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Q 1 - Create Partial and Fully Mesh Topology with the help of packet tracer and show the output.

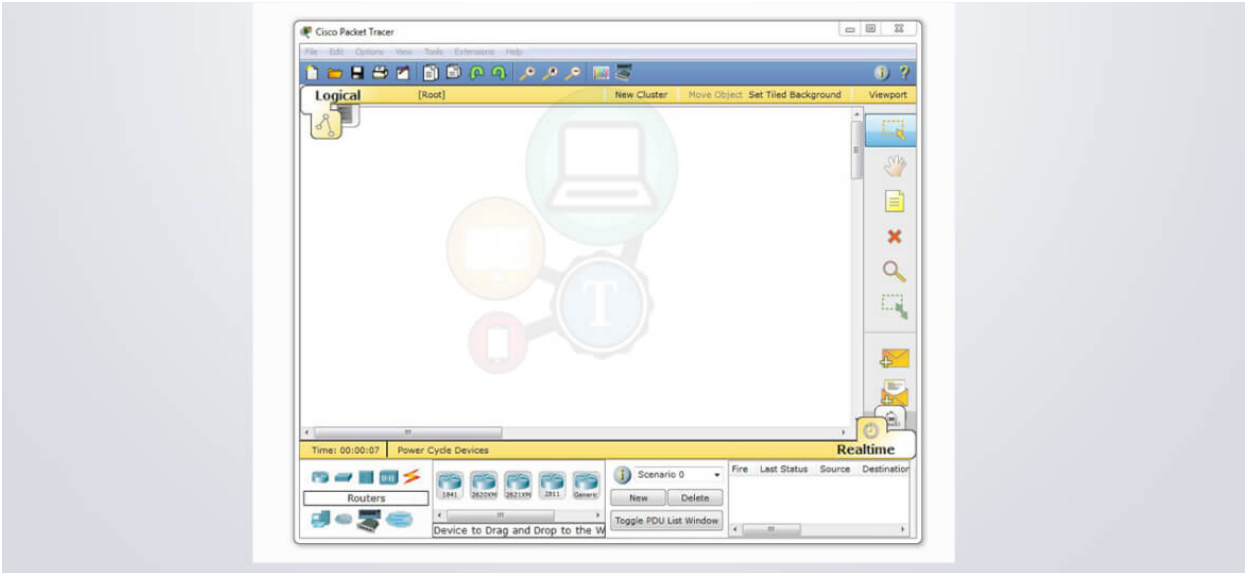
SOL

Mesh Topology is one of the most reliable, efficient, fast and costly **type of network topology**. In **Mesh Topology Network**, each **network node** or **computer** or **network device** has a dedicated and direct connection to every other **network device** present in **computer network**.

Prerequisites (Step # 0)

