Questions and Answers

AutoCAD® Map 3D software is the leading engineering platform for creating and managing spatial data. Bridging the gap between CAD and GIS, AutoCAD Map 3D provides direct access to the leading data formats used in design and GIS. AutoCAD Map 3D enables the use of AutoCAD® software tools for maintaining a broad variety of geospatial information and allows design processes to integrate GIS functions in a single environment for more efficient workflows. The results are better designs, increased productivity, and better data quality. When combined with Autodesk MapGuide® Enterprise software, AutoCAD Map 3D is the quickest way to publish data to the web or intranet.

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1. General Product Information

1.1. What is AutoCAD Map 3D 2009?
AutoCAD® Map 3D software is the leading engineering platform for creating and managing spatial data. Bridging the gap between CAD and GIS, AutoCAD Map 3D provides direct access to the leading data formats used in design and GIS. AutoCAD Map 3D enables the use of AutoCAD® tools for maintaining a broad variety of geospatial information and allows design processes to integrate GIS functions in a single environment for more efficient workflows. The results are better designs, increased productivity, and better data quality. When combined with Autodesk MapGuide® Enterprise software, AutoCAD Map 3D is the quickest way to publish data to the web or intranet.

1.2. What's new in AutoCAD Map 3D 2009?
In addition to the powerful AutoCAD Map 3D core functionality for creating and maintaining precise geospatial information, the new features in AutoCAD Map 3D 2009 help you work faster and more efficiently on the tasks that you do every day:

- AutoCAD® 2009 Software—AutoCAD Map 3D 2009 software contains all the features and functionality of AutoCAD 2009, which is automatically installed when you install AutoCAD Map 3D 2009, so you know you are working with proven, reliable, industry-leading software. To find out more about AutoCAD 2009 features, visit www.autodesk.com/autocad-features.

- User Interface—The new Expression Builder provides a consolidated user interface for all functions, including query and math functions from FDO data sources. The new tooltips provide additional contextual information on the item that is selected and, from within Display Manager, provide data source and layer information. In addition, the Data Connect feature has been updated to make it easier to add and manage data sources.

- Data Creation and Editing—Creation and editing of data accessed through FDO have been improved by enabling the use of standard AutoCAD commands (Pedit, Trim, Break, Join, Offset, Extend, Rotate, Move, and Cut/Copy/Paste). New split and merge rules enable easy editing of polygon objects. In addition, attribute creation has been improved with autopopulation of attributes using calculated fields.

- Data Management—AutoCAD Map 3D 2009 provides constraint-based attribute creation for FDO accessed data stores. Constraints can be defined within the Schema Editor and presented in the Data Table. In addition, server-side views (for example, Oracle®) are now supported.

- Data Exchange—To enable easier moving of vector data between DWG™ files and FDO accessed data stores, AutoCAD Map 3D 2009 includes enhanced functionality that enables DWG vectors to be converted to SDF 3, Oracle, and ESRI® ArcSDE®-managed databases and vice versa. During conversion you can choose to map DWG layer names, object classification, AutoCAD Map 3D object data tables, or link templates to corresponding FDO feature classes. Once your vector data has been converted to SDF, Oracle, or ESRI ArcSDE, you can use the AutoCAD Map 3D Display Manager to stylize these features and easily move this data to other data stores such as MySQL and Microsoft® SQL Server™ software.

- Map Creation and Stylization—Enhanced labeling and annotation provide segment stitching and text along a curve for FDO accessed data stores, enabling you to produce cleaner and more informative designs, maps, and plans.

- ISO Metadata—AutoCAD Map 3D 2009 enables you to automatically generate metadata about your spatial information and publish it in standard formats, including International Organization
for Standardization (ISO) (19115 and 19139) and Federal Geographic Data Committee (FGDC). This makes it easy for you to share your data with other people in your organization or externally with contractors and regulatory agencies.

- **Publishing**—When you publish design data and fully stylized maps to the web via Autodesk MapGuide Enterprise software, web layouts are automatically generated. In addition, functionality improvements now provide consistent labeling between AutoCAD Map 3D and Autodesk MapGuide Enterprise.

- **Application Programming Interfaces (APIs)**—The production-ready Geospatial Platform API has added capability to interoperate with AutoCAD selection API. It has five new samples. These new samples show how applications can convert existing entity-based features to FDO features, leverage AutoCAD selection to work with FDO features, and reap the power of data binding technology of Windows® Presentation Foundation (WPF) in .NET 3.0.

- **Deployment options**—AutoCAD Map 3D 2009 is a Citrix Ready™ application, enabling deployment via a Citrix application delivery environment.

Go to [www.autodesk.com/map3d-features](http://www.autodesk.com/map3d-features) to learn more about the benefits and advanced functionality of AutoCAD Map 3D 2009.

### 1.3. How does AutoCAD Map 3D integrate CAD, civil engineering, and GIS?

AutoCAD Map 3D is a premier tool for integrating CAD, civil engineering, and GIS. Its strength lies in the open and flexible environment that enables you to work with virtually any data, regardless of format. As a result, you can get the full value from your existing data investments. DWG and ESRI SHP formats are among the most prevalent in the CAD, engineering, and GIS worlds, and with AutoCAD Map 3D you can create, edit and distribute these or just about any industry-standard format with the precision of a CAD system.

### 1.4. What level of interoperability can I expect between AutoCAD Map 3D and AutoCAD Civil 3D?

You can easily share parcels, alignments, structures, and other objects created in AutoCAD® Civil 3D® software. In addition, you can share surfaces created in AutoCAD Civil 3D with AutoCAD Map 3D by exporting the surface to a digital elevation model (DEM).

