Setting up Android Studio for FTC

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Introduction

For the 2016-2017 season, FTC has released a new and much improved version of the "ftc_app" software development kit (SDK) for the Android Technology Platform. The tutorial folder seems to still contain instructions for the older versions, so I decided to write a new one. Please send any suggestions for improvement to pmichaud@pobox.com .

Preparing Android Studio for FTC requires three major components:
1. Java SE Development Kit 8 (JDK 8)
2. Android Studio 2.1 or higher
3. The ftc_app software development kit from GitHub

In addition, if using a ZTE Speed phone the computer may also need to install the ZTE Speed Drivers. See my other document on "ZTE Speed setup" for instructions on how to do that.

Installing the Java Development Kit 8

The Java SE Development Kit is available from http://www.oracle.com/technetwork/java/javase/downloads/ . It is available for many different platforms -- select the version that corresponds to the operating system of your computer. As of this writing the latest version was "8u102".

Once the JDK is downloaded, launch the installer application. I've always just accepted the default install options.

Installing Android Studio

Android Studio is available from https://developer.android.com/studio/ . Download the version that is appropriate for your operating system. It can be a very large download -- the version I downloaded on 2016.10.07 was 1.6 GB. After downloading, launch the installer application to install Android Studio. It's a large application, so it may take some time to install (patience is a virtue in all of this).

* From the first "Welcome to Android Studio Setup" screen, press "Next".
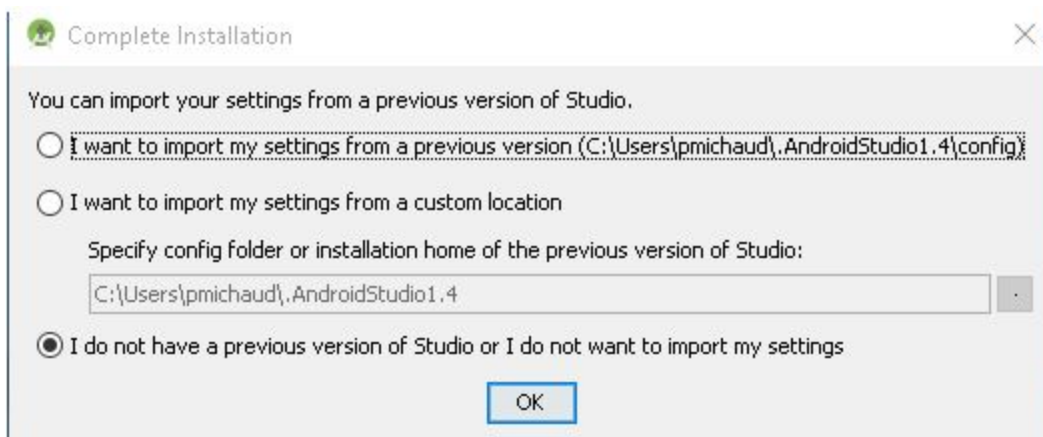* In the "Choose Components" dialog, leave the defaults (everything checked) and press "Next".

* When the License Agreement appears, press "I Agree".
* For the Configuration Settings - Install Locations, I always accept the defaults. (Press "Next".)
* At the "Choose Start Menu Folder", press "Install".

Android Studio will begin installing. It's a large application, so it may take a while.

* From the "Completing Android Studio Setup" screen, press "Finish".

Android Studio will likely start running.

* You may get a dialog box asking if you want to import your settings from a previous version of Studio. Select "I do not have a previous version of Studio or I do not want to import my settings" and press "OK".

* From the "Install Type" screen, select "Standard" and press "Next".
* From the "Verify Settings" screen, press "Finish".

