

TAP-1.1 prototype

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REQUEST and VERSION

- support VERSION=1.0 and VERSION=1.1 (default)
- with VERSION=1.0 : REQUEST=doQuery required
- with VERSION=1.1 : REQUEST ignored
 - turns out we never implemented REQUEST=getCapabilities
 - and no one **ever** asked or complained about it

- changed {sync} query response to use HTTP error codes
 - 400 when it is the user's fault (bad input)
 - 500 when it is the service's fault (e.g. bug, misconfigured)
 - 503 when the server can't process request but it was OK so far (e.g. transient failure of a dependency: the auth system, the backend database server, etc)
- {async} still governed by UWS spec and unchanged

- all endpoints are siblings of VOSI-capabilities
 - /tap/async
 - /tap/sync
 - /tap/auth-async
 - /tap/auth-sync
 - /tap/availability
 - /tap/capabilities
 - /tap/tables

- TAP-1.1 defines standardID for {async} and {sync} capabilities
 - allows multiple of each (securityMethod)
 - allows different metadata/limits/options
 - allows different securityMethod
 - but...
- TAPRegExt currently fixes the standardID (TAP-1.0)
 - seems unnecessary to constrain it

VOSI-capabilities and TAPRegExt

```
<capability standardID="ivo://ivoa.net/std/TAP#sync-1.1"
  xmlns:tr="http://www.ivoa.net/xml/TAPRegExt/v1.1" xsi:type="tr:TableAccess">
  <interface xsi:type="vod:ParamHTTP" role="std" version="1.1">
    <accessURL use="base">http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/tap/sync</accessURL>
  </interface>
  <interface xsi:type="vod:ParamHTTP" role="std" version="1.1">
    <accessURL use="base">http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/tap/auth-sync</accessURL>
    <securityMethod standardID="http://www.w3.org/Protocols/HTTP/1.0/spec.html#BasicAA" />
  </interface>
  <interface xsi:type="vod:ParamHTTP" role="std" version="1.1">
    <accessURL use="base">https://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/tap/sync</accessURL>
    <securityMethod standardID="ivo://ivoa.net/sso#tls-with-certificate" />
  </interface>
  <!-- TAPRegExt metadata -->
  <dataModel ivo-id="ivo://ivoa.net/std/ObsCore/v1.0">ObsCore-1.0</dataModel>
  ....
</capability>
```

VOSI-capabilities and TAPRegExt

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VOSI-capabilities and TAPRegExt

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  </interface>
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VOSI-capabilities and TAPRegExt

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  ....
```

TAP improvements from other WD

- UWS-1.1 job listing
 - requires authentication to list your jobs
 - must authenticate when creating job for it to be your job
- UWS-1.1 blocking GET
 - service will block until next phase change or internal time limit elapses (60 sec)
- VOSI-tables-1.1
 - can get less than full <tableset> document
- details in GWS session (tomorrow?)

TAP improvements not implemented

- ADQL-2.1 changes
- alternative to STC-S usage (TAP-1.0 Section 6)

- interval values in a column
 - interval values for energy_bounds and time_bounds (support)
 - sparse time_bounds for composite products
 - sparse energy_bounds from some telescopes (e.g. JCMT)



- querying: overload CONTAINS and INTERSECTS
 - `INTERSECTS(INTERVAL(54321.0,54321.5), time_bounds) = 1`
 - `CONTAINS(500e-6, energy_bounds) = 1`
 - `CONTAINS(INTERVAL(400e-6,450e-6), energy_bounds) = 1`
- implementation supports fully indexed querying

- interval output

- `<FIELD name="time_bounds" unit="d" datatype="double" arraysize="*" xtype="adql:proto:INTERVAL" />`
- values: ordered list



- xtype is a temporary hack since we were a “prefix” user
- unclear if ADQL, TAP, or VODataService defines types
- DALI defines the serialisation for some types (e.g. timestamp)
- propose: DALI should define the serialisation and xtypes for simple structured types that are in use: point, circle, polygon, timestamp, and interval

Somewhat Fringe Use Case in Support of Overloading...

- querying CLOB columns
 - no standard mechanism, so: UDF
- overload CONTAINS
 - `CONTAINS('seyfert', proposal_abstract) = 1`