



New indoor data scheme for OSM

Presenting and discussing a new idea for mapping of indoor data

Outline

Introduction

Data Scheme

Current State

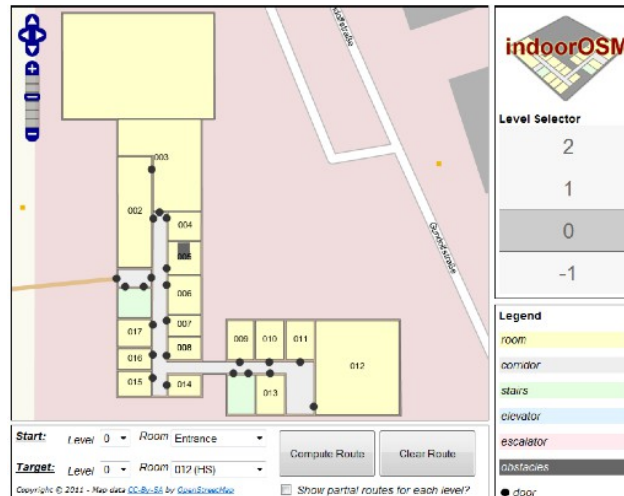
Editor

Support

Outlook

Indoor data for OSM – What's the current state?

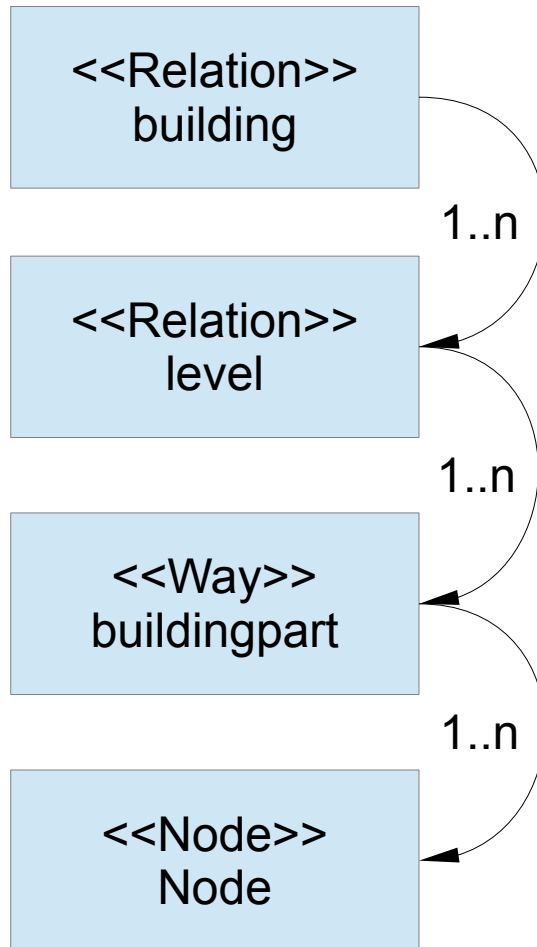
- IndoorOsm: <http://wiki.openstreetmap.org/wiki/IndoorOSM>
 - <http://osmtools.org/indoor/>
 - <http://indoorosm.uni-hd.de/>
- Ideas: http://wiki.openstreetmap.org/wiki/Indoor_Mapping



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Data scheme - IndoorOsm by Marcus Götz et al



- Hierarchical data structure
- Rooms, walls, floors are mapped as buildingparts
- Further information of the building is added as key-value pairs

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New idea: Flat data structure

Areas, rooms, ... :

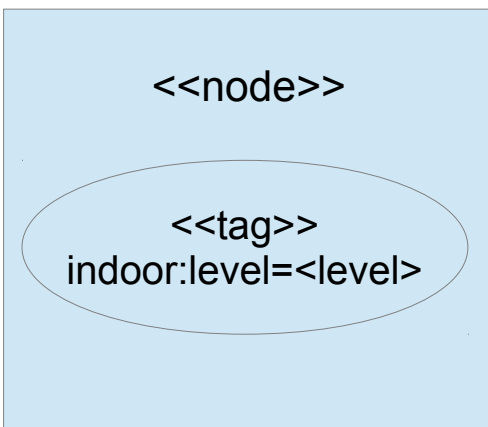


Example:

```

<way id='-28911' action='modify' visible='true'>
  <nd ref='-27619' />
  <nd ref='-28145' />
  <nd ref='-27274' />
  <nd ref='-27559' />
  <nd ref='-28493' />
  <nd ref='-27619' />
  <tag k='indoor:area' v='yes' />
  <tag k='indoor:level' v='1' />
  <tag k='name' v='A116' />
</way>
  
