

ÁLVARO JOAQUÍN ALBARRACÍN SALINAS. 2ºDAW.

- Actividad 1.

Vemos las imágenes y los contenedores.

```
C:\WINDOWS\system32\cmd. X + v

C:\Users\Alvaro>docker images
REPOSITORY    TAG       IMAGE ID   CREATED   SIZE

C:\Users\Alvaro>docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS      PORTS      NAMES
C:\Users\Alvaro>
```

- Actividad 2.

Para desplegar ubuntu, corremos el hello-world de docker, ahí nos sale el comando para descargar y correr ubuntu. Lo ejecutamos y hacemos un comando (ls) de Linux.

```
root@be1766671f0b: / X + v

C:\Users\Alvaro>docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
e6590344b1a5: Download complete
Digest: sha256:d715f14f9eca81473d9112df50457893aa4d099adeb4729f679006bf5ea12407
Status: Downloaded newer image for hello-world:latest

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/

C:\Users\Alvaro>docker run -it ubuntu bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
5a7813e071bf: Download complete
Digest: sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782
Status: Downloaded newer image for ubuntu:latest
root@be1766671f0b:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@be1766671f0b:/#
```

Paramos y eliminamos el contenedor hello-world a través de su CONTAINER ID.

```
C:\WINDOWS\system32\cmd. X + v
C:\Users\Alvaro>docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
be1766671f0b   ubuntu   "bash"    2 minutes ago   Exited (0) 19 seconds ago   goofy_haslett
8527be3cc7ee   hello-world   "/hello"   3 minutes ago   Exited (0) 3 minutes ago   magical_mcclintock

C:\Users\Alvaro>docker stop 8527be3cc7ee
8527be3cc7ee

C:\Users\Alvaro>docker rm 8527be3cc7ee
8527be3cc7ee

C:\Users\Alvaro>docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
be1766671f0b   ubuntu   "bash"    3 minutes ago   Exited (0) About a minute ago   goofy_haslett

C:\Users\Alvaro>
```

- Actividad 3.

Inspeccionamos la configuración de los del contenedor ubuntu(a través de su nombre).

```
C:\WINDOWS\system32\cmd. X + v
C:\Users\Alvaro>docker inspect goofy_haslett
[
  {
    "Id": "be1766671f0be32e03043dcafa20acb620ae93d99d23574f392e1c00ba992048",
    "Created": "2025-02-11T07:39:24.804809716Z",
    "Path": "bash",
    "Args": [],
    "State": {
      "Status": "exited",
      "Running": false,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 0,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2025-02-11T07:39:25.024146216Z",
      "FinishedAt": "2025-02-11T07:41:50.327560108Z"
    },
    "Image": "sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782",
    "ResolvConfPath": "/var/lib/docker/containers/be1766671f0be32e03043dcafa20acb620ae93d99d23574f392e1c00ba992048/r
esolv.conf",
    "HostnamePath": "/var/lib/docker/containers/be1766671f0be32e03043dcafa20acb620ae93d99d23574f392e1c00ba992048/hos
tname",
    "HostsPath": "/var/lib/docker/containers/be1766671f0be32e03043dcafa20acb620ae93d99d23574f392e1c00ba992048/hosts"
```

- Actividad 5.

Creamos un contenedor apache a partir de la imagen bitnami/apache, con mapeo de puertos manual. Comprobamos los puertos.

```
C:\WINDOWS\system32\cmd. X + v
```

```
C:\Users\Alvaro>docker run -d -p 8080:80 --name apache bitnami/apache
Unable to find image 'bitnami/apache:latest' locally
latest: Pulling from bitnami/apache
021alc647f78: Download complete
Digest: sha256:f3bbcc9565e84794bd6bea2elfc76658963b308e16ccac3a97e1df5dadcfaf496
Status: Downloaded newer image for bitnami/apache:latest
7ebf950f649dce291ed0b21dc1991f3c12e519b6cd1bbe276a2673812949525b

C:\Users\Alvaro>docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	STATUS	PORTS	NAMES
7ebf950f649d	bitnami/apache	"/opt/bitnami/script..."	About a minute ago	8080/tcp, 8443/tcp, 0.0.0.0:8080->80/tcp	apache
be1766671fb6	ubuntu	"bash"	Exited (0) 11 minutes ago		goofy_haslett

```
C:\Users\Alvaro>
```

Creamos un index.html en nuestra máquina local. Comprobamos que se ha creado.

