

Datalink recognition outside Obscore context

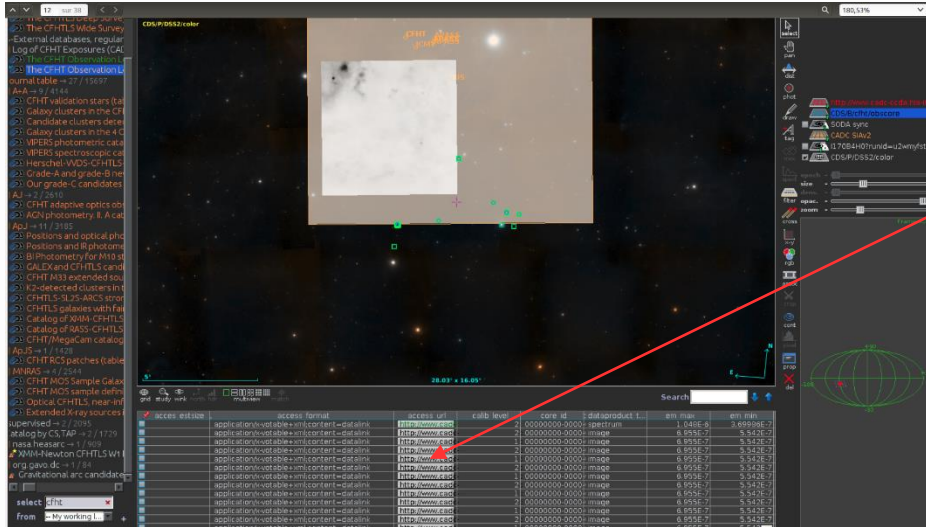


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on behalf of M.Louys,G.Landais,Pierre Fernique

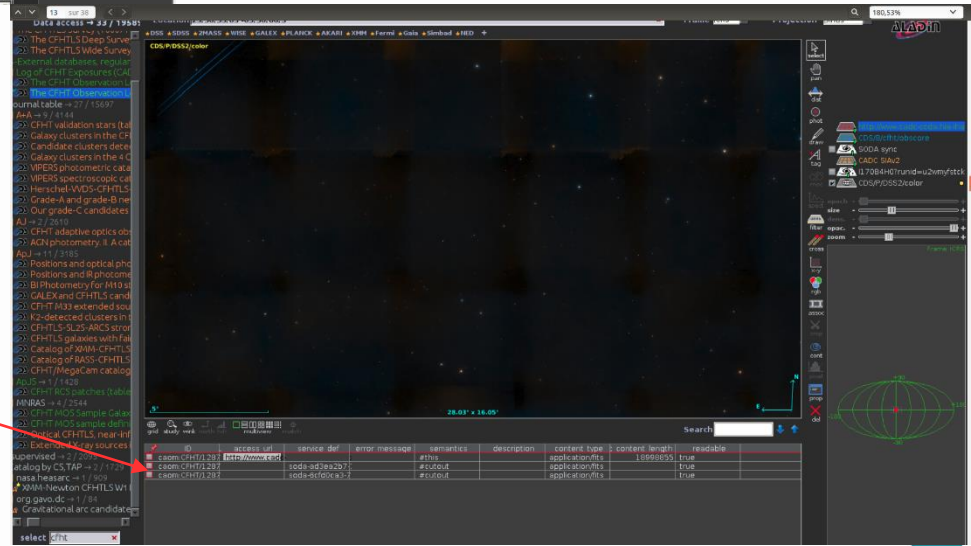


The datalink issue (excerpt of Chaitra presentation)



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

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



Possible solutions

1) Asterics Hackathon one

- Add a complement to the url ucd of the field

```
<FIELD name="url" ucd="meta.ref.url;meta.type.datalink" datatype="char" arraysize="128*">
```

- Pros :

- Self consistent

- Cons :

- Ucd approach Difficult to generalize.
Fuzzy+fuzzy not always accurate meaning
- Doesn't work if url format changes from line to line



Possible solutions

2) additional obscure access utype

- Add a « access.datalink » utype to ObsCore
 - Pros :
 - self consistent
 - Let ucd usage free
 - Cons :
 - Modification of ObsCore
 - Doesn't work if url format changes from line to line



Possible solutions

3) VOTABLE solution : LINK

- use the LINK element specifying a FIELD:
 - `<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"
- Pros :
 - Extends already working functionality.
 - URL templating
 - Self consistent
- Cons :
 - Doesn't work if url format changes from line to line



Possible solutions

4) ObsCore-like solution

- Add a format column + other ObsCore-like columns

```
<RESOURCE ID="yCat_102009" name="B/xmm">
  <DESCRIPTION>XMM-Newton Observation Log (XMM-Newton Science Operation Center, 2012)</DESCRIPTION>
  <COOVS ID="J2000" system="eq_FK5" equinox="J2000"/>
  <TABLE ID="B_xmm_xmmlog" name="B/xmm/xmmlog">
    <DESCRIPTION>The XMM-Newton Observation log (2017-04-24) [vizContent(image/fits)</DESCRIPTION>
    ...
    <GROUP utype="Obs.obsdataset.accessblock">
      <FIELDREF ref="A" utype="Obs.obsdataset.data.producttype" />
      <FIELDREF ref="B" utype="Obs.obsdataset.access.format" />
    <FIELDREF ref="C" utype="Obs.obsdataset.access.reference" />
    <FIELDREF ref="D" utype="Obs.dataID.title" />
  </GROUP>
  ...
  <FIELD ID="A" name="Product">
    <DESCRIPTION>Product type (image | spectre | timeseries | document)</DESCRIPTION>
  </FIELD>
  <FIELD ID="B" name="Format">
    <DESCRIPTION>Encoding format</DESCRIPTION>
  </FIELD>
  <FIELD ID="C" name="Image" ucd="meta.ref.url" datatype="char" arraysize="1">
    <DESCRIPTION>[YN] Epic image of this observation (FITS)</DESCRIPTION>
  </FIELD>
  <FIELD ID="D" name="Label">
    <DESCRIPTION> Product label </DESCRIPTION>
  </FIELD>
  ...
  <DATA><TABLEDATA>
    <TR>
      ...
      <TD>image</TD>
      <TD>fits</TD>
      <TD>http://vizier.u-strasbg.fr/viz-bin/nph-htx?myimage3145</TD>
      <TD>image 3145
```

- Pros :
 - Utype/ucd complementarity
 - Allows variability from line to line
 - Full description
- Cons :
 - Requires adding fields (or params) and a group



Possible Evolution of dataset discovery and access



F.Bonnarel (CDS)



Current multidimensional data protocols (SIAV2 set)

- A full family of bounded protocols
 - SIA2.0
 - ObsTAP with Obscore 1.1
 - DataLink
 - SODA
- Main properties
 - ObsTAP and SIA2 allow archived dataset discovery
 - Constraints on all four data axes (spatial, spectral, time and pol) by ADQL (ObsTAP/Core) or PQL (SIA2.0)
 - SODA only allows cutouts and selection
 - Glue among those is made by DataLink technology
 - DALI compliant / sync and async / ucd 1+ and utypes + xtypes



Quick look to older protocols

SIAS1 and SSA

- SCS not relevant for datasets
- SIAS1 had no standard possibility to query on BAND / TIME / POL
- SIAS1 had old style ucd, no utypes, no DALI compliancy, etc..
- SIAS1 had virtual data discovery functionality including rebinning/reprojection on provided WCS → not in SIAS2 set
- SSA also provided some virtual data discovery (apparently insufficient / see Petr Talk) ---> not in SIAS2 set
- SSA had specific spectral input parameters eg VARAMP and REDSHIFT ---> not in SIAS2 set
- SSA had more output fields (target description , accuracy on all axes) than ObsCore.
- --> protocols less achieved but with a few things still missing in « SIAS2 set »



TimeSeries requirements

Don't forget : top 1 CSP priority

- For Discovery (see my talk in TDIG/DAL/DM session)
 - Basic Obscore +
 - Time standard deviation
 - Time sampling location, bounds, standard deviation
 - Time frequency characterisation
 - Variablity, period ???
 - Target name and class
 - Virtual data discovery : TimeSeries has to be created from the database content by the query



TimeSeries requirements

Don't forget : top 1 CSP priority

- For access (see also ASTERICS requirements on Thursday)
 - Delivering set of ND points with generally sparsed time axis and one to several dependant axes (flux, velocity, position, ... spectra, images)
 - Provenance of ND point or ND point additional metadata
 - Time scale / time frame description.
 - MJD representation
 - periodograms



Spectra (see Petr talk)

- More input parameters for targets
- Virtual data discovery
 - to avoid 2 step discovery and SODA access via DataLink and get similar discovery/access parameters
- Extension of standard SODA to spectra
- More functionalities in SODA (formats, rebinning, axis transformation)
- Etc...



Images and cubes

- Virtual image (or cube) discovery (à la HEASARC « Skyview »)
- Pixel cutouts and rebinning/reprojection
- HiPS \leftrightarrow « SLAV2 set of services » back and forth combination



Towards a new Discovery protocol ?

- Instead of SIA2.1 + SSA2 +TS1.0, new DsDisc protocol defined by
 - ObsCore extensions
 - Extension of Obscore for TS metadata
 - Extension of Obscore for spectra
 - Extension for others : visibilities ,
 - New dataproduct type specific PQL parameters
 - Virtual data discovery = access.reference is a « best match » SODA Url



SODA 1.1 ? /SODA 2 ?

- Valid for TimeSeries, spectra, others
- Providing rebinning/reprojection and pixel cutout
- HiPS combination
- Providing extended metadata (special dataset view)
 - using datamodel (VO-DML) serialization
 - Used to be in SIAV2.1 getGoryDetails → getMetadata
- Forced by requested dataset representation
 - ObsCore / Dataset/Cube DM

