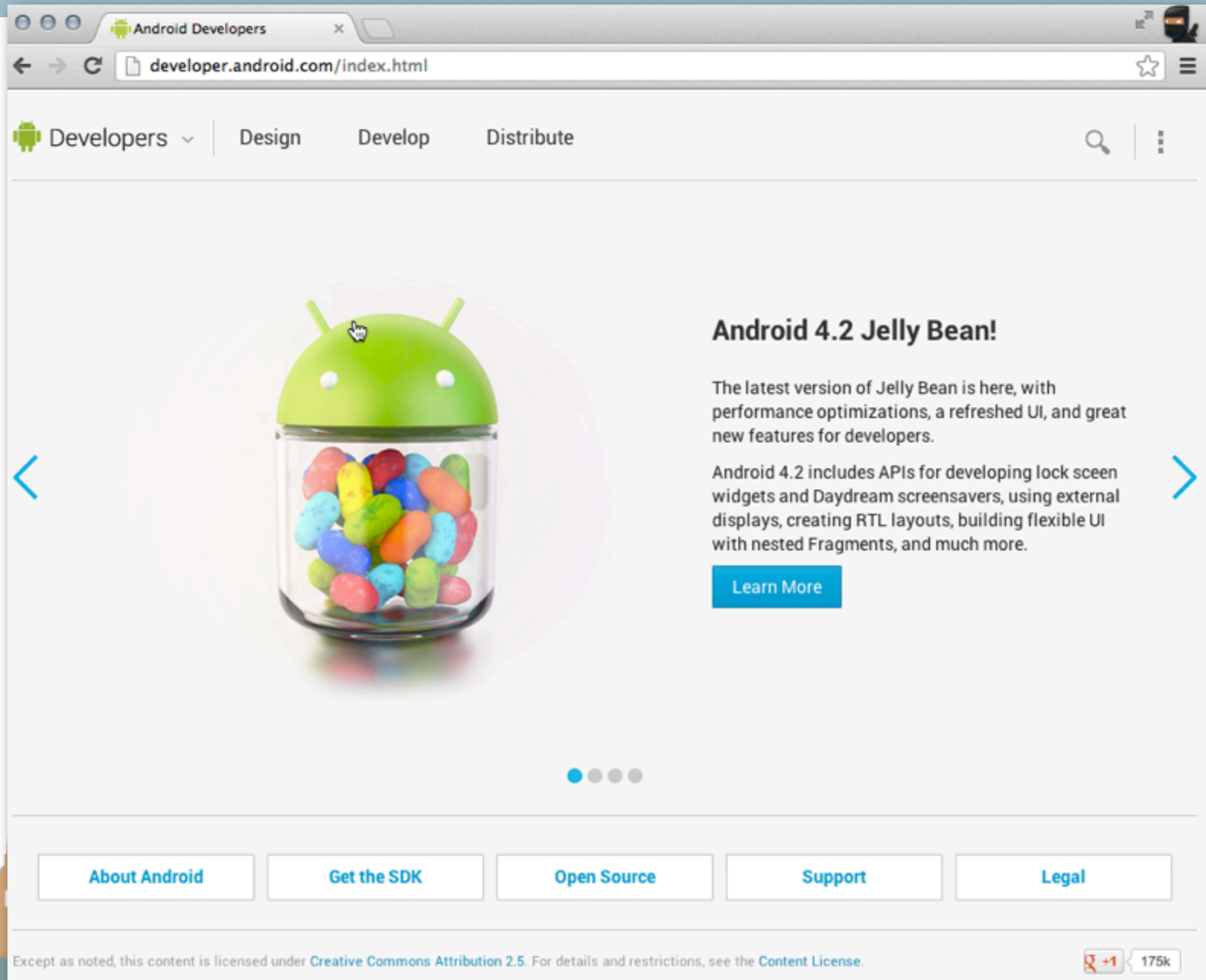


# User Interaction: Intro to Android

Assoc. Professor Donald J. Patterson  
INF 133 Fall 2012



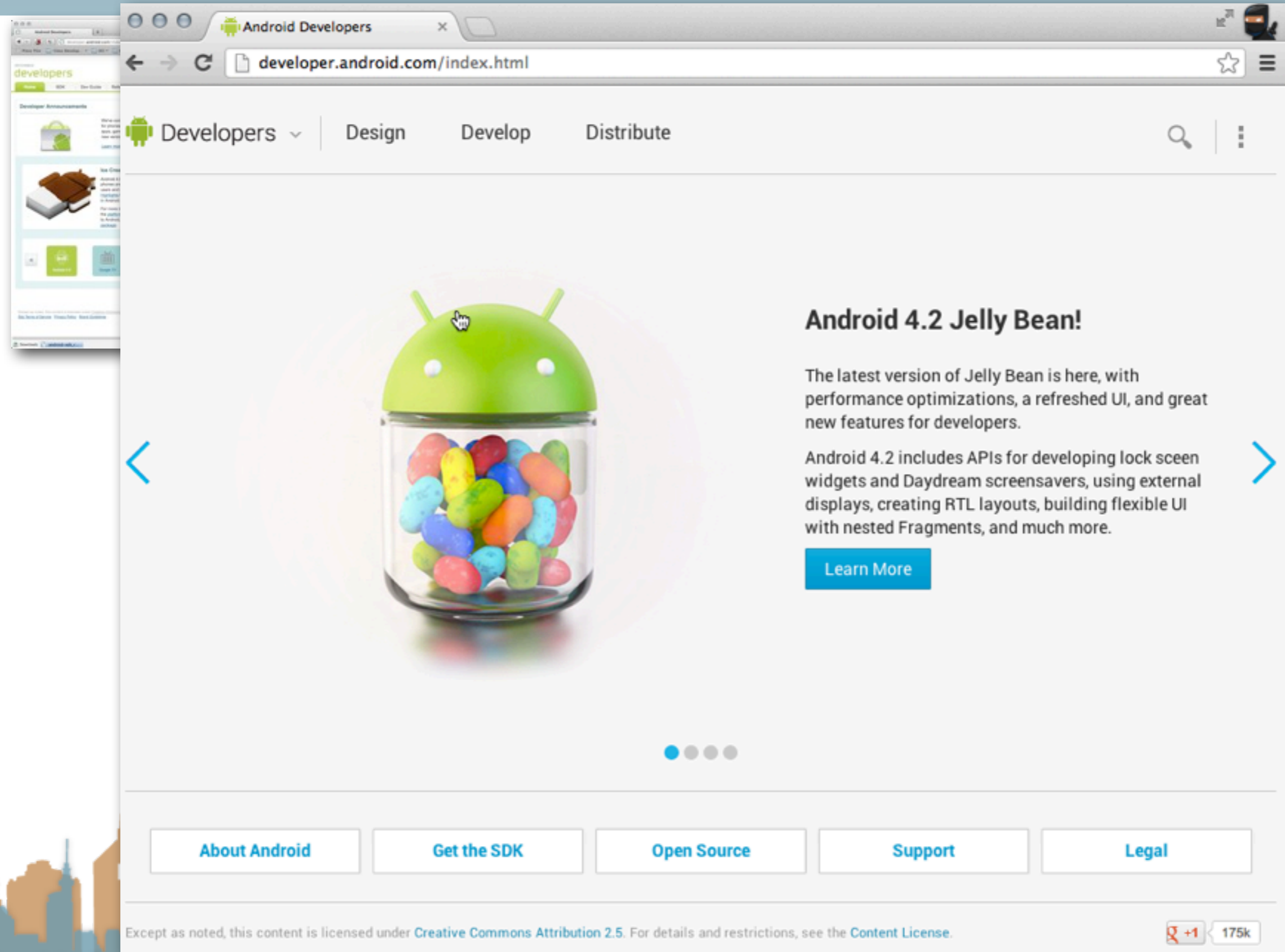
# Intro to Android



The screenshot shows a web browser window with the URL `developer.android.com/index.html`. The page features a navigation bar with 'Developers', 'Design', 'Develop', and 'Distribute' links. The main content area is a carousel slide for 'Android 4.2 Jelly Bean!'. The slide includes a large image of the green Android robot head on top of a glass jar filled with colorful jelly beans. To the right of the image, the text reads: 'The latest version of Jelly Bean is here, with performance optimizations, a refreshed UI, and great new features for developers. Android 4.2 includes APIs for developing lock screen widgets and Daydream screensavers, using external displays, creating RTL layouts, building flexible UI with nested Fragments, and much more.' Below this text is a blue 'Learn More' button. At the bottom of the slide, there are five navigation buttons: 'About Android', 'Get the SDK', 'Open Source', 'Support', and 'Legal'. The footer contains a Creative Commons license notice and a '+1 175k' badge.

