# CASDA SIA2 Implementation

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# Australian SKA Pathfinder (ASKAP)





- $36 \times 12$ m dishes
- Max baseline = 6 km
- Phased array feeds – 188 elements
- 30 deg$^2$ FOV

- 700 – 1800 MHz
- 300 MHz Bandwidth
- 16,384 channels

# CASDA – CSIRO ASKAP Science Data Archive

CASDA will provide a 'big data' science archive for ASKAP Data Products. The application supports:

- ❑ Long term data storage at Pawsey Centre (up to 5PB/yr)

- ❑ Searches and data access using web and VO services

- ❑ Data uploads of science catalogues provided by Science Teams

- ❑ Tools for setting data validation flags and information

- ❑ User authentication

- ❑ Digital Object Identifiers (DOIs) and other persistent identifiers

- ❑ Archive administration tasks: user mgt, queue control, monitoring and reports etc.

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# ASKAP Data Products

- Calibrated visibility data files (CASA)

- Image cubes (FITS)

- Single plane images (FITS)

- Catalogues

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# SIA 2 and friends

1. Simple Image Access v2 – discovery

2. DataLink – list the access methods

3. Access Data – file or subset access
   - Sync, async access
   - Cutouts
   - Thumbnails

# Why SIAP 2

1. Multi-dimensional support

2. Future of image access in VO

3. Sufficiently stable

4. Flexible

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# SIA2 Interaction Example

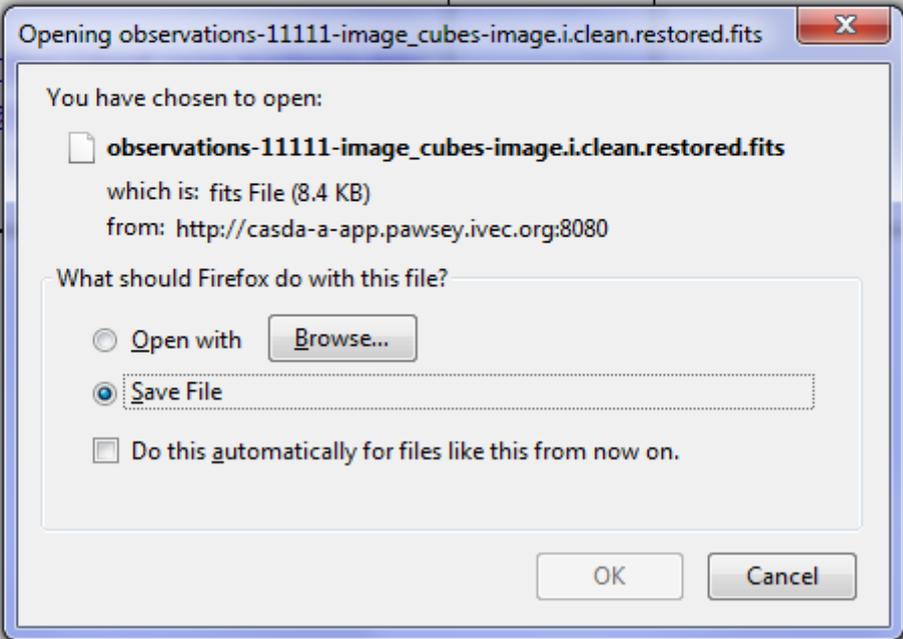Address bar query: …/casda_vo_tools/sia2/query

## CASDA SIAPv2 Result

| dataproduct_type | calib_level | obs_collection | obs_id | obs_publisher_did | access_url | access_format |
|---|---|---|---|---|---|---|
| cube | 2 | POSSUM: Polarization Sky Survey of the Universe's Magnetism | 11111 | cube-1 | http://casda-a-app.pawsey.ivec.org:8080/casda_vo_tools/datalink/links?ID=cube-1 | application/x-votable+xml;content=datalink |
| visibility | 1 | POSSUM: Polarization Sky Survey of the Universe's Magnetism | 11111 | visibility-1 | http://casda-a-app.pawsey.ivec.org:8080/casda_vo_tools/datalink/links?ID=visibility-1 | application/x-votable+xml;content=datalink |

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# DataLink

| ID | access_url | service_def | error_message | description | semantics | content_type | content_length |
|---|---|---|---|---|---|---|---|
| cube-1 | http://casda-a-app.pawsey.ivec.org:8080/casda_vo_tools/data/sync?request=getData&id=cube-1 | | | CASDA Access Data service | #this | application/fits | 9 |
| cube-1 | https://daplt.csiro.au/dap/public/casda/casdaResult.zul?dpId=1&dataProducts=IMAGE_CUBE | | | CSIRO Data Access Portal | #this | text/html | |

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# AccessData

# Current Status

| Capability | Status |
| --- | --- |
| SIA2 Queries: POS and BAND | Ready |
| SIA2 Queries: Other | In progress |
| DataLink: Web access and direct download | Ready |
| DataLink: Services | In progress |
| AccessData: Sync - Online FITS data by ID | Ready |
| AccessData: Async - Offline data by ID | In progress |
| AccessData: Filtering (i.e. cutouts) | In progress |

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# Configuration

## SIA

- based on Obscore

## DataLink

- Property driven

```
# urls for Datalink
web.url: https://casdev.csiro.au/dap

datalink.cutout.url:
datalink.sync.url: ${application.base.url}data/sync?request=getData&id=
datalink.links.url: ${application.base.url}datalink/links
datalink.web.url: ${web.url}/public/casda/casdaResult.zul?dpId=<ID>&dataProducts=<TYPE>
datalink.web.service.name: CSIRO Data Access Portal
```

## Access Data

- Uses a deployer provided web service for data file path

# CASDA Deliverables

1.  VO Package deployable to other data centers

2.  Implementation verification tools

# Implementers Point of View – Worked Well

1. Data link easy to understand and implement

2. SIA2 parameter based query

# Implementers Point of View – Challenges

Early adoption, so no clients currently

- Currently URL based, but we are planning a web form

DataLink for services (e.g. cut-outs)

- Harder to express, particularly in our style sheet approach.

# Summary

CASDA SIA2 implementation

- At minimum viable product stage
- Being expanded currently

Reusable products

- VO tools package – TAP, SCS, SIA2, DataLink, AccessData
- Validation tools for SIA2, DataLink, AccessData

Standards workable and clear to implement

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# Thank you

**CSIRO IM&T**

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