

# Working Remotely on LTS Machines

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## What is an LTS Machine?

The Learning and Technologies Spaces (LTS) Machines are essentially the computer cluster machines found around dorms and common spaces on campus. They also allow for remote school work and come with many of the necessary software and packages used by courses in the engineering and science departments. If you prefer to use an LTS machine in person, they are available in most libraries and student residences, with a full list of locations here: <https://thehub.stanford.edu/services/find-computers>.

## LTS Machine Use

The LTS Macs have all the necessary software packages installed for this class. We **highly** recommend students with Windows machines and students who feel less comfortable installing their own software and packages to use the remote Mac computers offered through LTS.

The one important thing to note when using the LTS machines is that the default version of python on these machines is Python2.7. Since all of our code is in Python3.8, whenever you are running a python script on the LTS machines, you must make a specific call to "Python3.8".

For example, in assignment 1, instead of calling:

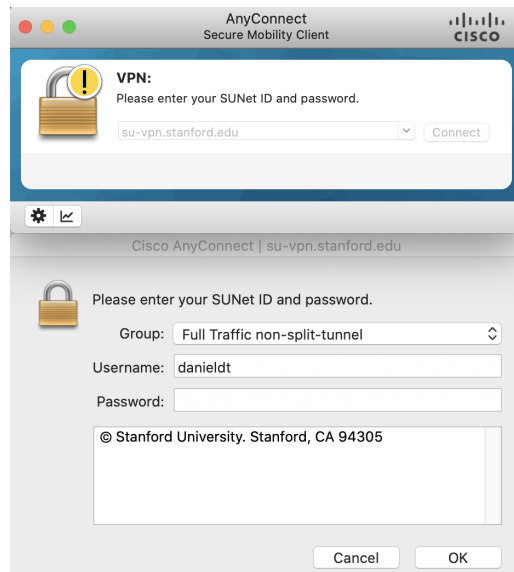
```
python nonboded_distances.py nonbonded_pdbs/*
```

You will call:

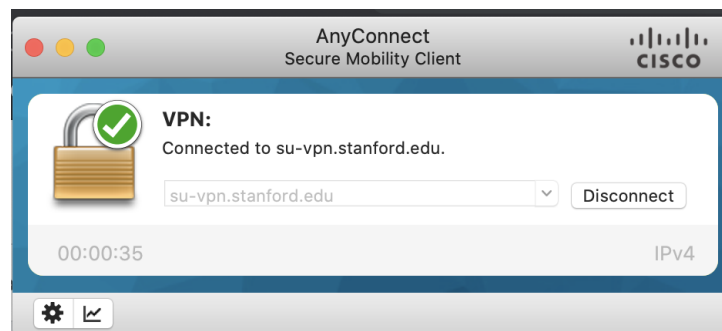
```
python3.8 nonboded_distances.py nonbonded_pdbs/*
```

## How to connect to a LTS machine

To connect to an LTS machine, you will need to first connect to Stanford VPN. Download the Cisco VPN Client (<https://uit.stanford.edu/service/vpn>), which will allow you to connect to Stanford's VPN using your SUID and password.





You will then be asked to perform two-step authentication as you normally would through your mobile device. Once this is completed, you should get confirmation that you have successfully connected to the network.



After connecting to Stanford VPN, checkout a **non-multimedia Mac (MacOS Cluster)** LTS machine at <https://cluster-checkout.stanford.edu/>, you should see the following page.

✓ Computer — Software — Review — ✓ Connect

 **Connect to ou2c-cl-01-imss**  BACK DONE

[FROM MACOS](#) FROM WINDOWS

Quick Connect [Advanced Setup](#)

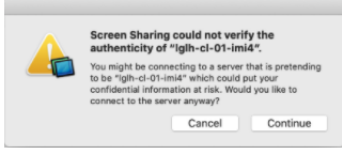
1. Connect to the [Stanford VPN](#)
2. Click this link to open Screen Sharing: [ou2c-cl-01-imss](#)
3. Click **Open Screen Sharing** when presented with following prompt:

Open Screen Sharing?

https://cluster-checkout.stanford.edu wants to open this application.

