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## **Lamar University Science DMZ**

**An Introduction to Lamar University's Science DMZ and Globus**

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# Objectives

## Agenda

- What is a Science DMZ
- How is it built
- What is Globus
- How Does Globus work
- How do I use Globus
- Questions

## Desired Outcome

- A general understanding of a science DMZ and the basic knowledge of how Globus works.





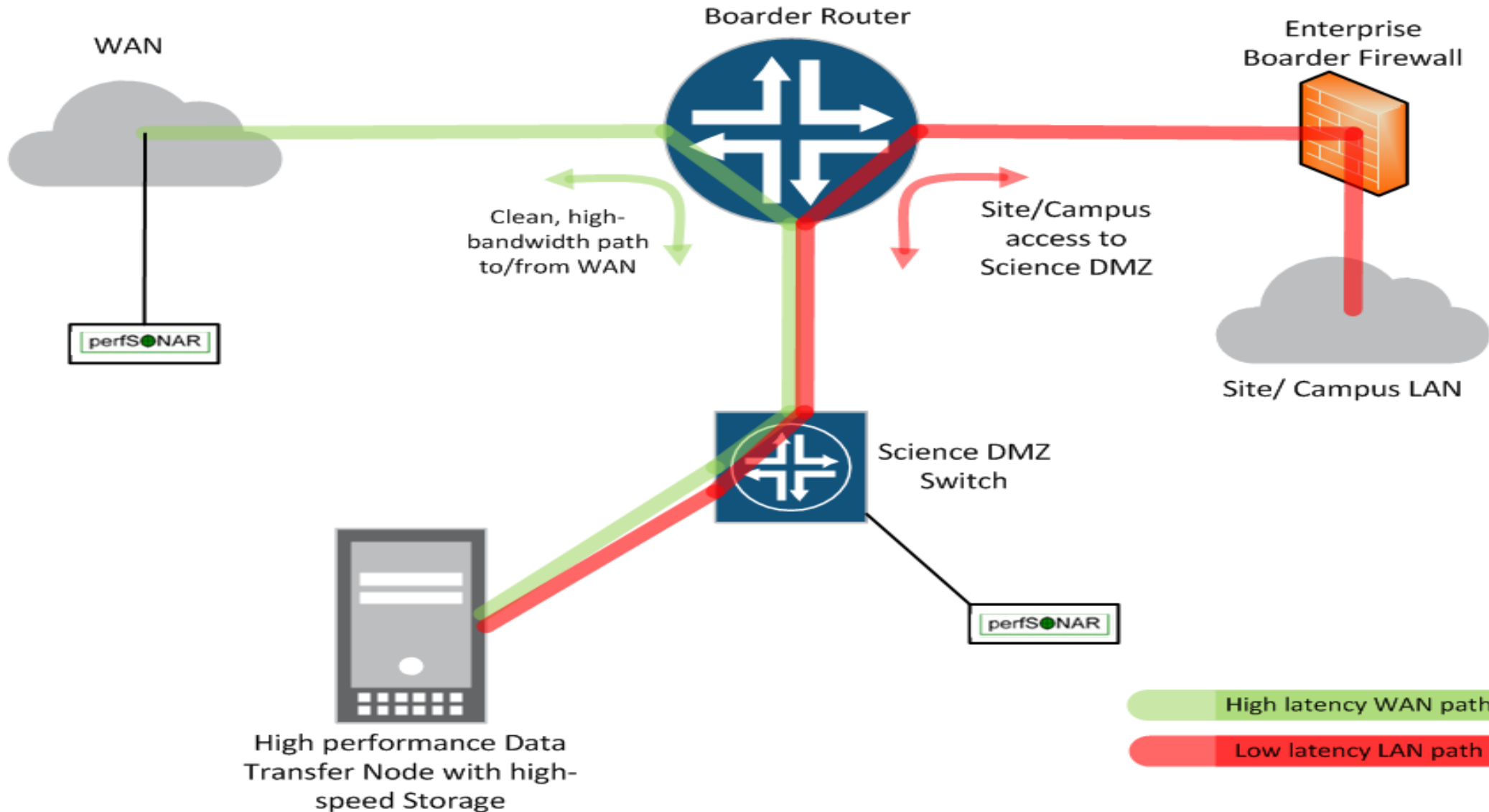
# What is a Science DMZ

## A Scalable Network Design Model for Optimizing Science Data Transfers

- The Science DMZ is a portion of the network, built at the network perimeter that is designed such that the equipment, configuration, and security policies are optimized for high-performance scientific applications.
- Developed by ESnet to address common performance issues at research institutions



# What is a Science DMZ Cont:





## How is ours built

- Applied for and received an NSF grant to implement the DMZ
- Lamar University has 10gbps of bandwidth dedicated to campus research
- Purchased high speed 10gbps switches at the campus perimeter for the science DMZ
- Purchased a high speed Data transfer node with a SSD raid with over 5TB of storage.
- Purchased a perfsonar testing machine for testing available bandwidth

