

# Becoming a Pro

## IN Mobile Applications Testing



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

## How to enable Developers Options ?

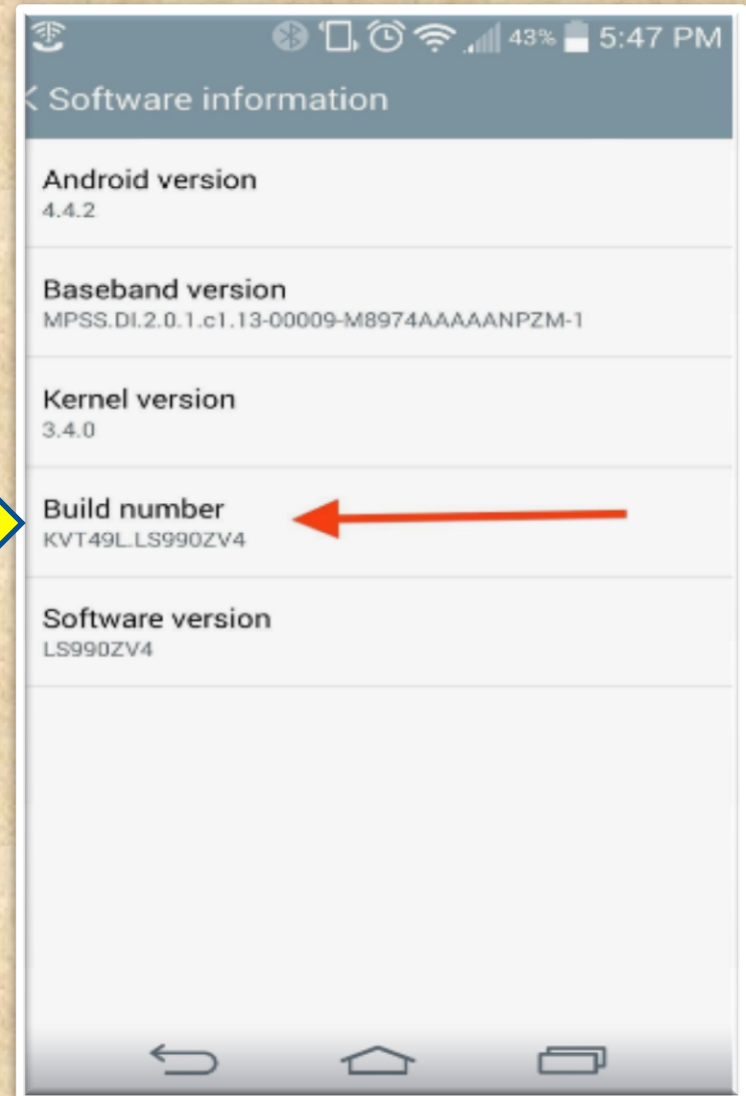
1. Enable USB debugging in the device system settings, under **Developer options**.



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



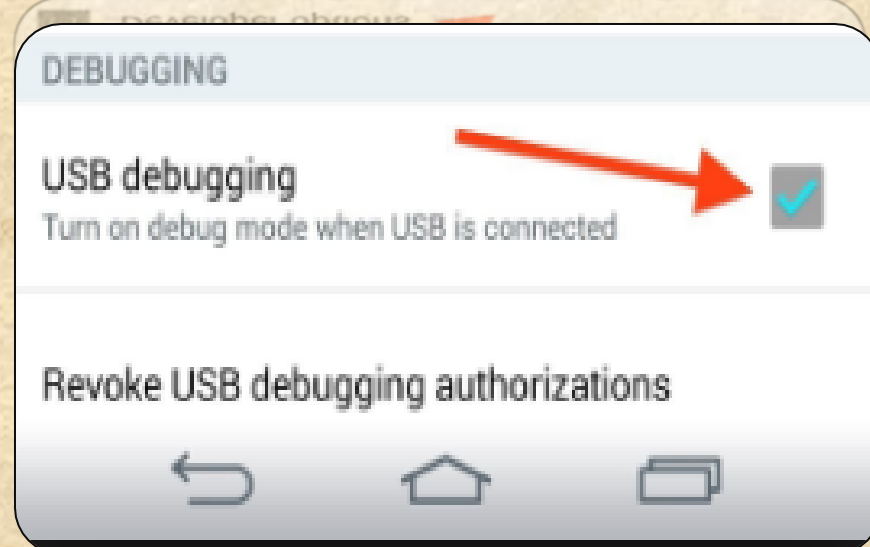
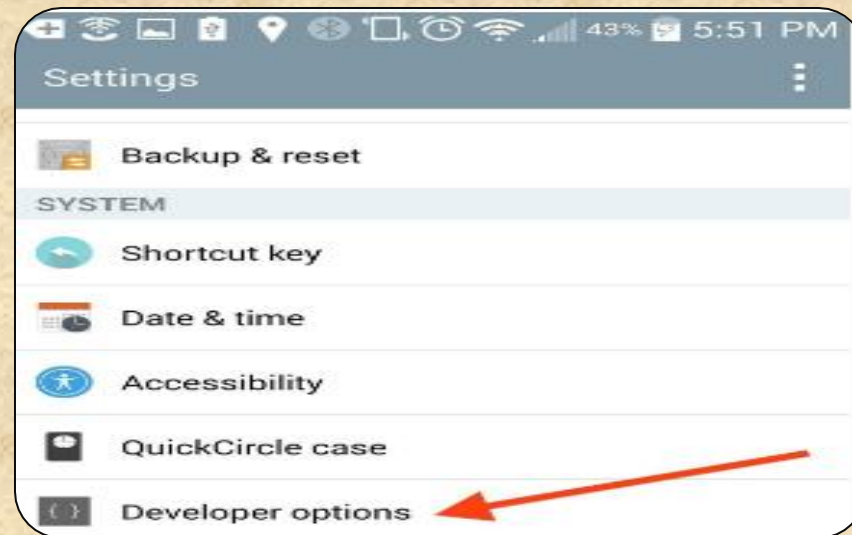
Check the box USB debugging.



