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# Postgres/PostGIS in Docker for production

Postgres/PostGIS Docker in production



## Resources

- [Docker](#)
- [Docker-compose](#)
- [Official Postgres image](#)

## Dockerfile

```

1 FROM postgres:11
2
3 ENV POSTGISV 2.5
4 ENV TZ America/New_York
5
6 # add addressing dictionary
7 RUN mkdir -p /opt/apps
8 COPY ./pgsql-address-dictionary.zip /opt/apps/pgsql-address
9
10 RUN apt-get update \
11     && apt-get install -y --no-install-recommends \
12     postgresql-$PG_MAJOR-postgis-$POSTGISV \
13     postgresql-$PG_MAJOR-postgis-$POSTGISV-scripts \
14     postgresql-$PG_MAJOR-pgrouting \
15     postgresql-$PG_MAJOR-pgrouting-scripts \
16     postgresql-server-dev-$PG_MAJOR \
17     unzip \
18     make \
19     && cd /opt/apps \
20     && unzip pgsql-address-dictionary.zip \
21
22     && cd pgsql-addressing-dictionary-master \
23     && make install \
24     && apt-get purge -y --auto-remove postgresql-server-dev-$
25
26 # set time zone
27 RUN ln -snf /usr/share/zoneinfo/$TZ /etc/localtime && echo
28
29 # add backup job
30 RUN mkdir -p /opt/backups
31 COPY ./pgbackup.sh /opt/pgbackup.sh
32 RUN chmod +x /opt/pgbackup.sh
33
34 # add init script
35 RUN mkdir -p /docker-entrypoint-initdb.d
36 COPY ./initdb-postgis.sh /docker-entrypoint-initdb.d/postgi
37
38 # create volume for backups
39 VOLUME ["/opt/backups"]

```

## docker-compose.yml

```

1 version: '2'
2 volumes:
3     postgres11-postgis2.5:
4 services:
5     postgres:
6         build:
7             context: .

```

```
8     dockerfile: Dockerfile
9     image: postgres11-postgis2.5
10    container_name: postgres11-postgis2.5
11    volumes:
12      - postgres11-postgis2.5:/var/lib/postgresql/data
13      - ./backups:/opt/backups
14    networks:
15      - postgres_conn
16    ports:
17      - '5432:5432'
18    env_file: .env
19
20    networks:
21      postgres_conn:
22        driver: bridge
```

## initdb-postgis.sh

```
1  #!/bin/sh
2
3  set -e
4
5  # Perform all actions as $POSTGRES_USER
6  export PGUSER="$POSTGRES_USER"
7
8  # https://pgtune.leopard.in.ua/
9  # DB Version: 11
10 # OS Type: linux
11 # DB Type: web
12 # Total Memory (RAM): 4 GB
13 # CPUs num: 2
14 # Connections num: 150
15 # Data Storage: ssd
16 psql -c "ALTER SYSTEM SET max_connections = '150';"
17 psql -c "ALTER SYSTEM SET shared_buffers = '1GB';"
18 psql -c "ALTER SYSTEM SET effective_cache_size = '3GB';"
19 psql -c "ALTER SYSTEM SET maintenance_work_mem = '256MB';"
20 psql -c "ALTER SYSTEM SET checkpoint_completion_target = '0'
21 psql -c "ALTER SYSTEM SET wal_buffers = '16MB';"
22 psql -c "ALTER SYSTEM SET default_statistics_target = '100'
23 psql -c "ALTER SYSTEM SET random_page_cost = '1.1';"
24 psql -c "ALTER SYSTEM SET effective_io_concurrency = '200';"
25 psql -c "ALTER SYSTEM SET work_mem = '6990kB';"
26 psql -c "ALTER SYSTEM SET min_wal_size = '1GB';"
27 psql -c "ALTER SYSTEM SET max_wal_size = '2GB';"
28 psql -c "ALTER SYSTEM SET max_worker_processes = '2';"
29 psql -c "ALTER SYSTEM SET max_parallel_workers_per_gather =
30 psql -c "ALTER SYSTEM SET max_parallel_workers = '2';"
31
```

```

32 # add postgrereader user
33 psql -c "CREATE USER sampleuser WITH PASSWORD 'samplepasswo
34
35 # create databases
36 psql -c "CREATE DATABASE gis;"
37
38 # add extensions to databases
39 psql gis -c "CREATE EXTENSION IF NOT EXISTS postgis;"
40 psql gis -c "CREATE EXTENSION IF NOT EXISTS fuzzystmatch;"
41 psql gis -c "CREATE EXTENSION IF NOT EXISTS addressing_dict
42
43 # restore database if dump file exists
44 if [ -f /opt/backups/restore.dump ]; then
45     echo "Restoring backup..."
46     pg_restore -d gis --clean --if-exists /opt/backups/restor
47 fi

```

## pgbackup.sh

```

1  #!/bin/bash
2
3  set -e
4
5  # dump databases
6  for DATABASE in `psql -At -U postgres -c "select datname fr
7  do
8      echo "Plain backup of $DATABASE"
9      pg_dump -U postgres -Fc "$DATABASE" > /opt/backups/"$DATA
10 done
11
12 # delete files older than 7 days
13 find /opt/backups -mtime +7 -type f -delete

```

## .env

```
1  POSTGRES_PASSWORD=supersecretpassword
```

## Cron jobs

```

1  @reboot sleep 10 && /usr/bin/docker-compose -f /home/tobin/w
2  @daily docker exec postgres11-postgis2.5 /opt/pgbackup.sh

```

## Tobin Bradley

A designer, developer and writer. Spends his time traveling the world with a bag of kites.

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