

# Globus in the Green

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LC SAG

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# Agenda

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- 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
- 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

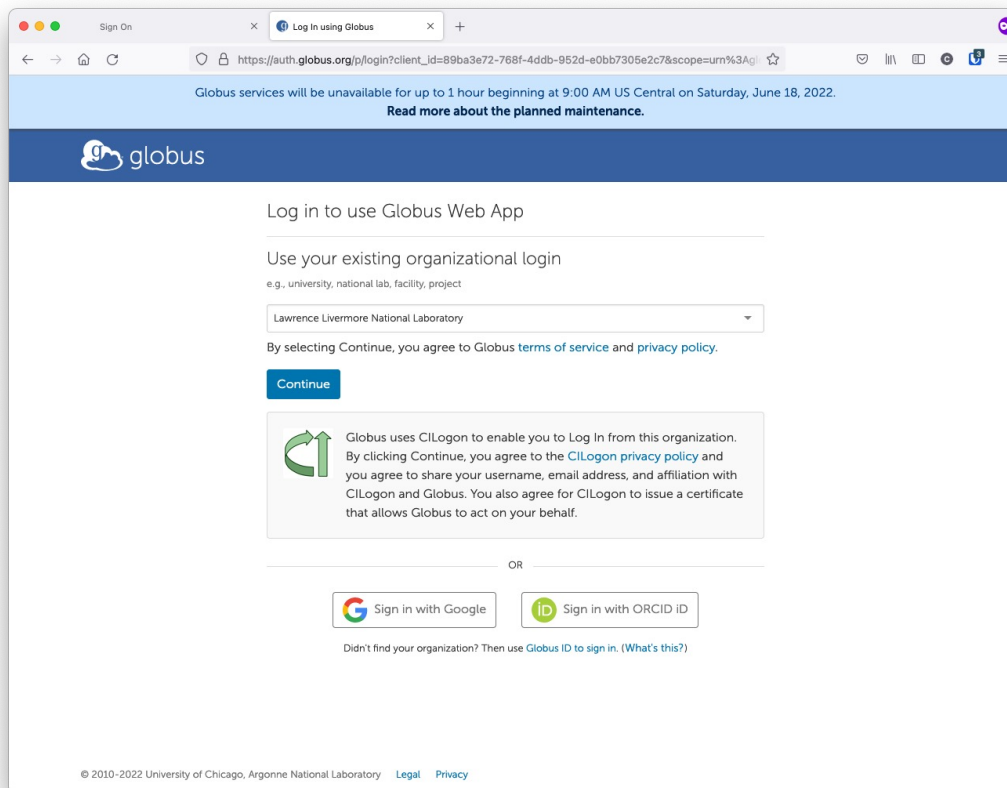
- Widely-used inter-organization file-transfer service
  - Heavily used in science/research community for large datasets
  - Long used at LLNL/LC for climate data transfer
- Benefits
  - Easy to use
  - Community standard
  - Parallel transfers, high-performance
    - Goblin reached > 2 GB/s transfer 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 must be publicly-releasable via IM process
  - May include blanket waiver for project
- 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 from endpoints not supporting encryption
- <https://hpc.llnl.gov/services/globus>

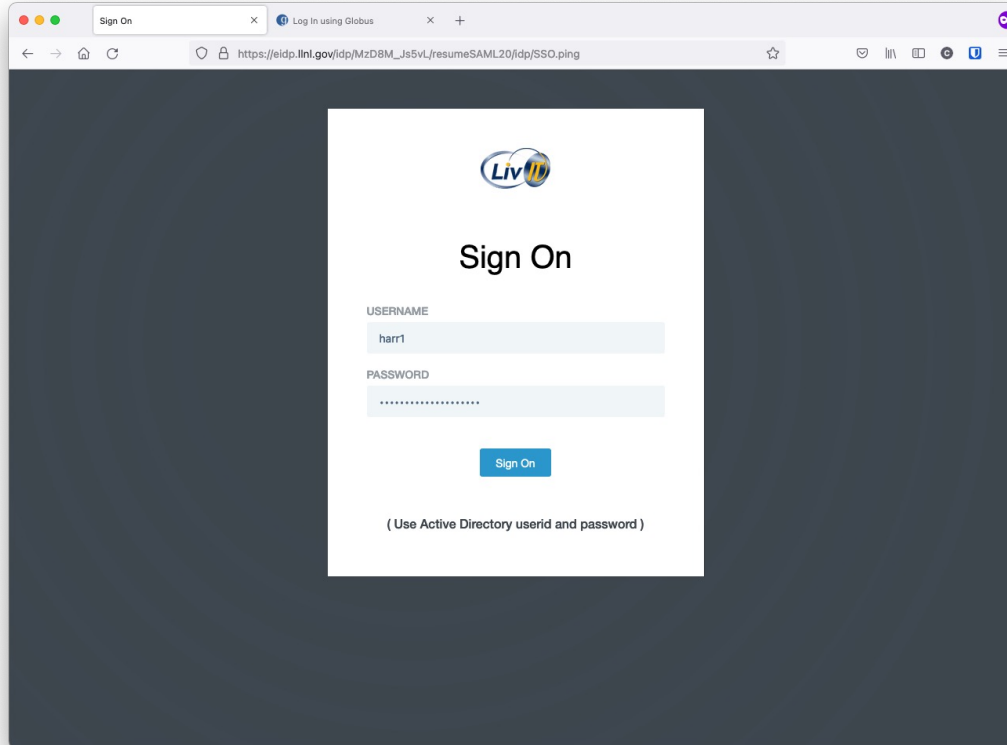
# Logging in to Globus Web App (1)

