

STILTS DataLink Validator

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DataLink Refresher

DataLink defines (approximately) 2 things:

1. {Links} service — response is a table of a fixed form

name	description	required	UCD
ID	Input identifier	yes	meta.id;meta.main
access_url	link to data or service	one only	meta.ref.url
service_def	reference to a service descriptor resource		meta.ref
error_message	error if an access_url cannot be created		meta.code.error
description	human-readable text describing this link	no	meta.note
semantics	Term from a controlled vocabulary describing the link	yes	meta.code
content_type	mime-type of the content the link returns	no	meta.code.mime
content_length	size of the download the link returns	no	phys.size;meta.file

Table 1: Required Fields for Links

2. Service Descriptors — define how to invoke a service from a row

```
<RESOURCE name="EpochPhotom" type="meta" utype="ad hoc:service">
  <DESCRIPTION>Epoch photometry</DESCRIPTION>
  <PARAM name="accessURL" ucd="meta.ref.url" arraysize="*" datatype="char"
    value="http://gaia.ari.uni-heidelberg.de/timeseries/gaiadr1"/>
  <GROUP name="inputParams">
    <PARAM name="sourceid" datatype="long" value="" ref="source_id_col"/>
    <PARAM name="resolution" datatype="double" unit='d' value="20"/>
    <PARAM name="band" datatype="double" value=""/>
  </GROUP>
</RESOURCE>
```

Validation

STILTS DataLink validator:

- Checks content of {links}-response tables: (REC-DataLink-1.0 sections 3 & 4)
 - ▷ Correct **RESOURCE** structure of VOTable document
 - ▷ All required columns present with mandated **name**, **UCD**, **datatype**, **units**
 - ▷ Service descriptors correctly specified and referenced
 - ▷ Each row contains exactly one of **access_url**, **service_def**, **error_message**
 - ▷ **error_message** syntax (XxFault: xxx)
 - ▷ **content_type** syntax (RFC 2045)
 - ▷ **semantics** syntax (#datalink-core-term, or other URI)
 - ▷ VOTable validation (**votlint**)
 - ▷ DALI error-response checking, if applicable (VOTable error document)
 - ▷ HTTP headers, if applicable (**content-type**, **content-coding**)
- Not currently checked:
 - ▷ Links service: (REC-DataLink-1.0 section 2)
 - Generating invocation URL
 - VOSI availability, capabilities
 - Overflow behaviour
 - ▷ External resources: (*future version?*)
 - Link targets
 - Standard IDs
 - IVOIDs

Additional Information

Provides summary information for convenience:

- Summarises content of each row (link)
- Lists defined service descriptors and their params

These are INFO-level items, can be turned off/ignored if not wanted

Invocation

New STILTS command `datalinklint`

- Just point it at the VOTable URL/filename

```
stilts datalinklint votable=... [options]
```

- ▷ If `http[s]` URL, some additional checks are performed

- Usage and output very similar to `taplint`

- ▷ Run from command line, output to stdout

- ▷ Output options:

- `format=text`: line-oriented (grep-friendly)

- `format=json`: ad-hoc JSON structure (requested for taplint by Renaud Savalle)

- ▷ Limits number of similar messages

- ▷ Output level options (e.g. only **E**rrors)

- Suggested use from validation services:

- ▷ Run it pointing at service URLs:

- ... with `ID=<existing-ID>`

- ... with `ID=<existing-ID1>&ID=<existing-ID2>`

- ... with `ID=<non-existent-ID>`

- ▷ ... or use your imagination

- Available since STILTS v3.1-3 (04/2018)

Example

```
% stilts datalinklint \  
  votable='http://dc.g-vo.org/califa/q3/dl/dlmeta?ID=ivo://org.gavo.dc/~?califa/datadr3/COMB/ARP220.COMB.rscube.fits' \  
  truncate=119
```

This is the STILTS DataLink validator, 3.1-4/?

```
I-GEDL-1 Retrieving DataLink document from http://dc.g-vo.org/califa/q3/dl/dlmeta?ID=ivo://org.gavo.dc/~?califa/data...  
I-VOHP-1 (1.1, c.75): Ignoring processing instruction <?xml-stylesheet href='/static/xsl/datalink-to-html.xsl' type=...  
W-VOXF-1 (1.1, c.7303): Name 'proc_svc' already used in this VOTABLE  
E-DLCT-1 Incorrect Content-Type text/xml for DataLink service http://dc.g-vo.org/califa/q3/dl/dlmeta?ID=ivo://org.ga...  
E-RUCD-1 Wrong UCD for column service_def; meta.code != meta.ref  
I-SDDO-1 Service descriptor procsvc, 12 input params  
I-SDPR-1 FIXED parameter count 1 [ID]  
I-SDPR-2 ROW parameter count 0  
I-SDPR-3 USER parameter count 11 [DEC, RA, SCALE, BAND, POS, POLYGON, CIRCLE, PIXEL_1, PIXEL_2, PIXEL_3, KIND]  
I-SDDO-2 Service descriptor procsvc0, 12 input params  
I-SDPR-4 FIXED parameter count 1 [ID]  
I-SDPR-5 ROW parameter count 0  
I-SDPR-6 USER parameter count 11 [DEC, RA, SCALE, BAND, POS, POLYGON, CIRCLE, PIXEL_1, PIXEL_2, PIXEL_3, KIND]  
I-SDDF-1 Service descriptors defined: 2 referenceable, 0 anonymous  
I-IKAC-1 Row 1: access URL http://dc.zah.uni-heidelberg.de/califa/q3/dl/dlmeta?ID=ivo%3A//org.gavo.dc/%7E%3Fcalifa/d...  
E-SMCO-1 Unknown predicate 'alternative' from core DataLink vocabulary at row 1  
I-IKAC-2 Row 2: access URL http://dc.zah.uni-heidelberg.de/califa/q3/dl/dlmeta?ID=ivo%3A//org.gavo.dc/%7E%3Fcalifa/d...  
E-SMCO-2 Unknown predicate 'alternative' from core DataLink vocabulary at row 2  
I-IKSD-1 Row 3: service procsvc invocation (partial) http://dc.zah.uni-heidelberg.de/califa/q3/dl/dlget?ID=ivo%3a%2f...  
I-IKSD-2 Row 4: service procsvc0 invocation (partial) http://dc.zah.uni-heidelberg.de/califa/q3/dl/dlasync?ID=ivo%3a...  
I-IKAC-3 Row 5: access URL http://dc.zah.uni-heidelberg.de/califa/q3/dl/dlget?ID=ivo%3A//org.gavo.dc/%7E%3Fcalifa/da...  
I-IKAC-4 Row 6: access URL http://dc.zah.uni-heidelberg.de/getproduct/califa/datadr3/COMB/ARP220.COMB.rscube.fits?pr...  
I-DLNR-1 Datalink table rows checked: 6
```

Totals: Errors: 4; Warnings: 1; Infos: 18; Summaries: 0; Failures: 0

Use and Support

Work in progress!

- There may be bugs
- Reports try to be helpful, but may be cryptic in some cases
 - ▶ Please ask me for interpretation as required
- Queries, feedback, bug reports welcome