Linux Important Commands

```
pwd
mkdir
ls
```

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extract files: `tar  -x… filename`
compress files: `tar -c... <foldername> <targetname>`

Directory Size
To know size of directory
`du -s -h directory_name`
-s: count silent
-h: to readable for human (in M or G)

If you want to check sizes of some subdirectories in a directory, you can use the following command
`cd /path/to/your/directory`
`du -s -h *` (or `du -sh` or `du -hs`)

but this command will list directories sizes with order of directories names. If you want to sort it descending order use:
`du -ks * | sort -nr | cut -f2 | xargs -d '\n' du -sh`

Disk Space
`df -h`

To make repartition for the disk spaces use gparted tool.

Clear terminal window
`clear`

Delete Directory
`rm -r directory_name`

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search

To search for a word: grep

```
grep 'word' filename
grep 'word' file1 file2 file3
grep 'string1 string2'  filename
cat otherfile | grep 'something'
command | grep 'something'
command option1 | grep 'data'
grep --color 'data' fileName
```

To search for a file

```
find / -type f -name "file_name"
```

where / searches for the whole disk, “” write file name inside.

To know if a package is installed or not

```
ldconfig -p | grep libraryname
```

Copy

** To copy a file

```
cp /path/to/original/file /path/to/copied/file
```

** To copy a directory

```
cp -r /path/to/original/directory /path/to/copied/directory
```

** To copy a target from one machine to another: scp

Copy the file "foobar.txt" from a remote host to the local host

$ `scp your_username@remotehost.edu:foobar.txt /some/local/directory`

Copy the file "foobar.txt" from the local host to a remote host

$ `scp foobar.txt your_username@remotehost.edu:/some/remote/directory`

Copy the directory "foo" from the local host to a remote host's directory "bar"

$ `scp -r foo your_username@remotehost.edu:/some/remote/directory/bar`

Copying the files "foo.txt" and "bar.txt" from the local host to your home directory on the remote host

$ `scp foo.txt bar.txt your_username@remotehost.edu:~`

Copy the file "foobar.txt" from remote host "rh1.edu" to remote host "rh2.edu"

```
$ scp your_username@rh1.edu:/some/remote/directory/foobar.txt \
your_username@rh2.edu:/some/remote/directory/
```

Add a path permanently to **PATH environment variables**

```
sudo gedit /etc/environment
```

add your path in that file:
PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/path/to/your/new/bin"
then restart your machine.

This can be defined also in .bashrc file or .profile or in etc/profile

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Multiple Execution

```
A; B    Run A and then B, regardless of success of A
A && B  Run B if A succeeded
A || B  Run B if A failed
A &     Run A in background
```

Permissions
Type ls –l to list the content of current directory, the output should be listed like that
total 24
-rwxrwxrwx 1 ali Projectmem 293 Mar 6 14:53 compileTool.sh
drwxr-xr-x 2 ali Projectmem 4096 Oct 17 2016 Desktop
drwxr-xr-x 3 ali Projectmem 4096 Mar 17 16:22 gitprj
-rwxrwxrwx 1 ali Projectmem 82 Feb 22 11:06 OpenWorkSpace.sh
-rwxrwxrwx 1 ali Projectmem 240 Mar 7 08:09 RunLicenses.csh
drwxr-xr-x 2 ali Projectmem 4096 Oct 19 2016 Test

r refers to read.
w refers to write.
x refers to execute.
d refers to directory.

In this example “compileTool.sh” has rwx permission for the user “ali” and rwx permission for anyone in the group “Projectmem” and rwx permission for anyone using the machine.
This is denoted in binary as 111 for “ali”, 111 for “Projectmem”, 111 for anyone.
In decimal we can say it has 777.
Gitprj directory in this example has permission 775.

User & Group Accounts

To know current user:
whoami

To create user:
sudo adduser NewUser
sudo passwd NewUser

To give the user "foo" unlimited access to root privileges, edit /etc/sudoers and add the line
```
foo   ALL = (ALL:ALL) ALL
```

To give access without passwords
```
foo   ALL = NOPASSWD: ALL
```

To switch between users accounts:
su – NewUser

To return to the first user:
Exit

To switch to root user
Sudo su -

To create new group
Sudo groupadd NewGroup

To include user in a group as his primary group
Sudo usermod –g GroupName UserName

To include user in a group as his secondary group
Sudo usermod –a –G GroupName UserName
Note that you have to log off and login again to see effect

Networking
IP Address can be assigned dynamically or statically.
For dynamic IP
vi /etc/network/interfaces
add the following line for the target interface
```
auto eth0
iface eth0 inet dhcp
```

For static IP
vi /etc/network/interfaces
add the following line for the target interface
```
auto eth0
```

```
iface eth0 inet static
address 192.168.1.102
netmask 255.255.255.0
gateway 192.168.1.10
```

These settings will become active after rebooting or restarting the service
sudo /etc/init.d/networking restart

EOF