



ESCUELA POLITÉCNICA NACIONAL

ESCUELA DE FORMACIÓN DE TECNÓLOGOS



SERVICIOS SOBRE REDES

ASIGNATURA:

Servicios sobre Redes

PROFESOR:

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PERÍODO ACADÉMICO:

2020-A

PRUEBA 2BIMESTRE

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FECHA DE REALIZACIÓN: 19 / 08 / 2020

FECHA DE ENTREGA: 19 / 08 / 2020

CALIFICACIÓN OBTENIDA:

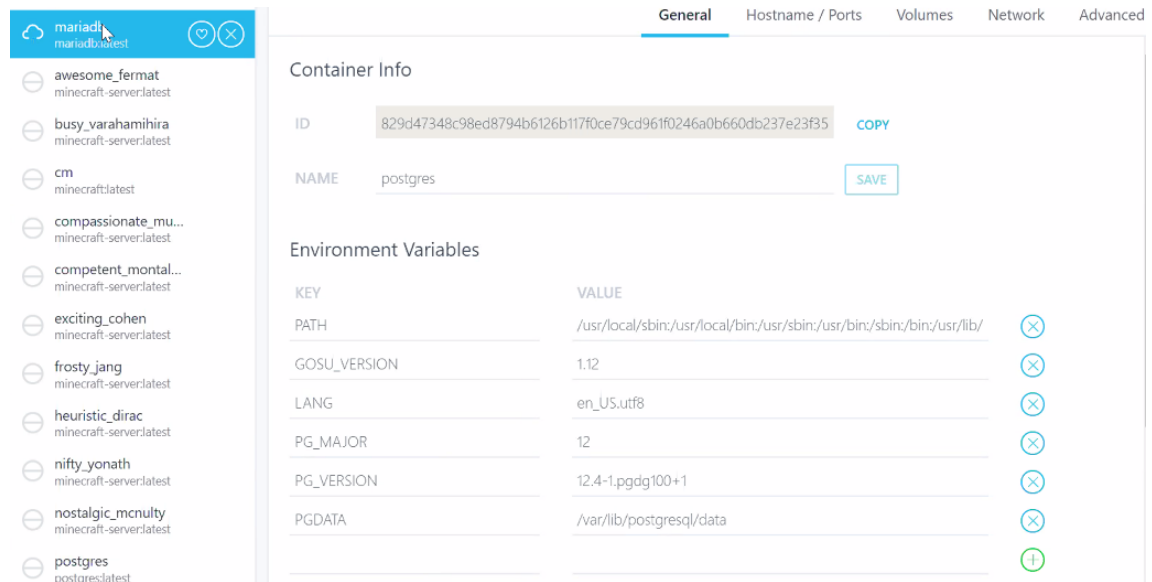
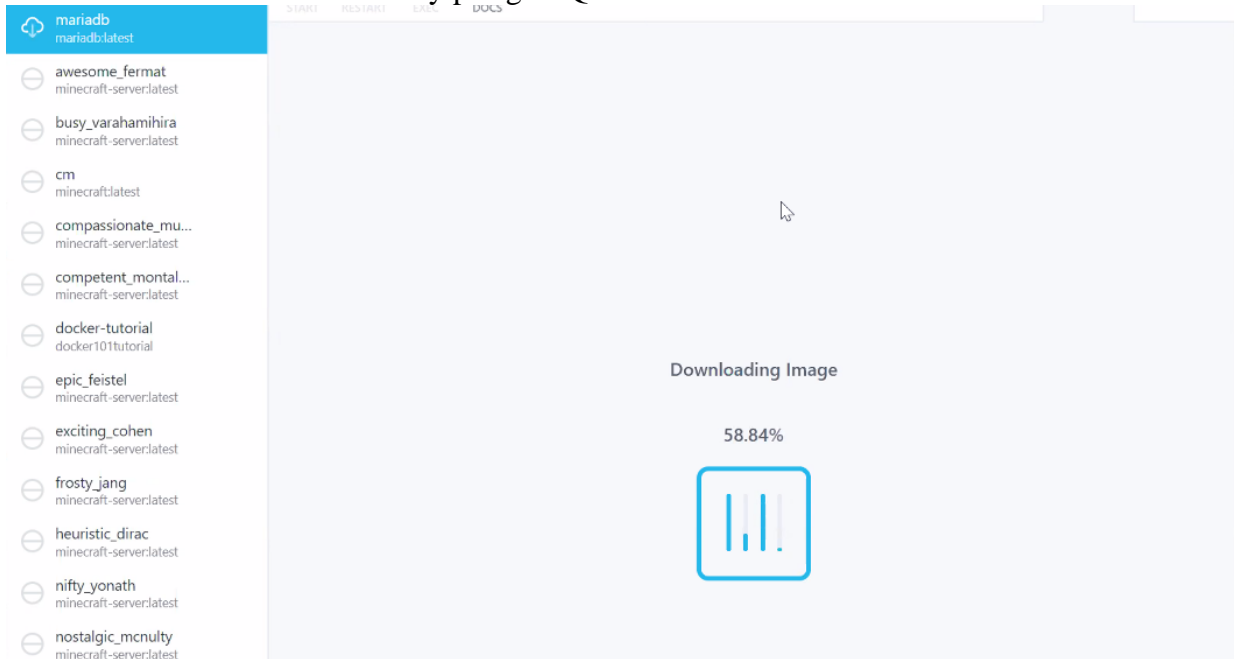
FIRMA DEL PROFESOR:

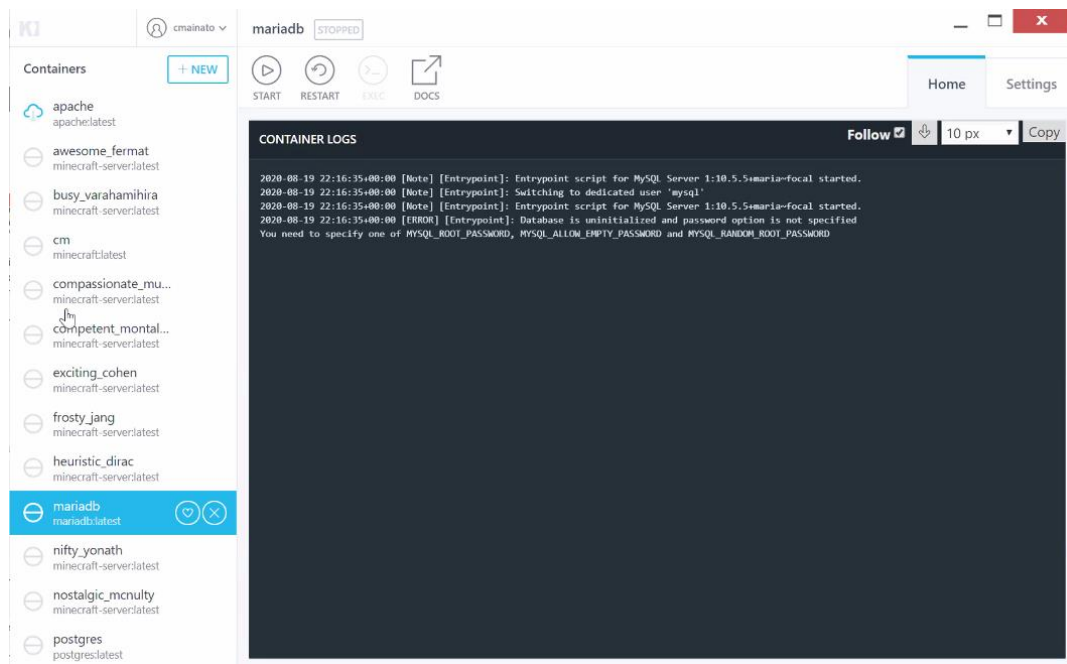
1 PROPÓSITO

Utilizando Docker y Hamachi implementar la siguiente arquitectura y una aplicación web sencilla que consuma elementos de las bases de datos, documentar los pasos que siguió en un repositorio de github.

