OpenCities Planner – Workshop Content pipeline examples

Håkan Engman, Director Business Development

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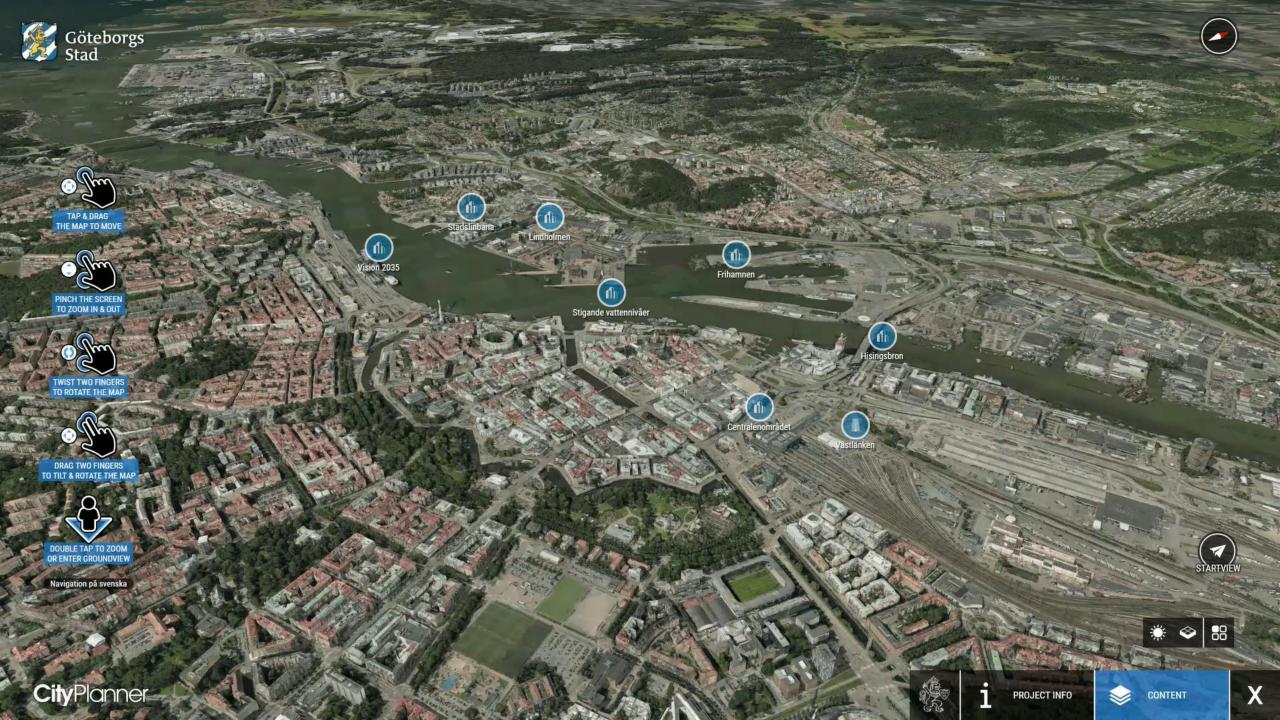
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Agenda

- OpenCities Planner overview
- Editor examples
- Preparing and uploading Reality Models
- CityGML (3DCityDB) configuration and features
- Polygons to 3D based on attributes







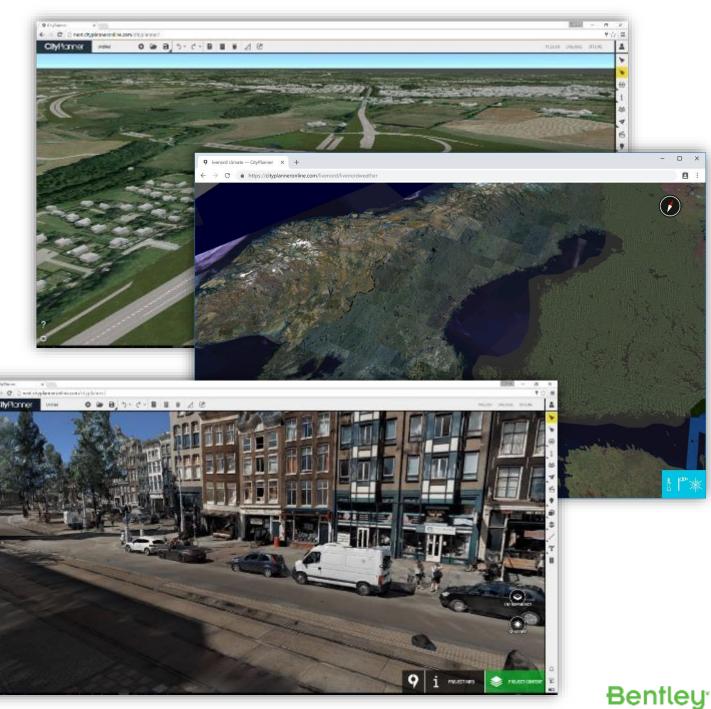
OpenCities Planner

Cloud application hosted on Azure

- Visualize entire cities and countries with streaming technology
- Handles massive datasets and local SRS/coordinate systems
- Europe, Asia, North America, Australia

