Connecting to the Rutgers Astrolab Server Remotely: VNC and file transfer

You will use the Rutgers "Astrolab" server to analyze images and spectra. This document describes how to connect to your "Virtual Network Computing" (VNC) desktop environment on Astrolab from your own PC or laptop. This environment has image display and analysis tools that you will use with your data. Once the initial analysis is complete, it is often useful to transfer intermediate or final results to your own computer for further analysis or to write up your report. The second part of this document describes some file transfer tools.

Your username for the Astrolab session is your last name (removing spaces and punctuation, if any) and your password is the last six digits of your student ID number. Each of you has a unique VNC session number listed in the file *Canvas → Files → AstrolabSessionNumbers.pdf*; this will be the same number throughout the semester.

VNC Desktop

The best option for connecting to your VNC desktop depends on the operating system of your computer. For Windows machines, the best option is probably the TightVNC program. For MacOS, the recent few versions have a VNC server built in and this seems to work well. If you have a generic Linux machine, you probably know enough to set up a VNC server, but consult with us if you are having problems connecting. Details on these options are given below.

No matter how you connect with VNC to the **astrolab** server at Rutgers, a second password request will probably come up once you connect – this is normal – don't panic!

Once you see the desktop environment, clicking on the ***Terminal*** icon will open a terminal window in which you can enter text commands. A prompt will appear in the form of:
[user@astrolab ~]$

When you are finished with your session, <u>*DON'T LOG OUT*</u>! Just kill the window: click on the "x" in the box at the upper right corner of the screen for Windows or on the red ball at the upper left corner for MacOS.

If your VNC session is not working, see the directions at the very end of this document on how you can remotely restart your VNC session.

Installing and using a VNC server program

Windows

I. *Get VNC*
   1. Download the latest version of *TightVNC* from http://www.tightvnc.com

2. Follow the steps for installing the program. When you're done, you should have a *TightVNC* icon on your desktop (Windows)

II. *Connecting to your **astrolab** desktop using **VNC Viewer***

1. Click on the *TightVNC* desktop icon.
2. Enter your *VNC Server*: **astrolab.physics.rutgers.edu:#**
   # refers to the session number that you've been assigned (there are no leading zeros)
3. Then click the "Connect" button
4. Enter your password at the prompt.

MacOS

There is now a way for MacOS users to connect to and use Astrolab without a VNC window at all – we highly recommend you try this method, but you may contact us for alternatives.

I. *Get XQuartz   (note: recent OSX versions might already have XQuartz installed)*
   1. Download the latest version of *XQuartz* from https://www.xquartz.org/
   2. Follow the steps for installing the program
   3. Log out and log back into your system

II. *Connecting to your **astrolab** profile via terminal*
   1. Open a terminal window
   2. Type the command "*ssh -X yourlastname@astrolab.physics.rutgers.edu*" *to log into your **astrolab** profile. (Note: if this fails you may need to try again with "ssh -Y")*
   3. Open up remote terminal windows as needed with the command "*xterm &*"
   3. Proceed without the need for a VNC window at all!

Native MacOS server (alternative)

1. Open the finder and press command+k or select *Go* from the top of the screen and then *Connect to Server.*

2. Type in the server address vnc://astrolab.physics.rutgers.edu:#, where # is your session number (note: there are no leading zeros). This will open up the screen-sharing app which will ask for your password (your astrolab password). After entering your password, select *save in keychain*, then *connect*. This opens up a desktop window in the same way Chicken would except that, the screen is fitted better, the image quality is much better, and the response is much faster as well.

3. Once the VNC connection is established and the window is open, go back to the top of the screen. You should see screen sharing in bold. Next go to *Connection* and click on it to get the drop down menu. From there select *Save As*. I named my connection astro and saved it to my desktop. This will place a VNC object on your desktop and opening this object (double-clicking) will bring up the screen sharing connect prompt. If you saved your password in keychain you just need to press connect and you are good to go. [For a machine running Snow

Leopard, you cannot save the connection but are still able to open and use the connection. Later versions of the operating system do allow you to save the connection.]

File Transfer Tools

The best tool again depends on the operating system of your computer.

Windows: The *WinSCP3* software contains the SSH and FTP programs that are used to connect to **astrolab** from your Windows PC and to transfer files. Go to https://software.rutgers.edu/ and login to the *Software Portal* using your RUID and password.

1. Click on the *FTP* software category in the left-hand panel and click on "WinSCP" under the search results.
2. Click on "setup.exe" to download the software.
3. Follow the instructions to install the programs.

To use the program, double-click the *WinSCP3* icon on your desktop. Select "Session". Enter host name "astrolab.physics.rutgers.edu," your user name and password, then click "Connect".

For file transfer, you'll see two windows – the one on the left shows your local computer, and the one on the right the computer that you've connected to (**astrolab**). You can move files back and forth by simply dragging and dropping.

For quicker login in the future, you may click "Save" at the bottom of the login window after you have entered your host name, user name, and password (though be cautious about saving your password). This will bring you to the "Stored sessions" tab, where you may select "username@astrolab.physics.rutgers.edu" and click "Shell icon" to create a desktop icon that connects directly to **astrolab**.

MacOS: On Macs, you should download and install the "preview version" of *Fugu* release 1.2.1 from http://rsug.itd.umich.edu/software/fugu (assuming that you are running a newer version of the operating system than Snow Leopard). Click on the link under the 6 Aug 2011 news item and on the destination page click on Fugu_1.2.1pre1.zip to download the program. This will create a Fugu.app in your Downloads directory. Drag this to *Applications* in the dock. The first time you start the program it will probably complain about starting an application from an unknown developer. Start *System Preferences* in the dock and open *Security and Privacy*. At the bottom of that window you will be able to click *Open Anyway for Fugu* (after unlocking the window to allow changes). After that, the program should start normally. *Fugu* works in a very similar manner to the FTP program described above. If you prefer to use a different tool, feel free to use it.

To log into **astrolab** from a Mac, just type
        ssh –l *username* astrolab.physics.rutgers.edu
at the command line of a terminal window, where *username* is your username on astrolab.

VNC not working? Restarting Your VNC Session Remotely

If VNC connects to the desktop window, but all you see is a fuzzy gray screen (or if your desktop icons are missing), you need to restart your session. You can do this from home! Here's how:

For **Windows**:
> (1) Use *WinSCP3* as above to connect to **astrolab** and logon. Then type the commands:
> (2) **vncserver –kill :#**   **<Enter>**
> (3) **vncserver –geometry 1152x864 :#**   **<Enter>**

Again, replace # with your session number. After a very brief pause, your session should be up and running!

For **Mac OS X**:
> (1) Open *Terminal* (found in the *Utilities* folder within *Applications*)
> (2) Type the command:
>   **ssh –l** *username* **astrolab.physics.rutgers.edu <Enter>**
> Once you are logged into astrolab, type the commands (# is again your session number):
> (3) **vncserver –kill :#**   **<Enter>**
> (4) **vncserver –geometry 1152x864 :#**   **<Enter>**
> (5) **exit**   **<Enter>**

Remember! *DON'T LOG OUT* when you leave VNC. Just kill the window: click the "x" in the upper right corner of the screen for Windows or the red ball in the upper left corner for MacOS.