Testing OSM tools for data collection (part 2)

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Department of Computer Science,
Maynooth University,
Ireland


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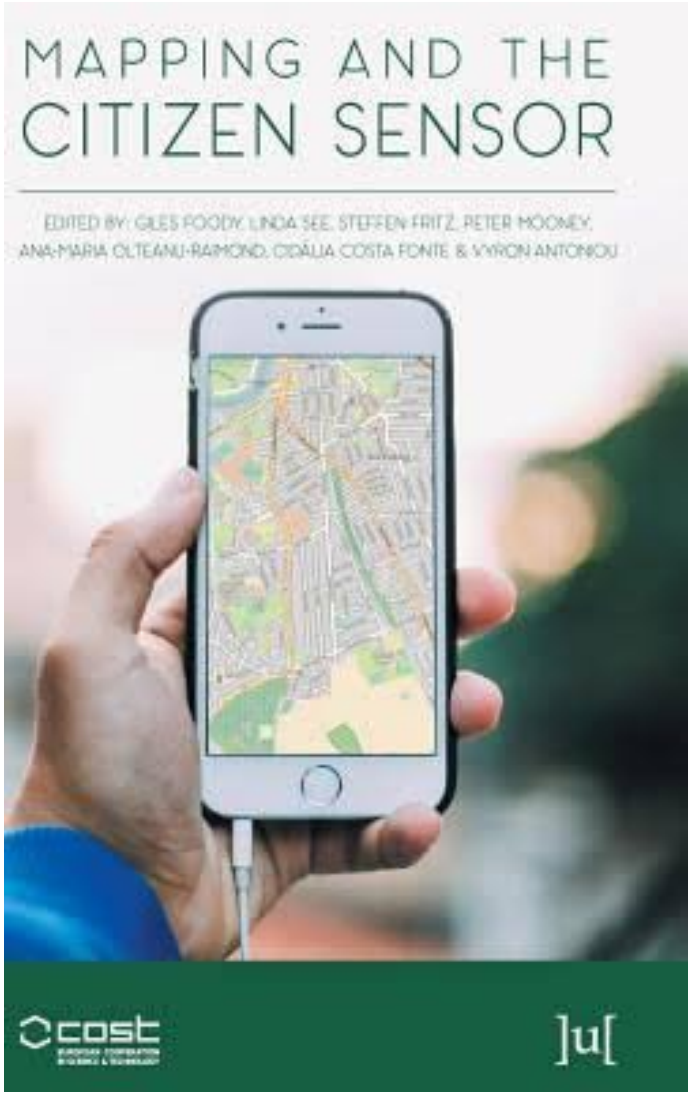
Limerick
Shannon Estuary
Waterford
Dingle Bay
St George's Channel
Cork

Who am I?

- Lecturer in Computer Science
- Maynooth University has ~12,000 students
- **Specialist Areas:** Geospatial Data: (Databases, Machine Learning, Pattern Analysis), Data Quality, User-Generated Content
- **Teaching/Learning:** Wide range of Comp Sci and GIS modules including: Spatial Analysis, Web-based Programming, Mobile Application Development.

OpenStreetMap connection

- Working with OpenStreetMap (OSM) since around 2007/2008
- Widely published in with research related to OSM.
- Organiser and leader of many OSM-focused Research Events and programmes.


MAPPING AND THE
CITIZEN SENSOR
EDITED BY: GILES FOODY, LINDA SEE, STEFFEN FRITZ, PETER MOONEY,
ANA-MARIA OLTEANU-RAIMOND, CIDÁLIA COSTA FONTE & VYRON ANTONIOU
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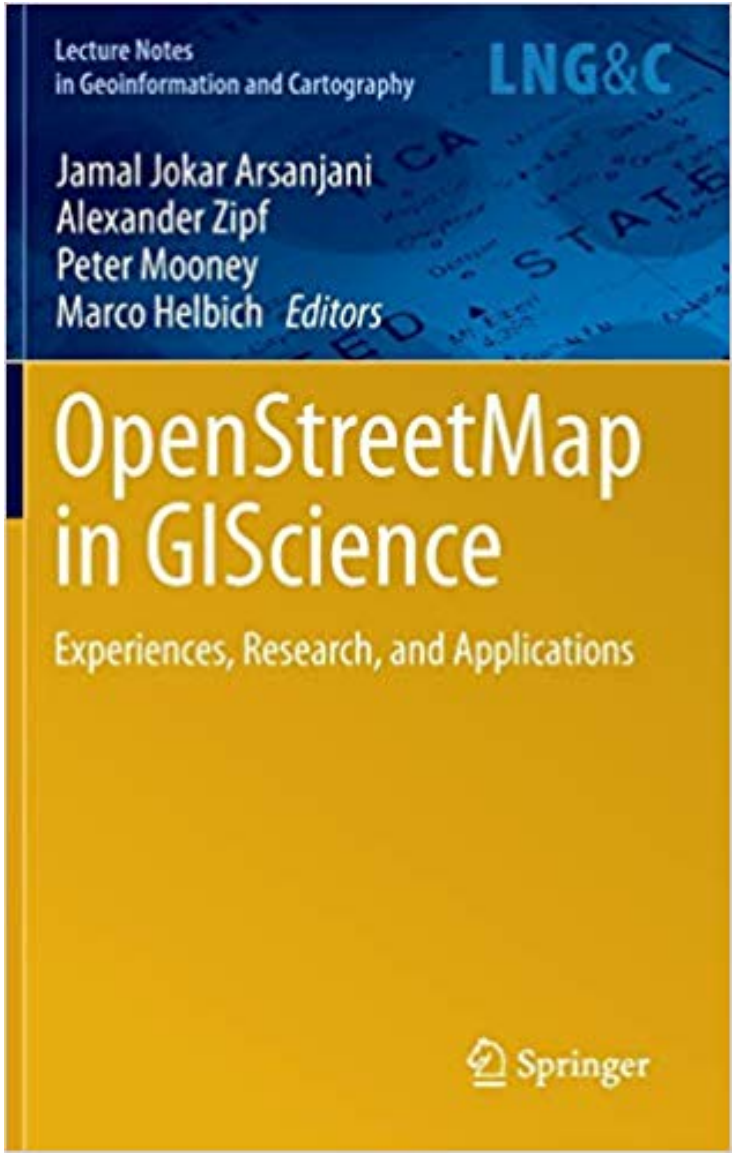
Lecture Notes
in Geoinformation and Cartography
LNG&C
Jamal Jokar Arsanjani
Alexander Zipf
Peter Mooney
Marco Helbich Editors
OpenStreetMap
in GIScience
Experiences, Research, and Applications
Springer

SoTM Academic Tracks

So what is TAGGING?

Metadata: Food Labelling

Each grilled burger (94g) contains

Energy	Fat	Saturates	Sugars	Salt
924kJ 220 kcal	13g	5.9g	0.8g	0.7g
11%	19%	30%	<1%	12%

of an adult's reference intake

Typical values (as sold) per 100g: Energy 966kJ / 230kcal

nutrition

Servings per can - 2

Typical values	Per 100g	Per ½ can	%RI*
Energy	282kJ 67kcal	584kJ 139kcal	7%
Fat	0.2g	0.4g	1%
– of which saturates	Trace	Trace	<1%
Carbohydrate	9.9g	20.5g	8%
– of which sugars	2.3g	4.7g	5%
Fibre	3.7g	7.6g	
Protein	4.5g	9.4g	19%
Salt	0.4g	0.9g	15%

*RI per serving. Reference intake of an average adult (8400 kJ/2000 kcal)

Metadata: It is very important that the same ‘schema’ is used for objects in the same class. Otherwise comparison of objects is difficult

Nutrition Facts
Valeur nutritive
Per 355 mL / par 355 mL

Amount / Teneur	% Daily Value / % valeur quotidienne
Calories / Calories 150	
Fat / Lipides 0 g	0 %
Sodium / Sodium 15 mg	1 %
Carbohydrate / Glucides 41 g	14 %
Sugars / Sucres 41 g	
Protein / Protéines 0 g	

Not a significant source of saturated fat, trans fat, cholesterol, fibre, vitamin A, vitamin C, calcium or iron.

Source négligeable de lipides saturés, lipides trans, cholestérol, fibres, vitamine A, vitamine C, calcium et fer.

CAFFEINE CONTENT: 38 mg/355 mL
TENEUR EN CAFÉINE : 38 mg/355 mL

Nutrition Facts
Valeur nutritive
Per 1 can (222 mL)
pour 1 canette (222 mL)

Amount / Teneur	% Daily Value / % valeur quotidienne
Calories / Calories 90	
Fat / Lipides 0 g	0 %
Sodium / Sodium 15 mg	1 %
Carbohydrate / Glucides 24 g	8 %
Sugars / Sucres 24 g	
Protein / Protéines 0 g	

Not a significant source of saturated fat, trans fat, cholesterol, fibre, vitamin A, vitamin C, calcium or iron.

Source négligeable de lipides saturés, lipides trans, cholestérol, fibres, vitamine A, vitamine C, calcium et fer.

Tractive GPS Tracker for dogs and cats with Activity Monitoring - Lightweight and waterproof dog tracking device

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by Tractive

4.4 ★★★★☆ 18 customer reviews | 10 answered questions

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Note: This item is eligible for **click and collect.** Details

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Quantity: 1

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Tractive Localizzatore GPS per cani. Il dispositivo leggero e impermeabile per ogni collare

di Tractive

4.4 ★★★★☆ 550 recensioni clienti | 217 domande con risposta

il #1 più venduto in Localizzatori per animali

Prezzo consigliato: ~~89,90 €~~

Prezzo: 44,99 € **Spedizione GRATUITA.** Maggiori informazioni

Risparmi: 44,91 € (50%)

Tutti i prezzi includono l'IVA.

Nuovi: 14 venditori da 29,99 € Usati: 1 venditori da 28,15 €

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Nota: Questo articolo può essere consegnato in un **punto di ritiro.** Dettagli

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Quantità: 1

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Acquista ora

Venduto e spedito da Amazon.

Confezione regalo disponibile.

Without consistent and high quality metadata book catalogues would be very difficult to search and use

Erstellen Von 3D-Stadtmodellen Aus Openstreetmap-Daten

Paperback | German
By (author) Weiter Jonas

Share

Die Erstellung von 3D-Stadtmodellen ist fur verschiedenste Anwendungszwecke von Noten. Auch die Entwicklung von Fahrerassistenzsystemen profitiert von Stadtmodellen im Rahmen von Tests und Evaluation der Assistenzsysteme in Fahrsimulationen, da in den Simulatoren mit Hilfe der Stadtmodelle beliebige Verkehrssituationen dargestellt werden konnen. Zur Erstellung sind jedoch zahlreiche Datenpakete notwendig, um ein 3D-Stadtmodell inklusive Strassenlogik, Stadtmobiliar (Beleuchtung, Beschilderung usw.), Vegetation und Gelandemodell zu generieren. Eine Vielzahl dieser Daten sind teuer in der Erhebung, durch Lizenzen beschrankt oder mussen erst vorprozessiert werden. Mittels OpenStreetMap (OSM) ist es moglich auf einige Daten zuzugreifen. Es wird versucht, basierend auf diesen OSM-Daten, ein 3D-Gebaudemodell zu erstellen."

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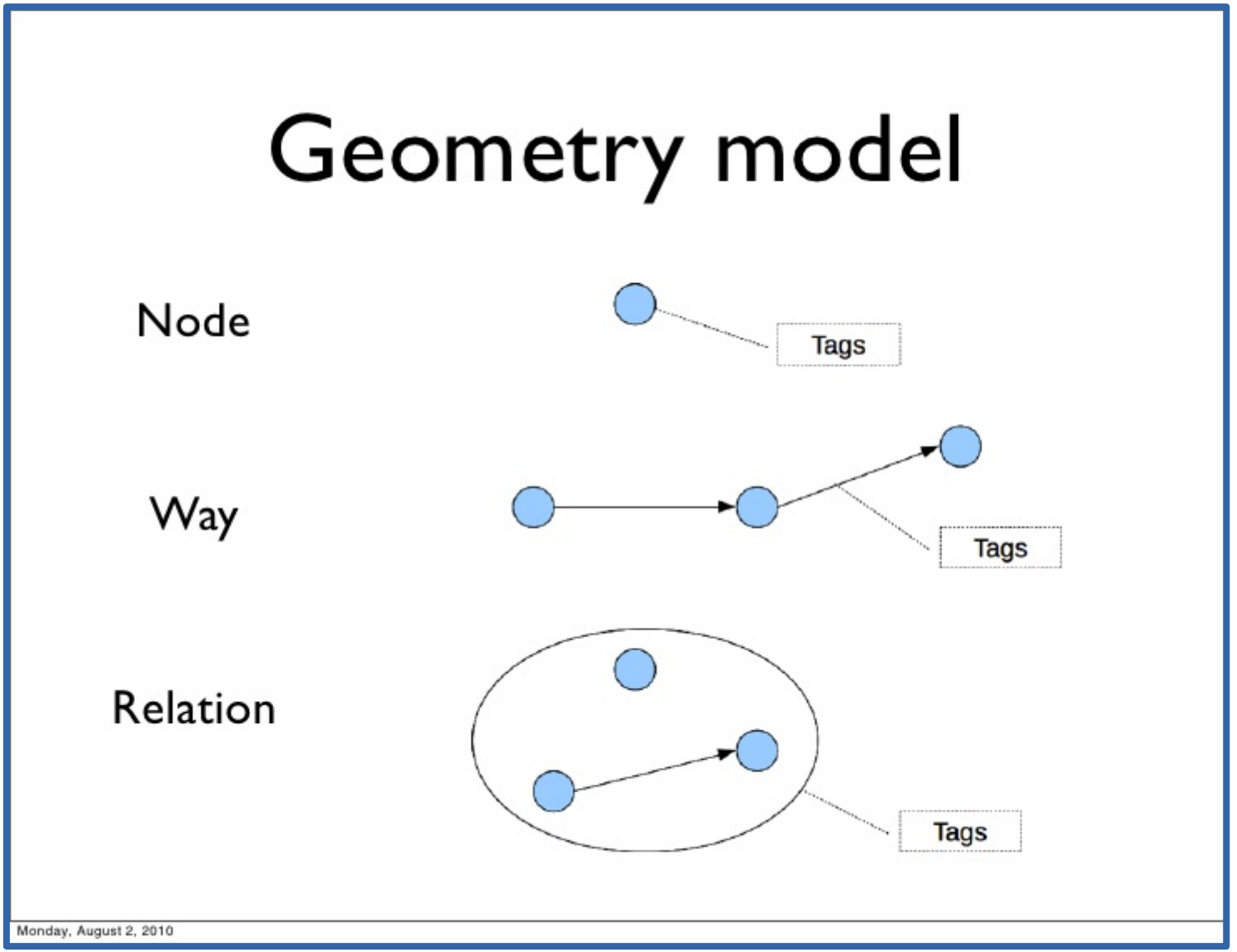
Product details

Format: Paperback | 68 pages
Dimensions: 152 x 229 x 4mm | 113g
Publication date: 18 Apr 2015
Publisher: AV Akademikerverlag
Publication City/Country: United States

Language: German
Illustrations note: black & white illustrations
ISBN10: 3639841166
ISBN13: 9783639841169

The TAG in OpenStreetMap

The OpenStreetMap data model



A node can have ZERO tags

WAYS and RELATIONS must have AT LEAST ONE tag

The OSM TAG

{key => value} - a pair

{“name” => “Joe’s Cafe”}

{“capacity” => 46}

{“WiFi” => “Yes”}

The OSM Map Features Page is a very important authoritative source

English Create account Log in

Page Discussion Read View source View history Search OpenStreetMap Wiki

Map Features

Available languages — *Map Features* purge · Help

• asturianu • azərbaycanca • Bahasa Indonesia • bosanski • català • čeština • dansk • Deutsch • eesti • **English** • español • Esperanto • français • hrvatski • íslenska • italiano • latviešu • lietuvių • magyar • Nederlands • norsk • polski • português • română • shqip • slovenčina • slovenščina • suomi • svenska • Tiếng Việt • Türkçe • српски / srpski • български • македонски • русский • українська • Ελληνικά • ქართული • नेपाली • தமிழ் • မြန်မာဘာသာ • 한국어 • 日本語 • 中文（简体） • 中文（繁體） • עברית • العربية • فارسی

Other languages — Help us translate this wiki

OpenStreetMap represents physical features on the ground (e.g., roads or buildings) using tags attached to its basic data structures (its nodes, ways, and relations). Each tag describes a geographic attribute of the feature being shown by that specific node, way or relation.

OpenStreetMap's free tagging system allows the map to include an unlimited number of attributes describing each feature. The community agrees on certain key and value combinations for the most commonly used tags, which act as informal standards. However, users can create new tags to improve the style of the map or to support analyses that rely on previously unmapped attributes of the features. Short descriptions of tags that relate to particular topics or interests can be found using the feature pages.

Most features can be described using only a small number of tags, such as a path with a classification tag such as `highway=footway`, and perhaps also a name using `name=*`. But, since this is a worldwide, inclusive map, there can be many different feature types in OpenStreetMap, almost all of them described by tags.

For details of more tags and proposed changes to existing tags see Proposed Features, Inactive Features and Deprecated features. If you do not find a suitable tag in this list then feel free to make something suitable up as long as the tag values will be verifiable. Over time, you may find that the tag name is changed to fit with some wider consensus. However, many good tags were used first and documented later.

Contents [hide]

1 Primary features
- 1.1 Aerialway
- 1.2 Aeroway
- 1.3 Amenity
  - 1.3.1 Sustenance
  - 1.3.2 Education

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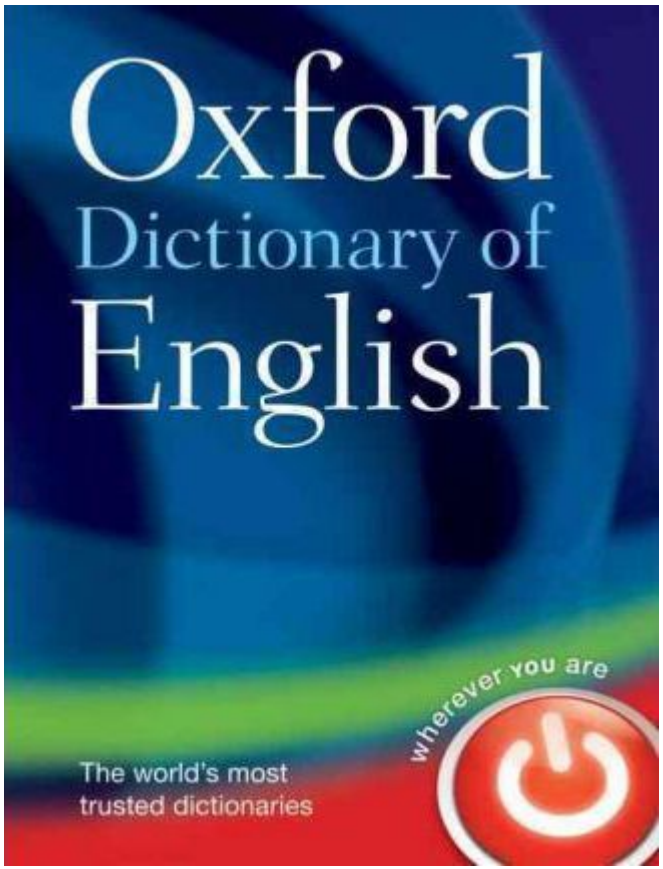
Map Features
Contributors
Help
Blogs
Shop
Donations
Recent changes

Tools

What links here
Related changes
Special pages
Printable version
Permanent link
Page information
Cite this page



Example: A hospital in Lisbon

Relation: Hospital Santa Marta (6551427)

a adicionar tags do wikidata em Lisboa

Edited 8 months ago by pizzaiolo
Version #3 · Changeset #63506320

Tags

addr:city	Lisboa
addr:housenumber	50-50 I
addr:postcode	1169-024
addr:street	Rua de Santa Marta
amenity	hospital
contact:email	administracao@hsmarta.min-saude.pt
contact:phone	+351 213 594 000
contact:website	www.hsmarta.min-saude.pt
name	Hospital Santa Marta
owner	Centro Hospitalar Lisboa Central
ownership	national
type	multipolygon
wikidata	Q10298546

Example: Hospitals represented as relations in Coimbra

Relation: 3370067

adicionado edificio e acessos do hospital militar

Edited over 5 years ago by Rui Oliveira
Version #1 · Changeset #19367720

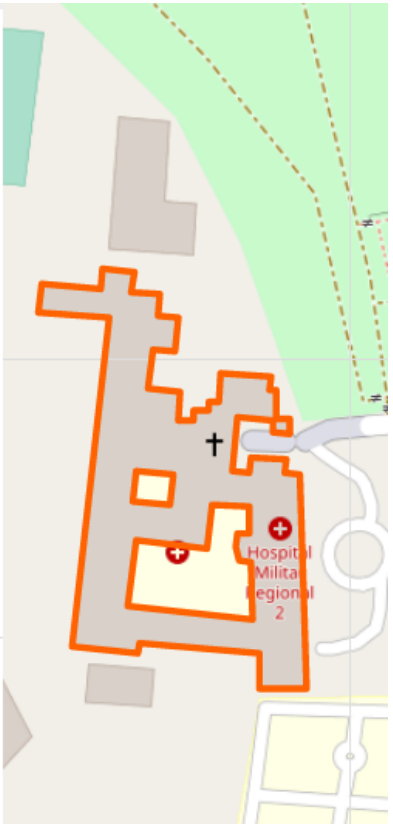
Tags

building	yes
type	multipolygon

Members

- Way 251081129 as outer
- Way 251081130 as inner
- Way 251081131 as inner

Download XML · View History



Relation: Centro Hospitalar e Universitário de Coimbra (4861848)

added short names and english names, various universidade de coimbra units

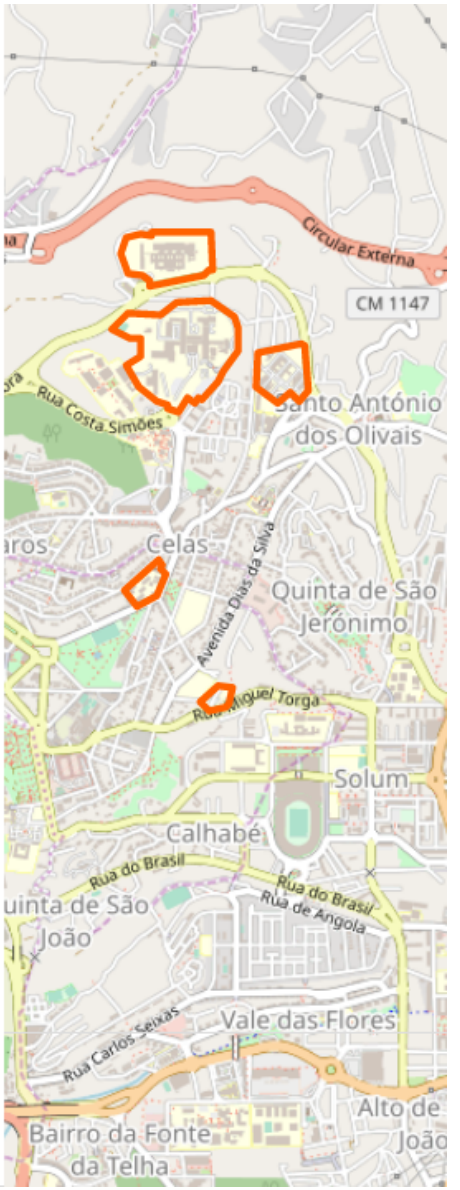
Edited about 4 years ago by Josef K
Version #2 · Changeset #30765098

Tags

name	Centro Hospitalar e Universitário de Coimbra
short_name	CHUC
type	site

Members

- Way Hospitais da Universidade de Coimbra - Bloco Central (169536209)
- Way Hospitais da Universidade de Coimbra - Blocos de Celas (279668688)
- Way Maternidade Doutor Daniel de Matos (342652619)
- Way Hospital dos Covões (141331099)
- Way Hospital dos Covões - Consultas Externas (141331271)
- Way Hospital Pediátrico de Coimbra (112547859)
- Way Hospital Psiquiátrico Sobral Cid (285542835)
- Way Maternidade Bissaya Barreto (112545594)



Tagging

- Strive for consistency between objects of the same class (ie hospitals, schools, bridges, motorways)
- Use the same tagging schema
- The {key->value} pairs use values from code-lists or other sources.
- Keys are used from a specific schema.

TagInfo

https://taginfo.openstreetmap.org

taginfo

KEYS · TAGS · RELATIONS · PROJECTS · REPORTS · ABOUT

KEYS

building • highway • name • source • amenity • addr:street • shop • addr:housenumber • surface • ...

See all keys...

TAGS

building=yes • highway=residential • building=house • highway=service • ...

See most common tags...

RELATION TYPES

multipolygon • restriction • route • boundary • associatedStreet • public_transport • site • destination_sign • ...

See all relation types...

SOME POPULAR KEYS

→ **OpenStreetMap** · Data © OSM contributors (ODbL)

TagInfo: Most popular KEYS

taginfo

English

KEYS · TAGS · RELATIONS · PROJECTS · REPORTS · ABOUT

KEYS

This table shows all tag keys that exist in the database or in any of the other sources.

Page 1 of 5782 JSON Displaying 1 to 13 of 75159 items

Key	Objects		Nodes		Ways	
building	346 736 753	5.93%	909 744	0.63%	345 190 950	59.03%
source	196 131 071	3.35%	45 401 625	31.63%	149 691 254	25.60%
highway	148 501 370	2.54%	11 179 783	7.79%	137 283 992	23.48%
addr:housenumber	90 503 044	1.55%	47 810 215	33.30%	42 569 616	7.28%
addr:street	83 742 139	1.43%	42 280 085	29.45%	41 332 956	7.07%
name	69 094 460	1.18%	17 892 564	12.46%	49 057 751	8.39%
addr:city	65 360 527	1.12%	33 444 015	23.30%	31 811 322	5.44%
addr:postcode	59 855 747	1.02%	31 653 159	22.05%	28 065 857	4.80%
natural	36 254 526	0.62%	13 256 732	9.23%	21 611 626	3.70%
addr:country	27 257 358	0.47%	11 990 087	8.35%	15 171 555	2.59%
surface	26 044 817	0.45%	78 163	0.05%	25 935 483	4.44%
landuse	25 356 055	0.43%	148 699	0.10%	24 049 218	4.11%
source:date	25 339 185	0.43%	10 584 486	7.37%	14 641 847	2.50%

TagInfo: Most popular TAGS

taginfo

English

KEYS · TAGS · RELATIONS · PROJECTS · REPORTS · ABOUT

TAGS

This table shows the most common tags in the database.

