

ISU's Research Data Center (RDC)

Dr. Neels Van der Schyf, VPR

Keith T. Weber, GIS Director

Randy Gaines, CIO

Mark Norviel, NetCom Manager

Tony Lovgren, ITS

Kindra Blair, Research Systems Administrator

Agenda

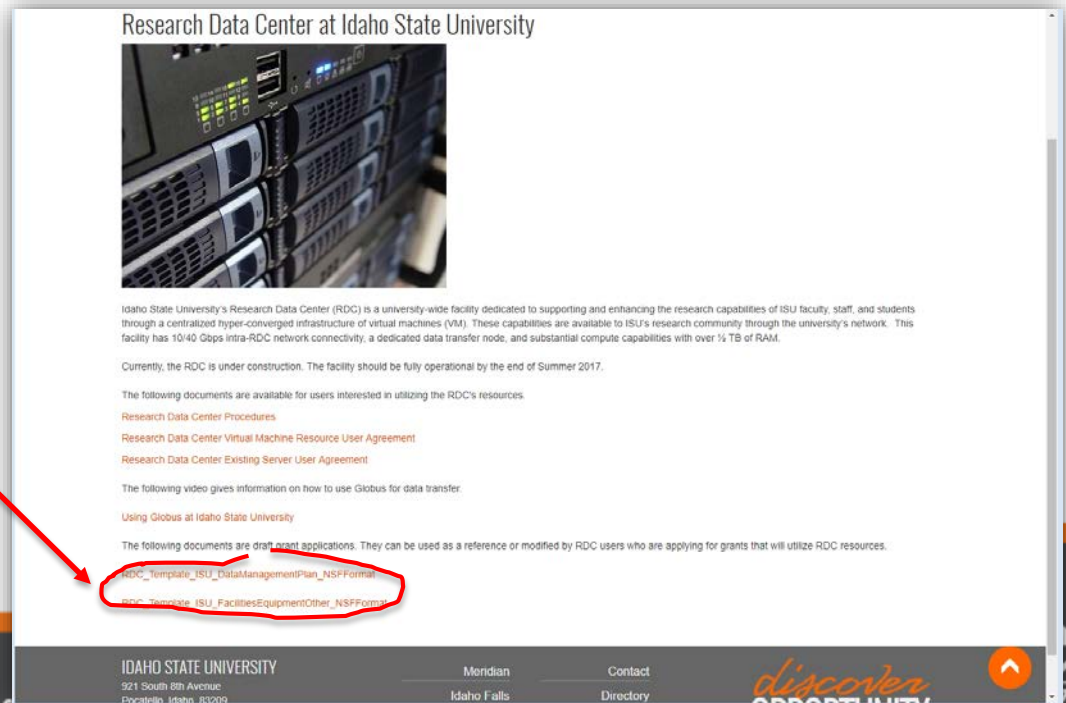
- Opening remarks
- RDC documents to aid grant preparation
- Updates
- How to request your VM in the RDC
- How to access and use your VM
- How to move data using Globus
- Questions

Opening Remarks


- Dr. Neels Van der Schyf, VPR

Aid to Grant Preparation

- RDC template documents ready for your use
- Visit <https://isu.edu/research/centers-and-institutes/>
- Click **Research Data Center**
- Click



Research Data Center at Idaho State University



Idaho State University's Research Data Center (RDC) is a university-wide facility dedicated to supporting and enhancing the research capabilities of ISU faculty, staff, and students through a centralized hyper-converged infrastructure of virtual machines (VM). These capabilities are available to ISU's research community through the university's network. This facility has 10/40 Gbps intra-RDC network connectivity, a dedicated data transfer node, and substantial compute capabilities with over 1/4 TB of RAM.

Currently, the RDC is under construction. The facility should be fully operational by the end of Summer 2017.

The following documents are available for users interested in utilizing the RDC's resources:

- [Research Data Center Procedures](#)
- [Research Data Center Virtual Machine Resource User Agreement](#)
- [Research Data Center Existing Server User Agreement](#)

The following video gives information on how to use Globus for data transfer.

[Using Globus at Idaho State University](#)

The following documents are draft grant applications. They can be used as a reference or modified by RDC users who are applying for grants that will utilize RDC resources.

- [RDC_Template_ISU_DataManagementPlan_NSFFormat](#)
- [RDC_Template_ISU_FacilitiesEquipmentOther_NSFFormat](#)

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RDC Updates

- ISU's RDC is...
 - A dedicated computational research facility
 - With robust physical security, and...
 - A Systems Administrator (Kindra Blair) to *oversee* RDC operations

Specs...

- The RDC:
 - Two (2) 15 KVA uninterruptable power supplies
 - Three (3) 10 ton Air conditioning units
 - 10 Gbps network connectivity
 - Science DMZ model
 - Space to move-in existing racks of servers
 - Rack(s) to move-in existing rack-based servers
 - New rack-based servers for your use as a virtual machine (VM)

The RDC is NOT

- A solution for long-term data archiving or back up
 - This solution is offered by BOX

