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Hand out week 3

You must demonstrate the setup to the tutor and have a mark recorded.

You are to work in pairs on the following practical tasks.

The scenario is to use a router to create two separate lans in a building, one for floor 1 and the other for floor 2.

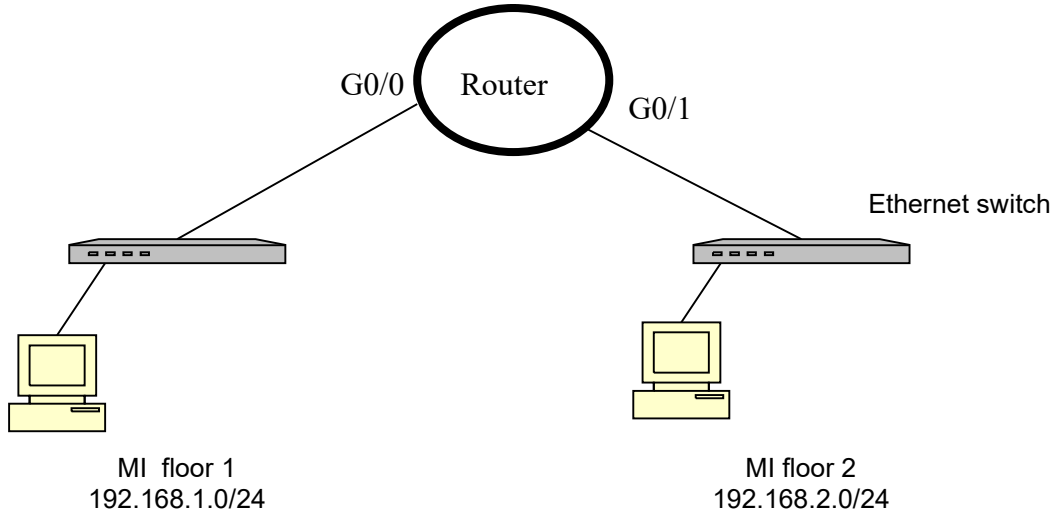
Workshop 2

Task 1

Objectives:

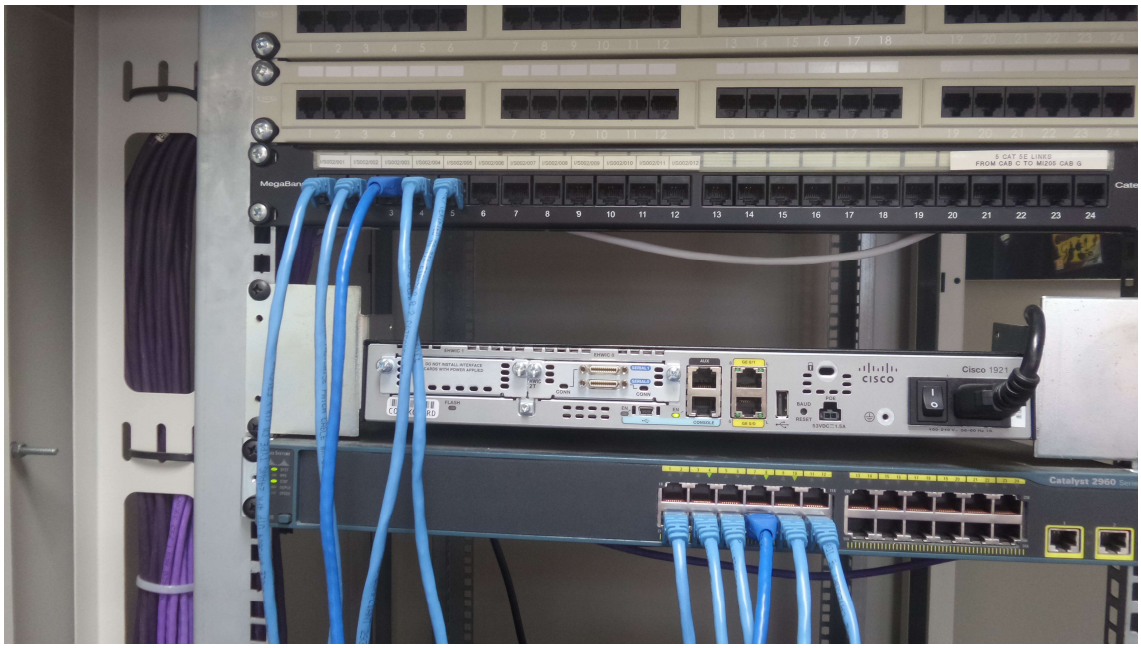
- Set up two LANs on a router.
- Test for connectivity