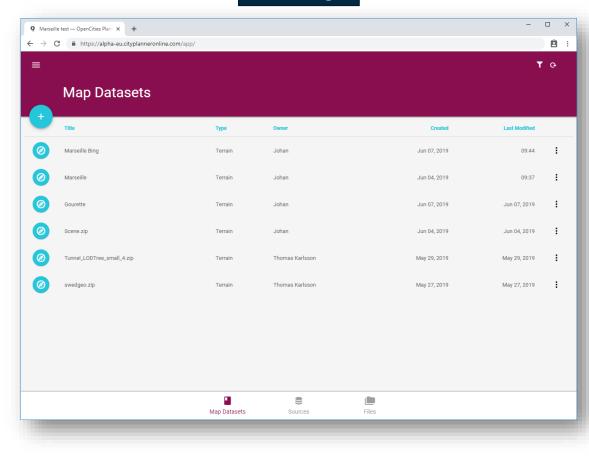
• Use

- Terrain models
- Aerial imagery
- Reality models
- Semantic city models such as
 - CityGML, KMZ, COLLADA
- Web browser, mobile, desktop, VR

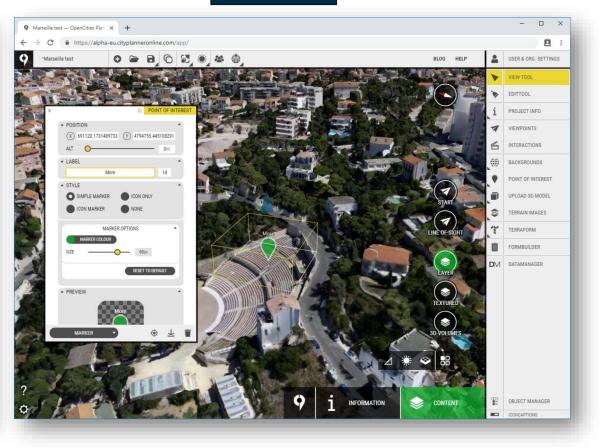


OpenCities Planner

DataManager







Files

- 3D-models, such as a 3D city set
- DSM/DTM
- Ortho Images
- Reality Models
- Vector

Services

- WCS
- WMS
- Bing maps

Databases

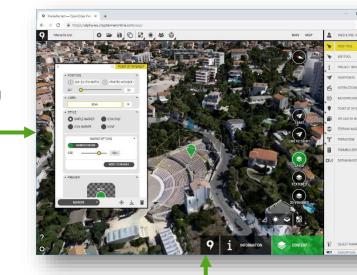
- Spatial databases such as Oracle Spatial, PostGreSQL etc
 - Geometry and attributes
- 3DCityDB (CityGML) or custom database layout

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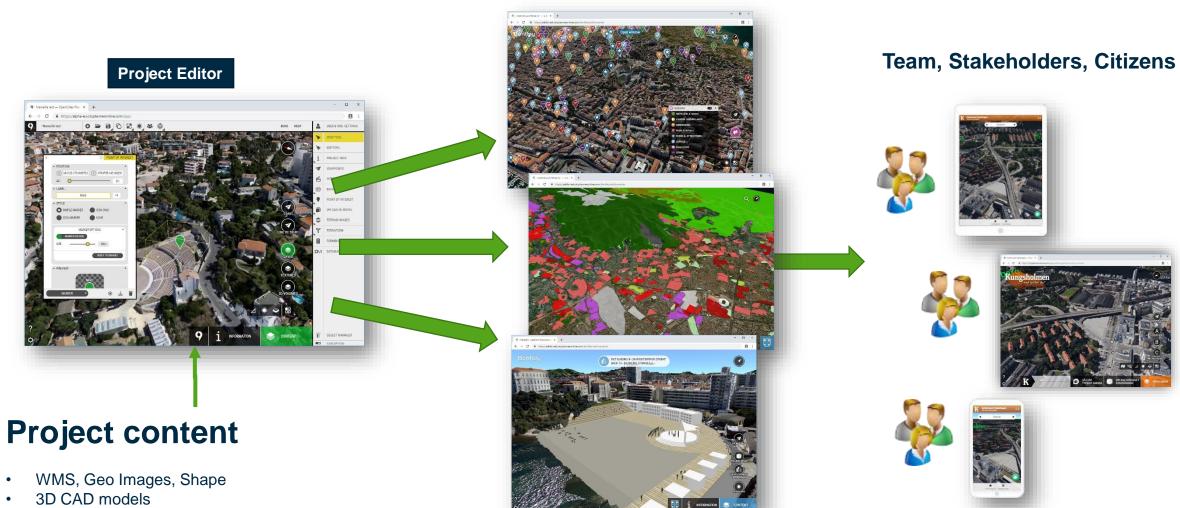


Project content

- WMS, Geo Images, Shape
- 3D CAD models
- Points of interest
- Questionnaire form
- Editor Tools: Sketching, Shadows, Videos

