

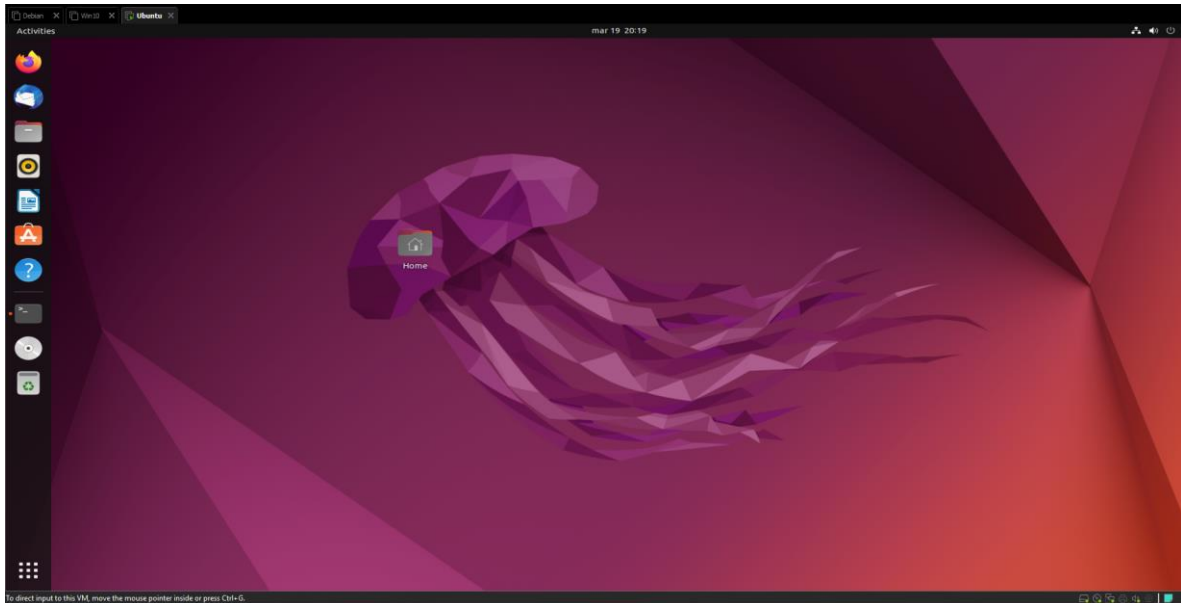
Integrantes

Juan chavez

Duvan Marin

Taller 1

Primero lo que hicimos fue crear una máquina virtual con Ubuntu 22.04



Luego de esto nos dirigimos a la terminal y empezamos por actualizar los distintos paquetes para que no nos dé error en la instalación

```
duvan@duvan: ~/Desktop
duvan@duvan:~/Desktop$ sudo apt-get update
[sudo] password for duvan:
Ign:1 cdrom://Ubuntu 22.04.2 LTS _Jammy Jellyfish_ - Release amd64 (20230223) ja
mmy InRelease
Hit:2 cdrom://Ubuntu 22.04.2 LTS _Jammy Jellyfish_ - Release amd64 (20230223) ja
mmy Release
Hit:4 http://co.archive.ubuntu.com/ubuntu jammy InRelease
Hit:5 http://co.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:6 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:7 https://download.docker.com/linux/ubuntu jammy InRelease
Hit:8 http://co.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
duvan@duvan:~/Desktop$
```

