JOSM | Introduction and Setup

Editing in JOSM

July 2018

JOSM - Java Open Street Map Editor

Overview

- Open-Source GIS software for editing OSM data

- Among the three most popular OSM data editing platforms:
  - *iD*
  - *Potlatch*
  - *JOSM*

- Data is downloaded off the OSM server, edited, and changes are uploaded back to the server

- No shapefile management required

- Simple set of vector editing tools

JOSM - Java Open Street Map Editor

Basics

- We use production level version
- There will always be one current stable version available, with a new development version released daily
- Large community of users and ~7 developers
- Bugs and feature requests can be reported on the JOSM forum for developers to fix
- Plugins can be downloaded

JOSM Setup

JOSM Setup

Create OSM Account

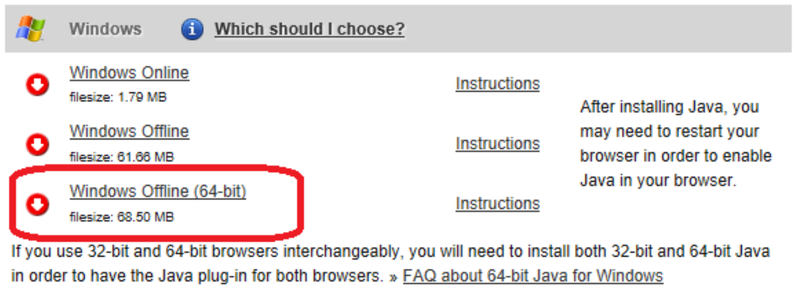
1. Navigate to osm.org
2. Select “Sign Up”
3. Enter account info:
    - Email
    - Display name
    - Password
4. Welcome to OSM!

JOSM Setup

Download

Lets get started!

- First!.. Java must be downloaded: https://www.java.com/en/download/ (choose Windows Offline-64-bit)



- We will be using the latest stable version of JSOM
  - Current stable release is located here: https://josm.openstreetmap.de

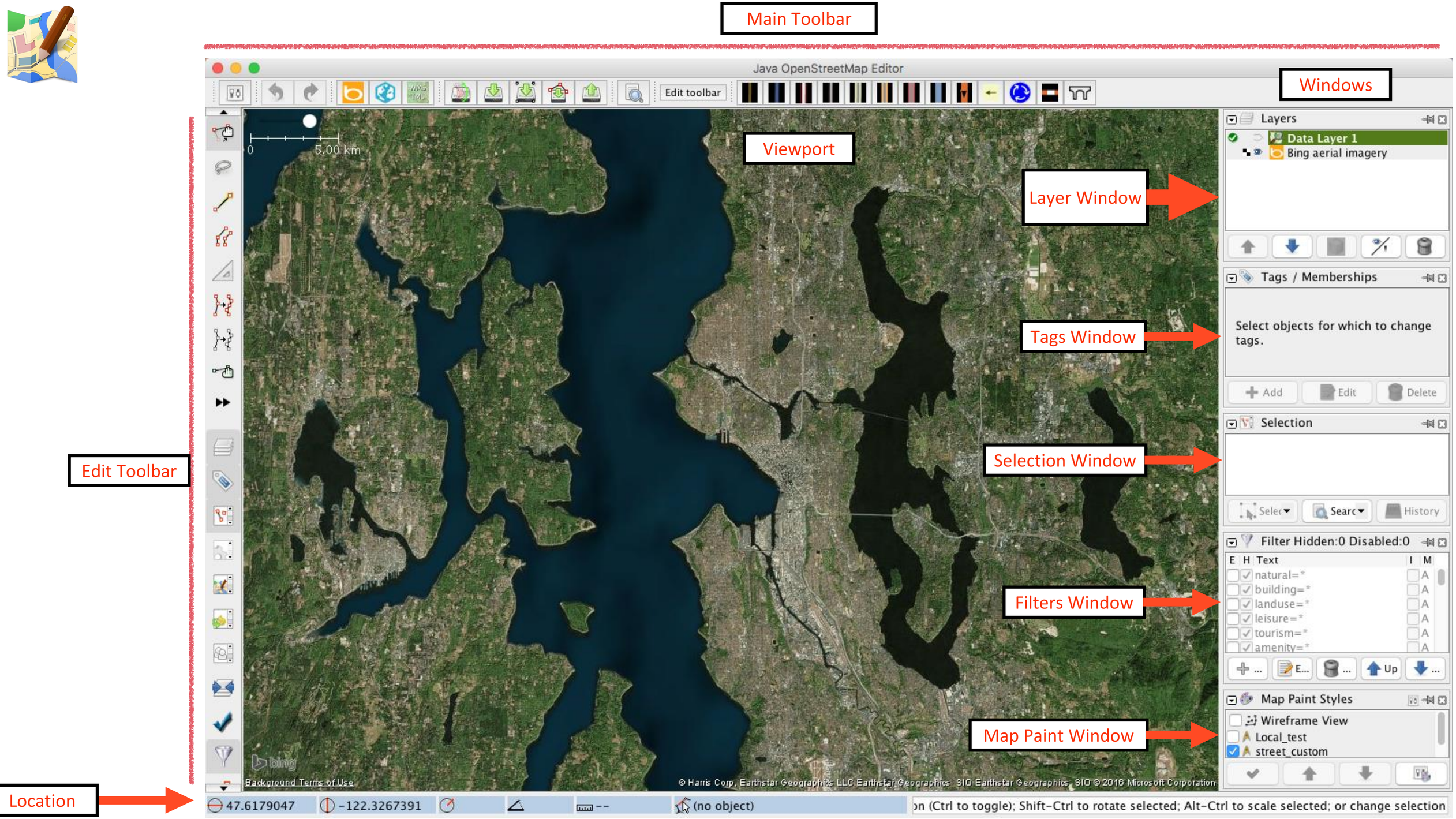
JOSM Setup-(a)

Download/update

To install JOSM:

GO TO: https://josm.openstreetmap.de

- **Download** josm-tested.jar to your *Desktop*
- **Open** a new notepad doc and put the following string in "java -d64 -Xmx10240m -jar josm-tested.jar" (this increases memory for the app)
- **Save** the notepad doc as a .bat file, click save-as, give it a file name that ends in .bat, so mine is josm.bat and save it to your desktop
- **Double click** the new file and JOSM should launch


Main Toolbar
Java OpenStreetMap Editor
Edit toolbar
Windows
Viewport
Layer Window
Tags Window
Selection Window
Filters Window
Map Paint Window
Edit Toolbar
Location
Layers
Data Layer 1
Bing aerial imagery
Tags / Memberships
Select objects for which to change tags.
Add
Edit
Delete
Selection
History
Filter Hidden:0 Disabled:0
E H Text I M
natural=*
building=*
landuse=*
leisure=*
tourism=*
amenity=*
Up
Map Paint Styles
Wireframe View
Local_test
street_custom
0
5,00 km
Background Terms of Use
© Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO Earthstar Geographics SIO © 2015 Microsoft Corporation
47.6179047
-122.3267391
(no object)
Shift-Ctrl to rotate selected; Alt-Ctrl to scale selected; or change selection