Page 1 of 194 JSON Displaying 1 to 13 of 2517 items

Tag	Objects		Nodes		Ways	
building=yes	284 319 161	4.86%	353 186	0.25%	283 523 204	48.49%
highway=residential	45 968 668	0.79%	3 138	0.00%	45 964 064	7.86%
building=house	31 863 567	0.54%	280 191	0.20%	31 537 201	5.39%
highway=service	24 926 402	0.43%	422	0.00%	24 922 758	4.26%
source=BAG	19 350 481	0.33%	9 122 786	6.35%	10 217 606	1.75%
highway=track	16 560 298	0.28%	910	0.00%	16 559 132	2.83%
source=Bing	13 782 117	0.24%	1 981 163	1.38%	11 774 477	2.01%
highway=unclassified	12 248 196	0.21%	687	0.00%	12 247 278	2.09%
natural=tree	12 075 932	0.21%	12 073 901	8.41%	1 964	0.00%
wall=no	11 967 965	0.20%	210	0.00%	11 961 131	2.05%
source=cadastre-dgi-fr␣source␣:␣Direction␣Générale	11 818 629	0.20%	290 165	0.20%	11 525 908	1.97%
waterway=stream	11 681 908	0.20%	6 258	0.00%	11 656 091	1.99%
power=tower	11 656 005	0.20%	11 655 690	8.12%	315	0.00%

taginfo

KEYS · TAGS · RELATIONS · PROJECTS · REPORTS · ABOUT

highway

The highway tag is the primary tag used for any kind of st

Overview | Values | Combinations | Similar | M

Values used with this key

Page 1 of 60 JSON 1..12/71

Value	Count	
residential	45 968 668	30.96%
service	24 926 402	16.79%
track	16 560 298	11.15%
unclassified	12 248 196	8.25%
footway	10 323 822	6.95%
path	7 475 424	5.03%
tertiary	5 627 224	3.79%
secondary	3 644 396	2.45%
crossing	3 235 024	2.18%
primary	2 469 509	1.66%
bus_stop	2 385 745	1.61%
turning_circle	1 757 201	1.18%

KEYS

highway

The highway tag is the primary tag used for any kind of street or way.

Filter: No filter

Overview | Values | Combinations | Similar | Map | Wiki | Projects

Distribution of

residential
service
track
unclassified
footway
path
tertiary
secondary
crossing
(other)

Overview

Type	Number of objects	
All	148 501 370	2.54%
Node	11 179 783	7.79%
Way	137 283 992	23.48%
Relation	37 595	0.55%

PT, June 2019

TagInfo: Example tag `natural=tree`

taginfo

English

Data from: 201

KEYS · TAGS · RELATIONS · PROJECTS · REPORTS · ABOUT

natural=tree

A single tree

Comparison list (0 items)

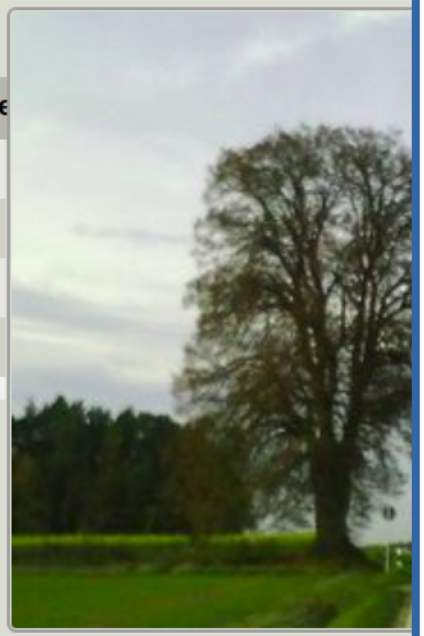
Filter:

XAPI JOSM Level

Overview | Combinations | Map | Wiki | Projects

Overview

Type	Number of obje	
All	12 075 932	0.21%
Node	12 073 901	8.41%
Way	1 964	0.00%
Relation	67	0.00%



natural=tree

A single tree

Comparison list (0 items)

XAPI JOSM

Overview | Combinations | Map | Wiki | Projects

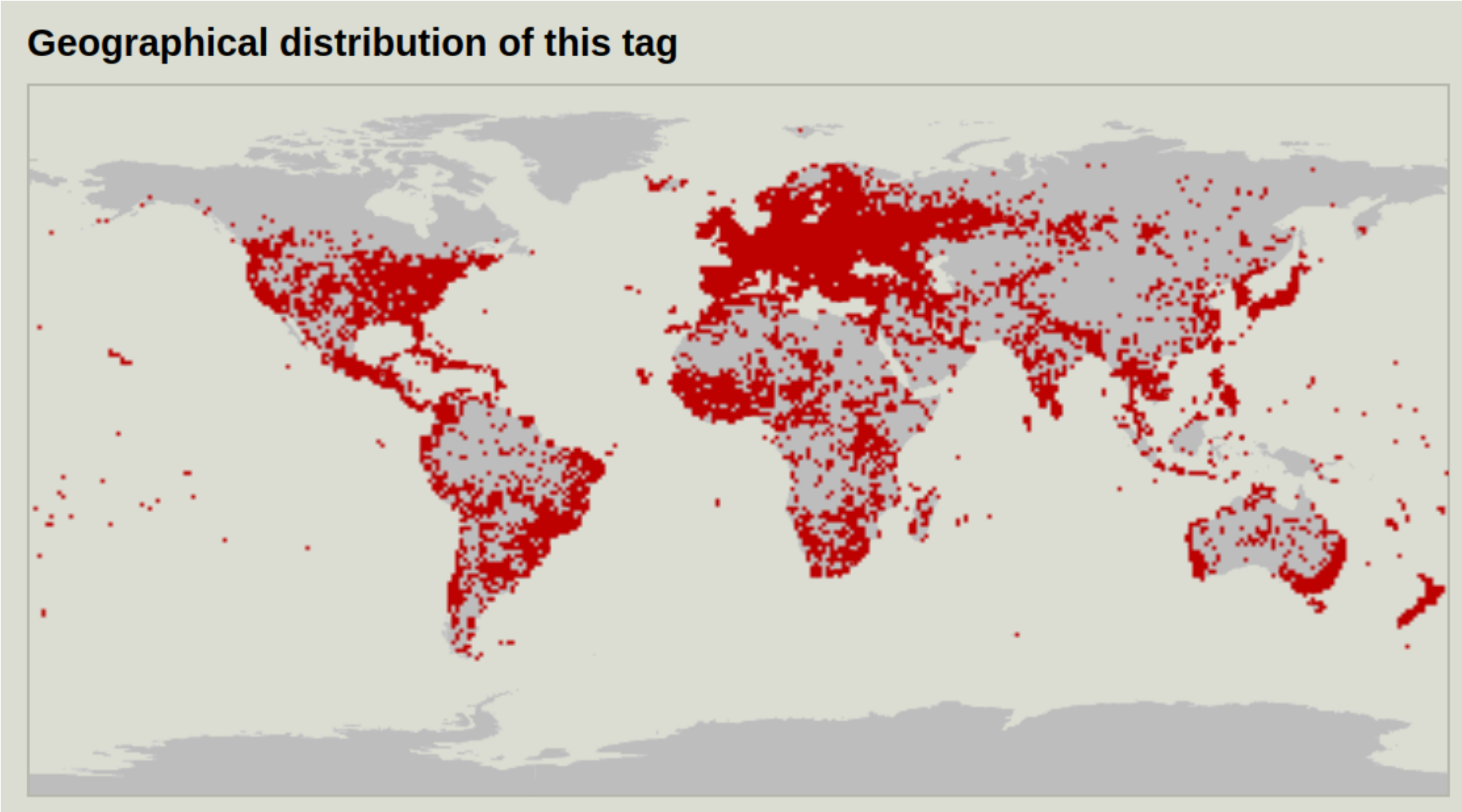
Combinations

This table shows only the most common combinations of the

Page 1 of 29 JSON Displaying 1 to

Count →		Other tags
2 228 589	18.45%	source=*
1 803 429	14.93%	leaf_type=*
1 643 120	13.61%	leaf_type=broadleaved
998 097	8.27%	species=*
992 654	8.22%	leaf_cycle=*
865 868	7.17%	denotation=*
814 116	6.74%	leaf_cycle=deciduous
583 524	4.83%	denotation=urban
575 351	4.76%	height=*
492 715	4.08%	circumference=*
481 887	3.99%	genus=*

TagInfo: Example tag `natural=tree`



What can we learn from TagInfo?

- We can learn A LOT about Tagging in OSM from TagInfo if we are willing to dig into the data
- **TagInfo gives a global summary of the usage of tags in the OpenStreetMap database.**
- TagInfo can be very useful in guiding us about what the most popular or well used combinations of tags are.

Example: Suppose you are mapping a defribillator device

- Are you unsure of which tags you should use?
- **You can consult Map Features AND TagInfo for some guidance and assistance**

emergency=defibrillator

Defibrillator, an external and portable electronic device that diagnoses heart automatically (aka Automated External Defibrillator, AED)

Comparison list (0

Overview | Combinations | Map | Wiki | Projects

Combinations

This table shows only the most common combinations of the most c

Page 1 of 2 JSON Displaying 1 to 11 of 20 it

Count →		Other tags
5 985	29.99%	indoor=*
4 054	20.31%	indoor=yes
3 846	19.27%	source=*
3 243	16.25%	opening_hours=*
3 026	15.16%	name=*
2 572	12.89%	operator=*
2 537	12.71%	access=*
1 863	9.34%	addr:city=*
1 838	9.21%	opening_hours=24/7
1 728	8.66%	addr:street=*

Status

This feature was previously tagged as `emergency=aed` or `medical=aed` but a new poll showed that the plain word is preferred to its abbreviation; see Proposed features/automated external defibrillator.

Tags to use in combination

- `opening_hours=*`, if the defibrillator is only accessible during certain opening hours.
- `phone=*`, number of the location responsible for the device.
- `defibrillator=manual`, if the device is not automated (e.g., in hospitals emergencies).
- `defibrillator:location=*`, a textual description where the device is located (e.g., "in the porter's lounge"). Formerly *aed:location*; if you are a data user, please recognize both.
- `access=*`, if the access to the device is restricted.
- `indoor=*`, if the defibrillator is mounted on a wall, clarify with this tag whether it is the external or internal side of the wall.

Rendering

Rendered on:

- OSM-FR tiles (Example: http://tile.openstreetmap.fr/?zoom=17&lat=44.12069&lon=4.83901&layers=B000000FFFF)
- Tappenbeck tiles (Example: http://www.tappenbeck.net/osm/maps/deu/index.php?id=1029&zoom=7&lat=40.18827&lon=-3.9201&layers=BFTTT&lang=de)

MAP FEATURES

automatically (aka Automated External Defibrillator, AED)

Group: Restrictions

Used on these elements

Useful combination

- `access=*`
- `opening_hours=*`
- `phone=*`

TagInfo

emergency=defibrillator

Defibrillator, an external and portable electronic device that diagnoses heart automatically (aka Automated External Defibrillator, AED)

Comparison list (0

Overview | Combinations | Map | Wiki | Projects

Combinations

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Page 1 of 2 JSON Displaying 1 to 11 of 20 it

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2 537	12.71%	access=*
1 863	9.34%	addr:city=*
1 838	9.21%	opening_hours=24/7
1 728	8.66%	addr:street=*

TagInfo: Stats and data can be downloaded as SQLite Databases

taginfo

English

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DOWNLOAD

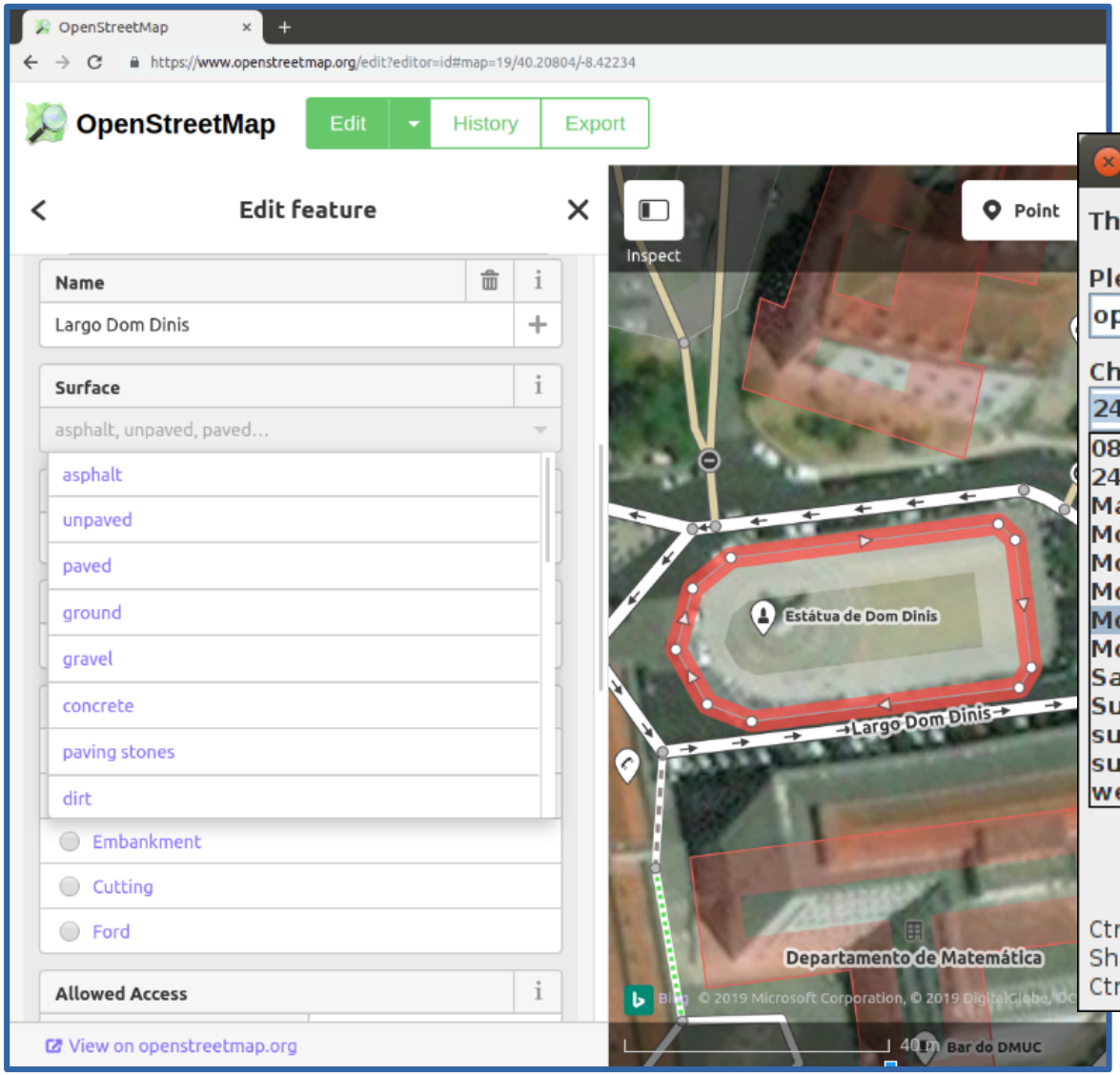
Here you can download the databases used by taginfo. All the data is stored in → Sqlite databases. The database files with → bzip2.

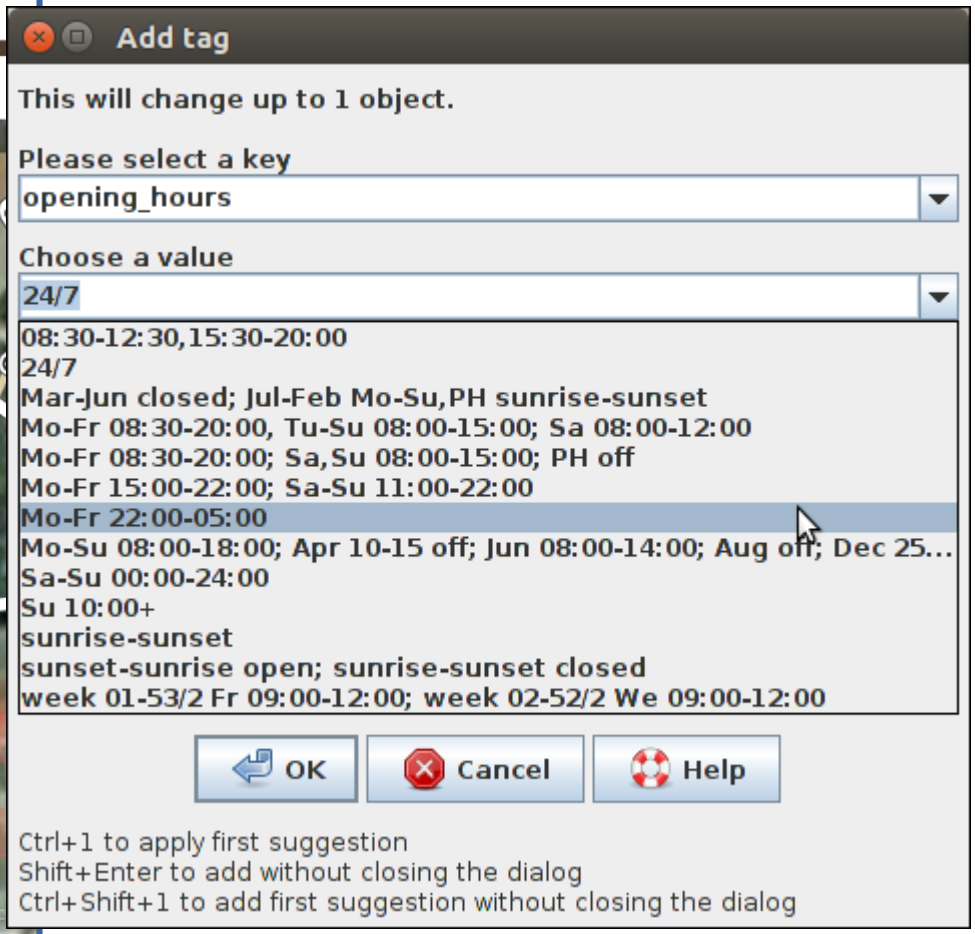
If you don't want to download these databases, but need automated access to the data, you can also use the API.

File	Packed*	Unpacked*	Description
taginfo-master.db.bz2	383 kB	880 kB	Aggregate statistics and miscellaneous data needed for the taginfo user interface.
taginfo-history.db.bz2	1 MB	7 MB	Aggregate statistics over time.
taginfo-db.db.bz2	1233 MB	16073 MB	Statistics about each key and each tag from the main OSM database (planet file).
taginfo-wiki.db.bz2	11 MB	55 MB	Data from the tag and key pages of the OSM wiki.
taginfo-languages.db.bz2	131 kB	456 kB	Language names, codes, etc. from IANA and Unicode registries.
taginfo-projects.db.bz2	3 MB	92 MB	External projects and the OSM keys/tags they use.

* Some indexes are not in the databases available for download here. The 'Packed' size is the size without those indexes, the 'Unpacked' size includes the indexes you probably want to build after downloading.

Tagging Presets in OSM Editors





https://wiki.openstreetmap.org/wiki/Key:opening_hours

[*sequence of items*] means that the *sequence of items* is optional;

| indicates that one of the sequences of items (separated by this symbol) must be chosen;

https://wiki.openstreetmap.org/wiki/Key:opening_hours

General syntax

`opening_hours=` *rulesets* [`;` *rulesets*]...

Each *ruleset* is evaluated in order, the next *ruleset* possibly overriding the initial open or closed

rulesets: *rule* [`||` *rule*]...

Each *rule* is evaluated in order until it matches for the indicated dates or times, otherwise the ne

rule: *range* [*status*] [*comment*]

range: [*years*] *dates* [*times*] | *times* | `24/7`

Syntax for specifying optional years

years: *year_range* [`,` *year_range*]...

year_range: *year* [`-` *year* | `+`] [`/` *n*]

An optional period of *n* years may be specified for years to include within the specified

year: A 4-digit year number in the Gregorian calendar.

Syntax for specifying dates (with optional times)

dates: *monthly* | *weekly* | *daily* | *variably* | *holidays*

monthly: *monthdays* [*weekdays*]

weekly: [`week` *week_range* [`,` *week_range*]...] *weekday_range* [`,` *weekday_*

daily: *months* [*monthdays* [`,` *monthdays*]...]

variably: *variable_date* [`-` *variable_date*]

months: *Mth* [`-` *Mth*]

monthdays: *dd* [`-` *dd*]

week_range: *ww* [`-` *ww* | `+`] [`/` *n*]

An optional period of *n* weeks may be specified for weeks to include within the specifie

weekdays: *weekday_range* [`,` *weekday_range*]... | *Wd* [*n* [`,` *n*]...]

Week days may be followed by rank numbers, counted positively from the start of the n

e.g. `Mo-Fr 08:00-09:00`, or `Mo[1,3] 08:00-09:00`;

e.g. `Su[1]` means the first Sunday of the month, and `Su[-1]` means the last Sunda

weekday_range: *Wd* [`-` *Wd*]

ww: A 2-digit week number (in ISO year) in range 01-53, e.g. `week 25 Mo 08:30-20:0`

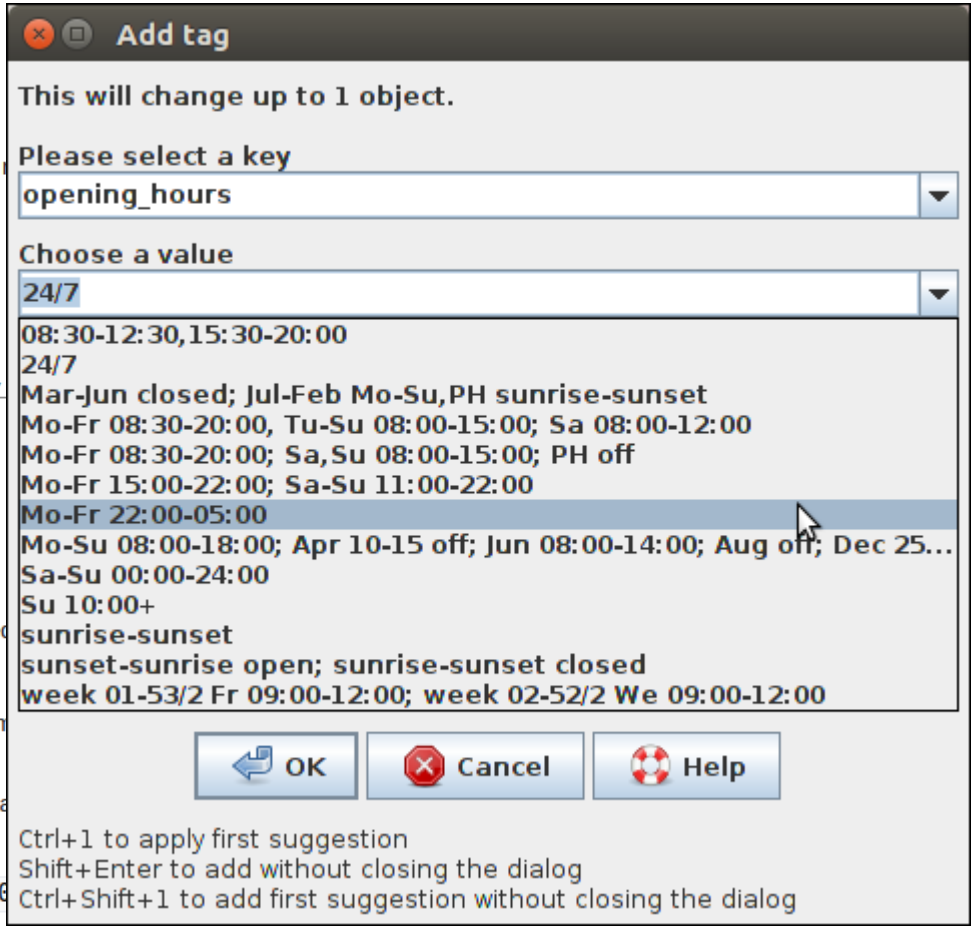
dd: A 2-digit monthday number in range 01-31, e.g. `Dec 25`

Mth: `Jan` | `Feb` | `Mar` | `Apr` | `May` | `Jun` | `Jul` | `Aug` | `Sep` | `Oct` | `Nov` | `Dec`

A 3-letter abbreviated English month name, e.g. `Dec 25`

Wd: `Mo` | `Tu` | `We` | `Th` | `Fr` | `Sa` | `Su`

A 2-letter abbreviated English weekday name, e.g. `Fr 08:30-20:00`



OSM Mailing List Tag Discussions

- The OSM Mailing Lists can sometimes be a very useful platform for learning about the correct usage of tags.
- It is possible to post questions about tagging, in particular if you want to find out the best or most appropriate way to tag an object (or group of objects)
- However, mailing list discussions can become rather heated and drawn out.

Is it `landuse=forest` or `natural=wood`?

https://wiki.openstreetmap.org/wiki/Forest

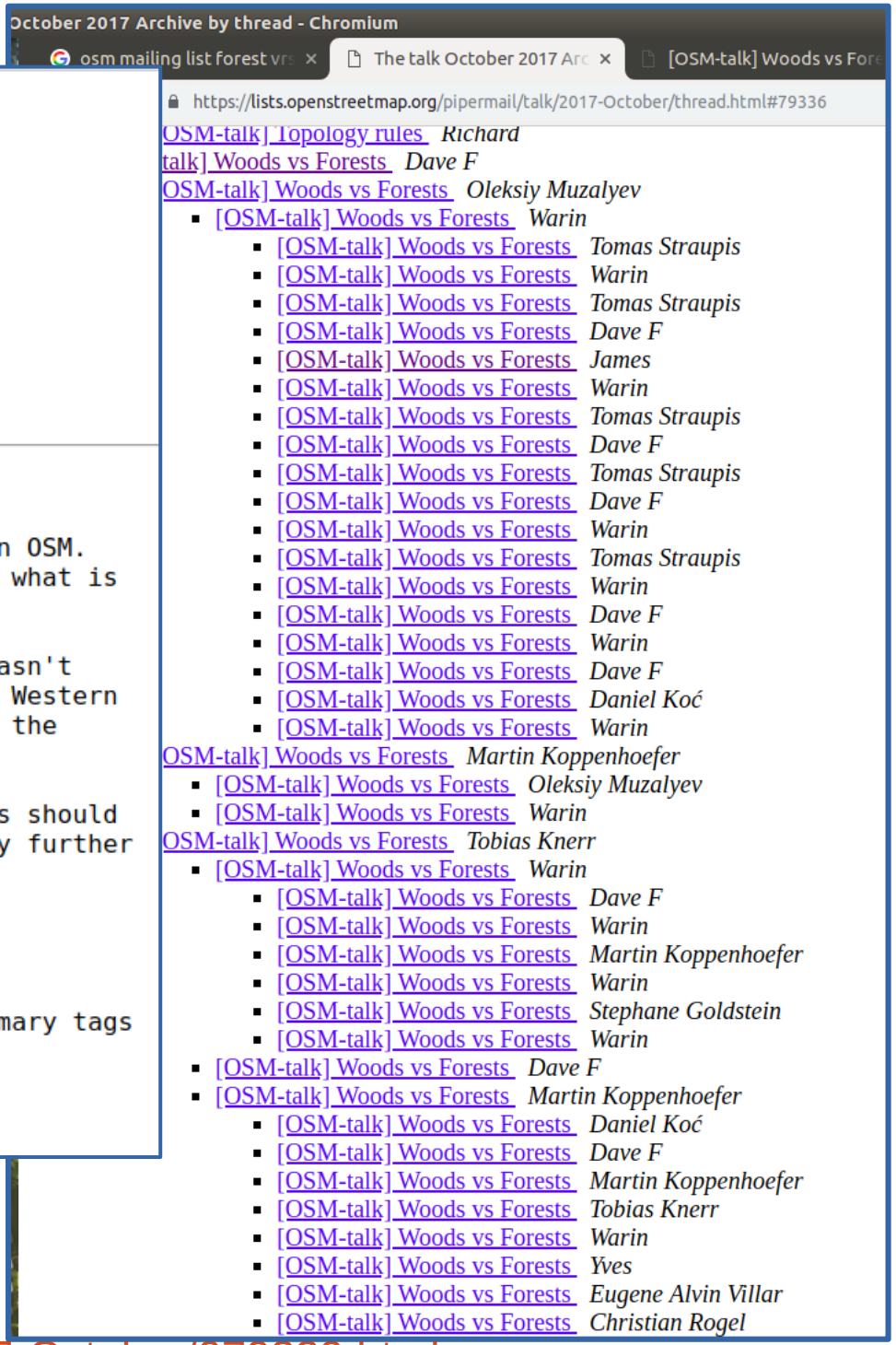
nearly all data consumers treat both `natural=wood` and `landuse=forest` as synonymous tags for a forested area.

