FASD Dashboard server side deployment with Docker and Alembic – A two step process: Building and starting containers, followed by database configuration

Build and start containers:

```
ndwr@facescreen-ndwrh:~/fasdDashboard$ docker-compose up --build
. . . .
```

Start containers if no rebuilding required:

```
ndwr@facescreen-ndwrh:~/fasdDashboard$ docker-compose up
Starting fasddashboard_landmarkingserver_1 ... done
Starting fasddashboard_db_1                ... done
Starting fasddashboard_server_1            ... done
Attaching to fasddashboard_landmarkingserver_1, fasddashboard_db_1, fasddashboard_server_1
db_1                 |
db_1                 | PostgreSQL Database directory appears to contain a database; Skipping initialization
db_1                 |
db_1                 | 2022-03-29 20:53:22.681 UTC [1] LOG:  starting PostgreSQL 13.6 on x86_64-pc-linux-musl, compiled by gcc
(Alpine 10.3.1_git20211027) 10.3.1 20211027, 64-bit
db_1                 | 2022-03-29 20:53:22.683 UTC [1] LOG:  listening on IPv4 address "0.0.0.0", port 5432
db_1                 | 2022-03-29 20:53:22.683 UTC [1] LOG:  listening on IPv6 address "::", port 5432
db_1                 | 2022-03-29 20:53:22.718 UTC [1] LOG:  listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
db_1                 | 2022-03-29 20:53:22.743 UTC [21] LOG:  database system was shut down at 2022-03-28 21:18:55 UTC
db_1                 | 2022-03-29 20:53:22.782 UTC [1] LOG:  database system is ready to accept connections
server_1             | INFO:     Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)
server_1             | INFO:     Started reloader process [1]
landmarkingserver_1  | INFO:     Uvicorn running on http://0.0.0.0:7998 (Press CTRL+C to quit)
landmarkingserver_1  | INFO:     Started reloader process [41]
server_1             | INFO:     Started server process [8]
server_1             | INFO:     Waiting for application startup.
server_1             | INFO:     Connected to database postgresql://postgres:********@db:5432/postgres
server_1             | INFO:     Application startup complete.


. . . . .
```

Database migration (after first startup of backend):

1) Identify container ID running the backend (marked in red):

```
ndwr@facescreen-ndwrh:~$ docker ps
CONTAINER ID   IMAGE                 COMMAND                  CREATED        STATUS              PORTS
NAMES
9539635cb3a0   fasddashboard_server   "uvicorn app.api.ser…"   33 hours ago   Up About a minute   0.0.0.0:8000->8000/tcp, :::8000-
>8000/tcp     fasddashboard_server_1
309b5924ec34   postgres:13-alpine     "docker-entrypoint.s…"   34 hours ago   Up About a minute   0.0.0.0:18088->5432/tcp, :::18088-
>5432/tcp   fasddashboard_db_1
f7adb499e6fd   lmserver              "conda run --no-capt…"   34 hours ago   Up About a minute   0.0.0.0:7998->7998/tcp, :::7998-
>7998/tcp fasddashboard_landmarkingserver_1
```

2) Open an interactive session on the backend container. Then, initialize the database using the ‘alembic’ migration tool:

```
ndwr@facescreen-ndwrh:~$ docker exec -it 9539635cb3a0 bash
r@9539635cb3a0:/backend# ls
Dockerfile  alembic.ini  app  requirements.txt  tests
r@9539635cb3a0:/backend# alembic
usage: alembic [-h] [-c CONFIG] [-n NAME] [-x X] [--raiseerr]
{branches,current,downgrade,edit,heads,history,init,list_templates,merge,revision,show,stamp,upgrade} ...
alembic: error: too few arguments
r@9539635cb3a0:/backend# alembic upgrade head
INFO  [alembic.env] Running migrations online
INFO  [alembic.runtime.migration] Context impl PostgresqlImpl.
INFO  [alembic.runtime.migration] Will assume transactional DDL.
r@9539635cb3a0:/backend#
```

Notes about database configuration:

For security reasons, it is essential to manually define a PostgresDB database user and set a unique password. Modifying the PostgresDB stardard port (5432) is also good practise.

While a secure process is established to verify legitimacy of users newly signed up to the FASD Dashboard through the public Rest API, user access needs to be controlled at host system or container level.