| | | | |
|---|---|---|---|
| **Academic Year:** | 2023-24 | **Name of Student:** | |
| **Semester:** | V | **Student ID:** | |
| **Class / Branch:** | TE – CSE(DS) | **Roll No:** | |
| **Subject:** | WCN Lab | **Date of Submission:** | |

## Experiment No. 06

1. **Aim**: Study and use network simulator CISCO Packet Tracer for network setup.

2. **Software used**: CISCO Packet Tracer

3. **Theory:** -

**Cisco Packet Tracer** as the name suggests, is a tool built by Cisco. This tool provides a network simulation to practice simple and complex networks.

The main purpose of Cisco Packet Tracer is to help students learn the principles of networking with hands-on experience as well as develop Cisco technology specific skills. Since the protocols are implemented in software only method, this tool cannot replace the hardware Routers or Switches. Interestingly, this tool does not only include Cisco products but also many more networking devices.

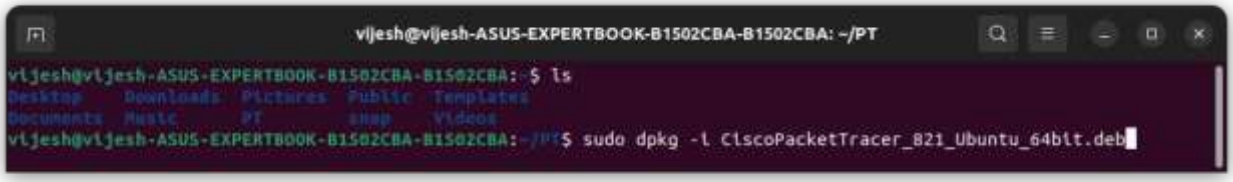
## How to download Cisco Packet Tracer?

**WINDOWS:**

- Visit the Cisco Networking Academy website at *netacad.com.*
- Once open, log in (if you already have an account) or create an account if you are a new user.
- Once you log in, click on the "Resources" tab at the top of the page.
- Click on "Packet Tracer" in the drop-down menu.
- Click on "Download Packet Tracer".
- Select the Packet Tracer version you need and click "Download".

**UBUNTU:**

- Visit the Cisco Networking Academy website at *netacad.com.*
- Once open, log in (if you already have an account) or create an account if you are a new user.
- Once you log in, click on the "Resources" tab at the top of the page.
- Click on "Packet Tracer" in the drop-down menu.
- After scrolling down the webpage, a little bit, click on the 64-Bit Download link under the Ubuntu Desktop Version 8.2.0 English title and save the *CiscoPacketTracer_821_Ubuntu_64bit.deb* file to your computer.
- Open the terminal by pressing the CTRL + Alt + T keys and execute the command "*sudo dpkg -i CiscoPacketTracer_821_Ubuntu_64bit.deb*" in the terminal to start the installation and continue by typing your root password.




- After confirming the software license agreement, press Enter on the Yes option to accept the EULA terms.

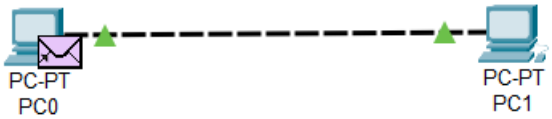

- Deb extension in Linux systems are extracted from the archive and installed with the dpkg command. However, when trying to install Packet Tracer or any other program, you may find that dependent packages need to be installed.


- Dependants are downloaded by



## Sample Exercises:

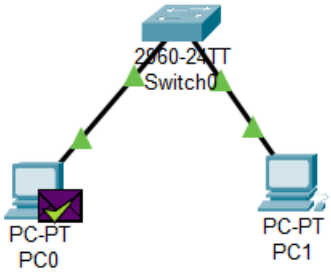
1. **Connect two End devices (Peer to Peer type)**




By the using the above set-up,

a) Configured IP address to PC0 & PC1 as 192.168.10.2 & 192.168.10.3 (Class C)
b) Ping 192.168.10.3 from PC0 is done.
c) Ping 192.168.10.2 from PC1 is done.

