VAO VOSpace 2.0 implementation

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Design goals

- Full compatibility with the IVOA VOSpace 2.0 specification
- High scalability on large cluster
- Possibility of minimal installation on small cluster with minimal hardware requirements
- Modular architecture allowing to choose the desired system design

Components

- The VOSpace core – Java REST web-service
- MySQL database – users, transfer jobs, searchable metadata
- Data backend – plugins for minimal and large
- Queueing system – async jobs

- Web UI

Development installation

Web UI

- http://tempsdss.pha.jhu.edu:8080/vospace-2.0

REST endpoint

- http://tempsdss.pha.jhu.edu:8080/vospace-2.0/rest

Source code:

- svn+ssh://usvao-svn@svn.usvao.org/usvao/prototype/vospace/trunk/vospace-2.0/java/merged

All transfer methods supported

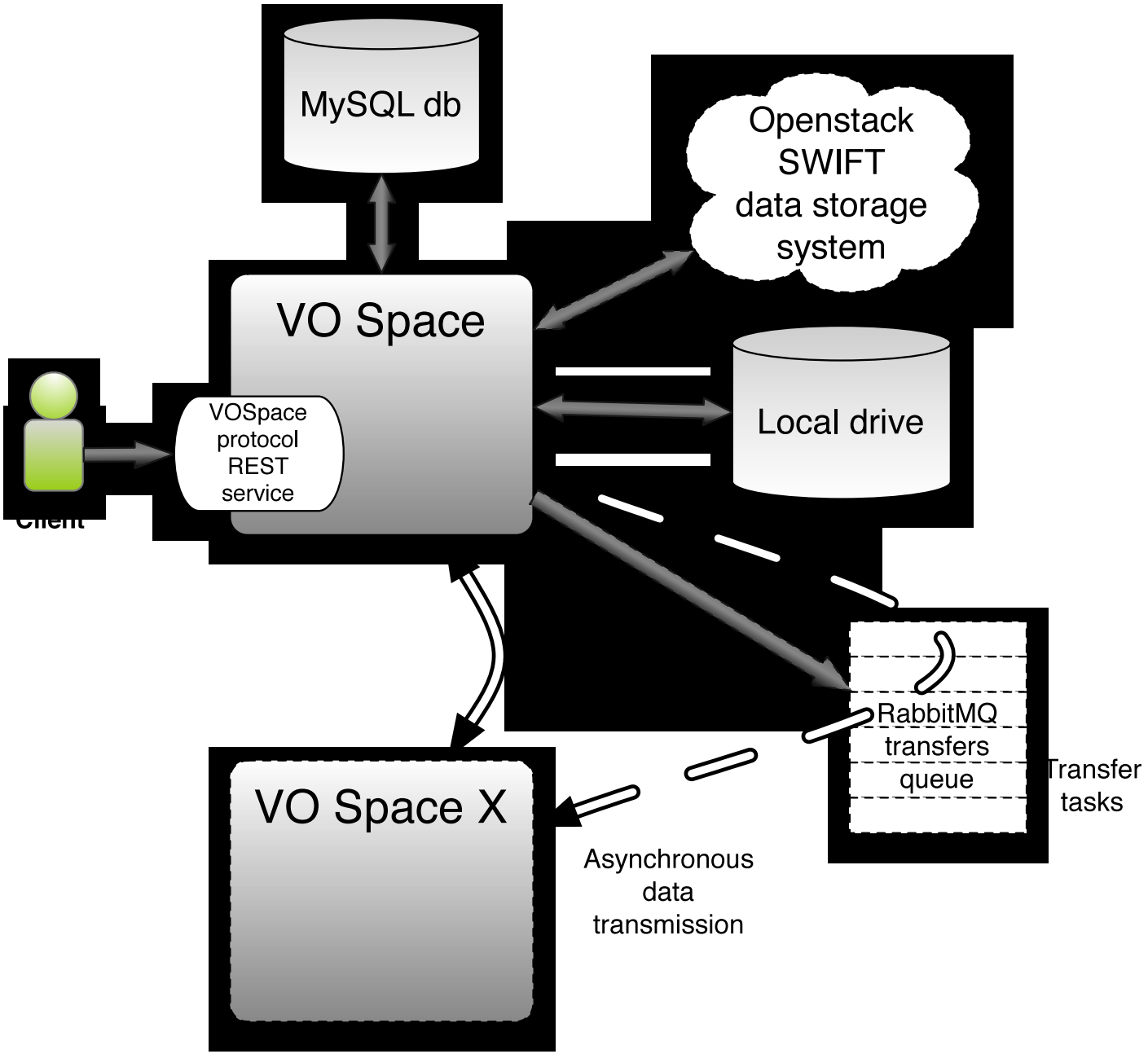
pushToVoSpace

pushFromVoSpace

pullToVoSpace

pullFromVoSpace

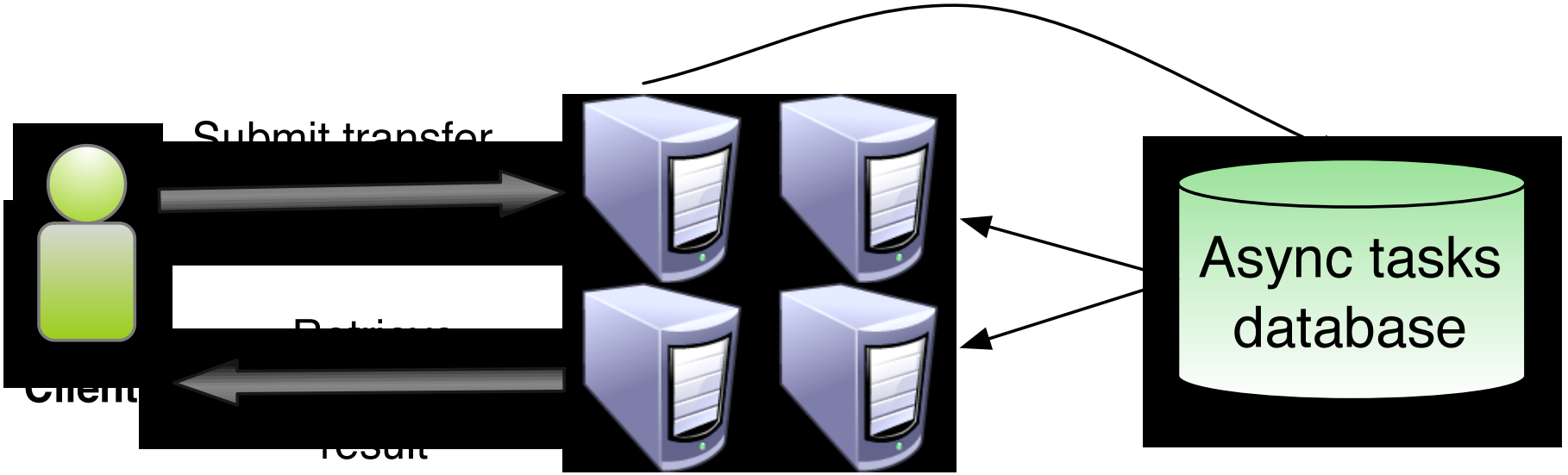
System design



Asyncronous tasks queue

Transfer tasks are distributed among multiple VOSpace instances in a cluster

