



Beta release guide
2021.1

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LuciadLightspeed 2021.1

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About this release

The 2021.1 release of LuciadLightspeed brings an update to the support for military grids, additional support for background data, and improved tile processing capabilities.

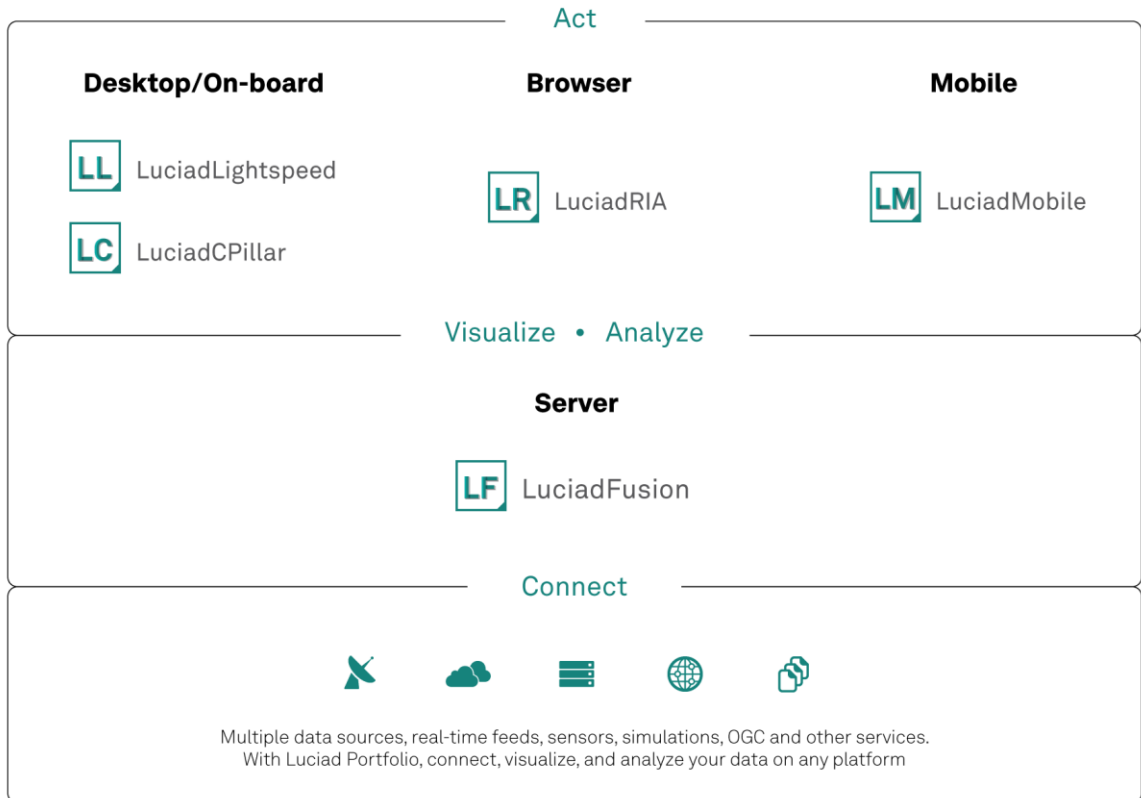


Figure 1: The Luciad Product Portfolio

Benefits of the new features

Military grids

Military grids complement global reference systems. In specific areas, coordinates can become quite precise and long. To avoid confusion, grid systems that specify areas with a combination of letters and numbers have been created. These grids can be global or area-specific for battlefield management purposes.

LuciadLightspeed already supported MGRS grids (both for Lightspeed view and GXY view) and offered sample code for CGRS and GARS grids.

With this release, LuciadLightspeed has been extended with API supporting both the CGRS and GARS format as well as visualization on Lightspeed views. The formats can convert lon lat coordinates into the Common Grid Reference System (CGRS) and Global Area Reference System (GARS) notation and offer methods to parse grid coordinate strings into point objects.

