INTERNATIONAL VIRTUAL OBSERVATORY ALLIANCE
US National Virtual Observatory

TAP and PQL
Use of PQL for GDS/ObsDM Queries

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Param Query Language (PQL) Status

- Follow-on to main TAP spec
  - Alternate query mechanism with integrated data model support
  - Depends upon TAP service engine for primary functionality
  - Same TAP schema, table upload, query response output, etc.
  - PQL working draft available since May 2009.
- ObsTAP Dependency
  - Parameter semantics depend upon data model (GDS/ObsDM and ST
  - ObsCore "parameters" have direct correlation to query params
  - Hence need stable ObsCore DM to finalize PQL
- Prototyping
  - Some progress but need to have TAP,ObsDM stable first

PQL Scope Reminder

- Capabilities / Goals
  - Provides interface consistency with OO/"typed" DAL interfaces
  - Simple query of a single table (catalog, ObsDM, etc.)
  - SCS (cone search) replacement - but much more powerful
  - Integrated multi-position query support
  - Integrated generic dataset (GDS/ObsDM) data model
  - Direct support for "narrow/wide" standard table views
  - Support for MTIME for maintaining replicas (experimental)
- Basic Interface
  - Inherits TAP params (FORMAT, UPLOAD, MAXREC, etc.)
  - SELECT, FROM, WHERE (as parameters); also MTIME
  - GDS/ObsDM params (POS,SIZE, REGION, BAND, TIME, etc.)

GDS/ObsDM Queries

- Using ADQL
  - ADQL directly exposes SQL for advanced user queries
  - Table name (for ObsTAP), field names, units, frames are fixed
- Using PQL
  - Can query any table using GDS/ObsDM data model
    - Like cone search but we now have a more extensive model
  - DM is abstracted from physical table
    - UTYPE can be used to identify table fields
    - Transparent frame and unit conversions are possible
    - Not necessary to change underlying archive table
  - Smart parameter semantics
    - Target name resolution, bandpass, ISO time, FOV/region, etc.
    - Can post-process output
      - complex data associations, add data links, autogenerate URLs

ObsCore/GDS Comparison

dataproduct_type	DSTYPE	
obs_collection	COLLECTION	
obs_id		
obs_publisher_did	PUBDID	(CREATORDID)
target_name	TARGETNAME	(TARGETCLASS)
calib_level		
s_ra	POS	
s_dec	POS	
s_fov	SIZE	
s_region	REGION	
s_resolution	SPATRES	
t_min	TIME	
t_max	TIME	
t_exptime		
t_resolution	TIMERES	
em_domain	BAND	
em_min	BAND	
em_max	BAND	(POL missing)
em_res_power	SPECRP	
o_fluxucd		
access_url	(output only)	
access_format		
access_estsize	(output only? or use WHERE)	