Identity Access and Management with Globus

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Globus Auth: Foundational IAM service

- **Protects REST API communications between and among apps and services**
- **Federated login for diverse app ecosystem**
- **Based on OAuth2 and OpenID Connect**
  - Least privileges security model: scopes/consents
  - Access via OAuth2 and OIDC libraries of your choice
  - Programming language and framework agnostic

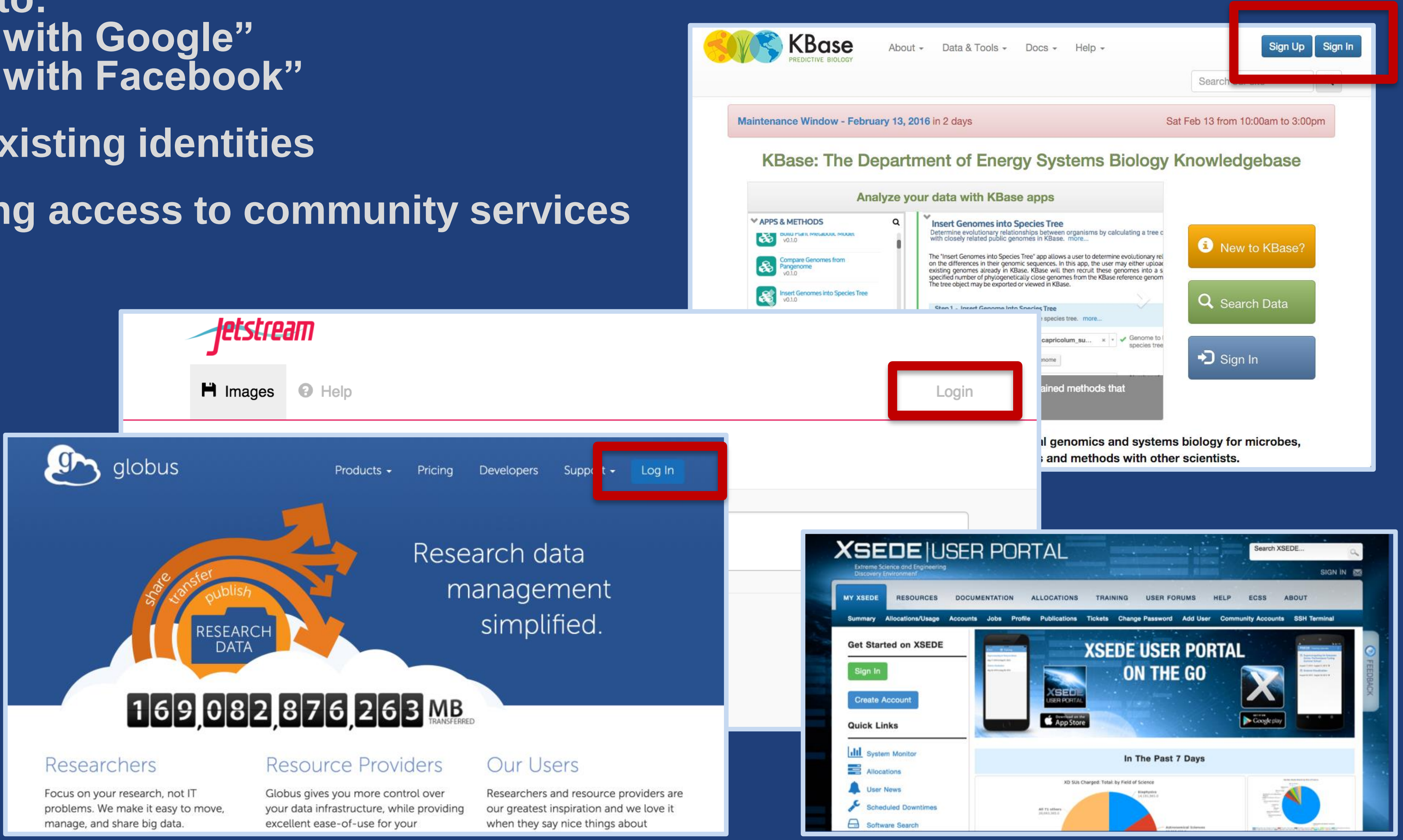
Globus Auth: Identity broker for research apps

Brokers authentication and authorization among…

- End-users
- Identity providers: enterprise, external (e.g. Google)
- Services: resource servers with REST APIs
- Apps: web, mobile, desktop, command line clients
- Services acting as clients to other services

Use Case: Log in with Globus

- **Similar to:**
  “Log in with Google”
  “Log in with Facebook”
- **Using existing identities**
- **Providing access to community services**



Insert Genomes into Species Tree

Determine evolutionary relationships between organisms by calculating a tree c... with closely related public genomes in KBase. more...

al genomics and systems biology for microbes, ... and methods with other scientists.

Research data management simplified.

Researchers

Focus on your research, not IT problems. We make it easy to move, manage, and share big data.

Resource Providers

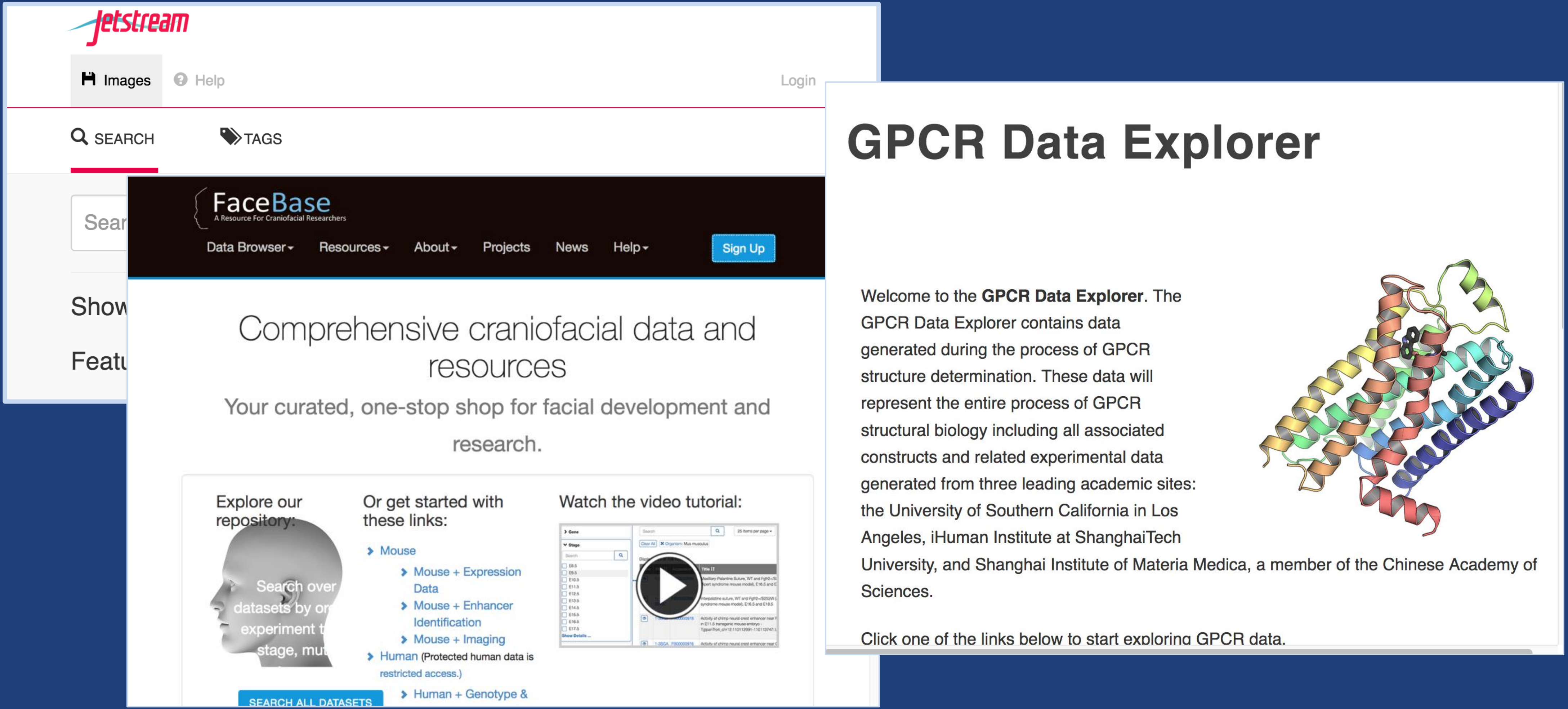
Globus gives you more control over your data infrastructure, while providing excellent ease-of-use for your

Our Users

Researchers and resource providers are our greatest inspiration and we love it when they say nice things about

Use Case: App calling service on user’s behalf

Authorization Code Grant



Comprehensive craniofacial data and resources

Your curated, one-stop shop for facial development and research.