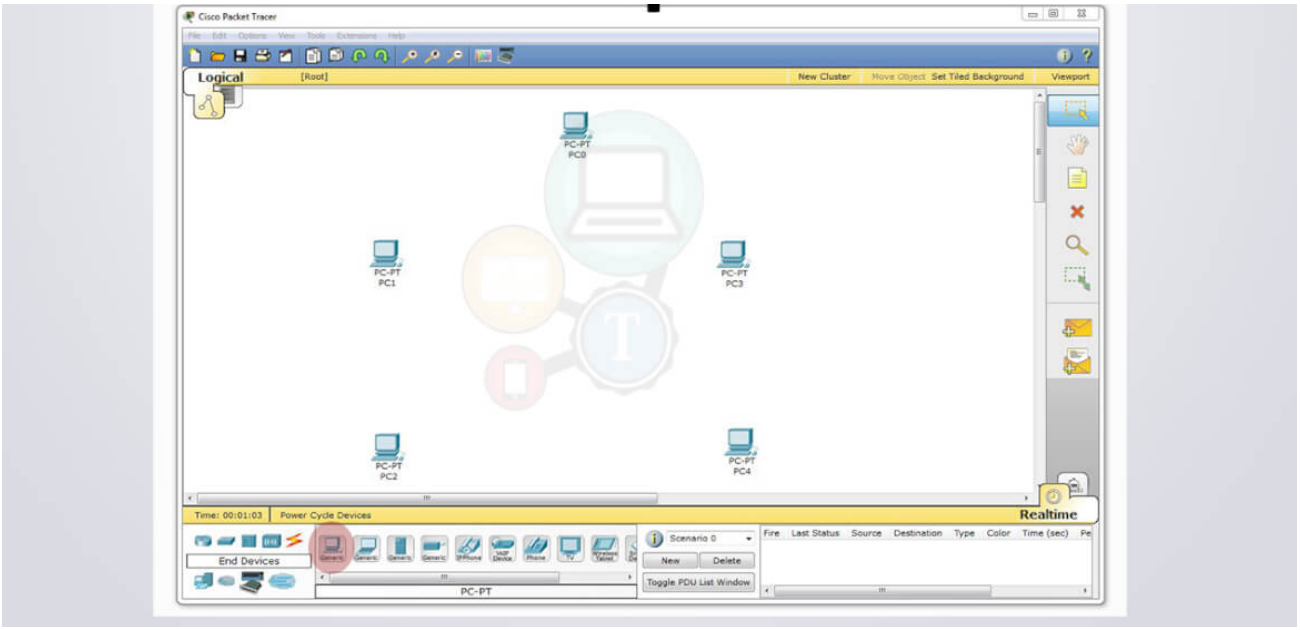
1. Download and Install Cisco Packet Tracer
2. Basic Know How about Cisco Packet Tracer
3. Structure of Mesh Topology Network
4. IP Address

Open Cisco Packet Tracer (Step # 1)



Select and Draw End Devices of Your Mesh Network (Step # 2)

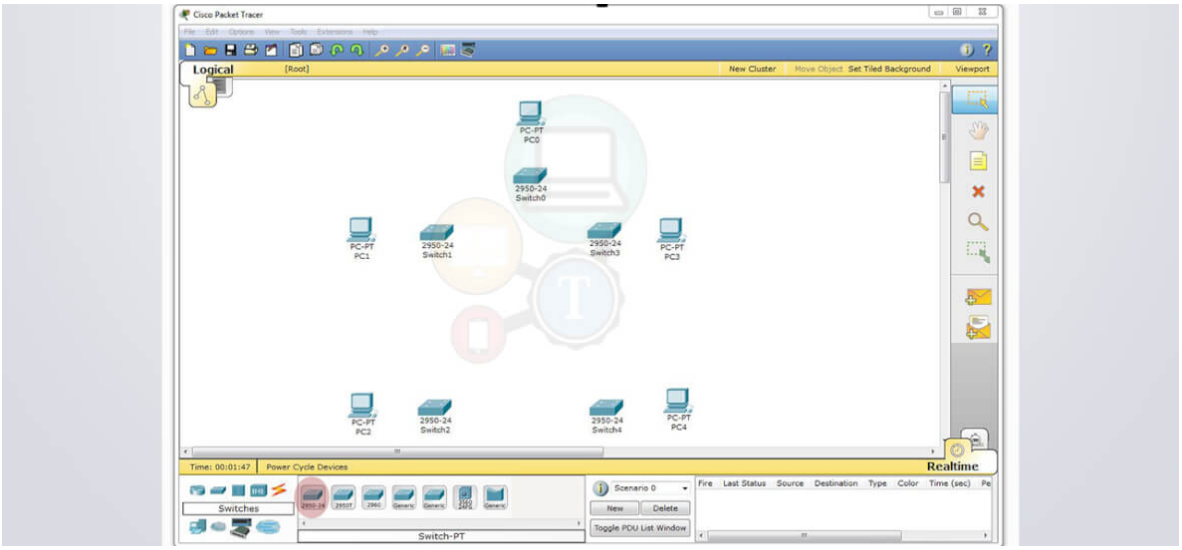
First thing that you will need for creating **mesh network in Cisco packet tracer** is obviously the end devices. For this go to the *end devices menu in cisco packet* tracer. You'll find a lot of devices there. For this tutorial, I am using simple desktop PC as end devices. You can create **mesh topology** using any number of end devices. In this tutorial, I am using a total of five end devices.



