

Workshop

Garching, June 27 – July 1 2005

DAL-2

Simple Spectrum Access Protocol (SSAP)

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The initial idea

- [...] *To define a uniform interface to spectral data* [...]
- [...] *The term “Simple” in Simple Spectrum Access Protocol refers to the design goal of simplicity in both implementing spectral data services and in retrieving spectroscopic data from distributed data collections* [...]
- [...] *Required query parameters: POS, SIZE, FORMAT* [...]
- [...] *Required response columns: FORMAT, ACREF, SED Object, Dataset Object, Coverage Object* [...]

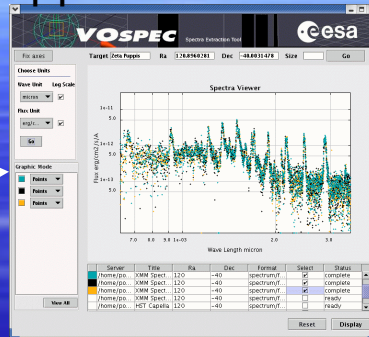
Current status after Kyoto-2005

- First official version ever: SSAP v0.9
- Mechanism is briefly the same. Content is different.
- Still not clear distinction between SED Data Model and SSA Data Model. Need revision.
- Not a Proposed Recommendation yet.
- Clients will have to be adapted to main new conclusions

SSAP Basics

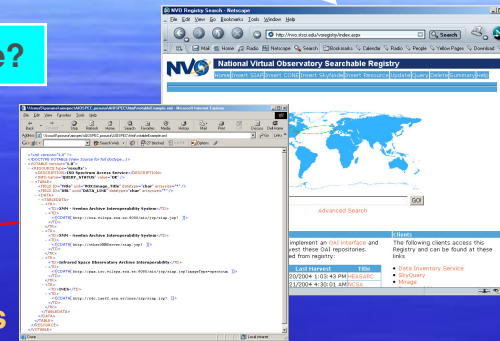
Client application

REGISTRY



SSA Servers available?

VOTABLE with SSA Servers service URLs



Give ACCREF data (real Data)

Data Response:
Spectrum
(fits, VOTable, ...)



SSAP 0.9 - Basic Usage

- Simple query
 - POS, SIZE - like cone search
 - Possibly refined by spectral or time bandpass, etc.
 - Most metadata in query response is optional
- Data retrieval
 - URL-based
 - Get back a dataset (normally VOTable or FITS)
 - In simplest case could be wavelength, flux as text (for Spectrum)
 - Or external data pass-through

SSAP 0.9 - Query Interface

- Mandatory query parameters
 - POS RA, DEC (ICRS)
 - SIZE diameter (decimal degrees)
 - FORMAT VOTable, fits, xml, text, graphics, html, external
- Should other parameters be mandatory?
 - e.g., BANDPASS, TIME, SPECRES, APERTURE

SSAP 0.9 - Query Response

■ Dataset Metadata

- Dataset.Type Spectrum, TimeSeries, SED, etc.
- Dataset.DataModel DM name, e.g., "SSA-V0.90"
- Dataset.Title Brief descriptive title of dataset
- Dataset.SSA.NSamples Total samples in dataset
- Dataset.SSA.Aperture Characteristic aperture diameter
- Dataset.SSA.TimeAxis TimeCoord axis (external data)
- .SSA.SpectralAxis SpectralCoord axis (external data)
- Dataset.SSA.FluxAxis Flux axis (external data)
- Dataset.CreationType atlas, pointed, cutout, resampled
- Dataset.Derivation observed, composite, simulated, synthetic

SSAP 0.9 — Some specialized response metadata

■ Characterization3 - Reference Frames

- Frame.Spatial.Type Coordinate frame (default ICRS)
- Frame.Spatial.Equinox Coordinate system equinox (J2000)
- Frame.Time.System Timescale (TT)
- Frame.Time.SIDim SI factor and dimension
- Frame.Spectral.SIDim SI factor and dimension
- Frame.Flux.SIDim SI factor and dimension
- Frame.Flux.UCD UCD of flux value (flux type)

See Doug Tody's

<http://ivoa.net/twiki/bin/view/IVOA/InterOpMay2005DAL/ssa-query.ppt>

for more details

Proof of concept

- Implement service able to provide SSAP-like access
 - ESA's Infrared Space Observatory (ISO) spectra available in SSAP-like form since December 2003. First ever SSAP-like server.
 - Other SSAP-like services that followed suite (in chronological order): IUE, HST, SDSS, FUSE, HYPERLEDA
(all available from [VOSpec](#) tool)
- Design and implement client able to consume SSAP spectra services
 - ESA's initiative response called VOSpec: a tool for handling SSAP-like spectra in VO context

Tutorial on DAL

- Lead by ESAVO/ESAC team; collaboration from F. Bonnarel (see SIAP Lecture)
- Two different cases:
 - BASIC (Isa Barbarisi) wrap local Image and Spectra in VO format and display in VO Clients. Run from start to end every session.
 - ADVANCED (Jesus Salgado) build real SIAP/SSAP services from scratch using Java/Servlet technology. Run on demand.