Scalable bandwidth



Protocols supported

HTTP GET

HTTP PUT

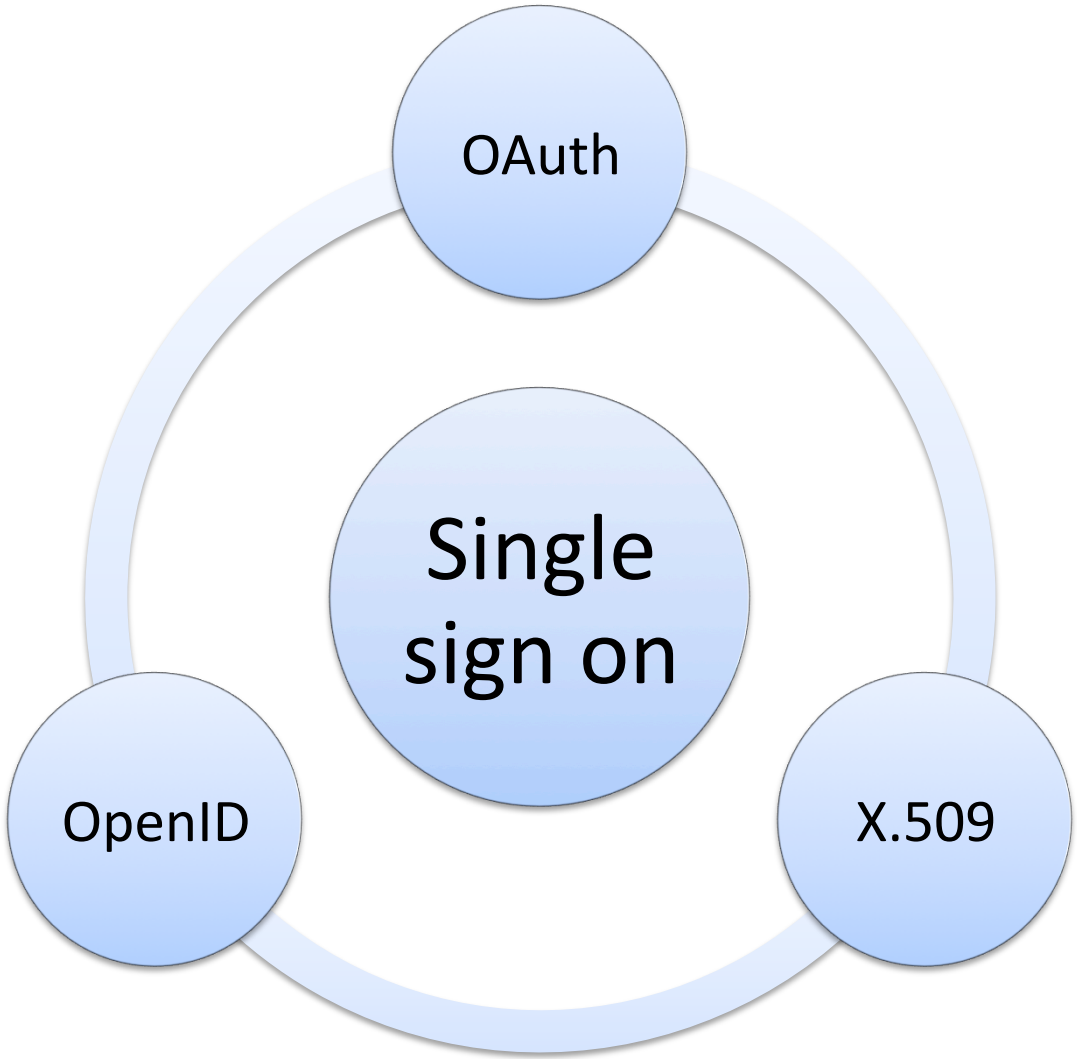
To implement

UDT

Data backend plugins

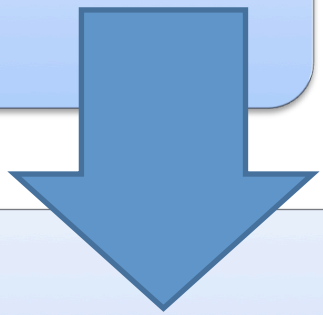
- File store
  - + Easy installation (no additional requirements)
  - − Moderate performance
  - − Hard to scale out
  - − Single point of failure
- Openstack SWIFT: scalable storage for clusters
  - + Great performance
  - + Highly redundant
  - + Easily scalable
  - − Needs additional setup and management
  - − Needs multiple servers to install (>4)

