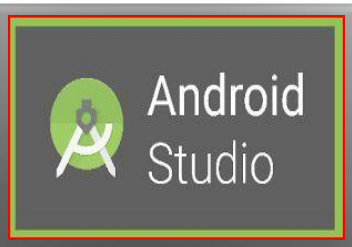
Becoming a Pro

IN Mobile Applications Testing

Mobile APPS: Distribution/Installation/Logs

Mobile APPS: Distribution/Installation: Android .APK



What is Android Studio?

Android Studio is the official integrated development environment (IDE) for **Android** platform development.

The official language for Android development is **Java**. Large parts of Android are written in **Java** and its APIs are designed to be called primarily from **Java**.

It is possible to develop C and C++ apps using the Android Native Development Kit (NDK), however it isn't something that Google promotes.

Mobile APPS: Distribution/Installation/Logs

What is ADB in Android Studio

Android Debug Bridge (adb) is a versatile command line tool that lets you communicate with an emulator instance or connected Android-powered device.

It is a client-server program that includes three components:

- **A client**, which sends commands. The client runs on your development machine. You can invoke a client from a shell by issuing an adb command. Other Android tools such as DDMS also create adb clients.
- **A daemon**, which runs commands on a device. The daemon runs as a background process on each emulator or device instance.
- **A server**, which manages communication between the client and the daemon. The server runs as a background process on your development machine.

Mobile APPS: Distribution/Installation/Logs

What is ADB LOCATS?

Logcat is a command-line tool that dumps a log of system messages, including stack traces when the device throws an error and messages that you have written from your app with the Log class

ANDROID MONITOR includes a logcat Monitor that displays debug messages.

The logcat Monitor displays system messages, such as when a garbage collection occurs, as well as messages that you can add to your app using the LOG class.

It displays messages in real time and also keeps a history so you can view older messages.

Mobile APPS: Distribution/Installation/Logs

What is ADB LOCATS?

To set a LOG LEVEL : in the log level MENU Select the Following Options

- Verbose - Show all log messages (the default).
- Debug - Show debug log messages that are useful during development only, as well as the message levels lower in this list.
- Info - Show expected log messages for regular usage, as well as the message levels lower in this list.
- Warn - Show possible issues that are not yet errors, as well as the message levels lower in this list.
- Error - Show issues that have caused errors, as well as the message level lower in this list.
- Assert - Show issues that the developer expects should never happen.

Mobile APPS: Distribution/Installation/Logs

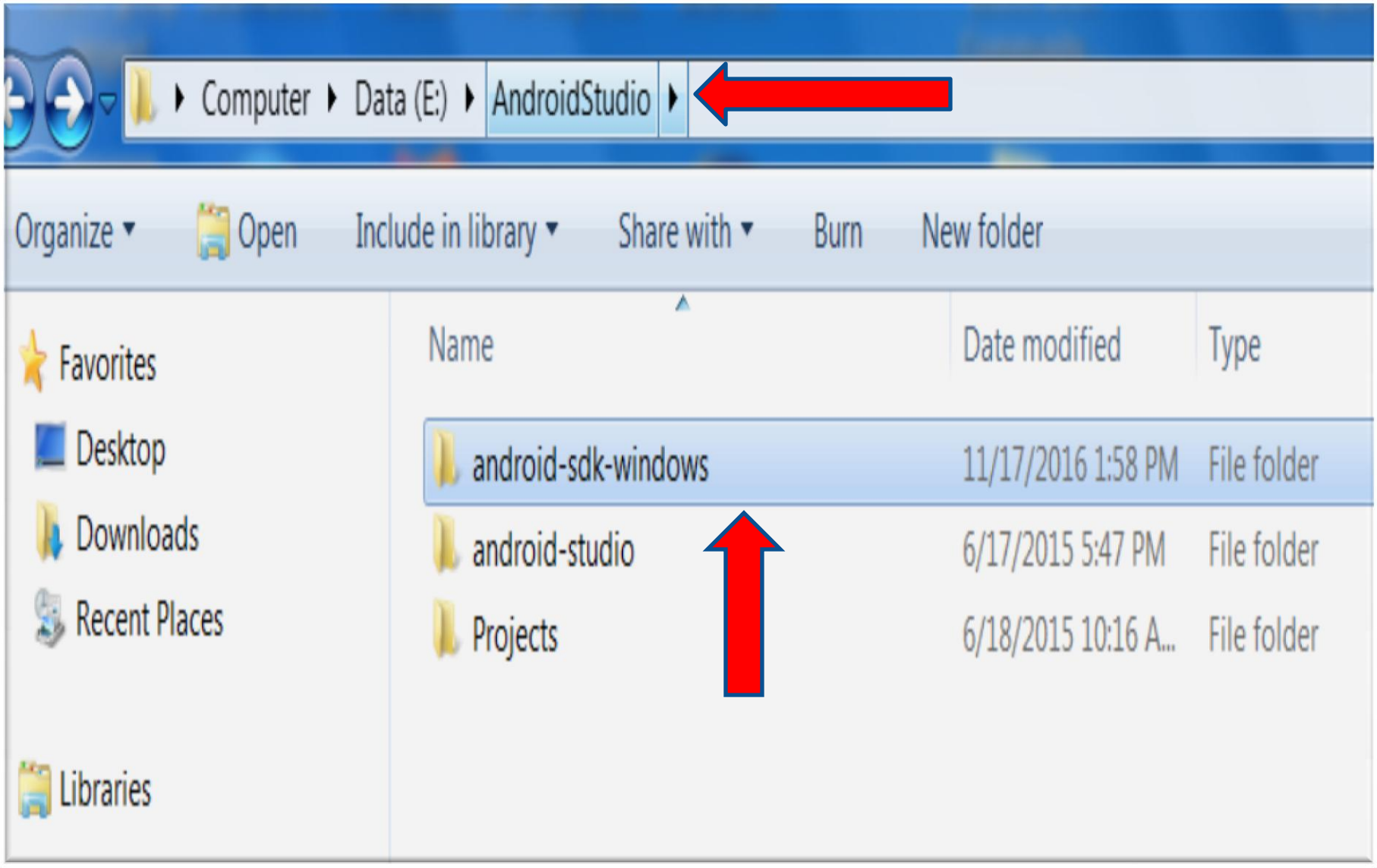
What is ADB LOCATS?

HOMEWORK : http://adbshell.com/commands/adb-logcat

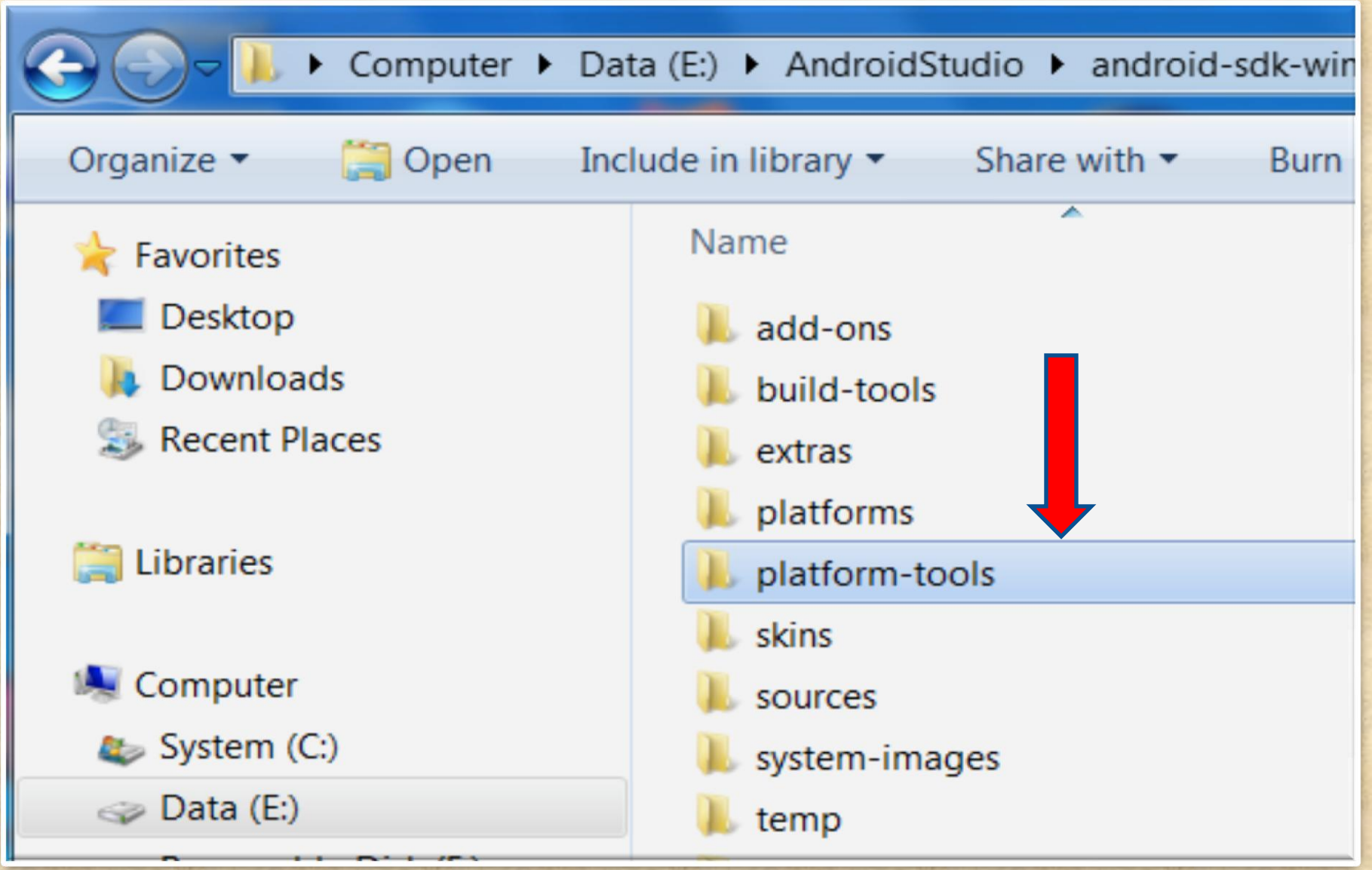
Some most useful commands

- adb logcat *:V *lowest priority, filter to only show Verbose level*
- adb logcat *:D *filter to only show Debug level*
- adb logcat *:I *filter to only show Info level*
- adb logcat *:W *filter to only show Warning level*
- adb logcat *:E *filter to only show Error level*
- adb logcat *:F *filter to only show Fatal level*
- adb logcat *:T *filter to show steps leading up to errors and warnings*

