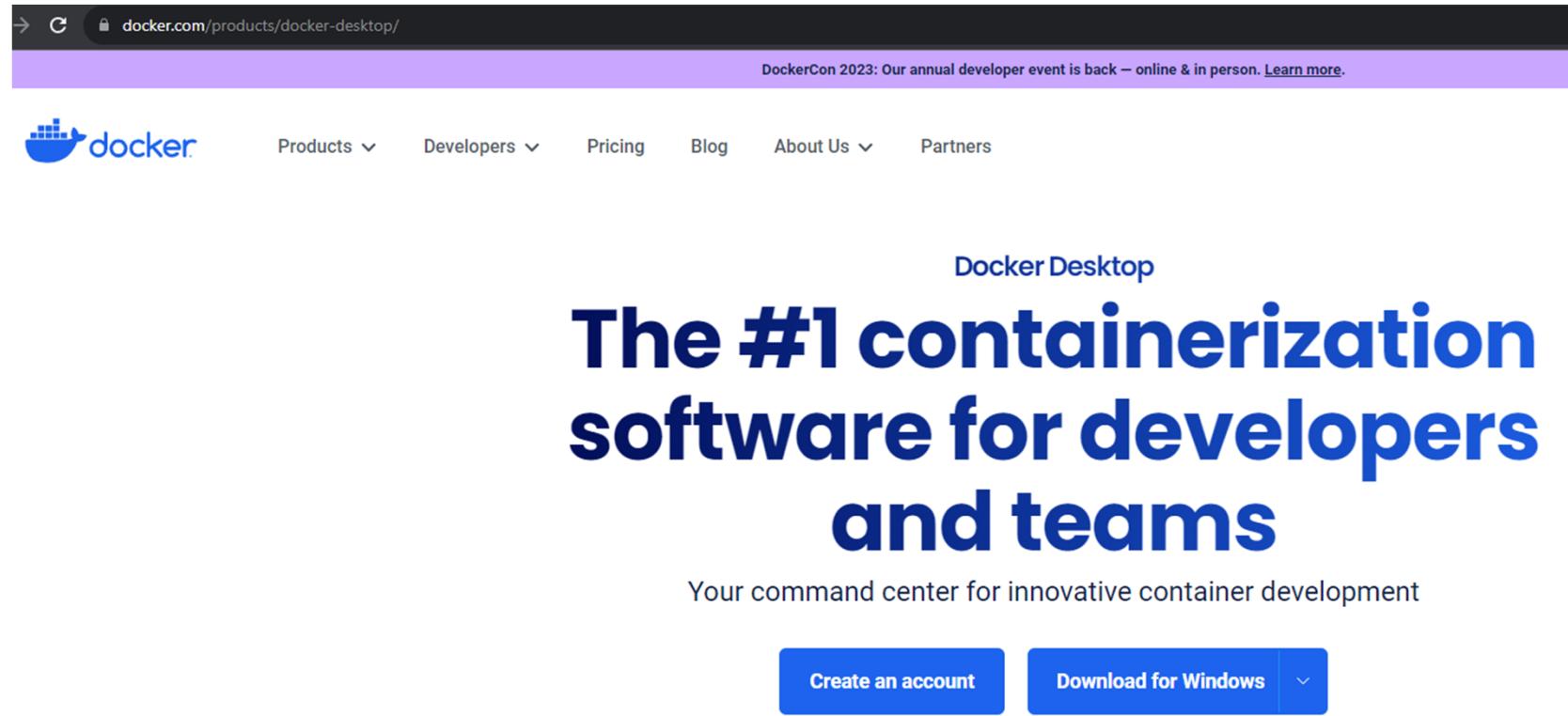


docker®

Docker Desktop



The screenshot shows the Docker Desktop product page on the official Docker website. At the top, there's a navigation bar with links for Products, Developers, Pricing, Blog, About Us, and Partners. A purple banner at the top of the main content area reads "DockerCon 2023: Our annual developer event is back – online & in person. [Learn more.](#)". The main headline is "Docker Desktop" followed by the tagline "The #1 containerization software for developers and teams". Below that, it says "Your command center for innovative container development". There are two prominent blue buttons: "Create an account" and "Download for Windows".

docker.com/products/docker-desktop/

DockerCon 2023: Our annual developer event is back – online & in person. [Learn more.](#)

Products ▾ Developers ▾ Pricing Blog About Us ▾ Partners

Docker Desktop

The #1 containerization software for developers and teams

Your command center for innovative container development

Create an account

Download for Windows ▾

El instalador



Installing Docker Desktop 4.24.0 (122432)

Docker Desktop

Initializing...

Verifying package

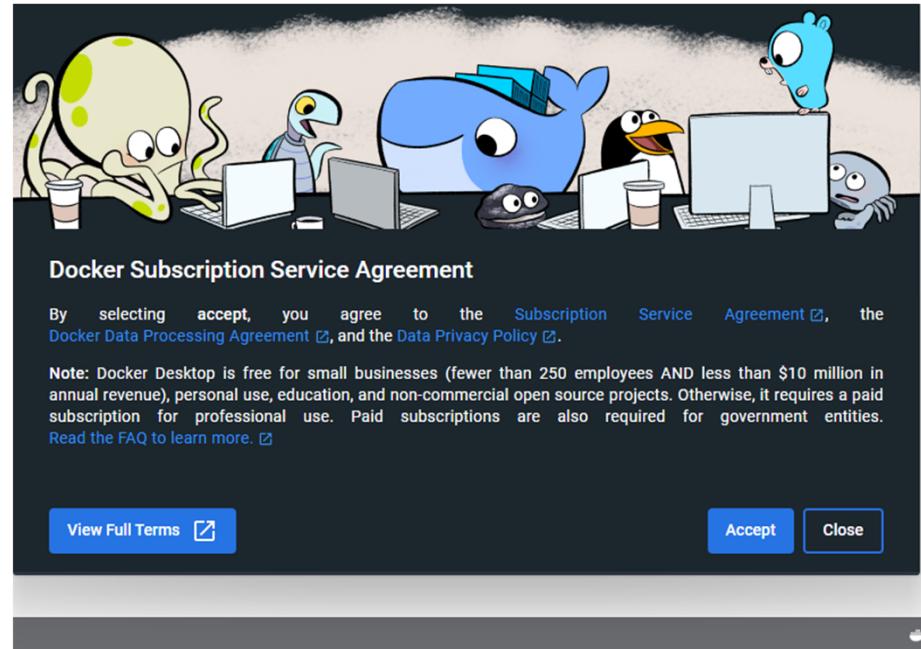
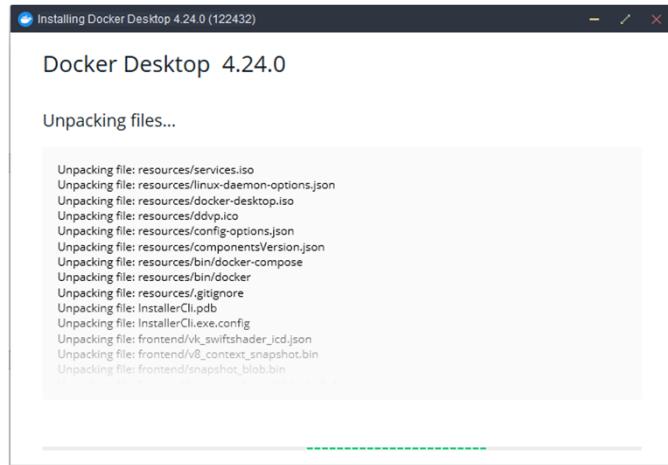
Installing Docker Desktop 4.24.0 (122432)

Configuration

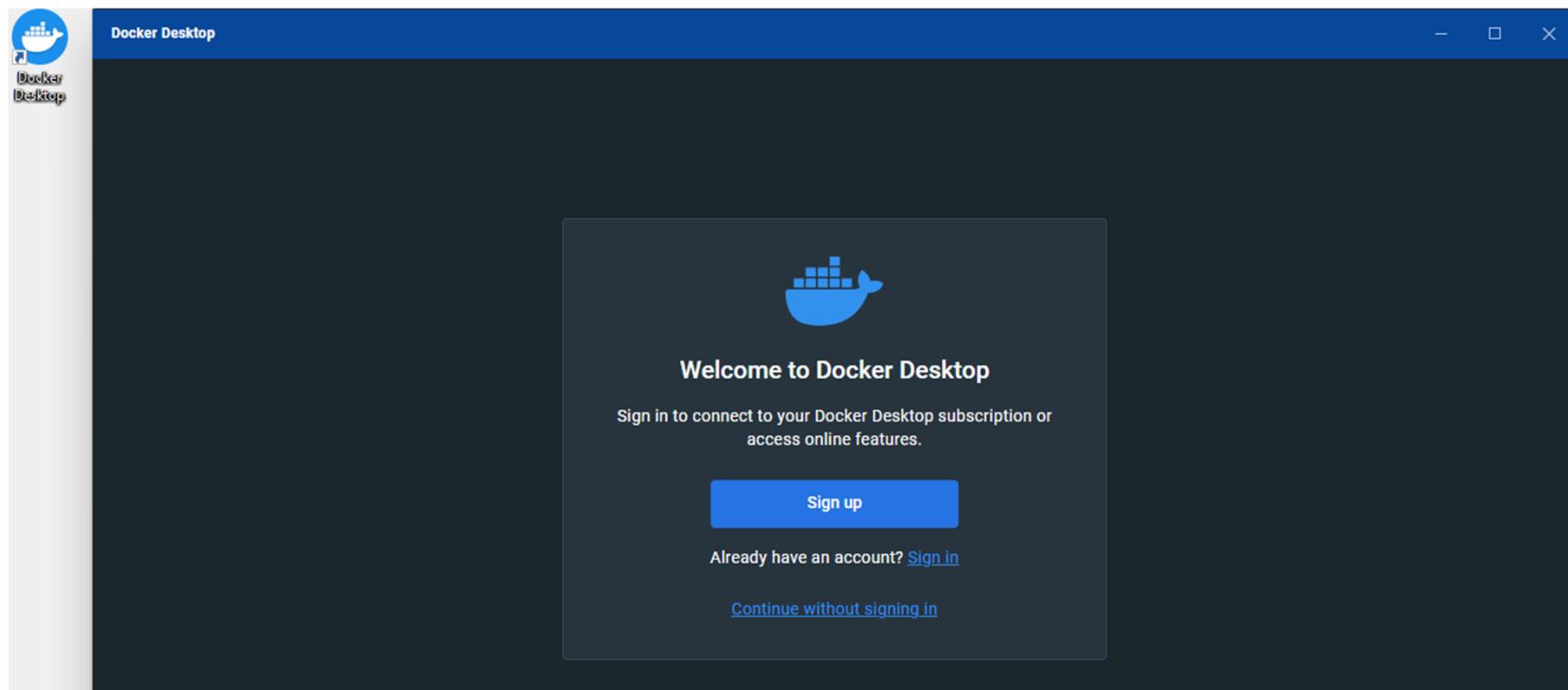
Use WSL 2 instead of Hyper-V (recommended)
 Add shortcut to desktop

Ok 3

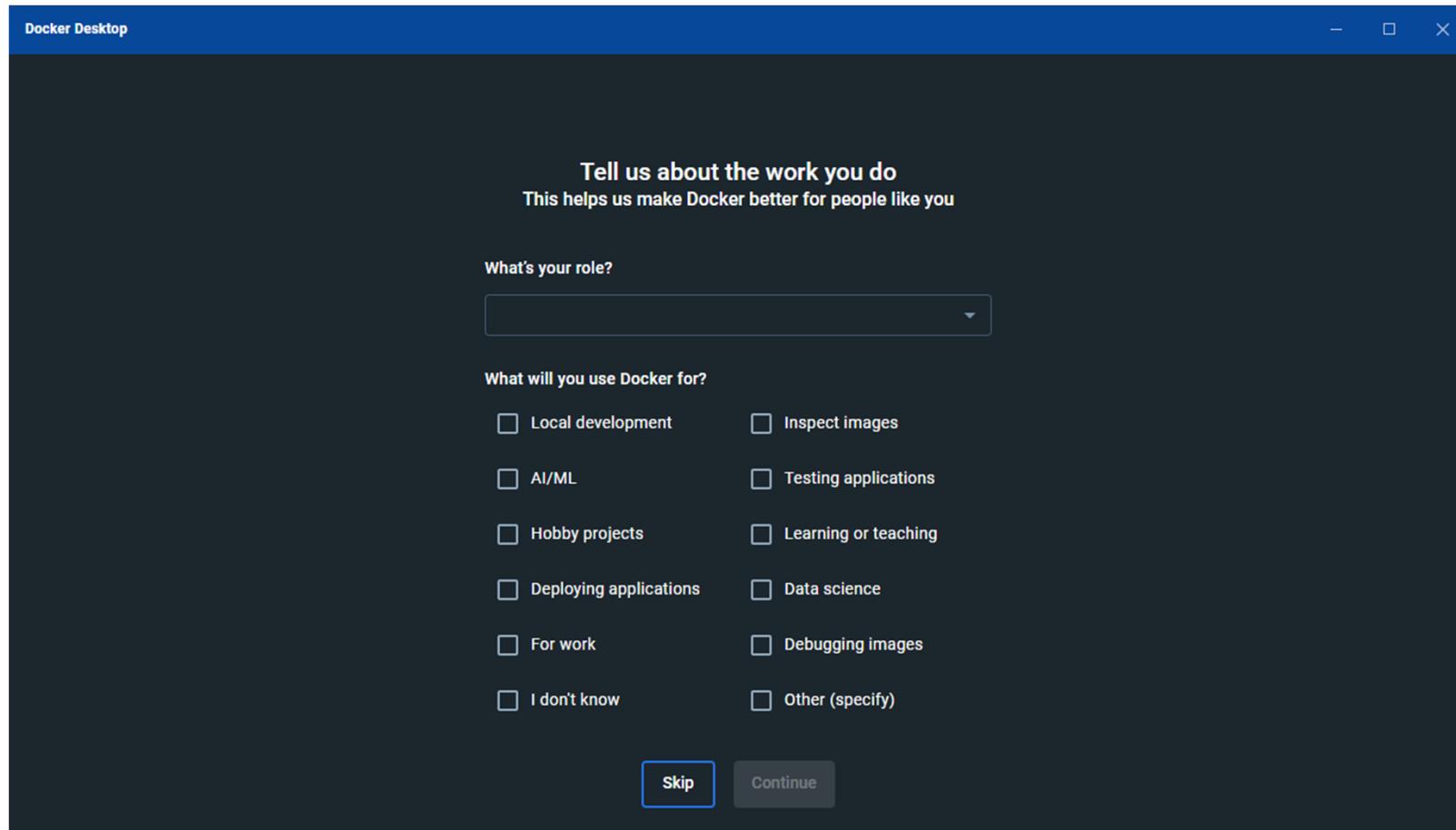
Instalando ...



