Lab 5: Configuring a CISCO Terminal Server

Objective: Students will configure two CISCO Terminal Servers: TSA and TSB.

1. Start HyperTerminal from **Start** menu → **Communications** → **HyperTerminal**.
2. Give the connection a name.
3. Select the COM port that you are using on the back of the PC, either 1 or 2.
4. Use these configuration settings:

   - Bits per second: 9600
   - Data bits: 8
   - Parity: none
   - Stop bits: 1
   - Flow control: none

5. After hitting Enter, wait a few seconds until you see placement into the EXEC mode. If you do not see anything, hit ENTER a few times to reach the prompt. If you still do not see anything, verify that the router is on, the status is 'Connected' at the bottom left and that 'Scroll Lock' is off.

Now that you have successfully accessed the Cisco IOS via the Console port, we will now configure it for Telnet access so that it can reverse telnet into multiple switches, routers, and firewalls for configuring over one TCP/IP connection.

1. Enter enable mode on Terminal Server by typing **en** at the prompt. You will know you have successfully entered enable mode because a hash sign, #, will appear next to your hostname. Set an **enable mode password, console password, and console password.** Also, set hostname with command hostname <hostnameName>, however do not use <>. See the below for setting passwords:

enable
 # configure terminal (NOTE: This is global configuration mode, while **config t** is config mode)

[Group-A]:
(config)# hostname TSA
TSA(config)#

[Group-B]:
(config)# hostname TSB
TSB(config)#

*****Set an MOTD, which is a message of the day that by law must be created for security. It notifies that this is for private use, and not a public invitation.*****

To create a message-of-the-day (MOTD) banner, use the **banner motd** command in global configuration mode. To delete the MOTD banner, use the **no** form of this command.

banner motd *delimiter message delimiter*

no banner motd

Syntax Description:

delimiter	Delimiting character is (c).
message	Message text. You can include tokens in the form $(*token*) in the message text. Tokens are replaced with the corresponding configuration variable.

TSX(config)# banner motd cAUTHORIZED USE ONLY!c
TSX(config)# exit
TSX#

Example Setting a console password:

TSX#**config t**

TSX(config)#**line con 0**
TSX(config-line)#**login**
TSX(config-line)#**password cisco (use a more secure password)**

****

Example setting an Enable mode password :

 TSX(config)#**enable password cisco (use a more secure password)**

****

Example This password overrides the enable password and is encrypted inside the config file:

TSX(config)#**enable secret peter (should be different from enable mode password)**

****

1. In order to allow virtual terminal lines access, or remote access to the router, we will:

Step 1 Enter line configuration mode.

Step 2 Enable login on the vty lines.

Step 3 Set a password for Telnet access.

Step 4 Set the **exec-timeout** interval.

2. Issue the commands: **config t** (this is config mode and if you are not already in this mode, issue the command) [enter], **line vty 0 4** (we are configuring 4 virtual lines) [enter], **login** (enables login to be configured for next step) [enter], **password coyotes** (enables the

password 'coyotes' which will be required for Telnetting) [enter]. Make sure to execute the command **service password-encryption** so that the password (enable and telnet passwords) is not stored in plain text.

3. Setting an EXEC timeout after 15 min. and 0 sec for security: while still in (config-line) mode (if not in this mode, type **line vty 0 4**, then issue command: **exec-timeout 15 0**

4. Set the ip address for Ethernet0 which is the port that is connected to the switch that your computers share. This is the address that you will use to Telnet into the machine. Issue the following commands.

    TSA(config)# **interface Ethernet 0**
    TSA(config-if)# **ip address 192.168.0.15 255.255.255.0**

    TSB(config)# **interface Ethernet 0**
    TSB(config-if)# **ip address 192.168.0.17 255.255.255.0**

5. Verify changes by de-escalating with control-C to enable mode. Then issue **show running-config** or **sh run** for short. Now to copy these settings to startup-config, issue **copy running-config startup-config.** Hit enter when prompted to verify destination file name.