Cancel Open Screen Sharing

4. When prompted with the "Authenticity" window please click **Continue**.



5. The username is pre-filled. Enter your Stanford password and click **Connect**.

6. Log in using your SUNet ID and password as usual.

Change computers if yours is unavailable: CHANGE COMPUTERS

Once you are here, the workflow for users with MacOS local machines and users with Windows/Linux local machines will differ. Follow the appropriate workflow below for your operating system.

## MacOS Workflow

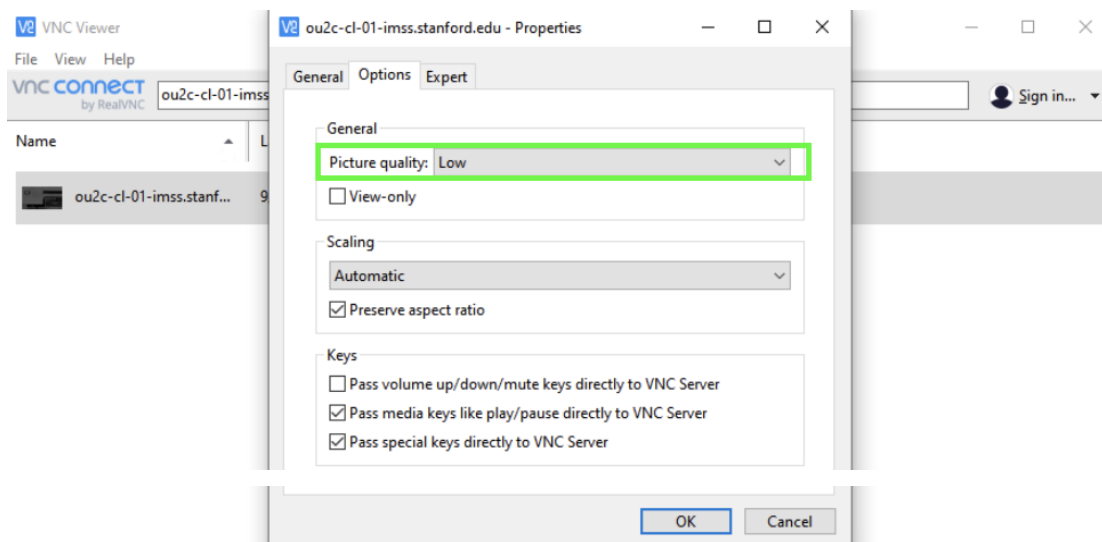
Under the Quick Connect section of the webpage, click on the screen-sharing link (see step 2 in the image above). Allow screen-sharing and sign in with your SUID and password. You should now be able to see the login screen of the cluster machine. Once you login again with your SUID and password, you are ready to use the machine!

## Windows/Linux Workflow

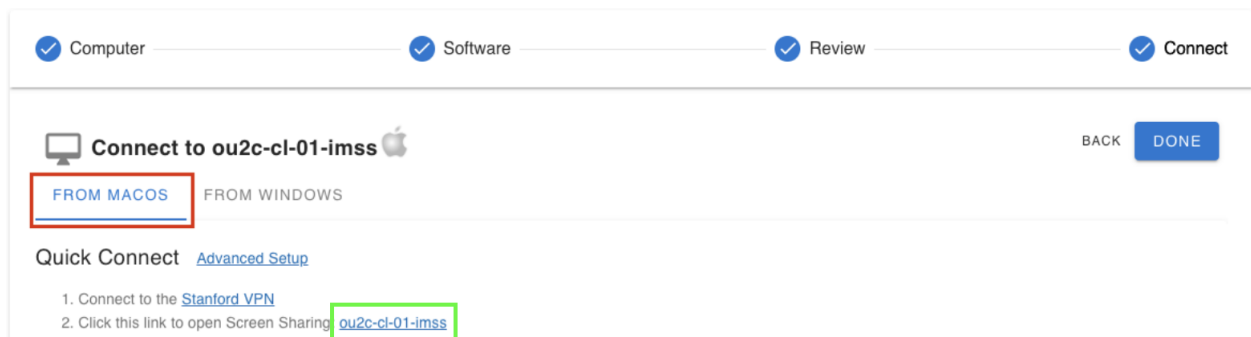
**Note:** The instructions listed on the "Windows" tab of the cluster checkout state that connecting to a MacOS cluster machine from a local windows machine is not supported. However, our

instructions listed below should still work if you use the information displayed under the “From MacOS” tab

