

## **Gradle with Artifactory**

### **Course Summary**

#### **Description**

Attendees will gain a clear understanding of the basics of project management with Gradle and management of program artifacts via Artifactory. This course will focus on Java generated artifacts, and such will start with a brief overview of Java development and tooling. Next, we cover the basics of the Groovy programming language to which Gradle is derived from. Next, we cover project management via Gradle. Once artifacts are being generated, we learn about Artifactory and how it helps us manage these artifacts. At the end, we see how to integrate these tools with the CI pipeline, working from thought to deployment. Along the way, we will touch on aspects such as TDD, DevOps, CI/CD, Avt vs Maven vs Gradle, and more! Each day provides discussion and hands on labs as we journey through the process of creating and maintaining our software.

During the first day of class, we introduce the fundamentals of Java development and management via Gradle. We cover from installation, dependency management, and testing. The second day of class covers installation, usage, configuration, and maintaining an Artifactory installation. The third day of class covers CI foundational topics and everything students need to know to get started with Jenkins, from installing Jenkins to creating and running build jobs. Jenkins is very flexible, and we will focus on Gradle and Artifactory integration.

#### **Topics**

- Overview of Java Program Management
- Basics of Gradle
- Advanced Gradle
- Overview of Artifactory
- Configuring Artifactory
- Monitoring and Maintenance
- Artifactory Access Controls
- Overview of Continuous Integration
- Basic Jenkins Operations
- Jenkins Configuration
- Build Systems

#### **Audience**

This course is designed for Developers, IT and QA Staff, Architects, Technical Managers, and Build Team personnel.

#### **Prerequisites**

Before taking this course, students should have a general technology background.

#### **Duration**

Three days

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### **Course Outline**

- I. Overview of Java Program Management**
  - A. Overview Java Development
  - B. JAR File Management
  - C. Java Build Systems
  - D. Basic TDD with Java II. Basics of Groovy
  - E. Overview of Groovy
  - F. Integration with Java
  - G. Basic TDD with Groovy
  - H. Groovy DSL Development
- II. Basics of Gradle**
  - A. Overview of Gradle
  - B. Managing Gradle
  - C. Gradle Scripting
  - D. Multi-project builds
- III. Advanced Gradle**
  - A. Plugins
  - B. JVM Projects
  - C. Gradle API
  - D. Extending Gradle
- IV. Overview of Artifactory**
  - A. Installation of Artifactory
  - B. Usage, Architecture, and Layout
- V. Configuring Artifactory**
  - A. Local, Remote, Virtual
  - B. Package Types
- VI. Monitoring and Maintenance**
  - A. Storage
  - B. Logging
  - C. Backups
  - D. Management
- VII. Artifactory Access Controls**
  - A. Permission Targets
  - B. Authentication and Encryption
  - C. Self-signed Certs and Tokens
- VIII. Overview of Continuous Integration**
  - A. Agile and TDD
  - B. Test automation tools and concepts
  - C. The role of continuous integration servers
  - D. Jenkins Installation and Disk Layout
- IX. Basic Jenkins Operations**
  - A. Jenkins UI
  - B. Jenkins Projects and Builds
  - C. Freestyle Projects
  - D. Disk layout and Environment Variables
- X. Jenkins Configuration**
  - A. Jenkins Home
  - B. Managing Jenkins
  - C. Configuring JDKs, Mail and other add-ons
  - D. Integrating Test Results
- XI. Build Systems**
  - A. Jenkins Integration with Build Systems
  - B. Configuring Build Tools
  - C. Build automation tools
  - D. Gradle under Jenkins