Preparing the build system

This section presents a general outline of the procedure for preparing the build system. The specific steps will vary depending on the operating system you use.

1. Java must be installed and on the build system's search path. If this is not the case, download Java from http://java.com and install it.
2. Download and install the Android Studio that matches the Java runtime engine installed on the build system. Download from https://developer.android.com/sdk/index.html#top.
3. Configure the build system to detect the Android device in USB debugging mode. This procedure varies by operating system. See http://developer.android.com/tools/device.html for more details.
4. Connect your Android device to the build system using a USB port. Note: Your device must have USB debugging enabled. See the device documentation for further details.
5. Download the BatteryXPRT 2014 sources (BatteryXPRT2014_build104_SRC.zip) from http://principledtechnologies.com/benchmarkxprt/members/batteryxprt/2014/Battery XPRT2014_build104_SRC.zip.
6. Extract the sources from BatteryXPRT2014_build104_SRC.zip. In the BatteryXPRT2014_build104_SRC folder, the BatteryXPRT and BatteryXPRTTests folders will appear.

Building the BatteryXPRT 2014 for Android modules in Android Studio

The BatteryXPRT source folder contains the BatteryXPRT and BatteryXPRTTest modules. The BatteryXPRT module contains the harness and results UI, and the BatteryXPRTTests module contains the tests and test content. To build the app properly, build the BatteryXPRTTests module before building the BatteryXPRT module.

Building the BatteryXPRTTests module

1. Launch Android Studio. You will find the executable in the bin folder of the Android Studio installation package you unzipped earlier.

2. Select Open an existing Android Studio project.
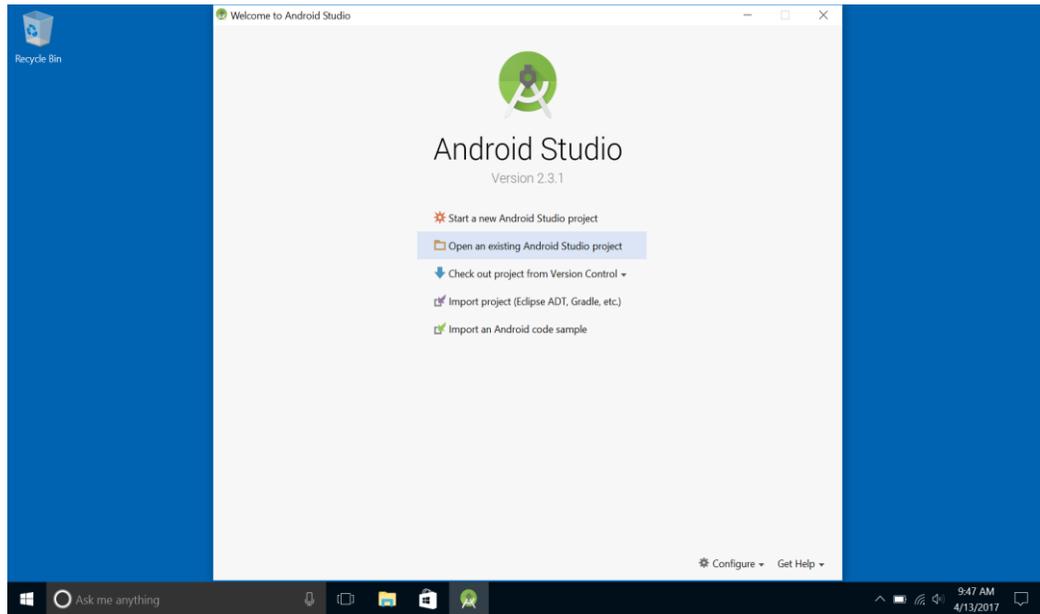
3. Select the BatteryXPRTTests source folder, and click OK. The project sync process may take several minutes.
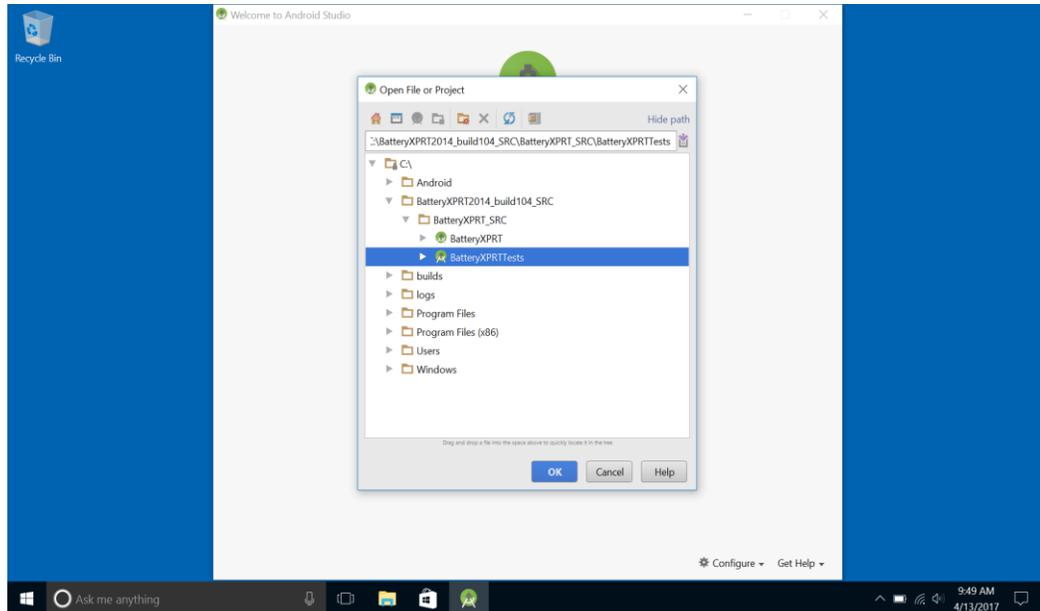
4. If any SDKs associated with the project are missing, Android Studio will suggest updates. If the update prompt appears, open the prompt balloon, click Update Now, accept the Terms and Conditions, and click Next.
5. If Android Studio produces any warning messages about updates (e.g., Gradle Sync Issues), click the link provided in the UI to fix the issue.