What is a default gateway? **The default gateway is the router that will route network traffic to other networks.**



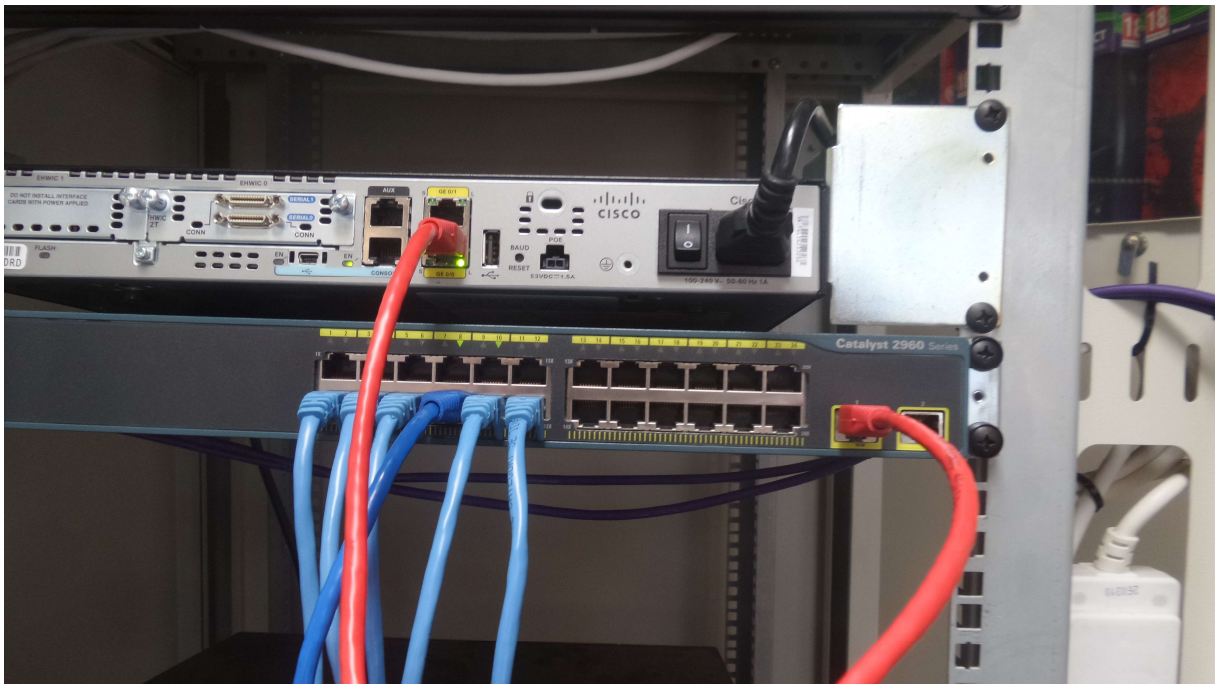
Setting up in the labs

All the PCs on floor 1 and 2 will connect via the patch panel to their own switch on each floor



We will use the router to break the two floors into two separate networks

The yellow giganet ports GE 0/0 and GE 0/1 enable you to create two separate networks and cabling from one of these to the switch will place all the PCs on that switch into that network