Explore our repository:

Search over datasets by or experiment t stage, mu

Or get started with these links:

- Mouse
  - Mouse + Expression Data
  - Mouse + Enhancer Identification
  - Mouse + Imaging
- Human (Protected human data is restricted access.)
  - Human + Genotype &

Watch the video tutorial:

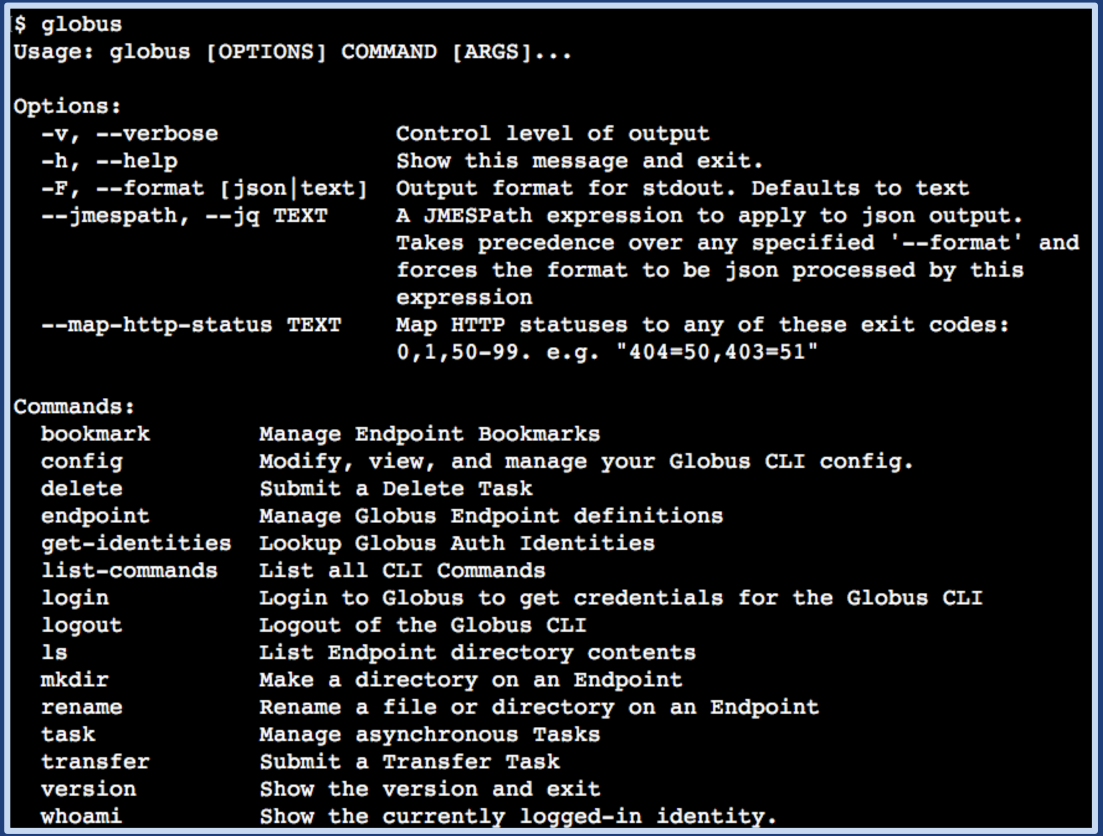
GPCR Data Explorer

Welcome to the **GPCR Data Explorer**. The GPCR Data Explorer contains data generated during the process of GPCR structure determination. These data will represent the entire process of GPCR structural biology including all associated constructs and related experimental data generated from three leading academic sites: the University of Southern California in Los Angeles, iHuman Institute at ShanghaiTech University, and Shanghai Institute of Materia Medica, a member of the Chinese Academy of Sciences.

Click one of the links below to start exploring GPCR data.

Use Case: Native Apps calling services

Native App Code Grant



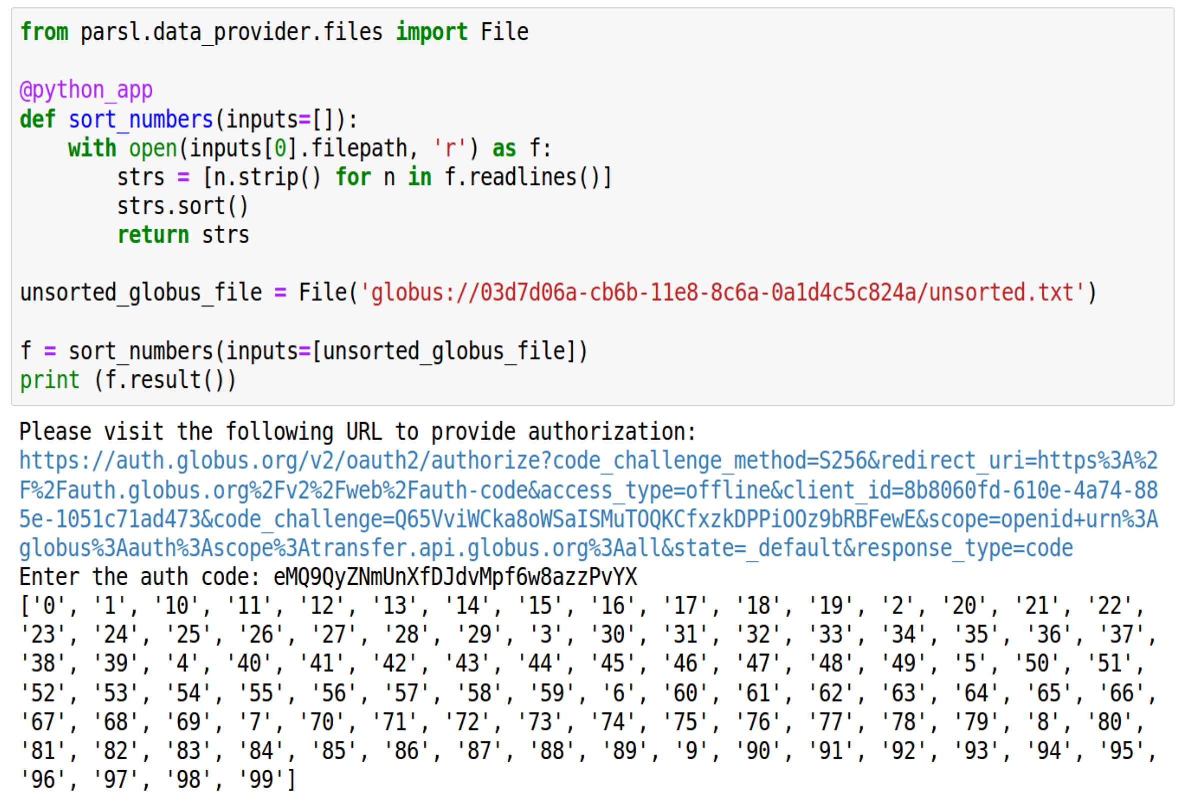
```
$ globus
Usage: globus [OPTIONS] COMMAND [ARGS]...

Options:
  -v, --verbose              Control level of output
  -h, --help                 Show this message and exit.
  -F, --format [json|text]   Output format for stdout. Defaults to text
  --jmespath, --jq TEXT      A JMESPath expression to apply to json output.
                             Takes precedence over any specified '--format' and
                             forces the format to be json processed by this
                             expression
  --map-http-status TEXT     Map HTTP statuses to any of these exit codes:
                             0,1,50-99. e.g. "404=50,403=51"

Commands:
  bookmark        Manage Endpoint Bookmarks
  config          Modify, view, and manage your Globus CLI config.
  delete          Submit a Delete Task
  endpoint        Manage Globus Endpoint definitions
  get-identities  Lookup Globus Auth Identities
  list-commands   List all CLI Commands
  login           Login to Globus to get credentials for the Globus CLI
  logout          Logout of the Globus CLI
  ls              List Endpoint directory contents
  mkdir           Make a directory on an Endpoint
  rename          Rename a file or directory on an Endpoint
  task            Manage asynchronous Tasks
  transfer        Submit a Transfer Task
  version         Show the version and exit
  whoami          Show the currently logged-in identity.
```

Globus command line client application

Parsl



```python
from parsl.data_provider.files import File

@python_app
def sort_numbers(inputs=[]):
    with open(inputs[0].filepath, 'r') as f:
        strs = [n.strip() for n in f.readlines()]
        strs.sort()
        return strs

unsorted_globus_file = File('globus://03d7d06a-cb6b-11e8-8c6a-0a1d4c5c824a/unsorted.txt')

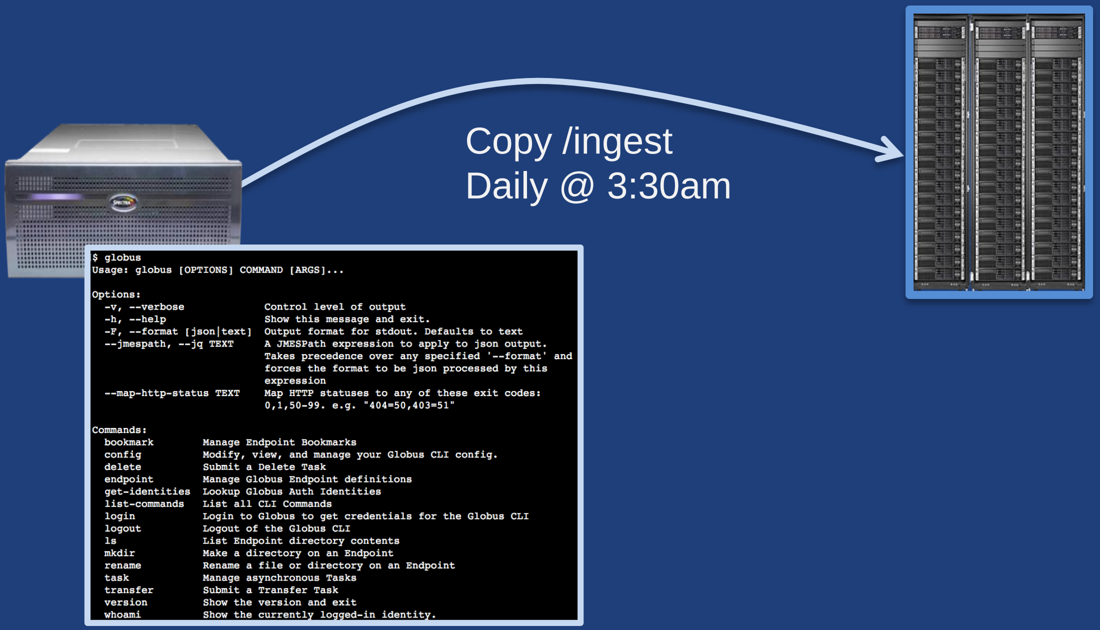
f = sort_numbers(inputs=[unsorted_globus_file])
print (f.result())
```

```
Please visit the following URL to provide authorization:
https://auth.globus.org/v2/oauth2/authorize?code_challenge_method=S256&redirect_uri=https%3A%2
F%2Fauth.globus.org%2Fv2%2Fweb%2Fauth-code&access_type=offline&client_id=8b8060fd-610e-4a74-88
5e-1051c71ad473&code_challenge=Q65VviWCka8oWSaISMuTOQKCfxzkDPPiOOz9bRBFewE&scope=openid+urn%3A
globus%3Aauth%3Ascope%3Atransfer.api.globus.org%3Aall&state=_default&response_type=code
Enter the auth code: eMQ9QyZNmUnXfDJdvMpf6w8azzPvYX
['0', '1', '10', '11', '12', '13', '14', '15', '16', '17', '18', '19', '2', '20', '21', '22',
'23', '24', '25', '26', '27', '28', '29', '3', '30', '31', '32', '33', '34', '35', '36', '37',
'38', '39', '4', '40', '41', '42', '43', '44', '45', '46', '47', '48', '49', '5', '50', '51',
'52', '53', '54', '55', '56', '57', '58', '59', '6', '60', '61', '62', '63', '64', '65', '66',
'67', '68', '69', '7', '70', '71', '72', '73', '74', '75', '76', '77', '78', '79', '8', '80',
'81', '82', '83', '84', '85', '86', '87', '88', '89', '9', '90', '91', '92', '93', '94', '95',
'96', '97', '98', '99']
```