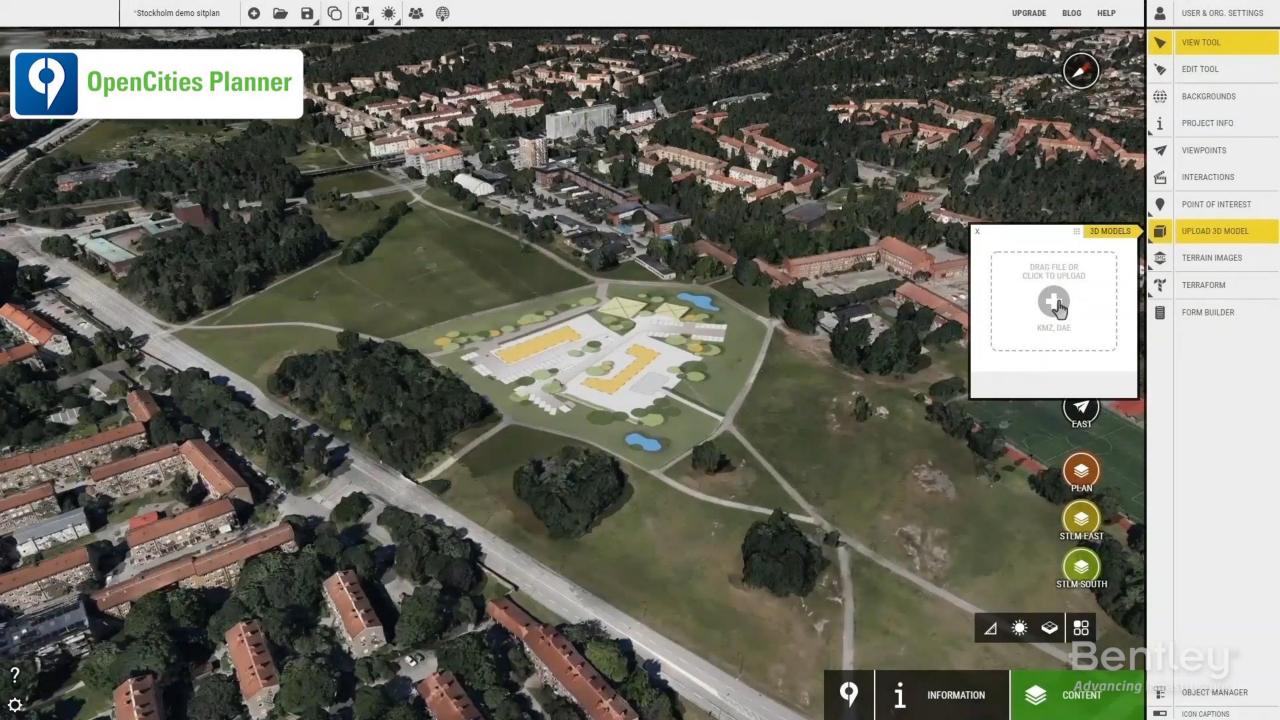


Continuous updates



- Points of interest
- Questionnaire form
- Editor Tools: Sketching, Shadows, Videos





Files

- 3D-models, such as a 3D city set
- DSM/DTM
- Ortho Images
- Reality Models
- Vector

Services

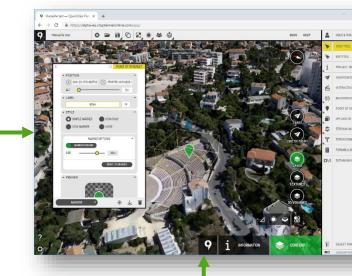
- WCS
- WMS
- Bing maps

Databases

- Spatial databases such as Oracle Spatial, PostGreSQL etc
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- 3DCityDB (CityGML) or custom database layout

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Project content

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Exporting Reality model from ContextCapture

Production definition		-	- D X
Production definition	n	Production defini	tion
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	< Back	Next Submit Cancel	O So intervention recording Produce and export the reference 3D model for editing in a third-party software and importing back into ContextCapture Master for later productions. The reference 3D model includes an overlap between tiles. O Reference 3D model only Produce a 3D model which can be used only inside ContextCapture Master, for quality control and as a cache for later productions. The reference 3D model is needed for orthophoto/DSM productions. <a>Back Submit Cancel

Exporting Reality model from ContextCapture

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Exporting Reality model from ContextCapture

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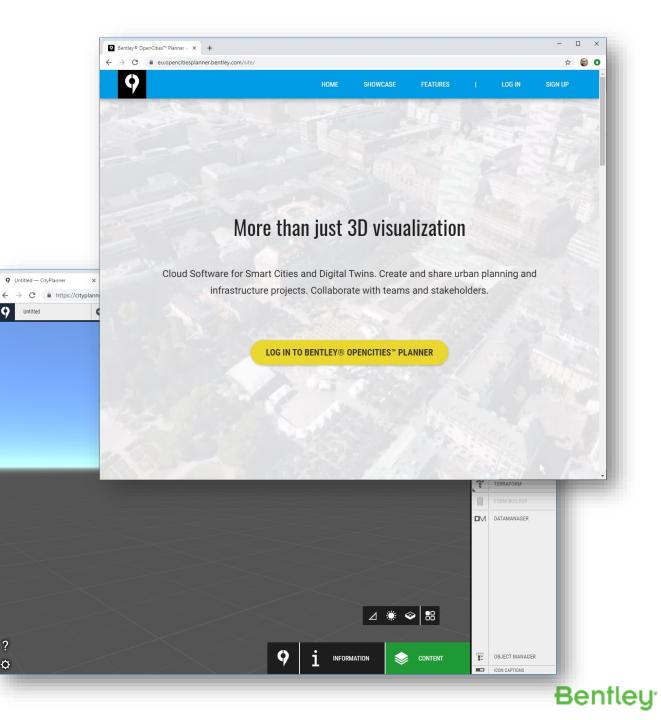
OpenCities Planner

