

Overpass

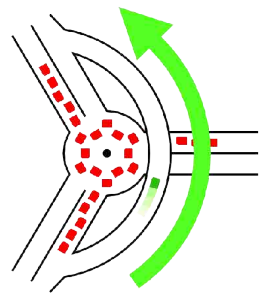
API

v 0.7.50

The Temporal Dimension

Roland Olbricht

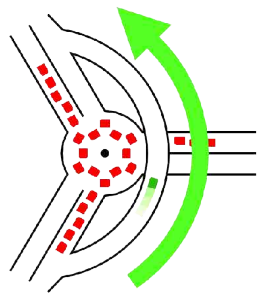
at SOTM-EU 2014 in Karlsruhe



Overpass
API

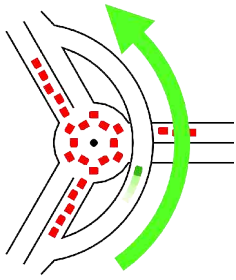
Overview

1. Current Data
2. Query for Attic Data
3. Augmented Diffs
4. Future Roadmap



Overpass
API

1. What's new for querying **Current Data**



Current Data:
geometric print: center

way(42);
out center;

rel(42);
out center;

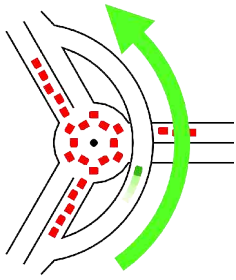
node(42);
out center;

```
<way id="42">  
  <center lat="49.9" lon="8.1"/>  
  <nd ref="300000"/>  
  <nd ref="300001"/>  
  ...  
</way>
```

```
<rel id="42">  
  <center lat="49.9" lon="8.1"/>  
  <nd ref="300000"/>  
  <nd ref="300001"/>  
  ...  
</way>
```

```
<node id="42" lat="49.9" lon="8.1"/>
```

*faster
than recurse-down*



Current Data: geometric print

out ids; out ids center; out ids **bb**; (*nonsense*)

out skel; out skel center; out skel **bb**; out skel **geom**;

out **tags**; out **tags** center; out **tags** **bb**; (*nonsense*) *tags,*
no members

out; out center; out **bb**; out **geom**;

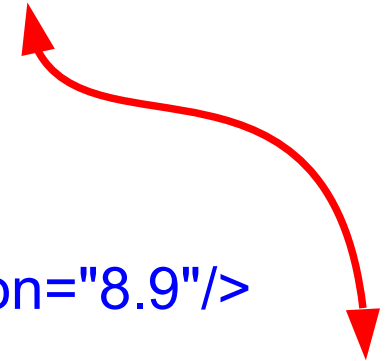
out meta; out meta center; out meta **bb**; out meta **geom**;



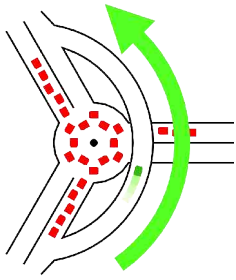
<center lat="49.5" lon="8.5"/>



<bounds minlat="49.1" minlon="8.1" maxlat="49.9" maxlon="8.9"/>



(shows lat, lon on way and relation members)



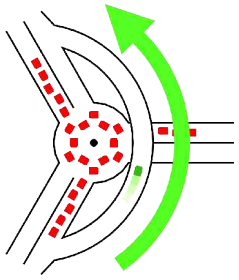
Current Data: geometric print: **geom**

```
way(42);  
out geom;
```

```
<way id="42">  
  <bounds .../>  
  <nd ref="30" lat="49.11" lon="8.89"/>  
  <nd ref="31" lat="49.12" lon="8.88"/>  
  <nd ref="32" lat="49.13" lon="8.87"/>  
</way>
```

```
rel(42);  
out geom;
```

```
<rel id="42">  
  <bounds .../>  
  <member type="node" role=""  
    ref="50" lat="49.44" lon="8.61"/>  
  <member type="node" role=""  
    ref="51" lat="49.45" lon="8.62"/>  
  <member type="way" role="" ref="43">  
    <nd lat="49.41" lon="8.59"/>  
    <nd lat="49.42" lon="8.58"/>  
    <nd lat="49.43" lon="8.57"/>  
  </member>  
</rel>
```



Current Data: geometric print: geom w/ bounding box

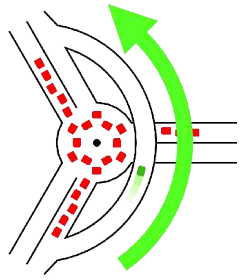
```
way(42);  
out geom(49.1, 8.885, 49.115, 8.9);
```

```
<way id="42">  
  <bounds .../>  
  <nd ref="30" lat="49.11" lon="8.89"/>  
  <nd ref="31" lat="49.12" lon="8.88"/>  
  <nd ref="32"/>  
</way>
```

```
rel(42);  
out geom(49.425, 8.5, 49.445, 8.7);
```

```
<rel id="42">  
  <bounds .../>  
  <member type="node" role=""  
    ref="50" lat="49.44" lon="8.61"/>  
  <member type="node" role=""  
    ref="51"/>  
  <member type="way" role="" ref="43">  
    <nd/>  
    <nd lat="49.42" lon="8.58"/>  
    <nd lat="49.43" lon="8.57"/>  
  </member>  
</rel>
```

