

Advanced Aladin

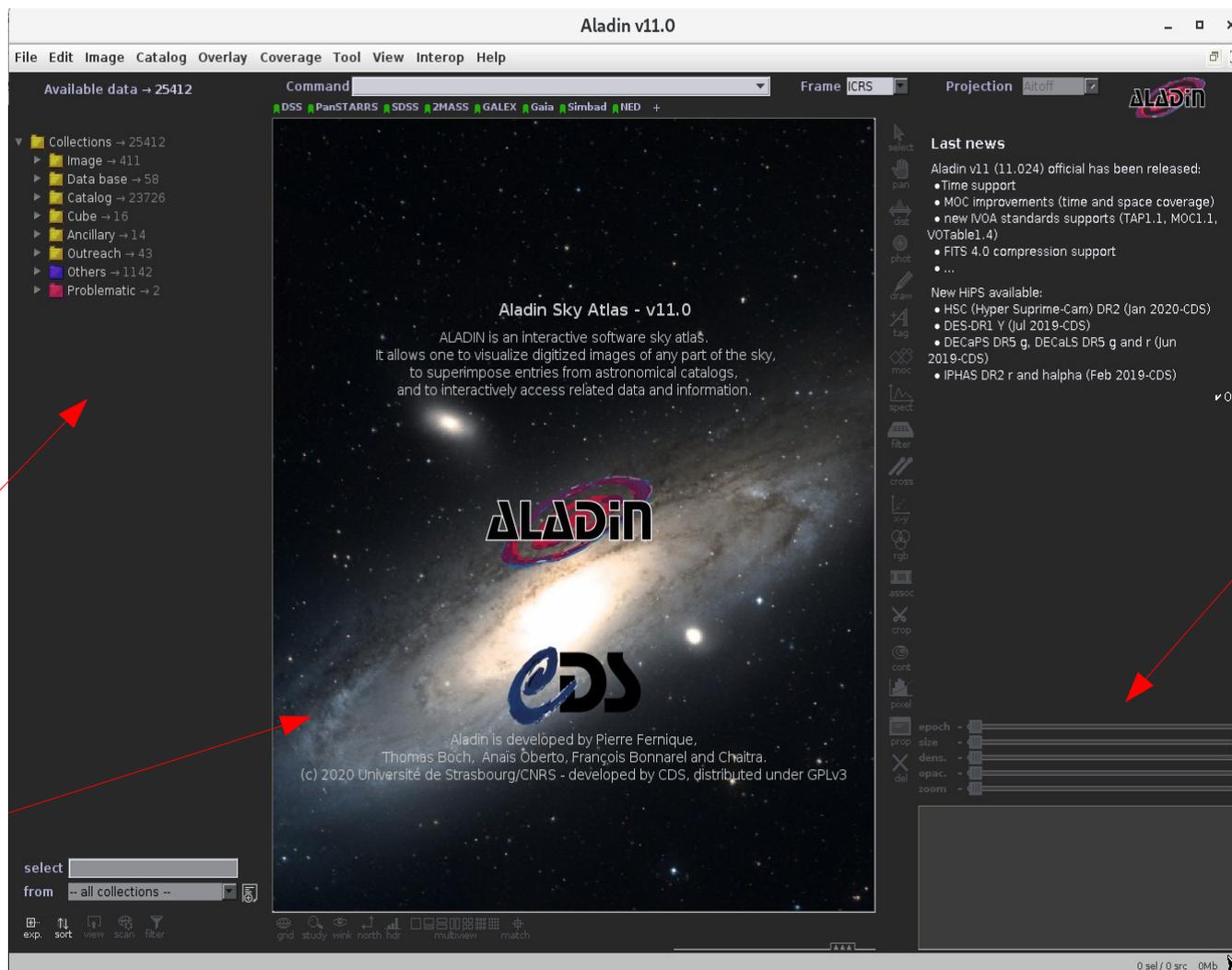
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Aladin v11

Detailed info on what's new in Aladin: <http://aladin.u-strasbg.fr/java/FAQ.htx#ToC1>

