

Build Mang Tool /Build testing tool/Project Mang tool

Ant	[build.xml]
Maven	[POM.xml]
Graddle	[build.xml]

Note:

All tools build mang tool only for Java

Maven

1. Why Maven used in Development?

In case of development, maven will be used for & build testing& build creation & deployment processes

Build testing: testing compilation issue in entire project & provide message called build successful if no compilation issue, or else build failure (broken)

EG : Cmd : mvn compile

Build creation process: processes of converting source Code format in to executable format like .jar , .war , .tar , .exe , .msi

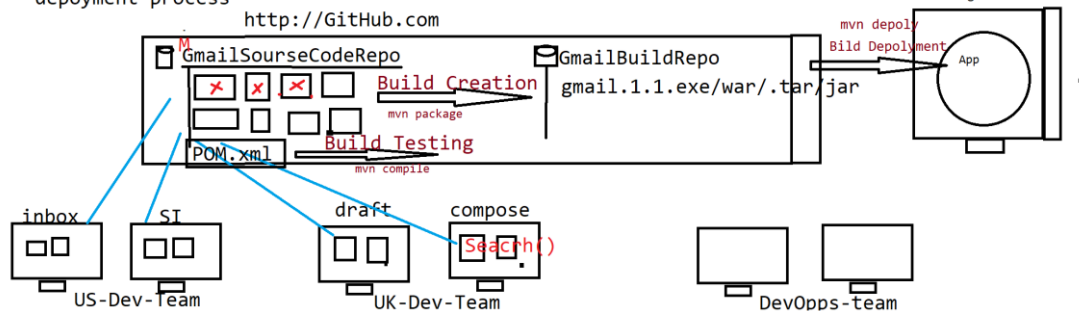
EG : Cmd : mvn package

Build Deployment: processes of installing the build in to testing Server/ any other Environment

EG : mvn deploy , mvn install

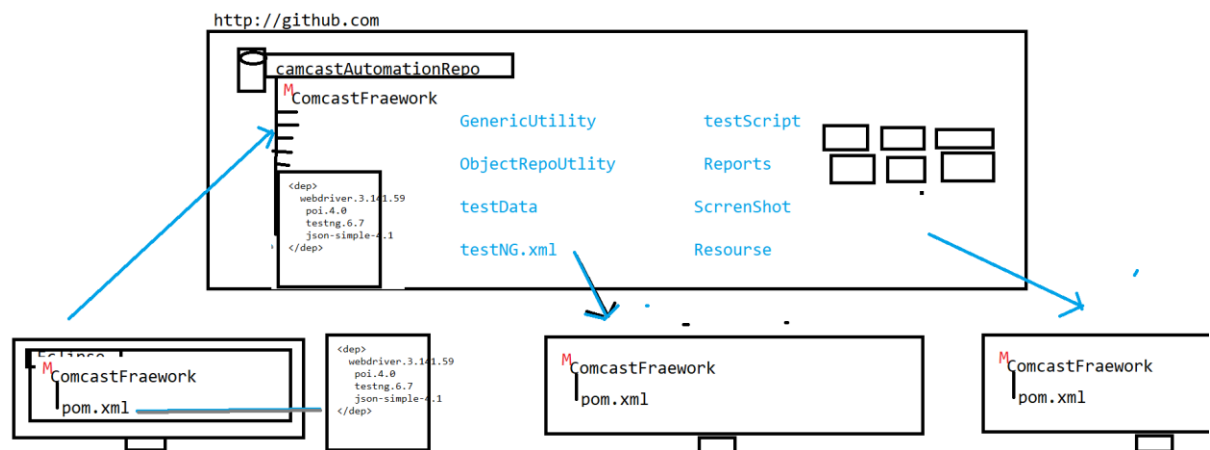
1. Why Maven is required in development ?