Mobile APPS: Distribution/Installation/Logs



Mobile APPS: Distribution/Installation/Logs



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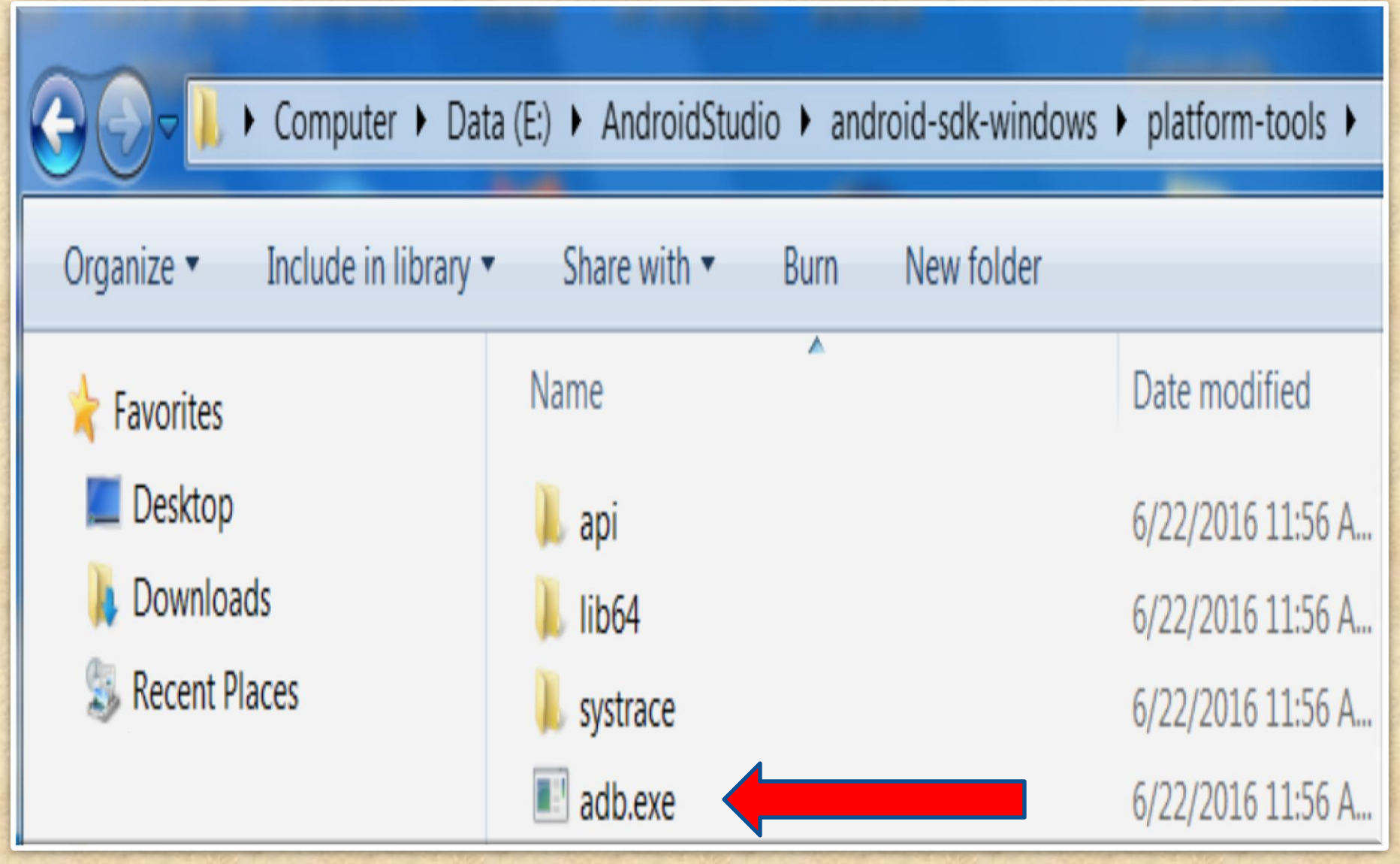

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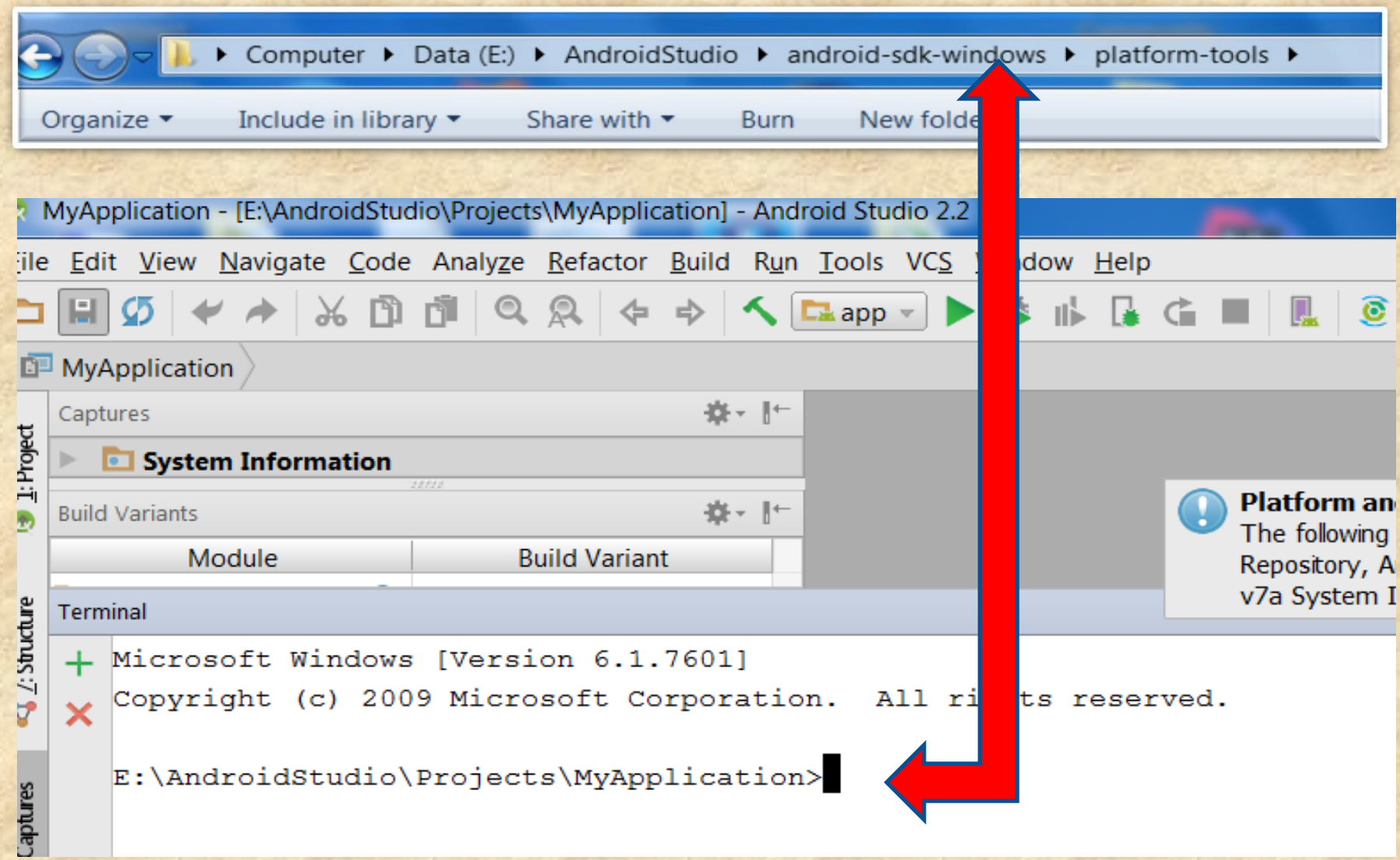

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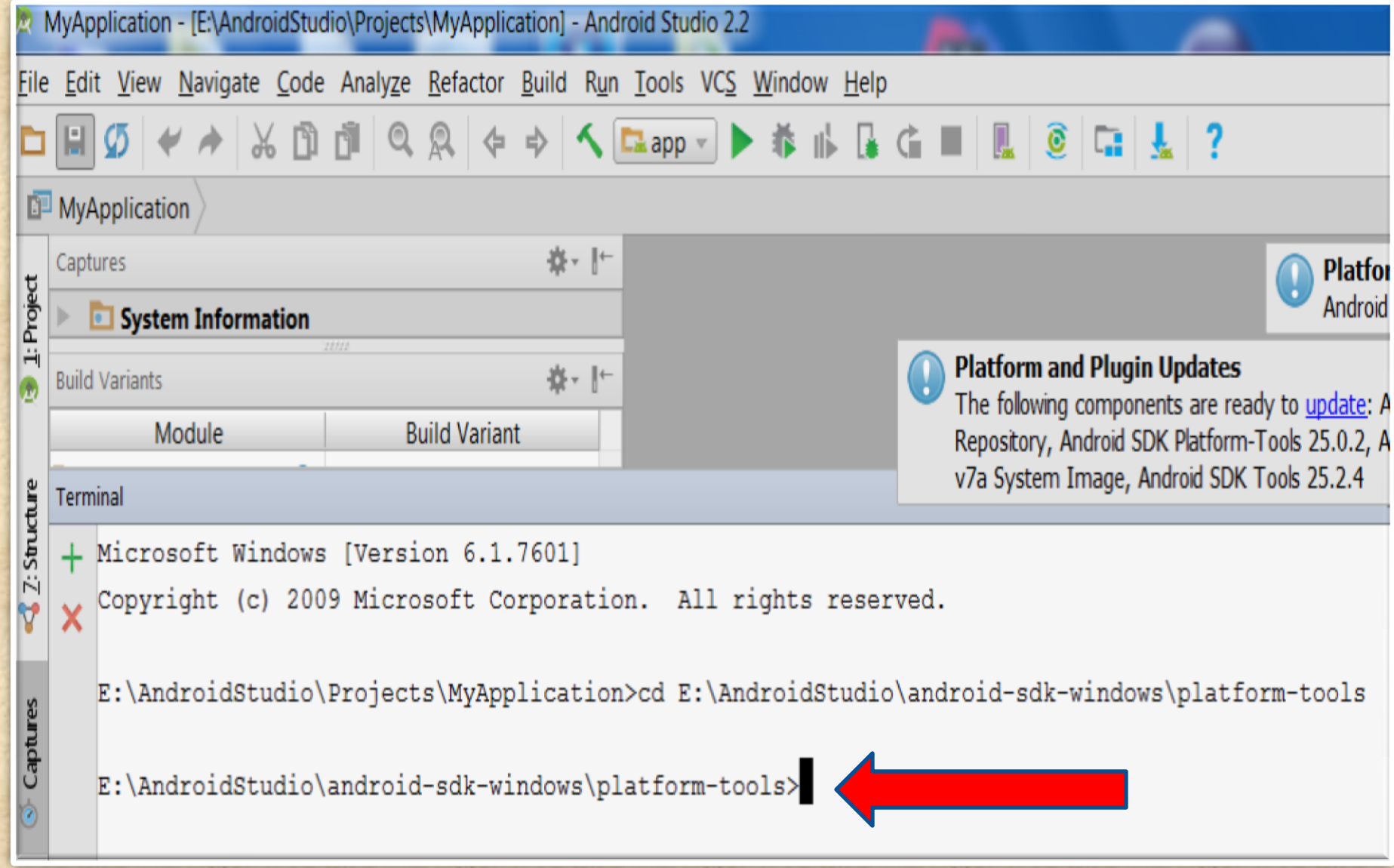

