

VO Enabled Mirage and The IVOA Client Package

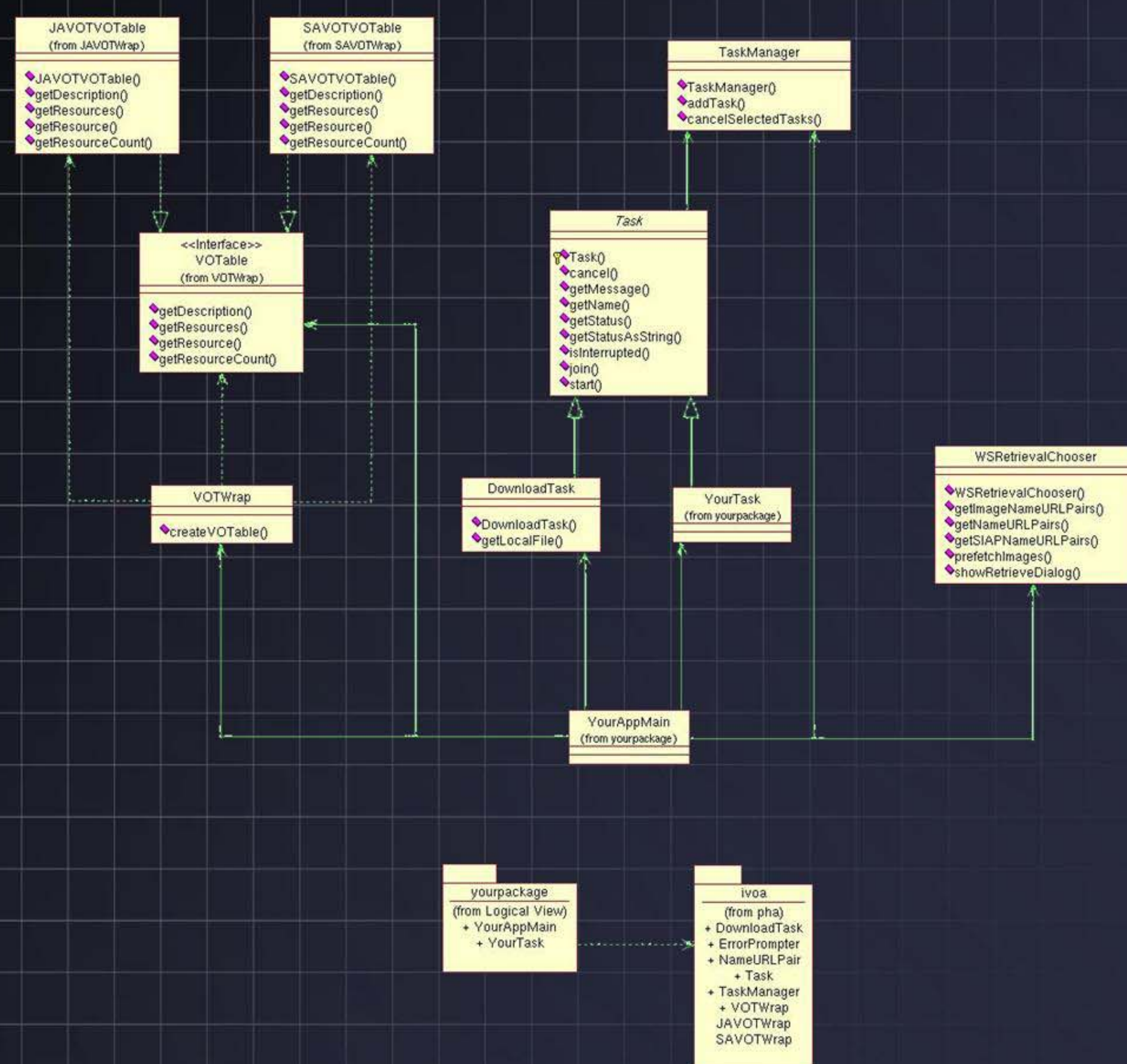
Samuel Carliles¹, Tin Kam Ho², and William O'Mullane¹

¹Department of Physics and Astronomy, The Johns Hopkins University

²Bell Labs Lucent Technologies

The IVOA Client Package

- Available at <http://skyservice.pha.jhu.edu/develop/vo/ivoa/>
- Enables any Java application to retrieve VO data
- Used by VO Enabled Mirage
- VOTable parsing based on SAVOT or optionally JAVOT
- Main Components
 - VO Cone/SIAP and SDSS CAS search panel
 - Common interface for accessing VOTable data from SAVOT and JAVOT
 - Task Manager which gives user control over VO data retrieval operations