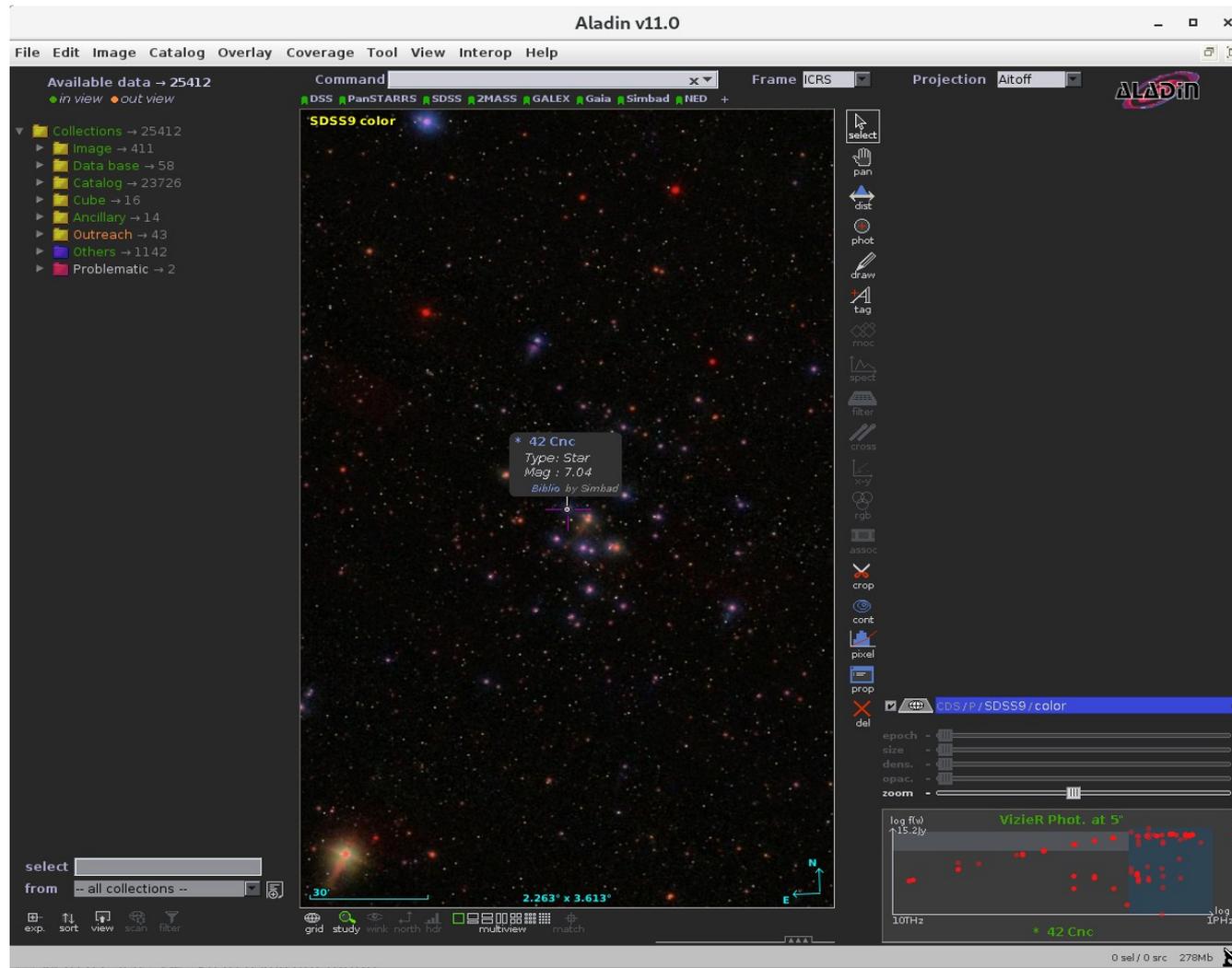


Tree panel
for data
collections

Visualization
panel

Panel for
loaded
tables,
images and
catalogues

Simbad & VizieR info



- * By clicking the right button → Astronomical object exploration (Simbad & VizieR)
- * Hitting the blue text will open a new page in your browser pointing to Simbad

Load in region / CDS X-match

The screenshot shows the Aladin v11.0 interface. The main window displays a star field with a red circular region. A dialog box is open, showing the details of a loaded catalogue: "2MASS-PSC - 2MASS-PSC - 2MASS All-Sky Catalog of Point Sources". The dialog includes options for "Access mode" (progressive, in view, by region & MOC, by CDS Xmatch, by criteria) and "derived prod." (space cov., density map). A red circle highlights the "by CDS Xmatch" option. Below the dialog, a table shows the results of the X-match operation.

