### Using JOSM to Extract and Save Specific OpenStreetMap Data into a GIS format

#### Overview

This tutorial explains how to download specific data from OpenStreetMap and convert it into a GIS format using the Java OpenStreetMap Editor (JOSM). The Overpass API in JOSM is used to formulate a simple query to download footprints and attributes of buildings. The downloaded data is stored in the GeoJSON file format, which can be imported by common mapping tools and GIS software, for example QGIS.

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### Tools

- ✓ Java (https://java.com/en/download/): A platform-independent programming language
- ✓ JOSM (https://josm.openstreetmap.de/): A Java-based editor for OpenStreetMap data
- ✓ QGIS (<u>https://www.qgis.org/en/site/forusers/download.html</u>): A free open source GIS software which can process and visualize many GIS data formats

## A) Downloading and exporting the data using JOSM

- 1. Install Java (to test if it is already/correctly installed, type "java" in the Windows Command Prompt; a list of usage options will be the output)
- 2. Download JOSM and start it by double clicking on the downloaded "josm.jnlp" file:

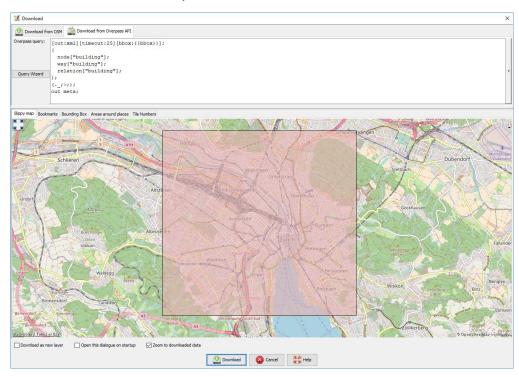
🔣 Java OpenStreetMap Editor	-	×
File Edit View Tools Selection Presets Imagery Windows Audio Help		
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JOSM – Java OpenStreetMap Editor		
News		
<ul> <li>2018-03-04 (stable version <u>13500</u>)</li> <li>2018-03-01 (stable version <u>13478</u>)</li> <li>2018-01-28 (stable version <u>13367</u>)</li> </ul>		
<ul> <li>Add support for XZ compressed files</li> <li>○ Better support for WMS 1.3.0</li> </ul>		
• 2017-12-31 (stable version <u>13265</u> )		
<ul> <li><u>Context menu entries</u> to Export a route relation to a GPX file and to convert to a new GPX layer</li> <li><u>Context menu entries</u> "Get tile status" (/status) and "Force tile rendering" (/dirty) for tiles from *.tile.openstreetmap.org (expert mode only)</li> </ul>		
More news		
<ul> <li>You are using version '13500' of JOSM. The current stable snapshot is 13500 and 13507 is the unstable <u>development</u> version.</li> <li>Help <u>translating</u> JOSM into your language! Currently 95% of program texts are done.</li> </ul>		
Getting Started		
• Download some existing data from OSM using <i>Download data</i> on the <i>File</i> menu or the download button 🖄. If you have questions during your very first edit, the <u>Introduction</u> page will assist you.		
Getting Help		
• Online help: <i>Help</i> on the <i>Help</i> 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:		
<ul> <li>Don't copy from other maps</li> <li>Have fun!</li> </ul>		~

- 3. Turn on expert mode by selecting in the menu "View" > "Expert mode".
- 4. Select the menu entry "File" > "Download data" (alternatively click on the corresponding icon in the tool bar).
- 5. Navigate to the tab "Download from Overpass API".
- 6. Click on the "Query Wizard" button.
- 7. Enter "building=\*" in the search text field.

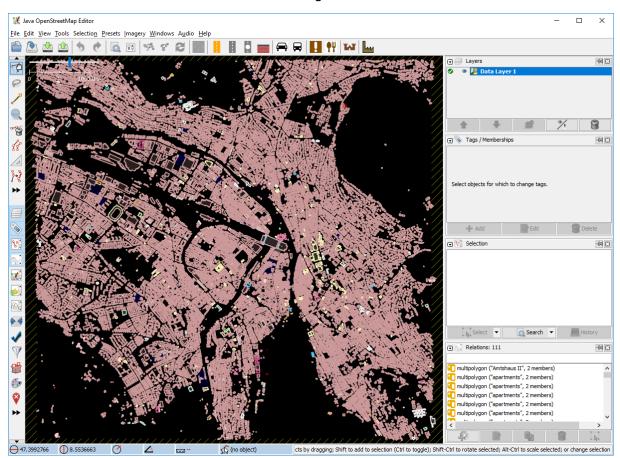
### 8. Click on "Build query":

