

Princeton University

COS 217: Introduction to Programming Systems

A Minimal COS 217 Computing Environment

1. Subscribing to the Fall 2014 COS 217 Account in Piazza

One time only...

- 1.1. Use a Web browser to visit the page <http://www.piazza.com>.
- 1.2. Navigate through the Piazza website to enroll in "Fall 2014" term of the "COS 217" course at "Princeton University". Please enroll using **your real first and last names** (no nicknames please) and your **Princeton e-mail address** (and not, for example, a Gmail address). Feel free to ask your preceptor for help if you get stuck.

Then, throughout the semester, to communicate with the class ...

- 1.3. Post questions and comments (that comply with the course communication policies) to Piazza via the <http://www.piazza.com/class#fall2014/cos217> website. Posts will be available to all other subscribers and will be archived and searchable from within Piazza. Remember to check Piazza often, especially while working on assignments and preparing for exams.

2. Activating Your University Computing Account

One time only...

- 2.1. (If you're working off-campus) Perform the instructions on this web page to use SRA (secure remote access): <http://helpdesk.princeton.edu/kb/display.plx?ID=6023>
- 2.2. Use a Web browser to visit the "OIT Account Activation Page" at <http://helpdesk.princeton.edu/kb/display.plx?ID=9973>
- 2.3. Perform the five steps listed in the "Next, you must activate your University netID..." section of the page to set your security profile.
- 2.4. In the "After you have activated your account" section of the page, click on the "Enable your Unix account" link.
- 2.5. In the resulting "Unix: How do I enable/change the default Unix shell on my account?" page, click on the "Enable Unix Account" link.
- 2.6. In the resulting dialog box, type your user id and password, and click the "OK" button.
- 2.7. 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:

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.

4. Registering to Use the Nobel Cluster

The nobel computer cluster is administered by Princeton's Office of Information Technology (OIT). You must send a request to OIT to use the nobel cluster.

One time only...

- 4.1. Use a Web browser to visit the page <https://www.princeton.edu/researchcomputing/computational-hardware/nobel/registration/>
- 4.2. When prompted, enter your Princeton user id and password.
- 4.3. Complete the Web form, and submit it by clicking on the "Submit Request" button.
- 4.4. Wait about a half-hour for the registration to take effect.

5. Conducting a Nobel Terminal Session

- *Nobel is a cluster of two computers: compton and davisson. Both use Princeton's central file system.*
- *The first time you login to nobel, 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.*
- *The local computer communicates with nobel via any terminal emulation program that can use the SSH (secure shell) protocol. Two such programs are PuTTY (for MS Windows) and Terminal (for Mac OS X).*

Repeatedly throughout the semester as required...

- 5.1. Option 1: Use a computer running Microsoft Windows.

(If you're working off-campus) Perform the instructions on this web page to use SRA (secure remote access): <http://helpdesk.princeton.edu/kb/display.plx?ID=6023>

(Lab computer only) Log into the computer.

In the "Welcome to an OIT Cluster Mac" box, click on the "Windows" icon.

Type the Control-Alt-Delete key combination.

In the "user name" text field type your user id.

In the "password" text box type your password.

Click on the right arrow button.

(Your computer only) Install PuTTY.

If you're using your own computer running Microsoft Windows and did not purchase your computer through Princeton in recent years, then you may need to download and install PuTTY. To do that:

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.

Then launch PuTTY by double-clicking on the putty.exe file via Windows Explorer.

(Lab computer only) Launch PuTTY.

From the "Start | All Programs" menu, click on "putty - Shortcut".

(Your computer only) Launch PuTTY.

Using Windows Explorer, double-click on the putty.exe file.

Log into nobel.

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 "nobel.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 the resulting PuTTY window:

In response to the "login as:" prompt, type your user id followed by the Enter key. If an "Access denied" message appears, ignore it.

In response to the "password:" prompt, type your password followed by the Enter key. (The password will not echo as you type.)

Confirm that the PuTTY window displays a Unix shell prompt.

Use nobel via PuTTY as desired.

Log out of nobel.

In PuTTY, issue the "logout" (or "exit") command to disconnect the client from nobel. (PuTTY will exit automatically.)

(Lab computer only) Log out of the computer.

Type the Control-Alt-Delete key combination.

Click on the "Log Off" button.

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

(If you're working off-campus) Perform the instructions on this web page to use SRA (secure remote access: <http://helpdesk.princeton.edu/kb/display.plx?ID=6023>)

(Lab computer only) Log into the computer.

In the "Welcome to an OIT Cluster Mac" box, click on the "Mac OS X" icon.

In the "name" text field type your user id.

In the "password" text box type your password.

Click on the right arrow button.

If a "The system was unable to unlock your login keychain" dialog box appears, click on the "Continue log in" button.

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".

Log into nobel.

In the Terminal window:

Issue the command "ssh *youruserid*@nobel.princeton.edu".