Authorization + authentication



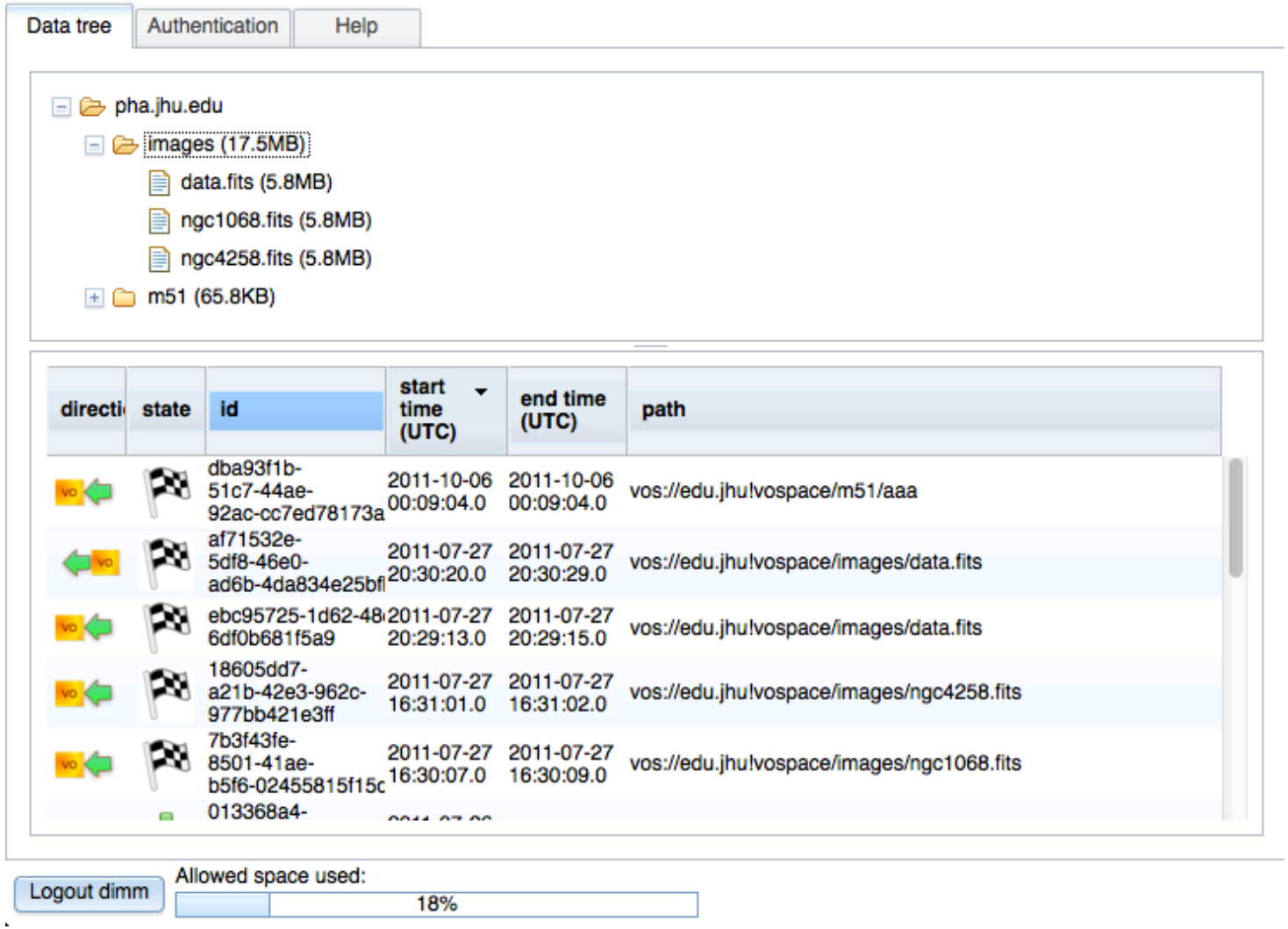
Automatic SSO users mapping

NCSA SSO registered users



Automatic user creation in VOSpace

DOJO Ajax Web interface



Integration with services

Implemented data upload and download from Tap service

- OAuth users authentication
- Single Sign On

Problems

Create transfer task with OAuth authentication

