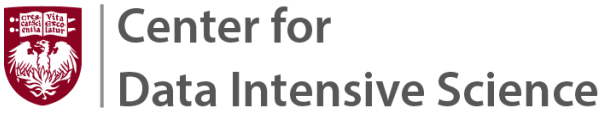
The Bionimbus PDC:

Obtaining Access FAQ



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Prerequisites

The Bionimbus PDC is a HIPAA compliant cloud for analyzing and sharing protected data. The Bionimbus PDC is an OpenStack cluster utilizing ephemeral storage in VMs with access to a separate S3-compatible storage system for persistent data storage. Allocations to all users and projects are given at the "tenant" level. To learn more about how the PDC operates and the user experience, visit: https://www.opensciencedatacloud.org/support/pdc.html

For a researcher to gain access to the PDC, a researcher must:

- Be associated with a project the PDC authenticates
  - Method 1: a project with access to dbGaP controlled data
  - Method 2: an existing PDC project with contract supported authentication
- Show proof of completion of security training
- Sign some legal documents
- For researchers requiring ssh access to VMs, they need to complete the application at: https://bionimbus-pdc.opensciencedatacloud.org/pre_apply/?next=/apply/

Legal documents

All applicants are required to have signed:

- Acceptable Use Policy (AUP)
- Code of Conduct (COC)
- Non-Disclosure Agreement (NDA)

For user convenience we have compiled these documents into a single .pdf that can easily be e-signed. For most applicants the Bionimbus PDC account shepherd will send this using Adobe's Echosign. These generally appear in an inbox under the 'echosign' domain.

For special cases that bypass the traditional account shepherd process, the legal documents are available at: https://bionimbus-pdc.opensciencedatacloud.org/static/BionimbusPDC_AUP_COC_NDAv1.1.pdf

Security Training

The Protected Data Cloud provides a computing environment designed to support research with protected health information and other sensitive data, but the computing environment is only one component of what is required to properly secure protected health information or other sensitive data. Another important requirement is that those using a computing infrastructure like the PDC have proper training and have received from their institution all the required approvals for working in secure environments.

We require the following documentation:

1. For each project, that the PI of the project send us a copy of the IRB approved protocol for the study using the Protected Data Cloud or a letter showing the study is exempt from needing an IRB Protocol. The IRB Protocol or Exemption should be from the home institution of the PI for the project. For new protocols or renewals of protocols, please refer explicitly to the PDC environment.
2. For each researcher with a Protected Data Cloud account, a certificate proving that the researcher has completed CITI training appropriate for working in secure environments. For international researchers, we can accept NIH security training as an alternative. A copy of a certificate indicating that you have completed the required training will be requested each year.

For more information visit:
https://www.opensciencedatacloud.org/support/intro.html#pdc-handling-sensitive-data-training

Once complete, users should submit this certificate to accounts@occ-data.org if they are not already carrying on an email conversation around their application.

General Guidelines

It's very important that a PDC user is the only one who logs in with an account. If you have members of your lab that would like to participate in this research, we ask that they each get separate accounts on the PDC. Having an account used by a single prescribed user is an important step in keeping the PDC secure and protected.

Before your account is created on the Bionimbus Protected Data Cloud (PDC), you'll need the following credentials:

1) If Method 1: eRA Commons through dbGaP
    i. an eRA Commons account
    ii. dbGaP access
    iii. dbGaP access to a project with approved access to a TCGA, TARGET or CGCI data
2) If Method 2: eRA, Shibboleth, or Oauth addition to a supported project
    i. an eRA Commons account OR a Shibboleth id OR an Oauth ID (only as a last resort)
    ii. addition to the maintained authorization list for the project the user is associated with

For all users we authenticate their credentials against lists provided by dbGaP for selected datasets (TCGA, TARGET and CGCI) OR authentication lists maintained through special contracts.

What follows are detailed instructions for gaining the credentials required for secure authentication.

