



HEXAGON

Beta release guide
2022.0

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LuciadRIA 2022.0

2 June 2022

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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.

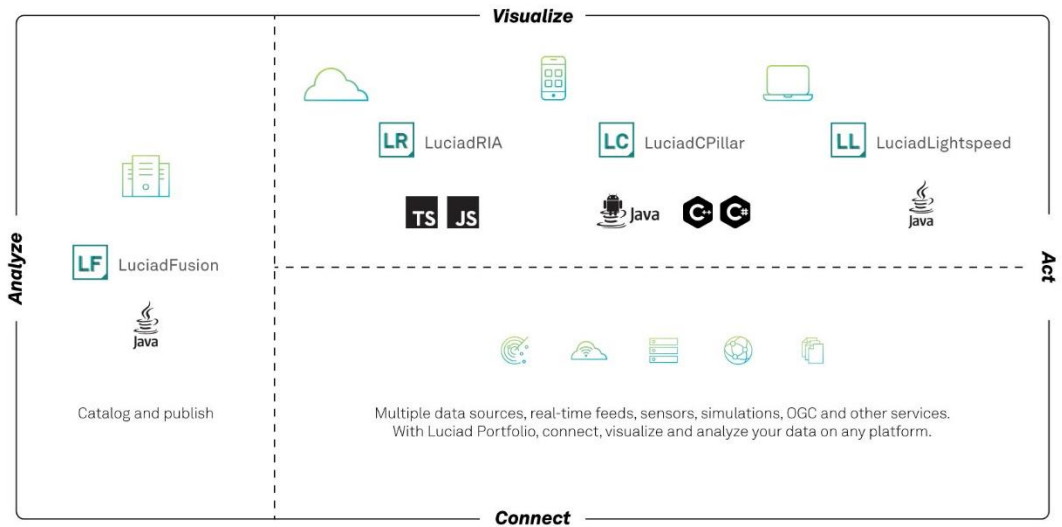


Figure 1: The Luciad Product Portfolio

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 two 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 can 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 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 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

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

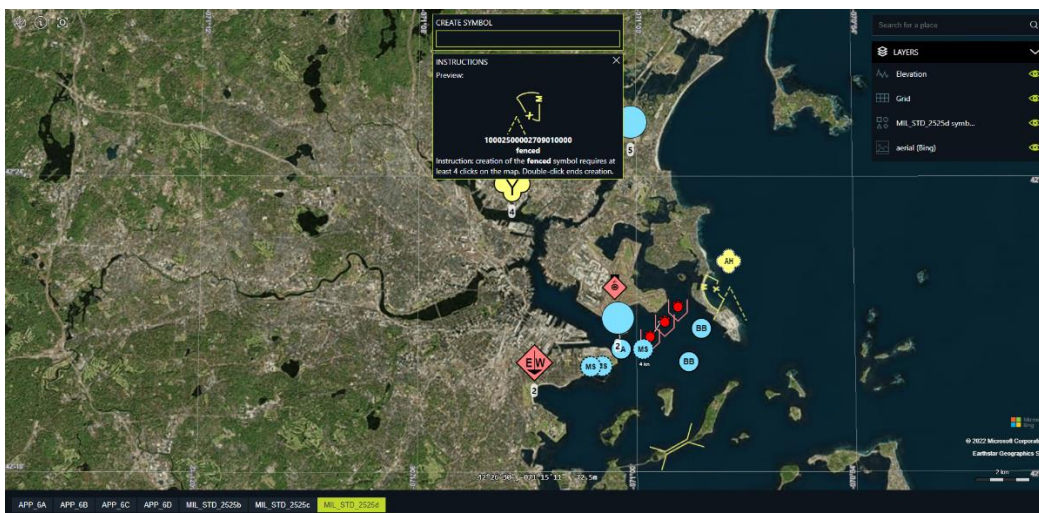


Figure 4: The “Military Symbology” sample now includes a preview capability. It now supports the symbology sets without the need for an icon service.

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 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)

Sample code to get you started

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

Other improvements

- LuciadRIA can now visualize 3D tilesets 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 GPU (Graphics Processing Unit) memory usage.
- LuciadRIA now uses WebGL 2. This ensures that LuciadRIA can evolve and use more powerful graphics. Examples of improvements of WebGL 2 w.r.t WebGL 1 are extended 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 on

<https://dev.luciad.com/portal/productDocumentation/LuciadRIA/docs/articles/guide/systemrequirements.html>.

- 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, specifically for regions close to the camera. The default configuration has been optimized.

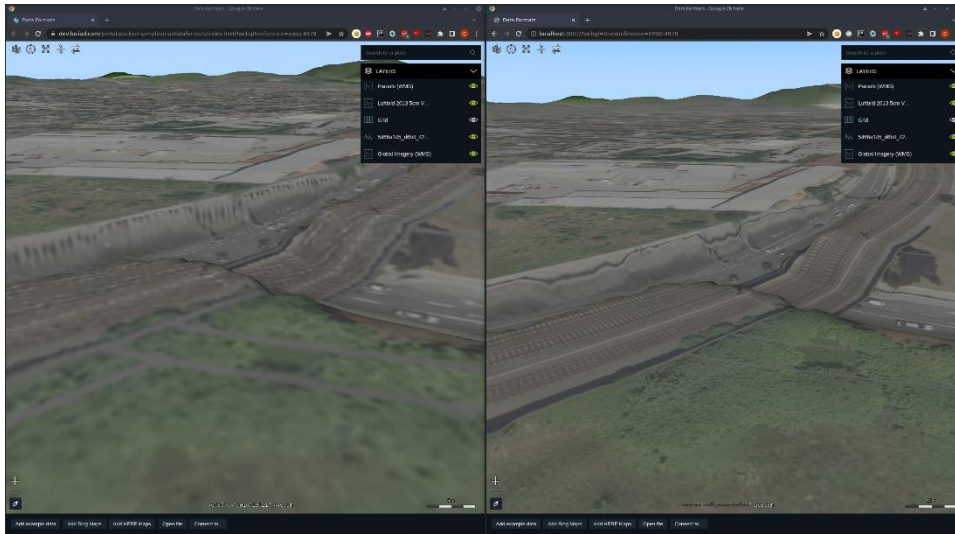


Figure 6 Draping of imagery over terrain has been improved and default settings have been optimized. This leads to higher resolution of the draped imagery.



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 performance, efficiency and resilience of vital services. Its Safety & Infrastructure solutions enable smart and safe cities. Its Geospatial software leverages the power of location intelligence.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at [hexagon.com](https://www.hexagon.com) and follow us [@HexagonAB](https://twitter.com/HexagonAB).

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