VIRTUAL ASTRONOMICAL OBSERVATORY

The Iris Software Development Kit

Adding Capabilities to Iris

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VAO

Iris v1.2-beta3

Visualization improvements

- Individual points metadata tree display
- Metadata browser with boolean filters

Infrastructure improvements

- Plugins framework now stable
- New Plugin Manager
- Shipping ASDC plugin in ‘contrib’ directory

Other improvements

- Several bug fixes

Iris features summary

SED Builder

- Load SED Segments from File, URL
- Add/Edit/Save/Delete:
  - Photometry Points
  - Photometry Catalogs
  - Entire SEDs, Spectra
- Import non-compliant user files from many different formats
- Integrated client for NED SED service
- SAMP I/O with SED message extension

SED Viewer

- Metadata Filtering through user defined boolean expressions or interactive selection
- Display single point metadata in tree format
- Interactive Aperture Correction

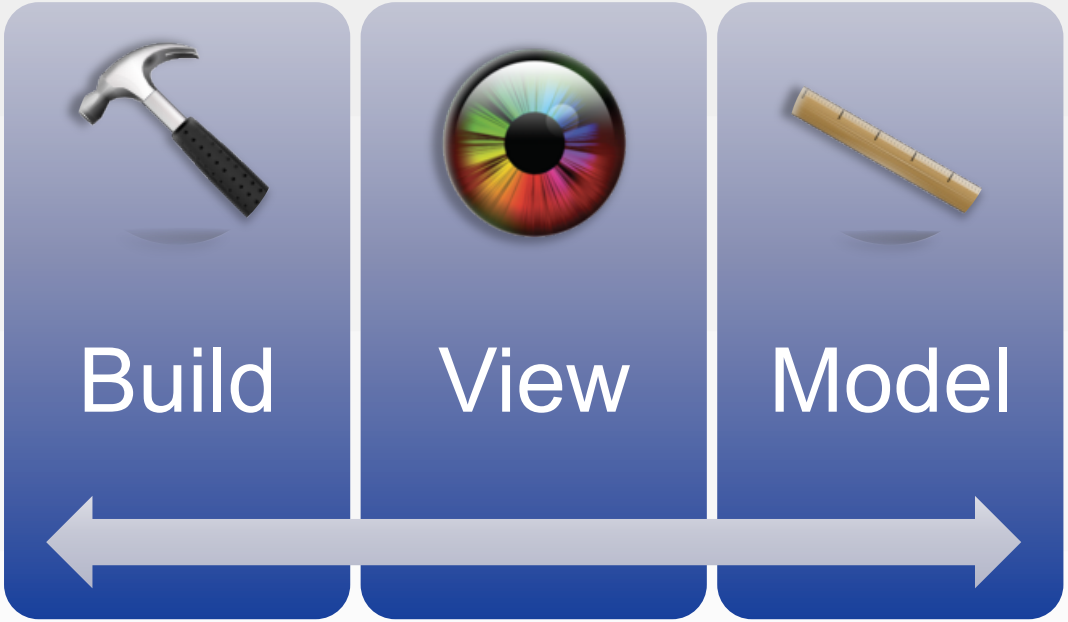
Fitting Tool

- Arbitrarily combine model components in different spectral ranges
- Compute confidence intervals for best fit parameters
- Template Fitting

Meeting fluid requirements

Built-in Capabilities

- Iris provides a fair share of generic capabilities for building, editing, viewing and analyzing SEDs.