faster
than w/o bounding box



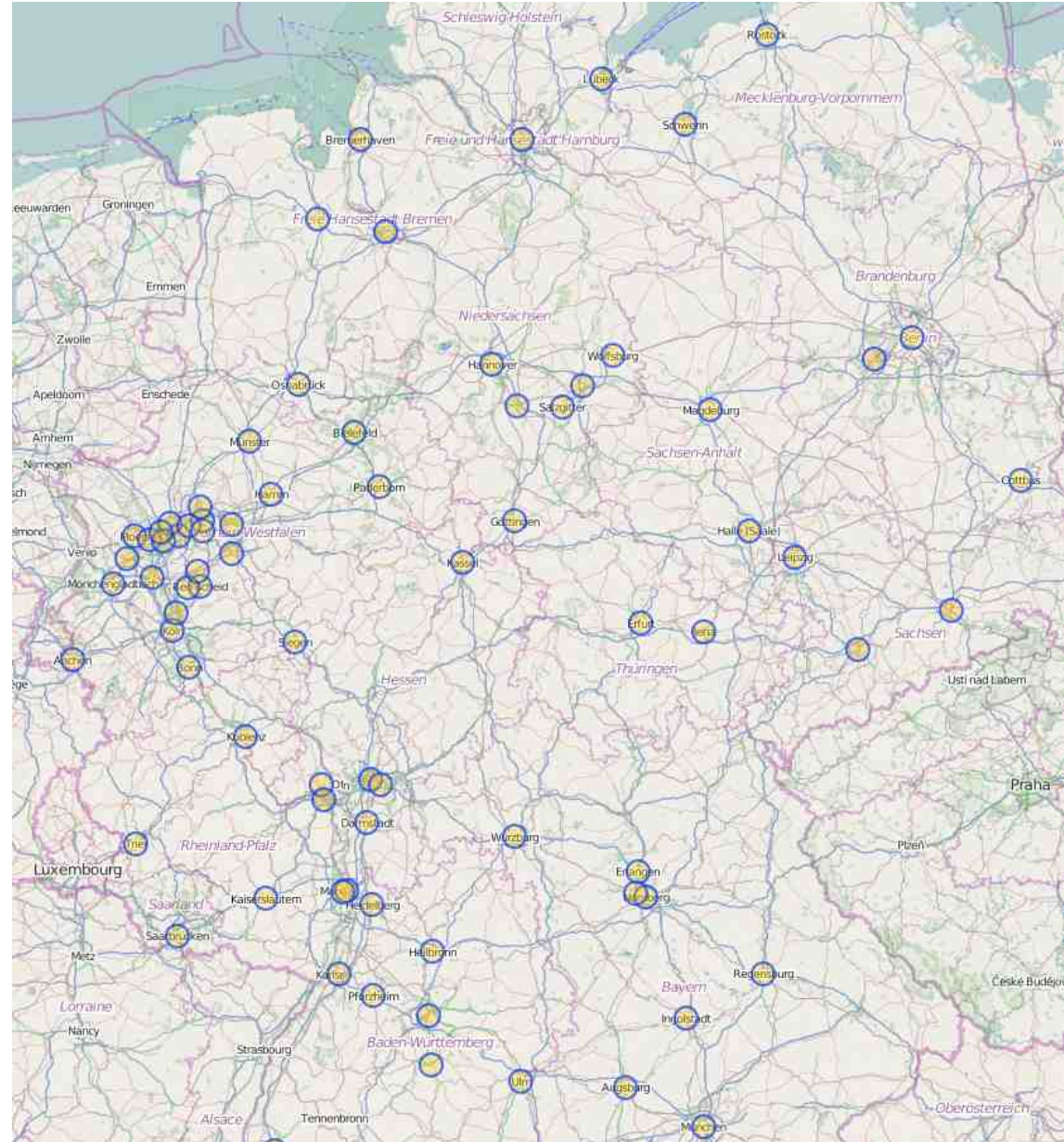
Current Data: sparse large bounding boxes

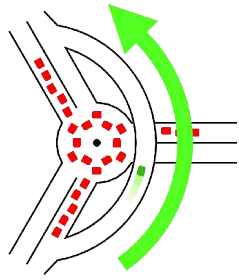
```
area[name="Deutschland"];  
node(area)[place=city];  
out;
```

