

Docker

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Docker

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Ejercicios de Repaso

Ejercicio 1

Instala Docker en una máquina y configúralo para que se pueda usar con un usuario sin privilegios.

La máquina virtual inicialmente ya disponía de Docker. En el caso de no tener Docker instalado sería:

```
apt install docker.io
```

Y el comando para utilizar Docker sin privilegios:

```
usermod -aG docker user
```

Ejercicio 2

Ejecuta un contenedor a partir de la imagen `hello-world`. Comprueba que nos devuelve la salida adecuada. Comprueba que no se está ejecutando. Lista los contenedores que están parado. Borra el contenedor.

Ejecuto el contenedor:

```
daw@daw-docker:~$ docker run --name mi_prueba hello-world
```

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:

1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub. (amd64)
3. The Docker daemon created a new container from that image which runs the executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
\$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
<https://hub.docker.com/>

For more examples and ideas, visit:
<https://docs.docker.com/get-started/>

Compruebo que no se esta ejecutando:

```
daw@daw-docker:~$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
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```
daw@daw-docker:~$
```

Listo los contenedores que están parado:

```
daw@daw-docker:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
d7f9da564a8a	hello-world	"/hello"	3 minutes ago	Exited (0)		mi_prueba
14a94beaadec	hello-world	"/hello"	16 minutes ago	Exited (0)		stoic_bohr
1f9954f88b7a	hello-world	"/hello"	5 days ago	Exited (0)		nifty_fermi

```
daw@daw-docker:~$
```

Borrar contenedor:

```
docker rm mi_prueba
```

```
daw@daw-docker:~$ docker rm mi_prueba
```

```
mi_prueba
```

```
daw@daw-docker:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
14a94beaadec	hello-world	"/hello"	17 minutes ago	Exited (0)		stoic_bohr
1f9954f88b7a	hello-world	"/hello"	5 days ago	Exited (0)		nifty_fermi

```
daw@daw-docker:~$
```

Ejercicio 3

Crea un contenedor interactivo desde una imagen debian. Instala un paquete (por ejemplo `nano`). Sal de la terminal, ¿sigue el contenedor corriendo? ¿Por qué?. Vuelve a iniciar el contenedor y accede de nuevo a él de forma interactiva. ¿Sigue instalado el `nano`? Sal del contenedor, y bórralo. Crea un nuevo contenedor interactivo desde la misma imagen. ¿Tiene el `nano` instalado?

a) Creación del contenedor Interactivo:

```
daw@daw-docker: ~  
daw@daw-docker:~$ docker run -it --name debian debian  
Unable to find image 'debian:latest' locally  
latest: Pulling from library/debian  
bbee03cda1f: Pull complete  
Digest: sha256:534da5794e770279c889daa891f46f5a530b0c5de8bfb5e40394a0164d9fa87  
Status: Downloaded newer image for debian:latest  
root@ee5f93464878:/#
```

b) Instalación de un paquete

Para realizar la instalación de un paquete como nano, será necesario hacer un `apt update` y una vez hecho esto, nos dejará instalar el paquete con el comando:

```
apt install nano
```

```
daw@daw-docker: ~  
root@38df9da3c4b6:/# apt upgrade  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
Calculating upgrade... Done  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.  
root@38df9da3c4b6:/# apt install nano  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  libgpm2 libncursesw6  
Suggested packages:  
  gpm hunspell  
The following NEW packages will be installed:  
  libgpm2 libncursesw6 nano  
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.  
Need to get 825 kB of archives.  
After this operation, 3087 kB of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Get:1 http://deb.debian.org/debian bullseye/main amd64 libncursesw6 amd64 6.2+20201114-2  
Get:2 http://deb.debian.org/debian bullseye/main amd64 nano amd64 5.4-2+deb11u2 [657 kB]  
Get:3 http://deb.debian.org/debian bullseye/main amd64 libgpm2 amd64 1.20.7-8 [35.6 kB]  
Fetched 825 kB in 0s (3057 kB/s)  
debconf: delaying package configuration, since apt-utils is not installed  
Selecting previously unselected package libncursesw6:amd64.  
(Reading database ... 6661 files and directories currently installed.)  
Preparing to unpack .../libncursesw6_6.2+20201114-2_amd64.deb ...  
Unpacking libncursesw6:amd64 (6.2+20201114-2) ...  
Selecting previously unselected package nano.  
Preparing to unpack .../nano_5.4-2+deb11u2_amd64.deb ...  
Unpacking nano (5.4-2+deb11u2) ...  
Selecting previously unselected package libgpm2:amd64.  
Preparing to unpack .../libgpm2_1.20.7-8_amd64.deb ...  
Unpacking libgpm2:amd64 (1.20.7-8) ...  
Setting up libgpm2:amd64 (1.20.7-8) ...  
Setting up libncursesw6:amd64 (6.2+20201114-2) ...  
Setting up nano (5.4-2+deb11u2) ...  
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode  
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode  
Processing triggers for libc-bin (2.31-13+deb11u5) ...  
root@38df9da3c4b6:/#
```

c) Sal de la terminal, ¿sigue el contenedor corriendo? ¿Por qué?.

```
daw@daw-docker: ~  
daw@daw-docker:~$ docker ps  
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES  
daw@daw-docker:~$
```

No sigue corriendo el contenedor, porque se cerró y no está en segundo plano

d) Vuelve a iniciar el contenedor y accede de nuevo a él de forma interactiva. ¿Sigue instalado el `nano` ?

