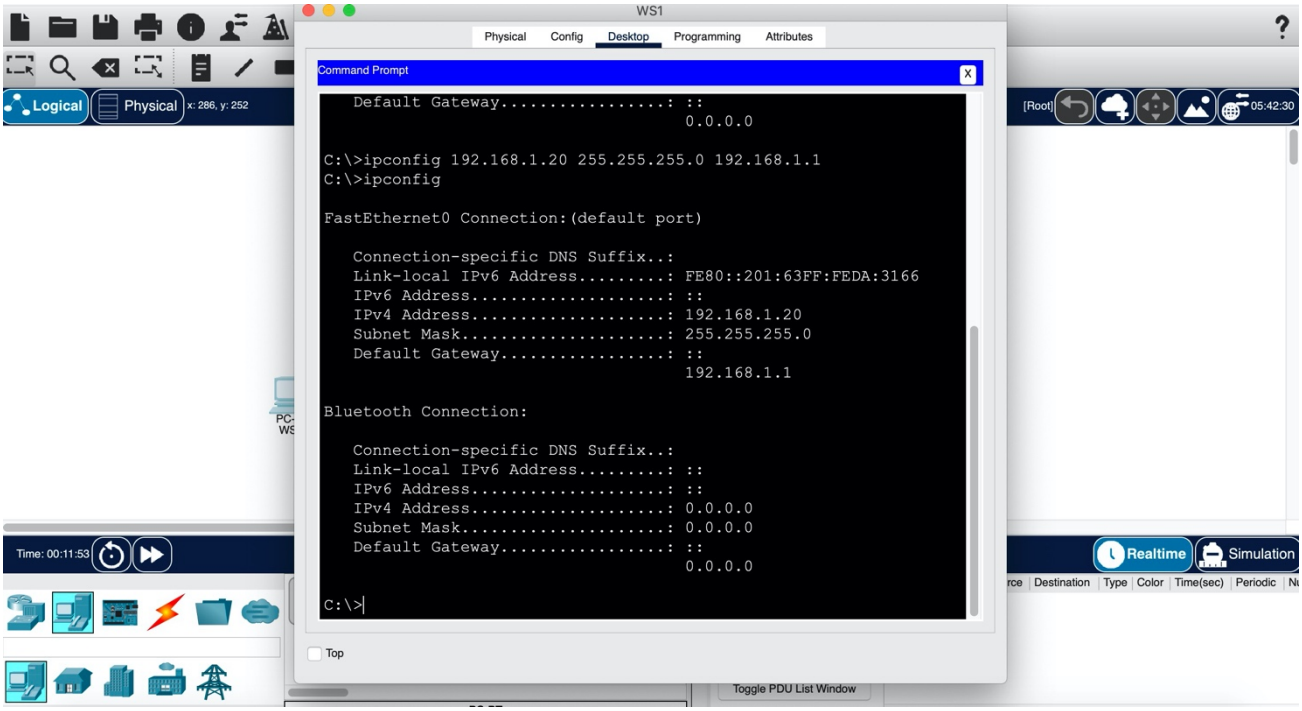
Configure the IP for each workstation. Access the *Command Prompt* from the Desktop tab, as illustrated in the figure below.



Enter the following command at the command prompt, as illustrated in the figure below. ipconfig 192.168.1.20 255.255.255.0 192.168.1.1



Check the IP configuration by typing: *ipconfig*



Note: If you have no *Default Gateway* value. Enter this value using the *IP Configuration* link located in the Desktop tab.

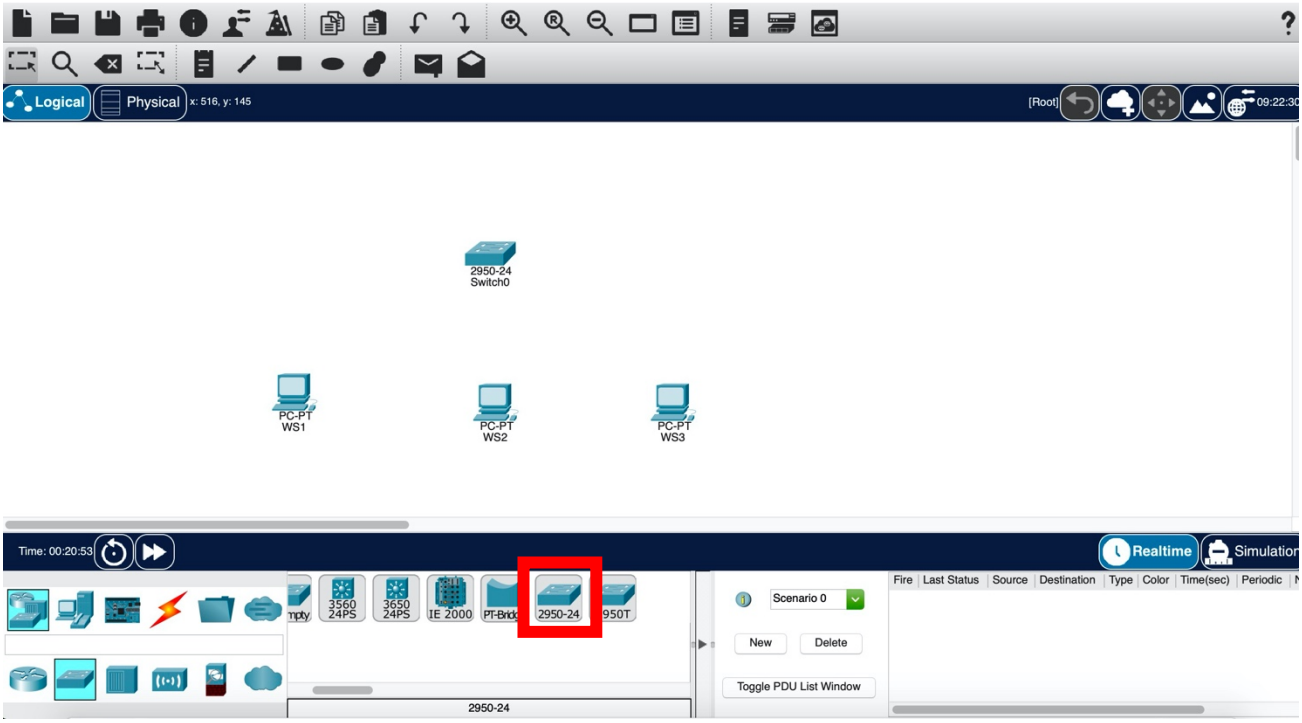
Add two more workstations using the previous commands already documented.

