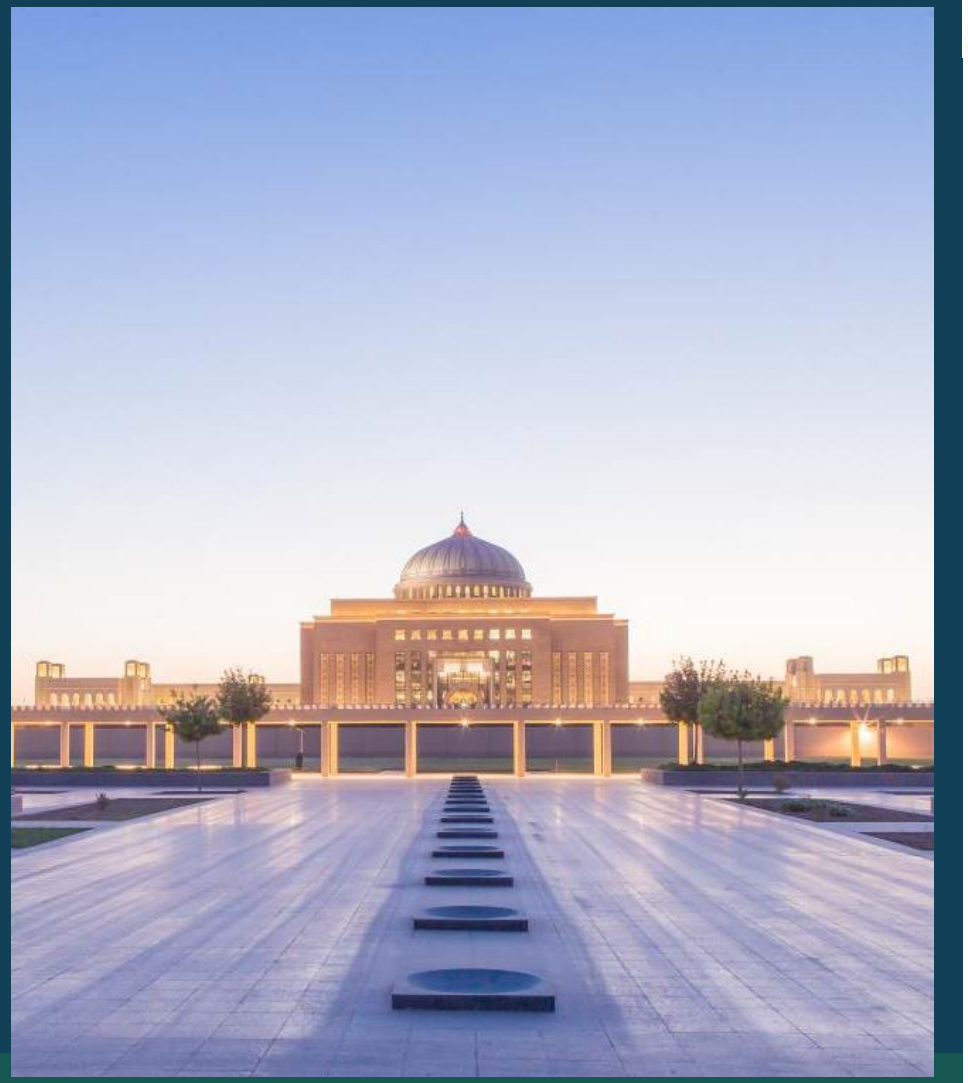


Faculty of Computer and Information Sciences

Information Technology Department

Network Protocols
Net323D

Lab #1: Introduction to packet tracer

Lab Objective

- To become familiar with Packet Tracer Interface
- To differentiate between end devices and network devices
- To learn how to add and connect network devices in Packet Tracer

