

Using the VO-Paris Validators

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“Validation and Quality Assurance for IVOA Services” (by Savalle, R.; Le Sidaner, P.; Shih, A.; Normand, J.; Coquatre Zielgen, G. in ADASS XXI - 2011)

<http://voparis-validator.obspm.fr/>



VOTable Validation Service

Load specification:

VOTable	Load
▼	
VOTable	
EPN-TAP	
Planetary Data Access 1.0	
Simple Cone Search 1.03	
Simple Image Access 1.0	
Simple Line Access 1.0	
Simple Spectral Access 1.03	
Simple Spectral Access 1.04	
Simple Spectral Access 1.1	
Simple Spectral Access Theory	
Table Access 1.0	
datalink	

[@Contact](#)



Step 1 : Choose the Service Type and version to validate, then click on Load



<http://voparis-validator.obspm.fr/>



VOTable Validation Service

Load specification:

Simple Spectral Access 1.04

Required parameters:

REQUEST
POS
SIZE
TIME
BAND
FORMAT

Additional parameters:

URL of the service to validate:

Run batch tests

Output format:

Step 2 : Enter the URL of the service to validate, its parameters, optionally check “Run batch tests”, then click on **Validate**

http://voparis-srv.obspm.fr/srv/ssa-hess_spectrum.php?&REQUEST=queryData&POS=180.0%2C60.0&SIZE=1.0&FORMAT=ALL

```
1 <?xml version="1.0" encoding="UTF-8" ?>
2 <VOTABLE version="1.1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.ivoa
3 <RESOURCE type="results"><DESCRIPTION>HESS - High Energy Stereoscopic System</DESCRIPTION>
4 <INFO name="QUERY_STATUS" value="OK"/>
5 <INFO name="SERVICE_PROTOCOL" value="1.04">SSAP</INFO>
6 <PARAM name="POS" datatype="char" value="180.0,60.0"/>
7 <PARAM name="SIZE" datatype="double" value="1.0"/>
8 <PARAM name="FORMAT" datatype="char" value="ALL"/>
9 <TABLE nrows="0"><GROUP utype="ssa:Access"><PARAM name="Access.Format" utype="ssa:Access.Format" da
10 <FIELDref ref=" c14"/>
```

SUCCESS: valid VOTable 1.1!

FAILURE: invalid Simple Spectral Access 1.04!

Warning: A **FIELD** or **PARAM** element with **utype="ssa:Query.Score"** in a **TABLE** is recommended. No match found.

Warning: A **FIELD** or **PARAM** element with **utype="ssa:Access.Size"** in a **TABLE** is recommended. No match found.

Warning: A **FIELD** or **PARAM** element with **utype="ssa:DataID.Creator"** in a **TABLE** is recommended. No match found.

Step 3 : The result page contains 2 parts: 1) The result is/is not a valid VOTable. 2) The VOT output is/is not compliant with the specification of the protocol. In addition, details about the errors or warnings found are listed, with links to the std