[OSM-talk] Woods vs Forests

Dave F davefoxfac63 at btinternet.com
Thu Oct 26 22:49:35 UTC 2017

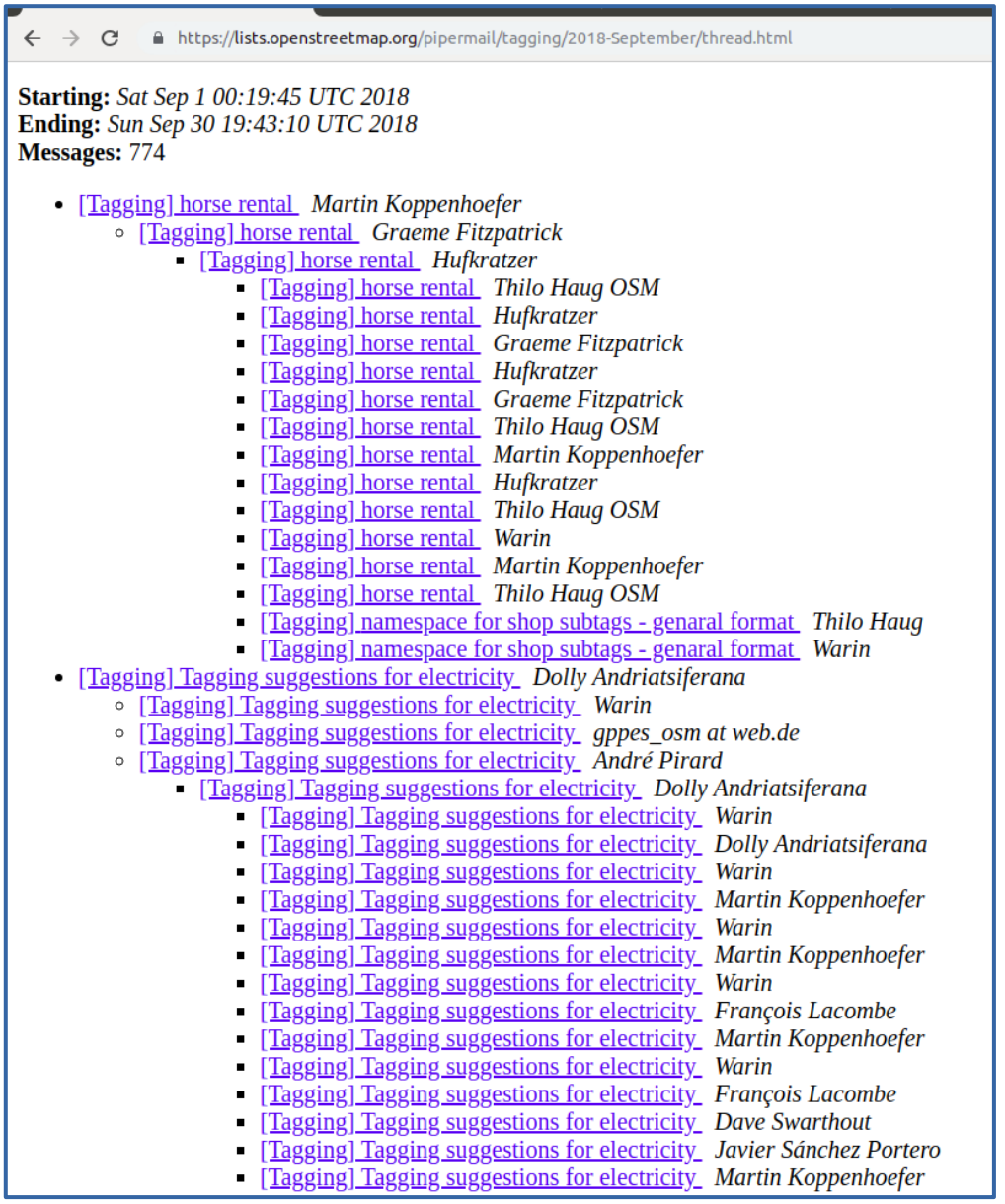
- Previous message: [OSM-talk] Topology rules
- Next message: [OSM-talk] Woods vs Forests
- **Messages sorted by:** [date] [thread] [subject] [author]

```
(Split to a separate thread)

The woods/forest problem is one of the worst tagging cock-ups in OSM.
It's bad enough when alternate values are used to differentiate what is
actually the same object, but in this case it's also the key!

I think you'd be hard pressed to find any area of trees which hasn't
been managed in one way or another by humans; especially in the Western
world. Even in the depths of the Amazonian rainforest or Borneo the
locals use wood for tools/fire/building etc.

Ignoring the landcover argument for a moment, all areas of trees should
be primarily tagged as natural=wood. As with other entities, any further
details which gives clarity should be provided in sub-tags.

Approach 2 is the appropriate example:
https://wiki.openstreetmap.org/wiki/Forest,

The four render options on the website render wood & forest primary tags
the same

DaveF
```



https://lists.openstreetmap.org/pipermail/talk/2017-October/079329.html

It can be very useful to read these Tagging discussions to better understand contributor's rationale in using certain tags



https://lists.openstreetmap.org/pipermail/tagging/2018-September/thread.html

Starting: *Sat Sep 1 00:19:45 UTC 2018*
Ending: *Sun Sep 30 19:43:10 UTC 2018*
Messages: 774

- [Tagging] horse rental *Martin Koppenhoefer*
  - [Tagging] horse rental *Graeme Fitzpatrick*
    - [Tagging] horse rental *Hufkratzer*
      - [Tagging] horse rental *Thilo Haug OSM*
      - [Tagging] horse rental *Hufkratzer*
      - [Tagging] horse rental *Graeme Fitzpatrick*
      - [Tagging] horse rental *Hufkratzer*
      - [Tagging] horse rental *Graeme Fitzpatrick*
      - [Tagging] horse rental *Thilo Haug OSM*
      - [Tagging] horse rental *Martin Koppenhoefer*
      - [Tagging] horse rental *Hufkratzer*
      - [Tagging] horse rental *Thilo Haug OSM*
      - [Tagging] horse rental *Warin*
      - [Tagging] horse rental *Martin Koppenhoefer*
      - [Tagging] horse rental *Thilo Haug OSM*
      - [Tagging] namespace for shop subtags - genaral format *Thilo Haug*
      - [Tagging] namespace for shop subtags - genaral format *Warin*
- [Tagging] Tagging suggestions for electricity *Dolly Andriatsiferana*
  - [Tagging] Tagging suggestions for electricity *Warin*
  - [Tagging] Tagging suggestions for electricity *gppes_osm at web.de*
  - [Tagging] Tagging suggestions for electricity *André Pirard*
    - [Tagging] Tagging suggestions for electricity *Dolly Andriatsiferana*
      - [Tagging] Tagging suggestions for electricity *Warin*
      - [Tagging] Tagging suggestions for electricity *Dolly Andriatsiferana*
      - [Tagging] Tagging suggestions for electricity *Warin*
      - [Tagging] Tagging suggestions for electricity *Martin Koppenhoefer*
      - [Tagging] Tagging suggestions for electricity *Warin*
      - [Tagging] Tagging suggestions for electricity *Martin Koppenhoefer*
      - [Tagging] Tagging suggestions for electricity *Warin*
      - [Tagging] Tagging suggestions for electricity *François Lacombe*
      - [Tagging] Tagging suggestions for electricity *Martin Koppenhoefer*
      - [Tagging] Tagging suggestions for electricity *Warin*
      - [Tagging] Tagging suggestions for electricity *François Lacombe*
      - [Tagging] Tagging suggestions for electricity *Dave Swarthout*
      - [Tagging] Tagging suggestions for electricity *Javier Sánchez Portero*
      - [Tagging] Tagging suggestions for electricity *Martin Koppenhoefer*

Tagging: Sometimes there are multiple approaches suggested

https://wiki.openstreetmap.org/wiki/Forest

Approach 1

- `natural=wood` is used to mark areas covered by trees.
- `landuse=forest` is used to mark areas of land managed for forestry.

Approach 2

- `natural=wood` + `managed=yes` - managed wood
- `natural=wood` + `managed=no` - wood without management of any kind
- `operator=*` - optional

Note that visiting location is not enough, checking whatever land is managed for forestry requires more extensive r
tagging distinction between managed and unmanaged forest.

Tag `managed=*` is very rarely used (less than 6500 instances in database [1])

Approach 3

- `landuse=forest` is used for maintained or managed woodland. This approach views most woodland as mana
- `natural=wood` is used for ancient or virgin woodland, with no forestry use.

Approach 4

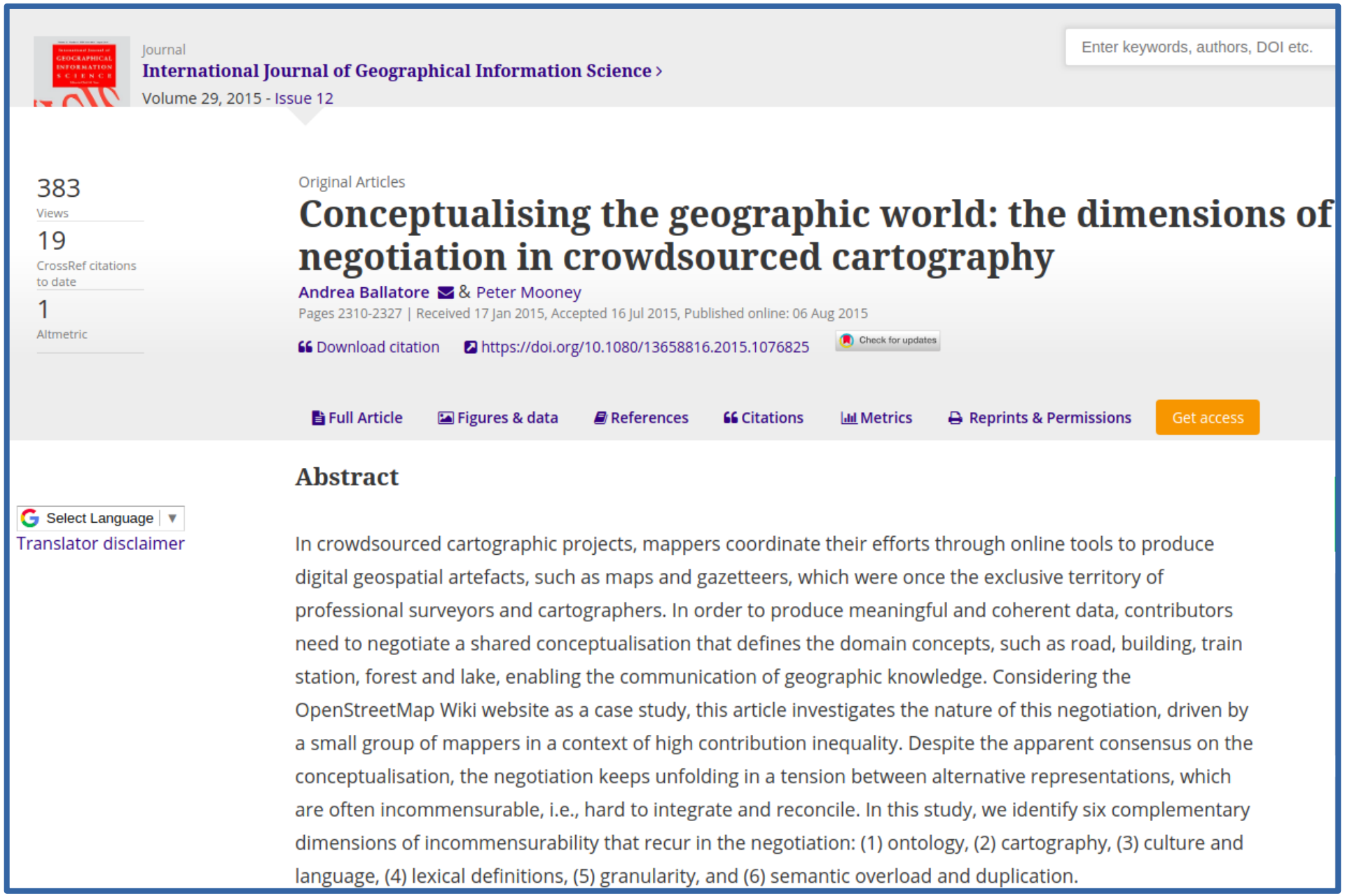
- `wood=yes` is used to mark the presence of trees. Use of `wood=*` is deprecated for indicating vegetation types
  in database [2]).
- `natural=wood` is used to mark areas of unmanaged forest. It implies `wood=yes`
- `landuse=forest` is used to mark areas of managed forest. It implies `wood=yes`

Approach 5

- `landcover=trees` is used to mark the presence of trees. It does not imply the use nor origin of the trees. Not
  [3]) compared to overall use of `natural=wood` and `landuse=forest` tags.

Approach 6

- `natural=wood` is used to mark areas covered by trees
- `landuse=forest` is used to mark areas covered by trees



Journal
International Journal of Geographical Information Science ›
Volume 29, 2015 - Issue 12

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Original Articles

Conceptualising the geographic world: the dimensions of negotiation in crowdsourced cartography

Andrea Ballatore & Peter Mooney

Pages 2310-2327 | Received 17 Jan 2015, Accepted 16 Jul 2015, Published online: 06 Aug 2015

Download citation https://doi.org/10.1080/13658816.2015.1076825 Check for updates

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Abstract

In crowdsourced cartographic projects, mappers coordinate their efforts through online tools to produce digital geospatial artefacts, such as maps and gazetteers, which were once the exclusive territory of professional surveyors and cartographers. In order to produce meaningful and coherent data, contributors need to negotiate a shared conceptualisation that defines the domain concepts, such as road, building, train station, forest and lake, enabling the communication of geographic knowledge. Considering the OpenStreetMap Wiki website as a case study, this article investigates the nature of this negotiation, driven by a small group of mappers in a context of high contribution inequality. Despite the apparent consensus on the conceptualisation, the negotiation keeps unfolding in a tension between alternative representations, which are often incommensurable, i.e., hard to integrate and reconcile. In this study, we identify six complementary dimensions of incommensurability that recur in the negotiation: (1) ontology, (2) cartography, (3) culture and language, (4) lexical definitions, (5) granularity, and (6) semantic overload and duplication.

Select Language ▼
Translator disclaimer

https://www.tandfonline.com/doi/abs/10.1080/13658816.2015.1076825

In some cases OSM tagging can be drawn or modelled on existing nomenclature from other domains

- This approach means that tags are (converted, borrowed or transformed) from an external nomenclature(s) to OSM (or vice versa)
- One of the most famous examples of this the IMPORT of CORINE geographical data into OSM
- CORINE has a metadata schema or nomenclature for LANDCOVER in Europe

https://wiki.openstreetmap.org/wiki/FR:Corine_Land_Cover/Nomenclature

CORINE Import (France)

https://wiki.openstreetmap.org/wiki/FR:Corine_Land_Cover/Nomenclature

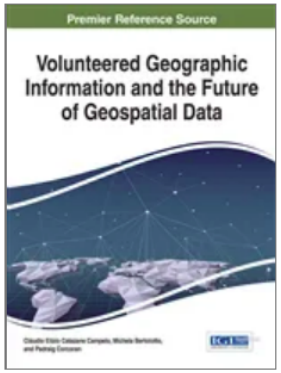
	13		**Mines, décharges et chantiers**	
	131	*(1 684)*	Extraction de matériaux	• `landuse=quarry`
	132	*(146)*	Décharges	• `landuse=landfill`
	133	*(185)*	Chantiers	• `landuse=construction`
	14		**Espaces verts artificialisés, non agricoles**	
	141	*(428)*	Espaces verts urbains	
	142	*(2 155)*	Équipements sportifs et de loisirs	
	2		**Territoires agricoles**	
	21		**Terres arables**	
	211	*(26 425)*	Terres arables hors périmètres d'irrigation *Céréales, légumineuses de plein champ, cultures fourragères, plantes sarclées et jachères. Y compris les cultures florales, forestières (pépinières) et légumières (maraîchage) de plein champ, sous serre et sous plastique, ainsi que les plantes médicinales, aromatiques et condimentaires. Non compris les prairies.*	• `landuse=farmland`
	212	*(5)*	Périmètres irrigués en permanence *Cultures irriguées en permanence ou périodiquement, grâce à une infrastructure permanente (canal d'irrigation). Une grande partie de ces cultures ne pourrait pas être cultivée sans l'apport artificiel d'eau. Non compris les surfaces irriguées occasionnellement.*	• `landuse=farmland`
	213	*(29)*	Rizières *Surfaces aménagées pour la culture du riz. Terrains plats avec canaux d'irrigation. Surfaces régulièrement recouvertes d'eau.*	• `landuse=farmland` + `crop=rice`
	22		**Cultures permanentes**	
	221	*(4 035)*	Vignobles *Surfaces plantées de vignes.*	• `landuse=vineyard`
	222	*(2 085)*	Vergers et petits fruits *Parcelles plantées d'arbres fruitiers ou d'arbustes fruitiers : cultures pures ou mélange d'espèces fruitières, arbres fruitiers en association avec des surfaces toujours en herbe. Y compris les châtaigneraies et les noiseraies.*	• `landuse=orchard`
	223	*(134)*	Oliveraies *Surfaces plantées d'oliviers, y compris oliviers et vignes sur la même parcelle.*	• `landuse=orchard` + `trees=olive_tree`
	23		**Prairies**	
	231	*(36 057)*	Prairies *Surfaces enherbées denses de composition floristique composées principalement de graminacées, non incluses dans un assolement. Principalement pâturées, mais dont le fourrage peut être récolté mécaniquement. Y compris des zones avec haies (bocages).*	• `landuse=meadow`

IGI Global
DISSEMINATOR OF KNOWLEDGE

Login Register Language: English

Database Search Research Tools User Resources IGI Global Platform

Reference Hub 2



Using OpenStreetMap to Create Land Use and Land Cover Maps: Development of an Application

Cidália Costa Fonte (University of Coimbra, Portugal & INESC Coimbra, Portugal), Joaquim António Patriarca (INESC Coimbra, Portugal), Marco Minghini (Politecnico di Milano, Italy), Vyron Antoniou (Hellenic Military Geographical Service, Greece), Linda See (International Institute for Applied Systems Analysis, Austria) and Maria Antonia Brovelli (Politecnico di Milano, Italy)

Source Title: Volunteered Geographic Information and the Future of Geospatial Data
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Cite Chapter Favorite ★

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Abstract

OpenStreetMap (OSM) is a bottom up community-driven initiative to create a global map of the world. Yet the application of OSM to land use and land cover (LULC) mapping is still largely unexploited due to problems with inconsistencies in the data and harmonization of LULC nomenclatures with OSM. This chapter outlines an automated methodology for creating LULC maps using the nomenclature of two European LULC products: the Urban Atlas (UA) and CORINE Land Cover (CLC). The method is applied to two regions in London and Paris. The results show that LULC maps with a level of detail similar to UA can be obtained for the urban regions, but that OSM has limitations for conversion into the more detailed non-urban classes of the CLC nomenclature. Future work will concentrate on developing additional rules to improve the accuracy of the transformation and building an online system for processing the data.

OSM Japanese Railway Network

https://www.openstreetmap.org/way/678666525#map=14/37.2195/140.7414

OpenStreetMap Edit History Export

Tags

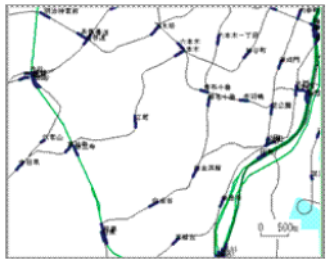
KSJ2:LIN	磐越東線
electrified	no
gauge	1067
name	JR磐越東線
name:en	JR Banetsu East Line
name:ja	JR磐越東線
name:ja_rm	JR Ban'etsu-tō-sen
note	National-Land Numerical Information (Railway) 2007, MLIT Japan
note:ja	国土数値情報（鉄道データ）平成19年　国土交通省
operator	東日本旅客鉄道
operator:ja	東日本旅客鉄道
railway	rail
source	KSJ2

データのダウンロード（2.各データ詳細）

選択したデータ項目は
国土数値情報　鉄道データ　です。

最新のデータは製品仕様書第1.1版に基づいています。　（データ作成年度:平成17～20年度）

鉄道　第1.1版	識別子	N02
内容	全国の旅客鉄道・軌道の路線や駅について、形状（線）、鉄道区分（普通鉄道、鋼索鉄道、懸垂式モノレール、跨座式モノレール等）、事業者（新幹線、JR在来線、公営鉄道、民営鉄道、第三セクター）、路線名、運営会社等を整備したものである。駅は、鉄道路線の一部分として整備している。	
関連する法律	－	
データ作成年度	平成17年度（作成時点：平成18年1月1日） 平成18年度（作成時点：平成18年7月31日） 平成19年度（作成時点：平成19年7月31日） 平成20年度（作成時点：平成21年3月20日）	
原典資料	数値地図25000（空間データ基盤）、鉄道要覧（国土交通省鉄道局監修）、鉄道事業者の公式HP、時刻表（JTB） ※この地図は、国土地理院長の承認を得て、同院発行の数値地図25000（空間データ基盤）を複製したものである。（承認番号　平成17総複、第520号）	
作成方法	数値地図25000（空間データ基盤）を基に作成し、さらにデータ作成基準日までに開通された路線や新設・名称変更された駅を反映させた。	
座標系	JGD2000 / (B, L)	
データ形状	線	

データ構造	イメージ
	

《拡大表示するには図をクリックしてください》

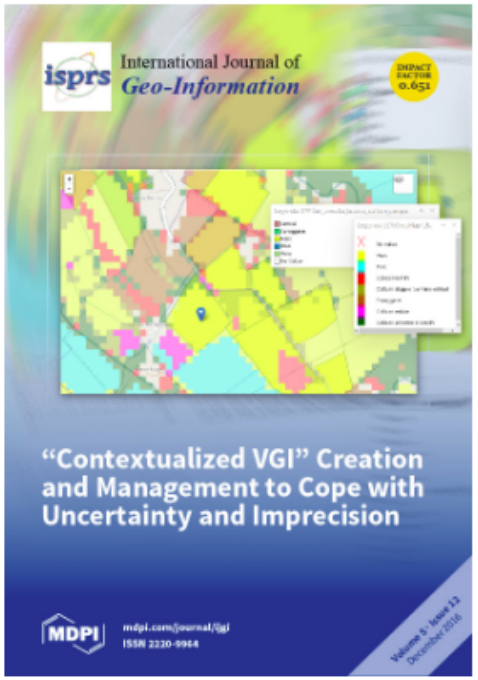
地物情報	地物名	説明

How are tags used in OSM data in cities and regions around the world?

International Journal of Geo-Information

Title / Keyword | Journal: IJGI
Author / Affiliation | Article Type: all
Advanced | Search

Volume 5, Issue 12



Views 2001 | Downloads 2519

Open Access | Article

Tagging in Volunteered Geographic Information: An Analysis of Tagging Practices for Cities and Urban Regions in OpenStreetMap

Nikola Davidovic [1,*,†], Peter Mooney [2,†], Leonid Stoimenov [1] and Marco Minghini [3]

[1] Faculty of Electronic Engineering, University of Nis, 18000 Nis, Serbia
[2] Department of Computer Science, Maynooth University, W23 F2H6 Maynooth, Ireland
[3] Department of Civil and Environmental Engineering, Politecnico di Milano, Como Campus, 22100 Como, Italy
* Author to whom correspondence should be addressed.
† Nikola Davidovic and Peter Mooney are the lead authors on this paper.

