# Computer Setup and Git

Local/laptop computer Setup

1. This is a reminder that we will not be using Jupyter notebooks. If you want something other than emacs or vi/vim on the remote machines, you will need to install it via the terminal window.

2. Install the VPN Pulse Secure software (see links page).

   – This is needed if you want to access vpac from outside of Vanderbilt's network (e.g., from home).

vpac and tomservo

1. vpac and tomservo are the names of the servers that we will use for ASTR8080 (previously ASTR8020).

   - What's the difference? For both servers, you will have the same home directory. However, only tomservo can see the class data drive.

   - If you want to work using a terminal or Python, you can login to vpac. If you need to see the data drive, you will need tomservo.
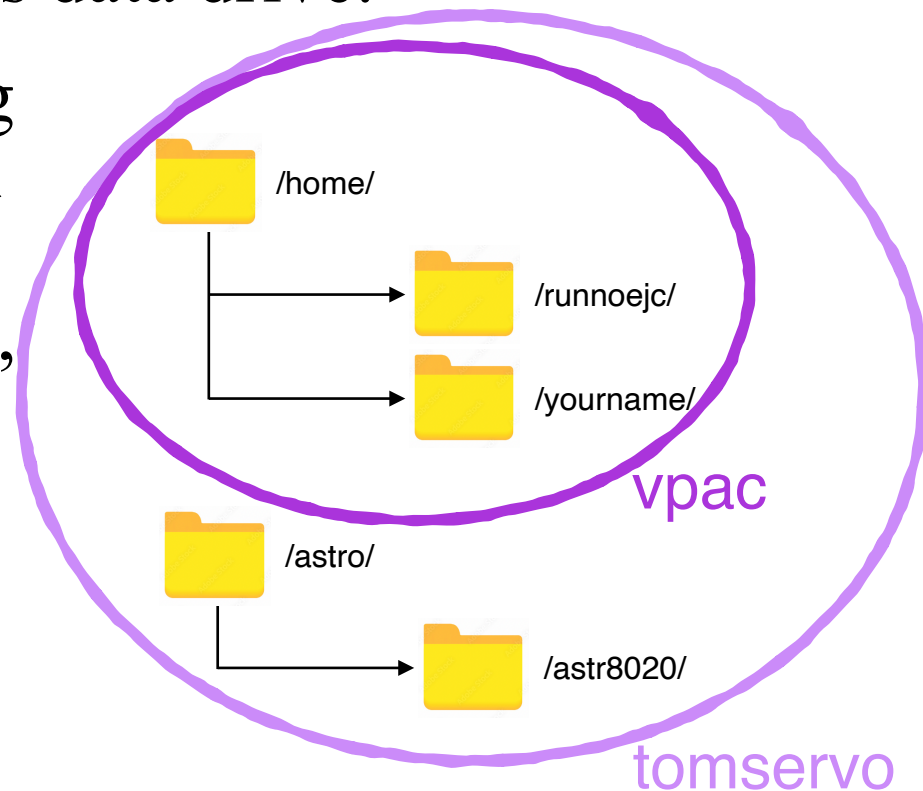
Tools for remote computing: ssh

1. We will use ssh to access vpac and tomservo. The ssh command I use looks like this:

   ssh -XYl username server

   - X enables X11 forwarding

   - Y enables trusted X11 forwarding

   - l (lowercase L) is the username format option

   My actual commands:

   ssh -XYl runnojc1 <u>vpac01.phy.vanderbilt.edu</u>
   ssh -XYl runnojc1 <u>vpac08.phy.vanderbilt.edu</u>
   ssh -XYl runnojc1 <u>tomservo.phy.vanderbilt.edu</u>

Tools for remote computing: rsync

1. rsync is useful to transfer untracked files between remote servers.
   <u>General:</u> rsync -options local_dir/ server:/remote_dir/
   <u>Specific:</u>
   rsync -auvn --exclude '*.swp' ~/runnojc1/.cshrc runnojc1@vpac01.phy.vanderbilt.edu:/home/runnojc1/

2. Options I often use:

   - n for "dry run" will not actually move any files

   - a for "archive" handles directories recursively

   - v for "verbose" will print messages to screen

   - u for "update" skips files that are newer on receiver

   - P for "partial" will print progress to the screen

VPAC computer Setup

1. Create an alias for vpac and tomservo:
   alias vpac 'ssh -XYl usrname vpac01.phy.vanderbilt.edu'
   alias tomserv 'ssh -XYl usrname tomservo.phy.vanderbilt.edu'

2. Create a .bash_profile file in your remote home directory.

Git tasks

1. Read my Git primer on the ASTR8080 links page. Read the whole thing before attempting any tasks.

2. Configure Git (if necessary)

   - Use *git config --global --edit* to make sure your name and email are correct

3. Make a practice repo on your computer and learn to commit and revert changes.

4. Clone our ASTR8080/directory with *git clone.*

5. Make your personal directory in the Git repository. Use the UNIX *mkdir* command. Also add a *week3* subdirectory.

Git tasks

6. Create a .gitkeep file and add it to your local repository using *git add* and *git commit*. Don't forget to supply comments.

7. Create a .gitignore file and add it to your local repository.

8. See whether your local repository is up to date using *git fetch* and *git status*. Update it with *git pull* if it is not.

9. Push your changes to the remote repository with *git push origin master*.

10. Use *ls* to explore the ASTR8080 directory

- Has anything changed as your peers have progressed?

Git tasks

11. *git fetch* and then *git status* again to ensure you have the most recent version of the repo. *git pull* to merge changes if you do not.

12. Use the UNIX *rm* command to delete the .gitkeep dummy file that you created

13. *git status,* what happened?

- Execute *git checkout filename*

- Note how useful this is...your work is backed up

- this is (one of the reasons) why it is very beneficial to frequently *git commit* any work you are conducting

Git tasks

1. Submit the *git fetch* and *git status* commands. Update with *git pull* to ensure that you have the most recent version of the repo.

2. Run *git log*

   - A lot has happened. Do you understand the output?

3. Change the content of your text file and recommit it

4. *git fetch*, *git status*, *git pull* again, to ensure you have the most recent version of the repo

5. Can you determine how to use *git diff* to see the difference between your text file when you first submitted it, and your more recent version?