Autodesk®
Topobase™

Questions and Answers

1. Overview

1.1 What is Autodesk Topobase?

Autodesk® Topobase™ infrastructure model management software provides accurate information about the location and status of your assets throughout your organization. Built on AutoCAD® Map 3D and Autodesk MapGuide® software, Topobase helps you see the big picture, reduce backlogs, and improve efficiency by providing precise and up-to-date as-built information to engineering, GIS, and field operations teams. The open, flexible Topobase software can easily be configured to support your specific processes and integrated with existing GIS, asset management, and business systems. Industry-specific workflows build intelligence into your infrastructure management processes and enable rapid implementation for quick returns on your investment.

1.2 What key business problems does Topobase address?

Topobase breaks down silos that prevent accurate infrastructure as-built information from being available throughout your organization. Engineering needs GIS data and vice versa, but these teams often work with different technologies. This means that data must go through a time-consuming and error-prone conversion process, which often reduces precision and accuracy. It is also difficult to create consolidated reports and share information beyond people with CAD and GIS technical expertise. Topobase enables users to leverage design data to create an intelligent infrastructure model, with business rules and industry data models to ensure data integrity.

1.3 What are the key benefits of Topobase?

Topobase helps you:

- **See the big picture and make better decisions** by integrating CAD and GIS information into a comprehensive infrastructure model for a more complete view of your assets.
- **Improve efficiency and data quality** by using Autodesk design information throughout the infrastructure asset lifecycle without data conversion, minimizing the manual input and conversion processes that reduce accuracy.
- **Provide secure access to CAD, GIS, and asset information** to departments that may not have had access before, such as field operations, customer service, and finance.

1.4 Are there any examples of Topobase customer ROI (return on investment) benefits?

Yes. A study by market research firm IDC showed that an investment in Autodesk Topobase generates a 518% ROI over three years. Overall, benefits from efficiency gains and cost savings averaged more than $2.9 million annually per 100 users.

In another study, CH2M HILL found that Topobase enabled Las Vegas Valley Water District to complete projects 20 percent faster, save $250,000 annually by eliminating GIS data corrections, and save $210,000 annually from simplified CAD/GIS integration processes. Both of these studies are available at www.autodesk.com/topobase.

1.5 What components make up Topobase software?

Topobase software includes the following core components:

- **Topobase Client.** Built on AutoCAD Map 3D, this is the CAD/GIS desktop client for data creation, editing, reporting, and analysis.
- **Topobase Web.** Built on Autodesk MapGuide® Enterprise software, this is the lightweight web-based interface to access the Topobase database.

Topobase also includes **industry-specific modules** for managing electric, gas, water, wastewater, and land assets, and an **Administrator** application that enables you to easily customize data models, business rules, and dialog boxes.

2. Topobase Users

2.1 How many current Topobase users are there?

More than 500 companies throughout Europe, North America, and Australia have implemented Autodesk Topobase.

2.2 What types of firms have purchased Topobase?

Topobase is typically purchased by utilities, municipal governments, and engineering firms that manage electricity, gas, water, sewer, and land infrastructure assets. Topobase is also being used by telecommunications firms, industrial plants, and in facility management implementations.

2.3 Who uses Topobase within these firms?

Many people and departments within an organization can benefit from Topobase:

- **Executives:** Topobase enables executives to see the big picture and make better decisions by integrating CAD, map, asset, GIS, and customer information for a more complete view of the location and status of their assets. Industry-specific modules mean that organizations can implement Topobase quickly, accelerating their ROI. Executives can feel confident, knowing they have a flexible solution that makes use of industry-leading technology.
- **Engineering:** With Topobase, engineering professionals can use familiar Autodesk tools to access accurate maps and other spatial information without having to go through the GIS department. Working with the same tools and data as other departments enables engineering teams to get final as-built information for completed projects more quickly, without time-consuming data conversion or paper-based processes that reduce accuracy.
- **Maintenance/Operations:** Topobase enables field staff to respond to maintenance requests and outages more effectively because they have access to more detailed, accurate information about the infrastructure related to the work site.
- **GIS:** Topobase can work with ESRI® solutions, helping to reduce the time spent converting data and responding to requests for GIS information from engineering and other departments.
- **Finance:** Topobase makes it easier to comply with government reporting requirements by providing access to accurate, up-to-date information about infrastructure assets in a standard relational database.

- **Information Technology:** Topobase is an open framework that provides organizations with maximum flexibility to create a solution that meets their specific needs, including interfaces to existing business systems. By storing design and GIS data in a spatial database, technical support and standard backup processes are easily implemented, resulting in more dependable data and less redundancy.

2.4 Are there any reference accounts?

Yes, success stories are available for several Topobase customers at www.autodesk.com/topobase.

3. Topobase Features

3.1 What are the industry-specific Topobase modules?

Engineers, planners, and analysts have detailed requirements unique to their specialties, depending on which type of infrastructure system they are designing, analyzing, or maintaining. Topobase offers standard application modules for managing different types of utility networks and land assets. Each module includes the following:

- A detailed **data model** that can be configured to capture the information you need.
- **Business rules and workflows** that provide security and consistency as people in separate departments work with and update the database.
- Multiple **display models and user interfaces** that enable each type of user of the system to view information with the scale, symbols, and formatting most relevant to them.