Login with your user and web browser

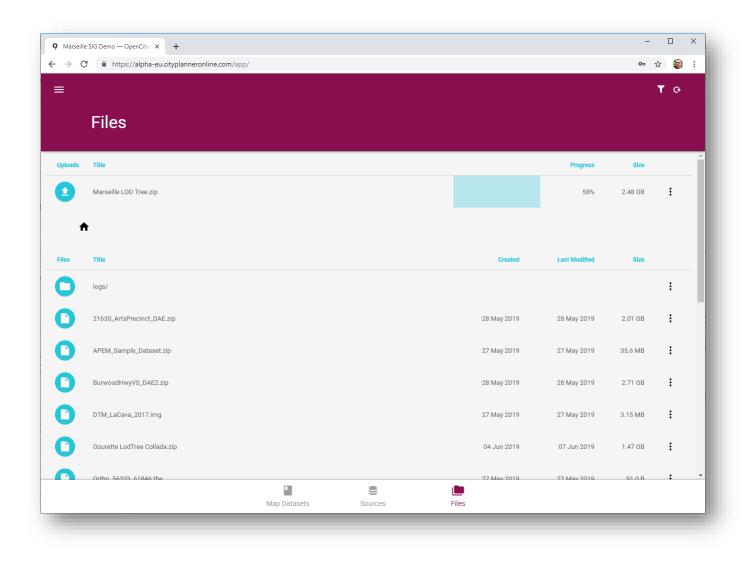
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Click the DataManager tool



- Drag and drop to upload
- Or, use the Azure Storage Explorer to upload
- Create a "Source" from the zip

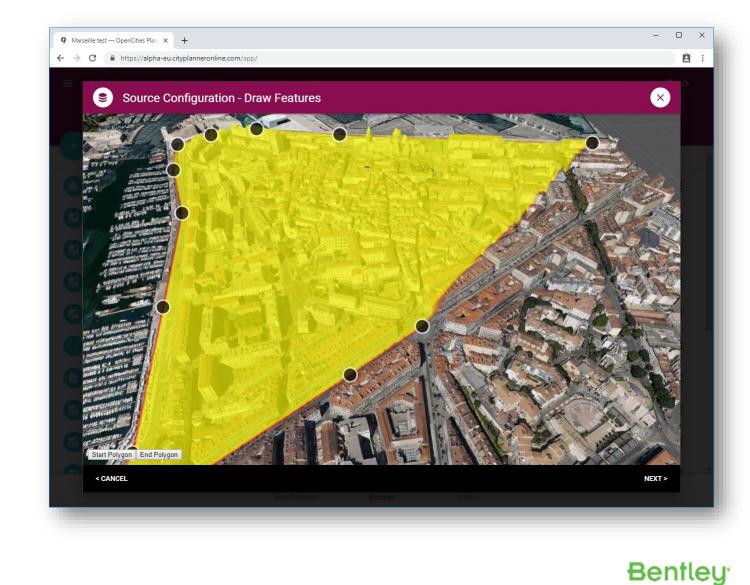


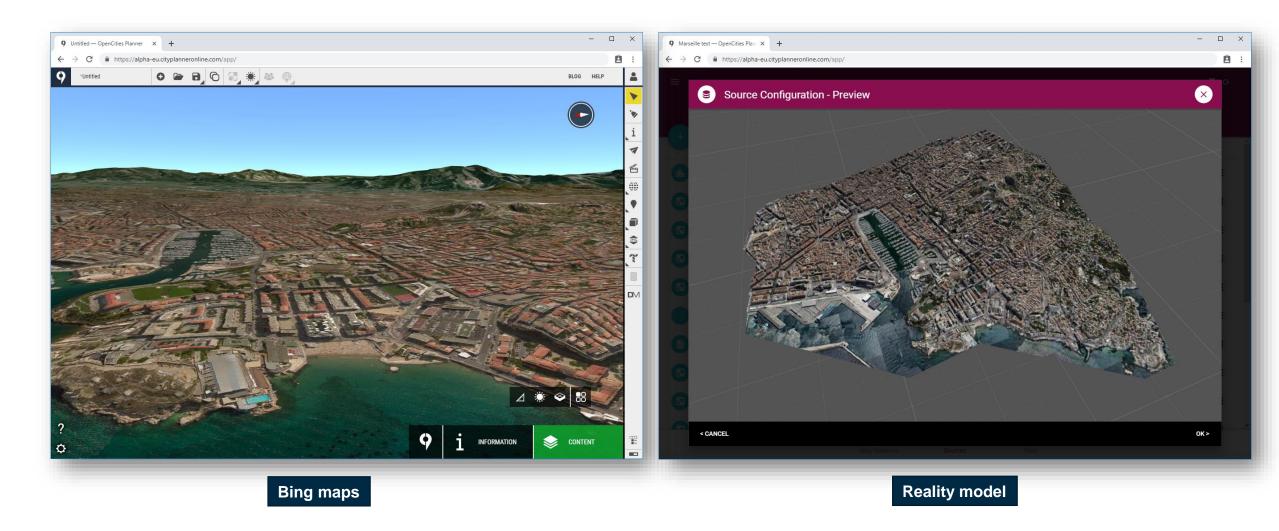
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- Pick LOD Tree XML input type
- Set coordinate system
- Validate files

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- Draw clipping polygon
- Or upload shape file for clipping

