* **Jonathan Dinh - Linux Lab #1**
* 1. Log into your the Mission college Linux server using ssh or putty with your given userid and password. In this case, my userid is cs45aa39 and the server IP address is 209.129.148.10. All systems on the network must have an IP address for you to connect remotely to the system. The IP address is 32 bits and each 8 bits are separated by a dot . You will be prompted for your password. Type your password given to you in order to log in.

**$ ssh cs45aa39@ 209.129.148.10**

**\*\*\*\*\*\*\*\*\***

2. When you have logged in, you can now use the 'id' command which shows your 'id' and the 'group' you belong to.

**$ id**

3. What is the difference between the **id -r**  and **id -u** ( List them and give describe the difference )

* Id -r prints only names or real IDs in default format
* Id -u prints your effective uid

4. What users are currently logged in on your the server that you are on?

**$ who**

cs45aa38 and cs45aa15

> What date and time did hcampbell log into the system, and where did they come from?

2020-09-05 14:37

5. Use the tty to show the virtual terminal that you are working in.

$ tty

6. Use the 'w' command to display information about users. { **w** displays information about the users currently on the machine, and their processes. The header shows, in this order, the current time, how long the system has been running, how many users are currently logged on, and the system load averages for the past 1, 5, and 15 minutes}

$ w

7. You can always find the help document for majority of commands in Linux. You can use the 'man' command to look at the help document which we call the 'man pages'. Look at the help for the 'w' command by using the 'man' command. When using the 'man' command, use the 'SPACE' bar to scroll up by a whole page or the Enter key to go line by line. Use the letter 'Q' on the keyboard to quit the man help pages.

$ man w

8. There are other utilities to give you more information about commands in Linux. Use the 'info' command to find out about the 'man' command. If you have installed your own man system, you should try the 'pinfo' command as well( pinfo man). pinfo gives you a browser-like interface

$ info man

9. What is the name of the system you are on? use the hostname command to find out.

$ hostname

mc-redhat01

10. To find help for any command, use the --help after the command. For example, type the 'hostname --help'

$ hostname --help

> What option to the hostname command will show you the ipdresses associated with the hostname?

--all-ip-addresses

> What is the hostname -f show you?

The long hostname, or the FQDN

11. How do you search the man pages by keyword? Let's see what man pages have the term 'prinft' in their description.

$ man -k printf

You should see many entries

....

printf (3) - formatted output conversion

printf (3p) - print formatted output

.,...

How do you get to the particular printf(3p) to see the print formatted output?

$ man -s3p printf //This says to take you to Section 3p to look at the printf command.

fprintf, printf, snprintf, sprintf

What is the difference when you do 'man printf'?

> What man page does it take you to by default?

Man page for printf(1)

12. Do a man or info on the 'curl' command to answer these questions.

1. What is curl?

Tool to transfer data to and from a server

2. What is it used for?

It is used to transfer a URL

13. Do a man, info or pinfo on 'wget' to answer these questions.

1. What is wget?

It is a free utility for non-interactive downloads on the Web.

2. What is it used for?

Allows you to retrieve things from the Web in the background while you do something else

14. The Linux OS gives you a Shell to work in when you log in. The Shell is a command interpreter. When you see the prompt '$', that is the shell waiting for you to type in a command. If you are a regular user, you will have the '$' prompt. If you are a Super user, you will have the '#' by default.

Below, you will determine the shell that you are working in.

$ echo $0

15. See what shell was setup in your systems account (/etc/passwd) file for you.

$ echo $SHELL

16. When you type anything at a prompt '$', you are giving a command to the shell. The system will look into your PATH to find the command that you type in . If it does not find it in your PATH, it will say 'command not found'. So, the first place to look when you see 'command not found' is in your PATH. How do you see your path?

$ echo $PATH

17. Type the word 'pizza' at the prompt '$' and record what happened.

$ pizza

bash: pizza: command not found...

18. Your system has a user called 'mr-tester'. This user uses the same password as your initial Linux account(Remember the password I give all of you on day 1). Switch user to the mr-tester account.

$ su - mr-tester

> See what directory you end up in. $ pwd

/home/mr-tester

> What does the whoami command show? $ whoami

mr-tester

>. What does the 'who am i' command show? $ who am i

cs45aa05 pts/1 2020-09-11 16:26 (c-73-231-130-237.hsd1.ca.comcast.net)

>. What is the difference?

Whoami is effective ID and who am i is real ID

> Exit from mr-tester account. $ exit

> Run the whoami command to verify that you are yourself. $ whoami

19. This time, you will switch back to 'mr-tester' using the 'su' command but without the dash '-' .

$ su mr-tester

$ pwd

$ whoami

$ who am i

> What is the difference between the su - mr-tester and the su mr-tester(without a dash)

It runs from a different directory: /home/cs45aa05

20. Let's do some basic house inventory commands to see what's going on in our system.

When was a particular user last logged into a system and how long did they stay in?

cs45aa01 pts/2 10.3.106.3 Fri Sep 4 03:12 - 03:53 (00:41)

$ last //This shows all users

$ last mr-tester //shows details for only mr-tester

21. To find out information about other users on the system, you can use the finger command. However, most systems do not install 'finger' because of security reasons. There is another command that comes as part of the Linux core utilities that you can use. It's called 'pinky'. Run the 'pinky' command on your use name, and pick someone else to run the pinky command on. How do you find someone else? use the 'who' command.

