

OpenStreetMap

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Alessandro Sarretta

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Chi siamo



Marco Minghini

- Scientific Project Officer al JRC (EC)
- Esperto di GIS, SDI, VGI
- Contributore OpenStreetMap dal 2014
- Membro della comunità italiana OSM



Alessandro Sarretta

- Ricercatore al CNR-IRPI
- Esperto di SDI, MSP, GIS
- Contributore OpenStreetMap dal 2013
- Coordinatore nazionale OSM per WMI

Contenuti del workshop

- Agenda
 - Introduzione a OpenStreetMap
 - Il modello dati di OpenStreetMap
 - Modifiche in OpenStreetMap
 - Estrazione/download dei dati
 - Hands-on: inserire dati
 - Hands-on: usare i dati
 - Strumenti di controllo della qualità
- Interazioni con i partecipanti
 - durante le presentazione: Q&A nella chat
 - al termine della presentazione: Q&A live

Introduzione a OpenStreetMap

OpenStreetMap (OSM)

<https://www.openstreetmap.org>



- OpenStreetMap (OSM) è il più noto progetto di **Informazione Geografica Volontaria** (VGI)
 - iniziato da **Steve Coast** in UK nel 2004



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 - finalizzato alla creazione di un database geografico 'crowdsourced' **libero** del mondo



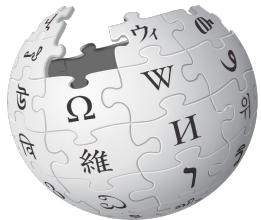
OpenStreetMap (OSM)

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 - il database geografico più **grande, vario, completo** ed **aggiornato** al mondo
 - la **Wikipedia delle mappe**

~



WIKIPEDIA
The Free Encyclopedia

OpenStreetMap (OSM)

<https://www.openstreetmap.org>



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 - il database geografico più **grande, vario, completo** ed **aggiornato** al mondo
 - la **Wikipedia delle mappe**
 - OpenStreetMap **non è un'alternativa a Google Maps!**

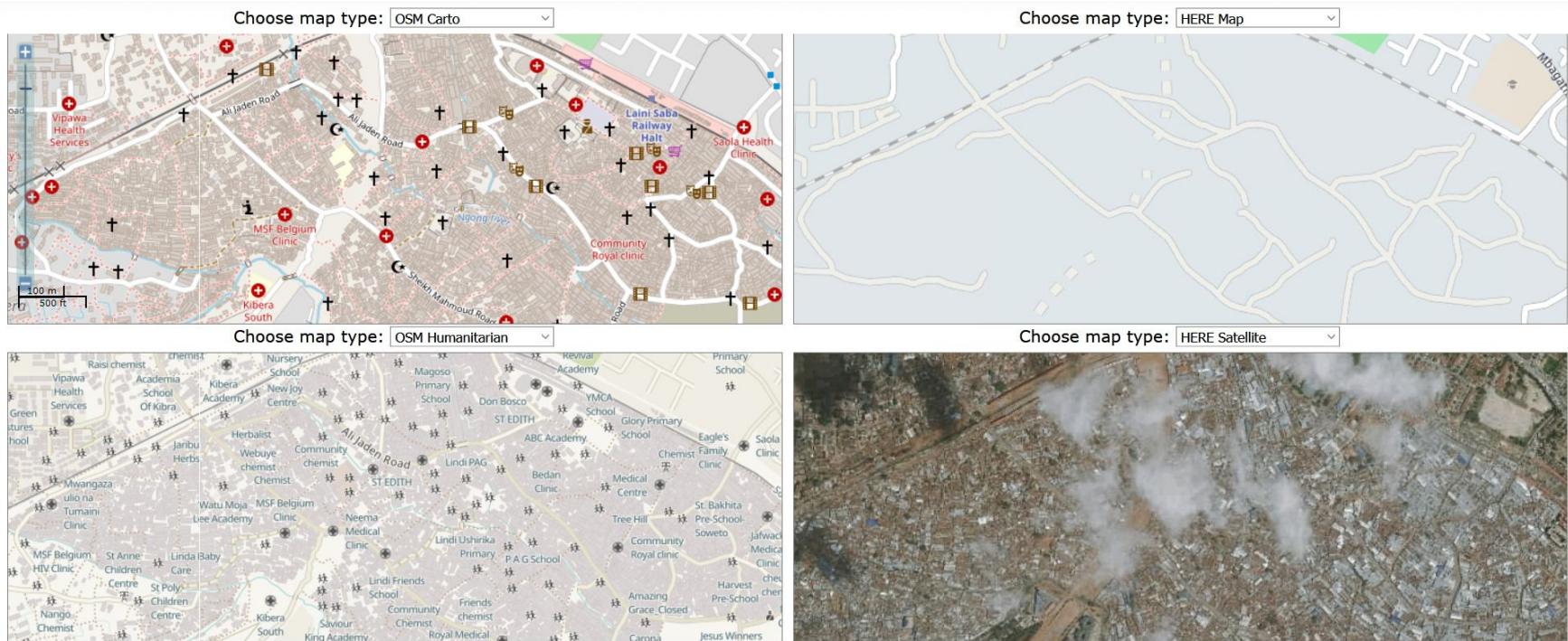


Perché OpenStreetMap?

- La crescita e il successo del progetto OSM sono dovuti a un insieme di fattori:
 - societari & economici:
 - mancanza di dati geografici ufficiali in molte parti del mondo
 - presenza di dati geografici a pagamento e/o con licenze di utilizzo restrittive
 - tecnologici:
 - diffusione di Internet e Web 2.0
 - disponibilità di dispositivi GPS a basso costo
 - disponibilità di immagini satellitari ad alta risoluzione
- 10 anni di OSM (video): <https://www.youtube.com/watch?v=7sC83j6vzjo>

OpenStreetMap vs. altri database geografici

- OpenStreetMap è spesso la sorgente di dati **più completa** (o **l'unica**) esistente!



<https://tools.geofabrik.de/mc/#16/-1.3128/36.7918&num=4&mt0=mapnik&mt1=here-map&mt2=mapnik-humanitarian&mt3=here-satellite>

OSM - Approccio e principi

- La filosofia di OpenStreetMap si basa sulla **conoscenza locale** dei contributori.
- Il progetto è guidato dalla **comunità** (approccio bottom-up):
 - coordinato (ma non controllato) dalla **OpenStreetMap Foundation** (OSMF)
 - entità legale del progetto OSM
 - gestione dell'infrastruttura tecnica
 - responsabile della sostenibilità economica
 - NON gestisce i progetti software
 - NON decide cosa si mappa/non si mappa



© OpenStreetMap contributors

OpenStreetMap powers map data on thousands of web sites, mobile apps, and hardware devices

OpenStreetMap is built by a community of mappers that contribute and maintain data about roads, trails, cafés, railway stations, and much more, all over the world.

⌚ Local Knowledge

OpenStreetMap emphasizes local knowledge. Contributors use aerial imagery, GPS devices, and low-tech field maps to verify that OSM is accurate and up to date.

ⓐ Community Driven

OpenStreetMap's community is diverse, passionate, and growing every day. Our contributors include enthusiast mappers, GIS professionals, engineers running the OSM servers, humanitarians mapping disaster-affected areas, and many more. To learn more about the community, see the [OpenStreetMap Blog](#), [user diaries](#), [community blogs](#), and the [OSM Foundation website](#).

⌚ Open Data

OpenStreetMap is *open data*: you are free to use it for any purpose as long as you credit OpenStreetMap and its contributors. If you alter or build upon the data in certain ways, you may distribute the result only under the same licence. See the [Copyright and License page](#) for details.

<https://wiki.osmfoundation.org/wiki>

La licenza dei dati OpenStreetMap

- Il database di OpenStreetMap è **aperto**, licenziato sotto la Open Data Commons **Open Database License (ODbL)** dalla OSMF.

You are free:

- To Share*: To copy, distribute and use the database.
- To Create*: To produce works from the database.
- To Adapt*: To modify, transform and build upon the database.

As long as you:

- Attribute*: You must attribute any public use of the database, or works produced from the database, in the manner specified in the ODbL. For any use or redistribution of the database, or works produced from it, you must make clear to others the license of the database and keep intact any notices on the original database.
- Share-Alike*: If you publicly use any adapted version of this database, or works produced from an adapted database, you must also offer that adapted database under the ODbL.
- Keep open*: If you redistribute the database, or an adapted version of it, then you may use technological measures that restrict the work (such as DRM) as long as you also redistribute a version without such measures.

<https://www.openstreetmap.org/copyright>

<https://opendatacommons.org/licenses/odbl/summary/index.html>

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<https://opendatacommons.org/licenses/odbl/summary/index.html>

How to credit OpenStreetMap

We require that you use the credit “© OpenStreetMap contributors”.

You must also make it clear that the data is available under the Open Database License, and if using our map tiles, that the cartography is licensed as CC BY-SA. You may do this by linking to [this copyright page](#). Alternatively, and as a requirement if you are distributing OSM in a data form, you can name and link directly to the license(s). In media where links are not possible (e.g. printed works), we suggest you direct your readers to openstreetmap.org (perhaps by expanding ‘OpenStreetMap’ to this full address), to opendatacommons.org, and if relevant, to creativecommons.org.

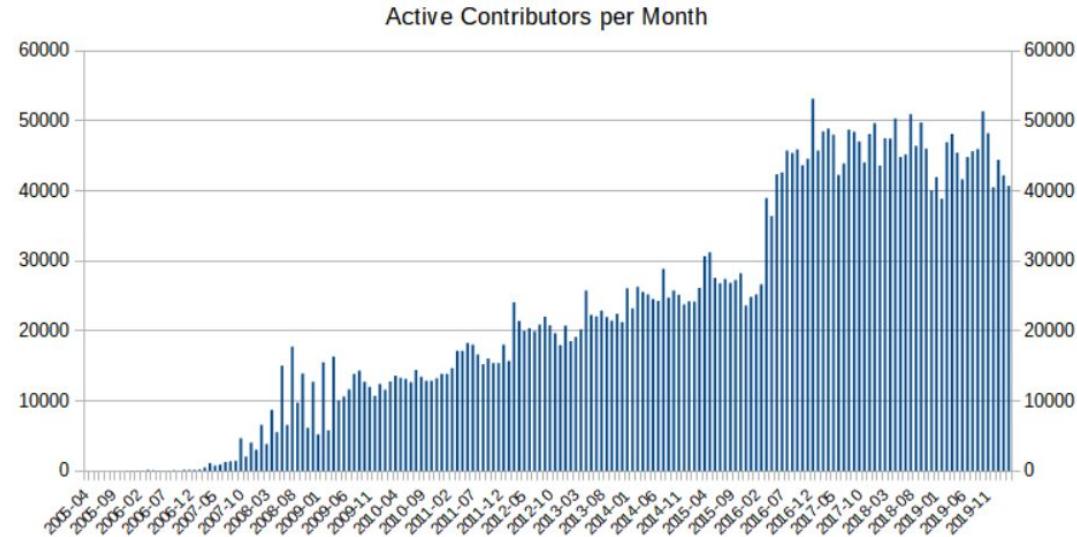
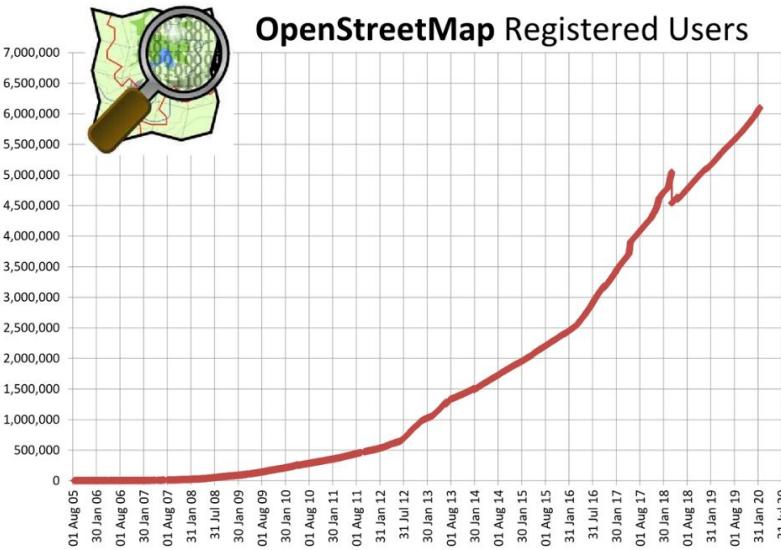
For a browsable electronic map, the credit should appear in the corner of the map. For example:



Quanti sono i contributori a OSM?

<https://wiki.openstreetmap.org/wiki/Stats>

- La comunità di volontari è molto ampia e chiunque può contribuire!
 - oltre **6.5 milioni di utenti registrati** & **1.4 milioni di contributori attivi**
 - circa **40000 contributori attivi al mese** & circa **100 milioni di modifiche al mese**



Contributi a OSM in tempo (quasi) reale

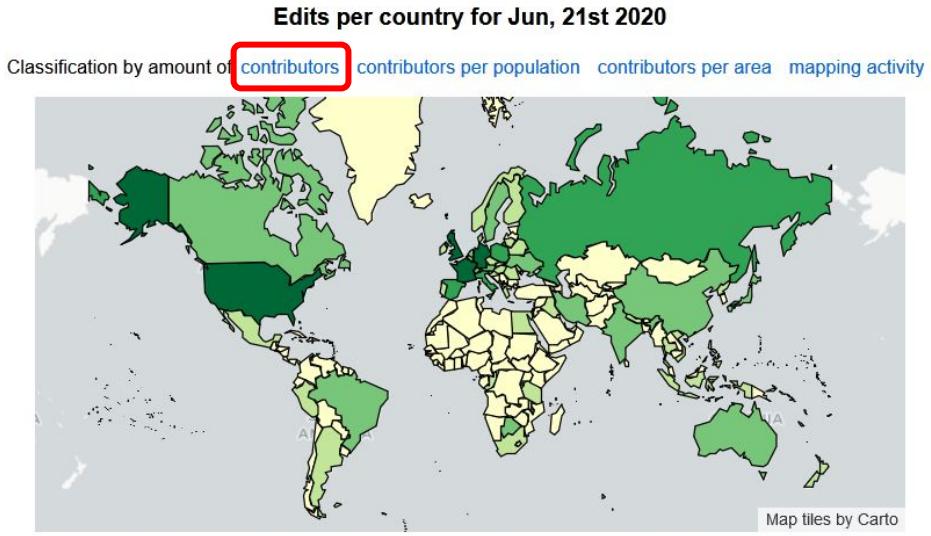


<http://osmlab.github.io/show-me-the-way>

Dove si contribuisce (di più) a OSM?

<https://osmstats.neis-one.org/?item=countries>

- Esistono comunità nazionali particolarmente attive in OSM:
 - **numero di contributori attivi** su base giornaliera



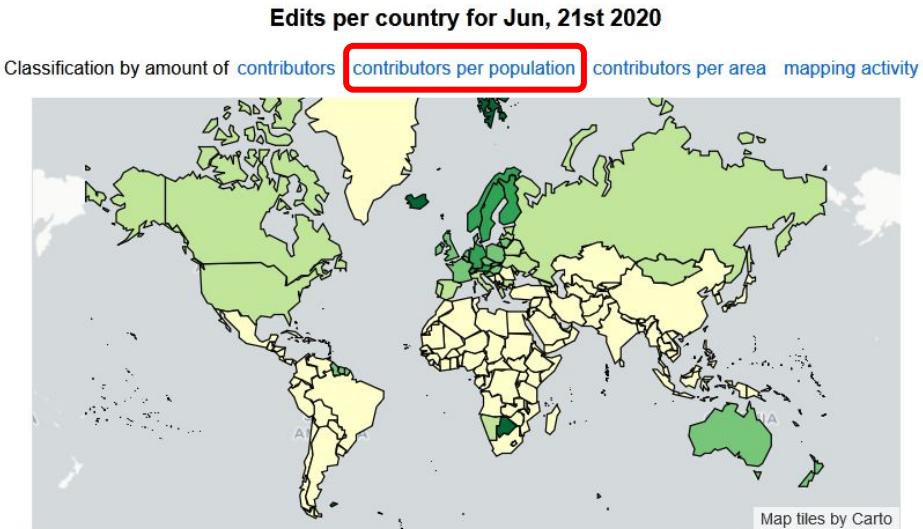
Notice: The changeset's bbox center is utilized for counting. This can cause inaccuracies between ~2% and ~10%.

