

JOSM: Beyond Basic Editing

State of the Map 2022

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HOT Training Working Group

Agenda

Part 1

- Imagery alignment
- Complex shapes
- Bridges, culverts, fords
- Filters and selection: To do lists

Part 2

- Map with AI
- Conflict Resolution
- Relations



Imagery alignment

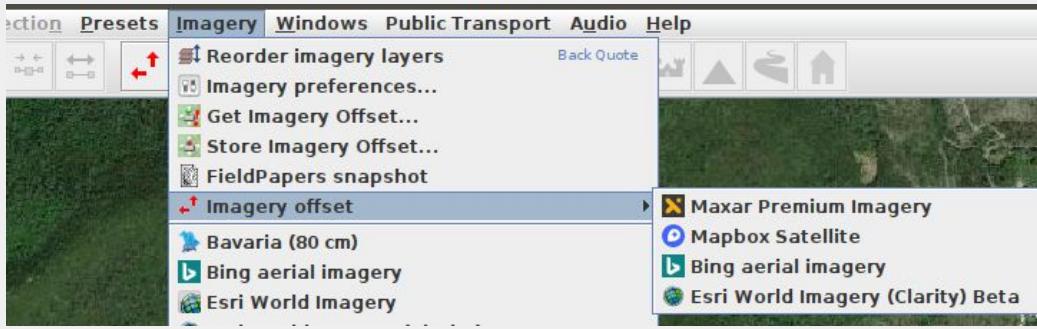
Imagery alignment



Imagery alignment

- There is no absolute position, both imagery and GPS traces have finite accuracy (typically < ~10m)
- If existing mapping and available imagery do not match, go for least effort
- If the majority of the existing mapping aligns well with one imagery layer, move the outlying features so that they match with the imagery
- Otherwise adjust the imagery offset so that it matches the majority of the objects

Imagery alignment



Either click on the icon in the top bar or use the menu as indicated. Select the imagery layer you want to offset. Move the imagery while keeping the left mouse button down.

Imagery offsets are not retained after you close JOSM unless you save them as a bookmark. Keep in mind that imagery offset varies considerably across the globe.

Imagery alignment



Be careful if looking at buildings at an angle. Building footprints can best be drawn from the roof but should match the position of the bottom. Then they do not change irrespective of angle. Note that the right picture additionally has an offset (look at the centerline of the road).

Complex shapes

Keyboard Shortcuts

Basic Tool Switching:

Esc key - Deselect everything

S - Selection tool

B - Building tool

A - Add nodes

X - cut/push/pull building walls

Other often used:

Alt+A - Add attributes

Alt+X -Split

Q - Square buildings

Shift+J - merging two or more sections of buildings
into one

C - combining two sections of way into one

Keyboard Shortcuts

G - Unglue nodes

M - Merge nodes

Ctrl +Shift - Rotate object (note: apple key on a mac instead of ctl?)

Ctrl+Alt - Scale object

Ctrl +Shift+G - Maintaining history

Alt+Z - Switch to Circular building

Alt+R -Switch to square building

Road-River Intersection

Bridges, culverts, fords

Bridges- Goes over a river

Culvert - Road level and waterway goes through a conduit, mostly concrete which goes underneath a road.

Ford - Road runs across a river



Bridge



Culvert



Ford

Bridge:

Steps:

- **A key** , add nodes at both ends of the bridge
- **S key**, select both nodes
- **P key** to segment the road
- Select section of the bridge
- Add tag Bridge = Yes, Layer = 1

Culvert:

Steps:

- Move the river's nodes to both sides of the culvert
- **S key**, select both nodes
- **P key** to segment the river
- Select section of the culvert
- Add tag tunnel = culvert, Layer = -1

Ford:

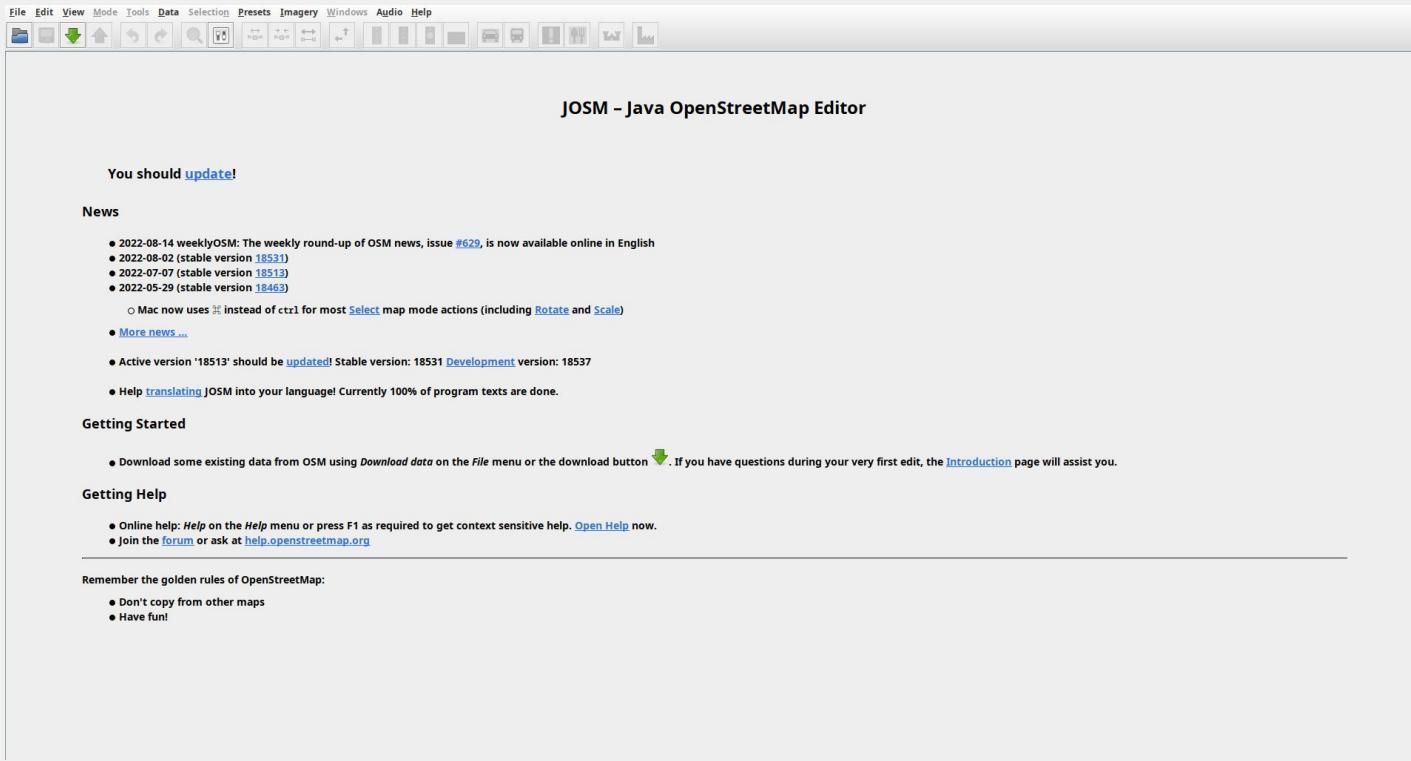
Steps:

- Add a node at the point of intersection
- Select node
- Add tag, `ford = yes`

Filters and selection: To do lists

Install the todo-list plugin

- Go to Edit -> Preferences -> todolist

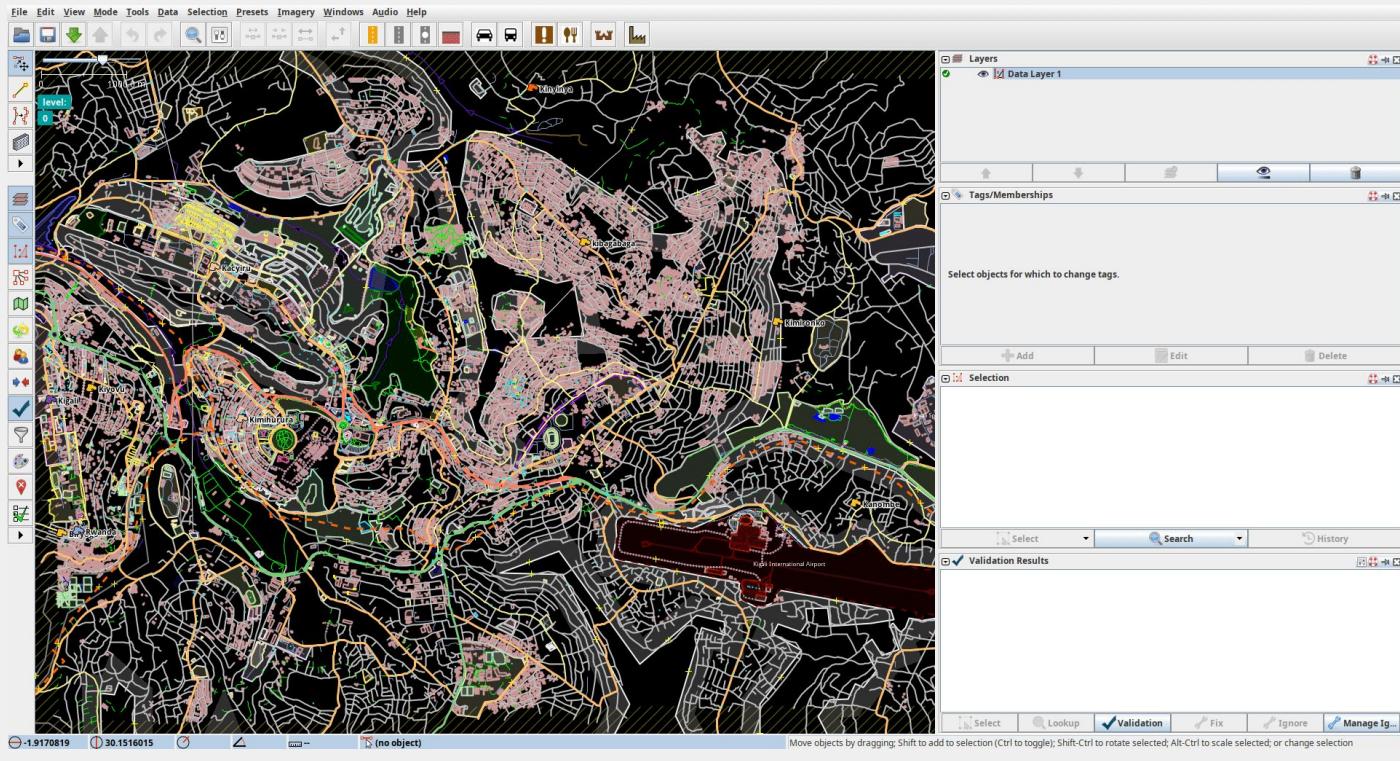


Applying filters

Add Filter to the sidebar, go to Windows, then select Filter

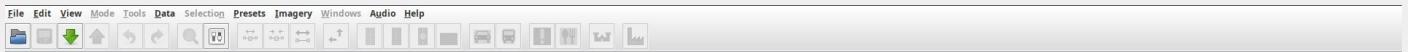
Add a filter e.g
“highway=*”

Then activate E,H,&I
- this will hide all
other features and
display only roads



Install Utilsplugin2

The utilsplugin2 will allow you to select unselect nodes when both ways and nodes are selected.



JOSM – Java OpenStreetMap Editor

You should [update!](#)

News

- 2022-08-14 weeklyOSM: The weekly round-up of OSM news, issue #629, is now available online in English
- 2022-08-02 (stable version 18531)
- 2022-07-07 (stable version 18513)
- 2022-05-29 (stable version 18463)
 - Mac now uses ⌘ instead of `ctrl` for most `Select` map mode actions (including `Rotate` and `Scale`)
- [More news ...](#)

• Active version '18513' should be [updated!](#) Stable version: 18531 [Development](#) version: 18537

• Help [translating](#) 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 . If you have questions during your very first edit, the [Introduction](#) page will assist you.

Getting Help

- Online help: [Help](#) on the [Help](#) menu or press F1 as required to get context sensitive help. [Open Help](#) now.
- Join the [forum](#) or ask at [help.openstreetmap.org](#)

Remember the golden rules of OpenStreetMap:

- Don't copy from other maps
- Have fun!

Select nodes minus ways

Download data from OSM

Apply a filter building=*

Use the Lasso select tool to select a part of the buildings (this selects both nodes and ways)

To unselect nodes, use the shortcut shift+U
(This only works when utilsplugin is installed)

You should [update!](#)

