



HEXAGON

Release Guide
2020.0

Release Guide

LuciadRIA 2020.0

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About This Release

The 2020.0 release of LuciadRIA focuses on the developer experience and offering a unique 3D user experience.

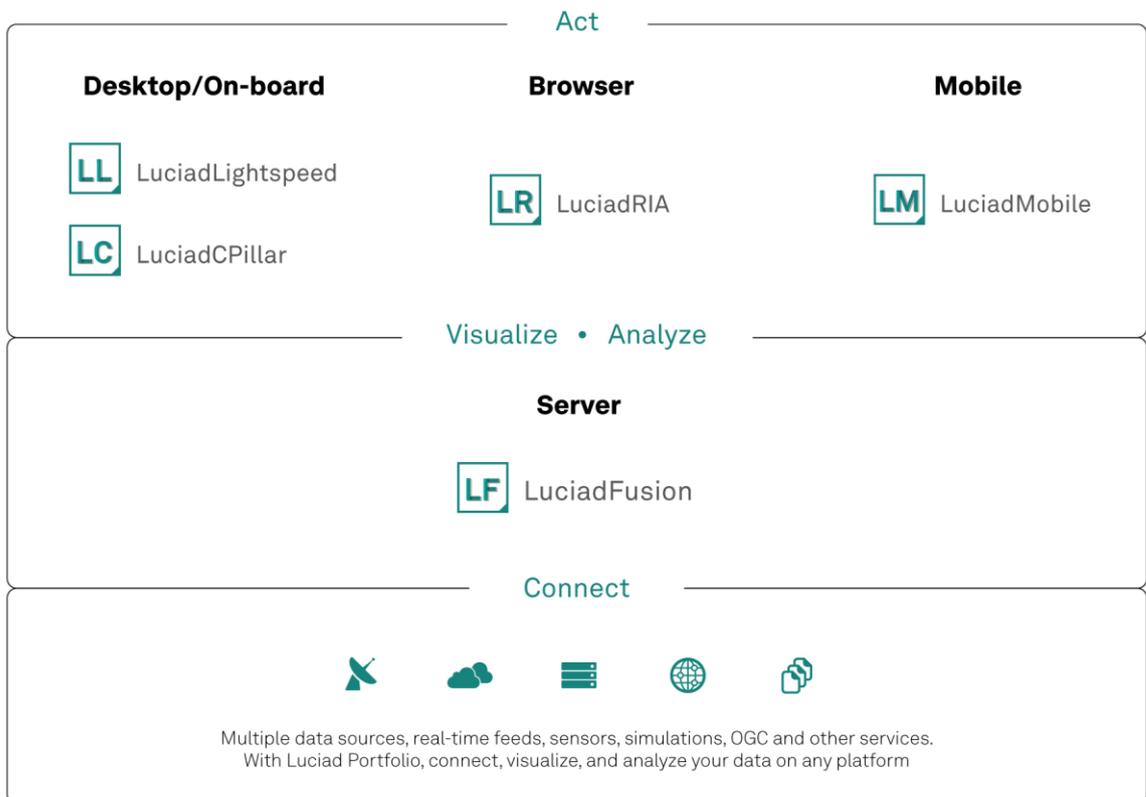


Figure 1: The Luciad Product Portfolio.

Benefits of the New Features

Developer Experience: LuciadRIA Is Delivered as ES6 Modules

As of 2020.0, the LuciadRIA API is now packaged as a set of EcmaScript 6 (ES6) modules. This improves the compatibility of LuciadRIA with modern JavaScript tools and build systems and simplifies publishing LuciadRIA into an npm repository. To illustrate this, the samples have been refactored into a more contemporary project setup that builds on npm, webpack, and babel.

Note that, as always, you can choose when to change your project setup to use ES6. The LuciadRIA distribution still contains the AMD (Asynchronous Module Definition) modules as well.

Visualization and Interaction

LuciadRIA 2020.0 brings additional visual effects and brand-new interaction possibilities with 3D tile mesh data.

Interactive Positioning of 3D Tile Datasets

3D models are widely used in a variety of industries, not the least in the geospatial world. They are either captured through photographic surveying or created in design modelling tools or via a combination of automated and manual modelling. The highly detailed 3D reality meshes, generated to represent a precise real-world environment such as a building, a bridge, or even an entire city, are becoming increasingly popular sources of 3D models.

