

Globus for LC Users

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LC SAG

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Agenda

- Goblin Hardware Overview
- Globus Overview
- Globus walk-through

LC Globus Hardware

- Hosting cluster is Goblin
- Sits in "Green" (unrestricted) Zone
 - Uses GDO user infrastructure with CZ RSA OTP
- 4x Data Transfer nodes (DTNs)
 - 40 Gb link to ESNet
- 2x Storage nodes
 - 2PB NFS-mounted ZFS file system
- Endpoint exists only in Green Zone
 - Users need to transfer data between GZ and CZ
 - 2x 40Gb link between GZ<->CZ
 - Future possibility of auto-sync pending discussion & approval from OISSO



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Accessing Goblin

- Users must request Goblin acct via ~~IDM~~ LC Hotline
 - For now; IDM being extended.
- File transfer internally via:
 - SCP/rsync
 - Hopper (pending)
 - Transfer must originate from CZ, not GZ
 - Globus Connect Personal (GCP) **not allowed**
 - There appear to be numerous instances running, but users should be advised it's not permitted
- Users can SSH to Globus nodes to manage data
 - Login nodes are also DTNs
 - Home directories are **not** the data shares. Must use /p/globfs/<user>/
- Most users will use Globus Web
 - <https://app.globus.org>

What is Globus

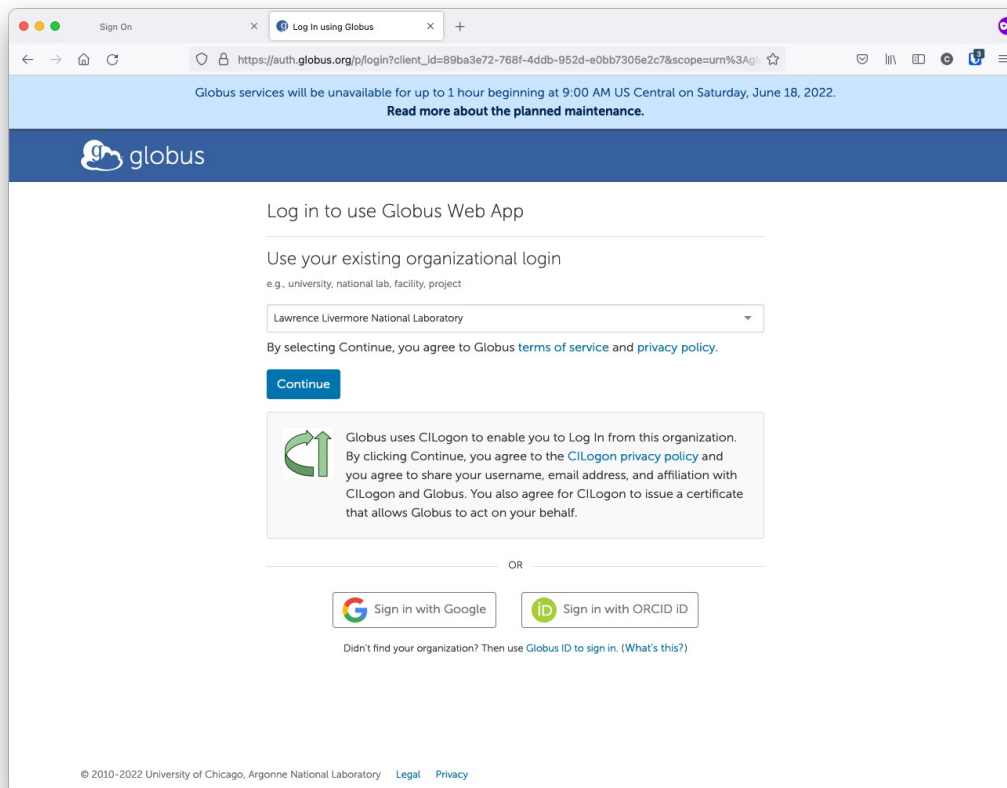
- Widely-used inter-organization file-transfer service
 - Heavily used in science/research community for large datasets
 - Long used at LLNL/LC for climate data transfer
- Benefits
 - Easy to use
 - Community standard
 - Parallel transfers, high-performance
 - Goblin reached > 2 GB/s transfer from ALCF
- History:
 - Developed by U Chicago & ANL to enable “Grid Computing”
 - Non-profit, but “Freemium” product
- Terminology
 - Endpoint: Location to use as source or destination in Globus transfer
 - Collection: Repository of data on a Globus version 5 server
 - Can be multiple collections per endpoint

Globus in LC

- Endpoint is **LC Public**
- Data should be considered unprotected in Globus
- Data restrictions
 - LLNL-generated data – must go through IM R&R for “public” release
 - May consult with OISSO for waiver availability
 - Outside-generated data:
 - LLNL must have no legal responsibility to protect
 - Follow agreements with data owner for protection
- Only LC users can browse endpoint
 - Users can “Share” their data with outside organizations
- This is a “High Assurance” endpoint, which mandates encryption on all transfers
 - Cannot transfer to/from endpoints not supporting encryption
- Documentation: <https://hpc.llnl.gov/services/globus>