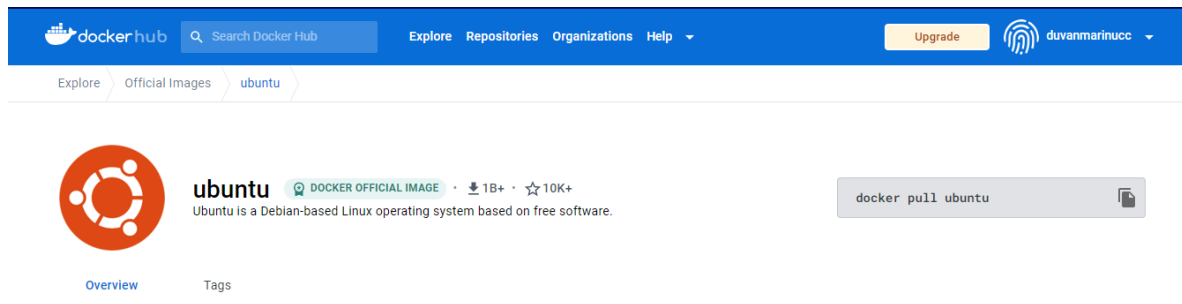
Personalmente usé otro método para descargar Docker ya que el método mencionado en el taller me dio error

```
duvan@duvan: ~/Desktop
duvan@duvan:~/Desktop$ sudo apt-get install \
    ca-certificates \
    curl \
    gnupg \
    lsb-release
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
lsb-release is already the newest version (11.1.0ubuntu4).
ca-certificates is already the newest version (20211016ubuntu0.22.04.1).
curl is already the newest version (7.81.0-1ubuntu1.8).
gnupg is already the newest version (2.2.27-3ubuntu2.1).
0 upgraded, 0 newly installed, 0 to remove and 95 not upgraded.
duvan@duvan:~/Desktop$ sudo mkdir -m 0755 -p /etc/apt/keyrings
duvan@duvan:~/Desktop$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/a
pt/keyrings/docker.gpg
File '/etc/apt/keyrings/docker.gpg' exists. Overwrite? (y/N) y
duvan@duvan:~/Desktop$ echo \
    "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/
linux/ubuntu \
    $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
duvan@duvan:~/Desktop$
```

Al finalizar la instalación procedimos a inicializar el servicio

```
duvan@duvan: ~/Desktop
Hit:8 http://co.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
duvan@duvan:~/Desktop$ sudo chmod a+r /etc/apt/keyrings/docker.gpg
duvan@duvan:~/Desktop$ sudo apt-get update
Ign:1 cdrom://Ubuntu 22.04.2 LTS _Jammy Jellyfish_ - Release amd64 (20230223) jammy InRelease
Hit:2 cdrom://Ubuntu 22.04.2 LTS _Jammy Jellyfish_ - Release amd64 (20230223) jammy Release
Hit:4 https://download.docker.com/linux/ubuntu jammy InRelease
Hit:5 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:6 http://co.archive.ubuntu.com/ubuntu jammy InRelease
Hit:7 http://co.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:8 http://co.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
duvan@duvan:~/Desktop$ sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-
compose-plugin
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
containerd.io is already the newest version (1.6.18-1).
docker-buildx-plugin is already the newest version (0.10.2-1-ubuntu.22.04-jammy).
docker-ce-cli is already the newest version (5:23.0.1-1-ubuntu.22.04-jammy).
docker-ce is already the newest version (5:23.0.1-1-ubuntu.22.04-jammy).
docker-compose-plugin is already the newest version (2.16.0-1-ubuntu.22.04-jammy).
0 upgraded, 0 newly installed, 0 to remove and 95 not upgraded.
duvan@duvan:~/Desktop$ /etc/init.d/docker start
Starting docker (via systemctl): docker.service.
duvan@duvan:~/Desktop$
```

Luego, en la página de Docker Hub encontramos el container de Ubuntu y procedimos a hacerle un pull:



```
root@duvan: /home/duvan/Desktop
duvan@duvan:~/Desktop$ sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-
compose-plugin
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
containerd.io is already the newest version (1.6.18-1).
docker-buildx-plugin is already the newest version (0.10.2-1~ubuntu.22.04~jammy).
docker-ce-cli is already the newest version (5:23.0.1-1~ubuntu.22.04~jammy).
docker-ce is already the newest version (5:23.0.1-1~ubuntu.22.04~jammy).
docker-compose-plugin is already the newest version (2.16.0-1~ubuntu.22.04~jammy).
0 upgraded, 0 newly installed, 0 to remove and 95 not upgraded.
duvan@duvan:~/Desktop$ /etc/init.d/docker start
Starting docker (via systemctl): docker.service.
duvan@duvan:~/Desktop$ docker pull ubuntu
Using default tag: latest
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "ht
tp://%2Fvar%2Frun%2Fdocker.sock/v1.24/images/create?fromImage=ubuntu&tag=latest": dial unix /var/run/docker.so
ck: connect: permission denied
duvan@duvan:~/Desktop$ sudo su
root@duvan: /home/duvan/Desktop# docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
Digest: sha256:67211c14fa74f070d27cc59d69a7fa9aeff8e28ea118ef3babc295a0428a6d21
Status: Image is up to date for ubuntu:latest
docker.io/library/ubuntu:latest
root@duvan: /home/duvan/Desktop#
```

