

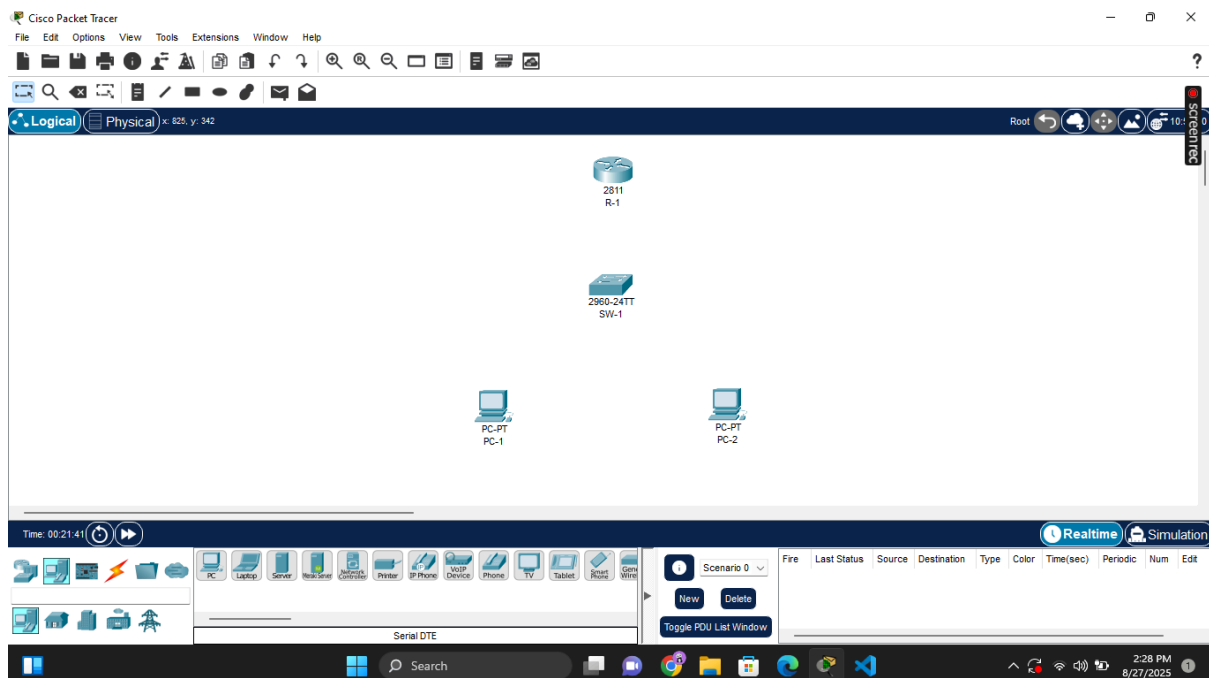
# Lab # 2

## Learn how to manually configure IP addresses.

This lab demonstrates how to manually assign and configure IP addresses on a system. It helps build a clear understanding of network interface setup and connectivity.