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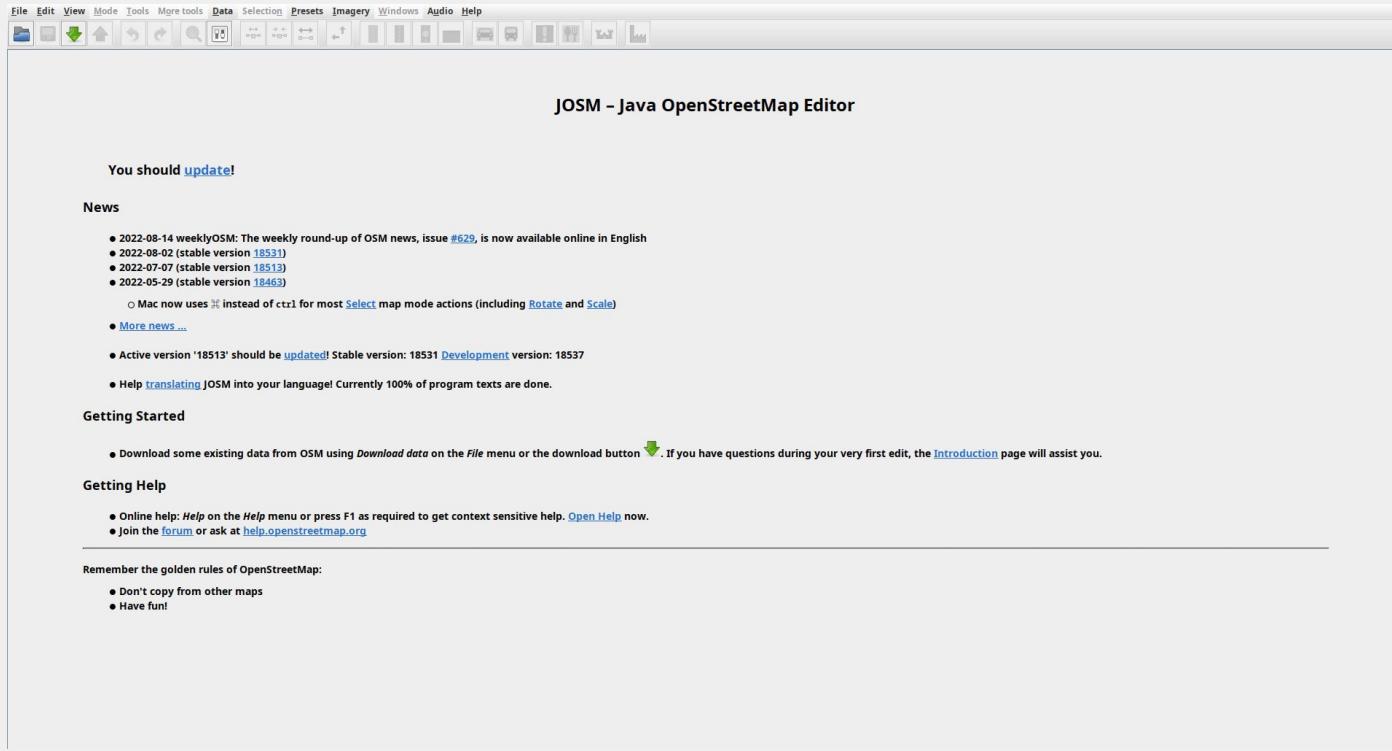
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Add selected buildings to the todolist

With only ways selected, now you can add only buildings (ways) to the todolist, which will allow you to go through them one by one.

This is useful when you have data collected from the field that you can add to each of the buildings.



The screenshot shows the JOSM (Java OpenStreetMap Editor) application window. At the top is a toolbar with various icons for file operations, selection tools, and map editing. Below the toolbar is a menu bar with File, Edit, View, Mode, Tools, More tools, Data, Selection, Presets, Imagery, Windows, Audio, and Help. The main area of the window is titled "JOSM – Java OpenStreetMap Editor". A message "You should [update!](#)" is displayed. Below this is a "News" section containing a list of recent updates:

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- 2022-08-02 (stable version [18531](#))
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 - Mac now uses [⌘](#) instead of [ctrl](#) for most [Select](#) map mode actions (including [Rotate](#) and [Scale](#))
- [More news...](#)

Below the news is a "Getting Started" section with a bullet point:

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Under "Getting Help", there are two bullet points:

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Remember the golden rules of OpenStreetMap:

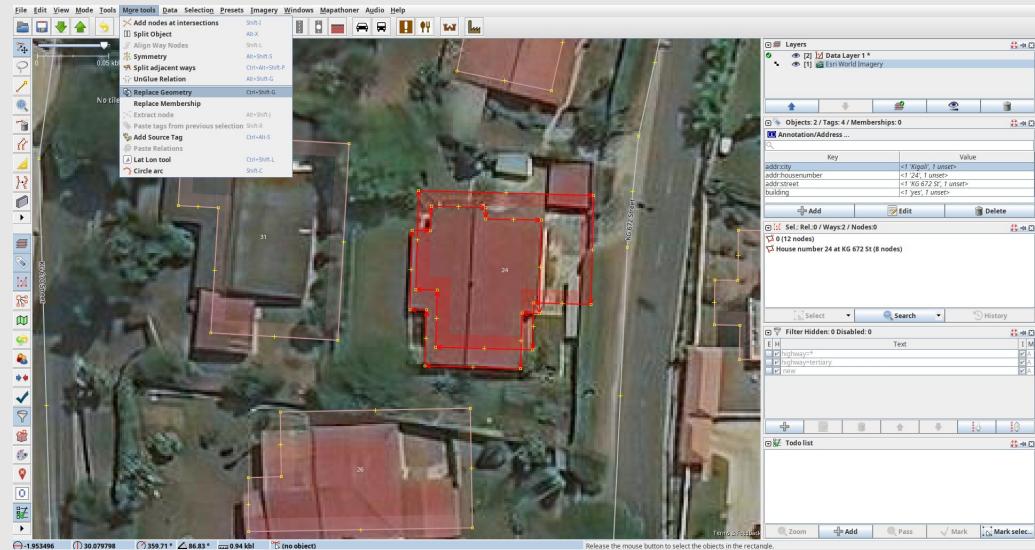
- Don't copy from other maps
- Have fun!

Replacing geometry

To redraw a poorly shaped object, but want to keep the history, attributes and ID number of that object

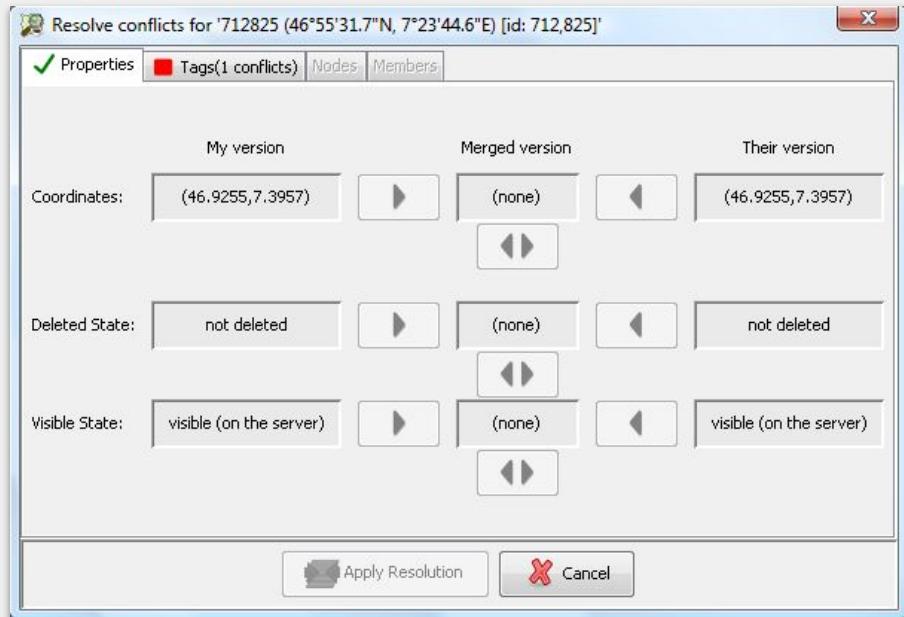
Select new and old building,
More tools -> Replace Geometry

