

Understanding the new data retrieval process at NUANCE

Presenter

Brian Roland
Data Management Specialist
Research Computing & Data Services

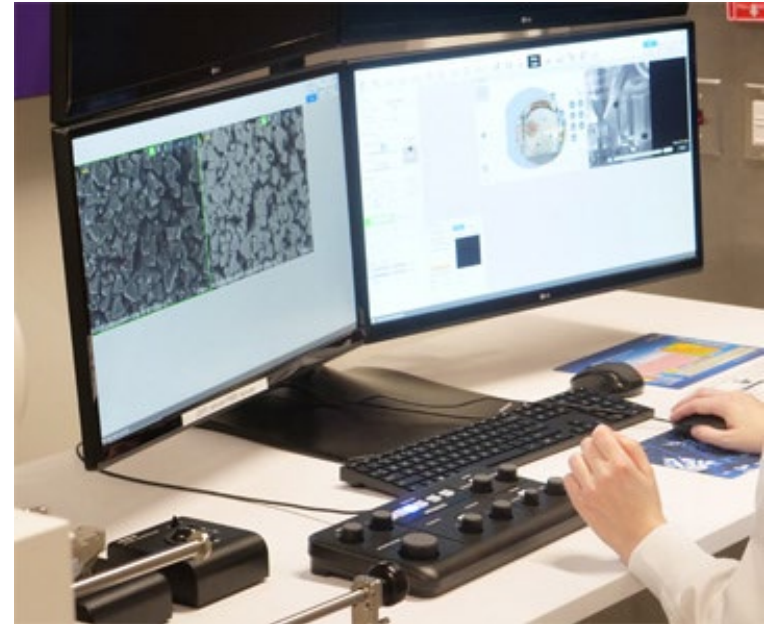
Slides by

Tobin Magle
Lead Data Management Specialist
Research Computing & Data Services

July 15, 2026

Today we'll cover...

- ✓ Why the new workflow?
- ✓ Workflow overview
 - How to save your data
 - How to access your data
 - How to get files to instrument computers
- ✓ How to transfer files using Globus
- ✓ Troubleshooting



Why the New Workflow?

Cybersecurity threats to higher ed are increasing

- Vendors **restrict software** that can be installed on computers that run scientific instruments
- Some instrument computers **can't run be patched** or run virus scanners
- **Goal:** Isolate vulnerable computers on a restricted network



Why the New Workflow?

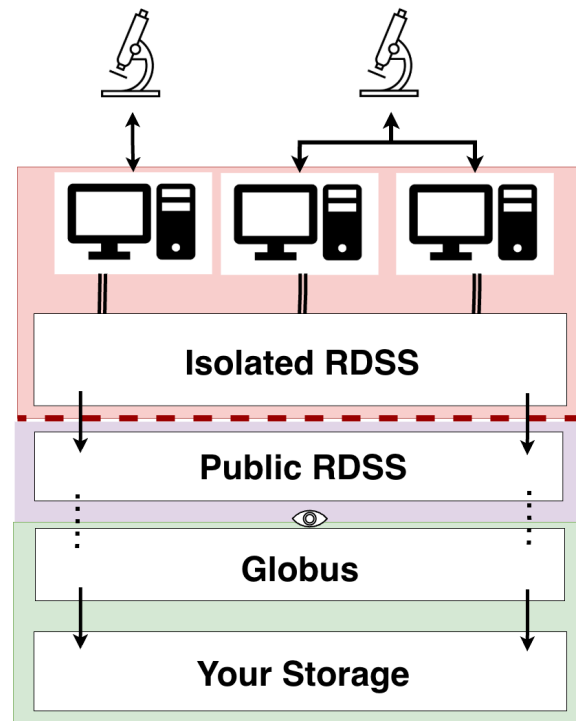
Make accessing data easier and more secure

- Old workflow required access from workstations in NUANCE facilities
- Everyone's data was accessible
- **Goal:** Access your data from anywhere, only have access to your data



The New Workflow

- Keeps vulnerable instrument computers isolated
- Uses centrally managed Research Computing & Data Services like the Research Data Storage Service (RDSS) and Globus
- Makes data accessible from anywhere in a secure, automated manner



Research Data Storage Service

Network-mountable research storage

- Temporary storage for data generated by NUANCE core facilities (30 – 90 days depending on the facility)
- Mounts to instrument computers
- Connects to Globus for user access



Globus

Move large amounts of data between storage platforms

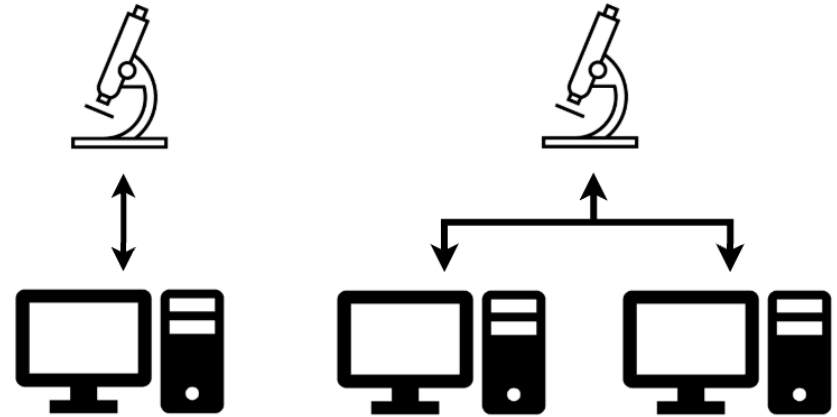
- Provides granular access to files in RDSS through **Guest Collections**
- Allows high-speed transfers to other **Globus Collections**
 - Most Northwestern Storage systems have Globus Collections
 - Install one on your computer



Workflow Overview

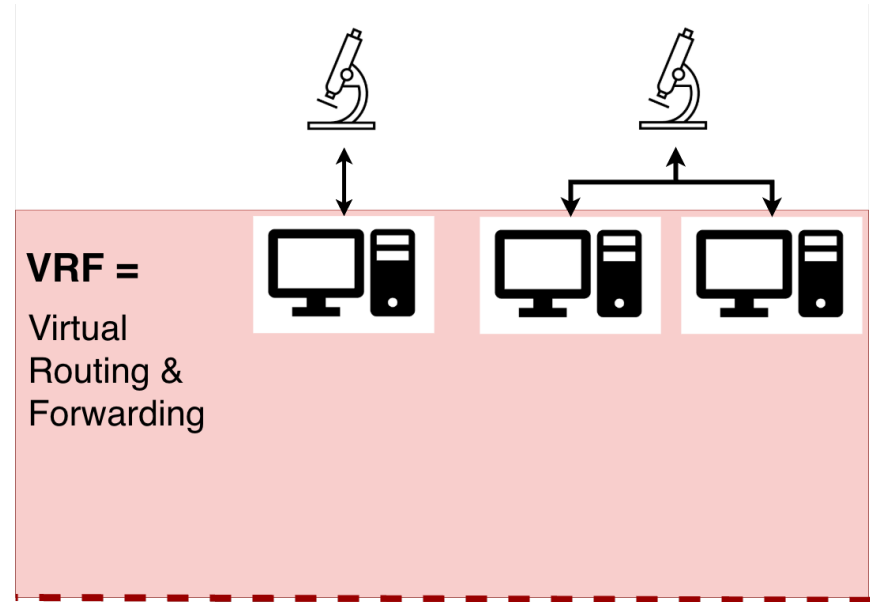
Workflow: Instrument Computers

- NUANCE Instruments connect to one or multiple computers that operate the instrument and collect data
- Many of these computers cannot be patched or run virus scans due to vendor restrictions



