

Práctica uso de Docker

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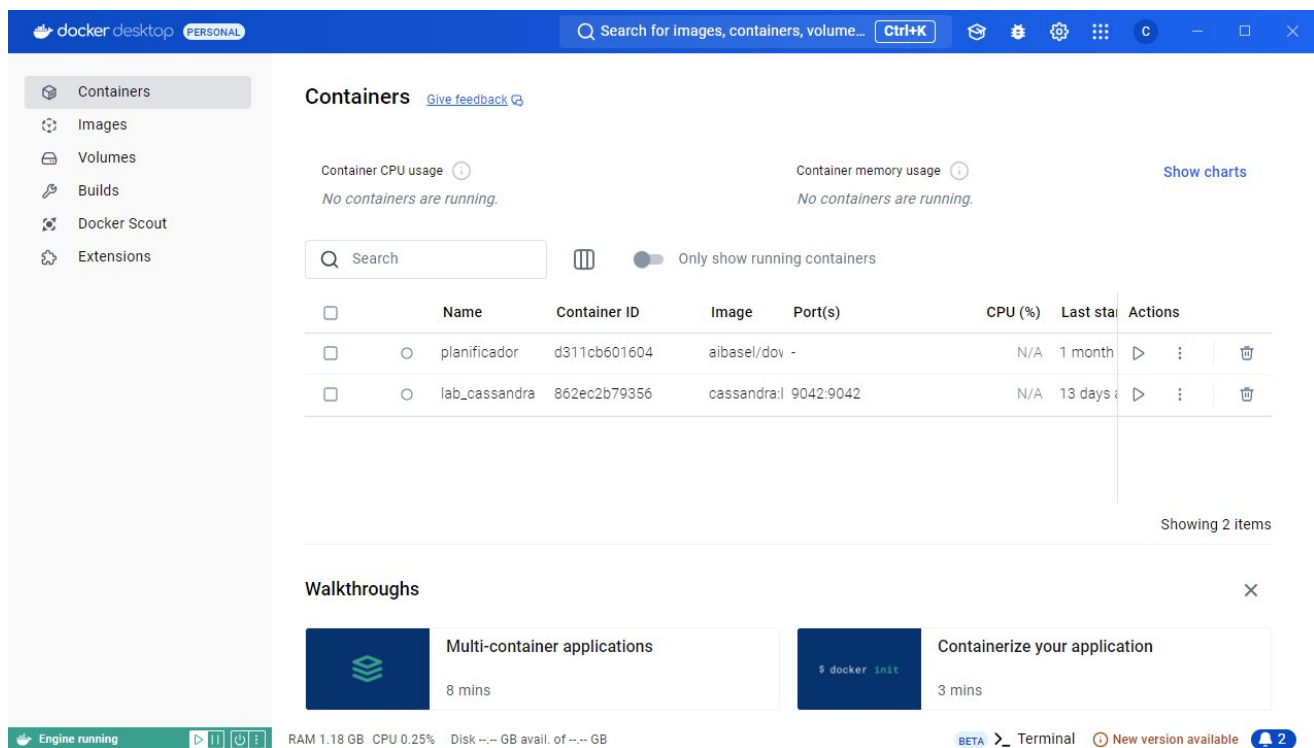
CU: 111-360

Objetivos

Esta actividad te permitirá conocer los comandos básicos de Docker. Ponte a prueba ejecutando varios comandos sobre una instalación previa de Docker Desktop.

Parte 1. Ejercicios Guiados

Para realizar esta actividad, se asume que tienes instalado Docker Desktop en su versión reciente.