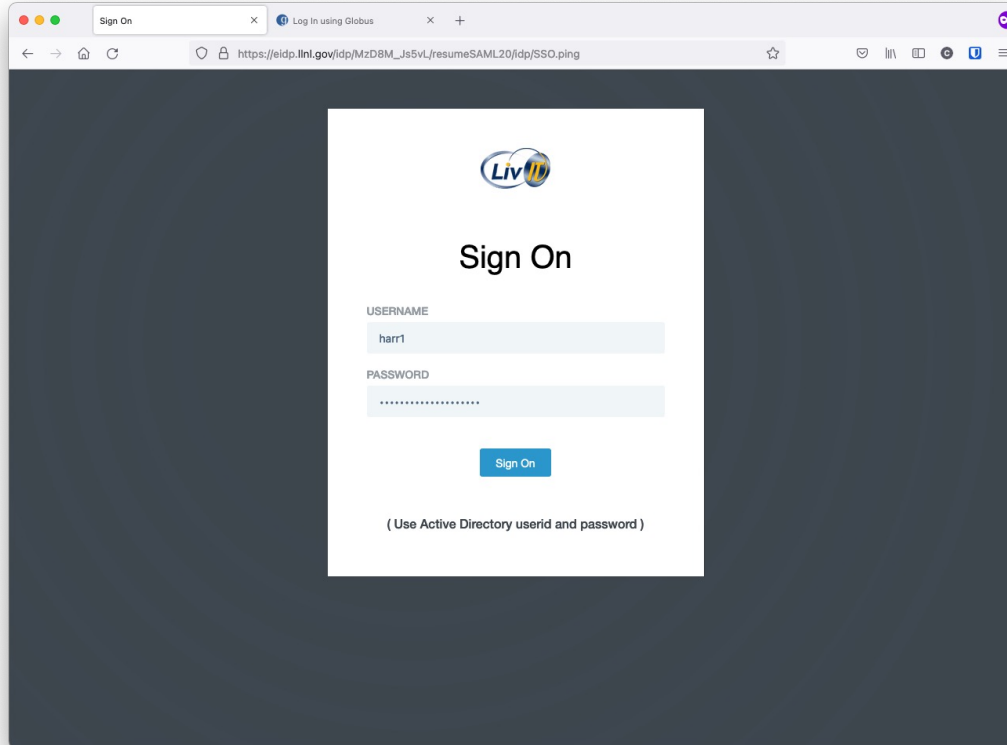
Logging in to Globus Web App (1)

- Point your browser to <https://app.globus.org>
- Select Lawrence Livermore National Lab (if prompted)



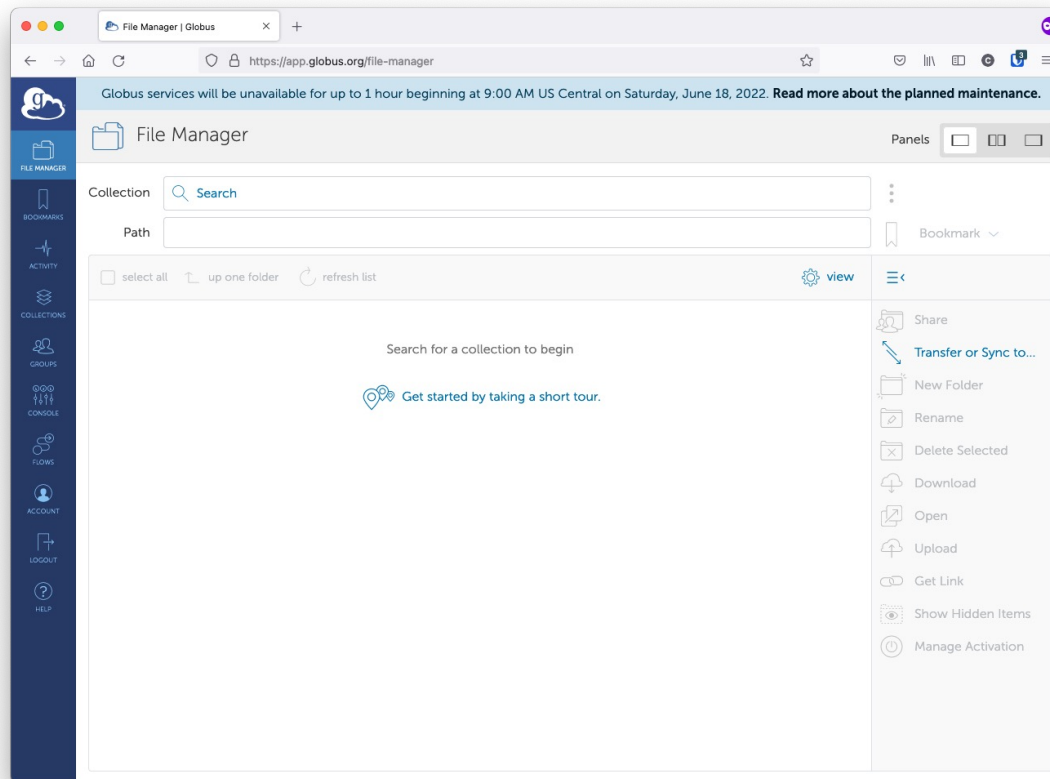
Logging in to Globus Web App (2)

- If prompted, log in to LivIT Identity Provider (IdP) with AD creds
- Select Lawrence Livermore National Lab (if prompted)



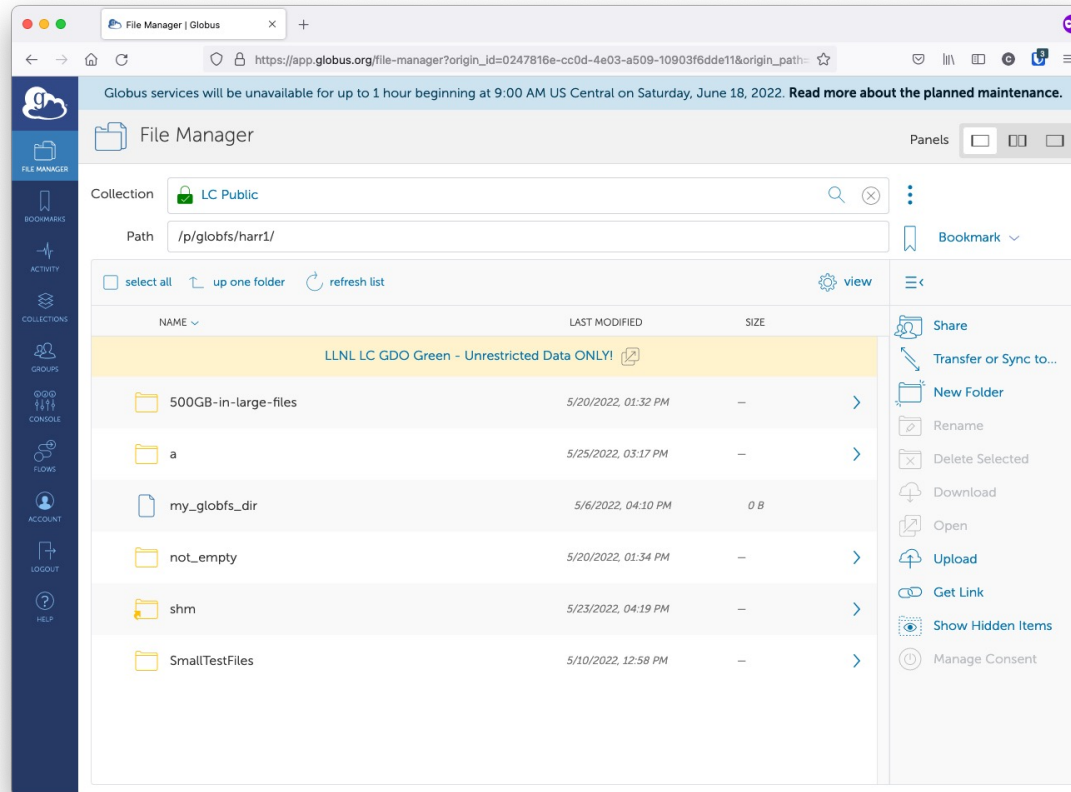
Globus File Manager (1)