No.	Country	Contributors	Created elements	Modified elements	Deleted elements
1.	Germany	872	74702	48053	7750
2.	United States	399	231884	53980	24717
3.	France	336	50835	27224	6429
4.	United Kingdom	240	55716	13205	3348
5.	Russia	221	64281	18476	2514
6.	Italy	181	29212	8399	2560
7.	Poland	162	60439	17807	5867
8.	Spain	118	35114	6345	1333

Dove si contribuisce (di più) a OSM?

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- Esistono comunità nazionali particolarmente attive in OSM:
 - **frazione di contributori attivi sul totale della popolazione su base giornaliera**

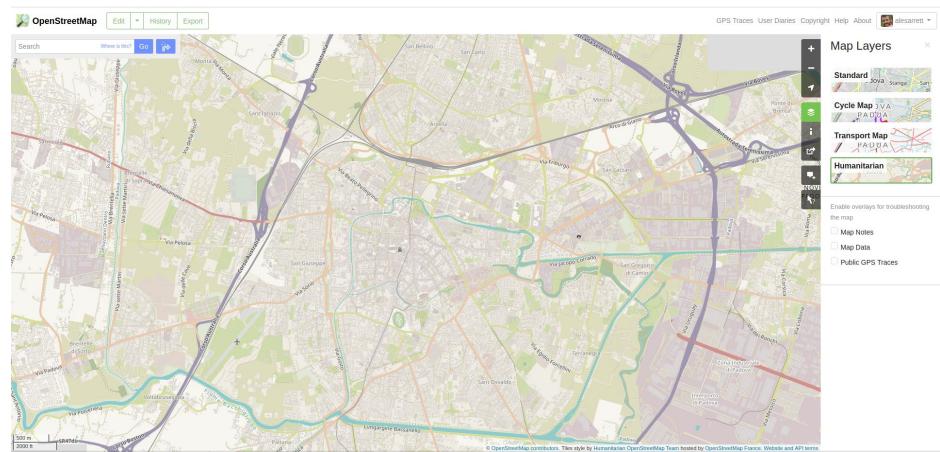
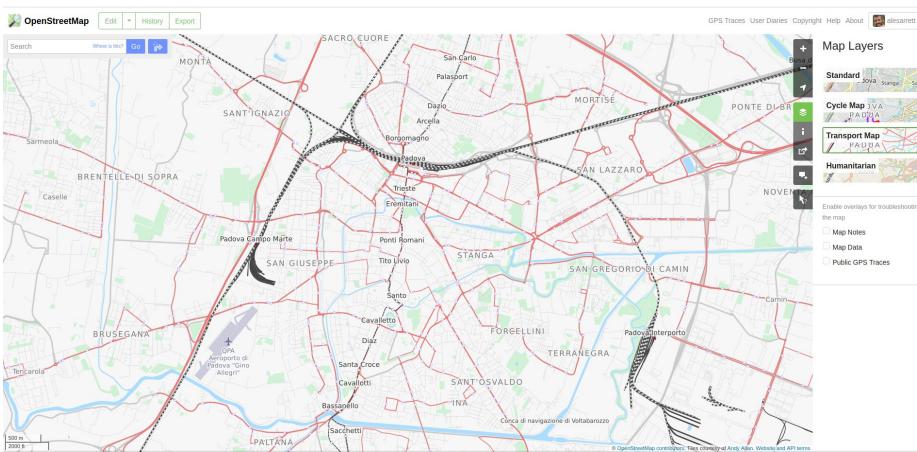
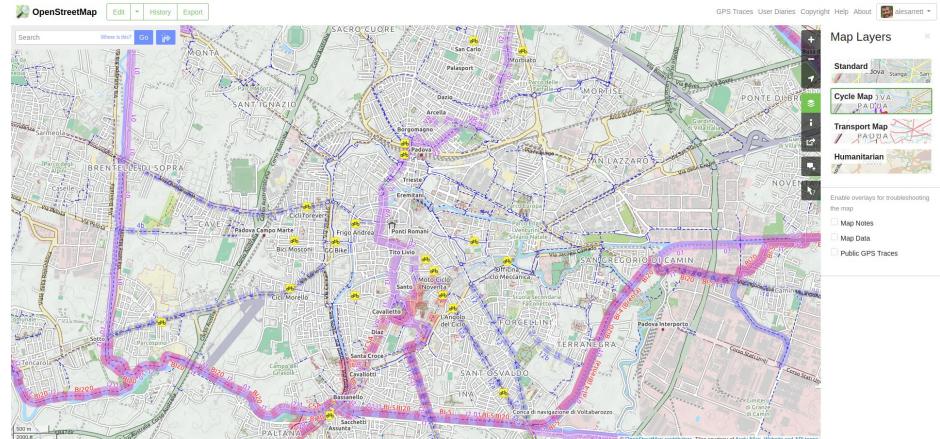
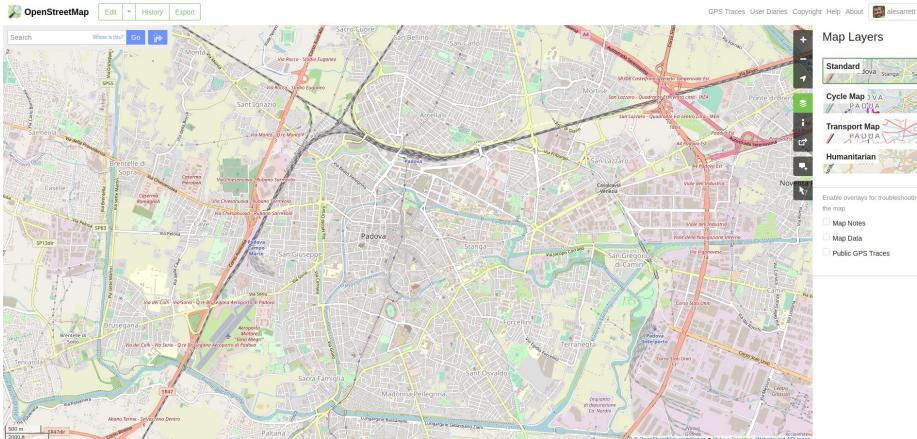


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Un database, tante mappe...

<https://www.openstreetmap.org>



Un database, tante mappe...

<http://hikebikemap.org>

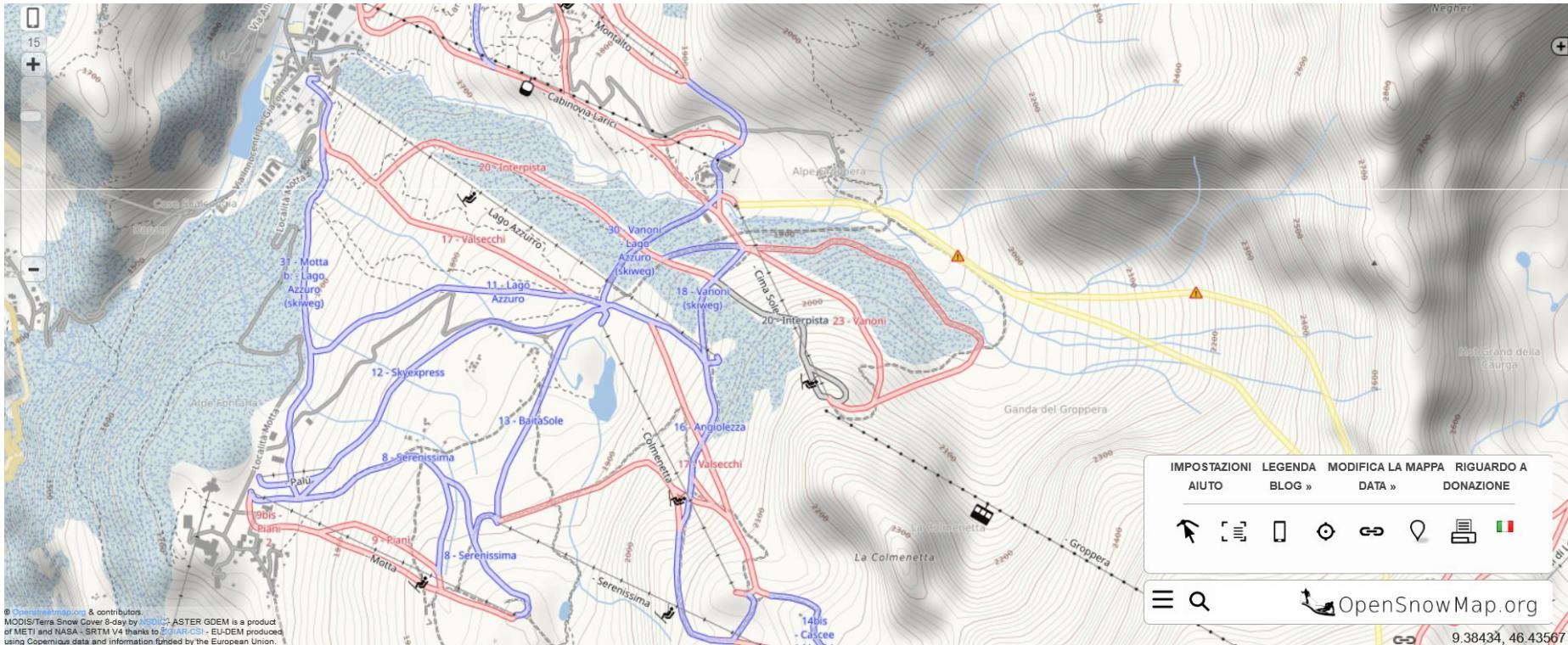
- Visualizzazione per hike & bike



Un database, tante mappe...

<http://www.opensnowmap.org>

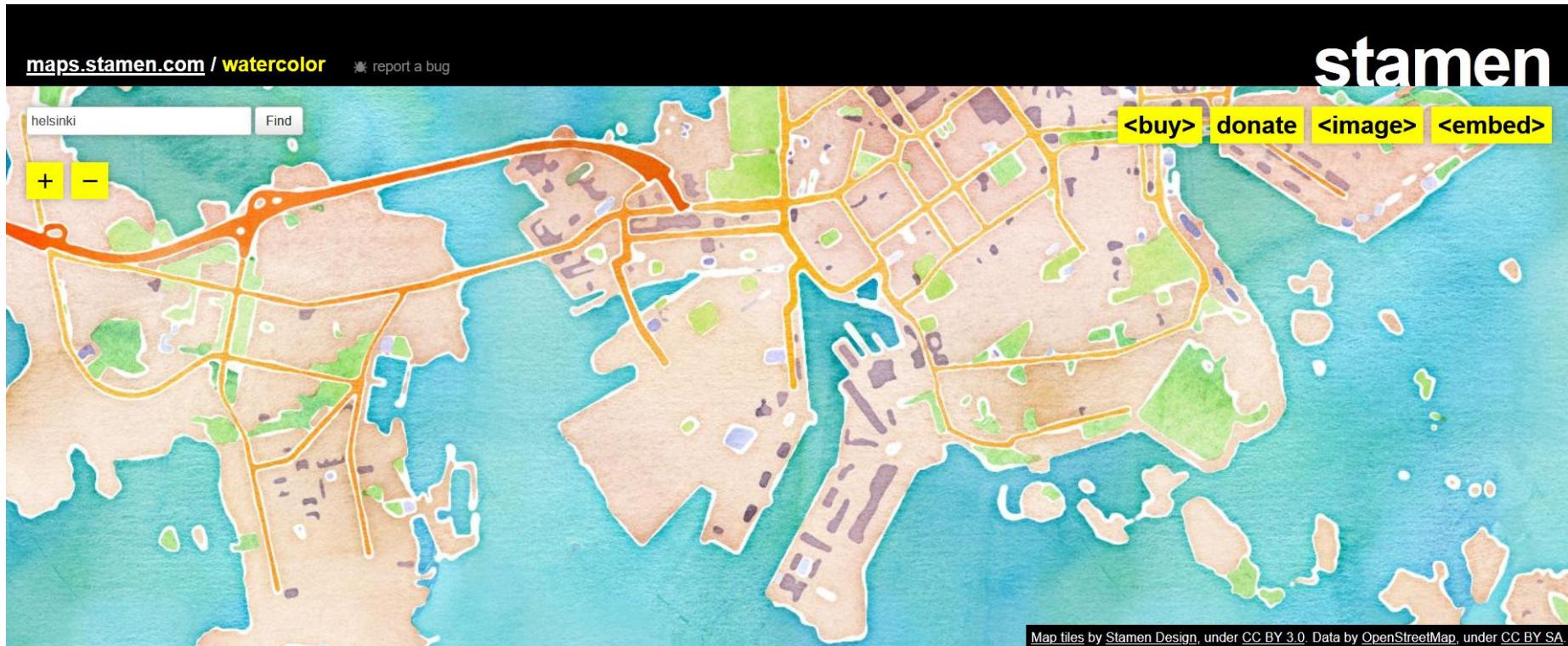
- Visualizzazione dei comprensori sciistici



Un database, tante mappe...

<http://maps.stamen.com/watercolor>

- Visualizzazione ad acquerelli



Un database, tante mappe...

<http://openbeermapper.github.io>

- Visualizzazione dei bar e pub a seconda della birra disponibile

The screenshot shows a map of a city area, likely Paris, with numerous blue circles containing beer mugs scattered across it. These icons represent the locations of bars and pubs. The map includes street names in French. At the top left, there's a navigation bar with 'OpenBeerMap' and links for 'About' and 'News'. On the right side, there's a sidebar with icons for 'All bars' (blue), 'Guinness' (green), 'Heineken' (orange), and 'Customize'.

OpenBeerMap

About News

All bars

Guinness

Heineken

Customize

Leaflet | © OpenStreetMap contributors

Un database, tante mappe...

<https://a.tiles.mapbox.com/v3/aj.Sketchy2.html>

- Visualizzazione in modalità ‘mappa dei pirati’



Un database, tante mappe...

<https://demo.f4map.com>

- Visualizzazione tridimensionale

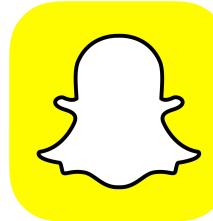


Chi altro usa OpenStreetMap?



The Washington Post

TELENAV®

 + a b | e a u®
The Able logo consists of a cluster of orange and red plus signs of varying sizes arranged in a cross pattern, followed by the word "able" in a blue serif font with a registered trademark symbol.

TESLA

Grab

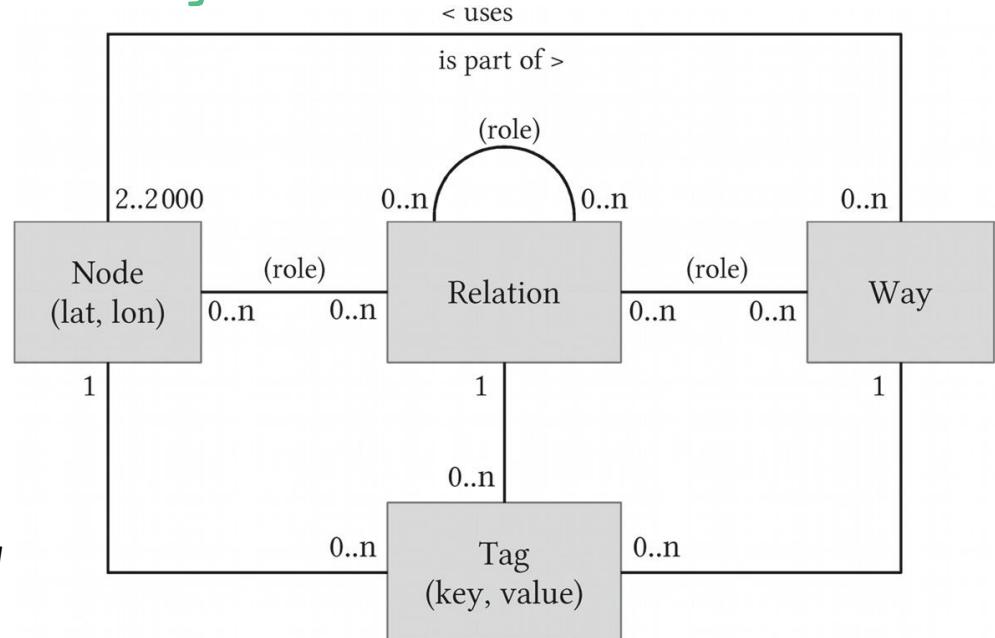
The New York Times

 STRAVA
The Strava logo, featuring a red square with a white triangle pointing down and to the left, followed by the word "STRAVA" in a large red sans-serif font.