<http://developer.android.com/guide/index.html>

# Intro to Android



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Android Developers

developer.android.com/index.html

Developers | Design | Develop | Distribute

## Android 4.2 Jelly Bean!

The latest version of Jelly Bean is here, with performance optimizations, a refreshed UI, and great new features for developers.

Android 4.2 includes APIs for developing lock screen widgets and Daydream screensavers, using external displays, creating RTL layouts, building flexible UI with nested Fragments, and much more.

[Learn More](#)

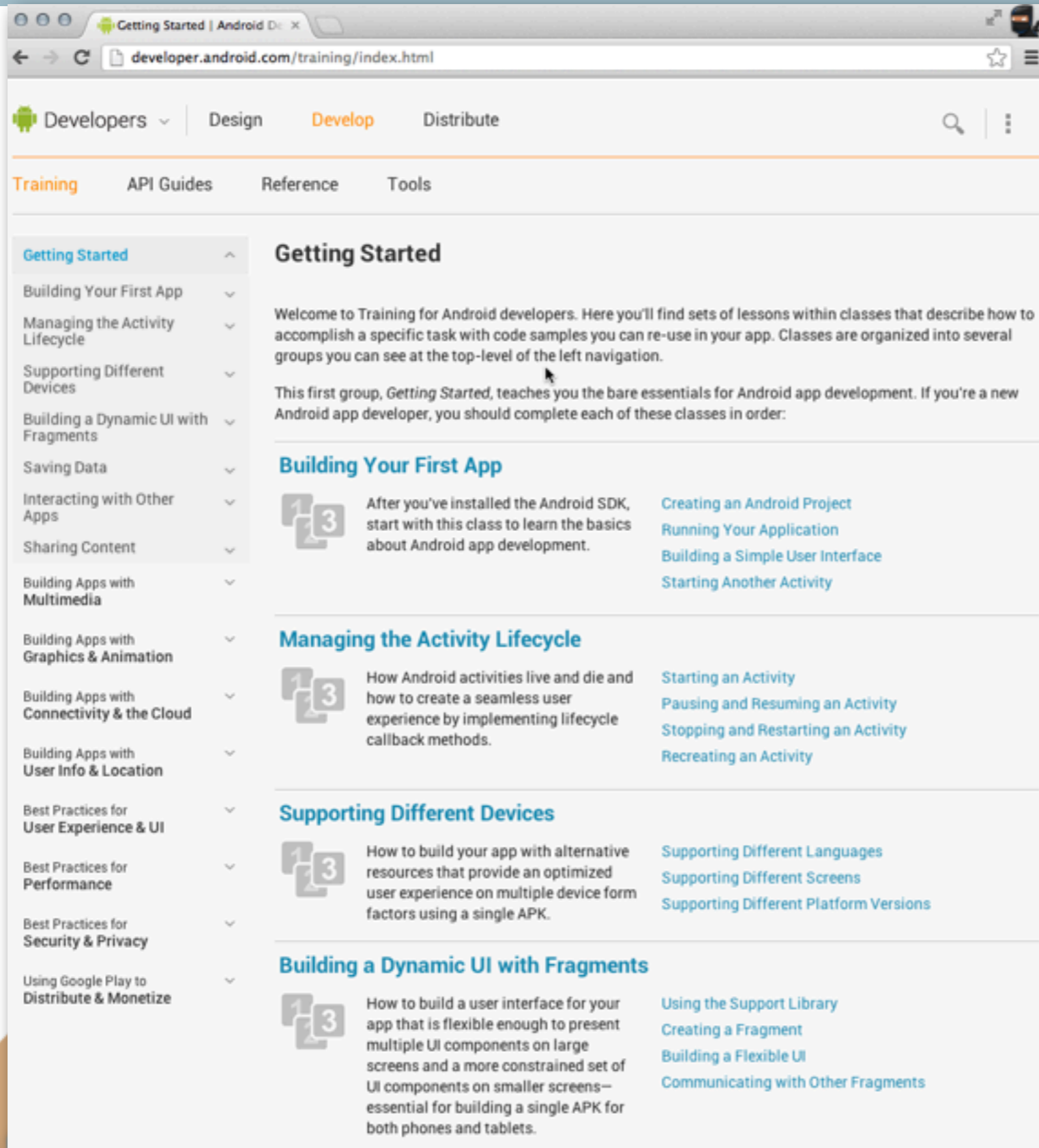
[About Android](#) [Get the SDK](#) [Open Source](#) [Support](#) [Legal](#)

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[+1](#) 175k

<http://developer.android.com/guide/index.html>

# Intro to Android



The screenshot shows a web browser window displaying the Android Developer Training Index page. The page has a navigation bar with 'Design', 'Develop', and 'Distribute' tabs, and a sub-navigation bar with 'Training', 'API Guides', 'Reference', and 'Tools'. The main content area is titled 'Getting Started' and includes a welcome message, a list of training classes, and detailed descriptions for 'Building Your First App', 'Managing the Activity Lifecycle', 'Supporting Different Devices', and 'Building a Dynamic UI with Fragments'. Each class description includes a numbered list of steps and links to specific lessons.

Getting Started | Android De x  
developer.android.com/training/index.html

Developers | Design | **Develop** | Distribute

Training | API Guides | Reference | Tools

## Getting Started

Welcome to Training for Android developers. Here you'll find sets of lessons within classes that describe how to accomplish a specific task with code samples you can re-use in your app. Classes are organized into several groups you can see at the top-level of the left navigation.

This first group, *Getting Started*, teaches you the bare essentials for Android app development. If you're a new Android app developer, you should complete each of these classes in order:

### Building Your First App

After you've installed the Android SDK, start with this class to learn the basics about Android app development.

- Creating an Android Project
- Running Your Application
- Building a Simple User Interface
- Starting Another Activity

### Managing the Activity Lifecycle

How Android activities live and die and how to create a seamless user experience by implementing lifecycle callback methods.

- Starting an Activity
- Pausing and Resuming an Activity
- Stopping and Restarting an Activity
- Recreating an Activity

### Supporting Different Devices

How to build your app with alternative resources that provide an optimized user experience on multiple device form factors using a single APK.

