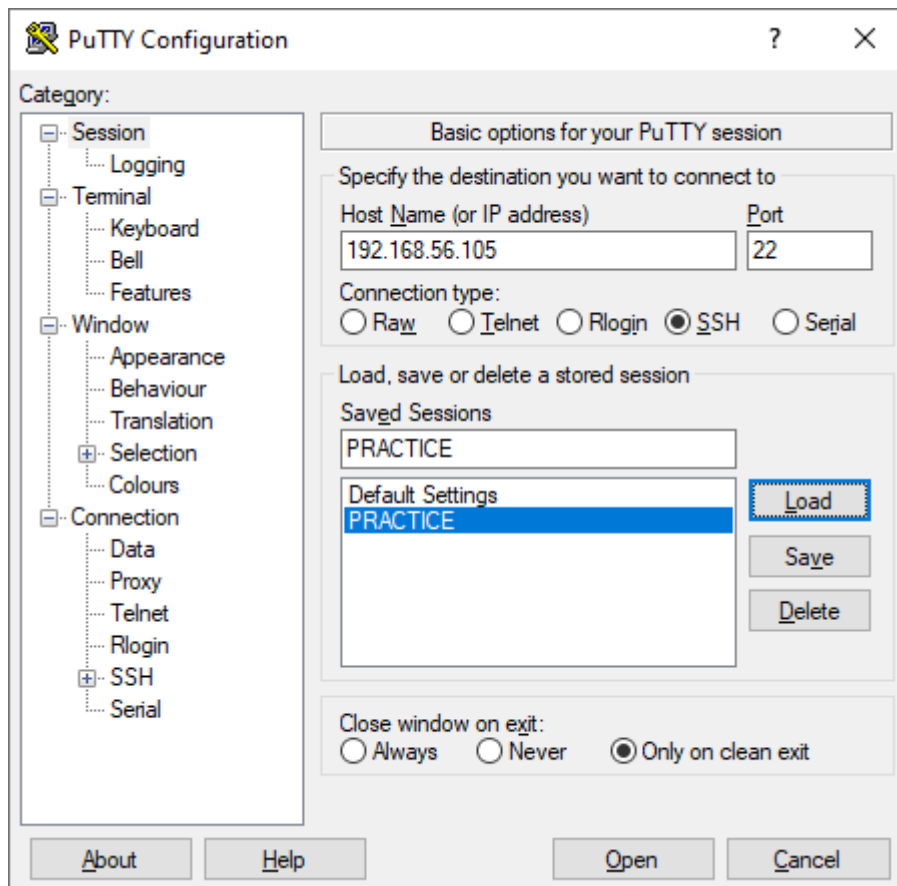
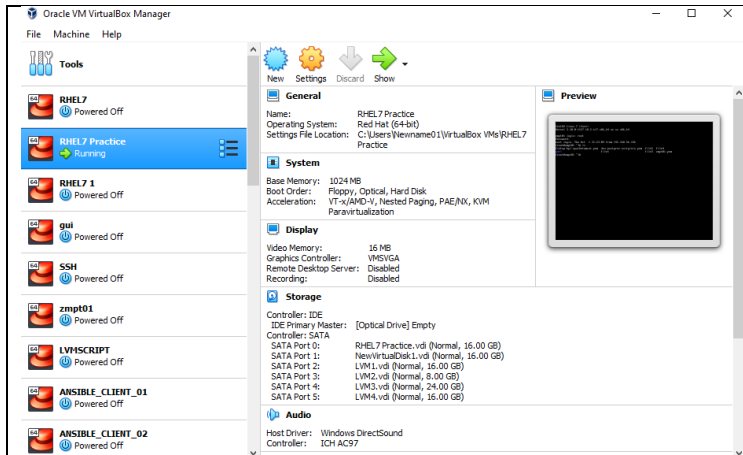




10-10-2020

<https://youtu.be/30Wsc3zCWNk>





## CLI – Command Line Interface

### CLI – Command Line Interface

root@localhost:~

```
[root@localhost ~]#
```

## What is root

root – Administrator – Super user

- Root user has full access
- Root user cannot be renamed
- Never share the password with anybody
- Don't put in email, chats or text messages, don't share it

