
APACHE MAVEN



What is Maven?



- Software Project Management tool
 - Based on the concept of Project Object Model(POM)
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What does it provide?



- A build lifecycle framework
 - Automate build infrastructure
 - Ability to manage build, reporting, documentation, scm's, dependencies, unit testing, mailing lists...
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Standardizes the Project Build Process

History of Maven



- Designed to simplify the process of Jakarta Turbine Project.
 - Several projects with slightly different ANT file.
 - JAR's were checked in CVS's
 - MAVEN developed to build multiple project's together
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Objective of Maven



- Provide comprehensive model
 - Provide plugins that interact with this comprehensive model
 - Convention over Configuration
 - Project Object Model (POM)
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Project Object Model (POM)



- Fundamental unit of Maven
 - Contains information about the project and configuration details
 - Contains goals and plugins
 - Uniquely identified by GroupId and ArtifactId
 - POM's inherit from parent POM's
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Maven Build Lifecycle



Well defined sequence of phases, which defines the order in which goals are executed.

Maven Build Lifecycle



A typical Maven build lifecycle

Phase	Handles	Description
prepare-resources	resource copying	Resource copying can be customized in this phase.
compile	compilation	Source code compilation is done in this phase.
package	packaging	This phase creates the JAR / WAR package as mentioned in packaging in POM.xml.
install	installation	This phase installs the package in local / remote maven repository.

Maven Build Lifecycle



- 3 standard Lifecycles
 - Clean
 - Build
 - Site
- The order of execution depends on which goals and build phases are invoked

Clean Lifecycle



- Maven clean goal is bound to clean phase
 - Maven deletes the output of the build
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Build Lifecycle



- Primary lifecycle of Maven
 - It has 23 phases
 - Compile, Install ,Package phases are some examples
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Site Lifecycle



- Create Documentation
 - Create Reports
 - Deploy Site
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Maven Build Profile

- Set of configuration values, which can be used to set or override the default values.
 - Maven profile helps you customise your build for diff environments like deployment or production
 - Build profiles are specified in the pom.xml and it modifies the pom.xml at build time based on the target environment.
 - Build profile is of three types:
 - Per Project
 - Per User
 - Global
 - `mvn test -Ptest`
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Maven Repositories



- Repository is a place where all the project jar's, library jars, plugins and project artifacts are stored and can be accessed by maven easily.
 - There are 3 types of repositories: Local, Central and Remote.
 - Local - Is the one Maven creates in the system
 - Central - Maintained by Maven community
 - Remote - Maintained by the user
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Maven Plugins



- Maven is a plugin execution framework where all the tasks are done by plugins.
 - Plugins can create jar/war, compile code, run unit tests, create project reports and documents.
 - mvn compiler:compile
 - Two types of plugins:
 - Build - Executes during the build phase and should be configured in the build element.
 - Reporting - Executes during the site phase and should be configured in the reporting element.
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Creating Maven Projects



- Maven uses archetype plugins to create project.
 - `mvn archetype:generate`
 - DgroupId=com.companyname.software
 - DartifactId=financialService
 - DarchetypeArtifactId=maven-archetype-quickstart
 - DinteractiveMode=false
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