

# How to Develop & Deploy an Android Application?

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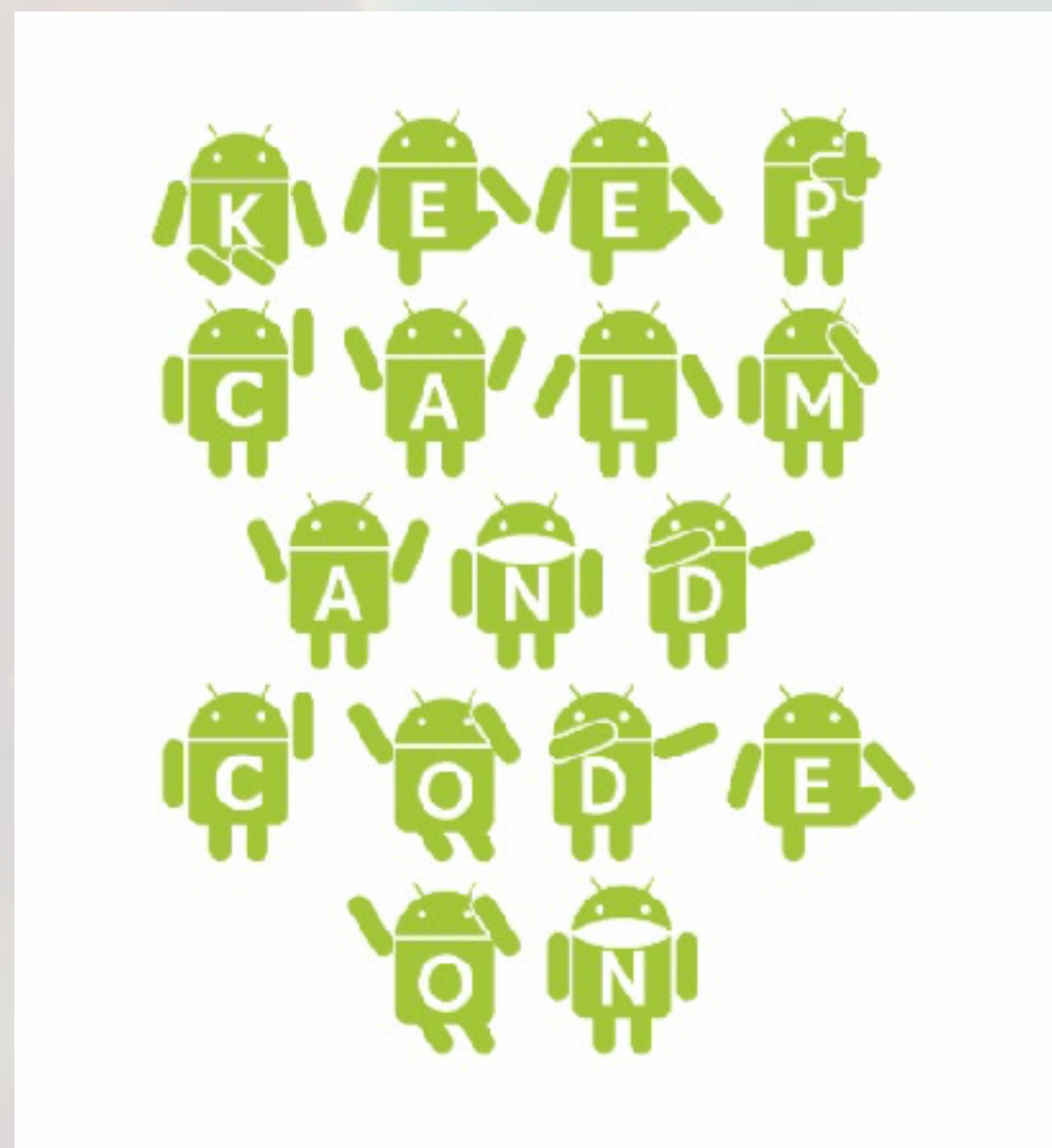


# Dev. Tools



## Android Studio 3.2

- Based on IntelliJ IDEA
  - ▶ **Decompiler, Debugger, Inspector, Refactor**
- Graddle based on Groovy
  - ▶ **Configure dependencies, Compilation chains**
- Lint code analyser
  - ▶ **Bug détection, security report, improvement suggestions**
- Android Virtual Device Manager
  - ▶ **Simulator**
- Android Debug Bridge for remote debugging
- Logcat: filter logs



# Install & Run

The image shows a browser window displaying the Android Studio website. The browser's address bar shows the URL `https://developer.android.com/studio/`. The website's navigation menu includes 'Developers', 'Platform', 'Android Studio', 'Google Play', 'Android Jetpack', 'Docs', and 'News'. Below the navigation, there are links for 'DOWNLOAD', 'WHAT'S NEW', 'USER GUIDE', and 'PREVIEW'. A survey notice asks to take the October 2018 developer survey. The main content area features the 'androidstudio' logo and the text 'Android Studio provides the fastest tools for building apps on every type of Android device.' A prominent 'DOWNLOAD ANDROID STUDIO' button is centered, with a mouse cursor hovering over it. Below the button, it specifies '3.2.1 for Mac (989 MB)'. At the bottom of the main content, there are links for 'DOWNLOAD OPTIONS' and 'RELEASE NOTES'. At the bottom of the browser window, a preview of the Android Studio IDE is shown, displaying a project structure on the left, XML code in the center, and a device preview on the right. The IDE interface includes a toolbar with various icons and a status bar at the bottom showing the time as 8:00.