If an SSH-related message appears, type "yes".

Type your password, followed by the Enter key. (The password will not echo as you type.)

Use nobel via the Terminal window as desired.

Log out of nobel.

In the Terminal window:

Issue the "exit" or "logout" command.

Close the Terminal window.

In the Terminal window:

Issue the "exit" or "logout" command.

(Lab computer only) Log out of the Mac OS X computer.

On the menu, choose "AppleSymbol | Log Out".

Click on the "Log Out" button in the dialog box.

6. Configuring the Bash Shell

One time only...

6.1. Log into nobel.

6.2. Issue 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.

6.3. Issue these commands to copy reasonable bash configuration files to your home directory:

```
cd
cp /u/cos217/.bash_profile .
cp /u/cos217/.bashrc .
```

Note the period at the end of each "cp" command. The period specifies the "working directory" (alias the "current directory") as the destination of the file copy operation. Also note the space immediately preceding each of those periods.

6.4. Suggestion: Use the "cat" command to examine the contents of the .bashrc and .bash_profile files:

```
cat .bashrc
cat .bash_profile
```

6.5. Log out of nobel. The changes will take effect the next time you log in.

7. Configuring the Emacs Editor

One time only...

7.1. In a nobel terminal session, issue these commands to copy a reasonable Emacs configuration file to your home directory:

```
cd
cp /u/cos217/.emacs .
```

Again, note the period at the end of the "cp" command, and the space immediately preceding it.

7.2. Suggestion: Use the "cat" command to examine the contents of the .emacs file:

```
cat .emacs
```

8. Configuring the Splint Source Code Checker

One time only...

8.1. In a nobel terminal session, issue these commands to copy a reasonable Splint configuration file to your home directory:

```
cd
cp /u/cos217/.splintrc .
```

Again, note the period at the end of the "cp" command, and the space immediately preceding it.

8.2. Suggestion: Use the "cat" command to examine the contents of the .splintrc file:

```
cat .splintrc
```

9. Copying Files Between Nobel and Your Computer

9.1. Option 1: Use a mapped drive.

- *The nobel computers use Princeton's central file system. Mapping a drive of your computer to Princeton's central file system allows you to access files in Princeton's central file system just as if they were in your computer's file system, and to copy files between Princeton's file system and your computer's file system.*
- *Computers purchased through Princeton are configured such that a drive is mapped to Princeton's central file system. On a computer running Microsoft Windows, the H drive is mapped to Princeton's central file system; on a computer running Mac OS X, the mapped drive appears on the desktop.*

(If you're working off-campus) Perform the instructions on this web page to use SRA (secure remote access): <http://helpdesk.princeton.edu/kb/display.plx?ID=6023>

If your computer runs Microsoft Windows, perform the instructions on this web page to map a drive to Princeton's central file system: <http://helpdesk.princeton.edu/kb/display.plx?ID=9347>

If your computer runs Mac OS X, perform the instructions on this web page to map a drive to Princeton's central file system: <http://helpdesk.princeton.edu/kb/display.plx?ID=9268>

Use your computer's file manager to copy files between Princeton's central file system and your computer's file system as desired.

9.2. Option 2: Use FileZilla.

- *The FileZilla application uses SFTP (the secure file transfer protocol) to copy files between Princeton's central file system and your computer's file system.*

Download the FileZilla client from <http://filezilla-project.org/> and install it.

(If you're working off-campus) Perform the instructions on this web page to use SRA (secure remote access): <http://helpdesk.princeton.edu/kb/display.plx?ID=6023>

Launch the FileZilla client application.

In the FileZilla client application:

In the "Host" text field type "nobel.princeton.edu".

In the "Username" text field type your user id.

In the "Password" text field type your password.
In the "Port" text field type "22".
Click on the "Quickconnect" button.

In the FileZilla client application:

Repeatedly click in the left-side pane to navigate through your computer's file system.
Repeatedly click in the right-side pane to navigate through Princeton's central file system.
Drag-and-drop the name of the desired file from the right pane to the left pane, thus copying the file from Princeton's central file system to your computer's file system. Or
drag-and-drop the name of the desired file from the left pane to the right pane, thus copying the file from your computer's file system to Princeton's central file system.

10. Printing a Nobel File

Repeatedly throughout the semester as required...

10.1. Option 1: Print directly from nobel

In a nobel terminal session, issue one of these commands:

```
lpr filename (for ordinary printing)
enscript -2rhC -E filename (for formatted printing of code)
```

On a Print Release Station (that is, a computer located near a Princeton network printer):

Type your user id and password, and click on the "Logon" button.
In the list box, select a file from your print queue.
Click the "Print" button.
Click the "Log Off" button.

10.2. Option 2: Use a mapped drive.

Map a drive of your computer to Princeton's central file system, as described in the "Copying Files Between Nobel and Your Computer" section of this document.

Print the nobel file as you would any file residing in your computer's file system.

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