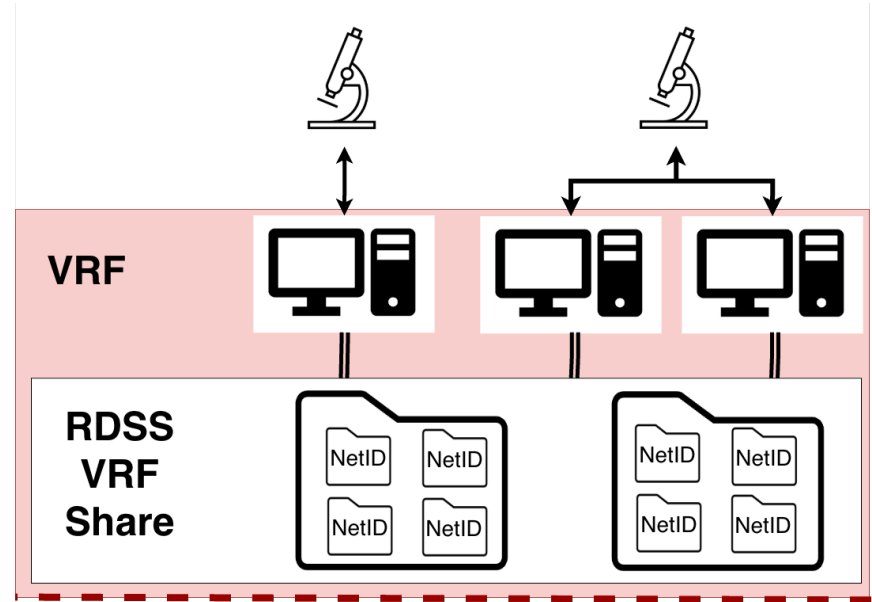
Workflow: An Isolated Network

- To protect them from cyberattacks, these computers are connected to an isolated network called a **VRF**
- Network traffic to these computers is restricted to only things necessary to maintain the instruments and move data



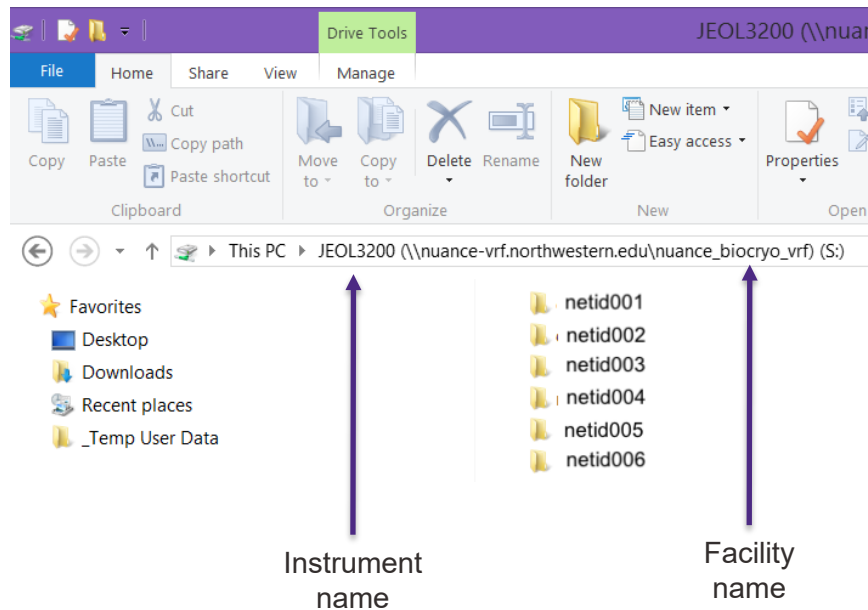
Workflow: An Isolated RDSS Share

- These computers are connected to isolated RDSS shares called VRF Shares
- These shares have a folder for every instrument. Each instrument has a subfolder for every user NetID
- The instrument computer will have its specific folder mounted. All NetID folders in that folder are accessible from the instrument computers



How to Save Your Data

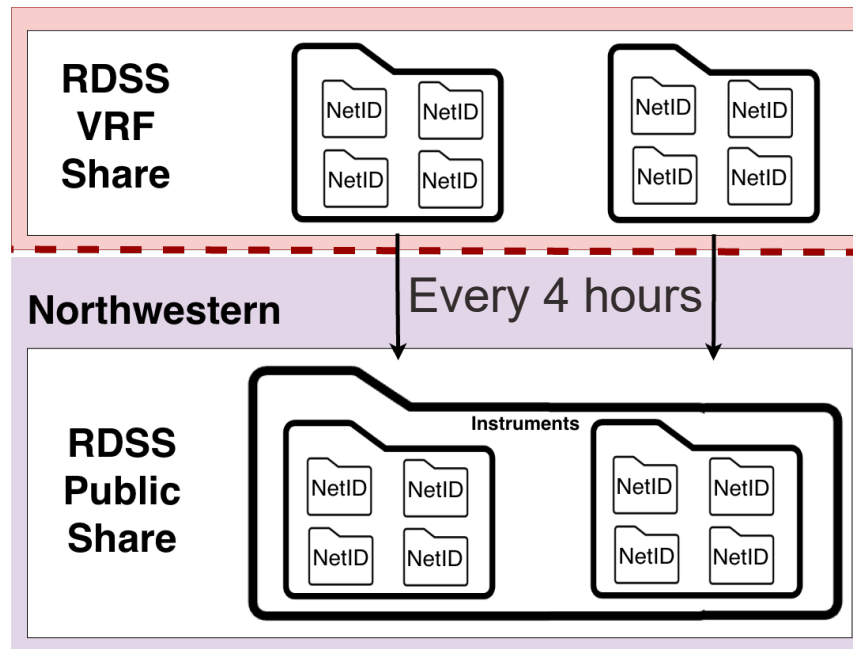
- The first time you use an instrument, create a folder named with your NetID (all lower case) in the instrument folder (e.g. JEOL 3200).
- Save your data in your NetID folder



Screen Shot Credit: Chris Sharpe, BioCryo

Workflow: A Public RDSS Share

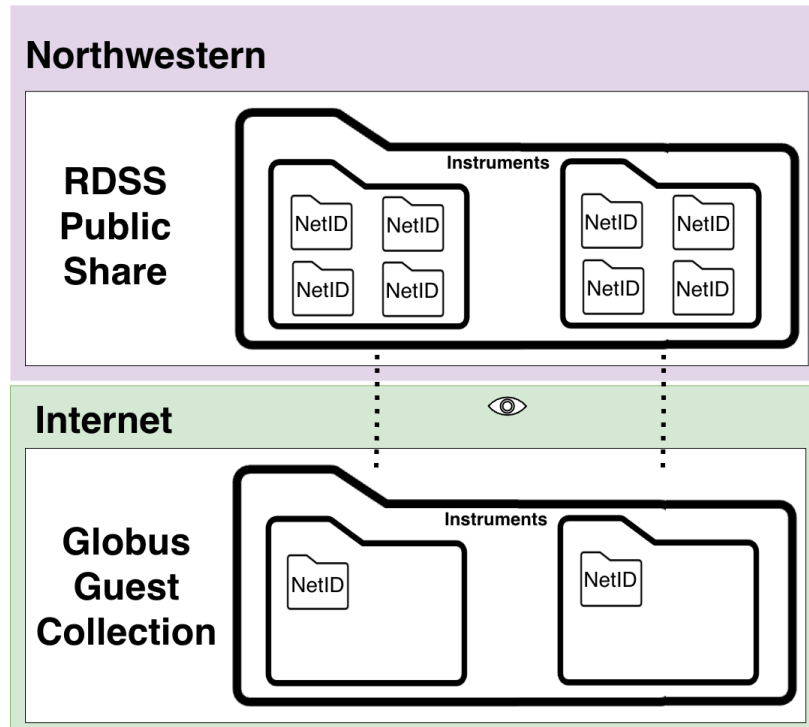
- VRF shares are synchronized to a folder named **"Instruments"** within a public RDSS share every 4 hours*
- This sync is one-way (data out only)
- The Instruments folder is "read only".
- NUANCE facility users do not access the public share directly



*This interval should get shorter soon

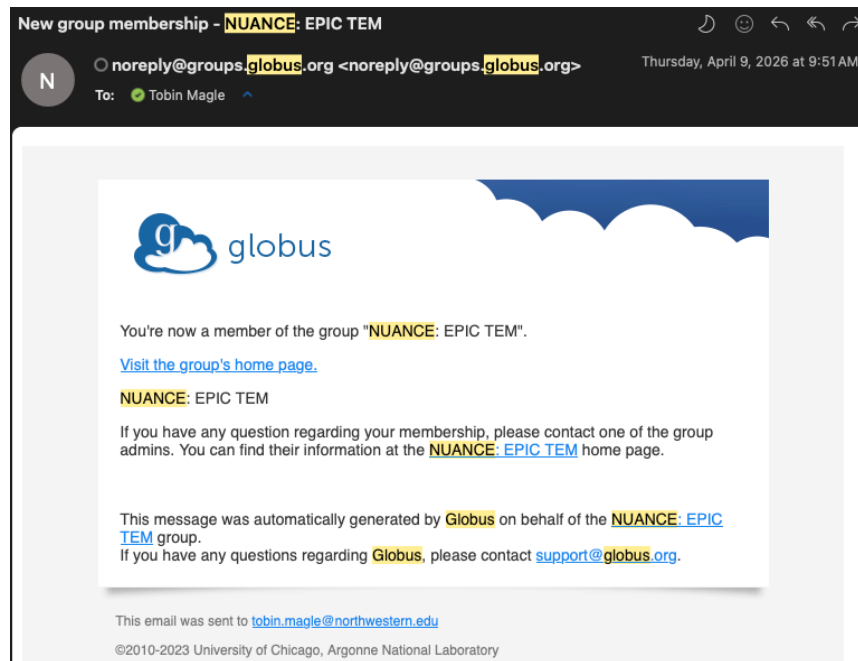
Workflow: Globus Guest Collection

- NUANCE facility users access data via **Globus Guest Collections**
- Guest collections are not a separate storage share – they are a restricted view of the Public RDSS share
- Users can **only their NetID folder** through Globus