Utilizo el comando `docker start -i debian1` , para iniciar el contenedor

```
daw@daw-docker: ~  
daw@daw-docker:~$ docker start -i debian1  
root@38df9da3c4b6:/# nano --version  
GNU nano, version 5.4  
(C) 1999-2011, 2013-2020 Free Software Foundation, Inc.  
(C) 2014-2020 the contributors to nano  
Compiled options: --disable-libmagic --enable-utf8  
root@38df9da3c4b6:/#
```

Como se ve en la imagen anterior, sigue estando instalado el paquete nano.

e) Sal del contenedor, y bórralo. Crea un nuevo contenedor interactivo desde la misma imagen. ¿Tiene el `nano` instalado?

```
daw@daw-docker:~$ docker rm debian1  
debian1  
daw@daw-docker:~$ docker run -it --name nuevo_debian debian  
root@cca33e655fd2:/# nano --version  
bash: nano: command not found  
root@cca33e655fd2:/#
```

No tiene instalado el paquete nano.

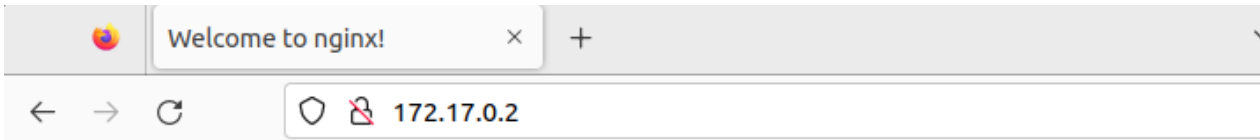
Ejercicio 4

Crea un contenedor demonio con un servidor nginx, usando la imagen oficial de nginx. Al crear el contenedor, ¿has tenido que indicar algún comando para que lo ejecute? Accede al navegador web y comprueba que el servidor esta funcionando. Muestra los logs del contenedor.

Es importante saber que para correr un contenedor en segundo plano osea demonio, debe tener **-d** a continuación de run.

```
daw@daw-docker:~$ docker run -d --name nginx1 nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
8740c948ffd4: Already exists
d2c0556a17c5: Pull complete
c8b9881f2c6a: Pull complete
693c3ffa8f43: Pull complete
8316c5e80e6d: Pull complete
b2fe3577faa4: Pull complete
Digest: sha256:b8f2383a95879e1ae064940d9a200f67a6c79e710ed82ac42263397367e7cc4e
Status: Downloaded newer image for nginx:latest
e2b64e5b68c3ef6192c1f512d54bd56be92a411f8259328ec43769f3fbe71cc8
daw@daw-docker:~$
```

Comprobación:



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Con el comando `docker logs nginx1` podré ver los logs de ese contenedor

```
docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.s
n
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.s
n
/docker-entrypoint.sh: Configuration complete; ready for start up
2023/01/16 11:34:42 [notice] 1#1: using the "epoll" event method
2023/01/16 11:34:42 [notice] 1#1: nginx/1.23.3
2023/01/16 11:34:42 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)

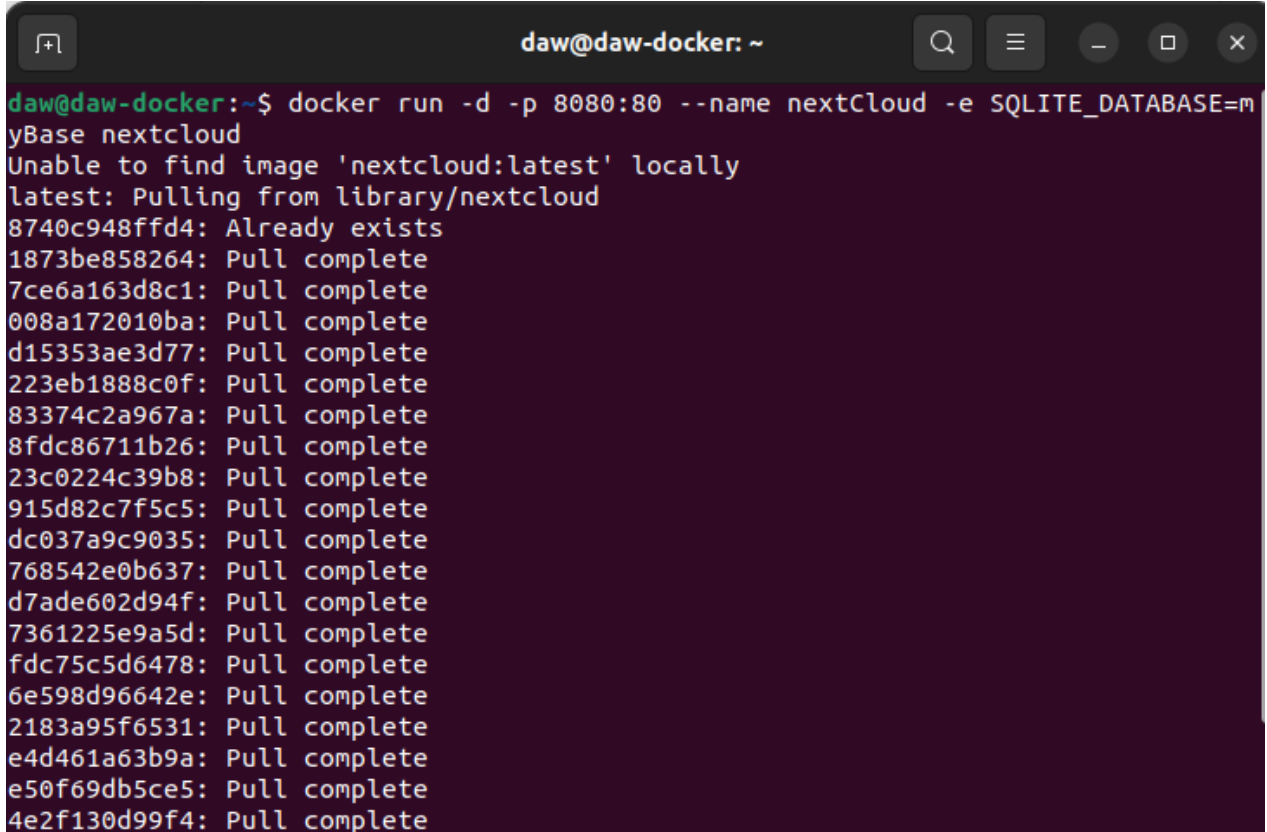
2023/01/16 11:34:42 [notice] 1#1: OS: Linux 5.15.0-57-generic
2023/01/16 11:34:42 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/01/16 11:34:42 [notice] 1#1: start worker processes
2023/01/16 11:34:42 [notice] 1#1: start worker process 29
2023/01/16 11:34:42 [notice] 1#1: start worker process 30
172.17.0.1 - - [16/Jan/2023:11:37:33 +0000] "GET / HTTP/1.1" 200 615 "-" "Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:108.0) Gecko/20100101 Firefox/108.0" "-"
2023/01/16 11:37:34 [error] 29#29: *1 open() "/usr/share/nginx/html/favicon.ico" failed (2: No such file or directory), client: 172.17.0.1, server: localhost, request: "GET /favicon.ico HTTP/1.1", host: "172.17.0.2", referer: "http://172.17.0.2/"
172.17.0.1 - - [16/Jan/2023:11:37:34 +0000] "GET /favicon.ico HTTP/1.1" 404 153 "http://172.17.0.2/" "Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:108.0) Gecko/20100101 Firefox/108.0" "-"
```

Ejercicio 5

Crea un contenedor con la aplicación Nextcloud, mirando la documentación en docker Hub, para personalizar el nombre de la base de datos sqlite que va a utilizar.

El comando a utilizar será:

```
docker run -d -p 8080:80 --name nextCloud -e SQLITE_DATABASE=myBase nextcloud
```



```
daw@daw-docker: ~  
daw@daw-docker:~$ docker run -d -p 8080:80 --name nextCloud -e SQLITE_DATABASE=myBase nextcloud  
Unable to find image 'nextcloud:latest' locally  
latest: Pulling from library/nextcloud  
8740c948ff4d: Already exists  
1873be858264: Pull complete  
7ce6a163d8c1: Pull complete  
008a172010ba: Pull complete  
d15353ae3d77: Pull complete  
223eb1888c0f: Pull complete  
83374c2a967a: Pull complete  
8fdc86711b26: Pull complete  
23c0224c39b8: Pull complete  
915d82c7f5c5: Pull complete  
dc037a9c9035: Pull complete  
768542e0b637: Pull complete  
d7ade602d94f: Pull complete  
7361225e9a5d: Pull complete  
fdc75c5d6478: Pull complete  
6e598d96642e: Pull complete  
2183a95f6531: Pull complete  
e4d461a63b9a: Pull complete  
e50f69db5ce5: Pull complete  
4e2f130d99f4: Pull complete
```

Referencias

https://hub.docker.com/_/nextcloud

<https://www.digitalocean.com/community/tutorials>