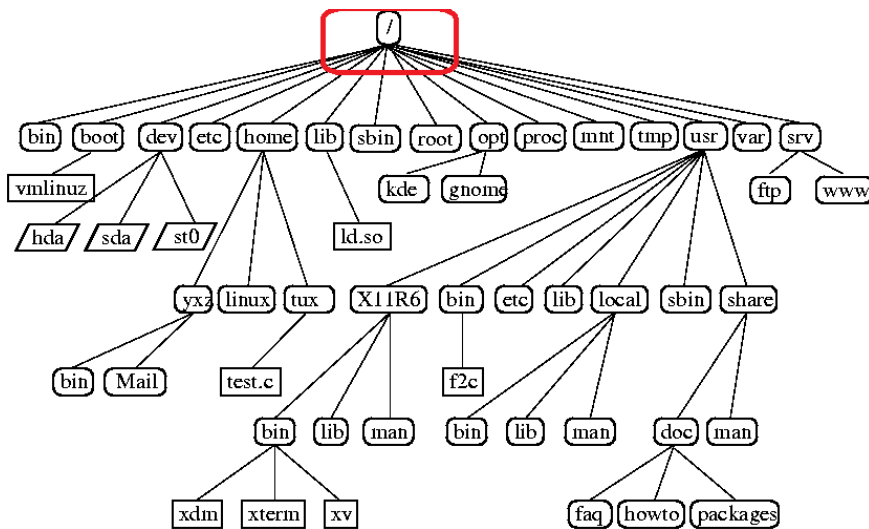


/root

- Root user home directory or
- When root user logs in to system this is his landing space

/

- Root directory
- This is the topmost directory



File = file

Directory = Folder

For Linux a file and a directory is also file

pwd

pwd

- Print working directory
- Present working directory

[root@localhost ~]# pwd

/root

clear

clear

- Clears the screen

#### input

Input

[root@localhost ~]# pwd < ---input command to OS

#### output

Output

/root < --- Response from OS

#### cd

cd

- allows you to change the directory

[root@localhost ~]# cd /  
[root@localhost /]#

cd

- Simply type cd and hit enter
- You jump back to home directory

[root@localhost /]# cd  
[root@localhost ~]#

#### ls

ls

- this command list the content of the pwd directory

[root@localhost ~]# ls  
anaconda-ks.cfg

ls -l

- long list switch with ls command
- it provides the details of the list contents

```
[root@localhost ~]# ls -l
total 4
-rw-----. 1 root root 1407 Oct  4 16:07 anaconda-ks.cfg
```

**Ls -a**

- shows you the list of files as well as hidden files/ folder
- hidden file or folder starts with . (period)

```
. anaconda-ks.cfg .bash_logout .bashrc .tcshrc
.. .bash_history .bash_profile .cshrc
```

**ls -la**

- this combination of command provides the long list with hidden files

```
[root@localhost ~]# ls -la
total 28
dr-xr-x---. 2 root root 135 Oct  4 16:57 .
dr-xr-xr-x. 17 root root 224 Oct  4 15:50 ..
-rw-----. 1 root root 1407 Oct  4 16:07 anaconda-ks.cfg
-rw-----. 1 root root 209 Oct  4 17:54 .bash_history
-rw-r--r--. 1 root root 18 Dec 28 2013 .bash_logout
-rw-r--r--. 1 root root 176 Dec 28 2013 .bash_profile
-rw-r--r--. 1 root root 176 Dec 28 2013 .bashrc
-rw-r--r--. 1 root root 100 Dec 28 2013 .cshrc
-rw-r--r--. 1 root root 129 Dec 28 2013 .tcshrc
```

