Cameras

Importer les données avec OSM2PGSQL

```
docker run --name postgis -e POSTGRES_PASSWORD=password -p 5432:5432 -d postgis/postgis
```

```
local cameras = osm2pgsql.define_node_table('cameras', {
    { column = 'id', sql_type = 'serial', create_only = true },
    { column = 'geom', type = 'point' },
})

local highways = osm2pgsql.define_way_table('highways', {
    { column = 'id', sql_type = 'serial', create_only = true },
    { column = 'geom', type = 'linestring' },
})

local buildings = osm2pgsql.define_area_table('buildings', {
    { column = 'id', sql_type = 'serial', create_only = true },
    { column = 'geom', type = 'polygon' },
})

function osm2pgsql.process_node(object)
    if object.tags.man_made == 'surveillance' then
        cameras:insert({
            geom = object:as_point( )
        })
    end
end

function osm2pgsql.process_way(object)
    if object.is_closed and object.tags.building then
        buildings:insert({
            geom = object:as_polygon()
```

```
        })
    end

    if object.tags.highway then
        highways:insert({
            geom = object:as_linestring()
        })
    end
end

function osm2pgsql.process_relation(object)
    if object.tags.type == 'multipolygon' and object.tags.building then
        local geom = object:as_multipolygon()

        for g in geom:geometries() do
            buildings:insert({
                geom = g,
            })
        end

    end
end
```

```
osm2pgsql -d toto -U toto -W -H localhost -O flex -S extarct_features.lua st_quentin.osm.pbf
```

Inporter les données de sous-surveillance.net

https://toulouse.sous-surveillance.net/spip.php?page=cameras&format=json&details=2&lang=fr

```
sed -i -e 's/id_camera/node_id/g' camera.json
```

```
ogr2ogr -f "PostgreSQL" PG:"dbname=postgres user=postgres password=password host='localhost'"
"camera.json" -nln cameras -append -t_srs "EPSG:3857"
```

Utiliser postgis

Calculer une distance

```
with c1 as (select geom as g from cameras where id = 1), c2 as (select geom as g from cameras where id = 2) select ST_Distance(c1.g, c2.g) from c1, c2 ;
```

calculer les ways qui sont a moins de 100m d'une camera

```
select c.node_id, h.way_id from cameras c left join highways h on ST_DWithin(c.geom, h.geom, 100) where c.id = 1
```

Calculer les ways visible d'une camera

```
create view visible_streets_from_cam as
with
    fields as (
        select
            c.node_id as camera_id,
            h.way_id as street_id,
            -- Changer ici pour la résolution du test d'intersection
            ST_Segmentize(h.geom, 2) as street_geom,
            c.geom as camera_coord
        from
            cameras c
        left join
            -- Changer ici pour la distance à la caméra
            highways h on ST_DWithin(c.geom, h.geom, 100)
        --where c.node_id = 9760071131
    ),
    segments as (
        select
            camera_id,
            street_id,
            ST_MakeLine(camera_coord,p) as seg_line,
            seg_id
        from (
            select
                fields.camera_id,
                fields.street_id,
                fields.camera_coord,
```

```
                generate_series(1, ST_NPoints(fields.street_geom)) as seg_id,
                ST_PointN(fields.street_geom, generate_series(1,
ST_NPoints(fields.street_geom))) as p
            from fields
        ) as s
    ),
    line_of_sight as (
        select
            segments.seg_id,
            segments.camera_id,
            segments.street_id,
            buildings.area_id as building_id,
            ST_Intersects(seg_line, buildings.geom) as inter
        from segments
        left join buildings
        on ST_Intersects(seg_line, buildings.geom)
    ),
    visible_street as (
        select
            camera_id,
            street_id,
            seg_id,
            not((inter is not null) and inter) as is_visible,
            building_id
        from line_of_sight
    )
select
    distinct
    street_id,
    camera_id
from visible_street
where is_visible;

select STRING_AGG(distinct(street_id::text), ',') from visible_streets_from_cam;
```

```
psql -h localhost -U postgres -c "select STRING_AGG(distinct(street_id::text), ',') from
visible_streets_from_cam;" > ids.txt
```

Editer du pbf avec osmium

Convertis en format opl (format textuelle, éditable)

```
osmium cat st_quentin.osm.pbf -f opl > st_quentin.opl
```

L'inverse

```
osmium cat st_quentin.opl -f pbf > st_quentin.osm.pbf
```

Avoir un diff

```
osmium diff st_quentin.osm.pbf merge.osm.pbf -f opl > diff.txt
cat diff.txt | grep "^+" # ajout
cat diff.txt | grep "^-" # suppression
```