Accessing Your Data

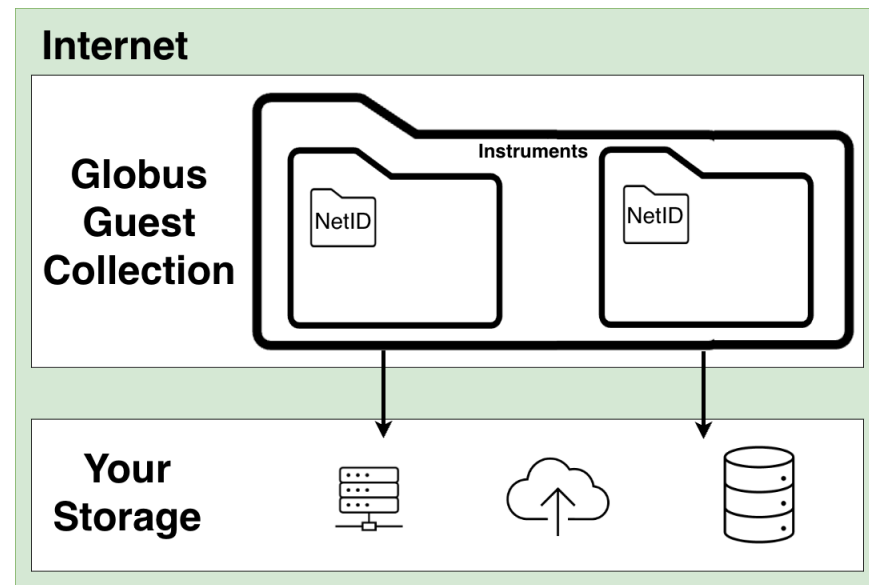
- Once your folder is synced to public share, your folder will be automatically shared with you via **Globus Guest collection***
- You will receive an email the first time you are added to any NUANCE Guest collection



*Process runs hourly, can be run on demand by core facility managers

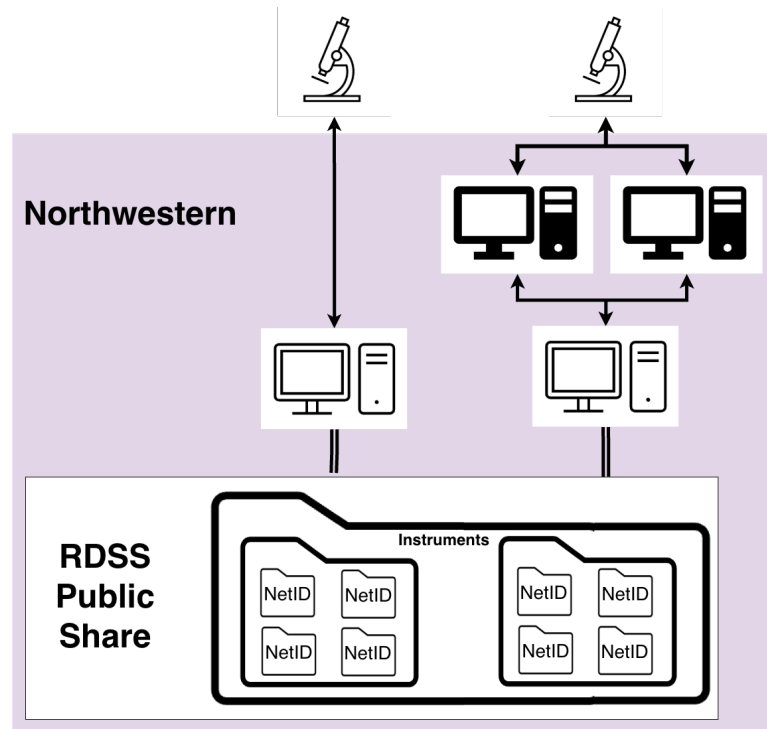
Workflow: Globus Transfer

- Use Globus to transfer your data to wherever your research group stores data
- Demos to follow



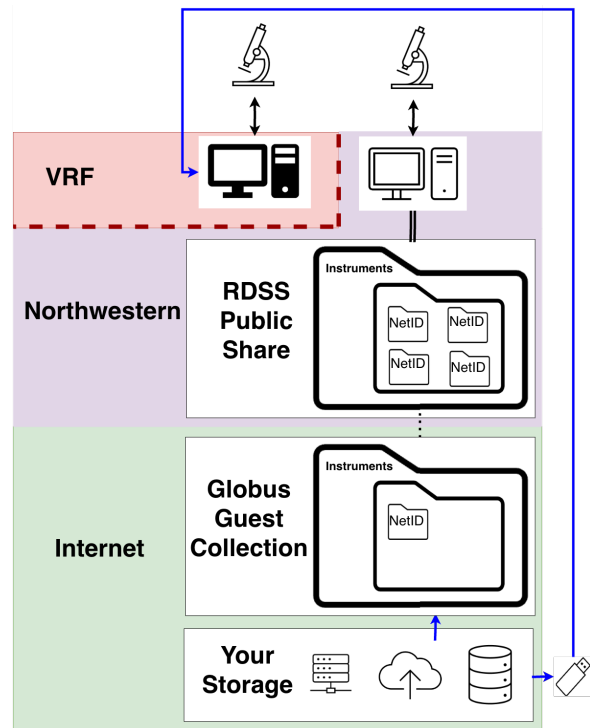
Skipping the VRF: EPIC FIB

- Instruments that can be patched and are running virus scanners can connect directly to the public share from the Northwestern network (Eg: EPIC FIB instruments)
- The Instrument folder is read-write
- Data can move in or out via Globus



Workflow: Getting Files In

- For instruments that have VRF computers, use a USB drive provided by NUANCE to move files onto the computer
- For instrument computers on the Northwestern network, use Globus to transfer data into your folder



Using Globus

Log in to Globus

- Go to <https://www.globus.org/>
- Click “Log in” on the upper right



Log in to Globus

- Go to <https://www.globus.org/>
- Click **Log in** on the upper right
- Select **Northwestern University** under **Use your organizational login**

Log in

Use your organizational login
e.g., university, national lab, facility, project

North

- Northwestern University
- North-West University
- Northeastern University
- Northern Lights College
- Northern Arizona University
- Northern Illinois University
- Northern Michigan University

Didn't find your organization? Then use [Globus ID to sign in](#). ([What's this?](#))

You Are Logged In


DASHBOARD

FILE MANAGER

ACTIVITY

COLLECTIONS

GROUPS

FLOWS

COMPUTE

TIMERS

Dashboard

Update in 4:01  

Transfer and Delete Tasks

Active 0	Failed 0	Succeeded 24
	LAST 7 DAYS	LAST 7 DAYS

> Start a Task from the [File Manager](#)

Flow Runs

No flow runs in the last 7 days.

