

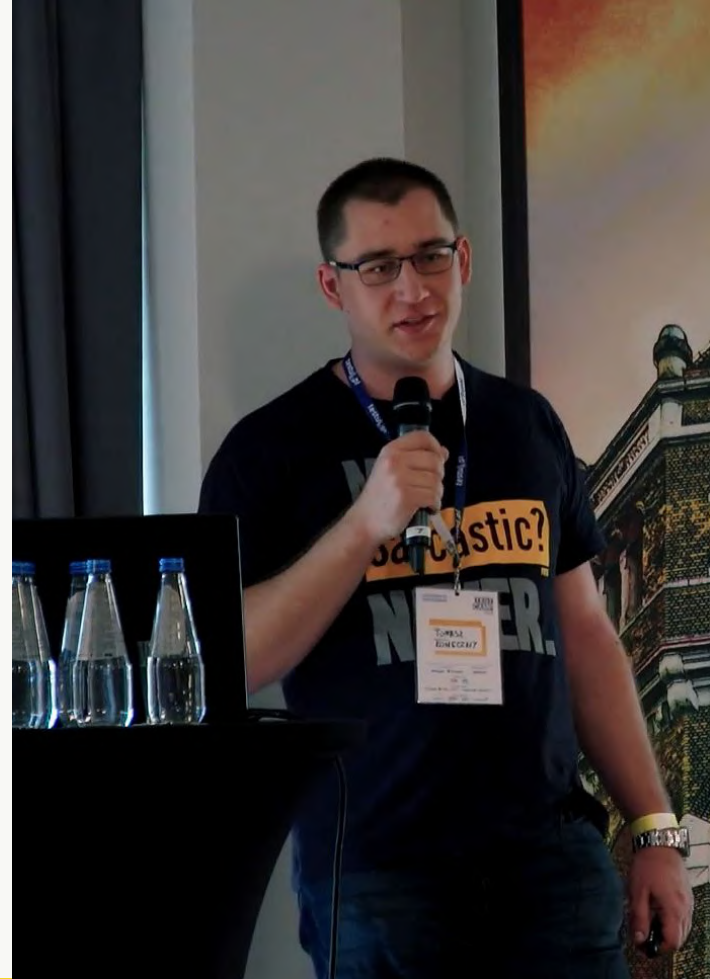
---

# Test Environments Management with Docker

# Tomasz Konieczny

SENIOR QA ENGINEER, DEVOPS

**BOLDARE**



# Automated regression tests?

**What about  
automated  
infrastructure?**

# Application environments: problems

---

- ❏ Configuration
- ❏ Repeatability
- ❏ Consistency
- ❏ Performance
- ❏ Compute resources

