

CEVO Task 2 summary

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On behalf ESCAPE CEVO (task 2)



Coordinating ESFRI and VO experts efforts to achieve CEVO goals

- ESFRI :
 - SKA, JIVE, ASTRON, ALMA, EST, ESO, KM3NET, CTA, EGO/VIRGO
- Escape experts :
 - CDS, GAVO, INAF, INTA, Edinburgh
- Partner experts or projects :
 - ObsParis, ObAS, Mark Taylor (Bristol), INAF-Radio
- Schools :
 - INTA, CDS, INAF, Mark Taylor
 - See Enrique presentation



Coordinating ESFRI and VO experts efforts to achieve CEVO goals

- Help for design - CEVO working Meetings
 - EST/CDS, KM3NET/CDS, JIVE/ASTRON/CDS (with ObsParis and INAF-Radio), KM3NET/CTA/CDS, JIVE/CDS/AsSTRON/UHEI, etc...
- CEVO Provenance Workshop
 - ObsParis, CTA, INAF, JIVE, ASTRON, KM3NET, EST, CDS
- Help to implementation for ESFRIs
 - DACHS/GAVO assistance at KM3NET, ASTRON, EST
- Contribution to IVOA meetings :
 - CTA, SKA, JIVE, ASTRON, EST, CDS, INAF, UHEI, Edinburgh, INTA, ObsParis, ESO, HITS



Coordinating ESFRI and VO experts efforts to achieve CEVO goals

- VO standards
 - HIPS : implementation in various contexts and environments
 - TIMESYS in VOTable
 - MOC, STMOC : adding time to MOC. IVOA spec Version 2. → energy ?
 - Provenance : completion of the Model + dissemination, implementation (ADASS, ESCAPE, IVOA)
 - Time Discovery + Visibilities Obscore extensions : with TimeDomain and RadiolG extensions



Coordinating ESFRI and VO experts efforts to achieve CEVO goals

- VO standards :
 - Datamodel serialization and annotation : in collaboration with ObAS and DM Working group
 - Evolution of SODA, SIA and DataLink : enhancing the scope of the protocols
 - Semantics : New UCD terms, Vo 2.0, DataLink semantics terms, « dataproduct type » terms
 - Registry : caproles proposal (capability roles for resources)
 - VOEvent : towards new version, discovery, etc.
 - ADQL 2.1 : Push to RFC
- Discuss more on Wednesday 2PM



