# EXPERIMENT NO : 5

## AIM : Configuring IP addressing using Cisco Packet Tracer

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

Packet Tracer makes use of a drag and drop user interface, allowing users to add and remove simulated network devices as they see fit. The software is mainly focused towards Certified Cisco Network Associate Academy students as an educational tool for helping them learn fundamental CCNA concepts.

Packet Tracer can also be run on Linux and Microsoft Windows and also macOS. Similar Android and iOS apps are also available. Packet Tracer allows users to create simulated network topologies by dragging and dropping routers, switches and various other types of network devices. A physical connection between devices is represented by a 'cable' item.

Packet Tracer supports an array of simulated Application Layer Protocols, as well as basic routing with RIP,OSPF, EIGRP, BGP, to the extents required by the current CCNA curriculum. As of version 5.3, Packet Tracer also supports the Border Gateway Protocol

In addition to simulating certain aspects of computer networks, Packet Tracer can also be used for collaboration. As of Packet Tracer 5.0, Packet Tracer supports a multi-user system that enables multiple users to connect multiple topologies together over a computer network. Packet Tracer also allows instructors to create activities that students have to complete. Packet Tracer is often used in educational settings as a learning aid. Cisco Systems claims that Packet Tracer is useful for network experimentation.

## Role of Cisco Packet Tracer in Education

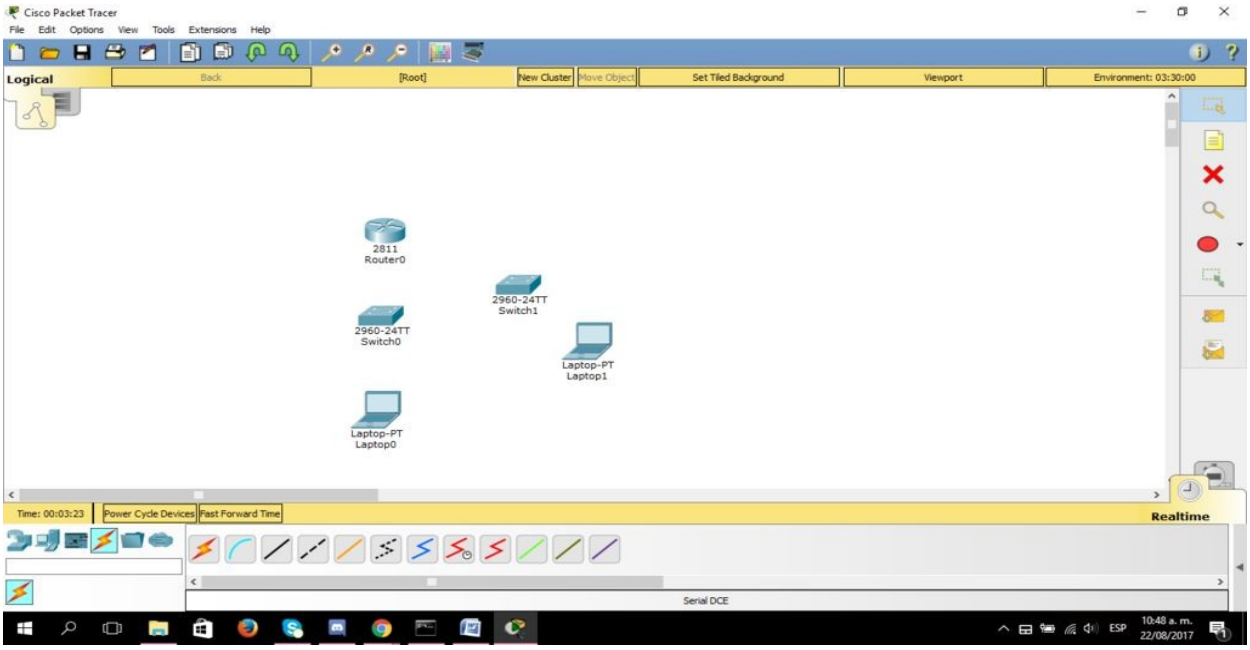
Packet Tracer allows students to design complex and large networks, which is often not feasible with physical hardware, due to costs. Packet Tracer is commonly used by CCNA Academy students, since it is available to them for free. However, due to functional limitations, it is intended by CISCO to be used only as a learning aid, not a replacement for Cisco routers and switches.

The application itself only has a small number of features found within the actual hardware running a current Cisco IOS version. Thus, Packet Tracer is unsuitable for modelling production networks. It has a limited command set, meaning it is not possible to practice all of the IOS commands that might be required.

Packet Tracer can be useful for understanding abstract networking concepts, such as the Enhanced Interior Gateway Routing Protocol by animating these elements in a visual form. Packet Tracer is also useful in education by providing additional components, including an authoring system, network protocol simulation and improving knowledge an assessment system.

