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Build Profiles

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WAY TO REINVENT YOURSELF

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1 Introduction to Build Profiles

Introduction to Build Profiles

- A Build profile is a kind of **mechanism for triggering** a set of **build configurations**
- Configurations determine **different build environments** like **production**, **stage**, **test**, or **development** environment

Introduction to Build Profiles

We have two profiles in here!

```
<?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">
    <parent>
        <groupId>com.clarusway.maven</groupId>
        <artifactId>profiles</artifactId>
        <version>1.0</version>
    </parent>
    <modelVersion>4.0.0</modelVersion>
    <artifactId>profile-1</artifactId>
    <profiles>
        <profile>...</profile>
        <profile>...</profile>
    </profiles>
    <build>
        <!-- you can map a variable with the  ${} syntax -->
        <resources>
            <resource>
                <directory>src/main/resources</directory>
                <filtering>true</filtering>
            </resource>
        </resources>
    </build>
</project>
```

Introduction to Build Profiles

- First profile is **activated by default unless** another profile in the same POM is activated
- Its **activation property** "**env**" has the value "**dev**"
- Other properties are listed under the **properties tag**

```
<profiles>
    <profile>
        <id>dev</id>
        <activation>
            <!-- this profile is active by default -->
            <activeByDefault>true</activeByDefault>
            <!-- activate if system properties 'env=dev' -->
            <property>
                <name>env</name>
                <value>dev</value>
            </property>
        </activation>
        <properties>
            <db.driverClassName>com.mysql.jdbc.Driver</db
                .driverClassName>
            <db.url>jdbc:mysql://localhost:3306/dev</db.url>
            <db.username>clarus</db.username>
            <db.password>123456789</db.password>
        </properties>
    </profile>
    <profile></profile>
</profiles>
```


Introduction to Build Profiles

- Second profile is **not activated by default**
- Its **activation property** "**env**" has the value "**prod**"
- Database url is changed to production db

```
<profiles>
    <profile></profile>
    <profile>
        <id>prod</id>
        <activation>
            <!-- activate if system properties 'env=prod' -->
            <property>
                <name>env</name>
                <value>prod</value>
            </property>
        </activation>
        <properties>
            <db.driverClassName>com.mysql.jdbc.Driver</db
                .driverClassName>
            <db.url>jdbc:mysql://database-1.cdbs4t6jyjpw.us-east-1.rds
                .amazonaws.com:3306/prod</db.url>
            <db.username>clarus</db.username>
            <db.password>123456789</db.password>
        </properties>
    </profile>
</profiles>
```

run to activate => **mvn ..... -Denv=prod**

Introduction to Build Profiles

- All profiles should have a way of activation
- Maven Build Profiles can be activated in **five different ways**
  - Using **explicit** profile **activation**
  - **Maven settings**
  - **System variables**
  - **Operating System** Settings
  - **Present/Missing files**

2 Explicit Profile Activation

Explicit Profile Activation

- Explicit activation uses "**-P**" option in a CLI command
- "**-P**" option requires a comma-delimited list of profile-ids
- **Example :**
  - **mvn groupId:artifactId:goal -P profile-1,profile-2**

Explicit Profile Activation

- In the example :
  - Profile id is "**test**"
  - **Example :** "**mvn package -P test**" will execute the profile
- Profile uses **maven-antrun-plugin**
- It copies the "**env.test.properties**" file to "**env.properties**" file
- So the app will use the test properties

```
<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>com.companyname.projectgroup</groupId>
   <artifactId>project</artifactId>
   <version>1.0</version>
   <profiles>
      <profile>
         <id>test</id>
         <build>
            <plugins>
               <plugin>
                  <groupId>org.apache.maven.plugins</groupId>
                  <artifactId>maven-antrun-plugin</artifactId>
                  <version>1.1</version>
                  <executions>
                     <execution>
                        <phase>test</phase>
                        <goals>
                           <goal>run</goal>
                        </goals>
                        <configuration>
                           <tasks>
                              <echo>Using env.test.properties</echo>
                              <copy file="src/main/resources/env.test
                                 .properties"
                                 tofile="${project.build.outputDirectory}
                                 /env.properties"/>
                           </tasks>
                        </configuration>
                     </execution>
                  </executions>
               </plugin>
            </plugins>
         </build>
      </profile>
```

