

JOSM — Java OpenStreetMap Editor

Current Development and Data Validation Using MapCSS



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Outline

Introducing JOSM

JOSM Development

- Release Concept

- Contributing to JOSM?

- Recent Changes

- Internationalization

Hands On

- MapCSS styles

- Tag checker/fixer

JOSM is ...

JOSM war der Profi-Editor, echte Profis benutzen Level0 von Zverik als Editor.

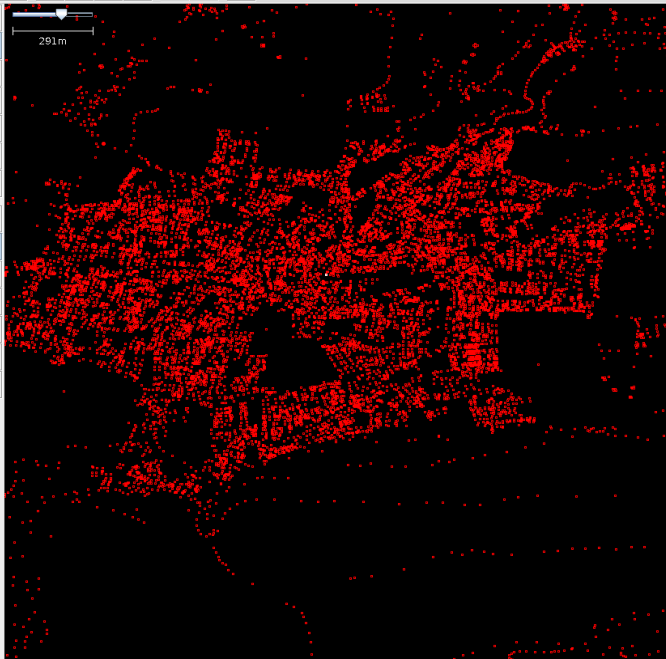
<http://blog.openstreetmap.de/blog/2014/04/wochennotiz-nr-195/>

*State Of The Map Europe 2014/Helpers/Video Recording
[...] JOSM is more complex ^^ [...]*

https://wiki.openstreetmap.org/w/index.php?title=State_Of_The_Map_Europe_2014/Helpers&oldid=1017550

Introducing JOSM (1)

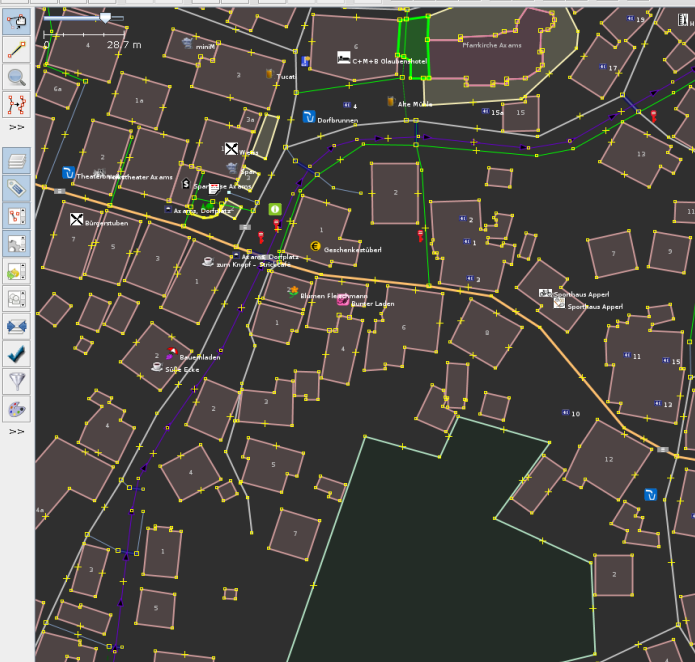
- offline editor for OpenStreetMap project
- written in Java, thus multi-platform
- initially developed by Immanuel Scholz
- current contributors: Stefan Breunig, David Earl, Gabriel Ebner, Dave Hansen, Paul Hartmann, Karl Guggisberg, Matthias Julius, Alexei Kasatkin, Jiri Klement, Ulf Lamping, Simon Legner, Raphael Mack, Upliner Mikhalych, Vincent Privat, Frederik Ramm, Dirk Stöcker, ...
- <https://josm.openstreetmap.de/>



