Release Guide

LuciadRIA 2021.0

8 June 2021

Contents

About this release

The 2021.0 release once more confirms LuciadRIA as state-of-the-art with the adoption of WebAssembly. This release also brings a wide range of new features that make the presentation of your data more interactive. In addition, we enriched the support for styling, symbology, and KML.
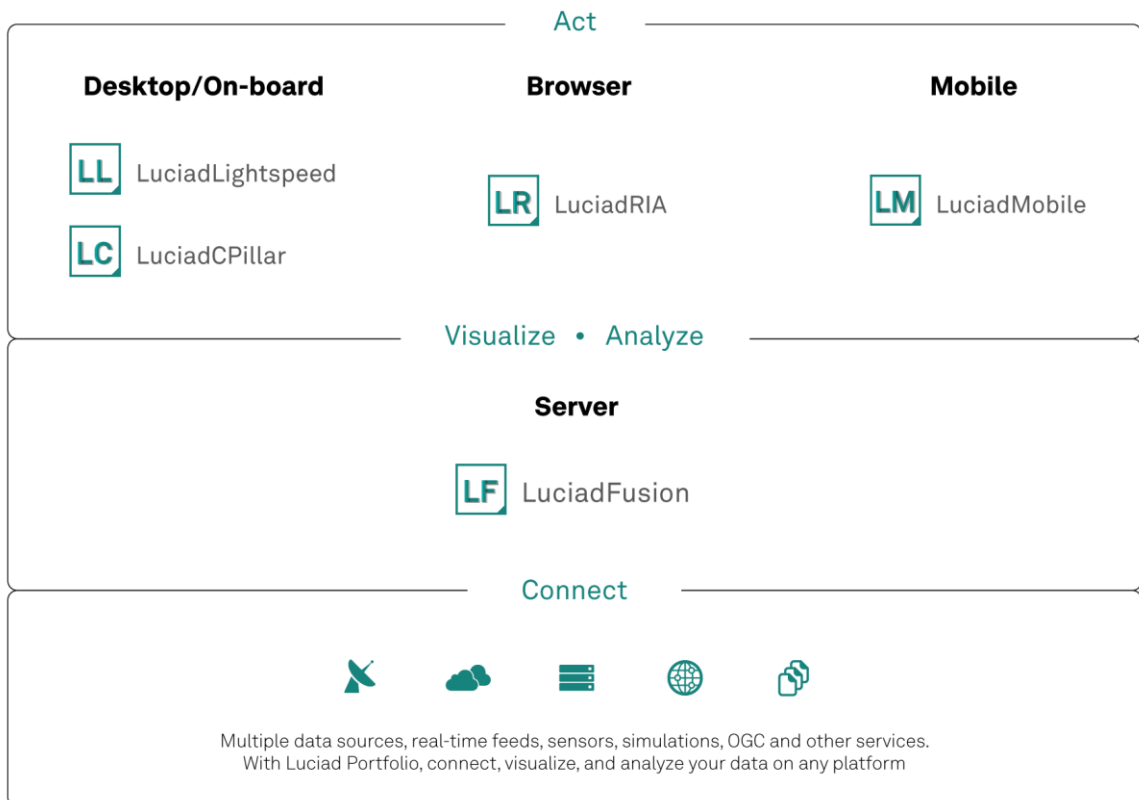

Figure 1: The Luciad Product Portfolio.

Benefits of the new features

WebAssembly enabled

First announced in 2015, WebAssembly (Wasm) is now supported by 93% of installed browsers. Wasm is an assembly-like language offering near-native performance and a compact binary format.

LuciadRIA now uses WebAssembly. This has been added under the hood: no need for you to change your applications, just upgrade to the new release and it will be enabled.

For your applications, the 2021.0 release brings several benefits. First, reduced application size, which will make your application load faster. In addition, Wasm leads to better performance for highly dynamic applications.

