

GEOG 104 Fall 2017
Practical Exercise 3: OpenStreetMap and Missing Maps

Due: Thursday 10/19 at 9:00am

Overview: This practical exercise will introduce you to OpenStreetMap (OSM), an effort to create a free and editable map of the world. It is an example of volunteered geographic information (VGI), in which anyone with local expertise (that includes you!) can contribute in digitizing aerial imagery, providing local names for geographic features, uploading GPS data, and correcting errors. OpenStreetMap has been increasingly used in humanitarian projects and emergency response since the 2010 earthquake in Haiti. The objective in these projects is to create map data where there previously was none. In this exercise, you will sign up for a free OpenStreetMap account and digitize a building in your own neighborhood. You may not want to stop at 1! Next, you will connect to the OSM Task Manager through Missing Maps and start digitizing geographic features for high-priority humanitarian tasks.

To get started, you'll need to sign up for an OpenStreetMap (OSM) account.

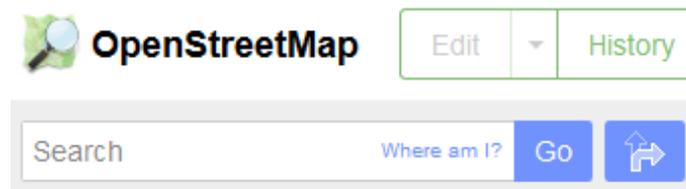
1. Go to <https://www.openstreetmap.org/user/new>
2. Enter an email address, user name, and password.
3. In the disclaimer on the next page, check the box to put your contributions in the Public Domain.

Miscellaneous

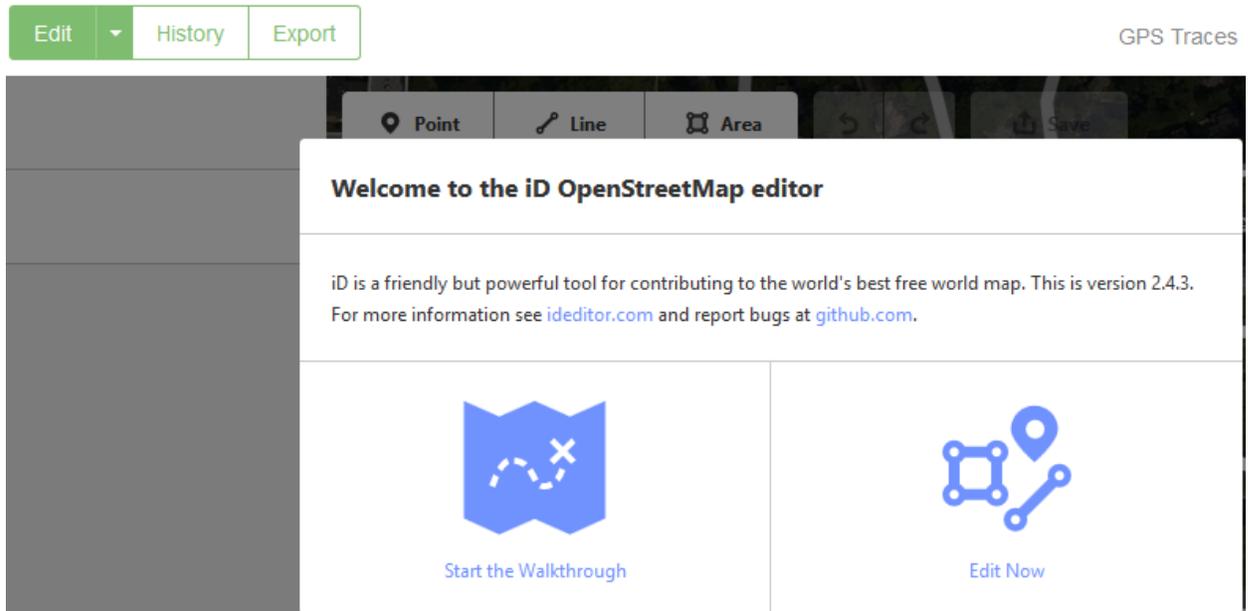
This Agreement shall be governed by English law without regard to principles of conflict of law. You agree that the United Nations Convention on Contracts for the International Sale of Goods (1980) is hereby excluded in its entirety from application to this Agreement. In the event of invalidity of any provision of this Agreement, the parties agree that such invalidity shall not affect the validity of the remaining portions of this Agreement. This is the entire agreement between You and OSMF which supersedes any prior agreement, whether written, oral or other, relating to the subject matter of this agreement.