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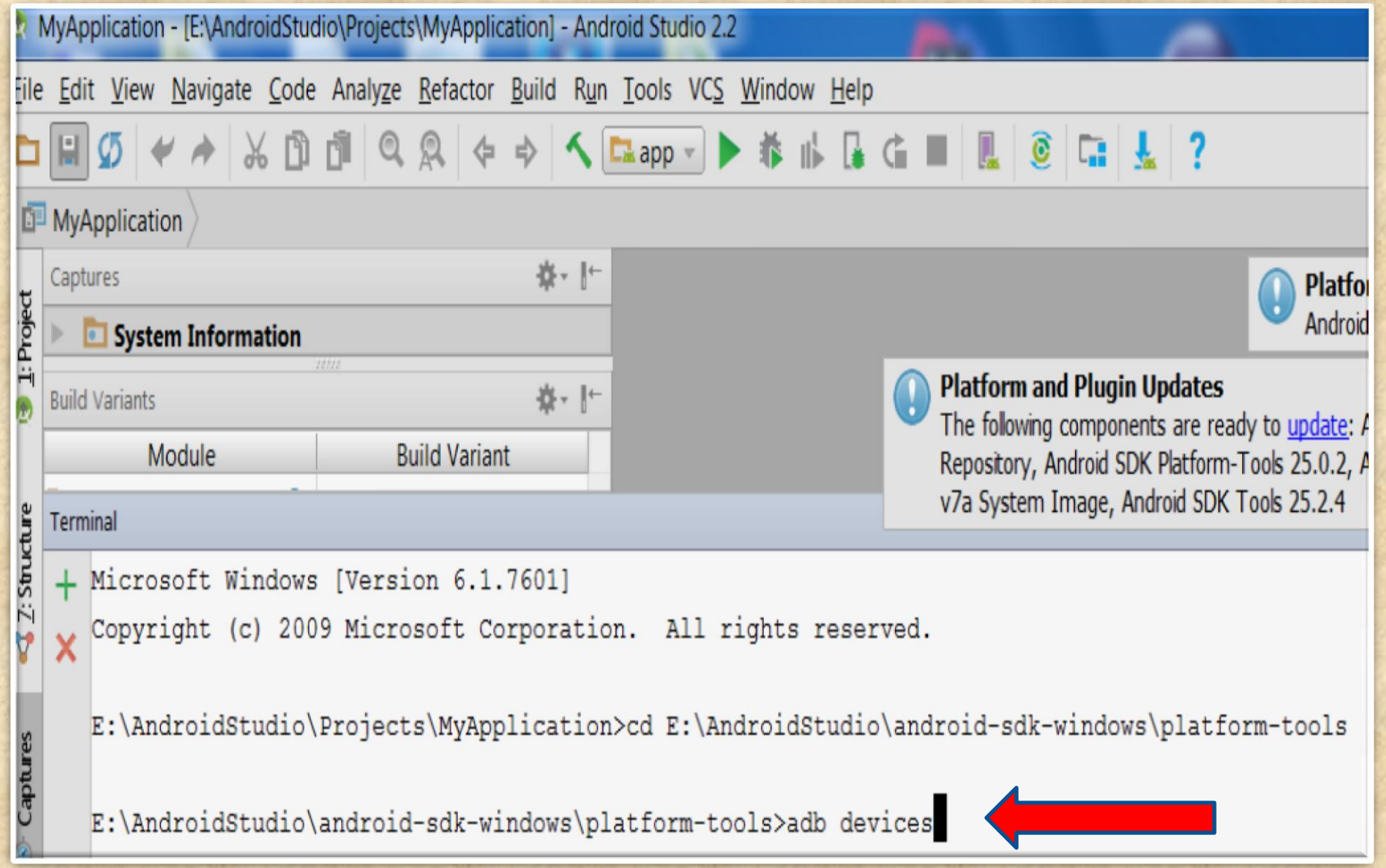

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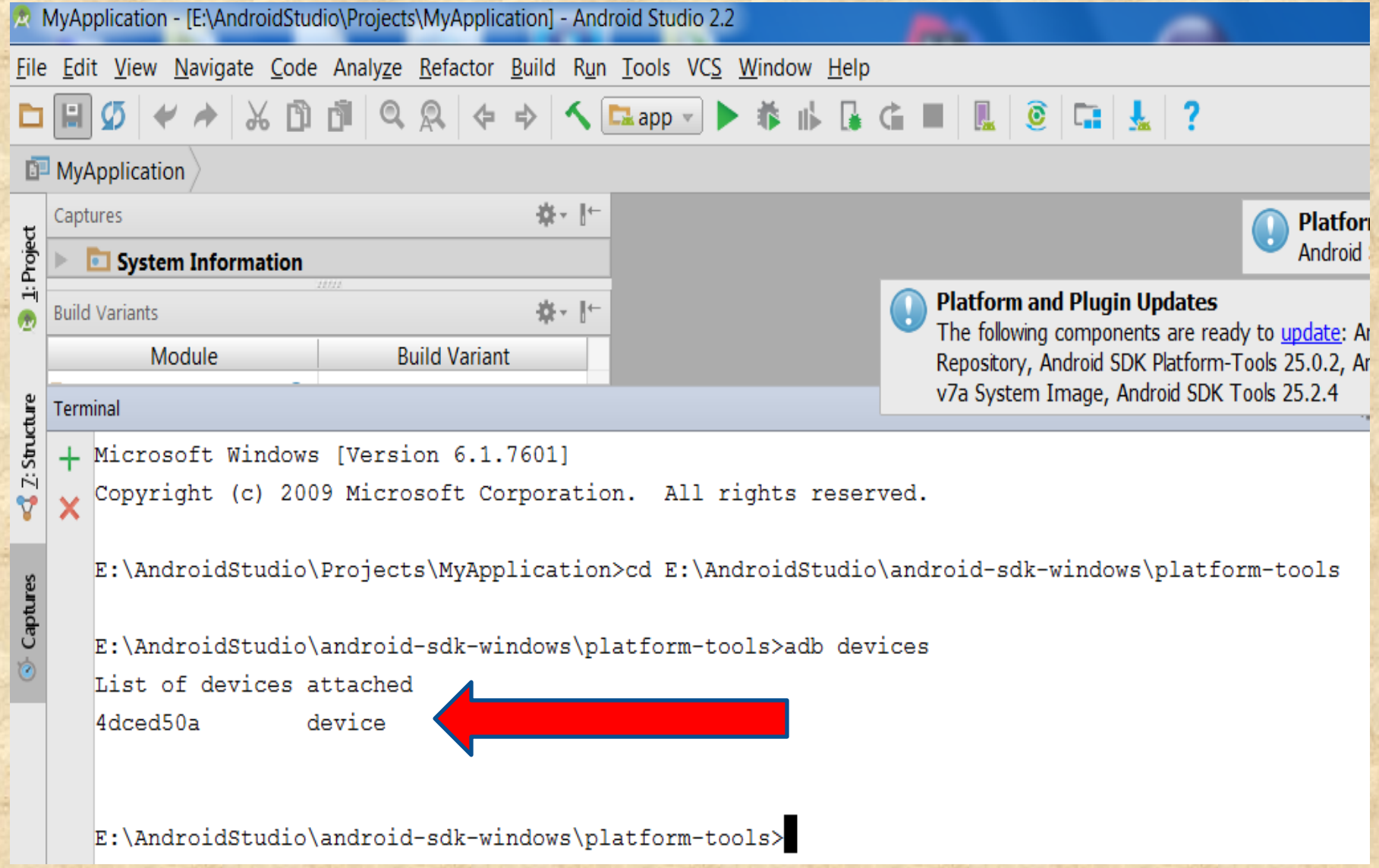

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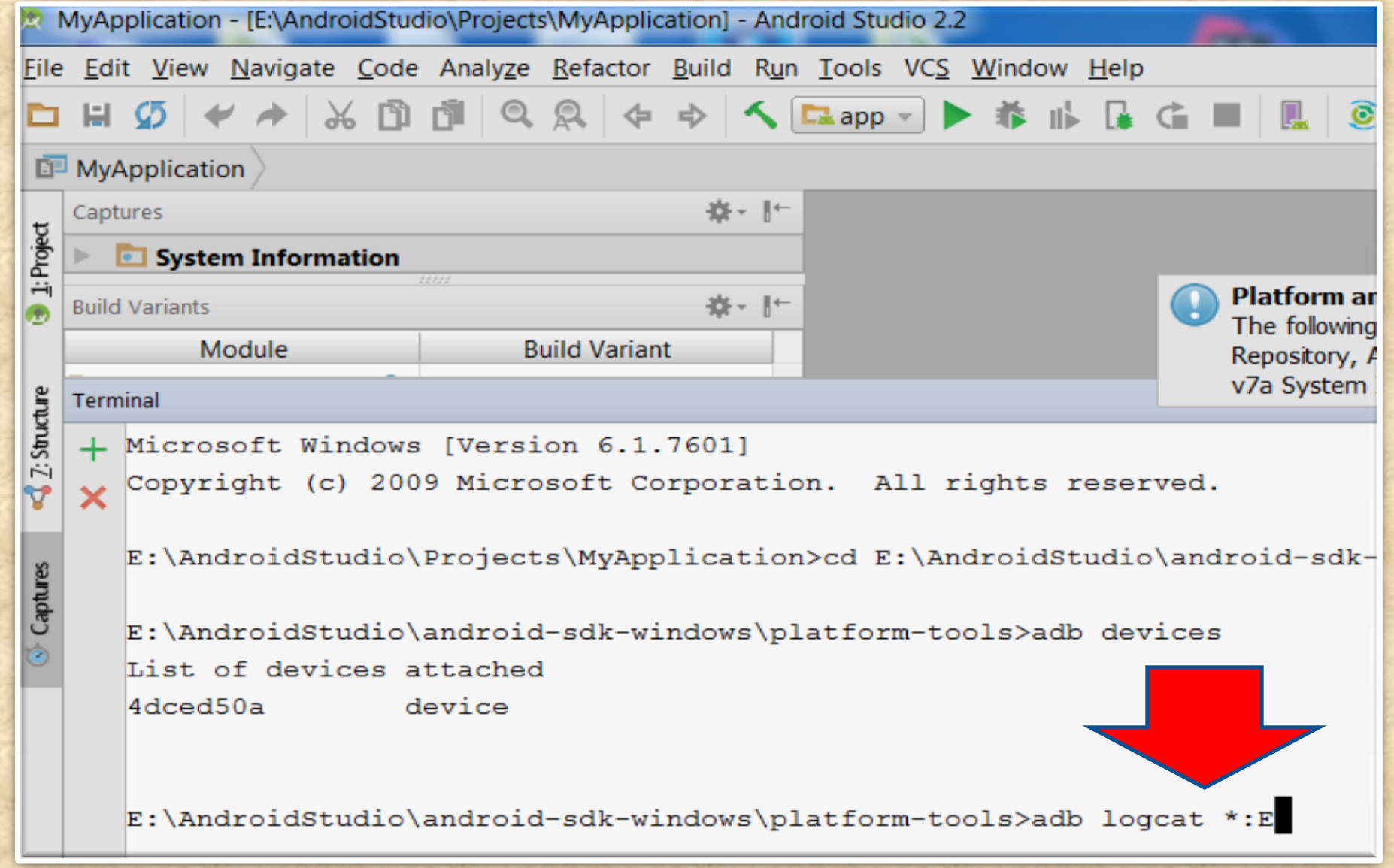

