linux terminal user manual

Version

Ivan Moreno Villamil

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1 Introduction

What is Linux?

Linux is an operating system, like macOS or Windows. It is also the most popular open source operating system, and it gives you a lot of freedom. It feeds the vast majority of the servers that make up the Internet. It is the foundation on which everything is built. But not only that. Android is based on (a modified version of) Linux.

What is Linux shell?

A shell is a command interpreter that exposes an interface for the user to work with the underlying operating system, allowing us to execute operations using text and commands, and provides users with advanced features such as the ability to create scripts.

In this manual you will find basic information on the basic commands used to manage the terminal and gain access to:

- Commands to navigate through the different directories
- Commands to list the contents of a directory, search for files, etc.
- Commands to create, delete, copy and move files and directories
- More information

2 Commands in the shell

2.0.1 El Command man of Linux

This Command allows me to understand all the Commands, by giving me a description of each of them, it works like the manual inside the console, so, Every time I don't know how to use a Command, I write **man <command>** to get the manual:

Figure 1: Command man

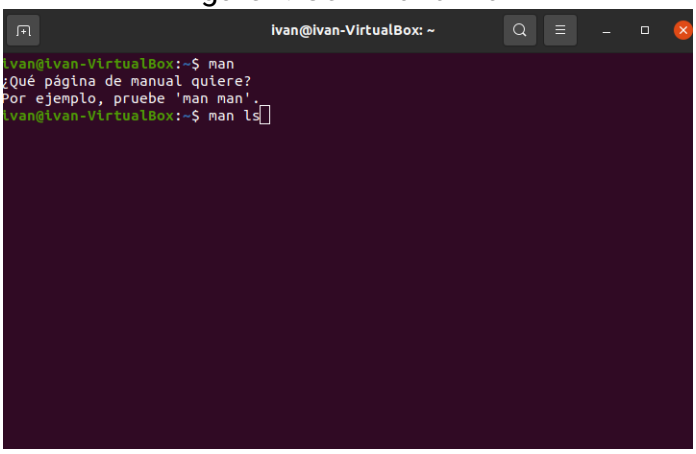
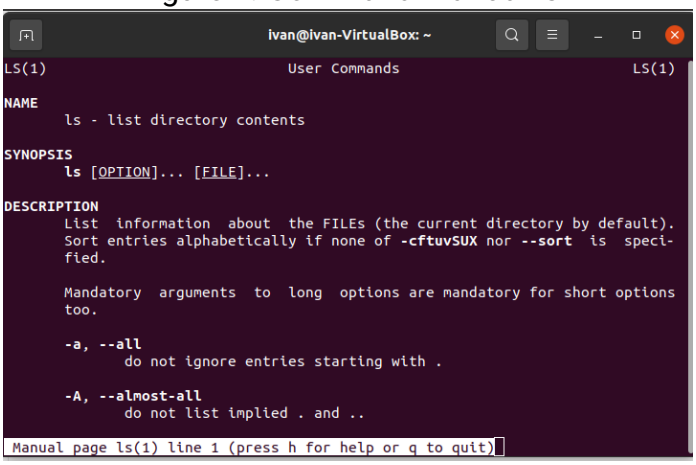


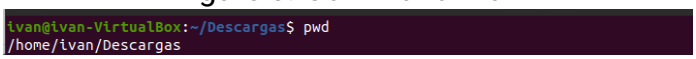
Figure 2: Command Manual ls



2.0.2 pwd (Print Working Directory)

When you feel lost in the file system, call the Command **pwd** to know where you are, this Command allows me to know in which directory I am:

Figure 3: Command man



2.0.3 cd (Change Directory)

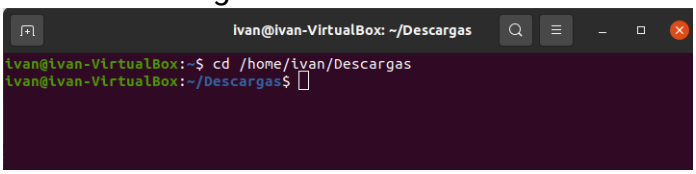
Remember that we will have to navigate our way using paths. There are two different ways to specify a path, with absolute and relative paths.