Después procedimos a correr el contenedor el cual nos dio un id:

```
duvan@duvan:~/Desktop$ sudo su
root@duvan: /home/duvan/Desktop# docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
Digest: sha256:67211c14fa74f070d27cc59d69a7fa9aeff8e28ea118ef3babc295a0428a6d21
Status: Image is up to date for ubuntu:latest
docker.io/library/ubuntu:latest
root@duvan: /home/duvan/Desktop# docker run -it ubuntu /bin/bash
root@e19c479acb09: /#
```

Luego al listar los directorios claramente nos da como resultado todas las carpetas por defecto del sistema y también con el comando Docker ps-a podemos ver como nos lista nuestros contenedores y si están corriendo o si están apagados:

```
root@duvan: /home/duvan/Desktop
docker.io/library/ubuntu:latest
root@duvan: /home/duvan/Desktop# docker run -it ubuntu /bin/bash
root@e19c479acb09: /# ls
bin  dev  home  lib32  libx32  mnt  proc  run  srv  tmp  var
boot  etc  lib  lib64  media  opt  root  sbin  sys  usr
root@e19c479acb09: /# docker ps -a
bash: docker: command not found
root@e19c479acb09: /# docker ps -a
bash: docker: command not found
root@e19c479acb09: /# bash
root@e19c479acb09: /# exit
exit
root@e19c479acb09: /# exit
exit
root@duvan: /home/duvan/Desktop# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS          NAMES
e19c479acb09   ubuntu    "/bin/bash"             2 minutes ago   Exited (0) 13 seconds ago           nervous_leavitt
4d26e0b0ac77   ubuntu    "/bin/bash"             26 minutes ago   Up 26 minutes                focused_ferml
e2ca7a5086a1   hello-world "/hello"                47 minutes ago   Exited (0) 47 minutes ago           eager_gates
root@duvan: /home/duvan/Desktop#
```

Luego de esto para borrar el contenedor usamos operador rm (remove) y proporcionamos el id del contenedor que quisimos eliminar:

```
root@duvan: /home/duvan/Desktop# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS          NAMES
e19c479acb09   ubuntu    "/bin/bash"             2 minutes ago   Exited (0) 13 seconds ago           nervous_leavitt
4d26e0b0ac77   ubuntu    "/bin/bash"             26 minutes ago   Up 26 minutes                focused_ferml
e2ca7a5086a1   hello-world "/hello"                47 minutes ago   Exited (0) 47 minutes ago           eager_gates
root@duvan: /home/duvan/Desktop# docker stop e19
e19
root@duvan: /home/duvan/Desktop# docker rm e19
e19
root@duvan: /home/duvan/Desktop# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS          NAMES
4d26e0b0ac77   ubuntu    "/bin/bash"             30 minutes ago   Up 30 minutes                focused_ferml
e2ca7a5086a1   hello-world "/hello"                51 minutes ago   Exited (0) 51 minutes ago           eager_gates
root@duvan: /home/duvan/Desktop#
```

Taller 2

Primero lo que hicimos fue crear el contenedor especificando los puertos:

```
root@duvan: /home/duvan/Desktop
duvan@duvan:~/Desktop$ docker run -it -d -p 8001:80 --name=apache ubuntu /bin/bash
docker: permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/create?name=apache": dial unix /var/run/docker.sock: connect: permission denied.
See 'docker run --help'.
duvan@duvan:~/Desktop$ sudo su
root@duvan:/home/duvan/Desktop# docker run -it -d -p 8001:80 --name=apache ubuntu /bin/bash
d0304e230dc484e23ba8a852772c0413ae4addc90298e58b5f17654f7b10ae8a
root@duvan:/home/duvan/Desktop#
```