## history

**history**

- displays the history of commands you been using

```
[root@localhost ~]# history
 1 ip a
 2 cd /etc/sysconfig/network-scripts/
 3 ls
 4 vi ifcfg-enp0s3
 5 clear
 6 ls
 7 vi ifcfg-enp0s3
 8 clear
 9 ls
```



```
10 vi ifcfg-enp0s8
11 vi ifcfg-enp0s9
12 vi ifcfg-enp0s3
13 clear
14 ls
15 ls -l
16 clear
17 init 6
18 ip a
19 init 0
20 ip a
21 whoami
22 ls
23 lsblk
24 init 0
25 clear
26 pwd
27 clear
28 pwd
29 clear
30 pwd
31 cd /
32 cd
33 ls
34 ls -l
35 ls -a
36 clear
37 ls -a
38 ls -la
39 clear
40 history
```

!34

- run the specific command number from the history

```
[root@localhost ~]# !34
```

```
ls -l
```

```
total 4
```

```
-rw-----. 1 root root 1407 Oct  4 16:07 anaconda-ks.cfg
```

### Multiple Commands

Run multiple command

;



```
[root@localhost ~]# ls -la;pwd;cd /
```

## touch

touch

- it create a file for you

```
[root@localhost ~]# touch file1
```

```
[root@localhost ~]# ls
```

```
anaconda-ks.cfg file1
```

```
[root@localhost ~]# ls -l
```

```
total 4
```

```
-rw-r--r--. 1 root root  0 Oct 10 16:20 file1 < --- creates file
```

touch file2 file3 file4

- Create multiple files

```
[root@localhost ~]# touch file2 file3 file4
```

```
[root@localhost ~]# ls
```

```
anaconda-ks.cfg file1 file2 file3 file4
```

```
[root@localhost ~]# ls -l
```

```
total 4
```

```
-rw-----. 1 root root 1407 Oct  4 16:07 anaconda-ks.cfg
```

```
-rw-r--r--. 1 root root  0 Oct 10 16:20 file1
```

```
-rw-r--r--. 1 root root  0 Oct 10 16:26 file2
```

```
-rw-r--r--. 1 root root  0 Oct 10 16:26 file3
```

```
-rw-r--r--. 1 root root  0 Oct 10 16:26 file4
```

touch .file5

- Creates a hidden file

```
[root@localhost ~]# ls -la
```

```
-rw-r--r--. 1 root root  0 Oct 10 16:27 .file5 < --- Hidden file is created
```

## mkdir

mkdir folder1

- Creates the folder with specified name in pwd

```
[root@localhost ~]# mkdir folder1
```

```
[root@localhost ~]# ls -l
```

```
drwxr-xr-x. 2 root root  6 Oct 10 16:29 folder1
```

```
mkdir folder2 folder3 folder4
```

- Creates multiple folders
- 

```
drwxr-xr-x. 2 root root  6 Oct 10 16:29 folder1
```

```
drwxr-xr-x. 2 root root  6 Oct 10 16:33 folder2
```

```
drwxr-xr-x. 2 root root  6 Oct 10 16:33 folder3
```

```
drwxr-xr-x. 2 root root  6 Oct 10 16:33 folder4
```

```
[root@localhost ~]# yum install tree -y
```

```
mkdir -p redhat/whitehat/blackhat
```

- Create directory inside directory
- -p means parent directory
- This will also check the existing directory, it ignores it its already there

```
[root@localhost ~]# mkdir -p redhat/whitehat/blackhat
```

```
[root@localhost ~]# tree
```

```
.
├── anaconda-ks.cfg
├── file1
├── file2
├── file3
├── file4
├── folder1
├── folder2
├── folder3
├── folder4
├── redhat
│   ├── whitehat
│   │   └── blackhat
```

7 directories, 5 files

Changing directory using cd

- Changes the directory

```
[root@localhost ~]# cd redhat/whitehat/blackhat/
```



Tab key auto completes the file or directory

```
[root@localhost blackhat]# pwd
/root/redhat/whitehat/blackhat
```

cd

```
[root@localhost blackhat]# cd
[root@localhost ~]# pwd
/root < ---takes you back to home directory
```

Jump to previous working directory

```
[root@localhost ~]# cd -
/root/redhat/whitehat/blackhat < ---Takes you back to previous working directory
```

```
[root@localhost blackhat]# ls -la
total 0
drwxr-xr-x. 2 root root 6 Oct 10 16:40 . < --- Single dot is link to its self
drwxr-xr-x. 3 root root 22 Oct 10 16:40 .. < --- two dots are link to parent directory
```

