

Build Testing tool / Build Process tool / Build MANagemnet tool / Build dependency tool /Build Deployment tool

Maven	[pom.xml]	[most populer tool because of dependency feature]
Gradle	[Build.xml]	
Ant	[Build.xml]	

Maven

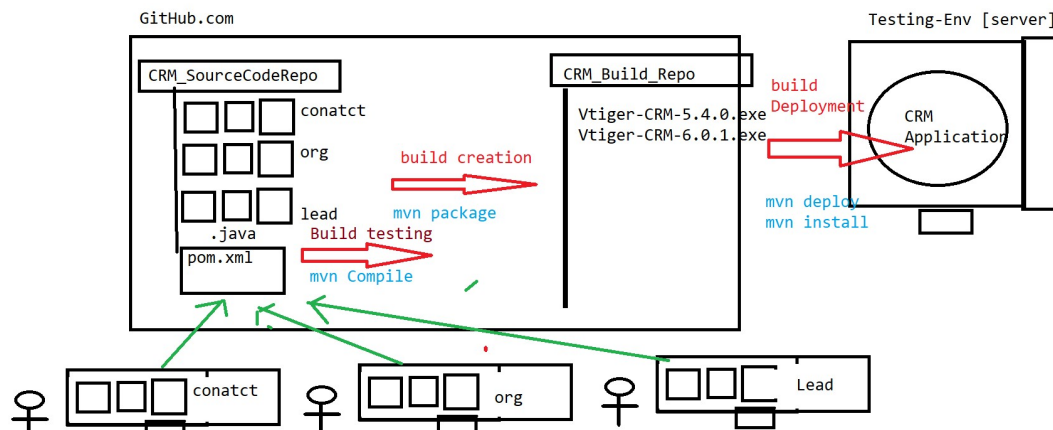
1. Why Maven used in Development?

In case of development, maven will be used for Build PROCESSES [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)

Build creation process: processes of converting source Code format in to executable format

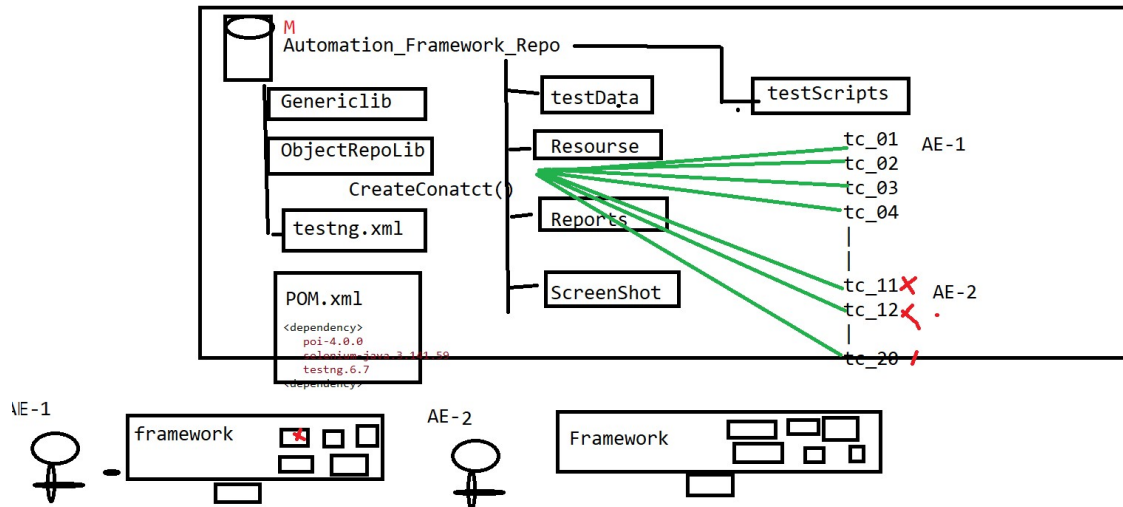
Build Deployment: processes of installing the build in to testing Server/ any other Environment