- Absolute Path: This is the path from the root directory. The root directory is commonly displayed as a forward slash. Whenever your path starts with / it means you are starting from the root directory. For example, /home/ivan/Downloads.

- Relative Path – This is the path from where you are currently in the file system. If I was in the location /home/ivan/Downloads and I wanted to get to a directory inside Downloads called tax, I don't have to specify the full path from the root like /home/ivan/Downloads/tax, I can just go to tax/ in its place.

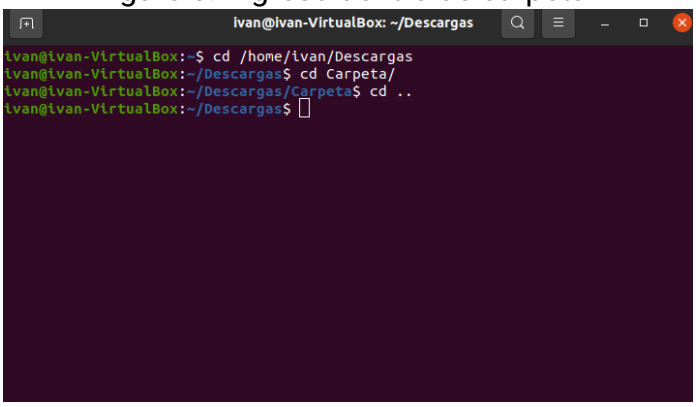
Knowing the above, we can use the Command cd, which allows us to change directories.
So now I changed my directory location to /home/ivan/Downloads.

Figure 4: Command cd



Now from this directory I have a folder inside called Carpeta1, I can navigate to that folder with:
cd Carpeta1/

Figure 5: Ingreso dentro de carpeta1



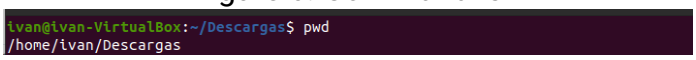
Notice how I just used the name of folder1? It's because it was already in /home/ivan/Descargas.
It can be quite tiring to navigate with absolute and relative paths all the time, luckily there are some shortcuts to help you out.

- cd . (current directory). This is the directory you are currently in.
- cd .. (parent directory). Takes you to the directory above your current one.
- cd - (previous directory). This will take you back to the previous directory you were in.

2.0.4 ls (List Directories)

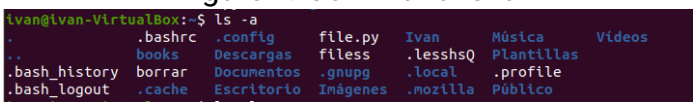
The Command ls will display a list of directories and files in the current directory by default, however you can specify which path you want to list the directories from.
ls is quite a useful tool, it also shows you detailed information about the files and directories you are viewing.

Figure 6: Command ls



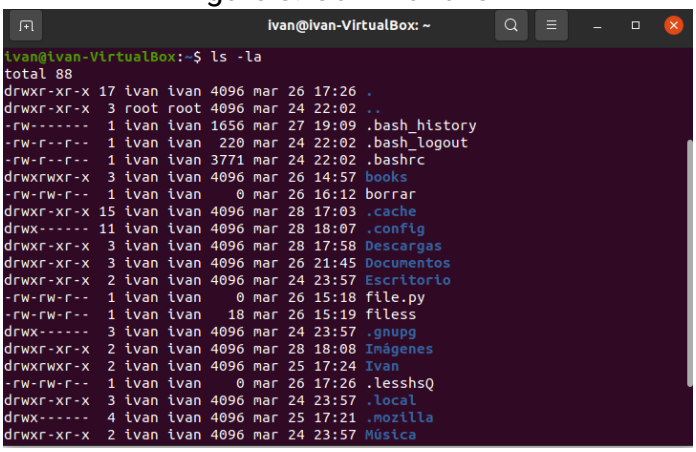
Also note that not all files in a directory will be visible. File names starting with . are hidden, you can see them however with Command ls and pass the -a flag (a for all).

