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# Flux V2 training: The Kubernetes cluster synchronizer

3 days (21 hours)

## Presentation

Flux V2 training will enable you to synchronize multiple Kubernetes clusters with different configuration types and automate upgrades when they are needed.

In this course, you will learn how to use Flux throughout the Kubernetes ecosystem. What's more, you'll be able to multilocate and synchronize an arbitrary number of Git repositories.

You can manage applications in the same cluster, in different clusters, or even create additional clusters.

Discover all the best practices of Kubernetes security policy compliance as well as tight integration with security tools.

Our training will be presented with the latest version of Flux V2, [version 1.25](#).

## Objectives

- Provide health assessments and alerts to external systems
- Creating and managing Kubernetes clusters
- Understanding how Flux works with Git providers
- Application deployment and progressive delivery through automation
- Adopt the necessary safety practices

## Target audience

- DevOps
- System administrators
- Developers

## Prerequisites

- Practical knowledge of Kubernetes
- Notion in application deployment

## Flux V2 training program

### Tool introduction

- Introducing Flux V2
- Creating a Kubernetes cluster
- Obtaining a Github access token

### Installation

- Installing the Flux CLI
- Bootstrap
  - Generic Git server
  - Bitbucket server and data center
  - Isolated environments
  - Github and Github Enterprise
  - Gitlab and Gitlab Enterprise
- Customize Flux manifests
- Development facility
- Key rotation deployment
- Performing upgrades

### Migration from Flux CD to FLux V2

- Installing CLI Flux v2
- GitOps
- On-site migration
- Flux with Kustomize
- Stream debugging

### Using Flux V2

- AWS CodeCommit

- Executing Kubernetes tasks with Flux
  - Reference structure
  - Configuration of the deployment pipeline
- Karmada and Flux
  - Configure Karmada
  - Bar release propagation
  - Helm version customization for specific clusters
- OpenShift and Flux
  - Configuring OpenShift
  - CodeReady containers
- Promotion of Flux Helm versions
  - Define Github workflow
  - Define staging and production versions
  - Repository flow configuration
- Jenkins and Flux
  - Image repository
  - OCI image construction

## Toolbox components

- Controller customization
- Source controller
- Rudder controller
- Notification controller
- Image automation check

## Security

- Secret management
- Using best practices to pool shared clusters
- Contextual authorization

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## 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 course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

## Organization

The course alternates theoretical input from the trainer, supported by examples, with 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.