Linux Refresher Lab Guide

Note: Know the answer to all of the questions before moving on! Google them first and if you still don't understand, ask for help!

You only need 1 VM for this lab, but feel free to work with the people around you.

Pro tip: when troubleshooting, it's always good to look at forums like StackOverflow! Other people have probably already found a solution to your problems

Understanding Basic Commands

1. Display the message that is displayed when you log on.
    a. Hint: it is stored in /etc
2. Type pwd
    a. What is your current directory path?
3. Change file and directory permissions
    a. Create a new folder in your home directory
    b. Name it chmod_stuff
        i. create testfile1 and testfile2 inside it
    c. Add read and write permissions to the group of testfile1
    d. Add write permissions to the owner of testfile2
    e. Change the owner of testfile1 to root
4. List your newly created files in chmod_stuff
    a. What parameter(s) do you add to ls to view the permissions and ownership of the file?
5. Rename testfile1 to testfile
6. Remove chmod_stuff and everything inside it

Input and output streams

1. Create a new folder called streams in your home directory
2. Change directory to streams
3. Create a new file called tosort.txt
    a. Type in several lines of random text
4. Using <, call the sort command with tosort.txt as the standard input
5. Using >, call the echo command to redirect the word "hello" to tosort.txt
6. Using >>, call the echo command to append the word "world" to tosort.txt

7. Send the contents of tosort.txt to standard output but redirect stdout as the standard input of grep. Use grep to find the letter w

General Unix tools

1. diff
    a. Create a new folder called tools in your home directory
    b. Change directory to tools
    c. Create 2 new files: file1 and file2
    d. In file1, have the lines:
        hello
        world
    e. In file2, have the lines:
        goodbye
        world
    f. using diff, find the differences between file1 and file2
2. tar
    a. Download WordPress here: wordpress.org/latest.tar.gz
    b. Extract it
3. locate
    a. Using locate, find all txt files on your system
4. wc
    a. Find the number of lines in /etc/shadow
    b. Now find the number of characters
5. cut
    a. Output the first column in /etc/passwd
        i. Hint: delimiter in /etc/passwd is :
        ii. You should see the list of users without any metadata
6. xdg-open
    a. Go to the directory which contains your extracted wordpress files
    b. Open readme.html in your browser

Filesystems

1. Type man mount
    a. What filesystems can be mounted?
2. Display the filesystems currently mounted
    a. Hint: Find command to display all block devices
3. Find your root filesystem
    a. How do you know it is the root filesystem?
    b. Hint: look at the mounting point used
4. Use the mount command to display more detailed information on the currently mounted filesystems

Shell Metacharacters

1. Create a new folder in your home directory
2. Name it shell_metacharacters
3. In your newly created folder create a bunch of files
    a. touch ab abc a1 a2 a3 all al2 ba ba.1 ba.2 filex filey AbC ABC ABc2 abc
4. Now type the command that will:
    a. List all files starting with a
    b. List all files ending in at least one digit
    c. List all files not starting with an a or A
    d. List all files ending in a period, followed by a digit.
    e. List all files containing just two alphas
    f. List three character files where all letters are uppercase
    g. List files ending in 11 or 12
    h. List all files ending in a digit, an uppercase letter, or a lowercase letter.
    i. Remove two-character files starting with a.
5. Create a new folder within shell_metacharacters and call it range
6. Change directory to range
    a. Create all files called 1, 2, 3, 4, 5, 6… 50
    b. Pls do NOT do touch 1; touch 2; touch 3…. Etc. → BE EFFICIENT!!

Shell Variables

1. To find the search path your system looks at type echo $PATH
    a. How did you know which shell you were using by default?
2. For your default shell, what is the name of the startup dot file?
    a. What is the PATH(path) variable defined as in this startup file?
3. Read through the following files
    a. /etc/profile
    b. ~/.profile
    c. ~/.bash_profile
4. What are the values of the following shell environment variables:
    a. PATH, path, LINES, HOME, & home
    b. Hint: you can use echo $[variable] where [variable] may be PATH, path, LINES, HOME, or home

Using inodes

1. Create file1
2. Create a hardlink to file1 called hardlink
3. Create a symlink to file1 called symlink
4. Edit file1 and try using cat on hardlink and symlink

5. Edit hardlink and try using cat on file1 and symlink
6. Edit symlink and try using cat on file1 and hardlink
7. Remove file1
    a. What happens when you try viewing hardlink and symlink?