Sample code to get you started
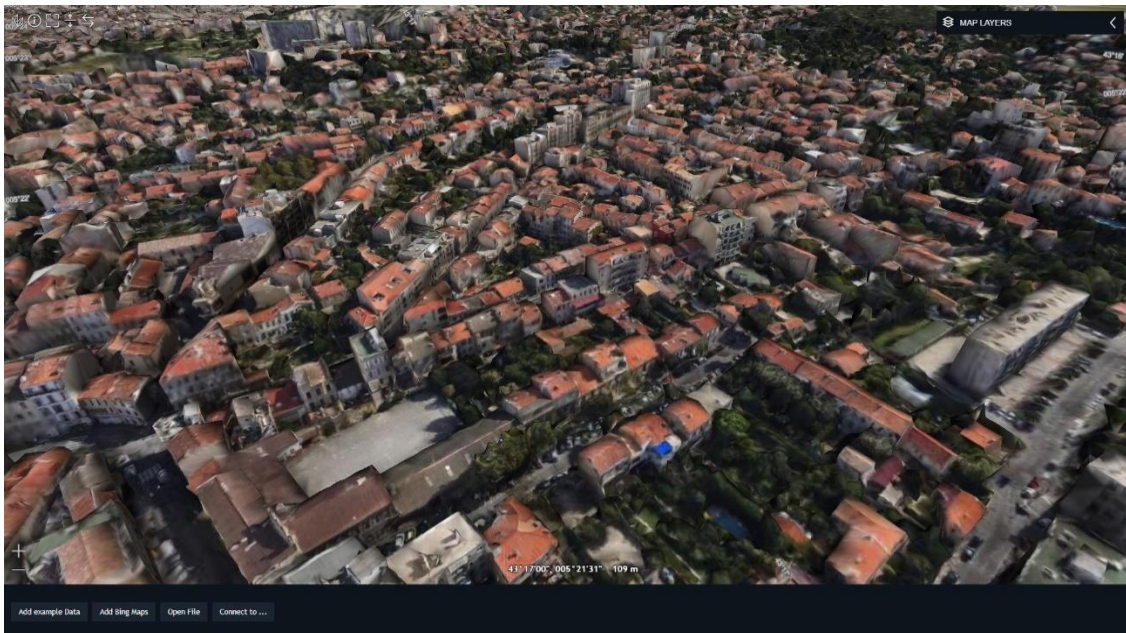All WebGL samples now use Wasm.

Figure 2: Web Assembly reduces the time-to-screen by 60% for a sample application loading a 3D tile data set, as depicted in the screenshot.

Note: WebAssembly is now a prerequisite for the WebGL map. Migration should be automatic in most situations. Please refer to the release notes for all details.

Visual change detection: Swipe and Flicker controllers

Analysis of land use and land cover or monitoring suspicious movement of troops or material requires comparing situations over time. Because detection of patterns and anomalies is a very important part of how humans learn, human observers are very good at spotting visual changes. To help with the process, we added two tools to LuciadRIA. Both operate on two sets of layers.

The Swipe controller allows you to drag a line over the screen, either horizontally or vertically. On either side of the line, different situations of the same geographical area are depicted. By moving the line, a human observer can spot differences between the situations easily.

The Flicker controller alternates between two situations upon a mouse click. Again, the human eye and brain will detect differences between the situations almost immediately.

Both 2D and 3D
These controllers are available in the WebGL view and work in 2D as well as 3D.

