Android Application Development

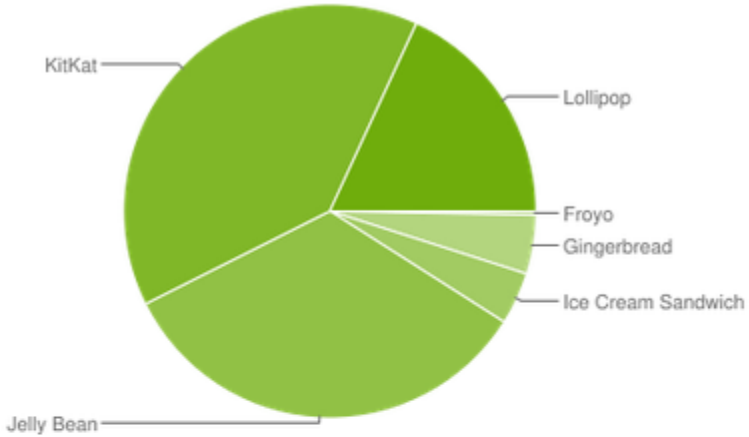
Hello World

Experience is the best teacher

The only way to
be a master
is to DO

Basic Knowledge you need to know before creating your first app

Version	Codename	API	Distribution
2.2	Froyo	8	0.3%
2.3.3 - 2.3.7	Gingerbread	10	4.6%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	4.1%
4.1.x	Jelly Bean	16	13.0%
4.2.x		17	15.9%
4.3		18	4.7%
4.4	KitKat	19	39.3%
5.0	Lollipop	21	15.5%
5.1		22	2.6%



Data collected during a 7-day period ending on August 3, 2015.

Any versions with less than 0.1% distribution are not shown.

Base Android Version: Android 4.0.3 ICS (API 15)

Create Your First Android Application

- **New Project**
- **Application Name:** Hello World
- **Company Domain:** example.com
- **Package name:** com.example.helloworld
- Check **“Phone and Tablet”**
- **Minimum SDK:** API 15: Android 4.0.3 (IceCreamSandwich)
- Choose **“Blank Activity”**
- **Activity Name:** MainActivity
- Finish

Setup Emulator

- We call it as “Virtual Device”
- We have to create it through **AVD Manager**
- Anyway I totally DO NOT recommend to use Emulator unless you really need it
  - It is very very very very slow
  - It consumes your machine’s RAM a lot
  - Buy a device !
- If you really need to test on Emulator, make sure that you choose x86 as Emulator’s CPU/ABI

Type	Name	Resolution	API	Target	CPU/ABI	Size on Disk
	Android L	768 × 1280: xhdpi	N/A	N/A	arm	1 GB
	Android TV 720p	1280 × 720: tvdpi	N/A	N/A	arm	1 GB
	AVD for Android Wear Roun...	280 × 280: hdpi	20	Android 4.4W.2	arm	400 MB
	Jellybean	768 × 1280: xhdpi	17	Android 4.2.2	arm	29 MB
	Nexus 10	2560 × 1600: xhdpi	21	Android 5.0	arm	816 MB
	Nexus 6 API 21	1440 × 2560: 560dpi	21	Android 5.0	arm	1 GB
	Nexus 7	800 × 1280: tvdpi	16	Android 4.1.2	arm	43 MB

Genymotion

- Alternative Android Virtual Device

Pros:

- 100 times better and faster than Android SDK's Virtual Device
- **Totally recommended**

Cons:

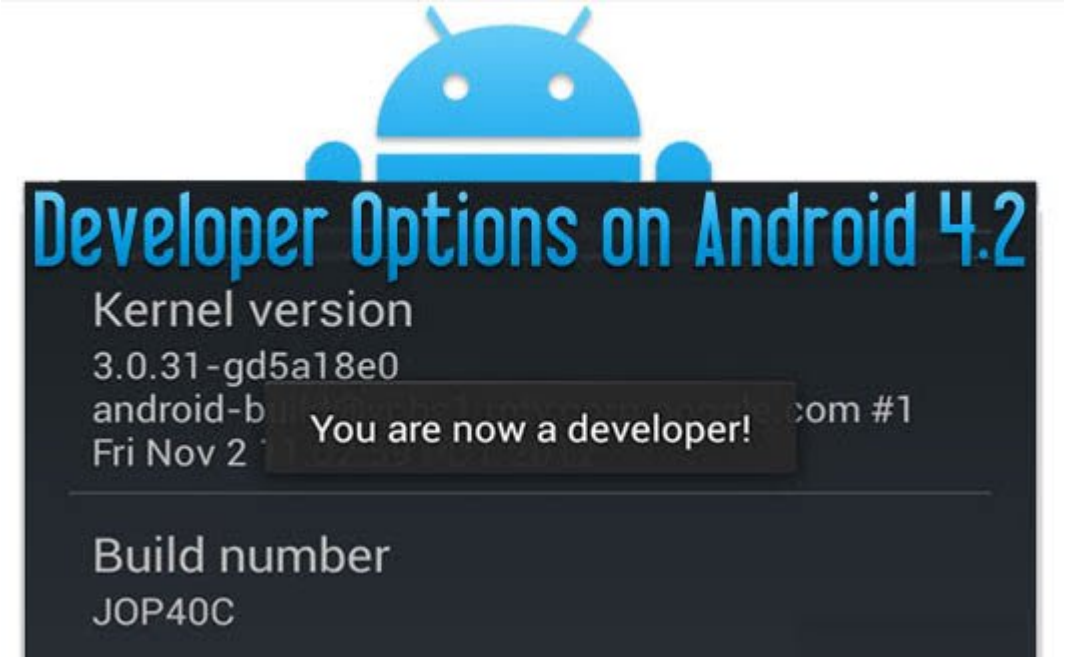
- New version of Android OS comes slower than Android SDK one

Setup Device

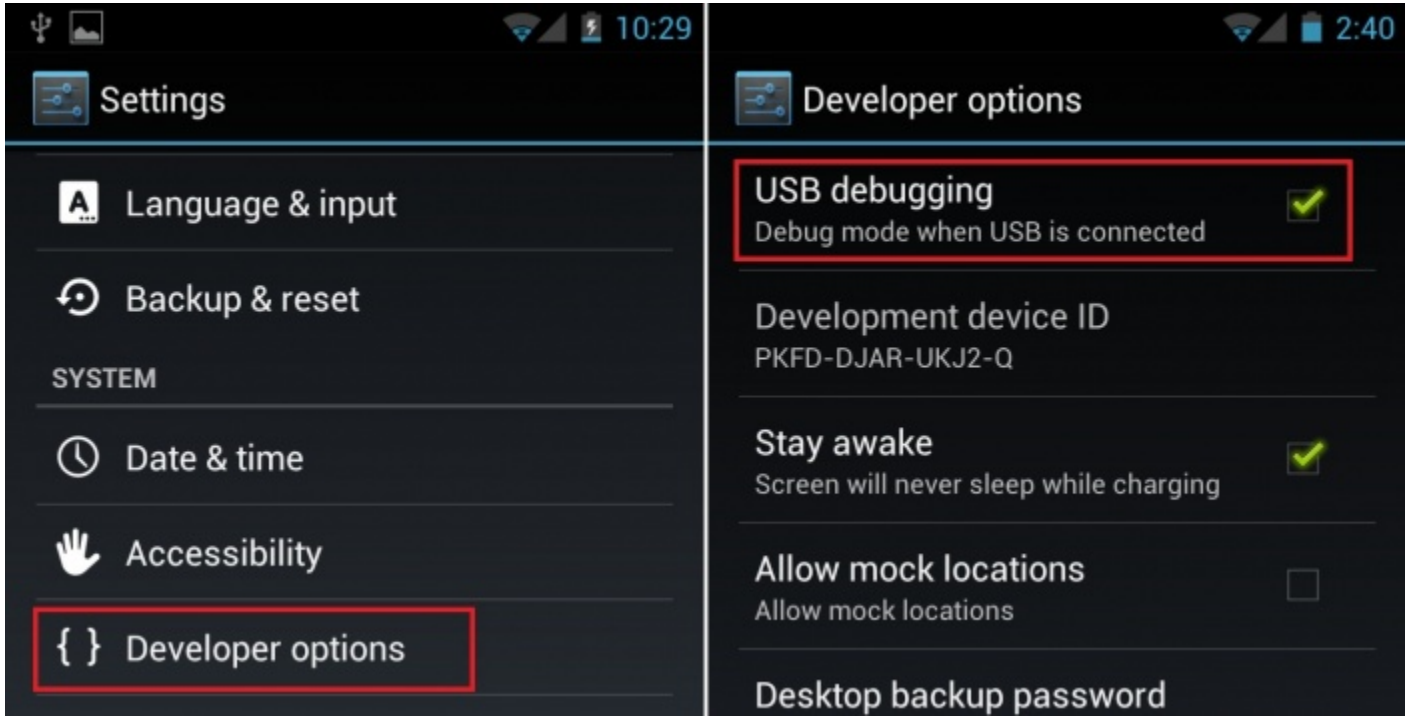
- **Best Choice !** (for me)
- Enable Debugging on Device
- Install ADB Driver for your phone (Windows Only)
  - For leading brand, you can find the driver in **Android SDK folder**
  - For Chinese brand (even leading one like Xiaomi), it is not so easy to find ADB driver but it is existed out there. You just need some more work.
  - In case you really can’t find one, try PdaNet+ or Universal ADB Driver
  - Anyway I recommend to find the driver especially made for the phone to avoid any conflict in the future

