

TUTORIAL

## **3. OSM MAPPING FROM YOUR COMPUTER**

### 3.3 DATA QUALITY CONTROL



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## 3. OSM MAPPING FROM YOUR COMPUTER

### 3.3 DATA QUALITY CONTROL

#### 3.3.4 VALIDATION STEP BY STEP

##### i. Fix the most common errors

#### Check List – for all types of objects (roads, buildings, streams)

- Check that all the objects have been mapped.
- Check that each object has an attribute (tag).
- Check that the objects have the correct attributes (refer back to the instructions).
- Check that the objects are not connected to each other (roads connected to buildings or residential areas for example).

#### Check List – for the buildings

- Check that they are actual buildings (beginner contributors can confuse them sometimes with trees or walls). For that the measuring tool is very useful, or if another imagery is available, don't hesitate to change between the two to get a different perspective.
- Fix buildings that overlap.
- Separate the buildings that are connected to each other (**select + press G**).
- Check that they are orthogonal/circular (select + press Q for square buildings or O for round buildings).
- Check that each building is independently traced (if this is not the case it should be divided with the plugin **terracer**)



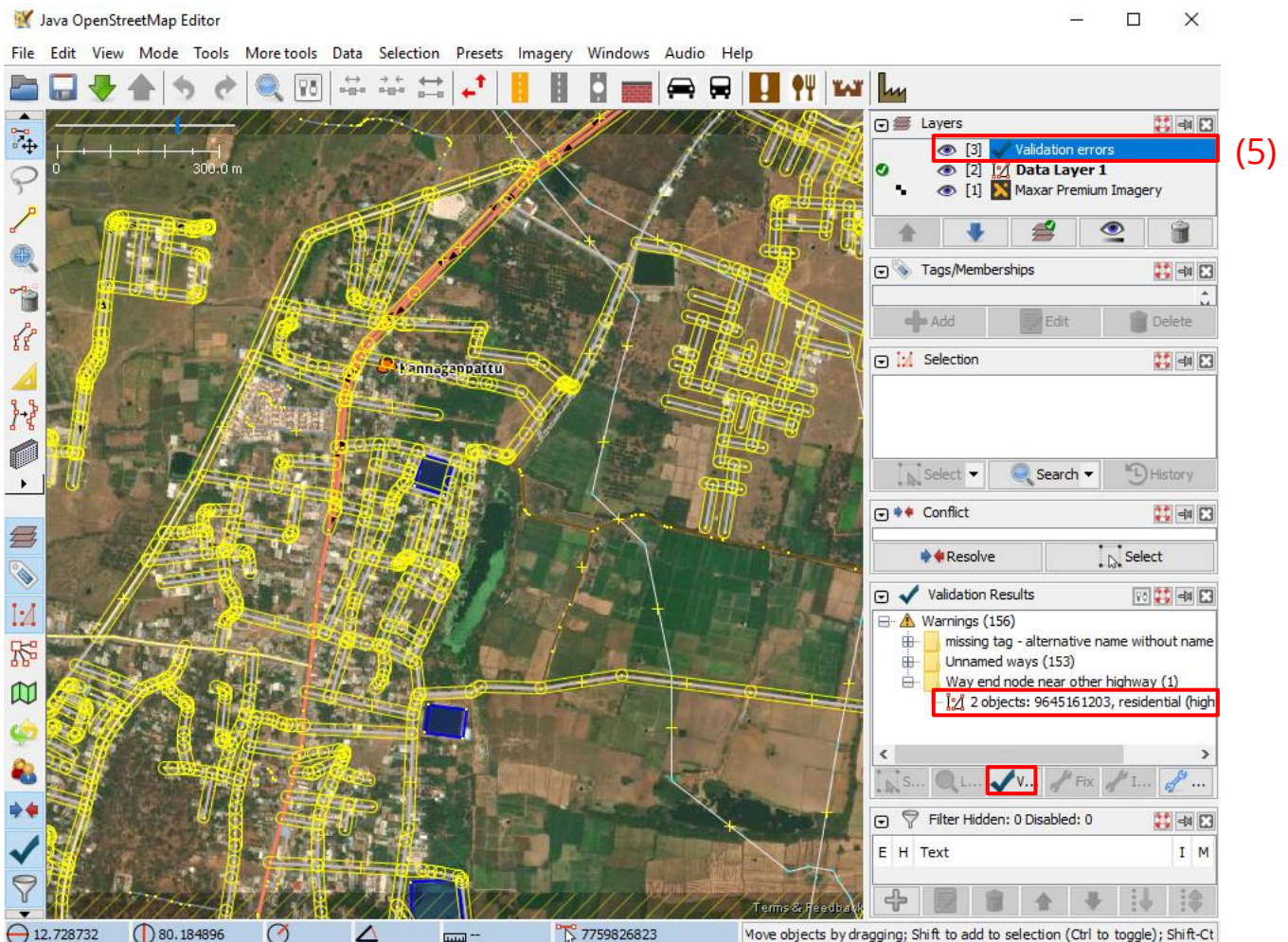
#### Check List – for the roads

- Check that the roads are actual roads: don't hesitate to zoom out of the task square to verify that the road is not actually a dried out stream that flows into a river for example.
- Check that the roads don't stop at the borders of residential zones (they have to go through them).
- Verify that they are connected to each other, forming a road network.
- Merge the small segments of a road together with the same tag, that allows having a lighter OSM rendering.