3 Profile Activation via Maven Settings

Profile Activation via Maven Settings

- When you install Maven, a directory named "**.m2**" is created **under** your **Home Directory**
- "**settings.xml**" (user located in that directory
- If it's not there, you can create one
- To activate a profile **profile id** should be declared under **<activeProfile>** tag
- **No need to trigger** the profile

```
<settings 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/settings-1.0.0.xsd">
    <mirrors>
        <mirror>
            <id>maven.dev.snaponglobal.com</id>
            <name>Internal Artifactory Maven repository</name>
            <url>http://repo1.maven.org/maven2/</url>
            <mirrorOf>*</mirrorOf>
        </mirror>
    </mirrors>
    .
    .
    .
    <activeProfiles>
        <activeProfile>test</activeProfile>
    </activeProfiles>
</settings>
```


For more information about settings.xml go to here.

4 Profile Activation via System Variables

Profile Activation via System Variables

- Activation occurs when **system property** is specified with **-D** option

```
<profiles>
  <profile>
    <activation>
      <property>
        <name>debug</name>
      </property>
    </activation>
    .
    .
    .
  </profile>
</profiles>
```

mvn groupId:artifactId:goal -Ddebug

mvn groupId:artifactId:goal

```
<profiles>
  <profile>
    <activation>
      <property>
        <name>!debug</name>
      </property>
    </activation>
    .
    .
    .
  </profile>
</profiles>
```

Profile Activation via System Variables

- Activation occurs when **system property** is specified with **-D** option

```
<profiles>
  <profile>
    <activation>
      <property>
        <name>debug</name>
        <value>!true</value>
      </property>
    </activation>
    .
    .
    .
  </profile>
</profiles>
```

mvn groupId:artifactId:goal -Ddebug=false

mvn groupId:artifactId:goal -Denvironment=test

```
<profiles>
  <profile>
    <activation>
      <property>
        <name>environment</name>
        <value>test</value>
      </property>
    </activation>
    .
    .
    .
  </profile>
</profiles>
```


5 Profile Activation via Operating System

Profile Activation via Operating System

- It is defined under **<os>** tag
- In the example **Windows XP** will **trigger** the profile

```
<profile>
    <id>test</id>
    <activation>
        <os>
            <name>Windows XP</name>
            <family>Windows</family>
            <arch>x86</arch>
            <version>5.1.2600</version>
        </os>
    </activation>
</profile>
```


6 Profile Activation via Present/Missing File

Profile Activation via Present/Missing File

- In the example, profile is triggered when **the file** target/generated-sources/axistools/wsdl2java/org/apache/maven is **missing**

```
<profiles>
  <profile>
    <activation>
      <file>
        <missing>target/generated-sources/axistools/wsdl2java/org/apache
            /maven</missing>
      </file>
    </activation>
    ...
  </profile>
</profiles>
```


Repositories

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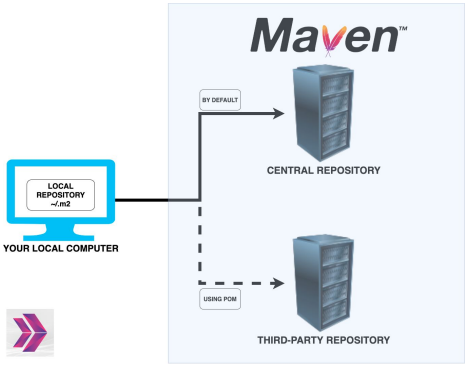
1 Introduction to Repositories

