



**HEXAGON**

Release Guide  
2020.1

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# Release Guide

LuciadFusion 2020.1

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# About This Release

The 2020.1 release of LuciadFusion brings support for a new data type, 360° panoramic imagery, as well as a focus on smooth deployment. In addition, this release features a series of format upgrades and improvements.

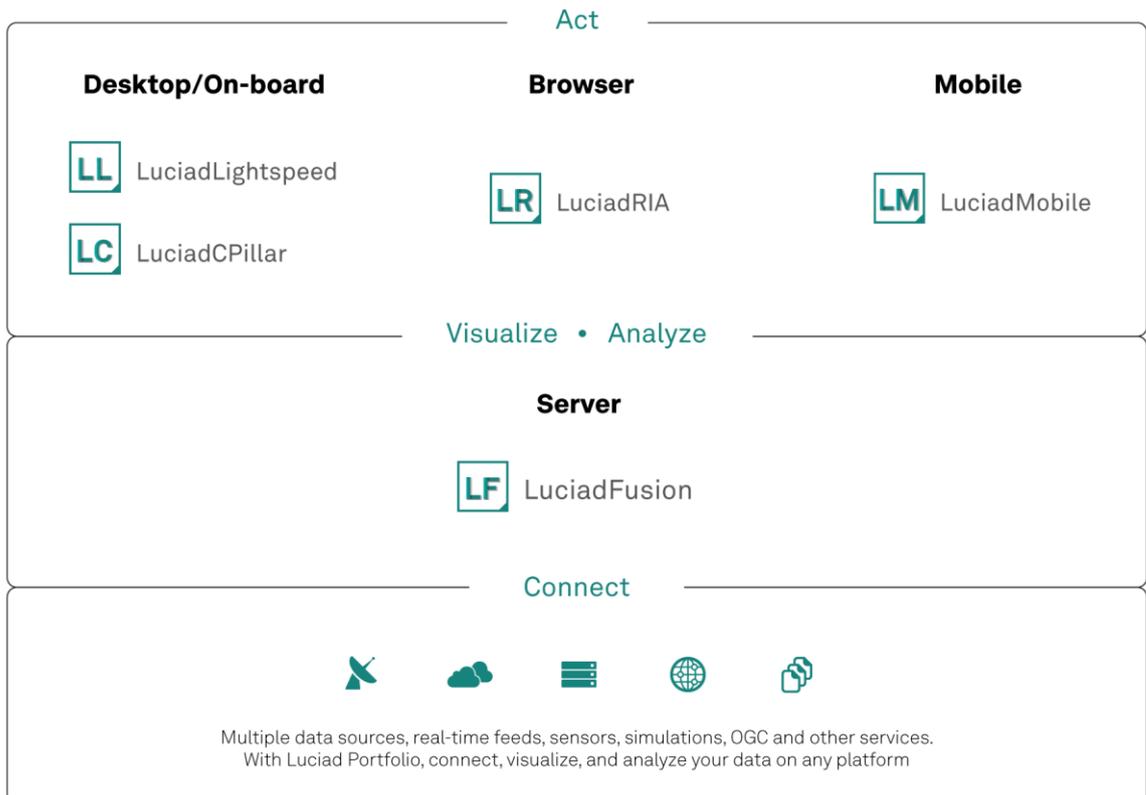


Figure 1: The Luciad Product Portfolio.



# Benefits of the New Features

## Manage and Serve 360° Panoramic Imagery

### Why 360° Panoramic Imagery?

If a picture paints a thousand words and a video paints a thousand pictures, what can panoramic imagery achieve?

Looking at regular imagery is like looking at the world through a window and seeing only part of the complete picture.

Panoramic imagery immerses customers and consumers in a way no other medium can. It puts viewers in control of what they want to look at within an image. It allows them to look anywhere — up, down, left, right, or behind.

