Understanding the Android Studio Build Process

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What to Expect from This Module

- Android Build Process and Gradle
- Modifying Gradle Parameters
- Dependencies in Gradle
- Android Support Library

Android Build Process

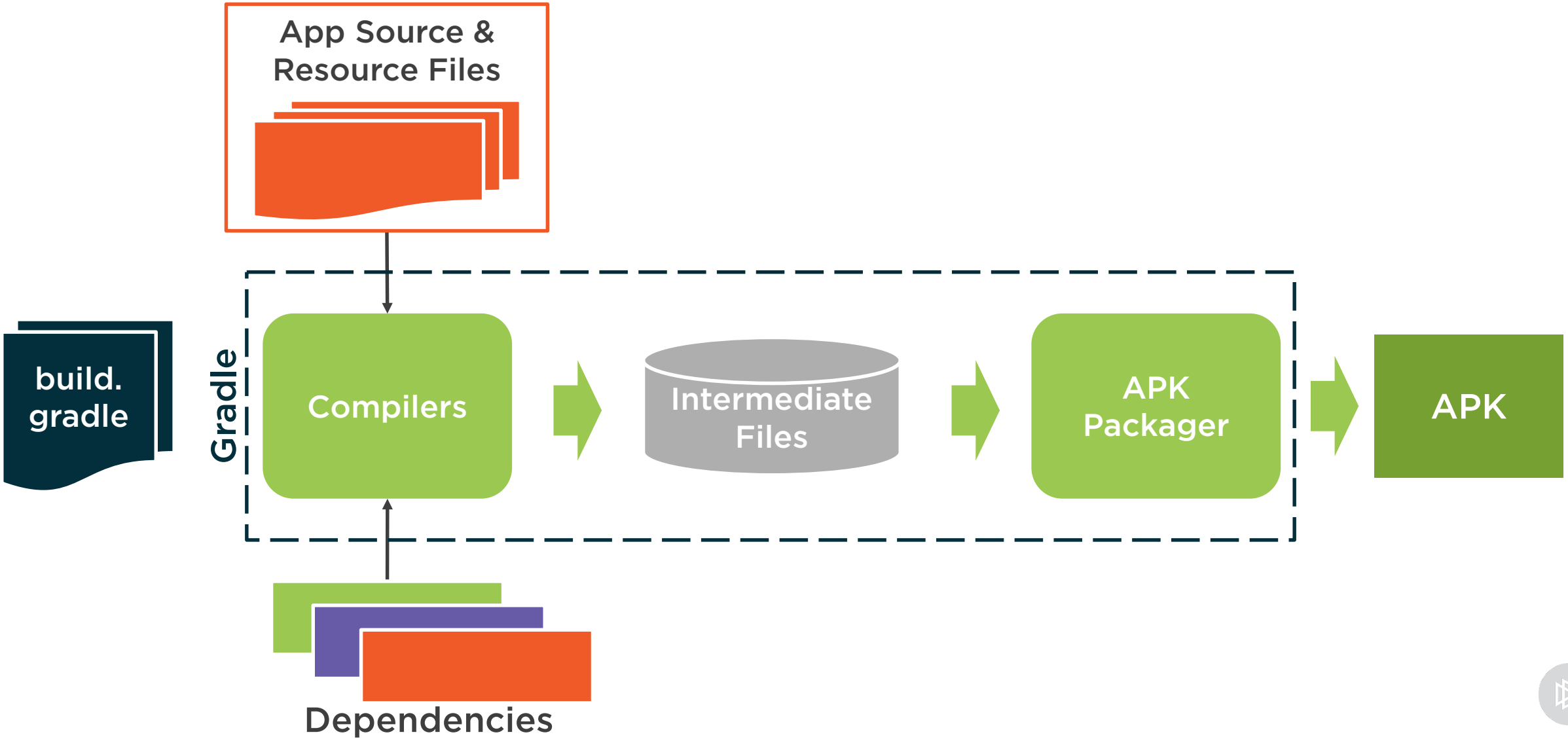
Android build process is somewhat involved

- Manually managing details is challenging

Gradle simplifies managing build process

- A general purpose build system
- Android-oriented features from plug-in

Android Build Process



Configuring Gradle

Gradle is extremely powerful

- Very flexible
- Uses a domain specific language (DSL)

Common settings easily managed

- Projects include build.gradle files
- Changes often simple edits

Android Studio UI

- Many changes can be made with UI
- Use File/Project Structure...

Dependencies

Applications builds rarely stand alone

- May rely on external binaries
- May rely on other project libraries

Listing dependencies in Gradle

- In build.gradle dependencies block
- Automatically includes dependency dependencies

Dependency Types

Module dependency

- Module from your project

Jar dependency

- Java jar file

Library dependency

- Pull from a repository

Library Dependencies

Will use local machine for some

- Android Support repository
- Google repository

Other repositories must be specified

- Normally leverages jcenter repository
- Can add others

Associating Dependencies

Dependency for all build variants

- Use compile

Dependency for JVM test

- Use testCompile

Dependency for Instrumentation test

- Use androidTestCompile

Android Support Library

Backward compatibility

- Makes some newer platform features available to older platform versions
- Uses alternate classes

Convenience and helper classes

- Provides features not part of platform
- Especially in the area of the UI

Debugging, testing, and utilities

- Testing Support Library
- Enhanced code checks
- Special case utilities

Android Support Library Organization

Most grouped by platform support

- Name historically indicates min platform
- v4 Support libraries – API 4 & up
- v7 Support libraries – API 7 & up
- v13 Support libraries – API 13 & up
- Changed with latest releases
  - None support less than API 9

Specific libraries tied to features

- Multiple libraries within each group
- We reference specific library in Gradle

Android Support Library Organization

Historically grouped by supported platform

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Summary

Gradle manages the build process

Common settings are in build.gradle

- Android Studio project level settings
- Android Studio module level settings
  - Most changes made at module level

Changing common settings

- Edit build.gradle file directly
- Use Android Studio UI

Summary

Dependency types

- Module: module from your project
- Jar: Java jar file
- Library: pulled from repository

Associating dependencies

- All build variants
  - Use compile
- JVM test
  - Use testCompile
- Instrumentation test
  - Use androidTestCompile

Summary

Android Support Library

- Backward compatibility
- Convenience and helper classes
- Debugging, testing, and utilities

Android Support Library organization

- Most grouped by platform support
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- Each library documents Gradle info