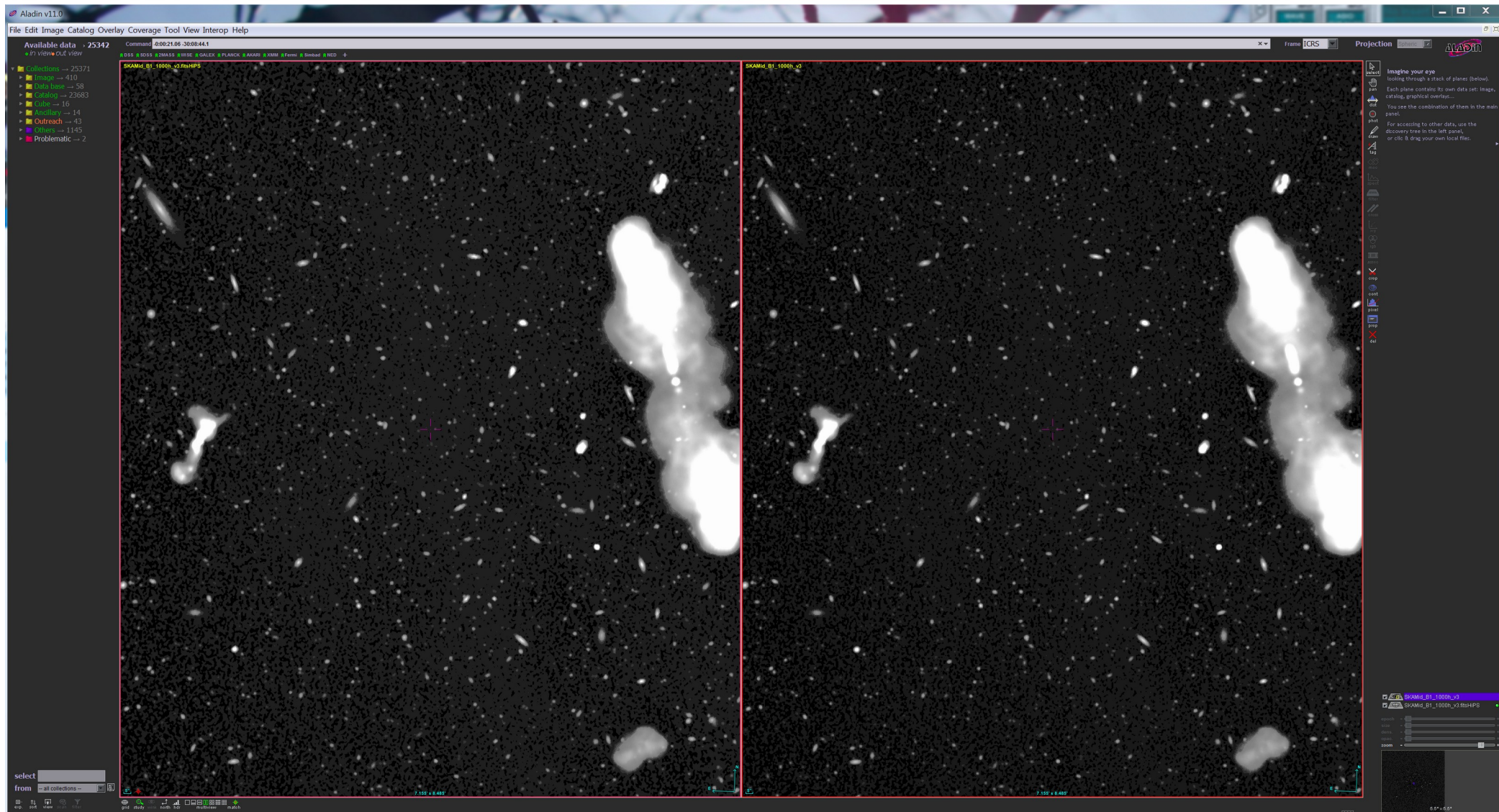
ESFRIs achievements (more details in presentations)

- SKA : HiPS for simulated data
 - Hack a thon Wednesday 2 PM and next slide
- JIVE : Visibility ObsTAP service / integration in ESAP
 - Mark K's and Aard's presentations.
- LOFAR/ASTRON : ConeSearch, TAP/ObsTAP service / integration in ESAP
 - See Yan Grange's presentation on Thursday
- ALMA : ObsTAP service, SIA, DataLink service
 - Next slides



SKAO simulated images

HiPS on the left / original FITS on the right



ALMA : 3 DAL interfaces

ObsCore TAP (Table Access Protocol) web service

The ObsCore (TAP) web service. [IVOA TAP Specification](#)

The synchronous and asynchronous service endpoints conform to the IVOA UWS (Universal Worker Service) Framework. [IVOA UWS Specification](#)

This service implements the ObsCore data model. The main tables are:

- [ivoa.ObsCore](#): supports [ObsCore-1.1](#) physical model from the ObsTAP project

Downloading Data

The planeURI column in the caom2.Plane table can be used to query the related DataLink service to get details about files that can be downloaded and related services that can operate on a product. The obs_publisher_did column in the ivoa.ObsCore table contains the same identifiers for use with a DataLink service.