Enable Debugging on Device

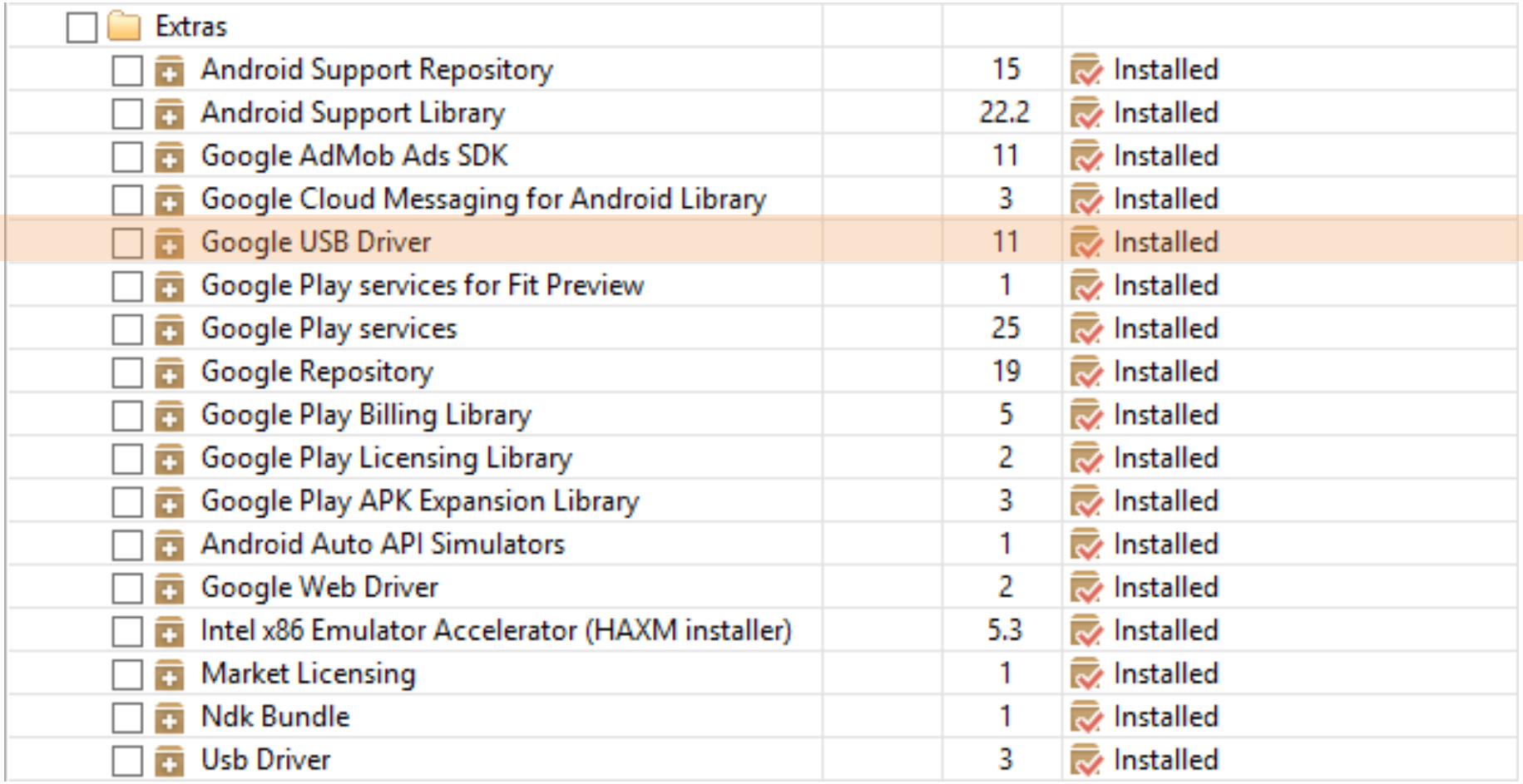
- Go to **Settings** -> **About**
- Keep pressing at **“Build number”** for 7-8 times



