

Testing Android Studio Apps on a Physical Android Devices

Source:

“Android Studio Development: Esentials”, Neil Smyth. 2015.

Chapter: 6

Page: 63-63

Step1:

**Setup and configure the Real Devices
(Smartphone or Tablet)**

Step 1: Configure phone/tablet to allow the connection to ADB (1)

6.2 Enabling ADB on Android 5.0 based Devices

Before ADB can connect to an Android device, that device must first be configured to allow the connection. On phone and tablet devices running Android 5.0 or later, the steps to achieve this are as follows:

1. Open the Settings app on the device and select the *About tablet* or *About phone* option.
2. On the *About* screen, scroll down to the *Build number* field (Figure 6-1) and tap on it seven times until a message appears indicating that developer mode has been enabled.

Testing Android Studio Apps on a Physical Android Device

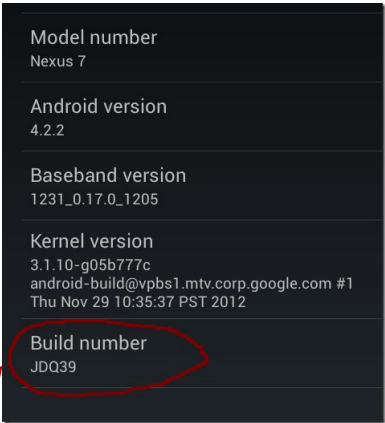
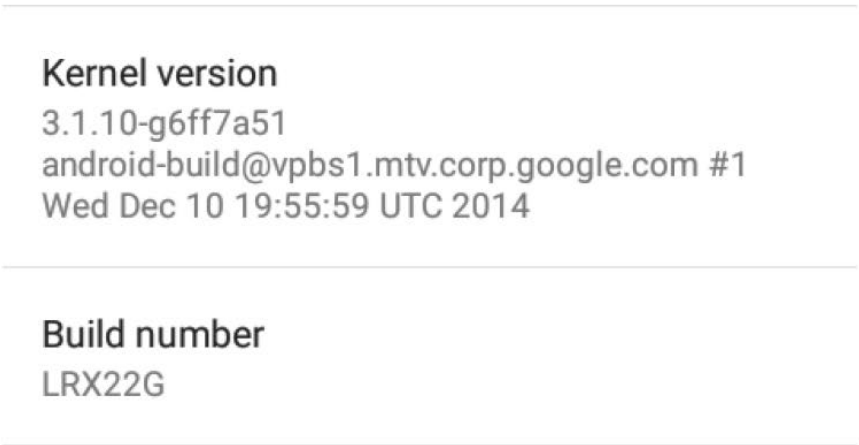
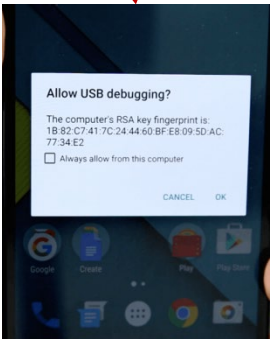
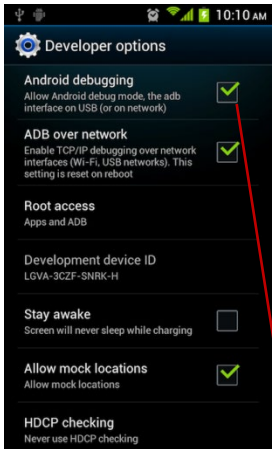


Figure 6-1

Tap 7 times

Step 1: Configure phone/tablet to allow the connection to ADB (2)

3. Return to the main Settings screen and note the appearance of a new option titled *Developer options*. Select this option and locate the setting on the developer screen entitled *USB debugging*. Enable the checkbox next to this item as illustrated in Figure 6-2 to enable the adb debugging connection.

