
ondia


Linux Plus for
AWS and
DevOps

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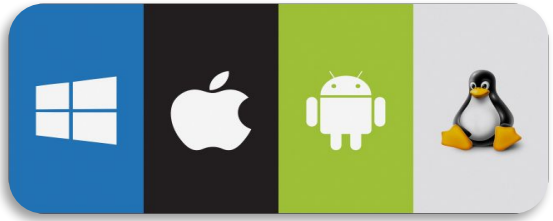
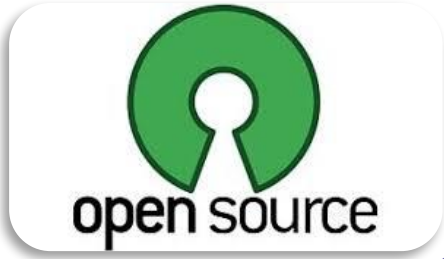
What We Learn

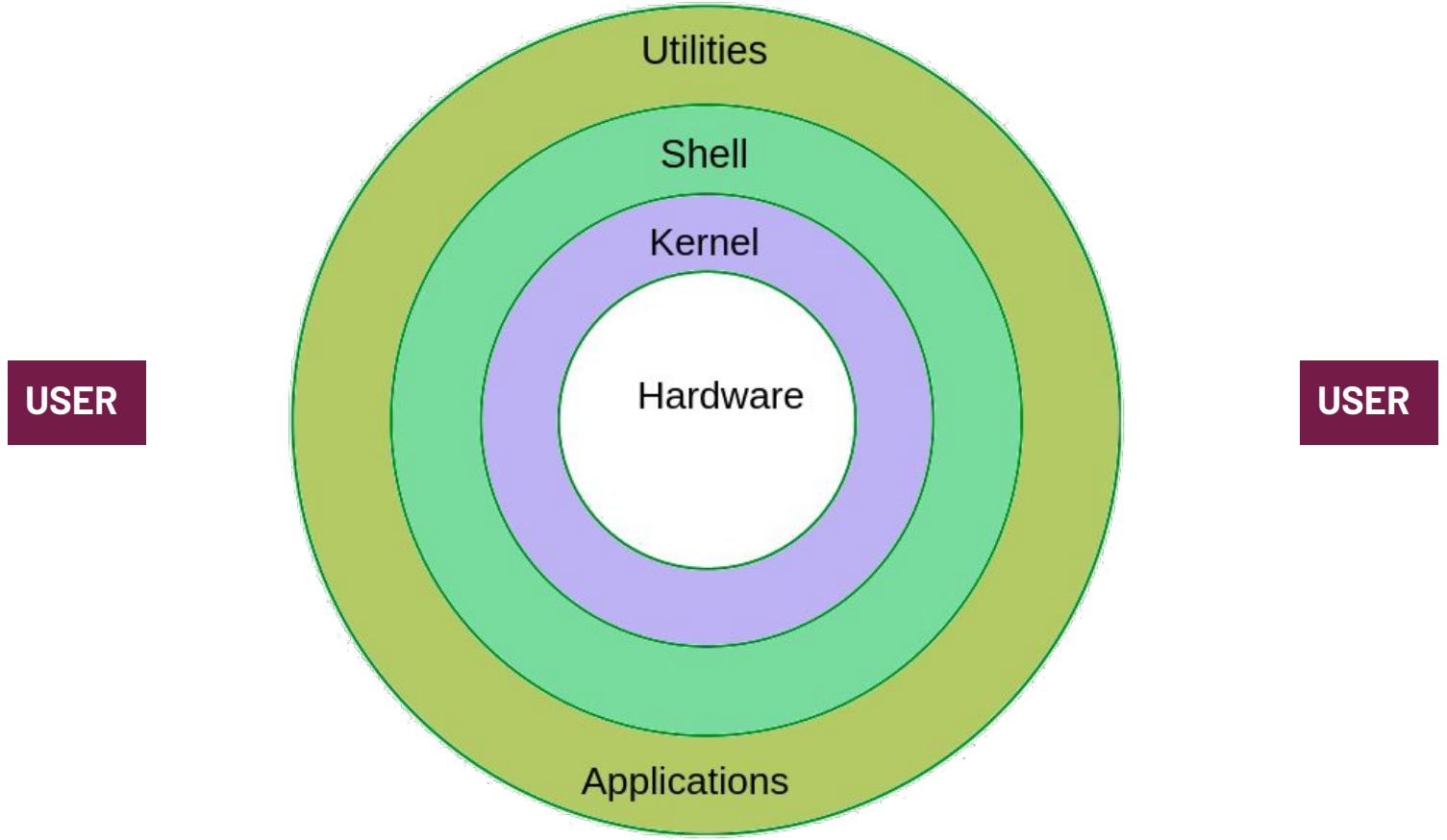
What is Linux?

- Free
- Open-Source
- OS





Components of Linux



What is Linux Distributions

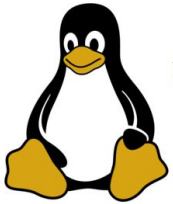
Popular Linux Distributions

1

Using Linux on Different Platforms


Activities
Files
Sep 13 16:51
eoan
Trash
Home
yaru
Recent
Starred
Home
Desktop
Documents
Downloads
Music
Pictures
Videos
Trash
Other Locations
build
build-helpers
communith
eme-compat
debian
docs
gnome-shell
gtk
Desktop
Documents
Downloads
Music
Pictures
Public
snap
Templates
Videos
yaru
yaya
gnome-shell-extensio...
examples.desktop
WSL
Computer
Power Statistics
Home
Printers
Accessibility
Screensaver
Calendar
Screenshot
Onboard
Pix