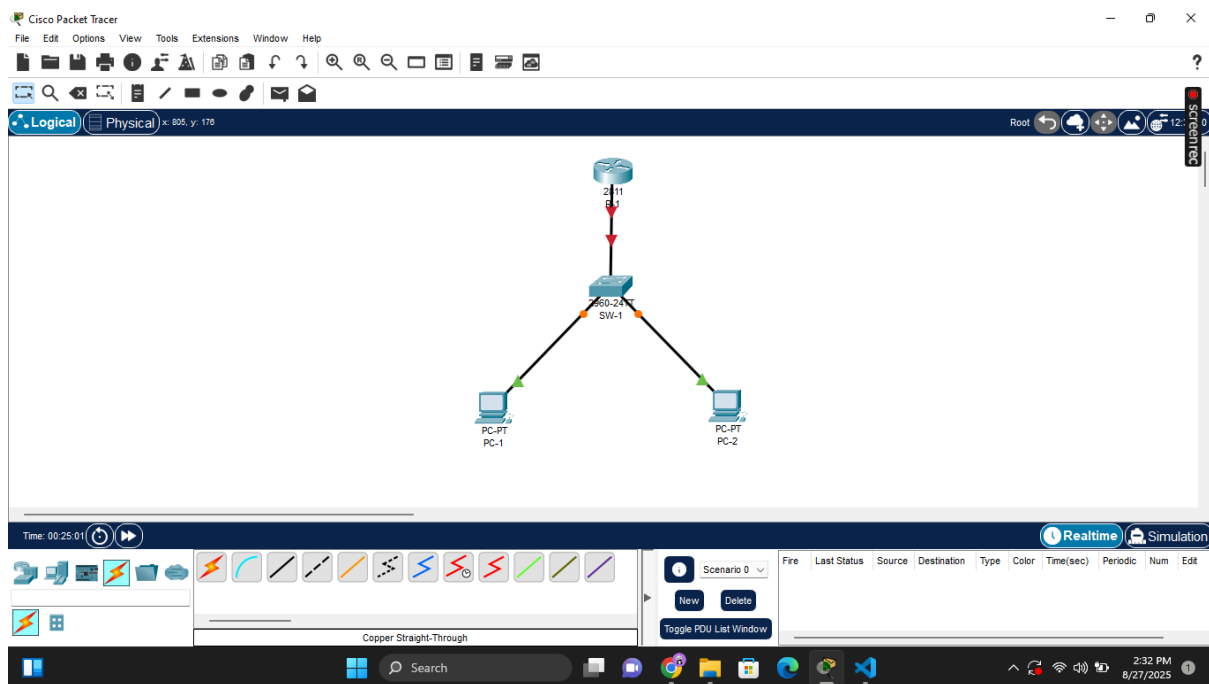
### Step # 1 Create Topology

- Open Cisco Packet Tracer and Set Up the Network Topology. Open Cisco Packet Tracer. From the bottom left device types panel:
- Drag 2 PC's (found in End Devices).
- Drag 1 Switch (e.g., 2960 from Switches).
- Drag 1 Router (e.g., 2811 from Routers).



## Now connect them:

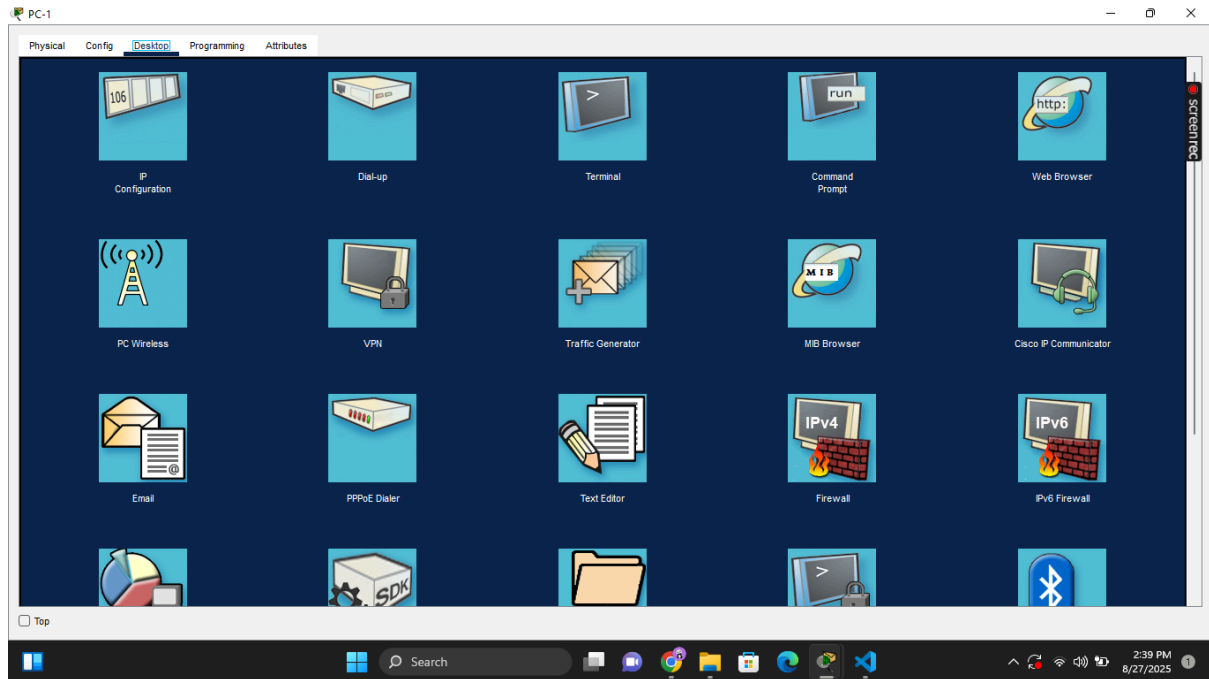
- Use Copper Straight-Through cable (light orange wire icon).
- PC → Switch: Connect from PC's FastEthernet0 to Switch's FastEthernet0/1.
- Switch → Router: Connect from Switch's FastEthernet0/2 to Router's GigabitEthernet0/0 or FastEthernet0/0, depending on router model.