Because these datasets are often generated with non-geospatial tools, they are not always geo-referenced. LuciadRIA 2020.0 comes with a unique capability: client-side geo-referencing of 3D tile datasets.

To this end, a controller has been added to the API, creating an affine 3D transformation that maps original model coordinates to earth-centered, earth-fixed geocentric coordinates. The controller allows you to move the dataset horizontally (by dragging it around), define the correct orientation, and adapt the height.

When a 3D mesh is already present at the location where the new data is added, the existing mesh can be configured to “collapse” such that the new data replaces the previous data visually (see Figure 2 below).



Figure 2: Interactive positioning of 3D tile datasets.

Selection of Individual Features Within 3D Mesh Data Sets

With LuciadRIA 2020.0, you can interact with and explore 3D meshes received as OGC 3D Tiles. If the 3D mesh data contains attribute info about the 3D meshes (as part of the B3DM payload), LuciadRIA uses these attribute values for selection. Visual feedback will indicate which parts of the 3D meshes are selected.

Once you have information about the selected object, your application can further use object IDs, for example, to present additional information and links to the user.

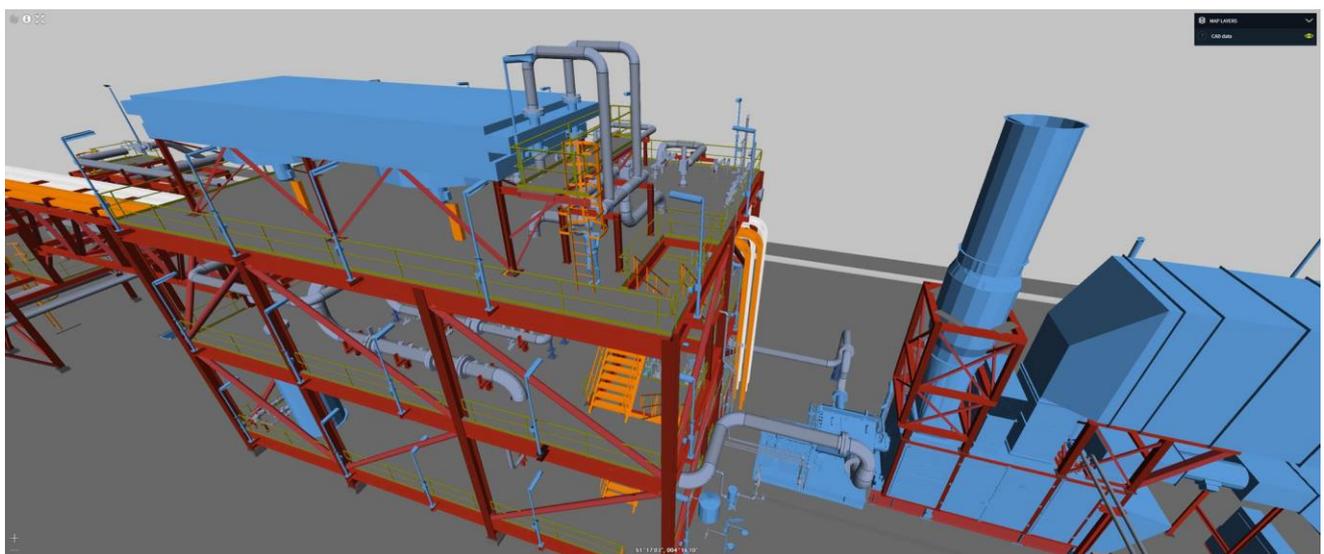


Figure 3: Selection of individual elements in 3D meshes received as OGC 3D Tiles.

Depth Effects on Point Cloud Data

LuciadRIA now supports the eye-dome lighting technique to improve depth perception in point cloud datasets. This technique accentuates shapes by shading their outlines.



Figure 4: Eye-dome lighting accentuates the shapes within a point cloud data set.

New Data Connectors

Add Point Cloud Data in the Hexagon Smart Point Cloud Format

LuciadRIA now directly supports point clouds in the Hexagon Smart Point Cloud format (HSPC). Certain Hexagon scanners allow exporting point clouds in HSPC. Hexagon customers can avoid additional conversion steps into LAS, E57, or OGC 3D Tiles. HSPC is a 3D-tiled format. Advantages compared to OGC 3D Tiles are compression of the tile payload and precise encoding of the point locations.

Other Improvements

Smoother Edges on 3D Geometries

Anti-aliasing improves the appearance of "jagged" polygon edges, so they are smoothed out on the screen. For LuciadRIA 2020.0, this has been added as an additional graphics effect on the WebGL view.

