**********[ADMIN 1]**********

bash---------- > to open new shell in the same terminal (like you close the terminal and open it again)

newgrp---------- >to open new shell in the same terminal (like you close the terminal and open it again)

su - username -c command------- >its switch to the user and execute this command and exit automatically , switched again to the primary user

id +username---------->display all info about this account (groups , group id , user id)

who am i---------->with spaces its display the primary account for this machine when you are switched to another user

who---------- >show the local account on the device (little info)

w---------->to display the recent activity of the user on the system

whoami---------->to display the effective user using the terminal except the root

MAN

CTRL + d---------- >to terminate the cli

CTRL + - d ,Logout---------- >to logout the user account

man -k +(keyword)---------->to get all commands which have this keyword

man -s+secnnum+keyword--------->to get the manual of this keyword in a specific section because if it file and command (command in section 1)

man -a + keyword---------->to get all manuals in all sections of this keyword (seperated)

whatis + command name---------->tell you what is this command in one line

whereis +file---------->tell you where is this file or directory

--help---------->to help you know what is the options of this command Ex:cal --help

Movement&Listing&listing

pwd---------->to detect where are you

cd + directory---------->to go to the directory you want to access

cd + ..---------->to go back one step

cd + ~---------->go directly to the your home directory

ls---------->to list all directories and file inside this directory

ls -a---------->its listing all files with hidden files also (hidden files shown as -> . + file name) (. is mean the current dir , .. the parent directory -> its a links refer to those directories so ls -l .. means list the parent directory)

ls -l---------->its listing all files and also the permissions of each file (the time displayed is the time of last access time)

ls -F---------->its listing all files and show you which is directory(shown with "\") , executable file (shown with "*"),link ("@") ,and which is file)

ls -ld---------- >its show you details about the directory you are in and time of create and permission ...etc

ls -R---------->its listing each directory and the files it contains also

ls -lR |more---------->its display it screen by screen (pipelining)

cat +file name---------->its display all the data inside this file

more /less +file name---------->its display the data fit to your screen and go to the next screen using (space) and back using (b)

head -n+positivenumber---------->its display only the number of lines you choose from the begining

tail -n+negativenumber---------->its display only the number of lines you choose from bottom

head -n+filename+ tail---------->its mean to display from the line (number)to the end

ls f*---------->mean to list any file or directory start with f

ls *3---------->end with 3

ls file?---------->ended with any character except (.)

ls [a-f]*---------->in this range of characters

ls ???---------->with 3 characters only

Copy&Move&Delete

cp +filename+destplace---------->to copy from place to another one , if you want to copy more than one file write all paths after each other and one dest only

cp -i---------->to ask you before overwrite if there is another file with the same name in the dest

cp -a ----------> to copy all files and directories in this path

cp -r dir1 dir11---------->to copy directory plus the files which the directory contains (you must have rx permission on dir1 to cp it , and wx on dir11 to cp to it)

(if dir 11 not exist the system will create it and cp f1 (which is in dir 1 to dir11 which created by the system , and if dir 11 is existed it will cp whole dir 1 to dir11)

cp -r f1 dir11---------->(you must have r permission on the f1 to cp it , and wx on dir11 to cp to it)

mv +filename+destplace---------->to move file from place to another one

mv -r---------->to move a directory with the files which contains

mv -i---------->to ask before overwrite

mv filename+newna+dest---------->to rename it when moving too(newna=new name)

touch + filename---------->to create a file

chown+ Own:grp +fname---------->to reset the file owner and the group of the file

mkdir +dirname---------->to create a directory

mkdir -p +dirname---------->to create more than one directory in the same command

rm -i +file name---------->to remove the file and -i for asking for confirmation

rmdir +directoryname---------->to remove a directory

rm -r---------->to remove the directory and the files which contains

rm -p---------->to remove the directory and its parents whose empty , and whose not empty not removed

UserADD&MOD

{useradd -u"user_ID" -c"command in"" " -md"homedirectory" -s"/bin/bash" -p +password ["not encrypted"] +loginname }"

Login name in the end cuz its an argument not option" -> to add user

newusers +file name ---------->to add more than one user (put right in the file the same fields of /ets/passwd file)

passwd +username and enter then it will ask for the password -->to put the password for the user

chage + username -E +days ---------->to set the expiredate of the passwrod

chage + username -m +days ---------->to set the maximum days for keep the password

chage +username -W +days ---------->to set the warning time

chage --help ----------> for the rest options

su - +username ---------->to switch to another user

usermod +username -l ---------->to change the login name of the user

usermod +username -L ---------->to lock the account so block the access of the this account

usermod +username -U ----------> to unlock the account

usermod +username -g +pg ---------->to set the primary group of this account

usermod +username -G +sg ---------->to set the secondary groups of this account

usermod +username -aG +sg ---------->to append secondary group to the exisiting secondary groups

userdel +username -r ---------->to delete the account and its home direcotry

userdel +username -F ---------->to force delete the account

Passwd File

login name : password : user id : group id : comment : home directory : login shell

-password :defined with (x) and its saved in shadow file for the security

-user id :counted the users with unique id to make the system easier to track the user as a number not a name (root-> 0 , 1-100-> for programs

becuase linux is create an account for each user for security so the root not the account for all services

-group id : show the primary group only , group which hold the permissions for all members in this group and

each member in the group has access to group files .and if i dont give the user a primary group the system will create one automatically with account name

-comment : its for write a bio for the user and full name for remember who is this user in the future

-home dir : its the home directory for this user , and if you dont enter the home dir for the user the root create it automatically as /home/user

-login sh : its determine the shell which the user use

cat

more / less

head /tail - num +/etc/group---------->its lists all groups for this account and which one it primary for you and which is secondary (-n +num = -num)

(its secondary group for you if your name is written in the last field in the group line)

Shadow File

username : e.password : last changed : min : max :warning :inactive : expire time : future use

last changed :the time from the last change

min :minimum time to change the password

max :maximum time to keep the exist password

warning :the time to warn the user before the maximum

inactive :determine a specific time if the account not opened more than this time it will be locked

expeire time :determine how much time the password will be set for this account to being active and usable

cat

more / less

head /tail - num +/etc/shadow---------->its shown the passwords of the accounts

GroupADD&MOD

groupadd -g +groupname ---------->to add a group to this account

groupadd -r +groupname ---------->to avoid using group id within the group and users id range

groupmod +grpname -n +new ----------> to change the name of the group

groupmod +grpname -j +new ----------> to change the number of the group id

groupdel +grpname ----------> to delete the group

gpasswd ----------> to assign a password to group (instead of adding users to the group , you assign password to the group and when users want to be in the group its asked for the password [you give it to the users you want])

gpasswd -d +user+group ---------->to delete specific user from group

gpasswd -M usr1,usr2 +group ---------->to add more than one user to the same group in one command

groups ---------->display the primary group of this account

chgrp +groupname+fname ----------> to change the owner of the file (fname) to the group (groupname) to give access to users of this group on my file the owner and root who is can do that only

newgrp +tempgroupname ----------> its a temperory file , so when create files its added to this temp group to give access to users on this files in temperory way and after close the terminal the group deleted

newgrp +groupname ---------->to switch to another group you are assigned to.

