JAV333 : Using Maven

Code :	JAV333	**Duration :**	2 days	**Category :**	Tooling
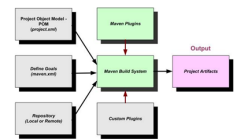
Audience :

This course is intended for developers who use Maven for dependency management and for the automatic building and deployment of projects.
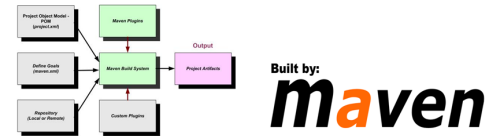
Prerequisites :

To participate in this course knowledge of and experience with Java and XML is required.

Realization :

The theory is discussed on the basis of the presentation slides and is interspersed with exercises. Demo projects in Maven are used to clarify the concepts. The course material is in English. The course focuses on Maven version 2.

Contents :

In this course participants learn the skills and acquire the knowledge needed to use Maven as an automated build and dependency management tool. First an overview of the problems in project and dependency management is given and the operation of Maven and role of Maven repositories is explained. Next it is discussed how Maven relates to the automatic build tool Ant. Then the directory structure of Maven projects and the standard life cycle is addressed. Maven projects can be created on the basis of predefined archetypes in which a given project structure is already present from the start. Attention is paid to a number of archetypes and to the role of goals and Maven plugins. Also the Project Object Model (POM) with pom.xml is discussed. The significance of the main entries in it such as Group, Artifact, and Version, are treated and attention is also paid to a complex structure with multiple pom files and pom inheritance. Finally the role of Maven when performing tests, continuous integration and release management with Bamboo are examined.

Module 1 : Maven Intro

An Introduction to Maven
Key Features of Maven
History of Maven
Alternatives to Maven
Comparing Maven and Ant
Maven Directory
Maven Settings (Local and Global)
Local Maven Repository
Running Maven
Maven Options

Module 2 : Core Concepts

Maven Directory Structure
Standard Maven Lifecycle
Key Lifecycle Phases
Customizing the Lifecycle
Lifecycle Overview
Default Lifecycle
Site Lifecycle
Package-specific Lifecycles

Module 3 : Maven Plugins and Goals

Maven Coordinates
Dependency Management
Maven Repositories
Maven Archetypes
Plugins
Maven Goals

Modules 4 : Project and Dependencies

The Project Object Model (POM)
The Simplest POM
POM Components
Project Coordinates
GAV (Group, Artifact, Version)
Project Versions
Snapshot Versions

Module 5 : Dependencies

Dependency Scope
Optional Dependencies
Version Ranges
Transitive Dependencies
Visualizing Dependencies
Dependency Conflicts
Excluding Transitive Dependencies

Module 6 : Inheritance and Aggregation

POM Inheritance
The Super POM
Inherited Behavior
The Effective POM
Multi- Projects
Directory Structure
Container Projects
POM Aggregation

Module 7 : Custom Builds

Properties and Profiles
Variables
POM Variables
settings.xml properties
Java System properties
Environment variables
User-defined properties
Filtering Resources
Build Profiles
Project Configuration with Profiles
Profile Activation
Maven Repositories
Repository Structure
Central Repository
Other Remote Repositories
Local Repository
Site Generation and Reporting

Module 8 : Site Generation

Standardized Environment
Explicit Use of Plugin Versions
The Enforcer Plugin
Maven Site as Collaboration Tool
The Site Lifecycle
Default Site Layout
Creating a Site Project
Organizing Your Site
Adding Site Content
Site Reporting with Maven
Technical Documentation
Browsable Source Code
Displaying Test Results
Code Quality Metrics

Module 9 : Web Development

Using the Maven Jetty Plugin
Developing Web Applications with Maven
Repository Management
What is an Enterprise Repository?
Nexus Repositories and Security
Deploying to Nexus with Maven
Managing Maven Settings with Nexus
Configuring Procurement in Nexus
Performing a Staged Release

Module 10 : Release Management

Release Management
The Maven Release Plugin
Developer Release Workflow
Integration with Source Control
Example Using Subversion
What is Continuous Integration?
Benefits of Continuous Integration
Comparisons of Bamboo to other CI
Servers/Products
Setting Up a Maven Job in Bamboo
Monitoring Bamboo Builds
Demonstration of Bamboo