- Service response: 303 See Other

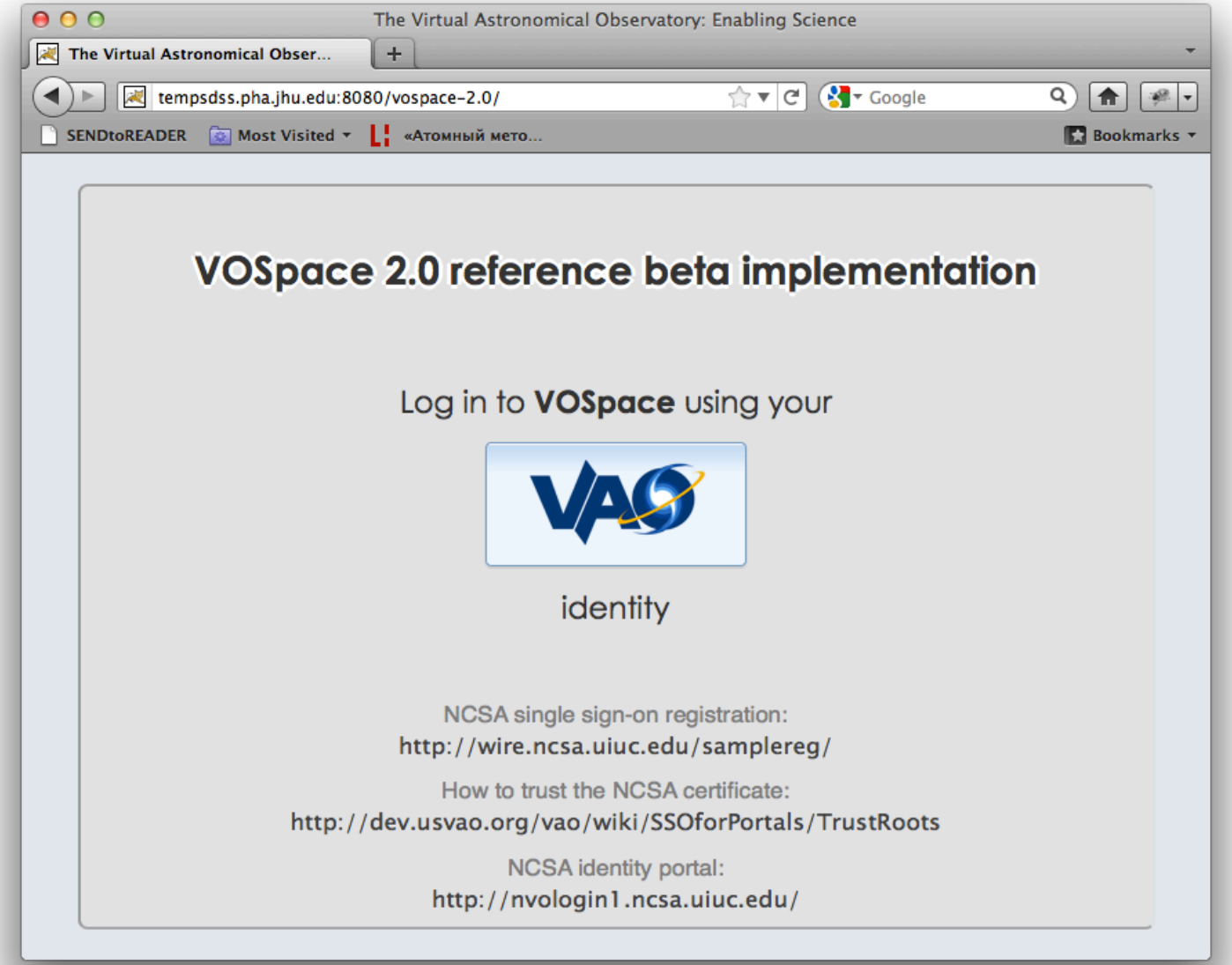
Automatic HTTP GET Location

- Unauthorized

Future work

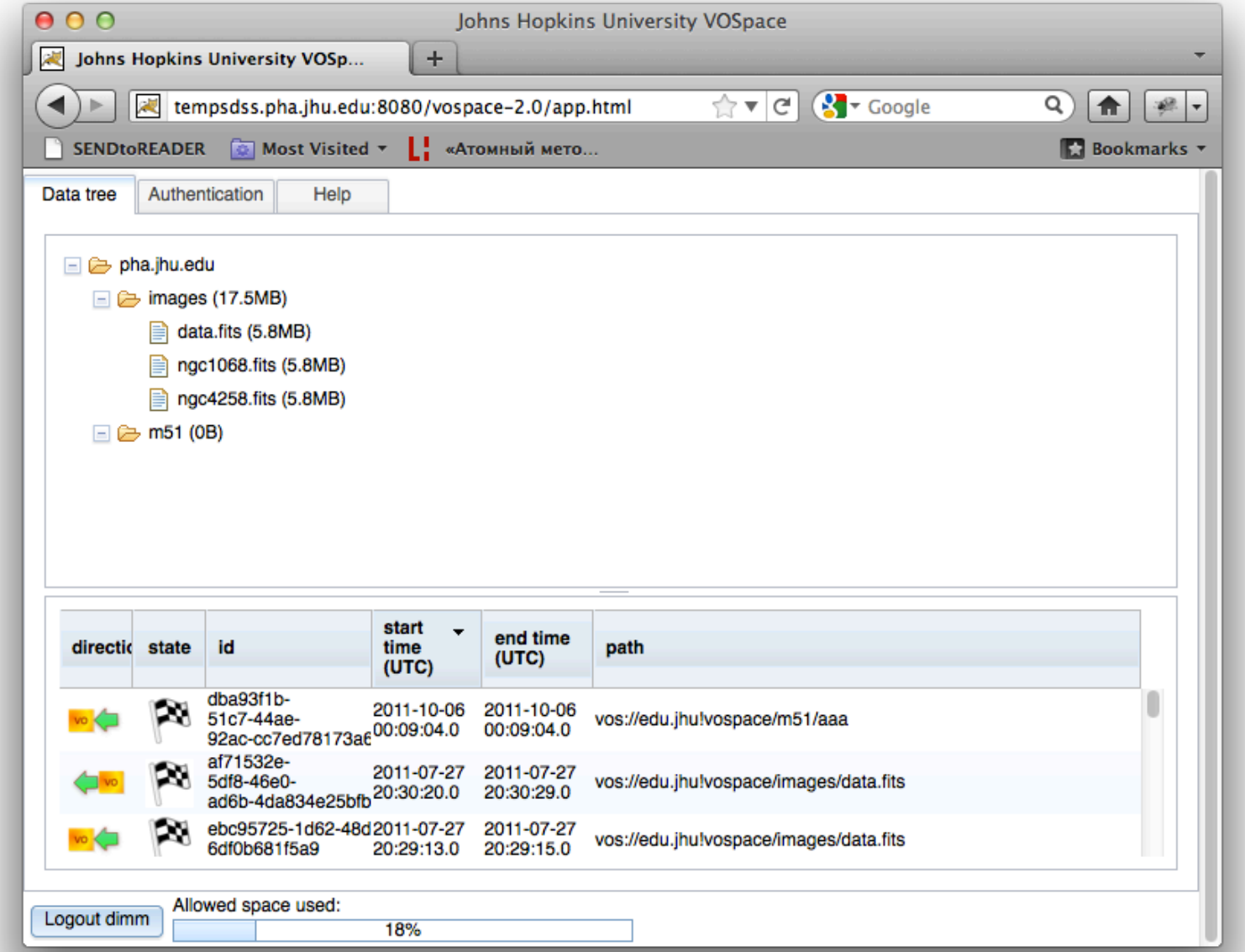
- Structured nodes
- UDT protocol

Title page


The Virtual Astronomical Observatory: Enabling Science
The Virtual Astronomical Obser...
tempsdss.pha.jhu.edu:8080/vospace-2.0/
Google
SENDtoREADER
Most Visited
«Атомный мето...
Bookmarks
VOSpace 2.0 reference beta implementation
Log in to VOSpace using your
identity
NCSA single sign-on registration:
http://wire.ncsa.uiuc.edu/samplereg/
How to trust the NCSA certificate:
http://dev.usvao.org/vao/wiki/SSOforPortals/TrustRoots
NCSA identity portal:
http://nvologin1.ncsa.uiuc.edu/