angDist	RAJ2000	DEJ2000	V	RAJ2000	DEJ2000	objID
0.128380	130.0037...	20.28387...	Vi 21 eR	130.0037...	20.28387...	13234113
4.668227	130.0023...	20.28404...	Vi 21 eR	130.0023...	20.28404...	13234113
0.442854	129.9845...	20.29092...	Vi 21 eR	129.9845...	20.29092...	13234112
0.456541	129.9879...	20.27459...	Vi 21 eR	129.9879...	20.27459...	13233123
0.573778	130.0114...	20.30895...	Vi 21 eR	130.0114...	20.30895...	13237113
0.014807	130.0117...	20.29337...	Vi 21 eR	130.0117...	20.29337...	13235113
0.440282	130.0797...	20.26912...	Vi 21 eR	130.0797...	20.26912...	13232113
0.524001	130.0742...	20.26855...	Vi 21 eR	130.0742...	20.26855...	13232113

* Overlay/phot: draw a circular region

* Load catalogue from the left hand panel “by region & MOC” → this will load all sources in the catalogue within the region drawn

* Load another catalogue from the left hand panel “by CDS Xmatch”) → this will cross-match both catalogues in the region drawn and load the result

Time controller

The screenshot displays the Aladin v11.0 interface. The main window shows a star field with a red circle and a blue square highlighting a specific region. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a command line, and a toolbar with various tools like select, pan, dist, phot, draw, tag, moc, filter, cross, crop, cont, pixel, prop, and del. A table of objects is visible at the bottom, and a small inset map shows the current field's location in the sky.

Available data → 265 / 25412
● in view ● out view

Command 08:39:49.45 +20:14:29.3 Frame ICRS Projection Aitoff

SDSS9 color

angD1 st	RAJ2000	DEJ2000	V	RAJ2000	DEJ2000	objID
0.128380	130.0037...	20.28387...	VizieR	130.0037...	20.28387...	1323413
4.668227	130.0023...	20.28404...	VizieR	130.0023...	20.28404...	1323413
0.442854	129.9845...	20.29092...	VizieR	129.9845...	20.29092...	1323412
0.456541	129.9879...	20.27458...	VizieR	129.9879...	20.27458...	1323312
0.573778	130.0114...	20.30895...	VizieR	130.0114...	20.30895...	1323713
0.014807	130.0117...	20.29337...	VizieR	130.0117...	20.29337...	1323513
0.440282	130.0797...	20.26912...	VizieR	130.0797...	20.26912...	1323213
0.524001	130.0742...	20.26855...	VizieR	130.0742...	20.26855...	1323113

epoch - [] +
size - [] +
dens. - [] +
opac. - [] +
zoom - [] +

08 40 03.76500 +20 14 53.8240 ICRS
18.27' x 23.69'

1998-10-19 2014-12-18

295 sel / 2154 src 843Mb

Time plot

* Catalog → create a scatter/time plot

The screenshot displays the Aladin v11.0 interface. The main window shows a scatter plot titled "SDSS9 color" with a red circle highlighting a cluster of green squares. Below the scatter plot is a time plot titled "angDist [arcsec]: Xmatch distance in arcseconds" showing the same cluster of green squares over time. The time plot has a y-axis from 0 to 4 and an x-axis with dates: 2001-03-31, 2003-12-26, 2006-09-21, 2009-06-17, 2012-03-13, and 2014-12-06. A red circle highlights the "x-y" button in the toolbar. The bottom of the interface shows a table of data with columns: angDist, RAJ2000, DEJ2000, V, RAJ2000, DEJ2000, objID, and f_objID. The table contains 10 rows of data. The bottom right corner shows a zoomed-in view of the time plot with a date range from 1998-10-19 to 2014-12-18.

angDist	RAJ2000	DEJ2000	V	RAJ2000	DEJ2000	objID	f_objID
0.211981	129.9943...	20.29134...	VizieR	129.9943...	20.29134...	13235129...	503635968
0.128380	130.0037...	20.28387...	VizieR	130.0037...	20.28387...	13234130...	512024576
4.668227	130.0023...	20.28404...	VizieR	130.0023...	20.28404...	13234130...	436281344
0.442854	129.9845...	20.29092...	VizieR	129.9845...	20.29092...	13234129...	503635968
0.456541	129.9879...	20.27458...	VizieR	129.9879...	20.27458...	13233129...	503635968
0.573778	130.0114...	20.30895...	VizieR	130.0114...	20.30895...	13237130...	503635968
0.014807	130.0117...	20.29337...	VizieR	130.0117...	20.29337...	13235130...	503635968
0.440282	130.0797...	20.26912...	VizieR	130.0797...	20.26912...	13232130...	512024576

HIPS

- Hierarchical Progressive Survey
- Visualize a survey “*a la Google maps*”.
- Multi-scale view of images with capability to zoom and pan on any region.