Copper Straight Through cables are used to connect different device types, such as PCs, switches, and routers. The PC connects to the switch to allow user access to the network, while the switch connects to the router to enable communication outside the local network. This setup establishes the basic path for data flow from end devices to external networks.

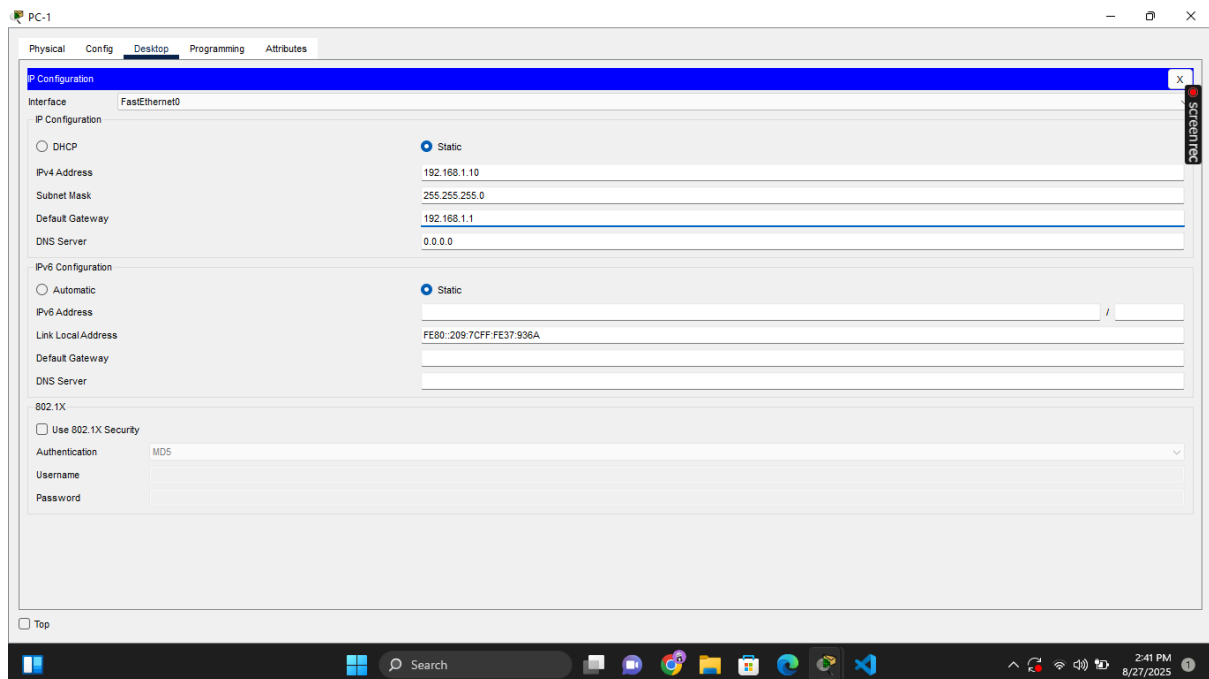
## Step 2: Configure Static IP Address on PC

- Click on the PC in the topology.
- Go to the Desktop tab.



Open **IP Configuration**. Enter the following details:

- **IP Address:** 192.168.1.10  
**Subnet Mask:** 255.255.255.0
- **Default Gateway:** 192.168.1.1