Properties

Key	Value
is_in	Innsbruck-Land, Tirol, Ös...
name	Axams
name:kk	Аксамс
name:ru	Аксамс
openGeoDB:auto_update	population, place, name...
openGeoDB:community...	70304
openGeoDB:is_in	Innsbruck-Land, Tirol, Ös...
openGeoDB:is_in_loc_id	77494
openGeoDB:layer	6
openGeoDB:loc_id	77499
openGeoDB:location	political_structure
openGeoDB:name	Axams
openGeoDB:population	5318
openGeoDB:postal_cod...	6094
openGeoDB:sort_name	AXAMS
openGeoDB:type	Gemeinde
openGeoDB:version	0.2.6.11 / 2007-12-04 / ...
place	village
population	5318
wikipedia	de:Axams





Layers

- ax.osm

Tags: 22 / Memberships: 0

Key	Value
is_in	<different>
name	<different>
name:kk	<different>
name:ru	<different>
openGeoDB:auto_upd...	<different>
openGeoDB:communit...	<different>
openGeoDB:is_in	<different>
openGeoDB:is_in_loc_id	<different>
openGeoDB:layer	<different>

Sel.: Rel.:0 / Ways:0 / Nodes:6

- Axams (47.230714, 11.2818376)
- Bachl (47.2347391, 11.2638207)
- Birgitz (47.235717, 11.2999641)
- Gotzens (47.2359336, 11.3110357)
- Knappen (47.2243327, 11.2779321)
- Kristen (47.2438787, 11.288928)

Relations: 33

- boundary[8] ("Axams", 9 members, incompl)
- boundary[8] ("Birgitz", 7 members, incompl)
- boundary[8] ("Grinzens", 9 members, incompl)
- boundary[8] ("Kematen in Tirol", 7 members, incompl)
- boundary[8] ("Vols", 7 members, incompl)
- multipolygon (167516, 2 members)
- multipolygon (1771182, 7 members)
- multipolygon (1771183, 7 members)

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JOSM Development: Release Concept

- `josm-tested` (14.05, 14.06, ...)
 - no severe bugs
 - “complete translations”
 - released approx. monthly
- `josm-latest` (nightly-build)
- continuous integration (donvip.fr/jenkins/job/JOSM)

<https://josm.openstreetmap.de/wiki/Releases>
<https://josm.openstreetmap.de/wiki/DevelopersGuide/Schedule>

JOSM Development: Recent Changes

see startup page notes, [summarized changelog](#), [SVN changelog](#)

2014-04-25: Stable release r7000 (14.04)

- major changes/enhancements
 - **Last release compatible with Java 6**
- minor enhancements
 - Add Monte Mario Projection (Italy, [r6954](#))
 - Change of system of measurement in map status ([r6960](#))
 - MapCSS: proper `@media` support ([r6970](#))
 - Add `proxy.exceptions` advanced parameter (`localhost` and `127.0.0.1` by default, [r6971](#))
- major bugs
 - Fix encoding for systems not using UTF-8 as default ([r6966](#), [r6995](#))
 - Move Map on Mac OSX with Java 7 ([r6988:6989](#), [r6993](#), [r7000](#))

Recent bigger changes

- Java 7+
- HTTPS (OSM API, remote control)
- MapCSS-based tag checker/fixer

How to contribute?