Select and Draw Switches for each End Device (Step # 3)

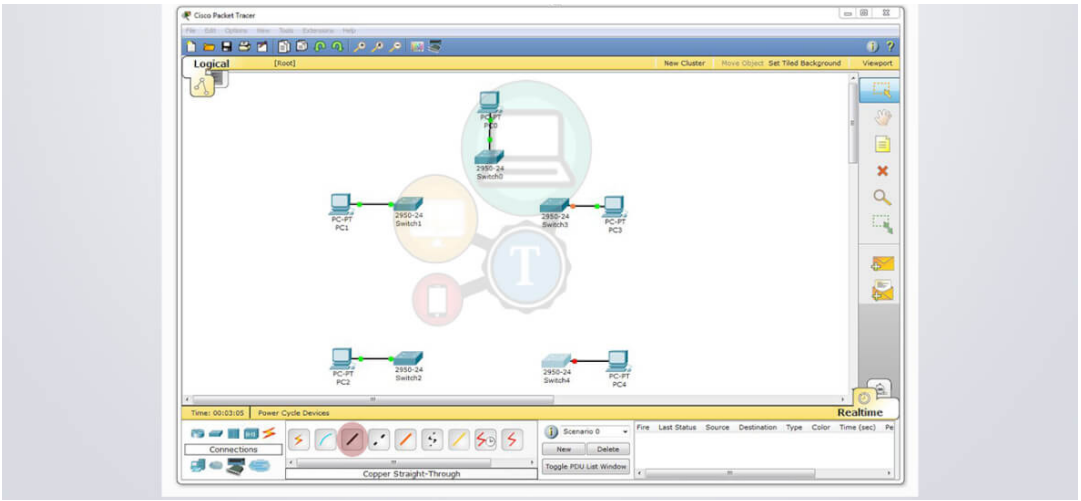
You can't connect end devices directly with each other. For this you will need a **communication device** like *hub* or *switch*. For the sake of simplicity, I am using *switch* for connecting end devices. You can find *communication devices* from tools menu that can be found in bottom left corner.

Simply go to the toolbox and select *switches*. You will find different models of switches. You can use any of them. The number of switches must be equal to the number of end devices.



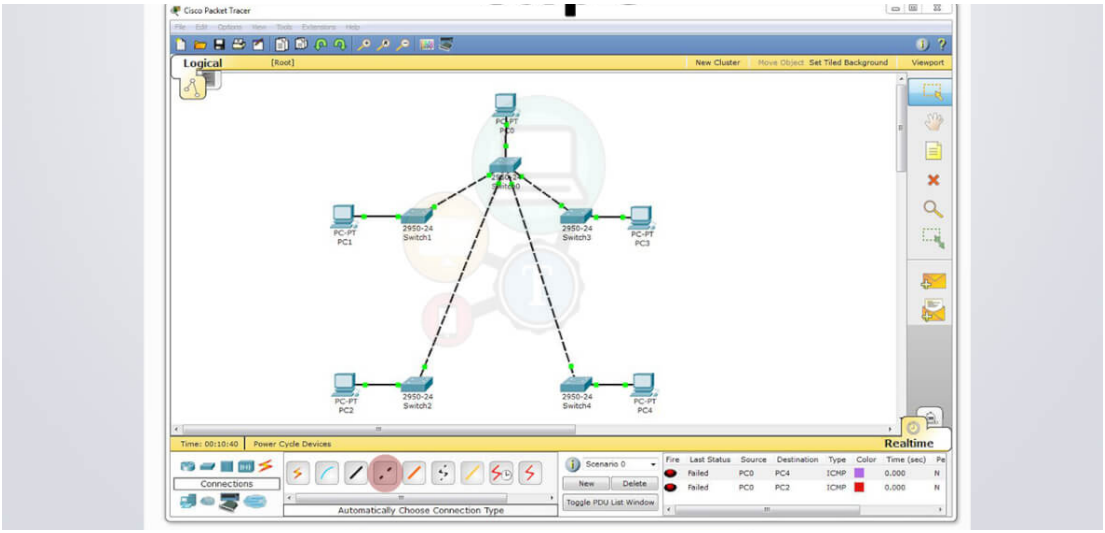
Connect Each Pair of Computer and Switch (Step # 4)

Here comes the connection setup. In this step, I am going to demonstrate you connection mechanism between end devices and switches. For this purpose, go to the toolbox (as used earlier) and select the connections menu item. There are different sort of connecting media in there. Select *copper-straight through cable* for connecting each pair of switch and end device together. Connect each of the end device with corresponding switch turn by turn.