< 1 minute

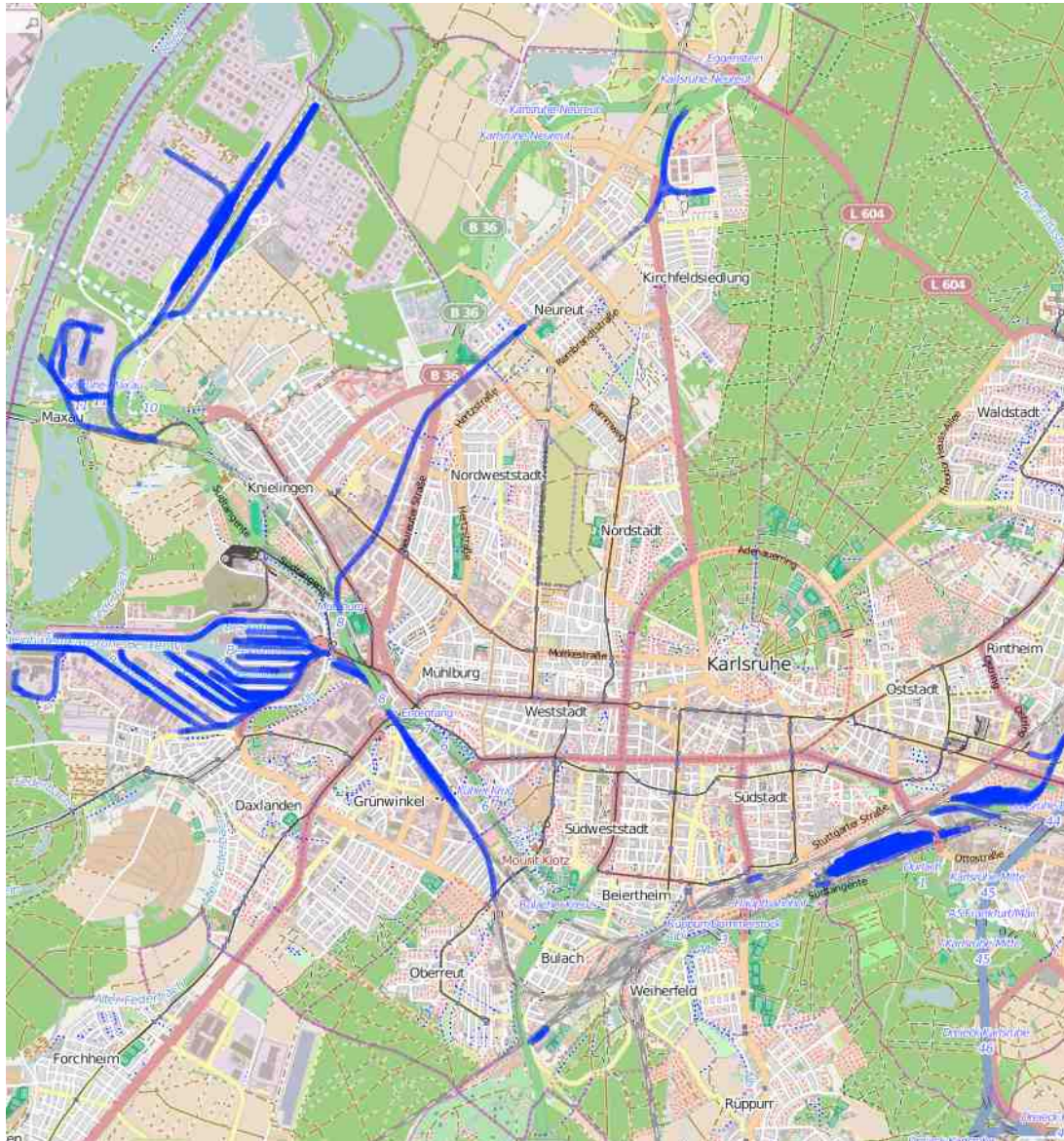
```
node({{bbox}})[capital=yes];  
out;
```

(some seconds)





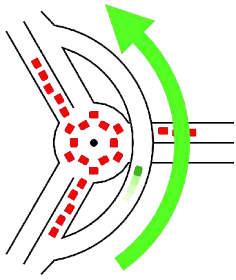
Current Data: statement „difference“



```

area[wikipedia=
  "de:Karlsruhe"]->.a;
( way(area.a)
  [railway=rail];
  - way(area.a)
  [electrified=contact_line]; );
out;
>; out skel;

```



Current Data: new API calls

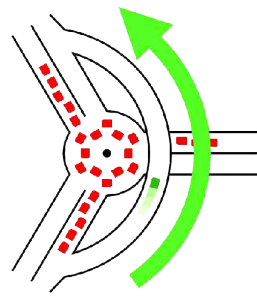
`/api/map?bbox=e,s,w,n`

same semantics
like „export“ on osm.org



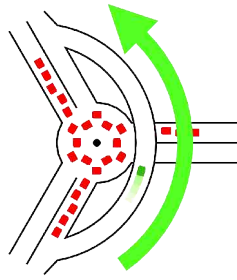
`/api/timestamp`

YYYY-MM-DDTHH:MM:SSZ
(current replication state of
the Overpass API database)



Overpass
API

2. That's new: Query for Attic Data



Attic Data: ol_diff: a proof of concept

2014-03-16T15:42:20Z

Ready

[new way 266684797](#)

addr:city=Bonn
addr:country=DE
addr:houseNumber=134
addr:postcode=53121
addr:street=Am Propsthof
building=yes
name=Kinder- und Jugendzentrum Am Propsthof der Evangelischen Trinitatiskirchengemeinde Bonn
source=bing

[new node 2722103641](#)

[new node 2722103644](#)

[new node 2722103646](#)

[new node 2722103648](#)

