Manual: Laying out a grid using Rover

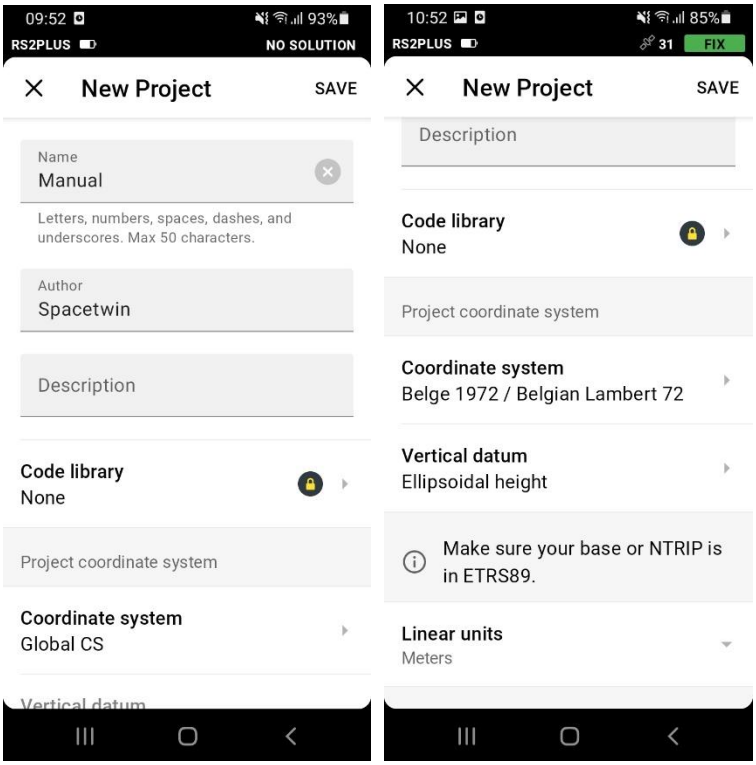
1. Base station and Rover set-up(see VZ400i manual)

2. Project setup

Create project:

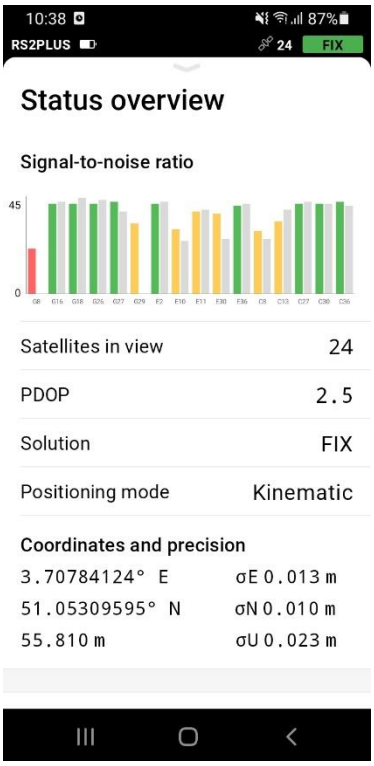
Make sure Coordinate System is not Global CS, but local coordinate system of field site. This may require a download, so set this up before going to the field.

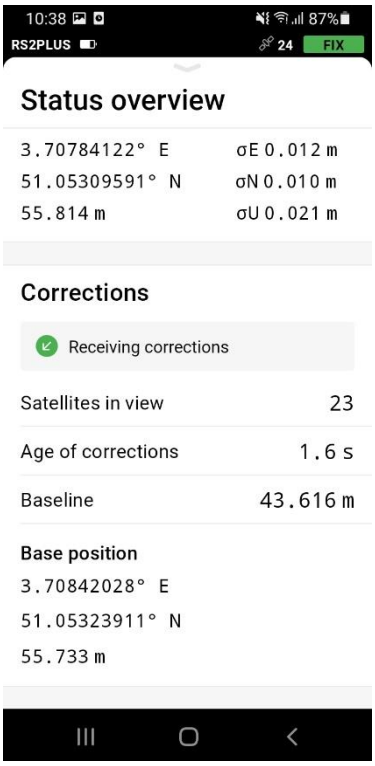
(TODO: adapt script to global CS)