In addition to the above agreement, I consider my contributions to be in the Public Domain ([what's this?](#))

4. Confirm your new OSM account using your email.
5. Once you are logged in and confirmed, search a location in your hometown.



6. Once there, click on the Edit button in the top left.



7. Click **Start the Walkthrough** to learn how to start digitizing features in OSM.

8. The walkthrough should take approximately 10-20 minutes. You will learn how to digitize point, lines, and polygons in OSM, as well as edit vertices and annotate features. Pay close attention to the digitizing buildings component – and in particular how to square the corners.

9. When you are all done with the walkthrough, you should find yourself in your hometown on the map.

10. If the Edit button is not highlighted green, click it to activate an editing session. You may have to

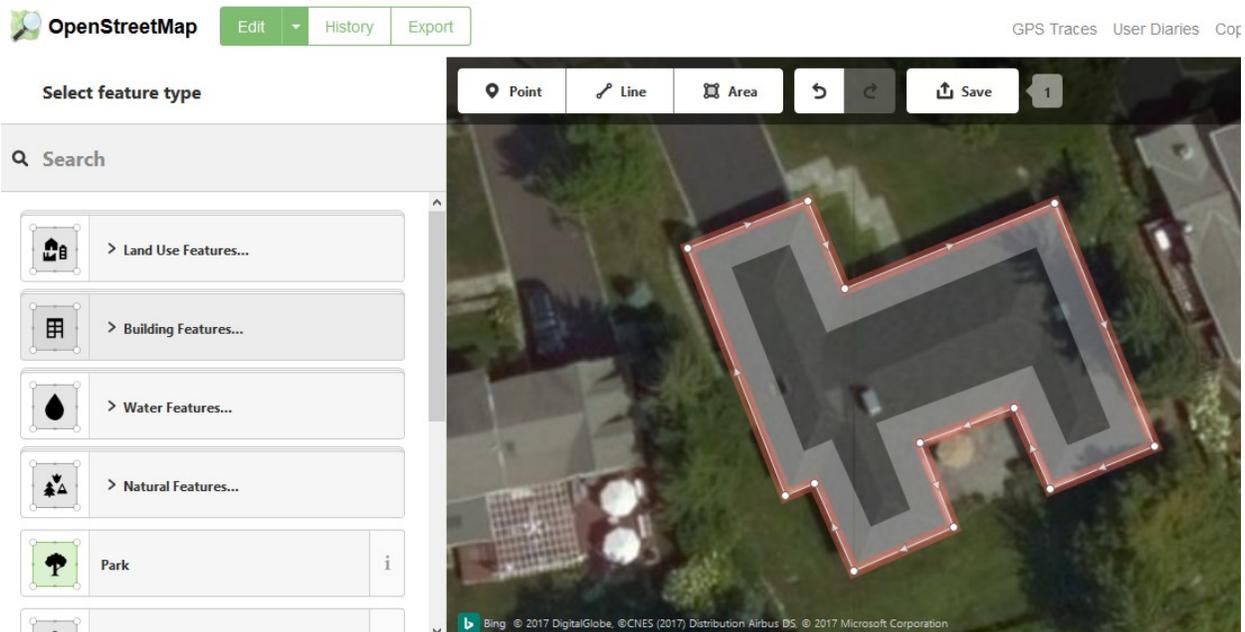


11. Observe what is already digitized in your map. In the following example, school grounds, streets, a railroad, and some water features are already digitized. When you hover over each feature, observe their annotations in the left-hand panel.