Change Permission In Symbolic Way

chmod +permission+filename ---------->to give permission on this file

-u ----------> to give permission to the owner

-g ----------> to give permission to the group

-o ---------->to give permission to the

-a ---------->to give permission to all of the above

(+) ----------> to add permission to the exisiting permissions

(-) ----------> to delete permission from the exisiting permissions

(=) ----------> to overwrite on the exisiting permission

r ---------->read like: cat , more , less , tail , copy

w ----------> write like: gedit , nano , Vi (editors)

x ---------->execute like: its must be with (r) to can execute the program

chmod --reference=file1 file2 ----------> to set permission to file2 as the permission of file1 to avoid rewriting it

chmod -R +permission +dirname/ ---------->to set permission to all files under this directory

chmod +permission + * ---------->to set permission to all sub directories under this directory

..... permission on the directories .....

r ---------->listing and copy

w ---------->adding files and directories , mv , rm , it must be with (x) because x here is mean to have the access on this directory

x ---------->mean to access directory , like :cd +dir

.....change permission in octal way .....

r -------> 4 , w ------> 2 , x -------> 1

chmod +groupname+ numtoowner+numtogroup+numtoothers ----------> to change group permissions

like: full permission -> 7 , read&write -> 6 , readonly -> 4 , read&execute -> 5 , no permission -> 0

Umask

umask ---------->display the defult permissions for the created files

umask+permission ----------> to make a defult umask permissions to this user permenantly adding this command in .bashrc file

umask+permission ---------->set the permissions for the coming creating files (put the permissions you dont want to give it to them (the opposite) like: umask 027 (0 mean give all permissions to owner , 2 give r+x,7 give no permission)

because of duplication , the system by defult set the files maximum permission is 666 mean there is no execute permission so if it a program you have to add this permission to it

and the system set the directories permission with execute permission so i should add execute permission always cuz its mean access to the directory

and its a temporary command which mean if you restart the terminal the permissions will be returned to the defult permission

Alias

alias +name="command" ---------->to alias complex command you usually used to a smiple name (whatever you want) to make it easy to use like: alias l="ls -lR"

\command ---------->to ignore the alias and process the defult command function (like: if (ls)has alias ("ls -lR") and you want to use (ls) as listing only (defult use)

ECHO

echo + variable name ---------->to display the value of this variable

print env ---------->to display the system (enviroment) variables only

set ---------->to display enviroment variables + local (user) variables

Environment Variables

(variablename)+value ---------->to create user variable (what ever you want)

go inside (bashrc)

PS1 ="name" ---------->to change the name of the prompt

PS2 = ----------> to change the symbol which appears when the system waiting for input from you when you write non complete command

PS3 = ----------> to change the symbol which appears when you are choosing from a menu

date ----------> to make the prompt when logging in display the date for you

HOME= home you want ---------->to change the home directory to directory whatever you want to

PS1="[\u@\h \W]\\$ " ---------->to change the prompt strings PS1="[\u {u mean to display'root' so to delete it delete'u'}(username)@ \h(hostname) \W(the directory you are in)]\\$(sign which appears)"

System Info

-----to show any of this variables value you have to write ($+variable name in capital characters)

cat /etc/shells ----------> to open all shells

echo $SHELL ----------> to open your used shell

echo $HOME ---------->to open your home defult directory (when typing cd ~)

cat /usr/bin ---------->to display all commands for the standard user

cat .bash_history ----------> to see all commands you are configured on the shell

!! ---------->to repeat executing the last command

Processes

to priortize a process you add a nicesness number to it which in range of +20 to -19 the defult niceness value for the processes is 0

end users allowed to increase the priorty of the process to +19 but cant decrease it under 0 (the root is the only one who can be assigned to -20 priorty value)

nice [-n +value] command -> to nice a process

pstree ----------> to display the process and its parent in hirearchy way

ps ---------->to display the running processes for the user (each command is a process and its display the name + processid + time takes from the cpu + tty(which describe which terminal running run this process (? mean its running by root not execlusive to a specific termianl)

ps -e ----------> to display the running processes for the whole system

ps -f ---------->to display more info about the processes (which user run it and its parent process if it a child process)

top ----------> to display the running process and refresh the processes permenantely (and memory used , cpu used ...etc)

pgrep -x +processname ----------> to display the number of the running processes only for the exact matched process name

pgrep -l +processname ---------->to filter the processes to display only processes with the name of this process (and similar to this processname) (its put * before the processname and the end of it so show all similar processes)

pgrep -u +username ---------->to filter the processes to display only who related to this user name only

pgrep -vu +username ---------->to filrte the processes to display the opposite of this username commands (display all except this user commands)

Signals

its the message you send it to the process to perfrom a specific action (change the process statue)(signals is must be written in capital letters)

kill + -num/name +pID ----------> to kill the process by signal number (-9 to kill it , -15 to terminate it and terminate is the defult signal) and (PID) is the process id you want to kill

sleep + time in ms ----------> to create a process (sleep) in the cpu (in the frontgroud) (its take a job id to use it in kill command instead of process id)

sleep + tims + & ---------->to create it in the backgroup and get back the terminal to continue working

jobs ----------> to display the background processes and its statue

kill -9 + % +jobid ----------> to kill a specific process

pkill -9 + pname ----------> to kill a process with its name

pkill -9 -u +username ----------> to kill a processes for a specific user

bg + % + jobid ----------> to change process to backgound mode

fg + % + jobid ----------> to change process to frontground mode

ctrl+z ----------> to stop a process in frontground mode

ctrl+c ----------> to kill a process in frontground mode

kill -STOP +% +jobid ---------->to stop a process in background mode

kill -CONT +% +jobid ----------> to continue a process in background mode

Redirection

the command output contain (info) and (errors) which describe that you dont have the permission to access some sort of info you are trying to display

command > file ----------> to redirect the output of the command from the screen to the file (if the file not exist it will be created , if it exists it will overwrite it)

command >> file ----------> to redirect the output to the file but append to the exisitng info in the file (no overwrite)

command 2> file ----------> to redirect (errors) to the file and display the output normally on the screen

command 2>f1 >f2 ----------> to redirect (errors) to f1 and the (output) to f2

command 2> /dev/null ---------->to redirect (errors) to the trash

Tr

tr +char + char ----------> its mean to replace the first character with the second one when typing in the cli

tr +char + char <f1 ----------> its mean to replace the first character with the second one in this file (but it will not be saved to the file , its will be only in displaying it) (< it means " input redirection ")

tr +char+char<f1>f2 ----------> its mean to replace them from f1 and save it the f2 (to save the changes)

Inode Table

[[inodetable][/] [inodetable][swap] [inodetable][/boot] [inodetable][E]]

/ -> its the partition of /

/boot-> has the files of the kernel

swap -> parition taked from the disk drive to the memeory as a virtual memory

inode table -> its a table in each partition which has rows each row describe a file or directory in this partition and each row has an inode number (system deal with this numbers)

info in the row:

1.The type of file

2.The file's permissions

3.The number of links

4.The file owner's user ID

5.The group owner's GID

6.When the file was last changed

7.When the file was last accessed

8.Where the file is on the media

ls -i +file ---------->to view the inode number of the file

ls -id +dir ----------> to view the inode number of the directory

notes :

copy -> when you copy file to another one in the same partition it will take different inode number , and also if you copy it to a file in another partition.

move -> when you move the file to the same directory (which means you rename the file) it will take the same inode number , but if you move it to another partition it will take different inode number.