Using the VO-Paris Validators

...From the Results of the Automatic Validation

Cf Presentation in Ops I : Validation Levels

<http://voparis-validation.obspm.fr/registry-load2.php>

#	VOParis FSR	IVOA id	URL	Title	Contact Email	Spec V	Val Date	Days	Validator Info	Validator Results
1	details	ivo://nasa.heasarc/skyview/1420mhz	http://skyview.gsfc.nasa.gov/cgi-bin/vo/sia.pl?survey=1420mhz&	Bonn 1420 MHz Survey	Skyview@skyview.gsfc.nasa.gov	1.0	2015-06-13	24	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 13 warnings 13 errors
2	details	ivo://nasa.heasarc/skyview/2mass	http://skyview.gsfc.nasa.gov/cgi-bin/vo/sia.pl?survey=2mass&	Two Micron All Sky Survey (-Band)	Skyview@skyview.gsfc.nasa.gov	1.0	2015-06-13	35	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 13 warnings 13 errors
3	details	ivo://irsa.ipac/2MASS-ASKY-AT	http://irsa.ipac.caltech.edu/cgi-bin/2MASS/1M/nph-1m_sia?type=at&ds=asky&	2MASS All-Sky Atlas Image Service	irsasupport@ipac.caltech.edu	1.0	2015-06-13	493	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 1 warnings 1 errors
4	details	ivo://nasa.heasarc/skyview/408mhz	http://skyview.gsfc.nasa.gov/cgi-bin/vo/sia.pl?survey=408mhz&	HI All-Sky Continuum Survey	Skyview@skyview.gsfc.nasa.gov	1.0	2015-06-13	124	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 13 warnings 13 errors
5	details	ivo://irsa.ipac/Herschel/Images/ACMC	http://irsa.ipac.caltech.edu/cgi-bin/Atlas/nph-atlas?mission=ACMC&hdr_location=%5CACMCDDataPath%5C&SIAP_ACTIVE=1&collection_desc=ACMC&	Auriga-California Molecular Cloud	irsasupport@ipac.caltech.edu	1.0	2015-06-13	18	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 13 warnings 0 errors
6	details	ivo://irsa.ipac/Spitzer/Images/Abell1763	http://irsa.ipac.caltech.edu/cgi-bin/Atlas/nph-atlas?mission=Abell1763&hdr_location=%5CAbell1763DataPath%5C&SIAP_ACTIVE=1&collection_desc=Abell1763&	Spitzer Observations of Abell 1763	irsasupport@ipac.caltech.edu	1.0	2015-06-13	210	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 13 warnings 0 errors
7	details	ivo://CDS.Aladin/SIA	http://aladin.u-strasbg.fr/cgi-bin/nph-HTTP?cgi?FORMAT=image/fits&mode=sia_atlas&out=qualifier&	The ALADIN image server	question@simbad.u-strasbg.fr	1.0	2015-06-13	406	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 0 warnings 0 errors
8	details	ivo://irsa.ipac/WISE/Images/AllWISE/L3a	http://irsa.ipac.caltech.edu/ibe/sia/wise/allwise/p3am_cdd?	AllWISE Atlas (L3a) Coadd Images	sgroom@ipac.caltech.edu	1.0	2015-06-13	18	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 3 warnings 0 errors
9	details	ivo://nasa.heasarc/skyview/batsig	http://skyview.gsfc.nasa.gov/cgi-bin/vo/sia.pl?survey=batsig&	Swift BAT All-Sky Survey: keV	Skyview@skyview.gsfc.nasa.gov	1.0	2015-06-13	124	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 13 warnings 13 errors
10	details	ivo://irsa.ipac/BLAST	http://irsa.ipac.caltech.edu/cgi-bin/Atlas/nph-atlas?mission=BLAST&hdr_location=%5CBLASTDataPath%5C&SIAP_ACTIVE=1&collection_desc=BLAST&	Balloon-borne Large Aperture Submillimeter Telescope	irsasupport@ipac.caltech.edu	1.0	2015-06-13	18	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 13 warnings 0 errors
11	details	ivo://irsa.ipac/BOLOCAM_GPS/Images	http://irsa.ipac.caltech.edu/cgi-bin/Atlas/nph-atlas?mission=BOLOCAM_GPS&hdr_location=%5CBOLOCAM_GPSDataPath%5C&SIAP_ACTIVE=1&collection_desc=BOLOCAM_GPS&	Bolocam Galactic Plane Survey	irsasupport@ipac.caltech.edu	1.0	2015-06-13	18	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 13 warnings 0 errors
12	details	ivo://archive.stsci.edu/borg	http://archive.stsci.edu/siap/search.php?id=borg&	Brightest of Reionizing Galaxies (BoRG)	archive@stsci.edu	1.0	2015-06-13	256	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 0 warnings 0 errors
13	details	ivo://irsa.ipac/Spitzer/Images/C2D	http://irsa.ipac.caltech.edu/cgi-bin/Atlas/nph-atlas?mission=C2D&hdr_location=%5CC2DDDataPath%5C&SIAP_ACTIVE=1&collection_desc=C2D&	From Molecular Cores to Planet-Forming Disks	irsasupport@ipac.caltech.edu	1.0	2015-06-13	210	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 13 warnings 0 errors
14	details	ivo://cadc.nrc.ca/stap/cadc	http://www.cadc-oda.hia-1ha.nrc-cnrc.gc.ca/sia/query?	CADC Image Search	john.ouellette@nrc-cnrc.gc.ca	1.0	2015-06-13	6	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 7 warnings 1 errors
15	details	ivo://cadc.nrc.ca/sia1	http://www.cadc-oda.hia-1ha.nrc-cnrc.gc.ca/sia/query	CADC Image Search (SIA)	john.ouellette@nrc-cnrc.gc.ca	1.0	2015-06-13	476	Access URL Validate Validate (batch)	VOTable Simple Image Access 1 fatals 0 warnings 0 errors
16	details	ivo://mast.stsci.com/dels	http://archive.stsci.edu/siap/search.php?id=candels&	Cosmic Assembly Near-IR Deep Extragalactic Legacy Survey (CANDELS)	archive@stsci.edu	1.0	2015-06-13	256	Access URL Validate Validate (batch)	VOTable Simple Image Access 0 fatals 0 warnings 0 errors