Local governments, infrastructure, and mining and utility companies benefit from panoramic imagery since it provides complete coverage and detailed information on a site. Panoramic imagery allows for remote monitoring of asset conditions and saves time otherwise spent outside investigating. With panoramic imagery, organizations know instantly when and where maintenance is needed. The conditions of roads, railways, and street furniture (e.g. streetlights, billboards, bus stops, power lines) can be detected from panoramic imagery.

### Discover, Set Up, and Serve in a Few Clicks Using LuciadFusion Studio

LuciadFusion now supports 360° panoramic imagery. Using LuciadFusion Studio, panoramic imagery in the formats E57 (ASTM E57 3D file format) and Leica Pegasus (by Leica Pegasus scanners) is automatically recognized and discovered via the LuciadFusion crawling capability. After the data is discovered, it can be added to data products and prepared for serving. A new service type, Panoramic Service, streams 360° panoramic imagery data. The protocol is based OGC 3D Tiles.

### For Known Sensors, Data Is Automatically Processed if Needed

Certain sensors produce data that is not in cube map format — for example, equirectangular images. Data in known formats (E57 and Leica Pegasus) is automatically prepared to be served as cube maps. A processing service will start upon the creation of a new panoramic image service. All faces of the cubes have tiled and multileveled images, allowing for fast streaming. The status can be monitored like the processing of other types of data (for example, terrain elevation data).

### Add Your Own Data via the API

If you have 360° panoramic imagery that is in another format, even your own custom format, LuciadFusion can also support it. Use the API to create your own cube maps by providing the camera-specific image parameters and sensor locations and orientations.

Note that even non-georeferenced panoramic images are accepted. In combination with the LuciadRIA panoramic images client (see section [Connect to Your Service from LuciadRIA](#)), the data can then be positioned manually when viewed in the browser.

### Available for All LuciadFusion Advanced and Pro Customers

This capability is available as part of the Advanced and Pro tiers of LuciadFusion and as part of the Advanced Raster option (“Advanced Raster Services”).