High performance, high throughput, computing workflows

Use Case: Apps that need offline access

Refresh tokens



Copy /ingest
Daily @ 3:30am

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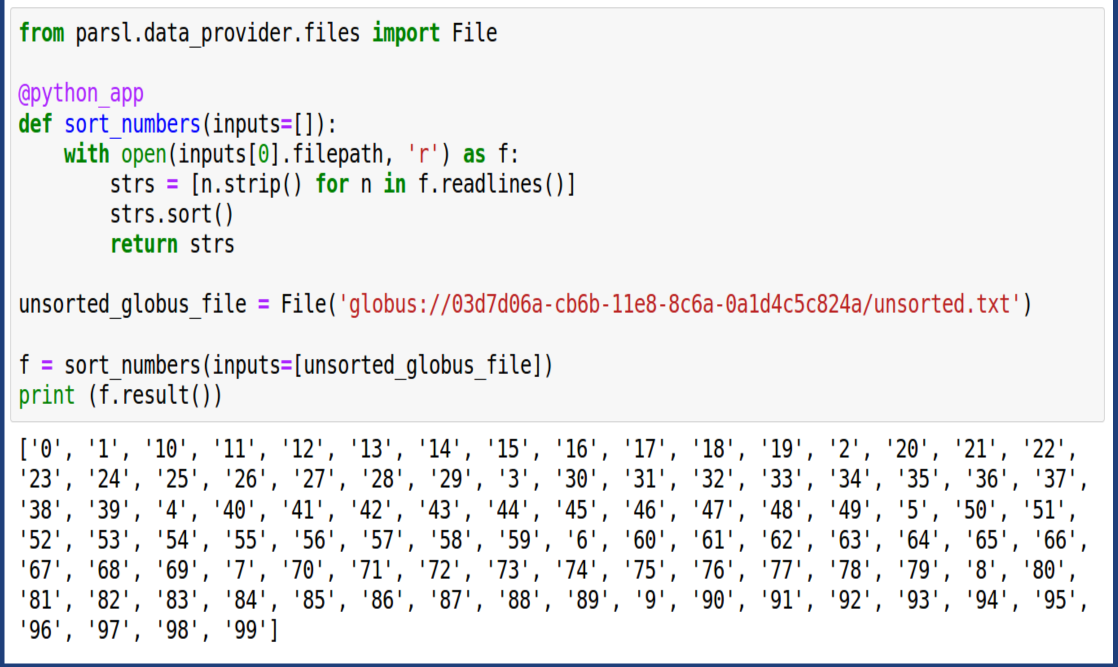
Recurring transfers with sync option