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.

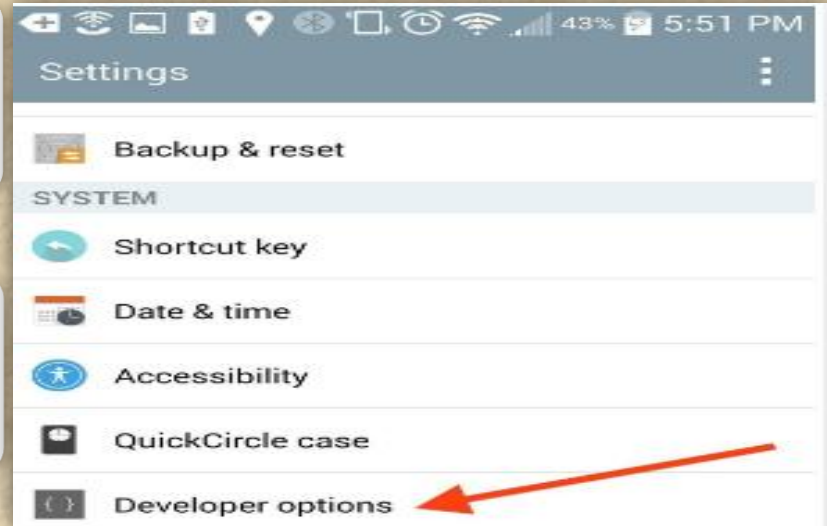




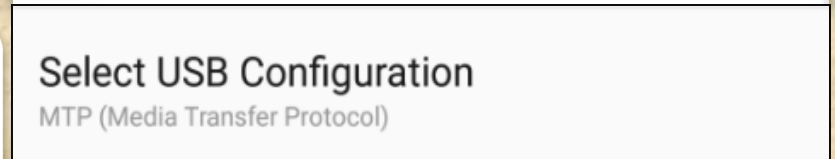
# Mobile APPS: *Distribution/Installation/Logs*