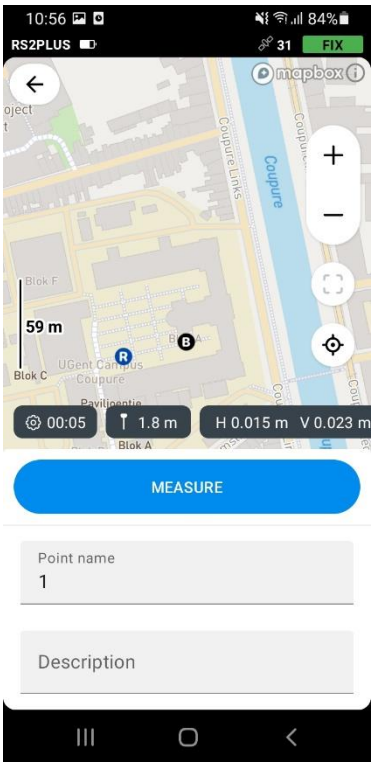
Measure first point (SW corner):

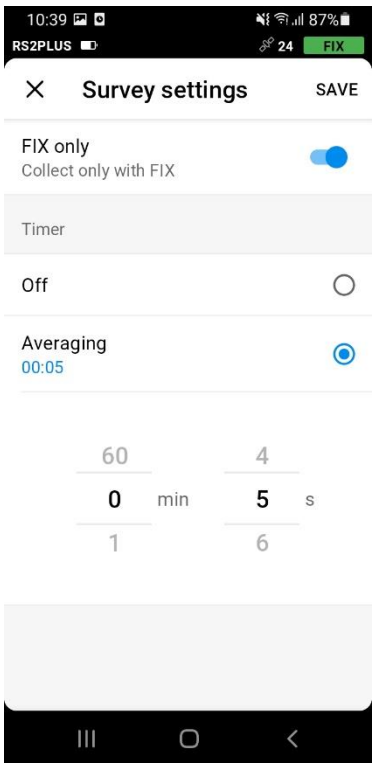
Wait for Rover to get FIX or FLOAT with low errors (check this by clicking yellow/green label in top right). Never touch the Rover on the top, this will disrupt the connection.





Walk to your first point in the SW corner. (Its possible to use a different corner as the first point, but you'll have to adjust the angle parameter of the grid creation script accordingly)