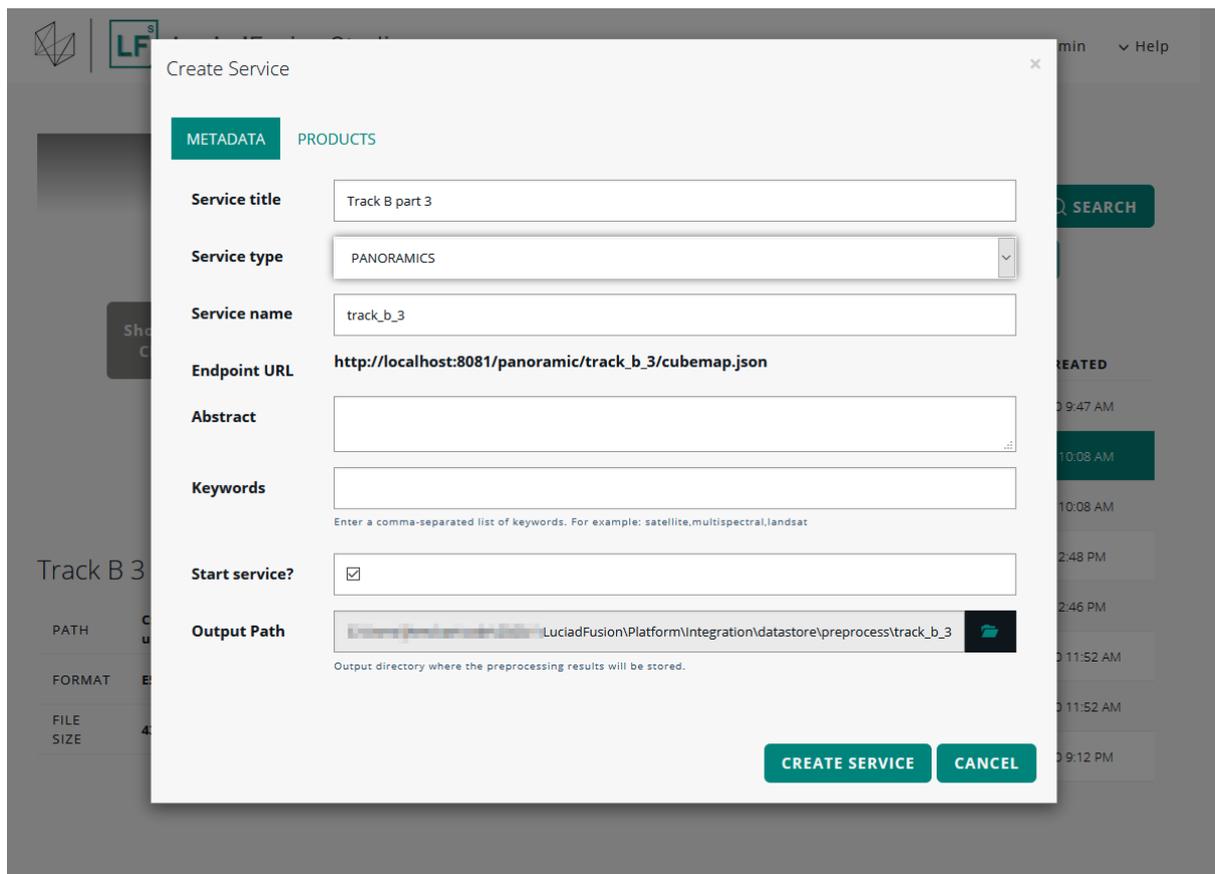


Figure 2 Discover, set up, and serve 360° panoramic images in a few clicks using LuciadFusion Studio.

### Connect to Your Service from LuciadRIA

LuciadRIA 2020.1 connects to the 360° panoramic imagery service offered by LuciadFusion. Once connected, panoramic imagery is fully integrated into the LuciadRIA WebGL view and even projected onto 3D meshes and point cloud datasets if available.

A dedicated LuciadRIA sample shows this functionality and illustrates the connection to a LuciadFusion panoramic imagery service.



Figure 3: Consume the 360° panoramic imagery served by LuciadFusion with the LuciadRIA client.

## Smooth Load Balancing and Failover Setup

It is the philosophy of the Luciad platform to not assume any setup or architecture. This applies to LuciadFusion as well. Whether you have one server serving hundreds of users, a dedicated server per consuming application, or any scenario in between, it is supported by our software and licensing model.

Now that you have selected LuciadFusion, you need to fit it into your architecture.

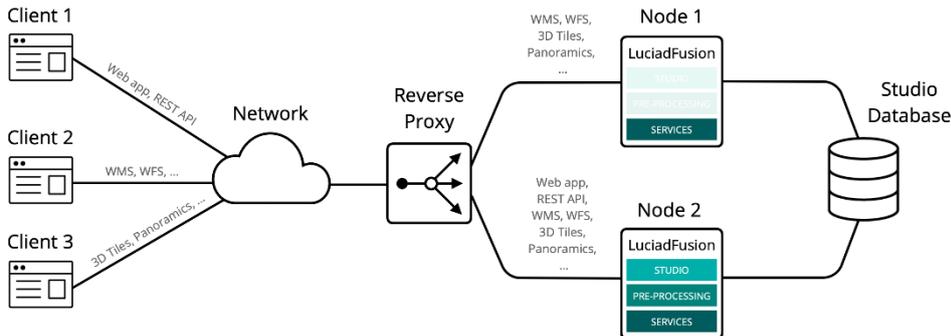


Figure 4: LuciadFusion integrated into a typical load balancing setup.

If you have one server for many users, you may want to optimize for maximum application availability and responsiveness by introducing load balancing across different server instances.

For mission-critical systems, the SLA with your customer may require a failover capability.

