LUCIAD

GEOSPATIAL SOFTWARE COMPONENTS
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WHO WE ARE

WORLD EXPERTS IN GEOSPATIAL SOFTWARE COMPONENTS FOR REAL-TIME SITUATIONAL AWARENESS

At Luciad we are passionate about geospatial software. Our innovative, principled approach and dedication to total customer satisfaction have earned us a reputation for cutting-edge excellence worldwide.

Luciad’s real-time situational awareness geospatial software products are known for their flexibility, high performance and accuracy. Luciad software plays an invaluable role in safety-critical industries such as aviation, defense, maritime, public safety & homeland security and utilities & logistics.

Users from these industries share a need for robust, secure, highly reliable, easy-to-use geospatial systems.

At the same time each industry has very specific and highly individual domain needs.

LUCIAD’S EDGE

Luciad’s unique approach is to offer software components, that function as modular building blocks.

This way, geospatial users can have the best of both worlds: a system tailored to their specific needs, created with standardized, high-quality off-the-shelf software, with a worldwide customer base.

Luciad has designed its software components for the creation of applications that tackle a range of tasks and situations: from top-line strategy to tactical detail, from operational planning to debriefing and from large cloud projects to handheld standalone applications. With Luciad you can connect directly and on-the-fly to more data sources than with any other product.

The software allows you to analyze and visualize past and current situations, and also to predict what will happen next – allowing you to act quickly and safely. “Connect, visualize, analyze, act” is both our method and our motto.

Today Luciad technology is used and valued by hundreds of thousands of users on all continents.
LUCIAD IN ACTION

Luciad software components are used to develop successful situational awareness applications in a range of industries, including:

**AVIATION**
- Aeronautical Data Quality and Data Validation
- Flight Planning and Tracking
- Central Flow Management
- Air Command & Control
- System-Wide Information Management
- Electronic Flight Bags and En-Route systems

**DEFENSE**
- Cartographic Production, Management and Distribution
- Battle Management Systems
- Future Soldier and Special Forces solutions
- Defense Logistics Systems
- Strategic C2 and Border Protection Systems
- Mission Planning and Simulation Systems

**MARITIME**
- Vessel Traffic and Coastguard Systems
- Onboard systems

**PUBLIC SAFETY & HOMELAND SECURITY**
- Situational Awareness for dispatch centers and mobile units
- Intelligence & Human Geography
- Civil protection and CBRN planning systems
- Civil-Military interoperability

**UTILITIES & LOGISTICS**
- Network and infrastructure management and protection
- Asset Track and Trace systems
- Internet of Things, Connected Cars
- Predictive Analytics

Generally Luciad creates value for any industry characterized by a requirement to connect, visualize and analyze big data in a geospatial context.
LuciadLightspeed is widely recognized as the leading set of high-performance geospatial software components. Major international companies and organizations, Systems Integrators and Original Equipment Manufacturers use LuciadLightspeed to rapidly develop geospatial situational awareness applications for mission-critical operations.

LuciadLightspeed consists of over 100 different software components and connectors to fuse, visualize and analyze geospatial data. This can include static and moving data, maps, satellite, multispectral and LIDAR imagery, crowd-sourced data, full motion video, weather data and terrain elevation in many different geodetic references and map projections.

Geo-fencing, line-of-sight calculations, geo-triggered events, dynamic and complex route calculations and automated anomaly detections are just a mouse click away. Independent academic and industry benchmark tests leave no doubt: LuciadLightspeed is over 100 times faster and more accurate than traditional GIS software.

Thanks to its modular, open architecture and meticulous adherence to industry standards, LuciadLightspeed is the preferred technology for enterprise-wide geospatial situational awareness, either as a front-end and/or back-end solution. LuciadLightspeed guarantees clean design implementation and exceptionally fast application development.

LuciadLightspeed applications offer:

→ Best-in-class performance and retained data accuracy
→ Platform independence
→ Source code and binary code backward compatibility
→ Lowest total cost of ownership
→ Ease of use
→ Completeness
LuciadRIA offers Geospatial Situational Awareness in the browser with the fluency and speed of a desktop application.

The software components of LuciadRIA have been designed for the development of advanced and easy-to-use cross-browser-based applications, using today’s most advanced web-based technologies (HTML5, AJAX and WEBGL).

LuciadRIA is valued for:

- High performance and retained accuracy
- Enabling desktop-like visualization of imagery, vector-based data and dynamic content, such as tracks
- Straightforward development of interactive browser-based user interfaces, including editing of content and map annotations

LuciadRIA includes many software components and application capabilities that have been specifically designed for the needs of the Aviation, Defense, Maritime, Public Safety & Homeland Security and Utilities & Logistics domains.
LuciadMobile includes:

- Transparent processes for data preparation and data exchange to fit LuciadMobile into any enterprise workflow
- Support for domain-relevant symbologies, such as the latest versions of MS2525 and APP6 for Defense and Security
- Mobile terrain analysis using the data available on the mobile device - both in online and offline environments
- An intuitive graphical user interface, enabling fast and effective decision-making.

LuciadMobile enables the rapid development of Geospatial Situational Awareness applications on mobile devices running Android, and is specifically designed for in-the-field situational awareness.

LuciadMobile offers powerful capabilities to access, update, and send back information and intelligence to associated command and control or management systems. A smooth transition between online and offline operations is assured, and in disconnected mode, full access is maintained to all the Luciad-Mobile capabilities, as well as the geospatial data. LuciadMobile is designed for optimal usage in the field. It includes deep integration with Android OS, providing access to the multiple functions of the device, such as the camera, compass and GPS.

