# Release Guide

LuciadCPillar 2020.2

28 April 2021

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# About This Release

The LuciadCPillar 2020.2 release enriches the product with support for labeling, including a labeling API. We have also extended format support with a SHP decoder and an OGC®WMS client, including capabilities parsing.

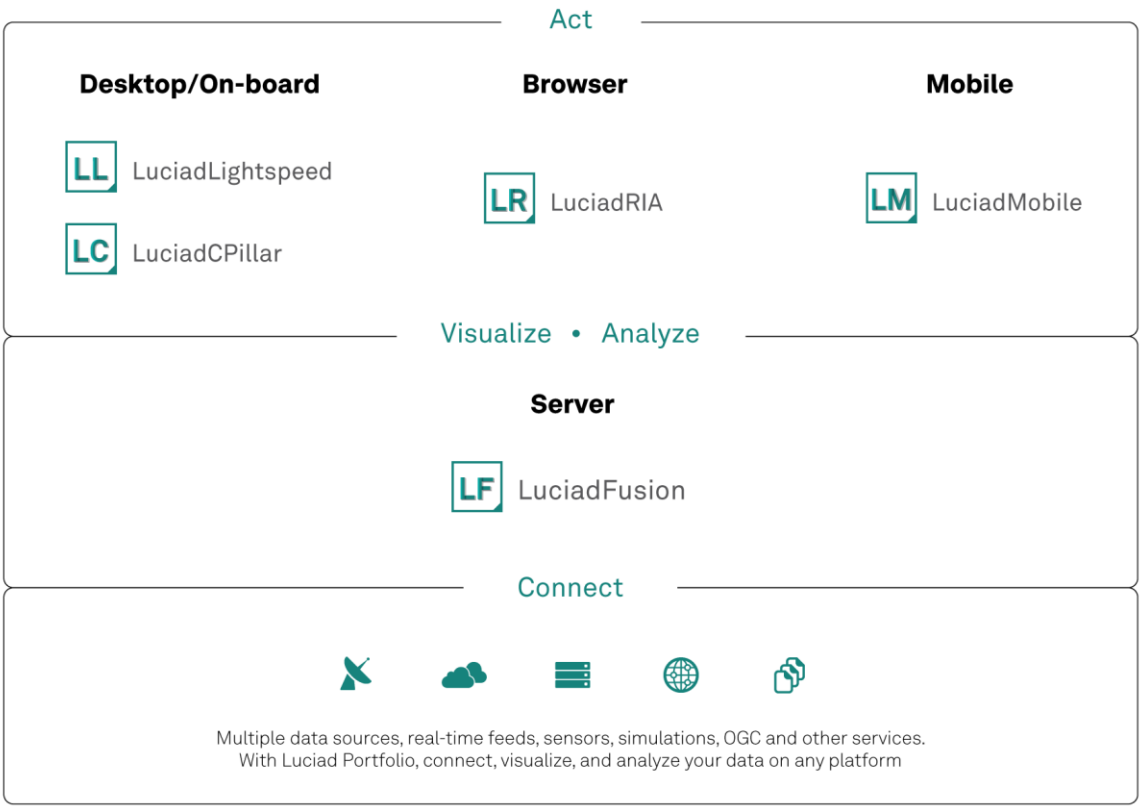


Figure *1: The Luciad Product Portfolio allows you to visualize, analyze, and act on your data.*

# New Feature Benefits

## Labeling

You can now label your vector data using LuciadCPillar 2020.2. This enables you to augment visual information on data geometries using data attributes such as the names of rivers and cities or the call signs of live air tracks.

### Add Labels to Your Vector Data in 2D and 3D

LuciadCPillar offers labeling for point elements, lines (this can be straight lines or any type of curve), and areas, including extruded areas. The labels are supported both in 2D and 3D and will only require you to code once. Remember that LuciadCPillar offers a single code path for 2D and 3D.

Line labels are rendered along the line. Labels for areas are typically placed inside those areas.