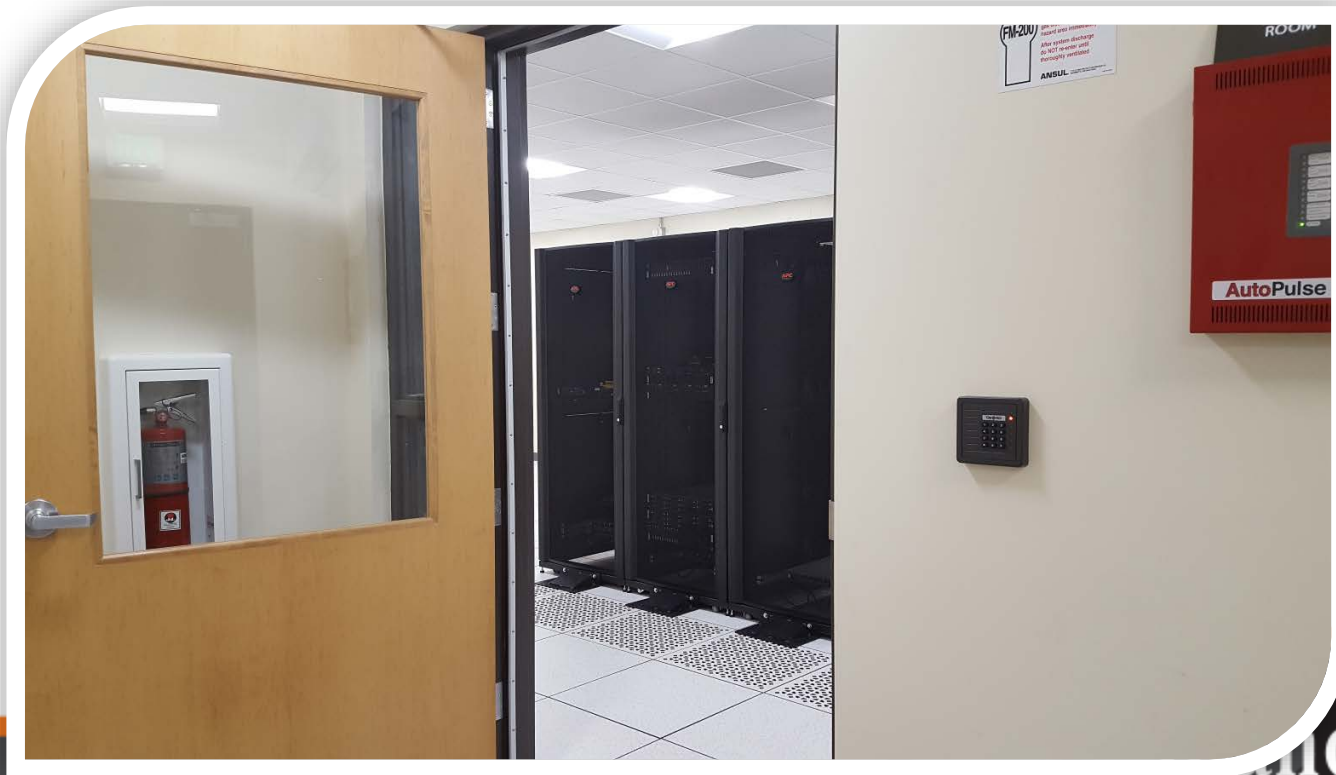
ISU Box

ISU Box is our data storage solution for ISU employee use. Box gives users unlimited cloud-based storage, with the ability to share that data or keep it private. Furthermore, you can access this data from any smart device and any location.

For help with your ISU Box account, please contact the IT Service Desk at (208) 282-HELP (4357)

Ready for your use...

- Official ribbon-cutting and opening Wednesday, August 16th, 2017

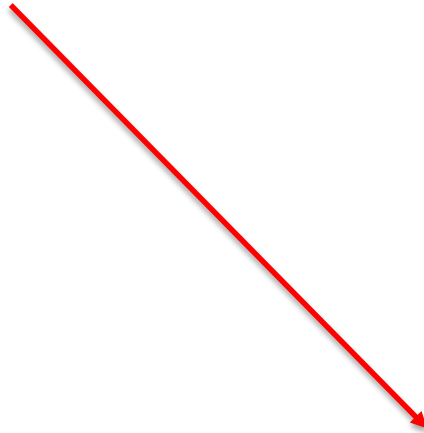


HOW TO...


REQUEST A VM IN THE RDC

We Made this Easy

- Visit <https://isu.edu/research/centers-and-institutes/>
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RDC Procedures

Research Data Center Procedures

Idaho State University's Research Data Center (RDC) can be used to support scholarly research in two ways:

1. Request a virtual machine (VM) server from ISU's existing server farm
2. Move your existing server (or cluster of servers) into the RDC

1) Virtual Machine Procedures

Procedures related to all Virtual Machine (VM) users

Requests for VMs must be made by the PI of a sponsored research project.

PIs requesting VMs will need to sign a Resource User Agreement (RUA) prior to provisioning a VM node(s). This agreement outlines the terms of support. If there are any questions or concerns with any of the terms of agreement, please contact the Research Data Center (RDC) at RDC@isu.edu to discuss.

In addition to the RUA mentioned above, PIs may be asked to sign an additional agreement for specific project(s), detailing any unique requirements and/or specialized system support needed for the VMs provisioned for the project. This is particularly important in the Protected Environment (PE).

Protected Environment VM (PEVM) Procedures:

- Only RDC system administrators will have root access to VMs in the protected environment (PEVM).
- Only sponsored research projects with HIPAA/PHI or other specific data restrictions will be provisioned in the PEVM.

2) Existing Server Procedures

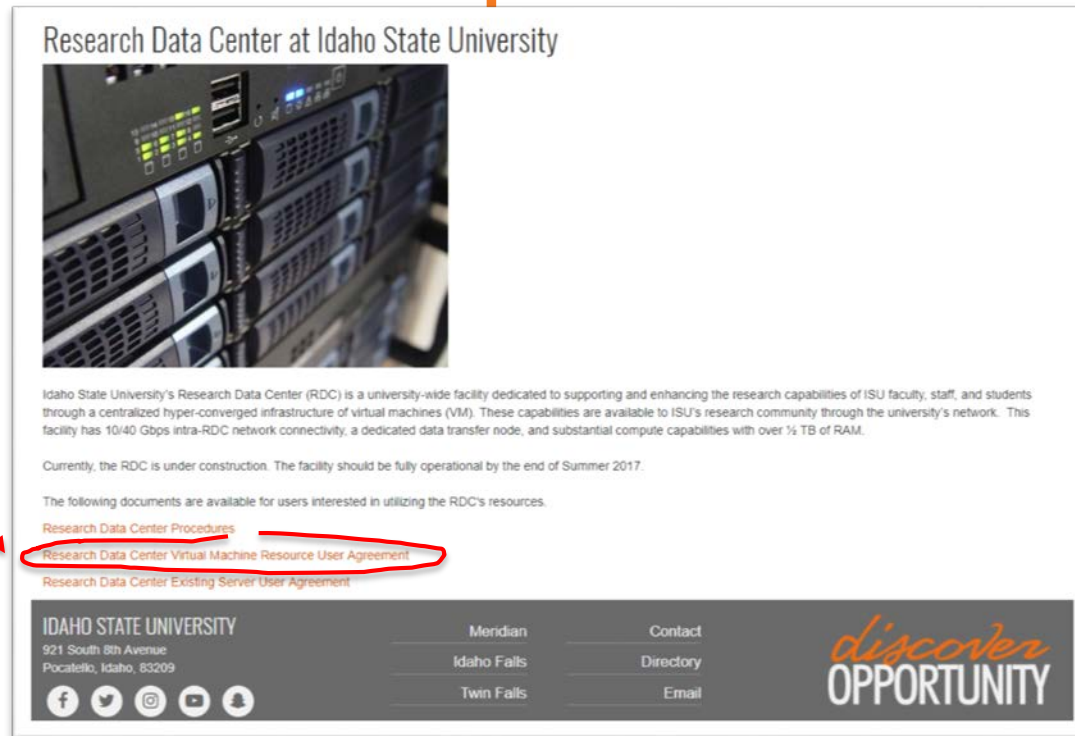
Procedures related to all server or clusters moved into the RDC.

Requests for rack space (1-40 units of rack space) or floor space (to move an entire rack into the RDC) must be made by the PI of a sponsored research project.


PIs requesting existing server space in the RDC will need to sign a User Agreement (UA) prior to transitioning/moving into the RDC. The agreement outlines the terms of support. If there are any questions or concerns with any of the terms of agreement, please contact the Research Data Center (RDC) at RDC@isu.edu to discuss.

VM Request...

