# ● Yellow Environment Basics
From a Windows PC

The CUSP Data Facility provides a computing environment for working specifically with protected data, known as the Yellow Environment. In the Yellow Environment, you have access to yellow datasets which you have been given access to as part of an approved Research Project, 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.

Log into Linux remote desktop from PC

For security purposes, it is necessary to use an SSH client to access the remote desktop server. We will use Bitvise and provide a profile for setup, but you are welcome to use other clients such as PuTTY.

1. Download the zip file and extract the contents.
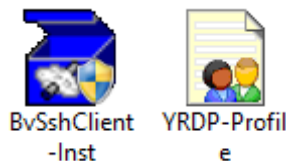
2. Double-click the **BvSshClient-Inst** file to install Bitvise.

3. Once installed, double-click the **YRDP-Profile** file to load the profile, which contains all of the connection information.

4. Under the **Login tab** in the **Authentication box** (right side), enter your CUSP ID and password. Click Save Profile to retain this information for future use.
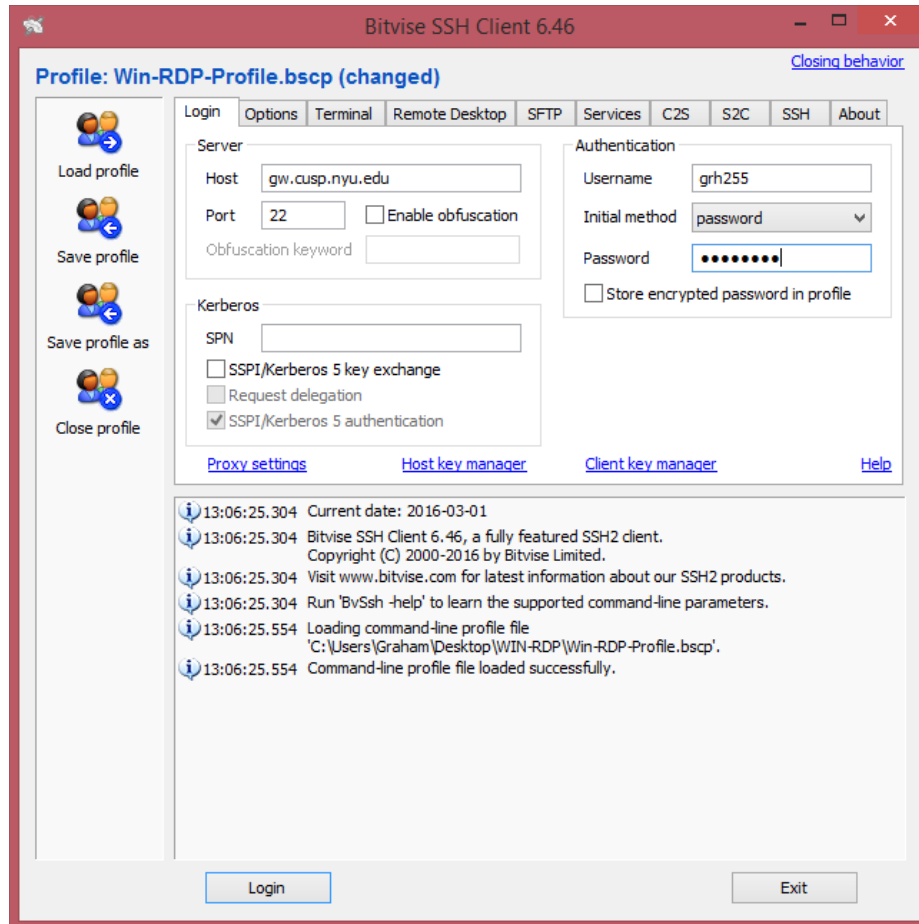

Now that you have completed the installation and profile configuration, you're ready to connect.

