

Feedback on VOTable schema declaration

**Regis Haigron, Cyril Chauvin, Jonathan
Normand, Pierre Le Sidaner**



XML Schema for validation

What I expect in the xml note or header

```
<root  
  xmlns="http://mydomain.net/mynamespaces/Names  
  pace"
```

```
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-  
  instance"
```

```
  xsi:SchemaLocation="http://mydomain.net/mynames  
  paces/nsamespace
```

```
  http://mydomain.net/mynamespaces/nsamespace/m  
  yschema.xsd>
```

```
</root>
```



For VOTable

What I would appreciate in the xml header of VOTable

```
<VOTABLE version="1.1"  
xmlns:xsi="http://www.w3.org/2001/XMLSchema-  
instance"  
xmlns="http://www.ivoa.net/xml/VOTable/v1.1"  
xsi:schemaLocation="http://www.ivoa.net/xml/VOTa  
ble/v1.1 http://www.ivoa.net/xml/VOTable/VOTable-  
1.1.xsd">
```

We need VOTable valid because it's read by computer parser. Invalid xml makes exception or fail on reading and specially Xpath.

Example of validation of SSA service in <http://voparis-validation.obspm.fr>

details	ivo://wfau.roe.ac.uk/6dF-ssap	http://wfau.roe.ac.uk/6dF-ssap/	6dF DR3 Simple Spectra Access	6dF Spectra	msh@roe.ac.uk	1.03	2016-05-05	96	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 17 warnings 0 errors
details	ivo://mast.stsci.edu/ssap/be_f	http://archive.stsci.edu/ssap/search2.php?id=BEFS&	Berkeley Extreme and Far-UV Spectrometer	BEFS	archive@stsci.edu	1.0	2016-05-05	12	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 9 warnings 0 errors
details	ivo://vopdc.obspm.fr/lesia/BeStars/BeSS	http://basebe.obspm.fr/cgi-bin/ssapBE_1.0.pl?	Be Stars Spectra	BeSS	webmaster.bess@obspm.fr	1.02	2016-05-05	35	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 0 warnings 4 errors
details	ivo://vo.org.qavo.de/cdfspect/q/ssa	http://dc.zah.uni-heidelberg.de/cdfspect/q/ssa/ssap.xml?	Optical Spectroscopy in the CDFS	CDFS SSAP	gavo@ari.uni-heidelberg.de	1.03	2016-05-05	89	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 1 warnings 0 errors
details	ivo://fr.oamp.lam/ssa/cencos-vvds-deep	http://cesam.oamp.fr/DAL/SSA/CENCOS-vvds_deep.do?	CENCOS-VVDS_DEEP SSA (VVDS Deep survey)	CENCOS-VVDS_DEEP	crystal.moreau@oamp.fr	1.02	2016-05-05	228	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	1 fatals 0 warnings 0 errors
details	ivo://cfa.tdc/hectospec/hectospec_public_ssap/q/ssa	http://oirda.cfa.harvard.edu:8080/hectospec/hectospec_public_ssap.q/ssa/ssap.xml?	CfA Hectospec Spectra	CfA Hectospec	tdchelp@cfa.harvard.edu	1.03	2016-05-05	5	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 1 warnings 0 errors
details	ivo://obs-hp.fr/elodie/ssa	http://atlas.obs-hp.fr/elodie/E.cgi?a=t&c=ssa&n=ssa&	ELODIE archive	ELODIE	prugniel@obs.univ-lyon1.fr	0.5	2016-05-05	285	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 19 warnings 0 errors
details	ivo://obs-lyon.fr/elodie/interp	http://leda.univ-lyon1.fr/e31/1.cgi?t=c=ssa&	Spectrum interpolator for the ELODIE library	ELODIEinterp	prugniel@obs.univ-lyon1.fr	1.03	2016-05-05	40	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 2 warnings 2 errors
details	ivo://mast.stsci.edu/ssap/euve	http://archive.stsci.edu/ssap/search2.php?id=EUVE&	Extreme Ultraviolet Explorer Merged Spectra	EUVE	archive@stsci.edu	1.0	2016-05-05	12	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 9 warnings 0 errors
details	ivo://vo.org.qavo.de/flashheros/q/echssa	http://dc.zah.uni-heidelberg.de/flashheros/q/echssa/ssap.xml?	Flash/Heros Split-Order SSAP Service	F/H Orders SSAP	gavo@ari.uni-heidelberg.de	1.03	2016-05-05	97	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 1 warnings 0 errors
details	ivo://vo.org.qavo.de/feros/q/ssa	http://dc.zah.uni-heidelberg.de/feros/q/ssa/ssap.xml?	FEROS Public Spectra	FEROS SSAP	gavo@ari.uni-heidelberg.de	1.03	2016-05-05	97	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 1 warnings 0 errors
details	ivo://mast.stsci.edu/ssap/fuse	http://archive.stsci.edu/ssap/search2.php?id=FUZE&	Far Ultraviolet Spectroscopic Explorer	FUSE	archive@stsci.edu	1.0	2016-05-05	12	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 9 warnings 0 errors
details	ivo://vo.org.qavo.de/flashheros/q/ssa	http://dc.zah.uni-heidelberg.de/flashheros/q/ssa/ssap.xml?	Flash/Heros SSAP	Flash/Heros SSAP	gavo@ari.uni-heidelberg.de	1.03	2016-05-05	97	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 1 warnings 0 errors
details	ivo://mast.stsci.edu/ssap/galex	http://galex.stsci.edu/gxWS/SSAP/gxSSAP.aspx?	Galaxy Evolution Explorer	GALEX	archive@stsci.edu	1.0	2016-05-05	97	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	1 fatals 19 warnings 2 errors
details	ivo://vopdc.obspm.fr/ssa-giraffe_1d.php?	http://voparis-srv.obspm.fr/ssa-giraffe_1d.php?	GIRAFFE archive of reduced spectra	GIRAFFE	giraffe.archive@obspm.fr	1.04	2016-05-05	35	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 13 warnings 0 errors
details	ivo://vopdc.obspm.fr/ssa-giraffe_3d.php?	http://voparis-srv.obspm.fr/ssa-giraffe_3d.php?	GIRAFFE archive of reduced spectra	GIRAFFE	giraffe.archive@obspm.fr	1.04	2016-05-05	35	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 15 warnings 0 errors
details	ivo://vopdc.obspm.fr/ssa-hess	http://voparis-srv.obspm.fr/ssa-hess_spectrum.php?	High Energy Stereoscopic System	H.E.S.S.	vo.paris@obspm.fr	1.04	2016-05-05	786	Access URL Validate Validate (batch)	VOTable Spectral Access	Simple Spectral Access	0 fatals 18 warnings 4 errors



