🟢 Green Environment Basics

Remote Access - Mac

The CUSP Data Facility provides a computing environment for working specifically with public data, known as the Green Environment. In the Green Environment, you have access to all green data hosted in the Data Facility, as well as your home directory, project workspace, and tools such as Jupyter Notebook, ArcGIS, Excel, and more.

This guide will walk you through the basics of getting connected and setup for the first time, including how to use available tools and data.

Create SSH Tunnel

For security purposes, it is necessary to create an SSH tunnel to access the remote desktop server. Though this may sound complicated, it can be done with a single command. Open a Terminal window and enter the following, remembering to substitute in your `cuspid`.

```
ssh cuspid@gw.cusp.nyu.edu -L 9000:wingrdp.cusp.nyu.edu:3389
```

If asked "*Are you sure you want to continue connecting (yes/no)?*", enter **yes**, then enter your password when prompted. That's it. Make sure to leave this Terminal window open while using the Green Environment and always run this command before connecting to the Remote Desktop.

Connect using Remote Desktop

Now that you have a tunnel, you can easily connect using a Remote Desktop client.

1. Download and install Microsoft Remote Desktop from the Mac App Store.

2. Once installed, open Microsoft Remote Desktop, click the New button, and enter the following settings.
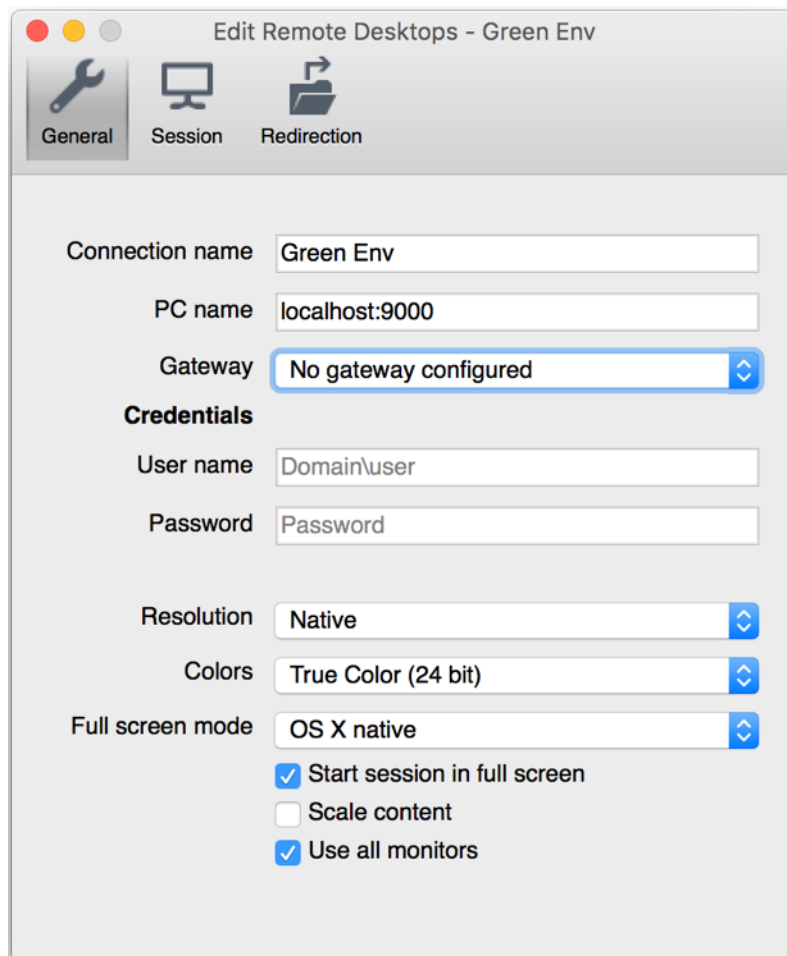
3. Close the settings and double click **Green Env** in the My Desktops list.
4. Once Connected, you will see a login prompt where you will enter your CUSP credentials.
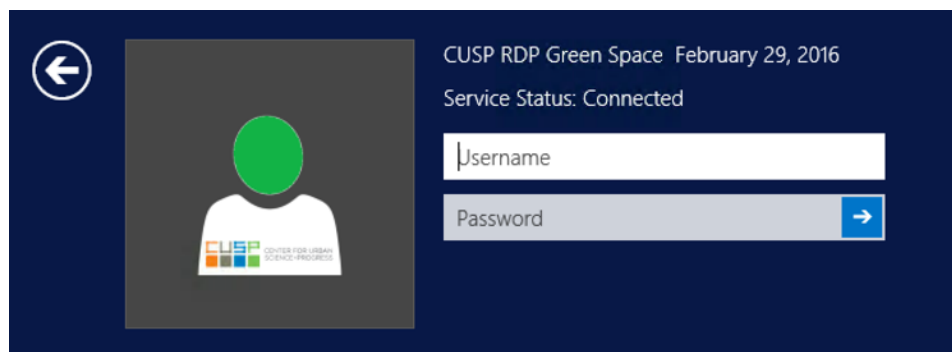
5. After login, you will see a Windows desktop similar to the one below. You are now remotely connected to the Green Environment!
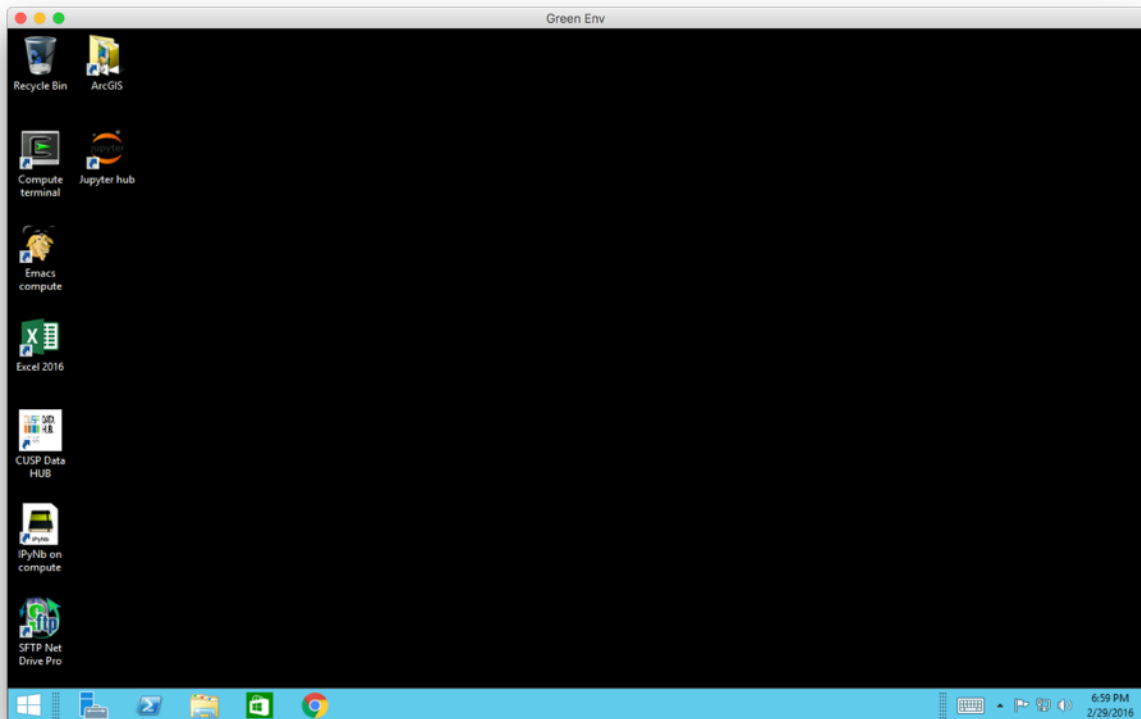

Mount Home Directory and Project Workspace

Now that you have logged into the Green Environment for the first time, you can mount your home directory and project workspaces so that you will have access to all of your files. You will only need to do this once.

