Gaia Services at ARI

Grégory Mantelet

ARI - Heidelberg, Germany

22nd November 2016

1. First glance

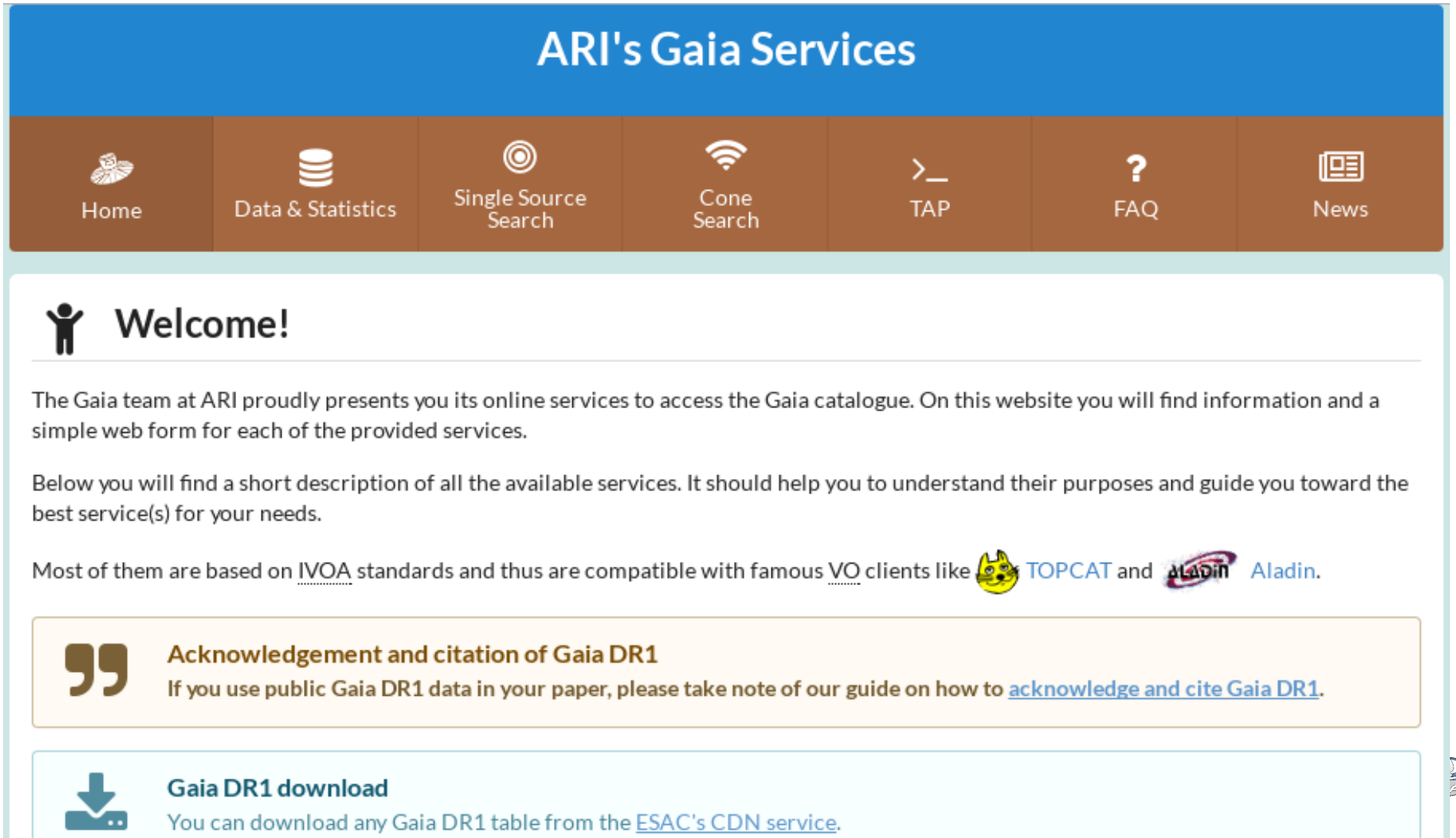
2. Data discovery
   - Catalogue groups
   - Catalogue description
   - Column description
   - Statistics, Histogram and Skymaps