In dev maven is required for Build creation / build testing / build deployment process



2. Why maven is required in Selenium Automation testing?

When multiple engineer working with the same framework , their might be chances one engineer modification might affect entire framework , in order to avoid this kind issue we go for Maven



3. Advantages of Maven

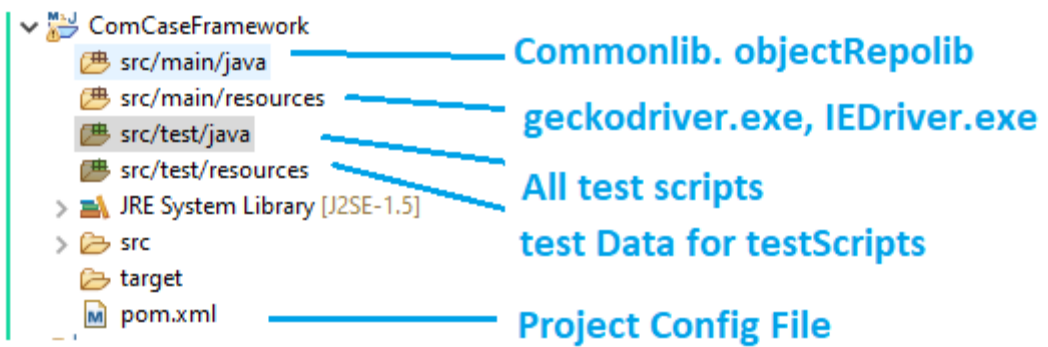
- Check the integration & compilation issue between the framework component whenever modification, addition deletion happened in the same framework
- handle dependencies jars
- create framework configuration quick setup for new engineers (because all the required dependencies jar. & jar Versions declared in POM.xml, you just to get the framework from the GIT & save the POM file
- provide framework folder structure
- we can run the test script in command Line without Eclipse
- Which is used to check framework build is broken or not ?
- Maven majorly support in Jenkins for CD/CI[Jenkins]
- Maven also support Profiling (we can have multiple testing.xml file in one Project, so that we go for Profile to execute specific xml file via CMD)
- Maven also support Command Line parameters

4. What all the Maven Software required to handle maven Project in real time?

⇒ Two software available in Maven

1. Maven Ellipse Plugin

➔ Maven Ellipse Plugin : it's a default plugin available in Eclipse Ide , used to create maven project in Eclipse



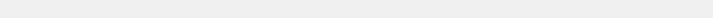
2. Maven Command Line Plugin

➔Maven Command Line Plugin : it's should be installed explicitly in all local computers , used to handle the Maven project in CMD line

Intsllation şteps

1. go to google
2. search download maven
3. click on first link
4. click on "apache-maven-3.6.3-bin.zip" beside "Binary zip archi"
5. download -ZIP & extract
6. get inside the folder & copy the "bin" path location
7. Go to Local system Env varibale window & set below path

Environment Variables



The screenshot shows the 'User variables for Deepak' window. It contains a table with two columns: 'Variable' and 'Value'.

Variable	Value
JAVA_HOME	C:\Program Files\Java\jdk1.8.0_161
M2_HOME	D:\apache-maven-3.5.2-bin\apache-maven-3.5.2

Environment Variables

The screenshot shows the 'User variables for Deepak' window with the following variables:

Variable	Value
JAVA_HOME	C:\Program Files\Java\jdk1.8.0_161
M2_HOME	D:\apache-maven-3.5.2-bin\apache-maven-3.5.2
OneDrive	C:\Users\Deepak\OneDrive
Path	C:\Users\Deepak\AppData\Local\Programs\Python\Python38-32\Scripts\...
PyCharm	C:\Program Files\JetBrains\PyCharm 2020.2.1\bin;
PyCharm Community Edition	C:\Program Files\JetBrains\PyCharm Community Edition 2020.2.1\bin...
TEMP	C:\Users\Deepak\AppData\Local\Temp

The 'Path' variable is selected, and its value is being edited in a separate window titled 'Edit environment variable'. The current value of the Path variable is:

```
C:\Program Files (x86)\Common Files\Oracle\Java\javapath
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\Java\jdk1.8.0_161\bin
D:\apache-maven-3.5.2-bin\apache-maven-3.5.2\bin
C:\Users\Deepak\AppData\Local\Android\Sdk\platform-tools
C:\Users\Deepak\AppData\Local\Android\Sdk\tools
```