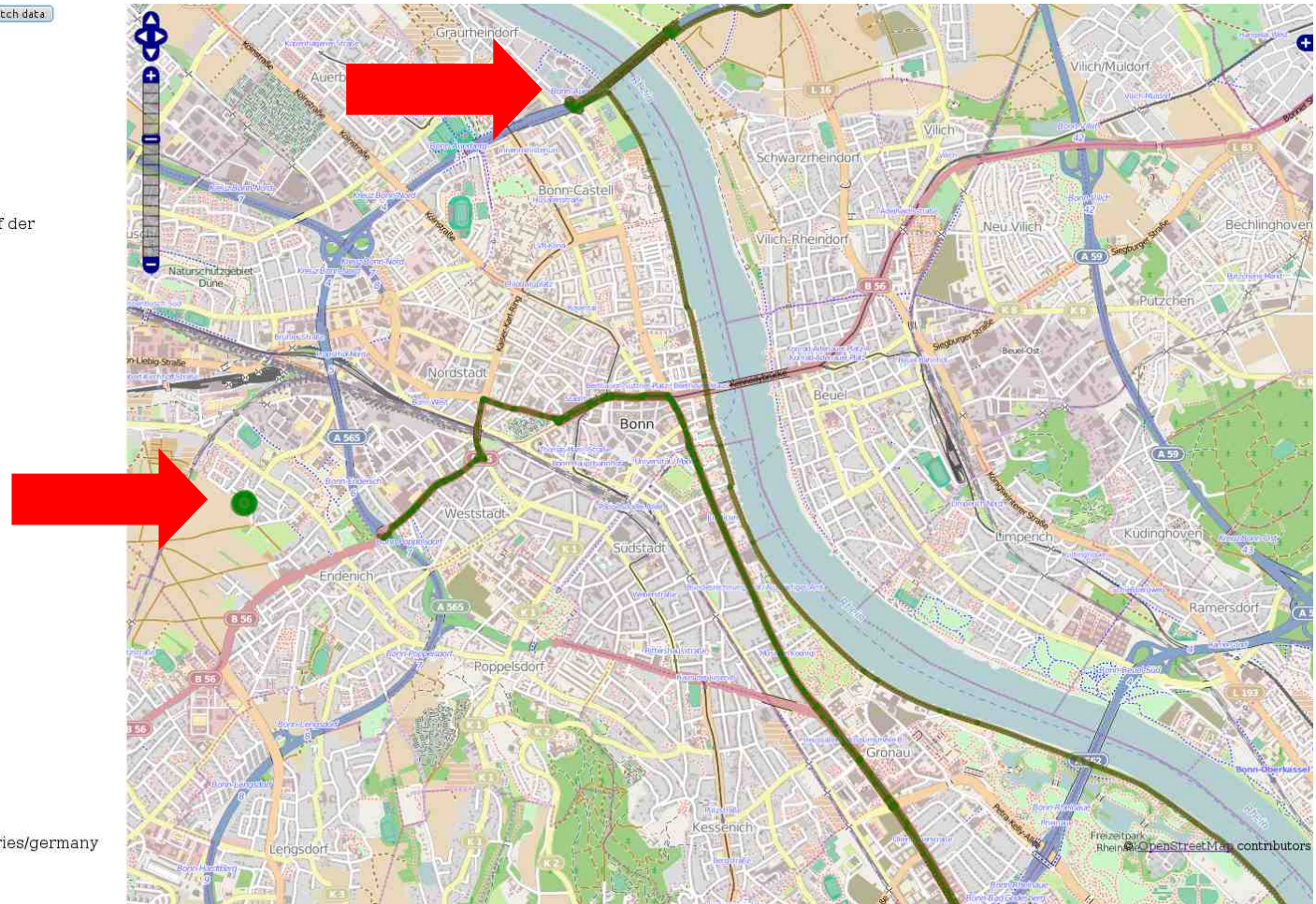
[new node 2722103650](#)

[changed relation 29891](#)

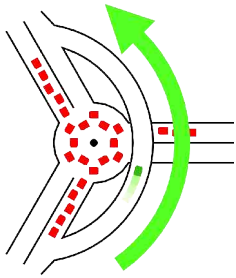
TMC:cid_58:tabcd_1:Class=Road
TMC:cid_58:tabcd_1:CLversion=9.00
TMC:cid_58:tabcd_1:LocationCode=50451
name=Bundesstraße 9
route=road
traffic_sign=DE:401:9
type=route
wikipedia=de:Bundesstraße 9

[changed relation 2769137](#)

alt_name=Rhine Route - part Germany
name=EuroVelo 15 - part Germany
name:cs=Rýnská stezka - sekce Německo
name:de=Rheinradweg - Teil Deutschland
name:en=Rhine Route - part Germany
name:pl=Szlak Renu - część Niemcy
network=icn
ref=EV15
route=bicycle
type=route
website=http://www.rhinecycleroute.eu/countries/germany



http://overpass-api.de/ol_diff.html

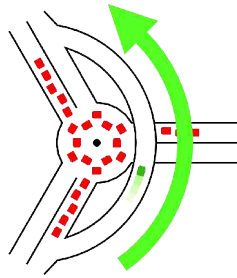


Attic Data: a state of the past

```
[date:"2013-01-01T00:00:00Z"];  
area[name="Troisdorf"];  
( way(area)[railway=rail][electrified=no];  
  >; );  
out meta;
```

**shows the result as it had been
at 1st January 2013 midnight**

**„Areas“ live always now, never in the past
Reminder: Areas are not an OSM type**



Attic Data: show lost data

2014-03-12

Fetch data

Ready

[old way 64125150](#)
note=Rampe fuer Autos um auf
Autozug auf zu fahren (?)

[old way 64125159](#)
electrified=no
gauge=1435
railway=rail

[old node 790571796](#)

