

Aladin Lite: Status and Perspectives

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Abstract. Aladin Lite is a lightweight version of the Aladin tool, running in the browser and geared towards simple visualization of a sky region. Launched in 2013, it has quickly gained traction and interest from various projects. We give in this paper an overview of the current status of Aladin Lite. We will describe how Aladin Lite is used both inside CDS and by external projects in different contexts, including: to visualize results; as a central part of a discovery portal; as a visualization tool for outreach images. We will also present some recent additions and new developments: revamped and improved documentation; support for progressive catalogues; visualization of MOC (Multi-Order Coverage maps); easy access to Simbad, VizieR and NED data; previewing FITS images. Eventually, we will detail planned developments for the near future, including visualization of cubes and HTTPS support.

1. A Sky Atlas Easy to Embed

From day one, Aladin Lite (Boch & Fernique 2014) was created to be easily embedded on any Web page. With a couple of HTML lines, Aladin Lite can be used as a modular widget to visualize HiPS (Fernique et al. 2015a) datasets.

We firmly believe that this feature, combined to the flexibility and customisation provided by the Web platform, was key to its success and wide usage, as shown in the next sections.

2. Usage and Access Statistics

Visualization of the GLIMPSE360 survey¹ has been the first usage of Aladin Lite by an external project, in March 2014. It has since been integrated in CDS pages: the SIMBAD Web page for an object features an Aladin Lite-powered multi-wavelength interactive thumbnail ; in VizieR, the result of a query can be visualized in Aladin Lite. As of November 2015, Aladin Lite is integrated and used in more than 20 professional astronomy web sites. It is notably used by ICRAR (International Centre for Radio Astronomy Research) in the RASVAMT² survey monitoring tool (see Fig. 1), in ESA Sky beta (Merín 2016) as a center component of the ESAC archive portal, in the new eHST archive to visualize footprints of available images, in JUDO2 (Ebisawa 2016)

¹<http://www.spitzer.caltech.edu/glimpse360>

²<https://github.com/ICRAR/RASVAMT>

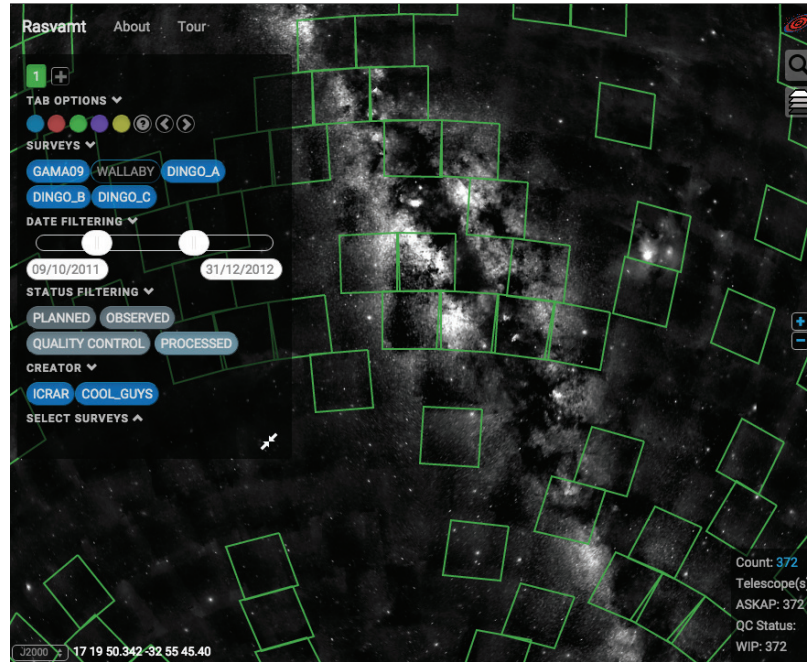


Figure 1. The RASVAMT tool, based on Aladin Lite.

to enable exploration of JAXA’s satellites data and in the Planck archive to provide previews of HEALPix maps. On average, Aladin Lite is used monthly by 40k different hosts, for a total of more than 300k startups.

3. New Features in Improved API

The Aladin Lite API is continuously improved to take into account users’ requests. Recent new features include:

- Easy access to SIMBAD, NED and Vizier data: with a single method call, sources from SIMBAD, NED or from a Vizier catalogue can be loaded and displayed. Individual measurements are shown when clicking on a given source (see Fig. 2).
- Visualization of progressive catalogues.
- Visualization of MOC (Multi-Orderage Coverage maps, Fernique et al. 2015b), as shown in Fig. 3.
- Preview in context of FITS or outreach images: FITS images with WCS and JPEG/PNG images with appropriate AVM tags can be displayed superposed to a background HiPS. The requested image is actually converted server-side to a HiPS structure.