> Start a Run from the [Flows Library](#)

Timers

Active 0	Paused 1	Ended 0
--------------------	--------------------	-------------------

> Configure a [Transfer Task](#) or [Flow Run](#) Timer

Notifications

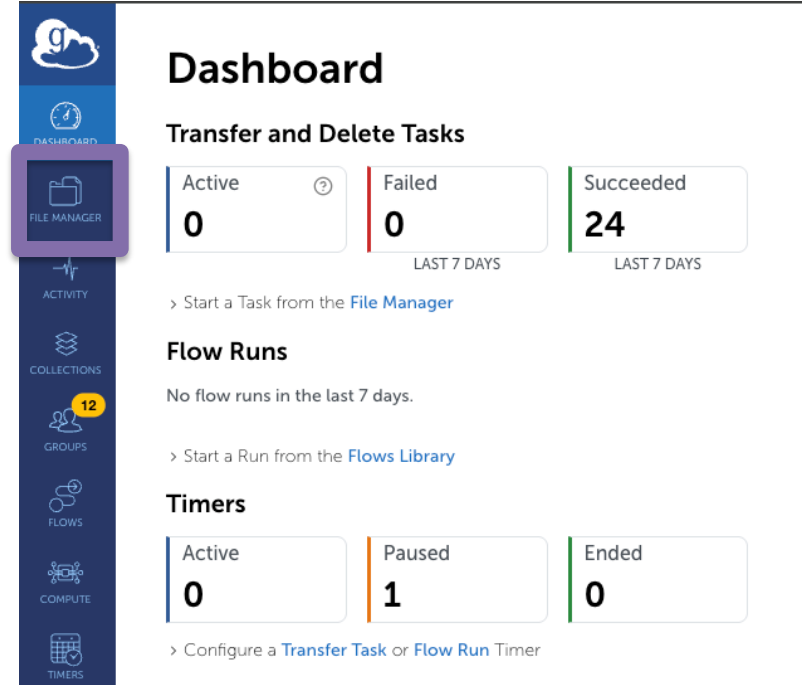
No notifications

Announcements

Free Globus subscriptions are now available for any non-profit organization with an annual research budget of less than \$4 million.

Find the Core Facility Guest Collection

- Select **File Manager** on the left sidebar



Dashboard

Transfer and Delete Tasks

Active	Failed	Succeeded
0	0	24
LAST 7 DAYS		LAST 7 DAYS

> Start a Task from the [File Manager](#)

Flow Runs

No flow runs in the last 7 days.

> Start a Run from the [Flows Library](#)

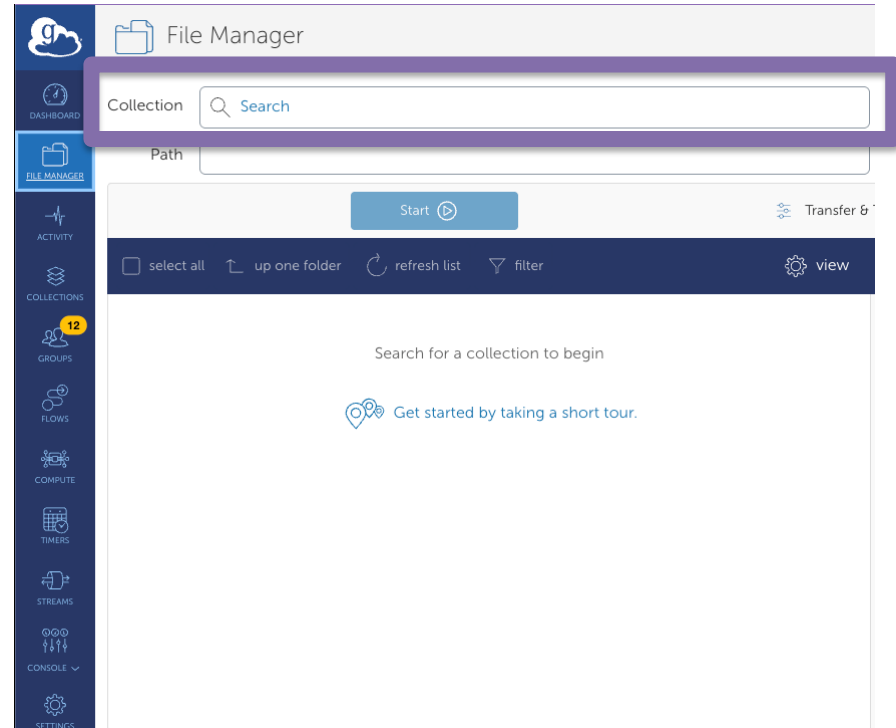
Timers

Active	Paused	Ended
0	1	0

> Configure a [Transfer Task](#) or [Flow Run](#) Timer

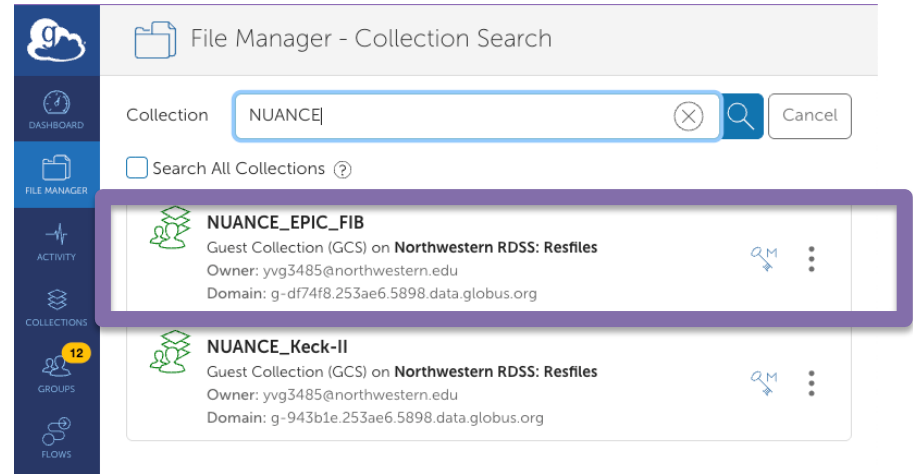
Find the Core Facility Guest Collection

- Select **File Manager** on the left sidebar
- Search for “**NUANCE**” in the **Collection** search bar



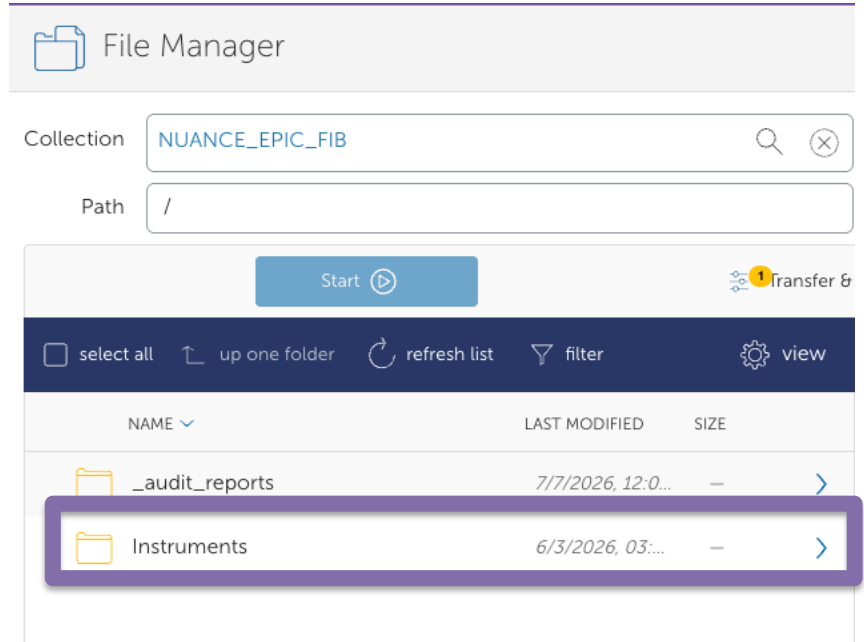
Find the Core Facility Guest Collection

- Select **File Manager** on the left sidebar
- Search for “**NUANCE**” in the **Collection** search bar
- Select the facility you generated data in