```
C:\Users\Alvaro>echo "<h1>actividad 5 de Alvaro</h1>" > index.html
```

```
C:\Users\Alvaro>dir
```

```
El volumen de la unidad C no tiene etiqueta.
```

```
El número de serie del volumen es: 3091-5633
```

```
Directorio de C:\Users\Alvaro
```

10/02/2025	11:43	<DIR>	.
25/11/2024	10:02	<DIR>	..
07/01/2025	14:05		351 .bash_history
03/12/2024	09:08	<DIR>	.cache
11/02/2025	08:32	<DIR>	.docker
03/12/2024	09:08	<DIR>	.eclipse
25/11/2024	10:17		196 .gitconfig
21/01/2025	12:39	<DIR>	.jdk
15/01/2025	12:07	<DIR>	.lemminx
21/01/2025	12:39	<DIR>	.m2
21/01/2025	08:26	<DIR>	.p2
07/02/2025	10:38	<DIR>	.VirtualBox
25/11/2024	10:15	<DIR>	.vscode
09/01/2025	08:32	<DIR>	apache-tomcat-9.0.89
25/11/2024	10:02	<DIR>	Contacts
11/02/2025	08:31	<DIR>	Desktop
10/01/2025	13:30	<DIR>	Documents
11/02/2025	08:30	<DIR>	Downloads
07/01/2025	09:55	<DIR>	eclipse
21/01/2025	09:25	<DIR>	eclipse-enterprise
03/12/2024	09:08	<DIR>	eclipse-workspace
07/01/2025	09:56	<DIR>	eclipseEnterprise
25/11/2024	12:49	<DIR>	example-app
25/11/2024	10:02	<DIR>	Favorites
11/02/2025	08:58		35 index.html
25/11/2024	10:02	<DIR>	Links
25/11/2024	10:02	<DIR>	Music
25/11/2024	10:02	<DIR>	OneDrive
26/11/2024	08:24	<DIR>	Pictures
10/02/2025	12:31	<DIR>	practical2
25/11/2024	10:02	<DIR>	Saved Games
26/11/2024	08:18	<DIR>	Searches
09/01/2025	11:31	<DIR>	Videos
10/12/2024	08:23	<DIR>	VirtualBox VMs
		3 archivos	582 bytes
		31 dirs	135.747.346.432 bytes libres

Accedemos al contenedor en modo interactivo, vemos el index que tiene por defecto. Copiamos el index de nuestra máquina local al contenedor. Accedemos de nuevo al contenedor y vemos el index, ya que en el navegador no nos dejaba.

```
C:\WINDOWS\system32\cmd. X + v

C:\Users\Alvaro>docker exec -it apache /bin/bash
I have no name!@7ebf950f649d:/app$ cd /opt/bitnami/apache/htdocs/
I have no name!@7ebf950f649d:/opt/bitnami/apache/htdocs$ ls
index.html
I have no name!@7ebf950f649d:/opt/bitnami/apache/htdocs$ cat index.html
<html><body><h1>It works!</h1></body></html>
I have no name!@7ebf950f649d:/opt/bitnami/apache/htdocs$ exit
exit

C:\Users\Alvaro>docker cp index.html /opt/bitnami/apache/htdocs
must specify at least one container source

C:\Users\Alvaro>docker cp index.html apache:/opt/bitnami/apache/htdocs
must specify at least one container source

C:\Users\Alvaro>docker cp index.html apache:/opt/bitnami/apache/htdocs
Successfully copied 2.05kB to apache:/opt/bitnami/apache/htdocs

C:\Users\Alvaro>docker exec -it apache /bin/bash
I have no name!@7ebf950f649d:/app$ cd /opt/bitnami/apache/htdocs/
I have no name!@7ebf950f649d:/opt/bitnami/apache/htdocs$ ls
index.html
I have no name!@7ebf950f649d:/opt/bitnami/apache/htdocs$ cat index.html
"<h1>actividad 5 de Alvaro</h1>"
I have no name!@7ebf950f649d:/opt/bitnami/apache/htdocs$
```

Paramos, borramos y comprobamos que se ha borrado el contenedor “apache”.

```
C:\WINDOWS\system32\cmd. X + v

C:\Users\Alvaro>docker stop apache
apache

C:\Users\Alvaro>docker rm apache
apache

C:\Users\Alvaro>docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
be1766671f0b   ubuntu   "bash"    28 minutes ago   Exited (0) 25 minutes ago   goofy_haslett

C:\Users\Alvaro>
```

- Actividad 7.

Creamos dos contenedores en el mismo volumen. Vemos que se ha creado el volumen "volumen1".