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May 12, 2015

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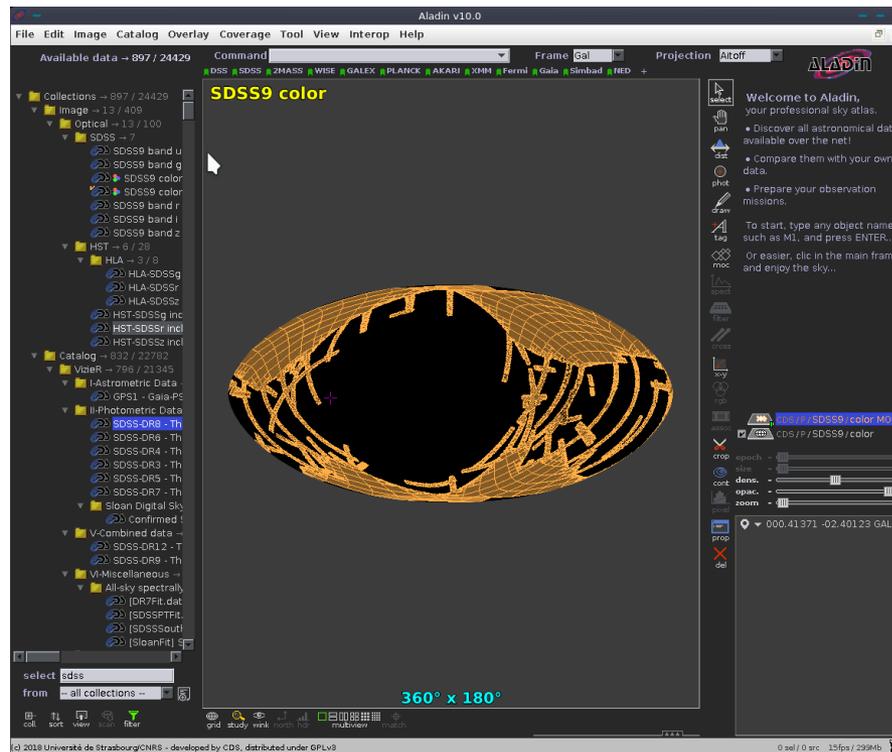
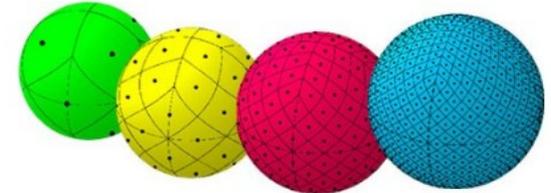
Hierarchical progressive surveys

**Multi-resolution HEALPix data structures for astronomical images, catalogues,
and 3-dimensional data cubes**

P. Fernique¹, M. G. Allen¹, T. Boch¹, A. Oberto¹, F-X. Pineau¹, D. Durand², C. Bot¹, L. Cambrésy¹, S. Derriere¹, F. Genova¹, and F. Bonnarel¹

MOC

- **Multi-object coverage (MOC):** Method for describing sky regions
- Based on **Healpix** (list of HEALPIX cells stored in a FITS binary table)
 - Equal-area cells & isolatitude → Speed.



MOC

* Coverage/Load the coverage (MOC) of the current survey

The screenshot displays the Aladin v10.0 interface. The 'Coverage' menu is highlighted in the top bar. The main window shows a 3D visualization of the sky with a yellow wireframe grid representing the Multi-Order Coverage Map (MOC). A properties dialog box is open, showing the following details for the plane 'CDS/P/SDSS9/color MOC':

- PlaneID: CDS/P/SDSS9/color MOC
- Color: A color selection palette.
- Format: Multi-Order Coverage map (MOC)
- Coverage: 36.194% of sky => 14931^2 (circled in red)
- Best MOC ang.res: 3.433 (mocs order = 10)
- Drawing method: perimeter cell borders fill in
- Coord.sys.: ICRS
- Overlay opacity/transparency: A slider from 0 to 100.

A secondary dialog box for 'SDSS-DR8 - The SDSS Photometric Catalog, Release 8 (Adelma...)' is also visible, showing 'Coverage: 36.48%' and a 'coverage' checkbox checked in the 'derived products' section (circled in red). The main window also displays 'SDSS9 color' and '360° x 180°'.

MOC

How to know the area in common between two surveys?