Luego ejecutamos el contenedor que tenemos como nombre apache:

```
root@duvan:/home/duvan/Desktop# docker exec -it apache /bin/bash
root@d0304e230dc4:/# apt-get update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [900 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [829 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [868 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:7 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [107 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.5 MB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [23.2 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [164 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy/main amd64 Packages [1792 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [266 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1199 kB]
Get:14 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [28.6 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1138 kB]
Get:16 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [885 kB]
Get:17 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [22.4 kB]
Get:18 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [49.0 kB]
Fetched 26.2 MB in 22s (1214 kB/s)
```

Actualizamos el repositorio y luego instalamos apache2:

```
root@d0304e230dc4:/# apt-get install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.52-1ubuntu4.4).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@d0304e230dc4:/#
```

Y lo inicializamos

```
root@d0304e230dc4:/# /etc/init.d/apache2 start
* Starting Apache httpd web server apache2
*
root@d0304e230dc4:/#
```


Mediante el comando ifconfig -a pudimos ver la ip relacionada con Docker

```
root@duvan:/home/duvan/Desktop# ifconfig -a
docker0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.17.0.1 netmask 255.255.0.0 broadcast 172.17.255.255
    inet6 fe80::42:d9ff:fe5a:ca47 prefixlen 64 scopeid 0x20<link>
    ether 02:42:d9:5a:ca:47 txqueuelen 0 (Ethernet)
    RX packets 25792 bytes 1043122 (1.0 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 40729 bytes 61440759 (61.4 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.31.128 netmask 255.255.255.0 broadcast 192.168.31.255
    inet6 fe80::7528:9f67:86e2:89f3 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:0d:d4:e0 txqueuelen 1000 (Ethernet)
    RX packets 312010 bytes 468731183 (468.7 MB)
    RX errors 1098 dropped 1307 overruns 0 frame 0
    TX packets 71249 bytes 3960677 (3.9 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 19 base 0x2000

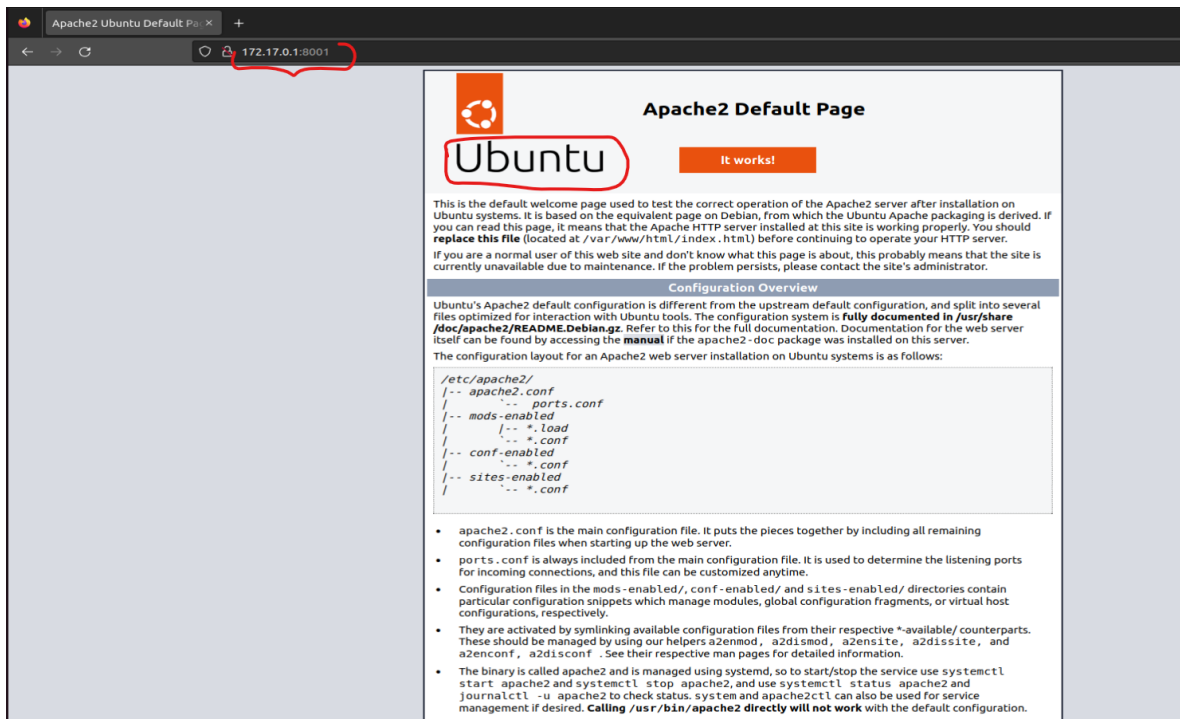
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 461 bytes 56370 (56.3 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 461 bytes 56370 (56.3 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

veth3fa1d7e: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::b465:f7ff:fe3f:5b2a prefixlen 64 scopeid 0x20<link>
    ether b6:65:f7:3f:5b:2a txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 39 bytes 4286 (4.2 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

veth86876e2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::38d6:93ff:fef1:d725 prefixlen 64 scopeid 0x20<link>
    ether 3a:d6:93:f1:d7:25 txqueuelen 0 (Ethernet)
    RX packets 25792 bytes 1404210 (1.4 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 40755 bytes 61443701 (61.4 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@duvan:/home/duvan/Desktop# S
```

