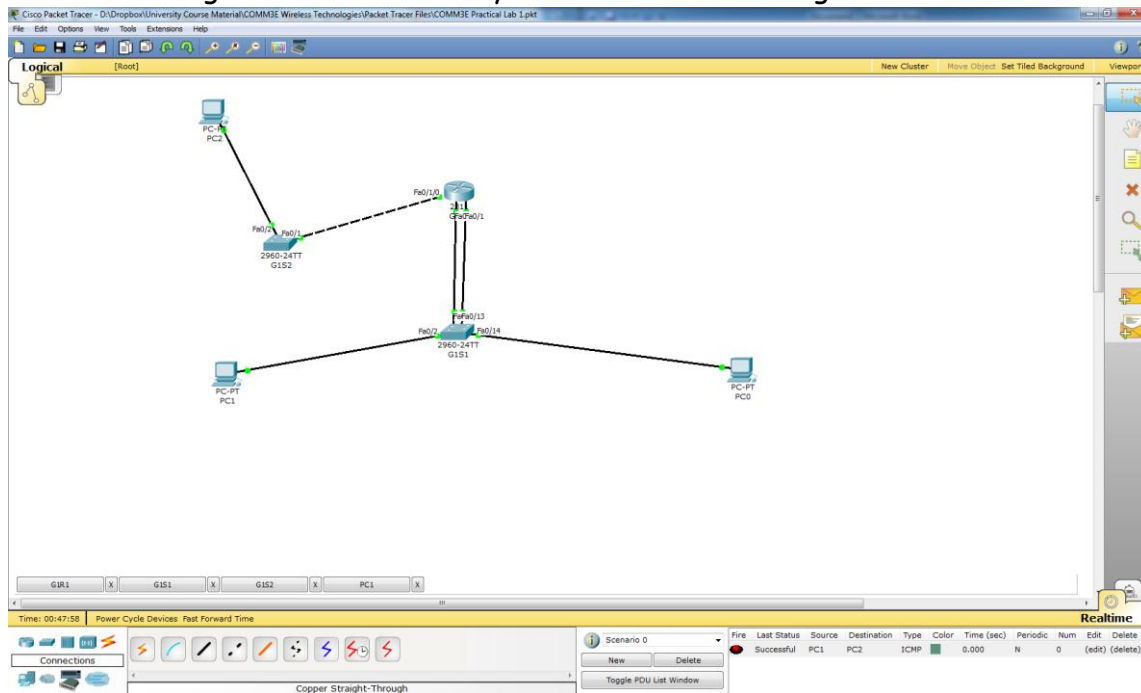


# Packet Tracer Lab: Using Packet Tracer to Build a Network

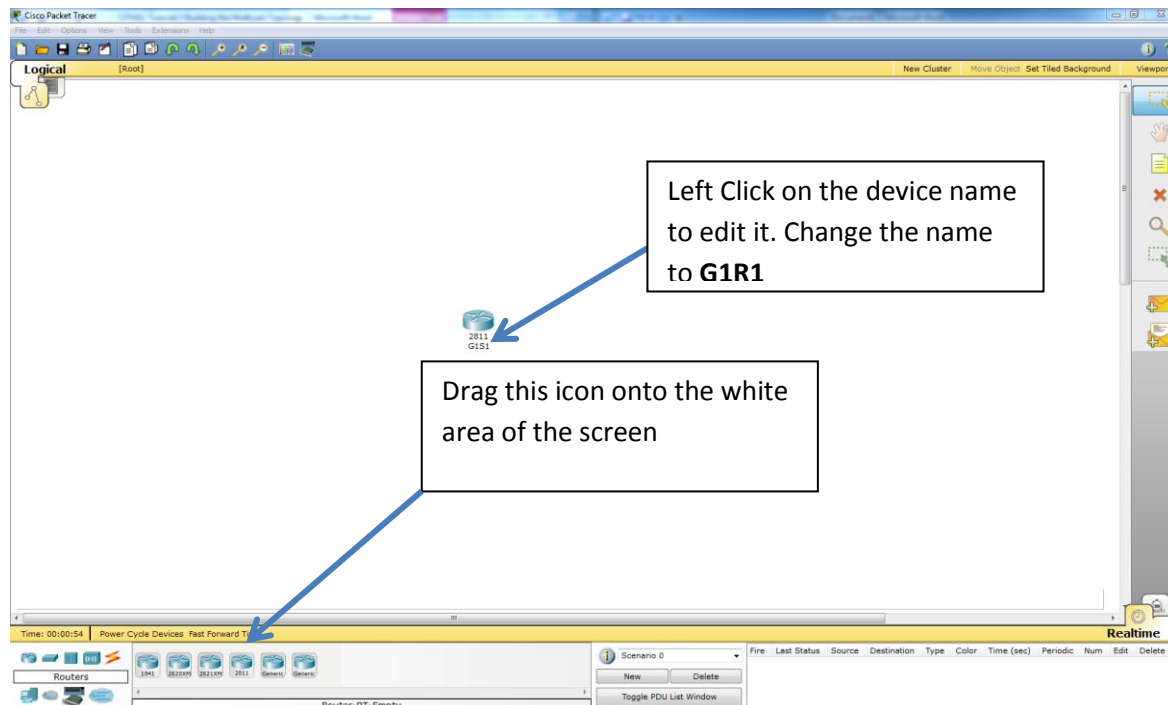
Reference: <https://fas-web.sunderland.ac.uk/~cs0ssw/PacketTracerTutorial.pdf>.

We will be using Packet Tracer today to create the following network.

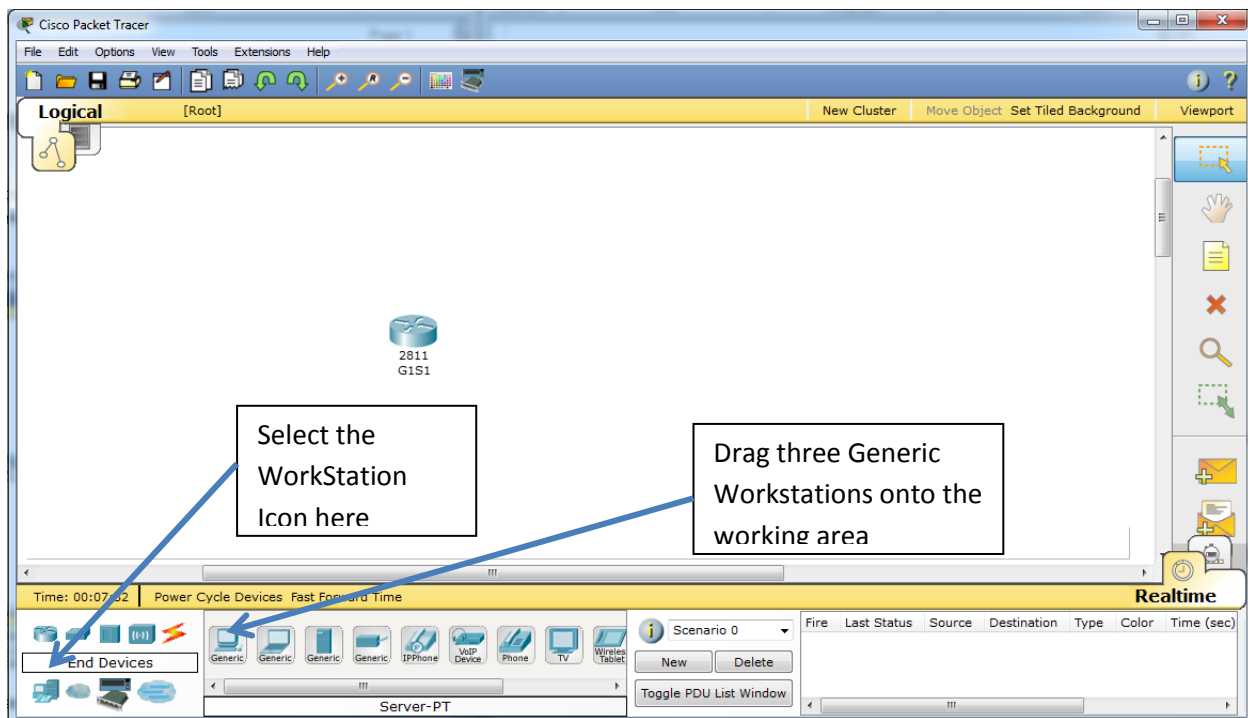


This topology requires **one** 2811 router, two 2960 switches and **three** workstations.

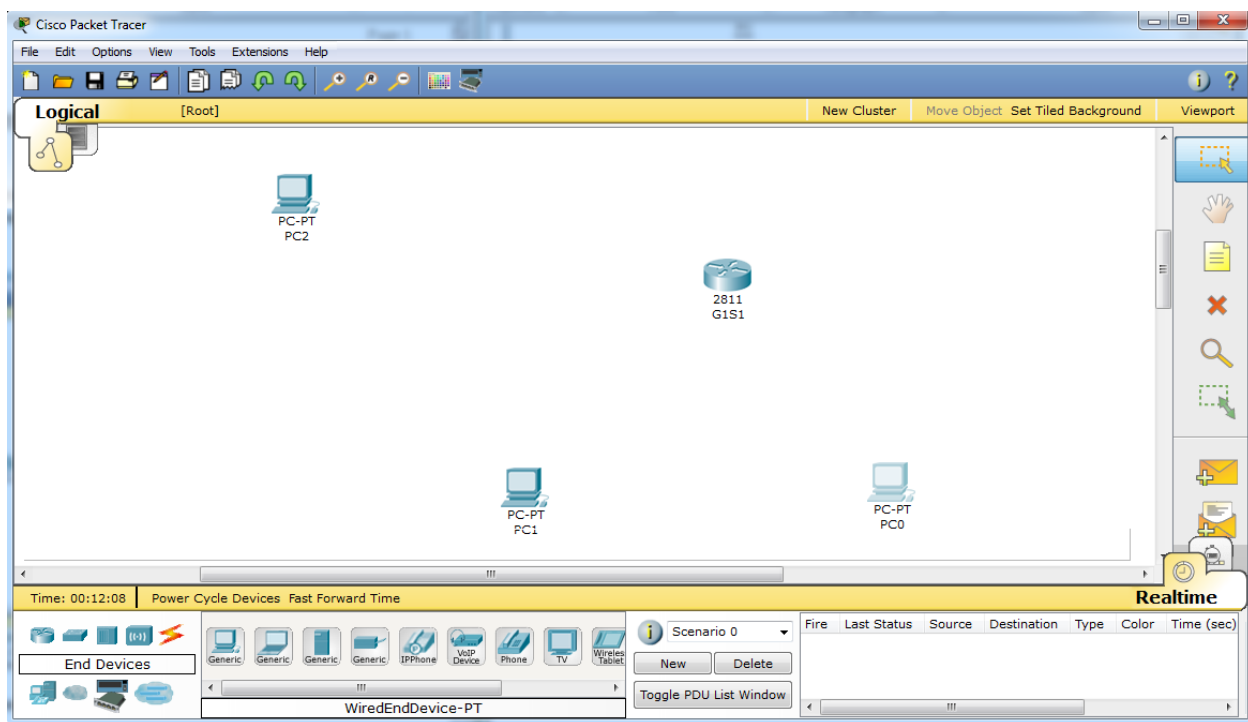
Launch Packet Tracer then drag a 2811 router icon onto the white area of the screen.



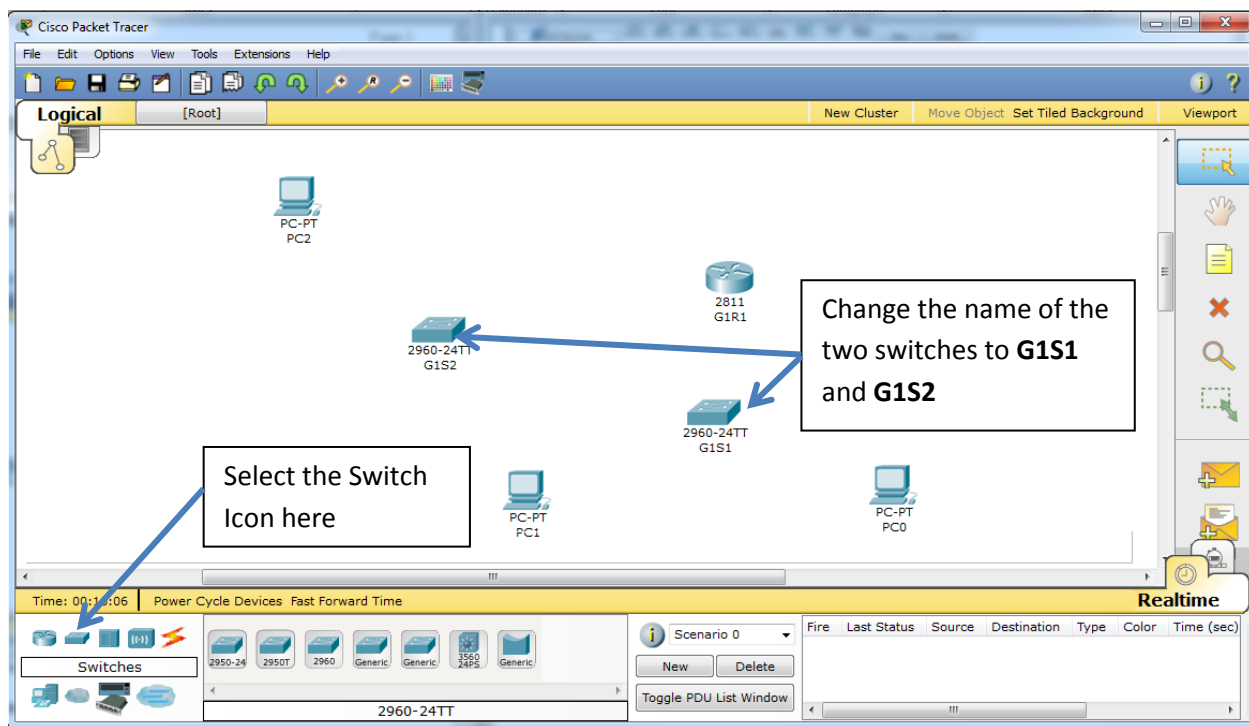
Now select the icon shown below and drag **three Generic Workstations** on to the screen.