Unsupported ADQL Constructs

The following ADQL Functions are not currently supported: ALL and DISTINCT within an aggregate function (AVG, COUNT, MIN, MAX, COUNT) PI RAND TRUNCATE

Support Interfaces

Show/Hide | List Operations | Expand Operations

| | | |
|-----|---------------|-------------------|
| GET | /availability | VOSI Availability |
| GET | /capabilities | VOSI Capabilities |
| GET | /tables | VOSI Tables |

TAP

Show/Hide | List Operations | Expand Operations

| | |
|------|--------|
| POST | /async |
| GET | /sync |

Implementation Notes

TAP synchronous query endpoint

Parameters

| Parameter | Value | Description | Parameter Type | Data Type |
|-----------|------------------------------------|---|----------------|-----------|
| LANG | (required) | specify the query language used in the QUERY parameter | query | string |
| QUERY | SELECT TOP 100 * FROM ivoa.obscore | specify the query | query | string |
| FORMAT | | supported for backwards compatibility to 1.0 (see: IVOA TAP Specification) | query | string |

IVOA DataLink

Service for Data Access

This service implements the IVOA DataLink 1.0 service specification. To use this service, the caller must use a dataset identifier found through some means (for example, querying the ALMA TAP ObsCore Service). The DataLink service provides a drill-down mechanism to access the data files and associated resources.

Datalink

Implementation Notes
The linking of data discovery metadata to access the data itself, further detailed metadata, related resources, and to services that perform operations of the data.

Response Class (Status 200)
A VOIable with one row per link (downloadable item or resource).

Example Value

```
<?xml version="1.0"?>
<!-- Invalid XML: Node name is not provided -->
```

Response Content Type: application/ivoa+emContent-datalink

| Parameter | Value | Description | Parameter Type | Data Type |
|-----------|----------------------------------|---|----------------|-----------|
| ID | uPN3JAN2PK2FA00162FX1456N2P2B3KZ | MOOS ID from a data discovery service. | query | string |
| RUNID | | Arbitrary string (maximum length 64) that is attached to any logging of this request. | query | string |
| REQUEST | | get download links only (REQUEST=downloads-only) | query | string |

Response Messages

| HTTP Status Code | Reason | Response Model | Headers |
|------------------|--------|----------------|---------|
| ... | ... | ... | ... |

SIA (Simple Image Access) web service

The SIA (Simple Image Access) web service.

SIA services for the Common Archive Observation Model (CAOM).

[IVOA SIA v1](#)

[IVOA SIA v2](#)

The SIA-2.0 query endpoint implements all the query parameters described in the latest SIA-2.0 specification: POS, BAND, TIME, POL, FOV, SPATRES, EXPTIME, ID, COLLECTION, FACILITY, INSTRUMENT, DPTYPE, CALIB, TARGET, TIMERES, SPECPR, FORMAT.

Simple Image Access 2.0

Show/Hide | List Operations | Expand Operations

GET /query

Implementation Notes

SIA-2.0 query of all collections. | The SIA-2.0 implements all the query parameters described in the latest SIA-2.0 specification: POS, BAND, TIME, POL, FOV, SPATRES, EXPTIME, ID, COLLECTION, FACILITY, INSTRUMENT, DPTYPE, CALIB, TARGET, TIMERES, SPECPR, FORMAT.

Response Class (Status 200)

Successful response

Model Example Value

```
version="1.0"?>
invalid XML: Node name is not provided -->
```

Response Content Type: text/xml

| Parameter | Value | Description | Parameter Type | Data Type |
|------------|----------------------|--|----------------|-----------|
| POS | CIRCLE 30.0 25.0 2.0 | The POS parameter specifies the target coordinates (RA, DEC in degrees, ICRS) to search. | query | string |
| BAND | | | query | string |
| TIME | | | query | string |
| POL | | | query | string |
| FOV | | | query | string |
| SPATRES | | | query | string |
| ID | | | query | string |
| COLLECTION | | | query | string |
| FACILITY | | | query | string |
| INSTRUMENT | | | query | string |
| DPTYPE | | | query | string |
| CALIB | | | query | string |
| TARGET | | | query | string |
| TIMERES | | | query | string |
| SPECPR | | | query | string |
| FORMAT | | | query | string |

ALMA science archive ObsTAP service within Aladin

10.0 *** BETA VERSION (based on v10.073) ***

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data → 21973 / 219
 • in view • out view

Command: 06:05:41.72100 -86:37:55.0200

Frame: ICRS Projection: Aitoff

Aladin

DSS2 color

Server selector

Others File FoV... Tools...