Instrucciones

Debe abrir la línea de comandos y ejecutar los comandos indicados, luego de ejecutar debe sacar una captura de pantalla y pegar debajo del comando

Primeros pasos

1. Comprueba la versión de Docker:

> `docker --version`

```
[armando@armando-hp240g6notebookpc ~]$ docker --version
Docker version 28.3.3, build 980b856
[armando@armando-hp240g6notebookpc ~]$
```

2. Descarga una imagen de Docker, por ejemplo, httpd (Apache):

> `docker pull httpd`

```
[armando@armando-hp240g6notebookpc ~]$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
httpd         latest    199e3a035264   12 days ago   117MB
mongo         latest    91dcc1438063   4 weeks ago   908MB
node          20-alpine 7cdef5a33192   5 weeks ago   135MB
postgres      16        f465f4fe2ba0   2 months ago  436MB
[armando@armando-hp240g6notebookpc ~]$
```

3. Consulta las imágenes descargadas:

> `docker images`

```
[armando@armando-hp240g6notebookpc ~]$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
httpd         latest    199e3a035264   12 days ago   117MB
mongo         latest    91dcc1438063   4 weeks ago   908MB
node          20-alpine 7cdef5a33192   5 weeks ago   135MB
postgres      16        f465f4fe2ba0   2 months ago  436MB
[armando@armando-hp240g6notebookpc ~]$
```

4. Ejecuta una instancia (contenedor) de la imagen descargada (httpd):

> `docker run -it -d -p 8080:80 httpd`

```
[armando@armando-hp240g6notebookpc ~]$ docker run -it -d -p 8080:80 httpd
ced63d207fa07edcc1056f9a1d14b9de936f9a4305a2ec780a73ce9991f2135b
[armando@armando-hp240g6notebookpc ~]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS
PORTS         NAMES
ced63d207fa0   httpd     "httpd-foreground"      7 seconds ago Up 6 seconds
0.0.0.0:8080->80/tcp, [::]:8080->80/tcp   kind_chaum
[armando@armando-hp240g6notebookpc ~]$
```

5. Consulta todos los contenedores creados:

> `docker ps`

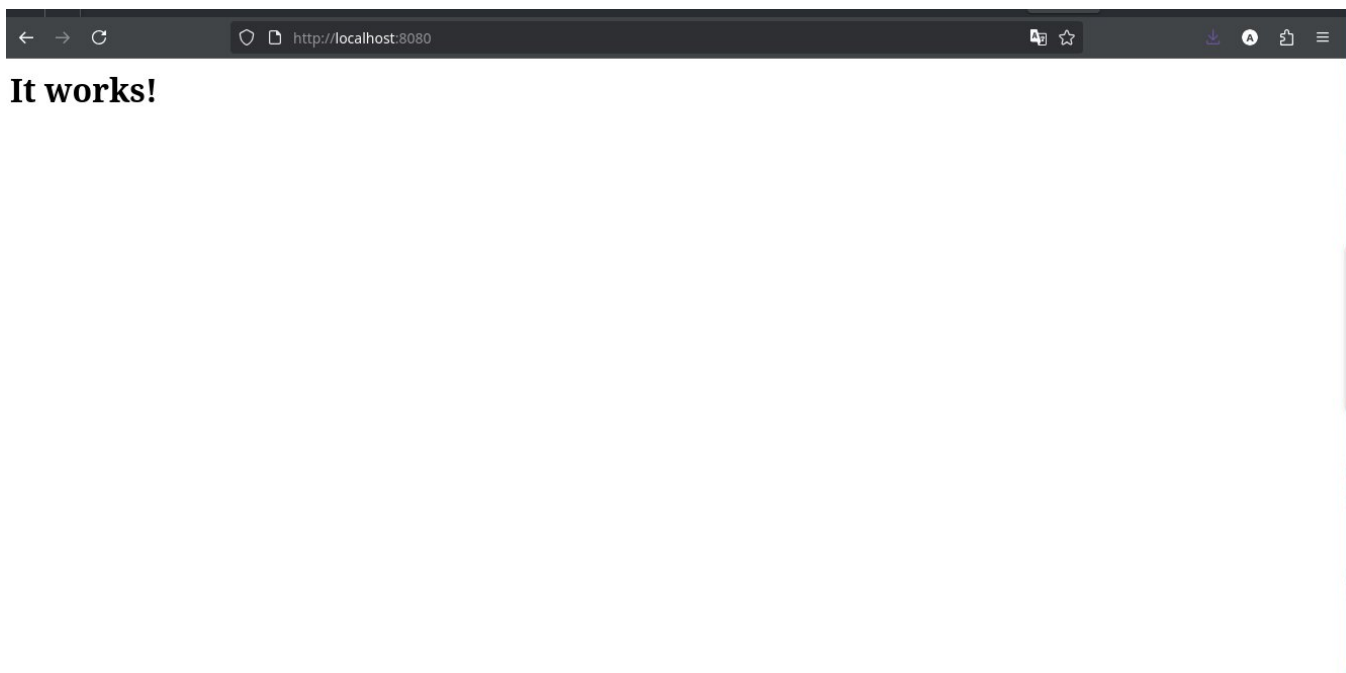
```
[armando@armando-hp240g6notebookpc ~]$ docker run -it -d -p 8080:80 httpd
ced63d207fa07edcc1056f9a1d14b9de936f9a4305a2ec780a73ce9991f2135b
[armando@armando-hp240g6notebookpc ~]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS
PORTS         NAMES
ced63d207fa0   httpd     "httpd-foreground"      7 seconds ago Up 6 seconds
0.0.0.0:8080->80/tcp, [::]:8080->80/tcp   kind_chaum
[armando@armando-hp240g6notebookpc ~]$
```