Shortcut = Ctrl+Shift+G



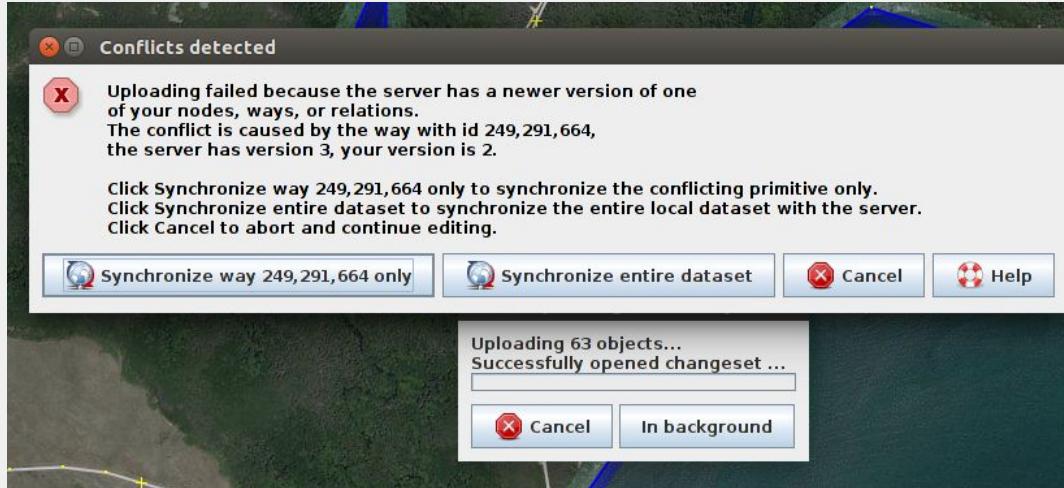
Conflict Resolution

- The Conflict Dialog is used to resolve conflicts between two versions of an OSM object
- Please view this step-by-step guide for dealing with conflicts:
[https://josm.openstreetmap.de
/wiki/Help/Dialog/Conflict](https://josm.openstreetmap.de/wiki/Help/Dialog/Conflict)



Conflict Resolution

Conflicts do not mean that you did something wrong, they just happen



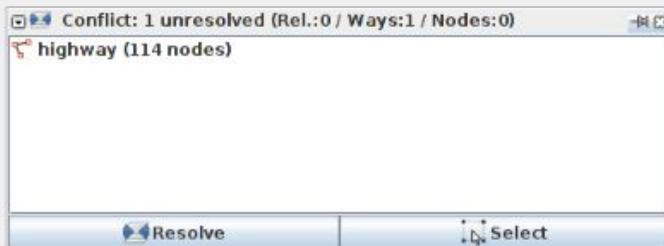
Another user edited the same way as you did and happened to upload first. Synchronize the entire dataset in order to see how many conflicts exist and solve them one after the other.

Conflict Resolution

Decide how to proceed



If you see too many conflicts then it might be better to forget about your local modifications (delete the layer), load a fresh layer with data from the server and redo mapping.



The conflict tab can be activated through an entry in the 'Windows' menu.

Double-clicking on an entry opens the resolution window

Conflict Resolution

Determine the cause of the conflict

The screenshot shows a software interface for resolving conflicts between two versions of a dataset. The interface has three main sections:

- My version (49 entries):** A list of nodes with various IDs and some labeled as "node". Most nodes are green, indicating they are present in both versions.
- Merged version (0 entries):** An empty list where nodes from both versions are combined.
- Their version (24 entries):** A list of nodes from a server, mostly salmon-colored, indicating they are unique to that version.

Below the lists are three scroll bars labeled "lock scrolling". At the bottom are buttons for "Compare My with Their", "Apply Resolution", "Cancel", and "Help". A note at the bottom says "Click Freeze to finish merging my and their entries." There is also a "Freeze" button.

The left column contains your nodes, the right column shows the nodes on the server.

Green nodes are the same in both versions. Red nodes were added in one version only. Salmon nodes are present in both versions but at different positions.

We accept all nodes from the server because we know that we only added nodes.

Conflict Resolution

Merged version with nodes from the server

The screenshot shows a conflict resolution interface for a 'highway' layer with 49 nodes. It has three main sections:

- My version (49 entries):** A list of 49 local nodes, mostly with IDs starting from 1.
- Merged version (24 entries):** A central column where nodes are merged. It contains 24 entries, some of which are highlighted in green (local), some in pink (server), and some in orange (new).
- Their version (24 entries):** A list of 24 server nodes, mostly with IDs starting from 1.

At the bottom, there are buttons for 'Compare My with Their', 'Apply Resolution', 'Cancel', and 'Help'.

The central column is where you compose the final version which is to be uploaded on the server. After our previous action it contains the server's nodes.

Now we must add our new nodes.



Conflict Resolution

Complete the final version

The screenshot shows a conflict resolution interface with three main panels:

- My version (49 entries):** Shows nodes 7 through 34.
- Merged version (24 entries):** Shows nodes 7 through 17.
- Their version (24 entries):** Shows nodes 7 through 24.

A 'Compare' dropdown menu at the bottom left is set to 'My with Their'. Buttons at the bottom include 'Apply Resolution', 'Cancel', and 'Help'.

We select our new nodes which turns their colour blue. Then we must choose the location for the insert – in this case at the end. Use the marked button in order to copy them there.

The 'Freeze'/'Unfreeze' button toggles the modifiable state of the central list.