- Globus File Manager is default view
- Browse for Source and Destination Endpoints



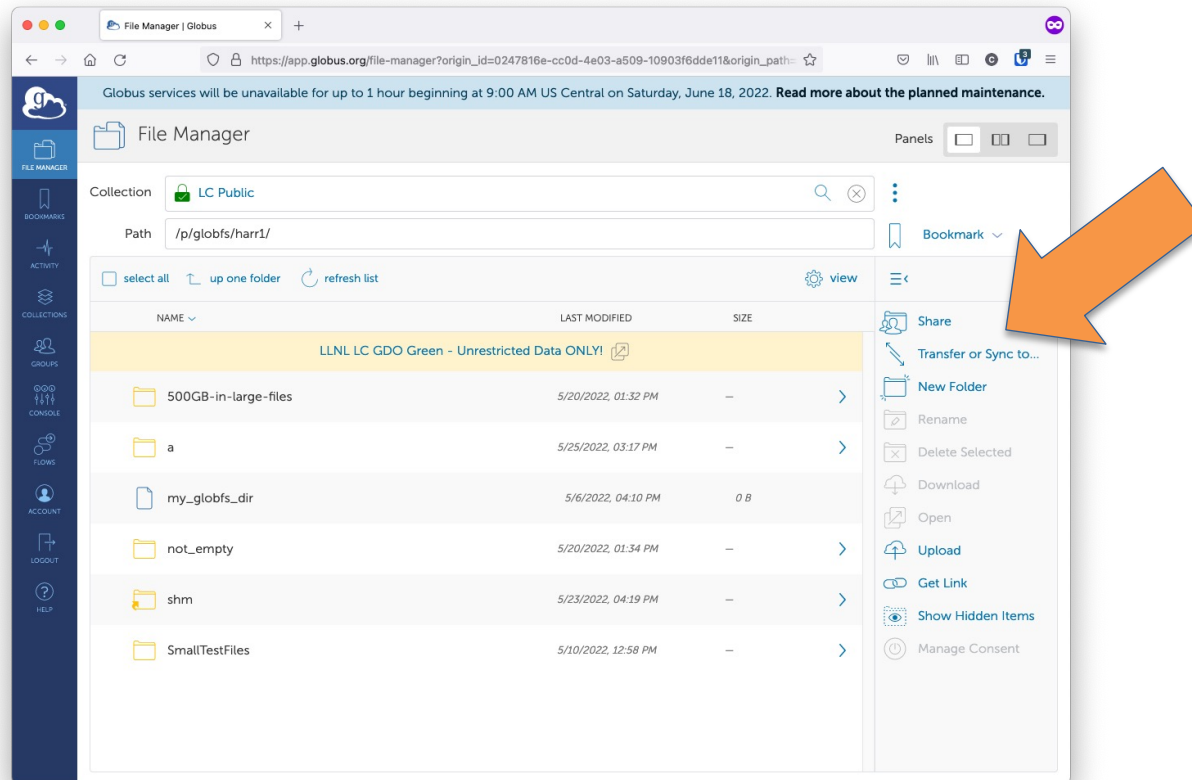
Globus File Manager (2)

- LC Endpoint is **LC Public**
- Users should be placed in their data share: `/p/globfs/<user>`



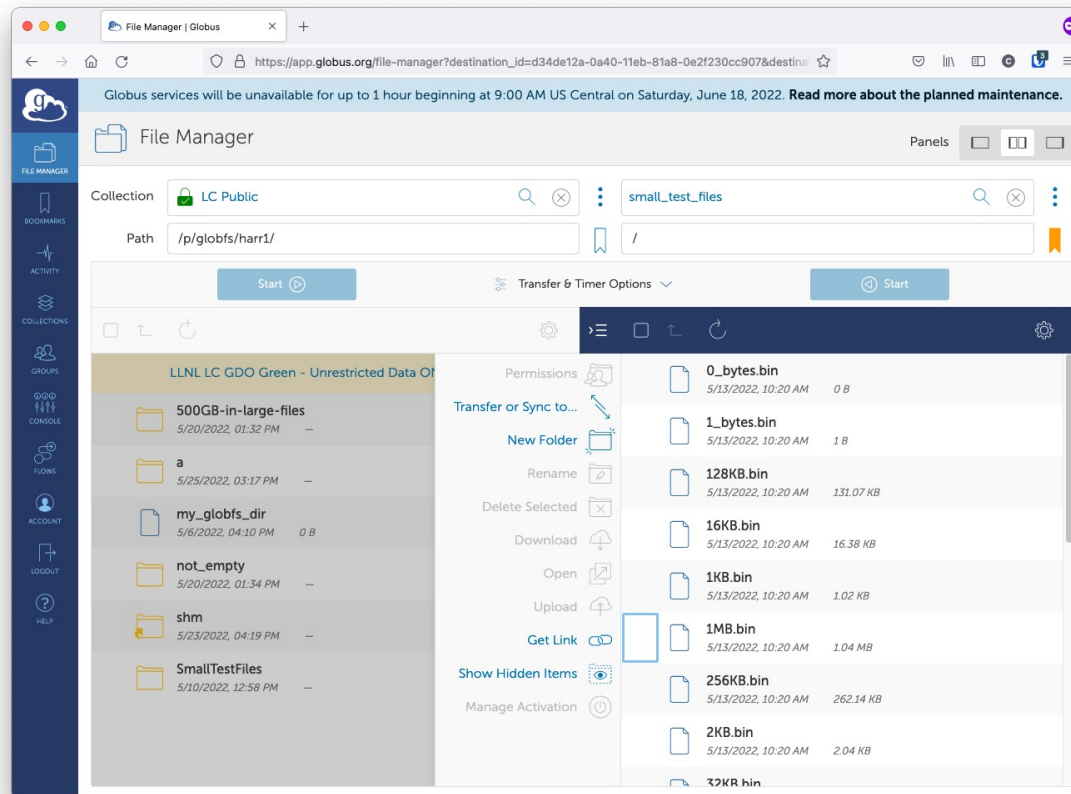
Globus File Manager (3)