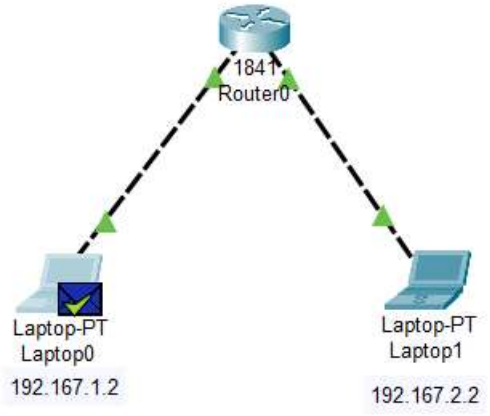
2. **Connect End Devices and Switch**




By the using the above set-up,

a) Configured IP address to PC0 & PC1 as 192.168.10.2 & 192.168.10.3 (Class C)
b) Ping 192.168.10.3 from PC0 is done.
c) Ping 192.168.10.2 from PC1 is done.

### 3. Connect End Devices and Router




By the using the above set-up,

a) Configured IP address to Laptop0 & Laptop1 as 192.167.1.2 & 192.167.2.2 (Class C)
b) Router configured the Laptop0 with default gateway 192.167.1.1.
c) Router configured with Laptop1 with default gateway 192.167.2.1.
d) Ping 192.167.2.2 from Laptop0 is done.
e) Ping 192.167.1.2 from Laptop1 is done.

## Lab Exercise:

1) Design a topology using 4 PC and a Switch with following IP address:

| Host | IP Address | Subnet Mask |
|---|---|---|
| PC0 | 192.68.1.10 | 255.255.255.0 |
| PC1 | 192.68.1.11 | 255.255.255.0 |
| PC2 | 192.68.1.12 | 255.255.255.0 |
| PC3 | 192.68.1.13 | 255.255.255.0 |

2) Observe the flow of data from host to host by creating network traffic.
3) Configure PC0 and PC1 with following IP address and Subnet Mask

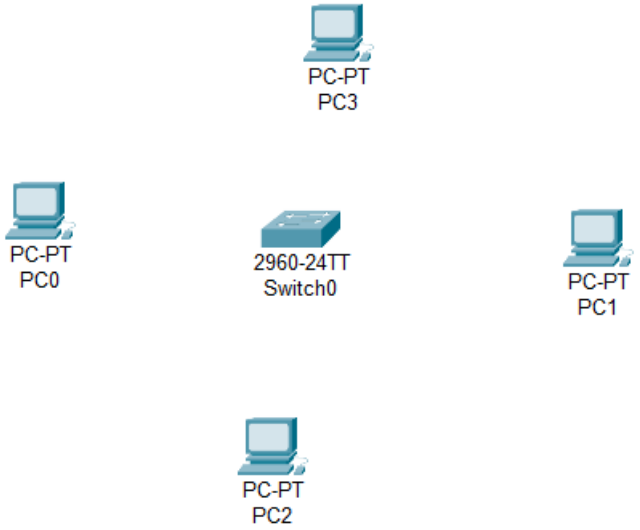
| Host | IP Address | Subnet Mask |
|---|---|---|
| PC0 | 192.168.1.10 | 255.255.255.0 |
| PC1 | 192.168.1.11 | 255.255.255.0 |