```

Entrances, doors, ... :



```

<node id='-29257' action='modify' visible='true' lat='50.81334489446' lon='12.92895423007'>
  <tag k='indoor:door' v='yes' />
  <tag k='indoor:level' v='-1' />
</node>
  
```

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Relational versus flat data structure

	Relational	Flat
	<ul style="list-style-type: none"> Structured search is easy, e.g.: Find toilet for man in building X at level Y 	<ul style="list-style-type: none"> Every level related data needs level tag JOSM: simple filter for editing
	<ul style="list-style-type: none"> Heavy usage of relations to structure data → general acceptance of Mappers? JOSM: Complex filters for editing necessary 	<ul style="list-style-type: none"> Structured search is more difficult

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Current State – Indoor Shell / Wall



```
<way id='-28595' action='modify' visible='true'>
  <nd ref='-27328' />
  <nd ref='-26648' />
  <nd ref='-28310' />
  <nd ref='-27800' />
  <nd ref='-26739' />
  <nd ref='-27626' />
  <nd ref='-26978' />
  <nd ref='-28500' />
  <nd ref='-27849' />
  <nd ref='-27817' />
  <nd ref='-28200' />
  <nd ref='-26756' />
  <nd ref='-28007' />
  <nd ref='-26947' />
  <nd ref='-28391' />
  <nd ref='-27499' />
  <nd ref='-27137' />
  <nd ref='-28374' />
  <nd ref='-26819' />
  <nd ref='-27689' />
  <nd ref='-27706' />
  <nd ref='-27436' />
  <nd ref='-27328' />
  <tag k='indoor:area' v='yes' />
  <tag k='indoor:level' v='4' />
  <tag k='indoor:shell' v='yes' />
  <tag k='name' v='Rühlmann-Bau, B-Bau' />
</way>
```

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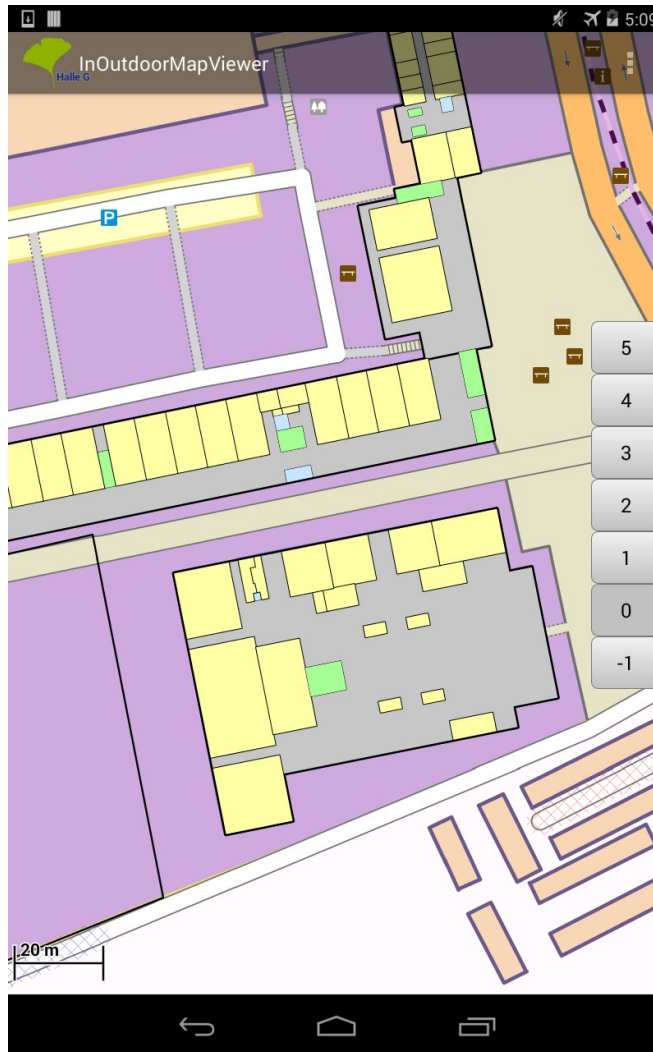
Current State