Enable Debugging on Device

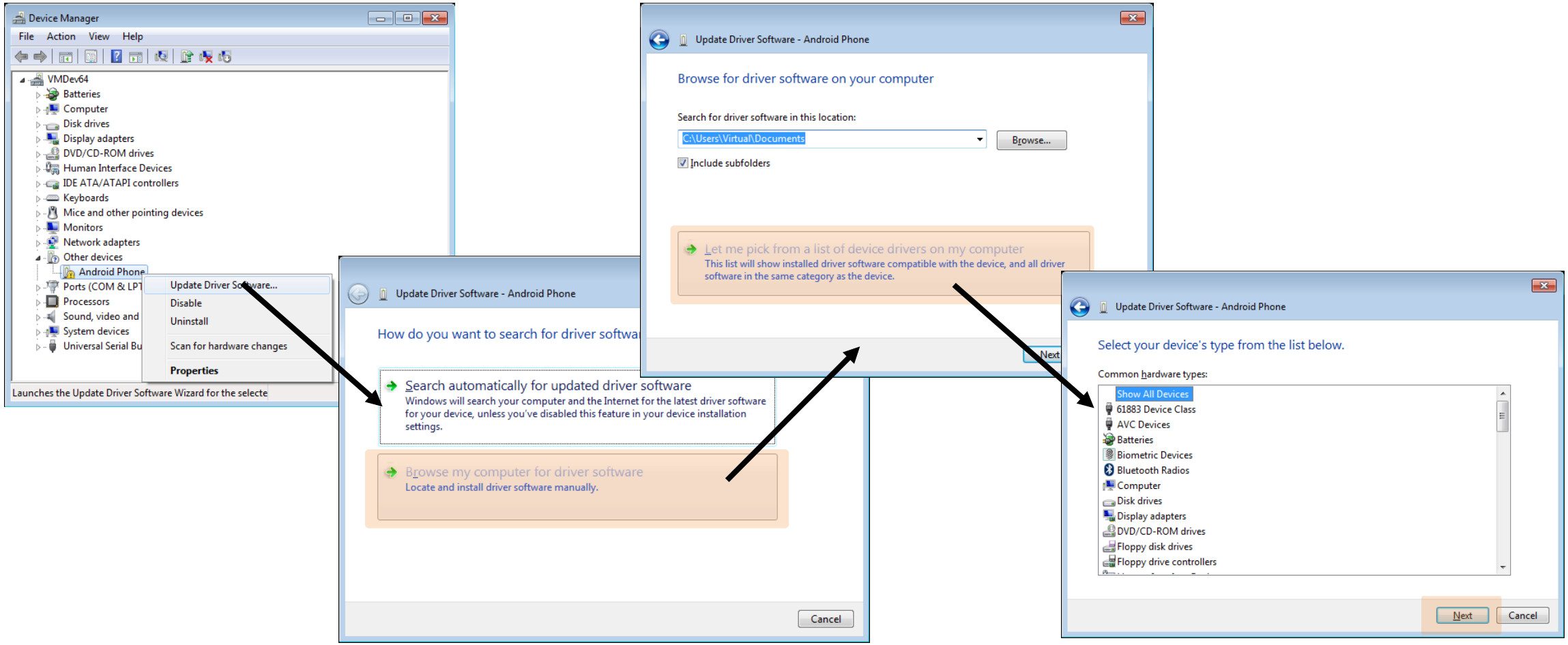


Driver Installation

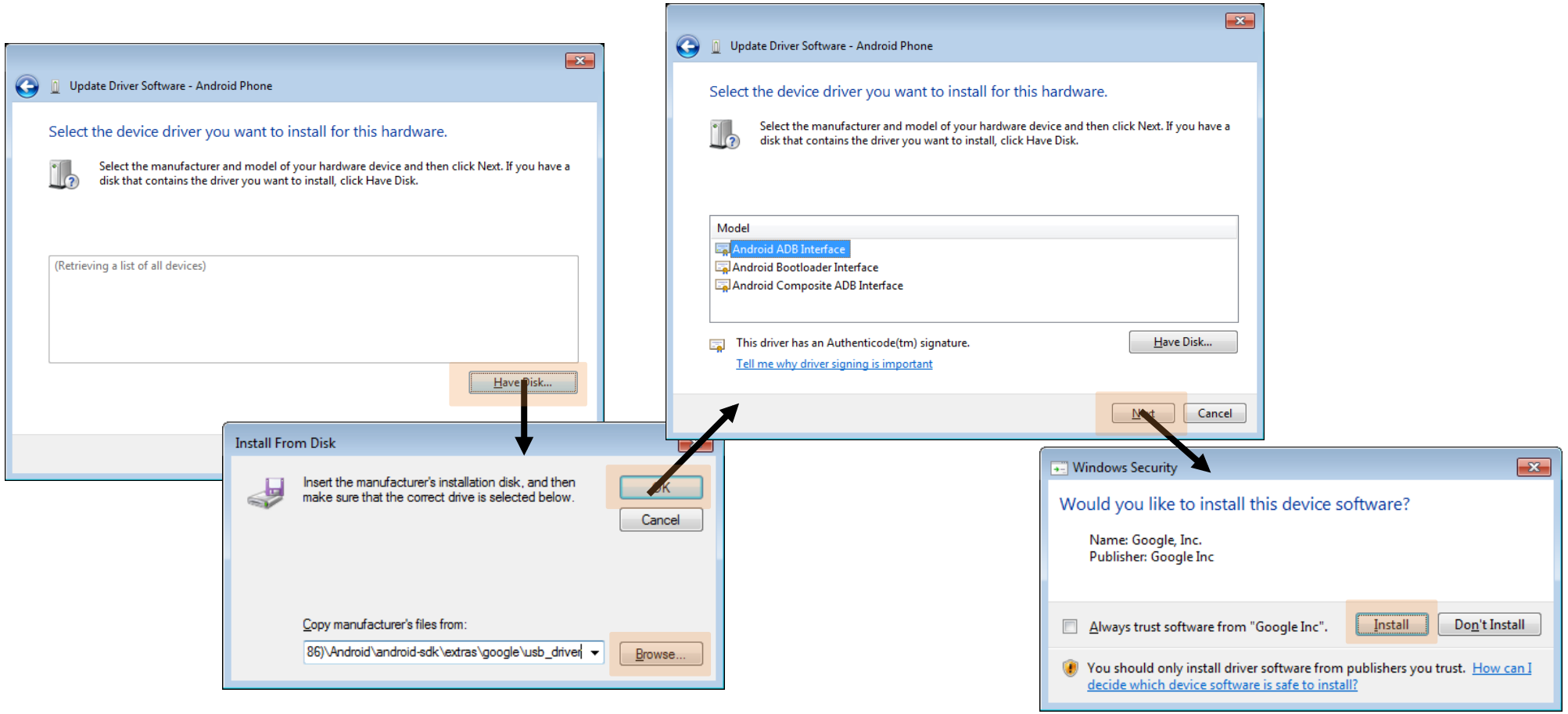


Extras			
Android Support Repository		15	Installed
Android Support Library		22.2	Installed
Google AdMob Ads SDK		11	Installed
Google Cloud Messaging for Android Library		3	Installed
Google USB Driver		11	Installed
Google Play services for Fit Preview		1	Installed
Google Play services		25	Installed
Google Repository		19	Installed
Google Play Billing Library		5	Installed
Google Play Licensing Library		2	Installed
Google Play APK Expansion Library		3	Installed
Android Auto API Simulators		1	Installed
Google Web Driver		2	Installed
Intel x86 Emulator Accelerator (HAXM installer)		5.3	Installed
Market Licensing		1	Installed
Ndk Bundle		1	Installed
Usb Driver		3	Installed

