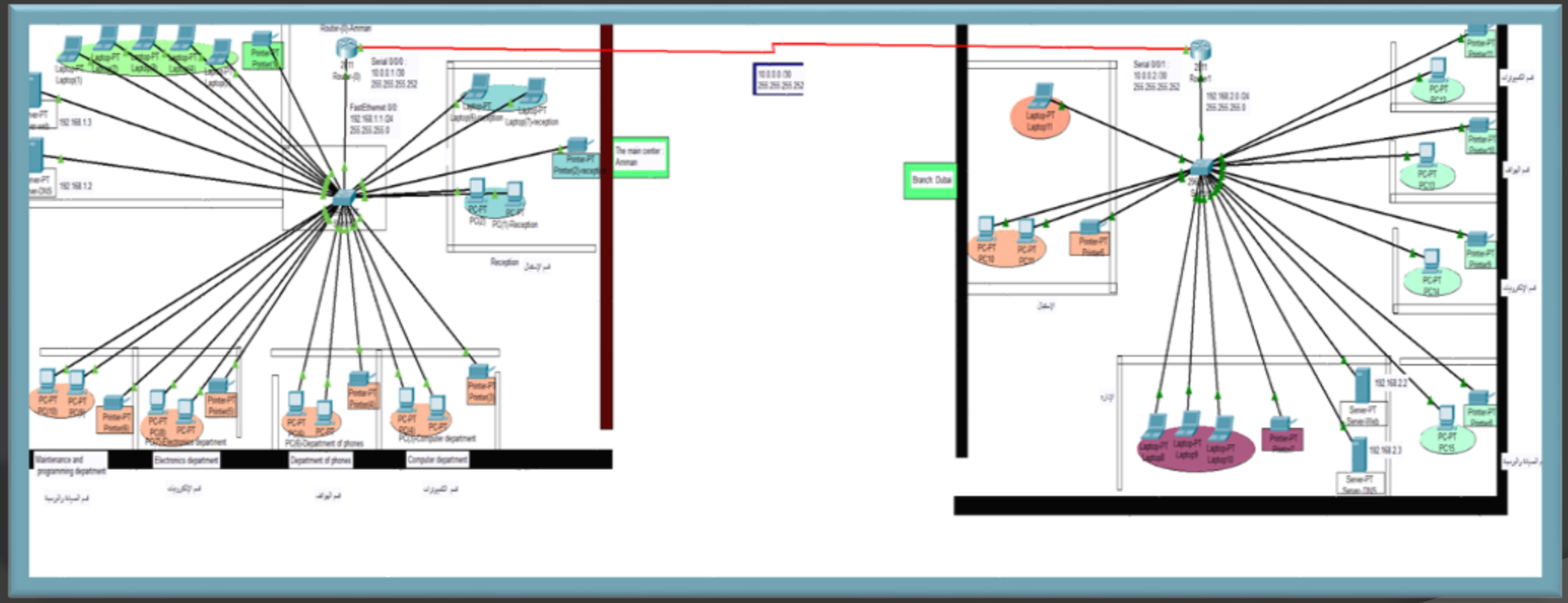
Graduation Project

NETWORK PROJECT FOR AN ELECTRONIC COMPANY CONSISTING OF TWO BRANCHES

AL-tmuoz Electronics Company



The Introduction /

Information about AL-tmuoz Electronics Company :

An electronics network project consisting of two branches, the first is the main center located in Amman, and the second branch is in Dubai.

Follow company information:

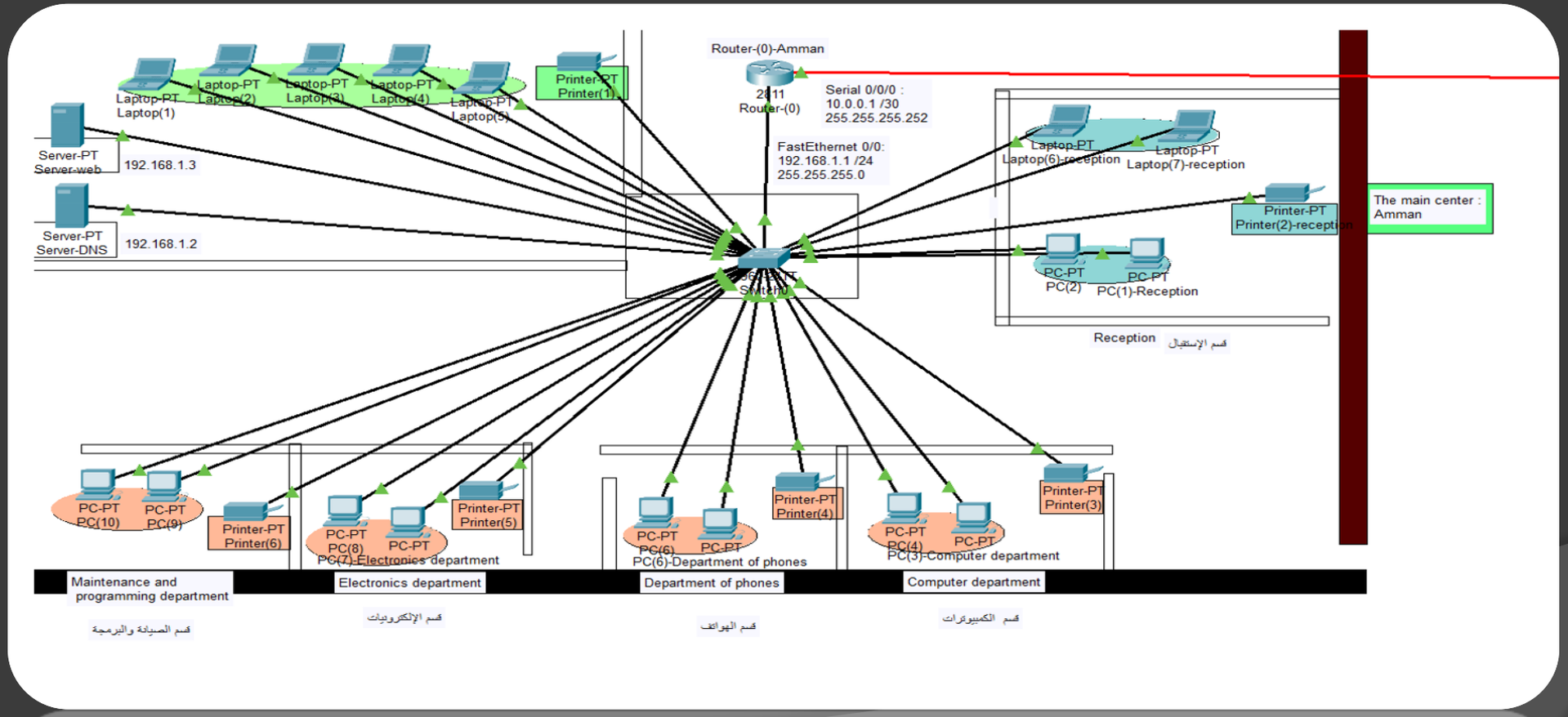
Company name:

AL-tmuoz Electronics Company.

- Company Branches:
  - Head office: Amman.
  - Company branch: Dubai.

THE MAIN BRANCH /

It is the main branch of the Electronic Excellence Company, and it is located in Amman.

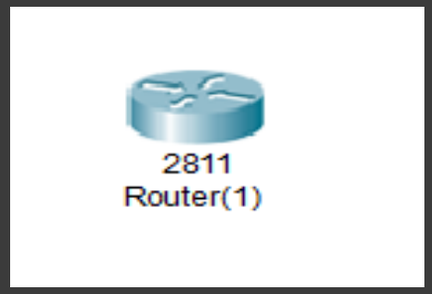


Follow

- The branch contains:
  - Administration.
  - Reception.
  - Computers section.
  - Department of phones.
  - Electronics department.
  - Maintenance and programming department.

Explanation of the company's network design drawing /

- Used equipments :
  - (1) Router Model 2811.



  - (1) Switch Model 2960-24TT.

Follow page (6)

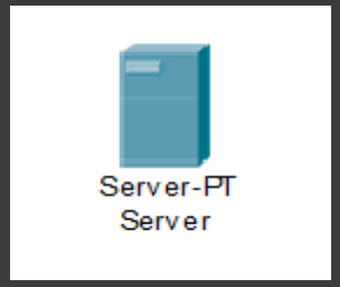
- **(7) Laptops.**

- **(10) PC.**

Follow page (7)

- **(6) Printers.**

- **(2) servers.**



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Explanation of how to connect between devices in the company /

- **Firstly**:

router head office "Amman"; We connected port Serial 0/0/0 from the router of the main center, Amman, bearing the IP address 10.0.0.1, Subnet Mask 255.255.255.252.. in port Serial 0/0/1, the Dubai branch of the company, bearing the IP address 10.0.0.2 , Subnet Mask 255.255.255.252.

- **Second**:

Explanation of the connections of the devices inside the main center..

Explanation in detail about connecting network devices in the main center, Amman.

Follow page (10)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
R(1)= The main center, Amman	Serial 0/0/0	10.0.0.1	255.255.255.252	10.0.0.1	Connected to Router (2) - Dubai branch, with Serial port 0/0/1.
R(1)= The main center, Amman	Fast Ethernet Net 0/0	192.168.1.1	255.255.255.0	192.168.1.1	Connected to Switch(1)- Headquarters - Amman, with Gig 0/1 port.

(11)

Follow page (11)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Server(1) DNS = The main center, Amman.	**Fast Ethernet Net 0**	**192.168.1.2**	**255.255.255.0**	**192.168.1.1**	Connected to Switch (1) - Headquarters - Amman, with Fast Ethernet Net port 0/1.
Server(2) WEB = The main center, Amman.	**Fast Ethernet Net 0**	**192.168.1.3**	**255.255.255.0**	**192.168.1.1**	Connected to Switch (1) - Headquarters - Amman, with Fast Ethernet Net port 0/2.

(12)

Follow page (12)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Laptop(1)= The main center, Amman.	Fast Ethernet 0	192.168.1.4	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/3.
Laptop(2)= The main center, Amman.	Fast Ethernet 0	192.168.1.5	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/4.

(13)

Follow page (13)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Laptop(3)= The main center, Amman.	Fast Ethernet 0	192.168.1.6	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/5.
Laptop(4)= The main center, Amman.	Fast Ethernet 0	192.168.1.7	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/6.

(14)

Follow page (14)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Laptop(5)= The main center, Amman.	Fast Ethernet 0	192.168.1.8	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/7.
Printer(1)= The main center, Amman	Fast Ethernet 0	192.168.1.9	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/8.

Follow page (15)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Laptop(6)= The main center, Amman- Reception	Fast Ethernet 0	192.168.1.11	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/9.
Laptop(7)= The main center, Amman- Reception	Fast Ethernet 0	192.168.1.12	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/10.

(16)

Follow page (16)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Printer(2)= The main center, Amman- Reception	Fast Ethernet 0	192.168.1.13	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/11.
PC(1)= The main center, Amman- Reception.	Fast Ethernet 0	192.168.1.14	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/12.
. PC(2)= The main center, Amman- Reception	Fast Ethernet 0	192.168.1.15	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/13.

Follow page (17)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Printer(3)= The main center, Amman- Computers section.	Fast Ethernet 0	192.168.1.17	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/14.
PC(3)= The main center, Amman Computers section.	Fast Ethernet 0	192.168.1.18	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/15.
PC(4)= The main center, Amman Computers section.	Fast Ethernet 0	192.168.1.19	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/16.

Follow page (18)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Printer(4)= The main center, Amman.	Fast Ethernet 0	192.168.1.20	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/17.
PC(5s)= The main center, Amman Department of phones.	Fast Ethernet 0	192.168.1.21	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/18.
PC(6)= The main center, Amman Department of phones.	Fast Ethernet 0	192.168.1.22	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/19.

Follow page (19)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Printer(5)= The main center, Amman.	Fast Ethernet 0	192.168.1.23	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/20.
PC(7)= The main center, Amman- Electronics department .	Fast Ethernet 0	192.168.1.24	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/21.
PC(7)= The main center, Amman- Electronics department .	Fast Ethernet 0	192.168.1.25	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/22.

Follow page (20)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Printer(6)= The main center, Amman.	Fast Ethernet 0	192.168.1.26	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/23.
PC(9)= The main center, Amman- Electronics department..	Fast Ethernet 0	192.168.1.27	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Fast Ethernet Net port 0/24.
PC(10)= The main center, Amman- Electronics department..	Fast Ethernet 0	192.168.1.28	255.255.255.0	192.168.1.1	Connected to Switch (1) Headquarters - Amman, with Gig port 0/2 .

The process of messaging and data transfer in the network /

- **Third:**
  - How to send and receive data / messages in the network between devices in the main center _Amman /

When we want to send data or a packet from one device to another in the network. The source device sends the packet / package to the switch device, and the switch device transfers it to the panel device to which the package is to be delivered. Then the destination device receives the message and then replies to it by sending it to the switch device, then the switch device delivers it to the source device from which the message came out. After that, the transmitted process appears.

Explanation of the cable connection process in the company /

- **Explanation of the connection / linking process between devices:**
  - Explain the connection / connection process and identify the type of cable connecting the devices in the company.
  - Identifying cables and using them to connect devices.
  - Explanation, with illustrations, of how the devices were connected to the switch.

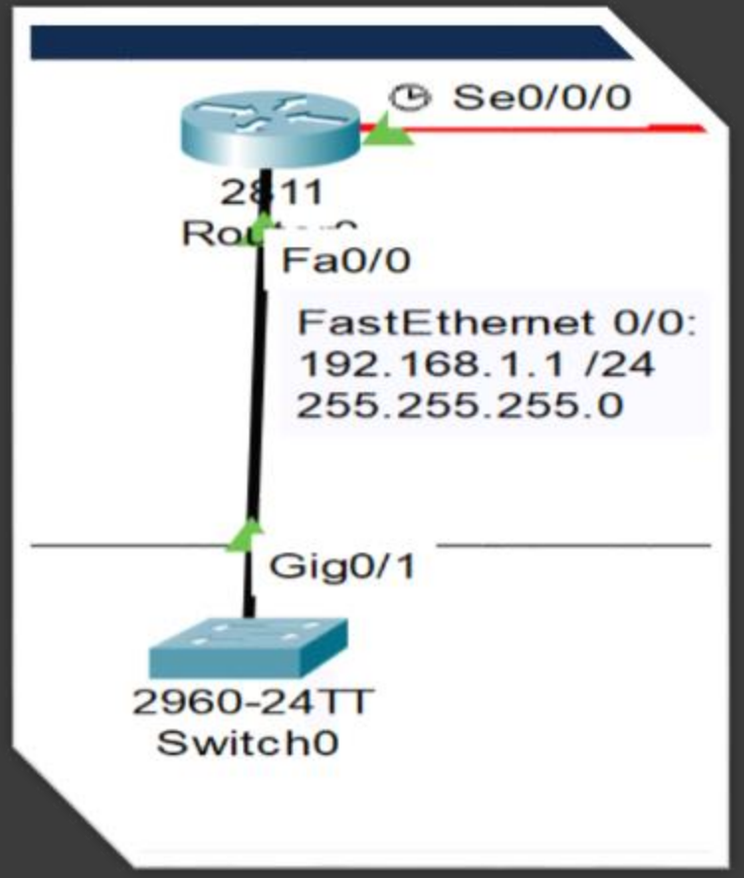
Explanation of the hardware connection process \

- **First:**

  How was the router of the main branch _ Amman connected to the switch port:

  The port of the router, Port No. 0/0 of Fast Ethernet, was connected to the switch to port No. 0/1 Giga by means of a network cable

  (Copper Straight-Through).



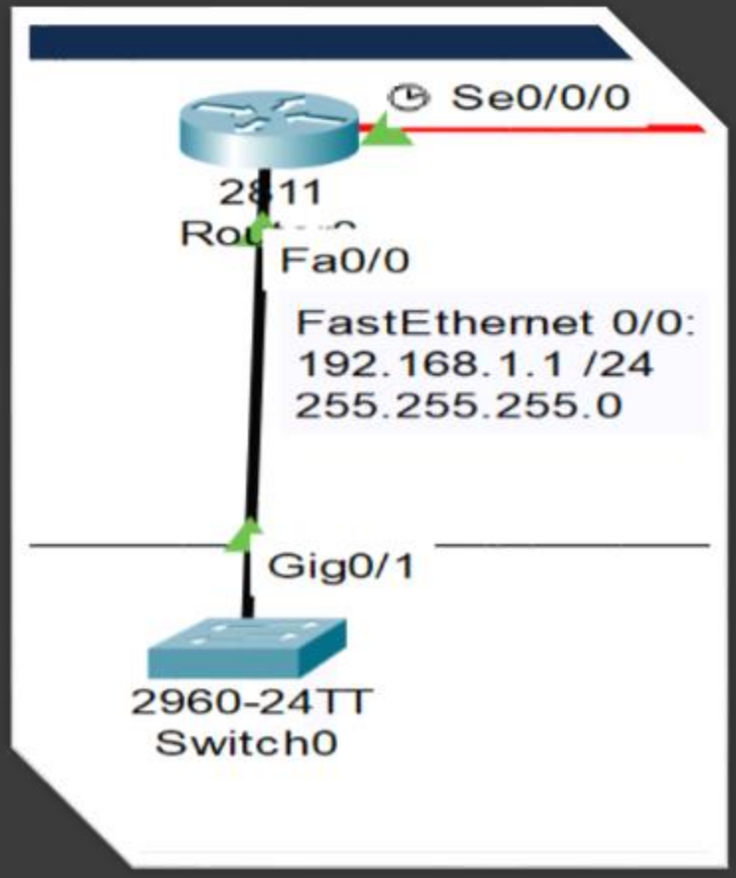
Explanation of the default gateway for the company's router, Fast Ethernet 0/0 :

(25)

A brief explanation of the Fast Ethernet 0/0 port in the router of the Al-tamayuz Company for Electronic Services and Consulting Network, Head quarters Amman.

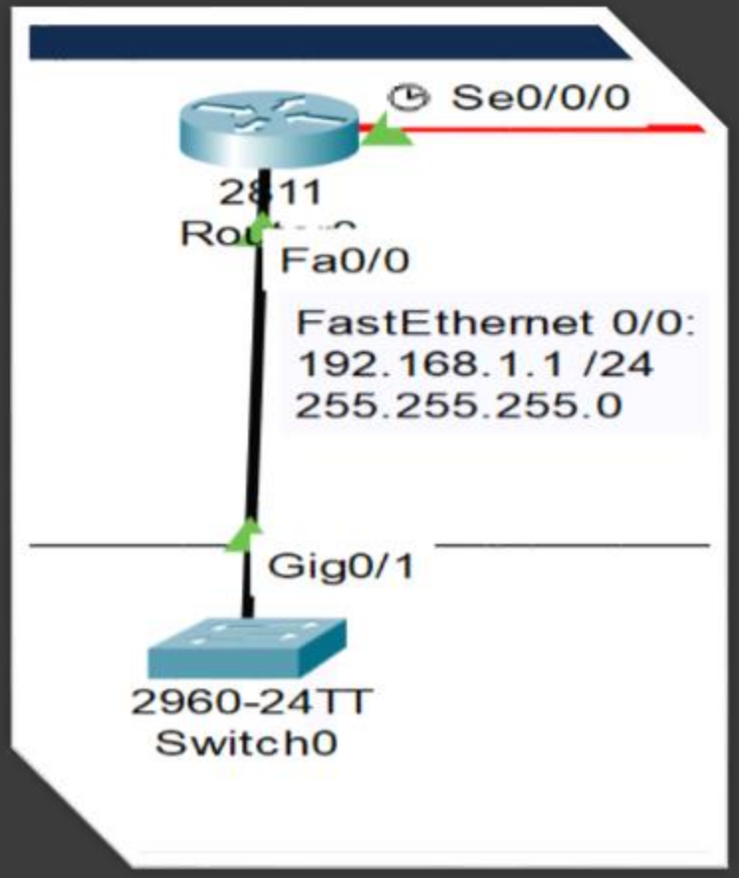
The Fast Ethernet port of the company's router, the head office - Amman, is considered the main gateway to the network.

Network devices are allowed to access, send and receive messages from the network of the other branch of the company, which is the Dubai branch.



Follow Explanation of the default gateway for the company's router, Fast Ethernet 0/0 :

- He was given an IP address (192.168.1.1), which is the default gateway of the network, or what is called a network routing gateway, where network devices can communicate from other networks that are completely different from their range, and this is done by activating the routing protocol (IP Route), which is activated in router.
- The router is connected to the switch(Copper Straight-Through).