Using the VO-Paris DAL Validator

Batch mode (1)

Test: FORMAT=METADATA

http://voparis-srv.obspm.fr/srv/ssa-hess_spectrum.php?&REQUEST=queryData&POS=180.0%2C60.0&SIZE=1.0&TIME=&BAND=&FORMAT=METADATA

```
1 <?xml version="1.0" encoding="UTF-8" ?>
2 <VOTABLE version="1.1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.ivoa
3 <RESOURCE type="meta"><INFO name="QUERY_STATUS" value="OK"/>
4 <INFO name="SERVICE_PROTOCOL" value="1.04">SSAP</INFO>
5 <PARAM name="INPUT:POS" datatype="char" value="" />
6 <PARAM name="INPUT:SIZE" datatype="double" value="" />
7 <PARAM name="INPUT:BAND" datatype="double" value="ALL" />
8 <PARAM name="INPUT:TIME" datatype="double" value="" />
9 <PARAM name="INPUT:FORMAT" datatype="char" value="votable" />
10 <PARAM name="INPUT:REQUEST" datatype="char" value="" />
```

SUCCESS: valid VOTable 1.1!

FAILURE: invalid Simple Spectral Access 1.04!

Warning: Each **PARAM** *should* have a **unit** attribute for the physical unit. 6 found, more than the allowed maximum 0.

Warning: A **FIELD** or **PARAM** element with **utype="ssa:Query.Score"** in a **TABLE** is **recommended**. No match found.

Warning: A **FIELD** or **PARAM** element with **utype="ssa:Access.Size"** in a **TABLE** is **recommended**. No match found.

Warning: A **FIELD** or **PARAM** element with **utype="ssa:DataID.Creator"** in a **TABLE** is **recommended**. No match found.

In batch mode 2 *more* tests are performed: 1) FORMAT=METADATA : the service is supposed to return its capabilities

Test: error

http://voparis-srv.obspm.fr/srv/ssa-hess_spectrum.php?&REQUEST=invalid&POS=invalid&SIZE=invalid&TIME=invalid&BAND=invalid&FORMAT=invalid

```
1 <?xml version="1.0" encoding="UTF-8" ?>
2 <VOTABLE version="1.1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.ivoa.net
3 <RESOURCE type="results"><INFO name="QUERY_STATUS" value="ERROR">REQUEST is not equal to queryData or
4 </RESOURCE>
5 </VOTABLE>
```

SUCCESS: valid VOTable 1.1!

