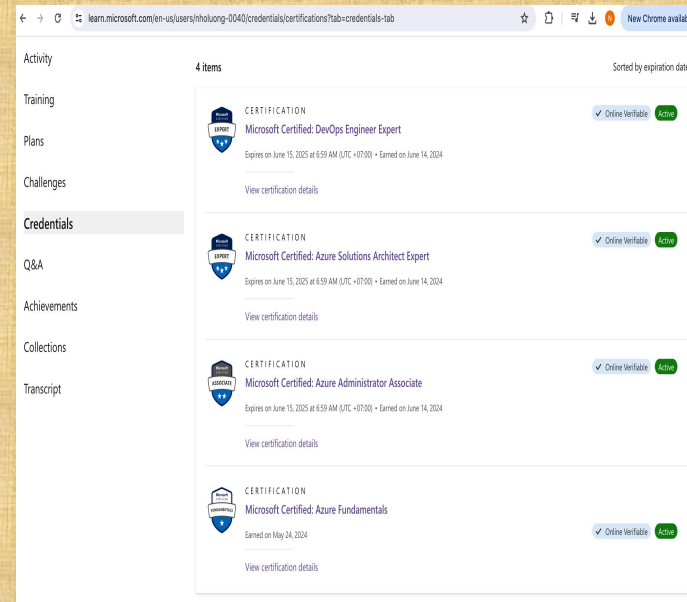
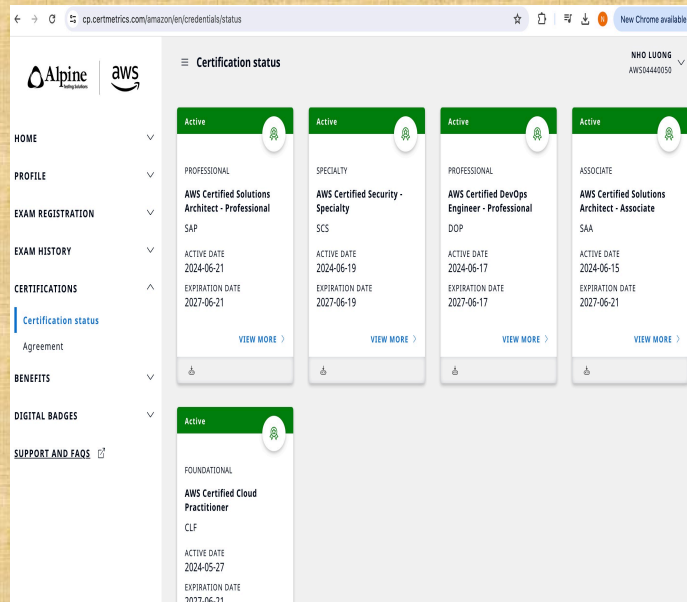


Maven Overview

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Skill: DevOps Engineer Lead



Build Automation Tool



Why Automated Builds



Automated Build are best practice.



Manual procedures are mistake prone.



Automated builds are self documentary.



Automated Builds can be triggered by other tools(eg Jenkins,cron jobs).

Code Build or Integration



Code Build is a process by which source code is converted into a standalone form that can be run on a particular type of platform.



One of the most important step of the software build is the compilation process, where the source code files are converted into executable files.



The process of building software is usually managed by build tool.



Build has been created when a certain point in development has been reached or the code is deemed ready for implementation., either for testing or release.

Maven Introduction

Apache Maven is a software project management and comprehension tool.

Maven is a build automation tool used primarily for Java projects.

Maven can also be used to build and manage projects written in C#, Ruby, Scala, and other languages.

Maven addresses two aspects of building software: how software is built, and its dependencies.