Links

link is a shortcut of file in another destination (sybmol -> L (link)

soft link (symbolic link) : can be in different partitions

ln -s +file1 +path ----------> that is means you create soft link of file1 in the (path) and this shortcut refer to file1 so its different file with new inode number and number of links =1 (because there is only one pointer refer to this file) so if you delete the original file (file1) so the shortcut will be useless.

*Number of links for the directory increases every time you create dir inside this directory becuse every new created one is make a pointer refers to the parent directory

hard link :(used for files only) must be in the same parition (the same file in two places instead of creating new file has the same data)

ln +file1 +path ----------> that is mean you create hard link of file1 in the (path) and this link will refer to the data address of (file1) which mean it will have the same inode number because (its only a pointer) but the number of links will be 2 ,so if you delete the original file (file1) the other pointer will work indepently.

Pipelining

command1 | command2 ----------->its mean to process command1 and save it to buffer and then process command2 on the output in the buffer then dispaly it

like : (to display from line 7 to line 10 from mycv file)

head -10 mycv | tail -4 mycv ----------> mean to retreive the first 10 lines of (mycv) file and save it in the buffer then apply command2 (take only the last 4 lines) then display it on the screen

command1 | tee +file ----------->its mean to process command1 and save it to the file and display it also on the screen.

String Processes &Comparing& Search in file

wc +filename ----------> to display the number of lines in the file + number of words + number of bytes + directory of the file

wc -l +filename ---------->to display the number of lines in the file

wc -w +filename ----------> to display the number of words in the file

wc -c +filename ----------> to display the number of bytes of the file

cmp +file1 + file2 ----------> compare between two files (display the line which match the first different byte and then stop matching)

diff +file1 + file2 ----------> to compare between two files (display all differencies between two files line by line)

differ +file1+file2 ---------->to compare between the two files and get you the number of different values

grep +word +file ---------->its search row by row in specific file

grep ^keyword +file ----------> to search in the row about this keyword when being in the begining of the line

grep keyword$ +file ----------> to search in the row about this keyword when being in the end if the line

grep ^keyword$ +file ----------> to search for the rows which contains only this word

grep -V +keyword ----------> to search for all rows which contains all keyword except this keyword

-I Ignore case sensitive

-l List files name

-c Counts the line that contains the pattern

-w Search for the expression as a complete word;

cut -f +colomn num -d + symbol +path ----------> to search for coloumn (the coloumn number is the field in the line which i want to display it , symbol is the symbol which seperates between coloumns like (:) , path is the path of the file

sort -k +coloumn num -t +symbol +path ----------> to to sort this file depend on the coloumn you choose alphabetically (to sort nominal fields use (-n))

Archive & Compression

Tar is for archieve many files you dont need it anymore

tar -cf +file1 +file2,file3,... ----------> to archieve file2,file3,..... to the file1 (recommended to naming the file1.tar to detect it when execute ls -l because linux doesn't have extensions)

tar tf + file ----------> to list the files included in this archieved file

tar xvf +file ----------> to unarchieve the file and option (v) to shw ne when unarchieving files one by one

Compression : has 4 algorithms ,first 3 (compress , gizp , bzip ---> takes the original file and compress it and delete the original one , if takes more than one file will compress eachone alone)

last one (zip ----> leave the original file and compress the file in another file without deleting the original one , if take more than one file it combine all of them and compress them in one file)

gzip,zip,bzip,compress +file ----------> to compress the file

gunzip,bunzip,unzip +file ----------> to decompress the file

unzip -i +file ----------> to list the files included in the compressed file

*tar has option make it archiev and compress in the same time (file.tar.gz)

Searching

Find : slower but more powerful because this command searchs in each directory in whole system

find +dir -name +name of file/keyword ----------> to search about this file starting from the (dir)directory path going down , so if i write it like : find / -name passwd (it will start searching from / till the end of all directories)

Locate : faster because it creates screenshot of all your files and dirs in the ommand database and sort it so its asily and faster to reach the character of the word you search about it , but its not powerful because if you add new files it not be able to see it in his db and you need to execute command (updatedb)

also its has another problem about little information because it takes little info about this files so you can't find the permissions of files displayed

locate +filename/keyword ----------> to search about this file or keyword

Mounting

Mounting : means to linking a physical parition of the disk to a specific directory (logical) so when you write in this directory the kernel write in this physical parition

mount /dev/sd +(a-z)+(1- ...) +directory ---------> to link the physical partition to this directory ([a-z] is the driver character its starts from a to z if you have more than one driver , [1- ..] the number is describes the partition each partition has a number ordered

du + dir ----------> its shows the files in this directory with the size of each one and also the total size of the whole directory

du(disk usage)----------> shows the files of my current directory and the files inside it with its size

du -h +dir ----------> to display the size in human reachable way (Gigabyte)

du -s +dir ----------> to display only the total size of the directory not with its files

df -h ----------> displays all mounted directories and its physical partition and the used space , free space ...etc

df + foldername(path) ----------> to display the partition of this path (what is its partition!)

VI

vi + name ----------> its opened the vi file if its existed or create new one with this name if not existed

vi -r +file name----------> to recover the file

cat + vifilename---------->to read the vifile and can use more/less/head/tail also

VI modes :

1-command mode : the mode which describe each character as an instruction and edit (remove , replace ...etc)

i -> to move to the insert mode + and let me write afthe the curser position

a -> to moce to the inser mode + and let me write after the curser position

I -> to move to the insert mode + and let me write in the end of the line

A -> to move to the insert mode + and let me write in the beginning of the line

o -> to move me to the insert mode + and generate a new line bottom the line

O -> to move me to the insert mode + and generate a new line above the line

e -> to move to the end of the line without going to insert mode

0 -> to move to the beginning of the line without going to insert mode

G -> to move to the end of the text file

:n -> to move to a specific line(n) in the text file

h -> to move left

l -> to move right

J -> to move down

K -> to move up

w -> to move word by word

b -> to move back word by word

ctrl+f -> move screen by screen

ctrl+b -> move back screen by screen

ctrl+l -> refresh the screen

u -> to undo

x -> to delete the character where the curser positioned

s -> to delete the character + and move me to the insert mode to replace it with another character

dw -> to remove word by word (stand before the word and enter dw)

dd -> to remove one line (which you are stand in)

J -> to merge 2 lines in one line (stand at the end of the first line and enter (J) it will merge the next line to this line

yy -> to copy the line where the cursor positioned

p -> to paste the line before the curser position

P -> to paste the line after the curser poisition

:w -> saving changes to the file

:wq-> saving changes + exit

:q!-> exit without saving

:w+direction -> save to a new direction

:n1,n2d -> to delete range of lines (n1 ->start from this line , n2->end in this line)

