MIDAS

Tech Talk

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History

- Midas 1.0 started in 2005
- Initially Based on DSpace
  - Open Digital Repository
- Designed to host publications and associated data
- Evolved to be more data centric

Why was it needed?

- Where to host medical images?
  - Needed a subscription for PACS
- Kitware developing an online open-access journal
  - Hosting publications, data and source code
- Used by:
  - Optical Society of America
  - National Library of Medicine (NLM)
  - the National Cancer Institute (NCI)
  - Harvard Medical School

What is Midas?

- Midas Platform is an open-source toolkit that enables the rapid creation of tailored, web-enabled data storage and provides a cohesive system for data management, visualization, and processing
- A content management system for large sets of heterogeneous data
- Enhanced storage system with additional processing.
  - Benefits to stored scientific material

What is Midas?

- Built with large datasets in mind
- Supports data upload and download, batch processing, visualization, and interaction
- Supports files over 4Gb
- Secure
- Access Control
- Community based sharing

Accessing Midas

- Uses a RESTful api
- Accessible through
  - C++
  - Java
  - Python
  - Website
  - Secondary Languages

Benefits

- Store
- Index
- Search
- Access
- Visualize

Benefits: Store

- Midas supports the storing of arbitrary data types
- Manage raw or processed data
- Provides methods for batch and interactive upload

Example

- http://midas3.kitware.com/midas/community/9

Benefits: Index

- Understands scientific data
- Extracts and indexes metadata in more than ten different file types (xml, microsoft word (tm), Adobe(tm) files)
- Automatically indexes header information in more than 20 different image types

Benefits: Search

- System supports OAI data harvesting standards
- Public data is readily discoverable on google
- Private data is searchable locally

Example

- http://midas3.kitware.com/midas/community/9

Benefits: Access

- Provides an open, self documenting web api, allows the construction of applications to interact with the Midas server
- RESTful api
- MidasCPP and Pydas allow easy integration of midas into C++ and python programs

Benefits: Visualize

- Midas readily integrates with a variety of visualization and analysis clients
  - Paraview, 3d slicer, VolView

Case Studies

- http://insight-journal.org/
  - Midas proved infrastructure behind submissions and review process
- http://www.giveascan.org/
  - Midas provides backend database
- http://www.opticsinfobase.org/isp.cfm
  - Midas allows for the sharing, processing, storing, and peer reviewing of journal submissions

live demo

File Browser

http://dpbld04a.cs.unc.edu/midas/

Visualization Integration

http://paraviewweb.kitware.com/PWApp/

(needs WebGL)

web apis/demo

http://dpbld04a.cs.unc.edu/midas/api

JSON API test

```
#!/bin/sh
wget "$1" -o /dev/null -O - | \
    python -mjson.tool
```

```
wgetjson 'http://dpbld04a.cs.unc.edu/midas/api/json?method=midas.version'
        # verify that the MIDAS server API URL is correct.
wgetjson 'http://dpbld04a.cs.unc.edu/midas/api/json?method=midas.login'
        # should fail, because no login info
wgetjson 'http://dpbld04a.cs.unc.edu/midas/api/json?method=midas.login&
    email=halcanary@gmail.com&apikey=TUZvgO8aDYbv9NkDgUPrGeWMD6vgxCmhm
    cCsQAsj&appname=scanner'
        # get a token
wgetjson 'http://dpbld04a.cs.unc.edu/midas/api/json?method=midas.community.list&
    token=hAXPQnCF1bIHD7O6ApEBvVyUpAHQfnxmNk2uyuZq'
        # get a list of communities
```