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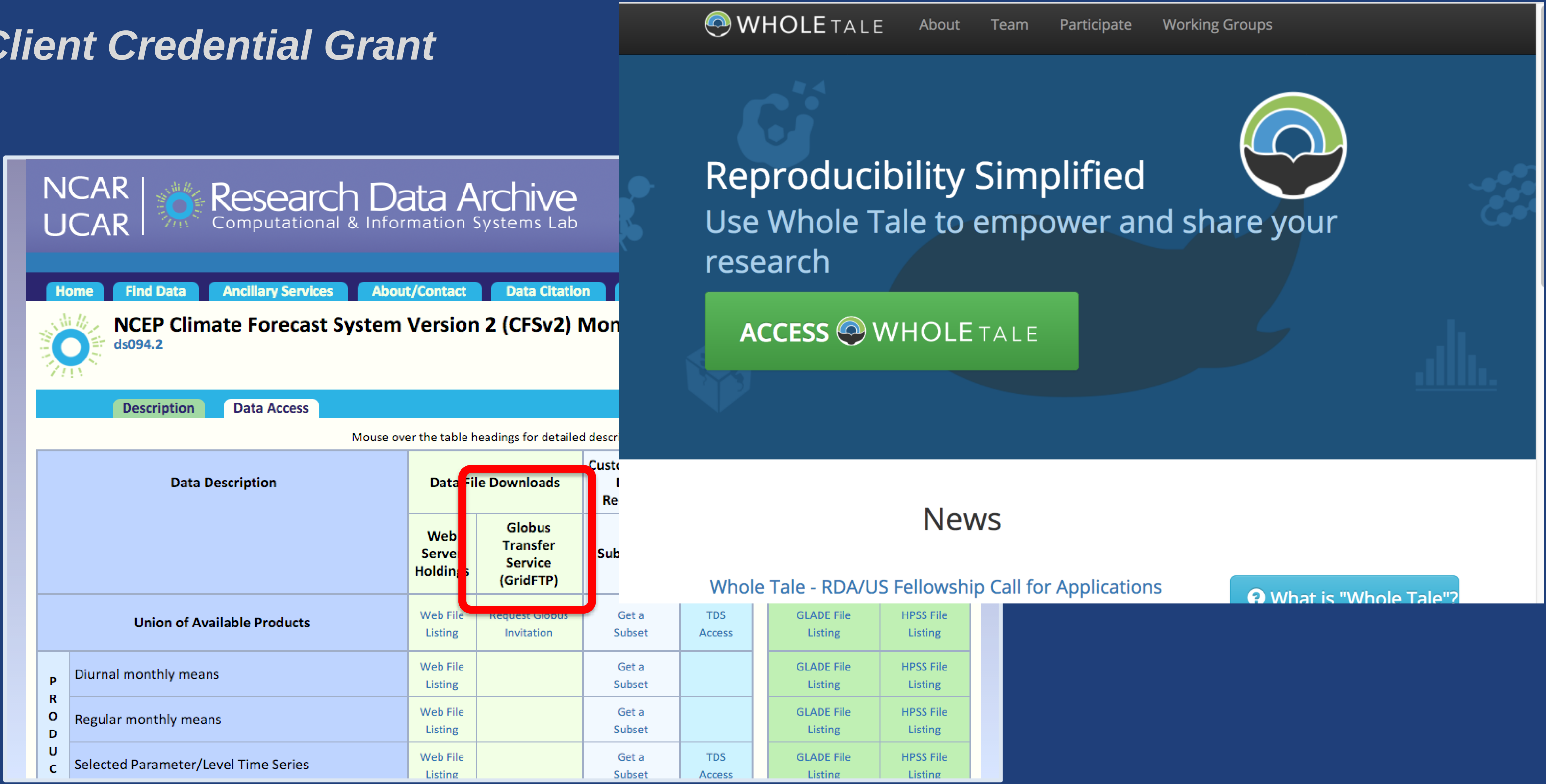
```

High performance, high throughput, computing workflows

Use Case: Apps invoking service as itself

Client Credential Grant



NCAR UCAR Research Data Archive
Computational & Information Systems Lab

Home | Find Data | Ancillary Services | About/Contact | Data Citation

NCEP Climate Forecast System Version 2 (CFSv2) Mon
ds094.2

Description | Data Access

Mouse over the table headings for detailed descr

	Data Description	Data File Downloads		Custo I Re			
		Web Server Holdings	Globus Transfer Service (GridFTP)	Sub			
	Union of Available Products	Web File Listing	Request Globus Invitation	Get a Subset	TDS Access	GLADE File Listing	HPSS File Listing
P R O D U C	Diurnal monthly means	Web File Listing		Get a Subset		GLADE File Listing	HPSS File Listing
	Regular monthly means	Web File Listing		Get a Subset		GLADE File Listing	HPSS File Listing
	Selected Parameter/Level Time Series	Web File Listing		Get a Subset	TDS Access	GLADE File Listing	HPSS File Listing

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Reproducibility Simplified

Use Whole Tale to empower and share your research

ACCESS WHOLETALE

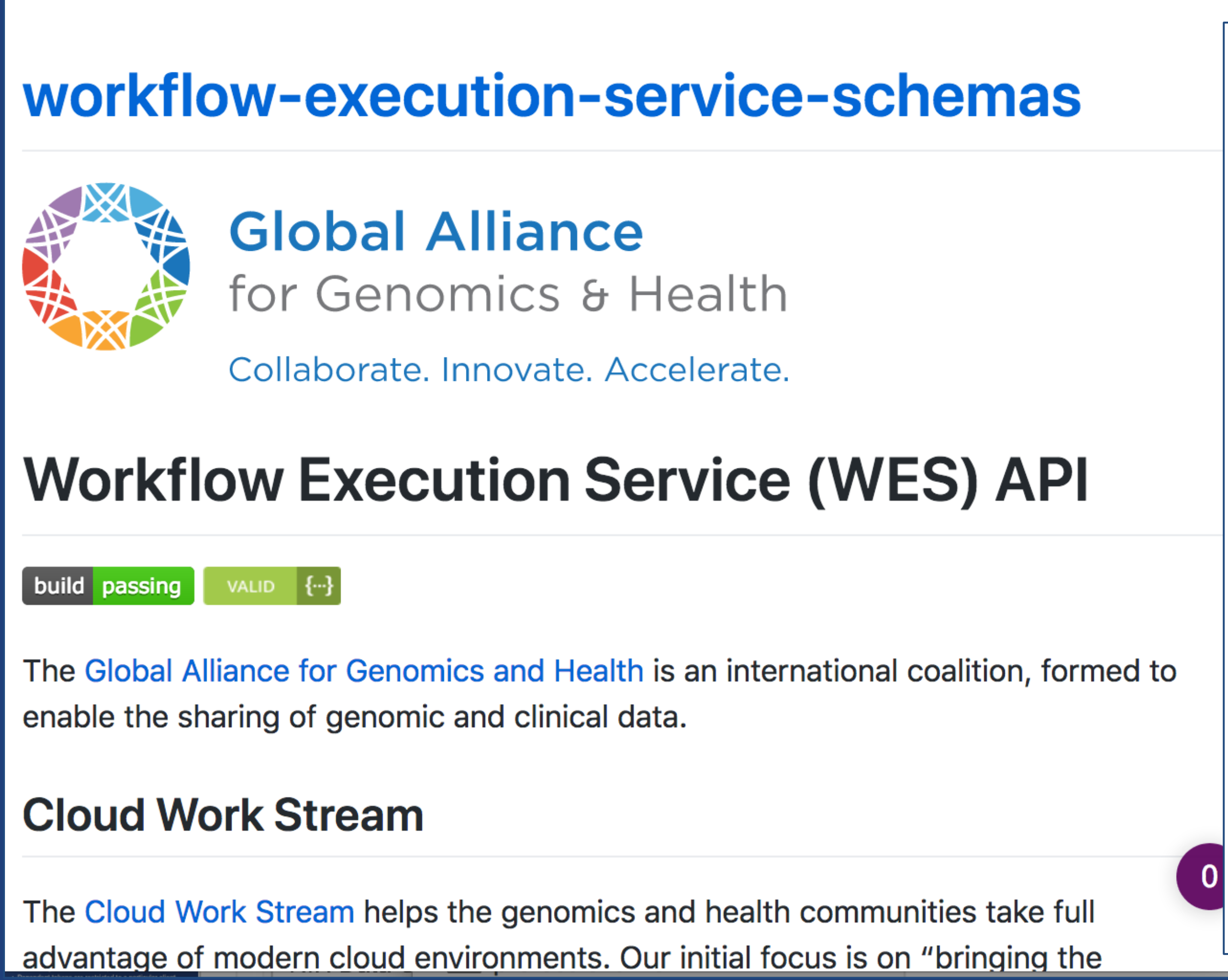
News

Whole Tale - RDA/US Fellowship Call for Applications

What is "Whole Tale"?

Examples: Securing service’s REST API

Outsource all IAM, authorization on your own



workflow-execution-service-schemas

Global Alliance
for Genomics & Health

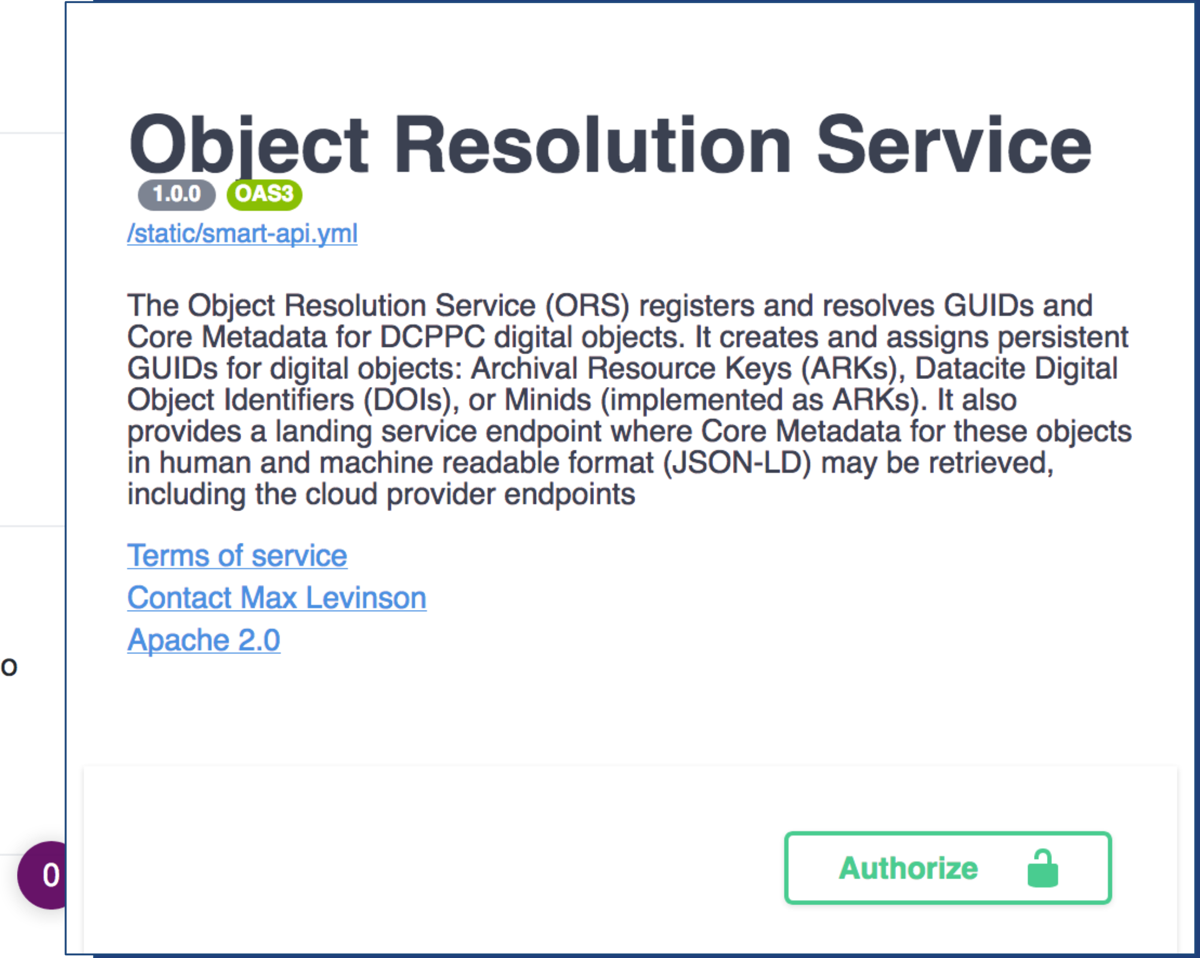
Collaborate. Innovate. Accelerate.

Workflow Execution Service (WES) API

The Global Alliance for Genomics and Health is an international coalition, formed to enable the sharing of genomic and clinical data.

Cloud Work Stream

The Cloud Work Stream helps the genomics and health communities take full advantage of modern cloud environments. Our initial focus is on “bringing the



Object Resolution Service

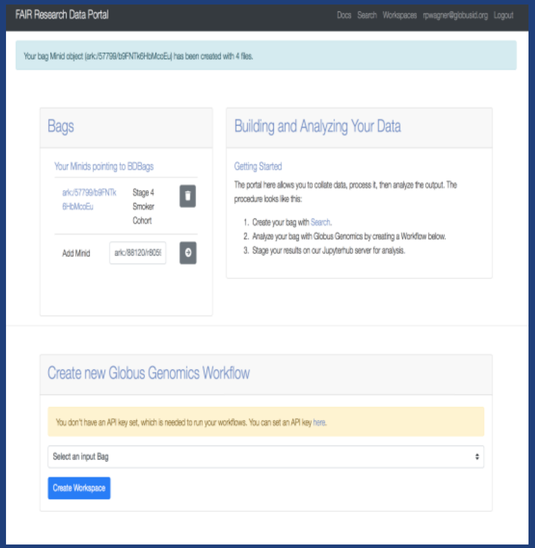
/static/smart-api.yml