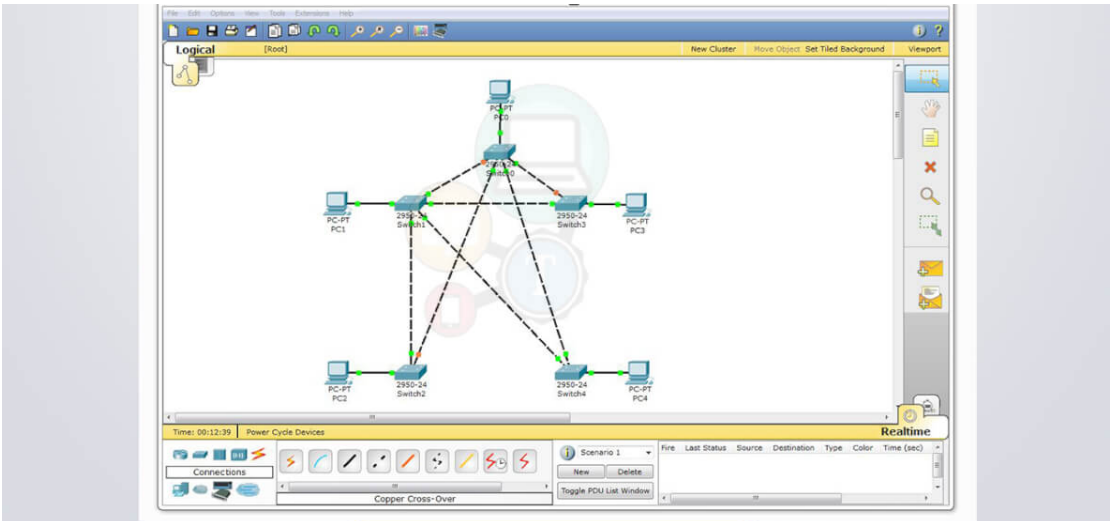
Select First Random Switch and Connect it to Other Remaining Switches (Step # 5)

Now we're done with connecting end devices with switches. So, now its the time to connect switches together. Select any random switch and connect it with each other switch in your *mesh network*. In this case, I have selected 'Switch 0' first. So, I am connecting it to other remaining four switches using *copper cross over cable*. After connections, your network will look like this.



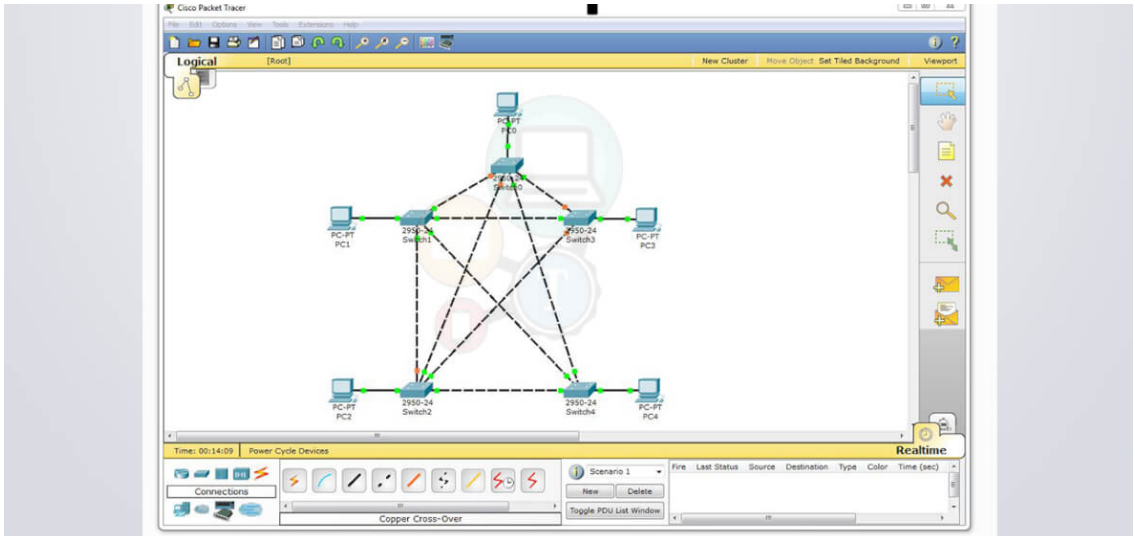
Select Second Random Switch and Connect it to Other Remaining Switches (Step # 6)