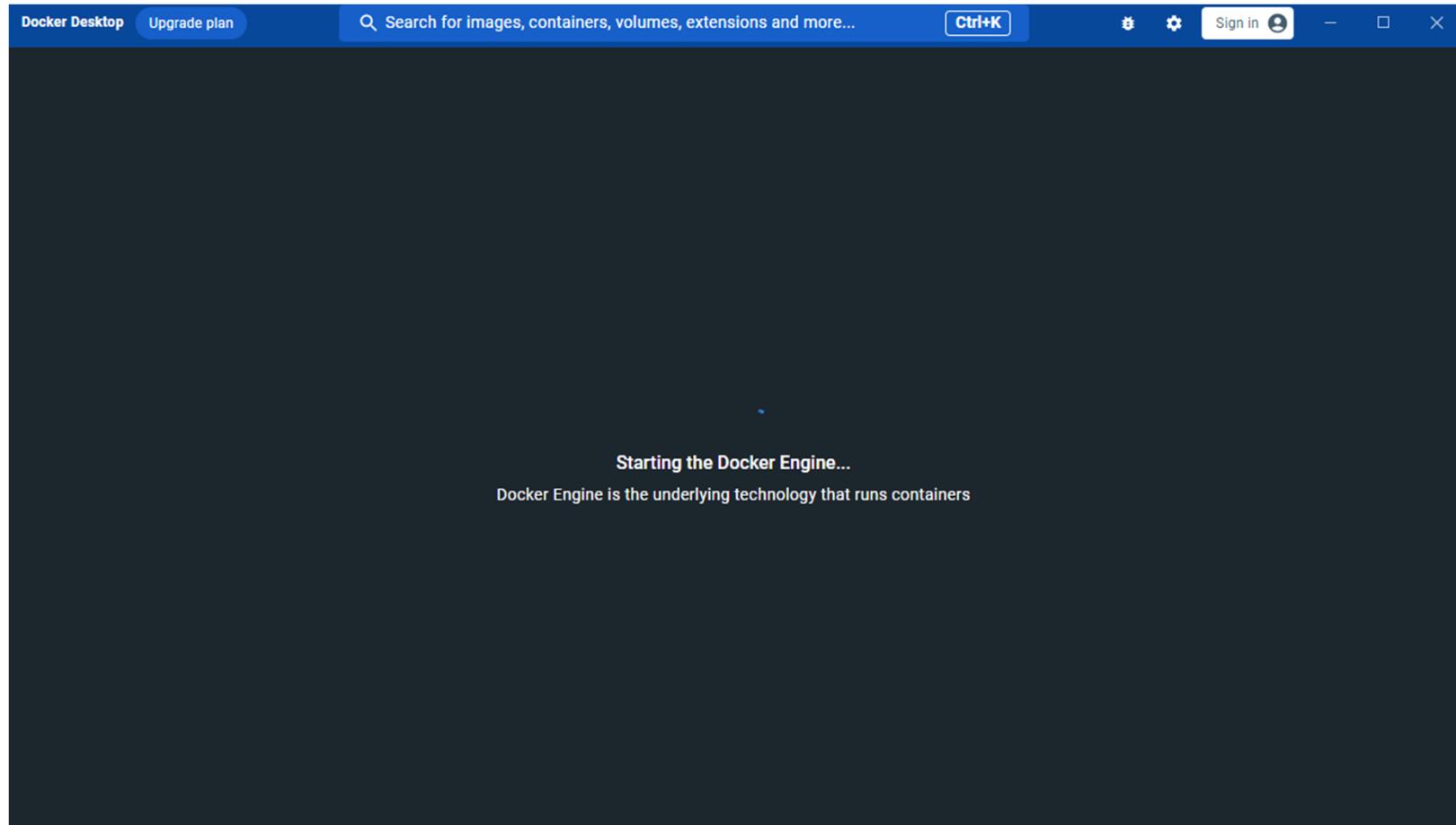
Instalado ¿?



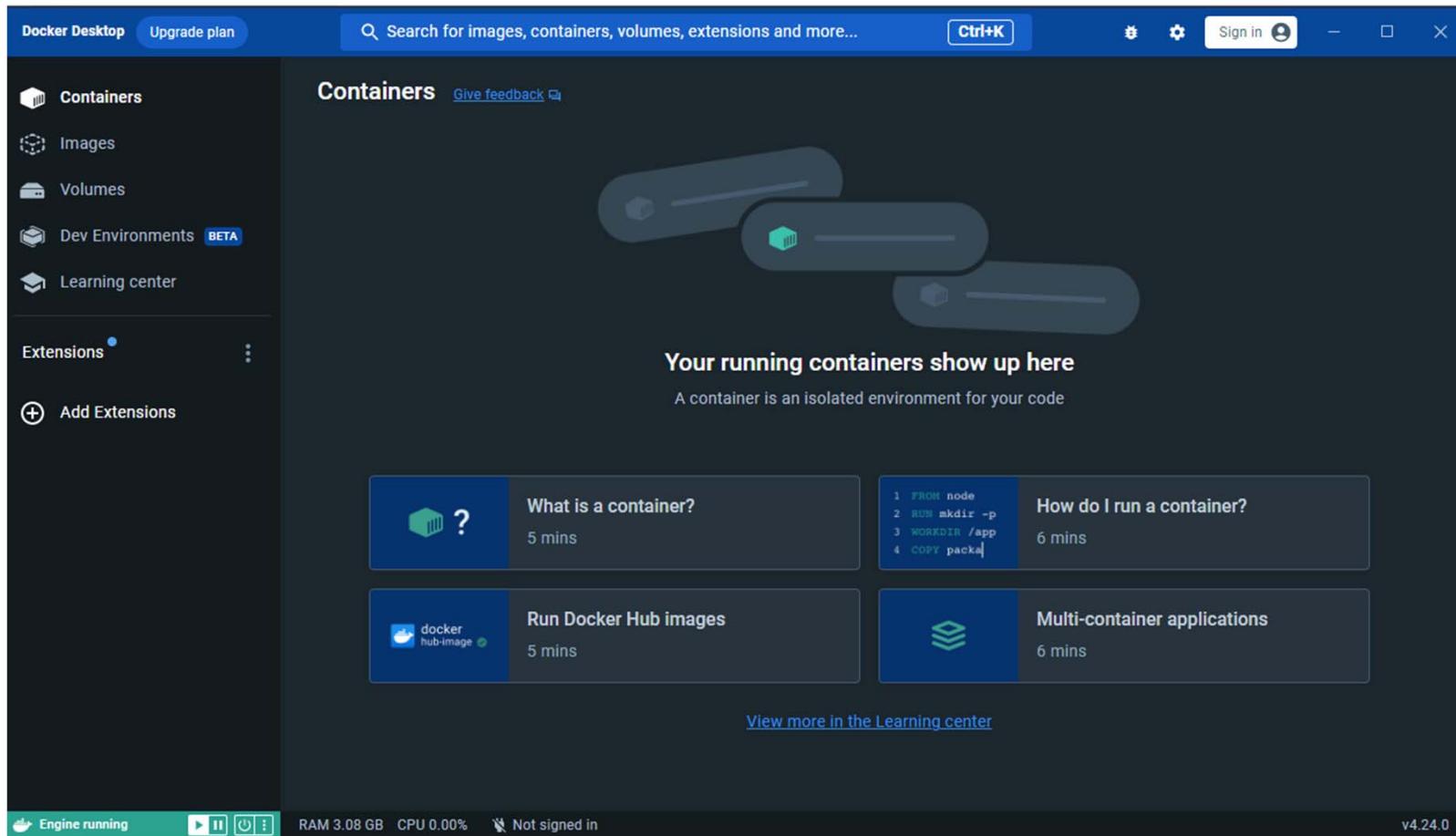
Más preguntas



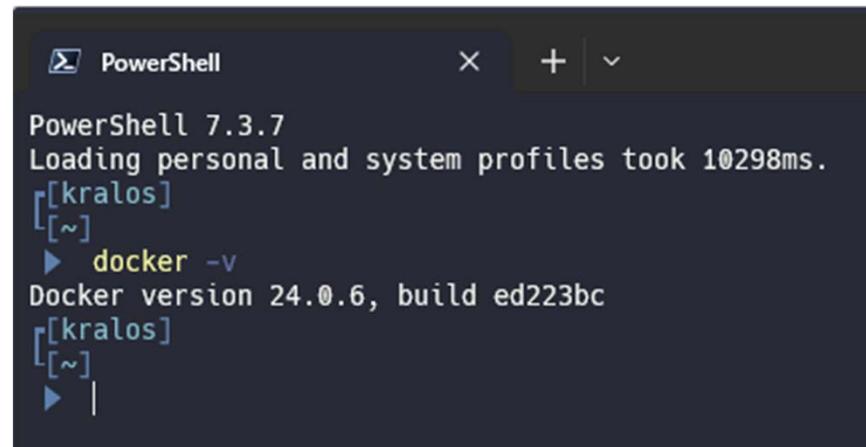
Ahora parece que ya inicio



Según ya esta ejecutándose ...



Verificación de que todo esta bien



```
PowerShell 7.3.7
Loading personal and system profiles took 10298ms.
[kralos]
[~]
▶ docker -v
Docker version 24.0.6, build ed223bc
[kralos]
[~]
▶ |
```

A screenshot of a Windows PowerShell window titled "PowerShell". The window shows the output of a "docker -v" command. The output indicates that Docker version 24.0.6 is installed. The PowerShell interface includes a title bar with the title, standard window controls (close, minimize, maximize), and a command history area at the bottom.

hub.Docker.com

The screenshot shows the Docker Hub homepage at hub.docker.com. The top navigation bar includes links for [Explore](#), [Pricing](#), [Sign In](#), and a prominent [Sign up](#) button. A purple banner at the top encourages users to "Join the DockerCon online event Oct 4-5th, live from Los Angeles. [Watch now.](#)" The main visual features a large blue hexagonal graphic on the left with the text "Build and Ship any Application Anywhere". Below this, a subtext reads: "Docker Hub is the world's easiest way to create, manage, and deliver your team's container applications." On the right, a white sign-up form is displayed with fields for Email, Username, and Password, along with a checkbox for receiving product updates and links to Privacy Policy and Terms of Service. A "Sign up" button is at the bottom of the form, and a link for existing users to "Sign in" is located below it.

hub.docker.com

Join the DockerCon online event Oct 4-5th, live from Los Angeles. [Watch now.](#)

 [Search Docker Hub](#)

[Explore](#) [Pricing](#) [Sign In](#) [Sign up](#)

Build and Ship any Application Anywhere

Docker Hub is the world's easiest way to create, manage, and deliver your team's container applications.

Create your account

Signing up for Docker is fast and free.

Email

Username

Password

Send me occasional product updates and announcements.

This site is protected by reCAPTCHA and the Google [Privacy Policy](#) and [Terms of Service](#) apply.

[Sign up](#)

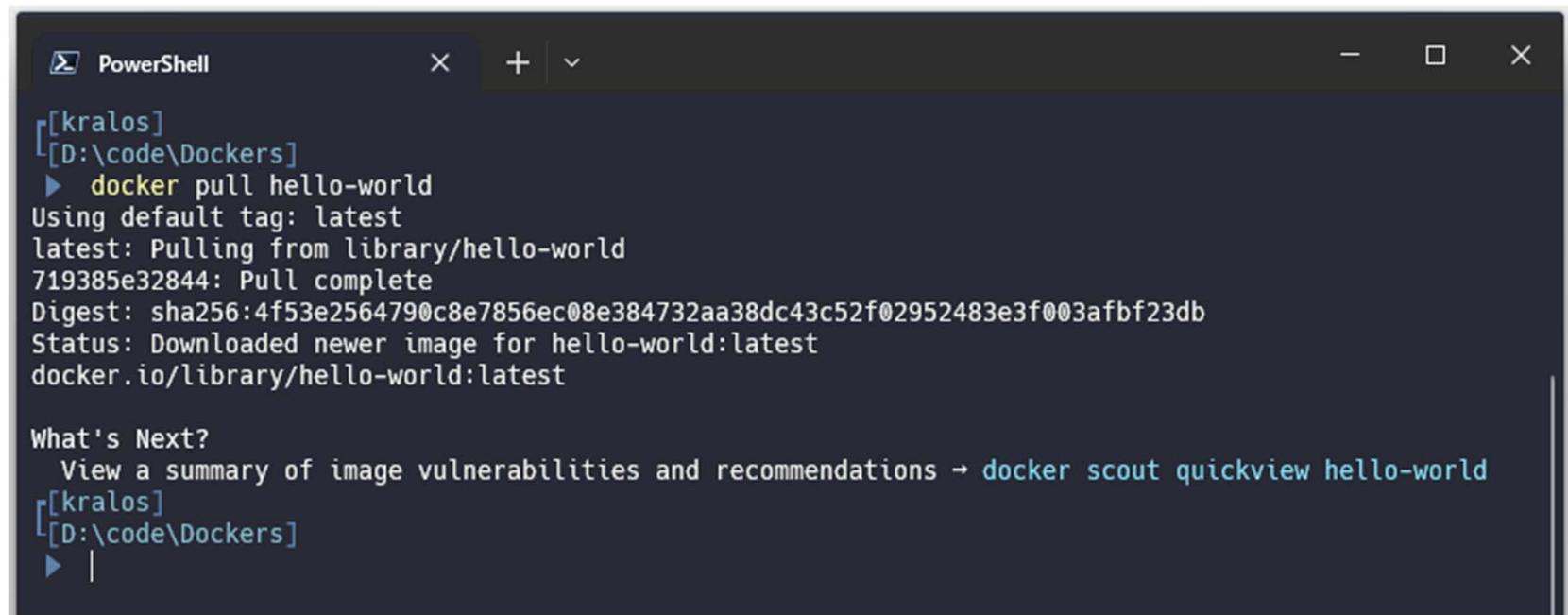
By creating an account I agree to the [Subscription Service Agreement](#), [Privacy Policy](#), [Data Processing Terms](#).

Already have an account? [Sign in](#)

El hola mundo de docker

The screenshot shows the Docker Hub interface for the 'hello-world' image. At the top, there's a search bar with 'hello-world' and navigation links for 'Explore', 'Official Images', and 'hello-world'. The main content area displays the 'hello-world' image card, which includes the Docker Official Image logo, a download count of 1B+, and a star rating of 2.1K. Below the card, there are tabs for 'Overview' (which is selected) and 'Tags'. The 'Overview' section contains a 'Quick reference' section with information about maintainers and help resources, and a 'Supported tags and respective Dockerfile links' section with a note about shared vs simple tags. It also lists 'Simple Tags' such as 'linux', 'nanoserver-ltsc2022', and 'nanoserver-1809'. To the right, there's a 'Recent Tags' sidebar showing tags like 'nanoserver-ltsc2022', 'nanoserver-1809', 'nanoserver', 'latest', 'linux', 'nanoserver-1803', 'nanoserver-1709', 'nanoserver-sac2016', and 'nanoserver1709'. A large button at the bottom right says 'docker pull hello-world' with a copy icon.