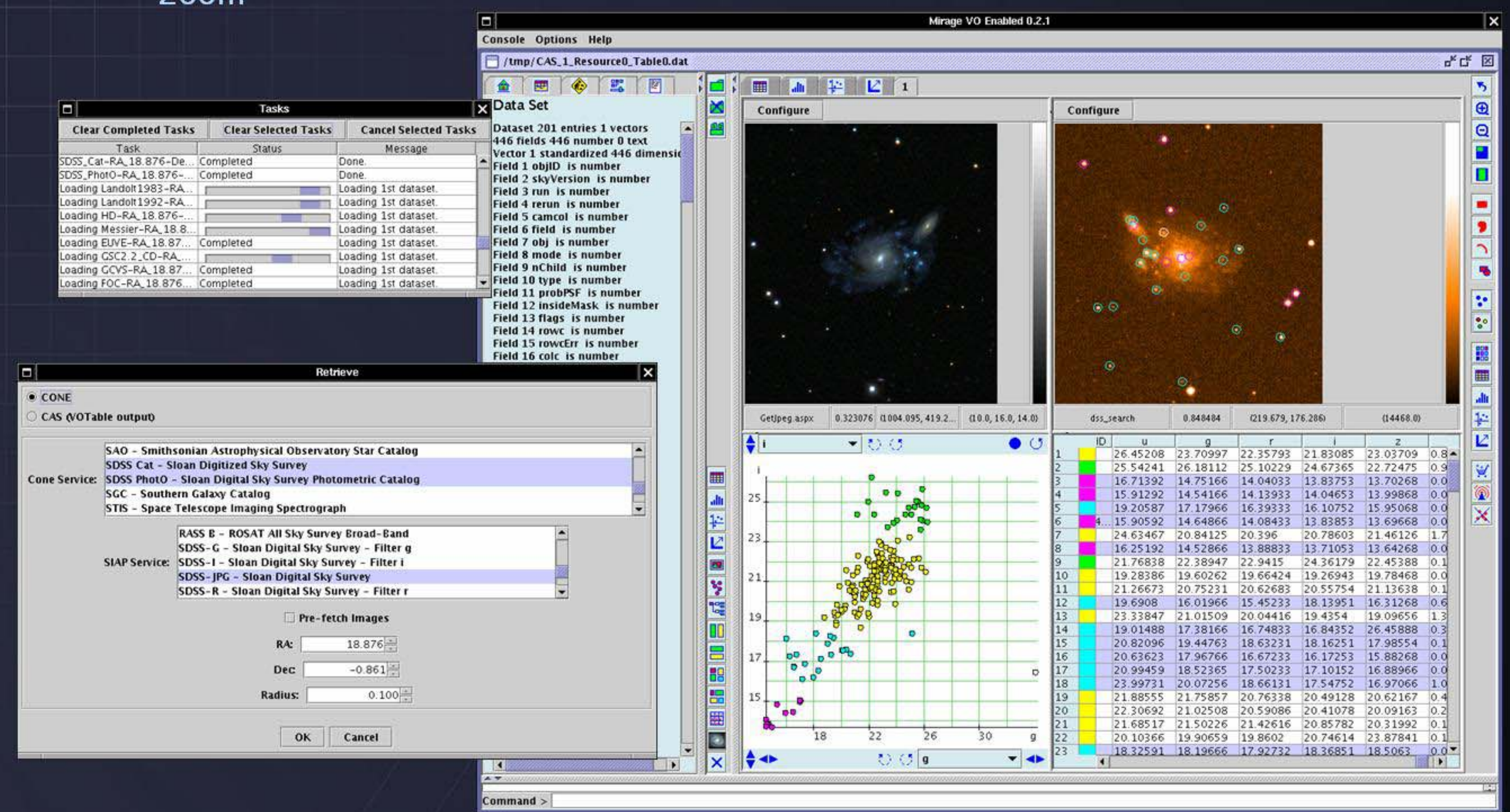


Technical Notes

- Integration into other Java applications is easy, with just a few main components designed for ease of use and flexibility
- Leverages VOTable standard for transmitting astronomical data easily and reliably
- Includes a new generalized VOTable wrapper interface which allows the programmer to interchange SAVOT and JAVOT at runtime to suit preferred behavior. SAVOT parses non-compliant VOTables in many cases, but it doesn't forward errors to the application using it. JAVOT forwards errors to the application level, but it's very strict about standards compliance and discontinues parsing non-compliant VOTables. Also in the event that the VOTable refers to its Schema definition and the server hosting the file does not respond, JAVOT generates an error and discontinues parsing.
- VOTable info at <http://www.us-vo.org/VOTable/index.html>
- SAVOT VOTable parser info at <http://simbad.u-strasbg.fr/public/cdsjava.gml>
- JAVOT VOTable parser info at <http://www.us-vo.org/VOTable/JAVOT/>

VO Enabled Mirage

- Available at <http://skyservice.pha.jhu.edu/develop/vo/mirage/>
- All the features of Classic Mirage
 - Multiple data views
 - Clustering algorithms
- Load VOTable data and perform VO Cone/SIAP and SDSS CAS searches using the seamlessly integrated IVOA Client Package
- Astronomical imaging module loads FITS images using JSky classes
- Image operations
 - Select data points and broadcast selection to other views
 - Cut levels
 - Colormap
 - SAO DS9-style brightness/contrast enhance
 - Zoom



VO Enabled Mirage Integration with JSky Classes

- Using JSky to provide FITS support worked mostly
- Successes with JSky
 - Provides an easy way to load FITS images for use with the Java Advanced Imaging API (JAI)
 - Support for WCS to image coordinates and back is straightforward and it works
 - Allan Brighton was very responsive to requests for advice on implementation issues
- Problems with JSky
 - Mapping from arbitrary FITS image data type to type associated with Java RenderedImages isn't 100% predictable
 - Had problems integrating JSky image processing into VO Enabled Mirage imaging module, which were resolved by duplicating portions of JSky. Slightly looser coupling of imaging components in JSky would make it much easier to use.
- The VO Enabled Mirage Imaging Module handles image processing as a class hierarchy with each extension adding processing functionality to its superclass. The intention was to encapsulate the image processing functionality in the image itself and have it be a easily dropped into any Java graphical component. However, it ended up being slow and difficult to maintain and extend.
- Future plans include a complete overhaul of the Imaging Module where image processing will most likely be implemented as a filter chain which can be easily integrated into and manipulated by applications, and optimizations to make the Imaging Module run faster

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Supported by the National Science Foundation's Information Technology Research Program under Cooperative Agreement AST0122449 with The Johns Hopkins University

