AutoCAD®
Map 3D 2010

Features and Benefits

AutoCAD® Map 3D software is a leading engineering solution for creating and managing spatial data. Using open-source Feature Data Object (FDO) technology, AutoCAD Map 3D 2010 software provides direct access to the leading data formats used in design and GIS and enables the use of AutoCAD® software tools for maintaining a broad variety of spatial information.

Introduction

Bridging the gap between CAD and GIS, AutoCAD Map 3D 2010 makes it possible for engineering and GIS professionals to work with the same data and enables design processes to integrate geospatial functions in a single environment for more efficient workflows. The results are better designs, increased productivity, and better data quality.

New Features and Enhancements

The 2010 release of AutoCAD Map 3D software is the most powerful ever for creating and managing precise spatial data. Explore how AutoCAD Map 3D 2010 software helps you work faster and more efficiently on the tasks you do every day.

AutoCAD 2010 Software—AutoCAD Map 3D 2010 software contains all the **features and functionality** of AutoCAD 2010, installed automatically—so you know you're working with proven, reliable, industry-leading software.

- **Easy-to-Use Ribbon Interface**—The new ribbon-style user interface (UI) can help increase overall productivity and reduce the number of steps to reach a command. This interface presents command options in a concise visual format, so you can quickly choose the commands you need. The ribbon is customizable and expandable, so it can adjust to fit each user.
- **Increased Options for Importing Survey Data**—AutoCAD Map 3D survey functionality focuses on asset data collection and mapping. This functionality helps you organize, manage, and integrate your field collected data within the AutoCAD Map 3D environment. The functionality includes direct import of ASCII point and LandXML data, survey datastore and schema, point groups, and creation of FDO features from survey features.

- **New Options for Coordinate Geometry**—Additional coordinate geometry (COGO) tools are available for accurately locating and creating features captured via traditional survey methods. In addition to existing Bearing/Distance, Azimuth/Distance, Angle/Distance, and Deflection/Distance options, new methods include Orthogonal/Offset, Bearing/Bearing, Distance/Distance, and Inverse Report.
- **Enhanced Data Analysis Capabilities**—Seven new overlay operations enhance the analytical capabilities of AutoCAD Map 3D 2010 geospatial software. Compare or combine FDO-connected data stores for faster, better decision making. Enhancements to the Expression Builder enable you to construct composite queries you can apply across multiple FDO-accessed data sources.
- **New Workflow Framework**—Using Windows® Workflow™ Foundation, AutoCAD Map 3D makes it easy to automate repetitive tasks using a new and powerful workflow framework and user interface. This framework makes it easy to build, save, and share simple and complex workflows using a visual editor. Workflows can include logic and initiate calls to other workflows—all with a single mouse click—helping improve efficiency and consistency in results.
- **More Data Creation and Editing Options**—Continued enhancements enable easier data creation and editing of features accessed via FDO. Improvements to object snap functionality include the addition of intersection, extension, apparent intersection, and parallel object snaps. In addition, multipart, multiring, and geospatial features with “m” or “z” values can be easily manipulated. With the Properties Palette, it's easy to edit feature attributes by changing data values for multiple features in a single operation.
- **Better Data Exchanges**—Improved Bulk Copy functionality enables you to use Display Manager layers and include calculated and joined data fields when copying data to new data stores. Bulk Copy can also use the map coordinate system with reprojected data. In addition, AutoCAD Map 3D 2010 includes new LandXML import and export functionality that makes it easy to exchange data with AutoCAD® Civil 3D® software and other applications that support LandXML format.
- **Additional FDO Providers**—AutoCAD Map 3D 2010 includes support for Microsoft® SQL Server® 2008 Spatial, giving you another option for your spatial data storage needs. Additional Autodesk FDO providers, including the **Autodesk FDO Provider for GE Smallworld**, are available to Autodesk® Subscription members in the **Subscription Center**.
- **Better Raster Reprojections**—Enhancements to reprojection alogrithims provide more accurate reprojections of raster imagery accessed through FDO Data Access Technology.
- **More Install Options with 64-bit Support**—Support for 64-bit operating systems provides more flexibility in operating system configurations and access to larger addressable memory space.