Ahora si, primeros pasos

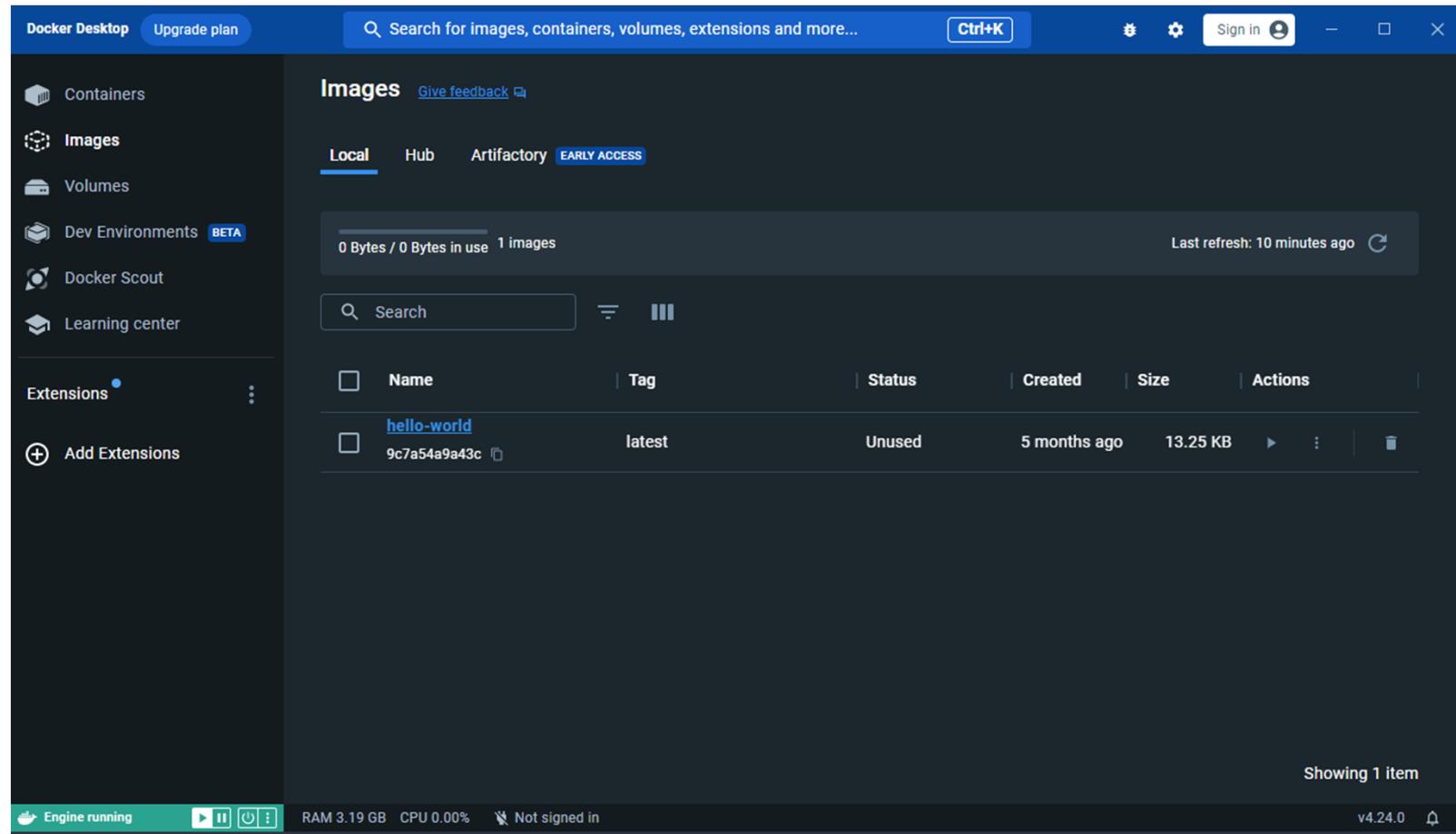


The screenshot shows a PowerShell window with the title bar "PowerShell". The command entered was "docker pull hello-world". The output indicates that the latest tag is being pulled from the library/hello-world repository, resulting in a digest hash (719385e32844) and a status message stating that a newer image has been downloaded for the hello-world:latest tag. A "What's Next?" section at the bottom suggests viewing image vulnerabilities and recommendations with the command "docker scout quickview hello-world".

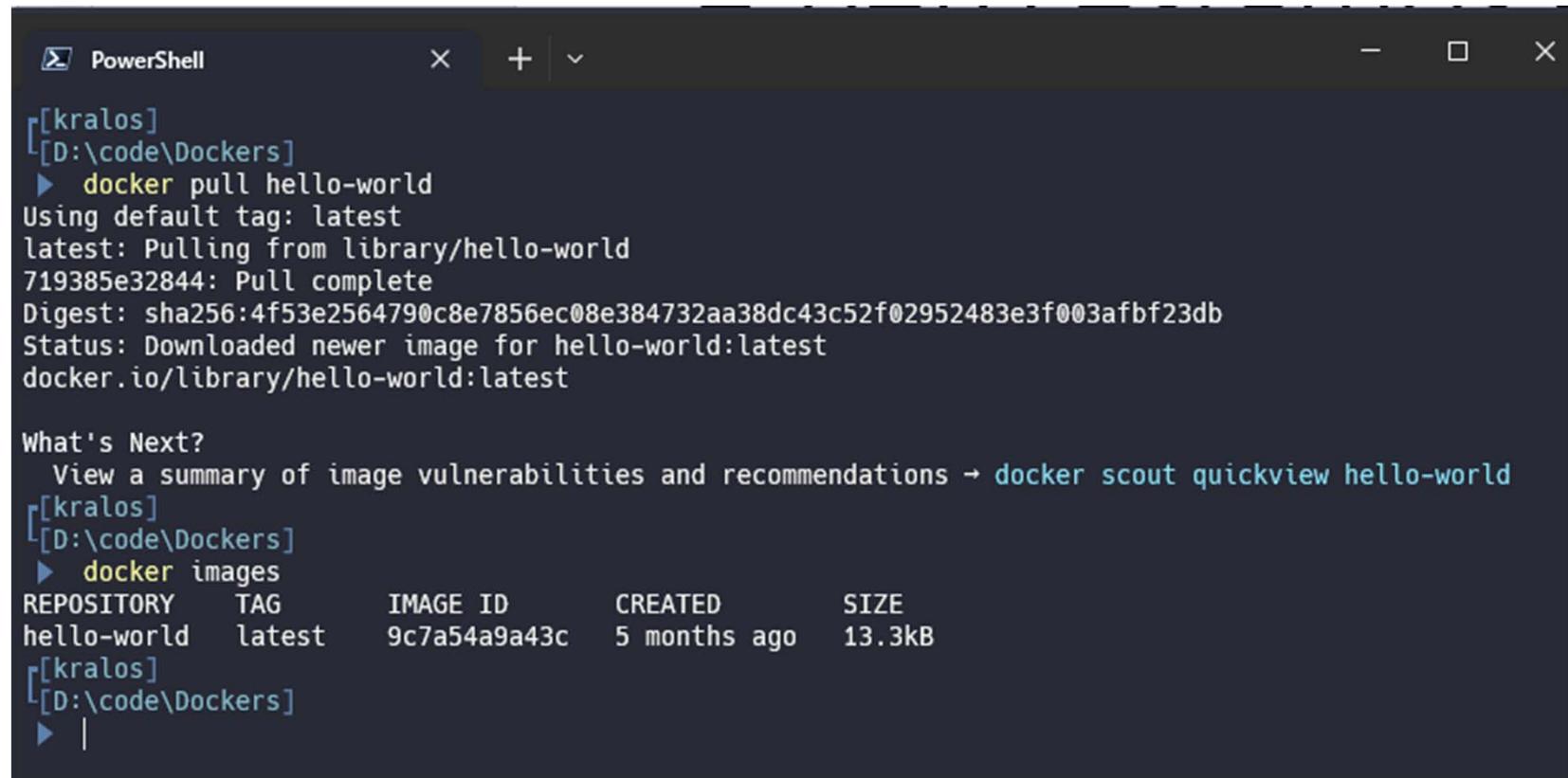
```
[[kralos]
[D:\code\Dockers]
▶ docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
719385e32844: Pull complete
Digest: sha256:4f53e2564790c8e7856ec08e384732aa38dc43c52f02952483e3f003afbf23db
Status: Downloaded newer image for hello-world:latest
docker.io/library/hello-world:latest

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview hello-world
[[kralos]
[D:\code\Dockers]
▶ |
```

Por si las flies ...



A pero estamos en CLI ...



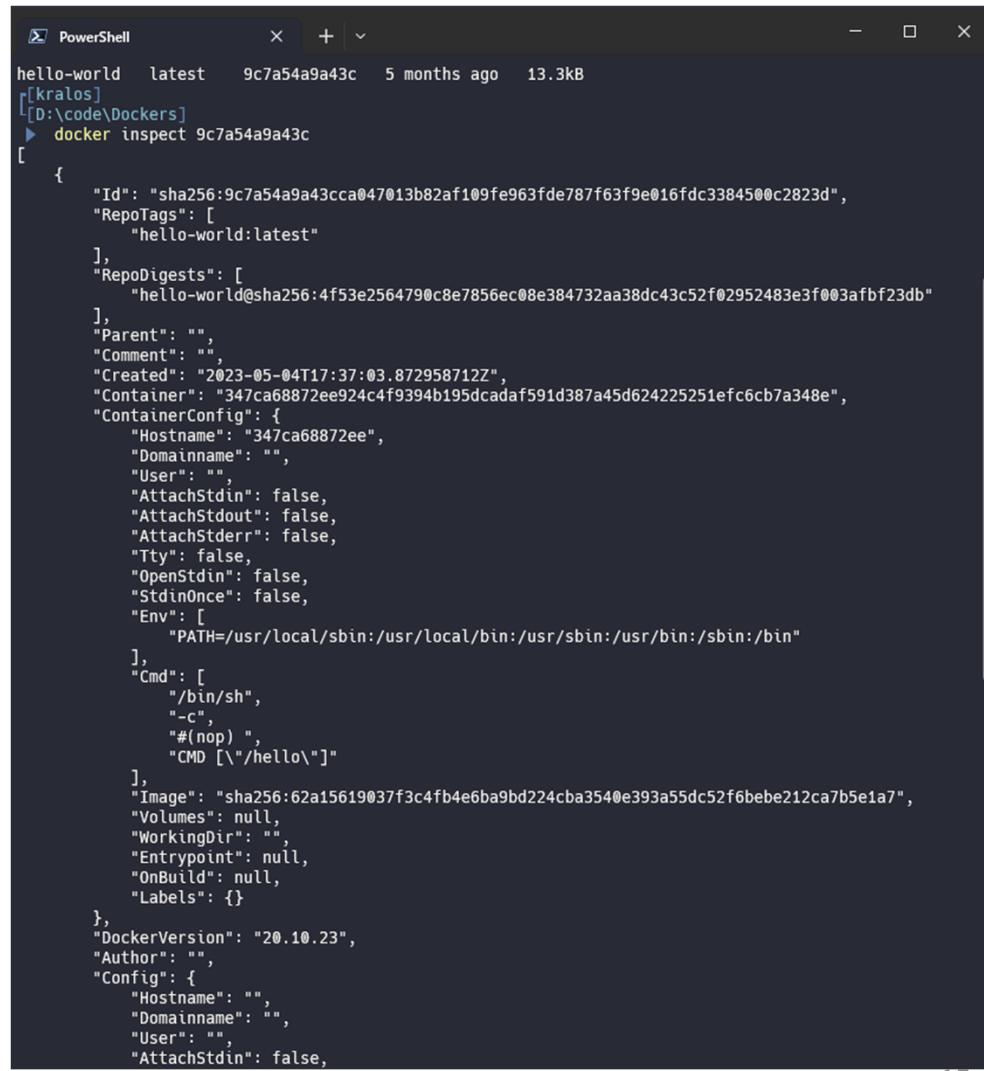
The screenshot shows a PowerShell window with the following content:

```
[kralos]
[D:\code\Dockers]
▶ docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
719385e32844: Pull complete
Digest: sha256:4f53e2564790c8e7856ec08e384732aa38dc43c52f02952483e3f003afbf23db
Status: Downloaded newer image for hello-world:latest
docker.io/library/hello-world:latest

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview hello-world
[kralos]
[D:\code\Dockers]
▶ docker images
REPOSITORY      TAG          IMAGE ID      CREATED        SIZE
hello-world     latest       9c7a54a9a43c   5 months ago   13.3kB
[kralos]
[D:\code\Dockers]
▶ |
```

Comandos para imágenes docker

Imagenes
docker images
Lista las imágenes almacenadas en el host
docker search imagen
Busca una imagen en el Docker hub
docker inspect id/nombre
Muestra los detalles de una imagen a partir de un id o un nombre
docker pull nombre
Descarga la imagen correspondiente a ese nombre
docker rmi id/nombre
Elimina la imagen correspondiente a ese id o nombre



```
PowerShell
hello-world  latest  9c7a54a9a43c  5 months ago  13.3kB
[kralos]
[D:\code\Dockers]
> docker inspect 9c7a54a9a43c
[
  {
    "Id": "sha256:9c7a54a9a43cca047013b82af109fe963fde787f63f9e016fdc3384500c2823d",
    "RepoTags": [
      "hello-world:latest"
    ],
    "RepoDigests": [
      "hello-world@sha256:4f53e2564790c8e7856ec08e384732aa38dc43c52f02952483e3f003afbfb23db"
    ],
    "Parent": "",
    "Comment": "",
    "Created": "2023-05-04T17:37:03.872958712Z",
    "Container": "347ca68872ee924c4f9394b195dcadaf591d387a45d624225251efc6cb7a348e",
    "ContainerConfig": {
      "Hostname": "347ca68872ee",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "AttachStdout": false,
      "AttachStderr": false,
      "Tty": false,
      "OpenStdin": false,
      "StdinOnce": false,
      "Env": [
        "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"
      ],
      "Cmd": [
        "/bin/sh",
        "-c",
        "#(nop)",
        "CMD [\"/hello\"]"
      ],
      "Image": "sha256:62a15619037f3c4fb4e6ba9bd224cba3540e393a55dc52f6bebe212ca7b5e1a7",
      "Volumes": null,
      "WorkingDir": "",
      "Entrypoint": null,
      "OnBuild": null,
      "Labels": {}
    },
    "DockerVersion": "20.10.23",
    "Author": "",
    "Config": {
      "Hostname": "",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "Env": [
        "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"
      ],
      "Cmd": [
        "/bin/sh",
        "-c",
        "#(nop)",
        "CMD [\"/hello\"]"
      ],
      "Image": "sha256:62a15619037f3c4fb4e6ba9bd224cba3540e393a55dc52f6bebe212ca7b5e1a7",
      "Volumes": null,
      "WorkingDir": "",
      "Entrypoint": null,
      "OnBuild": null,
      "Labels": {}
    }
  }
]
```

Pull especificando una etiqueta

The screenshot shows the Docker Hub interface for the `hello-world` repository. The `Tags` tab is selected. Two sections are visible: `latest` and `linux`.

latest Section:

DIGEST	OS/ARCH	VULNERABILITIES	COMPRESSED SIZE
004d23c66201	linux/386	None found	2.65 KB
efd257c8ea08	windows/amd64	None found	114.99 MB
75043f8f1db5	windows/amd64	None found	99.65 MB

A tooltip for the `004d23c66201` row contains the command `docker pull hello-world:latest`.

linux Section:

DIGEST	OS/ARCH	VULNERABILITIES	COMPRESSED SIZE
004d23c66201	linux/386	None found	2.65 KB
7e9b6e7ba284	linux/amd64	None found	2.4 KB
084c3bdd1271	linux/arm/v5	None found	3.57 KB

A tooltip for the `004d23c66201` row contains the command `docker pull hello-world:linux`.