8. go to cammond line , & execute below command to check maven installation

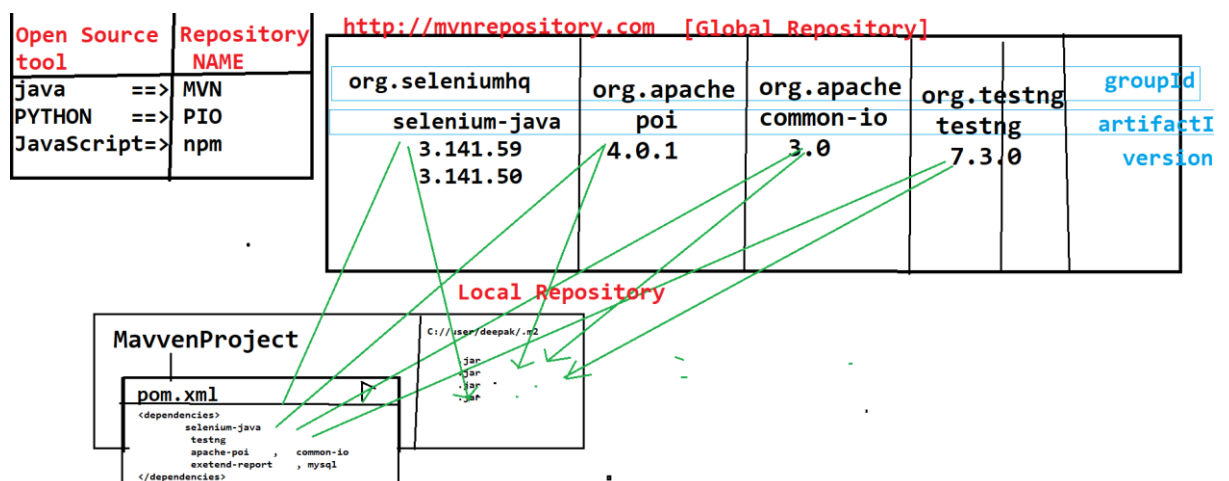
```
C:\Users\Deepak>mvn -version
Apache Maven 3.5.2 (13bedd61fd100ec658bfa2d307c43b76940a5d7d; 2017-10-18T13:28:13+05:30)
Maven home: D:\apache-maven-3.5.2-bin\apache-maven-3.5.2\bin\..
Java version: 1.8.0_161, vendor: Oracle Corporation
Java home: C:\Program Files\Java\jdk1.8.0_161\jre
Default locale: en_IN, platform encoding: Cp1252
OS name: "windows 10", version: "10.0", arch: "amd64", family: "windows"
```

5. what dependency in Maven ?

Dependency is advance feature in maven which is used to get all the required jars from the Global repository(<http://mvnrepository.com>) in to Local repository(<C://user/.m2>) & attach all jars to the project automatically.

6. How to handle Dependencies?

1. Create maven project
2. Go to POM.xml
3. Inside the Pom.xml , insert <dependencies> tag
4. Go to global repository [<http://mvnrepository.com>]
5. Search for required tool like “selenium-java” & “testng” & “apache-poi” , “apache-poi-ooxml” & “mysql-connector” , “common-io” , “extend-report”
6. copy the dependency code for all above tools
7. paste the dependency code inside POM.xml
8. save the file



EG :

```

<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 https://maven.apache.org/xsd/maven-
4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>SDET_20_SeleniumFramework</groupId>
  <artifactId>SDET_20_SeleniumFramework</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <dependencies>
    <!-- https://mvnrepository.com/artifact/org.seleniumhq.selenium/selenium-java -->
    <dependency>
      <groupId>org.seleniumhq.selenium</groupId>
      <artifactId>selenium-java</artifactId>
      <version>3.141.59</version>
    </dependency>
    <!-- https://mvnrepository.com/artifact/org.apache.poi/poi -->
    <dependency>
      <groupId>org.apache.poi</groupId>
      <artifactId>poi</artifactId>
      <version>4.0.0</version>
    </dependency>
    <dependency>
      <groupId>org.apache.poi</groupId>
  