1. Open SFTP Net Drive Pro by double-clicking the icon on the Desktop.

2. Click on the **New Profile** button. Enter **compute mounts** as the Profile Name and **compute.cusp.nyu.edu** as the Server. Use your CUSP credentials for the User Name and Password.
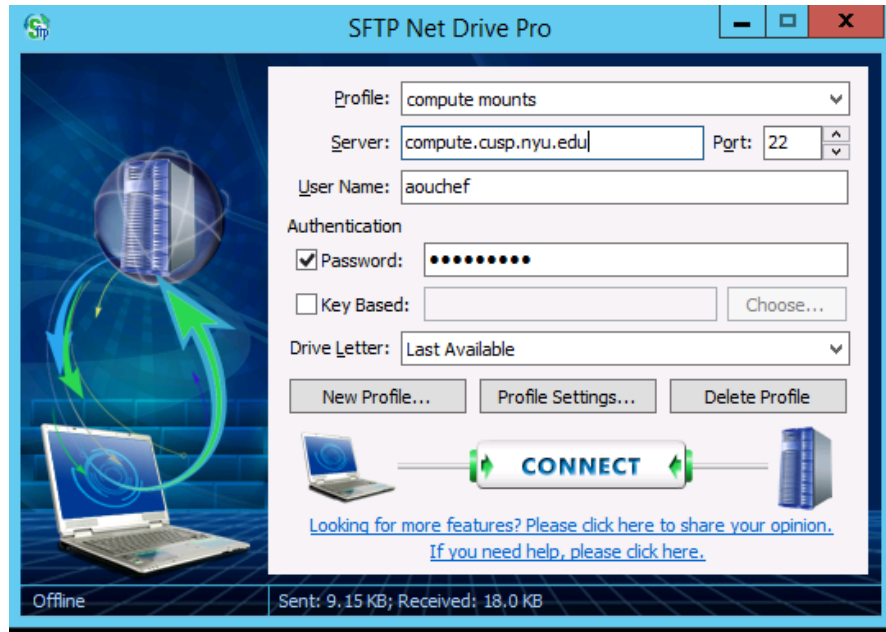
3. Click **Profile Settings** and ensure your settings match those shown. These settings must match exactly. **Uncheck** the boxes highlighted below and set the **Specified folder** in the second column as **/wingrdp**
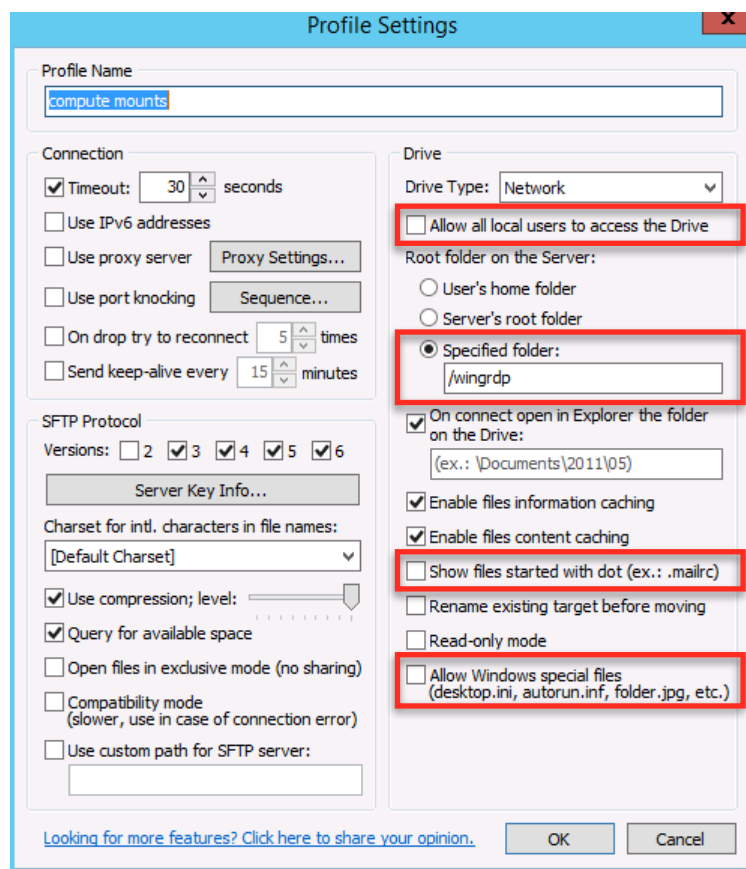
4. Click OK, then Connect. You will then see a file explorer showing the mounted folders from compute. These files are now accessible within any application on the remote desktop.
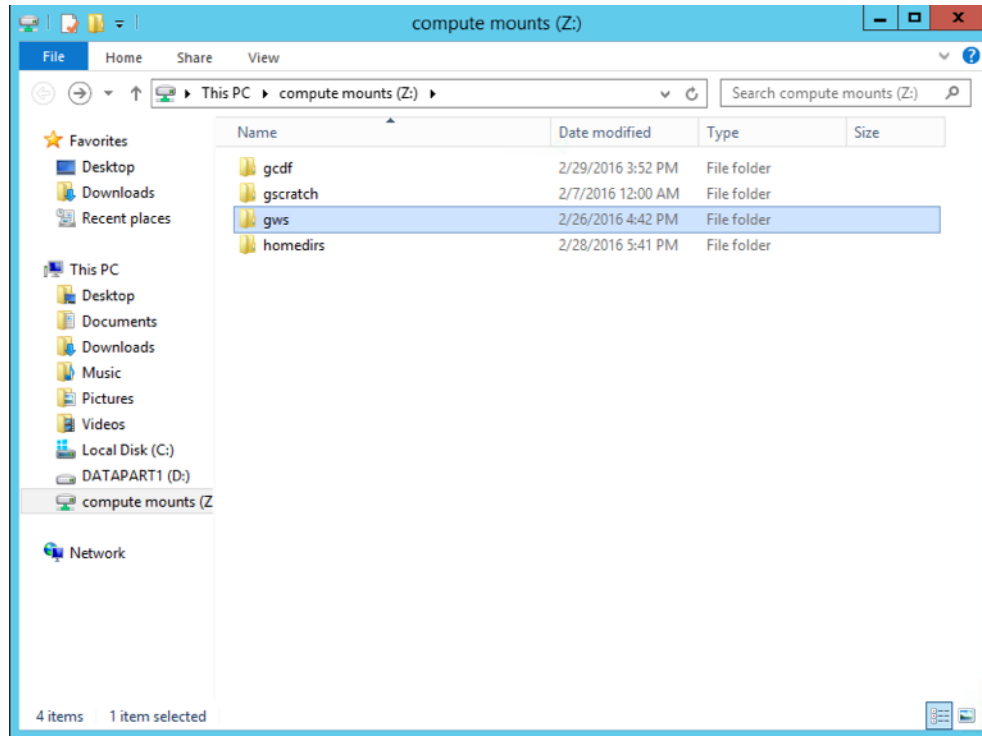
The directories are to be used as follows:

/gws/projects/project_id - This is where green project workspaces can be accessed.

/gscratch/share - A temporary directory for sharing data with other users. Please do not keep work or data here long term, as it is not backed up and will be deleted periodically.

/homedirs/cuspid - Your home directory for saving all of your personal files.

Launch Applications

All commonly used applications can be found on the Desktop. Simply double-click to open. Additional applications, such as other Microsoft Office programs, can be found within the Start menu.

Load Data

One of the best features of the Data Facility is that all open green data listed in the Data Catalog is already mounted, meaning you no longer need to download or transfer data to and from your local machine.

Here is an example on how you can begin using this data in your work.

1. Open Jupyter Hub and enter your CUSP credentials when prompted.

2. Click the New Button, and then Python 2.
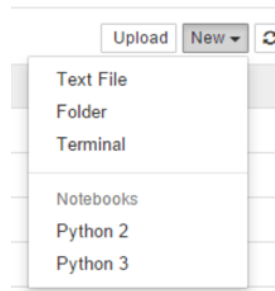
3. In a separate browser tab, go to https://datahub.cusp.nyu.edu/catalog and find the NYPD Motor Vehicle Collisions dataset. Once there, under **Data and Resources**, click on **Explore**, then **Go to resource** next to Urban Profiler.
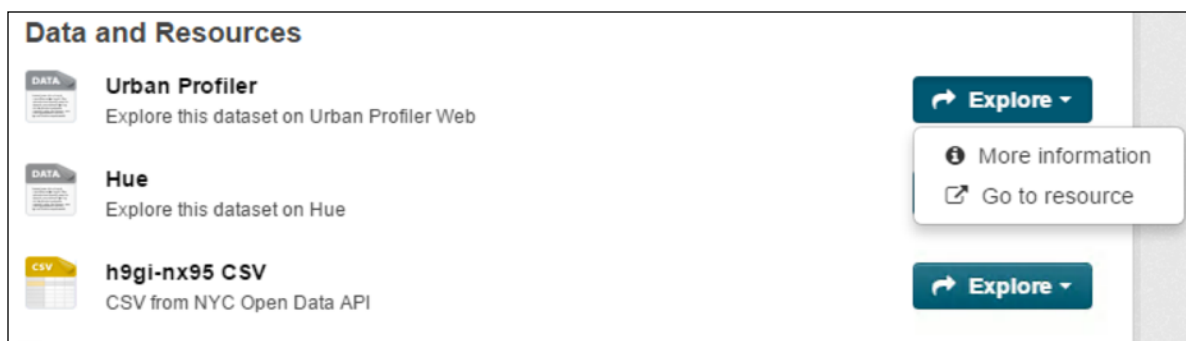
4. You are now viewing the dataset in Urban Profiler. Click on the **Code Snippets** tab. Copy the two lines of code in the **Load with Pandas** section and paste them into your Jupyter Notebook.