Il modello dati di OpenStreetMap

Struttura dei dati

- Il modello dati di OSM prevede **4 data type** e ogni oggetto è caratterizzato da 2 di essi:
 - 3 data type descrivono la **geometria**: **nodo**, **way**, **relazione**
 - il quarto data type descrive gli **attributi**: **tag**

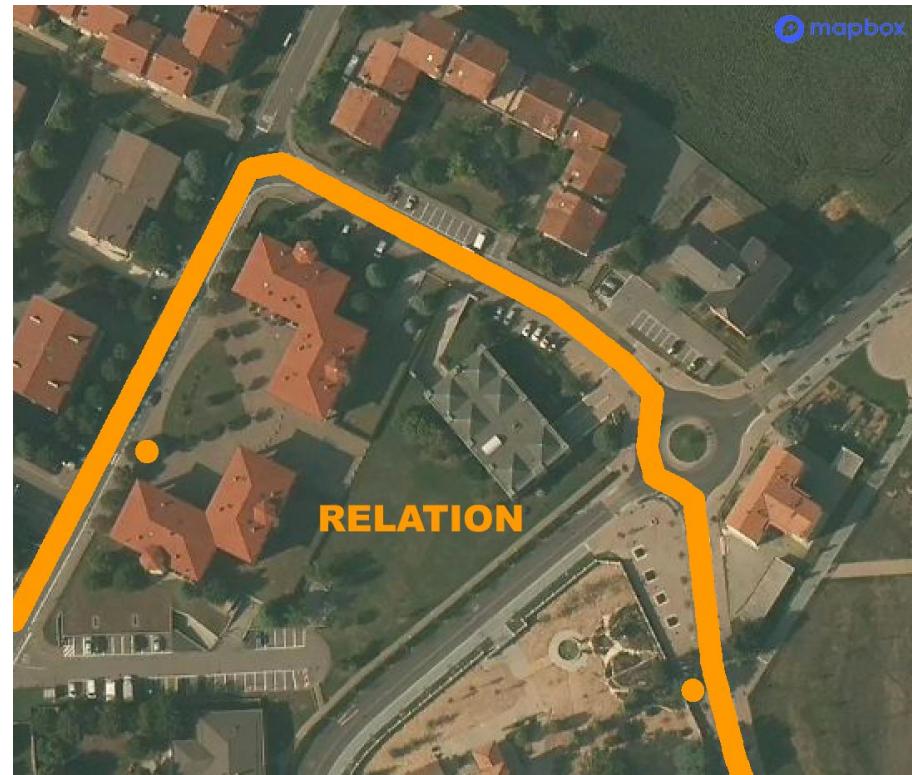


Fonte: Ramm F, Topf J, Chilton S. (2010) *OpenStreetMap: Using and Enhancing the Free Map of the World*. Cambridge: UIT.

Struttura dei dati - Geometria

- **Nodo**: un singolo punto, identificato da (lat, lon) 
- oggetti puntuali: albero, panchina, cancello, cestino, ecc.
- **Way**: una lista ordinata da 2 a 2000 nodi   
- oggetti lineari: strada, fiume, muro, siepe, ecc.
- oggetti areali: edificio, lago, uso del suolo, ecc.
- **Relazione**: una lista ordinata di oltre 2000 nodi o una lista ordinata di nodi e/o way e/o altre relazioni 
- specifiche strutture di dati: linee di trasporto, multipolygoni, ecc.

Struttura dei dati - Geometria



Struttura dei dati - Tag

- Ogni **tag** consiste di due componenti: **chiave** e **valore**
- Il tagging in OpenStreetMap è flessibile:
 - ogni oggetto deve avere **almeno un tag**
 - **non c'è un limite** al numero di tag
 - tutti i tag esistenti sono mantenuti e aggiornati dalla comunità OSM in una pagina wiki: https://wiki.openstreetmap.org/wiki/Map_Features
 - ogni tag deve essere **verificabile**: <https://wiki.openstreetmap.org/wiki/Verifiability>
 - utenti indipendenti che osservano lo stesso oggetto devono poter verificare la geometria e i tag
 - in OpenStreetMap **si mappano soltanto oggetti statici** (no osservazioni spazio-temporali, no raster)

Struttura dei dati - Tag

- Elenco completo dei tag: https://wiki.openstreetmap.org/wiki/Map_Features

Building

This is used to identify individual buildings or groups of connected buildings. See the page [Buildings](#) for further details on the usage of this tag and `man_made=*` for tagging of various other structures.

Key	Value	Element	Comment	Photo
Accommodation				
building	apartments	<input checked="" type="checkbox"/>	A building arranged into individual dwellings, often on separate floors. May also have retail outlets on the ground floor.	
building	bungalow	<input checked="" type="checkbox"/>	A single-storey detached small house, Dacha.	
building	cabin	<input checked="" type="checkbox"/>	A cabin is a small, roughly built house usually with a wood exterior and typically found in rural areas.	
building	detached	<input checked="" type="checkbox"/>	A detached house, a free-standing residential building usually housing a single family.	
building	dormitory	<input checked="" type="checkbox"/>	For a shared building, as used by college/university students (not a share room for multiple occupants as implied by the term in British English). Alternatively, use <code>building=residential</code> plus <code>residential=university</code> .	
building	farm	<input checked="" type="checkbox"/>	A residential building on a farm (farmhouse). For other buildings see below <code>building=farm_auxiliary</code> , <code>building=barn</code> , ... If in your country farmhouse looks same as general residential house then you can tag as <code>building=house</code> as well. See also <code>landuse=farmyard</code> for the surrounding area	

1 Primary features	
1.1 Aerialway	
1.2 Aeroway	
1.3 Amenity	
1.3.1 Sustenance	
1.3.2 Education	
1.3.3 Transportation	
1.3.4 Financial	
1.3.5 Healthcare	
1.3.6 Entertainment, Arts & Culture	
1.3.7 Others	
1.4 Barrier	
1.4.1 Linear barriers	
1.4.2 Access control on highways	
1.5 Boundary	
1.5.1 Attributes	
1.6 Building	
1.6.1 Accommodation	
1.6.2 Commercial	
1.6.3 Religious	
1.6.4 Civic/Amenity	
1.6.5 Agricultural/Plant production	
1.6.6 Sports	
1.6.7 Storage	
1.6.8 Cars	
1.6.9 Power/Technical buildings	
1.6.10 Other Buildings	
1.6.11 Additional Attributes	
1.7 Craft	
1.8 Emergency	
1.8.1 Medical Rescue	
1.8.2 Firefighters	
1.8.3 Lifeguards	
1.8.4 Assembly point	
1.8.5 Other Structure	
1.9 Geological	
1.10 Highway	
1.10.1 Roads	
1.10.2 Link roads	
1.10.3 Special road types	
1.10.4 Paths	
1.10.5 Lifecycle	
1.10.6 Attributes	
1.10.7 Other highway features	
1.11 Historic	
1.12 Landuse	
1.12.1 Common Landuse Key Values - Development	
1.12.2 Common Landuse Key Values - Rural areas	

Struttura dei dati - Tag

- Statistiche di utilizzo/diffusione dei tag: <https://taginfo.openstreetmap.org>

Taginfo screenshot showing statistics for the "landuse" key.

Key statistics:

Type	Number of objects	Number of values
All	29 220 142	0.43%
Node	138 113	0.09%
Way	27 735 382	4.13%
Relation	1 346 647	17.09%

Recent edits: Objects with this key were last edited by 209 240 different users.

Value distribution:



Distribution of values:

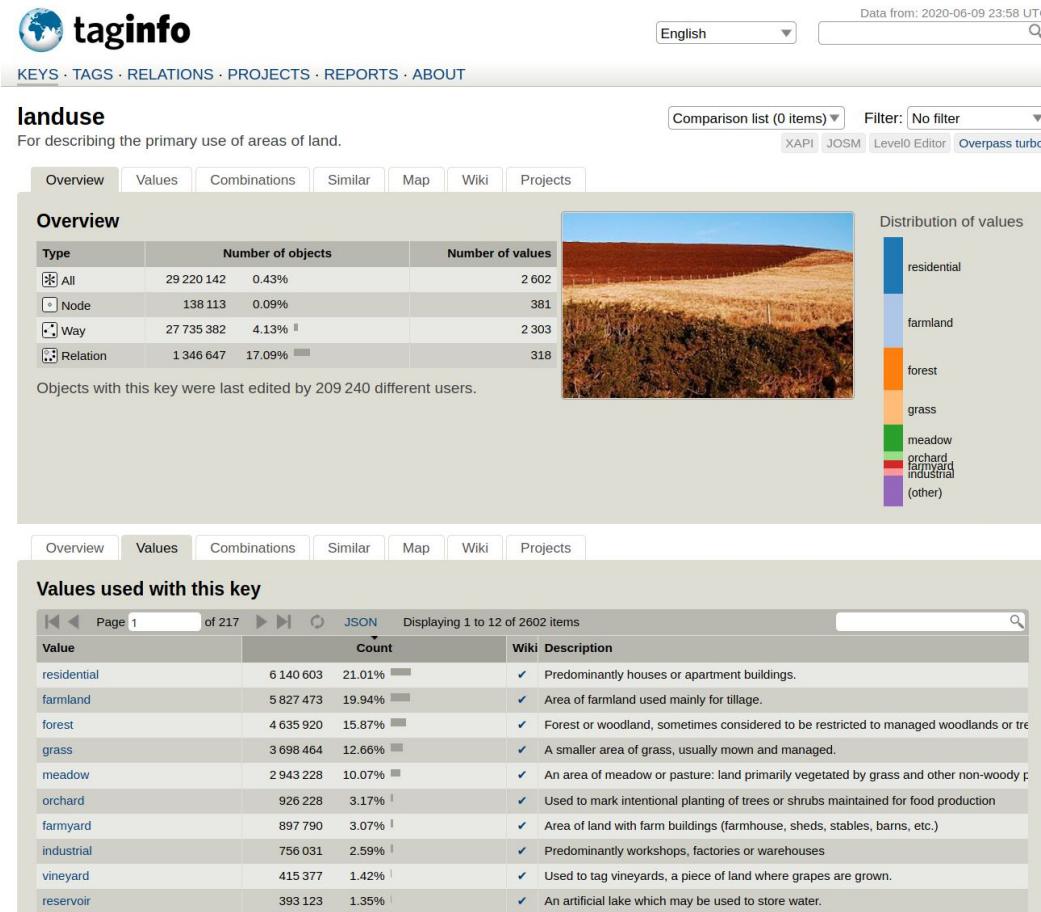
- residential
- farmland
- forest
- grass
- meadow
- orchard
- farmyard
- industrial
- (other)

Values used with this key:

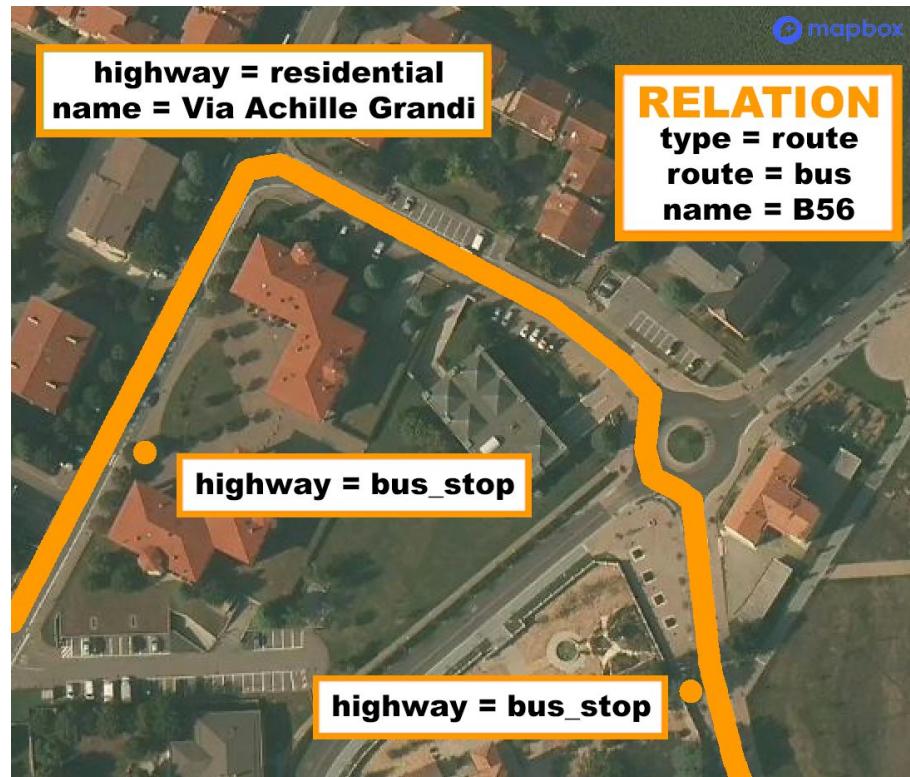
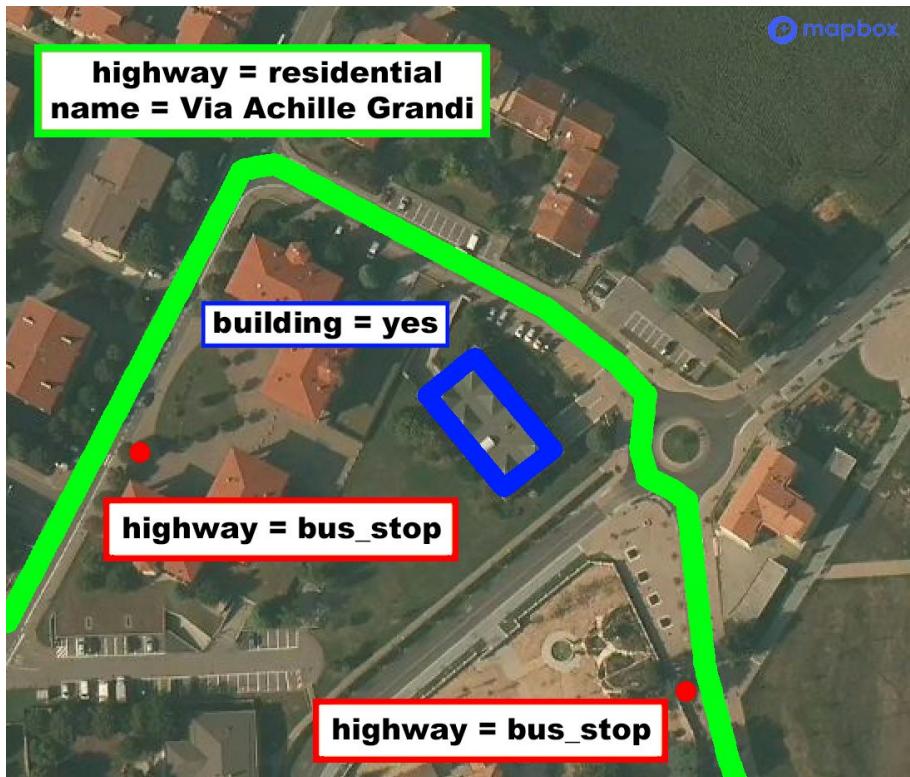
Value	Count	Wiki Description
residential	6 140 603	Predominantly houses or apartment buildings.
farmland	5 827 473	Area of farmland used mainly for tillage.
forest	4 635 920	Forest or woodland, sometimes considered to be restricted to managed woodlands or tree plantations.
grass	3 698 464	A smaller area of grass, usually mown and managed.
meadow	2 943 228	An area of meadow or pasture: land primarily vegetated by grass and other non-woody plants.
orchard	926 228	Used to mark intentional planting of trees or shrubs maintained for food production.
farmyard	897 790	Area of land with farm buildings (farmhouse, sheds, stables, barns, etc.).
industrial	756 031	Predominantly workshops, factories or warehouses.
vineyard	415 377	Used to tag vineyards, a piece of land where grapes are grown.
reservoir	393 123	An artificial lake which may be used to store water.

Struttura dei dati - Tag

- Statistiche di utilizzo/diffusione dei tag: <https://taginfo.openstreetmap.org>
- Discussioni continue (e accese!) sulle mailing list



Struttura dei dati - Tag



Come si contribuisce a OpenStreetMap?

- **Mappatura sul campo** (*field mapping*): si basa sull'osservazione diretta del mondo reale
- **Mappatura da remoto** (*armchair mapping*): consiste nella digitalizzazione di oggetti (edifici, strade, ecc.) su immagini aeree/satellitari disponibili con licenza aperta
- **Import** (*bulk import*): consiste nell'upload diretto in OpenStreetMap di dataset disponibili sotto una licenza compatibile con la ODbL
 - l'import è un'operazione molto delicata e potenzialmente **pericolosa**
 - è riservata ad utenti esperti e **deve sempre essere documentata e discussa in anticipo con la comunità**: <https://wiki.openstreetmap.org/wiki/Import>
- Qualsiasi sia la modalità di contribuzione prescelta, per l'inserimento 'concreto' dei dati in OpenStreetMap occorre un editor.