6. Now, to Telnet into the Terminal Server, Start a new session in Hyperterminal however instead of choosing the COM port, choose TCP/IP (Winsock). Enter the Ip address that you have given the Access Server, i.e. **192.168.0.X (This must be on the same subnet as the computer you are trying to telnet from),** and then leave the default port setting specified. You will be prompted for your Telnet password which you specified as **coyotes,** which upon authenticating will grant you Telnet access into the access server. (NOTE: You can also use Putty to Telnet into the Terminal Server. Hyperterminal does not exist now on Windows 7, so it may be helpful for you to start using Putty for Telnetting as it is a universal client. Open Putty and choose the 'Telnet' radio button. Type in the IP: 192.168.0.X into the hostname field.) Congratulations. You are now in.
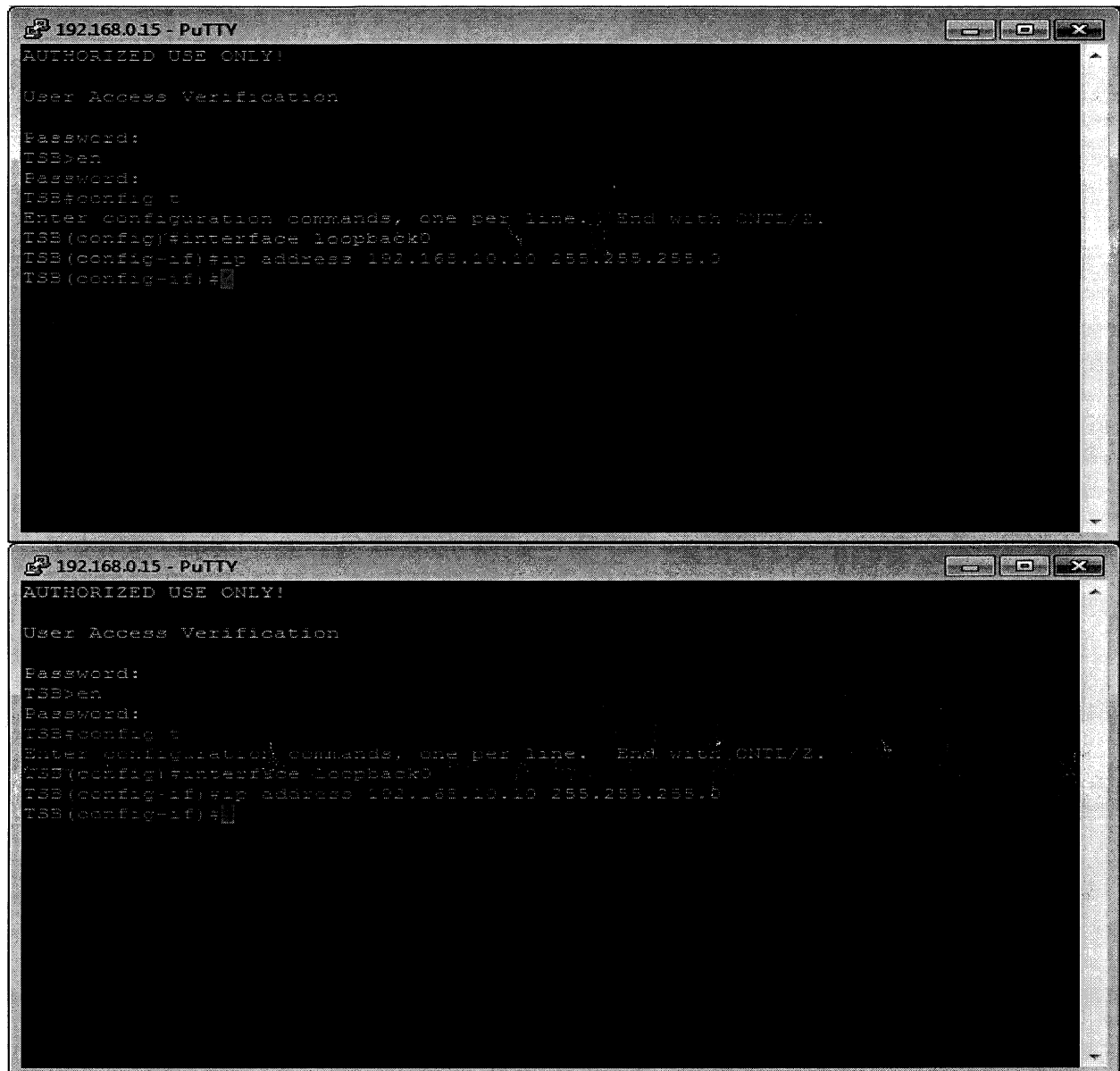
You will now configure the Terminal Server (access server) so that through that single point of access, you can console into many different switch sessions simultaneously over TCP/IP.
Step 1 Create a loopback interface.
Step 2 Assign an IP address to the loopback interface.

TSA(config)#**interface loopback0**
TSA(config-if)#**ip address 192.168.10.10 255.255.255.0**