Driver Installation

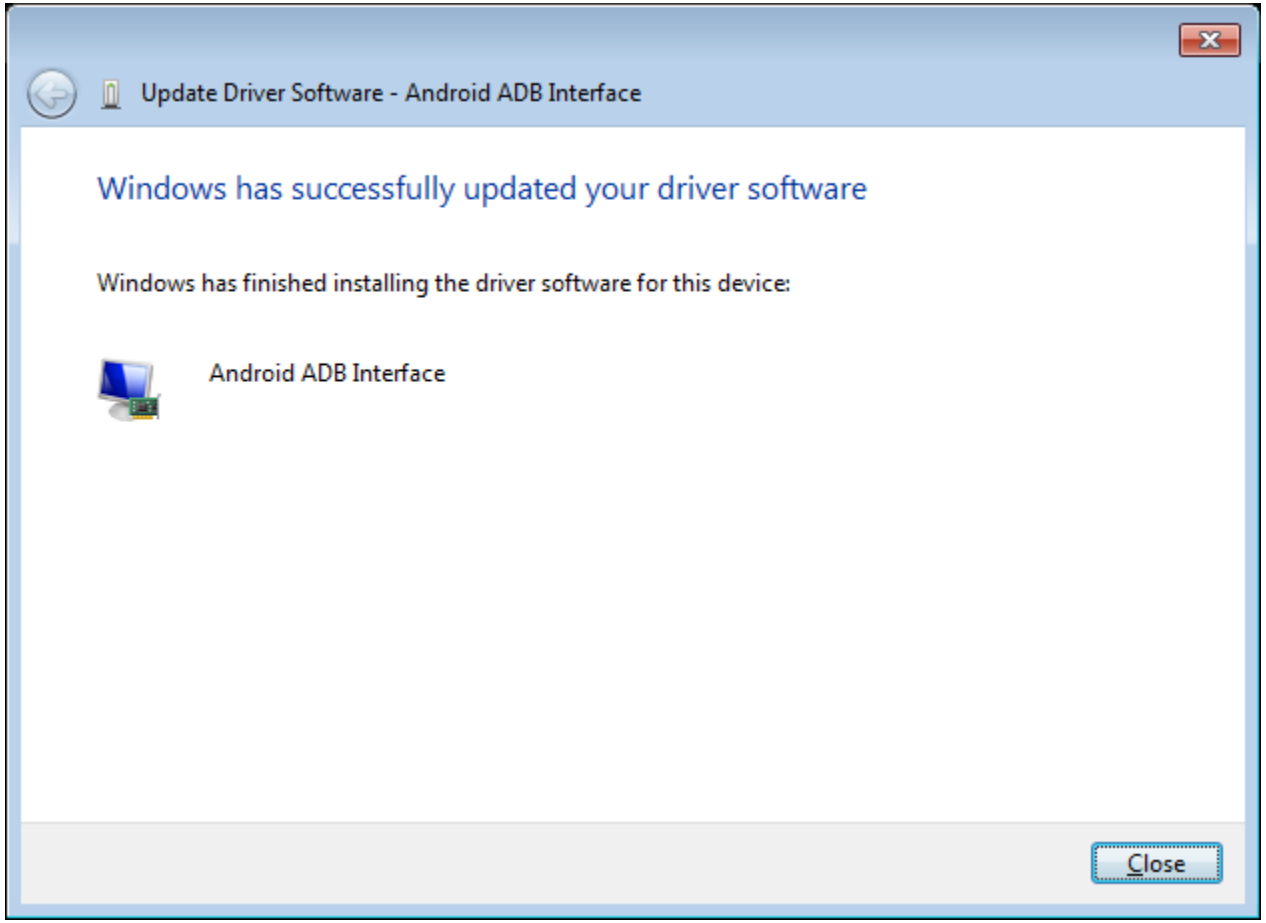


Driver Installation