Import - Esempio

- Open data della Provincia di Biella:

https://wiki.openstreetmap.org/wiki/Import/Catalogue/Provincia_di_Biella

About

This page talks about importing open data provided by the Province of Biella (Italy).

The import has been discussed on the Italian OSM mailing list. This wiki page is the result of consensus there.

There are specific pages about importing: [toponym](#), [road](#), [building](#) and [address](#) data.

Import Plan Outline

Goals

This import goal is to use the high-quality dataset provided by the Province of Biella in order to steadily improve the data available in OSM.

It will not be a blind import, all data will be edited by a local mappers.

The Province of Biella supports our effort and will be involved in the import phase.

Schedule

At the beginning of November 2016, the Province of Biella updated the source data. This update was a requirement to start the import. We aim to start the import phase by the end of the year 2016.

Legal

Data source site: <http://cartografia.provincia.biella.it/on-line/Home/articolo3007402.html>

With every dataset, a PDF document is shipped with the following statement: "La titolarità piena ed esclusiva del dato <DATASET_NAME> è della Provincia di Biella (ai sensi della L. 633/41 e s.m.i.)". Translation: "Full and exclusive ownership of the data <DATASET_NAME> belongs to the Province of Biella (according to Italian law 633/41 and subsequent modifications and integrations)". Law 633/41 is the Italian copyright law.

Data license: <https://creativecommons.org/licenses/by/3.0/it/legalcode>

Type of license: CC-BY-3.0 IT

Additional statement by the Province of Biella: https://github.com/musuruan/osm_imports/blob/master/prov_bi/sita_biella_cc_by_3.txt

The data owner states that being listed in the OpenStreetMap Contributors page fulfills the attribution required by their license.

OSM attribution: Contributors#Biella_28BI.29

ODbL Compliance verified: yes.

Attribution in the Contributors page is fine for data owner as stated above. It will be enough to add the following statement in the Contributors page: "Contains data provided by Sistema Informativo Territoriale Ambientale - Provincia di Biella released under CC-BY-3.0 IT license."

Import Type

The dataset will be imported as a single changeset for each source data and for every Municipality. The City of Biella address data will not be imported.

The dataset will be loaded in JOSM and it will be merge with existing OpenStreetMap data manually and prior to the upload.

IMPORTANT! Data MUST be imported in the following order: toponyms, roads (depending on current level of mapping), buildings, addresses.

Please refer to specific import pages for details.

Changeset Tags

Changeset will be tagged with:

- source=Province of Biella Open Data
- source:license=CC-BY
- type=import
- url=https://wiki.openstreetmap.org/wiki/Import/Catalogue/Provincia_di_Biella

Import - Esempio

- Open data della Provincia di Biella:

https://wiki.openstreetmap.org/wiki/Import/Catalogue/Provincia_di_Biella

 OpenStreetMap

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Node: 3202696766

https://wiki.openstreetmap.org/wiki/Import/Catalogue/Address_import_for_Biella

Edited over 5 years ago by [Andrea Musurane import](#)

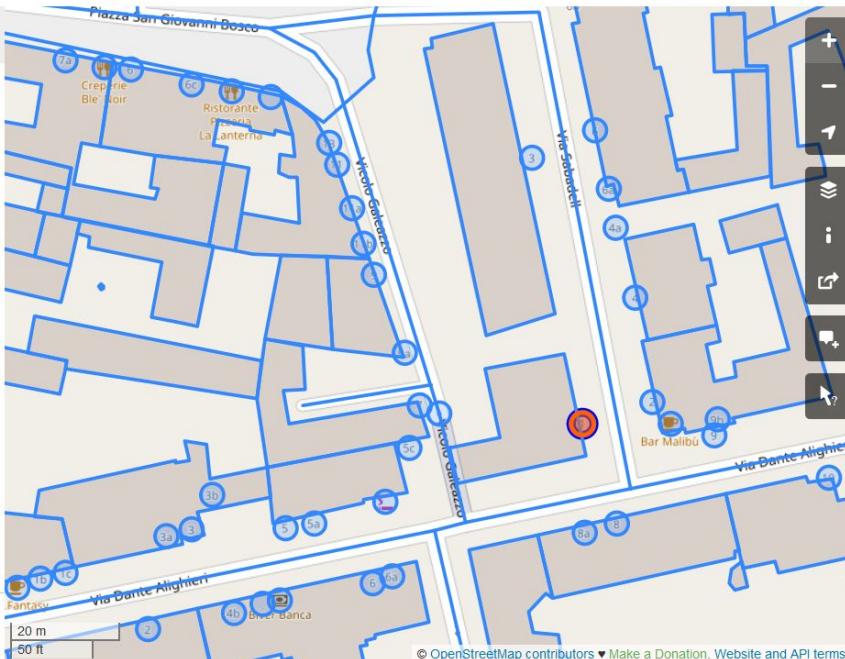
Version #1 · Changeset #26989482

Location: 45.5692733, 8.0551216

Tags

addr:city	Biella
addr:housenumber	1
addr:postcode	13900
addr:street	Via Sabadell

[Download XML](#) · [View History](#)



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Import - Esempio

- Esercizi commerciali con consegna a domicilio durante l'emergenza Covid-19:

<https://dati.comune.milano.it/dataset/ds959-esercizi-di-vicinato-in-sede-fissa-consegna-a-domicilio>

Esercizi di vicinato in sede fissa con consegna a domicilio

Il dataset contiene l'elenco degli esercizi di vicinato in sede fissa con consegna a domicilio.

Per superficie di vendita si intende l'area destinata alla vendita, compresa quella occupata da banchi, scaffalature, vetrine; non costituisce superficie di vendita quella destinata a magazzini, depositi, uffici, servizi.

L'attività di vendita può riguardare i prodotti del settore non alimentare, i prodotti del settore alimentare (limitatamente all'alimentazione umana) o entrambi.

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Data e Risorse



ds959_esercizi_vicinato_sede_fissa_ordini_tel_ ...

[Esplora](#) ▾



ds959_esercizi_vicinato_sede_fissa_ordini_tel_ ...

[Esplora](#) ▾



ds959_esercizi_vicinato_sede_fissa_ordini_tel_ ...

[Esplora](#) ▾

Modifiche in OpenStreetMap

Desktop editor: iD

- Editor Web-based
- Integrato in openstreetmap.org
- Adatto per principianti (ma anche per editing avanzato)
- Utile guida interattiva per iniziare

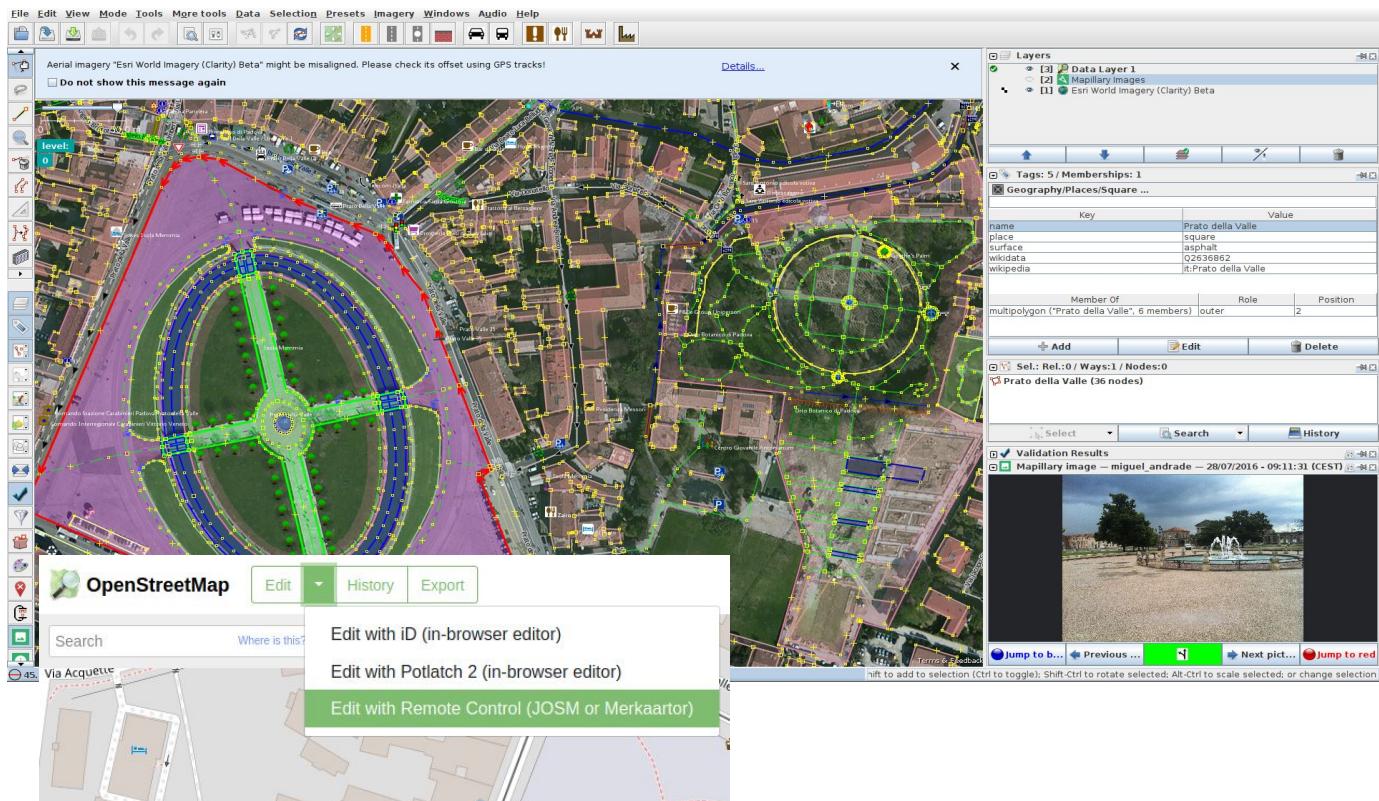
<https://wiki.openstreetmap.org/wiki/ID>



Desktop editor: JOSM

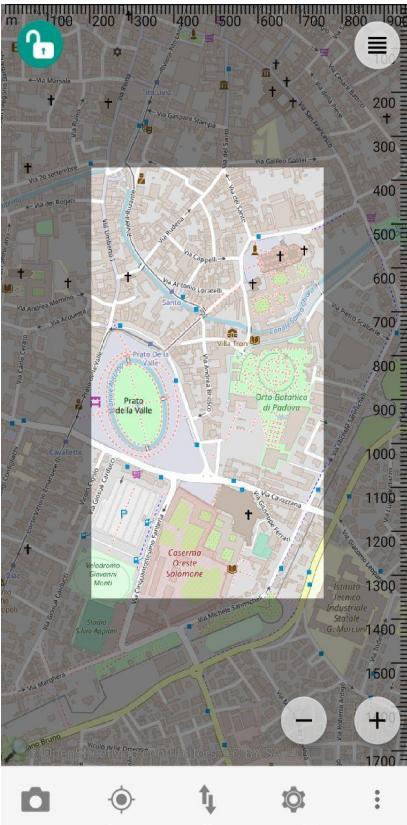
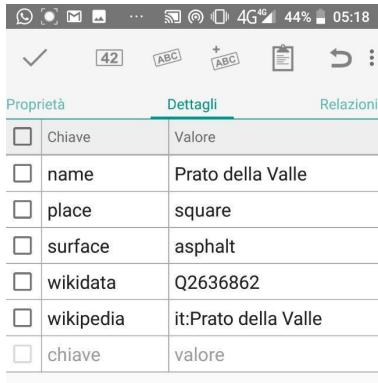
<https://josm.openstreetmap.de>

- Editor per desktop
- Per utenti più esperti (molti plugin e funzionalità avanzate)
- Si può lanciare anche da openstreetmap.org



Mobile editor: Vespucci (<https://vespucci.io/>)

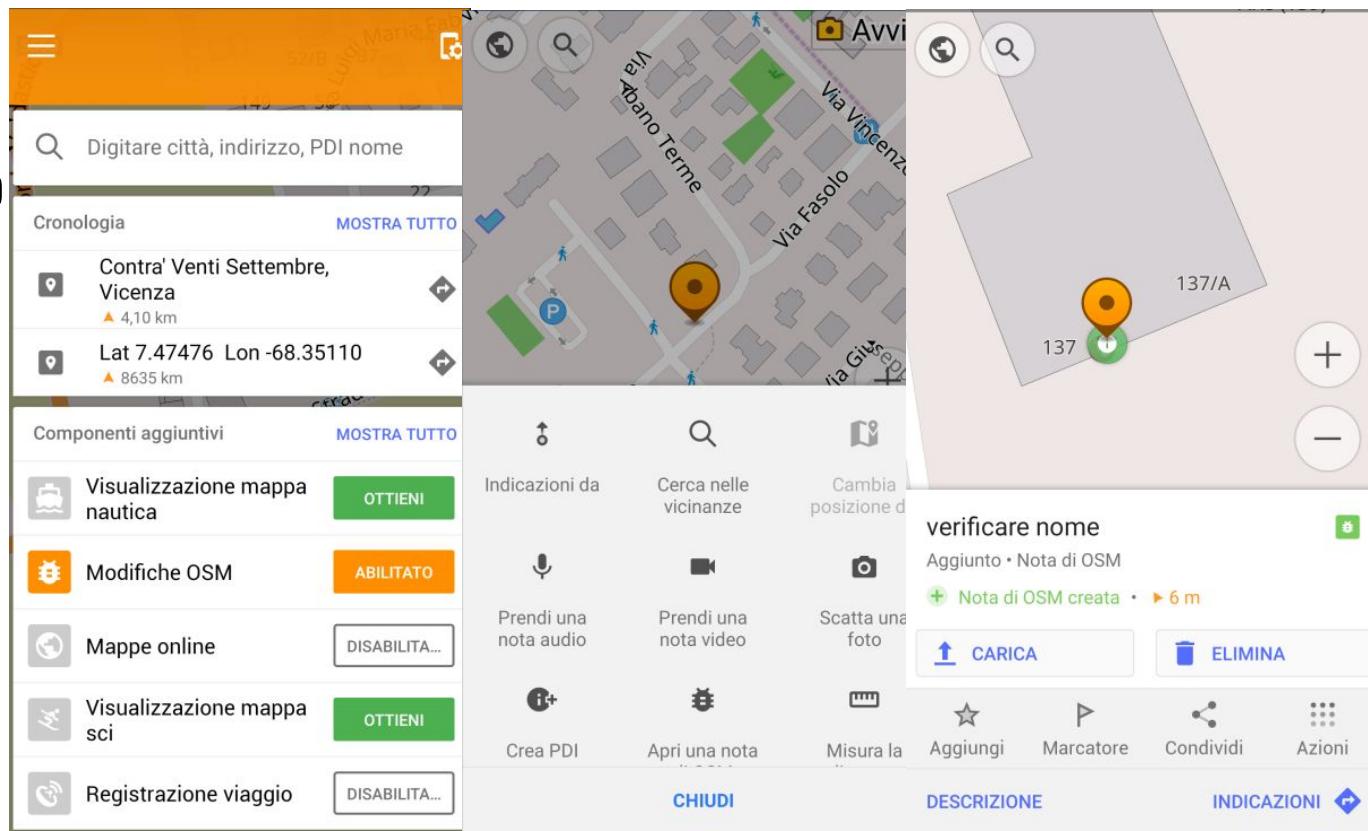
- App Android
- Editor avanzato (per esperti)
- Massima libertà di editing
- Preset
- Lavoro offline



Mobile editor: OsmAnd (<https://osmand.net/>)

- App Android e iOS
- Editing intuitivo
- Modifiche/inserimento solo POI
- Note audio/video
- Lavoro offline
- Componenti aggiuntivi
- Anche routing, registrazione tracce, profili personalizzati,

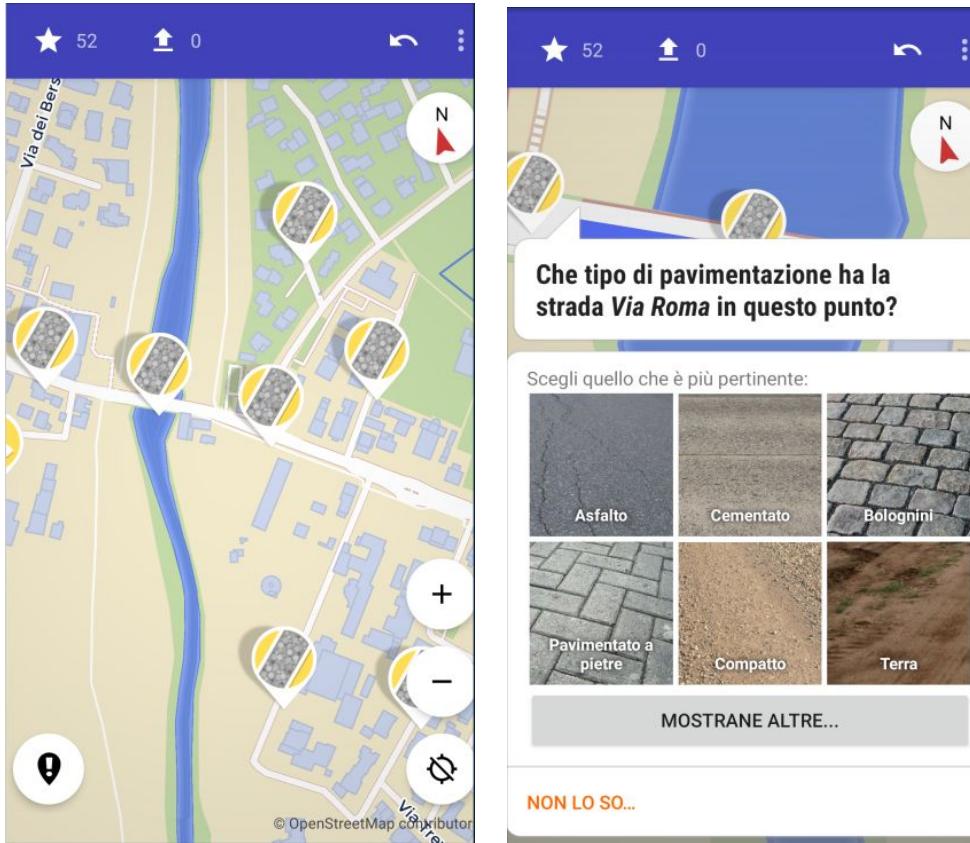
...