3. Data access
   - Single Source
   - Cone Search
   - TAP
   - Services limits

4. Alive services

I - First glance

http://gaia.ari.uni-heidelberg.de/



I - First glance

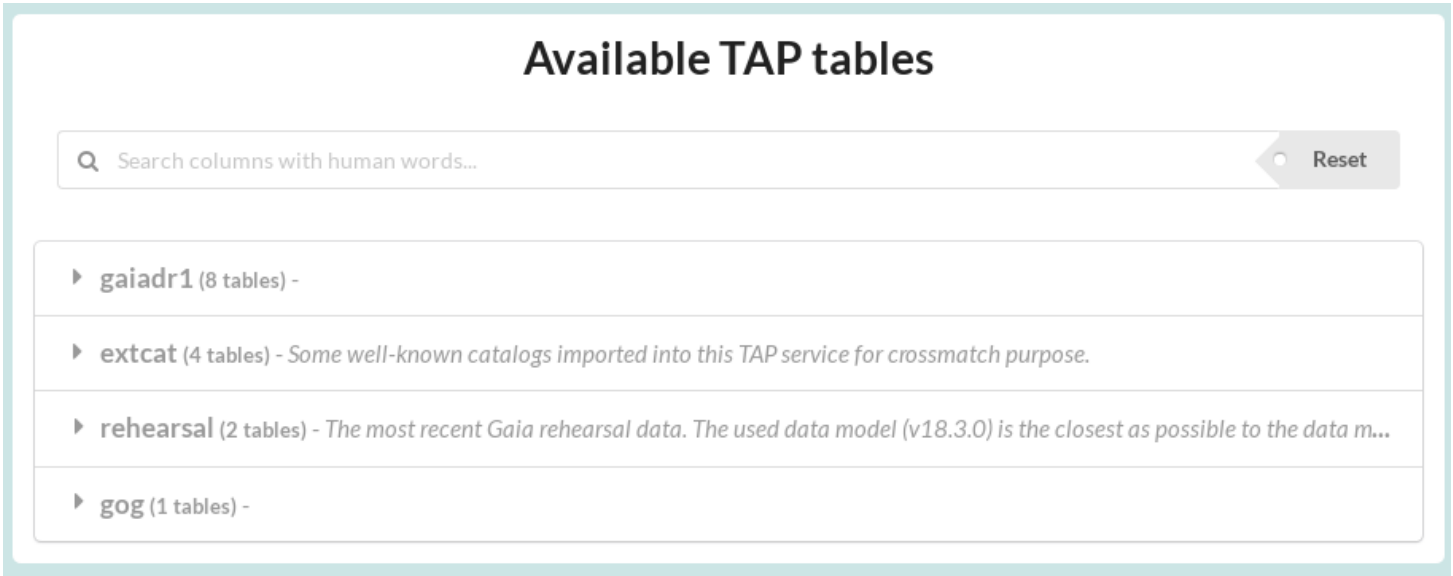
http://gaia.ari.uni-heidelberg.de/

II - Data discovery

III - Data access

II - Data discovery

IIa - Catalogue groups

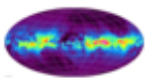


Catalogues organized in 4 categories (or directories):

- **gaiadr1: First release of the Gaia catalogue**
- **extcat: For external catalogues**
- rehearsal
- gog

IIb - Catalogue description

- name
- size (number of rows/sources + number of available columns/information)
- description



