Continuous integration: Best practices for implementation

Hands-on course of 3 days - 21h
Ref.: DIN - Price 2024: €2 280 (excl. taxes)

EDUCATIONAL OBJECTIVES
At the end of the training, the trainee will be able to:

Understand the components and principles of continuous integration

Work with a version control manager

Understand the software's construction mechanisms and the corresponding Build tools

Configure a project on a continuous integration server.

Decipher the most common code analysis tool metrics

Comprehend the role of artifact repositories and configuration management

THE PROGRAMME

last updated: 06/2022

1) Introduction
- Different types of environments: Development, acceptance, production.
- Configuration management: System and application.
- Role of application containers: Docker.
- Configuration centralization: puppet, Ansible.
- Scaling up deployments.
- Setting up a continuous integration platform.

2) Version management
- Features.
- Different source managers: Centralized or distributed.
- Problems integrating changes.
- The role of branches and tags.
Hands-on work : Handling a Git repository.

3) Automating builds
- What is a software build?
- Builds: Project lifecycle.
- Build tools with Maven.
- Plug-ins, profiles, and modules.
Hands-on work : Setting up a simple project build (Maven).

4) Repository management
- Roles of repository managers.
- Types of repositories: public, internal.
- Deliverable management (artifacts): releases, snapshots, deployment.
- Organizing repositories: Development, testing, production.
- Integrating repository managers with build tools and task management tools.
- Example solutions: Nexus, Artifactory, etc.
Hands-on work : Publishing artifacts in Nexus.

5) Automating tests.
- What tests, and to do what?
- Testing environments.
- Overview of testing tools.
- Implementing and automating tests.
Hands-on work : Setting up automated tests with JUnit.

6) Continuous integration server
- Role of the continuous integration server.
- Major features.
- Job management.
- Dependency between jobs.
- Servers: Hudson/Jenkins, CruiseControle, Bamboo, etc.
Hands-on work : Configuring the project on a Jenkins continuous integration server.

7) Setting up metrics
- Generating reports.
- Analysis and reporting tools (PMD, Findbugs, Cobertura, Emma, Checkstyle, etc.).
- Publishing results.
Hands-on work : Setting up metric tools.

8) Feedback management
- Managing a complete cycle.
- Traceability of changes.
Hands-on work : Using Sonar.

DATES

REMOTE CLASS
2025 : 31 Mar, 18 Jun, 29 Sep, 22
Dec