Mobile editor: StreetComplete

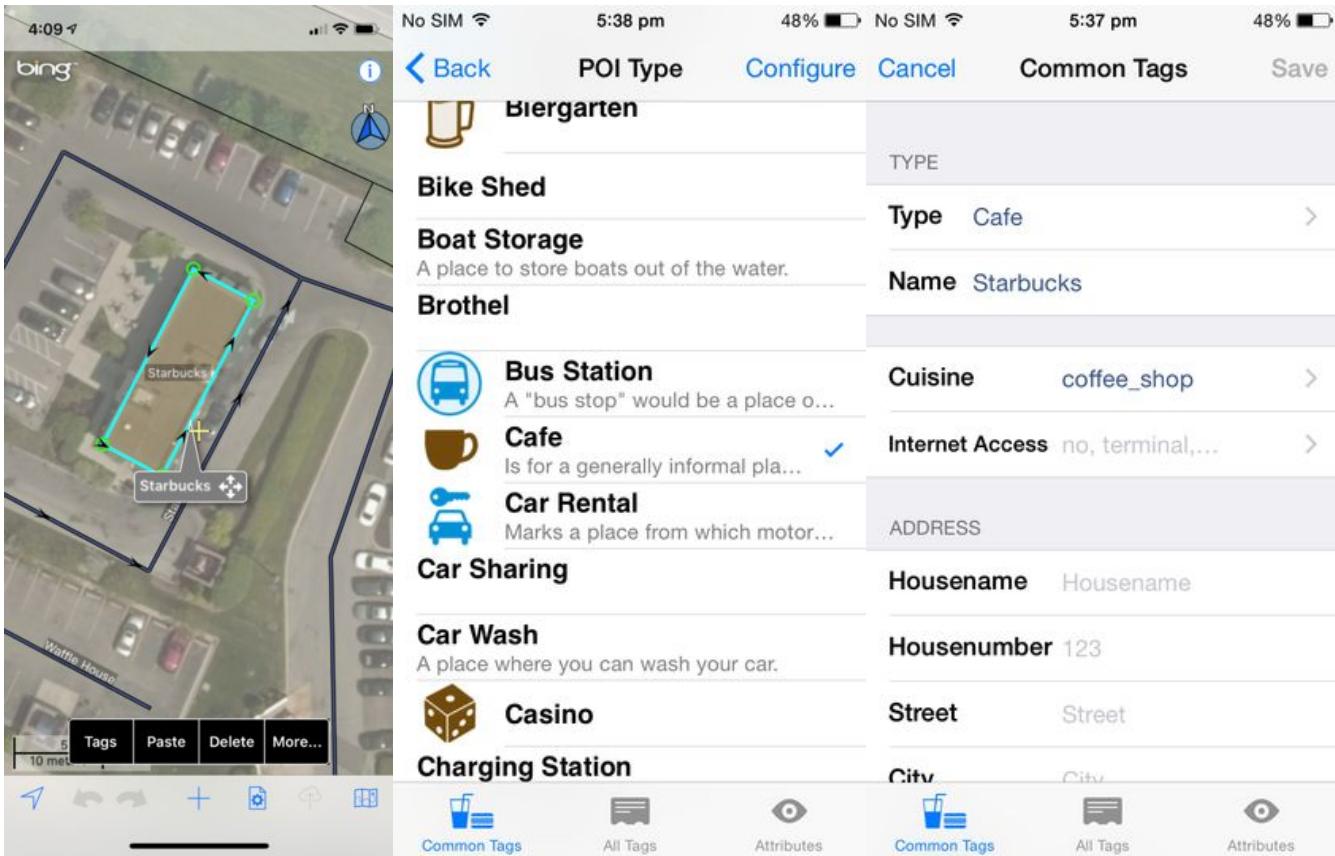
(<https://github.com/westnordost/StreetComplete>)

- App Android
- Editing guidato
- Solo modifica tag, no aggiunta nuovi elementi
- Facile ed immediato
- Download tasks nei dintorni
- Diversi tipi di compiti, anche a scopo sociale
- Richiede connessione



Mobile editor: Go Map!! (https://wiki.openstreetmap.org/wiki/Go_Map!!)

- App per iOS
- Aggiunta e modifica di nodi, linee e aree
- Creazione, upload e download tracce GPX
- Lavoro offline



Editors:

<https://wiki.openstreetmap.org/wiki/Editors>

Name	Screenshot	Platform	Add POIs	Edit / Delete POIs	Edit arbitrary tags of existing OSM objects	Edit geometries	Support Imagery offset DB	Upload to OSM	Version
ArcGIS Editor for OSM [1] ↗		Windows	yes	yes	yes	yes	?	yes	2019-06-11 10.7
Fireyak [2] ↗		Android	yes	?	?	?	?	no	yes 2019-03-28 1.3.9
GNOME Maps [3] ↗		Linux	yes	yes	no	no	no	yes	2019-06-17 3.33.3
Go Map!! [4] ↗		iOS 7+	yes	yes	yes	yes	?	yes	2018-09-20 1.6.1
GPSMapEdit [5] ↗		Windows	yes	yes	yes	yes	?	yes	2019-06-01 2.1 (78.10 FIX1)
ID [6] ↗		Web-based (JavaScript)	yes	yes	yes	yes	no	yes	2020-04-24 2.17.3
ID-Indoor [7] ↗		Web-based (JavaScript)	yes	yes	yes	yes	no	yes	2016-07-18 1.9.6
ID-strava [8] ↗		Web-based (JavaScript)	yes	yes	yes	yes	no	yes	2017-11-07 1.8.5
JOSM [9] ↗		Windows, Linux, macOS	yes	yes	yes	yes	yes	yes	2020-04-06 16239
Level0 [10] ↗		Web	yes	yes	yes	yes	?	yes	2016-02-09 1.2

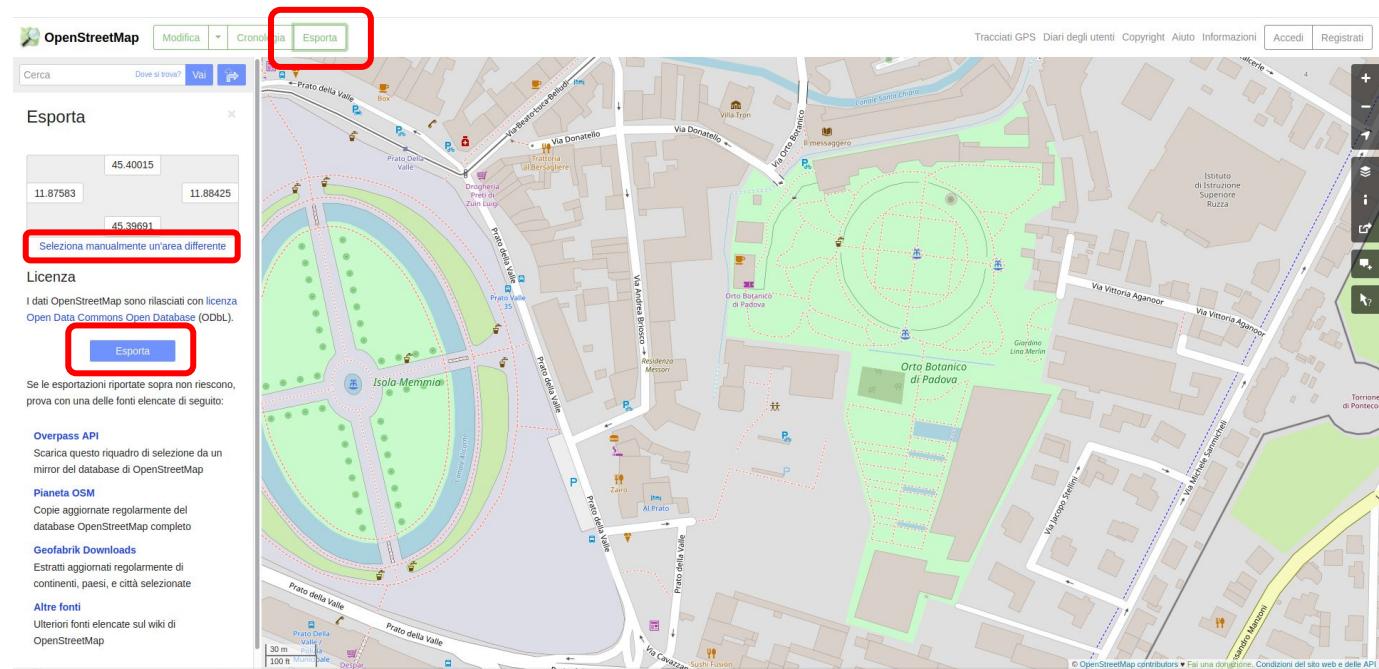
Estrazione/download dei dati

modalità diverse per tutti i gusti

Estrazione dal sito openstreetmap.org

Cliccare sul bottone “Esporta” verde in alto per attivare la funzione, poi sul bottone “Esporta” blu a sinistra per esportare i dati in formato .osm per l’area visibile.

Oppure cliccare sull’opzione “Seleziona manualmente un’area differente”

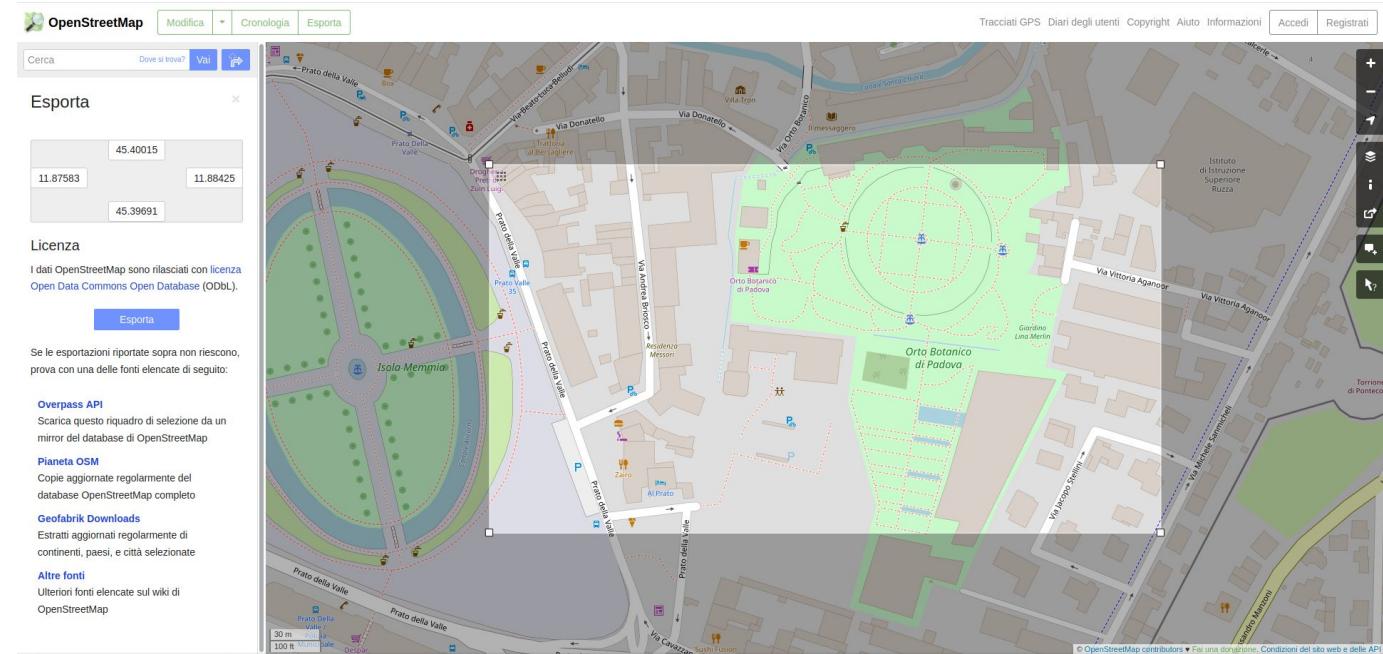


<https://www.openstreetmap.org/export>

Estrazione dal sito openstreetmap.org

Cliccare sul bottone “Esporta” verde in alto per attivare la funzione, poi sul bottone “Esporta” blu a sinistra per esportare i dati in formato .osm per l’area visibile.

Oppure cliccare sull’opzione “Selezione manualmente un’area differente”



<https://www.openstreetmap.org/export>

Planet OSM

Database completo a una certa data

<https://planet.openstreetmap.org/>

Planet OSM

The files found here are regularly-updated, complete copies of the OpenStreetMap.org database, and those published before the 12 September 2012 are distributed under a Creative Commons Attribution-ShareAlike 2.0 license, those published after are Open Data Commons Open Database License 1.0 licensed. For more information, [see the project wiki](#).



Complete OSM Data

Latest Weekly Planet XML File

90 GB, created 4 days ago.
md5: 63dca0b99d150e4b61c3d630b5afab68.

Latest Weekly Changesets

3.4 GB, created 4 days ago.
md5: ec8f149e3337bfc6ad3306f1e22eb49a.

Latest Weekly Planet PBF File

52 GB, created 4 days ago.
md5: cc137b80b7195505750c5c80f915787e.

Name	Last modified	Size	Description
Parent Directory			
2020/	2020-06-18 21:51	-	
2019/	2020-02-03 02:47	-	
2018/	2019-02-04 03:46	-	
2017/	2018-04-23 10:05	-	
2016/	2017-01-17 22:49	-	
2015/	2016-04-11 10:54	-	
2014/	2016-04-11 10:37	-	
2013/	2013-02-08 18:20	-	
history-latest.osm.bz2.md5	2020-06-18 21:51	57	
history-latest.osm.bz2	2020-06-18 21:27	137G	

Database completo a una certa data + tutta la storia passata

<https://planet.openstreetmap.org/planet/full-history/>

Planet OSM

The files found here are complete copies of the OpenStreetMap.org database, including editing history. These are published under an Open Data Commons Open Database License 1.0 licensed. For more information, [see the project wiki](#).



Complete OSM Data History

Latest Full History Planet XML File

137 GB, created 4 days ago.
md5: 62430c0b678f6ac2f6b4e63cb9992df5.

Latest Full History Planet PBF File

85 GB, created 4 days ago.
md5: 0cdbec9c8d65577287620d1fd761da55d.

The full history planet file contains the full editing history of the OpenStreetMap database in both XML and custom PBF formats.

Estratti: Geofabrik (<http://download.geofabrik.de>)

- Estratti predefiniti a livello nazionale o sub-nazionale
- Formati .osm e .shp

Italy

[one level up]

The OpenStreetMap data files provided on this server do **not** contain the user names, user IDs and changeset IDs of the OSM objects because these fields are assumed to contain personal information about the OpenStreetMap contributors and are therefore subject to data protection regulations in the European Union.