2 DESARROLLO

- Contenedores de mariadb y postgresSQL





- Se lo realiza mediante comando y se ejecuta

```

C:\Users\usuario>cd docker

C:\Users\usuario\docker>ls
"ls" no se reconoce como un comando interno o externo,
programa o archivo por lotes ejecutable.

C:\Users\usuario\docker>docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
C:\Users\usuario\docker>docker pull postgres
Using default tag: latest
latest: Pulling from library/postgres
Digest: sha256:9f325740426d14a92f71013796d98a50fe385da64a7c5b6b753d0705add05a21
Status: Image is up to date for postgres:latest
docker.io/library/postgres:latest

C:\Users\usuario\docker>docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
C:\Users\usuario\docker>docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
itzg/minecraft-server   latest            97a86f7b4377       21 hours ago       324MB
bitnami/apache        latest            4acd5781f63c       3 days ago         495MB
postgres            latest            62473370e7ee       5 days ago         314MB
cmaintato/docker10tutorial  latest          fc1702813564       7 days ago         26.8MB
docker10tutorial      latest            fc1702813564       7 days ago         26.8MB
<none>                <none>             6f69c0bc9cfe       7 days ago         85.6MB
<none>                <none>             62a8daaca93c       7 days ago         72MB
<none>                <none>             96841db45d09       7 days ago         224MB
python               alpine             44fceb565b2a       8 days ago         42.7MB
mariadb              latest            b95867b52886       8 days ago         407MB
postgres              <none>            b03968f50f0e       2 weeks ago        313MB
mysql                 latest            0d64f46acf01       2 weeks ago        544MB
node                  12-alpine         18f4bc975732       3 weeks ago        89.3MB
nginx                 alpine             ecd67fe340f9       5 weeks ago        21.6MB
kitematic/minecraft  latest            910f1a0c505d       2 years ago        350MB
C:\Users\usuario\docker>

```

```

C:\Users\usuario>docker images
REPOSITORY              TAG                 IMAGE ID            CREATED             SIZE
cmaintato/docker101tutorial  latest             fc1702813564       7 days ago         26.8MB
docker101tutorial         latest             fc1702813564       7 days ago         26.8MB
<none>                    <none>             6f69c0bc9cfe       7 days ago         85.6MB
<none>                    <none>             62a8daaca93c       7 days ago         72MB
<none>                    <none>             96841db45d09       7 days ago         224MB
python                    alpine             44fceb565b2a       8 days ago         42.7MB
mariadb                   latest             b95867b52886       8 days ago         407MB
postgres                  <none>             b03968f50f0e       2 weeks ago        313MB
mysql                     latest             0d64f46acfd1       2 weeks ago        544MB
node                       12-alpine         18f4bc975732       3 weeks ago        89.3MB
nginx                     alpine             ecd67fe340f9       5 weeks ago        21.6MB
kitematic/minecraft       latest             910f1a0c505d       2 years ago        350MB

C:\Users\usuario\docker>docker pull postgres
Using default tag: latest
latest: Pulling from library/postgres
Digest: sha256:9f325740426d14a92f71013796d98a50fe385da64a7c5b6b753d0705add05a21
Status: Image is up to date for postgres:latest
docker.io/library/postgres:latest

C:\Users\usuario\docker>docker pull mariadb
Using default tag: latest
latest: Pulling from library/mariadb
Digest: sha256:273369ddd8430bf5e46fb4ed163e83316f82ef2a05a9a5bea27cc7fbc7cdf07
Status: Image is up to date for mariadb:latest
docker.io/library/mariadb:latest

C:\Users\usuario\docker>