Otro hola mundo

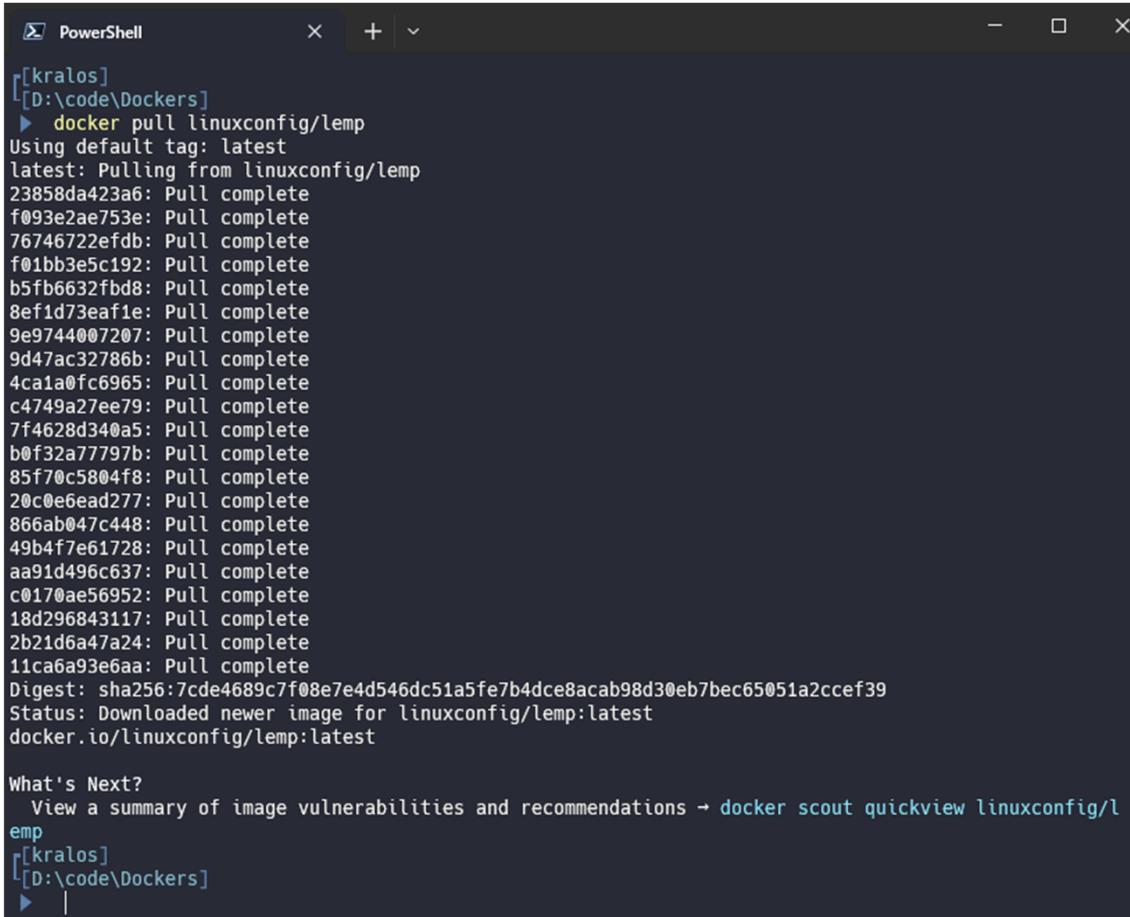
```
[kralos] [D:\code\Dockers]
▶ docker pull hello-world:nanoserver-ltsc2022
nanoserver-ltsc2022: Pulling from library/hello-world
no matching manifest for linux/amd64 in the manifest list entries
[kralos][xERROR]
[D:\code\Dockers]
▶ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
hello-world     latest   9c7a54a9a43c  5 months ago  13.3kB
linuxconfig/lEMP latest   670ff9140a94  12 months ago 1.05GB
[kralos]
[D:\code\Dockers]
▶ docker pull hello-world:linux
linux: Pulling from library/hello-world
Digest: sha256:726023f73a8fc5103fa6776d48090539042cb822531c6b751b1f6dd18cb5705d
Status: Downloaded newer image for hello-world:linux
docker.io/library/hello-world:linux

What's Next?
 1. Sign in to your Docker account → docker login
 2. View a summary of image vulnerabilities and recommendations → docker scout quickview hello-wor
d:linux
[kralos]
[D:\code\Dockers]
▶ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
hello-world     latest   9c7a54a9a43c  5 months ago  13.3kB
hello-world     linux    9c7a54a9a43c  5 months ago  13.3kB
linuxconfig/lEMP latest   670ff9140a94  12 months ago 1.05GB
[kralos]
[D:\code\Dockers]
▶ |
```

A descargar imágenes

The screenshot shows the Docker Hub interface for the `linuxconfig/lemp` repository. At the top, there's a blue header bar with the Docker Hub logo, a search bar containing `lemp`, and navigation links for `Explore`, `Pricing`, `Sign In`, and `Sign up`. Below the header, the breadcrumb navigation shows `Explore > linuxconfig/lemp`. The main content area features a large image of a blue cube icon, the repository name `linuxconfig/lemp` with a star icon, the creator's name `linuxconfig`, and a note that it was updated a year ago. It also mentions that it's a "Stable build LEMP stack environment for fast application deployments". There are buttons for `Image` and `Pulls 6.4K`. Below this, there are two tabs: `Overview` (which is selected) and `Tags`. The `Overview` section contains a summary of the `LEMP Stack`, which is described as a stable automated build docker LEMP image. It can be used as a testing environment for dynamic PHP applications. It comprises of Debian GNU/Linux, lightweight and yet powerful Nginx webserver, MariaDB relational database management system and PHP scripting language. It also lists current versions: Debian Linux 11, Nginx 1.18.0, MariaDB 10.5.15-MariaDB, and PHP 7.4.30. To the right, there are two boxes: one for the `Docker Pull Command` (`docker pull linuxconfig/lemp`) and another for the `Source Repository` (Bitbucket, `linuxconfig/lemp`).

Se tardo creo ... no vi :S



A screenshot of a PowerShell window titled "PowerShell". The command entered is "docker pull linuxconfig/lEMP". The output shows the Docker daemon pulling the "latest" tag from the "linuxconfig/lEMP" repository. It lists numerous intermediate image IDs as they are pulled, followed by the final digest and status message. A "What's Next?" section at the bottom suggests running "docker scout quickview linuxconfig/lEMP".

```
[kralos] [[D:\code\Dockers]] ► docker pull linuxconfig/lEMP
Using default tag: latest
latest: Pulling from linuxconfig/lEMP
23858da423a6: Pull complete
f093e2ae753e: Pull complete
76746722efdb: Pull complete
f01bb3e5c192: Pull complete
b5fb6632fdb8: Pull complete
8ef1d73eaf1e: Pull complete
9e9744007207: Pull complete
9d47ac32786b: Pull complete
4ca1a0fc6965: Pull complete
c4749a27ee79: Pull complete
7f4628d340a5: Pull complete
b0f32a77797b: Pull complete
85f70c5804f8: Pull complete
20c0e6ead277: Pull complete
866ab047c448: Pull complete
49b4f7e61728: Pull complete
aa91d496c637: Pull complete
c0170ae56952: Pull complete
18d296843117: Pull complete
2b21d6a47a24: Pull complete
11ca6a93e6aa: Pull complete
Digest: sha256:7cde4689c7f08e7e4d546dc51a5fe7b4dce8acob98d30eb7bec65051a2cceef39
Status: Downloaded newer image for linuxconfig/lEMP:latest
docker.io/linuxconfig/lEMP:latest

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview linuxconfig/lEMP
[[kralos]] [[D:\code\Dockers]] ► |
```

Comandos para contenedores

Contenedores

docker create -it --name nombre imagen

Crea un contenedor denominado name a partir de imagen

docker start nombre

Arranca el contenedor denominado nombre

docker stop nombre

Para el contenedor denominado nombre

docker restart nombre

Rearranca el contenedor denominado nombre

docker rm nombre

Elimina el contenedor denominado nombre

docker ps -a

Lista todos los contenedores en ejecución (-a incluye los parados)

docker run -it imagen comando

Arranca y ejecuta el comando en un contenedor de esa imagen en modo interactivo

docker exec -it nombre comando

Ejecuta el comando en el contenedor nombre

docker run -d

Arranca el contenedor en modo daemon

docker run -P

Arranca el contenedor y expone los puertos del contenedor en puertos aleatorios del host

docker run -p

puerto_host:puerto_contenedor

Arranca el contenedor y expone el puerto_contenedor en el puerto_host

docker run -v

directorio_host:directorio_contenedor

Asigna el directorio_host para mapearlo en el directorio_contenedor

docker run --hostname nombre_host

Arranca el contenedor y asigna nombre_host al contenedor

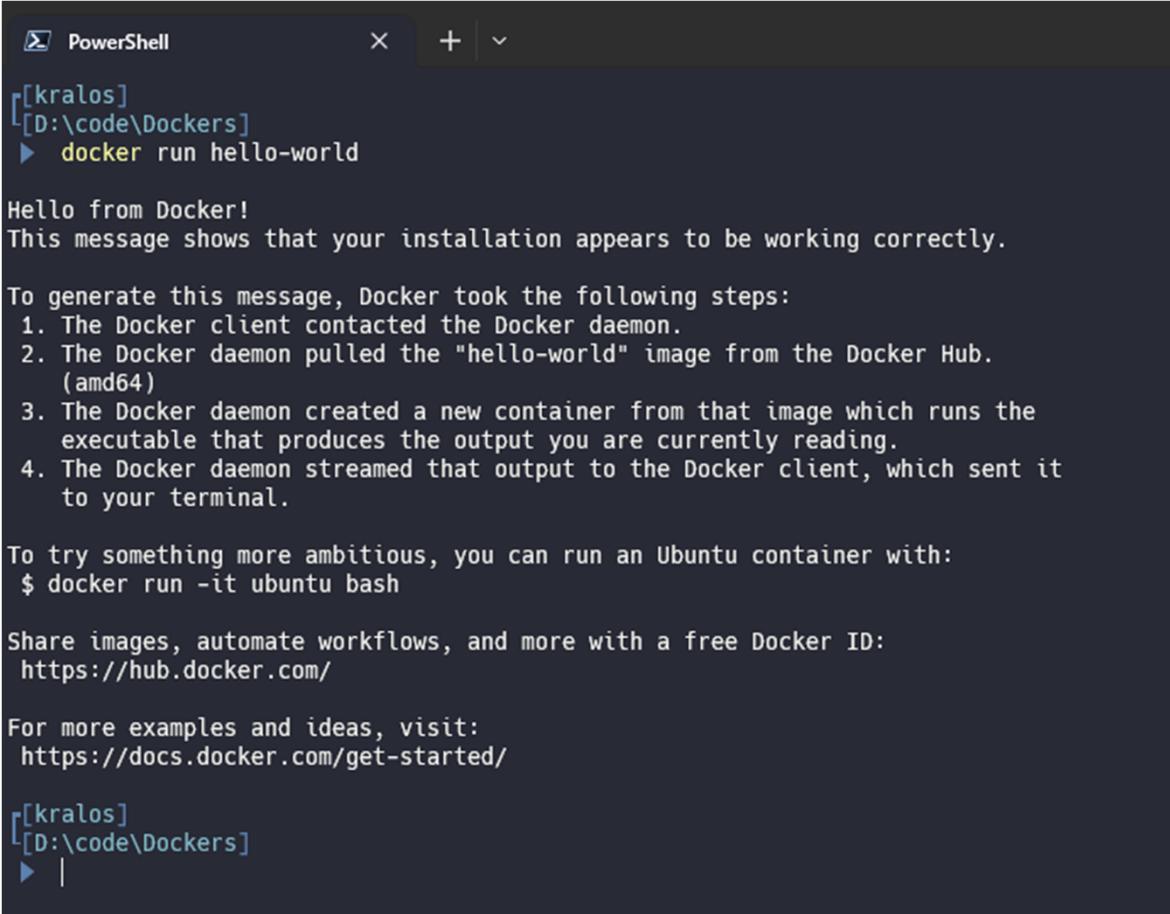
docker run --net=mired

Arranca el contenedor y lo asigna en la red denominada mired

“Crear” un contenedor

```
Σ PowerShell × + ▾ — □ ×
[[kralos]
[D:\code\Dockers]
▶ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
hello-world     latest   9c7a54a9a43c  5 months ago  13.3kB
hello-world     linux    9c7a54a9a43c  5 months ago  13.3kB
linuxconfig/lEMP  latest   670ff9140a94  12 months ago  1.05GB
[[kralos]
[D:\code\Dockers]
▶ docker create hello-world
2bc45d52863bfde33bc68c0caf3a33b479de42e3bc2d9ddd9575bb57afc9f812
[[kralos]
[D:\code\Dockers]
▶ docker ps -a
CONTAINER ID      IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
2bc45d52863b      hello-world      "/hello"    36 seconds ago      Created      gifted_matsumoto
[[kralos]
[D:\code\Dockers]
▶ |
```

Ejecutando un contenedor ..



```
PowerShell          X + | ▾
[kralos]
[D:\code\Dockers]
▶ docker run 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/

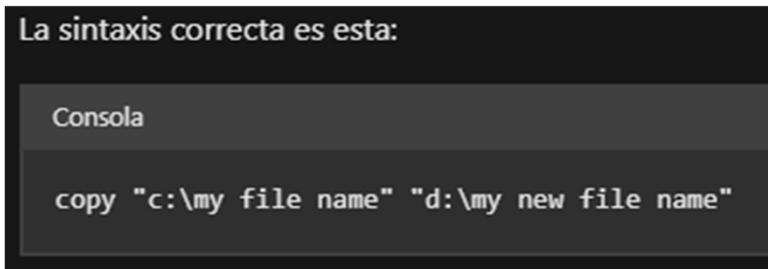
[kralos]
[D:\code\Dockers]
▶ |
```

Cuidado con los espacios

- Use comillas al especificar nombres de archivo largos o rutas de acceso con espacios. Por ejemplo, escribir el comando

```
copy c:\my file name d:\my new file name
```

- El símbolo del sistema da como resultado el siguiente mensaje de error: El sistema no puede encontrar el archivo especificado.