Debugging

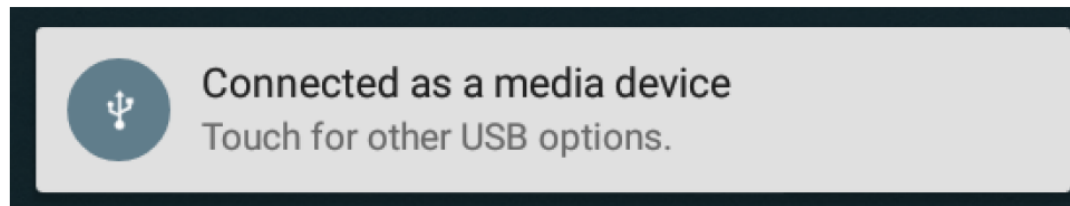
USB debugging

Debug mode when USB is connected



Figure 6-2

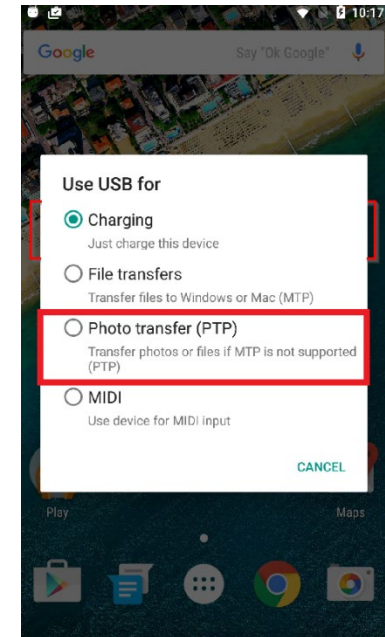
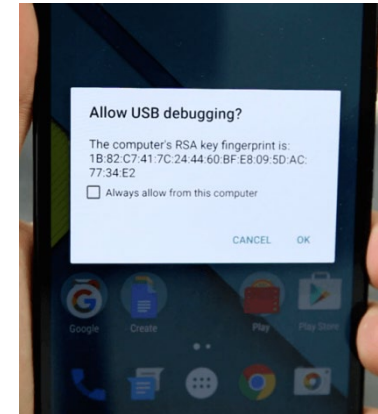
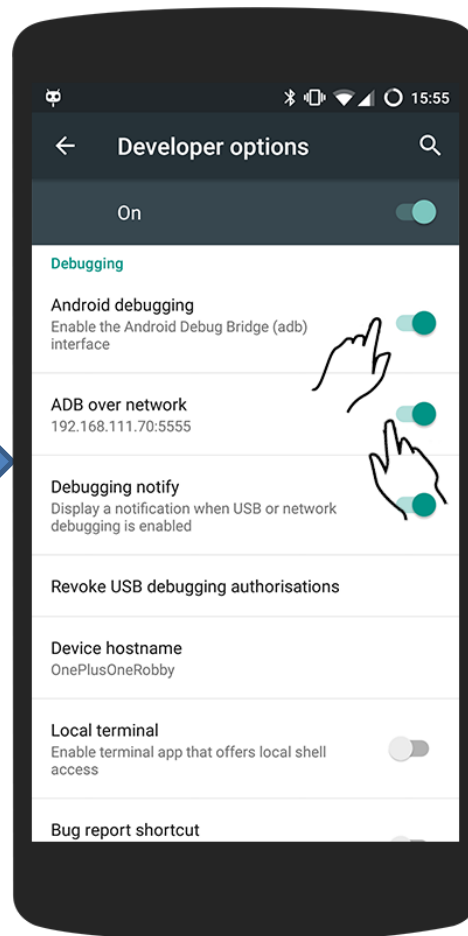
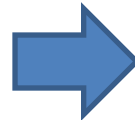
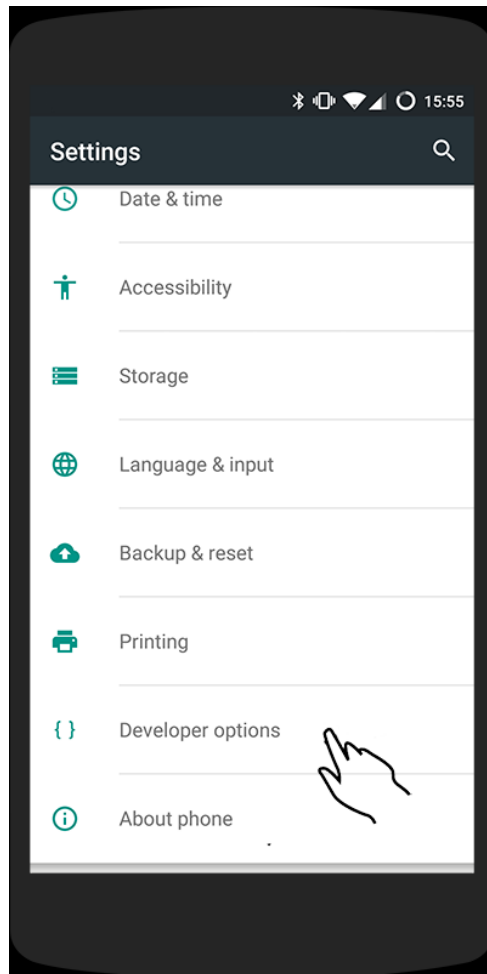
4. Swipe downward from the top of the screen to display the notifications panel (Figure 6-3) and note that the device is currently connected as a *media device*.