Efficient use of the mobile hardware resources is achieved by means of a small software footprint, as well as controllable battery usage.
LuciadFusion is a server application equipped with integration components. Designed to manage, fuse and serve geospatial data, LuciadFusion consists of a Data Connectivity Manager, a Data Server and a Storage capability.

LuciadFusion accesses Geospatial data from any database, service, or file, through an easy-to-use Data Management application. This data can be managed into different information products or ‘Themes’, combining different datasets as required by each specific user group. Using the appropriate Themes, the required data can then be easily served to one or more functional applications. Through efficient and advanced caching and storing mechanisms, LuciadFusion ensures fast retrieval and guarantees that the data is readily available at all times.

The LuciadFusion Data Server serves the data and relevant meta-data directly into LuciadLightspeed-based applications by means of a high performance Tile Service.

Alternatively, non-Luciad based applications can access the same information through standard OGC protocols. Customers select LuciadFusion for the benefits of Intelligent Data Management, High-Volume Data Processing & Storage, and serving data to multiple Situational Awareness applications from a central source.

Independent benchmark studies document that LuciadFusion allows:

- Replacing various legacy solutions by one integrated product for the cartographic workflow and geospatial data management
- Easy and intuitive data management by non-GIS specialists
- Faster data processing than with any other commercial solution
- Enhanced user experience through highly performant web services
3 COMMON BENEFITS

Tried and tested by developers in the most demanding industries, Luciad’s software components are known for their ease of use, completeness, high performance, accuracy and flexibility. Our customers enjoy a significantly faster development process, lowest total cost of ownership, predictable and consistent high performance as well as retained data accuracy.

ACCURATE, HIGH PERFORMANCE RESULTS

→ Visualization of large volumes of tracks of any type of asset
  (troops, ships, trucks, planes, down to individuals or RFID-tagged pallets or goods)
→ Instant connection, visualization and analysis of geospatial information
→ On-the-fly combination of any data with accurate geospatial transformations
→ Optimized use of GPU:
  - Real-time video draping
  - Immediate line-of-sight analysis
  - Dynamic calculations of densities

→ 2-D & 3-D visualization in one single application and in one single view
→ No pre-processing, no intermediate geo-database required, and with all data remaining in its original location and format

FLEXIBLE AND ROBUST

→ Deployable on any device
→ Deployable from large server farms to low-memory applications running from a simple USB-stick
→ Used for mission-critical real-time systems in sensitive domains
CLEAN DESIGN IMPLEMENTATION & EXCEPTIONALLY FAST DEVELOPMENT

→ Meticulous approach to design and use of Model-View-Controller
→ Components customizable to a fine granular level
→ Possibility to add new capabilities seamlessly
→ Broadest set of components available for rapid development:
  - Databases (SAP HANA, Oracle, DB2, ArcSDE, PostGIS, Microsoft SQL, ...)
  - Data formats (KML, S57/S63, USRP, VPF, NITF, DAFIF, AIXM 5, ASDI, Asterix, GRIB, ARINC424, ...)
  - Geospatial analysis (topology calculations, terrain analysis, route calculations, etc)
  - OGC Web-services

LUCIAD IS THE DE FACTO STANDARD FOR MANY OF THE MOST DEMANDING INDUSTRIES

→ Used in the aviation, defense, security, maritime and petrochemical industries
→ Support for decoding and encoding domain specific data formats
→ Field-proven military symbology support (APP6B, MS2525C)
→ Field-proven usage for ATC, ATM, SWIM and more
→ Flexible styling including ICAO symbology
→ Strong participation in open standards, OGC certified
→ Collaboration with leading organizations (NATO, FAA, Eurocontrol)
“LuciadLightspeed is an impressive product which offers us exactly what we need in terms of high performance HMI and flexibility in geospatial visualization. LuciadLightspeed enables us to reduce our time to market and is now used inside our new and innovative TACTICOS Maritime Security Operations capabilities.”
Theo Nijland, Software Architect at Thales Netherlands

“The performance, combined with the clean design of LuciadLightspeed, enables us to build applications that meet our current and future requirements. The focus on relevant domains, the fast development and the re-usability of components across multiple projects and applications, are a major asset for any project team.”
Tim Wagner, Head of ISR at Airbus Germany

“Luciad support is really world class”
Thomas Lutz, Software Engineer at Frequentis
“Luciad has the most advanced Geospatial Situational Awareness software available. Luciad technology is used for SASS-C V7, a performance assessment system of ATM surveillance infrastructures requiring huge volumes of data handling, statistical processing and visualization. Luciad technology is also used for CAPT V2, a performance prediction system of surveillance infrastructures.”

Emmanuel Voet, SASS-C Product Manager at Eurocontrol

“The data visualization performance and precision are just two of the many benefits LuciadLightspeed has to offer. LuciadLightspeed will provide accurate real-time shared situational awareness from a synthesis of air traffic control surveillance sources for our Symphony™ collaborative decision making platform.”

Ted Carniol, General Manager Commercial Aviation Solutions at Exelis

“The Voyager system uses LuciadFusion to very effectively manage, control and access data, which is an essential part of the system. LuciadFusion enabled high performance access to the specific data required for Voyager.”

Bryan Hinds, Solutions Architect at Jeppesen