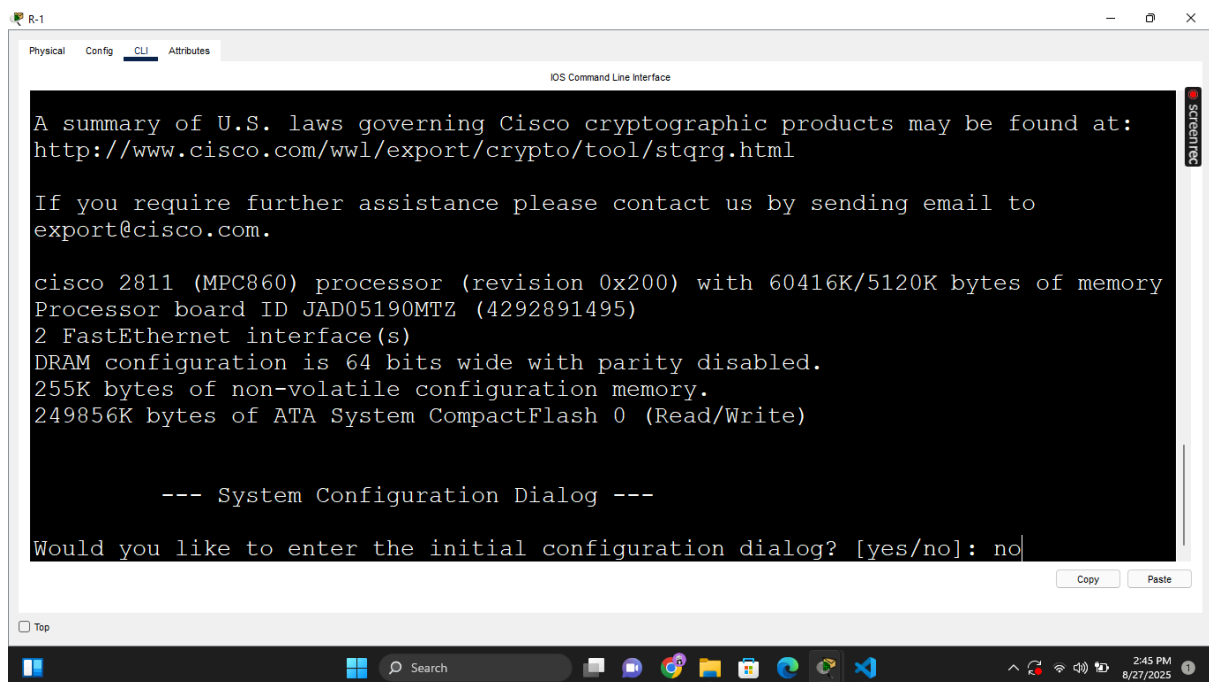


**PC-2** Repeat the same steps for PC-2 and assign an ip to PC-2. The IP should be 192.168.1.11

## Step 4: Configure Host name on the Router and Switch

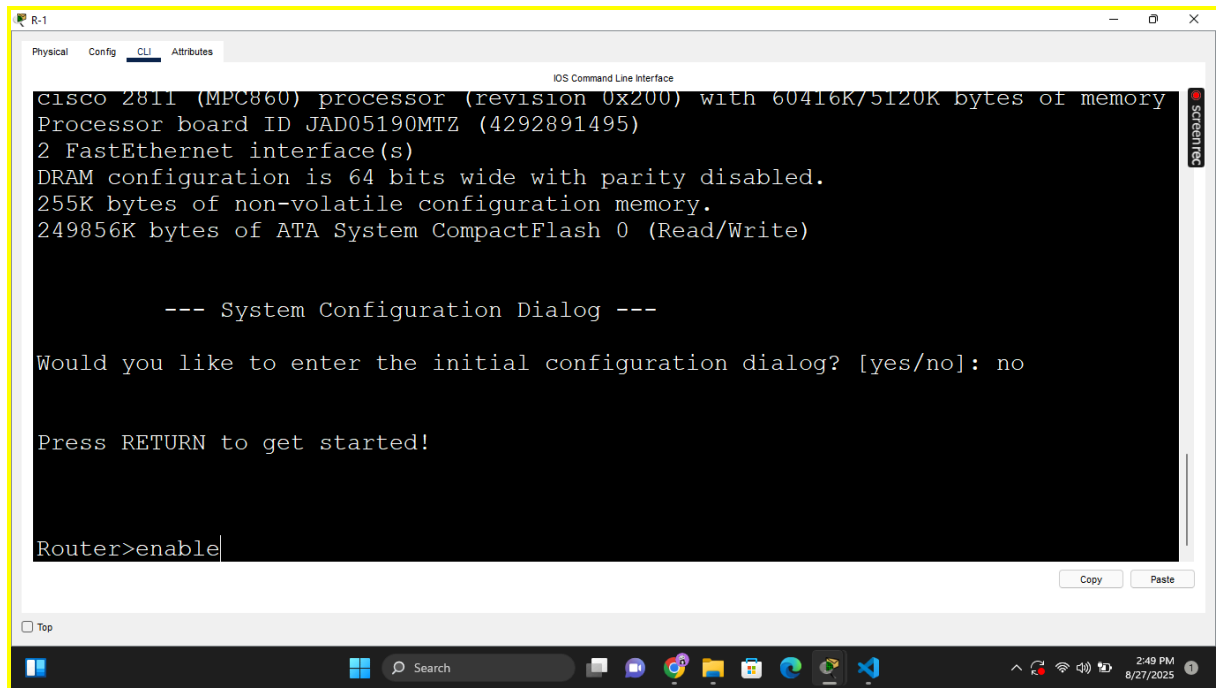
Configure the host names on both router and switch as R-1 and SW-1.