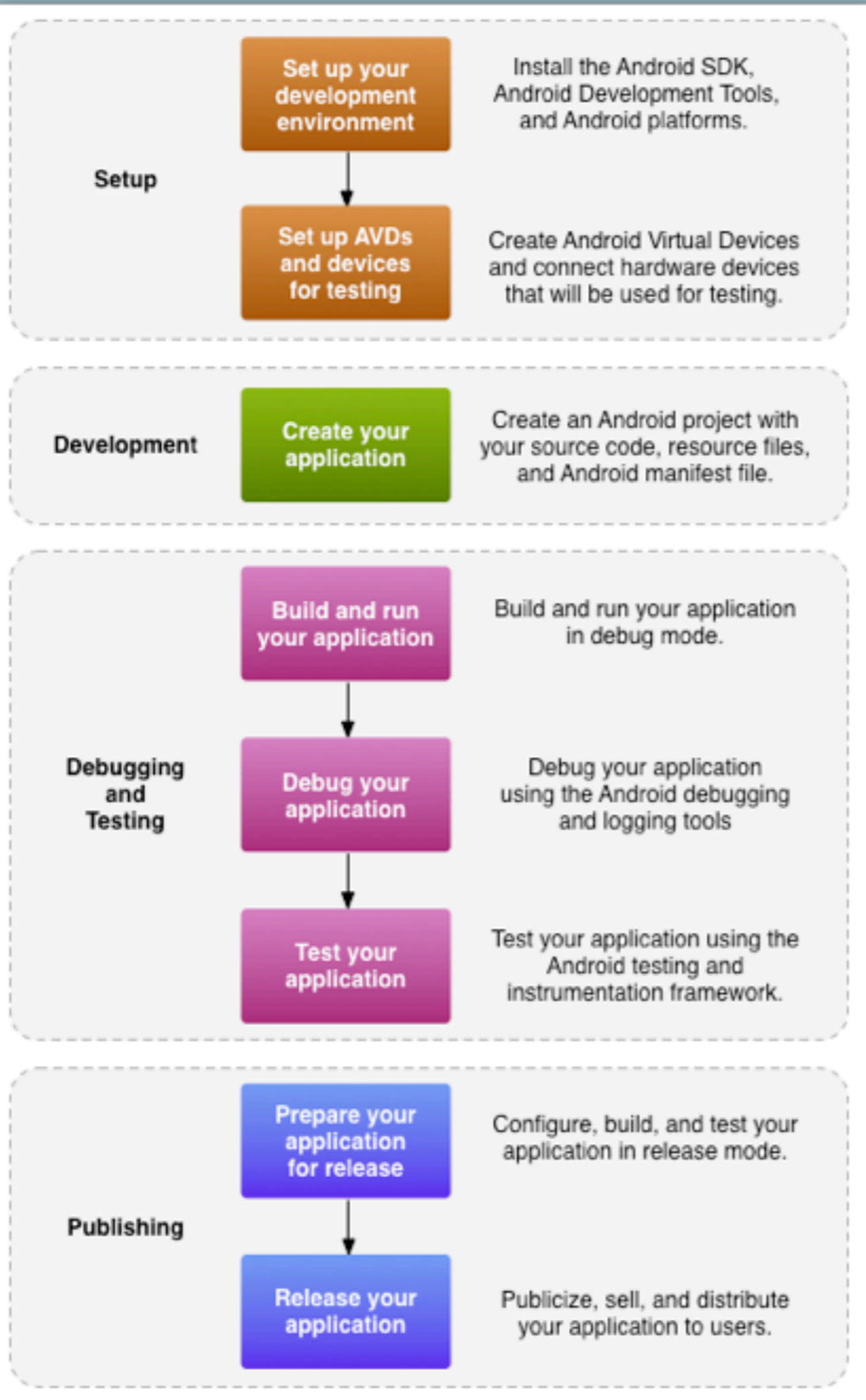
- Supporting Different Languages
- Supporting Different Screens
- Supporting Different Platform Versions

### Building a Dynamic UI with Fragments

How to build a user interface for your app that is flexible enough to present multiple UI components on large screens and a more constrained set of UI components on smaller screens—essential for building a single APK for both phones and tablets.

- Using the Support Library
- Creating a Fragment
- Building a Flexible UI
- Communicating with Other Fragments

<http://developer.android.com/training/index.html>



- SDK (Software development kit)
- AVD (Android Virtual Device)
- .apk (Android application package file)
- “platform”: Gingerbread v2.3.6 / v2.3.4 is our target
- ADT (Android Development Tools) Eclipse plug-ins plus command line tools

<http://developer.android.com/guide/index.html>

# Actually Developing for Android 2.3.6

- Requirements
- SDK/AVD
- Eclipse Plug-in
- Hello World



<http://developer.android.com/guide/index.html>

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# Intro to Android: Requirements

- OS
  - Windows XP (32), Vista (32/64) or Windows 7 (32/64)
  - Mac OS 10.5.8 or later (Leopard, x86 only)
  - Linux (e.g., Ubuntu Lucid Lynx (32))
- IDE
  - Eclipse 3.5 or greater
    - “Eclipse IDE for Java Developers” (for example)
- Java
  - JDK 5 or 6 (1.5 or 1.6 (not just JRE!))



<http://developer.android.com/guide/index.html>

- SDK (ECLIPSE EXTERNAL)
- AVD (HARDWARE)
- ADT (ECLIPSE INTERNAL)
  - SET UP POINTER TO SDK
- "HELLO WORLD"

# Actually Developing for Android

- Requirements
- SDK/AVD
- Eclipse Plug-in
- Hello World



<http://developer.android.com/guide/index.html>

# Actually Developing for Android

- Requirements
- SDK/AVD
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<http://developer.android.com/guide/index.html>

# Intro to Android: SDK

- Option 1: Download and unpack the appropriate “Android SDK /ADT bundle”

Platform	Package	Size	MD5 Checksum
Windows 32-bit	<a href="#">adt-bundle-windows-x86.zip</a>	417851015 bytes	42d9a6c15113d405a97eed05e6d42e2b
Windows 64-bit	<a href="#">adt-bundle-windows-x86_64.zip</a>	417851515 bytes	73bdd1168fce0e36a27255a4335c865d
Mac OS X 64-bit	<a href="#">adt-bundle-mac-x86_64.zip</a>	382957959 bytes	a320f8bbaee8572a36e68c434564bdd0
Linux 32-bit	<a href="#">adt-bundle-linux-x86.zip</a>	411065882 bytes	39687b06fedfea7487ff0824a4d32ee8
Linux 64-bit	<a href="#">adt-bundle-linux-x86_64.zip</a>	411217430 bytes	b0590fe9c1533da9b20ea65525b77677

- This is the SDK and a version of eclipse all set up and ready to go

<http://developer.android.com/sdk/index.html>

- Option 2: Download and unpack the appropriate “Android SDK”

