Cisco Packet Tracer
X ————————————— X

Cisco - leader company in networking.
It is networking simulation tool for practice, discovery and trouble shooting.

> Helps to understand n/w practically

Download Cisco Packet Tracer

> netacad. com —

Scroll to find packet tracer.
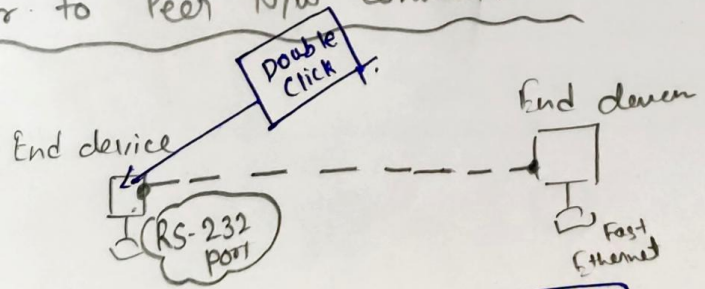Download it
install it.

(It is free of Cost)

(CPT 6.2)

(Router)
(Switch) — | Cisco — 2960 switch |
(Hubs)
Copper (STC)   (COC)
(End devices)

(Cisco user • Seperation)

Peer to Peer N/w Connection

| Double Click |.

End device   End device

[ ] (RS-232 port)

diff. — E Stray through devices   Cable

| Same ——> E Cross Over devices   Cable |

Fast Ethernet

Assign IP Address > click to End device > desktop Tab > IP Configuration > click on
                    10.10.10.1,
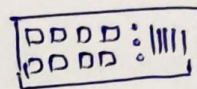
cmd
ipconfig/all

Cisco Packet Tracer (Hub)

basics of CPT
Know about (HUB)
Simulate LAN using HUB.

__HUB N/w HuB__ — It is work at Physical layer of the OSI Model.

             Used to set up LAN.

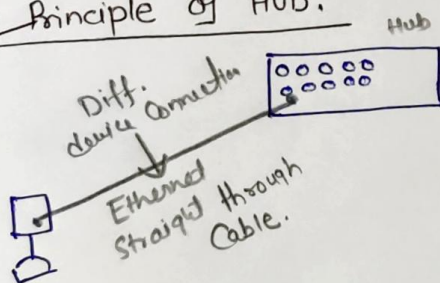   HuB has multiple ports.
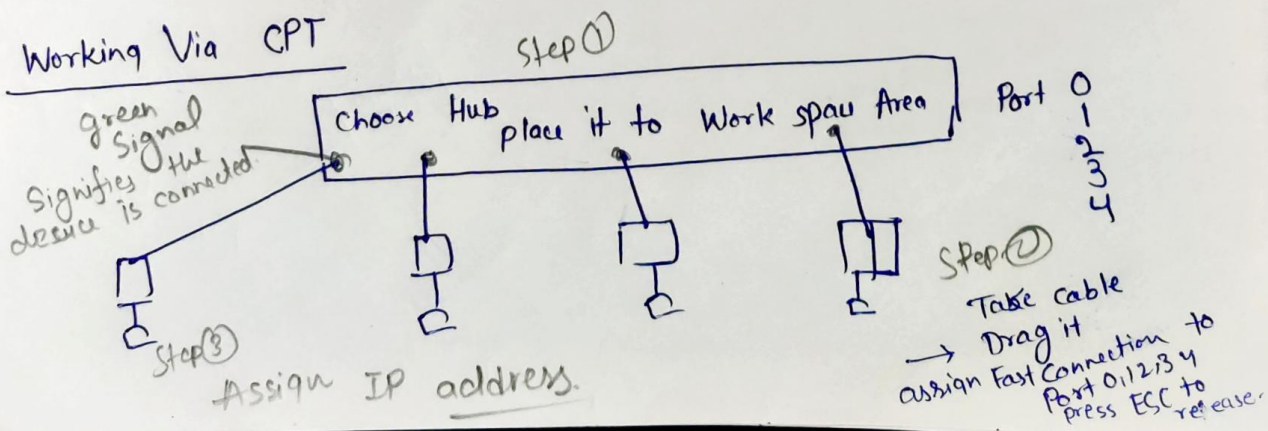
Drawback

    * Hub comes under Star Topology.

when a __Packet arrives at one port__, It is __copied__ to the other ports so that __all segments of the LAN can see all packets__.

Working Principle of HUB.

Hub

Diff. device Connection

Ethernet Straight through Cable.

Hub Copies the data Send to Port 1 to all the port

Working Via CPT

Step ①

Choose Hub place it to Work span Area

Port 0
1
2
3
4

green Signal Signifies the device is connected.