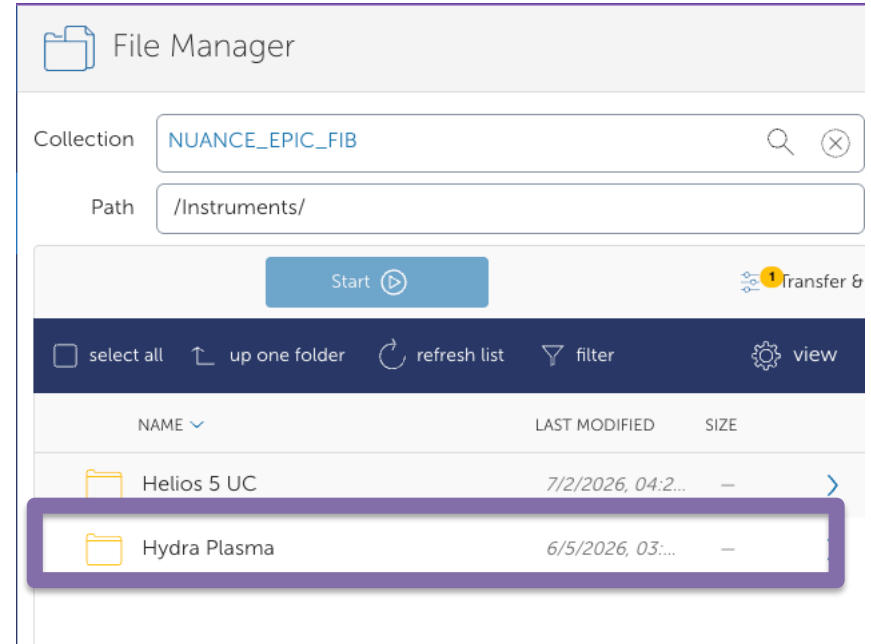
Find Your Data

- Navigate into the **Instruments** folder



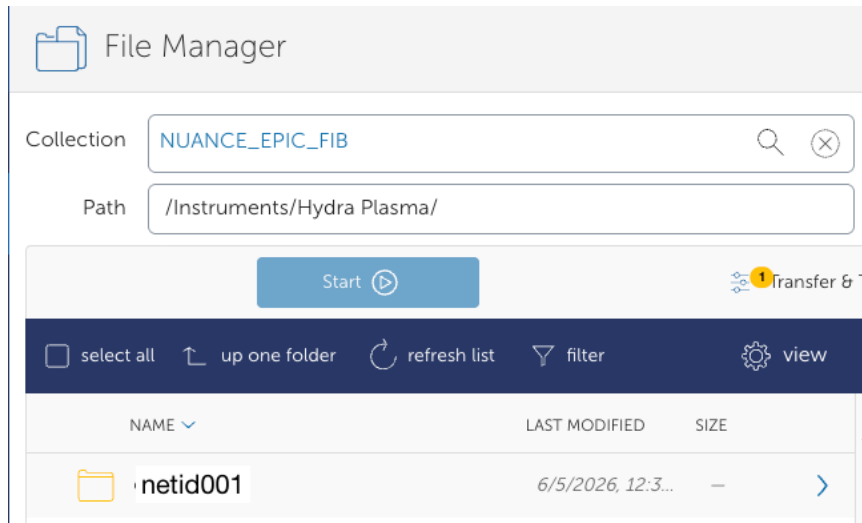
Find Your Data

- Navigate into the **Instruments** folder
- Select the instrument you used



Find Your Data

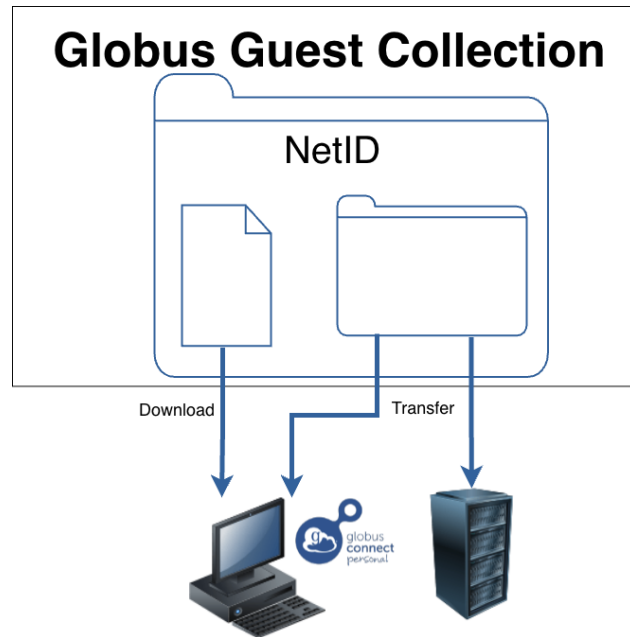
- Navigate into the **Instruments** folder
- Select the instrument you used
- Navigate into your NetID folder



Retrieving Your Data

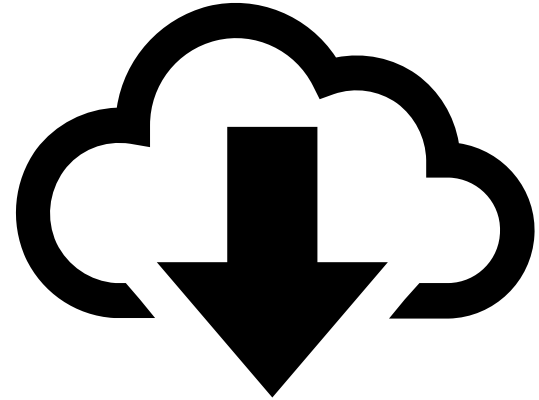
3 ways to retrieve your data

1. Download single files from the web interface
2. Transfer to your computer using Globus connect personal
3. Transfer to a Northwestern storage system



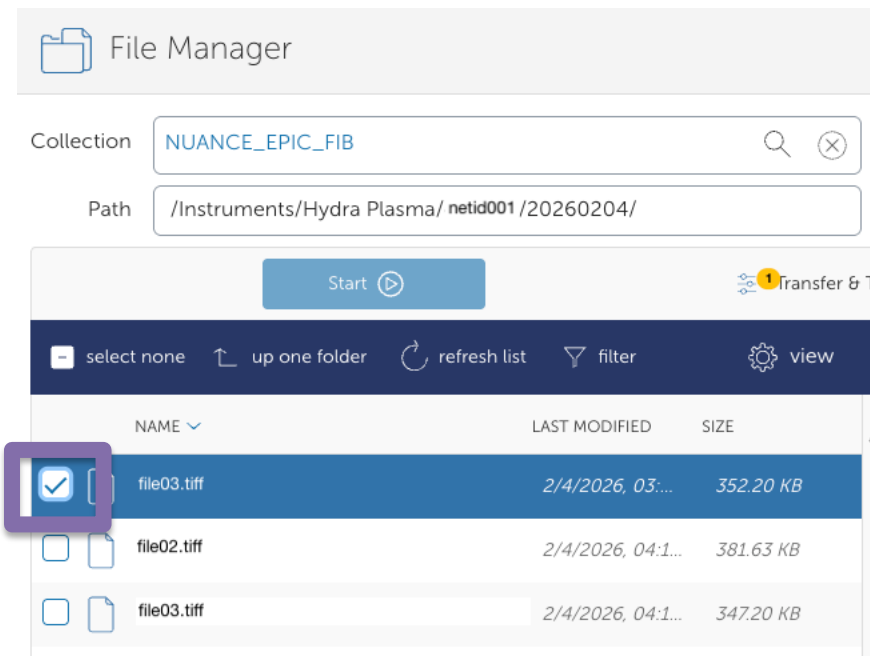
Download from Web When...

- You want the files on your computer
- You only need a few files
- The files are relatively small (<2 GB)



Download from Web

- Check the box to the left of the file you want to download

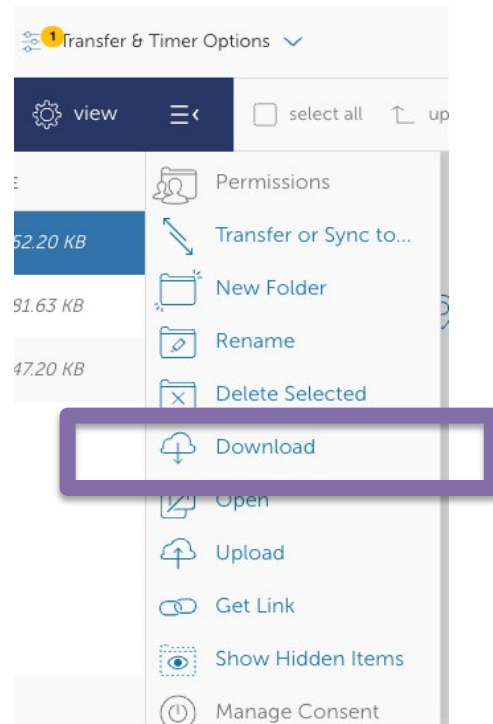


The screenshot shows a 'File Manager' interface. At the top, there's a 'Collection' dropdown set to 'NUANCE_EPIC_FIB' and a 'Path' field set to '/Instruments/Hydra Plasma/ netid001 /20260204/'. Below this is a 'Start' button and a 'Transfer & T' icon. A toolbar contains 'select none', 'up one folder', 'refresh list', 'filter', and 'view' options. A table lists files with columns for 'NAME', 'LAST MODIFIED', and 'SIZE'. The first row, 'file03.tiff', is highlighted in blue, and its selection checkbox is checked and enclosed in a purple box. The other two rows, 'file02.tiff' and 'file03.tiff', have unchecked checkboxes.

NAME	LAST MODIFIED	SIZE
☒ file03.tiff	2/4/2026, 03:...	352.20 KB
☐ file02.tiff	2/4/2026, 04:1...	381.63 KB
☐ file03.tiff	2/4/2026, 04:1...	347.20 KB

Download from Web

- Check the box to the left of the file you want to download
- Click **Download** in the center panel.
- A new window will open. You might be asked to authenticate.