The Object Resolution Service (ORS) registers and resolves GUIDs and Core Metadata for DCPPC digital objects. It creates and assigns persistent GUIDs for digital objects: Archival Resource Keys (ARKs), Datacite Digital Object Identifiers (DOIs), or Minids (implemented as ARKs). It also provides a landing service endpoint where Core Metadata for these objects in human and machine readable format (JSON-LD) may be retrieved, including the cloud provider endpoints

Terms of service
Contact Max Levinson
Apache 2.0

Use case: Invoking dependent services

Restricted delegation down the call chain



Your bag Minid object (ark:/57799/b9FNTk6HbMcoEu) has been created with 4 files.

Bags

Your Minids pointing to BDBags

ark:/57799/b9FNTk6HbMcoEu	Stage 4 Smoker Cohort	
Add Minid	ark:/88120/r805(	

Building and Analyzing Your Data

Getting Started

The portal here allows you to collate data, process it, then analyze the output. The procedure looks like this:

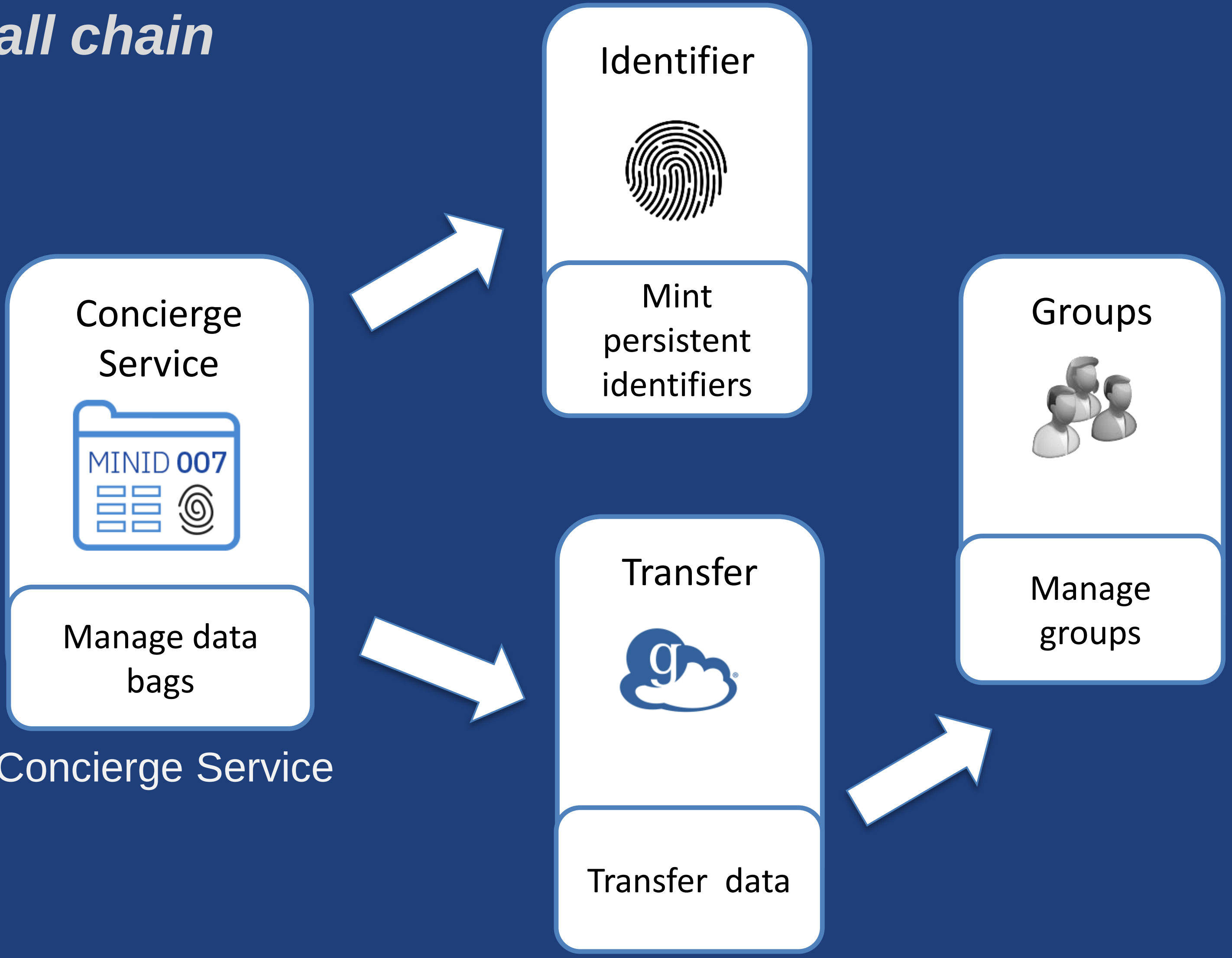
1. Create your bag with Search.
2. Analyze your bag with Globus Genomics by creating a Workflow below.
3. Stage your results on our Jupyterhub server for analysis.

Create new Globus Genomics Workflow

You don't have an API key set, which is needed to run your workflows. You can set an API key here.

Select an input Bag

FAIR Research
Data Portal



Concierge Service

High Assurance support in Globus Auth

- Determine which identities in a user’s identity set have been used to authenticate and when
- Session context = app instance, device
- Information returned via token introspection
- Services make access control decisions
- Failed operation → app generates specific redirect URL

docs.globus.org/api/auth/sessions

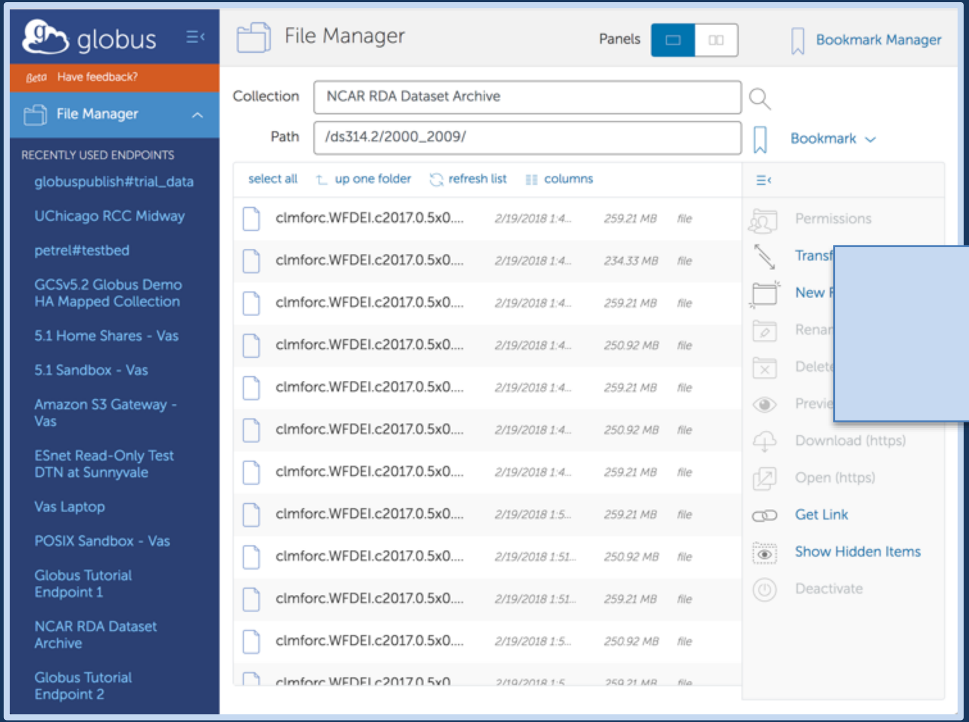
Services using high assurance features

- **Globus transfer and groups**
- **Additional authentication assurance**
  - – Enforce user authentication with specific identity within session with specific timeframe
- **Application instance isolation**
  - – Authentication context is per app, per session

Additional authentication assurance

userX@anl.gov

userX@anl.gov



globus

Beta Have feedback?

File Manager

RECENTLY USED ENDPOINTS

- globuspublish#trial_data
- UChicago RCC Midway
- petrel#testbed
- GCSv5.2 Globus Demo HA Mapped Collection
- 5.1 Home Shares - Vas
- 5.1 Sandbox - Vas
- Amazon S3 Gateway - Vas