6. Once the project is open and synced, the Android Studio Messages window will display a BUILD SUCCESSFUL message.
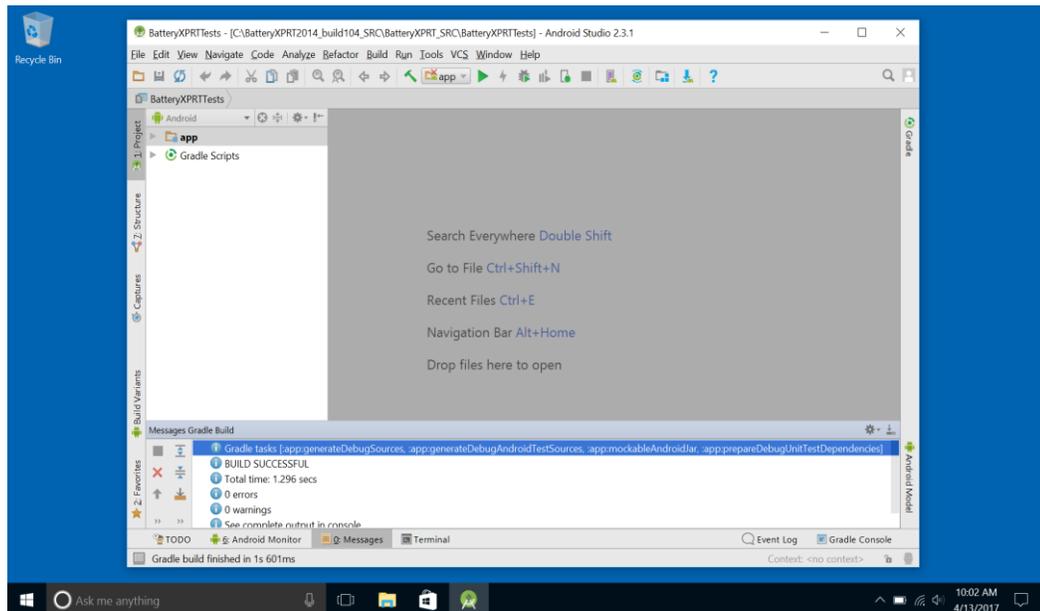
7. Highlight the app folder in the project navigation window on the left side, and select Build → Build APK.
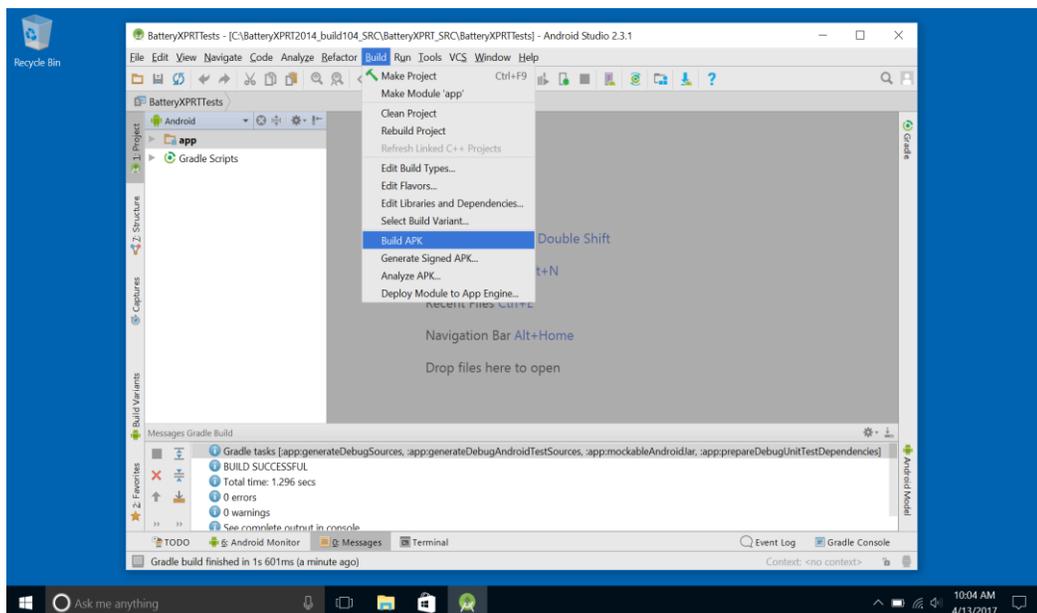
8. Once the APK build process is complete, a message stating "APK(s) generated successfully" appears.
9. Click Show in Explorer to locate the APK in File Explorer. The APK (app-debug.apk) will be in C:\BatteryXPRT2014_build104_SRC\BatteryXPRT_SRC\BatteryXPRTTests\app\build\outputs\apk.

