

DS4

Stage 02 CDS progress report

Thomas Boch

On behalf of : François Bonnarel, Pierre Fernique,
Sébastien Derrière, François Ochsenbein,
André Schaaff, Bernd Vollmer,
Laurent Cambrésy

List of CDS deliverables

- Improved version of existing cross-matcher (Cycle 01 deliverable)
- Positional VizieR index
- Binary data support in SAVOT VOTable library
- Improved colour image manipulation in Aladin
- Improved simple footprint previewing
- SIA improved WCS support for graphics files

Improved version of existing cross-matcher

- New features
 - Support of positional error ellipses
 - Choice of output columns
 - UCDs rewriting
- Development integrated in Aladin prototype version
 - <http://aladin.u-strasbg.fr/java/Aladin-proto.jnlp>
- Java package + Javadoc + complete documentation available by end of March on VO-Tech Wiki
- See Sebastien's demo !

Positional VizieR index

- Architecture study completed
- Development delayed :
 - Due to practical reasons, we couldn't hire a new person
 - CDS will hire a software engineer in the coming weeks
- Critical development
 - Needed to perform fast cross-match between any 2 VizieR tables
 - Needed to build density maps

VizieR architecture

- 12,500 tables
 - Half of them have coordinates
 - Total of 4.3 billion positional information
- Tables with sky position organised in 2 parts:
 - <10 million rows : stored in a relational DB
 - Larger catalogues : stored as Unix binary files associated to a specific search program
- Current positional index :
 - sky splitted in boxes
 - for each box : list of catalogues having sources

VizieR architecture (2)

- With the current index architecture, the query "give ALL sources in any of the 5300 tables around a position" is a 2 steps process:
 - Query the index to get the list of tables with potential matches
 - Query each table to retrieve the sources around the position
- If many tables are to be queried, the whole query might become slow

VizieR architecture (3)

- New positional indexing scheme
 - Storing full-precision positions of all catalogues merged in a single data set (>4 billions records)
 - Positions stored in cartesian space ($x^2+y^2+z^2=1$) to allow fast computations
 - Estimated index size : 50-100GB
 - Main difficulty : maintenance of the index
 - ◆ VizieR is updated on a daily-basis
 - ◆ Re-creation of the whole index is impossible
 - ◆ Existence of VizieR mirrors

Binary data support in SAVOT VOTable library

- SAVOT upgraded to 3.0
 - Reads encoded base64 and FITS
 - Writes in encoded base64
 - A few other adds
 - New documentation
- It is under testing and it will be available in the CDS Developer's corner by the end of March
 - <http://cdsweb.u-strasbg.fr/devcorner.gml>
 - ◆ Download:
<http://cdsweb.u-strasbg.fr/cdsdevcorner/download.html#java>
 - ◆ Documentation :
<http://cdsweb.u-strasbg.fr/cdsdevcorner/savot.html>

Study on Aladin/IDL interface

- Work started in collaboration with CDS astronomers Bernd Vollmer and Laurent Cambrésy
- Deliverable driven by their scientific needs
- Study report, along with some IDL examples, will be available on Wiki by end of March

Improved colour image manipulation in Aladin

- 2 new features
 - Convert a color image to greyscale
 - Save a color image as a FITS file
 - ◆ Convention adopted :
NAXIS3=3, CTYPE3='RGB'
- Integrated in Aladin prototype version, soon available in official version
- See demo

Improved simple footprint previewing

- Improvement of the format (collab. with STScI)
 - Ability to define FOV sub-parts
 - New shapes have been defined : circles, pickles
- Need to update documentation to reflect those improvements
- Developments available in Aladin official version
- See demo

SIA: improved WCS support for graphics files

- WCS information is carried with the SIA query response (useful to deliver PNG, GIF, JPEG images along with their astrometry)
- Development integrated in Aladin official version
- Thanks to the All-VO button, any SIA service delivering this kind of files could be easily accessed from Aladin
- See demo

Cross-DS work

- PLASTIC (DS6)
 - Aladin prototype version includes PLASTIC developments
- Aladin/ACR (DS3)
 - Developments related to ACR are integrated in Aladin prototype version
 - ◆ Access to MySpace
 - ◆ Query the registry
 - ◆ Ability to launch a CEA application
- <http://aladin.u-strasbg.fr/java/Aladin-proto.jnlp>