Data publication at PADC using TAP ObsTap for CTA, Gaia … and EPN-TAP for Europlanet

Pierre Le Sidaner on behalf of PADC

Why and How TAP ?

- TAP was designed to publish data tables
- TAP is for accessing tables inside relational databases
- TAP is a singularity in IVOA DAL as there is no constrain vocabulary (no automatic relation to core Data Model).
- TAP allows description and access to any type of data

Relation between TAP and DM :

- DM related to TAP proposed a Interop Strasbourg 2009.
- Defines sets of mandatory query parameters.
- ObsCore allows access to images, spectrum, cubes, time series, events ...

PADC data providing using TAP

- CTA :
  - Data level 4 and above : spectrum, images, tables.
    - TAP and SIA+SSA, allow to access all data concerning one object in a single query.
  - Data level 3 : to be processed, no defined protocol in IVOA to promote these type of data out of TAP. Standard access using ObsTap.

Gaia :

- PADC will have a mirror of Gaia catalog mainly for internal use

PADC data providing using TAP

- **VESPA :**
  - **Planetary Science Data.**
    - **All types of data : images, cubes, time series, dynamic spectra, laboratory data …**
    - **All levels of calibration**
    - **Many scientific areas with specific standards : planetary surface (GIS), atmosphere, plasma physic (space), solar physics (helio), small bodies, exoplanets …**
    - **Many formats : Ascii, PDS 3 – 4, FITS, CDF, Net-CDF, GIS (geotiff, geojson …), …**
    - **Ground-based data, spatial data, in situ data, sample and laboratory data.**

