

Code Green Workshop Reducing Carbon Footprint and Costs in IT (Part 1)

Matt "Kelly" Williams | <http://linkedin.com/in/mattkwilliams>
| kelly@makingsoftwaregreener.com

<http://MakingSoftwareGreener.com>



<http://SustainableITManifesto.org>

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About "Kelly"



- **Wears lots of hats:** Dad, Cat Slave, Mentor, Speaker, IT Professional, Handweaver, Game Designer, Novice Photographer, Leader, Cook, & Renaissance Person in Training
- **Can be found:** Online, wandering parks with a camera, behind a loom, playing/designing tabletop games, and conferences near you.
- Recent transplant to Northern Colorado

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About our App

- Shakespeare Database API
- Query for words used, and more

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Requirements: Docker

Docker

- Get Started

Git

- (although zip will do in a pinch)

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Stage 1

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Getting Started

1. Install Docker

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Steps:

1. Go to the Repository and either:
 - download the zip file & extract
 - or-
 - clone the repository with git.

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making-software-greener / code-green-workshop-v1

Type / to search

<> Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

code-green-workshop-v1

Public

Edit Pins

Unwatch 1

Fork 0

Star 0

main

1 Branch

0 Tags

Go to file

<> Code

aetherical

Initial commit

e1bf390 · 47 minutes ago

1 Commits

LICENSE

Initial commit

47 minutes ago

README.md

Initial commit

47 minutes ago

README

MIT license

code-green-workshop-v1

About

No description, website, or topics provided.

Readme

Activity

Custom properties

0 stars

1 watching

0 forks

Report repository

Releases

No releases published



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Local

Codespaces


 Clone 

HTTPS


SSH


GitHub CLI

`https://github.com/making-software-greener,`



Clone using the web URL.

 Open with GitHub Desktop

 Download ZIP

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Build the containers

1. Open a terminal window.
2. Change your directory to where you installed the repository.
3. Go into the `stage-1` directory
4. `docker compose build`

Steps:

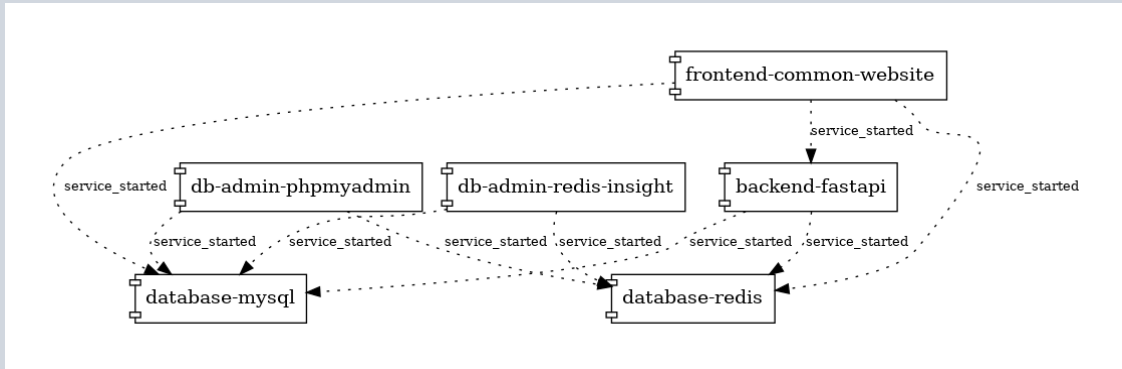
Start the Application

1. `docker compose up -d`

```
Melora:stage-1 matt$ docker compose up -d
WARN[0000] The "REDIS_PASSWORD" variable is not set. Defaulting to a blank string.
[+] Running 6/11
! Network stage-1_backend-database      Created    2.4s
! Network stage-1_mysql-phpmyadmin      Created    2.4s
! Network stage-1_redis-redis-insight    Created    2.1s
! Network stage-1_default                Created    2.1s
! Network stage-1_frontend-backend      Created    2.1s
! Container shakespeare-searcher-db-redis Started     0.0s
! Container shakespeare-searcher-db-mysql Started     0.0s
! Container shakespeare-searcher-dbadmin-phpmyadmin Started    1.0s
! Container shakespeare-searcher-dbadmin-redis-insight Started    1.0s
! Container shakespeare-searcher-backend-fastapi Started    1.0s
! Container shakespeare-searcher-frontend-nginx Started    1.0s
Melora:stage-1 matt$
```



Architecture:



URLS & Ports:

(Bare Bones) Web App

- `http://localhost:81`

Note: You may need to replace localhost with 127.0.0.1

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API

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API Docs Exploration

FastAPI 0.1.0 OAS3
openapi.json

default ^

GET	/	Read Root	▼
GET	/plays	Get Play Names	▼
GET	/players	Get Player Names	▼
GET	/plays/{play_name}/players	Get Play Players	▼
GET	/words	Get Words	▼
GET	/words/counts	Get Words Counts	▼
GET	/words/play/{play_name}	Get Play Words	▼
GET	/words/play/{play_name}/count	Get Play Words Count	▼
GET	/words/player/{player_name}	Get Player Words	▼
GET	/words/player/{player_name}/count	Get Player Words Count	▼

Schemas ▼



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Ideas

- Try out the `docker compose` command.
- Is there anything which might be useful?
- Take a look at the frontend and backend code (if time)
- Examine the Architecture

This image shows a full page of white paper with ten horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and extend across the width of the page. There is no text or other markings on the paper.

