EXPERIMENT NO.1

TITLE: Implementation and Demonstration of LAN

OBJECTIVE: Demonstrating client-server and peer to peer mode of configuration

AIM: Implementation of LAN using suitable multiuser Windows operating System and demonstrating client-server and peer to peer mode of configuration.

SOFTWARE USED: command Prompt, Cisco packet Tracer 6.2

Theory:

A LAN is a computer network that consists of access points, cables, routers, and switches that enabledevices to connect to web servers and internal servers within a single building, campus, or home network, and to other LANs via Wide Area Networks (WAN) or Metropolitan Area Network(MAN). Devices on a LAN, typically personal computers and workstations, can share files and be accessed by each other over a single Internet connection.

A router assigns IP addresses to each device on the network and facilitates a shared Internetconnection between all the connected devices. A network switch connects to the router and facilitates communication between connected devices, but does not handle Local Area Network IP configuration or sharing Internet connections. Switches are ideal tools for increasing the number of LAN ports available on the network.

PART 1

Procedure: Peer to peer connection

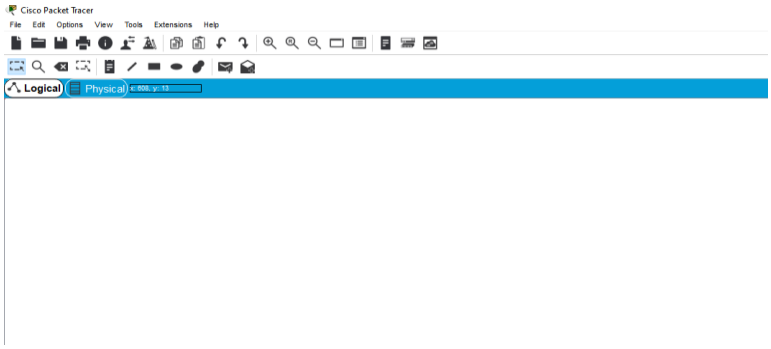
Follow the below steps to initiate the setup for the connection:

Step 1: Download Cisco Packet Tracer.

Step 2: Run and install the setup (You can be requested to log in to your Cisco NetworkingAcademy Account or you can also log in as a guest).

Step 3: After the installation procedure has completed this display (below) will appear

when yourun the Cisco Packet Tracer-Start the application.



Cisco Packet Tracer

Implementation:

Follow the below steps to implement the connection:

Step 1: From the bottom toolbar, click on **'End Devices'** and select **'PC'** and then click on thescreen (for two PC's do this step twice).

Bottom toolbar->End devices->PC

This is how it will appear on the screen

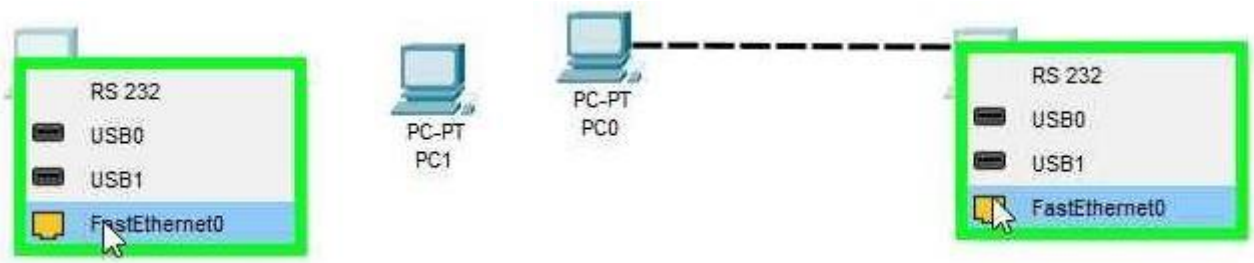
Step 2: Now to connect the PC's, we require a wire; we use cross-over wire to connect similardevices.

Select Connections from the bottom toolbar, and select cross-over wire (that is the fourth wire).

A **Cross-Over Wire** is largely used to connect the computing gadgets, additionally, cross wirecables are used to connect devices of equal type.

Step 3: After selecting the wire click on the computer on the screen(here PC0) and selectFastEthernet0.