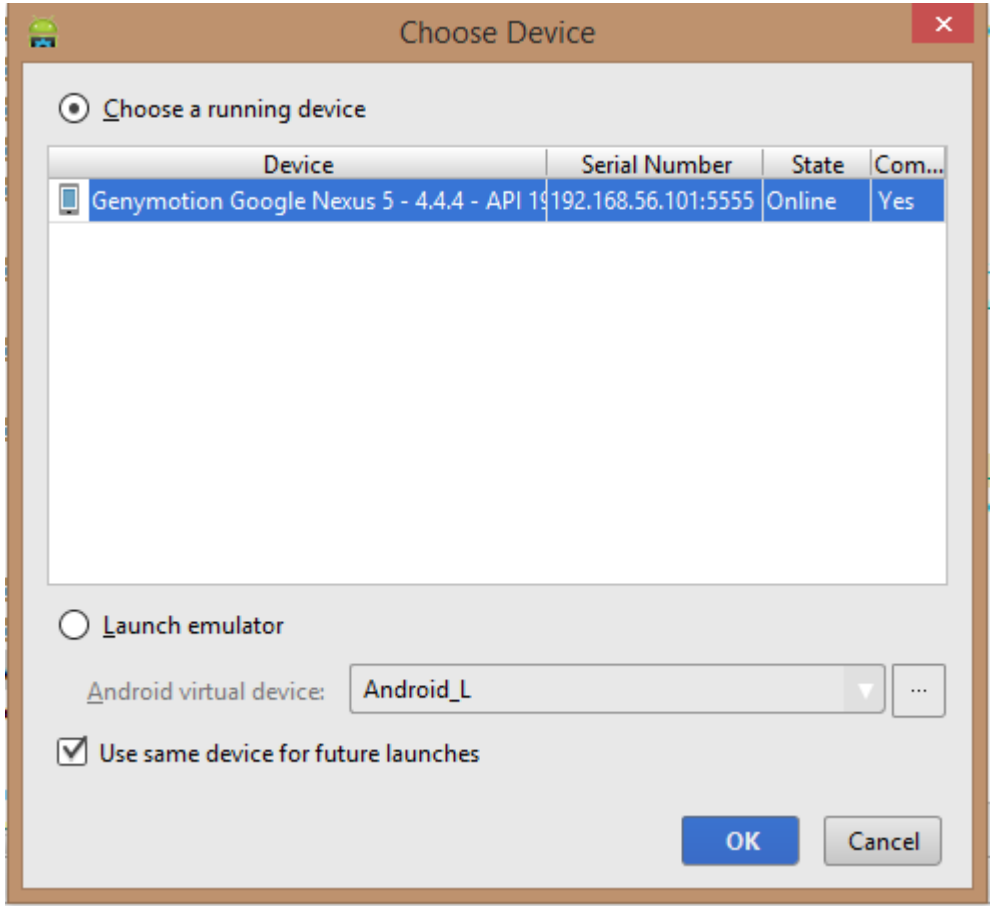
Browse to <SDKPATH>\extras\google\usb_driver