- Select operation on right panel:
 - Transfer: transfer files between two endpoints
 - Share: Make a group of your files available to non-LC users



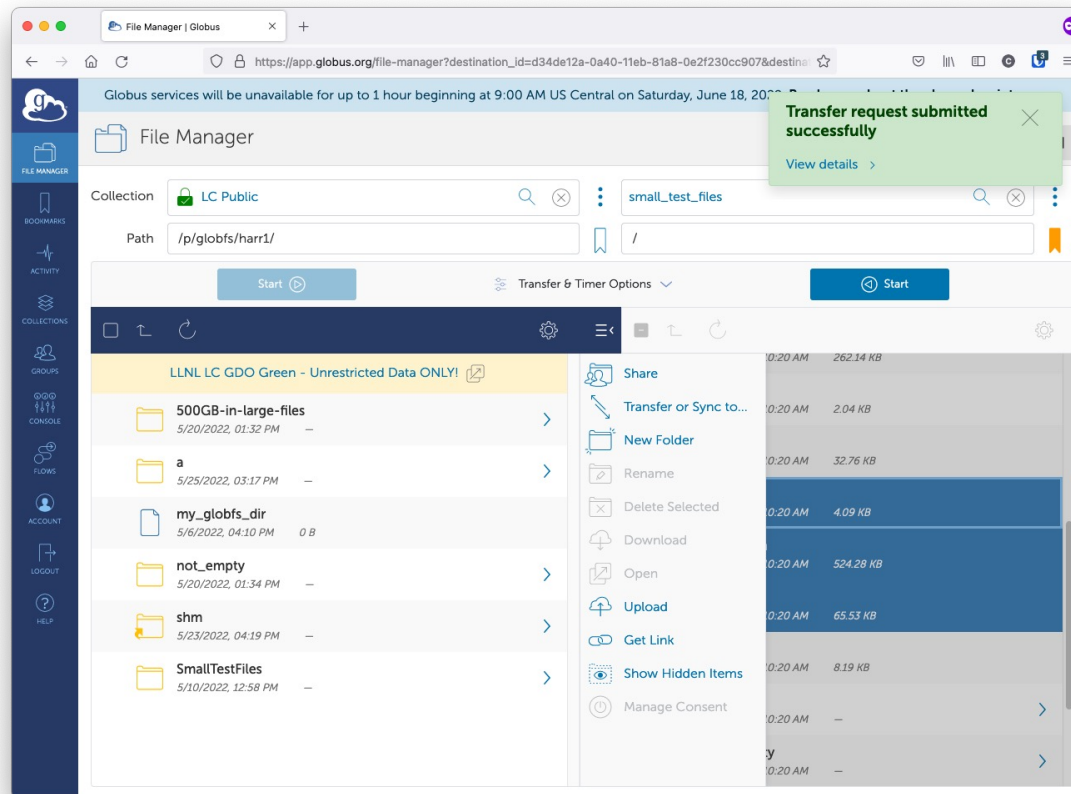
Transferring Files (1)

- Browse to two endpoints after clicking “Transfer or Sync to...”
- Choose “small_test_files” collection