Hostname:	**WS2**
IP address:	192.168.1.21
Subnet mask:	255.255.255.0
Default Gateway:	192.168.1.1

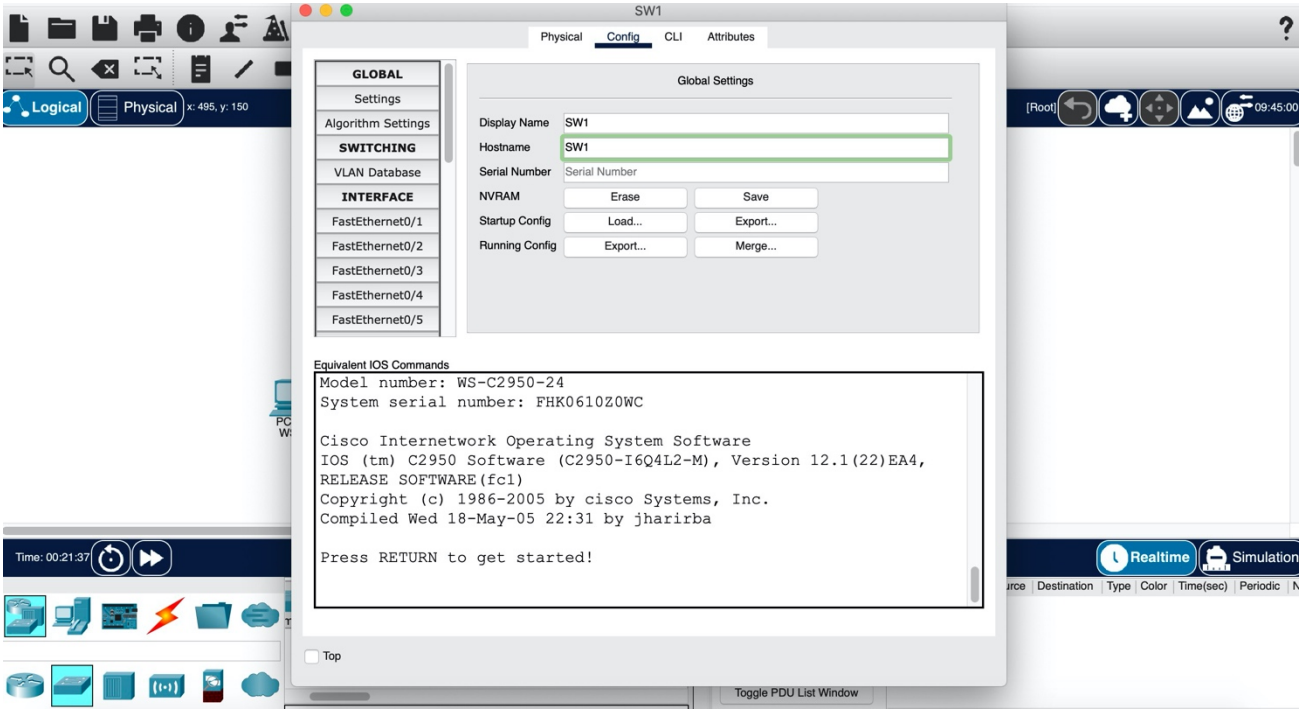
Hostname:	**WS3**
IP address:	192.168.1.22
Subnet mask:	255.255.255.0
Default Gateway:	192.168.1.1

4.2 Adding a network switch

Select the Switches Icon as detailed in the figure below. Select the Cisco 2950-24. This is a 2900 series switch with 24 network ports. Drag this switch icon onto the work area.

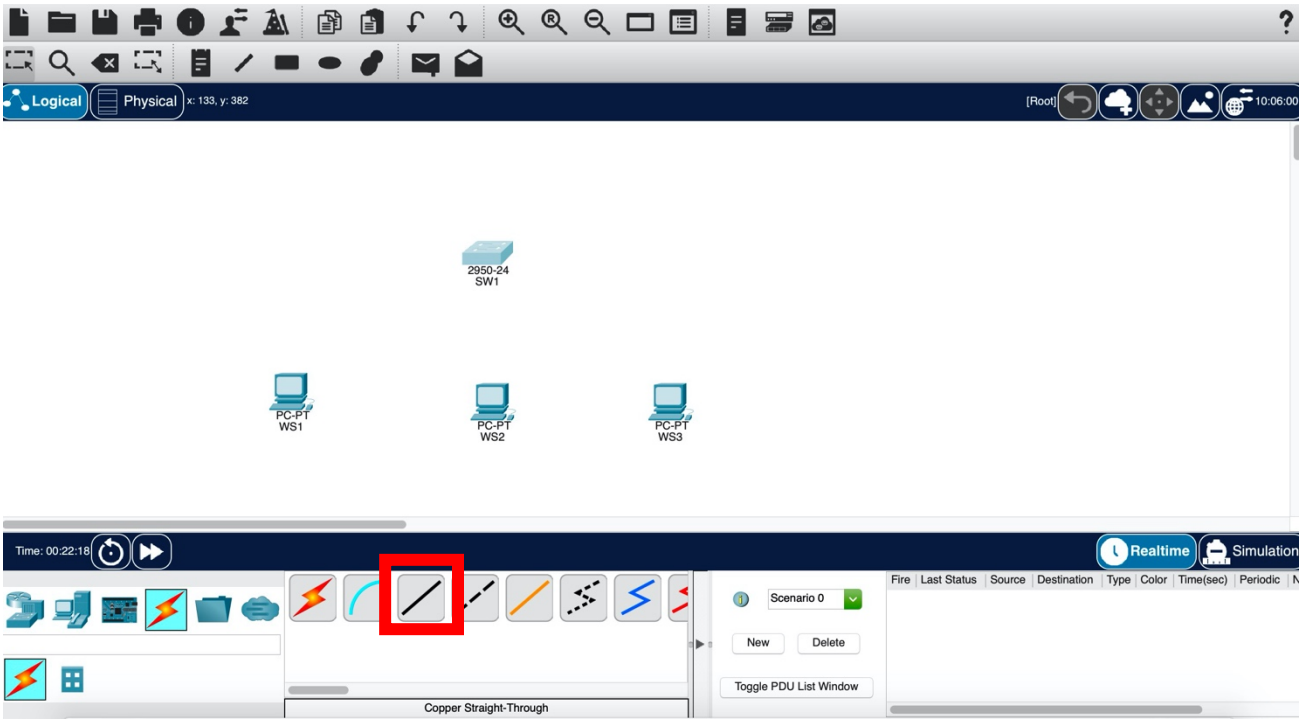


Name the switch by clicking on it and selecting the *Config* tab as detailed in the next figure. Change both the *Display Name* and *Hostname* to "SW1" as shown below.