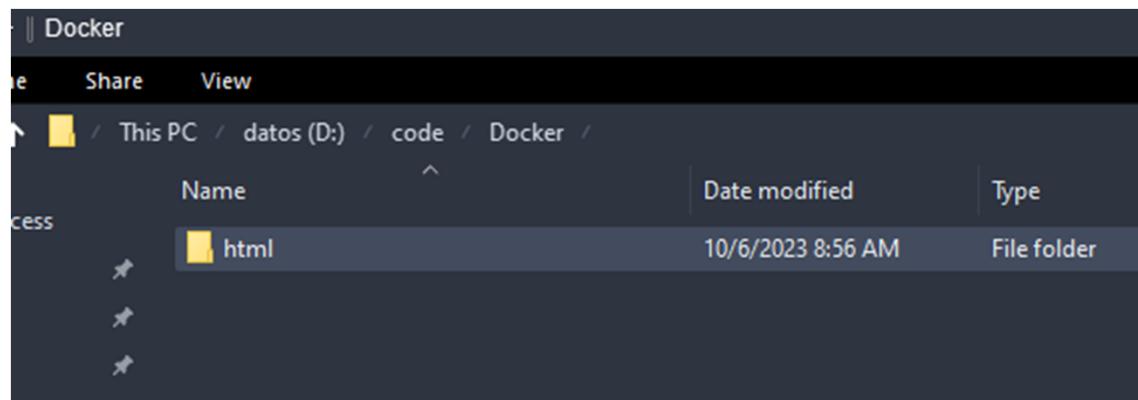
The image shows a terminal window with a dark background and light-colored text. At the top, it says "La sintaxis correcta es esta:". Below that, it says "Consola". In the main area, there is a command line input followed by an error message. The command is "copy "c:\my file name" "d:\my new file name"" and the error message is "El sistema no puede encontrar el archivo especificado.". The entire window is enclosed in a black border.

```
La sintaxis correcta es esta:  
Consola  
copy "c:\my file name" "d:\my new file name"  
El sistema no puede encontrar el archivo especificado.
```

Ejemplo de contenedor LEMP

1. Crear un directorio llamado “html” en SO anfitrión.

D:\code\Docker\html

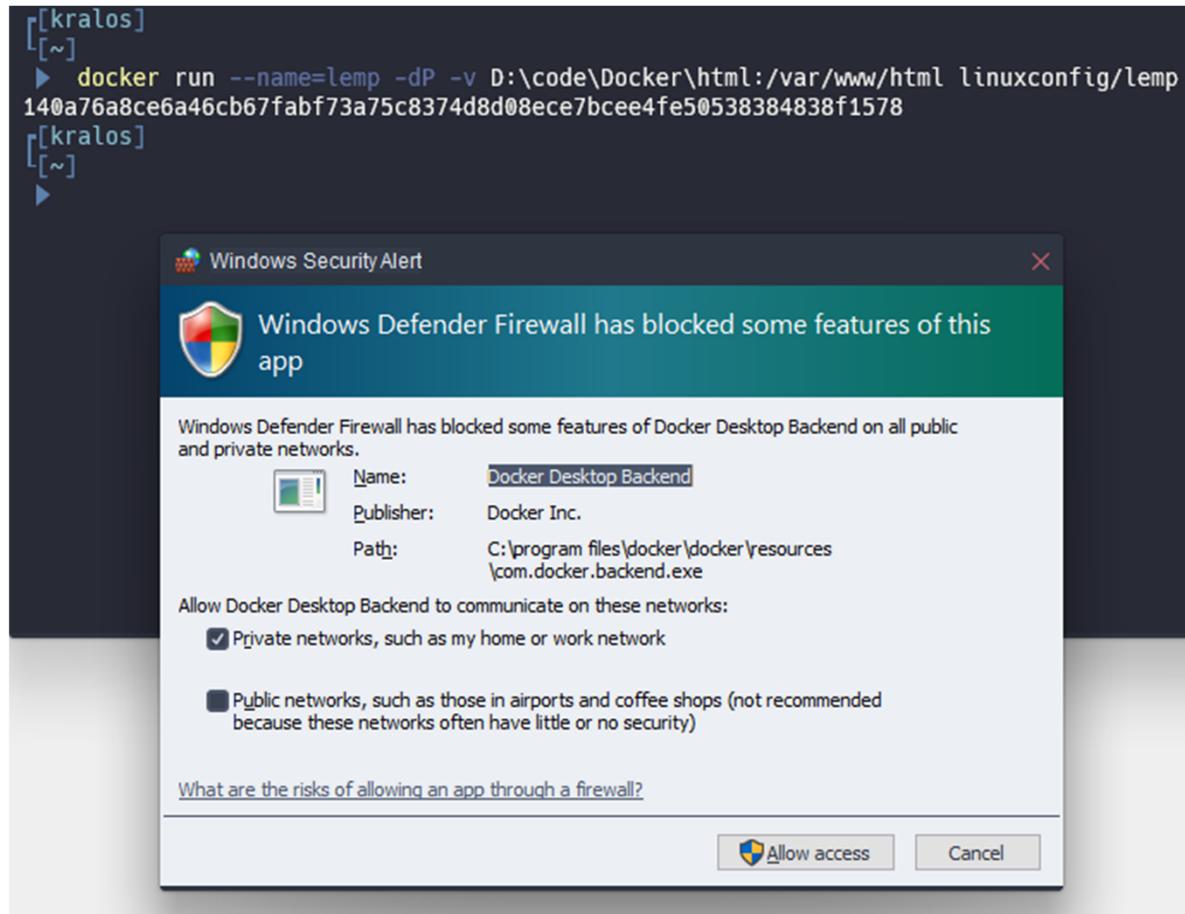


Ejemplo de contenedor LEMP

2. Crear y ejecutar un contendor, además se especifica el directorio referenciado entre la PC local y el contendor a crearse.

```
docker run --name=lemp -dP -v  
D:\code\Docker\html:/var/www/html linuxconfig/lemp
```

Ejemplo de contenedor LEMP



Ejemplo de contenedor LEMP

The screenshot shows the Docker Desktop interface. On the left, there's a sidebar with options like Containers, Images, Volumes, Dev Environments (BETA), Docker Scout, Learning center, Extensions, and Add Extensions. The main area is titled "Containers" and displays the following information:

- Container CPU usage: 0.03% / 400% (4 cores allocated)
- Container memory usage: 120.1MB / 3.61GB
- Search bar and filter: Only show running containers
- A table listing three stopped containers and one running container:

Name	Image	Status	CPU (%)	Port(s)	Last started	Actions
nostalgic_moser 2f5eba4f771b	hello-world	Exited	0%		2 days ago	▶ ⋮ ☰
gifted_matsumoto 2bc45d52863b	hello-world	Exited	0%		2 days ago	▶ ⋮ ☰
lemp 140a76a8ce6a	linuxconfig/lemp	Running	0.03%	32768:3306	34 minutes ago	[] ⋮ ☰
- A message at the bottom says "Showing 3 items"
- Below the table, there's a "Walkthroughs" section with two cards:
 - "What is a container?" (5 mins) with a question mark icon.
 - "How do I run a container?" (6 mins) with a terminal icon showing the command: `1 FROM node
2 RUN mkdir -p /app
3 WORKDIR /app
4 COPY packa`
- At the bottom, there are status icons for Engine running, RAM (3.03 GB), CPU (0.25%), and a note about Not signed in. It also shows version v4.24.0 and a notification count of 1.

Ejemplo de contenedor LEMP

3. Entramos al servidor web, pero antes necesitamos saber en que Puerto esta mapeado.

Vemos que hay dos puertos abiertos:

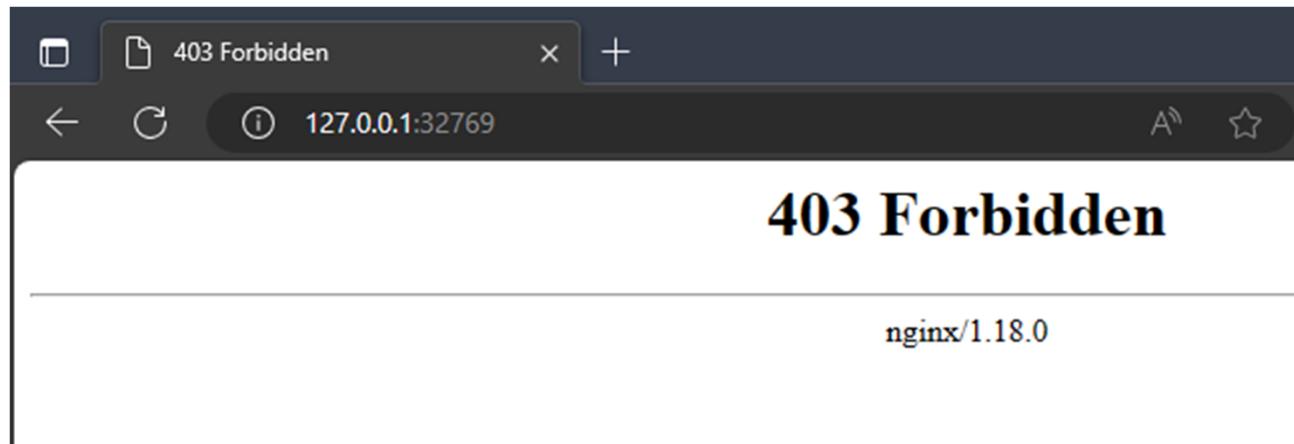
32269 para el servidor web

32768 para el servidor de base de dato

```
▶ docker port lemp
80/tcp -> 0.0.0.0:32769
3306/tcp -> 0.0.0.0:32768
```

Ejemplo de contenedor LEMP

- El servidor web esta activo pero no tiene nada ...



Ejemplo de contenedor LEMP

- El código se debe colocar el directorio “html” creado en el paso 1.
- Podemos usar nuestro editor favorito.

The screenshot shows a code editor on the left and a terminal window on the right. The code editor displays the file `index.php` with the following content:

```
Run Terminal Help
index.php X
index.php > html > body > p
1  <!DOCTYPE html>
2  <html lang="es">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <title>Docker</title>
7  </head>
8  <body>
9      <p>Hola contenedor</p>
10 </body>
11 </html>
```

The terminal window is titled "Docker" and shows the IP address "127.0.0.1:32769". It contains the text "Hola contenedor", which is the output of the PHP script.

Ejemplo de contenedor LEMP

4. Ingresamos a la línea de comandos del contenedor

```
▶ docker exec -it lemp /bin/bash
root@140a76a8ce6a:/# ls
bin  boot  dev  etc  home  lib  lib64  media  mnt  opt  proc  root  run  sbin
root@140a76a8ce6a:/# pwd
/
root@140a76a8ce6a:/# whoami
root
root@140a76a8ce6a:/# ls /var/www/html/
index.php
root@140a76a8ce6a:/# cat /var/www/html/index.php
<!DOCTYPE html>
<html lang="es">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Docker</title>
</head>
<body>
    <p>Hola contenedor</p>
</body>
</html>root@140a76a8ce6a:/# |
```

Actualizaciones

The screenshot shows a dark-themed software update interface. At the top, the title "Software updates" is displayed in white. Below it, a message states, "You're currently on version 4.24.0 (122432). The latest version is 4.24.2 (124339)." A list of four bullet points details the changes in the latest version:

- New Notification center available to all users.
- Compose File Watch available to all users. For more information, see [Use Compose Watch](#).
- Resource Saver available to all users. This feature can be configured from the Resources tab in Settings. For more information see [Docker Desktop's Resource Saver mode](#).
- View and manage options in the Docker Engine state, with pause, stop, and resume, directly from the Docker Dashboard.

Un poco de detalle

```
docker run --name=lemp -dP -v D:\code\Docker\html:/var/www/html linuxconfig/lemp
```

--name=nombre_de_mi contenedor

-dP

d hace que el contenedor corra en segundo plano
(daemonizará el contenedor)

P para decirle a Docker que elija un puerto

-v Cuando queremos montar un volúmen en un contenedor
ruta_origen:ruta_destino

“linuxconfig/lemp” es el nombre de la imagen a usar

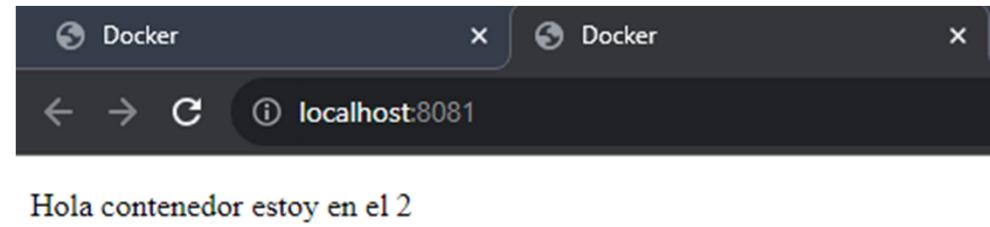
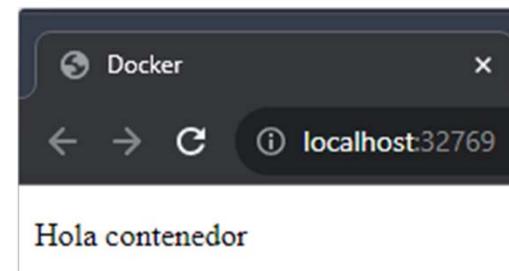
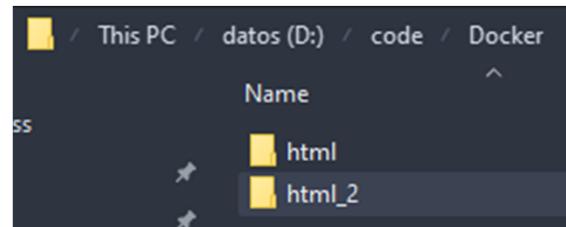
Mapear puertos

`-p puerto_PC_anfitrión: puerto_contendor`

El argumento `-p 1234:1234` le indica a Docker que tiene que hacer un port forwarding del contenedor hacia el puerto 1234 de la máquina host.