- Click



Research Data Center at Idaho State University



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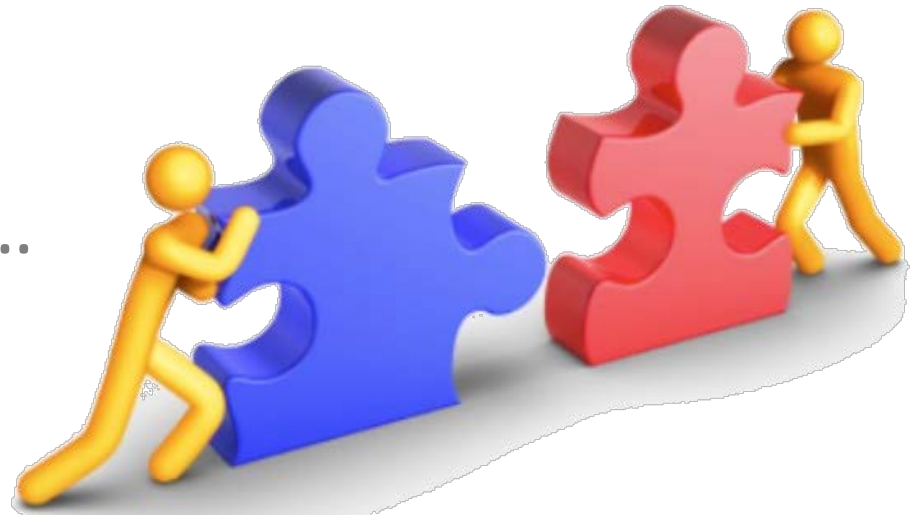
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- Complete the fillable form
- Email it to RDC@isu.edu

Work with Kindra...

- You will work with **Kindra Blair** to iron out the details and...
- Have a VM created for you.
- She will email you the connection information



Questions?



HOW TO...

ACCESS AND USE YOUR VM

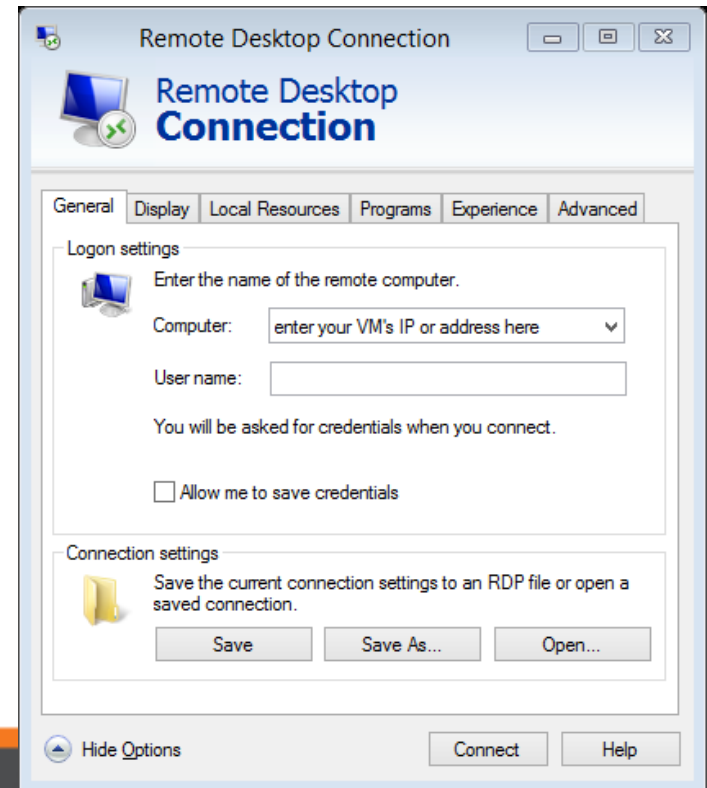
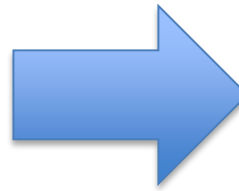
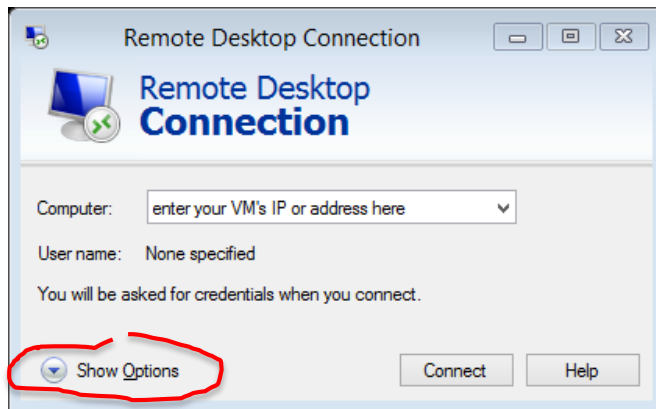
FYI...

- By default your VM will have the following PORTS open to ISU
 - HTTP (80)
 - HTTPS (443)
 - SSH (22)
 - Windows remote desktop (3389)
- All additional PORTS or modifications to these PORTS need to be requested by you through ISU help desk (help@isu.edu)

Accessing your Windows VM

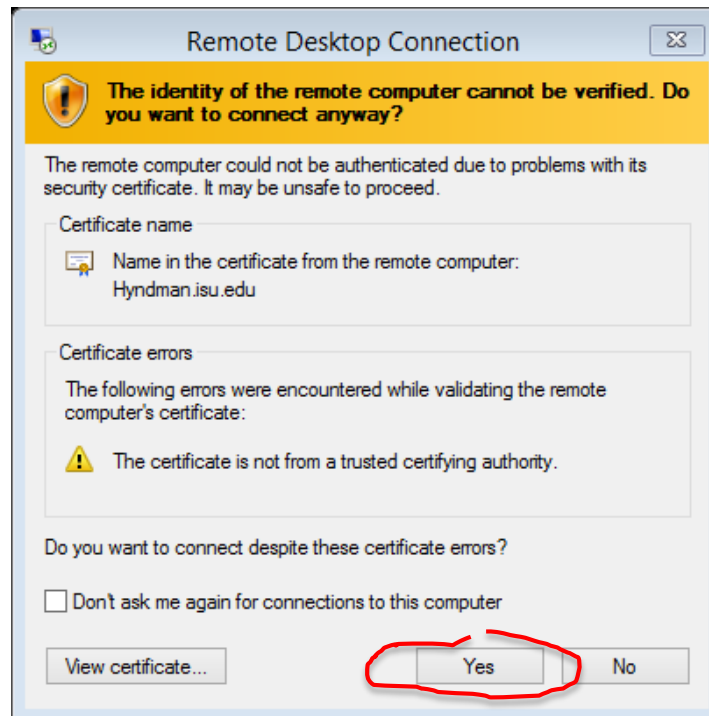


- Use Microsoft Windows *Remote Desktop*
– Complete this dialog (once)