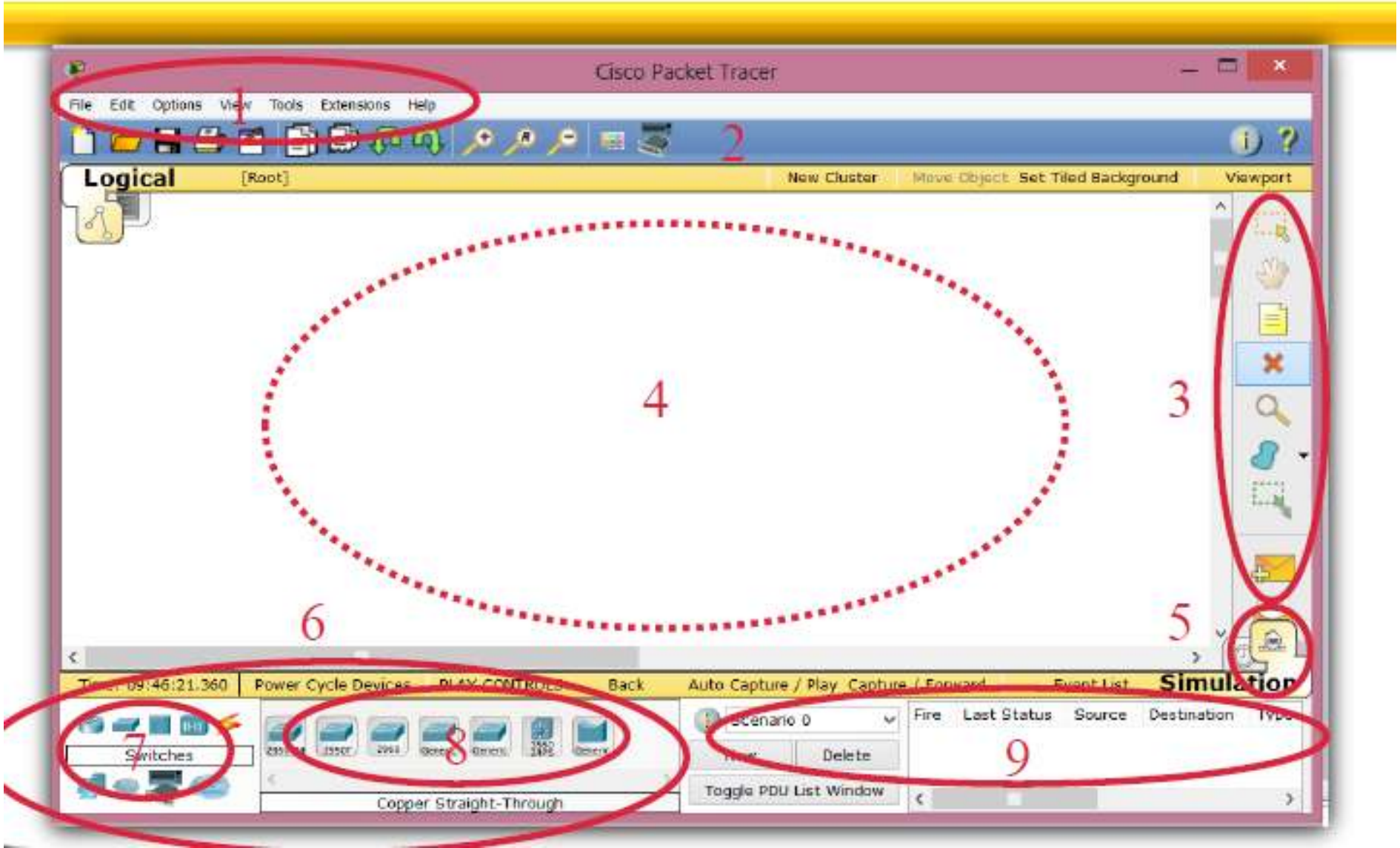
Lab Contents

- What is Packet Tracer?
- Packet Tracer Interface
- Network devices (*End devices and Intermediary devices*)
- Connections
- How to add and connect devices in Packet Tracer

What is Packet Tracer?

- Comprehensive networking technology teaching and learning software developed by Cisco Networking Academy
- Packet Tracer is a powerful and dynamic tool that displays the various protocols used in networking
- This include layer 2 protocols such as Ethernet and PPP, layer 3 protocols such as IP, ICMP, and ARP, and layer 4 protocols such as TCP and UDP
- Routing protocols can also be traced.

Packet Tracer Interface



Packet Tracer Interface

1- Menu bar :

- This bar provides the File, Options, and Help menus
- You will find basic commands such as Open, Save … etc.

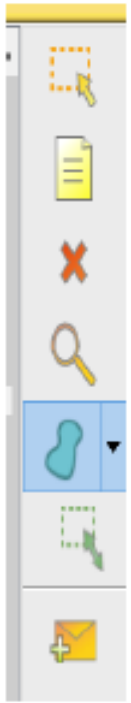
2- Main Tool Bar:

- This bar provides shortcut icons to the File menu commands
- On the right, you will also find the Network Information button, which you can use to enter a description for the current network or any text you wish to include

Packet Tracer Interface cont.