- Click on the Router in topology
- Go to the CLI tab
- Type no for the “Would you like to enter the initial configuration dialogue [yes/no] and enter



**Again press Enter** and you will land in the **See only mode or User Exec mode**. You will see “ Router > “, here Router the hostname and this sign > means you are in the See only mode. Here type the command : “ enable” to enter the enable.

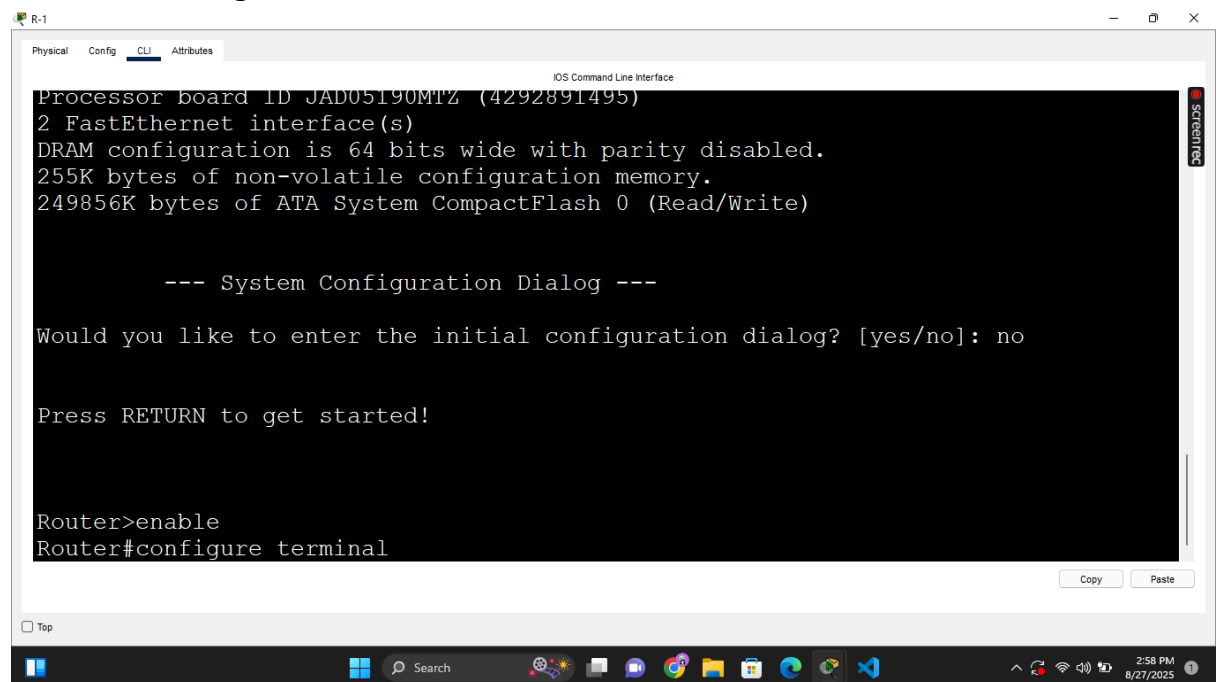
**Router > enable**



## Now you are in the enable mode

This sign "Router #" represents the enable mode. From here go to the Global configuration mode to change the hostname of the device. For going to global configuration mode type this command "Configure terminal" in the enable mode