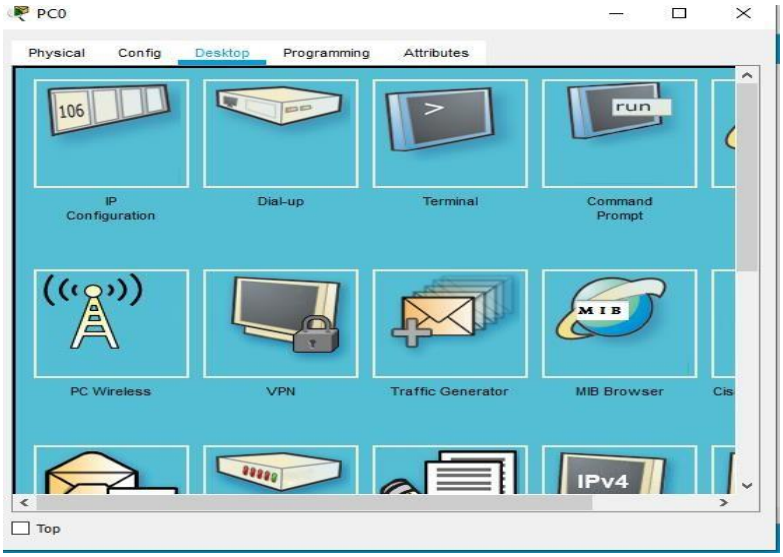
Then, drag the wire to the other pc (here PC1) and do the same.



Step 4: Now, we will assign the IP address to both the PCs (PC0 & PC1).

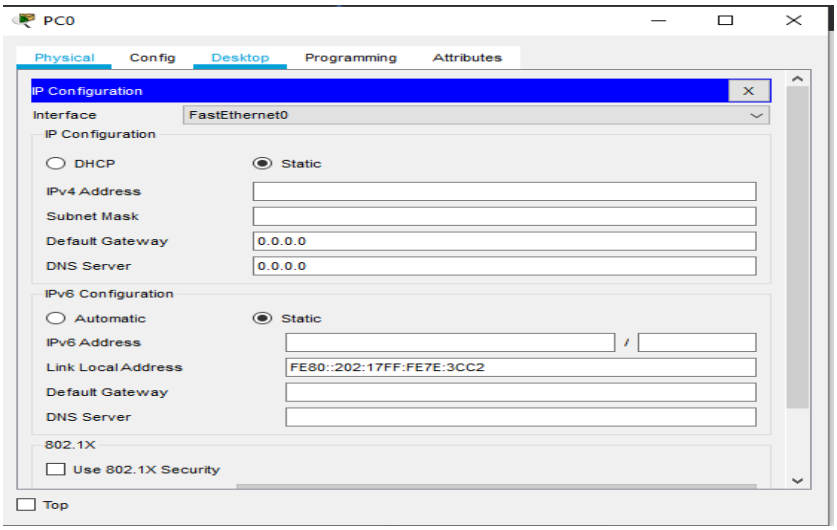
An **IP address** (Internet Protocol) is nothing but the numerical designation of the devicesconnected to the network that uses the Internet protocol as a communication medium.

Click on PC0. A dialog box will appear on the screen, select Desktop and then select IP

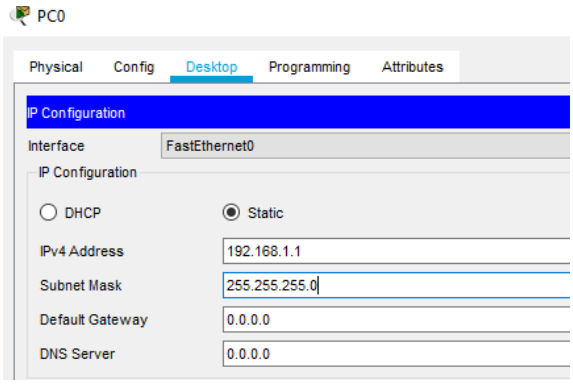


configuration:

After clicking on IP configuration this is what will appear



Now in IPv4 Address, write 192.168.1.1, Subnet mask will be 255.255.2550


PC0
Physical
Config
Desktop
Programming
Attributes
IP Configuration
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
192.168.1.1
Subnet Mask
255.255.255.0
Default Gateway
0.0.0.0
DNS Server
0.0.0.0

