Build Postgres db sync data

To build a PostgreSQL database that synchronizes with Cardano node, you'll need to set up a process that continuously updates the database with the latest blockchain data from the node. Here is the way to setup the Postgres db sync using Docker:

Set Up PostgreSQL

Use the official PostgreSQL image from Docker Hub, setup PostgreSQL server with your configurations, example docker-compose:

```
services:

  postgres:
    image: postgres:11.18-alpine
    environment:
      - POSTGRES_LOGGING=true
      - POSTGRES_DB_FILE=/run/secrets/postgres_db
      - POSTGRES_PASSWORD_FILE=/run/secrets/postgres_password
      - POSTGRES_USER_FILE=/run/secrets/postgres_user
    secrets:
      - postgres_password
      - postgres_user
      - postgres_db
    ports:
      - ${POSTGRES_PORT:-6432}:5432
    depends_on:
      - cardano-node
    volumes:
      - ./postgres:/var/lib/postgresql/data
    restart: on-failure
    logging:
      driver: "json-file"
      options:
        max-size: "200k"
        max-file: "10"
secrets:
  postgres_db:
    file: ./config/secrets/postgres_db
  postgres_password:
    file: ./config/secrets/postgres_password
  postgres_user:
    file: ./config/secrets/postgres_user
```

Set Up cardano-db-sync

The purpose of Cardano DB sync is to follow the Cardano chain and take information from the chain and an internally maintained copy of ledger state. Data is then extracted from the chain and inserted into a PostgreSQL database.

The Cardano DB Sync image is listed here. Please verify that the version of Cardano DB Sync is compatible with your Cardano node (in Cardano DB synx releases note) before installation to avoid any errors.

This is docker-compose example of building a PostgreSQL database that synchronizes with Cardano node :

```
services:
  cardano-node:
    image: ghcr.io/intersectmbo/cardano-node:8.9.1
    container_name: cardano-node
    volumes:
      - ./devnet:/devnet
    environment:
```

```yaml
      - CARDANO_BLOCK_PRODUCER=true
      - CARDANO_SOCKET_PATH=/devnet/node.socket # used by cardano-node
      - CARDANO_NODE_SOCKET_PATH=/devnet/node.socket # used by cardano-cli
    ports:
      - 3001:3001
    command:
      [
        "run",
        "--config",
        "/devnet/cardano-node.json",
        "--topology",
        "/devnet/topology.json",
        "--database-path",
        "/devnet/db",
        "--shelley-kes-key",
        "/devnet/kes.skey",
        "--shelley-vrf-key",
        "/devnet/vrf.skey",
        "--shelley-operational-certificate",
        "/devnet/opcert.cert",
        "--byron-delegation-certificate",
        "/devnet/byron-delegation.cert",
        "--byron-signing-key",
        "/devnet/byron-delegate.key",
        "--host-addr",
        "0.0.0.0",
        "--port",
        "3001"
      ]
postgres:
  image: postgres:11.18-alpine
  environment:
    - POSTGRES_LOGGING=true
    - POSTGRES_DB_FILE=/run/secrets/postgres_db
    - POSTGRES_PASSWORD_FILE=/run/secrets/postgres_password
    - POSTGRES_USER_FILE=/run/secrets/postgres_user
  secrets:
    - postgres_password
    - postgres_user
    - postgres_db
  ports:
    - ${POSTGRES_PORT:-6432}:5432
  depends_on:
    - cardano-node
  volumes:
    - ./postgres:/var/lib/postgresql/data
  restart: on-failure
  logging:
    driver: "json-file"
    options:
      max-size: "200k"
      max-file: "10"

cardano-db-sync:
  image: ghcr.io/intersectmbo/cardano-db-sync:13.1.1.3
  environment:
    - POSTGRES_HOST=postgres
    - POSTGRES_PORT=5432
    - RESTORE_RECREATE_DB=N
  depends_on:
    - cardano-node
    - postgres
  secrets:
    - postgres_password
    - postgres_user
    - postgres_db
  volumes:
    - ./devnet:/devnet
    - ./db-sync-data:/var/lib/cexplorer
  command:
    [
```

```
        "--socket-path",
        "/devnet/node.socket",
        "--config",
        "/devnet/db-sync-config.json"
      ]
    restart: on-failure
    logging:
      driver: "json-file"
      options:
        max-size: "200k"
        max-file: "10"

secrets:
  postgres_db:
    file: ./config/secrets/postgres_db
  postgres_password:
    file: ./config/secrets/postgres_password
  postgres_user:
    file: ./config/secrets/postgres_user
```

notice: the env --config using Shelley quality assurance config from https://github.com/IntersectMBO/cardano-db-sync/blob/master/config/shelley-qa-config.json.