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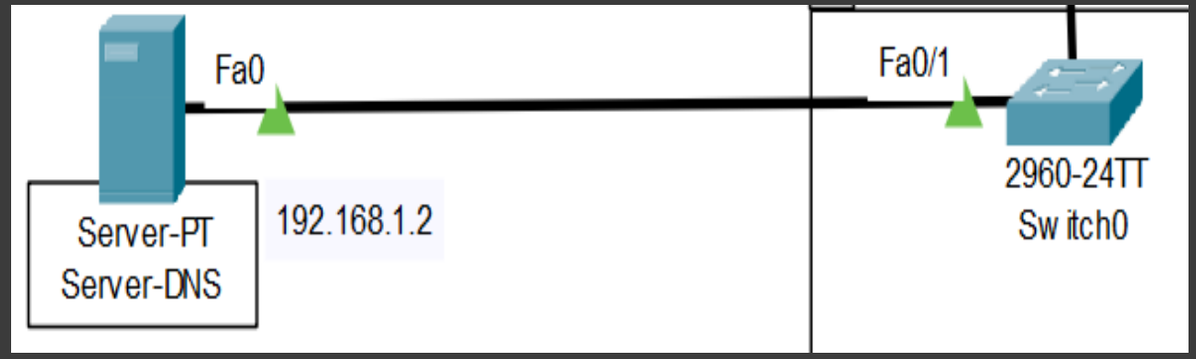
- **secondly:**
  - How were the servers of the main branch Amman connected to the switch ports:

- Server No. 1 (DNS) connected to Port No. “0/1", carrying an IP address192.168.1.2.. Connected with a **(Copper Straight-Through) cable.**



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- Server No. 2 (Web) connected to Port No. “0/2", carrying an IP address 192.168.1.3 , Connected with a **(Copper Straight-Through) cable.**

On this server, the web page of Al-tamayuz Company, the main branch _ Amman, was installed and designed.

How to connect the management office devices to the switch ports, the main center _ Amman /

Laptop (1), administration office, head office - Amman, IP address 192.168.1.4, connected to the switch in Port No. (0/3).

Laptop (2), administration office, head office - Amman, IP address 192.168.1.5, connected to the switch in Port No. (0/4).

How to connect the management office devices to the switch ports, the main center _ Amman:

Laptop (3), administration office, head office - Amman, IP address 192.168.1.6, connected to the switch in Port No. (0/5).

Laptop (4), administration office, head office - Amman, IP address 192.168.1.7, connected to the switch in Port No. (0/6).

How to connect the management office devices to the switch ports, the main center _ Amman:

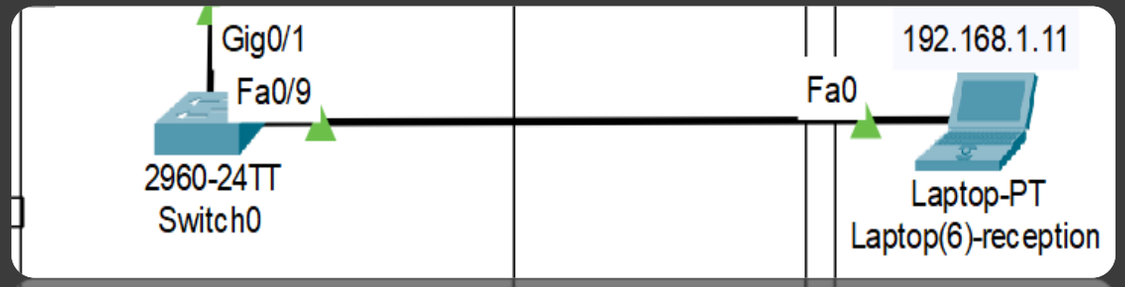
Laptop (5), administration office, head office - Amman, IP address 192.168.1.8, connected to the switch in Port No. (0/7).

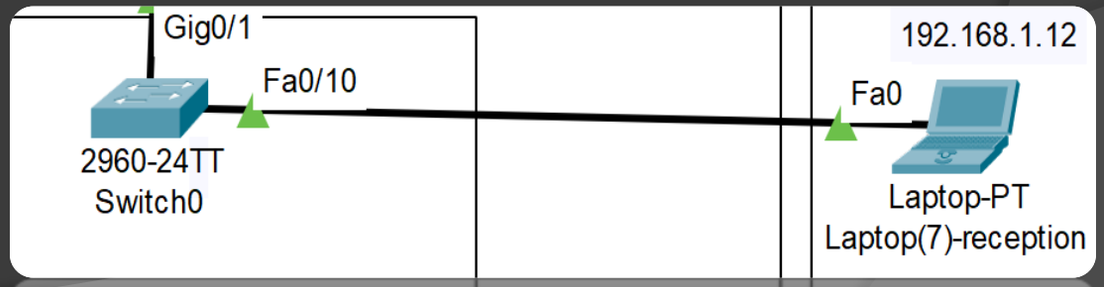
Printer (1) Administration Office Headquarters - Amman, holder IP address 192.168.1.9 connected to the switch in Port No. (0/8).

How to connect the reception devices to the switch ports of the main center _ Amman:

Laptop (6), reception section, main office - Amman, IP address 192.168.1.11, connected to the switch in port number (0/9).. Connected with a (Copper Straight-Through) cable.

Laptop (7), reception section, main office - Amman, IP address 192.168.1.12, connected to the switch in port number (0/10).. Connected with a (Copper Straight-Through) cable.

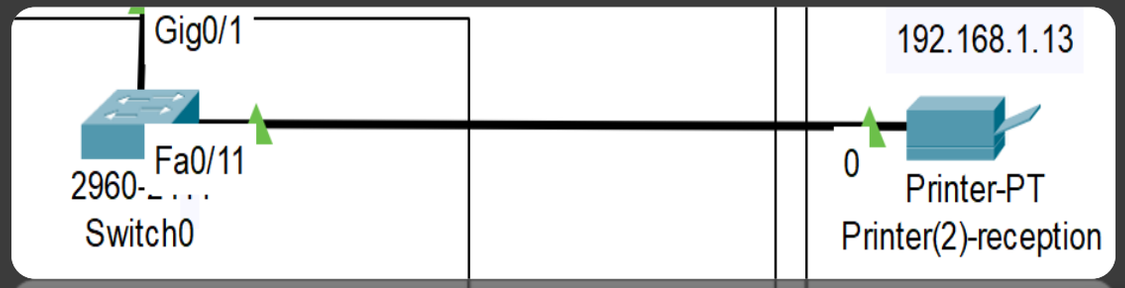


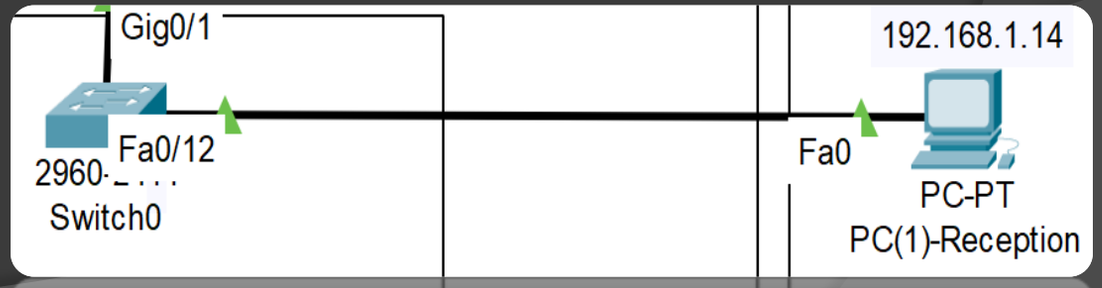


How to connect the reception devices to the switch ports of the main center _ Amman:

Printer-(2) Reception Department Headquarters _ Amman The holder IP address 192.168.1.13, connected to the switch with Fast Ethernet port No. (0/11); Connected with a (Copper Straight-Through) cable.

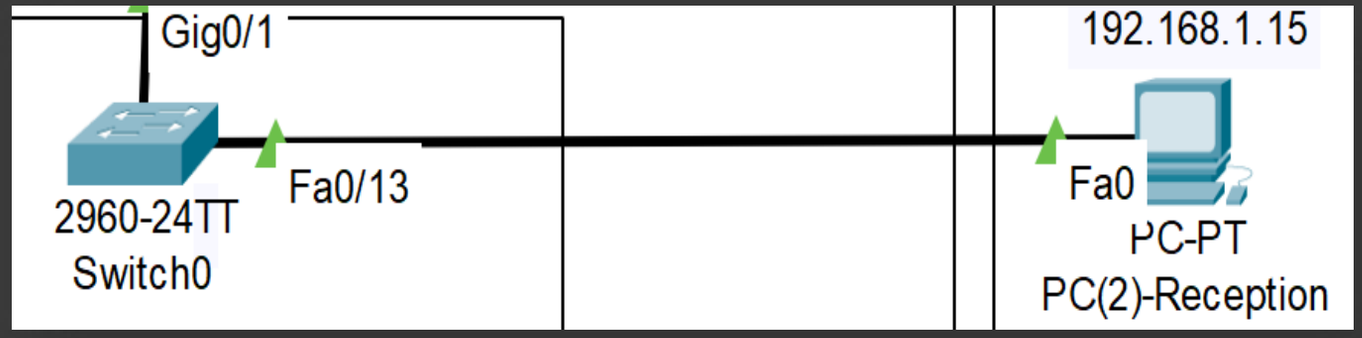
PC-(1) Reception Department Headquarters _ Amman The holder IP address 192.168.1.14, connected to the switch with Fast Ethernet port No. (0/12); Connected with a (Copper Straight-Through) cable





How to connect the reception devices to the switch ports of the main center _ Amman:

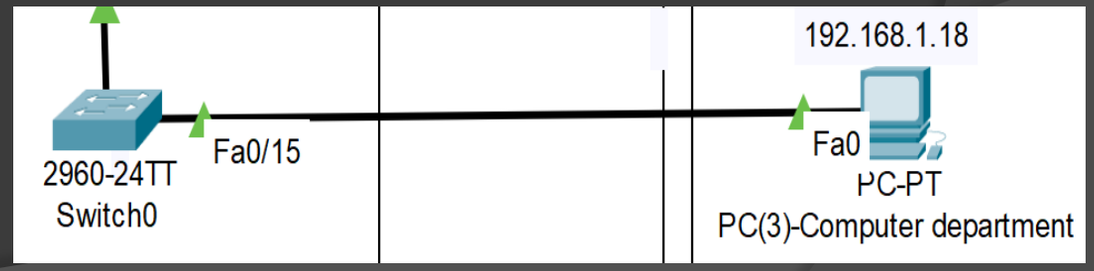
PC-(2) Reception Department Headquarters _ Amman The holder IP address 192.168.1.15, connected to the switch with Fast Ethernet port No. (0/13); Connected with a (Copper Straight-Through) cable



How to connect the computers of the computer department to the switch ports of the main center _ Amman:

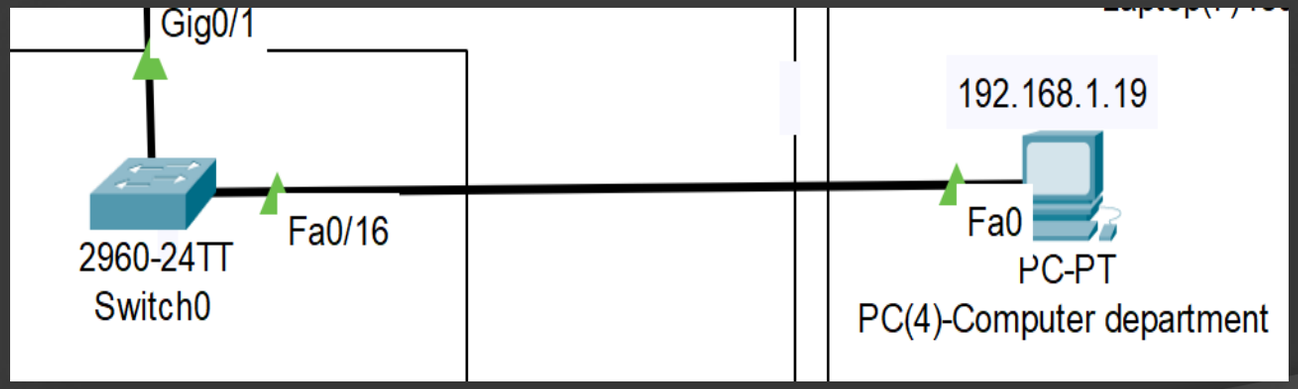
Printer(3) Computer Department.. Main Branch _ Amman; Carrier IP address 192.168.1.17.
Connected to the switch (0) – to Fast Ethernet port Number (0/14), Connected with a (Copper Straight-Through) cable

PC(3) Computer Department.. Main Branch _ Amman; Carrier IP address 192.168.1.18.
Connected to the switch (0) – to Fast Ethernet port Number (0/15), Connected with a (Copper Straight-Through) cable



How to connect the computers of the computer department to the switch ports of the main center _ Amman:

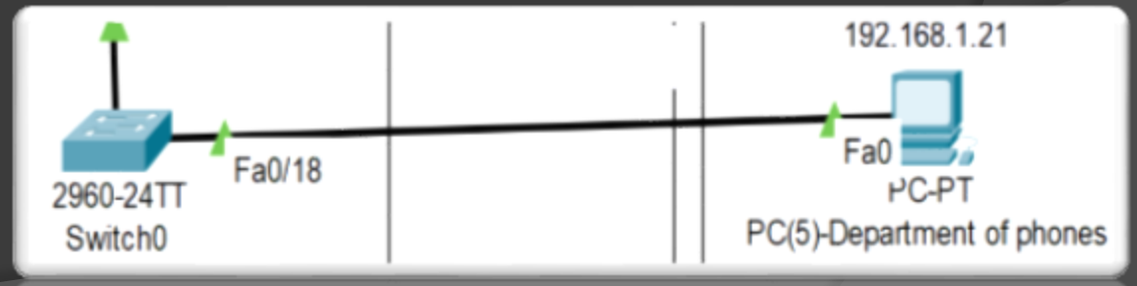
PC(4) Computer Department.. Main Branch _ Amman;
Carrier IP address 192.168.1.19 .Connected to the switch (0) –
to Fast Ethernet port Number (0/16), Connected with a (Copper Straight-Through) cable



How to connect the devices in the phones section to the switch ports of the main center _ Amman:

Printer(4) Department of phones.. Main Branch _ Amman; Carrier IP address 192.168.1.20
Connected to the switch (0) – to Fast Ethernet port Number (0/17), Connected with a (Copper Straight-Through) cable

PC(5) Department of phones.. Main Branch _ Amman; Carrier IP address 192.168.1.21
Connected to the switch (0) – to Fast Ethernet port Number (0/18), Connected with a (Copper Straight-Through) cable

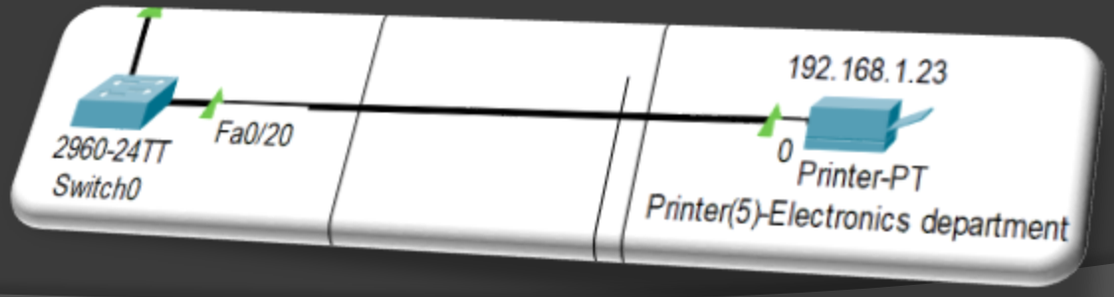


How to connect the devices in the phones section to the switch ports of the main center _ Amman:

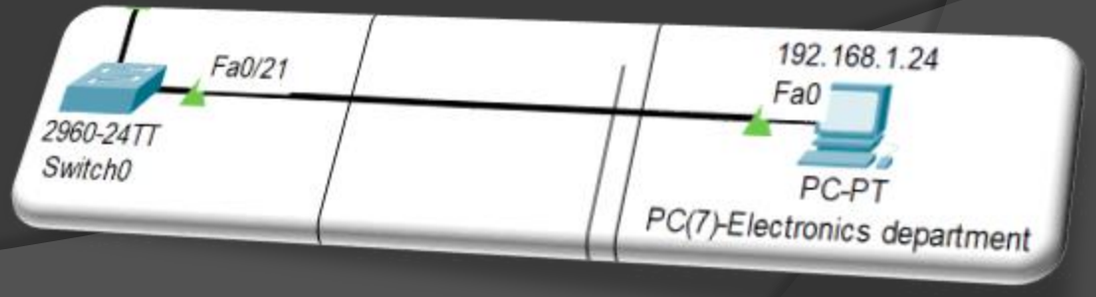
PC(6) Department of phones.. Main Branch _ Amman; Carrier IP address 192.168.1.22 Connected to the switch (0) – to Fast Ethernet port Number (0/19), Connected with a (Copper Straight-Through) cable

How to connect the electronics department devices in the company to the switch ports of the main center _ Amman:

Printer (5) Department of Electronics..
Main Branch _ Amman; Carrier IP address 192.168.1.23
Connected to the switch (0) – to Fast Ethernet port Number (0/20), Connected with a (Copper Straight-Through) cable

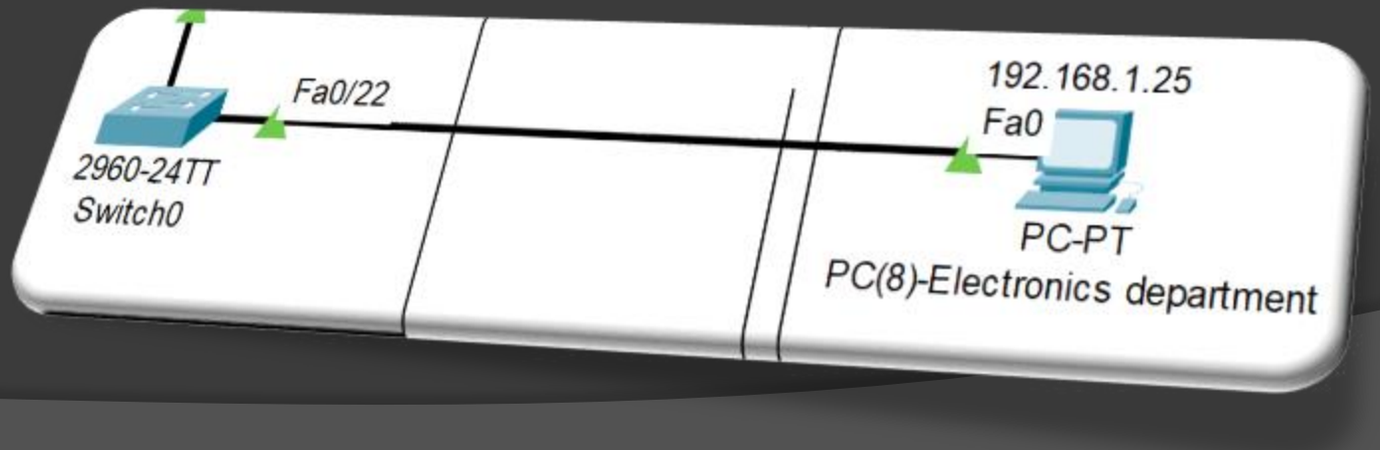


PC(7) Department of Electronics..
Main Branch _ Amman; Carrier IP address 192.168.1.24
Connected to the switch (0) – to Fast Ethernet port Number (0/21), Connected with a (Copper Straight-Through) cable



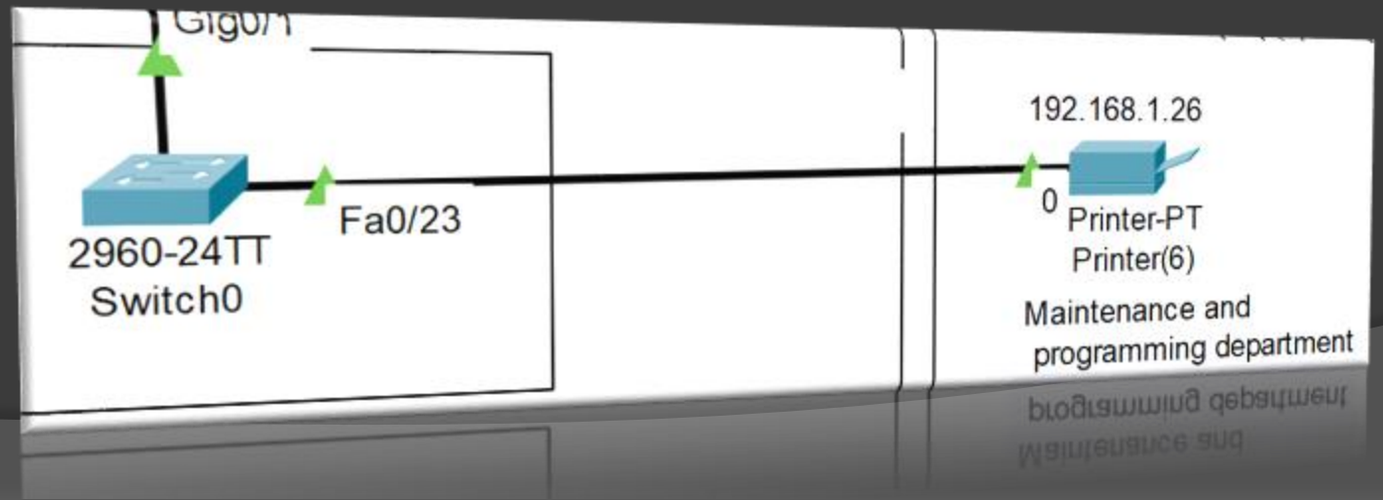
How to connect the electronics department devices in the company to the switch ports of the main center _ Amman:

PC(8) Department of Electronics.. Main Branch _ Amman; Carrier IP address 192.168.1.25 Connected to the switch (0) – to Fast Ethernet port Number (0/22), Connected with a (Copper Straight-Through) cable.



