

{{lastupdated\_at}} by {{lastupdated\_by}}

# GammaLib

GammaLib is a self-contained, instrument independent, open source, multi-platform C++ library and Python module that implements all code required for high-level science analysis of astronomical gamma-ray data.

GammaLib does not rely on any third-party software, except of HEASARC's cfitsio library that is used to implement the FITS interface. Large parts of the code treat gamma-ray observations in an abstract representation, and do neither depend on the characteristics of the employed instrument, nor on the particular formats in which data and instrument response functions are delivered. Instrument specific aspects are implemented as isolated and well defined modules that interact with the rest of the library through a common interface. This philosophy also enables the joint analysis of data from different instruments, providing a framework that allows for consistent broad-band spectral fitting or imaging.

GammaLib is open source and released under the terms of the [GNU General Public License v3](#) (GPL).

## Features

Some of the main features of GammaLib are:

- joint multi-instrument analysis
- supports Fermi/LAT binned analysis (Pass 7 data)
- supports CTA analysis (and IACT analysis in general)
- supports COMPTEL analysis
- inclusion of arbitrary multi-wavelength data in maximum likelihood fit
- supports creation of ftools

## Getting GammaLib

The latest version of the GammaLib code can be retrieved using Git

```
$ git clone https://cta-gitlab.irap.omp.eu/gammlib/gammlib.git
```

In case that you get error: SSL certificate problem, verify that the CA cert is OK. you should add

```
$ export GIT_SSL_NO_VERIFY=true
```

before retrieving the code. Before you can build the GammaLib version obtained from Git you have to generate the configuration script using

```
$ ./autogen.sh
```

Then you may proceed with the usual

```
$ ./configure
$ make
$ make check
$ [sudo] make install
```

## Documentation

The GammaLib documentation is available on the dedicated web site <http://cta.irap.omp.eu/gammalib/>. This documentation refers to the last gammalib release. The documentation corresponding to the current development branch can be found at <http://cta.irap.omp.eu/gammalib-devel/>.

Below a few important links:

- [User Manual](#)
- [Coding Conventions](#)
- `{{dmsf(8,Mathematical implementations)}}` (early draft version)
- `{{dmsf(6,Instrument-specific interface)}}` (early draft version)

## Support & getting help

You may submit a support request, a feature request or a bug report by [creating an issue](#). Before you should read the [\[Submission guidelines\]](#).

**And also check the [\[Most frequently encountered problems\]](#).**

## Contributing

If you would like to contribute to the development of GammaLib, please send an e-mail to [jurgen.knodlseder@irap.omp.eu](mailto:jurgen.knodlseder@irap.omp.eu) by specifying in which area you would like to contribute.

**Once you have a user ID and a password, please read [\[Contributing|Contributing to GammaLib\]](#) before starting your software development.**