

Can DataLink be useful ?

April 2025 - Paris workshop on Obscore
Extensions

F.Bonnarel (as DataLink co-editor)



DataLink specification

IVOA Recommendation



*International
Virtual
Observatory
Alliance*

IVOA DataLink

Version 1.1

IVOA Recommendation 2023-12-15

Working Group
DAL

This Version
<https://www.ivoa.net/documents/DataLink/20231215>

Latest Version
<https://www.ivoa.net/documents/DataLink>

Previous Versions
[PR-DataLink-1.1-20230413](#)
[WD-DataLink-1.1-20211115](#)
[DataLink-1.0](#)

Author(s)
[Patrick Dowler](#)
[François Bonnarel](#)
[Laurent Michel](#)
[Markus Demleitner](#)
[Mark Taylor](#)

Editor(s)
[François Bonnarel](#)
[Patrick Dowler](#)

Abstract

This document describes the linking of data discovery metadata to access to the data itself, further detailed metadata, related resources, and to services that perform operations on the data. The web service capability supports a drill-down into the details of a specific dataset and provides a set of links to the dataset file(s) and related resources. This specification also includes a VOTable-specific method of providing descriptions of one or more services and their input(s), usually using parameter values from elsewhere in the VOTable document. Providers are able to describe services that are relevant to the records (usually datasets with identifiers) by including service descriptors in a result document.



DataLink implementation note

<https://github.com/ivoa/DataLinkRecImplNote> → push to an IVOA note



IVOA DataLink Implementation note

Version 1.0

IVOA Note 2024-01-19

Working Group

DAL

This version

<https://www.ivoa.net/documents/DataLinkImp/20240119>

Latest version

<https://www.ivoa.net/documents/DataLinkImp>

Previous versions

This is the first public release

Author(s)

Francois Bonnard, Markus Demleitner, Patrick Dowler, Laurent



DataLink implementation note

Contents

1	Introduction	2
2	DataLink {links} endpoint recognition mechanisms	3
2.1	DataLink and SIAP-2.0 or ObsTAP services	3
2.1.1	DataLink discovery via format and reference columns .	3
2.1.2	SIAP-2.0, ObsTAP and service descriptors	4
2.2	DataLink in the context of other dataset discovery methods .	4
2.3	DataLink outside Data discovery context	5
2.4	Various recognition solutions for use cases introduced in section 3 and 4	6
3	Datalink {links} endpoint response FIELDS usage	6



DataLink usage

focus on the {links} endpoint only

- Service descriptors are another story (should in another spec?)
- {links} endpoint :
 - Attach additional material to datasets discovered via a discovery service
- Can also be used to attach material to items in a catalog (sources?)
- Useful when data provider wants to attach several resources to the same primary item (dataset, source).



DataLink example (ALMA archive)

[illegible]

DataLink response table

name	description	field required	value required	UCD
ID	Input identifier	yes	yes	meta.id;meta.main
access_url	link to data or service	yes		meta.ref.url
service_def	reference to a service descriptor resource	yes	one only	meta.ref
error_message	error if an access_url cannot be created	yes		meta.code.error
description	human-readable text describing this link	yes	no	meta.note
semantics	Term from a controlled vocabulary describing the link	yes	yes	meta.code
content_type	mime-type of the content the link returns	yes	no	meta.code.mime
content_length	size of the download the link returns	yes	no	phys.size;meta.file
content_qualifier	nature of the content the link returns	no	no	
local_semantics	An identifier that allows clients to associate rows from different datalink documents on the same service with each other.	no	no	meta.id.assoc
link_auth	use of the link requires authentication	no	no	meta.code
link_authorized	caller is authorized to use the link	no	no	meta.code

Table 1: Fields for Links Output



DataLink semantics FIELD

- Qualify the relationship between the primary Item and related resources
- Special vocabulary :

<https://www.ivoa.net/rdf/datalink/core/2022-01-27/datalink.html>

- This : the item link itself (may be in different formats)
- Counterpart : an image or a spectrum or a time series of a source in a catalog. Coming from a different project
- Coderived : other material produced in the same project
- Auxiliary : error maps, weight maps
- Calibration : data which could help to calibrate. For example : IRF ?
- Progenitor : from spectral cube to visibilities
- Derivation : from original data to catalog of sources, or hips, or whatever. From visibilities to spectral cube.



DataLink content_qualifier FIELD

- Qualify what the related resource actually is.
Currently dataproduct_type (image, cube,
- Another IVOA vocabulary could be used : IRF ?
Advanced products ?



DataLink description and local_semantics FIELD

- Description : free text file (can be specific to the item / for human users)
- local_semantics (to identify common resources for different primary items/ for computer)



DataLink evolution ?

- Access directly items in the DataLink table (eg for IRF when we do not need spatial/time/spectral/coverage) ?
- → ID parameter issue
- Deliver a {links} table in a TAP service
 - Query by semantics, content qualifier, format, etc.. ?