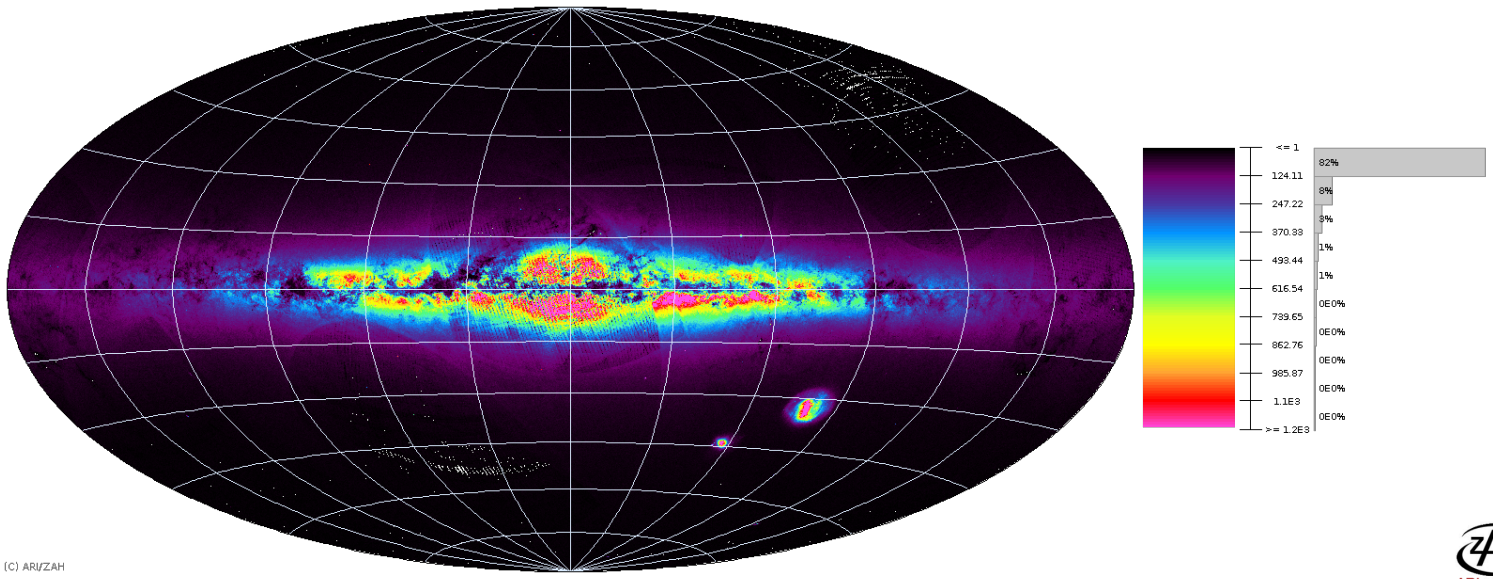
tgas_source (2,057,111 rows x 59 columns)

Expand density map

This table is a subset of GaiaSource comprising those stars in the Hipparcos and Tycho-2 Catalogues for which a full 5-parameter astrometric solution has been possible in Gaia Data Release 1. This is possible because the early Hipparcos epoch positions break some degeneracies due to the limited Gaia time coverage. This table contains a substantial fraction of the around 2.5 million stars in the Hipparcos and Tycho-2 catalogue. Many stars have been excluded due to several reasons, such as saturation, cross-match errors or bad astrometric solution.

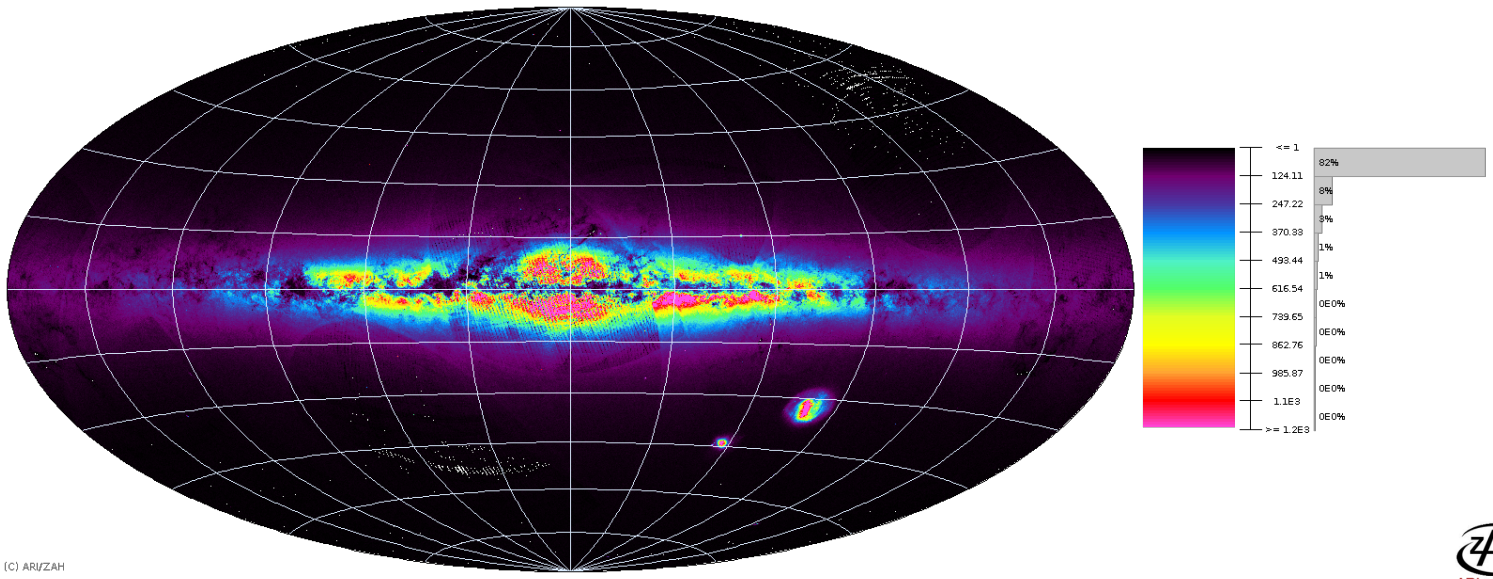
IIb - Catalogue description

- name
- size (number of rows/sources + number of available columns/information)
- description
- density map (as image, but also as a source file displayable interactively by Aladin)