OpenID login

Main window


Johns Hopkins University VOSpace
Johns Hopkins University VOSp...
tempsdss.pha.jhu.edu:8080/vospace-2.0/app.html
Google
SENDtoREADER
Most Visited
«Атомный мето...
Bookmarks
Data tree
Authentication
Help
pha.jhu.edu
images (17.5MB)
data.fits (5.8MB)
ngc1068.fits (5.8MB)
ngc4258.fits (5.8MB)
m51 (0B)
direction
state
id
start time (UTC)
end time (UTC)
path
dba93f1b-51c7-44ae-92ac-cc7ed78173a6
2011-10-06 00:09:04.0
2011-10-06 00:09:04.0
vos://edu.jhu!vospace/m51/aaa
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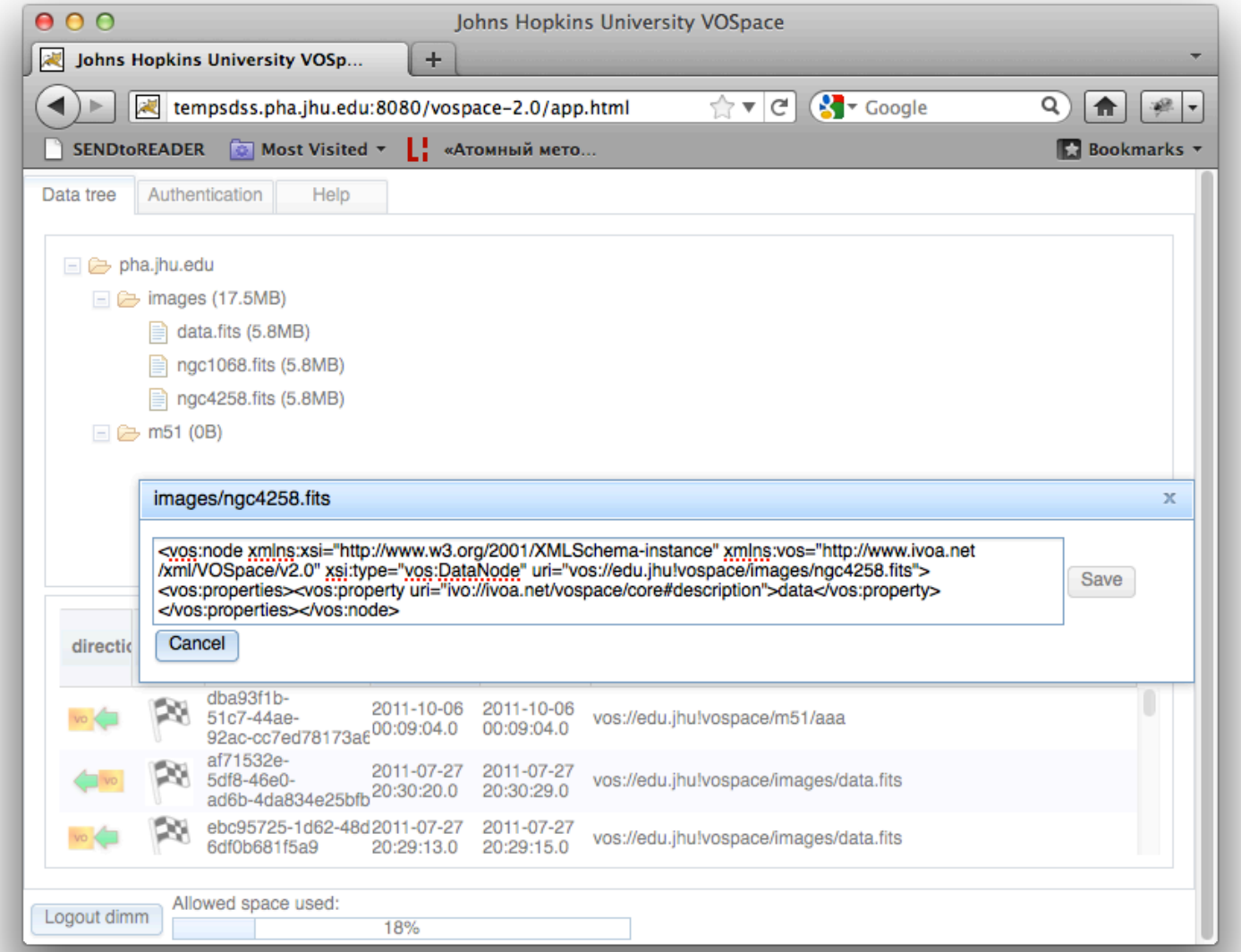
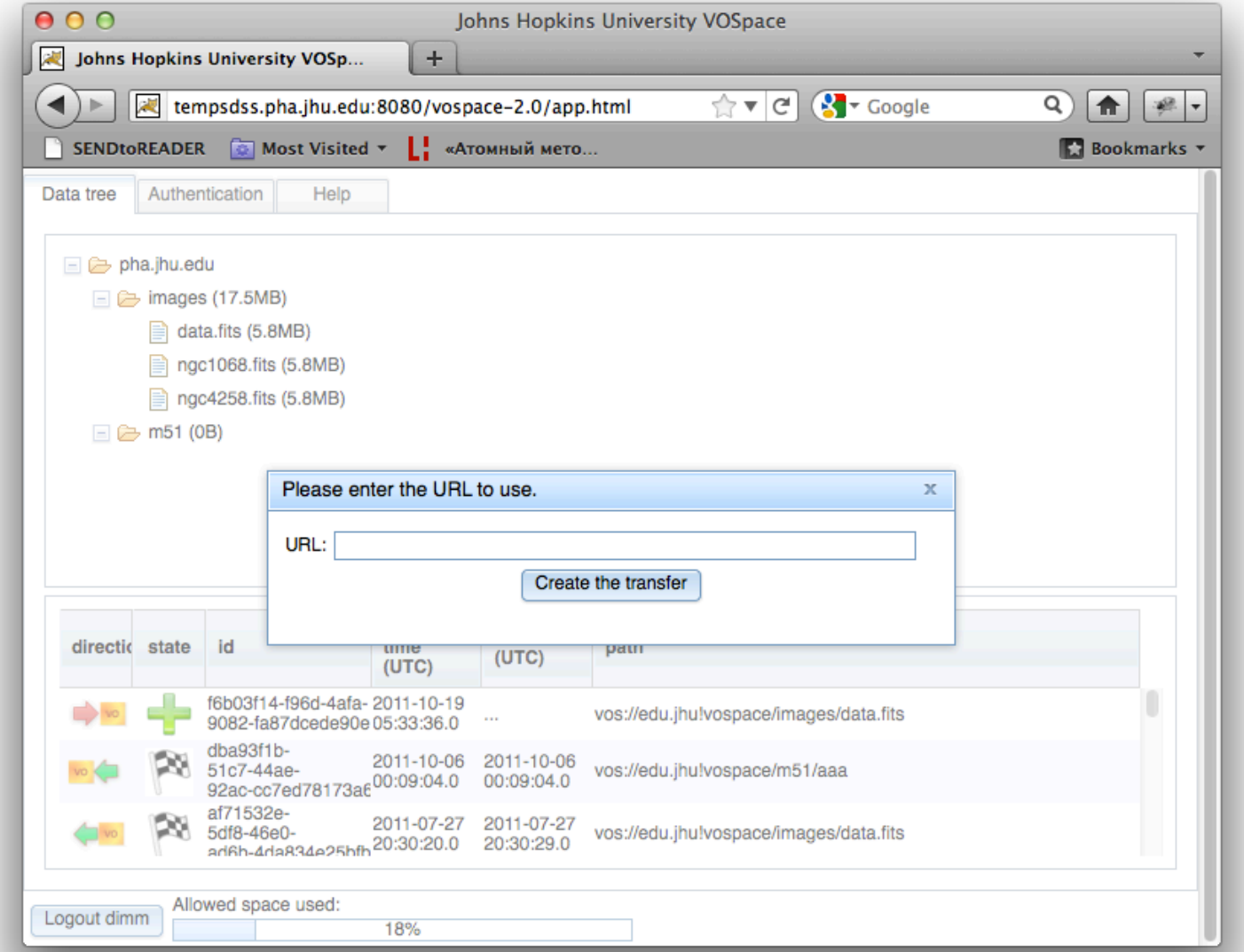
2011-07-27 20:30:20.0
2011-07-27 20:30:29.0
vos://edu.jhu!vospace/images/data.fits
ebc95725-1d62-48d6df0b681f5a9
2011-07-27 20:29:13.0
2011-07-27 20:29:15.0
vos://edu.jhu!vospace/images/data.fits
Logout dimm
Allowed space used:
18%

View node metadata



Create transfer