[Extracts with full metadata](#) are available to OpenStreetMap contributors only.

Commonly Used Formats

- [italy-latest.osm.pbf](#), suitable for Osmium, Osmosis, imposm, osm2pgsql, mkgmap, and others. This file was last modified 5 hours ago and contains all OSM data up to 2020-06-23T20:59:02Z. File size: 1.4 GB; MD5 sum: 93bc93db6478605598313386391e083b.
- [italy-latest-free.shp.zip](#) is not available for this region; try one of the sub-regions.

Other Formats and Auxiliary Files

- [italy-latest.osm.bz2](#), yields OSM XML when decompressed; use for programs that cannot process the .pbf format. This file was last modified 3 days ago. File size: 2.5 GB; MD5 sum: a68c660444ca3c9ct497ca4ec2880ae.
- [italy INTERNAL.osm.pbf](#) The history file contains personal data and is available on the [internal server](#) only. See notice above for further information.
- [.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

Sub Regions

Click on the region name to see the overview page for that region, or select one of the file extension links for quick access.

Sub Region	Quick Links		
	.osm.pbf	.shp.zip	.osm.bz2
Centro	[.osm.pbf] (243 MB)	[.shp.zip]	[.osm.bz2]
Isole	[.osm.pbf] (138 MB)	[.shp.zip]	[.osm.bz2]
Nord-Est	[.osm.pbf] (470 MB)	[.shp.zip]	[.osm.bz2]
Nord-Ovest	[.osm.pbf] (396 MB)	[.shp.zip]	[.osm.bz2]
Sud	[.osm.pbf] (231 MB)	[.shp.zip]	[.osm.bz2]

download.geofabrik.de/europe/italy/nord-est.html

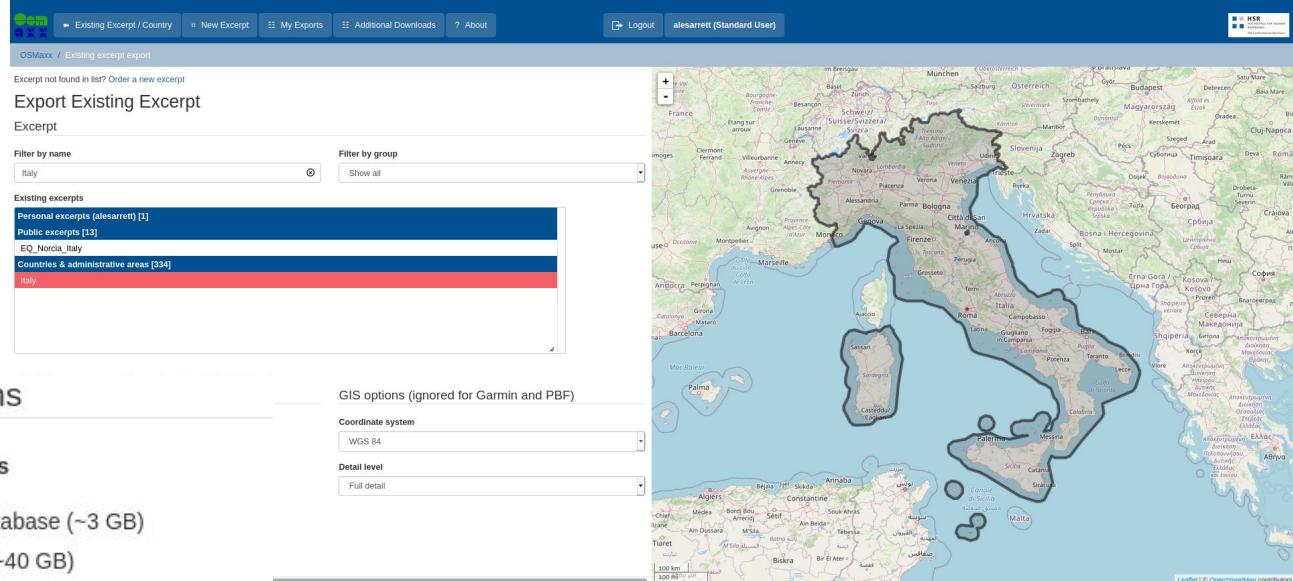


☒ Not what you were looking for? Geofabrik is a consulting and software development firm based in Karlsruhe, Germany specializing in OpenStreetMap services. We're happy to help you with data preparation, processing, server setup and the like. [Check out our web site](#) and contact us if we can be of 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 Webseite](#) und sprechen Sie mit uns, wenn wir Ihnen helfen

Estratti: OSMaxX (<https://osmaxx.hsr.ch/>)

- Estratti predefiniti o personalizzati
- Formati .osm, .shp, Geopackage, ...



Export options

GIS export formats

- Esri File Geodatabase (~3 GB)
- Esri Shapefile (~40 GB)
- GeoPackage (~22 GB)
- SpatiaLite (~20 GB)
- Garmin navigation & map data (~2 GB)
- OSM Protocolbuffer Binary Format (~3 GB)

Estratti: HOT export tool (<https://export.hotosm.org/en/v3/exports>)

- Estratti predefiniti o personalizzati
- Formati .osm, .shp, Geopackage, ...

HOT EXPORT TOOL

Informazioni Aiuto Crea Esportazioni Configs Italiano ▾ Log out

1 Describe 2 Formats 3 Data 4 Summary

File Formats See Learn (Export Formats) for details on each file format.

GeoPackage (.gPKG)

Shapefile (.SHP)

Garmin (.IMG)

Google Earth (.KML)

OSM (.PBF)

MAPS.ME (.MWM)

OsmAnd (.OBF)

MBTiles (.MBTILES)

Next

OpenStreetMap database last updated 18 minutes ago

Area Of Interest (AOI)
Custom Polygon
Draw

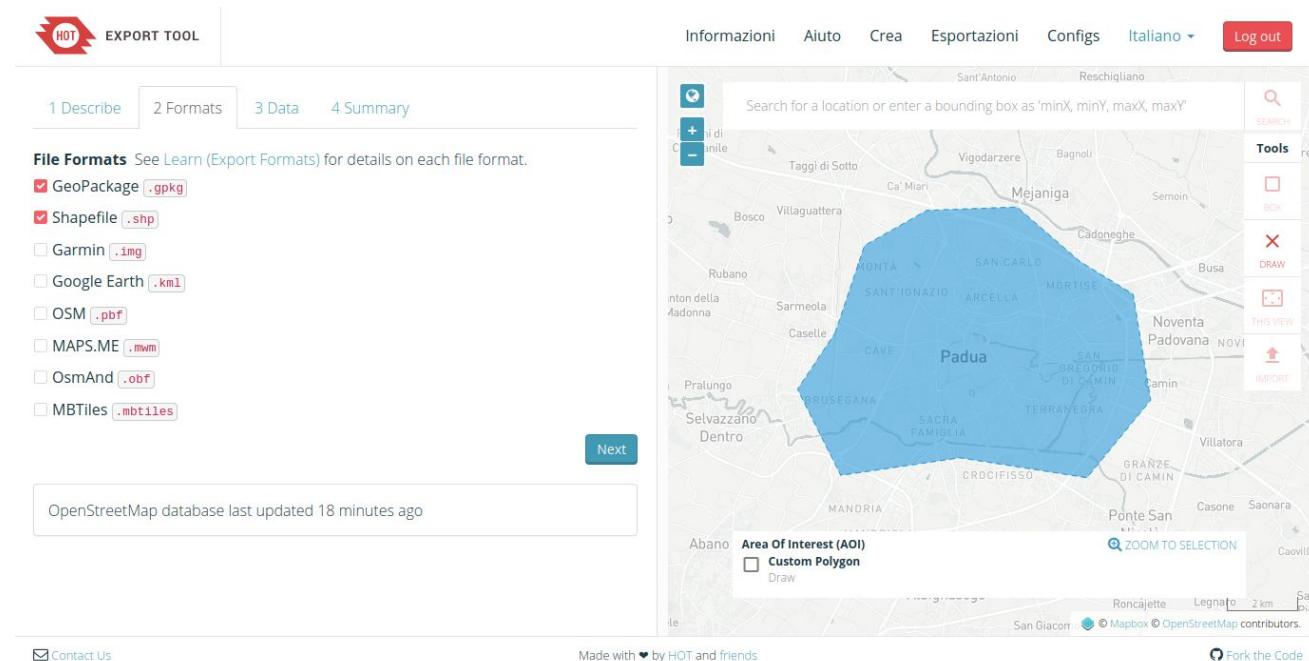
ZOOM TO SELECTION

Mapbox OpenStreetMap contributors

Contact Us

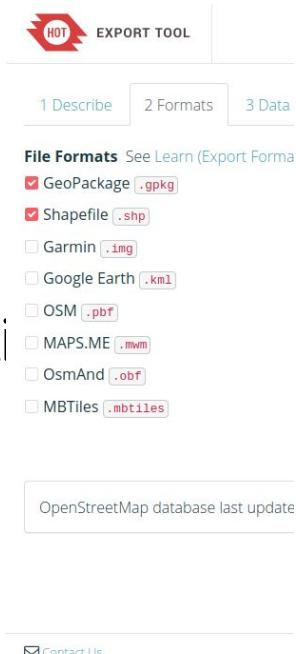
Made with ❤ by HOT and friends

Fork the Code



Estratti: HOT export tool

- Estratti predefiniti o personalizzati
- Formati .osm, .shp, Geopackage, ...
- Selezione degli elementi da esportare



The screenshot shows the 'EXPORT TOOL' interface with the '3 Data' tab selected. The 'Tag Tree' panel contains a search bar and a 'Clear' button. The main area displays a hierarchical list of feature types under 'Buildings', 'Commercial', 'Communication', 'Education', 'Emergency', 'Financial', and 'Government'. Under 'Buildings', 'Commercial', and 'Communication', there are checkboxes for 'Building Names and Geometries', 'Addresses', and 'Materials and Condition'. Under 'Education', there are checkboxes for 'Kindergarten', 'School', 'College', and 'University'. Under 'Emergency', 'Financial', and 'Government', there are empty checkboxes. To the right, a box titled 'Communication' provides details: 'Geometry types: point, polygon', 'Keys:' (with a bulleted list including name, office, man_made, tower, operator, communication:mobile, communication:radio), and 'Where:' (with a query: 'office='telecommunication' OR "tower:type"='communication' OR man_made='communications_tower'').

OSM/Overpass API

- Estrazione totalmente personalizzata
- OSM API: accesso in lettura e scrittura al database OSM
- Overpass API: sola lettura
 - Overpass Turbo: potente e flessibile interfaccia

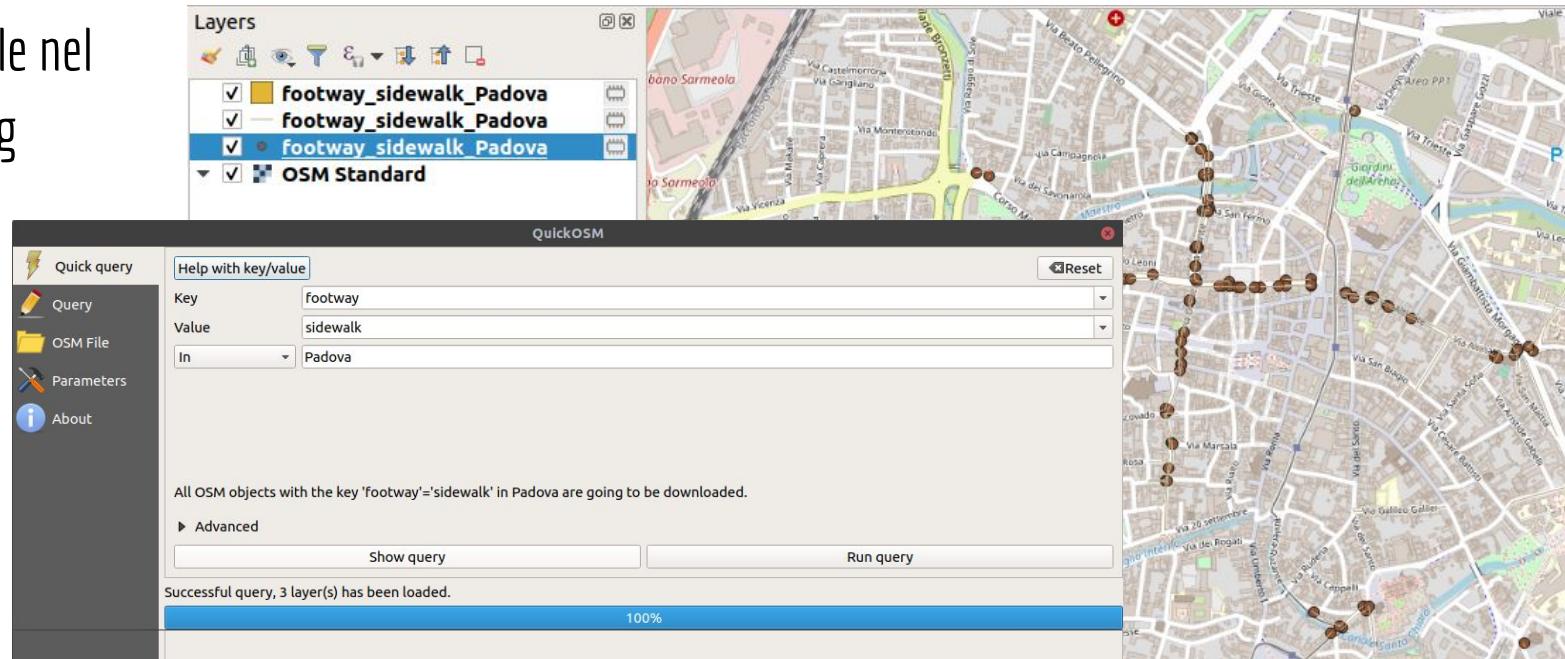
The screenshot shows the Overpass Turbo web interface. At the top, there's a menu bar with options like Esegui, Condividi, Esporta, Wizard, Salva, Carica, Esci, Impostazioni, Aiuto, and overpass turbo. Below the menu is a code editor window containing an Overpass query. The main area is a map of Milan, Italy, with numerous points of interest marked by colored circles (red, yellow, blue) along the road network. A legend in the bottom right corner indicates the types of features being highlighted. The status bar at the bottom provides some statistics: 6936 nodes, 1201 ways, 0 relations, 538 points of interest, 1201 lines, and 0 polygons.

```
1 /* This has been generated by the overpass-turbo wizard.
2  * The original search was:
3  * "highway=bus_stop OR railway=tram OR
4  * bicycle=designated"
5 */
6 [out:json][timeout:25];
7 // gather results
8
9 // query part for: "highway=bus_stop"
10 node["highway"]="bus_stop"!((bbox));
11 way["highway"]="bus_stop"!((bbox));
12 relation["highway"]="bus_stop"!((bbox));
13 // query part for: "railway=tram"
14 node["railway"]="tram"!((bbox));
15 way["railway"]="tram"!((bbox));
16 relation["railway"]="tram"!((bbox));
17 // query part for: "bicycle=designated"
18 node["bicycle"]="designated"!((bbox));
19 way["bicycle"]="designated"!((bbox));
20 relation["bicycle"]="designated"!((bbox));
21
22 // print results
23 out body;
24 >;
25 out skele qt;
```

- <https://wiki.openstreetmap.org/wiki/API>
- https://wiki.openstreetmap.org/wiki/Overpass_API
- <https://overpass-turbo.eu/>

QGIS: plugin QuickOSM (<https://github.com/3liz/QuickOSM>)