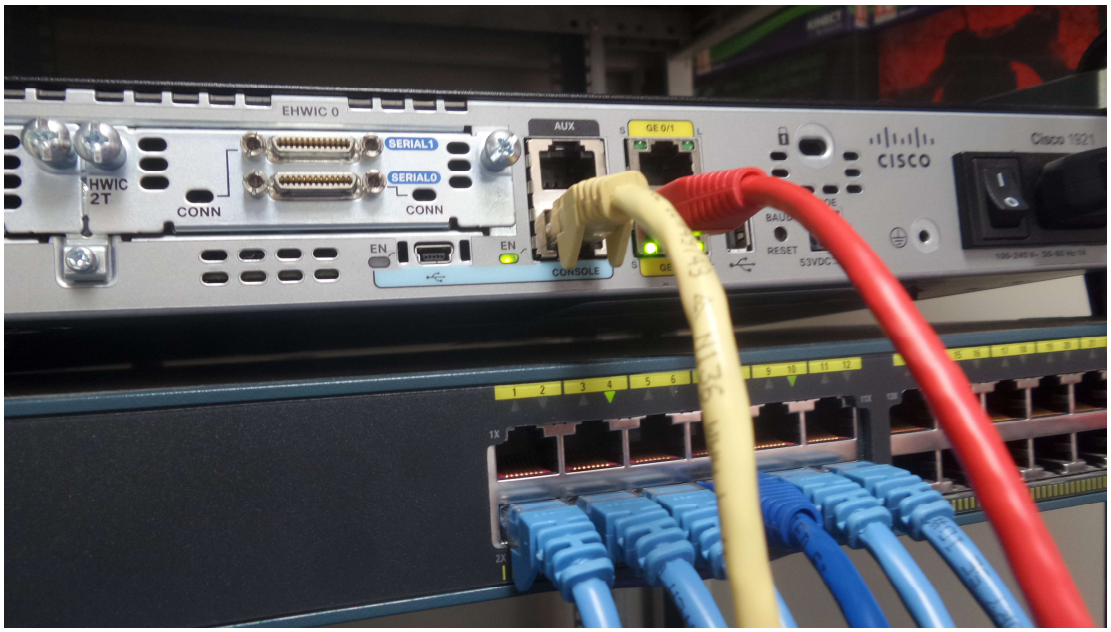


Procedure
You will be working in pairs **and one desk** only will be configuring the router. Each desk will be mimicking a whole floor of desks in a building and will be connected to its own switch

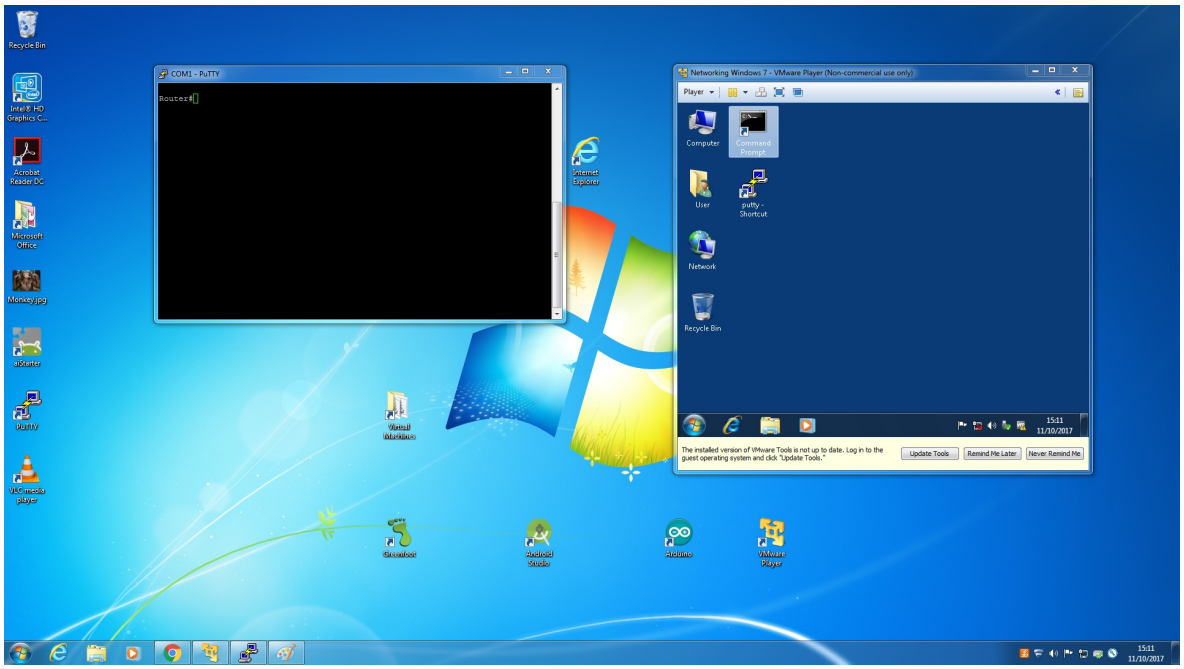
1. As in workshop 1, use the Networking 7 VM.
2. Set the IP address of the workstation on floor 1 as 192.168.1.X and the one on floor 2 as 192.168.2.X where x = your desk number + 100 as in workshop 1.
3. Connect the workstation into its own switch for its LAN.
4. Connect the Router to each LAN using the Giganet 0/0 and the Giganet 0/1 interface.

