

## Aula 15 - Projetos Maven com JafaFX

### Docupedia Export

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# 1 Maven

Maven é uma ferramenta no java para automatizar o processo de baixar bibliotecas, adicionar referências, compilar e executar projetos java. Assim a ideia é evitar de usar os comandos javac e java. O Maven pode ser um pouco traumatizante no começo e talvez para sempre por causa de algumas dificuldades na sua utilização.

## 2 Configurando o Maven (Dentro da Bosch)

Para iniciar vamos baixar o Maven: <https://maven.apache.org/download.cgi>; Para evitar problemas com uso do administrador vamos por a pasta de dentro do zip (baixando os binários em .zip) no desktop e chamá-lo de lá. Em uma instalação padrão iríamos adicionar a variáveis de ambiente e executar o comando mvn para fazer as ações necessárias.

O Maven funciona baseado em uma arquivo de configuração chamado pom.xml. Ele é um arquivo xml, ou seja, lhe lembrará bastante um arquivo html. Dele definiremos propriedades do pacote, dependências (bibliotecas), plugins e processos de compilação. Ao usar o comando **mvn compile** iremos imediatamente compilar o código e podemos instalá-lo como executável usando o **mvn install**.

Vamos aprender a configurar o pom.xml bem como configurar o proxy e executar aplicações.

### 3 Criando um projeto Maven

Vamos criar um projeto usando o seguinte comando. Você pode ver uma versão atualizada dele em: <https://openjfx.io/openjfx-docs/#maven>.

#### pom.xml

```
1 mvn archetype:generate "-DarchetypeGroupId=org.openjfx" "-DarchetypeArtifactId=javafx-archetype-simple" "-DarchetypeVersion=0.0.3" "-DgroupId=org.openjfx" "-DartifactId=sample" "-Dversion=1.0.0" "-Djavafx-version=22.0.1"
```

Ele criará um pom.xml que é o arquivo de configuração do maven como o abaixo. Importante notar que muitas vezes as versões dos plugins e do java precisam ser atualizados manualmente:

#### pom.xml

```
1 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
2   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
3   <modelVersion>4.0.0</modelVersion>
4   <groupId>org.openjfx</groupId>
5   <artifactId>sample</artifactId>
6   <version>1.0.0</version>
7   <properties>
8     <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
9     <maven.compiler.source>22</maven.compiler.source>
10    <maven.compiler.target>22</maven.compiler.target>
11  </properties>
12  <dependencies>
13    <dependency>
14      <groupId>org.openjfx</groupId>
15      <artifactId>javafx-controls</artifactId>
16      <version>22.0.1</version>
17    </dependency>
18  </dependencies>
19  <build>
20    <plugins>
21      <plugin>
22        <groupId>org.apache.maven.plugins</groupId>
23        <artifactId>maven-compiler-plugin</artifactId>
24        <version>3.10.1</version>
```

```

25         <configuration>
26             <source>${maven.compiler.source}</source>
27             <target>${maven.compiler.target}</target>
28         </configuration>
29     </plugin>
30     <plugin>
31         <groupId>org.openjfx</groupId>
32         <artifactId>javafx-maven-plugin</artifactId>
33         <version>0.0.3</version>
34         <configuration>
35             <mainClass>org.openjfx.App</mainClass>
36         </configuration>
37     </plugin>
38 </plugins>
39 </build>
40 </project>

```

Então vamos compilar o código usando **mvn compile**, se você não tem instalado você pode usar um comando como o a seguir:

```
1 ..\apache-maven-3.9.6\bin\mvn.cmd compile
```