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



# Logging in to Globus Web App (2)

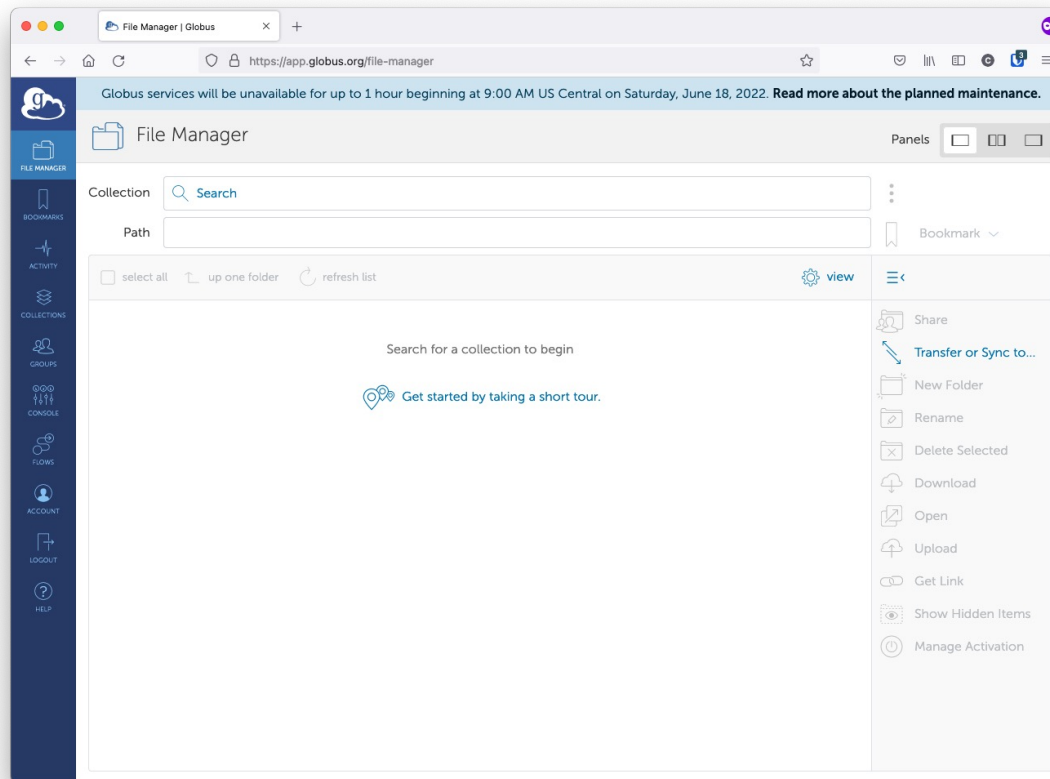
- If prompted, log in to LivIT Identity Provider (IdP) with AD creds
- Select Lawrence Livermore National Lab (if prompted)





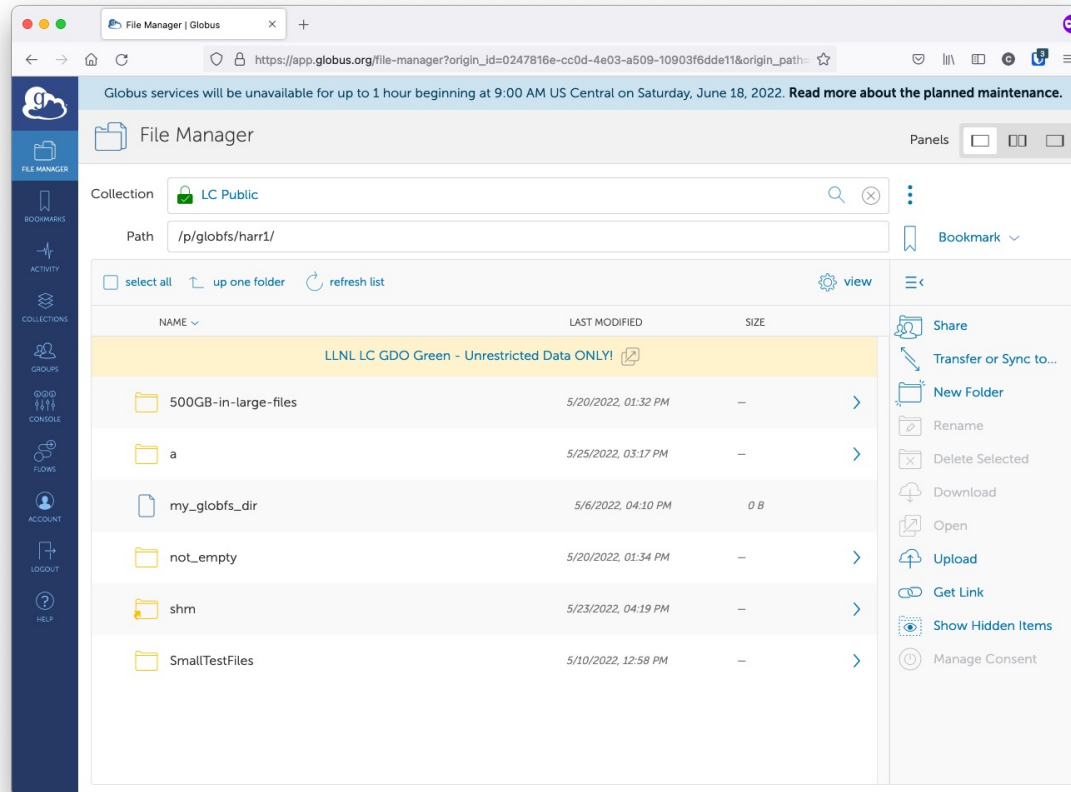
# Globus File Manager (1)

