

Accessing Software

BIOMEDIN/BIOPHYS/CME/CS 279

Fall 2015

1 Policies

In this class, there will be exercises that involve some coding and some use of existing software. We will make sure that all required software is available on the FarmShare machines so that you need not install any software on your local machines. All code will be evaluated for correctness on `corn`, so if you develop elsewhere, you should make sure that your code works on `corn`.

Note: While you are free to install the programs on your own machine and develop locally, in general, if you encounter issues with installation or development, we encourage you to work on FarmShare. Feel free to post issues to Piazza, but ultimately, we may recommend you work on FarmShare in the interest of time. In general, we cannot help you debug installation issues on your own machine at Office Hours.

Below, we give instructions on how to access the FarmShare machines. If you have any issues, please let us know.

2 Accessing FarmShare

If you are on Mac/Linux, open a Terminal. If you are on Windows, you may need to download an ssh client such as PuTTY or Cygwin.

To access `corn`, type the following command.

```
ssh -Y <your SUNet ID>@corn.stanford.edu
```

You will be prompted to enter your SUNet password and then be given access to `corn`. If you want, Stanford has some new machines specifically dedicated to high performance computing called `rye01` and `rye02`. Feel free to try running on one of the `rye` machines by replacing their name for `corn`.

For more information on FarmShare, visit <https://web.stanford.edu/group/farmshare/cgi-bin/wiki/index.php>.

3 Basic Shell Commands

For those of you who've never accessed a computer through a terminal, there are a few commands that will be helpful to know. At a high level, you are navigating the computer's files and invoking

programs by typing commands rather than using a mouse with a graphical display.

Here is a list of commands that may be helpful:

- `pwd` – prints the current working directory
- `cd <new directory>` – changes the working directory to the new directory
Note that `.` refers to the working directory and `..` refers to the parent directory
- `ls` – lists the files in the current directory
- `cp <original> <copy>` – copies the original file to the new copy
- `mv <original> <new>` – moves the original file to the new file.
(This is also how you rename files.)

If you want additional information about any command or program, you can use `man <command>` which brings up the command's manual page.

To execute a program that lives in the current directory, you invoke

```
./<program name> <program arguments>
```

In our case, almost all programs that you will run will be Python scripts, which you invoke using `python`.

```
python <program name> <program arguments>
```

If you want to experiment in an interactive Python window, you can just invoke `python`, which will start a Python interpreter.

```
python
```

4 Accessing Starter Code

In general, the starter files will be listed on AFS. This means, that you can download the files from the website or can copy them to your workspace on FarmShare.

If you are logged into `corn`, simply copy the files from the AFS space for the class. We will zip the assignment files together, such that the overall process for accessing the project files from a FarmShare machine will look like the following.

```
cd <desired location>
cp /afs/ir/class/cs279/WWW/assignments/<assignment name>.zip .
unzip <assignment name>.zip
cd <assignment directory>
```

5 Editing Files

If you are editing files directly on FarmShare, you will have to open them with a text editor. Two popular editors are `emacs` and `vim`.

Alternatively, you can edit the files locally and transfer your edits to FarmShare. You can do this by setting up an ftp client or copying the files onto FarmShare. To copy a file from your machine to FarmShare, use `scp` as follows.

```
scp <local file> <SUNet ID>@corn.stanford.edu: <path to  
destination on AFS>
```

6 Loading Packages

Once you're on FarmShare and have access to the project files, you may have to load certain software packages. To do this, enter the following commands.

```
module load <package name>
```

If there are additional steps necessary, we will outline them in the assignment handouts.

7 FarmVNC

Certain programs we use will involve significant graphical processing. As such, it will be useful to run these programs using FarmVNC. Please see FarmShare's website (<https://web.stanford.edu/group/farmshare/cgi-bin/wiki/index.php/FarmVNC>) for instructions on how to get set up. When using FarmVNC, it is best to use the `rye` machines even though the tutorial suggests using the `corn` machines.

PLEASE REMEMBER TO LOG OFF AT THE END! Each `rye` machine has a finite number of GPUs, so if you forget to log off, you may block your fellow classmates (and potentially all Stanford affiliates!) from using the machines.