

### What is the [Open Science Grid](#)?

The OSG consortium of research collaborations, campuses, national laboratories, and software providers is dedicated to the advancement of all open science via the practice of distributed High Throughput Computing (dHTC), and to the advancement of its state of the art.

### What is the Open Science Pool?

The OSPool provides researchers with **fair-share** access to computing and data capacity powered by distributed [high-throughput computing](#) (dHTC) technologies.

- Open for any scientist or group, of all disciplines, doing open science in the US.
- Built to run independent computations on a massive scale.
- The OSPool is built from resources contributed by university campuses, government-supported supercomputing facilities and research collaborations
- Resources are assigned on a fair-share basis at no cost to researchers; no allocation process is required.

### How do I get started on submitting to the Open Science Pool / to the Open Science Grid (OSG)?

#### a. Registering for an Account on OSG Connect

- i. Visit the [OSG Connect Website](#)
- ii. Click the Sign-Up Button
- iii. Read and Accept the Acceptable Use Policy to access the main sign on page
- iv. The main log in screen will prompt you to sign in via your primary institutional affiliation. You'll be directed to a discovery service which asks you what your home institution is
- v. Locate your institution in the list, or type its name to find matches.
  1. Institution: Florida International University
    - a. *Ensure that the institution selected is the institution that you would like to associate your OSG account with*
- vi. After selecting your institution in the discovery service, you'll be taken to your own institution's local sign-in screen.
  1. You will be redirected to FIU's Division of Information Technology Log-In Screen
- vii. Sign in using your FIU credentials
- viii. You will automatically be returned to the OSG Connect Portal to complete the final steps of the sign up.
  1. Unix Username:
    - a. Will be the username associated with your account
    - b. This username is an identifier
      - i. Recommended: Make your Unix Username the same as your FIU Username followed by an Underscore
  2. Phone Number:
    - a. Contact Phone Number
  3. Institution:
    - a. Should be automatically filled in
      - i. If not: "Florida International University"
  4. Email:

- a. Should be automatically filled in
  - i. If not, type in your FIU email
    - 1. Format: [roary123@fiu.edu](mailto:roary123@fiu.edu)
      - a. Replace roary123 with your corresponding username
- 5. Please include a brief reason, describing your interests in joining OSG
  - a. Write a few sentences that describe what project you will be working on and what your intentions are in joining the Open Science Grid
  - b. Include information such as:
    - i. If you are joining a project that is already registered with OSG
    - ii. Or if you are the first individual from your research group to join OSG.
- ix. You will be redirected to your OSG Profile page
  - 1. If successfully submitted, on the right-hand side you should see membership: "Pending"

**b. Orientation Meeting**

- i. Once you have successfully applied to join OSG Connect, a support team member will contact you to arrange an orientation meeting.
  - 1. This meeting normally takes anywhere from 20-30 minutes
  - 2. In the meeting you will discuss
    - a. What is your project
    - b. What your intentions are in joining the OSG?
    - c. How will your work fit on the OSG?
    - d. How to get started working on OSG and submitting jobs
    - e. Tuesday Office Hours and Specialized Training Offered by OSG
    - f. In addition to any questions that you might have about using OSG
- ii. When the team member reaches out, if you are the first member of your research group joining to use the OSG through OSG Connect **you may** be asked to provide the following information
  - 1. Project Name
  - 2. PI (Principal Investigator) Name
  - 3. PI (Principal Investigator) Email
  - 4. PI (Principal Investigator) Organization
  - 5. PI (Principal Investigator) Department
  - 6. Field of Science:
    - a. Selected from <https://osp.unm.edu/pi-resources/nsf-research-classifications.html>
  - 7. Project Description
    - a. Few sentences describing the project you are researching for
- iii. *Based on this information, OSG Connect support staff will either create a project and add you to it, or add you to an existing project when your account is approved.*

- iv. If you are not the principal investigator, OSG will be in contact with the PI of the project. The PI of the project will have to confirm your position in the project and then OSG will proceed in activating your membership.