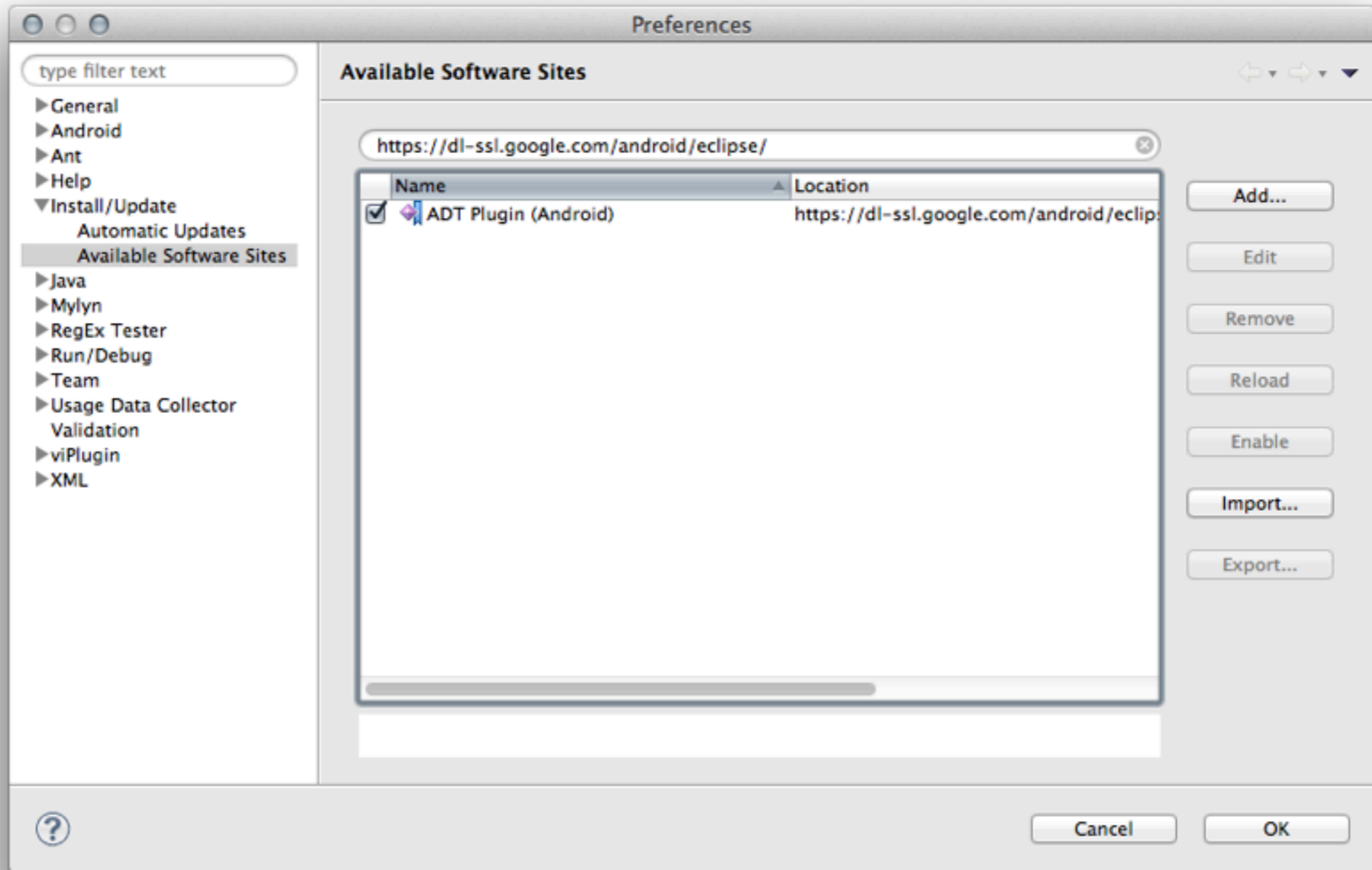
## SDK Tools Only

Platform	Package	Size	MD5 Checksum
Windows	<a href="#">android-sdk_r21-windows.zip</a>	99093893 bytes	7311452823470365f7975a545f8a2be4
	<a href="#">installer_r21-windows.exe</a> (Recommended)	77523031 bytes	29ca8cb8f0bc8db627fa2adc2139a3cc
Mac OS X	<a href="#">android-sdk_r21-macosx.zip</a>	65792626 bytes	67e46adca90dd18d7291443f6c15d6af
Linux	<a href="#">android-sdk_r21-linux.tgz</a>	91378351 bytes	7f8d73b629f808cdcfc9f9900bbd7580

- This is just the SDK if you want to add Android to an existing Eclipse IDE installation

<http://developer.android.com/sdk/index.html>

- Option 2: Install the Eclipse Android ADT tools



<http://developer.android.com/sdk/installing/installing-adt.html>

## Intro to Android: Eclipse Plug-in

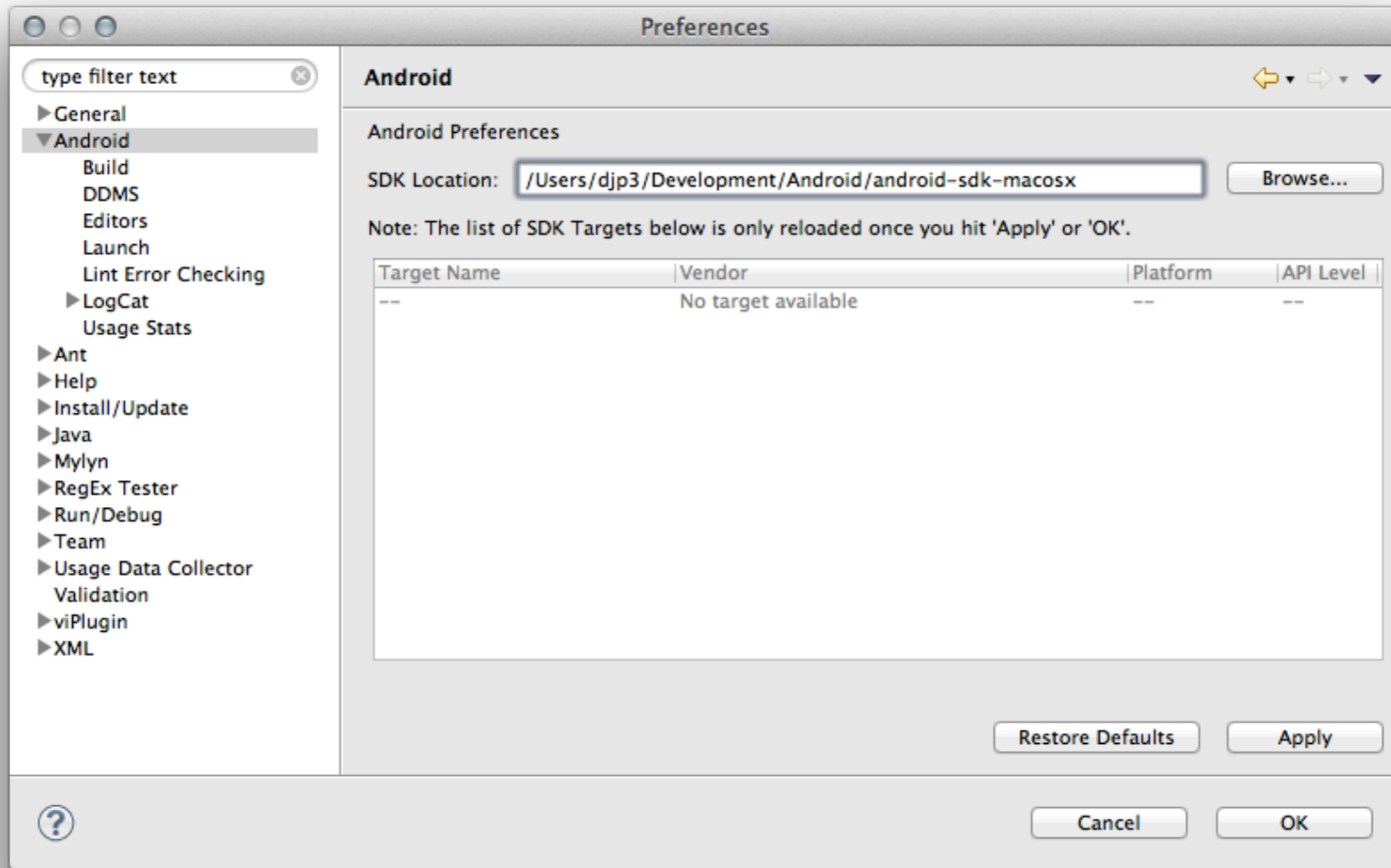
- The Eclipse Plug-in is called the “ADT”
  - Android Development Tools
  - Support for menu options in Eclipse which support
    - Automatically building Android projects
    - User-Interface building for Android
    - Debugging support for Android
    - Packaging files for the Android Market (.apk files)
  - The ADT is installed from within Eclipse



