File Management - Working with Directories

Introduction and/or Background

In Linux, all the files/directories are contained in directories. Directories are arranged in a hierarchy with root (/) at the top. The position of any file within the hierarchy is described by its pathname. A pathname is absolute, if it is described in relation to root. Absolute pathnames always begin with a /. Relative pathnames never begin with /. They are referenced to the present working directory. The ls command lists information about files and directories contained in the system.

Objectives

In this project/lab the student will:

- Create/view/ remove directories within a Linux environment.

Equipment/Supplies Needed

- As specified in Lab 0.0.1.

Procedure

Perform the steps in this lab in the order they are presented to you. Answer all questions and record the requested information. Use the Linux Virtual Machine to perform lab activities as directed. Unless otherwise stated, all tasks done as a non-root user. If root access is needed use the sudo command.

Assignment

Directory Paths

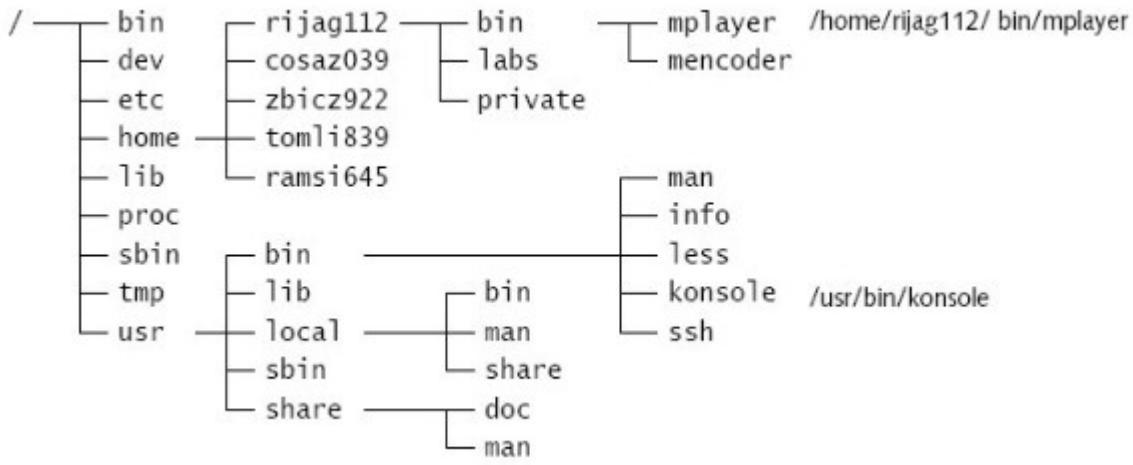
An absolute path refers to the complete reference from root to the file location. Consider the graphic below, the absolute path to mplayer is **/home/rijag112/bin/mplayer.**

A relative path refers to a reference from your **present working directory (pwd)**. Consider the example with mplayer, if our current working directory is /home/rijag112/, then the relative path is bin/mplayer/.

1. The figure below shows part of a system's directory structure.

With relative references we have several special characters that can be used to build the “path”, “..” means up one directory, “.” means parent directory, “~” means user home directory. For example ~/bin/mplayer is the same thing as /home/rijag112/bin/mplayer, linux subtitudes the “~” with the logged on user’s home directory path.

For example if the current working directory is /home/rijag112, I want a directory listing of tomli839, the following command ls ../tomli839 would produce the desired directory listing. The “..” says “look one directory up for tomli839”



In the table provided below, provide the relative path name for **ssh** given the following present working directory. (Hint: use “**..**” to go up one directory or more).

See Video -- https://drive.google.com/file/d/1cTs_zSR83k_eumzbidzSkPLgk0Nb3AWB/view?usp=sharing

Present working directory is:	**Relative Path is:**	**Absolute path:**
/usr/bin/	. ..	/
/usr/local/		
/home/rijag112/		

/usr/local/man/		
/sbin/		
/home/rijag112/bin/		
/etc/		

Listing Directories

To list the files in a directory, use the ls command. The ls command list information about files and directories within the file system. With no options, ls displays a list of the names of all files in the current working directory. Enter the ls command. Record the output.

