Data Model Working Group

Closing Remarks

IVOA Interop

May 24, 2024

Sydney, AU

Session Highlights

- DM1: High Energy focus
  - Really nice presentations about the special requirements for representing High Energy datasets.
    - The Event list plays a central role in this domain.
    - This is in the Poisson statistics range, Measures are not necessarily ‘simple’ values with errors, but often probability distributions.
    - To make Measures meaningful, they need for some indication of confidence level
    - It’s important to be able to bundle the event list with ancillary data if users are to do any form or analysis on the data.
      - Instrument response functions, observation configuration, environmental conditions, etc.
    - In very high energy ranges, background far exceeds signal
  - Experience building ObsCore service for High Energy data
    - High level HE data can be found in the VO
    - But very few services provide access to event lists
    - Example ObsCore + TAP service for the H.E.S.S. public data release at Observatorie de Paris

Session Highlights

- DM1: High Energy focus
    - A review of data model compatibility with HE data requirements
        - Cube model has very good compatibility for the event list and IRF files. Which makes sense as these are primary use cases for that model
        - Some work to do on modeling the association of data products into bundles. There are some existing patterns which may be useful though.
        - Support for probability distributions is not covered by current models, and there is work to do on non-physical data in general (eg: status/quality flags). Some promising options were presented.
    - More info
        - https://wiki.ivoa.net/twiki/bin/view/IVOA/HEGroup
        - https://wiki.ivoa.net/internal/IVOA/HEGroup/2024-05-16_VOHE-Note-draft.pdf

Session Highlights

- DM2: Ongoing working group projects
  - Report on some good work on several of the ongoing projects
    - VODML: ongoing work with the Toolkit and ProposalDM have spawned some updates to be considered for a version 1.1
    - Mango: updated us on the state of efforts working in tandem with APPS group to implement the Epic Propagation thread using GAIA catalog data. The project is an important exercise in using model-aware serializations and tooling to aid the analysis thread.
    - Field Of View: status review of model to represent instrument FoV, implemented in Aladin.
    - One-Step Provenance: update on model status, and voprov implementation in Python to add provenance information to data products.

Session Highlights

- Joint DM/DAL/APPS session.
  - Very well attended, both in person and remote
  - Goal of the session was mainly to raise awareness of the need to define a strategy for creating, using, and relating data models which cover the same concept space at different levels if we are to meet the challenges of supporting the goals of performing queries and analysis based on modeled properties.
  - I’d say we accomplished this, and from the discussion we can draw a few conclusions:
    - This is, in fact, a VERY hard problem.
    - But, one we really need to tackle because the gains for interoperability and facilitating discovery and analysis of data is equally great.
    - The conversation will continue, we can focus on some existing examples and use them to help inform the process
    - Possibly organize a workshop for a focus team to execute specific case threads to bring end-to-end experience into the discussion.

Other Highlights

- Some interesting items picked up from other sessions
  - Increased interest in consolidating/reconciling the descriptions of Shape which current exist in DALI (base type), STC (Region), and FoV (Shape).
    - Use this as basis for Region description in STC-S
  - ObsCore extensions: there are a few in the works now
    - Having a group discussion to cross-compare the extended content for commonality could help identify things to be changed at the core level.

Summary

- Great presentations and impressive progress on roadmap objectives.
  - We will have several items come to the top of the roadmap for this semester.

Contact

- Email List: dm@ivoa.net
- IVOA Slack Channel: #data-models
- Git Repositories: https://github.com/ivoa-std/<model>