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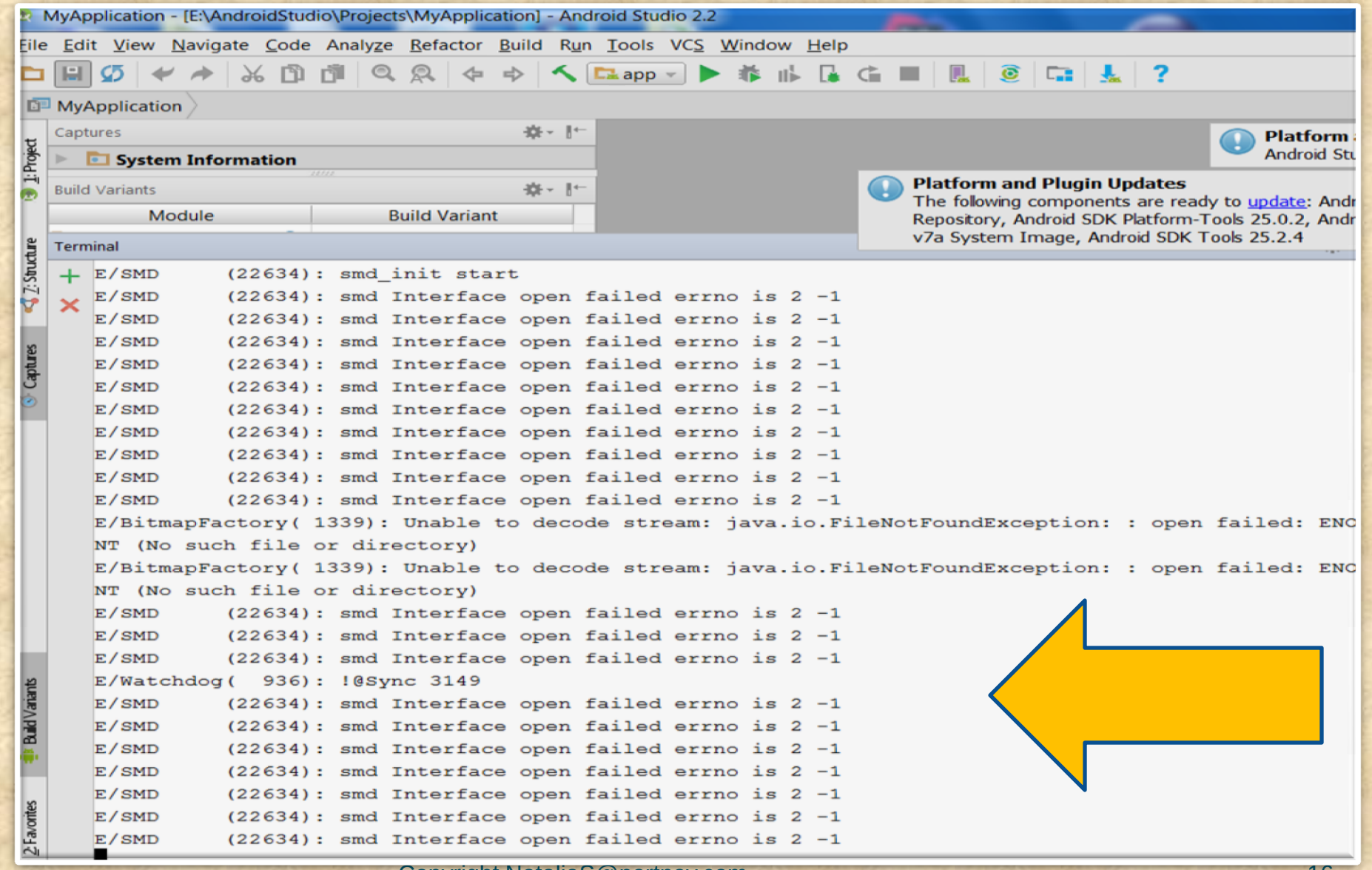

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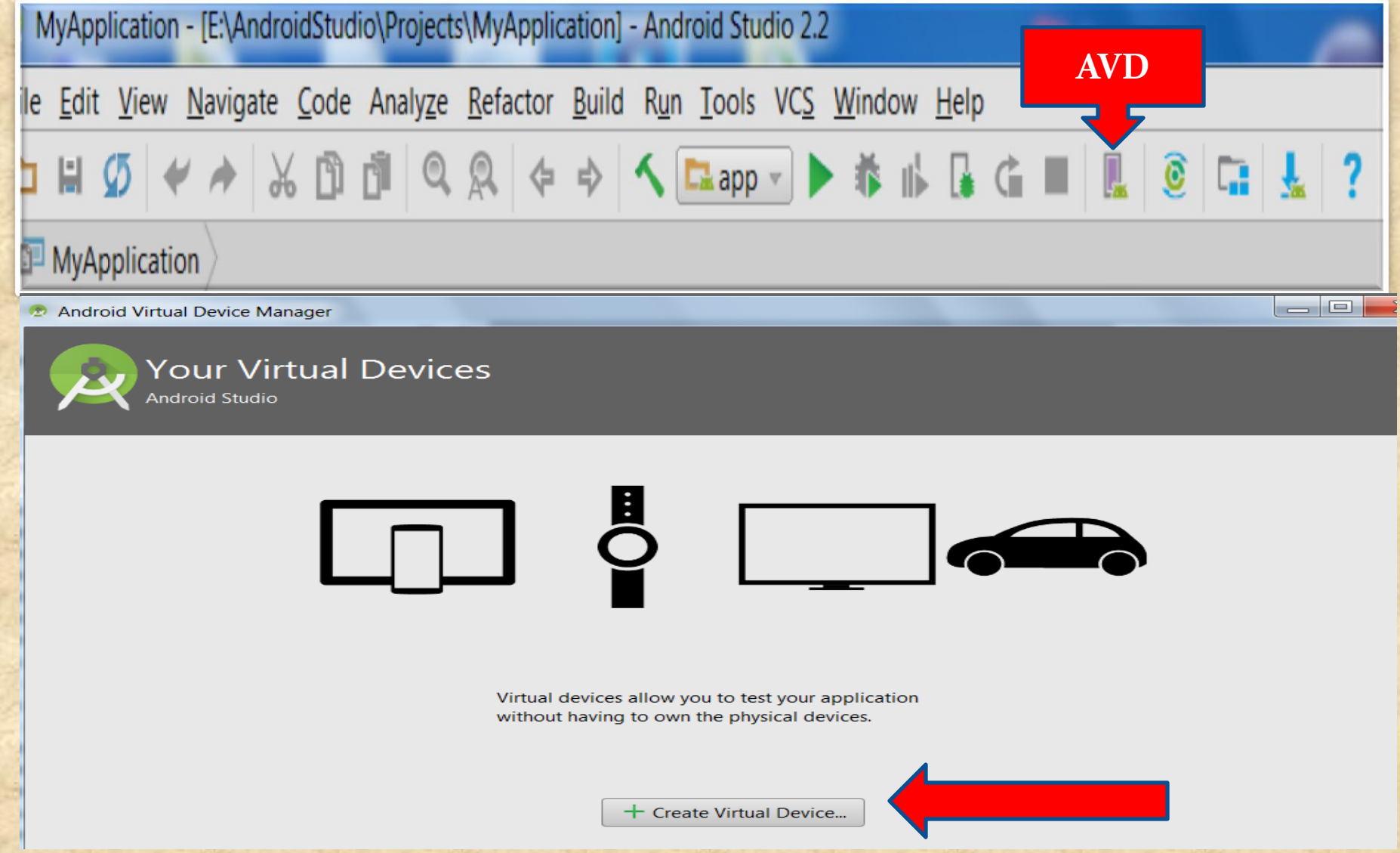

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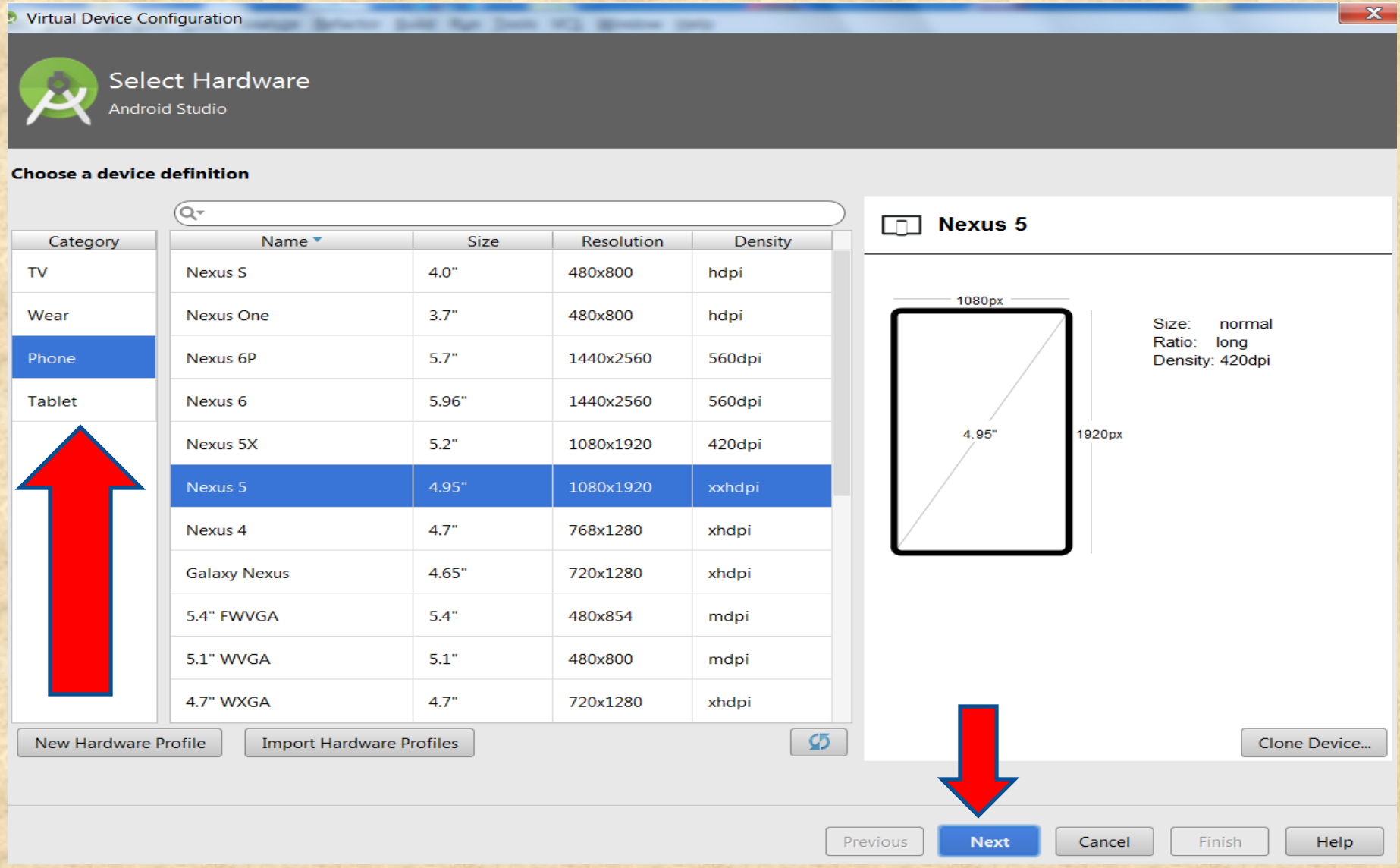