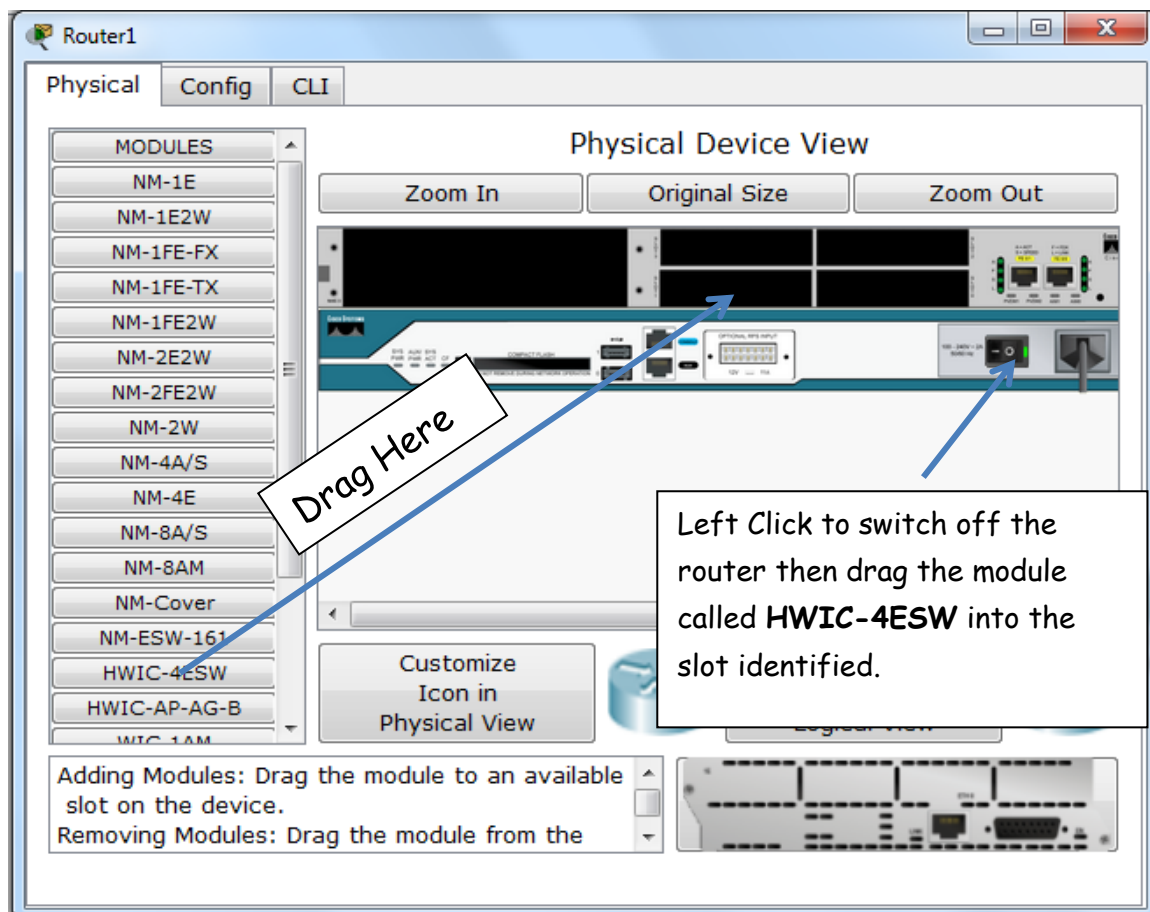
Packet Tracer should now look like this



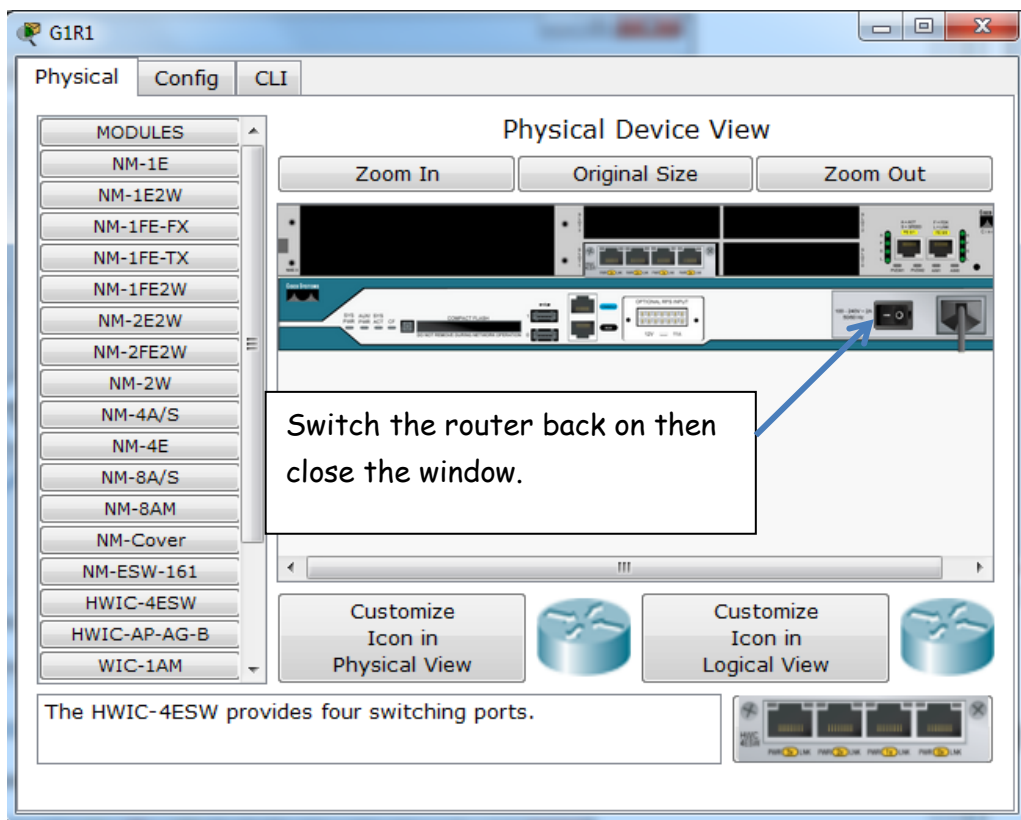
We now need to add two **2960 switches** to the topology so select the switch icon shown below then drag the two switch onto Packet Tracer. Arrange the icons so that the network looks like the image below



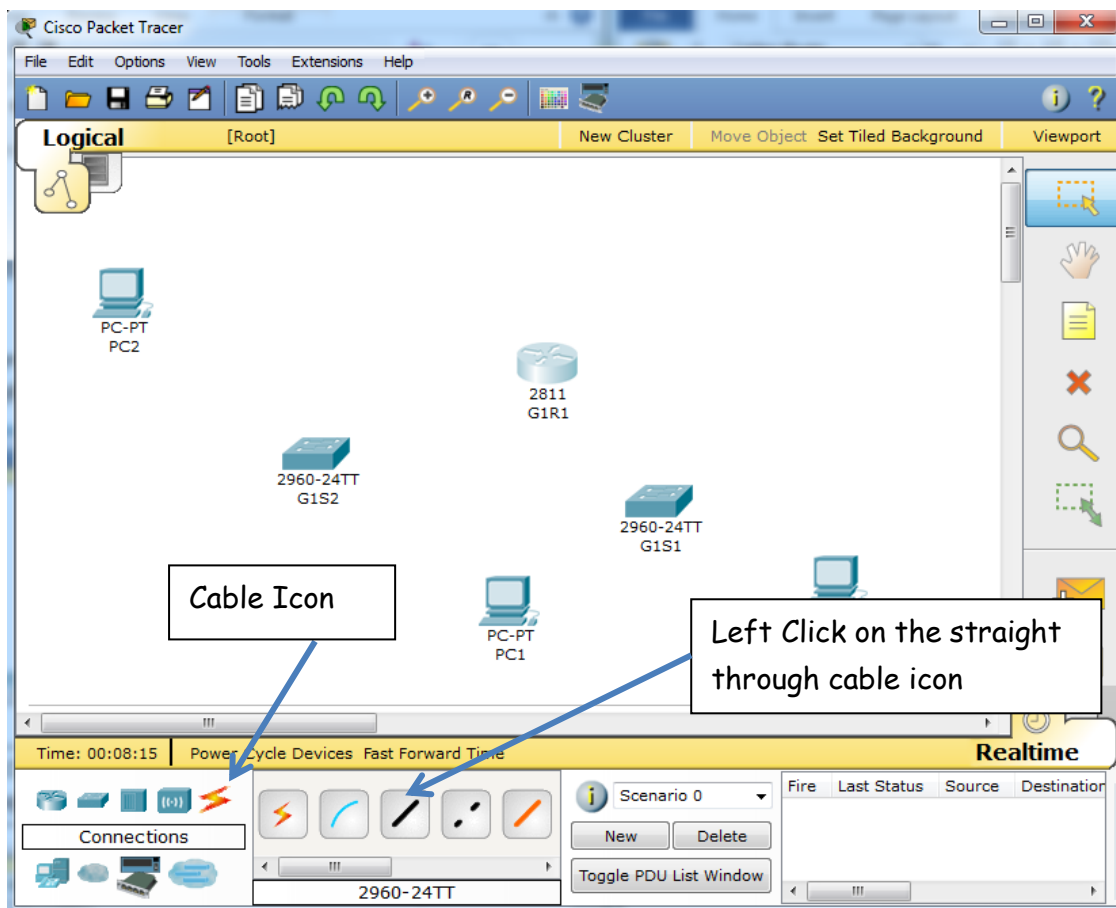
Our Router now needs an upgrade. Left click on the router **G1R1**. The following window should now appear



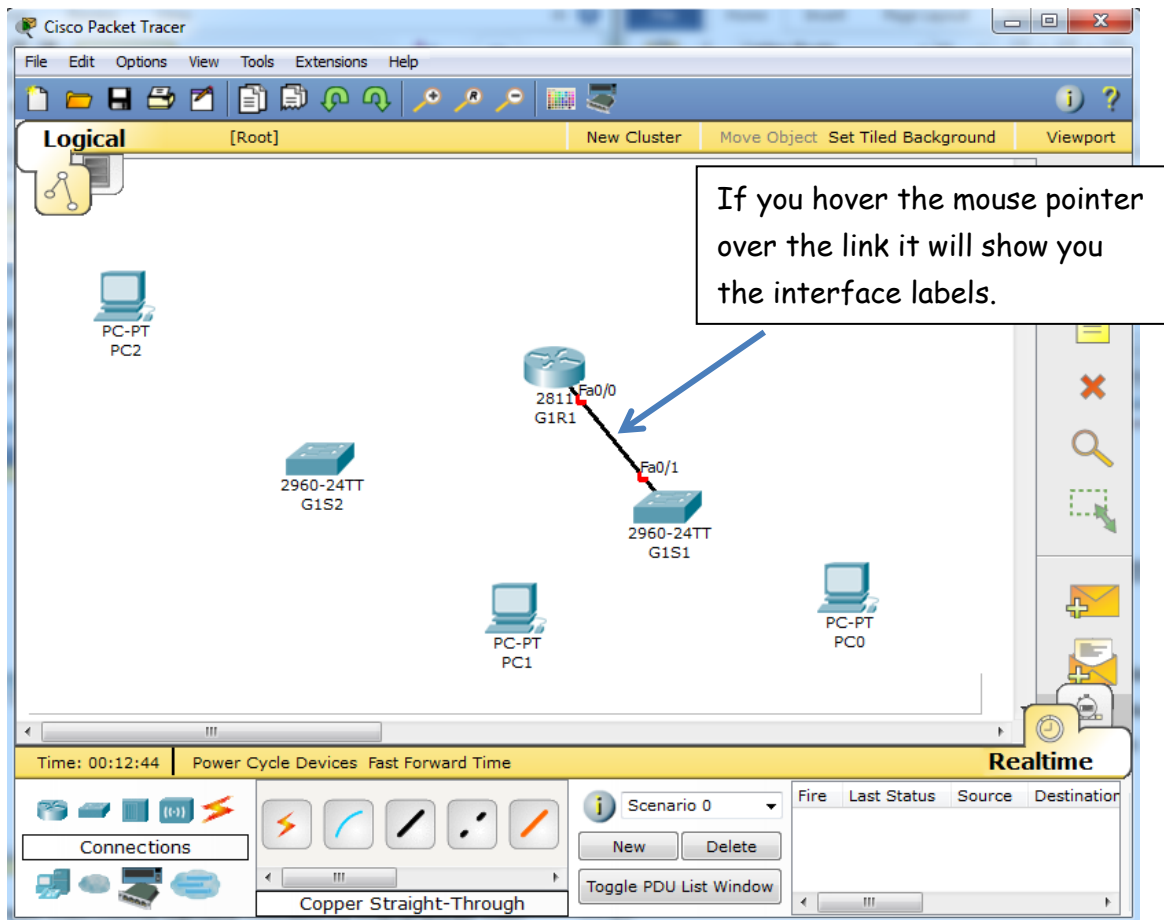
Your window should now look like this



We can now add cables to our topology. Left click on the **cable** icon shown below then select a straight through cable (which is represented by a solid black line)

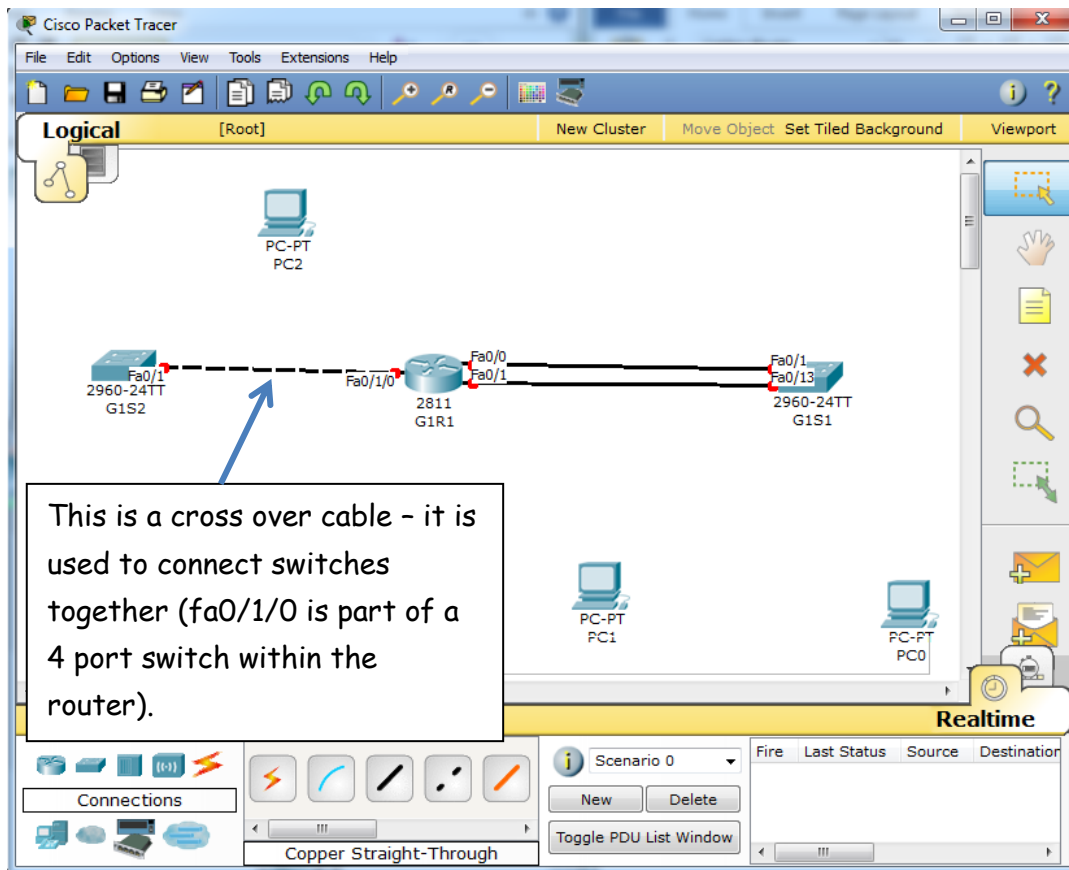


Now left click on router **G1R1**. A list of interfaces should appear. Left click on **Fa0/0**. Now Left click on switch **G1S1**. Another list of interfaces should appear. Select **Fa0/1**. Once this is done, a solid black line should appear on the screen as shown below. This line represents a straight through patch cable.