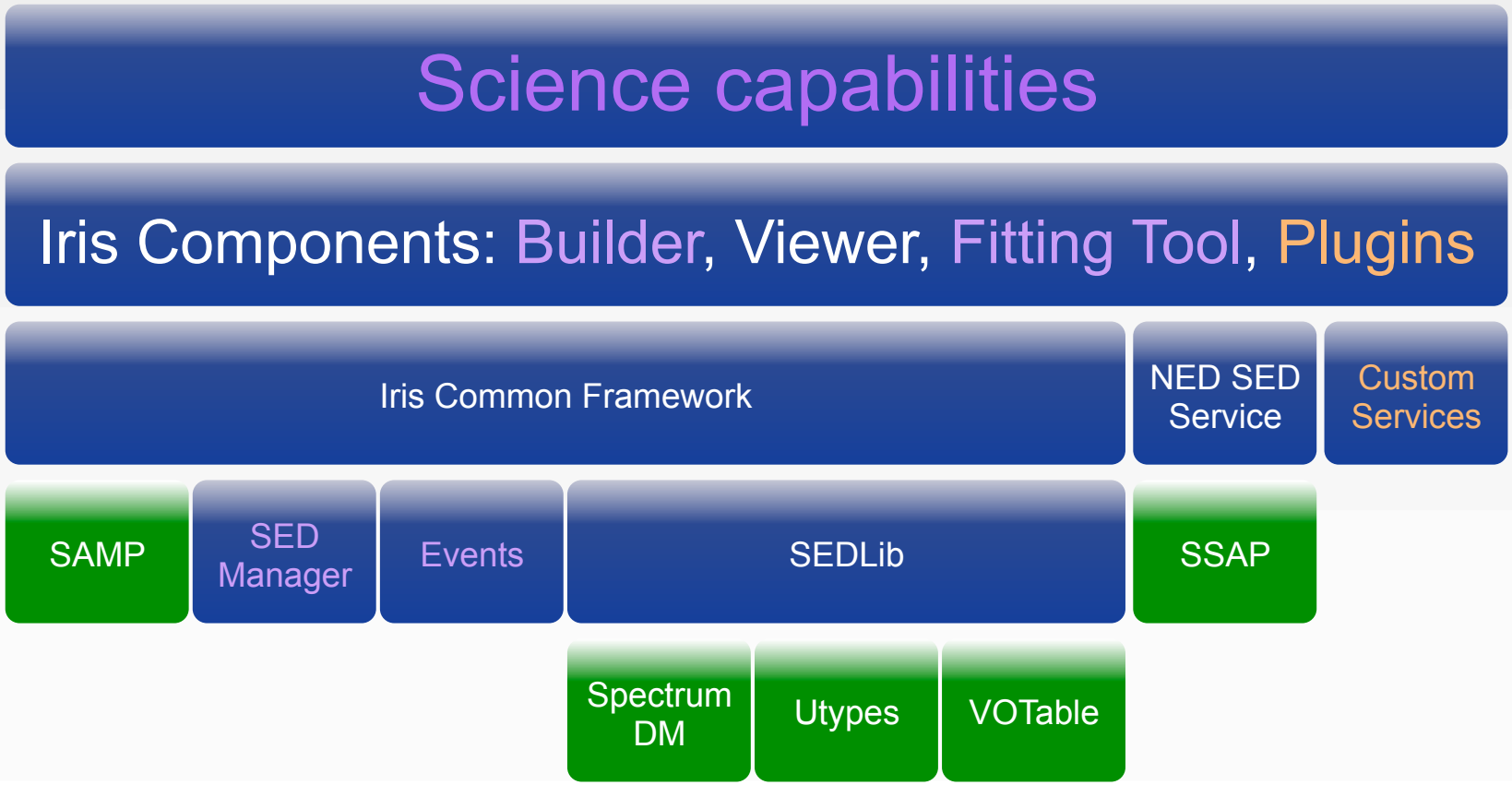
Extensions

- Iris provides a high number of possible customizations and extensions, so that specific science cases can be built on top of the basic infrastructure.