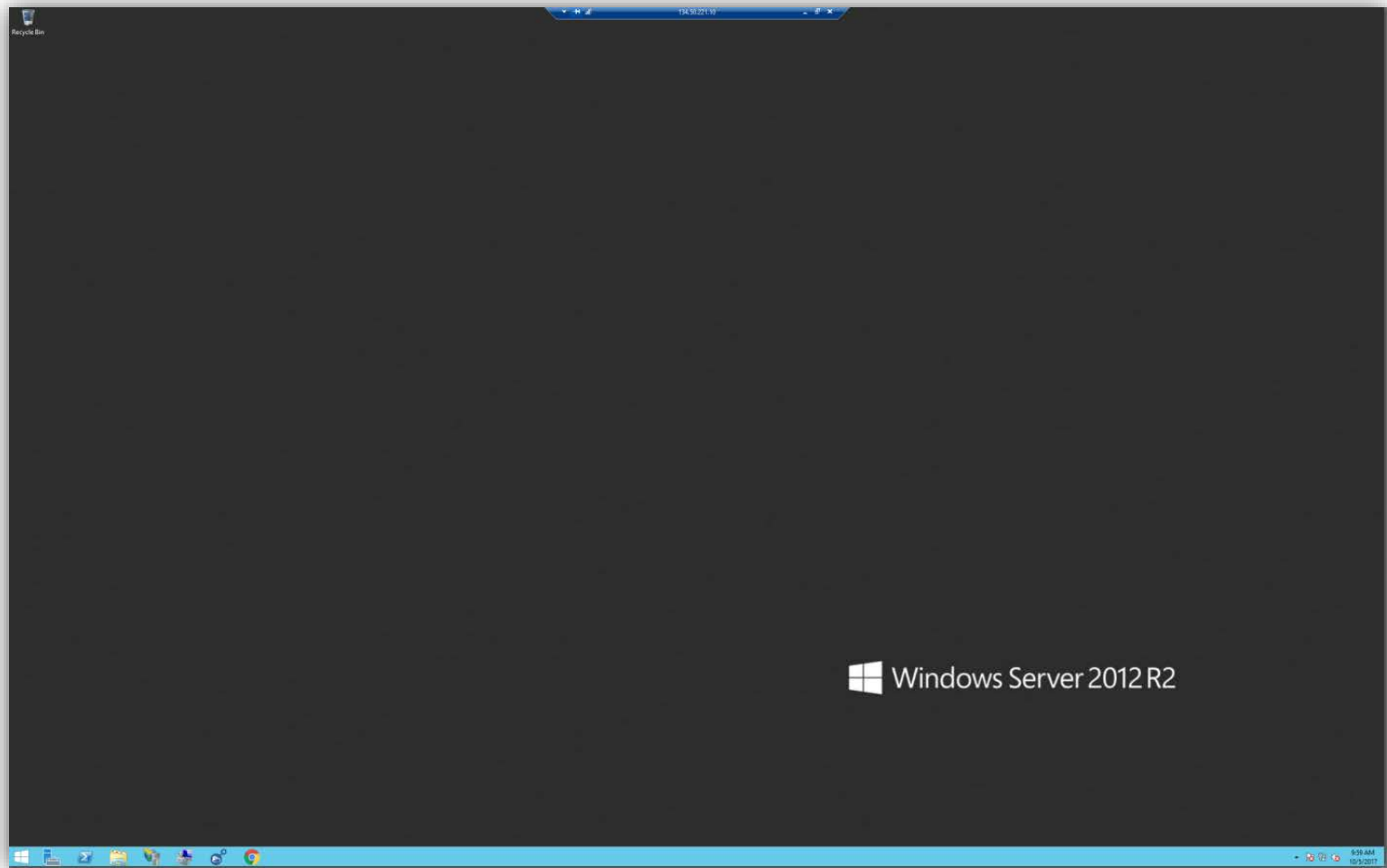


Remote Desktop

- If/when you see this screen, click YES

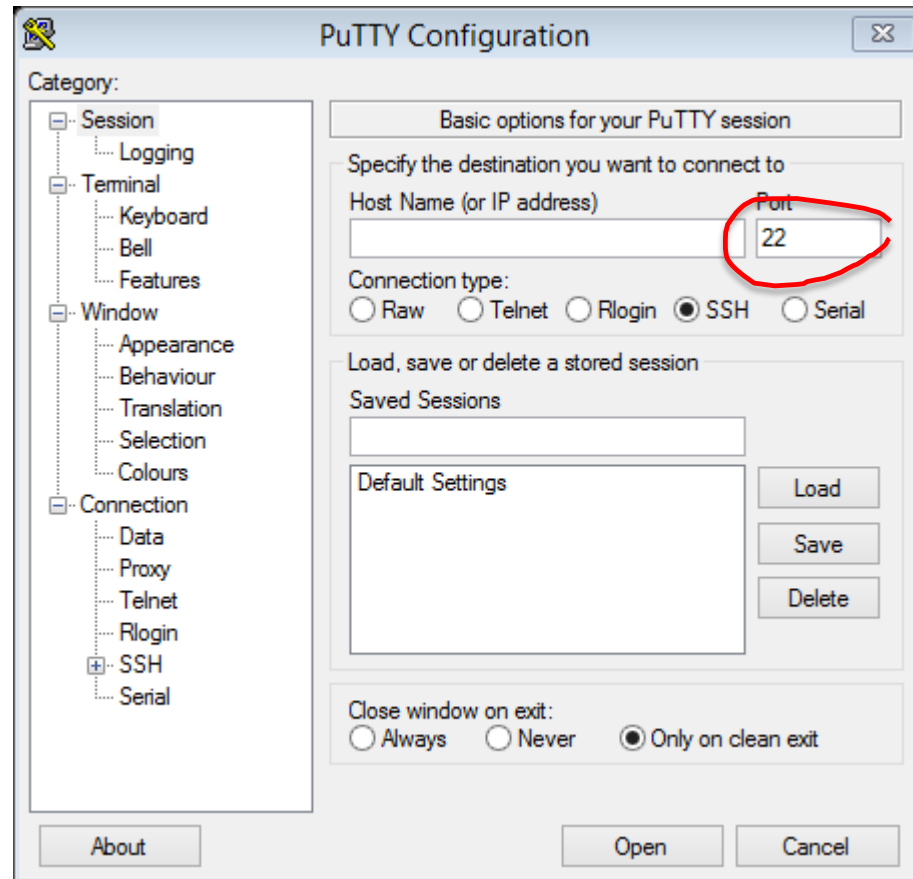


Your VM's Desktop



Accessing a Linux VM

- Use PuTTY



Questions?



HOW TO...

