



Tarea 2. Instalación de servidor Web (Apache) y Base de Datos en Docker

Contenedores de app web

- **Listar las imágenes disponibles:**

docker images

```
root@ibrahimserve:/home/ibrahim# docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
ubuntu              latest          6d79abd4c962    2 weeks ago    78.1MB
hello-world         latest          1b44b5a3e06a    7 weeks ago    10.1kB
root@ibrahimserve:/home/ibrahim#
```

Ejecutar un servidor web Apache en segundo plano y mapear puertos:

- **Crear un Dockerfile en vuestro proyecto**
FROM httpd:2.4
COPY ./public-html/ /usr/local/apache2/htdocs/

Pon el nombre que quieras a tu contenedor.

Lanzas los comandos para construir y lanzar una imagen Docker

- \$ docker build -t my-apache2 .

```
ibrahim@ibrahimserve:~/apache-docker$ sudo docker build -t my-apache2 .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/

Sending build context to Docker daemon 3.584kB
Step 1/3 : FROM httpd:2.4
--> 2416cb32cb59
Step 2/3 : COPY ./public-html/ /usr/local/apache2/htdocs/
--> a47cf6e2b141
Step 3/3 : EXPOSE 80
--> Running in 148b1d272f69
--> Removed intermediate container 148b1d272f69
--> 45117fcfdd6e
Successfully built 45117fcfdd6e
Successfully tagged my-apache2:latest
ibrahim@ibrahimserve:~/apache-docker$
```

- \$ docker run -dit --name my-running-app -p 8080:80 my-apache2

```
ibrahim@ibrahimserve:~/apache-docker$ sudo docker run -dit --name my-running-app
-p 8080:80 my-apache2
52b2760954b9f1351d87ebfdd0db91c4e89ec1ea32ab5766de200a35968d5a84
ibrahim@ibrahimserve:~/apache-docker$
```

Verificar que el contenedor está en ejecución:

- docker ps

```
ibrahim@ibrahimserve:~/apache-docker$ sudo docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS
PORTS         NAMES
52b2760954b9   my-apache2    "httpd-foreground"      40 seconds ago Up 39 seconds
0.0.0.0:8080->80/tcp, [::]:8080->80/tcp  my-running-app
ibrahim@ibrahimserve:~/apache-docker$
```

Visita <http://localhost:8080> y ve si funciona.

Ver los logs del contenedor:

- docker logs mi-running-app

```
name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress
message
AH00558: httpd: Could not reliably determine the server's fully qualified d
name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress
message
Thu Oct 02 17:13:19.364508 2025] [mpm_event:notice] [pid 1:tid 1] AH00489:
e/2.4.65 (Unix) configured -- resuming normal operations
Thu Oct 02 17:13:19.382063 2025] [core:notice] [pid 1:tid 1] AH00094: Comm
me: 'httpd -D FOREGROUND'
72.17.0.1 - - [02/Oct/2025:17:14:37 +0000] "GET / HTTP/1.1" 200 36
72.17.0.1 - - [02/Oct/2025:17:14:37 +0000] "GET /favicon.ico HTTP/1.1" 404
Thu Oct 02 17:16:42.304112 2025] [mpm_event:notice] [pid 1:tid 1] AH00492:
SIGWINCH, shutting down gracefully
AH00558: httpd: Could not reliably determine the server's fully qualified d
name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress
message
AH00558: httpd: Could not reliably determine the server's fully qualified d
name, using 172.17.0.2. Set the 'ServerName' directive globally to suppress
message
Fri Oct 03 10:43:56.136519 2025] [mpm_event:notice] [pid 1:tid 1] AH00489:
e/2.4.65 (Unix) configured -- resuming normal operations
Fri Oct 03 10:43:56.138923 2025] [core:notice] [pid 1:tid 1] AH00094: Comm
me: 'httpd -D FOREGROUND'
```

Ejecutar un comando en el contenedor en ejecución:

- docker exec -it mi-running-app bash

```
root@ibrahimserve:/home/ibrahim# docker exec -it my-running-app bash
root@52b2760954b9:/usr/local/apache2#
```