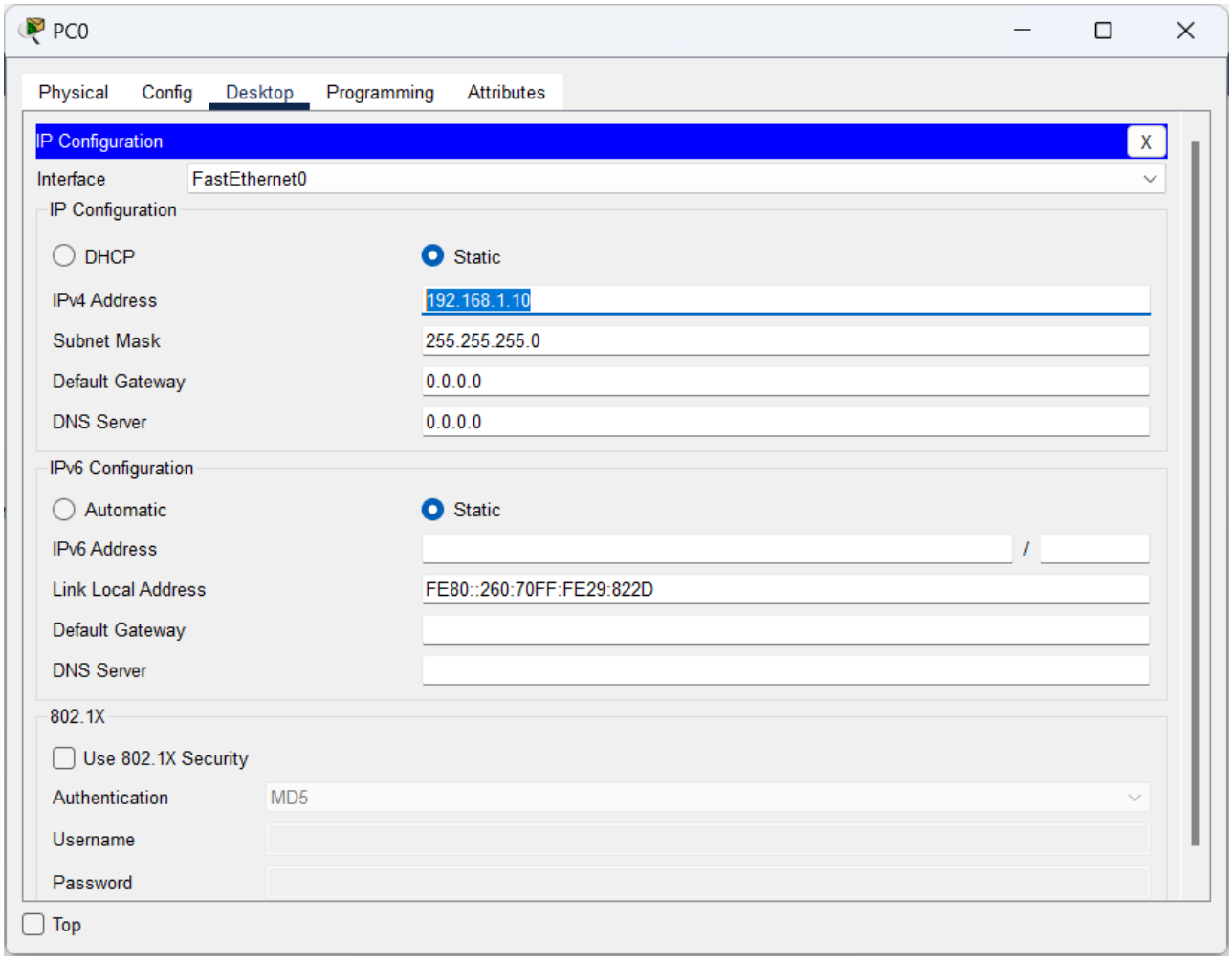
4) Use ping command to verify the connection from PC0 to PC1.
5) Do the same procedure for Router1, PC2 and PC3 with following IP. Check the connection from PC2 to PC3 using ping command.