Ubuntu on WSL



WSL

Windows 10

Linux

Linux Alternatives

Linux distros on Virtual Machines

MacOS / Windows

https://www.virtualbox.org/wiki/Downloads

ORACLE VM VirtualBox

VMware Player

https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html

Linux Alternatives

Linux distros on Virtual Machines

https://ubuntu.com/download/desktop

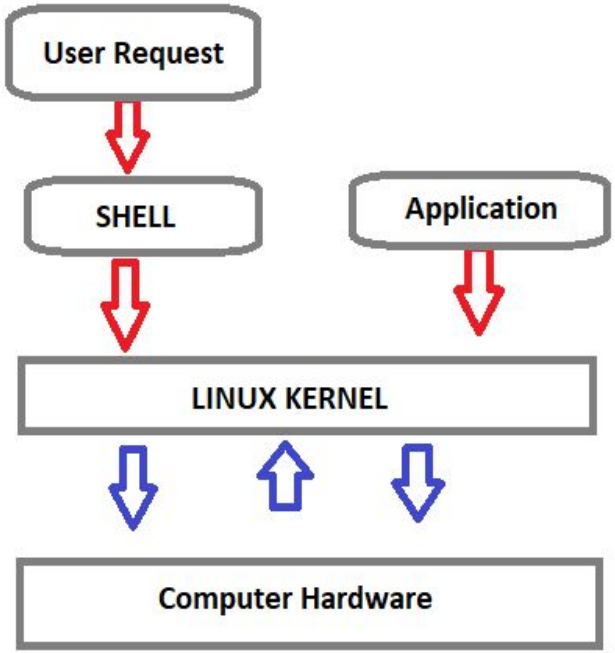
https://www.debian.org/download

VMware Player

What is SHELL?

Shell is **a program** that **receives** the user's **commands** and **gives** them to the **operating system to process** and displays the output.

Bash (**B**ourne **A**gain **SH**ell) is an **enhanced version** of Steve Bourne's first Unix shell application, and serves as the shell program on most Linux systems.



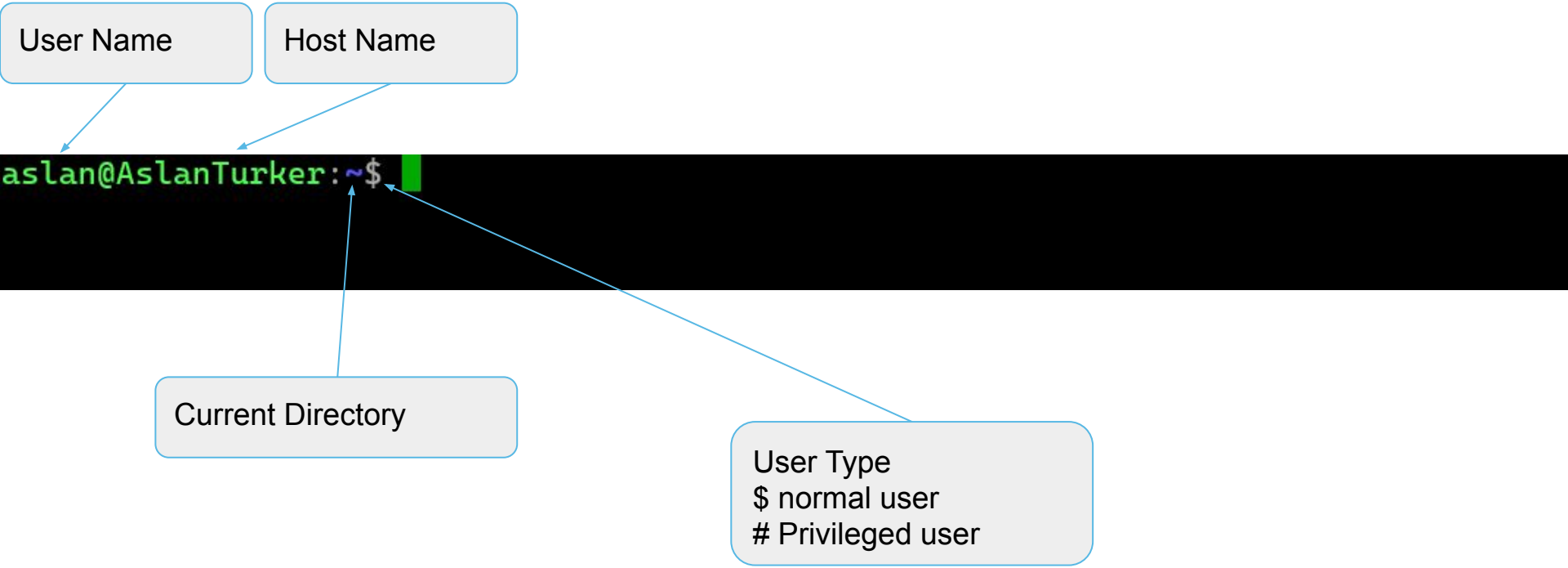
What is SHELL?

- The standard Linux shell is both a **command-line interpreter** and a **programming language.**
- The command prompt for Linux generally shows the current **user**, the current **host**, and the appropriate **directory**.
- At the end of the prompt list, the **$(dollar sign)** signifies the current user being unprivileged, and the device is ready to receive feedback.
- The input is sent for parsing and execution to the interpreter.

$ - you are normal user, you don't have all rights to execute

(root) you are super user. You have all the right to execute

Command Prompt



Basic Shell Commands

COMMAND	DESCRIPTION
pwd	show current path
ls	lists directory contents
cd	change (current) directory
mkdir	create a new directory
rmdir	delete an empty directory
touch	create a file
rm	delete a file

Basic Shell Commands

COMMAND	DESCRIPTION
cp	copy a file to another location
mv	move a file to another location
cat	show file contents
echo	print message to screen
clear	clear the terminal screen

*** To copy a directory on Linux, you have to execute the “cp” command with the “-R” option for recursive and specify the source and destination directories to be copied

cp -R <source_folder> <dest_folder>

Navigating File System

- When navigating a Linux filesystem, there are a few important commands:

  “cd”
  “pwd”
  “ls”

- **"cd"** stands for change directory. It is the primary command for moving you around the filesystem.
- **“pwd”** stands for print working directory. It tells you where you current location is.
- **“ls”** stands for list. It lists all the directories/files within a current working directory
- Using of **TAB** key to auto-complete

Linux File or Directory Properties

Each file or directory in Linux has detail information or properties

Type	# of Links	Owner	Group	Size	Month	Day	Time	Name
drwxr-xr-x.	21	root	root	4096	Feb	27	13:33	var
lrwxrwxrwx.	1	root	root	7	Feb	27	13:15	bin
-rw-r--r--	1	root	root	0	Mar	2	11:15	testfile

The second column is the number of hard links to the file. For a directory, the number of hard links is the number of immediate subdirectories it has plus its parent directory and itself

** For directories, it represents the number of subdirectories within that directory, including the directory itself (.) and its parent directory (..). By default, this number is 2.