<http://developer.android.com/sdk/eclipse-adt.html>



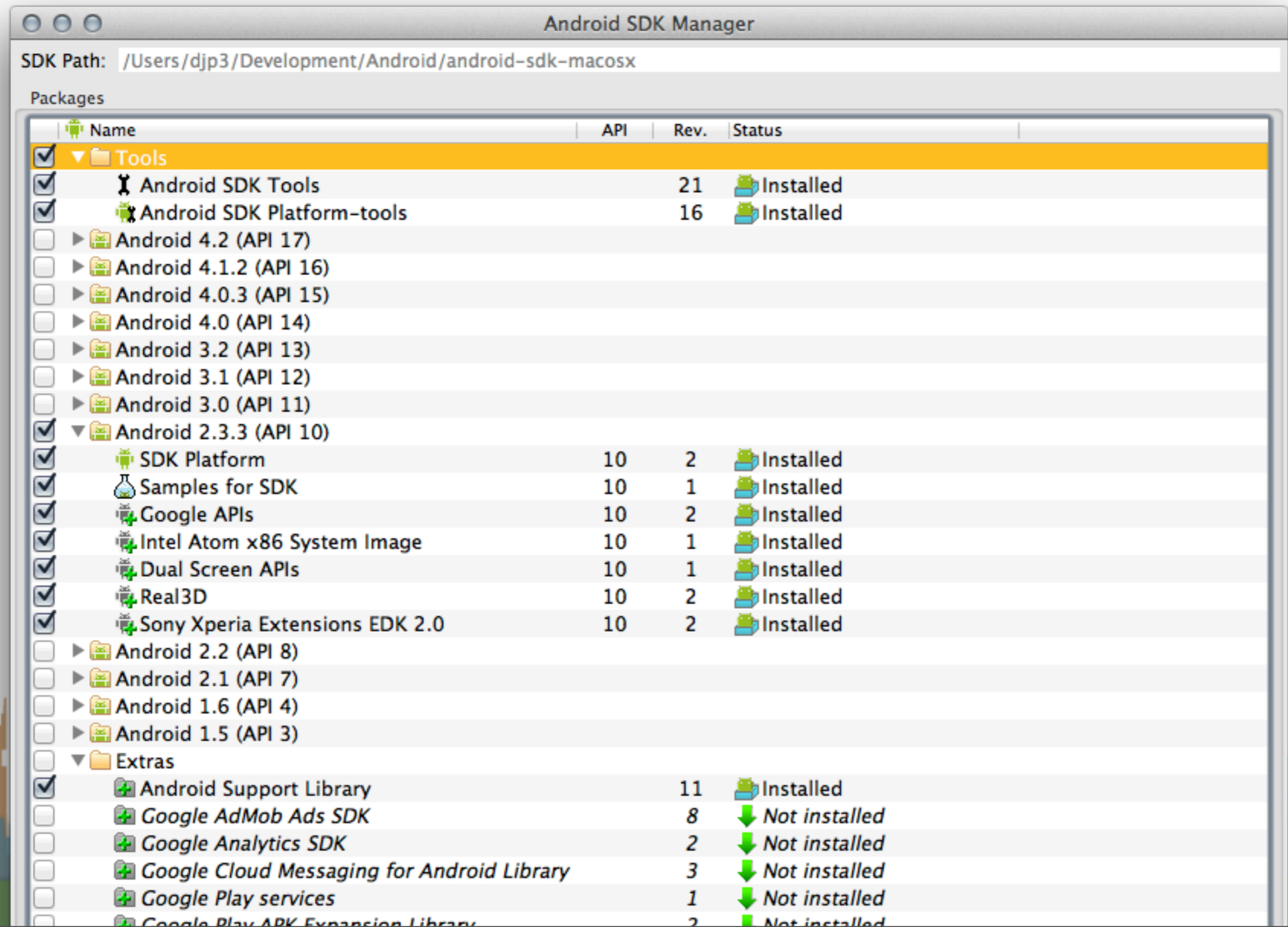
- Option 2: Restart Eclipse and load the SDK location



<http://developer.android.com/sdk/installing/installing-adb.html>

# Intro to Android: SDK

- Option 2: Pick which platform you are developing for



- Set up a project

**New Android Application**  
Creates a new Android Application

Application Name:

Project Name:

Package Name:

Minimum Required SDK:

Target SDK:

Compile With:

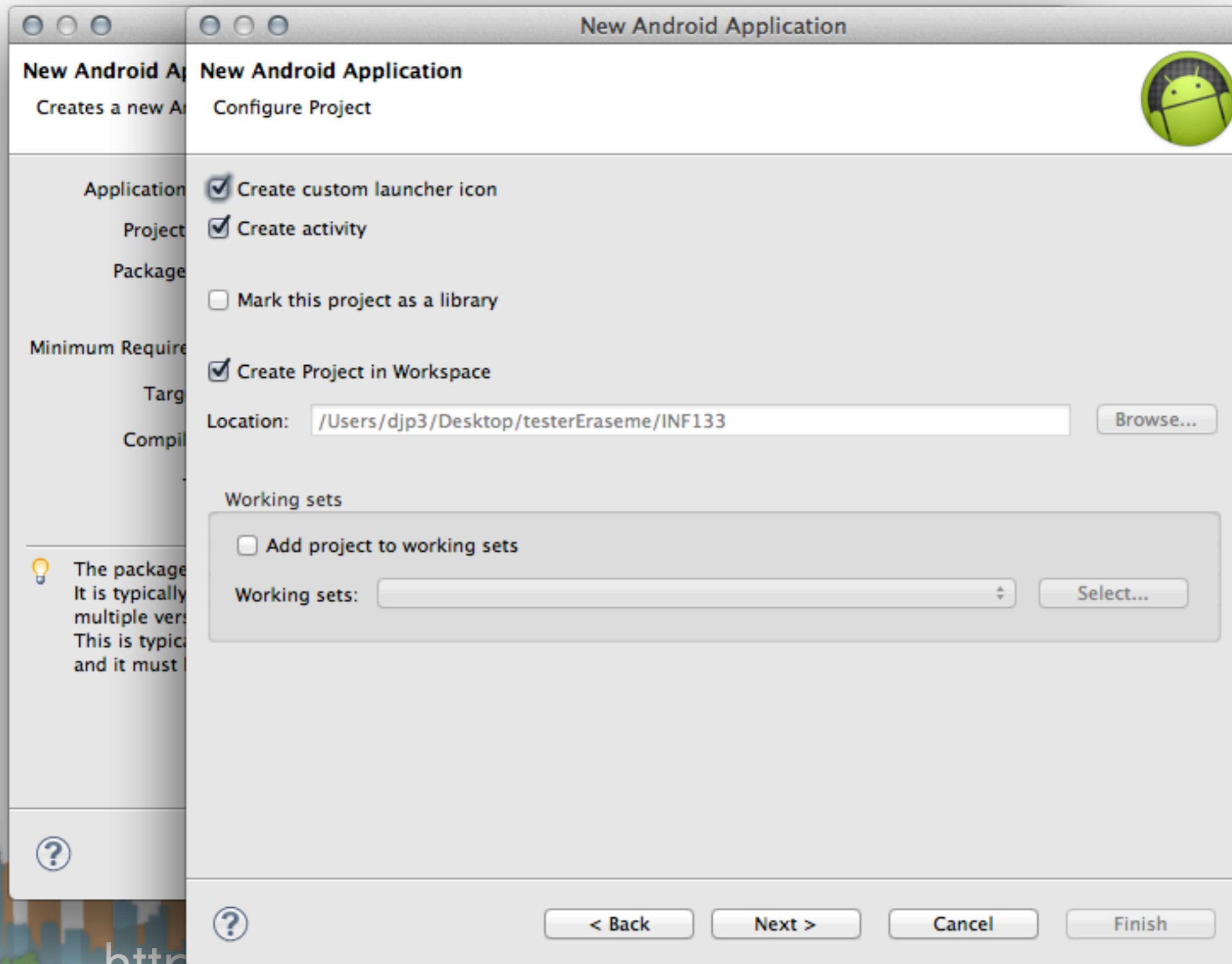
Theme:

The package name must be a unique identifier for your application. It is typically not shown to users, but it *must* stay the same for the lifetime of your application; it is how multiple versions of the same application are considered the "same app". This is typically the reverse domain name of your organization plus one or more application identifiers, and it must be a valid Java package name.

