Bentley
Advancing Infrastructure

CONNECT Edition

OpenCities™ Map Advanced

Geospatial Software that Transforms Heterogeneous Data into Structured Spatial Information and Maps

OpenCities Map Advanced enables CAD-based mapping workflows by expanding MicroStation's capabilities with feature-based modeling and support for seamless data persistence in spatial databases. The application improves productivity, efficiency, and data security by enabling a secure, multi-user editing environment in which individual features can be locked when connected to a spatial database. OpenCities Map Advanced improves access to information and decision-making through a single source of truth that manages your data in a centralized database, regardless of the size of your dataset. The learning curve for those using MicroStation is short, even with in-house or third-party applications, when upgrading to OpenCities Map Advanced.

Define a Feature Data Model with Business Properties

OpenCities Map Advanced includes a rich set of capabilities that substantially increase productivity by enabling feature-based modeling workflows through its schema file. The desktop software allows you to define a set of features to be captured along with their related properties, symbology, annotation, and behaviors. By extending the MicroStation DGN format with XFM, OpenCities Map Advanced provides an environment that ensures geometric and business property accuracy while still allowing access to powerful MicroStation tools such as AccuDraw and AccuSnap. XFM-DGN properties are stored in the design file itself along with graphic elements that define the feature.

You can use MicroStation to map assets using simple geometries and add semantic information by manually editing labels or the symbology of the elements. However, a large number of labels makes maps crowded and error-prone. With OpenCities Map Advanced, you can utilize their existing geometry and store all the semantic information in DGN with the pre-defined OpenCities Map schema's feature properties. Maps are now easier to read, and it is also possible to search and re-symbolize features based on their properties.

Quickly Customize the Display of Your Maps with Map Manager

Map Manager, a component of OpenCities Map Advanced, provides many options for customizing the visual representation of your assets. It allows you to list recognized features, organize their display order, or control which ones will be visible. Modifying the rendering of feature instances of a layer is straightforward and effective. Map Manager allows you to quickly change the appearance of your map based on business data or the current display scale. You can change the font, which cells are displayed, and their size and orientation. These stylized mapping capabilities let you dynamically emphasize the variation or distribution of data for a selected property without changing how the elements are stored in the file or the database.

Connect Natively to the Most Popular Spatial Databases

OpenCities Map Advanced seamlessly and intuitively integrates with the most common spatial databases including Oracle Spatial, SQL Server Spatial, PostgreSQL (PostGIS), and Esri (FGBD, ArcGIS Server & Online). Establishing a single source of truth for your entire dataset provides guaranteed up-to-date data for everyone who needs access. The application enables access to the entire dataset from one location, enabling you to perform complex, efficient searches. OpenCities Map Advanced locks assets when they are modified, ensuring secure, multi-user editing.

Customizable Feature-oriented Placement Methods

OpenCities Map Advanced offers placement methods that convert CAD element creation tools into feature-based element creation tools. CAD users can continue to use familiar MicroStation capabilities to create feature-based map elements without learning a new workflow. You can also create in-house placement methods for more specific needs. Lastly, the Promote feature enables you to convert an existing CAD element into an OpenCities Map feature and add semantic information to it.

Interoperability with Major Geospatial File Formats

You can leverage interoperable capabilities in OpenCities Map Advanced to exchange data with other GIS applications including Esri SHP, MapInfo TAB, and GML. It is also possible to import from databases such as Oracle Spatial, SQL Server, PostgreSQL (PostGIS), Esri File Geodatabase, ArcGIS Server and ArcGIS Online. Data can be imported from a WFS connection. When FME (from Safe Software) is installed, OpenCities Map Advanced can inherit all formats supported by it, greatly extending interoperability.

Synchronize Symbology with Attribution

Asset symbology is not saved in spatial databases—they only store the geometry and the values of its semantic properties. OpenCities Map Advanced assigns and applies the appropriate symbology to the queried assets. The application comes with Geospatial Administrator, a feature that defines schemas and automatically processes all queried assets so that they display as expected based on their property values.

System Requirements

Operating System
Windows 10, Windows 8.1, Windows Server 2016 (64 bit), Windows Server 2012 R2 (64 bit)

Virtualized Environments
Citrix XenApp 7.15 64-bit on Windows Server 2012 R2

Processor
Intel® or AMD® processor 1.0 GHz or greater. MicroStation is not supported on a CPU that does not support SSE2

Memory
4 GB minimum, 16 GB recommended

Connectivity
Internet connectivity is required to use some features and install software pre-requisites

Disk Space
25 GB minimum, up to 40 GB depending on additional installations such as companion features and companion products

Find out about Bentley at: www.bentley.com

Contact Bentley
1-800-BENTLEY (1-800-236-8539)
Outside the US +1 610-458-5000

Global Office Listings
www.bentley.com/contact

OpenCities Map Advanced At-A-Glance

Mapping and GIS
- Create and edit GIS Features
- Build and publish maps and infrastructure models
- Enforce business and topological rules defined by the geospatial administrator

MicroStation® Capabilities
- Drafting tools to efficiently create geometry
- Raster management
- Display priority and transparency
- Coordinate system support and on-the-fly reprojection
- CONNECTED Users and ProjectWise Projects
- Define custom datum and ellipsoid

Map Manager
- Persistent map definitions
- Drag and drop layers to control display order
- Control all aspects of map display
- Automatic creation of thematic map from a template
- Export layers to MicroStation elements

XML Feature Modeling
- XML metadata-driven GIS
- Property-based symbology and annotation
- Convert simple elements to smart GIS features

Geospatial Administrator
- Manage the XFM framework through one interface
- Runs outside MicroStation
- Define and maintain XFM project files
- Define features, properties, and the capabilities used to build those features
- Placement methods can be leveraged by third-party applications

Choice of Data Stores
- Connection to spatial DB
- Self-contained XFM DGN files
- Support for RDBMS/DGN

Data Capture and Maintenance
- Digital terrain model support
- Dynamic domain lists

Reality Mesh Support
- Display reality meshes created by ContextCapture
- Snap, measure, render, and interact with the model to help improve design
- Drop models to MicroStation mesh elements for editing

Presentation and Analysis
- Spatial analysis
- Thematic display
- Buffer creation
- Dynamic labeling
- Direct database access (DDA) using the Data Browser
- Solar/shadow analysis

Map Generation and Printing
- Publish to intelligent PDF, PostScript
- Solve integrity problems with imported or legacy data
- Easily adopt XFM schema for imported or legacy data through Dynamic Feature Scoring

Interoperability for Import/Export
- Direct reference geospatial formats
- Support for Bing Maps
- Import from:
  - » Most common spatial file formats
  - » Most Common spatial databases
  - » Web Feature Service (WFS) connection
- Spatial data streaming
- Inherit of Safe Software's FME import and export capabilities, if the software is installed and licensed.
- Publish features to iModels
- DGN2DB to upload your DGN to a spatial database
- Dynamic feature inference rules (tech preview)
- Export feature inference definition to OpenCities Map persistent schema (tech preview)

Spatial Database Support

(Oracle)
- Oracle Spatial compliant
- Two-tier connection
- 3D object support
- Adherence to native Oracle Spatial models
- Long transactions, optimistic, and pessimistic locking
- Valid time and historical tables

(SQL Server)
- Two-tier direct connection
- 3D object support

(PostGIS)
- Two-tier direct connection
- 3D object support

(ArcGIS Server/ArcGIS Online)
- Two-tier direct connection
- 3D object support

GIS Development Platform
- Utilize Open API, C/C++, C#, NET, VBA, and other modern programming languages

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