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Current State – Indoor Areas



```
<way id='-28594' action='modify' visible='true'>  
  <nd ref='-28147' />  
  <nd ref='-27566' />  
  <nd ref='-27464' />  
  <nd ref='-26874' />  
  <nd ref='-28338' />  
  <nd ref='-28147' />  
  <tag k='indoor:area' v='yes' />  
  <tag k='indoor:level' v='3' />  
  <tag k='name' v='Technik' />  
</way>
```


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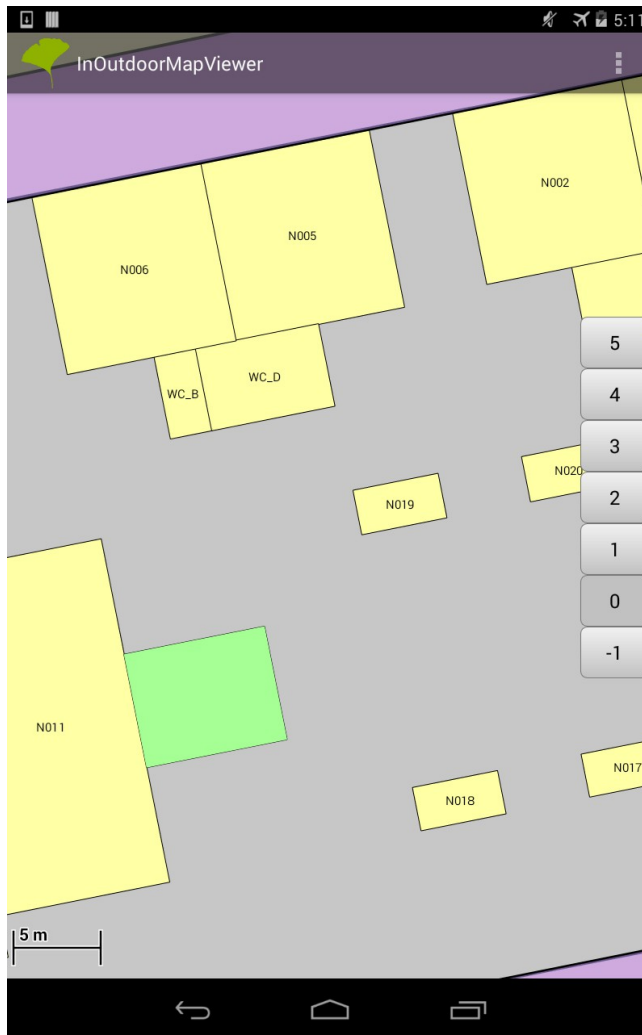
Current State

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Current State – Indoor Areas

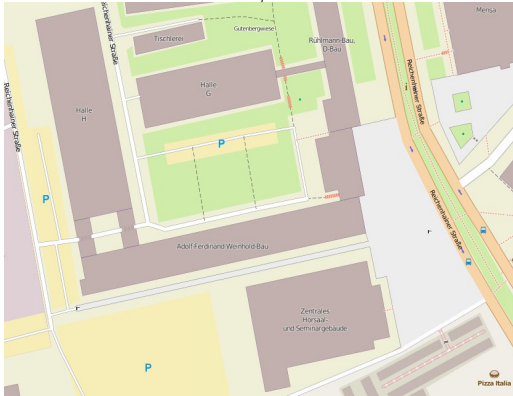


```
<way id='-28594' action='modify' visible='true'>  
  <nd ref='-28147' />  
  <nd ref='-27566' />  
  <nd ref='-27464' />  
  <nd ref='-26874' />  
  <nd ref='-28338' />  
  <nd ref='-28147' />  
  <tag k='indoor:area' v='yes' />  
  <tag k='indoor:level' v='3' />  
  <tag k='name' v='Technik' />  
</way>
```