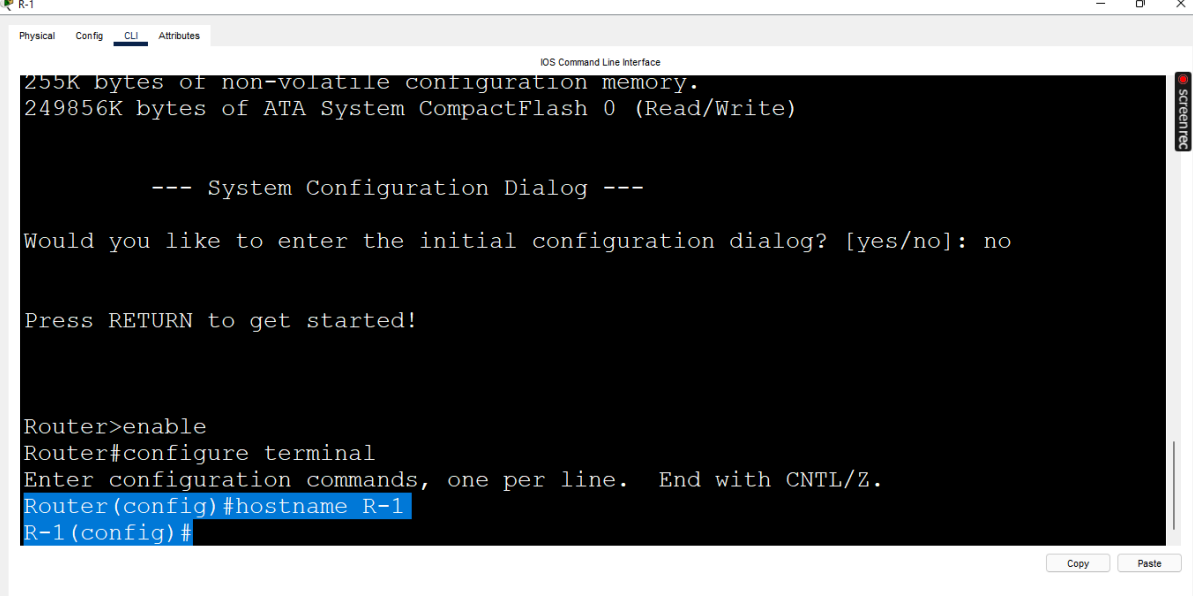
## Router # configure terminal



### Configure the hostname in the global configuration mode.

All the configurations are done in the global configuration mode . This “Router (config) # “ , you are in the global configuration mode. Global configuration mode means the complete box or the complete device’s configurations. In global configuration type this command : “ hostname R-1 “ to change the router name from Router to R-1

### Router (config) # hostname R-1



The screenshot shows a Cisco IOS Command Line Interface (CLI) window titled "R-1". The window has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" currently selected. The main terminal area displays the following text:

```
255K bytes of non-volatile configuration memory.  
249856K bytes of ATA System CompactFlash 0 (Read/Write)  
  
--- System Configuration Dialog ---  
  
Would you like to enter the initial configuration dialog? [yes/no]: no  
  
Press RETURN to get started!  
  
Router>enable  
Router#configure terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#hostname R-1  
R-1(config)#
```

At the bottom of the window, there is a "Top" button and a "Copy" button. The Windows taskbar is visible at the bottom of the screen, showing the time as 3:04 PM on 8/27/2025.

### Configure Hostname of the Switch.

The hostname of the switch can be changed in the same way . Repeat all the steps for the switch the same we did for the router to change the host name of the switch. Same click on the switch from the topology , go to the CLI tab , then simple press enter , go to the enable mode by enable command , then go to the global configuration mode by configure terminal command , then at the global configuration mode change the host name of the switch with the command : “ Switch ( config ) # hostname SW-1 “

## Step 5: Configure Router's Interface with Static IP

Click on the Router in the topology.

Go to the CLI tab.

In the CLI, enter the following commands one by one (press Enter after each):

`enable`

====> This command takes to the enable mode

`configure terminal`

====> This command takes to the global configuration mode where actual configurations are made.

`interface fastEthernet0/0`

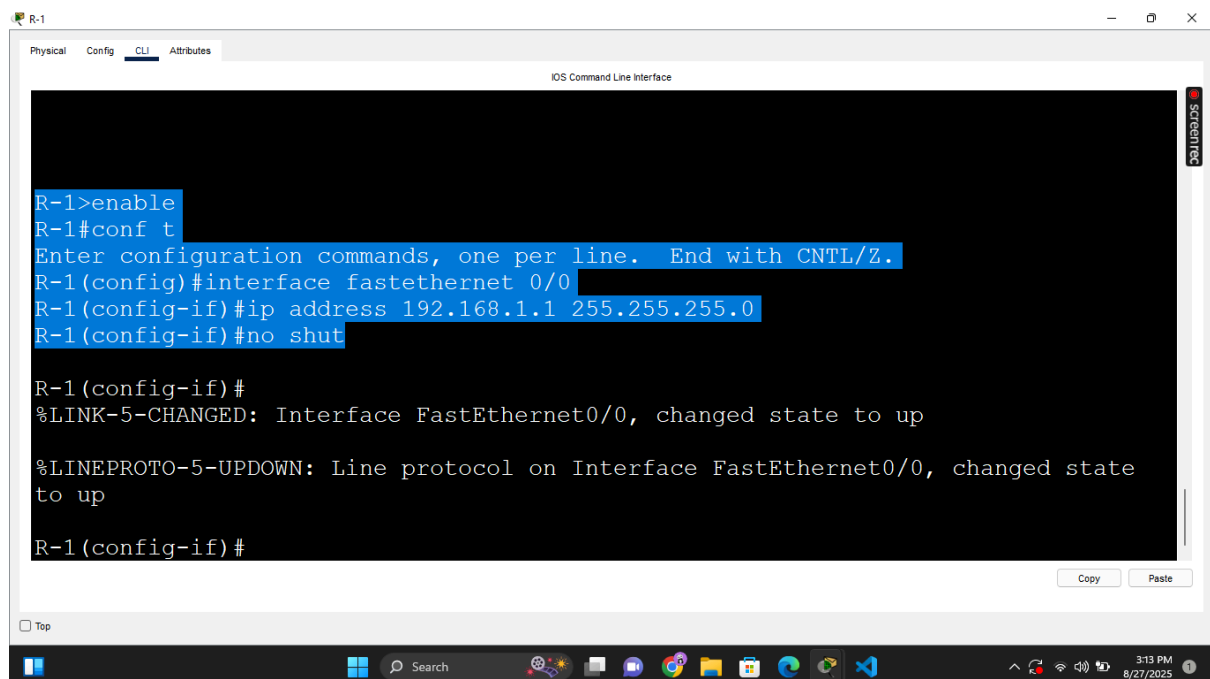
====> This command takes to that interface where we want to configure the ip address.