```

- Se revisa las imágenes que se tiene

```

C:\Users\usuario\docker>docker images
REPOSITORY              TAG                 IMAGE ID            CREATED             SIZE
itzg/minecraft-server    latest             97a86f7b4377       21 hours ago       324MB
bitnami/apache            latest             4acd5781f63c       3 days ago         495MB
postgres                  latest             62473370e7ee       5 days ago         314MB
cmaintato/docker101tutorial  latest             fc1702813564       7 days ago         26.8MB
docker101tutorial         latest             fc1702813564       7 days ago         26.8MB
<none>                    <none>             6f69c0bc9cfe       7 days ago         85.6MB
<none>                    <none>             96841db45d09       7 days ago         72MB
<none>                    <none>             62a8daaca93c       7 days ago         224MB
python                    alpine             44fceb565b2a       8 days ago         42.7MB
mariadb                   latest             b95867b52886       8 days ago         407MB
postgres                  <none>             b03968f50f0e       2 weeks ago        313MB
mysql                     latest             0d64f46acfd1       2 weeks ago        544MB
node                       12-alpine         18f4bc975732       3 weeks ago        89.3MB
nginx                     alpine             ecd67fe340f9       5 weeks ago        21.6MB
kitematic/minecraft       latest             910f1a0c505d       2 years ago        350MB

C:\Users\usuario\docker>

```

- Imágenes corriendo en Docker

```
C:\Users\usuario\docker>docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
74c954b021eb	mariadb	"docker-entrypoint.s..."	About an hour ago	Up About an hour	0.0.0.0:3306->3306/tcp, 0.0.0.0:32826->3306/tcp	mariadb1
76d0dc773a0e	httpd:latest	"httpd-foreground"	4 hours ago	Up 4 hours	0.0.0.0:32822->80/tcp	httpd
dc1c142b7ae7	mariadb	"docker-entrypoint.s..."	4 hours ago	Up 4 hours	3306/tcp	goofy_joliot
83f8be5eda6f	postgres	"docker-entrypoint.s..."	4 hours ago	Up 4 hours	5432/tcp	practical_banza

- Ahora vamos a descargarnos apache

```
Símbolo del sistema - docker pull apache

mysql          latest          0d64f46acfd1    2 weeks ago     544MB
node           12-alpine       18f4bc975732    3 weeks ago     89.3MB
nginx          alpine          ecd67fe340f9    5 weeks ago     21.6MB
kitematic/minecraft latest        910f1a0c505d    2 years ago     350MB

C:\Users\usuario\docker>docker pull postgres
Using default tag: latest
latest: Pulling from library/postgres
Digest: sha256:9f325740426d14a92f71013796d98a50fe385da64a7c5b6b753d0705add05a21
Status: Image is up to date for postgres:latest
docker.io/library/postgres:latest

C:\Users\usuario\docker>docker pull mariadb
Using default tag: latest
latest: Pulling from library/mariadb
Digest: sha256:273369dddb8430bf5e46fb4ed163e83316f82ef2a05a9a5bea27cc7fbc7cdf07
Status: Image is up to date for mariadb:latest
docker.io/library/mariadb:latest

C:\Users\usuario\docker>docker images
REPOSITORY      TAG              IMAGE ID          CREATED           SIZE
itzg/minecraft-server latest        97a86f7b4377     21 hours ago     324MB
bitnami/apache  latest        4acd5781f63c     3 days ago       495MB
postgres        latest        62473370e7ee     5 days ago       314MB
cmainato/docker101tutorial latest      fc1702813564     7 days ago       26.8MB
docker101tutorial latest      fc1702813564     7 days ago       26.8MB
<none>          <none>        6f69c0bc9cfe     7 days ago       85.6MB
<none>          <none>        96841db45d09     7 days ago       224MB
<none>          <none>        62a8daaca93c     7 days ago       72MB
python          alpine        44fceb565b2a     8 days ago       42.7MB
mariadb         latest        b95867b52886     8 days ago       407MB
postgres        <none>        b03968f50f0e     2 weeks ago      313MB
mysql           latest        0d64f46acfd1     2 weeks ago      544MB
node            12-alpine     18f4bc975732     3 weeks ago      89.3MB
nginx           alpine        ecd67fe340f9     5 weeks ago      21.6MB
kitematic/minecraft latest        910f1a0c505d     2 years ago      350MB