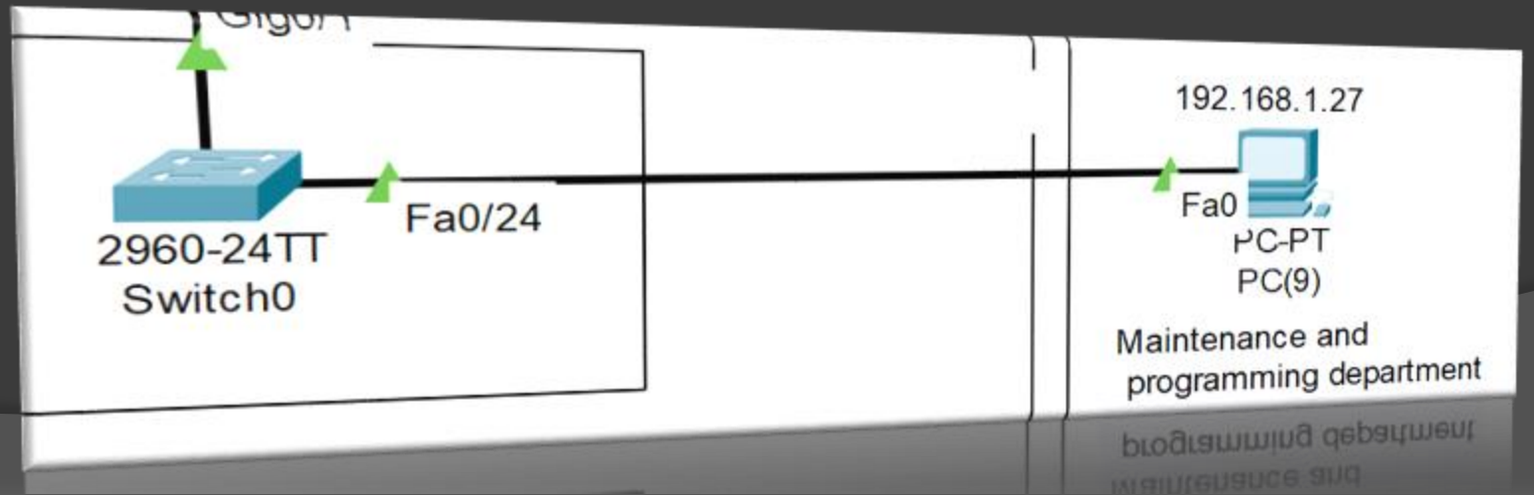
How to connect the maintenance and programming department devices in the company to the switch ports of the main center _ Amman:

Printer (6) Department of Maintenance and Programming, Main Branch - Amman. Bearer IP address 192.168.1.26 connected to switch (0) - to Fast Ethernet port number (0/23), connected to Cable (Copper Straight-Through).



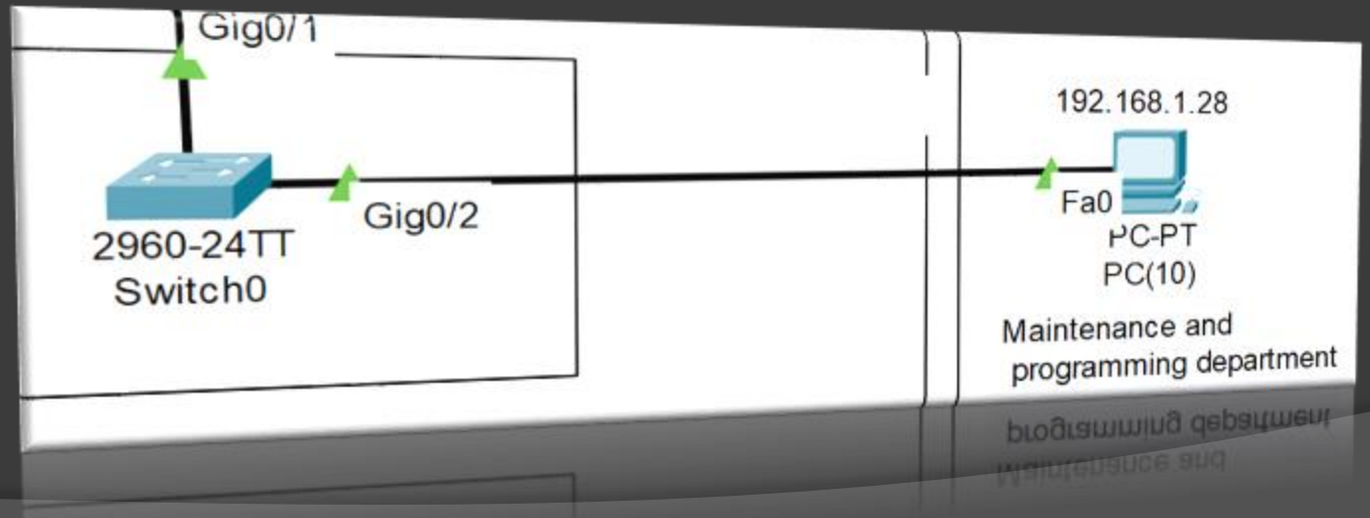
How to connect the maintenance and programming department devices in the company to the switch ports of the main center _ Amman:

PC(9) Department of Maintenance and Programming, Main Branch - Amman. Bearer IP address 192.168.1.27 connected to switch (0) - to Fast Ethernet port number (0/24), connected to Cable (Copper Straight-Through).



How to connect the maintenance and programming department devices in the company to the switch ports of the main center _ Amman:

PC(10) Department of Maintenance and Programming, Main Branch - Amman. Bearer IP address 192.168.1.28 connected to switch (0) - to Gig port number (0/2), connected to Cable (Copper Straight-Through).



Explain the connection and routing process between the two networks/

We connected the two routers of the two networks of the Excellence Electronic Company, the network of the main center _ Amman, and the network of the branch _ Dubai with the leased line cable (Serial).

Explain the connection and routing process between the two networks/

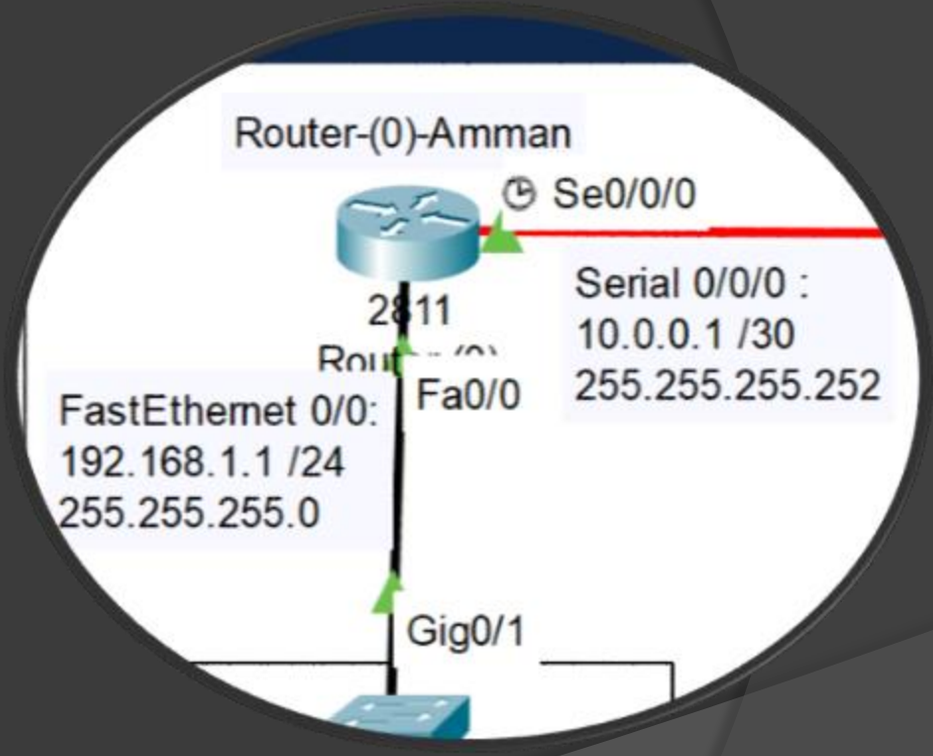
We have arrived from the Amman router from the serial port 0/0/0 that carries the IP address (10.0.0.1) sent mask (255.255.255.252), to the router of the "Dubai" branch with the port (serial) that carries the IP address (10.0.0.2) send mask (255.255.255.252).

Explanation of the routing method between the two branches networks /

Explanation of the addressing and routing method inside the router:

1) We entered the router Amman-(0), then entered the mode (config), then we entered the command Interface Fast Ethernet 0/0.

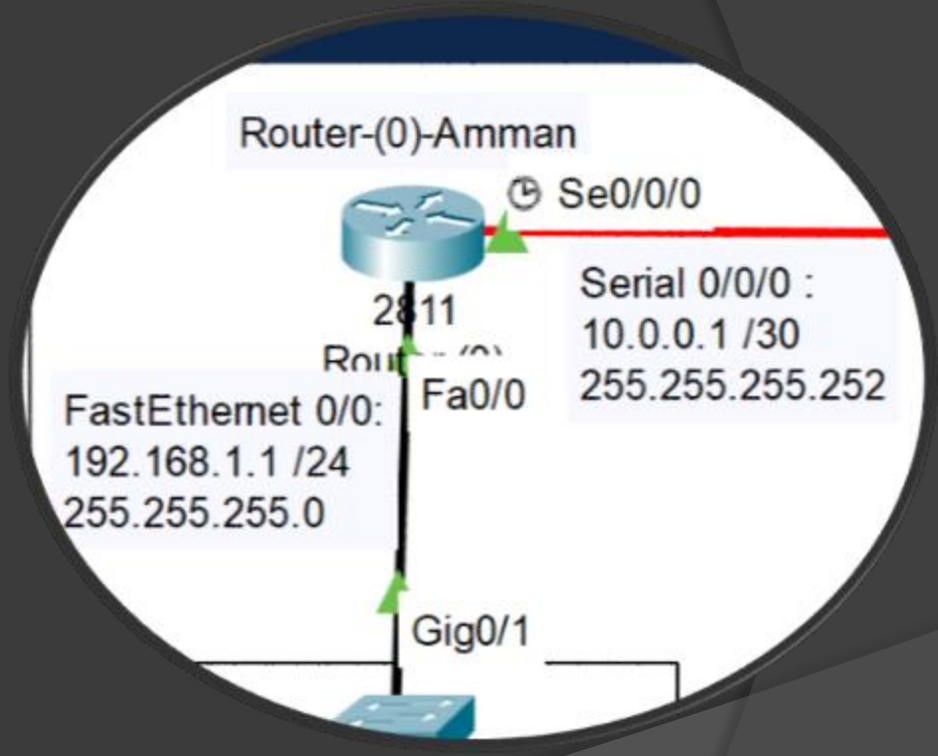
then we pressed OK, and we are transferred to the port of the router connected to the main center _Amman.



Explanation of the routing method between the two branches networks /

2) We enter the command IP address 192.168.1.1 255.255.255.0. Then we press OK.
The port is given an Address.

3) Third: We will run the port with the command "No Show Down", and the port will run.



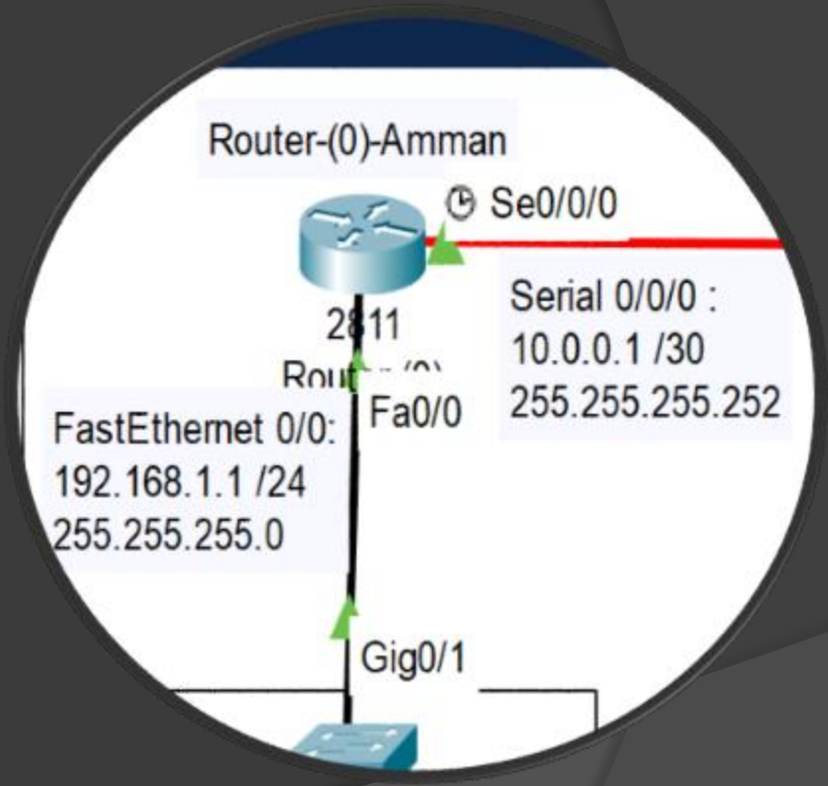
Explanation of the routing method between the two branches networks /

After that, we exit from the (Interface) port, then we enter the (Serial 0/0/0) port, which links between Amman and the Dubai Branch.

1- Enter the command Inter Serial 0/0/0, then press OK.

He'll take us straight to the port.

2- We give the IP Address 10.0.0.1 255.255.255.252 to the port.



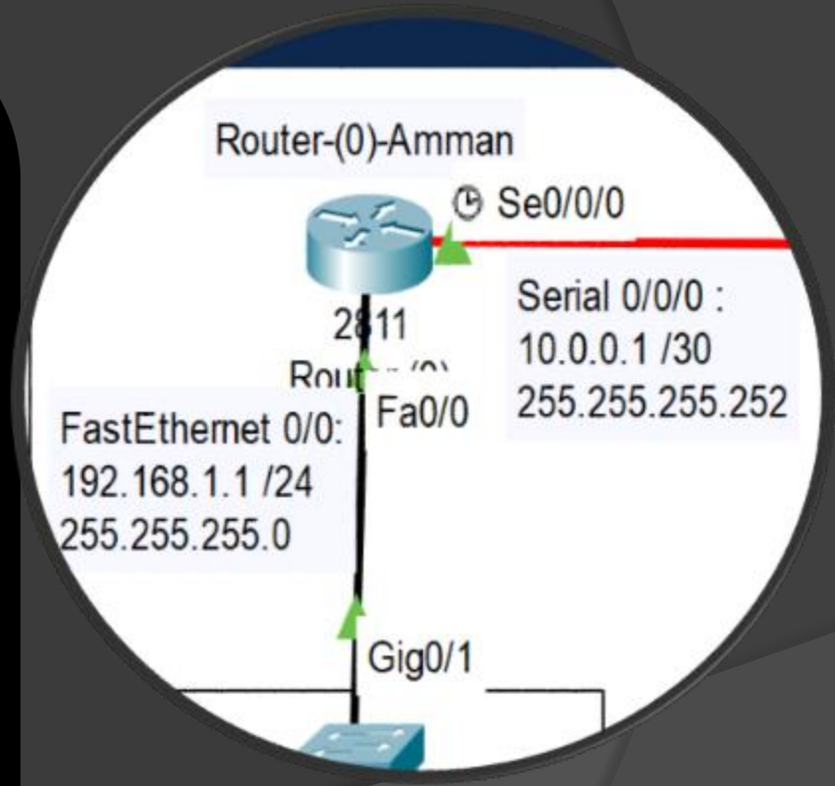
Explanation of the routing method between the two branches networks /

3- Turn on the port with the command no shutdown.

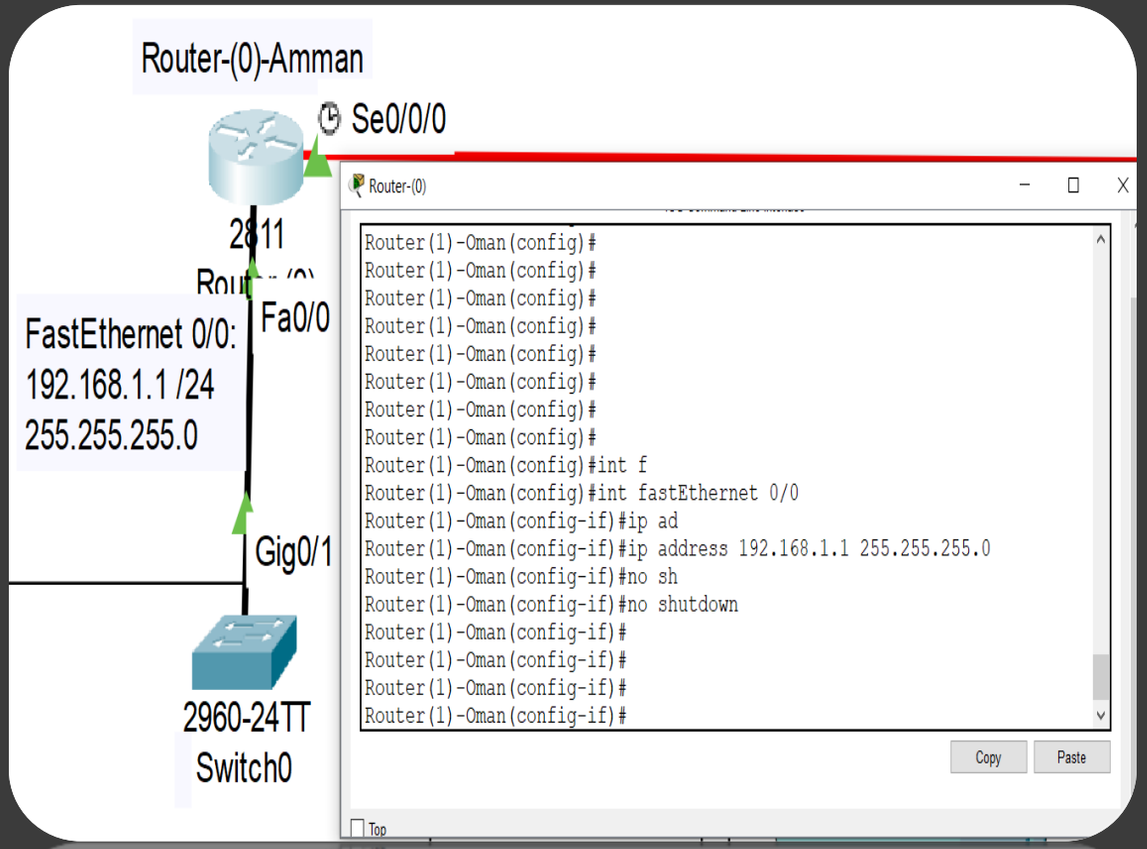
Then we get out of the port.

