EPN-TAP and VOParis Portal: a good combination to access Planetary data

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Abstract

EPN-TAP is the protocol developed in the framework of the Europlanet IDIS project to access and deliver planetary data using the expertise of the IDIS group members. It's a mix between the core data model and the data access layer of the Virtual Observatory. EPN-TAP takes advantage of the work done in the IVOA (International Virtual Observatory Alliance) by using a low level protocol called TAP (Table Access protocol) and its application to astronomical observations Obs-Tap. EPN-TAP uses the Registry to declare the services and allow their on-the-fly discovery. A core data model have been developed during FP6 to define the parameters that can be queried.

Implementation tutorials have been given using the DaCHS server, developed by the German VO (GAVO) to help providers to distribute data and register services. A client to access all the data is available and enhancements are still being developed. This client discovers services from the registry, and displays a user-friendly interface to query directly all EPN-TAP services and retrieve data. The users can access previews of the data when they are available. The client can then broadcast the result to IVOA visualization clients (Aladin, Topcat, Specview VOSpec, etc.) via SAMP (Simple Application Messaging Protocol). A new connection in development will allow to transfer data to format converters: PDS to FITS for performing visualization in Aladin and PDS to GIS with visualization in Quantum GIS or mapshup.

We will be presenting the the VO Environment and the client to access EPN-TAP data, as well as possibilities given by visualization clients for the public outreach of planetary science.

1. The EPN-TAP Protocol

EPN-TAP is a protocol designed in the framework of the Europlanet-IDIS to describe a selection of scientific relevant parameters for querying services. All theses parameters are taken from a core data model associated to a predefined format of databases. The protocol used is TAP from the IVOA. This combination allows to apply the same query to all EPN-TAP compliant services. All EPN-TAP services can be registered in the IVOA registry of VO services. Then the client can query the registry in order to discover services on the fly and query them.

2. The EPN-TAP Client

The EPN-TAP client hides the complexity of the protocol and the relation to the registry. A user-friendly interface allows to display either a limited subset (fig 1) or the totality of query parameters (fig 2) to restrict the number of results for a dedicated query.
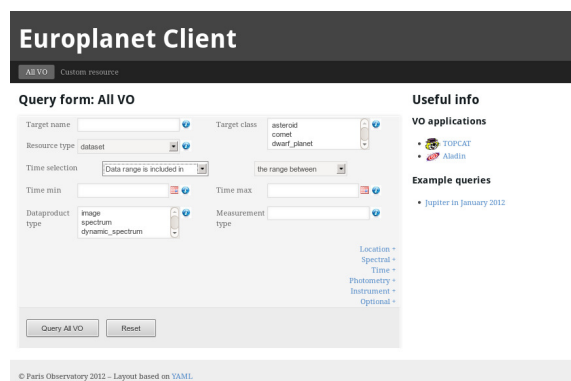

Figure 1: Client basic query form.

Figure 2: Client complete query form.

The query results are presented by services using coloring to give the status of the queries. The number of records matching the query provides the user enough information to choose if he wants to reformulate the query or see the final results (fig 3).

Figure 3: Query result.

The SAMP protocol have been implemented in the results display to allow direct interaction with IVOA visualization clients. If the result is an image it can be directly sent to the Aladin image visualization program using a simple click on the "SAMP Selection" button. Thanks to this interaction, the user can take advantage of all the power of the IVOA clients Aladin, VOSpec, TOPCAT, Specview etc... to visualize results (fig 4).
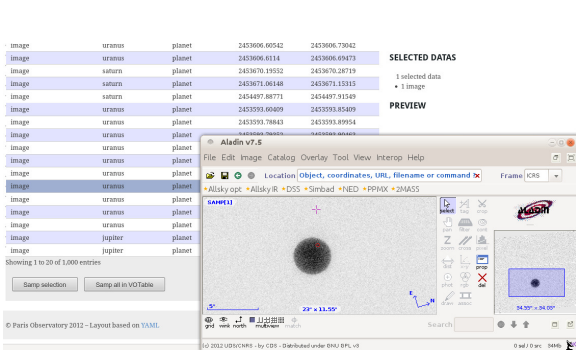
Figure 4: SAMP interaction with Aladin.

3. Conclusions

The EPN-TAP client allows simple to complex query in planetary science. It provides a compilation of results, web previews generation, and direct transfer to VO visualization clients. These possibilities give a precise approach of how the VO can facilitate access to data for science. The EPN-TAP design also allows a user-friendly approach to reach data, therefore it can be used for public outreach in planetary science.