MOVE DATA USING GLOBUS

Computational Research

- To leverage the capabilities of *your* VM you will need:

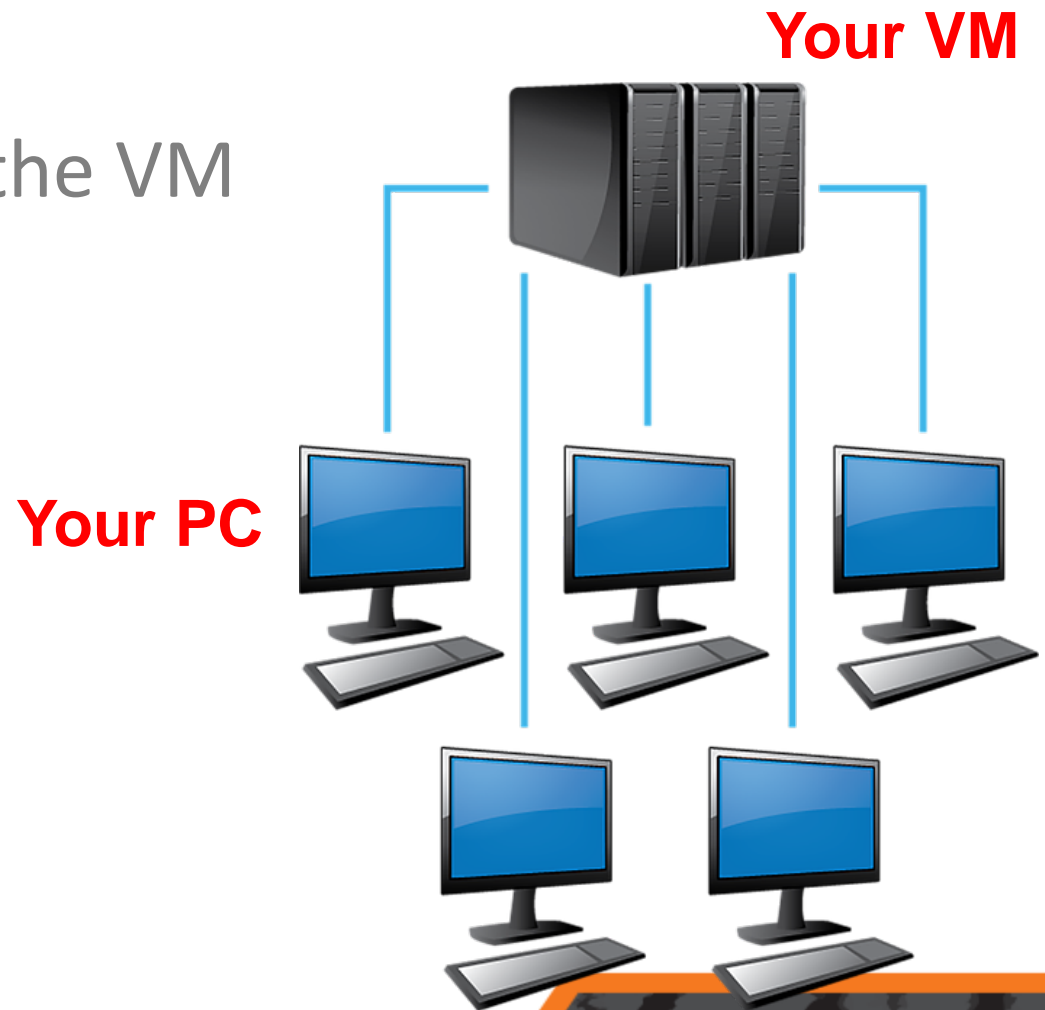
- Software (e.g., ArcGIS)

Note: you or *your* SysAdmin can install software on *your* VM just like you would on an ISU workstation

- Data (e.g., Geodatabase)

Data

- Copying data to the VM



Setting things up

- Setup is a one-time process
 - Visit Globus Online **from your PC**
 - Sign up for a free account using your ISU.EDU email
 - Install Globus Connect Personal (GCP)

Install Globus Connect Personal



Globus Connect Personal for Mac
for Mac OS X 10.4 or higher (Intel only)



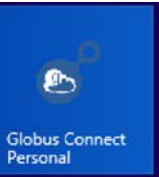
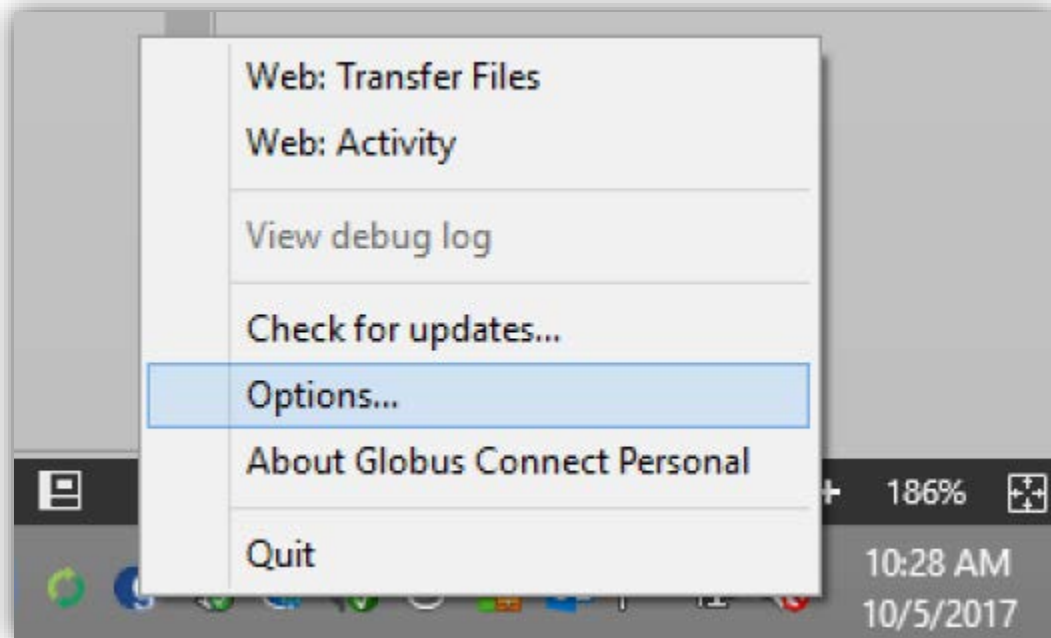
Globus Connect Personal for Linux
for common x86-based distributions