Para mas información ejecutar en su terminal el comando siguiente: `docker run --help`

Practica 2



```
docker run --name=lemp2 -d -p 8081:80 -v D:\code\ Docker\html_2:/var/www/html linuxconfig/lemp
```

```
PowerShell
[[kralos]
[~]
▶ docker run --name=lemp2 -d -p 8081:80 -v D:\code\ Docker\html_2:/var/www/html linuxconfig/lemp
f3c176d990da9f34e4177e0a1556500e4ea3900e4928bdf3897e29b915c6c31c
[[kralos]
[~]
▶ docker ps -a
CONTAINER ID  IMAGE          COMMAND      CREATED       STATUS        PORTS          NAMES
f3c176d990da  linuxconfig/lemp  "supervisord"  8 seconds ago Up 4 seconds  3306/tcp, 0.0.0.0:8081->80/tcp    lemp2
140a76a8ce6a  linuxconfig/lemp  "supervisord"  12 days ago   Up 2 minutes  0.0.0.0:32769->80/tcp, 0.0.0.0:32768->3306/tcp  lemp
2f5eba4f771b  hello-world    "/hello"     13 days ago   Exited (0)  13 days ago   nostalgic_moser
2bc45d52863b  hello-world    "/hello"     13 days ago   Exited (0)  13 days ago   gifted_matsumoto
[[kralos]
[~]
▶ |
```

Comportamiento de los contenedores

docker logs lemp

```
[kralos]
[~]
▶ docker logs lemp
/usr/lib/python3/dist-packages/supervisor/options.py:474: UserWarning: Supervisord is running as root and it is searching for its configuration file in default locations (including its current working directory); you probably want to specify a "-c" argument specifying an absolute path to a configuration file for improved security.
    self.warnings.warn(
2023-10-06 16:45:54,397 CRIT Supervisor is running as root. Privileges were not dropped because no user is specified in the config file. If you intend to run as root, you can set user=root in the config file to avoid this message.
2023-10-06 16:45:54,399 INFO Included extra file "/etc/supervisor/conf.d/supervisor-lemp.conf" during parsing
2023-10-06 16:45:54,421 INFO RPC interface 'supervisor' initialized
2023-10-06 16:45:54,422 CRIT Server 'unix_http_server' running without any HTTP authentication checking
```

```
▶ docker logs lemp2
/usr/lib/python3/dist-packages/supervisor/options.py:474: UserWarning: Supervisord is running as root and it is searching for its configuration file in default locations (including its current working directory); you probably want to specify a "-c" argument specifying an absolute path to a configuration file for improved security.
    self.warnings.warn(
2023-10-18 18:20:06,537 CRIT Supervisor is running as root. Privileges were not dropped because no user is specified in the config file. If you intend to run as root, you can set user=root in the config file to avoid this message.
2023-10-18 18:20:06,537 INFO Included extra file "/etc/supervisor/conf.d/supervisor-lemp.conf" during parsing
2023-10-18 18:20:06,540 INFO RPC interface 'supervisor' initialized
2023-10-18 18:20:06,543 CRIT Server 'unix_http_server' running without any HTTP authentication checking
2023-10-18 18:20:06,543 INFO supervisord started with pid 1
2023-10-18 18:20:07,548 INFO spawned: 'mysqld' with pid 7
2023-10-18 18:20:07,550 INFO spawned: 'nginx' with pid 8
2023-10-18 18:20:07,551 INFO spawned: 'php-fcgi' with pid 9
2023-10-18 18:20:08,693 INFO success: mysqld entered RUNNING state, process has stayed up for > than 1 seconds (startsecs)
2023-10-18 18:20:08,693 INFO success: nginx entered RUNNING state, process has stayed up for > than 1 seconds (startsecs)
2023-10-18 18:20:08,693 INFO success: php-fcgi entered RUNNING state, process has stayed up for > than 1 seconds (startsecs)
[kralos]
[~]
▶ |
```

Variables de entorno

Las variables de entorno se usan para definir valores que están disponibles para los procesos que se ejecutan dentro del contenedor. Estas variables se definen al construir una imagen o al ejecutar un contenedor.

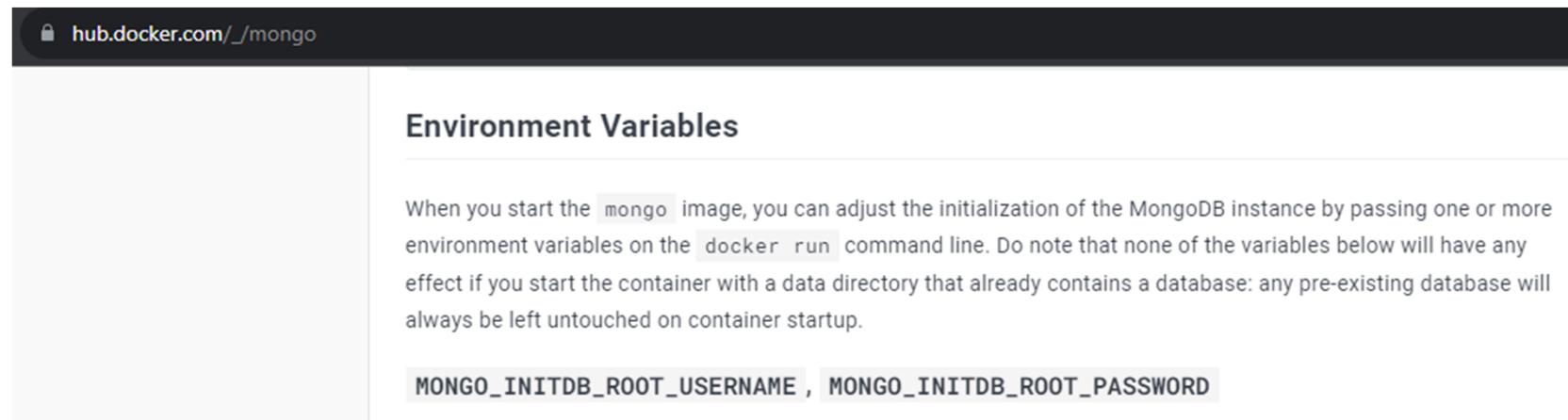
-e variable_entorno:valor_nuestro
es para asignar valores a las variables de entorno. Esas variables están definidas dentro de la imagen, por lo que nosotros le damos valor, para que el contenedor a ejecutar, use esos datos.

Usaremos la imagen de mongo

- docker pull mongo
- docker run --name=mongo_server -d -p 8082:27017 mongo

```
[kralos]
[~]
▶ docker pull mongo
Using default tag: latest
latest: Pulling from library/mongo
43f89b94cd7d: Pull complete
54a7480baa9d: Pull complete
7f9301fbdf7df: Pull complete
5e4470f2e90f: Pull complete
40d046ff8fd3: Pull complete
e062d62b861e: Pull complete
72919e34fde8: Pull complete
ab22810dfc64: Pull complete
fb05c29fbdf5: Pull complete
Digest: sha256:d341a86584b96eb665345a8f5b35fba8695ee1d0618fd012ec4696223a3d6c62
Status: Downloaded newer image for mongo:latest
docker.io/library/mongo:latest
```

Practica 3



The screenshot shows a web browser window with the URL `hub.docker.com/_/mongo` in the address bar. The main content is titled "Environment Variables". It explains that when starting the `mongo` image, environment variables can be passed via the `docker run` command line. It notes that if a data directory already contains a database, existing databases will remain untouched. Two environment variables are highlighted: `MONGO_INITDB_ROOT_USERNAME` and `MONGO_INITDB_ROOT_PASSWORD`.

When you start the `mongo` image, you can adjust the initialization of the MongoDB instance by passing one or more environment variables on the `docker run` command line. Do note that none of the variables below will have any effect if you start the container with a data directory that already contains a database: any pre-existing database will always be left untouched on container startup.

`MONGO_INITDB_ROOT_USERNAME` , `MONGO_INITDB_ROOT_PASSWORD`

```
docker run --name=monguito -d -p 8083:27017  
-e MONGO_INITDB_ROOT_USERNAME=nico  
-e MONGO_INITDB_ROOT_PASSWORD=12345678 mongo
```

Practica 3

```
[kralos]--[¶main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
● ▶ docker ps -a
CONTAINER ID   IMAGE      COMMAND      CREATED      STATUS          PORTS      NAMES
f3c176d990da  linuxconfig/lemp "supervisord"  23 hours ago  Exited (137) 23 hours ago
140a76a8ce6a  linuxconfig/lemp "supervisord"  13 days ago   Exited (137) 23 hours ago
2f5eba4f771b  hello-world    "/hello"     2 weeks ago   Exited (0) 2 weeks ago
2bc45d52863b  hello-world    "/hello"     2 weeks ago   Exited (0) 2 weeks ago
[kralos]--[¶main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
● ▶ docker ps
● CONTAINER ID   IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
[kralos]--[¶main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
● ▶ docker run --name=monguito -d -p 8083:27017 -e MONGO_INITDB_ROOT_USERNAME=nico -e MONGO_INITDB_ROOT_PASSWORD=12345678 mongo
29293400974ad156801a24f8cc0da3ff3158116250386c3bc7d692daa3cb9e5a
[kralos]--[¶main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
● ▶ docker ps
CONTAINER ID   IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
29293400974a   mongo      "docker-entrypoint.s..."  About a minute ago  Up About a minute  0.0.0.0:8083->27017/tcp  monguito
[kralos]--[¶main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
○ ▶ █
```

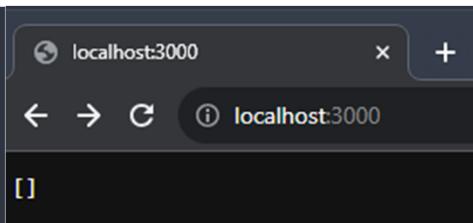
Practica 3

```
code > nodejs > proyecto_1 > packagejson > ...
You, 2 seconds ago | 1 author (You)
1 { You, 21 hours ago * other project
2   "name": "mongoapp",
3   "version": "1.0.0",
4   "description": "",
5   "main": "index.js",
6   "type": "module",
7     ▶ Debug
8   "scripts": {
9     "test": "echo \"Error: no test specified\" && exit 1"
10  },
11  "author": "",
12  "license": "ISC",
13  "dependencies": {
14    "express": "4.18.1",
15    "mongoose": "6.12.1"
16  }
17 } <- #1-16 { "name": "mongoapp", "version": "1.0.0", "description": "", ...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS
[kralos]--[¶main = ●]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
● ► npm install
added 87 packages, and audited 88 packages in 2m
13 packages are looking for funding
  run `npm fund` for details
2 vulnerabilities (1 moderate, 1 critical)
● To address all issues, run:
  npm audit fix --force
● Run `npm audit` for details.
[kralos]--[¶main = ●]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
● ► npm audit fix --force
● npm WARN using --force. Recommended protections disabled.
npm WARN audit Updating mongoose to 6.12.1, which is outside your stated dependency range.
added 82 packages, removed 2 packages, changed 4 packages, and audited 168 packages in 47s
14 packages are looking for funding
  run `npm fund` for details
found 0 vulnerabilities
[kralos]--[¶main = ●]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
● ► [ ]
```

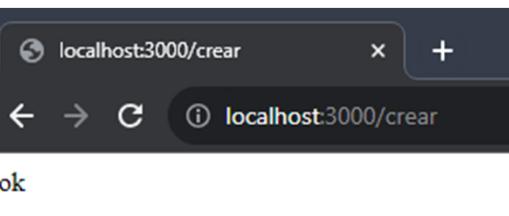
```
code > nodejs > proyecto_1 > packagejson > {} dependencies
You, 21 hours ago | 1 author (You)
1 {
2   "name": "mongoapp",
3   "version": "1.0.0",
4   "description": "",
5   "main": "index.js",
6   "type": "module",
7     ▶ Debug
8   "scripts": {
9     "test": "echo \"Error: no test specified\" && exit 1"
10  },
11  "author": "",
12  "license": "ISC",
13  "dependencies": []
14    "express": "4.18.1",
15    "mongoose": "6.4.1"
16 } <- #1-16 { "name": "mongoapp", "version": "1.0.0", "description": "", ...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS
code > nodejs > proyecto_1 > JS index.js M X
code > nodejs > JS index.js > ...
You, 4 minutes ago | 1 author (You)
1 import express from 'express'
2 import mongoose from 'mongoose'
3
4 const Animal = mongoose.model('Animal', new mongoose.Schema({
5   tipo: String,
6   estado: String,
7 }))
8
9 const app = express()
10
11 mongoose.connect('mongodb://nico:12345678@127.0.0.1:8083/miapp?authSource=admin')
12
13 app.get('/', async (_req, res) => {
14   console.log('listando... chanchitos...')
15   const animales = await Animal.find();
16   return res.send(animales)
17 })
18 app.get('/crear', async (_req, res) => {
19   console.log('creando...')
20   await Animal.create({ tipo: 'Chanchito', estado: 'Feliz' })
21   return res.send('ok')
22 })
23
24 app.listen(3000, () => console.log('listening...'))
```

Practica 3

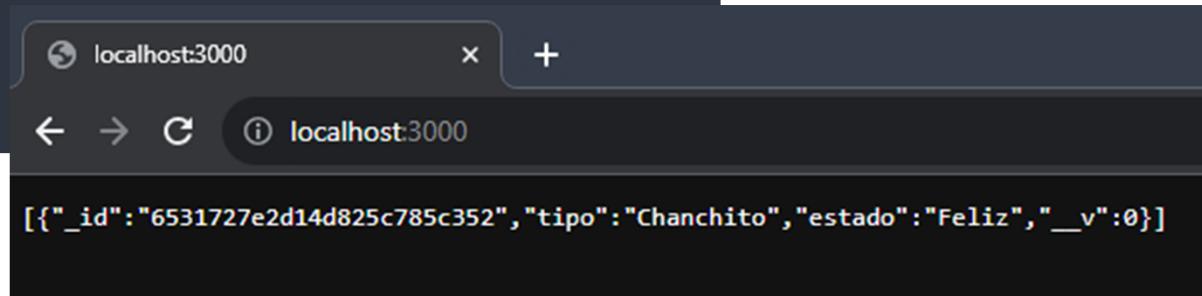
```
[kralos]--[ψmain ≡ ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
o ▶ node .\index.js
listening...
listando... chanchitos...
[]
```



```
[kralos]--[ψmain ≡ ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
o ▶ node .\index.js
listening...
listando... chanchitos...
creando...
[]
```



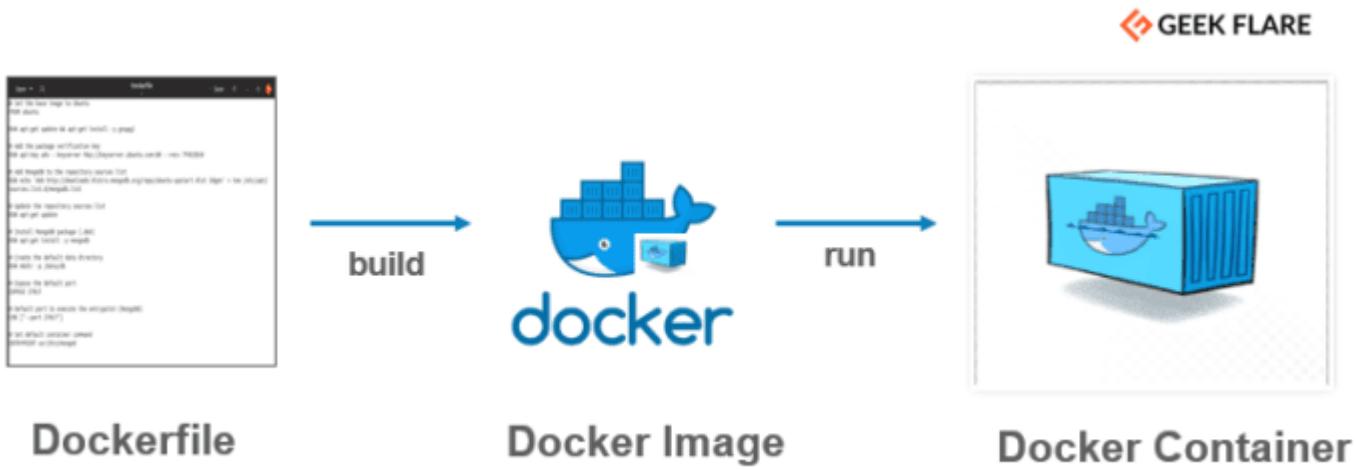
```
[kralos]--[ψmain ≡ ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_1]
o ▶ node .\index.js
listening...
listando... chanchitos...
creando...
listando... chanchitos...
[]
```



Dockerfile

- Es un archivo de texto simple que incluye una serie de instrucciones que se necesitan ejecutar de manera consecutiva para cumplir con los procesos necesarios para la creación de una nueva imagen.
- Este conjunto de instrucciones serán los encargados de indicar los pasos a seguir para el ensamblaje de los elementos necesarios para el desarrollo de un contenedor en Docker.

