

Setting up a new project [WIP]

Creating Services and Containers

1. Create a new project in geostreams. Instructions are [here](#).
2. Configure the docker-compose file for the services that need to be added. The docker-compose file linked below The docker-compose file for this project is based on the [Default Geostreams file](#) and traefik v2. This way minimal configuration is required on the machine.
- 3.

a. **docker-compose.yml**

```
version: "3.3"

services:
  traefik:
    image: traefik:latest
    networks:
      - geostreams
    volumes:
      - ./traefik:/traefik/
      - /var/run/docker.sock:/var/run/docker.sock:ro
    ports:
      - 80:80
      - 443:443
      - 8001:8001

    command:
      - --entrypoints.private.address=:8001
      - --entrypoints.web.address=:80
      - --entrypoints.websecure.address=:443
      - --entrypoints.web.http.redirections.entryPoint.to=websecure
      - --entrypoints.web.http.redirections.entryPoint.scheme=https
      - "--providers.docker=true"
      - "--api=true"
      - "--providers.docker.exposedbydefault=false

      # SSL Certificate Generation using Lets Encrypt
      # - "--certificatesresolvers.le.acme.caserver=https://acme-staging-v02.api.letsencrypt.org/directory"
      - --certificatesResolvers.le.acme.email=dev@mbclab.ncsa.illinois.edu
      - --certificatesResolvers.le.acme.storage=/traefik/acme.json
      - --certificatesResolvers.le.acme.httpChallenge=true
      - --certificatesResolvers.le.acme.httpChallenge.entryPoint=web

    labels:
      - "traefik.enable=true"
      - "traefik.http.routers.dashboard.service=api@internal"

      # Route setting
      - "traefik.http.routers.dashboard.rule=Host(`${TRAEFIK_HOST:-localhost}`)"

      # set TLS (https)
      - "traefik.http.routers.dashboard.tls=true"
      - "traefik.http.routers.dashboard.entrypoints=private"
      - "traefik.http.routers.dashboard.tls.certresolver=le"

# -----
# GEOSTREAMS STACK
# -----
geodashboard:
  image: hub.ncsa.illinois.edu/geostreams/gd-smartfarm:develop
  networks:
    - geostreams
  labels:
    - traefik.enable=true
    - traefik.http.services.geodashboard.loadbalancer.server.port=80
    - traefik.http.routers.geodashboard.rule=Host(`${TRAEFIK_HOST:-localhost}`) && (PathPrefix(`${GD_PREFIX_PATH:-/}`))
    - traefik.http.routers.geodashboard.entrypoints=websecure
    - traefik.http.routers.geodashboard.tls=true
```

```

    - traefik.http.routers.geodashboard.tls.certresolver=le
restart: unless-stopped

geostreams:
  image: geostreams/geostreams
  env_file:
    - ./geostreams.env
  networks:
    - geostreams
  labels:
    - traefik.enable=true
    - traefik.http.services.geostreams.loadbalancer.server.port=9000
    - traefik.http.routers.geostreams.rule=Host(`${TRAEFIK_HOST:-localhost}`) && (PathPrefix
(`${GEOSTREAMS_PREFIX_PATH:-/}`))
    - traefik.http.routers.geostreams.entrypoints=websecure
    - traefik.http.routers.geostreams.tls=true
    - traefik.http.routers.geostreams.tls.certresolver=le

  volumes:
    - ./application.conf:/home/geostreams/conf/application.conf
    - ./messages.en:/home/geostreams/conf/messages.en
  healthcheck:
    test: ["CMD", "curl", "-s", "--fail", "http://localhost:9000/geostreams/api/status"]
    restart: unless-stopped
postgres:
  image: mdillon/postgis:9.5
  networks:
    - geostreams
  ports:
    - 5432:5432
  volumes:
    - ./postgres:/var/lib/postgresql/data
  restart: unless-stopped

networks:
  geostreams:

```

b. The following .env file sets up the routes:

```

TRAEFIK_HOST=localhost
GEOSTREAMS_PREFIX_PATH=/geostreams
GD_PREFIX_PATH=/

```

4. For geostreams, use the example application.conf <https://github.com/geostreams/geostreams/blob/master/conf/reference.conf> .
5. If using clowder, follow the link to initialize clowder <https://github.com/clowder-framework/clowder#initializing-clowder>.