**Connected as
Camera (PTP)**

Figure 6-3

At this point, the device is now configured to accept debugging connections from adb on the development system. All that remains is to configure the development system to detect the device when it is attached. Whilst this is a relatively straightforward process, the steps involved differ depending on whether the development system is running Windows, Mac OS X or Linux. Note that the following steps assume that the Android SDK *platform-tools* directory is included in the operating system PATH environment variable as described in the chapter entitled *Setting up an Android Studio Development Environment*.



**Connected as
Camera (PTP)**

Step 2:

Setup the computer side:

Android Studio: ADB configuration

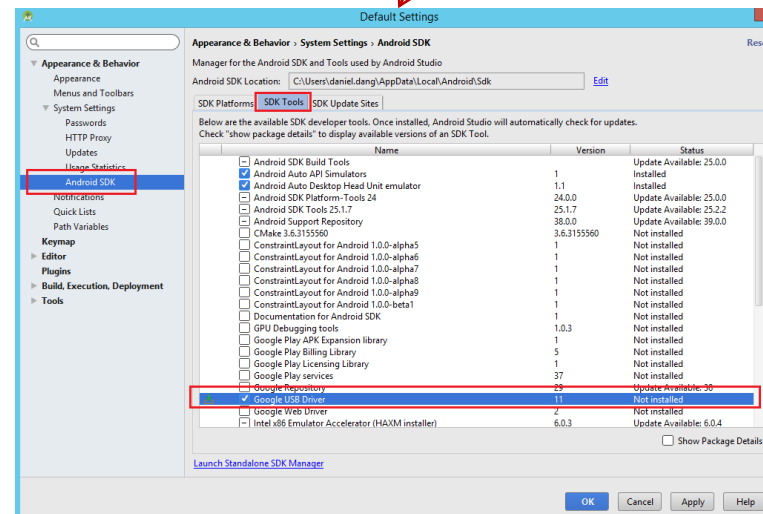
Step 2: Windows ADB Configure (1)

6.2.2 Windows ADB Configuration

The first step in configuring a Windows based development system to connect to an Android device using ADB is to install the appropriate USB drivers on the system. In the case of some devices, the *Google USB Driver* must be installed (a full listing of devices supported by the Google USB driver can be found online at <http://developer.android.com/sdk/win-usb.html>).

To install this driver, perform the following steps:

1. Launch Android Studio and open the Android SDK Manager, either by selecting *Configure -> SDK Manager* from the Welcome screen, or using the *Tools -> Android -> SDK Manager* menu option when working on an existing project.
2. Scroll down to the *Extras* section and check the status of the *Google USB Driver* package to make sure that it is listed as *Installed*.
3. If the driver is not installed, select it and click on the *Install packages* button to initiate the installation.
4. Once installation is complete, close the Android SDK Manager.



Source: "Android Studio Development: Essentials", Neil Smyth. 2015.

Step 3:

Setup the computer:
Install the Intel USB driver

Step 2: Windows ADB Configure (2)

For Android devices not supported by the Google USB driver, it will be necessary to download the drivers provided by the device manufacturer. A listing of drivers and download information can be obtained online at <http://developer.android.com/tools/extras/oem-usb.html>.

When an Android device is attached to a Windows system it is configured as a *Portable Device*. In order for the device to connect to ADB it must be configured as an *Android ADB Composite Device*.

First, connect the Android device to the computer system if it is not currently connected. Next, display the Control Panel and select Device Manager. In the resulting dialog, check for a category entitled *Other Devices*. Unfold this category and check to see if the Android device is listed (in the case of Figure 6-4, a Nexus 7 has been detected):

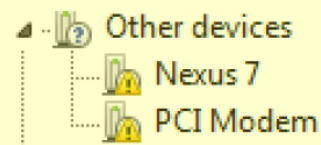


Figure 6-4

Right-click on the device name and select *Update Driver Software* from the menu. Select the option to *Browse my computer for driver software* and in the next dialog, keep the *Include subfolder* option selected and click on the *Browse...* button. Navigate to the location into which the USB drivers were installed. In the case of the Google USB driver, this will be in the `sdk\extras\google\usb_driver` subfolder of the Android Studio installation directory (the location of which can be found in the SDK Manager). Once located, click on *OK* to select the driver folder followed by *Next* to initiate the installation.