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



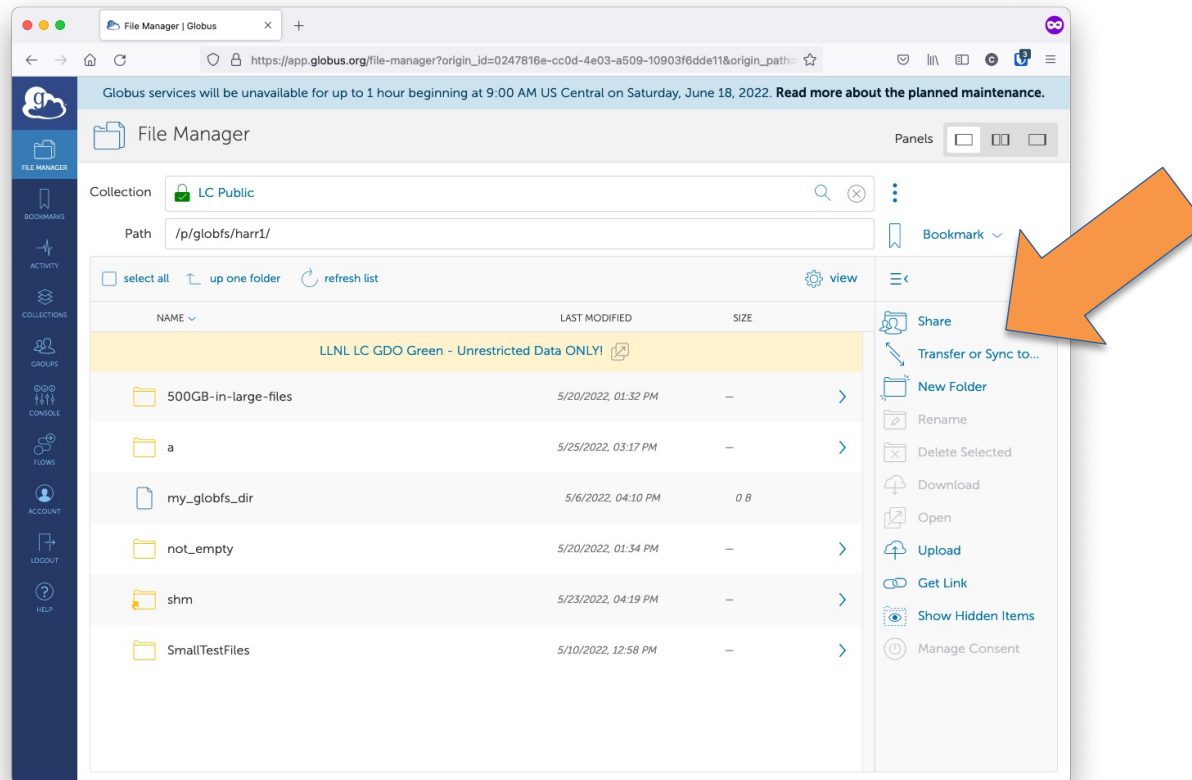
# Globus File Manager (2)

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



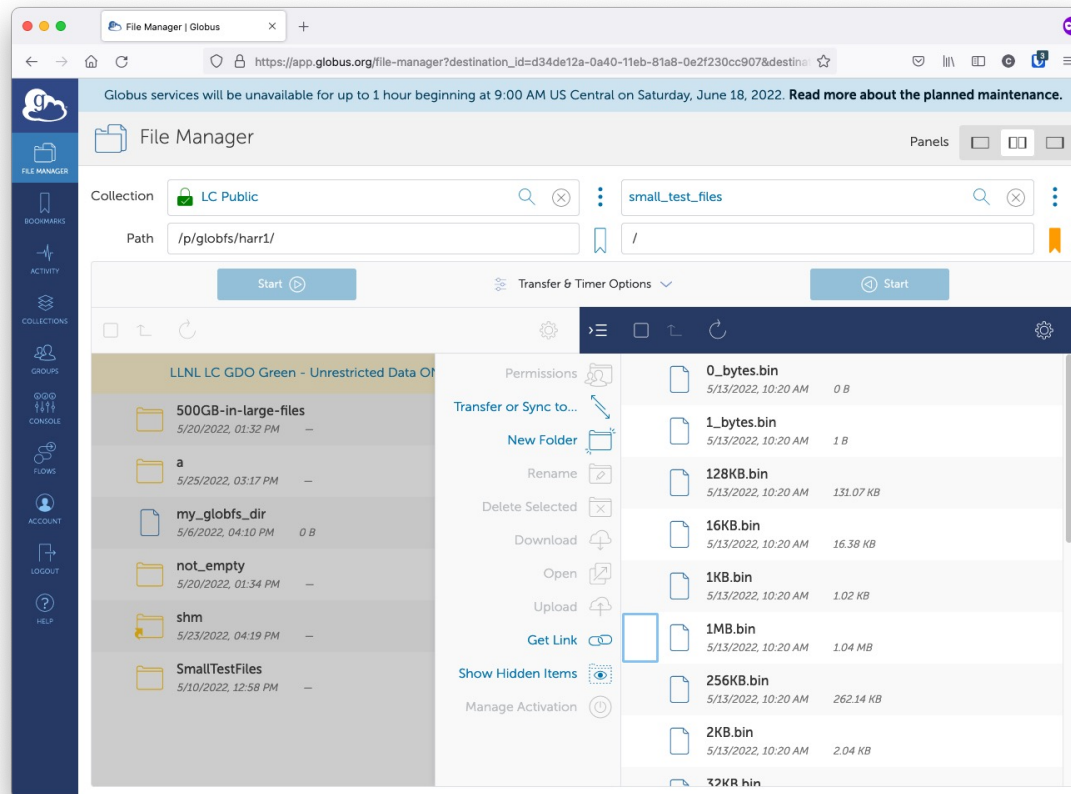
# Globus File Manager (3)