Academic Editors: Alexander Zipf, David Jonietz, Vyron Antoniou, Linda See and Wolfgang Kainz

ISPRS Int. J. Geo-Inf. **2016**, 5(12), 232; https://doi.org/10.3390/ijgi5120232

Received: 5 July 2016 / Revised: 8 November 2016 / Accepted: 24 November 2016 / Published: 5 December 2016

(This article belongs to the Special Issue Volunteered Geographic Information)

Full-Text | PDF [1034 KB, uploaded 5 December 2016] | Figures

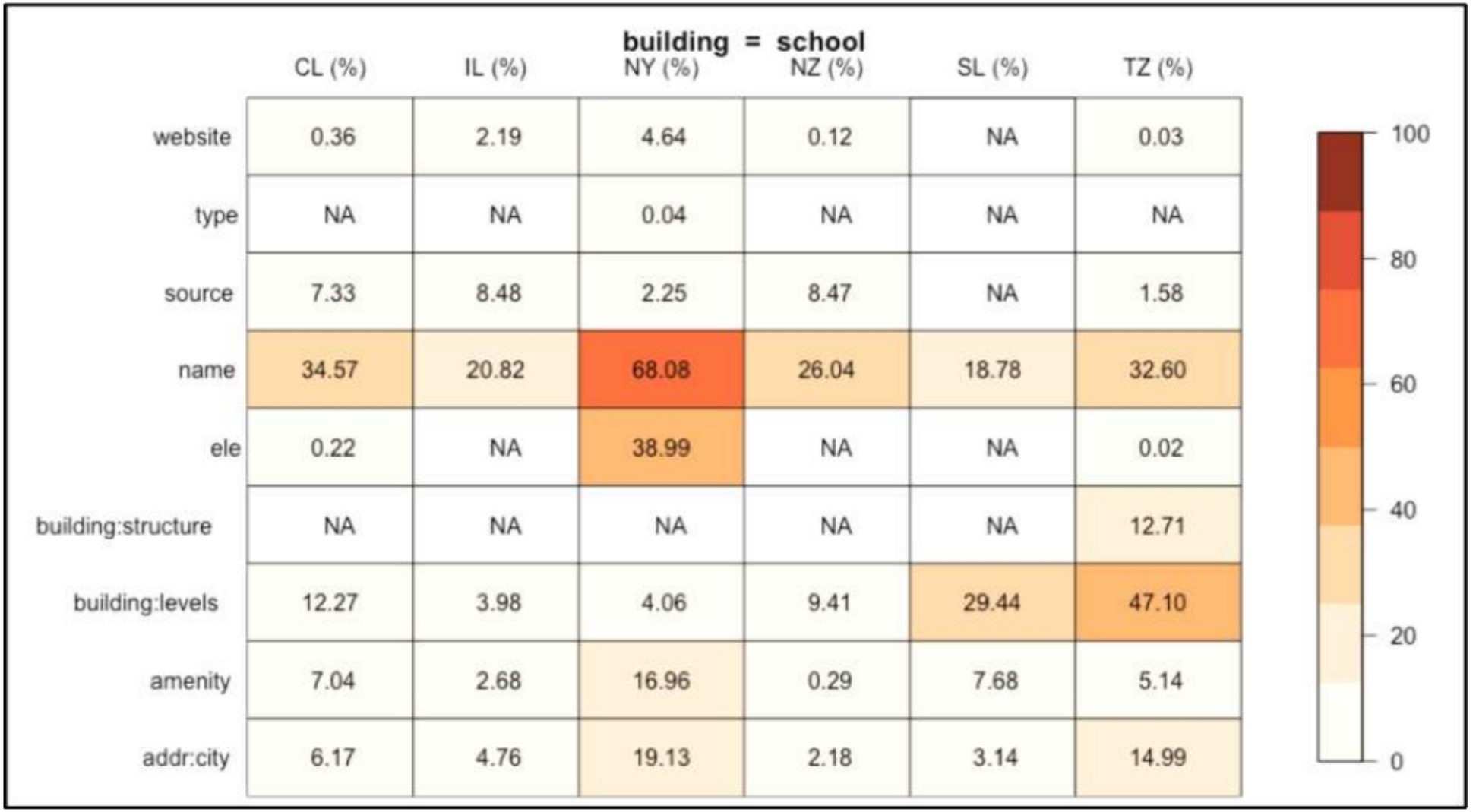
https://www.mdpi.com/2220-9964/5/12/232/htm

Report for Tag: `railway=rail`			WARSAW
Total number of objects: 2922			
name	67	2.3%	POOR
gauge	2510	86.0%	EXCELLENT
electrified	2445	83.7%	EXCELLENT
frequency	1619	55.4%	AVERAGE
voltage	1623	55.6%	AVERAGE
usage	1076	36.9%	FAIR
service	1913	65.5%	GOOD
bridge	289	9.9%	POOR
tunnel	61	2.1%	POOR
Total number of different tags used: 30			

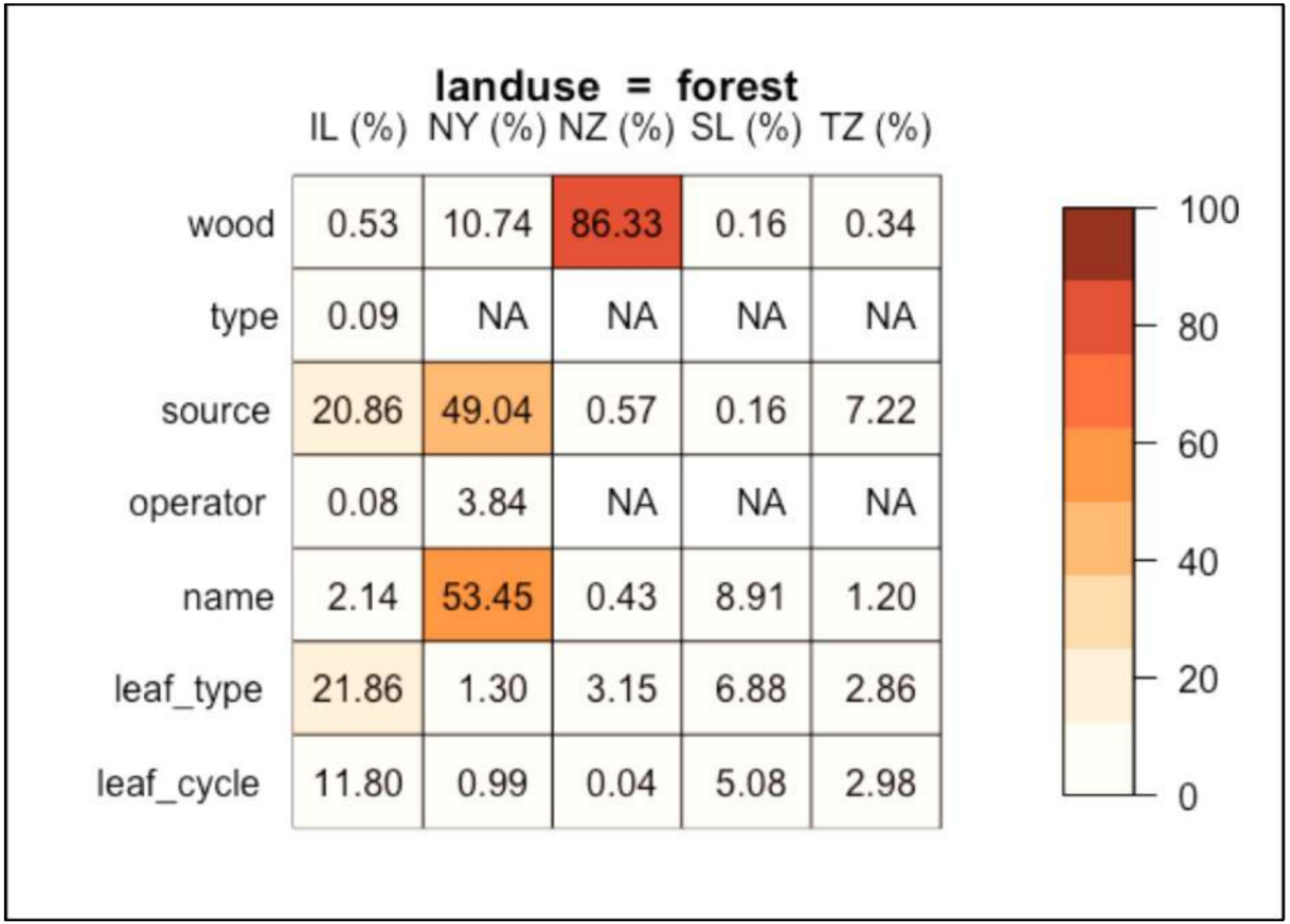
Table 8. Summary of the compliance of all cities with suggested tag key combinations for the target tag `highway=tertiary`.

KEY	Poor	Fair	Average	Good	Excellent
lanes	26	7	3	2	2
ref	31	5	2	2	0
name	1	4	5	13	17
oneway	6	16	12	6	0

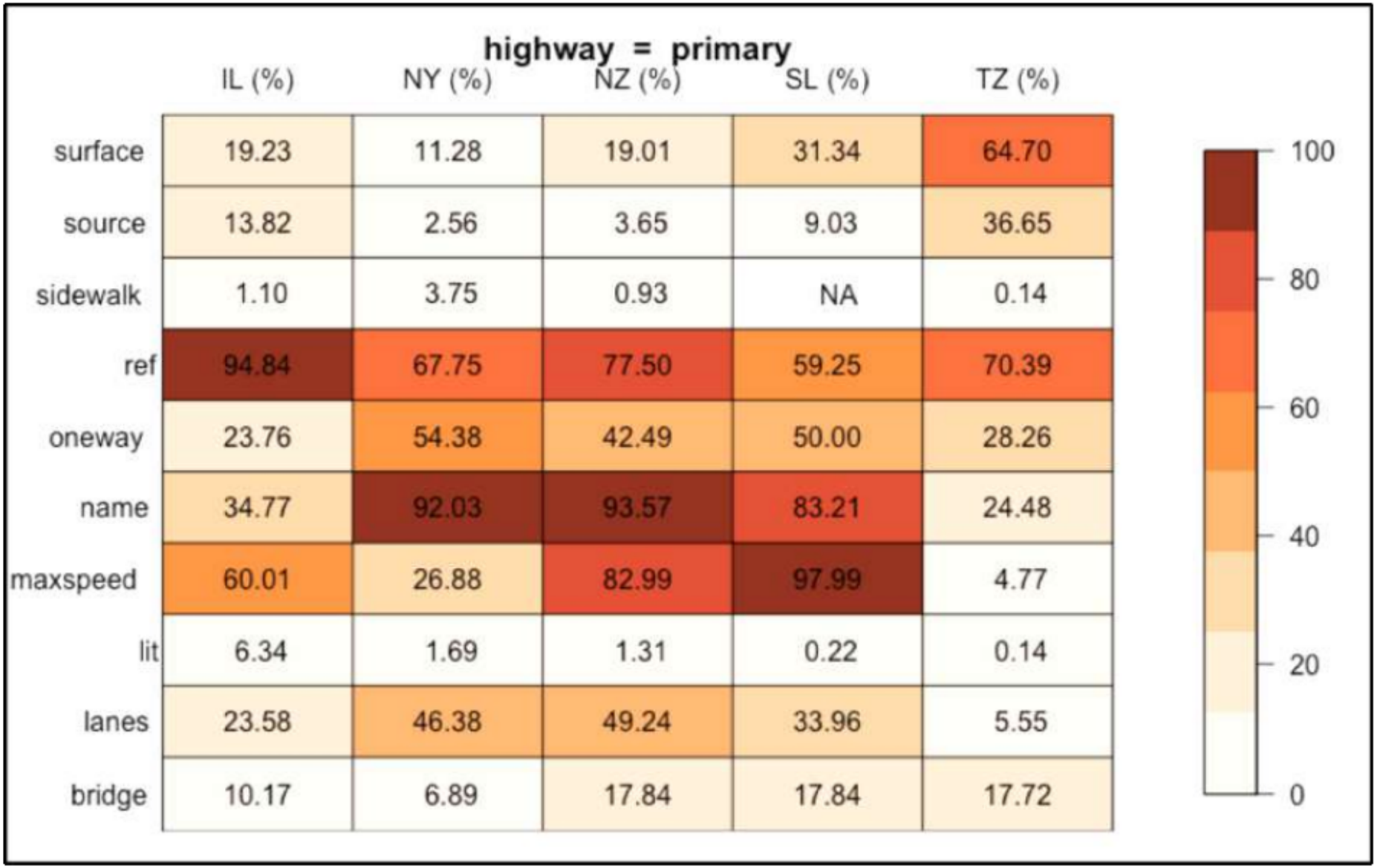
Considering Suggested Tag Usage Goutham, T.R (2018) Msc Thesis



Tag: `Landuse = forest` and suggested combinations



Tag: `highway = primary` and suggested combinations

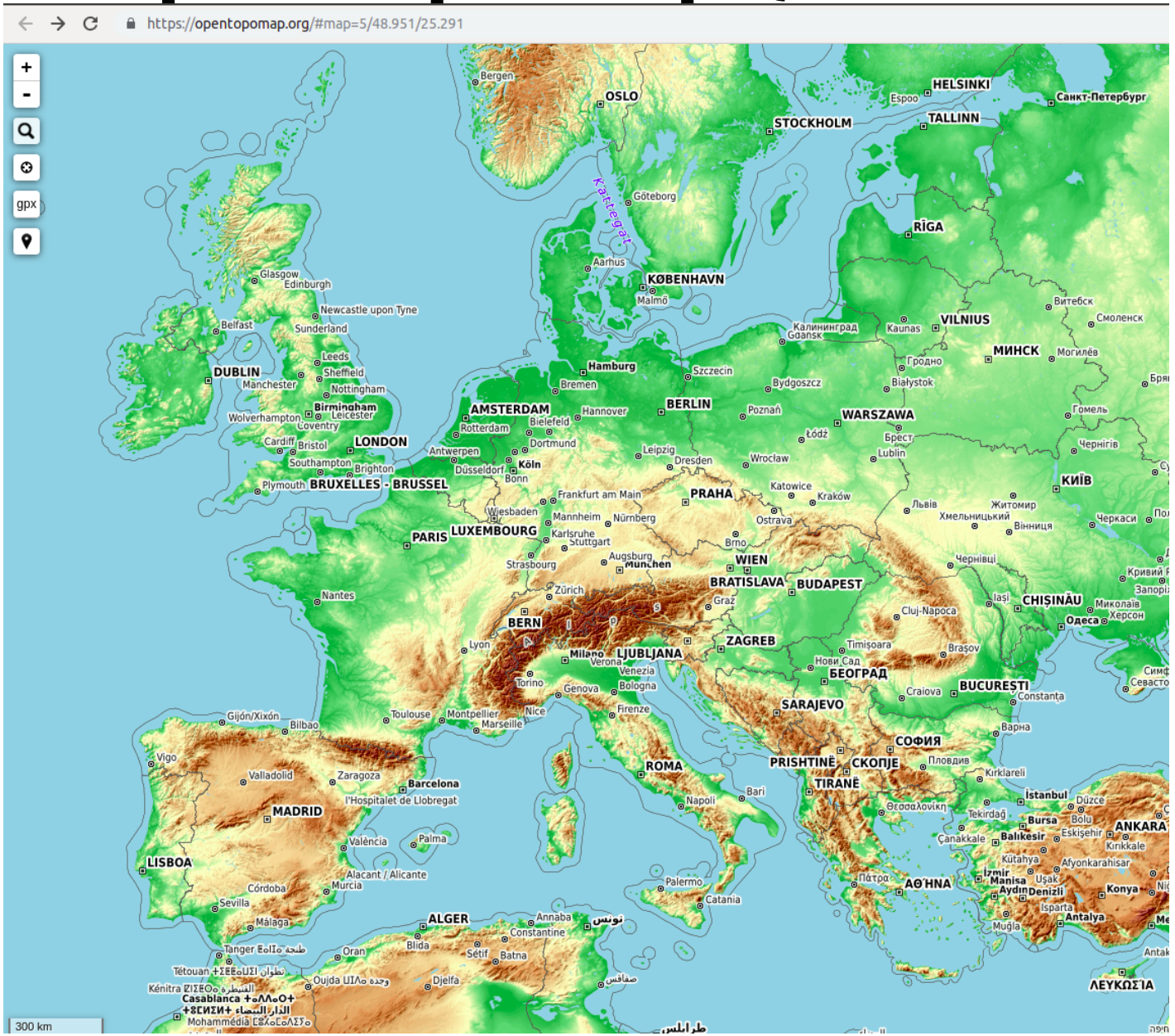


Peter's OSM Tag Checklist

- BEFORE starting an analysis on any OSM data **ALWAYS explore and try to understand the structure and quality of tagging in the data**
- **TAGGING may not always be homogeneous** in a given region or country for a particular object class or theme
- **Become familiar with using TagInfo and MapFeatures** in order to assist you in (1) assessing tags and (2) choosing tags
- If you're confused about the tagging – ask someone for some help

High quality TAGGING is very important for applications using OSM data as a primary source

Ex: The OpenTopoMap (OSM + SRTM)



https://opentopomap.org/#map=5/48.951/25.291

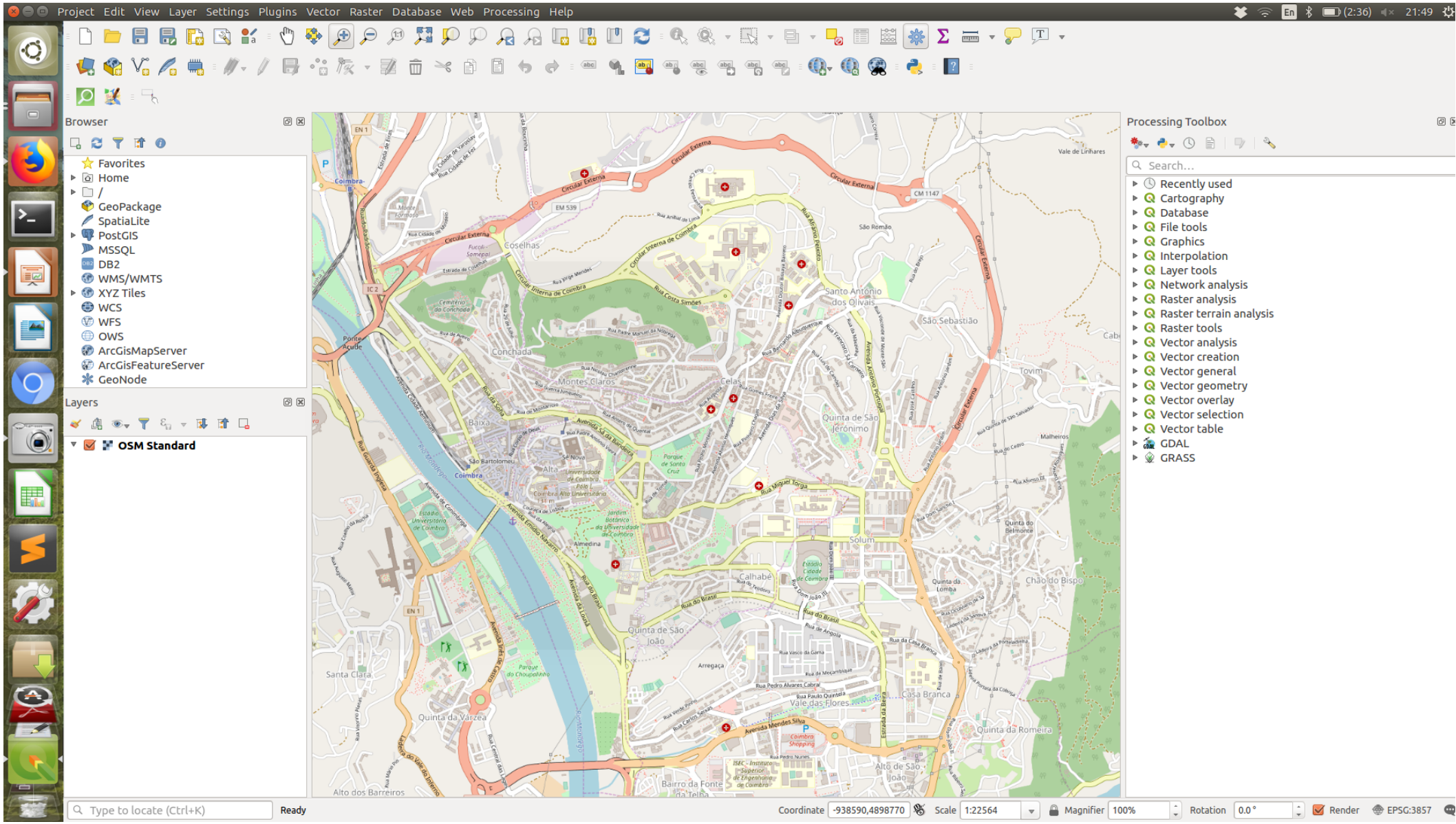
Services such as OpenTopoMap relies on accurate and up-to-date tagging

- Tags on Topographical objects in OSM are used with the SRTM Imagery to create the Topographic Map.
- The quality and correctness of the tags is very important

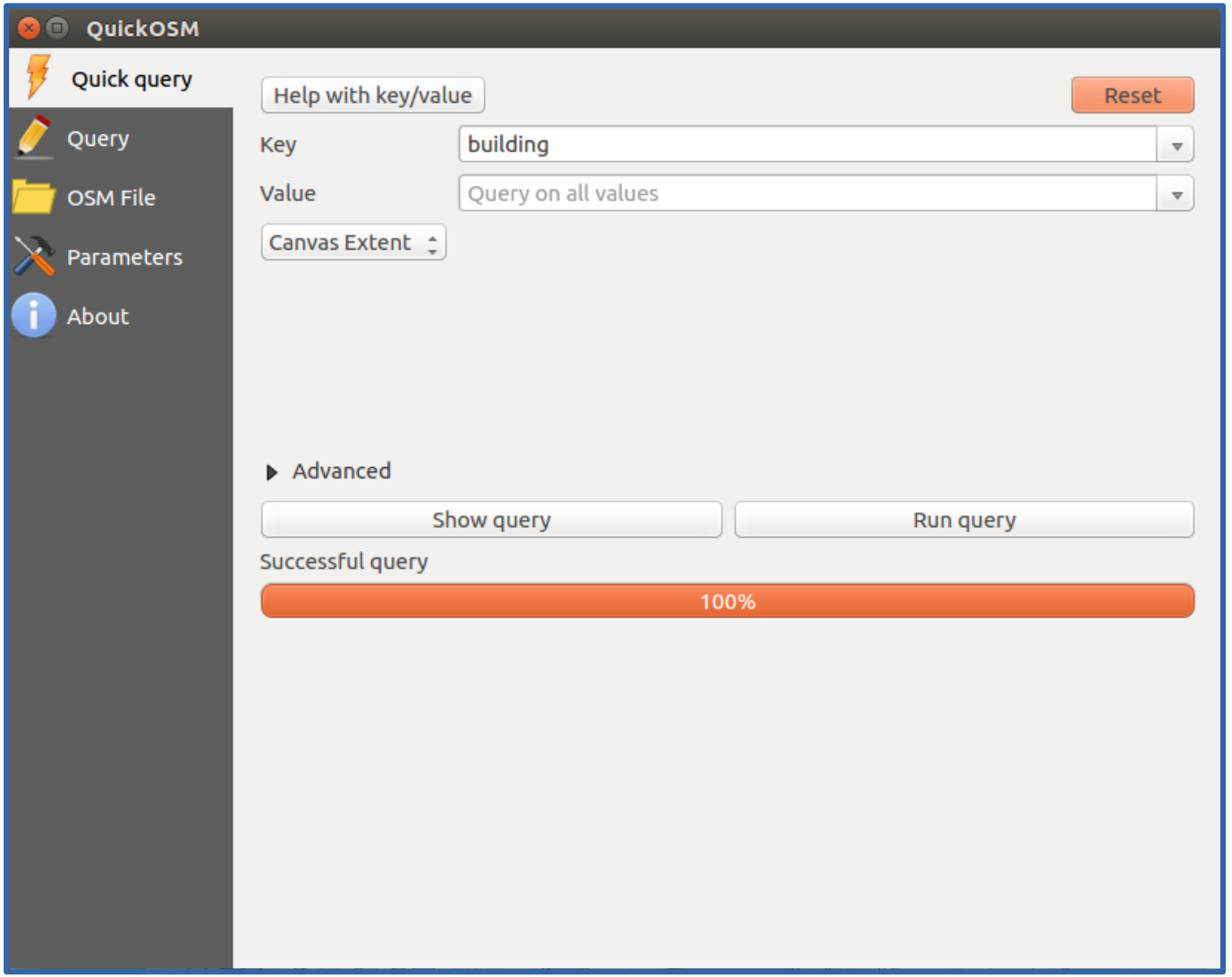
OpenRouteService

Using QGIS for some quality analysis

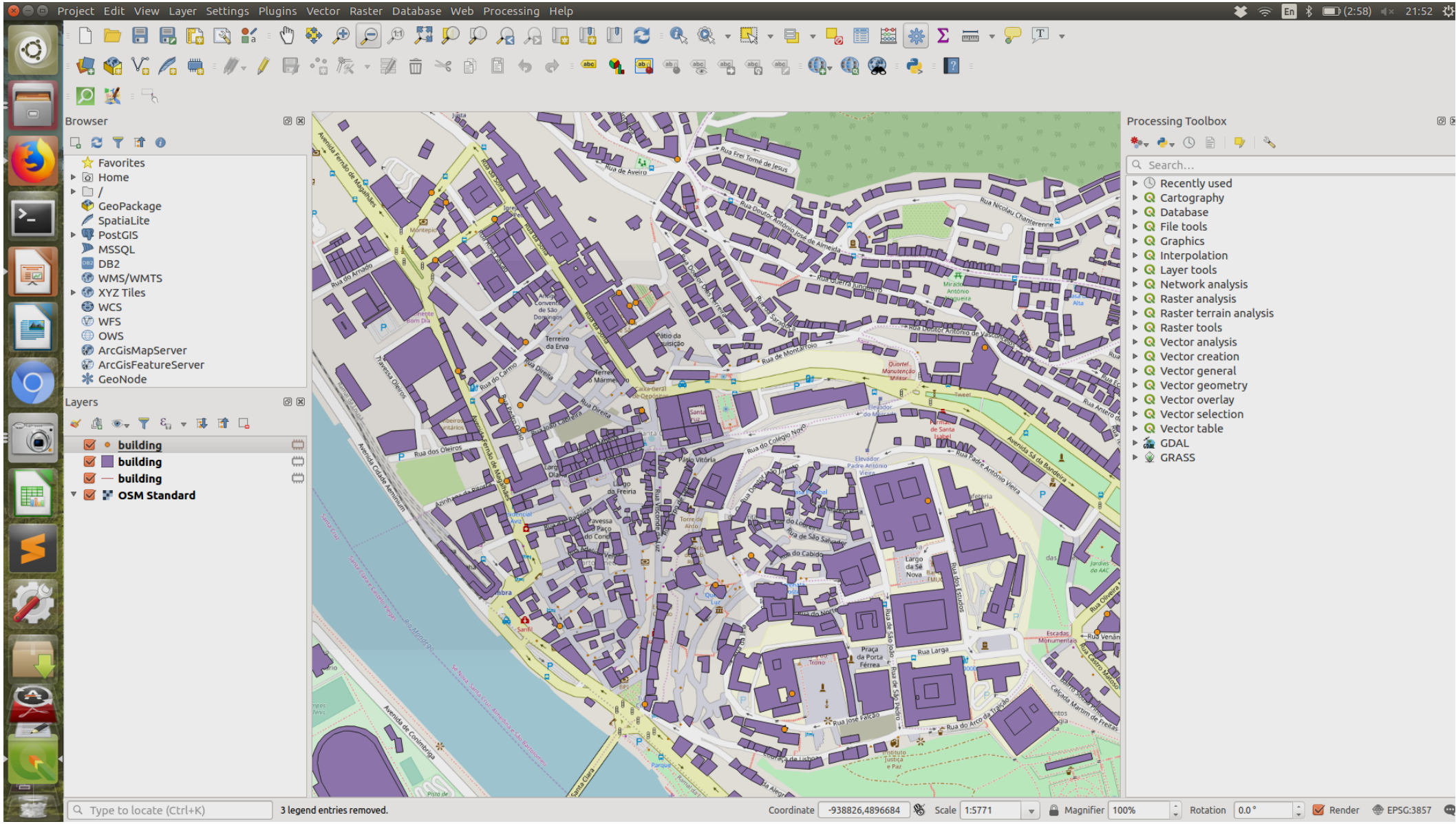
Step 1: Open Coimbra in QGIS



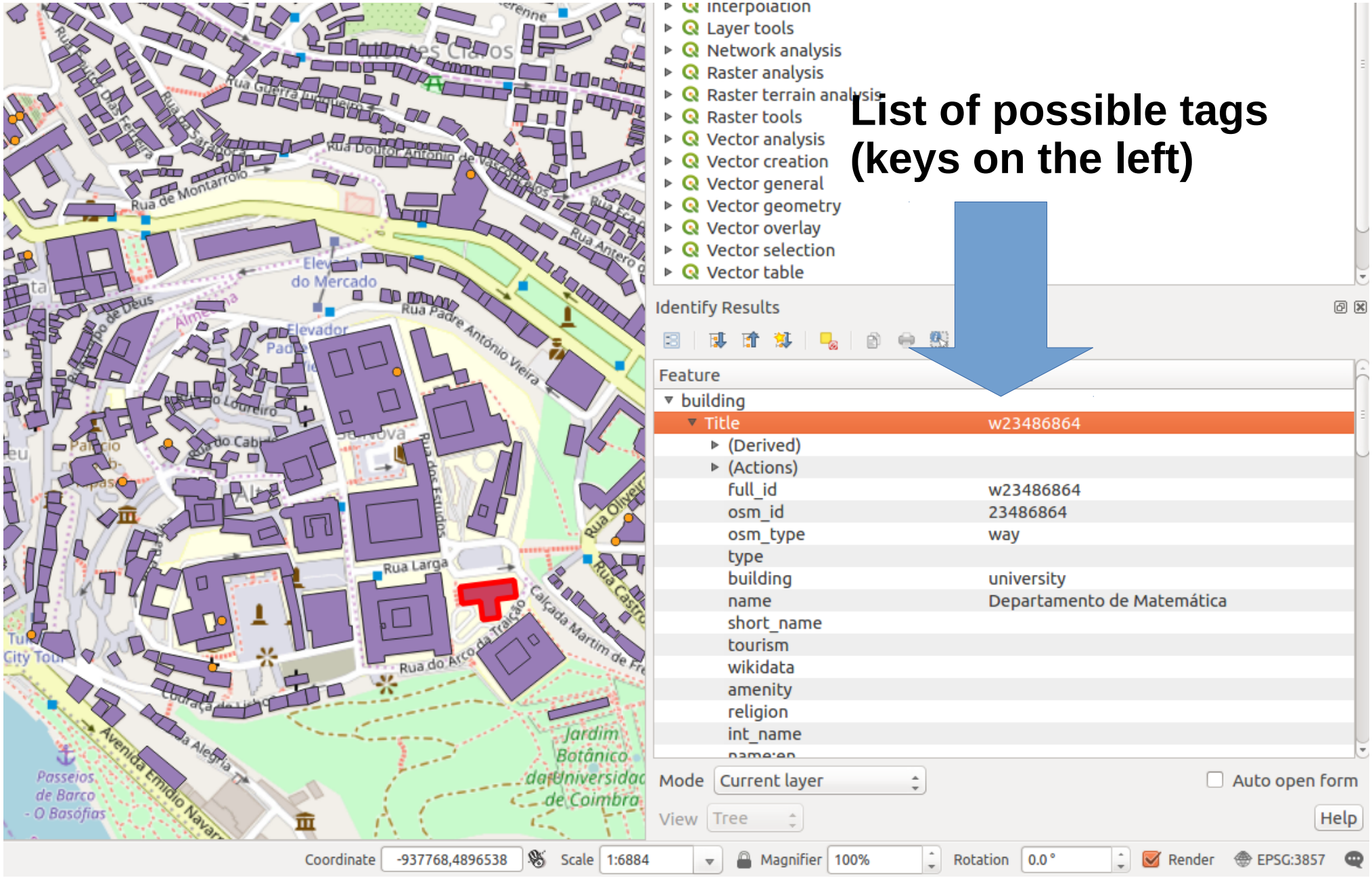
Step 2: Use the QuickOSM plugin to download OSM data for the region