Auth Method 1: Using an eRA to Gain Access to a dbGaP Dataset

Getting an eRA Commons Account

You can learn more generally about eRA Commons and how to register your organization or institution at: https://era.nih.gov/commons/faq_commons.cfm#II2

A list of other helpful links to learn more about the eRA Commons process include:

- Main eRA Commons access: https://public.era.nih.gov/
- Helpful Steps for Navigating eRA Commons: https://era.nih.gov/commons/faq_commons.cfm or https://era.nih.gov/Docs/COM_UGV2630.pdf
- NIH / eRA Helpdesk/Ticketing System: http://grants.nih.gov/support/index.html

NOTE: If you're working with an academic institution, they can often help navigate this process.

Getting dbGaP Access

1) To get authorized access start at this site: https://dbgap.ncbi.nlm.nih.gov/aa/wga.cgi?page=login
2) Login to the webpage above and follow the instructions.
3) You will probably complete form SF 424, which will have the section listed in 4. below.
4) Below is some sample text you can use to fill out certain sections of the application for access.

Data Access Request Boilerplate

Research use statement:

[**ENTER SHORT DESCRIPTION OF PROJECT/ANALYSIS INTENDED**]

The [**ENTER PROJECT NAME**] will be utilizing the technical capabilities of the Bionimbus PDC to analyze multiple protected datasets.

The PDC is a secure FISMA compliant biomedical computing environment with an NIH trusted partner status that includes approved access to select dbGaP data for distribution to approved authorized users. It is a project that is building a computing resource for the research community so that authorized researchers can manage, analyze and share large quantities of protected human genomic data in a secure and compliant fashion. The Bionimbus PDC is designed to hold both controlled access data (e.g. Level 1 BAM files from CGHub) and open access data (e.g. de-identified clinical data from the TCGA Data Coordination Center). This computing model allows researchers immediate access to data and computational resources without the burden of maintaining numerous servers and large repositories of sensitive data in a local facility. This is especially important for projects such as The Cancer Genome Atlas (TCGA), which currently has about 500 terabytes of Level 1 data and is projected to grow to multiple petabytes. The PDC

provides the capability to complete the proposed analysis on an expedited, compressed schedule.

Non-technical summary of Research use statement:

The proposed analysis of [ENTER PROJECT NAME AND POTENTIAL RESULTS SOUGHT] will be expedited using the Bionimbus PDC.
The Bionimbus PDC is a project that is building a computing resource for the research community so that authorized researchers can manage, analyze and share large quantities of protected human genomic data in a secure and compliant fashion. With the Bionimbus PDC, users can login and have immediate access to select datasets that they are authorized to view as well as computational resources so that they can easily analyze the data without first downloading it.

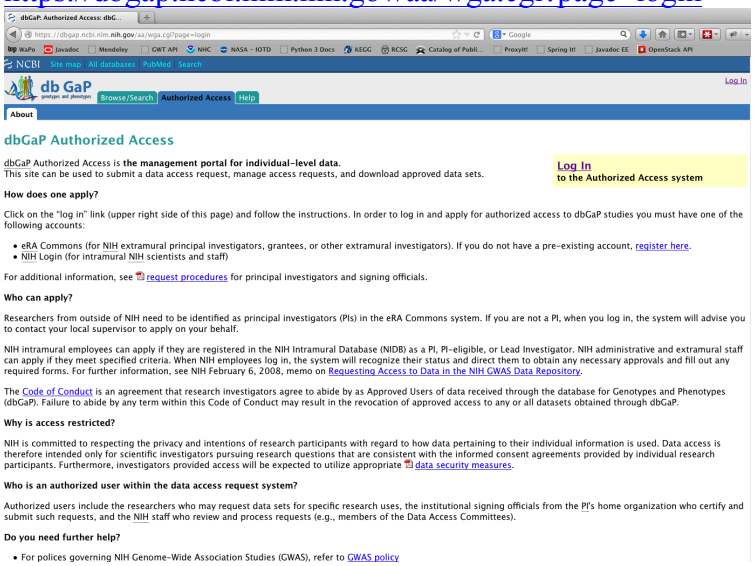
Cloud Use Statement:

The Bionimbus PDC is a secure biomedical cloud operated at FISMA moderate as IaaS with an NIH Trusted Partner status for analyzing and sharing protected datasets. The Bionimbus PDC is an OpenStack cluster utilizing ephemeral storage in VMs with access to a separate S3-compatible storage system for persistent data storage. Allocations to all users and projects are given at the "tenant" level.

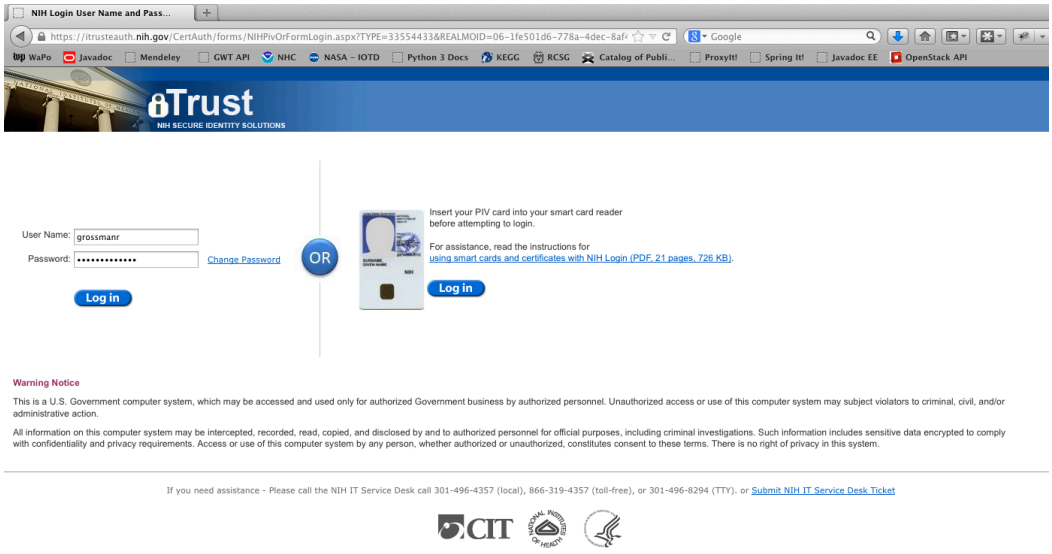
The Bionimbus PDC provides self-managed Linux virtual machines with the most recent long term support (LTS) release. The resource allows the user to determine the tools they wish to use and install on those images. Installation is accomplished by manually whitelisting requested repositories and having the user run all external requests from their VMs through a proxy server.

Requesting Project Access to a dbGaP Dataset

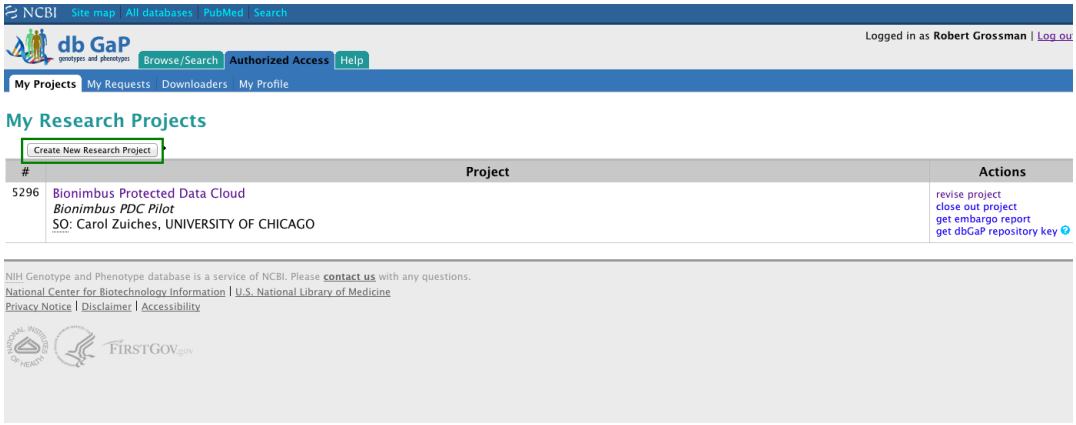
1) Once you have access to dbGaP, go to the dbGaP login page and login in the upper right with your eRA Commons username and password:
https://dbgap.ncbi.nlm.nih.gov/aa/wga.cgi?page=login