5. Click the Login button. Bitvise has been configured to open a Remote Desktop connection.
6. Once Connected, you will see a login prompt where you will enter your CUSP credentials.
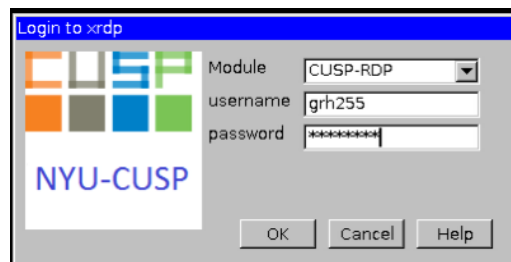
7. After login, you will see a Linux desktop similar to the one below. You are now remotely connected to the Yellow Linux Environment!
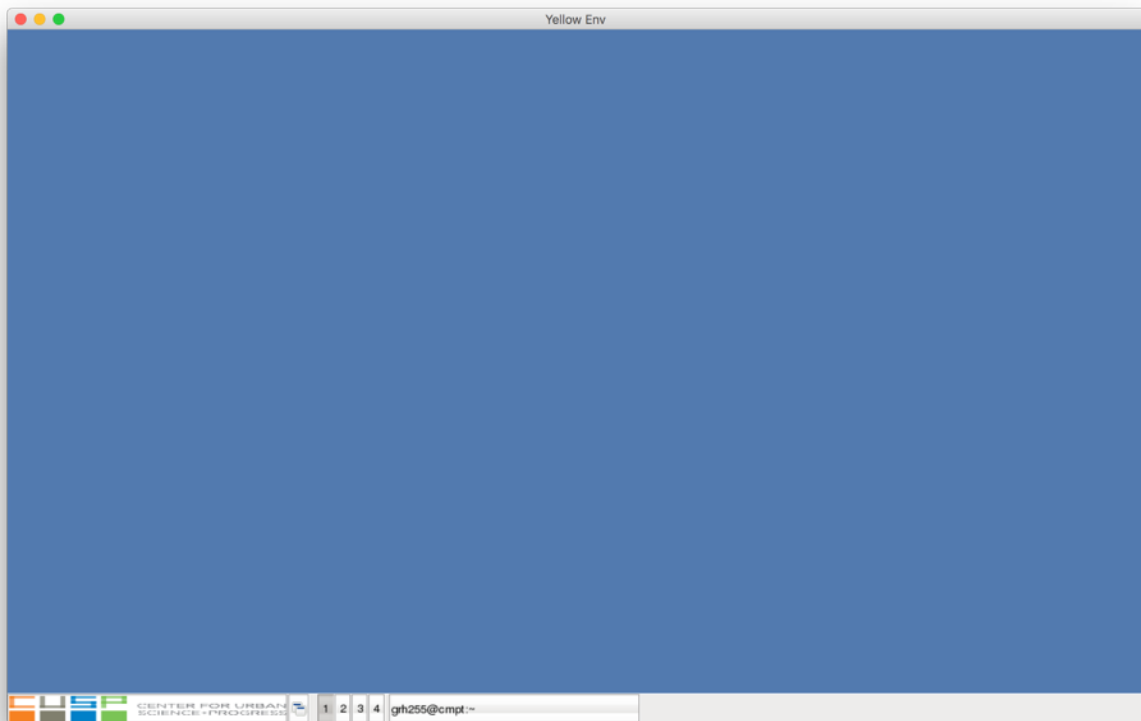
Command line access from Linux RDP

The Linux RDP acts as your point of entry for using tools and running analysis in the Yellow Environment. From here, you can access the Yellow computing host (hostname: **cmpt**) by command line if this is your preferred method.

1. Click the large **CUSP button** in the bottom-left corner, then click **Remote Terminal on cmpt (yellow compute)**.
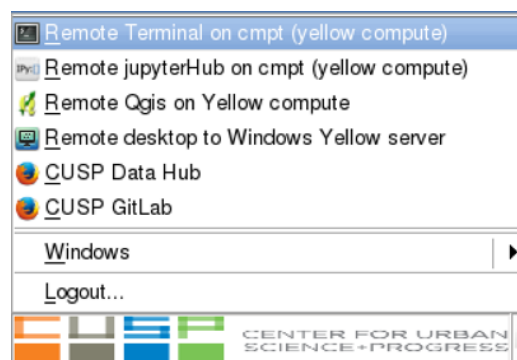
2. A Terminal window will appear prompting you for your CUSP password. Once entered, you are now connected to the computing resources in the Yellow Environment.