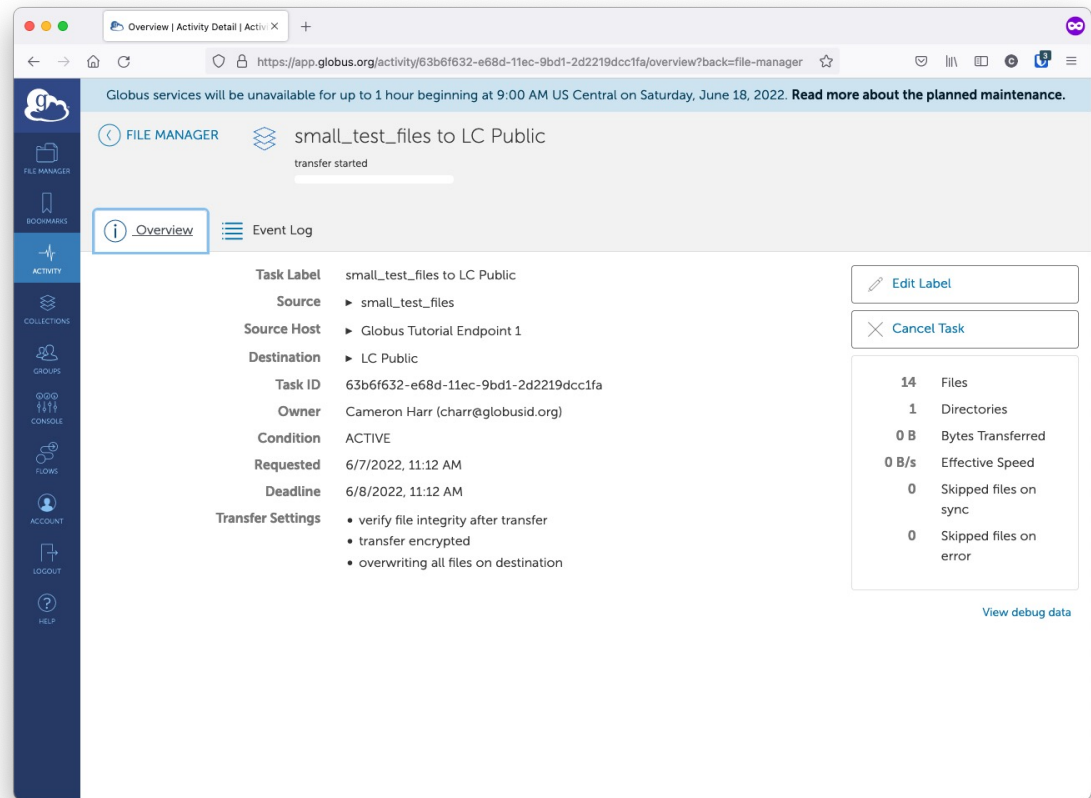
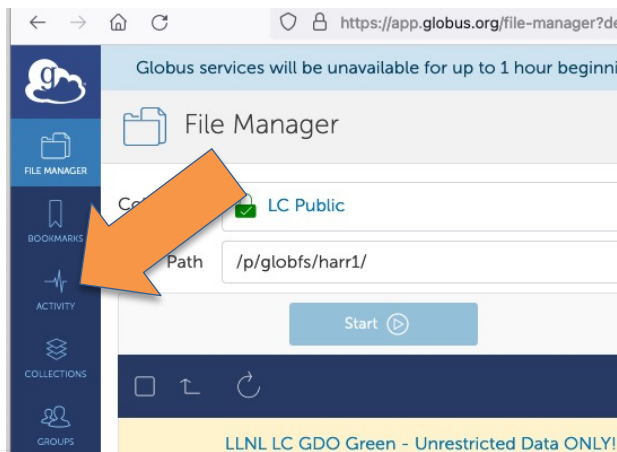
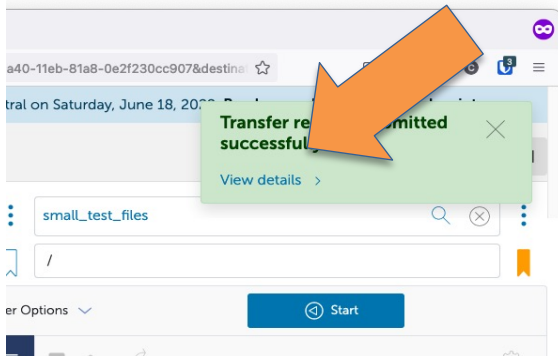
Transferring Files (2)

- Select 1 or more files (Shift-click for multiple)
- Click “Start” or just drag and drop to your directory



Transferring Files (3)

- Monitor transfer by clicking on “View Details” or “Activity”



Transferring Files – Failure (1)