TSB(config)#**interface loopback0**
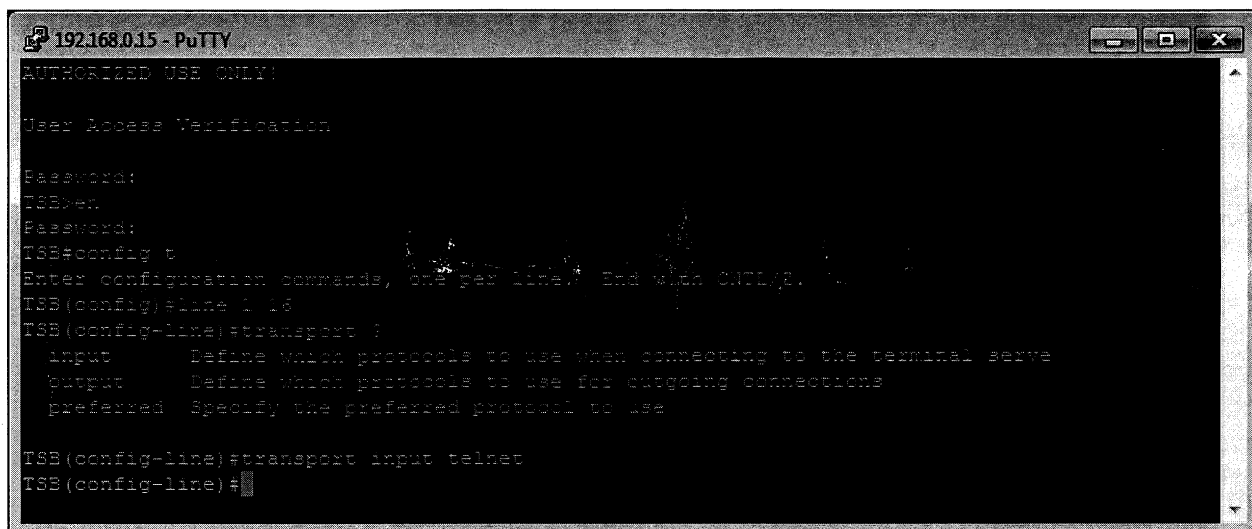TSB(config-if)#**ip address 192.168.10.10 255.255.255.0**

Step 3 You can always do a **sh run** command in 'enable' mode (signified with #) to verify your adapter now exists and gain more detailed information with the **show interface loopback0** command. Save the configuration with a **copy running startup** or **copy run start** for short, and press ENTER again so it can build the configuration. Now, allow Telnet as a transport across asynchronous lines 1 to 16 using commands **config t, line 1 16, transport input telnet.** This series of commands chooses all 16 asynch lines for configuration and allows them to reverse telnet. You can always see the help menu by typing a question mark,?, after any partial command like we have done above after 'transport input.'

TSB(config)#**line 1 16**
TSB(config-line)#**transport ?** TSB(config-line)#**transport input telnet**

Step 4 Create a host table that maps the hardware hostnames (such as R4, SW3-1, and so on) to the asynchronous line it is connected to on the terminal server (such as 2001, 2002, and so on).

```
TSA(config)#ip host R3 2001 192.168.10.10
TSA(config)#ip host SW3-1 2002 192.168.10.10
TSA(config)#ip host SW3-2 2003 192.168.10.10
TSA(config)#ip host R4 2004 192.168.10.10
TSA(config)#ip host SW4-1 2005 192.168.10.10
TSA(config)#ip host SW4-2 2006 192.168.10.10
TSA(config)#ip host PIX501-B 2007 192.168.10.10

TSB(config)#ip host R3 2001 192.168.10.10
TSB(config)#ip host SW3-1 2002 192.168.10.10
TSB(config)#ip host SW3-2 2003 192.168.10.10
TSB(config)#ip host R4 2004 192.168.10.10
TSB(config)#ip host SW4-1 2005 192.168.10.10
TSB(config)#ip host SW4-2 2006 192.168.10.10
TSB(config)#ip host PIX501-B 2007 192.168.10.10
```

```
AUTHORIZED USE ONLY!

User Access Verification

Password:
TS3>en
Password:
TS3#config t
Enter configuration commands, one per line.  End with CNTL/Z.
TS3(config)#ip host R5 2001 192.168.10.10
TS3(config)#ip host SW3-1 2002 192.168.10.10
TS3(config)#ip host SW3-2 2003 192.168.10.10
TS3(config)#ip host R4 2004 192.168.10.10
TS3(config)#ip host SW4-1 2005 192.168.10.10
TS3(config)#ip host SW4-2 2006 192.168.10.10
TS3(config)#ip host PIX-B 2007 192.168.10.10
TS3(config)#
```

Step 5 Save and test the configuration.

We do this by doing a 'Ctrl-Z' command to de-escalate ourselves from 'config t' mode back into enable mode. Then type **copy run start** to save the current configuration to startup. Then execute a **sh run** command (show running command) which will show the config. (**Note:** To see a list of hosts in the hosts table, type the command **show host**. Also, if you would like to see a list of running sessions, type the command **show session**.

If you ever want to delete a particular host, for example a switch that was configured for reverse Telnet from the access server that you no longer need, use the same command that you issued to create the host in the host table but with a **no** in front of it. For example, **no ip host PIX-B 2007 192.168.10.10**.

Step 6 Now all you need to do to Telnet into one of your hosts is type the host name in **enable** mode prompt. The escape sequence is tricky, but it is **Ctrl Shift 6 x.** Hold down **Ctrl Shift 6** for about 3 seconds and then let go. Now press **x.** That will escape back to the terminal server. The command **show sessions** shows the active sessions. You can type **resume <session number>** to resume a connection. For example, **resume 1.** The command **sh line** shows all of the lines. The command **sh ip int br** shows the breakdown of all of your interfaces. If you want to disconnect a particular session, just type **disconnect <hostname>.** Then you can clear the particular asynch line to refresh by typing **clear line tty <line number>** (make sure to put a space between tty and the line number), for example **clear line tty 1** will clear the line with port 2001. If you ever have connection to any of your hosts refused, run the above clear line command.