What is Root?

- There are 3 types of root on Linux system

1. Root account: root is an account or a username on Linux machine and it is the most powerful account which has access to all commands and files

2. Root as /: the very first directory in Linux is also referred as root directory

3. Root home directory: the root user account also has a directory located in /root which is called root home directory

File System Paths

- There are two paths to navigate to a filesystem
  - ➢ Absolute Path
  - ➢ Relative Path

- An absolute path always begins with a "/". This indicates that the path starts at the root directory. An example of an absolute path is

  cd /var/log/httpd

- A relative path does not begin with a "/". It identifies a location relative to your current position. An example of a relative path is:

  cd /var
  cd log
  cd httpd


Kahoot!

2

Getting Help

Table of Contents

2-1

Man Pages

Man Pages

A man page (short for manual page) is a form of **software documentation** usually **found on a Unix or Unix-like** operating system.

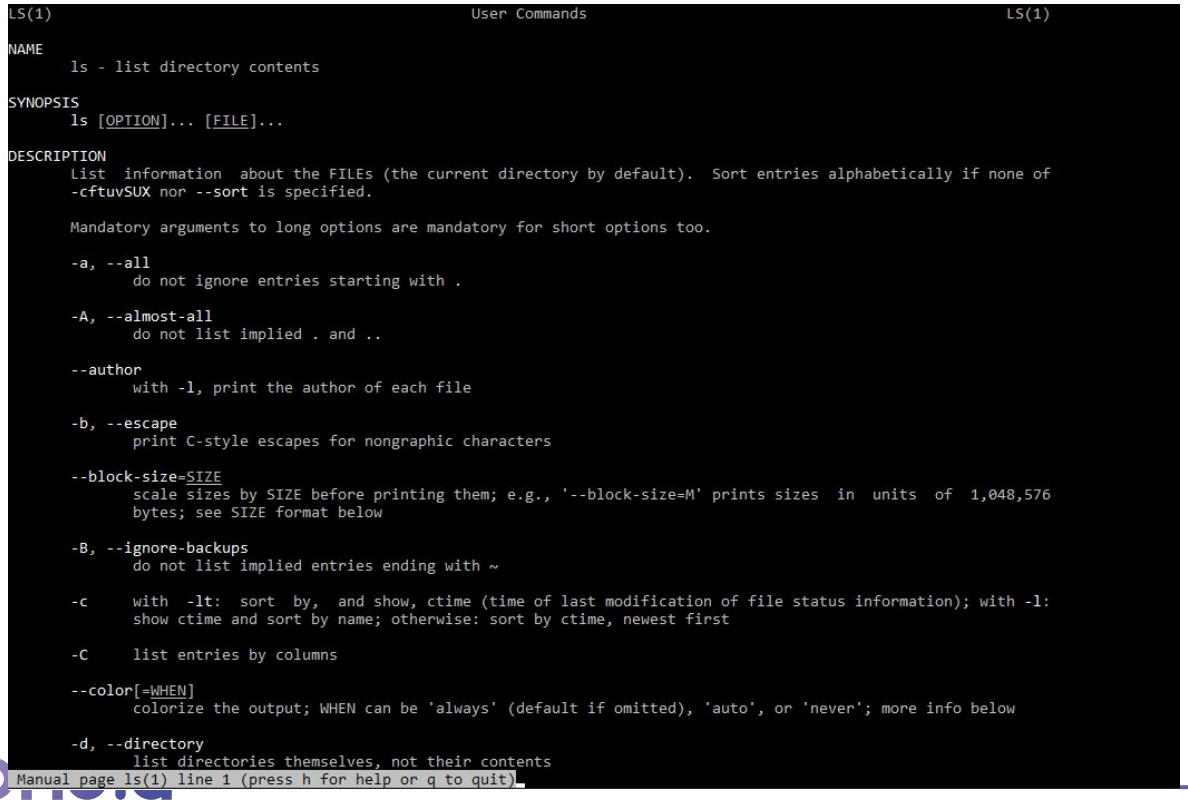
If we **install a package** to do some task, the **man page** for that package will typically be **installed** at the same time. This gives us the ability to take a look at that documentation and make sure that we're using it in a manner consistent with its design.

The man page for a particular command is invoked by **man command.**

man <command>

Man Pages

$ man ls



NAME
Program or Function name(s) followed by descriptions of functionality.

SYNOPSIS
A short overview of available options

DESCRIPTION
Detailed information about arguments and options.

2-2

Info Pages

Info Pages

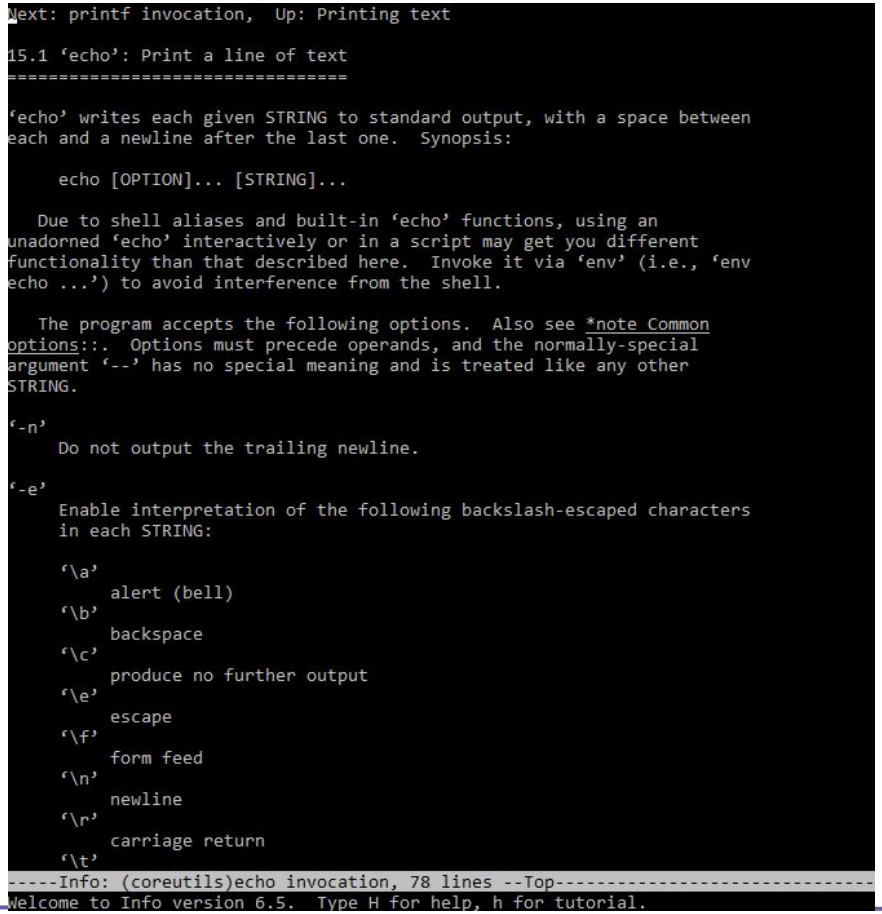
Info pages are **additional documentation** with more robust capability **in detail**. Info pages normally provide more detailed information about a command than its respective man page.