Figure 7: Command ls -a



There is also a more useful ls flag, -la for long, which displays a detailed list of files in a long format. This will show you detailed information, starting from the left: file permissions, number of links, owner name, owner group, file size, last modified timestamp, and file/directory name.

Figure 8: Command ls -l

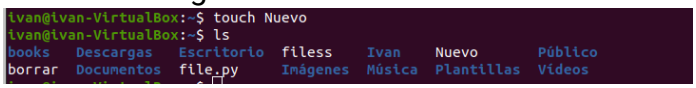


```
ivan@ivan-VirtualBox: ~
ivan@ivan-VirtualBox:~$ ls -la
total 88
drwxr-xr-x 17 ivan ivan 4096 mar 26 17:26 .
drwxr-xr-x  3 root root 4096 mar 24 22:02 ..
-rw-------  1 ivan ivan 1656 mar 27 19:09 .bash_history
-rw-r--r--  1 ivan ivan  220 mar 24 22:02 .bash_logout
-rw-r--r--  1 ivan ivan 3771 mar 24 22:02 .bashrc
drwxrwxr-x  3 ivan ivan 4096 mar 26 14:57 books
-rw-rw-r--  1 ivan ivan    0 mar 26 16:12 borrar
drwxr-xr-x 15 ivan ivan 4096 mar 28 17:03 .cache
drwx------ 11 ivan ivan 4096 mar 28 18:07 .config
drwxr-xr-x  3 ivan ivan 4096 mar 28 17:58 Descargas
drwxr-xr-x  3 ivan ivan 4096 mar 26 21:45 Documentos
drwxr-xr-x  2 ivan ivan 4096 mar 24 23:57 Escritorio
-rw-rw-r--  1 ivan ivan    0 mar 26 15:18 file.py
-rw-rw-r--  1 ivan ivan   18 mar 26 15:19 filess
drwx------  3 ivan ivan 4096 mar 24 23:57 .gnupg
drwxr-xr-x  2 ivan ivan 4096 mar 28 18:08 Imágenes
drwxrwxr-x  2 ivan ivan 4096 mar 25 17:24 Ivan
-rw-rw-r--  1 ivan ivan    0 mar 26 17:26 .lesshsQ
drwxr-xr-x  3 ivan ivan 4096 mar 24 23:57 .local
drwx------  4 ivan ivan 4096 mar 25 17:21 .mozilla
drwxr-xr-x  2 ivan ivan 4096 mar 24 23:57 Música
```

2.0.5 touch

This Command allows us to create new empty files.

Figure 9: Command touch

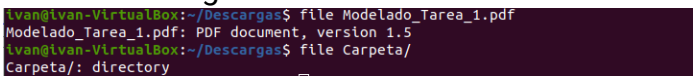


```
ivan@ivan-VirtualBox:~$ touch Nuevo
ivan@ivan-VirtualBox:~$ ls
books   Descargas   Escritorio  filess    Ivan    Nuevo       Público
borrar  Documentos  file.py     Imágenes  Música  Plantillas  Vídeos
```

2.0.6 file

This Command will allow us to find out what type of file it is, and will show us a description of the file.

Figure 10: Command file

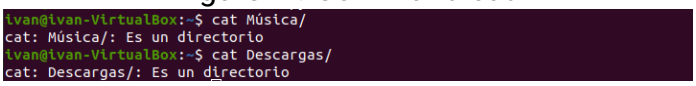


```
ivan@ivan-VirtualBox:~/Descargas$ file Modelado_Tarea_1.pdf
Modelado_Tarea_1.pdf: PDF document, version 1.5
ivan@ivan-VirtualBox:~/Descargas$ file Carpeta/
Carpeta/: directory
```

2.0.7 cat

A simple command to use is the cat command, short for concatenate, it not only displays the contents of the file, but can also combine multiple files and display the output from them.