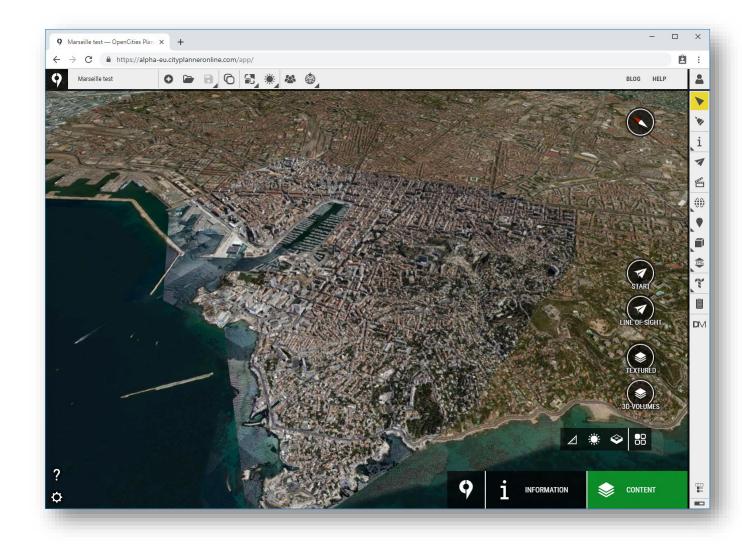




- Merge with other Reality models or Terrains
- Use the same clipping mask, but inverted

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 Merged datasets, loaded in OpenCities Planner



9 Data Source Configuration - Draw Features



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This demo shows integration of a reality model with a digital terrain model, ortho imagery, and vector data from a spatial database.

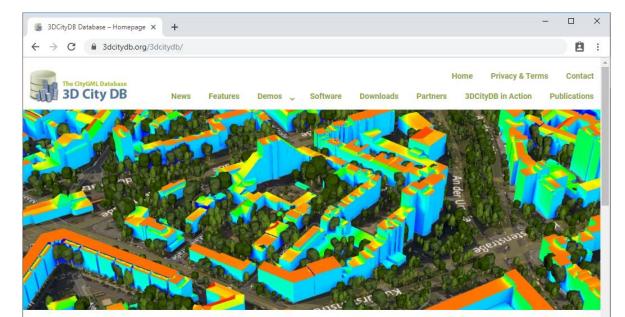
Here's what you can do:

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- Click a building to see the associated database attributes
- Toggle different layers to overlay geo-data
- Use the search feature to look up locations from a connected spatial database

CityGML & 3DCityDB

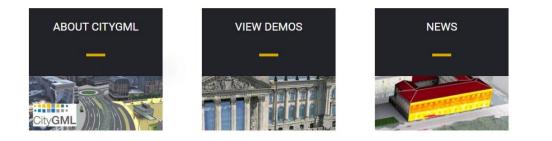
- CityGML
 - OGC Standard for semantic 3D cities
 - LODs, textures, street furniture
- 3DCityDB
 - Database mapping of CityGML schema
 - Plug and play



WELCOME

The award winning 3D City Database is a free geo database to store, represent, and manage virtual 3D city models on top of a standard spatial relational database. The database schema implements the CityGML standard with semantically rich and multi-scale urban objects facilitating complex analysis tasks, far beyond visualization. 3DCityDB is in productive and commercial use for more than 14 years in many places around the world. It is also employed in numerous research projects related to 3D city models.

The 3D City Database comes with tools for easy data exchange and coupling with cloud services. The 3D City Database content can be directly exported in KML, COLLADA, and gITF formats for the visualisation in a broad range of applications like Google Earth, ArcGIS, and the WebGL-based Cesium Virtual Globe.



CityGML/3DCityDB

- Import CityGML into a 3DCityDB
- Configure access
 - DataManager IP must have read access
 - User with read access

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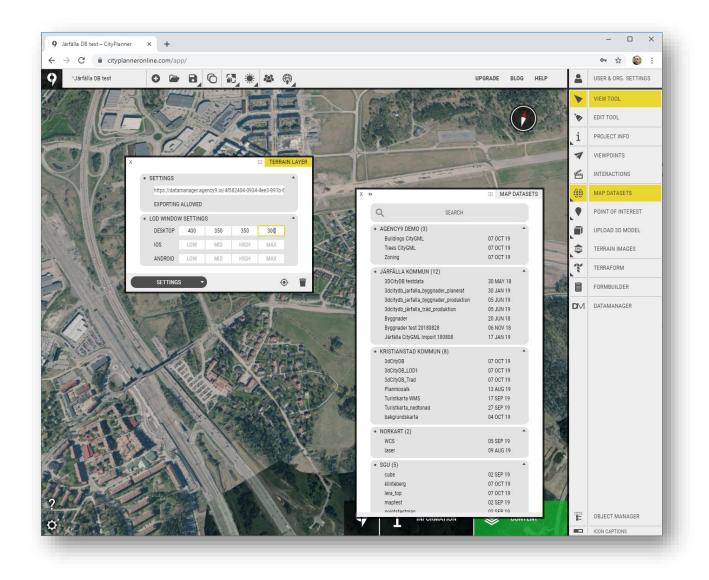
DataManager

- Create a Source
 - 1 for buildings, and 1 for trees
- Configure
 - Choose Feature, CityDB
 - Enter credentials
 - Pick Building or Vegetation from City object
 - Pick LOD or leave empty for default
 - Editable, History
- Create a Map Dataset
 - Feature
 - Pick the source
 - Visualization option: Tile size
 - Done

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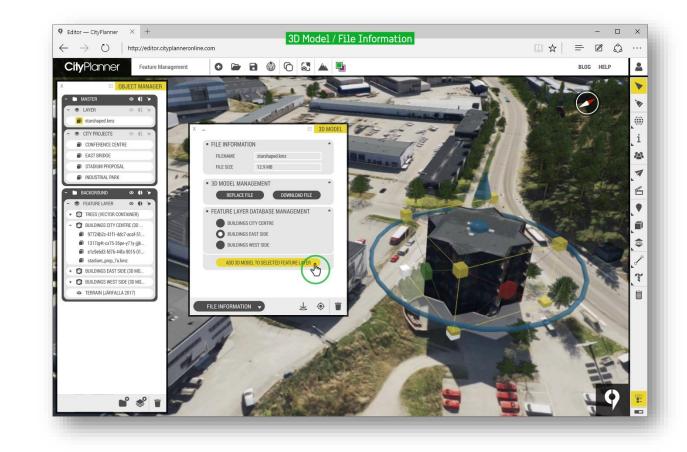
Editor

