Mapgen

by Gary68

User's manual

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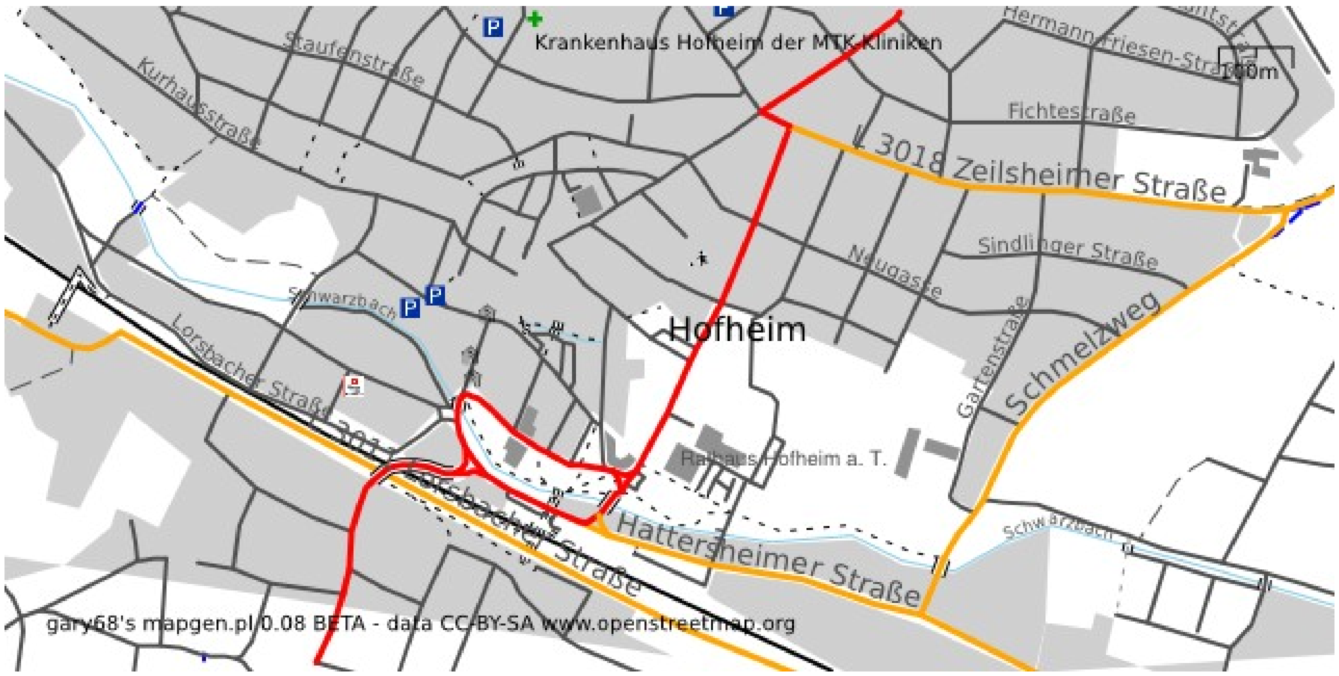

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Introduction

Mapgen has its roots in osmdiff.pl and osmrender.pl. They were very basic render programs. Once Haiti was hit by the strong earthquake I wanted to provide large png maps for the local help. This proved to be hard since so many things couldn't be done with my programs. So I decided to improve the features of my renderer and give it a new name. So the basic goals became:

- Fast and easy map generation, different output formats
- Fast extraction of needed data out of *.osm files (place=*)
- Easy style file handling
- Street and place directories
- Keep it simple (easy invocation with only 2 mandatory parameters)
- Keep it powerful (by using more parameters)

Installation

- Put the mapgen.pl file in a folder
- Put *.pm files in a subfolder called OSM (can also be put into a directory contained in the @INC pathes)
- Get Math::Poygon from CPAN and create a subfolder Math (can also be put into a directory contained in the @INC pathes)
- (Install osmosis if desired; take care that it can be invoked from command line)
- (Install inkscape if desired; take care that it can be invoked from command line)

Basic parameters

Obviously there are some things that can't be hidden from the user. So the user has to specify at least 2 basic parameters:

```
-in=file.osm
-style=style.csv (original can be kept and maintained in OO sheet or MS Excel)
```

-in also supports *.osm.bz2 format.