Conflict Resolution

Finish the process

The screenshot shows a conflict resolution interface for a highway layer with 49 nodes. It displays three panels:

- My version (49 entries):** Shows 49 nodes with IDs ranging from 7 to 34.
- Merged version (54 entries):** Shows 54 nodes, indicating merges between the local and server versions. Nodes 7 through 20 are merged from the local version, while nodes 21 through 54 are from the server version.
- Their version (24 entries):** Shows 24 nodes, which are the ones that have been modified by other users.

At the bottom, there are buttons for "Compare My with Their", "Click Unfreeze to start merging my and their entries.", "Unfreeze", "Apply Resolution" (which is highlighted with a pink rectangle), "Cancel", and "Help".

After pressing 'Apply Resolution' we end up with a layer which contains a modified state compared to the server and we can upload this layer as we tried before.

Unless someone else got in our way...

Relations

Multipolygons & Relations

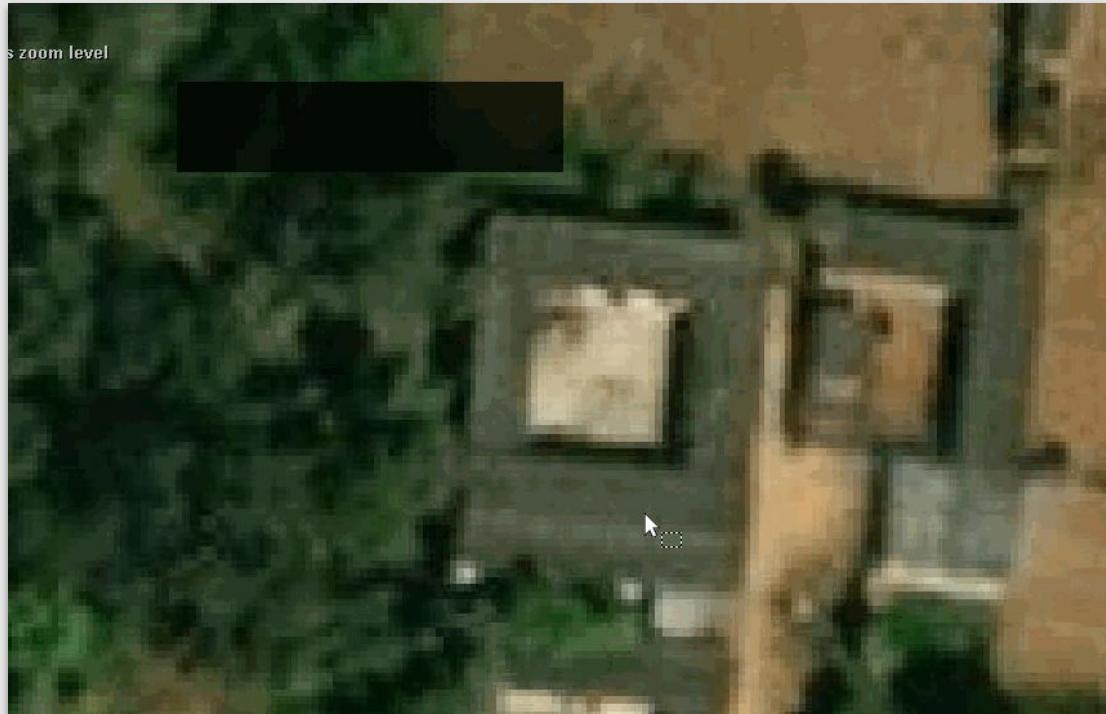
Used to map

- Buildings
- Roads/Routes
- Admin Boundaries
- Riverbanks



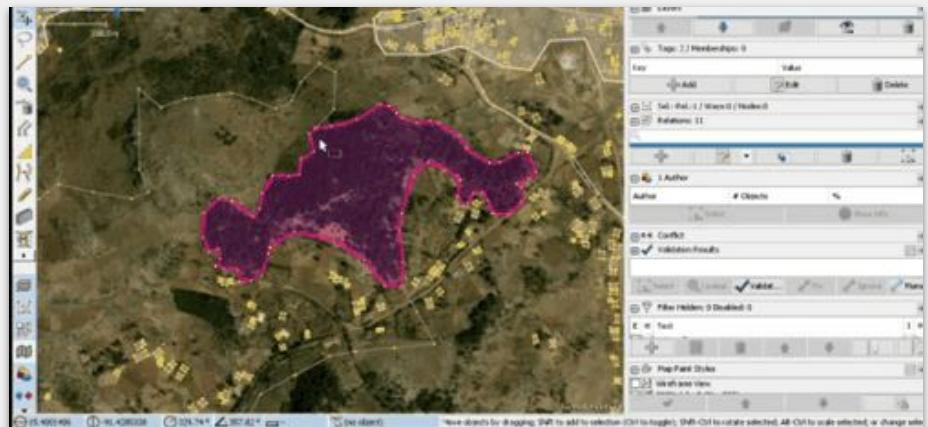
Buildings - Courtyards

- Draw the outer part of the building with the building tool
- Select the mapped building (this will ensure the courtyard is square to the building) and map another shape with the building tool that fits the courtyard
- Select both parts and hit **Ctrl + B** to create a multipolygon building - done!



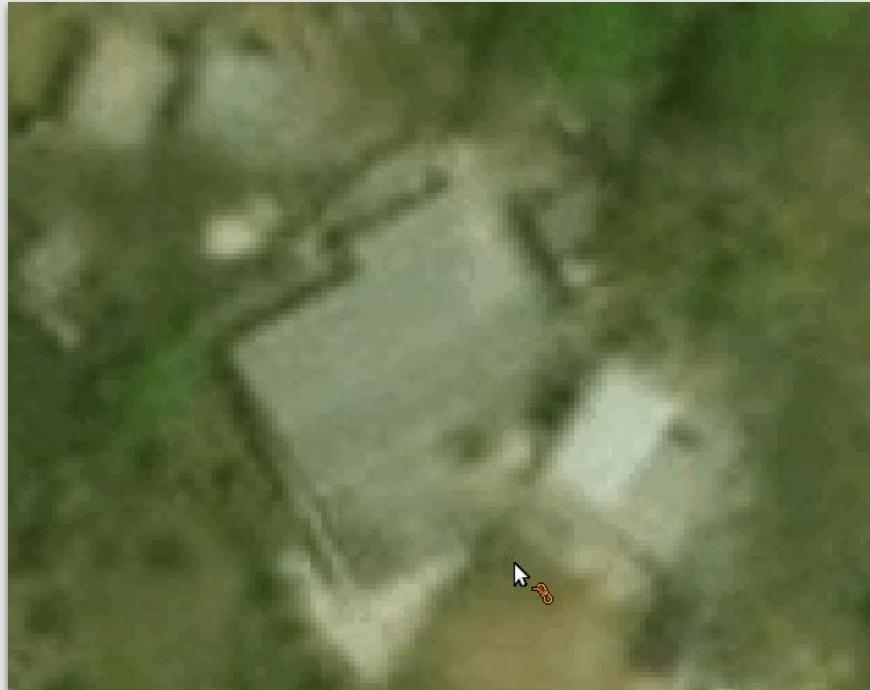
Relations

- To make relation with the inner polygon and outer polygons ,select both the inner and outer polygons press **Ctrl+B** to make them multipolygon