info <command>

The info page for a particular command is invoked by **info command.**

Info Pages

$ info echo



2-3

whatis command

whatis command

whatis display one-line manual page names.

```
aslan@AslanTurker:~$ whatis ls
ls (1)                   - list directory contents
aslan@AslanTurker:~$ whatis pwd
pwd (1)                  - print name of current/working directory
aslan@AslanTurker:~$ whatis mv
mv (1)                   - move (rename) files
aslan@AslanTurker:~$
```

2-4 apropos command

apropos command

apropos search the manual page **names** and **descriptions**.

```
aslan@AslanTurker:~$ apropos pwd
pwd (1)              - print name of current/working directory
pwdx (1)             - report current working directory of a process
unix_chkpwd (8)      - Helper binary that verifies the password of the current user
aslan@AslanTurker:~$
```

2-5

--help Option

--help Option

--help gives a **short explanation** about how to use the command and a **list of available options**.

```
aslan@AslanTurker:~$ ls --help
Usage: ls [OPTION]... [FILE]...
List information about the FILEs (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.
  -a, --all                  do not ignore entries starting with .
  -A, --almost-all           do not list implied . and ..
      --author               with -l, print the author of each file
  -b, --escape               print C-style escapes for nongraphic characters
      --block-size=SIZE      with -l, scale sizes by SIZE when printing them;
                             e.g., '--block-size=M'; see SIZE format below

  -B, --ignore-backups       do not list implied entries ending with ~
  -c                         with -lt: sort by, and show, ctime (time of last
                             change of file status information);
                             with -l: show ctime and sort by name;
                             otherwise: sort by ctime, newest first
```

3

Text Editors

3-1

Vi/Vim Editor

Vi/Vim Editor

- Vi is a text editor **originally created for the Unix** operating system.
- Vim (Vi IMproved) as its name suggests, is a **clone of Vi** and offers more features than Vi.

The reasons why we should use Vi/Vim editor.

- Vim is available on most linux distro's.
- Vim Uses Less Amount of System Resources.
- Vim Supports All Programming Languages and File Formats
- Vim is Very Popular in the Linux World

Vi/Vim Editor

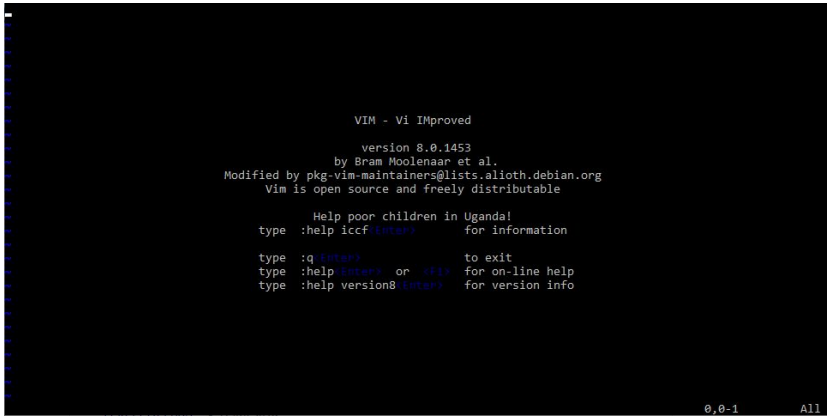
- Vim is a powerful text editor used in CLI (command line interface).
- Vim is an editor to create or edit a text file.

Command Mode

- When you start Vim, you are **placed in Command mode**. In this mode, you can move across the screen, delete text and copy text.

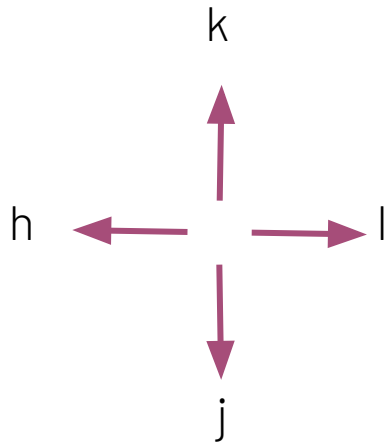
Insert Mode

- You cannot write text in command mode. To write text into a file, there is a dedicated insert mode. When you want to write something on a file, you must enter the insert mode.



Vi/Vim Editor

Vim Command	Description
i	Enter insert mode
Esc	Enter command mode
x or Del	Delete a character
X	Delete character is backspace mode
u	Undo changes
Ctrl + r	Redo changes
yy	Copy a line
dd	Delete a line
p	Paste the content of the buffer
o	insert a blank line under the current cursor position.
:%s/foo/bar/g	Search and replace all occurrences
Esc + :w	Save changes
Esc + :wq or Esc + ZZ	Save and quit Vim



3-2

Nano Editor

Nano Editor

GNU nano is a small and friendly text editor.
Besides basic text editing, nano offers features like:

- undo/redo
- syntax coloring
- interactive search-and-replace
- auto-indentation
- line numbers
- word completion

Nano Editor

- Unlike vi, nano is a **modeless editor**, which means that you can start typing and editing the text immediately after opening the file.
- To open an existing file or to create a new file, type nano followed by the file name.

```
$ nano filename
```

Nano Command	Meaning
Ctrl G	Get Help
Ctrl X	Exit
Ctrl O	Write Out
Ctrl R	Read File
Ctrl W	Where Is
Ctrl \	Replace
Ctrl K	Cut Text
Ctrl U	Uncut Text
Ctrl J	Justify
Ctrl T	To Spell
Ctrl C	Cur Pos
Alt U	Undo
Alt E	Redo

4-1

Files

Files

On a Linux system, everything is a file.

