

droidcon NYC 2014

Tips for Writing Libraries



Session Scope

- Focus: Libraries for Public Distribution
 - Open source or proprietary
 - Local value or API for Web service
- Getting Out of Focus
 - Libraries for enterprise use
 - Libraries for personal reuse
 - Libraries for multiple-APK scenarios



What You Learned from Ty

- SDK Basics
- API Design Tips
- Adaptive APIs (permissions, features, etc.)
- Good API Characteristics (intuitive, svelte, etc.)
- Performance (CPU, network, etc.)
- Documentation and Distribution



Part One: Tactical Considerations



Think “Big Tent”

- Eclipse and Android Studio
 - Short term: stick with legacy directory structure
- Stock Themes and Custom Themes
 - Allow your widgets, activities to be themed to match the rest of the app
 - Allow your drawables, etc. to be replaced
- Your Language and Other Languages
 - Provide guidance for augmenting your string resource translations



DON'T BE THAT GUY



You Are Not a Special Snowflake

- Do Not Require a Custom Application
 - ...except via an interface
- Do Not Require a Magic Theme
 - ...except as a simplification or example
- Do Not Assume You Have the Only Cache
 - ...except maybe as a default



Give Them Some Release

- Provide ProGuard Advice
 - What should be kept from shrinking
 - What should not be obfuscated
- Think Through Manifest Merging
 - Optimize your manifest for release builds
 - Provide guidance for useful stuff in app manifest for debug builds
- Quit With The `$(#@#&` Logging!



I REPEAT:
DON'T BE
THAT GUY



Conspicuous Consumption

- Publish Artifacts
 - ...not just source
 - ...and not just a ZIP file
- Make Sure People Can Find Your Library
 - ...via your Web site
 - ...via catalogs like the Android Arsenal





Words, as Well as Deeds

- Write Documentation!
 - README
 - Wiki
 - JavaDocs
- Have a Sample App
- Have a License
 - ...properly applied, please
- Clear Support Channels



Part Two: Strategic Considerations



Learn From the API Masters

- Art, as Well as Science
 - Easy to read
 - Expressive
 - Extensible
- Find a Master...
 - Example: Square
- ...and Use Them for Inspiration





NOT an API Master



Avoid Kitchen Sinks

- Kitchen Sink = All-Encompassing Library
 - Example: Google Play Services SDK
- Problems with Kitchen Sinks
 - Heavy (method count, resource load)
 - Inertia (afraid to update frequently, afraid to take on updates)
- Have Focused Libraries with Dependencies
 - Systematic dependencies (Gradle, Maven)
 - Documented dependencies (Eclipse, Ant)



Minimize Dependencies

- “Big Tent”, Strategic-Style
- What to Watch For
 - Java compiler version
 - Compile-time tool/plugin requirements
 - Runtime libraries
 - `minSdkVersion`
 - `targetSdkVersion`
 - Permissions



My, That Tin Foil Hat Looks Good On You

- Runtime Security
 - SSL, please
 - Your server: consider pinning or self-signed certs
 - Arbitrary servers: provide hooks for custom TrustStore
 - APK Client Library
 - Check APK signing key
 - Check service Intent resolution



Part Three: No, I Mean Really Strategic Considerations



For the Love of \$DEITY, Why?

- Reasons to Write Libraries
 - Part of something you gotta gotta have
 - Promotional considerations
 - ...for your organization
 - ...for you in job searches
- Reasons Not to Write Libraries
 - Itch to scratch (use a gist)
 - “Just because”, “I was bored”, etc.



ARE YOU COMING TO BED?

I CAN'T. THIS
IS IMPORTANT.

WHAT?

SOMEONE IS WRONG
ON THE INTERNET.



WANTED
FOR WRITING LIBRARIES
WITHOUT A GOOD REASON



DEAD OR...



Deprecation Over Decay

- Best Case: Long-Term Support
 - Popular library, strong reasons to keep going
- Perfectly Reasonable Case: Planned Deprecation
 - Example: backports
- OK Case: Unplanned Deprecation
- Worst Case: Decay
 - Library is out there, unmaintained, unsupported, unloved



Summary

- Libraries Are Products, So Treat Them As Such
 - Know why you are offering them
 - Know how you are going to make them worthwhile
 - Know how you are going to maintain them
- Libraries and Android
 - Yes, we need more, but need quality and quantity
- Choose Your Role Models Wisely
 - ...and don't be that guy



Slides!



<http://commonsware.com/presos/droidconNYC2014>

