



Humanitarian
OpenStreetMap
Team

Mapping tools

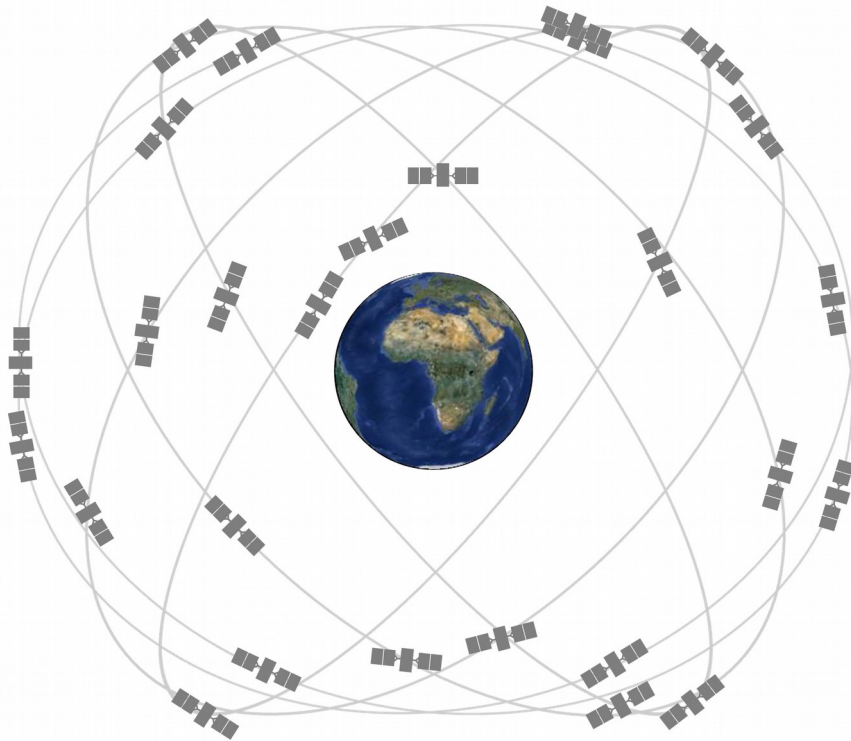


1. Introduction to GPS Units and OSM Tracker
2. How to use a GPS Unit to record waypoints and tracks
3. Importing GPS data into JOSM
4. Customizing the GPX layers
5. Uploading Traces to OSM
6. OSM Tracker
7. Loading basemap in GPS

DATA COLLECTION TOOLS

The commonly used Data Collection tools include:

- A GPS Unit (Global Positioning System) / Satellite Navigational System



(from gps.gov)



Wikipedia Commons, CC by-sa

What's a GPS Unit?

A GPS is like a mobile phone, except that instead of receiving radio signals from telephone companies, it receives signals from satellites that are going around the Earth.



promotional picture, © Garmin

How does it work?

By receiving these signals from the satellites, a GPS is able to calculate your exact location on the planet.

It records this location in coordinates, which are two long numbers.

1. Longitude. (how far East or West you are)
2. Latitude. (how far North or South you are)

Every place on Earth has unique geographic coordinates

How does it work?

After the device is turned on, it begins acquiring satellite signals.

The devices may need a clear view of the sky to acquire satellite signals.

IT WON'T WORK INDOORS



How does it work?

NOTE:

When the GPS bars are solid green, your device has acquired satellite signals. Now you're ready to move

The time and date are set automatically based on the GPS position



How does it work?

Your GPS records two kinds of information that are useful for creating maps or saving the coordinates of a place.

First, it allows you to save your location in the memory of the GPS.

When you save a location, the coordinates will be saved with a name.
But they can be changed

For example, your first saved point will be named 001, the second 002, and so on.

Tracks and waypoints

When you save a point, you can write down the number on a piece of paper, along with a description of what it is.

Plus any attribute or indicators you would like to know.

Saved **locations** on your **GPS** are called **waypoints**.



Tracks and waypoints

Second, your GPS can save what are called TRACKS.

A track will save a series of locations wherever you move hence show the path of where you have been.

Tracks are useful for mapping objects that are represented by lines or shapes, such as the course of a road, or the shape of a field.