Android Studio will then begin downloading additional components it needs to run. Again, this may take a little while.
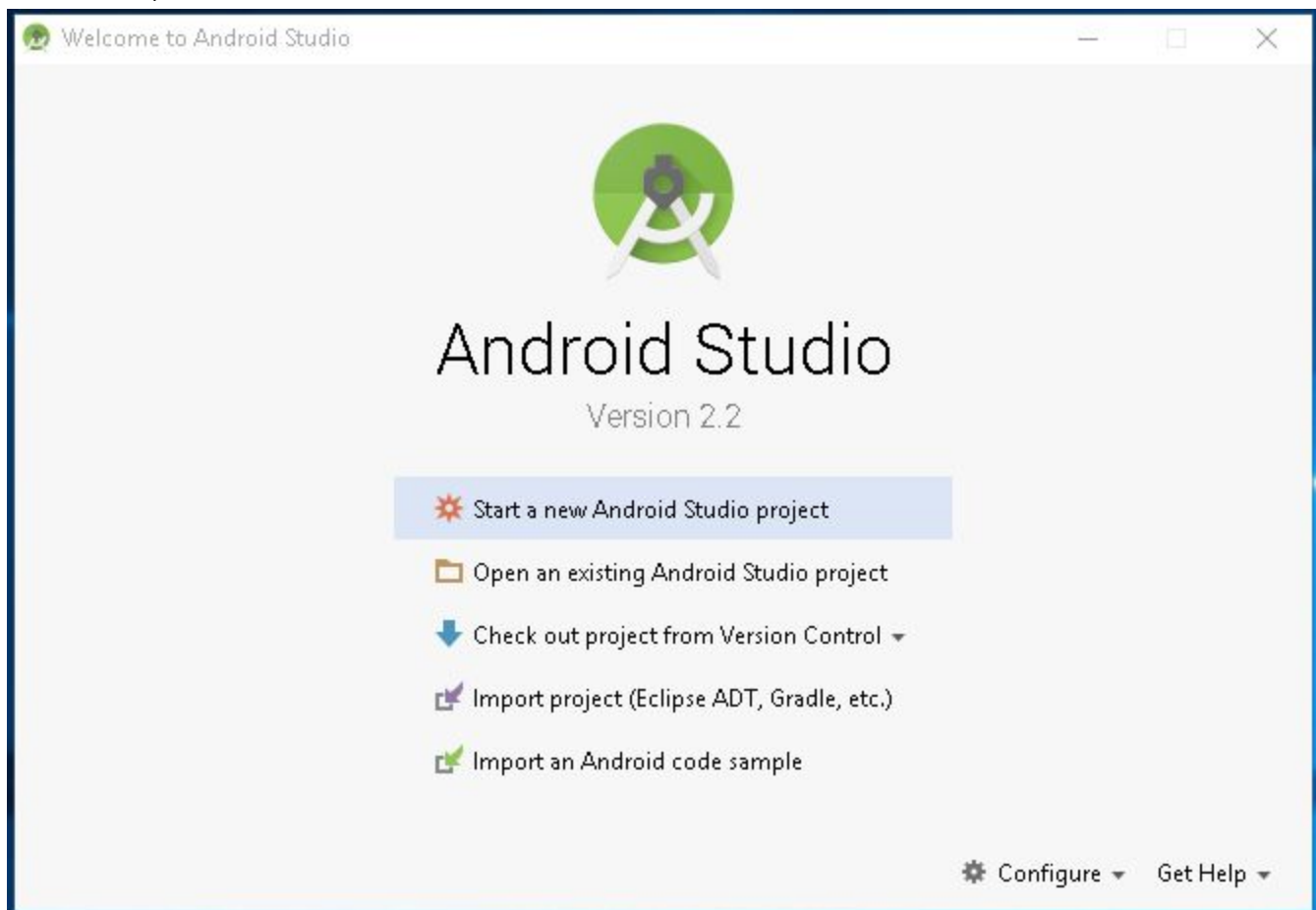
* When downloading is complete, press "Finish".

* Close Android Studio.

