

# Datalink SIAV2 and SODA feedback



---

F.Bonnarel

acknowledges Chaitra, Carlos and DAL WG



# The datalink recognition problem outside obscore context

The screenshot shows the APLDIT interface with a data table displayed. The table has columns: access url, cald, level, data product, error message, and service def. The data rows show various URLs and file names.

access url	cald	level	data product	error message	service def
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2
http://www.eso.org/ftp/pub/obscore/	1	0000000000000000	image	0.9556-2	5.5426-2

The field with the Datalink url is not recognized as such. Client cannot prepare appropriate behavior (DataLink popup window)

DataLink table is displayed in a wrong mode / not recognized as such

The screenshot shows the APLDIT interface with a different data table displayed. The table has columns: id, access url, service def, error message, semantics, description, content type, content length, and readable. The data rows show various IDs and URLs.

id	access url	service def	error message	semantics	description	content type	content length	readable
esom:CH7A.287	http://www.eso.org/ftp/pub/obscore/			#this	application/fits	18668633	true	true
esom:CH7A.287	sdsi-sd-7a287			#sdsout	application/fits			true
esom:CH7A.287	sdsi-sd-60a3.7			#sdsout	application/fits			true

# What does the current specification recommend ?

- In the case we are in Obscore :
  - Two fields give the `access_url` and `access_reference` (Obscore names and utypes)
- If the table doesn't contain the `{links}` resource URL the specification says:
  - A DataLink Service descriptor helps us to define the `{links}` resource URL by referring to a column containing an ID of the datasets



# Service descriptor

```
<RESOURCE type="meta" utype="adhoc:service">
  <PARAM name="standardID" datatype="char" arraysize="*"
value="ivo://ivoa.net/std/DataLink#links-1.0"/>
  <PARAM name="accessURL" datatype="char" arraysize="*"
value="http://example.com/mylinks" />
  <GROUP name="inputParams">
    <PARAM name="ID" datatype="char" arraysize="*" value="" ref="primaryID"/>
  </GROUP>
</RESOURCE>
```