- ESnet Read-Only Test DTN at Sunnyvale
- Vas Laptop
- POSIX Sandbox - Vas
- Globus Tutorial Endpoint 1
- NCAR RDA Dataset Archive
- Globus Tutorial Endpoint 2

File Manager

Panels

Bookmark Manager

Collection: NCAR RDA Dataset Archive

Path: /ds314.2/2000_2009/

Bookmark

select all · up one folder · refresh list · columns

clmforc.WFDEI.c2017.0.5x0....	2/19/2018 1:4...	259.21 MB	file
clmforc.WFDEI.c2017.0.5x0....	2/19/2018 1:4...	234.33 MB	file
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clmforc.WFDEI.c2017.0.5x0....	2/19/2018 1:51...	250.92 MB	file
clmforc.WFDEI.c2017.0.5x0....	2/19/2018 1:51...	259.21 MB	file
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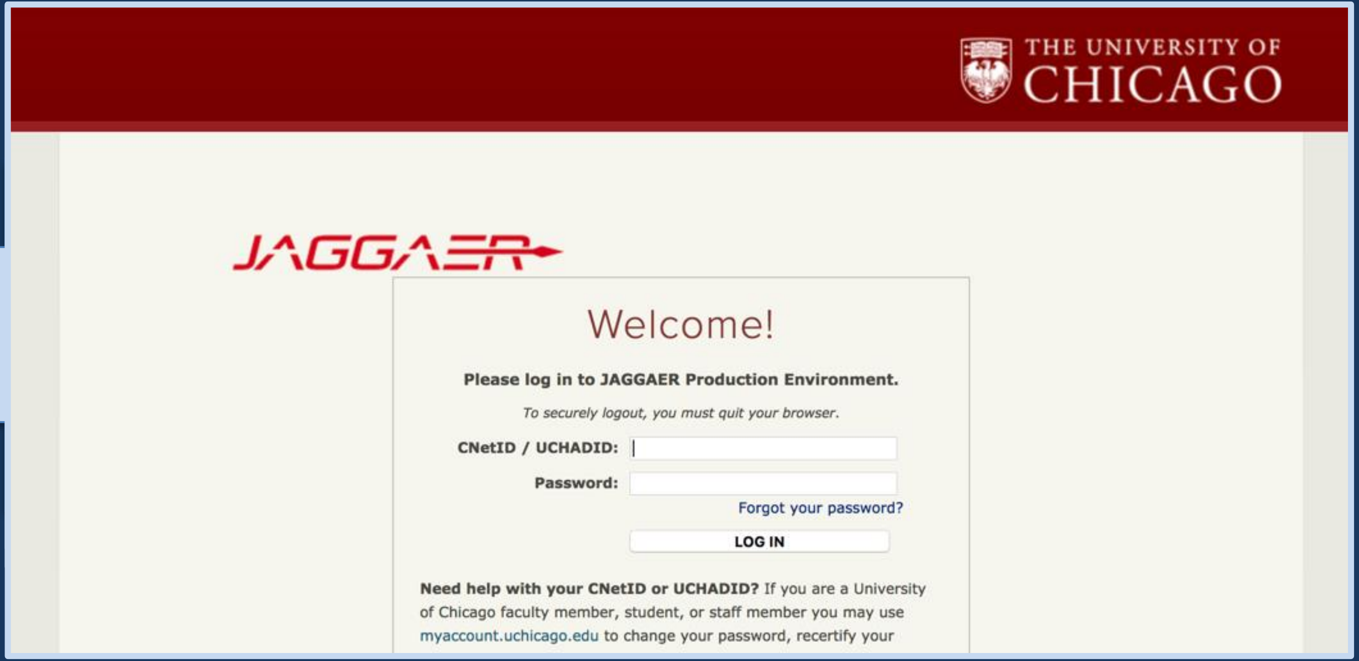


THE UNIVERSITY OF CHICAGO

JAGGAER

Welcome!

Please log in to JAGGAER Production Environment.

To securely logout, you must quit your browser.

CNetID / UCHADID:

Password:

Forgot your password?

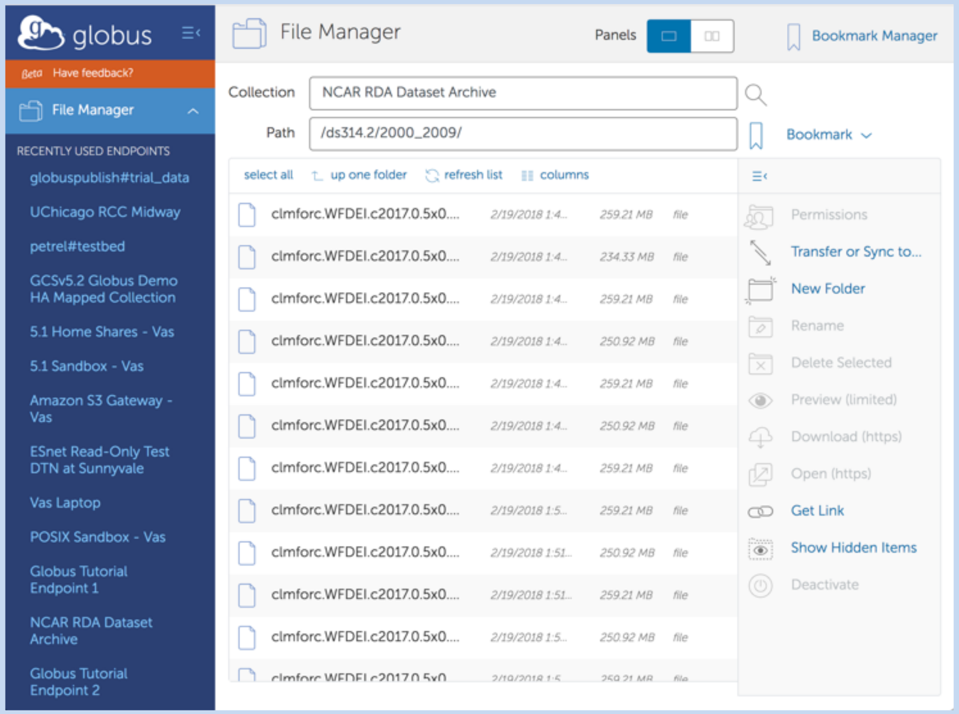
LOG IN

Need help with your CNetID or UCHADID? If you are a University of Chicago faculty member, student, or staff member you may use myaccount.uchicago.edu to change your password, recertify your

Additional authentication assurance

userX@anl.gov

userX@uchicago.edu



globus

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File Manager — Panels — Bookmark Manager

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select all — up one folder — refresh list — columns

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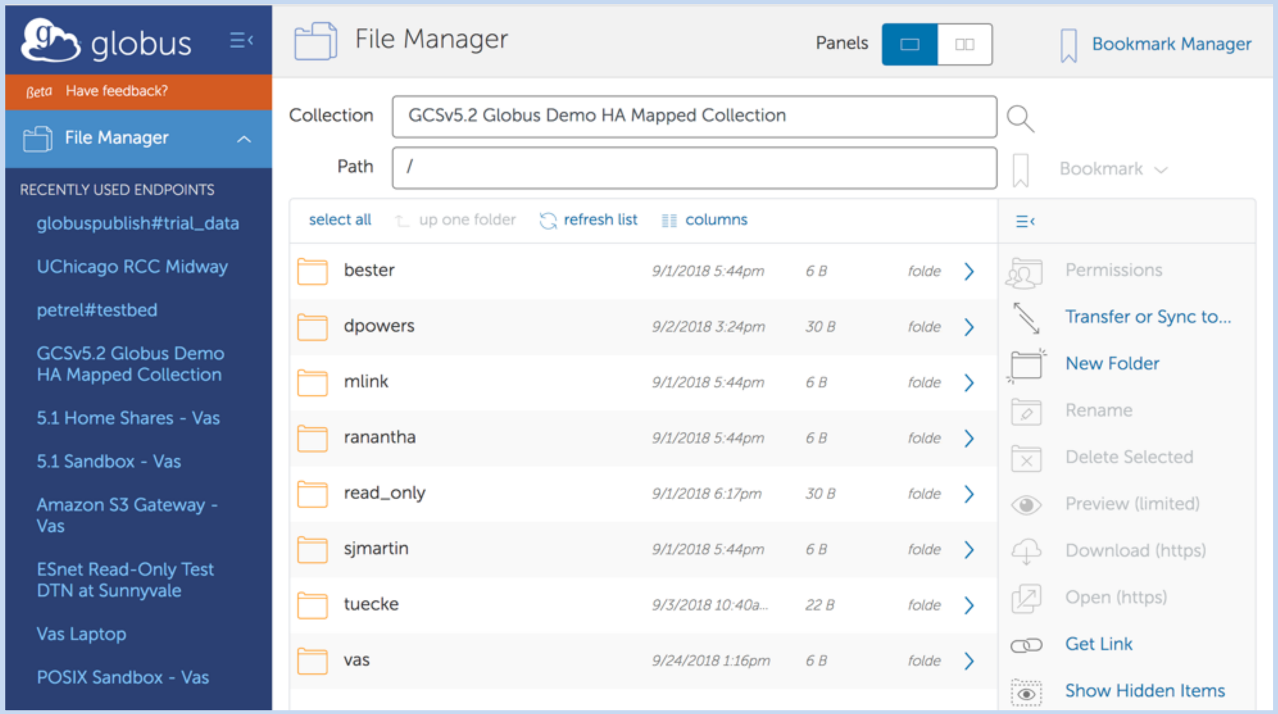

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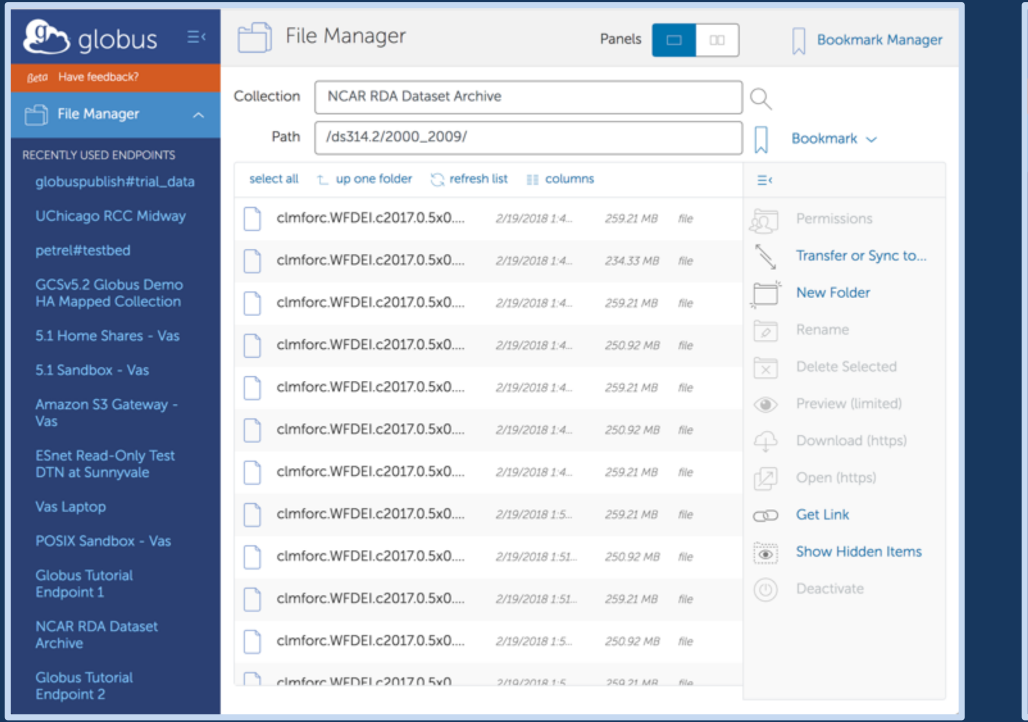
Bookmark

select all — up one folder — refresh list — columns

bester	9/1/2018 5:44pm	6 B	folde
dpowers	9/2/2018 3:24pm	30 B	folde
mlink	9/1/2018 5:44pm	6 B	folde
ranantha	9/1/2018 5:44pm	6 B	folde
read_only	9/1/2018 6:17pm	30 B	folde
sjmartin	9/1/2018 5:44pm	6 B	folde
tuecke	9/3/2018 10:40a...	22 B	folde
vas	9/24/2018 1:16pm	6 B	folde

Re-authentication timeout

userX@anl.gov



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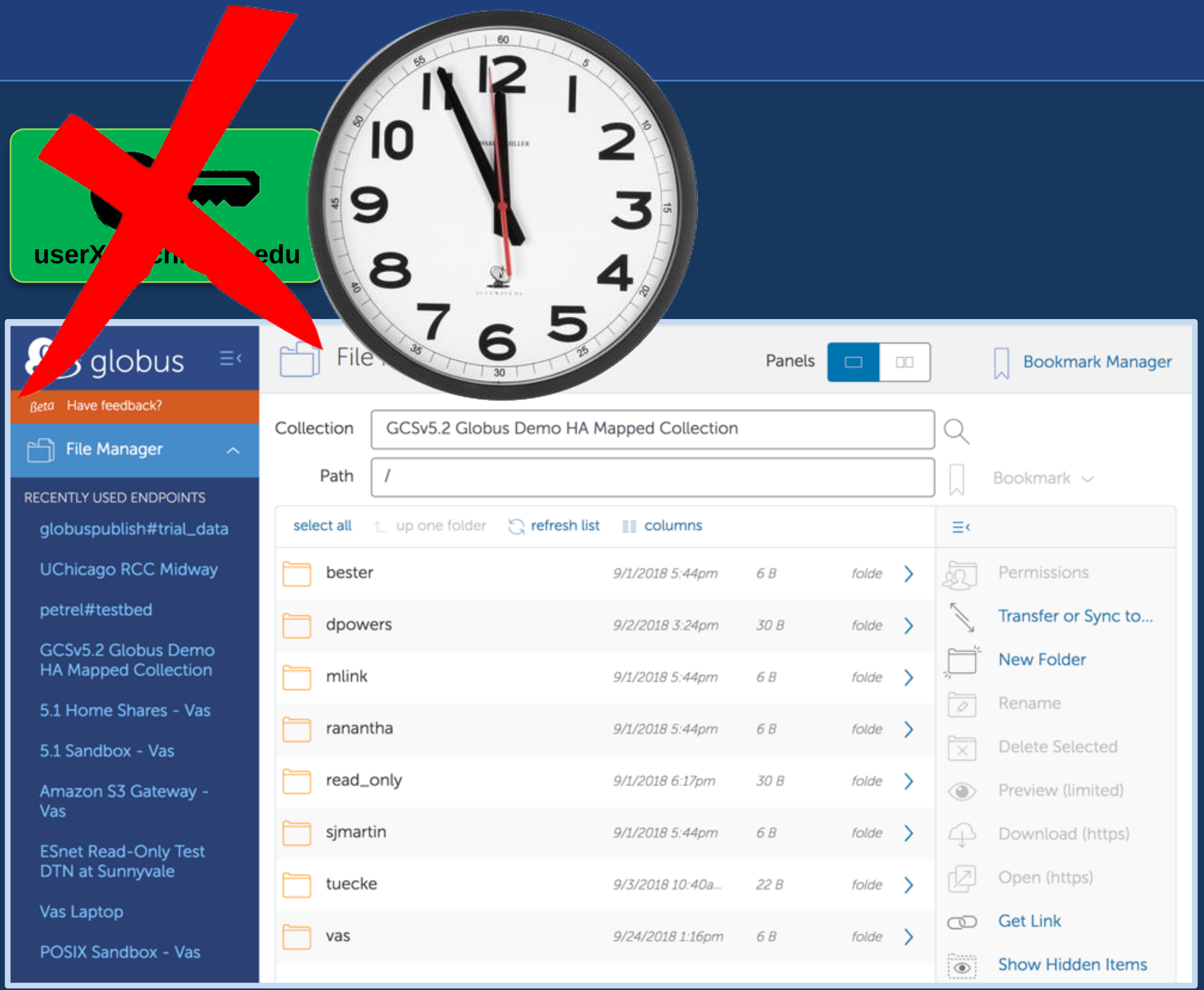

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select all — up one folder — refresh list — columns