Step 3: Install the Intel USB Driver for Android Devices on Windows (1)

Install the "Intel USB Driver for Android Devices" on Windows

- *Disconnect your Android device from your Windows workstation (remove the USB cable)*
- Go to the [Intel USB Driver for Android Devices](https://software.intel.com/en-us/android/articles/intel-usb-driver-for-android-devices) page (link: <https://software.intel.com/en-us/android/articles/intel-usb-driver-for-android-devices>)
- Click the [Download Now](#) link.
- Accept the terms and conditions of the download license agreement.
- Click the **Download Now** link that appears after accepting the license agreement.
- Unzip the contents of the ZIP file you downloaded (e.g., IntelAndroidDrvSetup*.zip), which should contain a single installer named something like **IntelAndroidDrvSetup*.exe** (the precise name of the file is version dependent).
- Run the installer you extracted from the ZIP file on your Windows development system.
- Be sure to click **Yes** if you are presented with a "User Account Control" dialog asking for permission to "allow this app to make changes to your PC?"
- Follow the install prompts and accept the license agreement.
- Insure that the **Intel Android device USB** driver is checked and select **Next**.
- Accept the default install location and select **Install**.
- If you are asked "*Would you like to install this device software?*" click the **Install** button.
- Select **OK** when the install is finished.
- Select **Finish** to exit the installer.

See this [Detailed Step-by-Step Instructions to Install the Intel USB Driver for Android Devices on Windows](#) for an illustrated set of the above instructions.

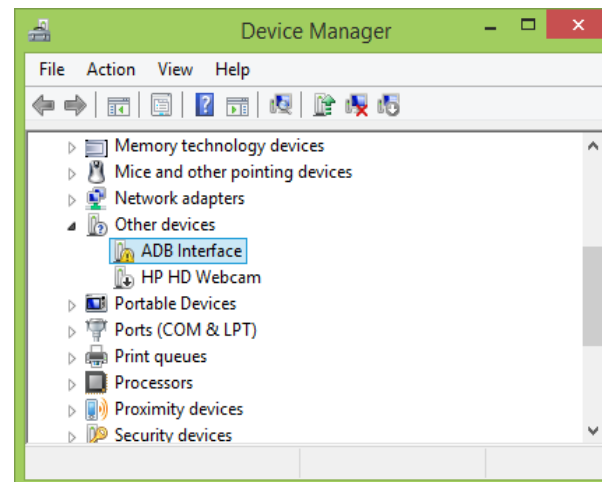
Step 3: Install the Intel USB Driver for Android Devices on Windows (2)

Enable the Intel USB Driver for Android Devices

There is, in fact, only one Android USB debug driver (written by Google). The only difference between the USB debug drivers provided by the various Android device manufacturers is the device ID in the driver INF file that indicates to Windows that “*this driver belongs to that device.*”

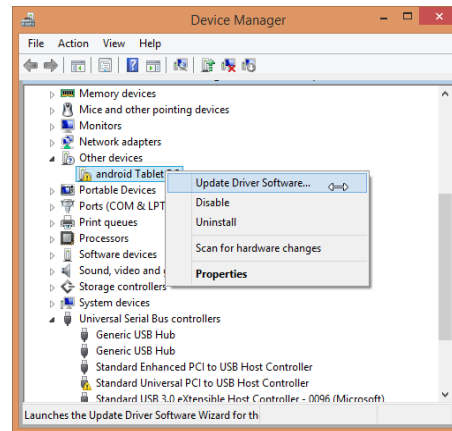
As part of this install procedure, we are going to **override device ID mismatches** and force the Intel ADB driver you downloaded and installed above to be used with an Android device that has a different device ID.

- + Connect your Android device to a USB port on your Windows workstation.
- + Right-click *Computer* on your desktop or in Windows Explorer, and select **Properties**.
- + Select **Device Manager** on the left side of the **Properties** pane.
- + Locate and expand *Other devices* in the **Device Manager**.