- Now we are doing the routing process between the networks in order for communication to take place, and the ping process is done.
- Type the following command into the router-Amman:

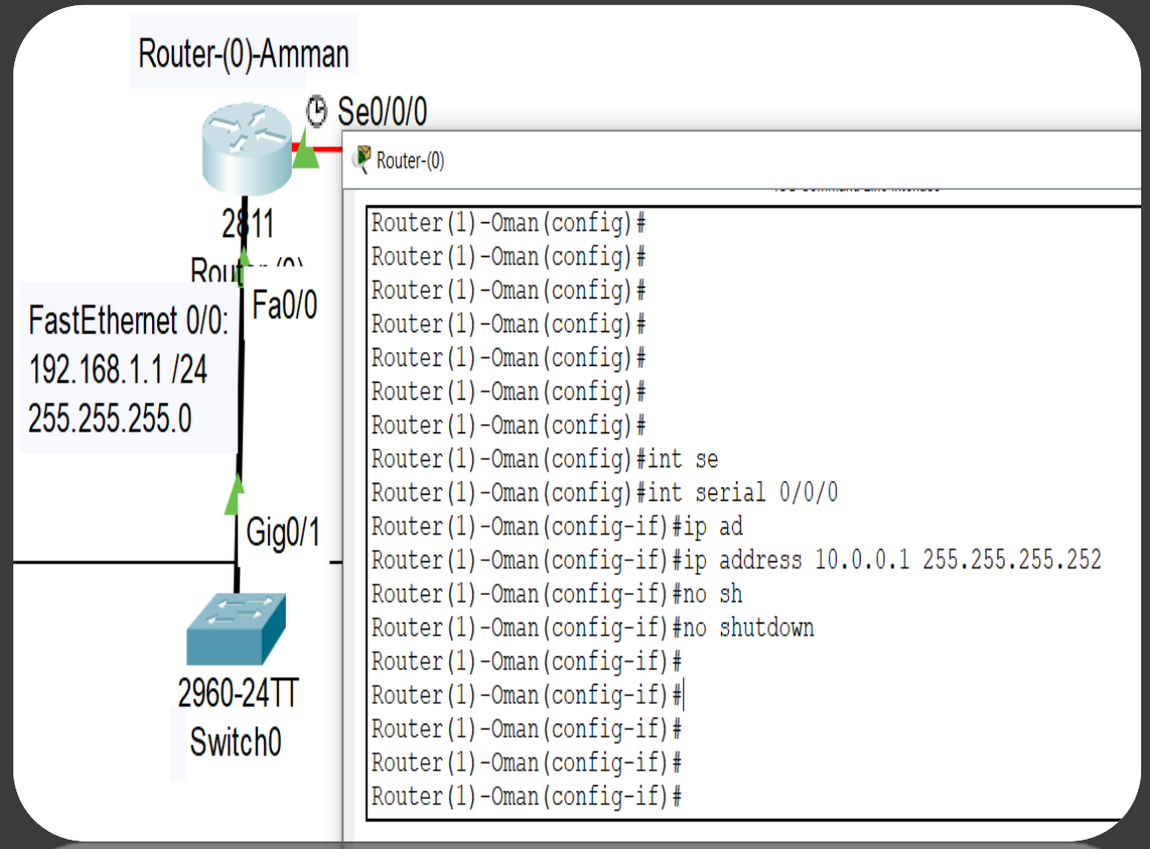
• IP route 192.168.2.0 255.255.255.0 10.0.0.2



Illustrative images from Cisco Packet Tracer /



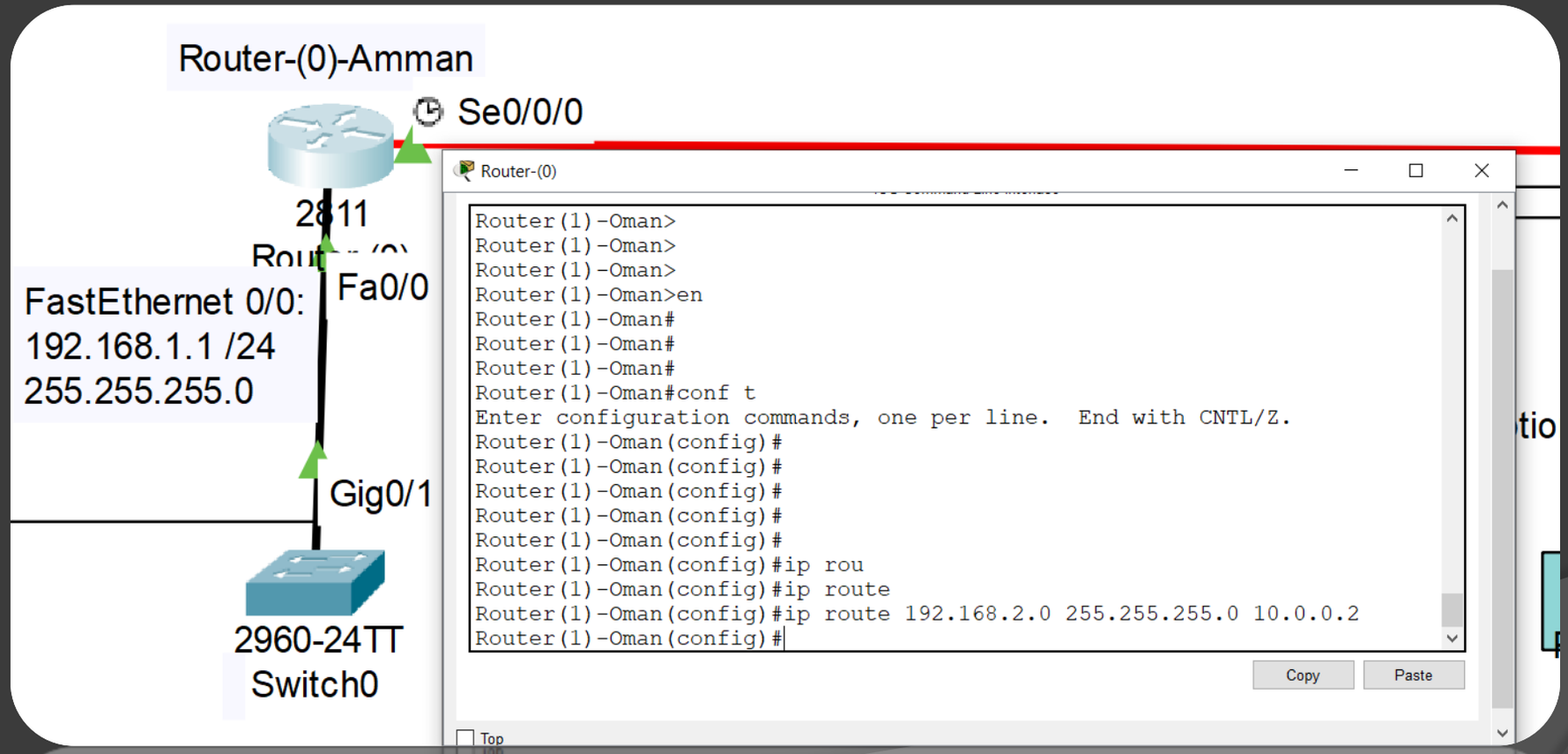
Ill ustrative image from Cisco Packet Tracer for the Interface Fast Ethernet port 0/0.



Illustrative image from Cisco Backup Tracer of Serial Port 0/0/0.

Illustrative images from Cisco Packet Tracer /

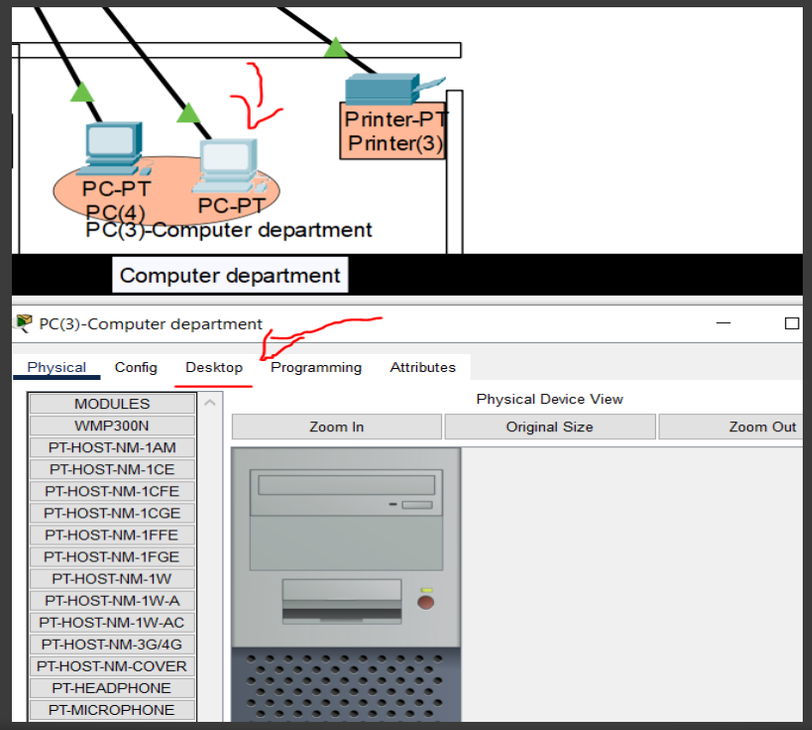
Routing protocol from the main center, Amman, to the Dubai branch:



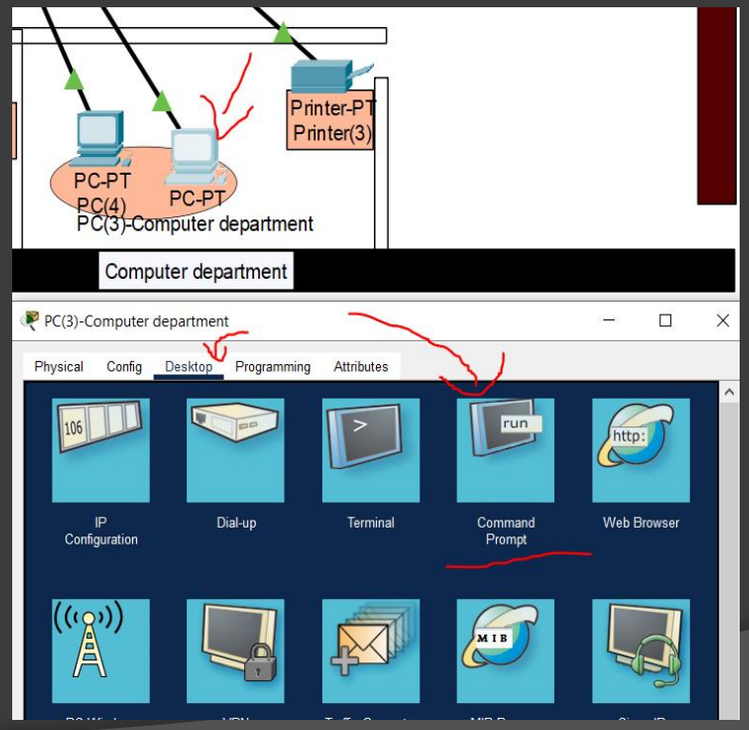
Illustrative images from Cisco Packet Tracer /

How does the Ping process take place between devices in the same network:

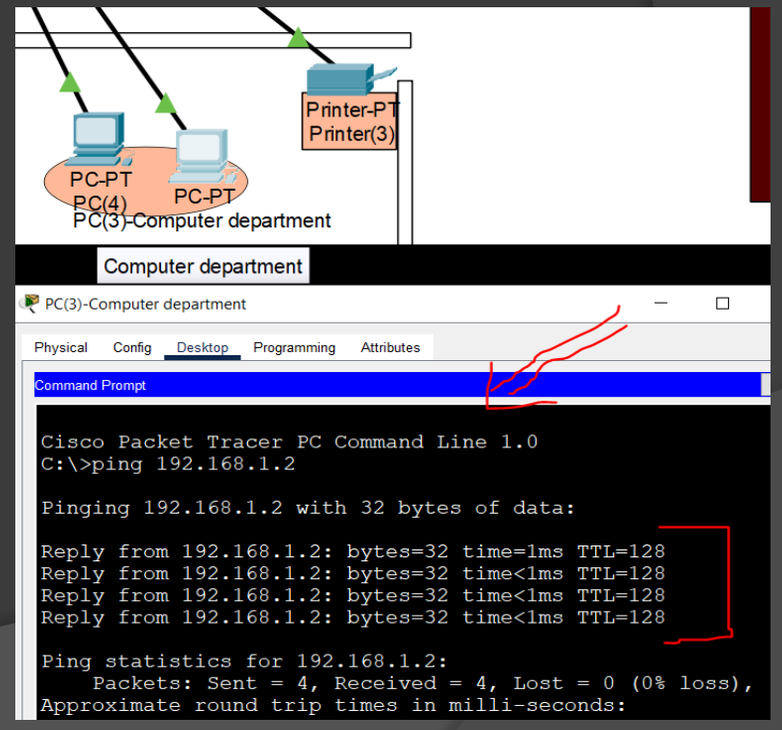
- First: We enter the device that we want to work with Ping.



1



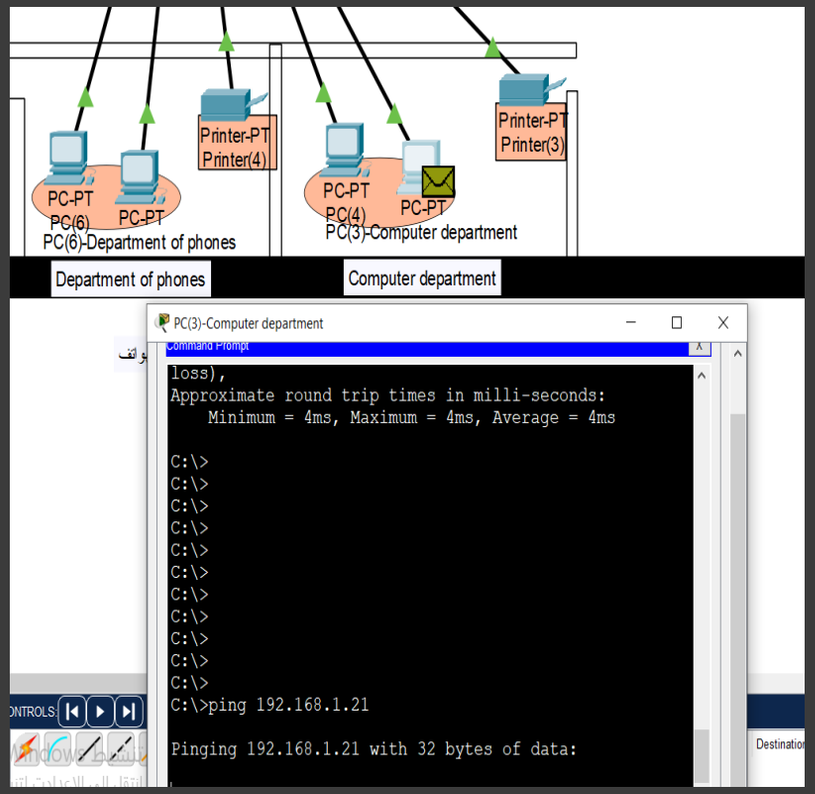
2



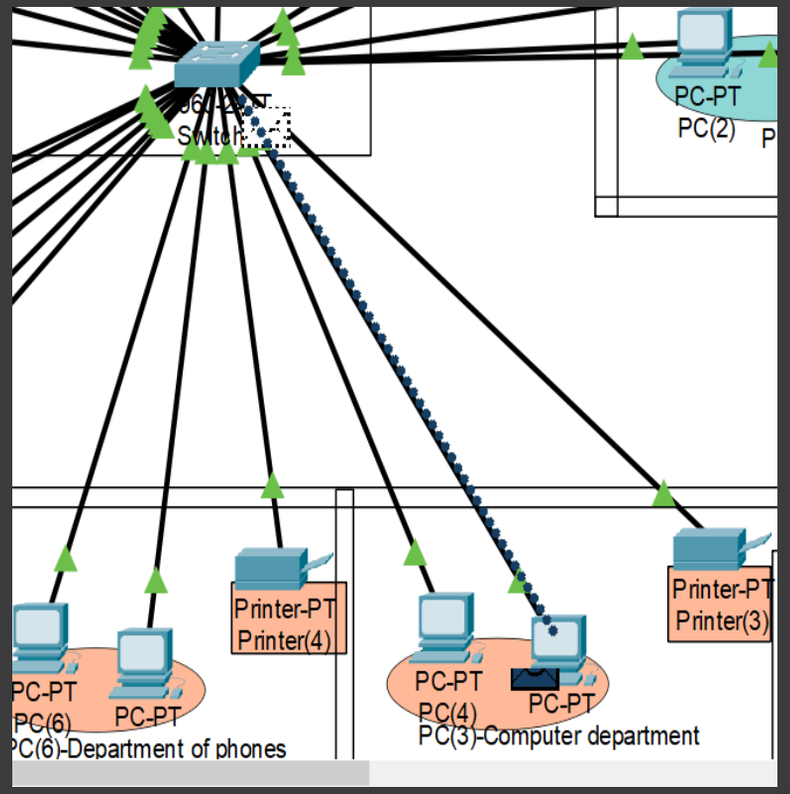
3

Firstly:

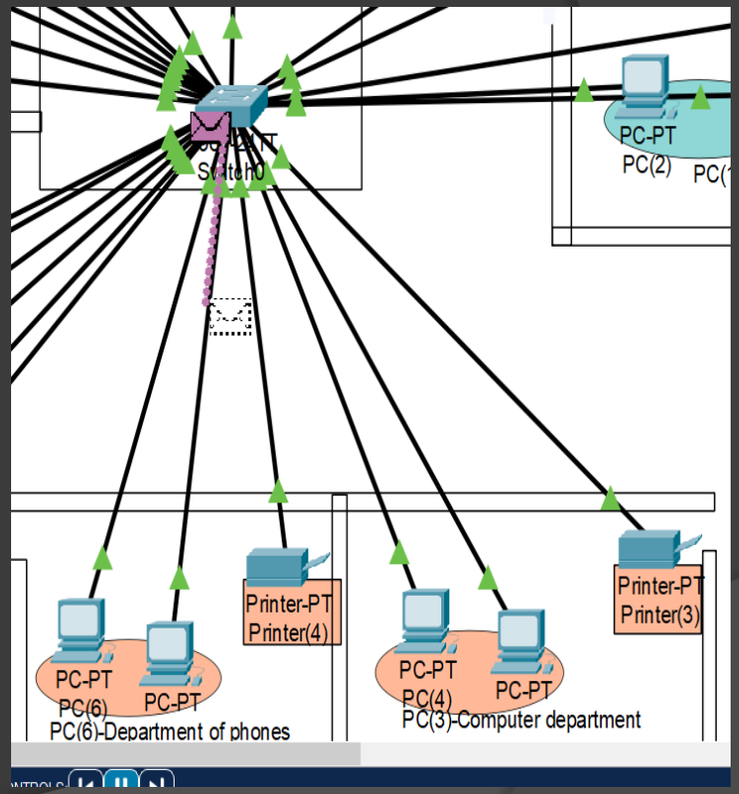
Ping process from a device in the computers section, IP address 192.168.1.18, to another device in the phones section bearing the IP address: 192.168.1.21



1



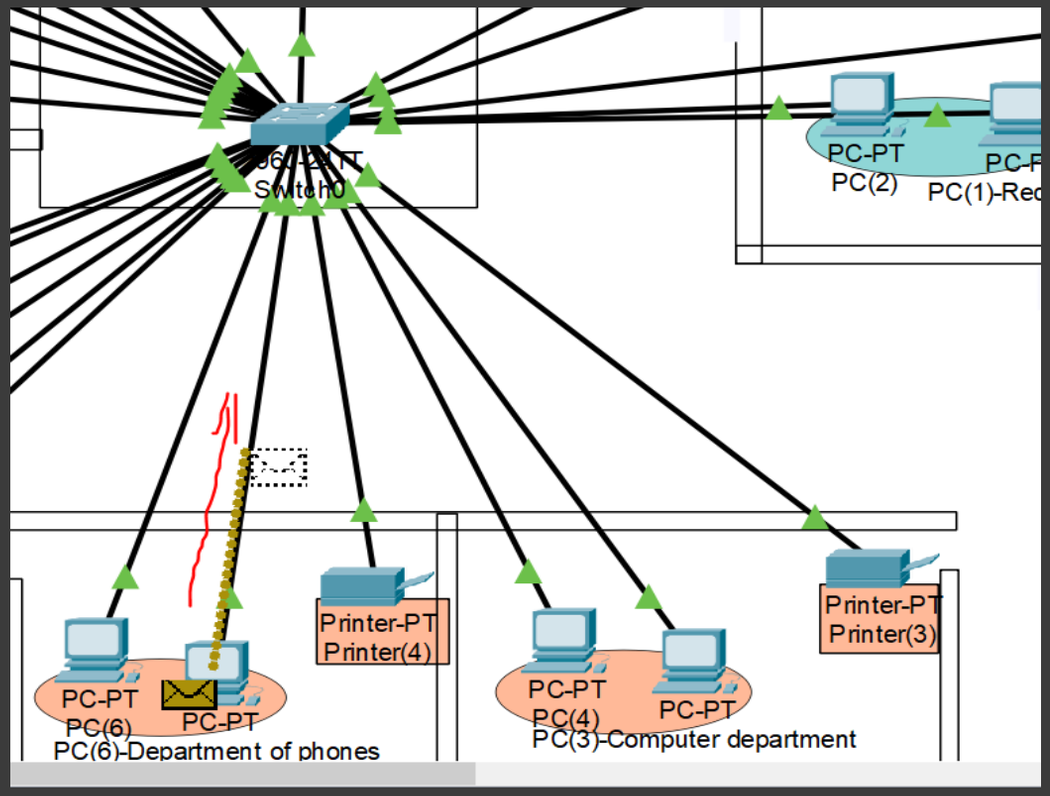
2



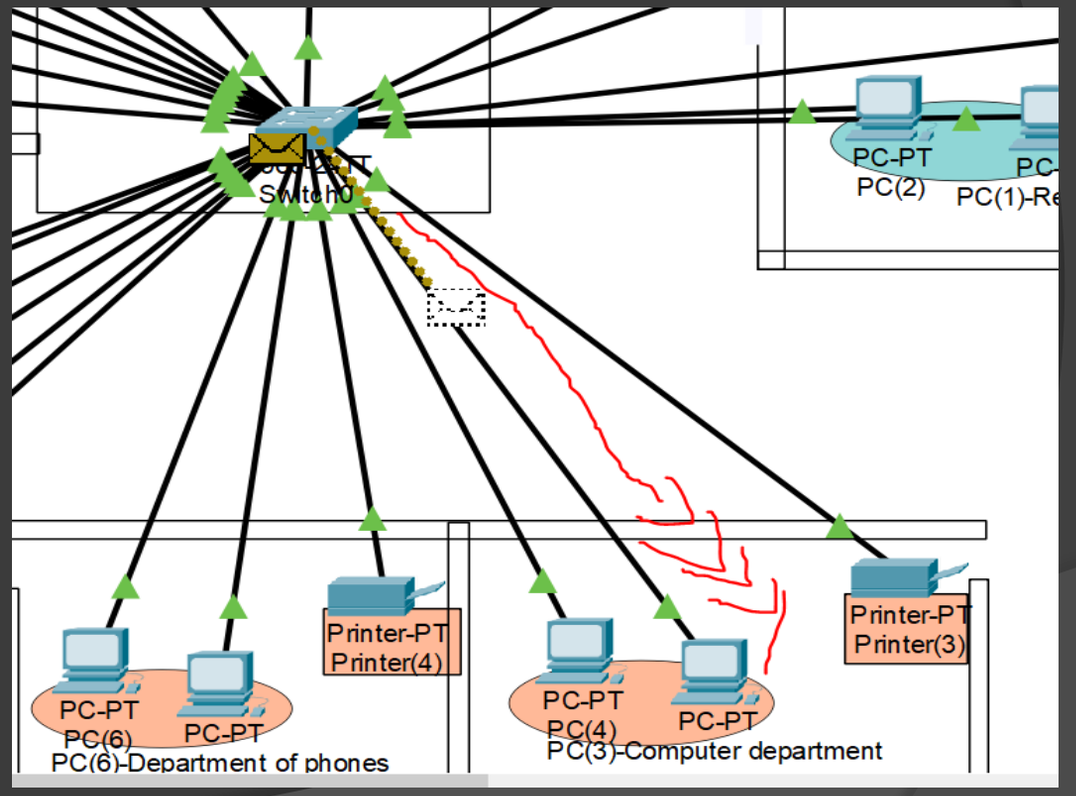
3

secondly:

The response was sent from a device in the phones section, IP address 192.168.1.21, to the device that originated the ping process in the computers section, bearing the IP address: 192.168.1.18



1



2

Web Page Main Branch _ Amman/

- **Fourth:**
- **Create a web page, a website for the company.**

We have created a web page for the company to display its products and sales.

