Ecological Monitoring System Australia

Connecting your android device Trimble R1 GNSS

Overview

There are three steps to connecting your device to the Trimble R1 GNSS.

1. Install Trimble Mobile Manager (TMM) onto your device.
2. Set your android device to allow a mock location app to provide location information.
3. Connect your android device to the Trimble R1 GNSS

For further information or troubleshooting visit the Trimble Mobile Manager help portal at: https://help.trimblegeospatial.com/TMM/Location-sharing.htm

Equipment

- Trimble R1
- Android device with Monitor App installed

Setting up your Android device

Install the Trimble Mobile Manager onto your device

1. Open the Google Play Store on the device you will be using for field data collection.
2. Search for "Trimble Mobile Manager" and install onto your device.

Setting the Mock Location Service

In order to use an external GPS device such as the Trimble R1on an Android device, you must set the "Mock Location app" for the device to use. This setting is available in your device settings, separate from Monitor App, and requires you to enable Developer Mode. Depending on your specific device, the steps to enable Developer Mode may vary slightly, but for most devices, this can be done using the steps below:

To enable Developer Mode:

1. Go to your device settings
2. Go to "About tablet/phone"
3. Locate the "build number" for your device this may be under "software information" (figure 1).
4. Tap the build number several times (the number of times varies based on make and model, but when you start tapping you should see an indicator of how many more taps are required)
5. Once you have completed the required number of taps, you should receive a prompt that you are now in Developer Mode. if you scroll down "Developer options" will appear below "About tablet/phone"(figure 2).

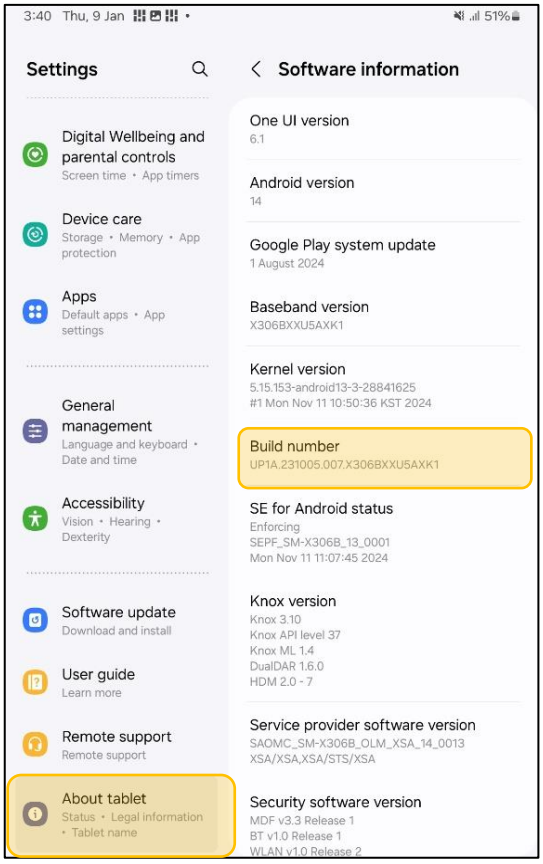

Figure 1. Screenshot of device settings with "build number" and "about tablet" highlighted in yellow.

To set the Mock Location app:

1. Once you are in Developer Mode, search your device settings for "Mock Location" (you should see an option for "Select a mock location app"), or go to Settings >scroll down to "Developer Options" and scroll down to the "Select a mock location app" (figure 2).
2. Tap the "Select a mock location app"
3. Select the corresponding app for the GPS device you are using (e.g. Trimble Mobile Manager).
4. Once set, and when your device is connected to the correct app for the device, you will then be able to use it with the Monitor app.

NOTE: When finished using the Monitor app and your GPS device, please be sure to turn off the Mock Location setting in the Developer Options so that you can use your phone or tablet's internal GPS chip to provide location services.