Setting up the VM

• Create a VM

- Install python-openstackclient
- Create an rc file using the example below used for gltg nebula

```

export OS_AUTH_URL=http://nebula.ncsa.illinois.edu:5000/v2.0
export OS_TENANT_ID=c4121a001a8240d4a8b701d664ef4bf0 # Project ID in nebula
export OS_TENANT_NAME="GLTG"
export OS_PROJECT_NAME="GLTG"
export OS_USERNAME=<nebula_username>
export OS_PASSWORD=<nebula_password>
export OS_REGION_NAME="RegionOne"

export PS1="(openstack)[\e]0;\a]\h:\W \u [${OS_PROJECT_NAME}] $ "

```

- Run ``bash --rcfile <rc_file_name>`` to create a virtual environment
- Download and run the [makevm-script](#) (updated version in the comments) to create the vm.
- Use one of the available Floating IP Addresses on Nebula and provide it to the script.
- Email help+neteng@ncsa.illinois.edu to setup domain name for machine.
- The docker-compose file is setup to use Lets Encrypt for SSL certificate generation and renewal.

• Setup Docker

- Install docker and docker-compose on the machine. Additionally, install pass and gnupg2 without which logging into docker will give an error.
 - [Docker Installation Instructions](#)
 - [Docker-compose installation Instructions](#)
 - `sudo apt-get install pass gnupg2`
- Login to hub.ncsa.illinois.edu using the robot account login. The account information is stored in lastpass folder.
 - `docker login -u `robot$githubgeostreams` -p `<TOKEN>` hub.ncsa.illinois.edu`

• Set up Backup

• Initialize Geostreams

- Move the docker-compose file and other relevant files to the machine.
- Run docker-compose up -d.
- Initialize the database by running the geostreams container with command ``initialize`` once.

Configuring Build and Deployment Pipeline for Project

- Add the following Github Actions public key to the machine.

```
`cat PATH_TO_KEY | ssh -i PATH_TO_ID_KEY user@hostname "cat >> ~/.ssh/authorized_keys"`
```

GitHub_Repo_Public_key

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgQDCL
/mqWbK1BTwXKnZ546F9IbFlYY6qgFzh9xTM6eY+DxagKVv1BAr4kbqamnlYDzr0LC6zY+8k3xGS1HSxp8UAWXlnPzDkb13uXj+neG
ty7DwMIWVRVSc0JNa0cRaEKI1wC9AK1utKEU7aaGu6fZsmExmXNZIzxLIYVUFdw8G2GVok9wNSba30T2rneutgOUrb5PR6ADpfBE08
h48CcP6edw5A2HoJ0ZXySeadvnIn0hp3yis03khaZ7t4ZPRtRVRM+M+V9H+1Jp0msulfAZUyEdntzU1MkduFAz+X5T
/h9IhHYlplqJ00GEjc/zIPS9y39Be5XqgvMadapupmeGpZWU6K
/xvluATcP1xGqy7ytytAr6ZIbsCyKwGJXeUYsR8K1MdNC8zAVB+2Cnu3Df0Tuf7xIV6sSx66MtehAADIGxtik4KG15DZiWEngf0aCS
eJHAjRkxGx4mxb/Cp9iercoKs+6uIAKd7fU/pYK9kw3z8Wlk0StCqCII9hzY6bQs= Smartfarm Key for Github Actions
```

- Update github deployment action and add the details for the new project under strategy->matrix.

```
name: <project_name>
gd-name: <lerna_project_name>
prod-host: <production_host_name>
dev-host: <dev_host_name>
file-path: <docker-compose file path on VM>
description:
```

- For development machines, an image with a develop tag will be created in hub.ncsa.illinois.edu and for production machines the latest tag will be used. The docker-compose files should be updated accordingly.