10. Rename app-debug.apk to BatteryXPRTTests.apk.
11. Copy BatteryXPRTTests.apk to the root → sdcard → Android folder in the Android device's internal storage.
12. On the device, tap the BatteryXPRTTests.apk file to begin the BatteryXPRTTests installation process. When the prompt asks if you want to install BatteryXPRTTests, select Install.
13. When the BatteryXPRTTests installation process completes successfully, select Done. You are now ready to build the BatteryXPRT module.

Building the BatteryXPRT module

1. In Android Studio, select File, then Open.
2. Select Open an existing Android Studio project
3. Select the BatteryXPRT source folder, and click OK. The project sync process may take several minutes.
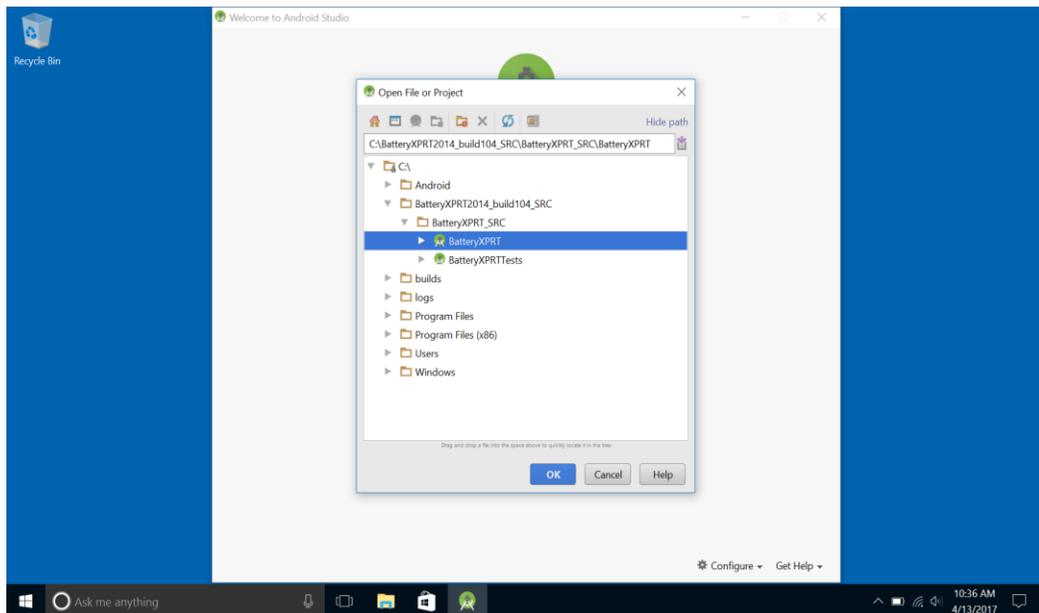
4. Once the project is open and synced, the Android Studio Messages window will display a BUILD SUCCESSFUL message.