:/word -> search for this word (if you replace (/) with (?) it will search backward)

:/w1/w2 -> search for the word (w1) in each line and replace it only one time per line with (w2)

:/w1/w2/g -> search for the word (w1) in each line and replace whole matching words with (w2)

:n1,n2 co n3 -> to copy from the (n1) line number to the (n2) line number and paste it after line number (n3)

:n1,n2 m n3 -> to move from the (n1) line number to the (n2) line number and put it after line number (n3)

:n1,n2 d -> to delete from the (n1) line number to the (n2) line number

:set nu -> to order lines with number

:set nonu -> to delete ordering the lines

:set showmode-> to show you wish mode you are in

:set ic -> to ignore case sensitive

:set noic -> to return case sensitivity to characters

Shell Scripting

vi myfirst.sh ---------->to create a shell scripting (.sh) not must be written the system detect its a shell scripting file by itself

#!/bin/bash (to determine the shell type you are using

write your shell script

:wq > to save and exit

chmod u+x myfirst.sh ---------->because the defult for the files that its doest take execute permission so you have to add it to the script to allow running it later

./myfirst ---------->to run the script (you must add ./ because the os doesnt know where is your script to run it so you take from the root path to run it)

$PATH= $PATH/+direction ---------->its to avoid using (./) so you add to the variable (PATH)the direction you want the os to search in also with the defult path value of the os (so you add $PATH/ before adding your direction)

any enviroment variable must written in capital characters

E-mail

mailx +username -> to send email to this user

subject -> the subject of this mail

-> content of the mail

. -> end of the text

mailx -> to access your emails which recieved

Directories

POSIX Standard

/usr/bin -> has standard user commands, can be written as (\bin) directly as a shortcut which called (soft link)

/usr/sbin -> has root commands

/etc/serviceconffilename-> any configuration for any service in the system like:(network , http , dns ,...etc) file saved here,

/var/data -> any data for any service needed to run the service file saved here

/var/log -> have all logs of the system and the errors

/var/spool -> save any data for delayed processes like : printer waiting the papers ..etc the data of the coping files save in this file

/var/spool/mail/user -> its contain all mails for this user

/var/temp -> have temporary files by the system

/dev/partitionname -> have all my devices like : hard desk

/ment -> to mount from it

ls /dev/sd +tab -> to access any device in the system (tab will list you all sd devices to choose which one to access)

/etc/passwd -> (7)sections has all users records

/etc/shadow -> has all passwords for all users accounts

/etc/group -> has all information about the groups

/etc/gpasswd -> has passwords for all groups in the system

/etc/skel -> its the directory which contain all files and directories which will shown by all users (which will be created after adding the file or directories in this directory)

/etc/login.defs -> its the file which contain defult values for each password created for a user (so if edit in it it will affect all users which will be created)

useradd -D -> its the defults of each user will be creating on the system

.bash_history -> its the history of the commands of this profile on his shell (even you terminate the shell

.bash_logout -> its the values which displayed to the user when logout from the account

/etc/profile -> the first file run on the shell when login (have all variables for the standard user)

/etc/bashrc -> the second file run on the shell when login (have all settings for the standard shell "if edit in it whill applied on all shells")

.bashrc -> the third fie executed on the shell when login (have the customized settings of the shell for this specific user)

.bash_profile -> the fourth file executed on the shell when login (have the customized variables for this specific user)

Shutdown

shutdown –k now

shutdown -h time # Halt after shutdown

• poweroff ,init 0

to enter the cli mode when booting (ctrl+Alt +[f1..f4])

to enter the rescue leve if you can't boot ---> choose centos row and press E then find the line which start with word (linux) and add (1) in the end of line

dmesg ----------> its dispaly the messages appears when booting again to you in the cli to check if there is an error you dont see it when booting

**********************************[ADMIN 2]**********************************

Special Permissions

set uid :

chmod u+s +commandname --------------------->to give the user the ower permission of this command to execute it (like: passwd +hisusername -> if the command has a uid you will get the root permission to be able to change your password 'only',

chmod 4xxx +commandname (if not you will not be able to change your password)

ls -l /bin/passwd --------------------->permission(r-s) -> that is mean the command have the execute and uid permission on this file , if (S) its mean you have only uid

""Permissions on directories(Sticky bit)""

chmod +t + dirpath --------------------->its mean you let each user can modify and delete his file&directory only and can't modify or delete other files of rest users.

(because of the case that another user is in the same group of your file group so he will get the group permission on this file

which allow him to modify or delete it ,so denied it by using sticky bit which allow only the owner of the file to do that)

ls -l --------------------->---t (t) mean you have sticky bit permission on this file and execute permission too.

gid :

chmod g+s +directory name -> to let all the files created in this directory have the same group of the directory to allow other users to access it(read)

but with your user permissions (your umask) which mean you will be able to read the file only because its have the

directory group which you have permission on it but also you can't modify or delete because of (+t).

-you can know the dir has gid by using getfacl and you will find (flag -s-) that is mean it has gid [OR] ls -l and you will find s in the group permission field

note: don't set permissions to others on your file and said (+t) not applied -_-

Sudo

/etc/sudoers ----------> its the file for which have the sudo permissions for the users to take the root permissions

sudo visudo ---------->to edit in virtual sudo (which check the edit before appling it to avoid damage the original sudo file)

- username + machine name = command name

username -> the user who will take the root permissions

machinename-> the machine which will take the permissions for this user (to detect specific machine to this user to take the root permissions from it)

commandname-> the command which will give the user the root permission on it (to detect specific command to this user to execute it with root permissions)

Like : abdo ALL = /bin/passwd , /bin/chage (you give user (abdo) root permission from any machine on (passwd)(chage) commands)(if you want a specific machine write its name)

Sudo ALIAS

*Machines Alias : [under Host aliases] [/etc/hosts -> has all machines with name and ip (local dns)]

Host-Alias + aliasname = machinename, machinename -> to make alias for more than one machine ,(Host-Alias) case sensitive , and the (aliasname) must be capital letters.

*Users Alias : [under User aliases]

User-Alias + aliasname= username , username -> to make alias for more than one user , (User-Alias) case sensitive , and the (aliasname) must be capital letters.

*Command Alias:

Cmnd-Alias +aliasname = commandpath.commandpath-> to make alias for more than one command , (Cmnd-Alias) case sensitive , and the (aliasname) must be capital letters. (commands seperated by [.])