- .
- This is representation of present working directory
  - It is a link to current working directory
  - Hidden

- ..
- This the representation of parent directory
  - This will take you back one level up directory
  - Hidden

```
cd ..

[root@localhost ~]# cd redhat/whitehat/blackhat/
/root/redhat/whitehat/blackhat

[root@localhost blackhat]# cd ..
[root@localhost whitehat]# pwd
```



```
/root/redhat/whitehat
```

```
[root@localhost whitehat]# cd ..
[root@localhost redhat]# pwd
/root/redhat
```

```
[root@localhost redhat]# cd whitehat/blackhat/
[root@localhost blackhat]# pwd
/root/redhat/whitehat/blackhat
```

```
[root@localhost blackhat]# cd ../../..
[root@localhost ~]# pwd
/root
```

### Relative Path

Relative path

```
└─ redhat
   └─ whitehat
      └─ blackhat
```

```
[root@localhost ~]# cd redhat/whitehat/blackhat/ < ---used relative to go in the directory 'blackhat'
[root@localhost blackhat]# pwd
/root/redhat/whitehat/blackhat
```

### Absolute Path

Absolute path

```
/root/redhat/whitehat/blackhat
[root@localhost blackhat]# cd /root/redhat
[root@localhost redhat]# pwd
/root/redhat
```

**pwd** provides you absolute path of the present working directory

### remove

rm

- Removes the file

```
[root@localhost ~]# rm anaconda-ks.cfg
rm: remove regular file 'anaconda-ks.cfg'? y
```

rm -rf

- Removes file forcefully without confirmation

```
[root@localhost ~]# rm -rf file1
```

### Wild Card \*

Wild card

```
[root@localhost ~]# rm -rf fi*
[root@localhost ~]# ls
folder1 folder2 folder3 folder4 redhat
[root@localhost ~]# rm -rf fo*
[root@localhost ~]# ls
Redhat
```

Removing folder

```
[root@localhost ~]# rm folder1
rm: cannot remove 'folder1': Is a directory < --- Folder has delete protection
```

```
[root@localhost ~]# rm -rf folder1/
[root@localhost ~]# ls
```

-rf – recursively and forcefully

Remove hidden files and folders

```
[root@localhost ~]# ls -a
. .bash_history .bash_profile .cshrc .tcshrc
.. .bash_logout .bashrc .file5
```

```
[root@localhost ~]# rm -rf .*
rm: refusing to remove '.' or '..' directory: skipping '.' < ---this will not be removed
rm: refusing to remove '.' or '..' directory: skipping '..' < ---this will not be removed
[root@localhost ~]# ls -a
```

. ..



## copy

cp

- Copy files and folders to specified location
- You can use absolute and relative path to copy

```
[root@localhost ~]# mkdir -p redhat/whitehat/blackhat
[root@localhost ~]# tree
```

```
.
├── file1
├── file2
└── redhat
    ├── whitehat
    └── blackhat
```

3 directories, 2 files

```
[root@localhost ~]# cp file1 redhat/whitehat/blackhat/
[root@localhost ~]# tree
```

```
.
├── file1
├── file2
└── redhat
    ├── whitehat
    └── blackhat
        └── file1
```

3 directories, 3 files

cp file1 redhat/whitehat/blackhat/

Command	source	destination
cp	File1	redhat/whitehat/blackhat/

cp file2 /root/redhat/whitehat/  
- Copy using absolute path

```
[root@localhost ~]# cp file2 /root/redhat/whitehat/
```

```
[root@localhost ~]# tree
```

```
.
```



```
├─ file1
├─ file2
└─ redhat
    └─ whitehat
        ├── blackhat
        │   └─ file1
        └─ file2
```

