CityGML

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Mapping data and geographic information from Ordnance Survey

Create and support innovative, exciting ideas and applications using Ordnance Survey mapping. With OS OpenData you can access a selection of the most detailed mapping datasets available for Great Britain.

Now available - OS VectorMap™ District - a new mid-scale vector and raster dataset (alpha version).

view

- Outline of Great Britain
- Overview of Great Britain
- MiniScale©
- 1:250 000 Scale Colour Raster
- OS StreetView©
- Boundary-Line™
- OS VectorMap™ District - New

develop

- Create amazing web applications
- Enhance online projects
- Put Ordnance Survey maps on your website

Our API uses JavaScript to make web pages more interactive, anyone can create an application by following simple code and tutorials.

supply

Order OS OpenData on hard media or download direct to your PC, Mac or laptop (please note - you may need specialist GIS data software to view and use this data).

about

See our FAQ page to find answers to any questions you might have about OS OpenData, get more technical help with the map viewer or downloads.

help

keep in touch

Follow us on Twitter, Facebook or YouTube.
The world is flat!
3D: Not a truly cartesian coordinate system!
The 3 *dimensions* of 3D (side view)

1. Earth Surface ➤ DTM
2. Above ground ➤ building models
3. Below ground ➤ utility assets, underground structures
common information model + product encoding
Software supporting CityGML (citygmlwiki.org)

University of Bonn: *Aristoteles* Viewer (free)

**Snowflake** software: Go Publisher WFS

**Interactive** Instruments: WFS

**Oracle** 11g: 3D data types and CityGML loader

Tech. University of Berlin: **Oracle schema/loader/updater/citygml4j**, an open-source Java class library and API for the processing of 3D city models (free)

**Bentley**: Bentley Map

Autodesk: **LandXplorer** CityGML Viewer (free) + studio (authoring/management)

Safe Software **FME** (reader & writer)

ESRI: **ArcGIS10** (import)

CPA: **SupportGIS3D**

GTA: Tridicon **CityDiscoverer**

MetGeoInfo: **CityGRID**

Bitmanagement: **BS Contact Geo 3D**

**Ptolemy3D**: virtual globe CityGML plugin

**RhinoTerrain**: CityGML support in development

FH GK: **CityGML-Toolchain**, different tools incl. **Sketch-Up plugin** (free)

**FZ** Karlsruhe: **FZKViewer**, viewer for IFC and CityGML data (free)
Continuum of scales

World
Continent
Country
Region
City
Site
Building
Storey
Components

Image: T. Kolbe, 2007
Levels of Detail – multiple representation

**LOD 0—Regional Model**
Digital terrain model

**LOD 1—City model**
Block model, no roof structures

**LOD 2—City/Site model**
Roof structures, optional textures

**LOD 3—Site model**
Detailed architectural model

**LOD 4—Interior model**
Walkable interior spaces
CityGML Modules and Extensions

Generics
Object Groups
Appearance
Building
City Furniture
Transportation
Water
Vegetation
Land Use

Terrain Model
Core
CityGML innovates Geospatial Information

- Strong **semantic** structure
- Implicit and explicit geometries: focus on features, geometries as attributes
- LODs: relate features from different data sources: **Integrate data**
- Perspective views: Combine more than 1 resolution in 1 dataset, away from output scale => **pick-and-mix**
- **Extensibility** through ADE and Generics
- Modularisation: **dataset families** / SDI-type integration
- **Raster/Vector** integration
Large models:
55 000 detailed buildings
(>50km²)

Image: Reality maps, Berlin 3D
Large to small scale data integration

Image: Reality maps, Berlin 3D
2D-3D interoperability

LOD 0—2D footprints
on top of digital terrain model

LOD 1—City model
Block model, no roof structures

LOD 2—City/Site model
Roof structures, optional textures

LOD 3—Site model
Detailed architectural model

LOD 4—Interior model
Walkable interior spaces