### 1.5. What is FDO Data Access Technology?

FDO Data Access Technology is the mechanism that enables Autodesk Geospatial products and enterprise applications to work natively with spatial data stored in relational databases and files, and access web-based services. To help make it easier for developers to extend capabilities of FDO Data Access Technology (FDO), Autodesk released the technology as an open source project ([http://fdo.osgeo.org](http://fdo.osgeo.org)) under the Open Source Geospatial Foundation (OSGeo, [www.osgeo.org](http://www.osgeo.org)). This initiative enables developers all over the world to tap into powerful geospatial data access technology. With the power FDO, 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 (for example, ESRI Personal Geodatabase and PostGIS). FDO Data Access Technology is included in AutoCAD Map 3D, AutoCAD Civil 3D, Autodesk MapGuide Enterprise, and Autodesk® Topobase™ software applications. For more information, including documentation and product details, see [www.autodesk.com/fdo](http://www.autodesk.com/fdo).

### 1.6. Which data stores can I access, edit, and convert in AutoCAD Map 3D?

Using FDO Data Access Technology, you can directly and simultaneously access multiple databases and files, including Oracle, Microsoft SQL Server, ESRI ArcSDE, MySQL, ODBC, ESRI SHP, Autodesk’s spatial data file (SDF), and raster files (read only for JPEG, JPG2K, MrSID®, TIFF, ECW, DEM, ESRI Grid, DTED and NITF). AutoCAD Map 3D can also consume Web Services (OGC WMS and WFS). Direct read/write helps increase data access speed and help ensure accuracy of information by minimizing data conversion.

In addition, AutoCAD Map 3D enables you to read, write, and convert data between standard formats, including DWG, Arc/Info® coverages, SHP and E00 from ESRI®, MapInfo MIF/MID™, MapInfo TAB, MicroStation® DGN (V7 and V8), Generalized Markup Language (GML 3.1.1), Ordnance Survey MasterMap
(DNF) (GML2, read only), Vector Product Format (VPF, read only), Autodesk SDF, and Spatial Data Transfer Standard (SDTS, 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.

1.7. What raster image formats does AutoCAD Map 3D support?
AutoCAD Map 3D provides two methods for inserting imagery. Image format support depends on the method used.

Supported raster formats using the Image feature (_mapiinsert) include BIL (certain types), BMP, CAL, CALS-1, CG4, DEM*, DIB, DOQ*, DTED*, Earth Resource Mapping’s ECW*, ESRI GRID*, FLI, FLC, GeoTIFF, GIF, GP4, IG4, JPG, JPEG, JPEG2K*, LizardTech’s MrSID*, MIL, NITF*, PCT, PCX, PICT, PNG, RLC 1&2, RLE, RST, TGA, TIFF, and TIFF (various compression types).

Supported raster formats using FDO technology (Display Manager) include DEM, TIFF (TIF), ECW, JP2, MrSID, GeoTIFF, DTED, and NITF.

*Requires installation of the AutoCAD® Raster Design object enabler.

1.8. Why do I need AutoCAD Raster Design when AutoCAD Map 3D can view and display raster digital elevation models (DEM)?
AutoCAD Map 3D software provides the ability to view and display DEMs. However, you can’t edit or modify these and other images without the use of AutoCAD Raster Design software. Raster data functionality in AutoCAD, AutoCAD Map 3D, and AutoCAD Raster Design software is as follows:

<table>
<thead>
<tr>
<th>Raster Functionality</th>
<th>AutoCAD</th>
<th>AutoCAD Map 3D</th>
<th>Raster Design</th>
<th>Image Type*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cleanup Tools</strong></td>
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<tr>
<td>Despeckle</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Bitonal</td>
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<tr>
<td>Deskew</td>
<td>X</td>
<td>X</td>
<td></td>
<td>All</td>
</tr>
<tr>
<td>Change Bias</td>
<td>X</td>
<td>X</td>
<td></td>
<td>All</td>
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<tr>
<td>Invert</td>
<td>X</td>
<td>X</td>
<td></td>
<td>All</td>
</tr>
<tr>
<td>Touch Up (pixel-level edit)</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Bitonal</td>
</tr>
<tr>
<td><strong>Raster to Vector Conversions</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Vectorize primitives and text</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Bitonal</td>
</tr>
<tr>
<td>Raster entity manipulation</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Bitonal</td>
</tr>
<tr>
<td>Optical character recognition</td>
<td>X</td>
<td></td>
<td></td>
<td>Bitonal</td>
</tr>
<tr>
<td>REM region operations</td>
<td>X</td>
<td>X</td>
<td></td>
<td>All</td>
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<tr>
<td><strong>Image Management</strong></td>
<td></td>
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<tr>
<td>Save imagery in the DWG file</td>
<td>X</td>
<td>X</td>
<td></td>
<td>Bitonal</td>
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<tr>
<td><strong>Image Insertion/Manipulation</strong></td>
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<tr>
<td>Correlate</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>All</td>
</tr>
<tr>
<td>Scale, Rotate</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>All</td>
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<tr>
<td>Mask</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>All</td>
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<tr>
<td>Mirror</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>All</td>
</tr>
<tr>
<td>Clip</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>All</td>
</tr>
<tr>
<td>Affine Transformation upon Insert</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>All</td>
</tr>
<tr>
<td>Feature</td>
<td>Bitonal</td>
<td>Grayscale, Index Color</td>
<td>True Color</td>
<td>All</td>
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<tr>
<td>Edit color map (change data interpretation, value distribution, color assignment, create/save color palettes)</td>
<td>X</td>
<td></td>
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<tr>
<td>Edit color map (assign bands)</td>
<td>x</td>
<td></td>
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<tr>
<td>Apply color ramps</td>
<td>x</td>
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<tr>
<td>Merge images</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Merge vector to image</td>
<td>x</td>
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<tr>
<td>Crop</td>
<td>x</td>
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<td>Remove</td>
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<tr>
<td>Export or save as other formats</td>
<td>x</td>
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<tr>
<td>Export World File Correlation</td>
<td>x</td>
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<tr>
<td>Coordinate Transform upon Insert</td>
<td>x</td>
<td>x</td>
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<tr>
<td>True (pixel by pixel) Coordinate Transform upon Insert</td>
<td>x</td>
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<tr>
<td>Rubbersheet</td>
<td>x</td>
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<tr>
<td>Capture (snapshot)</td>
<td>x</td>
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<tr>
<td>Raster data query</td>
<td>x</td>
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<tr>
<td>Edit multiresolution imagery</td>
<td>x</td>
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<tr>
<td><strong>Image Enhancement</strong></td>
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<tr>
<td>Adjust brightness, contrast, and fade</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Turn transparency on/off</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Change colors</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Filter (smooth, thicken, thin, skeletonize)</td>
<td>x</td>
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<tr>
<td>Histogram edit of brightness and contrast</td>
<td>x</td>
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<td></td>
<td></td>
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<tr>
<td>Nonlinear contrast adjustment</td>
<td>x</td>
<td></td>
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<td></td>
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<tr>
<td>Equalize, Threshold, Convolve</td>
<td>x</td>
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<tr>
<td>Convert to grayscale</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Combine or change colors</td>
<td>x</td>
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<tr>
<td>Assign transparency to a specific color</td>
<td>x</td>
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<tr>
<td>Export and import palettes</td>
<td>x</td>
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<tr>
<td>Change color depth</td>
<td>x</td>
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</tbody>
</table>
1.9. What are Web Mapping Service (WMS) and Web Feature Service (WFS) feeds?
Open Geospatial Consortium (OGC)–compliant Web Map Services (WMS) and Web Feature Services (WFS) provide digital maps (WMS) and geographic features (WFS) across the web. Using FDO, AutoCAD Map 3D enables you to access these services via the Internet and add this web-based content to your designs and maps.