Lo cual nos permitió ver en el navegador el hosting con el puerto 8001:



Por último, pudimos ver la ip del contenedor apache de la siguiente manera:

```
root@duvan:/home/duvan/Desktop# docker inspect apache | grep IPAddress
    "SecondaryIPAddresses": null,
    "IPAddress": "172.17.0.3",
    "IPAddress": "172.17.0.3",
root@duvan:/home/duvan/Desktop#
```

Taller 3

Clonando el repositorio y posicionándonos en el archivo DockerFile podemos ver el contenido del archivo

```
duvan@duvan: ~/Desktop/taller-docker/taller3-source
root@duvan: /home/duvan/Desktop
duvan@duvan:~/Desktop$ git clone ^[[200~https://github.com/sergioarmgpl/taller-docker.git~
Cloning into 'taller-docker.git'...
fatal: protocol '?[200~https' is not supported
duvan@duvan:~/Desktop$ git clone https://github.com/sergioarmgpl/taller-docker.git
Cloning into 'taller-docker'...
remote: Enumerating objects: 136, done.
remote: Counting objects: 100% (16/16), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 136 (delta 13), reused 13 (delta 13), pack-reused 120
Receiving objects: 100% (136/136), 45.40 KiB | 567.00 KiB/s, done.
Resolving deltas: 100% (52/52), done.
duvan@duvan:~/Desktop$ cd taller-docker/
duvan@duvan:~/Desktop/taller-docker$ cd taller3-source/
duvan@duvan:~/Desktop/taller-docker/taller3-source$ nano Dockerfile
duvan@duvan:~/Desktop/taller-docker/taller3-source$
```


```
GNU nano 6.2 Dockerfile *
FROM ubuntu
MAINTAINER CloudNativePlusGT
RUN apt-get update
RUN apt-get install -y apache2
RUN rm /var/www/html/*
COPY index.html /var/www/html/
CMD ["/usr/sbin/apache2ctl", "-D", "FOREGROUND"]
EXPOSE 80
```

Y también visualizamos el archivo html

```
root@duvan: /home/duvan/Desktop
GNU nano 6.2 index.html
Funci&oslash; la creaci&oslash; de tu primer container con <b>Dockerfiles</b>
```

El siguiente paso para subir una imagen a DockerHub nos logueamos mediante la terminal:

```
root@duvan:/home/duvan/Desktop# docker inspect apache | grep IPAddress
    "SecondaryIPAddresses": null,
    "IPAddress": "172.17.0.3",
    "IPAddress": "172.17.0.3",
root@duvan:/home/duvan/Desktop# docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have
Username: duvanmarinuucc
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded 
root@duvan:/home/duvan/Desktop#
```

Y construimos la imagen para dejarla lista:

```
root@duvan:/home/duvan/Desktop# docker build -t apache .
[+] Building 0.0s (2/2) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 2B
=> [internal] load .dockerignore
=> => transferring context: 2B
ERROR: failed to solve: failed to read dockerfile: open /var/lib/docker/tmp/buildkit-mount760688426/Dockerfile: no such file or directory
root@duvan:/home/duvan/Desktop#
```