JOSM Setup

Initial Setup

- Adjust settings under *Edit>Preferences*

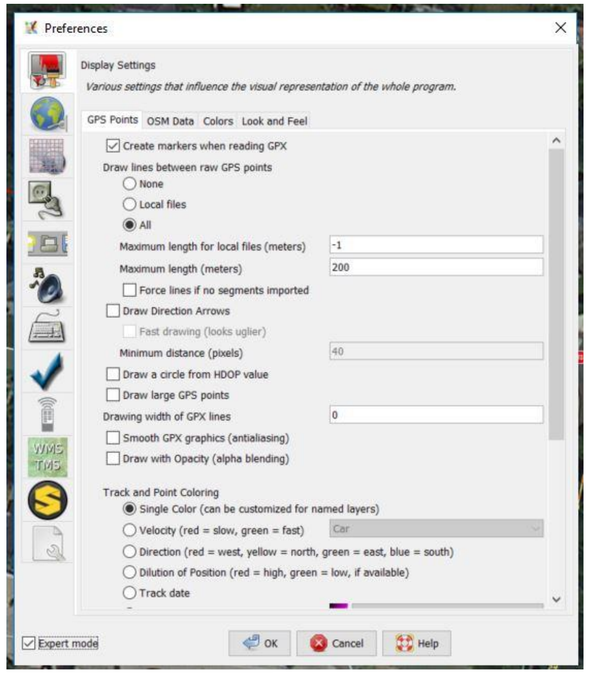
- Best practice:

1. Expert Mode -

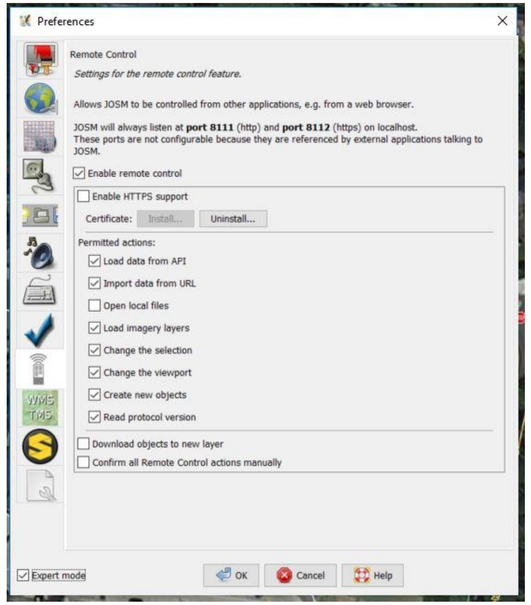
  - Bottom left corner of *Edit Preferences>turn on Expert mode*

2. Remote Control -

  - Fourth icon from bottom left>*Enable remote control*
  - Please also enable HTTPS support



1. Expert mode



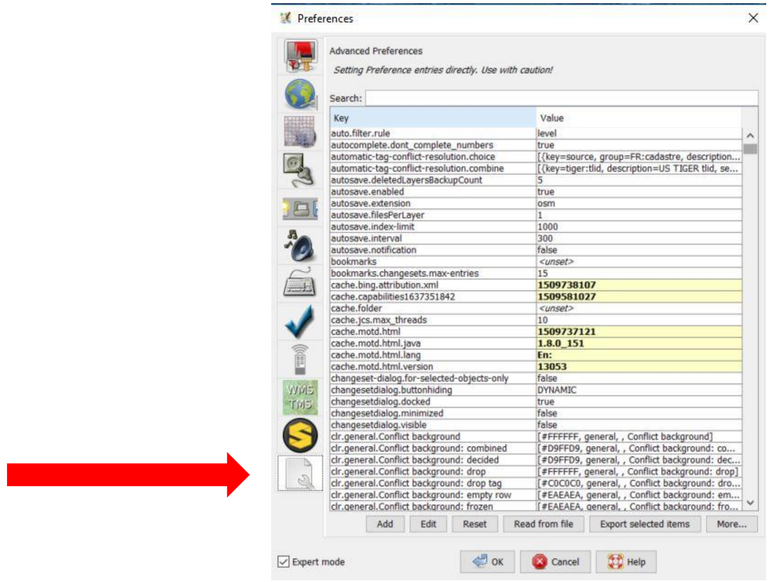
2. Remote control

JOSM Setup

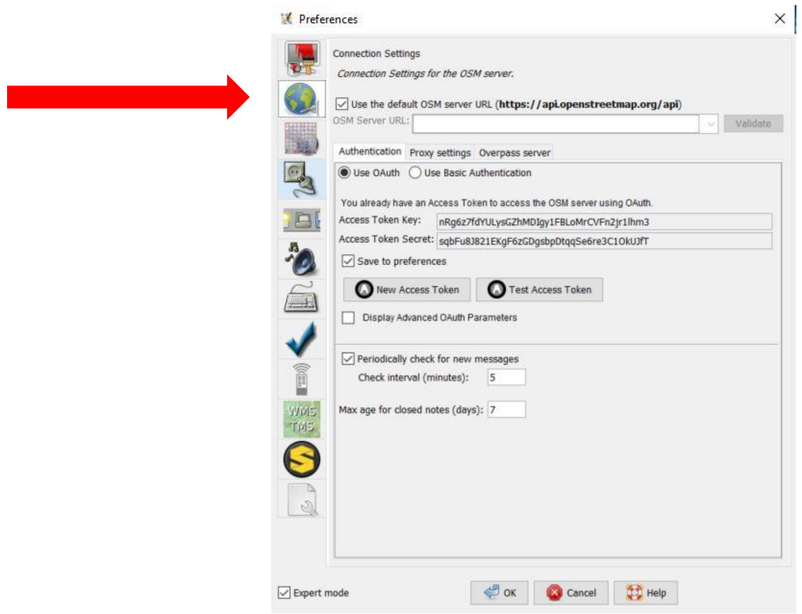
Initial Setup con’t…

3. IPv6 Connection

- Bottom icon>search for “ipv6”>set *prefer.ipv6* to “false”



3. ipv6 setting

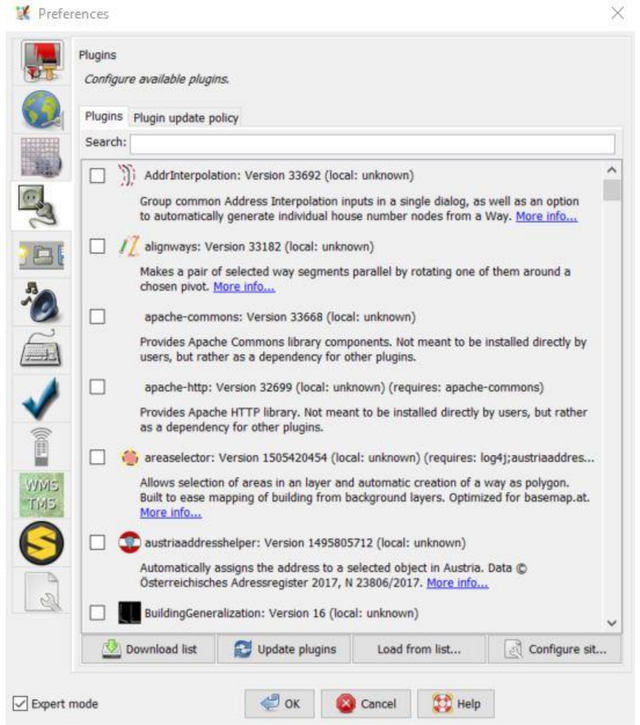


4. Login to OSM using OAuth

JOSM Setup

Plugins

- Plugins are tools that add to overall JOSM functionality
  - JOSM plugin home
- Useful Plugins:
  - *ImproveOSM*
  - *utilsplugin2*
  - *building_tools*
  - *opendata*
  - *turnrestrictions*
  - *Openstreetcam*
  - *Geojson*
  - *Mapillary*
  - *Todo*
  - *MicrosoftStreetSide*