1.10. What is a spatial data file (SDF)?
The spatial data file is a portable geo-enabled open data format that provides constraint-based attribute creation and enables you to take full advantage of FDO-based capabilities in Autodesk Geospatial software. SDF is the native file format for FDO and leverages all of its strengths: open API, high performance, database-like table architecture, and large data set sizes. Increased storage capacity and faster performance compared to DWG technology make this easy-to-manage file-based data repository 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 an RDBMS in the future if the need arises. SDF enables you to organize and manage your data as real-world features and is ideal for storing medium to large (5 to 500 MB) data sets such as cadastral fabrics, building outlines, roads, and utility networks.

1.11. What are MapGuide Open Source, Autodesk MapGuide Enterprise, and Autodesk MapGuide Studio?
Autodesk MapGuide Enterprise offers the most flexible web mapping platform for distributing design and spatial information quickly, easily, and cost effectively via the web. MapGuide Open Source software shares a great deal of its code base with Autodesk MapGuide Enterprise, but since its release to the Open Source Geospatial Foundation (OSGeo) by Autodesk in late 2005, it has been further developed and extended by developers in the Open Source community.

MapGuide Open Source software, an application made available through OSGeo, provides a fast, easy, low-cost way to get started developing and deploying web-mapping applications. Users of MapGuide Open Source software benefit from the innovation, rapid release cycles, and large ecosystem of web-mapping applications driven by the Open Source geospatial development community.

Autodesk MapGuide Enterprise software leverages all the innovation benefits of MapGuide Open Source as the base software product, but is backed by commercial-grade support, services, and quality assurance from an established software vendor.

Autodesk MapGuide® Studio, the authoring environment designed for use with Autodesk MapGuide Enterprise and MapGuide Open Source, helps manage all aspects of preparing maps and geospatial data for distribution on the Internet. Upload data files, connect to databases, and stylize maps over the web. Both web designers and application developers can easily create rich Web 2.0–type mapping applications using a modular system of flexible layout templates and application widgets.

1.12. Why use Autodesk MapGuide Enterprise with AutoCAD Map 3D?
When used together, AutoCAD Map 3D and Autodesk MapGuide Enterprise enable organizations to use data from initial design to web deployment more effectively—without translation or data loss. The result—a powerful foundation for meeting core geospatial needs.

Work done in AutoCAD Map 3D is directly compatible with Autodesk MapGuide Enterprise because of shared common data access technology (FDO). When you build a map in AutoCAD Map 3D, you can access and use information stored in different formats (for example, ESRI ArcSDE and SHP, Oracle format) via direct FDO connectivity. Therefore the same map with the same stylization is instantly available online to web users when published to Autodesk MapGuide Enterprise. So regardless of whether the data consists of files from your desktop or from a database, Autodesk MapGuide Enterprise can quickly make the data available via the web.
You can also maximize the full value of information created in AutoCAD Map 3D by easily building custom applications with the flexible Autodesk MapGuide development platforms (PHP, Java®, and .NET) and powerful APIs. Users can work with your data in a streamlined manner, helping you get the most value from your work—inside and outside your organization.

By turning to AutoCAD Map 3D and Autodesk MapGuide Enterprise, organizations can

- Integrate spatial data for all geospatial, engineering, and online needs
- Streamline the process of creating, maintaining, and disseminating data
- Leverage CAD-trained staff to keep GIS data current
- Accelerate business processes with easy-to-use, real-time information
- Realize more value from all investments in GIS technology and data

For more information, including documentation and product details, see www.mapguide.com.

2. Product Users

2.1. Who uses AutoCAD Map 3D?

AutoCAD Map 3D software is intended for engineering and GIS professionals, mapping technicians, planners, and facilities/infrastructure designers and managers. It is intended for anyone who designs, creates, and maintains infrastructure; produces maps; and needs to use CAD and GIS data for design, planning, and management purposes. AutoCAD Map 3D integrates vector and raster data in a variety of design and GIS data formats.