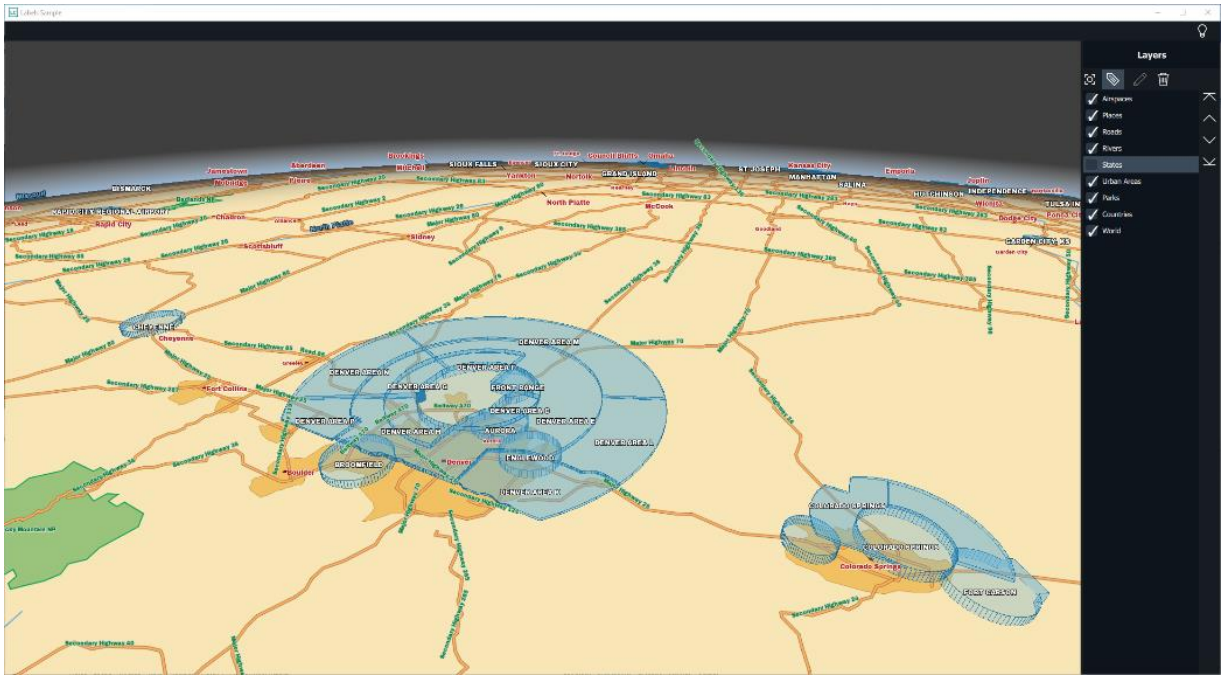


Figure 2: This labeling sample illustrates labels for various types of vector data. The map view is configured in 3D.


Figure 3: This labeling sample illustrates labels for various types of vector data. The map view is configured in 2D.

## An API for Label Styling Based on the Data, Viewing Scale, and Object State

Style your labels by defining the label content formatting as well as the appearance (font and color). Depending on the viewing scale, the labels can have limited or richer content. For example, when zoomed out, air tracks only show a call sign. When looking nearby, the labels also display height and speed of the track.

You can also choose to show more information for the selected objects. You can also display label content that extends over multiple lines.


Figure 4: You can display label content over multiple lines. In this example, you can see more information on the label when you select the city. Cities that are not selected only show their name.

## Configure Label Placement and Decluttering

The API allows you to set parameters to guide label placement. These parameters include the position of the label relative to the object (e.g., north, south, east, or west) and the distance to the object. If a label is positioned far away from the object it applies to, you can optionally add a pin line.


Figure 5: Use label placement configuration and label decluttering to present a clear operational picture.

For a clear and meaningful picture, labels are automatically decluttered (i.e., if the view is too crowded, some labels are removed). You can control which labels are removed by assigning priorities to labels. Labels with a lower priority are removed if they conflict with higher priority labels.

LuciadCPillar also removes labels for objects that are behind the terrain in 3D.

## Sample Code to Get You Started

We have added a dedicated sample to LuciadCPillar, both for C++ and C#. The *Labeling sample* illustrates the use of the API for various types of vector data and uses different label placement strategies.

## Extended Format Support

## Directly Load and Visualize Data in SHP Format

LuciadCPillar now directly decodes data in shapefile (SHP) format, including the primary .shp file as well as accompanying files.  This allows you to assign attributes to the corresponding geometry.

