

Kubernetes and Cloud Native Security Associate (KCSA) Exam Curriculum

A Cloud Native Computing Foundation (CNCF)

Publication cncf.io



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This document provides the curriculum outline of the Knowledge, Skills and Abilities that a Kubernetes and Cloud Native Security Associate (KCSA) can be expected to demonstrate.

KCSA Curriculum

14% - Overview of Cloud Native Security

- The 4Cs of Cloud Native Security
- Cloud Provider and Infrastructure Security
- Controls and Frameworks
- Isolation Techniques
- Artifact Repository and Image Security
- Workload and Application Code Security

22% - Kubernetes Cluster Component Security

- API Server
- Controller Manager
- Scheduler
- Kubelet
- Container Runtime
- KubeProxy
- Pod
- Etcd
- Container Networking
- Client Security
- Storage

22% - Kubernetes Security Fundamentals

- Pod Security Standards
- Pod Security Admissions
- Authentication
- Secrets
- Isolation and Segmentation
- Audit Logging
- Network Policy

16% - Kubernetes Threat Model

- Kubernetes Trust Boundaries and Data Flow
- Persistence
- Denial of Service
- Malicious Code Execution and Compromised Applications in Containers
- Attacker on the Network
- Access to Sensitive Data
- Privilege Escalation

16% - Platform Security

- Supply Chain Security
- Image Repository
- Observability
- Service Mesh
- PKI
- Connectivity
- Admission Control

10% - Compliance and Security Frameworks

- Compliance Frameworks
- Threat Modeling Frameworks
- Supply Chain Compliance
- Automation and Tooling



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Cloud native computing uses an open source software stack to deploy applications as microservices, packaging each part into its own container, and dynamically orchestrating those containers to optimize resource utilization. The Cloud Native Computing Foundation (CNCF) hosts critical components of those software stacks including Kubernetes, Fluentd, Linkerd, Prometheus, OpenTracing and gRPC; brings together the industry's top developers, end users, and vendors; and serves as a neutral home for collaboration. CNCF is part of The Linux Foundation, a nonprofit organization. For more information about CNCF, please visit: <https://cncf.io/>.