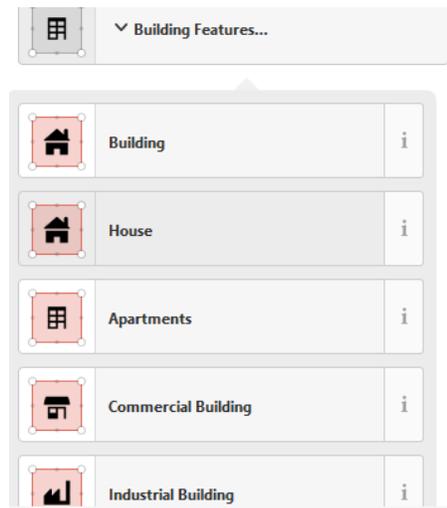


12. The easiest way for you to get started is to digitize a building, such as a house. Zoom in to find a good candidate for digitizing, preferably unobstructed.

13. Click on  **Area** to start digitizing and trace around your building. Double-click to end the sketch.



14. Now, you must annotate the feature. Click on Building Features. If you're not sure what kind of building it is, click Building. If you know it's a house, click House.

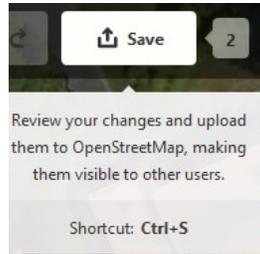


15. The next important step for buildings is to square the corners. This will even out the edges of your polygon. To do this, hover over an edge of your new building, and right-click. Then, press the Square function, as shown below.

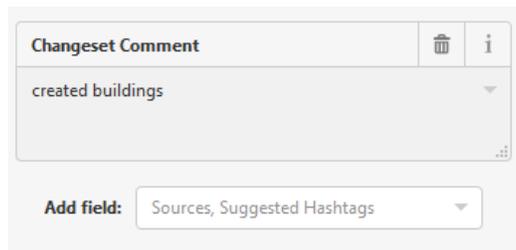


16. Observe how nice and straight your edges are! With nice 90-degree corners.

17. **Digitize at least one more building** in your hometown, remembering to square the corners and add an annotation each time.
18. Once you are happy with your edits, you will save them to the OSM servers. Click on the Save button:



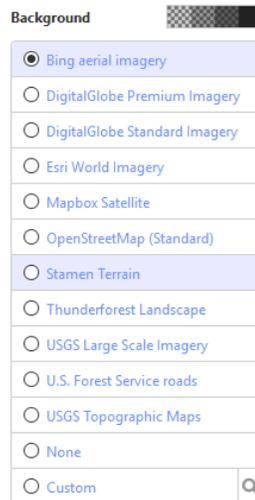
19. You must upload a changeset comment, or a short description of what you did. In this case, we'll say the following:



20. Leave everything else as is, and click Upload. Great! You have just contributed to OSM.



21. Click on  at the right of your map. This will display all the possible basemaps you might use, either for visualization, or for digitizing. You can also adjust the brightness of your basemap by clicking the various squares at the top.



22. Explore the basemap options, and decide which set of imagery looks best in your neighborhood study area.

Question 1 (4 pts). Put a screen shot of your digitized building contributions to OSM in your lab report. The screen shot should contain at least 2 digitized buildings and display your selected set of basemap imagery for digitizing. Please note in your writeup which imagery basemap you used and why [2 sentences].

23. Click on the History tab in OSM. This will show you your latest edits in OSM, as well as recent edits from others. You should also see a box around the study area of your edits.

Question 2 (2 pts). Place a screen shot with all the same elements as the one below into your lab writeup. Your edits and changeset comments should be listed in the left panel.



Great! Now, we're going to move on to tackling some Missing Maps (or other high-priority humanitarian OSM projects).

What is Missing Maps?