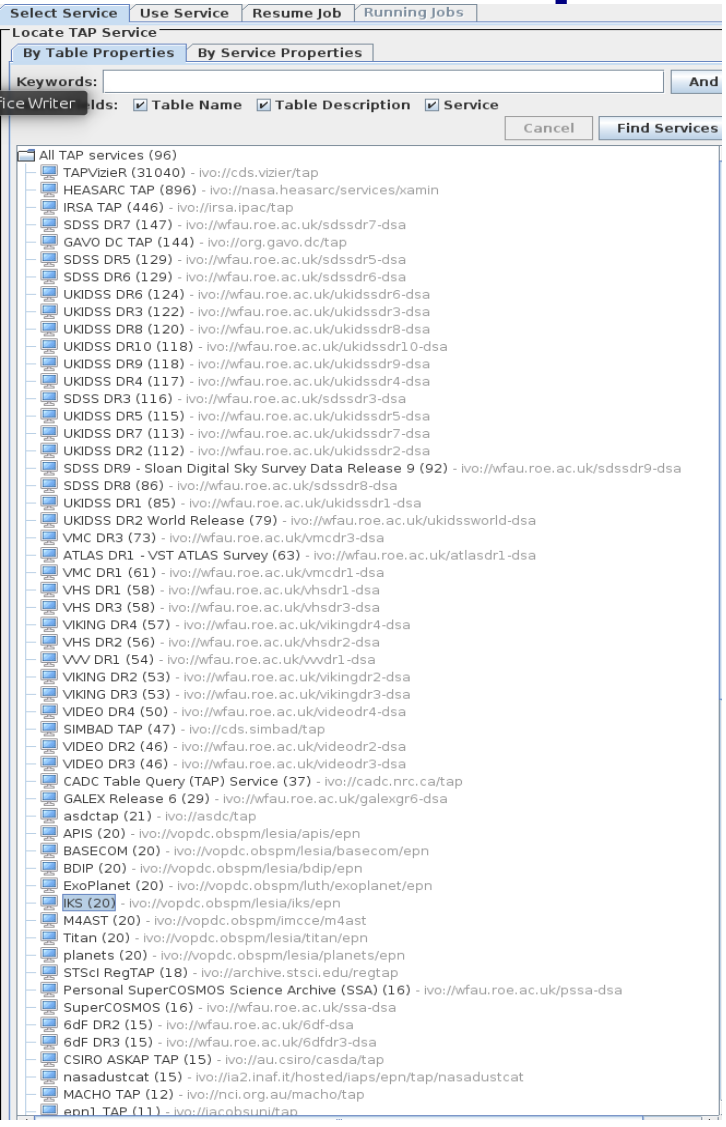
Accessing TAP for user TAP clients

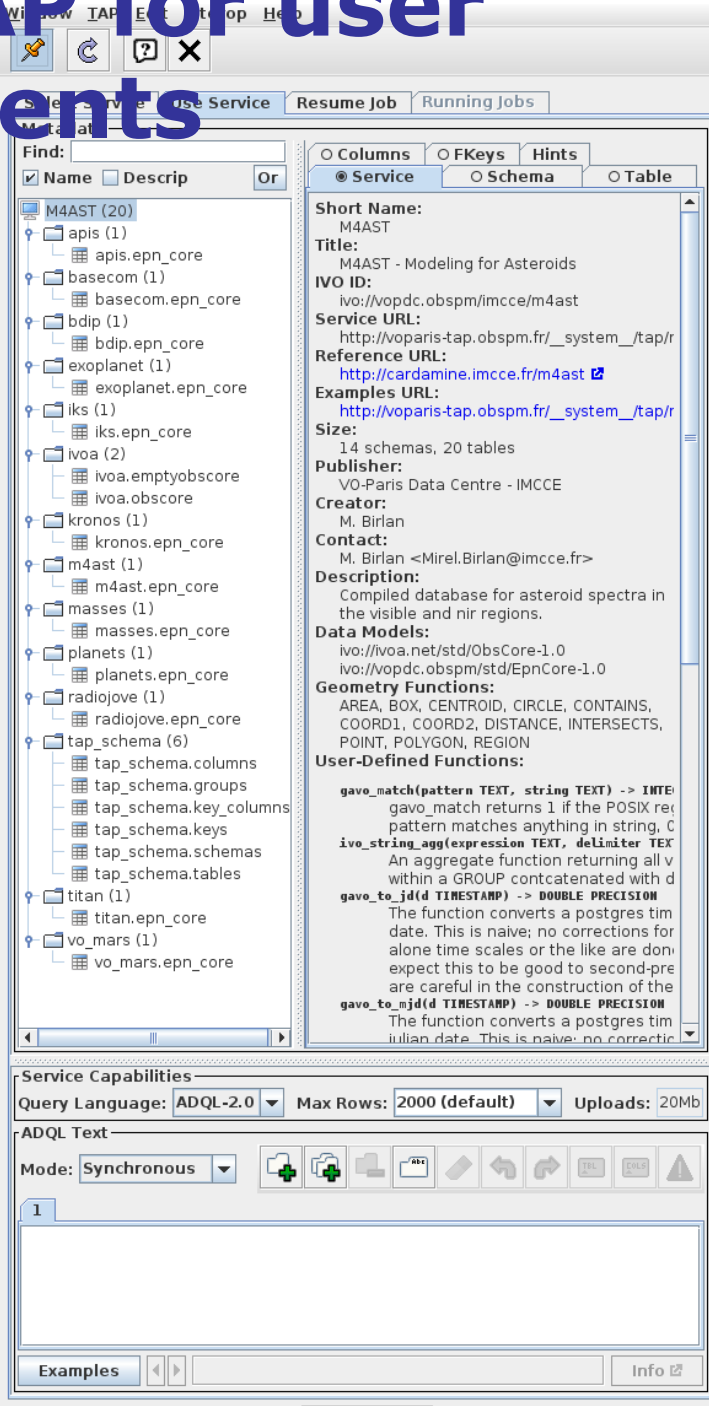
- CTA :
  - Data level 4 and above : spectra, images, tables.
    - Clearly defined using TAP, allows to access all data concerning one object in a single query.
  - Data level 3 : to be processed, no defined protocol in IVOA to promote these type of data out of TAP. Standard access using ObsTap.