Similarly, assign 192.168.1.2 to PC1

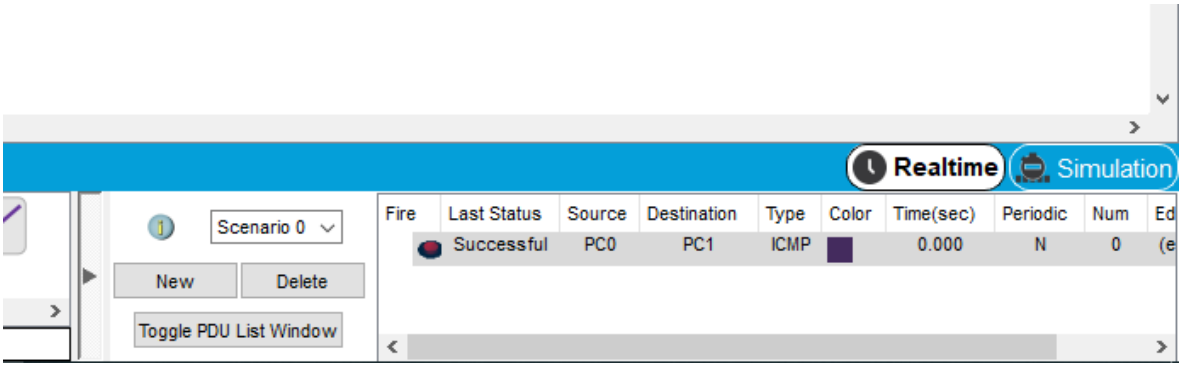
We have successfully connected two computers.

Now to check this, we will transfer data from one computer to another and check whether the transfer is successful or not. To do so follow the below steps:

Step 1: From the Secondary Toolbar at the top, select 'Add sample PDU' that is the second lasticon.

Step 2: Now click on PC0 and then PC1.

Now if in Realtime box- PDU list window it shows successful, that means all the connections arecorrect and the data transfer is successful



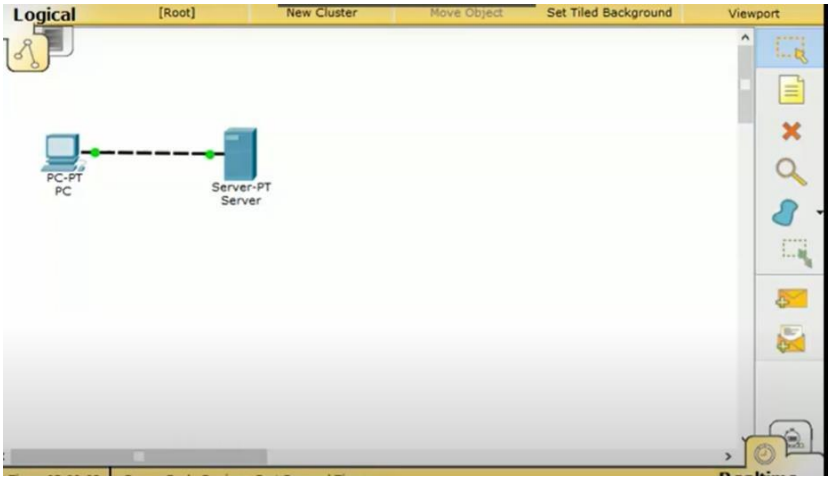
You have successfully connected two computers(peer to peer) , using the virtual program CiscoPacket Tracer.

PART 2:

Simple server-client configuration

In a small network generally, there stays one server and one and more clients. Desktop PCs or Laptop PCs can be used as client. The client generally request service from the server and server serves that request as per requested. The server can be different types like web server, mail server, DNS server, File transfer server or file server, or file server etc. types. Here In this we'll just learn about the simple client and server network by building them and analyze the client server architecture

Step 1 : Open the Packet tracer Drag a PC(Desktop/Laptop) and Server. Connect them using proper cable. Generally, the connecting cable is used as copper cross-over cable.



Step 2 : After that implement IP address in both of them.For

PC you can enter the following IP address:

IP address: 192.168.1.1

Subnet mask: 255.255.255.0

Default Gateway: 192.168.1.254

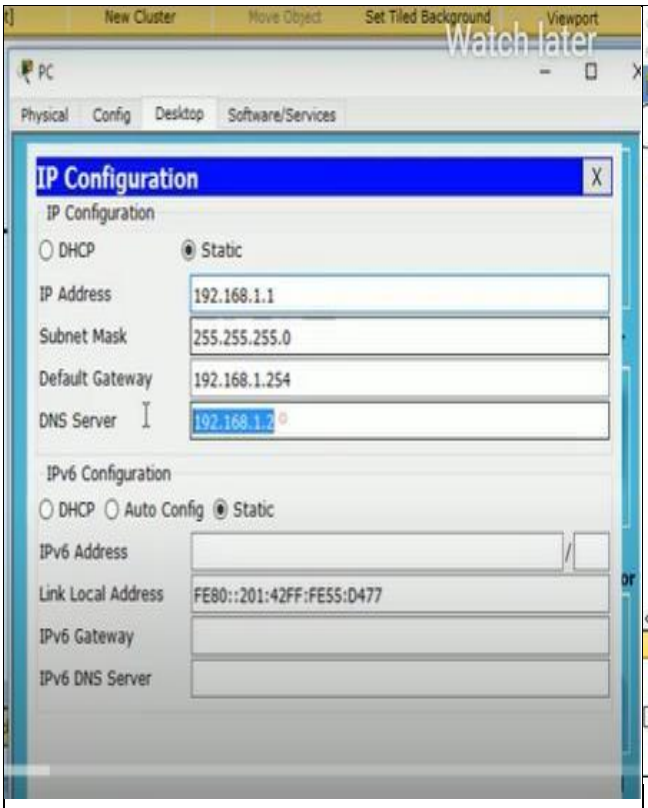
DNS server: 192.168.1.2

Now for server you we here we've used this configuration:

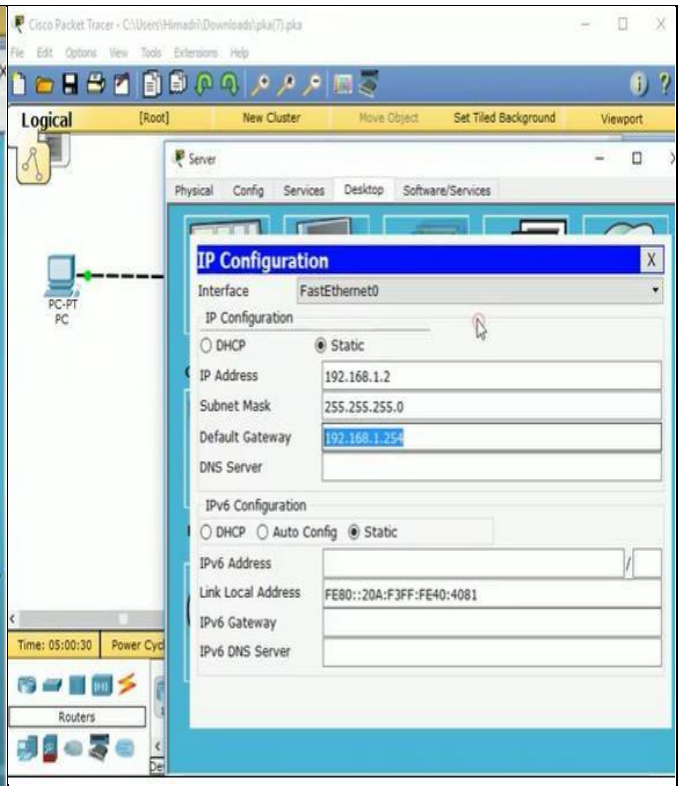
IP address: 192.168.1.2

Subnet mask: 255.255.255.0

Default gateway: 192.168.1.254

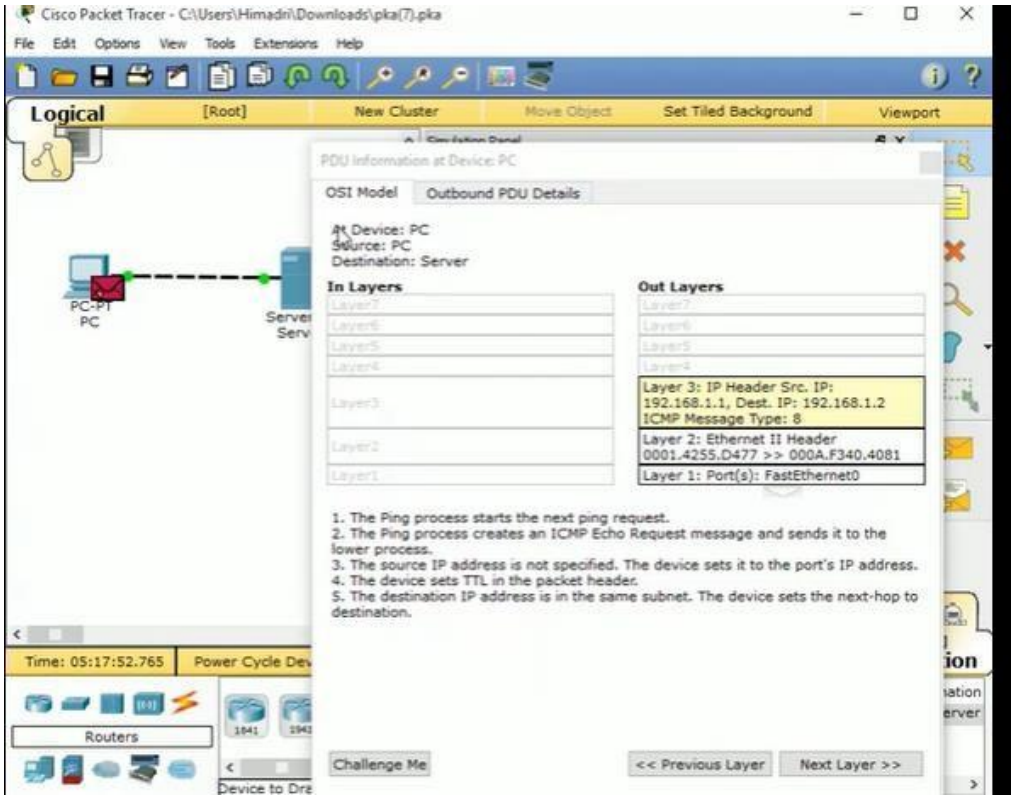


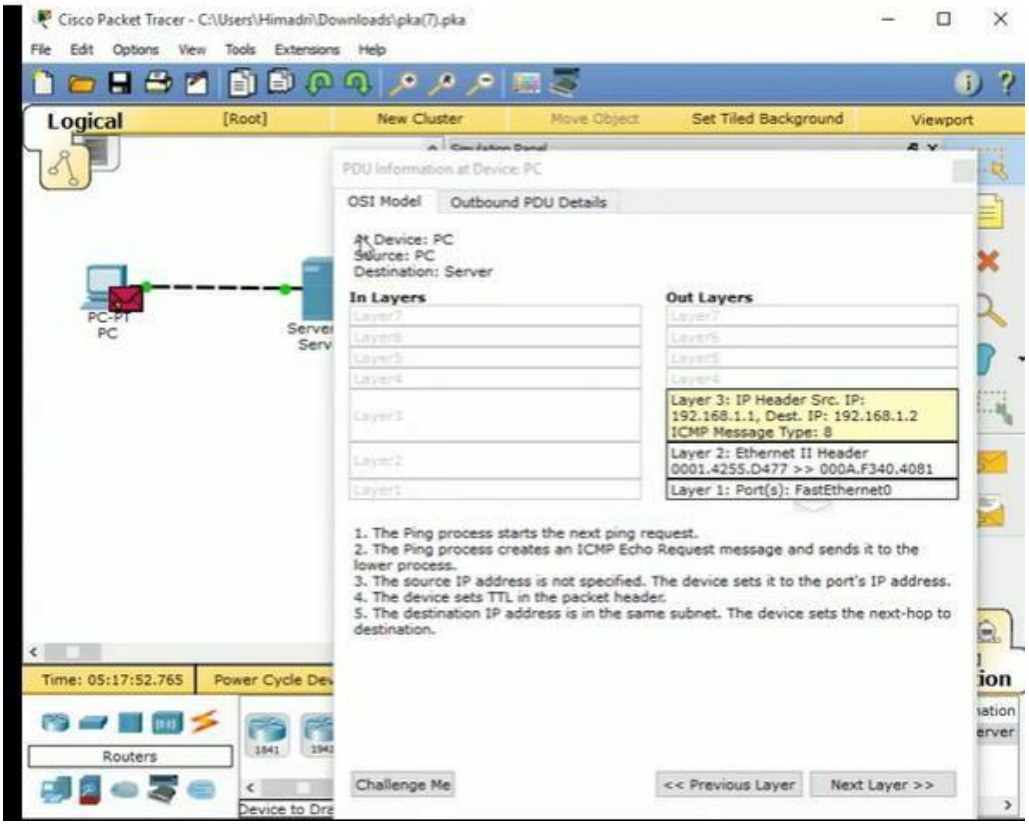
PC

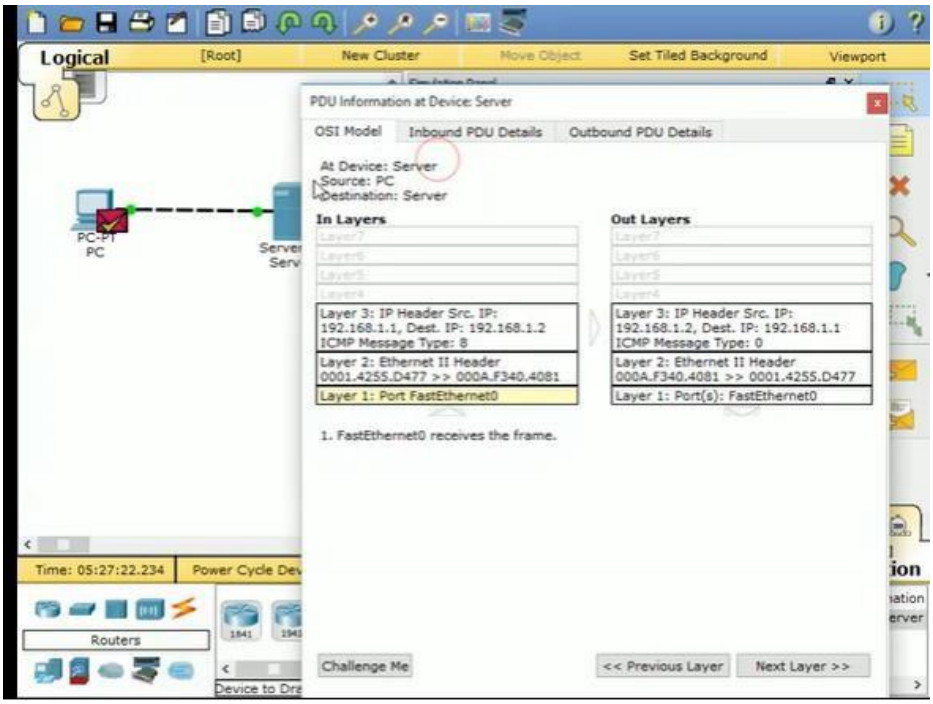


Server

Now just take a message envelope (close message envelope) and check the connection, by placing the message in two PC. If there is successful message shown the right bottom of the PC, then you can say that, the connection is OK. Also, you can ping IP address from PC to check the connection. Now we'll look for the packet at the real time simulation mode. It is necessary to realize the client server network architecture. Just click the "Simulation", which stays by the side of "Realtime". After the click the option Auto Capture / Play. Now through this you cab be able to see the packet traveling path of this network server.


Cisco Packet Tracer - C:\Users\Himadri\Downloads\pka(7).pka
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
PDU Information at Device: PC
OSI Model
Outbound PDU Details
At Device: PC
Source: PC
Destination: Server
In Layers
Out Layers
Layer 3: IP Header Src. IP: 192.168.1.1, Dest. IP: 192.168.1.2 ICMP Message Type: 8
Layer 2: Ethernet II Header 0001.4255.D477 >> 000A.F340.4081
Layer 1: Port(s): FastEthernet0
1. The Ping process starts the next ping request.
