LINUX BASICS

1. Shell and terminal

When we speak of the command line, we are referring to shell.

Shell is a program that takes commands and passes them to OS to carry out.

Almost all the distributions (RedHat, linux, ubuntu, centos, suse etc..) a shell program called as bash is supplied.

Linux Commands

 In the shell prompt we generally execute commands.

\***date**: to get the date

\***cal**: to get the calendar

Basic command syntax.

<command> <args>

EX: ping google.com

EX: echo hello

Arguments are two types

1. **Positional arguments**

Syntax: <command> <arg1> <arg2>

EX: touch 1.txt

EX: cp 1.txt 2.txt

2. **Named arguments**

Syntax: <command> <argument> <argument value>

Ping -c 4 google.com

-c count

**ls** :list the contents of the directory

**ls –a** : shows all the hidden files.

**touch** : this command creates an empty file

**cp** : this command copies files

**mv** : this command moves(rename) the file.

**rm**: removes the file

**echo** :prints the standard output

**mkdir** : make a directory

**cd**: change the directory

**rmdir**: remove directory

**cd ~** :directly goto the home directory

**cd..** : goes to previous directory

**cat** : it will show all the content of the file.

EX: cat 1.txt : find name of the file

**Less 1.txt** : it will show one page at a time

**Diff 1.txt 2.txt** : tries to tell the differences between two files

**file 1.txt:** this command will tell the extra information of the file

**find** : search for any file(ex: find name of the file)

**head** : head will show the first 10 nlines

**tail** : tail will show the last 10 lines

EX: head -5 1.txt

EX:tail -5 1.txt

**PERMISSIONS**

 Traditionally Linux is a multi-user system which differs from MS-DOS, which is a multi-tasking system.

 Since more than one person can be using the computer at the same time, we need to provide some sort of permissions in linux.

\*Commands which are essential part of Linux system security.

**Id:** Display user identity

**chmod:** changes files mode

**umask:** set the default file permissions

**su(switch user):** Run a shell as another user

**sudo**: Execute a command as another user

**chown:** Change the file owner

**chgrp:** Change a file group ownership

**passwd:** change a user ‘s password

**useradd:** add the user using a built in Linux command

**groupadd**: Creates a new group

All of the information in Linux comes from couple of files.

\* **/etc/passwd**: User accounts are defined.

\***/etc/groups**: groups are defined

**\*/etc/shadow:** Is the file which also gets modified when users and groups are created as it holds information about user’s password.

\***sudo -i** : root user

**cat /etc/passwd |less**

**cat /etc/group |less**

**cat /etc/shadow |less**

**exit(comes out from root user)**

**ls -l 1.txt:** displays the permissions of the particular file.

\***File attributes**

-rwx------ A regular file that is readable writable and executable only by the file’s owner.

-rw-------

-rw-r--r—

-(---owner,---group,---everybody)

(First hyphen in the permissions display) - = indicates type of file (- :regular file

d : directory i: link file)

**Numeric notations:**

\*read ‘r’=4

\*write ‘w’=2

\*execute ‘x’=1

Examples:

666 : rw-rw-rw-

755 : rwx-xr-xr

400 : r--------

To change the file mode, we use chmod command.

\***ls -l 1.txt**

**chmod 600 1.txt**

**chmod symbolic notation**

\*u :owner

\*g :group

\*o :others

\*a :all

Symbolic notation example

\*u+x : add execute permissions of the owner

\*u-x :remove execute permissions of the owner

**chmod g+x** :add execute permission for owner group

**chmod -rw**: remove read, write permissions for others

**CHANGING IDENTITY**

 Adding the users in to the server using the

adduser command.

 **adduser dhana**

** adduser sonali**

 If you want to change the password authentication to yes visit this file using the vim editor

**vi /etc/ssh/sshd\_config**

 After changing to yes restart the server using this command

**service sshd restart : to restart**

**service sshd status : to know the status of server Ex: active(running) [press Q to exit]**

 If you want to become other user use the su command.

**su dhana**

 **whoami** command provide the user information

 **pwd** command provides the present working directory.

 Let us try to become user sonali Use this command

**su -l sonali**

 If you don’t use ‘l’ you will be login to the same directory.

 If you use ‘l’ you will get the home directory of the sonali.

 With default user (ubuntu) lets execute

**Sudo apt-get update** : to update the server and it works

 Lets try to execute same command by switching to user sonali.

** su -l sonali**

** sudo apt-get update**

 Error occurred because sonali is not in the sudoers file

 While adding to sonali in sudoers file will provide the permissions to user sonali .

 If you want to see who is present in sudoers file firstly become a ubuntu user and then

execute this command

**sudo cat /etc/sudoers**

 Let us add user sonali into sudoers file

 **sudo vi sudo**

 **sonali ALL=(ALL:ALL) ALL**

 If you want to execute any command with sudo on the ubuntu machine user should be

part of sudoers file, then only user can able to execute commands with sudo

 **sudo** runs a command as a **super user**

Change the file owner and group

 Let us create a simple file in the user sonali

 I want to change the owner of this file to dhana, This is where a linux command chown

comes into play.

**man chown**

 touch 1.txt inside the user sonali

 Now I am going to change the ownership of the 1.txt file

 **sudo chown dhana 1.txt**

 ls -al 1.txt

 I want to give the group also

 **sudo chown dhana:dhana 1.txt**

 ls -al

 Now I am going to change the ownership of the directory

 **Mkdir mydocs**

 touch mydocs/1.txt

 touch mydocs/2.txt

 touch mydocs/3.txt

 ls -al mydocs

 **sudo chown -R dhana:dhana mydocs/**

 ls -al mydocs/

CHANGE YOUR PASSWORD

 su dhana

 user dhana wants to change the password

 use the passwd command to change the password.

 Syntax is passwd[users] username is optional

 Note: root user can able to change the password of any user

 User sonali already in sudoers file so user sonali can able to change the user dhana password.

 Use this command to change the password of other user

**sudo passwd dhana**

 I want to create directory and file also with one command.

 **mkdir -p modtest/{1..10}.txt**

 remove the directory using this command

 **sudo rm -rf modtest**

 **chmod u+x modtest/1.txt**

 ls -al modtest

 **chmod g-rw modtest/2.txt**

 If you want to list down the whole user in your

server user this command.

 cat /etc/passwd

 If you want to delete the user from server, use this

command.

 **userdel -r username**