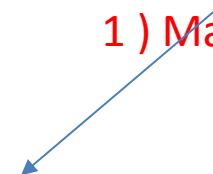
# Comments

- **Solution 1 works if we have the URL in a column or add it**
  - Requires tagging column with appropriate utype, and add the format FIELD or PARAM
  - Works well if URL doesn't retrieve datalink at all rows
- **Solution 2 works if we have the ID used by DataLink in one column**
  - A DataLink Service descriptor helps us to define the {links} resource URL by referring to a column containing an ID of the datasets



```
<RESOURCE type="results">
  <INFO name="QUERY_STATUS" value="OK"/>
  <TABLE>
    <DESCRIPTION>SpeX Prism Library. Published spectra.</DESCRIPTION>
    <PARAM name="Creator" utype="ssa:DataID.Creator" datatype="char" arraysize="*" value="SVO"/>
    <PARAM name="DataSource" utype="ssa:DataID.DataSource" datatype="char" arraysize="*" value="survey"/>
    <PARAM name="CreationType" utype="ssa:DataID.CreationType" datatype="char" arraysize="*" value="archival"/>
    <PARAM name="Publisher" utype="ssa:Curation.Publisher" datatype="char" arraysize="*" value="SVO/CAB"/>
    <PARAM name="PublisherID" utype="ssa:Curation.PublisherID" datatype="char" arraysize="*" value="ivo://svo.cab"/>
    <PARAM name="PublisherDID" utype="ssa:Curation.PublisherDID" datatype="char" arraysize="*" value="ivo://svo.cab/cat/spex"/>
    <PARAM name="Reference" utype="ssa:Curation.Reference" datatype="char" arraysize="*" value="http://svo2.cab.inta-csic.es/vocats/v2/spex/documentation.php"/>
    <PARAM name="Contact.Name" utype="ssa:Curation.Contact.Name" datatype="char" arraysize="*" value="Enrique Solano"/>
    <PARAM name="Contact.Email" utype="ssa:Curation.Contact.Email" datatype="char" arraysize="*" value="esm@cab.inta-csic.es"/>
    <PARAM name="input:RA" datatype="double" value="180.000000"/>
    <PARAM name="input:DEC" datatype="double" value="0.000000"/>
    <PARAM name="input:SR" datatype="double" value="20.000000"/>
    <PARAM name="input:VERB" datatype="int" value="2">...</PARAM>
    <FIELD name="RA" ucd="POS_EQ_RA_MAIN" unit="deg" datatype="double">...</FIELD>
    <FIELD name="DEC" ucd="POS_EQ_DEC_MAIN" unit="deg" datatype="double">...</FIELD>
    <FIELD name="dis" ucd="POS_ANG_DIST_GENERAL" unit="arcsec" datatype="float">...</FIELD>
    <FIELD ID="name" name="name" ucd="ID_MAIN" unit="" datatype="char" arraysize="*">...</FIELD>
    <FIELD name="name_link" ucd="meta.ref.url" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="name2m" name="name2m" ucd="" unit="" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="jmag" name="jmag" ucd="" unit="mag" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="hmag" name="hmag" ucd="" unit="mag" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="ksmag" name="ksmag" ucd="" unit="mag" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="optspty" name="optspty" ucd="" unit="" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="nirspty" name="nirspty" ucd="" unit="" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="ref" name="ref" ucd="" unit="" datatype="char" arraysize="*">...</FIELD>
    <FIELD ID="dateobs" name="dateobs" ucd="" unit="" datatype="char" arraysize="*">...</FIELD>
    <FIELD name="access_format" ucd="meta.note" utype="obscure:Access.Format" type="hidden" datatype="char" arraysize="*">...</FIELD>
    <FIELD name="access_url" ucd="meta.ref.url" utype="obscure:Access.Reference" datatype="char" arraysize="*">...</FIELD>
  <DATA>
    <TABLEDATA>
      <TR>
        <TD>181.9465583</TD>
        <TD>2.7402583</TD>
        <TD>12099.007703582</TD>
        <TD>SDSS J120747.17+024424.8</TD>
      <TD>
        http://simbad.u-strasbg.fr/simbad/sim-basic?Ident=SDSS+J120747.17%2B024424.8
      </TD>
      <TD>J12074717+0244249</TD>
      <TD>15.58</TD>
      <TD>14.561</TD>
      <TD>13.986</TD>
      <TD>L8</TD>
      <TD>T0</TD>
      <TD>
        Looper, Kirkpatrick, and Burgasser (2007) AJ, 134, 1162
      </TD>
      <TD>2006 Dec 21</TD>
      <TD>application/x-votable+xml;content=datalink</TD>
      <TD>
        http://svo2.cab.inta-csic.es/vocats/v2/spex/dl.php?ID=SDSS+J120747.17%2B024424.8
      </TD>
    </TR>
  </TABLEDATA>
</RESOURCE>
```

SVO Example .  
Cortesy of Carlos Rodri  
1 ) Main Table



```

</FIELD>
▼<FIELD ID="semantics" arraysize="*" datatype="char" name="semantics" ucd="meta.code">
  ▼<DESCRIPTION>
    What kind of data is linked here? Standard identifiers here include science, calibration, preview, info, auxiliary
  </DESCRIPTION>
</FIELD>
▼<FIELD ID="content_type" arraysize="*" datatype="char" name="content_type" ucd="meta.code.mime">
  <DESCRIPTION>MIME type for the data returned.</DESCRIPTION>
</FIELD>
▼<FIELD ID="content_length" datatype="long" name="content_length" ucd="phys.size;meta.file" unit="byte">
  <DESCRIPTION>Size of the resource at access_url</DESCRIPTION>
  <VALUES null="-1"></VALUES>
</FIELD>
▼<DATA>
  ▼<TABLEDATA>
    ▼<TR>
      <TD>2MASS J11463232+0203414</TD>
      ▼<TD>
        http://svo2.cab.inta-csic.es/vocats/v2/spex/ssap.php?ID=2MASS+J11463232%2B0203414&label=spec_vot
      </TD>
      <TD>Spectrum (votable)</TD>
      <TD>#this</TD>
      <TD>application/x-votable+xml</TD>
      <TD>-1</TD>
    </TR>
    ▼<TR>
      <TD>2MASS J11463232+0203414</TD>
      ▼<TD>
        http://svo2.cab.inta-csic.es/vocats/v2/spex/ssap.php?ID=2MASS+J11463232%2B0203414&label=spec_txt
      </TD>
      <TD>Spectrum (ASCII)</TD>
      <TD>#auxiliary</TD>
      <TD>text/plain</TD>
      <TD>-1</TD>
    </TR>
    ▼<TR>
      <TD>2MASS J11463232+0203414</TD>
      <TD>http://adsabs.harvard.edu/abs/2004AJ...127.2856B</TD>
      <TD>Reference: Burgasser et al. (2004) AJ, 127, 2856</TD>
      ▼<TD>
        http://www.ivoa.net/rdf/Vocabularies/UCD#Metarefurl
      </TD>
      <TD>text/html</TD>
      <TD>-1</TD>
    </TR>
    ▼<TR>
      <TD>2MASS J11463232+0203414</TD>
      <TD>http://pono.ucsd.edu/~adam/browndwarfs/spexprism/</TD>
      <TD>Reference: SpeX Prism Library web page.</TD>
      ▼<TD>
        http://www.ivoa.net/rdf/Vocabularies/UCD#Metarefurl
      </TD>
      <TD>text/html</TD>
      <TD>-1</TD>
    </TR>
  </TABLEDATA>
</DATA>
</TABLEDATA>