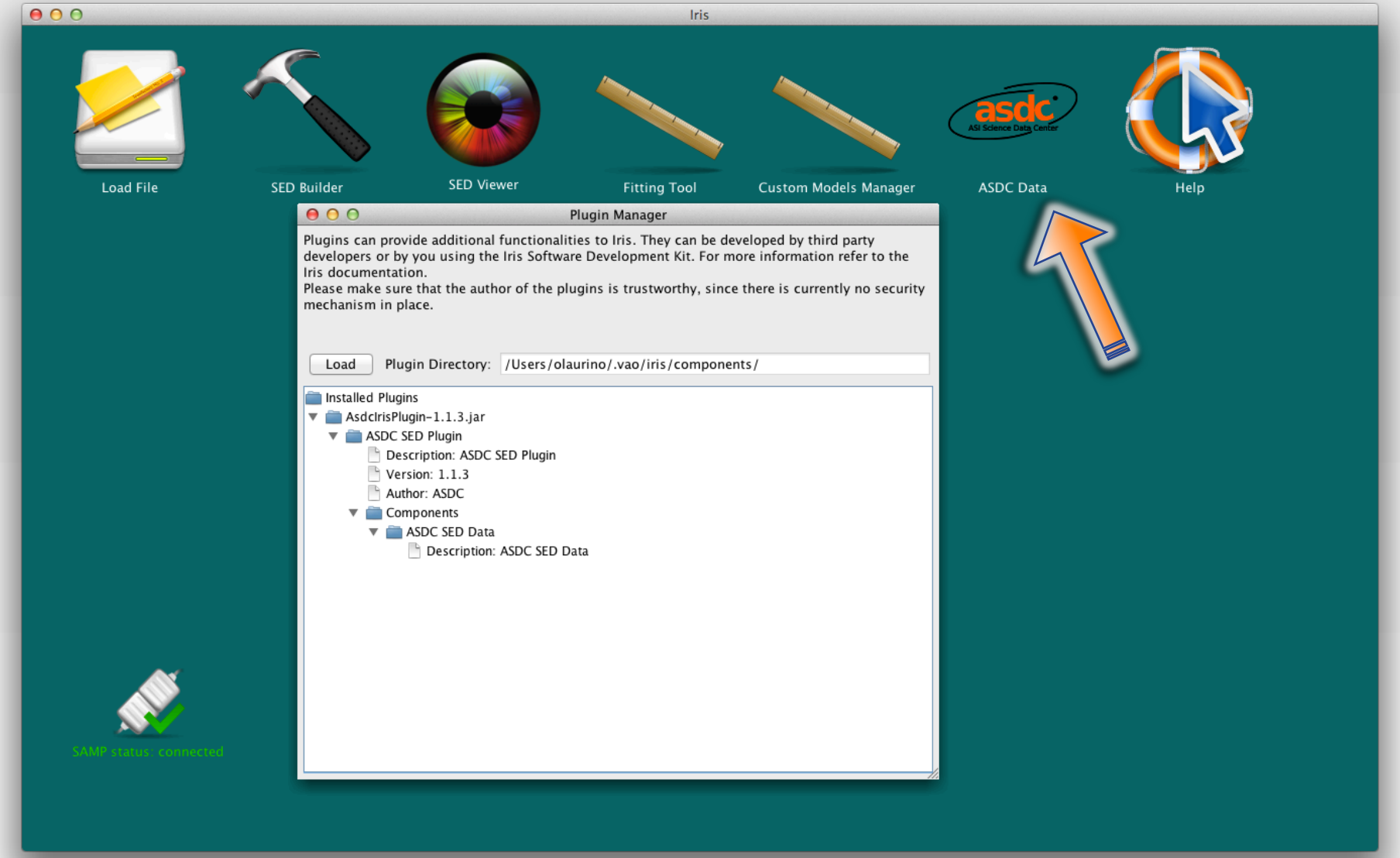
Meeting fluid requirements

Iris components stack

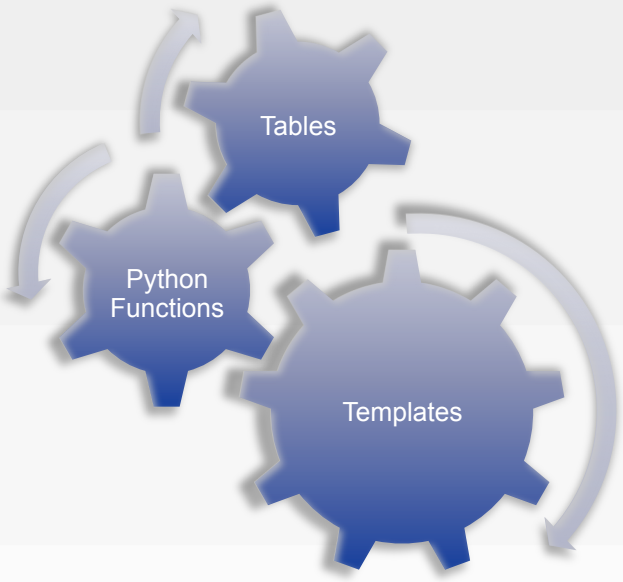
- Builds up a high-cross-section stack of tools, hiding the standards implementation layer from the science layer, in a loosely coupled extensible architecture