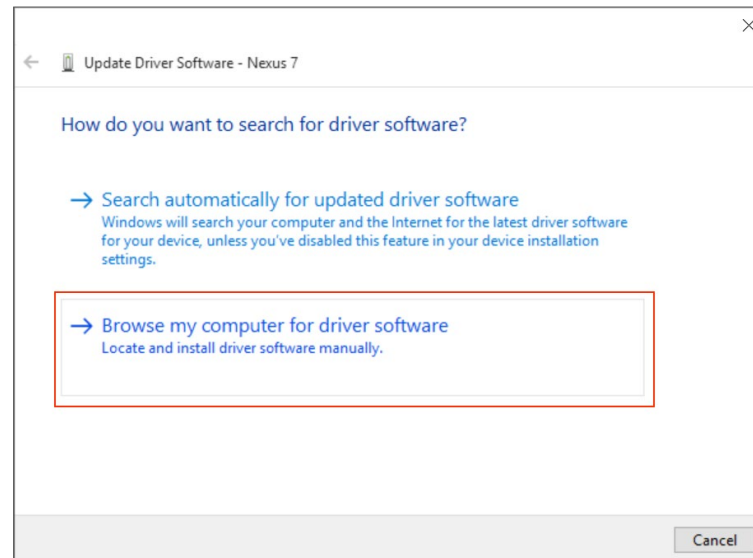


Step 3: Install the Intel USB Driver for Android Devices on Windows (3)

+ Right-click the device name (e.g., *Nexus 5* or *Android Tablet* or *ADB Interface*, etc.) and select **Update Driver Software...** This will launch the Update Driver Software wizard.

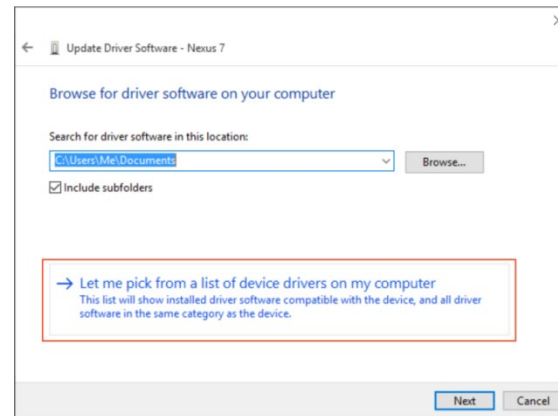


+ Select **Browse my computer for driver software** at the bottom of the dialog box.

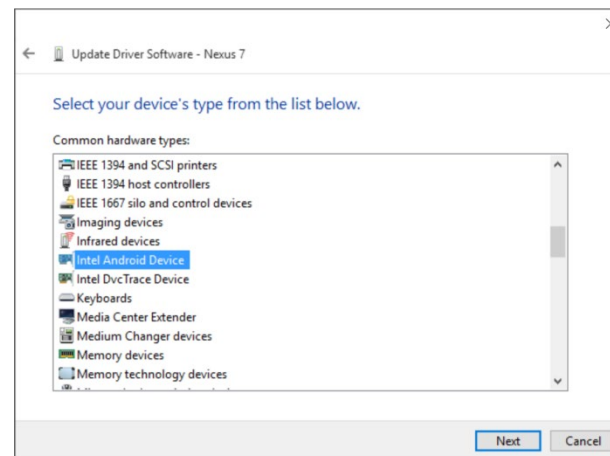


Step 3: Install the Intel USB Driver for Android Devices on Windows (4)

+ Click **Let me pick from a list of device drivers on my computer** *at the bottom* of the dialog box:



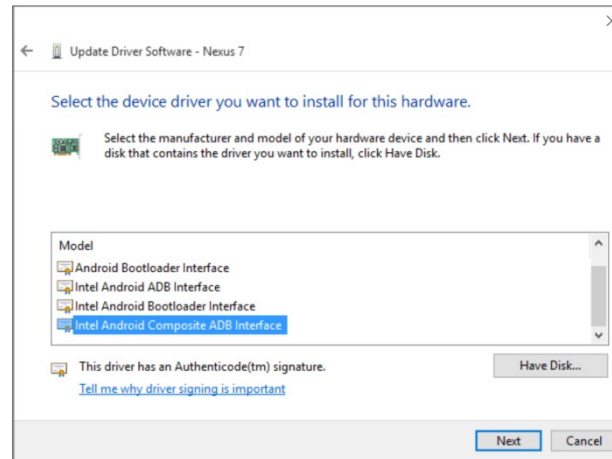
+ Search for and select **Intel Android Device** from the "Common hardware types" list. If you have only installed the Intel USB driver (above) you will only find the **Intel Android Device**; however, if you have previously installed another manufacturer's ADB driver you may also see **ADB Interface**, **Android Phone**, **Android** or other names in this list. These other options can also be used, because they use the same USB driver files; for simplicity, select the **Intel Android Device**.