C:\Users\usuario\docker>docker pull apache
Using default tag: latest
```

- En kitematic

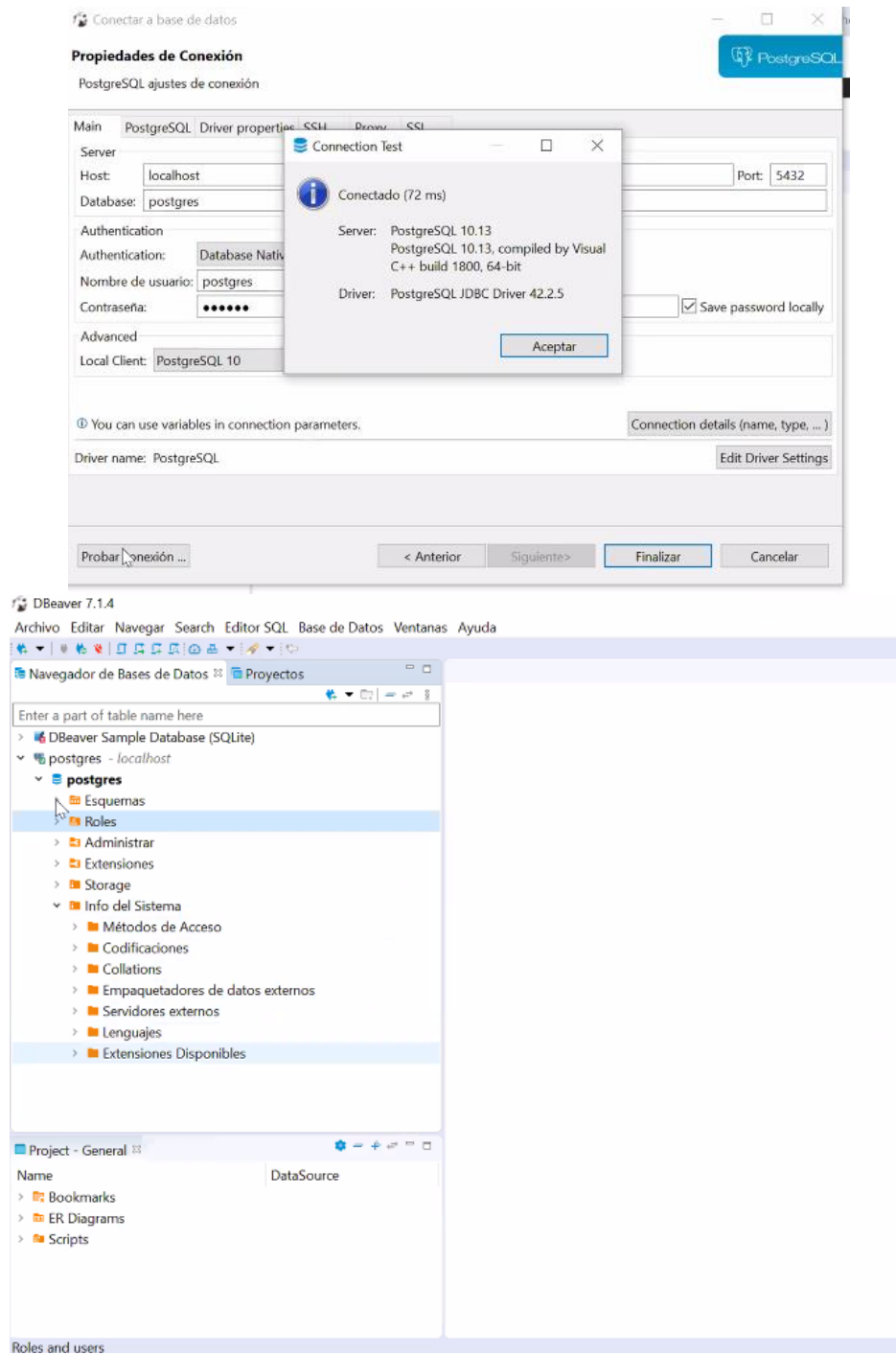
The screenshot shows the Kitematic application interface. On the left, there is a list of containers under the 'Containers' tab. The 'apache' container is selected and highlighted. On the right, the 'CONTAINER LOGS' for the 'apache' container are displayed. The logs show the following messages:

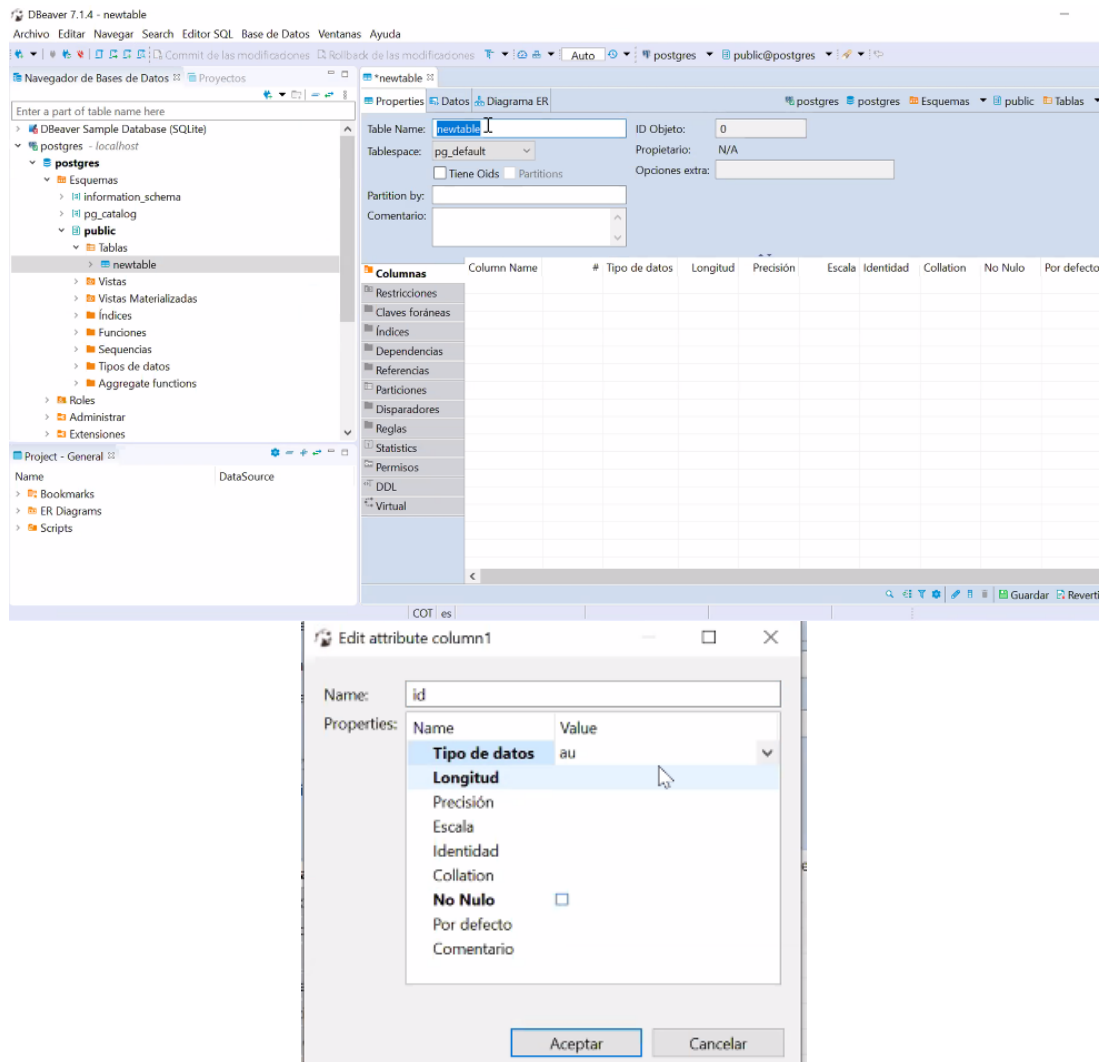
```