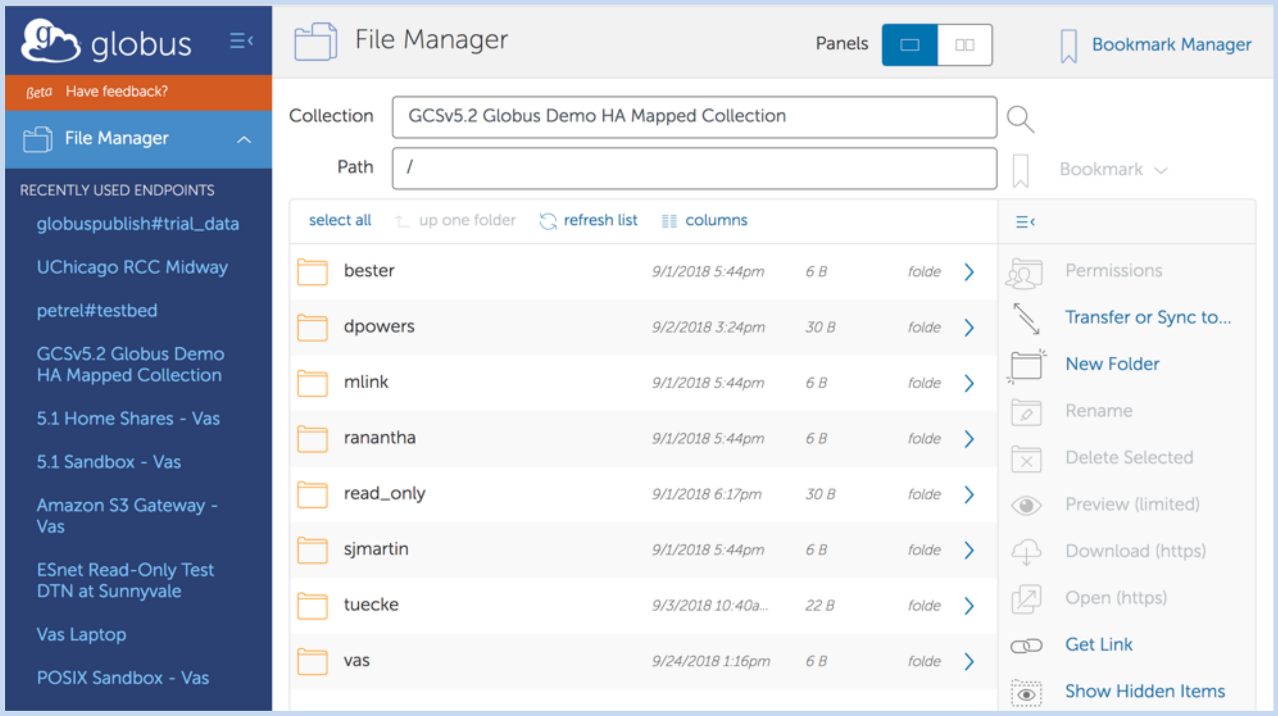
bester	9/1/2018 5:44pm	6 B	folde
dpowers	9/2/2018 3:24pm	30 B	folde
mlink	9/1/2018 5:44pm	6 B	folde
ranantha	9/1/2018 5:44pm	6 B	folde
read_only	9/1/2018 6:17pm	30 B	folde
sjmartin	9/1/2018 5:44pm	6 B	folde
tuecke	9/3/2018 10:40a...	22 B	folde
vas	9/24/2018 1:16pm	6 B	folde

Application instance isolation

Re-authentication required in different app, same browser(app instance 2)

Authenticated in browser session (app instance 1)

userX@uchicago.edu



globus

Beta Have feedback?

File Manager

RECENTLY USED ENDPOINTS

- globuspublish#trial_data
- UChicago RCC Midway
- petrel#testbed
- GCSv5.2 Globus Demo HA Mapped Collection
- 5.1 Home Shares - Vas
- 5.1 Sandbox - Vas
- Amazon S3 Gateway - Vas
- ESnet Read-Only Test DTN at Sunnyvale
- Vas Laptop
- POSIX Sandbox - Vas

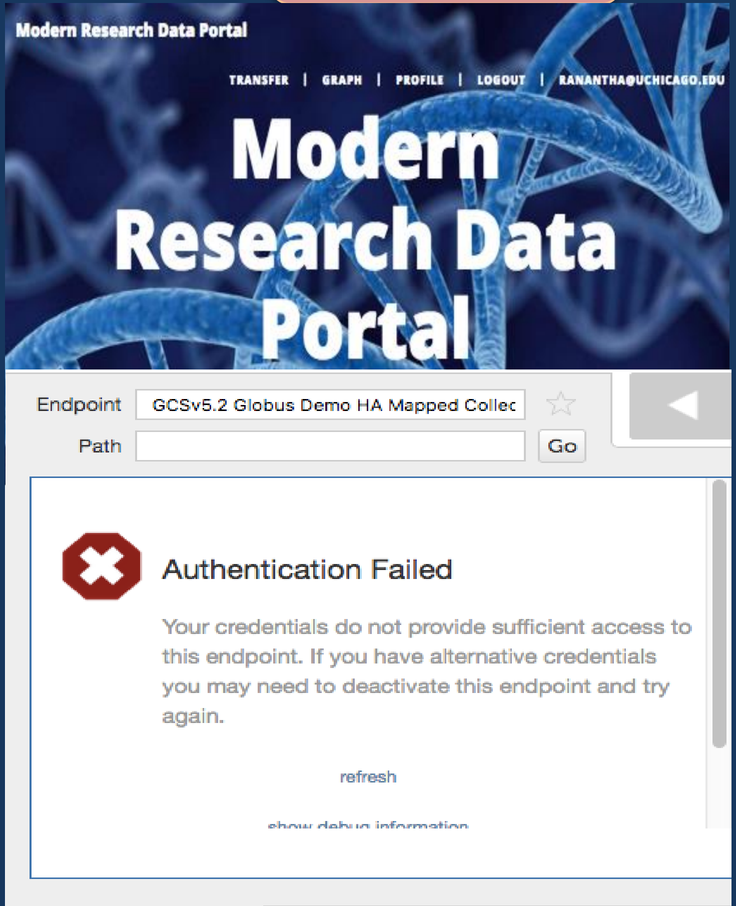
File Manager

Collection: GCSv5.2 Globus Demo HA Mapped Collection

Path: /

bester	9/1/2018 5:44pm	6 B	folde
dpowers	9/2/2018 3:24pm	30 B	folde
mlink	9/1/2018 5:44pm	6 B	folde
ranantha	9/1/2018 5:44pm	6 B	folde
read_only	9/1/2018 6:17pm	30 B	folde
sjmartin	9/1/2018 5:44pm	6 B	folde
tuecke	9/3/2018 10:40a...	22 B	folde
vas	9/24/2018 1:16pm	6 B	folde

userX@uchicago.edu



Modern Research Data Portal

TRANSFER | GRAPH | PROFILE | LOGOUT | RANANTHA@UCHICAGO.EDU

Modern Research Data Portal

Endpoint: GCSv5.2 Globus Demo HA Mapped Collec

Path:

Authentication Failed

Your credentials do not provide sufficient access to this endpoint. If you have alternative credentials you may need to deactivate this endpoint and try again.

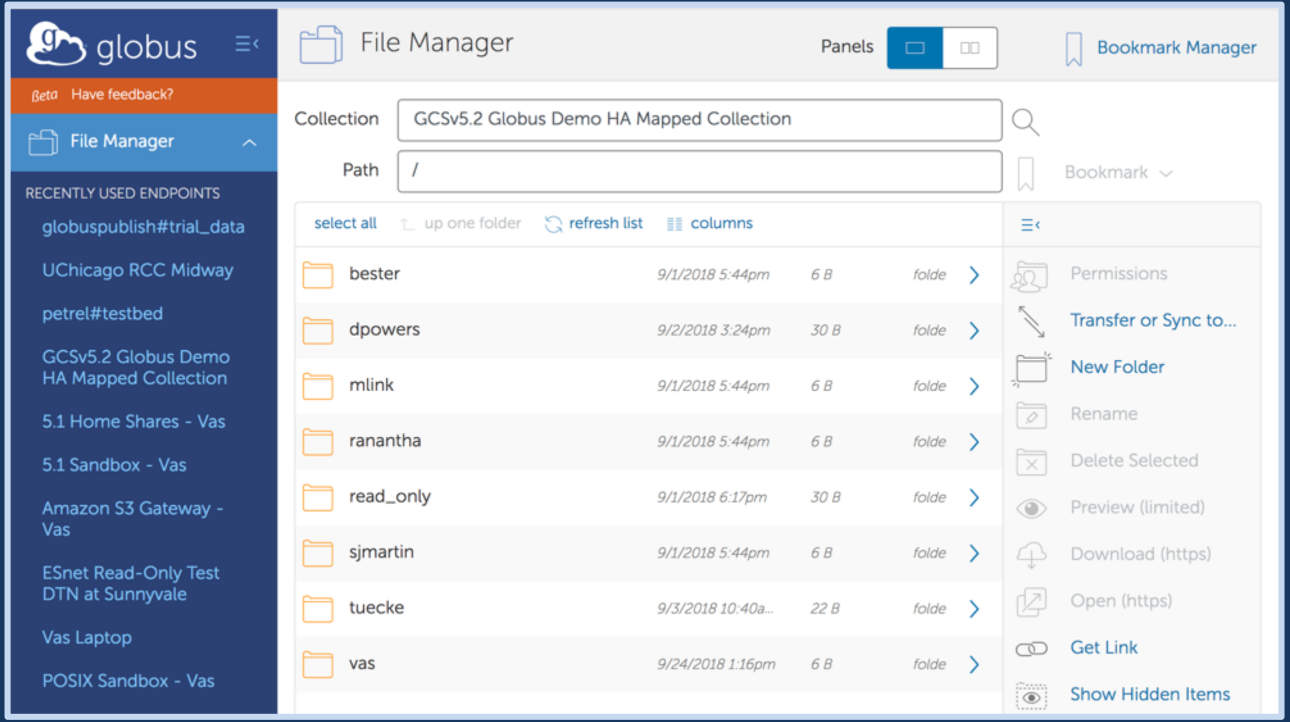
Application Instance Isolation

Authenticated in browser session (app instance 1)

userX@uchicago.edu

Re-authentication required in CLI session (app instance 2)

userX@uchicago.edu



Collection: GCSv5.2 Globus Demo HA Mapped Collection

Path: /

bester	9/1/2018 5:44pm	6 B	folde
dpowers	9/2/2018 3:24pm	30 B	folde
mlink	9/1/2018 5:44pm	6 B	folde
ranantha	9/1/2018 5:44pm	6 B	folde
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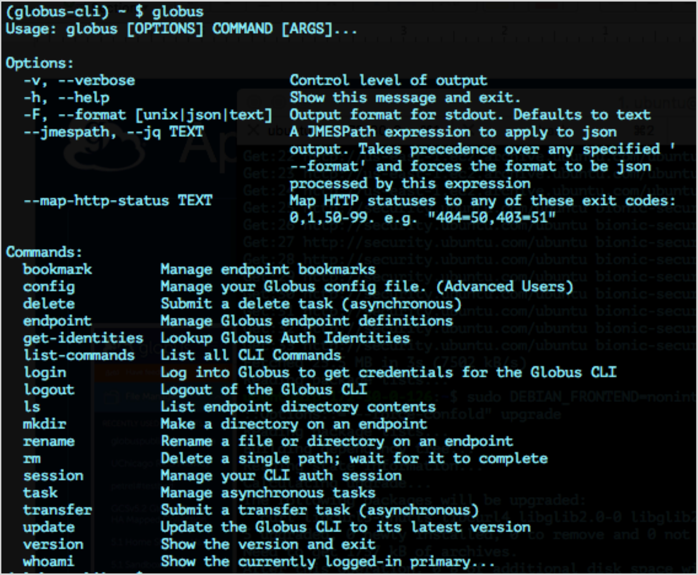
tuecke	9/3/2018 10:40a...	22 B	folde
vas	9/24/2018 1:16pm	6 B	folde