Introduction to Repositories

- Repository is a source where all library **jars**, **plugins**, **dependencies**, or any other project-specific **artifacts** are stored
- While your project runs, **these resources** are **used silently**
- There are **two types** of repositories
  - **Local** and **remote**
- Local repository is **your own computer**

Introduction to Repositories

- **Remote** repository can be **separated into two**
  - **Central** repository and **Third-Party** repository
- **By default central** repository **is used** as the remote repository
- You can also configure to use a third-party repository



2 Local Repository

Local Repository

- As mentioned, local repository is **in your local computer**
- **Maven creates** this directory
- It **continuously develops** it whenever you use a resource from a remote repository

Local Repository

- After adding a resource into your POM file, **Maven automatically downloads** all the dependency jars into your local repository
- It **doesn't reach out** to remote repository **if the resource exists** in local
- By default, local repository is under your Home Directory

Local Repository

Tip: In general, you should not need to do anything with the local repository on a regular basis, except clean it out (~/.m2 directory) if you are short on disk space (or erase it completely if you are willing to download everything again).

3 Central Repository

Central Repository

- Maven central repository is the **default remote repository**
- When Maven **cannot find a dependency** in the local repository, it tries to find it in the central repository
- Central repo is **located in** this url **https://repo.maven.apache.org/maven2/**
- **No configuration** is needed to use the central repo

4 Third-Party Repository

Third-Party Repository

- Central repository is not the only choice
- **Any organization** or **any individual** can host a remote repository
- **You need to configure** it in the POM file

Third-Party Repository

- In the example, third-party repositories are specified under **<repositories>** and **<repository>** fields

```xml
<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>com.companyname.projectgroup</groupId>
    <artifactId>project</artifactId>
    <version>1.0</version>
    <dependencies>
       <dependency>
          <groupId>com.companyname.common-lib</groupId>
          <artifactId>common-lib</artifactId>
          <version>1.0.0</version>
       </dependency>
    </dependencies>
    <repositories>
       <repository>
          <id>companyname.lib1</id>
          <url>http://download.companyname.org/maven2/lib1</url>
       </repository>
       <repository>
          <id>companyname.lib2</id>
          <url>http://download.companyname.org/maven2/lib2</url>
       </repository>
    </repositories>
</project>
```


Plugins

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1 What is a Plugin?

What is a Plugin?

- Plugin is the **heart of Maven** framework
- A **unit work** in Maven or a **single output** is produced by a specific Maven Plugin
- **Some** of the plugins are **bound to** some of the **phases** of Maven Build Lifecycles
- But **some** are **independent**

What is a Plugin?

- Plugins do the works like **creating jar** files, **war** files, **compiling code**, **compiling unit test** code, creating **project documentation** or **JavaDoc** (Java Documentation), and so on
- One of the **simplest plugins** in Maven is the **clean plugin**

What is a Plugin?

- Maven Clean Plugin is responsible for **removing the target directory** of a Maven project
- When you run **mvn clean**, Maven executes the **clean goal** as defined **in** the **clean plug-in**
- Goals in Maven can be executed via the command-line interface within the format specified below :
  - **mvn [plugin-name]:[goal-name]**

What is a Plugin?

- If you want to run **both the clean phase** and compiler plugin's **compile goal**, you should run the command
  - **mvn clean compiler:compile**
- All plugins should have the **minimum requirement** of having the **groupId**, **artifactId**, and **version** elements

2 Types of Plugins

Types of Plugins

- There are **two types** of plugins :
  - **Build** Plugins and **Reporting** Plugins
- Build plugins are configured under **<build>** tag
- They **run** during the **build time**

Types of Plugins

- Reporting Plugins are configured under **<reporting>** tag
- They run while you are **generating the site** for the project
- Maven plugins are configured by specifying a **<configuration>** element

THANKS!

Any questions?