International VIRTUAL OBSERVATORY

Data Access Layer Working Group
Working Group Summary

Doug Tody
National Radio Astronomy Observatory

Working Group Topics

- **DAL-1**
  - Simple Spectral Access (SSA)
  - Simple Image Access (SIA) V1.1
- **DAL-2**
  - Catalog Access
  - Future topics
  - UCDs for DAL interfaces

SSA Data Model

- Reviewed SSA data model down to level of individual classes
- Agreed that SSA DM is adequate for spectra and SEDs with minor tweaks
  - suggestion to add systematic error for all axes
  - suggestion to make quality flag a bitmask
  - ensure that SSA model remains consistent with DM
- Could not be certain that time series data is adequately modeled
  - support for time series will be retained
  - tests on real data required to refine model in this area

SSA Data Representation

- **Formats**
  - Modeled: VOTable, FITS, native XML, text (CSV)
  - "Foreign" format is pass-through for Project-specific format
  - graphics and HTML

Query Interface

- Required parameters
  - pos, size, format (check on MIME type syntax)
- Optional parameters
  - time, bandpass
  - add spectral resolution
  - collection, ID (these need to be better defined)
  - aperture (for virtual data generation)
  - verbosity, rank/score

Query Interface

- Under consideration
  - redshift vs doppler velocity
  - general keyword search mechanism
  - replaces class, spectralClass, etc.
  - consider using UCD–based version instead
  - snr – limited discussion

SSA Implementations

- From a sample of about 30 people in WG:
  - Spectrum or SED services – 8
  - Time series – 2–3
  - Virtual data – 2–3
  - Clients – Specview, DIS, VOPlot, many others via FITS conversions

SIA V1.1

- UCD Normalization
  - agreed upon respective role and usage of UCD and UTYPE
  - agreed to use UCD1+ for new DAL specifications
  - agreed upon UCDs for SIA V1.0 interface (from Roy)
  - Reviewed UCDs for SSA interface (Jonathan)
  - agreed on process (with UCD folks) for assigning UCDs to interfaces

SIA V1.1

- Logical Name Proposal (R.Williams)
  - heuristic to logically group related datasets
  - lots of discussion
  - datasetID would address part of the same problem
  - suggestion to also support multiple URLs or template for format
  - agreed to include in SIA V1.1

SIA V1.1

- Rank/Score Proposal (A. Rots)
  - heuristic used to rank candidates in query response
  - agreed to include in SIA V1.1
  - agreed to normalize score values
  - TBD is name (rank or score) and units

SIA (DAL query) extension mechanism

- Motivation
  - AVO demo indicated need for more image metadata from SIA query
  - Proposals from P. Osuna, F. Bonarrel, et. al.
- Agreed
  - Consider adding most important metadata to standard query
    - e.g., collection, ID, bandpass ID (filter)
  - Define mechanism to extend SIA query response
    - standard query response points to extensions
    - extensions are either tables or native XML
    - extensions may be data provider defined

Catalog Access

- **SkyNode (W.O'Mullane)**
  - agreed that SkyNode will be DAL interface for Catalog queries
- **Integration of ADQL into DAL**
  - retain current forms-based interface
  - add ability to pass general ADQL query
  - virtual table mechanism supports virtual data query
  - much interest in proposal by Yuji Shirasaki to unify DAL queries
- **Reference Code**
  - reference implementation required support this

DAL Roadmap (May 2004)

- SSA 0.9 (by July 15)
  - first implementations fall 2004 to support Jan applications
- SIA 1.1 (August 1)
  - first implementations fall 2004 to support Jan applications
- SkyNode operational fall 2004
- Integration of ADQL into DAL
  - architecture for integration of ADQL into DAL (Sep)
  - integration of ADQL into first DAL services in 2005
- Reference software for DAL services in 2005
  - includes service verification