To install:

1. Navigate to `Edit>preferences>plugins`
2. Check the boxes for mentioned plugins
3. “Download list”
4. Select “OK”

JOSM restart will be required

https://josm.openstreetmap.de/wiki/DevelopersGuide/DevelopingPlugins

JOSM Setup

Map Paint Style

- Map paint styles render features in JOSM using rules
- Rules are made up of Selectors and Declarations
  - Selector: object and/or feature being styled
  - Declaration: How the selector is styled
- mapcss is the language used for the JOSM stylesheet
- Uses the framework of a cascading style sheet (i.e. rules at the bottom will override rules above)
- Eval statements can also be used

- We released a Paint Style on our GitHub
  - This style is used to call out map errors by rendering them differently in JOSM
  - Example:

Most likely missing roundabout tag

Roundabout tag present on element

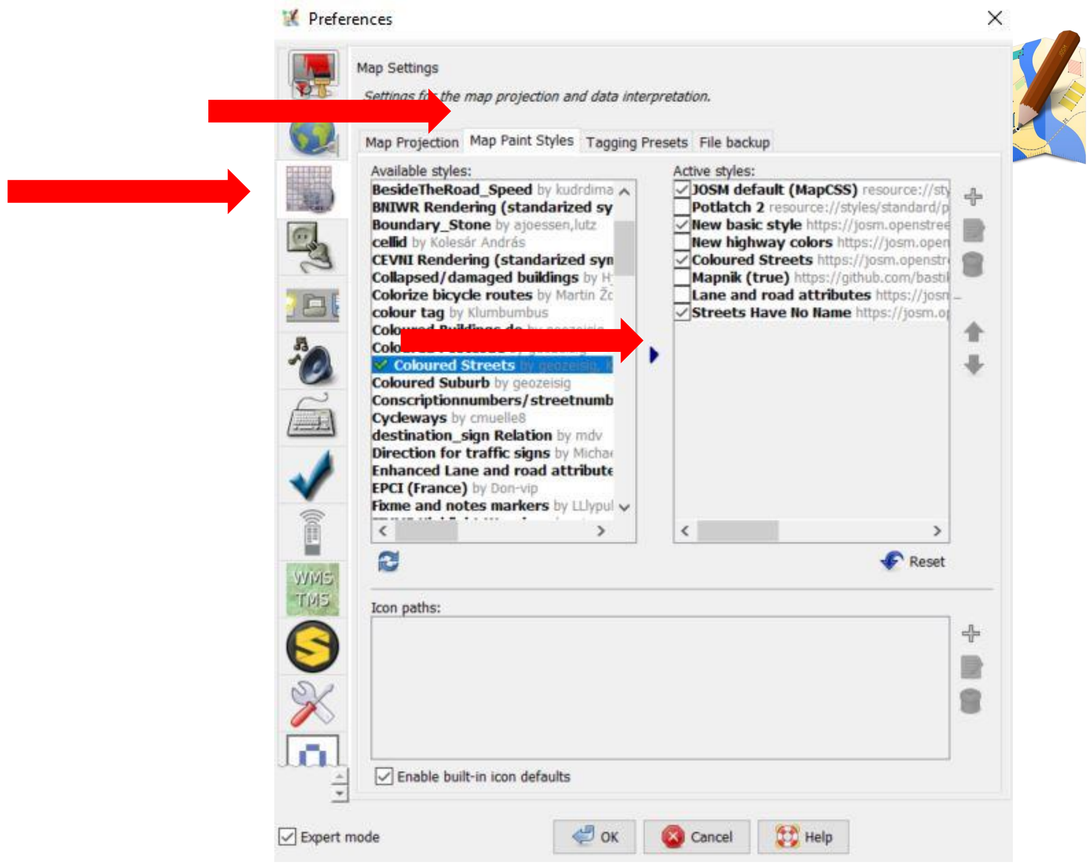
More information on mapcss here

JOSM Setup

Map Paint Styles

- Base styles are included by default, but here are a few add-on styles we'll use:

- Useful Styles:
  - *Coloured Streets*
  - *Streets Have No Name*
  - *New Basic Style*
  - *Modified objects*
  - *Inline_validation*
  - *FIXME Highlight Warnings*



To add:

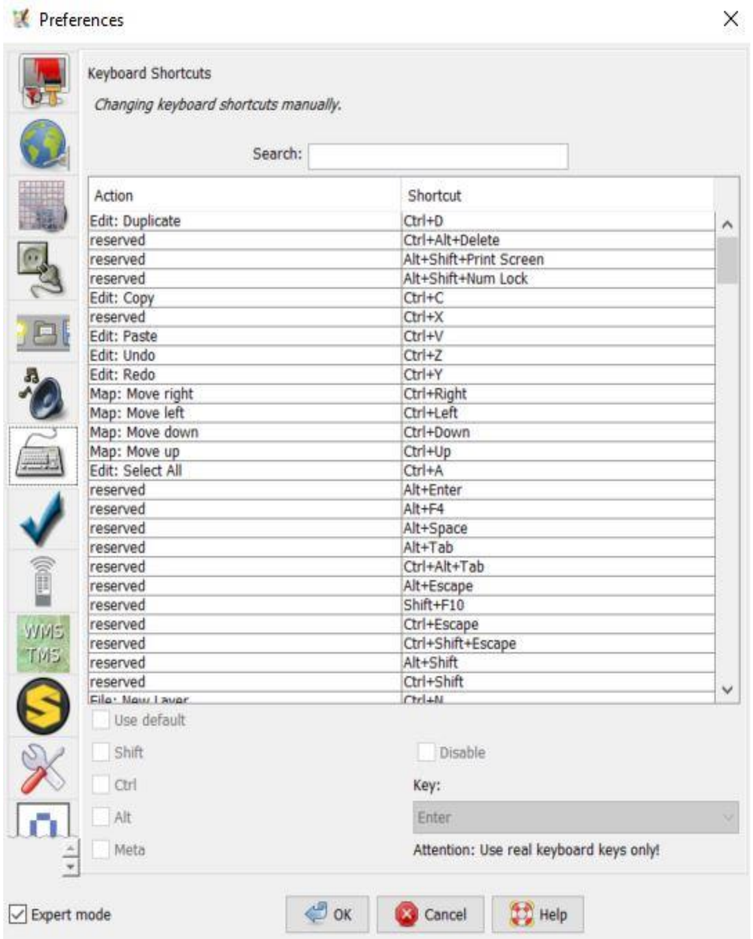
1. Navigate to `Edit>preferences>Map settings>Map Paint Styles`
2. Select styles in 'available styles'
3. Activate by clicking blue arrow button
4. Select "OK"

JOSM restart will be required

https://josm.openstreetmap.de/wiki/DevelopersGuide/DevelopingPlugins

JOSM Setup

Keyboard Shortcuts



- Keyboard shortcuts in JOSM are fully customizable and easy to adjust

- Most feature tags and editing tools can be assigned a shortcut
  - If the tag/tool does not exist as a shortcut by default, a custom preset must be created