- use JOSM
- report bugs (\approx 1000 open tickets)
- report enhancements (simple enhancements for better usability)
- up/down vote tickets



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[Wiki](#) | [Timeline](#) | [Changelog](#) | [Browse source](#) | **View tickets** | [New ticket](#) | [Search](#)

[+11](#) | [← Previous ticket](#) | [Back to query](#) | [Next ticket →](#)

Ticket #7450 (new enhancement) [Modify ↓](#)

Warning against misaligned imagery Opened **10 days** ago
Last modified **3 days** ago

- update documentation/help
- translate program/documentation
- design fancy new icons
- write code

<https://josm.openstreetmap.de/> (Contribute)

JOSM Development: Internationalization (1)

Translation strings:

JOSM core, object presets, validation messages, plugins;

Σ: 8300 strings

Translation languages:

bg, ca, cs, da, de, el, en_AU, en_GB, es, et, eu, fi,
fr, gl, hu, id, it, ja, nb, nl, pl, pt, pt_BR, ru, sk,
sv, tr, uk, zh_CN, zh_TW



















Translation platform:

<https://translations.launchpad.net/josm/trunk>

↪ <https://www.transifex.com/projects/p/josm/> soon?

JOSM Development: Internationalization (2)

Translation status

Language	Status	Untranslated	Needs review	Last Changed ▲
Ukrainian		0	0	2 hours ago
Japanese		8	0	4 hours ago
Spanish		1	0	19 hours ago
Swedish		4175	5	19 hours ago
Dutch		256	1	2014-06-10
Italian		0	0	2014-06-10
Russian		10	13	2014-06-10
French		578	35	2014-06-06
Korean		7848	0	2014-06-06
Brazilian Portuguese		4065	16	2014-06-05
Catalan		30	0	2014-06-04
Slovak		1024	0	2014-05-31
German		28	1	2014-05-31
Czech		144	3053	2014-05-29
Hungarian		3532	0	2014-05-26
Polish		2672	32	2014-05-26
Turkish		6263	6	2014-05-16
Lithuanian		6229	5	2014-05-10

JOSM Development: Internationalization (3)

Unfortunately, ...



Launchpad.net

Timeout error

Sorry, something just went wrong in Launchpad.

We've recorded what happened, and we'll fix it as soon as possible. Apologies for the inconvenience.

Trying again in a couple of minutes might work.

(Error ID: 00PS-cc531644649b176cb377076e0e892225)

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Hands On: Search Syntaxes

How to select certain OSM objects?

- XAPI syntax
- Overpass XML/QL
- MapCSS
- JOSM search/filter
- JOSM preset matching
- JOSM XML style
- JOSM validator test
- JOSM tag checker
- ...

Hands On: MapCSS styles (1)

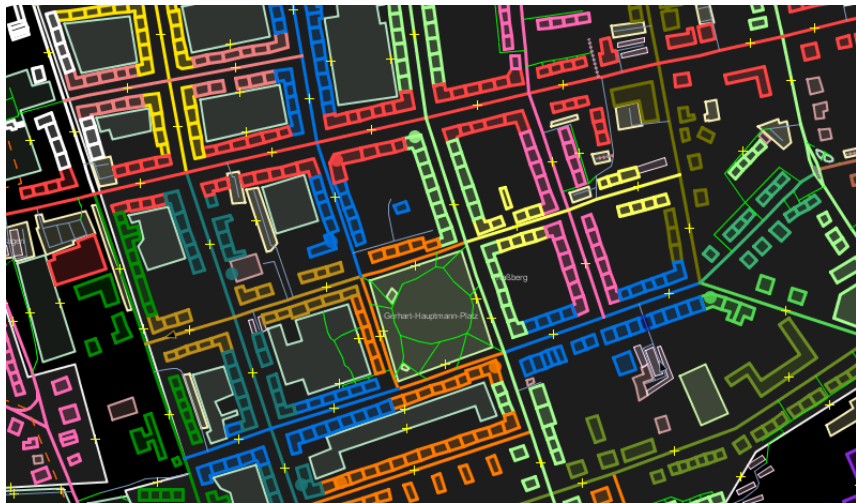
```
way[highway=residential] {
  color: #E8E8E8;
  width: 5;
}

way[name="Burggraben"],
way[name^="Bu"] {
  color: #FB9A99;
}

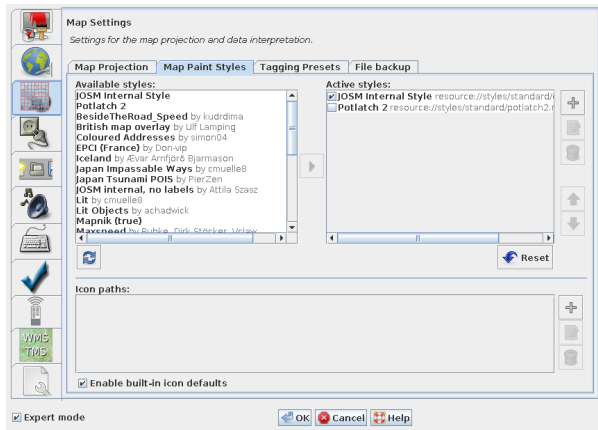
area[building][addr:street^="Bu"] {
  color: #FB9A99;
  fill-color: #FB9A99;
}
```