- To create a lign relation, slit the spot in between the polygon where the new member meets and select the new member and slitted line, go to relation add **type=multipolygon**, the natural cover/land cover type and the position of the new member which is outer.



Buildings - Extrusion

- To map L, U or T shaped buildings draw a rectangle using the building tool along the longest edge of the building
- Select 'X' on your keyboard
- **Double click** to add a point at the edge of your rectangle where the building extends
- Drag the edge you want to extend until it fits the footprint



Fixing Buildings

- If you see any un-squared buildings these can be fixed by selecting them and hitting 'Q'
- Selected buildings can also be rotated by holding **Shift + Ctrl**, or resized by holding **Ctrl + Alt**
- Buildings can be disconnected from other features by hitting '**G**' with the building selected



Dense buildings

- Map **each building** in a cluster
- Make sure to **leave gaps** between buildings
- Hold down **Ctrl** to ensure buildings do not snap to each other or other objects (like roads or landuse)
- Tip: after mapping one building, **select it** and use the building tool to ensure all the buildings are perfectly aligned



Tall buildings

- To map tall buildings start by mapping the roof shape with the building tool
- Once you have mapped the roof **move** the outline to the **base** of the structure
- Remember, building footprints are where the **walls** of the building meet the **ground**



Resources

Guides and learning materials:

- > LearnOSM <http://learnosm.org/en/josm/>
- > Java OpenStreetMap <https://josm.openstreetmap.de/>

Additional resources can be found at: <https://github.com/hotosm/toolbox/wiki>