Appliquer un fichier de changeset (attention écrase toute la relation ou tout le noeud)

```
osmium apply-changes st_quentin.osm.pbf osmChange.xml -o new.osm.pbf
```

un peu de python...

```
import re

inputFile = "st_quentin.opl"
outputFile = "output.txt"

idsToEdit =
("w1087846855","w1087920777","w1087920778","w1087920779","w1087932398","w1087942997","w1087952
021","w1087952022","w1087952024","w1087952025","w1087960194","w1087960196","w1087960210","w108
7960223","w1087960224","w1089446799","w1089446800","w1112075298","w113961904","w113961905","w1
14536713","w114666459","w116382851","w116382861","w117355631","w11773344","w11773350","w122006
038","w126094356","w126871656","w126871657","w126871658","w126871664","w126871669","w126871675
","w126871690","w129705116","w147848058","w148736510","w148825323","w150550805","w155480974","
w15802834","w15802836","w165807675","w168295763","w170146623","w170146625","w172022081","w1720
23915","w172023916","w173256365","w173256368","w173256369","w173256729","w173256730","w1732567
31","w173832779","w174488908","w177853034","w177853035","w180280918","w180461913","w180465548"
,"w180468951","w182628812","w182629658","w185057057","w189637127","w193375648","w19844790","w1
9847245","w19848882","w202737485","w202970121","w203030595","w217421358","w222393302","w223415
```

```
74","w22343527","w22343529","w22345126","w225625930","w22568170","w22568182","w22568375","w225
68378","w22568386","w22568388","w22568424","w22568488","w22568523","w22588043","w22588046","w2
2604437","w22673740","w22674191","w22674884","w22675194","w22698778","w227400308","w227400309"
,"w23025712","w277863607","w28353561","w29619599","w29619604","w315383203","w31662553","w31662
878","w31662879","w31662880","w31662964","w31662965","w31662968","w31663124","w330925134","w33
0925135","w330926195","w331028474","w331028475","w339715316","w339726718","w339726719","w34602
7918","w349277858","w349531415","w35542048","w363185344","w364068225","w365390727","w370956707
","w38742540","w38742541","w40372065","w40425070","w40425074","w4229251","w443334075","w443366
920","w447751613","w447751614","w48225928","w492147752","w49835957","w49835959","w49835960","w
50673023","w509055318","w509246741","w509246744","w509246745","w509246746","w509246747","w5092
46753","w51341167","w51341168","w515490602","w51692324","w52275569","w52303054","w52303060","w
525662191","w525662193","w52613839","w52613863","w526190596","w530531180","w530531181","w53053
1182","w531463493","w531692522","w531692526","w531692527","w536092843","w536092847","w55331523
5","w587903986","w587903987","w587908623","w587908627","w587908630","w587908634","w59854247","
w628788987","w630445718","w630446538","w630455616","w636627411","w636627412","w641622109","w64
1622111","w641622112","w641622114","w641622115","w641622116","w641622118","w650553749","w66200
6651","w662006652","w662006654","w694476166","w698066552","w705274809","w705274810","w70527481
1","w708338741","w764629037","w770613905","w770613907","w829119358","w829119361","w829119362",
"w829119363","w829119365","w829119366","w829180626","w829180633","w829252460","w85552224","w87
565425","w879402866","w880518011","w881591456","w881764531","w881764532","w881764537","w881764
538","w881764539","w881764540","w881764543","w881764545","w881764546","w881764547","w881764549
","w881764552","w88646884","w88646885","w88646897","w89578796","w89685774","w89685814","w89685
825","w930154230","w930154231","w944384994","w963397962","w963397963","w991218943","w991218944
","w991218945","w991218946","w991218947")

fo = open(outputFile, "w")

with open(inputFile) as f:
    for line in f:
        if line.startswith(idsToEdit):
            index = index + 1
            newLine = re.sub(r'( T)', r'\1camera=yes,', line)
            if line == newLine:
                print(line)
            fo.write(newLine)
        else:
            fo.write(line)
```