E assim você pode obter um erro como o seguinte:

```

Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-resources-plugin/3.3.1/maven-resources-plugin-3.3.1.pom
[INFO] -----
[INFO] BUILD FAILURE
[INFO] -----
[INFO] Total time: 0.518 s
[INFO] Finished at: 2024-05-14T17:02:47-03:00
[INFO] -----
[ERROR] Plugin org.apache.maven.plugins:maven-resources-plugin:3.3.1 or one of its dependencies could not be resolved: Failed to read artifact descriptor for org.apache.maven.plugins:maven-resources-plugin:jar:3.3.1: The following artifacts could not be resolved: org.apache.maven.plugins:maven-resources-plugin:pom:3.3.1 (absent): Could not transfer artifact org.apache.maven.plugins:maven-resources-plugin:pom:3.3.1 from/to central (https://repo.maven.apache.org/maven2): disrct:etstech31415@rb-proxy-ca1.bosch.com: invalid IPv6 address literal: Unknown host disrct:etstech31415@rb-proxy-ca1.bosch.com: invalid IPv6 address literal -> [Help 1]
[ERROR]
[ERROR] To see the full stack trace of the errors, re-run Maven with the -e switch.
[ERROR] Re-run Maven using the -X switch to enable full debug logging.
[ERROR]
[ERROR] For more information about the errors and possible solutions, please read the following articles:
[ERROR] [Help 1] http://cwiki.apache.org/confluence/display/MAVEN/PluginResolutionException
PS C:\Users\sii5ct\Desktop\junit>

```

## 4 Configurando o Proxy para o Maven

Primeiramente, vamos configurar o proxy na settings.xml que fica em uma pasta dentro do seu usuário (um agradecimento ao Boschiano vietnamita Le Quoc Binh):

C:\Users\\\.m2\settings.xml

```
1  <settings>
2    <proxies>
3      <proxy>
4        <active>true</active>
5        <protocol>http</protocol>
6        <host>rb-proxy-ca1.bosch.com</host>
7        <username>disrct</username>
8        <password>senha_do_disrct</password>
9        <port>8080</port>
10       <nonProxyHosts>localhost</nonProxyHosts>
11     </proxy>
12   </proxies>
13 </settings>
```

Agora reexecutando o comando:

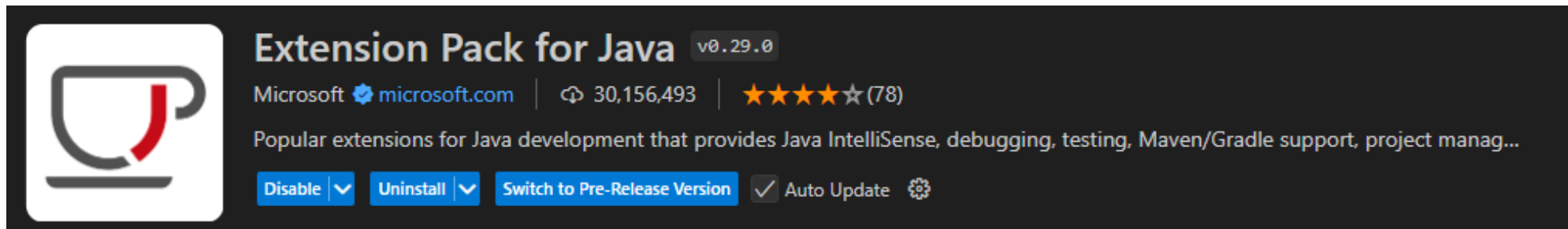


```

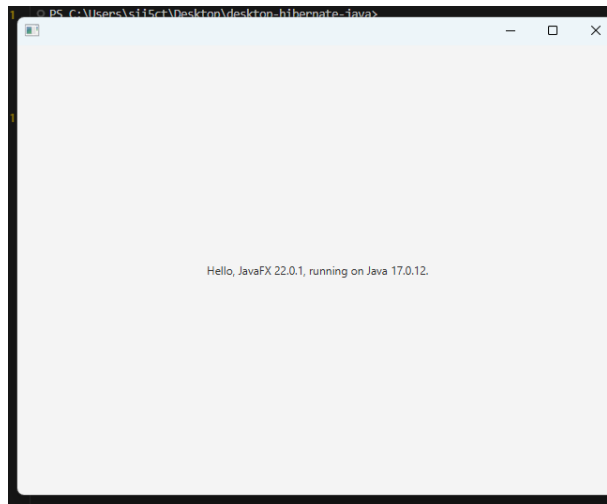
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-component-annotations/1.11.1/plexus-component-annotations-1.11.1.pom (1.0 kB at 20 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-containers/2.1.1/plexus-containers-2.1.1.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-containers/2.1.1/plexus-containers-2.1.1.pom (6.0 kB at 216 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus/6.5/plexus-6.5.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus/6.5/plexus-6.5.pom (26 kB at 989 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-javac/2.13.0/plexus-compiler-javac-2.13.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-javac/2.13.0/plexus-compiler-javac-2.13.0.pom (1.2 kB at 39 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compilers/2.13.0/plexus-compilers-2.13.0.pom
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compilers/2.13.0/plexus-compilers-2.13.0.pom (1.3 kB at 44 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.3.4/maven-shared-utils-3.3.4.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.3.4/maven-shared-utils-3.3.4.jar (153 kB at 4.0 MB/s)
Downloading from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.jar
Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-incremental/1.1/maven-shared-incremental-1.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-incremental/1.1/maven-shared-incremental-1.1.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-java/1.1.2/plexus-java-1.1.2.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-java/1.1.2/plexus-java-1.1.2.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.4/asm-9.4.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.4/asm-9.4.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-component-annotations/1.5.5/plexus-component-annotations-1.5.5.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-component-annotations/1.5.5/plexus-component-annotations-1.5.5.jar (4.2 kB at 117 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/thoughtworks/qdox/qdox/2.0.3/qdox-2.0.3.jar
Downloaded from central: https://repo.maven.apache.org/maven2/com/thoughtworks/qdox/qdox/2.0.3/qdox-2.0.3.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.4/asm-9.4.jar (122 kB at 2.8 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.4/asm-9.4.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-api/2.13.0/plexus-compiler-api-2.13.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-api/2.13.0/plexus-compiler-api-2.13.0.jar (55 kB at 1.1 MB/s)
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.5.0/plexus-utils-3.5.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.5.0/plexus-utils-3.5.0.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-incremental/1.1/maven-shared-incremental-1.1.jar (14 kB at 265 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-incremental/1.1/maven-shared-incremental-1.1.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-manager/2.13.0/plexus-compiler-manager-2.13.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-manager/2.13.0/plexus-compiler-manager-2.13.0.jar (4.7 kB at 56 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.jar (215 kB at 3.6 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/commons-io/commons-io/2.6/commons-io-2.6.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-javac/2.13.0/plexus-compiler-javac-2.13.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-javac/2.13.0/plexus-compiler-javac-2.13.0.jar (4.7 kB at 56 kB/s)
Downloading from central: https://repo.maven.apache.org/maven2/com/thoughtworks/qdox/qdox/2.0.3/qdox-2.0.3.jar (334 kB at 4.0 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/thoughtworks/qdox/qdox/2.0.3/qdox-2.0.3.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-api/2.13.0/plexus-compiler-api-2.13.0.jar (27 kB at 291 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-api/2.13.0/plexus-compiler-api-2.13.0.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-javac/2.13.0/plexus-compiler-javac-2.13.0.jar (23 kB at 211 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-compiler-javac/2.13.0/plexus-compiler-javac-2.13.0.jar
Downloading from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.5.0/plexus-utils-3.5.0.jar (267 kB at 2.5 MB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/codehaus/plexus/plexus-utils/3.5.0/plexus-utils-3.5.0.jar
[INFO] Changes detected - recompiling the module! :source
[WARNING] File encoding has not been set, using platform encoding Cp1252, i.e. build is platform dependent!
[INFO] Compiling 1 source file with javac [debug target 1.8] to target\classes
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 4.677 s
[INFO] Finished at: 2024-05-15T09:28:15-03:00
[INFO] -----

```

Usando a seguinte extensão poderemos executar usando F5:



Obtendo o resultado:



Em todo esse processo ele também gerará uma pasta **target** que, em geral, você gostaria de adicionar no seu **.gitignore**.

Nota: As vezes obtemos alguns erros ao tentar rodar o mvn usando um 'mvn compile' por exemplo. É recomendado procurar workaround ou usar a versão 3.9.6 de maven.

## 5 Configurando o JavaFX

Baixe e instale o seguinte software: <https://gluonhq.com/products/javafx/>

Para que o JafaFX funcione ao pressionar F5 você deve precisar configurar a sua .vscode criando um launch.json (Note que o caminho da minha javafx-sdk-22 pode ser diferente da sua:

```
{
  "version": "0.2.0",
  "configurations": [
    {
      "type": "java",
      "name": "JavaFX Application",
      "request": "launch",
      "mainClass": "com.desktopapp.App",
      "vmArgs": "--module-path \"C:\\\\Users\\\\sii5ct\\\\javafx-sdk-22\\\\lib\" --add-modules javafx.controls,javafx.fxml",
      "projectName": "sample"
    }
  ]
}
```