**Experiment 1**

**Cables and Cisco Devices**

**Max group size:** 3

**Number of group:** 5

**Objective:**

* Understanding cables types.
* Introduce basic network devices such as router, switches, and hubs.
* Connecting routers using console access.
* Learning basic router configurations.

**Tools and Equipment needed:**

* Cables and connection in several types (serial, DB- 60, USB to serial, rollover, etc.).
* 15 Cisco routers, 15 Cisco switches, 15 PCs.

**Basic concepts:**

* Console access is type of access. It is usually used to configure newly acquired devices. These devices usually don’t have an IP address configured, and therefore cannot be accessed through a network. Most of the Cisco devices have a physical console port. This port can be connected to a computer using a rollover cable, a special type of cable with pins on one end reversed on the other end of the cable. After connecting console cable, to communicate with the router, start a terminal emulator application (PuTTY as an example).

**Procedure:**

* Introduce Cisco devices and cables type:

Q1: If you are asked to interconnect two switch what type of cable do you use?

* Connect console cable and start communicates with switch:
  + Identify the console port on the Switch and the console cable.
  + Connect your PC to the Switch using the console cable.
  + Run Putty on your PC.
  + From the home screen apply the following settings
    - Connection type: Serial
    - Serial line: COM1 (this number value may be different depending on the PC port you are using.

Note: You can confirm its value by checking the “Ports (COM & LPT)” on your PC Device mangers (Click on Start > Run and enter “devmgmt.msc”).

* + - Speed: 9600
    - Finally, Click open
  + Power on the Switch.

Q2: From the startup screen, what is the version of Cisco IOS is installed?

* + If you ever see the following massage:

Would you like to enter the initial configuration dialog? [yes/no]:

or similar to it, always enter “no”.

* + When it shows the message “Press RETURN to get started!” press the enter key on your keyboard.
* Introduce IOS CL modes:
  + The CLI will show “Switch>” this means you are in the **user mode**. In this mode you have very limited commands. You can list them by typing “?”.
  + Type the command “enable” and press enter.
  + You should notice that the “>” have changed to “#”, this means that you have accessed the **privileged mode**.

Q3: If you would like to go back to the user mode, what command should you use?

Hint: type “?” and search in the given list.

* Introduce and apply basic CLI commands:
* Make sure you are in the privileged mode before proceeding.
* Type the command “show” and then press the spacebar followed by “?”. Doing so will show you all the subcommand that can be used with the command “show”.
* Use the command “show version”, does IOS version show here matches what you got in Q2?
* Use the command “show running-config”. This command shows all the applied configuration and setting that the switch is running.
* In the “running-config” file you can see the following setting:

hostname Switch

this means that the Switch you are using is named “Switch”.

* Enter the command “configure terminal”. You are now in the **configuration mode** This command enables the user to make any changes and could be reviewed in “running-config” file.
* Apply the following command “hostname *SY\_G*”, to change the device name.

Note: “*Y*” and “*G*” are your number and your group number, respectively. Hence, the Switch name should be S3\_2. If your group number is 2 and your number is 3.

Q4: How can you confirm that you have changed the device name without using any command?

* Apply practical application such as coping configuration of the switch into PC and restore configuration from PC to switch:
  + After you have changed the name of the switch, check “running-config” file.

Note: because the updated configuration is saved in the “running-config” file which is located in the device RAM, all updated settings will be lost if not saved in the “startup-config” file; which is located at the device NVRAM.

* + To save the “running-config” into the “startup-config”, run the command “copy running-config startup-config”

Note: startup-config will be saved in “flash:config.text”.

Q5: what other command can you use to save your configuration in the “startup-config”?

Q6: If you want to save the Running or startup configuration to a backup file on the routes flash. What command should you use?

* + To save the configuration on your PC, highlight all the lines from the “running-config” and past it in a text document.
  + To reset the switch to its default settings, use the following set of command:

SY\_G#write erase

SY\_G#reload

* + Check you running-config file, you will see that all your work has been deleted.
  + To restore your work:
    - Copy your “running-config” backup file from the text document that you have saved on your PC.
    - Access the configuration mode.
    - And just past and press ENTER key
  + Verify that you have restored your configuration.

PLEASE

reset all startup configuration using the command “write erase” and turn off your devices.

**Lab report (peer student):**

The lab report includes the following:

* Present your all running-config content showing:
  + You have changed the device name.
* Answer All questions.