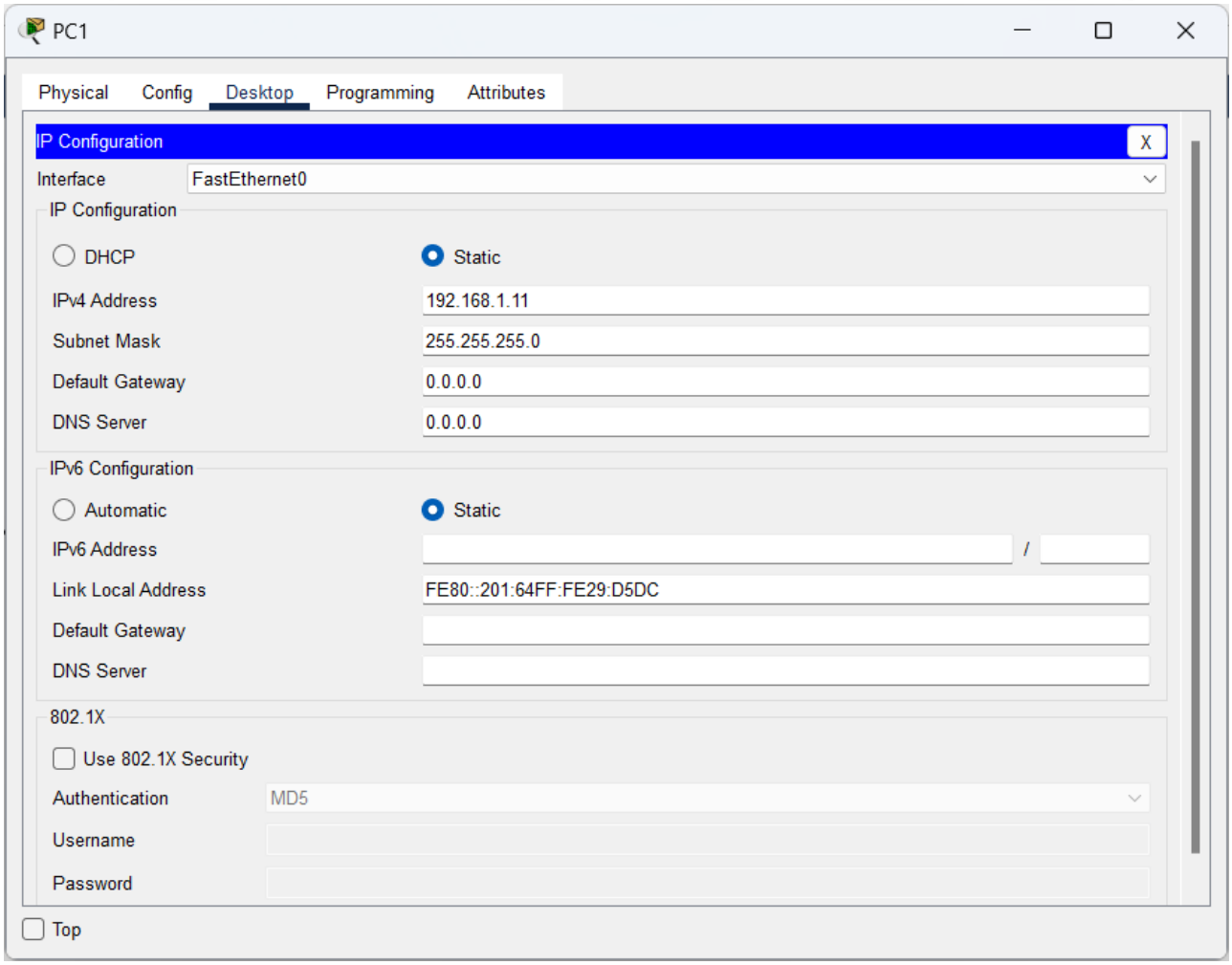
| Host | IP Address | Subnet Mask |
|---|---|---|
| Router1 | 192.168.2.1 | 255.255.255.0 |
| PC2 | 192.168.2.10 | 255.255.255.0 |
| PC3 | 192.168.2.11 | 255.255.255.0 |