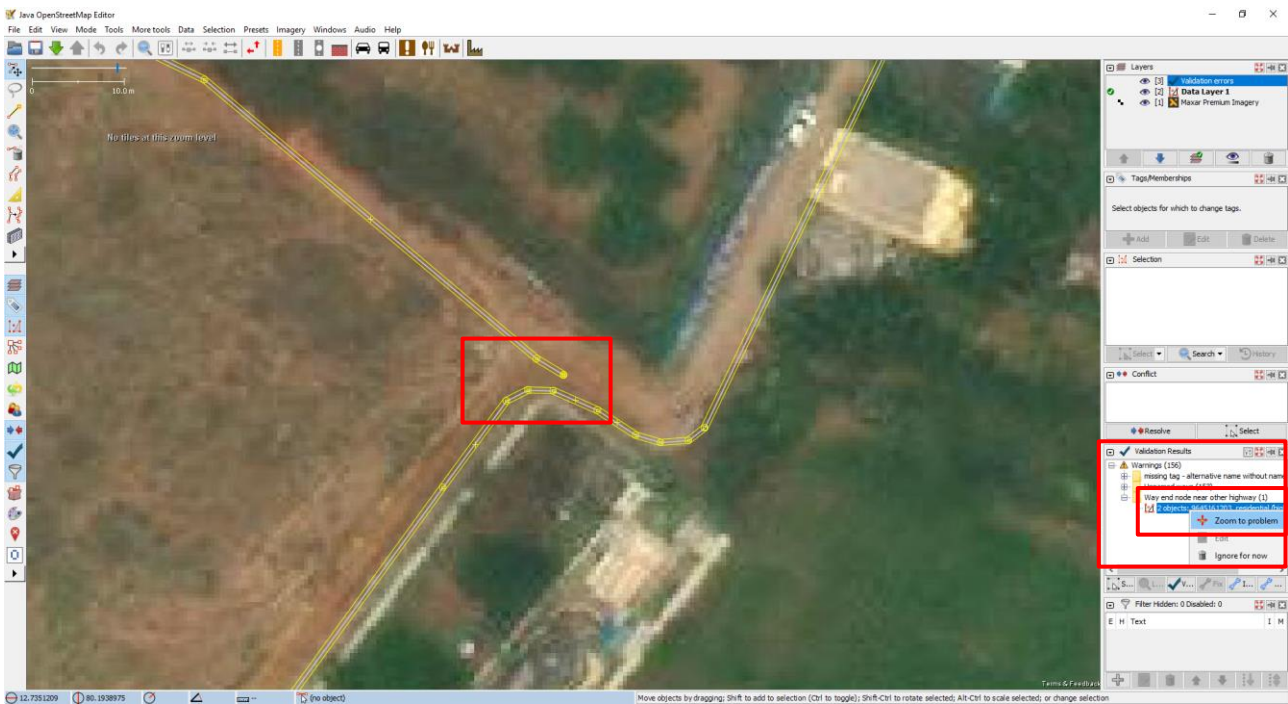
### Check List - for the streams

- Verify their direction.
- Verify that they are connected to each other.
- Pay attention to the fords and their crossings with roads, if necessary create an intersection or a bridge.
- Start by reviewing your whole square. Take the time to take an overall look in order to assess the data quality.
- You can then do an automatic sweeping to detect the main errors or conflicts with the **Validation** tool.

**BE CAREFUL:** This tool is especially useful to find the type of geographical errors such as elements duplication or overlapping. It doesn't detect every error!



The screenshot shows the Java OpenStreetMap Editor interface. The main map area displays a satellite view with yellow stream lines overlaid. The right-hand side contains several panels: 'Layers' (with 'Validation errors' selected), 'Tags/Memberships', 'Selection', 'Conflict', and 'Validation Results'. The 'Validation Results' panel shows a list of warnings, including 'missing tag - alternative name without name', 'Unnamed ways (153)', 'Way end node near other highway (1)', and '2 objects: 9645161203, residential (high)'. A red box highlights the '2 objects: 9645161203, residential (high)' entry. A red circle with the number '5' is positioned to the right of the 'Layers' panel.



- Make sure that no object is selected in the square (by clicking on an empty area in the map or by pressing escape). If some elements are selected while using the tool, only they will be checked.
- In the **Validation Results (6)** window, click on the button **Validate (4)**. If errors are detected, a list of warnings will appear in that same window.
- A new layer called **Validation Errors (5)** is shown in the **Layers panel**. In that layer, the errors are highlighted in yellow to make them more visible. If you wish to shut off this layer, click on the eye icon next to the name, this is sometimes useful to see the data more clearly.
- Fix the detected errors: certain errors can be fixed automatically by clicking on **Repair**. Other have to be fixed manually, right click on each line, select **Zoom in to problem**, then do the required edits.
- Once an error has been fixed, start the **Validation** tool once again. The error should disappear from the list, however, sometimes, one edit may cause other problems, this is why, you should repeat this several times until all the fixable errors have disappeared.