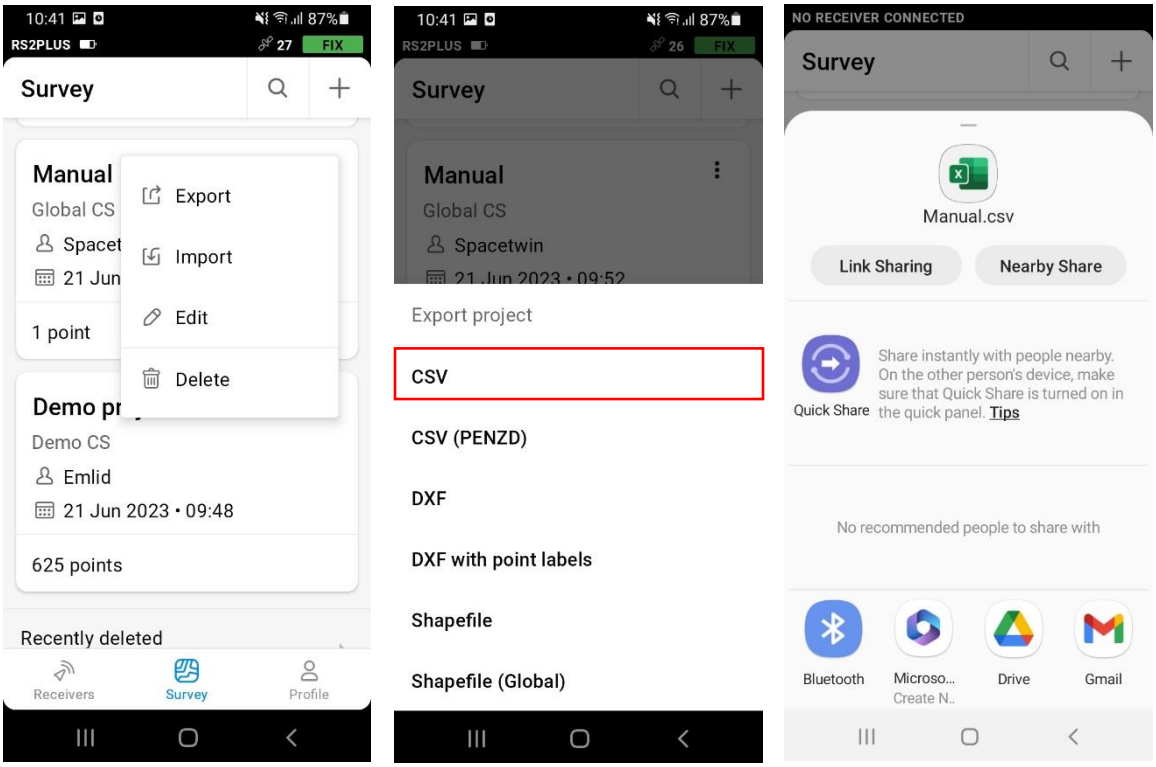


Try to carry the Rover smoothly and up in the air to avoid waiting long to obtain low error values. Setting the Rover super level is not necessary, but don't place it diagonally.

You can uncheck the FIX only option by pressing the settings icon on the left side of the screen, if satellite connection is bad. Make sure to check that the FLOAT errors are within an acceptable range. Pressing measure will record the point. Averaging over 5 seconds is recommended, but more, less or no averaging is possible in the settings.

3. Run grid script

Export csv:



Click the three dots, select Export and pick the CSV option.

If you have an internet connection, you may email the file to yourself and download it on the laptop. In the case of offline use, you can try to use Bluetooth, however I have not gotten this to work. A workaround is to export to Gmail, save the message as a draft. The file is then downloadable in the draft via the Gmail app. After this, you can connect the phone to the laptop using USB-C and access the file via Phone > Downloads.

Run script:

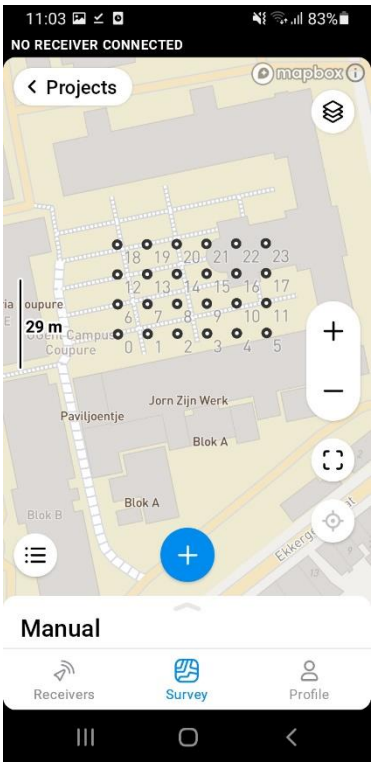
- Download code from https://github.com/cavelab-ugent/rover_grid/tree/main
- Follow instructions in README

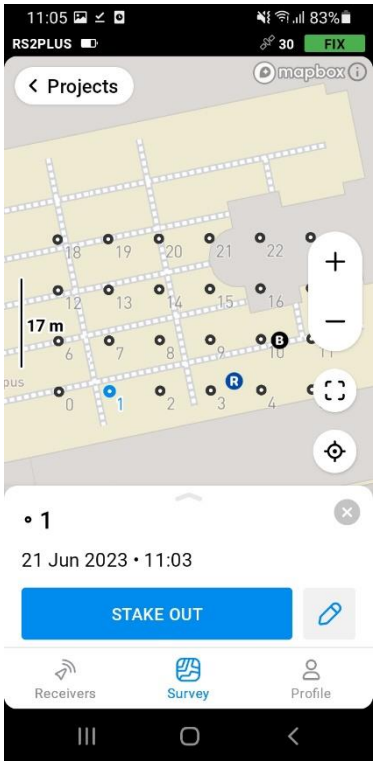
Import CSV:

Move the output csv file to the Phone > Download folder.

4. Load grid and set out coordinates

After importing the csv, all positions should be in the app. To locate a position, you can press it and press the *stake out* button.





The screen will show the direction and distance you need to walk to the point. You can neglect the elevation. When you're close, the screen will zoom in automatically to give final corrections, and the circle will turn green when you're within the error range.