Sample code to get you started
The Swipe and Flicker controllers have been integrated into a few samples (for example, the data formats sample.) Moreover, we have added a dedicated how-to guide, "Visually comparing layers," to the documentation as part of the chapter "Interacting with the view."
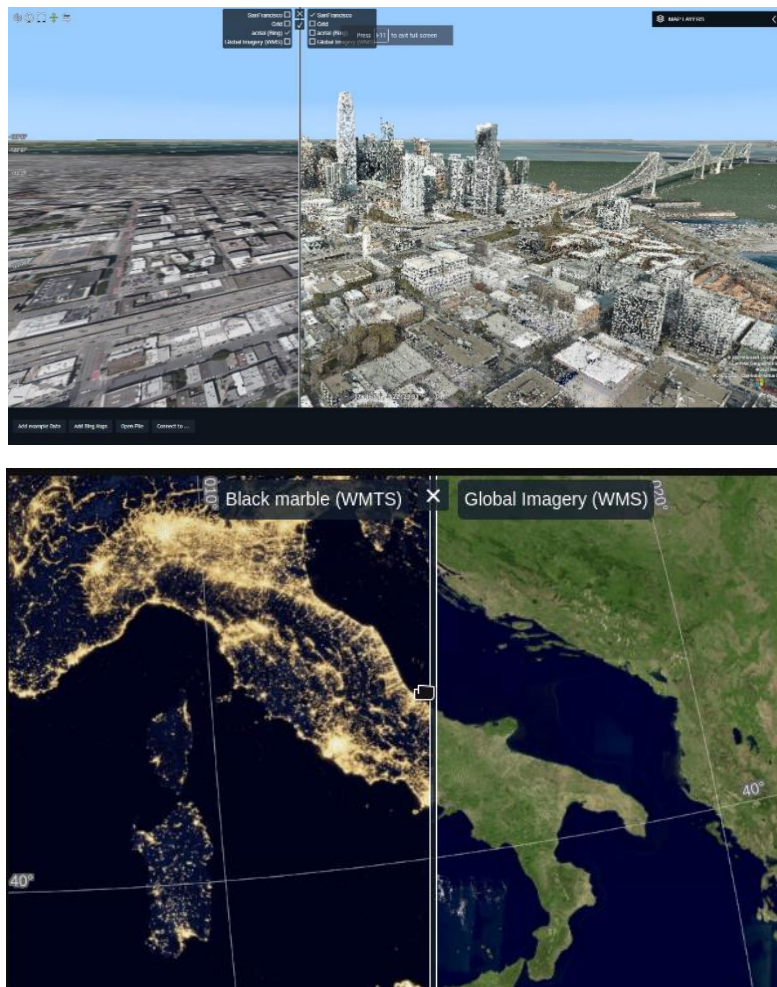

Figure 3: The Swipe and Flicker controllers compare two maps and help users spot changes. This works in both 2D and 3D.
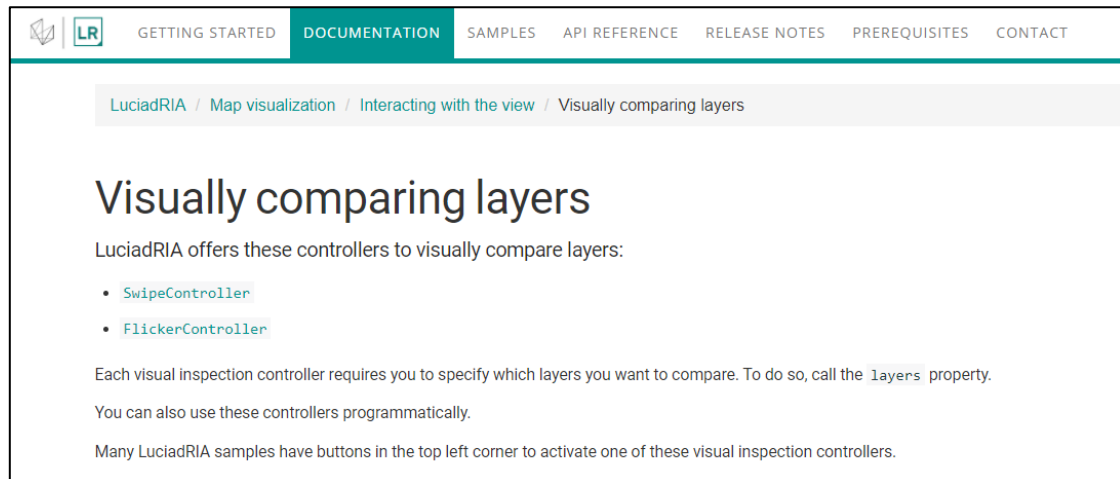
Figure 4: A how-to guide explains how to use the visual change controllers SwipeController and FlickerController.