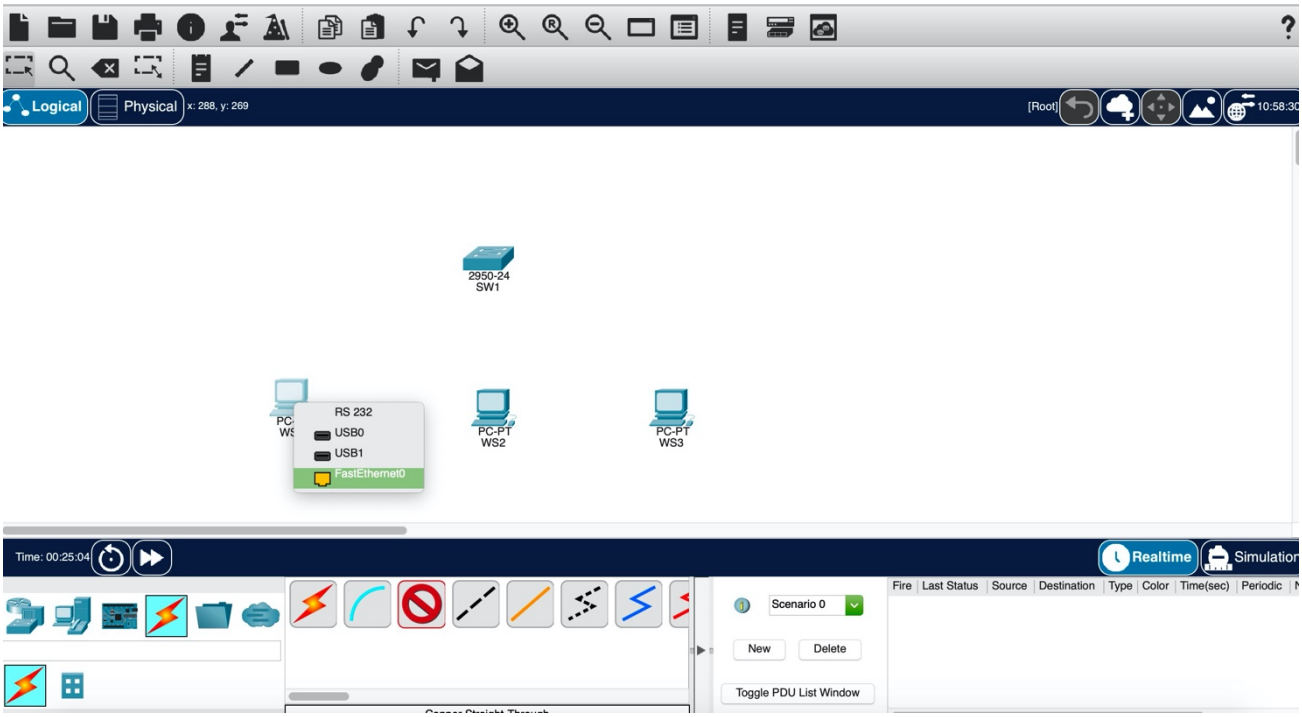


4.3 Adding connections

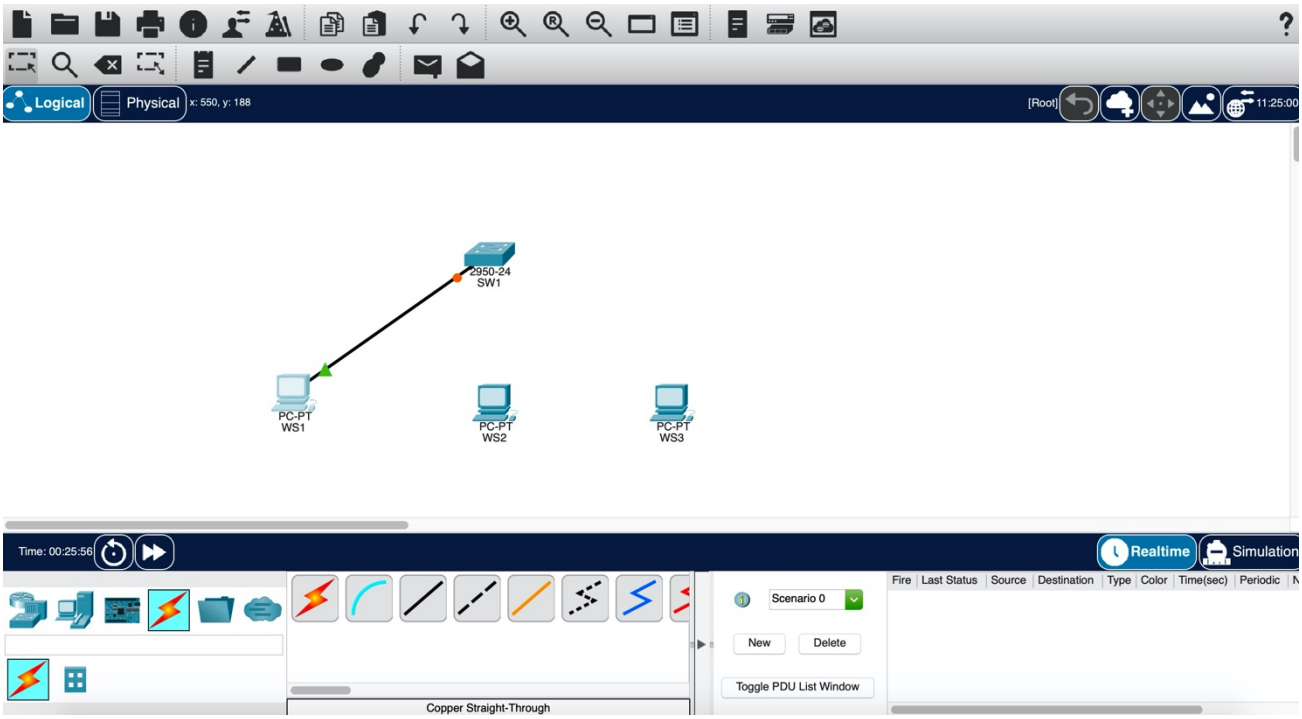
Now we need to add connections between the switch and workstations. Select *Connections*, then select *Copper Straight-through*.