10-11-2020

<https://www.youtube.com/watch?v=kluWB4pAuns>

```
-bash-4.2# cp /etc/skel/.b* /root
```

```
cp /etc/skel/.b* .
```

```
[root@localhost ~]# ls -a
```

```
. .bash_history .bash_profile file1 redhat
```

```
.. .bash_logout .bashrc file2
```

```
[root@localhost ~]# tree
```

```
.
└─ redhat
    └─ whitehat
        ├── blackhat
        │   └─ file1
        └─ file2
```

Copy files from foreign directory

```
[root@localhost ~]# cp redhat/whitehat/file2 .
```

< ---using relative path

```
[root@localhost ~]# ls
```

```
file2 redhat
```

```
[root@localhost ~]# cp /root/redhat/whitehat/blackhat/file1 /root
```

< ---using absolute path

```
[root@localhost ~]# ls
```

```
file1 file2 redhat
```

```
[root@localhost ~]# cd redhat/whitehat/
```



```
[root@localhost whitehat]# cp file2 ../..
[root@localhost whitehat]# cd
```

< ---Using relative path

```
[root@localhost ~]# ls
file1 file2 redhat
```

### Copy directory

```
[root@localhost ~]# cp -rf redhat ibm
```

< --- -rf is needed for directory, recursively, force

```
[root@localhost ~]# ls
file1 file2 ibm redhat
[root@localhost ~]# tree
```

```
.
├── file1
├── file2
├── ibm
│   ├── whitehat
│   │   ├── blackhat
│   │   │   ├── file1
│   │   │   └── file2
│   └── redhat
│       ├── whitehat
│       │   ├── blackhat
│       │   │   ├── file1
│       │   └── file2
```

6 directories, 6 files

### Copy directory into another directory

```
[root@localhost ~]# mkdir archive
[root@localhost ~]# cp -rf ibm archive
[root@localhost ~]# ls -l archive/
total 0
drwxr-xr-x. 3 root root 22 Oct 11 15:59 ibm
[root@localhost ~]# ls archive/
ibm
[root@localhost ~]# cd archive/
[root@localhost archive]# ls
ibm
```

### Move

#### Moving file

```
[root@localhost ~]# ls
archive file1 file2 ibm redhat
[root@localhost ~]# mv file1 archive
```

Command	Source	Destination
mv	File1	archive

```
[root@localhost ~]# ls
archive file2 ibm redhat
[root@localhost ~]# cd archive/
[root@localhost archive]# ls
file1 ibm
```

#### Moving directory

```
[root@localhost archive]# cd
[root@localhost ~]# mv -f redhat archive
```

Command	Source	Destination
mv -f	redhat	archive

```
[root@localhost ~]# ls
archive file2 ibm
```

### Rename

#### Renaming file

```
[root@localhost ~]# mv file2 xfile
```

Command	Old name	New name
mv	file2	xfile

```
[root@localhost ~]# ls
archive ibm xfile
```

#### Renaming directory

```
[root@localhost ~]# mv ibm aws
```

Command	Old name	New name
mv	lbn	aws

```
[root@localhost ~]# ls
archive aws xfile
```

### man

man

```
[root@localhost ~]# man
What manual page do you want?
```

man - an interface to the on-line reference manuals

### echo

echo

- Repeats after the command and displays on screen

```
[root@localhost ~]# echo
```

```
[root@localhost ~]# echo this is linux course
this is linux course
```

```
[root@localhost ~]# echo this is linux course and I am enjoying this course
this is linux course and I am enjoying this course
```

### Redirectors

Redirectors

0<	Standard input
1>	Standard out put  echo this is linux course and I am enjoying this course 1> file1





2>

Standard error

lkskfs! 2> file2

1>

[root@localhost ~]# echo this is linux course 1> file1

Command	Content	Redirector – output	File name
Echo	this is linux course	1>	File1

0<

[root@localhost ~]# cat 0< file1      < --- 0< is a input redirection  
this is linux course

Command	Redirector – input	File name
Cat	0<	File1

[root@localhost ~]# cat < file1      < --- < is a input redirection  
this is linux course

[root@localhost ~]# cat file1      < --- is a input redirection  
this is linux course

final word: you don't really need to specify 0< or <, the system will automatically read the file

2>

- This will catch only the errors and redirects to the file
- You can also redirect errors to **/dev/null** – discarded location, not retrievable