2. Why maven if required Selenium Automation?

➔In automation maven used for framework build testing & test scripts execution

➔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

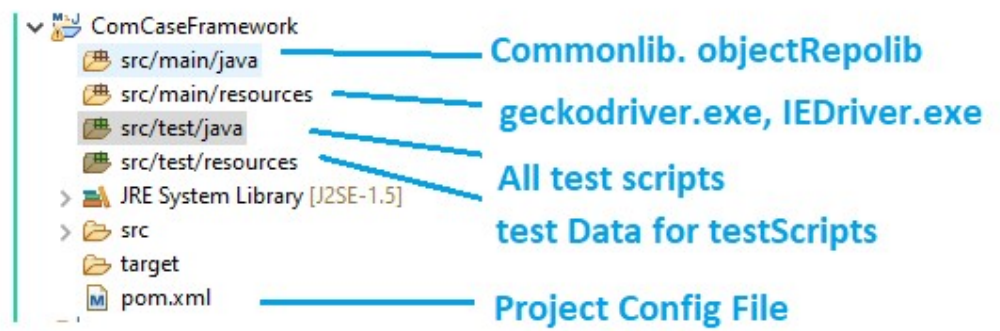
- Check the integration & compilation issue between the framework component whenever multiple engineer working with same framework, their might be possibilities oneengineer modification, addition &deletion Might affect the entire build.
 - handle dependencies jars.
 - create framework configuration quick setup for new engineers (because all the required dependencies jar. Versions declared in POM.xml, you just to get the framework from the GIT &savethe 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)
- i. 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 Eclipse 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

Installation steps

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 variable window & set below path

Environment Variables

User variables for Deepak	
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

User variables for Deepak	
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\S...
PyCharm	C:\Program Files\JetBrains\PyCharm 2020.2.1\bin;
PyCharm Community Edition	C:\Program Files\JetBrains\PyCharm Community Edition 2020.2.1\b...
TEMP	C:\Users\Deepak\AppData\Local\Temp

System variables	
Variable	Value
ANDROID_HOME	C:\Users\Deepak\AppData\Local\Android\Sdk
ComSpec	C:\Windows\system32\cmd.exe
DriverData	C:\Windows\System32\DriverData
NUMBER_OF_PROCESSORS	8
OS	Windows_NT
Path	C:\Program Files (x86)\Common Files\Oracle\Java\javapath
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.HTA;.HTM;.W

Edit environment variable

- 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 command line , & execute below command to check maven installation