Globus Connect Personal for Windows
for recent Windows versions

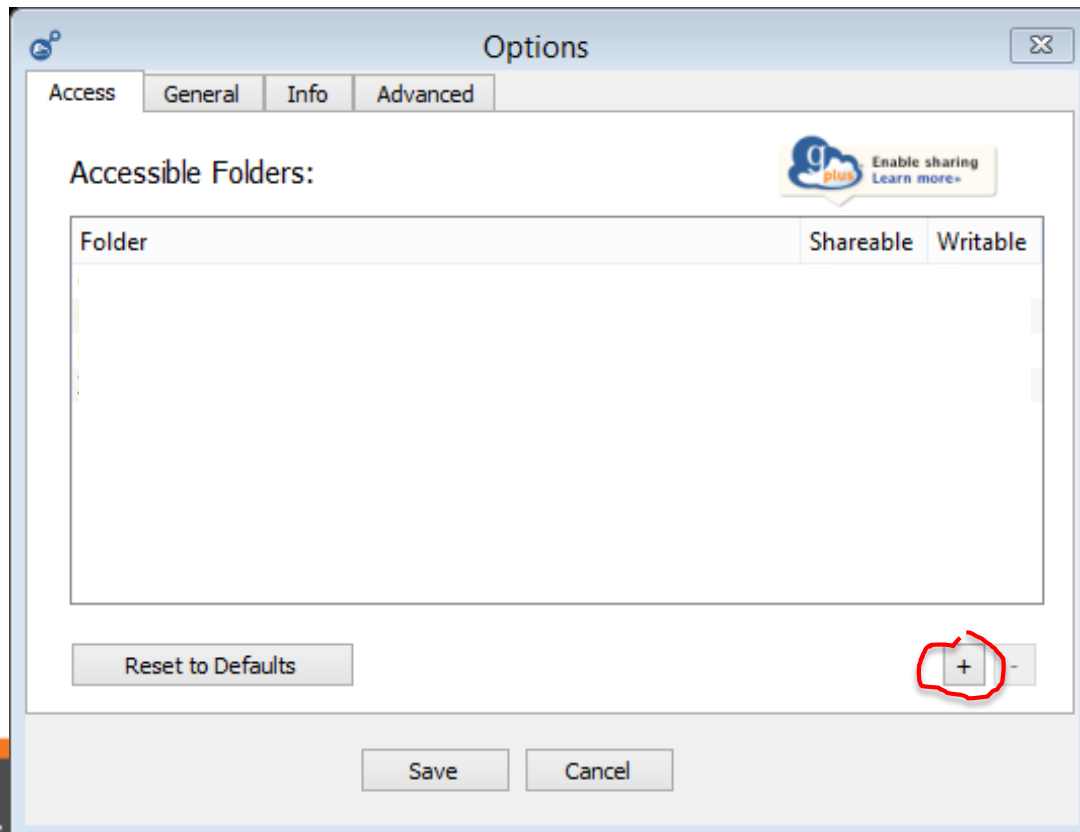
Configure

- Set the options for GCP on your PC

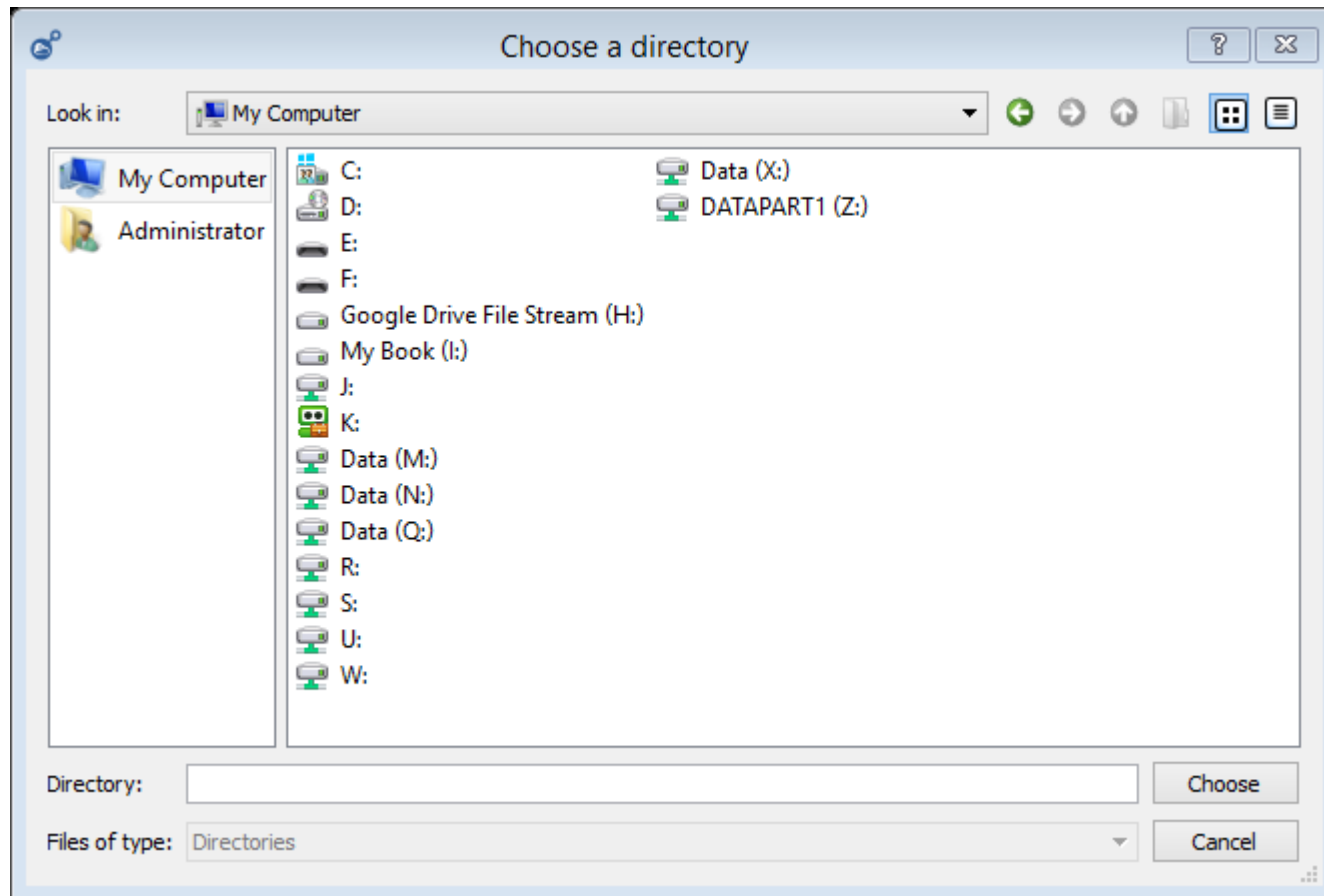


GCP Options

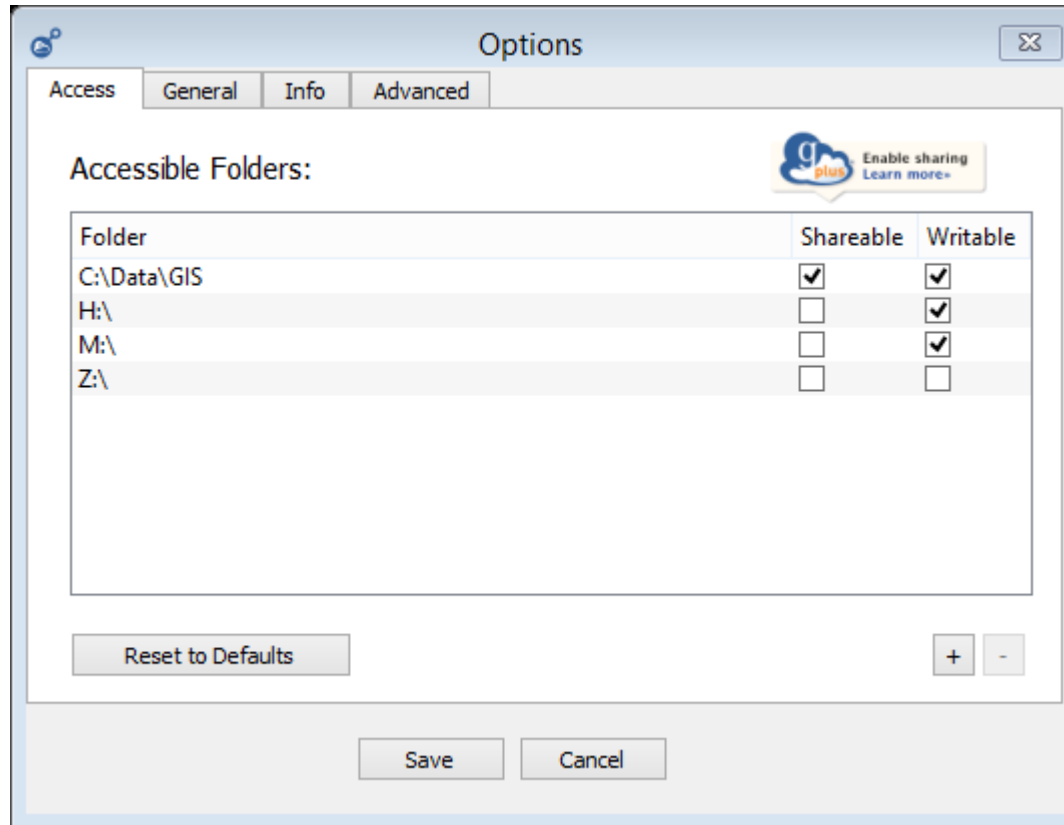
- Initially, you may have “MyDocuments” shared or nothing....



Add a Folder



Assign Permissions



Repeat on your VM

- Install and setup GCP on your VM server
 - Go to GCP options
 - Add a Folder
 - Assign Permissions
- Contact RDC@isu.edu to get *invited* to the ISU Globus subscription
 - You need to do this, to enable transfer between two GCP endpoints.

Use the Globus Online Interface

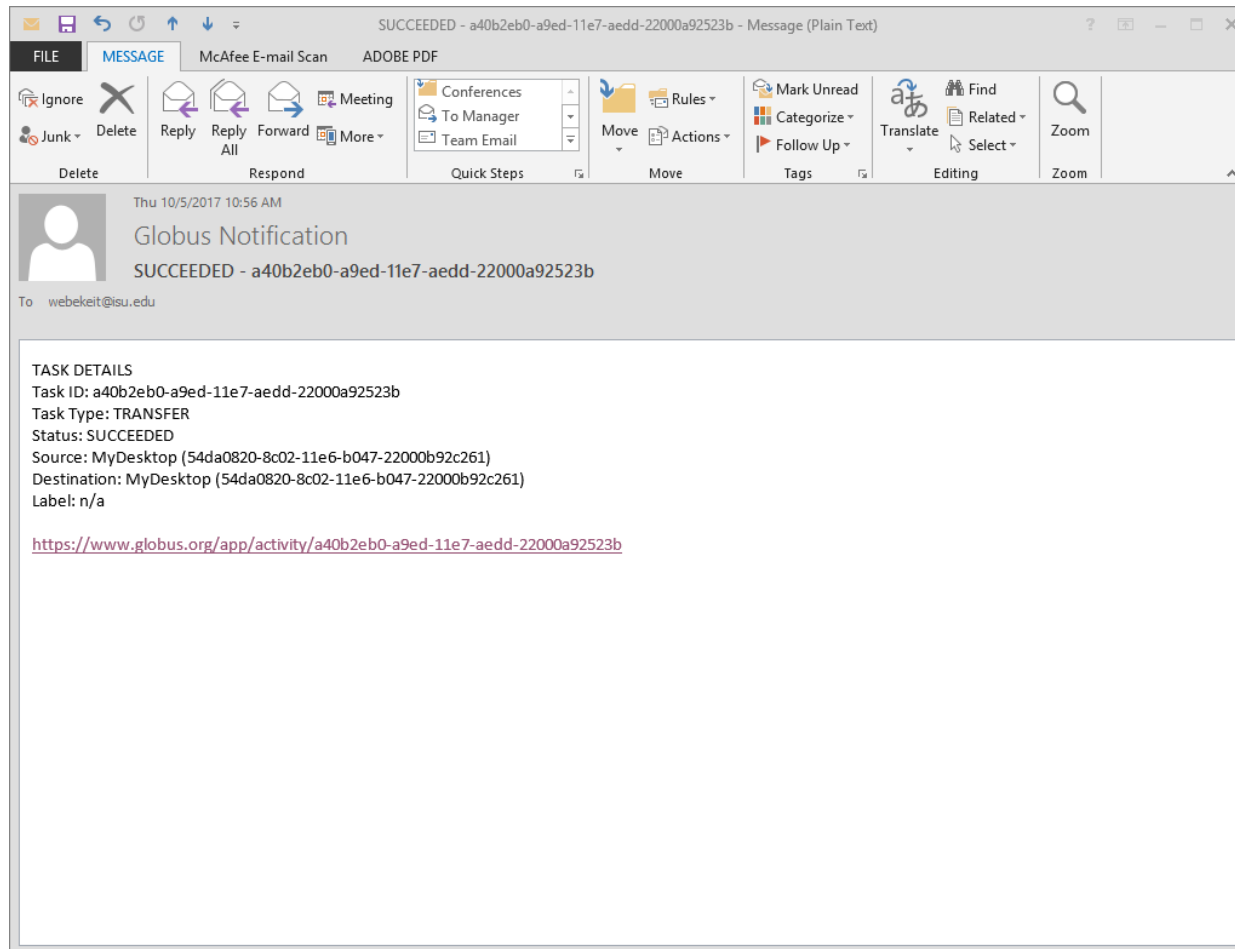
- Log into Globus using your ISU email address

The screenshot displays the Globus Online interface for setting up a file transfer. At the top, the Globus logo and navigation links (Manage Data, Publish, Groups, Support, Account) are visible. Below the navigation, there are tabs for Transfer Files, Activity, Endpoints, Bookmarks, and Console. The main section is titled "Transfer Files" and shows two endpoints, both labeled "MyDesktop". The left endpoint has a path of "/-IZ/" and the right endpoint has a path of "/-IH/". Both endpoints show a list of folders: MCPD, config-store, directories, local, logs, SRECYCLE.BIN, My Drive, and Team Drives. Below the folder lists, 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. At the bottom right, there is a link to "Get Globus Connect Personal" with the text "Turn your computer into an endpoint."