**c. Generate and Add an SSH Key**

- i. Once your account is created and you are approved, you will need to generate and upload an [SSH key](#) to your profile – steps provided below.

1. This key will be duplicated on the OSG Connect login node so that you're able to log in there and submit jobs.

**ii. Generate SSH Keys**

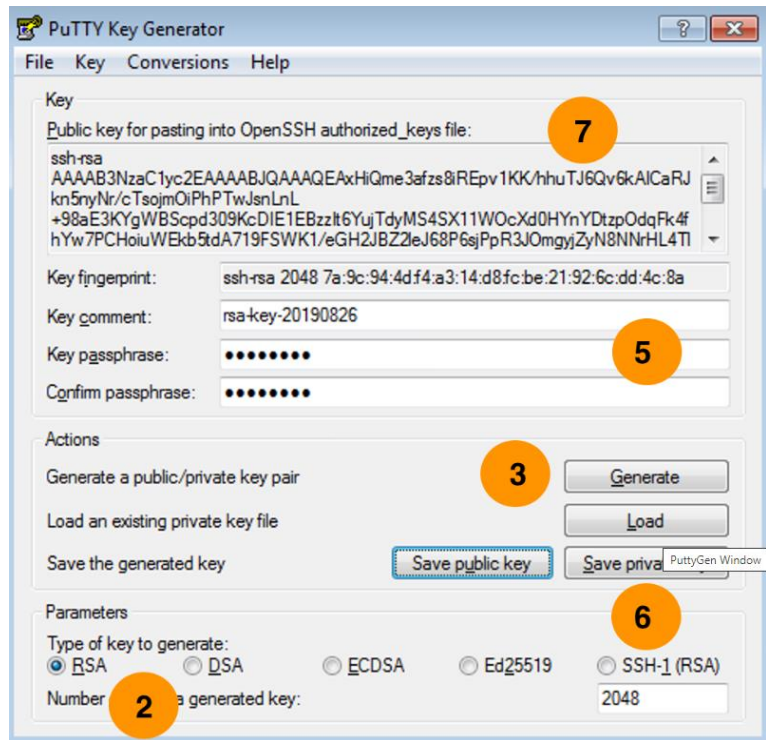
1. *Unix Systems* – Linux, Mac and some of the latest versions of Windows

- a. Open a terminal on your local computer
- b. Run the following commands
  - i. `$ mkdir ~/.ssh`
  - ii. `$ chmod 700 ~/.ssh`
  - iii. `$ ssh-keygen -t rsa`
- c. For the newer OS versions, the .ssh directory is already created and the first command is redundant. The last command will produce a prompt similar to:
  - i. Generating public/private rsa key pair.
  - ii. Enter file in which to save the key  
(/home/<local\_user\_name>/~/.ssh/id\_rsa):
- d. Unless you want to change the location of the key, continue by pressing enter. Now you will be asked for a passphrase. Enter a passphrase that you will be able to remember and which is secure:
  - i. Enter passphrase (empty for no passphrase):
  - ii. Enter same passphrase again:
- e. If successfully created, the output should resemble
  - i. Your identification has been saved in  
/home/<local\_user\_name>/~/.ssh/id\_rsa.
  - ii. Your public key has been saved in  
/home/<local\_user\_name>/~/.ssh/id\_rsa.pub.
  - iii. The key fingerprint is:
  - iv. ...
- f. The part you want to upload is the content of the .pub file  
(~/.ssh/id\_rsa.pub)

2. Windows, Using Putty

- a. (1) Open PuTTYgen
  - i. Download can be found [here](#)
- b. (2) For type of key to generate, select RSA or SSH-2 RSA
- c. (3) Click Generate
- d. (4) When the progress bar is full, PuTTYgen generates your keypair
- e. (5) Type a passphrase in the "Key passphrase" field. Type the same passphrase in the "Confirm passphrase" field. You can use a key without a passphrase, but this is not recommended.