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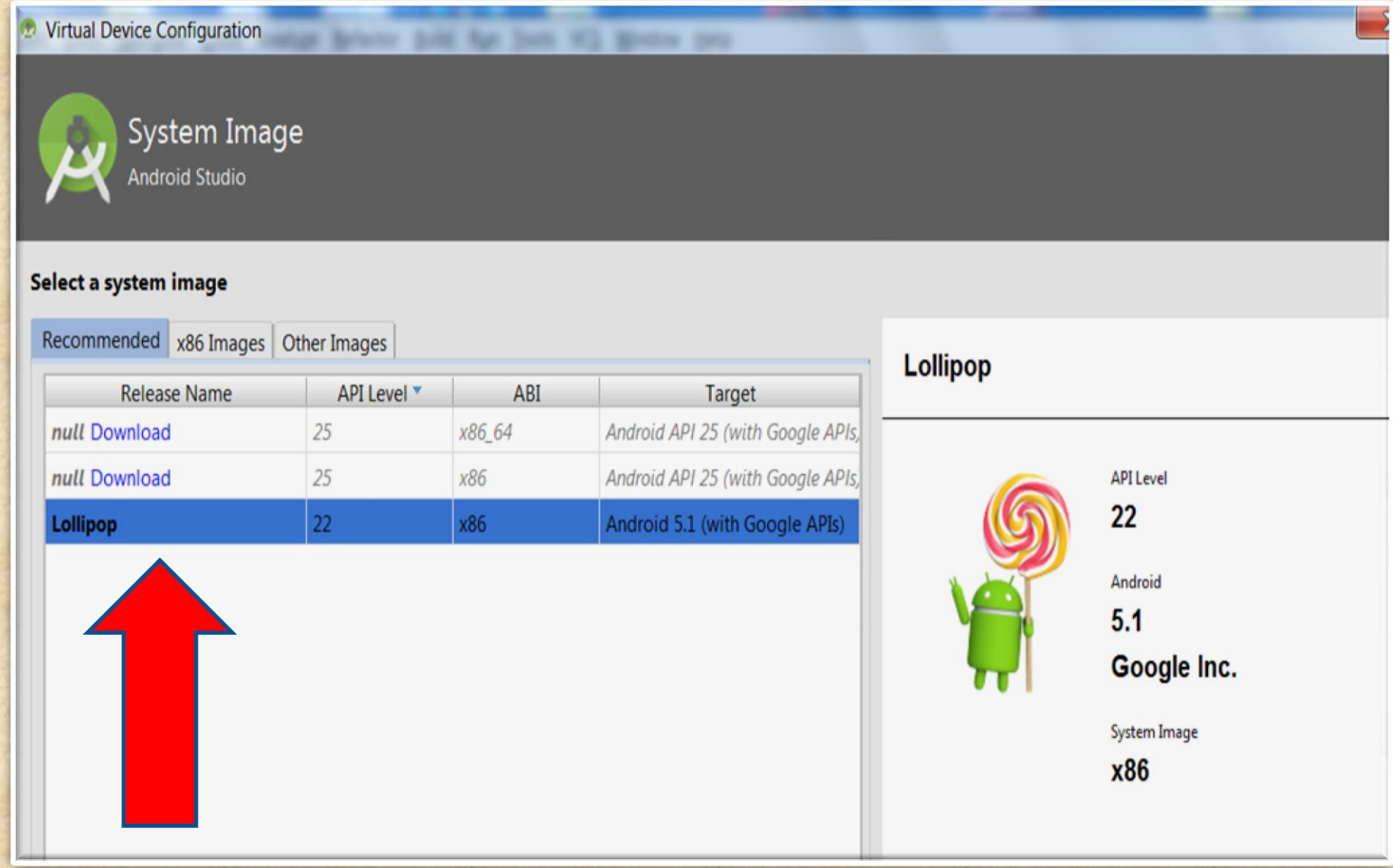

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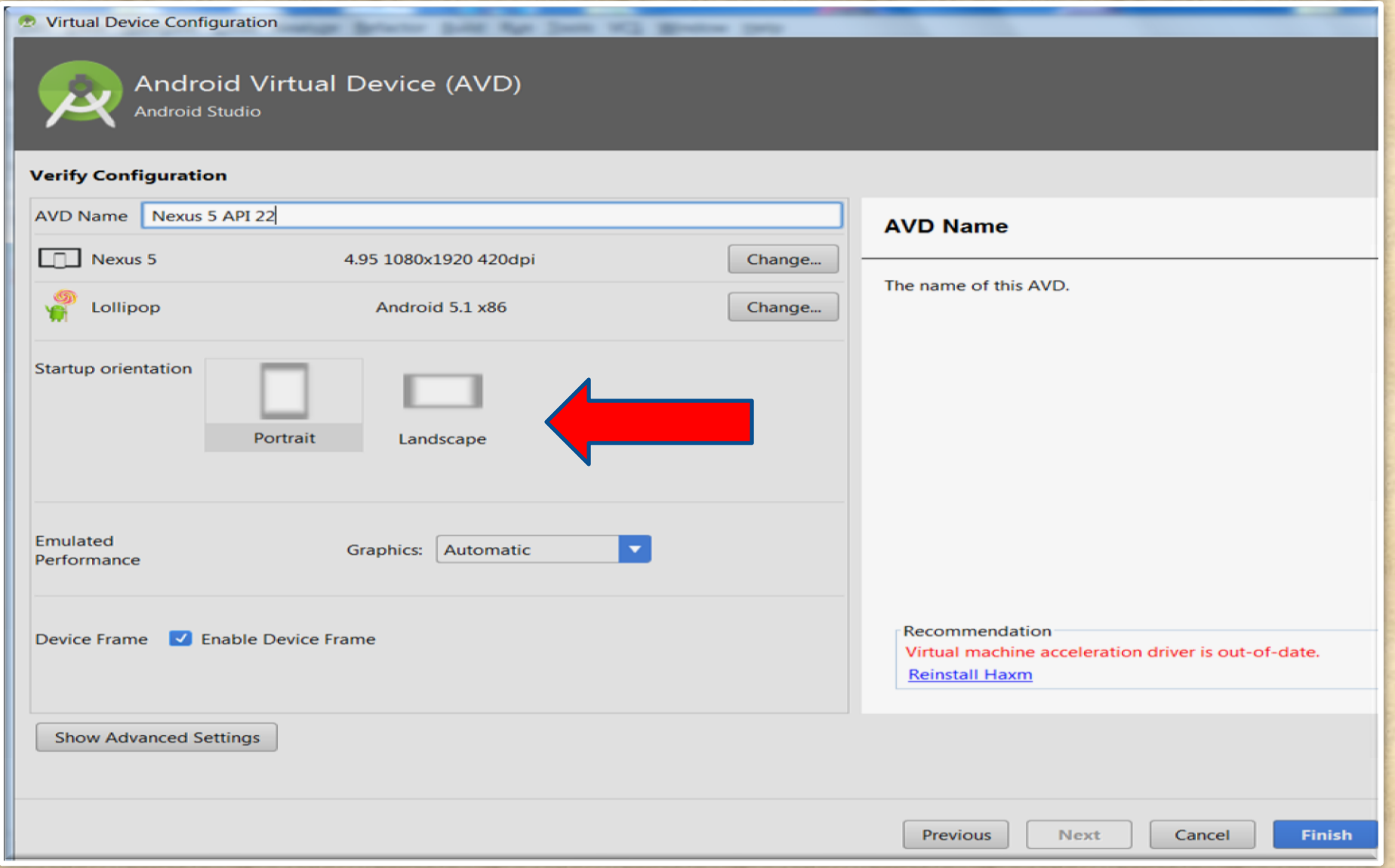

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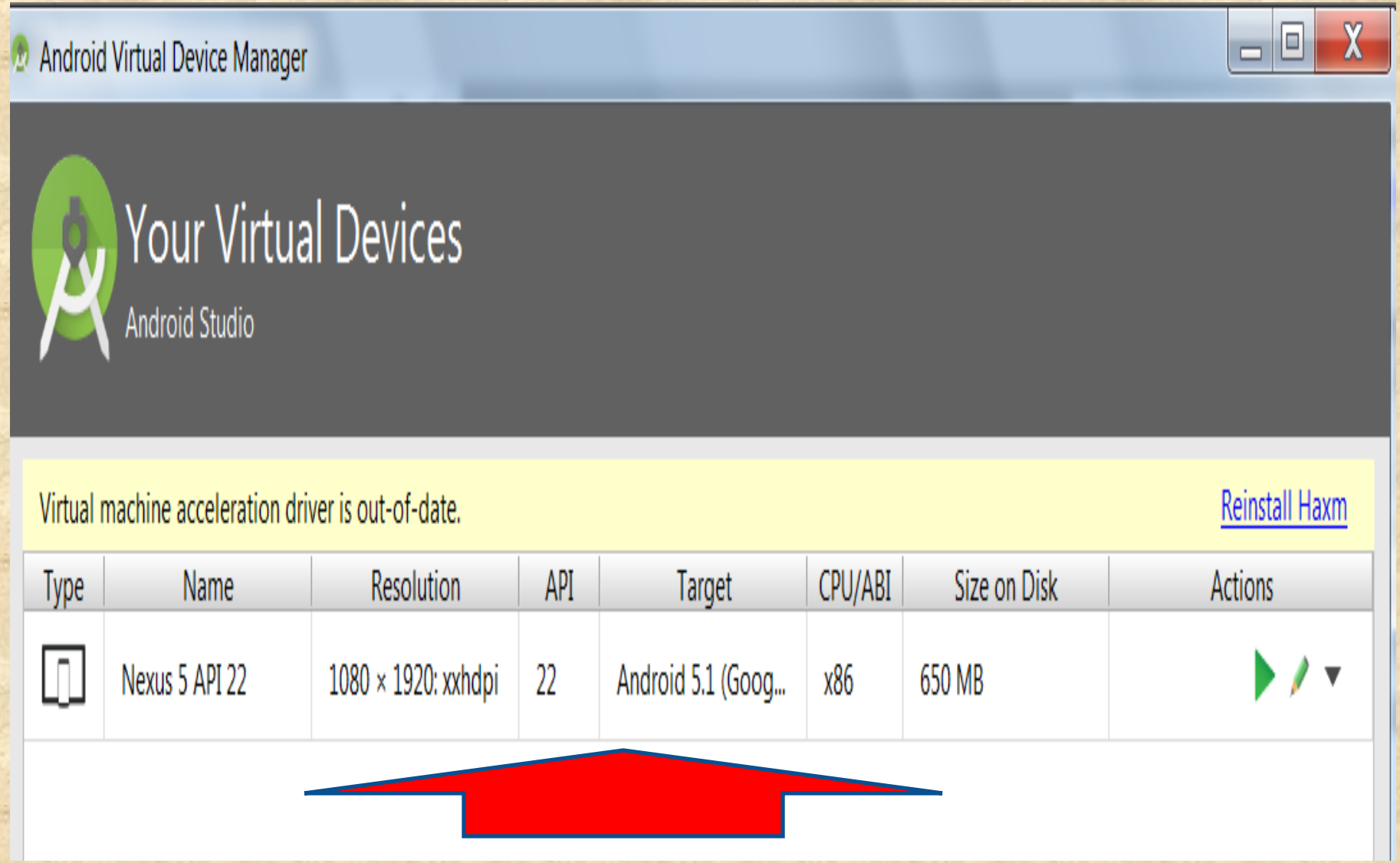


Mobile APPS: Distribution/Installation: Android .APK

Through an App Marketplace (Google Play)

by Email (Android system recognizes the APK and displays an Install Now button in the email message)

Through a Website (host the release-ready APK file on your website and provide a download link)

Google Drive

Android Studio

Test Fairy TOOL

enable allow "Unknown Sources" on the device (Settings > Applications > Unknown Sources