The industries that can benefit most from AutoCAD Map 3D are utilities (electric, gas, water/wastewater), communications (telecommunications and cable), natural resources (for example, petroleum, mining, agriculture, environmental engineering and management, and water resources), and government agencies (for example, public works, land planning, and cadastral management). AutoCAD Map 3D is suitable for any application that requires creation and maintenance of infrastructure-related information in a precision graphical environment.

2.2. If I am using AutoCAD software, why should I upgrade to AutoCAD Map 3D?

AutoCAD Map 3D 2009 has the strengths of AutoCAD software but also gives you the power to efficiently manage design and geospatial data. AutoCAD Map 3D provides innovative engineering design and drafting tools that are familiar for the AutoCAD user.

- **Do you want to create a better infrastructure design process?**
  Use and incorporate design and GIS information such as road, cadastral, topographic, environmental, and image data in varying formats into your projects. Help ensure that the information you require can be used to improve data accuracy, support decision making, and better communicate design concepts.

- **Would you like to give designs real-world context?**
  AutoCAD Map 3D enables you to work with more than 4,000 real-world coordinate systems and tools such as transform, rubber-sheeting, and track coordinates to accurately georeference 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 that can be used by field personnel, other departments, and other geospatial software applications.

- **Would you like to create and deliver cleaner, more accurate designs and data?**
  Using Drawing Cleanup tools in AutoCAD Map 3D, you can automate the cleanup of common drafting and digitizing inaccuracies, reducing duplication and incorrect information.
duplicates, including text objects, correct undershoots or dangling objects, and minimize errors with less time and effort. Be sure that your design information is free of common errors, helping to maintain data integrity throughout the design, build, operate, and maintenance lifecycle.

- **Do you create maps in AutoCAD?**
  AutoCAD Map 3D software’s powerful mapping and stylization tools enable you to quickly stylize design and GIS information to highlight specific features using object properties and data attributes. Easily analyze and highlight information such as service areas, zoning districts, land usage, pipe and cable installation dates and diameters, and much more with cartographic capabilities such as thematic mapping, dynamic labeling, and transparency. With AutoCAD Map 3D you can produce more professional designs, maps, plans, proposals, and reports, enabling you to support decision making and effectively communicate your design intent.

- **Do you want to leverage CAD-trained workforce to manage geospatial data?**
  With AutoCAD Map 3D you can make the most of existing AutoCAD software expertise by using familiar, accurate, and precise CAD tools and a CAD-trained workforce to create and edit a broad variety of design and geospatial data without conversion.

- **Would you like to easily distribute maps and design data?**
  AutoCAD Map 3D helps you easily distribute geospatial and design data in a variety of ways to meet your organization’s needs. Quickly publish designs, plans, and maps to the Internet using Autodesk MapGuide Enterprise software, or distribute them as individual georeferenced DWF™ files, multisheet DWF map books, and paper plots. AutoCAD Map 3D helps you cost-effectively distribute the latest spatial information across and beyond your organization while save printing costs and valuable time.

2.3. **What is the Autodesk Geospatial value chain and how do I know at what stage my organization is?**

The Autodesk Geospatial value chain provides a useful model to help understand how organizations currently use geospatial technology, and provides a deliberate path for growing and extending capabilities over time. Autodesk Geospatial bridges CAD and GIS systems and extends the value of spatial information by using existing resources, reducing redundancy and error propagation, and increasing operational efficiency. From CAD design to enterprise solutions, Autodesk Geospatial solutions can be used in various configurations to integrate geospatial data with that of other departments, organizations, and applications.

**Stage 1**

At Stage 1, organizations use a CAD product such as AutoCAD and AutoCAD LT® software to design and manage their infrastructure data. These organizations have often migrated from paper-based, Mylar, or vellum files, and store their infrastructure data in CAD files—such as DWG drawings—in a file directory on a server. AutoCAD software is a world-leading design tool used to create the majority of the world’s infrastructure design data. However, AutoCAD does not support georeferencing (geographic location in the real world), multiuser editing, or GIS data formats. When an organization using AutoCAD needs to add location intelligence to its data, bring in GIS data from other sources, or enable multiple users to edit the same data, it has outgrown Stage 1 and may be ready for Stage 2 or Stage 3.

**Stage 2**

Autodesk Geospatial makes it easy for engineers and designers to manage and share mapping data—such as regional scale data sets, cadastral information, and utility network data, including pipelines, transformers, and valves. At Stage 2, an organization uses CAD files as its primary data source and an engineering solution such as AutoCAD Map 3D to collaborate and share this infrastructure information. With AutoCAD Map 3D software, multiple people can easily access CAD data and work across multiple drawing files. Because more than one person can work on a drawing simultaneously, AutoCAD Map 3D makes it easier to
share data or split the workload. In addition, teams can import and export data sets from many different CAD and GIS file formats—such as ESRI® Shapefiles, MapInfo® TAB files, MicroStation® DGN, and raster data from multiple coordinate systems—and combine it with DWG files and have the information overlay properly. Using AutoCAD Map 3D, project teams can use their AutoCAD skills and training while taking advantage of traditional GIS tools and functions. When an organization wants to extend its CAD information to more people and leverage additional GIS capabilities—to know, for example, where there are undeveloped parcels or how many manholes are on new roads—they are ready to move to Stage 3.

**Stage 3**

In Stage 3, an organization increases the value of its data by applying standards and organizing data. By structuring and cleaning up CAD and geospatial data, what is known as *classification*, an organization begins to define data as real-world features with standard allowable attributes. Classification helps to ensure data consistency for all users and increases the value and potential uses of that data. This is where CAD and GIS truly work together. By classifying data and leveraging FDO Data Access Technology—Autodesk Geospatial’s data access platform—organizations can enhance the performance of large data sets and use their CAD and geospatial data together to make business decisions; check inventories; or identify specific items, such as the number of cables, valves, or new roads they must maintain.

