

SODA implementation with DataLink, SIA, TAP

Patrick Dowler

Canadian Astronomy Data Centre

2016-05-12



- data discovery:
 - TAP-1.0+ Δ service with ObsCore-1.1 queries & output
 - SIA-2.0 query with ObsCore-1.1 output
 - service descriptor \rightarrow DataLink service
 - access_url/access_format \rightarrow DataLink (currently)
- discovered data products \rightarrow physical data artifacts
 - DataLink-1.0 service with 1 or more links per ID
 - service descriptors describe SODA #sync and #async resources and parameters

- data access capabilities
 - SODA#sync for single set of params
 - SODA#async supports multi-valued params
 - provides one result URL per combination
- currently available for **ALL** archive data at CADC
 - not a “prototype”: this is an operational service!
- details and examples are available in my DAL mailing list post:

<http://mail.ivoa.net/pipermail/dal/2016-March/007369.html>

- spatial cutout: POS, CIRC, POLY
 - POS: string
 - CIRC: numbers w/ unit, xtype, min spanning circle provided in param description
 - POLY: numbers w/ units, xtype, polygon bounds provided in param description
- proposal: specify CIRC and POLY (names TBD) in SODA-1.0
 - uses DALI-1.1 value serialisation (xtypes) : provide useful metadata to client
 - POS cannot feasibly do this

- spectral cutout: BAND
 - BAND: numbers, units, bounding interval provided in param description
- time axis: TIME
 - TIME: numbers, units, bounding interval provided in param description
- polarization axis: POL
 - POL: string (codes), available values provided in param description

Service Descriptors – Generic – one per DataLink response

```
<RESOURCE type="meta" ID="soda-sync" utype="adhoc:service">
<PARAM name="resourceIdentifier" datatype="char" arraysize="27" value="ivo://cadc.nrc.ca/soda#sync" />
<PARAM name="standardID" datatype="char" arraysize="*" value="ivo://ivoa.net/std/SODA#sync-1.0" />
<PARAM name="accessURL" datatype="char" arraysize="*"
value="http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/caom2ops/sync" />
<GROUP name="inputParams">
<PARAM name="ID" datatype="char" ref="fileURIRef" arraysize="*" value="" />
<PARAM name="POS" datatype="char" ucd="obs.field" arraysize="*" value="" />
<PARAM name="CIRC" datatype="double" ucd="obs.field" unit="deg" xtype="circle" arraysize="3" value="" />
<PARAM name="POLY" datatype="double" ucd="obs.field" unit="deg" xtype="polygon" arraysize="*" value="" />
<PARAM name="BAND" datatype="double" ucd="em.wl;stat.interval" unit="m" xtype="interval" arraysize="2" value="" />
<PARAM name="TIME" datatype="double" ucd="time;stat.interval" unit="d" xtype="interval" arraysize="2" value="" />
<PARAM name="POL" datatype="char" ucd="phys.polarization.stokes" arraysize="2*" value="" />
</GROUP>
</RESOURCE>
```

- same sort of thing for SODA#async-1.0

Service Descriptors – Data-specific – one per artifact (file)

```
<RESOURCE type="meta" ID="soda-cbb62ed5-c2c9-4dd9-aed6-46d7d5173dca" utype="adhoc:service">
<PARAM name="resourceIdentifier" datatype="char" arraysize="27" value="ivo://cadc.nrc.ca/soda#sync" />
<PARAM name="standardID" datatype="char" arraysize="*" value="ivo://ivoa.net/std/SODA#sync-1.0" />
<PARAM name="accessURL" datatype="char" arraysize="*"
value="http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/caom2ops/sync" />
<GROUP name="inputParams">
<PARAM name="ID" datatype="char" arraysize="*" value="ad:IRIS/I212B2H0" />
<PARAM name="POS" datatype="char" ucd="obs.field" arraysize="*" value="" />
<PARAM name="CIRC" datatype="double" ucd="obs.field" unit="deg" xtype="circle" arraysize="3" value="">
  <VALUES> <MAX value="140.63 0.20 8.78" /> </VALUES>
</PARAM>
<PARAM name="POLY" datatype="double" ucd="obs.field" unit="deg" xtype="polygon" arraysize="*" value="">
  <VALUES> <MAX value="146.84 -6.41 134.38 -6.37 134.42 6.00 146.87 5.97" /> </VALUES>
</PARAM>
</GROUP>
</RESOURCE>
```

TODO

- replace custom publisher_did URI with ivo-id once data collections are registered
- remove the generic service descriptors
- consider changing the access_url/access_format in ObsCore output to something else: package download link?
- consider adding other params to SODA interface: pixel cutouts, output to VOspace for #async, ...

- data discovery: TAP or SIA
- data product → data artifacts: DataLink
- data access (download): URLs from DataLink
- data access (cutout):
 - DataLink service descriptor w/ param metadata
 - SODA#sync-1.0 and SODA#async-1.0
- **meets minimal CSP requirements for multi-D data**