# Mapping elements-at-risk using OSM and JOSM

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Asian Institute of Technology | Multi-hazard Risk Assessment at District Level in Tajikistan |









Maps help us find what we are looking for

le cloud cuckoo-chind de six-sigma

Brins

Q: Imagine you need to map all the buildings in Tajikistan. What do you think should be required to achieve this goal in two weeks?





Team



Satellite images



#### My answer



Bing aerial imagery



OSM mapped data





Multi-hazard Risk Assessment at District Level in Tajikistan

#### Open Street Map (OSM)

OpenStreetMap is a free, editable map of the whole world that is being built by volunteers largely from scratch and released with an open-content license.

#### An overview of OSM

### What is OpenStreetMap?





## Setting up a new OSM account

• Go to the link below and signup for a new account

https://www.openstreetmap.org







#### Log in to the OSM using your own account

SopenStreetMap Edit - History Expo	rt	GPS Traces	User Diaries	Copyright Help Abou	t Log In	Sign Up
	Login					
	Don't have an account? Register now					
	Email Address or Username:					
	GIC-AIT					
	Password:					
	Lost your password?					
	Remember me					
	Login					
	Alternatively, use a third party to login:					



#### Lets search for Tajikistan



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## Now lets try to find the place where we are now



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#### Switching the background imagery

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#### Java OpenStreetMap Editor (JOSM)



JOSM is a free software desktop editing tool for OpenStreetMap geodata created in Java. Its easy to use and convenient for beginners to map fast and accurately.



#### Downloading JOSM

#### 1. Go to the JOSM website

#### 2. Select the windows installer

https://josm.openstreetmap.de/

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If a message comes to install newer version of Java, proceed and install

3

#### Now lets open JOSM



JOSM – Java OpenStreetMap Editor
News
• 2019-03-31 (stable version 14945)
○ Various improvements of the validator panel: " <u>Manage ignore list</u> ", "ignore for now", etc.
e 2019-03-02 (stable version <u>14824</u> )
⊙ New language: Canadian English
e 2019-02-05 (stable version 14755)
O UUT SERVER Sponsor IS now FUSSUIS E.V Inanks a lot to Hetzner for the support till now and to FUSSUIS for the new powerful naroware.
You are using version '14545' of JOSM. The current stable snapshot is 14345 and 14983 is the unstable <u>development</u> version.     Help <u>translating</u> JOSM into your language! Currently 100% of program texts are done.  Getting Started
• Download some existing data from OSM using Download data on the File menu or the download button 坐. If you have questions during your very first edit, the <u>introduction</u> page will assist you.
Getting Help
Online help: Help on the Help menu or press F1 as required to get context sensitive help. <u>Open Help</u> now.     Join the <u>forum</u> or ask at <u>help.openstreetmap.org</u>
Remember the golden rules of OpenStreetMap:
e Don't copy from other maps e Have fun!

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#### Lets now set up the preferences

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#### Enable remote control

	Remote Control Settings for the remote control feature.						
	Allows JOSM to be controlled from other applications, e.g. from a web browser.						
	JOSM will always listen at <b>port 8111</b> (http) and <b>p</b> These ports are not configurable because they are	ort 8112 (https) on localhost. referenced by external applications talking to JOSM.					
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🌠 Preferences

#### Installing the buildings plug-in and make sure to restart the software



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For further reading about JOSM for OSM refer this website

<u>https://learnosm.org/en/josm/start-josm/</u>



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#### Lets now try to map using JOSM

Open the sample OSM file already provided



#### Basic navigation operations

A. To move the in any direction: Hold your **right mouse button** down, and move your mouse.



C. To select an object: Click on it with your **left mouse button**.

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1. Use the **scroll wheel** in the mouse.



2. Use the **scale bar** in the upper left corner of the map view



#### Points, lines and polygons

Points are a single location, represented by symbols. On this sample map, there are two points, a shoe shop and a supermarket. The shoe shop is represented by a shoe symbol, and the market is represented by a shopping cart.



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There are several lines on the map as well, which represent roads. If you look closely you will see that within the lines, there are points as well. These points don't have any symbols or other information associated with them, but they help to define where the line is located.



There are numerous shapes on the sample map, representing different places - a forest, a river, a park, and buildings. A shape is used to represent an area, like a field or a building. A shape is exactly like a line - the only difference is that the line begins at the same point where it ends.

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You may notice that when you select an object, a list appears to the right of the map in a window called "Properties". These are known as tags. Tags are information that is tied to a point, line or shape that describes what it is. We'll learn more about tags in a later chapter. For now all you need to know is that this information helps describe whether our object is a forest, a river, a building, or something else.



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#### Changing existing objects

- Select the forest on the left side of the map. Be sure to click on the line around the forest, not one of the points on the line. Now hold your left mouse button down and drag your mouse. You should be able to move the forest to a new location on the map.
- Click on one of the points on the line around the forest. Hold your left mouse button down and drag your mouse. You should be able to move the point. This is how you can change the shape of an object, or move a point.









B. End from this end Drawing 1. Select tool icon 2. Draw tool icon •• Lets try to use the Cat Forest draw tool to map 8 a road around the 1 park A. Start from ٦ Ø this end

This will create a separate line but connected to the existing road

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## Some useful shortcuts

- Activate the Select Tool : S
- Activate the Draw Tool : A
- Activate the Zoom Tool : Z
- Delete the selected object/s : Delete
- Zoom In : +
- Zoom Out : -

To rotate an object, first select it.

Hold SHIFT+CTRL and drag the mouse to rotate



#### Adding tags for objects

- When you draw a point, line, or shape, it has a location, but no information about what it is. In other words, we know where it is, but not what it is.
- The way OpenStreetMap knows what an object is by using tags.
- A tag is like a label that you can put on something
- You can add, edit, and delete tags from the Properties panel.

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#### Basic map features in OSM

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- aerialway: different forms of transportation for people or goods by using aerial wires
- aeroway: related to aerodromes, airfields other ground facilities that support the operation of airplanes and helicopters.
- amenity: facilities used by visitors and residents. For example: toilets, telephones, banks, pharmacies, cafes, parking and schools.
- barrier: barriers and obstacles that are usually involved in traveling.
   For example: city\_wall, fence, ditch, wall etc
- boundary: describe administrative and other boundaries.
- building: identify individual buildings or groups of connected buildings.
- emergency: describe the location of emergency facilities and equipment.
- highway: describe roads and footpaths.
- historic: describe various historic places.
- landuse: describe the purpose for which an area of land is being used.

To extend the existing roadway, start from one end of the existing roadway line

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#### Let's try to add a building



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# When using this tool to map buildings, the tags are placed automatically



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# Once all your edits are finished, click on the upload button

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During this example, the upload feature is not enabled