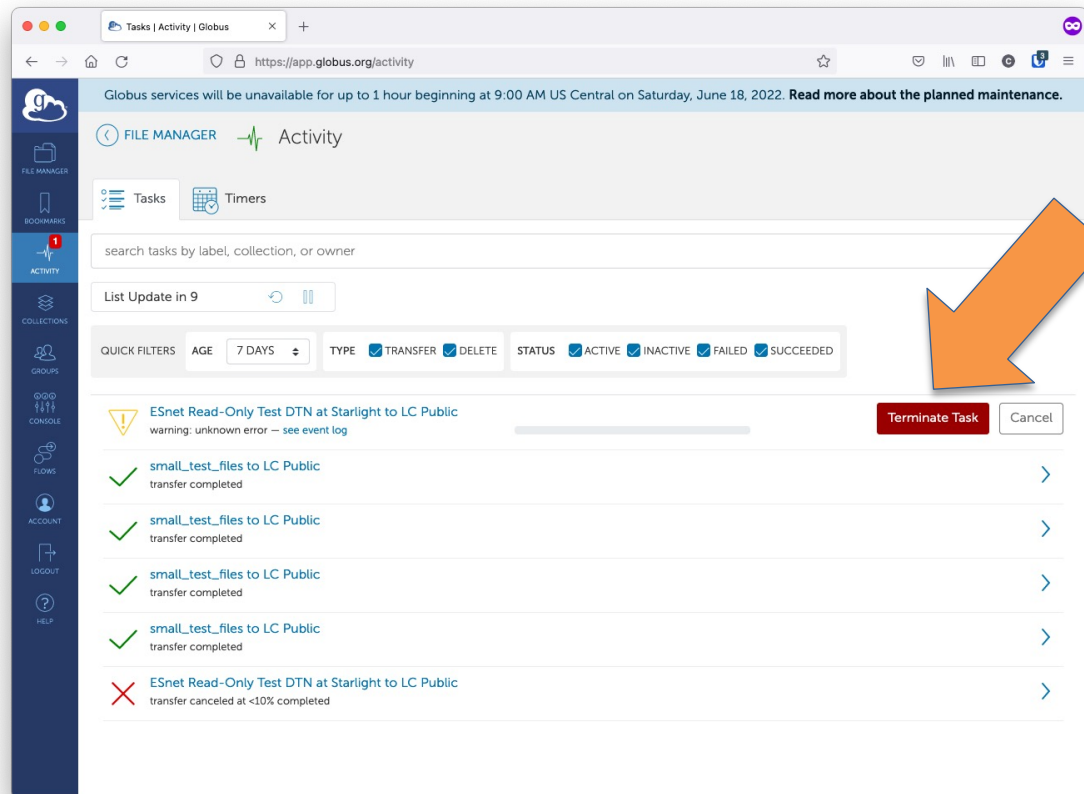
- Check Event Log for failure messages

The screenshot shows a web browser window displaying the Globus Activity Detail page. The URL is <https://app.globus.org/activity/c54bb9b8-e68e-11ec-9912-3b4cfda38030/events?back=file-manager>. A blue banner at the top states: "Globus services will be unavailable for up to 1 hour beginning at 9:00 AM US Central on Saturday, June 18, 2022. [Read more about the planned maintenance.](#)". Below the banner, the page title is "FILE MANAGER" and the activity name is "ESnet Read-Only Test DTN at Starlight to LC Public". A warning message says "warning: unknown error — [see event log](#)". The left sidebar contains navigation links: FILE MANAGER, BOOKMARKS, ACTIVITY (highlighted with a red notification badge), COLLECTIONS, GROUPS, CONSOLE, FLOWS, ACCOUNT, LOGOUT, and HELP. The main content area has tabs for "Overview" and "Event Log". Under "Event Log", there are two tabs: "All Events" and "Fault Events". The "Fault Events" tab is active, showing a list of events. The first event is dated "6/7/2022, 11:22 AM" and is an "Uncategorized Error". It includes a "View details" link. The error message text is: "Error (session setup)
Endpoint: ESnet Read-Only Test DTN at Starlight (57218f41-3200-11e8-b907-0ac6873fc732)
Server: star-dtn.es.net:2811
Message: Encryption not supported

Details: Encryption only works for gsiftp:// servers". The second event is dated "6/7/2022, 11:22 AM" and is labeled "started", also with a "View details" link.

Transferring Files – Failure (2)

- Globus will keep retrying transfer
- If transfer will never succeed, “Terminate” the task via “Activity tab

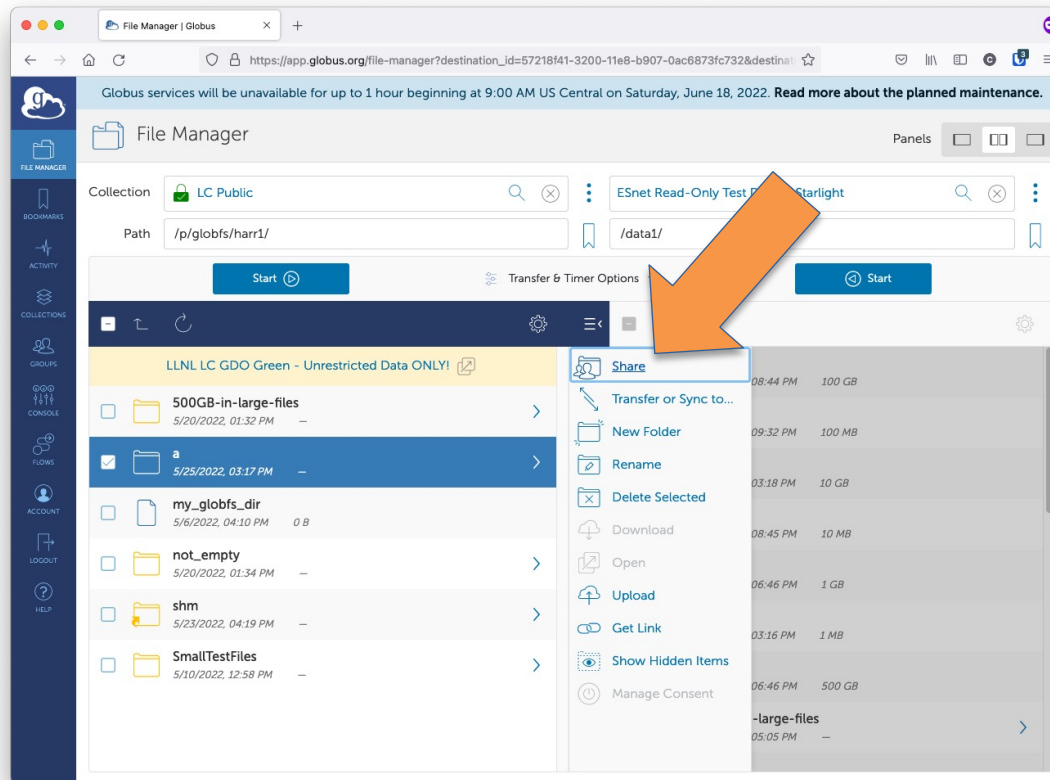


Transferring Files - Troubleshooting

- Errors generally caused by sharing/permissions problems or server problems.
- Users should get email on all transfers signifying Success or Failure.
- 1st step at debugging failure is to look at Event Log
 - Verify they are using an endpoint that supports encryption
 - Note other error messages
- If stumped, or it looks like a server problem, contact LC Hotline

