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Teacher Signature: _____

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Lab Manual for Computer Communication and Networking

Lab No. 4

Cisco IOS CLI & Basic Switch Configuration

BAHRIA UNIVERSITY KARACHI CAMPUS
Department of Software Engineering

COMPUTER COMMUNICATION & NETWORKING

LAB EXPERIMENT # 4

Cisco IOS CLI & Basic Switch Configuration

OBJECTIVE:

- To perform basic IOS configuration commands.

THEORY:

The IOS software provides access to several different command modes. For security purposes, the IOS software provides two levels of access to commands.

The Unprivileged user mode is called user EXEC and the privileged mode is called privileged EXEC mode and requires a password. The commands available in user EXEC mode are a subset of the commands available in privilege EXEC mode.

Mode of Operation	Usage	How to Enter the Mode	Prompt
User EXEC	Change terminal settings on a temporarybasis, perform basic tests and list system information.	First level accessed	Switch>
Privileged EXEC	System administration, set operatingparameters.	From User EXEC mode, enter **enable** command	Switch#
Global Config	Modify the configuration that affects the system as a whole	From Privileged EXEC, enter **configure terminal** command.	Switch(config)#

Interface Config	Modify the operation of an interface	From global mode, enter **interface** type number	Switch(config-if)#

TRAVERSING EXEC MODES

- **Enter Privileged EXEC mode**

    Switch>**enable**
    Switch#

- **Enter Global Configuration mode**

    Switch#**configure terminal**
    Enter configuration commands, one per line. End with CNTL/Z.
    Switch(config)#

- **To change back to Privileged EXEC mode from Global Configuration mode**

    Switch(config)#**exit**
    Switch#

- **To change back to User EXEC mode from Privileged EXEC mode**

    Switch#**disable**
    Switch>

SET HOSTNAME AND CONSOLE PASSWORD

- You can name your Switch using the *hostname* IOS command. You name all your routes using meaningful names to ease identification and management of each Switch. This is needed, when you are working on large networks.

- To configure the host name of the Switch, run the following command

    Switch(config)#**hostname Switch1**
    Switch1(config)#

- You can configure authentication passwords for your Switch using IOS commands. You can configure several passwords for different types of access.

- *Console password* is used for console access through the console port or through a console Terminal Server. The *line console 0* command selects the console line. Cisco devices have only one console line: console 0

> Switch(config)#**line console 0**
> Switch(config-line)#**password bukc**
> Switch(config-line)#**login**

- If the **login** command is not entered than the password will not be applied.

- From now on, anytime you connect to the console line you will prompt to provide a password. To disable the authentication prompt, issue *line console 0* again and enter the *no login* command.

HOW TO SET PRIVILEGE LEVEL PASSWORD

- **Privilege password** used for privileged mode access. This Password is not encrypted by default.

- **Unencrypted password (less priority)**

    > Switch(config)#**enable password bukc@123**

- **Encrypted password (more Priority)**
  The *enable secret* password stores the password on the Switch in encrypted form, which is more secure than *enable password.*

    > Switch(config)#**enable secret ciscolab**

- **Check Running Configuration**
  The *running configuration* is the dynamic Computer that changes while the device is in normal operation mode. This includes routing tables, VLAN Computer, routing protocol configuration Computer etc.

    > Switch# **show running-config**

- **Verify the Password**

    > Switch(config)#**exit**
    > Switch#**exit**

HOW TO SET USER AUTHENTICATION

- **Creating a user and setting its password**

    > Switch(config)#**username Admin password labs**
    > Switch(config)#**line console 0**
    > Switch(config-line)#**login local**

Switch(config-line)#**CTRL^Z**

Switch#**exit**

- **Displaying all users**

   Switch#**show users**

HOW TO ENCRYPT PASSWORDS

- **Before Encrypting passwords run show running-config command to display all working authentications.**

- **Encrypting passwords**

   Switch(config)# **service password-encryption**

- **Verify afterwards to ensure encryption of passwords by running-config command again.**

HOW TO SET BANNER

- You can optionally configure a banner for your Switch using *banner* IOS command. The purpose of a banner is to display a brief message about the Switch when you log in.

- Four types of banners are available

   i.   **Message of the day (MOTD) banner**

   ii. **Login banner**

   iii. **Incoming terminal connection banner**

   iv. **EXEC process creation banner**

- Example

   Switch(config)#**banner login c** Muhammad Bilal

                     OR

   Switch(config)#**banner motd** #Have a nice day#

HOW TO SET CLOCK

<p style="text-align:center">Switch#clock set 10:21:12 10 MAR 2017</p>

- To verify the set time, run **show clock** command on the privileged mode.

Lab Assignments:

Task#1

- On Cisco switches, where is the running configuration loaded from?

- What does the flash memory on a switches store?

- When you are logged into a switch, which prompt indicates that you are in privileged mode?

- On which modes in Cisco's IOS you can issue `show` commands?

Task#2
Create two users Admin_'yourfirstname' and Admin_'yourlastname' grant all privileges to them then login by using Admin_'yourfirstname' then remove (Admin_'yourlastname'). Clearly show command for every step.

Task#3
Show the encrypted console password, Privilege mode passwords and all user's passwords.

TIME BOXING:

Activity Name	Activity Time	Total Time
Instruments Allocation + Setting up Lab	10 mints	10 mints
Walk through Theory & Tasks (Lecture)	60 mints	60 mints
Implementation & Practice time	90 mints	80 mints
Evaluation Time	20 mints	20 mints
	Total Duration	180 mints

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