LuciadCPillar is Hexagon’s answer to the growing demand for a mission-critical desktop API for the C++/C# developers community. LuciadCPillar is a modular and extensible desktop solution for geospatial situational awareness. Users can bring a variety of data sources together on a common operational map.

Focusing on needs within the defense domain, LuciadCPillar provides the foundation for advanced geospatial applications, developers can create high-performance C2 and location intelligence applications thanks to the clean design and modular structure of the LuciadCPillar API. This configurable API enables you to integrate a visualization component, add support for custom data or databases, apply your own custom data styling and symbology, or match the user interface and look and feel to your company’s unique needs and style. Data can be explored in a 2D or 3D map view.

Who Needs the LuciadCPillar Desktop and On-Board Solution?

These are just a few examples of why users turn to LuciadCPillar for their geospatial data challenges:

- You need to build a C++ or C# mission-critical desktop-based solution that handles geospatial data with the accuracy required for mission planning
- You work with defense symbology, including MS2525 and APP6
- You are faced with real-time dynamic data, such as flights, vessels or people with tens of thousands of moving assets
- You deal with data and maps in different projections (including 3D, but also 2D projections)

<table>
<thead>
<tr>
<th>Desktop/On-board</th>
<th>Browser</th>
<th>Mobile</th>
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</thead>
<tbody>
<tr>
<td>LL LuciadLightspeed</td>
<td>LR LuciadRIA</td>
<td>LM LuciadMobile</td>
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<tr>
<td>LC LuciadCPillar</td>
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</tbody>
</table>

Act

Connect

Visualize • Analyze

Server

LuciadFusion

Multiple data sources, real-time feeds, sensors, simulations, OGC and other services. With Luciad Portfolio, connect, visualize, and analyze your data on any platform.
Key Benefits

<table>
<thead>
<tr>
<th>Feature Included</th>
<th>Optional Feature</th>
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</thead>
<tbody>
<tr>
<td><strong>Best-in-class performance</strong></td>
<td>Unprecedented user experience with hundreds of thousands of track updates per second, real-time data access and without pre-processing.</td>
</tr>
<tr>
<td><strong>Retained geospatial positioning accuracy</strong></td>
<td>Ensures precision on world scale for visualization, transformation and calculation of any data.</td>
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<tr>
<td><strong>Cross-Platform</strong></td>
<td>Develop your application once and deploy on both Windows and Linux. Choose the C++ API in combination with Qt or your own cross-platform UI toolkit.</td>
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<td><strong>Flexibility</strong></td>
<td>Designed to optimize the customizability and interoperability of your applications. Offers one single API for 2D and 3D visualization.</td>
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<tr>
<td><strong>Ease of use and lowest total cost of ownership</strong></td>
<td>Makes for efficient and sustainable applications by enabling rapid development, customization, ensuring source code and eliminating the need for data pre-processing.</td>
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</tbody>
</table>
Functional Specification
Below is a high-level, non-exhaustive overview of the components available in LuciadCPillar. You can use the functionality of these components either out-of-the-box or extend them to meet your advanced requirements.

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Pro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core GIS Engine</td>
<td>✔</td>
</tr>
<tr>
<td>Projected and 3D Coordinate Reference Systems</td>
<td>✔</td>
</tr>
<tr>
<td>Transformation and Projection Engine</td>
<td>✔</td>
</tr>
<tr>
<td>4D Cartesian &amp; Geodesic Geometry Model</td>
<td>✔</td>
</tr>
<tr>
<td>GPU 2D/3D Visualization Engine</td>
<td>✔</td>
</tr>
<tr>
<td>Unified Data Model</td>
<td>✔</td>
</tr>
<tr>
<td>2D/3D/4D Interaction Model</td>
<td>✔</td>
</tr>
<tr>
<td>OGC Standards</td>
<td>✔</td>
</tr>
<tr>
<td>Vector Connectors</td>
<td>✔</td>
</tr>
<tr>
<td>Raster Connectors</td>
<td>✔</td>
</tr>
<tr>
<td>Defense Symbology</td>
<td>✔</td>
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Legend
☑ Feature Included
☐ Optional Feature
Functional Specification

Below is a high-level, non-exhaustive overview of the components available in LuciadCPillar. You can use the functionality of these components either out-of-the-box or extend them to meet your advanced requirements.

- **CORE GIS ENGINE**
  - **PROJECTED AND 3D COORDINATE REFERENCE SYSTEMS**
  - **TRANSFORMATION & PROJECTION ENGINE**

  - Access and represent data in any coordinate reference system (geodetic, geocentric, projected).
  - Perform advanced geodetic calculations, transformations.
  - Boost performance with the support for concurrent data access and asynchronous painting.

- **4D CARTESIAN & GEODESIC GEOMETRY MODEL**
  - **UNIFIED DATA MODEL**

  - Model any data format regardless of size, represent all object geometries and their metadata, and apply any data filter.
  - Includes support for complex geometries like composite curves, arcs, arc bands and so on.
  - Accurately visualize 3D volumes.

- **DEFENSE SYMBOLOGY**

  - Full support for symbols of the latest military symbology standards, in 2-D and 3-D. This support encompasses the lookup, creation and visualization of military symbols.
  - Symbology standards/format:
    - APP-6A, APP-6B, APP-6C, APP-6D, MS2525b, MS2525c, MS2525d.

- **2D/3D/4D INTERACTION MODEL**

  - **GPU 2D/3D VISUALIZATION ENGINE**

  - The same code can be used for both 2D and 3D visualization with a simple map configuration that can easily be switched.
  - High-performance terrain rendering is integrated in the view. If elevation data is present, all data can be draped automatically over the terrain.

- **RASONET CONNECTORS**

  - **VECTOR CONNECTORS**

  - Apply multi-leveling and tiling to both raster and vector data.
  - Out-of-the-box native support for:
    - Raster data: WMTS, GeoPackage image and elevation tiles
    - Vector data: GeoPackage features
  - LuciadCPillar’s visualization and analysis capabilities are data-agnostic, so it is complementary with any data format. Adding support for new, custom formats is a straightforward, well-documented process.

- **OGC STANDARDS**

  - Connect to OGC WMTS services.

**More Information**

LuciadCPillar comes with:

- Code samples for all components
- Developer guides with clear explanations and description of best practices
- API reference offering detailed description of all interfaces and classes
- Release notes to see what is new
- Technical notes to consult technical requirements

To learn more or schedule a demo, contact us at info.luciad.gsp@hexagon.com.
Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous — ensuring a scalable, sustainable future.

Hexagon’s Geospatial division creates solutions that deliver a 5D smart digital reality with insight into what was, what is, what could be, what should be, and ultimately, what will be.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 4.4bn USD. Learn more at hexagon.com and follow us @HexagonAB.