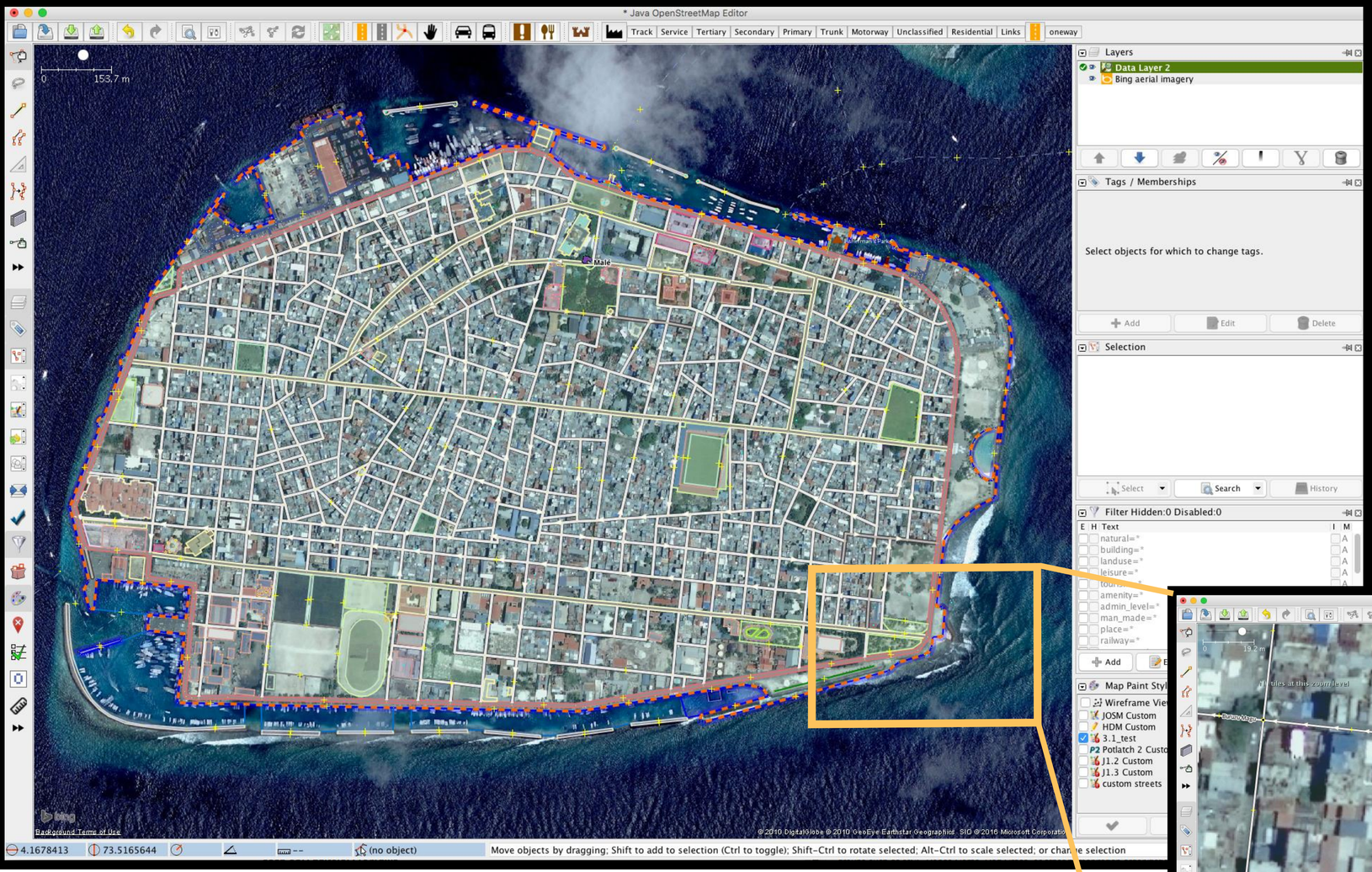
- To adjust keyboard shortcuts:
  - *Edit>Preferences>Keyboard Shortcuts* - Uncheck ‘Use Default’ and adjust key to your preference
  - Green Highlight indicates changed shortcut

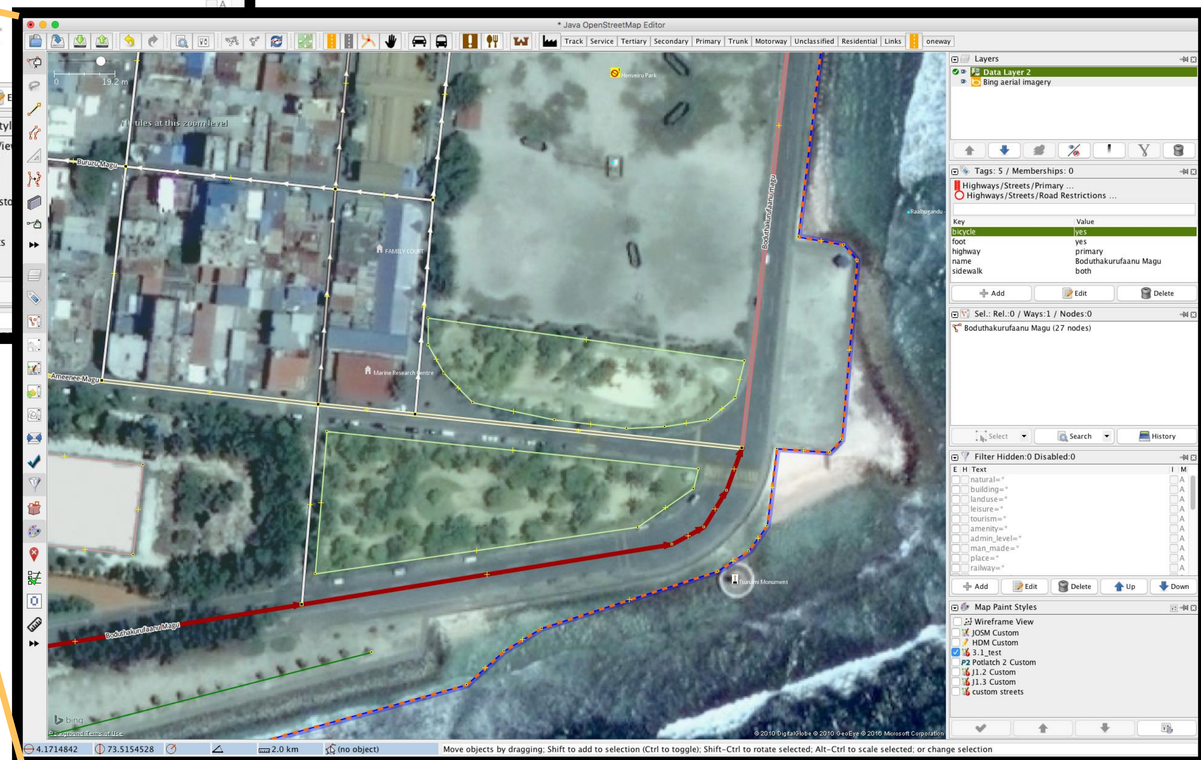
[List of default Keyboard shortcuts]