Dockerfile



Parámetros en Dockerfile

- **FROM:** es la primera instrucción. Establecer la imagen sobre la que los pasos e imágenes siguientes se desarrollan en el sistema.
- **ENV:** Indica las variables de entorno que se necesitan en el proceso de construcción de una imagen en Docker y permite la ejecución de los contenedores y sus labores en el sistema.
- **RUN:** Ejecutar una instrucción incluida en la línea de comandos de la imagen durante su proceso de construcción. El run dockerfile puede escribirse en formato SHELL o bajo la opción de escritura EXEC.

Parámetros en Dockerfile

- **ADD:** Copia de archivos, directorios y una imagen en Dockerfile. Crea una nueva capa de imagen.
- **EXPOSE:** Definición de las asignaciones referentes a los puertos para los contenedores de la plataforma que se encuentren en su etapa de ejecución.
- **CMD:** Función similar al comando RUN, pero se ejecuta sólo después de instanciar el contenedor.
- **ENTRYPOINT:** Se dirige a su aplicación por defecto en la imagen cuando se crea el contenedor.

Parámetros en Dockerfile

Nota: Se puede cambiar ADD por **COPY** ya que ADD es para operaciones de copiado más complejas, y COPY copiamos de manera simple.

Así para poner comentarios

Sin comentarios

Dockerfile en VScode



docker build

```
$ docker build -h

Usage: docker build [OPTIONS] PATH | URL | -

Build an image from a Dockerfile

--build-arg=[]                      Set build-time variables
--cpu-shares=0                        CPU shares (relative weight)
--cgroup-parent=                       Optional parent cgroup for the container
--cpu-period=0                         Limit the CPU CFS (Completely Fair Scheduler) period
--cpu-quota=0                          Limit the CPU CFS (Completely Fair Scheduler) quota
--cpuset-cpus=                         CPUs in which to allow execution (0-3, 0,1)
--cpuset-mems=                         MEMs in which to allow execution (0-3, 0,1)
--disable-content-trust=true          Skip image verification
-f, --file=                            Name of the Dockerfile (Default is 'PATH/Dockerfile')
--force-rm=false                       Always remove intermediate containers
--help=false                           Print usage
-m, --memory=                          Memory limit
--memory-swap=                         Total memory (memory + swap), '-1' to disable swap
--no-cache=false                       Do not use cache when building the image
--pull=false                           Always attempt to pull a newer version of the image
-q, --quiet=false                      Suppress the verbose output generated by the containers
--rm=true                             Remove intermediate containers after a successful build
-t, --tag=                            Repository name (and optionally a tag) for the image
--ulimit=[]                            Ulimit options
```

Dockerfile {ejemplo}

The screenshot shows the Docker Hub page for the **alpine** image. At the top, there's a blue hexagonal icon with a white mountain-like symbol. To its right, the name **alpine** is displayed, followed by a green Docker Official Image badge, a download count of **1B+**, and a star rating of **10K+**. Below this, a subtitle reads: "A minimal Docker image based on Alpine Linux with a complete package index and only 5 MB in size!" A search bar at the top right contains the query **docker pull alpine** with a copy icon to its right.

Overview **Tags**

Quick reference

- Maintained by:
Natanael Copa (an Alpine Linux maintainer)
- Where to get help:
the Docker Community Slack, Server Fault, Unix & Linux, or Stack Overflow

Supported tags and respective Dockerfile links

- [20230901](#) , [edge](#)
- [3.18.4](#) , [3.18](#) , [3](#) , [latest](#)
- [3.17.5](#) , [3.17](#)
- [3.16.7](#) , [3.16](#)
- [3.15.10](#) , [3.15](#)

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[3.17.5](#) [3.17](#) [3.16.7](#)

About Official Images

Docker Official Images are a curated set of Docker open source and drop-in solution repositories.

Why Official Images?
These images have clear documentation, promote best practices, and are designed for the most common use cases.

Dockerfile {ejemplo}

```
[kralos]--[✗ main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
▶ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
mongo           latest   ee3b4d1239f1  7 days ago   748MB
hello-world     latest   9c7a54a9a43c  5 months ago  13.3kB
hello-world     linux    9c7a54a9a43c  5 months ago  13.3kB
linuxconfig/lemp latest   670ff9140a94  13 months ago 1.05GB
[kralos]--[✗ main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
▶ docker pull alpine
Using default tag: latest
latest: Pulling from library/alpine
96526aa774ef: Pull complete
Digest: sha256:eece025e432126ce23f223450a0326fbebe39cdf496a85d8c016293fc851978
Status: Downloaded newer image for alpine:latest
docker.io/library/alpine:latest

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview alpine
[kralos]--[✗ main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
▶ docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
mongo           latest   ee3b4d1239f1  7 days ago   748MB
alpine          latest   8ca4688f4f35  3 weeks ago  7.34MB
hello-world     latest   9c7a54a9a43c  5 months ago  13.3kB
hello-world     linux    9c7a54a9a43c  5 months ago  13.3kB
linuxconfig/lemp latest   670ff9140a94  13 months ago 1.05GB
[kralos]--[✗ main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
▶ █
```

Dockerfile {ejemplo}

The screenshot shows the VS Code interface with the following details:

- EXPLORER:** NOTAS_TI1
- dockerfile** (active tab)
- Content:**

```
FROM alpine
CMD ["/bin/echo", "Hi Docker. I'm a dockerfile !"]
```
- PROBLEMS:** No issues found.
- OUTPUT:**
 - [[kralos]--[?]main = ●]
 - [D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
 - ► docker build -t hola-mundo .
 - [+] Building 3.0s (5/5) FINISHED
 - ⇒ [internal] load .dockerignore
 - ⇒ ⇒ transferring context: 2B
 - ⇒ [internal] load build definition from dockerfile
 - ⇒ ⇒ transferring dockerfile: 103B
 - ⇒ [internal] load metadata for docker.io/library/alpine:latest
 - ⇒ CACHED [1/1] FROM docker.io/library/alpine
 - ⇒ exporting to image
 - ⇒ ⇒ exporting layers
 - ⇒ ⇒ writing image sha256:8e2d75649edb4f0b043a448ad474a82bcb49278092ad5cd74d8db55f04b2e4db
 - ⇒ ⇒ naming to docker.io/library/hola-mundo
 -
 - **What's Next?**
 - View a summary of image vulnerabilities and recommendations → docker scout quickview
 - [[kralos]--[?]main = ●]
 - [D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
 - ► docker run hola-mundo
 - Hi Docker. I'm a dockerfile !
 - [[kralos]--[?]main = ●]
 - [D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
 - ► █
- DEBUG CONSOLE:** Not visible in the screenshot.
- TERMINAL:** Not visible in the screenshot.
- PORTS:** Not visible in the screenshot.
- GITLENS:** Not visible in the screenshot.

Dockerfile {ejemplo}

```
● ▶ docker run hola-mundo
● Hi Docker. I'm a dockerfile !
[ kralos ]--[ \main = ● ]
● [D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
● ▶ docker images
● REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
● mongo          latest    ee3b4d1239f1  7 days ago   748MB
● alpine         latest    8ca4688f4f35  3 weeks ago  7.34MB
● hola-mundo     latest    8e2d75649edb  3 weeks ago  7.34MB
● hello-world    latest    9c7a54a9a43c  5 months ago 13.3kB
● hello-world    linux     9c7a54a9a43c  5 months ago 13.3kB
● linuxconfig/lemp  latest   670ff9140a94  13 months ago 1.05GB
○ [ kralos ]--[ \main = ● ]
○ [D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
○ ▶ docker ps -a
● CONTAINER ID  IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
○ 071fed489ee  hola-mundo  "/bin/echo 'Hi Docke..."  2 minutes ago  Exited (0) About a minute ago
○ 29293400974a  mongo      "docker-entrypoint.s..."  25 hours ago  Exited (0) 24 hours ago
● f3c176d990da  linuxconfig/lemp  "supervisord"  2 days ago   Exited (137) 2 days ago
○ 140a76a8ce6a  linuxconfig/lemp  "supervisord"  2 weeks ago  Exited (137) 2 days ago
● [ kralos ]--[ \main = ● ]
● [D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\dockerfiles]
○ ▶ █
```

Actualización de imágenes docker

```
[kralos]--[¶ ≠]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1]
● ▶ docker images
REPOSITORY          TAG      IMAGE ID   CREATED        SIZE
node                latest   d7eb1d080096  3 days ago   1.1GB
mongo               latest   ee3b4d1239f1  10 days ago  748MB
alpine              latest   8ca4688f4f35  3 weeks ago  7.34MB
hola-mundo         latest   8e2d75649edb  3 weeks ago  7.34MB
hello-world         latest   9c7a54a9a43c  5 months ago 13.3kB
hello-world         linux    9c7a54a9a43c  5 months ago 13.3kB
linuxconfig/lEMP   latest   670ff9140a94  13 months ago 1.05GB
[kralos]--[¶main ≡ ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1]
○ ▶ █
```

Practica 4

The screenshot shows the VS Code interface with the following details:

- EXPLORER:** NOTAS_TI1
- File Tree (left):** code\nodejs, dockerfiles, proyecto_0, proyecto_1, proyecto_2 (expanded), css, js, Dockerfile, index.html
- Editor (right):** Dockerfile (selected)
- Content of Dockerfile:**

```
1 FROM linuxconfig/lEMP
2
3 RUN mkdir -p /var/www/html/mysite
4
5 COPY . /var/www/html/mysite
```
- Bottom Navigation Bar:** PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, PORTS, GITLENS

Practica 4

```
[kralos]--[¶]main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1]
▶ cd .\code\nodejs\proyecto_2\
[kralos]--[¶]main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
● ▶ ls

Directory: D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2



| Mode  | LastWriteTime       | Length | Name       |
|-------|---------------------|--------|------------|
| d---- | 10/23/2023 11:07 AM |        | css        |
| d---- | 10/23/2023 11:07 AM |        | js         |
| -a--- | 10/23/2023 11:41 AM | 89     | Dockerfile |
| -a--- | 10/23/2023 11:10 AM | 346    | index.html |



[kralos]--[¶]main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
● ▶ docker build -t mysite:0.0.1 .
[+] Building 0.0s (0/0)
[+] Building 46.3s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 126B
=> [internal] load .dockerrcignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/linuxconfig/lemp:latest
=> [1/3] FROM docker.io/linuxconfig/lemp
=> [internal] load build context
=> => transferring context: 623B
=> [2/3] RUN mkdir -p /var/www/html/mysite
=> [3/3] COPY . /var/www/html/mysite
=> exporting to image
=> => exporting layers
=> => writing image sha256:e8a126f7e3b911f911b32daf95225f2bcf3c6d07ea296a78873681f17e0d675d
=> => naming to docker.io/library/mysite:0.0.1

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview
[kralos]--[¶]main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
● ▶ █
```

Practica 4

```
[kralos]--[¶ ≠]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
● ► docker images
REPOSITORY          TAG      IMAGE ID      CREATED       SIZE
mysite              0.0.1    e8a126f7e3b9  15 minutes ago  1.05GB
● node               latest   d7eb1d080096  3 days ago    1.1GB
mongo               latest   ee3b4d1239f1  10 days ago   748MB
alpine              latest   8ca4688f4f35  3 weeks ago   7.34MB
hola-mundo         latest   8e2d75649edb  3 weeks ago   7.34MB
hello-world         latest   9c7a54a9a43c  5 months ago  13.3kB
hello-world         linux    9c7a54a9a43c  5 months ago  13.3kB
linuxconfig/lemp   latest   670ff9140a94  13 months ago 1.05GB
[kralos]--[¶main ≡ ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
○ ► █
```

Practica 4

```
[kralos]--[?]main = ● ][x125]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
● ▶ docker run --name=mi_sitio -dP mysite:0.0.1
f05bd8066b4e5a56c691c3f961cacc8b103975608ebd2a0eda57d80a7589743e
[kralos]--[?]main = ● ]
● [D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
● ▶ docker port mi_sitio
80/tcp -> 0.0.0.0:32769
○ 3306/tcp -> 0.0.0.0:32768
[kralos]--[?]main = ● ]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\nodejs\proyecto_2]
○ ▶ docker exec -it mi_sitio /bin/bash
root@f05bd8066b4e:# ls /var/www/html/
index.nginx-debian.html index.php           mysite/
root@f05bd8066b4e:# ls /var/www/html/mysite/
Dockerfile css index.html js
root@f05bd8066b4e:# cat /var/www/html/mysite/index.html
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>In_Docker</title>
    <link rel="stylesheet" href=".css/style.css">
  </head>
  <body>
    <h1>Hola estoy en un contendor ...</h1>
  </body>
  <script src=".js/main.js"></script>
</html>root@f05bd8066b4e:# 
```

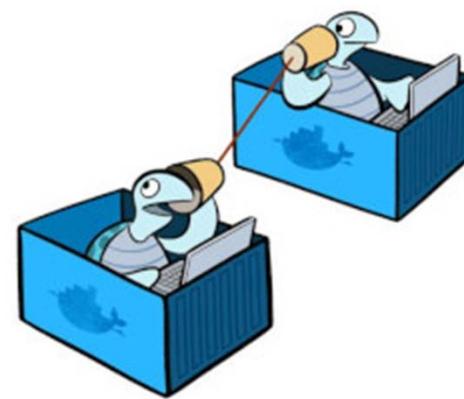


The terminal window shows the steps to run a Docker container named 'mi_sitio' with port mapping. It then lists the ports exposed (80/tcp and 3306/tcp) and enters the container via 'docker exec'. Inside the container, it lists files in the /var/www/html directory, including 'index.nginx-debian.html', 'index.php', and a folder 'mysite' containing 'Dockerfile', 'css', 'index.html', and 'js'. It then displays the contents of 'index.html' which contains an 'h1' tag with the text 'Hola estoy en un contendor ...'. The browser window titled 'In_Docker' shows the same text 'Hola estoy en un contendor ...'.