[root@localhost ~]# dfkjlks  
-bash: dfkjlks: command not found

```
[root@localhost ~]# dfkjlks 2>/dev/null
```

## cat

cat – concatenate

- Most basic use is to read a file

Read the file

```
[root@localhost ~]# cat file1  
this is linux course
```

read **multiple** files at the same time

```
[root@localhost ~]# cat file1 file2  
this is linux course  
ls: cannot access nothing: No such file or directory
```

redirect the output another file

```
[root@localhost ~]# cat file1 file2 > file3  
file if does not exists
```

< --- redirects using >, over writes existing content also creates new

```
[root@localhost ~]# cat file3  
this is linux course  
ls: cannot access nothing: No such file or directory
```

Add to

```
[root@localhost ~]# cat file1 file2 >> file3  
[root@localhost ~]# cat file3  
this is linux course  
ls: cannot access nothing: No such file or directory  
this is linux course  
ls: cannot access nothing: No such file or directory
```

< --- user double >> to add to file

Enter into quick edit mode

```
[root@localhost ~]# cat > file4  
This is line1  
this is line2  
this is line3
```

<--- over rides the content, also create new file if it does not exists

```
[root@localhost ~]# cat file4
```

```
This is line1
```

```
this is line2
```

```
this is line3
```

Add additional lines

```
[root@localhost ~]# cat >> file4
```

< ---add additional lines

```
this is line4
```

```
this is line5
```

```
[root@localhost ~]# cat file4
```

```
This is line1
```

```
this is line2
```

```
this is line3
```

```
this is line4
```

```
this is line5
```

## grep

grep

- Filters the line with matching word in it

```
[root@localhost ~]# cat file4
```

```
This is line1
```

```
this is line2
```

```
this is line3
```

```
this is line4
```

```
this is line5
```

```
This is Linux
```

```
This is Redhat Linux
```

```
This is linux course
```

```
this is interesting
```

```
[root@localhost ~]# cat file4 | grep linux
```

< ---greps match, case sensitive

```
This is linux course
```

```
[root@localhost ~]# cat file4 | grep -i linux
```

< ---ignores the case

```
This is Linux
```

```
This is Redhat Linux
```

```
This is linux course
```

You can use grep directly without cat

```
[root@localhost ~]# grep -i linux file4
```

This is Linux

This is Redhat Linux

This is linux course

## pipe

|

- Pipe is used for running multiple commands
- 
- Primary command | secondary command | third command

```
[root@localhost ~]# cat file4
```

This is line1

this is line2

this is line3

this is line4

this is line5

This is Linux

This is Redhat Linux

This is linux course

this is interesting

```
[root@localhost ~]# cat file4 | grep -i linux
```

This is Linux

This is Redhat Linux

This is linux course

```
[root@localhost ~]# cat file4 | grep -i linux | grep Red
```

This is Redhat Linux

Multiple word search

```
[root@localhost ~]# cat file4 | grep -i 'linux\|line4'
```

this is line4

This is Linux

This is Redhat Linux

This is linux course

## wc

wc

- This is a word count
- 

```
[root@localhost ~]# wc file4
9 29 146 file4
```

Number of lines	Words	Characters includes spaces	Name of the file
9	29	146	File4

```
[root@localhost ~]# cat file4
```

```
This is line1
this is line2
this is line3
this is line4
this is line5
This is Linux
This is Redhat Linux
This is linux course
this is interesting
```

```
[root@localhost ~]# wc -l file4    < --- -l is for lines
9 file4
```

```
[root@localhost ~]# wc -c file4    < --- -c is for characters
146 file4
```

```
[root@localhost ~]# wc -w file4    < --- -w is for words
29 file4
```

## head

Head

- Read top ten lines of the file

```
[root@localhost ~]# head file4
```

```
This is line1
this is line2
this is line3
this is line4
this is line5
This is Linux
This is Redhat Linux
This is linux course
```

this is interesting  
this is line10

```
[root@localhost ~]# head -5 file4
[root@localhost ~]# head -12 file4
[root@localhost ~]# head -100 error.log
```