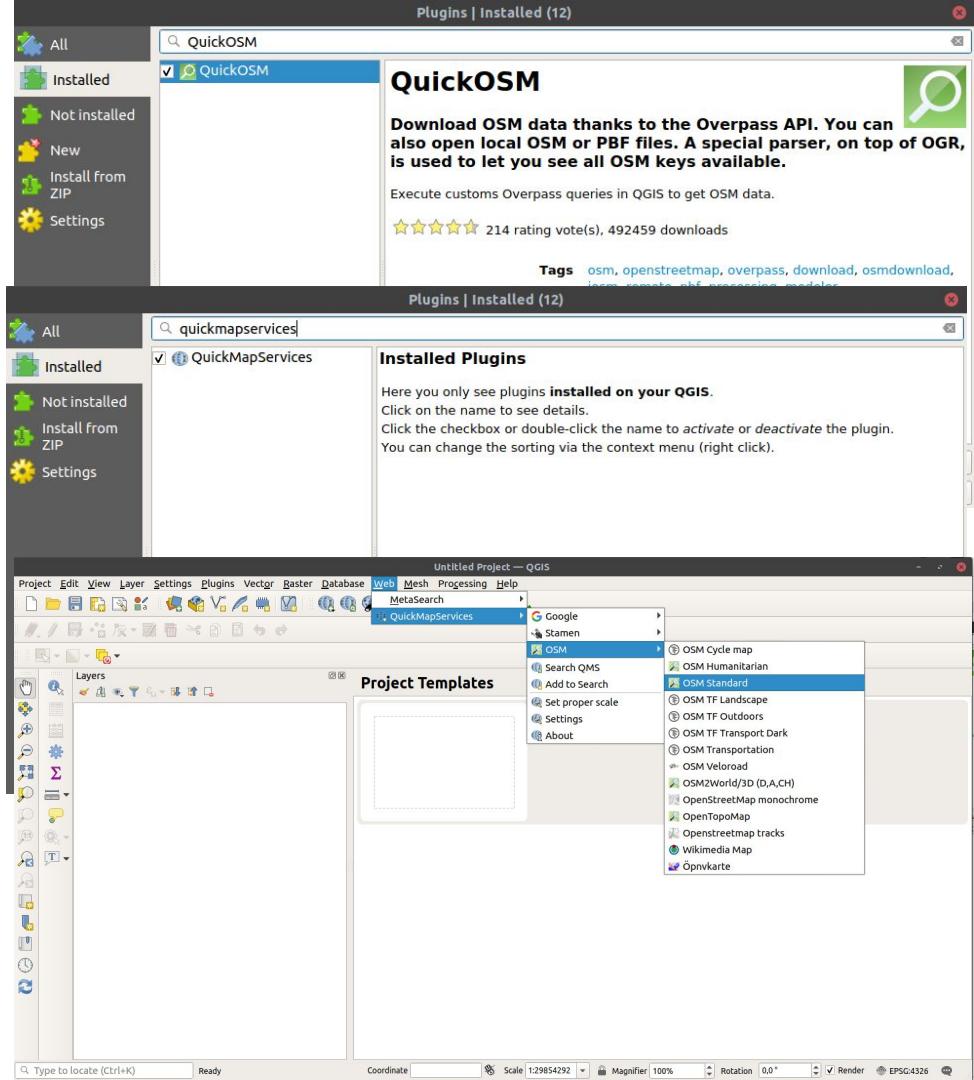
- Plugin in QGIS per estrarre in modo mirato specifici dati.
- Usa Overpass API
- Disponibile nel processing modeler



Hands-on: usare i dati

Esercizio in QGIS

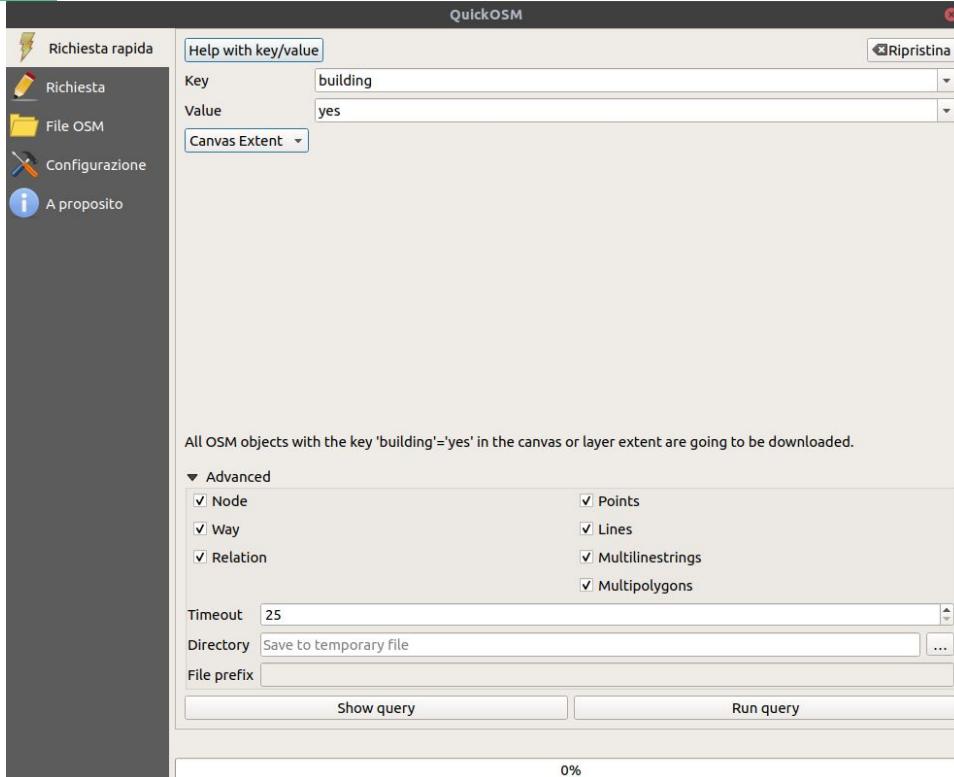
- installare il plugin QuickOSM
- installare QuickMap Services
- attivare sfondo OSM standard
- zoomare nell'area di interesse (non troppo estesa)



QuickOSM: download edifici

(<https://wiki.openstreetmap.org/wiki/Key:building>)

- attivare il plugin QuickOSM e impostare i parametri:
 - key -> building
 - value -> yes
 - canvas extent
- verranno scaricati tutti gli edifici all'interno dell'area visualizzata



Visualizzazione edifici

Screenshot of a QGIS map interface showing building footprints and other geographical features.

Layer Panel:

- building_yes (selected)
- building_no
- OSM Standard

Map View:

Informazioni Risultati (Results Information) Panel:

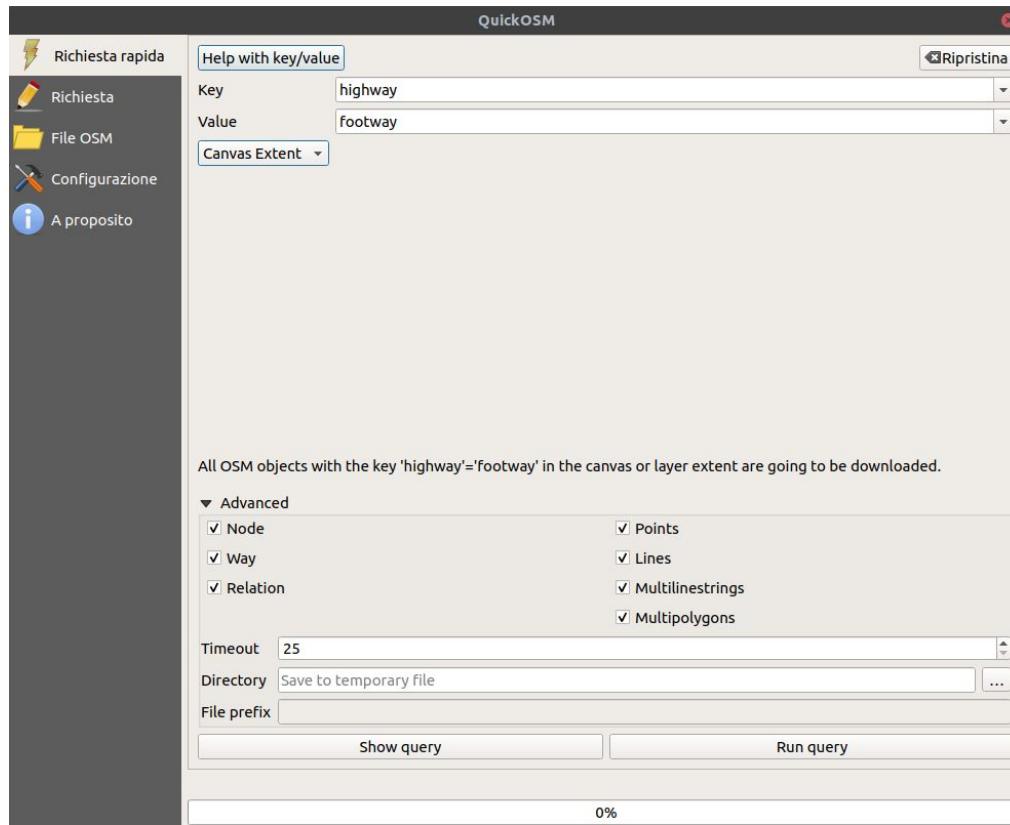
Elemento	Valore
building_yes	
alt_name	
(Derivato)	
(Azioni)	
full_id	w131997736
osm_id	131997736
osm_type	way
building	yes
type	
addr:street	
addr:houseumber	
alt_name	
architect	
historic	
manor:type	
name	Loggia Amulea
ref:IT:CCD	
ref:IT:RVV	
start_date	
tourism	attraction
addr:postcode	
wikipedia	
wikidata	Q3257898
leisure	it:Loggia Amulea

Search Bar: localizzare (Ctrl+K)

Download percorsi pedonali

(<https://wiki.openstreetmap.org/wiki/Tag:highway%3Dfootway>)

- In QuickOSM impostare i parametri:
 - key-> highway
 - value -> footway
 - canvas extent
- verranno scaricati tutti i percorsi pedonali all'interno dell'area visualizzata



Visualizzazione percorsi pedonali

Layer

- highway_footway**
- highway_footway**
- building_yes**
- building_yes**
- OSM Standard**

Informazioni Risultati

Elemento	Valore
highway_footway	
name	(Derivato) (Azioni)
full_id	w702904386
osm_id	702904386
osm_type	way
highway	footway
bicycle	
segregated	
surface	sidewalk
width	open
lit	
name	colonnade:right covered
area	
tunnel	
access	
Footway	
bridge	
layer	
arcade:right	
smoothness	
indoor	
arcade:left	
incline:across	
bicycle_parking	
onerway:bicycle	

Per localizzare (Ctrl+K)

Limitazioni in QuickOSM

- Modalità “Richiesta rapida”: 1 solo tag (coppia key/value)
- Possibilità in “Richiesta” di scrivere query Overpass API
- Soluzione
 - Overpass turbo



The screenshot shows the QuickOSM application window with the title 'Overpass query'. The sidebar is identical to the previous screenshot. The main area contains an Overpass query script:

```
<osm-script output="xml" timeout="25">
  <union>
    <query type="node">
      <has-kv k="building" v="yes"/>
      <bbox-query {{bbox}}/>
    </query>
    <query type="way">
      <has-kv k="building" v="yes"/>
      <bbox-query {{bbox}}/>
    </query>
    <query type="relation">
      <has-kv k="building" v="yes"/>
      <bbox-query {{bbox}}/>
    </query>
  </union>
  <union>
    <item/>
    <recurse type="down"/>
  </union>
  <print mode="body"/>
</osm-script>
```

Overpass Turbo (<https://overpass-turbo.eu/>)

Query
semplificate
attraverso il
“wizard”

Percorsi pedonali: *highway=footway*

Esegui Condividi Esporta Wizard Salva Carica Esci Impostazioni Aiuto overpass turbo ↗ Mappa Dati

```
/*
This has been generated by the overpass-turbo wizard.
The original search was:
"highway=footway"
*/
[out:json][timeout:25];
// gather results
// query part for: "highway=footway"
node["highway"="footway"]({{bbox}});
way["highway"="footway"]({{bbox}});
relation["highway"="footway"]({{bbox}});
);
// print results
out body;
>;
out skel qt;
```

Query Wizard

highway=footway|

Il **compositore** può assisterti nel creare query Overpass. Qui alcuni esempi di utilizzo:

- Drinking Water
- highway=* and type:way
- tourism=museum in Vienna

componi la richiesta

componi ed esegui la richiesta annulla

Visualizzato - punti di interesse: 0, linee: 230, poligoni: 3

Overpass Turbo: tag multipli

Marciapiedi:
highway=footway
AND
footway=sidewalk

Esegui Condividi Esporta Wizard Salva Carica Esci Impostazioni Aiuto overpass turbo ↗ Mappa Dati

```
1  /*
2  This has been generated by the overpass-turbo wizard.
3  The original search was:
4  "highway=footway AND footway=sidewalk"
5  */
6  [out:json][timeout:25];
7  // gather results
8  (
9    // query part for: "highway=footway and
10   footway=sidewalk"
11   node["highway"="footway"]["footway"="sidewalk"]
12   ([bbox]);
13   way["highway"="footway"]["footway"="sidewalk"]
14   ([bbox]);
15   relation["highway"="footway"]["footway"="sidewalk"]
16   ([bbox]);
17 );
```

Query Wizard

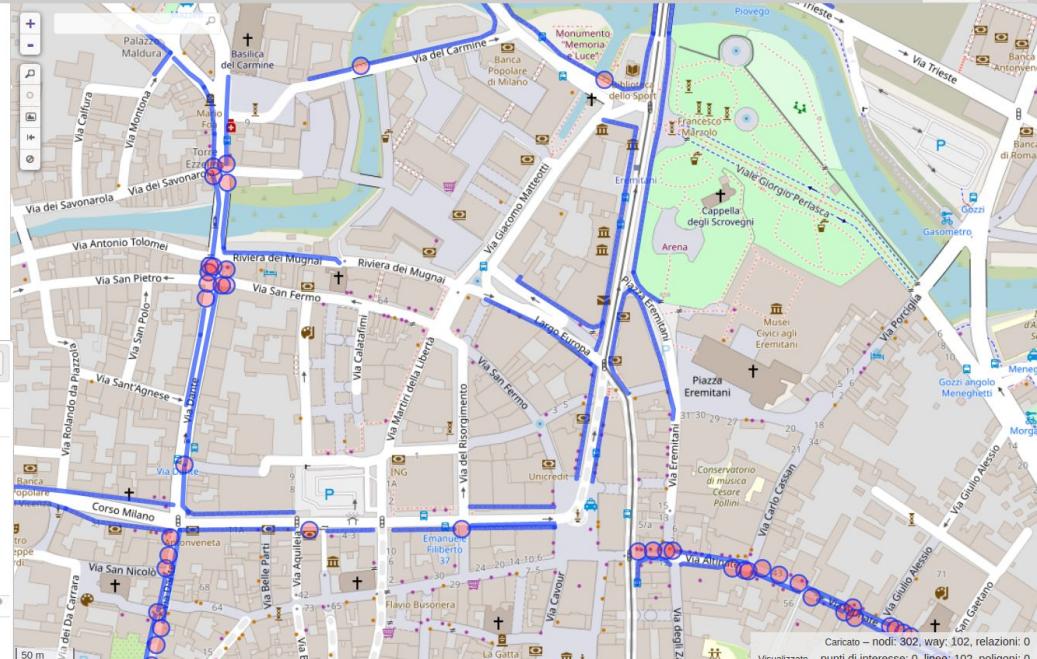
highway=footway AND footway=sidewalk

Il compositore può assisterti nel creare query Overpass. Qui alcuni esempi di utilizzo:

- Drinking Water
- highway=* and type:way
- tourism=museum in Vienna

componi la richiesta

componi ed esegui la richiesta annulla



<https://wiki.openstreetmap.org/wiki/Tag:footway%3Dsidewalk>

Overpass Turbo: tag multipli

Attraversamenti
pedonali:
highway=footway
AND
footway=crossing

<https://overpass-turbo.eu/s/Nqw>

Esegui Condividi Esporta Wizard Salva Carica Esci Impostazioni Aiuto overpass turbo ↗

```
1  /*
2  This has been generated by the overpass-turbo wizard.
3  The original search was:
4  "highway=footway AND footway=crossing"
5  */
6  [out:json][timeout:25];
7  // gather results
8  (
9    // query part for: "highway=footway and
10   footway=crossing"
11   node["highway"="footway"]["footway"="crossing"]
12   ([bbox]);
13   way["highway"="footway"]["footway"="crossing"]
14   ([bbox]);
15   relation["highway"="footway"]["footway"="crossing"]
16   ([bbox]);
17 );
18 // print results
19 out body;
20 >;
21 out skel qt;
```