Download from Web

- Check the box to the left of the file you want to download
- Click **Download** in the center panel
- A new window will open, and you might be asked to authenticate
- Click **Allow**
- The file will download

Collection "NUANCE_EPIC_FIB" would like to:

- ✓ Manage data using Globus Transfer ⓘ
- ✓ View your identity ⓘ
- ✓ View identity details ⓘ

To work, the above will need to: ✓

By clicking "Allow", you allow Collection "NUANCE_EPIC_FIB" (this client has not provided terms of service or a privacy policy to Globus) to use the above listed information and services. You can rescind this and other [consents](#) ⓘ at any time.



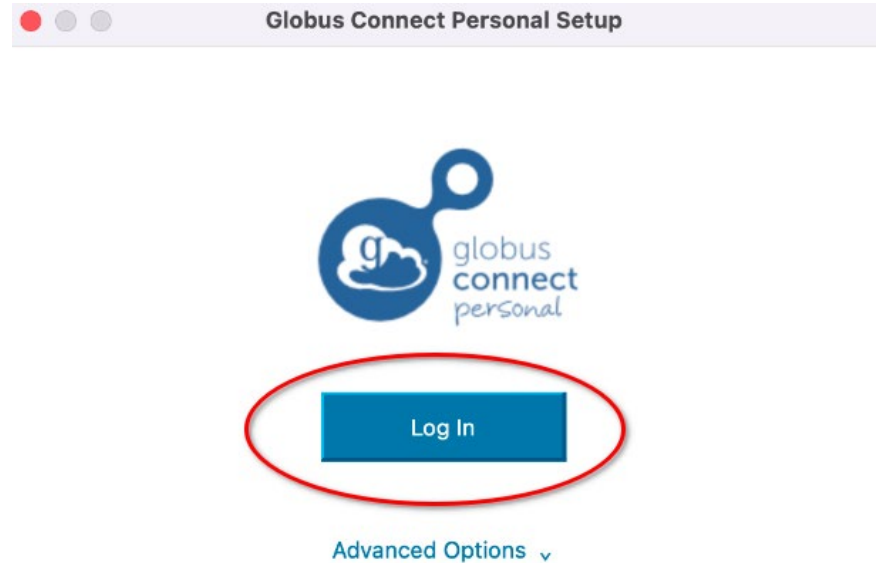
Use Globus Connect Personal When...

- You want the files on your computer
- You only need whole folders or many files
- The files are relatively large (>2 GB)



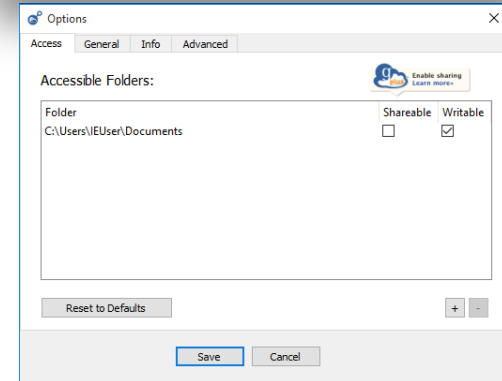
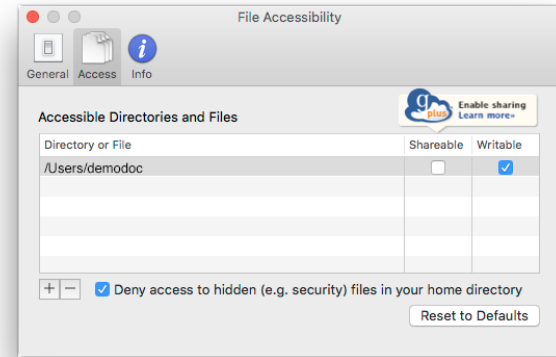
Install Globus Connect Personal

- Go to:
<https://www.globus.org/globus-connect-personal>
- Scroll down to **Install Globus Connect Personal**
- Select **Install Now** under your operating system
- Follow the installation instructions



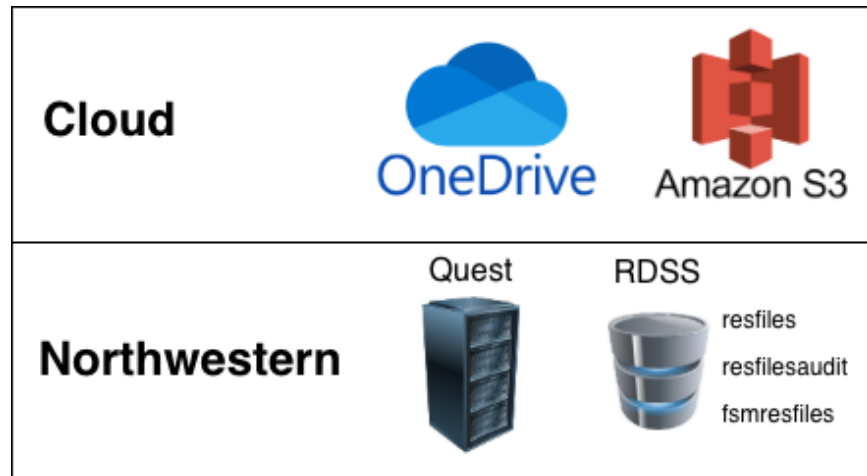
Configure Globus Connect Personal

- Choose which files on your computer you want Globus to have access to
- The default access depends on your OS
- You can add/remove paths in the Settings/Options/Config file
- See instructions for details



Use Northwestern Globus collections when...

- You want the files on a Northwestern storage system that has a Globus collection
- You only need whole folders or many files
- The files are relatively large (>2 GB)



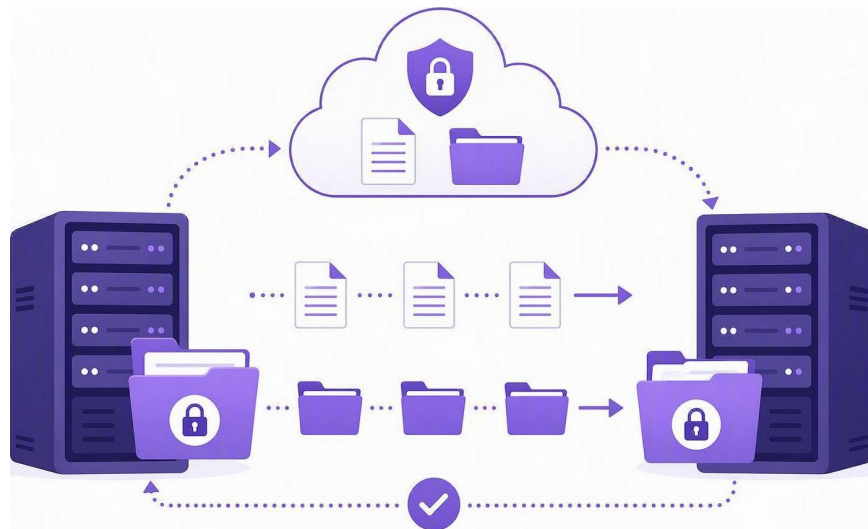
See instructions for how to use these collections here:

<https://rcdsdocs.it.northwestern.edu/systems/globus/globus-collection.html>

Transferring Files

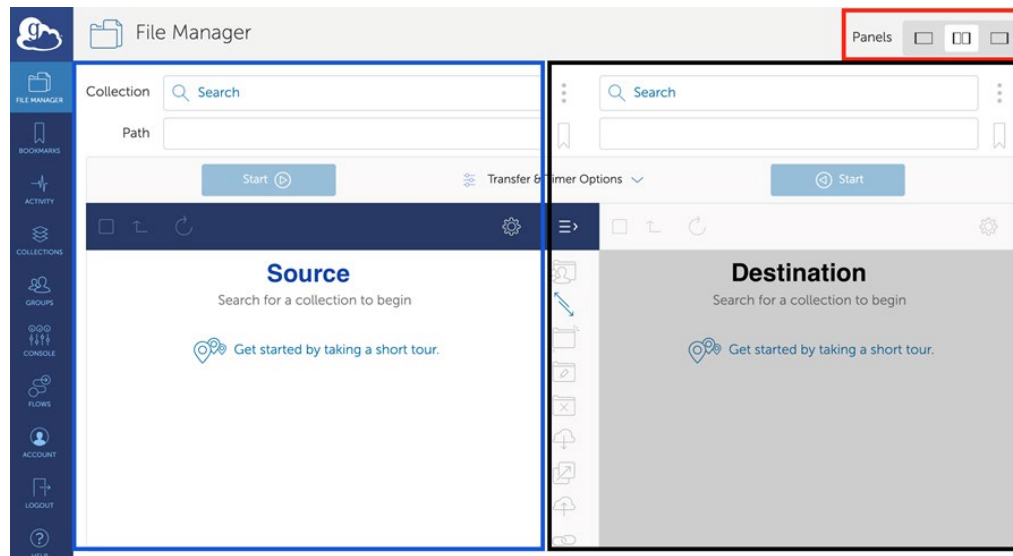
The process for transferring files is the same for...