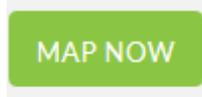
1. Go to www.missingmaps.org



Putting the World's Vulnerable People on the Map

Each year, disasters around the world kill nearly 100,000 and affect or displace 200 million people. Many of the places where these disasters occur are literally 'missing' from any map and first responders lack the information to make valuable decisions regarding relief efforts. Missing Maps is an open, collaborative project in which you can help to map areas where humanitarian organisations are trying to meet the needs of vulnerable people.

2. Read through the introductory information on the home page, then click



3. This will bring you directly to the OSM Tasking Manager. The tasking manager is a tool for dividing map tasks among many volunteers across the world. It was designed by the Humanitarian OpenStreetMap Team, or HOT.
4. Browse through the current Missing Maps projects listed here. Once of the current projects at time of writing is:

#3389 Tanzania Development Trust: Manyoni district mapping project part 2 👤 2 📊 64%

- Author: HOT
- Requesting Organization: **Tanzania Development Trust**
- Priority: **Medium**



Manyoni district in eastern Tanzania has a high incidence of Female Genital Mutilation, early marriage and Gender Based Violence. NGOs on the ground need better road and residential area data to facilitate their outreach work.

The Missing Maps project aims to map the most vulnerable places in the world (affected by humanitarian crises: disease epidemics, conflict, natural disasters, poverty, environmental crises). Building on HOT's disaster preparedness projects, the Missing Maps tasks facilitate pre-emptive mapping of priority countries to better facilitate disaster response, medical activities and resource allocation when crises occur.

Created by [JanetChapman](#) - Updated 28 minutes ago - Priority: high

5. Notice that each project has a priority level, an author, and a requesting organization.

Question 3 (4 pts). Are there any Missing Maps projects in the OSM task project that are listed as high priority? Take a look at the list of projects – who are some of the requesting organizations (name at least 2)? Are there any projects that seem particularly interesting to you? Pick one project and describe it in your own words. Who is requesting this project?

1. There may also be high-priority projects that are not sponsored by Missing Maps. To clear the Missing Maps search, simply press 

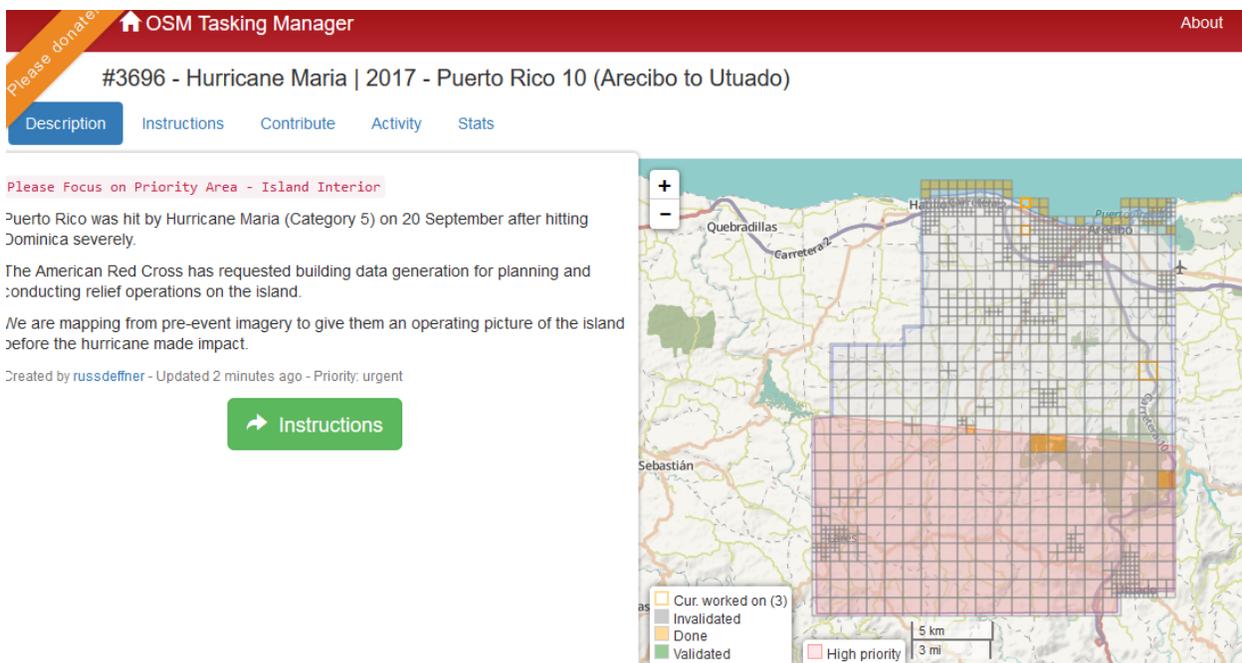
2. At time of writing, there is a high-priority project for digitizing imagery (buildings especially), in Puerto Rico to help assess damage from Hurricane Maria.

