Release guide

LuciadRIA 2022.0

8 July 2022

Contents

About this release

The 2022.0 release of LuciadRIA focuses on features for our customers active in the defense domain, and on 3D user experience. We added support for military grids and now offer stand-alone military symbology support without the need for a supporting web service. Once more, performance and visual quality take a leap forward to ensure smooth user interaction.

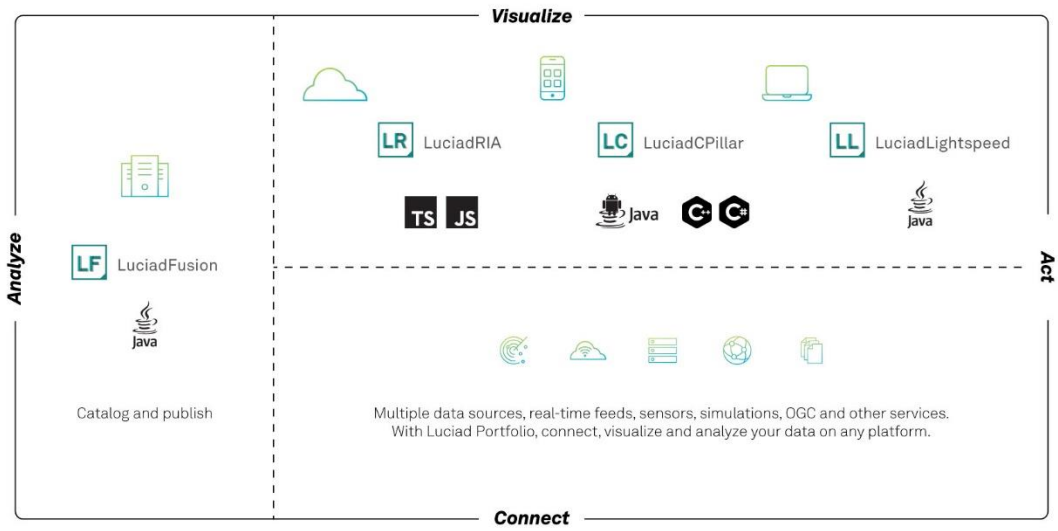

Figure 1: The Luciad Product Portfolio.

Benefits of the new features

MGRS grid visualization

You can now add a MGRS grid to your LuciadRIA WebGL view.

The Military Grid Reference System (MGRS) is a geocoordinate standard used by NATO. The MGRS is derived from the UTM and UPS grid systems but uses a different labeling convention. The MGRS covers the Earth entirely, dividing it into 60 longitudinal zones and polar zones around each pole. The grid is further divided into blocks of 100km by 100km that are refined up to blocks of 1m by 1m. As opposed to a longitude-latitude grid block, a block in an MGRS grid always covers an area of the same size, no matter its location on earth.

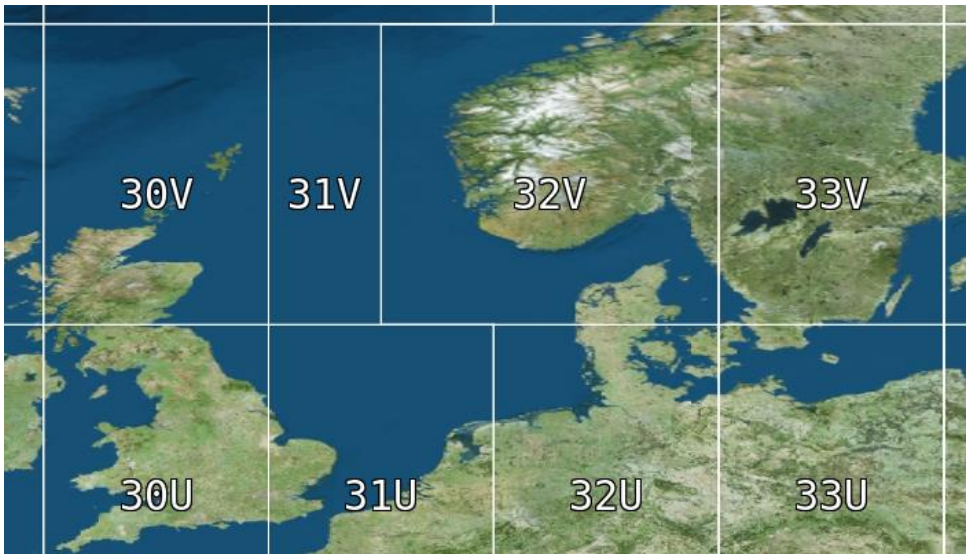

Figure 2: A MGRS grid overlaid on a LuciadRIA 2D map view, illustrating zones, grid cells, and their labels.

