

Julia

Abstract

The Geospatial Data Abstraction Library (GDAL), is an Open Source library for assortment of a variety of raster geospatial data formats. The origins of the library were in 1998 and developed significantly from the origin. GDAL has its own data model and application programming interface(API). Starting with a single developer, GDAL is now a distributed project that has a large number of developers contributing towards its enhancements.

Geospatial

Geospatial data or geographic information it is the data which identifies the geographic locations and boundaries on Earth. The locations can be any natural like oceans or constructed like monuments and more. Geospatial data is usually stored as coordinates and topology, and this data can be mapped. Geospatial data is accessed through Geographic Information Systems (GIS). This can also be analyzed or manipulated.

Julia Installation

Julia installation is straightforward, whether using precompiled binaries or compiling from the source. We can download and install Julia by following the instructions at <https://julialang.org/downloads/>. We start an interactive session by double-clicking the Julia executable or running `julia` from the command line.

```
Last login: Sat Oct 26 21:26:46 on tty001
(base) Poojithas-Air:~$ julia
Documentation: https://docs.julialang.org
Type "?" for help, "]" for Pkg help.
Version 1.2.0 (2019-08-20)
Official https://julialang.org/ release

julia>
```

Once the user has entered a complete expression and hits enter, the interactive session evaluates the expression and shows its value. If an expression is entered in an interactive session with a trailing semicolon, its value is not shown. The variable `answer` is bound to the value of the last evaluated expression whether it is shown or not. The `answer` variable is only bound in interactive sessions, not when Julia code is run in other ways. To exit the interactive session type `CTRL-D` or simply type

exit()

Interaction with GDAL

GDAL, as a library, it presents a single abstract knowledge model to the line application for all supported formats. it's going to even be engineered with a range of helpful command line interface utilities for knowledge translation and processing. The PROJ library supports projections and transformations.

The OGR Simple Features Library, is part of the GDAL source tree, provides a similar ability for simple features vector graphics data. GDAL was developed primarily by Frank Warmerdam till the release of version 1.3.2, when maintenance was officially transferred to the GDAL/OGR Project Management Committee under the Open Source Geospatial Foundation.

GDAL/OGR is considered as an important free software project for its "extensive capabilities of data exchange" and also in the commercial GIS community because of its widespread use and comprehensive set of functionalities.

Conclusion

Starting with Julia programming language we are referring to class modules and Julia documentation to work on Julia code in Jupyter Notebooks. We are also going through the necessary packages that will be needed to work with Geospatial data. This is the initial stage of the project in which we are going through the GDAL source tree and functionalities and further we will be coming up with the results like reading images and plotting Rasters using GDAL.

References

- [1]<https://en.m.wikipedia.org/wiki/GDAL>
- [2]https://en.wikipedia.org/wiki/Geographic_data_and_information
- [3]<https://gdal.org/>
- [4]<https://docs.julialang.org/en/v1/>
- [5]<https://julialang.org/downloads/>