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*



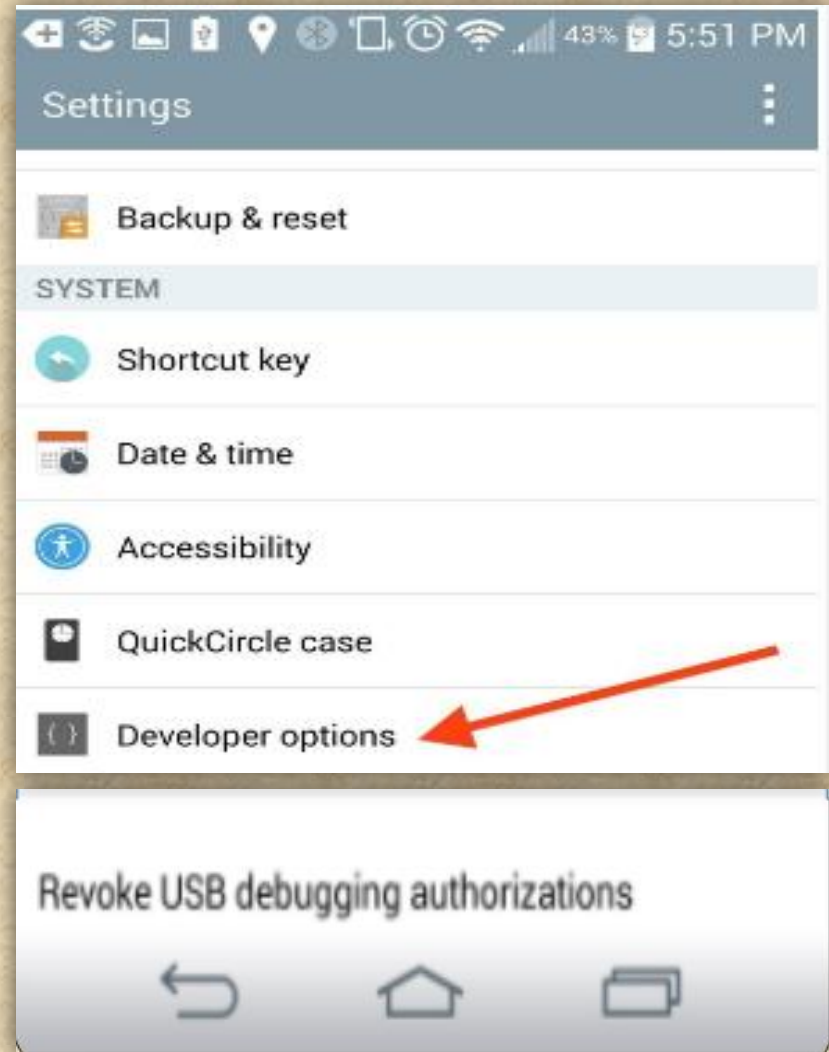
Tap on  
“Revoke USB Debugging  
Authorization”



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.





## 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.



## 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.

**What is ADB LOCATS?**

**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.**

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

# Mobile APPS: *Distribution/Installation/Logs*

## What is ADB LOGCATS?

**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*

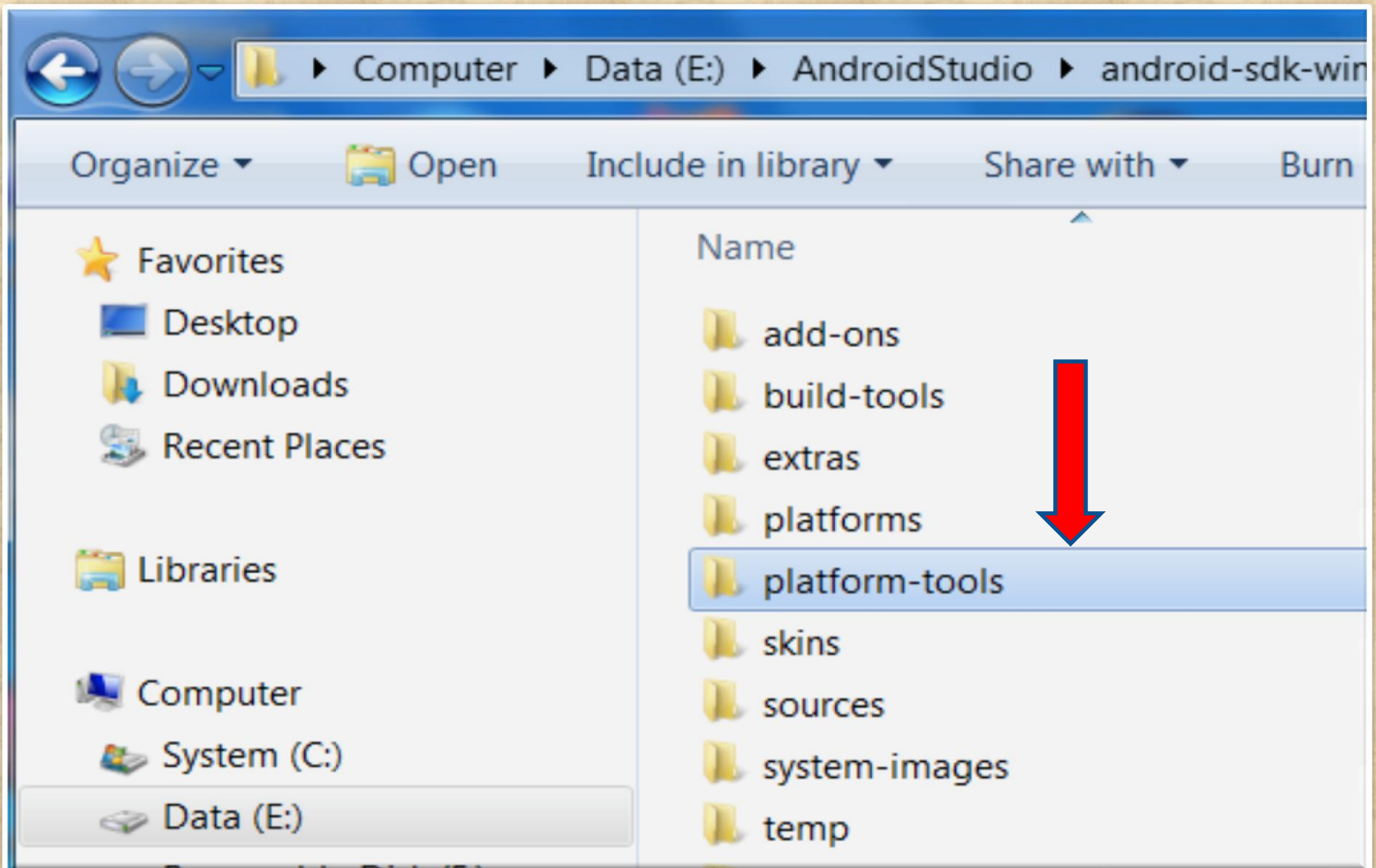
# Mobile APPS: *Distribution/Installation/Logs*