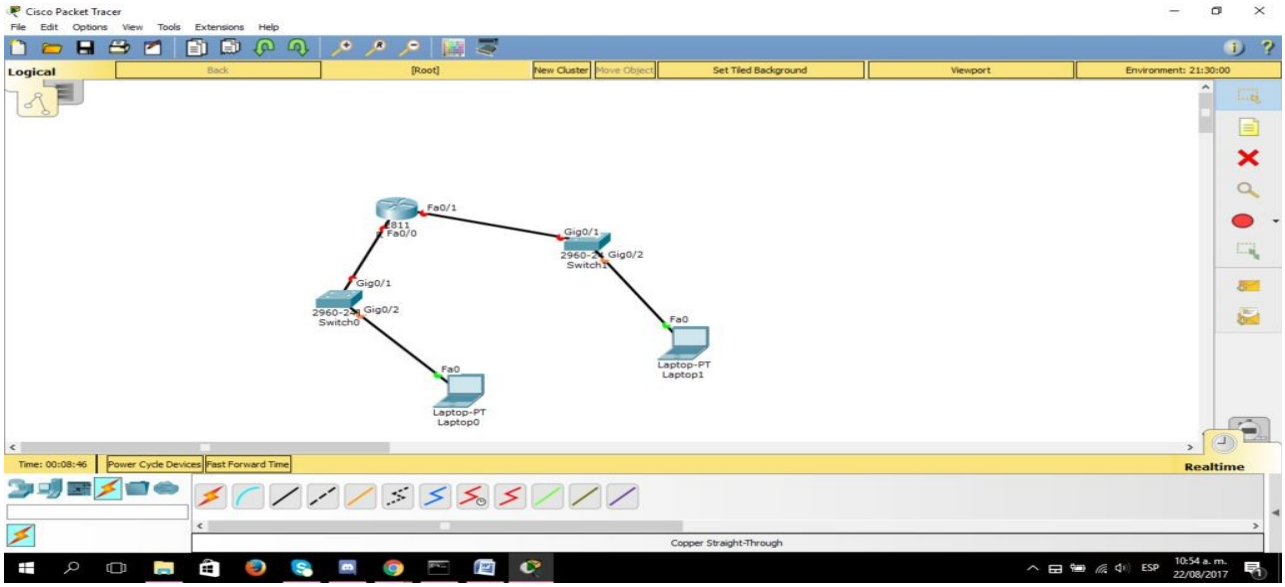
## How to Give a Static IP to Devices in CISCO PACKET TRACER

## Step 1:



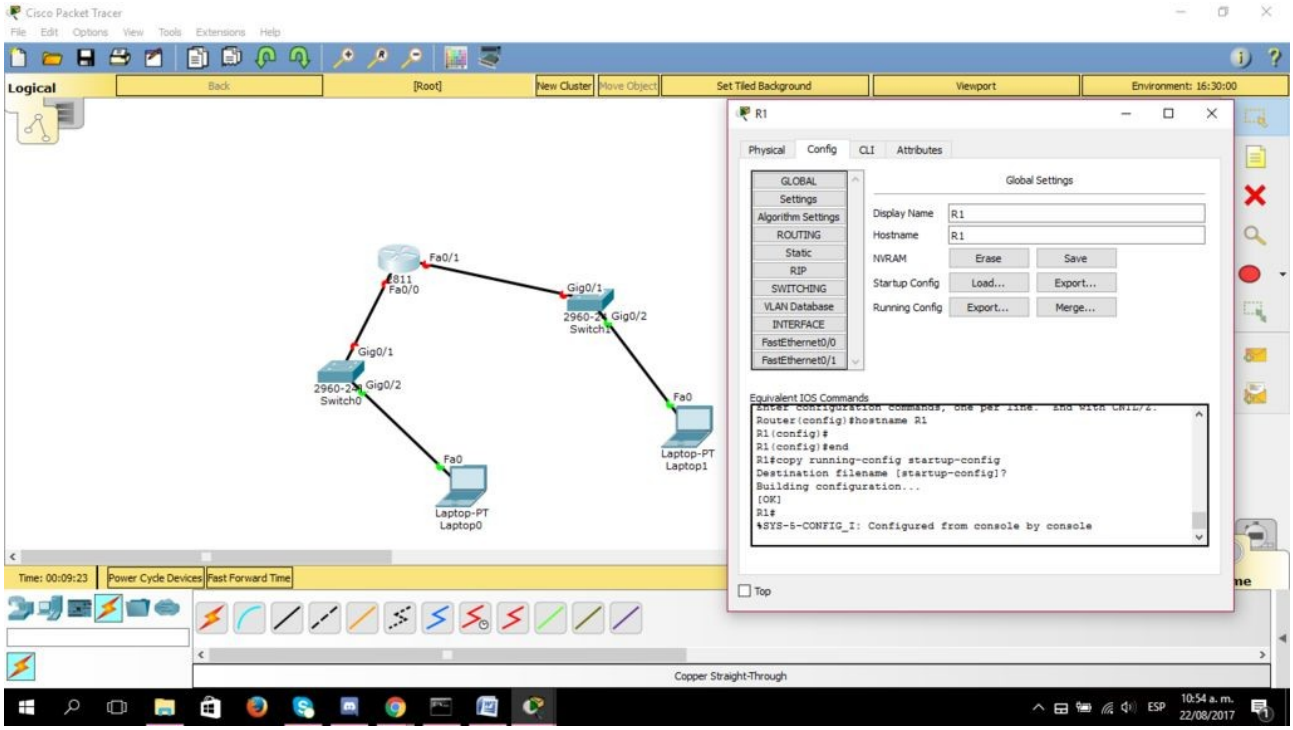

First we will place a router, two switches and two laptops for demonstrative purposes. You have to drag and drop the suitable device from the bottom menu