A Linux system makes no difference between a file and a directory, since a directory is just a file containing names of other files.

The tree of the file system starts at the trunk or slash, indicated by a forward slash (/). This directory, containing all underlying directories and files, is also called the root directory or “the root” of the file system.

Introduction to Filesystem

What is a Filesystem?

It is a system used by an operating system to manage files. The system controls how data is saved or retrieved

Introduction to Filesystem

What is a Filesystem?

It is a system used by an operating system to manage files. The system controls how data is saved or retrieved

Introduction to Filesystem

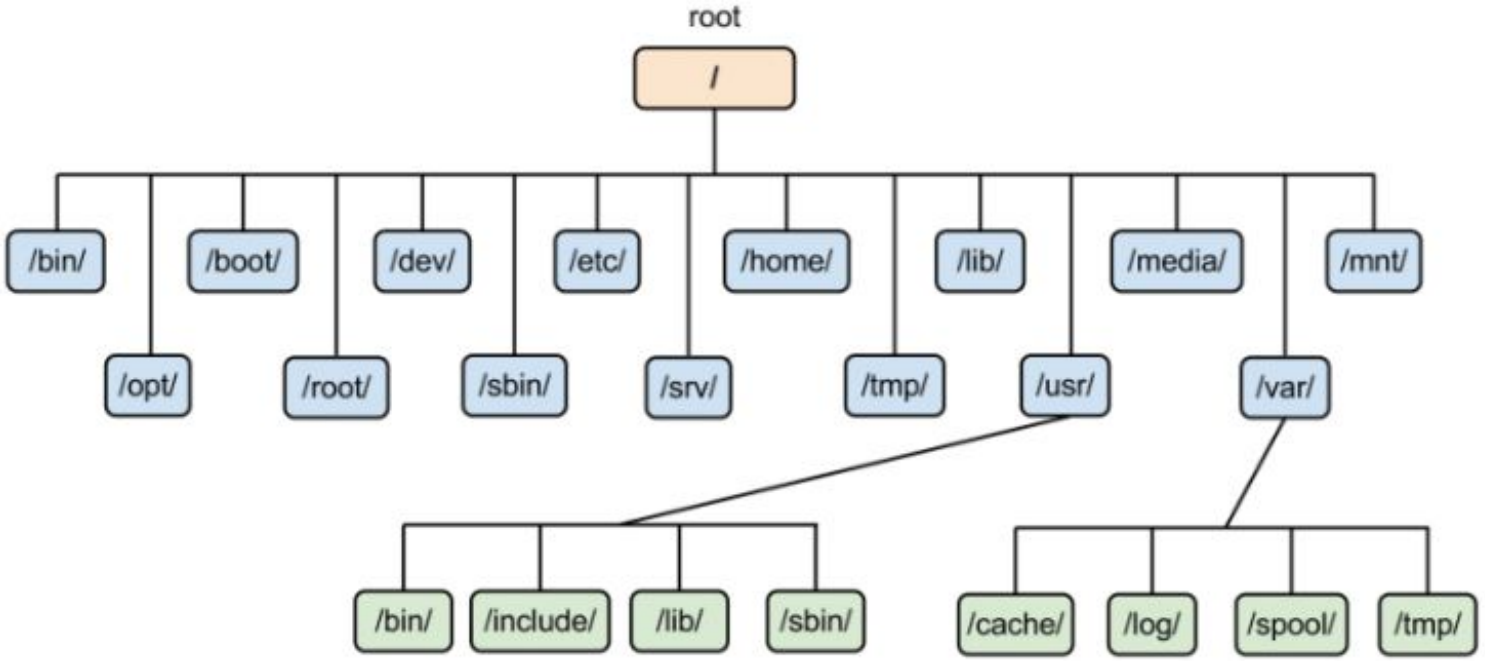
Operating system stores files and directories in an organized and structured way

- System configuration file = Folder A
- User files = Folder B
- Log files = Folder C
- Commands or scripts = Folder D and so on

There are many different types of filesystems. In general, improvements have been made to filesystems with new releases of operating systems and each new filesystem has been given a different name

- e.g. **ext3, ext4, xfs, NTFS, FAT etc.**

ROOT Directory (/)



ROOT Directory (/)

```
/bin        Essential command binaries
/boot       Static files of the boot loader
/dev        Device files
/etc        Host-specific system configuration
/home       Users' home directories
/lib        Essential shared libraries and kernel modules
/media      Mount point for removable media
/mnt        Mount point for mounting a filesystem temporarily
/opt        Add-on application software packages
/sbin       Essential system binaries
/srv        Data for services provided by this system
/tmp        Temporary files
/usr        Secondary hierarchy
/var        Variable data
```

Files

Symbol	Meaning
-	Regular file
d	Directory
l	Link
c	Character Device File
s	Socket File
p	Named Pipe
b	Block Device

```
-rw-------      Regular File
drwxr-xr-x.    Directory File
lrwxrwxrwx.    Link File
crw-rw----.    Character Device File
brw-rw----.    Block Special File
srw-rw-rw-     Socket File
prw-------.    Named Pipe File
```

4-2 Viewing file properties

Viewing file properties

ls

On most Linux versions ls is aliased to color-ls by default. This feature allows to see the file type without using any options to ls.