First example of SSA service response

```
<!DOCTYPE VOTABLE SYSTEM "http://cdsweb.u-strasbg.fr/xml/VOTable.dtd">
<VOTABLE version="1.1">
<RESOURCE type="results">
<DESCRIPTION>HyperLeda index</DESCRIPTION>
<RESOURCE type="results">
<TABLE>...
</TABLE>
<INFO name="QUERY_STATUS" value="OK"/>
</RESOURCE>
</VOTABLE>
```

Info is at the wrong place



Second example impossible to validate SSA

`<?xml version="1.0" encoding="UTF-8"?>` **No schema location**

`<VOTABLE Version="1.1">`

`<DESCRIPTION>Multimission Archive at STScI (MAST) archive.stsci.edu.
Send questions to: archive@stsci.edu</DESCRIPTION>`

`<RESOURCE type="results">`

`<INFO name="QUERY_STATUS" value="OK"/>`

`<INFO name="SERVICE_PROTOCOL" value="1.0.2">SSAP</INFO>`

`<PARAM name="INPUT:POS" value="180,60" datatype="char"
arraysize="*">`

`<DESCRIPTION>Search Position in the form ..</DESCRIPTION>`

`</PARAM>`

...

`<FIELD name="voclass" ucd="meta.note"
utype="SSA:Dataset.DataModel">` **No datatype in this field**

`<DESCRIPTION>Datamodel name and version</DESCRIPTION>`

`</FIELD>`

Third example of SSA

```
<?xml version="1.0" encoding="windows-1252"?> no schema location  
<VOTABLE version="1.2" xmlns="http://www.ivoa.net/xml/VOTable/v1.2">  
<RESOURCE type="results">  
<DESCRIPTION>  
</DESCRIPTION>  
<INFO name="QUERY_STATUS" value="OK"/>  
<TABLE>  
<FIELD ID="ObsId" ucd="OBS_ID" datatype="char" arraysize="*" />  
<FIELD ID="Reference" ucd="DATA_LINK" datatype="char" arraysize="*" />
```

There is no name in <FIELD



Do we ask for VOTable with full header ?