```
(globus-cli) ~ $ globus
Usage: globus [OPTIONS] COMMAND [ARGS]...

Options:
  -v, --verbose                   Control level of output
  -h, --help                      Show this message and exit.
  -F, --format [unix|json|text]   Output format for stdout. Defaults to text
  --jmespath, --jq TEXT           A JMESPath expression to apply to json
                                  output. Takes precedence over any specified '
                                  --format' and forces the format to be json
                                  processed by this expression
  --map-http-status TEXT          Map HTTP statuses to any of these exit codes:
                                  0,1,50-99. e.g. "404=50,403=51"

Commands:
  bookmark        Manage endpoint bookmarks
  config          Manage your Globus config file. (Advanced Users)
  delete          Submit a delete task (asynchronous)
  endpoint        Manage Globus endpoint definitions
  get-identities  Lookup Globus Auth Identities
  list-commands   List all CLI Commands
  login           Log into Globus to get credentials for the Globus CLI
  logout          Logout of the Globus CLI
  ls              List endpoint directory contents
  mkdir           Make a directory on an endpoint
  rename          Rename a file or directory on an endpoint
  rm              Delete a single path; wait for it to complete
  session         Manage your CLI auth session
  task            Manage asynchronous tasks
  transfer        Submit a transfer task (asynchronous)
  update          Update the Globus CLI to its latest version
  version         Show the version and exit
  whoami          Show the currently logged-in primary...
```

More information

- **Documentation**
  - docs.globus.org
- **Globus Auth documentation**
  - docs.globus.org/api/auth/
- **Python SDK**
  - globus-sdk-python.readthedocs.io/en/stable/
- **Support**
  - support@globus.org
- **Subscribe to blog posts and news/announcements**
  - www.globus.org/contact-us

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