Company sales:

1- Computers and laptops.

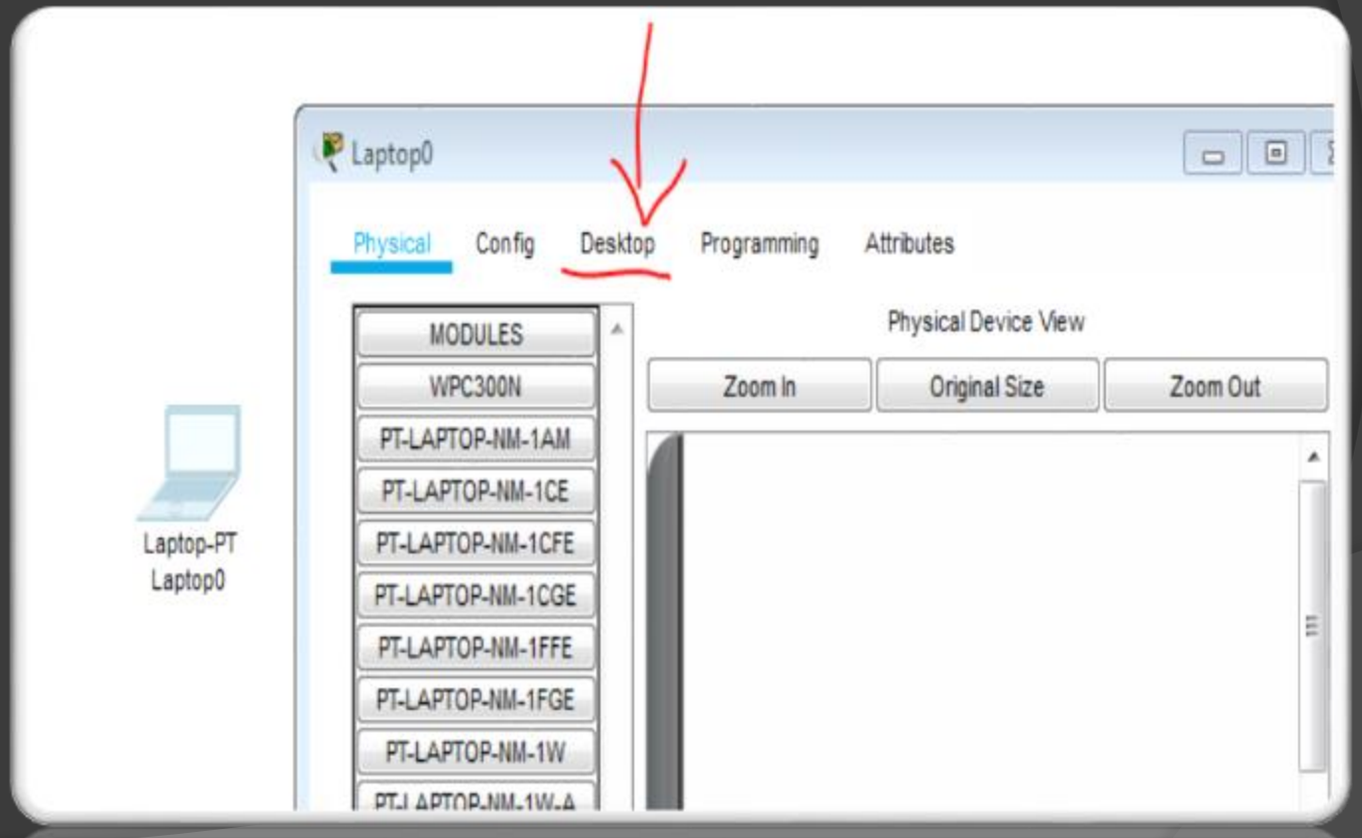
2- A special section for phones.

3- Department of other electronics.

4- A special section for maintenance and programming.

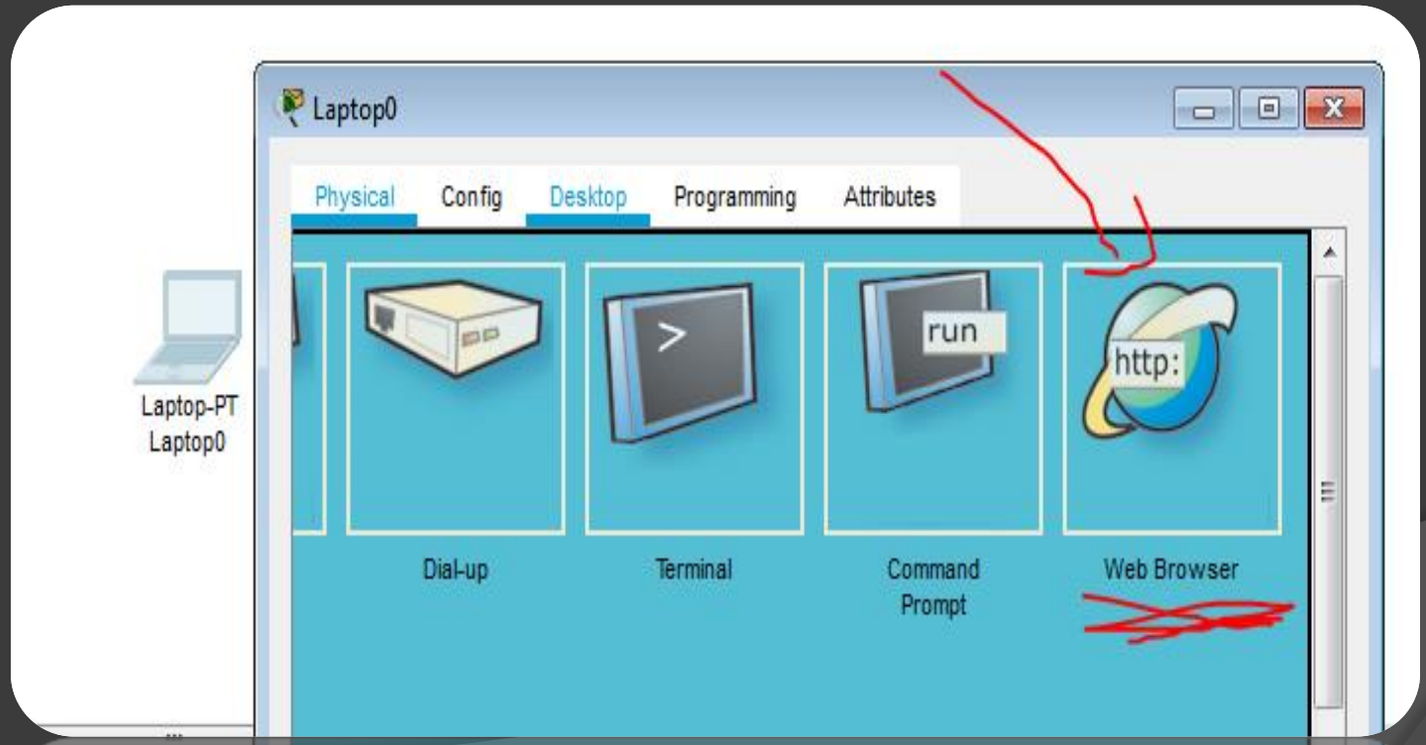
Explain how to access the web page/

We enter into any device in the company, then click on the Desktop :



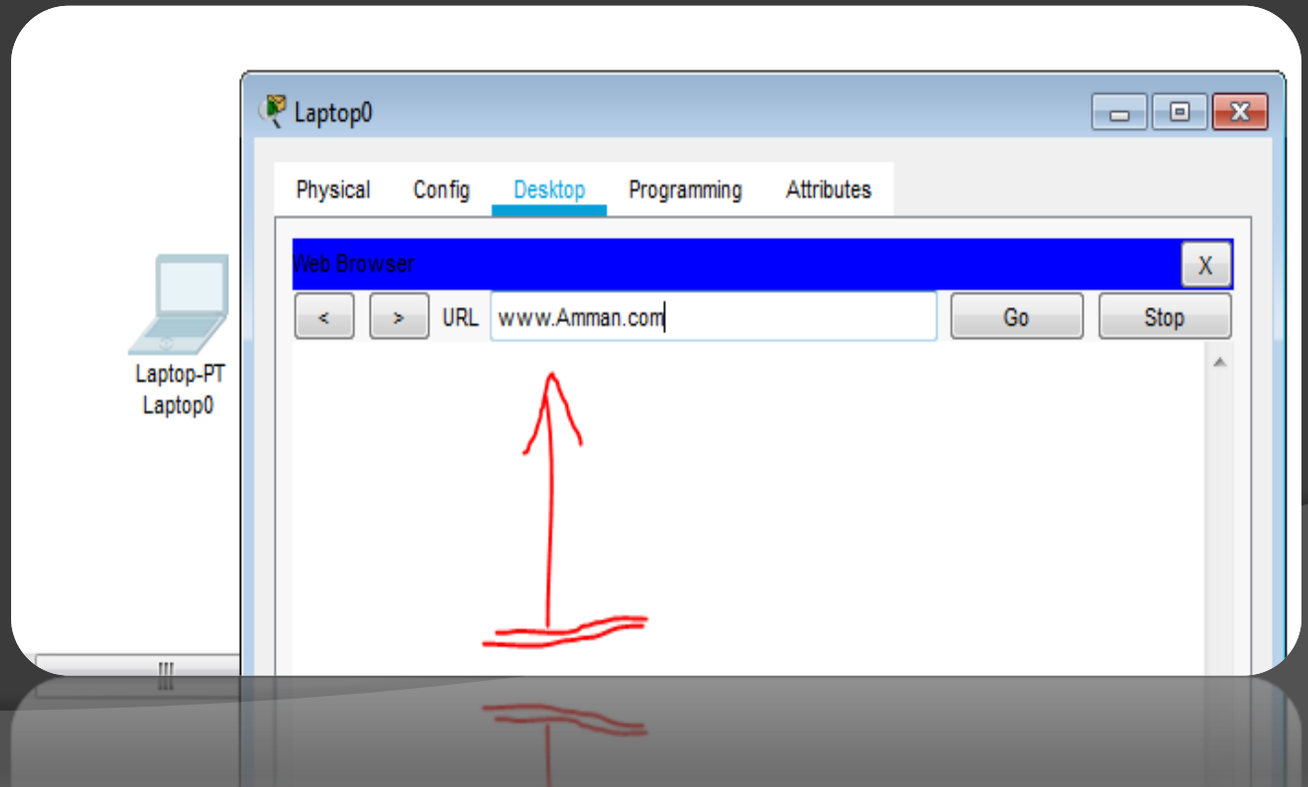
Follow a page(56)

- **Secondly:**
  - **Go to the web page:**



Follow a page(56)

- **Third:**
  - We enter the name of the page / site to be accessed:

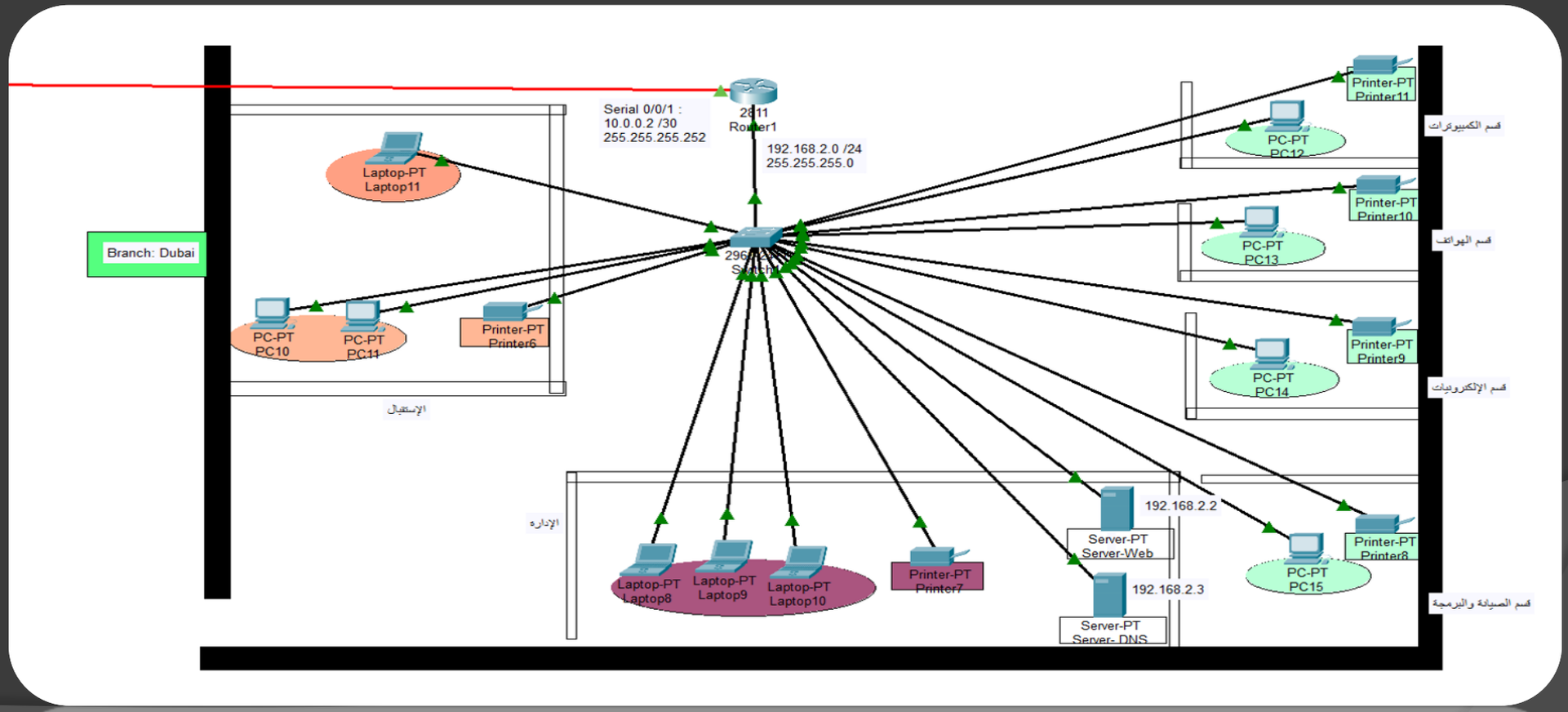


Here we have completed the explanation of the main center (Amman).

Now we will explain the (Dubai) branch.

DUBAI BRANCH \

It is a branch of Excellence Company for Electronic Services and Consultations, this branch is located in (Dubai)

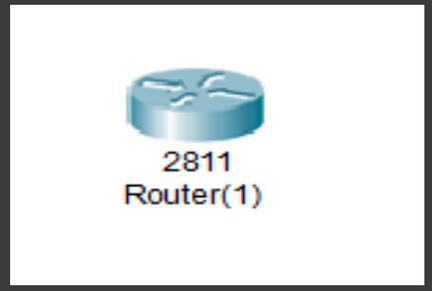


Follow

- **The branch contains:**
  - Administration.
  - Reception.
  - Computers section.
  - Department of phones.
  - Electronics department.
  - Maintenance and programming department.

AL-tmuoz of the company's network design drawing /

- Used equipments :
  - (1) Router Model 2811.



  - (1) Switch Model 2960-24TT.

Follow page (62)

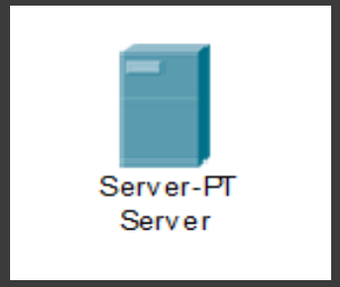
- (4) Laptops.

- (6) PC.

Follow page (63)

- (6) Printers.

- (2) servers.



AL-tmuoz of how to connect between devices in the company /

- Firstly:

main router "Dubai"; We connected port Serial 0/0/1 of the router of the (Dubai) branch, which has IP address 10.0.0.2, Subnet Mask 255.255.255.252 .. In port Serial 0/0/0, head office Amman of the company, bearing IP address 10.0. 0.1, subnet mask 255.255.255.252.

Then we logged into the Fast Ethernet port 0/0 and gave it the address, which is considered the gateway to the "Dubai" branch network (192.168.2.1 255.255.255.0).

Then we switched on the port with the command “No Showdown” .. Then we connected it to the port of the Switch (Dubai) branch Giga 0/1.

Follow page (65)

- **Second:**
  - **Explanation of device connections within the (Dubai) branch.**
  - **A detailed explanation of connecting network devices in the Dubai branch.**

Follow page (66)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Router(2)- Dubai Branch:	Serial 0/0/1	10.0.0.2	255.255.255.252	10.0.0.1	Connected to Router (1) - Dubai branch, with Serial port 0/0/0.
Router(2)- Dubai Branch:	Fast Ethernet Net 0/0	192.168.2.1	255.255.255.0	192.168.2.1	Connected to Switch(1)- Dubai Branch:, with Gig 0/1 port.

Follow page (67)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Server(3) DNS= Dubai Branch:.	**Fast Ethernet Net 0/1**	**192.168.2.2**	**255.255.255.0**	**192.168.2.1**	Connected to Switch(1) - Dubai Branch:, with Fast Ethernet Net port 0/1.
Server(4) WEB = The main center, Amman.	**Fast Ethernet Net 0/1**	**192.168.2.3**	**255.255.255.0**	**192.168.2.1**	Connected to Switch(1) - Dubai Branch, with Fast Ethernet Net port 0/2.

Follow page (68)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Laptop-1= Dubai Branch.	Fast Ethernet 0	192.168.2.5	255.255.255.0	192.168.2.1	Connected to Switch(1) Dubai Branch, with Fast Ethernet Net port 0/3.
Laptop-2= Dubai Branch.	Fast Ethernet 0	192.168.2.6	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch, with Fast Ethernet Net port 0/4.