1. ls

To list files in a specific directory, identify the path to the directory. List the contents of the /etc directory. Record the output.

2. ls /etc

The -l (lowercase L) option causes ls to print files in a long listing format. View the /etc/ directory using the long listing option. Record the output.

3. ls – l /etc

By default, the ls command will not show hidden files (begin dot “.”). These files can be viewed by using the –la option. Use the –la option with the /etc directory. How many files are hidden?

4. ls –la /var/log/

The **-R** option is used to display the contents of the subdirectories recursively.

Create, Move, Copy Directories

1. Using the man pages look at the following directory manipulation commands. Review how they work and the various options: cp, mkdir, rmdir

   Create a directory called ***testdir*** with **mkdir** command

2. mkdir */home/user1/testdir*

Verify creation with the ls command. Record output.

Remove testdir with the **rm -r *~~/~~home/user1/testdir*** command. Verify it was removed with the ls command.

Copy files/directories

2.a Copy the **/etc/resolv.conf** file to **/home/user1/**

2.b cp /etc/resolv.conf /home/user1/

2.c ls **/home/user1/** to verify successful copy. Record the output.

Create and move File(s) and directories

2.d Create the directory **/home/user1/mystuff/ using the mkdir command.**

2.e Create the directory **/home/user1/mystuff/temp/ using the mkdir command.**

2.f Create 3 empty files in the ***/home/user1/mystuff/ directory*** using the touch command.

Name the files: ***ITSY1374_1, ITSY1374_2, ITSY1364_3***

Use the ls command to record the contents of the ***mystuff*** directory showing files created.

2.g Move the first of the 3 files created in ***/home/user1/mystuff/*** to ***/home/user1/mystuff/temp/***

2.h mv */home/user1/mystuff/ITSY1374_1 /home/user1/mystuff/temp/*

2.i Create a recursive directory in long listing format of ***/home/user1/mystuff/*** [using the ls –lR option], and redirect [>] it to a file ITSY1374stuff.txt located in the mystuff directory. [***/home/user1/mystuff/ITSY1374stuff.txt***]

2.j ls –lR */home/user1/mystuff/ > /home/user1/mystuff/ITSY1374stuff.txt*

2.k To confirm file listing was sent to the ITSY1374stuff.txt, use the cat command. Record the results.

Copy file(s) / directories

2.l Use **cp** copy ***/etc/hosts*** to ***/home/user1/backup/***

Record the command used.

2.m Use **cp** copy ***/etc/hostname*** to ***/home/usr1/backup/***

2.n Verify files are in ***/home/user1/backup*** directory with **ls –l** command.

2.o Change the present working directory to ***/home/user1/***

2.p Provide a recursive directory in a long listing format of ***/home/user1/backup/***.

Save to the file ***/home/user1/mystuff/Lab142etc.txt*** *[Similar to 5.e. above]*

Set your present working directory to **/home/user1/**.

2.q View the syslog file (/var/log/syslog) with the cat command using an absolute file reference. Provide a screenshot showing command and successful command execution.

Lab Submissions Proof: Provide screenshots as indicated in the lab; upload your proof to Canvas for grading.

Rubric

Checklist/Single Point Mastery

Concerns Working Towards Proficiency	Criteria Standards for This Competency	Accomplished Evidence of Mastering Competency
	Criteria #1: Correct answers to table in question 1 of Directory Paths section (3 points each)	
	Criteria #2: Record output of ls command (5 points)	
	Criteria #3: Record output of ls /etc command (5 points)	
	Criteria #4: Record output of ls -l /etc command (5 points)	
	Criteria #5: How many files are hidden? (5 points)	
	Criteria #6: Record output of mkdir /home/user1/testdir (5 points)	
	Criteria #7: Record output of ls /home/user1 to verify successful copy (5 points)	
	Criteria #8: Record the contents of the mystuff directory showing files created (5 points)	
	Criteria #9: Record the results of the	

	cat command to confirm file listing sent to ITSY1374stuff.txt (8 points)	
	Criteria #10: Record commands used to cp copy/etc/hosts to /home/user1/backup/ (5 points)	
	Criteria #11: Screenshot showing the syslog file (/var/log/messages) with the cat command using an absolute file reference. (10 points)	