

Becoming a Pro

IN Mobile Applications Testing



Overview: Mobile APPS

➤ Categories

➤ Types

➤ **Distribution/Installation/Logs**

➤ Mobile Test Industry Standards

➤ Remote Device Access (RDA)

➤ Emulators

➤ Simulators

➤ Troubleshooting Guide

➤ App Risk Analysis

Mobile APPS: **Distribution/Installation/Logs**

How to enable Developers Options ?

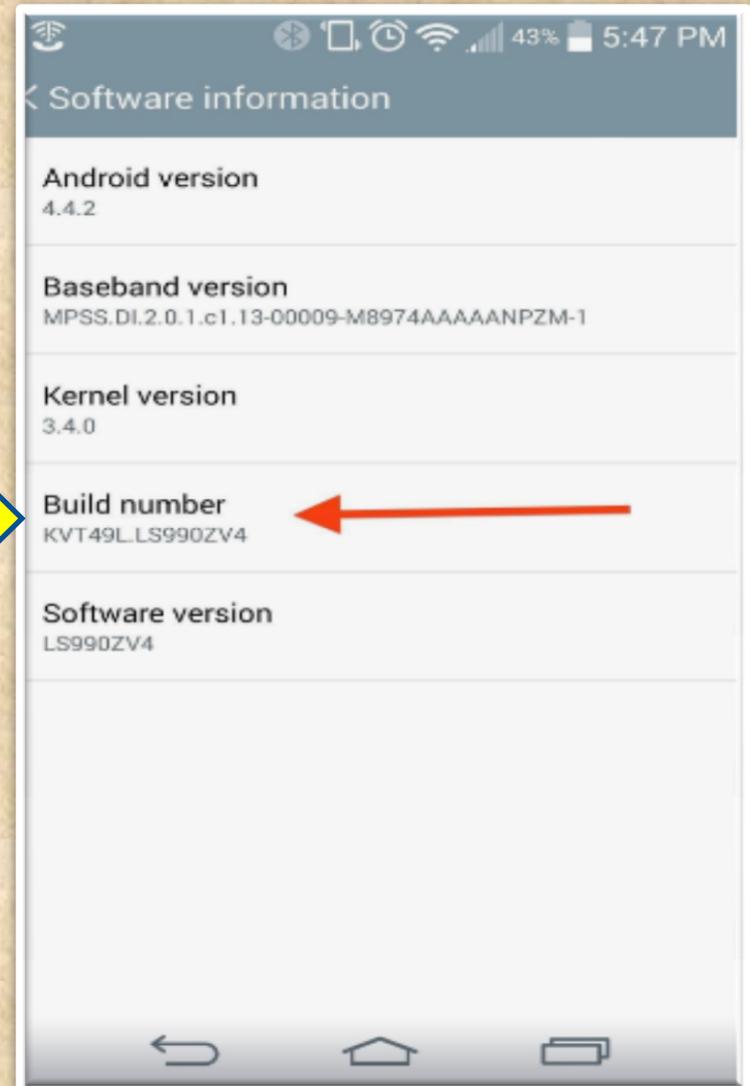
1. Enable USB debugging in the device system settings, under **Developer options**.



2. To make it visible, go to **Settings > About phone** and tap **Build number seven times**.



3. Return to the previous screen to find **Developer options** at the bottom.



Mobile APPS: *Distribution/Installation/Logs*

(contin.) How to enable Developers Options ?

