INTERNATIONAL VIRTUAL OBSERVATORY ALLIANCE
US National Virtual Observatory

PQL Discussion

D. Tody (VAO, NRAO)

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PQL Use Cases

- **Simple flat table query**
  - Query any table using column constraints
  - Alternative to ADQL, does not require SQL back-end

- **Cone search replacement**
  - Add POS,SIZE and REGION for spatial constraint
  - SELECT-FROM-WHERE adds more capability
  - Ideal for astronomical catalog queries
  - Update UCDs etc.

PQL Use Cases

- **Multiposition query**
  - Query by list of positions (UPLOAD, DBMS table)
  - Should be compatible with emerging IVOA standard

- **Param/DM-based ObsTAP query**
  - Query by ObsCore data model
  - Extended parameters support model
  - Can potentially query any table, not just ivoa.ObsCore

PQL Use Cases

- **Generic Discovery Interface**
  - Can be used directly for global discovery (e.g. ObsTAP)
  - Natural place to introduce data linking, complex data associations
  - Defines generic query interface to be subclassed by typed interfaces

- **Role for discovery in typed interfaces**
  - Could be alternative to queryData for typed interfaces

- **Example**
  - Query a SIAP metadata table (not a standard however)
  - Could provide sufficient metadata for Siap.AccessData

PQL Interface

- ## TAP Invocation
  - REQUEST=doQuery, LANG=PQL

- ## Common Parameters
  - FORMAT Format of query response table
  - UPLOAD Table upload (inline or URL)
  - MAXREC Output control
  - MTIME   Used to find what has changed
  - RUNID   Pass-through used to tag operations

- ## Notes
  - Any UPLOAD table can be queried
  - TAP_SCHEMA can be queried

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PQL Parameters

- **POS,SIZE**
    - Multi-position list support
    - Coordinate frame support

- **REGION**
    - STC-S region used to filter data table
    - Applied in combination with other constraints
    - How general does this have to be?

PQL Parameters

- **SELECT**
  - List table fields to be returned
  - Can request only "principal" fields; default all

- **FROM**
  - Table to be queried

- **WHERE**
  - What types of fields can be constrained?
    - e.g., VOEvent PARAM (in XML) could be a "field"
  - Support optional ADQL subset?

table_name	column_name	datatype	units	constraint
ivoa.ObsCore	dataproduct_type	adql:VARCHAR		not null
ivoa.ObsCore	calib_level	adql:INTEGER		not null
ivoa.ObsCore	obs_collection	adql:VARCHAR		not null
ivoa.ObsCore	obs_id	adql:VARCHAR		not null
ivoa.ObsCore	obs_publisher_did	adql:CLOB		not null
ivoa.ObsCore	access_url	adql:CLOB		
ivoa.ObsCore	access_format	adql:VARCHAR		
ivoa.ObsCore	access_estsize	adql:INTEGER	KB	
ivoa.ObsCore	target_name	adql:VARCHAR		
ivoa.ObsCore	s_ra	adql:DOUBLE	deg	
ivoa.ObsCore	s_dec	adql:DOUBLE	deg	
ivoa.ObsCore	s_fov	adql:DOUBLE	deg	
ivoa.ObsCore	s_region	adql:REGION	deg	
ivoa.ObsCore	s_resolution	adql:DOUBLE	arcsec	
ivoa.ObsCore	t_min	adql:DOUBLE	d	
ivoa.ObsCore	t_max	adql:DOUBLE	d	
ivoa.ObsCore	t_exptime	adql:DOUBLE	s	
ivoa.ObsCore	t_resolution	adql:DOUBLE	s	
ivoa.ObsCore	em_min	adql:DOUBLE	m	
ivoa.ObsCore	em_max	adql:DOUBLE	m	
ivoa.ObsCore	em_res_power	adql:DOUBLE		
ivoa.ObsCore	o_fluxucd	adql:VARCHAR		

Table 3: TAP/SCHEMA.columns description of the ivoa.ObsCore table

ObsCore Parameters

- **POS,SIZE and REGION**
  - s_ra, s_dec, s_fov, s_region
  - note some additional flexibilty re columns, frames
- **BAND**
  - em_min, em_max
- **TIME**
  - t_min, t_max
- **POL**
  - requires optional extended metadata

ObsCore Parameters

- **COLLECTION**
  - obs_collection

- **PUBDID**
  - obs_publisher_did
- **CREATORDID**
  - requires optional extended metadata (obs_creator_did)

- **TARGETNAME**
  - target_name
- **TARGETCLASS**
  - requires optional extended metadata

ObsCore Parameters

- SPECRP
  - em_res_power
- SPATRES
  - s_resolution
- TIMERES
  - t_resolution

- ASTCALIB
- WAVECALIB
- TIMECALIB
  - requires optional extended metadata

ObsCore Parameters

- **New ObsCore Metadata**
  - dataproduct_type
  - calib_level
  - obs_id

- **No-Query Fields?**
  - access_url
  - access_format
  - access_estsize
  - o_fluxucd