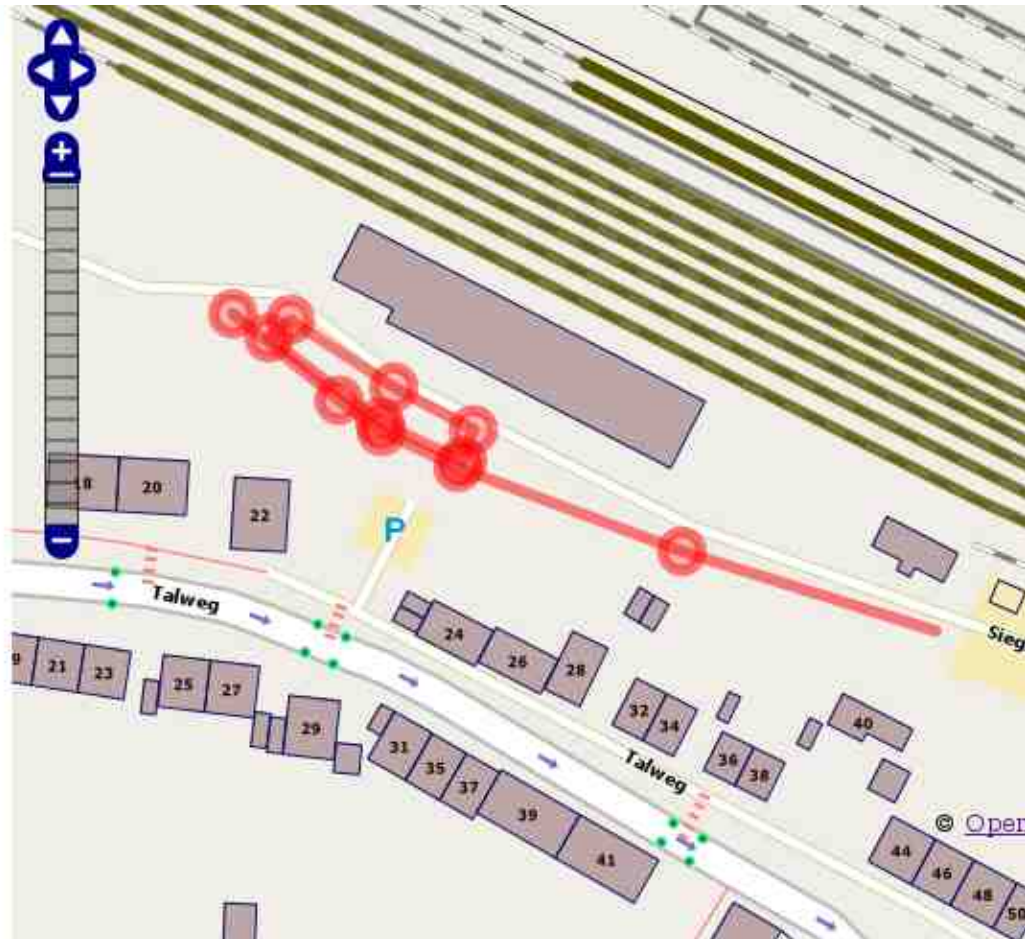
[old node 790571802](#)

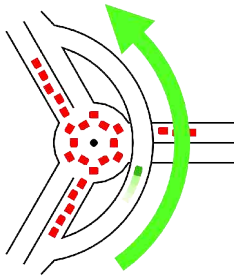
[old node 790571809](#)

[old node 790571816](#)

[old node 790571829](#)

[old node 790571837](#)





Attic Data: changes

```
[diff:"2013-01-01T00:00:00Z"];
```

```
area[name="Troisdorf"];
```

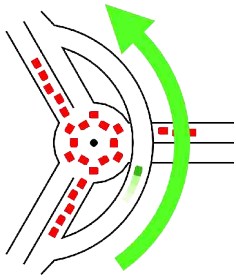
```
( way(area)[railway=rail][electrified=no];
```

```
>; );
```

```
out meta;
```

**shows the diff between
the two results.**

It computes the diffs at print time.



Attic Data: **changes: actions**

```
<action type="create">
```

```
  ... (element)
```

```
</action>
```

```
<action type="delete">
```

```
<old>
```

```
  ... (element)
```

```
</old>
```

```
</action>
```

```
<action type="modify">
```

```
<old>
```

```
  ... (element)
```

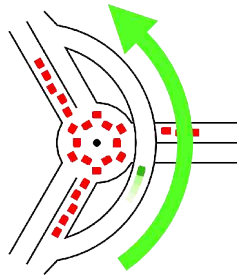
```
</old>
```

```
<new>
```

```
  ... (element)
```

```
</new>
```

```
</action>
```

Attic Data: changes: action „create“

```
<action type="create">
```

```
  ... (element)
```

```
</action>
```

```
<action type="delete">
```

```
<old>
```

```
  ... (element)
```

```
</old>
```

```
</action>
```

```
<action type="modify">
```

```
<old>
```

is printed when

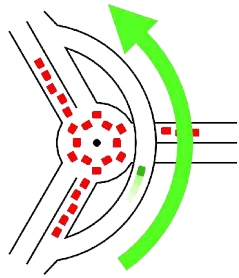
1. the object with this id is new

2. the object with this id is contained

in the newer result,

but not in the older result

(1. is a subcase of 2.)



Attic Data: changes: action „create“

```
<action type="create">
```

```
<way id="42" version="6"
```

```
  timestamp="2012-03-03T09:00:00Z">
```

```
    <nd ref="50"/>
```

```
    <nd ref="51"/>
```

```
    <nd ref="52"/>
```

```
  </way>
```

```
</action>
```

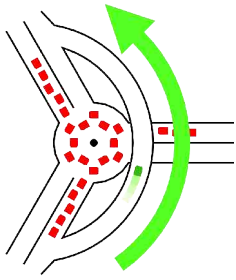
is possible even in

[date:"2014-...", "2013-..."]

when the nodes of way 42 have been moved

and way 42 itself hasn't changed

between 2012-03-03 and 2013-...