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



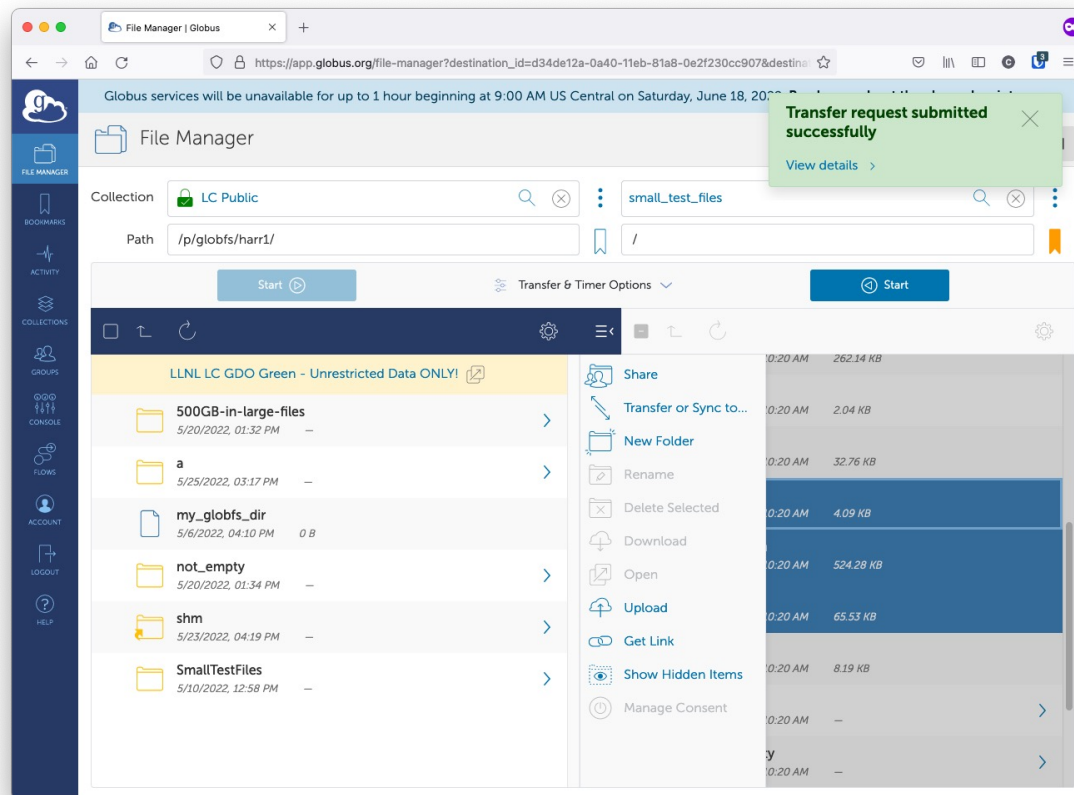
# Transferring Files (1)

- Browse to two endpoints after clicking “Transfer or Sync to...”
- Choose “small\_test\_files” collection