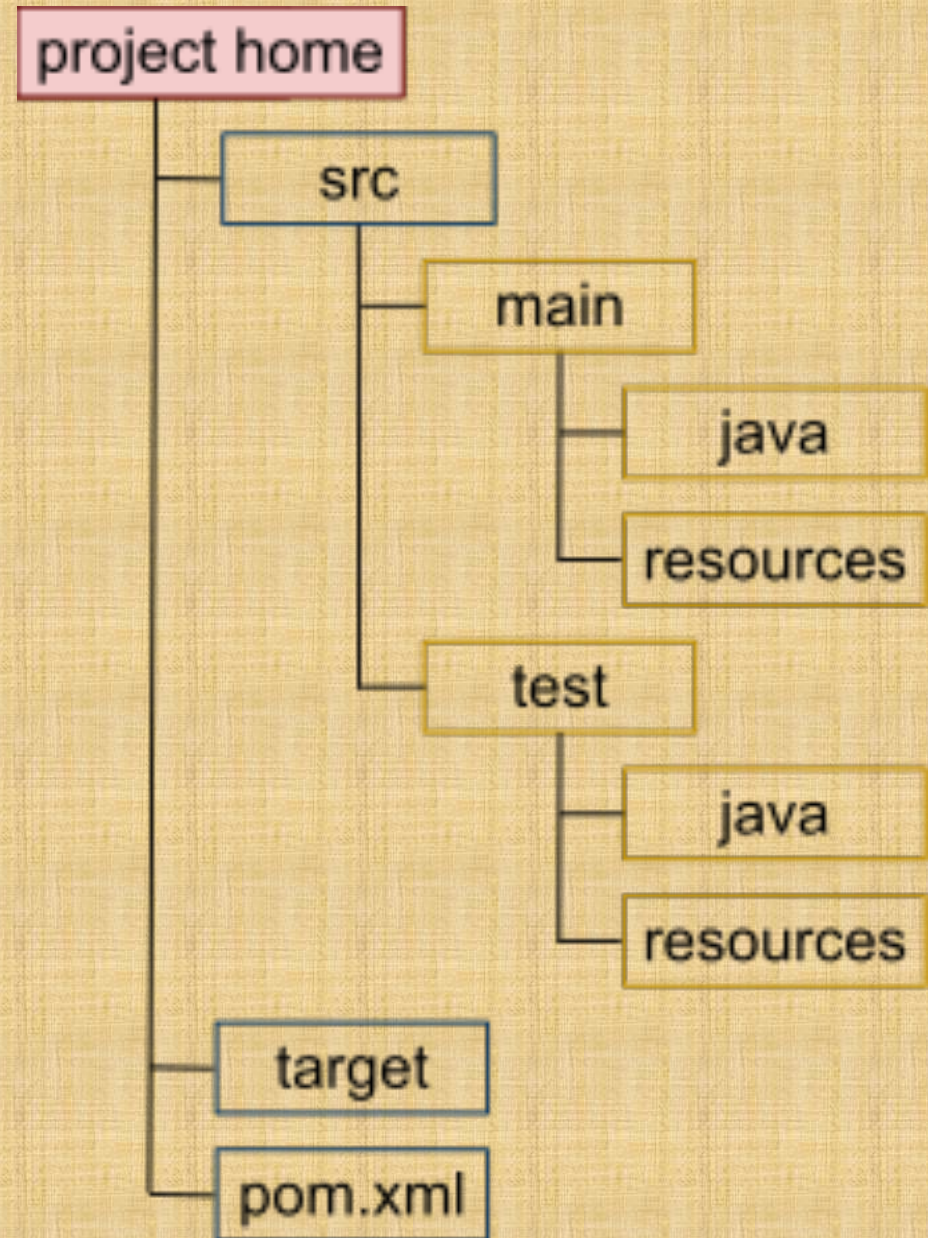
Project Object Model(POM)

- Maven projects are configured

using a Project Object Model,
which is stored in a pom.xml-file.

```
<project>
  <!-- model version is always 4.0.0 for Maven 2.x POMs -->
  <modelVersion>4.0.0</modelVersion>
  <!-- project coordinates, i.e. a group of values which uniquely identify this project -->
  <groupId>com.mycompany.app</groupId>
  <artifactId>my-app</artifactId>
  <version>1.0</version>
  <!-- library dependencies -->
  <dependencies>
    <dependency>
      <!-- coordinates of the required library -->
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>3.8.1</version>
      <!-- this dependency is only used for running and compiling tests -->
      <scope>test</scope>
    </dependency>
  </dependencies>
</project>
```

A directory structure for a Java project auto-generated by Maven



Directory structure of a Maven project

Directory name	Purpose
project home	Contains the pom.xml and all subdirectories.
src/main/java	Contains the deliverable Java sourcecode for the project.
src/main/resources	Contains the deliverable resources for the project, such as property files.
src/test/java	Contains the testing Java sourcecode (JUnit or TestNG test cases, for example) for the project.
src/test/resources	Contains resources necessary for testing.