Follow page (69)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Laptop-3= The Dubai Branch.	Fast Ethernet 0	192.168.2.7	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch, with Fast Ethernet Net port 0/5.
Printer(1) = Dubai Branch.	Fast Ethernet 0	192.168.2.8	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch, with Fast Ethernet Net port 0/6.

Follow page (70)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
PC-1= The Dubai Branch- Reception.	Fast Ethernet 0	192.168.2.11	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch. , with Fast Ethernet Net port 0/11.
PC-2= The Dubai Branch- Reception.	Fast Ethernet 0	192.168.2.12	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/12.

Follow page (71)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
Printer-2= The Dubai Branch- Reception.	Fast Ethernet 0	192.168.2.13	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch. , with Fast Ethernet Net port 0/13.
Laptop-4= The Dubai Branch Reception.	Fast Ethernet 0	192.168.2.14	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/14.

Follow page (72)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
PC-3= The Dubai Branch Computers section.	Fast Ethernet 0	192.168.2.17	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/17.
Printer-3= The Dubai Branch – Computers section.	Fast Ethernet 0	192.168.2.18	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/18.

Follow page (73)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
PC-4= The Dubai Branch Department of phones.	Fast Ethernet 0	192.168.2.18	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/18.
Printer-4= The Dubai Branch Departme nt of phones.	Fast Ethernet 0	192.168.2.19	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/19.

Follow page (74)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
PC-5= The Dubai Branch - Electronics department .	Fast Ethernet 0	192.168.2.20	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/20.
Printer-5-= The Dubai Branch Electronics department .	Fast Ethernet 0	192.168.2.21	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/21.

Follow page (75)

Devices	Interface	IP Address	Subnet Mask	Default Gateway	Connection port
PC-6= The Dubai Branch -	Fast Ethernet 0	192.168.2.22	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/22.
Printer-6= The Dubai Branch -	Fast Ethernet 0	192.168.2.23	255.255.255.0	192.168.2.1	Connected to Switch (1) Dubai Branch with Fast Ethernet Net port 0/23.

The process of messaging and data transfer in the network /

- **Third:**
  - How to send and receive data / messages in the network between devices in the **Dubai Branch /**

When we want to send data or a packet from one device to another in the network. The source device sends the packet / package to the switch device, and the switch device transfers it to the panel device to which the package is to be delivered. Then the destination device receives the message and then replies to it by sending it to the switch device, then the switch device delivers it to the source device from which the message came out. After that, the transmitted process appears.

Explanation of the cable connection process in the company /

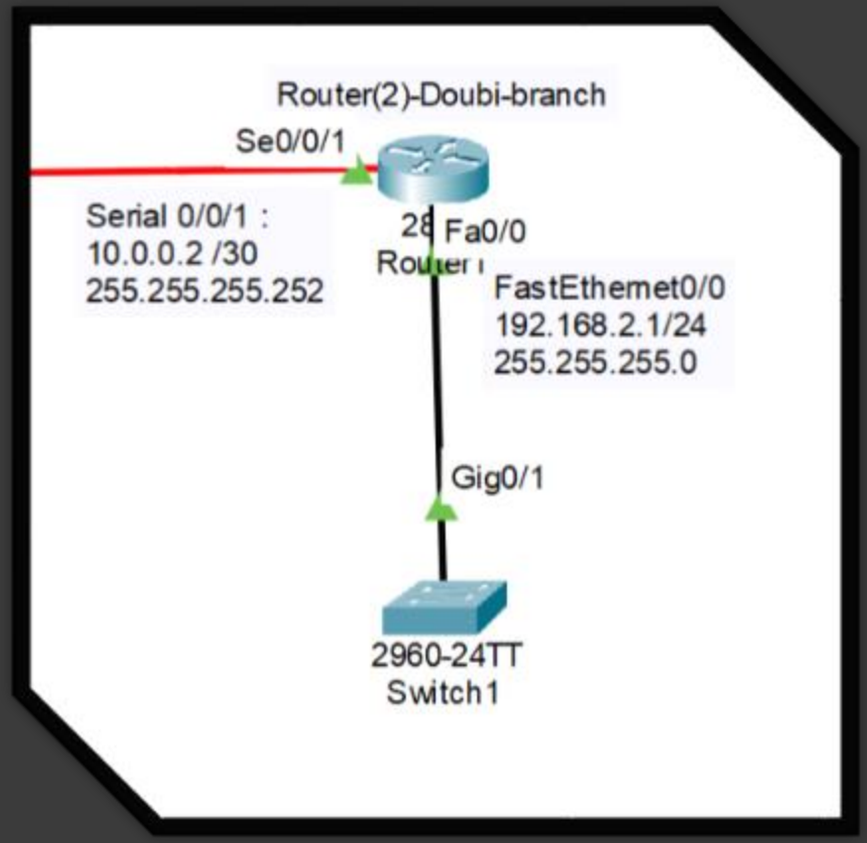
- **Explanation of the connection / linking process between devices:**
  - Explain the connection / connection process and identify the type of cable connecting the devices in the company.
  - Identifying cables and using them to connect devices.
  - Explanation, with illustrations, of how the devices were connected to the switch.

Explanation of the hardware connection process \

- **First:**

  How was the router of the Dubai Branch connected to the switch port: The port of the router, Port No. 0/0 of Fast Ethernet, was connected to the switch to port No. 0/1 Giga by means of a network cable

  (Copper Straight-Through).



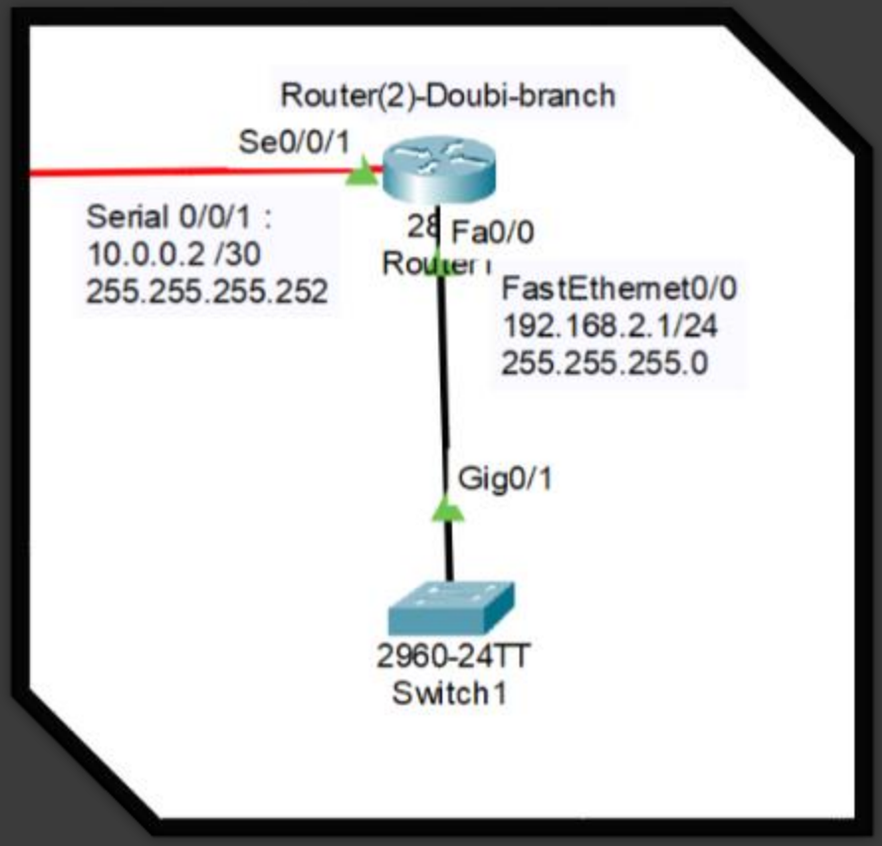
Explanation of the default gateway for the company's router, Fast Ethernet 0/0 :

(80)

A brief explanation of the Fast Ethernet port 0/0 for the router of the Excellence Company for Electronic Services and Consulting (Dubai) branch.

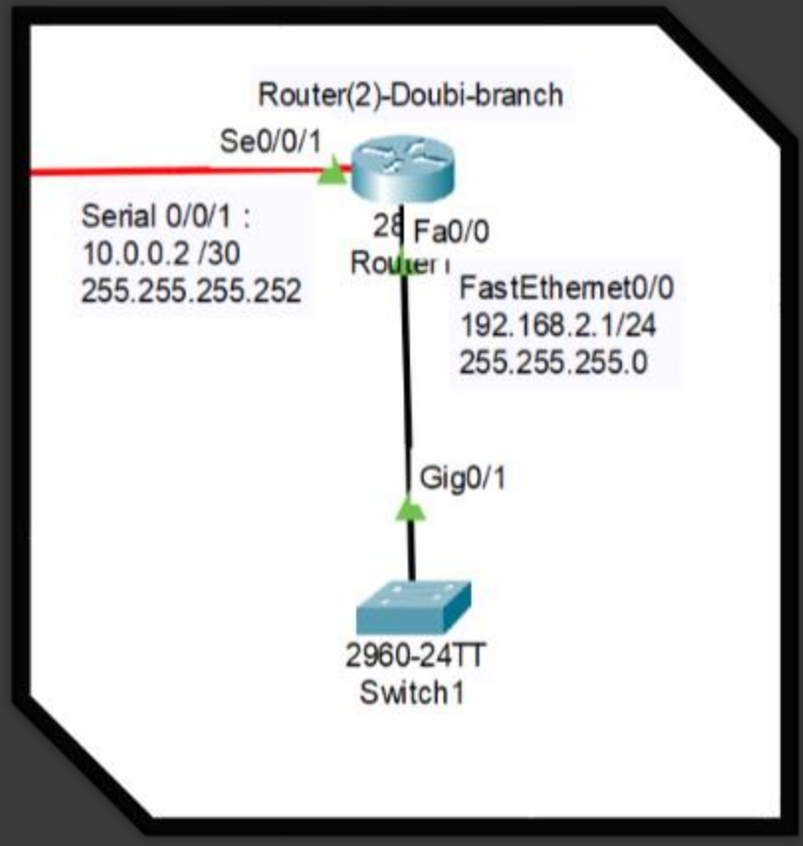
The company's router Fast Ethernet port for the Dubai branch is the main gateway to the network.

Network devices are allowed to access/send and receive messages to and from the company's headquarters network - Amman.



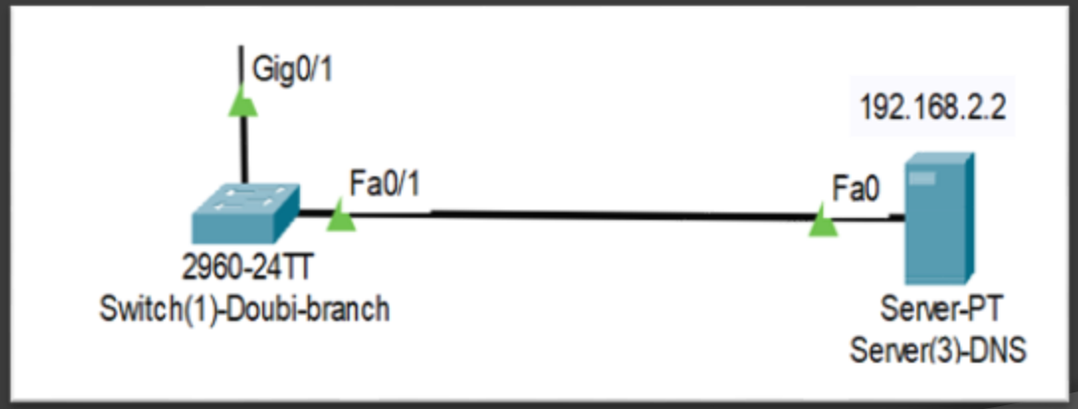
Follow Explanation of the default gateway for the company's router, Fast Ethernet 0/0 :

- He was given an IP address (192.168.2.1), which is the default gateway of the network, or what is called a network routing gateway, where network devices can communicate from other networks that are completely different from their range, and this is done by activating the routing protocol (IP Route), which is activated in router.
- The router is connected to the switch(Copper Straight-Through).



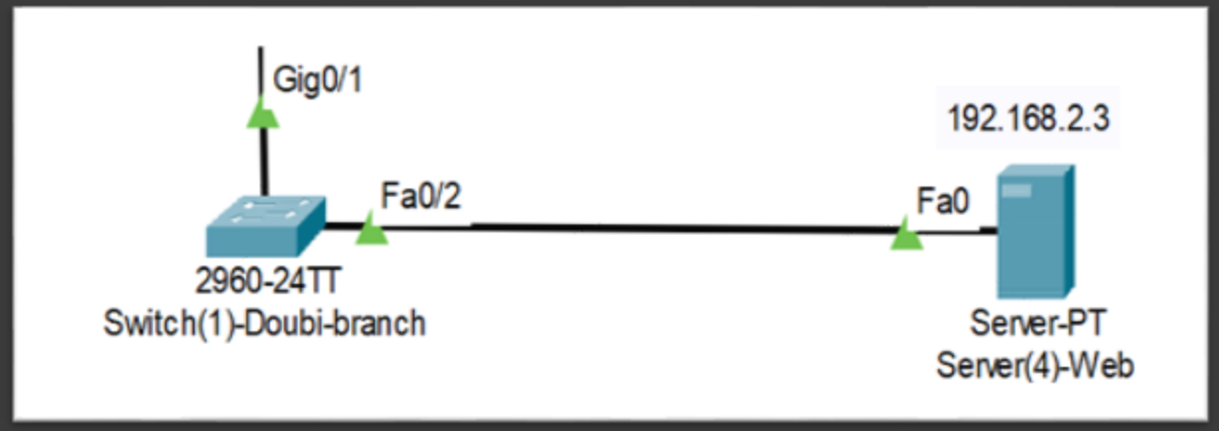
Follow the page (80-81)

- **secondly:**
  - **How was the (Dubai) branch server connected to the switch ports:**
    - Server(3)-DNS connected to Port No. (0/1), carrying an IP address192.168.2.2.. Connected with a **(Copper Straight-Through) cable.**



Follow the page (82)

- Server(2)-Web connected to Port No. (0/2), carrying an IP address 192.168.2.3 , Connected with a **(Copper Straight-Through) cable.**

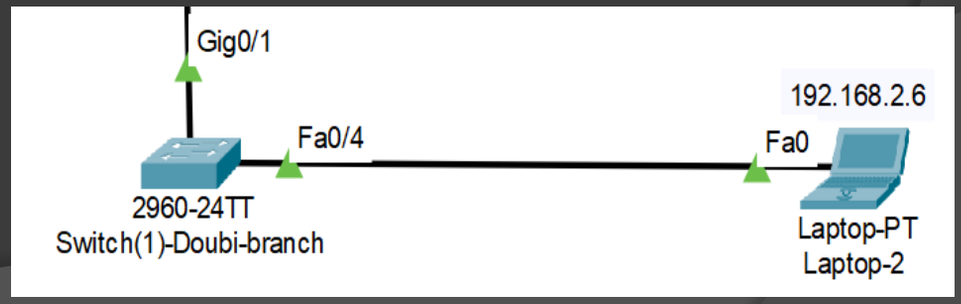


On this server, the web page of AL-tmuoz Company, the main branch _ Amman, was installed and designed.

How to connect management office devices to the switch ports of (Dubai) branch /

Laptop-1.. Administration Office Branch - Dubai, IP address holder (192.168.2.5) connected to "Switch (1) with Fast Ethernet port 0/3.

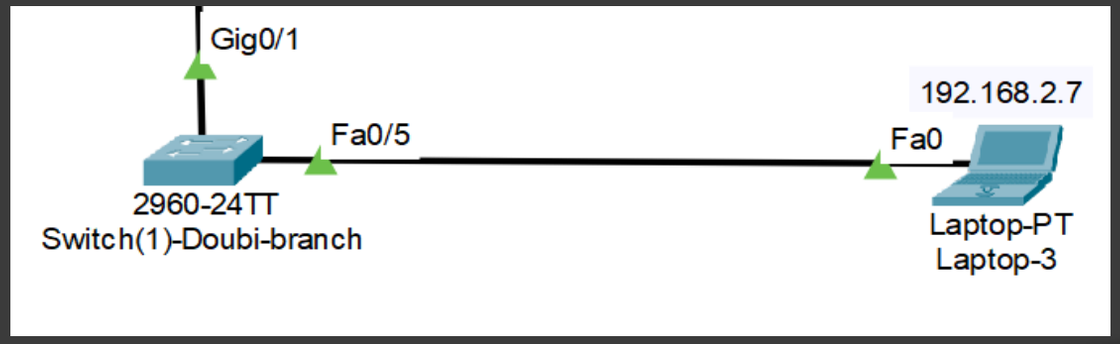
Laptop-2.. Administration Office Branch - Dubai, IP address holder (192.168.2.6) connected to "Switch (1) with Fast Ethernet port 0/4.



Follow the page (84)

Laptop-3.. Administration Office Branch - Dubai, IP address holder (192.168.2.7) connected to "Switch (1) with Fast Ethernet port 0/5.

Printer No. 1, administration office, branch - (Dubai), IP address holder (192.168.2.8), connected to Switch (1), branch - Dubai, Fast Ethernet port 0/6.



How to connect the reception devices to the switch ports of the (Dubai) branch/

(86)

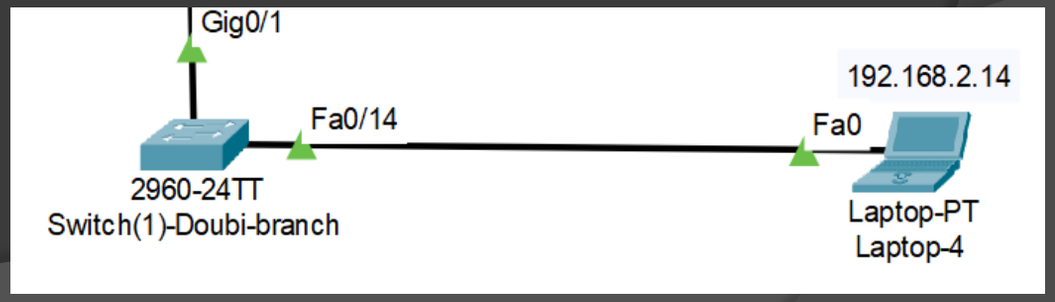
PC-1 Reception Department (Dubai) Branch, holder of IP address holder (192.168.2.11); Connected to Switch (1) - Dubai branch with Fast Ethernet port 0/11.

PC-1 Reception Department (Dubai) Branch, holder of IP address holder (192.168.2.12); Connected to Switch (1) - Dubai branch with Fast Ethernet port 0/12.

Follow the page (86)

Printer-2, Reception Department , branch - (Dubai), IP address holder (192.168.2.13), connected to Switch (1), branch - Dubai, Fast Ethernet port 0/13.