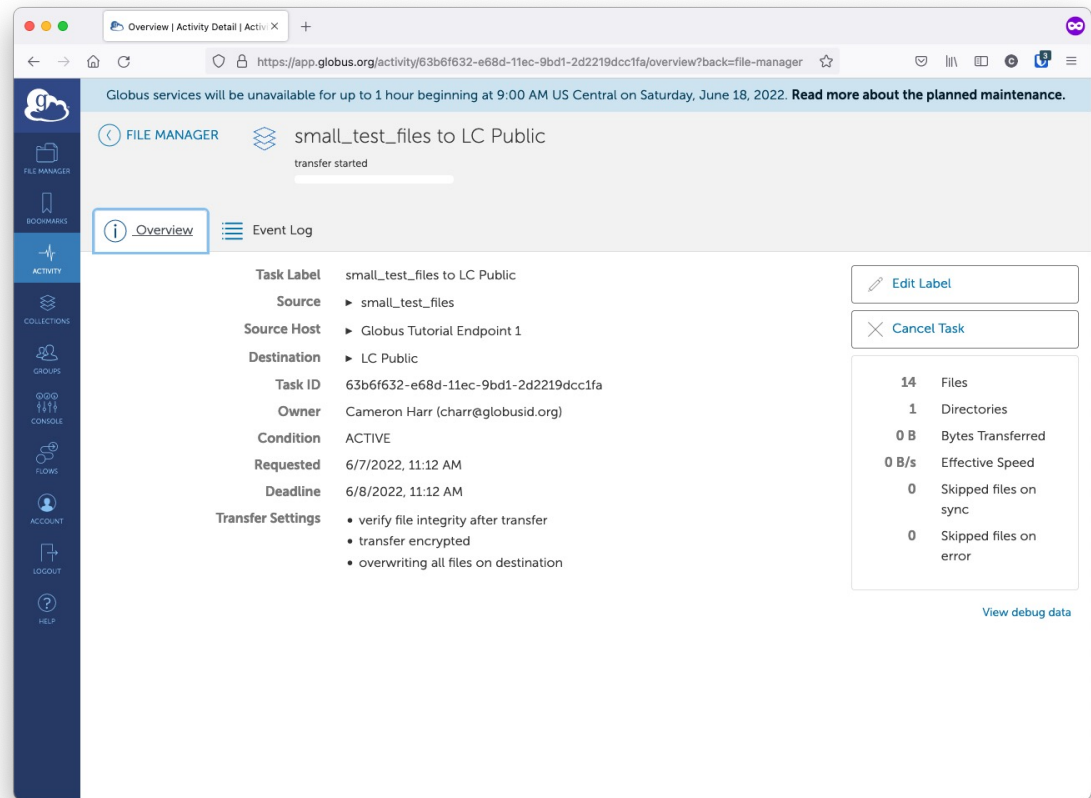
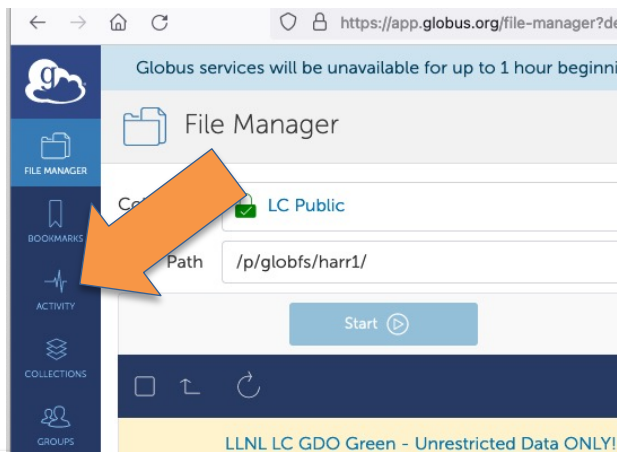
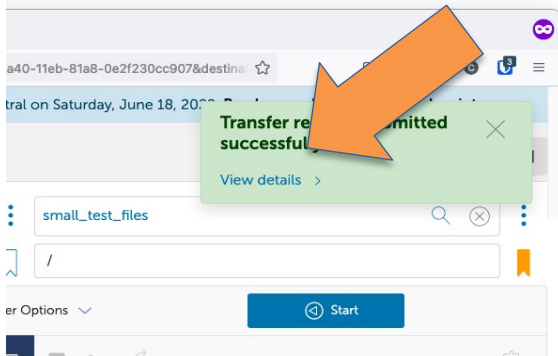
# Transferring Files (2)