Query Wizard

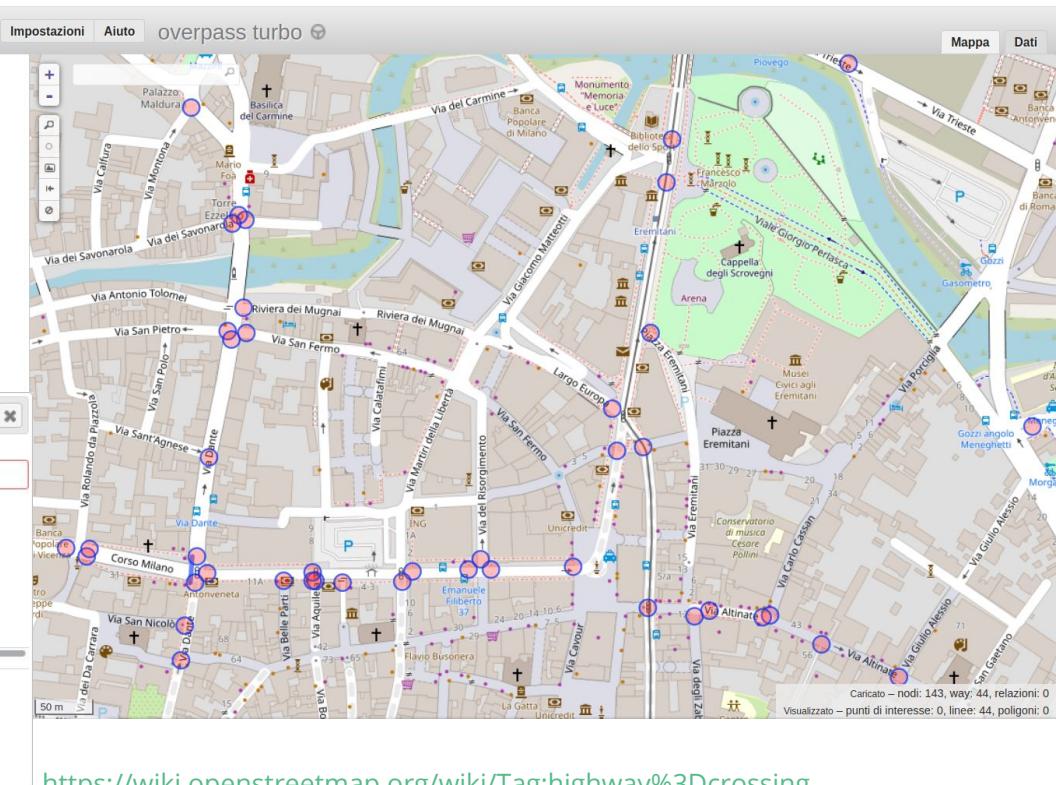
highway=footway AND footway=crossing

Il **compositore** può assisterti nel creare query Overpass. Qui alcuni esempi di utilizzo:

- Drinking Water
- highway=* and type:way
- tourism=museum in Vienna

componi la richiesta

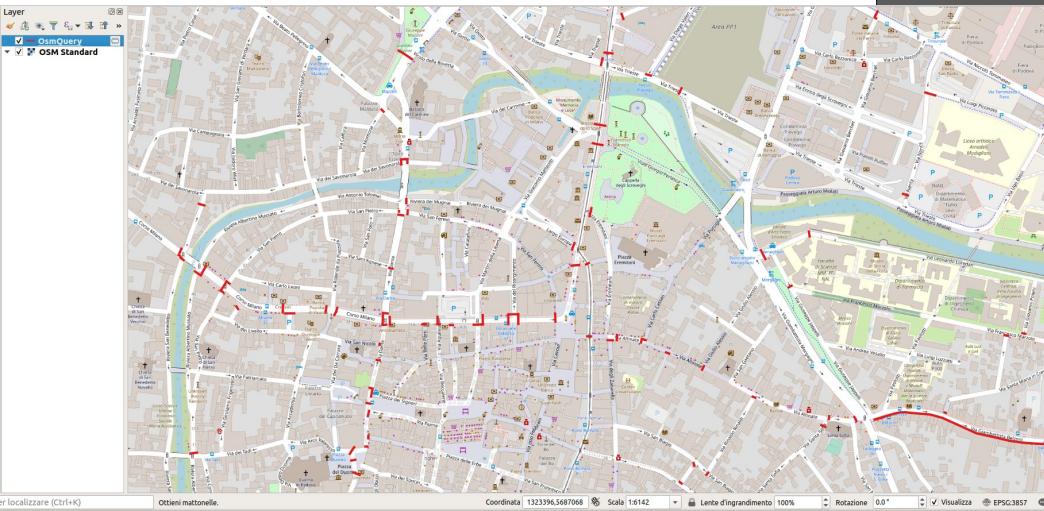
componi ed esegui la richiesta annulla



<https://wiki.openstreetmap.org/wiki/Tag:highway%3Dcrossing>

Da Overpass Turbo a QGIS

Copio l'istruzione da Overpass Turbo all'interno del box "Ricerca" nel plugin QuickOSM ed eseguo la query.



QuickOSM

Ricerca rapida

Richiesta

File OSM

Configurazione

A proposito

Overpass query

```
/  
This has been generated by the overpass-turbo wizard.  
The original search was:  
"highway=footway AND footway=crossing"  
*/  
[out:json][timeout:25];  
//gather results  
(  
// query part for: "highway=footway and footway=crossing"  
node["highway"]="footway"]["footway"]="crossing"]({{bbox}});  
way["highway"]="footway"]["footway"]="crossing"]({{bbox}});  
relation["highway"]="footway"]["footway"]="crossing"]({{bbox}});  
);  
// print results  
out body;  
>;  
out skel qt;
```

Advanced

Generate query

Run query

Overpass Turbo

Documentation

Successful query, 1 layer(s) has been loaded.

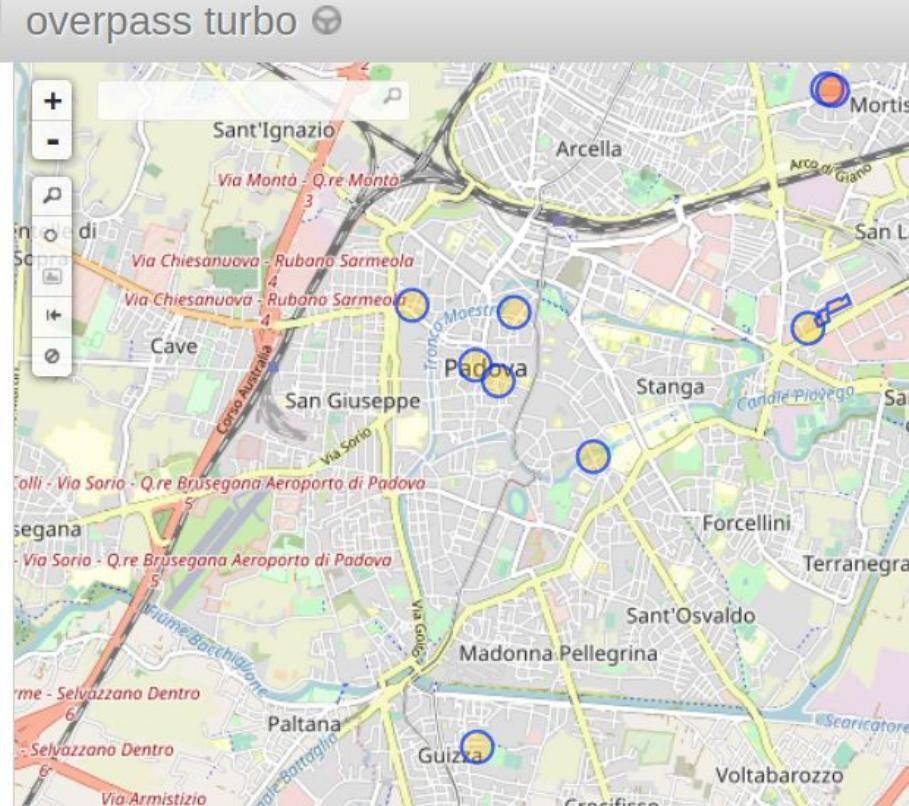
100%

Overpass Turbo: molto di più

```
1 [out:json][timeout:25];
2 // cerco a Padova
3 {{geocodeArea:Padova}}->.searchArea;
4 // individuo tutti i parcheggi per disabili
5 nwr["amenity"]="parking_space"]["disabled"]="designated"
6 (area.searchArea);
7 // trovo tutti i negozi accessibili alle carrozzine che sono a
8 meno di 50 metri dai parcheggi
9 nwr["shop"]["wheelchair"]="yes"(around:50);
10 out body;
11 >;
12 out skel qt;
```

Estrarre i negozi che, a Padova, hanno parcheggi per disabili a meno di 50 m e che sono accessibili alle carrozzine.

<https://overpass-turbo.eu/s/Vr3>



Overpass Turbo: per approfondire

Presentazione “Overpass Turbo: oltre il wizard”, di Andrea Albani
(OSMit/FOSS4G-it 2020):

[https://wiki.openstreetmap.org/wiki/Italy/
Events/OSMit_2020](https://wiki.openstreetmap.org/wiki/Italy/Events/OSMit_2020)

con moltissimi esempi dal semplice all’ultra complesso.



Esempi Overpass

Contents

1.	Farmacie a Palermo (uso di area, geocodearea e filtri di esistenza)	3
2.	Parchi a Ravenna (uso di bbox, nwr e differenti tipi di out)	3
3.	Via XXV Aprile a prescindere da come è scritta (uso di regexp)	3
4.	Nodi con name:en o name:es (uso di regexp, velocità rispetto a filtro classico)	3
5.	Nomi con parole che iniziano con minuscole (uso di regexp)	4
6.	Tutti i luoghi di preghiera con il nome che include l'abbreviazione S. (uso di regexp)	4
7.	CAP non corretti (uso di regexp).....	4
8.	Nodi (effetto di > e <).....	4
9.	Way (effetto di > e <)	5
10.	Relazioni (effetto di >, <, >> e <<)	5

Strumenti di controllo della qualità

Strumenti di controllo della qualità

(https://wiki.openstreetmap.org/wiki/Quality_assurance)

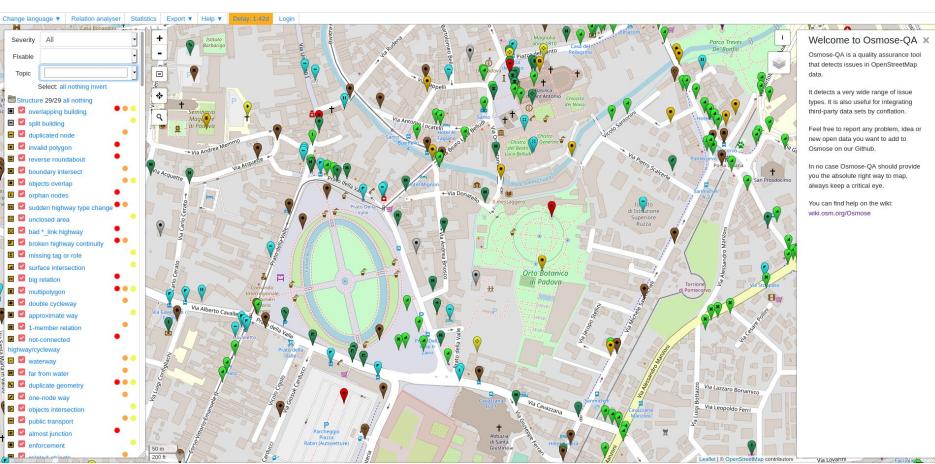
Numerosi strumenti per fare controllo sui dati in OpenStreetMap:

- Bug reporting tools
- Error detection tools
- Visualization tools
- Monitoring tools
- Assistant tools
- Tag statistics

Segnalazione errori nei tag o nella geometria/topologia

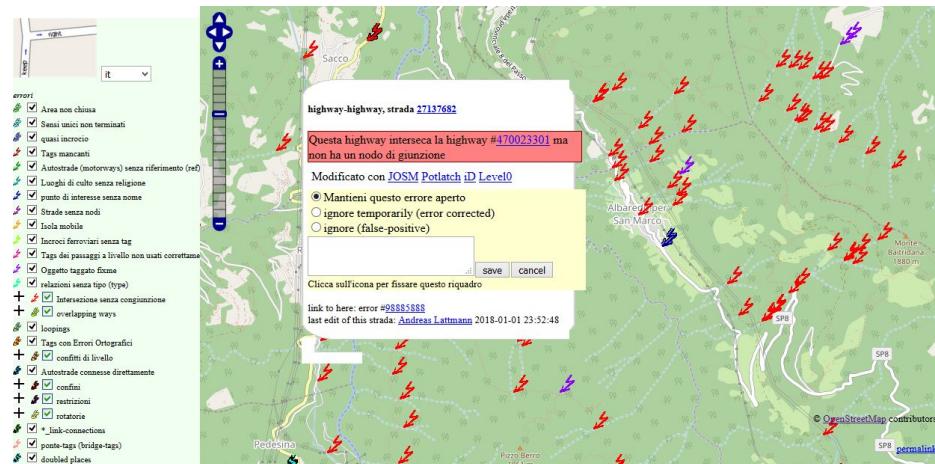
Osmose

(<http://osmose.openstreetmap.fr/en/map>)



KeepRight

(http://keepright.ipax.at/report_map.php)

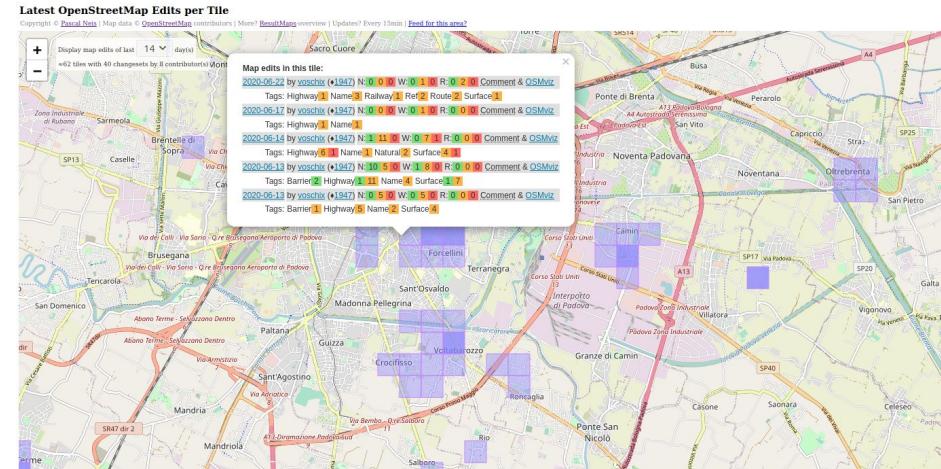


Analisi e verifica changesets

OSMCha (<https://osmcha.org/>)

The screenshot shows the OSMCha interface. On the left, there is a list of recent changesets with details like author, timestamp, and changes made. Some entries include links to the changeset page on OpenStreetMap. Below this is a large blue 'OSMCha' logo. Underneath the logo is the text 'Validation tool for OpenStreetMap'. To the right of the logo is a four-step workflow diagram: 'Filter' (a gear icon), 'Select' (a document icon), 'View' (a map icon), and 'Verify' (a thumbs-up icon). At the bottom, it says 'v0.66.3' and provides links to 'Guide', 'GitHub', and 'File an issue'.

Latest OpenStreetMap Edits per Tile
(<https://resultmaps.neis-one.org/osm-changes-tiles>)



Dove trovare informazioni e aiuto

- Learn OSM: <https://learnosm.org/it/>
- Mailing lists: <https://lists.openstreetmap.org/listinfo>
- Mailing list italiana (talk-it): <https://lists.openstreetmap.org/listinfo/talk-it>
- Gruppo Telegram: <https://telegram.me/OpenStreetMapItalia>
- Wiki OSM: https://wiki.openstreetmap.org/wiki/IT:Pagina_Principale

The screenshot shows the IT:Pagina Principale page of the OpenStreetMap Wikipedia. The page has a standard Wikipedia layout with a sidebar on the left containing links to various sections like 'Pagina principale', 'Map', 'Features', 'Attributor', 'Blogs', 'Shop', 'Donations', 'Wiki discussion', and 'Ultimate modifie'. The main content area has a large heading 'IT:Pagina Principale' and a sub-section 'Main Page - Altre lingue'. Below this is a welcome message in Italian: 'Benvenuto su OpenStreetMap, il progetto che crea e fornisce dati geografici liberi® eu base mondiale. Il progetto è stato avviato perché la maggior parte delle mappe che si credono liberamente utilizzabili, hanno invece restrizioni legali o tecniche al loro utilizzo e ciò ne impedisce l'uso per scopi produttivi, creativi o inattesi.' There are also links to 'Maggiore informazioni su OpenStreetMap | Come contribuire | Dove trovare aiuto'. The right side of the page features three large callout boxes: 'Usare OpenStreetMap' (with a magnifying glass icon), 'Contribuisci con geodati liberi' (with a globe icon), and 'Sviluppo Software' (with a wrench and screwdriver icon).

Grazie!



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