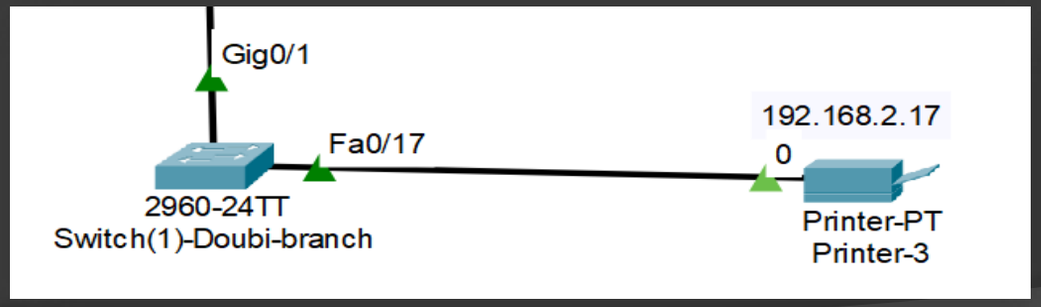
Laptop-4 Reception Department (Dubai) Branch I.P. Study (192.168.2.14); Connected to Switch(1) Fast Ethernet port 0/14

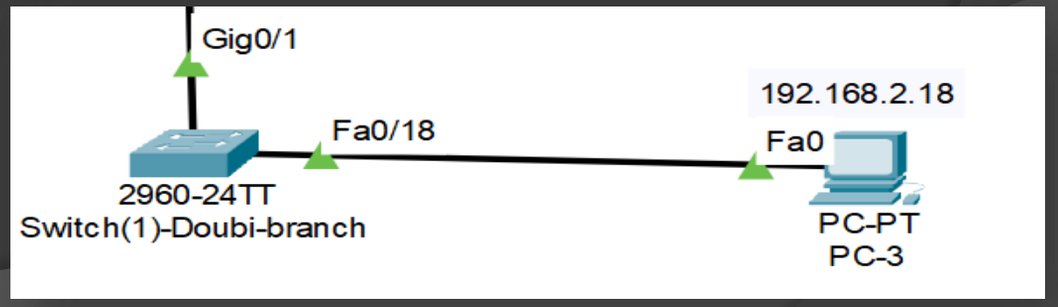


How to connect / connect the computers of the computer department to Switch (1) - Dubai branch /

Printer-3 Computer Department-Branch (Dubai)
IP Address (192.168.2.17);
Connected to Switch (1) with Fast Ethernet port 0/17.
Connected with a (Copper Straight-Through) cable

PC-3 Computer Department-Branch (Dubai)
IP Address (192.168.2.18);
Connected to Switch (1) with Fast Ethernet port 0/18.
Connected with a (Copper Straight-Through) cable

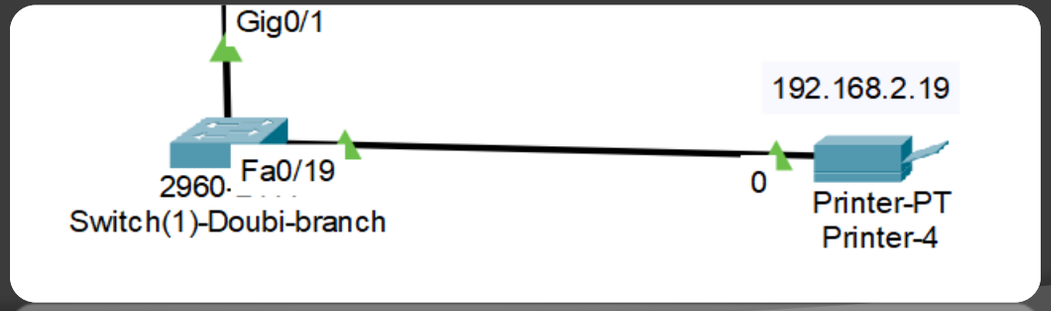


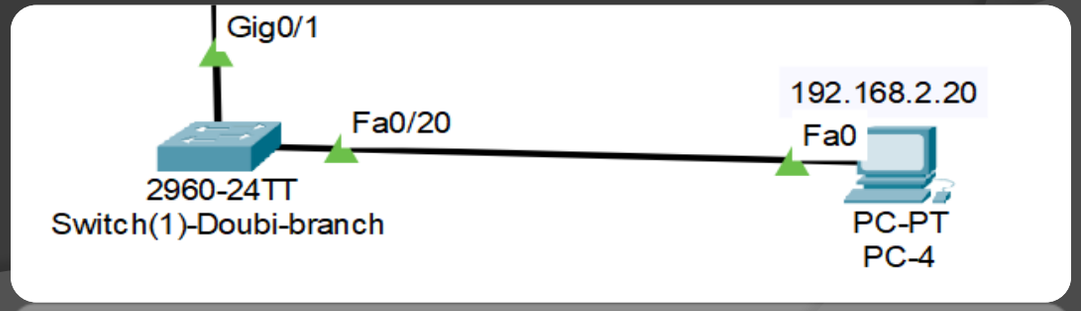


How to connect / connect the computers of the Department of phones to Switch (1) - Dubai branch /

Printer-4
Department of phones - Branch (Dubai)
IP Address (192.168.2.19);
Connected to Switch (1) with Fast Ethernet port 0/19.
Connected with a (Copper Straight-Through) cable

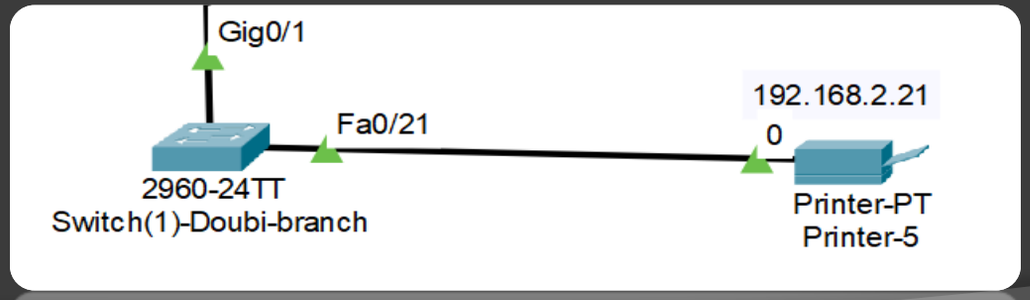
PC-4
Department of phones - Branch (Dubai)
IP Address (192.168.2.20);
Connected to Switch (1) with Fast Ethernet port 0/20.
Connected with a (Copper Straight-Through) cable



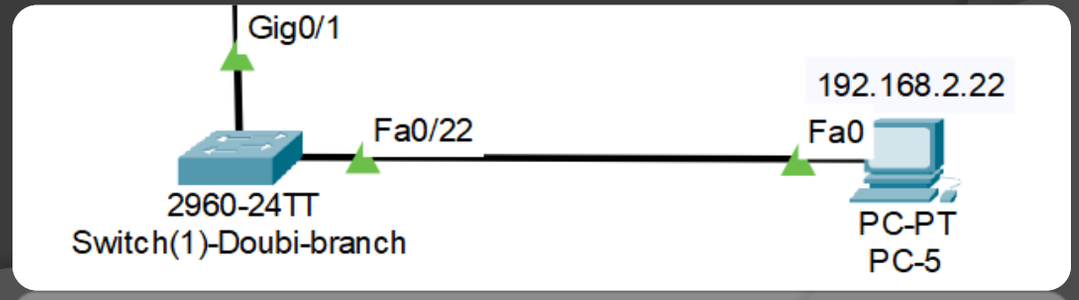


How to connect / connect the computers of the Electronics department to Switch (1) - Dubai branch /

Printer-5
Electronics department- Branch (Dubai)
IP Address (192.168.2.21);
Connected to Switch (1) with Fast Ethernet port 0/21.
Connected with a (Copper Straight-Through) cable



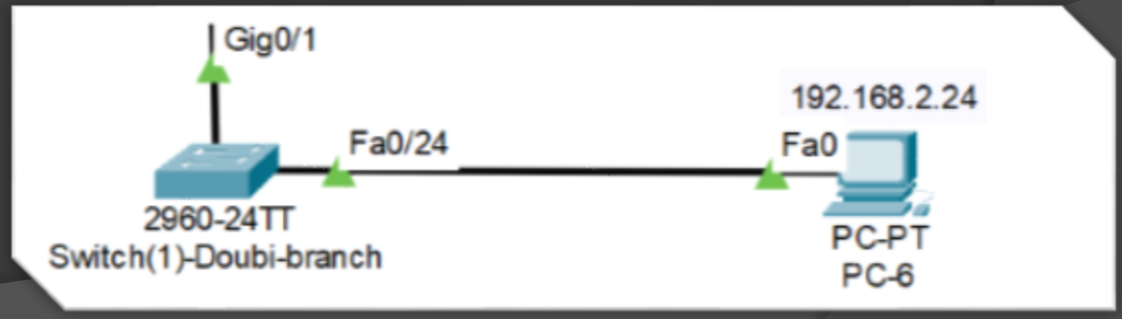
PC-5
Electronics department- Branch (Dubai)
IP Address (192.168.2.22);
Connected to Switch (1) with Fast Ethernet port 0/22.
Connected with a (Copper Straight-Through) cable



How to connect / connect the Maintenance and programming department to Switch (1) - Dubai branch /

Printer-6
Maintenance and programming department - Branch (Dubai)
IP Address (192.168.2.23);
Connected to Switch (1) with Fast Ethernet port 0/23.
Connected with a
(Copper Straight-Through) cable

PC-6
Maintenance and programming department-Branch (Dubai) IP Address (192.168.2.24);
Connected to Switch (1) with Fast Ethernet port 0/24.
Connected with a
(Copper Straight-Through) cable



Explain the connection and routing process between the two networks/

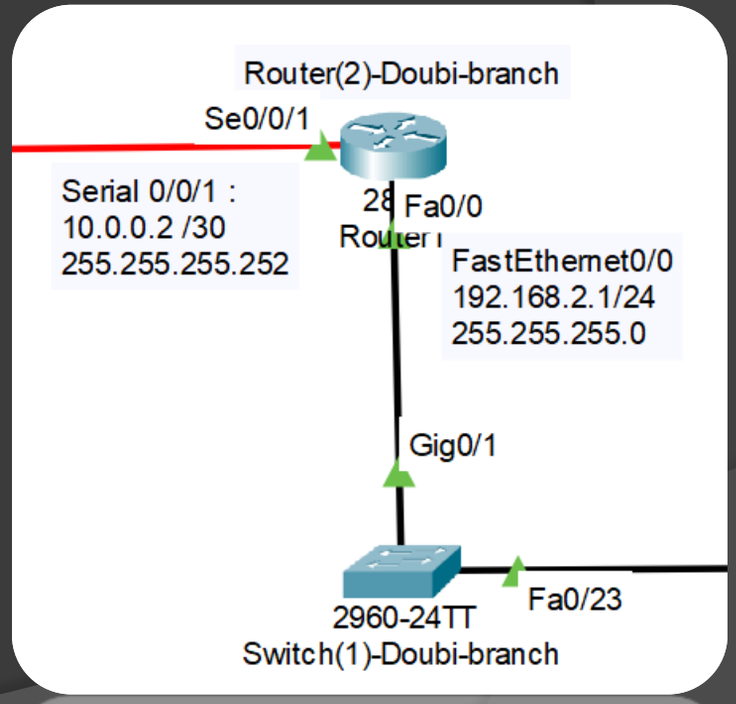
We connected two routers to the two networks of the Excellence Electronic Company, the branch network _ Dubai, and the main center network _ Amman, with the leased line (serial) cable.

Explain the connection and routing process between the two networks/

We connected from the branch router - (Dubai) from serial port 0/0/1 with IP address (10.0.0.2) Subnet mask (255.255.255.252), to the head office router (Amman) with the (serial) port with IP address (10.0.0.1) Subnet Mask (255.255.255.252).

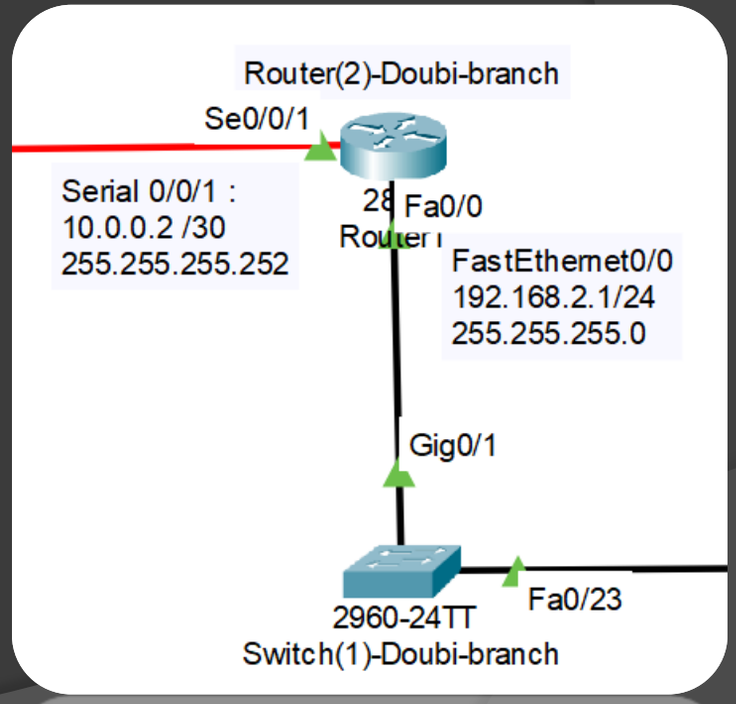
Explanation of the method of addressing and routing a branch network (Dubai) /

Explanation of the addressing and routing method inside the router:
We entered the router (1) - Dubai branch, then entered the mode (config), then entered the command Interface Fast Ethernet 0/0.
Then we pressed OK, we were transferred to the port of the router (1), the Dubai branch connected to the switch (1), the Dubai branch.



Follow the page (94)

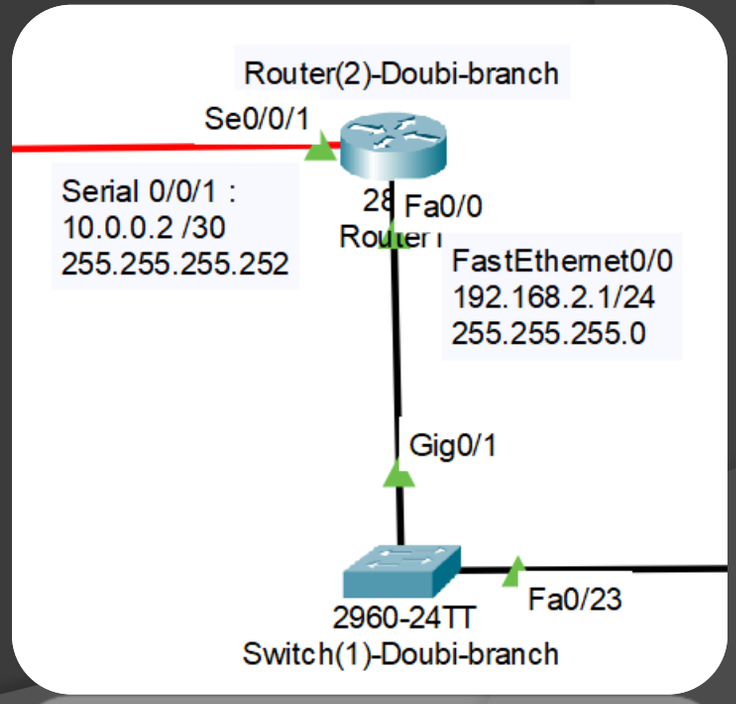
1. We enter the command IP address 192.168.2.1 255.255.255.0 Then we press OK. The port is given an Address.
2. Third: We will run the port with the command "No Show Down", and the port will run.
3. After that, we exit the (Interface) port, then enter the (Serial 0/0/1) port, which connects the Dubai branch and the main center, Amman.
   - Enter the command Inter Serial 0/0/1, then press OK. He'll take us straight to the port.
   - We give the IP Address 10.0.0.2 255.255.255.252 to the port.



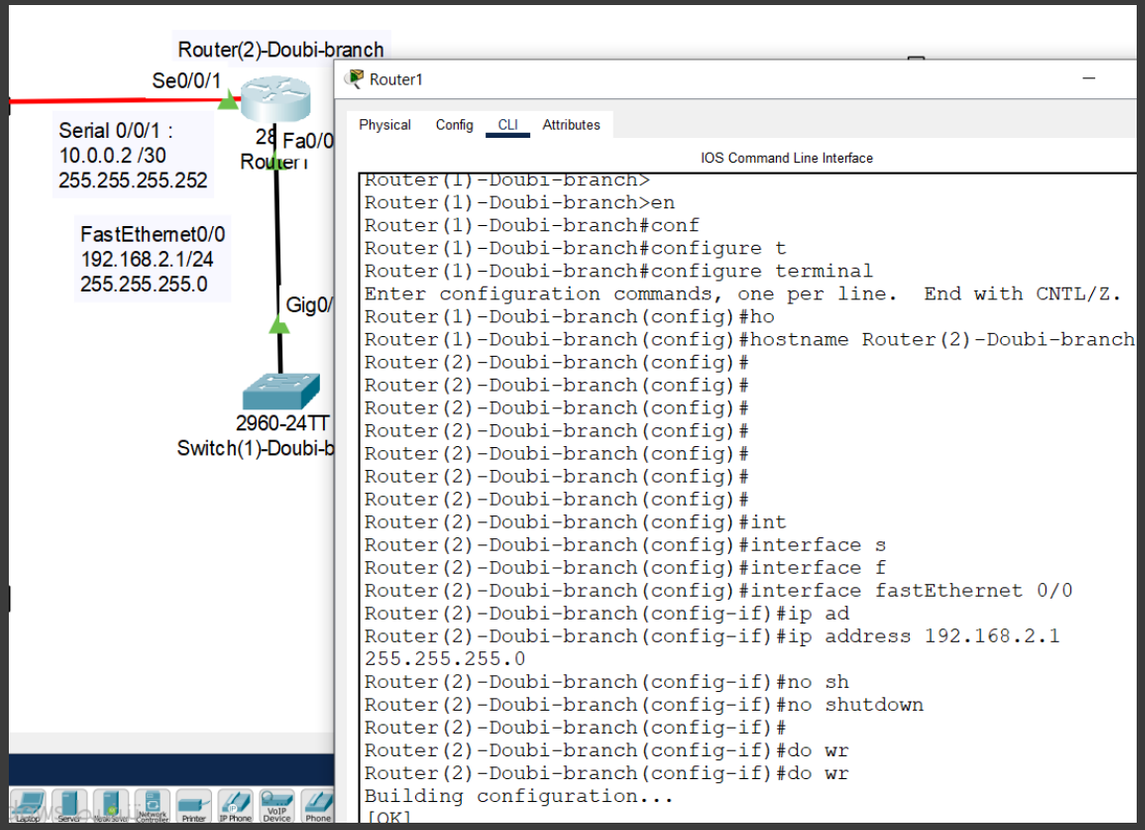
Follow the page (95)

4- Turn on the port with the no shutdown command.
Then we get out of the port.

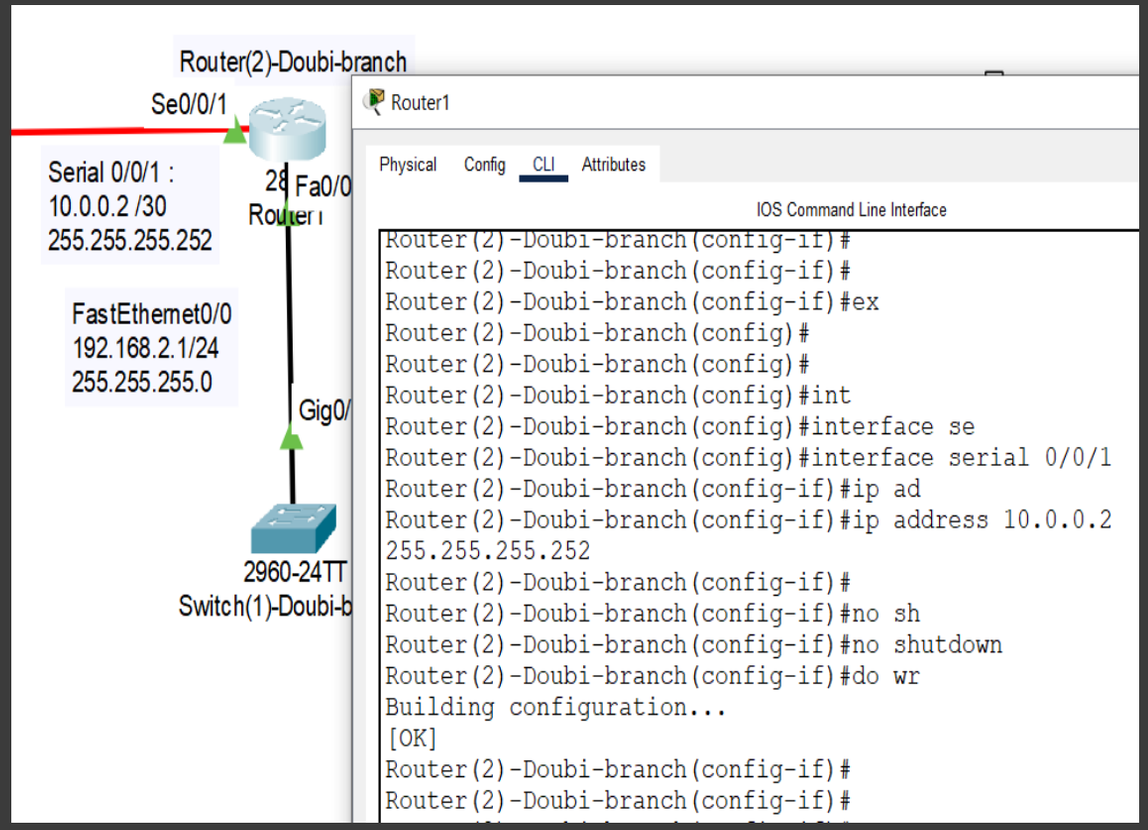
We are now doing the routing process between the networks in order to make the connection, and the ping is done.
Type the following command in the branch-Dubai router: IP route 192.168.1.0 255.255.255.0 10.0.0.1