apache 22:26:43.28 [info] Welcome to the Bitnami apache container
apache 22:26:43.28 [info] Subscribe to project updates by watching https://github.com/bitnami/bitnami-docker-apache
apache 22:26:43.28 [info] Submit issues and feature requests at https://github.com/bitnami/bitnami-docker-apache/issues
apache 22:26:43.28 [info] ** Starting Apache setup **
2020-08-19T22:26:43.28390047Z [info] ** Apache setup Finished! **
apache 22:26:43.28 [info] ** Starting Apache **
[Wed Aug 19 22:26:43.314906 2020] [ssl:warn] [pid 1] AH01909: www.example.com:8443:0 server certificate does NOT include an ID which matches the server name
[Wed Aug 19 22:26:43.320490 2020] [ssl:warn] [pid 1] AH01909: www.example.com:8443:0 server certificate does NOT include an ID which matches the server name
[Wed Aug 19 22:26:43.321975 2020] [mpm_prefork:notice] [pid 1] AH00163: Apache/2.4.46 (Unix) OpenSSL/1.1.1 configured -- resuming normal operations
[Wed Aug 19 22:26:43.321997 2020] [core:notice] [pid 1] AH00094: Command line: '/opt/bitnami/apache/bin/httpd -f /opt/bitnami/apache/conf/httpd.conf -D FOREGROUND'

```

- Conexión con PostgreSQL





- Conexión con PostgreSQL