If you want the interface labels to appear on the screen all the time then choose **Options** followed by **Preferences** then select the check box next to **Always show port labels**.

Add additional cables until the network looks like this

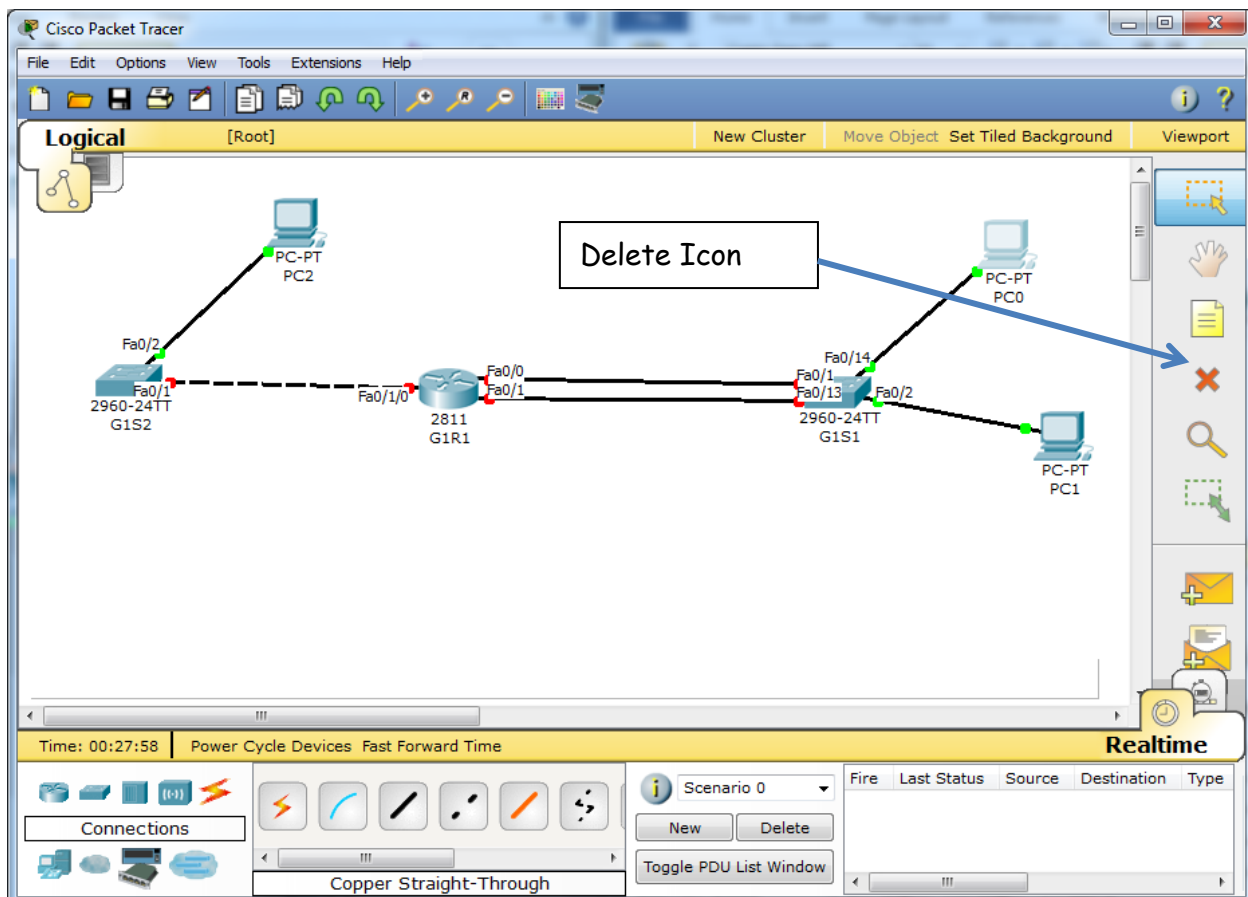


The table below shows the cables connections you must use to complete the wiring for this network

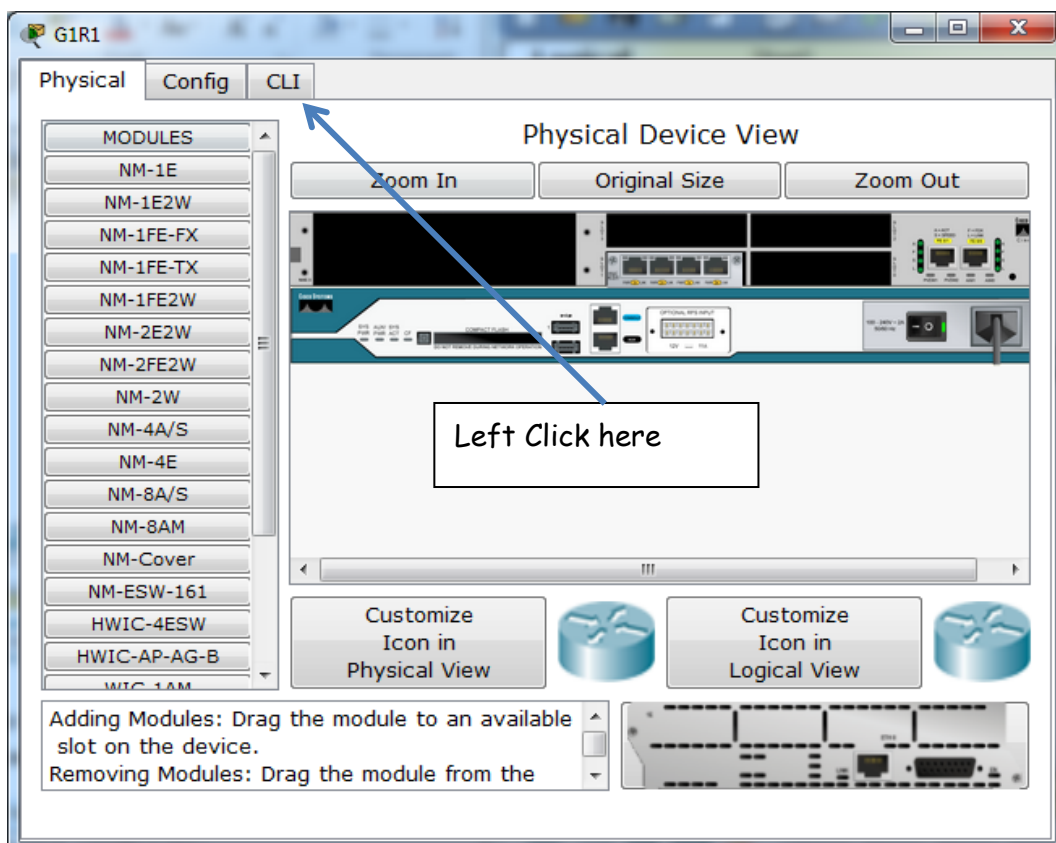
Local Device	Cable Type	Port	Remote Device	Port
Router G1R1	Straight Through	Fa0/0	Switch G1S1	Fa0/1
Router G1R1	Straight Through	Fa0/1	Switch G1S1	Fa0/13
Router G1R1	Cross Over	Fa0/1/0	Switch G1S2	Fa0/1
Switch G1S1	Straight Through	Fa0/2	PC1	FastEthernet
Switch G1S1	Straight Through	Fa0/14	PC0	FastEthernet
Switch G1S2	Straight Through	Fa0/2	PC2	FastEthernet

The screenshot on the following pages shows the finished wiring plan. Check over your work to make sure that everything is correct before proceeding.

If you make a mistake and choose the wrong cable type or you connect the cables to the wrong interfaces then use the **Delete** icon shown below to delete your mistakes

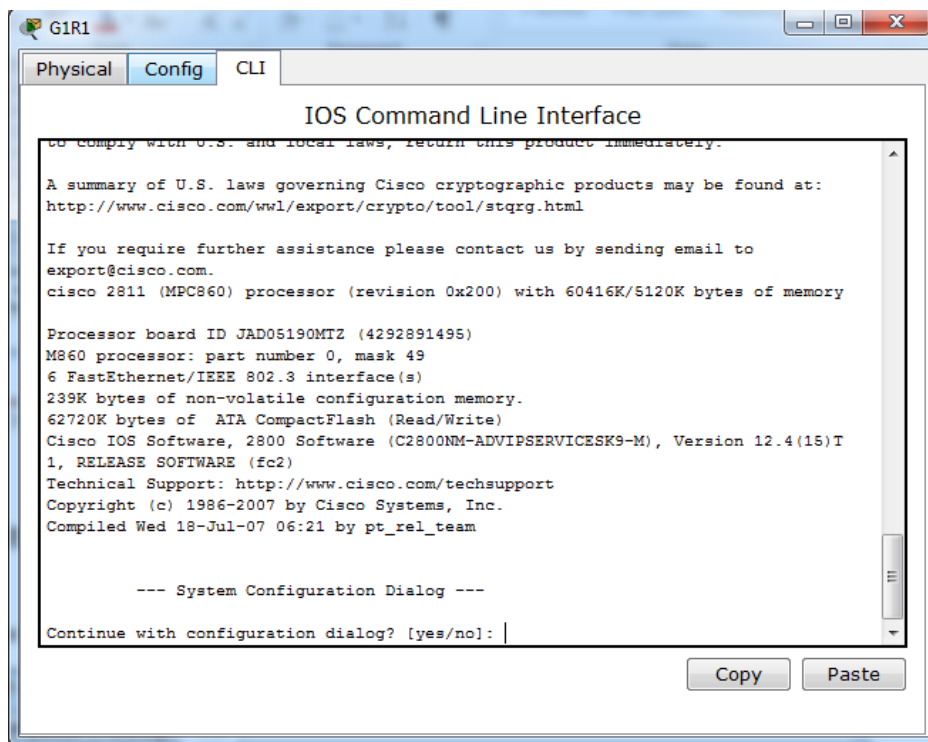


You are now ready to start configuring your Router. Left click on Router **G1R1** then select the **CLI** tab shown below:

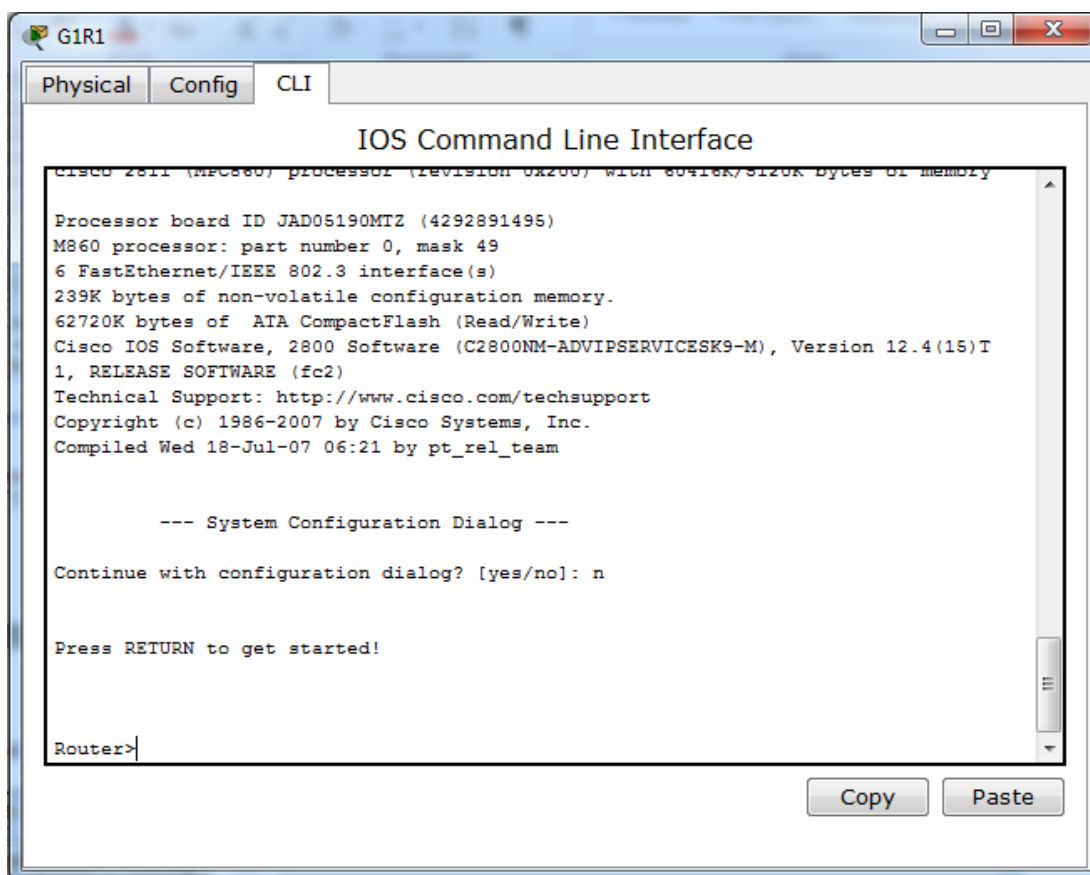




The following window should appear. Type **n** then press **Enter** to continue.



Press **Enter** again and the screen should now look like this

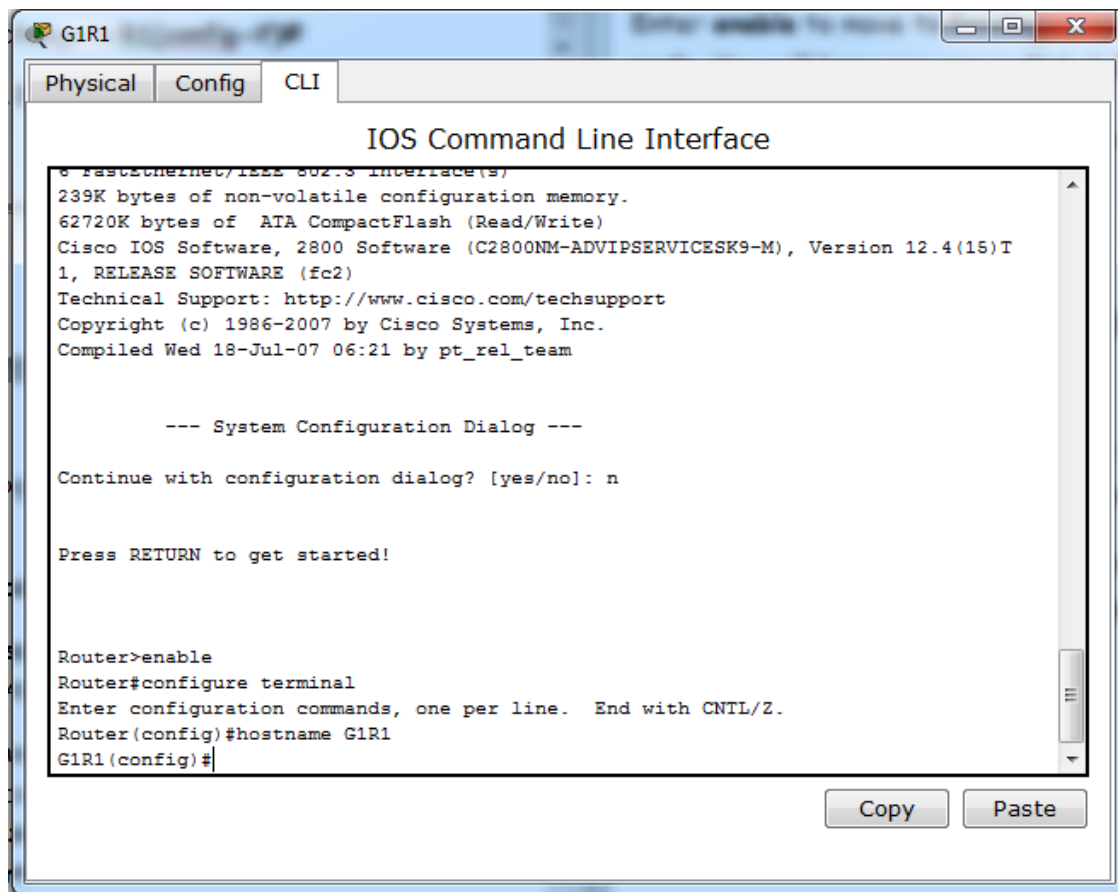


Enter **enable** to move to **Privileged mode** then type **configure terminal** to enter **Global Configuration mode**. You will know you are in Global Configuration Mode because the prompt will have changed to **Router(config)#**



It is from **Global Configuration mode** that we enter commands that affect the whole router. It is also from here that we enter specialist modes used to configure particular aspects of the router.