`ip address 192.168.1.1 255.255.255.0`

====> This command assigns the IP address , it has two parts , the ip address 192.168.1.1 and the subnet mask of the IP

`no shutdown`

====> This command makes the link UP , by default the link or interfaces are down on the router



```
R-1>enable
R-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R-1(config)#interface fastEthernet 0/0
R-1(config-if)#ip address 192.168.1.1 255.255.255.0
R-1(config-if)#no shut

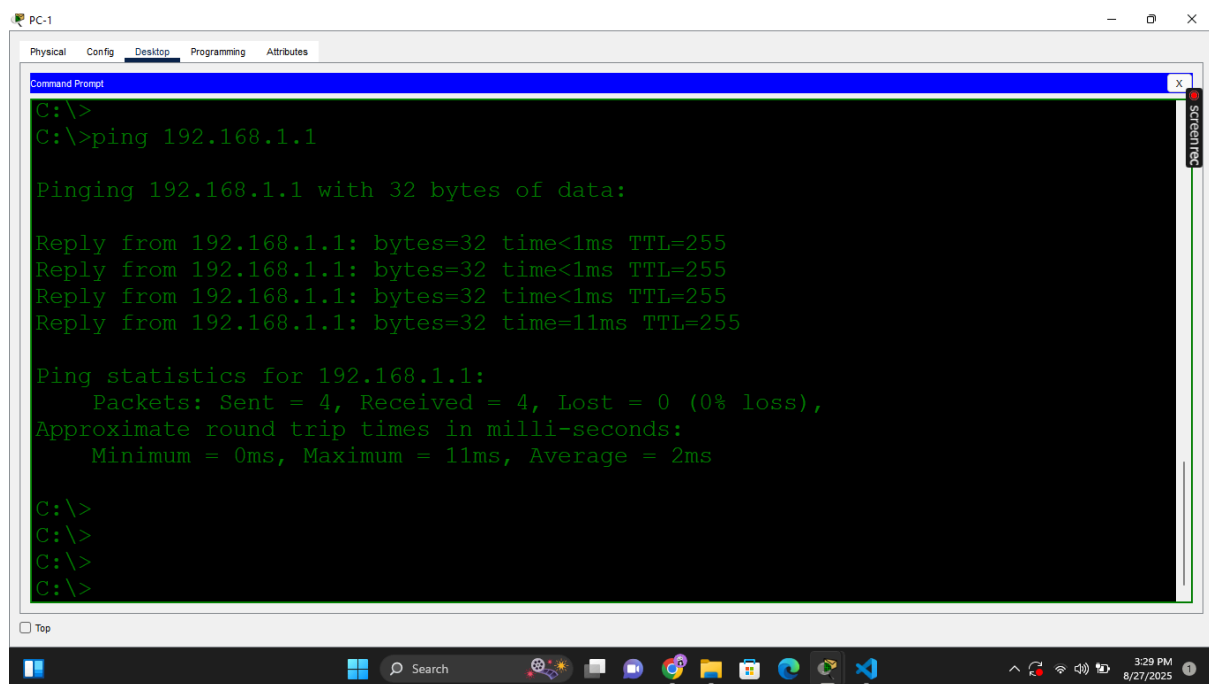
R-1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state
to up
R-1(config-if)#
```

## Step 6: Test the Network Connectivity

- Click on the PC-1 in the topology.
- Go to the Desktop tab.
- Open the Command Prompt.
- Type the command: `ping 192.168.1.1`
- Press Enter to execute.
- This will ping from PC-1 to Router R-1

The successful ping shows this output . Packets sent 4 , Received 4 , Lost = 0 (0% loss)



The screenshot shows a Windows desktop environment for PC-1. The 'Desktop' tab is selected in the top navigation bar. A Command Prompt window is open, displaying the following text:

```
C:\>
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=11ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 11ms, Average = 2ms

C:\>
C:\>
C:\>
C:\>
```

The Windows taskbar at the bottom shows the Start button, Search bar, and various application icons. The system clock in the bottom right corner indicates 3:29 PM on 8/27/2025.