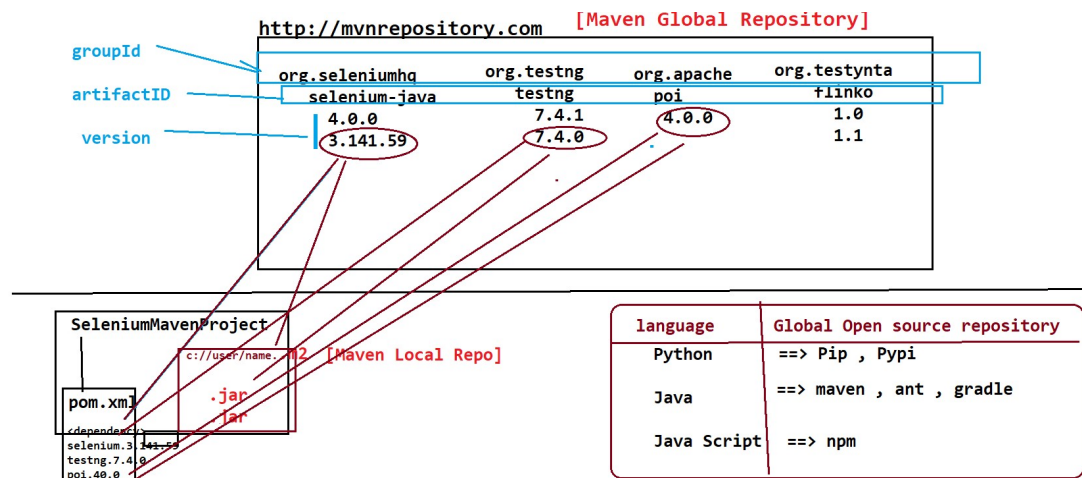
```
C:\Users\Deepak>mvn -version
Apache Maven 3.5.2 (138edd61fd100ec658bfa2d307c43b76940a5d7d; 2017-10-18T13:28:13+05:30)
Maven home: D:\apache-maven-3.5.2-bin\apache-maven-3.5.2\bin\..
Java version: 1.8.0_161, vendor: Oracle Corporation
Java home: C:\Program Files\Java\jdk1.8.0_161\jre
Default locale: 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>) to Local repository(C://user/name/.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 [Pom.xml file automatically connect to Global Repo via internet & download All the jars in to .m2[mavne-Local Repo] folder then attach all the jars to Project



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 http://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>
  </dependencies>
</project>
```

```

        </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

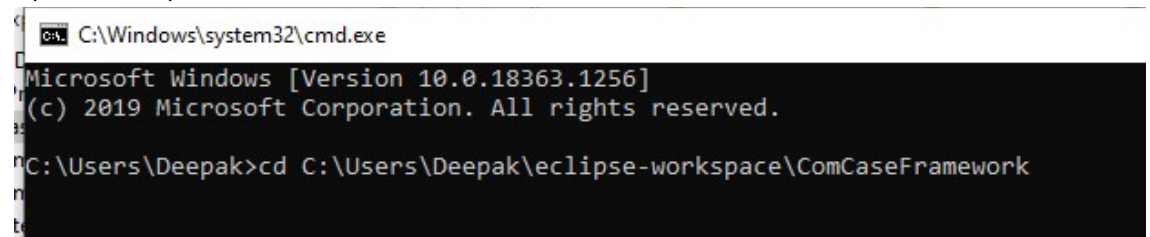
Version : version of the project which you need to download

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 / Explain maven commands

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 http://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>
```

```
        </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 is also used Jenkins

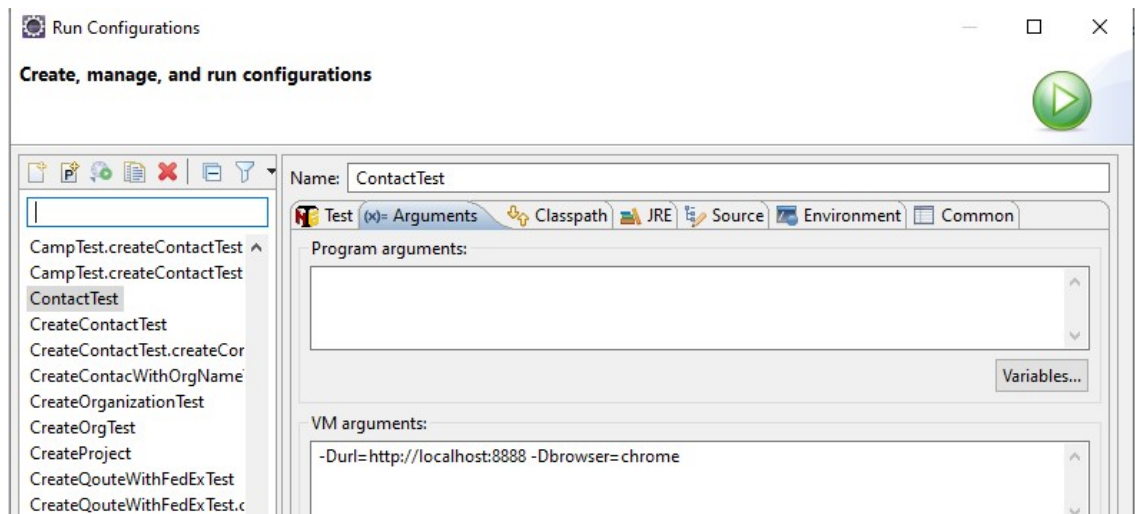
-Dkey = value

Usage in java or Selenium Code

String value = 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 PomFile ,
- ➔ When ever framework contains multiple suite file or testing.xml file , in order to execute specific suite file via CMD line we go for Profiling

```
C:\Users\Deepak\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>

```

What is Maven Global Repository?

It is open source community where all java related are registered