

A Survey Of TAP Error Messages

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Error Messages Matter

Writing good error messages is great art: Do not claim more than you know, but state enough so users can guess how to fix it.

– Demleitner’s first observation on error messages

Making a computer do the right thing for a good request usually is not easy. It is much harder to make it respond to a bad request with a good error message.

– Demleitner’s first corollary on error messages

Surveying TAP Errors

A student who prefers to stay unnamed was dismayed by confusing errors it got from some TAP services.

He went on to do a formal survey of responses for:

- Select from a non-existing table
- Select a non-existing column from an existing table
- A mistyped SELECT
- A mistyped FROM
- A non-VOTable inline upload
- Referencing a non-existing column in an upload

To make this reasonably fast, he fired off async queries; some of the results would probably have been different if the queries had been sync.

Services Inspected

The services he chose cover a wide variety of implementations:

- <http://tapvizier.cds.unistra.fr/TAPVizieR/tap> (vollt)
- <https://heasarc.gsfc.nasa.gov/xamin/vo/tap> (custom?)
- <https://irsa.ipac.caltech.edu/TAP> (custom)
- <http://dc.zah.uni-heidelberg.de/tap> (DaCHS)
- <https://gea.esac.esa.int/tap-server/tap> (vollt+)
- <https://vo-pds-ppi.igpp.ucla.edu/tap> (DaCHS)
- <https://gaia.aip.de/tap> (Daiquiri)
- http://archive.eso.org/tap_cat (vollt)
- <https://api.skymapper.nci.org.au/public/tap> (custom?)
- <https://www.plate-archive.org/tap> (Daiquiri)
- <https://ws-cadc.canfar.net/youcat> (OpenCADC)
- <http://simbad.cds.unistra.fr/simbad/sim-tap> (vollt)

Don't quote me on this; I have not actually researched what implementations the various publishers use but report this from anecdotal knowledge.

A Qualitative Scheme

As a relative newbie to the VO, the student classified the responses he got into:

1. Good Error Message
2. Ok Error Message
3. Meh Error Message (not very clear, but points in the right direction)
4. No useful error from server
5. Completely Unrelated Error Message
6. No Error
7. IRSA (None as job.phase)

The result

	<i>viz</i>	<i>ha</i>	<i>ir</i>	<i>gv</i>	<i>ga</i>	<i>pds</i>	<i>aip</i>	<i>eso</i>	<i>skmr</i>	<i>pa</i>	<i>yc</i>	<i>sim</i>
<i>bt</i>	1	6	7	2	1	2	-	1	<i>s</i>	-	2	1
<i>ic</i>	1	6	4	1	1	1	-	1	<i>s</i>	-	1	1
<i>bs</i>	1	6	7	1	1	1	-	1	<i>s</i>	-	1	1
<i>btu</i>	-	6	7	1	3	1	-	-	<i>s</i>	-	5	-
<i>buc</i>	1	6	4	1	1	1	4	<i>n.a</i>	<i>s</i>	4	2	1

To decypher the wild shortcuts, see the previous slides. Extra codes: *n.a.* was a clear error that uploads are not available, “-” are 404s in async, *s* is a skymapper bug; all these would probably have looked a lot better in surveys using sync.

The Notebook

Try it yourself; the notebook is  attached to this PDF.

Caveats

This was as much a test of

- async mode
- the pyVO TAP API

as it was a test of the services.

But if you as a service operator do not like how your service looks like in this notebook, you probably want to fix *something* – pyVO or your service.