See how AutoCAD Map 3D 2010 software stacks up against previous releases in the **AutoCAD Map 3D Release Comparison Matrix**.

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Feature	Description	Benefit
Built on the new AutoCAD 2010 platform	AutoCAD Map 3D 2010 is built on the latest release of AutoCAD software and is enhanced with a suite of geospatial tools. It contains all the features and functionality of AutoCAD 2010, which is automatically installed when you install AutoCAD Map 3D 2010—so you know you're working with proven, reliable, industry-leading software. To find out more about AutoCAD 2010 features, visit **www.autodesk.com/autocad-features**	Lower your cost of operation by using existing in-house expertise with AutoCAD design software. It is easy to find workforce skilled in AutoCAD design software. They can quickly become productive and have shorter learning times when using AutoCAD Map 3D.
Geographic coordinate systems	Work with more than 4,000 real-world coordinate systems or define your own custom coordinate system. Perform coordinate transformations and use tools such as Transform, Rubbersheeting, and Track Coordinates to accurately geo-reference your AutoCAD design data.	With georeferenced design data you can quickly integrate data from a variety of sources to create accurate drawings, designs, and maps.
Direct data access	Using open-source FDO technology, AutoCAD Map 3D provides direct access to spatial data that resides in a variety of data sources including ESRI SHP files and Oracle®, Microsoft SQL Server, MySQL® and ESRI® ArcSDE® managed databases. Access aerial and satellite imagery, including Mr.SID, ECW, and georeferenced TIFF files, and connect to web services such as Web Map Services (WMS) and Web Feature Services (WFS) to take advantage of publicly available data sources.	Work in hybrid IT environments with existing CAD and GIS systems and data. Combining engineering and GIS data contributes to better decision making and results in more-efficient business processes across departments and job functions. Direct access means no data translations, which helps ensure data integrity.

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Data exchange	AutoCAD Map 3D interoperates with major design and GIS software, so you can read, write, and convert data between standard formats, including • DWG™ • ESRI® Arc/Info® coverages, SHP and E00 files • Generalized Markup Language (GML 3.1.1) • MapInfo MIF/MID™ • MapInfo TAB, MicroStation® DGN (V7 and V8) • Ordnance Survey MasterMap (DNF) (GML2, read only) • SDF • Spatial Data Transfer Standard (SDTS, read only) • Vector Product Format (VPF, read only) After working with the data, you can maintain it in a DWG file, convert it to an external file, or move it into a spatial database.	Easily exchange data with colleagues, contractors, and clients and provide CAD and/or GIS deliverables for government agencies and other stakeholders in the format they require.
Data cleanup	Automate the correction of common drafting and digitizing errors using Drawing Cleanup tools. Delete duplicates, correct undershoots and dangling objects, and more. Clean and accurate data makes integration into your GIS or mapping system easier.	Reduce common drafting and digitizing errors in your design information. Generalize contour, coastline, and other data for use in mapping and GIS systems. Help maintain data accuracy throughout the design, build, operate, and maintenance lifecycle.
DWG query	Using DWG query functionality, multiple users can access, search, and edit the same sets of DWG files or base maps simultaneously. DWG query provides quick viewing of drawing information, including the number and type of objects, symbol tables, object data tables, and object classes. Alter-properties functions can be used to change CAD object properties, such as layer, color, linetype, lineweight, and more. This efficient and reliable way to work collaboratively with DWG-based information reduces the need for version control and can minimize time wasted waiting for data.	Search across hundreds of DWG files to find the right project information for the task. Help increase productivity by enabling multiple users to work simultaneously while sharing design data. Treat a tiled set of DWG drawings as a single data source to efficiently query and edit information.
CAD editing on geospatial data	Data accessed through FDO can be directly edited with standard AutoCAD commands such as Pedit, Trim, Break, Join, Offset, Extend, Rotate, Move, and Cut/Copy/Paste. Easily edit polygon objects with split and merge functions, and use the Expression Builder to populate attributes using data calculations and intrinsic object properties.	Existing CAD-trained workforce can create and maintain data using familiar AutoCAD tools to accurately and precisely edit geospatial data without conversion.