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
★ Favorites		
Desktop		
Downloads		
Recent Places		
	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...

# 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. The main IDE area shows the 'MyApplication' project. The 'Terminal' window at the bottom displays 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 'platform-tools' directory in the file explorer to the terminal window, indicating the path to the system image files.

# 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 left sidebar shows the Project view with "MyApplication" selected, and the Structure view showing "Captures". The main editor area displays the "System Information" tab. A notification bubble in the bottom right corner states "Platform and Plugin Updates" with the text: "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". The Terminal window at the bottom shows the following text:

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

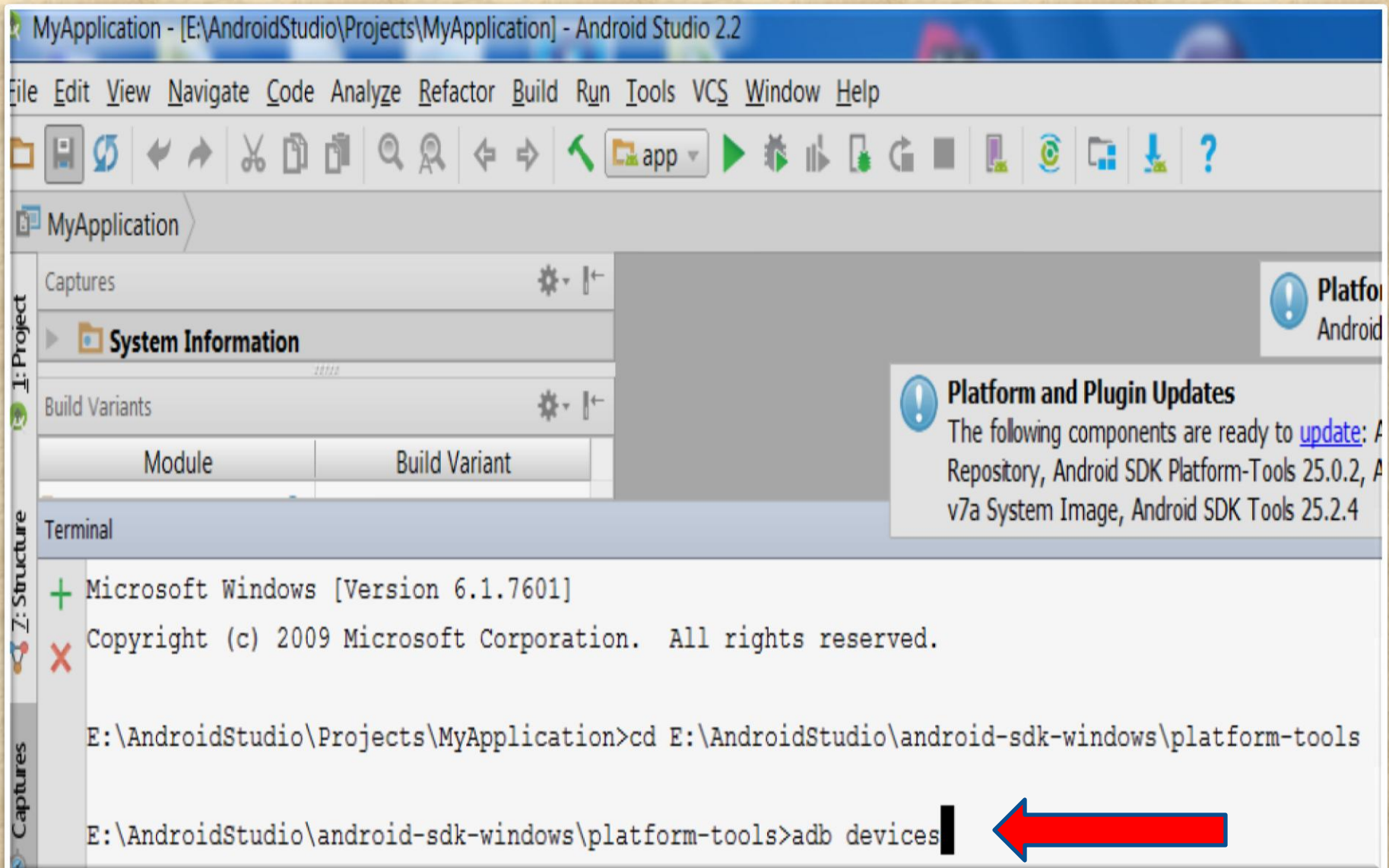
E:\AndroidStudio\Projects\MyApplication>cd E:\AndroidStudio\android-sdk-windows\platform-tools