Installing the ftc_app SDK

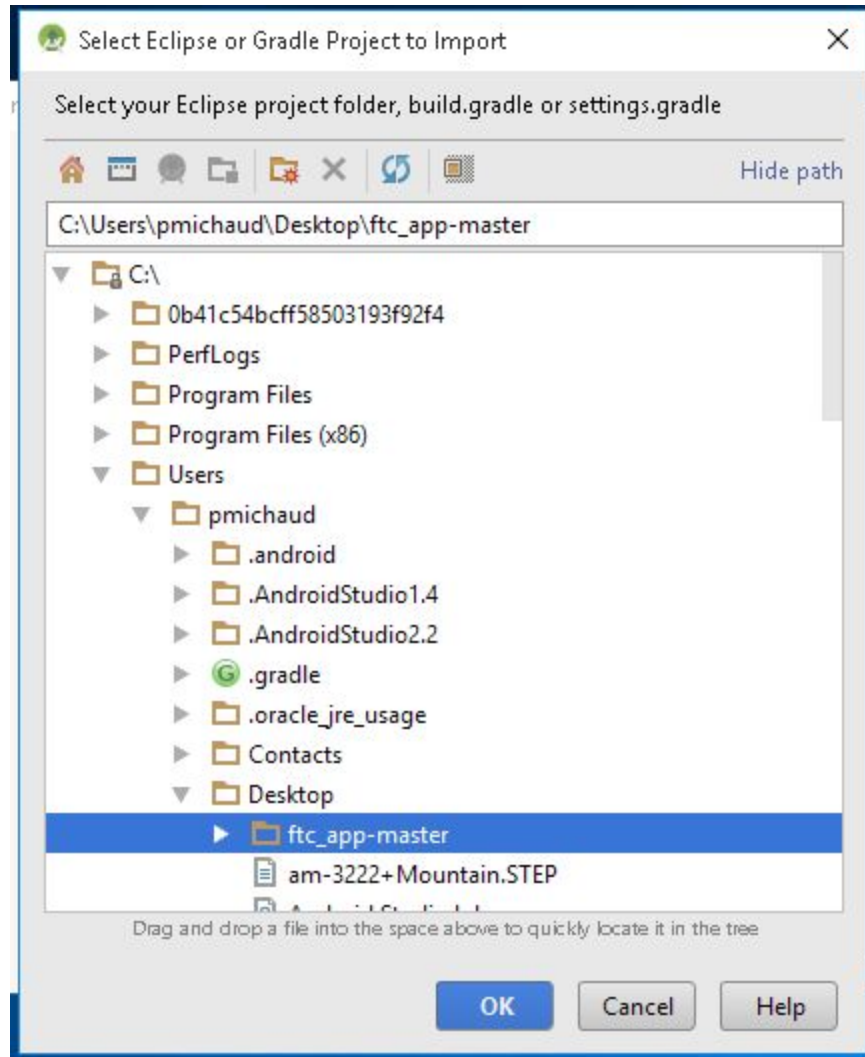The FTC Driver Station and Robot Controller apps are available from GitHub at https://github.com/ftctechnh/ftc_app . Select the "Clone or Download" button, then select "Download ZIP". This will download a copy of the SDK to your computer.

Extract the contents of the ftc_app-master.zip file to somewhere convenient, such as the Desktop. You should end up with a "ftc_app-master" folder containing the FTC files.

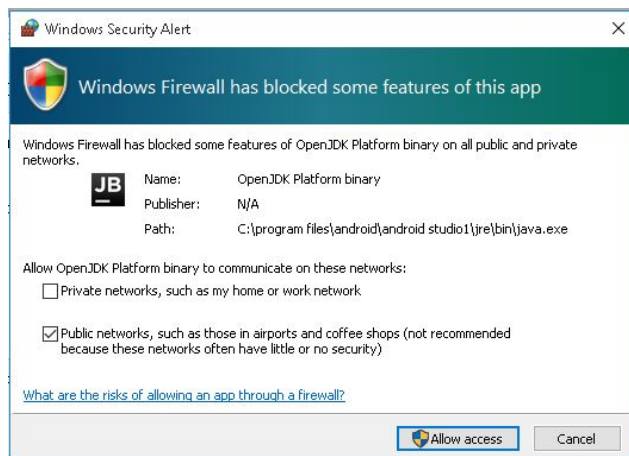Launch Android Studio. From the Android Studio main screen, select "Import project (Eclipse ADT, Gradle, etc.).