# What is Docker?

# Containers?



# Container for application with dependencies



**PORTABILITY**

**ISOLATION**

**STANDARDIZATION**

**LIGHTNESS**

# **“Lightweight” Virtual Machine?**

**System**

**vs**

**Application**



# Ease of use

# Docker Run

---

```
$ docker run -d -p 8080:8080 --name adminer  
adminer:latest
```

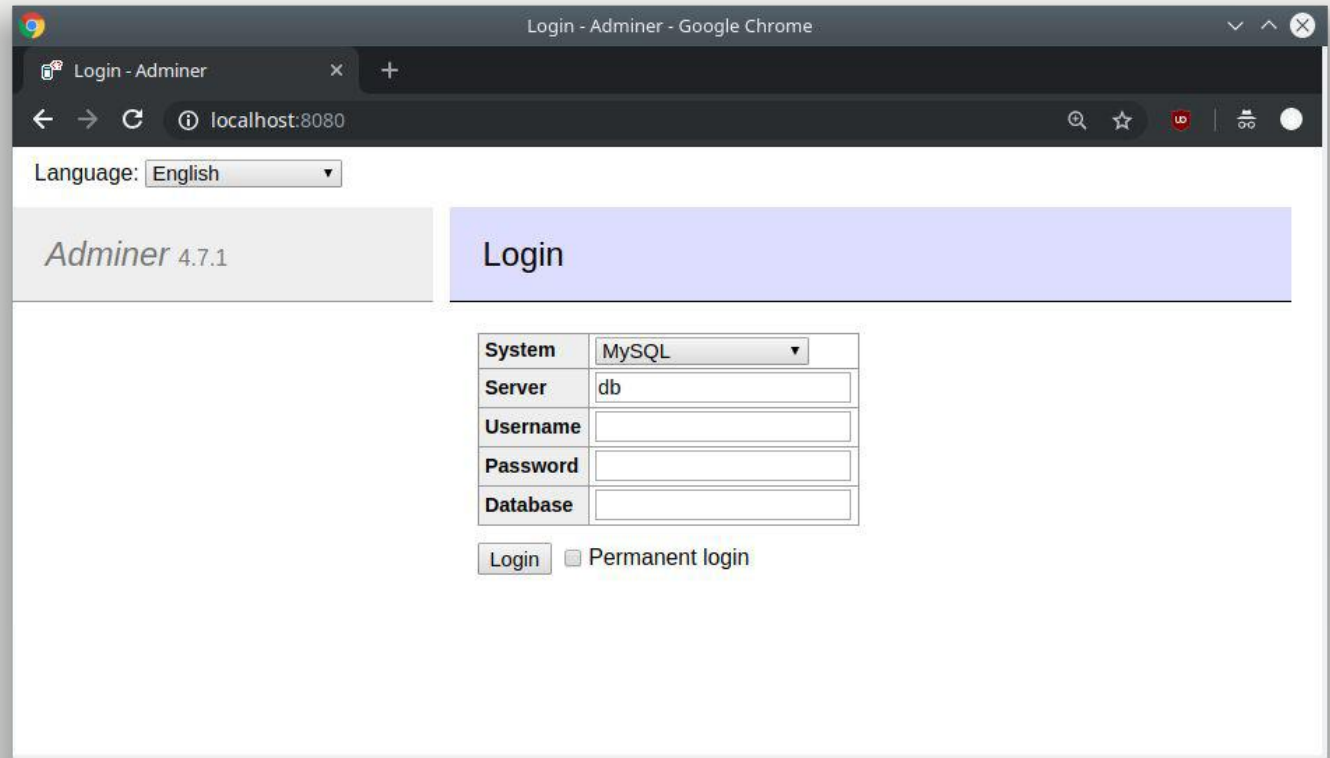
```
4a7a9a4e4bcd9267cf1322fb7ae191fa6fc3f5cdab5d33ab85932db3ed1bec1c
```

```
$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS	PORTS	NAMES	
4a7a9a4e4bcd	adminer:latest	"entrypoint.sh docke..."	8 seconds ago
Up 8 seconds	0.0.0.0:8080->8080/tcp	adminer	



# Docker Run



# Docker Image

# Registry: repository for images

---

- Repository types
  - Official
  - Public
  - Private
- Docker Hub



# Infrastructure as Code

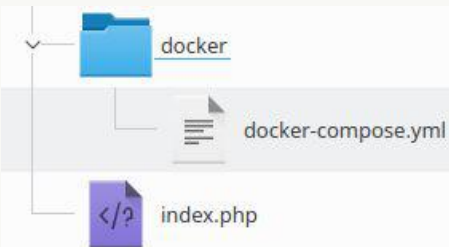
# **Docker-compose: Container orchestration**

# App

## index.php:

```
1 <?
2     echo('Test App");
3
```

## Directory structure:



## docker-compose.yml:

```
1 version: '3.5'
2
3 services:
4     app:
5         image: php:7.3.1-apache
6         ports:
7             - "127.0.0.1:80:80"
8         volumes:
9             - ../../var/www/html
10
11     mailcatcher:
12         image: zolweb/docker-mailcatcher
13         ports:
14             - "1080:1080"
15
```



# Docker compose up

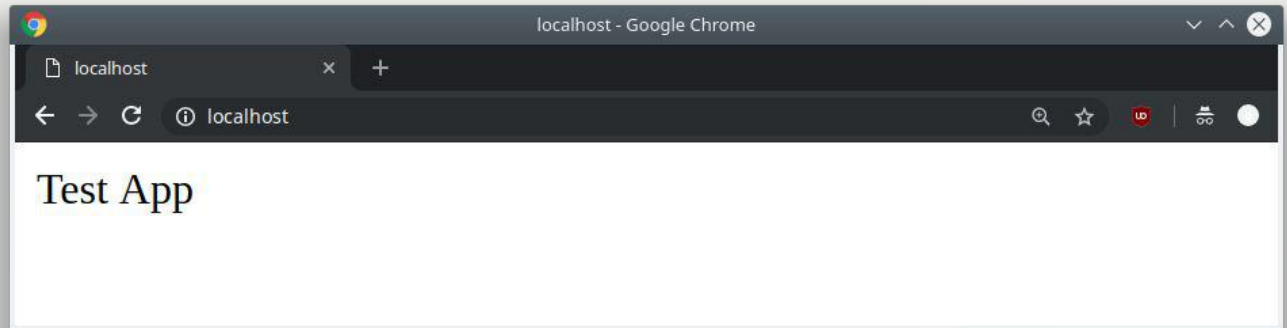
---