```

SVO Example .  
 Courtesy of Carlos Rodri  
 2 ) Datalink Table



# LINK

- Use classical VOTABLE LINK instead (attached to the table level) with new **content-type = « votable/xml;datalink »**

<FIELD...> <LINK content-type="xxx" href="xxx" ...>

Example for a FITS image:

```
<FIELD name="Image" ucd="meta.ref.url" datatype="char" arraysize="1">
  <DESCRIPTION>[YN] Epic image of this observation (FITS)</DESCRIPTION>
```

```
  <LINK content-type="image/fits" title="Image" href="http://vizier.u-strasbg.fr/viz-bin/nph-htx/A?%5cvizContent%7b${Image}foo&bar"/>
</FIELD>...
```

- Current list of content-types : image/fits, spectrum/fits, catalog/fits , etc..
- Behavior of application (Aladin) changes according to that
- Add content-type = "votable/xml;datalink"

```
<TABLE name=" Catalogue" >
```

```
  <LINK content-type="votable/xml;datalink" title="Image" href="http://dummy.service/datalink/ID=${source}/foo&bar"/>
```

```
  ....
```





# Proposal (implementation note)

- Beside current solutions, recommend usage of LINK element when we are in more complex cases
  - Templated URL
  - Title
  - Extends to simple LINK to any kind of datasets (spectra,
- Writing an INFO tag with value DataLink in the response



# Proposal (implementation note)

Target outside the image ! Search

	vmic	vmac	res	access
376	1.227	5.414	80000	Datali
376	1.227	5.414	80000	Datali
376	1.227	5.414	80000	Datali
347	1.227	5.414	115000	Datali
347	1.227	5.414	115000	Datali
347	1.227	5.414	115000	Datali
347	1.227	5.414	115000	Datali
347	1.227	5.414	115000	Datali

Non lus : 25    Total : 2635    31 Pann

- GBS original spectrum (vot)
- GBS original spectrum (ascii)**
- GBS original spectrum (fits)
- GBS normalized spectrum (vot)
- GBS normalized spectrum (ascii)
- GBS normalized spectrum (fits)
- GBS original spectrum, resolution: 47.000 (vot)
- GBS original spectrum, resolution: 47.000 (ascii)
- GBS original spectrum, resolution: 47.000 (fits)
- GBS normalized spectrum, resolution: 47.000 (vot)
- GBS normalized spectrum, resolution: 47.000 (ascii)
- GBS normalized spectrum, resolution: 47.000 (fits)
- Reference: Heiter et al. 2015, A&A 582, A49.
- Reference: Blanco-Cuaresma et al. 2014, A&A 566, A98.
- Reference: Jofre et al. 2014, A&A 564, A133.
- Reference: Jofre et al. 2015, A&A 582, A81
- Reference: Hawkins et al. 2016, A&A 592, A70.
- Reference: Jofre et al. 2016, A&A, 601, A38
- Reference: Gaia Benchmark Stars web