Transfer Files



Check your Email



Help!



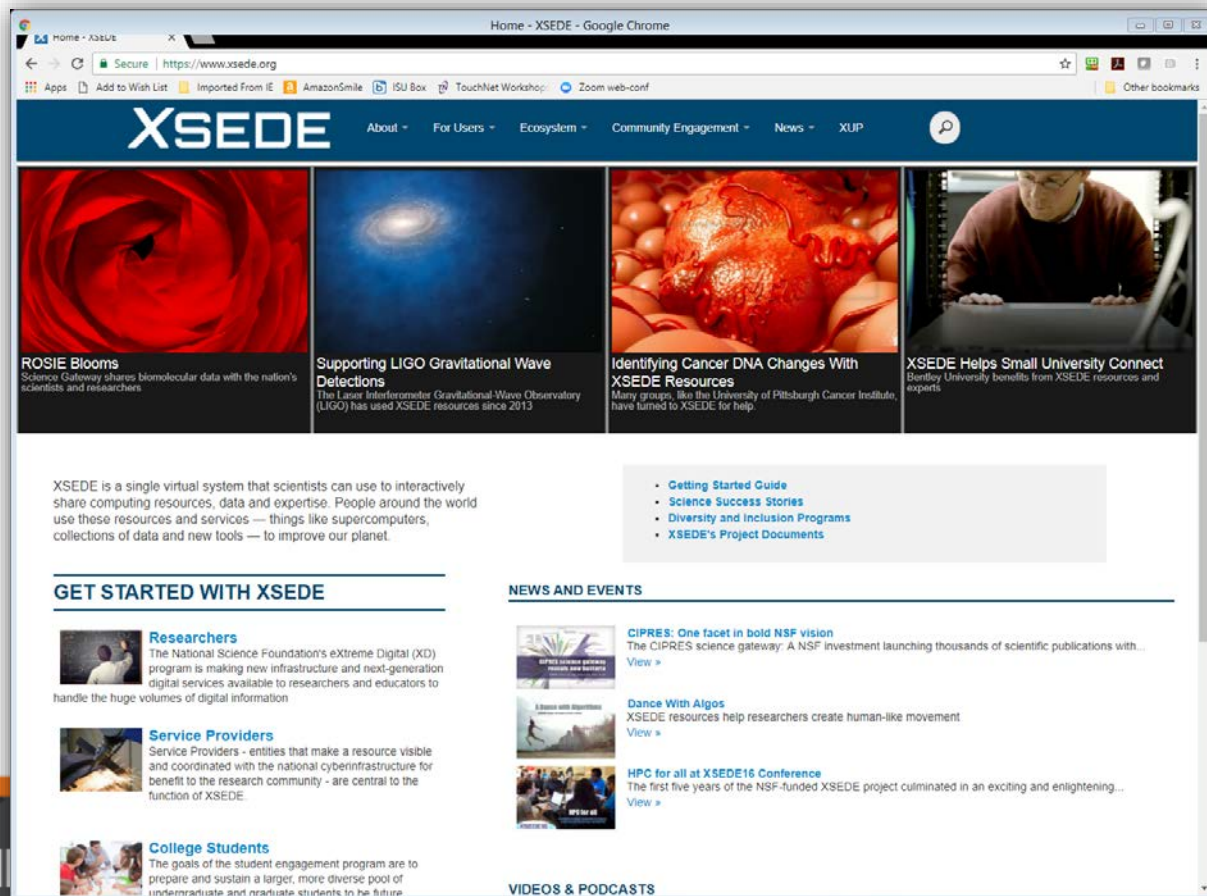
- Visit the RDC website
- Watch Globus' webinar on YouTube
 - <https://www.youtube.com/watch?v=XfXCjuhwBT>
- Ask for help
 - RDC@isu.edu
- Reach out to ISU's research community
 - RDC@mm.isu.edu

Questions?



The RDC and XSEDE Supercomputers

- Use the RDC to support HPC analysis with XSEDE



The screenshot shows the XSEDE website homepage. The browser address bar displays "https://www.xsede.org". The website features a dark blue header with the XSEDE logo and navigation links: "About", "For Users", "Ecosystem", "Community Engagement", "News", and "XUP". Below the header is a grid of four featured articles:

- ROSIE Blooms**: Science Gateway shares biomolecular data with the nation's scientists and researchers.
- Supporting LIGO Gravitational Wave Detections**: The Laser Interferometer Gravitational-Wave Observatory (LIGO) has used XSEDE resources since 2013.
- Identifying Cancer DNA Changes With XSEDE Resources**: Many groups, like the University of Pittsburgh's Cancer Institute, have turned to XSEDE for help.
- XSEDE Helps Small University Connect**: Bentley University benefits from XSEDE resources and experts.

Below the featured articles, a paragraph describes XSEDE: "XSEDE is a single virtual system that scientists can use to interactively share computing resources, data and expertise. People around the world use these resources and services — things like supercomputers, collections of data and new tools — to improve our planet."

To the right of this paragraph is a list of links: "Getting Started Guide", "Science Success Stories", "Diversity and Inclusion Programs", and "XSEDE's Project Documents".

The page is divided into two main sections: "GET STARTED WITH XSEDE" and "NEWS AND EVENTS".

GET STARTED WITH XSEDE

- Researchers**: The National Science Foundation's extreme Digital (XD) program is making new infrastructure and next-generation digital services available to researchers and educators to handle the huge volumes of digital information.
- Service Providers**: Service Providers - entities that make a resource visible and coordinated with the national cyberinfrastructure for benefit to the research community - are central to the function of XSEDE.
- College Students**: The goals of the student engagement program are to prepare and sustain a larger, more diverse pool of undergraduate and graduate students in the future.

NEWS AND EVENTS

- CIPRES: One facet in bold NSF vision**: The CIPRES science gateway: A NSF investment launching thousands of scientific publications with... [View >](#)
- Dance With Algos**: XSEDE resources help researchers create human-like movement. [View >](#)
- HPC for all at XSEDE16 Conference**: The first five years of the NSF-funded XSEDE project culminated in an exciting and enlightening... [View >](#)

At the bottom of the page, there is a section for "VIDEOS & PODCASTS".

DTN

- The RDC has a sophisticated and powerful Data Transfer Node (DTN) for your use
 - This is especially helpful when moving data to XSEDE supercomputers or other HPC clusters

The RDC's Future

- Help grow the RDC with your future grant applications/proposals
- Work with us and the Office of Sponsored Programs

Questions? And Discussion

- Keith T Weber (webekeit@isu.edu)
- Kindra Blair (serrkind@isu.edu)
- Randy Gaines (gainrand@isu.edu)
- Mark Norviel (norvmark@isu.edu)
- Tony Lovgren (lovgtony@isu.edu)