* Coverage/Logical operations

Aladin v10.0

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data

Command Frame Gal Projection

Collections

CDS/II/319/las9 MOC

Int CDS/P/SDSS9/color MOC CDS/II/319/las9 MOC

MOC operations

Specify one or two MOC planes, choose a MOC operation and press the CREATE button to generate the resulting MOC.

Plane	CDS/P/SDSS9/color MOC - "17 56 03.71782 -29 48 33.0729"
Plane	CDS/II/319/las9 MOC - "17 56 03.71782 -29 48 33.0729"
Plane	-- none --

Union Intersection Subtraction Difference Complement

CREATE Reset Close ?

360° x 180°

005.25538 -24.47012 GAL

269.01088 -29.80519 360° x 180°

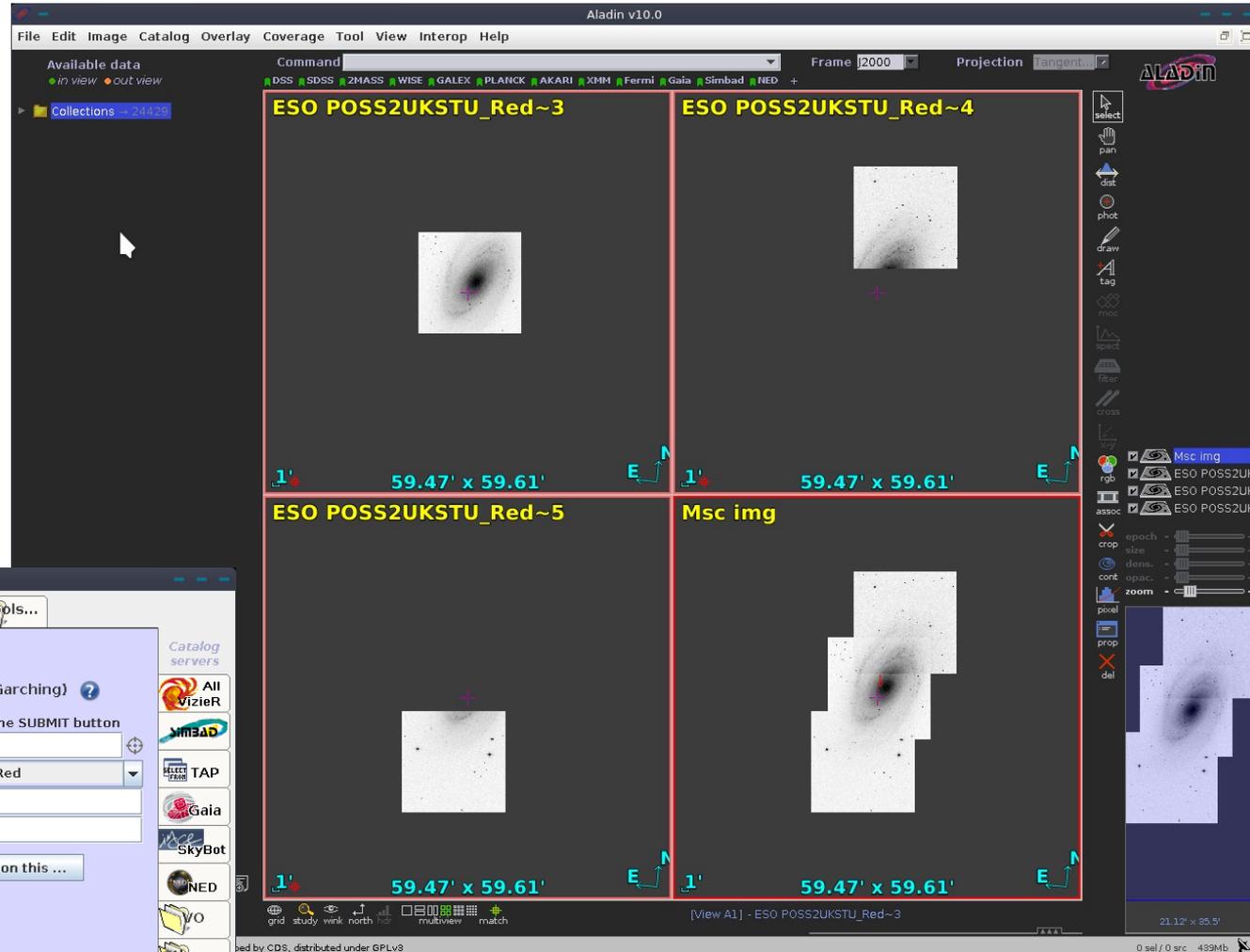
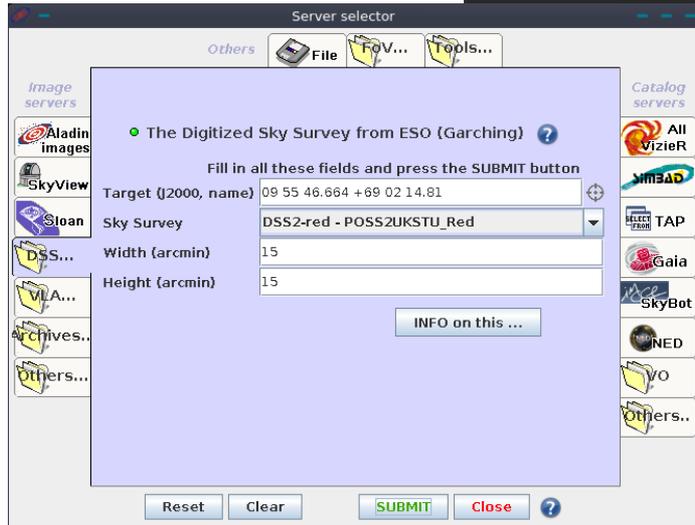
0 sel / 0 src 58fps / 557Mb