Saved **Traces** on your **GPS** are called **Tracks**.

Tracks and waypoints



Be sure to write down the number of the point, along with what the place is and any other information you want to record about the place in your notebook.

Turn on the Track Log

It's good practice to turn on the log when you begin mapping, and turn it off when you are finished.

When the track log is turned on, it will automatically record your path.

You will then be able to look at the track on a computer and see the path that you mapped.

Mostly features that are in a line manner like roads, rivers etc.

Copy waypoints and track logs to the computer

When you are finished mapping with the GPS you will want to copy the points and tracks to your computer so that you can open them in JOSM.

You may need to install GPS drivers.

One way to copy the waypoints and tracks is to you use the free software that Garmin provides, called “BaseCamp” OR “GPSTBabel”

<http://www.garmin.com/en-US/shop/downloads/basecamp>

<http://www.gpsbabel.org/>

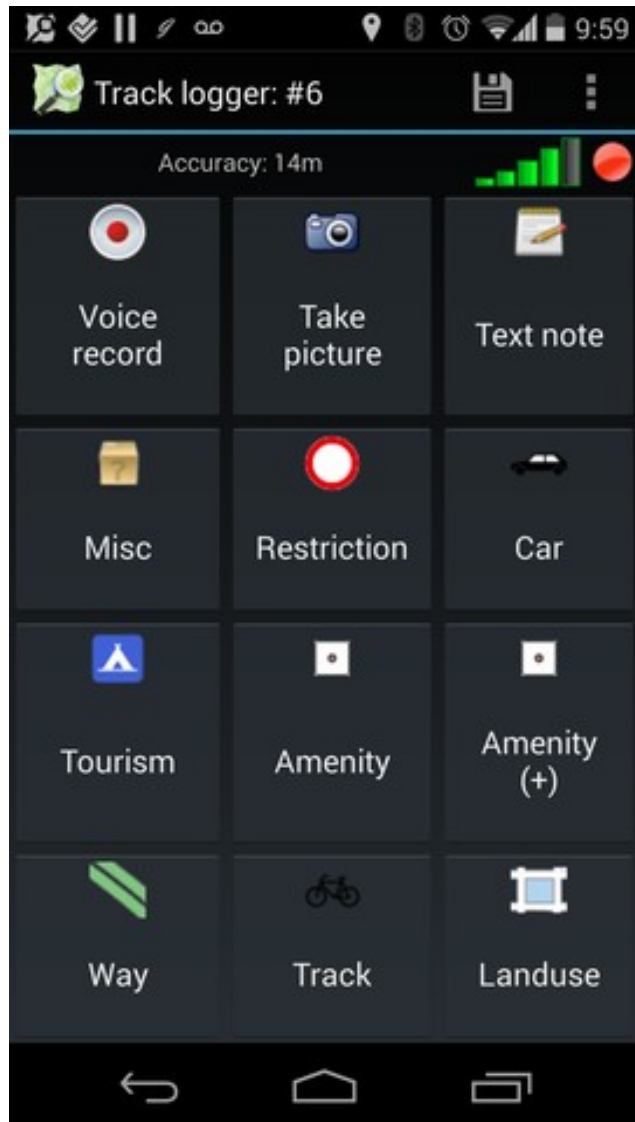
http://www8.garmin.com/support/download_details.jsp?id=591

In some cases the drivers come pre-installed in the GPS devices (Plug & Play)