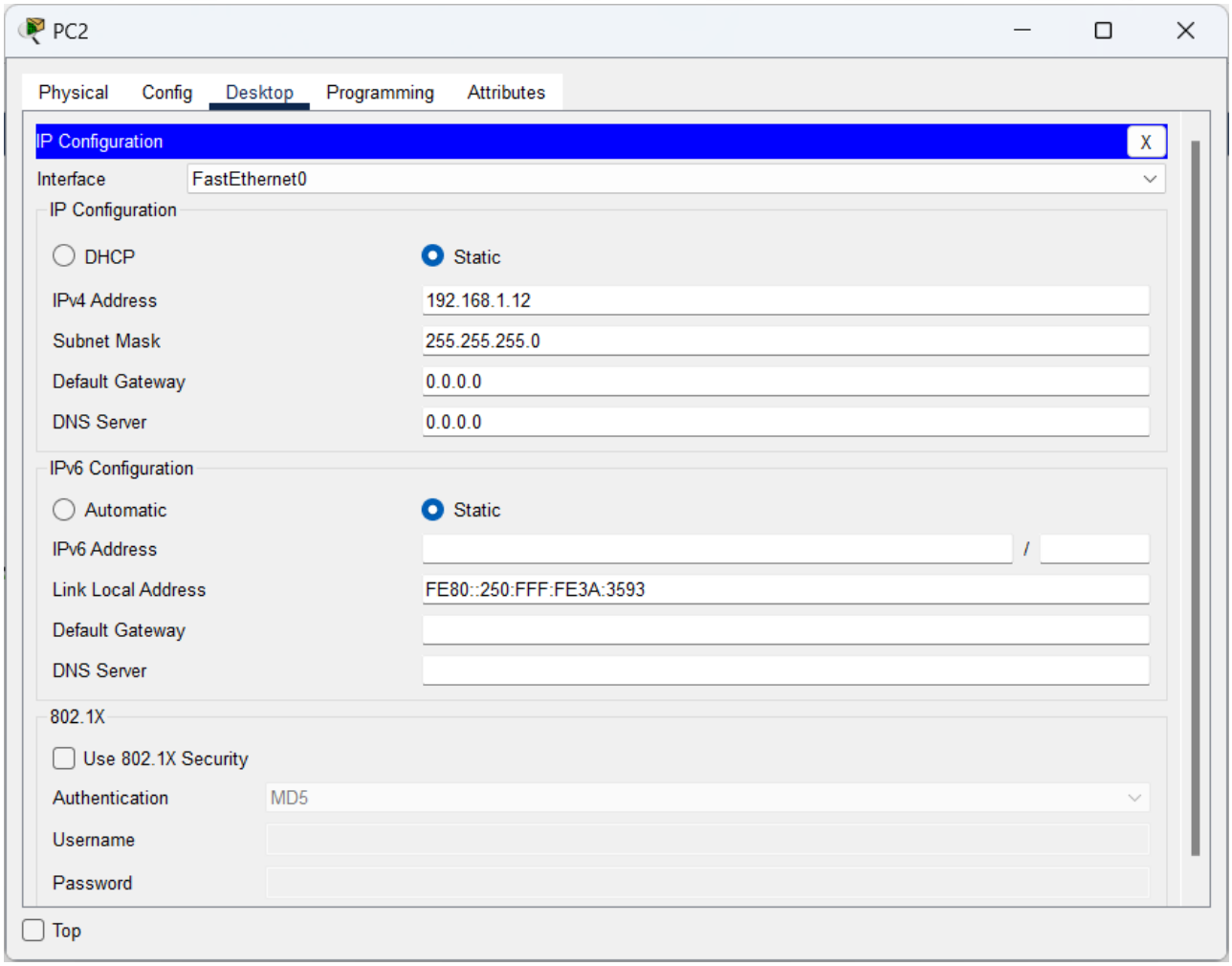
**Output:**

1)


PC-PT
PC3
PC-PT
PC0
2960-24TT
Switch0
PC-PT
PC1
PC-PT
PC2


PC0
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.10
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::260:70FF:FE29:822D
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top


PC1
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.11
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::201:64FF:FE29:D5DC
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top


PC2
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.12
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0
IPv6 Configuration
Automatic
Static
IPv6 Address
/
Link Local Address
FE80::250:FFF:FE3A:3593
Default Gateway
DNS Server
802.1X
Use 802.1X Security
Authentication
MD5
Username
Password
Top