(c) 2018 Université de Strasbourg/CNRS - developed by CDS, distributed under GPLv3

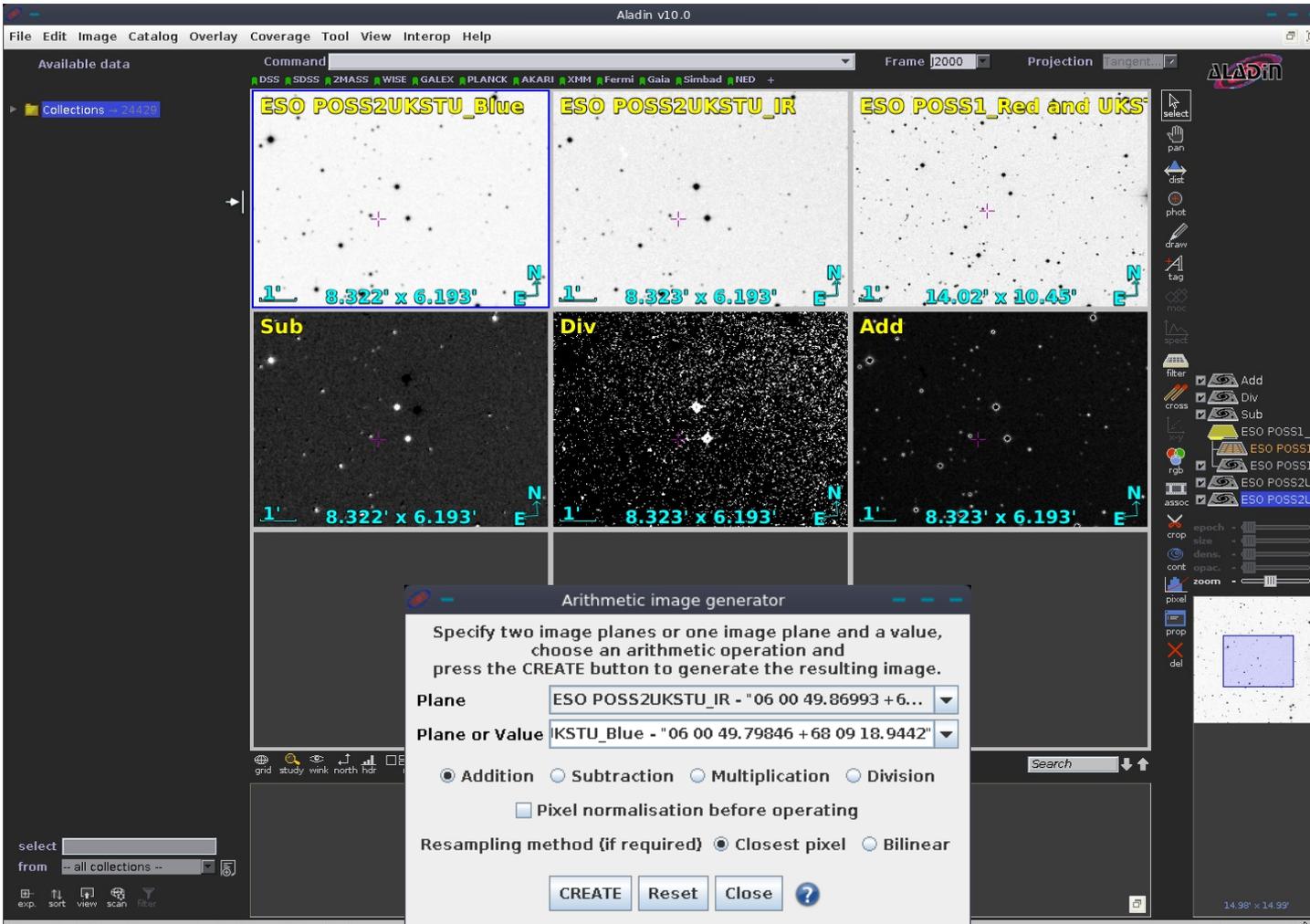
Mosaic builder

* File/Open Server selector: load images in a specified region

* Image/Mosaic image builder: create a mosaic with the loaded images