3- Common toolbar

- This bar provides access to these commonly used workspace tools
  - Select
  - Place Note
  - Delete
  - Inspect
  - Draw a shape
  - Resize a shape
  - Add Simple PDU



Packet Tracer Interface cont.

4- Workspace:

- This area is where you will create your network, watch simulations, and view many kinds of information and statistics

5- Realtime or Simulation Mode

- You can toggle between **Realtime Mode** and **Simulation Mode** with the tabs on this bar

Packet Tracer Interface cont.

- At startup, you are in in **Realtime mode.**
- You can build your network and see it run in **Realtime mode** in this configuration
- You can switch to **simulation mode** to run controlled networking scenario

Packet Tracer Interface cont.

6- Network components toolbar:

- This box is where you choose devices and connections to put onto the workspace
- It contains → Device-Type Selection Box
  → Device-Specific Selection Box

7- Device-Type selection box:

- This box contains the type of devices and connections available in Packet Tracer

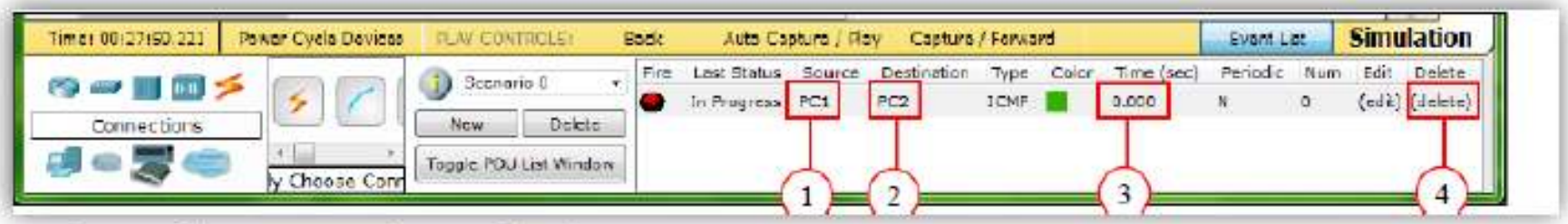
8- Device-Specific Selection Box

- The Device-Specific Selection Box will change depending on which type of devices you clicked

Packet Tracer Interface

9- User created packet window

- This window manages the packets you put in the network during simulation scenarios



1. Source (sender)
2. Destination (receiver)
3. Time
4. To delete packet

Network devices

There are two types of network devices:

1. End devices
2. Intermediary devices

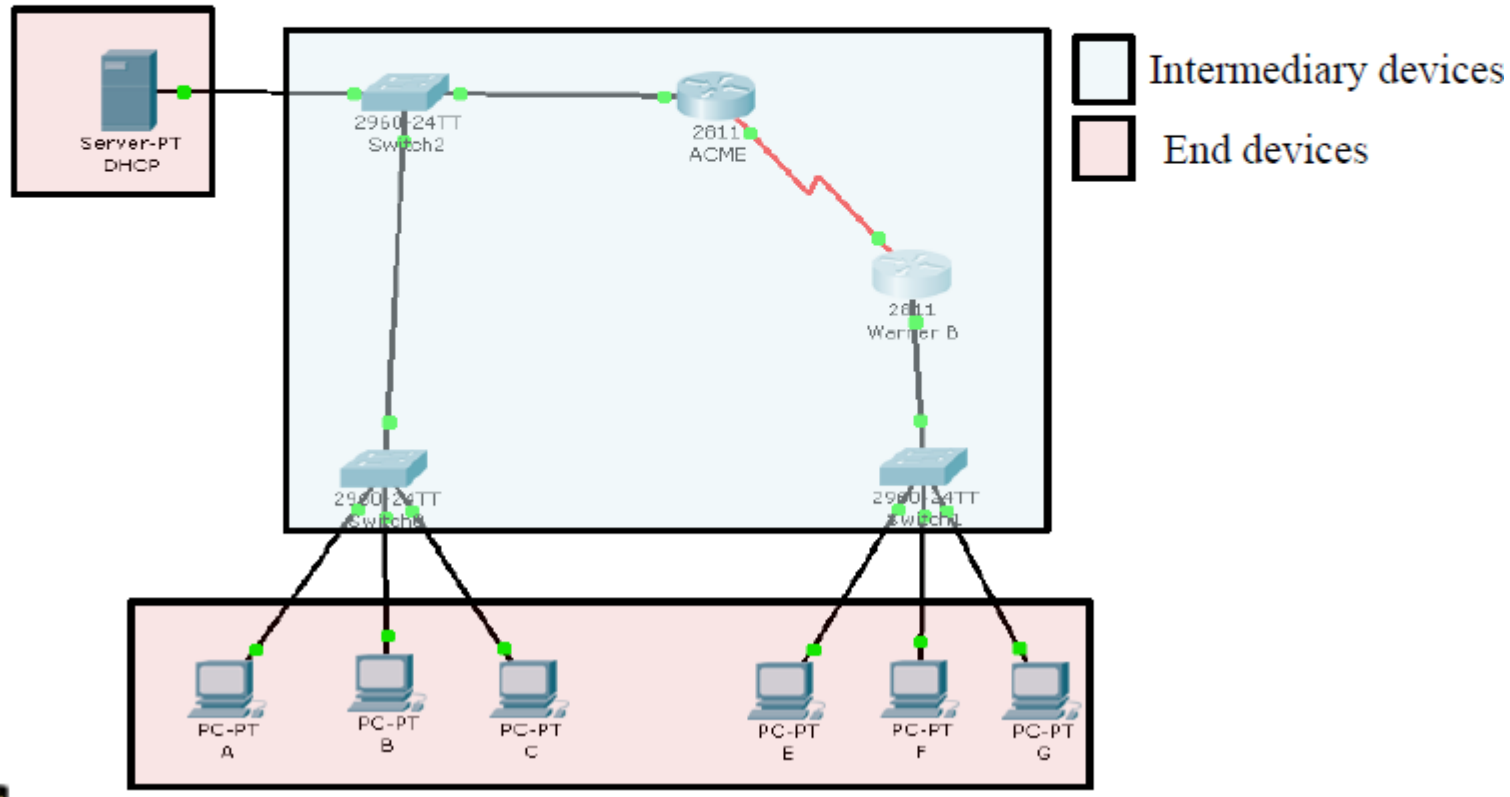
End devices

- **End Devices :**A source or destination device in a networked Systems.
- **examples**
  - Computers, laptops , servers
  - Network printer
  - Security cameras
  - Mobile handheld devices.

Intermediary Devices

- **Intermediary Devices:** work in between to enable messages to travel from one end device to the other.
- **examples**
  - Routers
  - Switches
  - Hubs

Network devices example (PT topology)



Connections

- It is important to know which **type of cable** to use and to which **port** the cable should be connected to a particular networking device.

The most common connections which will be used in this course:

- Copper straight through 
- Copper cross over 
- Serial 

1. Copper

- **Two types of copper cable:**

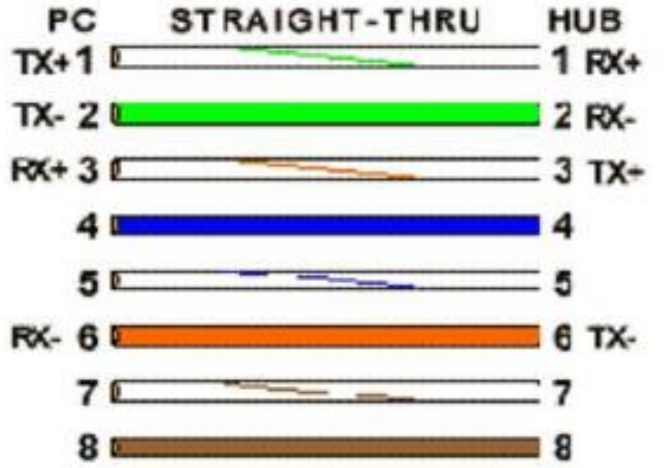
1. Straight Through
2. Cross over

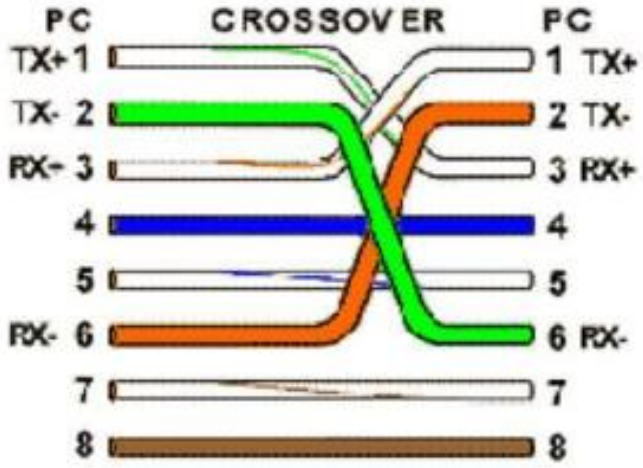
- **Port or interface:**

Fast Ethernet port

Copper cont.