3. Notice that many of these projects will specify what level of mapping is needed. To start out, it might be good to stick with projects labeled with something like...

Suitable for Beginners

4. Select a project you are interested in, either from the regular HOT or one specifically tagged as Missing Maps, and open it up.

5. You should see a description and a grid on the map. For example:



Please donate OSM Tasking Manager [About](#)

#3696 - Hurricane Maria | 2017 - Puerto Rico 10 (Arecibo to Utuado)

[Description](#) [Instructions](#) [Contribute](#) [Activity](#) [Stats](#)

Please Focus on Priority Area - Island Interior

Puerto Rico was hit by Hurricane Maria (Category 5) on 20 September after hitting Dominica severely.

The American Red Cross has requested building data generation for planning and conducting relief operations on the island.

We are mapping from pre-event imagery to give them an operating picture of the island before the hurricane made impact.

Created by [russdeffner](#) - Updated 2 minutes ago - Priority: urgent

[Instructions](#)

Legend:

- Cur. worked on (3)
- Invalidated
- Done
- Validated
- High priority

Scale: 5 km / 3 mi

6. Make sure you familiarize yourself with the instructions for your specific project. In this example, the instructions are:



at [LearnOSM.org](https://learnosm.org).

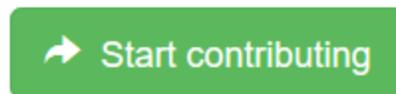
How to contribute:

1. Pick a square.
2. If there is nothing map, add a comment and mark the task as done.
3. If you see buildings that haven't been traced, please trace them.
4. Simply draw round the outline of the building and tag them as 'building'.
(building = building in ID, building = yes in JOSM)
5. Make sure you SQUARE the corners of square/rectangular buildings (shortcut key = 'S' in iD editor).
6. Upload your edits by clicking save and mark the task as done.
7. If you're not done, unlock the task and someone else can complete it.

Use the "Split" link if a task square is too big to finish in 10 mins or so.

Most roads and streets are present but very few buildings are there to locate the population and services. Recenter the roads according to the Imagery to avoid cutting buildings, as there is currently some offset in the OSM database.

Start by adjusting roads (this should not take long) and send your data to OSM (this will reduce the possibility of edit conflicts) then work on existing buildings and add the missing ones. Please zoom in for details, and avoid interconnecting buildings with other features.



This is among the easiest of tasks you might find --- here you would digitize buildings and ignore everything else. The organizers emphasize that **buildings should be SQUARED**. This is good practice for any of your potential projects.

If your instructions look too difficult, feel free to back out now and look at some other projects that might be simpler for this exercise.