In the "Select Eclipse or Gradle Project to Import" dialog box, locate the "ftc_app-master" folder you created in the earlier step. (Try hitting the "home" icon first, then locate the folder.)

Press "OK". Android Studio will begin importing and building the FTC application. This can take a really long time to complete, so again be patient. (It gets faster later.)
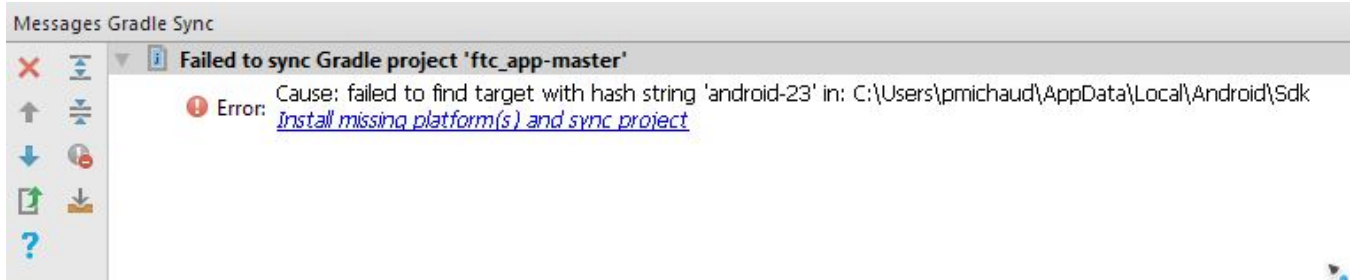
If you get a "Windows Security Alert" about some features being blocked, select "Public networks" and press "Allow access".
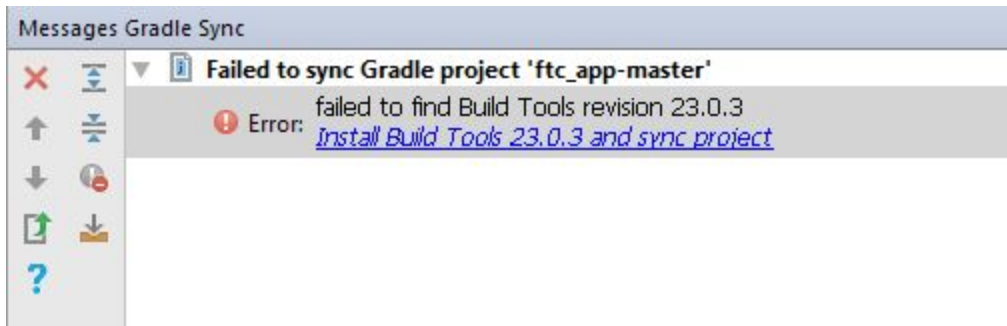
Close any "Tip of the Day" dialog box that you receive.

Android Studio will begin building the ftc_app-master project. This also takes a long time the first time it's done, so you have to be patient. You can watch the status bar at the bottom of Android Studio to see what it is currently working on. If you're really impatient, select the "Gradle Console" option at the bottom right of the window to open a window that will show the status of the build.

You'll likely get an error the first time you try to build the project:
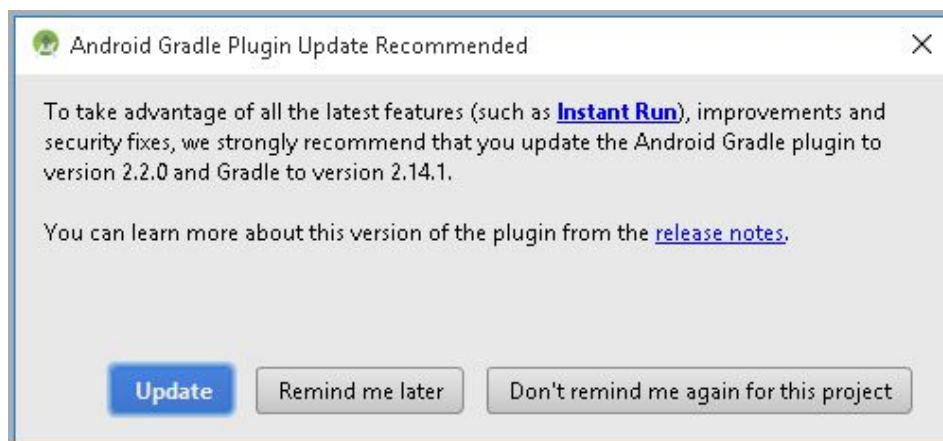