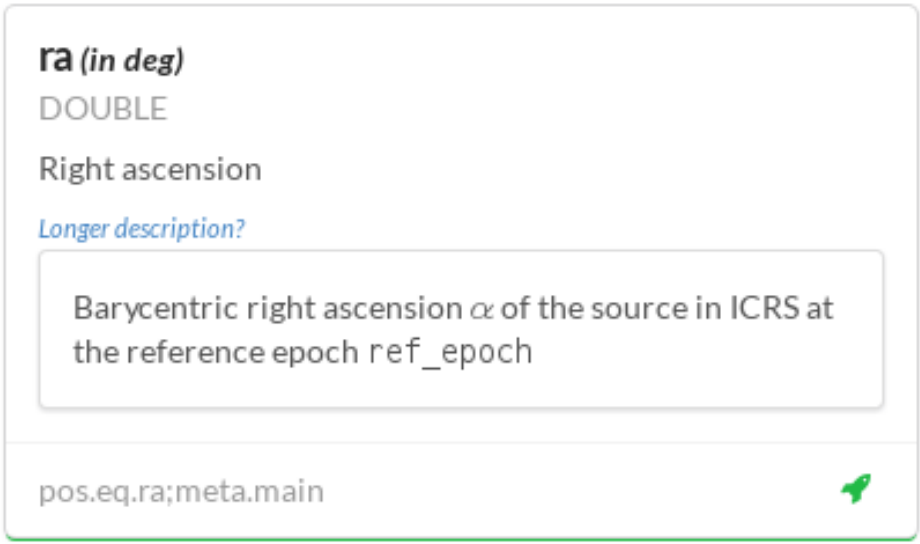
IIb - Catalogue description

- name
- size (number of rows/sources + number of available columns/information)
- description
- density map (as image, but also as a source file displayable interactively by Aladin)
- list of all columns available

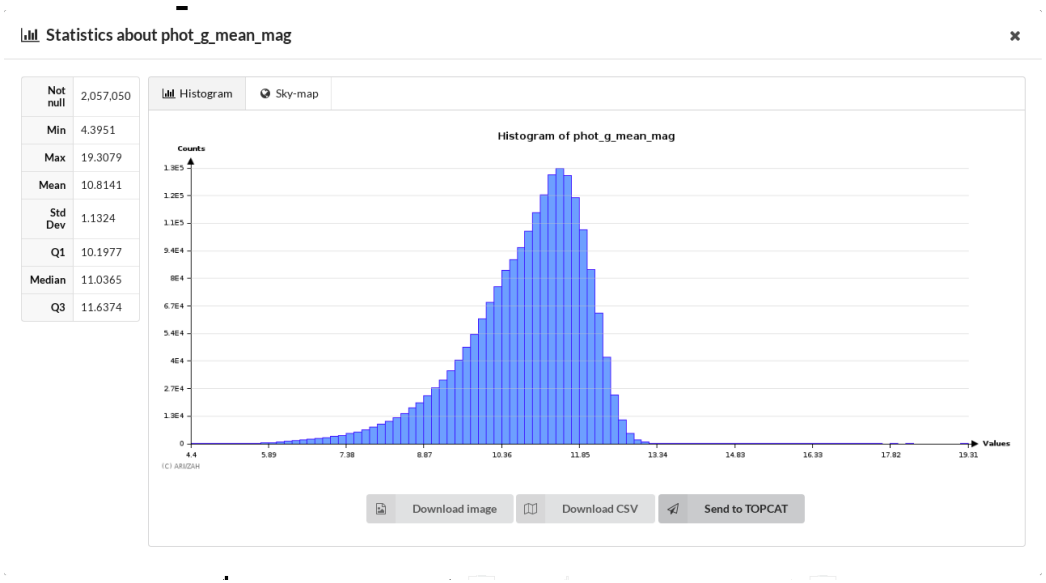


IIc - Column description

- name
- unit
- type
- short AND long description
- UCD (only for VO clients like TOPCAT and Aladin)
- indexed (faster when a constraint is set on it)
- ...