# Semantics

- Semantic tells what is the status of the resource we link to the dataset with respect to it :
  - This → an avatar of the dataset itself
  - Preview → a preview of the dataset
  - Cutout,proc → service applied to the dataset
  - Auxiliary → associated file (eg log file, etc..)
  - Nothing to attach TimeSeries, Spectra to sources in a catalog
- Proposal for attached dataproducts in this context :
  - Create associated data semantics and branch. Add spectrum TimeSeries, etc
  - Other proposals by Markus
  - Endorsed note



# Description and descriptor/table relationship

- Description field very useful to distinguish fields with the same semantics:
  - Recommendation to add it
- Generally service descriptors address all the main table rows
  - It's note the case in the {links} response
  - It can be managed, but wouldn't an autodescription of the service be better (DataLink-next ?)
  - In that case {links} response would only contain fixed url or root url of services for a dataset



# BROWSING inside an archive file

- Tar, zip, hdf etc...
- Could be nice to describe links inside such archives
  - Changing `access_url` and media type



# SIAV2 feedback (new version)

- For COLLECTION , INSTRUMENT, FACILITY, etc.. values are unknown:
  - Free strings
  - Parameters only used if we know the database content
  - Proposal of adding a PARAMETER « CONTENT » with values « COLLECTION », « INSTRUMENT », etc...
- Virtual data discovery is missing
  - SIAV2 + SODA in one shot.
  - Add a parameter for distinguishing the two modes (VIRTUAL=TRUE/FALSE?)
- Service implementing SIAV2 and SIAV1 at the same time.
- Different endpoints ?
- VERSION parameter ?



# SODA feedback

- Feedback rather poor at the moment:
  - GAVO (califa)
  - CADC
  - CASDA (script mode)
  - No service from ALMA, LOFAR, etc...
- Feedback within Aladin interface
  - Description in DataLink needed
  - Better distinction between synchronous and asynchronous services



# SIAV2/SODA/Datalink in Aladin

The screenshot shows the Aladin software interface. At the top, the menu bar includes File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, and Help. Below the menu bar, the 'Available data' section shows a list of surveys: DSS, PanSTARRS, SDSS, 2MASS, GALEX, Gaia, Simbad, and NED. The central panel displays a 'DSS2 color' image of a star field with a central source marked by a reticle. The image has a resolution of 1.804' x 55.19" and a scale bar of 15".

On the right side, there is a 'Welcome to Aladin, your professional sky atlas.' message with a list of features: 'Discover all astronomical data available over the net!' and 'Compare them...'. Below this, there are links to 'org.gavo.dc-tap', 'CDS / Simbad', and 'CDS / P / DSS2'. There are also sliders for 'epoch', 'size', 'dens.', 'opac.', and 'zoom'.

At the bottom, there is a table of data products. The table has columns: 'access url', 'dataprodu... t...', 'dataprodu... su...', 'calib level', 'obs collection', and 'obs id'. The table contains four rows of data products, all from the 'CALIFA' collection. A tooltip is visible over the first row, containing the following text:

- This cube, larger coverage lower resolution
- This cube, smaller coverage higher resolution
- An interactive service on this dataset.
- An interactive service on this dataset.
- The full dataset. (size 145575360 byte)
- A preview for the dataset.

The bottom left corner shows the text '(c) 2018 Université de Strasbourg/CNRS - d' and the bottom right corner shows '4 sel / 7 src 406Mb'.



# SIAV2/SODA/Datalink in Aladin

Aladin v10.0 \*\*\* PROTOTYPE VERSION (based on v10.076) \*\*\*

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data → 21208 / 2121  
● in view ● out view

Command [ ] Frame ICRS Projection Aitoff

DSS PanSTARRS SDSS 2MASS GALEX Gaia Simbad NED +

Service dc.zah.uni-heidelberg.de

● Cutout prototype for SODA server ?