## Step 2:



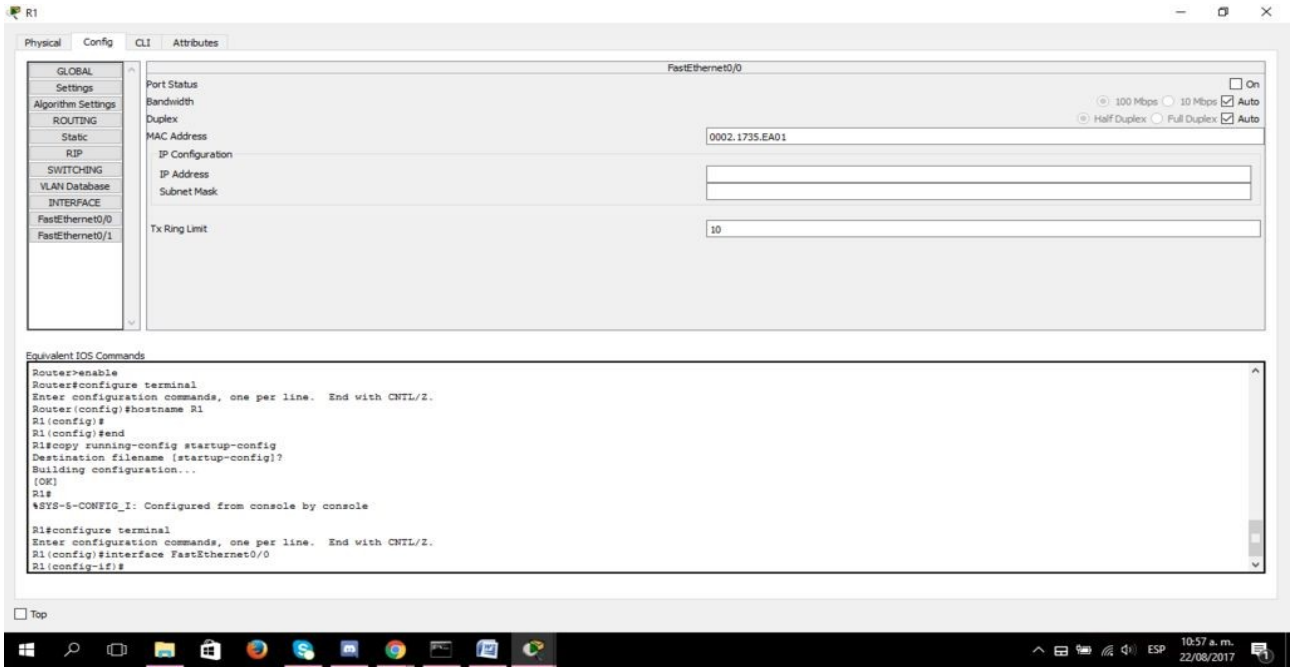

Then we will connect them using straight cable because they are different layer devices. It does not matter much the port in which the devices connect but must be Ethernet.

## Step 3:



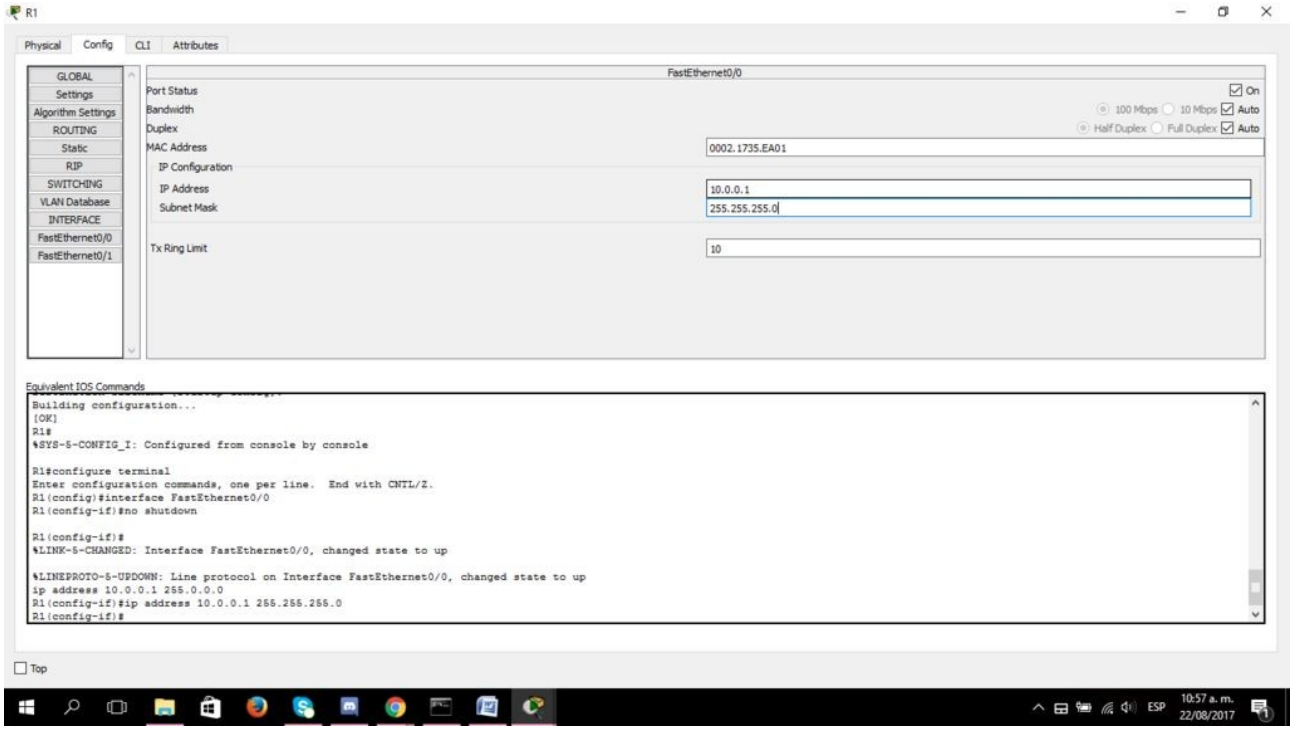

First enter the R1 router, we will configure the IP addresses of the router interfaces in two different ways.