SUCCESS: valid Simple Spectral Access 1.04!

Warning: An **INFO** element with `name="SERVICE_PROTOCOL"` should contain the protocol version number in its value attribute and the name of the service protocol as the fixed string `SSAP`. No match found.

In batch mode 2 more tests are performed: 2) error test : invalid parameters should generate a valid VOTable with specific tags.

Using the VOParis DAL Validators

...as a web service: HTTP GET access



<http://voparis-validator.obspm.fr/validator.php>

?**serviceURL**=http://voparis-srv.obspm.fr/srv/ssa-hess_spectrum.php?
&**spec**=Simple+Spectral+Access+1.04

&**REQUEST**=queryData
&**POS**=180.0,60.0
&**SIZE**=1.0
&**TIME**=
&**BAND**=
&**FORMAT**=ALL
&**addparams**= ...

Service-dependent params

&**batch**=yes | no
&**format**=XHTML | XML

- For programmatic use
- Choose output format = **XML** instead of **XHTML**

• Example:

<http://voparis-validator.obspm.fr/validator.php?REQUEST=queryD>

```

1 <?xml version="1.0" encoding="UTF-8" ?>
2 <validator xmlns="http://voparis-validator.obspm.fr/" xmlns:html="http://www.w3.org/1999/xhtml">
3 <test title="FORMAT=ALL">
4   <valid spec="VOTable" version="1.1">yes</valid>
5   <valid spec="Simple Spectral Access" version="1.04">no</valid>|
6   <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:Query.Score"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-63">recommended</a>. No match found.</html:div></warning>
7   <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:Access.Size"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-70">recommended</a>. No match found.</html:div></warning>
8   <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:DataID.Creator"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-76">recommended</a>. No match found.</html:div></warning>
9   <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:DataID.Collection"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-76">recommended</a>. No match found.</html:div></warning>
10  <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:DataID.CreatorDID"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-76">recommended</a>. No match found.</html:div></warning>
11  <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:Curation.Reference"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-77">recommended</a>. No match found.</html:div></warning>
12  <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:Curation.PublisherDID"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-77">recommended</a>. No match found.</html:div></warning>
13  <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:Char.FluxAxis.Ucd"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-80">recommended</a>. No match found.</html:div></warning>
14  <warning><html:div class="warningBlock"><strong><span class="warning">Warning</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:Char.SpectralAxis.Ucd"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-80">recommended</a>. No match found.</html:div></warning>
15  <error><html:div class="errorBlock"><strong><span class="error">Error</span>:</strong> A <code class="element">FIELD</code> or <code
class="element">PARAM</code> element with <code class="attribute">utype="ssa:Char.SpectralAxis.Ucd"</code> in a <code class="element">TABLE</code> is <a
href="http://www.ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-80">recommended</a>. No match found.</html:div></error>

```



Using the VOParis DAL Validators Rules Description



- The validation rules are expressed in JSON files, using **xpath** queries and **branching** to define a whole test tree.
- The grammar files are available → you can contribute by correcting or submitting rules !
- Documentation:
http://voparis-validator.obspm.fr/json/json_specs.xhtml