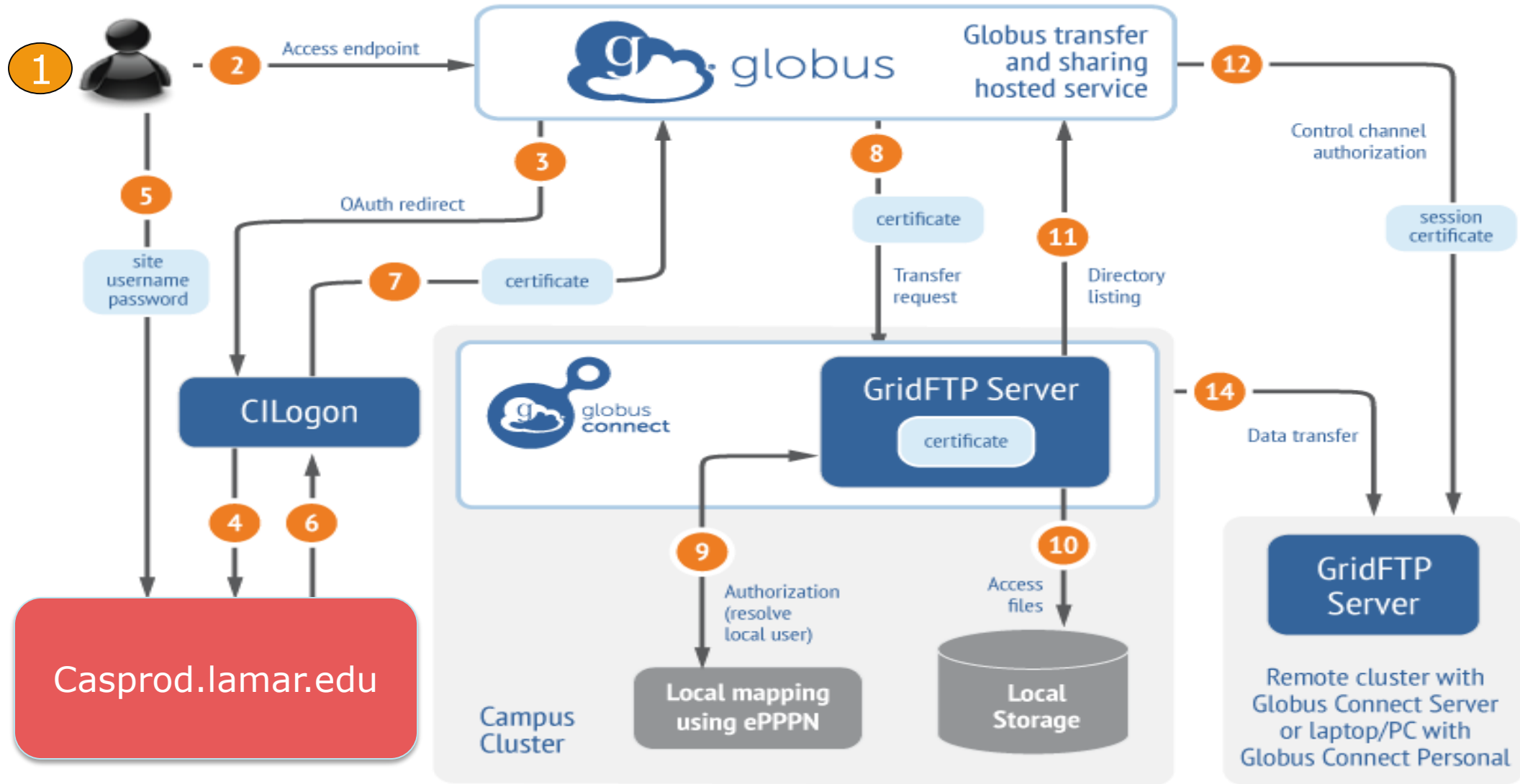


## What is Globus

- Globus was developed by computer scientists at University of Chicago and Argonne national laboratory
- Designed for Researchers by Researchers
- Key Terms
  - Endpoint
  - Globus Connect Personal
    - ▶ Globus on your Machine from You to the DTN
  - Globus Connect Server
    - ▶ Globus on the DTN LU's DTN runs Globus for easy file transfers