Image servers: Aladin images, SkyView, Sloan, DSS..., W.A..., archives..., Others...

Catalog servers: All, VizieR, SIMBAD, TAP, Gaia, SkyBot, NED, VO, Others...

Construct your query, verify and execute.

Table: alma.obscore Set ra, dec

Select: All

Constraints: Add new Max rows:

Target: 6 05 41.72100 -86 37 55.0200

Radius: 128.7° CIRCLE Add

access_format
calib_level
s_ra
s_dec
s_fov

Refresh query Check.. SYNC Async jobs>>

SELECT TOP 100 * FROM alma.obscore

Reset Clear SUBMIT Close ?

15° 112.9° x 61.7°

Search

| | calib_level | s_ra | s_dec | s_fov | s_region | t_min | t_max | Observation En... | t_exptime | t_ra | |
|-----------|-------------|-----------------|------------------|-----------------|----------|-----------------|--------------|-------------------|--------------|-------------------|---------|
| text/html | 2 | 91.423837500... | -86.63195 | 26.564235597... | FoV | 2.2102533595... | 57145.964021 | 2015-05-03T23:... | 57145.995432 | 2015-05-03T23:... | 1300.32 |
| text/html | 2 | 91.423837500... | -86.63195 | 26.564235597... | FoV | 2.2102533595... | 57145.964021 | 2015-05-03T23:... | 57145.995432 | 2015-05-03T23:... | 1300.32 |
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| text/html | 2 | 91.423837500... | -86.63195 | 26.564235597... | FoV | 2.2102533595... | 57145.964021 | 2015-05-03T23:... | 57145.995432 | 2015-05-03T23:... | 1300.32 |
| text/html | 2 | 73.14289725 | -85.588400972... | 26.564235597... | FoV | 2.2840199243... | 57145.964021 | 2015-05-03T23:... | 57145.995432 | 2015-05-03T23:... | 151.2 |
| text/html | 2 | 73.14289725 | -85.588400972... | 26.564235597... | FoV | 2.2840199243... | 57145.964021 | 2015-05-03T23:... | 57145.995432 | 2015-05-03T23:... | 151.2 |
| text/html | 2 | 73.14289725 | -85.588400972... | 26.564235597... | FoV | 2.2840199243... | 57145.964021 | 2015-05-03T23:... | 57145.995432 | 2015-05-03T23:... | 151.2 |
| text/html | 2 | 73.14289725 | -85.588400972... | 26.564235597... | FoV | 2.2840199243... | 57145.964021 | 2015-05-03T23:... | 57145.995432 | 2015-05-03T23:... | 151.2 |

Click on it to show/hide the associated footprint

select from: all collections

exp. sort view scan filter

epoch size dens. opac. zoom

epoch size dens. opac. zoom

crop cont pivel prop del

ESFRIs achievements (more details in presentations)

- ESO : ObsTAP, SSA, HiPS, TAP, DataLink services since April 2020
 - See Alberto's presentation
- EST : UCD implementation and upgrade. TAP and EPN-TAP service in development
 - See Véronique's presentation.
- KM3NET : TAP service, provenance, probability estimates
 - See Jutta's presentation
- CTA : Provenance inside, need for dataset DataModel (for interoperability) implementation and upgrade
 - See Mathias' presentation
- EGO/VIRGO : Using MOCS for MM observation preparation
 - See Giuseppe's presentation



To come next

- RadiolG : implementation note + workshop + radio extension to Obscore
- DM : workshop in May
- TimeDomain : STMOC + new extension of ObsCore specification + DAL protocols upgrade for Time
- DAL protocols upgrade (images and cubes, spectra)

- DataProvider « Hand On » in June (21-25)
- 2nd VO school (next year)

- More implementations and feedback from ESFRI partners

