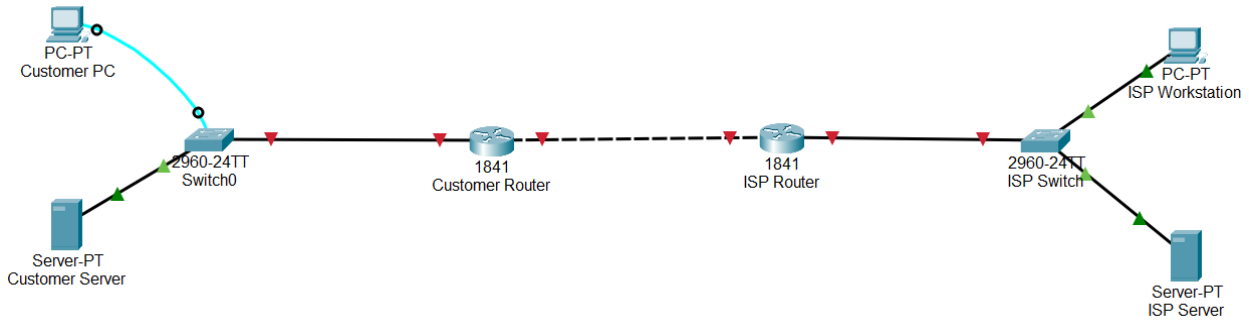
The LNM Institute of Information Technology, Jaipur
Computer Networks Lab
Lab Assignment 3

Objective: Implementation of the initial switch and router configurations on the simulation platform.

Topology Diagram 1

The topology consists of two networks, N1 and N2. Network N1 consists of a *Customer PC* accessing the switch 2960 named *switch0* using console. The switch is connected with the *Customer Server* using a straight-through cable. The switch in this network is connected to router 1841 named *Customer Router*. In network N2, same configuration is there as in the case of network N1 to create an ISP network. The two routers of networks N1 and N2 are connected using the cross-over cable.



Task 1: Perform the initial configurations of *Switch0* with respect to the following parameters: Host name, Console password, vty password, privileged EXEC mode password, privileged EXEC mode secret, IP address on VLAN interface, and default gateway.

Steps:

1. From the *Customer PC*, use a console cable and terminal emulation software to connect to the console of the *Switch0*.
2. **Hostname configuration:** Set the host name on the switch to *CustomerSwitch*.
   Switch>enable
   Switch#configure terminal
   Switch(config)#hostname CustomerSwitch
3. **Privileged mode password and secret configuration:** from global configuration mode, configure the password as 'cisco' and secret as 'cisco123'.
   CustomerSwitch(config)#enable password cisco
   CustomerSwitch(config)#enable secret cisco123
4. **Console password configuration:** change from global configuration mode to line configuration mode, set the password to cisco and require the password to be entered at the login.
   CustomerSwitch(config)#line console 0
   CustomerSwitch(config-line)#password cisco
   CustomerSwitch(config-line)#login
   CustomerSwitch(config-line)#exit
5. **Configure the vty password:** change from global configuration mode to line configuration mode for the vty line 0 through 15, set the password to cisco and require the password to be entered at the login.
   CustomerSwitch(config)#line vty 0 15
   CustomerSwitch(config-line)#password cisco
   CustomerSwitch(config-line)#login

CustomerSwitch(config-line)#exit

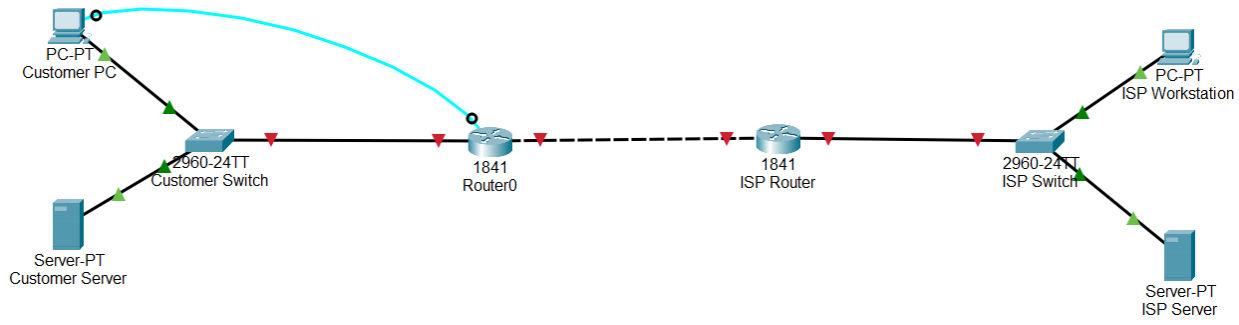
6. **Configure the IP address on VLAN1:** change from global configuration mode to interface configuration mode for VLAN1 and assign the IP address 192.168.1.5 with the subnet mask of 255.255.255.0.
   CustomerSwitch(config)#interface vlan 1
   CustomerSwitch(config-if)#ip address 192.168.1.5 255.255.255.0
   CustomerSwitch(config-if)#no shutdown
   CustomerSwitch(config-if)#exit
7. **Configure the default gateway:** assign the default gateway to 192.168.1.1 using the global configuration mode.
   CustomerSwitch(config)#ip default-gateway 192.168.1.1
8. **Verify the configuration:** The customer switch should be able to ping the ISP server at 209.165.201.10.
   CustomerSwitch(config)#end
   CustomerSwitch# ping 209.165.201.10