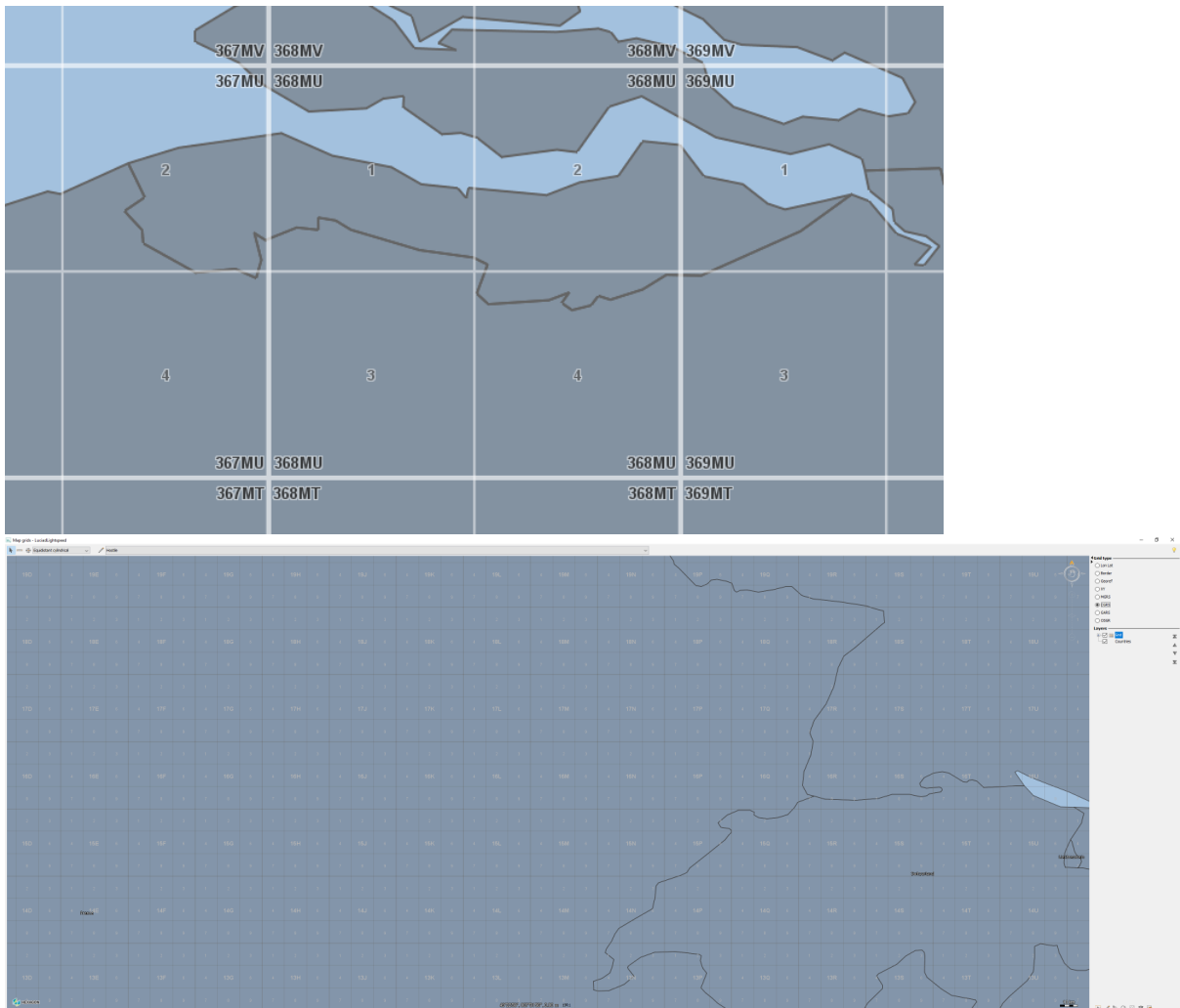


Figure 2: An illustration of a GARS grid where each cell is split into 15-minute quadrants, visualized with LuciadLightspeed.