UTP Cable
STP Cable


PC
STRAIGHT-THRU
HUB
TX+ 1
TX- 2
RX+ 3
4
5
RX- 6
7
8
1 RX+
2 RX-
3 TX+
4
5
6 TX-
7
8


PC
CROSSOVER
PC
TX+ 1
TX- 2
RX- 3
4
5
RX- 6
7
8
1 TX+
2 TX-
3 RX+
4
5
6 RX-
7
8

2. Serial

- **Serial cable**

- **Port or interface**

Serial port

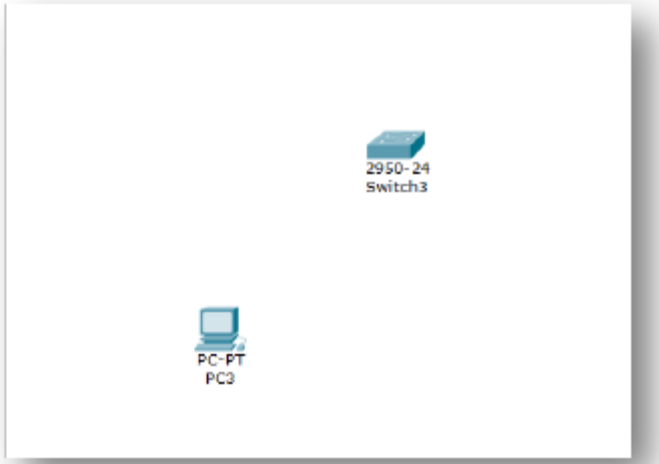
How to Connect devices?

DCE	DTE
Switch	PC
Hub	laptop
	Server
	Printer
	Router

- ✓ **Same group** → use Copper cross-over
- ✓ **Different group** → use Copper Straight-through
- ✓ You can also use **Serial** cable to connect Router with Router

How to add and connect devices in Packet Tracer ?

1. Drag the device that you want to add to the work space (Ex. Add one PC and Switch)



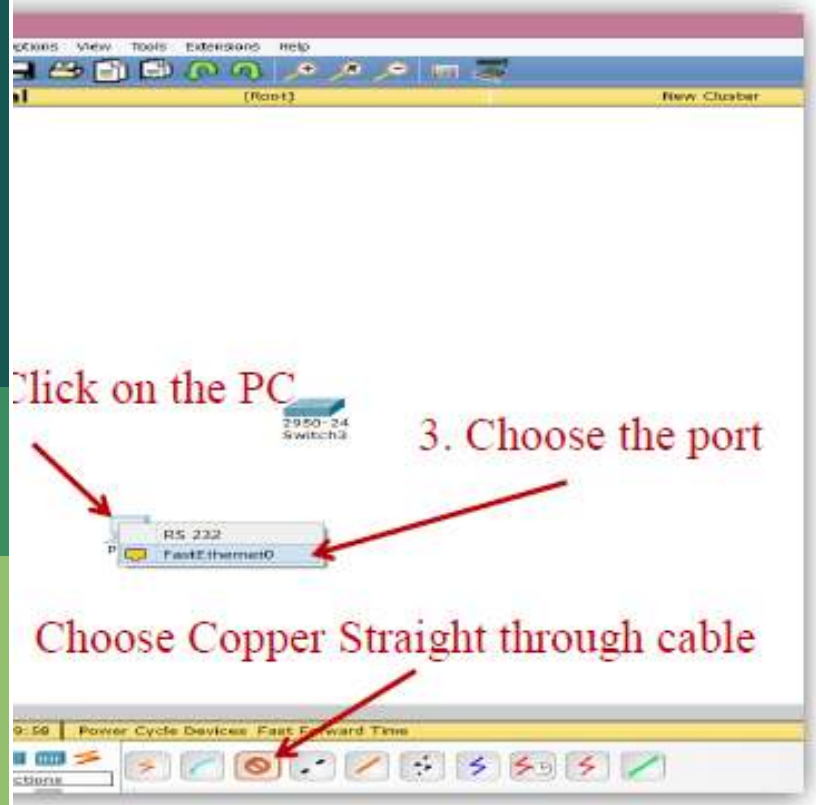
How to add and connect devices cont.

