



Apache Maven and Android at **maven**

AndroidTO

Manfred Moser

simpligility technologies inc.

<http://www.simpligility.com>

@simpligility



<http://creativecommons.org/licenses/by-sa/3.0/legalcode>



So let us find out about your background a bit..

Android development?

Other mobile/embedded development?

Java (SE, EE, ME...)?

Linux?

Apache Maven, Apache Ant?

.. and now a bit about Manfred

- Long time Linux user and Java developer currently working as Android application developer
- Author of the chapter “Android Application Development with Apache Maven” in the book Maven: The Complete Reference
- Committer on Maven Android Plugin and author of Maven Android SDK Deployer
- Maintainer of the ksoap2-android project
- Vancouver Island Java User Group Leader

Agenda

Motivation

Brief Maven Introduction

Maven Android Tool Chain with examples

Discussion, Feedback

Building Android Apps Currently

Eclipse ADT

Or

Default Apache Ant based build

Whats wrong with that?

You don't like Eclipse or Ant or don't want to depend on it for build.

You need additional features in the build.

You want command line and continuous integration server usage.

You need to work with multiple dependencies.

You want to reuse code from another project.

Example Dependencies

Make lib folder and copy jars files into it.

Check them into svn.

Upgrade means replace jar file and transitive dependencies.

Example Dependencies

Known to be a hazzle from years of Apache Ant usage on Java projects:

- Unknown dependencies
- Transitive dependencies
 - No documentation
 - No collision detection

Led to Maven, Ivy ...

Introduction to Apache Maven

“Software project management and
comprehension tool”

Builds your software and much more

De-facto standard for Java software builds

Convention over Configuration

Maven and Android

Maven Android SDK Deployer, Android4Maven,
Android SDK Tool

Maven Android Plugin

M2Eclipse

M2Eclipse Android Integration

Hello Flash Example

Packaging apk

Android dependency

Java source folder

Maven Android Plugin configuration

Maven Compiler Plugin

Using the plugin

Build

`mvn clean install`

Start emulator

`mvn android:emulator-start`

Deploy application

`mvn android:deploy`

Couple of Things to Know About

pom.xml

Default Build Life Cycle

Plugins

Repository (local and remote)

Maven Invocation

```
mvn [options] [<goal(s)>] [<phase(s)>]
```

- Options – get list with `mvn -h`
- Goals – with syntax `Plugin:PluginGoal`
 - e.g. `mvn android:deploy`
- Phases – e.g. `clean compile test install package`
 - e.g. `mvn clean install`

Goals

different per plugin
behaviour can be defined in pom
e.g. mvn install:install

but does not have to be

mvn archetype:create ... mvn install:file
pass parameters in with -Dparameter=value

Phases

- predefined order of things that need to be done
- what happens is defined in pom and default settings (super-pom)
- additional plugins can be bound to lifecycle phases

pre-clean, clean, post-clean

validate, generate-sources, process-sources, generate-resources, process-resources, compile, process-classes, generate-test-sources, process-test-sources, generate-test-resources, process-test-resources, test-compile, test, prepare-package, package, pre-integration-test, integration-test, post-integration-test, verify, install, deploy

Plugins, Plugins, Plugins

Maven itself does nearly nothing
– just a container (M2 - Plexus, M3 - Guice)

Super POM defines standard configuration
which can do a LOT

Lots of plugins available at apache, codehaus and
beyond

Other plugin goals

- android:deploy
- android:undeploy
- android:emulator-start
- android:emulator-stop
- android:apk
- android:dex
- android:pull
- android:push
- android:zipalign

Using external dependencies

Add dependency

Everything else happens automatically

Roboguice – Astroboy example

Maps Extension

```
<dependency>  
  <groupId>com.google.android.maps</groupId>  
  <artifactId>maps</artifactId>  
  <version>7_r1</version>  
  <scope>provided</scope>  
</dependency>
```

Unit tests

With testng or junit, also e.g. Cobertura, Emma,
MorseFlash example

Instrumentation tests

Separate module with instrumentation test

MorseFlash example

Better Integration Testing

Robotium

Like Selenium for Android

Add dependency to pom.xml
and start coding tests

Releasing Application

Sign apk with jarsigner plugin

Zipalign release apk

Update version number and other things

MorseFlash Example

Advanced Usage

Obfuscate and shrink APK

Use Scala programming language

Scala Example

Reuse Android projects – dependency type
“apksource”

Other Things You Can Do

Reuse e.g. Pojo's from server side application

Testing code coverage

Produce JavaDoc and more on website

Other Things You Can Do

Continuous integration builds - Hudson

Static analysis, test coverage, trending – Sonar

Ensure License Header in all files

Upload and download files to and from emulator

Site build and more ...

Related Tools

- Android4Maven – builds jars in Maven central
- Maven Android SDK Deployer – maps jars into repo
- Android SDK Tool – install SDK headless

What would you like to do?

Might be possible already..

Looking to improve plugin and tools ..

Give us feedback, give it all a spin, create issues
and more

Examples

Samples from Maven Android Plugin

<http://github.com/mosabua/maven-android-plugin-samples>

Roboguice Sample

<http://code.google.com/r/mosabua-robotuice/source/browse>

Maven Resources

Apache Maven

<http://maven.apache.org>

Maven: The Complete Reference
and other books and resources

<http://www.sonatype.com/book>

M2 Eclipse

<http://m2eclipse.sonatype.org/>

Maven Android Resources

Maven Android Developers Mailing List

<http://groups.google.com/group/maven-android-developers>

Maven Android Plugin

<http://code.google.com/p/maven-android-plugin/>

M2 Eclipse

<http://m2eclipse.sonatype.org/>

M2 Eclipse Android Integration link

<http://code.google.com/p/m2eclipse-android-integration/>

Summary

Proven, ready alternative

More flexibility

More power

The End

Questions?

Ideas?

Any feedback welcome!

Contact me at

manfred@simpligility.com