Sample code to get you started

A new “MGRS Grid sample” has been added. It is included in the LuciadRIA Defense Symbology component.

Upgrade consideration

The MGRS Grid capability is part of the Defense Symbology option for LuciadRIA Pro. The MGRS point format and GARS point format have also been moved to this Defense Symbology option.

Stand-alone support for military symbology

LuciadRIA has supported military symbology from its early versions. It makes available the tactical graphics and icons for these standards: APP-6A, APP-6B, APP-6C, AP-6D, Mil-Std-2525B, Mil-Std-2525C, and Mil-Std-2525D. For the icons, you could use and seamlessly integrate a LuciadFusion symbology service.

This 2022.0 release extends LuciadRIA to support all these military symbology standards in a stand-alone mode. You no longer need a symbology service. The icons are all included by default. Next to displaying tactical plans, you can now also display and preview the icons or include them in various UI elements. New API has been added to retrieve this preview.

The military symbology support is consistent throughout the Luciad Portfolio. That means that you could still opt for a central symbology service offered by LuciadFusion for architectural reasons. On the other hand, you can also choose a solution that uses the local military symbology capability within a portfolio product. It will offer the exact same display.

Sample code to get you started

The existing sample “Military Symbology” has been adapted to use the local icon set.

```
const layer: FeatureLayer = layerMap.get(symbology) as FeatureLayer;
const painter: MilitarySymbologyClusteringPainter = (layer.painter as MilitarySymbologyClusteringPainter);
const shape = symbologyNode.createTemplates(layer.model!.reference, 0, 0, size)?.[0] ?? null;
const properties = {
  code: symbologyNode.code,
  symbology: symbology,
  modifiers: {}
}
const feature = new Feature(shape, properties, 1);
const size: number = 100;
return painter.createSymbolImage(feature, size)
    .then(function(previewImage: HTMLImageElement | null) {...
```

Figure 3: The updated sample includes an illustration of the code to generate icon previews.

Upgrade consideration

Military symbology support remains part of the Defense Symbology option for LuciadRIA Pro.

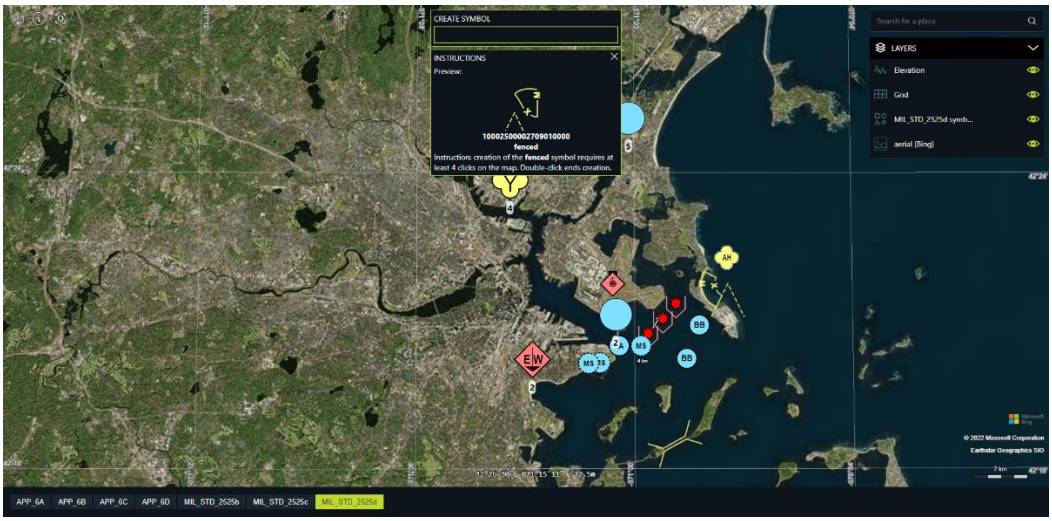

Figure 4: The "Military Symbology" sample now includes a preview capability. It now supports the symbology sets without the need for an icon service.

Extended support for 3D icons

LuciadRIA now offers support for transparent parts in 3D icons. The Icon3DStyle has been extended with an option to set transparency. This is disabled by default for performance reasons.

You can now apply video files as textures on 3D icons and meshes created by the mesh factory. As an API user, you can control the video playback.

Figure 5: You can now add 3D icons with transparent parts (left) or apply video feeds as textures (right).

The knowledge base article “Visualizing 3D icons” and the “3D icons” sample have been extended to reflect the new possibilities.