## tail

Tail

- This command reads bottom ten lines

```
[root@localhost ~]# tail file4
this is line5
This is Linux
This is Redhat Linux
This is linux course
this is interesting
this is line10
this is line11
this is line12
this is line13
this is line14
```

```
[root@localhost ~]# tail -5 file4
[root@localhost ~]# tail -12 file4
[root@localhost ~]# tail -100 error.log
```

## more

more

- Primary use is to read huge file
- This will load the entire file into memory
- Use 'enter' on keyboard to scroll line by line
- Use 'spacebar' on keyboard to scroll page by page
- 'q' to quit the file
- Not good when memory is low

```
/var/log
[root@localhost log]# more messages
```

## less

### Less

- This is similar to more command
- But it will only load the output as needed into memory
- Use 'enter' on keyboard to scroll line by line
- Use 'spacebar' on keyboard to scroll page by page
- 'q' to quit the file
- good when memory is low

/var/log

[root@localhost log]# less messages

## sort

### Sort

- sorts the file alphabetically

[root@localhost ~]# sort file5

[root@localhost ~]# sort -n file5 < --- sorts using numbers

## uniq

### Uniq

- removes duplicates
- 

[root@localhost ~]# cat > file5

apple

apple

berry

berry

strawberry

pineapple

pineapple

mango

[root@localhost ~]# uniq file5

apple

berry

strawberry

pineapple

mango

## date

### Date

```
[root@localhost ~]# date
Sat Oct 17 15:25:19 EDT 2020
```

### cal

Cal

```
[root@localhost ~]# cal
```

October 2020

Su Mo Tu We Th Fr Sa

1 2 3

4 5 6 7 8 9 10

11 12 13 14 15 16 17

18 19 20 21 22 23 24

25 26 27 28 29 30 31

```
[root@localhost ~]# cal 12 1969
```

December 1969

Su Mo Tu We Th Fr Sa

1 2 3 4 5 6

7 8 9 10 11 12 13

14 15 16 17 18 19 20

21 22 23 24 25 26 27

28 29 30 31

### who

who

- Displays users logged into system

-

```
[zafar@assignment01 ~]$ who
```

zafar pts/0 2020-10-17 15:29 (73.110.42.133)

adil pts/1 2020-10-17 15:34 (162-226-246-197.lightspeed.cicril.sbcglobal.net)

zafar pts/2 2020-10-17 15:34 (73.110.42.133)

### last

last

- Displays the login and reboot

```
[root@localhost ~]# last
```

**root** tty1 Sat Oct 17 14:59 sti

root pts/0 192.168.56.1 Sat Oct 17 14:59 sti

**reboot** system boot 3.10.0-1062.el7. Sat Oct 17 14:57 - 15:

### free





## Free -h

- Displays the System RAM and SWAP[virtual memory] information

```
[root@localhost ~]# free -h
      total        used        free      shared  buff/cache   available
Mem:    991M        142M        744M        6.8M        103M        723M
Swap:    1.6G          0B        1.6G
```

## du

### du

- Disk usage information of the file or folder

```
[root@localhost ~]# du -h file4
4.0K  file4
```

## top

### Top

- Displays the real time information about the system
- Cpu, memory, processes

```
top - 15:51:08 up 53 min,  2 users,  load average: 0.00, 0.01, 0.05
Tasks: 99 total,  2 running, 97 sleeping,  0 stopped,  0 zombie
%Cpu(s): 0.3 us, 0.7 sy, 0.0 ni, 99.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 1014824 total, 761684 free, 146624 used, 106516 buff/cache
KiB Swap: 1679356 total, 1679356 free,  0 used. 740012 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1868	root	20	0	161888	2172	1544	R	0.7	0.2	0:00.34	top
25	root	20	0	0	0	0	S	0.3	0.0	0:04.63	kworker/0:1
1	root	20	0	127964	6536	4108	S	0.0	0.6	0:01.97	systemd

## lscpu

### Lscpu

- List the number of CPU system has

```
[root@assignment01 ~]# lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:             Little Endian
CPU(s):                 2
```

## which

Which

- Displays if the command or package is installed