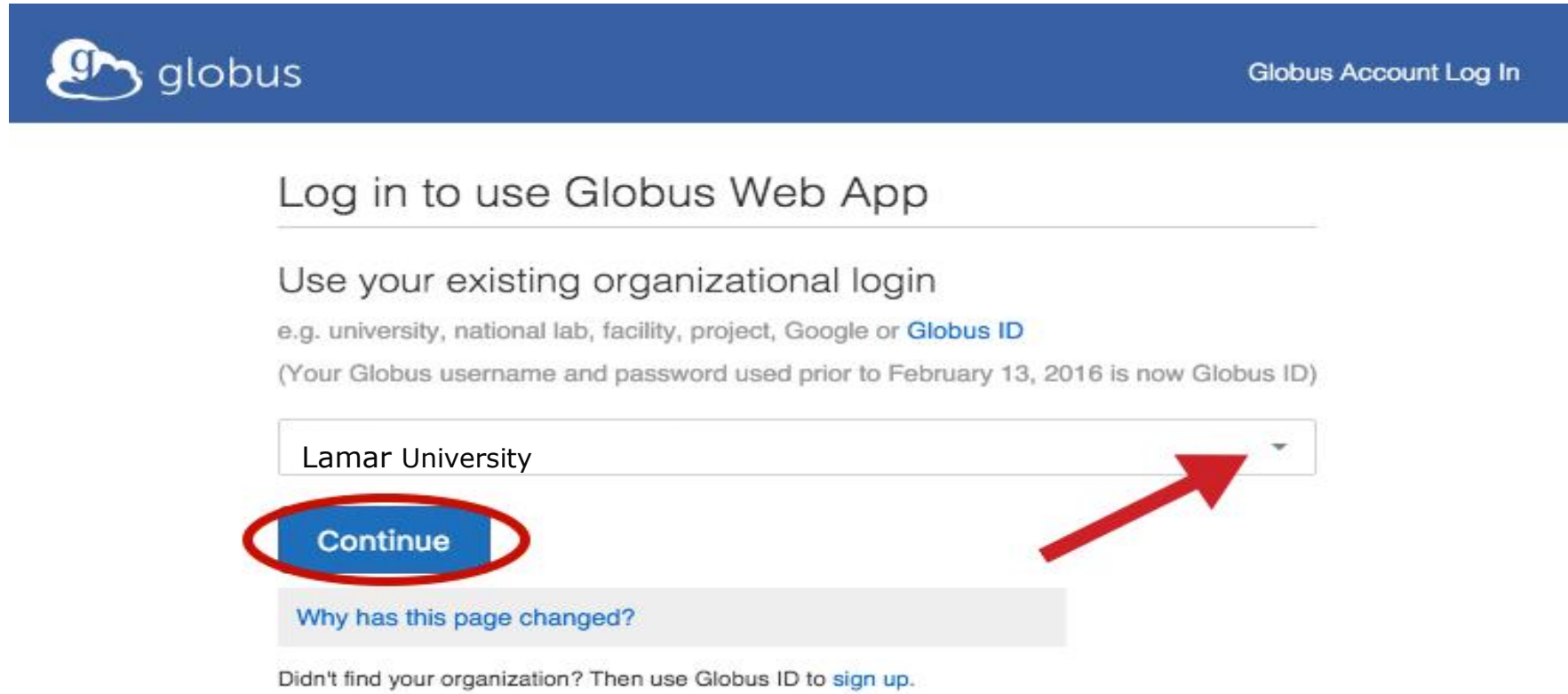


# How does Globus work





# How does Globus Work Continued




The screenshot shows the Globus Account Log In page. At the top left is the Globus logo, and at the top right is the text "Globus Account Log In". Below this is a heading "Log in to use Globus Web App" followed by a horizontal line. The main text reads "Use your existing organizational login" with examples: "e.g. university, national lab, facility, project, Google or [Globus ID](#)". A note in parentheses states: "(Your Globus username and password used prior to February 13, 2016 is now Globus ID)". Below this is a dropdown menu with "Lamar University" selected. A red arrow points to the dropdown arrow. Below the dropdown is a blue "Continue" button, which is circled in red. Below the button is a link: "[Why has this page changed?](#)". At the bottom, it says "Didn't find your organization? Then use Globus ID to [sign up](#)."





# How does Globus Work Continued

https://casprod.lamar.edu/cas/login?entityId=https://cilogon.org/shibboleth&service LU Connect



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Log in with your LEA, the account you use to log in to LU Email and LU Learn.


LEA Username:

Password:

**LOGIN** clear

**For security reasons, you should close your browser after log out.**

[Forgot your username or password?](#)



