Publication date : 04/22/2024

Course : Kubernetes for App Developers (LFD459)

Official course, CKAD exam preparation

Practical course - 3d - 21h00 - Ref. DKU
Price : 2570 € E.T.

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With this training course, you'll learn how to containerize, host, deploy and configure an application in a multi-node cluster. Starting with a simple Python script, you'll define application resources and use key primitives to create, monitor and troubleshoot scalable applications in Kubernetes. Working with network plug-ins, security and cloud storage, you'll be exposed to many of the features needed to deploy an application in a production environment.

Teaching objectives

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

- Containerize and deploy a new Python script
- Configuring deployment with ConfigMaps, Secrets and SecurityContexts
- Understanding multi-container pod design
- Configuring pod health sensors
- Update and cancel an application
- Implement network services and strategies
- Use PersistentVolumeClaims (PVC) for state persistence

Intended audience

Consultants, developers, architects, DevOps, project managers.

Prerequisites

Basic Linux command line and file editing skills. Familiarity with a programming language (Python). Knowledge of cloud-native application architectures.

PARTICIPANTS

Consultants, developers, architects, DevOps, project managers.

PREREQUISITES

Basic Linux command line and file editing skills. Familiarity with a programming language (Python). Knowledge of cloud-native application architectures.

TRAINER QUALIFICATIONS

The experts who lead the training courses are specialists in the subjects covered. They are approved by the publisher and certified for the course. They have also been validated by our teaching teams in terms of both professional knowledge and teaching skills for each course they teach. They have at least three to ten years of experience in their field and hold or have held positions of responsibility in companies.

ASSESSMENT TERMS

Assessment of targeted skills prior to training.
Assessment by the participant, at the end of the training course, of the skills acquired during the training course.
Validation by the trainer of the participant's learning outcomes, specifying the tools used: multiple-choice questions, role-playing exercises, etc.
At the end of each training course, ITTCERT provides participants with a course evaluation questionnaire, which is then analysed by our teaching teams. Participants also complete an official evaluation of the publisher.
An attendance sheet for each half-day of attendance is provided at the end of the training course, along with a certificate of completion if the participant has attended the entire session.

Certification

This training course prepares you for the Certified Kubernetes Application Developer (CKAD) exam. The topics covered are directly aligned with the knowledge areas tested by the Cloud Native Computing Foundation's certified CKAD program, and will significantly increase your ability to achieve certification.
Comment passer votre examen ?

Course schedule

1 Introduction

- Objectives.
- Who are you?
- Linux Foundation.
- Linux Foundation training.
- Certification programs and digital badges.
- Preparing your system.

2 Kubernetes architecture

- What is Kubernetes?
- Kubernetes components.
- Challenges. The Borg legacy.
- Kubernetes architecture.
- Terminology.
- Master node. Minion nodes (worker).
- Pods. Services. Controllers.
- Single IP per pod.
- Network configuration.
- Container Network Interface (CNI) network configuration file.
- Communication between pods.
- Cloud Native Computing Foundation.
- Resource recommendations.

Hands-on work
Application.

3 Build

- Container options.
- Application containerization.
- Create a Docker file.
- Hosting a local repository.
- Creation of a deployment.
- Executing commands in a container.
- Multi-container pod.
- ReadinessProbe. LivenessProbe.

TEACHING AIDS AND TECHNICAL RESOURCES
The teaching resources used are the publisher's official materials and practical exercises.

TERMS AND DEADLINES
Registration must be completed 24 hours before the start of the training course.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES
Do you have specific accessibility requirements? Contact Ms FOSSE, disability advisor, at the following address: psh-accueil@orsys.fr so that we can assess your request and its feasibility.

4 Design

- Traditional applications: considerations.
- Decoupled resources.
- Fugacity.
- Flexible frame.
- Resource utilization management.
- Multi-container pods.
- Sidecar container.
- Adapter container.
- Ambassador.
- Points to consider.
- Jobs.

5 Deployment configuration

- Overview of volumes.
- Presentation of volumes.
- Spec de volumes.
- Volume types.
- Example of shared volumes.
- Persistent volumes and claims.
- PersistentVolume.
- PersistentVolumeClaim (PVC).
- Dynamic provisioning.
- Secrets.
- Use of secrets via environment variables.
- Assembly secrets in volume form.
- Portable data with ConfigMaps.
- Using ConfigMaps.
- Deployment configuration status.
- Scaling and progressive updates.
- Deployment rollbacks.

Hands-on work
Application.

6 Security

- Safety overview.
- Access the application programming interface (API).
- Authentication.
- Authorization.
- ABAC. RBAC.
- Overview of role-based access control (RBAC).
- Inlet controller.
- Safety contexts.
- Pod security policies.
- Network security policies.
- Example of a network security policy.
- Example of a default policy.

Hands-on work
Application.

7 Exhibiting applications

- Service types.
- Service diagram.
- Service update template.
- Accessing an application with a service.
- Service without selector.
- ClusterIP.
- NodePort.
- LoadBalancer.
- External name.
- Input resource. Input controller.

8 Troubleshooting

- Troubleshooting overview.
- Basic troubleshooting steps.
- Change in progress (constant).
- Basic troubleshooting: pods.
- Basic troubleshooting: node and security.
- Basic troubleshooting: agents.
- Monitoring.
- Logging tools.
- Monitoring applications.
- System and agent logs.
- Compliance testing.

Hands-on work
Application.

Dates and locations

REMOTE CLASS
2026 : 24 Mar., 26 May, 28 July, 29 Sep., 24 Nov.

PARIS LA DÉFENSE
2026 : 24 Mar., 26 May, 28 July, 29 Sep., 24 Nov.