> `docker ps -a`

```
[armando@armando-hp240g6notebookpc ~]$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS
PORTS         NAMES
ced63d207fa0   httpd     "httpd-foreground"      41 seconds ago Up 40
seconds       0.0.0.0:8080->80/tcp, [::]:8080->80/tcp   kind_chaum
f1f05fd9ceac   mongo:latest "docker-entrypoint.s..." 7 days ago    Exite
d (0) 6 days ago mongo
3c926e4b232a   postgres:16 "docker-entrypoint.s..." 5 weeks ago    Exite
d (0) 2 hours ago postgres_contai
ner
[armando@armando-hp240g6notebookpc ~]$
```

6. Comprueba el funcionamiento del contenedor desde el host:

> <http://localhost:8080>



It works!

7. Ejecuta la terminal de Linux dentro del contenedor:

> `ls`

> `docker exec -it 2e50e06a5c84`

```
[armando@armando-hp240g6notebookpc bin]$ sudo docker exec -it ced63d207fa0 /bin/bash
root@ced63d207fa0:/usr/local/apache2# ls
bin build cgi-bin conf error htdocs icons include logs modules
root@ced63d207fa0:/usr/local/apache2#
```

8. Borra el contenedor creado:

- > `docker rm CONTAINER_ID`
- > `docker stop 2e50e06a5c84` *(para el contenedor antes de borrarlo)*
- > `docker rm 2e50e06a5c84`

```
[armando@armando-hp240g6notebookpc bin]$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
ced63d207fa0   httpd     "httpd-foreground"      8 minutes ago Up 8 minutes   0.0.0.0:8080->80/tcp, [::]:8080->80/tcp   kind_chaum

[armando@armando-hp240g6notebookpc bin]$ sudo docker stop ced63d207fa0
ced63d207fa0

[armando@armando-hp240g6notebookpc bin]$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS   NAMES
[armando@armando-hp240g6notebookpc bin]$ sudo docker ps-a
docker: unknown command: docker ps-a

Run 'docker --help' for more information
[armando@armando-hp240g6notebookpc bin]$ sudo docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
ced63d207fa0   httpd     "httpd-foreground"      9 minutes ago Exited (0) 13 seconds ago           kind_chaum
f1f05fd9ceac   mongo:latest "docker-entrypoint.s..." 7 days ago    Exited (0) 6 days ago             mongo
3c926e4b232a   postgres:16 "docker-entrypoint.s..." 5 weeks ago    Exited (0) 3 hours ago            postgres_container

[armando@armando-hp240g6notebookpc bin]$ sudo docker rm ced63d207fa0
ced63d207fa0
```