In Stage 3, organizations store feature data in a structured file format such as Autodesk spatial data file (SDF) or SHP. With SDF, organizations benefit from the power of a spatial database without the cost or management overhead. At Stage 3, organizations can easily extend the reach of their information by using a web mapping application such as Autodesk MapGuide Enterprise to deliver powerful, easy-to-use online maps and related information to audiences of all sizes.

**Stage 4**

To extend the use of their information, organizations move from Stage 3 to Stage 4. They move from a file-based environment using DWG, SHP, or SDF format to a spatial database environment using the full functionality of a relational database management system (RDBMS). With an RDBMS, hundreds or even thousands of people can create, edit, and manage the same data. With a full RDBMS, organizations get more scalability, as well as added security and the ability to create more sophisticated data models. Using FDO Data Access Technology, Autodesk Geospatial products work natively with spatial data stored in Oracle®, Microsoft SQL Server™, and MySQL®, as well as with ESRI’s ArcSDE middleware. As a result, organizations are able to fully use the security, scalability, sophisticated data models, and multiuser read/write power of an RDBMS. AutoCAD Map 3D provides tools that make data and schema migration from SDF or SHP files to a full-scale RDBMS easy. While the information in Stage 3 and Stage 4 may be the same, organizations in Stage 4 leverage the added power of an RDBMS to scale the availability and management of their geospatial information.

**Stage 5**

When an organization moves from Stage 4 to Stage 5, it shares spatial data with other departments and applications, making spatial data a central part of its IT ecosystem. In this stage, GIS data and functionality get woven into other business systems, integrating with assessor databases, permitting systems, enterprise resource planning (ERP) systems, and more. The spatial application server supplies geospatial intelligence and data to these other applications. Autodesk, resellers, partners, and system integrators build powerful solutions to meet the organization’s specific business goals and processes. Autodesk Topobase provides sophisticated solution modules that make it easy for organizations to establish and manage a Stage 5 deployment.

By moving up the geospatial value chain, organizations increasingly leverage their geospatial data for a variety of business functions. By making the transition from Stages 1 to 3, organizations gain the ability to organize data effectively, implement real-world coordinate systems, and work with larger data sets. Moving
from Stages 3 to 5 delivers increased scalability and security, ability to complete long transactions, and integration with other systems.

For more information about Autodesk Geospatial visit www.autodesk.com/geospatial.

3. Purchase Information

3.1. Where can I purchase AutoCAD Map 3D?
AutoCAD Map 3D 2009 is available worldwide. Contact your local Autodesk Authorized Reseller for more information. To locate one near you, visit www.autodesk.com/reseller.

3.2. Can I try AutoCAD Map 3D 2009 software before I buy it?
Yes, you can try it out by requesting the AutoCAD Map 3D 2009 software trial version. This fully functioning version of AutoCAD Map 3D 2009 is available as a free* 30-day trial. You can order the trial DVD from your Autodesk Authorized Reseller or online at www.autodesk.com/autocadmap3d-trial.

3.3. Can I crossgrade from AutoCAD?
Yes, you can crossgrade to AutoCAD Map 3D 2009 from AutoCAD software. If you are an engineering or GIS professional who needs to access and edit data in a variety of formats, AutoCAD Map 3D 2009 software is for you.

3.4. Do I have to purchase AutoCAD Map 3D with subscription?
No, you do not have to purchase AutoCAD Map 3D with subscription. However, only current subscription customers receive automatic product upgrades. There are several subscription pricing options, including single and multiyear contracts, to best meet your needs. Contact your reseller for more information about Autodesk® Subscription.

3.5. What are the benefits of Autodesk Subscription?
Get the benefits of increased productivity, predictable budgeting, and simplified license management with Autodesk Subscription. Customers get new upgrades of their Autodesk software and any incremental product enhancements, if these are released during the subscription term, by electronic download or physical shipment; incremental product enhancements via extensions; and exclusive license terms available only to subscription members. A range of community resources, including web support direct from Autodesk technical experts and self-paced training to extend user skills, make Autodesk Subscription the best way to optimize the Autodesk software investment.

To learn more, visit www.autodesk.com/subscription. AutoCAD Map 3D subscription is sold by Autodesk Authorized Resellers on behalf of Autodesk.

3.6. Where can I purchase data for my projects?
Autodesk has teamed up with leading geospatial data providers to offer geospatial data to users. To find a wide range of geospatial data, including aerial, vector, and weather, visit www.autodesk.com/geodata.

4. Compatibility and System Requirements

4.1. What are the system requirements for AutoCAD Map 3D 2009?

- Intel® Pentium® 4, 2.2 GHz or greater
- Windows® XP Professional (SP 2 or 3)
- Windows Vista® Business (or Windows Vista Business SP1)
- Windows Vista Ultimate (or Windows Vista Ultimate SP1)
- Windows Vista Enterprise (or Windows Vista Enterprise SP1)

www.autodesk.com/map3d

www.autodesk.com/reseller
- Systems using an NTFS configuration must have file locking and permissions enabled.
- AutoCAD Map 3D software does not support 64-bit operating systems.