The SHP file format describes vector data without styling information, so you can style the data using the styling API available since the first release of LuciadCPillar.

## Efficient Data Loading

The LuciadCPillar SHP Decoder offers a query API to filter the data for loading. This allows you to load bigger datasets more efficiently by filtering out data features depending on view scale, for example. Furthermore, the decoder will make use of the record index and spatial index, if present, to speed up data loading.

If no spatial index is present, the decoder will create one, provided there is write access to the SHP data location. This behavior is similar to the GDAL library[1]; LuciadCPillar depends on this library to load SHP data files.

## Directly Connect to Open Geospatial Consortium (OGC) Web Map Services (WMS)

Standardized exchange protocols like WMS are ideal to access geospatial data remotely. These protocols can either be a public service or a dedicated service for your system. LuciadCPillar now offers support for OGC WMS, in addition to the existing support for OGC Web Map Tile Service (WMTS).

The API offers capabilities parsing to explore the data on a given WMS service and to easily create a user interface that you can use to select the desired data layers.

## Sample Code to Get You Started

We have extended the *Data formats* sample in C++ and C# to support loading SHP data as well as connecting to a WMS server. The sample illustrates the use of the API for connecting to a WMS service and includes a sample user interface.

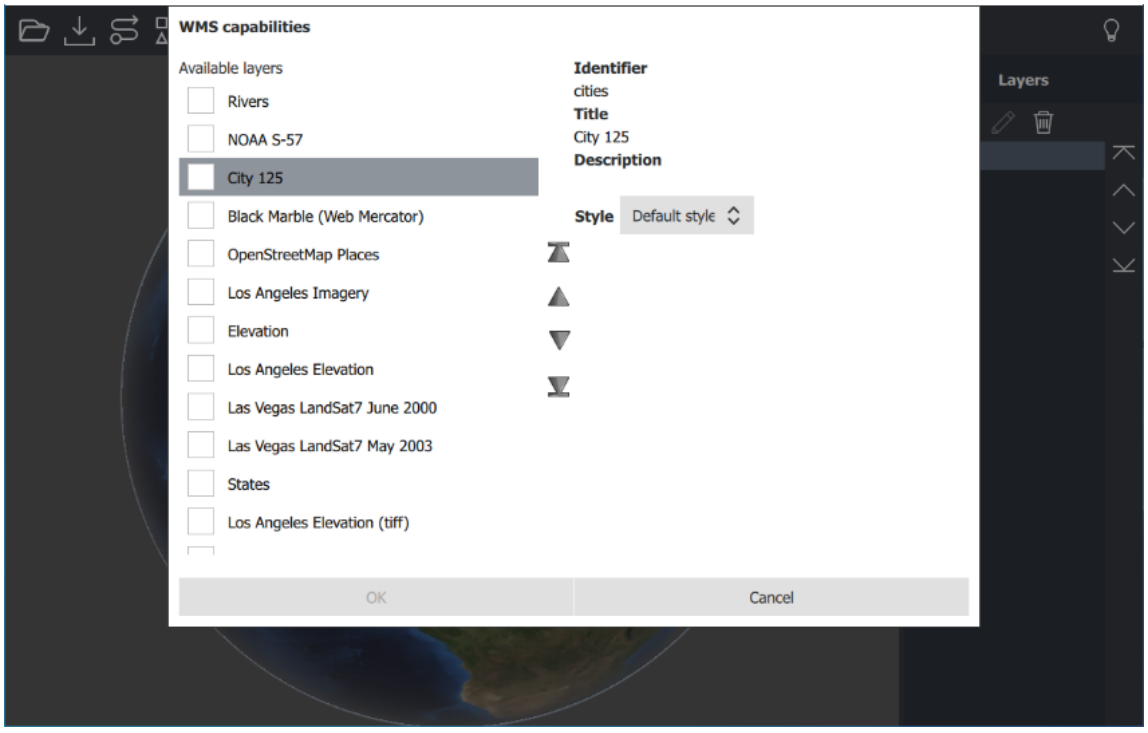


Figure 6: The data formats sample presents a possible user interface for easy configuration of WMS requests based on automatically detected server capabilities.

[1] www.gdal.org

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