



Optional Lab 1 - Debugging on a Physical Device

Introduction

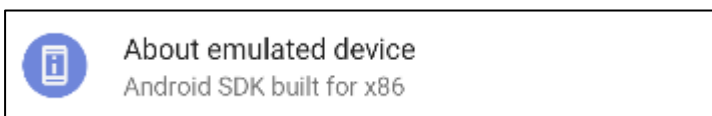
While I recommend using an emulator for testing most of your apps, there can be huge benefits to using a physical Android Device for this purpose instead. For this lab, I'll be walking you through the process of enabling Developer Mode on a physical Android Device and setting up Android Studio so it can send apps over a USB cable.

For this lab you will **require** an Android Device running at least Android version 7.0, as well as a USB cable to connect to your computer. While it is unlikely that you will run into any issues, I would still be mindful that using your own Android phone does come with some risk associated. Only continue if you are aware of these risks and are happy to proceed.

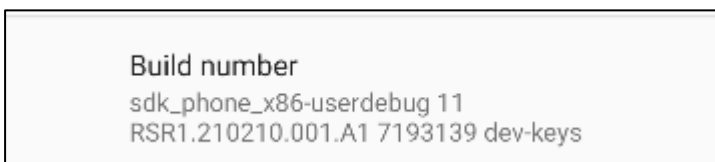
Configuring your device

Depending on the variant of Android you are running, these steps may vary.

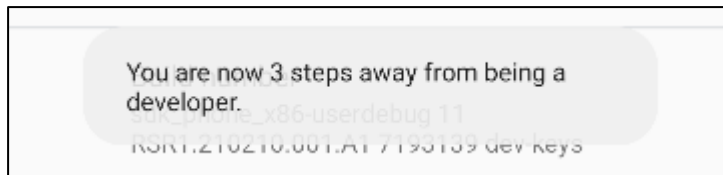
On your own Android Device, head to your device system settings and find **About Device**. This may be called something different depending on your device.



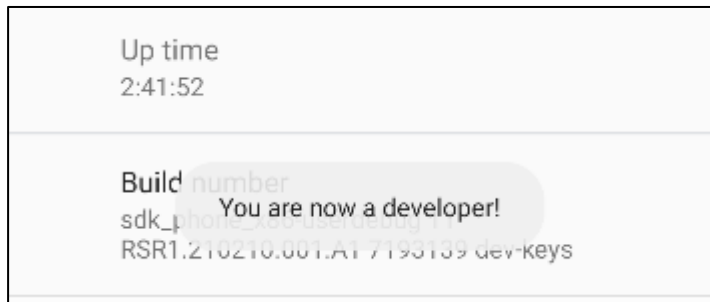
Now scroll down until you find the **Build number**.



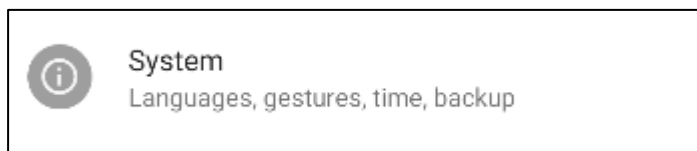
Tap on this build number until at the bottom of your screen Android lets you know that you are now a developer.



Once you're done you should get a popup a bit like this one:



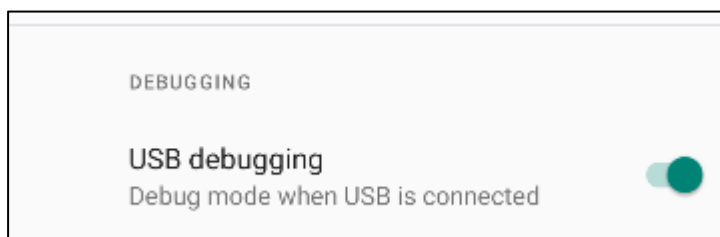
Now back out and head to **System Settings**.



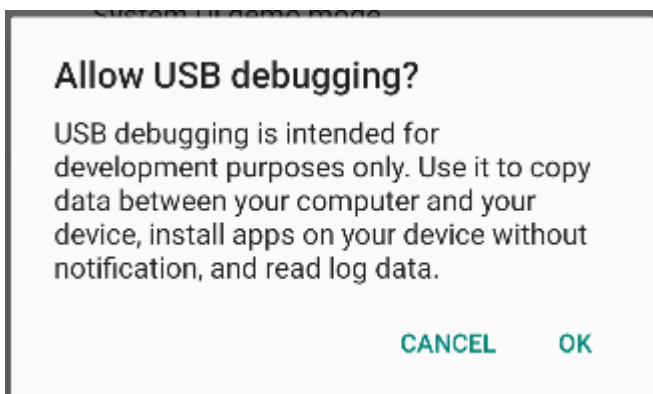
From here, look for an entry for **Developer Options**.



If you scroll down, under the Debugging section there should be an option for **USB debugging**. Go ahead and ensure this item is checked.