Log into Windows RDP from Linux RDP

If you prefer a GUI environment or need to use Windows applications for your research, the Data Facility also provides a Yellow Windows Environment. This is only accessible by going through the Linux RDP first, so make sure you start from there.
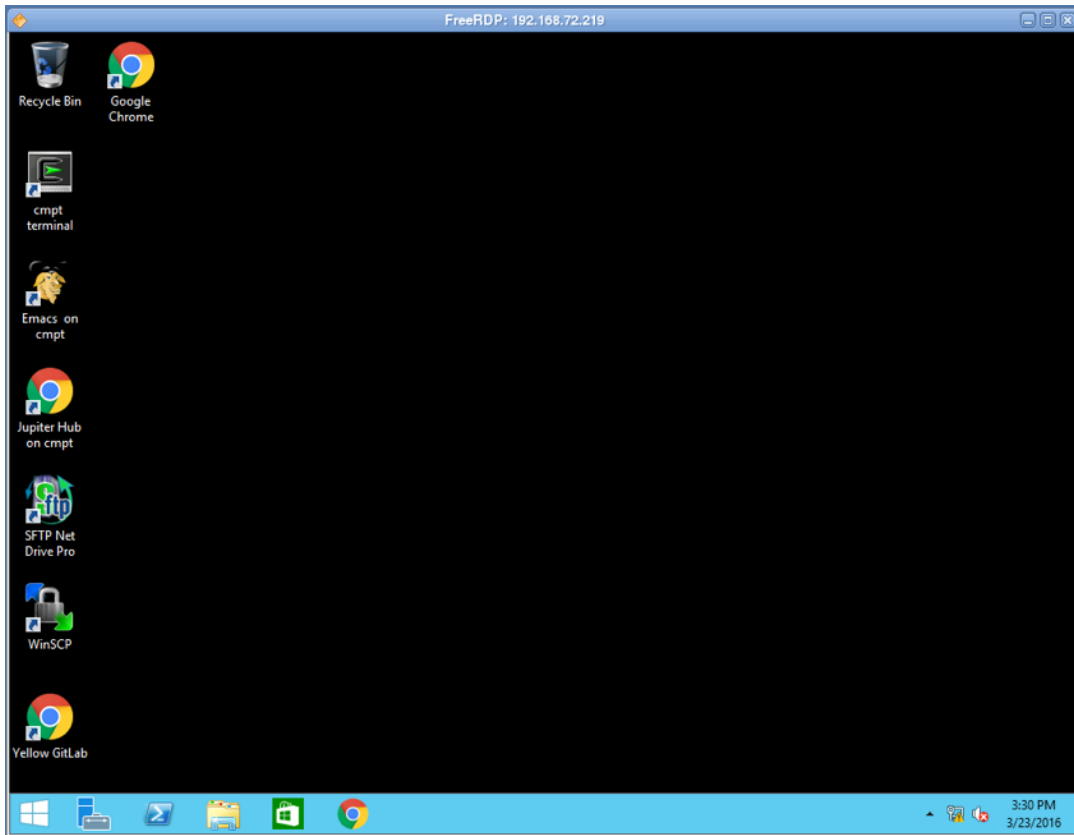
1. Click the large **CUSP button** in the bottom-left corner, then click **Remote desktop to Windows Yellow server**.
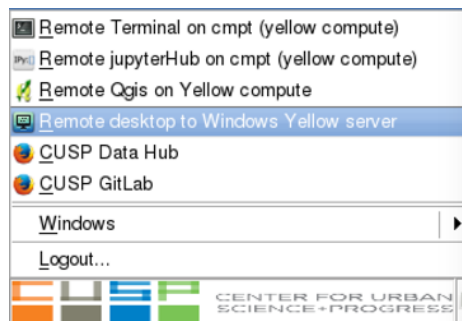
2. Once Connected, you will see a login prompt where you will enter your CUSP credentials.
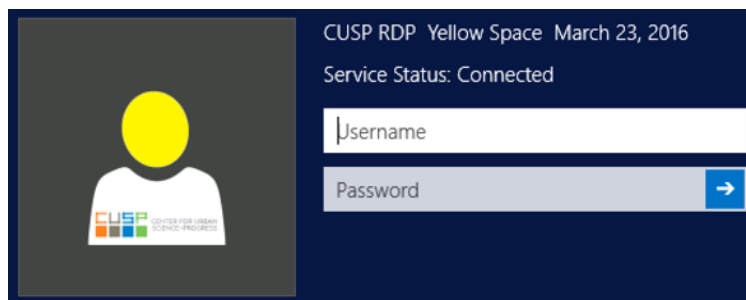
3. After login, you will see a Windows desktop similar to the one below. You are now connected to the Yellow Windows Environment!