Open Developers Options



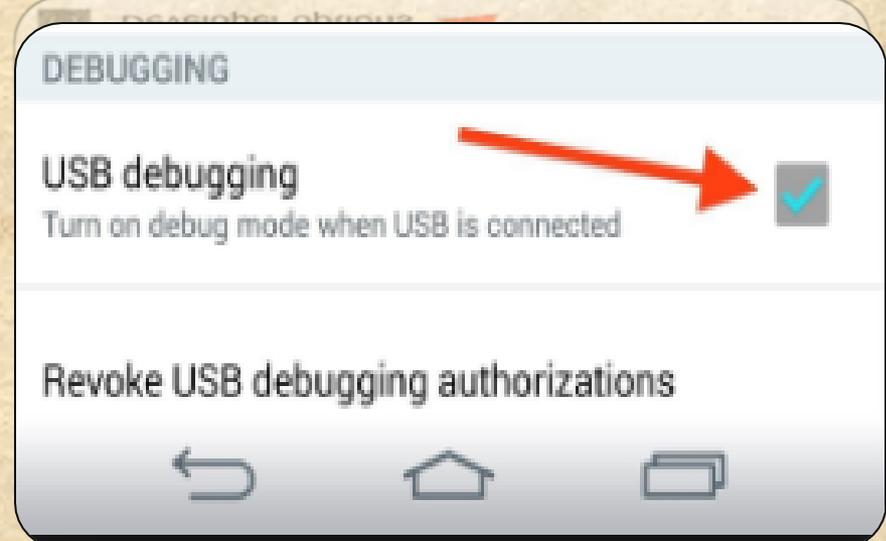
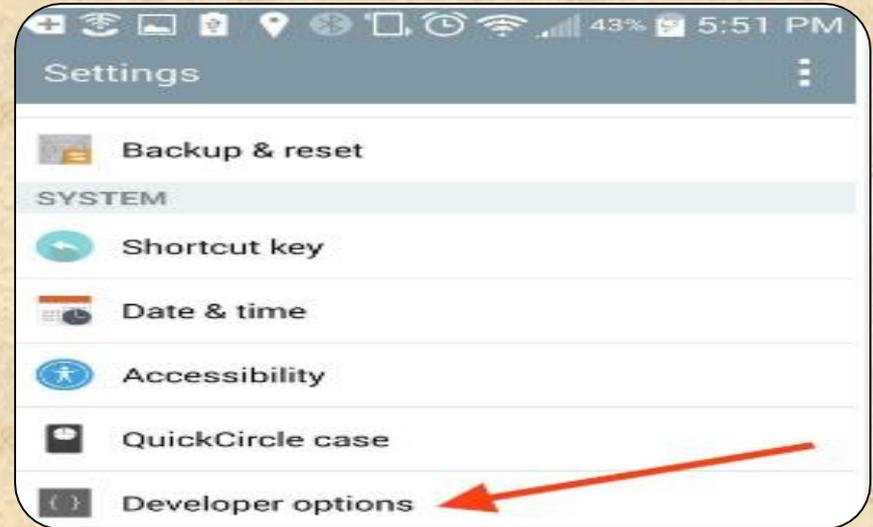
Check the box **USB debugging**.



This setting will allow you to connect your device to your computer, then issue **fastboot** commands via **ADB**.



This is useful for rooting, unlocking bootloaders, **installing recoveries**, and a ton more.



Mobile APPS: *Distribution/Installation/Logs*

Do I have a correct USB Configuration on my Device?

Open Developers Options



Tap on "Select USB Configuration" Menu

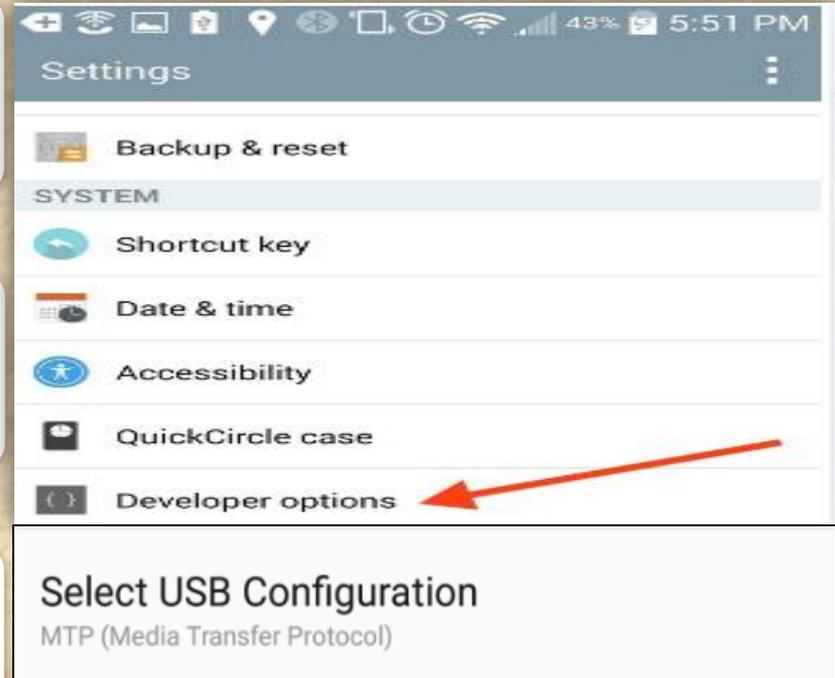


Make sure it's set to MPT

(Media Transfer Protocol)