9. Comprueba que el contenedor ha sido eliminado:

```
[armando@armando-hp240g6notebookpc bin]$ sudo docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
f1f05fd9ceac   mongo:latest "docker-entrypoint.s..." 7 days ago    Exited (0) 6 days ago             mongo
3c926e4b232a   postgres:16 "docker-entrypoint.s..." 5 weeks ago    Exited (0) 3 hours ago            postgres_container

[armando@armando-hp240g6notebookpc bin]$
```

10. Borra la imagen usando la identificación del Contenedor que el contenedor ha sido eliminado:

- > `docker rmi IMAGE_ID`
- > `docker images`

```
[armando@armando-hp240g6notebookpc bin]$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
httpd         latest    199e3a035264   13 days ago    117MB
mongo         latest    91dcc1438063   4 weeks ago    908MB
node          20-alpine 7cdef5a33192   5 weeks ago    135MB
postgres      16        f465f4fe2ba0   2 months ago   436MB

[armando@armando-hp240g6notebookpc bin]$
```

- > `docker rmi a8ea074f4566`

```
[armando@armando-hp240g6notebookpc bin]$ sudo docker rmi 199e3a035264
Untagged: httpd:latest
Untagged: httpd@sha256:3198c1839e1a875f8b83803083758a7635f1ae999f0601f30f2f3b8ce2ac99e3
Deleted: sha256:199e3a0352645ad4ae027e853af5986bd5b4766c3a5e98987ad10d5922eb7465
Deleted: sha256:00573b19d7727f02c759d09e37596d7790e794d8044bbda01c82e4ef255a5a46
Deleted: sha256:84e29bd3c0d55e14757bab091c4081f900a13e91d88ebe65d7711411ac757385
Deleted: sha256:d75c7aed0111141a372ee22ba367d8b7d6dfc111abd79544592065f98a57802c
Deleted: sha256:d39e6d1ae882eb3ae39fb74a830df8d28fcd5032b8eb94da68c5f488c51ece5d
Deleted: sha256:7def08ab353787eaf7f6c76df7a4de80178cd031f0b2e5267291b645d148600a
Deleted: sha256:e6a3842ebc7f5e41d8a38f19a0aa5ea56c255475695ac6682882420800cf5465
[armando@armando-hp240g6notebookpc bin]$ sudo docker images
REPOSITORY    TAG        IMAGE ID      CREATED       SIZE
mongo         latest     91dcc1438063  4 weeks ago   908MB
node          20-alpine  7cdef5a33192  5 weeks ago   135MB
postgres      16        f465f4fe2ba0  2 months ago  436MB
[armando@armando-hp240g6notebookpc bin]$
```

> `docker rmi -f a8ea074f4566` *(forzar el borrado)*

11. Reinicia el contenedor:

> `docker restart CONTAINER_ID`

> `docker ps -a`

> `docker restart 2e50e06a5c84`

```
[armando@armando-hp240g6notebookpc bin]$ docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS              PORTS
c72c0c68f0d3   httpd          "httpd-foreground"      About a minute ago    Exited (0) 15 seconds ago
f1f05fd9ceac   mongo:latest   "docker-entrypoint.s..." 7 days ago      Exited (0) 6 days ago
9c926e4b232a   postgres:16    "docker-entrypoint.s..." 5 weeks ago       Exited (0) 3 hours ago
[armando@armando-hp240g6notebookpc bin]$ sudo docker restart c72c0c68f0d3
c72c0c68f0d3
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS              PORTS
c72c0c68f0d3   httpd          "httpd-foreground"      About a minute ago    Up 4 seconds       0.0.0.0:8080->80/tcp, [::]:80
gorous_pike
[armando@armando-hp240g6notebookpc bin]$
```