## Step 4:



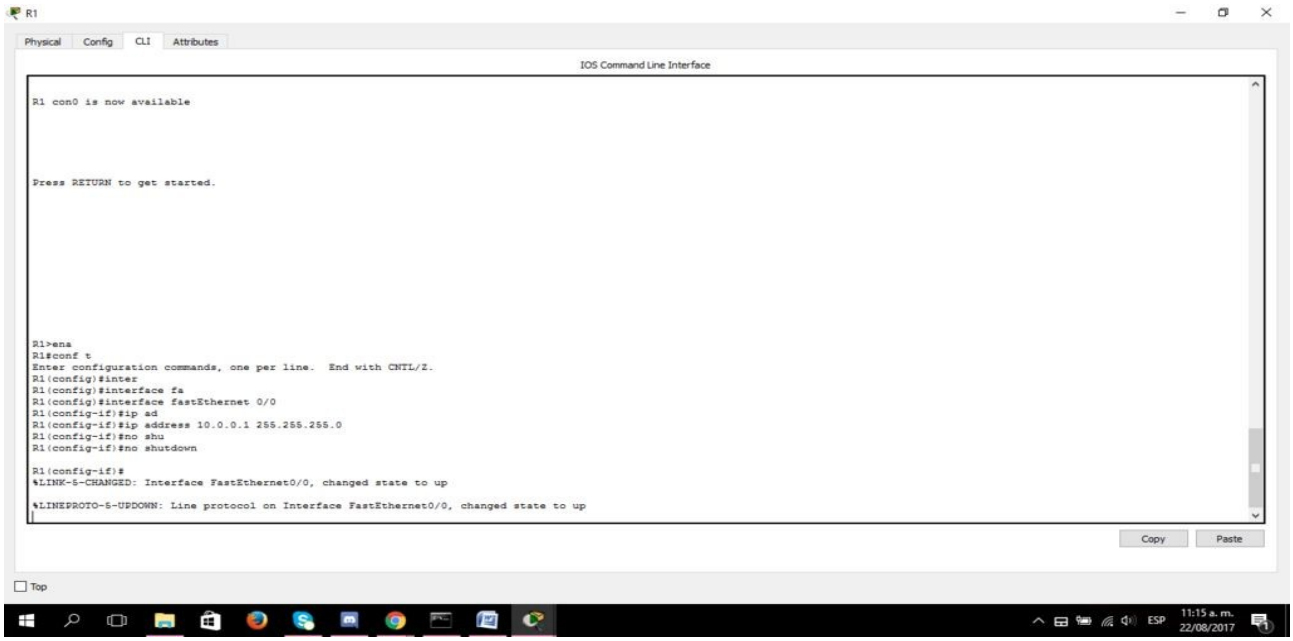

Step 4: The first form is through the config menu, so we are located in the tab where it says FastEthernet0/0.

## Step 5:




Click on the On box, which is located in the upper right corner to turn on the interface, then proceed to place an IP address (for example we will use the address 10.0.0.1) and place in the Subnet Mask 255.255. 255.0 to be an address that allows a maximum of 254 users (/ 24).

## Step 6:



The second way to enter a static IP address is through CLI, this is the most efficient way to program the computers in CISCO PACKET TRACER because it is the most accurate way of working in real equipment.

To do this, enter the global user mode and place the following commands:

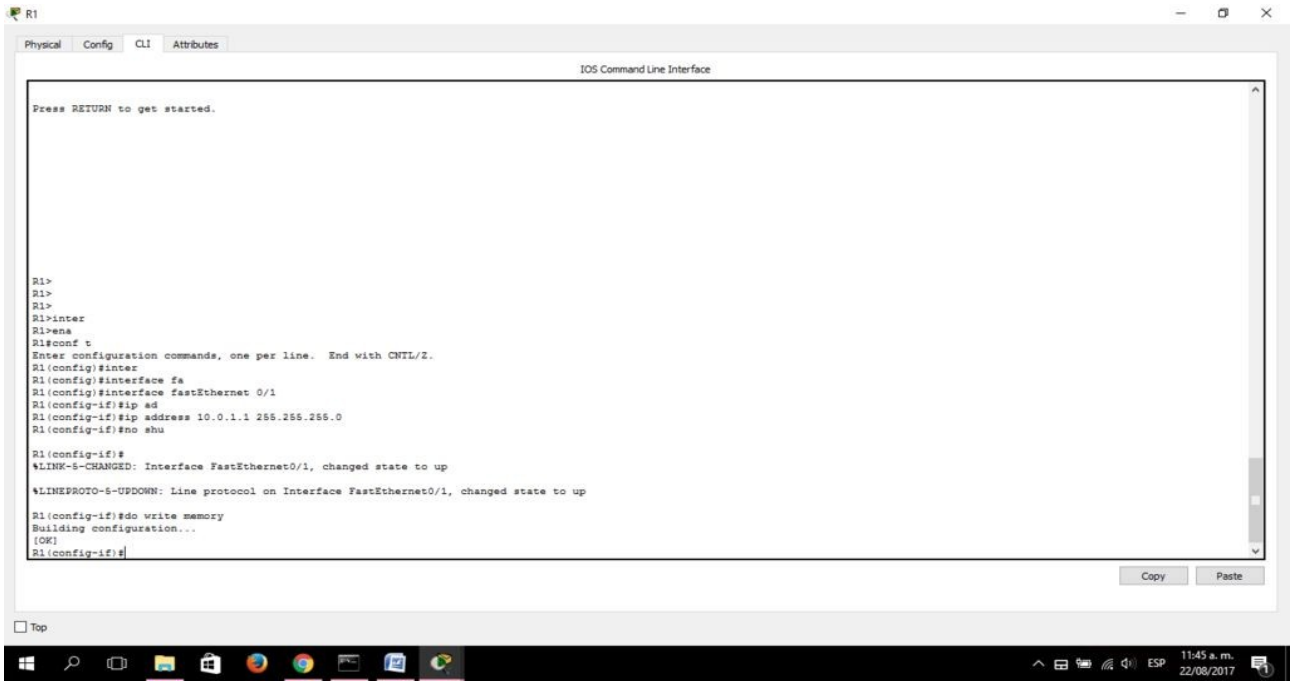
*Interface fastethernet 0/0*

*Ip address 10.0.0.1 255.255.255.0*

*No shutdown*

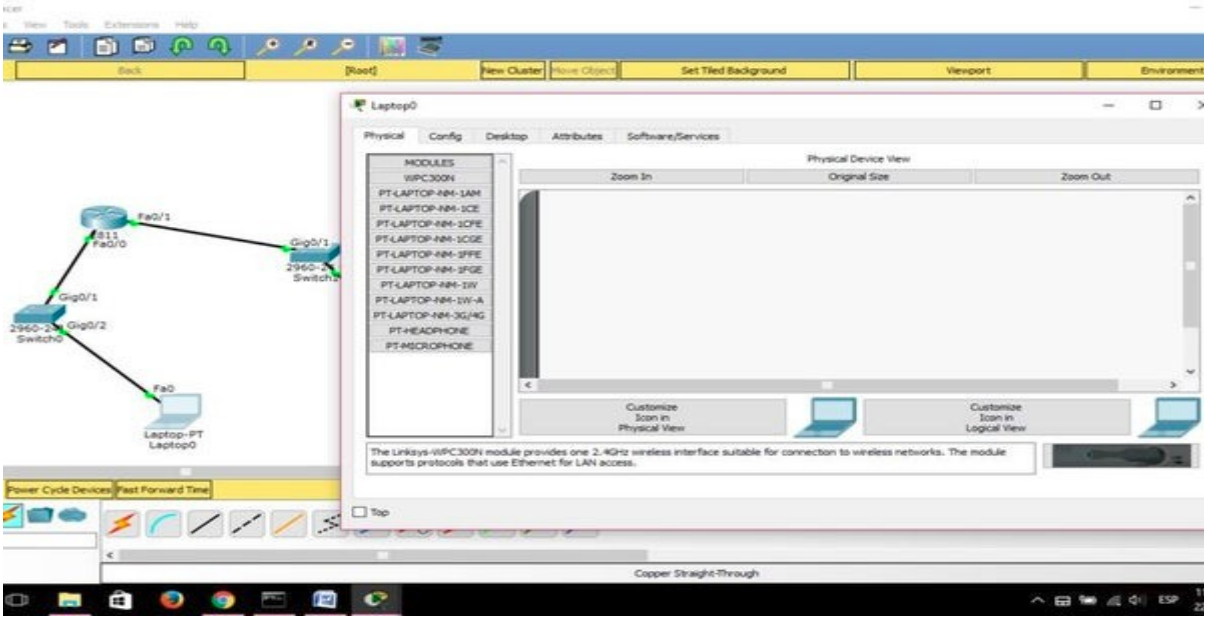
With the command "Interface fastethernet 0/0" we enter the interface Fa 0/0 of our router, giving us access to be able to configure it. The "Ip address" command allows us to configure an IP address to the interface and a Subnet Mask Followed by "10.0.0.1 255.255.255.0" which is the IP address and the Subnet Mask.