$ pinky hcampbell //short format

$ pinky -l hcampbell //long format

22. Lets run some basic programs to see the systems calendar.

$ cal

> print the cal for the whole year of 2020. $ cal 2020

> print the cal for the entire year of 1999. $ cal 1999

> print the cal for October of 2025 $ cal 10 2025

23. The 'date' command is very powerful. You can change or display the systems date, time local...etc. Display the current time in the given FORMAT, or set the system date.

Usage: date [OPTION]... [+FORMAT]

or: date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]

What's todays date?

$ date

Fri Sep 11 17:19:51 EDT 2020

$ date +%F

2020-09-11

$ date +%m

09

$ date +%m-%d

09-11

> Write a date command to print 09-05-2020

$ date +%m-%d-%y%y

24 . What directory are you in? In the Linux world, directories can hold files and other directories. It's like a Folder in the Windows world. Think of a folder you keep in your office or desk in your room. Every users will have a /home/<username> folder. So, if my name is 'joe', I will have a /home/joe directory where I can store all my files. How do you tell what directory you are in?

$ pwd

$ dir //What does the dir command do for you? (List directory contents)

25. To move. from one directory to another, you use the command 'cd'(change directory). This allows you to navigate through all the folders on the system that you have permission to enter.

$ pwd

$ cd /tmp

> The 'ls' command allows you to get a listing of what is in your directory.

$ ls

> Sometimes you can't see the files that are hidden. They are like little. easter. eggs hiding from the 'ls' commmand. To find files that are hidden, you need and option to the ls command. Options begin with the negative sign we call the dash ( - ). The -a option will show the hidden files.

$ ls -a

> To see other what type of content you have in your directory, use the 'ls -F' command.

$ cd /

$ ls -F

> Note that multiple commands can be put on the same line as long as you separate them with a semicolon ';' .

$ cd /tmp; ls -a; pwd; date

26. Do a long listing of all files in a directory. What is the difference with the cd ~ and cd without any argument. By the way, if you give a name of a command as in 'ls' it can be followed directly by an 'argument' as in ' ls /tmp' which says to list the temp(/tmp) directory. That is an argument...not an option. if I do 'ls -l /tmp' then I have one option (-l) and one argument '/tmp'.

$ cd ~ ; ls -l

$ cd ; ls -al

$ cd $HOME; ls -a

$ cd /tmp; pwd

$ cd - ; pwd //What does the dash '-' do ?

Takes you to home directory

$ cd ~mr-tester ; pwd //I have set the permissions on mr-tester directory to allow you to

// enter. The command takes you to the home directory of mr-tester

> Examine the root of the Linux OS. Change to the root directory and look around.

$ cd /; ls

$ cd ~; pwd

$ cd .. ; pwd //Where are you now? Where does the two dots '. .' take you ?

home

$ pwd; cd ~

$ ls -a . // We are using 1 dot here. What does it do for you?

27. Let's see how much memory you have on your system.

$ free

$ free -h

$ free --help ; man free //Do a listing of any two options to the free command that you like

28. What type of command is the 'ls' command? A builtin command is a command that is built into the shell. Our default shell in RedHat Linux is the Bash.

$ type ls

ls is aliased to `ls --color=auto'

$ type pwd

A shell builtin

$ type date

/bin/date

29. How much space is being used by each file system on this node?

$ df -h

$ df -hT

Filesystem Size Used Avail Use% Mounted on

devtmpfs 2.9G 0 2.9G 0% /dev

tmpfs 2.9G 0 2.9G 0% /dev/shm

tmpfs 2.9G 314M 2.6G 11% /run

tmpfs 2.9G 0 2.9G 0% /sys/fs/cgroup

/dev/mapper/rhel-root 50G 8.9G 42G 18% /

/dev/mapper/rhel-home 243G 41M 243G 1% /home

/dev/sda1 1014M 236M 779M 24% /boot

tmpfs 581M 12K 581M 1% /run/user/42

tmpfs 581M 0 581M 0% /run/user/1038

tmpfs 581M 0 581M 0% /run/user/1015

tmpfs 581M 0 581M 0% /run/user/1003

tmpfs 581M 0 581M 0% /run/user/1035

tmpfs 581M 0 581M 0% /run/user/1005

tmpfs 581M 0 581M 0% /run/user/1016

30. How much space is being used by the files and directories on the disk?

$ du

$ du -sh .

$ du -sh \*

$ du -a

$ du -sh /home

$ du -shS /home //do not look in subdirectories,...directories below the home directories