Color	Meaning
Blue	directories
Red	compressed archives
White	text files
Pink	images
Cyan	links
Yellow	Devices
Green	Executables
flashing red	broken links

4-3

Working with File Contents

Working with File Contents

head output the first ten lines of a file.

```
aslan@AslanTurker:~$ head /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
aslan@AslanTurker:~$
```

Working with File Contents

head -n output the first n lines of a file.

```
aslan@AslanTurker:~$ head -5 /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
aslan@AslanTurker:~$
```

Working with File Contents

tail output the last ten lines of a file.

```
aslan@AslanTurker:~$ tail /etc/passwd
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
systemd-timesync:x:996:996:systemd Time Synchronization:/:/usr/sbin/nologin
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin
syslog:x:102:102::/nonexistent:/usr/sbin/nologin
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uuidd:x:103:103::/run/uuidd:/usr/sbin/nologin
landscape:x:104:105::/var/lib/landscape:/usr/sbin/nologin
polkitd:x:990:990:User for polkitd:/:/usr/sbin/nologin
aslan:x:1000:1000:,,,:/home/aslan:/bin/bash
aslan@AslanTurker:~$
```

Working with File Contents

tail -n output the last n lines of a file.

```
aslan@AslanTurker:~$ tail -5 /etc/passwd
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uuidd:x:103:103::/run/uuidd:/usr/sbin/nologin
landscape:x:104:105::/var/lib/landscape:/usr/sbin/nologin
polkitd:x:990:990:User for polkitd:/:/usr/sbin/nologin
aslan:x:1000:1000:,,,:/home/aslan:/bin/bash
aslan@AslanTurker:~$
```

Working with File Contents

cat — Display a file on the screen.

```
aslan@AslanTurker:~/linuxplus$ cat quotes.txt
1. "The only way to do great work is to love what you do."

2. "Success is not final, failure is not fatal: It is the courage to continue that counts."

3. "Believe you can and you're halfway there."

4. "The best way to predict the future is to create it."
aslan@AslanTurker:~/linuxplus$
```

Working with File Contents

cat One of the basic uses of cat is to concatenate files into a bigger (or complete) file.

```
aslan@AslanTurker:~/linuxplus$ echo this is file1 > file1
aslan@AslanTurker:~/linuxplus$ echo this is file2 > file2
aslan@AslanTurker:~/linuxplus$ echo this is file3 > file3
aslan@AslanTurker:~/linuxplus$ cat file1
this is file1
aslan@AslanTurker:~/linuxplus$ cat file2
this is file2
aslan@AslanTurker:~/linuxplus$ cat file3
this is file3
aslan@AslanTurker:~/linuxplus$ cat file1 file2 file3
this is file1
this is file2
this is file3
aslan@AslanTurker:~/linuxplus$ cat file1 file2 file3 > all
aslan@AslanTurker:~/linuxplus$ cat all
this is file1
this is file2
this is file3
aslan@AslanTurker:~/linuxplus$
```

Working with File Contents

cat

You can use cat to create **flat text files**.

```
aslan@AslanTurker:~/linuxplus$ cat winter.txt
Today is cold.
aslan@AslanTurker:~/linuxplus$
```

The **Ctrl d** key combination will send an **EOF (End of File)** to the running process ending the cat command.

Working with File Contents

more view (but not modify) the contents of a text file one **screen at a time.**

```
aslan@AslanTurker:~/linuxplus$ more quotes.txt
1. "The only way to do great work is to love what you do."

2. "Success is not final, failure is not fatal: It is the courage to continue that counts."

3. "Believe you can and you're halfway there."

4. "The best way to predict the future is to create it."
aslan@AslanTurker:~/linuxplus$
```

Working with File Contents

more -n This option specifies an integer which is the screen size (**in lines**).

```
aslan@AslanTurker:~/linuxplus$ more -2 quotes.txt
1. "The only way to do great work is to love what you do."

--More--(23%)
```

Working with File Contents

less

Similar to more, less command allows you to view the contents of a file and navigate through file. The **main difference** between more and less is that **less** command is **faster** because it **does not load the entire file at once**.

```
aslan@AslanTurker:~/linuxplus$ less quotes.txt
1. "The only way to do great work is to love what you do."

2. "Success is not final, failure is not fatal: It is the courage to continue that counts."

3. "Believe you can and you're halfway there."

4. "The best way to predict the future is to create it."
quotes.txt (END)
```

Working with File Contents

tac concatenate and print files in reverse.

```
clarusway@DESKTOP-UN6T2ES:~$ cat count.txt
one
two
three
four
five
clarusway@DESKTOP-UN6T2ES:~$ tac count.txt
five
four
three
two
one
clarusway@DESKTOP-UN6T2ES:~$
```

4-4

Searching Files

Searching Files

find search for files in a directory hierarchy.

find [starting-point...] [expression]

find Find all the files whose name is linuxplus.txt in a current working directory.

```
aslan@AslanTurker:~/linuxplus$ find . -name linuxplus.txt
./linuxplus.txt
aslan@AslanTurker:~/linuxplus$
```

Searching Files

find

Find all the files whose name is linuxplus.txt under /home directory.

```
aslan@AslanTurker:~$ find /home -name linuxplus.txt
/home/aslan/linuxplus/linuxplus.txt
aslan@AslanTurker:~$
```

Searching Files

find

Find all the files whose name is linuxplus.txt and contains both capital and small letters in /home directory.

```
aslan@AslanTurker:~$ find /home -iname linuxplus.txt
/home/aslan/linuxplus/Linuxplus.txt
/home/aslan/linuxplus/linuxplus.txt
aslan@AslanTurker:~$
```

Searching Files

find

Find all directories whose name is movies in /home directory.

```
aslan@AslanTurker:~$ find /home -type d -name movies
/home/aslan/movies
aslan@AslanTurker:~$
```

Searching Files

find

Find all txt files in a directory.

```
aslan@AslanTurker:~$ find . -type f -name "*.txt"
./linux.txt
./quotes.txt
./linuxplus/Linuxplus.txt
./linuxplus/count.txt
./linuxplus/linuxplus.txt
./winter.txt
aslan@AslanTurker:~$
```

Searching Files

grep The grep, which stands for "global regular expression print," is used to search text.

```
grep [options] pattern [files]
```

Options	Description
-c	This prints only the number of lines that match a pattern
-h	Do not display the filenames headers.
-i	Ignores, case for matching
-l	Displays list of a filenames only.
-n	Display the matched lines and their line numbers.
-v	This prints out all the lines that do not matches the pattern

Searching Files

grep The grep searches the given file for lines containing a match to the given strings or words.

```
aslan@AslanTurker:~/linuxplus$ cat quotes.txt
1. "The only way to do great work is to love what you do."

2. "Success is not final, failure is not fatal: It is the courage to continue that counts."

3. "Believe you can and you're halfway there."

4. "The best way to predict the future is to create it."
aslan@AslanTurker:~/linuxplus$ grep "Believe" quotes.txt
3. "Believe you can and you're halfway there."
aslan@AslanTurker:~/linuxplus$
```