- Personal Collections
- Collections for Northwestern Storage Systems
- Guest Collections



How to Transfer Files

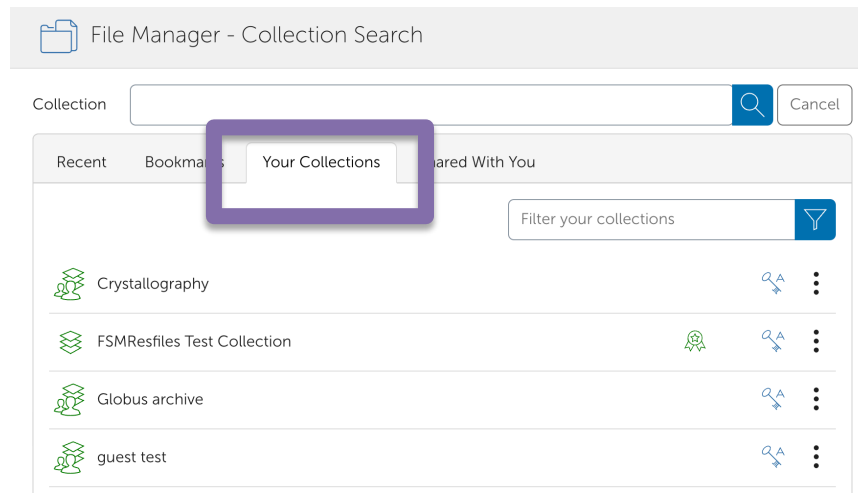
- Go to **File Manager**
- **Select your source:** NUANCE Collection
- **Select your destination:**
Where you store your research data



<https://rcdsdocs.it.northwestern.edu/systems/globus/globus-transfer.html>

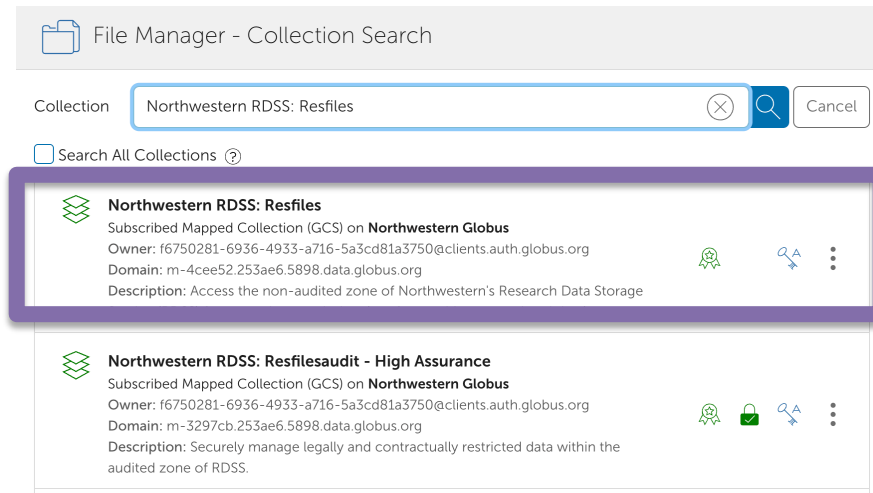
Finding a Personal Collection

- Go to **File Manager**
- Click the **Collection** search box
- Click the **Your Collections** tab
- Click the name of your personal collection



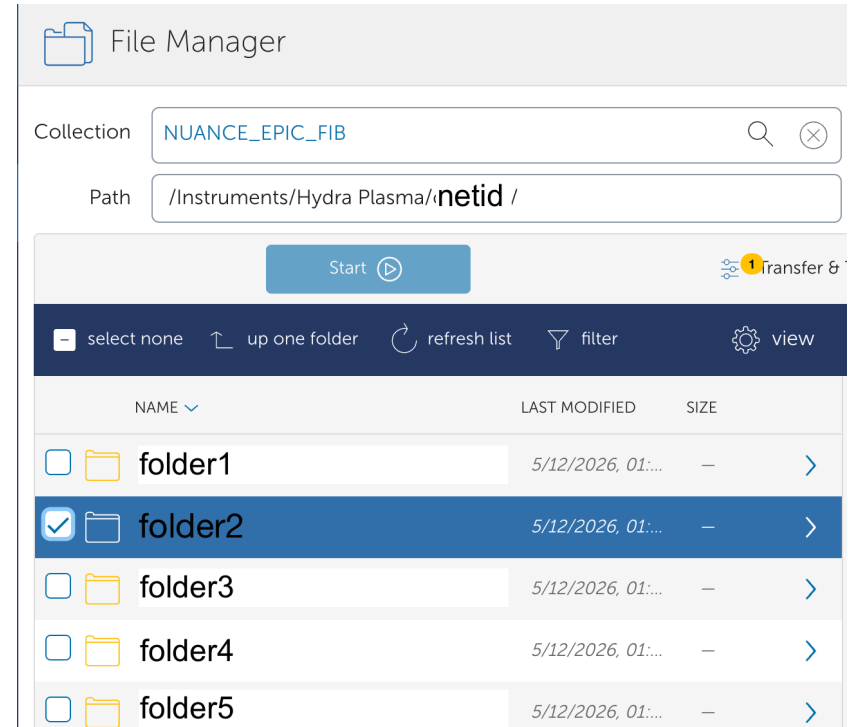
Finding a Northwestern Globus Collection

- Go to **File Manager**
- Click the **Collection** search box
- Search for the name of the collection (e.g. Northwestern RDSS: Resfiles)
- Click on the name of the collection



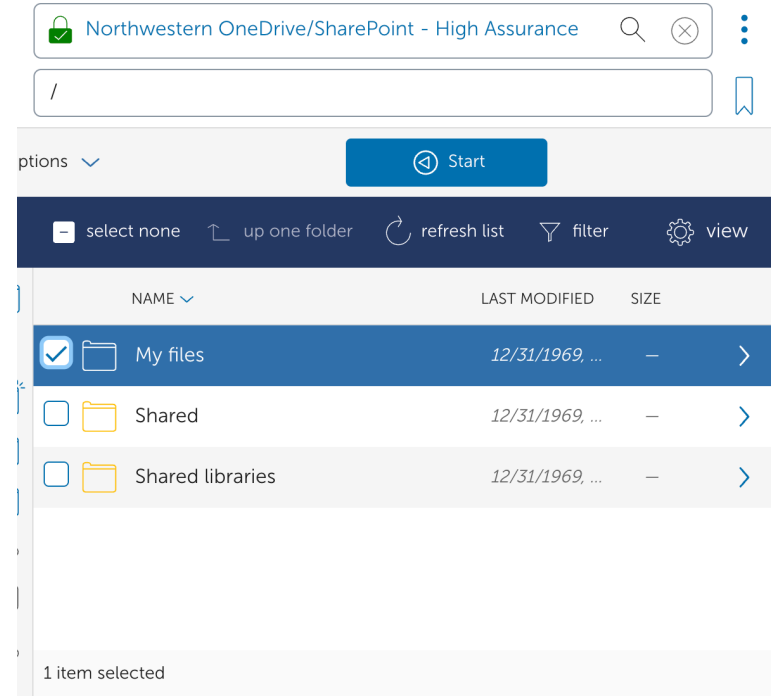
Select Files/Folders on Source

- Go to the NUANCE Guest collection
- Select the check box(es) to the left of the file(s) or folder(s) you would like to transfer