```

```

        <artifactId>poi-ooxml</artifactId>
        <version>4.0.0</version>
    </dependency>

    <!-- https://mvnrepository.com/artifact/commons-io/commons-io -->
<dependency>
    <groupId>commons-io</groupId>
    <artifactId>commons-io</artifactId>
    <version>2.11.0</version>
</dependency>
<!-- https://mvnrepository.com/artifact/org.testng/testng -->
<dependency>
    <groupId>org.testng</groupId>
    <artifactId>testng</artifactId>
    <version>7.4.0</version>
    <scope>test</scope>
</dependency>

</dependencies>

</project>

```

What is group ID & ArtifactID

Group ID : name of the org or name of the Opensource community

ArtifactID : name of the project inside the Group

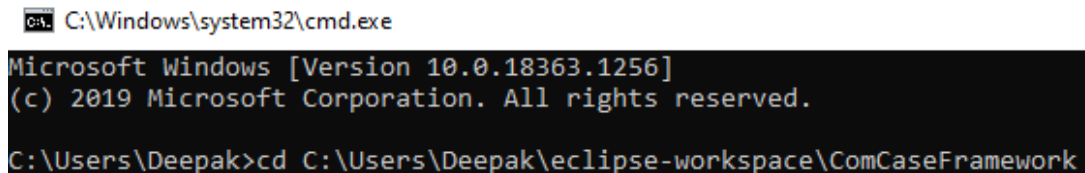
Version : version of the project which you need to download

7. How to execute testscripts in CMD

a. Go to MavenProject → RightClick → properties → copy the Project location

EG : C:\Users\Deepak\eclipse-workspace\ComCaseFramework

b. Open CMD & paste the location



```

C:\Windows\system32\cmd.exe

Microsoft Windows [Version 10.0.18363.1256]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Deepak>cd C:\Users\Deepak\eclipse-workspace\ComCaseFramework

```

c. Execute Maven life cycle commands

8. Explain maven Build Life Cycle

Maven Build Life cycle:

mvn clean : clean the older reports

mvn validate : validate the entire framework & download if any jar is missing to execute the framework

mvn compile : check the compilation issue in entire Framework,

mvn test : execute all the test scripts

mvn package

mvn install

mvn deploy

9. How to execute TESTNG.xml file via POM.xml ?

In order to execute TESTNG.xml file via pom.xml , we have to insert sure-fire plugin inside the POM.xml , via sure-fire plugin we can invoke TESTNG.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 https://maven.apache.org/xsd/maven-
4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>SDET_20_SeleniumFramework</groupId>
  <artifactId>SDET_20_SeleniumFramework</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <dependencies>
    <!-- https://mvnrepository.com/artifact/org.seleniumhq.selenium/selenium-java -->
    <dependency>
      <groupId>org.seleniumhq.selenium</groupId>
      <artifactId>selenium-java</artifactId>
      <version>3.141.59</version>
    </dependency>
    <!-- https://mvnrepository.com/artifact/org.apache.poi/poi -->
    <dependency>
      <groupId>org.apache.poi</groupId>
      <artifactId>poi</artifactId>
      <version>4.0.0</version>
    </dependency>
    <dependency>
      <groupId>org.apache.poi</groupId>
      <artifactId>poi-ooxml</artifactId>
      <version>4.0.0</version>
    </dependency>
    <!-- https://mvnrepository.com/artifact/org.testng/testng -->
    <dependency>
      <groupId>org.testng</groupId>
      <artifactId>testng</artifactId>
      <version>7.4.0</version>
    </dependency>

    <!-- https://mvnrepository.com/artifact/commons-io/commons-io -->
    <dependency>
      <groupId>commons-io</groupId>
      <artifactId>commons-io</artifactId>
      <version>2.11.0</version>
    </dependency>
  </dependencies>

  <build>
    <plugins>
      <!-- Below plug-in is used to execute tests -->
      <plugin>
        <groupId>org.apache.maven.plugins</groupId>
        <artifactId>maven-surefire-plugin</artifactId>
        <version>2.18.1</version>
        <configuration>
          <suiteXmlFiles>
            <!-- TestNG suite XML files -->
            <suiteXmlFile>regionalRegression.xml</suiteXmlFile>
          </suiteXmlFiles>
        </configuration>
      </plugin>
    </plugins>
  </build>
</project>
```

10. How to execute only one test using maven Cmd