Luego le hicimos push y nos generó un hash

```
root@duvan:/home/duvan/Desktop# docker push duvanmarinuucc/apache
Using default tag: latest
The push refers to repository [docker.io/duvanmarinuucc/apache]
b93c1bd012ab: Mounted from library/ubuntu
latest: digest: sha256:5523f822d85895b0a75236aba20ff6bf4135721b031fcee7a5c4a74a700c1e6 size: 529
root@duvan:/home/duvan/Desktop#
```

Después corrimos la imagen

```
root@duvan:/home/duvan/Desktop# docker run -it -d -p 8888:80 --name=apacheNuevo duvanmarinuucc/apache
9e4ab7dcaf9d5a252bec5e70c50b3bdbbf0653c8794048363f9e1a92c91d156a
root@duvan:/home/duvan/Desktop# docker stats apacheNuevo
```

Y nos mostró las estadísticas de la imagen corriendo

CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9e4ab7dcaf9d	apacheNuevo	0.00%	1.027MiB / 3.798GiB	0.03%	2.9kB / 0B	131kB / 28.7kB	1

Taller 4

Comenzamos por descargar Docker Compose

```
duvan@duvan:~/Desktop$ sudo apt install gnome-terminal
[sudo] password for duvan:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
gnome-terminal is already the newest version (3.44.0-1ubuntu1).
gnome-terminal set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 95 not upgraded.
duvan@duvan:~/Desktop$ sudo curl -L "https://github.com/docker/compose/releases/download/1.27.4/docker-compose" -o /usr/local/bin/docker-compose
duvan@duvan:~/Desktop$ sudo chmod +x /usr/local/bin/docker-compose
duvan@duvan:~/Desktop$ sudo ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose
duvan@duvan:~/Desktop$ docker-compose --version
docker-compose version 1.27.4, build 40524192
```

Y procedimos a crear el archivo YAML:

```
root@duvan: /home/duvan/Desktop
GNU nano 6.2 docker-compose.yml
version: '3'
services:
  web:
    image: "nginx"
    ports:
      - "8000:80"
  redis:
    image: "redis"
```

Luego de esto levantamos los contenedores con las propiedades del archivo .yml el cual nos da un servidor de nginx en el puerto 8000 y una base de datos redis:

```
root@duvan:/home/duvan/Desktop/taller-docker/taller4-source# docker-compose up -d
Creating network "taller4-source_default" with the default driver
Pulling web (nginx:latest)...
latest: Pulling from library/nginx
3f9582a2cbe7: Pull complete
9a8c6f286718: Pull complete
e81b85700bc2: Pull complete
73ae4d451120: Pull complete
6058e3569a68: Pull complete
3a1b8f201356: Pull complete
Digest: sha256:aa0afebbb3cfa473099a62c4b32e9b3fb73ed23f2a75a65ce1d4b4f55a5c2ef2
Status: Downloaded newer image for nginx:latest
Pulling redis (redis:latest)...
latest: Pulling from library/redis
3f9582a2cbe7: Already exists
241c2d338588: Pull complete
89515d93a23e: Pull complete
65e8ba9473fe: Pull complete
585124038cab: Pull complete
b483de716a47: Pull complete
Digest: sha256:e50c7e23f79ae81351beacb20e004720d4bed657415e68c2b1a2b5557c075ce0
Status: Downloaded newer image for redis:latest
Creating taller4-source_web_1 ... done
Creating taller4-source_redis_1 ... done
root@duvan:/home/duvan/Desktop/taller-docker/taller4-source#
```

Como se puede ver en la siguiente imagen se están ejecutando dos instancias de los contenedores los cuales uno esta corriendo la base de datos y el otro esta corriendo un sitio web en el puerto 8000 que redirecciona al 80 del contenedor mediante el servidor nginx:

```
root@duvan:/home/duvan/Desktop/taller-docker/taller4-source# docker-compose ps

```

Name	Command	State	Ports
taller4-source_redis_1	docker-entrypoint.sh redis ...	Up	6379/tcp
taller4-source_web_1	/docker-entrypoint.sh nginx ...	Up	0.0.0.0:8000->80/tcp, :::8000->80/tcp

```
root@duvan:/home/duvan/Desktop/taller-docker/taller4-source#
```