PC3

Physical | Config | Desktop | Programming | Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

- DHCP
- Static

IPv4 Address: 192.168.1.13
Subnet Mask: 255.255.255.0
Default Gateway: 0.0.0.0
DNS Server: 0.0.0.0

IPv6 Configuration

- Automatic
- Static

IPv6 Address:
Link Local Address: FE80::201:42FF:FE80:4B40
Default Gateway:
DNS Server:

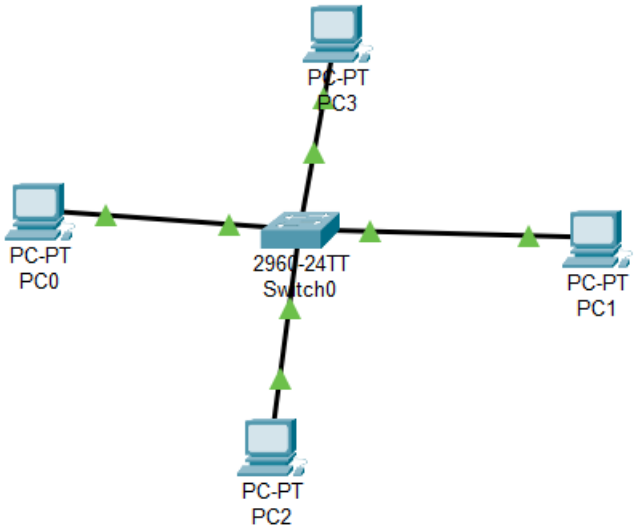
802.1X

- Use 802.1X Security

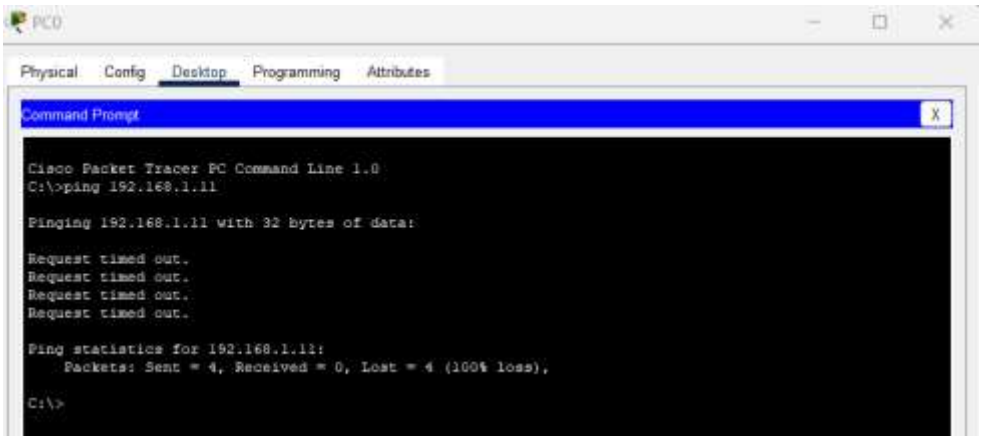
Authentication: MD5
Username:
Password:

Top

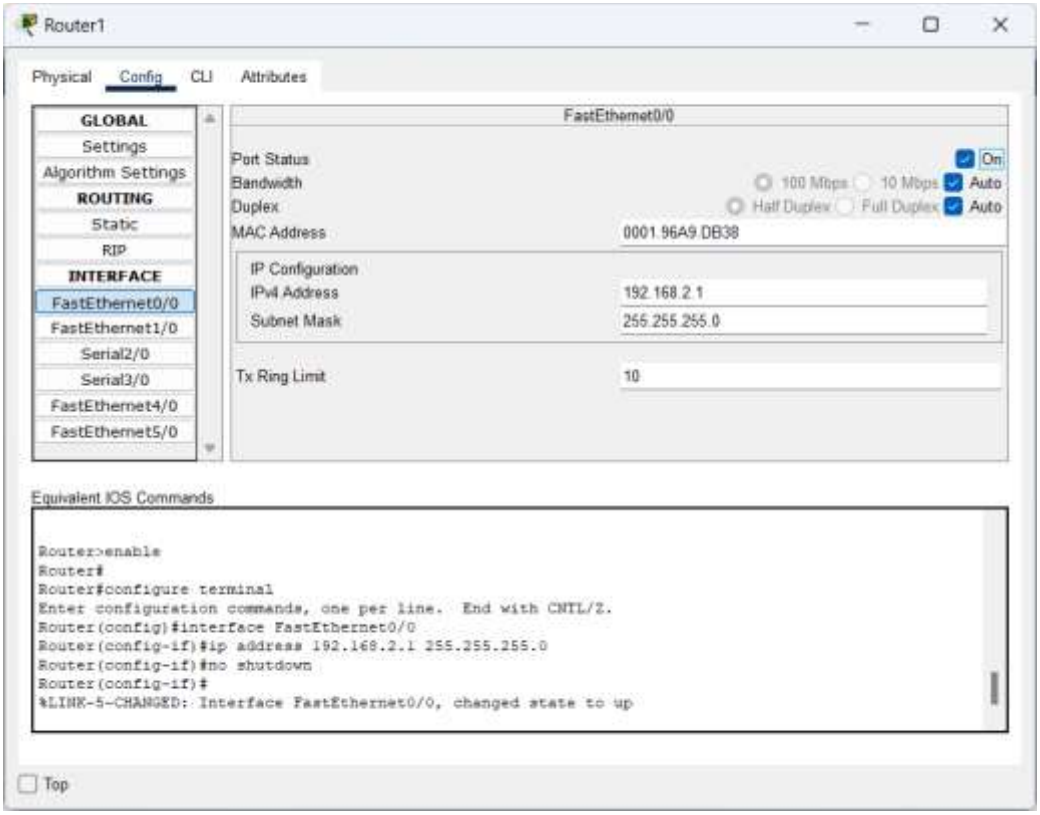
2)