## Step 7 :



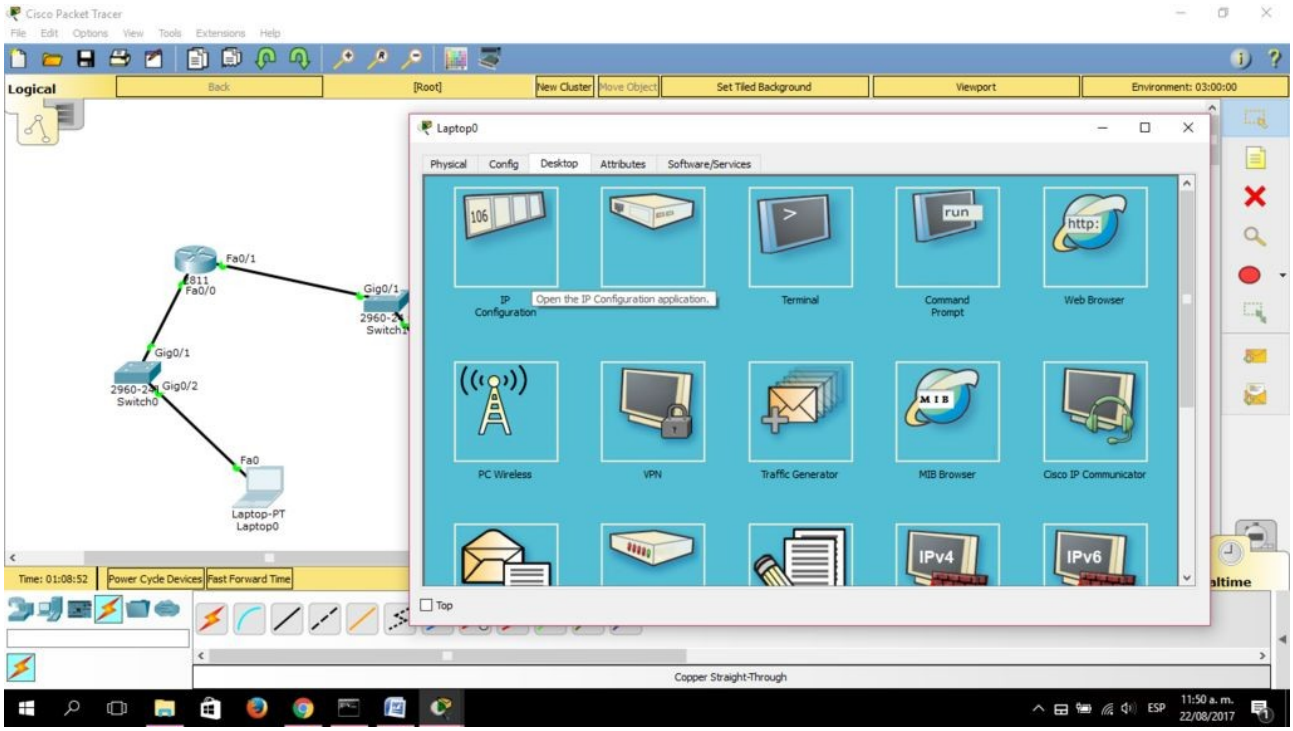

We will configure the second terminal of the Router using the second form for convenience. It should be mentioned that this must be in a network completely different from the network of the first interface, it is also advisable to save the configuration after enabling the interfaces, for this we will use the "do write memory" command in the global configuration.

## Step 8:



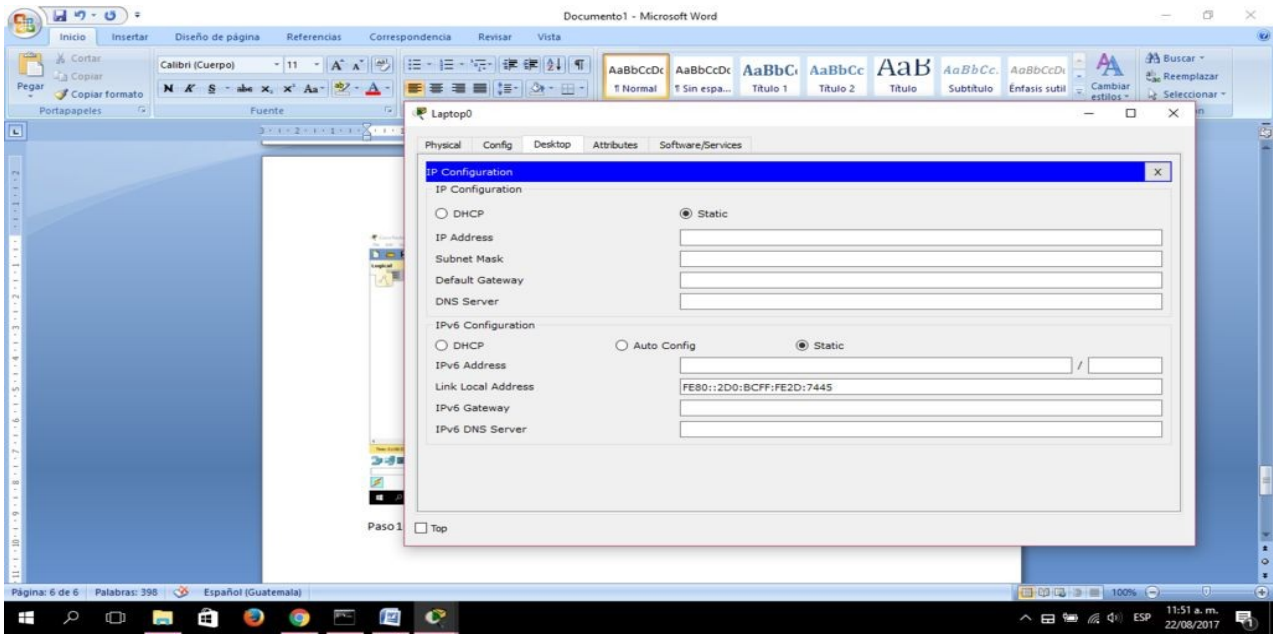

Now we will have enabled the two interfaces of the router, but the laptops will not have communication because we have not added them to a network, for them we proceed to enter the laptops to manually configure the IP address.

