AstroNomical Information System Version 3

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Abstract. ANIS (AstroNomical Information System) is a web generic tool developed at CeSAM to facilitate and standardize the implementation of astronomical data of various kinds through private and/or public dedicated Information Systems. The ANIS architecture is composed of a database server which contains the project data, a web user interface template which provides high level services (search, extract and display imaging and spectroscopic data using a combination of criteria, an object list, a sql query module or a cone search interfaces), a framework composed of several packages, and a metadata database managed by a web administration entity. A new version of ANIS is currently in development and the main goal for this new implementation is to provide several web services access. Indeed the new version is based on a RESTful architecure and users or softwares will be able to call ANIS server via URLs. Finally user interface was redesigned in single page application (SPA) in order to streamline the user experience.

1. ANIS versioning

ANIS[1] is developed by the Information System team at CeSAM. Several major versions was produced for five years :

- ANIS v1.0.0 : march 2013

- ANIS v2.0.0 : february 2014

- ANIS v2.6.1 : october 2015 (current version)

- ANIS v3.0.0-dev : in development

2. ANIS v3 - Presentation

ANIS (Gimenez et al. 2014) software version 2 is the currently version in production at CeSAM.

ANIS provided several data mining functionalities :

- search using a combination of criteria

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[1] `http://cesam.lam.fr/anis`

- search around a position (by ident, coordinates or IAU ident)

- search using an object list (list of ident or coordinates)

- search using direct SQL query

Users can display results through result table and also have ability to extract and visualize images or 1D spectra associated to a dataset. We developed the direct download of catalogues in VO-Table, FITS and ASCII formats, of images and a SAMP broadcasting with which users can send informations to Aladin, Topcat or others VO compliant softwares directly from the information systems.

From an architectural point of view, ANIS v2 is composed of a monolithic structure containing web pages (HTML, CSS, jQuery) as well as the PHP source code for querying databases.

2.1. ANIS v3 - The evolutions

To provide new associated services, we decided to run the development of a version 3.

With this new version, users will be able to querying the ANIS REST server directly without going through the web interface. Indeed, the web application will become a client among others. In addition, software maintenance will be facilitated by the weak coupling between the client side and the server side.

The new architecture was created and is composed of several entities:

- A PHP REST server for querying databases (metadata database and scientific database);

- A single Page Application (SPA), made with Angular 2/TypeScript, HTML and CSS, allows the user to query the REST server via AJAX requests (GET, POST, PUT, DELETE);

- Web services like astronomical image fits-cut, spectrum display, export archives.

The server part is developed with a PHP micro-framework named SLIM and uses an object-relational mapping API named Doctrine 2 to link the metadata database with the PHP application. To Do reference publications and posters

2.2. ANIS v3 - technical solution
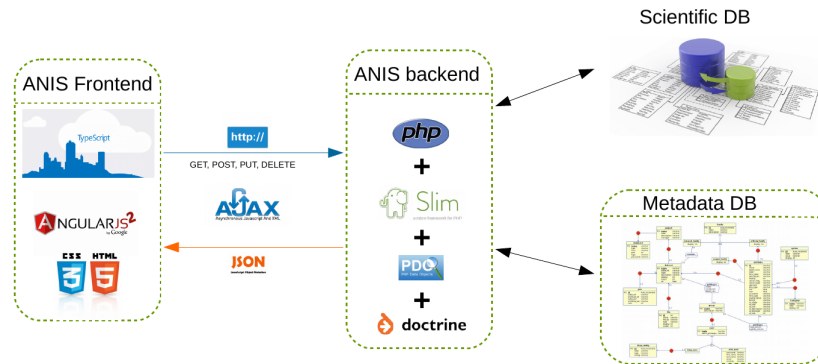
3.   Functionalities provided by ANIS

ANIS provides high level services like search, extract and display imaging and spectroscopic data using different search interfaces.
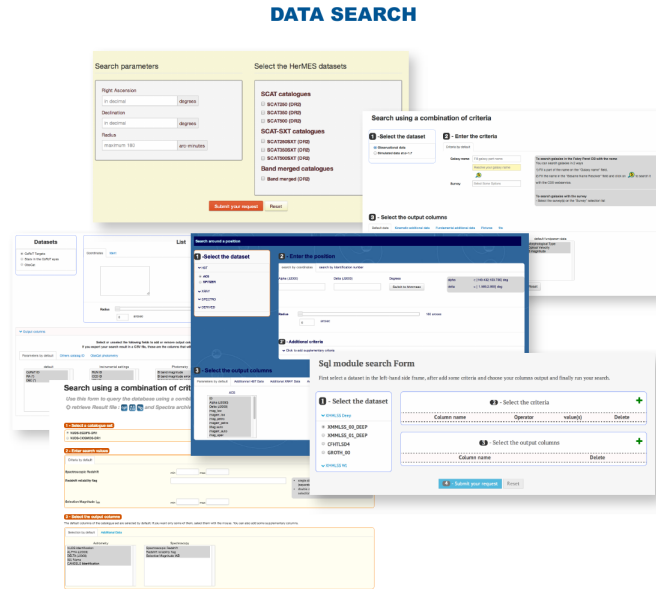
ANIS provides services for display and extraction the results for different searches in VOTable, FITS, CSV and ASCII formats. It may also, when data is available, download an archive of spectra and corresponding fits-cut looking.
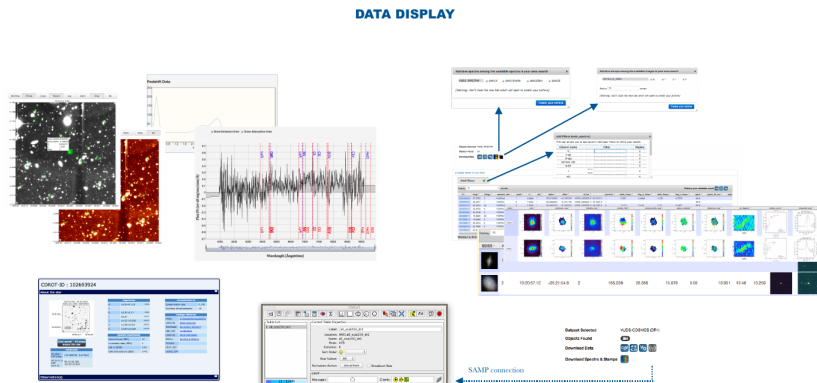
4.   CeSAM

Laboratoire Astrophysique de Marseille (LAM) gathered their forces working in computing for Astrophysics in the Astrophysical Data Center of Marseille (Centre de don-

nées Astrophysique de Marseille-CeSAM). CeSAM[2] is developing software, WEB based applications, databases, numerical simulations and image processing modules.

5.   Information Systems at CeSAM through ANIS

CeSAM hosts various public or private datasets[3] under ANIS (Moreau et al. 2015) environment for different Cosmological projects (HeDAM, VVDS, HST-COSMOS, FabryPerot, ...) and Stars and Exoplanets projects (ExoDat, Sphere).

6.   Easy process for implement a new ANIS instance

The process for implement a new ANIS instance at CESAM is easy and fast:

- the scientific project submits data to CESAM or provides secure access to its data;

- CESAM installs the new instance (web interface and database metadata model);

- the project administrator configures the instance by using the web entity ANIS-Administration with CeSAM technical support.

References

Gimenez, S., et al. 2014, ASPC, 485, 195
Moreau, C., et al. 2015, ASPC, 495, 433