- Add from Map Datasets
- Configure LOD window settings
- Cache
 - Built on the fly
 - Has a time to live
 - Can be cleared manually



Updating the 3DCityDB

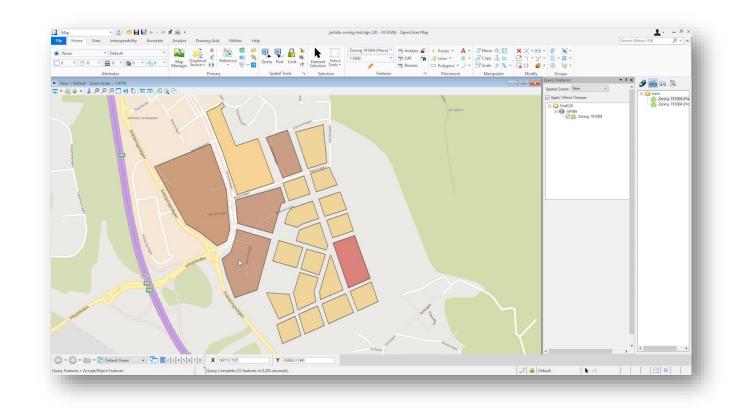
- If the source was set to Editable, you can:
 - Add
 - Remove
 - Update
 - Download
- In Editor:
 - Go to properties
 - Data sources
 - Edit Data Sources
- Edit and then Commit changes



Bentley

Generic geometry from Database

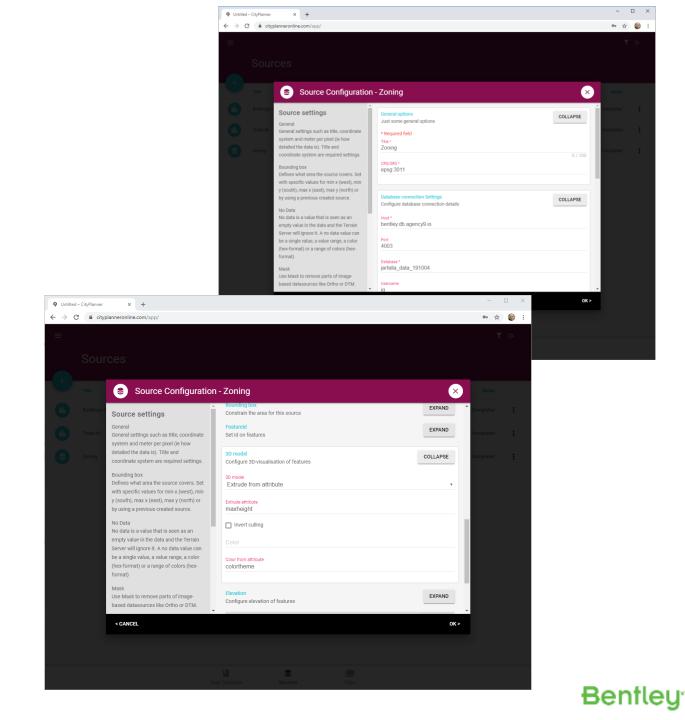
- Database preparation:
- User with read access to
 - Data as geometry
 - Points
 - Lines
 - Polygons
 - Attributes for extruding, colors, id



DataManager

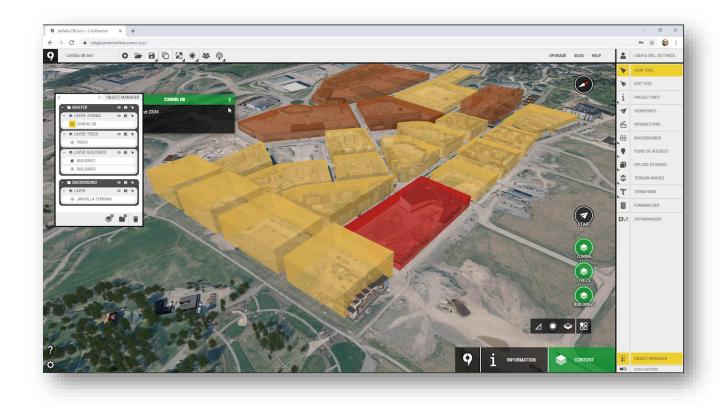
• Configure

- Choose Feature, PostGIS
- Enter credentials
- Enter the Table name
- 3D-model visualization
 - Extrude from attribute
 - Color from attribute
- Create a Map Dataset
 - Feature
 - Pick the source
 - Visualization option: Tile size
 - Done