Searching Files

grep -n

Returns the result of lines matching the search string.

```
aslan@AslanTurker:~/linuxplus$ grep -n "Believe" quotes.txt
5:3. "Believe you can and you're halfway there."
```

grep -c

Returns the number of lines in which the results matched the search string.

```
aslan@AslanTurker:~/linuxplus$ grep -c "Believe" quotes.txt
1
aslan@AslanTurker:~/linuxplus$
```

Searching Files

grep -v

Returns the result of lines not matching the search string.

```
aslan@AslanTurker:~/linuxplus$ cat quotes.txt
1. "The only way to do great work is to love what you do."

2. "Success is not final, failure is not fatal: It is the courage to continue that counts."

3. "Believe you can and you're halfway there."

4. "The best way to predict the future is to create it."
aslan@AslanTurker:~/linuxplus$ grep -v "Believe" quotes.txt
1. "The only way to do great work is to love what you do."

2. "Success is not final, failure is not fatal: It is the courage to continue that counts."


4. "The best way to predict the future is to create it."
aslan@AslanTurker:~/linuxplus$
```

BONUS

4-4

File Ownership

File Ownership

There are 2 owners of a file or directory

- User and group

Command to change file ownership

- **chown and chgrp**

  chown changes the **ownership of a file**

  chgrp changes the **group ownership of a file**

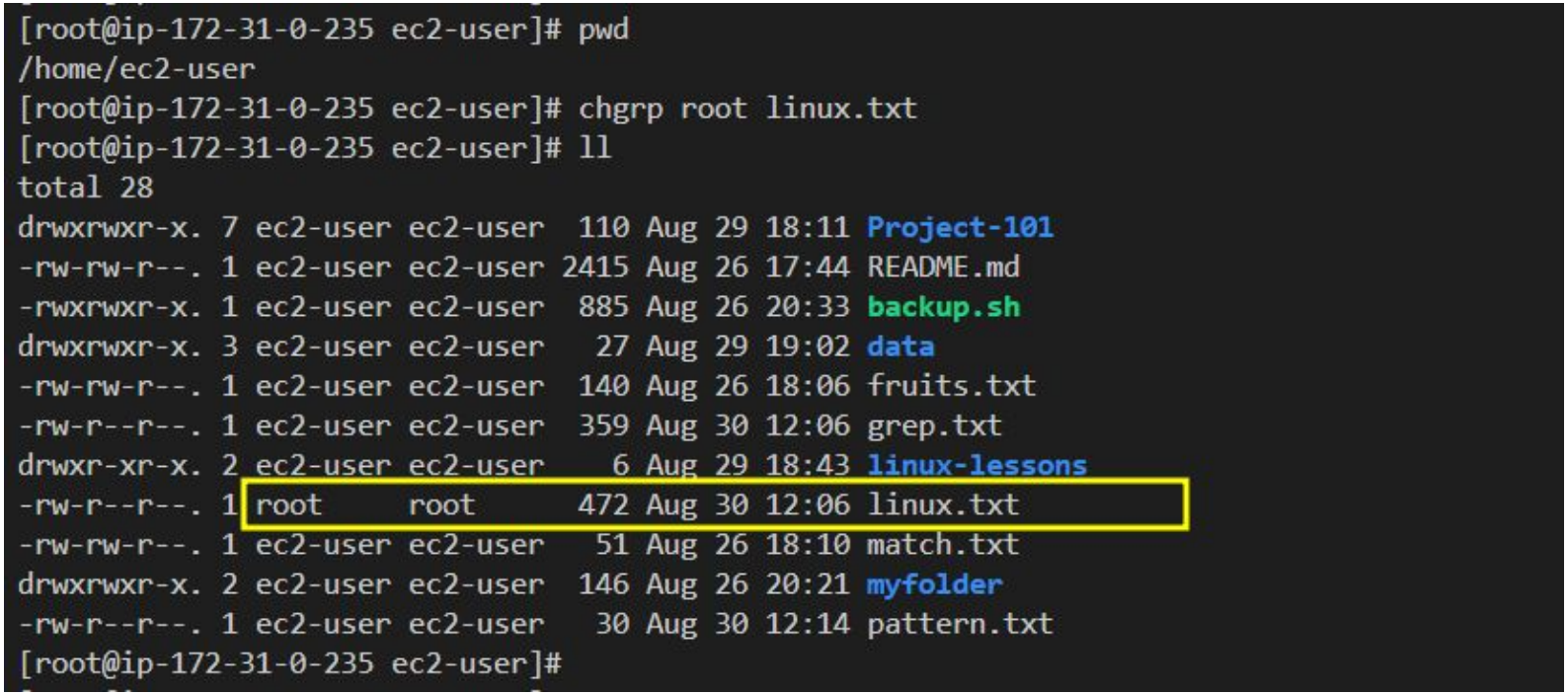
Recursive ownership change option (Cascade)

- -R

chown new_owner file

```
[root@ip-172-31-0-235 ec2-user]# pwd
/home/ec2-user
[root@ip-172-31-0-235 ec2-user]# chown root linux.txt
[root@ip-172-31-0-235 ec2-user]# ll
total 28
drwxrwxr-x. 7 ec2-user ec2-user  110 Aug 29 18:11 Project-101
-rw-rw-r--. 1 ec2-user ec2-user 2415 Aug 26 17:44 README.md
-rwxrwxr-x. 1 ec2-user ec2-user  885 Aug 26 20:33 backup.sh
drwxrwxr-x. 3 ec2-user ec2-user   27 Aug 29 19:02 data
-rw-rw-r--. 1 ec2-user ec2-user  140 Aug 26 18:06 fruits.txt
-rw-r--r--. 1 ec2-user ec2-user  359 Aug 30 12:06 grep.txt
drwxr-xr-x. 2 ec2-user ec2-user    6 Aug 29 18:43 linux-lessons
-rw-r--r--. 1 root     ec2-user  472 Aug 30 12:06 linux.txt
-rw-rw-r--. 1 ec2-user ec2-user   51 Aug 26 18:10 match.txt
drwxrwxr-x. 2 ec2-user ec2-user  146 Aug 26 20:21 myfolder
-rw-r--r--. 1 ec2-user ec2-user   30 Aug 30 12:14 pattern.txt
[root@ip-172-31-0-235 ec2-user]#
```