12. Detén y levanta el contenedor:

> `docker stop CONTAINER_ID`

> `docker stop 2e50e06a5c84`

> `docker ps` *(comprueba que está parado el contenedor)*

> `docker start 2e50e06a5c84`

> `docker ps`


```
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
c72c0c68f0d3   httpd     "httpd-foreground"      2 minutes ago    Up 30 seconds    0.0.0.0:8080->80/tcp, [::]:8080->80/tcp    vigoro
us_pike
[armando@armando-hp240g6notebookpc bin]$ sudo docker stop c72c0c68f0d3
c72c0c68f0d3
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
[armando@armando-hp240g6notebookpc bin]$ sudo docker start c72c0c68f0d3
c72c0c68f0d3
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
c72c0c68f0d3   httpd     "httpd-foreground"      2 minutes ago    Up 3 seconds     0.0.0.0:8080->80/tcp, [::]:8080->80/tcp    vigorou
s_pike
[armando@armando-hp240g6notebookpc bin]$
```

13. Mata el contenedor:

- > `docker kill 2e50e06a5c84`
- > `docker ps`

```
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS                               NAMES
c72c0c68f0d3   httpd     "httpd-foreground"      3 minutes ago    Up 42 seconds    0.0.0.0:8080->80/tcp, [::]:8080->80/tcp    vigoro
us_pike
[armando@armando-hp240g6notebookpc bin]$ sudo docker kill c72c0c68f0d3
c72c0c68f0d3
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
[armando@armando-hp240g6notebookpc bin]$
```

14. Visualiza los detalles de la red definida con los clústeres:

- > `docker network`
- > `docker network ls`
- > `docker ps`

```
[armando@armando-hp240g6notebookpc bin]$ docker network
Usage: docker network COMMAND

Manage networks

Commands:
 connect      Connect a container to a network
 create       Create a network
 disconnect   Disconnect a container from a network
 inspect      Display detailed information on one or more networks
 ls           List networks
 prune        Remove all unused networks
 rm           Remove one or more networks

Run 'docker network COMMAND --help' for more information on a command.
[armando@armando-hp240g6notebookpc bin]$ docker network ls
NETWORK ID   NAME      DRIVER    SCOPE
a59f4706ba50 bridge    bridge    local
88e744f85938 host      host      local
90f85eb6829c none      null       local
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
[armando@armando-hp240g6notebookpc bin]$
```

15. Obtén información detallada sobre los recursos de Docker:

> docker Info

```
90f85eb6829c none null local
[armando@armando-hp240g6notebookpc bin]$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[armando@armando-hp240g6notebookpc bin]$ docker info
Client:
Version: 28.3.3
Context: default
Debug Mode: false
Plugins:
ai: Docker AI Agent - Ask Gordon (Docker Inc.)
Version: v1.9.11
Path: /home/armando/.docker/cli-plugins/docker-ai
buildx: Docker Buildx (Docker Inc.)
Version: v0.26.1-desktop.1
Path: /home/armando/.docker/cli-plugins/docker-buildx
cloud: Docker Cloud (Docker Inc.)
Version: v0.4.18
Path: /home/armando/.docker/cli-plugins/docker-cloud
compose: Docker Compose (Docker Inc.)
Version: v2.39.1-desktop.1
Path: /home/armando/.docker/cli-plugins/docker-compose
debug: Get a shell into any image or container (Docker Inc.)
Version: 0.0.42
Path: /home/armando/.docker/cli-plugins/docker-debug
desktop: Docker Desktop commands (Docker Inc.)
Version: v0.2.0
Path: /home/armando/.docker/cli-plugins/docker-desktop
extension: Manages Docker extensions (Docker Inc.)
Version: v0.2.29
Path: /home/armando/.docker/cli-plugins/docker-extension
init: Creates Docker-related starter files for your project (Docker Inc.)
Version: v1.4.0
Path: /home/armando/.docker/cli-plugins/docker-init
mcp: Docker MCP Plugin (Docker Inc.)
Version: v0.13.0
Path: /home/armando/.docker/cli-plugins/docker-mcp
offload: Docker Offload (Docker Inc.)
Version: v0.4.18
Path: /home/armando/.docker/cli-plugins/docker-offload
sbom: View the packaged-based Software Bill Of Materials (SBOM) for an image (Anchore Inc.)
Version: 0.6.0
Path: /home/armando/.docker/cli-plugins/docker-sbom
scout: Docker Scout (Docker Inc.)
Version: v1.18.2
Path: /home/armai
```