Figure 11: Command cat

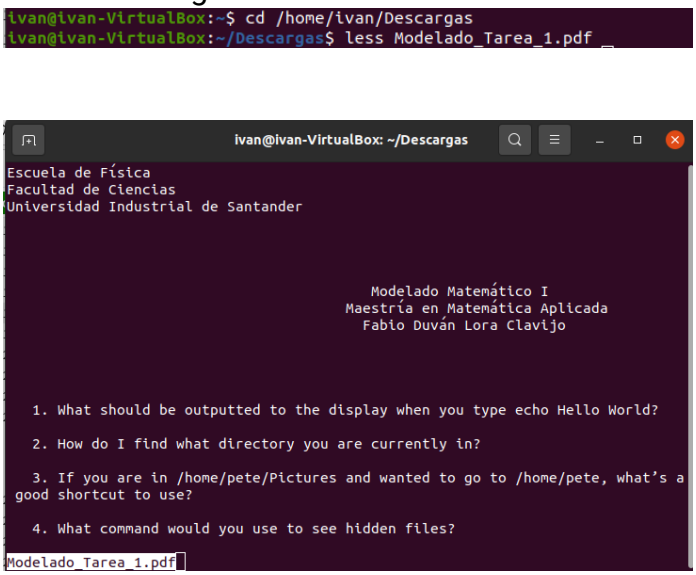


```
ivan@ivan-VirtualBox:~$ cat Música/
cat: Música/: Es un directorio
ivan@ivan-VirtualBox:~$ cat Descargas/
cat: Descargas/: Es un directorio
```

2.0.8 less

less is a Command that allows us to display text files, which allows us a more dynamic display allowing us to move forward and inside the text file.

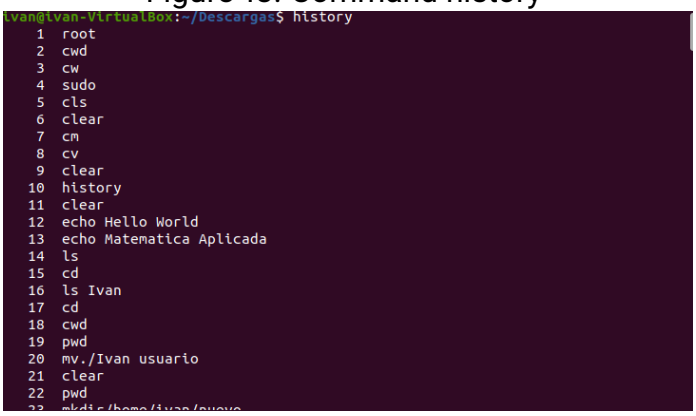
Figure 12: Command less



2.0.9 history

With the Command history we can access all previously used Commands in the shell console, which is quite useful when you want to find and execute a previously used Command without having to retype it.

Figure 13: Command history

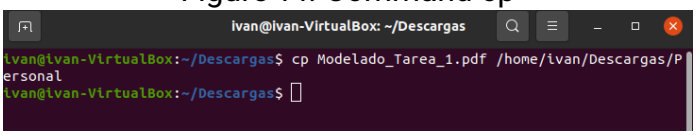


To clear history, run history -c.

2.0.10 cp (Copy)

Just like copying and pasting files in other operating systems, the shell gives us an even simpler way to do it.

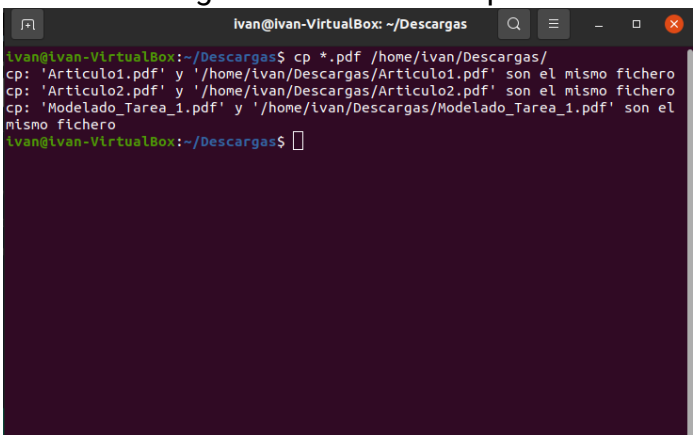
Figure 14: Command cp



You can copy multiple files and directories, as well as use wildcards. A wildcard is a character that can be substituted for a pattern-based selection, giving you more flexibility with searches. You can use wildcards in each Command for more flexibility.