Do we ask to have VOTable with full path to schema ?

Do we forget about having valid VOTable ? => all client developers, users, will not be able to use existing libraries. They will have to make exception each time it's not XML valid.

What could be actions to increase validity ?

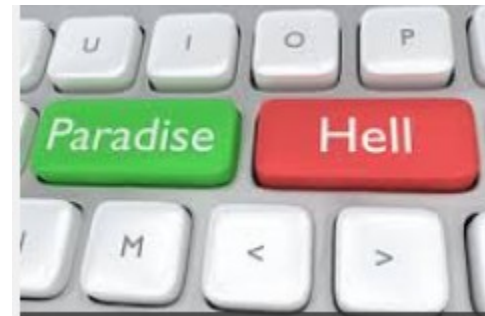
- develop validators
- be sure to have valid examples in IVOA standards documentations

If some services are invalid how about IVOA DAL standards documents.

Rapid revue

How are the examples proposed in DAL
documents ?

Does they contains VOTable valid ?





How VOTables are in DAL docs SCS.

```
<?xml version="1.0"?>
<!DOCTYPE VOTABLE SYSTEM "http://us-vo.org/xml/VOTable.dtd"> URL NOT VALID ANYMORE
<VOTABLE version="1.0">
  <DEFINITIONS>
    <COOSYS system="eq_FK5" equinox="2000" />
  </DEFINITIONS>
  <RESOURCE ID="T9001">
    <DESCRIPTION>
      HEASARC Browse data service
      Please send inquiries to mailto:request@athena.gsfc.nasa.gov
    </DESCRIPTION>
    <PARAM ID="default_search_radius" ucd="OBS_ANG-SIZE" datatype="double"
      value="0.05166666666666667" />

    <TABLE ID="heasarc_first_9001">
      <DESCRIPTION> Faint Images of the Radio Sky at Twenty cm Source Catalog (FIRST) </DESCRIPTION>

      <FIELD name="unique_id" datatype="char" arraysize="*" ucd="ID_MAIN">
        <DESCRIPTION> Integer key </DESCRIPTION>
      </FIELD> ...

    </TABLEDATA>
  </DATA>
</TABLE>

</RESOURCE>
</VOTABLE>
```



How VOTables are in DAL docs SCS.

```
<?xml version="1.0"?>
<VOTABLE version="1.1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://www.ivoa.net/xml/VOTable/v1.1" xsi:schemaLocation="http://www.ivoa.net/xml/VOTable/v1.1
http://www.ivoa.net/xml/VOTable/VOTable-1.1.xsd">

<DEFINITIONS>
  <COOSYS system="eq_FK5" equinox="2000" /> COOSYS must have ID=""
</DEFINITIONS>

<RESOURCE ID="T9001">
  <DESCRIPTION>
    HEASARC Browse data service
    Please send inquiries to mailto:request@athena.gsfc.nasa.gov
  </DESCRIPTION>
  <PARAM ID="default_search_radius" ucd="OBS_ANG-SIZE" datatype="double"
    Value="0.05166666666666667" /> PARAM must have name=""

  <TABLE ID="heasarc_first_9001">
    <DESCRIPTION> Faint Images of the Radio Sky at Twenty cm Source Catalog (FIRST) </DESCRIPTION>

    <FIELD name="unique_id" datatype="char" arraysize="*" ucd="ID_MAIN">
      <DESCRIPTION> Integer key </DESCRIPTION>
    </FIELD>
  </RESOURCE>
</VOTABLE>
```



How VOTables are in DAL docs SIA V2 example .