Driver Installation



Everything is a device

- For Android SDK's point of view, **everything is a device**. All of them are treated totally the same.



Setup Device

- Q: There are more than 10,000 models out there. Which one is the best for testing between development?
- A: Mid-Range
  - ~4.5” Screen
  - ~720p
  - ~CPU Dual Core (ARM or x86 doesn’t matter)
  - ~1GB RAM

Why?

Run!

Boo! Welcome to the Android Application Development world !!

What happened when app started?

What happened when app started?

Application Created

What happened when app started?

Activity Created

What happened when app started?

Layout Inflated

and was set to Activity

Lab: Access UI Element from Java code

1) Assign `android:id` to TextView
2) Access through `findViewById`
3) Call `setText("Yeah");`

What is an Android App Development?

UI Implementation

Input/Event Handling

Thread Management

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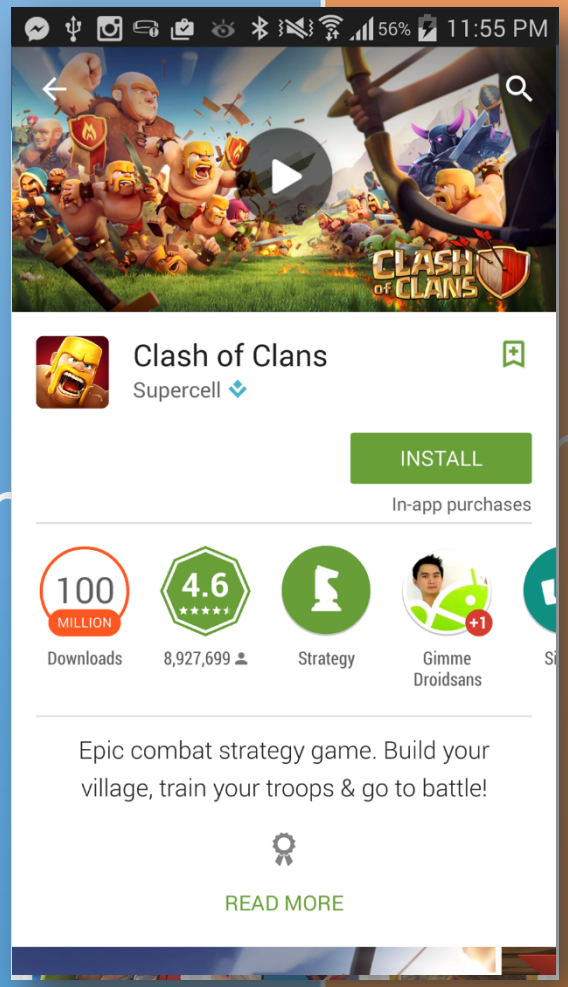
UI Implemer



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Thread Management