Extensibility and Interoperability



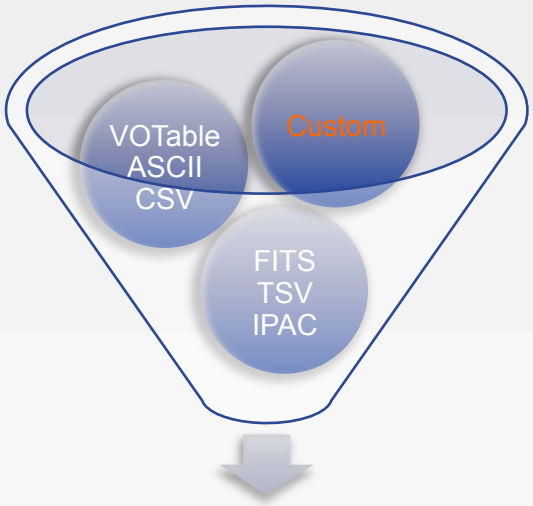
Extension points: Fitting Tool



Custom Models

- Sherpa (Iris default fitting engine) allows users to extend the set of existing models by loading:
  - Template Libraries for Template Fitting
  - Custom Python functions
  - Model profiles as custom data tables

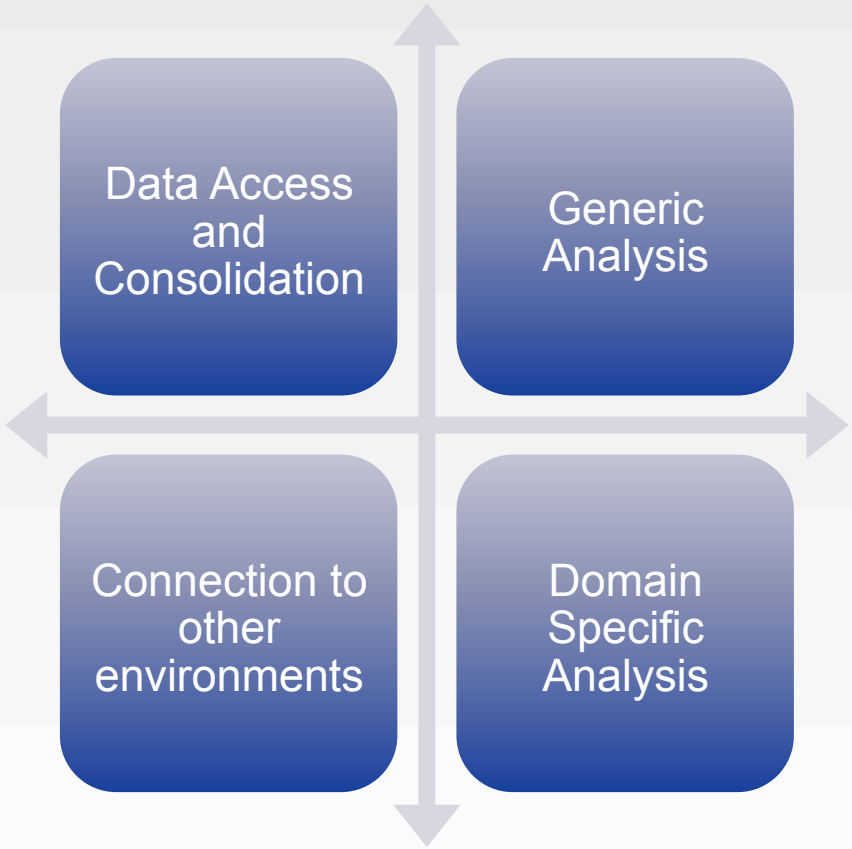
Extension points: SED Builder



File Filters

- The SED Builder component allows to define new file filters that can be loaded at runtime to import data from non supported file formats, or from particular flavors of supported formats.

