

How to use the Manual Radiotracking App

This app allows up to three users (teams red, green and blue) to connect in one session to triangulate positions based on their respective positions and headings. It can read your device's internal GPS, has a measurement tool and will save all position data in a database.

Sessions and Teams

To coordinate users the app uses sessions, all teams must use the same session id to triangulate together. Once you open <https://tri.fridata.de> a new session id is generated, you can find it and a link to share with other users in the sidebar. To be able to reconnect to a session, make sure to save that link somewhere. You can also connect to a session by adding `?tri_ID=yourSessionIdHere` to the address given above.

The first user to connect to a session will be assigned the colour red. The next two will be green and blue. Every further connection will only be able to observe.

To leave a session, simply close the browser window and your position will disappear from the other teams' maps. This might take a moment, but all users in your session will be notified. Once your connection has been terminated the next user connecting to this session will be assigned the now free colour.

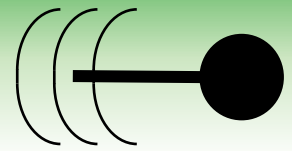
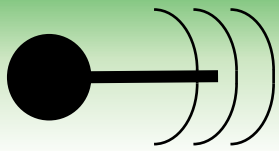
Data persistence

Once positions are set, they will be displayed on the map. However, this does not yet save this data. To add a set of team positions and triangulation results to the list and database you need to click the *Add* button in the lower right corner. The database server will only keep your data for one week after the last change! We encourage you to save your own data by downloading it via the bottom bar.

Triangulation

With two users connected, the app will calculate and display the intersection of the two headings. If the lines do not intersect, a short line will be drawn to indicate the heading.

With three users connected it is not always, almost never, possible to find one intersection of all three headings. The app will therefore calculate intersections of every pair of headings and find the centre of these up to three points. This will be represented by lines showing the given headings and a black marker for the triangulated position.



Interface

The interface consists of three parts. The main screen consists of the map and most used inputs, the sidebar offers additional information and features, and the bottom bar holds a list of all saved triangulations, as well as the option to manipulate and download it.

Main screen

The main screen consists of the map and most frequently used inputs.

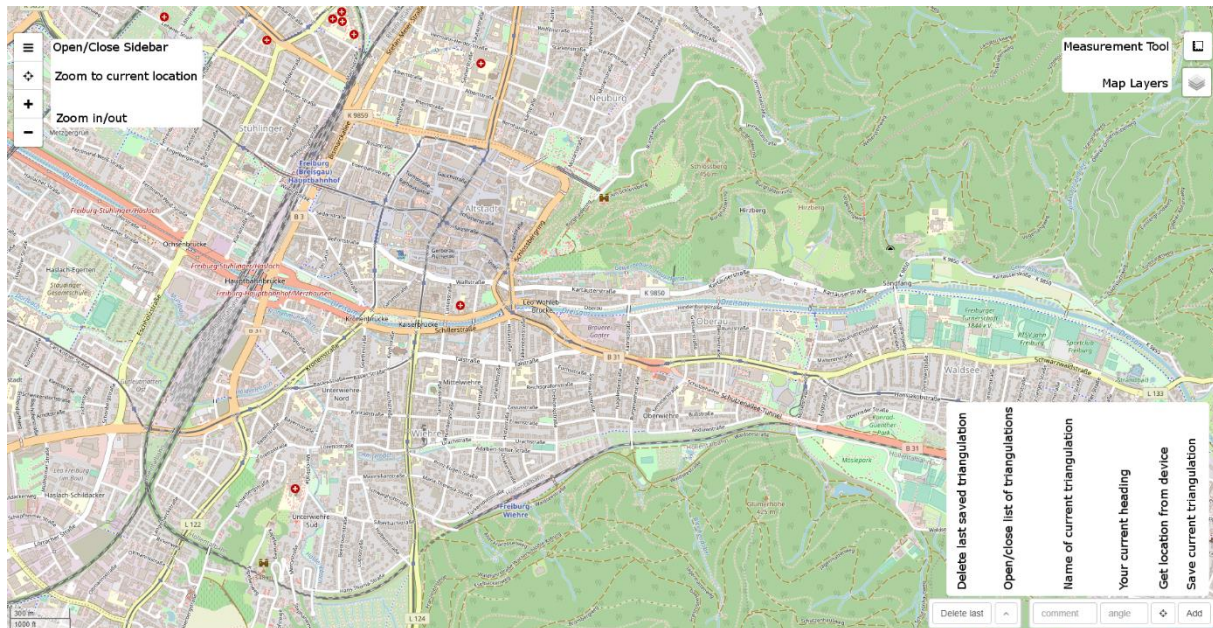
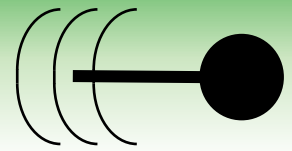
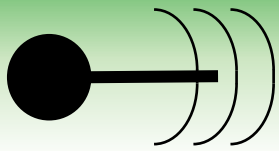


Figure 1: Main screen with labeled inputs.