Having a problem with your PC detecting your Device? This might be a solution.



Mobile APPS: *Distribution/Installation/Logs*

How to make your device “Authorized” in Android Studio ?

Open Developers Options



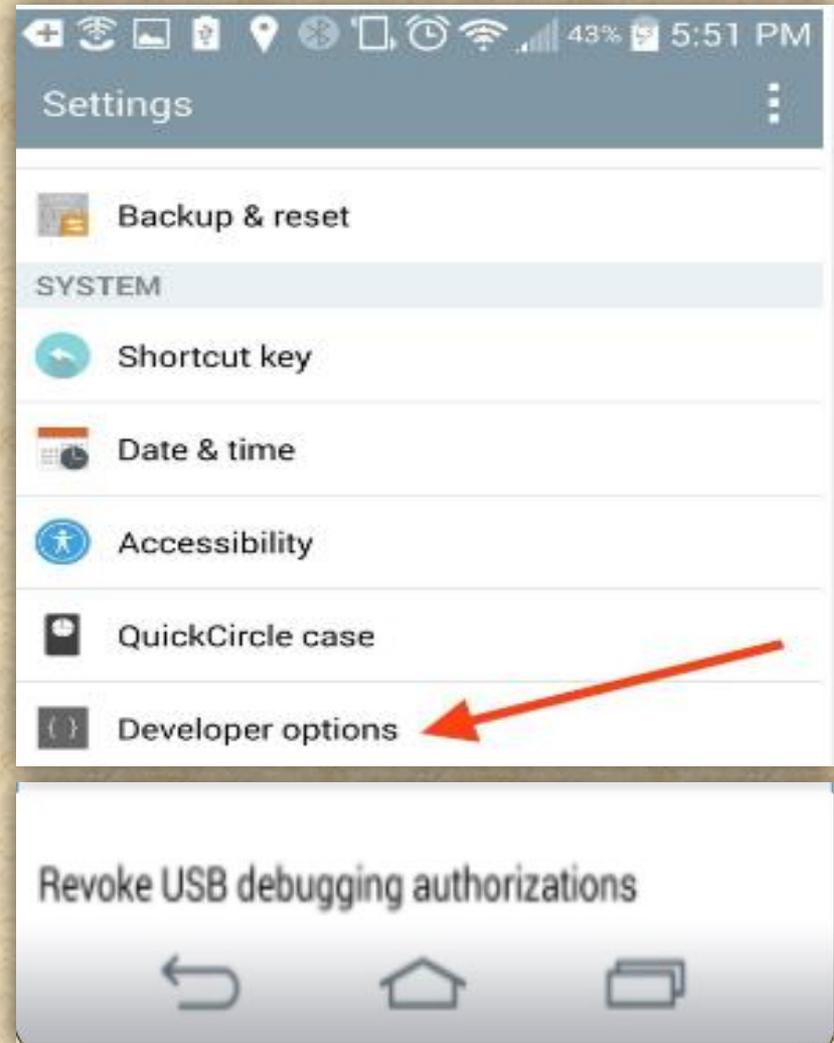
Tap on
“Revoke USB Debugging
Authorization”



Tap OK when message pops up
“revoke access to USB debugging..”



Disconnect and then connect USB cable to your
PC/Laptop
Sometime you will need to turn off and back ON
Developers Options menu (don't forget to check
USB debugging box again)



Mobile APPS: **Distribution/Installation/Logs**



Android
Studio

Powered by IntelliJ Platform

Mobile APPS: **Distribution/Installation/Logs**



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.