FACL non trivial permission

Permission order:

1. if owner, then the file's owner permission apply

2. else if user has an acl entry, then the user acl applies as long as it is permitted by mask

3. else if matches file's group or acl group entry then it applies

4. otherwise the file's other permissions apply.

setfacl -m u: username : permission +filename/directory -> to set special permission to user (except normal permissions of owner , group , other)

setfacl -m u::rwx +filename/directory ----------> its mean to put this permission to the owner of the directory if you dont know the owner

setfacl -m g:groupname: permission +directory/file -> to set special permission to group (except normal permissions of owner , group , other) (if the user is assigned to more than one group , will take the (more permissions))

setfacl -m g::permission +directory/file ----------> its mean to put this permission the group of the file or directory if you dont know what is the group

setfacl -x u:username +directory /file ----------> to delete acl of this username

setfacl -x g:groupname +directory /file ----------> to delete acl of this group

(Defult permissions like you put umask permissions but for only this file (because umask put permissions to all files and directories you will create)

setfacl -m d:u:username:permission +dirname -> to make the defult permission of anything will created under this directory will take this user acl permissions (and the directories under the created directories ...etc) (but be aware that the parent directory wont take this permission will be applied on the childs only)

setfacl -m d:g:groupname:permission+dirname-> to make the defult permission of anything will created under this directory will take this group acl permissions (and the directories under the created directories ...etc)(but be aware that the parent directory wont take this permission will be applied on the childs only)

setfacl -m d:o:permission+dirname -> to make the defult permission of anything will created under this directory will take this other acl permissions (and the directories under the created directories ...etc) (but be aware that the parent directory wont take this permission will be applied on the childs only)

getfacl + filename -> to view the special permission of the file (+ -> means there is more permissions [setfacl] for user or group)

Booting & RunLevels

Booting Process:

[1-] Bios or UEFI(new): POST , loads the MBR , check on the boot sequence

Kick start is a file contains the settings which the os will use it to install using PXE (its when you use the network to boot OS , to automate the os installing)

[2-] MBR or GPT :Determine my partitions and the start and end of each one and the partitioning of the drive

MBR : 512 bytes ,

contains[bootloader {GRUB2}]

,[partition Table (64 byte)refer to the bootable partition in the disk or external devices , and the start and end of each partition]

,[boot sector (446 byte) which contains the defiinition of how to load each OS and which partition contains it (as pointer refer to each partition and has definition]

,[magic number its a flag to notice that the device damaged or not (point to boot sector)] ,

Mainly its discover the bootable device and load the GRUB2 in memory and give it the control

maximum partition size 2T which can read , and max partitions is 4 partitions (3 primary , 1 extended --> which devided inside it to logical partitions but cant accept OS on any partition of it but can has a file system on it to save data)

it also allows you to write on the disk , because it contains the definition of CHS (C ->clinder , H ->hit , S ->sector) or LPA -> new one .-> it contains the full address of the space which i will write in it .

GPT : support till Zetabyte, max paritions is 128 partition.

[3-] GRUB2 : part of it on the MBR , and another part in (/boot) ,

its the linux bootloader which booting the kernel (vmlinuz)to the ram to start os and point to the (initramfs) which use (dracut) to extract its modules in (tmpfs) (RAM)

{/boot /grub2/grub.cfg } which contains the menu of bootable partitions ,GRUB2 contains configuration about booting timeout to take defult choice.

you must write into this file{/etc/defult/grub} because its made checking before applying any changes to (/etc/defult/grub.cfg)

Vmlinuz : is the compressed kernel image file of linux , which contains all the initialization scripts ,then decompress the OS image and load Root files but as read only files.

the kernel loads the root file system /sbin/init --> /lib/systemd/system/initrd-root-fs.target (read-only) emergency

initramfs : The initramfs have all the kernel modules that is needed to load the system drivers and initialization scripts

Tmpfs : is the memory based file system

*grub2-mkconfig -o /boot/grub2/grub.cfg

/etc/grub2.cfg ----------> to apply any change you make in the configuration file of the GRUB2

cd /boot/ ---> contains all the images and initramfs files which loaded from GRUB

lsinitrd ----> to list all drivers which loaded when the system boot , and also the kernel files and directories which will booting

uname -r -----> to show the version of my OS kernel

cat /etc/dracut.conf ----> dracut which load the initramfs which contains kernel modules to the RAM

grub2-setpassword -----> to set a password for the grub2 to deny untrusted user from changing the root password in rescue mode

/etc/defult/grub/ ---> contains location boot ,vm-linuz ,initrmfs

rhgb quiet ----> it exists in the /etc/defult/grub/ and its allowded only critical logs for displaying while booting , so if you delete it you will see all booting logs

grub2-mkconfig -----> check on all grub2 configuration file , so if there is any errors the os will display it to you

[4-] Mount : load all file systems which on the partitions (filesystem which mount the physical partitions on logical partitions --> means to take parititons and mount points from ram to disk)

/etc/fstab --> which have all paritions and the mount points of it to logical partitions (UUID --> id of the partition for the system ,and file system which installed on this partition)

blkid ----------> ` ` `

fdisk -l /dev/sda ---> which contains info of your drive and its paritions and which primary and the extended parition and its logical partitions (you will know it because its in the range of the extended partitions size, its take letter also like :sda5)

--> (*) its mean that the MBR of this drive is installed after this partition (which contains the GRUB also)

[5-] Kernel : starts the Systemd process with process ID =1 (Systemd = the parent of all processes on the system)

Systemd : reads [/usr/lib/systemd/system/multi-user.target] to determine the run level which the system will start with

Setting the host name

Initializing the network

Initializing SELinux based on its configuration

Printing a welcome banner

Initializing the system hardware based on kernel boot arguments

Mounting the file systems, including virtual file systems such as the /proc file system

Cleaning up directories in /var

Starting swapping

systemd-analyze -----> will show you info about your system how much time its spend to boot ..etc

systemd-analyze blame ------> how much time each process take to load

pstree ----------> hirarchy of all processes runs

ps aux ,ps -ef -------> each process runs and all info about it

systemd-analyze critical-chain ------> to show all services running on the system till reach the target (from buttom to up)

Services (units)

types of units :

1- path units ----> services which requires delay time to process like : CUPS

2- xinitd ----> for legacy services

3- targets

4- socket

systemctl -t help ----> to see all available services types on your system

/etc/systemd/system/ ---> to show all your services (Global services)

/lib/systemd/system/ ----> to show all available services in the system and the configuration for each service , you can Cat any service and see

[UNIT] its the type of it and the services it needs to start

w[Service] the definition of the service

[install] the target needs to start this service

systemctl list-dependencies +target ---> to see the dependencies of the target on other targets (if it depend on other targets)

systemctl list-units --type target --all ---> to see all targets on the system

systemctl list-unit-files --type target --all --> to show all available targets which installed on your disk

systemctl get-defult ----------> to view which taregt is used as the defult target units

cat /etc/systemd/system/default.target ------> to show the default target level and its details

systemctl set-defult +targetlevelname ----------> to change the defult target level

systemctl isolate +targetlevelname ----------> to change the current target level to another target level (like : systemctl isolate multi-user.target -> to change to cli level)

systemctl list-units --type service ----------> to show all active services on your system

systemctl list-units --type service --all ------> to show all active/inactive services on your system , you can show any type of services only change the type you want to show

systemctl list-unit-files ----------> to show which service is enabled and which is disabled , static: cannot be enabled, but may be started by an enabled unit automatically

systemctl list-unit-files --type service ----------> to list all enabling and disabling services which installed and in the runlevel which running now

systemctl status +servicename ---------->to check the status of a specific service , its PID and time of start ..etc

systemctl start +servicename ----------> to start a specific service (unit)(now)

systemctl stop +servicename ----------> to stop a specific service (now)

systemctl restart +servicename ----------> to restart a specific service with differenet process id

systemctl reload +servicename ----------> to restart the service but with the same process id , to avoid deny access on this service for the users who is working on it now

systemctl enable +servicename ----------> to auto enabling the service when the system booting (will create soft link to the /etc/systemd/system/multi-user.target.wants/servicename)

when you enable a service it will be loaded when you restart the system and it will automatically soft linked under (multi-user.target) that is mean it will be a unit of it when the target loaded it will loaded automatically

systemctl disable +servicename ----------> to auto disabling the service when the system booing

Systemctl is-active httpd.service --------> to check if the service is active !