<http://developer.android.com/sdk/installing/installing-adt.html>

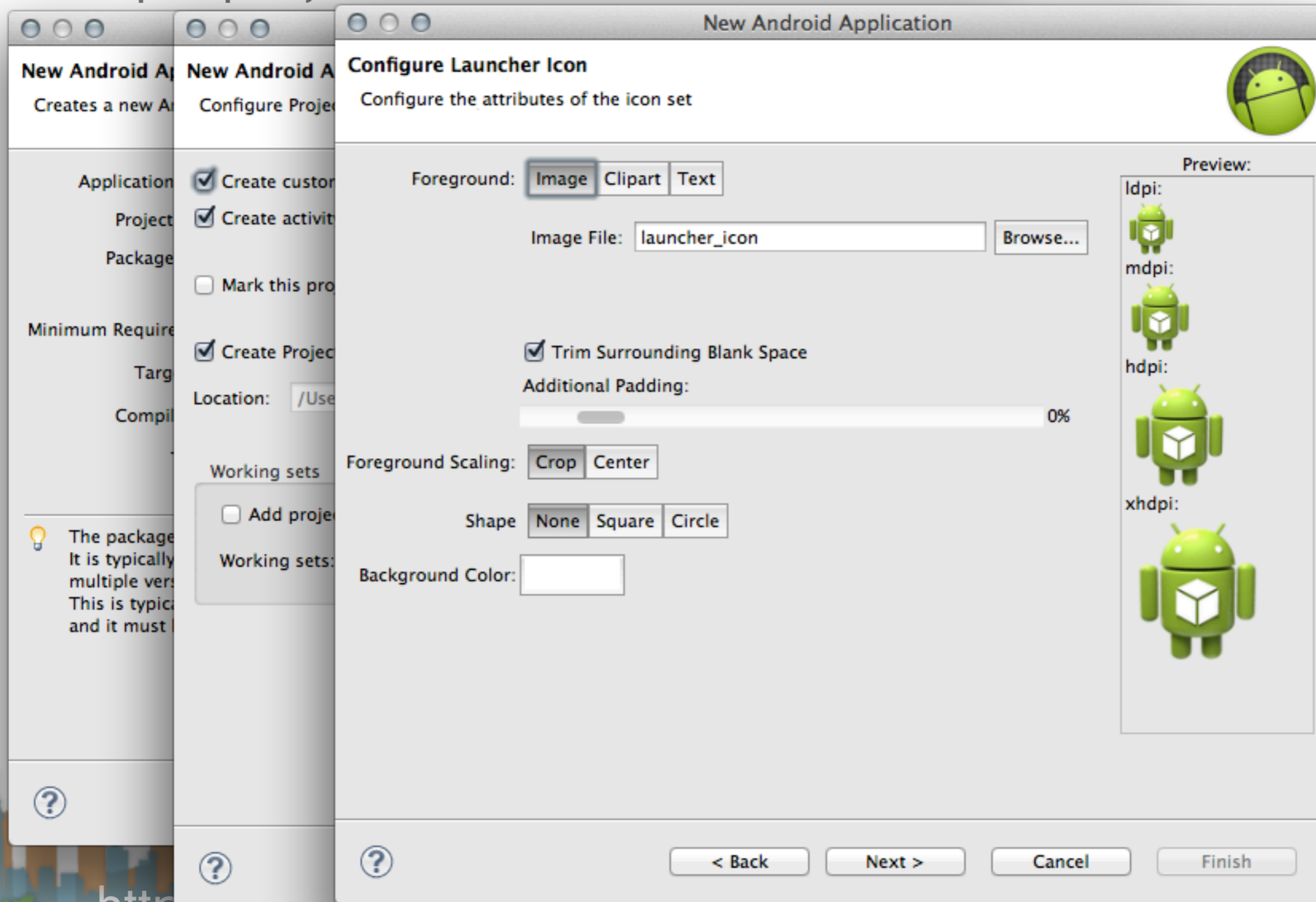
# Intro to Android:

- Set up a project

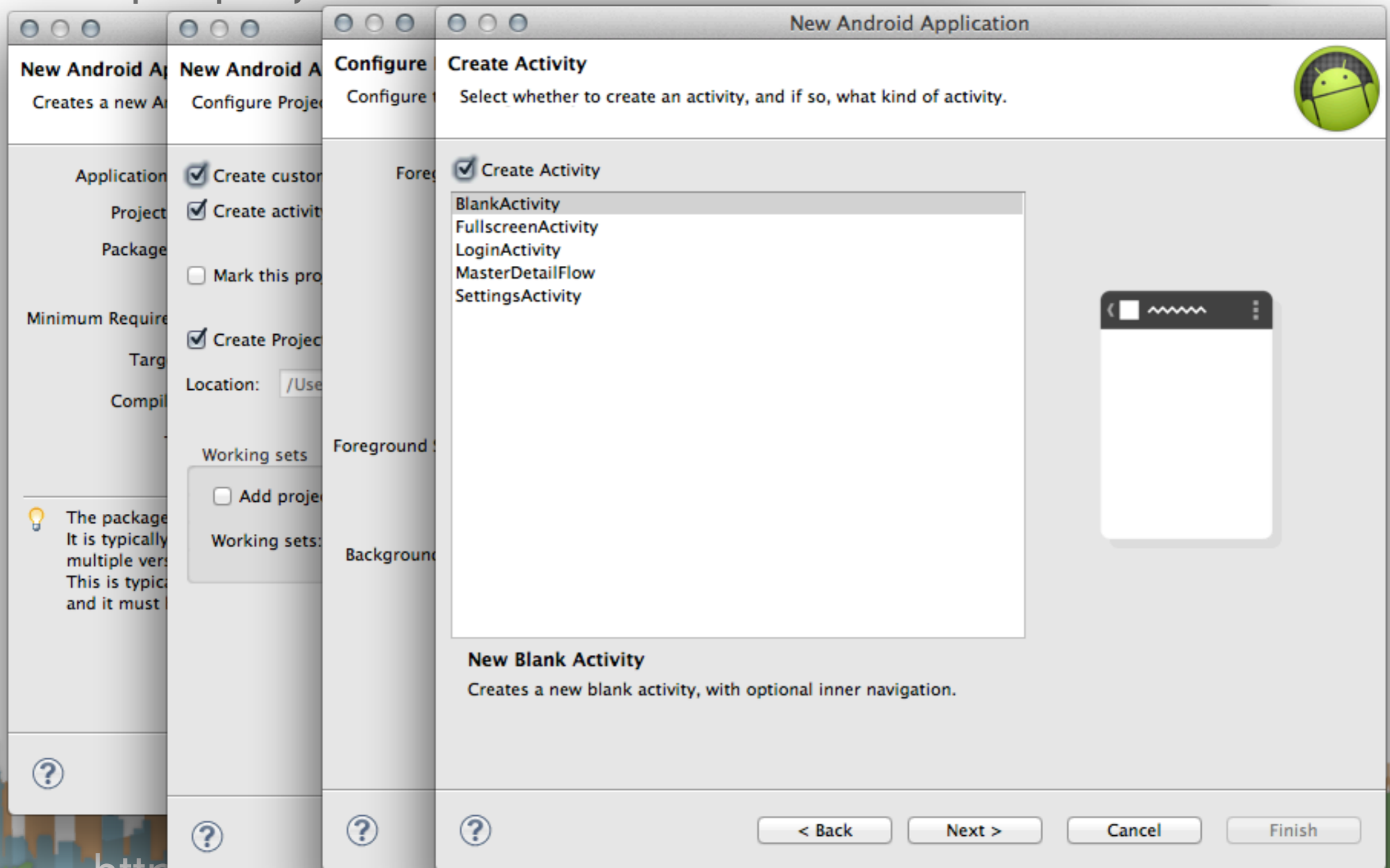


<http://developer.android.com/sdk/installing/installing-adb.html>

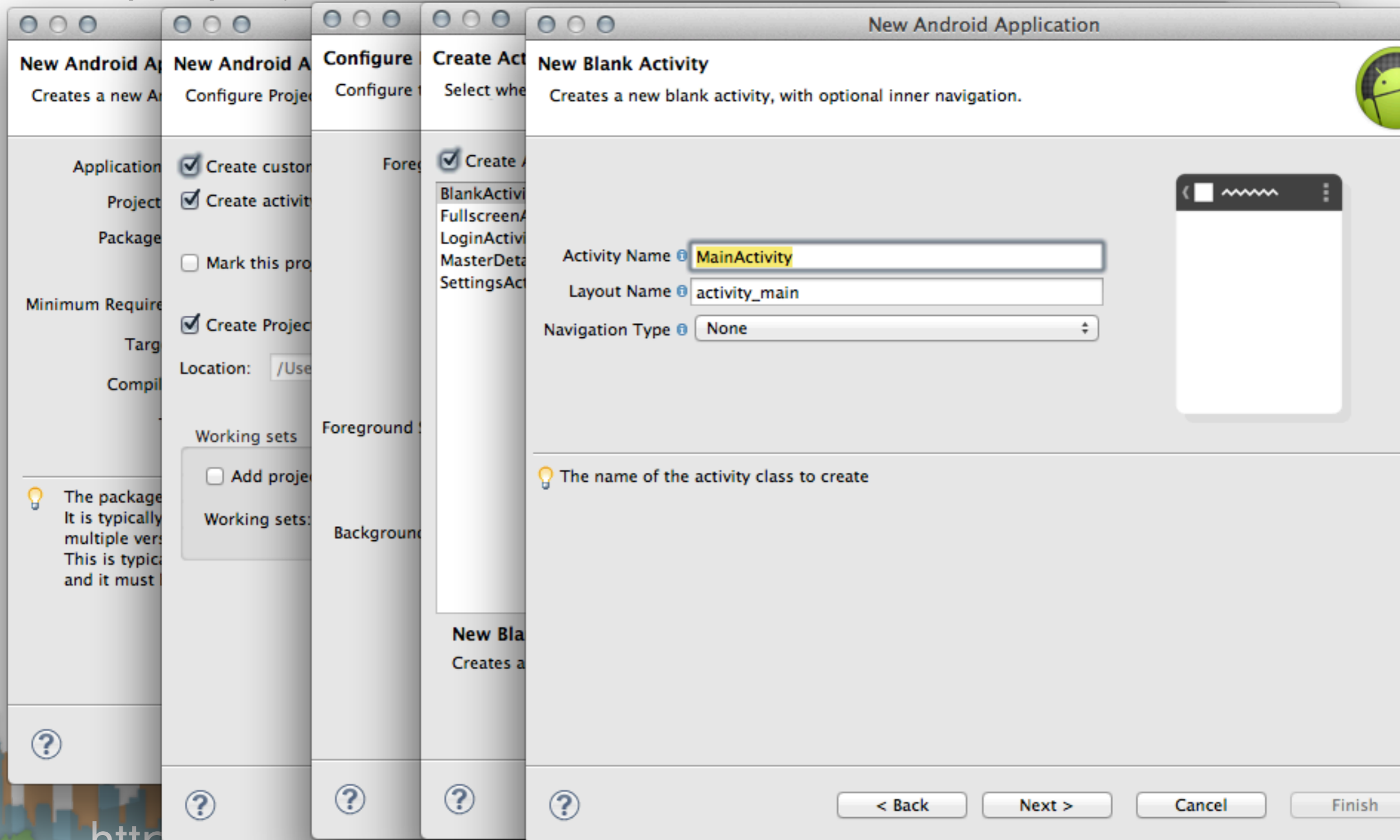
- Set up a project



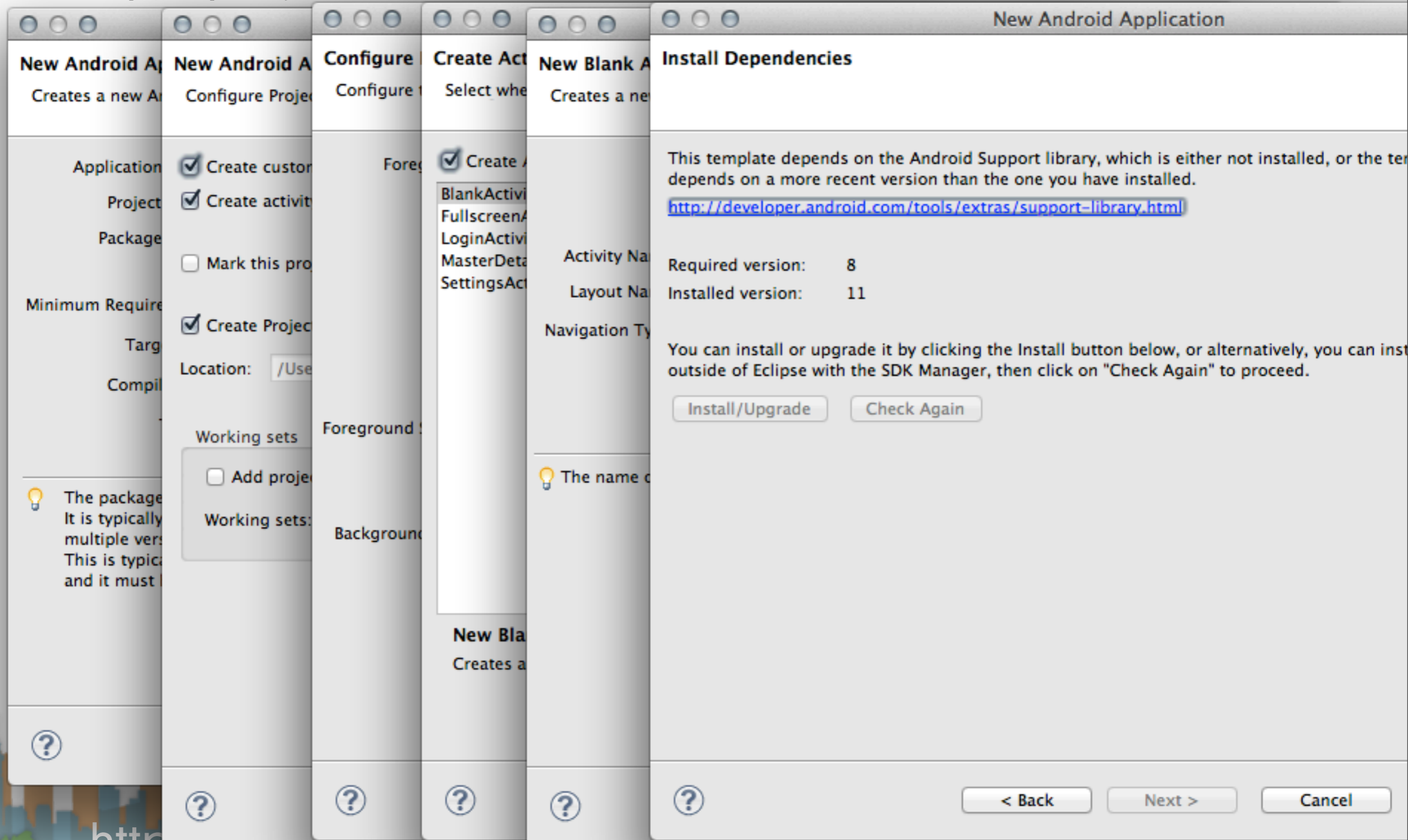
- Set up a project



- Set up a project



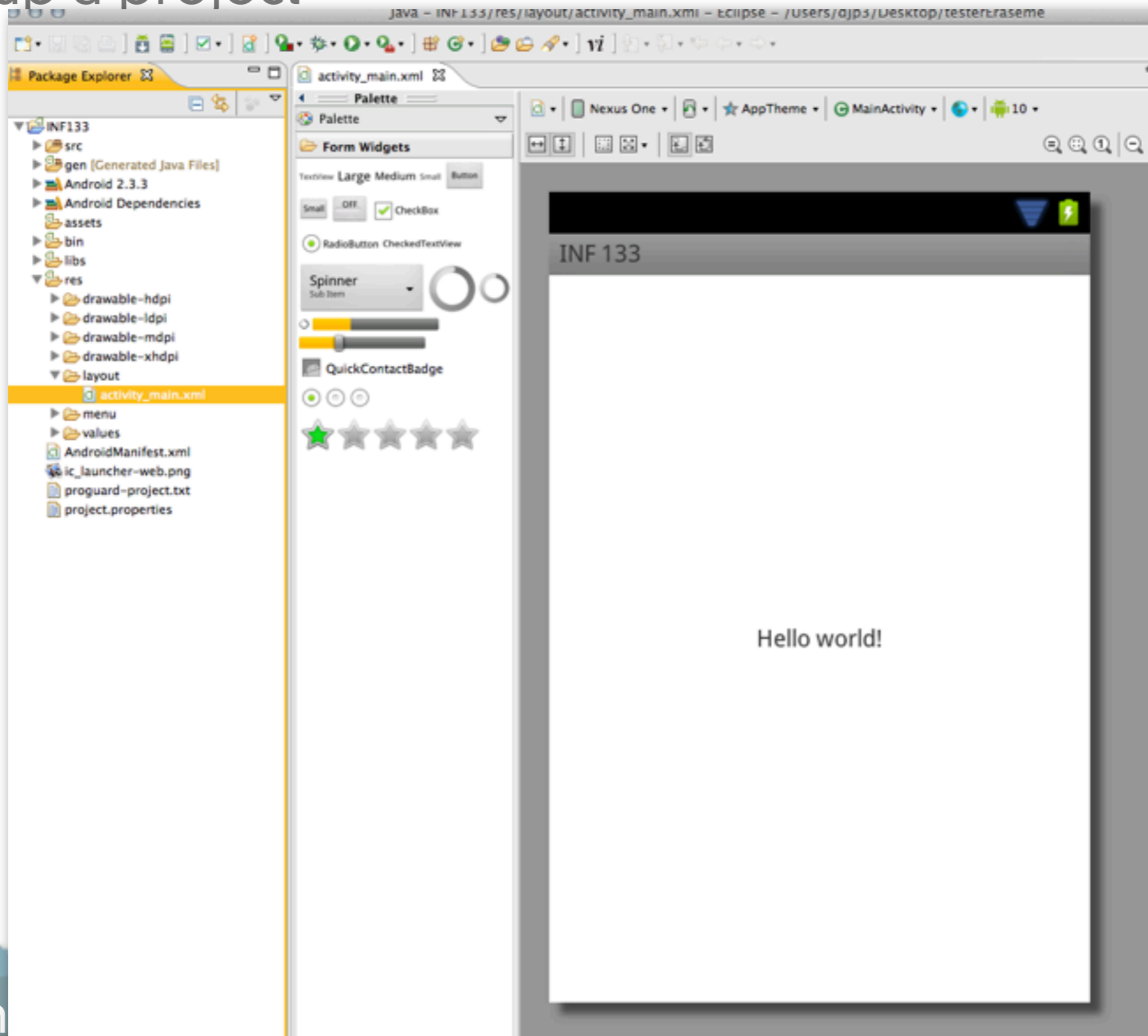
- Set up a project





# Intro to Android:

- Set up a project

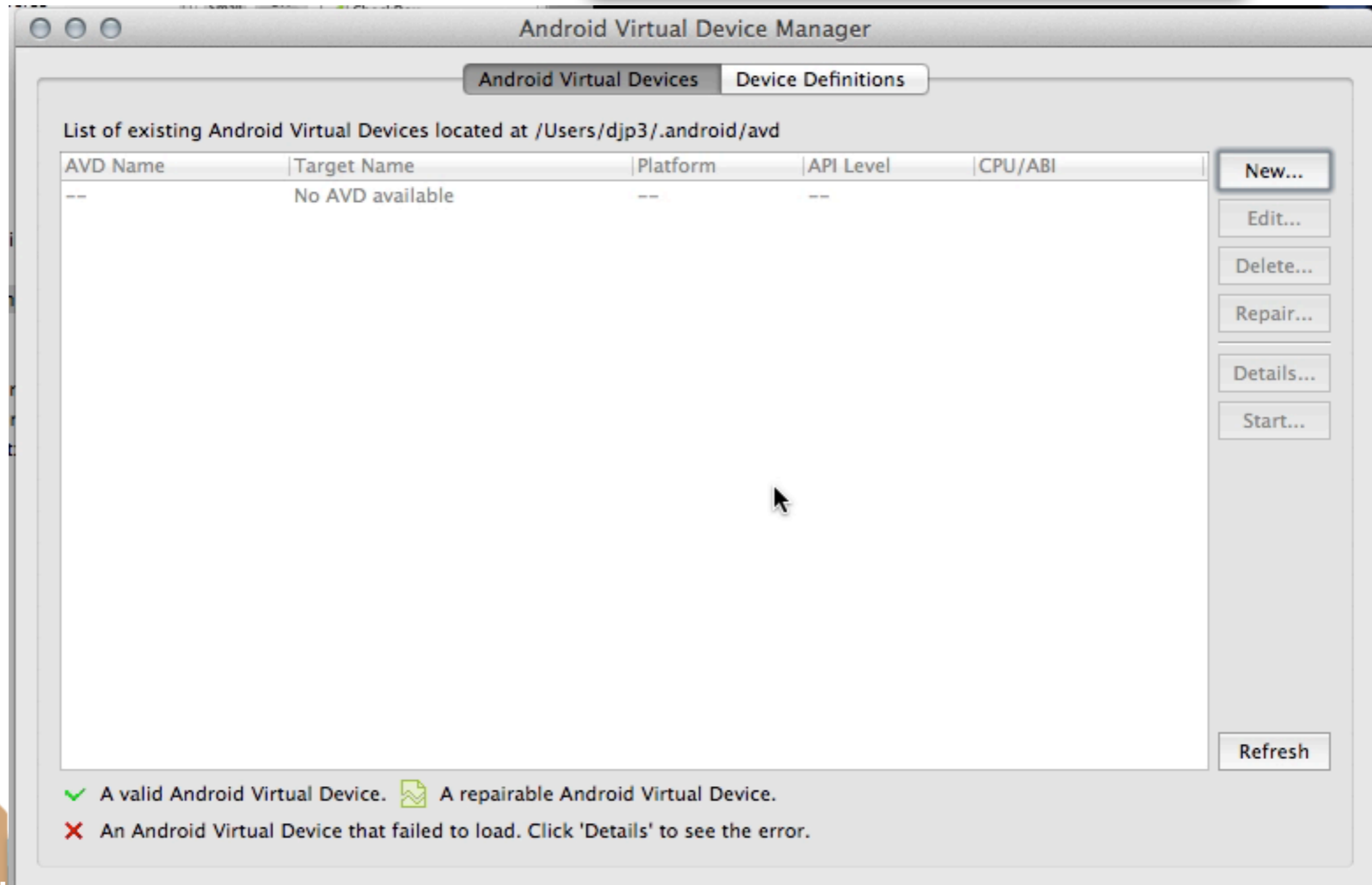


h  
adt.html

installing-

# Intro to Android: AVD

- Set up a virtual device



<http://developer.android.com/tools/devices/managing-avds.html>

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<http://developer.android.com/guide/index.html>

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<http://developer.android.com/guide/index.html>

# Hello World

- Create a project
- Build a basic U/I
- Run the Application
- Improve the U/I
- Debug the Application



<http://developer.android.com/guide/index.html>

# Hello World

- Create a project
- Build a basic U/I
- Run the Application
- Improve the U/I
- Debug the Application

<http://developer.android.com/guide/index.html>