<VOTABLE version="1.1" xmlns:xsi = "http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation = "http://www.ivoa.net/xml/VOTable/VOTable-1.1.xsd" > **Strange ! as there is
namespace in xsd**

EXAMPLES ARE XML VALID



How VOTables are in DAL docs SSA V1.1

```
<VOTABLE xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
xsi:noNamespaceSchemaLocation="xmlns:http://www.ivoa.net/xml/VOTable/VOTable-1.1.xsd"  
xmlns:ssa="http://www.ivoa.net/xml/DalSsap/v1.0" version="1.1">
```

Didn't find the TDT

```
<RESOURCE type="results">
```

```
<DESCRIPTION>
```

```
SVO Theoretical Data Access Service: ATLAS9 Kurucz ODFNEW/NOVER models (Castelli et al., 1997, AA, 318, 8
```

```
</DESCRIPTION>
```

```
<INFO name="QUERY_STATUS" value="OK"/>
```

```
<TABLE>
```

```
<DESCRIPTION>dalessio models. Search results.</DESCRIPTION>
```

```
<FIELD name="lh" ucd="VOX:lh" unit="" datatype="float">
```

Description: cvc-pattern-valid: Value 'VOX:lh' is not facet-valid with respect to pattern '[A-Za-z0-9_.,\-\-]*' for type 'ucdType'.

Same with SSA Theory example



How VOTables are in DAL docs

SSA V1.1

appendix B

```
<VOTABLE xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="xmlns:http://www.ivoa.net/xml/VOTable/VOTable-1.1.xsd"
  xmlns:ssa="http://www.ivoa.net/xml/DalSsap/v1.0" version="1.1">
```

Strange xmlns: inside noNamespaceSchemaLocation after removing error

Description: TargetNamespace.2: Expecting no namespace, but the schema document has a target namespace of 'http://www.ivoa.net/xml/VOTable/v1.1'.

```
<RESOURCE type="Results">
```

It should be results and not Results

```
PARAM ID="DataSource" datatype="char" name="DataSource"
```

missing < before PARAM.

```
...
<FIELDref ref="CreatorVersion"/>
```

```
<FIELDref ref="Instrument"/>
```

these two term where not found in the list of ref

```
</VOTABLE
```

typo not closed

How VOTables are in DAL docs SSA V1.1

Appendix C metadata

```
<VOTABLE xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
xsi:noNamespaceSchemaLocation="xmlns:http://www.ivoa.net/xml/VOTable/VOTable-1.1.xsd"  
xmlns:ssa="http://www.ivoa.net/xml/DalSsap/v1.0" version="1.1">  
<RESOURCE type="Results">
```

same problems as before Namespace + Results

```
<OPTION>ALL</OPTION>      <!-- search any format -->  
<OPTION>COMPLIANT</OPTION> <!-- short for searching xml, votable, fits -->  
<OPTION>NATIVE</OPTION>   <!-- short for searching jpeg,png,legacy fits-->  
<OPTION>votable</OPTION>  <!-- short for application/x-votable+xml -->
```

...

```
<OPTION value=""></OPTION> Option must have value
```

```
<PARAM name="INPUT:REQUEST" datatype="char" arraysize="">
```

Param must have value=""



How VOTables are in DAL docs SimDal

```
<VOTABLE xmlns="http://www.ivoa.net/xml/VOTable/v1.2">
```

problem with schema link

```
<RESOURCE name="">
```

```
<TABLE name="my_view_pubid">
```

```
<PARAM name="nresults" datatype="int" value="5000"/>
```

```
<FIELD name="Max Grain temperature silicates"
```

```
  ID="c:max:temperature_grain_silicates"
```

Description: cvc-datatype-valid.1.2.1: 'c:max:temperature_grain_silicates' is not a valid value for 'NCName'.

```
  utype="simdm:/resource/experiment/statistical_summary.numeric_value.value"
```

```
  datatype="float" unit="K">
```

```
<!-- SKOS concept (SimDM 'label' attribute) -->
```

```
<LINK content-role="type"
```

```
  href="http://purl.org/astronomy/vocab/PhysicalQuantities/TemperatureOfGrains"/>
```

```
<VALUES>
```

```
<MIN value="30.1"/>
```

```
<MAX value="60.2"/>
```

```
</VALUES>
```

Description: cvc-complex-type.2.4.a: Invalid content was found starting with element

'{"http://www.ivoa.net/xml/VOTable/v1.2":VALUES}'. One of '{"http://www.ivoa.net/xml/VOTable/v1.2":LINK}' is expected.

```
...  
</VOTABLE>
```


Conclusion

If we want better standard implementation, we need to be more careful on service review period (everybody is concerned).

There is a need for document Errata system or correction for errors not to be propagated