Systemctl is-enabled +service----------> to check if the service is enabled

Systemctl --failed +service----------> to check if the service failed !

Systemctl show +service ----------> to show the service details and all info

Systemctl mask/unmask +service -----> to mask or unmask a service

systemctl -a ----------> to show all system services statue

allow isolate =yes ----------> that is mean to allow the movement of target to another target

Run levels :

find / -name "runlevel*.target ----------> to list the units of specific system run level target (each run level has list of units (Services) running when start this run level)

Target Units	Mode of level
runlevel0.target, poweroff.target	Shut down and power off
runlevel1.target, rescue.target ,emergency target	Set up a rescue shell (mount fs as read/write so you can execute systemctl commands) emergency shell (mount fs as read only , so you can only change root password)
runlevel[234].target, multi- user.target	Set up a nongraphical multi-user shell
runlevel5.target, graphical.targe	Set up a graphical multi-user shell
runlevel6.target, reboot.target	Shut down and reboot the system

ls -l /etc/systemd/system/defult.target ----------> will give you which run level (target) is the defult when starting the os (its path /usr/lib/systemd/system/grapthical.target)(graphical.target ->is the standard defult run level)

cat etc/init ----------> gives you which level is running now in the system

rm /etc/systemd/system/defult.target

ln -s /usr/lib/systemd/system/graphical.target /etc/systemd/system/defult.target

Printers

Users :

lpr --p OR lp -d + printer name + file----------> to submit a job for printing

lpq OR lpstat + printer name + file ----------> to see the statue of your jobs

lprm OR cancel + printer name + file----------> to cancel the job

the system search for the pritners in these paths :

1The environment variable PRINTER

The environment variable LPDEST

The first entry in /etc/printcap

Admin :

lpadmin + options ----------> to add and modify and delete a printer

lpadmin accept + printername --------> to make the printer accept new jobs to enter its queue

lpadmin reject +printername ----------> to make the printer reject any new jobs to enter its queue

lpadmin enable +printername ----------> to allow the printer printing the jobs which in its queue

lpadmin disable +printername ----------> to disallow the printer from printing any jobs which in its queue (for mintainance)

OR

Cups web interface on port (631) --------> localhost:631

OR

system-config-printer (-tui(optional)) ----------> GUI-based cli

/etc/cups/cupsd.conf ----------> contains the cups configuration data of all printers in one file

/etc/cups/prnters.conf ----------> its a file contains the configuration about the printers you have

Syslog

rsyslog -> keep track of the system activities and send messages describe the problem (kernel send rsyslog then rsyslog lock in its file and see the action for this message depending on the message type if should send mail to root or broadcast to the users if its emergency message..etc)

/etc/syslog.conf -----> is the rsyslog file

this file consists of (1- selector field which contain *Facility -> which categorize the system messages (form kernel ,mail ...etc) and *Level -> which describe the level of the message like : emergency , error , info ...etc) written like :facility.level)

(2-action field which contain the action will taken for this message)

this file read one time when booting so if you add any changes you need to restart or (stop rsyslog service and start it again)

Example : kernel.info (facility.level)(kernel message info and what is upper than the info) /dev/log/f1 (action)(send the message to this file)

kernel.* (all message of the kernel) /home/f2

tail -f /var/adm/messages ---------> to monitor and view the messages of the rsyslog file

Example :

tail -f /var/adm/messages

jun 14 13:15:39 host1 inetd[2359]:[ID 317013 daemon.notice] telnet [2361] from 192.9.200.1 45800

Time/Date localhostname Pname[pid] MSG ID facility.level incoming request [ppid] IP Port name

logger -----> allows you to monitor your own scripts by send messages of your scripts to rsyslog and take an action you need , so you as an admin you write your own logs of your scripts because the defult logs created by the kernel

Troubleshooting & Recovery

Damaged MBR record:

chroot /mnt/sysimage ---------> to access files of the root on the disk

grub2-install /dev/sda ---------> to install the grub on the drive ,of case that the MBR record damaged so it can't load the grub2 ,so you need to install the grub2 again ,install on the whole drive because its control all the drive

Root Password Recovery :

enter e ---> to stop grub timeout and enter the menu

go to the line which start with linux16 and enter in the end of the line (rd.break) then ctrl+x

enter the resuce mode then enter mount -o remount,rw /sysroot

then chroot /sysroot

then change the password of the root

then touch /.autorelabel

then ctrl+d or exit

Partitioning

df -h --------> its lists all partitions in your system

lsblk ----------> its lists all partitions with hirarechy display

blkid + partition ----------> to show the UUID of a partition and fs type of this partition and label .

fdisk + /dev/sd+hardcharacter ---------> to start edit in the hard

fdisk -l + /dev/sd ----------> its like option P when enter fdisk of hard , displays all partition of the disk without enter fdisk command

n -------> to add a new partition , its asked you which sector to start from and then the last sector to end with (+2G , + 500M ...etc)

portprobe + /dev/sd +hardcharacter ---------> to reload the drive to see new partition which added

mount --------> to show all mounted partitions in the system and with all details and filesystem ...etc

cat /proc/partitions ----------> its listed all drives with its all partitions and show which is extended and the logical under the extended partition

mkfs.+filesystemtype +partitionpath ----------> to make a filesystem to this partition

mkfs -t +filesystemtype + partitionpath ----------> to allows you to put the filesystem by yourself

mkfs -b +block size +partitionpath ----------> to set the block size of this partition

mkfs -l +number of inodes +partitionpath ---------> to set the range of inode numbers to this partitio

mount +partition +mountpoint ----------> to mount the partition to a mount point in your system to link the physical parition with logical one you can use

mount -o remount,rw +partition ----------> because when you mount the partition its take only read permission so if you want to give it read and write you use (-o)

umount +parition -f -------> to unmount the parititon from its mounted point ,(-f) to force unmount of a partition

cat /etc/fstab ----------> to make it permenantly

partition/label/UUID mountpoint filesystem defults 0(dump) 0(filecheck)

mount -a ----------> to check if the fstab file is correct or have any errors

e2label +partition +label ----------> to make a label to this partition

mount +LABEL=labelname + mountpoint ----------> to mount the physical partition to logical partition using label

into /etc/fstab [LABEL=labelname mountpoint .....]