- * the wildcard of wildcards, is used to represent all single characters or any string.
- ? used to represent a character
- [] used to represent any character inside the brackets

Figure 15: Command cp *



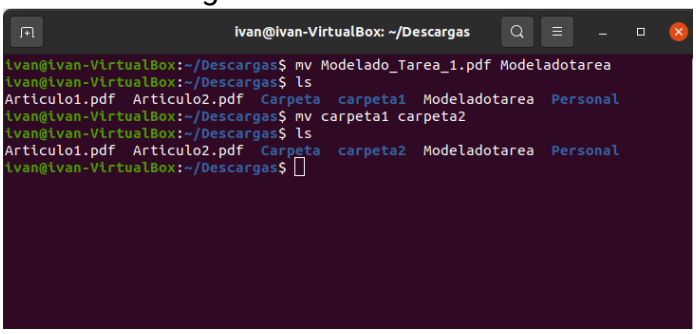
This will copy all files with the .pdf extension in your current directory to the Downloads directory.
A useful Command is to use the -r flag, this will recursively copy the files and directories within a directory.

2.0.11 mv (Move)

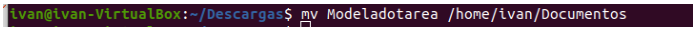
This Command is used to move files and also to rename them. You can rename the files like this:

mv carpeta1 carpeta2

Figure 16: Command mv



Or you can move one or more files to a different directory



2.0.12 mkdir (Make Directory)

The mkdir (Make Directory) command is useful for creating new directories. You can even create multiple directories at the same time.

You can also create subdirectories at the same time with -p (main flag).

mkdir -p fruits/apples

2.0.13 rm (Remove)

The Command **rm** (Remove) it is used to remove files and directories.

- **rm -f** Filename. The -f or force option tells rm to remove all files, whether they are write-protected or not, without prompting the user (provided they have the appropriate permissions).
- **rm -i file** Adding the -i flag like many of the other commands will tell you if you want to delete the files or directories.
- **rmdir directory**. You can remove a directory with the Command **rmdir**.

2.0.14 find

The command find can be used to find files or folders that match a given search pattern. Search recursively. An interesting thing to note is that find doesn't stop at the directory it's looking for, it will also search within any subdirectories that directory might have.

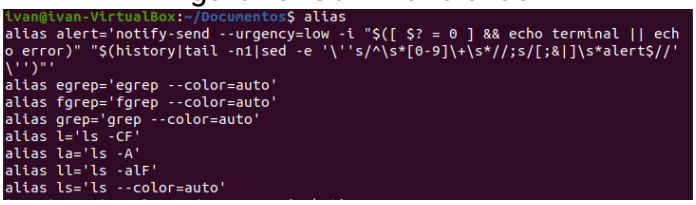
Figure 17: Command find

```
ivan@ivan-VirtualBox:~/Documentos$ find
.
./Data science in the Cahn Hilliard model.pdf
./tutorial0.pdf
./pyhton.py
./Modeladotarea
./Myproyect
./Myproyect/modelado1
./Myproyect/modelado1/Data science in the Cahn Hilliard model.pdf
./Myproyect/modelado1/.git
./Myproyect/modelado1/.git/HEAD
./Myproyect/modelado1/.git/description
./Myproyect/modelado1/.git/hooks
./Myproyect/modelado1/.git/hooks/pre-rebase.sample
./Myproyect/modelado1/.git/hooks/pre-push.sample
./Myproyect/modelado1/.git/hooks/pre-receive.sample
./Myproyect/modelado1/.git/hooks/update.sample
./Myproyect/modelado1/.git/hooks/post-update.sample
./Myproyect/modelado1/.git/hooks/prepare-commit-msg.sample
./Myproyect/modelado1/.git/hooks/applypatch-msg.sample
./Myproyect/modelado1/.git/hooks/commit-msg.sample
```