Select the second random switch and connect it with each other switch in your *mesh network*. In this case, I am selecting 'Switch 1'. So, I am connecting it to other remaining four switches using *copper cross over cable*.



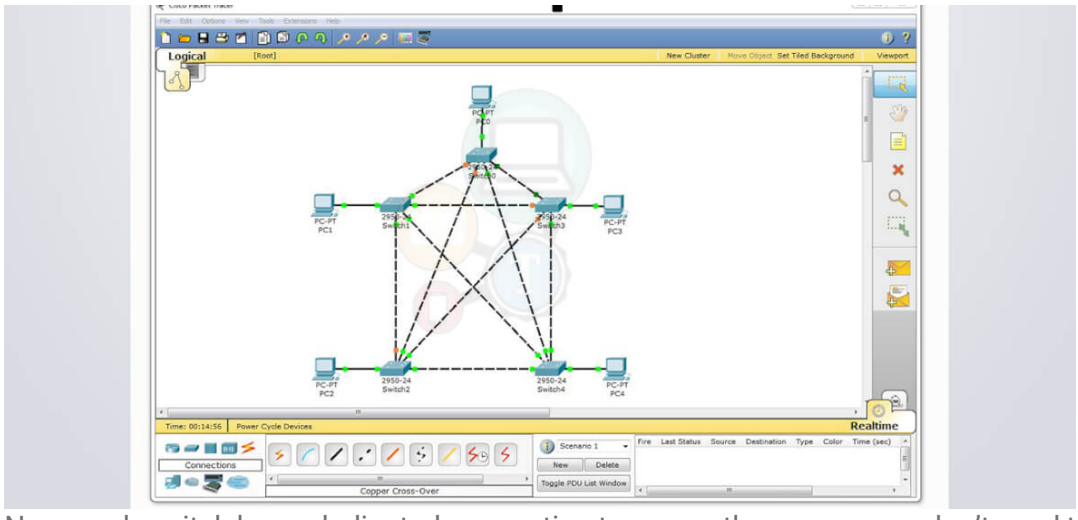
Select Third Random Switch and Connect it to Other Remaining Switches (Step # 7)

Now, I am selecting ‘Switch 2’ as third random switch and connecting it to two of the remaining switches using *copper cross over cable*. You **mesh topology network** will look like this.



Choose Fourth Switch Randomly and Connect it to Remaining Switches (Step # 8)

In this step, select the fourth random switch and connect it to remaining switches. Here, I am designating ‘Switch 3’ as fourth random switch. I would suggest you to carefully watch the whole **computer network** to ensure that each switch is properly connected to each one.