- f. (6) Click the "Save private key" button to save the private key. You must save the private key. You will need it to connect to your machine.
- g. (7) Right-click in the text field labeled "Public key for pasting into OpenSSH authorized\_keys file" and choose Select All.
- h. (8) Right-click again in the same text field and choose Copy.



i.

- iii. Add the SSH key to your login node / OSG Connect Portal
  1. Go to [OSG Connect](#)
  2. Sign in with the same credentials used when applying for an account
  3. Select Profile from the menu on the top-right corner
  4. When the page has loaded, select "Edit Profile"
  5. Copy/paste the public key which is found in the .pub file into the "SSH Public Key" text box. The expected key is a single line, with three fields looking something like ssh-rsa ASSFFSAF... user@host. If you used the first set of key-generating instructions it is the content of ~/ssh/id\_rsa.pub and for the second (using PuTTYgen), it is the content from step 7 above.
  6. Click "Update Profile"
  7. You have successfully added the key to your profile and it will automatically be added to the login node within a couple of hours.

#### d. Logging In

- i. After following the steps above to **upload your key and it's been a few hours, you should be able** to log in to OSG Connect.

- ii. Before connecting, you will need know what login nodes you have been assigned.
  1. Sign in to your Profile from the OSG Connect Website
    - a. [OSG Connect](#)
    - b. Sign in using your FIU credentials used when applying for your account
    - c. The assigned login nodes are listed in the left side box, right column. Make note of the address of your assigned login node as you will use this to connect to OSG Connect.

## Profile

User Information

Name: [REDACTED]  
Email: [REDACTED]@fiu.edu  
Phone: [REDACTED]  
Institution: Florida International University  
Unix Username: [REDACTED]

Joined: 2022-Mar-17  
Last Active: [REDACTED]

[Edit Profile](#)

Connect to your assigned login node(s) via ssh:

- login05.osgconnect.net

d.

- iii. Connect to OSG using Mac, Linux or newer versions of Windows
  1. Open a Terminal and Type the following into the terminal
    - a. `ssh <your_osg_connect_username>@<your_osg_login_node>`
    - b. Example

```
@localhost:~  
File Edit View Search Terminal Help  
[~] @localhost ~]$ ssh (unixuser)@login05.osgconnect.net
```

- i. It will ask for the passphrase for your ssh key (if you set one) and then you should be logged in.
  2. When successfully logged on, your screen should reassemble to some degree

```
Last login: Wed May 18 12:18:33 2022 from [REDACTED].ad.fiu.edu  
*** Unauthorized use is prohibited. ***  
  
If you log on to this computer system, you acknowledge your  
awareness of and concurrence with the OSG Acceptable Use Policy; see  
https://www.osgconnect.net/aup or /etc/osg/AUP  
  
***  
  
OSG Connect Office Hours are Twice-a-Week!  
Tues 4-5:30pm ET/1-2:30pm PT, Thurs 11:30am-1pm ET/8:30-10am PT  
Zoom link: https://osg-htc.org/OfficeHoursZoom  
  
Disk utilization for [REDACTED]:  
/public : [REDACTED] 0% (0/500000 MB)  
/home : [REDACTED] 0% (13/101061 MB)  
[REDACTED]@login05 ~]$ s
```

a.

- iv. Older Versions of Windows – Using PuTTY in order to log in
  1. Open PuTTY program

2. Type the address of your assigned login node as the hostname (see "Determine which login node to use" above).
3. In the left-hand menu, click the "+" next to "SSH" to expand the menu.
4. Click "Auth" in the "SSH" menu.
5. Click "Browse" and specify the private key file you saved in step 5 above.
6. Return to "Session".
  - a. Name your session
  - b. Save session for future use
7. Click "Open" to launch shell. Provide your ssh-key passphrase (created at Step 4 in PuTTYgen) when prompted to do so.