Using the VOParis DAL Validators Rules Example

```

- RESOURCE: {
  xpath: "/vot:VOTABLE/vot:RESOURCE",
  - then: {
    - QUERY_STATUS: {
      xpath: "/vot:VOTABLE/vot:RESOURCE/vot:INFO[@name='QUERY_STATUS']",
      error type: "warning",
      documentation: "The <code class='element'>RESOURCE</code> element <em>should</em> contain an <code class='element'>INFO</code> with <code class='attribute'>name='QUERY_STATUS'</code>. Its <code class='attribute'>value</code> attribute should be set to <kbd>OK</kbd>, <kbd>ERROR</kbd> or <kbd>OVERFLOW</kbd>."
    },
    - SERVICE_PROTOCOL: {
      xpath: "/vot:VOTABLE/vot:RESOURCE/vot:INFO[@name='SERVICE_PROTOCOL' and @value][text()='SSAP']",
      max: 1,
      error type: "warning",
      documentation: "An <code class='element'>INFO</code> element with <code class='attribute'>name='SERVICE_PROTOCOL'</code> <a href='http://ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-60'>should contain the protocol version number</a> in its value attribute the name of the service protocol as the fixed string <kbd>SSAP</kbd>."
    },
    - QUERY_STATUS OK: {
      xpath: "/vot:VOTABLE/vot:RESOURCE/vot:INFO[@name='QUERY_STATUS' and @value='OK']",
      - then: {
        - METADATA: {
          - input: {
            FORMAT: "METADATA"
          },
        },
        - then: {
          - 6.1.1: {
            xpath: "/vot:VOTABLE/vot:RESOURCE[@type='meta']",
            error type: "warning",
            documentation: "It is expected that queries with <kbd>FORMAT=METADATA</kbd> be replied to with <code class='element'>RESOURCE</code> <code class='attribute'>type='meta'</code>."
          },
          - 4.2.2: {
            xpath: "/vot:VOTABLE/vot:RESOURCE/vot:PARAM[@name='INPUT:POS'] | /vot:VOTABLE/vot:RESOURCE/vot:PARAM[@name='INPUT:SIZE'] | /vot:VOTABLE/vot:RESOURCE/vot:PARAM[@name='INPUT:BAND'] | /vot:VOTABLE/vot:RESOURCE/vot:PARAM[@name='INPUT:TIME'] | /vot:VOTABLE/vot:RESOURCE/vot:PARAM[@name='INPUT:FORMAT']",
            min: 5,
            error type: "error",
            documentation: "All input parameters meant to be available to clients of the service must be listed as <code class='element'>PARAM</code> <code class='attribute'>name='INPUT:'</code> elements, as children of the <code class='element'>RESOURCE</code> element, including required parameters (<kbd>POS</kbd>, <kbd>SIZE</kbd>, <kbd>BAND</kbd>, <kbd>TIME</kbd> and <kbd>FORMAT</kbd>)."
          },
          - 6.2: {
            xpath: "/vot:VOTABLE/vot:RESOURCE/vot:PARAM[not(@unit)]",
            max: 0,
            error type: "warning",
            documentation: "Each <code class='element'>PARAM</code> <a href='http://ivoa.net/Documents/REC/DAL/SSA-20071220.html#toc-header-60'>should have a <code class='attribute'>unit</code> attribute."
          }
        }
      }
    }
  }
}

```

1 Test

Branching

- “TAP is not Simple” (Laurent Michel)
- => Validator uses STILTS taplint by Mark Taylor (previous talk)
- Web validator (HTTP GET only, no form yet)
- Encapsulation of JVM in a PHP script
- Timeout handling
- HTML or JSON output:
- Example:

http://voparis-validation.obspm.fr/tapvalidator.php?serviceURL=http://voparis-tap.obspm.fr/___s

```
{  
  "status": "timeout",  
  "errors": -1,  
  "warnings": -1,  
  "infos": -1,  
  "summaries": -1,  
  "failures": -1  
}
```

```
{  
  "status": "ok",  
  "errors": 2,  
  "warnings": 5,  
  "infos": 77,  
  "summaries": 20,  
  "failures": 0  
}
```



Using the VOParis DAL Validators

Conclusions and Perspectives



- **Open** DAL validators for CS, SIA, SSA, +SLAP, (+DataLink)
- Using taplint for TAP validation
- Goal: to encourage a virtuous circle for improving quality of services available from the Registry
- Who validates the validators ?
 - Standardize test names/criteria among validators
(work in progress with Tom McGlynn & Menelaus Perdikeas)
- Other Possible Improvements:
 - Better specify which taplint tests to run
 - In-line editor to submit + tune XML file, vs service URL
 - Return tests results that can be parsed, kept and analyzed for producing statistics like “most broken rules” for each std