2. The Ping process creates an ICMP Echo Request message and sends it to the lower process.
3. The source IP address is not specified. The device sets it to the port's IP address.
4. The device sets TTL in the packet header.
5. The destination IP address is in the same subnet. The device sets the next-hop to destination.
PC-PT PC
Time: 05:17:52.765
Power Cycle Dev
Routers
Challenge Me
<< Previous Layer
Next Layer >>


Cisco Packet Tracer - C:\Users\Himadri\Downloads\pka(7).pka
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
PDU Information at Device: PC
OSI Model
Outbound PDU Details
At Device: PC
Source: PC
Destination: Server
In Layers
Out Layers
Layer 3: IP Header Src. IP: 192.168.1.1, Dest. IP: 192.168.1.2 ICMP Message Type: 8
Layer 2: Ethernet II Header 0001.4255.D477 >> 000A.F340.4081
Layer 1: Port(s): FastEthernet0
1. The Ping process starts the next ping request.
2. The Ping process creates an ICMP Echo Request message and sends it to the lower process.
3. The source IP address is not specified. The device sets it to the port's IP address.
4. The device sets TTL in the packet header.
5. The destination IP address is in the same subnet. The device sets the next-hop to destination.
PC-PT PC
Time: 05:17:52.765
Power Cycle Dev
Routers
Challenge Me
<< Previous Layer
Next Layer >>



CONCLUSION:

Checked by:

A	S	O	P