Upgrade consideration

The military grid support for LuciadLightspeed has been moved to the “Defense Symbology” option. This means that both the existing MGRS grid support and the new CGRS and GARS grid support require the Defense Symbology option now. If you have any questions related to this change, please contact Luciad Product Management via product.management.luciad.gsp@hexagon.com.

Enrich client applications with detailed background data

Operational data is more relevant when shown in context. For that, detailed background data is essential. There are various providers of (imagery) data, and LuciadLightspeed already offers numerous data connectors allowing included background imagery. In addition, the OGC WMS and WMTS connectors ensure that any background data offered via those services can also be included.

With this release, we enriched our set of connectors with a connector for Open Street Map¹ data that is offered via Open Street Map tile servers. This data can be consumed directly by LuciadLightspeed and displayed both by the GXY and the Lightspeed view.

Sample code to get you started

A dedicated Open Street Map decoder has been added to LuciadLightspeed samples:

- `samples.earth.decoder.osm.OpenStreetMapModelDecoder`
- `samples.earth.decoder.osm.OpenStreetMapLayerFactory`
- `samples.lightspeed.decoder.osm.OpenStreetMapLayerFactory`.

More information can be found in the tutorials “Visualize OpenStreetMap raster tiles data on a GXY map” and “Visualize OpenStreetMap raster tiles data on a Lightspeed map”.

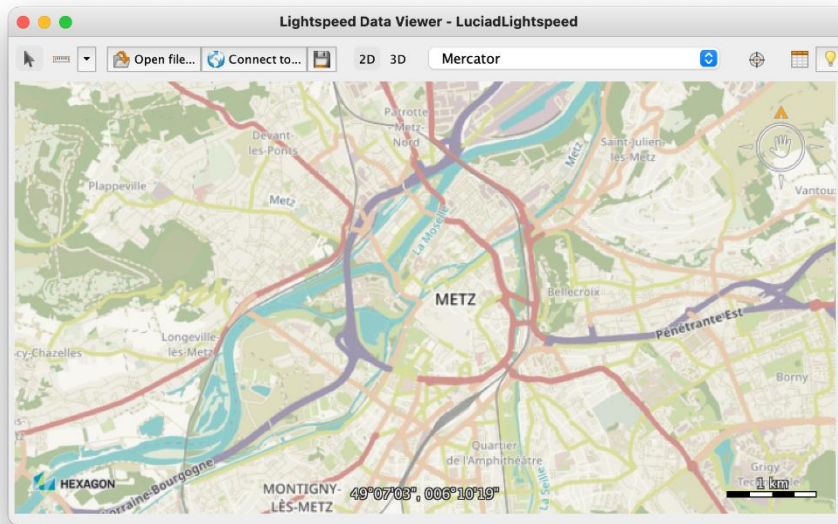


Figure 3: LuciadLightspeed now offers a decoder for Open Street Map data in the samples.

¹ <https://www.openstreetmap.org/>



Faster tile streaming and realistic visualization with additional 3D tiles processing capabilities

In this release, the 3D tiles processing engine has been extended with material support and tile geometry compression.

Create compact 3D tiles datasets by enabling Draco geometry compression

3D tiles is an OGC community standard and popular exchange format for 3D information. A typical example of data that is very suitable to be exchanged in 3D tiles format is 3D city models. Despite the efficiency that comes from the tiled and multi-leveled nature of the data, there are still cases where the amount of data becomes a bottleneck. A solution for that is data compression. For geometry compression, Google's Draco compression library is often used when encoding a 3D payload into the glTF format.

LuciadLightspeed's 3D tiles processing engine has now been extended with the capability to encode meshes as Draco-compressed 3D tiles. The benefit of applying this compression is that the resulting data set is significantly smaller. The conversion time is only slightly higher.