This is a Lamar University authentication system and is the property of Lamar University, TSUS and state of Texas. It is for authorized use only. Users (authorized or unauthorized) have no explicit or implicit expectation of privacy except provided by applicable privacy laws. Any or all uses of this system and all files on this system may be intercepted, monitored, recorded copied, audited, inspected and disclosed to authorized university and law enforcement personnel. By using this system, the user consents to such interception monitoring, recording, copying, auditing, inspection and disclosure. Unauthorized or improper use of this system may result in administrative disciplinary action and civil and criminal penalties. By continuing to use this system you indicate your awareness of and consent to these terms and conditions of use.



# How does Globus Work Continued



## Link to an Existing Globus Account?

You may add your **Google** login as a linked identity. This will allow you to access your previously used account along with all of its permissions and history using either login.

[Link to an existing account](#)

[No thanks, continue](#)

[Why should I link accounts?](#)

[What is my Globus account?](#)



# How does Globus Work Continued



Complete Your Sign Up For **yourLEA@lamar.edu**

Name Globus DemoDoc\*

Email **yourLEA@lamar.edu**

Organization

- This account will be used for
- non-profit research or educational purposes
  - commercial purposes
  - I have read and agree to the Globus [Terms of Service](#) and [Privacy Policy](#).

**Continue**

\* This field is specified by the identity provider, and cannot be modified by Globus. If you change it with your identity provider, it will propagate to Globus the next time you log in.



