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

## 1. Activating Your University Computing Account

*One time only…*

1.1. Use a Web browser to visit the page http://support.princeton.edu/oitsetup/.

1.2. Click on the "activate" anchor and follow subsequent instructions to set your password.

1.3. Use a Web browser to revisit the page http://support.princeton.edu/oitsetup/.

1.4. Click on the "Enable your UNIX account" anchor.

1.5. In the dialog box, type your login id and password, and click the "OK" button.

1.6. In the "Update your Unix account" page:

1.6.1. Select the "Enable my Unix account" radio button.

1.6.2. Click on the "Enable my Account" button.

## 2. Making Bash Your Login Shell

*One time only…*

2.1. Use a Web browser to visit the page http://support.princeton.edu/oitsetup/.

2.2. Under the "Advanced settings" heading, select the "/bin/bash – GNU Bash (/bin/bash)" radio button.

2.3. Click on the "Submit Change" button.

2.4. Wait 5 minutes for the change to take effect.

## 3. Downloading the PuTTY Software

Notes:

- PuTTY already is installed on the computers in the Friend Center 016 and 017 labs. You need not (and should not) install PuTTY on a lab computer.
- Similar software is bundled with the Mac OS X and Linux operating systems. You need not install PuTTY on your Mac or Linux computer.
- PuTTY already is installed on Microsoft Windows computers purchased through Princeton **this year**. It is not installed on Microsoft Windows purchased through Princeton in **prior years**.
- See the page http://helpdesk.princeton.edu/kb/display.plx?ID=4104 for more information on PuTTY.

*One time only…*

**3.1. Using your own Microsoft Windows computer:**

3.1.1. Download the PuTTY software.

Use a web browser to visit the page http://www.putty.org/.
Click on the "You can download PuTTY here" anchor.
In the resulting page, click on the "putty.exe" anchor.
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.

## 4. Conducting a Hats Terminal Session

Notes:

- Hats is a cluster of computers that is administered by OIT.
- The hats cluster consists of two computers (fez and fedora) which share a file system.
- You should do all COS 217 assignments on the hats cluster.

*Repeatedly throughout the semester as required…*

**4.1. Using your own Microsoft Windows computer:**

4.1.1. Launch PuTTY.

Run the putty.exe file.

4.1.2. Log into hats.

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 "hats.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.

In the resulting PuTTY window…

In response to the "login as:" prompt, type your user id followed by the Enter key.
In response to the "password:" prompt, type your Princeton UNIX password followed by the Enter key. (The password will not echo as you type.)
Confirm that the PuTTY window displays a UNIX shell prompt.

4.1.3. Use hats via PuTTY as desired.

4.1.4. Log off of hats.

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

**4.2. Using a Lab Microsoft Windows Computer:**

4.2.1. Log into the Microsoft Windows Computer

Type the Control-Alt-Delete key combination.
Type your user id in the "User Name" field.
Type your Windows NT password in the "Password" field.
Click on the right arrow button.

4.2.2. Launch PuTTY.

From the "Start | All Programs | PuTTY" menu, click on PuTTY.

4.2.3. Log into hats.

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 "hats.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.

In the resulting PuTTY window…

In response to the "login as:" prompt, type your user id followed by the Enter key.
In response to the "password:" prompt, type your Princeton UNIX password followed by the Enter key. (The password will not echo as you type.)
Confirm that the PuTTY window displays a UNIX shell prompt.

4.2.4. Use hats via PuTTY as desired.

4.2.5. Log out of hats.

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

4.2.6. Log out of the Microsoft Windows computer.

Type the Control-Alt-Delete key combination.
Click on the "Log Off" button.

**4.3. Using a Lab Mac OS X Computer:**

4.3.1. Log into the Mac OS X computer.

In the Mac OS X window, type your user id and LDAP password, and click on the "Log In" button.
(Be patient if a reconfiguration occurs.)

4.3.2. Open a Terminal window.

Click on the "Terminal" button at the bottom of the screen; its icon is a video display with a cursor.

4.3.3. Log into hats.

In the terminal window...
Issue the command "ssh *yourUserId*@hats.princeton.edu".
If an SSH-related message appears, type "yes".
Type your UNIX password, followed by the Enter key.

4.3.4. Use hats via the terminal window as desired.

4.3.5. Log out of hats.

In the terminal window...
Issue the "exit" or "logout" command.

