`taplint`: **TAP validator tool**

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taplint

TAP validator

- Intended for use by TAP service developers
  - ▷ Point it at your service, it tells you what's not compliant

- Part of STILTS
  - ▷ Download from
    ftp://andromeda.star.bris.ac.uk/pub/star/stilts/pre/stilts.jar
    (current STILTS public release version 2.3-1 has a few errors)
  - ▷ Documented at http://www.starlink.ac.uk/stilts/sun256/taplint.html

- Tries to test lots of things
  - ▷ Many protocols involved:
    - ○ TAP, UWS, VODataService, ADQL, VOResource, VOSI, TAPRegExt, VOTable, HTTP, ...
  - ▷ Performs ~ 200 *different* tests
  - ▷ ... but not comprehensive

- Developed with help from TAP people (Tom McGlynn, Markus Demleitner, ...)
- Pointed up some TAP/UWS/etc issues, see TAPImplementationNotes wiki page

Example

```
% stilts taplint http://example.com/tap

Section TMV: Validate table metadata against XML schema
I-TMV-VURL-1 Validating http://example.com/tap/tables against http://www.ivoa.net/xml/VODataService/VODataServ...
E-TMV-URBH-1 (l.2, c.178): cvc-elt.1: Cannot find the declaration of element 'vosi:tableset'.
E-TMV-BBUE-1 (l.889, c.58): cvc-complex-type.2.2: Element 'dataType' must have no element [children], and the ...
E-TMV-BBUE-2 (l.893, c.58): cvc-complex-type.2.2: Element 'dataType' must have no element [children], and the ...
E-TMV-BBUE-3 (l.897, c.58): cvc-complex-type.2.2: Element 'dataType' must have no element [children], and the ...
E-TMV-BBUE-x (1817 more)
S-TMV-VALI-1 warnings: 0, errors: 1818, fatal: 0

Section TMS: Check content of tables metadata from TAP_SCHEMA
I-TMS-QSUB-1 Submitting query: SELECT principal, indexed, std, "size" FROM TAP_SCHEMA.columns
I-TMS-QGET-1 Query GET URL: http://example.com/tap/sync?REQUEST=doQuery&LANG=ADQL&QUERY=SELECT+principal%2C+in...
E-TMS-RRES-1 TAP response document RESOURCE element is not marked type='results'
E-TMS-CERR-1 Error reading TAP_SCHEMA.columns data [IllegalArgumentException: Column ["size"] does not exist.]
    . . .
```

Notes on output:

- `grep`-friendly

- Human readable

- Manageable length (repeated messages filtered out)

- *Tries* to give as much info as possible

- Logs queries as well as reporting errors where possible/practical to aid reproducibility

- Options for truncating long lines, filtering messages, restricting tests, etc

Tests

Tests performed:

`TMV`: Validate `/tables` endpoint against VODataService schema

`TME`: Check content `/tables` endpoint for consistency

`TMS`: Check form and content of TAP_SCHEMA tables

`TMC`: Compare table metadata from `/tables` and TAP_SCHEMA

`CPV`: Validate `/capabilities` endpoint against TAPRegExt schema

`CAP`: Check content of `/capabilities` endpoint

`AVV`: Validate `/availability` endpoint against VOSI schema

`QGE`: Make example ADQL queries in sync GET mode

`QPO`: Make example ADQL queries in sync POST mode

`QAS`: Make example ADQL queries in async mode

`UWS`: Test asynchronous UWS/TAP behaviour

`MDQ`: Check table query result columns against declared metadata

`UPL`: Make example queries with table uploads

Coming up:

`OBS`: ObsCoreDM data model

Capabilities

- Strengths:

  - Job submission tests (synchronous, asynchronous, UWS job control)

  - Tests all columns in all tables

  - Metadata tests (consistency between TAP_SCHEMA & /tables)

  - Basic ADQL syntax (column quoting, requested columns output etc)

  - TAPRegExt record tested (current WD) if present

  - Output VOTable syntax checked carefully (`votlint`)

- Weaknesses:

  - Not very complicated ADQL queries

    - ▷ No geometry, no STC, no ObsTAP *(yet)*

  - ADQL-like queries only (no PQL)

  - Tests only service, not registration

  - Probably has bugs!

Summary

STILTS `taplint`

- If you're developing a TAP service, consider using it!
- Talk to me if results don't make sense (or look wrong)
- May get extended/corrected/improved, depending on demand