Click on *WS1*, select *FastEthernet0.*

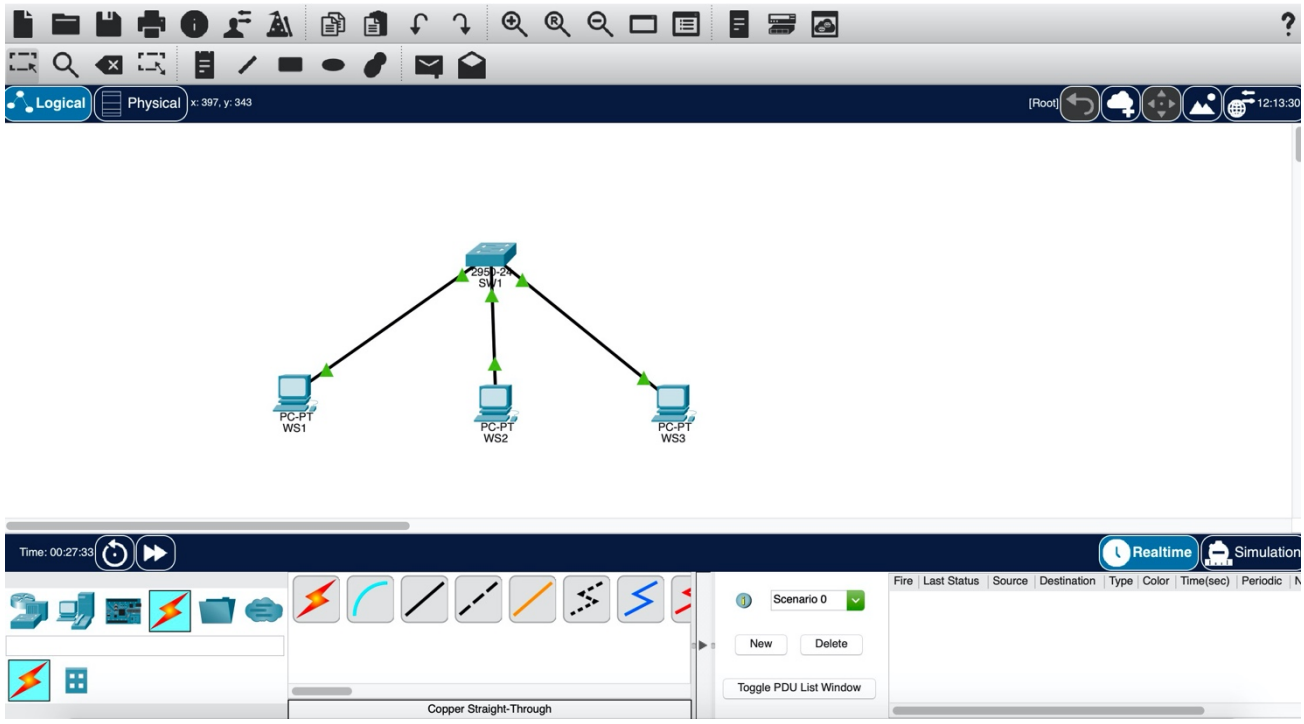


Click on the *Switch*, select *FastEthernet0/1.*



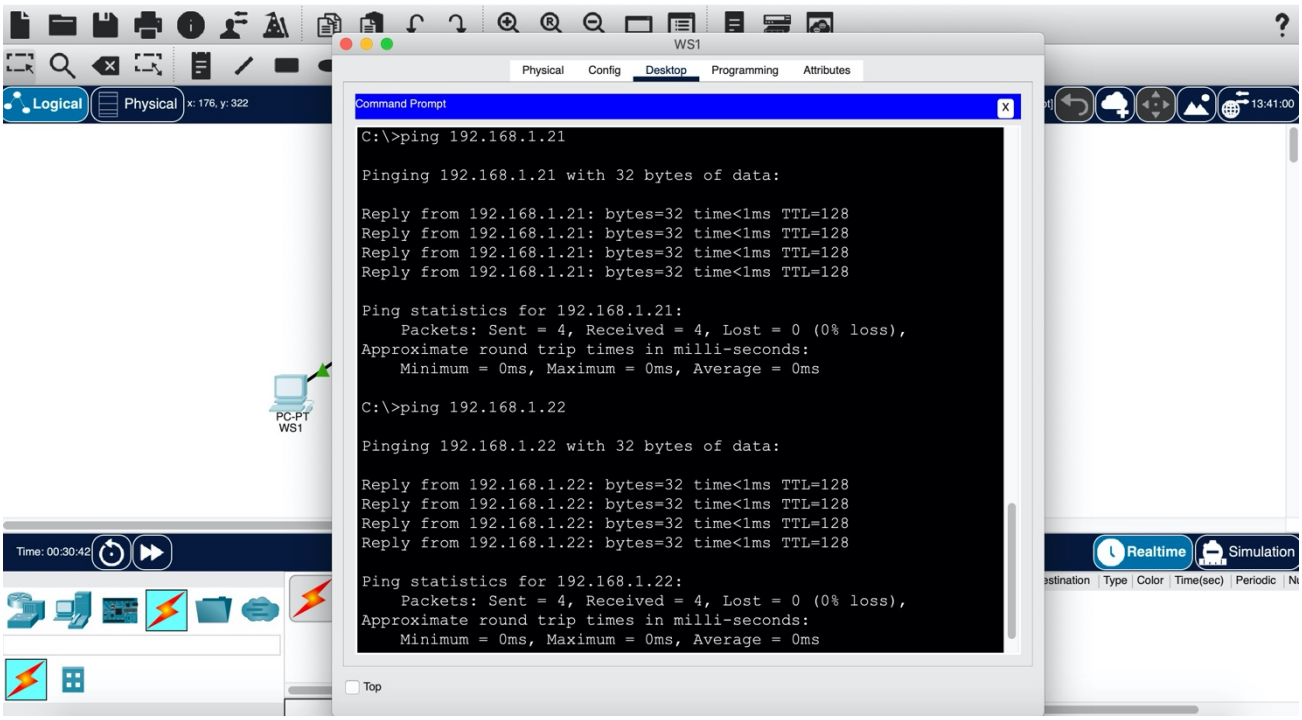
You have now created your first network connection.
Repeat this for each workstation. Selecting *FastEthernet0/2 for* WS2 *and FastEthernet0/3* for WS3*.*
You have to select the *Copper Straight-through* (CST) connection for each new connection.

Your network should look like the figure below:



4.4 Testing the network

Click WS1, click the *Desktop* tab. Now click the *Command Prompt* icon. Ping WS2 (192.168.1.21) and WS3 (192.168.1.22). You should receive responses as detailed below. If not, investigate the IP configuration of your workstations.



The IP address information for each workstation.

Hostname:	**WS1**
IP address:	192.168.1.20
Subnet mask:	255.255.255.0
Default Gateway:	192.168.1.1

Hostname:	**WS2**
IP address:	192.168.1.21
Subnet mask:	255.255.255.0
Default Gateway:	192.168.1.1

Hostname:	**WS3**
IP address:	192.168.1.22
Subnet mask:	255.255.255.0
Default Gateway:	192.168.1.1

4.5 Adding additional workstations

Now create 3 more workstations connected to a different switch, use the same process as already outlined in steps 4.1, 4.2, 4.3 and 4.4.