- 1 GB RAM on Windows XP minimum. 2 GB RAM recommended
- 2 GB RAM on Windows Vista minimum. 2 GB RAM or greater recommended
- 2 GB free disk space for installation
- 1024x768 VGA with true color
- Microsoft® Internet Explorer® 6.0 (SP1 or higher)
- DVD drive

Optional Software
- Oracle® Spatial
- Oracle9i Spatial (OSE)
- Oracle9i Spatial, version 2 (OSE)
- Oracle10gR2 Express, Standard, or Enterprise Edition (FDO Data Access Technology)
- Oracle11g (FDO Data Access Technology)
- ESRI ArcSDE Server 9.2 and 9.1 with Oracle9i R2 (9.2.0.3), Oracle 10gR2, or Microsoft SQL Server 2005 (SP2) and 2000 (SP4) (FDO Data Access Technology)
- Microsoft SQL Server 2000 SP4 and Microsoft SQL Server 2005 Express, Standard and Enterprise Editions (FDO Data Access Technology)
- MySQL 5.0.27 (FDO Data Access Technology)
- Citrix XenApp™ 4.5

4.2. Does AutoCAD Map 3D 2009 software support the Windows Vista operating system?
AutoCAD Map 3D 2009 software supports Windows Vista Home Basic, Home Premium, Ultimate, Business, and Enterprise operating systems. In addition, AutoCAD Map 3D 2009 takes advantage of some new Windows Vista capabilities, specifically Windows Vista thumbnail previews for DWG and DWF files in the Microsoft Internet Explorer browser, display of AutoCAD properties in the detail tab of Internet Explorer, and ability to use the Windows Vista search tools using text strings found in drawing properties, text, mtext, and so forth, in the DWG file.

4.3. Is a native 64-bit version of AutoCAD Map 3D 2009 software available?
No. Support for 64-bit operating systems is not currently available for AutoCAD Map 3D 2009.

4.4. Is AutoCAD 2009 included with AutoCAD Map 3D 2009?
Yes. AutoCAD Map 3D 2009 is built on AutoCAD 2009 software and is enhanced with a suite of data creation, editing, and mapping tools. It contains all the features and functionality of AutoCAD 2009, which is automatically installed when you install AutoCAD Map 3D 2009.

4.5. Does AutoCAD Map 3D 2009 work with AutoCAD 2009?
Yes. Because AutoCAD Map 3D 2009 has the same file format as AutoCAD 2009, AutoCAD Map 3D 2009 can read AutoCAD 2009 files. In addition, any maps created in AutoCAD Map 3D 2009 can easily be shared with AutoCAD 2009 by saving the AutoCAD Map 3D file as a DWG file using the mapexportcurrentmaptodwg command.

The AutoCAD 2009 software DWG file format is the same DWG file format as in AutoCAD 2007 and 2008. The AutoCAD 2007 file format was updated and is different from the DWG format of AutoCAD 2004, 2005, and 2006. The AutoCAD 2009 DWG file format is also the same DWG format used in the latest releases of Autodesk’s industry-specific products such as AutoCAD® Architecture, AutoCAD Map 3D, AutoCAD Civil 3D, AutoCAD® Electrical, and AutoCAD® Mechanical software applications. Nonetheless, you can still easily
share files between design teams using any previous version of AutoCAD software. As in the past, this new AutoCAD version opens DWG files created by any Autodesk product in all earlier DWG versions.

4.7. Does AutoCAD Map 3D 2009 read and save drawings created by earlier releases of AutoCAD Map 3D?
Yes. AutoCAD Map 3D 2009 reads drawing files from all previous versions of AutoCAD Map 3D and AutoCAD software. AutoCAD Map 3D 2009 has a built-in SaveAs function so you can save drawings to and from AutoCAD releases using the 14, 2000, and 2004 DWG formats. In addition, you can use the SaveAs AutoCAD Release 12 DXF™ command to support releases prior to AutoCAD Release 14.

4.8. Can I run AutoCAD Map 3D 2009 side by side with other AutoCAD platform–based applications?
Yes, AutoCAD Map 3D 2009 can be installed side by side with any other AutoCAD or Autodesk industry-specific solution, including AutoCAD 2009–based products. These products include AutoCAD, AutoCAD Architecture, AutoCAD Civil 3D, AutoCAD Electrical, AutoCAD Mechanical, Autodesk® Inventor™ product families, AutoCAD® Revit® Suite products, Revit® Structure, AutoCAD® MEP, Autodesk® 3ds Max®, Autodesk Topobase, Autodesk® Utility Design, Autodesk® VIZ, and AutoCAD LT software applications.

4.9. Does AutoCAD Map 2009 support multiple CPU systems?
Yes, AutoCAD Map 3D 2009 supports multiple CPU systems. The performance of AutoCAD graphics and rendering systems will benefit from multiple CPU systems.

4.10. Does AutoCAD Map 2009 include Autodesk Design Review?
Yes. Autodesk® Design Review is an optional component that can be selected during the installation process.

4.11. Does AutoCAD Map 3D 2009 software work with Autodesk Vault technology?
No. AutoCAD Map 3D 2009 does not support the Autodesk® Vault application.

4.12. Does AutoCAD Map 3D 2009 include Autodesk Impression?
No. AutoCAD Map 3D 2009 does not include Autodesk® Impression software in the box, but Autodesk Impression 2 software can be downloaded from the Autodesk Subscription Center by AutoCAD, AutoCAD Architecture, AutoCAD Civil 3D, AutoCAD Map 3D, and AutoCAD MEP software products’ subscription customers.

4.13. Can AutoCAD Map 3D 2009 be deployed on Citrix technology?
Yes. AutoCAD Map 3D 2009 software completed validation testing with Citrix XenApp software through the Citrix Ready™ program. The Citrix Ready designation identifies products that are compatible with a Citrix application delivery environment, simplifying the selection process for Citrix customers.

4.14. What are the benefits of deploying AutoCAD Map 3D on Citrix XenApp?
According to Citrix, deploying AutoCAD Map 3D 2009 software on Citrix XenApp software facilitates IT centralization efforts that can reduce costs through server consolidation and single-point management. Citrix XenApp software improves IT efficiency by reducing or eliminating the need to touch each user desktop. Session shadowing over the network provides remote troubleshooting. Upgrades and patches are centrally installed and rolled out to users quickly and painlessly. And organizations no longer must pay to staff each branch with administrators trained on AutoCAD Map 3D software, or send headquarters staff to remote locations on a regular basis. For more information visit www.autodesk.com/citrix.

