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# Talos Linux training: Kubernetes OS

2 days (14 hours)

## Presentation

Our Talos training course will teach you how to master this operating system, entirely designed for the rapid deployment of Kubernetes. Both immutable and minimalist, Talos has become extremely popular with DevOps experts, as all cluster access is via a secure API, considerably reducing its attack surface.

The training will familiarize you with the operating and its configuration for your infrastructure. You'll learn about the main security features, which are one of the tool's key strengths. You'll also learn about general administration and updating functions.

In this training course, you'll gain theoretical and practical skills in managing your Talos clusters. Our training courses are designed to give you maximum operational skills.

Like all our training courses, it will be based on the latest tool versions: [Talos 1.9](#)

## Objectives

- Understanding Talos architecture and fundamentals
- Learn how to deploy and administer a Kubernetes cluster on Talos
- Configuring, securing and managing a cluster using talosctl only

## Target audience

- **DevOps engineers**
- System administrators
- Cloud architects
- Developers

# Prerequisites

- Familiarity with Kubernetes and Kubelet
- Master a command line tool
- Familiarity with Linux

# Technical requirements

- A machine running Linux/macOS or a virtualization environment

# Talos Linux training program

## Introduction to Talos Linux

- Immutable OS concept
- Understanding the absence of SSH and administration via the talosctl API and CLI
- Identify safety and automated maintenance benefits
- Tackling the minimalist structure based on containerd and Kubernetes
- Present the "API-Driven" vision for declarative infrastructure management

## Preparing the environment and installing Talosctl

- Hardware and network requirements for VM or bare-metal deployment
- Download Talos light ISO
- Configuring node boot
- Install the talosctl CLI on the admin station
- Schedule configuration generation and distribution to nodes
- Define partitioning and IP addressing strategy for each node

## Initial cluster configuration and secret generation

- Generate TLS certificates and keys
- Create controlplane.yaml, worker.yaml and talosconfig files
- Customize settings with YAML patches
- Difference between control plane and worker roles
- Securing and versioning configuration files

## Deploying the Talos cluster and bootstrapping Kubernetes

- Start each machine on the Talos ISO
- Check detection via talosctl
- Apply configuration to nodes

- Track installation progress with real-time logs
- Bootstrapping the cluster with talosctl bootstrap
- Installing a CNI
- Validate "Ready" status of nodes

## Node administration and management

- Use talosctl commands to diagnose each node
- Modify the configuration of a live node
- Add or remove nodes from the cluster by generating appropriate configurations
- Managing classic Kubernetes operations
- Configuration to simplify interaction with the cluster

## Maintenance, updates and backups

- Upgrade your Kubernetes version
- Update Talos with an A/B mechanism and automatic rollback
- Regular snapshots of the etcd database
- Restore a cluster in the event of a disaster
- Draw up a continuous maintenance plan

## Advanced functions

- Use KubeSpan to create multi-region clusters
- The talhelper tool for generating complex configuration files
- Installing Talos extensions
- Versioning the Talos configuration
- Integrating Talos with Terraform or Cluster API

## Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer 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 which enables 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 for 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 training: 60% Practical, 40% Theory. Training material distributed in

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.