4.3.6. Close the Terminal window.

Issue the "exit" or "logout"command.

4.3.7. 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.

## 5. Configuring the Bash Shell

*One time only...*

5.1. Log into hats.

5.2. 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.

5.3. Issue these commands to copy reasonable bash startup 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.

5.4. Suggestion: Examine the .bashrc and .bash_profile files.

5.5. Log out of hats.

## 6. Configuring the Emacs Editor

*One time only...*

6.1. In a hats 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.

6.2. Suggestion: Examine the .emacs file.

## 7. Configuring the Splint Source Code Checker

*One time only...*

7.1. In a hats 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.

7.2. Suggestion: Examine the .splintrc file.

## 8. Copying Files between Hats and Your Computer

**8.1. Using your own Microsoft Windows computer (Option 1):**

8.1.1. Map a Windows drive letter (typically H) to the hats file system.
Having done so, you can use the hats file system as if it were local to your computer.
Note: Does not work off-campus.

**8.2. Using your own Microsoft Windows computer (Option 2):**

8.2.1. Download and install FileZilla.
Use a browser to visit http://filezilla-project.org/.
Click on the "Download FileZilla Client (All Platforms)" button.
Click on the "FileZilla_3.1.2-win32_setup.exe" anchor.
In the resulting dialog box, click on the "Save File" button.
On your computer, execute the "FileZilla_3.1.2-win32_setup.exe" program to install. Use the default settings.

8.2.2. Use FileZilla
Launch FileZilla.
In the "Hosts" text box, type "hats.princeton.edu".
In the "Username" text box, type your user id.
In the "Password" text box, type your UNIX password.
In the "Port" text box, type "22" (without the quotes).
Click on the "Quickconnect" button.
Use drag-and-drop to transfer files between your local file system (left) and hats (right).

## 9. Printing a Text File

*Repeatedly throughout the semester as required…*

**9.1. Using your own Microsoft Windows computer:**

9.1.1. Copy the file to your local computer's file system (as per the previous section).

9.1.2. Print the local file, as you would any other local file.

**9.2. Using a Computer in the Friend Center 017 Lab:**

9.2.1. In a hats terminal session, issue one of these commands:
`lpr –P xefriend017d` *`filename`* (for ordinary printing)
`enscript –2rhC –E –P xefriend017d` *`filename`* (for fancy printing of code)

Note: You can omit the "–P xefriend017d" option if the PRINTER environment variable is set to xefriend017d.

9.2.2. On the Print Release Station (i.e. the computer located near the printer)...
Type your user id and Windows NT 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.

**9.3. Using a Computer in the Friend Center 016 Lab:**

9.3.1. In a hats terminal session, issue one of these commands:

`lpr –P xefriend016d` *`filename`* (for ordinary printing)

`enscript –2rhC –E –P xefriend016d` *`filename`* (for fancy printing of code)

Note: You can omit the "–P xefriend016d" option if the PRINTER environment variable is set to xefriend016d.

9.3.2. On the Print Release Station (i.e. the computer located near the printer)...

Type your user id and Windows NT 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. Subscribing to the COS217 Listserv

*One time only...*

10.1. Use a Web browser to visit the page https://lists.cs.princeton.edu/mailman/listinfo/cos217.

10.2. In the section entitled "Subscribing to COS217"...

Type your e-mail address.
Type your name.
Choose and type a password.
Reenter the password.
Click on the "Subscribe" button.

*The listserv management software will send you an e-mail message to confirm your subscription request.*

10.3. Use any e-mail client to reply to that e-mail message, keeping the Subject header intact.

10.4. Use a Web browser to visit (again) the page https://lists.cs.princeton.edu/mailman/listinfo/cos217.

10.5. In the section entitled "COS217 Subscribers"...

Type your e-mail address.
Type your password.
Click on the "View Subscriber List" button.
Confirm that your e-mail address appears on the resulting web page.

*Then, throughout the course, to send a message to the listserv...*

10.6. Use any e-mail client to send a message to cos217@lists.cs.princeton.edu.

The message will be sent to all other subscribers, and will be archived.

*Then, throughout the course, to browse through the archive of listserv messages...*

10.7. Use a Web browser to visit the page https://lists.cs.princeton.edu/mailman/listinfo/cos217.

10.8. Click on the "COS217 Archives" anchor.

10.9. In the resulting Web page, click on the "Thread", "Subject", "Author", or "Date" anchor.