Output

Basic and only output format from mapgen itself is SVG. That has the advantage that all further formats contain all elements that mapgen can produce. Disadvantage is a post-processing done by inkscape.

There are two options specifying additional output formats:

```
-out=file.svg (png and pdf names are automatic, DEFAULT=mapgen.svg)

-png (also produce png, inkscape must be installed, very big)
-pdf (also produce pdf, inkscape must be installed)
```

The names are automatic and derived from the -out name. Inkscape must be installed and your system must be able to run it from command line in the current directory.
The PNG files are rather big. So maybe some post-processing is appropriate.

Usage examples

Most **simple** form:

```
perl mapgen.pl -in=file.osm -style=mapgenRules.csv
```

Also specify an **output** name, if you wish

```
perl mapgen.pl -in=file.osm -style=mapgenRules.csv -out=map.svg
```

Also specify **size** and that you want a **PDF** additionally:

```
perl mapgen.pl -in=file.osm -style=mapgenRules.csv -size=2048 -pdf
```

Now let's say you have a big osm file but only want a **map of a certain city**:

```
perl mapgen.pl -in=germany.osm -style=mapgenRules.csv -place=Frankfurt
```

This will probably not cover the whole of Frankfurt because the default **radiuses** are too small (2km each direction)

```
perl mapgen.pl -in=germany.osm -style=mapgenRules.csv -place=Frankfurt -lonrad=10
-latrad=10
```

Now we want our map with **grid lines** and a **street directory**:

```
perl mapgen.pl -in=file.osm -style=mapgenRules.csv -grid=8 -dir
```

And let's turn off the **legend**:

```
perl mapgen.pl -in=file.osm -style=mapgenRules.csv -legend=0
```

Map size and the like

The background color can be set according to the given color set.

The size of the picture is specified by the width in pixels. Height is automatically calculated.

Clipping means that not all of the data given in the osm file will be presented. This is useful to clip incomplete data at the edges of the area in the osm file.

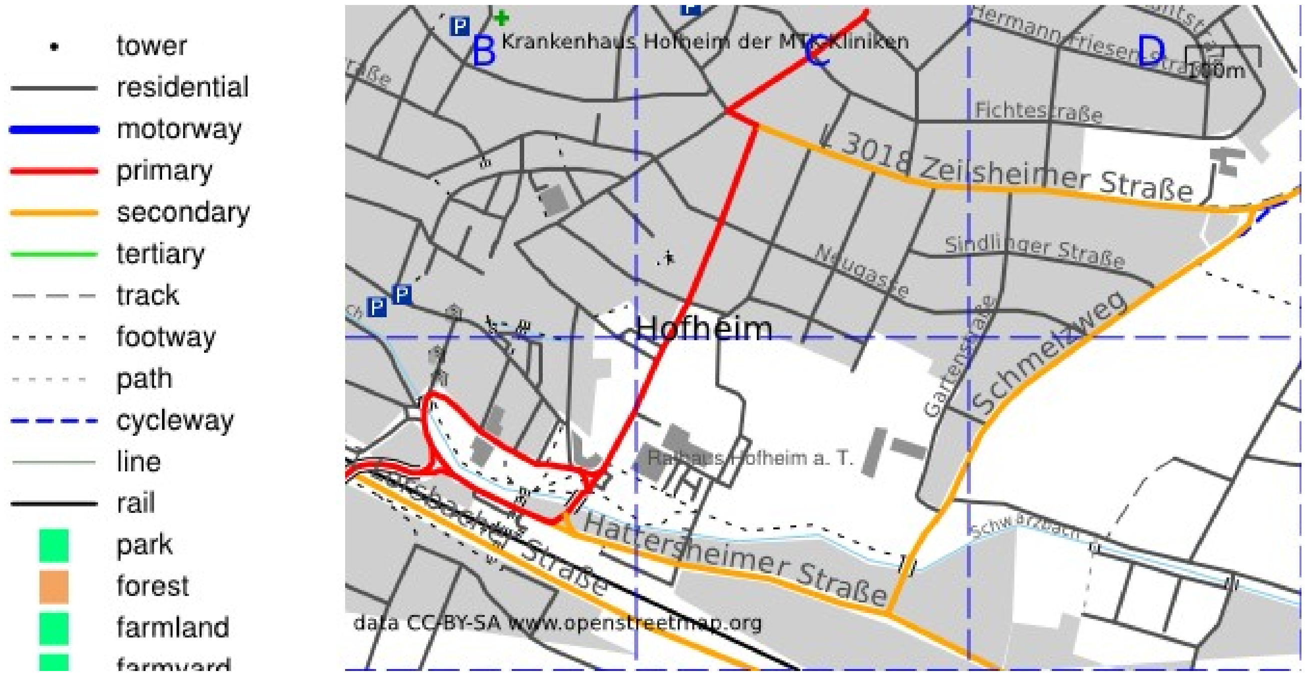
```
-bgcolor=TEXT (color for background)
-size=<integer> (in pixels for x axis, DEFAULT=1024)
-clip=<integer> (percent data to be clipped on each side, 0=no clipping, DEFAULT=0)
```