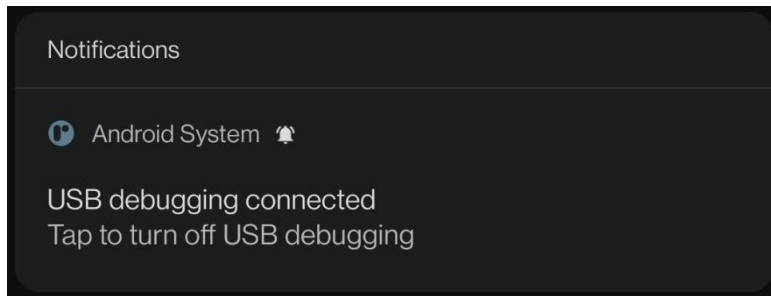


You will get a confirmation dialog similar to the one below. Tap **OK**.



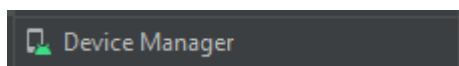
Now if you haven't already connected your phone to your PC, now is the time to do so with a physical USB cable. After connecting you should get a confirmation dialog to ask if you'd like to allow this PC. Just click **Accept**.

You should now have a notification similar to this on your device. You're now ready to head to Android Studio to complete the process.

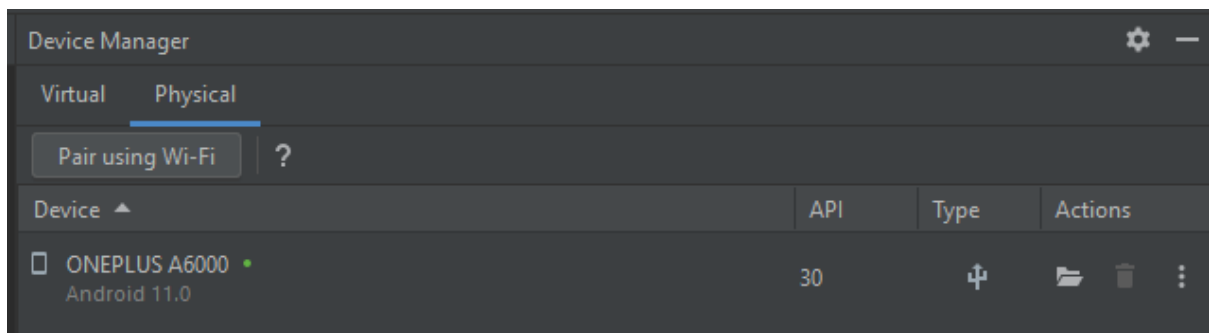


Configuring Android Studio

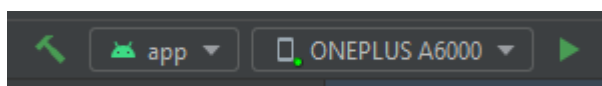
Open up or create any new project in Android Studio. Once you've got a project open, go up the top to **Tools > Device Manager**.



In Device Manager, select the **Physical** tab. Your device should be showing up.



Click on your device to select it. The dropdown beside the green play button at the top should now have your device name next to it.



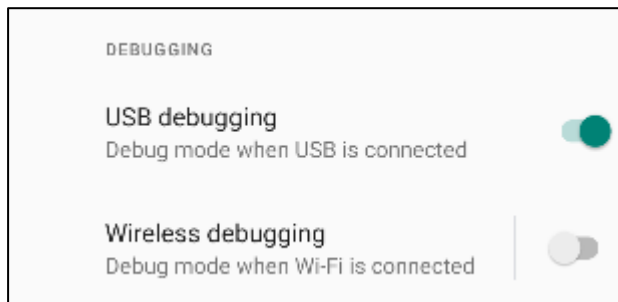
Now click the **play icon**. If you check your phone, it should now have your app running on it!

Wireless Debugging (optional)

There is also the option for debugging your Android apps on your device wirelessly. This option will only be available to you while you are at home, and requires both your Android Phone and your PC to be on the same network.

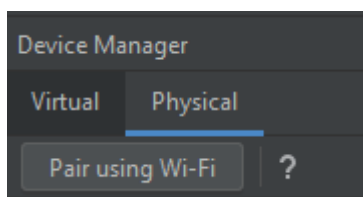
Ensure that your device is connected to WiFi at home and head back to **Developer Options**.

Scroll until you find an option for **Wireless Debugging**.

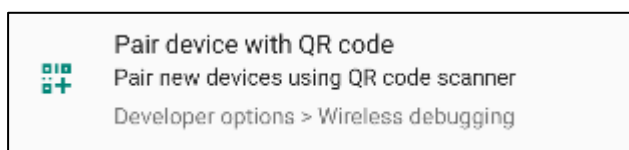


After checking, you'll get a prompt asking if you'd like to treat your current wireless network as a safe network for debugging purposes. Tap **allow**.

In Android Studio, head back to **Device Manager**, ensure you are on the **Physical** tab and click **Pair using WiFi**.



You should get a QR code on your PC screen. On your phone, scroll until you find **Pair using QR code**.



Scan the QR code. Now your device should be connected to Android Studio over WiFi!