- GAIA :
  - PADC will have a mirror of Gaia catalog mainly for internal use

Accessing TAP for user TAP clients

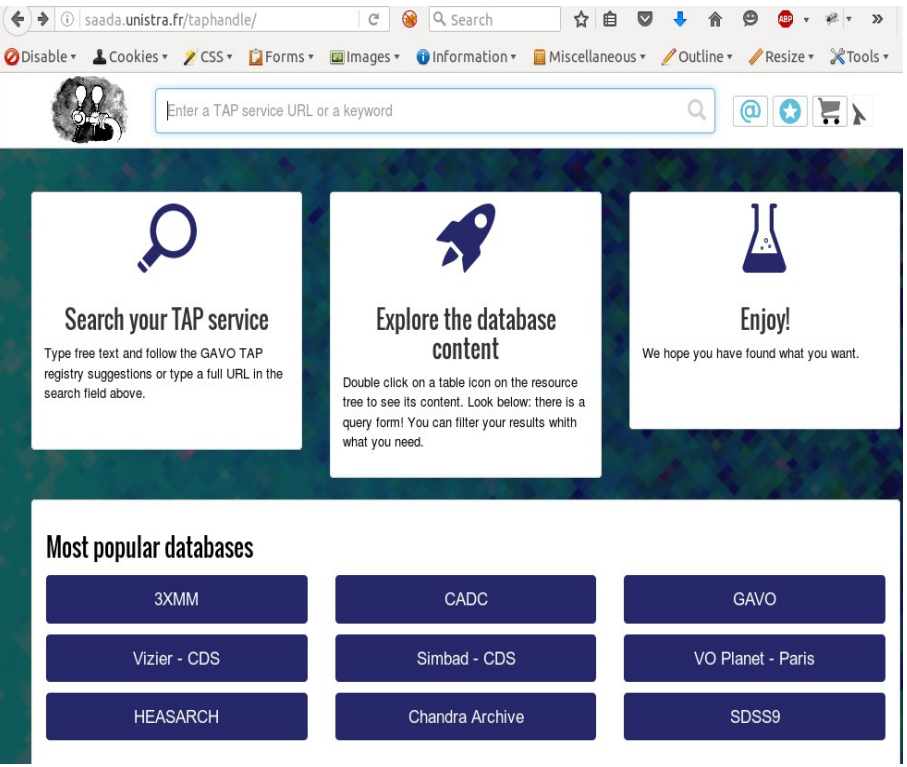
- TAP & ObsTap clients: TOPCAT

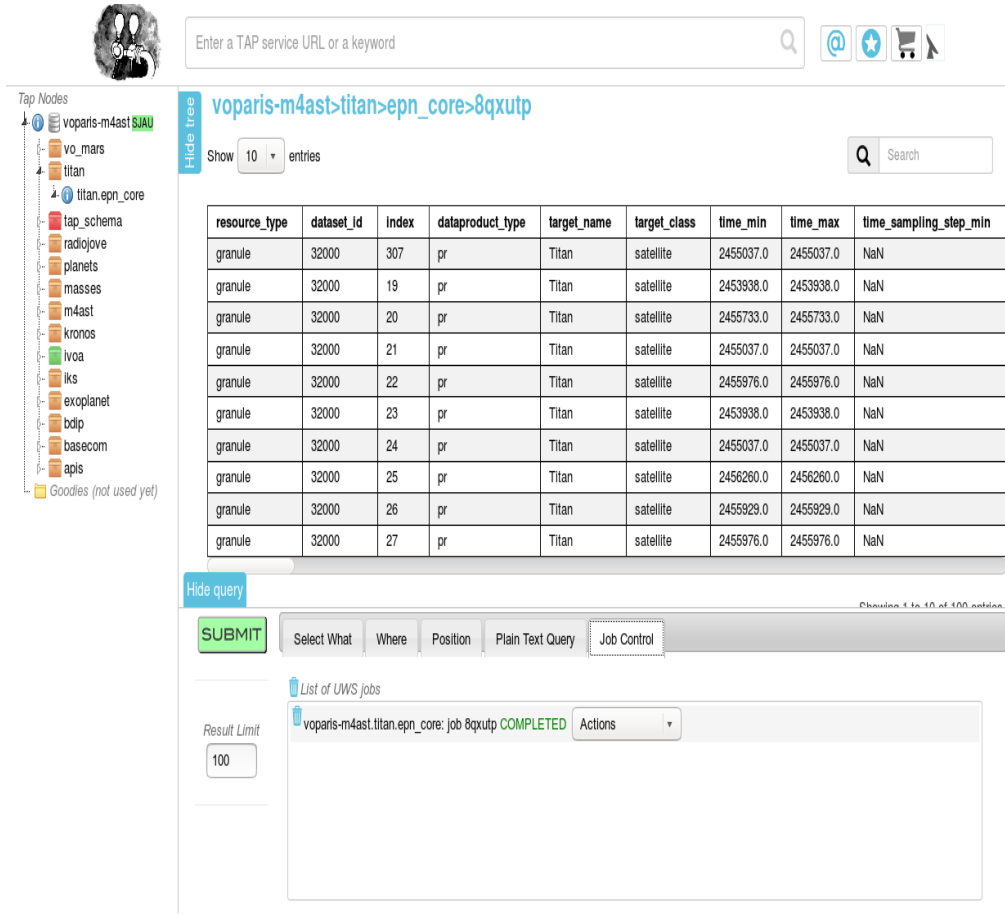




Accessing TAP for user TAP clients

- TapHandle





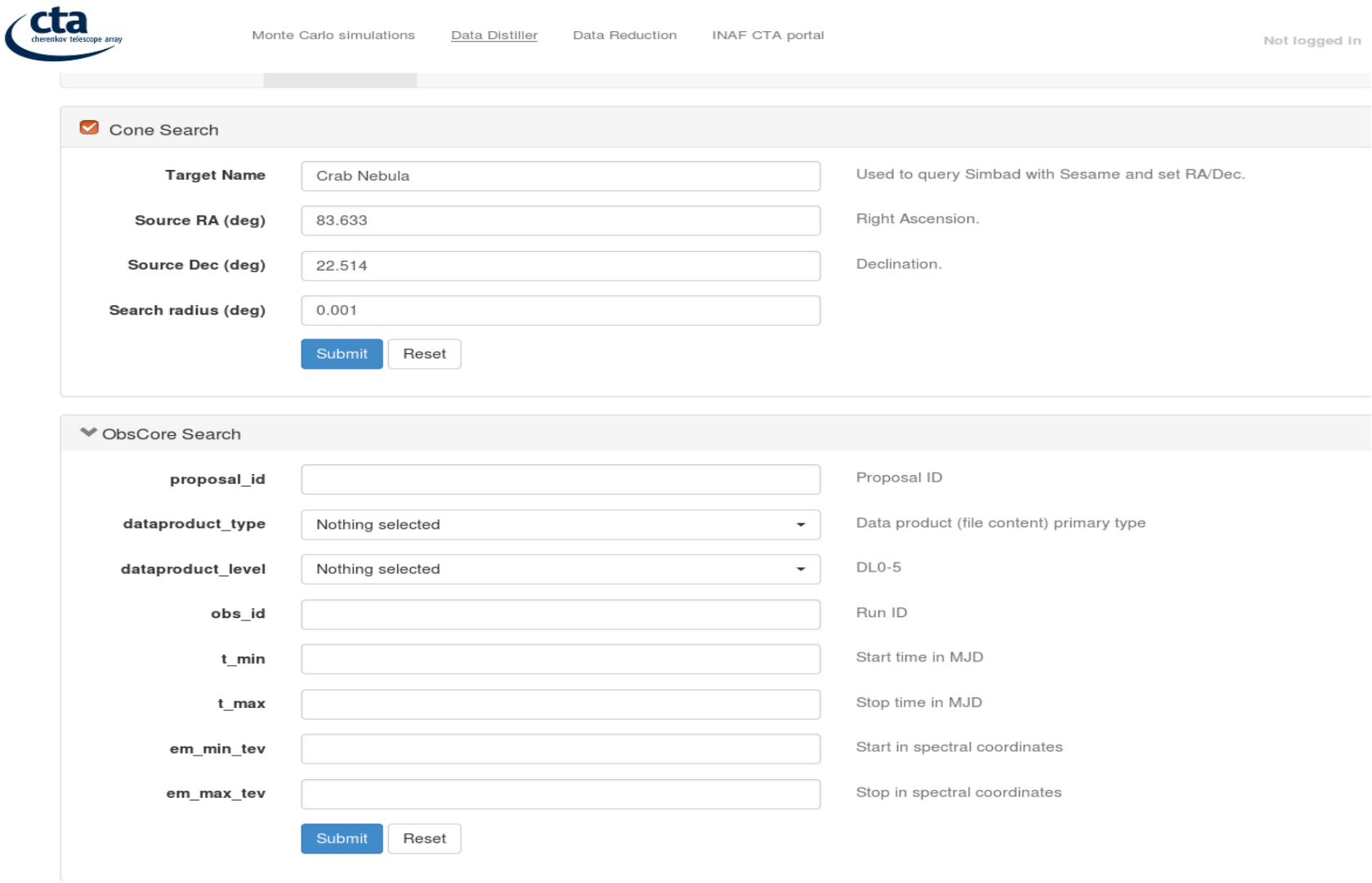
User friendly, not specific to a DM

Accessing TAP for user
TAP clients

- TAP shell client: Tapsh
  - A way to script tap access in shell, also allows SAMP interaction
  - Dedicated to “advanced users”
  - Good complement to graphical access

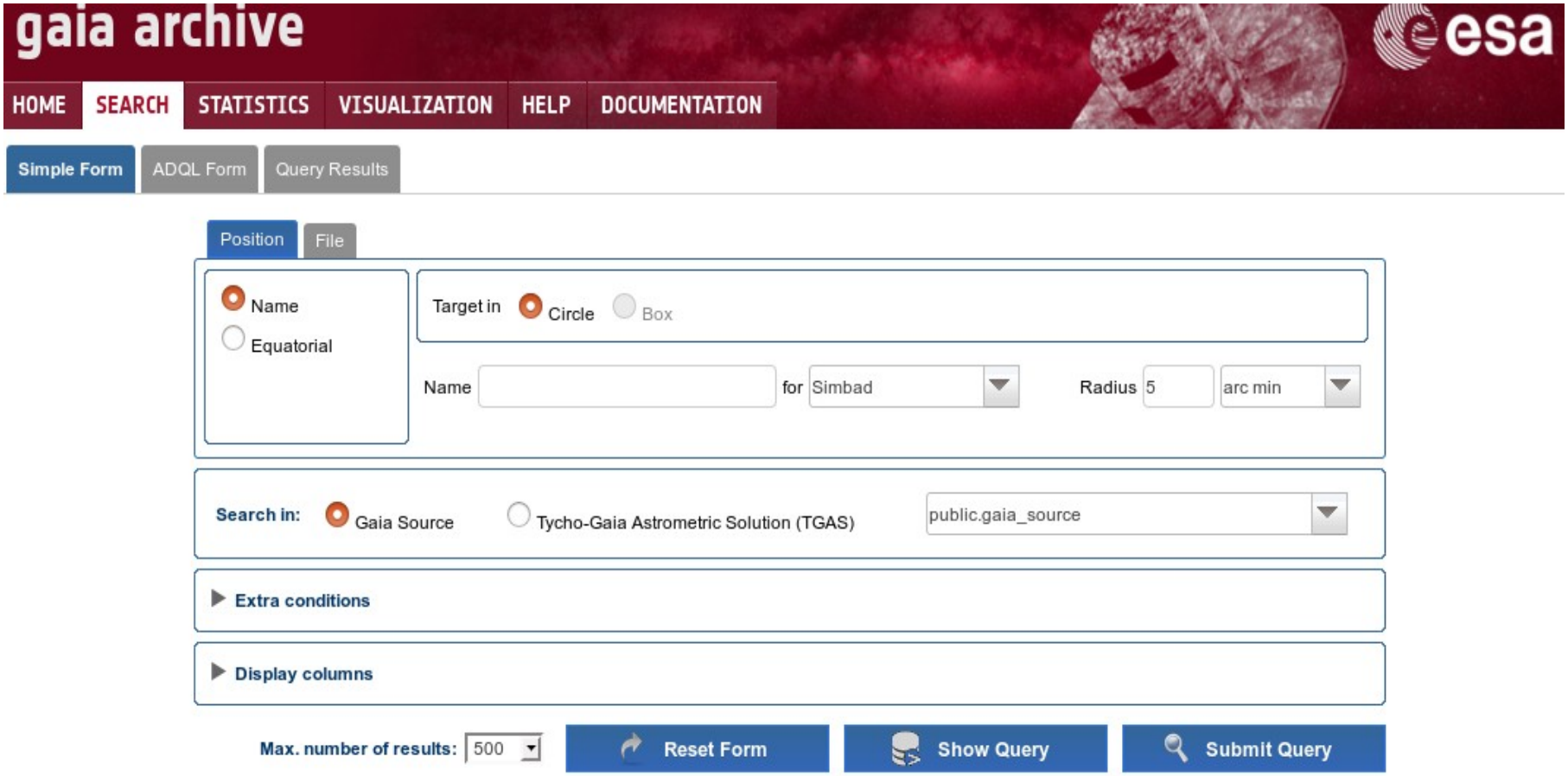
Accessing TAP for user
TAP clients

- TAP for dedicated project (web portals) CTA

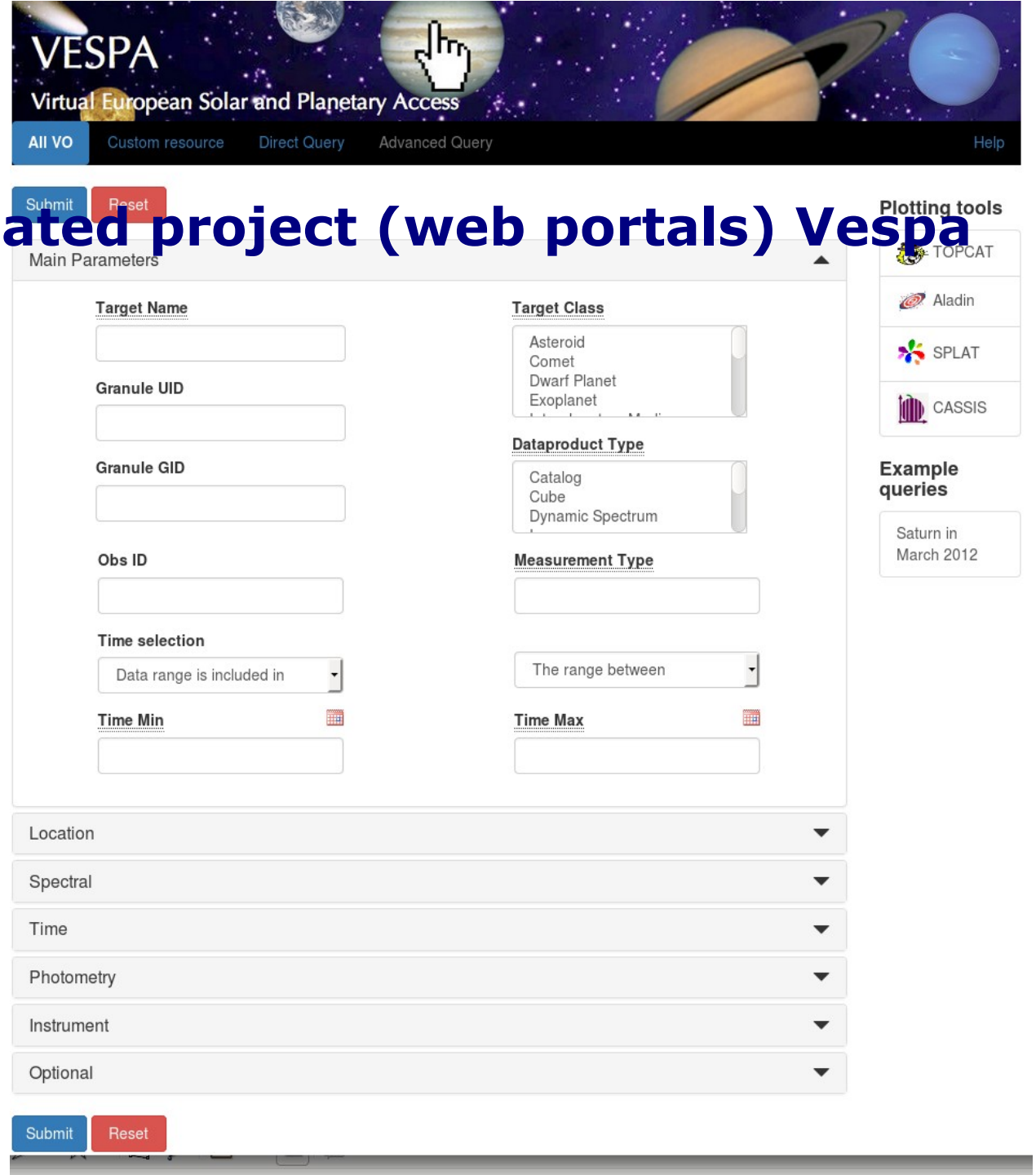


Accessing TAP for user
TAP clients

- TAP for dedicated project (web portals) GAIA



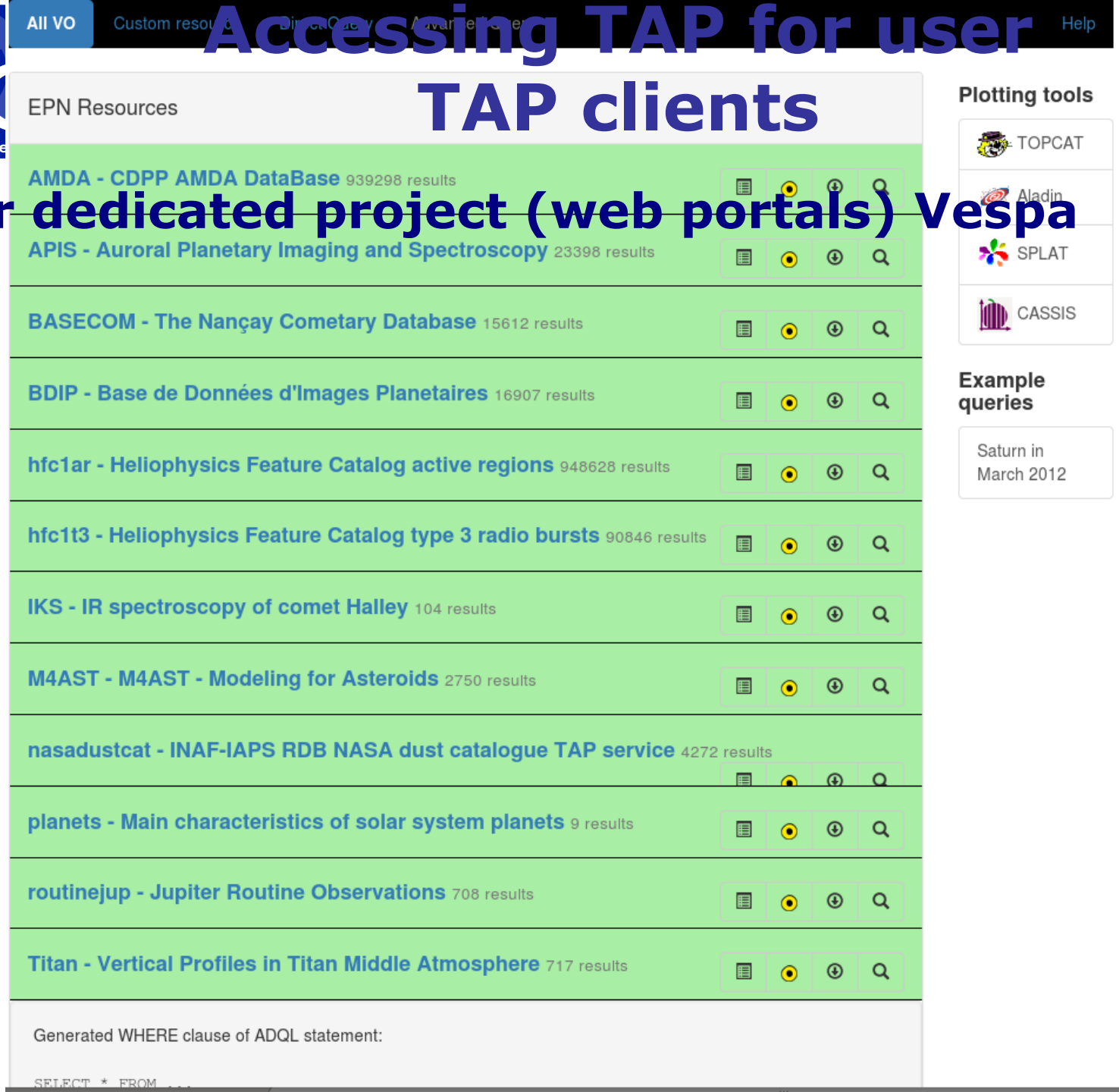
- TAP for dedicated project (web portals) Vespa



Accessing TAP for user

TAP clients

- TAP for dedicated project (web portals) Vespa



User point of view and TAP client

Generic client have to guide user in Schema + Table +ADQL

Specific client hide complexity and allow to visualize only the useful data :

- **Dedicate a specific TAP server for the project**
- **Identify the useful services**

- **For EPN-TAP : extract specific resources from the registry.**

Declaration of TAP service in the registry

Define schema

```
<tableset>
   <schema>
     <name>apis</name>
     <table>
       <name>apis.epn_core</name>
     </table>
   </schema>
 </tableset>
```

We encourage data providers to use DaCHS

Model of One VOResource for One Service

- Easy to register all information
- Appear N time in generic clients

Model of publishing registry inside DaCHS

- One TAP service and many collections / VODataService
- One collection must define EPN-CORE DM, the version and the database schema name. Not compatible with DataCollection Schema (XML Schema)
- Need to customise registry query
- Wrong use of Utype to register datamodel and version

Conclusion : TAP is largely used ↗

* Astronomers :

All new large projects intend to use ObsTap, scientific use case will come soon.

Data mining will come soon, we have to be ready.

Clients have to be ready for VO agnostic users.

* Data Providers

Already two advanced framework for data publishing : Advertise, feedback, community should be encouraged and followed to increase publication.