Advanced parameters

By default a legend is drawn in the upper left corner. This can be switched off.

```
-legend=INT (0=no legend; 1=legend; DEFAULT=1)
```

A ruler is drawn by default in the upper right corner. This can be switched off as well. Additionally a color can be specified.



```
-ruler=INT (0=no ruler; 1=draw ruler; DEFAULT=1)
-rulercolor=TEXT (DEFAULT=black)
```

Optionally a scale value can be calculated and added to the map. Of course the color for this text can be set.

```
-scale (print scale)
-scalecolor=TEXT (set scale color; DEFAULT = black)
```

D
100m
1 : 33100 (300 dpi)

A specific scale can be set. i.e. 1:25.000 by adding -scaleset=25000 to the command line. To be able to work with this information you have to specify the resolution of the output device in dpi. By default this is set to 300dpi.

```
-scaleset=INTEGER (1:x preset for map scale; overrides -size=INTEGER! set correct
printer options!)
-scaledpi=INTEGER (print resolution; DEFAULT = 300 dpi)
```

Setting the scale overrides the -size parameter!

The program will in any case print information on how big the map will be and on what paper size it will fit.

Style file format

File

Nodes

Column #	Name	Values	Description
1	key	see wiki	
2	value	see wiki	
3	color	see separate table	the fill color
4	thickness	INTEGER	
5	label	key, where value will be the label text; entries can be separated by ! or #. !=AND. #=PRIO	
6	label color	see list below	
7	label size	INTEGER	size of text
8	label offset	INTEGER	offset in y direction for multiple labels per node
9	legend	0 or 1	
10	Icon	File name	
11	Icon size	In pixels	

Ways

Column #	Name	Values	Description
1	key	see wiki	
2	value	see wiki	
3	color	see separate list	the fill color
4	thickness	INTEGER	thickness of line
5	dash style	1-4; 10-14; 20-23	determines the style of the dashes forming the way
6	fill	0 or 1	0 = area will not be filled; 1 = area will be filled
7	label	key, where value will be used as label text. entries can be separated by ! or #. !=AND. #=PRIO	

8	label color	see below	
9	label size	INTEGER	font size
10	label font-family	see below	
11	label offset	INTEGER	offset for label text in y-direction (negative = up, positive = down)
12	legend	0 or 1	entry for automatic legend (0=no, 1=yes)
13	base layer	0 or 1	applies for areas (closd ways). areas tagged with 1 are drawn as "background" first. use for landuse, natural etc.

Colors

aliceblue	darkorchid	khaki	mediumspringgreen
antiquewhite	darkred	lavender	mediumturquoise
aqua	darksalmon	lavenderblush	mediumvioletred
aquamarine	darkseagreen	lawngreen	midnightblue
azure	darkslateblue	lemonchiffon	mintcream
beige	darkslategray	lightblue	mistyrose
bisque	darkslategrey	lightcoral	moccasin
black	darkturquoise	lightcyan	navajowhite
blanchedalmond	darkviolet	lightgoldenrodyellow	navy
blue	deeppink	lightgray	oldlace
blueviolet	deepskyblue	lightgreen	olive
brown	dimgray	lightgrey	olivedrab
burlywood	dimgrey	lightpink	orange
cadetblue	dodgerblue	lightsalmon	orangered
chartreuse	firebrick	lightseagreen	orchid
chocolate	floralwhite	lightskyblue	palegoldenrod
coral	forestgreen	lightslategray	palegreen
cornflowerblue	fuchsia	lightslategrey	paleturquoise
cornsilk	gainsboro	lightsteelblue	palevioletred
crimson	ghostwhite	lightyellow	papayawhip
cyan	gold	lime	peachpuff
darkblue	goldenrod	limegreen	peru
darkcyan	gray	linen	pink
darkgoldenrod	green	magenta	plum
darkgray	greenyellow	maroon	powderblue
darkgreen	grey	mediumaquamarine	purple
darkgrey	honeydew	mediumblue	red
darkkhaki	hotpink	mediumorchid	rosybrown
darkmagenta	indianred	mediumpurple	royalblue
darkolivegreen	indigo	mediumseagreen	saddlebrown
darkorange	ivory	mediumslateblue	salmon