Answer the following:

1. What is the significance of assigning the IP address to the VLAN1 interface instead of any of the Fast Ethernet interfaces?
2. What command is necessary to enforce password authentication on the console and vty lines?
3. How many gigabit ports are available on the Cisco Catalyst 2960 switch that you used in the activity?

Topology Diagram 2

The topology consists of two networks, N1 and N2. Network N1 consists of a *Customer PC* connected with *Customer Switch*. The switch is connected with the *Customer Server* using a straight-through cable. The switch in this network is connected to router 1841 named *Router0*. In network N2, same configuration is there as in the case of network N1 to create an ISP network. The two routers of networks N1 and N2 are connected using the cross-over cable. The *Customer PC* accesses the *Router0* using console.



Task 2: Perform the initial configurations of *Router0* with respect to the following parameters: Host name, passwords, banner messages, and other router configurations.

The LNM Institute of Information Technology, Jaipur
Computer Networks Lab
Lab Assignment 3

Steps:

1. **Configure the router hostname:** On *Customer PC*, use the terminal emulation software to connect to the console of the *Router0*.

   Router>enable
   Router#configure terminal
   Router(config)#hostname CustomerRouter

2. **Configure the privileged mode and secret passwords:** from global configuration mode, configure the password as 'cisco' and secret as 'cisco123'.

   CustomerRouter(config)#enable password cisco
   CustomerRouter(config)#enable secret cisco123

3. **Configure the console password:** change from global configuration mode to line configuration mode, set the password to 'cisco123' and require the password to be entered at the login.

   CustomerRouter(config)#line console 0
   CustomerRouter(config-line)#password cisco123
   CustomerRouter(config-line)#login
   CustomerRouter(config-line)#exit

4. **Configure the vty password to allow Telnet access to the router:** change from global configuration mode to line configuration mode for the vty line 0 through 4, set the password to 'cisco123' and require the password to be entered at the login.

   CustomerRouter(config)#line vty 0 4
   CustomerRouter(config-line)#password cisco123
   CustomerRouter(config-line)#login
   CustomerRouter(config-line)#exit

5. **Configure password encryption, a Message of the Day (MOTD) banner, and turn off domain server lookup.**
   a. Currently, the line passwords and the enable password are shown in clear text when you show the running configuration. Verify this now by entering the show running-config command. To avoid the security risk of someone looking over your shoulder and reading the passwords, encrypt all clear text passwords. Use the show running-config command again to verify that the passwords are encrypted. To provide a warning when someone attempts to log in to the router, configure a Message of the Day (MOTD) banner.

      CustomerRouter(config)#service password-encryption
      CustomerRouter(config)#banner motd $Authorized Access Only!$

   b. Test the banner and passwords. Log out of the router by typing the exit command twice. The banner displays before the prompt for a password. Enter the password to log back into the router. You may have noticed that when you enter a command incorrectly at the user or privileged EXEC prompt, the router pauses while trying to locate an IP address for the mistyped word you entered. For example, try to use emable command instead of 'enable'.

      CustomerRouter>emable

   c. To prevent this from happening, use the following command to stop all DNS lookups from the router CLI.

      CustomerRouter(config)#no ip domain-lookup

   d. Save the running configuration to the startup configuration.

      CustomerRouter(config)#end
      CustomerRouter#copy run start

6. **Verify the configuration.**
   a. Log out of your terminal session with the Cisco 1841 customer router.
   b. Log in to the Cisco 1841 Customer Router. Enter the console password when prompted.
   c. Navigate to privileged EXEC mode. Enter the privileged EXEC password when prompted.

The LNM Institute of Information Technology, Jaipur
Computer Networks Lab
Lab Assignment 3

Answer the following:

1. Which Cisco IOS CLI commands did you use most?
2. How can you make the customer router passwords more secure?

Submission Instructions:

1. Execute the network commands taught in the lab and write the answers to the questions.
2. Take the screenshot of your network configuration and submit them together with the answers to the questions in a single file.
3. Write your name, roll number, batch, and assignment number on the top of the submitted file.
4. Submit the pdf with filename as “rollno.pdf” on Google Classroom.
5. No other form of submission will be accepted for evaluation.
6. Submit it by the deadline, failing which 4 marks will be deducted.