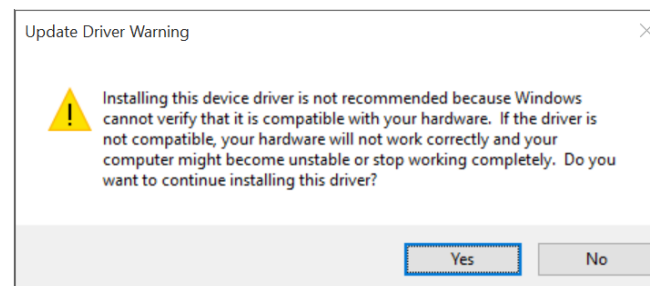
*If you see none of the above options you may have to select **Show All Devices** (at the top of the list) and then click the **Next** button to get a complete list of device drivers installed on your system. Please be patient when selecting **Show All Devices**, it can take a few minutes to populate the list.*

Step 3: Install the Intel USB Driver for Android Devices on Windows (5)

+ Select a **Model** from the list of available drivers (see below). If you selected the **Intel Android Device**, in the prior step, the driver **Model** you need will be at the bottom of the list: the **Intel Android Composite ADB Interface**. If you selected some other manufacturer's Android device you should find a variant of **Android Composite ADB Interface** as a choice.



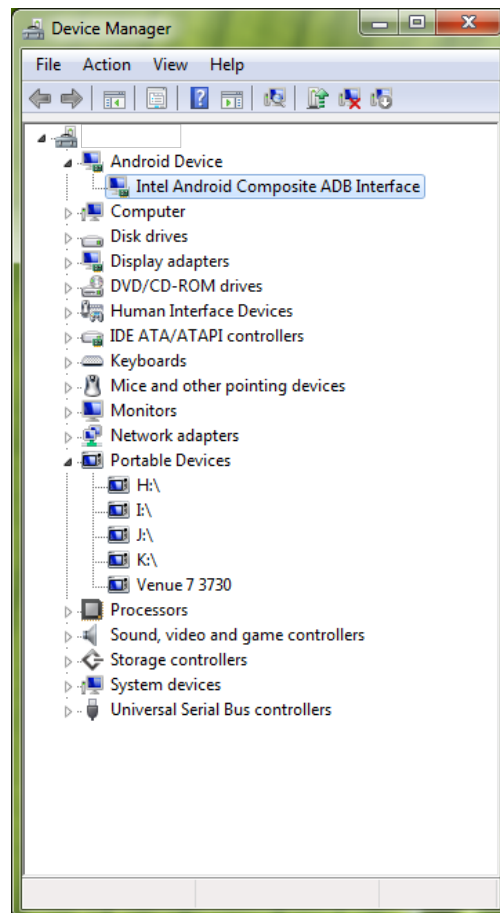
+ When you select one of these “**non-matching**” **ADB drivers** you will get a warning message, because the ID of the driver does not match that of your connected Android device. Click **Yes** to ignore the warning and confirm that you wish to use this driver with your Android device.



Step 3: Install the Intel USB Driver for Android Devices on Windows (6)

- + Click **Next** to install the driver.
- + Close the "successfully updated" driver installation dialog.

If the procedure above was successful, you should now see something similar to the following when you inspect the Device Manager with your Android test device attached via USB (the precise name of this "interface" under the Android Device may vary as a function of the ADB debug driver you used, but it should say something about "ADB"):



NOTE: If you change your Android device's USB connection mode from MTP to PTP (or vice-versa) you may have to follow the process above again (starting with the section titled *Enable the Intel USB Driver for Android Devices* section) to reconnect the USB driver with your Android device. There is nothing wrong with your Android device or your system, if this happens, it simply is required with some Android devices.

Step 4:
Open the ADB

