An Introduction to Lamar University’s Science DMZ and Globus

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May 23, 2017
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:

- **WAN**
- **Boarder Router**
- **Enterprise Boarder Firewall**
- **Site/Campus access to Science DMZ**
- **Site/ Campus LAN**
- **Science DMZ Switch**
- **High performance Data Transfer Node with high-speed Storage**
- **Clean, high-bandwidth path to/from WAN**

High latency WAN path
Low latency LAN path

[Image from fasterdata.es.net](https://fasterdata.es.net/science-dmz/science-dmz-architecture/)
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

Log in to use Globus Web App

Use your existing organizational login
e.g. university, national lab, facility, project, Google or Globus ID
(Your Globus username and password used prior to February 13, 2016 is now Globus ID)

Lamar University

Continue

Why has this page changed?

Didn't find your organization? Then use Globus ID to sign up.
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?
Complete Your Sign Up For yourLEA@lamar.edu

Name: Globus DemoDoc*
Email: yourLEA@lamar.edu
Organization: Lamar University

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.

[Allow]
How does Globus Work Continued
How does Globus Work Continued
How does Globus Work Continued
How does Globus Work Continued
How does Globus Work Continued

**Activity**

- **Globus Tutorial Endpoint 1 to Globus Tutorial Endpoint 2**
  - transfer completed a few seconds ago
How does Globus Work Continued

Activity

Task List

Globus Tutorial Endpoint 1 to Globus Tutorial Endpoint 2
transfer completed a minute ago

Overview

Task ID: 39345b2-e6e4-11e5-979b-22000b9da45e
Source: Globus Tutorial Endpoint 1
Destination: Globus Tutorial Endpoint 2
Condition: SUCCEEDED
User: demodoc
Requested: 2016-03-10 11:19 am
Completed: 2016-03-10 11:19 am

Transfer Settings:
- verify file integrity after transfer
- transfer is not encrypted
- overwriting all files on destination

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

Event Log

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