Phone applications



OSM Tracker: requirements for installation



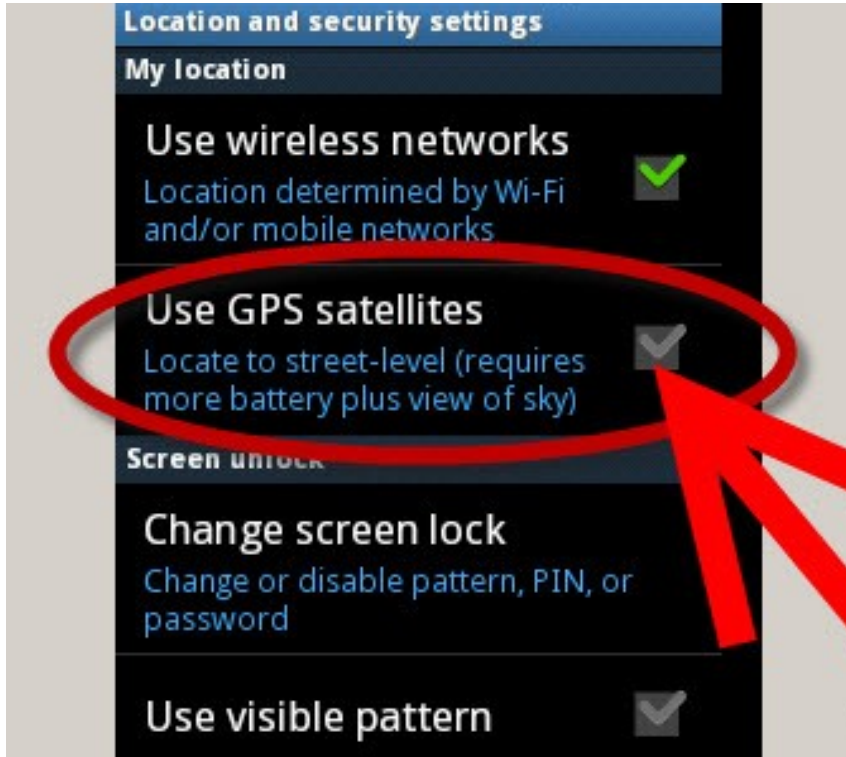
Must be a Smart phone.
(Download from Google Play store or any App Store for phones running on a different OS or can be shared via bluetooth).

Phone must have the GPS feature.
NB: Always turn on the GPS when in use.

For more accuracy, activate data connection.

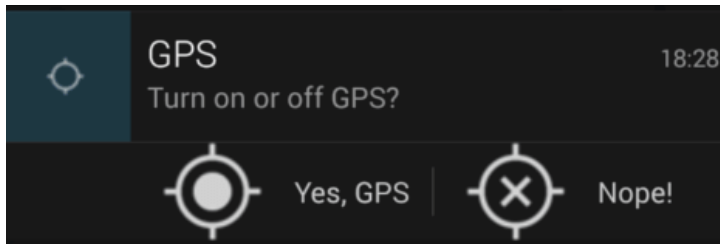
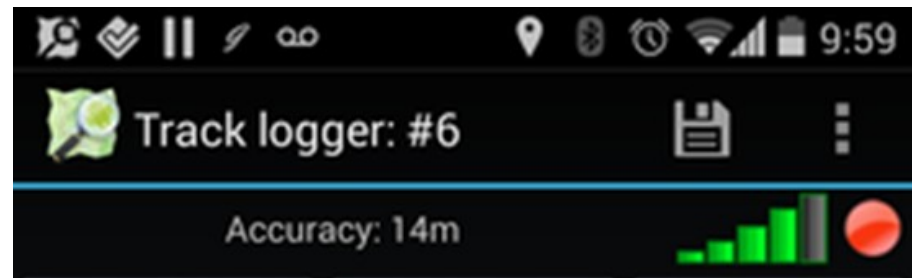
Steps to use OSM Tracker

-Turn on your GPS feature or Location



-Wait for it to connect to the satellite for signals
(NB: The upper menu includes the accuracy level in meters, 5 Meters is good enough 4 a phone)

On the right, there is a signal strength bar, don't start tracking if its in red color. Green is good/perfect



Go to the menu button and select "new track" or on the plus (+) icon.