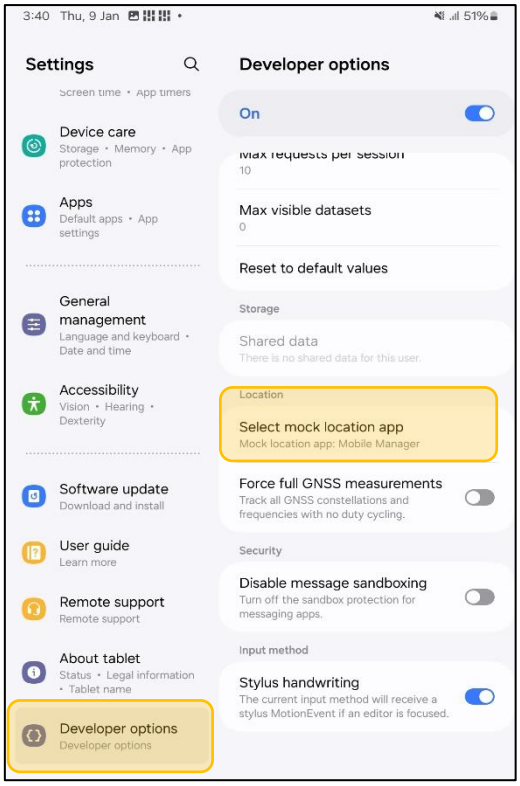

Figure 2. Screenshot of the device settings with "set mock location app" and "developer options" highlighted in yellow.

Connecting your device to the Trimble R1

In order to work with the Monitor app, you must have your GPS device correctly synced with your phone or tablet. This is done by downloading the corresponding app for your device, as well as setting it as the Mock Location Service (covered above)

- Ensure you have the Trimble Mobile Manager app set as the "Mock Location app" following the steps in the section above
- Go to your device Settings > Location > location services and ensure Location Accuracy is on and WiFi scanning and Bluetooth Scanning are both toggled on. This will allow both GPS and WiFi to estimate your location.
- The first time you use a Trimble R1GNSS receiver, you must pair it with your device. To do this:
  1. Ensure the Bluetooth function on your device is tuned on,
  2. Turn the Trimble R1 on by holding down the power button until both LEDs appear green, after a few seconds the (•) LED will flash blue and amber indicating it is ready to pair using Bluetooth.
  3. In the Bluetooth settings in your device, scan for and then pair the Trimble R1 (for Trimble R1s borrowed from TERN, Trimble will be listed as: "GNSS:" and a number, this number will correspond to a sticker on the outside of the Trimble R1.)
  4. Open the Trimble Mobile Manager app.
  5. Go the home screen, under "Device" tap "select" and choose the Trimble R1.Once connected via Bluetooth the Trimble R1 (•) LED will flash amber.
  6. Tap the menu≡ button and select "Settings"
  7. Ensure location sharing is enabled (requires Trimble Mobile Manager to be set as the mock location provider app).
  8. Toggle on 'Connect to the GPS receiver*
  9. When connected to the device via Bluetooth and to the GNSS is active the (•) LED will flash green as it builds a location almanac and connects to satellites. When the (•) LED is a solid green the GNSS has a stable connection with satellites, and you should be able to obtain a sub-meter accuracy for your location.
  10. The location accuracy will be shown on the Trimble Mobile Manager home page, take note of the horizontal accuracy figure (figure 3).

Note: When a receiver is first started it needs to build a location almanac using available satellites, this can take upwards of 10 minutes to complete but is necessary before location fixes can be calculated. Almanac progress can be estimated from the "Status" option at the bottom of the page within Trimble Mobile Manager. *Once numbers in the Satellites table "In Use" column surpass 0, the receiver is capable of calculating the current location*

11. Open the Monitor app
12. Open the side menu using the menu button ☰ at the top left of the page.
13. The colour of the location icon indicates if the Monitor app is connected to the location fixes provided by the Trimble receiver. A red icon indicates a location is not being provided to the Monitor app. A green icon indicates the Monitor app is receiving location data.
14. The number next to the target icon will indicate how accurate the location provided by the GNSS is. The first time you connect the Trimble to your device it may take several minutes for the GNSS to connect to satellites and for this accuracy to drop. Ideally you want sub-meter accuracy when using the Monitor app to layout the plot.