#### The most common errors that can be detected with the tool « Validation »

- **Intersection of buildings or roads** → move the elements to delete the overlapping.
- **Path/Road/Polygon without attributes** → a line or a polygon is missing its tag ? Add the appropriate tag to it.
- **Roads / water current intersecting** → it means that you need to add a bridge, or a ford or a culvert.
- **Disconnected nodes with no attributes.**
- **End of a path close to another road.**
- **Unnamed path** → You can ignore that error, it is shown when a road, in a residential area, has no name. Yet this information is not necessarily known when we map based on a satellite image.

**BE CAREFUL:** Some errors are simply warnings, and other cannot be fixed remotely.

## ii. Some advice and functions to make the job easier

- **Multi selection:** if you have to apply the same edit to several objects, like making several buildings orthogonal for example, you can select all the objects you need, then apply the edit to them. To select several objects, keep the **Shift** key pressed.
- **Use the search function:** it allows you to select only the objects you want. To access the search, press **CTRL + F** on your keyboard, or click on the **magnifying glass** icon at the top of the JOSM window, or finally by clicking on the **Search** tab in the **Selection** panel on the right of the screen. You can for example search all the buildings of the active layer. They will appear in red on the active layer.
- **Filters:** use the filters, they allow you to show/hide the data layers in relation to what you are validating. Don't hesitate to uncheck the data, this can allow you to better see what's left to map. For example:
  - Landuse: in order not to see the residential areas for example. Very useful when we're creating roads in a village so we don't mix up the outline of the urban area with another already drawn.
  - Natural: in order not to see the forests for example and miss some buildings on the edge of a forest.
  - Building: Very useful to hide the many buildings of a very dense area and better notice the residential roads to be mapped.**BE CAREFUL!** Don't forget to uncheck the filters after each validation session!!

## iii. Fix more complicated errors

The validation tool doesn't allow the detection of all errors, but other JOSM functions can help you with that!

### Use the coloring styles

The coloring style « [Missing Maps Validation](#) » allows the detection of tagging errors.

It allows to bring out the buildings or roads that have a name attributed to them, for example « name = residential ». In fact, the contributors sometimes fill in the « name » field in iD Editor, with what would actually fit more in the description field, for example, « name=road in a bad state ».

The coloring styles allow also to bring out the buildings and roads with no tags.

The coloring style « [Missing Maps Validation](#) » allows as well the detection of different objects overlapping. Thanks to the color code you can spot these errors and verify if they need to be fixed or not.

### Color code:

Buildings with names are colored in **yellow**.

Buildings without the qualifier 'building=yes' are **orange**.

Routes with names are **green**.

Routes with a description instead of a name are **red**.

**Red triangles signal** the buildings connected to a road.

**Orange triangles** signal the buildings connected to each other.



With remote mapping, in general, we don't know the names of streets and roads, you don't know whether the buildings are for living or public use, yet sometimes this information is filled in. This can be a mistake, nevertheless it's important to make sure you're not deleting valid data: it can be that someone had visited the place and added the correct names or that some filled-in data are there before the mapathon. For that, check the **History** of objects (**Ctrl+H**).

- **Check the continuity of the network:** a path doesn't stop only to be continued ten meters after (or even more in the less populated areas). Where does it go? A turn? Under the trees? By a shaded area?
- **Check the classification of roads:** some contributors overestimate or underestimate the size of roads. If you find several '*motorway*,' *primary*,' *secondary*' or '*tertiary roads*,' especially in a rural area, these classifications can be incorrect. They are flashed in a blue, yellow, orange or red color. If you see one of these in your task, check it. They should possibly be qualified with an inferior level, such as '*tertiary*,' *residential*' or '*unclassified*'. The measuring tool, zooming in, and zooming out allows you to be sure in difficult cases.
- **Simplify the network if needed:** It is important to reduce as much as possible the number of nodes in order to reduce the size of the OSM file. Limit the number of points in your road segments, even if it may be less precise. The very small paths can also be deleted especially if they don't lead to any building (see: the project instructions).
- **Keyboard shortcuts:**
  - A number of JOSM functions can be reached with keyboard keys. The tabs **Tools** and **More tools** in JOSM give you the list of functions with their corresponding keyboard shortcuts.
  - See also : [Shortcuts – JOSM \(openstreetmap.de\)](https://openstreetmap.de/josm/shortcuts)



You have reached the end of this fast tutorial on validation.

**This section doesn't claim to be exhaustive**, we have presented the most common tools but there are many more to discover and the OSM ecosystem rapidly evolves thanks to its strong community of contributors, the tools develop fast.

And for the errors, we have pointed out the most common, but you will be surprised by the « curious gems » that you can sometimes come across!