Type the command **hostname G1R1** then press **Enter**. You have now changed the name of the device. This should be evident from the prompt which should now be **G1R1(Config)#** The screenshot below contains the commands described above.



We must now **configure the interfaces labelled fa0/0 and fa0/1 on our router**. Each interface must be given an IP address and must be activated.

Issue the command **interface fa0/0** then press **Enter**. The prompt should now have changed to **G1R1(config-if)#** which indicates that the router is now in interface configuration mode. Any command issued now will apply to the interface **fa0/0**.

The table below identifies the interface labels, IP addresses and subnet masks for router G1R1

Interface label	IP Address	Subnet Mask
Fa0/0	10.0.6.1	255.255.255.0
Fa0/1	10.0.7.1	255.255.255.0
Vlan 2	10.0.2.1	255.255.255.0
Vlan 3	10.0.3.1	255.255.255.0
Vlan 4	10.0.4.1	255.255.255.0
Vlan 5	10.0.5.1	255.255.255.0

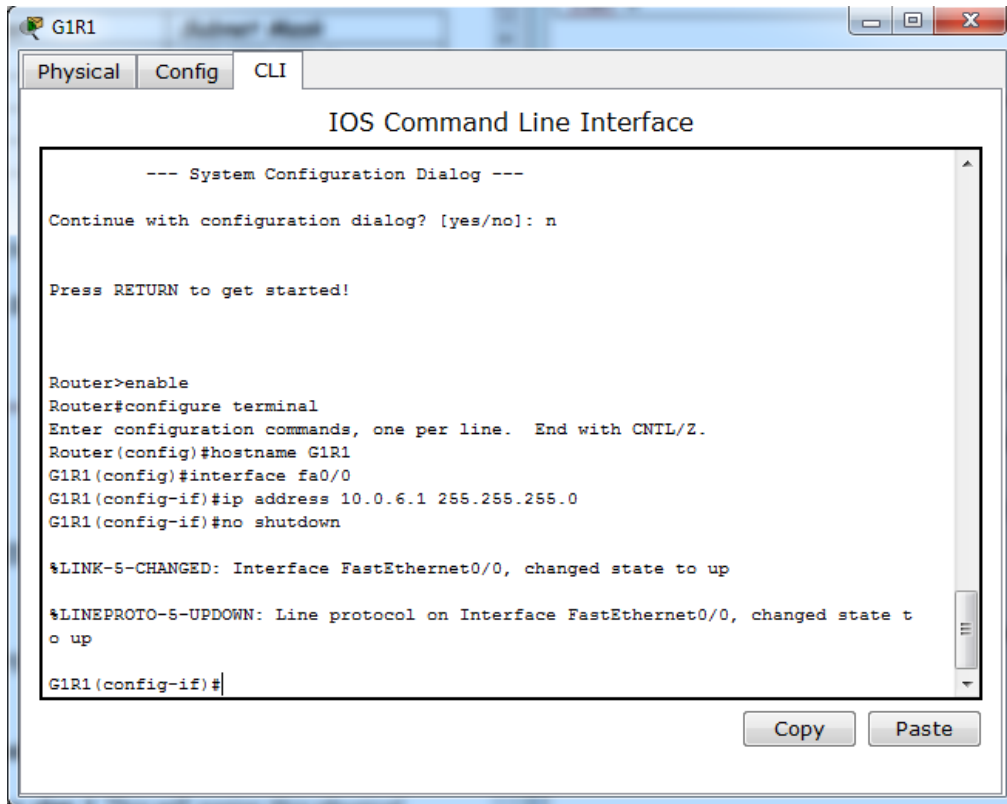
Assign interface **fa0/0** its IP address and subnet mask by issuing the command

**ip address 10.0.6.1 255.255.255.0**

Now activate the interface by issuing the command

**no shutdown**

You should receive a message indicating that the interface is now active as shown in the screen shot below



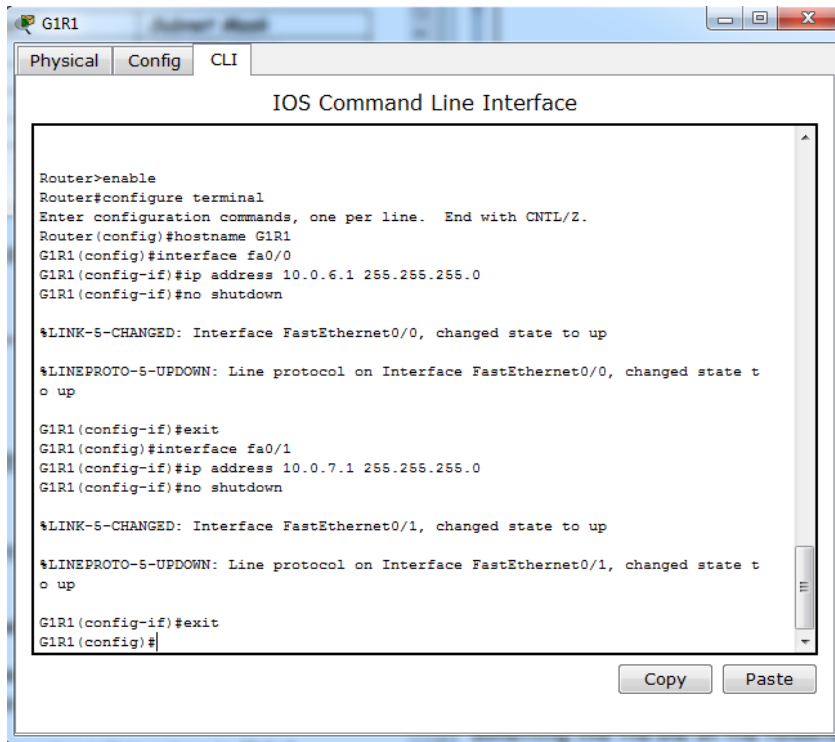
Type **exit** then press **Enter** to return to **Global Configuration mode**. Now configure interface **fa0/1** by issuing the following commands:

**Interface fa0/1**

**Ip address 10.0.7.1 255.255.255.0**

**No shutdown**

Return to **Global Configuration mode** by issuing the **exit** command again. Your screen should look something like the one on the following page



```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname G1R1
G1R1(config)#interface fa0/0
G1R1(config-if)#ip address 10.0.6.1 255.255.255.0
G1R1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

G1R1(config-if)#exit
G1R1(config)#interface fa0/1
G1R1(config-if)#ip address 10.0.7.1 255.255.255.0
G1R1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

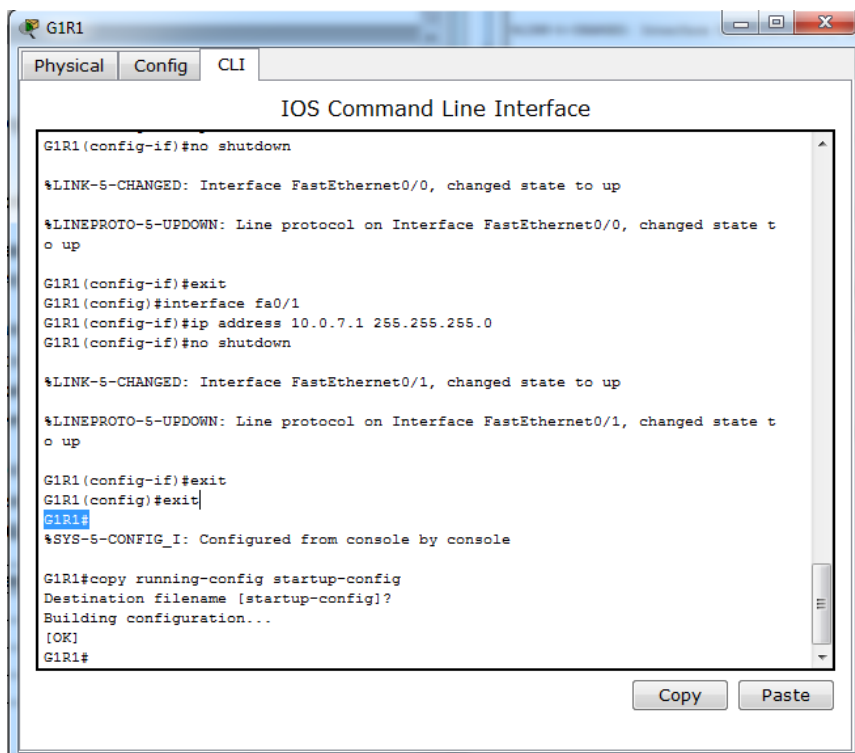
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

G1R1(config-if)#exit
G1R1(config)#
```

It would be a good idea at this stage to save our configuration. This must be done from **Privileged mode**. We are currently in **Global Configuration Mode**. Type **exit** then press **enter** to return to Privileged mode. The Prompt should change to **G1R1#** Now issue the command

**Copy running-config startup-config**

Press **Enter** to confirm. Your screen should now look like this



```
G1R1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

G1R1(config-if)#exit
G1R1(config)#interface fa0/1
G1R1(config-if)#ip address 10.0.7.1 255.255.255.0
G1R1(config-if)#no shutdown

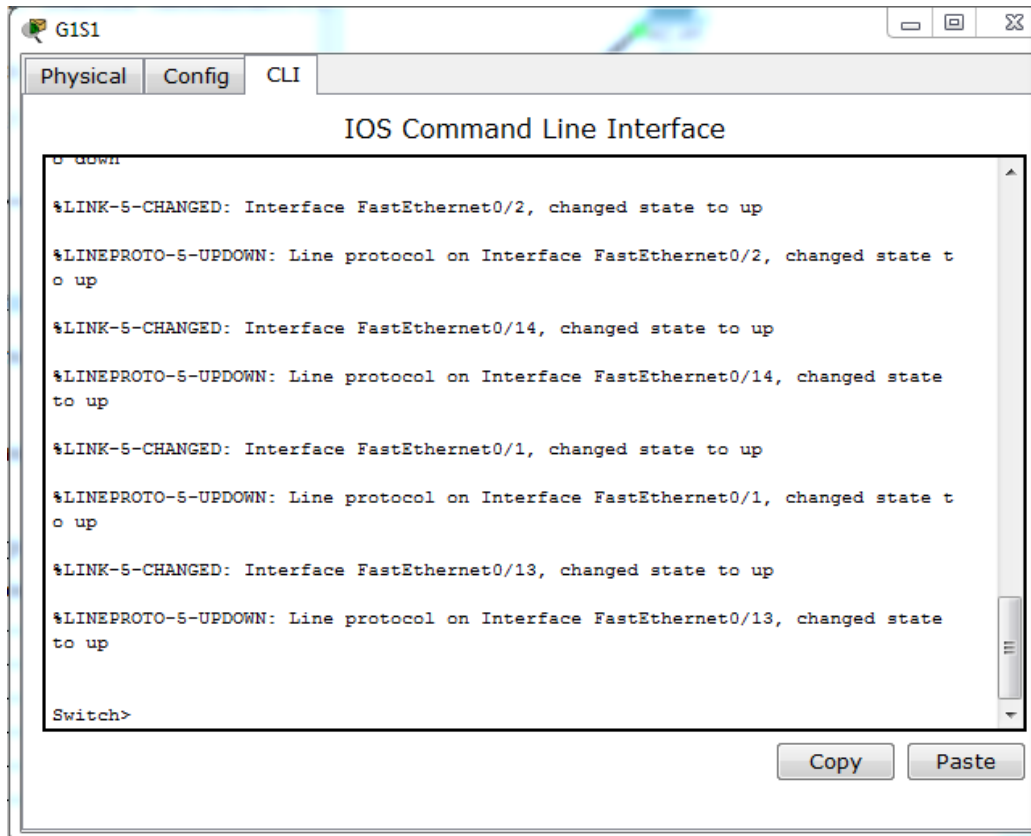
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

G1R1(config-if)#exit
G1R1(config)#exit
G1R1#
%SYS-5-CONFIG_I: Configured from console by console

G1R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
G1R1#
```

We will now turn our attention to **switch G1S1**. Left click on its icon. The following screen should appear. If you cannot see the prompt, press the **enter** key until it appears.