- 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

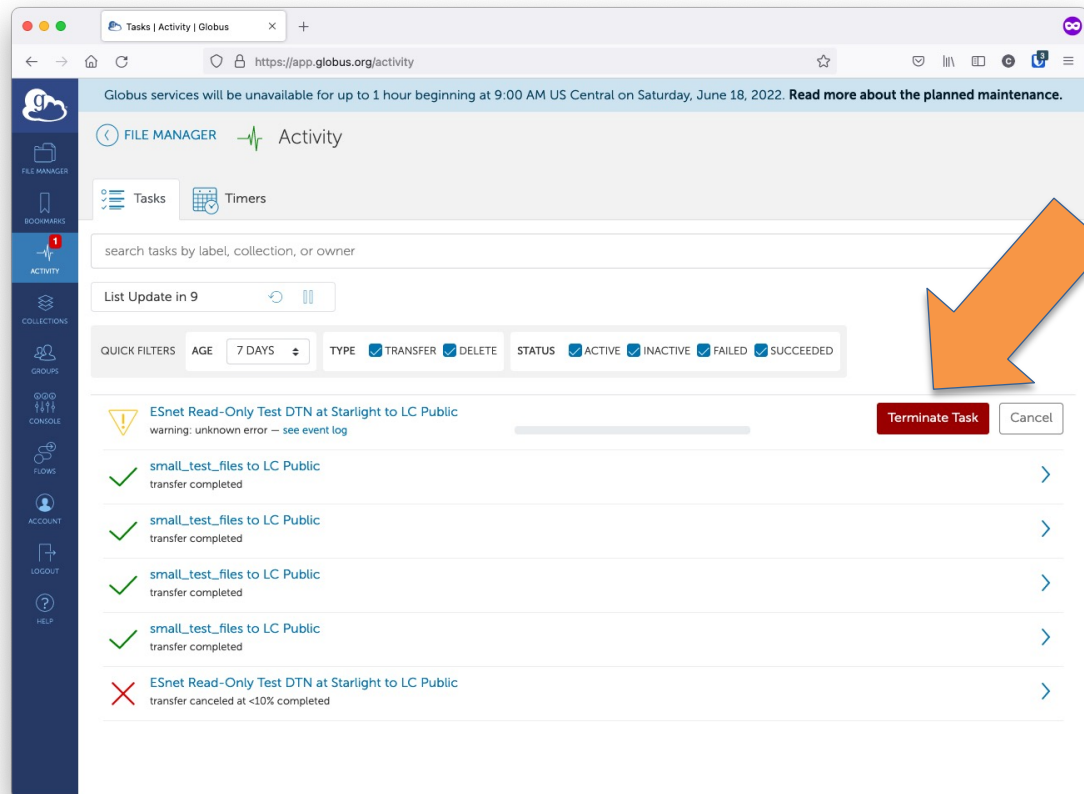
The screenshot shows a web browser window displaying the Globus Activity Detail page. The URL is <https://app.globus.org/activity/c54bb9b8-e68e-11ec-9912-3b4cfda38030/events?back=file-manager>. A blue banner at the top states: "Globus services will be unavailable for up to 1 hour beginning at 9:00 AM US Central on Saturday, June 18, 2022. [Read more about the planned maintenance.](#)". Below the banner, the page title is "FILE MANAGER" with a warning icon and the text "ESnet Read-Only Test DTN at Starlight to LC Public". A warning message reads: "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 labeled "Uncategorized Error". It includes a "View details" link. The event details are as follows:

```
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 in the list is dated "6/7/2022, 11:22 AM" and is labeled "started". It also has a "View details" link.

# Transferring Files – Failure (2)

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



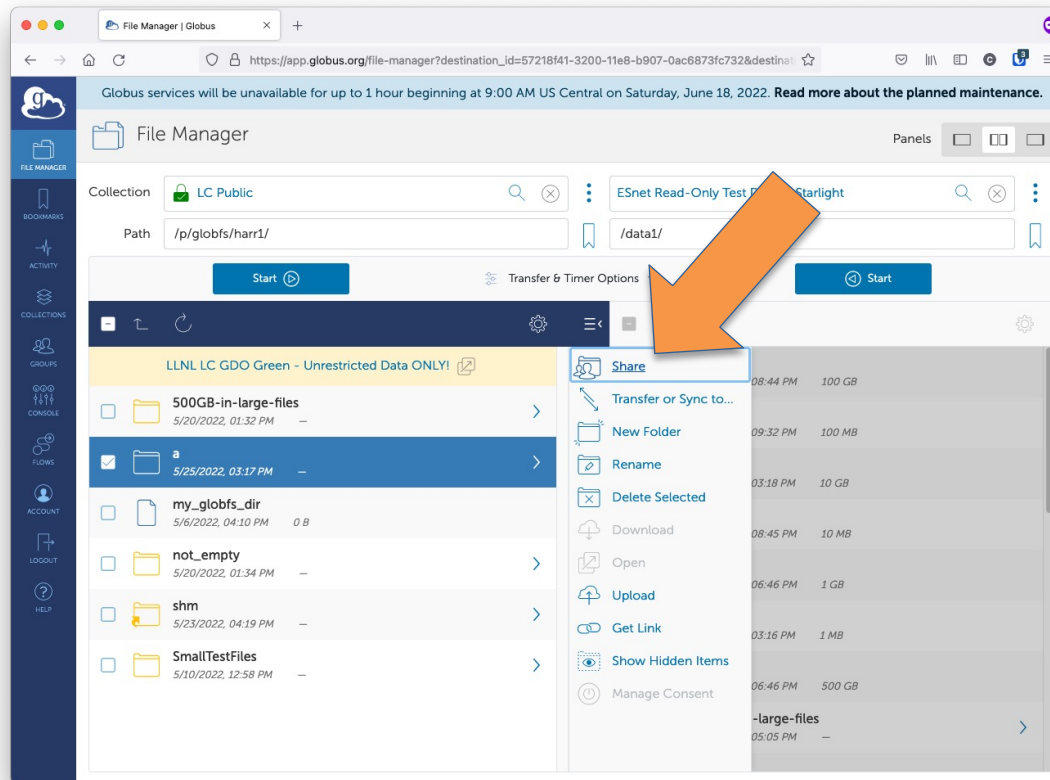


# Transferring Files - Troubleshooting

- Errors generally caused by sharing/permissions problems or server problems.
- Users should get email on all transfers signifying Success or Failure.