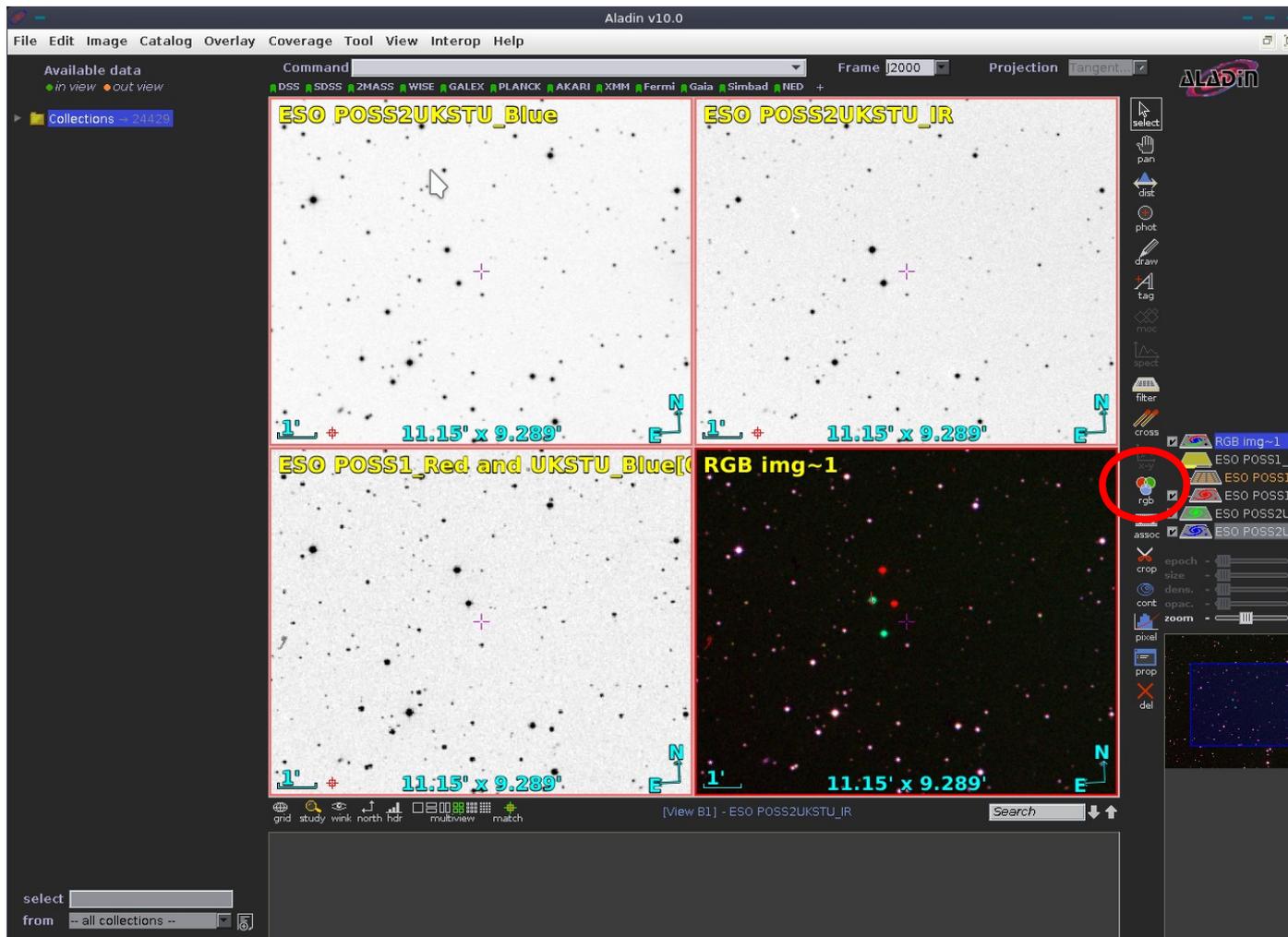
Arithmetic operation



* File/Open Server selector: load images in a specified region

* Image/Arithmetic operation: operate between loaded images to create a new image