Create 3D tiles data sets that preserve material properties

3D data sets have become more and more detailed. Textures on data help to distinguish between objects and make clear what an object represents, but there are data sets where no textures are applied and objects are quite similar in geometry. The distinction is made by the material. Typical situations where that happens are factories and buildings.

If information on the material like metallic-ness and roughness is present in the 3D objects, this will now be picked up by the LuciadLightspeed 3D tiles processing engine and encoded within the tiles. Because OBJ files typically do not encode a wide variety of materials, support for input data in binary GLTF has been added to the processing engine. The GLTF format can contain more material info.

Sample code to get you started

The Command Line Interface (CLI) Meshup sample now includes Draco compression and material support.

The Developer Guide "Processing meshes into OGC 3D tiles" has been extended with a "File formats and material properties" section with guidance on including material properties within the generated OGC 3D Tiles data sets.

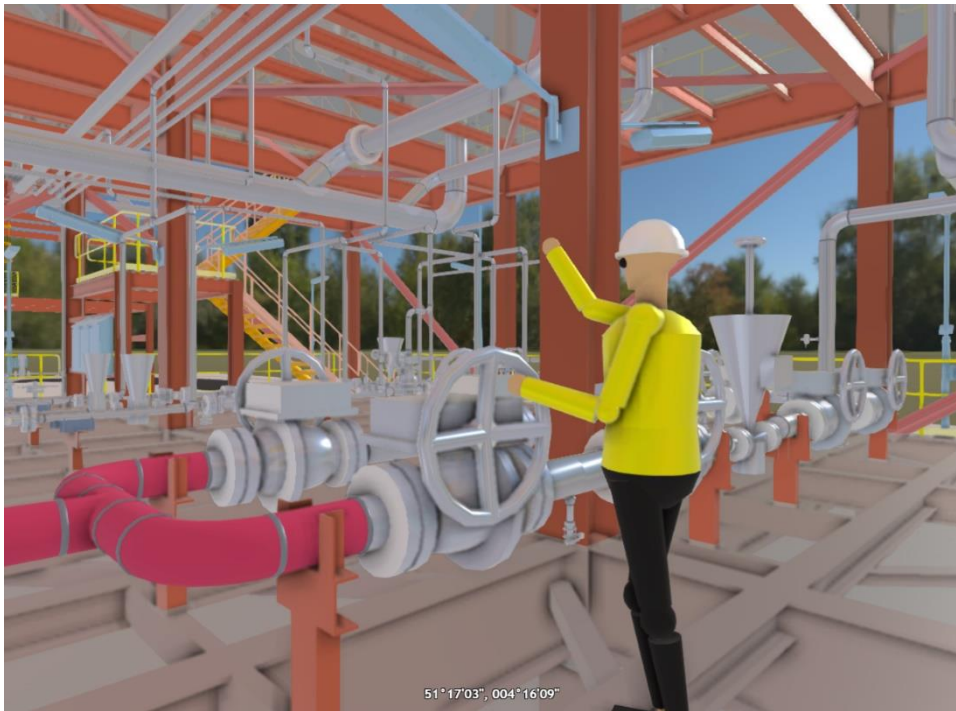


Figure 4: 3D Tiles dataset with material information visualized in the LuciadRIA BIM sample.

Other improvements

- Line rounding is now supported for polylines and polygons. Lines and areas can be used to mark exact boundaries and areas. Sometimes, it is necessary to indicate an approximate area or boundary on a map. For that purpose, API has been added in 2021.1 to create rounded polylines and polygons and visualize and edit them.
- LuciadLightspeed now offers an easy way to set up scale ranges for all layer types, especially raster layers. The tutorial “Use scale to change layer visibility” has been created to get you started.
- LuciadLightspeed runs on Java 17, with some caveats.

Upgrade considerations

The Lucy add-on `TLcyLspFallbackFormatAddOn`, which makes Lightspeed-Lucy fall back on an integrated GXY layer, was deprecated and was removed from the default add-on lists.



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