4.15. Will AutoCAD Map 3D work with the upcoming release of Microsoft SQL Server 2008?
Through the use of open source software, data access capabilities of applications that use FDO Data Access Technology can be extended. AutoCAD Map 3D 2009 software can take advantage of open source FDO Providers. To download an open source FDO Provider that works with Microsoft SQL Server 2008, visit the FDO open source project at http://fdo.osgeo.org. For details on using third-party and open source FDO providers in AutoCAD Map 3D, download the white paper “FDO Data Access Technology—New FDO Providers” at www.autodesk.com/map3d-whitepapers.
5. Licensing

5.1. Does AutoCAD Map 3D 2009 software use product activation for stand-alone licenses?
Yes, with AutoCAD Map 3D 2009 software the authorization process includes product activation.

5.2. What is product activation?
Product activation is a software-based license management technology incorporated into many Autodesk products. It is a secure and trouble-free process that authenticates licensed users running Autodesk software. The process verifies that the serial number is legitimate and has not been activated on more computers than are eligible. It does not affect the ability of licensed users to operate their software the way they have always done. It is similar to the authorization mechanism in Autodesk products in the past but provides additional capabilities for security and special product versions, such as student and trial versions.

5.3. Why is Autodesk requiring Autodesk customers to activate their software?
Product activation is a simple way to reduce and deter unauthorized use and casual copying of Autodesk products, with little to no impact on customers.

5.4. Which Autodesk products use this activation technology?
Almost all Autodesk products use or will use this technology, with the exception of Autodesk Design Review, AutoSketch®, Autodesk MapGuide Studio, and Autodesk Media & Entertainment software products.

5.5. How do I activate my software?
Through the activation and registration interface, you can activate your product 24 hours a day, seven days a week over the Internet or by email. Either option takes only a few steps to complete and requires your product serial number and registration information.

5.6. What if I have more than one computer? Will product activation let me use the software on multiple machines?
Autodesk recognizes that some users may need to operate the software when they are away from their usual work location. To accommodate this need, the product activation technology and the AutoCAD End-User License Agreement allow an employee to install the software on a second computer owned by the employee’s company, provided it is for use away from the employee’s usual work location, the two copies are only used by that employee and no other, and only one copy of the software is ever in use at any one time.

5.7. Where can I find more information about software activation?
More information about product activation can be found at www.autodesk.com/activation.

5.8. Where can I find more information about Citrix licensing?
More information about Citrix licensing can be found at www.autodesk.com/citrix.

6. Consulting, Training, and Support

6.1. What consulting services are available for AutoCAD Map 3D 2009?
Autodesk Consulting provides customer consulting offerings for project assessments, process audits, opportunity assessments, networking setup, application porting, and other custom services to help you streamline business processes and get the best possible return on your investment in Autodesk technology. AutoCAD and AutoCAD Map 3D users planning to migrate to AutoCAD Map 3D 2009 can take advantage of these services. For more information about Autodesk Consulting, contact your Autodesk Account Executive or your local Autodesk Authorized Reseller; or visit www.autodesk.com/consulting.
6.2. Where do I find training courses for AutoCAD Map 3D 2009?

Training courses are available from both Autodesk Consulting as well as through the Autodesk Authorized Training Center (ATC®) network.

Training courses through Autodesk Consulting include custom training to match your organization’s specific needs, Autodesk Classroom Training and AutoCAD certification. To obtain more information about Autodesk’s training services, visit www.autodesk.com/map3d-training.

You can also enroll in instructor-led training at Autodesk Authorized Training Centers around the world. These training centers use Autodesk Official Training Courseware (AOTC) created by Autodesk to deliver comprehensive courses for new and intermediate AutoCAD Map 3D 2009 users. Autodesk Authorized Training Centers also deliver custom courses on AutoCAD 2009 and other Autodesk products. To learn more, visit www.autodesk.com/atc.

6.3. How can I find technical support information for AutoCAD Map 3D 2009?

Visit www.autodesk.com/map3d-hotissues to find a knowledge base of commonly asked support questions. Also, you can ask questions and read information about the use of Autodesk products in the peer-to-peer discussion groups at www.autodesk.com/discussion. Autodesk hosts topical discussion groups about specific products, including AutoCAD Map 3D 2009, and about general topics, such as drafting techniques and customization. Alternatively, Autodesk software manuals and documentation are a great source of answers to your support questions. Easy searching of documentation from within AutoCAD Map 3D can be accomplished via the InfoCenter.

6.4. How do I obtain direct technical support?

Direct technical support is available from both Autodesk and Autodesk Authorized Resellers.

In addition, Autodesk Subscription provides a complete software, support, and training package that simplifies your technology upgrades and boosts your productivity. Purchase of Autodesk Subscription includes web support from Autodesk technical experts for all your installation, configuration, and troubleshooting questions. Web support via subscription provides fast, complete answers to technical questions to help you get more from your investment in Autodesk software. Interactive contact with Autodesk product experts right at the desktop helps improve productivity and avoid expensive downtime.

To learn more about Autodesk Subscription, contact your Autodesk Account Executive or your Autodesk Authorized Reseller, or visit www.autodesk.com/subscription.

The Autodesk Enterprise Support program is a worldwide program that provides expert technical support by telephone for all major Autodesk products from a single source. Contact your Autodesk Account Executive or Autodesk Authorized Reseller for more details. Autodesk Preferred Solution Providers (PSPs) and Autodesk Authorized Resellers also provide telephone support services for AutoCAD Map 3D software and all other Autodesk products. In the United States and Canada, call 800-964-6432 to locate a PSP or reseller near you, or visit www.autodesk.com/reseller.