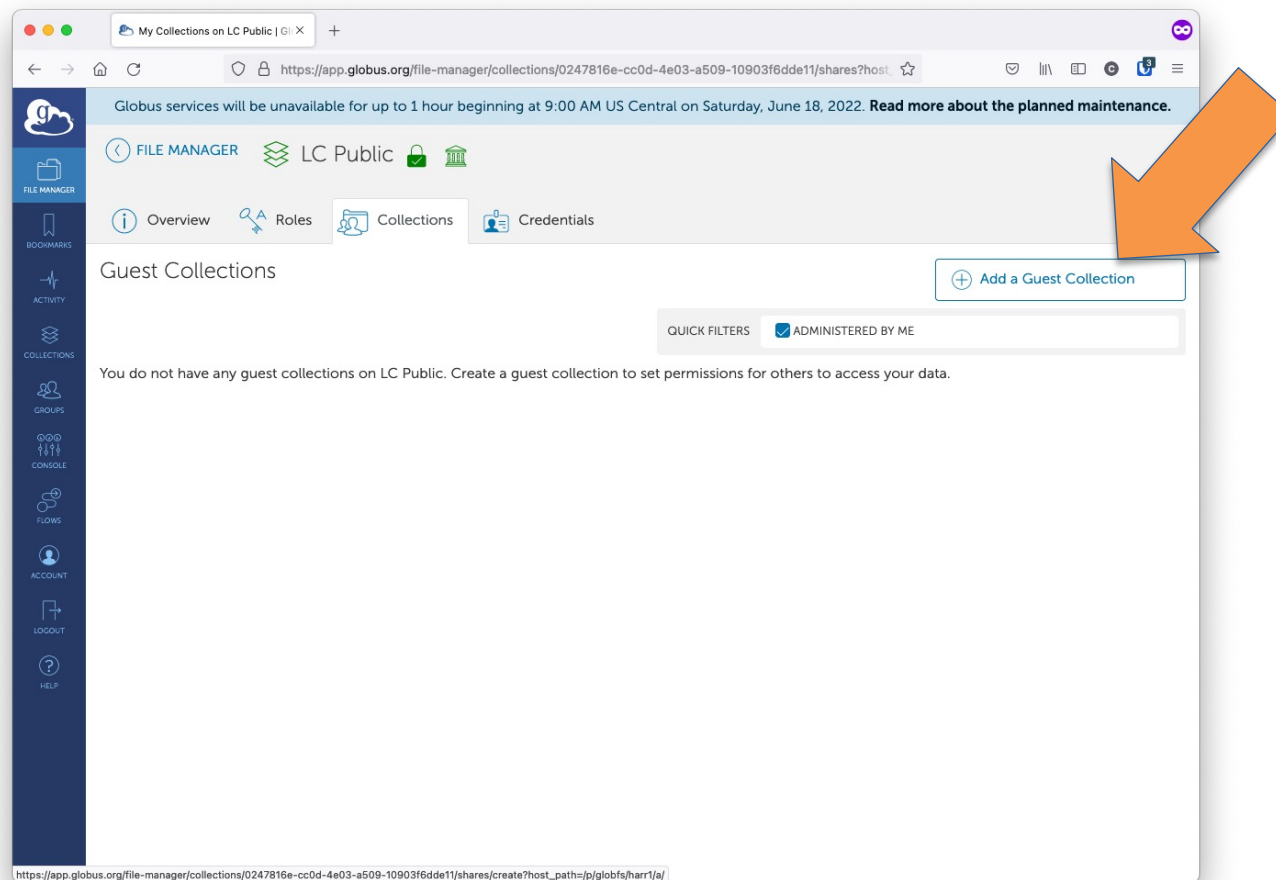
Sharing Files (1)

- Select files to share and click “Share”
- <https://docs.globus.org/how-to/share-files/>



Sharing Files (2)

- Create a Guest Collection or add to existing one



Sharing Files (3)

- Fill out relevant fields and click “Create Collection”

Create Guest Collection on LC P X +

https://app.globus.org/file-manager/collections/0247816e-cc0d-4e03-a509-10903f6dde11/shares/creat

Globus services will be unavailable for up to 1 hour beginning at 9:00 AM US Central on Saturday, June 18, 2022. [Read more about the planned maintenance.](#)

Create New Guest Collection

You are creating a guest collection on LC Public to share data

Directory [Browse](#) [?](#)

Display Name

Description

Keywords

Information Link [?](#)

Contact Email [?](#)

Organization

Department

Other Contact Info

☒ Force encryption for transfers to and from this collection

[Create Collection](#) [Cancel](#)

Sharing Files (4)

- Add users and set permissions

Permissions on A is for Alice's Awesome Apples

FILE MANAGER

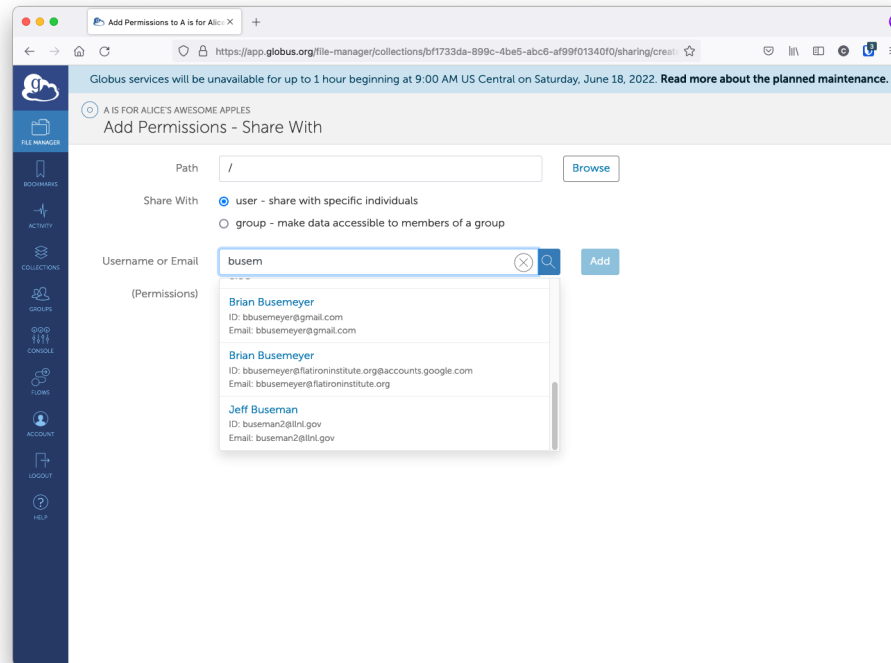
Overview Permissions Roles

Shared With

USER OR GROUP	CREATED	READ	WRITE	
Path: /				Show link for sharing
LLNL LC Public (51245285-9ea1-4e56-a0c4-4de7447c39f@clients.auth.globus.org)	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	QA
Cameron Harr (harr1@llnl.gov)	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	QA