```
C:\Users\Deepak\eclipse-workspace\ComCaseFramework>mvn -Dtest=ConatctTest test
```

11. What is Maven Parameter & Why its Required?

Maven Parameter help us to Pass the Parameter from the command line without eclipse ,

So that all the test scripts can be executed based on run time parameter ,which can is also used by Jenkins

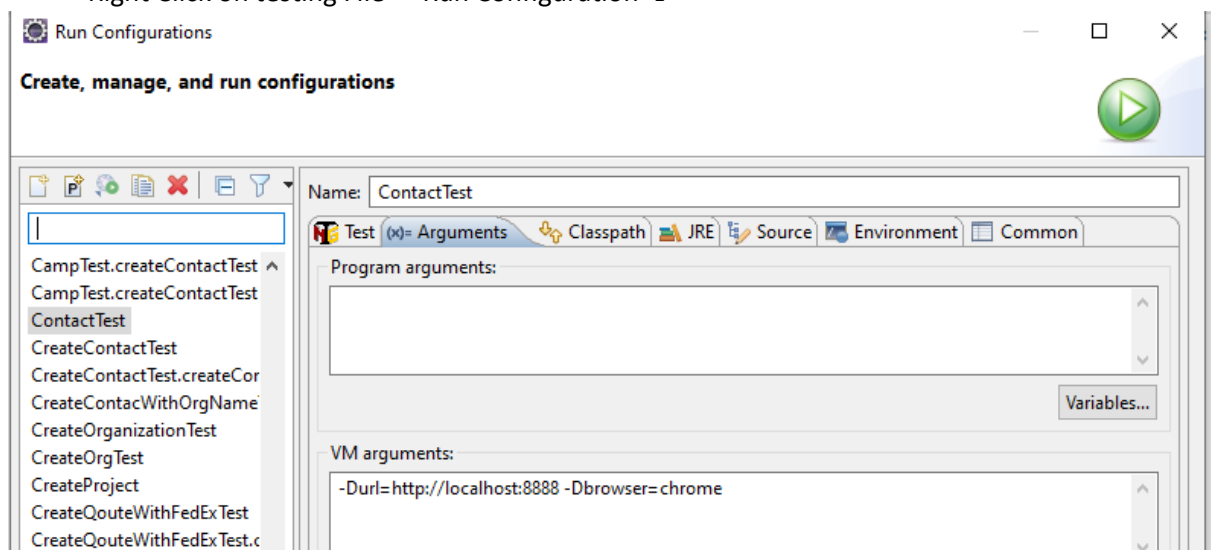
-Dkey = value

Useage in java/Selenium Code

String var = system.getProperty("Key")

Eclipse Usage

Right Click on testing File -> Run Configuration →



12. What is Maven Profiling & why it's Required?

Profiling help us to execute specific testing.xml via Pom File , when we have multiple testing.xml available in same Project

```
C:\Users\Deepak\eclipse-workspace\ComCaseFramework>mvn test -P regressionTest
```

```
<profiles>
  <profile>
    <id>smokeTest</id>
    <build>
      <plugins>
        <plugin>
          <groupId>org.apache.maven.plugins</groupId>
          <artifactId>maven-surefire-plugin</artifactId>
          <version>2.21.0</version>
          <configuration>
            <suiteXmlFiles>
              <suiteXmlFile>smokeTest.xml</suiteXmlFile>
            </suiteXmlFiles>
          </configuration>
        </plugin>
      </plugins>
    </build>
  </profile>
  <profile>
    <id>regressionTest</id>
    <build>
      <plugins>
        <plugin>
          <groupId>org.apache.maven.plugins</groupId>
          <artifactId>maven-surefire-plugin</artifactId>
          <version>2.21.0</version>
          <configuration>
            <suiteXmlFiles>
              <suiteXmlFile>regressionTest.xml</suiteXmlFile>
            </suiteXmlFiles>
          </configuration>
        </plugin>
      </plugins>
    </build>
  </profile>
</profiles>
```

Can we create our own global/repository instead of Mvnrepository.com?

Yes , inorder to create our own remote repository we should place setting.xml file inside the .m2 folder in local system & our team should maintain the remote repository

For Reference :

<https://maven.apache.org/settings.html#Introduction>