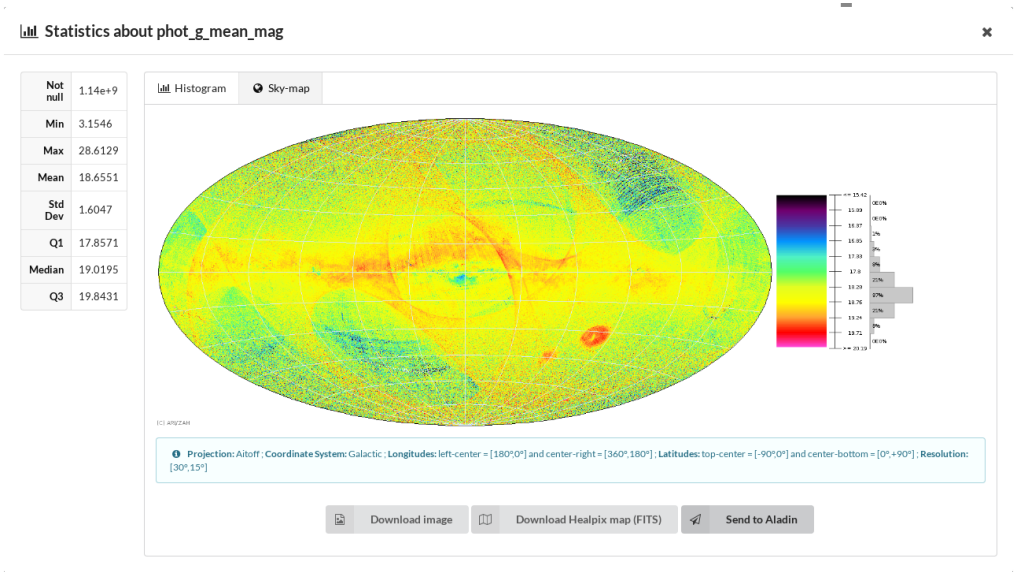


IId - Statistics, Histogram and Skymaps



- Basic statistical information: *min*, *max*, *mean*, *standard deviation*, *quartiles*, *filling (count of not NULL values)*
- An histogram (as image, but also as a source file allowing an easy reproduction and manipulation)

IId - Statistics, Histogram and Skymaps



- Basic statistical information: *min*, *max*, *mean*, *standard deviation*, *quartiles*, *filling (count of not NULL values)*
- An histogram (as image, but also as a source file allowing an easy reproduction and manipulation)
- A so-called skymap (as image, but also as a source file displayable interactively in Aladin)

III - Data access

1. First glance
2. Data discovery
   - Catalogue groups
   - Catalogue description
   - Column description
   - Statistics, Histogram and Skymaps
3. Data access
   - Single Source
   - Cone Search
   - TAP
   - Services limits
4. Alive services

IIIa - Single Source

Search by:

- Gaia source ID
- object name
- position
- file

On:

- Gaia (gaia_source)
- TGAS (tgas_source)

Usable ONLY on the Web page of the ARI's Gaia services ; this is not a VO service.

Closest source (545.47″)

source_id	381269022869555968
ra	10.840210972° *+/- 0.32 mas*
dec	41.365278748° *+/- 0.11 mas*
l	121.303428863°
b	-21.480930379°
ecl_lon	28.026816727°
ecl_lat	33.379270699°
parallax	0.93 mas *+/- 0.28 mas*
pmra	1.92 mas/yr *+/- 1.08 mas/yr*
pmdec	-7.17 mas/yr *+/- 0.31 mas/yr*
phot_g_mean_mag	10.76 mag

