TAP-next: features and protocol

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Topics

- new features for persistent user tables

- protocol enhancement following P3T work

- plan to reach WD-TAP-next

Context

- CANFAR youcat service: ivo://cadc.nrc.ca/youcat
  - schemas: 5
  - tables: 81
  - columns: 5210
  - primarily astronomical source catalogues – bulk load

- CADC youcat service: coming soon
  - long term access to DRAO Solar Flux Monitor data
  - historical data: 3 measurements/day for many decades
  - live: add new measurements – daily incremental load

Context: existing software

- server: https://github.com/opencadc/tap
  - most code implemented in the libraries
  - complete youcat service build available
  - prebuilt docker image: images.opencadc.org/core/youcat

  - limitations: currently PostgreSQL+pgsphere only
  - limitations: incomplete admin API (request/create allocation)
  - several critical TODOs documented
  - future plans documented

- client: cadctap client

- client: pyvo feature branch (Adrian Damian)

API features

- list tables: VOSI-tables (or tap_schema)

- get table metadata: VOSI-tables (or tap_schema)
  - GET /tables/{table_name}

- create table
  - **PUT /tables/{table_name}**

- update table metadata
  - **POST /tables/{table_name}**

- drop table
  - **DELETE /tables/{table_name}**

API features

- load data
  - **POST {row data} /load/{table_name}**
  - "append rows" so client can gradually add data
  - good error handling essential
  - resume after partial success (transient failure) essential
  - row data: TBD
  - currently: csv, tsv, fits, votable w/ size limit

- create index (async UWS job)
  - **POST {job details} /table-update**
  - can be done before or after table load: takes time
  - service can control/schedule execution of such jobs
  - checks and updates tap_schema.columns.indexed
  - job details: TBD
  - currently params, limited to single column, unique qualifier

API features

- get permissions
  - **GET /permissions/{name}**
  - name: schema or table name
  - output doc: TBD
  - currently ascii key=value

- set permissions
  - **POST {document} /permissions/{name}**
  - document: TBD
  - currently ascii key=value, sets/resets ALL permissions

- permissions concepts match those in VOSpace:
  - anon_read aka "public": true | false
  - group_read: GMS group URI
  - group_write: GMS group URI
  - currently: limited to a single group, default: private

Protocol Update

- P3T session (Wed AM) will describe a new approach to protocol design
  - SPOILER: TAP-next will be the prototype/test case

- prototype involves new endpoints with new payloads transferred in both directions
  - existing prototype is limited: P3T protocol design

- prototype extends VOSI-tables (more HTTP verbs)
  - several ways to do this

- definitely an OPTIONAL set of features
  - good time to think hard about "optional" in the context of a protocol update

Open questions

- publish user table metadata to IVOA registry?

- augment tap_schema with new schema and table properties?

- more details described in previous talk

  https://wiki.ivoa.net/twiki/bin/view/IVOA/InterOpMay2023DAL

Summary

- TAP-next: enhancement to support user-managed persistent tables

- protocol enhancements via P3T prototype effort (Wed AM)

shameless plug
https://github.com/opencadc/tap