Step ②
Take cable
→ Drag it
assign Fast Connection to
Port 0,1,2,3 4
press ESC to release.

Step ③

Assign IP address.

HUB

Pros —
    cheaper than switches
    Works good for smaller n/w.

Cons-
    * Issues with broadcast

    * No memory

    * | Normally runs in half duplex mode | Send data
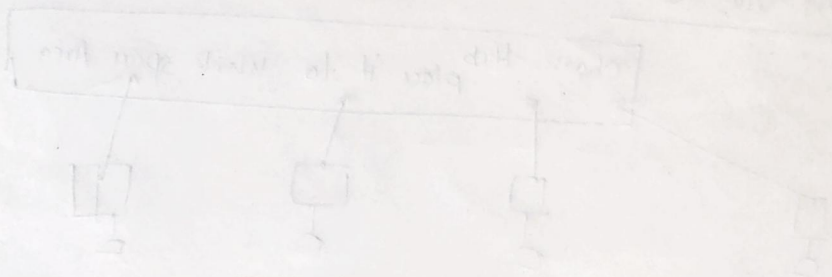   Receive data
                                                    but not at same
                                                        Time
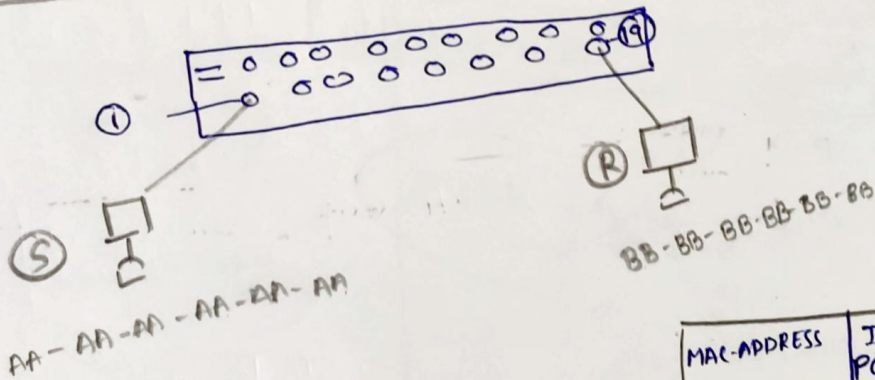
| We are moving from Hubs to Switches |

(3)

CISCO PACKET TRACER (PART-3)

[SWITCH]

✓ A switch is a networking hardware that connects device on a computer network to establish bcad area network

Unlike HuB, Switch has memory

Switch stores the MAC ADDRESS via MAC ADDRESS Table

✓ Hub is Layer 1 device
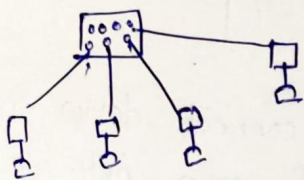✓ Switch is Layer 2 device for setting UP LAN

AA-AA-AA-AA-AA-AA

BB-BB-BB-BB-BB-BB

✓ Switch can do Unicast/Multicast/Broadcast

MAC-ADDRESS	INTERFACE/PORT
AA-AA-AA-AA-AA-AA	1
BB-BB-BB-BB-BB-BB	19

Fast Ethernet Port
Gigabit Ethernet Port.

After establish connection

① Click on the Switch
② Window will open

③ Open CLI Tab.

Press ENTER
type en to enable

type   show-mac-address-table

press enter.

It will show you MAC Address
table

HUB	Switch
Layer 1 device	Layer 2 device
Works at Physical Layer	Works at Data Link Layer.
Has No Memory	Has memory and Stores MAC Address Table
Not an intelgent device	Intelligent device.
floods the network due to broadcasting	Can do unicasting, multicasting & broadCasting
Security Risks are high	Security risks are low
less efficient	More efficient.
Half duplex	~~Half~~ Full duplex.

Cisco Packet Tracer (Router)
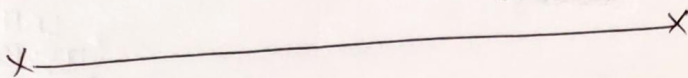
Basics of Router.
How to connect two different LAN using Router.

Difference between Switch & Router.

✓ A router is a networking device that forwords data packets between Computer networks. (they may be two different LAN)

Switches connect devices that are belonging to same network.

✓ Router can connect two LAN's WAN's to the internet/ ISP's n/w.

For Internet connectivity to our Local network, we need the help of Internet Service Provider

✓ A Router is connected to atleast two networks, commonly two LAN's or WAN's or LAN and its ISP's network.