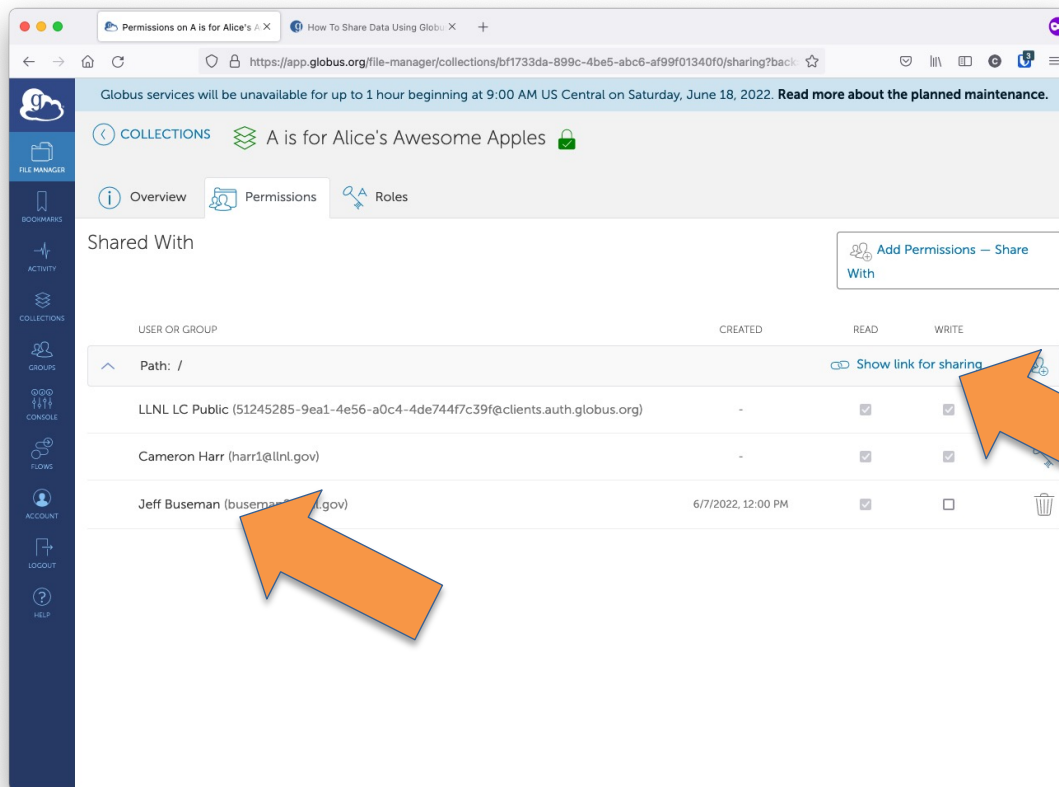
Sharing Files (5)

- Path is relative to the collection you're sharing
 - So "/" == "/p/globfs/harr1/a"
- Username/email auto-matches valid users as you type
- Select Read/Write permissions (default is read-only)



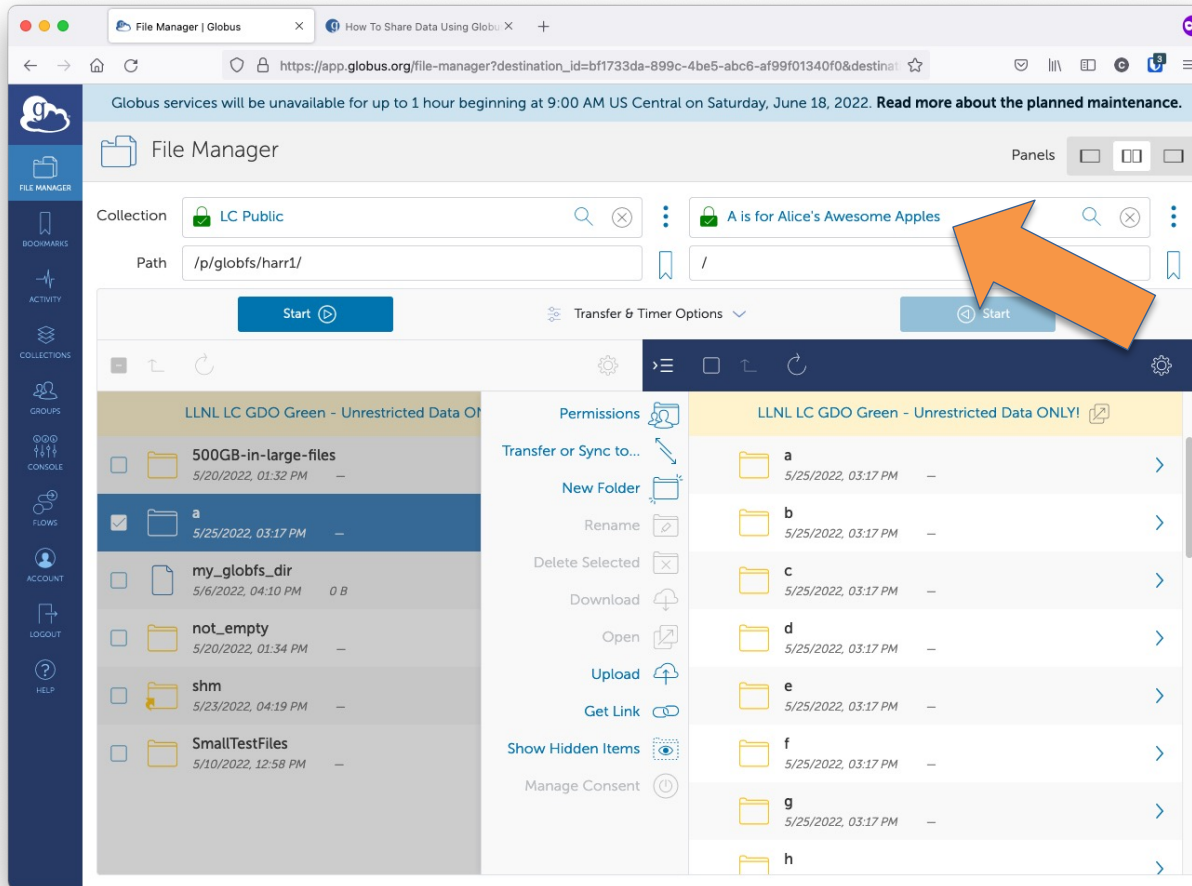
Sharing Files (6)

- Verify user(s) show as having access to collection
- Can also provide link to those who already have access



Sharing Files (7)

- Those with access should be able to browse to collection



Q&A





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