<https://josm.openstreetmap.de/wiki/Help/Styles/MapCSSImplementation>

Hands On: MapCSS styles (2)



Hands On: MapCSS styles (3)



<https://josm.openstreetmap.de/wiki/Styles>

Hands On: MapCSS styles (4)

- Mapnik XML style \rightsquigarrow CartoCSS ([gravitystorm/openstreetmap-carto](#))
- JOSM XML style \rightsquigarrow MapCSS ([#9691](#))

Hands On: Tag checker/fixer (1)

Detect erroneous tags / tag combinations.

- abbreviated street name, Strasse
- highway=steps used with maxspeed
- highway with multiple values
(e.g., highway=residential;service)
- route relation without route tag
- highway=ford is deprecated

```
way : I : highway == steps && maxspeed == *  
# maxspeed used for footway
```

Why not use powerful matching syntax of MapCSS?

Hands On: Tag checker/fixer (2)

```
Color hsb_color(float h, float s, float b)
Color html2color(String html)
Color rgb(float r, float g, float b)
Color rgba(float r, float g, float b, float
    alpha)
String color2html(Color c)
List<Object> list(Object... args)
List<String> split(String sep, String toSplit)
Object any(Object... args)
Object coalesce(Object... args)
Object eval(Object o)
Object get(List<?> lst, float n)
Object print(Object o)
Object println(Object o)
Object prop(String key)
Object prop(String key, String layer)
String JOSM_pref(String key, String def)
String URL_encode(String s)
String XML_encode(String s)
String child_tag(String key)
String parent_tag(String key)
String concat(Object... args)
String join(String... args)

List<String> regexp_match(String pattern,
    String target)
String replace(String s, String target, String
    replacement)
String substring(String s, float begin)
String tag(String key)
String tr(String... args)
boolean JOSM_search(String searchStr)
boolean has_tag_key(String key)
boolean is_prop_set(String key)
boolean is_right_hand_traffic()
boolean regexp_test(String pattern, String
    target)
float alpha(Color c)
float blue(Color c)
float green(Color c)
float index()
float red(Color c)
int number_of_tags()
int count(List<?> lst)
long CRC32_checksum(String s)
long osm_id()
```

<https://josm.openstreetmap.de/doc/.../Functions.html>

Hands On: Tag checker/fixer (3)

```
selector {
  /* exactly one of */
  throwError: "message";
  throwWarning: "message";
  throwOther: "message";

  /* arbitrarily many of */
  fixAdd: "key=val";
  fixRemove: "key";
  fixChangeKey: "old=>new";
  suggestAlternative: "any text (e.g., alternative key)";

  /* assertions for unit tests */
  assertMatch: "node/way/relation key1=value1 keyN=valueN";
  assertNoMatch: "node/way/relation key1=value1 keyN=valueN";
}
```