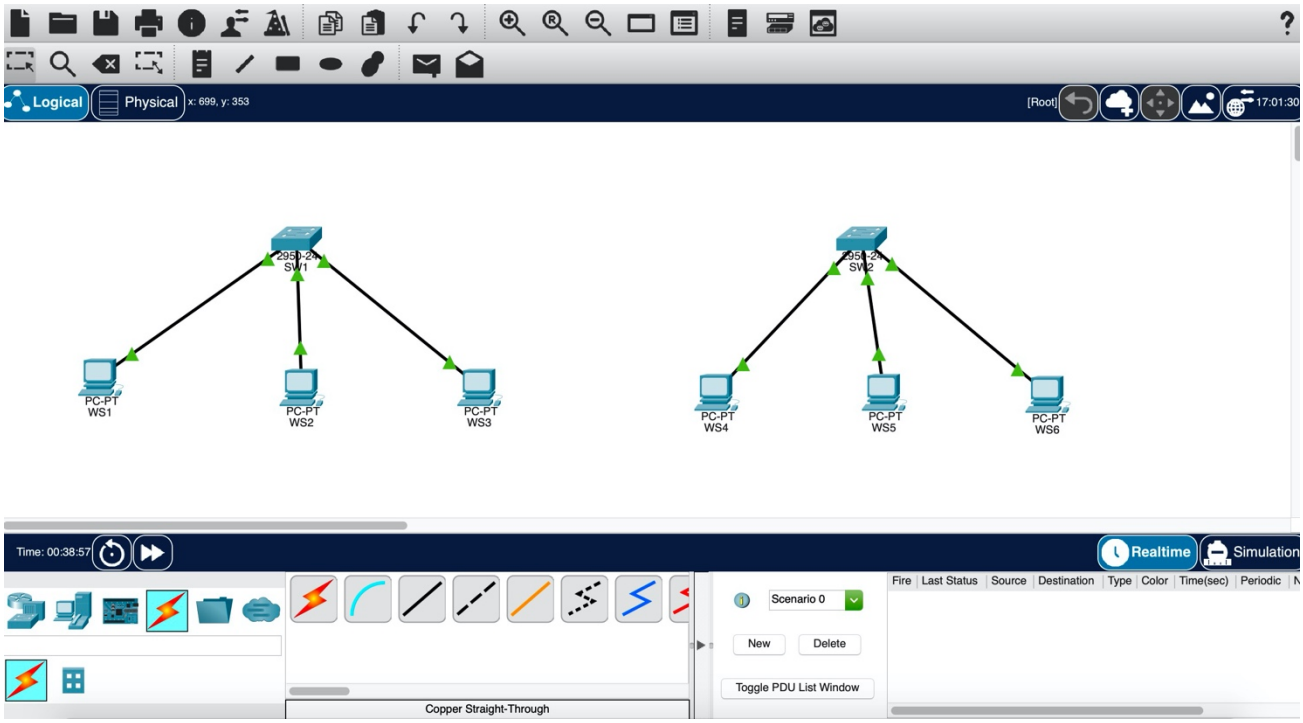
Hostname:	**WS4**
IP address:	192.168.2.20
Subnet mask:	255.255.255.0
Default Gateway:	192.168.2.1

Hostname:	**WS5**
IP address:	192.168.2.21
Subnet mask:	255.255.255.0
Default Gateway:	192.168.2.1

Hostname:	**WS6**
IP address:	192.168.2.22
Subnet mask:	255.255.255.0
Default Gateway:	192.168.2.1

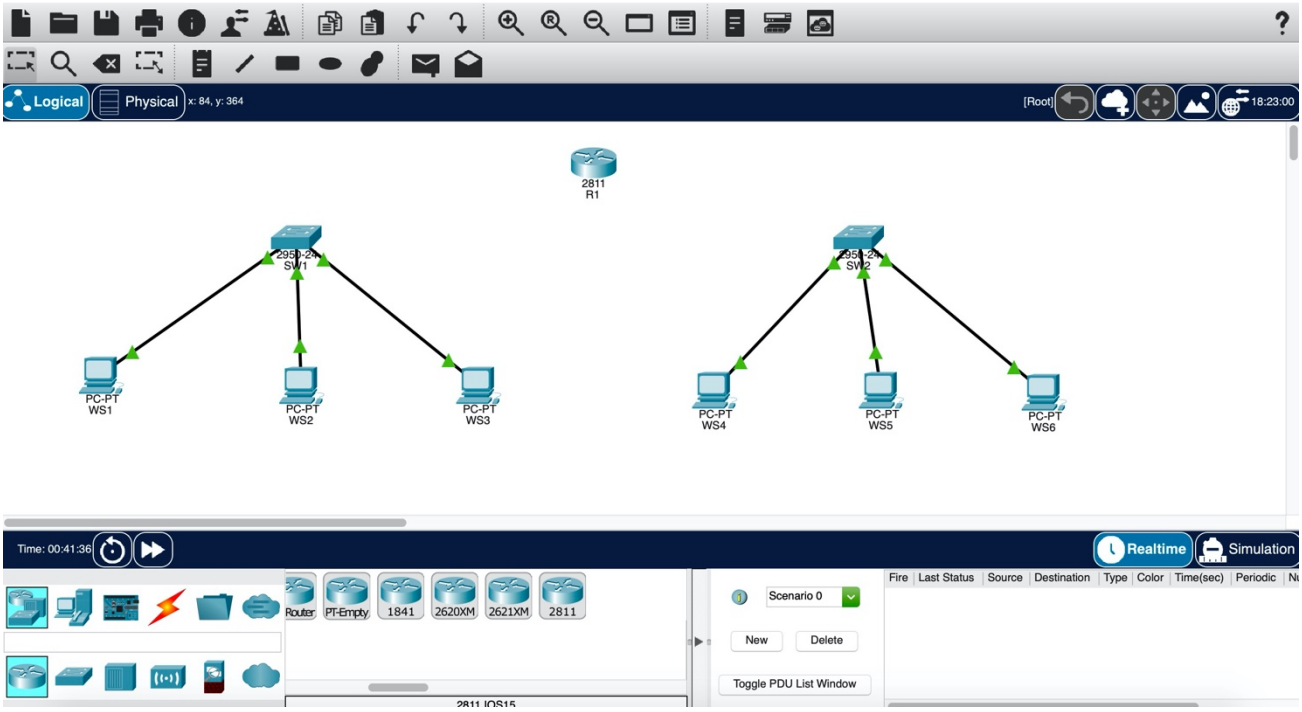
Name the switch SW2.

Your network should now look like the figure below.

