

## **Follow the Clues! - Installation Guide - Windows - Android Only**

**Adapted from Beacon Map Installation Guide by [Elliot Ward - Capstone 2024 Project](#)**

Note: This guide is to install the project files onto your machine and may break over time or on certain machines. Without generating an APK, this unfortunately is the only way to download the application on a new device. Also, when installing the zip file from the website, you may need to allow insecure downloads. You will also need to install a few external things to get things running, which I will lay out as they are needed. If things are not working properly, I apologize for the complexity and I will have a list of the libraries I installed if you want to attempt implementing a new project with the source code files. However, I was able to complete a successful transfer to another machine with these steps.

### **React-Native Android Application**

#### **Libraries/Dependencies (see packages.json)**

- react-native-ble-plx (For bluetooth/BLE functionality, must also set up permissions for BLE {use links below})
  - <https://github.com/dotintent/react-native-ble-plx>
  - <https://github.com/Vic-Orlands/Ble-Manager>
- @react-native-community/geolocation (For GPS functionality)
  - <https://www.npmjs.com/package/@react-native-community/geolocation>
- react-native-dropdown-picker (For dropdowns)
  - <https://github.com/hossein-zare/react-native-dropdown-picker>
- react-native-asset (For custom fonts)
  - <https://blog.logrocket.com/how-to-add-custom-fonts-react-native/>
- @react-navigation/native
- @react-navigation/native-stack
  - <https://reactnavigation.org/docs/stack-navigator/>
- react
- react-native
  - <https://reactnative.dev/>
- react-native-safe-area-context
  - <https://github.com/th3rdwave/react-native-safe-area-context>
- react-native-screens
  - <https://github.com/software-mansion/react-native-screens>

## Installation Guide

1. Install and Extract FollowtheClues.zip to your desired location (somewhere easy to access from cmd).
  - a. <https://compsci04.snc.edu/cs460/2026/hannahthiry/documentation.html>
  - b. You may need to allow insecure downloads depending on your browser
  - c. You may need an additional zip folder software to open the file if it's "invalid". 7Zip is a good place to start for this.

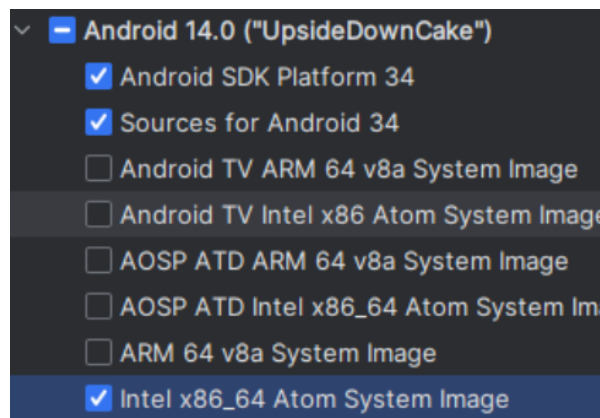
### General React-Native Android Development Setup

(<https://reactnative.dev/docs/environment-setup?guide=native> is a good adjacent reference)  
(You may not need to complete every step if you've developed with android before)

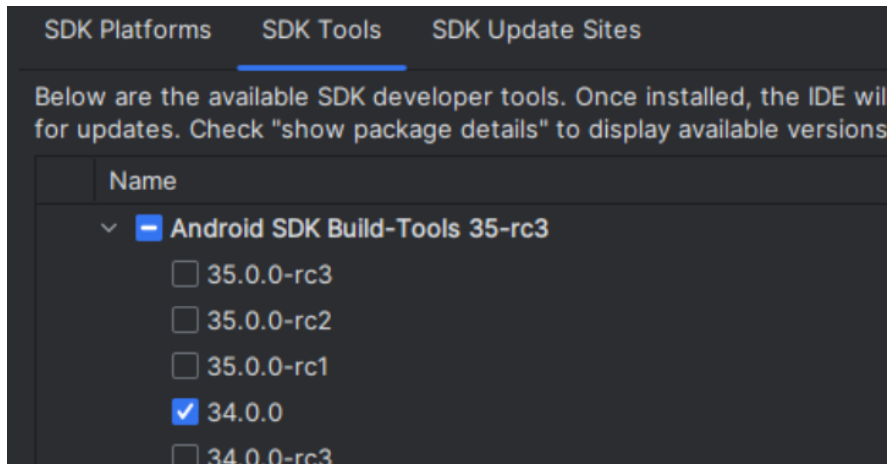
2. Install Node.js (<https://nodejs.org/en>) on your machine
3. Install Android Studio (**This will be needed to run the application without a USB cable**)
  - a. Make sure to select in the installation wizard (can be added later)
    - i. Android SDK
    - ii. Android SDK Platform
    - iii. Android Virtual Device
4. In Android Studio Settings Navigate to the Android SDK (**check show package details**)



- a. Under Android 14.0 ("UpsideDownCake"), ensure Android SDK Platform 34 is selected and Intel x86\_64 Atom System Image or Google APIs Intel x86 Atom System Image is selected



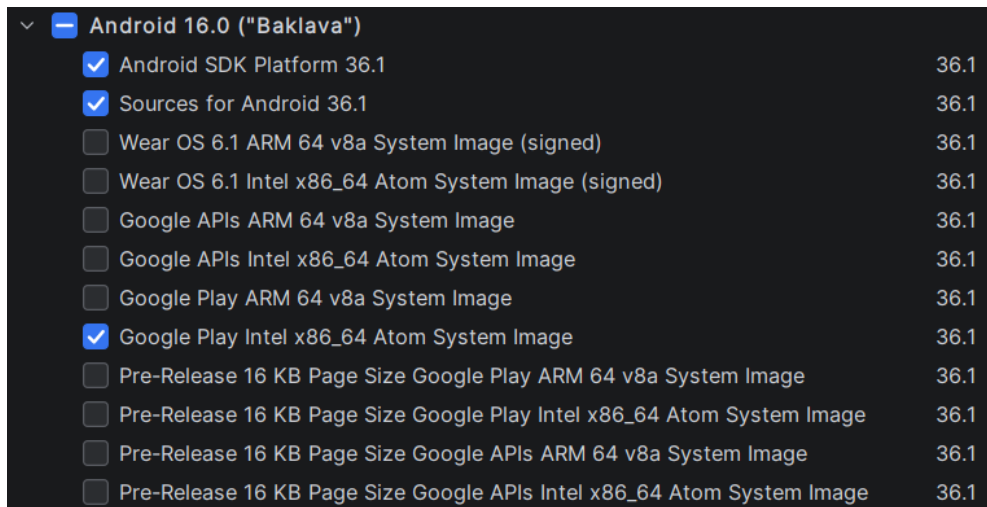
- b. Then under the SDK tools tab of this menu, ensure 34.0.0 is selected



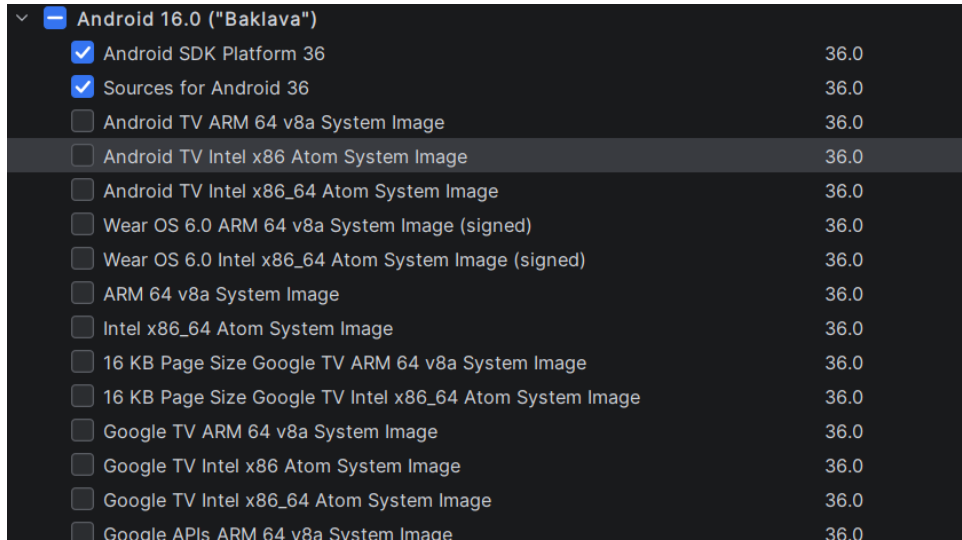
c. Click Apply to install what was not selected by default

5. If the above does not work, try doing the following with a newer SDK version: **“Android 16.0 Baklava”**

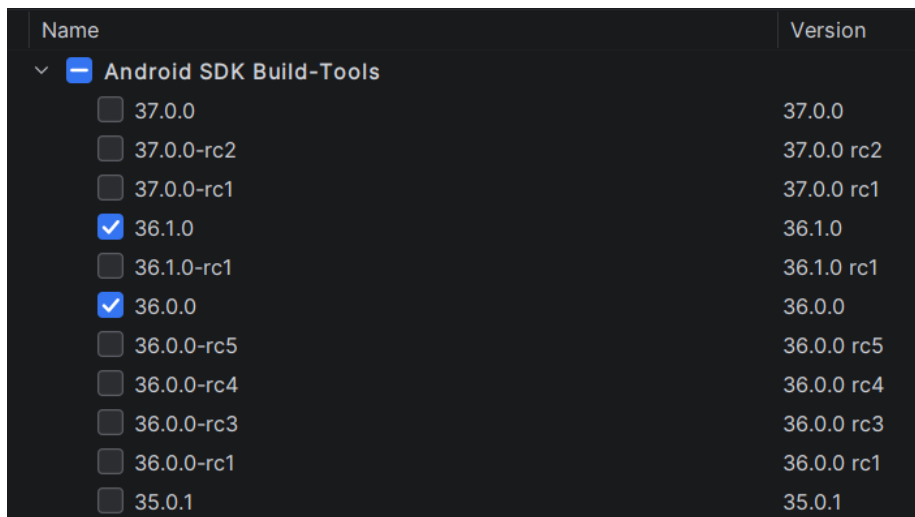
a. Under Android 16.0 (“Baklava”), ensure Android SDK Platform 36.1 is selected and Google Play x86\_64 Atom System Image or Google APIs Intel x86 Atom System Image is selected.



b. Also, be sure to select “Android SDK Platform 36” and “Sources for Android 36” underneath a different Android 16.0 (“Baklava”)



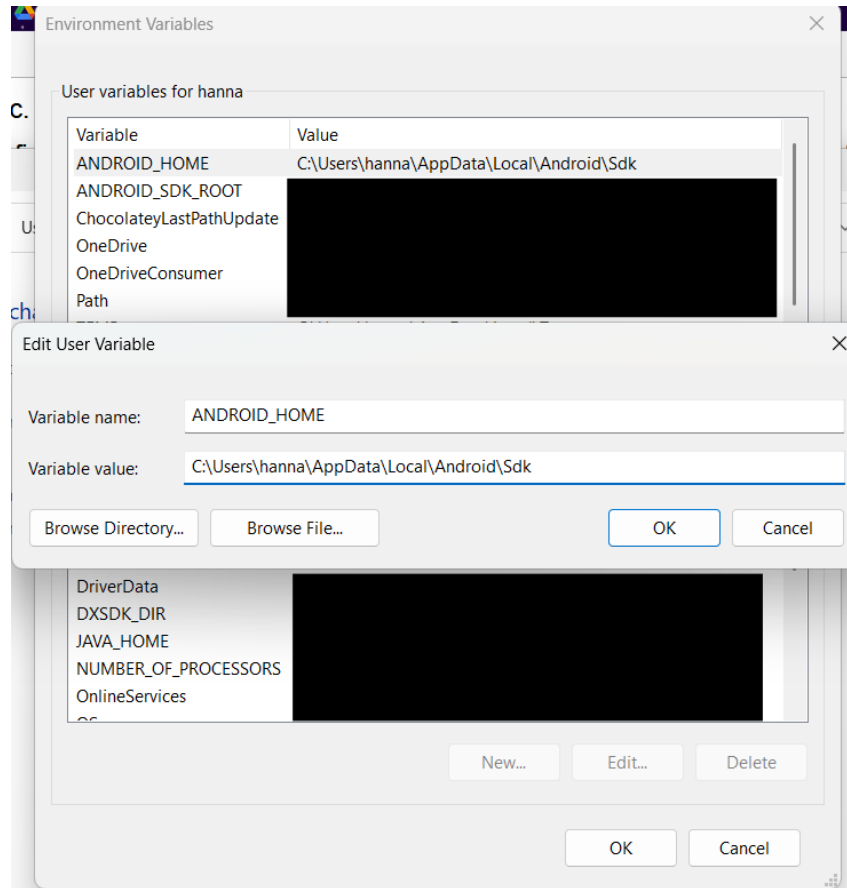
c. Then ensure that “36.1.0” and “36.0.0” are selected under SDK Tools



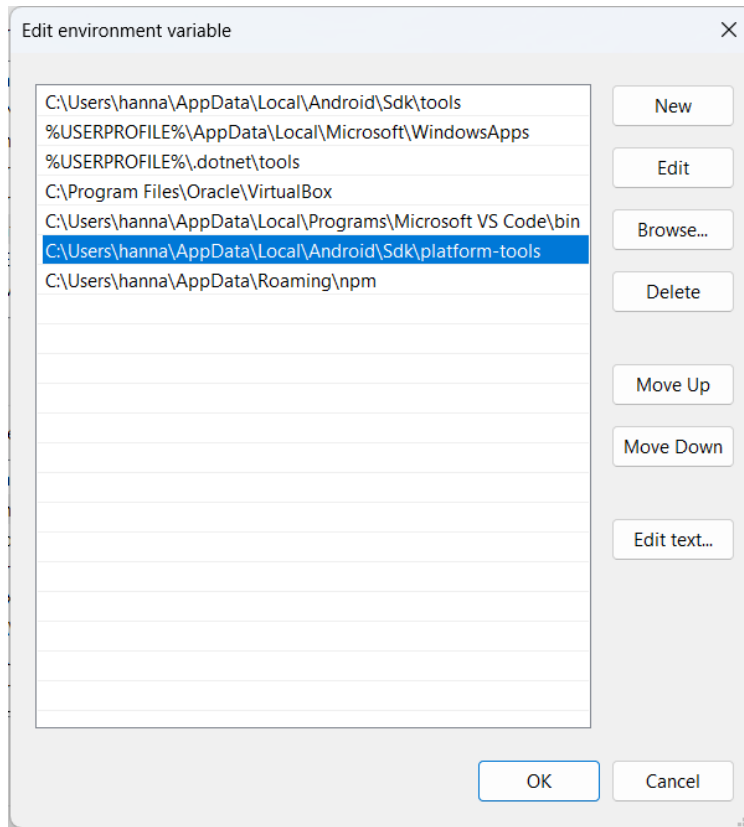
d. Then click Apply to install anything that was added

6. Configure the ANDROID\_HOME environment variable (from react documentation)

- a. Open Windows Control Panel
- b. Click on User Accounts, then click User Accounts again
- c. Click on Change my environment variables
- d. Click on New... to create a new ANDROID\_HOME user variable that points to the path to your Android SDK:



- e. Open powershell
- f. Copy and paste **Get-ChildItem -Path Env:\** into powershell
- g. Verify ANDROID\_HOME has been added
- h. In the same "Change my environment variables" tab after you've verified the last step, select the PATH variable and click Edit
- i. Click New and add the file path to platform-tools to the list (\Sdk\platform-tools)



### Setting up the Project

7. In command prompt navigate to the location of the unzipped project files
8. Enter **“npm install”** to install the dependencies for the application
  - a. Leave the command prompt open as you will need it later

### Running the application (Testing & build version)

9. Plug in Android Device and enable developer mode
  - a. <https://reactnative.dev/docs/running-on-device>
  - b. To enable USB debugging on your device, you will first need to enable the "Developer options" menu by going to Settings → About phone → Software information and then tapping the Build number row at the bottom seven times. You can then go back to Settings → Developer options to enable "USB debugging". (React-Native Documentation)
  - c. Ensure device is connected & setup up running **“adb devices”** in cmd
10. Run app as test version (must be plugged in while in use, can see console)
  - a. In command prompt, navigate to the location of the project files
  - b. Enter **“npx react-native run-android”**
    - i. Note: first time will take significantly longer than others
11. Run app as build version (install and unplug) (not an APK) (**Needs Android Studio and the Environment Variables installed**)
  - a. In command prompt navigate to the location of the project files
  - b. Enter **“npm run android -- --mode="release" ”**

- c. After installation you can unplug and use the navigation freely

### **Configuring Beacons**

- Ensure beacons are on and nearby.
- You can set up a game with clues using the Admin App by creating a new game and setting the GPS coordinates.
  - Try to get the **GPS accuracy** to around a deviation **less than 25m** when setting up a clue.
  - You **MUST** be at the place where you want the beacon and clue to be in order to set up the GPS coordinates correctly.
- Troubleshooting:
  - Make sure **Bluetooth is enabled** for the application (can do this by going to app settings)
  - Ensure **Bluetooth Permissions** are accepted for the application
  - Make sure **Location is enabled** for the application as well (can do this by going to app settings)
  - Ensure at least **1 Beacon is on and nearby**
  - **Restart App** & try again.
  - **Restart Device**
- Common Errors:
  - **"Scan Error/Couldn't Start Scan"**: BLE Manager has become overloaded for some reason, restart app, usually occurs when scanning is left on in background or multiple scans are occurring at the same time.
  - **App crashing**: Build version sometimes crashes for unknown reason, requires a device restart (doesn't occur on test build)
- Things to Keep in Mind:
  - **GPS can be reallllly slow indoors** (especially in GMS or high rebar areas). It needs time to warm up, try moving around for 2-3 minutes before trying anything else. It is also **filtering by accuracy** so the first couple readings won't display to the user due to not being the most accurate at first.
  - The **BLE scan can take a bit of time** as well once a user is within range, since the program has to **find the beacon** amidst a bunch of other BLE objects, **connect to the beacon**, and **gain 8 RSSI (measurement of distance between beacon and phone) readings** before displaying to the user the distance.