Make notes

- Anything odd
- Anything slow
- Anything that doesn't make sense

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Cleanup

- docker compose down

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Edge Router

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Edge Router

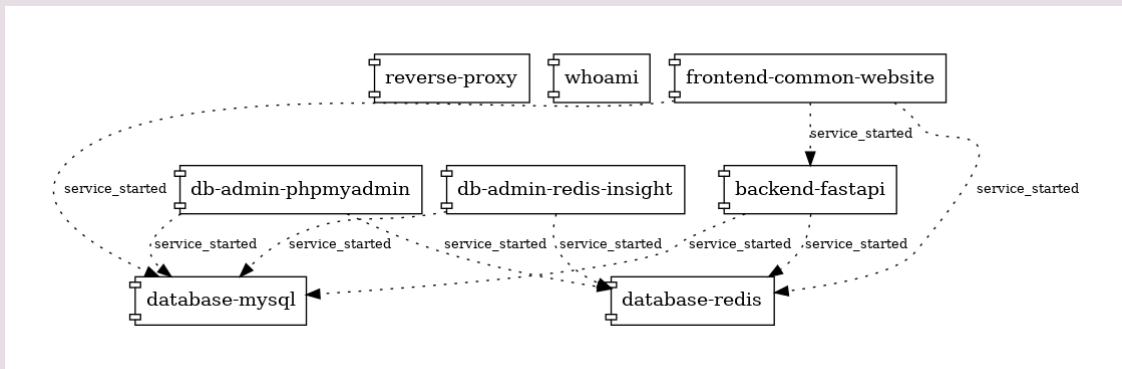
1. Move to the stage-2 directory
2. `docker compose up -d reverse-proxy`
3. In your browser go to `http://localhost:8080/api/rawdata`

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Steps:

Whoami

1. In the terminal type `docker compose up -d whoami`
2. Reload
`http://localhost:8080/api/rawdata`
-- notice that the whoami service is there

```
"reverse-proxy-stage-2@docker": {  
  "entryPoints": [  
    "http"  
  ],  
  "service": "reverse-proxy-stage-2",  
  "rule": "Host('reverse-proxy-stage-2')",  
  "status": "enabled",  
  "using": [  
    "http"  
  ]  
},  
"whoami@docker": {  
  "entryPoints": [  
    "http"  
  ],  
  "service": "whoami-stage-2",  
  "rule": "Host('whoami.docker.localhost')",  
  "status": "enabled",  
  "using": [  
    "http"  
  ]  
}  
},
```



Steps:

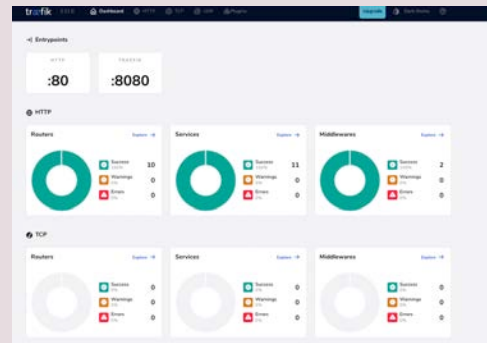
Whoami

1. In the browser go to `whoami.docker.localhost` and you'll see something like

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Steps: UI

1. Go to `http://localhost:8080` for the Dashboard



But what about Will???



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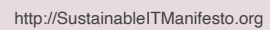


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Start up the rest

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**http://backend-
fastcgi.docker.localhost:82**

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**http://backend-
fastcgi.docker.localhost:80/docs**

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Next Time:

Tracing and Metrics

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Resources – William Shakespeare

- William Shakespeare
- Shakespeare plays
- The initial software stack was generated with Compose Generator. It really is a timesaver.
- Docker

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Resources

- FastAPI
- Traefik Labs: Say Goodbye to Connectivity Chaos
- Jaeger: open source, distributed tracing platform
- Thanks to ahmaddanni (Danni nux) for <https://github.com/ahmaddanni/traefik-jaeger-docker/tree/main>

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Resources

- [Creating block diagrams from docker-compose.yml | by Krishna | Medium](#)
- [How to visualize your docker composition](#)
- [pmsipilot/docker-compose-viz: Docker compose graph visualization](#)

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