```
$ docker-compose up
```

```
Creating network "docker_default" with the default driver
```

```
Creating docker_app_1          ... done
```

```
Creating docker_mailcatcher_1 ... done
```



# Advantages?

---

- ❏ Dependencies in specific version (PHP)
- ❏ No changes at the host side
- ❏ IaC
  - ❏ One-time configuration
  - ❏ Consistency of environments
- ❏ Ease of starting new environments



# Tests earlier in development process

# Dependencies update

---

## Version change:

```
3 services:
4   app:
5     image: php:7.3.1-apache
6     ports:
7       - "127.0.0.1:80:80"
8     volumes:
9       - ../../:/var/www/html
```

```
image: php:7.3.2-apache
```

```
$ docker-compose up
```



# Custom images

---



Dockerfile



Layers



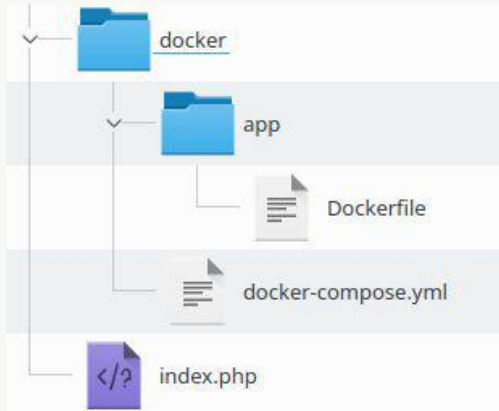


# Dockerfile

## Dockerfile

```
1 FROM php:7.3.2-apache
2
3 RUN a2enmod rewrite
4 RUN apt-get update && apt-get install -y git
5
6 COPY --from=composer /usr/bin/composer /usr/bin/composer
```

## Structure:



## docker-compose.yml:

```
app:
  build:
    context: "../"
    dockerfile: docker/app/Dockerfile
  ports:
    - "127.0.0.1:80:80"
  volumes:
    - ../..:/var/www/html
```



# Multistage

## Dockerfile

```
FROM php:7.3.2-apache AS app-dev

RUN a2enmod rewrite
RUN apt-get update && apt-get install -y git

COPY --from=composer /usr/bin/composer /usr/bin/composer
RUN composer global require hirak/prestissimo

FROM app-dev AS app-test
RUN apt-get install nano
```

## docker-compose.yml:

```
app:
  build:
    context: "../"
    dockerfile: docker/app/Dockerfile
    target: app-test
```



# Compose: layers

# Compose: layers

---

```
docker-compose -f docker-compose.yml -f  
docker-compose-test.yml up
```

`docker-compose.yml`:

```
version: '3.5'  
  
services:  
  app:  
    build:  
      context: "../"  
      dockerfile: docker/app/Dockerfile  
      target: app-test  
    ports:  
      - "127.0.0.1:80:80"  
    volumes:  
      - ../../:/var/www/html  
  
  mailcatcher:  
    image: zolweb/docker-mailcatcher  
    ports:  
      - "1080:1080"
```

`docker-compose-test.yml`:

```
version: '3.5'  
  
services:  
  selenium:  
    image: selenium/standalone-chrome:3  
  
  python:  
    image: python:3.7.2-stretch  
    stdin_open: true  
    tty: true  
    volumes:  
      - ../../tests:/tests
```



# Infrastructure: documentation?

# Questions?

---

[tomasz.konieczny@boldare.com](mailto:tomasz.konieczny@boldare.com)

**BOLDARE**