Le même en c

(pas sur que ce soit plus opti)

```
#define _GNU_SOURCE
#include <stdio.h>
#include <stdlib.h>
#include <string.h>


int StartsWith(const char *a, const char *b)
{
   if(strncmp(a, b, strlen(b)) == 0) return 1;
   return 0;
}

char *str_replace(char *orig, char *rep, char *with) {
    char *result; // the return string
    char *ins;    // the next insert point
    char *tmp;    // varies
    int len_rep;  // length of rep (the string to remove)
    int len_with; // length of with (the string to replace rep with)
    int len_front; // distance between rep and end of last rep
    int count;    // number of replacements

    // sanity checks and initialization
    if (!orig || !rep)
        return NULL;
    len_rep = strlen(rep);
    if (len_rep == 0)
        return NULL; // empty rep causes infinite loop during count
    if (!with)
        with = "";
    len_with = strlen(with);

    // count the number of replacements needed
    ins = orig;
    for (count = 0; tmp = strstr(ins, rep); ++count) {
        ins = tmp + len_rep;
    }
```

```
    tmp = result = malloc(strlen(orig) + (len_with - len_rep) * count + 1);

    if (!result)
        return NULL;

    // first time through the loop, all the variable are set correctly
    // from here on,
    //    tmp points to the end of the result string
    //    ins points to the next occurrence of rep in orig
    //    orig points to the remainder of orig after "end of rep"
    while (count--) {
        ins = strstr(orig, rep);
        len_front = ins - orig;
        tmp = strncpy(tmp, orig, len_front) + len_front;
        tmp = strcpy(tmp, with) + len_with;
        orig += len_front + len_rep; // move to next "end of rep"
    }
    strcpy(tmp, orig);
    return result;
}


int main(void)
{
    FILE * input_file;
    FILE * output_file;
    char * line = NULL;
    char * new_line = NULL;
    size_t len = 0;
    ssize_t read;
    char ids[253][12] =
{"w1087846855","w1087920777","w1087920778","w1087920779","w1087932398","w1087942997","w1087952
021","w1087952022","w1087952024","w1087952025","w1087960194","w1087960196","w1087960210","w108
7960223","w1087960224","w1089446799","w1089446800","w1112075298","w113961904","w113961905","w1
14536713","w114666459","w116382851","w116382861","w117355631","w11773344","w11773350","w122006
038","w126094356","w126871656","w126871657","w126871658","w126871664","w126871669","w126871675
","w126871690","w129705116","w147848058","w148736510","w148825323","w150550805","w155480974","
w15802834","w15802836","w165807675","w168295763","w170146623","w170146625","w172022081","w1720
23915","w172023916","w173256365","w173256368","w173256369","w173256729","w173256730","w1732567
```

31","w173832779","w174488908","w177853034","w177853035","w180280918","w180461913","w180465548","w180468951","w182628812","w182629658","w185057057","w189637127","w193375648","w19844790","w19847245","w19848882","w202737485","w202970121","w203030595","w217421358","w222393302","w22341574","w22343527","w22343529","w22345126","w225625930","w22568170","w22568182","w22568375","w22568378","w22568386","w22568388","w22568424","w22568488","w22568523","w22588043","w22588046","w22604437","w22673740","w22674191","w22674884","w22675194","w22698778","w227400308","w227400309","w23025712","w277863607","w28353561","w29619599","w29619604","w315383203","w31662553","w31662878","w31662879","w31662880","w31662964","w31662965","w31662968","w31663124","w330925134","w330925135","w330926195","w331028474","w331028475","w339715316","w339726718","w339726719","w346027918","w349277858","w349531415","w35542048","w363185344","w364068225","w365390727","w370956707","w38742540","w38742541","w40372065","w40425070","w40425074","w4229251","w443334075","w443366920","w447751613","w447751614","w48225928","w492147752","w49835957","w49835959","w49835960","w50673023","w509055318","w509246741","w509246744","w509246745","w509246746","w509246747","w509246753","w51341167","w51341168","w515490602","w51692324","w52275569","w52303054","w52303060","w525662191","w525662193","w52613839","w52613863","w526190596","w530531180","w530531181","w530531182","w531463493","w531692522","w531692526","w531692527","w536092843","w536092847","w553315235","w587903986","w587903987","w587908623","w587908627","w587908630","w587908634","w59854247","w628788987","w630445718","w630446538","w630455616","w636627411","w636627412","w641622109","w641622111","w641622112","w641622114","w641622115","w641622116","w641622118","w650553749","w662006651","w662006652","w662006654","w694476166","w698066552","w705274809","w705274810","w705274811","w708338741","w764629037","w770613905","w770613907","w829119358","w829119361","w829119362","w829119363","w829119365","w829119366","w829180626","w829180633","w829252460","w85552224","w87565425","w879402866","w880518011","w881591456","w881764531","w881764532","w881764537","w881764538","w881764539","w881764540","w881764543","w881764545","w881764546","w881764547","w881764549","w881764552","w88646884","w88646885","w88646897","w89578796","w89685774","w89685814","w89685825","w930154230","w930154231","w944384994","w963397962","w963397963","w991218943","w991218944","w991218945","w991218946","w991218947"};

```
    input_file = fopen("france.opl", "r");
    output_file = fopen("output2.txt", "w");
    int find_line = 0;

    if (input_file == NULL)
    {
        printf("error input");
        exit(EXIT_FAILURE);
    }
    if (!output_file) {
        printf("error output");
        exit(EXIT_FAILURE);
```

```
    }

    while ((read = getline(&line, &len, input_file)) != -1)
    {
        find_line = 0;
        for (int i = 0; i < 256; i++)
        {
            if(StartsWith(line, ids[i]))
            {
                find_line = 1;
                new_line = str_replace(line," T"," Tcamera=yes,");
                fwrite(new_line, 1, strlen(new_line), output_file);
                break;
                //printf("%s", line);
            }
        }

        if(!find_line)
            fwrite(line, 1, strlen(line), output_file);
    }

    fclose(input_file);
    fclose(output_file);

    if (line)
        free(line);
    exit(EXIT_SUCCESS);
}
```