# How does Globus Work Continued



Globus Web App would like to:

- ✓ View your identities on Globus Auth ⓘ
- ✓ Manage your Globus Groups ⓘ
- ✓ Transfer files using Globus Transfer ⓘ

To work, the above will need to:

- ✓ Manage your Globus Groups ⓘ
- ✓ View your identities on Globus Auth ⓘ

By clicking "Allow", you allow **Globus Web App**, in accordance with its [terms of service](#) and [privacy policy](#), to use the above listed information and services. You can rescind this and other [consents](#) at any time.





# How does Globus Work Continued

The screenshot shows the Globus web interface. At the top, there is a navigation bar with the Globus logo and several menu items: 'Manage Data', 'Publish', 'Groups', 'Support', and 'Account'. Below this, a secondary navigation bar contains 'Transfer Files' (highlighted with a red circle), 'Activity', 'Endpoints', 'Bookmarks', and 'Console'. The main content area is titled 'Transfer Files' and features a 'RECENT ACTIVITY' section with three circular indicators, each containing a '0'. Below this, there are two side-by-side panels for selecting source and destination endpoints. Each panel has an 'Endpoint' field with a placeholder 'Start here...', a 'Path' field, and a 'Go' button. Between the panels are left and right arrow buttons. The main area of each panel contains the text 'Start by selecting an endpoint.'. At the bottom of the interface, there is a 'Label This Transfer' field with a placeholder and a note 'This will be displayed in your transfer activity.'. Below that is a 'Transfer Settings' section with five checkboxes: 'sync - only transfer new or changed files', 'delete files on destination that do not exist on source', 'preserve source file modification times', 'verify file integrity after transfer' (which is checked), and 'encrypt transfer'. A link 'Get Globus Connect Personal Turn your computer into an endpoint.' is located at the bottom right of the interface.



# How does Globus Work Continued

g globus Manage Data Publish Groups Support Account

Transfer Files | Activity | Endpoints | Bookmarks | Console

## Transfer Files

RECENT ACTIVITY 0 0 0

Endpoint Start here... ☆

Path Go

Endpoint Path Go

Start by selecting an endpoint.

Start by selecting an endpoint.

Label This Transfer

This will be displayed in your transfer activity.

Transfer Settings

- sync - only transfer new or changed files ?
- delete files on destination that do not exist on source ?
- preserve source file modification times ?
- verify file integrity after transfer ?
- encrypt transfer ?

Get Globus Connect Personal  
Turn your computer into an endpoint.



# How does Globus Work Continued

The screenshot shows the Globus web interface for transferring files. At the top, there is a navigation bar with the Globus logo and links for Manage Data, Publish, Groups, Support, and Account. Below this, there are links for Transfer Files, Activity, Endpoints, Bookmarks, and Console. The main area is titled "Transfer Files" and shows a "RECENT ACTIVITY" section with three empty slots.

The interface is split into two panels for source and destination endpoints. The left panel is for "Globus Tutorial Endpoint 1" with the path "/share/godata/". It contains a list of files: file1.txt (4 B), file2.txt (4 B), and file3.txt (6 B). The right panel is for "Globus Tutorial Endpoint 2" with the path "/-/" and is currently empty.

Red circles highlight the endpoint names, the path fields, and the file list. A red arrow points to the blue play button in the center, which is used to start the transfer. Below the panels, there is a "Label This Transfer" field and "Transfer Settings" with several checkboxes: "sync - only transfer new or changed files", "delete files on destination that do not exist on source", "preserve source file modification times", "verify file integrity after transfer" (checked), and "encrypt transfer".