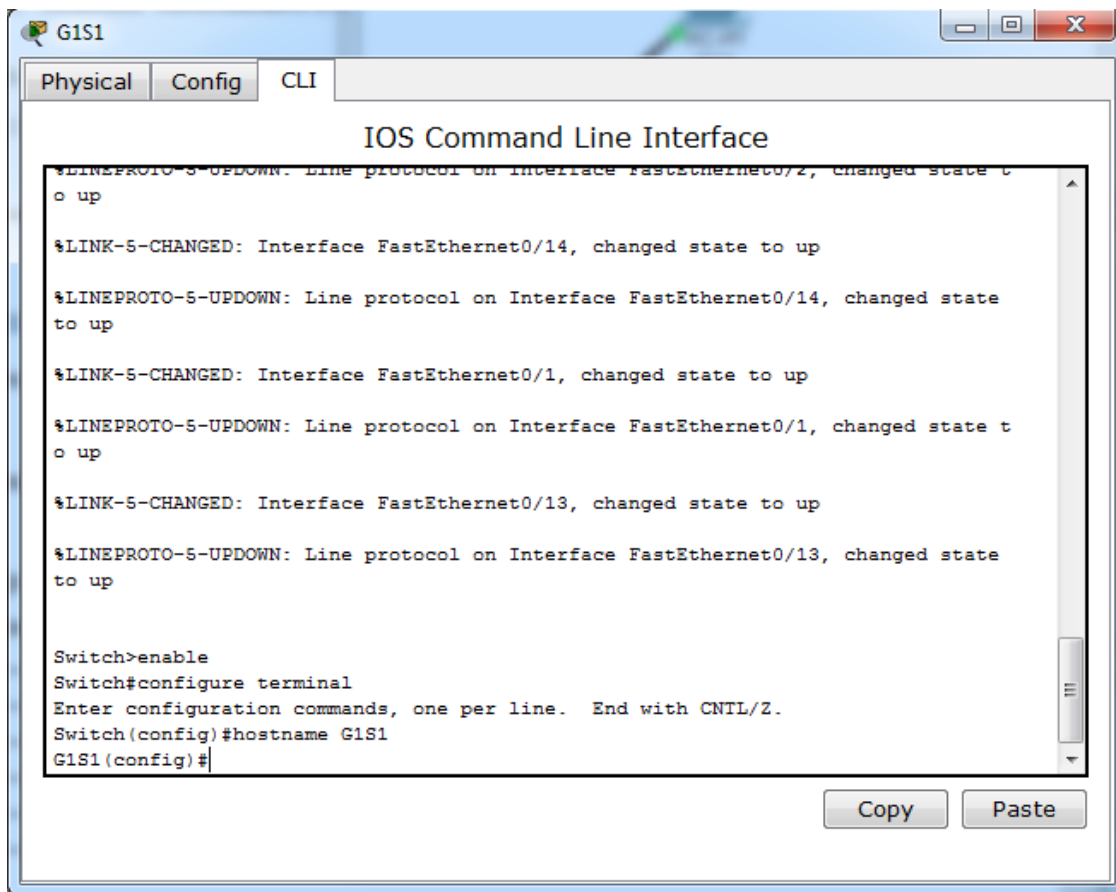
Type **enable** then press **Enter** to move to **Privileged mode**. The prompt should have change to **Switch#**

Now type **configure terminal** to move to **Global Configuration mode**. The prompt should have changed to **Switch(config)#**

**Give the switch its name** using the command below

**Hostname G1S1**

The prompt should have changed to **G1S1(config)#** and the screen should look like the one shown below:



We are going to **logically divide this switch into two**. Ports **fa0/1** to **fa0/12** will be reserved for Light Weight Access Points (LWAPs). Ports **fa0/13** to **fa0/24** will be reserved for wired PCs. As Packet Tracer doesn't support LWAPs we will pretend that PC 1 is an access point.

A switch may be logically segmented by building VLANs (Virtual Local Area Networks) and by assigning ports to VLANs. If two ports are in different VLANs then direct communication between them is not allowed. Communication between VLANs must be controlled by a router.

We will **create the following VLANs**

VLAN Number	VLAN Name	Port Range
6	LWAP	Fa0/1 - fa0/12
7	Wired	Fa0/13 - fa0/24

From **Global Configuration mode**, issue the commands below:

### **Vlan 6**

The switch should now have created **vlan 6** and the prompt should have changed to

**G1S1(config-vlan)#**

Which indicates that you have entered **VLAN Configuration mode**. The screen should look like this

```
G1S1#
G1S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
G1S1(config)#vlan 6
G1S1(config-vlan)#
```

Copy Paste

You must now **give your vlan its name** by issuing the command

**name LWAP**

Issue the **exit** command to return to **Global Configuration mode** then create **vlan 7** and assign it the name **Wired**. The screenshot below holds the commands you must use.

```
G1S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
G1S1(config)#vlan 6
G1S1(config-vlan)#name LWAP
G1S1(config-vlan)#exit
G1S1(config)#vlan 7
G1S1(config-vlan)#name Wired
G1S1(config-vlan)#exit
G1S1(config)#
```

Copy Paste

Type **exit** and press **enter** to return to **Privileged mode** then issue the command **show vlan brief** to verify that our VLANs have been created and given the correct names. The screen should contain the following output:

G1S1

Physical Config CLI

IOS Command Line Interface

```
G1S1(config)#vlan 6
G1S1(config-vlan)#name LWAP
G1S1(config-vlan)#exit
G1S1(config)#vlan 7
G1S1(config-vlan)#name Wired
G1S1(config-vlan)#exit
G1S1(config)#exit
G1S1#
%SYS-5-CONFIG_I: Configured from console by console

G1S1#show vlan brief
```

VLAN Name	Status	Ports
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig1/1, Gig1/2
6 LWAP	active	
7 Wired	active	
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

G1S1#

Copy Paste

At present all of our ports are in the default VLAN which is VLAN 1. We must now move 12 of them to join VLAN 6 and 12 to join VLAN 7.

Enter configure terminal to return to **Global Configuration Mode**. Now issue the command below

**Interface range fa0/1 - 12**

The prompt should have changed to **G1S1(Config-range-if)#** The range option allows us to assign a number of commands to a group of interfaces. Now issue the commands below:

**Switchport mode access**

**Switchport access vlan 6**

**exit**

The first command tells the switch that each port in the range will belong to just one VLAN. The second command tells the switch that each port in the range will be assigned to VLAN 6. The third command returns you to **Global Configuration mode**.

Issue the commands below to assign ports 13 through to 24 to **VLAN 7**.

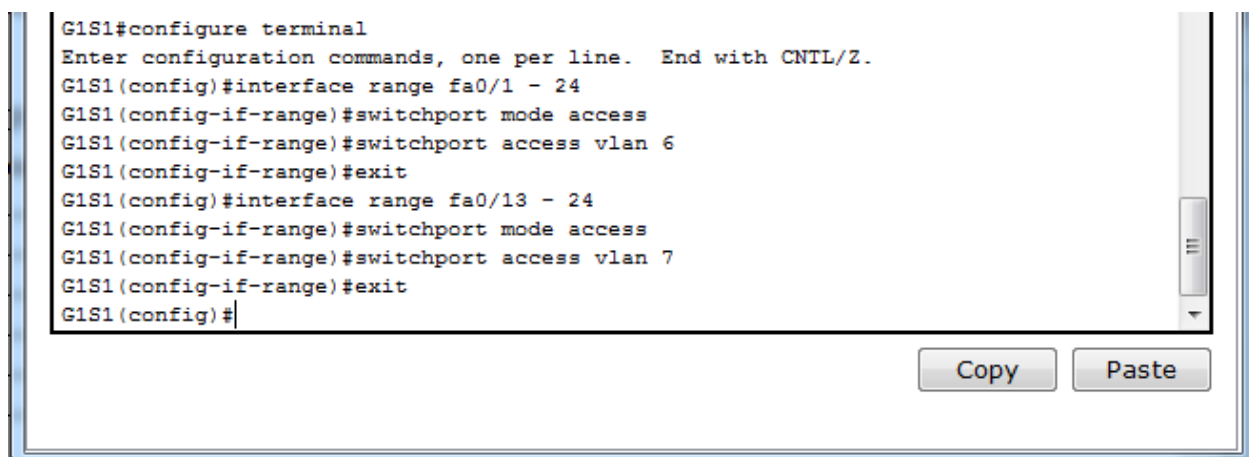
**Interface range fa0/13 - 24**

**Switchport mode access**

**Switchport access vlan 7**

**Exit**

The screen should look something like this:



```
G1S1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
G1S1(config)#interface range fa0/1 - 24
G1S1(config-if-range)#switchport mode access
G1S1(config-if-range)#switchport access vlan 6
G1S1(config-if-range)#exit
G1S1(config)#interface range fa0/13 - 24
G1S1(config-if-range)#switchport mode access
G1S1(config-if-range)#switchport access vlan 7
G1S1(config-if-range)#exit
G1S1(config)#
```

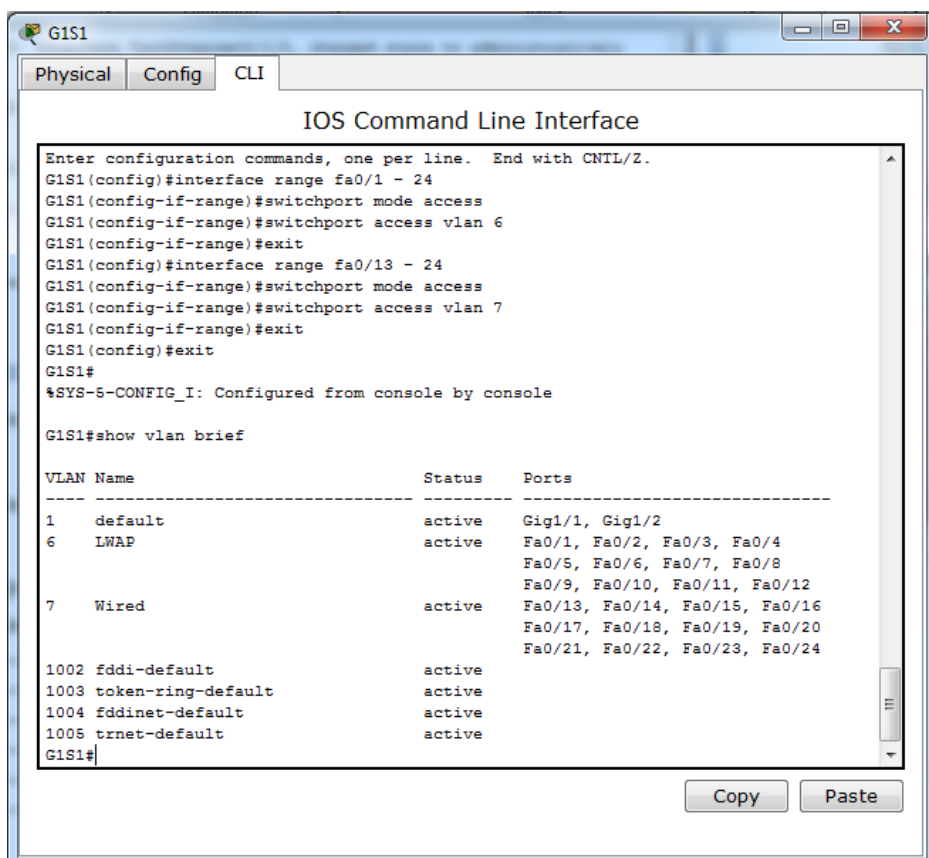
Copy Paste



Type exit and press Enter to return to Privileged mode then issue the command

### show vlan brief

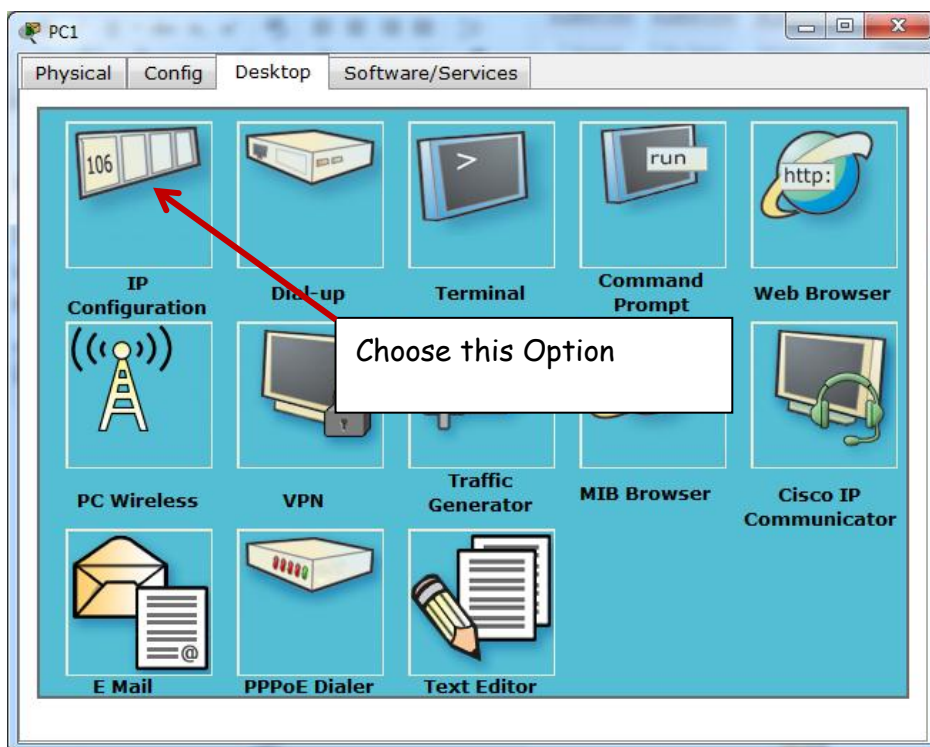
to confirm that the interfaces have been moved to the correct VLANs. Your screen should now look like this:



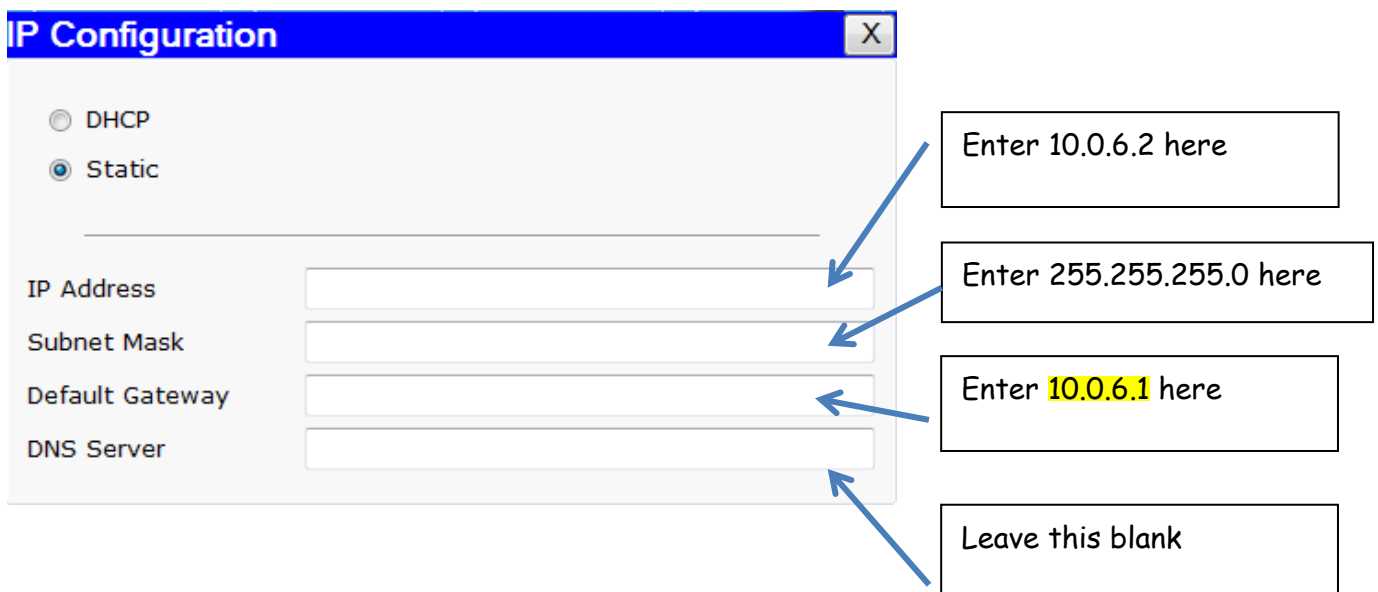
It is now time to **assign IP addresses to our Workstations PC1 and PC0** so that they can participate in the network. Left click on the icon for PC1. The following window should appear



Select the **DeskTop Tab**. The following window should now appear:



Left click on the **IP Configuration** button (see diagram above). You should now see the following window:

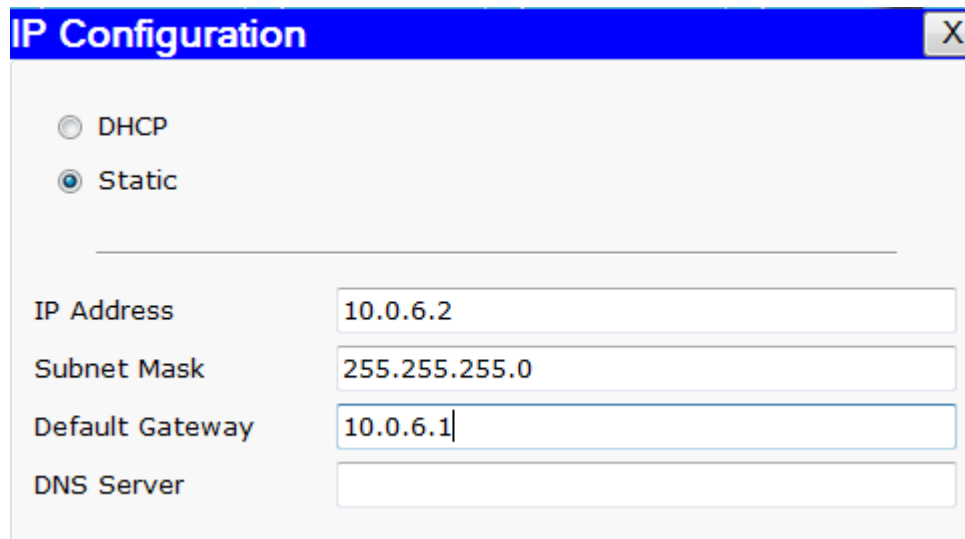


Enter the information shown above. Please note that PC1 is attached to switch port Fa0/2. This port is in VLAN 6 and can communicate with any port in VLAN 6. Router G1R1 is also attached to the switch via VLAN 6 through its fa0/0 interface. This means that **PC1 will be able to communicate with the router via its Fa0/0 interface.**

If this is to happen, the PC must belong to the same subnet as the router's Fa0/0 interface. The Fa0/0 interface of G1R1 has IP address 10.0.6.1 and subnet mask 255.255.255.0. We have assigned PC1 an unused IP address from the same subnet (address 10.0.6.2). The PC must also have the same subnet mask as the router if they are to communicate. That is why the PC's mask was set to 255.255.255.0

The Default Gateway is the IP address of a router that the PC can reach. It must be part of the PC's own subnet - the only candidate is 10.0.6.1 which is the IP address of G1R1's fa0/0 interface.

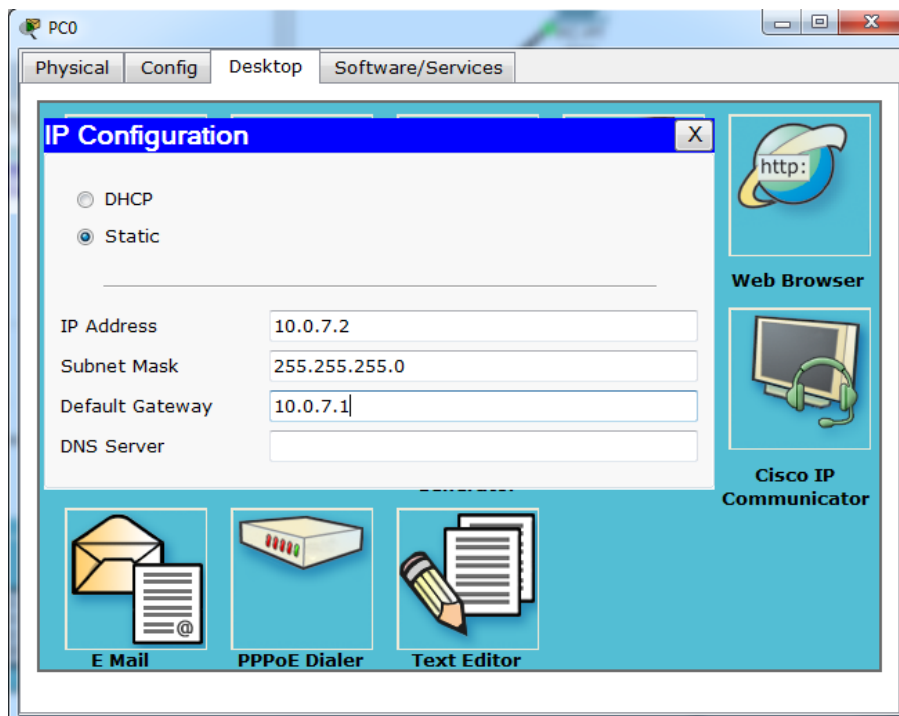
Your screen should now look like this:



The image shows a window titled "IP Configuration" with a close button (X) in the top right corner. Inside the window, there are two radio buttons: "DHCP" and "Static". The "Static" radio button is selected. Below the radio buttons, there are four text input fields:

Field	Value
IP Address	10.0.6.2
Subnet Mask	255.255.255.0
Default Gateway	10.0.6.1
DNS Server	

Close this window then select the PC0. Repeat the process outlined above to assign PC0 the following IP address, subnet mask and default gateway.



The image shows a window titled "PC0" with tabs for "Physical", "Config", "Desktop", and "Software/Services". The "Config" tab is selected. Inside the "Config" tab, there is a sub-window titled "IP Configuration" with a close button (X) in the top right corner. This sub-window has the same layout as the one in the previous image, with "Static" selected and the following values:

Field	Value
IP Address	10.0.7.2
Subnet Mask	255.255.255.0
Default Gateway	10.0.7.1
DNS Server	

Below the "IP Configuration" sub-window, there are several icons for applications: "E Mail", "PPPoE Dialer", "Text Editor", "Web Browser", and "Cisco IP Communicator".

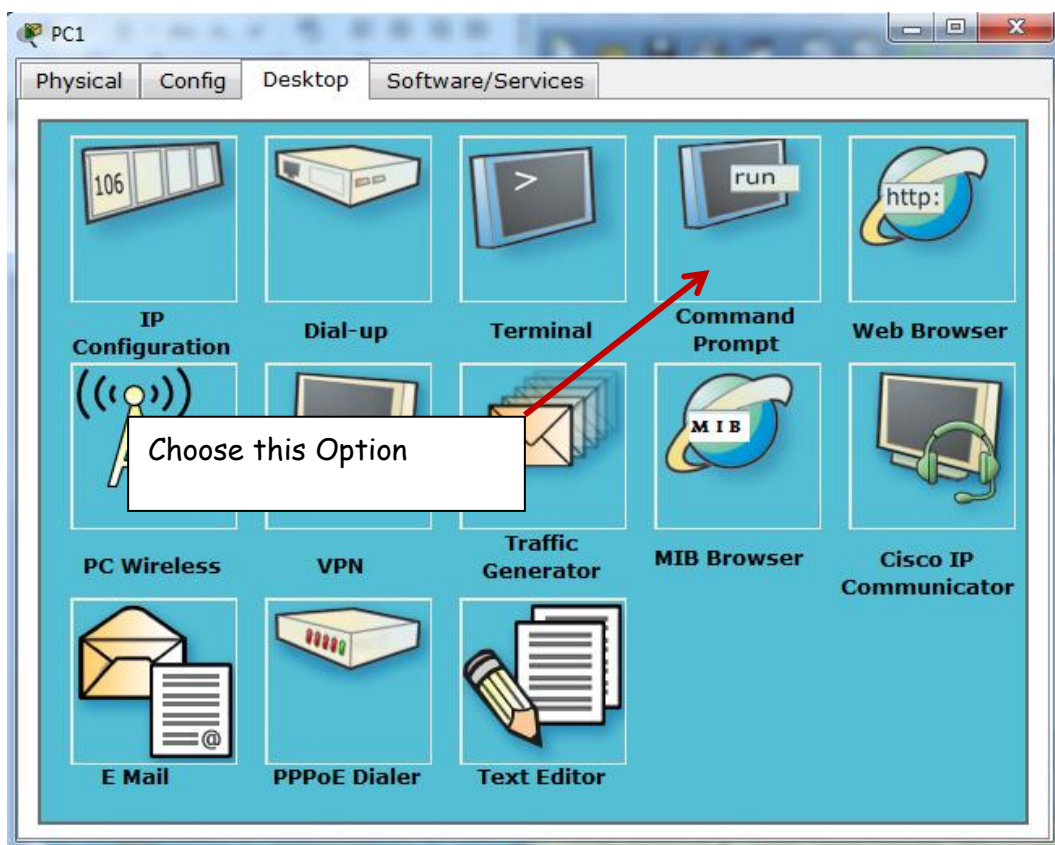
Please note the **PC0 is attached to the switch G1S1** via port fa0/13 which is in VLAN 7. It can therefore communicate directly with any device also plugged into VLAN 7. The router G1R1 is connected to VLAN 7 via its f0/1 interface. This interface has IP address 10.0.7.1. If **PC0 is to be able to communicate with the router** it must be assigned an IP address that belongs to the same subnet as Fa0/1 on G1R1.

The IP address 10.0.7.2 is the first unused IP address from the subnet associated with Fa0/1 of G1R1. The **PC must also have the same subnet mask as the router if they are to communicate**. That is why the PC's mask was set to 255.255.255.0

The **Default Gateway** is the IP address of a router that the PC can reach. It must be part of the PC's own subnet - the only candidate is 10.0.7.1 which is the IP address of G1R1's fa0/1 interface.

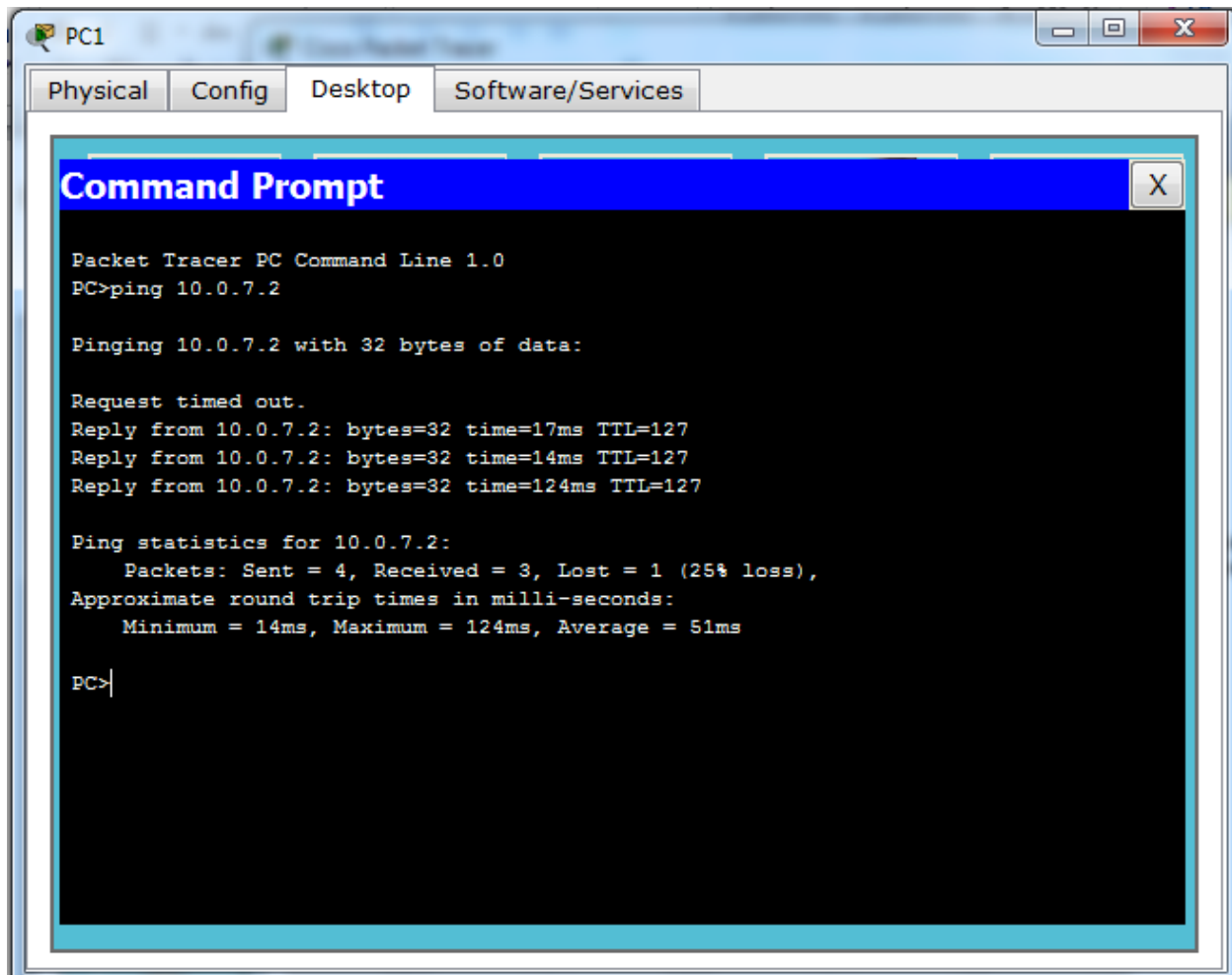
**Our two PCs should be able to communicate with each other now through the router** - they cannot communicate directly through the switch as they belong to two separate VLANs. Traffic from PC0 will be sent to Fa0/1 of router G1R1. From there the router will route the traffic out of fa0/0 back to the switch. The switch will then forward the traffic to PC1.

We can **test this using the ping command**. Navigate to the following window for PC1 then select the **Command Prompt** button (see below).



Enter the command **ping 10.0.7.2** This command sends several short messages to the destination IP address (10.0.7.2) which is the IP address of PC0. If PC0 replies then we know we have end to end connectivity.

The screenshot below shows you what you should be seeing. If you cannot see any replies then ask your lecturer to examine your configuration.