6.5. How do I find out if a service pack is available for AutoCAD Map 3D 2009?

If Autodesk releases a service pack for AutoCAD Map 3D 2009, it will be easy to access and install it using the Communication Center in AutoCAD Map 3D 2009. Look at the top of the Communication Center window to see if an update is available. AutoCAD Map 3D 2009 automatically recognizes if you have the most up-to-date release and prompts you if there is an update available. When you click the link, AutoCAD Map 3D 2009 automatically downloads and installs the update. In addition, updates are available on the AutoCAD Map 3D website www.autodesk.com/map-downloads.

7. For Developers
7.1. Does AutoCAD Map 3D have an open architecture for add-on products?
Yes. AutoCAD Map 3D is the development platform of choice for AutoCAD-based mapping and GIS applications. With an extensive API, AutoCAD Map 3D enables third-party developers to build top-quality, add-on application products. Many Autodesk-registered third-party application developers are shipping industry-specific applications that run on top of the AutoCAD Map 3D platform.

7.2. Where can I see examples of third-party add-ons for AutoCAD Map 3D?
Autodesk has many partners, ranging from Autodesk Developer Network members to Independent Software Vendors and Resellers, who build packaged add-ons for Autodesk products. Third-party software may be found to fit a wide variety of technical and information domains. BOSS International, for example, creates AutoCAD Map 3D-based software for hydrology modeling in municipal and utility engineering shops. Other partners sell data or services to complement the Autodesk-based geospatial data lifecycle.

Third-party partner products and services may be found through the Autodesk.com website. A searchable index is provided for locating partners by key words or you may choose to browse through the list of partners to find a solution that might fit your needs.

The partner catalog may be found at http://partnerproducts.autodesk.com/catalog/default.asp.

7.3. What Autodesk geospatial products can be customized by third-party developers?
Any of the products from the Autodesk geospatial product line may be customized by third-party developers for in house projects or to build commercial add-on products. More information about customizing each of the Autodesk geospatial products may be found on www.autodesk.com and in the product literature for each individual product.

7.4. Is AutoCAD Map 3D customizable?
Yes, AutoCAD Map 3D is highly customizable. APIs include AutoLISP®, Microsoft® Visual Basic®, ADSRX, C++ (ObjectARX®), ActiveX®, and .NET.

7.5. What are the advantages of the .NET API in AutoCAD Map 3D?
With .NET API, you can create applications using the language you are familiar with (for example, C#, C++). .NET is easy to learn and use. In addition, .NET minimizes difficulties found in other programming languages, such as memory allocation/deallocation problems in C++, reference counting in COM/ActiveX, and performance and limited user interface issues in VBA.

Refer to Microsoft .NET documentation for more advantages of using .NET.

7.6. What is the Geospatial Platform API that has been released with AutoCAD Map 3D 2009?
The Geospatial Platform API is a .NET API that shares common components between AutoCAD Map 3D 2009 and Autodesk MapGuide Enterprise 2009 technology. With the Geospatial API you can

- Directly access data from various data sources using FDO
- Program against FDO-accessed features without worrying about AcDb constraints
- Use a highly scalable architecture to work with FDO accessed features
- Use the Display Manager API to create stylized views of feature data encapsulated in AutoCAD entities
- Use the FDO integration API to control how multiple data sources are aggregated, including controlling what kind of entity is created from that data
- Add data access and functionality enhancements through the open source developer community
- Use the FDO integration API to control how multiple data sources are aggregated
- Use AutoCAD/Map/Geospatial Platform API to convert existing feature data encapsulated in AutoCAD entities to FDO
- Leverage AutoCAD selection API in tandem to provide powerful interactive feature selection
- Build custom applications that share business logic and common code between AutoCAD Map 3D 2009, Autodesk MapGuide Enterprise 2009, and MapGuide Open Source

7.7. What benefits does ObjectARX bring to AutoCAD Map 3D?
Because the product contains the AutoCAD ObjectARX API, AutoCAD Map 3D software also supports most custom ObjectARX objects built by third-party developers. In addition, with ObjectARX technology you can
- Use the MapBooks API to programmatically create tiles and sheets, and then print or plot them or publish them to DWF files.
- Create topologies that are custom ObjectARX objects. Users can then group, edit, and analyze multiple graphic entities that comprise a topology as a single entity (such as lines, polylines, and arcs in a network topology).
- Build cleanup and editing functions. This capability allows direct access to the database (as opposed to working through an API), resulting in faster operations.

Read and query multiple drawing databases (DWG files) and manipulate objects and data in those drawings. For example, query into a work session the objects that represent a fiber-optic cable spanning multiple map sheets (source drawings). Then edit a portion of the entire cable, and save the edits back to the original source drawings.

7.8. What options are there for me to become an Autodesk developer business partner?
Autodesk offers a range of partner programs tailored to the technology and business needs of different kinds of third-party companies. The Autodesk Developer Network provides API-level support and introductory marketing support for developers who either need technical help with in-house projects or have a small product idea and would like to prove it out. The Independent Software Vendor program offers expanded sales and marketing support for companies exploring a business model based around Autodesk add-on product development, Autodesk-based geospatial consulting services, or who are selling complementary data or services in a heavily Autodesk-centric client environment. Visit the Autodesk Developer Network (ADN) website at www.autodesk.com/adn for more information.

Follow the links on the website for more information about how to become an official Autodesk partner.

7.9. What support is available for developers?
The Autodesk Developer Network (ADN) is a worldwide business and technical network of independent companies, organizations, and individuals, which serves over 3 million users. Developers who are part of the Autodesk Developer Network are eligible for technical and marketing support. Visit the ADN website at www.autodesk.com/adn for more information.

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