# Intro to Android: Eclipse Plug-in

The screenshot shows the Eclipse IDE with the following components:

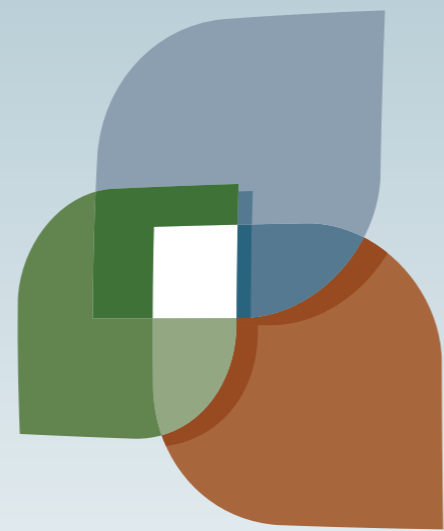
- Menu Bar:** Eclipse, File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, Help.
- Toolbar:** Standard Eclipse development tools like Save, Run, and Undo.
- Package Explorer:** Shows the project structure for 'INF\_133', including 'src', 'gen', 'Android 2.3.3', 'assets', 'bin', 'res', 'AndroidManifest.xml', 'proguard.cfg', and 'project.properties'.
- INF\_133Activity.java:**

```
package edu.uci.ics.luci.inf133;

import android.app.Activity;

public class INF_133Activity extends Activity {
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
    }
}
```
- Task List:** Contains a 'Connect Mylyn' notification.
- Outline:** Shows the class hierarchy: edu.uci.ics.luci.inf133 > import declarations > INF\_133Activity > onCreate(Bundle) : void.
- Problems:** Shows 0 items.
- Bottom Bar:** Includes 'Writable', 'Sma...ert', and 'Command mode:'.

<http://developer.android.com/sdk/eclipse-adt.html>



L U C I