Extension points: Plugins



Production plugins

- Query to ASDC catalogs

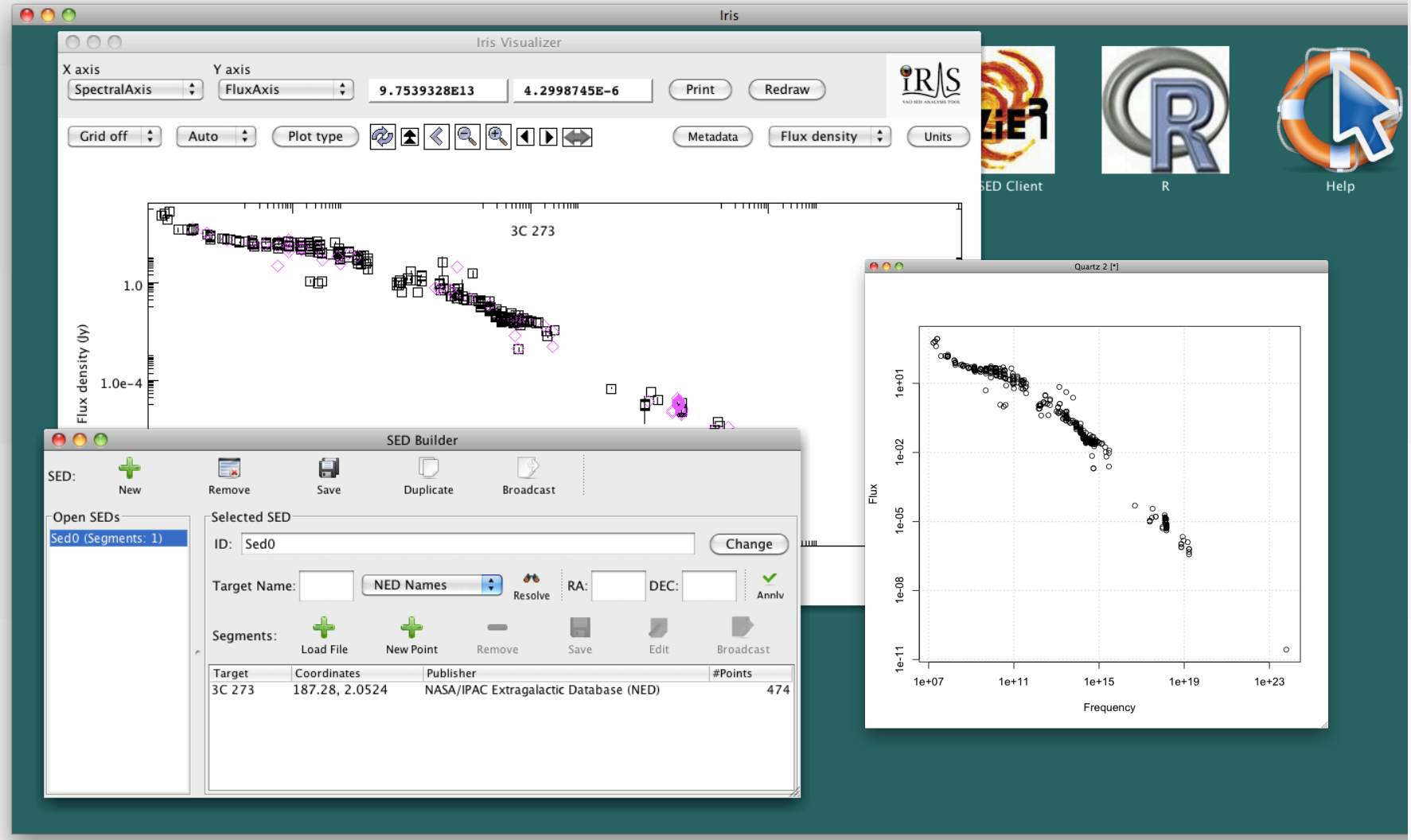
Experimental plugins

- Iris-R bridge
- Query to Vizier

Future Plans

- Blazar analysis toolbox (with ASDC)
- Evaluation of an Education Plugin

R Plugin proof of concept



Extension points

SED Manager attachments

- The SED Manager allows plugins to attach arbitrary files to SEDs, so to store additional information.