Map folders in home directory (Windows RDP)
Now that you have logged into the Yellow Windows 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 **cmpt mounts** as the New profile name and **cmpt.cusp.nyu.edu** as the Host name. Click **OK**. Enter your CUSP credentials for the User Name and Password.
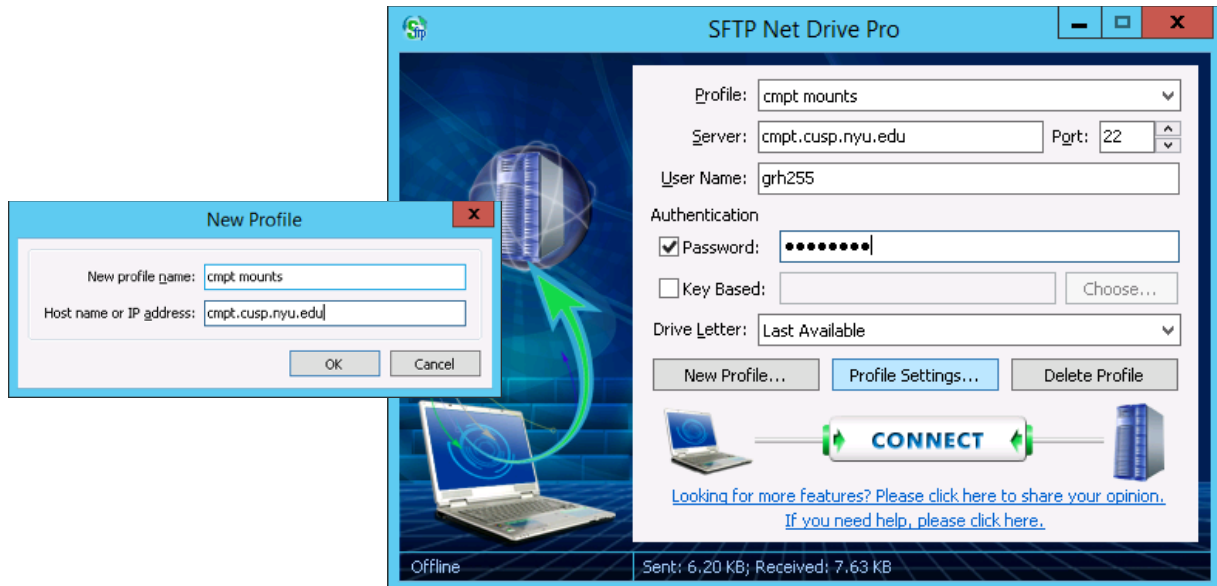
3. Click **Profile Settings** and ensure your settings match those shown. These settings must match exactly. **Uncheck** the