OpenTenure Android development setup

The following steps allow for setting up an environment for the development of the Android mobile application for OpenTenure.

Two development profiles will be considered:

1. Minimal: only dealing with building and deploying the application from the command line for release or testing purpose.
2. Full: dealing with development and maintenance using the IDE

Both will be created on a computer running Windows (7/8/8.1). The target audience is supposed to be familiar with:

* creating , deleting and modifying files and directories
* accessing the command prompt and executing commands
* extracting compressed files
* installing programs

on such platform.

Minimal profile:

1) Download and install Java Java SE 7uXX JDK (the latest available update in the series) from <http://www.oracle.com/technetwork/java/javase/downloads/index.html>. Check that the JAVA\_HOME environment variable exists and points to the installation directory of the JDK. Check that %JAVA\_HOME%\bin is included in the Path environment variable value.

2) Download and install the latest available Android SDK version from <http://developer.android.com/sdk/index.html>. Create the ANDROID\_HOME environment variable pointing to the installation directory of the Android SDK and add %ANDROID\_HOME%\tools and %ANDROID\_HOME%\platform-tools to the Path environment variable.

3) Download version 4.4.2 (API 19) of the android platform as described in <http://developer.android.com/sdk/installing/adding-packages.html>.

4) Install maven 3.2.x (latest) from maven.apache.org according to <http://maven.apache.org/download.html#Installation> (define the MAVEN\_HOME add %MAVEN\_HOME%\bin to Path)

Create an android project to initialize maven using

On Linux :

mvn archetype:generate \

-DarchetypeArtifactId=android-quickstart \

-DarchetypeGroupId=de.akquinet.android.archetypes \

-DarchetypeVersion=1.0.11 \

-DgroupId=org.fao \

-DartifactId=maven-initialize \

-Dplatform=19 \

-Dversion=1.0.0

On Windows :

mvn archetype:generate ^

-DarchetypeArtifactId=android-quickstart ^

-DarchetypeGroupId=de.akquinet.android.archetypes ^

-DarchetypeVersion=1.0.11 ^

-DgroupId=org.fao ^

-DartifactId= maven-initialize ^

-Dplatform=19 ^

-Dversion=1.0.0

Install android artifacts to your local maven repository using the following commands

On Linux

mvn install:install-file \

-Dfile=”<android home>/extras/android/support/v4/android-support-v4.jar” \

-DgroupId=com.google.android \

-DartifactId=android-support-v4 \

-Dversion=<support platform> \

-Dpackaging=jar

mvn install:install-file \

-Dfile=”<android home>/platforms/android-<platform>/android.jar” \

-DgroupId=com.google.android \

-DartifactId=android \

-Dversion=<platform> \

-Dpackaging=jar

On Windows

mvn install:install-file ^

-Dfile=”<android home>/extras/android/support/v4/android-support-v4.jar” ^

-DgroupId=com.google.android ^

-DartifactId=android-support-v4 ^

-Dversion=<support platform> ^

-Dpackaging=jar

mvn install:install-file ^

-Dfile=”<android home>/platforms/android-<platform>/android.jar” ^

-DgroupId=com.google.android ^

-DartifactId=android ^

-Dversion=<platform> ^

-Dpackaging=jar

replacing <android home>, <support platform> and <platform> as appropriate (<platform>=19 and <support platform>=19.0.1 for OpenTenure development)

NOTE: If you are not interested in upgrading to the full profile later, you can replace steps 2 to 4 with cloning the ot-dependencies repository on GitHub by running

git clone <https://github.com/OpenTenure/ot-dependencies.git>

and running

mvn install:install-file \

-Dfile=android-support-v4.jar \

-DgroupId=com.google.android \

-DartifactId=android-support-v4 \

-Dversion=19.0.1 \

-Dpackaging=jar

mvn install:install-file \

-Dfile=android.jar \

-DgroupId=com.google.android \

-DartifactId=android \

-Dversion=19 \

-Dpackaging=jar

from the ot-dependencies directory to push dependencies to your private maven repository.

5) Download the aFileChooser project from <https://github.com/iPaulPro/aFileChooser/archive/master.zip> and extract the aFileChooser directory from it.

In the aFileChooser directory, create a pom.xml file containing

<?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/maven-v4\_0\_0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.ipaulpro</groupId>

<artifactId>afilechooser</artifactId>

<version>1.0.0</version>

<packaging>apklib</packaging>

<name>aFileChooser</name>

<dependencies>

<dependency>

<groupId>com.google.android</groupId>

<artifactId>android</artifactId>

<version>19</version>

<scope>provided</scope>

</dependency>

<dependency>

<groupId>com.google.android</groupId>

<artifactId>android-support-v4</artifactId>

<version>19.0.1</version>

</dependency>

</dependencies>

<build>

<sourceDirectory>src</sourceDirectory>

<finalName>${project.artifactId}</finalName>

<pluginManagement>

<plugins>

<plugin>

<groupId>com.jayway.maven.plugins.android.generation2</groupId>

<artifactId>android-maven-plugin</artifactId>

<version>3.9.0-rc.2</version>

<extensions>true</extensions>

</plugin>

</plugins>

</pluginManagement>

<plugins>

<plugin>

<groupId>com.jayway.maven.plugins.android.generation2</groupId>

<artifactId>android-maven-plugin</artifactId>

<configuration>

<sdk>

<platform>19</platform>

</sdk>

</configuration>

</plugin>

</plugins>

</build>

</project>

6) Move to aFileChooser project directory level and run the following command

mvn android:apklib

to create an android library from the project and push it to your local maven repository using

mvn install:install-file -Dfile=target\afilechooser.apklib -DgroupId=com.ipaulpro -DartifactId=afilechooser -Dversion=1.0.0 -Dpackaging=apklib

7)

From <https://github.com/OpenTenure/ot-android> use ‘’Download Zip’’ button to download the project.

Extract the OpenTenure directory from OpenTenure.zip. You can now manage the OpenTenure mobile application lifecycle by running the following maven commands

|  |  |
| --- | --- |
| **Maven target** | **Purpose** |
| mvn clean | Remove build result |
| mvn android:generate-sources | Generate classes from xml resources |
| mvn compile | Compile classes |
| mvn android:dex | Package compile classes |
| mvn android:apk | Create application package |
| mvn android:deploy | Push application package to a connected device |
| mvn android:run | Run the application on a connected device |

All of the above targets can be executed in one single command line:

mvn clean android:generate-sources compile android:dex android:apk android:deploy android:run

in the OpenTenure directory.

Follow <http://books.sonatype.com/mvnref-book/reference/android-dev.html> for additional information on android development using maven.

Full profile

In order to upgrade to the full development profile the following additional steps are required:

Install Eclipse Kepler 4.3.x from <http://www.eclipse.org/downloads/> (select the Java or Java EE Developer bundle).

Install Eclipse the ADT (Android Development Tools) plugin as described in <http://developer.android.com/sdk/installing/installing-adt.html>. Don’t forget to configure the location of the Android SDK as a final step.

As a reminder, notice that Open Tenure uses the following external projects as android library dependencies:

* aFileChooser (com.ipaulpro)
* google-play-services (com.google.android.gms)

These must be downloaded, compiled and added as android library dependencies to Open Tenure project.