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Android Studio

DOWNLOAD WHAT'S NEW USER GUIDE PREVIEW

Please take our October 2018 developer survey. [Start survey](#)

## androidstudio

Android Studio provides the fastest tools for building apps on every type of Android device.

**DOWNLOAD ANDROID STUDIO**

3.2.1 for Mac (989 MB)

[DOWNLOAD OPTIONS](#) [RELEASE NOTES](#)



```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match parent"
```

# Main Files and Directories





## Manifests/AndroidManifest.xml

-  Permission of the application
-  Declaration of the main components of the application

## java/

-  One package for the application itself
-  One package for the tests

## res/





-  layout: the "views" of the application
-  menu: description of the various menus inside the application
-  values: the static values of the application (magic numbers, etc)
-  drawable, raw: images, music, etc. required by the application

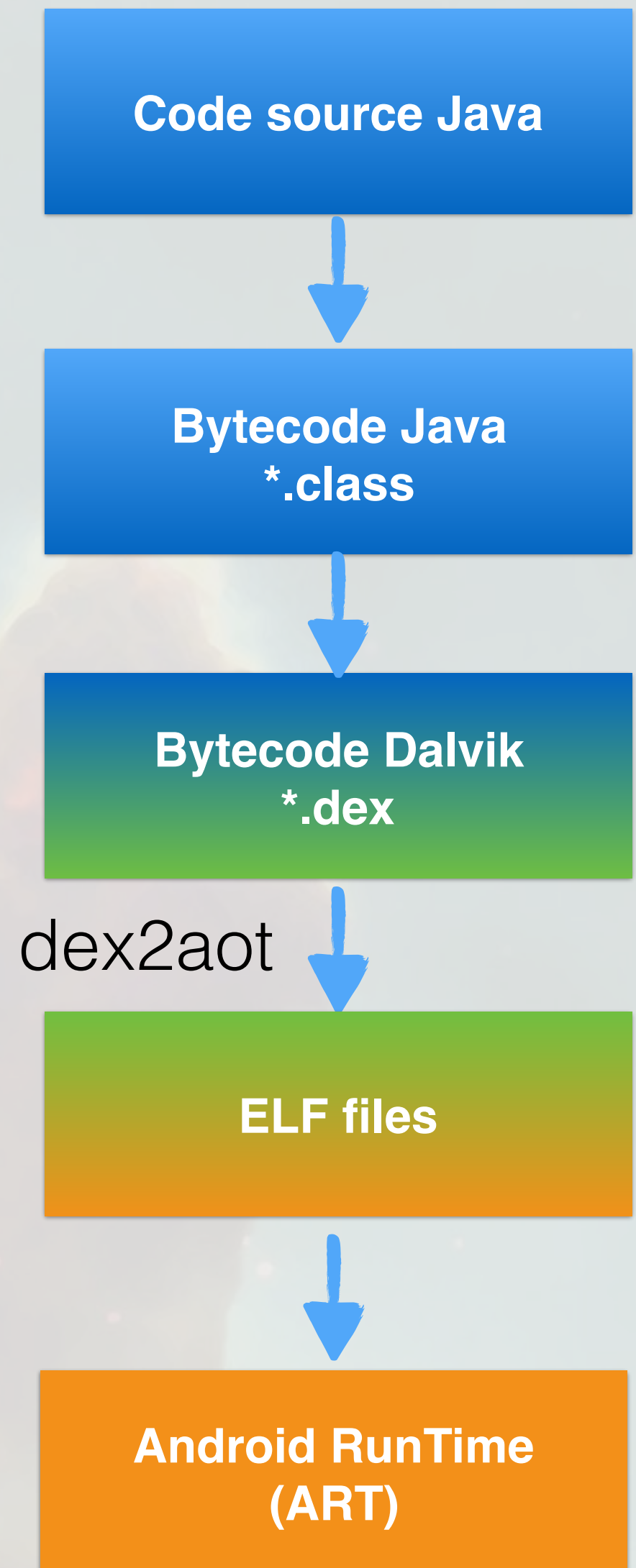


# ART : Android RunTime

 **Not available for oldest devices**

 **An Alternative to Dalvik**

-  dex2oat: compile the application during the installation
-  Minimise the number of Garbage Collection
-  Reduce memory consumption
-  Better performance



# Run an Application



## On the emulator

- Use the AVD manager to create (as many as you want) devices
- You can emulate:
  - ▶ **Phone calls, rotation/orientation, network speed, specific location, etc.**



## On a device

- Connect you device to your computer
- Activate the "developper mode" in you device
  - ▶ **Tap a certain amount (7) of time on the build number**
- Activate USB deployment





# Summary



## You must test your application on multiple devices



Use the AVD Manager



## Click and run to have a remote run/debug



## Compilation scheme



Different from a traditional Java application



Dalvik bytecode, Odex files, ART



## Deployment



Using the Playstore

▶ **25\$ once, then 15\$ per app**



Using your own aptoid server (debian)