16. Revisa el historial de una imagen:

> docker history httpd

```
[armando@armando-hp240g6notebookpc bin]$ docker history httpd
IMAGE CREATED CREATED BY SIZE COMMENT
199e3a035264 13 days ago CMD ["httpd-foreground"] 0B buildkit.dockerfile.v0
<missing> 13 days ago EXPOSE map[80/tcp:{}] 0B buildkit.dockerfile.v0
<missing> 13 days ago COPY httpd-foreground /usr/local/bin/ # buil... 138B buildkit.dockerfile.v0
<missing> 13 days ago STOPSIGNAL SIGWINCH 0B buildkit.dockerfile.v0
<missing> 13 days ago RUN /bin/sh -c set -eux; savedAptMark="$(a... 32.5MB buildkit.dockerfile.v0
<missing> 13 days ago ENV HTTPD_PATCHES= 0B buildkit.dockerfile.v0
<missing> 13 days ago ENV HTTPD_SHA256=58b8be97d9940ec17f7656c0c6b... 0B buildkit.dockerfile.v0
<missing> 13 days ago ENV HTTPD_VERSION=2.4.65 0B buildkit.dockerfile.v0
<missing> 13 days ago RUN /bin/sh -c set -eux; apt-get install --... 5.63MB buildkit.dockerfile.v0
<missing> 13 days ago WORKDIR /usr/local/apache2 0B buildkit.dockerfile.v0
<missing> 13 days ago RUN /bin/sh -c mkdir -p "$HTTPD_PREFIX" && ... 0B buildkit.dockerfile.v0
<missing> 13 days ago ENV PATH=/usr/local/apache2/bin:/usr/local/s... 0B buildkit.dockerfile.v0
<missing> 13 days ago ENV HTTPD_PREFIX=/usr/local/apache2 0B buildkit.dockerfile.v0
<missing> 13 days ago # debian.sh --arch 'amd64' out/ 'trixie' '@1... 78.6MB debuerreotype 0.15
[armando@armando-hp240g6notebookpc bin]$
```

17. Busca una imagen según el nombre:

>docker search mongo

```
[armando@armando-hp240g6notebookpc bin]$ docker search mongo
NAME                                DESCRIPTION                                STARS    OFFICIAL
mongo                              MongoDB document databases provide high avai... 10617    [OK]
circleci/mongo                    CircleCI images for MongoDB                  16
corpusops/mongo                   https://github.com/corpusops/docker-images/    0
rootpublic/mongo                  https://github.com/corpusops/docker-images/    0
uselagoon/mongo                   https://github.com/corpusops/docker-images/    0
ekesken/mongo                     docker image for mongo that is configurable ... 1
vepo/mongo                        Mongo image with default settings              1
litmuschaos/mongo                 https://github.com/litmuschaos/docker-mongo    1
jelastic/mongo                    An image of the MongoDB database server main... 0
arm64v8/mongo                     MongoDB document databases provide high avai... 36
zinobe/mongo                      mongo with custom user                       0
s390x/mongo                       MongoDB document databases provide high avai... 1
kubedb/mongo                      https://github.com/kubedb/mongo                0
cescoferraro/mongo               docker alpine mongo                          0
ccitest/mongo                    CircleCI test images for Mongo                0
amd64/mongo                       MongoDB document databases provide high avai... 0
sacashgit/mongo                  Dockerfile and scripts to setup a production... 2
excellalabs/mongo                 MongoDB document databases provide high avai... 1
winamd64/mongo                   MongoDB document databases provide high avai... 1
mongodb/mongodb-community-server  The Official MongoDB Community Server         164
healthcheck/mongo                https://github.com/docker-library/healthchec... 5
pagarme/mongo                    https://github.com/docker-library/healthchec... 0
pastvu/mongo                     https://github.com/docker-library/healthchec... 0
sscpac/mongo                     alpine mongo                                 0
mongodb/mongodb-atlas-local       Create, manage, and automate MongoDB Atlas L... 8
```