Générer les fichiers brouter

Les script dans le repo fonctionne pas (super :/)

Là une issue ou il y a un script ok. https://github.com/abrensch/brouter/issues/199

```
#!/bin/bash
set -e
```

```
# Added
JAVA='/usr/bin/java -Xmx6144m -Xms6144m -Xmn256m'
BROUTER_PROFILES=$(realpath "../../profiles2")
BROUTER_JAR=$(realpath $(ls ../../../brouter-server/build/libs/brouter-*-all.jar))
OSMOSIS_JAR=$(realpath "../../pbfparser/osmosis.jar")
PROTOBUF_JAR=$(realpath "../../pbfparser/protobuf.jar")
PBFPARSER_JAR=$(realpath "../../pbfparser/pbfparser.jar")
PLANET_FILE=${PLANET_FILE:-$(realpath "./france-latest.osm.pbf")} # (!) expects PLANET_FILE to
be set OR 'planet-latest.osm.pbf'
SRTM_PATH=/home/user/workspace/brouter_original/misc/scripts/mapcreation/srtm

rm -rf planet-old.osm.pbf
rm -rf planet-new.osm.pbf
touch mapsnapshpttime.txt

rm -rf tmp

mkdir tmp
cd tmp
mkdir nodetiles
mkdir waytiles
mkdir waytiles55
mkdir nodes55

$JAVA -cp ${OSMOSIS_JAR}:${PROTOBUF_JAR}:${PBFPARSER_JAR}:${BROUTER_JAR} \
-Ddeletetmpfiles=true -DuseDenseMaps=true \
btools.util.StackSampler btools.mapcreator.OsmFastCutter \
${BROUTER_PROFILES}/lookups.dat nodetiles waytiles nodes55 waytiles55 \
bordernids.dat  relations.dat  restrictions.dat \
${BROUTER_PROFILES}/all.brf ${BROUTER_PROFILES}/trekking.brf
${BROUTER_PROFILES}/softaccess.brf \
${PLANET_FILE}

printf "\n\n---------------------- unotes55 -----------------\n\n\n"
mkdir unodes55
$JAVA -cp ${BROUTER_JAR} -Ddeletetmpfiles=true -DuseDenseMaps=true btools.util.StackSampler \
btools.mapcreator.PosUnifier nodes55 unodes55 bordernids.dat bordernodes.dat ${SRTM_PATH}

printf "\n\n---------------------- segments -----------------\n\n\n"
```

```
mkdir segments
$JAVA -cp ${BROUTER_JAR} -DuseDenseMaps=true -DskipEncodingCheck=true btools.util.StackSampler
\
btools.mapcreator.WayLinker unodes55 waytiles55 bordernodes.dat restrictions.dat
${BROUTER_PROFILES}/lookups.dat \
${BROUTER_PROFILES}/all.brf segments rd5

cd ..

rm -rf segments
mv tmp/segments segments
touch -r mapsnapshpttime.txt segments/*.rd5
```

Profils brouter

C'est pas ouf, mais pour le POC, j'ai réussi à modifier le fichier trekking en mettant:

```
assign camera = camera=yes

assign turncost = if camera then 86000 else if is_ldcr then 0
                  else if junction=roundabout then 0
                  else 90
```

Pour tester

brouter-web (c'est du statique)

https://github.com/nrenner/brouter-web

Tiles from postgis

```
export DATABASE_URL=postgresql://postgres:password@localhost/postgres
~/bin/pg_tileserv_latest_linux/pg_tileserv
```

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