

Transformation of theme Buildings

BU

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Source data

- National Topographic Database
 - Data is in several tables
 - Data is in general polygon, but also point and line
 - The data model is designed for map production, does not contain many attributes
- Under investigation: use of data from Population Register Centre
 - Point data, many attributes
 - Needs some work on licenses
- A combination requires manual work

Source data

- Most of the data is in rakennus (buildings) table

Column	Type	
id	integer	running PostGIS id, not usable
mtk_id	integer	id in topographic database, local id in INSPIRE
gid	character varying	FI.Rakennus + mtk_ik, not used
dimension	integer	all features have value 3, not used
sijaintitarkkuus	integer	position accuracy – transformed from mm to meter
aineistolahde	integer	source of data – not used
alkupvm	date	beginLifeSpanVersion
kohderyhma	integer	grouping in topographical db, all have value 75, not used
kohdeluokka	integer	5-number integer, last character number of flats, character 4 use. Not used
korkeustarkkuus	integer	accuracy of height - not used
kayttotarkoitus	integer	use of building. Mapping of values to INSPIRE model.
kerrosluku	integer	number of floors. Information not reliable, cannot be used.
pohjankorkeus	integer	elevation of floor. Transformed from mm to meter
korkeusarvo	integer	height, no values stored for any feature.
sijainti_alue	geometry(PolygonZ,3067)	polygon geometry representation, used in INSPIRE
sijainti_piste	geometry(PointZ,3067)	point geometry representation, point is inside polygon

Source data – Population Register Center

Column	Type	Modifiers		
id	integer	not null	hissi	character varying
luontiaika	timestamp without time zone	not null	ilmastointi	character varying
muutos aika	timestamp without time zone		saunojen lukumaara	integer
muutos aika_huoneisto	timestamp without time zone		uimaaltaiden lukumaara	integer
muutos aika_omistaja	timestamp without time zone		vaestosuojankoko	integer
muutos aika_osoite	timestamp without time zone		viemariliittyma	character varying
rakennustunnus	character varying	not null	vesijohtoliittyma	character varying
kuntatunnus	character varying		sahkoliittyma	character varying
kiinteistotunnus	character varying		kaasuliittyma	character varying
tarkistusmerkki	character varying		kaapeliliittyma	character varying
rakennusnumero	character varying		poikkeuslupa	character varying
tilannimi	character varying		perusparannus	character varying
kiinteistoyksikon_malatunnus	character varying		perusparannuspaiva	character varying
syntymahetken_rakennustunnus	character varying		kiinteistotunnus_perinteinen	character varying
sijaintiepavarmuus	character varying		tarkistusmerkki_perinteinen	character varying
postinumero	character varying		rakennusnumero_perinteinen	character varying
rakennustunnuksenvoimassaolo	character varying		rakennuksen_tila	character varying
valmistumispaiva	character varying		muutoslajikoodi	character varying
rakennuspaikan_hallintaperuste	character varying		alkupaiva	character varying
kayttotarkoitus	character varying		lisayspaiva	character varying
kaytossaolotilanne	character varying		tietolahde	character varying
julkisivumateriaali	character varying		huoneistoala	integer
kerrosala	integer		kellariala	integer
kerrosaluku	integer		kerrosalan_muutospaiva	character varying
kokonaisala	integer		kerrosalun_muutospaiva	character varying
tilavuus	integer		kokonaisalan_muutospaiva	character varying
lammitystapa	character varying		huoneistoalan_muutospaiva	character varying
lammonlahde	character varying		tilavuuden_muutospaiva	character varying
rakennusmateriaali	character varying		kaytossaolotilanne_muutospaiva	character varying
rakennustapa	character varying		kayttotarkoituksen_muutospaiva	character varying
sahko	character varying		lammitystavan_muutospaiva	character varying
kaasu	character varying		polttoaineen_muutospaiva	character varying
viemari	character varying		varusteiden_muutospaiva	character varying
vesijohto	character varying		verkkoliittymien_muutospaiva	character varying
lamminvesi	character varying		astyyppi	character varying
aurinkopaneeli	character varying		sijainti_piste	geometry (Point, 3067)
hissi	character varying			
ilmastointi	character varying			
saunojen lukumaara	integer			
uimaaltaiden lukumaara	integer			
vaestosuojankoko	integer			
viemariliittyma	character varying			
vesijohtoliittyma	character varying			
sahkoliittyma	character varying			
kaasuliittyma	character varying			
kaapeliliittyma	character varying			
poikkeuslupa	character varying			
perusparannus	character varying			
perusparannuspaiva	character varying			
kiinteistotunnus_perinteinen	character varying			
tarkistusmerkki_perinteinen	character varying			

Main issues

- To achieve a theme that is compliant to the INSPIRE specification:
 - The main issue is how to combine NLSFI and Population Register Center data
 - Are all the points inside a polygon?
 - Can there be several points inside a polygon?
 - What if a point is not inside a polygon?