Attic Data: changes: action „create“

<action type=“create“>

... (element)

</action>

<action type=“delete“>

<old>

... (element)

</old>

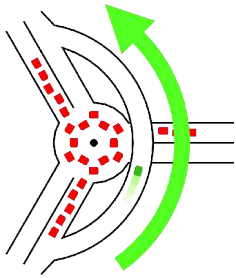
</action>

<action type=“modify“>

<old>

is printed when

- 1. the object with this id had gone**
- 2. the object with this id is contained in the older result, but not in the newer result**
(1. is a subcase of 2.)



Attic Data: changes: action „delete“

```
<action type="delete">
```

```
<old>
```

```
<way id="42"
```

```
  timestamp="2012-03-03T09:00:00Z">
```

```
    <nd ref="50"/>
```

```
    <nd ref="51"/>
```

```
    <nd ref="52"/>
```

```
  </way>
```

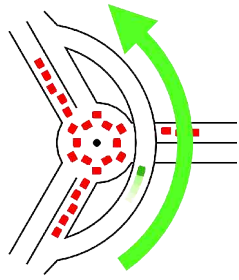
```
</old>
```

```
</action>
```

is possible even

if the way has not been deleted

- same principle as with *create*



Attic Data: changes: action „modify“

`<action type="create">`
is printed when
`... (element)`
the object with this id
`</action>`
in the old and new result

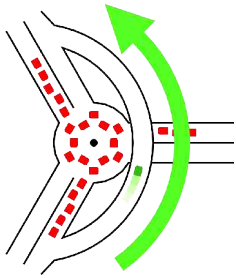
differ

`<action type="delete">`
1. by tags
`<old>`

2. by members
`... (element)`
(ref, type, role, order)
`</old>`

3. by geometry
`</action>`

`<action type="modify">`
`<old>`
`... (element)`
`</old>`
`<new>`
`... (element)`
`</new>`
`</action>`



Attic Data: changes: action „modify“

```
<action type="modify">
```

```
<old>
```

```
<way id="42" version="6"
```

```
  timestamp="2012-03-03T09:00:00Z">
```

```
  <nd ref="50"/>
```

```
  <nd ref="51"/>
```

```
  <nd ref="52"/>
```

```
</way>
```

```
</old>
```

```
<new>
```

```
<way id="42" version="6"
```

```
  timestamp="2012-03-03T09:00:00Z">
```

```
  <nd ref="50"/>
```

```
  <nd ref="51"/>
```

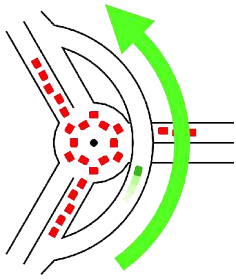
```
  <nd ref="52"/>
```

```
</way>
```

```
</new>
```

```
</action>
```

is possible even in [date:"2014-...", "2013-..."] if ...



Attic Data: changes: action „modify“

```
<action type="modify">
```

```
<old>
```

```
<way id="42"
```

```
  timestamp="2012-03-03T09:00:00Z">
```

```
    <nd ref="50" lat="5.0" lon="10.0"/>
```

```
    <nd ref="51" lat="5.1" lon="10.0"/>
```

```
    <nd ref="52" lat="5.2" lon="10.0"/>
```

```
  </way>
```

```
</old>
```

```
<new>
```

```
<way id="42"
```

```
  timestamp="2012-03-03T09:00:00Z">
```

```
    <nd ref="50" lat="5.0" lon="10.0"/>
```

```
    <nd ref="51" lat="5.1" lon="10.0"/>
```

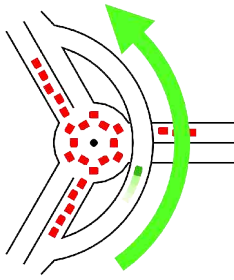
```
    <nd ref="52" lat="15.2" lon="10.0"/>
```

```
  </way>
```

```
</new>
```

```
</action>
```

... the nodes have changed their geometry.



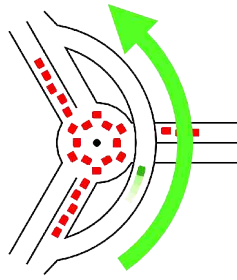
Attic Data: changes: bounded print

```
<action type="modify">
```

```
<old>                                     <new>
  <way id="42"                             <way id="42"
    timestamp="2012-03-03T09:00:00Z">    timestamp="2012-03-03T09:00:00Z">
    <nd ref="50" lat="5.0" lon="10.0"/>    <nd ref="50" lat="5.0" lon="10.0"/>
    <nd ref="51" lat="5.1" lon="10.0"/>    <nd ref="51" lat="5.1" lon="10.0"/>
    <nd ref="52"/>                        <nd ref="52"/>
  </way>                                  </way>
</old>                                     </new>
                                           </action>
```

(empty)

out geom(4.9, 9.9, 5.15, 10.1); eliminates the change



Attic Data: changes: bounded print

2014-03-16T15:42:20Z

Ready

[new way 266684797](#)

addr:city=Bonn
addr:country=DE
addr:housenumber=134
addr:postcode=53121
addr:street=Am Propsthof
building=yes
name=Kinder- und Jugendzentrum Am Propsthof der
Evangelischen Trinitatiskirchengemeinde Bonn
source=bing

[new node 2722103641](#)

[new node 2722103644](#)

[new node 2722103646](#)

[new node 2722103648](#)

[new node 2722103650](#)