2.0.15 alias

An alias is a (usually short) name that the shell translates to another (usually longer) name or Command. The Alias allow you to define new Commands by substituting a string for the first token of a simple Command, which are created as follows:

Figure 18: Command alias

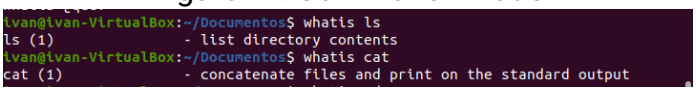


```
ivan@ivan-VirtualBox:~/Documentos$ alias
alias alert='notify-send --urgency=low -i "$([ $? = 0 ] && echo terminal || ech
o error)" "$(history|tail -n1|sed -e '\''s/^\s*[0-9]\+\s*//;s/[;&|]\s*alert$//'
\'')"'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -alF'
alias ls='ls --color=auto'
```

2.0.16 whatis

The Command whatis provides a brief description of Command line programs.

Figure 19: Command whatis



The description is obtained from the manual page of each Command.

2.0.17 Command tar

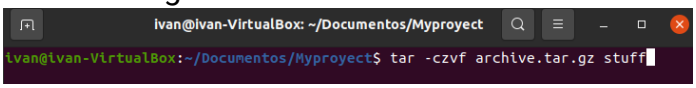
The command tar in Linux is often used to create archives of .tar.gz or .tgz archives, also called "tarballs". This command has a lot of options, but you only need to remember a few letters to quickly create archives with tar. The Command tar can also extract the resulting files
Use the following Command to compress an entire directory or a single file on Linux. It will also zip all other directories within a directory you specify; in other words, it will work recursively.

tar -czvf filename.tar.gz / path / to / directory-or-file
Here's what those switches mean:

- -c: create a file.
- -z: Compress the file with g zip.
- -v: View the progress in the terminal while creating the file, also known as "verbose" mode. The v is always optional in these Commands, but it is useful.
- -f: allows you to specify the f filename of the file.

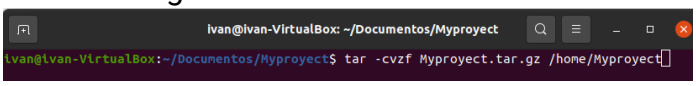
Let's say you have a directory called "stuff" in the current directory and you want to save it to a file called archive.tar.gz. I would execute the following Command:

Figure 20: Command tar -czvf



- Crear un archivo .tar.gz en Linux
  Si deseas una mejor compresión, también puedes usar .tar.gz. Un ejemplo de esto es:

Figure 21: Command tar -cvzf

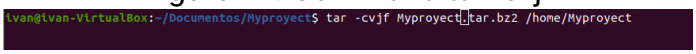


- The additional option z represents gzip compression.

- Create a .tar.bz2 file on Linux

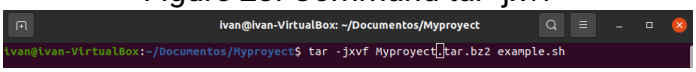
  The .bz2 file provides more compression compared to gzip. However, this alternative will take more time to compress and decompress. To use it, you must use the -j option. An example of what the operation would look like is as follows:

Figure 22: Command tar -cvjf



- To extract a single file from a .tar.bz2 archive you can use a Command like this:

Figure 23: Command tar -jxvf



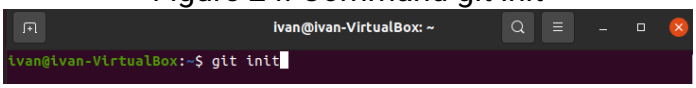
2.0.18 git commands

GIT is the most widely used open source VCS (version control system) that allows you to track changes made to files

- **git init** will create a new local Git repository. The following Git Command will create a repository in the current directory:

- Alternatively, you can create a repository inside a new directory by specifying the project name:

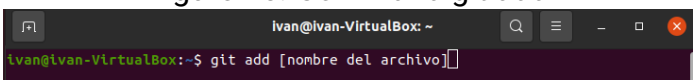
Figure 24: Command git init



git init [project name]

- **git add** is used to add files to the staging area. For example, the following basic Git Command will index the temp.txt file:

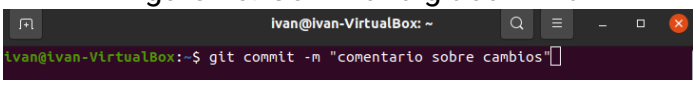
Figure 25: Command git add



git add <temp.txt>

- **git commit** will create a snapshot of the changes and save it to the git directory.