# How does Globus Work Continued

The screenshot shows the Globus web interface. At the top is a blue navigation bar with the Globus logo and links for 'Manage Data', 'Publish', 'Groups', 'Support', and 'Account'. Below this is a secondary navigation bar with links for 'Transfer Files', 'Activity', 'Endpoints', 'Bookmarks', and 'Console'. The main heading is 'Transfer Files'. To the right of the heading is a 'RECENT ACTIVITY' section showing a green circle with the number '1', a grey triangle with '0', and a grey hexagon with '0'. A green notification banner at the top of the main content area reads: 'Transfer request submitted successfully. Task id: 39345bf2-e6e4-11e5-979b-22000b9da45e'. Below the notification are two endpoint panels. The left panel has 'Endpoint: Globus Tutorial Endpoint 1' and 'Path: /share/godata/'. The right panel has 'Endpoint: Globus Tutorial Endpoint 2' and 'Path: /~/'. Below each panel is a file list. The left panel's list shows 'file1.txt' (4 B), 'file2.txt' (4 B), and 'file3.txt' (6 B). The right panel's list is currently empty. Two red arrows point to the notification banner and the 'RECENT ACTIVITY' section.





# How does Globus Work Continued

The screenshot shows the Globus web interface. At the top, there is a dark blue navigation bar with the Globus logo on the left and several menu items on the right: 'Manage Data', 'Publish', 'Groups', 'Support', and 'Account'. Below this bar, a secondary navigation bar contains links for 'Transfer Files', 'Activity', 'Endpoints', 'Bookmarks', and 'Console'. The 'Activity' link is circled in red. Below the navigation, the 'Activity' section is displayed, featuring tabs for 'Recent Activity' and 'History', and a search box labeled 'filter by task label or type'. A single activity entry is shown with a green checkmark icon, the text 'Globus Tutorial Endpoint 1 to Globus Tutorial Endpoint 2', and the status 'transfer completed a few seconds ago'. A red arrow points to a three-dot menu icon on the right side of this activity entry.



# How does Globus Work Continued

The screenshot shows the Globus web interface. At the top, there is a navigation bar with the Globus logo and links for 'Manage Data', 'Publish', 'Groups', 'Support', and 'Account'. Below this, there are links for 'Transfer Files', 'Activity', 'Endpoints', 'Bookmarks', and 'Console'. The main content area is titled 'Activity' and shows a 'Task List' with one task: 'Globus Tutorial Endpoint 1 to Globus Tutorial Endpoint 2', which is marked as completed. Below the task title, there are tabs for 'Overview' and 'Event Log'. The 'Overview' tab is active and displays the following information:

Task ID	39345bf2-e6e4-11e5-979b-22000b9da45e
Source	Globus Tutorial Endpoint 1 <i>i</i>
Destination	Globus Tutorial Endpoint 2 <i>i</i>
Condition	SUCCEEDED
User	demodoc
Requested	2016-03-10 11:19 am
Completed	2016-03-10 11:19 am
Transfer Settings	<ul style="list-style-type: none"><li>• verify file integrity after transfer</li><li>• transfer is not encrypted</li><li>• overwriting all files on destination</li></ul>

On the right side of the overview, there is a summary of transfer statistics:

Files	2
Directories	0
Bytes Transferred	8 B
Effective Speed	9 B/s
Pending	0
Succeeded	2
Cancelled	0
Expired	0
Failed	0
Retrying	0
Skipped	0

At the bottom right of the statistics box, there is a link that says 'view debug data'.



## How to Request Access to the Science DMZ

- While anyone can setup an account through Globus allowing access to use the University DTN and Science DMZ is tightly controlled
- A proposed use case from a sponsoring faculty advisor can be submitted to the Research and Sponsored Programs office and must include the following:
  - Included with the proposed use case would need to be the names and LEA account names of all faculty and students accessing this project
  - The amount of storage needed for the project
  - How long the project will run
  - Where are you storing the data after it is off the DTN



## How do I use Globus

- Go to the Globus website [www.globus.org](http://www.globus.org)
- Login with your LEA account
- If you already have a Globus account you can link your LEA to your Globus account for easier access to the LU DTN
- Install Globus Connect personal on the machine you are transferring from
- Select the LU DTN **Lamar University DTN 1** and transfer your files to it
- After your transfer is completed you can use the LU DTN to transfer off campus at high speeds



# Questions – Comments