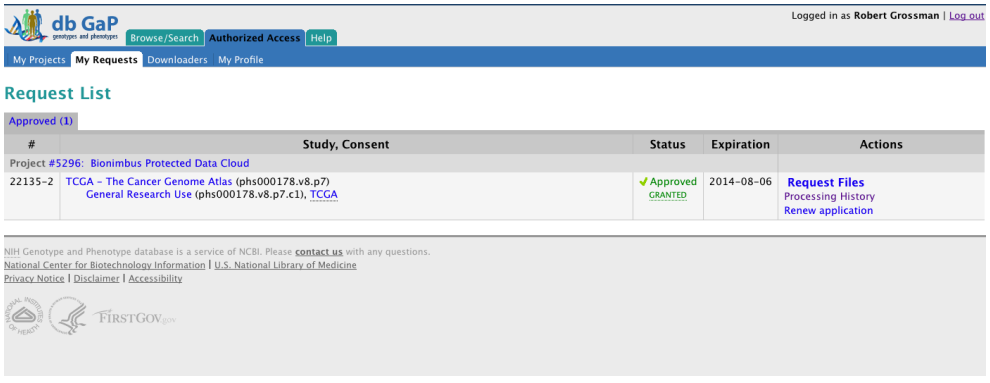
2) This will take you to the NIH Secure Identity Solutions Login Page:



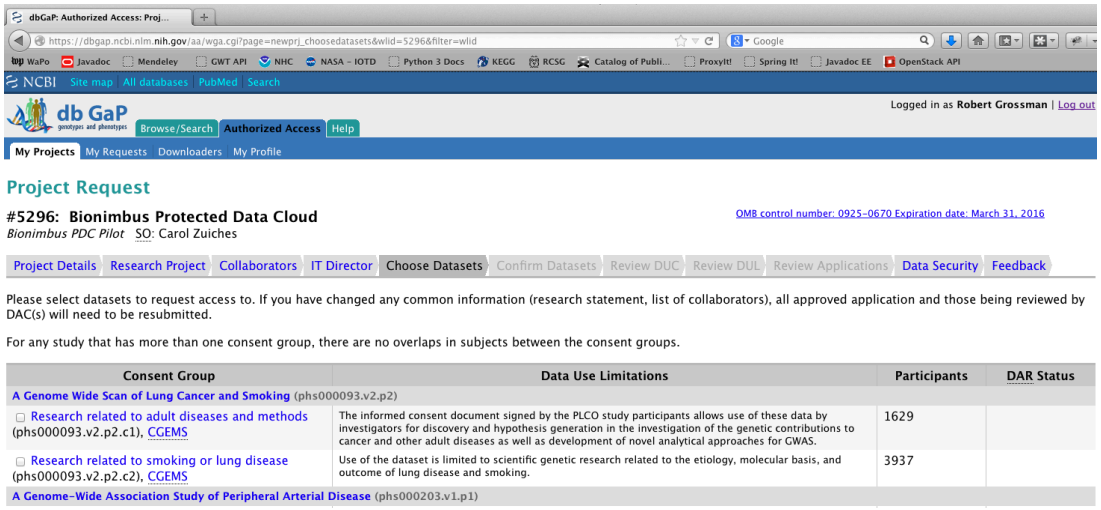
3) From here, you'll see the "My Projects" page. Here you can create a new research project (follow the required steps after hitting "Create New Research Project") or revise your project to request TCGA, TARGET or CGCI access ("Revise Project" link on the right):



4) You can check and see if your Research Project has the desired dataset access by going to the "My Requests" tab. You should see "Approved" under the status.