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

A red arrow points to the command prompt in the terminal window.



# Mobile APPS: *Distribution/Installation/Logs*



The screenshot shows the Android Studio interface for a project named 'MyApplication'. The terminal window is open, displaying the following text:

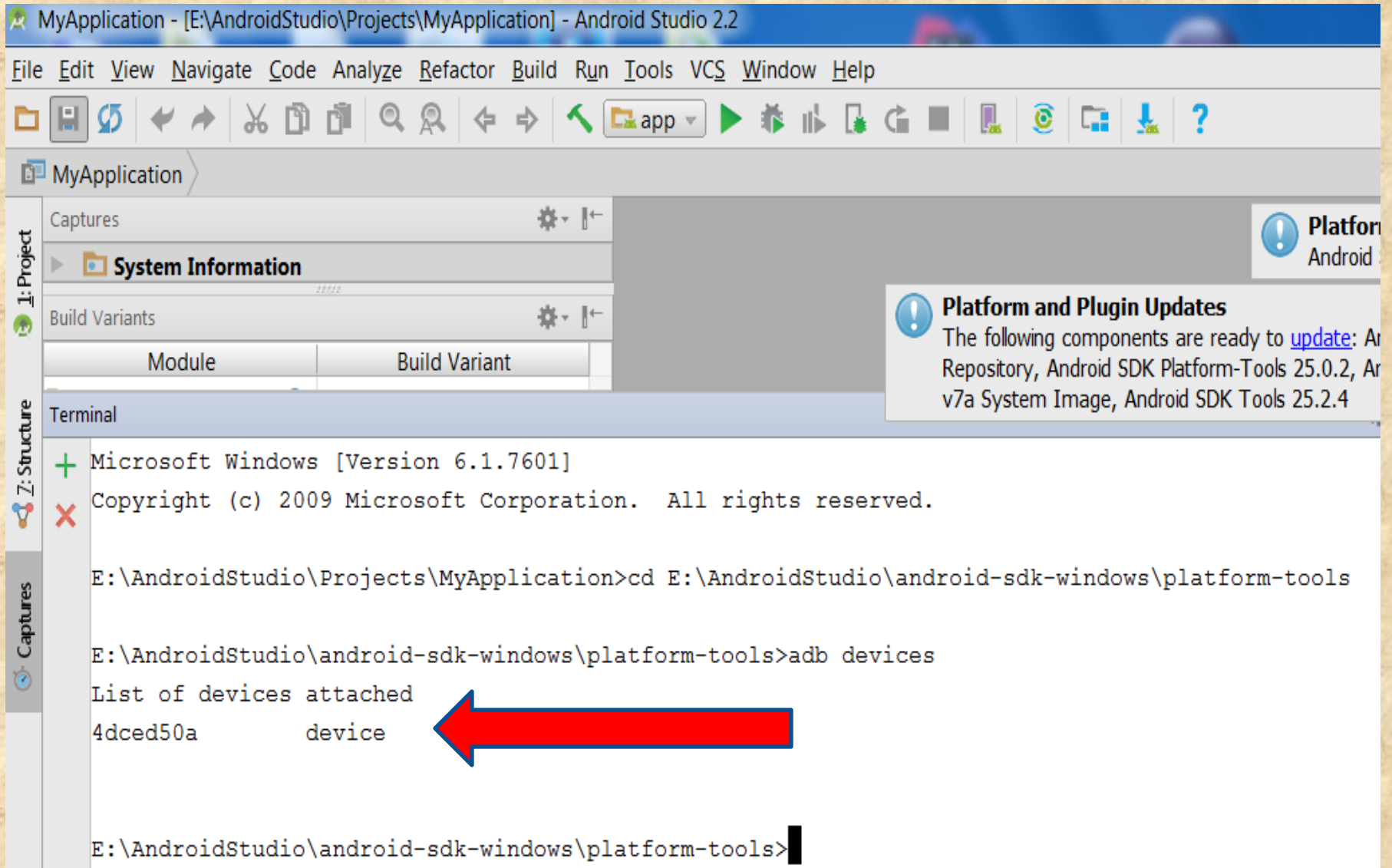
```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

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

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