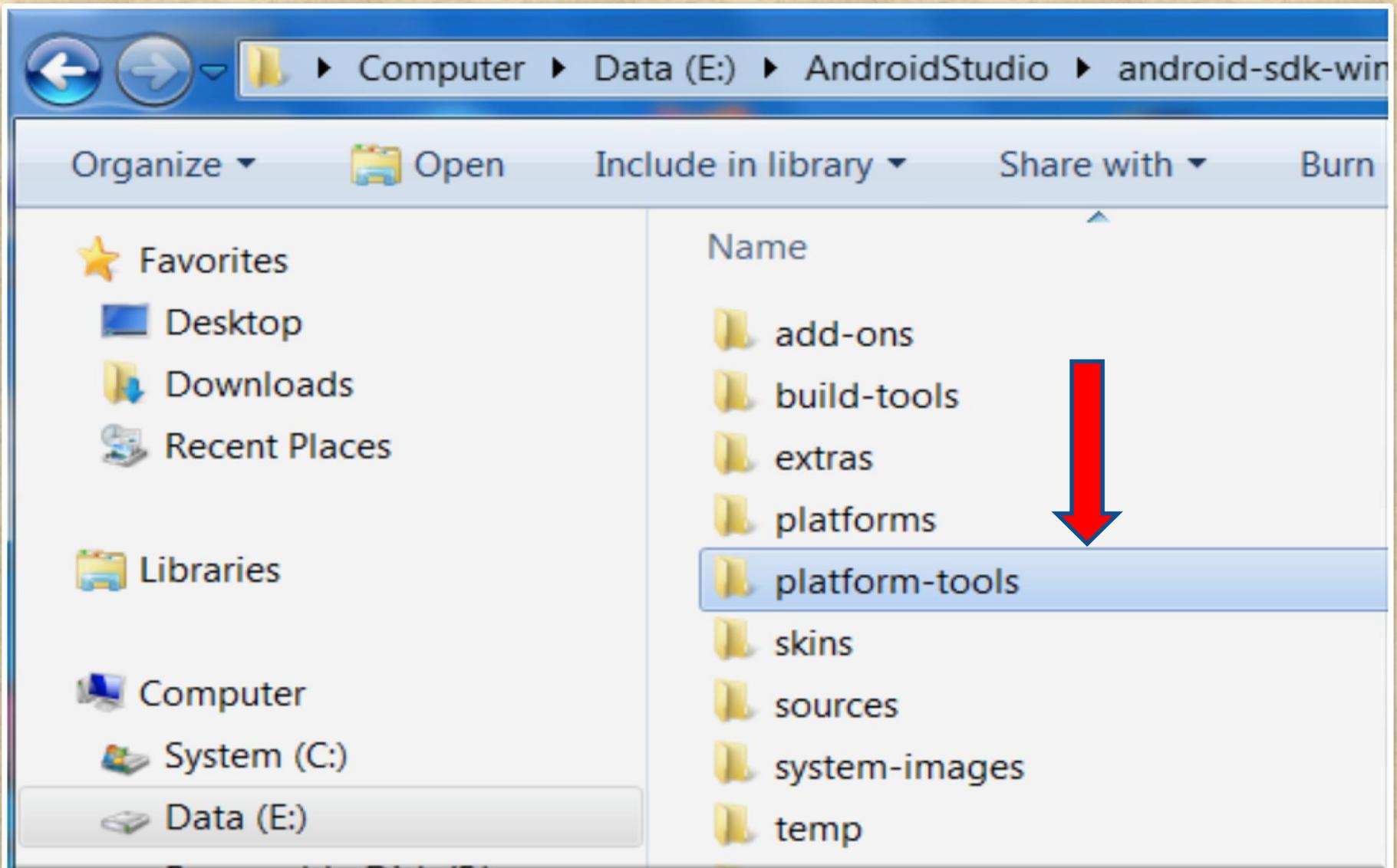


Mobile APPS: *Distribution/Installation/Logs*

Organize ▾ Open Include in library ▾ Share with ▾ Burn New folder

Name	Date modified	Type
android-sdk-windows	11/17/2016 1:58 PM	File folder
android-studio	6/17/2015 5:47 PM	File folder
Projects	6/18/2015 10:16 A...	File folder

Mobile APPS: *Distribution/Installation/Logs*



Mobile APPS: *Distribution/Installation/Logs*

Computer > Data (E:) > AndroidStudio > android-sdk-windows > platform-tools

Organize ▾ Include in library ▾ Share with ▾ Burn New folder

Name	Date modified
api	6/22/2016 11:56 A...
lib64	6/22/2016 11:56 A...
systrace	6/22/2016 11:56 A...
adb.exe	6/22/2016 11:56 A...