✓ It is Layer 3 device.
✓ It works at network layer.
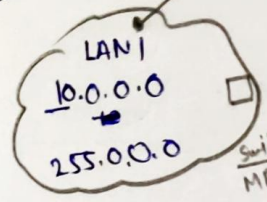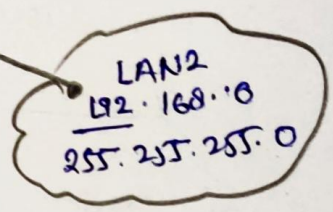✓ Router Stores Routing Table in the memory.

192.168.1.10

10.0.0.10

Router

LAN2
192.168..0
255.255.255.0

LAN1
10.0.0.0

255.0.0.0

Switch
MAC
Address
Notation

Switch Vs Router

Switch	Router
A network switch is a Computer networking device that is used to connect many devices togather on a computer network.	A router is a networking device that connects a local network to other local networks
operates at Data Link layer	operates at network layer
Has memory & Stores MAC Address Table	Has Memory & Stores Routing Table.
Decisions are token based MAC Address	Decisions are token based IP address
Half Dulplex / full	full Duplex
LAN	LAN / MAN / WAN

How to Connect two diff LAN using Router.

Router — Connects two or more different LAN.
It is Layer 3 device.
Stores Routing Table.

- Create two LAN
- Assign IP address to various Nodes.

gigabit Ethernet
0/0

0/0   0/1
Router

gigabit Ethernet
0/2

Gigabit Ethernet
0/1

LAN1

10.0.0.0
255.0.0.0 — Default gateway
Switch①

Ethernet
straight
though
Cable.

10.0.01   10.0.0.2   10.0.03

LAN2

192.168.1.0
255.255.255.0

Switch ②

192.168.1.1   192.168.1.1   192.168.1.3
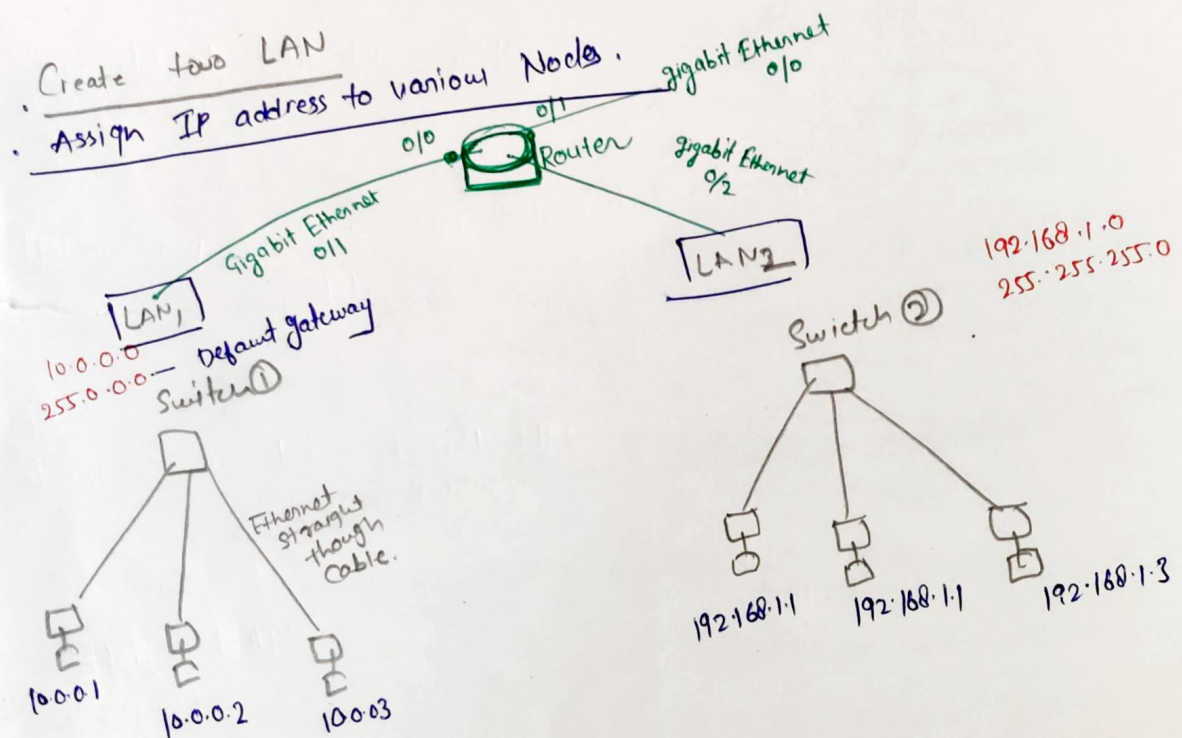
① Click on Router
② Click on [Config] Tab