A red arrow points to the 'adb devices' command in the terminal. In the background, there are notifications for 'Platform and Plugin Updates' and 'Platform Android'.

# 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

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

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

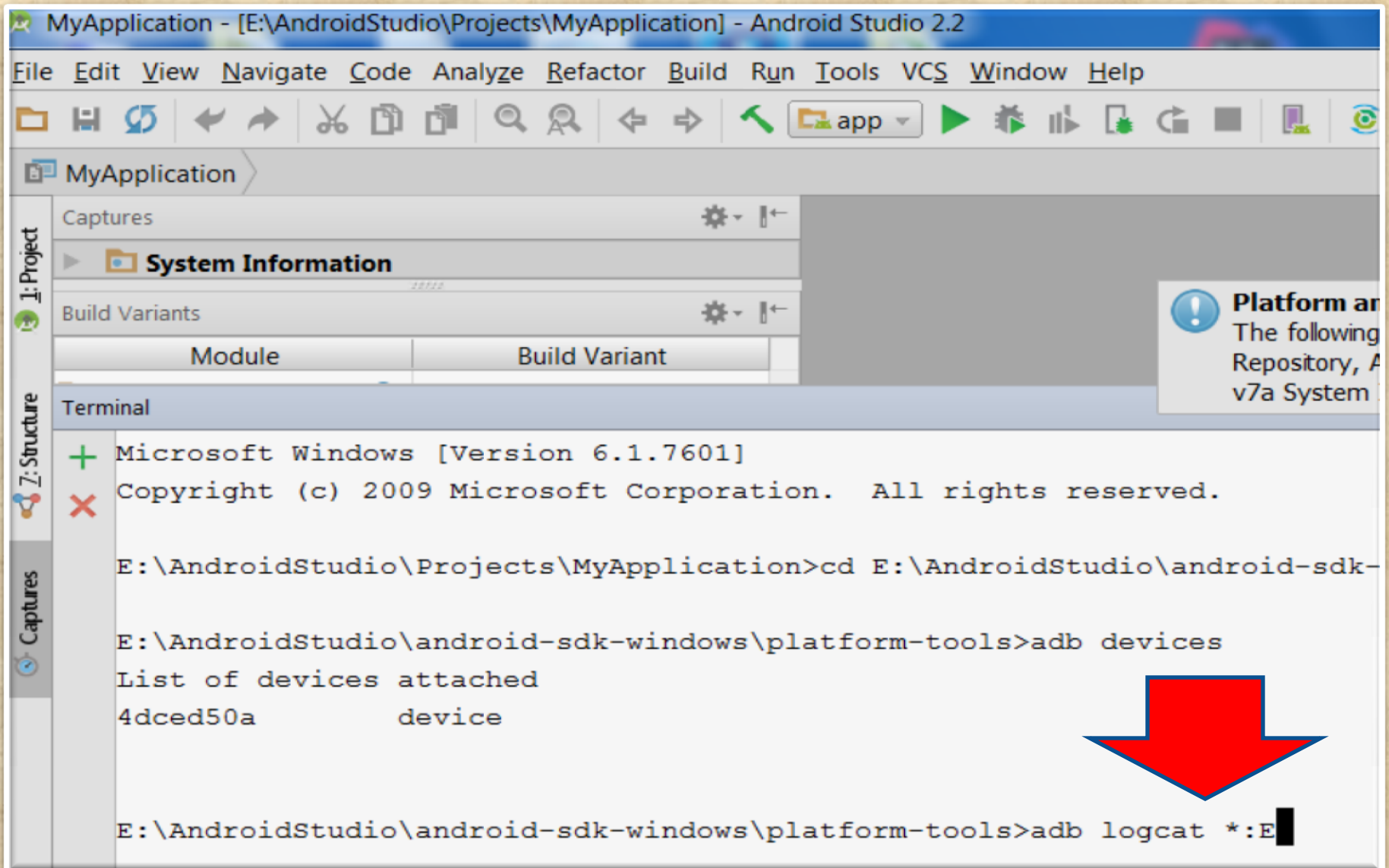
E:\AndroidStudio\Projects\MyApplication>cd E:\AndroidStudio\android-sdk-windows\platform-tools

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

List of devices attached
4dced50a      device
```