Apache Maven Project

```
<?xml version="1.0" encoding="UTF-8"?>
<project>
  <modelVersion>4.0.0</modelVersion>
  <groupId>org.example.training</groupId>
  <artifactId>maven-training</artifactId>
  <version>1.0</version>
</project>
```

- Maven uniquely identifies a project using:

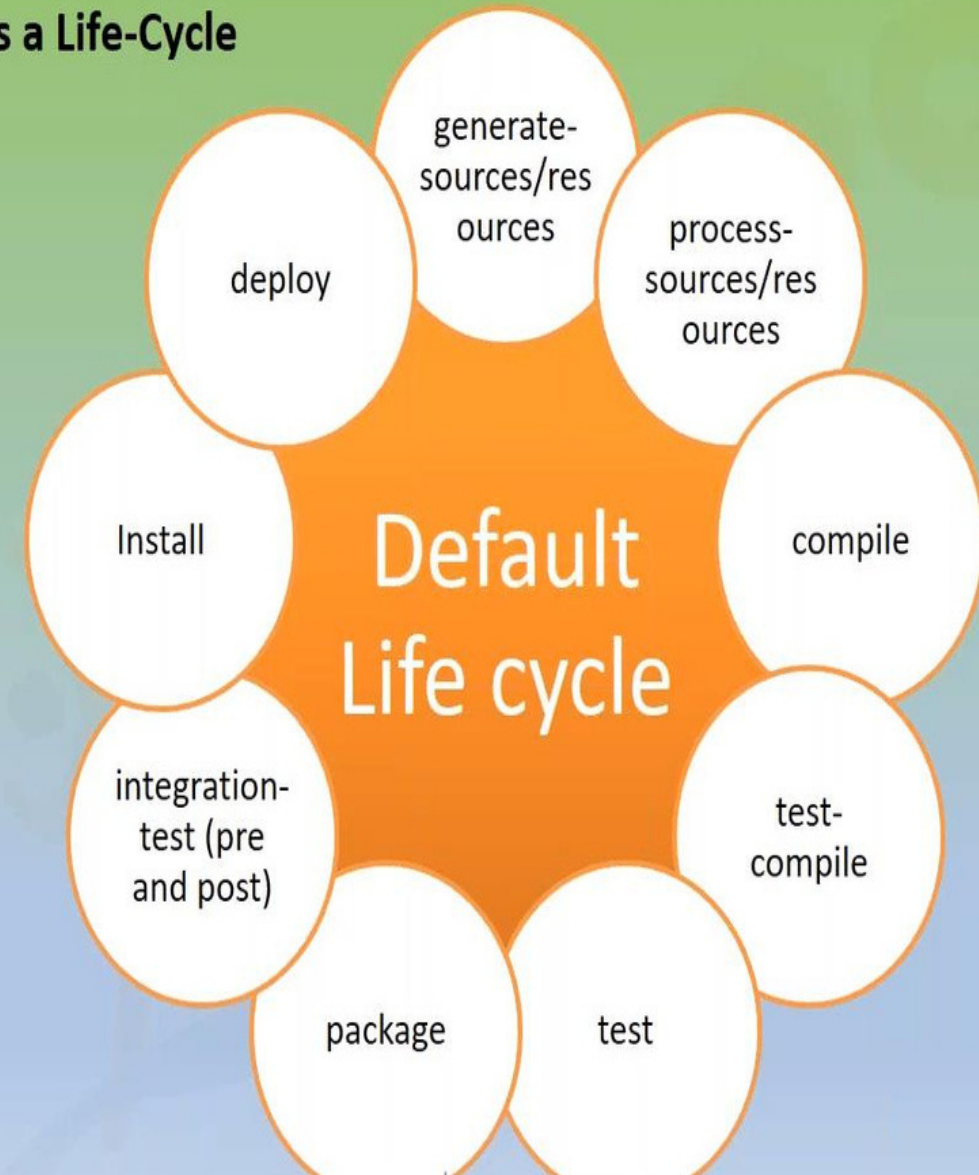
groupId: Arbitrary project grouping identifier

artifactid: Arbitrary name of the project.