Plug metadata into a 3D tile dataset containing meshes

3D tile data typically originates from another data source and is optimized for streaming. A selection of metadata (attributes) is baked into the 3D tiles. For your application, this metadata may be too limited. It is also static because values are fixed at tile creation time.

LuciadRIA 2021.0 offers a solution. You can now add metadata from your business domain to an existing 3D tile mesh data set. As a result, you can query on this metadata and use it for selection and styling of the meshes based on the attribute values. For example, you can color pipelines based on real-time temperature sensor values.

The external metadata is mapped to the objects in the 3D tile mesh data set using the available object IDs. You can update or change the external metadata that you want to associate to the data at runtime.

The externally added metadata can also be dynamic. LuciadRIA will use the most up-to-date values. As expected for a product within the Luciad Portfolio, the attribute value can be updated several times per second for thousands of features.

Sample code to get you started
The "Selection on OGC 3D Tiles data" sample has been modified to illustrate adding additional metadata. Moreover, a how-to guide has been added to assist you step by step: "Plugging in properties from external data sources."

Figure 5: The "Selection on OGC 3D Tiles data" sample illustrates how to color pipe segments based on real-time temperature measurements.

Figure 6: A how-to guide explains plugging in metadata from external data sources.

Adding a georeferenced image directly to a LuciadRIA map

Typically, the data for a web application is delivered via data services. For imagery, the data is usually delivered via OGC WMS or WMTS services, because that results in the most efficient streaming of the data.

In some situations, it is necessary to receive individual georeferenced images or upload local image files. One example is to look at a new map or aerial picture that may provide the most up-to-date information. LuciadRIA 2021.0 now supports adding georeferenced images directly to the map, bypassing service via OGC WMS or WMTS protocols.

The feature is available for the Canvas as well as the WebGL map. In 3D, the georeferenced images can either be draped over the map or shown at a specific height above the ground.

The implementation of KML ground overlays uses this new capability, but it can be applied to any georeferenced image via usage of the API.

Sample code to get you started
A step-by-step how-to guide has been added to assist you. In the example, a GeoTIFF file is used.
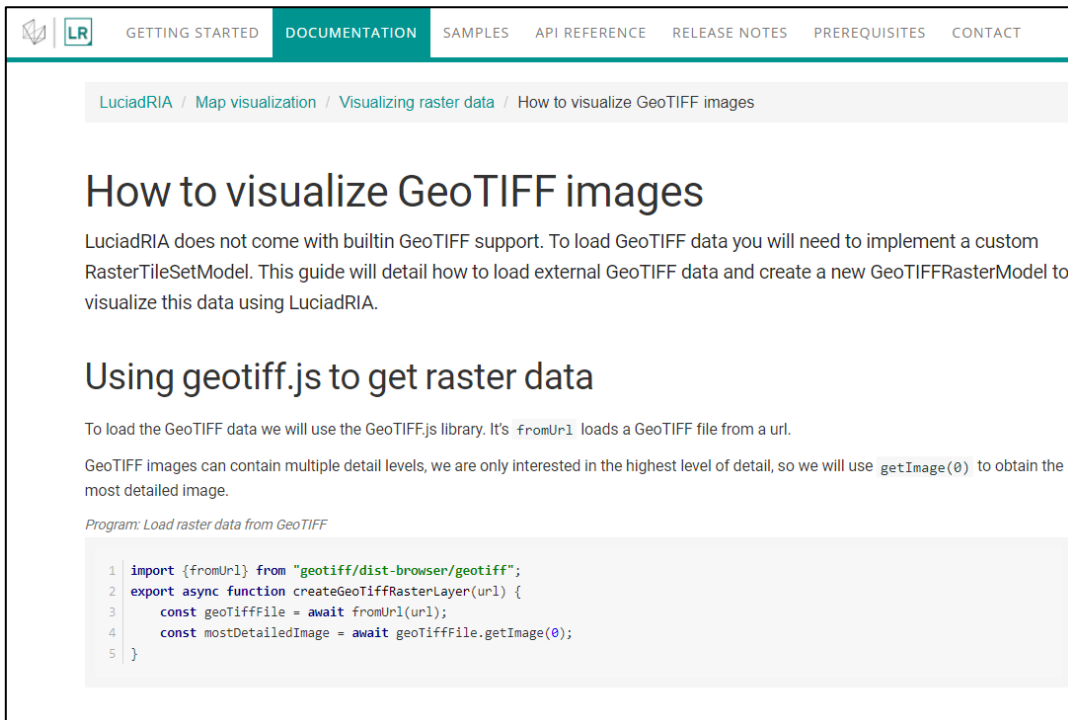
Figure 7: A how-to guide explains adding a GeoTIFF image to your map view.