JOSM Basics

May 2018

JOSM UI





To add basemap: *Imagery>Bing Aerial Imagery*

Editing Basics

Imagery & Tile Layers

- Basemap
  - Digital Globe (New May 2018!)
    - Standard and Premium layers
  - Bing (1)
  - Map Box (2)

- Map Tiles
  - OSM Standard Layer (3)
  - Mapnik

Editing Basics

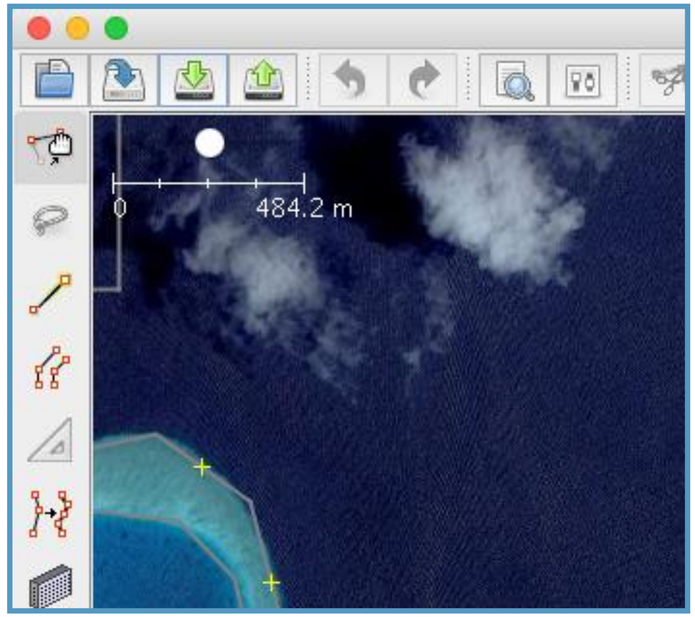
JOSM Editing

- To edit OSM data, a selection of the data must be downloaded into JOSM from the OSM servers

- Downloaded data can be edited and then uploaded back to the servers with the changes

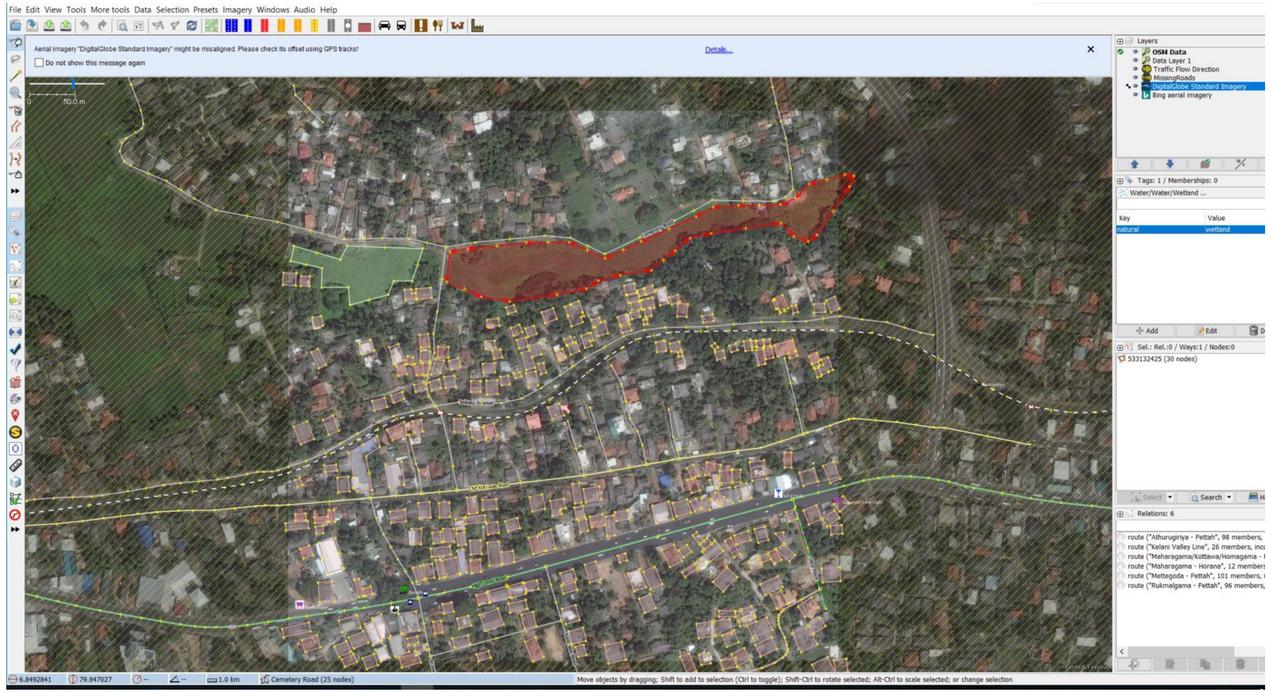
- To add new JOSM data, the area must be downloaded

- Data can be downloaded from two different servers
  - OSM
  - Overpass API



Editing Basics

Downloading Data



Downloading data:

- Select , choose download area via map view or slippy selection, then hit Download
- All Nodes, Ways and Relations within the selected area will download into one data layer

- If selected download area is too large, OSM server will throw an error
- Download from Overpass server when this occurs*

*Overpass is a read-only api, so we shouldn't be editing this layer unless absolutely necessary