- ls -la /usr/local/apache2/htdocs/

```
root@52b2760954b9:/usr/local/apache2# ls -la /usr/local/apache2/htdocs/
total 16
drwxr-xr-x 1 root    root    4096 Oct  2 17:11 .
drwxr-xr-x 1 www-data www-data 4096 Sep 29 23:55 ..
-rw-rw-r-- 1 root    root     36 Oct  2 17:06 index.html
root@52b2760954b9:/usr/local/apache2#
```

exit

Meter contenido desde fuera al contenedor:

- `docker cp index.html mi-running-app:/usr/local/apache2/htdocs/`

```
root@ibrahimserve:/home/ibrahim# docker cp index.html my-running-app:/usr/local/apache2/htdocs/
Successfully copied 2.05kB to my-running-app:/usr/local/apache2/htdocs/
root@ibrahimserve:/home/ibrahim#
```

Abrir <http://localhost:8080>

Detener, iniciar y reiniciar el contenedor:

- `docker stop mi-running-app`

```
root@ibrahimserve:/home/ibrahim# docker stop my-running-app
my-running-app
root@ibrahimserve:/home/ibrahim#
```

- `docker start mi-running-app`

```
root@ibrahimserve:/home/ibrahim# docker start my-running-app
my-running-app
root@ibrahimserve:/home/ibrahim#
```

- `docker restart mi-running-app`

```
root@ibrahimserve:/home/ibrahim# docker restart my-running-app
my-running-app
root@ibrahimserve:/home/ibrahim#
```

Inspeccionar la configuración del contenedor:

- `docker inspect mi-running-app`

```
root@ibrahimserve:/home/ibrahim# docker inspect my-running-app
[
  {
    "Id": "52b2760954b9f1351d87ebfdd0db91c4e89ec1ea32ab5766de200",
    "Created": "2025-10-02T17:13:16.715503762Z",
    "State": "running",
    "HostConfig": {
      "Binds": [
        "/home/ibrahim/htdocs:/usr/local/apache2/htdocs"
      ],
      "NetworkMode": "bridge",
      "PortBindings": {
        "80/tcp": [
          {
            "HostPort": "8080",
            "ContainerPort": "80"
          }
        ]
      }
    }
  }
]
```

Eliminar el contenedor (primero hay que detenerlo):

- `docker stop mi-running-app`

```
root@ibrahimserve:/home/ibrahim# docker stop my-running-app
my-running-app
root@ibrahimserve:/home/ibrahim#
```

- `docker rm mi-running-app`

```
root@ibrahimserve:/home/ibrahim# docker rm my-running-app
my-running-app
root@ibrahimserve:/home/ibrahim#
```

Forzar la eliminación de un contenedor en ejecución:

Crear un nuevo contenedor

- `docker run --name otro-apache -d -p 8081:80 my-apache2`

```
root@ibrahimserve:/home/ibrahim# docker run --name otro-apache -d -p 8081:80 my-
apache2
c458b8b819fbe35f72c4b54451bb0af176cb1b6ff284c8bbd500c46de9af3a0f
root@ibrahimserve:/home/ibrahim#
```

Eliminar forzosamente

- `docker rm -f otro-apache`

```
root@ibrahimserve:/home/ibrahim# docker rm -f otro-apache
otro-apache
root@ibrahimserve:/home/ibrahim#
```

Eliminar una imagen:

Solo si no hay contenedores que la utilicen

- `docker rmi hello-world`

```
root@ibrahimserve:/home/ibrahim# docker rmi hello-world
Untagged: hello-world:latest
Untagged: hello-world@sha256:54e66cc1dd1fcb1c3c58bd8017914d
6bd9cc1642d31
Deleted: sha256:1b44b5a3e06a9aae883e7bf25e45c100be0bb81a0e0
Deleted: sha256:53d204b3dc5ddbc129df4ce71996b8168711e211274
root@ibrahimserve:/home/ibrahim#
```

Contenedores de BD

Crear un contenedor de base de datos MySQL:

- `docker run --name mi-mysql -e MYSQL_ROOT_PASSWORD=secreto -p 3306:3306 -d mysql:8.0`

```
root@ibrahimserve:/home/ibrahim# docker run --name mi-mysql -e MYSQL_ROOT_PASSWORD=secreto -p 3306:3306 -d mysql:8.0
Unable to find image 'mysql:8.0' locally
8.0: Pulling from library/mysql
806f49275cbf: Pull complete
12e135f0f080: Pull complete
bb0089c87520: Pull complete
59bdefbbef78: Pull complete
6145eb690748: Pull complete
46c5bb883eca: Pull complete
1b25d67bc0be: Pull complete
729dd3a03ada: Pull complete
1a66f49d571a: Pull complete
7faf9da2445b: Pull complete
98c1a0a82ce7: Pull complete
Digest: sha256:4a8843ef1c30d30937dea3cba5b72665bae17051af7a72b1651
Status: Downloaded newer image for mysql:8.0
40429ded18dd4f82ee8314b923adaf7a9a16f216d95bb9b0d0ab3e9c89230470
root@ibrahimserve:/home/ibrahim#
```

Conectarse a la base de datos y crear una tabla:

- `docker exec -it mi-mysql mysql -uroot -psecreto`

```
root@ibrahimserve:/home/ibrahim# docker exec -it mi-mysql mysql -uroot -psecreto
[Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
mysql>
```


Dentro del cliente MySQL:

```
CREATE DATABASE test;

USE test;

CREATE TABLE usuarios (id INT, nombre VARCHAR(100));

INSERT INTO usuarios VALUES (1, 'Usuario Prueba');

SELECT * FROM usuarios;

EXIT;
```

```
mysql> CREATE DATABASE test;
Query OK, 1 row affected (0.00 sec)

mysql> USE test;
Database changed
mysql> CREATE TABLE usuarios (id INT, nombre VARCHAR(100));
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO usuarios VALUES (1, 'Usuario Prueba');
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM usuarios;
+-----+-----+
| id | nombre |
+-----+-----+
| 1 | Usuario Prueba |
+-----+-----+
1 row in set (0.00 sec)

mysql> EXIT
Bye
root@ibrahimserve:/home/ibrahim#
```

Crear un contenedor de un cliente de MySQL:

- `docker run --name mi-adminer -d -p 8080:8080 adminer`

```
root@ibrahimserve:/home/ibrahim# docker run --name mi-adminer -d -p 8080:8080 adminer
Unable to find image 'adminer:latest' locally
latest: Pulling from library/adminer
9824c27679d3: Pull complete
01c2a936c44a: Pull complete
02e20bee4789: Pull complete
103731ea806d: Pull complete
1f34de792613: Pull complete
d34ce04f9516: Pull complete
8e85efba0130: Pull complete
7f3fa80949cb: Pull complete
d5fe723748b5: Pull complete
585a1c45dbde: Pull complete
674fec1834da: Pull complete
c41be3dfd705: Pull complete
4f4fb700ef54: Pull complete
8bece037d7c7: Pull complete
97e850c4dc47: Pull complete
6b56556a2fdc: Pull complete
00be059d3a50: Pull complete
Digest: sha256:a3bea217657c5f95695a3c582e7860491b9bab90c827f12c03436f07b7c37
Status: Downloaded newer image for adminer:latest
0962a8aa8dbec0b52e4a4ca0d751dac51fdebb21e89df3873cb2d9b86c48d5d0
root@ibrahimserve:/home/ibrahim#
```

o con php my admin

- `docker run --name phpmyadmin -d -e PMA_HOST=172.17.0.7 -p 8080:80 phpmyadmin`

```
root@ibrahimserve:/home/ibrahim# docker run --name phpmyadmin -d -e PMA_HOST=172.17.0.7
-p 8080:80 phpmyadmin
Unable to find image 'phpmyadmin:latest' locally
latest: Pulling from library/phpmyadmin
8c7716127147: Already exists
3f814cc06e5a: Pull complete
349592d2c6d1: Pull complete
e9d7b3818d3e: Pull complete
042f7bbd46e8: Pull complete
4a03afdd8816: Pull complete
08a4a8d8574b: Pull complete
634ab520a54a: Pull complete
2e39efed0f04: Pull complete
ec1283305d46: Pull complete
4ad1ce053292: Pull complete
```