Mobile APPS: Distribution/Installation: Android .APK

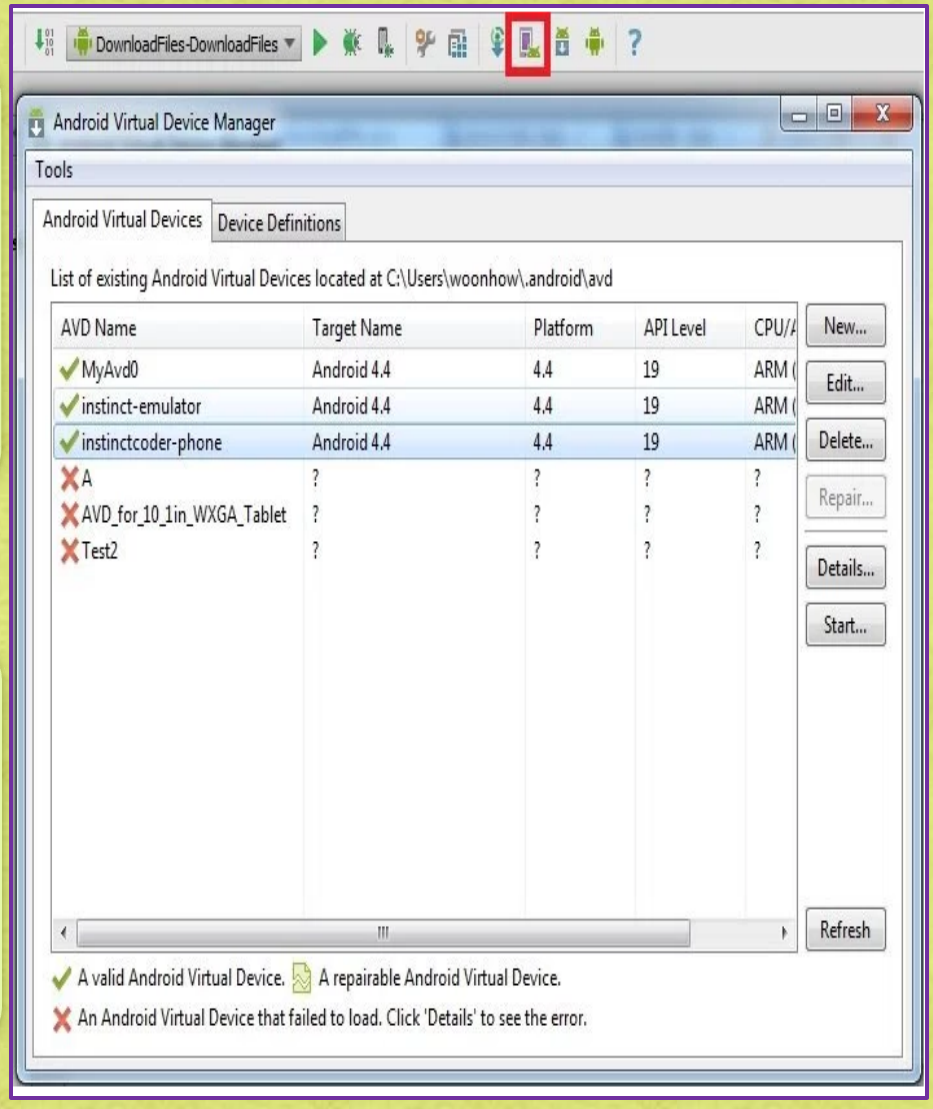
Manually Install APK in Android Studio Emulator

1. Verify the presence of **X:\Program Files (x86)\Android\android-studio\sdk\platform-tools**

2. Copy APK file into **X:\Program Files (x86)\Android\android-studio\sdk\platform-tools**

3. go to **Android Studio > Run Android Virtual Device Manager (AVD) > Start emulator**

In this session we will use APK file get from "Candy Crush"



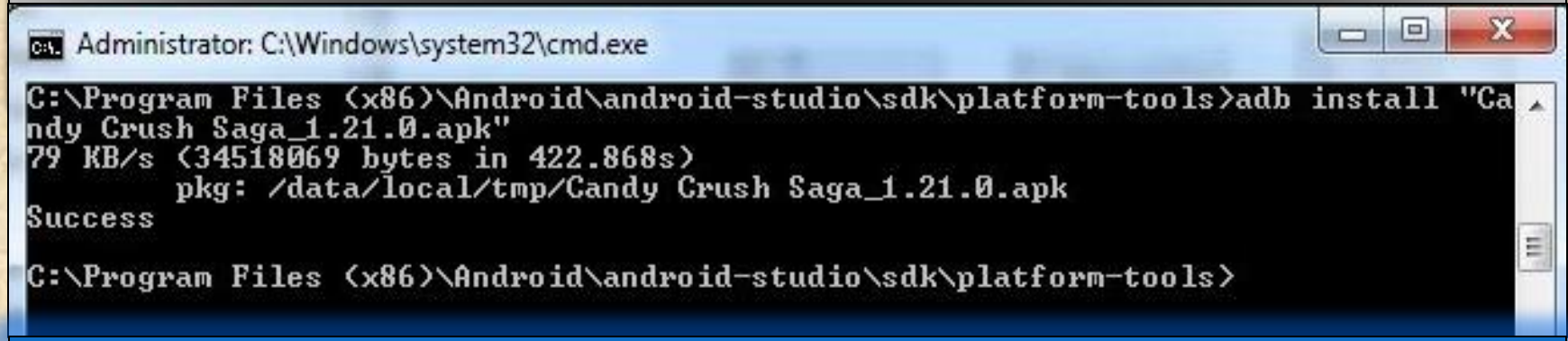
Mobile APPS: Distribution/Installation: Android .APK

Cont. : Manually Install APK in Android Studio Emulator

4. Go to **Start > Run > Cmd**

```
1 Type cd "C:\Program Files (x86)\Android\android-studio\sdk\platform-tools"
2 Type adb install "Candy Crush Saga_1.21.0.apk"
```

5. After successfully installed, you will see result in command prompt like below



It will take about 5-6 minutes to install successfully

Mobile APPS: Distribution/Installation: Android .APK

Manually Install APK in Android Studio Emulator

6.Go to the emulator and you will see Candy Crush install in the emulator like below

Mobile APPS: Distribution/Installation: Android .APK

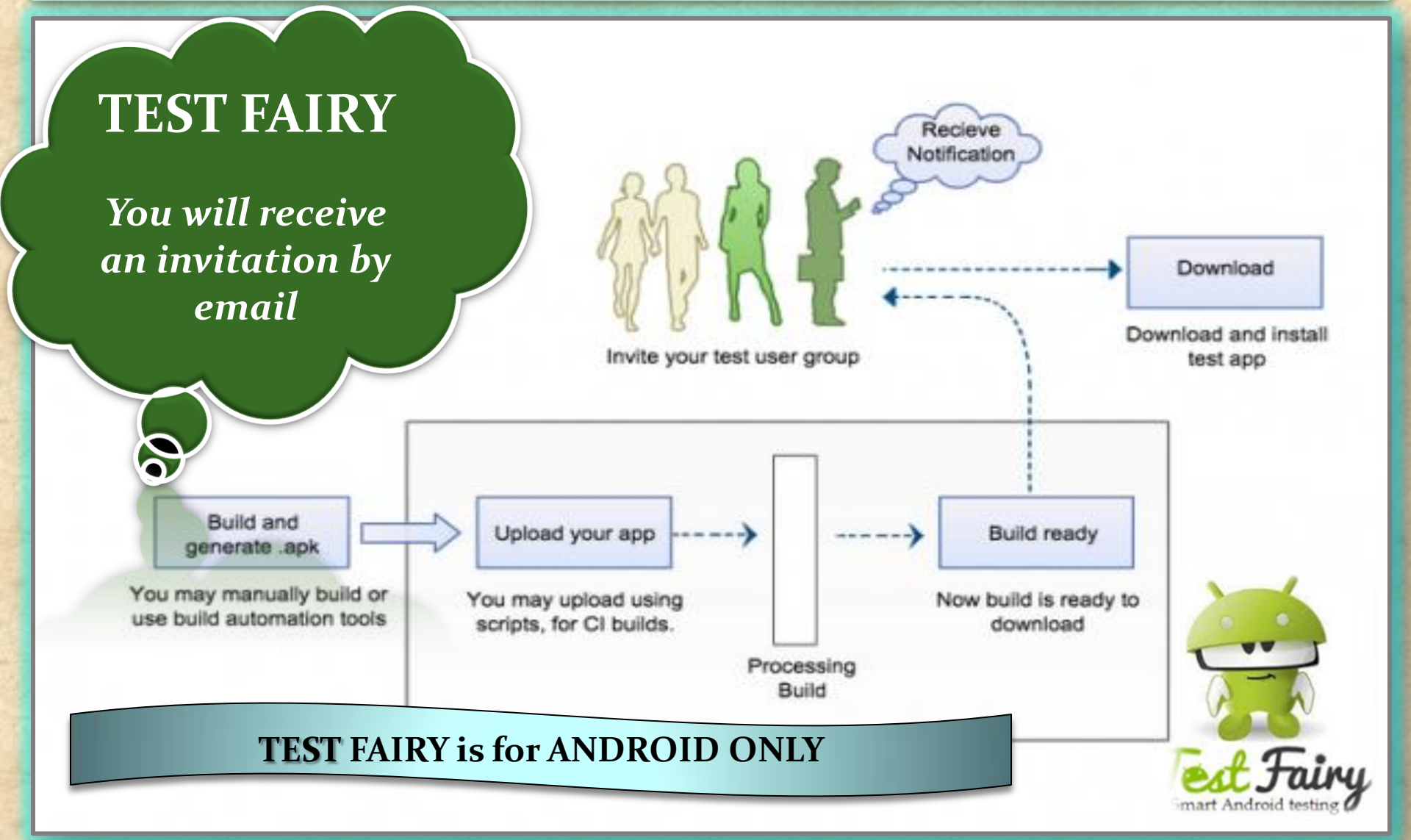
TestFairy offers some great features for app developers. One of the stand out features is client side Video recording and not just screen shots.

TestFairy provides a video recording of the exact test from the client side, including CPU, Memory, GPS, Network monitoring, logs, crash reports and more.

With Android apps you don't need to integrate any SDK or APIs into your app builds. You upload your APK (Android application file) to the TestFairy platform.

TEST FAIRY is for ANDROID ONLY

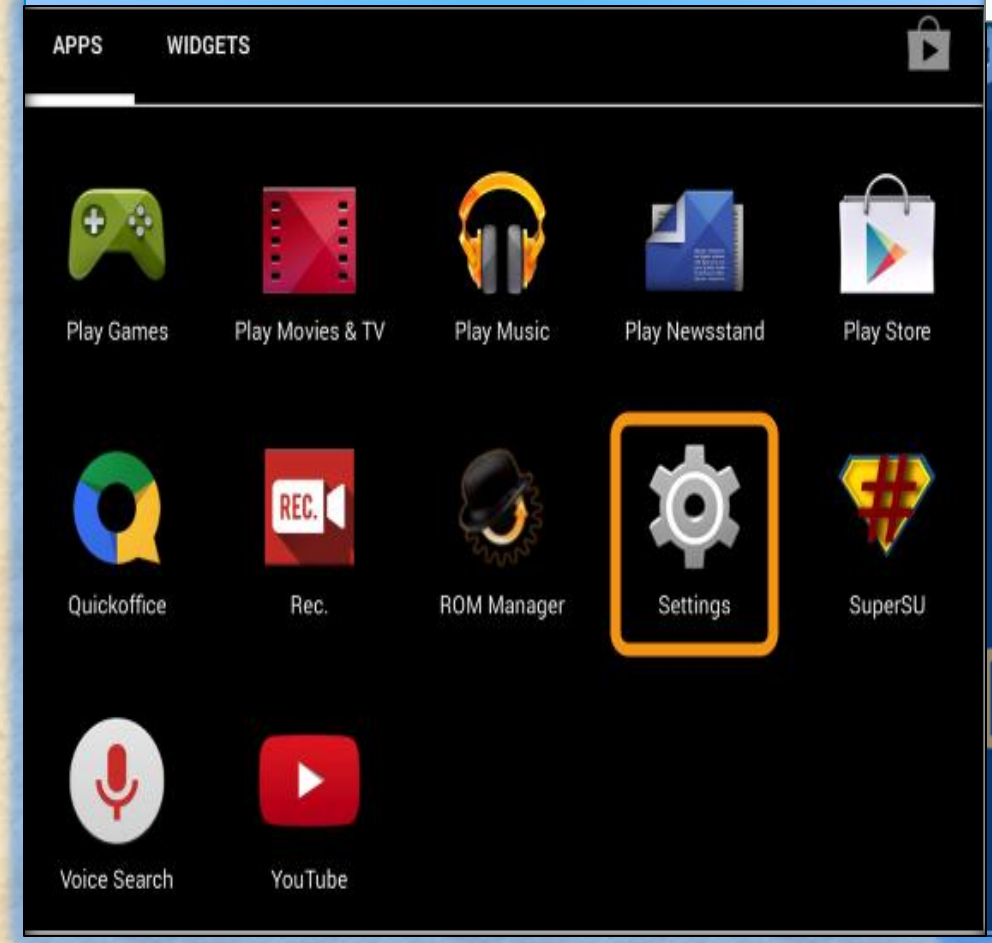
Mobile APPS: Distribution/Installation: Android .APK



