Princeton University
COS 217: Introduction to Programming Systems
A Minimal COS 217 Computing Environment

1. Access the COS 217 Account on Ed

1.1. You can access Ed through Canvas.

1.2   Post questions and comments (that comply with the course communication policies) to Ed. Posts will be available to all other students and instructors. Remember to check Ed often, especially while working on assignments and preparing for exams.

2. Activating Your University Unix Account

One time only…

2.1. (If you're working off-campus) Perform the instructions on this web page to use GlobalProtect VPN. SonicWall SRA (secure remote access) instructions are also on this page. Either should work: http://helpdesk.princeton.edu/kb/display.plx?ID=6023
You will need to install the software, whichever VPN service you select.
When you click on connect with the GlobalProtect VPN icon, you will be prompted to enter a Portal Address. Enter vpn.princeton.edu

2.2. Use this link to activate your Unix account: https://eisess200l.princeton.edu/cgi-bin/Shell/nview.pl

You will need to be connected to the Princeton network to access the site.

This can be done by connecting to Eduroam or using the VPN (as instructed in 2.1 above).

2.3. In the resulting *Update your Unix account* page:
      Select the *Enable my Unix account* radio button.
      Click on the *Enable my Account* button.

3. Making bash your login shell

One time only, continued from the previous section…

3.1. In the *Update your Unix* account page: https://eisess200l.princeton.edu/cgi-bin/Shell/nview.pl

Under the *Advanced settings* heading, select the */bin/bash – GNU Bash (/bin/bash)* radio button.
Click on the *Submit Change* button.
Wait about 5 minutes for the change to take effect.

If you enroll in the COS 217 course after the start of the semester, then there will be a delay – typically a day or two – before you have authorization to perform the following steps.

4. Conducting an armlab Terminal Session

- The COS 217 course uses the armlab computer cluster. The cluster consists of 2 computers named armlab01 and armlab02. Both use the same file system.
- The first time you log into an armlab computer, you will be using an impoverished computing environment. Only after you configure the Bash shell (see the *Configuring the Bash Shell* section of this document) will your environment be reasonable.
- Your computer communicates with an armlab computer via any terminal application that can use the SSH (secure shell) protocol. Three such programs are PuTTY and GitBash (for MS Windows) and Terminal (for Mac OS X).

Repeatedly throughout the semester as required…

4.1. Option 1: Use a computer running Microsoft Windows.

If your computer is running Microsoft Windows and you did not purchase your computer through Princeton in recent years and did not take COS 126 or COS 226, then you may need to download and install a terminal emulator that can use SSH. For example, here are instructors for PuTTY:
Use a web browser to visit the page http://www.putty.org/.
Click on the *You can download PuTTY here* link.
In the resulting page, click on the *putty.exe* link.
In the *File Downloading* dialog box, click on the *Save* button.
In the *Save As* dialog box, choose some appropriate location in your local file system.

Launch Your Terminal Emulator Software.
Using Windows Explorer, double-click on the exe file for PuTTY, GitBash, or another applicable program.

Log into the armlab computer.
In PuTTY:
Click on the *Window | Colours* Category, and make sure the *Use system colours* checkbox is checked.
Click on the *Session* Category.
In the *Host Name (or IP address)* text box, type this:
`armlab.cs.princeton.edu`
Make sure that the *Port* text box contains *22*.
Make sure the *Connection type* radio button panel is set to *SSH*.
Make sure the *Close window on exit* radio button panel is set to *Only on clean exit*.
Click on the *Open* button.
If a *PuTTY Security Alert* dialog box appears, click on the *Yes* button.
In response to any *login as:* prompt, enter your Princeton netid. If an *Access denied* message appears, ignore it.
In response to the *password:* prompt, enter your Princeton password. (The password will not echo as you type.)
In GitBash or another terminal emulator:
Enter this command, replacing *YOURNETID* with your Princeton netid:
`ssh YOURNETID@armlab.cs.princeton.edu`
Enter your Princeton password. (The password will not echo as you type.)
Confirm that the window displays a Linux shell prompt.

Use the armlab computer via your terminal emulator as desired.

Log out of the armlab computer.

In your terminal emulator window, issue the `exit` command to disconnect from the armlab computer. Depending on which software you are using, the window may or may not close automatically.

4.2. Option 2: Use a computer running Mac OS X.

Open a Terminal window.
Launch Spotlight by clicking on the magnifying glass icon at the right side of the menu bar. Type `Terminal` in Spotlight. In the resulting pop-up list click on *Terminal*. (For most Mac setups, ⌘-spacebar will also launch Spotlight.)

Log into the armlab computer.
In the Terminal window:
Enter the command:
`ssh YOURNETID@armlab.cs.princeton.edu`
where *YOURNETID* is your Princeton netid.
If an SSH-related message appears, enter `yes`.
Enter your Princeton password. (The password will not echo as you type.)

Use the armlab computer via the Terminal window as desired.

Log out of the armlab computer.
In the Terminal window, enter the `exit` command.

Close the Terminal window.
Click on the red button at the upper left of the Terminal window.

5. Configuring the Bash Shell

One time only, in an armlab terminal session...

5.1. Enter the command `printenv SHELL` and confirm that the output is `/bin/bash`. If that is not the case, then redo the steps in the *Making Bash your Login Shell* section of this document.

5.2. Enter these two commands to copy reasonable Bash configuration files to your home directory:

`cp /u/cos217/.bash_profile /u/YOURNETID`
where *YOURNETID* is your Princeton netid.
Reply to the `cp: overwrite `.bash_profile'?` question by entering `y`.

`cp /u/cos217/.bashrc /u/YOURNETID`
where *YOURNETID* is your Princeton netid.
Reply to the `cp: overwrite `.bashrc'?` question by entering `y`.

5.3. Suggestion: Enter the `cat .bashrc` and `cat .bash_profile` commands to examine the contents of the `.bashrc` and `.bash_profile` files.

The changes take effect during your **next** armlab terminal session.

6. Configuring the Emacs Editor

One time only, in an armlab terminal session...

6.1. Enter this command to copy a reasonable Emacs configuration file to your home directory:

```
cp /u/cos217/.emacs /u/YOURNETID
```
      where *YOURNETID* is your Princeton netid.

6.2. Suggestion: Enter the `cat .emacs` command to examine the contents of the `.emacs` file.

7. Configuring the Splint Source Code Checker

One time only, in an armlab terminal session...

7.1. Enter this command to copy a reasonable Splint configuration file to your home directory:

```
cp /u/cos217/.splintrc /u/YOURNETID
```
      where *YOURNETID* is your Princeton netid.

7.2. Suggestion: Enter the `cat .splintrc` command to examine the contents of the `.splintrc` file.

8. Copying Files between armlab and Your Computer

You can use github to create a repository of each assignment. Details and other options will be covered in lectures and/or A0.