

### System/OS related commands

#### To know the OS type:

```
$ uname -o
```

#### To check the kernel version:

```
$ uname -r
```

#### To list the system hardware:

```
$ lshw
```

#### To check system memory:

```
$ free -h
```

**Free memory cache, dentries and inode (with root):**

```
$ echo 3 > /proc/sys/vm/drop_caches
```

#### To search packages for installation:

```
$ apt search <package name>
```

e.g.:

```
$ apt search python -boto
```

#### To uninstall package:

```
$ sudo apt-get remove <package name>
```

#### To mount the volume:

(create the directory first to mount volume)

```
$ mkdir -p <directory path> e.g. /mount -vol
```

```
$ sudo mount <src path> <above created dir path>
```

#### Find the file (search for a file):

```
$ find <dir path> -name <filename> -print
```

e.g. to find app.log in /var directory

```
$ find /var -name app.log -print
```

#### File the text string from a given directory:

```
$ grep -rIn <search text> <directory path>
```

### User admin Commands (cont)

#### To know the OS type:

```
$ sudo groupadd <group name>
```

#### To get the OS name, release, version:

```
$ cat /etc/os-release
```

#### To delete the existing group:

```
$ sudo groupdel <group name>
```

#### To get the CPU details:

```
$ lscpu
```

#### To check the virtual memory stats:

```
$ vmstat -S m
```

#### To print the process specific memory utilizations:

```
$ ps aux --sort --%mem
```

#### To installed package:

```
$ sudo apt-get install <package name>
```

#### Print the groups to which the current user is associated:

#### To list the mounted disk drives:

```
$ df -kh
```

#### To list biggest files from directory (biggest 5):

```
$ sudo du -a /dir/ | sort -n -r | head -n 5
```

#### Change the group name:

```
$ sudo groupmod -n <new group name> <old group name>
```

e.g. I want to change the groupname 'training' to 'cloudadmin'

#### Search the text string in a directory and print filename containing that string:

```
$ sudo groupmod -n cloudadmin training
```

```
$ find /var -type f -print | xargs grep <search text>
```

### User admin Commands

#### To know the group/user exists on the system:

```
$ getent group <group name>
```

```
$ getent passwd <user name>
```

#### Check user added or not into system:

```
$ id <user name>
```

e.g. \$ id clouduser1



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### Editor/Text manipulation commands

#### awk command for pattern scanning & processing:

1. Convert text from upper case to lower case

```
$ echo "SAMPLE TEXT" | awk '{print tolower($0)}'
```

2. Print the next word after found a pattern

e.g. print the next word after 'reach:' appear in syslog file

```
$ awk '{for( i=1 ;i< =NF ;i+ +)if($ i== " reach: " )print $ (i+ 1)}' syslog
```

3. Trim the white spaces

```
echo ' aws <command> help ' | awk '{gsub(/ ^ +| +$ /,"")}'
```

4. Print the selected columns from command output.

E.g. from df command interested in only filesystem and use % column data

```
$ df -kh |awk '{print $1 " " $5}'
```

5. use regex as a field separator,

e.g input field separator as / or = e.g.

```
$ awk -F"= |:" '{print $2}'
```

input text as 'dnscnf= /etc/resolv.conf' or 'dnscnf: /etc/resolv.conf' for both same command will work

### Editor/Text manipulation commands (cont)

#### cut, cutting out the sections from lines:

```
$ cut -d "delimiter" -f <field> <file.txt>
```

a) cut the line on space and print 1st to 4th field

```
$ echo "my phone number is 887389 3" | cut -d " " -f 1-4
```

b) change the delimiter space with column

```
$ echo $(cat /etc/passwd | cut -d ':' -f 1) | cut -d ' ' -f 1-2 --output
```

```
%
```

#### Sort is to sort file, records, lists etc:

a) sort file contents of text file (-r option to reverse)

```
$ sort file.txt
```

b) sort based on column number

```
$ df -kh | sort -k 5
```

# C

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### Editor/Text manipulation commands (cont)