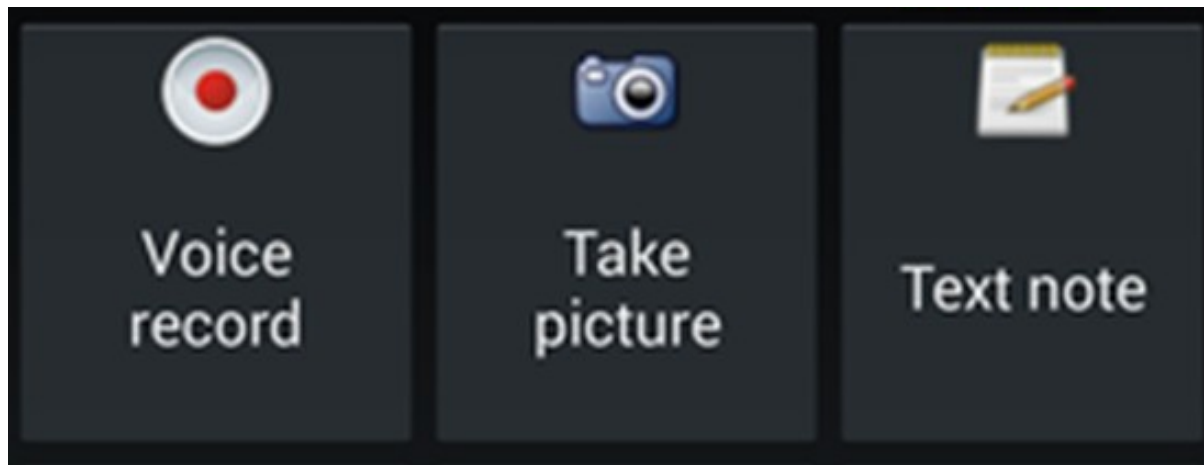
Steps to use OSM Tracker



There are awesome ways you can create a waypoint.

1. You can record your voice.
2. Take a picture.
3. Take a note.

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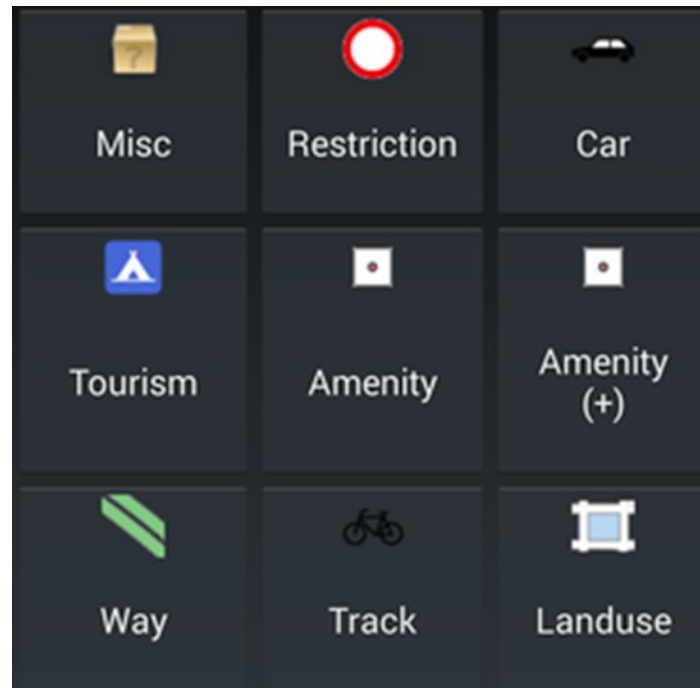
Steps to use OSM Tracker



OSM has a number of Presets pre-installed

NB: The common features are the ones available aligned in categories.

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Tap on one menu which will take you to different features that are under its category

Steps to use OSM Tracker

Important things to note

1. Always stop your track after you are done.
2. Save your track.
3. Export your track into GPX file format.
4. And you can upload your traces directly into Open Street Map
(You must be having an account).

Other applications

OruxMaps

Vespucci



Using FieldPapers

1. Locate the area you want to map on the Field Papers website.

<http://www.fieldpapers.org>

2. Print out a map of this area.

3. Use your printed map to survey the area by adding more places by simply drawing them on the map.

- 3.1 Draw lines for roads, shapes for buildings, and so forth.

- 3.2 Write notes about each location directly on the map, or write numbers on the map that relate to numbers in your notebook.

- 3.3 Plus you can write more detailed information about each object.

Using FieldPapers (2)

4. Scan your paper into the computer.

If you don't have a scanner, you can take a photograph of the paper, if your camera is able to take high quality pictures.

Upload the image to the “Field Papers website”.

5. In JOSM, load the Field Papers.

Use the objects you draw as a reference to add them digitally into OpenStreetMap.

NB: You will need to have the “Fieldpapers Plugin” in your JOSM!