Version: version of the project

Maven Build Life Cycle

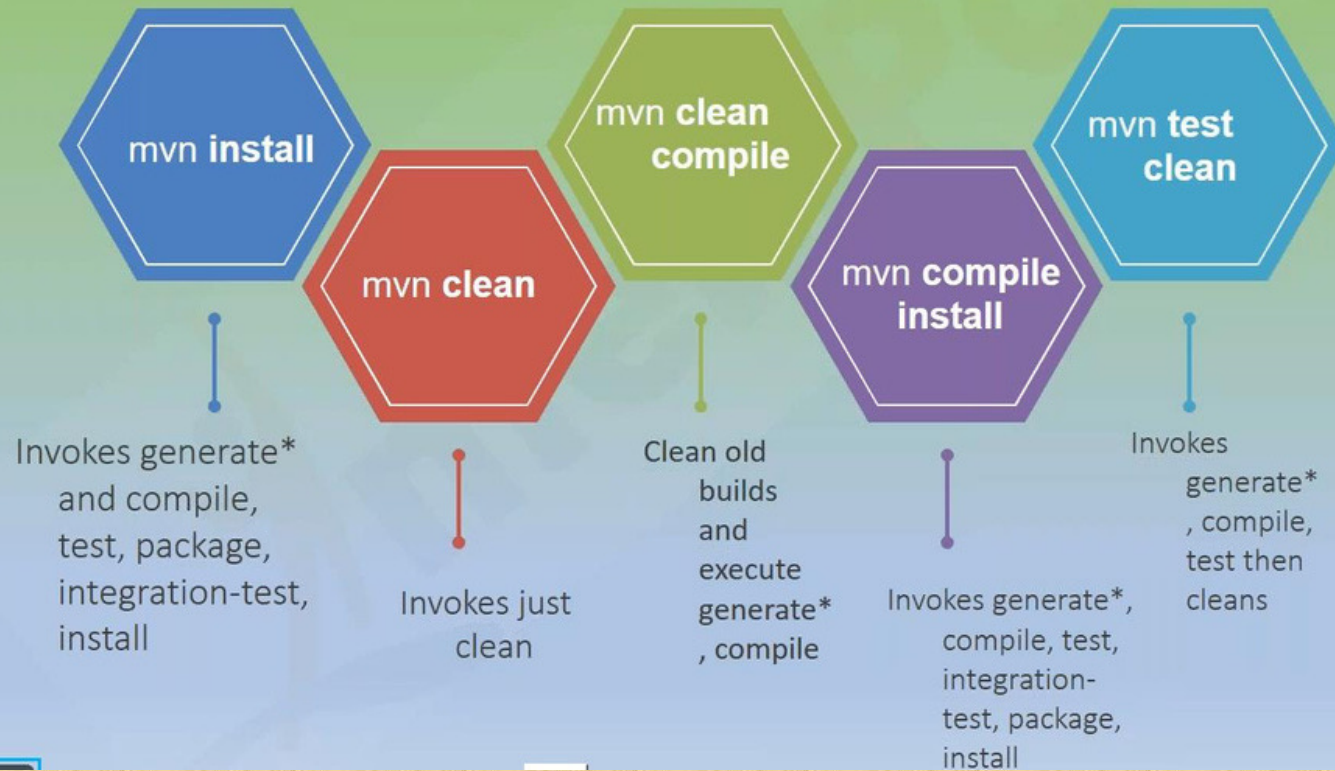
Every Maven Build has a Life-Cycle



Maven Build Lifecycle

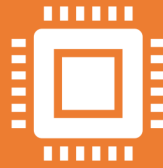
Phase	Handles	Description
prepare-resources	resource copying	Resource copying can be customized in this phase. Validates if the project is
validate	Validating the information	correct and if all necessary information is available.
compile	compilation	Source code compilation is done in this phase.
Test	Testing	Tests the compiled source code suitable for testing framework.
package	packaging	This phase creates the JAR/WAR package as mentioned in the packaging in POM.xml. This phase installs the package in local/remote maven repository.
install	installation	Copies the final package to the remote repository.
Deploy	Deploying	

When you invoke a Maven build you set a lifecycle "goal"



Apache Maven Goals

Apache Maven Dependency Management



Maven's dependency-handling mechanism is organized around a coordinate system identifying individual artifact such as software libraries and modules.



No need to store the libraries in SCM.



A central maven repository.

Apache Maven Dependency Management

- Adding a Dependency.

- Dependency consist of

1. GAV

2. Scope: compile, test, provided
(default=compile)

3. Type: jar, pom, war

```
<project>
  ...
  <dependencies>
    <dependency>
      <groupId>javax.servlet</groupId>
      <artifactId>servlet-api</artifactId>
      <version>2.5</version>
      <scope>provided</scope>
    </dependency>
  </dependencies>
```



Thank You