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

1. Fetching the SSH Software

1.1. Using your own Microsoft Windows computer:

1.1.1. Download the SSH software.
> Use a web browser to visit the page http://www.princeton.edu/~tis/security/sshtools.html.
> Download file SSHWinSecureShell31.exe via an anchor on that page.

1.1.2. Install the SSH software.
> In Windows Explorer, double-click on file SSHWinSecureShell31.exe to launch the SSH software installer.
> Choose the default directory: Program Files\SSH Communications Security.

Note:
- The SSH software consists of two Microsoft Windows applications: a "SSH Secure Shell Client" and a "SSH Secure File Transfer Client." You will use the File Transfer Client to download files from the "hats" computer cluster to your computer, and to upload files from your computer to hats. You will use the Shell Client for all other work.
- You need not fetch the SSH software to use the computers in the Friend Center 016 or 017 labs.

2. Conducting a Hats Terminal Session

2.1. Using your own Microsoft Windows computer:

2.1.1. Launch the SSH Secure Shell Client.
> Double-click on the SSH Secure Shell Client desktop icon.

2.1.2. Log into hats.
> In the SSH Secure Shell Client...
> Click on the "File | Quick Connect..." menu item.
> In the "Connect to Remote Host" dialog box:
>> For "Host Name" type "hats.princeton.edu".
>> For "User Name" type your Princeton user name.
>> For "Port Number" type "22".
>> For "Authentication Method" choose "Password".
>> Click on the "Connect" button.
> In the "Enter Password" dialog box...
>> Type your Princeton UNIX password.
> Confirm that the SSH Secure Shell Client window displays a UNIX shell prompt.

2.1.3. Use hats via the SSH Secure Shell Client as desired.

2.1.4. Log off of hats.
> In the SSH Secure Shell Client...
> Issue the "logout" (or "exit") command to disconnect the client from hats.

2.1.5. Exit the SSH Secure Shell Client

2.2. Using a Dell Computer in the Friend Center 017 Lab:

2.2.1. Log into the Dell Computer
        In the "Log On to Windows" dialog box:
        Type your user id.
        Type your Windows NT password.
        Choose "PRINCETON" as the domain.
        Click on the "OK" button.

2.2.2. Launch the SSH Secure Shell Client.
        Double-click on the SSH Secure Shell Client desktop icon. It probably will be labeled "Connect to Arizona".
        If an "Enter Password" dialog box appears, click on the "Cancel" button.

2.2.3. Log into hats.
        In the SSH Secure Shell Client...
        Click on the "File / Quick Connect..." menu item.
        In the "Connect to Remote Host" dialog box:
                For "Host Name" type "hats.princeton.edu".
                For "User Name" type your Princeton user name.
                For "Port Number" type "22".
                For "Authentication Method" choose "Password".
                Click on the "Connect" button.
        In the "Enter Password" dialog box...
                Type your Princeton UNIX password.
        Confirm that the SSH Secure Shell Client window displays a UNIX shell prompt.

2.2.4. Use hats via the SSH Secure Shell Client as desired.

2.2.5. Log out of hats.
        In the SSH Secure Shell Client...
        Issue the "exit" or "logout" command.

2.2.6. Exit the SSH Secure Shell Client.
        Click on the "File" | "Exit" menu item.

2.2.7. Log out of the Dell computer.
        Click on the "Start" | "Log Off *username*" menu item.

2.3. Using a Sun Computer in the Friend Center 016 Lab:

2.3.1. Log into the Sun computer.
        Type your user id and UNIX password.
        If this is your first login, choose "Common Desktop Environment" as your desktop environment.
        Confirm that the display background shows "Solaris" and that the bottom of the display shows a control panel.

2.3.2. Open a terminal window.
        Click the right mouse button once (and release) in an empty area of the display.
        Click the left mouse button on the menu entry for "Tools."
        Click the left mouse button on the sub-menu entry for "Terminal".
        Confirm that the display shows a terminal window, and that the terminal window shows a UNIX prompt.

2.3.3. Log into hats.
        In the terminal window...
        Type "ssh hats".

Type your UNIX password.
Warning: If you omit that step, you will be using a local SPARC processor instead of a remote Intel processor.

2.3.4. Use hats via the terminal window.

2.3.5. Log out of hats.
In the terminal window...
Issue the "exit" or "logout" command.

2.3.6. Close the terminal window.
Click on the "Window" | "Close" menu item, or type "exit".

2.3.7. Log out of the Sun computer.
Position the mouse over the background, i.e., not over any windows.
Click the *right* mouse button, select "Logout".
In the dialog box, click on the "OK" button.

3. Making Bash Your Login Shell

*Note: OIT does not permit execution of the chsh command from **hats**. So this step must be performed from **arizona**. Arizona is a SPARC computer cluster that shares its file system with hats.*

Not required but highly recommended, one time only...

3.1. Log into the arizona cluster. The procedure for doing so is the same as described in Step 2, with "hats" replaced by "arizona" throughout.

3.2. 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 current directory" as the destination of the file copy operation.)

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

3.4. Change your default shell
Issue the "chsh" command (to **ch**ange your default **sh**ell).
Type your UNIX password.
Type "/bin/bash" (without the quotes) as the executable file to use as your login shell. **Type carefully and double check before pressing the Enter key!**

3.5. Log out of arizona, and wait a few minutes for the chsh command to take effect.

3.6. Log into hats.

3.7. Issue the command "printenv SHELL" and confirm that the output is /bin/bash.

4. Configuring the Xemacs Editor

Not required but highly recommended, one time only...

4.1. In a hats terminal session, issue these commands to copy a reasonable xemacs configuration file to your home directory:

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

(Again, note the period at the end of the cp command. It specifies "the current directory" as the destination of the file copy operation.)

4.2. Suggestion: Examine the files within the .xemacs directory.

5. Subscribing to the COS217 Listserv

Required, one time only...

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

5.2. 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.)

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

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

5.5. 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...

5.6. 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...

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

5.8. Click on the "COS217 Archives" anchor.

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

6. Printing a Text File

6.1. Using your own Microsoft Windows computer:

6.1.1. Launch the SSH Secure File Transfer Client.
Double-click on the SSH Secure File Transfer desktop icon.

6.1.2. Log into hats via the SSH Secure File Transfer Client.
As you would log in via the SSH Secure Shell Client.

6.1.3. Download the file to your local file system.
In the SSH Secure File Transfer Client...
Use the left pane to select the appropriate source directory.
Use the right pane to select the source file.
Click on the down arrow icon.
In the dialog box, select a destination directory.
Wait for the download to complete.

6.1.4. Log out of hats.
In the SSH Secure File Transfer Client...
Click on File | Disconnect.

6.1.5. Exit the SSH Secure File Transfer Client.

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

6.2. Using a Computer in the Friend Center 016 Lab:

6.2.1. In a hats terminal session, issue one of these commands:
```
lpr –P xefriend016d filename (for ordinary printing)
enscript –2rC –P xefriend016d filename (for "2-up" printing with line numbers)
```

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

6.2.2. 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 "Log on" button.
In the list box, select a file from your print queue.
Click the "Print" button.
Click the "Logoff" button.

6.3. Using a Computer in the Friend Center 017 Lab:

6.3.1. In a hats terminal session, issue one of these commands:
```
lpr –P xefriend017d filename
enscript –2rC –P xefriend017d filename (for "2-up" printing with line numbers)
```

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

6.3.2. 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 "Log on" button.
In the list box, select a file from your print queue.
Click the "Print" button.
Click the "Logoff" button.