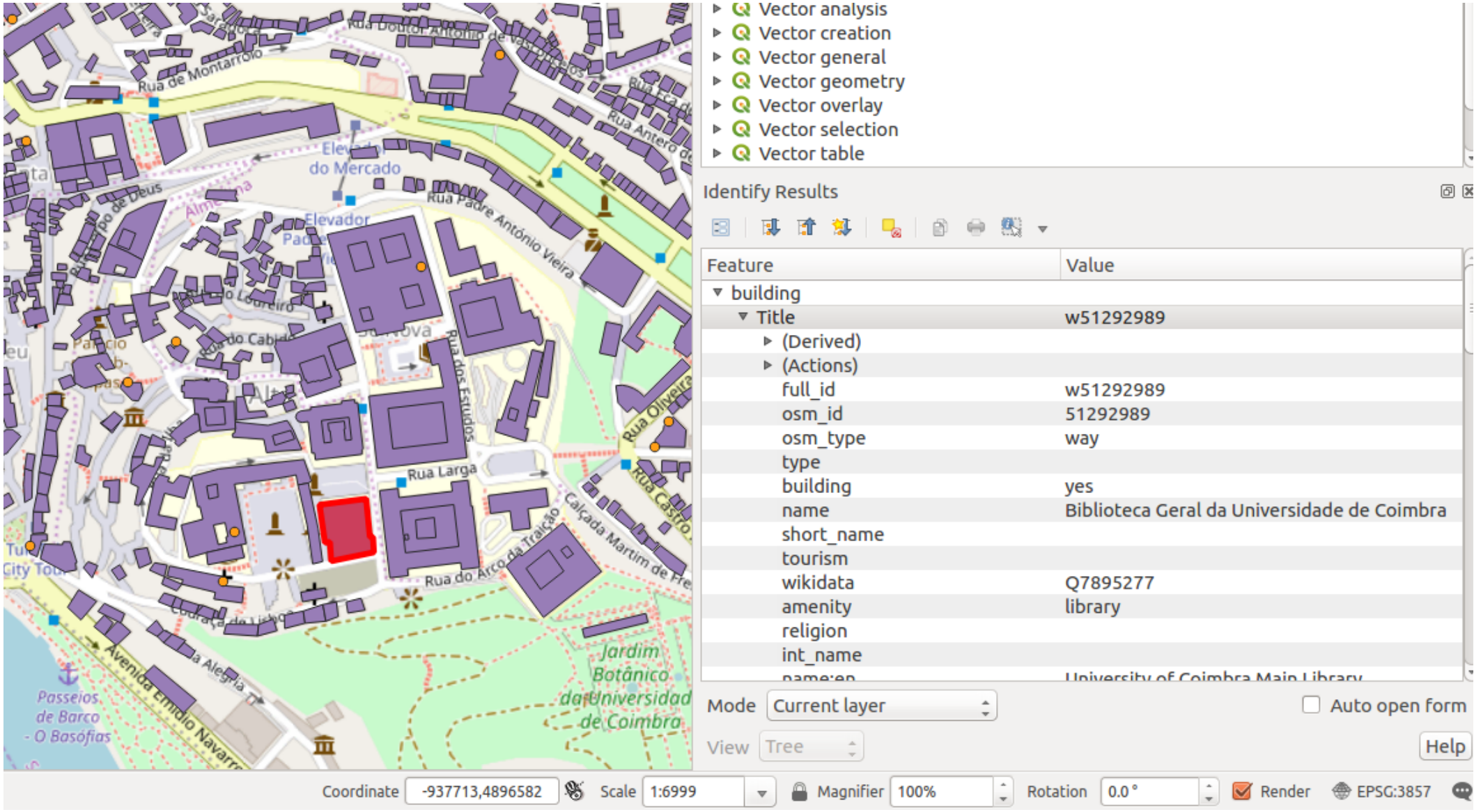
Step 3: QuickOSM will download nodes, ways and lines



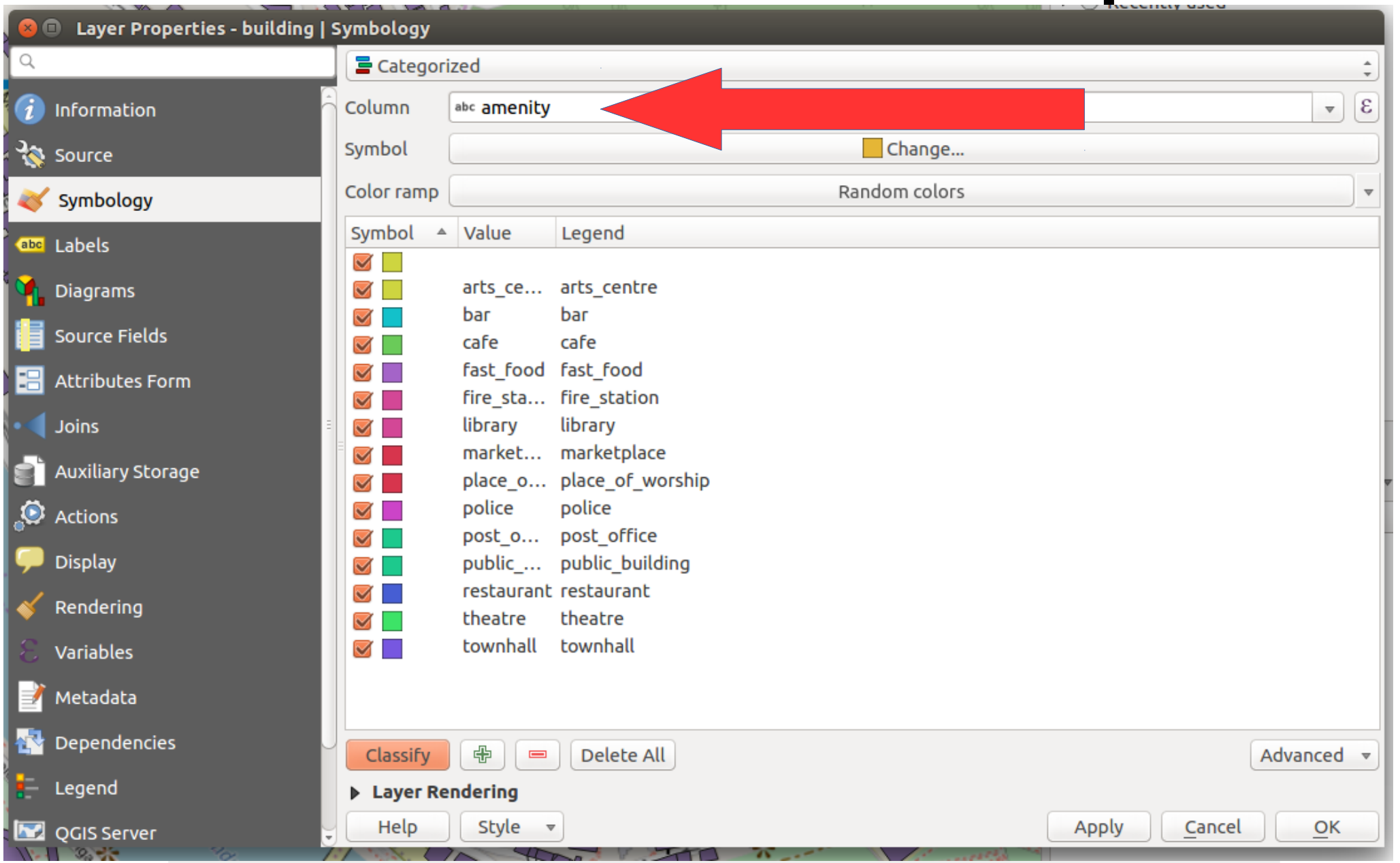
Step 4: EXPLORE the data

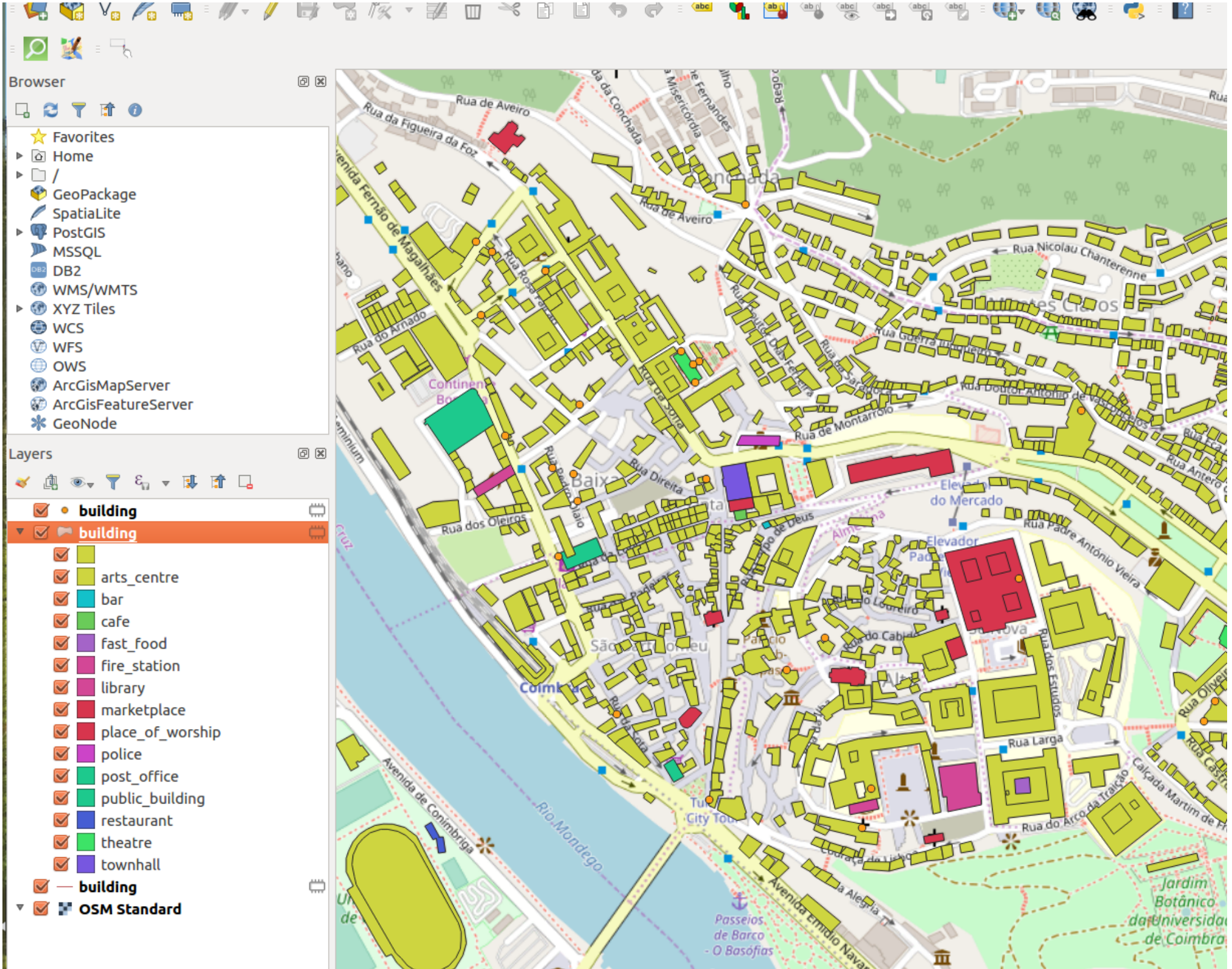


Step 4: EXPLORE the data (2)

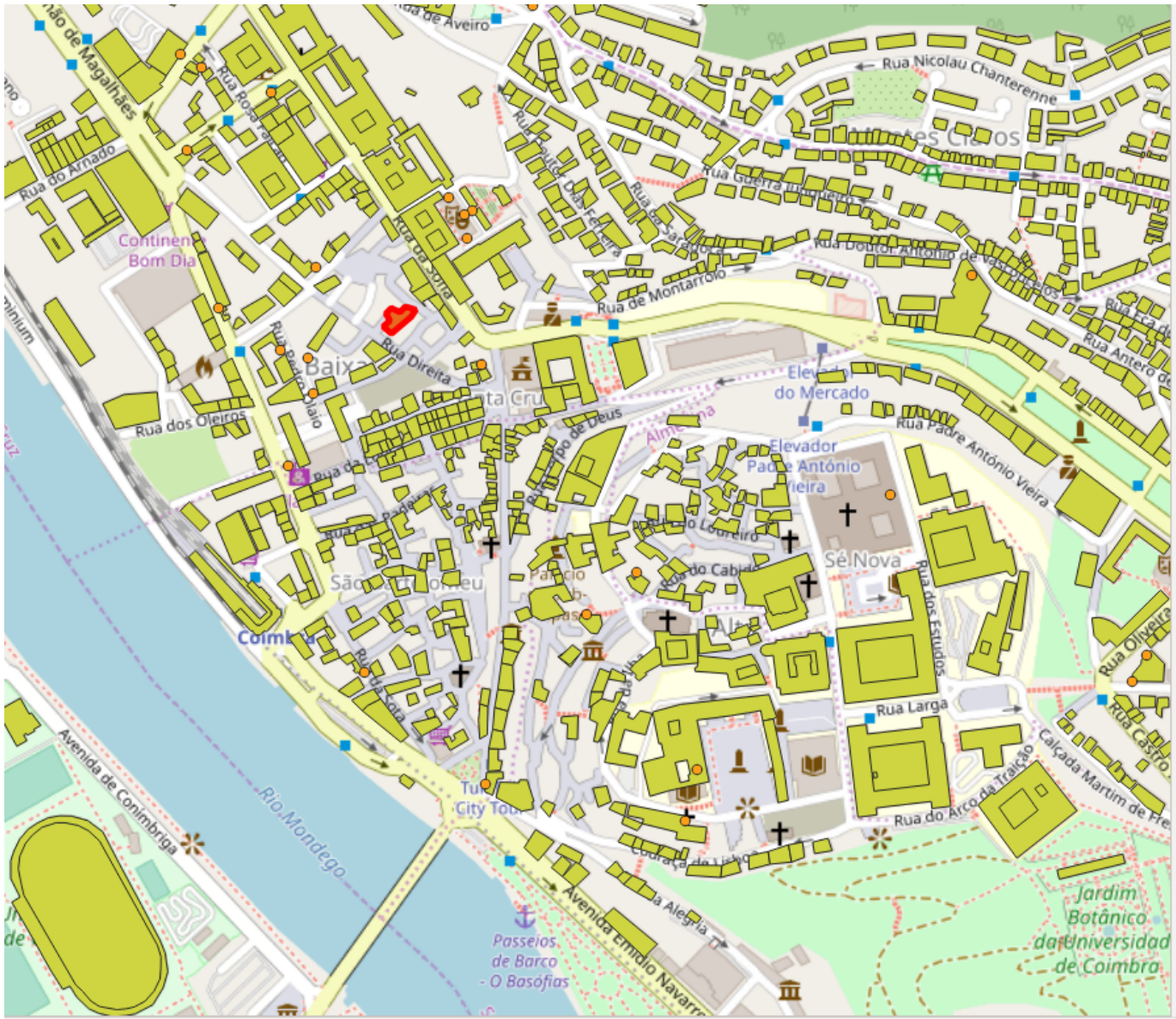


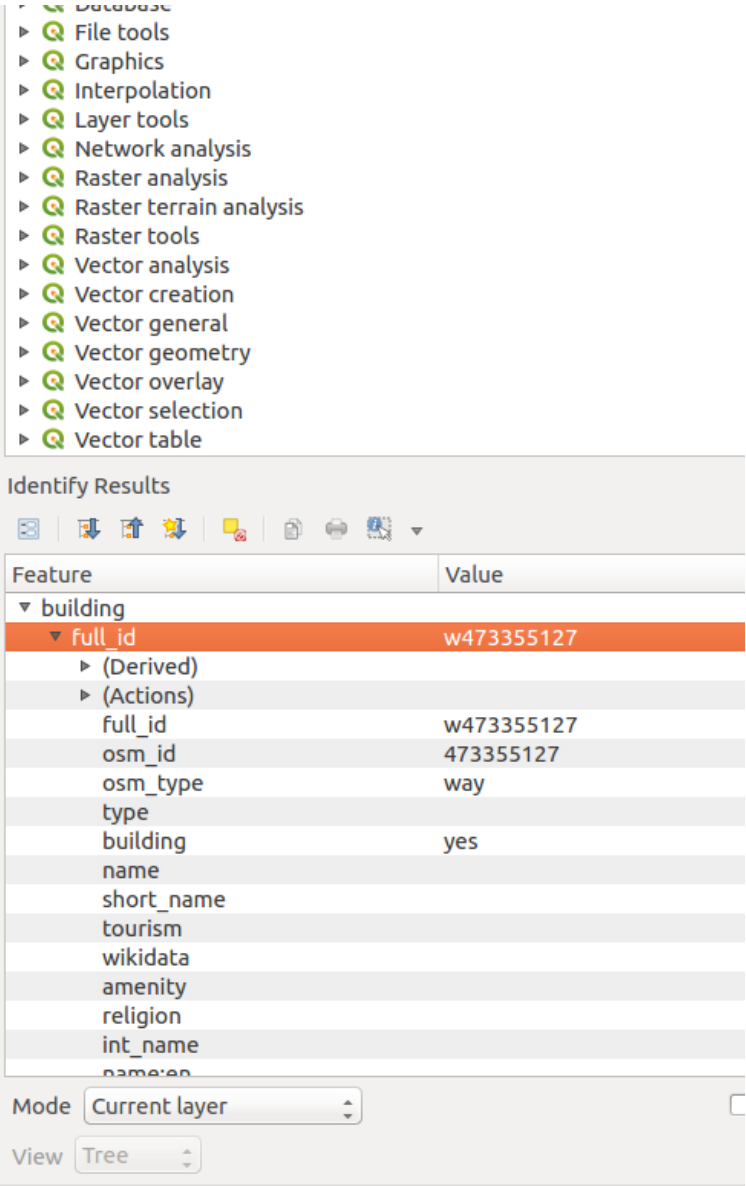
Step 5: We can add some basic visualisation to the map



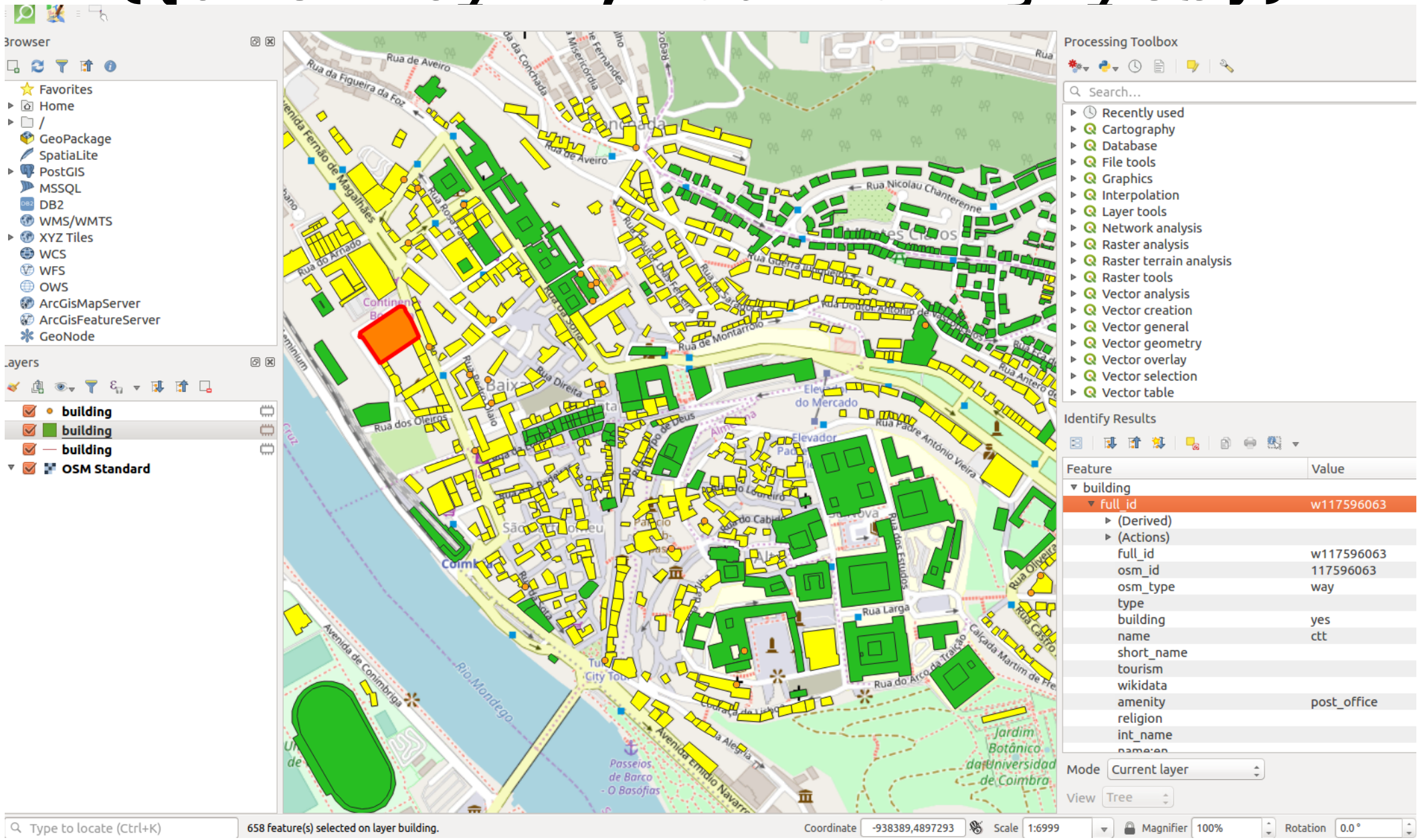

Browser
Favorites
Home
/
GeoPackage
SpatiaLite
PostGIS
MSSQL
DB2
WMS/WMTS
XYZ Tiles
WCS
WFS
OWS
ArcGisMapServer
ArcGisFeatureServer
GeoNode
Layers
building
building
arts_centre
bar
cafe
fast_food
fire_station
library
marketplace
place_of_worship
police
post_office
public_building
restaurant
theatre
townhall
building
OSM Standard
Rua de Aveiro
Rua da Figueira da Foz
Avenida Fernão de Magalhães
Rua do Arnado
Rua dos Oleiros
Rua Direita
Rua de Montarroio
Rua Nicolau Chanterenne
Rua Padre António Vieira
Rua Larga
Avenida de Coimbriga
Avenida Emídio Navarro
Rio Mondego
Jardim Botânico da Universidade de Coimbra
Passeios de Barco - O Basófias

Building objects ONLY (where one tag is `{building=yes}`)





Building Objects with tags ({amenity=*, building=yes})

