LIS4708 Perspectives of Information Technology

Fall 2009 Communication Project

Objective: To ready a Cisco switch for network operation.

Purpose: The purpose of this documentation is for the user to follow along with the instructional video. Users will be able to follow the instructor in a step-by-step process to complete the objective.

Instructor:

Bobby Martin - [RobertSMartinJr@gmail.com](mailto:RobertSMartinJr@gmail.com)

What you will need to complete the objective:

A computer with a serial port and the ability to run a terminal program.

A Cisco Switch, at least Catalyst 2950

A telnet program. We will be using Hilgraeve’s HyperTerminal for the tutorial.

A console cable (or any cable with an adapter to go from an Ethernet port to DB-9 port, aka Serial port).



An Ethernet cable, any category.

A serial-to-usb adapter if your computer is too modern to have a serial port.

**Step one: Connect the computer and switch physically.**

Insert the RJ-45 end of the console cable into the switch and the DB-9 side into your computer’s serial port (or adapter).

**Step Two: Configure your terminal client.**

Open your terminal program and, choose the COM port that the switch is plugged into and give it a name like “Cisco Switch” or something meaningful if you want to save these settings later on. Then configure it with the following settings (if using HT, just use default settings):

* Bits Per second : 9600
* Data Bits : 8
* Parity : None
* Stop Bits : 1
* Flow Control : None

Without these settings the switch will not recognize any keystrokes that you input.

**Step three: Connect the computer to the switch logically.**

Turn the switch on. At this point you will see a lot of text start scrolling through your terminal client, this is the switch booting up. If your switch does not have a configuration it will ask if you want to start the configuration wizard. Choose no. You will then be given a prompt like so:

Switch>

Congratulations, you are now able to talk with the switch.

**Step four: Configuring the switch.**

*Note: In the video I will be using a number of “shortcut” commands. These are extremely common in Cisco network peripherals and allow network operators to move around a configuration more swiftly. If you get lost, simply read the commands listed here as they are the “full” commands. For this part of the instruction, bolded lines are commands I will input to the switch and italicized comments with exclamation points are just notes. In a real Cisco config file all comments are preceded by exclamation points, so this is good practice.*

Enable the router:

**Switch>enable**

! Alternatively you can type “en”. You will then be given a prompt that looks like this.

**Switch#**

! We want to go one step further and get inside the configuration. To do this we type:

**Switch#configure terminal**

! Or we could just type “conf t” for short. Our prompt is now:

**Switch(config)#**

! The first thing we want to do is give our switch a meaningful name, or else we’d call all of our switches “Switch”.

! To do so we type:

**Switch(config)#hostname HelloSwitch**

! Just like “Hello World”. And immediately we see the fruits of our labors. The prompt has changed.

**HelloSwitch(config)#**

! Next we want to password protect our switch with an encrypted key. Then we’re going to password protect the

! ports on our switch so we can telnet in over TCP/IP instead of consoling in. So first off, since once we’re done

! with our console session we won’t be consoling in again, let’s password protect the console.

**HelloSwitch(config)# line console 0**

**HelloSwitch(config-line)#password keepout**

**HelloSwitch(config-line)#login**

! Now if we consoled in again we would be met with a password prompt. Let’s do the same with our ports. To go

! back to the global config, hit ctrl+Z. This brings us back to the enabled prompt, so first get back in config mode.

**HelloSwitch#conf t**

**HelloSwitch(config)#line vty 0 15**

**HelloSwitch(config-line)#password keepout**

**HelloSwitch(config-line)#login**

! Now when we set up our IP address on our switch we’ll be able to get in via TCP/IP. Ctrl+Z.

**HelloSwitch#**

! Now the most important password we can set. The enable password, which we will encrypt. Let’s get to the

! Global config then enter the command.

**HelloSwitch#conf t**

**HelloSwitch(config)# enable secret keepout**

! That has set our password to “keepout”. When we type “enable” at “Switch>” we’ll be prompted for this.

! If someone were to somehow steal our config file they would see a big mess of characters in place of that

! password. The last thing we need to do in order to remote in instead of console in is to set up the IP of our vlan.

! We need to get into the vlan interface to do this.

**HelloSwitch(config)#interface vlan1**

! Our prompt changes to:

**HelloSwitch(config-if)#**

! We could rename our vlan, but we only have one so we won’t bother. It’s similar to renaming the switch. First

! things first, let’s turn our vlan on. It’s weird, but this is the command to make it so:

**HelloSwitch(config-if)#no shutdown**

! And that turns it on. Let’s set the IP address.

**HelloSwitch(config-if)#ip address 192.168.0.1 255.255.255.248**

! Our vlan now has an IP address. Any port that is enabled for vlan access can be used to remote in to the switch.

! So the last thing to do is actually set up one of our ports so it can be used for just that purpose.

! Ctrl+Z, then type the following command to get to the interface for the first Ethernet port on our switch

! after getting back to the global config.

**HelloSwitch#conf t**

**HelloSwitch#interface FastEthernet0/1**

! Your prompt will now look like this:

**HelloSwitch(config-if)#**

! Just the same as it did in the vlan interface. To enable this port, it’s the same command

**HelloSwitch(config-if)#no shut**

! Then we’ll enable it for vlan access with the following commands:

**HelloSwitch(config-if)#switchport mode access**

**HelloSwitch(config-if)#switchport access vlan1**

! We should now be able to remote into our switch.

! We’ll set our computer’s IP, subnet, and gate manually to that they are 192.168.0.2, 255.255.255.248

! and 192.168.0.1 respectively. Once done we use hyperterminal only this time with the following settings.

Choose TCP/IP in “Connect using” prompt this time.

For “Host address” put in 192.168.0.1, or whatever you set your vlan IP to.

And leave Port number as the default, 23.

Hit “OK”.

! As soon as you connect you will be prompted for the password we set earlier, enter it. If correct, you should be

! met with the switch’s main prompt. Type “enable” to enter.

! You will then be met with the prompt to get into the switch. Type in that password and you are now able to

! remotely access your switch on the network. Congratulations.

! From here we will save our configuration. And that’s it. You’re finished.

**HelloSwitch>en**

**HelloSwitch#wr mem**

! Some handy commands to know (long command // short command):

**Show running-config // show run – shows the running configuration (not saved)**

**Write memory // wr mem - Saves the current running configuration**

**Write erase // wr er – erase the non-volatile ram, not the running config. Reboot to lose running.**

**Reload – reboots the Cisco device**

**Need to run a command but not at the right prompt? Put the word “do” in front of the command.**

**Examples:**

**Do sh run**

**Do wr mem**