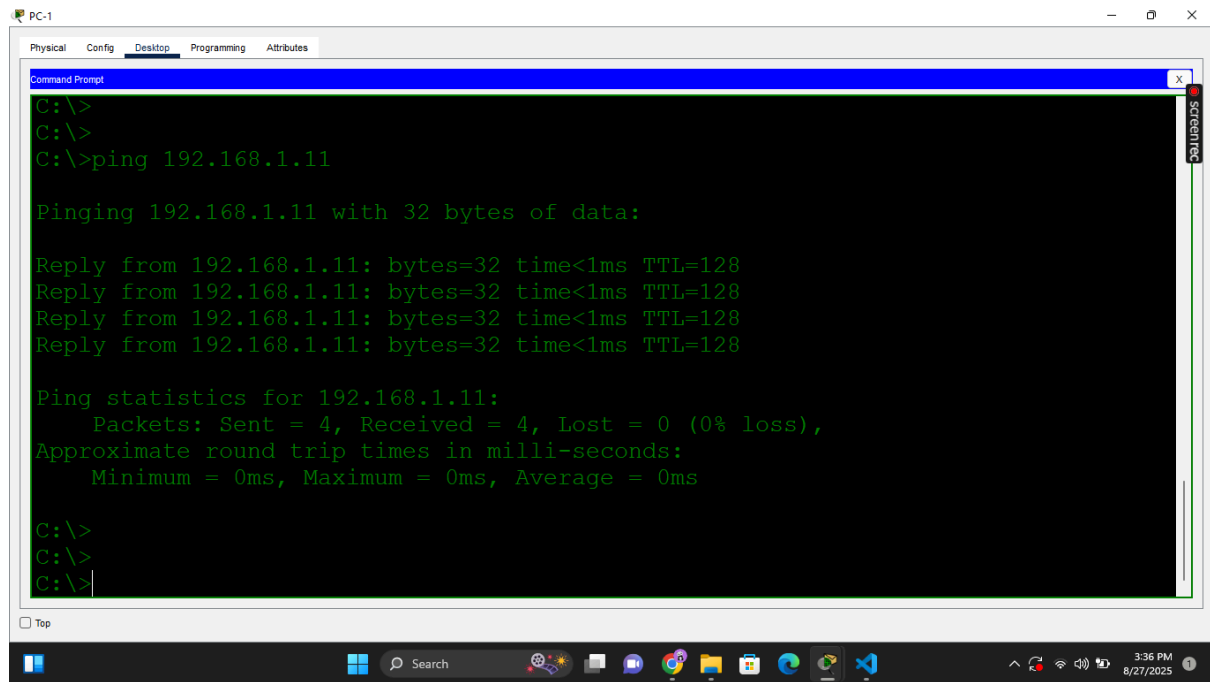
## Step 7. Ping From PC-1 to PC-2

Ping from PC-1 to PC-2 to test the network. Click on PC-1 , Go to the Desktop tab , Select the Command Prompt and test a ping from PC-1 to PC-2.

Type this in the PC-1 Command Prompt “ `ping 192.168.1.11`” .

The Successful ping from PC-1 to PC-2 shows this output screen.





The screenshot shows a virtual PC environment labeled 'PC-1'. The 'Desktop' tab is active, displaying a black Command Prompt window with green text. The user has entered the command 'ping 192.168.1.11'. The output shows four successful replies from 192.168.1.11, each with 32 bytes of data, a time of less than 1ms, and a TTL of 128. Ping statistics indicate 4 packets sent, 4 received, and 0% loss, with round trip times of 0ms. The Windows taskbar at the bottom shows the time as 3:36 PM on 8/27/2025.

```
C:\>
C:\>
C:\>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
C:\>
C:\>
```

Try the same ping with the IP of PC-1 from PC-2 to test the connectivity . There will be the same output.

## Step 8: Conclusion

You have successfully created a simple lab topology and configured a static IP address on a PC and router interface.

This setup demonstrates basic network connectivity between devices using static IP addresses.