Note: When you are finished working with the Monitor app and your Trimble GNSS device, please be sure to disable the Mock Location provider in the Developer Options so that you can use your device's built-in GPS chip to locate yourself.

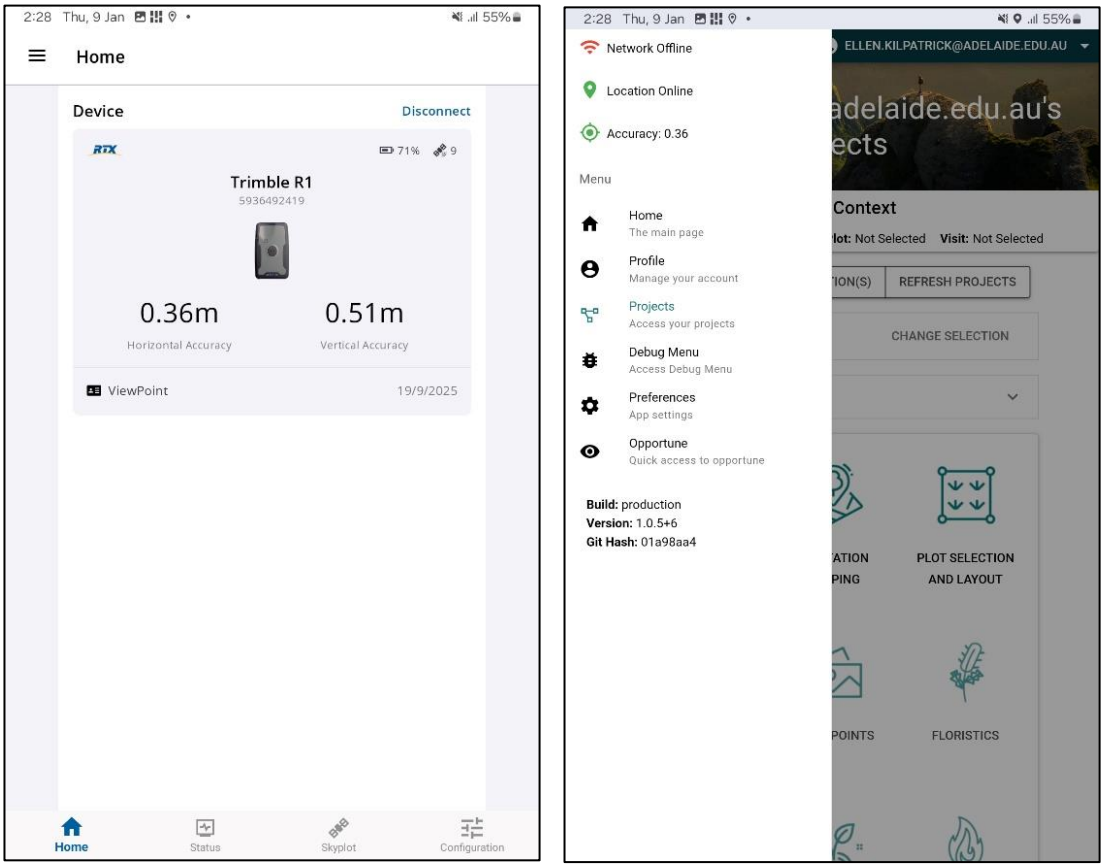

Figure 3. Left: screenshot of Trimble Mobile Manager home screen indicating sub 1m horizontal accuracy. Right: screenshot of Monitor app indicating submeter location accuracy.