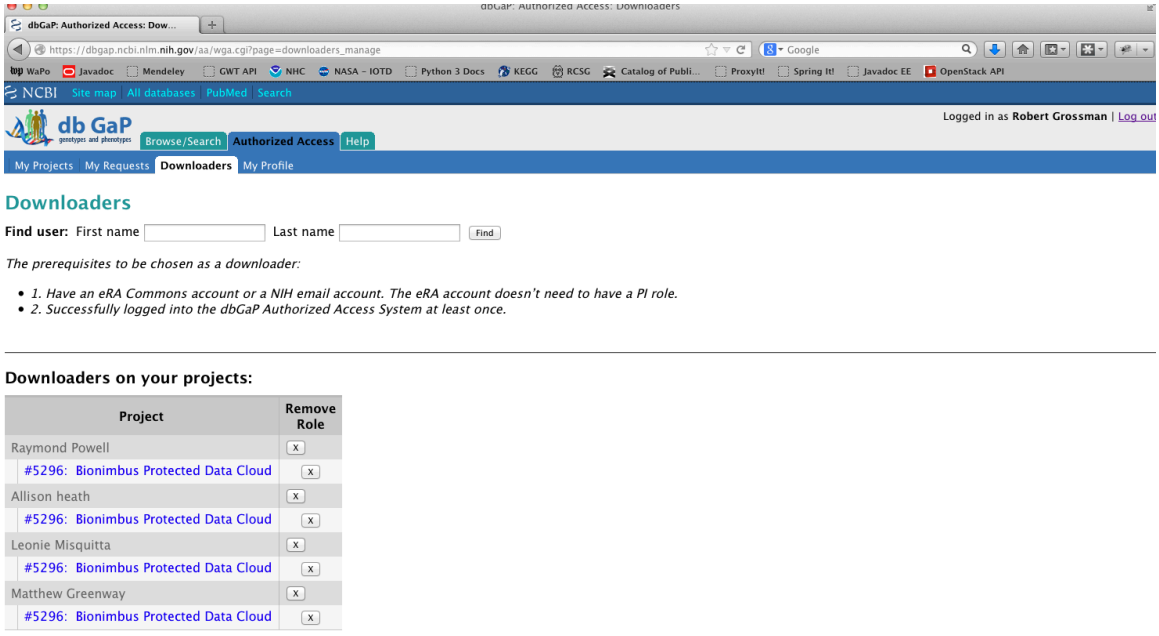


5) If you do not see the desired dataset as approved under your research project, choose the “Datasets” Tab, select the desired dataset click “Add Selected and Continue” at the bottom of the page, and walk through the required steps.



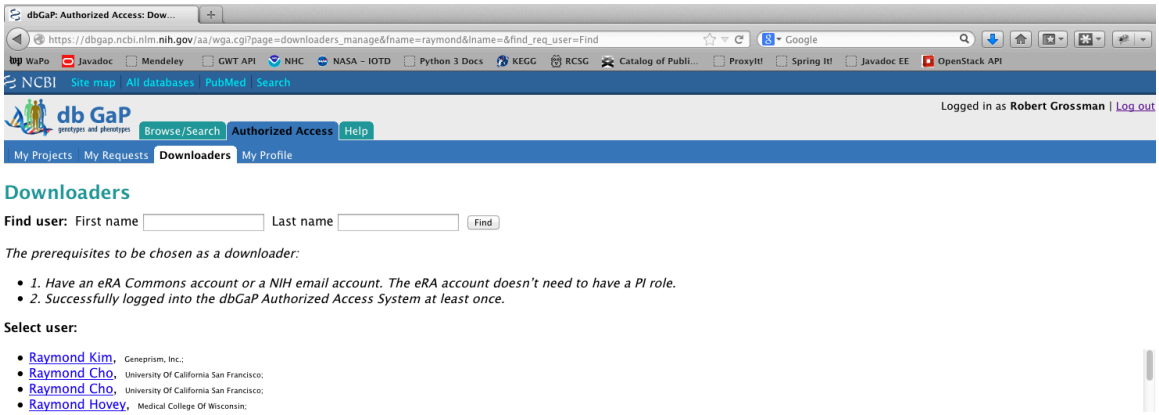
Granting Project Access to Individuals in your Lab