Documentation Overhaul

The LuciadRIA API reference documentation is now automatically generated, including the Typescript declarations. This guarantees that the documentation is error-free and matches 100% with the LuciadRIA API.

Tile Loading Performance Improvements

With the increasing amount of 3D content that can be viewed within LuciadRIA, an optimal user experience is key. Therefore, performance of LuciadRIA tile loading continues to be a focus point. On top of the improvements included in the 2019.x releases, additional performance improvements have been implemented for 3D tile loading and 3D terrain painting. In the 2020.0 release, new config options are available, offering more control over the loading strategy.

Rich Client API (Since 2019.1)

LuciadRIA now offers “client API” for easy connection to OGC WMS, WMTS, WFS, and LTS services. These APIs enable you to connect to these services, automatically parse capabilities information, and use the resulting object model to more easily add map layers from these services. For the developer, this means less configuration. The API hides the details of these OGC protocols, helping you avoid configuration errors in your application.

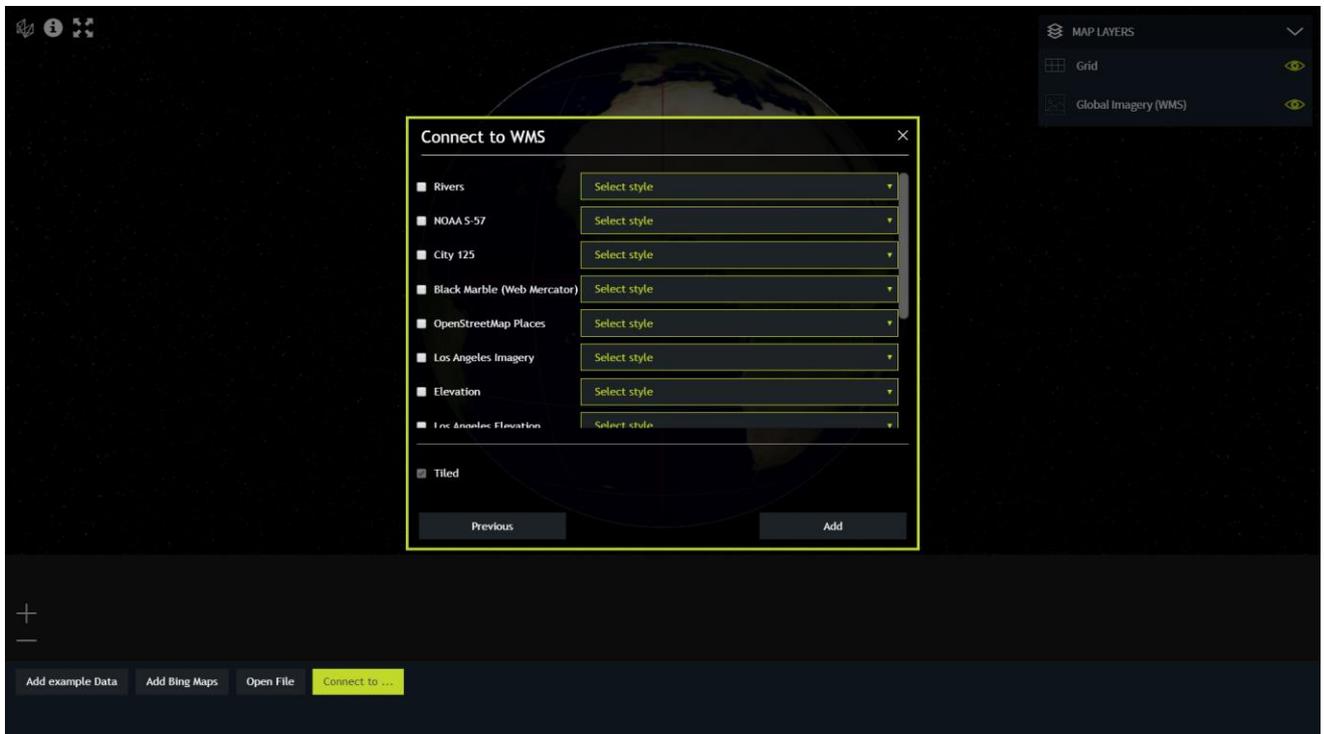


Figure 5: The LuciadRIA Data Formats sample now illustrates the automatic parsing of OGC service capabilities.



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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.

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