

User Environment Breakout Session

Date: 19 June 2002 (draft v1)

Attendees: Jim Chiang, Dave Davis, Marco Frailis, Berrie Giebels, Riccardo Giannitrapani, Heather Kelly, Cathie Meetre, Bob Schaefer, Alex Schlessinger

Conveners: JC, HK, AS

Imaging and Plotting Tools

Bob Schaefer gave a talk summarizing the findings of the SSC sub-group on plotting and graphics packages (http://www-glast.slac.stanford.edu/sciencetools/workshops/june02/slides/Plotting-packages_3.pdf). His presentation included an augmented list of requirements proposed by the SSC sub-group and a breakdown of the various features of the packages considered.

For ordinary plotting (i.e., line plots, histograms, contour plots, etc.), ROOT looks like the most attractive choice; while for imaging and other graphics, VisAD and VTK are the standout candidates; although ROOT itself does have image display capabilities. The search continues (suggestions are welcome) and final decisions are pending.

Learning from Other Missions

Berrie suggested that we could learn from INTEGRAL which uses ROOT for displaying data. See <http://www.adass.org/adass/proceedings/adass99/D-03/> and <http://isdc.unige.ch/~rohlfis/root/ADASS99.html>.

Open Issues

Whether or not Gaudi provides the framework for the analysis environment has implications for decisions concerning the user environment. Both the SAS and SSC are investigating the use of Gaudi in this context.

User Interface Requirements

This list is not complete and does not represent final decisions. Suggestions in the form of additions or deletions are welcome. Some of the following may merely be desirable features rather than firm requirements.

1. Ease-of-Use Issues:

- Online, searchable documentation (with hypertext links and downloadable pdf versions)
- Graceful error/exception handling:
 - Informative error messages

- Non-fatal exceptions (i.e., the program doesn't completely crash when a problem is encountered)
 - Session recovery capability
 - Programmable exception handling (e.g., Python)
 - Responsiveness to user interrupts
 - Similarity to existing user interfaces in the astrophysics community (e.g., HEASARC's FTOOLS and Xanadu suite of programs)
 - Access to and transformations between Galactic, Celestial, and instrument coordinate systems should be transparent and automatic
2. Configurability:
 - Extensive user configurability for experts
 - Rational default configuration for novices
 - Can be implemented (in part) via FTOOLS-like parameter files (pfiles)¹
 - Coordinate system choice, etc.
 - Configurable plotting for displaying results
 3. Access to intermediate results to allow sanity checks for long, involved calculations
 4. Scriptability
 5. Separate session and error logging
 6. Exportable data
 7. Interactive graphics
 8. Integrated environment with GUI interface and command line capability (e.g., IDL)
 9. Installation test suite
 10. Operating system level command line

¹I (JC) had an email exchange with Ian George who formerly developed FTOOLS for the HEASARC. He is an enthusiastic endorser of the types of parameter files implemented for both FTOOLS and CIAO Tools. I found his arguments to be fairly persuasive. Our discussion can be accessed at http://lheawww.gsfc.nasa.gov/~jchiang/SSC/Ians_comments.txt