Publication date : 05/06/2024

Course : Kubernetes Administration (LFS458)

Official course, CKA exam preparation

Practical course - 4d - 28h00 - Ref. MKU
Price : 3600 € E.T.

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With this training, you'll discover how to set up a multi-node Kubernetes cluster using kubeadm, how to develop a cluster, choose and implement cluster networking, and various application lifecycle management methods. You'll also cover configuring security, managing storage, monitoring, logging and troubleshooting, configuring container deployment scheduling and affinity, using Helm and Charts to automate application deployment, and more.

Teaching objectives

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

- Installing a multi-node Kubernetes cluster using kubeadm
- Understanding federation for fault tolerance and increased availability
- Understanding cluster growth
- Choosing and setting up a cluster network
- Manage application lifecycles, including scaling, updates and restores
- Configuring security for both cluster and containers
- Manage available storage for containers
- Monitor, log and troubleshoot containers and clusters
- Configure planning and affinity for container deployments
- Use Helm and Charts to automate application deployment

Intended audience

Consultants, developers, DevOps architects, project managers.

Prerequisites

Have an understanding of Linux administration skills and be comfortable with the command line. Be able to edit files using a command-line text editor.

PARTICIPANTS

Consultants, developers, DevOps architects, project managers.

PREREQUISITES

Have an understanding of Linux administration skills and be comfortable with the command line. Be able to edit files using a command-line text editor.

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 course introduces the many skills needed to administer Kubernetes in a production environment, and is excellent preparation for the Certified Kubernetes Administrator (CKA) exam.
Comment passer votre examen ?

Course schedule

1 Introduction

- Linux Foundation.
- Linux Foundation training.
- Linux Foundation certifications.
- Digital badges from the Linux Foundation.
- Distribution details.

Hands-on work
Application.

2 Kubernetes basics

- Definition of Kubernetes.
- Cluster structure.
- Adoption.
- Project governance and the Cloud Native Computing Foundation (CNCF).

3 Installation and configuration

- Getting started with Kubernetes.
- Discover Minikube.
- Discover kubeadm.
- Discover more installation tools.

Hands-on work
Application.

4 Kubernetes architecture

- Kubernetes architecture.
- Networking.
- Other cluster systems.

Hands-on work
Application.

5 API and access

- API access.
- Annotations.
- Working with a simple pod.
- Kubectl and API.
- Swagger and OpenAPI.

Hands-on work
Application.

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.

6 API objects

- API objects.
- The v1 group.
- API resources.
- RBAC APIs.

Hands-on work
Application.

7 State management with deployments

- Deployment overview.
- Deployment status management.
- Deployments and replica games.
- DaemonSets.
- Labels.

Hands-on work
Application.

8 Service provision

- Overview.
- Access to services.
- DNS.

Hands-on work
Application.

9 Volumes and data

- Overview of volumes.
- Volumes.
- Persistent volumes.
- Data transmission to pods.
- ConfigMaps.

Hands-on work
Application.

10 Ingress

- Overview.
- Input controller.
- Entry rules.

Hands-on work
Application.

11 Planning

- Overview.
- Scheduler parameters.
- Policies.
- Affinity rules.
- Soiling and tolerances.

Hands-on work
Application.

12 Logging and troubleshooting

- Overview.
- Troubleshooting workflow.
- Basic starting sequence.
- Monitoring.
- Recording.
- Troubleshooting resources.

Hands-on work
Application.

13 Defining customized resources

- Overview.
- Custom resource definitions.
- Aggregate APIs.

Hands-on work
Application.

14 Helm

- Overview.
- Helm.
- Using Helm.

Hands-on work
Application.

15 Security

- Overview.
- Access the API.
- Authentication and authorization.
- Inlet controller.
- Pod policies.
- Network strategies.

Hands-on work
Application.

16 High availability

- Overview.
- Stacked database.
- External database.

Hands-on work
Application.

Dates and locations

REMOTE CLASS
2026 : 17 Mar., 23 June, 21 July, 27 Oct., 15 Dec.

PARIS LA DÉFENSE
2026 : 17 Mar., 23 June, 21 July, 27 Oct., 15 Dec.