```
C:\Users\usuario\docker>docker run -it --rm --link practical_banzai:postgres postgres
psql -h postgres -U postgres
Password for user postgres:
psql (12.4 (Debian 12.4-1.pgdg100+1))
type "help" for help.

postgres=#
```

Conectar a base de datos

Connection Settings

MariaDB ajustes de conexión

Main Driver properties SSH Proxy SSL

Server

Server Host: localhost Port: 32826

Database:

Authentication (Database Native)

Nombre de usuario: root

Contraseña:

Advanced

Server Time Zone: Auto-detect

Local Client: MySQL Binaries

Conectado (219 ms)

Server: MariaDB 10.5.5-MariaDB-1:10.5.5+maria~focal

Driver: MariaDB Connector/J 2.4.3

Aceptar

You can use variables in connection parameters.

Connection details (name, type, ...)

Driver name: MariaDB

Edit Driver Settings

Probar conexión ... < Anterior Siguiente > Finalizar Cancelar

- Instalación de las bases de datos y conexión

```
Run a command in a new container
C:\Users\usuario\docker>docker run -e POSTGRES_PASSWORD=ubuntu -d postgres
83f8be5eda6fd901679b999d6f18302450678970bed10b4cd184bd3596c35bbe

C:\Users\usuario\docker>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
83f8be5eda6f   postgres  "docker-entrypoint.s..." About a minute ago Up About a minute 5432/tcp       practical_banzai

C:\Users\usuario\docker>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
83f8be5eda6f   postgres  "docker-entrypoint.s..." About a minute ago Up About a minute 5432/tcp       practical_banzai
93f2c019bdd4   bitnami/apache:latest  "/opt/bitnami/script..." About an hour ago Up 12 seconds  0.0.0.0:32818->8080/tcp, 0.0.0.0:32817->8443/tcp  apache

C:\Users\usuario\docker>docker run --name mariadb -p 127.0.0.1:3307:3307 -e MYSQL_ROOT_PASSWORD="pass_mariadb" mariadb
docker: Error response from daemon: Conflict. The container name "/mariadb" is already in use by container "7dd5e5817ffd1e21e0ba4e1966a7219fb31abc3d814e5635d038d931d158b1f7". You have to remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.

C:\Users\usuario\docker>
C:\Users\usuario\docker>docker run --name some-mariadb -e POSTGRES_ROOT_PASSWORD=ubuntu -d mariadb:tag
Unable to find image 'mariadb:tag' locally
docker: Error response from daemon: manifest for mariadb:tag not found: manifest unknown: manifest unknown.
See 'docker run --help'.