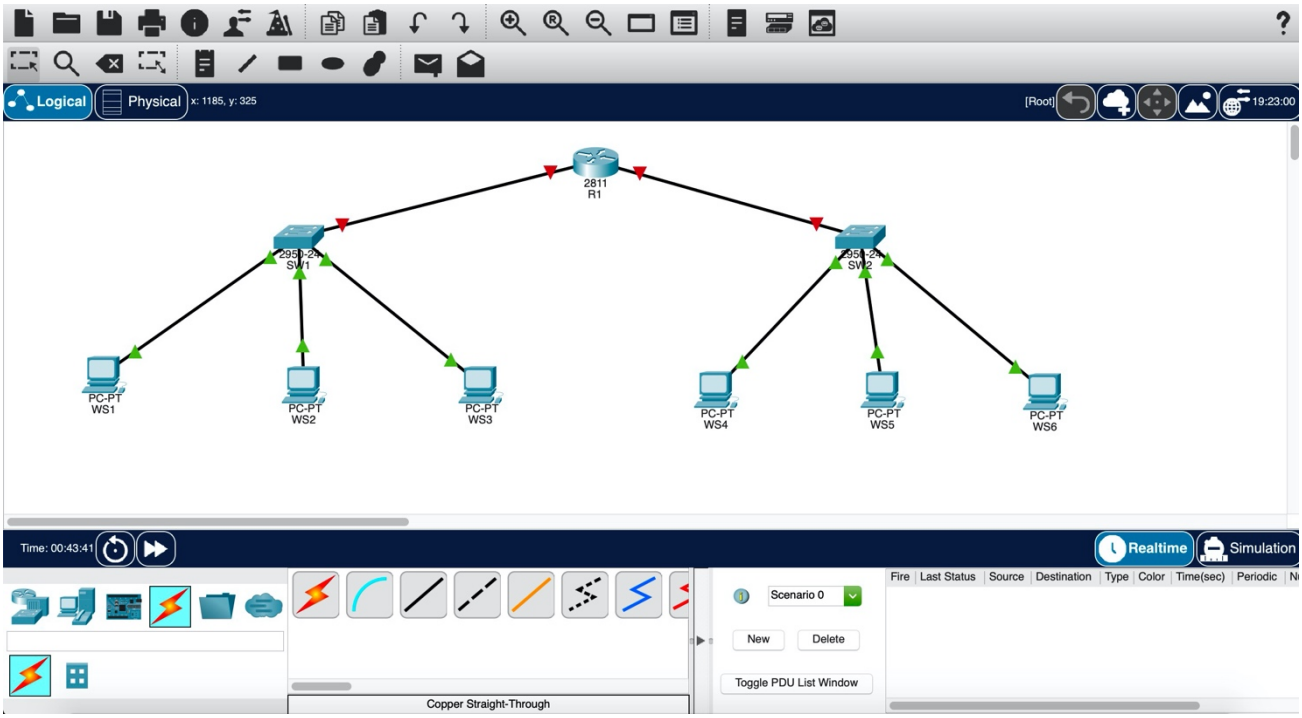


4.6 Adding a router

1) Select the Routers Icon. Then select the 2811 router as detailed in the figure below.
2) Drag and drop the router onto the workspace and change the hostname and display name to R1



3) Connect FastEthernet0/0 on the *router* to FastEthernet0/24 on *SW1* using the CST.
4) Connect FastEthernet0/1 on the *router* to FastEthernet0/24 on *SW2* using the CST.

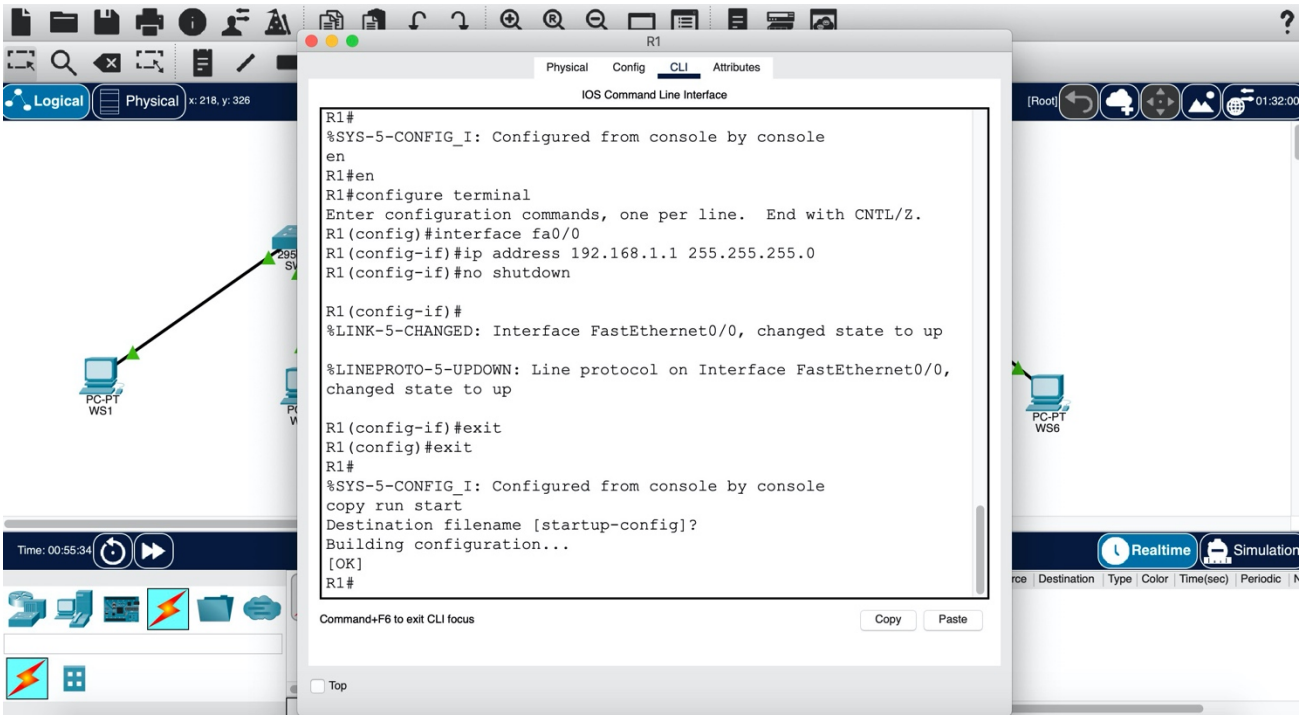


6) Ping the R1 interface from WS1. *Ping 192.168.1.1* from WS1.
7) Ping the R1 interface from WS4. *Ping 192.168.2.1* from WS4.

