

# THE US NATIONAL VIRTUAL OBSERVATORY

## VOSpace 2.0

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# Outstanding issues from Strasbourg

- VOSpace 2.0:
  - use registry to resolve identifiers
  - GET implementation of a node list
  - pagination determined by client; details TBD
  - allow parameterised HTTP GET for transfers
  - UWS for transfers
  - findNodes remains POST
  - explore service capabilities syntax like registry
  - allow alternative delete mechanism using move
  - keep current modelling of move and copy
  - posting form parameters as alternate to XML; details TBD
  - empty protocol list returns supported protocols
  - /transfers, /nodes, /views, /protocols, /searches
  - defer direct server-to-server transfer to 2.1
  - information about space available and lack of space

# Design philosophies

- VOSpace 1.x is based on SOAP
  - can use WS-\* features
- VOSpace 2.x is based on HTTP
  - can use HTTP features

# Proposition I: Pagination

- listNodes method is replaced with HTTP GET to a node:
  - <http://nvo.caltech.edu/vospace-2.0/mjg/mytable1?detail={min|max|properties}>
- When node is a container, it will return a list of direct children nodes in the container
- Client can specify a numerically limited subset using 'limit' and 'offset' keywords:
  - <http://nvo.caltech.edu/vospace-2.0/mjg/mydir1?limit=500&offset=2500>
  - Ordering determined by server – drawn from same ordered sequence
- “findNodes” uses similar mechanism against search resource:
  - <http://nvo.caltech.edu/vospace-2.0/searches/1234?detail=min&limit=50&offset=150>
- What happens if limit/offset specified against leaf node?

# Proposition II – parameterized POST

- Currently HTTP POST a transfer representation:

```
<transfer xmlns="http://www.ivoa.net/xml/VOSpaceTypes-v2.0">  
  <target>vos://nvo.caltech.edu/vospace-2.0/mydata/table3</target>  
  <direction>pushToVoSpace</direction>  
  <view uri="ivo://ivoa.net/vospace/core#votable />  
  <protocol uri="ivo://ivoa.net/vospace/core#http-put" />  
</transfer>
```
- Instead use a parameterized version:
  - URL: <http://nvo.caltech.edu/vospace-2.0/transfers>
  - HTTP Body:
    - target=vos://nvo.caltech.edu/vospace-2.0/mydata/table3
    - direction=pushToVoSpace
    - view=ivo://ivoa.net/vospace/core#votable
    - protocol=ivo://ivoa.net/vospace/core#http-put
- Returns URI of transfer resource containing operational details
- Specify encoding type
- URI encoding of parameters

# Proposition III – UWS for transfers

- Elements in transfer resource representation become parameters in UWS Job resource representation
- Transfer job created by HTTP POST to:
  - URL: <http://nvo.caltech.edu/vospace-2.0/transfers>
  - Body:
    - target=vos://nvo.caltech.edu!vospace-2.0/mydata/table3
    - direction=pushToVoSpace
    - view=ivo://ivoa.net/vospace/core#votable
    - protocol=ivo://ivoa.net/vospace/core#http-put
- Returns jobid and can be initiated with HTTP POST of single parameter PHASE=RUN to:
  - <http://nvo.caltech.edu/vospace-2.0/transfers/{jobid}/phase>
- Transfer can be aborted with HTTP POST of single parameter PHASE=ABORT to same endpoint
- Can also add PHASE=RUN to job creation post

# Proposition IIIa – UWS for searching

- Search job created with a parameterized HTTP POST to listings endpoint:
  - URL: <http://nvo.caltech.edu/vospace-2.0/searches>
  - Body:
    - detail=min
    - limit=50
    - ...
- How to represent matches:

```
<or>
  <and>
    <match uri="property1"> regex </match>
    <match uri="property2"> regex </match>
  </and>
  <match uri="property3"> regex </match>
</or>
```

“(property1='regex' and property2 = 'regex') or property3='regex'”
- HTTP POST with PHASE=RUN/ABORT to:
  - <http://nvo.caltech.edu/vospace-2.0/searches/{jobid}/phase>

# Proposition IV – extra information

- Resource representation of a container should specify:
  - amount of space available within the container



# Proposition V: Simple HTTP GET

- Simple retrieval access via HTTP(S) – maintain protocol negotiation for advance scenarios
- HTTP(S) URL is persistent – multiple clients retrieve same object given a single URL
- View needs to specified to return appropriate resource:
  - <http://nvo.caltech.edu/vospace-2.0/mydata/table3?view=ivo://net.ivoa/core/views/votable-1.1>
  - May result in redirection to another endpoint if appropriate (transaction logging)
- Use basic form and HTTP negotiation:
  - <http://nvo.caltech.edu/vospace-2.0/mydata/table3?view=data>