5. Highlight the app folder in the project navigation window on the left-hand side, then select Build → Build APK.
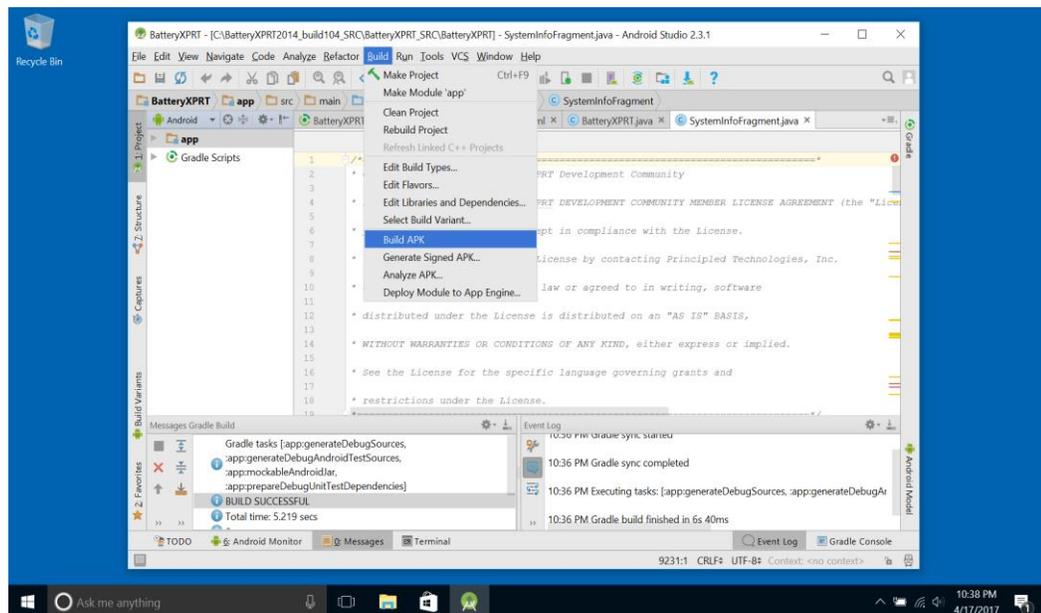
6. Once the APK build process is complete, a message stating "APK(s) generated successfully" appears.
7. Click Show in Explorer to locate the APK in File Explorer. The APK (app-debug.apk) will be in C:\BatteryXPRT2014_build104_SRC\BatteryXPRT_SRC\BatteryXPRT\app\build\outputs\apk.
8. Rename app-debug.apk to BatteryXPRT.apk.
9. Copy BatteryXPRT.apk to the root → sdcard → Android folder in the Android device's internal storage.

10. On the device, tap the BatteryXPRT.apk file to begin the BatteryXPRT installation process. When the prompt asks if you want to install BatteryXPRT, select Install.
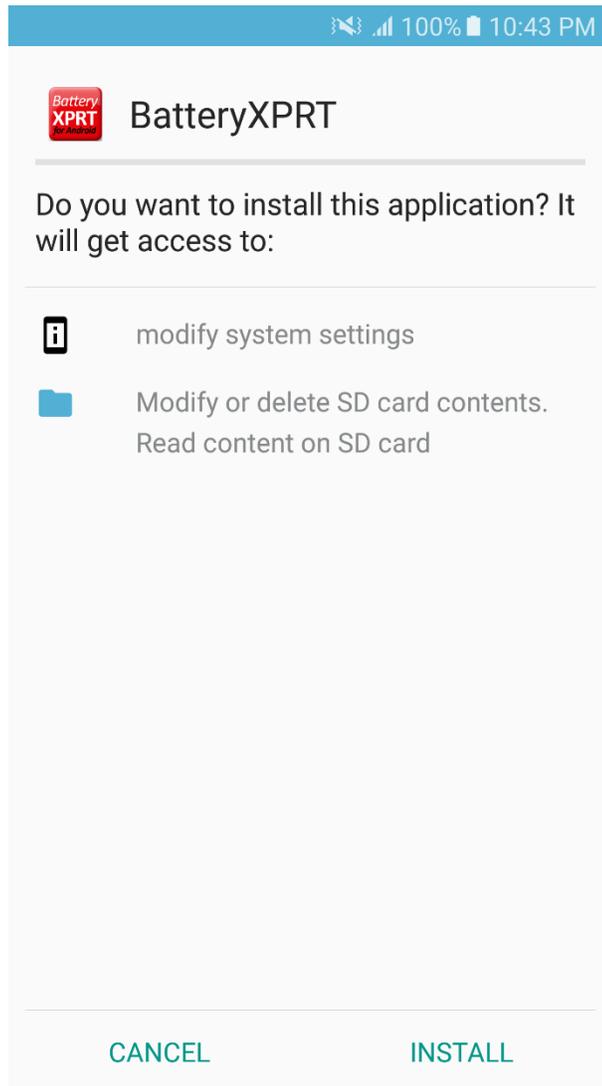
11. When the BatteryXPRT installation process completes successfully, select Open.

12. BatteryXPRT will then download test content. When the download process completes, BatteryXPRT installation is complete.
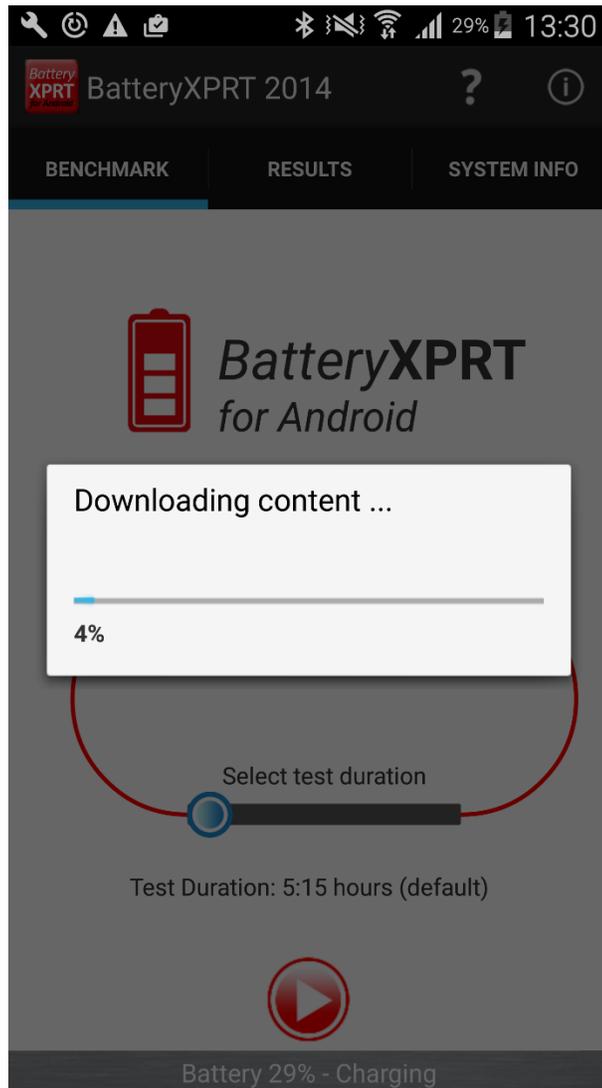
13. Once the device is fully charged, BatteryXPRT will run on the device.