Secure Shell – SSH

For security purposes, most sites require the use of an "SSH Client," or secure shell. Simple terminal programs like telnet or terminal no longer work.

To use SSH:

- From another UNIX/Linux machine, type:
  
  ssh userid@unix.uidaho.edu

- From a UI lab (Windows) machine, do:
  
  Start --> Lab Software --> Internet Apps --> SSH

For your home PC, SSH.com has provided a free site license to UI. Download from:

www.uidaho.edu/info-security/ssh

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DOS and UNIX

- UNIX is a lot like DOS (actually, DOS is a lot like UNIX):

- UNIX has a hierarchical file system (subdirectories). DIFFERENCE: the directory separator is /, not \.

- Many commands are the same (or similar), but many are also different.

- UNIX is a lot more versatile, but also more complicated.

- UNIX commands are typically more cryptic (although shorter)

- Command options in UNIX start with – (dash) vs / in DOS

- UNIX "commands" are really just program names. "Standard" UNIX commands are stored in a special directory.
UNIX Login

HP-UX snake B.10.20 A 9000/770 (ttyq3)

login: Type your assigned userid here
Password: Password goes here (doesn't print!)

(System Messages)

userid@snake> Shell prompt - you made it!

When finished:

userid@snake> exit

Changing Your Password

userid@snake> passwd
Changing password for userid
Old password: 
New password: 
Retype new password: 
Your password has been changed.
userid@snake>
UNIX Shells

ksh - the Korn shell
csh - the sea shell
bash - Bourne-again shell
tcsh - "terrific" C shell

These are better!

To switch:

user@id@snake> bash
snake>

The most basic UNIX Commands

ls - show the files in your directory
cat file - print the contents of the specified file
cd dir - change directory
pwd - "print working (current) directory"
cp file1 file2 - copy file1 to file2
mv file1 file2 - move (rename) file1 to file2
rm file - remove (delete) file
mkdir dir - create a new subdirectory
man command - print the "manual" page for
command
**ls -l**

<table>
<thead>
<tr>
<th>Permissions</th>
<th>Owner</th>
<th>Group</th>
<th>File Name</th>
<th>Size</th>
<th>Date</th>
<th>File Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>drwxr-xr-x</td>
<td>rinker faculty</td>
<td>1</td>
<td>a.out</td>
<td>14842</td>
<td>Jan 18 20:38</td>
<td></td>
</tr>
<tr>
<td>drwx---r--</td>
<td>rinker faculty</td>
<td>1</td>
<td>mystuff</td>
<td>4086</td>
<td>Jan 18 20:38</td>
<td></td>
</tr>
<tr>
<td>-rw-r--r--</td>
<td>rinker faculty</td>
<td>1</td>
<td>prog1.c</td>
<td>215</td>
<td>Jan 18 20:38</td>
<td></td>
</tr>
<tr>
<td>-rw-r--r--</td>
<td>rinker faculty</td>
<td>1</td>
<td>prog2.c</td>
<td>387</td>
<td>Jan 18 20:38</td>
<td></td>
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<tr>
<td>-rw-r--r--</td>
<td>rinker faculty</td>
<td>1</td>
<td>test.data</td>
<td>402</td>
<td>Jan 18 20:38</td>
<td></td>
</tr>
</tbody>
</table>

**UNIX Editors**

**vi** – “visual editor.” Available on all UNIX systems

**pico** – a “small” editor that comes with the pico mailer. Available on most UNIX systems.

**emacs** – very powerful, but also rather complicated. Available on most UNIX systems.
Using the PICO editor

To create/edit a file named prog1.c, type:

```
pico prog1.c
```

- The screen will clear, and if the file already exists, it will be displayed.
- Some of the editor commands will be shown across the bottom of the screen. The `^` represents the CTRL key.
- The arrow keys can be used to move around in the file. The mouse does NOT work.

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Some Common PICO Commands

- To add text, move the cursor to position and type the desired text.
- `^C` (CTRL C) – displays current line (and character) number.
- `^K` – "Kuts" or {Kills} the current line, BUT line is saved.
- `^U` – "Uncuts" (restores) the line. `^K~^U` is useful for moving lines of text. BUT also see below.
- `^^` – (CTRL ^) Marks a line. Text from this point to current cursor position is highlighted. Now `^K` will cut highlighted text, not just a single line.
More PICO Commands

- \(^W\) ("where") searches for specified text and moves there.
- \(^O\) — saves text without exiting (a good idea occasionally!)
- \(^X\) — saves text and exits pico

There are other commands — don’t be afraid to experiment!

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Program development on UNIX

- After composing your program, use an editor to create a file. The file should have the name xxx.c (or xxx.cpp)
- Use g++ to compile:

  \[
  \texttt{g++ file.c}
  \]

  If there are no errors (hail), this will create the file a.out
  If there are errors, re-edit the program and repeat.

- Execute the program by typing the executable name:

  \[
  .\!/a.out
  \]