Editor

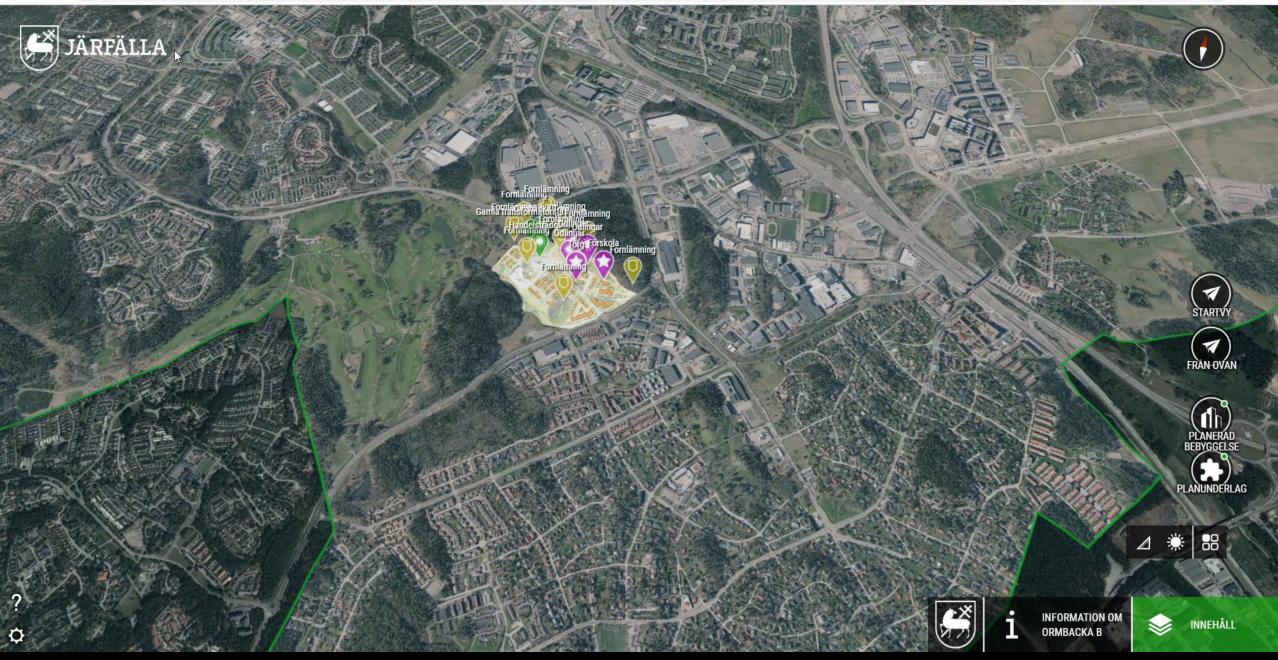
- Add from Map Datasets
- Configure LOD window settings
- Cache
 - Built on the fly
 - Has a time to live
 - Can be cleared manually
- \${objectid}
 - For instance:
 - url.to.yourservice/?id=\${objectid}



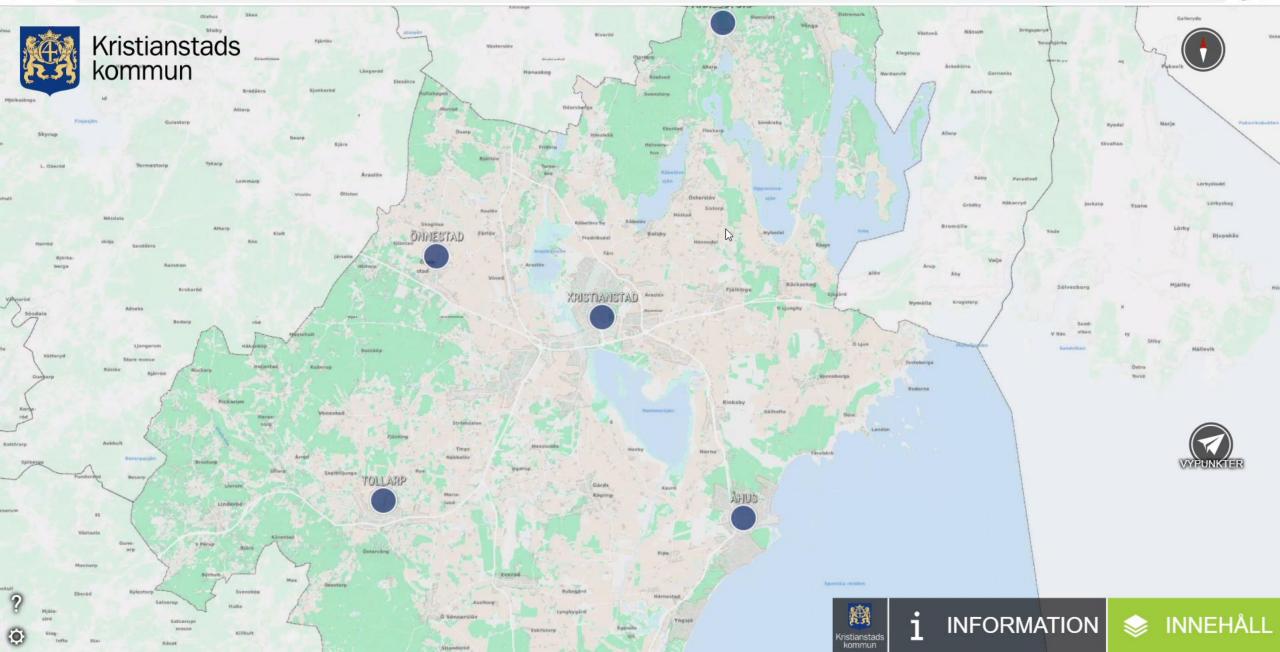


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Open window

APARTMENT

UID LAND_NO PARCEL_ID BLD_NAME UNIT_NUM AREANAME ACTUALSIZE DEWA_PREM PROP_USAGE

STREET IN

71/346-6801/Bay Square -07/602 71 346-6801 Bay Square - 07 602 Bay Square 223.21 345280237 42

