



OVERVIEW

Drawings SDK is our industry-leading toolkit for DWG and DGN.

ODA members use Drawings SDK for a wide range of solutions, from simple data extractors to full-featured CAD editors. Drawings SDK provides read/write/visualize functionality and high-level API for data manipulations like support of associative objects, cloning objects inside the same drawing or to different one, transactions, undo/redo.

Drawings SDK supports all standard objects including complex ones like dimensions, multiline texts, tables, multileaders, dynamic blocks, etc. Drawings SDK also provides functionality for creating custom objects and commands.

Using Drawings SDK as an application kernel saves a lot of effort on implementing file reading, writing, visualization, data conversion and editing. It provides 100% compatibility on file level between applications using de facto industry standards: .dwg and .dgn.

Drawings SDK libraries have C++ API and SWIG generated wrappers for .NET, JAVA and Python.

Drawings SDK supports comprehensive two-way conversion between DWG and DGN, as well as full import and export of PDF, DWF and other formats.

■ Constraints

The latest Drawings SDK now implements support for DWG constraints and Move Under Constraint functionality using the new ODA Constraints Solver. This feature is currently in beta, and will be available for production use by the end of the 2022 year.

Both geometric and dimensional constraints are supported in DWG. Geometric constraints define the position of one entity relative to another, and several other types of constraints - coincident, perpendicular, concentric, horizontal, tangent, and others. Dimensional constraints define the distance or angle between two entities.

Move Under Constraint functionality is applied when a constrained entity is modified. Modifying or transforming a constrained entity will cause appropriate changes to be automatically applied to other entities that are constrained along with the original entity.

■ Model Documentation

Model Documentation feature supports the creation of smart drawing views. These smart views are automatically updated when you make changes to the underlying 3D model. SDK supports the VIEWBASE, VIEWPROJ, VIEWSECTION, VIEWDETAIL and VIEWEDIT commands. This functionality is based on ODA Solid Modeler, with no dependencies on any third-party technologies.

This year, our Model Documentation development is focused on saving these smart views to DWG in a way that is fully compatible with AutoCAD. AutoCAD uses Inventor to process Model Documentation views, and saves Inventor data to DWG to support this feature. So a subset of Inventor support within Drawings SDK was implemented.

■ TRACE

The TRACE feature provides integration of markups to DWG. Markups are represented as a separate section in the DWG file and can be modified independently from the main drawing part.

Drawings SDK supports TRACEEDIT command for editing Markup geometry placed on the virtual tracing sheet, and TRACEVIEW command for editing of the main drawing part while dimming the Markup geometry.

ODA uses a similar approach for the universal Markup engine supported as part of Visualize SDK and available for all ODA products.

■ Parasolid BrepBuilder

New Parasolid creation functionality within the BrepBuilder component. It supports the export of B-Rep data, including colors and materials, to Parasolid XT version 9 and 12, for inclusion in DGN files or to store as Parasolid files.

■ SubDMesh smoothing

New smoothing algorithm for conversion of DbSubDMesh to smooth closed and unclosed DbSurface with colors and materials. The algorithm reconstructs the NURB surface using mesh data and stores nurbs data only.

■ Imprint

Imprint functionality supports creating additional edges within faces of a DB solid, surface or region. It takes a second object (curve, solid or surface) and imprints intersections of two objects onto the first body. This functionality can be used to split a face into several parts, for example, for visual properties or extrusion.

■ DGN Geo data and Linetypes

Drawings SDK supports DGN Geo data with conversion of Geo data between DGN and DWG. DGN functionality is extended with support for DGN linetypes from AutoCAD(R) linetype files (*.lin).

■ CDA for DGN

CDA support for DGN elements includes database elements, models, tables of properties, styles, and graphics elements. CDA support for DGN supports both access and editing functionality.

■ New silhouettes generation

New silhouette calculation feature for DbSolid\DbSurface\DbBody allows the generation of an analytic silhouette curve for SURFACE with better shape representation.