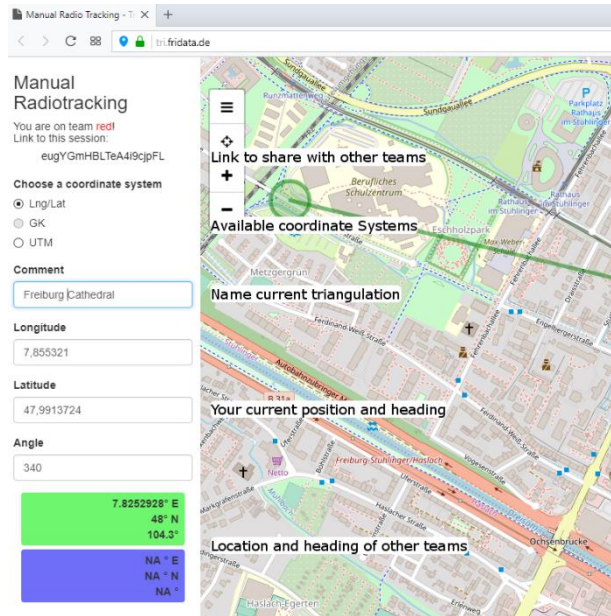
- On the map you will find
 - round markers for the teams' positions in red, green and blue
 - lines for the teams' headings in red, green and blue
 - a round, black marker for triangulated positions
- In the upper left corner, you will find buttons to
 - Open and close the sidebar
 - Zoom to your current location (as determined by your device)
 - Zoom in and out of the map
- In the upper right corner, you will find buttons to
 - Open a measurement tool
 - Switch map layers i.e. switch from map to satellite view or toggle display of recorded and current triangulations.
- In the lower right corner, you will find inputs to
 - Delete the last saved triangulation
 - Open and close the bottom drawer with the list of saved triangulations
 - Edit the name/comment field of the current triangulation
 - Edit your current heading
 - Set your current location from your device Save the current triangulation to the database. (That's your, the other teams' and the triangulated positions.)



Sidebar

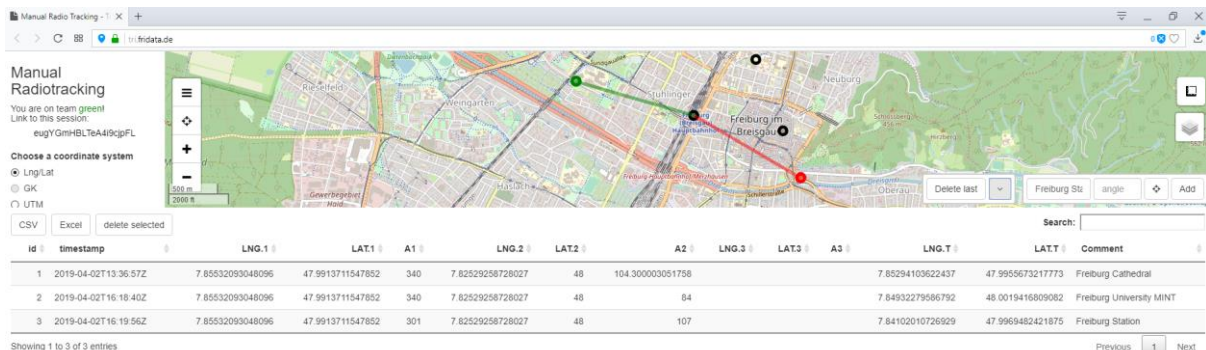
The sidebar can be opened and closed via the offers some additional information and functionality.

- It shows
 - which team you're on.
 - the session id, which is also a link to this session.
 - the other teams' information
- It allows you to
 - switch between coordinate systems.
 - comment or name the current triangulation
 - set your current position
 - set your current heading



Bottom bar

The bottom bar holds the list of all saved triangulations.



Positions and triangulations are only saved as Latitude *LAT.x*, Longitude *LNG.x* and heading *A.x*, whereas the teams are represented by numbers red is 1, green is 2, blue is 3. The triangulated position is saved in columns *LAT.T* and *LNG.T*.

The information in the table can be freely edited (via double click). To delete entries just click once on them to select them and then the delete selected button above the table. This also where you will find two download options, as .csv or Excel file.

Everything shown in this table is also written to server database and will be read from there on reconnect, provided the data has been edited no longer that a week ago.