RGB builder



* File/Open Server selector: load images in a specified region

* Image/RGB image builder: create a RGB composite image

Blink/movie

* Image/Blink-movie generator: creates a blinking image or movie with loaded images

The screenshot displays the Aladin v10.0 software interface. The main window shows a star field with the title "ESO POSS1_Red and UKSTU_Blue[0]". The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a toolbar with various icons, and a right-hand panel with a list of layers and a zoom control. A dialog box titled "Image associations" is open in the foreground, containing the following text:

Specify the images concerned by the association.
Check Mosaic or Blink association, and press the CREATE button

1)	ESO POSS2UKSTU_Red - "06 00 02.90850 +68
2)	ESO POSS1_Red and UKSTU_Blue[0] - "06 00 0
3)	-- none --
4)	-- none --
5)	-- none --
6)	-- none --

Below the list, there are radio buttons for "Mosaic" and "Blink seq." (selected), with a "- delay:" field set to "400 ms". A "Sampling reference image:" field is set to "1". At the bottom of the dialog are buttons for "CREATE", "Reset", "Close", and a help icon.

The main image view shows a star field with a scale bar indicating "1'" and dimensions "19.77' x 18.75'". The right-hand panel shows a list of layers, with "Blk img" and "ESO POSS1_Red and UKSTU_Blue[0]" highlighted. A red circle highlights the "assoc" button in the toolbar.

Load instrument FoV

* File/Load instrument FoV: load the Field of View of an instrument in the specified region

The screenshot displays the Aladin v10.0 software interface. The main window shows a star field with a grid of four rectangular regions labeled 54, 60, 52, and 77. The text 'SDSS9 color' is visible at the top of the main window. The 'Server selector' dialog box is open in the foreground, showing a table of instruments and their fields of view.

Server selector dialog box:

Instrument fields of view ?

Specify a position, select one instrument and press the SU...

Target (J2000, name) 08 23 09.277 +53 06 25.15

Angle (in degrees) 1

Instrument	Teles...	Description	Author
HSC	Subaru	Hyper-SuprimeCam	Herve B...
VIRcam	VISTA	Wide Field IR camera	Laurent ...
FORS1	VLT	ESO FOCal Reducer/low dispersion S...	ESO-CDS
FORS2	VLT	ESO FOCal Reducer/low dispersion S...	ESO-CDS
ISAAC	VLT	ESO infrared imager and spectrograph	ESO-CDS
VIMOS	VLT	ESO VIMOS mosaic camera	ESO
DECam	Victor M...	Dark Energy Camera with imaging (bl...	Luis Cic...
WFI	WFI2.2m	ESO Wide Field Imager	ESO
PPFP	WHT	William Herschell Telescope mosaic ...	Luis Corral
EPICMOS	XMM	Sensitive imaging (0.1 to 15 keV)	CDS
EPICpn	XMM	High resolution (<0.03ms)	CDS

Buttons: Create your o..., Load it..., Reset, Clear, SUBMIT, Close

Tools / Remote tools / Tools / Sextractor

* Tool/Remote
Tools/Tools/
S-extractor: extract
sources (position
and photometry) in
an image

The screenshot shows the Aladin v10.0 interface. The main window displays a star field image titled "ESO POSS2UKSTU_Red". A "Server selector" dialog box is open, showing the configuration for the "S-extractor facility (v2.8.6)". The dialog box includes fields for "Image reference", "Threshold (x RMS)", "Mag zero point", "Saturation (ADU)", "stellar FWHM (arcs...)", "Filter type", "Phot diam. apertur...", "Background type", "Backgd annulus thi...", and "Display filter". The "Display filter" is set to "Object elongation".

At the bottom of the main window, a table of extracted source data is visible:

NUMBER	MAG ISO	MAGERR ISO	MAG ISOCOR	MAGERR ISOCOR	MAG APER	MAGERR APER	MAG AUTO
256	-10.4743	0.0783	-10.8695	0.1226	-10.6085	0.0850	-10.7665
261	-15.1061	0.0045	-15.1441	0.0054	-13.7073	0.0049	-15.1287
273	-11.4848	0.0392	-11.6579	0.0577	-11.4336	0.0398	-11.5101

Filters

* Catalog/create a filter

