

CoGIS

About platform in brief

CoGIS is a powerful infrastructure digital platform for collection, analysis, publishing, and cooperative work with spatial geodata.

CoGIS allows publishing spatial data as map services, creating interactive maps and map applications based on these services, extending maps functionality with geoprocessing and data analysis tools, and publishing these maps and apps in Internet as Catalog with specific access permissions. CoGIS users can work with published maps and apps both in web and on mobile devices, including work in the offline mode.

Platform key features

- No programming skills are required to create fully functional web map applications;
- All the mobile apps tools and features work without Internet access;
- A system of reports generation and statistics calculation is included to platform components by default;
- A flexible setting of access permissions at the data, tools, and applications levels allows organizing cooperative work of users with different access permissions;
- Availability of ready-to-use tools for spatial data processing and analysis;
- Authorization via social networks in addition to standard authorization options;
- Sever, web and mobile CoGIS components allow solving any tasks related to work with geodata, and separate CoGIS components can be integrated to the existent IT architecture if needed;
- Support for Linux and Windows Server operating systems;

Advanced platform features in regards to functionality, used data, services and flexible settings based on solved tasks allow to use CoGIS as a corporate GIS platform of the enterprise, to create a regional GIS platform or GIS for local government bodies, to use it as a platform for collection, exchange and publishing data of educational, scientific, and volunteer institutions, or to create a geoinformation system of an application-level federal system based on CoGIS. The listed above CoGIS use cases are not fixed and can be extended in accordance with the project's or organization's needs.

Platform components

CoGIS platform consists of the following software components:

- **CoGIS Designer** – a constructor for creation of interactive maps and fully functional web map applications based on map services, geoprocessing and analysis tools;
- **CoGIS SOE** (SOE, an abbreviation for Server Object Extension) – a module providing support for advanced methods to work with the map services layers and objects;
- **CoGIS Portal** – a geoportal consisting of catalog of published interactive maps and map apps, tools for searching and navigation, and web pages with reference information which structure and content are set in accordance with the users' needs;

- **CoGIS Mobile** – mobile applications for work with interactive maps and map apps on iOS and Android devices and mobile service for operation of these applications;
- **eLiteGIS** – a GIS server for publishing data and tools as web services.

Integration options

CoGIS allows working with geodata at the following independent levels:

- **Data level**
CoGIS can use MS SQL Server or PostgreSQL databases with PostGIS extender and also files with vector (Shapefile, GeoPackage) and raster (GeoTIFF, CMF2) data as data sources. For work with database CoGIS does not require use of any middleware (such as ArcSDE) and creation of additional data structures.
- **Map projects level**
CoGIS allows publishing map services based on map project files in QGS format that are created in the Open Source Geographic Information System QGIS. The publishing is seamless, the user just needs to drag the project file to the web console **eLiteGIS Server Manager** and the map service will be published automatically. CoGIS supports various settings that are specified at the QGS project's level, including additional variables at the layer's or project's level for fine-tuning of the data representation.
- **Services level**
CoGIS includes its own GIS server eLiteGIS provided for publishing services and organizing web access to them via REST API. Management of services is done via web console eLiteGIS Server Manager providing graphic interface for publishing GIS services and setting GIS server. CoGIS allows publishing tile and dynamic map services, geocoding, geoprocessing, printing, network analysis, and geometry services. All services published using eLiteGIS are accessed via REST API and can be used both in map applications created in CoGIS and in other external applications.
- **Map applications level**
Constructor CoGIS Designer allows creating web map applications and publishing them as catalog on geoportal CoGIS Portal. Web map applications created in CoGIS can be both simple geodata viewers and automated workstations with wide range of tools. For example, the tools for generating reports, dashboards with statistics, geoprocessing tools, widgets based on JavaScript plugins that can call any external tool or service, as well as widgets with HTML code to show reference information can be added to the map applications.

The work with open source formats and data transmission protocols is supported at each level, which allows using only part of the platform components and deploying GIS to the existing IT architecture if needed.

Besides, CoGIS platform can be integrated with any accounting, monitoring and other related systems used in the information environment of the company. Interaction can be implemented by direct network connection via HTTP/HTTPS protocols, via RESTful services or by connection to databases and file systems by means of operating systems based on which the CoGIS components are run.

Development technologies

Development technologies of CoGIS maintain high reliability and performance of the output solutions, apply no usage restrictions and are cross-platform. For example, the core of CoGIS GIS server is written in C++ 14, and the upper level CoGIS logic – in .NET Core (C#), ASP.NET Core Web Application and HTML/JavaScript. CoGIS mobile applications are developed using native development stacks such as Kotlin and Java for Android, Swift and Objective-C for iOS platform.

More info

If you need to learn more about CoGIS functionality, visit <https://cogis.dataeast.com/> or contact us at support@dataeast.com.