chgrp new_group file



```
[root@ip-172-31-0-235 ec2-user]# pwd
/home/ec2-user
[root@ip-172-31-0-235 ec2-user]# chgrp root linux.txt
[root@ip-172-31-0-235 ec2-user]# ll
total 28
drwxrwxr-x. 7 ec2-user ec2-user  110 Aug 29 18:11 Project-101
-rw-rw-r--. 1 ec2-user ec2-user 2415 Aug 26 17:44 README.md
-rwxrwxr-x. 1 ec2-user ec2-user  885 Aug 26 20:33 backup.sh
drwxrwxr-x. 3 ec2-user ec2-user   27 Aug 29 19:02 data
-rw-rw-r--. 1 ec2-user ec2-user  140 Aug 26 18:06 fruits.txt
-rw-r--r--. 1 ec2-user ec2-user  359 Aug 30 12:06 grep.txt
drwxr-xr-x. 2 ec2-user ec2-user    6 Aug 29 18:43 linux-lessons
-rw-r--r--. 1 root     root      472 Aug 30 12:06 linux.txt
-rw-rw-r--. 1 ec2-user ec2-user   51 Aug 26 18:10 match.txt
drwxrwxr-x. 2 ec2-user ec2-user  146 Aug 26 20:21 myfolder
-rw-r--r--. 1 ec2-user ec2-user   30 Aug 30 12:14 pattern.txt
[root@ip-172-31-0-235 ec2-user]#
```

How to Change the Group of the File in Linux

```
[root@ip-172-31-0-235 ec2-user]#
[root@ip-172-31-0-235 ec2-user]# chown :root match.txt
[root@ip-172-31-0-235 ec2-user]# ll
total 28
drwxrwxr-x. 7 ec2-user ec2-user  110 Aug 29 18:11 Project-101
-rw-rw-r--. 1 ec2-user ec2-user 2415 Aug 26 17:44 README.md
-rwxrwxr-x. 1 ec2-user ec2-user  885 Aug 26 20:33 backup.sh
drwxrwxr-x. 3 ec2-user ec2-user   27 Aug 29 19:02 data
-rw-rw-r--. 1 ec2-user ec2-user  140 Aug 26 18:06 fruits.txt
-rw-r--r--. 1 ec2-user ec2-user  359 Aug 30 12:06 grep.txt
drwxr-xr-x. 2 ec2-user ec2-user    6 Aug 29 18:43 linux-lessons
-rw-r--r--. 1 root     root      472 Aug 30 12:06 linux.txt
-rw-rw-r--. 1 ec2-user root       51 Aug 26 18:10 match.txt
drwxrwxr-x. 2 ec2-user ec2-user  146 Aug 26 20:21 myfolder
-rw-r--r--. 1 ec2-user ec2-user   30 Aug 30 12:14 pattern.txt
[root@ip-172-31-0-235 ec2-user]#
```

How to Change Owner and Group of the File in Linux

```
[root@ip-172-31-0-235 ec2-user]# chown root:root pattern.txt
[root@ip-172-31-0-235 ec2-user]# ll
total 28
drwxrwxr-x. 7 ec2-user ec2-user  110 Aug 29 18:11 Project-101
-rw-rw-r--. 1 ec2-user ec2-user 2415 Aug 26 17:44 README.md
-rwxrwxr-x. 1 ec2-user ec2-user  885 Aug 26 20:33 backup.sh
drwxrwxr-x. 3 ec2-user ec2-user   27 Aug 29 19:02 data
-rw-rw-r--. 1 ec2-user ec2-user  140 Aug 26 18:06 fruits.txt
-rw-r--r--. 1 ec2-user ec2-user  359 Aug 30 12:06 grep.txt
drwxr-xr-x. 2 ec2-user ec2-user    6 Aug 29 18:43 linux-lessons
-rw-r--r--. 1 root     root      472 Aug 30 12:06 linux.txt
-rw-rw-r--. 1 ec2-user root       51 Aug 26 18:10 match.txt
drwxrwxr-x. 2 ec2-user ec2-user  146 Aug 26 20:21 myfolder
-rw-r--r--. 1 root     root       30 Aug 30 12:14 pattern.txt
[root@ip-172-31-0-235 ec2-user]#
```

How to Recursively Change the File Ownership

```
[root@ip-172-31-0-235 ec2-user]# chown -R root linux-lessons/
[root@ip-172-31-0-235 ec2-user]# ll
total 28
drwxrwxr-x. 7 ec2-user ec2-user  110 Aug 29 18:11 Project-101
-rw-rw-r--. 1 ec2-user ec2-user 2415 Aug 26 17:44 README.md
-rwxrwxr-x. 1 ec2-user ec2-user  885 Aug 26 20:33 backup.sh
drwxrwxr-x. 3 ec2-user ec2-user   27 Aug 29 19:02 data
-rw-rw-r--. 1 ec2-user ec2-user  140 Aug 26 18:06 fruits.txt
-rw-r--r--. 1 ec2-user ec2-user  359 Aug 30 12:06 grep.txt
drwxr-xr-x. 4 root     ec2-user   69 Aug 31 11:14 linux-lessons
-rw-r--r--. 1 root     root      472 Aug 30 12:06 linux.txt
-rw-rw-r--. 1 ec2-user root       51 Aug 26 18:10 match.txt
drwxrwxr-x. 2 ec2-user ec2-user  146 Aug 26 20:21 myfolder
-rw-r--r--. 1 root     root       30 Aug 30 12:14 pattern.txt
[root@ip-172-31-0-235 ec2-user]# ll linux-lessons/
total 0
-rw-r--r--. 1 root ec2-user 0 Aug 31 11:14 script.sh
-rw-r--r--. 1 root ec2-user 0 Aug 31 11:14 test.txt
drwxr-xr-x. 2 root ec2-user 6 Aug 31 11:14 users
drwxr-xr-x. 2 root ec2-user 6 Aug 31 11:14 variables
[root@ip-172-31-0-235 ec2-user]#
```

THANKS!

Any questions?