Learnings

- Since the data in NLSFI's database is in several tables, a Java-based load application was developed
- This gives freedom to choose the data models in the database.
- Also enables to load data into several different data models (ELF-wfs, ELF-wms,...)
- The configurations in the WFS server (degree) can be held at a more simple level

Achievements

- <http://host:8080/elf-wfs/services/elf-lod0bu?service=WFS&request=GetFeature&version=2.0.0&typenames=elf-lod0bu:Building&count=1>

```
<?xml version="1.0" encoding="UTF-8"?>
<wfs:FeatureCollection numberReturned="1" xmlns:gml="http://www.opengis.net/gml/3.2" timeStamp="2015-04-13T11:11:44Z" xmlns:wfs="http://www.opengis.net/wfs/2.0" xsi:schemaLocation="http://www.opengis.net/wfs/2.0 http://schemas.opengis.net/wfs/2.0/wfs.xsd
http://www.opengis.net/gml/3.2 http://schemas.opengis.net/gml/3.2.1/gml.xsd http://www.locationframework.eu/schemas/Buildings/MasterLoD0/1.0 http://visukarttake01.nls.fi:8080/elf-wfs/services/elf-lod0bu?
SERVICE=WFS&VERSION=2.0.0&REQUEST=DescribeFeatureType&OUTPUTFORMAT=application%2Fgml%2Bxml%3B+version%3D3.2&TYPENAME=elf-lod0bu:Building&NAMESPACES=xmlns(elf-lod0bu,http%3A%2F%2Fwww.locationframework.eu%2Fschemas%2FBuildings%
2FMasterLoD0%2F1.0)" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <wfs:boundedBy>
    <gml:Envelope srsName="EPSG:3035">
      <gml:lowerCorner>5061816.782 4162196.812</gml:lowerCorner>
      <gml:upperCorner>5061832.079 4162213.021</gml:upperCorner>
    </gml:Envelope>
  </wfs:boundedBy>
  <wfs:member>
    <elf-lod0bu:Building gml:id="FI.Rakennus.192816232" xmlns:elf-lod0bu="http://www.locationframework.eu/schemas/Buildings/MasterLoD0/1.0">
      <bu-base:beginLifespanVersion xmlns:bu-base="http://inspire.ec.europa.eu/draft-schemas/bu/3.0rc3">2013-09-09T00:00:00</bu-base:beginLifespanVersion>
      <bu-base:endLifespanVersion xmlns:bu-base="http://inspire.ec.europa.eu/draft-schemas/bu/3.0rc3" nilReason="unpopulated" xsi:nil="true"/>
      <bu-base:inspireId xmlns:bu-base="http://inspire.ec.europa.eu/draft-schemas/bu/3.0rc3">
        <base:identifier xmlns:base="http://inspire.ec.europa.eu/schemas/base/3.3rc3">
          <base:localId>192816232</base:localId>
          <base:namespace>http://paikkatiedot.fi/so/1000007/</base:namespace>
          <base:versionId nilReason="unpopulated" xsi:nil="true"/>
        </base:identifier>
      </bu-base:inspireId>
      <bu-core2d:geometry2D xmlns:bu-core2d="http://inspire.ec.europa.eu/draft-schemas/bu-core2d/3.0rc3">
        <bu-base:BuildingGeometry2D xmlns:bu-base="http://inspire.ec.europa.eu/draft-schemas/bu/3.0rc3">
          <bu-base:geometry>
            <gml:Polygon srsName="EPSG:3035" gml:id="FI.Rakennus.192816232_BU-CORE2D_GEOMETRY2D">
              <gml:exterior>
                <gml:LinearRing>
                  <gml:posList>5061824.028 4162211.869 5061831.200 4162203.165 5061824.833 4162197.964 5061817.660 4162206.669 5061824.028 4162211.869</gml:posList>
                </gml:LinearRing>
              </gml:exterior>
            </gml:Polygon>
          </bu-base:geometry>
          <bu-base:referenceGeometry>true</bu-base:referenceGeometry>
          <bu-base:horizontalGeometryReference xlink:href="http://inspire.ec.europa.eu/codelist/HorizontalGeometryReferenceValue/footPrint/" xmlns:xlink="http://www.w3.org/1999/xlink"/>
          <bu-base:horizontalGeometryEstimatedAccuracy>5000</bu-base:horizontalGeometryEstimatedAccuracy>
        </bu-base:BuildingGeometry2D>
      </bu-core2d:geometry2D>
      <bu-base:conditionOfConstruction xmlns:bu-base="http://inspire.ec.europa.eu/draft-schemas/bu/3.0rc3">
      <bu-base:elevation xmlns:bu-base="http://inspire.ec.europa.eu/draft-schemas/bu/3.0rc3">
        <bu-base:Elevation>
          <bu-base:elevationReference xlink:href="http://inspire.ec.europa.eu/codelist/ElevationReferenceValue/lowestGroundPoint/" xmlns:xlink="http://www.w3.org/1999/xlink"/>
          <bu-base:elevationValue srsName="urn:x-ogc:def:crs:EPSG::5717" srsDimension="1" uomLabels="m" axisLabels="z">19041</bu-base:elevationValue>
        </bu-base:Elevation>
      </bu-base:elevation>
    </elf-lod0bu:Building>
  </wfs:member>
</wfs:FeatureCollection>
```

More information

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