A red arrow points to the file `adb.exe` in the file list.

Mobile APPS: *Distribution/Installation/Logs*

The screenshot shows the Android Studio interface. At the top, a file explorer window is open, displaying the path: Computer > Data (E:) > AndroidStudio > android-sdk-windows > platform-tools. Below this, the main Android Studio window is visible, showing the menu bar (File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, Help) and the toolbar. The left sidebar contains the Project, Structure, and Captures views. The main workspace is divided into several panels: Captures, System Information, Build Variants, and Terminal. The Terminal panel is active, showing the following text:

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

E:\AndroidStudio\Projects\MyApplication>
```

A large red arrow points from the file explorer window down to the Terminal panel, indicating the path to the platform-tools directory.

Mobile APPS: *Distribution/Installation/Logs*

The screenshot shows the Android Studio 2.2 interface. The title bar reads "MyApplication - [E:\AndroidStudio\Projects\MyApplication] - Android Studio 2.2". The menu bar includes File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, and Help. The toolbar contains various icons for file operations, navigation, and development. The main workspace is divided into several panes:

- Project:** Shows "Captures" and "System Information".
- Build Variants:** A table with columns "Module" and "Build Variant".
- Terminal:** Displays the following text:

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

E:\AndroidStudio\Projects\MyApplication>cd E:\AndroidStudio\android-sdk-windows\platform-tools

E:\AndroidStudio\android-sdk-windows\platform-tools>
```

A red arrow points to the terminal prompt "E:\AndroidStudio\android-sdk-windows\platform-tools>".

Platform and Plugin Updates
The following components are ready to [update](#): A Repository, Android SDK Platform-Tools 25.0.2, A v7a System Image, Android SDK Tools 25.2.4

Mobile APPS: *Distribution/Installation/Logs*

The screenshot shows the Android Studio interface for a project named 'MyApplication'. The top menu bar includes File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, and Help. The toolbar contains various icons for file operations and development actions. The left sidebar shows the Project, Structure, and Captures views. The main workspace is divided into several panels: Captures, System Information, Build Variants, and Terminal. A notification for 'Platform and Plugin Updates' is visible on the right side of the workspace. The Terminal window shows the following output:

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

E:\AndroidStudio\Projects\MyApplication>cd E:\AndroidStudio\android-sdk-windows\platform-tools

E:\AndroidStudio\android-sdk-windows\platform-tools>adb devices
```

A red arrow points to the 'adb devices' command in the terminal window.

Mobile APPS: Distribution/Installation/Logs

MyApplication - [E:\AndroidStudio\Projects\MyApplication] - Android Studio 2.2

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

MyApplication

Captures

System Information

Build Variants

Module	Build Variant
--------	---------------

Terminal

Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

