

set-square

Building Docker images your own way



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OSOCO

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Dockerfiles (I)

In theory

- Automates building Docker images.
- Focuses on readability.
- Uses a caching mechanism to speed up the process.
- Advocates for deterministic/idempotent recipes: the same Dockerfile produces equivalent images.

Dockerfiles (II)

kstaken's Apache dockerfile

```
FROM ubuntu:12.04
```

```
MAINTAINER Kimbro Staken version: 0.1
```

```
RUN apt-get update && apt-get install -y apache2 && \  
    apt-get clean && rm -rf /var/lib/apt/lists/*
```

```
ENV APACHE_RUN_USER www-data
```

```
ENV APACHE_RUN_GROUP www-data
```

```
ENV APACHE_LOG_DIR /var/log/apache2
```

```
EXPOSE 80
```

```
CMD ["/usr/sbin/apache2", "-D", "FOREGROUND"]
```

Dockerfiles (III)

In practice

- It's **not a language**, only a variable-less DSL.
- Using the operating system's package manager makes **idempotence mostly unachievable**.
- Not using the operating system's package manager **complicates** Dockerfiles.
- Images tend to **grow so much** the Dockerfiles need to join steps together at the expense of simplicity.

Features

set-square

- ➊ Adds support for simple **variables** in Dockerfiles.
- ➋ It's **not** a template engine (it's based on envsubst).
- ➌ Maintains Dockerfile's *original readability*.
- ➍ **Simplifies** the process of building images.

Example

```
gradle/Dockerfile.template
```

```
FROM ${NAMESPACE}/sdkman:${TAG}
```

```
MAINTAINER ${MAINTAINER}
```

```
USER developer
```

```
RUN cd /home/developer && \  
    source /home/developer/.sdkman/bin/sdkman-init.sh && \  
    sdk install gradle ${GRADLE_VERSION}
```

Example: default values

By default, we'd be interested in the latest stable version.

```
gradle/build-settings.sh
```

```
defineEnvVar GRADLE_VERSION "The Gradle version" "2.8";
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Of course, we can customize the default values.

```
gradle/.build-settings.sh
```

```
overrideEnvVar GRADLE_VERSION "2.7";
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overrideEnvVar GRADLE_VERSION "2.7";
```

Even further!

```
GRADLE_VERSION="2.6" ./build.sh [...] gradle
```

Common variables

There're some variables we'll want to override, globally:

```
.build.inc.sh
```

```
overrideEnvVar AUTHOR "rydnr";  
overrideEnvVar AUTHOR_EMAIL "jose.sanleandro@osoco.es";  
overrideEnvVar NAMESPACE "osoco";
```

Build process (I)

```
$ mkdir liquibase
```

Build process (I)

```
$ mkdir liquibase
```

```
liquibase/Dockerfile.template
```

```
FROM ${NAMESPACE}/fixme:${TAG}
```

```
MAINTAINER ${MAINTAINER}
```

```
# USER root
```

```
COPY Dockerfile /Dockerfile
```

```
# RUN apt-get update ...
```

```
# CMD [ "args" ]
```

```
# EXPOSE [port]
```

```
# VOLUME [my-folder]
```

Build process (II)

```
$ ./build.sh liquibase
```

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```
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```

```
[2015/11/08 20:50:05 build:sanity-check] Checking mandatory constants [done]
[2015/11/08 20:50:05 build:sanity-check] Checking mandatory functions [done]
[2015/11/08 20:50:05 build:sanity-check] Checking declared requirements [done]
[2015/11/08 20:50:05 build:sanity-check] Checking input [valid]
[2015/11/08 20:50:06 build:main] Building osoco/liquibase:201511
Sending build context to Docker daemon 3.072 kB
Sending build context to Docker daemon
Step 0 : FROM osoco/base:201511
--> 4e111b99814b
Step 1 : MAINTAINER Jose San Leandro <jose.sanleandro@osoco.es>
--> Using cache
--> 2112e7bdc2c4
Step 2 : COPY Dockerfile /Dockerfile
--> b94be96794f2
Removing intermediate container 841272bd344b
Successfully built b94be96794f2
[2015/11/08 20:50:14 build:main] osoco/liquibase:201511 [built]
[2015/11/08 20:50:14 build:main] Cleaning up 1 stale container(s) [done]
```

Build process (III)

Build the image, run it, test it, fix it.

liquibase/Dockerfile.template

```
FROM ${NAMESPACE}/java:${TAG}
MAINTAINER ${MAINTAINER}

COPY liquibase.sh /usr/local/bin/liquibase
ENTRYPOINT [ "/usr/local/bin/liquibase" ]

RUN mkdir /opt/liquibase-${LIQUIBASE_VERSION} && \
    cd /opt/liquibase-${LIQUIBASE_VERSION} && \
    wget ${LIQUIBASE_URL} && \
    tar xvf ${LIQUIBASE_ARTIFACT} -C /opt/liquibase-${LIQUIBASE_VERSION} && \
    rm -f /opt/${LIQUIBASE_ARTIFACT} && \
    chmod +x /usr/local/bin/liquibase

# Run with
# docker run --link [db-container]:db l{NAMESPACE}/l{IMAGE}:l{TAG}
```


Build process (IV)

You can use templates for other files too.

```
liquibase/liquibase.sh.template
```

```
#!/bin/bash
```

```
cd /opt/liquibase-${LIQUIBASE_VERSION}
```

```
echo "Running $*"
```

```
./liquibase --changeLogFile=/changelogs/changelog.yml $*
```

Conclusion (I)

Simple but useful

- Simple and straight-forward.
- No hidden magic.
- Avoids changing values manually.
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Try it

<https://github.com/rydnr/set-square>

Conclusion (II)

set-square-phusion-images

- Catalog of Docker images.
- Based on phusion/baseimage-docker.
- Out-of-the-box (but optional):
 - monitoring,
 - backup,
 - logging.

Titulo

cabecera

- Lorem Ipsum