**tee**, is a command which reads the standard input and write into standard output and also copy to file. This is used to redirect logs or data to a file:

- a) let we have two log files, file1.log & file2.log and we need to append file1.log to file2.log  
`$ cat file1.log | tee -a file2.log`
- b) redirect the command output to a log file  
`$ du --max-depth=1 -h | sort -hr 2>&1 | tee du.log`

### Network related commands (cont)

**rsync**, is used to copy files from one host to another host.

- a) copy file from remote host  
`rsync -avz user@remote:~/file1.log /usr/share/irpat h>`
- e.g. `$ scp id_rsa.pem rakesh @19 2.1 68.5 6.120:/home`
- b) copy local file to remote host  
`$ scp -i id_rsa.pem data.txt rakesh @19 2.1 68.5 6.120:/home`

### lsof, list open files by processes

- a) list open files by specific user  
`lsof -u <user name>` (check)
- b) find processes running on specific port  
`lsof -i :<port>`

### Network related commands

**nslookup**, Query internet domain name server

- a) find the IP from fqdn  
`$ nslookup google.com`
- b) check the fqdn from ip address  
`$ nslookup 172.21 7.1 67.174`

**netstat**, print the network stats, listening ports etc

- a) print all listening ports  
`$ netstat -plnt`
- b) check if server is listening on port 8080 or not  
`$ netstat -plnt | grep 8080`
- c) list stats of all ports  
`$ netstat -s`
- d) display pid of listening ports  
`$ netstat -pt`
- e) list network interfaces  
`$ netstat -i`

**curl ifconfig.co**, get the public ip of the machine

### ufw, manage firewall

- a) check firewall status  
`$ sudo ufw status`
- b) enable /disable firewall  
`$ sudo ufw enable /disable`



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### sed - stream editor

**Sed** - perform basic transformations on an input stream i.e. a file or a stream ~~input to the~~ pipeline.

**Example:** replace all occurrences of TCP to UDP in network.log file

```
$ sed 's/TCP /UDP/' network.log > modified-network.log
```

#### Common sed command line options

**-i** : edit in place i.e. `sed -i 's/TCP/UDP/' network.log`

**-n** <line number>**p** e.g. print on line no 30 from network.log `sed -n '30p' network.log`

**-e** : expression e.g. `sed -e 's/TCP/UDP/' network.log`

[ here 's' stand for substitute ]

#### Basic regular expression overview

**.** : (dot) matches any single character

**\*** : matches a sequence of zero or more instances e.g.

```
$ echo 'hostname = localhost.myappserver.com' | sed 's/localhost/myappserver/' *
```

**^** : indicates the beginning of the line

**\$** : indicates the end of the line

**[list]** or **[^list]** : matches any single char in a list. e.g. [1-9] matches any digit from 1 to 9

**\+** : As \*, matches any single or multiple instances of chars

**\?** : As \*, matches any zero or one instances of chars

**\{i\}** : matches exactly i sequences 'i' is between 0 to 255'

**\{i,\}** : matches more than or equal to i sequences

**regex1|regex2** : matches regular expression 1 or regular expression 2

**[a-z0-9A-z]** : matches any ASCII chars

#### Examples

# find and replace any os name with Ubuntu

e.g.

1.

input: osname: centOS7

output: osname: Ubuntu

2.

input: winOS: Windows-10

output: osname: Ubuntu

3.

input: MacOS:Mac10

output: osname: Ubuntu

Solution:

```
key=echo "<input string >" | cut -d " :" -f 1
```

```
echo "<input string" | sed -e 's/^\$key:\$.\/\$key: Ubuntu/g'
```

first store the key i.e. left side label

**^** - start of line

**\s\*** - zero or more space characters

**.\*** - any zero or multiple characters

### sed - stream editor (cont)

Extract the line containing IP address from a file

```
sed -n '/([0-9]{1,3}\.){3}[0-9]{1,3}/p' /etc/hosts
```