Illustrative images from Cisco Packet Tracer /



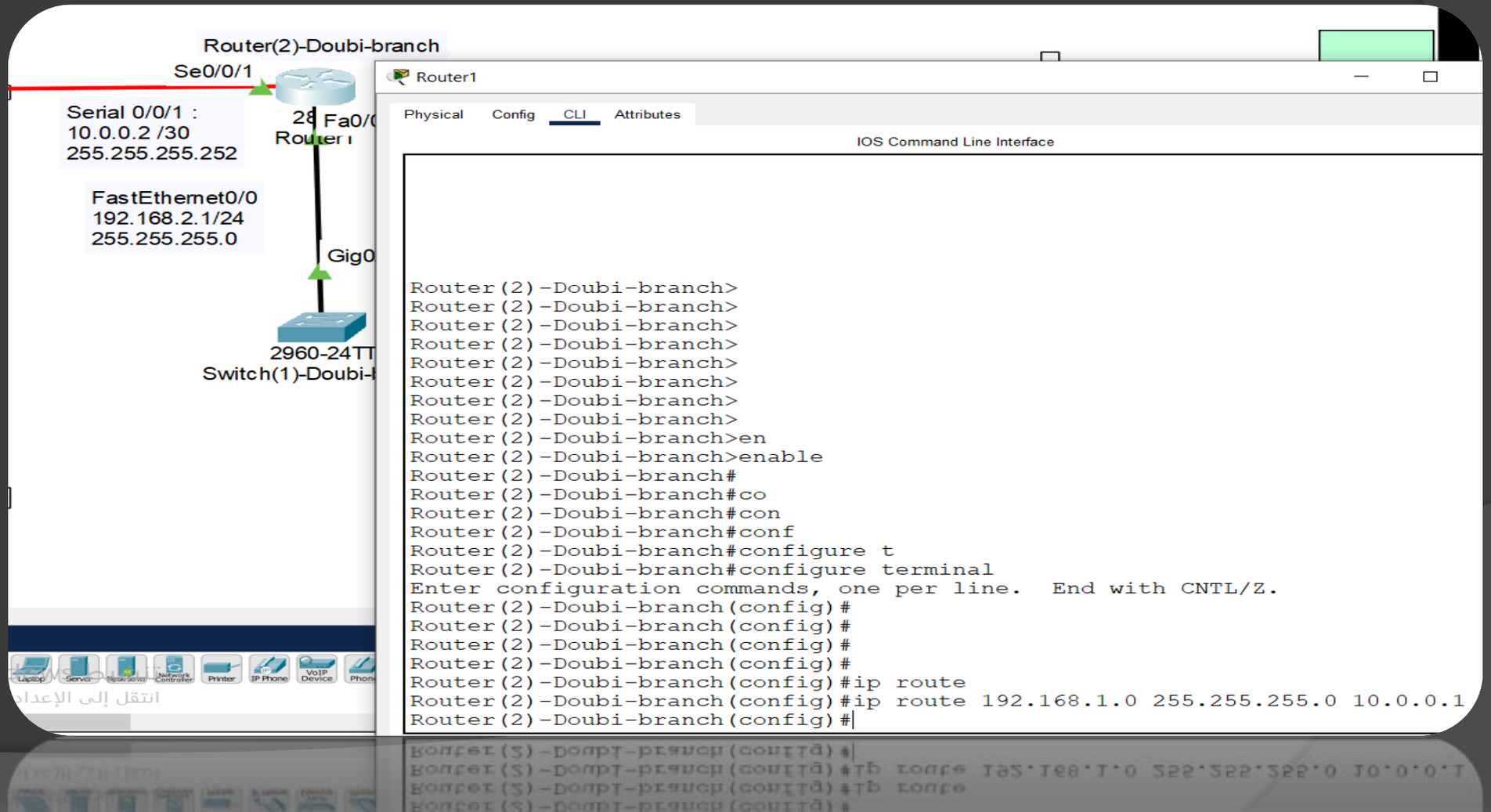
Illustrative image from Cisco Packet Tracer for the Interface Fast Ethernet port 0/0.



Illustrative image from Cisco Backup Tracer of Serial Port 0/0/1.

Illustrative images from Cisco Packet Tracer /

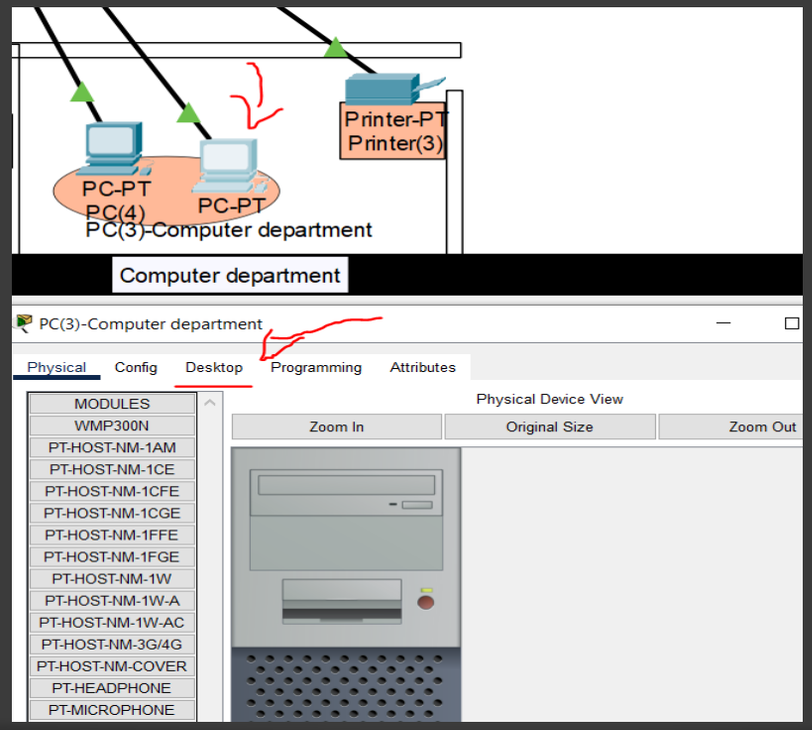
Routing protocol from the Dubai branch, to the main center, Amman, :



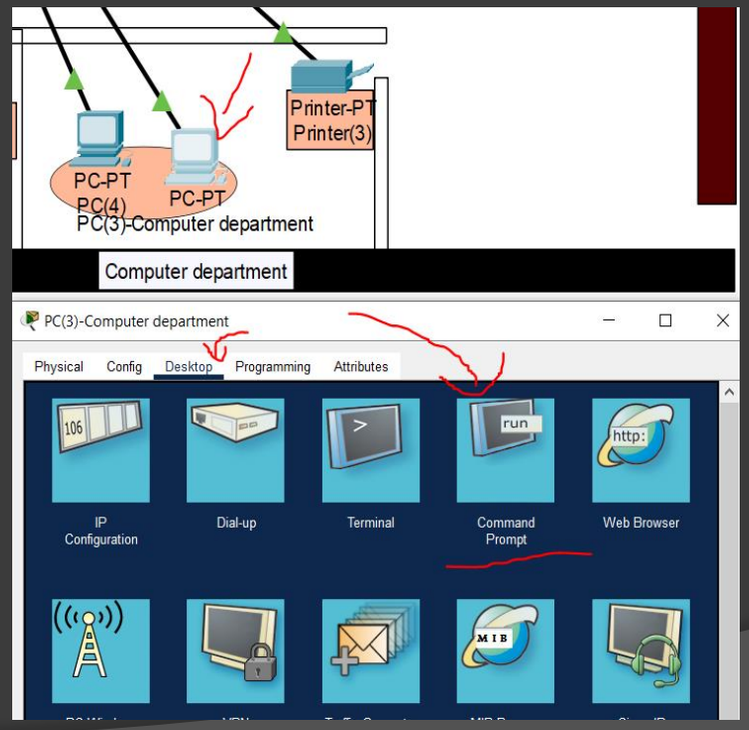
Illustrative images from Cisco Packet Tracer /

How does the Ping process take place between devices in the same network:

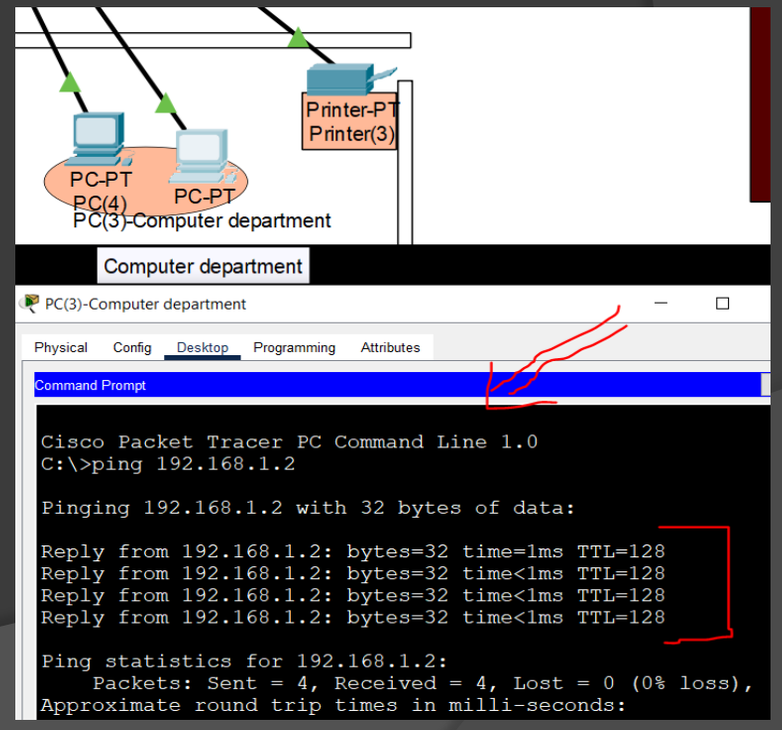
- First: We enter the device that we want to work with Ping.



1



2

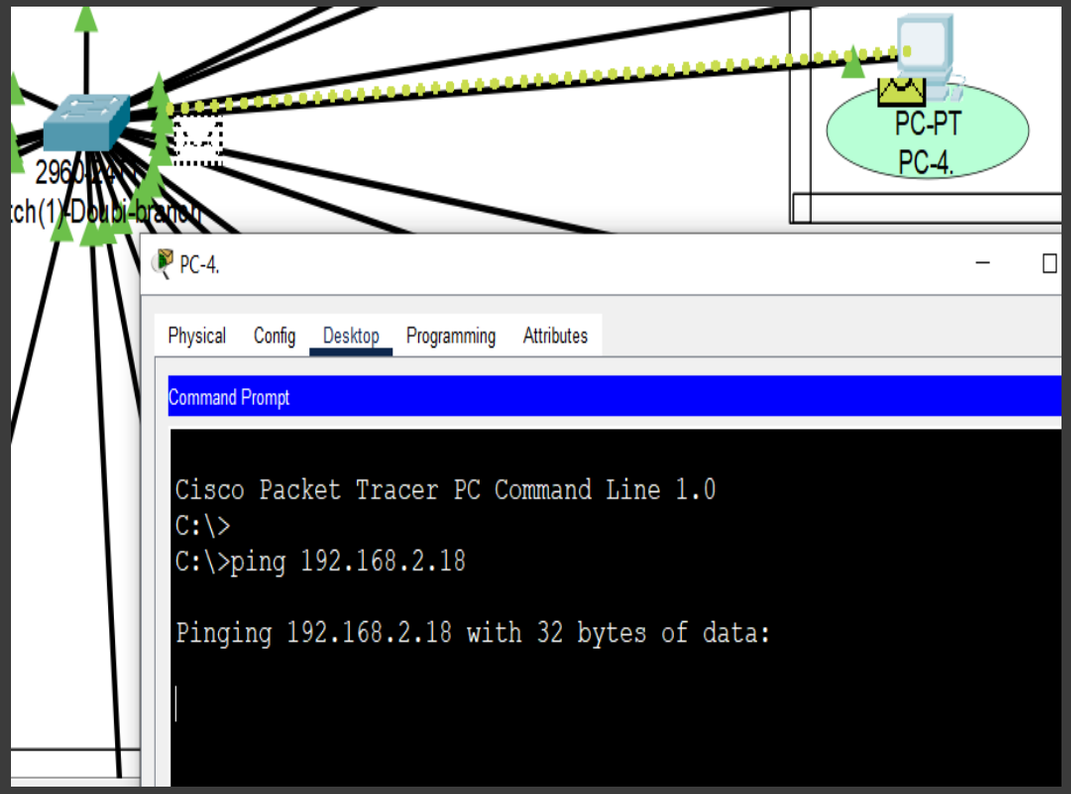


3

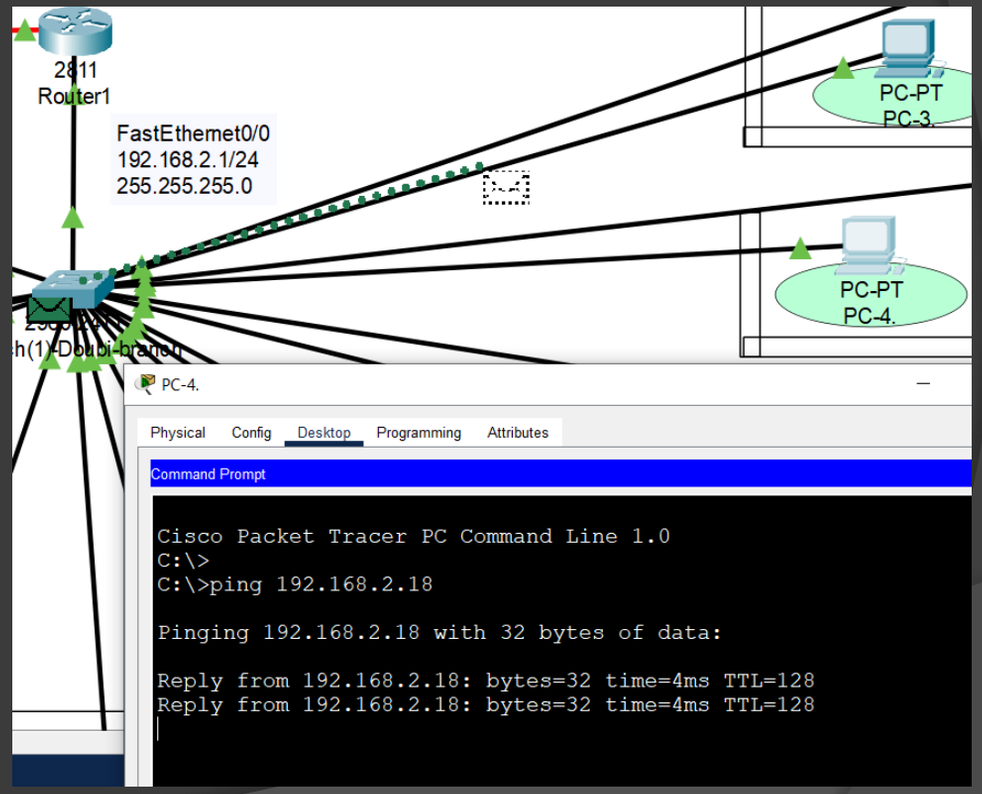
(100)

Firstly:

Ping process from a device in the computers section, IP address 192.168.2.20, to another device in the phones section bearing the IP address: 192.168.2.18



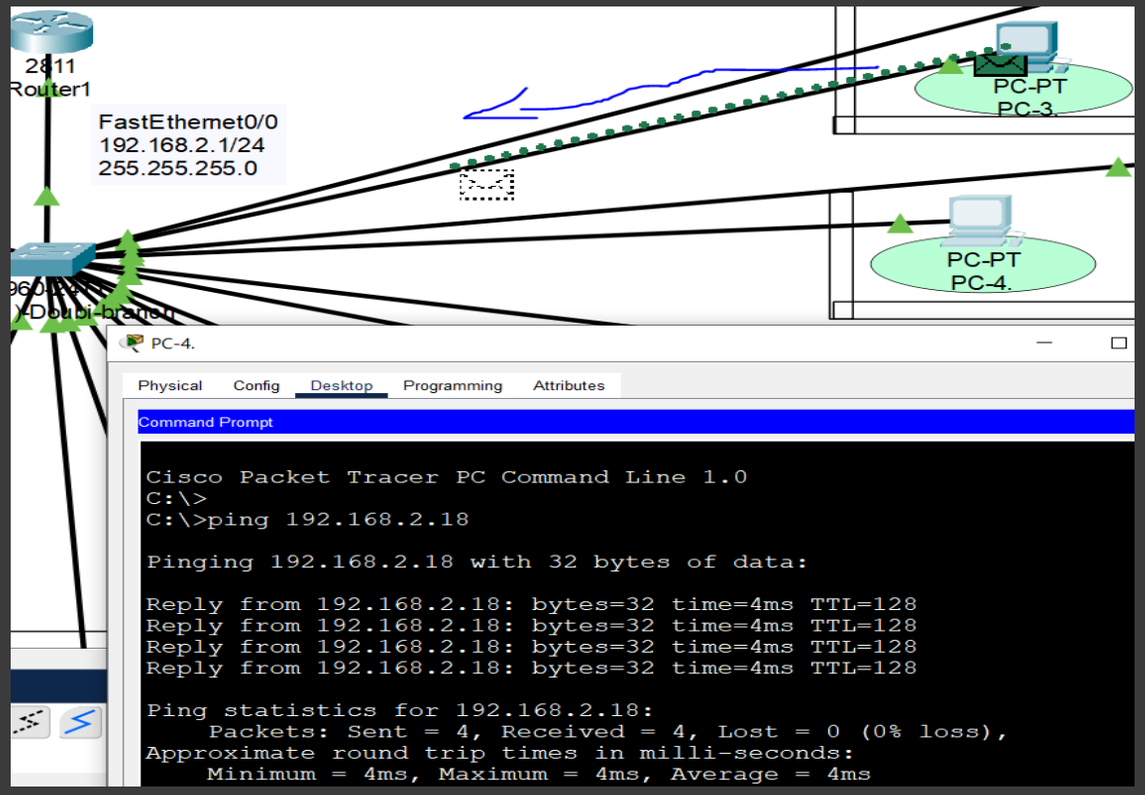
1



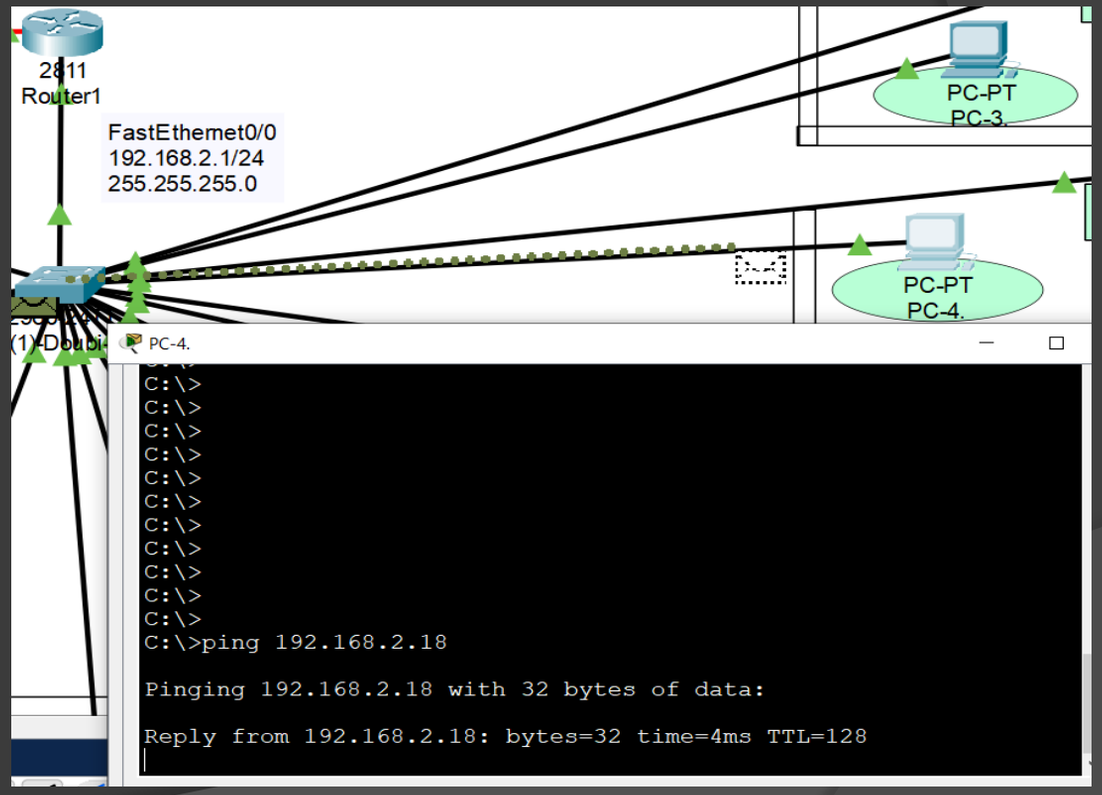
2

secondly:

The response was sent from a device in the phones section, IP address 192.168.2.18, to the device that originated the ping process in the computers section, bearing the IP address: 192.168.2.20



1



2

Web Page Dubai-Branch /

- **Fourth:**
- **Create a web page, a website for the company.**

We have created a web page for the company to display its products and sales.

Company sales:

1- Computers and laptops.
2- A special section for phones.
3- Department of other electronics.
4- A special section for maintenance and programming.

Explanation of a page for AL-tmuoz Company (Dubai) Branch

- We have created a web page for the company to display its products and offers.
- This page was designed in (HTML) language.
- Codes used in page design: