Substandards – Evaluation of TDWG Standards Interoperability in a Spatial Context

TDWG BioGeo Interoperability Group

A common goal of TDWG participants is an environment where different TDWG initiatives interoperate to provide a rich mechanisms for biodiversity knowledge exploration, analysis and discovery. However, whilst there is a general awareness of relationships between TDWG standards and groups, there are few examples of practical inter-standard applications. We propose to examine, by way of example software applications, the degree of interoperability that can be achieved by TDWG and related standards (proposed and existing) such as the GBIF data cache service, Open Modeller web services (OM-S), DiGIR, TAPIR, LSIDs, and Open Geospatial Consortium (OGC) service specifications.

We are requesting funds to support a workshop at which small group of developers with expertise in the relevant domains can attempt to develop an example application that will retrieve data from specimen and observation sources (GBIF Cache, DiGIR, TAPIR) based on scientific names (with synonym resolution) and using environmental data recorded in a Spatial Data Library (SDL) and accessible through OGC services, generate ecological niche models using OM-S that will in turn be accessible as OGC WMS and WCS layers. Whilst this is not a novel application, previous experience has indicated that there are many issues with data access, quality, processing, and standards interoperability that limit the generalized implementation of such an analysis pipeline.

Three major components- taxonomic concept services (TCS), the SDL and to a lesser extent, high performance OM web services (HP-OMS) of such a work flow are beyond the scope of development within a workshop such as this, and so development tasks for these are submitted as separate proposals or obtained elsewhere (SEEK-Taxon for TCS). However, the development of both SDL and HP-OMS are driven primarily by their respective use cases, which are to a certain extent, expected to be defined at this developer workshop. Hence it is important that the SDL and HP-OMS are available as prototypes for the workshop.

Tagging of these data sources and services with LSIDs will be an important component of the envisaged workflow, and will be critical to the operation of the SDL and to enable tracing of the data through the workflow.

The proposed workshop will sequester six developers with necessary and demonstrated experience on all or some of the proposed work flow for one week at a location likely to be in Brazil (identified as optimal for minimizing travel expenses). The proposed workshop is timed such that critical components (TCS, SDL, HP-OMS) will be available at least in prototypical form, but not so late that feedback to those projects can be incorporated.

One outcome of the workshop will be an example application that binds these core standards and data sources. More important though will be the identification of problem areas with the existing standards and recommendations to the respective TDWG or other groups on suggested improvements that would make practical application of those standards more achievable. The TDWG has developed several key interoperability standards, yet has not invested heavily in demonstration of the practical application of those standards. This workshop provides an excellent opportunity to evaluate the efficacy of several TDGW standards.

People Involved

Tim Sutton (openModeller)

Aimee Stewart (Catalog, WMS/WFS/WCS)

Dave Vieglais (Mapping and Web UI, LSIDs, TCS)

Javier de la Torre (WMS/WFS, Catalog service, TAPIR)

Dave Neufeld (Data retrieval using WFS)

Peter Brewer (SPICE protocol, TCS)

Patricia Mergen (RMCA, OGC and TDWG standards)

Time Frame

The workshop is tentatively scheduled to occur 12-16 March, 2007. Prior to the workshop we expect to have preliminary versions of TCS, SDL and HP-OMS available.

Products

The following products will result from this project:

- Example application illustrating ecological niche modelling based on GBIF accessible data
- Critical, practical evaluation of data access via TDWG standards
- Critical evaluation of OGC stnadards for the application to biodiversity applications relevant to TDWG
- Reports to respective TDWG and OGC groups on their accepted or proposed standards
- Feedback to developers of SDL and HP-OMS for improvements and enhancements.

Expenses

We request support for a week long workshop for six attendees.

Item	Amount
Travel (5x $1800)	$8,000
Accommodation and meeting expenses	$7,000
Total	**$15,000**