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Docker & Ansible training: Container DevOps
3 days (21 hours)

Presentation

With our course on Docker, which has become a mainstay of our DevOps catalog, you'll learn how to use the tool that has revolutionized the world of IT in recent years. Docker is a powerful open-source software tool that automates the deployment applications in software containers.

In this course, aimed at administrators and developers who want to get up and running straight away, you'll learn how to make intensive use of Docker technology, coupled with the automation provided by Ansible.

This expert-led 3-day training course will introduce you to the Docker platform and its entire ecosystem. You'll learn how to install it, integrate it into all your DevOps infrastructure projects, and use the best practices and usages to master this technology.

You'll also learn how to automate Docker using Ansible as a configuration management tool.

As with all our training courses, this one will introduce you to the latest version of Docker (at the time of writing: Docker 26) and Ansible 2.18.

Objectives

- How to install and use Docker
- Mastering data management with Docker
- How to use Docker Compose
- Integrate Docker into your projects
- Understanding Ansible concepts
- Deploying Docker with Ansible

Target audience

- Developers
- System administrators
- DevOps
- Cloud Architects

Prerequisites

- Basic knowledge of a Linux system
- Know how to use SSH and connect to a remote machine using SSH
- Git and a Github account
- Windows with WSL and Docker Desktop or Linux or Mac
- Test My Knowledge

Recommendations for pre- and post-course reading

- Official documentation, of course
- Take a look at Google engineer Prakhar Srivastav's website (no less).
- Refer to Farhan Hasin Chowdhury's Learn Docker for Beginners manual (which we'd like to thank him for).
- OWASP's cheat sheet best practicessecurity
- A Docker CheatSheet available on GitHub from a techno lover

Our Docker Ansible Training Program

Introduction to containers

- Introducing the Linux container concept
- Linux container use cases
- The differences between containers and virtual machines
- Introduction to Docker and its architecture
- Advantages and disadvantages of Docker
- Other container managers

Creating your first Docker containers

- Installing Docker
- Using Docker's Help
- The life cycle of a container
- Launching a container with docker run (interactive mode, detached mode, etc.)
- Interact with a container from the host (exec, inspect, logs...)
- Managing and deleting containers

Docker images

- What is a Docker image?
- Creating an image from a Dockerfile
- Storing and retrieving images from the Docker Hub
- Set up a private register to store images
- Multi-stage build

Data persistence

- Named volumes
- Bind mounts
- Managing volumes with Docker
- Volumes in read-only mode
- Best practices in volume management

Networking with Docker

- Understanding how Docker networks work
- Network drivers (bridge, host, overlay, etc.)
- Create a network
- Connecting a container to a network

Docker Compose

- What is Docker Compose
- Installing Docker Compose
- Create a docker-compose.yml file
- Launching a multi-container application
- Managing containers with Docker Compose
- Managing volumes and networks with Docker Compose

Introduction to orchestration

- What is container orchestration?
- The different orchestration tools
- The benefits of orchestration
- Docker Swarm, Kubernetes, OpenShift

Introduction to Ansible

- What is Ansible
- Declarative vs. imperative automation
- Ansible architecture and components
- How does Ansible work?
- Advantages and disadvantages of Ansible
- Installing and configuring Ansible

Ansible inventories

- Understanding the Ansible inventory
- Creating advanced Ansible inventories
- Advanced techniques for targeting specific managed nodes
- Using the default inventory

Creating and using playbooks

- Ad-hoc commands vs. playbooks
- Creating a Playbook
- Playbook, Play, and Tasks
- Creating advanced playbooks

Ansible Facts

- What are Ansible facts and why do we need them?
- Find Ansible facts
- How to use Ansible facts

Managing Ansible Vault and sensitive data

- What is Ansible Vault?
- How to use Ansible Vault
- Using password files

Ansible blocks

- What is an Ansible block?
- How to use Ansible blocks
- Error handling with Ansible blocks
- Using Rescue and Always together

Managing Docker containers with Ansible

- The Docker module
- Creating Docker images with Ansible
- Creating Docker containers with Ansible
- Managing the lifecycle of a Docker container with Ansible

Companies concerned

This course is aimed at both individuals and companies, large or small,

wishing to train its teams in a new advanced IT technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire enabling us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives with regard to the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.