Extended KML support

The LuciadRIA KML support has been extended with the following additional features, all available both on the Canvas map and the WebGL map:

- Ground overlays
- Screen overlays
- Highlighted style
- Icon modulation colors
- Time stamps

Sample code to get you started

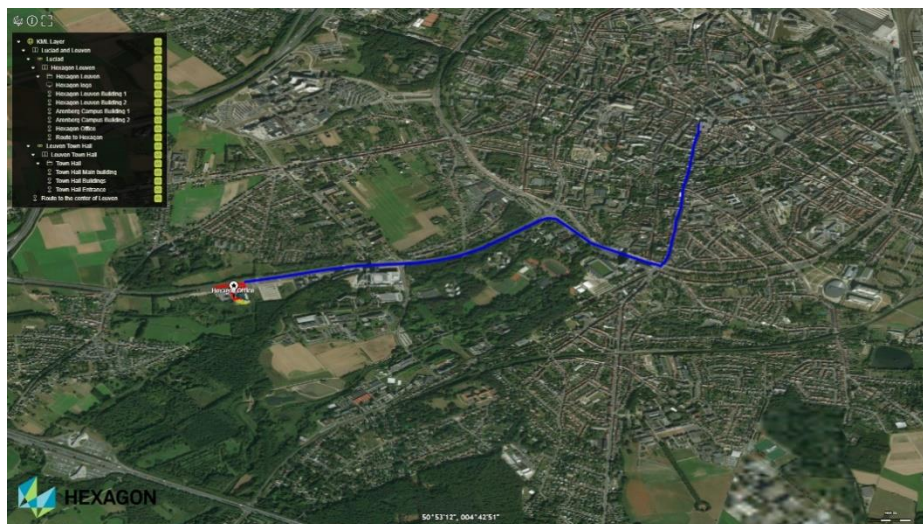The KML sample has been extended to illustrate the new capabilities.

Figure 8: The KML sample provides a full overview of all available KML features.

Other improvements

- Mil-Std 2525D and APP-6D are now fully supported in LuciadRIA, along with several other versions of these standards. You can find this capability in the Defense Symbology component, an option within the LuciadRIA Pro Tier.

- LuciadRIA 2021.0 includes some styling improvements:

  o You can now apply a specific style on features when the mouse cursor hovers over them.

  o You can now draw world-sized icons. These are icons that have a size expressed in a length unit (meters, feet, etc.) instead of pixels. Instead of having a fixed size on the screen, these icons grow or shrink when you zoom on the map. This capability is also available as part of the OGC SE support.

- The OGC WFS client API now allows users to specify a particular property to be used as the feature ID. This comes in handy when the WFS server does not display the ID of returned features in line with the GeoJSON standard.

Other updates

- LuciadRIA 2021.0 prerequisites:

  o WebAssembly is now required for using the WebGL map. Please contact us if your system does not yet support Wasm.

  o LuciadRIA is now based on Typescript 4.1.

- Upgrade considerations:

  o Starting with the 2021.0 release, LuciadRIA will no longer support Internet Explorer 11. Previous versions of LuciadRIA will continue support for IE11 for as long as they are actively maintained. Please contact us if you have currently deployed your application on systems running IE11.

  o As previously announced, 2020.1 was the last release of LuciadRIA including the AMD module version of LuciadRIA. In LuciadRIA version 2021.0, only the ES6 module version of the API is included. Please contact us if you are still integrating the AMD modules in your project.

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