

# Docker: Creating and administering your virtual application containers.

Hands-on course of 3 days - 21h

Ref.: DOK - Price 2024: CHF2 280 (excl. taxes)

## EDUCATIONAL OBJECTIVES

At the end of the training, the trainee will be able to:

Understand where Docker and containers are used

Work with Docker's command-line interface to create containers

Implement and deploy applications in containers

Administer containers

## HANDS-ON WORK

The real-world cases and hands-on work will be done in a Linux environment.

## THE PROGRAMME

last updated: 07/2021

### 1) From virtualization to Docker

- Different types of virtualization.
- Containerization: LXC, namespaces, control-groups.
- Where Docker is used.
- Docker vs. virtualization.

### 2) Overview of Docker

- Docker's architecture.
- Docker's availability for different platforms (Windows, Mac and Linux) and how to install it on them.
- Creating a virtual machine for modeling.
- The command line and the environment.

*Hands-on work : Creating a virtual machine to create a model.*

### 3) Command-line implementation

- Setting up your first container.
- The Docker Hub: Centralized resources.
- Pooling storage across containers.
- Pooling TCP ports across containers.
- Publishing network ports.
- Interactive mode.

*Hands-on work : Configuring a container with the command line.*

### 4) Creating a custom container

- Producing the image of a container state.
- What is a Dockerfile?
- Automating the creation of an image.
- Implementing a container.
- Container hosting multiple services: Supervisor.

*Hands-on work : Creating a custom container.*

## TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

## ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more. Participants also complete a placement test before and after the course to measure the skills they've developed.

## TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

## TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

## ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at [psh-accueil@ORSYS.fr](mailto:psh-accueil@ORSYS.fr) to review your request and its feasibility.

### 5) Implementing a multicontainer application

- Using Docker Compose.
- Creating a YAML configuration file.
- Deploying multiple containers at once.
- Linking all of the application's containers.

*Hands-on work : Implementing a multicontainer application.*

### 6) Administration interfaces

- The Docker API and Web Services.
- Administration interface in Web mode.
- Hosting your own registry: Docker Registry, Gitlab-CE, etc.

*Hands-on work : Building and using your own registry.*

### 7) Administering containers in production

- Automatically starting containers on boot.
- Managing resources assigned to containers.
- Container log management.
- Backups: What tools and what strategy?

*Hands-on work : Administer containers.*

### 8) Orchestration and clusterization

- Overview of Docker Machine.
- The orchestrator Swarm: nodes, services, secrets, configs.
- Deploying services and stacks in a Swarm.
- Reverse-proxy and load-balancer for Web Services in a cluster (Traefik, etc.).

*Hands-on work : Creating a Swarm cluster. Managing nodes in the cluster. Publishing and scaling a service in the cluster.*

## DATES

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### REMOTE CLASS

2025 : 10 Feb, 12 May, 18 Aug,  
19 Nov