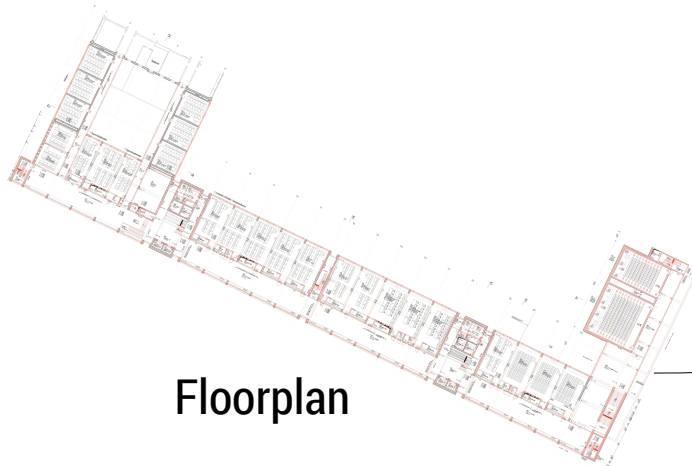

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Editor Support – Current Workflow



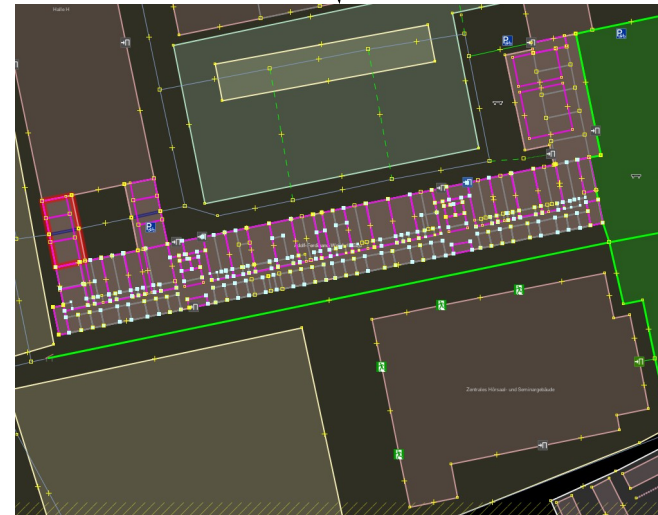
Outdoor maps



Floorplan



JOSM



Fit floorplans into existing outdoor maps

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Editor Support – Current Workflow

The screenshot displays the Java OpenStreetMap Editor interface. The main map area shows a building footprint with yellow and grey polygons. A scale bar indicates 27.4 m. A 'Filter active' dialog box is overlaid on the map, stating '4.243 objects disabled' and 'Close the filter dialog to see all objects.' The right-hand sidebar contains several panels: 'Layers' (showing 'chemnitz_indoor.osm'), 'Tags / Memberships', 'Selection', 'Relations', 'Filter Hidden:0 Disabled:4.243', and 'Map Paint Styles'. The 'Filter Hidden' panel is expanded, showing a list of filter rules with checkboxes and 'A' (Apply) buttons. The 'Map Paint Styles' panel shows 'indoor_f3db.mapcss' selected. The bottom status bar shows coordinates (50.8146082, 12.9279814) and '(no object)'.

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Editor Support - Ideas

- Introduce an indoor mode:
 - Tree view with selection of the level, e.g. „-1“
 - Other levels are hidden
 - Every drawn component is tagged with the selected level, e.g. `<tag k='indoor:level' v='-1'`

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Editor Support – Ideas for better indoor support

Java OpenStreetMap Editor

Filter active
4.243 objects disabled
Close the filter dialog to see all objects.

Layers
chemnitz_indoor.osm

Tags / Memberships
Select objects for which to change tags.

Levels
+
0
-

Relations

Filter Hidden:0 Disabled:4.243
E H Text I M
 type:way & "indoor:level"="1" A
 type:node & indoor:yes A
 type:way & buildingpart:verticalpassage A
 type:way A

Map Paint Styles
 Wireframe View
 JOSM default (MapCSS)
 P2 Potlatch 2
 indoor_f3db.mapcss

50.8146082 12.9279814 (no object) ove objects by dragging; Shift to add to selection (Ctrl to toggle); Shift-Ctrl to rotate

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ToDo's:

- Discuss about the data model
- Tool-Support (editors and renderer)
- 3D Indoor Description
- Update: <http://wiki.openstreetmap.org/wiki/F3DB>