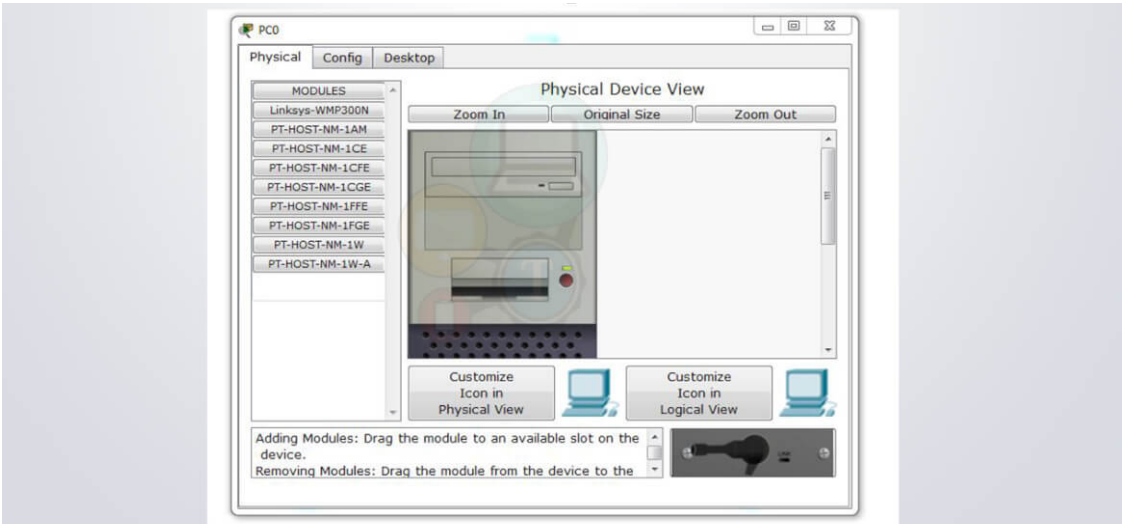


Now, each switch has a dedicated connection to every other one so you don’t need to make any further connections. All the devices are connected and you can see the **mesh network structure** clearly.

In the coming steps, we will need to configure IP addresses of each end device. So, you need to repeat step 9 to step 12 for each individual end device.

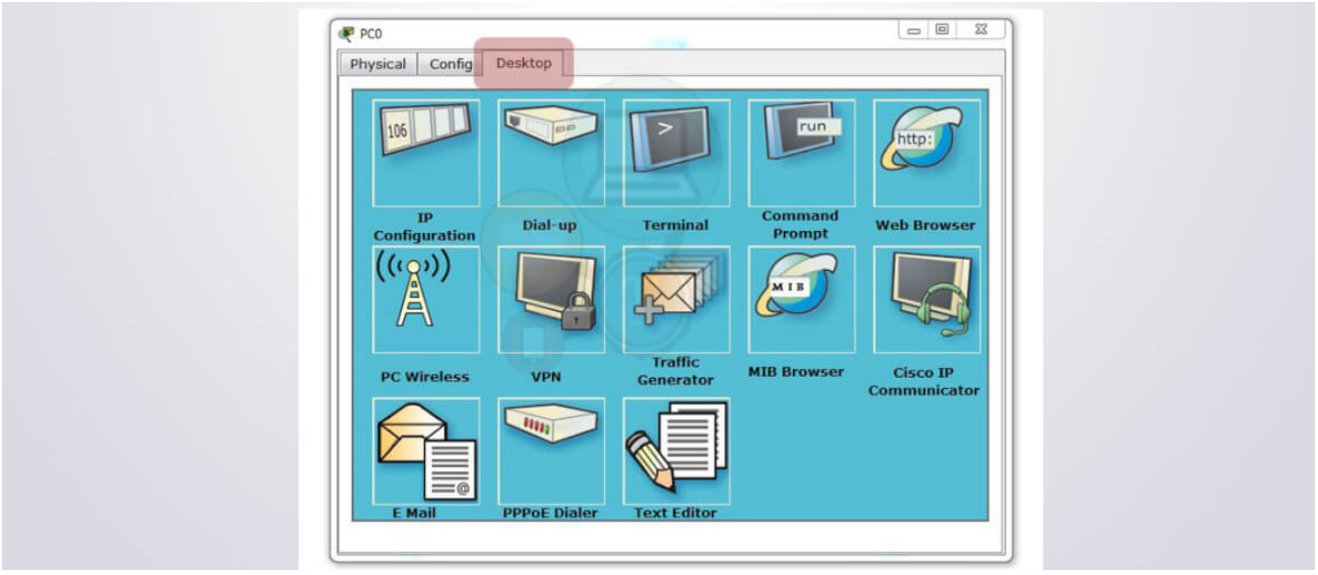
Open End Device Configurations (Step # 9)

For configuring IP address, you will need to open end device configuration. This can be done easily by clicking on the end device. Nevertheless, you will see the following configuration screen.