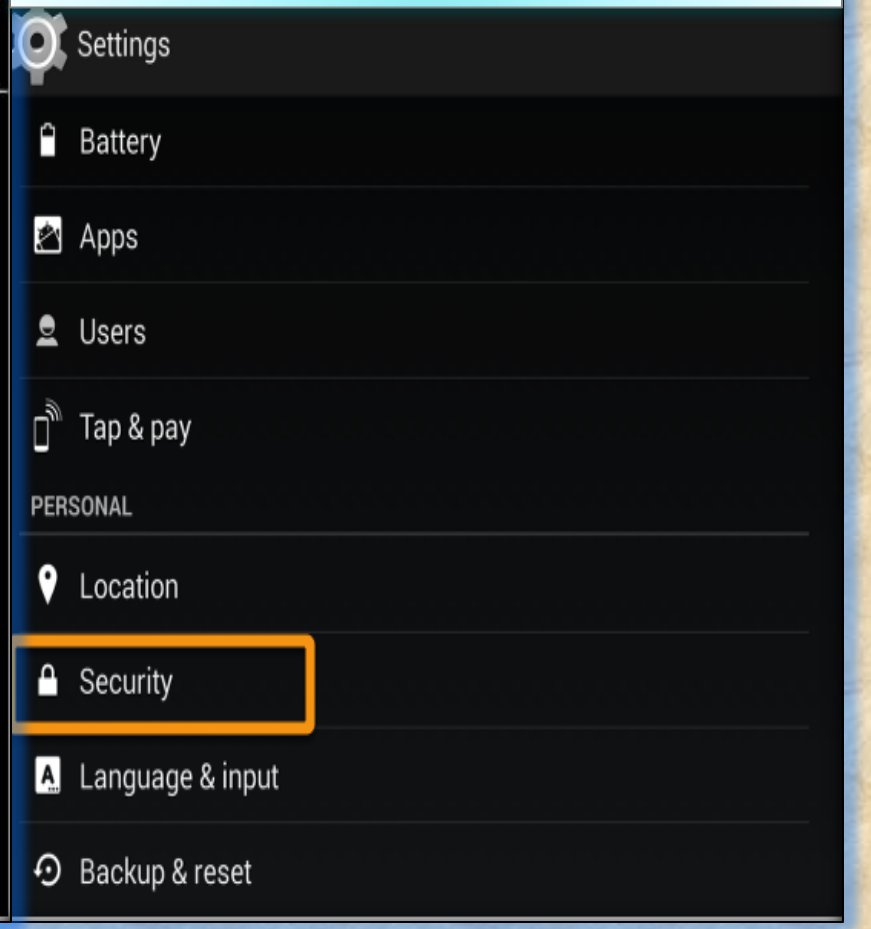
Mobile APPS: Distribution/Installation: Android .APK

Installing THIRD PARTY APK

1. Go to the "Settings" application on your Android device



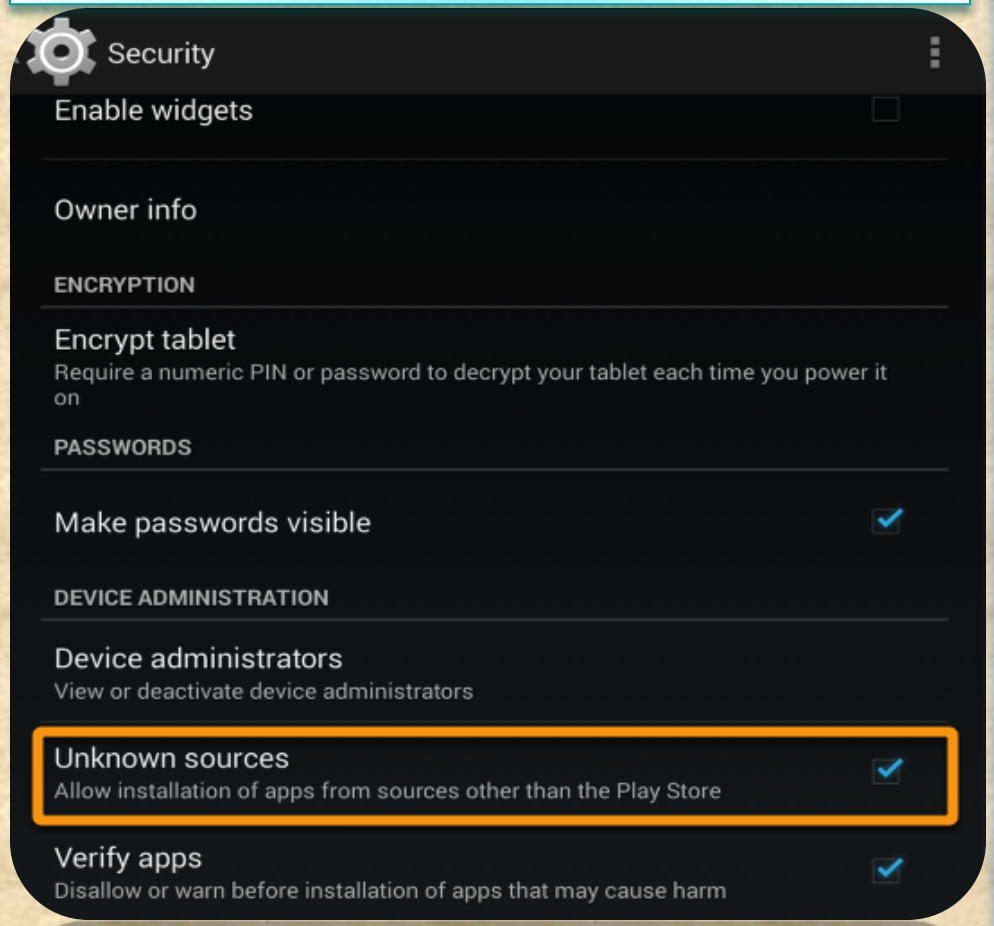
2. Choose the "Security" option located under the heading "Personal"



Mobile APPS: Distribution/Installation: Android .APK

Installing THIRD PARTY APK

3. Under "Device Administration" place a checkbox next to the option "Unknown Sources"



This allows you to install applications on your Android device that are not downloaded directly from the Google Play store

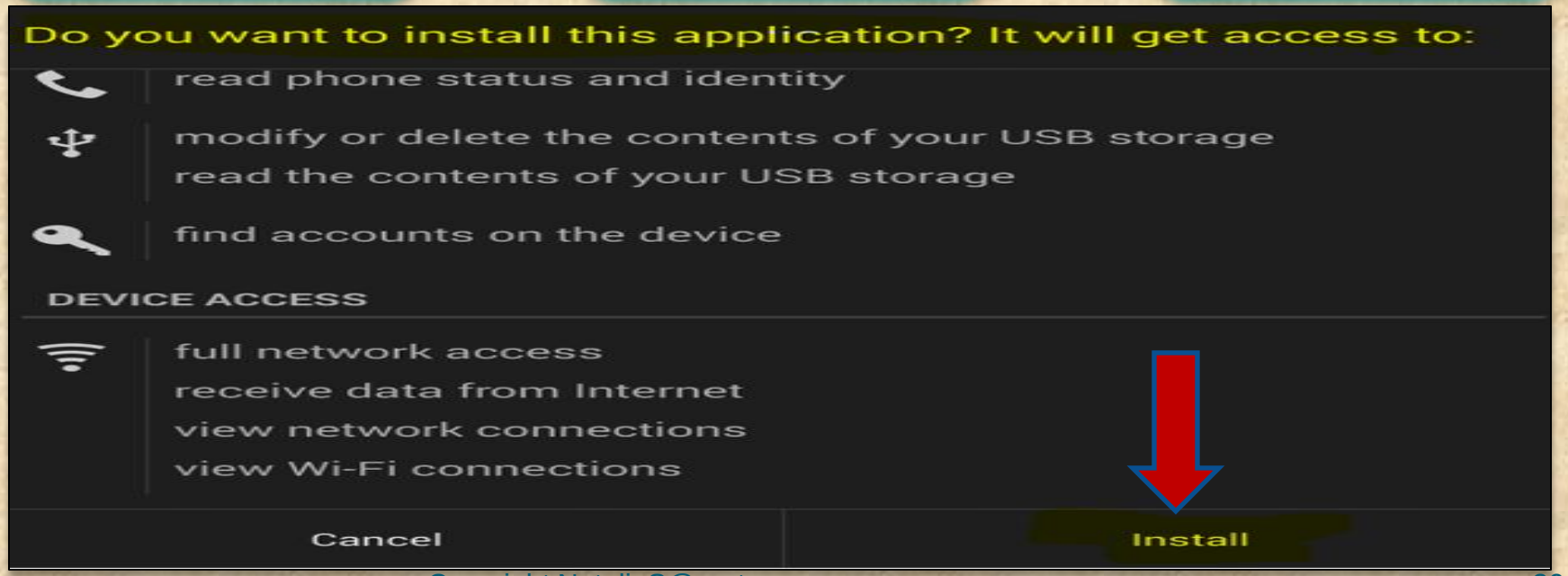
Mobile APPS: Distribution/Installation: Android .APK

Transferring APK to your Device

1. On your computer, attach the ".apk" file to an e-mail and send it to an account that you can access via your Android device.

2. On the Android device, click on the ".apk" attachment in the e-mail in order to download it.

3. Follow the on-screen instructions to install the application.



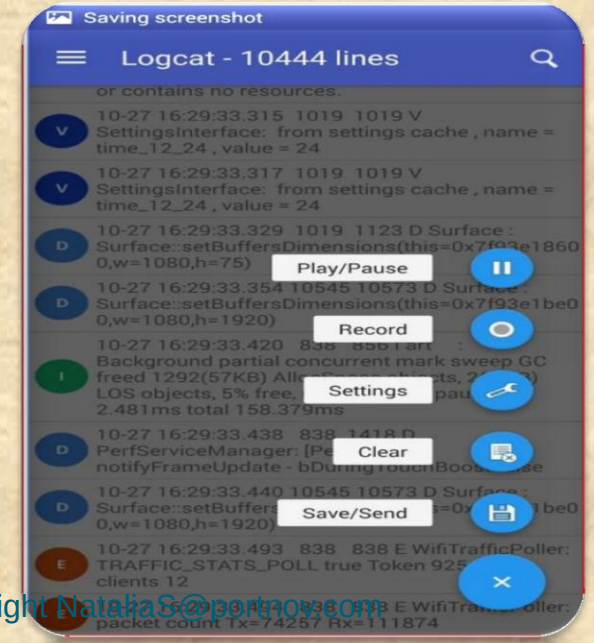
Mobile APPS: Android LOGS : EXTRA

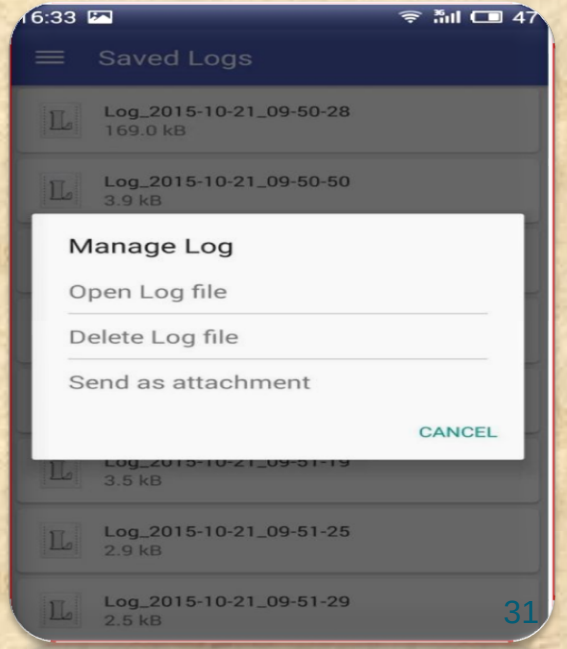
Installing LOGCAT APP to your Device

Download **LOGCAT EXTREME** from PlayStore to your Device directly *(this is only an example, there are many other similar apps)*

LOGCAT EXTREME *is* an enhanced Logcat reader and Logcat recorder which comes with a rich set of features and handy user interface.