uuitgen + partition

Swap

swapon -s --------> to display all swap partition in your system

***{way number 1}

- create a partition and make its label to 82(Linux Swap) using (t) option , then save the changes

mkswap +partition ----------> to create a swap partition

swapon +partition ----------> to activate the swap partition

vi /etc/fstab ----------> to make it permenant

partition swap swap defult 0 0

***{way number 2 }

dd if=/dev/zero of=/myswap bs=1024 count=1024 ----------> to create a file to be the swap , if -> inputfile , of-> outfile , bs--> blocksize , size of the file = bs*count

chmod 600 +swapmountpoint -----> change permissions of the swap to only root (you must do that)

then mkswap /myswap

then swapon /myswap

swapon +fileofswap ----> to turn on the swap file

swapoff +fileofswap -----> to turn off the swap file

LVM

to make alot of partitions (virtual) to allow multiple partitions and dont lose filesystem of this drive , its allow you also to make a storage pool of multiple hards (drives) and act all as a one drive

and make many lvm's of this pool as a partitions (virtual,logical) but its physically assigned to specific partition and addresses , and also i can make many pools , so we convert physical storage to virtual storage to allow lvm creation

and also LVM can work with SAN,RAID storage , reducing LVM in space can make a failer than increase it which always success

fdisk ----------> create the partition , then enter t , then choose 8e which labeled this partition as a LVM partition

rpm -qa | grep +lvmname -------> to detect if it exist or not

pvcreate +partition ---------> to create a physical volume to enter in the pool of the physical volumes to assign from it a virtual volumes.

pvs ---------> short summary about the physical volumes in the system

pvdisplay ----------> all details about the physical volumes which created , size , UUID ,Group ....etc

vgcreate +groupname + drivepath1 + drivepath2 ----------> to create a group for add more than one physical partition under it (to be as pool) (not neccessary to make a pvcreate before it its make it automatic)

vgs ----------> to display the groups (will displayed as one volume and will give you number of drives for this volume)

vgdisplay -------> more details about the group volumes , cur pv ---> current physical volumes in this group , act pv ---> active physical volumes in this group

lvcreate -L +size -l +numbr of blocks -n +name of the lv +group name -------> to create logical volume from specific group (pool) , (if i don't detect fixed number of blocks for the lv that is mean it will take 100% of the space of this group which belongs to)

-l 100%free ------> to take all free space in the group

-l 30%vg ----------> to take 30% of the space of the group (all group space not the free space)

/dev/groupname/logical volume name -------> the path which the logical volume create under it

/dev/mapper/groupname-logicalvolumename -------> the path which the logical volume create under it

lvs ---------> to display all Logical volumes exists

lvdisplay ----> all info about the logical volumes in the system and which group belongs to , Size ..etc

after that you need to put FS on this logical volume

mkfs. + /dev/mapper/ vgnum-lvnum ------> to put a file system on this LV

mount +LV path (/dev/mapper/vgnum-lvnum) +mount point -------> to mount it to a mount point

---> and then add it in /etc/fstab .

Extend:

vgextend +groupname +newpartition ----------> to extend the volume group with new partition

vgreduce +groupname +partionpath ----------> to remove a partition from a group

umount lv

lvextend -L +size +lvpath ----------> to extend exist lv with more size (size ---> +5G , +400M ...etc) , without (+) it will resize the lv

lvextend -l+30%vg +lvpath ----------> to extend exist lv with 30% of the free space of the VG

mount lv

resize2fs +lvpath ----------> to resize the file system of this lv after extend or reduce from its size , it will automatically resize equal to partition size or you can add the size that you want to add to this fs (like: +2G)

Reduce:

1-e2fsck -f /dev/mapper/vg--1-lv--1

2-resize2fs +lvpath +size after reduce ----------> to reduce the filesystem before reduce the whole partition (you have to put the size after the reduce size you want like: 10G - reduce(3G) then you write 7G)

3- umount the partiton from its mount point

4-lvreduce -L -2G +lvpath ----------> to reduce the lv with 2G of its size

5- mount

Network

network service ------> legacy service

Network Manager ----> Redhat 6

ifconfig -a ----------> to show all nic configuration

ip ----------> network tool used in temporary configuration

nmcli (CLI) ,nmtui (GUI)----------> network tools in Redhat 7 , used in permenant configuration

/etc/sysconfig/network-scripts/ifcfg-interfacename -------> interface configuration file , any configuration made using nmcli,nmtui written in this path (local configuration) , edit in the file using vi will allows you put your settings as you want

BOOTPROTO= dhcp/static

/etc/sysconfig/network --------> the global network configuration file

/etc/resolv.conf ----------> global file for network configuration , DNS configuration , max DNS servers = 4

/etc/hostname ----------> carry the machine name

/etc/hosts ----------> all DNS hosts that the machine search in (hosts file)

ip addr show ----------> all details about your connections , and (link/ether ---> mac of the interface (device) , brd ----> broadcast ip ...etc)

ip addr add dev + devicename + ipaddress/subnet ----------> to create a new connection

ip route add dev +devicename + gateway ----------> to set the gateway of this connection

ip link show ----------> show all connection on this device

ip -s link show ----------> show statistics of the connection run now

ip -s link show + connectionname ----------> to show statistics about this connection only

ip route add + destination adress +via+ gateway ----------> to set a record to a destination and the gateway to arrive to it with

ip route ----------> to display the routing table

netstat -r ----------> to show all details about whole networks i know (routingtable of my machine) and its gateway

traceroute + ip ----------> to show all hops (routers with its status), number of hope till reach the destination

host + name ----------> to get the ip for this name(website)(regarding to dns records file /etc/hosts , /etc/resolve.conf)

ping -c 2 + ip ----------> ping twice only

nslookup + name ----------> to get the ip of this name and the dns which get the ip from

nmcli connection show --------> to show all connection on your device (your device is a connection also)

nmcli device show ----------> to show all device details , type ,name,...etc

nmcli connection add +con-name+"connectionname" + type +type + ifname + devicename + ip4 +ipaddress/subnet +gw4 +gateway ----------> to create permenant connection

nmcli connection up +connectionname ----------> to set the connection up (active)

nmcli connection down +connectionname ----------> to turn the connection down (if i want the temperoray to run you need to turn down all permenant connections)

nmcli connection modify +connectionname + attribute + value ----------> to set value of this attribute to this connection (tab to see all attribute)

nmcli connection modify +connectionname + ipv4.dns + dns ip (GW) ----------> to set the dns ip for this connection

ipv4.method menual/dhcp ---------> to change the connection configuration from static to DHCP

connection.autoconnect yes/no ---------> to set the booton(this connection turn up when the machine boot automatically)

nmcli connection delete +devicename ----------> to delete the device (but you need to turn down all its connection before you delete it)

nmcli device ----------> to show devices

nmtui ----------> set configuration using GUI

nmcli connection reload ----------> to verify any changes done using GUI Tool (nmtui)

