

CO1507 Introduction to Networking

Lab 4 - More WAN configuration and a look at CISCO IOS

Task 1 - Console connection and terminal emulator in packet tracer

1. Drag a PC and switch onto the screen

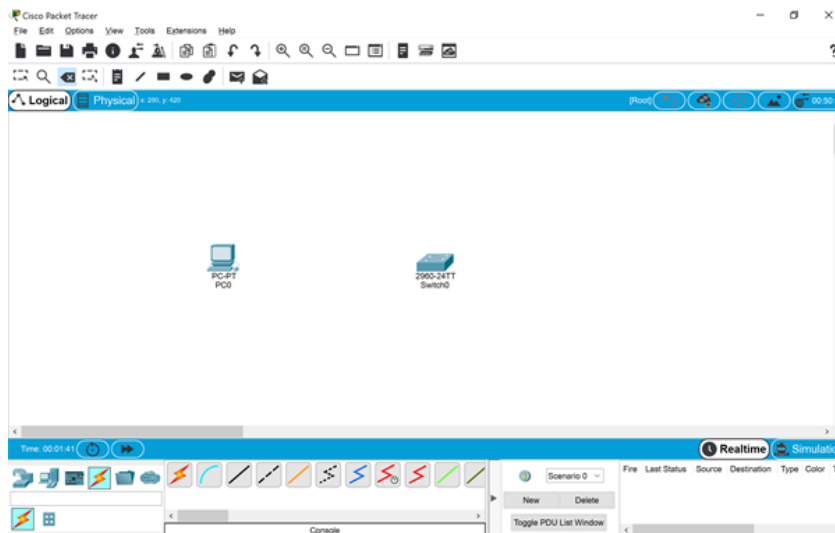


Figure 1: PC and switch

2. Chose the right connection to connect the pc with switch: Which cable type is used here? make a note.

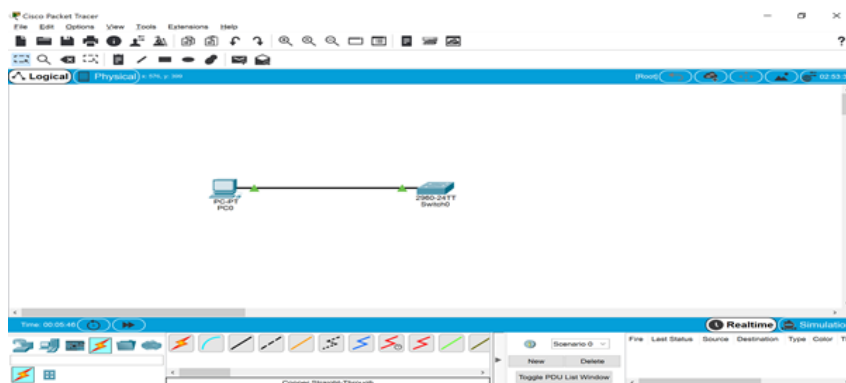


Figure 2: PC and switch connected

3. Use the console cable to connect the devices as shown below:

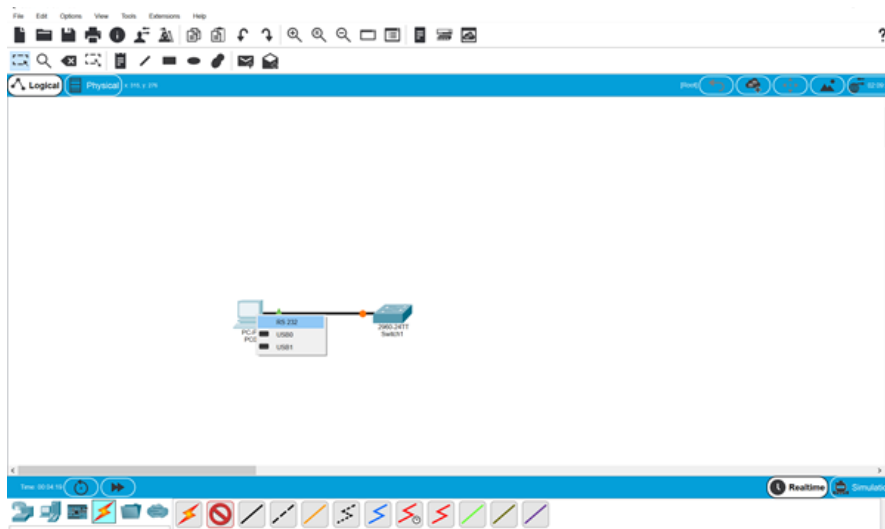


Figure 3: Console cable connection

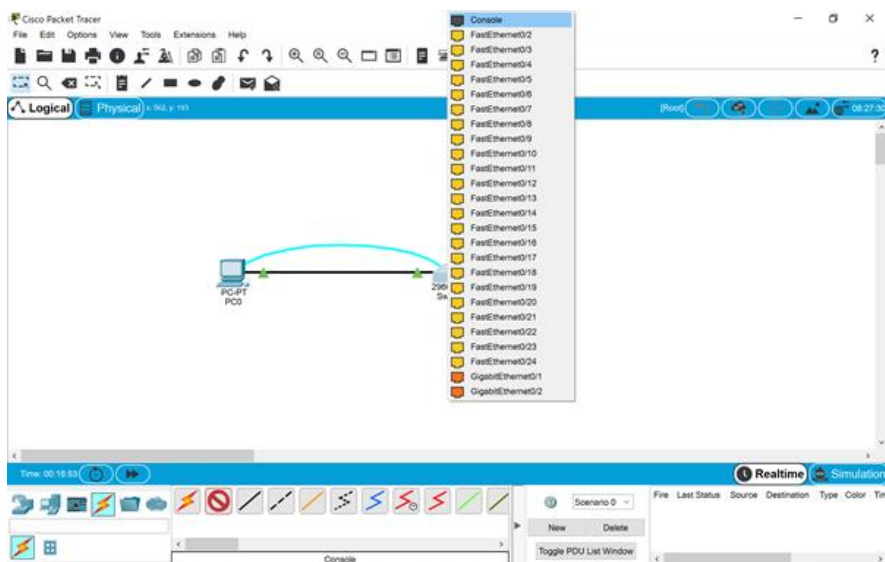


Figure 4: Console cable connection

4. Search on the internet about the console cable, why we use it? And in which interface should we connect to the PC?
5. From the PC, click on terminal then access the configuration mode in the switch as shown below.

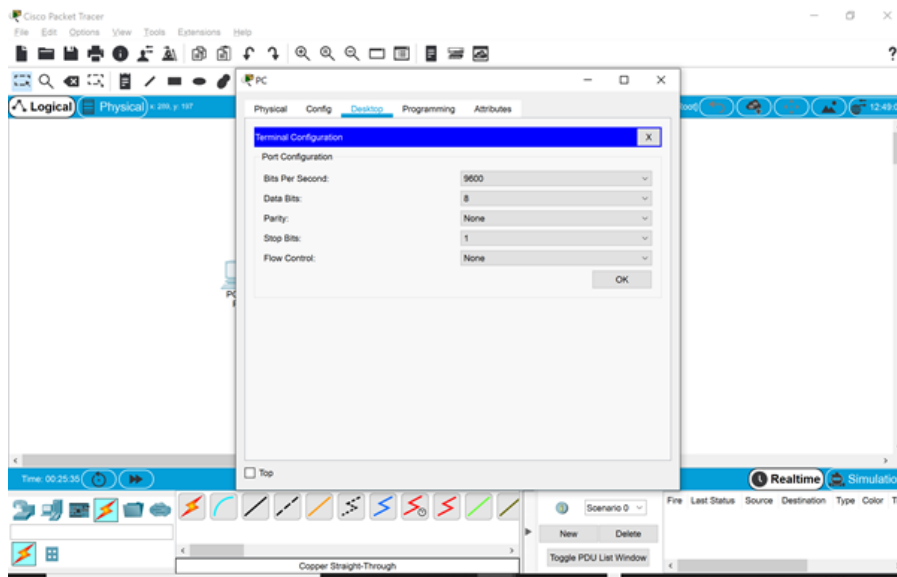


Figure 5: Terminal configuration

Then hit the OK button as shown below:

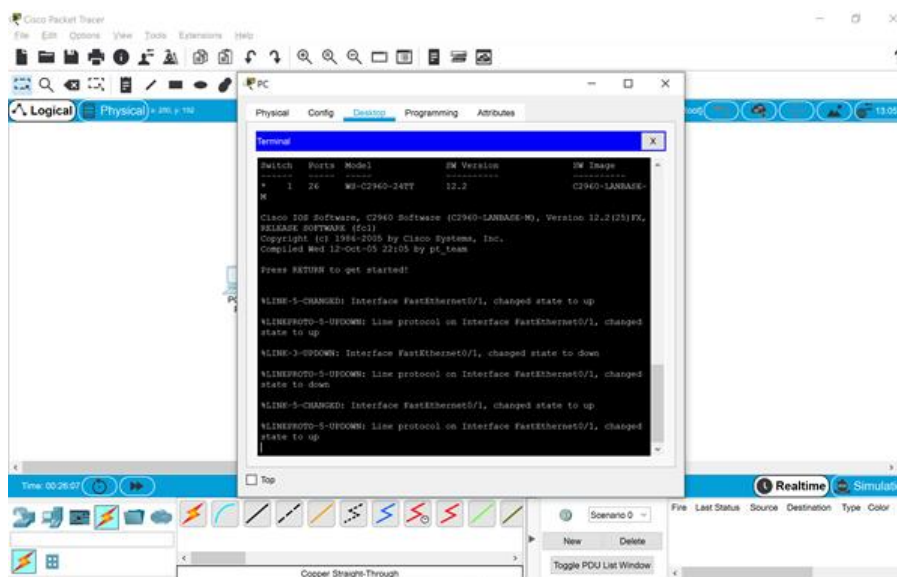


Figure 6: Terminal output

Then hit Enter button to access the "User Exec Mode" as shown below:

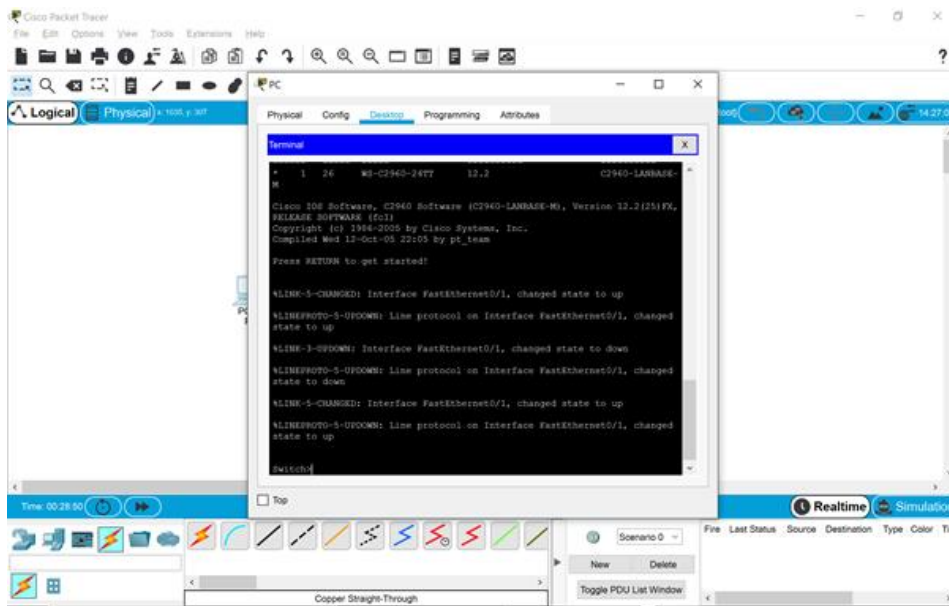


Figure 7: Terminal output - use exec mode

Task 2: Cisco IOS basic configuration and commands

Change to the Privileged EXEC Mode. To do this you need to issue the command

enable

or

en

for short.

Make a note of these commands in your notes as you work through this exercise, the commands will be relevant to your assessment in semester 2.