LuciadFusion 2020.1 has been improved to better fit into load balancing and failover builds, ensuring a smooth setup. A dedicated deployment guide has been added to the documentation for your convenience.

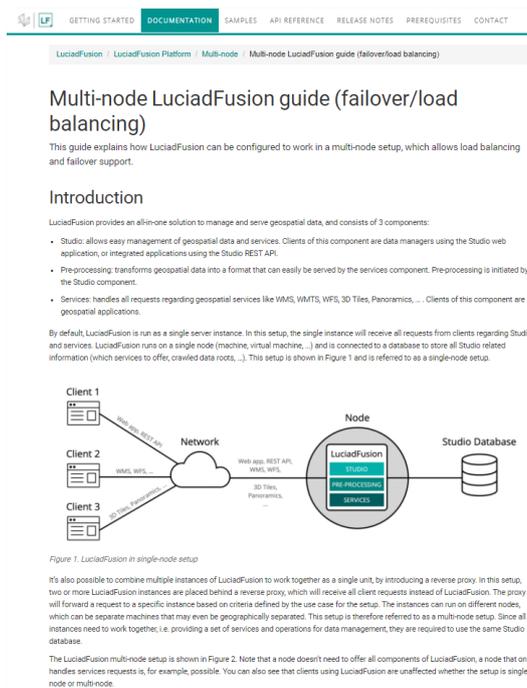


Figure 5: A new deployment guide has been added for failover and load balancing setups.

## Add Data and Styles Without Crawling

LuciadFusion automatically discovers data from locations labeled as data roots. This can be done manually via LuciadFusion Studio or programmatically via the REST API. For many datasets, it is mandatory that LuciadFusion crawls different files per data entry because the data format specification defines multiple files containing different but important aspects of the information.

But certain well-known datasets, like ENC data (S-57 or S-63), are structured as a table of contents or “catalog” referring to all the data cells. Reading the catalog suffices to describe the data.

Recently, a lot of 3D data is structured differently as well. The data tiles do not need to be crawled beforehand; the streaming protocol will discover data as needed depending on the client request. Crawling all the entries in such datasets is not very efficient, because it takes time and resources and does not result in a noticeable improvement during data streaming.

For integrating ENC, 3D, and other data where one entry point is sufficient for integrating data into your custom update workflow, LuciadFusion 2020.1 offers the capability to add “main data files” that serve as the entry point for big datasets without crawling the data tiles or any other data entries. This capability is available via both the Studio application and the REST API.

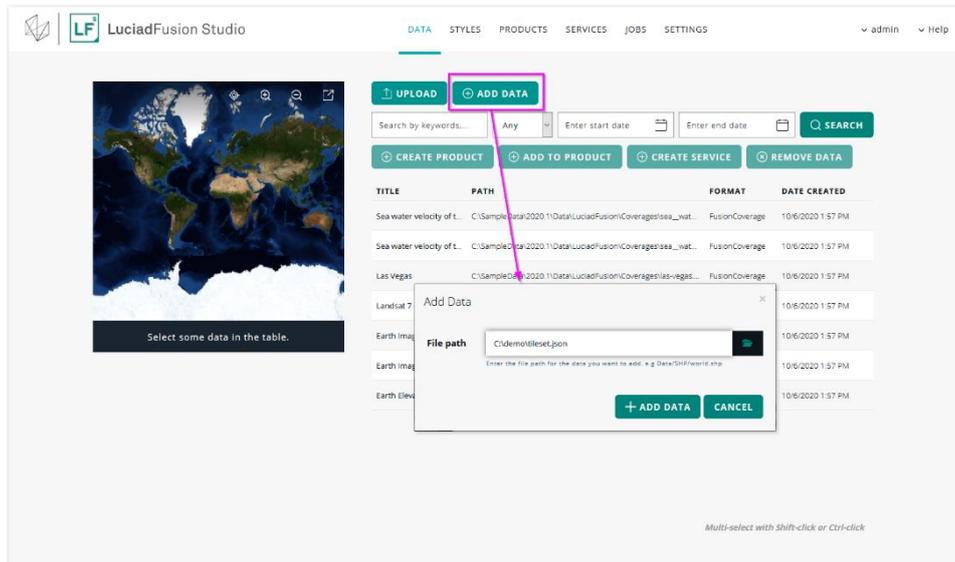


Figure 6: The capability to directly add data without crawling is available in LuciadFusion Studio.