Fill in all these fields and press the SUBMIT button

Target (ICRS, name)

Radius

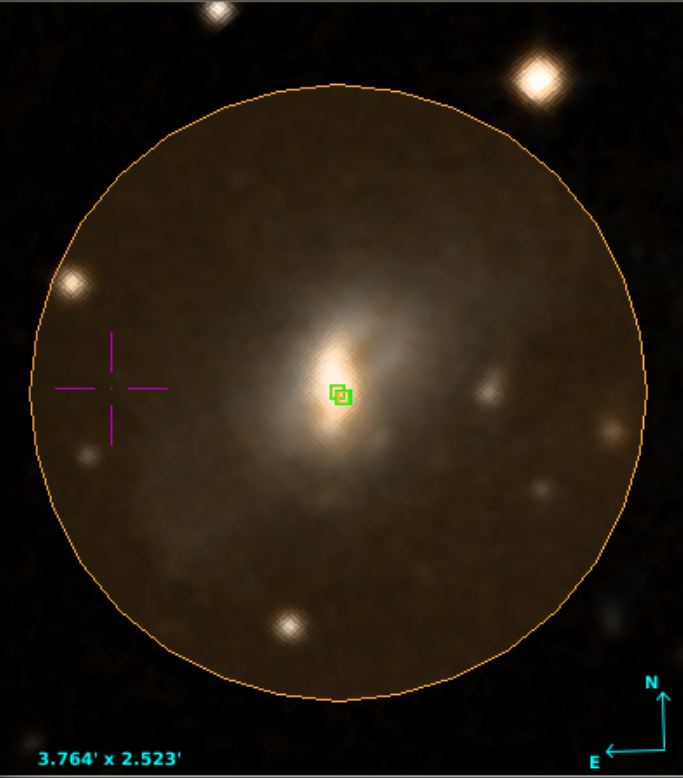
Time

Band

Pol

ID

Reset Clear Submit Close



3.764' x 2.523'

Adjust the visible area (click & drag + mouse) Search

access url	dataprodu	dataprodu	calib level	obs collection	obs id
<a href="http://dc.zah.uni-heidelberg.de/adr3/COMB/UGC12633.COMB.rscube.fits">http://dc.zah.uni-heidelberg.de/adr3/COMB/UGC12633.COMB.rscube.fits</a>	cube		3	CALIFA	califa/datadr3/
<a href="http://dc.zah.uni-heidelberg.de/adr3/COMB/UGC12633.COMB.rscube.fits">http://dc.zah.uni-heidelberg.de/adr3/COMB/UGC12633.COMB.rscube.fits</a>	cube		3	CALIFA	califa/datadr3/

select from all collections

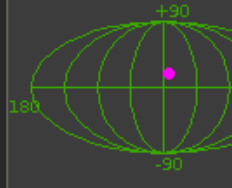
select pan dist phot draw tag moc spect filter cross zoom epoch size dens. opac. rgb assoc crop cont pixel

Welcome to Aladin your professional sky atlas.

- Discover all astronomical data available over the network
- Compare them with your own data.
- Prepare your observation mission

org.gavo.dc-t CDS/P/DSS2

05 26 13.74513



# SIAV2/SODA/Datalink in Aladin

The screenshot displays the Aladin v10.0 software interface, a professional sky atlas. The main window shows a star field with a large circular zoomed-in region in the center. The zoomed-in region is labeled "DSS2 color" and shows a dense cluster of stars. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a toolbar with various icons, and a sidebar on the left with a tree view of collections. The top status bar shows the command "23:30:20.85 +15:45:30.7", the frame "ICRS", and the projection "Aitoff". The right sidebar contains a "Welcome to Aladin" message and a list of tools and filters.

Aladin v10.0 \*\*\* PROTOTYPE VERSION (based on v10.076) \*\*\*

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data → 21208 / 2121 Command  Frame  Projection

● in view ● out view

DSS PanSTARRS SDSS 2MASS GALEX Gaia Simbad NED +

**DSS2 color**

select pan dist phot draw tag moc spect filter cross x-y rgb assoc opac crop zoom cont pixel

Welcome to Aladin, your professional sky atlas.

- Discover all astronomical data available over the net!
- Compare them with your own data.
- Prepare your observation missions.

To start, type any object name, such as M1, and press ENTER...