Click on the blue link to have Android Studio automatically download and install the missing SDK Platform component. Once it is installed, press "Finish" and Android Studio will try again to build the ftc_app project. If you get any more messages like the following:
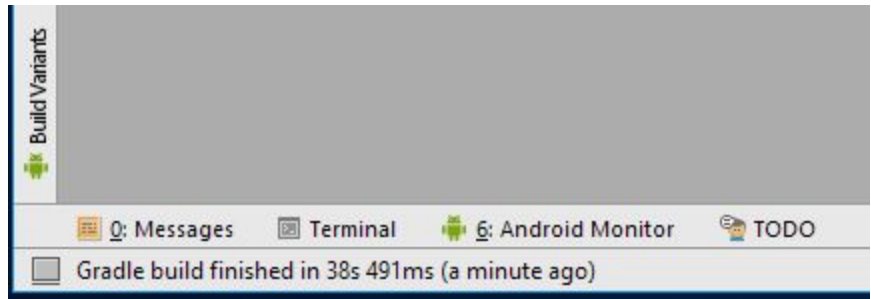

Simply click on the blue "Install" link to have Android Studio download and install the missing components and try again.
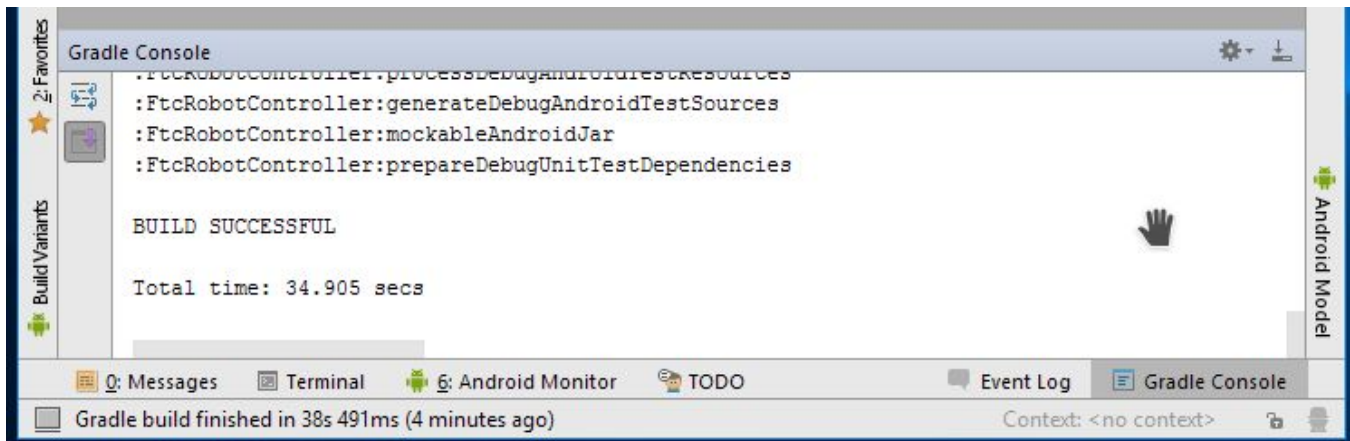
If you get the "Android Gradle Plugin Update Recommend" dialog box, press "Update".

Eventually the build will complete and the status bar at the bottom left will read "Gradle build finished in …". This means that the ftc_app has built successfully on your computer and Android Studio is set up properly.

You can also look in the Gradle Console where you should see "BUILD SUCCESSFUL":

The ftc_app project files can be found by clicking "Project" at the upper left of the Android Studio window: