

DataLinking

F.Bonnarel for DAL
working group

Acknowledgments to:
Laurent Michel,
Mireille Louys,
Igor Chilingarian

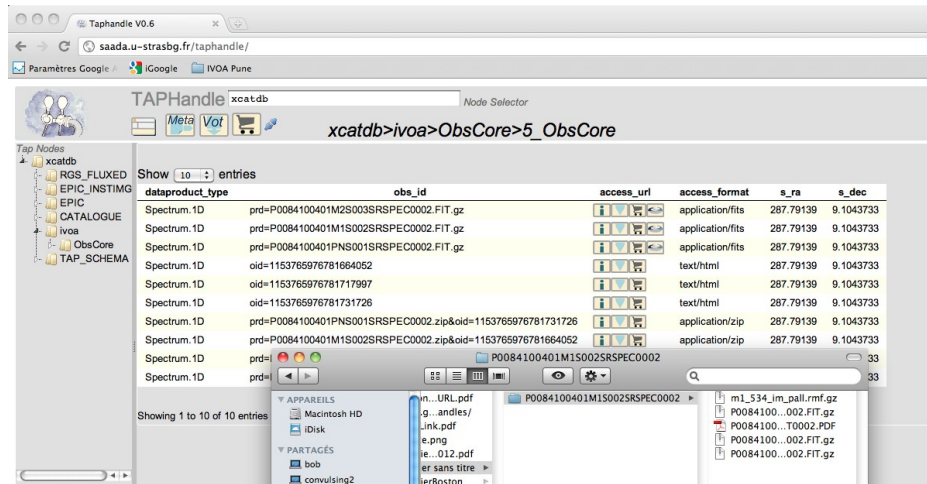


Motivation

- Obstep allows data discovery
- Obstep provides easy retrieval to the full datasets
- We need additional linkage to other « resources »

Use case 1: Internal structure of complex data

- If Data discovered via Obstop show complex structure, eg
 - archive of heterogeneous science data and related material (Chandra, XMM)
- Same case for Query phase response of another DAL protocol



dataproduct_type	obs_id	access_url	access_format	s_ra	s_dec
Spectrum.1D	prd=P0084100401M2S003SRSPEC0002.FIT.gz		application/fits	287.79139	9.1043733
Spectrum.1D	prd=P0084100401M1S002SRSPEC0002.FIT.gz		application/fits	287.79139	9.1043733
Spectrum.1D	prd=P0084100401PNS001SRSPEC0002.FIT.gz		application/fits	287.79139	9.1043733
Spectrum.1D	old=1153765976781664052		text/html	287.79139	9.1043733
Spectrum.1D	old=1153765976781717997		text/html	287.79139	9.1043733
Spectrum.1D	old=1153765976781731726		text/html	287.79139	9.1043733
Spectrum.1D	prd=P0084100401PNS001SRSPEC0002.zip&old=1153765976781731726		application/zip	287.79139	9.1043733
Spectrum.1D	prd=P0084100401M1S002SRSPEC0002.zip&old=1153765976781664052		application/zip	287.79139	9.1043733
Spectrum.1D	prd=P0084100401M1S002SRSPEC0002				
Spectrum.1D	prd=P0084100401M1S002SRSPEC0002				



Use case 2: Associate related datasets

- Previews
- Papers, documentation
- Calibration and ancillary data
- Provenance metadata
- Members of same observation
- Etc ...

Applications Raccourcis Système mar. 7 déc., 22:57 bonnarel

NX - bonnarel@paladin:1000 - paladin (GPL Edition) Aladin v7.0 *** BETA VERSION (based on v7.0.0) ***

Fichier Edition Image Catalogue Graphique Outil Vue Interop Aide

Position Effacer Référentiel ICRS

CFHT_831281

Sélecteur de serveurs

Autres File Allsky all VO FOV Sextractor Watch

Serveurs d'images

Aladin images UKIDSS SkyView Sloan DSS... VLA... archives... Others...

Accès aux données utilisateurs (image/table/script/dir)

Indiquez un nom de fichier ou une URL puis appuyez sur CHE...
/home/bonnarel/Bureau/result.CADC.xml

Serveurs de tables

All VIZIER Surveys Missions VIMED NED SkyBot Others...

energy_bandpassName: i_MF9701

- datasetID: CFHT_831281
 - 831281_1 58.6' x 59.9'
 - 831281_2 58.6' x 59.9'
 - 831281_3 58.6' x 59.9'
 - 831281_4 58.6' x 59.9'
- datasetID: CFHT_831282
 - 831282_1 58.6' x 59.9'

Réinit.. Effacer

Information sur les données

Affichage

831281_1

Nom du champ	Valeur
datasetID	CFHT_831281
collectionID	831281_1
instrument_name	MegaPrime
position_center_ra	02:26:00.96
position_center_dec	-04:29:23.7
position_naxes	2
position_naxis	18879.19313
position_scale	5.1689840392229E...
position_bounds	UNION ICRS GEOCEN...
energy_bounds_center	0.001m
energy_bounds_cval1	0.001m
energy_bounds_cval2	0.001m

FROM Napoli

Zoom 1/2x

6.475 x 34.8

autres actions

Classical SIA service: Individual CCDs (around 20 Mbytes).
 Belonging to the same Dataset allows Associations and gathering under the same node in the tree



Use case 3: linkage to another DAL service

- Linkage to a DAL service in Query mode:
 - Generic as Obstep or specialized as SSA, SIA
 - Provides Related datasets metadata and discovery
- Linkage to a DAL service « AccessData » mode
 - Provides concurrent access to various virtual data access modes (cutout, resampling, others ...)

Server selector

File AllSky allVO FOV Sextractor Watch

User data access (image/table/script/dir) ?

Specify a filename or an URL and press the SUBMIT button

- CFHTLS_G_W3-C
 - Data Access
 - HEALPIX Multiresolution
 - cutout
 - Progenitors
- Collection: I
 - CFHTLS_I_W3-C
 - Data Access
 - HEALPIX Multiresolution
 - cutout
 - Progenitors
- Collection: R
 - CFHTLS_R_W3-C

Catalog servers: All VIZIER, Surveys, Missions, YIMBAD, NED, SkyBot, Others..

Data Info Frame

Display

CFHTLS_I_W3-C

Field name	Value
Score	1
AssocID	MultiFormat.0
AcRef	http://alasky.u-strasb...
Format	image/fits
DataModel	SIA2
DataLength	4000000
Title	CFHTLS_I_W3-C
Title	CFHTLS_I_W3-C
Creator	CFHTLS
Collection	I
CollectionType	atlas
CreatorDID	ivo://cds/CFHTLS/#1...
SpaceFrameName	FK5

Clear Frame ICrsd

8.574° x 4.88°

7.762° x 7.739°

Search

0 sel / 0 arc 40Mb

Tools: select, pan, zoom, dist, phot, draw, tag, fiber, cross, rgb, assoc, crop, cont, mgz, pixel, prop, del

Layers: POSSI.E-DSS1, cut out, HEALPIX Mult

Example 11: Healpix multiresolution

File Edit Image Catalog Overlay Tool View Interop Help

Location

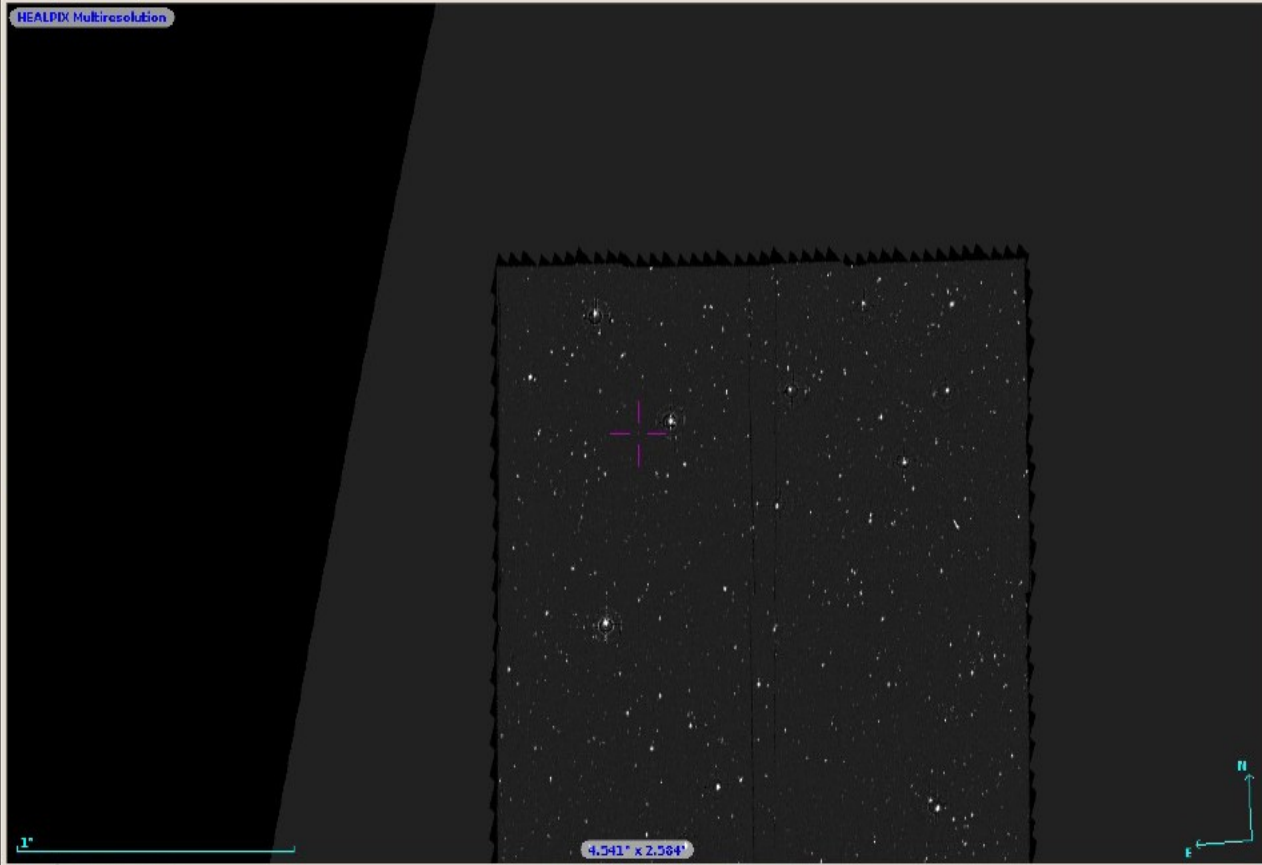
Clear

Frame ICRSd



Allsky opt Allsky IR DSS Simbad NED PPMX 2MASS

HEALPIX Multiresolution



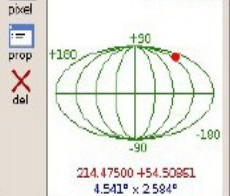
4.541° x 2.584°

[Plane @1] - HEALPIX Multiresolution

- select
- pan
- zoom
- dist
- +
- phot
- draw
- lap
- rtar
- cross
- rgb
- assoc
- crop
- cont
- POSS1.E-DSS1
- cutout
- HEALPIX Mult

[Plane @1] - HEALPIX Multiresolution

Frame: ICRSD



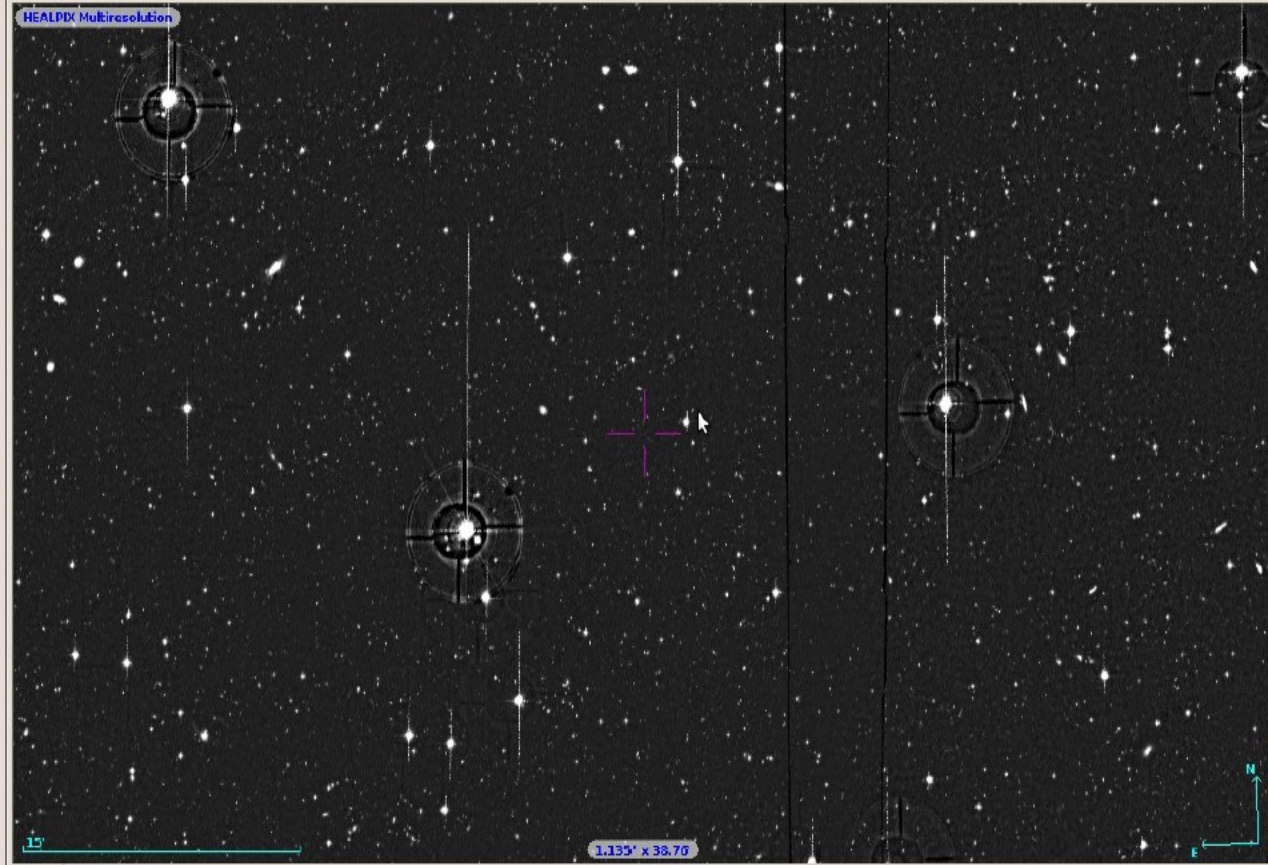
Search

Example 11: Healpix multiresolution

File Edit Image Catalog Overlay Tool View Interop Help

Location 213.90967 +54.63205

Allsky opt Allsky IR DSS Simbad NED PPMX 2MASS



select
pan
zoom
dist
phot
draw
tag
filter
cross
rgb
img
assoc
crop
cont
imges
panel
prop
del

Drawing
POSSI.E-DSS1
cutout
HEALPIX Mult

Zoom 8x

Frame: ICRSD

213.99946 +54.61608
1.185° x 88.76'

grid north multiview match

No Simbad object here !

Search

Example 11: Healpix multiresolution



Data Link implementation: a proposal

- Data Link provided by :
 - a table relating an obsid to an « Access » description.
 - Two additional fields give the semantics and the VO (registry) nature of the link
- DataLink tables are retrievable from a service with Obsid as the main parameter



Possible Query response

```
<TABLE name="DataLinks">
<FIELD name="Obsid" utype="dl:Dataid.ObservationID" datatype="char"
arraysize="*" />
<FIELD name="Semantics" utype="dl:Semantics" datatype="char" arraysize="*" />
<FIELD name="Servicetype" utype="dl:Votype" datatype="char" arraysize="*" />
<FIELD name="reference" utype="dl:Access.Reference" datatype="char"
arraysize="*" />
<FIELD name="format" utype="dl:Access.Format" datatype="char"
arraysize="*" />
<FIELD name="size" utype="dl:Access.Size" datatype="char" arraysize="*" />
<FIELD name="subtype" utype="dl:Access.Subtype" datatype="char"
arraysize="*" />
<FIELD name="path" utype="dl:Access.AccessParams.Path" datatype="char"
arraysize="*" />
<FIELD name="extnum" utype="dl:Access.AccessParams.Extnum"
datatype="char" arraysize="*" />
<FIELD name="extname" utype="dl:Access.AccessParams.Extname"
datatype="char" arraysize="*" />
<FIELD name="field" utype="dl:Access.AccessParams.Field" datatype="char"
arraysize="*" />
<FIELD name="row" utype="dl:Access.AccessParams.Row" datatype="char"
arraysize="*" />
<FIELD name="array" utype="dl:Access.AccessParams.Array" datatype="char"
arraysize="*" />
<DATA>
<TABLEDATA>
<TR><TD>ivoa://xxx.yyy.edu/123345</TD><TD>full dataset</TD><TD>retrieval</TD><TD>http://xxx.yyy.de/archive.tar</TD><TD>3.4Gb</TD>
<TD>archive/tar</TD><TD>none</TD><TD>none</TD><TD>none</TD><TD>none</TD><TD>none</TD><TD>none</TD><TD>none</TD></TR>
```





DataLink implementation: a proposal

- « Access » GROUP of parameters
 - First described in characterisation 2 draft
 - Extension of SSA/Obstap Access package
 - Extension describes internal features of the dataset
 - Path
 - Extension or table name or number
 - Field, ROW
 - Cutout, array



DataLink implementation: a proposal

- From Obstep to DataLinks
 - Replace the reference URL by DataLink URL → no
 - Add a new DataLink field to the optional Obstep response FIELDS
 - Provide a single DataLink service URL template as a parameter
 - just use Obsid of the record to complete the URL
 - Use the DAL extension mechanism
 - Additional Data Link table in the Obstep response
 - Obsid used as a key



Alternatives

- Can DOI do everything we want to do?
 - Norman Gray email and talk in DCP session
- Can DOI replace the Obsid ?
 - compatibility with reference to datasets in papers (Alberto Accomazzi in DCP session)
- Can URI be extended to provide same feature as our Extended Access package ?
 - Norman Gray proposal (Trieste)