```
E:\AndroidStudio\Projects\MyApplication>cd E:\AndroidStudio\android-sdk-windows\platform-tools  
E:\AndroidStudio\android-sdk-windows\platform-tools>adb devices  
List of devices attached  
4dced50a      device
```

E:\AndroidStudio\android-sdk-windows\platform-tools>

Platform and Plugin Updates
The following components are ready to [update](#): Android Repository, Android SDK Platform-Tools 25.0.2, Android v7a System Image, Android SDK Tools 25.2.4

Mobile APPS: *Distribution/Installation/Logs*

The screenshot shows the Android Studio 2.2 interface. The title bar reads "MyApplication - [E:\AndroidStudio\Projects\MyApplication] - Android Studio 2.2". The menu bar includes File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, and Help. The toolbar contains various icons for file operations and development actions. The main workspace is titled "MyApplication" and contains several panels: "Captures", "System Information", "Build Variants", and "Terminal". The "Build Variants" panel shows a table with columns "Module" and "Build Variant". The "Terminal" panel displays the following text:

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

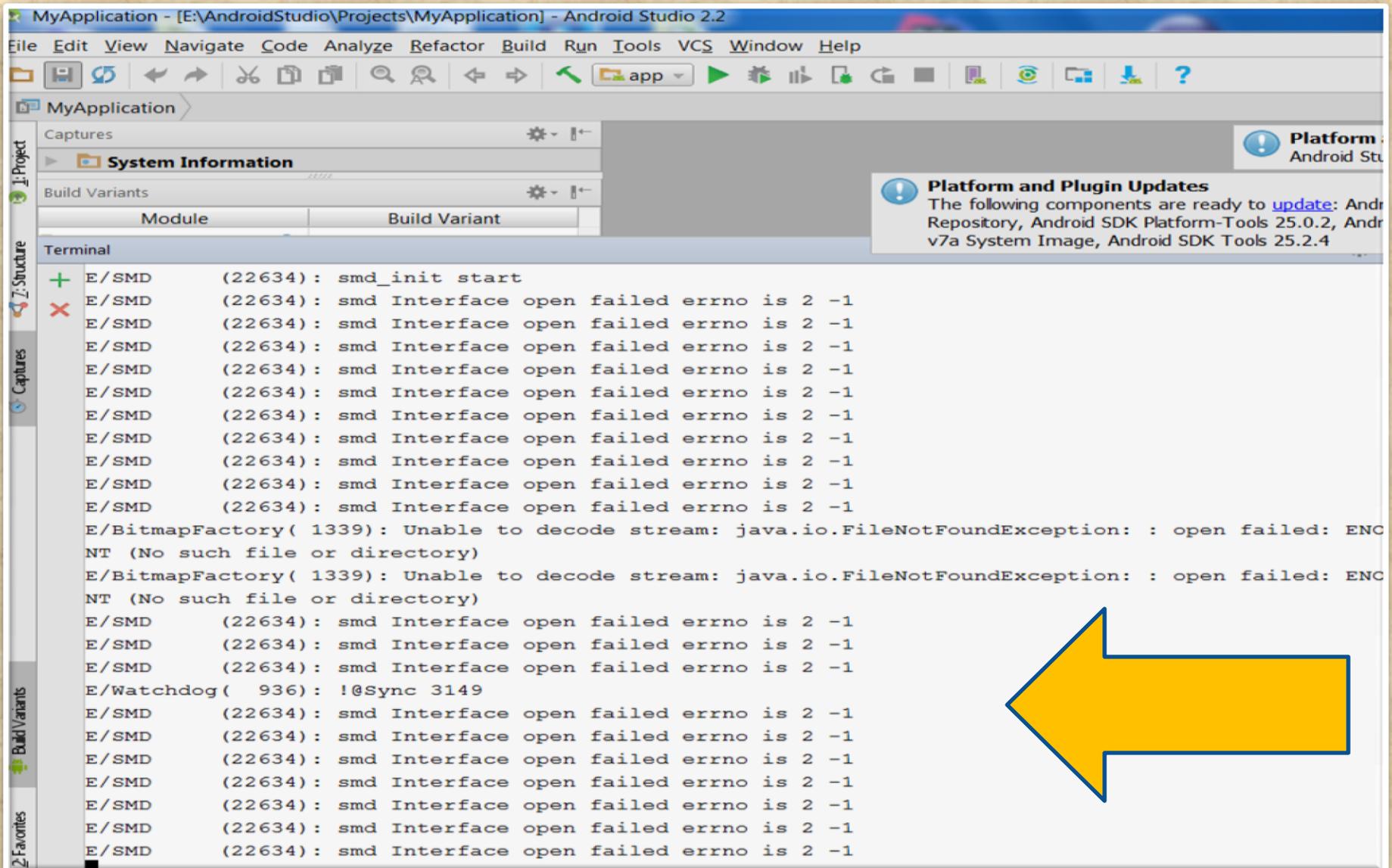
E:\AndroidStudio\Projects\MyApplication>cd E:\AndroidStudio\android-sdk-

E:\AndroidStudio\android-sdk-windows\platform-tools>adb devices
List of devices attached
4dced50a      device

E:\AndroidStudio\android-sdk-windows\platform-tools>adb logcat *:E
```

A red arrow points to the terminal output, specifically to the "adb logcat" command and its output.