- 1<sup>st</sup> 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

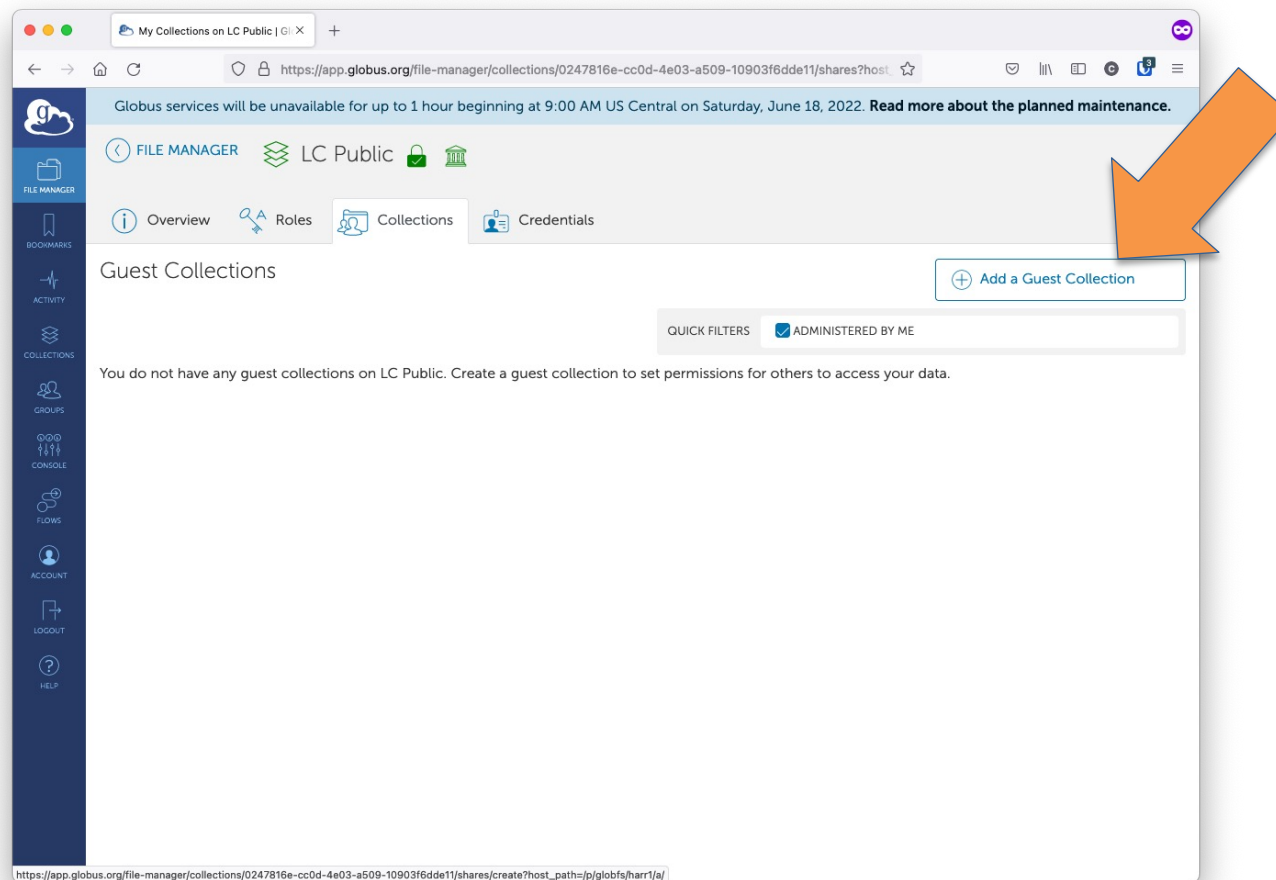
# Sharing Files (1)

- 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

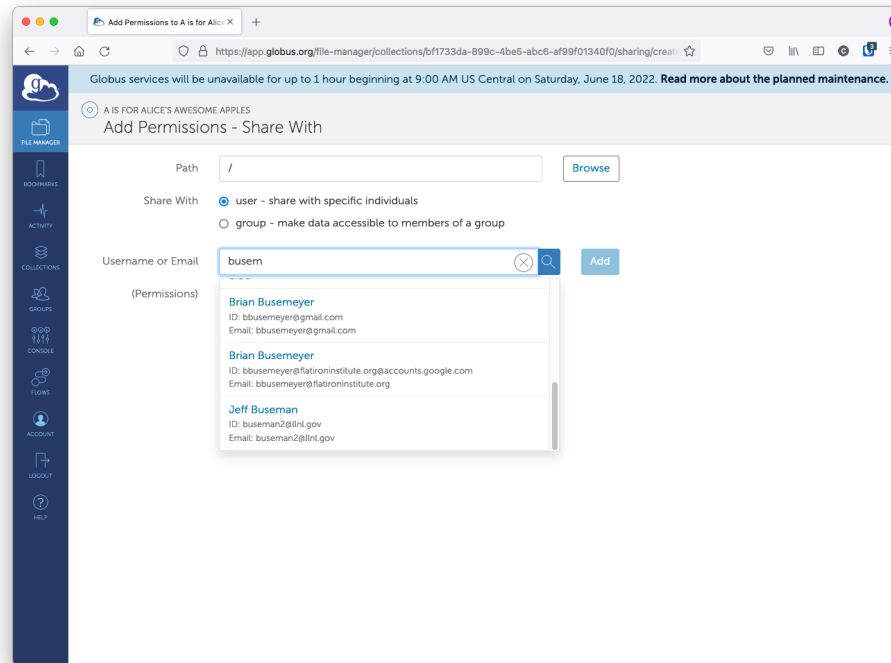
Shared With

| 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                    |

Add Permissions - Share With

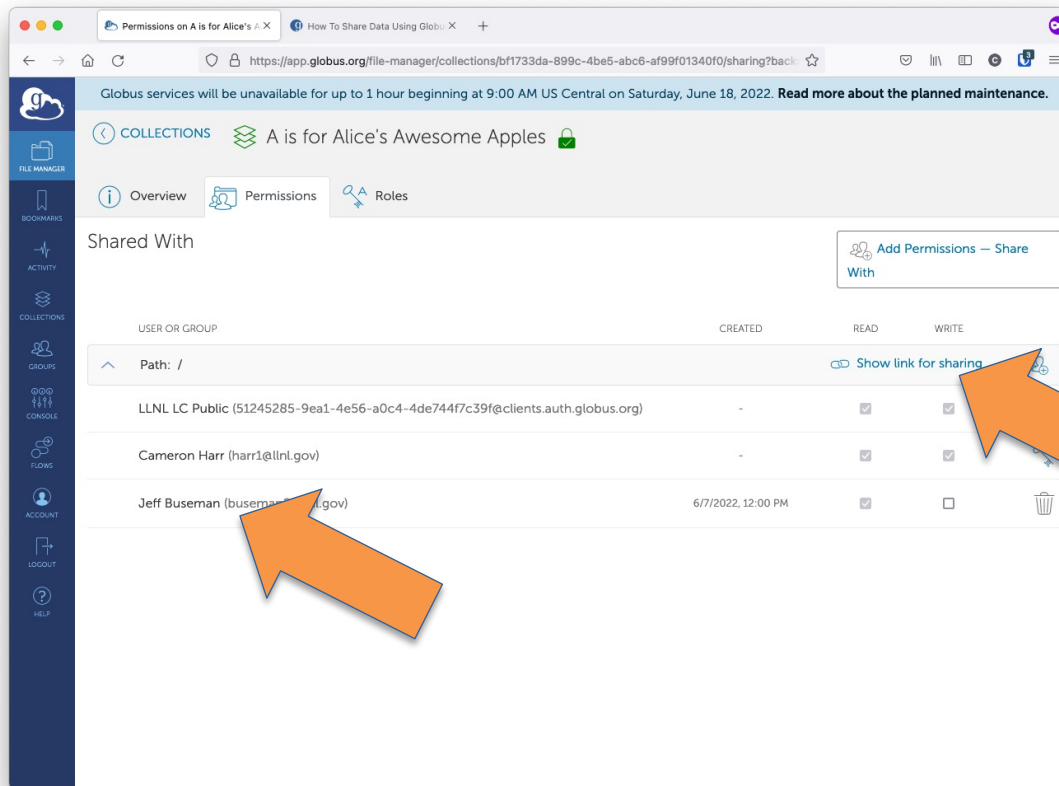
# Sharing Files (5)

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



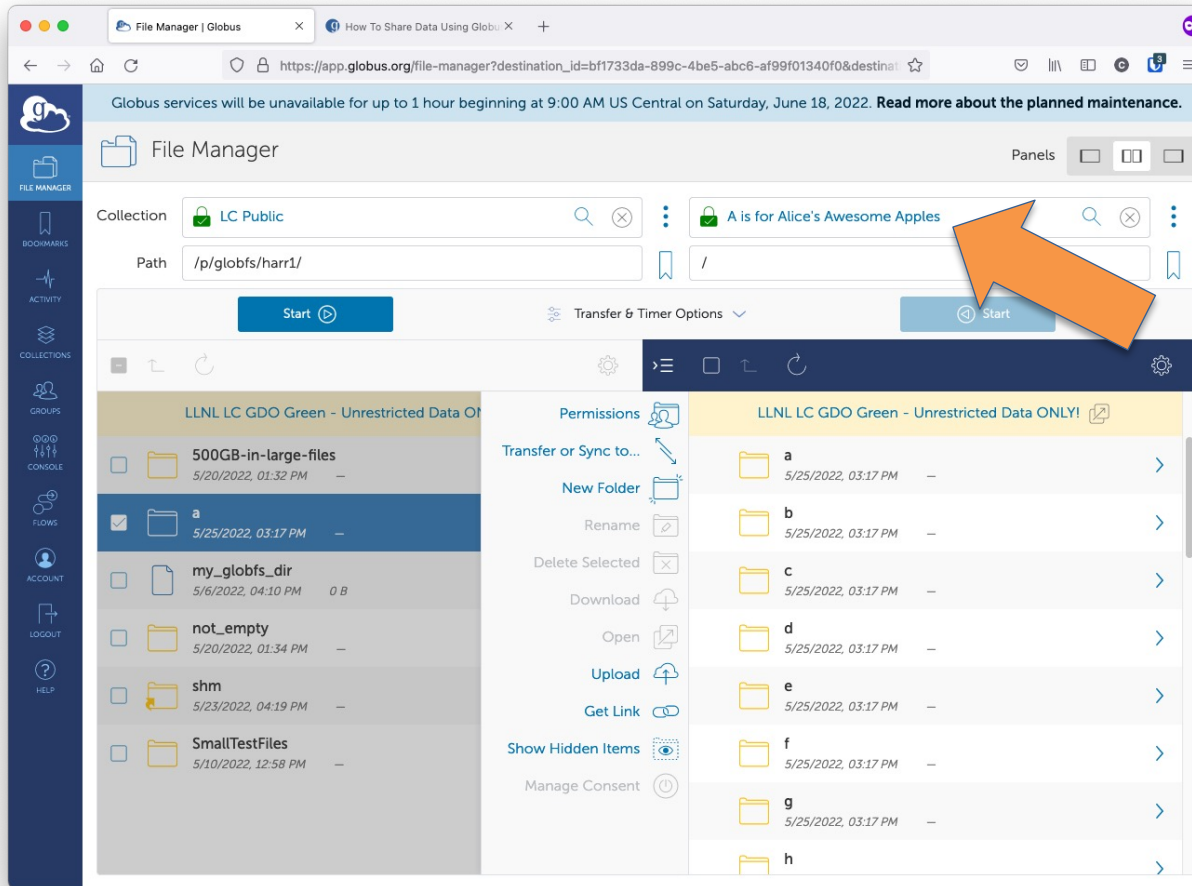
# Sharing Files (6)

- 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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# Network Diagram

