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EPN-TAP resource implementation: progress status at IA2

M. Molinaro (1), R. Smareglia (1), M. Giardino (2) and M.T. Capria (2)
 (1) INAF-OATs, Trieste, Italy (molinaro@oats.inaf.it, smareglia@oats.inaf.it)
 (2) INAF-IAPS, Rome, Italy (marco.giardino@iaps.inaf.it, mariateresa.capria@iaps.inaf.it)

Abstract

While the EPN-TAP access protocol continues its evolution, the collaboration inside the Italian National Astrophysical Institute (INAF) generated a service based upon one of the ongoing versions of this protocol. On top of a relational database schema, that embeds two NASA dust catalogues, a TAP compliant service, with EPN-TAP core specifications, has been deployed. This implementation, in support to EPN-TAP development effort, provided feedback to the specification's document while allowing the catalogue to be visible to all the tools capable of consuming TAP services and able to connect to IVOA resource registries. Implementation details are here discussed to point out the feasibility of the EPN-TAP approach, the issues arisen at implementation phase and possible solutions. Future developments will also be outlined.

1. Introduction

EuroPlaNet – Research Infrastructure (EPN-RI) developed a data model for planetary science data and, using a core part of it, is preparing a protocol for data access. This protocol is based upon the IVOA (International Virtual Observatory Alliance) TAP (Table Access Protocol) recommendation and hence is called EPN-TAP [1]. INAF-OATs IA2 [3] (INAF, Trieste Astronomical Observatory, Italian center for Astronomical Archives) data center, already involved in IVOA activities and preparing a web application to deploy TAP services starting from existing databases (DBs), started a collaboration with the INAF-IAPS (INAF, Institute for Space Astrophysics and Planetology) planetary science team to deploy an EPN-TAP service out of two NASA catalogues of planetary dust particles that INAF-IAPS already translated into a single homogeneous Relational DB schema. This contribution describes the work done at IA2 in implementing the EPN-TAP protocol given the DB schema of dust particles as an already present

and definite resource (direct collaboration between IA2 and IAPS started roughly one year ago [4]).

2. Implementation

The IVOA TAP protocol defines a way to expose a generic DB schema to user queries by means of the IVOA ADQL query language. The EPN-TAP adds to this specification planetary science details by means of a required descriptive table or view called epn_core (to be hosted on the same DB schema that contains the planetary data). IA2 generated, with scientific input from INAF-IAPS, the epn_core table and prepared the TAP_SCHEMA information schema (required by TAP) to deploy the data together with the epn_core table by means of the TAP service. From this preparation steps and a few other configuration settings, using the TAP web application developed at IA2, the EPN-TAP service has been deployed. After that, the service has been registered like a normal TAP service through the IVOA Resource Registry system. This means that currently, using any IVOA aware tool able to make a registry search, this service is reachable and consumable [5].

3. Main Issues

Given EPN-TAP is not a recommendation already stabilized, some guessing and workaround was needed during the implementation phase; the main problem been the null-able optional fields' values of the EPN core (epn_core table) model. This is mainly due to the goal of aggregating in a unique model for the access protocol a wide set of planetary science data cases. Another issue, probably again related to the wideness of the planetary science data observation types, is related to the enumerated values possible for some descriptive fields, not exactly matching the datasets that were to be exposed. Finally, some missing UCDs and Utypes are missing, and this asks for, maybe, a direct collaboration with

the IVOA WG's members managing those metadata specifications.

4. Future Plans

As the protocol definition evolves, the EPN-TAP implementation will adjust to it and feedback the specification authors with difficulties and proposed changes. This regarding the already mentioned NASA dust catalogue implementation. Apart from this new datasets are under evaluation and preparation to be deployed as new EPN-TAP services or, maybe, other dedicated or re-arranged protocols.

Acknowledgments

References

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[2] INAF-IAPS, IDIS Small Bodies and Dust Node, Cosmic Dust Catalog, service URL: http://www.iasf-roma.inaf.it:8080/web/sbdn/cosmic-dust-catalog

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[4] Smareglia, R., Capria, M.T., Molinaro, M.: VO-Dance an IVOA tools to easy publish data into VO and it's extension on planetology request, European Planetary Science Congress, September, 2012; id. EPSC2012-251

[5] Team IA2: URL endpoint for the EPN-TAP of NASA dust catalogues: http://natzgul.oats.inaf.it:8080/epntap (registered as an IVOA TAP resource with IVORN ivo://ia2.inaf.it/hosted/iaps/epn/tap/nasadustcat).