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Classification	Organize objects in your drawing by the real-world features that they represent, such as roads, parcels, cables or pipes. When you create an object using object classification, it automatically takes properties and values from its object class, maintaining consistency and establishing standards in your drawing. By applying a classification to an existing or new object, you can be assured that it meets your standards for both data and display. Visit the **AutoCAD Map 3D Extensions page** to learn about free* industry-specific toolkits that can help streamline the classification process.	New and experienced staff can help improve drafting efficiency while maintaining data quality during the data creation and capture phases of a project. Ease integration of design data from contractors by ensuring it matches your companies drafting standards. Prepare CAD data for GIS or mapping systems.
Coordinate geometry	Use coordinate geometry to accurately locate and create features captured via traditional survey methods. Streamline the process of drawing plats and existing conditions by allowing for the input of geometry in terms of Bearing/Distance, Azimuth/Distance, Angle/Distance, Deflection/Distance, Orthogonal/Offset, Bearing/Bearing, Distance/Distance, and Inverse Report.	Save time entering survey descriptions. Easily verify the accuracy of your existing information.
Survey	AutoCAD Map 3D survey functionality focuses on asset data collection and mapping. This functionality allows you to organize, manage, and effectively use data collected in the field within the AutoCAD Map 3D environment. The functionality includes: • ASCII point and LandXML data import • Survey datastore and schema • Point groups • Creation of FDO features from survey features	Integrate field-collected data in varying formats to accurately update drawings, maps, and databases to reflect the as-found locations in the field.
Map creation and stylization	Cartography tools enable you to create maps without additional GIS-specific software. Easily create stylized maps that highlight specific features or information such as service areas, zoning districts, land usage, pipe and cable installation dates and diameters, and more. Create legends and call out details with attribute-driven labels that provide text along a curve and segment stitching functionality. Use transparency to blend data and reuse styles in any project, saving time and streamlining map production. Move beyond basic CAD maps to advanced cartography and presentations.	Produce more professional designs, maps, plans, proposals, and reports. Support decision making and effectively communicate your design intent quickly and clearly.

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Analysis	Analysis tools enable you to answer questions and make decisions about your data. Link information in vector and tabular formats together, perform data queries, create thematic maps, build topologies, create reports, and perform buffer, tracing and overlay analysis, and more. With integrated geospatial tools, AutoCAD Map 3D provides easy visualization and evaluation of design and geospatial information.	Quickly visualize, evaluate and validate spatial and nonspatial information. Create better designs and help improve infrastructure operation and maintenance decisions.
Surfaces and 3D visualization	Visualize and analyze large-scale topographic information, including digital elevation models (DEM) and ESRI GRID files for elevation, slope, and aspect. Create contours and perform sunlight studies with hillshading. Use draping functionality to combine topography data with aerial photographs and vector data for stunning, revealing 3D renderings that can be published to 3D DWF™ files viewable in free* **Autodesk® Design Review** software.	Create presentations and plans that come to life with visuals that everyone can understand. Submit proposals that have a lasting effect on project decision makers and your reputation.
Database integration	AutoCAD Map 3D software provides open, standards-based database support. Easily join CAD objects to commonly used databases such as Microsoft Office Access®, and store CAD and GIS data in popular relational database management systems, including Oracle, SQL Server, and MySQL without expensive middleware, or connect to ESRI ArcSDE managed databases.	Utilize and combine information that resides in databases with graphical design and GIS data in one view. Support planning and infrastructure asset management activities by searching, filtering, analyzing, and editing spatial and nonspatial information.
Data management tools	Effectively manage spatial data in virtually any format. Intuitive tools enable you to quickly and easily create users, define schemas (databases and files), or load data models via XML Metadata Interchange (XMI) from industry-standard modeling programs. Move and convert data that resides in one data store to another (for example, SDF/SHP to Oracle). AutoCAD Map 3D acts as a hub for managing large amounts of spatial data, allowing you to unlock legacy spatial information and streamline your workflow.	Simplify data management by easily converting information between differing data stores. Effective support design and as-built data flow to GIS and asset management solutions. Reduce load on IT and save valuable IT resources by enabling an administrator with little database expertise to define users and data storage parameters.
Spatial data file	The spatial data file (SDF) lets you organize and manage your data as real-world features. This easy-to-manage file-based data repository is a smart choice when an enterprise database doesn't make sense. SDF supports rich geometry, multiple tables, and spatial indexing and provides a solid foundation for a smooth transition to database such as Oracle or SQL Server in the future, if the need arises.	SDF is a portable geo-enabled open data format that provides constraint-based attribute creation and allows you to take full advantage of Autodesk Geospatial software FDO-based capabilities. SDF is ideal for storing medium-to-large (5-500 MB) data sets such as cadastral fabrics, building outlines, roads, and utility networks.

