

A. Login

- You can connect to PACE-ICE via ssh. On Mac or Linux, open a Terminal window. **On Windows 10, open PowerShell. Only PowerShell is supported for this class. PuTTY and other ssh software are not supported, even if you normally use them to connect to PACE.** Use the “plain” version of PowerShell, not ISE, x86, or another one with a longer name. PowerShell is built-in on Windows 10, so you have it already available to you.
- If you have an older version of Windows or your computer has a heavily restricted firewall, use VLab (<http://mycloud.gatech.edu>), which offers access to Windows machines in GT’s Virtual Lab.
- Log in to PACE-ICE via the headnode (not any other headnode you might usually use):
 - Type `ssh USERNAME@pace-ice.pace.gatech.edu`.
 - Enter your password when prompted. No asterisks will appear, but type your full password, then Enter.

B. Copy workshop files

- Create a directory in your home directory and copy the workshop files into it:
 - `cd ~`
 - `cp -r /storage/home/hpaceice1/shared-classes/materials/python101 .`
 - `cd python101`

C. Starting Jupyter. (Future reference: <http://docs.pace.gatech.edu/interactiveJobs/jupyterInt/>)

- Use PACE's Jupyter notebook wrapper:
 - `pace-jupyter-notebook -q pace-training -l walltime=2:00:00`
 - Hint: The character for the flag before walltime is a lowercase L.
- Wait to get onto a compute node. This could take a few minutes.
- Follow the on-screen instructions:
 - Type `Shift + ~ + C` (hold down Shift the whole time, then press and release ~, then press and release C; don't type the + signs)
 - If you see the ~ printed, delete the line, **hit Enter**, and try again. This is supposed to be an escape sequence, which will bring up the prompt you need.
 - This should show the `ssh>` prompt. Copy/paste the purple line (step 2 of the on-screen instructions) beginning with `-L` and hit Enter twice. You should see a message that says “Forwarding port.”
 - Open a browser on your local machine, and copy/paste the provided green URL (step 3 of the on-screen instructions) into it.
- You should see the Jupyter dashboard, including a file tree.
- Click on your new `python101` directory if not already in it, then click on `python101.ipynb` to launch the notebook.

See the next page for additional steps you may wish to take after today’s class.

After class, run these steps to use Python in Jupyter notebooks on PACE in the future.

Set up Anaconda on PACE. More details: <http://docs.pace.gatech.edu/software/anacondaEnv/>

- Log on to PACE Phoenix (or Hive) as you normally do (**NOT to PACE-ICE**).
- Run `ls -a` in your home directory and make sure there is no `.conda` file present.
- If there is a `.conda` file present and it's not a symlink in cyan (**light blue**), run these commands instead of the ones that follow:
 - `module purge`
 - `cd ~/`
 - `mv .conda ~/data/.conda`
 - `ln -s ~/data/.conda .conda`
- If there is a `.conda` and it is already a cyan symlink, then you're all set.
- If there is no `.conda` file, run these commands:
 - `cd ~/`
 - `mkdir ~/data/.conda`
 - `ln -s ~/data/.conda .conda`

After class, run these steps to copy your workshop files onto PACE Phoenix (or Hive) before your PACE-ICE account is deactivated.

If you wish to copy all of your files from PACE-ICE into your home directory on PACE Phoenix (or Hive), follow these steps **while logged into PACE-ICE** (after today's class):

- `cd ~`
- `scp -r python101 USERNAME@login-phoenix.pace.gatech.edu:~/`
 - For Hive, use "login-hive" instead of "login-phoenix"
- Now, log onto PACE Phoenix (or Hive) and look for a directory named "python101" in your home directory.

Or, copy the files to your local computer before your account is deactivated.

Instructions for copying files off of PACE-ICE are available at

http://docs.pace.gatech.edu/storage/scp_linux/ (for Mac or Linux) and

http://docs.pace.gatech.edu/storage/winscp_guide/ (for Windows).

Use `USERNAME@pace-ice.pace.gatech.edu` as the address. Note that Globus is not available on PACE-ICE, but you should use it for all other PACE systems.

Blank copies of all of the course material from today (without any changes you make, such as completing the hands-on exercises) are available for download on the course website at

<http://docs.pace.gatech.edu/training/python101/>.