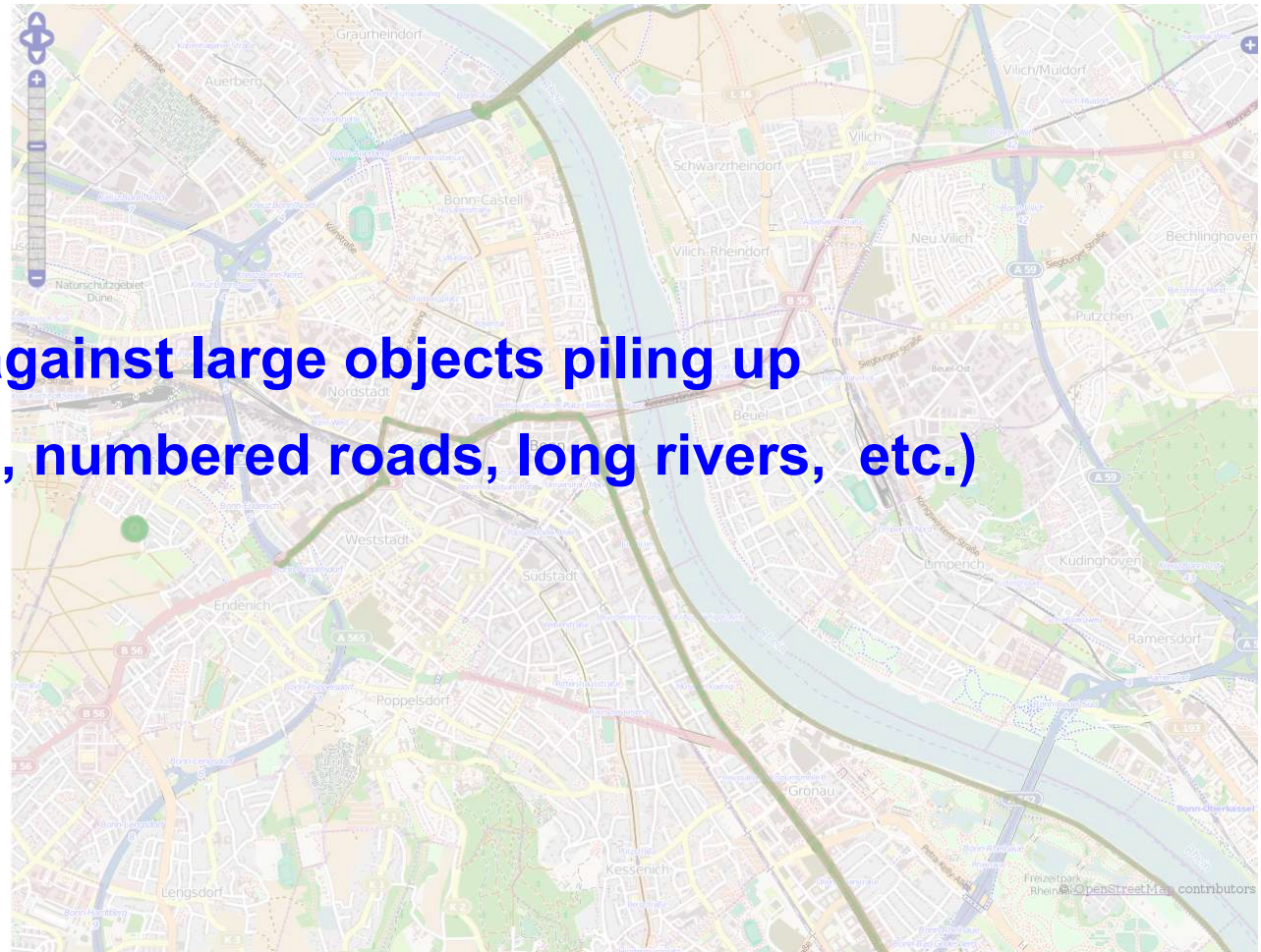
[changed relation 29891](#)

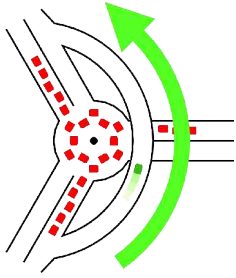
TMC:cid_58:tabcd_1:Class=Road
TMC:cid_58:tabcd_1:LCLversion=9.00
TMC:cid_58:tabcd_1:LocationCode=50451
name=Bundesstraße 9
route=road
traffic_sign=DE:401:9
type=route
wikipedia=de:Bundesstraße 9

[changed relation 2769137](#)

alt_name=Rhine Route - part Germany
name=EuroVelo 15 - part Germany
name:cs=Rýnská stezka - sekce Německo
name:de=Rheinradweg - Teil Deutschland
name:en=Rhine Route - part Germany
name:pl=Szlak Renu - część Niemcy
network=icn
ref=EV15
route=bicycle
type=route
website=http://www.rhinecycleroute.eu/countries/germany

**Protection against large objects piling up
(boundaries, numbered roads, long rivers, etc.)**



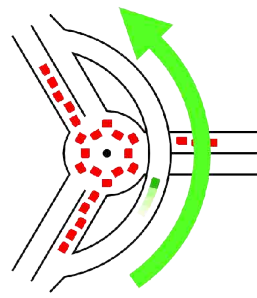


Attic Data: **caution**

**Inconsistencies in old attic data
(before 2014-06-02)
for ways and relations**

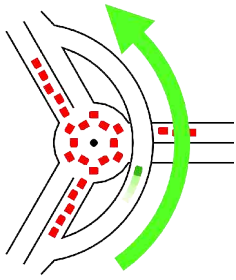
All current data is clean

Attic data will be fixed during July



Overpass
API

3. The new format for Augmented Diffs



Attic Data: augmented changes

```
[adiff:"2013-01-01T00:00:00Z"];
```

```
area[name="Troisdorf"];
```