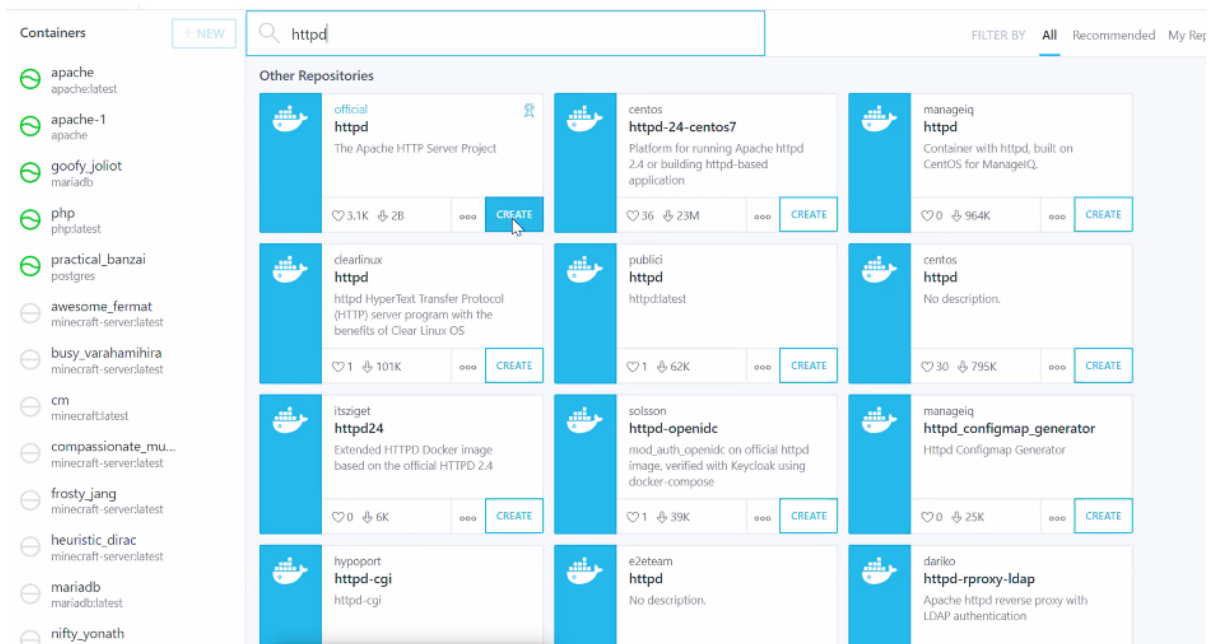
C:\Users\usuario\docker>docker run MYSQL_ROOT_PASSWORD=ubuntu
docker: invalid reference format: repository name must be lowercase.
See 'docker run --help'.

C:\Users\usuario\docker>docker run -e MYSQL_ROOT_PASSWORD=ubuntu -d mariadb
dc1c142b7ae7ea3ac0e6fe074e132b214ad0bdd2e5c6a27d6d302a5f0e6453e6

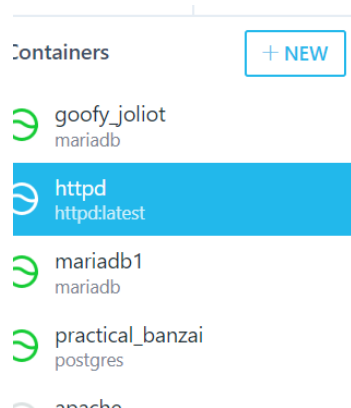
C:\Users\usuario\docker>docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
dc1c142b7ae7   mariadb   "docker-entrypoint.s..." 9 seconds ago Up 9 seconds  3306/tcp       goofy_joliot
83f8be5eda6f   postgres  "docker-entrypoint.s..." 4 minutes ago Up 4 minutes  5432/tcp       practical_banzai
93f2c019bdd4   bitnami/apache:latest  "/opt/bitnami/script..." 2 hours ago Up 3 minutes  0.0.0.0:32818->8080/tcp, 0.0.0.0:32817->8443/tcp  apache

C:\Users\usuario\docker>
```


- Contenedores para la aplicación web



- Contenedores



- Servidor Apache



It works!