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

# 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 divided into several panes: "Captures", "System Information", "Build Variants", and "Terminal". The "Terminal" pane is active, showing 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-

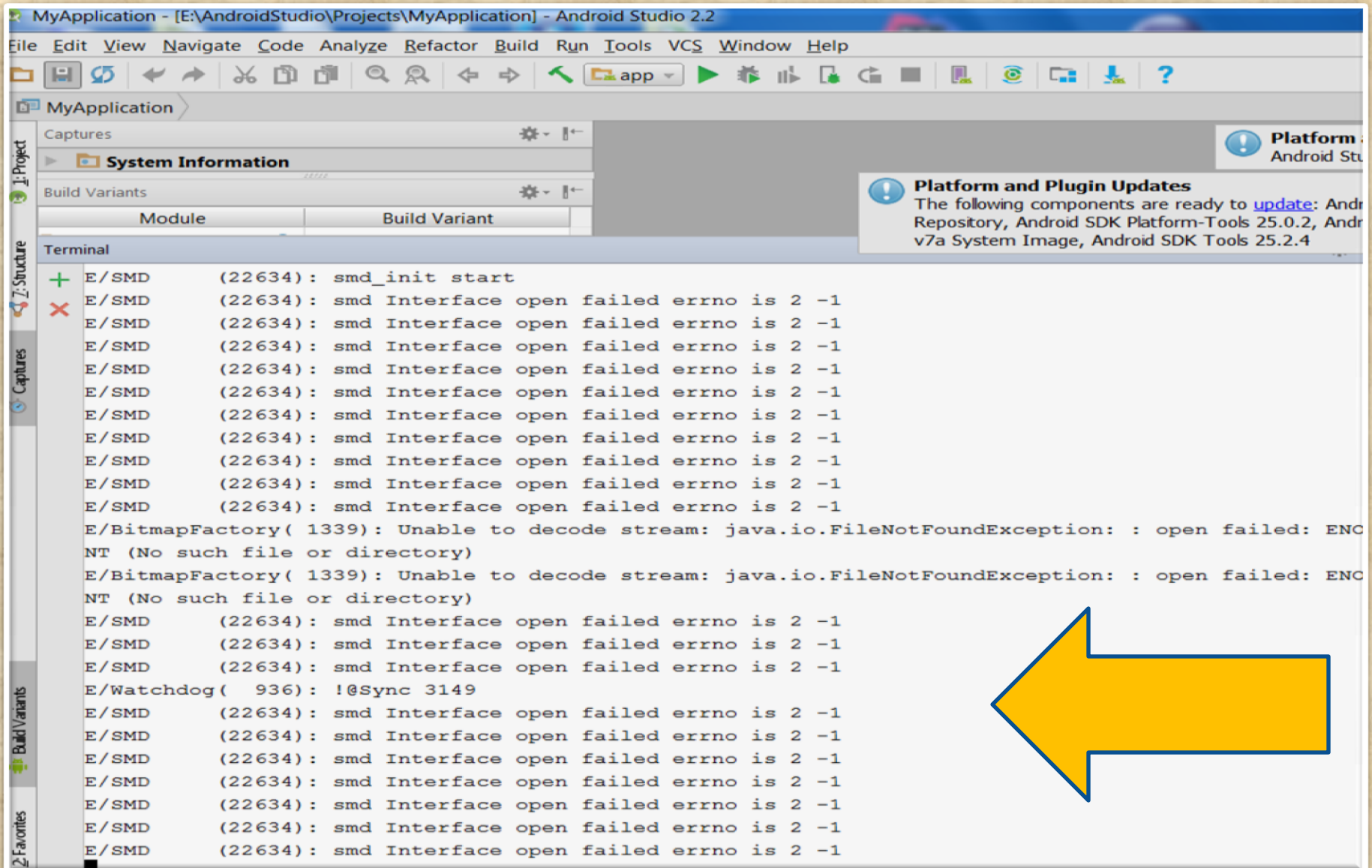
E:\AndroidStudio\android-sdk-windows\platform-tools>adb devices
List of devices attached
4dced50a      device