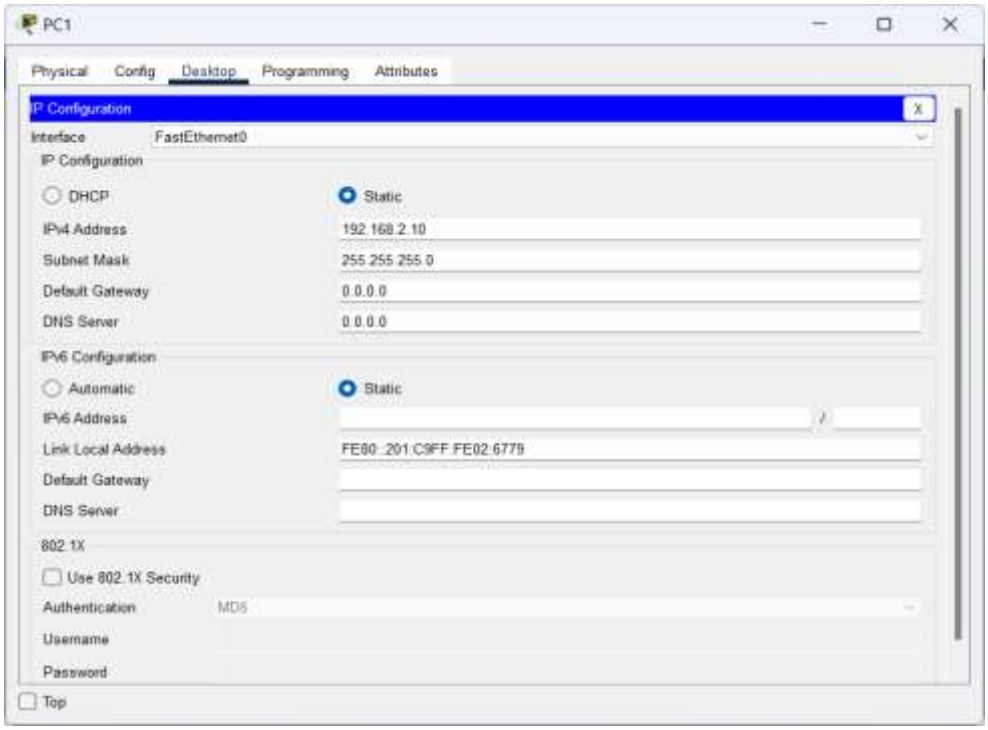


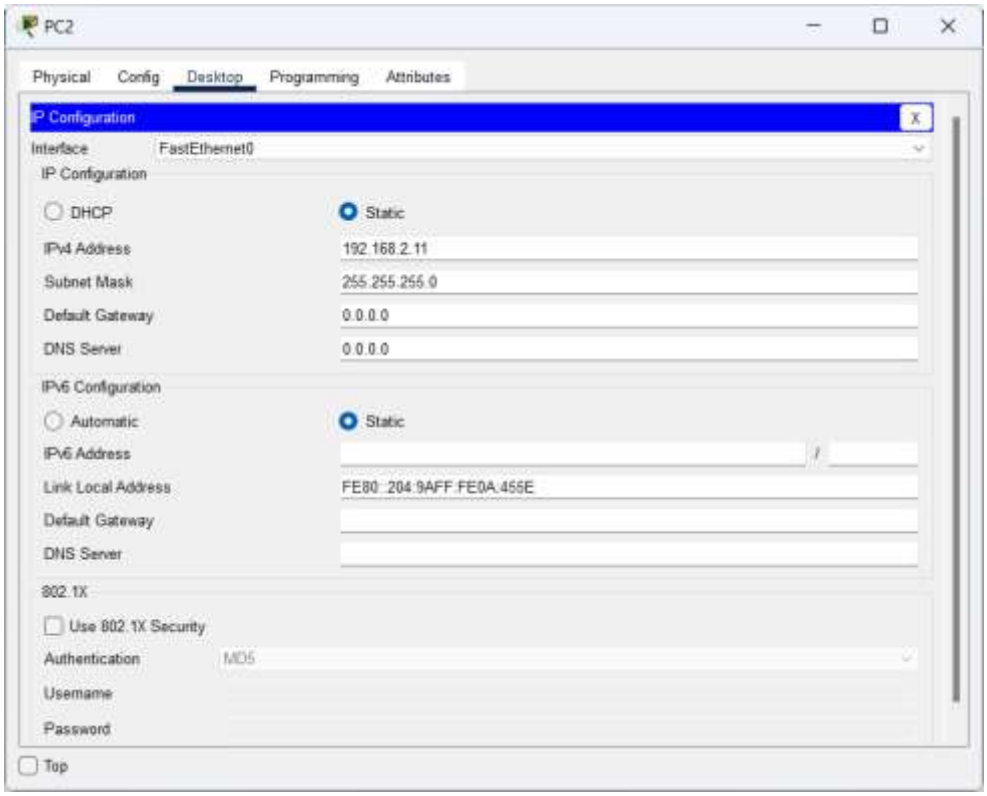
3)


PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.11
Pinging 192.168.1.11 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.1.11:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>

4)


Router1
Physical
Config
CLI
Attributes
GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
INTERFACE
FastEthernet0/0
FastEthernet1/0
Serial2/0
Serial3/0
FastEthernet4/0
FastEthernet5/0
FastEthernet0/0
Port Status
On
Bandwidth
100 Mbps
10 Mbps
Auto
Duplex
Half Duplex
Full Duplex
Auto
MAC Address
0001.96A9.DB38
IP Configuration
IPv4 Address
192.168.2.1
Subnet Mask
255.255.255.0
Tx Ring Limit
10
Equivalent IOS Commands
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
Top




## Conclusion:

Thus, we have studied use network simulator CISCO Packet Tracer for network setup.