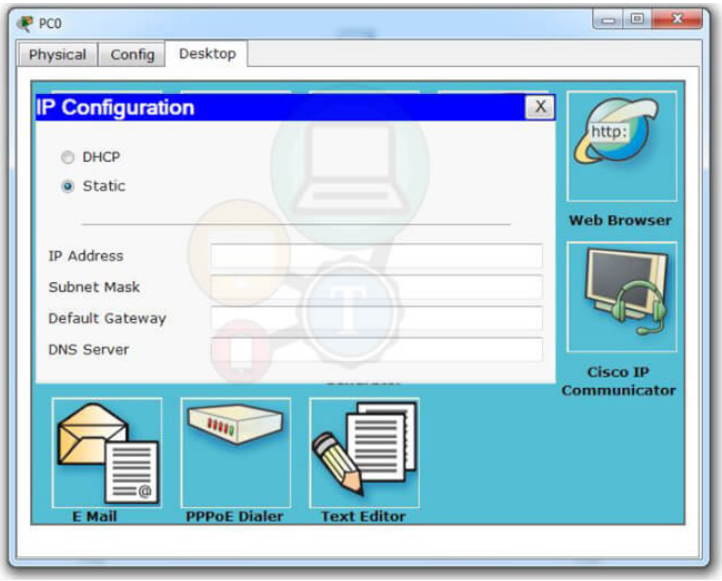
Go To Desktop (Step # 10)

You will need to look for 'IP Configuration' option. This option is present under the 'Desktop' tab. So, go ahead and click on that to open *desktop* for enhanced configuration settings.



IP Configuration Settings (Step # 11)

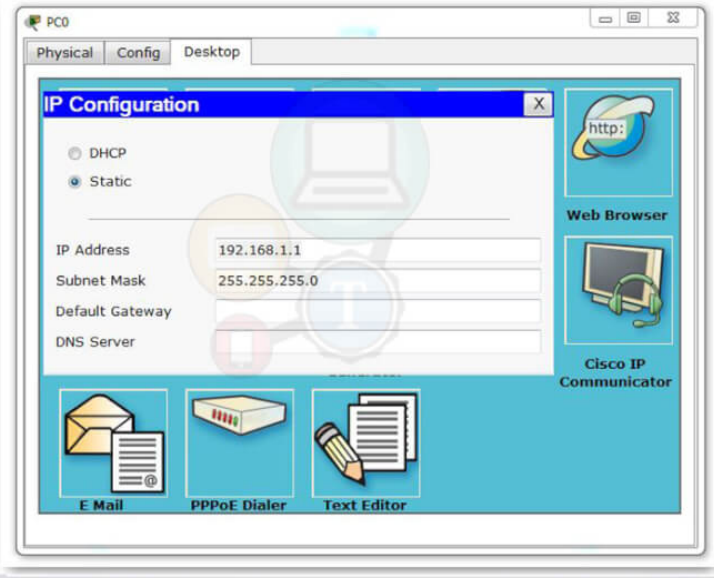
This is the main step. In the coming step, you are going to learn about assigning IP address to end device. But before that you will need to open IP configuration settings. For this, please go ahead and click on the 'IP Configuration' option. This will open up a dialog box which is shown in the following picture.



Configure IP Address (Step # 12)

Enter the following configuration data. But please do remember, that for each device you will have to use different IP address. You can use the following list of IP addresses:

Switch	IP Address
Switch 0	192.168.1.1
Switch 1	192.168.1.2
Switch 2	192.168.1.3
Switch 3	192.168.1.4
Switch 4	192.168.1.5
Switch 5	192.168.1.6


PC0
Physical
Config
Desktop
IP Configuration
DHCP
Static
IP Address
192.168.1.1
Subnet Mask
255.255.255.0
Default Gateway
DNS Server
http:
Web Browser
Cisco IP Communicator
E Mail
PPPoE Dialer
Text Editor