Persistent TAP Uploads in DaCHS 2.11

Markus Demleitner

IVOA Southern Spring Interop 2024, Malta Nov 14-17
DAL WG

Outline

- Persistent uploads?
- Table PUT, GET, and DELETE
- Metadata retrival
- CREATE TABLE
- Discovering persistent upload facilities
- Open questions

Persistent Uploads

TAP has always supported table uploads.
But tables are gone after a request, requiring re-uploads, making reuse difficult and inefficient.
So, let's give TAP users a facility to put tables into the server-side database across requests.

Prior Art

- CADC has youcat; see Pat's 2018 Interop talk: PUT-s on the VOSI tables endpoint.
- ESAC has VOSpace-based table uploads, coming with lots of Authz.

The present effort follows youcat somewhat, but does not overload VOSI tables.
Overloading VOSI tables did not feel natural here because – against youcat – we are not really interested in publishing the uploaded tables. They are intended to be ephemeral and disappear again rather quickly, just not as fast as conventional uploads. Personally, I am convinced that proper table publication will always require curation, and hence building publishing APIs is less of a concern for me.
There is very little shared code between DaCHS' VOSI `tables` and the new `user_tables` endpoint. Hence, it would seem to me that having a separate endpoint is a sane design.

PUT, GET, DELETE

- To upload a table, do an HTTP PUT with a VOTable payload to `user_tables/<table-name>`
- To retrieve the server-side metadata, do an HTTP GET on `user_tables/<table-name>`
- To delete a persistent table, do an HTTP DELETE to `user_tables/<table-name>`

Slight Trouble: What to Return?

This is admittedly somewhat flamboyant right now.

- PUT returns an informative text/plain string. Redirect to the table metadata instead?
- GET returns a VOSI table. That's sane.
- DELETE returns an informative text/plain string.

Errors are communicated as DALI-compliant VOTables.

Metadata Retrieval

A GET on `user_tables` returns a VOSI tableset for all uploaded tables. No support for DETAIL=min in DaCHS so far, though. Ok, so *that* would be shared code with VOSI tables…

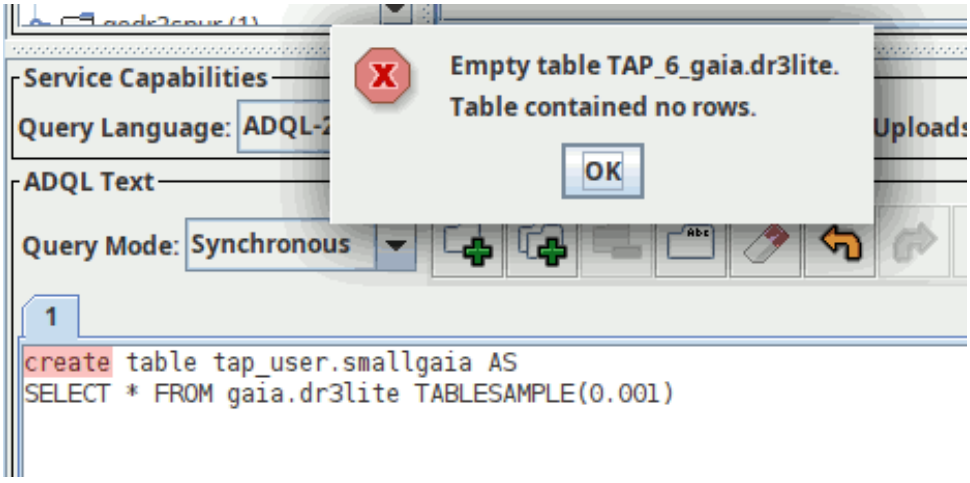
Except if you support anonymous persistent uploads (DaCHS does): there is no way to find these once you have forgotten your table name.

The persistent uploads do *not* show up in `TAP_SCHEMA` and neither in VOSI tables. For `TAP_SCHEMA`, that's just for implementation convenience: I don't want to fake these tables per user, as I expect that to be fairly ugly and brittle. For VOSI tables, I am sure this is the right way to go about things, because these documents can be large, and you don't want them to change with every upload.

I'd say there is little need to be backwards compatible with clients not knowing about persistent uploads, and those supporting it can rather easily merge metadata from VOSI tables and `user_tables`.

CREATE TABLE

I have also made an ADQL extension:



These queries return the result of the query without rows and create a new persistent table with the rows.

Returning *some* table seems prudent, because that preserves the behaviour of TAP sync or async. Returning no rows seems prudent because presumably people don't want the rows client-side at this point.

Against plain `user_tables`, supporting CREATE TABLE was a lot more hassle implementation-wise because suddenly one needs to know a lot about the requesting user in places where at least DaCHS didn't need to before. I still like the feature, but perhaps it does not need to go in for TAP 1.2.

Discovering Persistent Table Facilities

How do you find out whether a given TAP service supports persistent uploads?

Mark Taylor on the DAL list suggested to do a GET against `user_tables`. Then:

- 404: unsupported
- 403: supported (but you're not authenticated)
- 200: supported (and you are authenticated)

This does not help to figure out whether you can upload without auth. TAPRegExt? We could easily define a feature for that.

Open Questions

- How to prolong the life time of an uploaded table (current default: one week)?
- How to create indexes on them (in particular spatial ones)?
- Authz: Do we want to make these tables shareable between different users? [full disclosure: I don't]
- Scaling: DaCHS has no quota on these yet, but in production we would probably need some. How do people discover those?

Try it!

There's curl calls and a jupyter notebook in our blog post on this:

https://blog.g-vo.org/a-proposal-for-persistent-tap-uploads.html

If you are running DaCHS, upgrading to 2.10.2 will let you play with this on your own server.