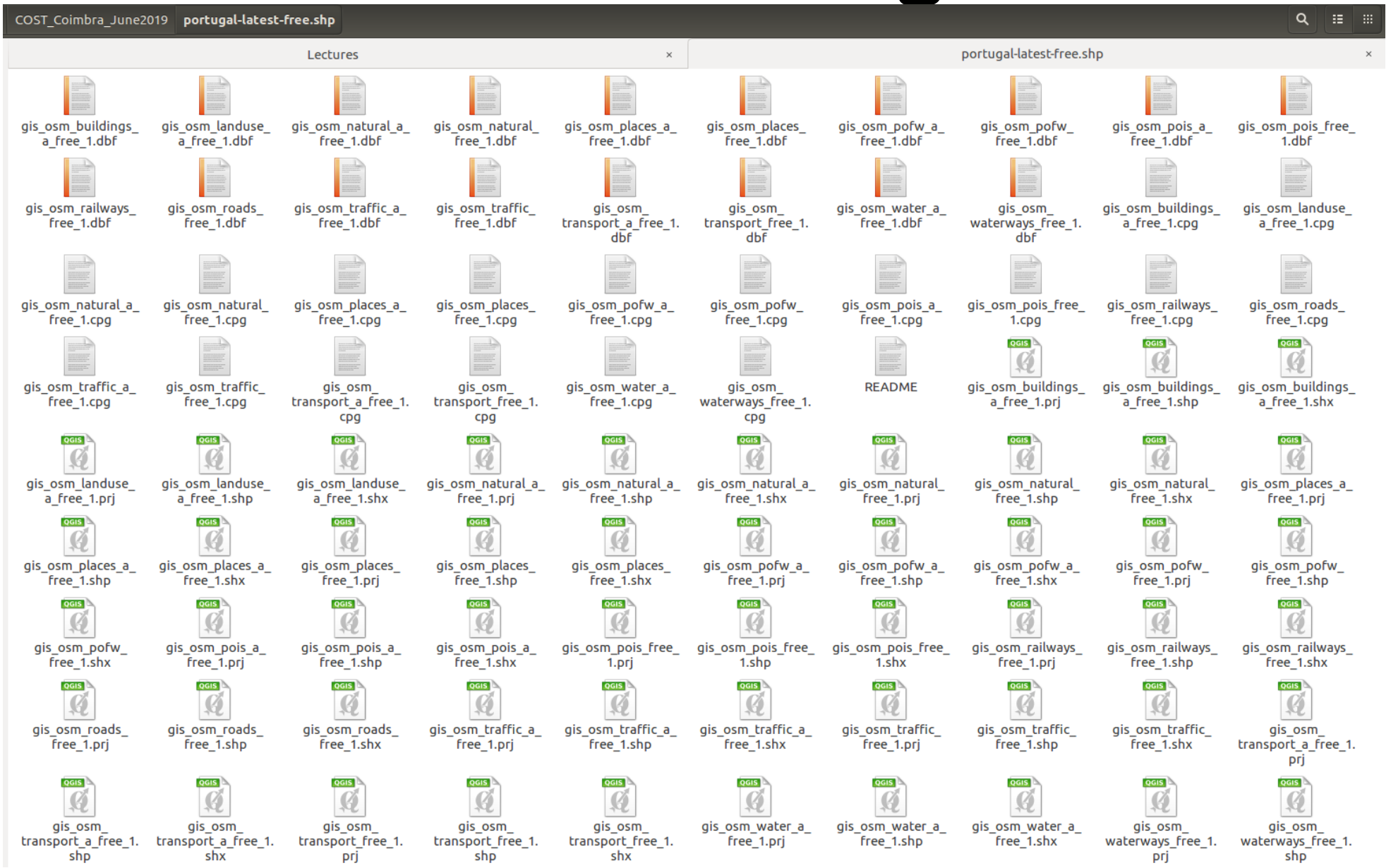


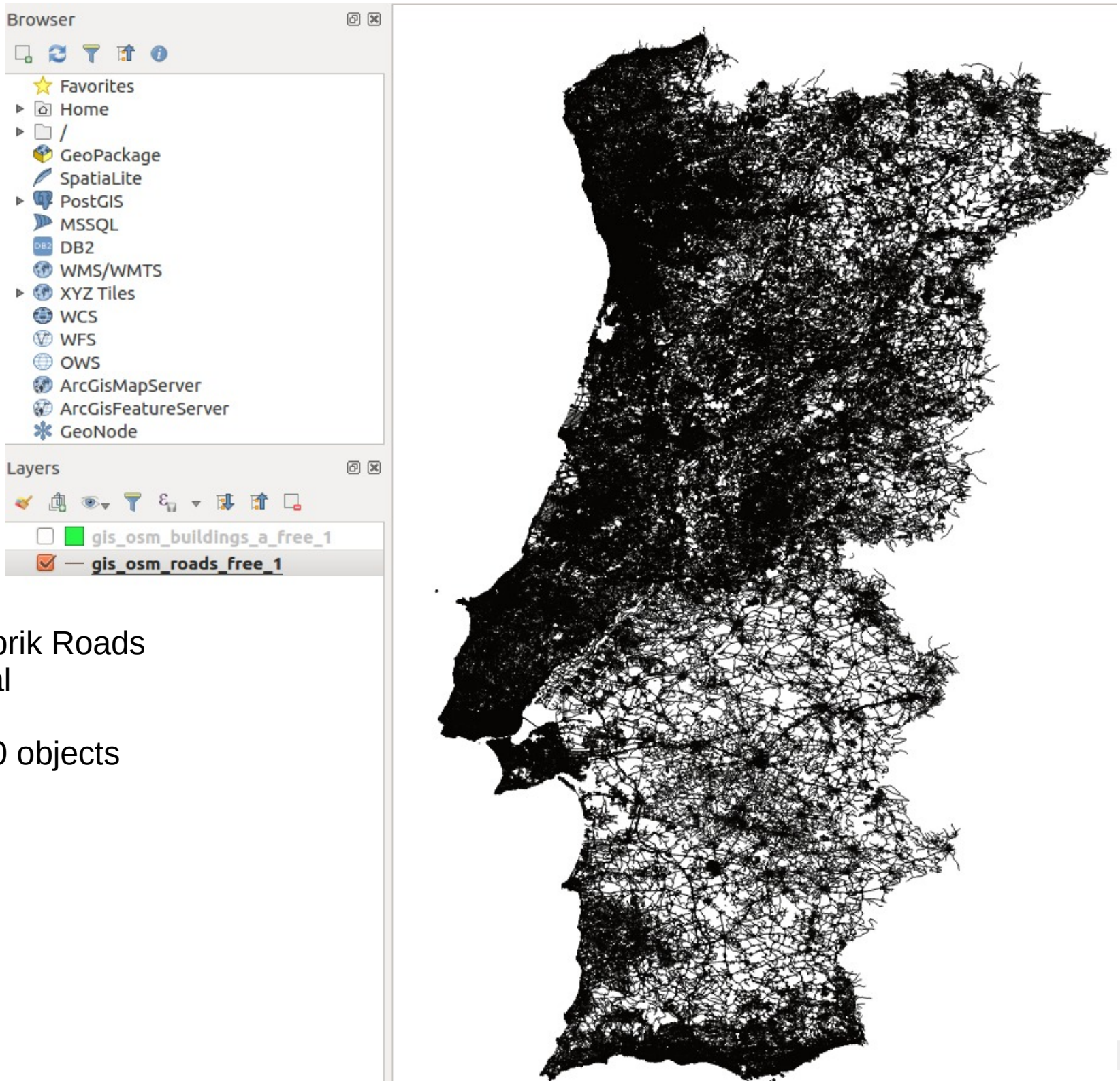
Using QuickOSM in QGIS

- VERY USEFUL for a quick visualisation of the OSM data in a small region.
- However, it is a little difficult to perform analysis on the tags.
- Every object is allocated a table row. Each column represents a tag key. If that tag key exists on that object, then the value is inserted into the column.
- This makes analysis a bit difficult.

Working with the OSM GeoFabrik Shapefiles

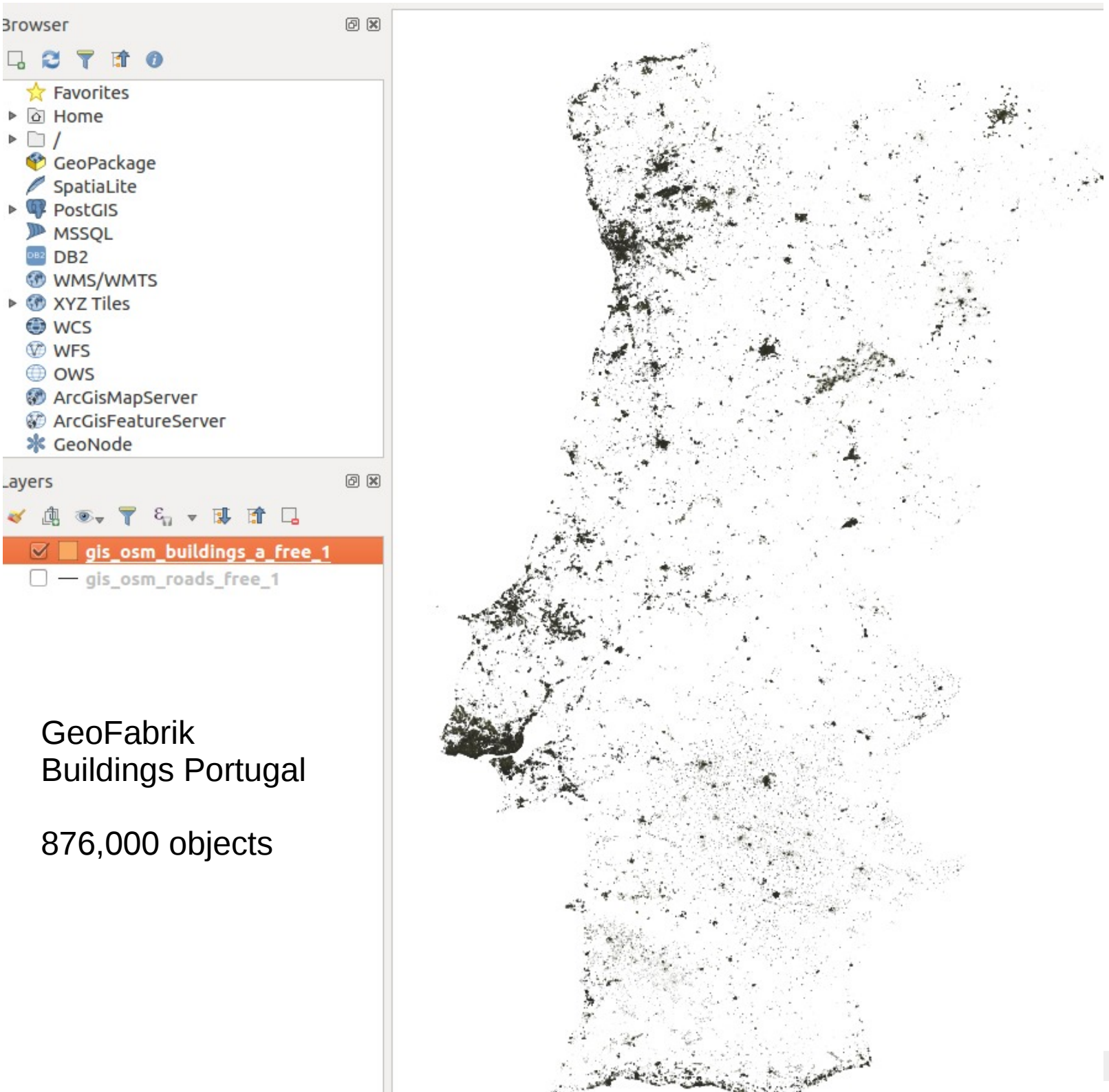
GeoFabrik: Downloaded Shapefiles for all of Portugal





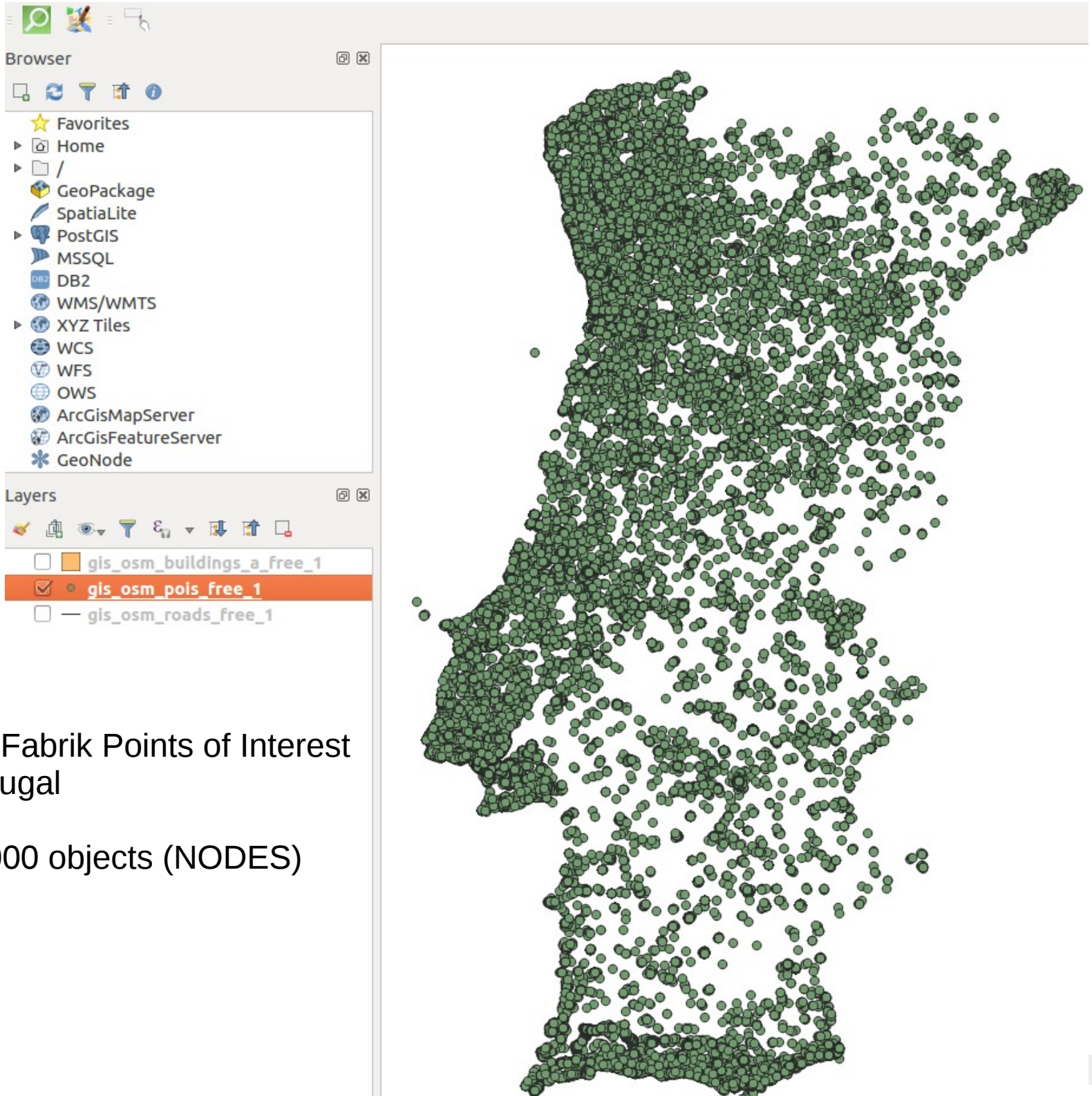
GeoFabrik Roads
Portugal

835,000 objects



GeoFabrik
Buildings Portugal

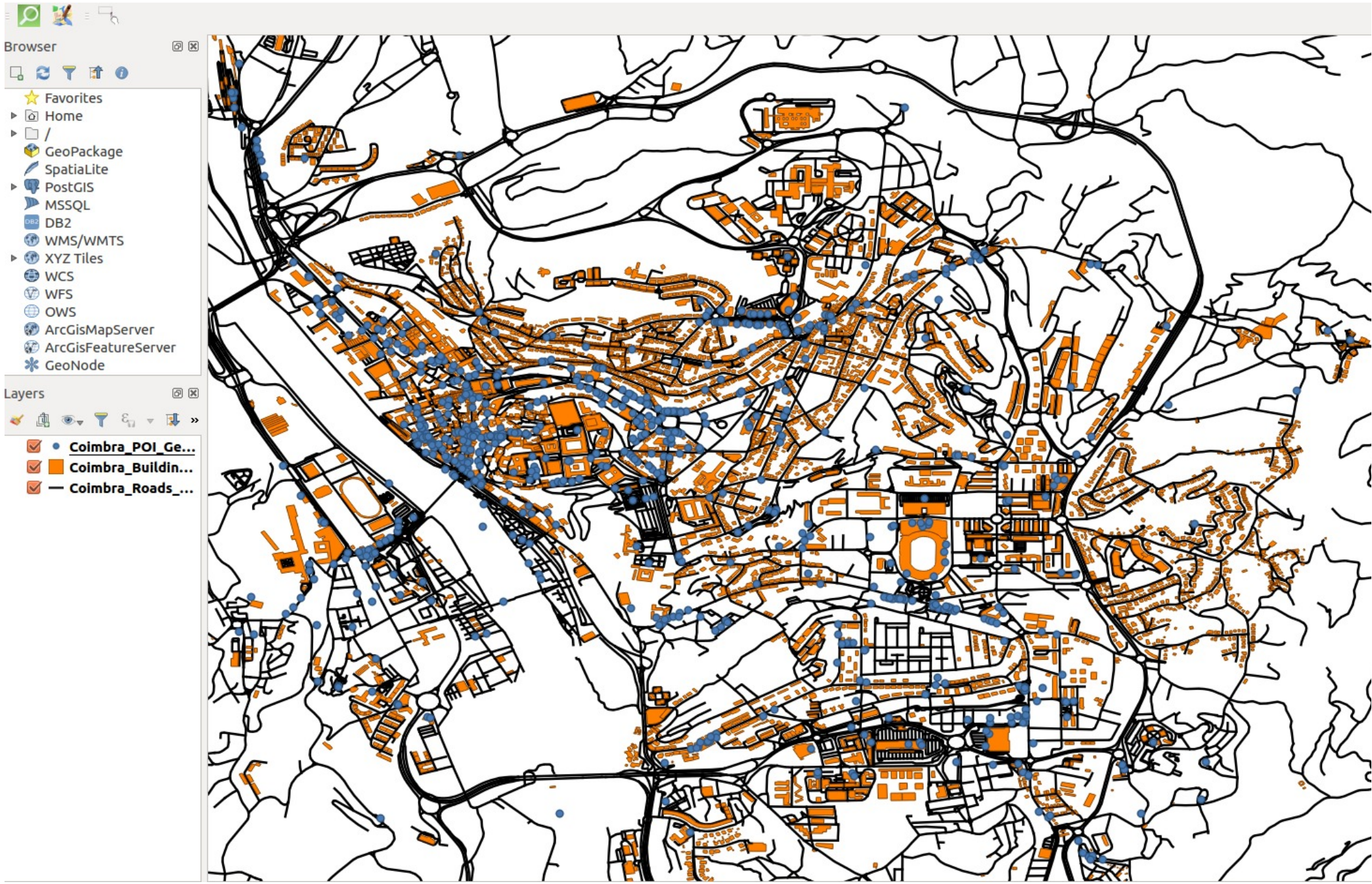
876,000 objects



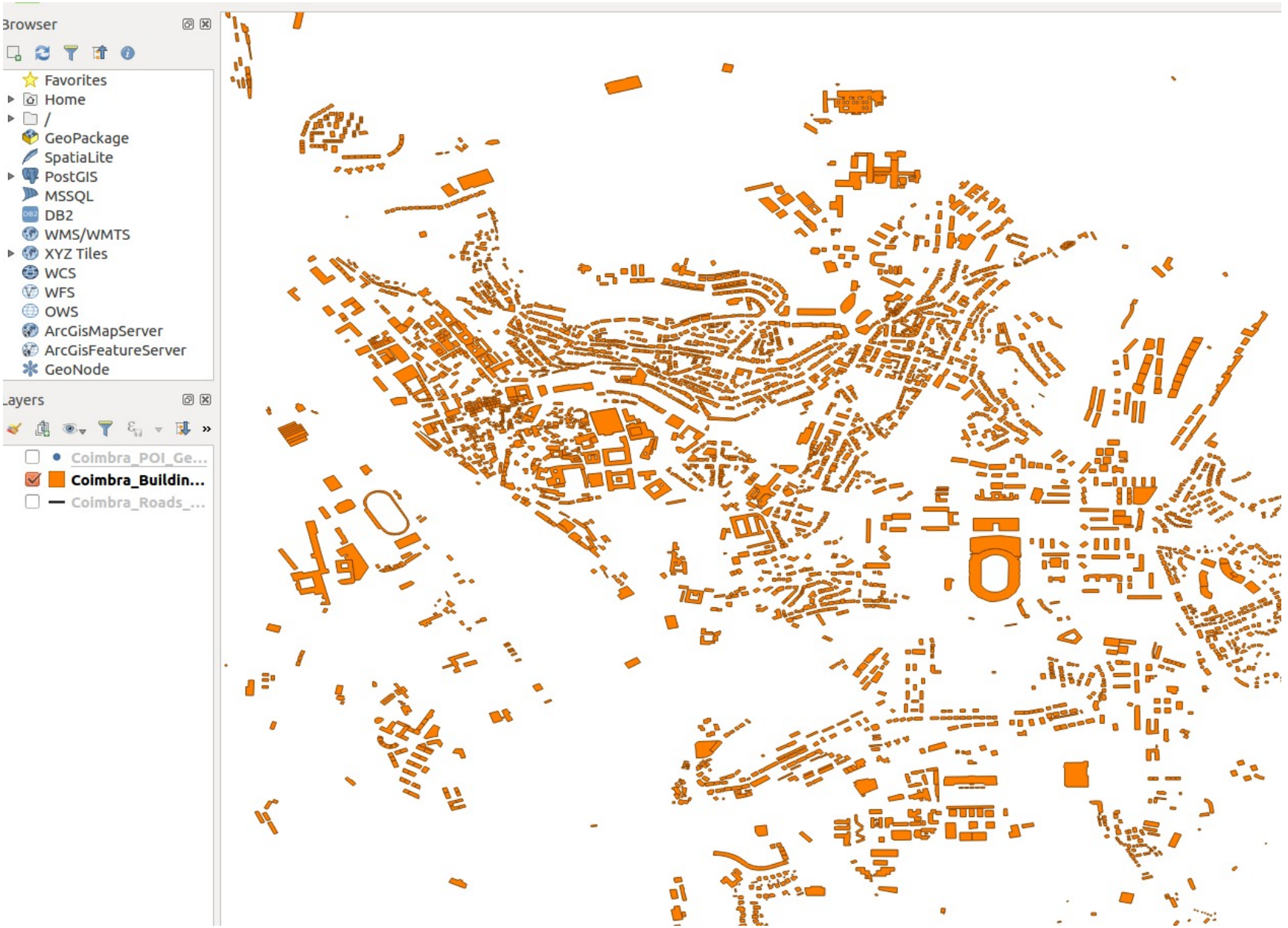
GeoFabrik Points of Interest Portugal

87,000 objects (NODES)

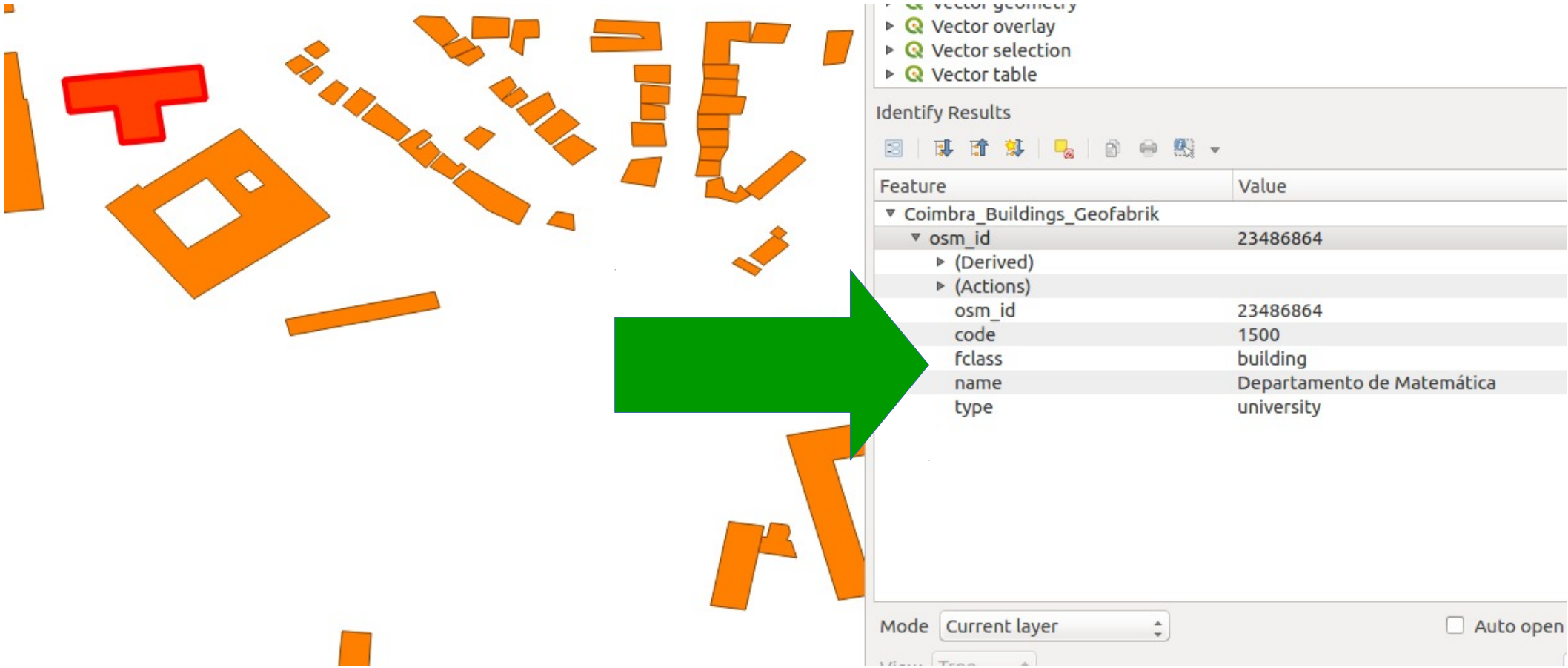
Use QGIS to extract a small subset – Coimbra (of course) makes a nice example for us


Browser
Favorites
Home
/
GeoPackage
SpatiaLite
PostGIS
MSSQL
DB2
WMS/WMTS
XYZ Tiles
WCS
WFS
OWS
ArcGisMapServer
ArcGisFeatureServer
GeoNode
Layers
Coimbra_POI_Ge...
Coimbra_Buildin...
Coimbra_Roads_...

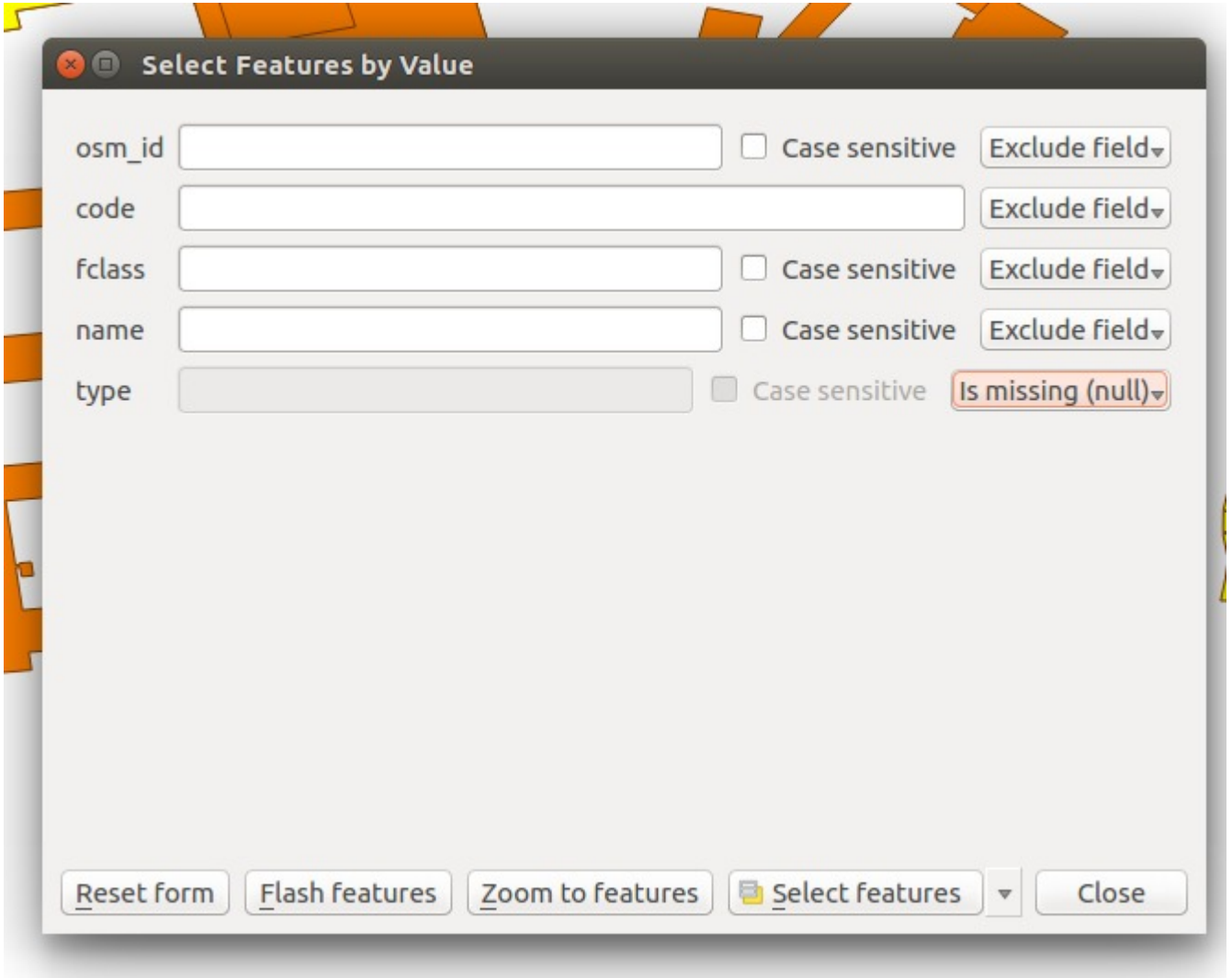
Consider BUILDING Objects



Notice how GeoFabrik use a simplified model for the tags



Task – let's look at building objects where the TYPE (amenity) is MISSING



Buildings: Type Missing (yellow)

- Raster terrain analysis
- Raster tools
- Vector analysis
- Vector creation
- Vector general
- Vector geometry
- Vector overlay
- Vector selection
- Vector table

Identify Results

Feature	Value
Coimbra_Buildings_Geofabrik	
osm_id	2334830
(Derived)	
(Actions)	
osm_id	2334830
code	1500
fclass	building
name	Sé Nova Catedral de Coimbra
type	
osm_id	51292672

Type: place_of_worship ?