The full API function is described in the documentation available at <http://aladin.unistra.fr/AladinLite/doc/API/>, along with interactive examples so

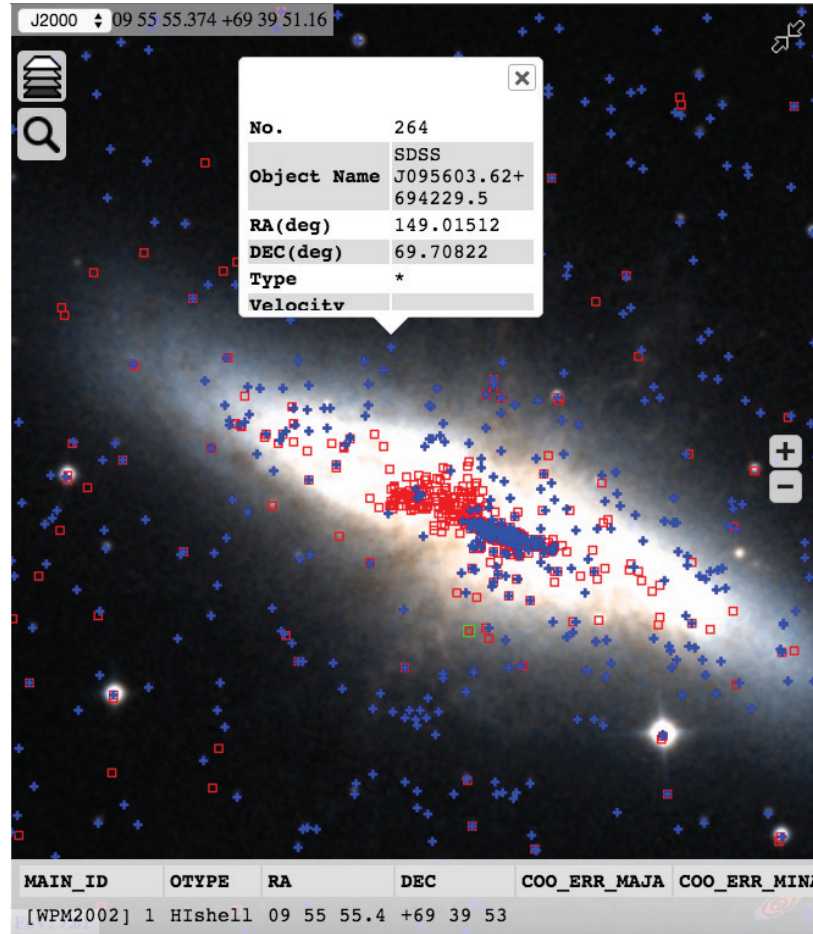


Figure 2. NED and SIMBAD objects displayed in Aladin Lite.

that developers can easily test each function. The source code has been released under the GPLv3 license.

4. Perspectives

Future developments include:

- Fixing distortion of HiPS tiles. Due to the HEALPix tessellation, tiles located at the edge between the equatorial and the polar zones are highly distorted. This currently results in incorrect astrometry in these regions, and will be fixed by recursively subdividing the distorted tiles.
- Visualization of HiPS data cubes.
- Support for HTTPS. Modern browsers are blocking active mixed (HTTP and HTTPS) content, meaning that Aladin Lite can not currently be used on a HTTPS

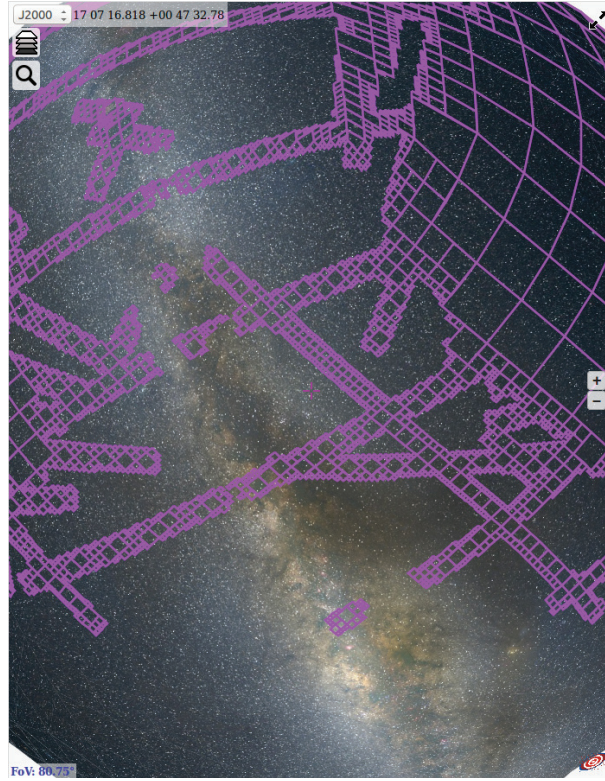


Figure 3. SDSS MOC visualized in Aladin Lite.

web page. We plan to provide HiPS tiles through HTTPS (in addition to HTTP) in order to mitigate this problem.

References

- Boch, T., & Fernique, P. 2014, in ADASS XXIII, edited by N. Manset, & P. Forshay, vol. 485 of ASP Conf. Ser., 277
- Ebisawa, K. 2016, in ADASS XXV, edited by N. P. F. Lorente, K. Shorridge, & R. Wayth (San Francisco: ASP), vol. 512 of ASP Conf. Ser., 683
- Fernique, P., et al. 2015a, in ADASS XXIV, edited by A. R. Taylor, & E. Rosolowsky, vol. 495 of ASP Conf. Ser., 133
- 2015b. 1505.02937
- Merín, B. 2016, in ADASS XXV, edited by N. P. F. Lorente, K. Shorridge, & R. Wayth (San Francisco: ASP), vol. 512 of ASP Conf. Ser., 493