Hands On: Tag checker/fixer (4)

```
*[name =~ /(?!i).*Strasse.*/] {  
  throwOther: tr("street name contains ss");  
  assertMatch: "way name=Foobarstrasse";  
  assertNoMatch: "way name=Foobar";  
}
```

```
way[highway=steps][maxspeed] {  
  throwWarning: tr("{0} used with {1}", "{0.value}", "{1.tag}");  
  assertMatch: "way highway=steps maxspeed=20";  
}
```

```
*[highway =~ /.+;(.)?/] {  
  throwWarning: tr("{0} with multiple values", "{0.key}");  
}
```

Hands On: Tag checker/fixer (5)

MapCSS supports parent/child selectors ...

```
way >:sameTags node:tagged {  
  throwWarning: tr("Nodes duplicating parent way tags");  
}
```

```
*[tag("addr:housenumber") > child_tag("addr:housenumber")]  
  [regexp_test("even|odd", parent_tag("addr:interpolation"))]  
+ *[addr:housenumber] {  
  throwWarning: tr("Decreasing house numbers in addresses  
    interpolation");  
}
```


Hands On: Tag checker/fixer (6)

Automatic fixes of wrong tags ...

```
*[highway=ford] {  
  throwWarning: tr("{0} is deprecated", "{0.tag}");  
  fixRemove: "highway";  
  fixAdd: "ford=yes";  
}
```

Hands On: Tag checker/fixer (7)

Extend MapCSS selectors to support spatial queries?

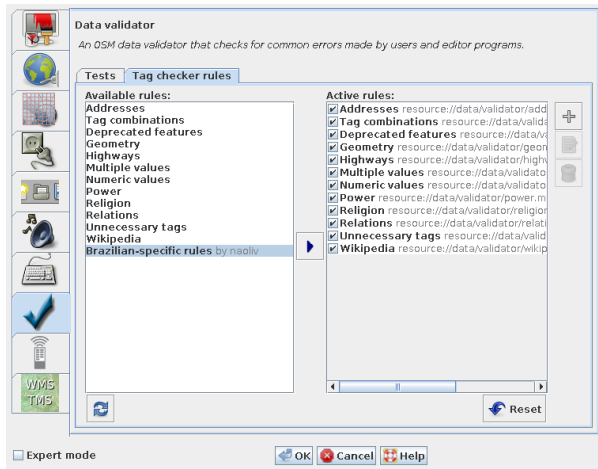
```
*[building] ∈ *[building] {  
  throwWarning: tr("Building inside building");  
}
```

```
area[natural=water] {  
  set water_area;  
}  
  
area:closed:areaStyle.water_area □  
area:closed:areaStyle.water_area {  
  throwWarning: tr("Overlapping Water Areas");  
}
```

∈ ↦ U+2208 (ELEMENT OF), □ ↦ ◻ U+29C9 (TWO JOINED SQUARES)

Hands On: Tag checker/fixer (8)

Write and install custom validation rules



Hands On: Tag checker/fixer (9)

Share custom validation rules

JOSM Validator Rules



The JOSM validator ([Tag checker](#)) can be customized with different rules based on [MapCSS](#).

Choose Rules

There are base rules (e.g. [Geometry](#) or [Highways](#)) that cover dedicated features each. They can be combined with add-on rules that cover more special topics:

short description	author	description	version
Brazilian-specific rules	naoliv	Community rules for the most common errors and problems found in Brazil. Messages are in Portuguese only. More details	1.14_2014-02-18

To add more rules to your list, open the [Validator Preferences](#): Edit -> Preferences -> Validator -> Tag Checker Rules (2nd tab))

Rules managed in JOSM wiki

- [Rules/Brazilian-Specific](#)

<https://josm.openstreetmap.de/wiki/Rules>

Summary

- JOSM is a powerful, extensible OSM editor
- Contributions are welcome!

Thank You!



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