```
C:\WINDOWS\system32\cmd. X + v
C:\Users\Alvaro>docker run -d -P --name container1 --mount type=volume source=volumen1 target=/app bitnami/apache
2eeda85a9f583c1f56df9fb4ab48d8c096eb0c10d039e7c9db24151cfe9af990
C:\Users\Alvaro>docker run -d -P --name container2 --mount type=volume source=volumen1 target=/app bitnami/apache
9e7d4b1ff69e41158743ea2ccaf6bcc975274ef6388168b9316e5c253629240c
C:\Users\Alvaro>docker volume ls
DRIVER    VOLUME NAME
local     386bab1e320e131ac3eefec1eb4221c9254a753810c28eaa258f0154df71a24b
local     aa2fc1feda5bcbb92cc397a6b1a589bed9981309e271854af8404980667b9343
local     e1eed47ba41b022c8289ea35100a44b16722cdc2a35205b84f84f2fcb713cba5
local     volumen1
C:\Users\Alvaro>
```

Accedemos al contenido del volumen.

```
C:\WINDOWS\system32\cmd. X + v
C:\Users\Alvaro>docker inspect volumen1
[
  {
    "CreatedAt": "2025-02-11T08:17:30Z",
    "Driver": "local",
    "Labels": null,
    "Mountpoint": "/var/lib/docker/volumes/volumen1/_data",
    "Name": "volumen1",
    "Options": null,
    "Scope": "local"
  }
]
C:\Users\Alvaro>
```

Paramos y borramos ambos contenedores, al igual que el volumen. Comprobamos.

```
C:\WINDOWS\system32\cmd. X + v

C:\Users\Alvaro>docker stop container1 container2
container1
container2

C:\Users\Alvaro>docker rm container1 container2
container1
container2

C:\Users\Alvaro>docker volume rm volumen1
volumen1

C:\Users\Alvaro>docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES
be1766671f0b   ubuntu   "bash"    45 minutes ago   Exited (0) 42 minutes ago   goofy_haslett

C:\Users\Alvaro>docker volume ls
DRIVER      VOLUME NAME
local       386bab1e320e131ac3eefec1eb4221c9254a753810c28eaa258f0154df71a24b
local       aa2fc1feda5bcb92cc397a6b1a589bed9981309e271854af8404980667b9343
local       e1eed47ba41b022c8289ea35100a44b16722cdc2a35205b84f84f2fcb713cba5

C:\Users\Alvaro>
```

- Actividad 8.

Comprobamos las redes que hay definidas.

```
C:\WINDOWS\system32\cmd. X + v

C:\Users\Alvaro>docker network ls
NETWORK ID      NAME      DRIVER      SCOPE
9e29913afd8a    bridge    bridge       local
1733176b2081    host      host         local
08feb441a3f5    none      null         local

C:\Users\Alvaro>
```

Conectamos un contenedor apache a la red del equipo.

```
C:\WINDOWS\system32\cmd. X + v

C:\Users\Alvaro>docker run -d --name apache2 --network host bitnami/apache
b8bc97c6b49081090492fed2fba12993188ede38ef0b5d6341128e2c9e547017
```

Creamos nuestra propia red en modo puente. Creamos un contenedor dentro de ella.

```
C:\WINDOWS\system32\cmd. x + v

C:\Users\Alvaro>docker network create mired
360669bca76a12d1073ed098510aec9798ee2b8237ccfd33a52396874aa8381a

C:\Users\Alvaro>docker run -d --name apache3 --network mired -p 8080:80 bitnami/apache
bddab0c8bfafe7176ffedec8f30d19507aa81e4d9068bf86d9dda1da9d3b50f0
docker: Error response from daemon: driver failed programming external connectivity on endpoint apache3 (ac4a9
a2d30508bad7dd8f7d703eadc3ad3965fb8be5900afa49013bcae1dccad): failed to bind port 0.0.0.0:8080/tcp: listen tcp
4 0.0.0.0:8080: bind: address already in use.

C:\Users\Alvaro>docker run -d --name apache3 --network mired -p 8088:80 bitnami/apache
docker: Error response from daemon: Conflict. The container name "/apache3" is already in use by container "bd
dab0c8bfafe7176ffedec8f30d19507aa81e4d9068bf86d9dda1da9d3b50f0". You have to remove (or rename) that container
to be able to reuse that name.
See 'docker run --help'.

C:\Users\Alvaro>docker run -d --name apache4 --network mired -p 8088:80 bitnami/apache
123cb4b6ca4a09f792da79c941f6619727978821366ac01355597e6757dbe339

C:\Users\Alvaro>docker rm -f apache3
apache3

C:\Users\Alvaro>
```

Observamos las características de la red.

```
C:\WINDOWS\system32\cmd. x + v

C:\Users\Alvaro>docker network inspect mired
[
  {
    "Name": "mired",
    "Id": "360669bca76a12d1073ed098510aec9798ee2b8237ccfd33a52396874aa8381a",
    "Created": "2025-02-11T08:32:08.718184876Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    }
  }
]
```