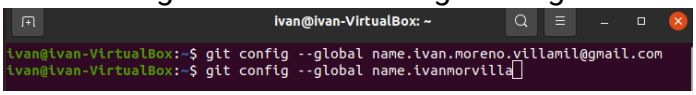
Figure 26: Command git commit



git commit –m "The message that accompanies the commit goes here"

- **git config** can be used to set user-specific settings, such as email, username and format type, etc. For example, the following Command is used to establish an email:

Figure 27: Command git config



git config –global user.email tuemail@ejemplo.com

- The -global option tells Git that you are going to use that email for all local repositories. If you want to use different emails for different repositories, use the following Command:

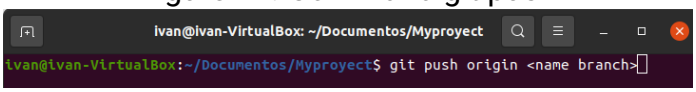
  git config –local user.email tuemail@ejemplo.com

- **git status** displays the list of files that have been changed along with files that are about to be staged or committed.

Figure 28: Command git status

- **git push** is used to push local commits to the master branch of the remote repository. Here is the basic structure of the code:

Figure 29: Command git push

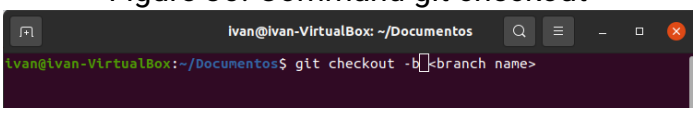


git push origin <master>

- Replace <master> with the branch you want to push changes to when you don't want to push changes to the master branch.

- **git checkout** creates branches and helps you navigate between them. For example, the following Command creates a new one and automatically switches to it:

Figure 30: Command git checkout



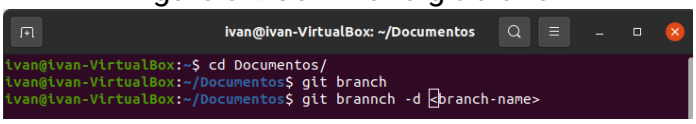
command git checkout -b <branch-name>

- To switch from one branch to another, just use:

  git checkout <branch-name>

- **git branch** is used to list, create, or delete branches. For example, if you want to list all the branches present in the repository, the Command should look like this:

Figure 31: Command git branch



- To switch from one branch to another, just use:

  git checkout <branch-name> item If you want to delete a branch, use:

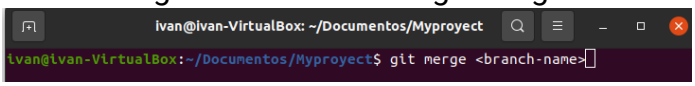
  git branch -d <branch-name>

- **git pull** merges all the changes that have been made in the remote repository with the local working directory.

  git pull

- **git merge** is used to merge a branch with another active branch:

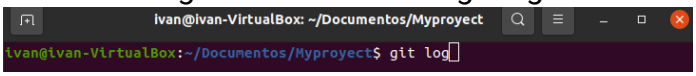
Figure 32: Command git merge



  git merge <branch-name>

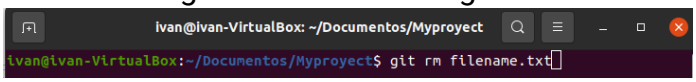
- **git log** is used to view the history of the repository listing certain commit details. When executing the Command you get an output like this:

Figure 33: Command git log



- **git rm** can be used to remove files from the index and working directory.

Figure 34: Command git rm



  git rm filename.txt