Query Wizard
API by writing declarative, human-readable terms. The Query Wizard tool will transform those to a valid overpass query. For more detailed description see OSM Wiki.
Hints
Download objects of a certain type.
Download object by specifying a specific location. For example, • tourism=hotel in Berlin - all objects having 'tourism=hotel' as attribute are downloaded. • tourism=hotel around Berlin - all object with the corresponding keylvalue pair located around Berlin. Note, the default value for radius is set to 1000m, but it can be changed in the generated query. • tourism=hotel in bbox - all objects within the current selection that have 'tourism=hotel' as attribute. Instead of location any valid place name can be used like address, city, etc.
Download objects that have some concrete key/value pair, only the key with any contents for the value, the value matching some regular expression. "Not equal" operators are supported as well.
Basic logical operators can be used to create more sophisticated queries. Instead of "or" - " ", "  " can be used, and instead of "and" - "&", "&&".

#### 9. Select an extent on the map:



10. Finally click on the "Download" button.



11. You should have downloaded all building features now:

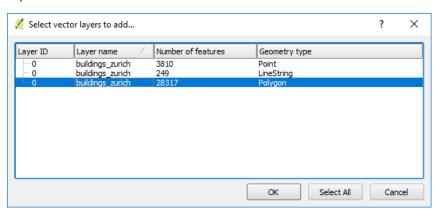
- 12. Click in the menu on "File" > "Save As".
- 13. Change the file type in the drop down menu to "GeoJSON".
- 14. Click on "Save" to store the data in the selected folder:

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Desktop						
Documents						
This PC						
1	File <u>n</u> ame:	buildings_zurich.geojson			Save	
Network	Files of type:	GeoJSON Files (*.geojson *.json)		$\sim$	Cancel	

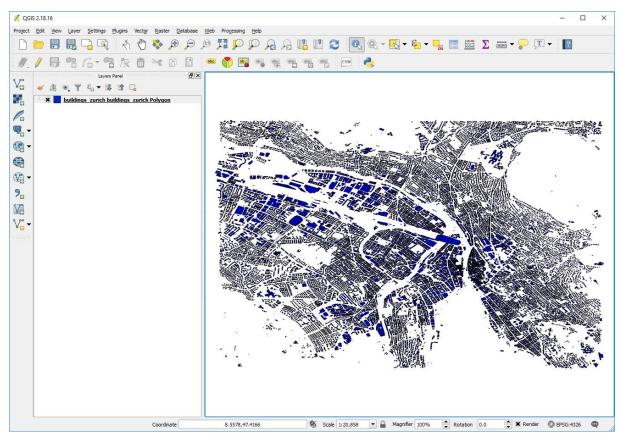
# B) Visualizing the data in QGIS

You can now process the data in a GIS software of your choice, for example QGIS.

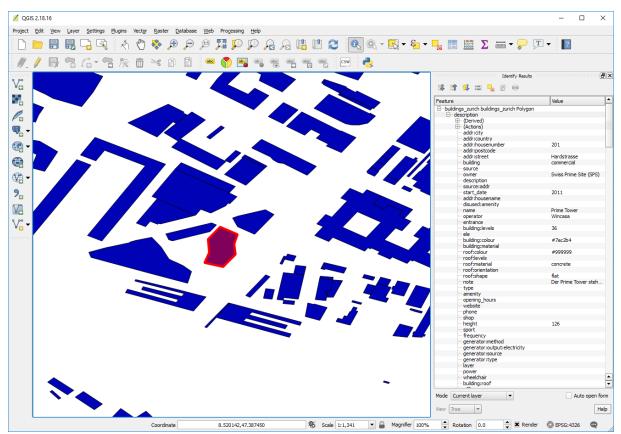
- 1. Drag & drop the GeoJSON file into the layers' panel (alternatively click on the Add Vector Data icon or select in the menu Layer > Add Layer > Add Vector Layer...)
- 2. Choose one or all geometry types in the following dialog (here only polygons are selected):



3. Press the "OK" button and inspect the data on the map:



4. Select the "Identify features" tool in the tool bar and click on polygons on the map to inspect attributes of a feature:



5. You are ready to customize the data for your own purposes now.

Raimund Schnürer, 12.03.2018