IIIa - Single Source

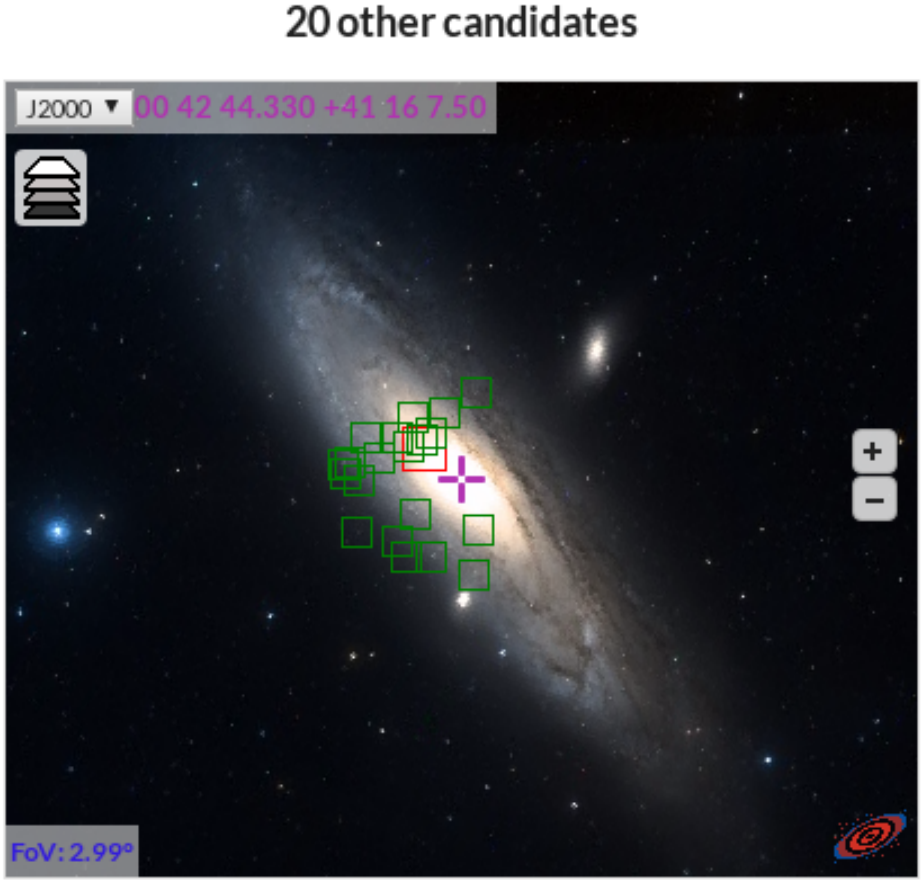
Search by:

- Gaia source ID
- object name
- position
- file

On:

- Gaia (gaia_source)
- TGAS (tgas_source)

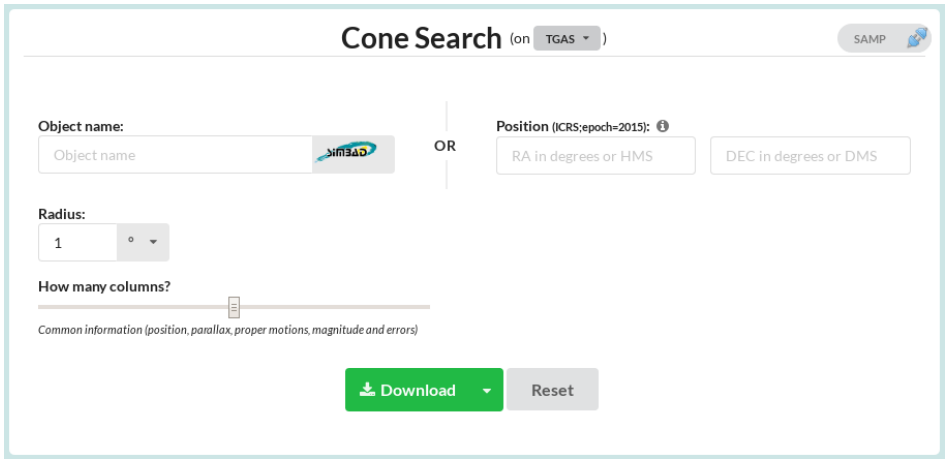
Usable ONLY on the Web page of the ARI's Gaia services ; this is not a VO service.



IIIb - Cone Search

- Input: Position + radius
- Output: VOTable containing all sources inside the specified cone

