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New features for Aladin 2.0

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Abstract. We present the main new features of the Aladin interactive sky atlas (version 2.0, November 2003). The Aladin tool is able to query a remote server providing new VO DAL[1] outputs and to interpret the result. Aladin is able to build a metadata tree from the description of a dataset, in order to easily browse through all data available in a sky region on a server or in a local folder. It is now possible to interface Aladin to other Java applets in a standard way, and this has been applied to VOPlot. In addition, Aladin can now parse VOTables from various origins. It is also possible to recalibrate the astrometry of images, using different astrometric reduction methods, or to create manually a new calibration using a reference catalogue. Other miscellaneous changes have been implemented.

1. Introduction

The AladinJava tool was first released in 1999 long before the VO efforts started. Version 2, released just after ADASS 2003 meeting is a major new release implementing several new features and enhancing the role of Aladin as a VO portal (Figure 1). Several new developments described here have been initiated for the AVO prototype.

2. Compatibility with VO standards

The emerging VO standards are already implemented in Aladin, allowing users to access VO image and data servers, immediatly available in Aladin by describing these servers in the GLU registry.

2.1. VOTable

VOTable has been the first IVOA standard. Defined as an XML DTD, VOTable is intended to provide a common standard for astronomical tables, or table sets. A light VOTable parser, SAVOT[2], has been implemented in Java and integrated

[1]Data Access Layer

[2]`http://simbad.u-strasbg.fr/public/cdsjava.gml`

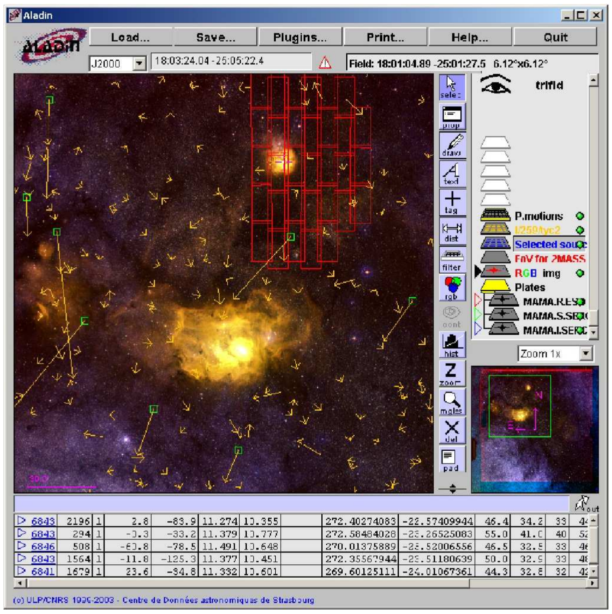

Figure 1. RGB image built from 3 plates (ESO/R, SERC/SR, and SERC/I) with Tycho2 catalog overlay and a filter displaying the proper motions for the faint stars in the Trifid nebula field.

to Aladin. It allows to access various servers of astronomical catalogues, as well as metadata descriptions such as SIA and IDHA servers (see below)

2.2. ExtApp interface

This Java interface between two collaborative applications describing how to transmit data, how to select astronomical objects allows one to integrate external tools into Aladin, as long as they are able to cope with VOTable, e.g. VOPlot (Figure 2) - VOPlot is a VO-India/CDS collaboration (S.Kale et al, 2004) -

ExtApp makes easier collaboration with other projects. Miscellaneous applications have been tested, but not yet retained in the public interface.

2.3. Data Access Layer protocols

Strong effort has been made in the IVOA to provide standardized access to images available on the WEB. SIA protocol[3] standardizes the image request and image retrieval methods. SIA compliant servers provide metadata for the images in VOTable format. Developped in parallel to SIA, and based on the IDHA data model[4], IDHA VOTable used in the AVO scientific demonstrations provides more structured metadata. Aladin is now able to request both DAL compliant servers and to interpret the outputs (see next section).

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[3] http://www.us-vo.org/news/simspec.html

[4] http://cdsweb.u-strasbg.fr/idha.html

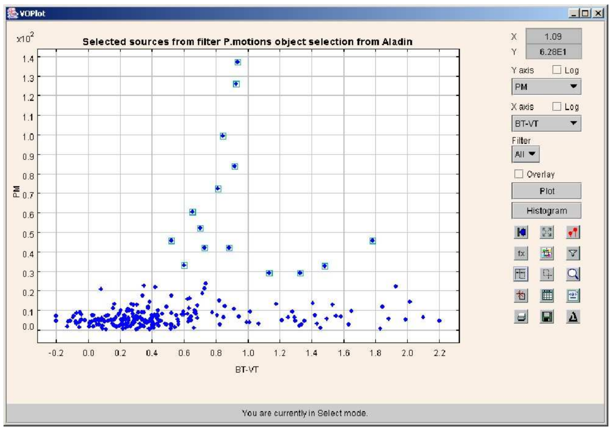

Figure 2. VOPlot drawing (proper motion compared to BT-VT) for Tycho2 objects displayed in Figure 1

3. Metadata Tree browser

This feature organizes image metadata in a uniform way , allowing to browse huge datasets and select data within them. Currently the only condition is that MetaData are provided in IDHA VOTable or SIA protocol format. Data in local directories will appear in the same coherent structure. The metadata tree feature makes Aladin a strong data integrator (Figure 3).

4. Access your own data

In addition to this user directory "autoscan", it is also possible to read "hand made" local metadata documents (SIA or IDHA compliant) and to describe in the GLU dictionnary any server returning either VOTable or SIA/IDHA VOTable. Using these descriptions, the Aladin software generates dedicated dialog boxes for each server.

5. Other new features

- Online reduction
  This dynamical computing feature allows to fix wrong astrometric solutions, to achieve compliance between astrometric solutions of a set of images, to compute solutions for uncalibrated images and convert XY positions catalogues to World coordinates.
- Value scaling facility
  In previous versions of Aladin the "autocut" facility provided appropriate value scaling for most of the images. In this version we added to this "autocut" the possibility of choosing the extrema of the scaling interval.
- Help menu to write filters
  The filter facility implemented in the previous main release was lacking

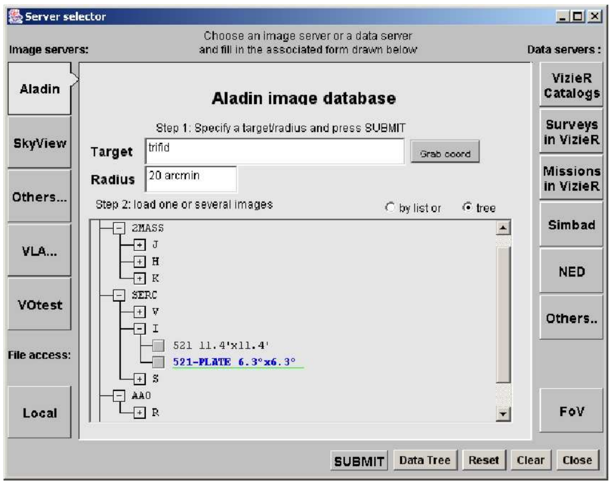

Figure 3. Metadata tree provided by Aladin server in the Trifid nebula field displayed in Figure 1

a user-friendly way of writing new filters. A popup menu provides now assistance to the user in this task.

- New script commands to manipulate stack folders
  The script facility allows automatic command executions. It is useful for large data sets processing. This scripting facility has been extended to allow stack folder manipulation.

6. General remark on the software

All the developments described in this paper are fully available in both the applet and standalone versions. They are compatible with Java Virtual Machines version 1.1, the proportion of which among installed browsers begin still 60%.

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