sandybrown	slateblue	tan	wheat
seagreen	slategray	teal	white
seashell	slategrey	thistle	whitesmoke
sienna	snow	tomato	yellow
silver	springgreen	turquoise	yellowgreen
skyblue	steelblue	violet	

Fonts

- serif
- sans-serif
- cursive
- fantasy
- monospace
- Times
- Baskerville
- Verdena
- Symbol

Extracts

If you don't wan't the whole osm data to be printed that is contained in the file – no problem. As long as you have installed osmosis and this can be invoked from the current directory by command line.
Just specify the name of a place and mapgen will look for such a place. Upon success it will invoke osmosis to extract the needed data. By default a width and height of 4km (2*2km radius) is set. But of course it can be overridden.

```
-place=TEXT (Place to draw automatically; quotation marks can be used if necessary;
OSMOSIS REQUIRED!)
-lonrad=FLOAT (radius for place width in km, DEFAULT=2)
-latrad=FLOAT (radius for place width in km, DEFAULT=2)
```

Declutter

Usually when drawing maps (especially with lots of details) clutter may occur. To prevent this you may specify the option -declutter. Two things will then happen:

- Motorways and trunks will be labeld only in one direction
- mapgen will register an used area for each drawn label (except street labels) and won't use this area again.

The area occupied by each label is 100x10 pixels. But both values can be changed.

```
-declutter (declutter text; WARNING: some labels might be omitted; motorway and
trunk will only be labeled in one direction)
-declutterminx=INTEGER (min distance for labels on x-axis in pixels; DEFAULT=100)
-declutterminy=INTEGER (min distance for labels on Y-axis in pixels; DEFAULT=10)
```

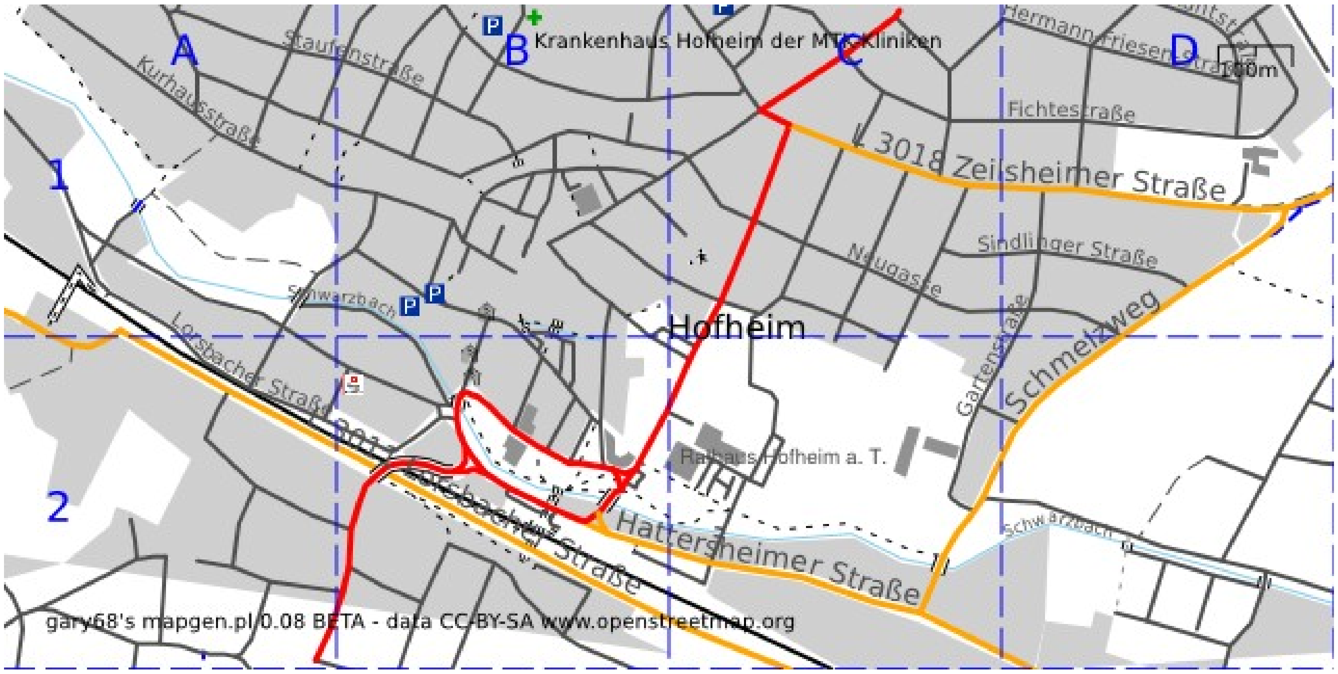
There is another option to reduce ugly artifacts. Specify a minimum length for a way to be labeled.

```
-minlen=<float> (for ways to be labeled, to prevent clutter, , DEFAULT=0.1, unit is
km)
```

