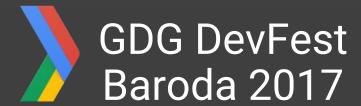
Mastering Gradle 3.0 ...





Technophile Always learning









Quickie

- It is for everyone!
- Gradle!?
- Tips → What, Why & How?
- Resources!

Let's Start

What is Gradle?



- Build Automation Tool or Build System
- Groovy based → DSL
- Java, Groovy, Scala, etc

Shrink code & resources (**)



```
android {
  buildTypes {
      release {
          shrinkResources true
          minifyEnabled true
          proguardFiles getDefaultProguardFile('proguard-android.txt'), 'proguard-rules.txt'
```

minifyEnabled vs shrinkResources?



minifyEnabled → ProGuard (project) → remove unused code

shrinkResources → remove unused resources only

Spoiler!

Don't forget to add ProGuard files on Play Store for deobfuscation on crashes

Avoid Legacy MultiDex (3)



- Legacy multiDex == multiDex + minSdkVersion < 21
- Slows down build significantly
- Android Studio 2.3+ avoids this automatically, whenever possible

```
productFlavors {
 dev {
    minSdkVersion 21
 prod {
    minSdkVersion 16
```

Disable multi-APK generation



- Multiple smaller APKs that target specific device configurations for release
- Not needed during debug or development phase

```
splits {
  abi {
     enable false
     exclude "tvdpi" "560dpi"
  density {
     enable false
```

Include minimal resources



```
productFlavors {
  dev {
     minSdkVersion 21
     resConfigs ("en", "xhdpi")
```

Disable PNG crunching



 Android Build Tools perform
 PNG size optimizations by default

```
android {
    aaptOptions {
        cruncherEnabled false
    }
}
```

What the heck is 'aapt'?



- Android Asset Packaging Tool
- Check pixel values (RGB, Grayscale, etc)
- Test opacity
- Test pixel value → matrix index conversion

Use DEX options



- Android uses DEX instead of bytecode
- Builds are generated faster
- Specifies maximum memory allocation for Dex compiler

```
android {
  dexOptions {
     preDexLibraries true
                            //default 4
     maxProcessCount 8
     javaMaxHeapSize "4g"
```

Use Crashlytics "properly"!



•apply plugin: 'io.fabric'

Generates on every new build!

```
android {
  buildTypes {
     debug {
    ext.alwaysUpdateBuildId false
```

Don't use dynamic versions 🕥

```
android {
  dependencies {
    compile 'com.android.support:appcompat-v7:26.0+' //don't do this!
    compile 'com.android.support:appcompat-v7:26.0.1' //do this
  }
}
```

Gradle arguments (gradle.properties)



- Dex compiler runs within the build process, rather than separate VM-process
- Enough memory provided by default in Android Studio 2.1+

org.gradle.jvmargs=-Xmx1536m //Default Dex compiler memory (min)

org.gradle.jvmargs=-Xmx3096m //Default Dex compiler memory

Gradle arguments (gradle.properties)



Lint checking: 50%~ time!

Not good for debug builds

Perfect for release builds

gradle=build -x lint -x lintVitalRelease

//avoids lint checks

Gradle arguments (gradle.properties)



org.gradle.daemon=true //decreases the startup & execution time

org.gradle.parallel=true //builds project in parallel (multi-module)

org.gradle.caching=true //store task outputs from previous builds

org.gradle.configureondemand=true //only required projects changes

Dependency config in Gradle 3.0



```
android {
   dependencies {
      implementation project(':libXYZ') //compile is now deprecated
      api project(':libABC') //works same as compile
   }
}
```

Conflicting & repeating dependencies

```
android {
  dependencies {
     compile('com.google.firebase:firebase-core:11.2.0') {
        exclude group: 'com.google.android.gms',
           module: 'play-services-basement'
```



Bonus Tips!



BONUS Tip: Use buildConfig

```
buildTypes.each {
  it.buildConfigField 'String', 'API_URL', "https://api.github.com/"
  it.resValue 'String', 'API_KEY', "1948123213"
```

BONUS Tip: Keystore in build.gradle



```
def keystorePropertiesFile = rootProject.file("../../ABCProject/keystore.properties")
def keystoreProperties = new Properties()
keystoreProperties.load(new FileInputStream(keystorePropertiesFile))
android {
   signingConfigs {
       debug {
           keyAlias keystoreProperties ['keyAlias']
           keyPassword keystoreProperties ['keyPassword']
           storePassword keystoreProperties ['storePassword']
           storeFile file("$project.rootDir/settings/keystore/xyzproject")
```

BONUS Tip: WebP instead of PNGs!



- Brought to you by Google!
- Better compression & transparency
- Smaller than PNGs & JPGs
- Android Studio 2.3+ supports WebP conversion
- Easy to convert
- •Lossy → Android 4.0 (API 14); Lossless → Android 4.3 (API 18)

Useful Resources!



- Documentation (https://developer.android.com/studio/build/gradle-tips.html)
- Proguard Snippets (https://github.com/krschultz/android-proguard-snippets)
- Gradle, Please! (http://gradleplease.appspot.com)
- Proguard, Please! (http://proguardplease.com)
- Known Issues: http://tools.android.com/knownissues

May The Code Be With You!



