

Maven

Was ist Maven?

- Software Project Management Tool
- Dependency Management mit großem Repository mit Bibliotheken
- Build Lifecycle Tool: Phasen werden in bestimmter Reihenfolge ausgeführt

Download und Installation

- Java JDK 1.7
- apache-maven-3.x.y.zip irgendwo entpacken
- bin-Verzeichnis zu PATH hinzufügen
- Test mit `mvn --version`

Proxy-Server

Konfigurationsdatei

`${user.home}/.m2/settings.xml`

Inhalt

```
<settings>
...
<proxies>
  <proxy>
    <id>gbs-proxy</id>
    <active>true</active>
    <protocol>http</protocol>
    <host>192.168.100.1</host>
    <port>8080</port>
  </proxy>
</proxies>
...
</settings>
```

Maven in 5 Minutes

Maven in 5 Minutes

Projekt erstellen

Befehl

```
mvn archetype:generate \  
  "-DgroupId=de.gbsschulen.app" \  
  "-DartifactId=my-app" \  
  "-DarchetypeArtifactId=maven-archetype-quickstart" \  
  "-DarchetypeVersion=1.4" \  
  "-DinteractiveMode=false"
```

Erzeugt im aktuellen Verzeichnis folgende Verzeichnisstruktur

```
my-app/  
├── pom.xml  
├── src  
│   ├── main  
│   │   ├── java  
│   │   │   ├── de  
│   │   │   │   ├── gbsschulen  
│   │   │   │   │   ├── app  
│   │   │   │   │   └── App.java  
│   │   └── test  
│   │       ├── java  
│   │       │   ├── de  
│   │       │   │   ├── gbsschulen  
│   │       │   │   │   ├── app  
│   │       │   │   │   └── AppTest.java
```

Erzeugte pom.xml

```
<?xml version="1.0" encoding="UTF-8"?>  
  
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">  
  <modelVersion>4.0.0</modelVersion>  
  
  <groupId>de.gbsschulen.app</groupId>  
  <artifactId>my-app</artifactId>  
  <version>1.0-SNAPSHOT</version>  
  
  <name>my-app</name>  
  <!-- FIXME change it to the project's website -->  
  <url>http://www.example.com</url>  
  
  <properties>  
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
    <maven.compiler.source>1.7</maven.compiler.source>  
    <maven.compiler.target>1.7</maven.compiler.target>  
  </properties>  
  
  <dependencies>  
    <dependency>  
      <groupId>junit</groupId>  
      <artifactId>junit</artifactId>  
      <version>4.11</version>  
      <scope>test</scope>  
    </dependency>
```

```
</dependencies>

<build>
  <pluginManagement><!-- lock down plugins versions to avoid using Maven defaults (may be moved to pa
  <plugins>
    <!-- clean lifecycle, see https://maven.apache.org/ref/current/maven-core/lifecycles.html#clean
    <plugin>
      <artifactId>maven-clean-plugin</artifactId>
      <version>3.1.0</version>
    </plugin>
    <!-- default lifecycle, jar packaging: see https://maven.apache.org/ref/current/maven-core/defa
    <plugin>
      <artifactId>maven-resources-plugin</artifactId>
      <version>3.0.2</version>
    </plugin>
    <plugin>
      <artifactId>maven-compiler-plugin</artifactId>
      <version>3.8.0</version>
    </plugin>
    <plugin>
      <artifactId>maven-surefire-plugin</artifactId>
      <version>2.22.1</version>
    </plugin>
    <plugin>
      <artifactId>maven-jar-plugin</artifactId>
      <version>3.0.2</version>
    </plugin>
    <plugin>
      <artifactId>maven-install-plugin</artifactId>
      <version>2.5.2</version>
    </plugin>
    <plugin>
      <artifactId>maven-deploy-plugin</artifactId>
      <version>2.8.2</version>
    </plugin>
    <!-- site lifecycle, see https://maven.apache.org/ref/current/maven-core/lifecycles.html#site_L
    <plugin>
      <artifactId>maven-site-plugin</artifactId>
      <version>3.7.1</version>
    </plugin>
    <plugin>
      <artifactId>maven-project-info-reports-plugin</artifactId>
      <version>3.0.0</version>
    </plugin>
  </plugins>
</pluginManagement>
</build>
</project>
```

Maven Tools

Tool ausführen

```
mvn <TOOL>
```

Maven Lifecycle Phases

1. `validate`
2. `compile` Erzeugt target-Verzeichnis mit `.class`-Dateien
3. `test` Führt Unit-Tests aus
4. `package` Erzeugt `.jar`-Datei
5. `integration-test`
6. `verify`
7. `install`
8. `deploy`

Sonstige Tools

- `mvn clean` Löscht target-Verzeichnis
- `mvn site` Erzeugt Dokumentation

App starten

```
java -cp target/my-app-1.0-SNAPSHOT.jar de.gbsschulen.app.App
```