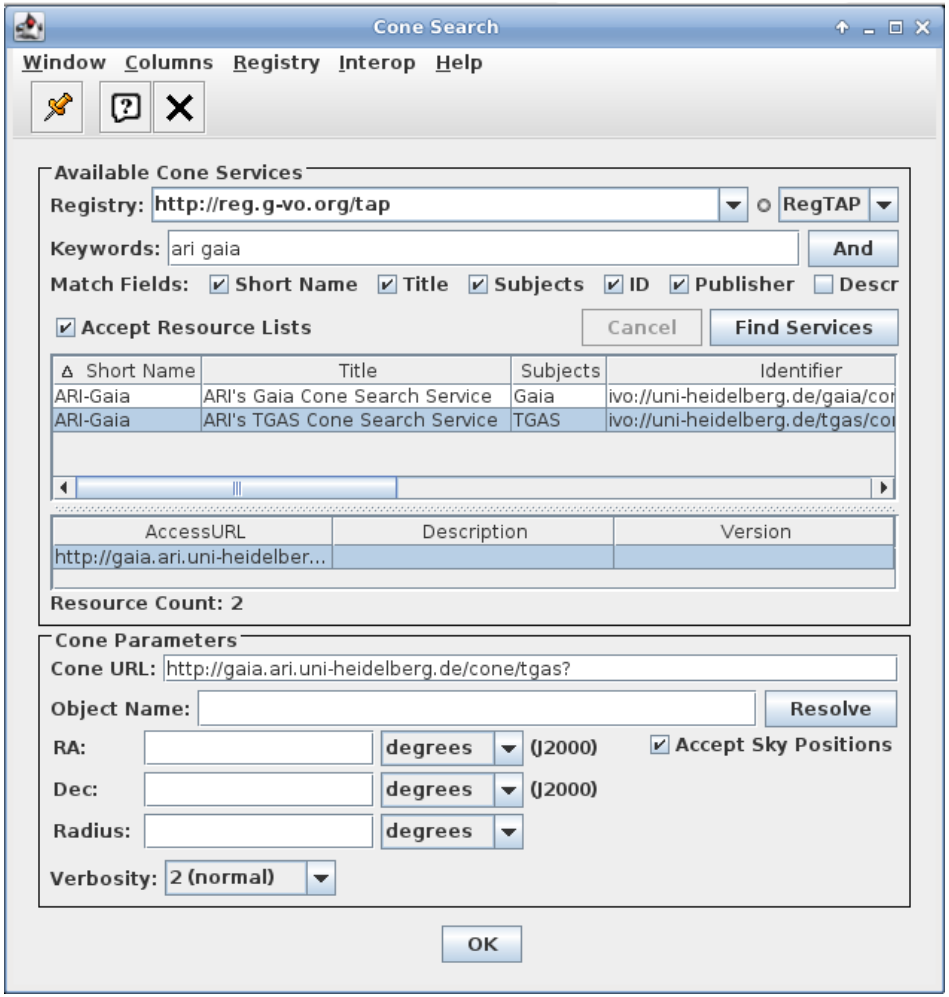
Usable on the Web page and TOPCAT.



IIIb - Cone Search

- Input: Position + radius
- Output: VOTable containing all sources inside the specified cone

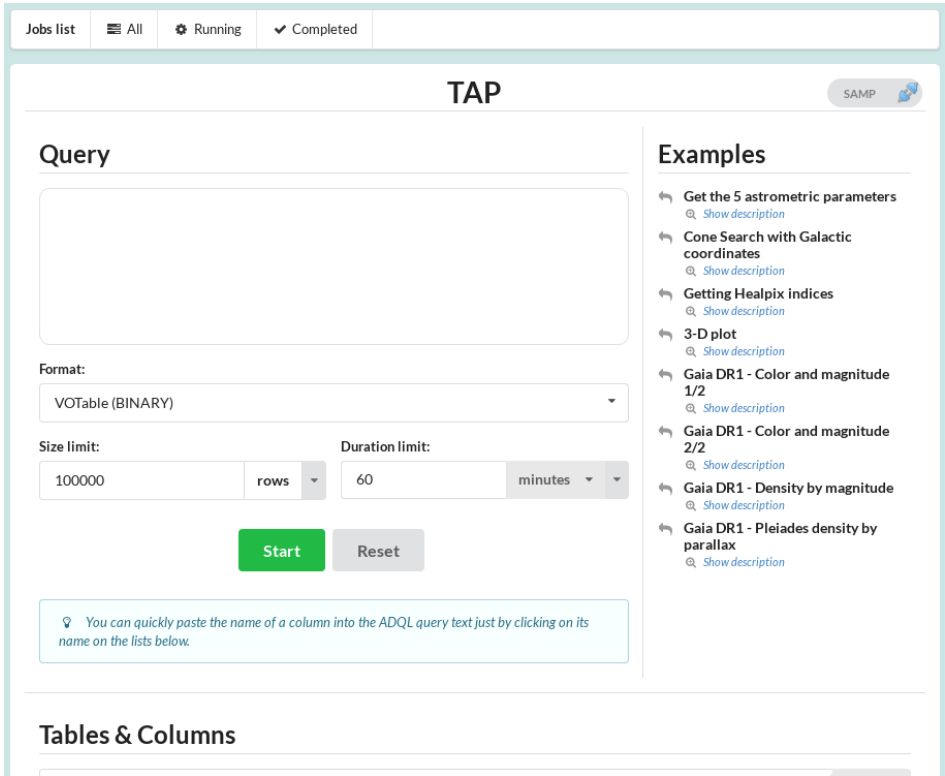
Usable on the Web page and TOPCAT.