OR

systemctl restart NetworkManager

hostnamectl ----------> get all the details about your machine , is it vm or not ? , OS , kernel version

hostname + name ----------> set the hostname temperoray

hostnamectl set-hostname + name ----------> to set the hostname permenant

uptime ----------> to display the cpu utilization

scheduling

Cron : crond(is the daemon),continious tasking , applied on any user and the admin , cronie ---> the service which running cron , rpm-ql cronie ---> to show configuration files for this service

/etc/cron-d ------> this is the path to put (your) cron files created

/etc/cron-deny ------> the file to put who users you want to deny them from creating cron

/etc/cron-allow -------> to put the users who allowded to create cron

/var/spool/cron/cronfilename ------> its contains all the jobs (crons) of all users, so you can access any file you want

cat /etc/crontab -----> to see the syntax for writing a cron task, you can edit which one should recieve the mail of this task when executed by change the user in (MAILTO= user)

crontab -e ----------> to create a cron , you should enter the full path of the command which you want to execute it

which + command ----------> to get the full path of the command

*/3 ------> in the minutes field ---> means every 3 minutes , in the hours field --> means every 3 hours ...etc

crontab -e -u +user -----> to edit in cron of specific user

crontab -l -u +user -----> to list the crons of specific user

crontab -l ----------> to list cron scheduled

crontab -r ----------> to remove your cron

export EDITOR=nano ----------> to set the enviroment variable for the editor is nano not VI

/etc/anacrontab ----------> its a file contain all scripts runs in specific time (if you cat this file you will see all scripts which will run in future and time ...etc)

ls /etc/cron.daily ---------->list scripts which will executed daily

ls /etc/cron.monthly ---------->list scripts which will executed every month

.....etc

AT : (atd is the daemon(run in bk executing this command))(task in the future only executing one time)

look at /etc/at.allow -------> the file which has the users who can use at commands

then look at /etc/at.deny ----------> the file which has the users who denied from using at commands

if the both files not exists that is mean all users are denied

but the defult installation create at.deny and make as defult all users allowed to use at commands so take care

at +time --------> to make a schaduale for some commands to run in this time then enter (time like : now ,1hour,6AM,tomorrow,4PM+3days , 10AM Jul 31, teatime ---> 4 pm)

at> write the commands you want to execute in this time each command in one line

then CTRL +d ---> to finish

atq ----------> show you all schedules created

atrm + job --------> to delete the schedule

Time can be:

HH:MM 23:15

Midnight 12:00 am

Noon 12:00 pm

Now+time ,now +2min, now +2 hours, now +5days, now +1week

at 4 tomorrow

at 5am +4 days

at teatime Associated jobs will start at 4:00 P.M.

at teatime tomorrow

at noon +4 days

at 5pm august 3 2016

at 3:00 6/13/07

Jobs will be saved at /var/spool/at

RPM & YUM

RPM : install without download

rpm -ivh +packagename ----------> i-->install , v--> verbose(display installing) , h---> hash(display loading bar)

rpm -i --nodeps +pckname ----------> nodeps ---> install without dependences

--replacement ----------> won't make any check on overwrite on installed package

--force ----------> to force install package installed before

--test ----------> make a verify without installing

rpm -q +pckname ----------> display the required packages for this package to install it

rpm -qi +package ----------> info about this package

rpm -qa ----------> display all installed packages

rpm -qc +pckname ----------> display configuration file of this package

rpm -qd +pckname ----------> display documentation of this package (man of this pck, ...etc)

rpm -ql + pckname ----------> display all files of this package

rpm -qf +filename ----------> display the package which run this file

rpm -V +pckname ----------> to verify that the package installed successfully without any errors

rpm -Vf +filename ----------> to verify that the file is correct

rpm -Va ----------> to verify that all packages and files is correct in the system and no errors in anyone of them

rpm -Vp +packagename ----------> to verify with package someone give it to me and i want to check if there is any difference between it and the package installed in my system

/var/lib/rpm ----------> file which contains the installed packages under it

rpm -Uvh +pckname ----------> to update a package

rpm -F +packagename ----------> to refresh the package (not install any new feartures)

rpm --erase +pckname ----------> to delete installed package (don't required full path of the package , just the name or part of the package name and rpm will find it)

YUM : install with download

/etc/yum.repos.d ----------> directory of the repository of the yum , under it you will cat on the repositories of the centos os , you can vi and add your website

name = name of the website

baseurl= URL

grgcheck =0 ----------> to make it don't check when installing from this website because it compares with redhat websites

{ OR }

create file.repo under this directory and write your website (name , baseurl , grgcheck)

yum install + package name ------> (must be with root cuz its affects whole system)to install the package from the store which centos refer to for installing any packages needed (and notify you with any needed packages for this package)

yum help

yum list ----------> list all available packages in yum repo

yum search +keyword ----------> to show which packages is available for this keyword (should i install)

yum update +pckname

yum info +pckname ----------> get info about this package and its dependencies

yum remove +pckname

yum provides +filepath ----------> tells you which package you should install for run this file (if you damage it and you want to reinstall it)

yum localinstall +pckname -------> after entering in the path which the installing file is found , run the command to install package which downloaded before

/etc/yum.repos.d ----------> directory which contains the trusted websites for linux

/etc/yum.repos.d /file ---------> touch file under this directory to add other websites to your list (name = name of website , baseurl = url , grgcheck =0 --> to uncheck the files when downloaded from this website because linux compare it with its websites

Adding Repo

Adding yum Repo:

yum repolist all list enabled and disabled, to list enabled only yum repolist

yum-config-manager --> enable or disable repositories, This will change the enabled parameter in the

/etc/yum.repos.d/redhat.repo file

Put a file in the /etc/yum.repos.d directory to enable support for a new third party repo, repository configuration files

must end with .repo the repo definition contains the URL of the repo, a name , whether to use GPG to check the package

signature and if so, the URL pointing to the trusted GPG key.

Using yum-config-manager

If the URL for a yum repository is known, a configuration file can be created with yum-config-manager

#yum-config-manager --add-repo="http://d1.fedoraproject.org/pub/epel/beta/7/x86-64/"

Note: a file was created in the /etc/yum.repos.d directory with the output shown. This file can now be modified to

provide a customized name and the location of the GPG key. Administrator should download the key to the local file

rather than allowing yum to retrieve the key from an external source.

gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7

Make repo from RHEL DVD:

mkdir /repo located in a partition that has enough space to accommodate the rpm sources

Admin II Revision Page 21mkdir /repo located in a partition that has enough space to accommodate the rpm sources

- cp /run/media/O*/P*/*.rpm /repo
- chown -R root:root /repo
- chmod -R o-w+r /repo

- rpm -ivh /repo/delta-param*.rpm
- rpm -ivh /repo/python*.rpm
- rpm -ivh /repo/createrepo*.rpm
- createrepo /repo
- vi /etc/yum.repo.d/myrepo.repo

[mylocalrepo]

name=this is my local repo

baseurl=file:///repo

gpgcheck=0 check for signature if 0 mean nocheck

enabled=1

yum-config-manager --enable myrepo.repo