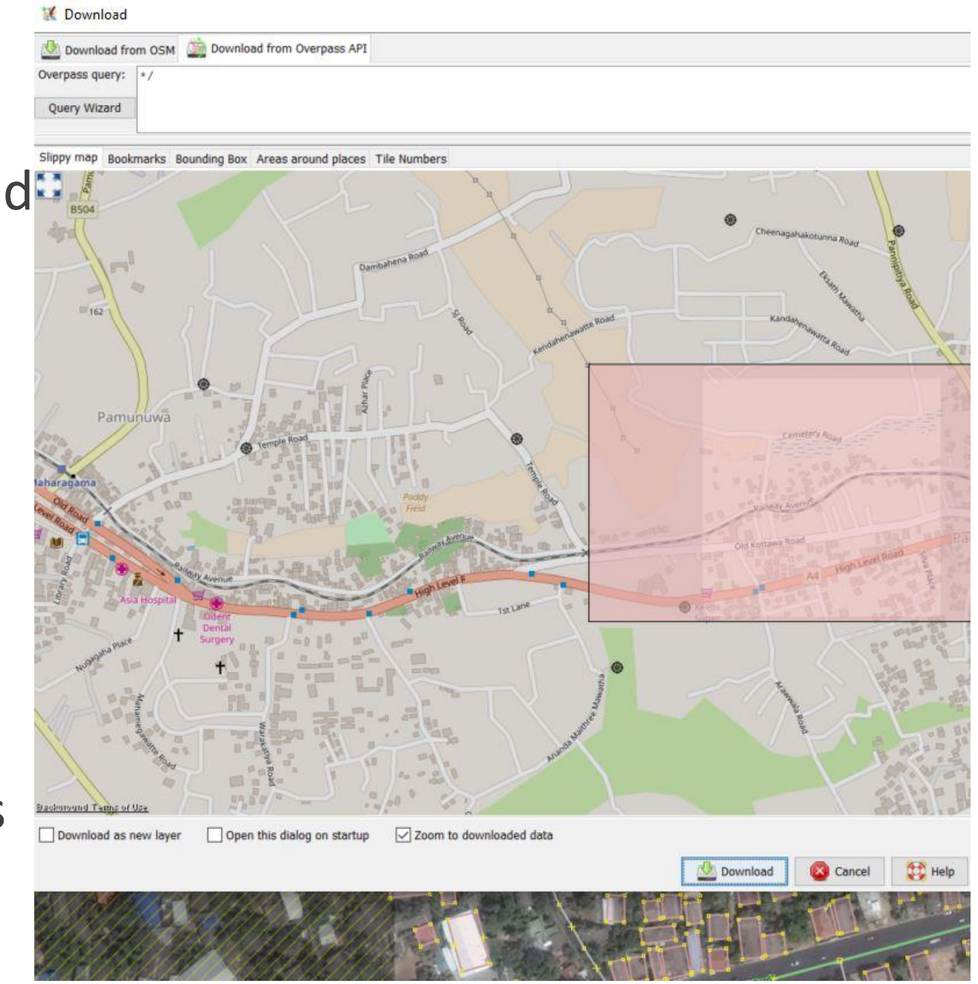
Editing Basics

Downloading from Overpass API

- Overpass API in JOSM allows for larger data downloads and data download queries
  - Data queries use Overpass Query Language (OverpassQL)
  - Information on OverpassQL is available here

- To access this server: *Hit download icon, and choose 'Download from Overpass API'*

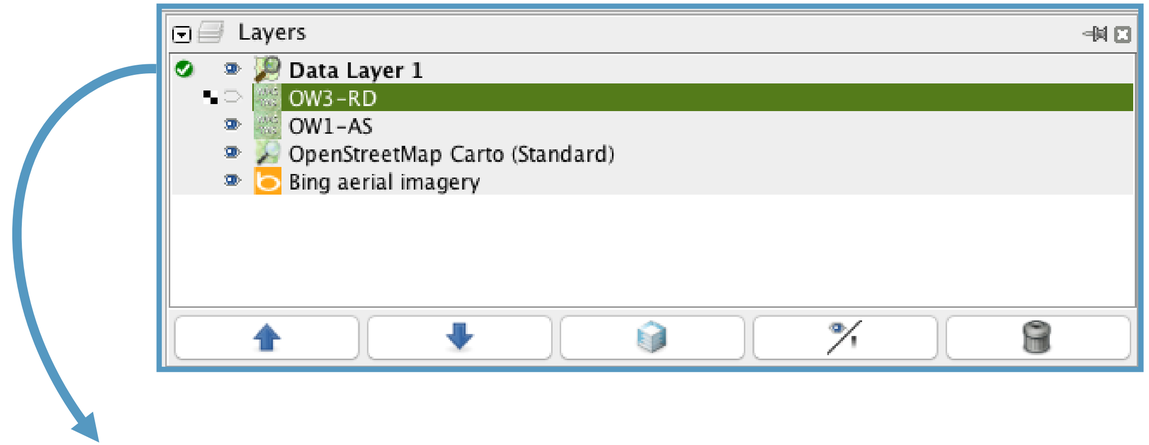
- Overpass provides an option to download certain features only, such as all highway=residential in the bounding box.



Editing Basics

Layer Window

- Shows which layers have been added to your JOSM session
- Order of Layers matters:
  - Top layer renders on top
  - Bottom layer renders on bottom
- Layer management tips:
  - Limit number total layers
  - Set keyboard shortcuts for toggling layers
  - Edit data layer names if you have multiple to keep track



- Active/editable layer

- Scale follows resolution of this layer

- Layer is visible

- Layer is not visible

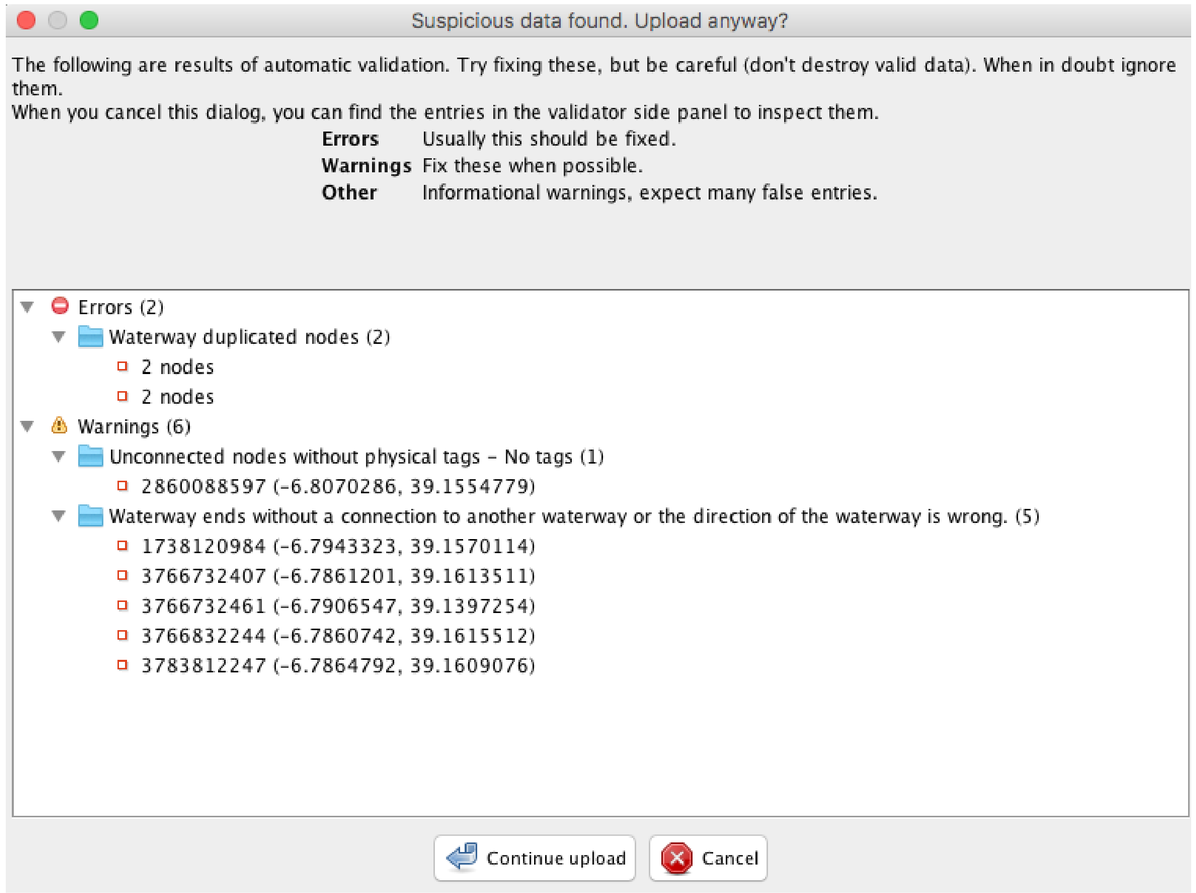
Layers

- Adding, Importing, editing layers

- To add a new imagery layer click on the imagery tab on top and select the imagery you want to use (You might want to check with the community what is the preferred imagery to align to in the area you are working for consistency)