Configuring the Router – one desk only will do this

Connect the serial port of one of the workstations to the console port of the router using a patch cable. The console port is the blue port, and the other end goes to the patch panel to the port that goes back to your serial port.



1. On the Normal **(non VM)** desktop select the putty Icon
2. In the ‘Saved Sessions’ dialogue box select “serial “ and click load, and then open



Press the return key a few times until you get the prompt from the router.

% Please answer 'yes' or 'no'.
Would you like to enter the initial configuration dialog? [yes/no]

or

Router>

Answer NO to the initial configuration dialog.
And you may be asked do you want to terminate autoinstall and yes to that

If you get any other prompt, the router's current configuration needs to be erased. Seek help from your tutor.

We now need to enter privileged mode to make configuration changes. Enter the following

Router>enable

The prompt changes to:

Router#

To configure the router we must enter:

Router #configure terminal

The prompt changes to:

Router(config)#

Now change the router prompt/name to *your name*

Router(config)#hostname IAN

Will give

IAN(config)#

Now to configure each interface so that we can set its IP addresses and turn it on, we must be in the individual interface configuration mode. To do this for floor 1
you must enter:

IAN (config)# interface G0/0

The prompt changes to:

IAN (config-if)#

We are now able to configure this interface by setting the IP address and subnet mask.

IAN (config-if)#ip address 192.168.1.1 255.255.255.0

Now switch on the interface

IAN(config-if)#no shutdown

Now switch to the G0/1 interface to configure it

IAN (config-if)# interface G0/1

IAN (config-if)#ip address 192.168.2.1 255.255.255.0

Now switch on the interface

IAN(config-if)#no shutdown

IAN(config-if)# exit

Testing

1. Log on to the workstation and click on the VMware player icon, and select the 'Networking Windows 7" VM available on the left hand panel, and click play this machine.

2. Make sure the windows firewall in this VM is switched off.
3. Set the IPaddress on each workstation using the method as in workshop 1.
4. Try to ping from a host in one office to a host on the other floor

YOU WILL PROBABLY BE UNSUCCESSFUL. If so…

5. On the host you are pinging from, check the TCP/IP configuration by typing **ipconfig** in a command prompt window.

6. What is the IP address of the Default Gateway? If you want to connect to a host on another network, you must set the Default Gateway IP address which is that of the interface on the router your network connects to.