[SODA]dc.zah.uni-hei  
org.gavo.dc-tap~2.XI  
 CDS/P/DSS2/color

epoch -  
size -  
dens. -  
opac. -  
zoom -

23 30 15.31866 +15 45

Search

grid study wink north hdr multiview match

# SIAV2/SODA/Datalink in Aladin

The screenshot displays the Aladin v10.0 interface, a prototype version based on v10.076. The main window shows a star field with a large orange circle indicating a selected region. A dialog box titled "Service dc.zah.uni-heidelberg.de" is open, showing a "Cutout prototype for SODA server" form. The form includes fields for Target (ICRS, name), Radius, Time, Band, Pol, and ID. A dropdown menu is open, showing options: ASYNC, SYNC, and ASYNC (highlighted in orange). A yellow arrow points from the highlighted ASYNC option to a text box containing the following descriptions:

- This cube, larger coverage lower resolution
- This cube, smaller coverage higher resolution
- An interactive service on this dataset.
- An interactive service on this dataset.
- The full dataset. (size 145575360 byte)
- A preview for the dataset.

The interface also shows a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a status bar (Available data → 21208 / 2121), and a right sidebar with various tools and filters.

# SIAV2/SODA/Datalink in Aladin

The screenshot displays the Aladin v10.0 interface, a prototype version based on v10.076. The main window shows a star field with a large circular cutout centered on a bright star. A yellow arrow points from the 'ASYNC' dropdown in the cutout form to a text box containing a list of options.

**Service dc.zah.uni-heidelberg.de**

**Cutout prototype for SODA server**

Fill in all these fields and press the SUBMIT button

Target (ICRS, name)

Radius

Time

Band

Pol

ID

**Sync/Async of same service?**

- This cube, larger coverage lower resolution
- This cube, smaller coverage higher resolution
- An interactive service on this dataset.
- An interactive service on this dataset.
- The full dataset. (size 145575360 byte)
- A preview for the dataset.

access url	dataproduc t...	datapr
<a href="http://dc.zah.uni-heidelberg.de">http://dc.zah.uni-heidelberg.de</a>	cube	
<a href="http://dc.zah.uni-heidelberg.de">http://dc.zah.uni-heidelberg.de</a>	cube	

# The datalink issue

The screenshot shows the ALADIN interface with a data table. The table has columns: 'id', 'access url', 'data product', and 'error message'. The 'access url' column contains values like 'http://www.eso.org/...'. A red arrow points from the text on the right to the 'access url' column.

id	access url	data product	error message
1	http://www.eso.org/...	image	
2	http://www.eso.org/...	image	
3	http://www.eso.org/...	image	
4	http://www.eso.org/...	image	
5	http://www.eso.org/...	image	
6	http://www.eso.org/...	image	
7	http://www.eso.org/...	image	
8	http://www.eso.org/...	image	
9	http://www.eso.org/...	image	
10	http://www.eso.org/...	image	
11	http://www.eso.org/...	image	
12	http://www.eso.org/...	image	
13	http://www.eso.org/...	image	
14	http://www.eso.org/...	image	
15	http://www.eso.org/...	image	
16	http://www.eso.org/...	image	
17	http://www.eso.org/...	image	
18	http://www.eso.org/...	image	
19	http://www.eso.org/...	image	
20	http://www.eso.org/...	image	

The field with the Datalink url is not recognized as such. Client cannot prepare appropriate behavior (DataLink popup window)

DataLink table is displayed in a wrong mode / not recognized as such

The screenshot shows the ALADIN interface with a DataLink table. The table has columns: 'id', 'access url', 'service url', 'error message', 'semantics', 'description', 'content type', '#columns', 'length', and 'readable'. The 'access url' column contains values like 'http://www.eso.org/...'. A red arrow points from the text on the left to the 'access url' column.

id	access url	service url	error message	semantics	description	content type	#columns	length	readable
1	http://www.eso.org/...	http://www.eso.org/...		#this	application/...	application/...	1	1666663	true
2	http://www.eso.org/...	http://www.eso.org/...		#sout	application/...	application/...	1	1	true
3	http://www.eso.org/...	http://www.eso.org/...		#sout	application/...	application/...	1	1	true

# summary

- Datalink and other stuff implementation note
- New semantics values
- New version of SIAV2
- DataLink next ?
- SODA next → not at the moment