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Workflows	Using Windows Workflow Foundation, AutoCAD Map 3D makes it easy to automate repetitive tasks using a new and powerful workflow framework and user interface. With this framework, you can build, save, and share simple and complex workflows using a visual editor. Workflows can include logic and initiate calls to other workflows—all with a single mouse click, improving efficiency and consistency in results.	Quickly get new and experienced users productive by automating common tasks.
Metadata	Maintain your investment in spatial data with tools to create and edit metadata. These tools help you call out the who, what, when, where, why, and how of your spatial information and publish it in standard formats including International Organization for Standardization (ISO) (19115 and 19139) and Federal Geographic Data Committee (FGDC). With automatic metadata creation it is easy for you to share your data with colleagues, contractors, and regulatory agencies.	Ease data transfer and interpretation by new users. Mitigate effect of staff turnover and knowledge loss. Search information to support multidepartment and interdisciplinary usage. Easily track data changes over time.
Map books	Quickly and easily produce up-to-date tiled map books of your service area, and provide field crews with necessary information for the project.	Provide field crews with the information.
Autodesk MapGuide integration	Seamless integration with Autodesk MapGuide® Enterprise software enables you to create drawings and maps within AutoCAD Map 3D and quickly publish them to the internet.	Use the styles and appearance of maps you create within AutoCAD Map 3D on interactive web-enabled maps.
Publishing tools	Distribute your geospatial data, maps, and designs in a variety of ways to meet your organizations needs. Create drawings, designs, and maps and quickly publish them to the internet using Autodesk MapGuide Enterprise software, or distribute them as individual georeferenced DWF files, multisheet DWF map books, and paper plots. Help customers and teams throughout the organization by supplying them with the latest information.	Cost-effectively distribute spatial information across and beyond your organization while helping save printing costs and valuable time. Provide customer service agents, managers, field operations, and external contractors' access to the information they require to make better decisions. Using Autodesk Design Review software, team members can digitally review, measure, mark up, and comment on 2D and 3D designs, plans and maps while protecting your intellectual property.

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Extensibility via Open Source	With the power of **FDO data access technology** on the desktop, AutoCAD Map 3D makes it easy for you to take advantage of the open-source world by extending data access with third-party and open source FDO Providers for data stores not currently supported by Autodesk. To help make it easier for developers to extend capabilities of FDO, Autodesk has released FDO as an open-source project (**http://fdo.osgeo.org**) under the Open Source Geospatial Foundation (OSGeo) **www.osgeo.org**. This initiative allows developers all over the world to tap into powerful geospatial data access technology.	Help get additional return on your investment in software and spatial information by using free and low cost solutions to access data that resides in existing enterprise and GIS systems.
Robust APIs	AutoCAD Map 3D comes with robust .NET application programming interfaces (APIs) that organizations can use to create custom tools and automate common procedures. Additionally, AutoCAD Map 3D and Autodesk MapGuide Enterprise share a unified geospatial API, as well as unified FDO technology that can be used to build custom applications that share business logic and common code. Learn more about using the AutoCAD Map 3D and Autodesk MapGuide APIs to extend their capabilities to fit your needs at the **AutoCAD Map 3D** and **Autodesk MapGuide** Developer Centers.	Further enhance the capabilities of the software and cost-effectively create custom applications for specific functions within the organization. Easily deliver geospatial applications on the desktop and over the web.

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