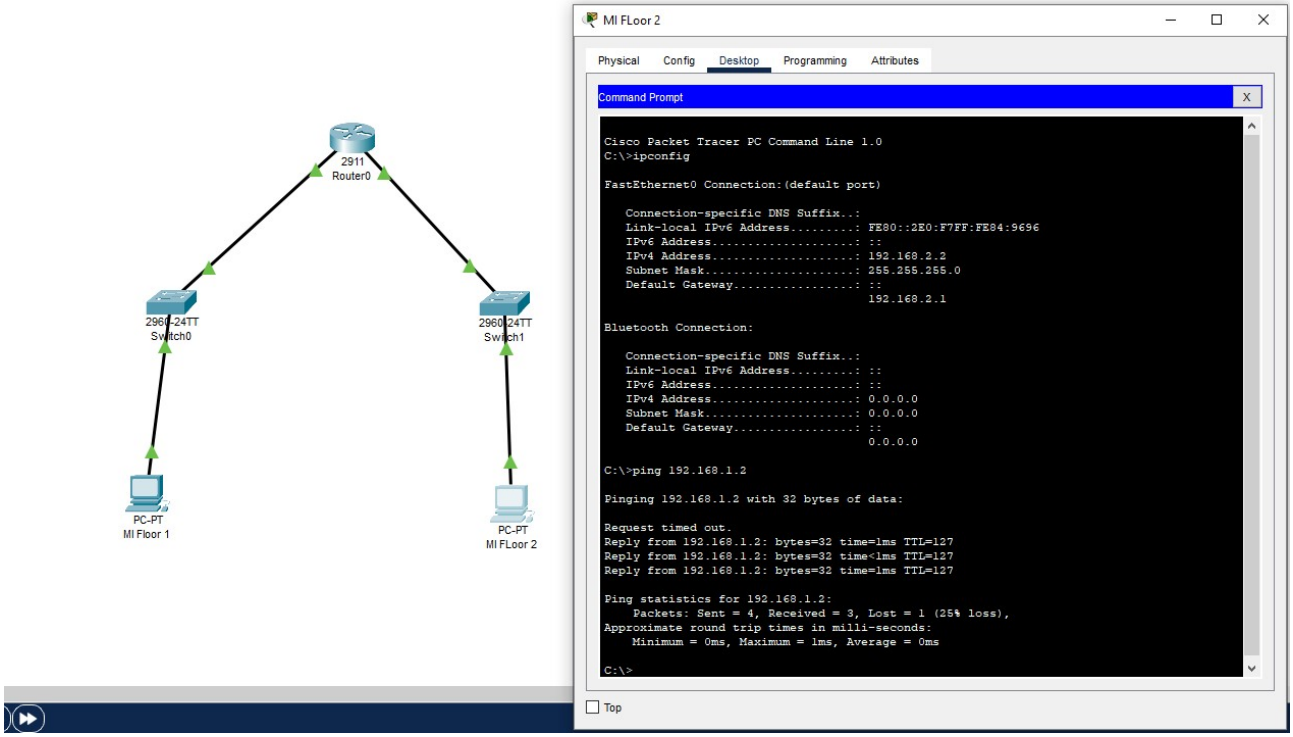
Configure the Default Gateway IP address on each host, if necessary.

You should be able to ping from any one workstation to any other workstation.

7. Test connectivity by pinging between each host workstation in turn.

Why do you need a Default Gateway to ping between hosts on different networks but not when pinging between hosts on the same network?

A default gateway will route traffic to unknown networks. If you have more than 1 PC within the same network then a switch device will enable communication between the nodes. A default gateway will forward packets to another router or network when the destination IP address has a different network address.



Finally demonstrate this to your tutor that it works and have a mark recorded.

Tutor Signature .....

Before starting Workshop 2 part 2 then you must clear the settings from your router – see the separate handout.

Workshop 2 part 2

Objectives

- **To configure the network with the same physical topology as workshop 2 part 1, but with different logical configurations**

The 2 LANs on the router still have the same physical configurations, but the new network addresses are as follows

Network 1 on floor 1 **=** 202.16.5.0 /24
Network 2 on Floor 2 = 202.16.7.0 /24
The subnet mask = 255.255.255.0
Router Name = '*Your student number*'

Tasks to do

1. Configure the router

2. Assign suitable IP address to hosts in each network.

3. Test for connectivity.

Finally demonstrate this to your tutor that it works and have a mark recorded.

Now reset your router for the next students using the following procedure

Resetting your router
Router#> erase startup-config
Confirm that you would like to erase the startup-config.

Now reboot the router
Router#>reload
Do not save the current running configuration
Confirm that you wish to reboot

You need to investigate the following using the internet

broadcast domains, collision domains, Network segmentation, differences between hubs and switches, Vertical and horizontal network cabling and the layers of the OSI model routers, switches, hubs, bridges and cabling operate at.