The screenshot shows a Packet Tracer PC window titled 'PC1' with tabs for 'Physical', 'Config', 'Desktop', and 'Software/Services'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the following text:

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.7.2

Pinging 10.0.7.2 with 32 bytes of data:

Request timed out.
Reply from 10.0.7.2: bytes=32 time=17ms TTL=127
Reply from 10.0.7.2: bytes=32 time=14ms TTL=127
Reply from 10.0.7.2: bytes=32 time=124ms TTL=127

Ping statistics for 10.0.7.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 14ms, Maximum = 124ms, Average = 51ms

PC>|
```

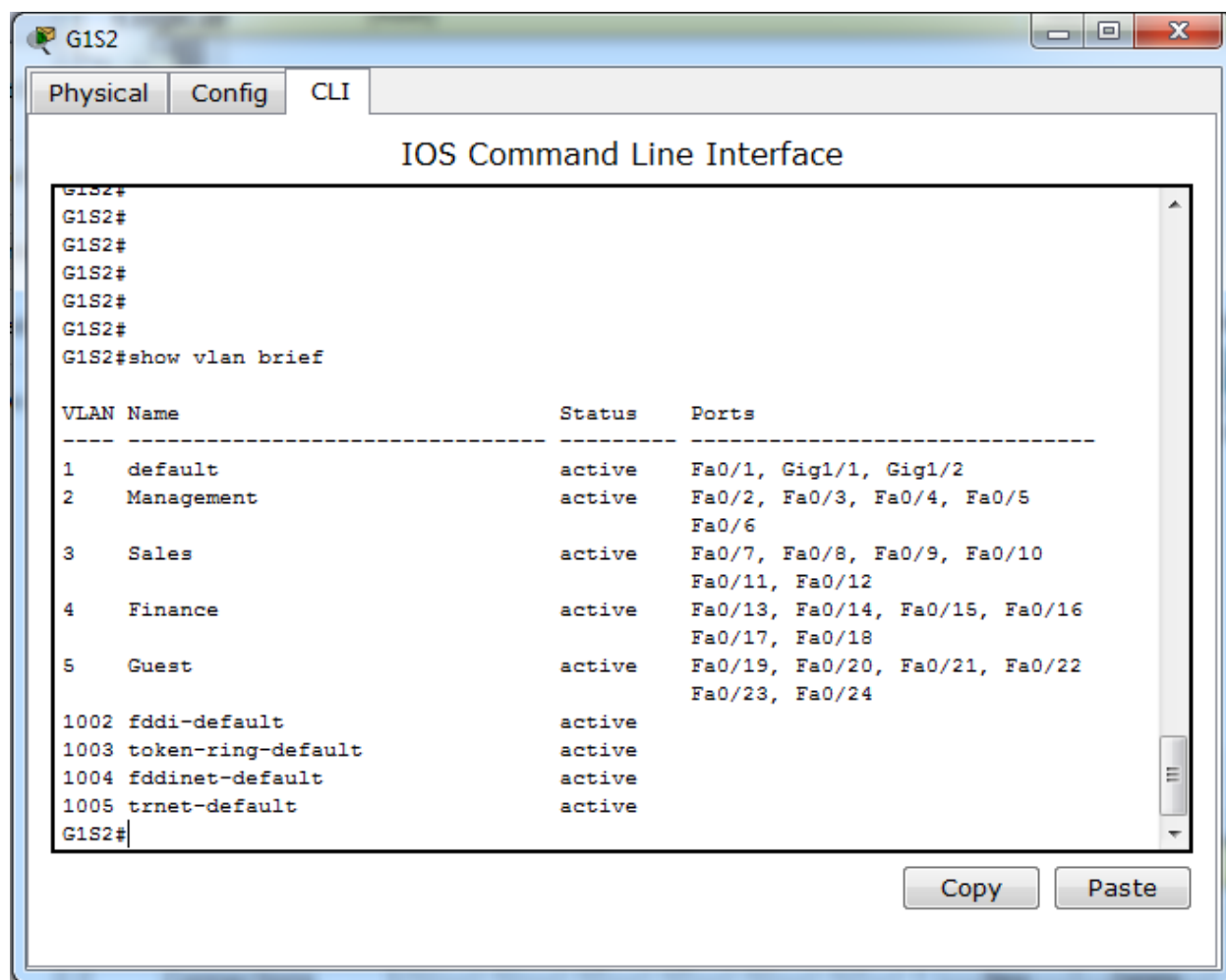
Please note that the first "ping" will often timeout (no reply) because it takes a finite amount of time for the initial connection to be established. This is normal.

Now **configure Switch G1S2**. You will have to:

- Give the Switch the name **G1S2**
- Create the VLANs listed in the following table
- Assign the switch ports of G1S2 to the VLANs identified in the table.

VLAN ID	VLAN Name	Ports
2	Management	2 - 6
3	Sales	7 - 12
4	Finance	13 - 18
5	Guest	19 - 24

Use the **show vlan brief** command to verify that switch **G1S2** has been successfully configured. The output should look like this:



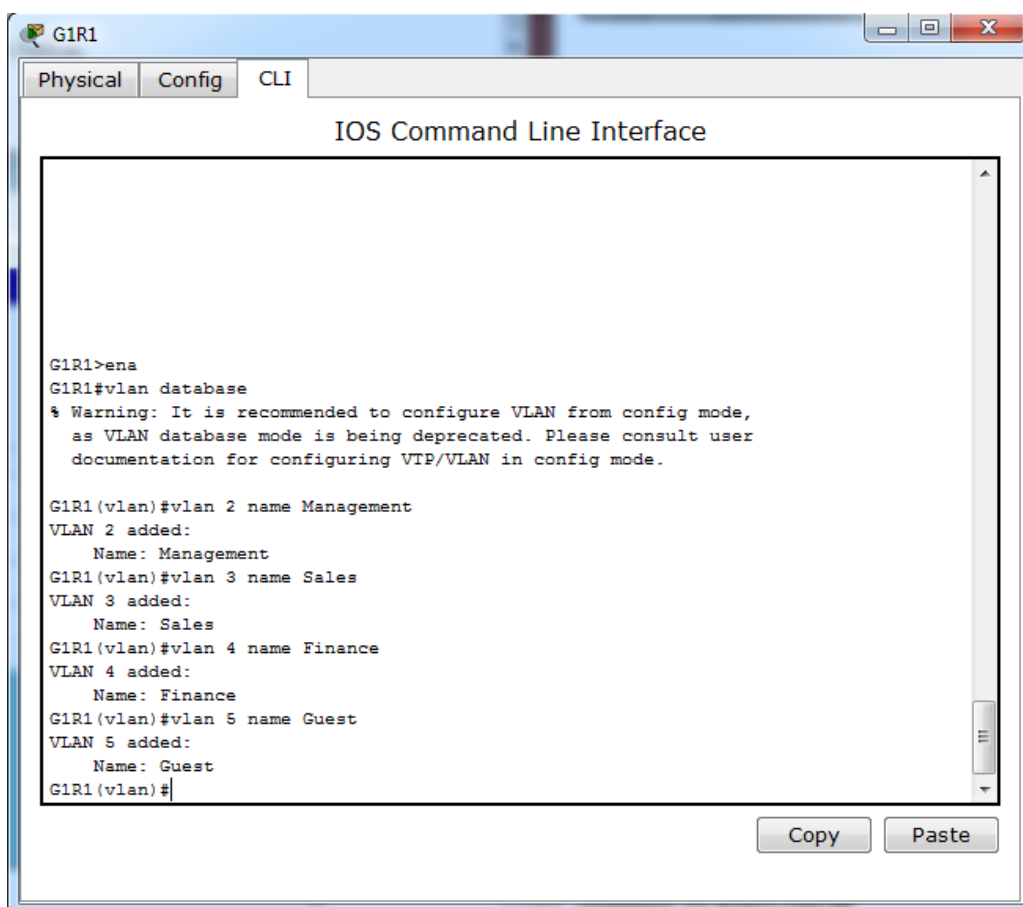
The **Router G1R1** also contains a **four port switch**. This was the module that we added to the router at the beginning of the tutorial. This **module must now be configured** to operate with the router and the rest of the network.

Packet Tracer requires us to **build the VLANs on the router**. Navigate to **Privileged mode** on router G1R1 then issue the command

### **Vlan database**

This command accesses the mode from where we build VLANs on a router. The prompt should have changed to **G1R1(vlan)#**

Issue the command **vlan 2 name Management**. This will **create VLAN 2 and assign its name**. Repeat this command for VLANs 3, 4 and 5. Refer to the table on Page 21 for the VLAN names. Your screen should now look like this:



```
G1R1>ena
G1R1#vlan database
% Warning: It is recommended to configure VLAN from config mode,
as VLAN database mode is being deprecated. Please consult user
documentation for configuring VIP/VLAN in config mode.

G1R1(vlan)#vlan 2 name Management
VLAN 2 added:
  Name: Management
G1R1(vlan)#vlan 3 name Sales
VLAN 3 added:
  Name: Sales
G1R1(vlan)#vlan 4 name Finance
VLAN 4 added:
  Name: Finance
G1R1(vlan)#vlan 5 name Guest
VLAN 5 added:
  Name: Guest
G1R1(vlan)#
```

Type **exit** then press **Enter** to return to Privileged mode. We cannot assign IP addresses directly to the ports within the switch module as they don't support this function. We must instead **create virtual interfaces for each VLAN that operate through the ports**.



Move to **Global Configuration mode** then issue the commands below to create a virtual interface that works with VLAN 2.

**Interface vlan 2**

**Ip address 10.0.2.1 255.255.255.0**

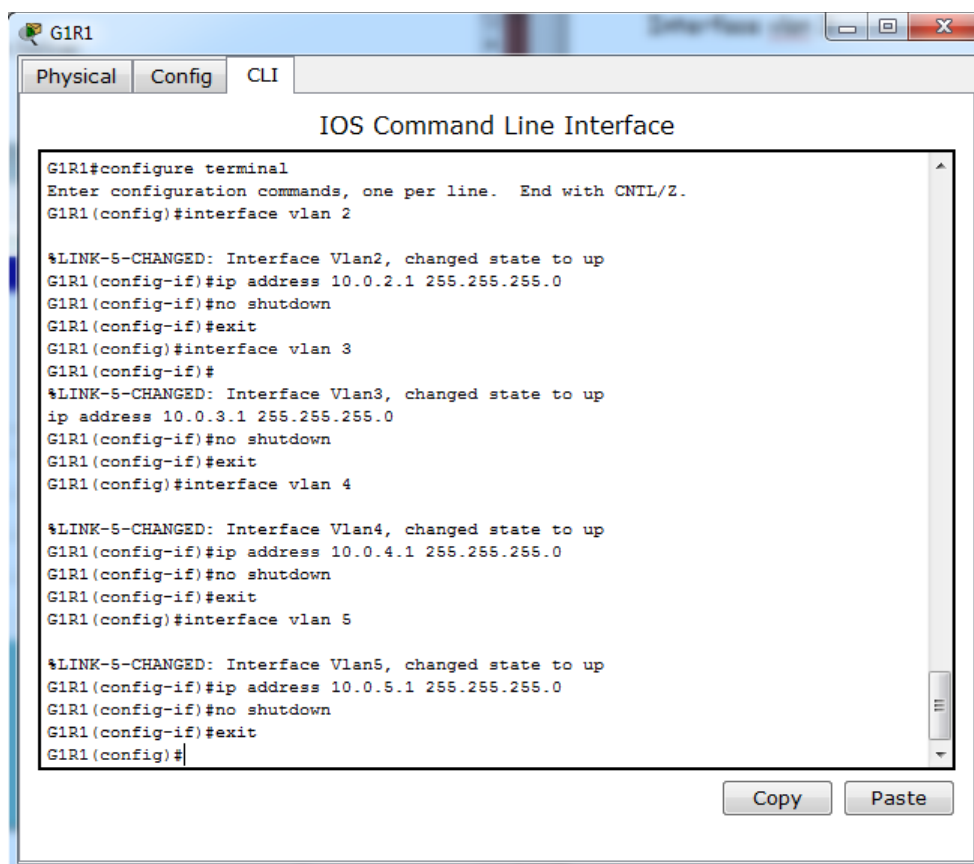
**No shutdown**

**Exit**

Now repeat this process to create virtual interfaces for VLANs 3, 4 and 5. Use the information within the table below:

Virtual Interface	IP Address	Subnet Mask
Vlan 2	10.0.2.1	255.255.255.0
Vlan 3	10.0.3.1	255.255.255.0
Vlan 4	10.0.4.1	255.255.255.0
Vlan 5	10.0.5.1	255.255.255.0

Your screen should look like this:



The screenshot shows a terminal window titled "G1R1" with tabs for "Physical", "Config", and "CLI". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text shows the following commands and responses:

```
G1R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
G1R1(config)#interface vlan 2

%LINK-5-CHANGED: Interface Vlan2, changed state to up
G1R1(config-if)#ip address 10.0.2.1 255.255.255.0
G1R1(config-if)#no shutdown
G1R1(config-if)#exit
G1R1(config)#interface vlan 3
G1R1(config-if)#

%LINK-5-CHANGED: Interface Vlan3, changed state to up
ip address 10.0.3.1 255.255.255.0
G1R1(config-if)#no shutdown
G1R1(config-if)#exit
G1R1(config)#interface vlan 4

%LINK-5-CHANGED: Interface Vlan4, changed state to up
G1R1(config-if)#ip address 10.0.4.1 255.255.255.0
G1R1(config-if)#no shutdown
G1R1(config-if)#exit
G1R1(config)#interface vlan 5

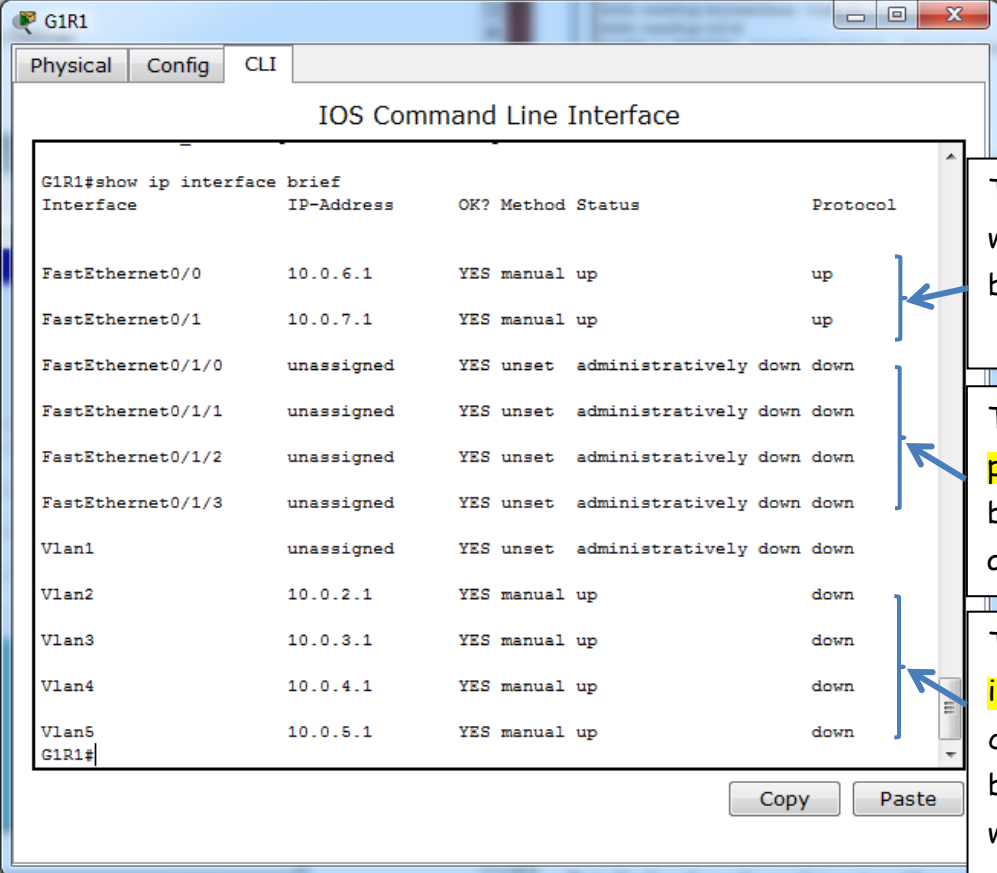
%LINK-5-CHANGED: Interface Vlan5, changed state to up
G1R1(config-if)#ip address 10.0.5.1 255.255.255.0
G1R1(config-if)#no shutdown
G1R1(config-if)#exit
G1R1(config)#
```

At the bottom of the terminal window, there are "Copy" and "Paste" buttons.

We can **verify that all of our interfaces (virtual and real)** are configured correctly by returning to **Privileged mode** and issuing the command:

### Show ip interface brief

This command identifies the name, IP address and status of each interface as shown below:



IOS Command Line Interface

```
G1R1#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	10.0.6.1	YES	manual	up	up
FastEthernet0/1	10.0.7.1	YES	manual	up	up
FastEthernet0/1/0	unassigned	YES	unset	administratively down	down
FastEthernet0/1/1	unassigned	YES	unset	administratively down	down
FastEthernet0/1/2	unassigned	YES	unset	administratively down	down
FastEthernet0/1/3	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down
Vlan2	10.0.2.1	YES	manual	up	down
Vlan3	10.0.3.1	YES	manual	up	down
Vlan4	10.0.4.1	YES	manual	up	down
Vlan5	10.0.5.1	YES	manual	up	down

These are the **real interfaces** we configured at the beginning of the tutorial

These are the **four switch ports** we added that cannot be assigned IP address and are yet to be configured.