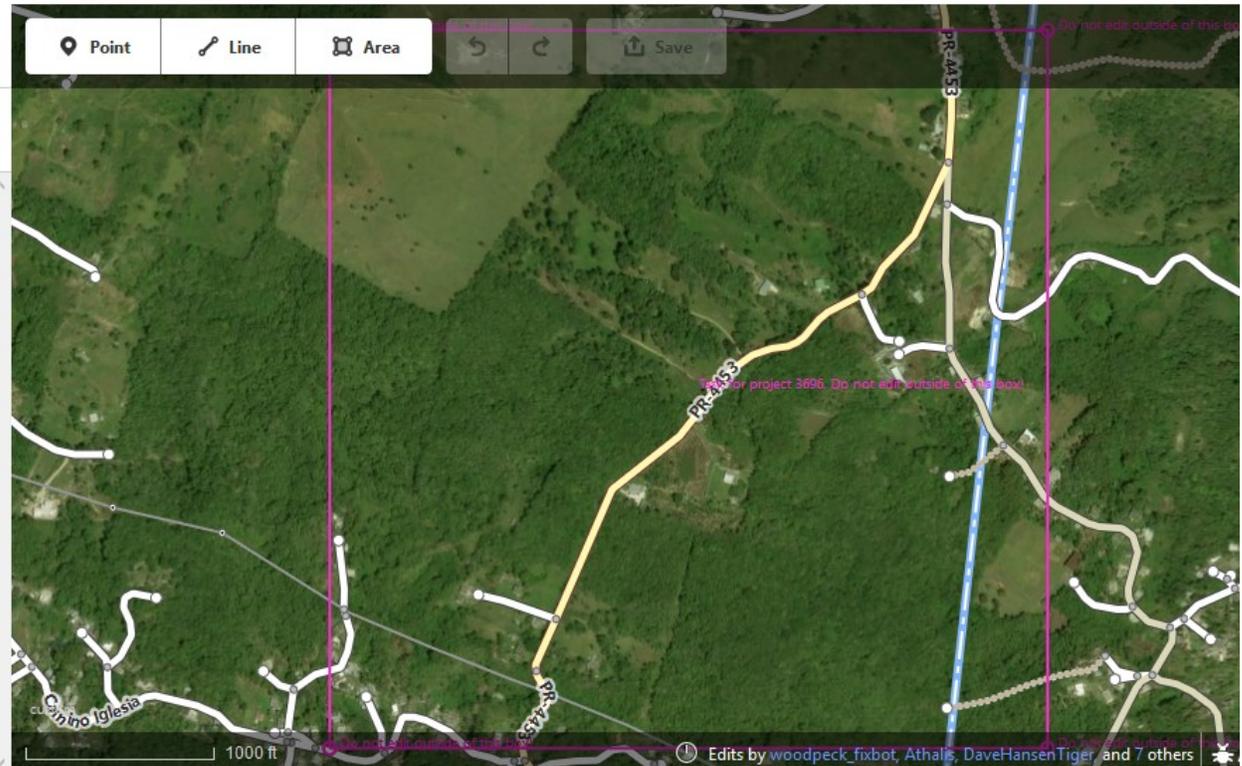
In this map, the organizers have also specified that cells in pink in the southern part of the grid should be prioritized.

7. To start your project, you could click on a cell you'd like to tackle, then click Start Mapping. This will lock your cell, so that you are the only one working on it.

8. Then, you'll want to make sure you Edit with iD Editor, as follows:



This will open up a new tab, where you will start your editing. There will be a pink box around your study area. These are the bounds of your cell, and you do not want to edit past them. Make sure you zoom in enough to be able to edit.



Follow the instructions for your project and finish digitizing your cell.

When you are done, Save your Edits. Then, return to your other tab with the project information and Mark your task as done. This will unlock your cell. Make sure you comment on your work, as below.

Here, you can see that a number of buildings in this cell were digitized, since they are red. The screen shot does not have to be of your whole cell – it is just to prove you worked on a project task.

Question 5 (4 pts). What were some of the challenges you experienced in digitizing? These can be related to the imagery, to the digitizing tools, other data layers, instructions, etc. Please be specific and describe at least 2. [3 sentences].

Question 6 (2 pts). Did you experience snapping at all when digitizing your features? When? Was this helpful, or did it hinder your particular digitizing task?