## OGC GeoPackage Format Support Upgrade

Data in OGC GeoPackage format is supported for many versions already. LuciadFusion 2020.1 upgrades this support with the following capabilities:

- Support for GeoPackage version 1.2 and 1.3. This means that LuciadFusion now offers both read and write support for versions 1.0, 1.1, 1.2 and 1.3 of the OGC GeoPackage standard. Note that the OGC GeoPackage 1.3 specification is not yet final and may still change. The LuciadFusion support is based on the Release Candidate of the specification and will be updated after the standard is final.
- Auto detection of the version of GeoPackage files that need to be decoded.
- Support for the OGC GeoPackage Extension for Tiled Gridded Coverage Data. This release of LuciadFusion brings support for elevation data encoded according to this GeoPackage extension.

## Support for MBTiles Raster Data

MBTiles is a specification for storing geospatial data in a tiled way in SQLite databases. The format supports a limited set of geo-references and is popular for sharing data because it is quite portable, like OGC GeoPackage with more rich data encoding possibilities.

LuciadFusion 2020.1 supports MBTiles datasets containing raster data.



Figure 7: The 2020.1 release supports raster MBTiles datasets.

## Other Improvements and Updates

### 3D Tiles Processing Engine Automatically Takes Metadata into Account

When working with 3D tiles data that represents buildings, filtering or selection based on some attribute is a typical use case. The 3D Tiles Processing Engine has been enhanced to add best-effort metadata in certain cases. For 3D building data encoded in OBJ (one OBJ file per building) and for data generated by tools like IFCCovert (<http://ifccopenshell.org/ifccconvert>), building IDs are automatically added to the resulting 3D tiles dataset and service.

### OGC WCS Service Performance Boost via Tile Cache

In line with the implementations for the OGC WMS and WMTS services, the WCS service also has a tile cache built in now. This results in an important performance increase and better scalability of the LuciadFusion WCS services.

### Military Symbolism Support Enhancements

The existing support for military symbology on the CPU-based 2D view has been further brought into sync with the other implementations. This brings the benefit of improved accuracy on the GXY view, improved cross-product consistency in terms of rendering and editing, and improved performance, especially when halos are added for improved readability.

A few missing tactical graphics and unit symbols have been added, ensuring LuciadFusion offers complete support for military symbology following the APP-6D specifications.

### Product Documentation Improvements

The LuciadFusion documentation overview is reorganized to make help easier to find. Users can now find their way based on their level of experience with a component and their goals. The split between LuciadFusion Studio, LuciadFusion Platform, and advanced functionality is now clearer, and some



major new features got a dedicated documentation section, like the failover and load balancing setup described in section [Smooth Load Balancing and Failover Setup](#).

### ArcSDE Connector No Longer Distributed as Part of LuciadFusion 2020.1

The ArcGIS 10.2 series of releases with ArcGIS 10.2.2 in 2014 were the last releases that included the ArcSDE application servers and SDK. As a result, the connector for ESRI ArcSDE was deprecated within LuciadFusion since version 2016.0.

ArcGIS 10.2.2 is no longer supported by ESRI as of July 2019. At this moment, more than a year later, we have no knowledge of any LuciadFusion customer still using ArcSDE, so we have removed the ArcSDE connector from LuciadFusion 2020.1. If this impacts your project, please contact us at [product.management.luciad.gsp@hexagon.com](mailto:product.management.luciad.gsp@hexagon.com).



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