Mode Current layer Auto ope

View Tree

Coordinate -8.42331,40.20927 Scale 1:3225 Magnifier 100% Rotation 0.0 ° Render EPSG:43

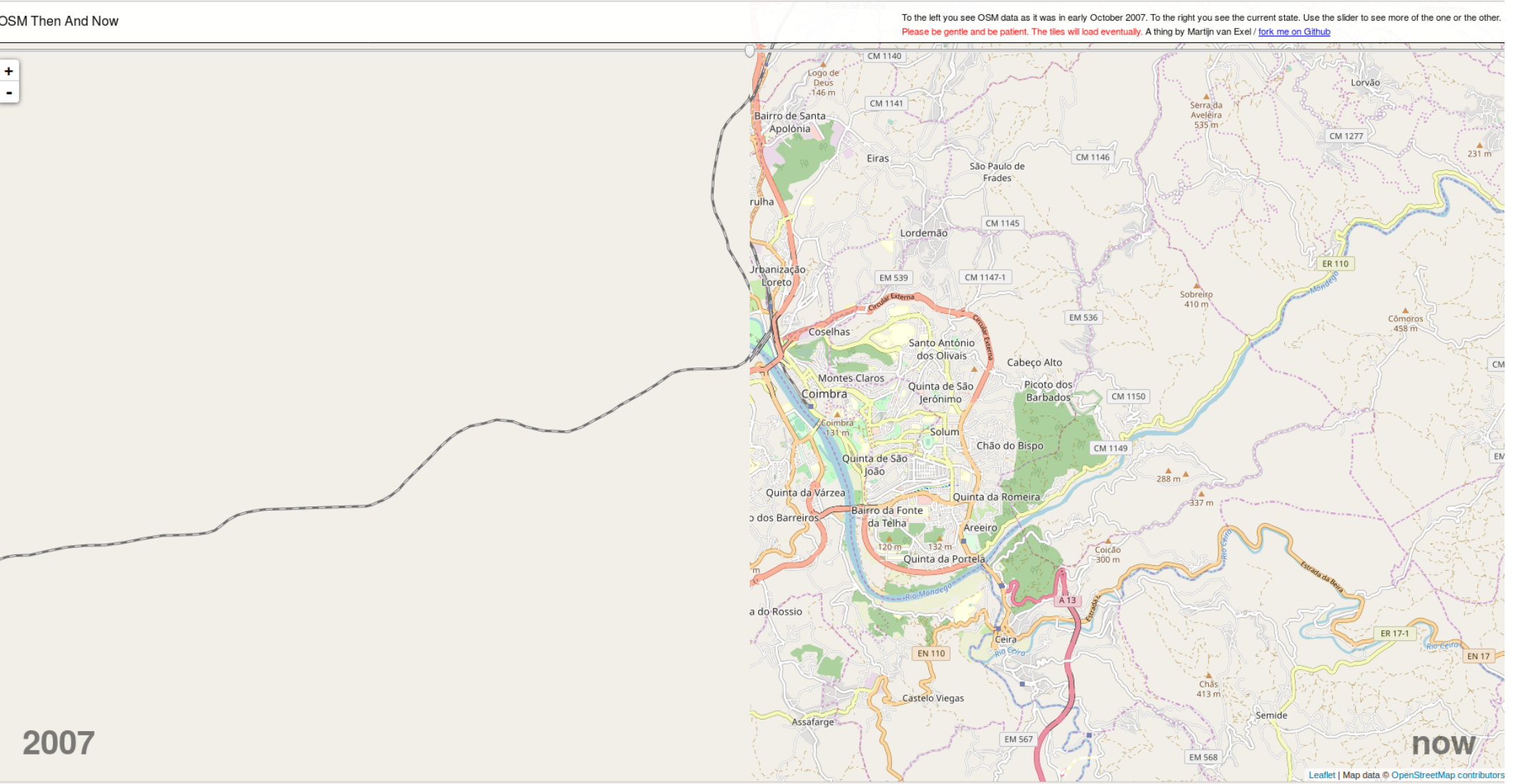
QGIS – can be very helpful for this type of basic exploratory quality analysis of OSM data

OSM History Datasets

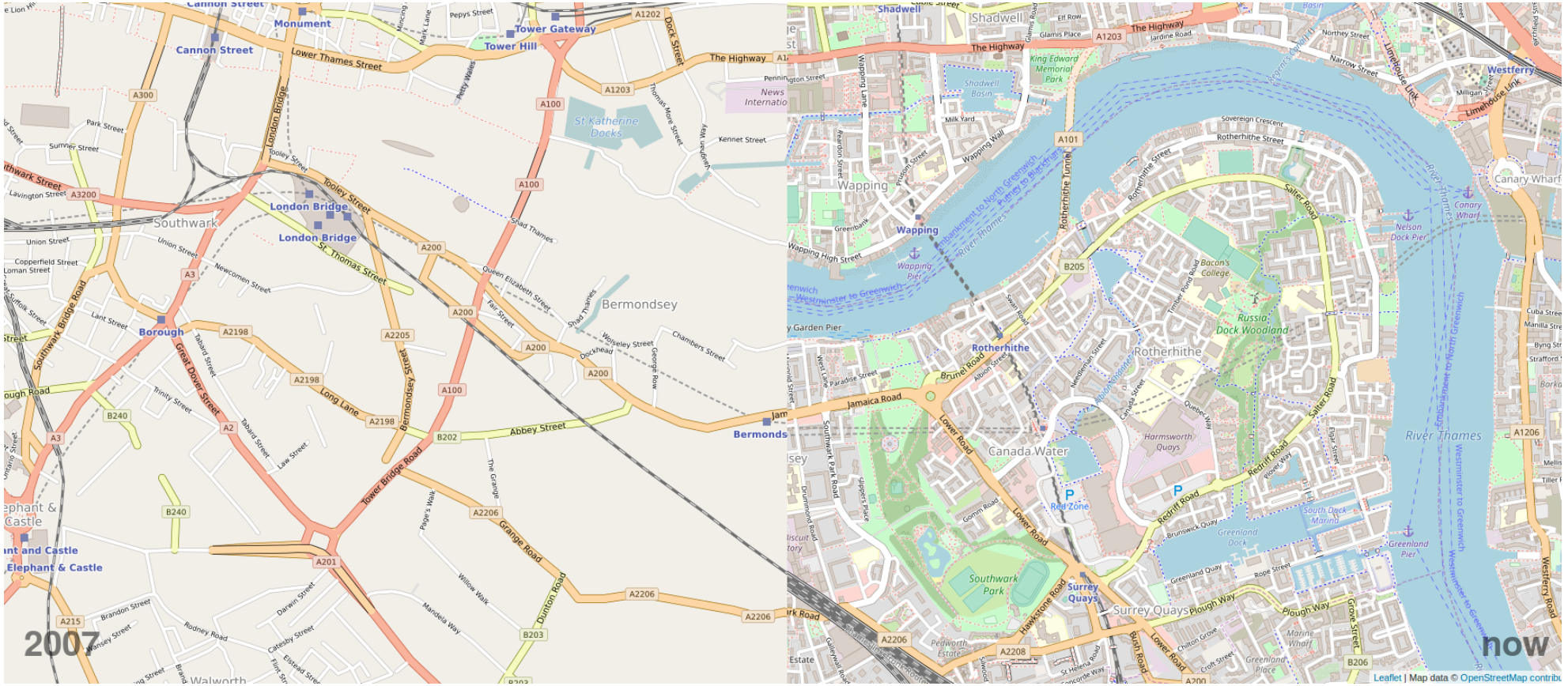
History in Coimbra…

*"The University of Coimbra, was founded as a Studium Generale in Lisbon in **1290** by King Dinis I. The University was relocated to Coimbra in **1308**, but in **1338** the King D. Afonso IV returned the University to Lisbon. The University was definitively transferred to the premises of Coimbra Royal Palace in **1537** by King John III, and expanded by **1544** to occupy the Coimbra Royal Palace."* Source: Wikipedia

Coimbra didn’t exist in 2007???



London City

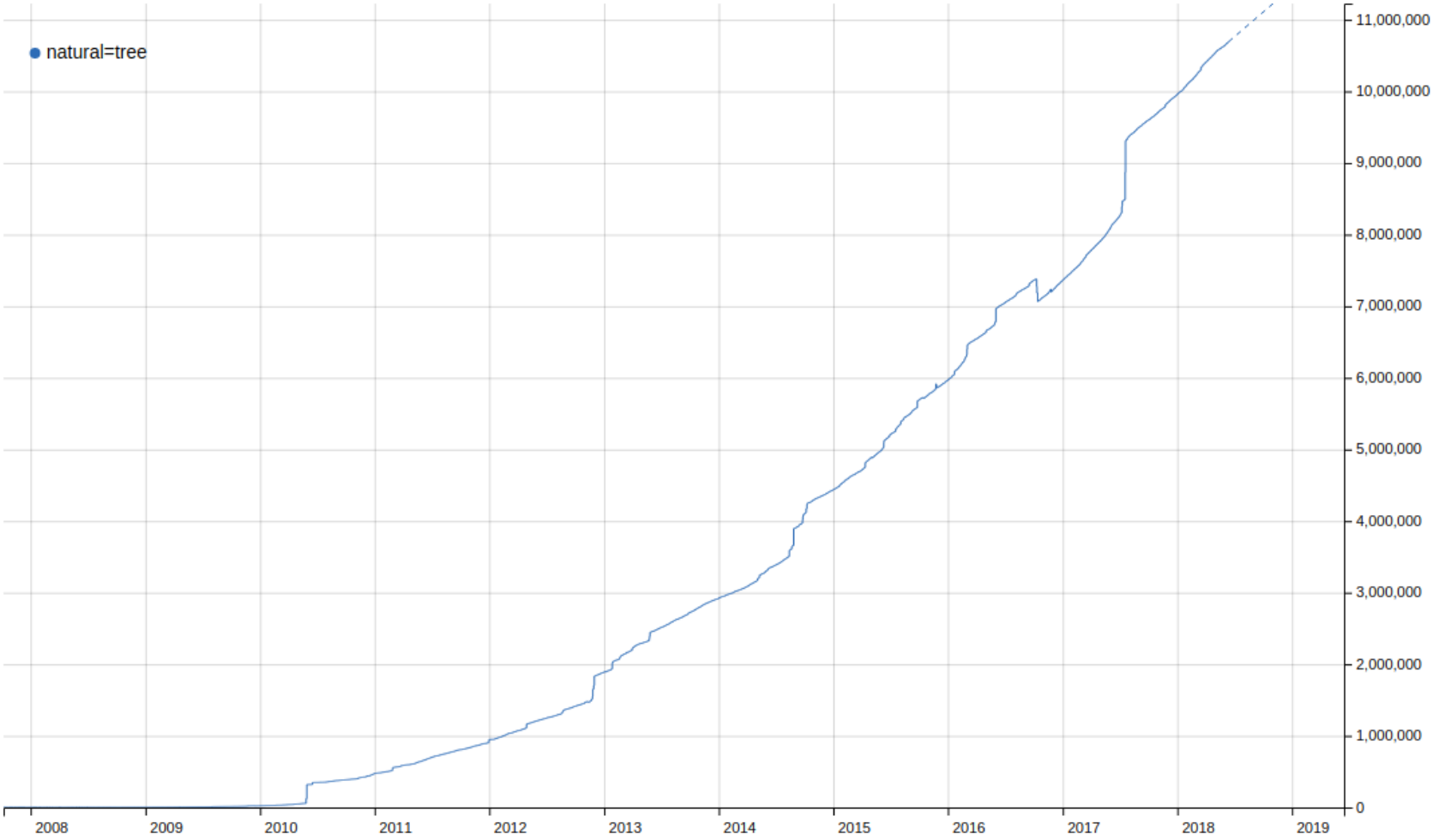


https://taghistory.raifer.tech

OSM Tag History

about this tool

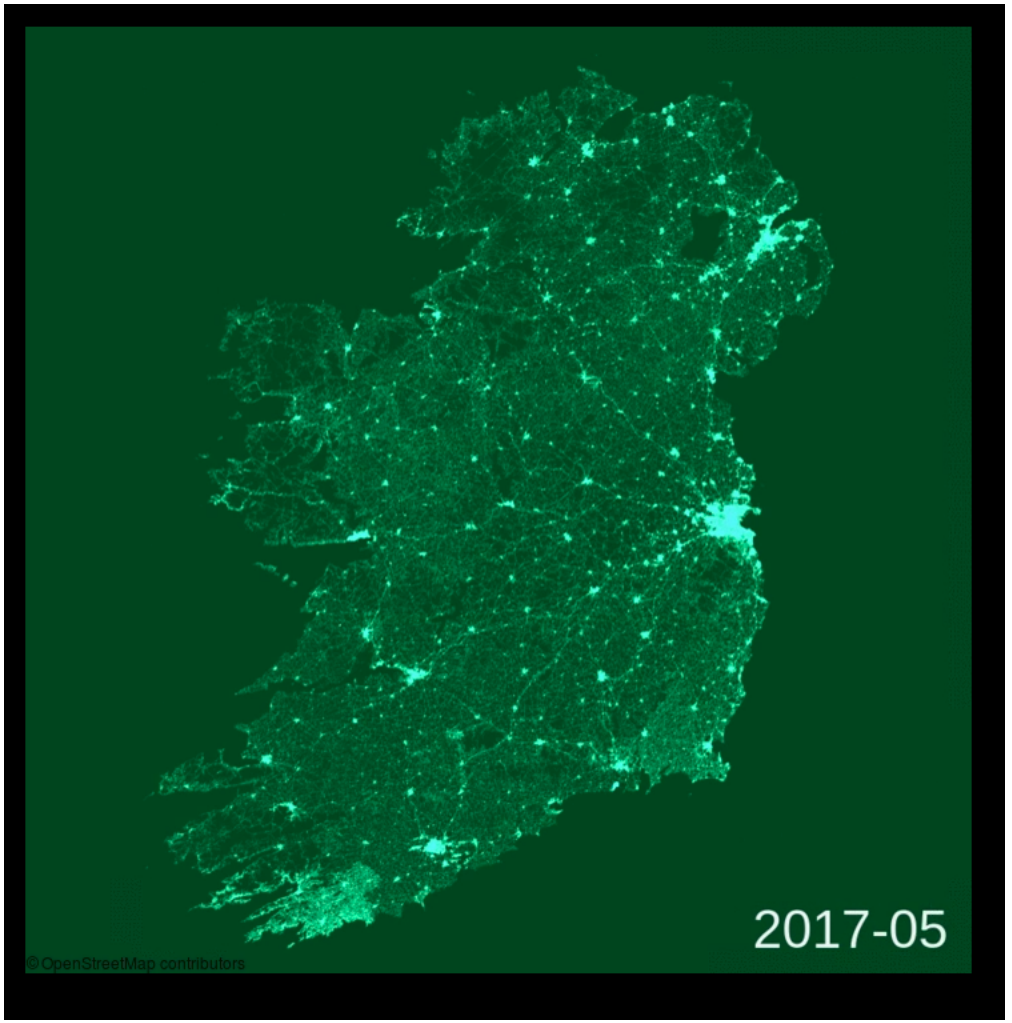
any type | natural | tree | add tag



download graph as svg / png

Data © OpenStreetMap contributors (ODbL).

Evolution of the OSM road network in Ireland to 2018



Link here
https://gisforthought.com/wp-content/uploads/2018/06/osm_roads.mp4?_=1

https://twitter.com/heikkivesanto?lang=en

OSM Visual History (tabular)

Search Where is this? Go

Relation: Coimbra (4875183)

Imported Mira admin_level=10 boundaries and places

Edited over 1 year ago by dmlu_import
Version #47 · Changeset #55628395

Tags

ISO3166-2	PT-06
admin_level	6
border_type	distrito
boundary	administrative
ine:code	06
name	Coimbra
name:en	Coimbra
name:es	Coímbra
name:fr	Coïmbre
name:pt	Coimbra
official_name	Distrito de Coimbra
official_name:en	Coimbra District
official_name:fr	District de Coimbra
official_name:pt	Distrito de Coimbra
population	430104
population:date	2011

https://www.openstreetmap.org/relation/4875183

OSM Deep History allows us to see where the object was edited (and why)

OSM Deep History

View history of objects in OpenStreetMap

https://osmlab.github.io/osm-deep-history/#/relation/4875183

Version		16	17	18	19
Time	16 7:40 PM	March 2, 2016 10:38 PM	March 3, 2016 2:29 AM	April 2, 2016 5:20 PM	June 30, 2016 10:31 AM
Changeset		37576377	37578035	38251221	40387382
User	ano_import	ViriatoLusitano_import	ViriatoLusitano_import	Aleks-Berlin	Verdy_p
tags					
ISO3166-1		PT-06	PT-06		
ISO3166-2				PT-06	PT-06
admin_level		6	6	6	6
border_type		distrito	distrito	distrito	distrito
boundary	ve	administrative	administrative	administrative	administrative
ine:code		06	06	06	06
name		Coimbra	Coimbra	Coimbra	Coimbra
name:en					Coimbra
name:es					
name:fr					Coimbra
name:pt					Coimbra
official_name	Coimbra	Distrito de Coimbra	Distrito de Coimbra	Distrito de Coimbra	Distrito de Coimbra
official_name:en					Coimbra District
official_name:fr					District de Coimbra
official_name:pt					Distrito de Coimbra
population		430104	430104	430104	430104

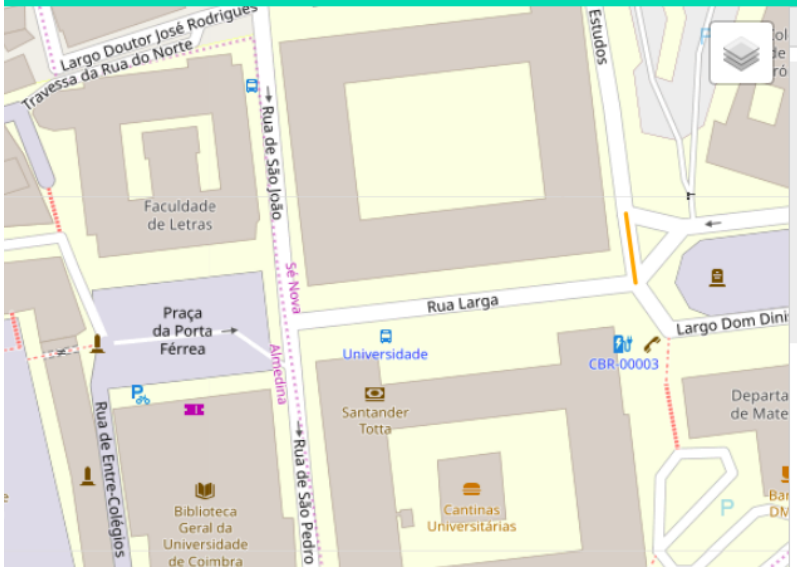
Coimbra: Way 11412629 (version 31)

https://osmlab.github.io/osm-deep-history/#/way/11412629

OSM Deep History

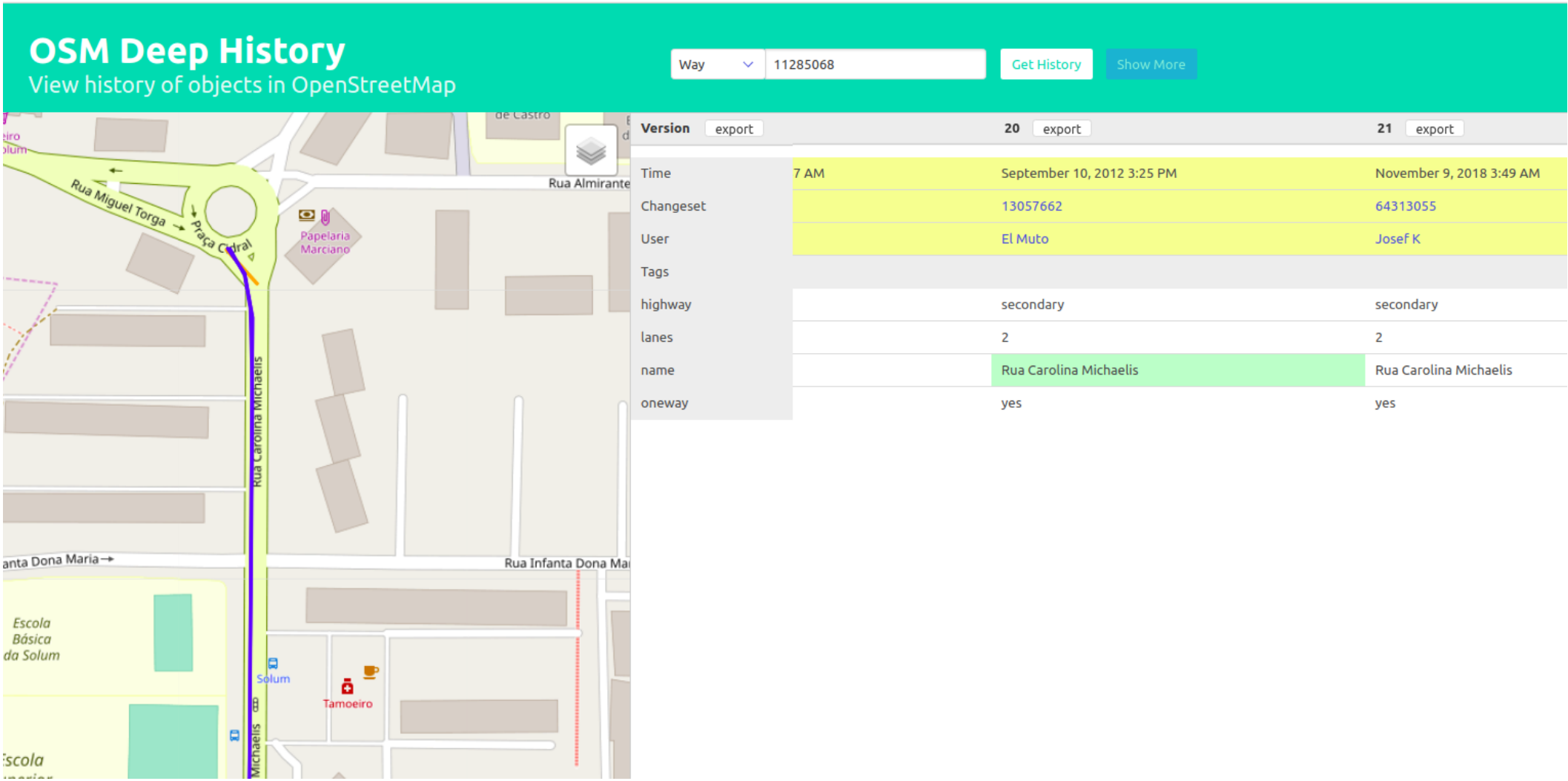
View history of objects in OpenStreetMap

Way | 11412629 | Get History | Show More

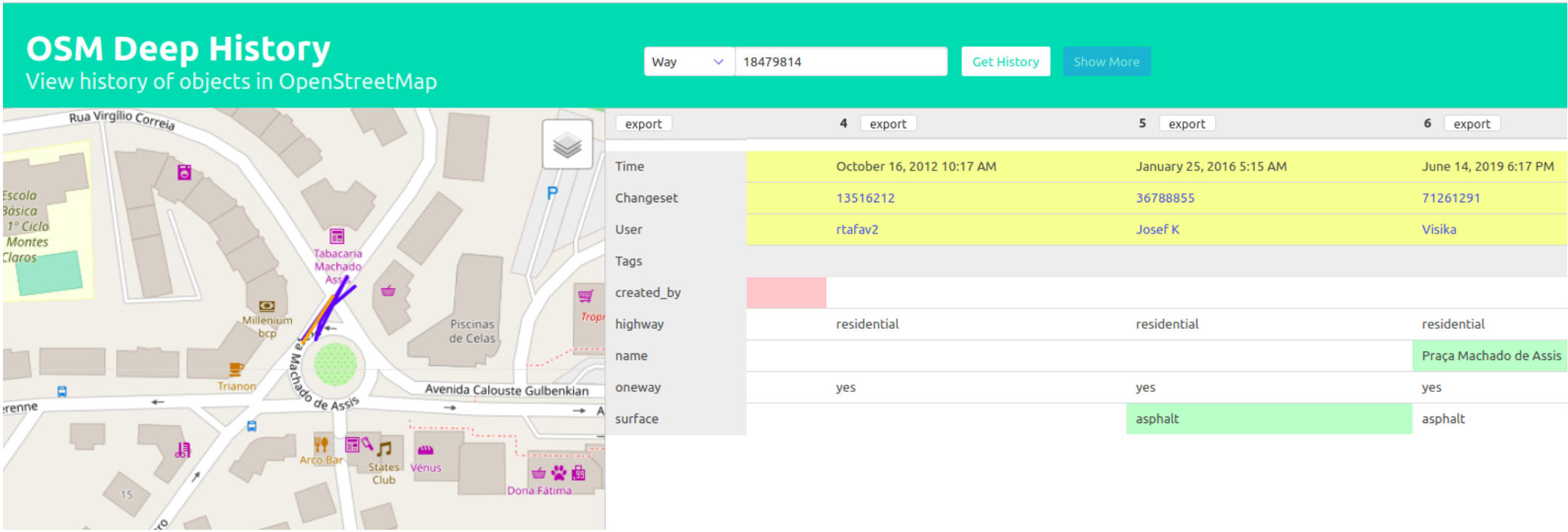


Version	25	27	29	30	31
Time	March 16, 2012 4:42 PM	March 17, 2012 5:51 PM	July 15, 2012 7:50 PM	August 6, 2012 10:48 AM	January 25, 2016 5:15 AM
Changeset	11000113	11010617	12234159	12630806	36788855
User	O Basofias	O Basofias	OSMF Redaction Account	rtafav2	Josef K
Tags					
highway				residential	residential
name			Largo Dom Dinis		Rua dos Estudos
surface					asphalt

Coimbra: Way 11285068 Geom change (version 21)