## Step 9:



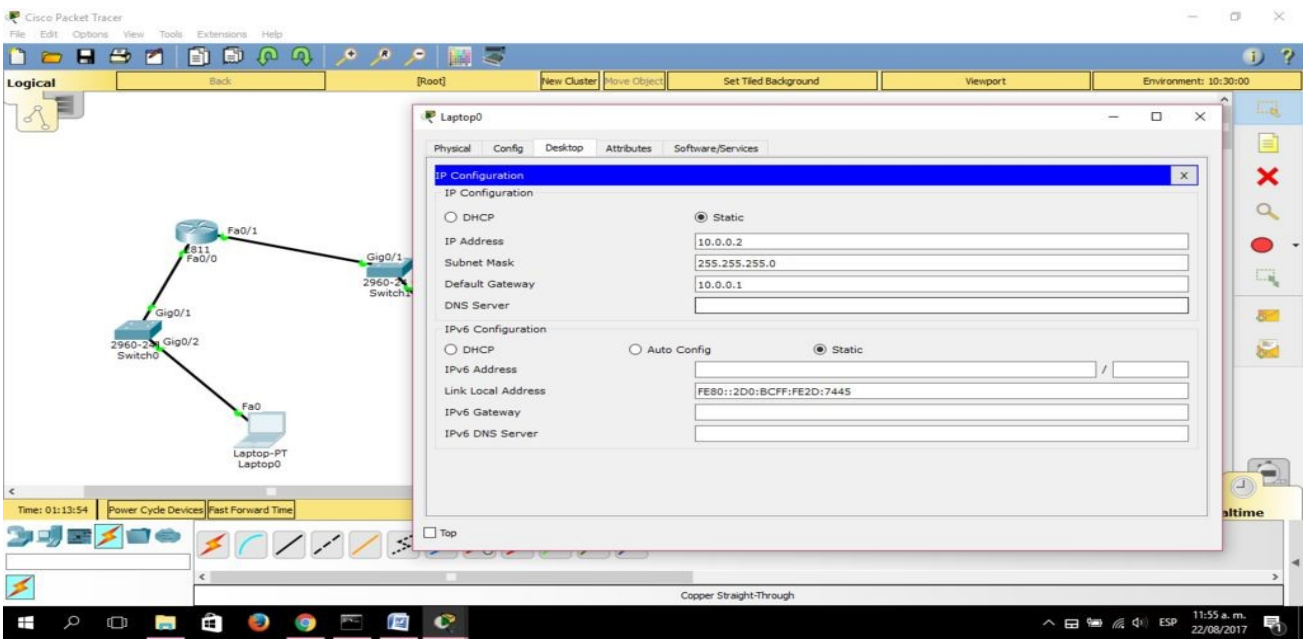

Enter the Desktop menu.

## Step 10:



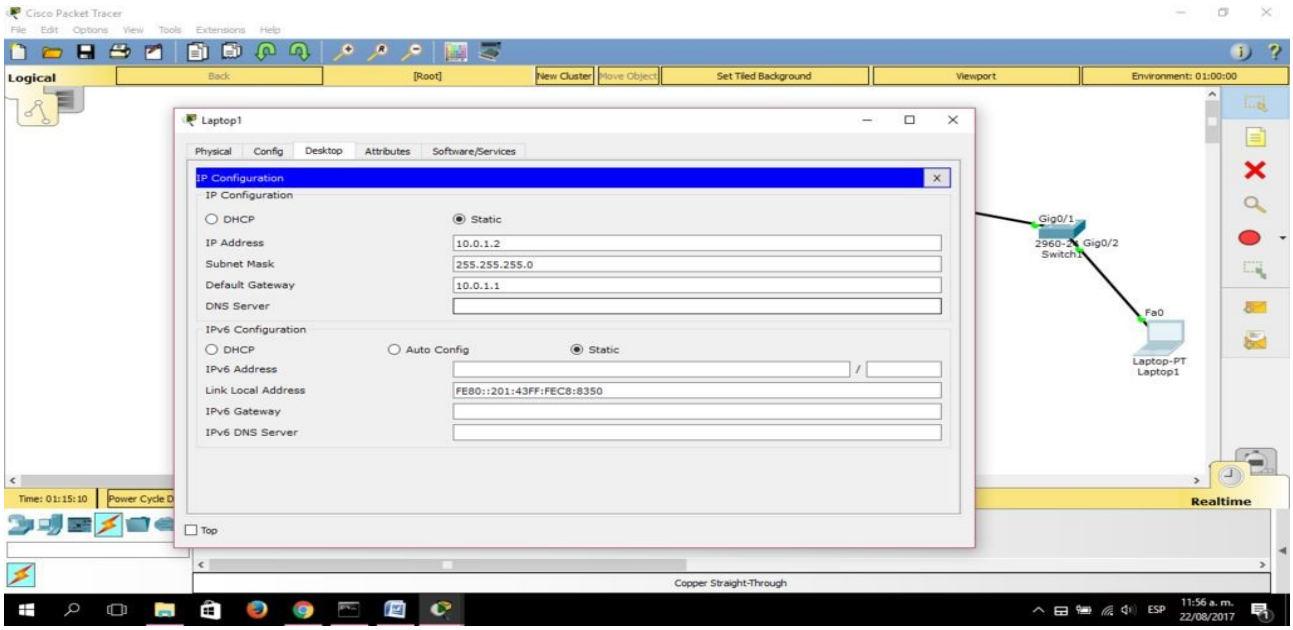

Enter the IP Configuration menu.