boxes highlighted below and set the **Specified folder** in the second column as **/winyrdp**
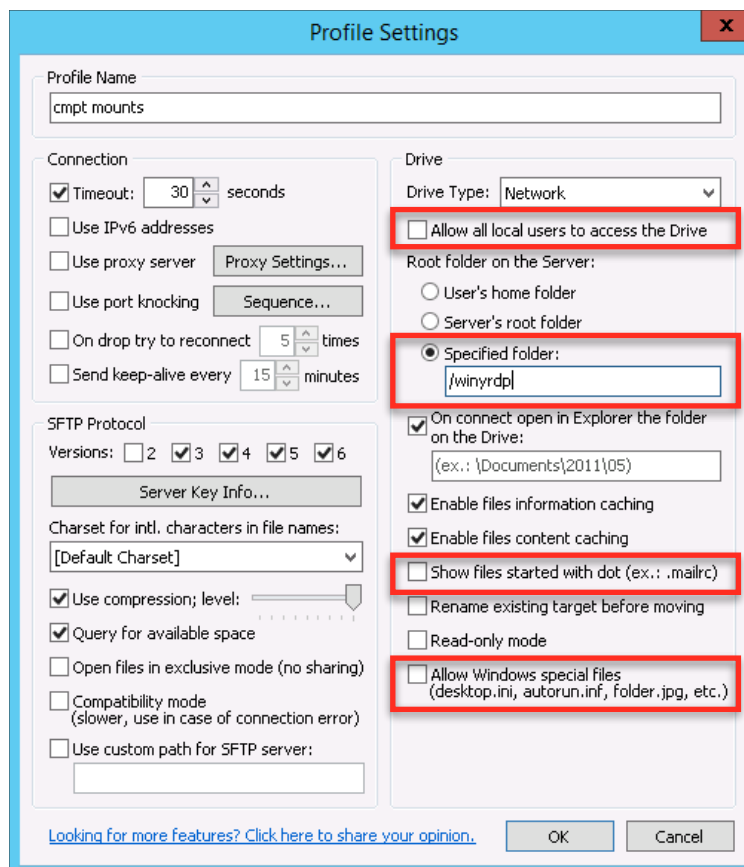
4. Click **OK**, then **Connect**. If prompted with Server Key Validation, click **Accept**. You will then see a file explorer showing the mounted folders from cmpt. These files are now accessible within any application on the remote desktop.
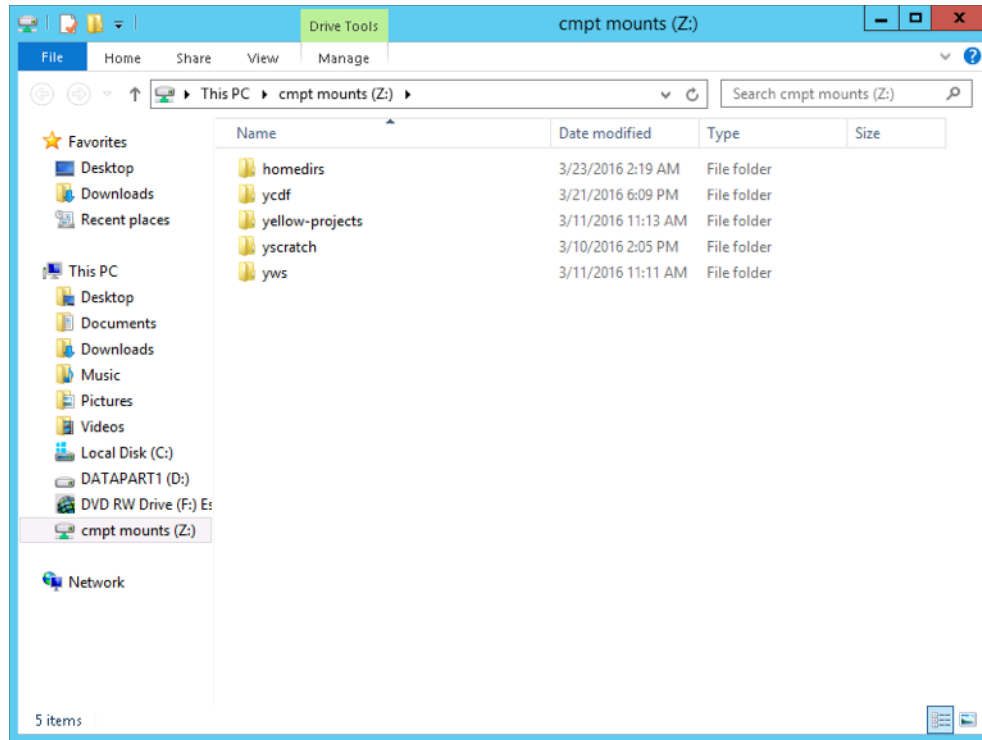
The directories are to be used as follows:

/yscratch/share - A temporary directory for sharing data or files 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.

/yws/projects/project_id - This is where yellow project workspaces can be accessed.

The layout of the workspace is similar to the diagram below. In the **workspace** directory there will be a personal folder for each collaborator on the project. There is also a **share** folder which all members of the project will have access to in order to work collaboratively.

The **export** directory is for saving your research outputs for review and the **datamarts** directory is where requested datasets will be accessible for an approved research project.


Use Jupyter Hub

Jupyter Hub is a multi-user server for Jupyter notebooks (formerly IPython). Jupyter notebooks have become a tool of choice among researchers and is the most frequently used application in the Data Facility.

Jupyter Hub can be accessed from either the Linux RDP via the menu bar or the Windows RDP via the Desktop shortcut. In this example, we'll access it from the Linux RDP.

1. Click the large **CUSP button** in the bottom-left corner, then click **Remote JupyterHub on cmpt (yellow compute)**.
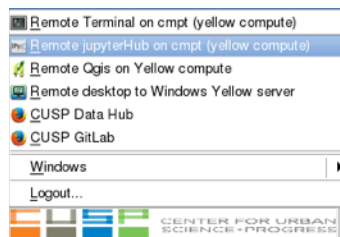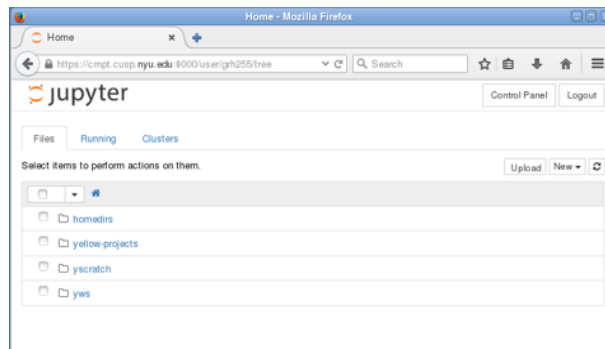
2. A web browser will open with a login prompt. Enter your CUSP credential and click the **Sign In button**.
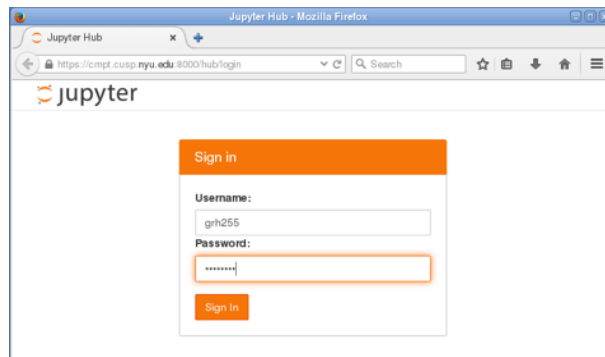

3. You will then see a directory structure similar to the mapped drives in the previous section. You can navigate to your home directory (**/homedirs/ cuspid**) or project workspaces and create a new notebooks.


Work with Python

In most cases where you'll be using Python, you'll likely do so through a Jupyter Notebook, but if you prefer quick command line access to a Python shell, you can do so by opening a Terminal window from either the Linux RDP or the Windows RDP.

1. On Linux, click the large **CUSP button** in the bottom-left corner, then click **Remote Terminal on cmpt (yellow compute)**. On Windows, double-click the Desktop icon labeled **cmpt terminal**.
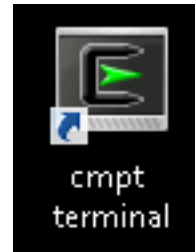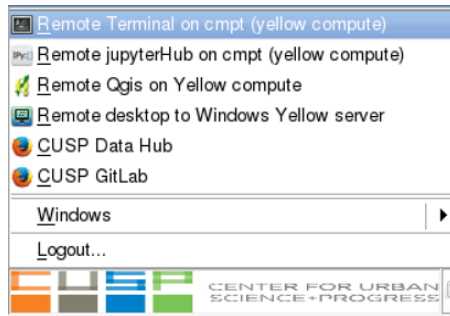
2. If asked "*Are you sure you want to continue connecting (yes/no)?*", type **yes**. You will then need to enter your CUSP password. Afterwards, just enter the command **python** to open a python session running on cmpt.
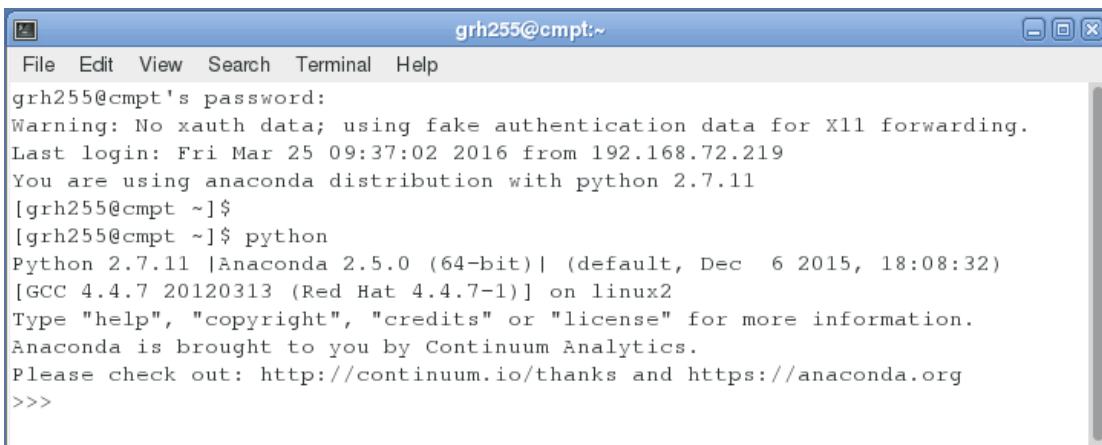
Use desktop apps on Windows RDP: Excel, ArcGIS

The Yellow Windows environment provides common Windows specific analysis tools such as ArcGIS and Excel. We provide desktop shortcuts to make them easy to find, open, and use.