3.2 What is the Topobase "topology" functionality and how is it useful?

Topobase automatically maintains relationships between parcels or other areas (area topology) and infrastructure features such as pipes and valves (logical network topology). Topobase topology capability can help you solve business problems in many ways. For example, by keeping track of which water pipes and valves are connected to each other in a water network, you can run a trace to determine which houses are affected if a particular valve is shut off.

3.3 What is the Topobase "long-term transaction" functionality?

Long-term transactions, also known as *jobs* or *versioning,* enable you to select an area of your infrastructure that is being built or modified, keep the modifications separate from the base information, and have an approval process for completed jobs. You can even set up two jobs for the same project, to help evaluate design and cost alternatives. Once completed, all jobs are kept in a history status and can be rolled back so you can see the infrastructure at any point in time. The long-term transaction functionality is also useful for managing spatial information in multiuser environments.

3.4 Can Topobase help with regulatory compliance reporting?

Yes. Since Topobase stores CAD, GIS and asset information in a relational database, you can use Topobase with standard data reporting tools to produce compliance reports that reflect the latest information about your infrastructure. You can view reports for your entire network or for subsets such as infrastructure created in a specific job, location, or time frame.

4. Complementary Software

4.1 Does Topobase work with Autodesk Utility Design?

Yes. Designers, estimators, and planners typically use Autodesk® Utility Design software to create utility network designs, and in doing so, refer to the as-built conditions during the project. The as-built information would typically be maintained in Topobase and can be available for use within Autodesk Utility Design. This enables designers to base their designs on up-to-date information in the centralized Topobase infrastructure model.

After a project is complete, you can merge your Autodesk Utility Design data into Topobase and maintain it there throughout the lifecycle of the network asset information, including the approval and ongoing construction phases. This makes accurate as-designed and as-built information available to the rest of the organization.

4.2 Does Topobase work with AutoCAD Civil 3D?

Yes. AutoCAD® Civil 3D® is comprehensive surveying, design, analysis, and documentation software used by civil engineers for land development, transportation, and environmental projects. You can extract as-built information from Topobase for use within AutoCAD Civil 3D, and you can merge and maintain design data created using AutoCAD Civil 3D with Topobase.

4.3 Can Autodesk MapGuide Enterprise be used to access Topobase data?

Yes. Since Topobase stores information directly in Oracle®, you can use Autodesk MapGuide Enterprise to access that information. This approach can be appropriate if you want to provide “view only” access to Topobase data over the web. However, if you also want to edit Topobase data, then Topobase Web may be a better solution, as it is built to support Topobase data, workflows, and business rules, and you won’t have to build an application in Autodesk MapGuide Enterprise.

4.4 Can Topobase be integrated with outage or asset management systems?

Yes. This is a great way to provide the most up-to-date and precise information to your outage or asset management systems.There are several examples around the world of Topobase working with Oracle, SAP®, Hanson, Milsoft, and other applications.

4.5 Can Topobase work with ESRI solutions?

Yes. Although Autodesk Topobase is a complete GIS environment, all the components work with ESRI and other legacy GIS systems—even systems that use proprietary data formats. For example, Topobase stores data in a standard Oracle database that ESRI analysis applications can access. This is just one of the ways Autodesk Topobase helps you get the most out of your investments in existing geospatial systems, trained personnel, and data.

4.6 What are advantages of Topobase over legacy GIS solutions?

Topobase enables organizations to use Autodesk design information throughout the infrastructure asset lifecycle without data conversion. This provides significant efficiency and data quality advantages that other solutions cannot provide. Also, the open Topobase framework makes it possible for organizations to gradually implement Topobase alongside their existing GIS solutions, using Topobase to improve efficiency of managing design and as-built information while maintaining productivity with their GIS people and processes.

5. Implementation Services

5.1 What services are typically included with a Topobase implementation?

Autodesk Consulting or partner services are often part of a successful Topobase implementation. Typical services include:

- **Data migration**, to get information from paper, DWG files, or other formats into the Topobase data structure in Oracle.
- **Configuration**, such as tailoring the fields in the database, creating business rules, and creating or modifying representation models.
- **Custom modules**, to manage infrastructure that is not included in one of the standard industry-specific modules, such as railways, or green areas.
- **Implementation of local standards**, such as building reports required by the government.
- **Interfaces with existing systems**, such as legacy GIS, ERP, outage management, asset management, or customer information systems.
- **End-user training** to ensure optimal use of the software

5.2 Who provides Topobase implementation services?

You have the option to purchase Topobase services from Autodesk Consulting or an Authorized Autodesk partner. More information about Topobase services is available at www.autodesk.com/consulting.

6. Technical Information

6.1 What software does Topobase require to run?

Topobase requires Oracle database software (which must be obtained separately) and also installs the .NET framework since the Topobase framework is built on .NET. AutoCAD Map 3D and Autodesk MapGuide Enterprise are bundled within Topobase and do not need to be purchased separately.

6.2 What versions of Oracle does Topobase work with?

Topobase works with Oracle 10g or 11g. There are several options, which offer varying degrees of functionality:

- **Oracle Personal, Standard Edition 1, and Standard Edition.** Users will have access to all Topobase capabilities except for jobs and advanced Oracle Spatial functionality.
- **Oracle Enterprise Edition.** Users will have access to the full range of Topobase capabilities including jobs. Extended spatial capabilities derived from Oracle Spatial will not be available.
- **Oracle Enterprise Edition with Oracle Spatial.** Users will have access to the full range of Topobase capabilities and will be able to extend Topobase to include advanced spatial analysis and functions such as 3D geometry support.