## Step 11:



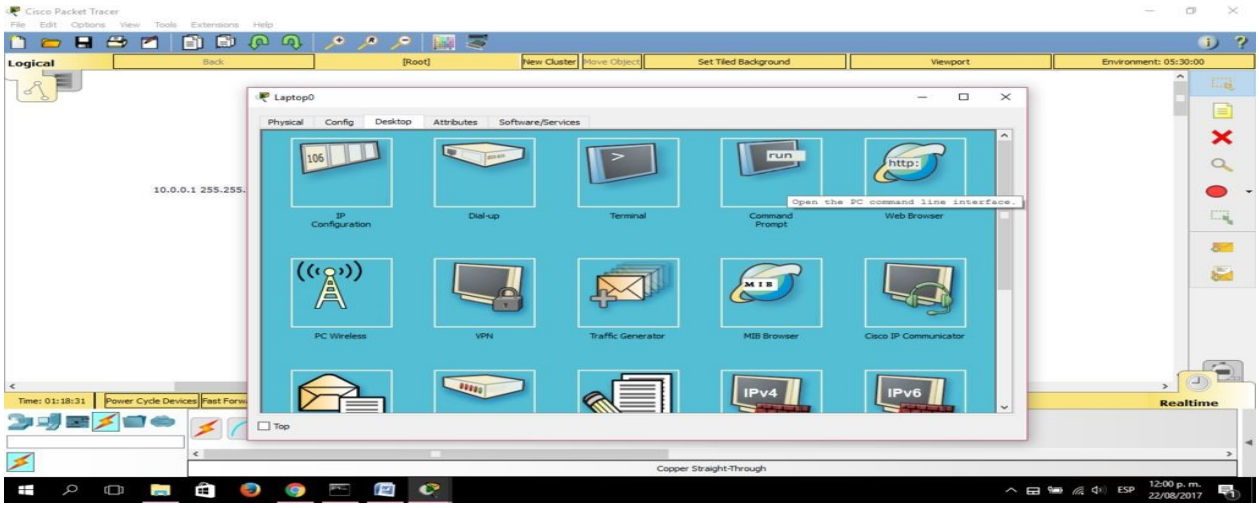

We must verify that the Static option is selected, then proceed to enter the IP address, Subnet Mask and Default Gateway. We can optionally add a DNS address but for demonstrative reasons we will ignore this section. It should be noted that the Default Gateway must be identical to the address of the Router interface and that the IP address and Subnet Mask must match.

## Step 12:



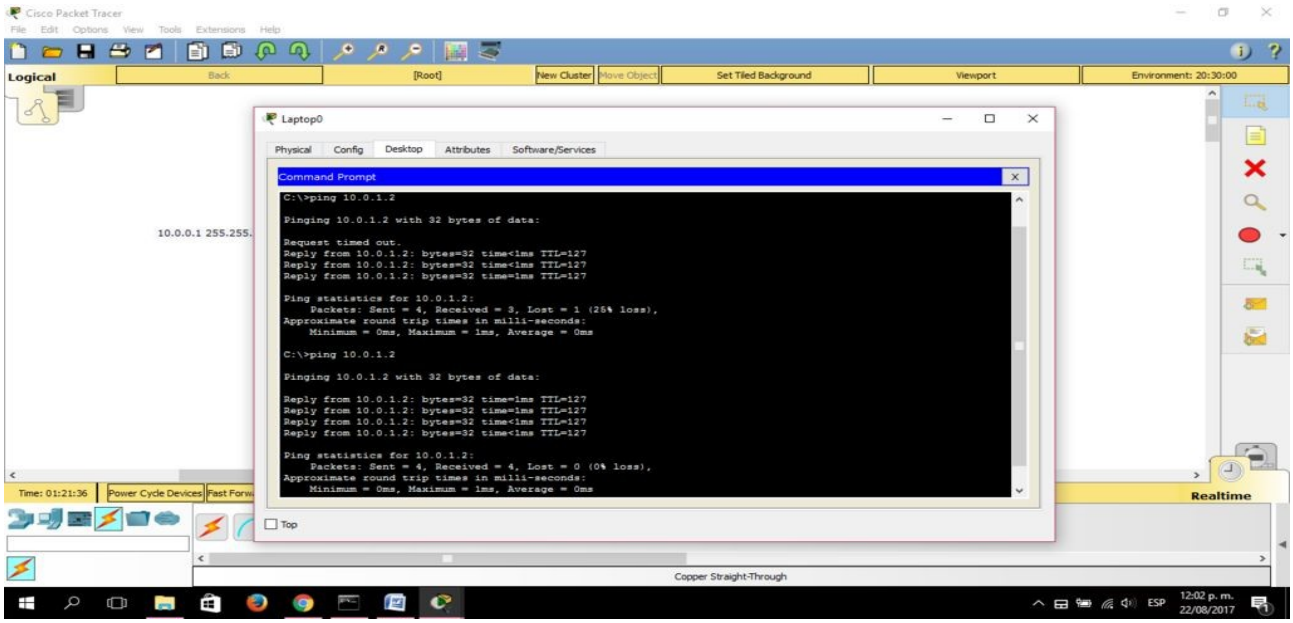

Now we can close this window and configure the other laptop in the same way.

## Step 13:




Now we must check the connectivity, for this we will ping from one laptop to the other. To ping we must enter a laptop, enter the Desktop menu and select the option of Command Prompt.

## Step 14:




We will write the command "ping 10.0.1.2" (this must be done on the laptop with IP address 10.0.0.2) and we must receive 4 connectivity messages. It is worth mentioning that if we did not receive the 4 complete messages at first, it sometimes takes a while for the computers to adopt the configuration, so it is advisable to retype the command.