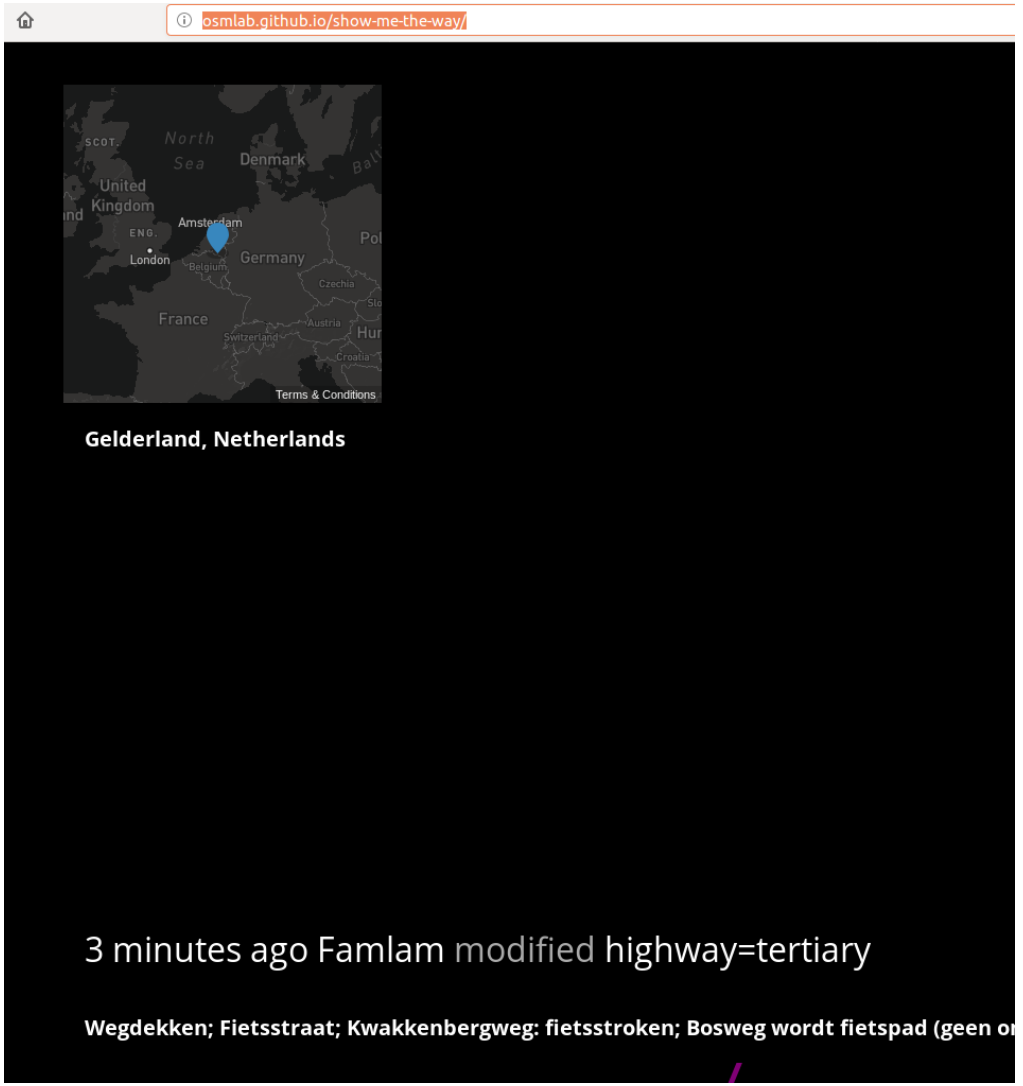


Coimbra: Way 18479814 (version 6)



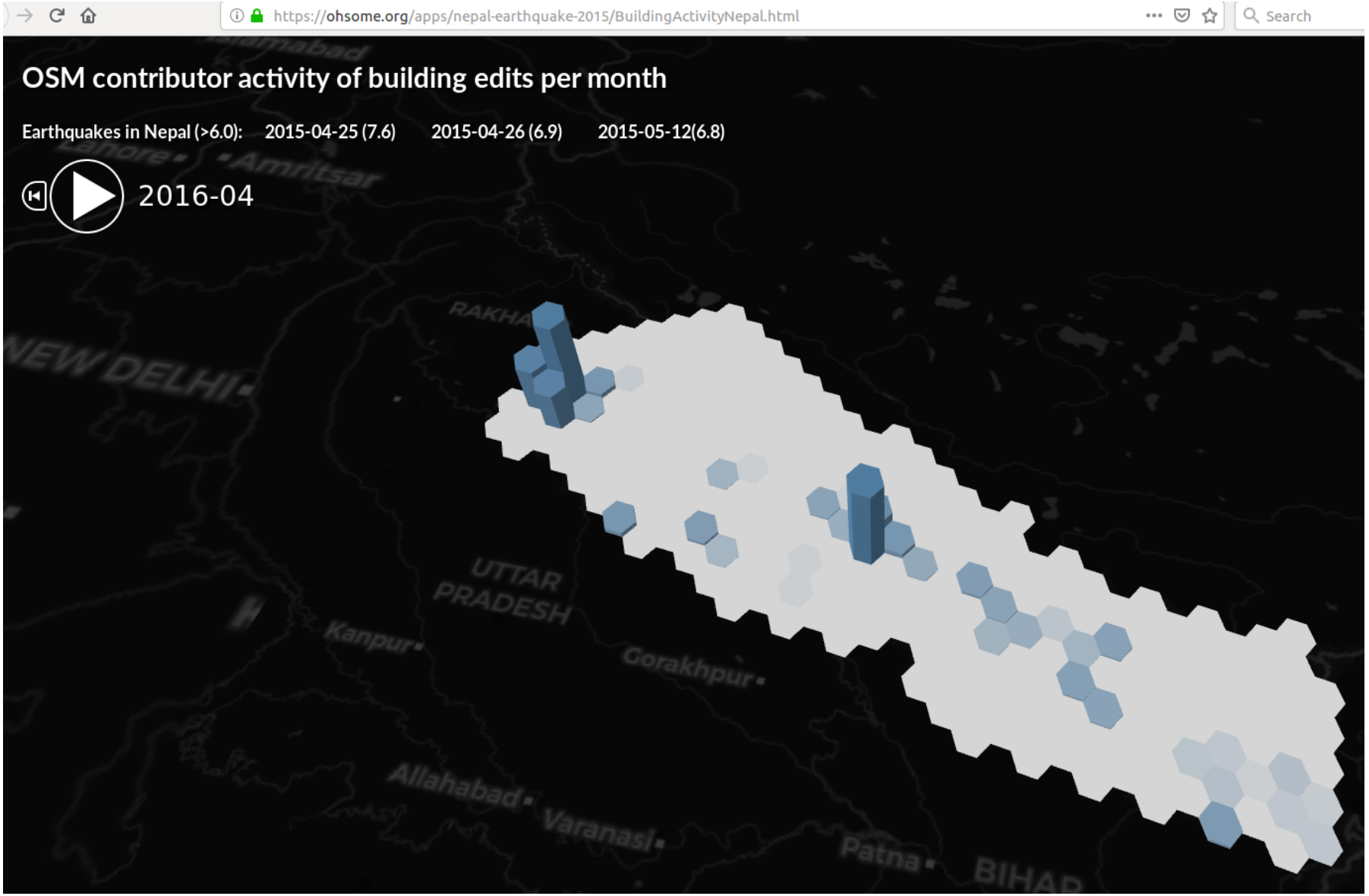
https://osmlab.github.io/osm-deep-history/#/way/18479814

OSM Show-me-the-way

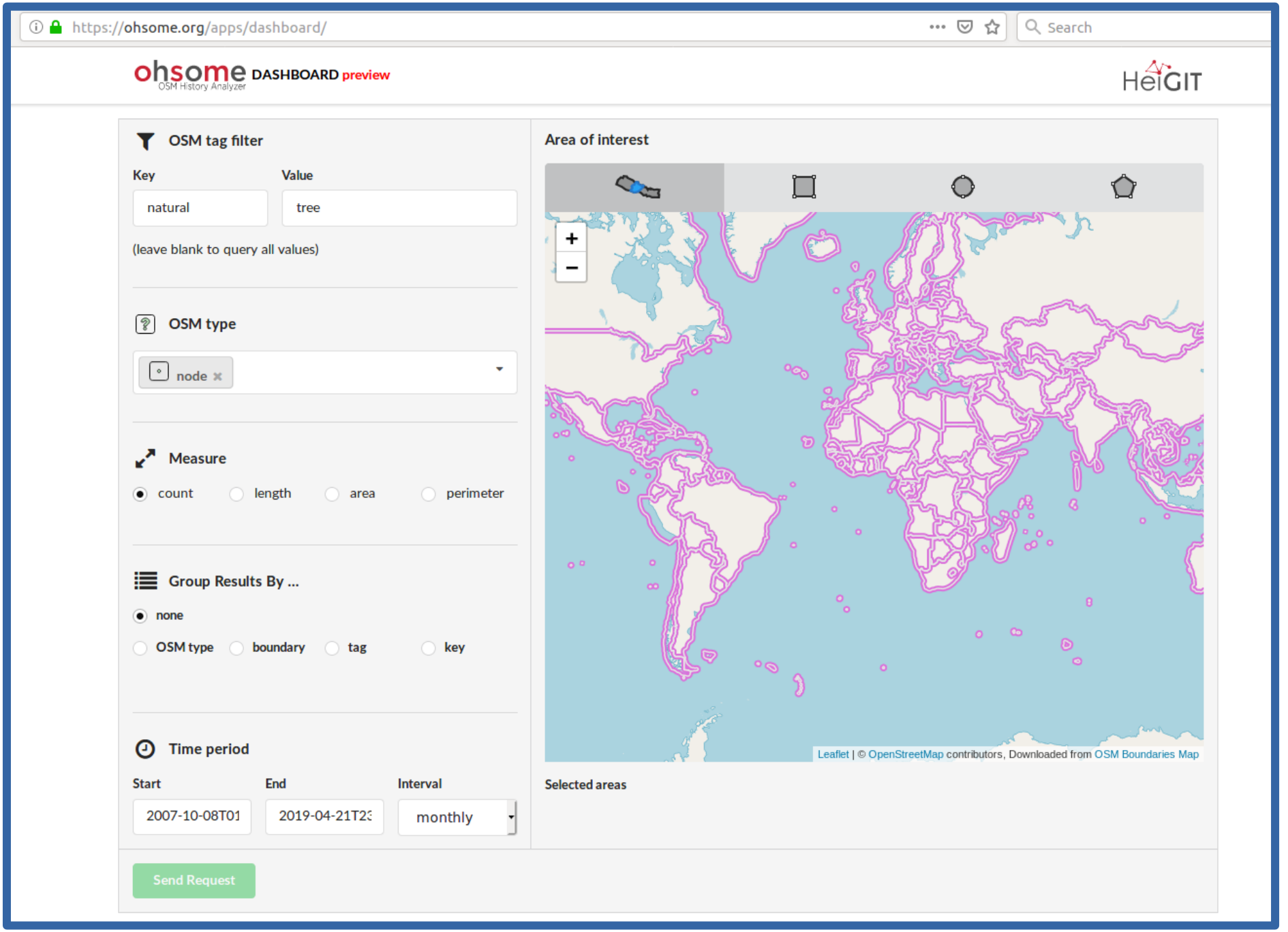


http://osmlab.github.io/show-me-the-way/

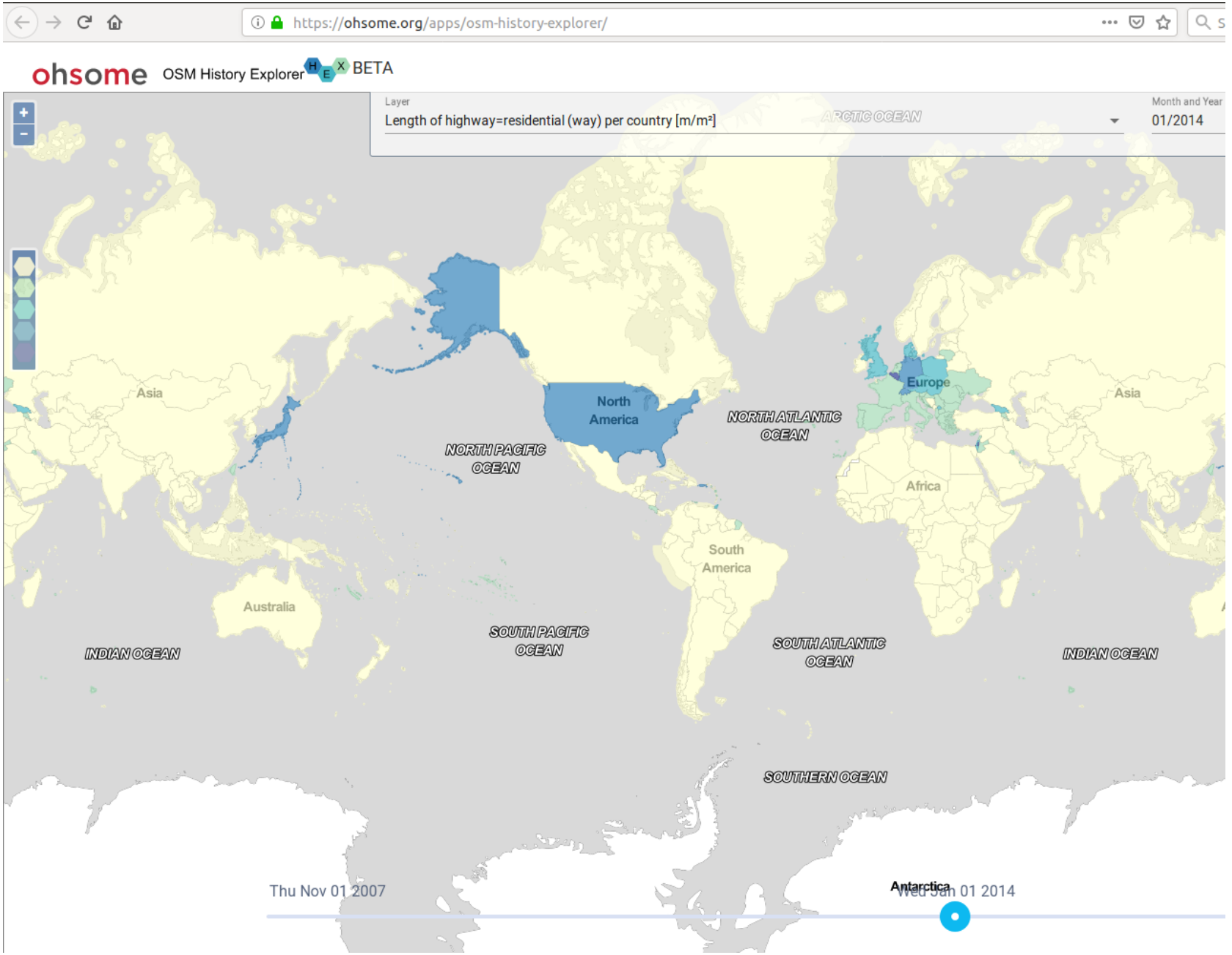
OHSOME – H'berg



https://ohsome.org/apps/nepal-earthquake-2015/BuildingActivityNepal.html

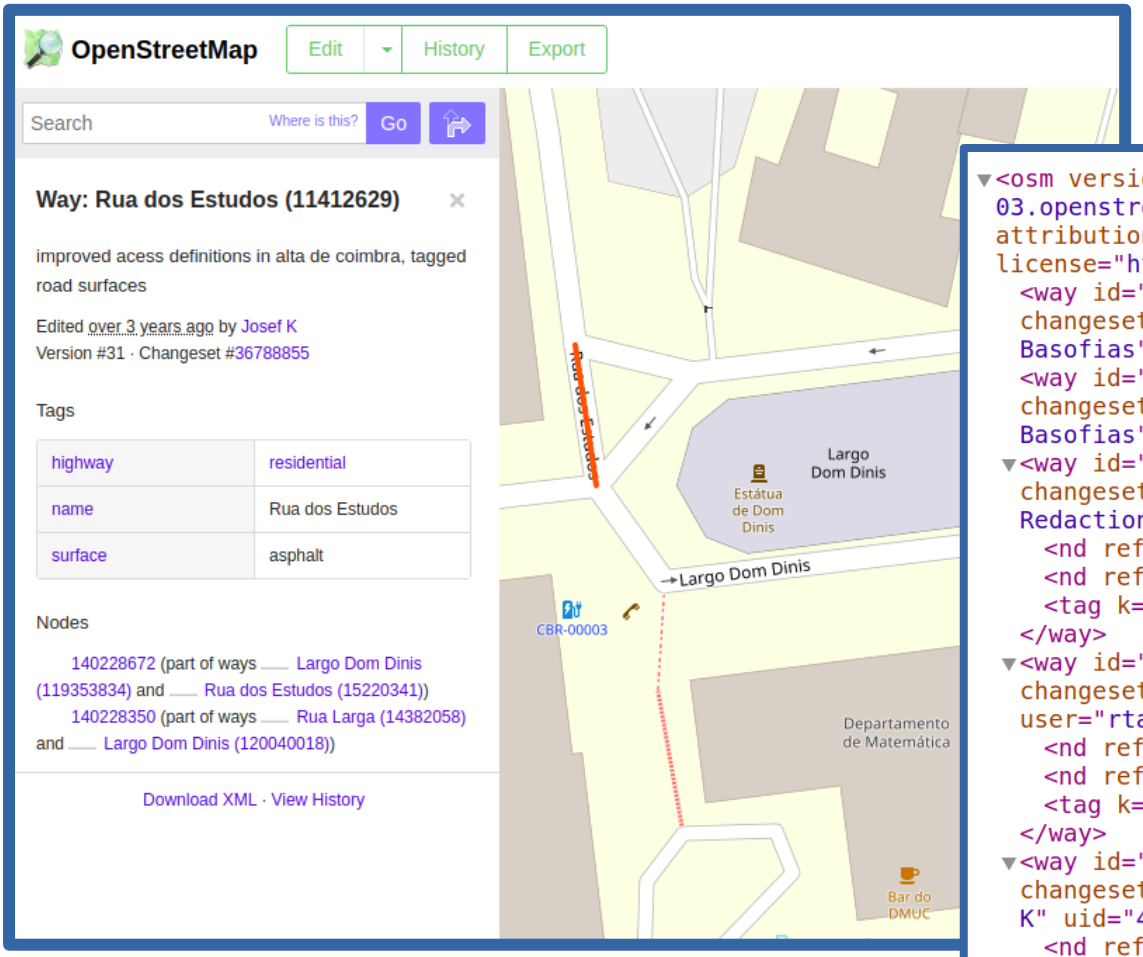


https://ohsome.org/apps/dashboard/



https://ohsome.org/apps/osm-history-explorer/

Using the OSM website and XML



```
▼<osm version="0.6" generator="CGImap 0.7.5 (937 thorn-
03.openstreetmap.org)" copyright="OpenStreetMap and contributors"
attribution="http://www.openstreetmap.org/copyright"
license="http://opendatacommons.org/licenses/odbl/1-0/">
  <way id="11412629" visible="false" version="25"
  changeset="11000113" timestamp="2012-03-16T16:42:14Z" user="O
  Basofias" uid="630212"/>
  <way id="11412629" visible="false" version="27"
  changeset="11010617" timestamp="2012-03-17T17:51:30Z" user="O
  Basofias" uid="630212"/>
▼<way id="11412629" visible="true" version="29"
  changeset="12234159" timestamp="2012-07-15T18:50:54Z" user="OSMF
  Redaction Account" uid="722137">
    <nd ref="140228672"/>
    <nd ref="140228350"/>
    <tag k="name" v="Largo Dom Dinis"/>
  </way>
▼<way id="11412629" visible="true" version="30"
  changeset="12630806" timestamp="2012-08-06T09:48:03Z"
  user="rtafav2" uid="602999">
    <nd ref="140228672"/>
    <nd ref="140228350"/>
    <tag k="highway" v="residential"/>
  </way>
▼<way id="11412629" visible="true" version="31"
  changeset="36788855" timestamp="2016-01-25T05:15:40Z" user="Josef
  K" uid="47097">
    <nd ref="140228672"/>
    <nd ref="140228350"/>
    <tag k="highway" v="residential"/>
    <tag k="name" v="Rua dos Estudos"/>
    <tag k="surface" v="asphalt"/>
```

https://www.openstreetmap.org/way/11412629/history

GeoFabrik provide access to region-sized full OSM history data

https://osm-internal.download.geofabrik.de/eur 110% Search

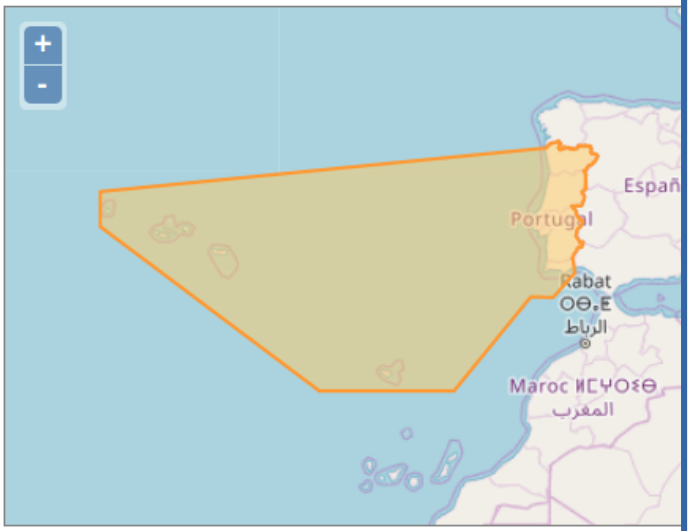
GEOFABRIK downloads

Download OpenStreetMap data for this region:

Portugal

[one level up]

The OpenStreetMap data files provided on this server contain personal data of the OpenStreetMap contributors. Therefore, their usage is governed by data protection regulations in the European Union. These regulations apply even to data processing that happens outside the European Union because some people whose data is contained in this files live in the European Union.
These files must only be used for OpenStreetMap internal purposes, e.g. quality assurance. You must ensure that derived databases and works based on these files are only accessible to OpenStreetMap contributors.
Use our public download server to get the files without metadata.



Commonly Used Formats

- portugal-latest-internal.osm.pbf, suitable for Osmium, Osmosis, imposm, osm2pgsql, mkgmap, and others. This file was last modified 21 hours ago and contains all OSM data up to 2019-06-14T20:15:02Z. File size: 204 MB; MD5 sum: 0640135db18c22e5c2b1442c41f1e471.
- ~~portugal-latest-free.shp.zip~~ Shape files are only available without personal metadata.

Other Formats and Auxiliary Files

- ~~portugal-latest.osm.bz2~~ is only available without personal metadata.
- portugal-internal.osh.pbf, a file that contains the full OSM history for this region for processing with e.g. osmium. This file was last modified 2 days ago. File size: 358 MB; MD5 sum: ec02d71b16fbf6d3e06a4ab7e72443a6.
- .poly file that describes the extent of this region.
- .osc.gz files that contain all changes in this region, suitable e.g. for Osmosis updates
- raw directory index allowing you to see and download older files

Not what you were looking for? Geofabrik is a consulting and software development firm based in Karlsruhe, Germany specializing in OpenStreetMap services. We're happy to help you with data preparation, processing, server setup and the like. Check out our web site and contact us if we can be of service.

Nicht das Richtige dabei? Die Geofabrik ist ein auf OpenStreetMap spezialisiertes Beratungs- und Softwareentwicklungsunternehmen in Karlsruhe. Gern helfen wir Ihnen bei der Datenaufbereitung, Datenkonvertierung, Serverinstallation und ähnlichen Aufgaben. Besuchen Sie unsere

What can we learn from OSM History?

OSM History: Analysis of how objects change over time

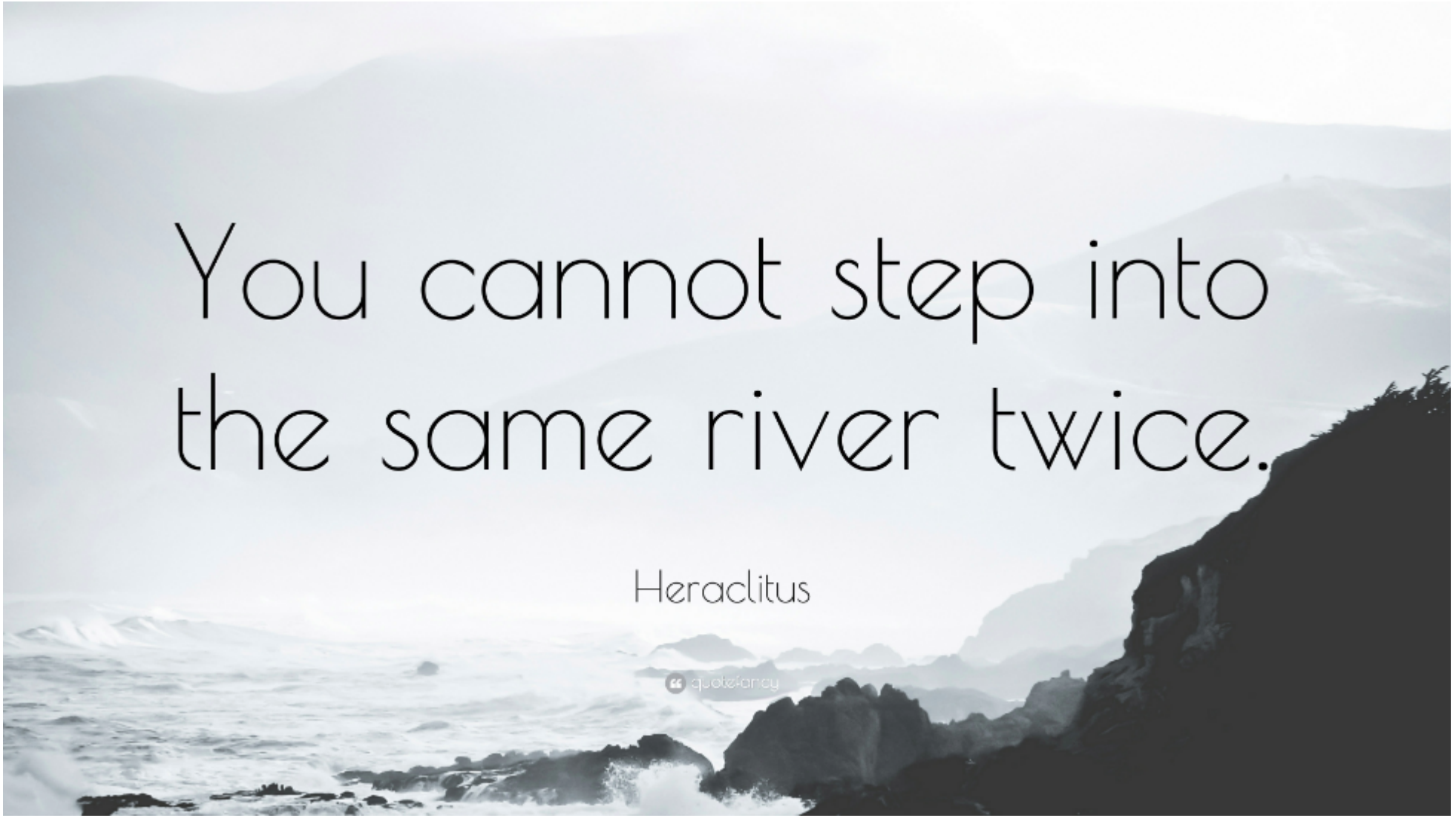
- **When you download OSM data – you see the CURRENT VERSION of the OSM data only.**
- You do not see HOW the objects in the dataset evolved or changed since their creation.

```
<way id="18479814" visible="true" version="6" changeset="71261291" timestamp="
2019-06-14T17:17:23Z" user="Visika" uid="1237561">
 <nd ref="190624446"/>
 <nd ref="1749747083"/>
 <tag k="highway" v="residential"/>
 <tag k="name" v="Praça Machado de Assis"/>
 <tag k="oneway" v="yes"/>
 <tag k="surface" v="asphalt"/>
</way>
```

OSM History: Analysis of how objects change over time (2)

- **Tag Changes:** You can see how tags change or are updated on objects over time (important for quality in terms of currency, timeliness, accuracy)
- **Geometry Changes:** You can see how the geometry changes over time. For example: if a building is expanded, a green space is made smaller, a new road. Apps: Urban/environmental change
- Geometry changes are vital for accuracy, precision and temporal quality.

OSM is changing EVERY MINUTE



Thanks Everyone!

I hope you enjoyed Day #1