Please note: From Android 4.1 onwards ANY logcat app needs root access in order to show logs properly.





Mobile APPS: Distribution/Installation: iOS .IPA

Through an App Marketplace (APP STORE)

XCODE

ITUNES

TEST FLIGHT

Mobile APPS: Distribution/Installation: .IPA

What is XCode?

Xcode is an Intergrated Development Environment by Apple containing a suite of software Development Tools for macOS, iOS, WatchOS and tvOS

Xcode supports source code for programing languages C, C++, Objective-C, Objective-C++, Java, AppleScript, Python, Ruby, ResEdit (Rez), and Swift

Also supports variety of programming models, including but not limited to Cocoa, Carbon, and Java

Mobile APPS: Distribution/Installation: .IPA

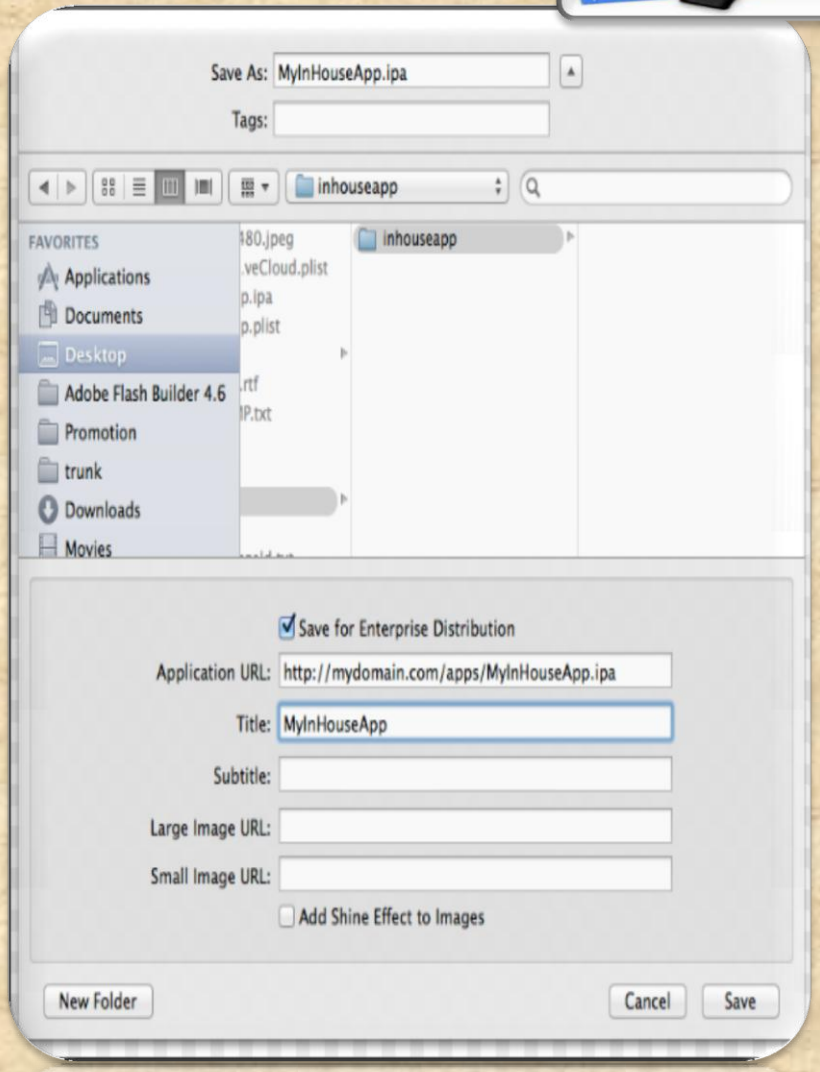
Distributing .IPA through XCode ?

Connect the device to your Mac.

In Xcode, choose Window > Devices and select the device under Devices.

In the Installed Apps table, click the Add button (+) below the table.

In the dialog that appears, choose the iOS App file and click Open.



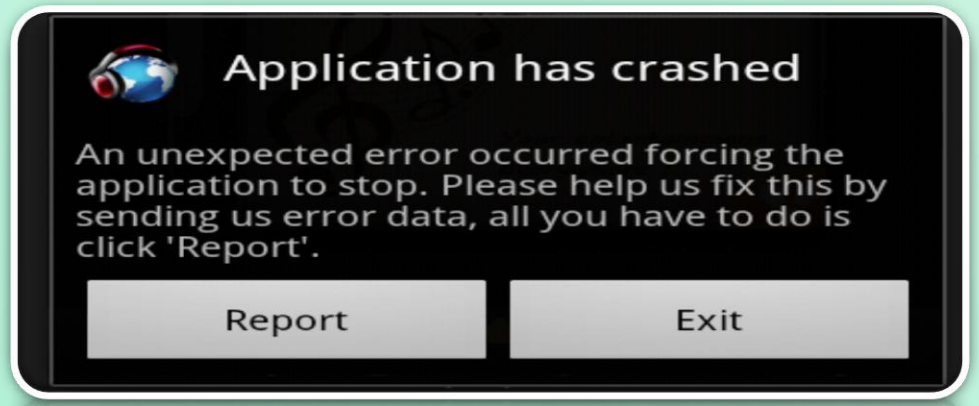
Mobile APPS: Collecting LOGS: .IPA

How to do it through Xcode on MAC ?

1. Install XCode
2. Connect your iPhone to the Mac
3. Select Trust this computer on the iPhone pop-up request
4. Start xCode (Menu) →Window → Devices (Select your iPhone and press the arrow button in the bottom right
5. Reproduce the problem
6. Press the arrow button and download the logs

How can I debug a deployed app without Xcode debugger ?

- A: Once you have deployed your app, either through the *App Store* or as an *Ad Hoc* or *Enterprise* build, you won't be able to attach *Xcode's* debugger to it.
- To debug problems, you need to analyze *Crash Logs and Console* output from the device.



Getting Crash Logs and Console Output

Getting Crash Logs Directly From a Device

Without Xcode

Users can retrieve crash reports from their device and send them to you via email by following these instructions.

(It is not possible to get device console logs directly from a device)

- Open Settings app
- Go to Privacy, then Diagnostics & Usage
- Select Diagnostics & Usage Data
- Locate the log for the crashed app. The logs will be named in the format: *<AppName>_<DateTime>_<DeviceName>*
- Select the desired log. Then, using the text selection UI select the entire text of the log. Once the text is selected, tap Copy
- Paste the copied text to Mail and send to an email address as desired

Mobile APPS: Distribution/Installation: .IPA

What is iTunes?

iTunes is a media player, media library, online radio broadcaster, and mobile device management application developed by Apple Inc.

It is used to play, download, and organize digital downloads of music and video (as well as other types of media available on the iTunes Store) on personal computers running the macOS and Microsoft Windows operating systems.

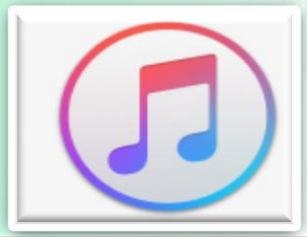
Mobile APPS: Distribution/Installation: .IPA

- *Drag-and-drop IPA* file into '*Apps*' tab of iTunes BEFORE you connect the device 
- Connect your device
- Select *your device* on iTunes
- Select '*Apps*' tab
- *Search app* that you want to install
- Click on '*Install*' button. This will change to '*Will Install*'
- Click on '*Apply*' button on right corner

LOGS: Collecting from iTunes

- Sync your device with iTunes on your desktop.
- After syncing, look for crash logs in the correct directory.

The Following few slides will give an instructions . Lets start !



LOGS: Collecting from iTunes

- **Mac OS X:**

- Open Finder (found in the Dock)
- Click on the 'Go' menu at the top of your screen, and select 'Go to Folder'
- Type (or paste): *~/Library/Logs/CrashReporter/MobileDevice/<DEVICE_NAME>*
- Open the folder with the same 'name' as your device.

  (Note: your device name appears in iTunes on the left side, under 'Devices').
- Open the folder called 'Retired'
- You will see at least one item starting with 'ReadItLaterPro'.

LOGS: Collecting from iTunes

- **Windows Vista or 7:**

- Open any Windows Explorer Window (My Computer, My Documents, etc.)
- Enter %appdata%, and press enter →Navigate to Roaming ***C:\Users\<USERNAME>\AppData\Roaming\Apple***
- ***Computer\Logs\CrashReporter\MobileDevice\<DEVICE_NAME>***
- (Note: your device name appears in iTunes on the left side, under 'Devices')
- You will see at least one item starting with 'ReadItLaterPro'.

LOGS: Syncing your device with iTunes

Windows XP:

- Locate your Application Data folder.
- Navigate to Apple computer ***C:\Documents and Settings\<USERNAME>\Application Data\Apple***
- ***Computer\Logs\CrashReporter\MobileDevice\<DEVICE_NAME>***
- (Note: your device name appears in iTunes on the left side, under 'Devices')
- You will see at least one item starting with 'ReadItLaterPro'.

LOGS: Collecting from your Device

- To obtain iOS crash logs, please select your device and go to:
- ***Settings > Privacy > Diagnostics & Usage (for iOS 8 or newer)***
- ***Settings > General > About > Diagnostics & Usage (for iOS 7 or older)***

- Select a ***Chrome*** crash from the list.
  This will start with ***"Chrome_"*** and contain the timestamp of the crash.
- Tap on the crash and you will see a text field with a crash log.
  Long press to *Select All* and then *Copy* the crash text.
- Paste it into something you can get off of your device (for example, an email to yourself).

Mobile APPS: Distribution/Installation: .IPA

What is TestFlight?

TestFlight is an online service for over-the-air installation and testing of mobile applications, currently owned by Apple Inc and only offered to developers within the iOSDeveloper Program

Developers signed up with the service to distribute applications to internal or external beta testers, who could subsequently send feedback about the application to developers

The TestFlight SDK additionally allowes developers to receive remote logs, crash reports and tester feedback.

HOMEWORK : READ AN ENTIRE ARTICLE ABOUT TestFLIGHT
https://www.raywenderlich.com/48750/testflight-sdk-tutorial

Overview: *Mobile APPS*

- Categories
- Types
- Distribution/Installation/Logs
- Mobile Test Industry Standards
- Remote Device Access (RDA)
- Emulators
- Simulators
- Troubleshooting Guide
- App Risk Analysis

Mobile Test Industry Standards :

Testing Strategies for Mobile Apps

Challenges

- Device fragmentation
- In-house vs. outsourced testing
- Availability of mobile testing tools
- Application Lifecycle Testing

- Like any desktop or web application testing, mobile application testing is also focused on the quality and performance of the final product.
- However, mobile app testing becomes far more challenging because of the following key factors