```
[root@localhost ~]# which tree
/usr/bin/tree
```

```
[root@localhost ~]# which firefox < ---Not installed
/usr/bin/which: no firefox in (/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/root/.local/bin:/root/bin)
```

## gzip

Gzip

- Zips and compresses the file
- It adds the extension with .gz

```
[root@localhost ~]# gzip error.log
```

```
[root@localhost ~]# du -h error.log.gz
4.0K  error.log.gz
```

## gunzip

Gunzip

- Unzips and uncompresses the file

```
[root@localhost ~]# gunzip error.log.gz
[root@localhost ~]# ls -l
total 92
-rw-r--r--. 1 root root 72295 Oct 11 17:30 error.log
```

## tar

Tar

- It saves the folder to single file
- It does not compress the tar file
- It keeps the original folder and creates a new file

```
[root@localhost ~]# mkdir folder1
```

```
[root@localhost folder1]# ls -lh
```

total 4.6M

```
-rw-----. 1 root root 4.6M Oct 17 16:12 messages
[root@localhost folder1]# cp messages messages2
[root@localhost folder1]# cp messages messages4
[root@localhost folder1]# cp messages messages3
[root@localhost folder1]# cp messages messages5
```

```
[root@localhost ~]# du -h folder1/
23M  folder1/
```

```
[root@localhost ~]# tar -cvf folder1.tar folder1
folder1/
folder1/messages
folder1/messages2
folder1/messages4
folder1/messages3
folder1/messages5
```

-cvf for the folder

```
drwxr-xr-x. 2 root root    90 Oct 17 16:13 folder1
-rw-r--r--. 1 root root 24074240 Oct 17 16:18 folder1.tar
```

- This makes copying or moving folder easy
- This keeps the data integrity of the content, especially copied over network

\*\*\* you can used gzip and gunzip to compress and uncompress the folder

```
[root@localhost ~]# gzip folder1.tar
```

```
[root@localhost ~]# du -h fo*
23M  folder1
1.3M folder1.tar.gz
```

## stat

Stat

- Displays detailed information

```
[root@localhost ~]# stat file1
File: 'file1'
Size: 21      Blocks: 8      IO Block: 4096  regular file
Device: fd00h/64768d  Inode: 16797776  Links: 1
Access: (0644/-rw-r--r--)  Uid: (  0/  root)  Gid: (  0/  root)
```



Context: unconfined\_u:object\_r:admin\_home\_t:s0

Access: 2020-10-17 16:26:24.332018946 -0400

Modify: 2020-10-11 16:37:25.730845836 -0400

Change: 2020-10-11 16:37:25.730845836 -0400

Birth: -

## inode

### Inode

- It is table on the disk holding the file information
- Owner of the file
- Group of the file
- Type of the file
- Permissions
- Date and time of the file modified and accessed
- Number of links
- Size of the file
- Block information

To find inode of a file

```
[root@localhost ~]# ls -li file1
```

```
16797776 file1
```

## Block Information

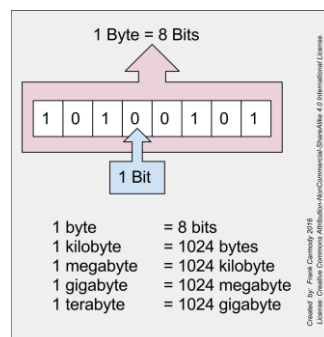
### Block information

One bit is bit = 1 bit

Eight bit is byte = 1 byte

Kilo bytes = 1024 = 1 kilo byte

4096 bytes = 4kb



4096 = 4kb minimum useable



File Size	Disk Space used 4K
0	4 kb
1 kb	4kb
2 kb	4 kb
4 kb	4 kb
6 kb	8 kb
13 kb	16 kb
21	24 kb



## find

### Find

- It finds the files in specified directory
- You can use absolute or relative path
- You can use name or inode number

### Using name

```
[root@localhost ~]# find / -name file1
/root/file1
/root/folder1/file1
```

```
[root@localhost ~]# find / -inum 16797776 < --- Using inum
/root/file1
```