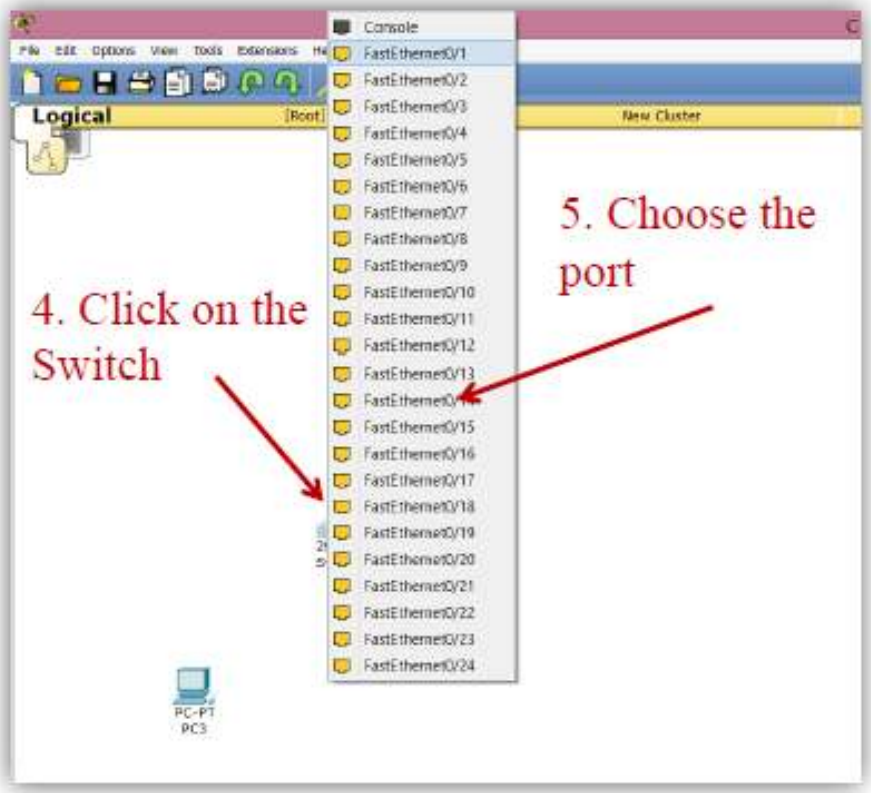
2. Under Connections, select *Copper Straight-through cable*

3. Then click on the PC and choose *fast Ethernet* port

3. Click on the switch and choose one of the available *fast Ethernet* ports

How to add and connect devices cont.





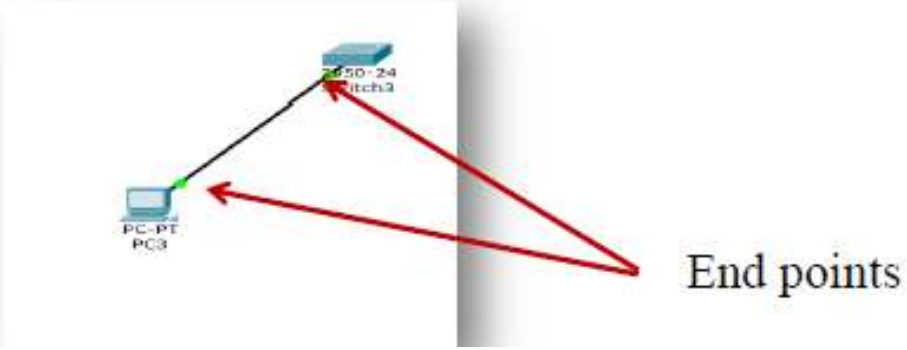
Note

After connecting the two devices the end points will turn to either

Green → connection is working

Red → there is a problem

Orange → need time to learn



End points

Book Chapter/ References or Other materials:

- Cisco Packet Tracer Help.
- Sheikh Raashid Javid, (2014) Role Of Packet Tracer In Learning Computer Networks.[Online]. Available at: International Journal of Advanced Research in Computer and Communication Engineering (Accessed: 2015).
- End Devices and their role on the Network. (n.d.). Retrieved 2015, from http://orbit-computer-solutions.com/End-Devices-and-their-Role-on-the-Network.php
- End device Definition from PC Magazine Encyclopedia. (n.d.). Retrieved 2015, from http://www.pcmag.com/encyclopedia/term/64886/end-device
- Intermediary Devices and their Role on the Network. (n.d.). Retrieved 2015, from http://orbit-computer-solutions.com/Intermediary-Devices-and-their-Role-on-the-Network.php

THANK YOU