Grids, directory and stats

A grid can be laid over the map. Just specify the number of grids you want in longitude direction. The other dimension is automatic. Of course you can specify the grid color. The grid squares are labeled numerically and alphabetically.

```
-grid=<integer> (number parts for grid, 0=no grid, DEFAULT=0)
-gridcolor=TEXT (color for grid lines and labels (DEFAULT=black)
```



mapgen can even create a street directory. It will do so including the grid squares where the street is located if the grid is turned on. Output is an unformatted street list to be further processed. The grid squares are separated by a tab.

```
-dir (create street directory in separate file. if grid is enabled, grid squares
will be added)
```

In the next table you can see a section of the street directory. On the left without grids, on the right with grid squares:

```
 Burgstraße                                Burgstraße.....................B1
 Cohausenstraße                            Cohausenstraße............A1 A2 B1
 Crufterostraße                            Crufterostraße..................D2
 Elisabethenstraße                         Elisabethenstraße...B2 C1 C2 D1 E1
 Eschborner Weg                            Eschborner Weg..................C1
 Feldbergstraße                            Feldbergstraße...............A1 B1
```

You can print a tag statistic about the usage of the keys and values. To keep the list short unimportant keys are omitted. This must be adapted in the code if desired.

The idea is to see what keys are used mostly. So you can decide for which features rules are needed.

Mapgen will print an alphabetical list of keys and values as well as a list of the most used k/v combinations. At the end of each line the program prints if it knows a rule for that k/v.

```
-tagstat (lists keys and values used in osm file; program filters list to keep them
short!!! see code array noListTags)
```

```
TOP 20 LIST:
highway                   residential                                 123 RULE
highway                   footway                                      51 RULE
oneway                    yes                                          38 -
highway                   service                                      21 RULE
highway                   primary                                      19 RULE
highway                   steps                                        14 -
foot                      yes                                          12 -
highway                   secondary                                    11 RULE
building                  yes                                          10 RULE
bicycle                   yes                                          10 -
amenity                   parking                                      10 RULE
surface                   cobblestone                                   9 -
service                   parking_aisle                                 8 -
highway                   pedestrian                                    8 -
landuse                   residential                                   6 RULE
highway                   track                                         6 RULE
highway                   path                                          5 RULE
highway                   living_street                                 5 -
amenity                   restaurant                                    5 -
amenity                   pharmacy                                      5 -
```

Obviously we should maybe implement a rule for oneway=yes. And we can see that by far the most used tag here is highway=residential.

Debug

Verbose will turn on lots of information to be printed while program executes. This is mostly done for debug purposes.

```
-verbose
```

If you want to print a map only containing multipolygons you can specify so. This is also a debug function, although a graphical one.

```
-multionly (draws only areas of multipolygons; for test purposes)
```