JOSM Validator

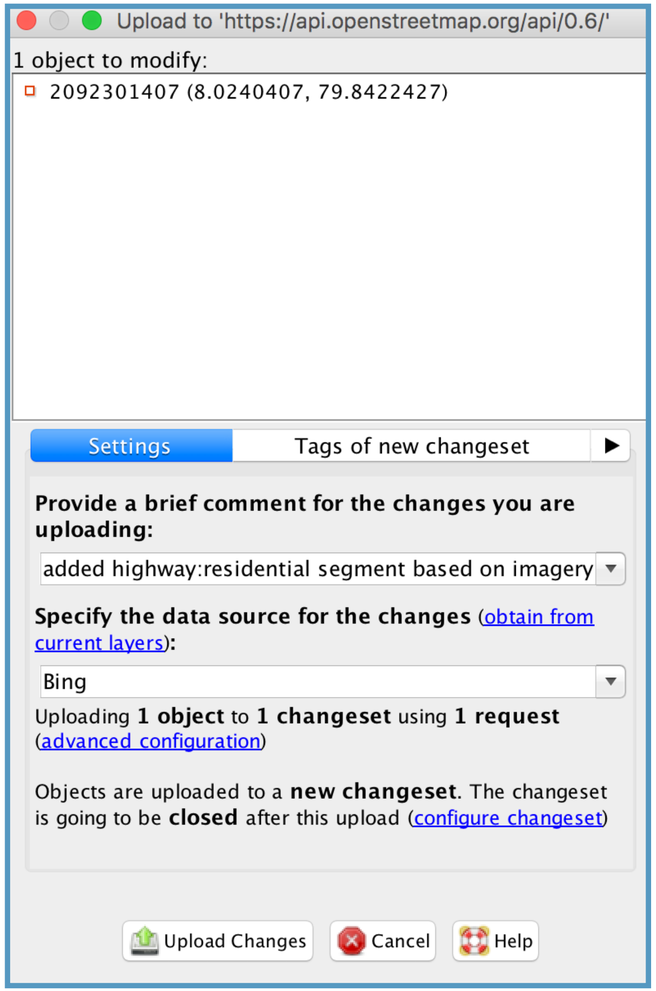
- JOSM Validator is a core feature that checks for invalid data
  - Automatically fixes some errors
  - Some errors must be manually fixed
- Checks are written and maintained by JOSM devs
- Types:
  - Error - Bad errors, always review
  - Warning - Some false positives but good to review
  - Other - Suggested fix or general information on an element type
- List of checks
- Source code
- Examples



Editing Basics

Uploading Data

- Uploading data back to the server saves changes to OSM
- Data changes will render on OSM front end within a few minutes
- To upload:
  - *File>Upload Data* or select the upload icon in the top left corner of JOSM ( )
- Add a detailed comment describing edits made



Data pipeline: User to live on OSM

Users engage → **Map editing** → **Validation** → **Upload to OSM** → **Published!**

Data Validation Tools
- Overpass-turbo
- Keep Right!
- OSM Inspector
- OSMose

Local knowledge
- New roads
- New housing developments
- Landuse
- New POI's

OSMcha
- Changeset notification tool
- 30,000 per day

Editing Basics

Tools

Tools

C = Combine Ways
G = Unglue Ways
J = Join Node to Way
K = House Number Editor
L = Align nodes into a straight line
M = Merge Nodes
O = Align nodes in a circle
P = Split Way
Q = Orthogonalize Shape

R = Reverse Way
Del = Delete object but don't change into delete mode
ESC = Unselect All
SHIFT+Arrow Key = Move Object in that direction
SHIFT+B = Distribute nodes
SHIFT+M = Mirror Nodes

SHIFT+O = Create Circle from way
SHIFT+Q = Orthogonalization for certain nodes
SHIFT + R = copy way tags from one way to another
CTRL+A = Select All
CTRL+C = Copy Way/Node to Clipboard

CTRL+D = Duplicate
CTRL+F = Search
CTRL+X = Cut Way/Node to Clipboard
CTRL+V = Paste from Clipboard
CTRL+SHIFT+V = Paste only the tags
Alt + A = Add Tag

Modes

B = Draw Building
E = Select adjacent nodes to selected node
I = Intersecting Ways
S = Select Objects
W = Edit Way
A = Draw connected nodes

- **A + hold ALT** = Starts a new way, rather than continuing an existing way
- **A + hold CTRL** = disable snapping to existing ways/nodes
- **A + hold SHIFT** = create nodes
- **A toggled by A** = enables angle-snapping mode

X = Stretch a part of a closed way

- **X toggled by X** = Dual Alignment (uses 2 reference segments and moves the nodes according to its own reference way)
- **X + hold CTRL while dragging a node** = will move node along one of it's adjacent segments
- **X + double click at way** = inserts a new node
- **X + hold ALT** = Create new way
- **X + hold CTRL** = move segment parallel to base segment
- **X + hold SHIFT** = Always create nodes

SHIFT + D = Create node where exact coordinates are
SHIFT + P = Duplicate way
CTRL + Del + hold ALT = Help/Action/Delete#Altmodifier
CTRL + Del + hold CTRL = Help/Action/Delete#Ctrlmodifier
CTRL + Del + hold SHIFT = Remove segments under cursor and split way in two
F3 = Search preset tags

All Modes

Click Right Mouse = Drag to move the map
Scroll Wheel = Zoom in and out
Command + SHIFT + 4 = Screenshot

Interface & Appearance

Tab = Toggle Dialogs
F11 = Fullscreen Mode
CTRL + J = Jump To Position
CTRL + SHIFT + F = Enable/Disable automatic centering of map view to last placed node
CTRL + W =Toggle between wireframe and mappaint mode
Alt + # = Toggle between map layers

Viewport

Z = Zoom in by dropping
+ = Zoom in
- = Zoom out
CTRL + , = Zoom in
CTRL + . = Zoom out
CTRL + Arrow Key = Move visible area in that direction
1 = Zoom to data
2 = Zoom to layer
3 = Zoom to selection
4 = Zoom to conflict
5 = Zoom to download
6 = Zoom to problem
8 = Zoom to previous
9 = Zoom to next
SHIFT + A = Cycle through different Auto Zoom modes

Workflow

F1 = Open main Help page
F1 = press over element in question to open context Help page
SHIFT + F1 = "About" screen (JOSM version number)
CTRL + E = Export to GPX
CTRL + N = New File
CTRL + O = Open File
CTRL + S = Save File
CTRL + SHIFT + S = Save As
CTRL + Q = Exit Applications
CTRL + Y = Redo
CTRL + Z = Undo
CTRL + SHIFT +^ = Download
CTRL + SHIFT +v = Upload
F12 = Preferences

Preset shortcuts sold separately.

Resources

JOSM Download Page

Java Download Page

OSM Default Keyboard Shortcuts

Overpass Turbo Wizard

Humanitarian Open Street Map Team

Getting started with JOSM

Mapbox intro tutorial to JOSM

OSM Bookmarks:

LearnOSM intro page: http://learnosm.org/en/beginner/introduction/)
OSM Wiki page (Map features) - https://wiki.openstreetmap.org/wiki/Map_Features
HOT Task Manager
Overpass API/Overpass API by Example - OpenStreetMap Wiki
Good practice - OpenStreetMap Wiki
Import/Guidelines - OpenStreetMap Wiki
Using Filters in JOSM – Points of interest
Map Features - OpenStreetMap Wiki
Useful Overpass queries | Mapbox
Tag:junction=roundabout - OpenStreetMap Wiki
Mapping turn lanes in OpenStreetMap – Points of interest
Road Features Mapping Guide | Mapbox
Adding turn restrictions | Mapbox
Mapping with JOSM | Mapbox
Aerial imagery - OpenStreetMap Wiki
Using Imagery - OpenStreetMap Wiki
The OpenStreetMap Contributors Map aka Who's around me? : Neis One!