Load with Pandas

To import this dataset on python with Pandas on the variable data, run this code inside Python or iPython Notebook:

```
import pandas
data = pandas.read_csv('/projects/open/NYCOpenData/nycopendata/data/h9gi-nx95/1428430582/h9gi-nx95')
```

5. Run the code cell, then verify the data was loaded using head or a similar command.

```
In [1]: import pandas
        data = pandas.read_csv('/projects/open/NYCOpenData/nycopendata/data/h9gi-nx95/1428430582/h9gi-nx95')

In [2]: data.head()
```

Out[2]:

|	DATE	TIME	BOROUGH	ZIP CODE	LATITUDE	LONGITUDE	LOCATION	ON STREET NAME	CROSS STREET NAME	OFF STR NAN
0	04/04/2015	9:25	MANHATTAN	10001	40.750788	-74.005630	(40.7507879, -74.0056304)	WEST 26 STREET	11 AVENUE	NaN
1	04/04/2015	21:15	QUEENS	11357	40.781291	-73.814200	(40.7812915, -73.8141997)	20 AVENUE	150 STREET	NaN
2	04/04/2015	16:52	QUEENS	11385	40.702595	-73.855293	(40.7025952, -73.8552926)	WOODHAVEN BOULEVARD	MYRTLE AVENUE	NaN
3	04/04/2015	9:30	MANHATTAN	10025	40.804886	-73.962474	(40.8048862, -73.9624735)	WEST 113 STREET	AMSTERDAM AVENUE	NaN
4	04/04/2015	9:41	QUEENS	11428	40.715144	-73.749356	(40.7151436, -73.7493556)	211 STREET	JAMAICA AVENUE	NaN

5 rows × 29 columns

SFTP: Transfer Files To and From Local Machine

You may have code or datasets on your local machine that you would like to move to the Green Environment to work with. This can be done using an SFTP client.

Note: You are responsible for adhering to the CUSP Data Facility Policies and ensuring that any data transferred do not contain personally identifiable information and will not be combined with other data in the Data Facility for purposes of re-identification.

1. Download and install [Cyberduck](#) or your preferred SFTP client.

2. Click **Open Connection** and enter the settings shown below. Make sure to select **SFTP** from the dropdown and use your CUSP ID and password.
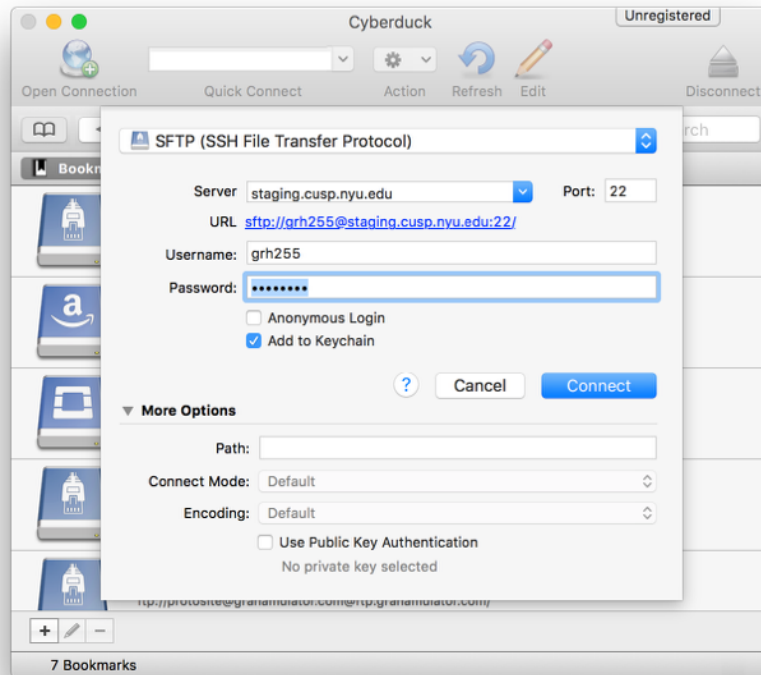
3. Click **Connect**. You will see a directory called **home**. Expand **home**, then expand your user directory. Here you will see all of your files. You can now open a Finder window and drag and drop files between your local machine and your home folder.