Mobile APPS: Distribution/Installation/Logs



MyApplication - [E:\AndroidStudio\Projects\MyApplication] - Android Studio 2.2

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

MyApplication

System Information

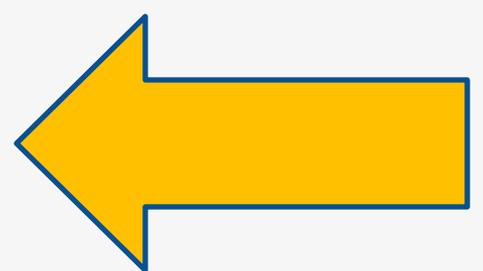
Build Variants

Module	Build Variant
--------	---------------

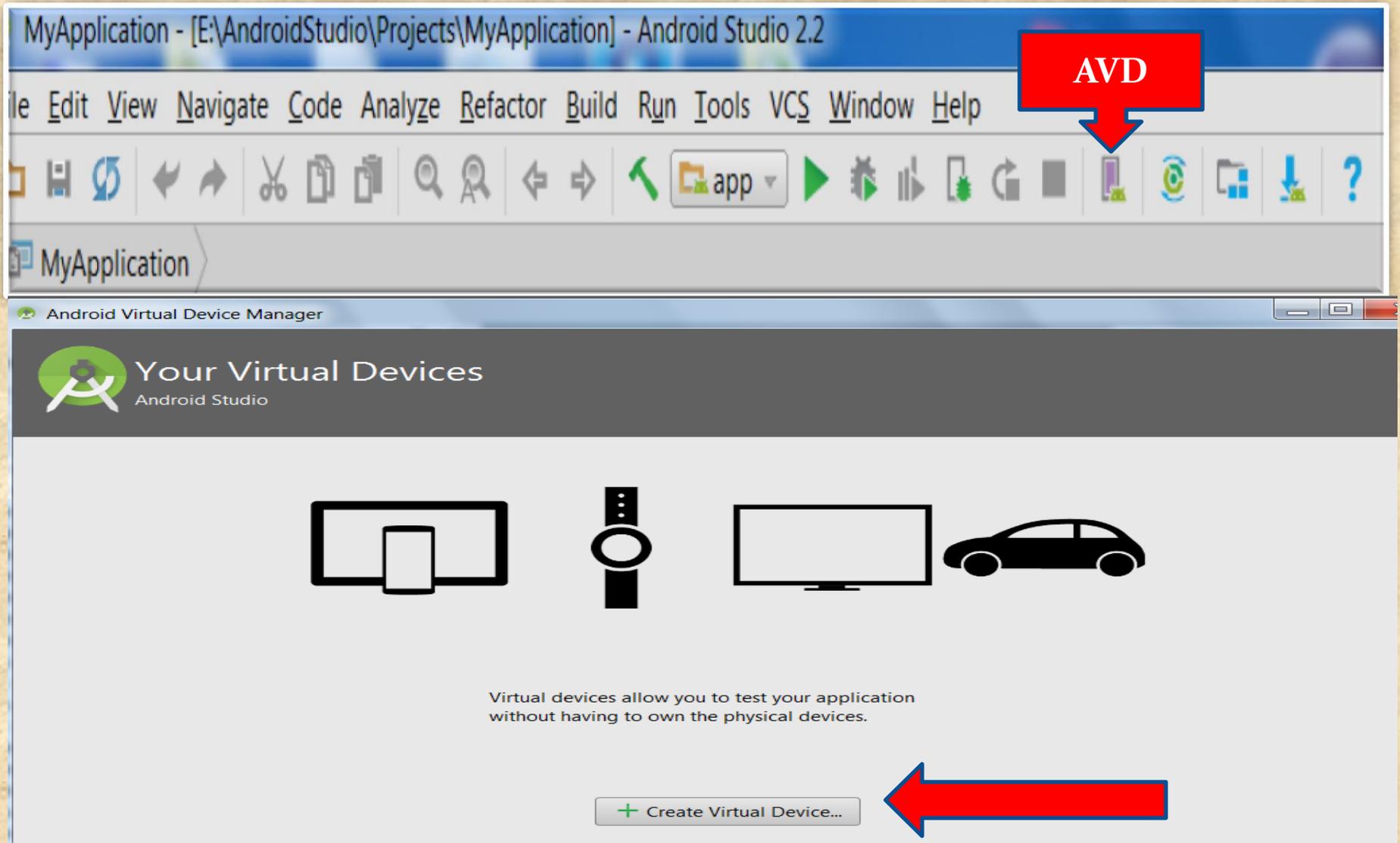
Terminal

```
+ E/SMD (22634): smd_init start
X E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/BitmapFactory( 1339): Unable to decode stream: java.io.FileNotFoundException: : open failed: ENO
NT (No such file or directory)
E/BitmapFactory( 1339): Unable to decode stream: java.io.FileNotFoundException: : open failed: ENO
NT (No such file or directory)
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/Watchdog( 936): !@Sync 3149
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
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```

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The following components are ready to [update](#): Android Repository, Android SDK Platform-Tools 25.0.2, Android v7a System Image, Android SDK Tools 25.2.4



Mobile APPS: *Distribution/Installation/Logs*



Mobile APPS: Distribution/Installation/Logs

Virtual Device Configuration

Select Hardware
Android Studio

Choose a device definition

Category	Name	Size	Resolution	Density
TV	Nexus S	4.0"	480x800	hdpi
Wear	Nexus One	3.7"	480x800	hdpi
Phone	Nexus 6P	5.7"	1440x2560	560dpi
Tablet	Nexus 6	5.96"	1440x2560	560dpi
	Nexus 5X	5.2"	1080x1920	420dpi
	Nexus 5	4.95"	1080x1920	xxhdpi
	Nexus 4	4.7"	768x1280	xhdpi
	Galaxy Nexus	4.65"	720x1280	xhdpi
	5.4" FWVGA	5.4"	480x854	mdpi
	5.1" WVGA	5.1"	480x800	mdpi
	4.7" WXGA	4.7"	720x1280	xhdpi

New Hardware Profile Import Hardware Profiles Refresh Clone Device...

Nexus 5

Size: normal
Ratio: long
Density: 420dpi

Previous **Next** Cancel Finish Help

Mobile APPS: Distribution/Installation/Logs

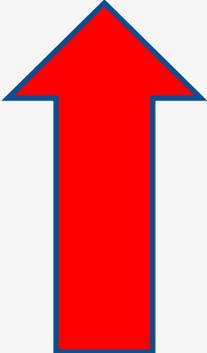
Virtual Device Configuration

 System Image
Android Studio

Select a system image

Recommended x86 Images Other Images

Release Name	API Level	ABI	Target
null Download	25	x86_64	Android API 25 (with Google APIs)
null Download	25	x86	Android API 25 (with Google APIs)
Lollipop	22	x86	Android 5.1 (with Google APIs)



Lollipop



API Level
22

Android
5.1

Google Inc.

System Image
x86

Mobile APPS: Distribution/Installation/Logs

Virtual Device Configuration

Android Virtual Device (AVD)
Android Studio

Verify Configuration

AVD Name:

 Nexus 5 4.95 1080x1920 420dpi

 Lollipop Android 5.1 x86

Startup orientation

 Portrait  Landscape

Emulated Performance Graphics:

Device Frame Enable Device Frame

AVD Name

The name of this AVD.

Recommendation
Virtual machine acceleration driver is out-of-date.
[Reinstall Haxm](#)

Mobile APPS: *Distribution/Installation/Logs*

Android Virtual Device Manager



Your Virtual Devices
Android Studio

Virtual machine acceleration driver is out-of-date.

[Reinstall Haxm](#)

Type	Name	Resolution	API	Target	CPU/ABI	Size on Disk	Actions
	Nexus 5 API 22	1080 × 1920: xxhdpi	22	Android 5.1 (Goog...	x86	650 MB	  