1) Once you have an accepted research project and dataset access, you can give access to other members of your lab who will require PDC accounts. To do so, go to the “Downloaders” tab:

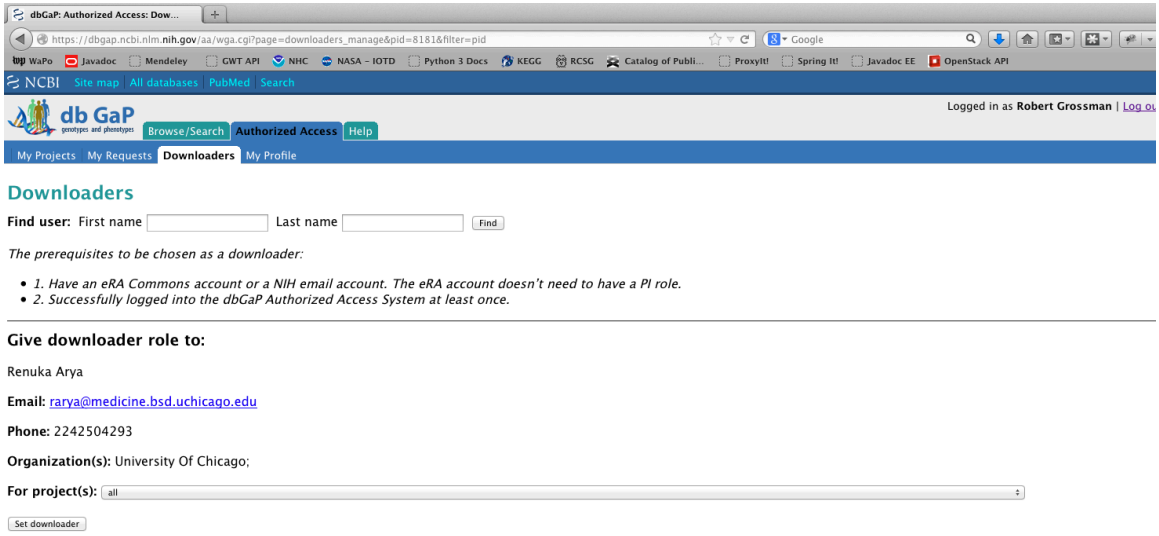


2) The person you are giving access to must a) have an eRA Commons account and b) have successfully logged into the dbGaP Authorization System at least once using their eRA (https://dbgap.ncbi.nlm.nih.gov/aa/wga.cgi?page=login)

Use the “Find User” fields for First Name and Last Name. The Lab member should come up in the list. NOTE: There’s a small scroll bar on the right that you can easily miss.



3) Select their name, and add them to the project, hit “Set Downloader”



Auth Method 2: eRA, Shibboleth or Oauth Access to a Supported PDC Project

For some projects with special contracts to use the Bionimbus PDC, users will gain access by working with their project shepherds to add their eRA Commons, Shibboleth or Oauth credentials to the access list maintained by their project.

For this they will be required to have an identifier of either eRA Commons, Shibboleth, or Oauth (only as a last resort).