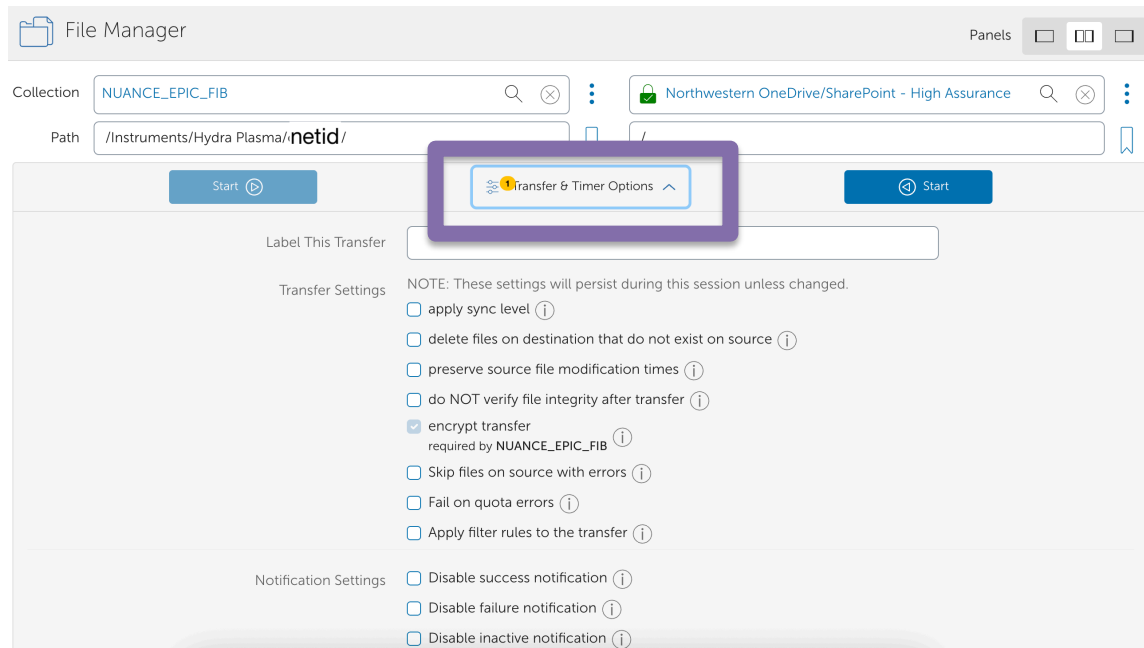
Select Folder on Destination

- Go to the destination collection (E.g. Northwestern OneDrive/SharePoint)
- Select the check box to the left of the folder you would like to transfer the files to



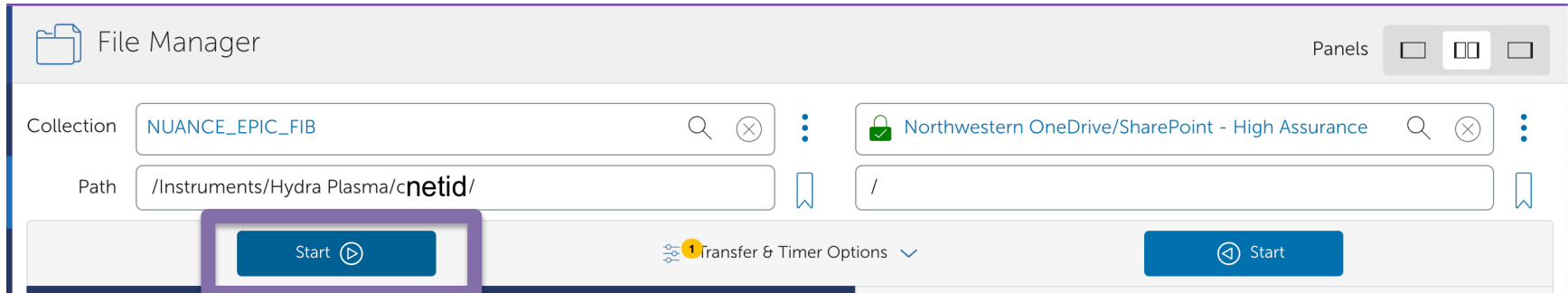
Choose Transfer Options

Click info buttons on right for descriptions



Start the Transfer

Click the start button below the source



Check Transfer Progress

Overview

- See if the transfer has started yet and how many files and how much data it has transferred
- **Optional:** Edit the label with more specific information about the transfer

NUANCE_EPIC_FIB to Northwestern OneDrive/SharePoint - High Assurance

Overview | Event Log

Task Label	NUANCE_EPIC_FIB to Northwestern OneDrive/SharePoint - High Assurance
Source	► NUANCE_EPIC_FIB
Source Local User	yvg3485@ads.northwestern.edu
Source Mapped Collection	► Northwestern RDSS: Resfiles
Destination	► Northwestern OneDrive/SharePoint - High Assurance
Destination Local User	ctm6768@ads.northwestern.edu
Task ID	9704eca7-7beb-11f1-b0e7-0aff7074b21
Owner	► Tobin Magle (netid @northwestern.edu)
Condition	ACTIVE
Requested	7/9/2026, 06:12 PM
Deadline	7/10/2026, 06:12 PM
Duration	15 seconds
Base Paths	Source /Instruments/Hydra%20Plasma/netid / Destination /My%20files/

[Edit Label](#)

[× Terminate Task](#)

[|| Pause Task](#)

0 Files

0 Directories

0 Files Transferred

0 B Bytes Transferred

0 B/s Effective Speed ⓘ

n/a Skipped files on sync

n/a Skipped files on error

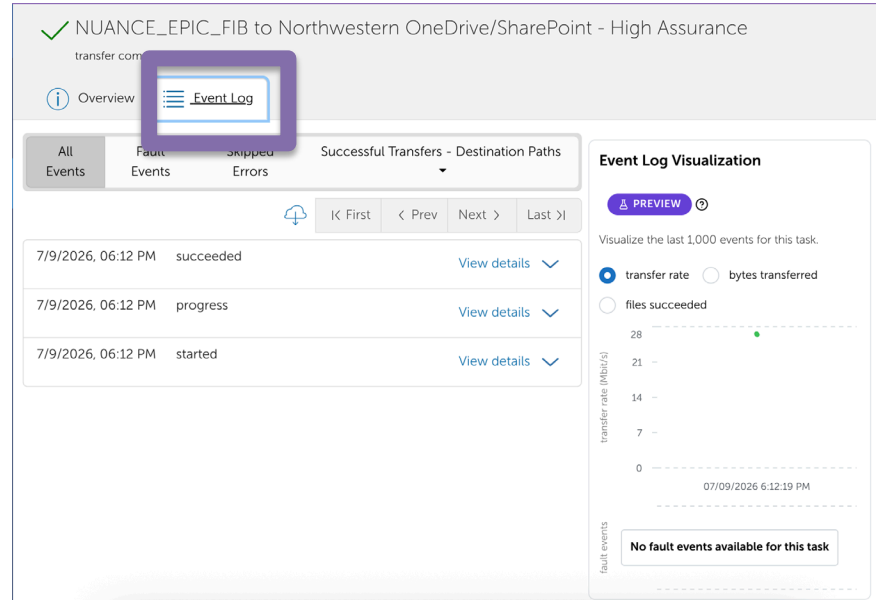
[View debug data](#)

Transfer Settings: ... verify file integrity after transfer

Check Transfer Progress

Event Log

- See real time, file level progress with details about transfer events
- Details about errors (if applicable)



Troubleshooting

Troubleshooting

The VRF Share isn't mounted to the instrument computer.

- Restarting the computer will re-mount the VRF share
- You will need the core facility manager to log back in to the computer

Troubleshooting

I saved my data in my netid folder, but I don't see it in Globus

- How long has it been? Worst case scenario it should take about ~6 hours to be available.

Troubleshooting

I saved my data in my netid folder, but I don't see it in Globus

- Did you save your data in the right location? If not, move it from the instrument computer.
 - Is your folder named your netid, all lower case?
 - Did you save your data in someone else's folder?

Troubleshooting

I saved my data in my netid folder, but I don't see it in Globus

- Have you ruled out the first two possibilities?
- Are other core users having the same issue?
- If so email globus-help@northwestern.edu for help.

Troubleshooting

My transfer to OneDrive/SharePoint is taking a long time

- **What error messages are you getting in Globus?** Timeout error messages indicate that you have hit Microsoft's limit for how much data you can transfer in one day. The transfer will pick up again when you have more bandwidth.

Troubleshooting

My transfer to my computer keeps stopping

- **Is your computer online 24/7?** Unlike when you transfer data to a Northwestern collection, if you're sending data directly to your computer through Globus connect personal, you have to make sure your computer stays connected to the internet for the transfer to progress. The good news is that if you disconnect, the transfer will pick up where it left off when you reconnect.

Questions?

How to get help after this session

- Documentation: <https://rcdsdocs.it.northwestern.edu/>
- Request a consultation:
<https://services.northwestern.edu/TDClient/30/Portal/Requests/Service/92/Research-Data-Management-Consulting>
- Globus troubleshooting: globus-help@northwestern.edu