Project set up/Tools

- Communications, groups, bookmarks, etc.

Apple Confidential–Internal Use Only

Editing tools:

Below are some tools we will get familiar with for some of our projects:

- ID Editor (http://learnosm.org/en/beginner/id-editor/)
- JOSM (http://wiki.openstreetmap.org/wiki/JOSM/Guide)
- OverPass API (http://wiki.openstreetmap.org/wiki/Overpass_turbo/Wizard)

In all cases, be sure to turn on Mapnotes in the tools to observe, and respond, to the community's comments:

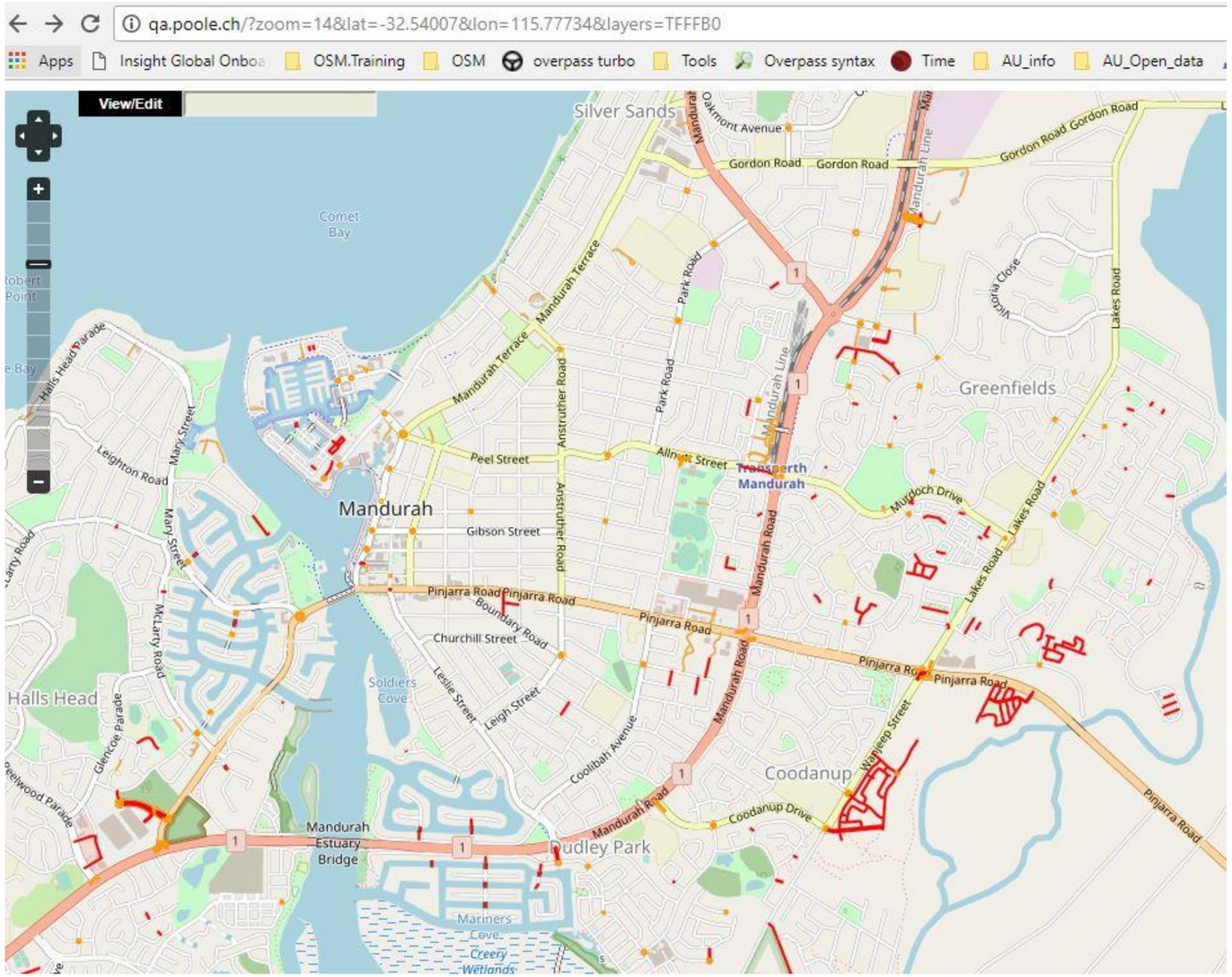
- Mapnotes in IdE (https://wiki.openstreetmap.org/wiki/Notes)
- With ALL edits include:
    1. Description of all edits made
    2. Source used to make edits.

Useful tools when working in OSM data

Qa.poole.ch (documentation)

- Tool to show streets with no names (respects noname=*), noaddress=*, and access=*.

- Pro's: good visualization of area.
- Con's: Need editing tool open to toggle back to for editing.



How do you contribute to Open Street Map?

- http://hdyc.neis-one.org/

- This tool allows you to view contributions to OSM by user name statistics.
- What kind of edits
- Where
- Activity
- Timeline
- Very useful to find power users in an area.

How do you contribute to Open street map?

How did you contribute to OpenStreetMap?

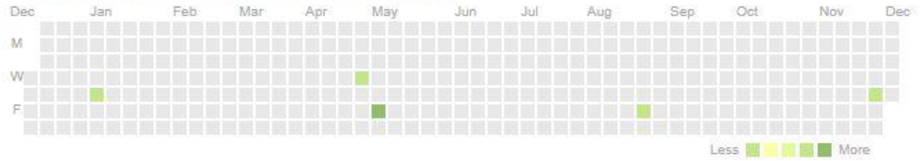
Alex-P Search

Name: Alex-P
Registered: June 01st, 2009
Active mapping days: 172 (5.5%)
Changesets: 446 (w/ comments 3)
Map changes: 46 313
GPS-tracks: 16

Type? Casual Mapper (Rarely Active)
Recent changesets: No activity
Recent ranks: "unknown" #433

OSM Notes: Closed w/ comment 0 (w/o 0), commented 0 and 0 opened
Changeset discussions: Participated in 0 and created 0 comments

5 mapping days with 6 changesets in the last year



	Created	Modified	Deleted
Nodes	39 269	2 957	1 091
Ways	2 007	911	74
Relations	0	8	0

Ways with addr*	16	28	
Building	617	18	
Highway	1 080	709	
Landuse	67	19	
Name	1 351	756	
Natural	146	67	
Waterway	69	24	

Changesets	**With comments**	**Unique comments**	**Median length**
446	324 (72.6%)	254 (57.0%)	20.00
Comment-words:	pois (52), #hotosm-ebola-sl-586 (43), #mapgive (43), leone (43), sierra (43...		
Hashtags:	#mapgive (43), #hotosm-ebola-sl-586, (43)		
Amount of map changes	<15 changes: 232 changesets	>15 <150 changes: 143 changesets	>150 changes: 71 changesets

Main & latest (6 months) activity area - First created & latest changeset