

deegree

Docker in a nutshell



deegree

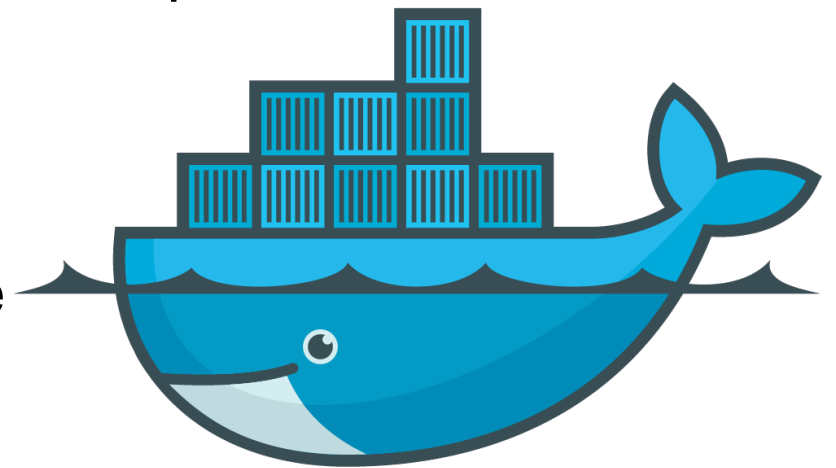
<http://www.lat-lon.de>
<http://www.deegree.org>

Agenda

- What is Docker?
- Advantage over classical virtualization
- How to install Docker
- Exercise: How to use Docker

What is Docker?

- **Docker** allows to package an application into a standardized unit for software development:
 - The Docker Container
- A **Docker Container** wraps a piece of software in a complete filesystem which contains all needed resources
- A Docker Container runs on Linux, Windows, macOS, and most Cloud infrastructures



docker

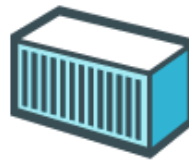
Image source: <https://www.docker.com>

Docker promise: Build, Ship, Run!



Build

Develop an app using Docker containers with any language and any toolchain.



Ship

Ship the "Dockerized" app and dependencies anywhere - to QA, teammates, or the cloud - without breaking anything.



Run

Scale to 1000s of nodes, move between data centers and clouds, update with zero downtime and more.

- Docker enables reliable deployments
 - *Build here, run there*

Advantage over classical virtualization

- Setting up a Virtual Machine requires additional tools for provisioning such as [Puppet](#), [Chef](#), [Ansible](#), [Vagrant](#), shell scripts and more ...
 - Tools such as [Packer](#) do support builder and provisioners
- **But ...**
 - Docker comes with template **Docker images** hosted at hub.docker.com
 - Easy to extend with custom software, libraries, files defined in a single **Dockerfile**
 - **Images** are version controlled and lightweight
 - Supports the Dev&Ops paradigm **Infrastructure-as-Code**

Exercise: How to install Docker

- There are official installation guides available for various operating systems.
 - <https://docs.docker.com/engine/installation/>
- As installation guides are self-explanatory and Docker is pre-installed on all working stations, we can skip to the next chapter.

Exercise: How to use Docker

- Check if correct Docker version is installed:
`docker version`
- Run first Docker container:
`docker run hello-world`
- First, Docker Image is searched locally, when not found
- Then, Docker Image is pulled from DockerHub.
- Split up command:
`docker pull hello-world`
`docker run hello-world`

Exercise: How to use Docker

- States of a Docker application:
 - Dockerfile
 - Configuration to create a Docker Image.
 - Docker Image
 - Image can be loaded by Docker and is used to create Docker Container.
 - Docker Container
 - Instance of a Docker Image.
- **Dockerfile**
 - Build a Docker Image from Dockerfile with:
`docker build -t username/imagename .`

Dockerfile is located here!

Exercise: How to use Docker

- **Docker Image**

- List all Docker Images:

`docker images`

- Remove Docker Image with name 'imagename':

`docker rmi imagename`

- **Docker Container**

- List all Docker Containers with size:

`docker ps -as`

- Remove Docker Container 'containername':

`docker rm containername`

Exercise: How to use Docker

- Remove the Docker Container and Docker Image of the hello-world application.
- Then pull the image (with the pull command) and run it again.

Exercise: How to use Docker

- Other useful Docker commands:
 - `docker create imagename`
 - `docker start containername`
 - `docker stop containername`
 - `docker restart containername`
 - `docker kill containername`
- The „httpd“ Docker Image can be used to test above documented commands.

What we have learned

- You are familiar with basic usage and commands of Docker.

Contact & Licence



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