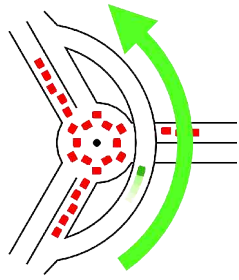
```
( way(area)[railway=rail][electrified=no];
```

```
>; );
```

```
out meta;
```

**shows the diff between
the two results.**

It augments action="delete"



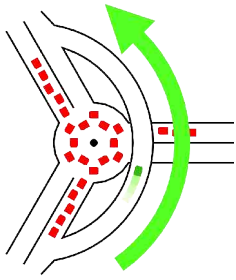
Attic Data: augmented changes

```
<action type="delete">
<old>
  <node id="42" version="1"
    timestamp="2012-03-03T09:00:00Z"
    lat="49.0" lon="8.0"/>
</old>
<new>
  <node id="42" version="2"
    timestamp="2013-11-11T12:11:00Z"
    visible="false"/>
</new>
</action>
```

**element deleted
(at newer diff time)**

```
<action type="delete">
<old>
  <node id="42" version="1"
    timestamp="2012-03-03T09:00:00Z"
    lat="49.0" lon="8.0"/>
</old>
<new>
  <node id="42" version="2"
    timestamp="2013-11-11T12:11:00Z"
    visible="true"/>
</new>
</action>
```

element out of scope



Attic Data: **statement „change“**

(changed:"2013-07-03T21:37:00Z","2013-07-03T21:38:00Z")

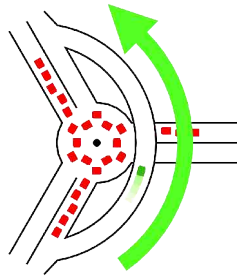
filters for elements

that have changed between the given dates, e.g.

node(changed:"2013-07-03T21:37:00Z","2013-07-03T21:38:00Z")

way[railway=rail]

(changed:"2013-07-03T21:37:00Z","2013-07-03T21:38:00Z")



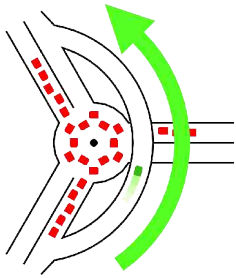
Attic Data: augmented diff

/api/augmented_diff?id=424242

converts to

```
[adiff:          "2013-07-03T21:37:00Z","2013-07-03T21:38:00Z"];  
(node(changed:"2013-07-03T21:37:00Z","2013-07-03T21:38:00Z");  
 way(changed:  "2013-07-03T21:37:00Z","2013-07-03T21:38:00Z");  
 rel(changed:  "2013-07-03T21:37:00Z","2013-07-03T21:38:00Z")););  
out meta geom;
```

(use: /api/augmented_diff?id=424242&debug=yes)



Attic Data: augmented diff: numbering

strictly +1 per minute, since 2012-09-12 06:55:00 UTC

/api/augmented_diff_status

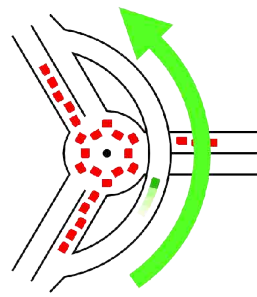
tells you the last stable augmented diff number

/api/augmented_diff?id=424242&debug=yes

tells you the date of the augmented diff's number

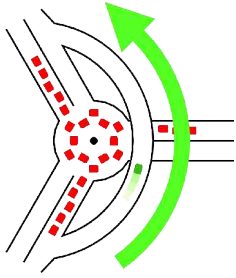
if you have the date, compute

```
EPOCHSECS=`date --date=$TIMESTAMP '+%s'`  
echo $(( ( $EPOCHSECS - 1347432900 ) / 60 ))
```

Overpass
API

4. Currently planned future roadmap



Future Roadmap

(Fix security issues), write documentation

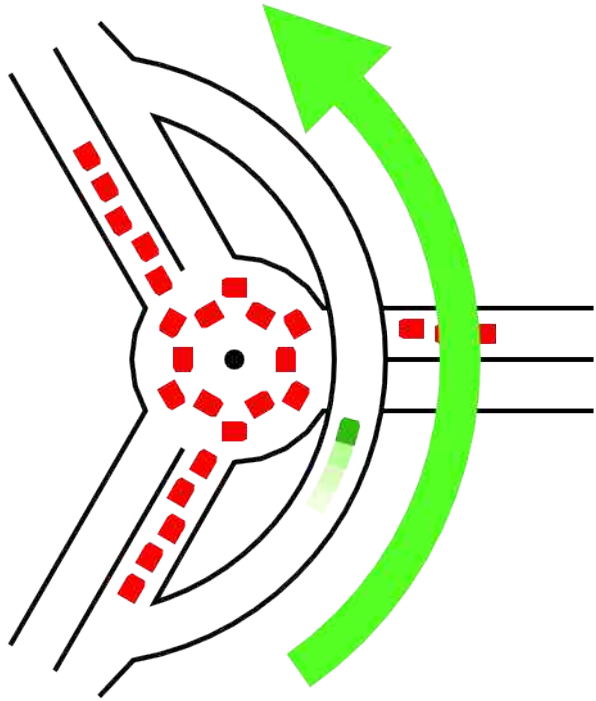
Debug the attic database

New features: see

<https://github.com/drolbr/Overpass-API>

On the backend: consider compression

Handle changesets comments



Overpass API

Thank you for your attention