Performance and visual quality improvements for 3D tiles and point clouds

LuciadRIA can now visualize 3D tile sets that have Crunch (CRN), Khronos KTX2, or Basis textures on devices that have hardware support for DXT texture compression. On devices that have no hardware support for texture compression, memory usage will be higher than on devices with DXT support. By default, LuciadRIA will apply on-the-fly texture compression to 3D tiles data sets where applicable, and on devices that have hardware support for DXT texture compression. Texture compression reduces Graphics Processing Unit (GPU) memory usage.

This release of LuciadRIA also offers handles to tune point cloud visual quality, particularly when loading data in the HSPC format.

Sample code to get you started

The knowledge base articles “Tuning performance and visual quality of tiled mesh data” and “Adjusting your WebGLMap’s memory budget” reflect the new possibilities.

Figure 6 On the left, a sparse point cloud; on the right, the point cloud is displayed with high visual quality.

The article “Tuning performance and visual quality of point clouds” explains your visual quality configuration options for point cloud visualization.

Other improvements

- LuciadRIA now uses WebGL 2. This ensures that LuciadRIA can evolve and use more powerful graphics. Examples of improvements of WebGL 2 with respect to WebGL 1 are extended with texture support and more powerful shaders.
- WebGL 2 is enabled and required by default for LuciadRIA 2022.0. It is already supported today on all browsers that are listed in the system requirements.
- LuciadRIA offers additional configuration options for the FeatureLayer API that allow for optimizing specific use cases for better performance. These options offer a choice between fast or robust tessellation and discretization.
- Imagery is now draped on 3D terrain with higher quality, especially in regions close to the camera. The default configuration has been optimized.

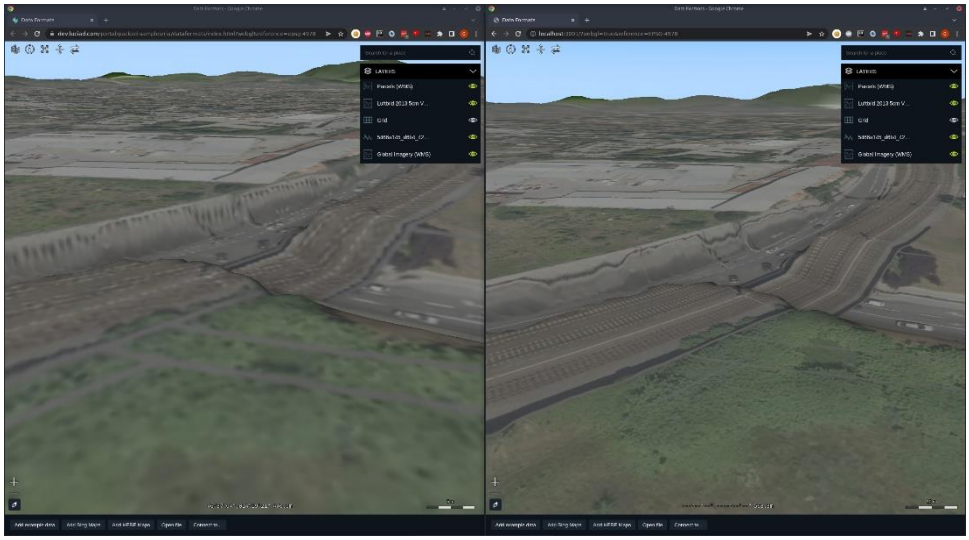

Figure 7: Draping of imagery over terrain has been improved, and default settings have been optimized. This leads to higher resolution of the draped imagery.

.

About Hexagon

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

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

Hexagon's Safety, Infrastructure & Geospatial division improves the resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 22,000 employees in 50 countries and net sales of approximately 4.3bn EUR. Learn more at hexagon.com and follow us @HexagonAB.

accuracy of the information contained in a translated version of Documentation, please refer to its official English version. Additionally, some text, graphics, PDF documents, and/or other accompanying material may not have been translated.

Links To Third Party Websites

This Document may provide links to third party websites for your convenience and information. Third party websites will be governed by their own terms and conditions. Hexagon does not endorse companies or products to which it links.

Third party websites are owned and operated by independent parties over which Hexagon has no control. Hexagon shall not have any liability resulting from your use of the third party website. Any link you make to or from the third party website will be at your own risk and any information you share with the third party website will be subject to the terms of the third party website, including those relating to confidentiality, data privacy, and security.

Hexagon provides access to Hexagon international data and, therefore, may contain references or cross references to Hexagon products, programs and services that are not announced in your country. These references do not imply that Hexagon intends to announce such products, programs or services in your country.

Revisions

Hexagon reserves the right to revise these Terms at any time. You are responsible for regularly reviewing these Terms. Your continued use of this Document after the effective date of such changes constitutes your acceptance of and agreement to such changes.

Questions

Contact us with any questions regarding these Terms.