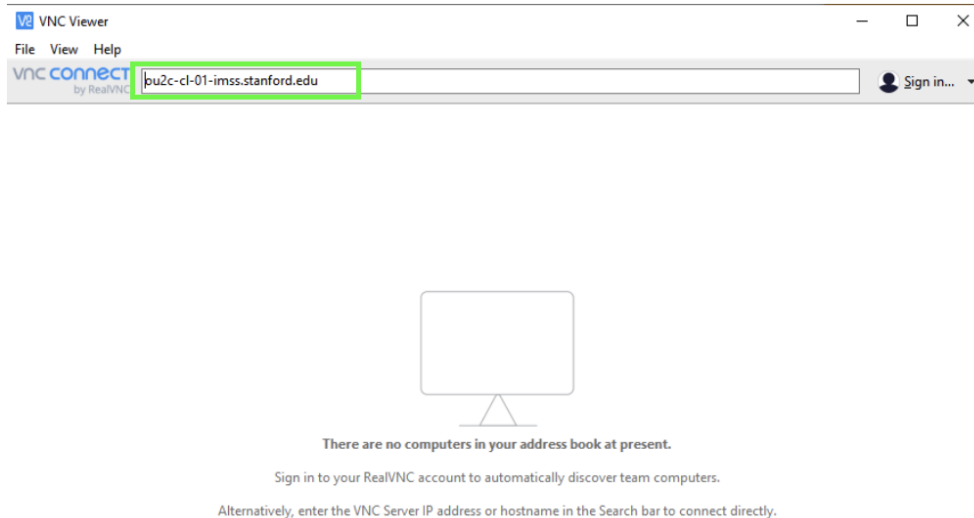
Windows users will need to download a separate remote screen viewer at (<https://www.realvnc.com/en/connect/download/viewer/windows/>). **\*\*\*Important\*\*\* Once vnc viewer is installed, open up the VNC Viewer application and adjust the “Picture quality” setting to Low.** You can find these settings under File -> Properties -> Options -> Picture quality. If you don’t adjust these settings, you will experience tremendous lag in operating the remote machine. If the Properties function is unavailable at first, then first connect to a machine (see instructions below) and then change the picture quality by right clicking the icon for your virtual machine and navigating to Properties -> Options -> Picture quality.



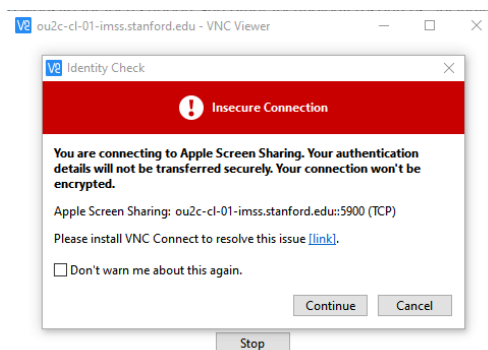
Next, copy the machine address from step 2 of the Quick Connect section (see image below). Make sure you are viewing the “From MacOS” tab to view the machine address.



Paste the machine address into the VNC Viewer address bar, add the suffix “.stanford.edu” and hit enter to connect.



You will need to continue past the insecure connection warning to proceed.



VNC Viewer will then ask you to sign in, and you can do so using your SUID and password. You should now be able to see the login screen of the cluster machine. Once you login again with your SUID and password, you are ready to use the machine!

We apologize in advance for the slight lag in using the LTS Mac machines through windows. Assignments 2 and 3 require the use of PyRosetta4, which is supported primarily on Mac OS. While it is possible to set up PyRosetta on Windows 10, the install is quite a bit more complex and the teaching staff may not be able to assist with any software-related bugs that may arise. For this reason, Windows users are strongly advised to use the LTS machines.

## Troubleshooting Log

Here we are logging any connectivity / usability issues that may come up and any fixes we find

1. Assignment 1: No module 'numpy' or 'matplotlib' error

- Check to make sure that you are running python via the `python3.8` command, and **not** using `python3` or `python`.
2. Connecting from Windows says “Sorry, connecting to macOS from Windows is not currently supported.”
- Click over to the “from MacOS” rather than the “from Windows” tab, then follow our instructions for connecting from VNC Viewer.