IIIc - TAP

- Based on an interrogation language based on SQL: *ADQL* (Astronomical Data Query Language)
- Very long queries are possible through the asynchronous mode
- UPLOAD capability
- List of query examples

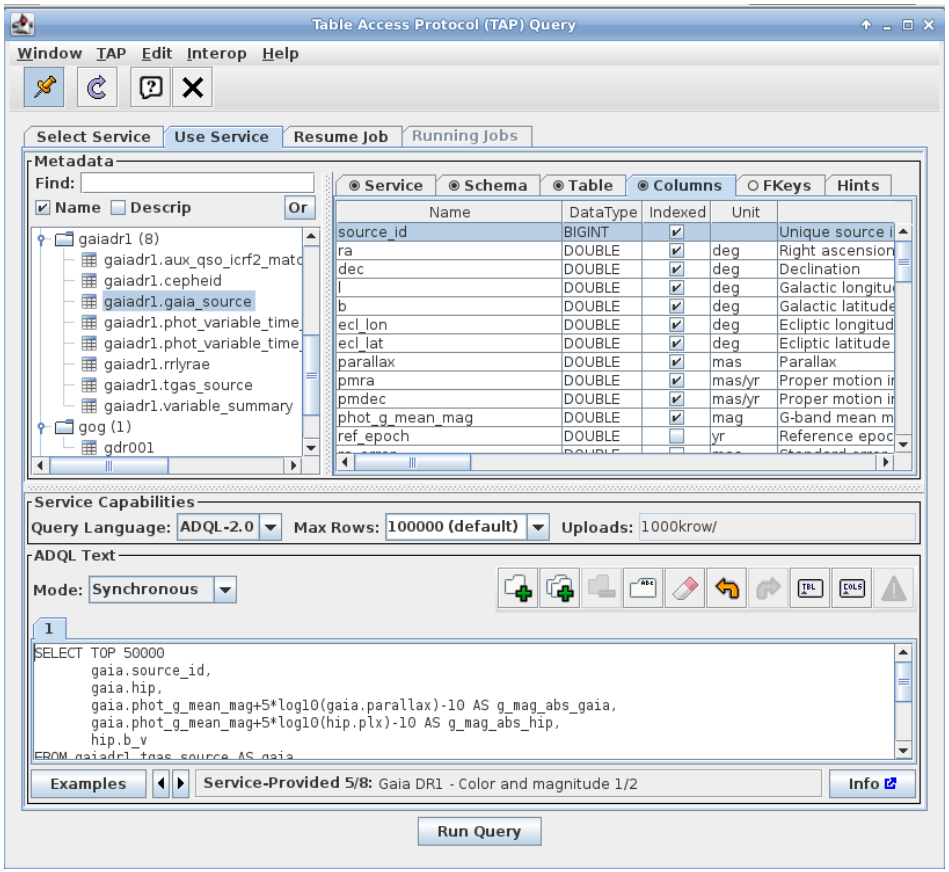
Usable on the Web page, TOPCAT and any other TAP client (e.g.TAPHandle, PyVO).



IIIc - TAP

- Based on an interrogation language based on SQL: *ADQL* (Astronomical Data Query Language)
- Very long queries are possible through the asynchronous mode
- UPLOAD capability
- List of query examples

Usable on the Web page, TOPCAT and any other TAP client (e.g.TAPHandle, PyVO).



IIId - Services limits

	Output formats	Output size	Execution duration	Upload limit
Single Source	VOTable, CSV, JSON + SAMP	20	-	-
Cone Search	VOTable + SAMP	10,000,000.	-	-
TAP	VOTable, FITS, CSV, TSV, JSON, HTML + SAMP	100,000 (default) 10,000,000 (max)	1 hour (default) 4 hours (max)	1,000,000

Alive services

These services are "alive": we are making them evolve in function of their usage AND mostly of YOUR feedback.

The help section is far from being complete. So do not hesitate to complain about missing information.

In case you have question, I will be here for this whole workshop but also by email at the following address:

gmantele@ari.uni-heidelberg.de