

## 2D Running on a physical device

Please don't try to submit your finished app to the AppStore/Play Store without running it on a physical device. Many times, the app runs okay on an emulator only to fail on a real device.

But wait, how do I get it on a device before it's on an app store? We're glad you asked. You tether your device to your development machine with a cable and deploy it over that cable. Let's see how to run it on a physical device.

### Getting your Android device ready to debug

Skip this if you don't have a physical Android device.

1. Go to settings on your physical Android device.
2. Choose "About device"
3. Tap "Build number" about seven times until it tells you you are a developer.
4. Go back up to settings and choose "System".
5. You'll now see a "Developer options". Tap it.
6. Toggle "USB debugging" to the On position

Pick one of the following combinations to debug your simple Flutter app on an actual, physical device.

### Windows/Android

Skip this if you don't have a Windows machine or a physical Android device.

7. If you have a physical laptop, a physical Android device and a cable, go ahead and connect the device to your laptop. Try to run your app in your Android device.
8. Note that you can step through the debugger even when connected to a physical device. Give that a try.
9. Without stopping the debugger, make a change to the source code. Notice that hot reload works even when running with a physical device.

### Windows/iOS

Yeah, this option isn't possible. Please direct all complaints to @tim\_cook.

### MacOS/Android

Skip this if you don't have a Mac or a physical Android device

10. Using a good quality USB cable, plug your Android device to your Mac.
11. Note that you can step through the debugger even when connected to a physical device. Give that a try.
12. Without stopping the debugger, make a change to the source code. Notice that hot reload works even when running with a physical device.

### MacOS/iOS

Skip this if you don't have a Mac or a physical iOS device.

Finally, a setup that works well together! Actually, not so fast. It's still pretty tough.

13. If you have an Apple Developer Account, a Mac and a physical iOS device handy. Grab a cable and try to tether your iPhone or iPad. Run through the debugger.

## **Bonus! Doing multiple physical combinations**

14. After you've notified your instructor that you're finished, try to get another combination working as well. Even after the lab time is over it is a good idea to try to get your apps running on as many physical devices as possible so use this as an "extra credit" exercise when you have idle time in all future labs.