These are the **four virtual interfaces** we have just created. They are down because they must be paired with a real interface.

Port **Fa0/1/0** on router **G1R1** is the only switch port currently in use. It must be configured to carry traffic for VLANs 2, 3, 4 and 5 so that our virtual interfaces will be able to work. A switch port will normally only carry traffic for one VLAN. Such a port is called an **Access Port**. We have already configured many Access Ports on our two switches (**G1S1** and **G1S2**).

Sometimes, as in this instance, a **switch port must carry traffic for more than one VLAN**. Such a port is called a **Trunk port**. We must configure port Fa0/1/0 on **G1R1** as a Trunk. We must also configure port Fa0/1 on Switch **G1S2** as a trunk since it must also send and receive traffic from several VLANs.

Move to **Global Configuration mode** on router **G1R1** the issue the following commands

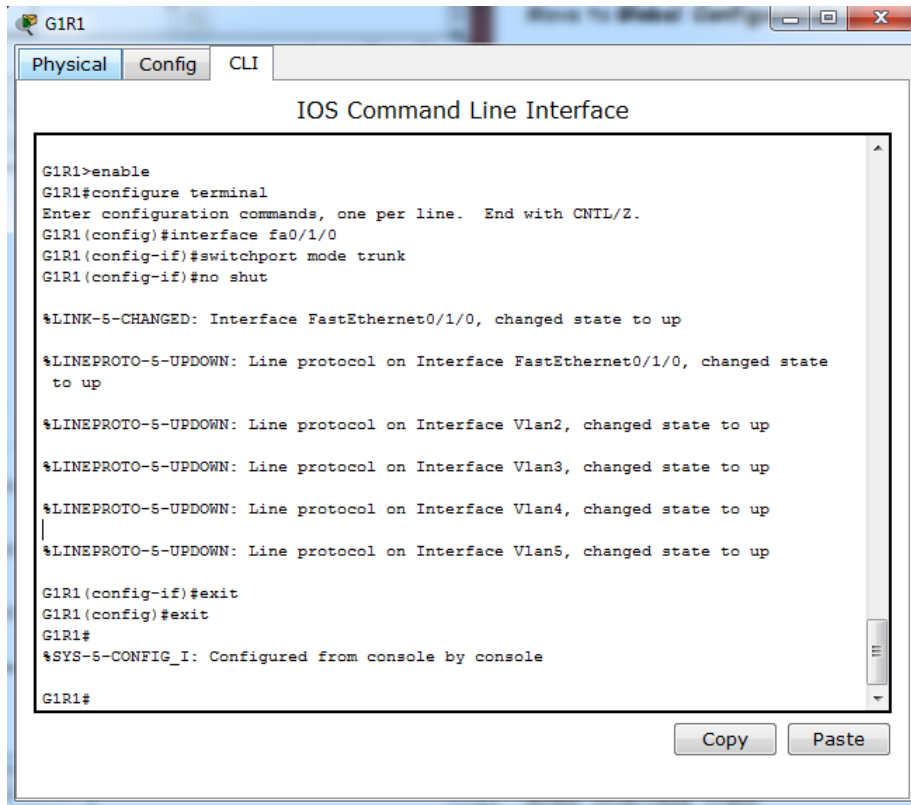
**Interface fa0/1/0**

**Switchport mode trunk**

**No shutdown**

**Exit**

As soon as you entered the command no shutdown you should have seen the four virtual interfaces activate as in the screenshot below:



```
G1R1>enable
G1R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
G1R1(config)#interface fa0/1/0
G1R1(config-if)#switchport mode trunk
G1R1(config-if)#no shut

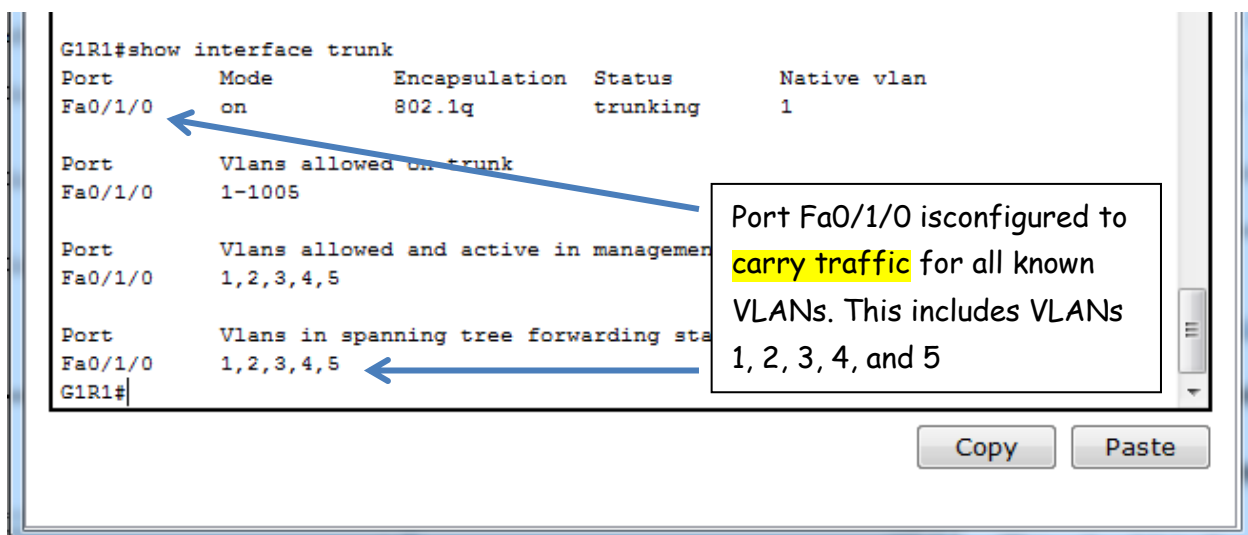
%LINK-5-CHANGED: Interface FastEthernet0/1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan5, changed state to up

G1R1(config-if)#exit
G1R1(config)#exit
G1R1#
%SYS-5-CONFIG_I: Configured from console by console
G1R1#
```

Now Return to **Privileged mode** and issue the command

**Show interface trunk**

This should indicate that port **Fa0/1/0** is a **trunk** port and is now carrying traffic for multiple VLANs. Your screen should look like this:



```
G1R1#show interface trunk
Port      Mode      Encapsulation  Status        Native vlan
Fa0/1/0    on        802.1q         trunking      1

Port      Vlans allowed on trunk
Fa0/1/0    1-1005

Port      Vlans allowed and active in management
Fa0/1/0    1,2,3,4,5

Port      Vlans in spanning tree forwarding state
Fa0/1/0    1,2,3,4,5
G1R1#
```

Port Fa0/1/0 is configured to carry traffic for all known VLANs. This includes VLANs 1, 2, 3, 4, and 5

We must now complete configure the other end of the link between G1R1 and G1S2 as a trunk otherwise both devices will be confused and unable to communicate.

Go to Switch **G1S2** and access **Global Configuration mode**. Now issue the commands below

**Interface fa0/1**

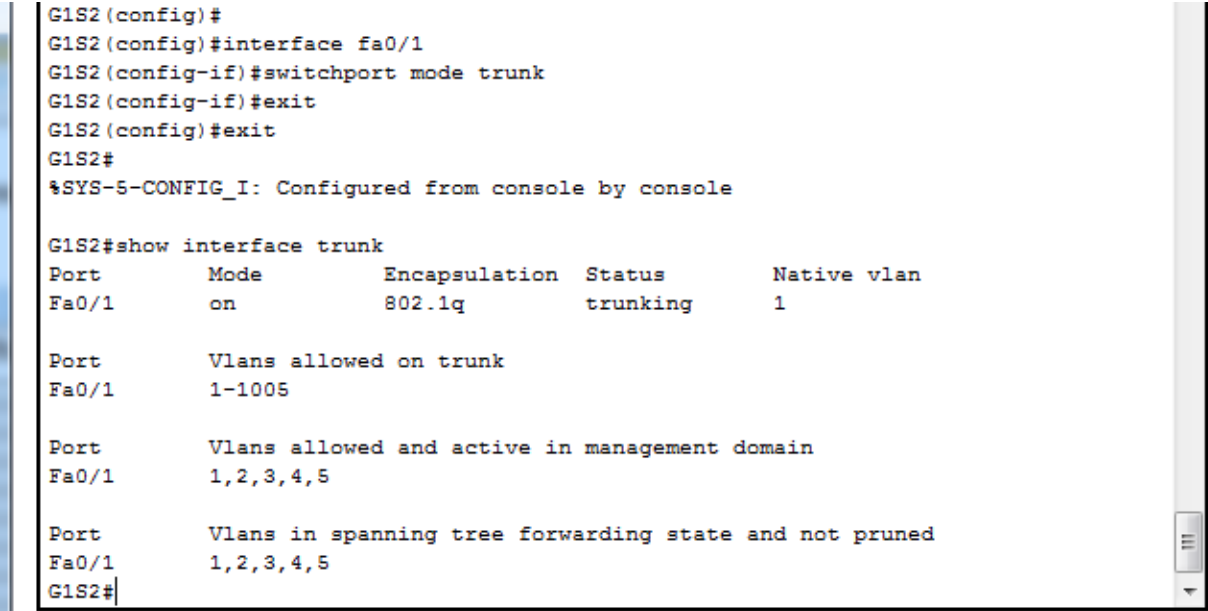
**Switchport mode trunk**

**Exit**

Now access **Privileged mode** and issue the command below to verify that interface fa01 is now configured as trunk

**Show interface trunk**

Your screen should look like this:



```
G1S2(config)#
G1S2(config)#interface fa0/1
G1S2(config-if)#switchport mode trunk
G1S2(config-if)#exit
G1S2(config)#exit
G1S2#
%SYS-5-CONFIG_I: Configured from console by console

G1S2#show interface trunk
Port      Mode      Encapsulation  Status      Native vlan
Fa0/1     on        802.1q         trunking    1

Port      Vlans allowed on trunk
Fa0/1     1-1005

Port      Vlans allowed and active in management domain
Fa0/1     1,2,3,4,5

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/1     1,2,3,4,5
G1S2#
```

Copy Paste

The only thing left to do is to **assign PC2 an IP address**, subnet mask and default gateway so that it may properly join the network. **PC2 is attached to switch G1S2 by port fa0/2** which is assigned to VLAN 2. Switch **G1S2 is connected to the router G1R1 via a trunk port** which will carry all VLANs including VLAN 2. The VLAN 2 virtual interface on router **G1R1** has been assigned the IP address 10.0.2.1 so PC2 must be given a spare IP address from this subnet if it is to be able to connect to the network. We will assign it the IP address **10.0.2.2** with mask **255.255.255.0**. The default gateway should be the router IP Address from this subnet which is **10.0.2.1**

Configure PC2 accordingly then use the ping command to verify that it can communicate with PC0 and PC1.

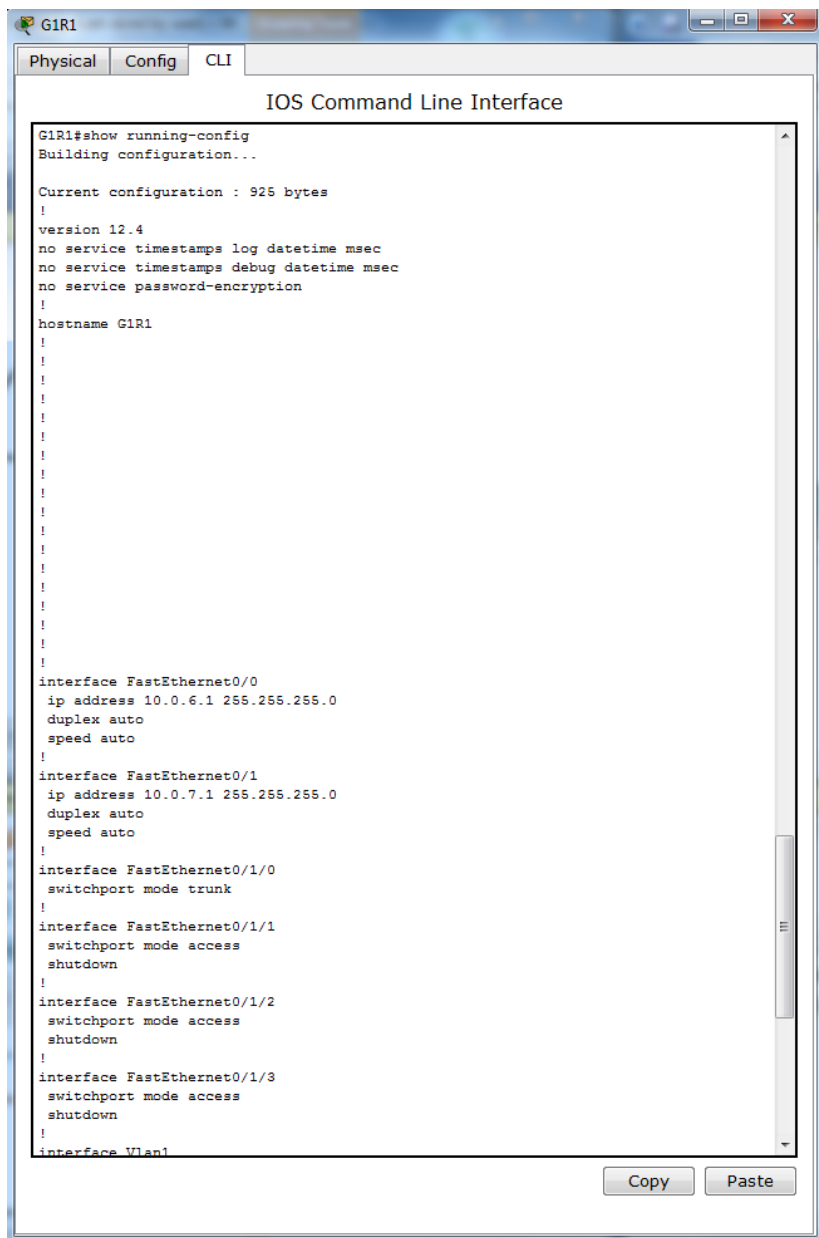
## Copy running-config startup-config

Now **Save** your Packet Tracer configuration. The **Save** command is accessed from the File menu on the Packet Tracer main window.

You may view your complete configuration by accessing Privileged mode on a router or a switch and then issuing the command

## Show running-config

Here is a partial configuration taken from router **G1R1** using this command.



## Final Step: Report

Submit your Packet Tracer file named ***StudentCode\_StudentName\_LabNumber.pkt*** to BKeL.