Training: The Linux Foundation
LFS460 Kubernetes Security Fundamentals

THE LINUX FOUNDATION AUTHORIZED TRAINING PARTNER

TRAINING GOALS:

This instructor-led course provides skills and knowledge across a broad range of best practices for securing container-based applications and Kubernetes platforms during build, deployment, and runtime.

This course is ideal for anyone holding a CKA certification and interested in or responsible for cloud security.

This course exposes you to knowledge and skills needed to maintain security in dynamic, multi-project environments. This course addresses security concerns for cloud production environments and covers topics related to the security container supply chain, discussing topics from before a cluster has been configured through deployment, and ongoing, as well as agile use, including where to find ongoing security and vulnerability information. The course includes hands-on labs to build and secure a Kubernetes cluster, as well as monitor and log security events.

This course is designed as preparation for the Certified Kubernetes Security Specialist (CKS) exam and will substantially increase students' ability to become certified.

CONSPECT:

- Introduction
  - Linux Foundation
  - Linux Foundation Training
  - Linux Foundation Certifications
  - Linux Foundation Digital Badges
  - Laboratory Exercises, Solutions and Resources
  - E-Learning Course: LFS260
  - Distribution Details
  - Labs
- Cloud Security Overview
  - Multiple Projects
  - What is Security?
  - Assessment
  - Prevention

Compendium Education Center Ltd.
ul. Tatarska 5, 30-103 Kraków, tel.: (12) 298 47 77
ul. Bielska 17, 02-394 Warszawa, tel.: (22) 417 41 70
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    - Detection
    - Reaction
    - Classes of Attackers
    - Types of Attacks
    - Attack Surfaces
    - Hardware and Firmware Considerations
    - Security Agencies
    - Manage External Access
    - Labs
- Preparing to Install
    - Image Supply Chain
    - Runtime Sandbox
    - Verify Platform Binaries
    - Minimize Access to GUI
    - Policy Based Control
    - Labs
- Installing the Cluster
    - Update Kubernetes
    - Tools to Harden the Kernel
    - Kernel Hardening Examples
    - Mitigating Kernel Vulnerabilities
    - Labs
- Securing the kube-apiserver
    - Restrict Access to API
    - Enable Kube-apiserver Auditing
    - Configuring RBAC
    - Pod Security Policies
    - Minimize IAM Roles
    - Protecting etcd
    - CIS Benchmark
    - Using Service Accounts
    - Labs
- Networking
    - Firewalling Basics
    - Network Plugins
    - iptables

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- Mitigate Brute Force Login Attempts
- Netfilter rule management
- Netfilter Implementation
- nft Concepts
- Ingress Objects
- Pod to Pod Encryption
- Restrict Cluster Level Access
- Labs

- Workload Considerations
  - Minimize Base Image
  - Static Analysis of Workloads
  - Runtime Analysis of Workloads
  - Container Immutability
  - Mandatory Access Control
  - SELinux
  - AppArmor
  - Generate AppArmor Profiles
  - Labs
- Issue Detection
  - Understanding Phases of Attack
  - Preparation
  - Understanding an Attack Progression
  - During an Incident
  - Handling Incident Aftermath
  - Intrusion Detection Systems
  - Threat Detection
  - Behavioral Analytics
  - Labs
- Domain Reviews
  - Preparing for the Exam
  - Labs
- Closing and Evaluation Survey
  - Evaluation Survey

Difficulty level

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CERTIFICATE:

The participants will obtain certificates signed by The Linux Foundation

TRAINER:

The Linux Foundation Certified Trainer

ADDITIONAL INFORMATION:

Live Online (Virtual) or Live (Classroom)
4 days of Instructor-led class time
Hands-on Labs & Assignments
Resources & Course Manual
Certificate of Completion
Digital Badge
12 Months of Access to Online Course
Registration for CKS exam

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