Practica 1er Parcial

1. Crear app con nodejs {express}
2. Crear un dockerfile
 - Usar la imagen node
 - Copiar el proyecto creado en el paso 1
 - Exponer un puerto
3. Generar una nueva imagen con algunas versión.
4. Crear un contenedor con la imagen del paso 3
5. Verificar el lanzamiento de la app desde un navegador.

Redes en Docker



Redes en Docker

- Por defecto los contenedores que creamos se conectan a la red de tipo bridge llamada **bridge** (por defecto el direccionamiento de esta red es 172.17.0.0/16). Los contenedores conectados a esta red que quieren exponer algún puerto al exterior tienen que usar la opción -p para mapear puertos.

```
▶ docker network ls
NETWORK ID      NAME      DRIVER      SCOPE
c42d81defb27    bridge    bridge      local
6ae7b1eda800    host      host       local
193e4faae928    none     null       local
```

Redes en Docker

```
[kralos]
[~]
▶ docker network inspect bridge
[
  {
    "Name": "bridge",
    "Id": "c42d81defb27afc6f15350402006b61fd2bd7d529e4e42d2c4978b69e80e577a",
    "Created": "2023-11-06T17:00:53.246Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16",
          "Gateway": "172.17.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
```

Redes en Docker

--network nombre_red

- Para conectar un contenedor a una red.
- Si conecto un contenedor a la red **host**, el contenedor será accesible usando la misma IP que tu máquina.
- La red **none** no configurará ninguna IP para el contenedor y no tiene acceso a la red externa ni a otros contenedores. Tiene la dirección loopback y se puede usar para ejecutar trabajos por lotes.

Redes en Docker

- Crea una red dentro de Docker

```
docker network create nombre-red
```

- Crea una red con rango dentro de Docker

```
docker network create -d macvlan \  
--subnet=172.16.86.0/24 \  
--gateway=172.16.86.1 \  
-o parent=eth0 name-red
```

- Borrar una red dentro de Docker

```
docker network rm nombre-red
```

Redes en Docker

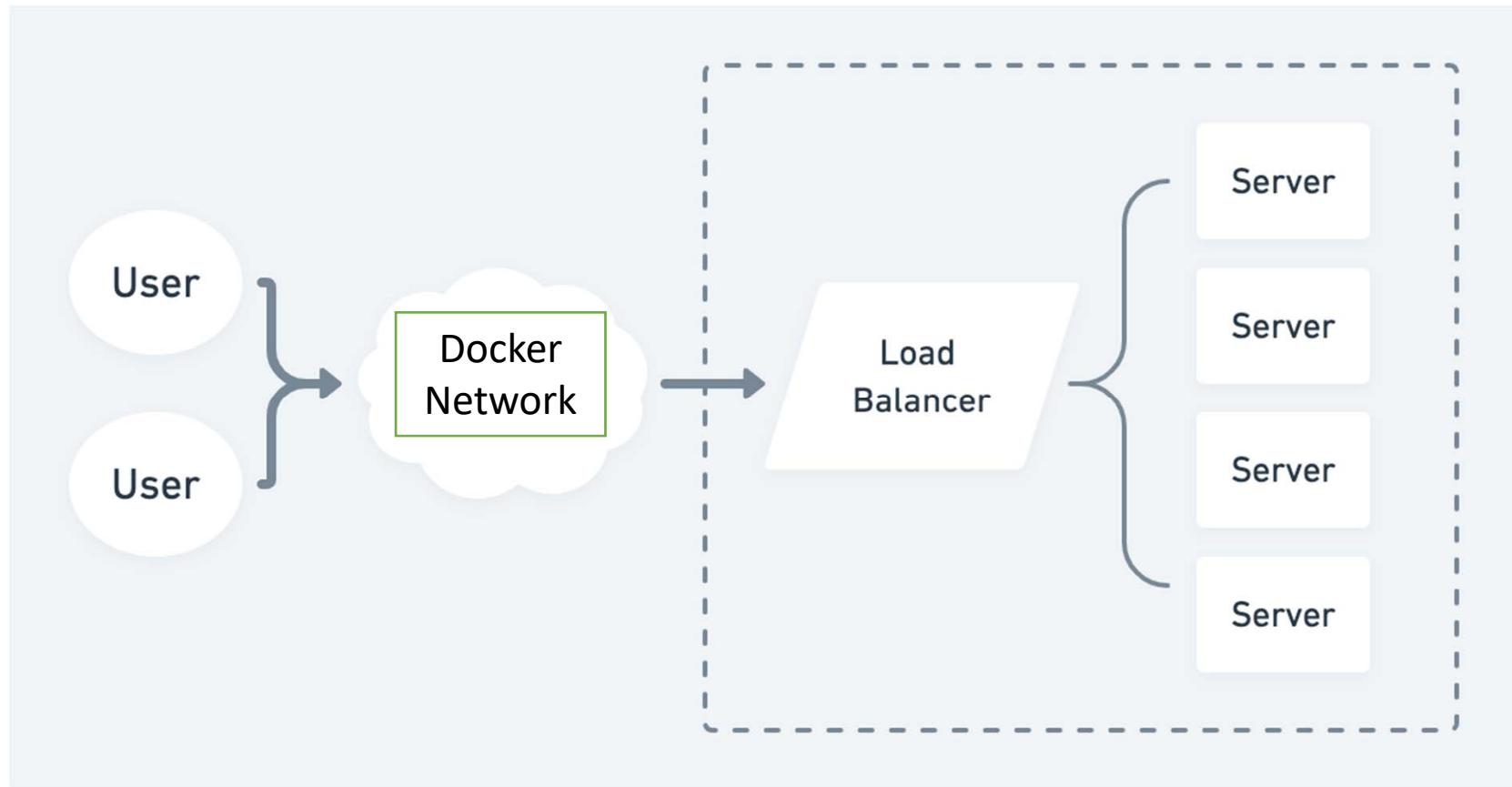
```
▶ docker network create -d macvlan --subnet=172.16.86.0/24 --gateway=172.16.86.1 -o parent=eth0 my-macvlan-net
6f61c1ecf426d808f39be8436de6c2de4e868f0f80eb3776acdcb4f4471dfaf1
[kralos]
[~]
▶ docker network ls
NETWORK ID      NAME      DRIVER      SCOPE
c42d81defb27   bridge    bridge      local
6ae7b1eda800   host      host       local
6f61c1ecf426   my-macvlan-net  macvlan   local
193ed4faae928  none      null      local
[kralos]
[~]
▶ docker network inspect my-macvlan-net
[
  {
    "Name": "my-macvlan-net",
    "Id": "6f61c1ecf426d808f39be8436de6c2de4e868f0f80eb3776acdcb4f4471dfaf1",
    "Created": "2023-11-06T17:32:47.8301725Z",
    "Scope": "local",
    "Driver": "macvlan",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.16.86.0/24",
          "Gateway": "172.16.86.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {
      "parent": "eth0"
    },
    "Labels": {}
  }
]
```

Practica 5

- Enrutamiento y Balanceo

```
[kralos]--[¶main ≡ ● ]  
[[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1]]  
● ► docker network create mynet  
36367c36d4688ca5153e9562adf9edfc4e79002589df15655b311139f738e29  
[[kralos]--[¶main ≡ ● ]  
[[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1]]  
● ► docker network ls  
NETWORK ID      NAME      DRIVER      SCOPE  
500fcdf0c8d4   bridge    bridge      local  
6ae7b1eda800   host      host       local  
6f61c1ecf426   my-macvlan-net macvlan   local  
36367c36d468   mynet     bridge      local  
193e4faae928   none      null       local  
[[kralos]--[¶main ≡ ● ]  
[[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1]]  
● ► docker images  
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE  
nginx          mainline-alpine3.18-slim ab7c6a6862ef 2 weeks ago  17MB  
nginx          latest     593aeee2afb64 2 weeks ago  187MB  
mysite         0.0.1     e8a126f7e3b9  2 weeks ago  1.05GB  
node           latest     d7eb1d080096  2 weeks ago  1.1GB  
mongo          latest     ee3b4d1239f1  3 weeks ago  748MB  
alpine         latest     8ca4688f4f35  5 weeks ago  7.34MB  
holamundo      latest     8e2d75649edb  5 weeks ago  7.34MB  
hello-world    latest     9c7a54a9a43c  6 months ago 13.3kB  
hello-world    linux      9c7a54a9a43c  6 months ago 13.3kB  
linuxconfig/lemp  latest     670ff9140a94  14 months ago 1.05GB
```

Practica 5



Practica 5

```
[kralos]--[¶]main = ● ][x125]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\networking\Balanceo]
● ► docker network inspect mynet
[
  {
    "Name": "mynet",
    "Id": "36367c36d4688ca5153e9562adf9edfc4e79002589df15655b311139f738e29",
    "Created": "2023-11-08T16:44:07.691363211Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]
```

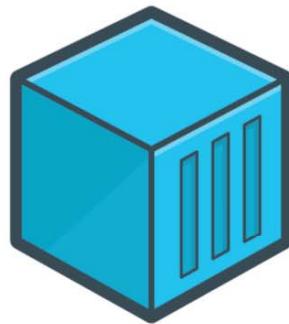
Practica 5

YAML

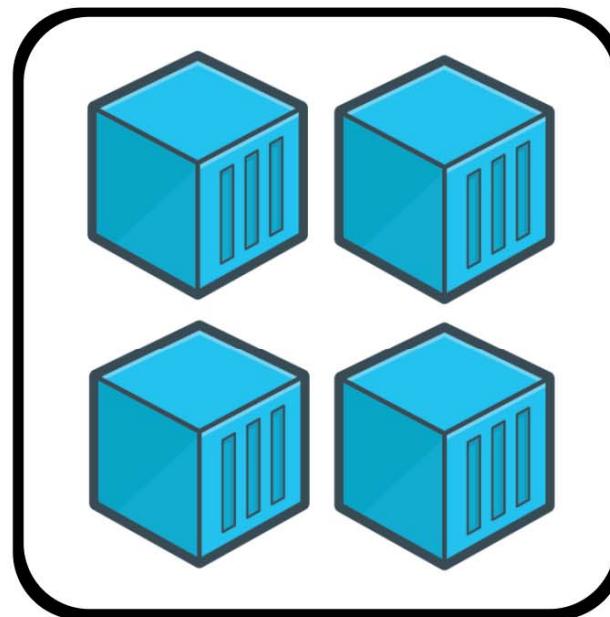
{YAML Ain't Markup Language}

- YAML es un lenguaje de serialización de datos y suele utilizarse en el diseño de archivos de configuración, no para los documentos.
- YAML utiliza una extensión de archivos .yml o .yaml y sigue reglas de sintaxis específicas.
- Tiene características que provienen de Perl, C, XML, HTML y otros lenguajes de programación. También se basa en JSON, por lo que los archivos JSON son compatibles con YAML.

Docke vs Docker Compose



Docker



Docker Compose

Docker Compose

- Es una herramienta de Docker que orquesta contenedores en un mismo cliente. Consiste en un archivo de texto en formato YAML, que define de forma declarativa los contenedores que se van a desplegar, así como las dependencias entre ellos.
- Este archivo normalmente tiene el nombre docker-compose.yml pero puede tener cualquier otro nombre, siempre que se especifique al ejecutar el comando docker-compose con el argumento -f. La utilidad más habitual para esta herramienta es el despliegue de aplicaciones en entornos locales, para el desarrollo y pruebas.

Docker Compose

```
[kralos]--[|main ≡]
[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1]
● ▶ docker-compose --version
Docker Compose version v2.23.0-desktop.1
```

The screenshot shows a code editor interface with three tabs open:

- Dockerfile**:

```
FROM node:20.9.0-alpine3.18
WORKDIR /home/nodeApp
EXPOSE 8080
CMD ["node","index.js"]
```
- docker-compose.yml**:

```
version: '2.23'
services:
  web:
    container_name: nodeDockerApp
    build: .
  ports:
    - "8080:8080"
  volumes:
    - ./nodeApp:/home/nodeApp
```
- index.js**:

```
console.log("Hi, docker!!!");
```

The **index.js** file is currently selected in the Explorer sidebar, which also lists other projects like `balanceo`, `node-whatsapp-apirest`, `nodejs`, and `rasa`.

Docker Compose

```
[kralos]--[¶]main ≡ ● ][x17]
● [[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\docker-composer\ejemplo_0]
▶ docker-compose build
[+] Building 16.2s (6/6) FINISHED
  => [web internal] load build definition from Dockerfile
  => => transferring dockerfile: 125B
  => [web internal] load .dockerignore
  => => transferring context: 2B
  => [web internal] load metadata for docker.io/library/node:20.9.0-alpine3.18
  => [web 1/2] FROM docker.io/library/node:20.9.0-alpine3.18
● => [web 2/2] WORKDIR /home/nodeApp
  => [web] exporting to image
○ => => exporting layers
● => => writing image sha256:1f33cdcf452c002edc6abb0c7df55ee730bae82463f4bf682807c7ae22a5b33
  => => naming to docker.io/library/ejemplo_0-web
[[kralos]--[¶]≡]
● [[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\docker-composer\ejemplo_0]
▶ docker-compose up
[+] Building 0.0s (0/0)
[+] Running 2/2
  ✓ Network ejemplo_0_default  Created
  ✓ Container nodeDockerApp  Created
Attaching to nodeDockerApp
nodeDockerApp  | Hi, docker!!!
nodeDockerApp exited with code 0
[[kralos]--[¶]≡]
● [[D:\umar\Asignaturas\Semestre 23-24 A\912_TI_1\Notas_TI1\code\docker-composer\ejemplo_0]
▶ █
```

Docker Compose

- Lo primero es definir los servicios que vamos a desplegar.
- Estos servicios son los que conforman nuestra aplicación y, normalmente, cada uno despliega un contenedor, asociado a una imagen Docker. Dentro de cada servicio podemos definir las características de cada contenedor, como el nombre, la imagen, los puertos que expone, volúmenes y redes a las que se conecta, etc.

Docker Compose

- version “2.23”: La versión de Docker Compose.
- services: Definimos los contenedores que se crearan. Por ejemplo, Services, web y database.
- web: El nombre de un service.
- build: La ubicación del Dockerfile.
- ports: El mapeo de puertos.
- volumes: Directorios a compartir con él o los contenedores.
- networks: Red a la que pertenecerá el servicio

Referencias

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Referencias {Código}

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