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

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

Platform an  
The following  
Repository, A  
v7a System

# 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

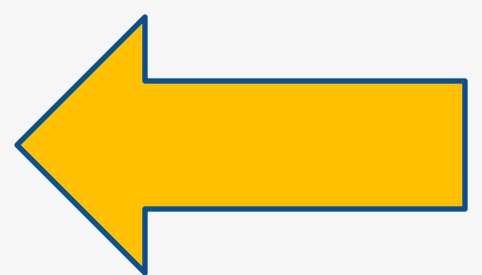
Build Variants

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

Terminal

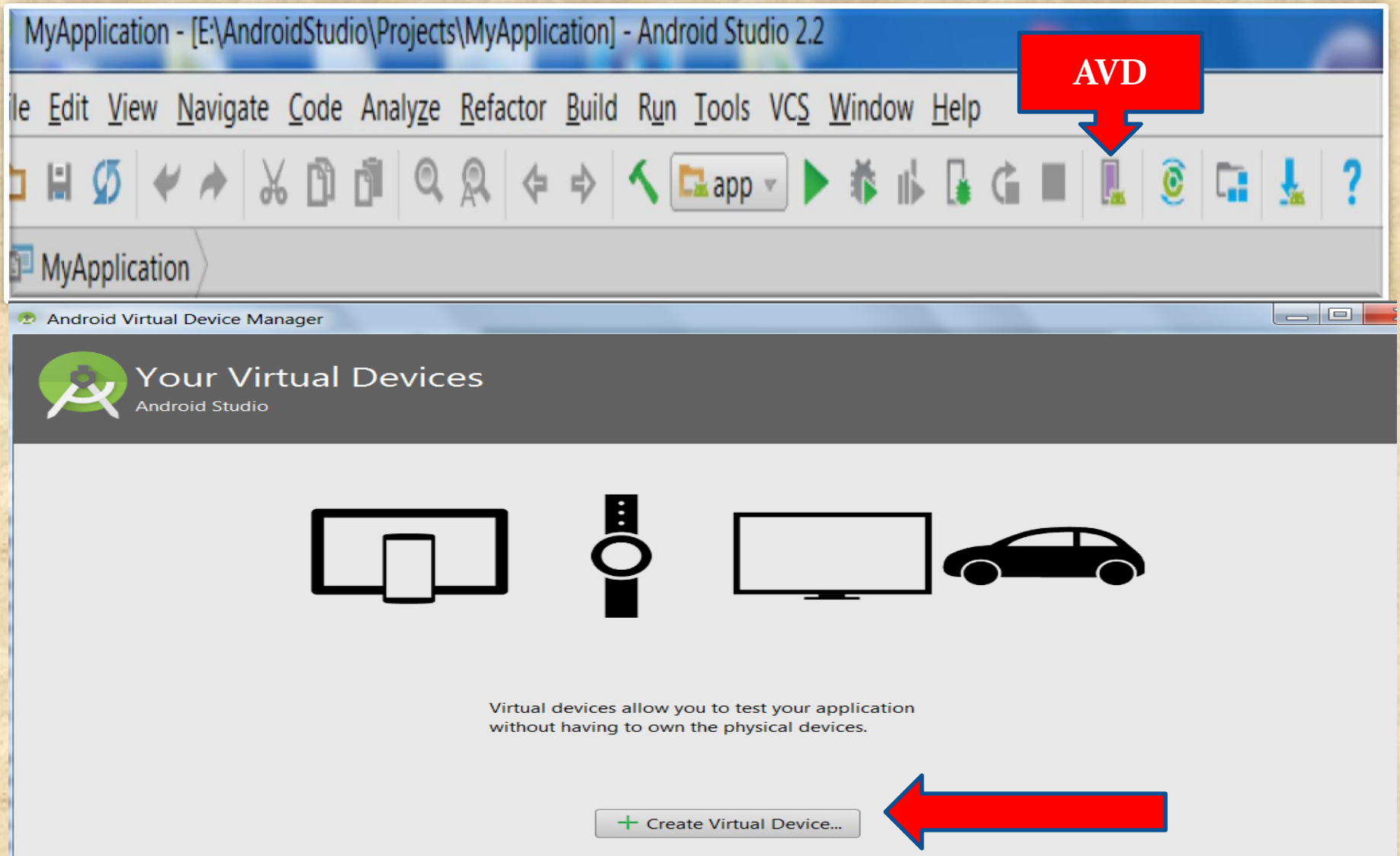
```
+ E/SMD (22634): smd_init start
X E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
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E/SMD (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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E/SMD (22634): smd Interface open failed errno is 2 -1
E/SMD (22634): smd Interface open failed errno is 2 -1
```

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*



# 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
	<b>Nexus 5</b>	<b>4.95"</b>	<b>1080x1920</b>	<b>xxhdpi</b>
	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
<a href="#">null Download</a>	25	x86_64	Android API 25 (with Google APIs)
<a href="#">null Download</a>	25	x86	Android API 25 (with Google APIs)
<b>Lollipop</b>	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	<input type="button" value="Change..."/>
 Lollipop	Android 5.1 x86	<input type="button" value="Change..."/>

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

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	  

**Edit > Set Graphics to Software GL2.0**