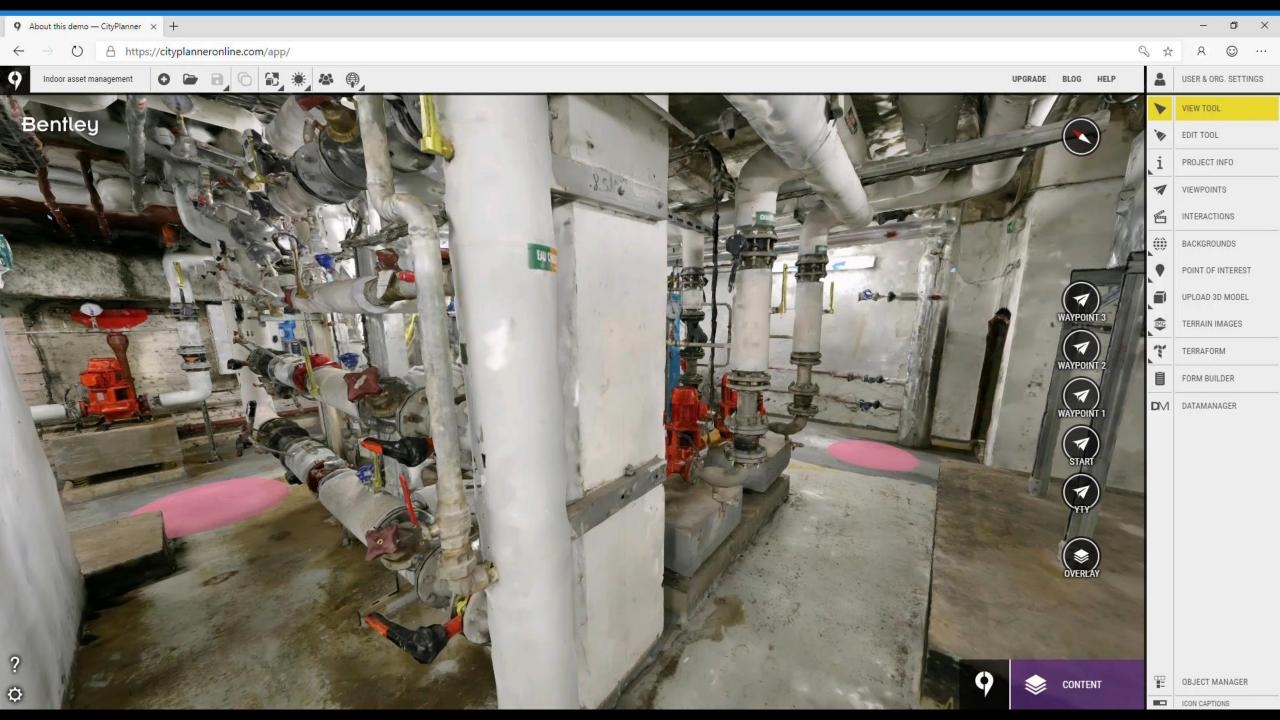
START

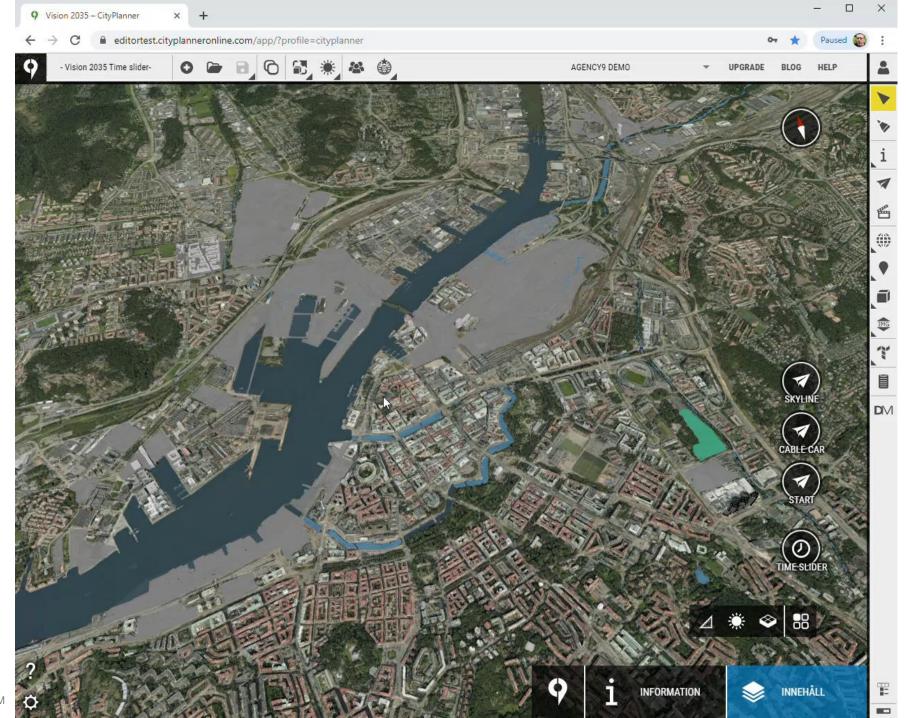
360° GROUND VIEW

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SEARCH









- Web application that let's you visualize 2D, 3D, GIS without any installations
- Web interface that supports self provisioning of datatypes
 - Ortho, Aerial imagery
 - WMS, WCS
 - Reality Models, semantic 3D-city models and street furniture,

Benfleu

- Spatial databases

Thank you!

For more information, please visit: www.Bentley.com/OpenCitiesPlanner