Then from the Privileged EXEC Mode enter the Global Configuration mode. To do this you will need to issue the command

configure terminal

or

config t

for short.

Next, change the host name of the switch to something more identifiable. For the purposes of the instructions in this worksheet it will be called "S1" but you can call it

anything you want. Pay attention as anywhere you see S1 from here on refers to whatever name you chose.

```
switch(config)# hostname S1
```

To prevent the switch from attempting to translate incorrectly entered commands as though they were hostnames, disable the Domain Name System (DNS) lookup. You do not need to understand what DNS, or DNS lookup is at this point - just that we don't want it for this reason.

```
S1(config)# no ip domain-lookup
```

To prevent unauthorized access to the switch, configure passwords. HINT type these commands one line at a time

```
S1(config)# enable secret class  
S1(config)# line con 0  
S1(config-line)# password cisco  
S1(config-line)# login  
S1(config-line)# exit
```

A login banner, known as the message of the day (MOTD) banner, should be configured to warn anyone accessing the switch that unauthorized access will not be tolerated.

The "banner motd" command requires the use of "delimiters" to identify the content of the banner message. The delimiting character can be any character as long as it does not occur in the message. For this reason, symbols, such as the #, are often used. HINT: type the first line shown below and press Return (Enter)

```
S1(config)# banner motd #  
Enter TEXT message. End with the character '#'.  
Unauthorized access is strictly prohibited and prosecuted to the  
full extent of the law. #  
S1(config)# exit
```

Use the copy command to save the running configuration to the start-up file on non-volatile random-access memory (NVRAM). HINT: type the first line shown below and press Return (Enter)

```
S1# copy running-config startup-config  
Destination filename [startup-config]? [Enter]  
Building configuration...  
[OK]  
S1#
```

The show running-config command displays the entire running configuration, one page at a time. Use the spacebar to advance paging. The commands configured in the previous steps are highlighted below

```
S1# show running-config
```

Don't be concerned that you do not fully understand what is going on here, this is your first taste of Cisco IOS. We will revisit it later.

Task 3: Wide area network addressing task

You are given the following brief to construct a computer network with the following requirements:

1. The network should feature two separate LANS or "subnets" connected via a Router. We will call these LAN A and LAN B
2. LAN A should feature 5 PCs, and a Server
3. LAN B should feature 5 PCs, and a printer
4. The server in LAN A should be configured to show an intranet homepage page on the PCs within the network. The homepage should have the title "Welcome to the UCLan co1507 appreciation society intranet home"
5. LAN A should use the network address 192.168.100.0 with a subnet mask of 255.255.255.0
6. LAN B should use the network address 172.30.0.0 with a subnet mask of 255.255.0.0
7. In BOTH subnets the ROUTER should be given the first valid host IP address on the network
8. The server in LAN A should be given the last valid host IP address on the network
9. The printer in LAN B should be given the last valid host IP address on the network
10. Configure both switches with the hostname "LAN A" and "LAN B"
11. Disable DNS lookups and set a MOTD banner on both switches.

Make a note of ALL the addressing requirements for all devices in your notes.

Construct, and test the network in Packet Tracer

Show your tutor when finished if you get stuck ask for help.

Task 4: Questions

1. Answer the following questions in your notes. You should refer to the lecture where appropriate and you may need to research on the web
2. What type of standards are defined by a recognized organisation, authority, or official body?
3. What type of standards are defined by industry trends, customer preference, and /or market dominance?
4. What is the standard for Ethernet? who defined it? (Research this on the web)
5. How many layers are there to the OSI model?
6. If I have a broken piece of ethernet cable preventing communication, at what layer in the OSI model does the problem reside? and why?
7. If I have a network switch down preventing communication, at what layer in the OSI model does the problem reside? and why?
8. If I have a network router down preventing communication, at what layer in the OSI model does the problem reside? and why?
9. How does the OSI model compare to the TCP/IP model?> which layers are consolidated?
10. What categories of twisted-pair cable are available, and what is the difference between them? (Use the web to research)

11. What type of end connector is typically used in twisted pair ethernet cables?
12. There are different specifications of how to wire a twisted pair ethernet cable, what are they, and why do different specifications exist? (Use the web to research)