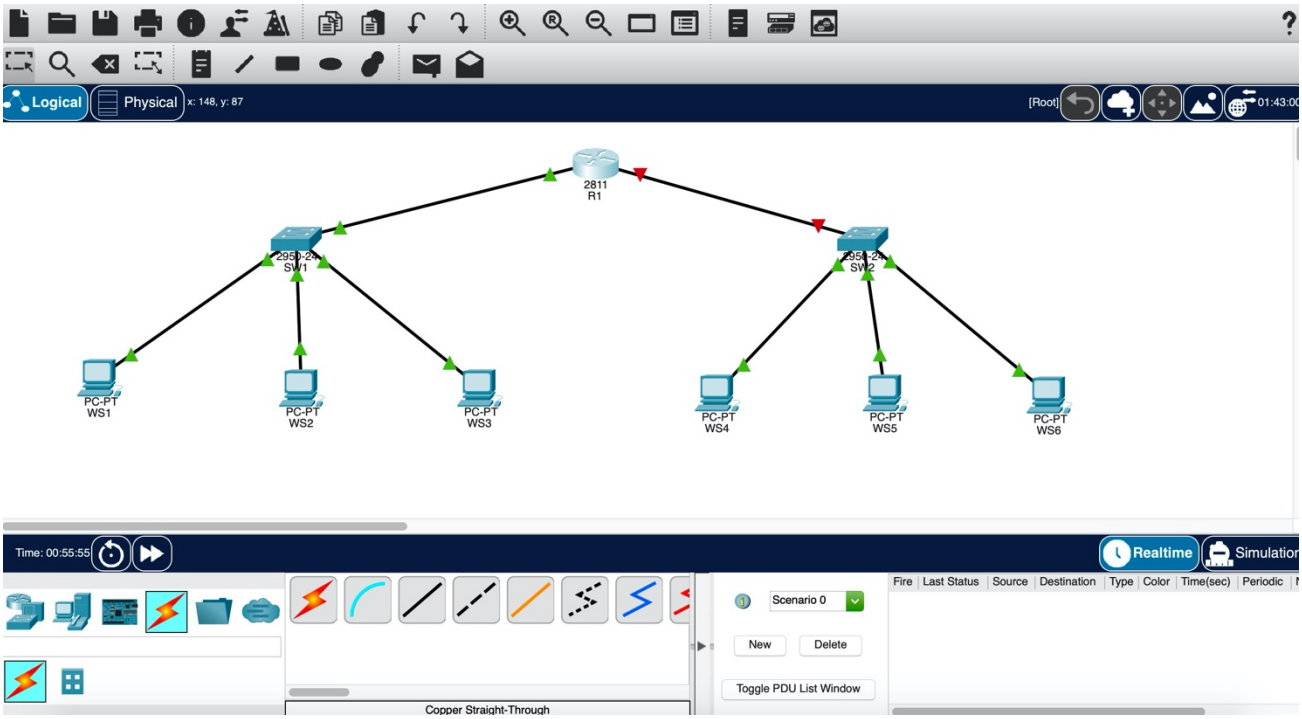
What is the response?

8) Click R1, Select Command Line Interface (CLI) tab.
9) Cancel the configuration.
10) At the prompt R1> Enter *en*
11) Enter *configure terminal* or *conf t* <allows configuration>
12) Enter *interface fa0/0*
13) Enter *ip address 192.168.1.1 255.255.255.0*
14) Enter *no shutdown*
15) Press enter
16) Enter *exit*
17) Enter *exit*
18) Enter *copy run start*

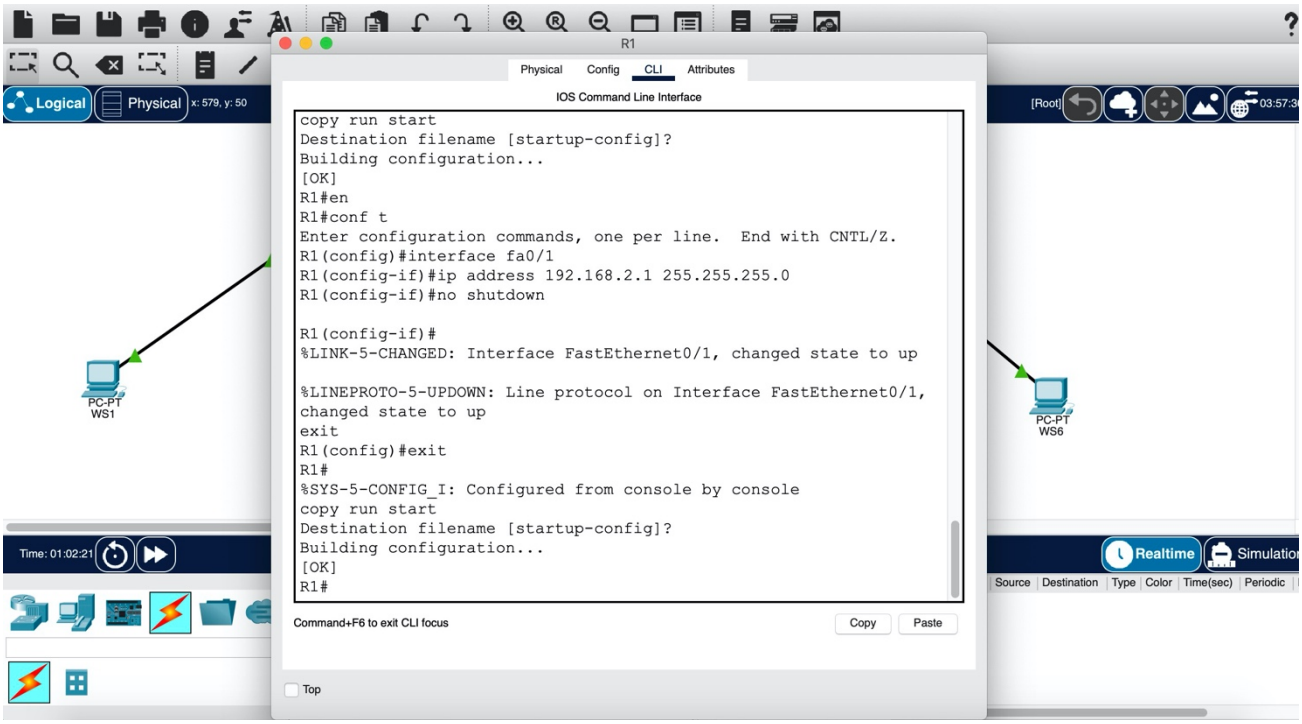
Your CLI should look like it does in the figure below:



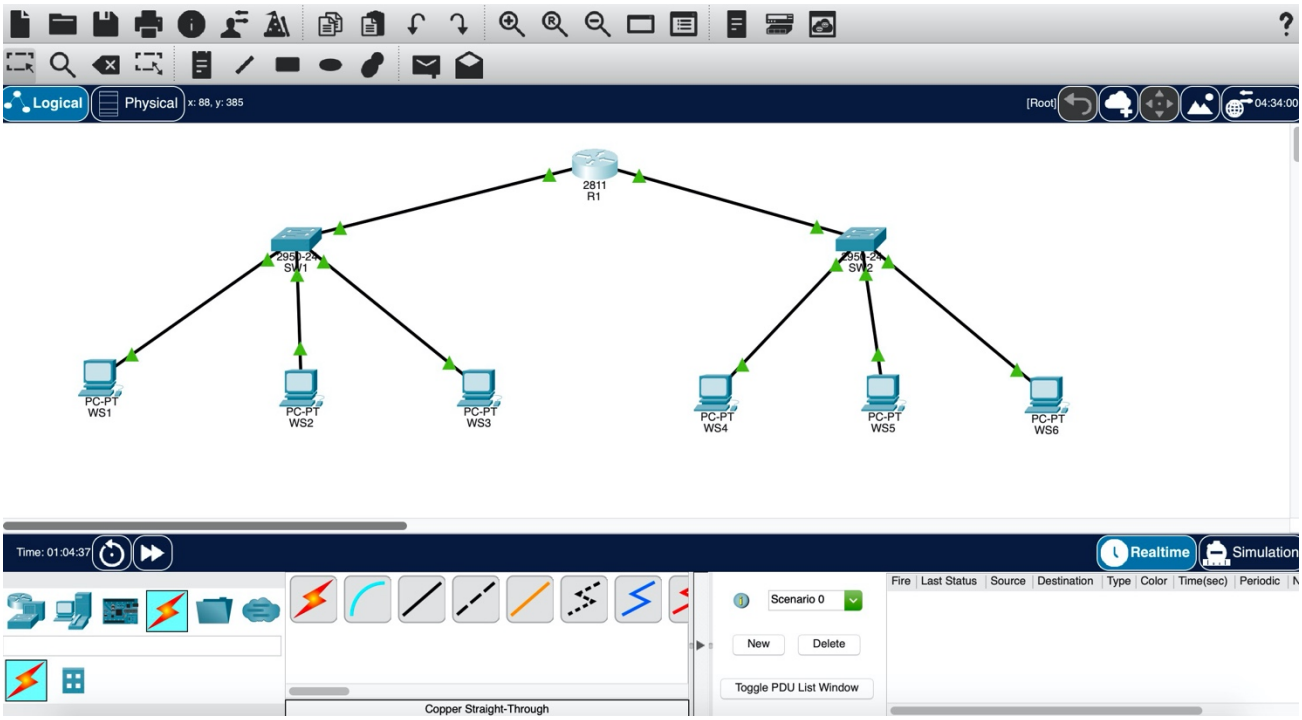
19) Check the status of the connection on the router. It should now show green.



20) Follow the same steps to configure the second interface connecting to the 192.168.2.0 network. This time the interface is fa0/1.



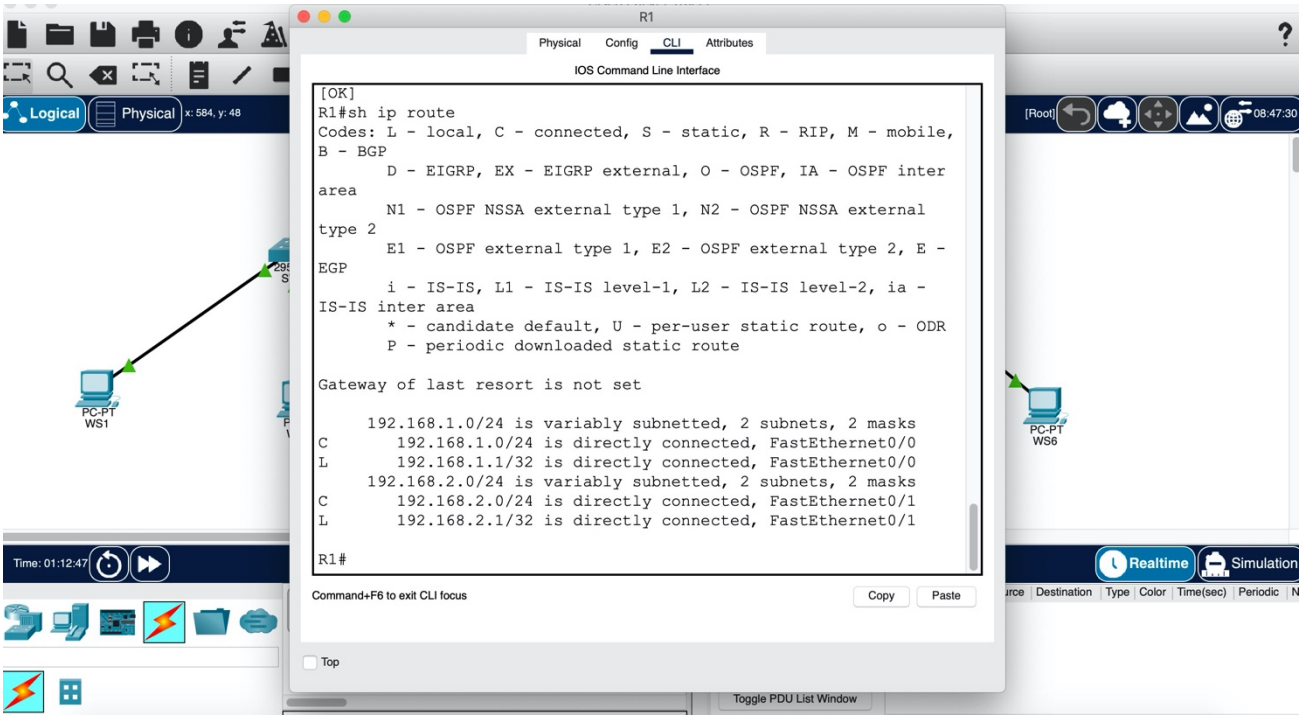
Now the connection from the router to the 192.168.2.0 network should also show green.



21) From WS1 ping the router (R1) interface 192.168.1.1
22) From WS4 ping the router (R1) interface 192.168.2.1
23) From WS1 ping WS4
24) From WS2 ping WS4
25) From WS6 ping WS3

What are the responses?

26) Do a *show ip route* on R1. What do you see?


R1
Physical
Config
CLI
Attributes
IOS Command Line Interface
[OK]
R1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.1.0/24 is directly connected, FastEthernet0/0
L 192.168.1.1/32 is directly connected, FastEthernet0/0
192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.2.0/24 is directly connected, FastEthernet0/1
L 192.168.2.1/32 is directly connected, FastEthernet0/1
R1#
Command+F6 to exit CLI focus
Copy
Paste
Top
Logical
Physical
PC-PT WS1
PC-PT WS6
Realtime
Simulation
Toggle PDU List Window