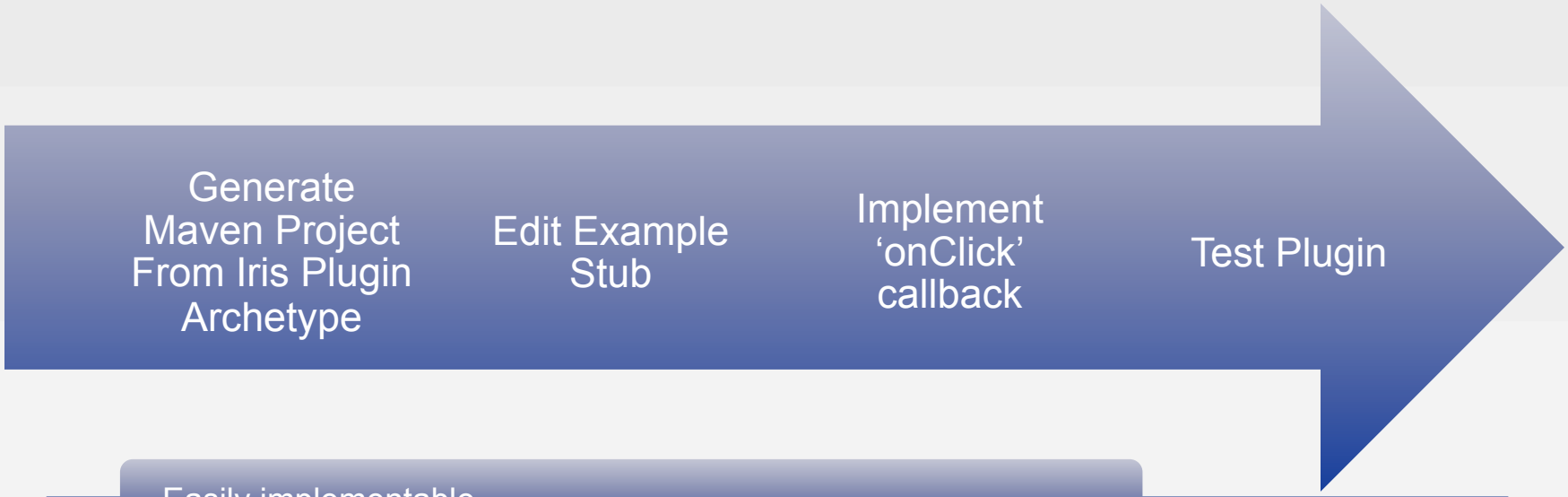
SAMP Handlers

- Plugins can directly register as SAMP listeners, and they don't have to worry about the SAMP connection/registration details.

Events

- An extensible Events Framework enables a loosely coupled architecture.
- New Events can be easily added to the framework.

How to write Iris plugins (Java)



Easily implementable

- Example Plugin is 100 lines worth of code.

Smart dependencies

- Dependencies not already included in Iris are automatically packaged with the Plugin.

Branding

- Plugins are completely customizable and can be branded with the Provider's logo.

Future plans

Release v1.2

- Update documentation
- ASDC plugin shipped with the main distribution
- Distribute Software Development Kit (currently in public VAO repository)

Standards and Protocols

- Migration of SEDLib and NED SED service to SpectralDM2.0 and PhotDM1.0

Extensibility

- Allow plugins to contribute more fitting engines

Some new built-in science features

- Natively support more models
- Redshifting
- Correction functions

Beta Release

- http://cxc.cfa.harvard.edu/contrib/sed/