

Tiny Instruction Manual for the Undergraduate Mathematics Unix Laboratory

1 Logging In

When you sit down at a terminal and jiggle the mouse to turn off the screen-saver, you will be confronted with a window that lists the available hosts. At the present time they are abacus, alto and plato. Click on one of them to select it (it will turn black) and then click on “OK”. After a short while the login screen will appear. This screen has a white box titled **Welcome to UBC Mathematics** containing two fields for data – **login** and **Password**. The cursor (a vertical bar) should be just after the word login. If it isn’t, hit the **RETURN** key once or twice until it is. To log in

1. Type your login id (the one that resembles your name) and hit **RETURN**.
2. The cursor should now be in the next field, **Password**. Type your password here and hit **RETURN**. (The cursor will not move while you type your password - this helps keep it a secret!)
3. If all went well, the login screen will disappear, and several seconds later a small clock and a tool bar will appear on your screen. If this doesn’t happen, you probably made a mistake when you typed your login id or password in and you will see **Login incorrect** at the bottom of the entry box. Just return to step 1 and continue the login procedure. Be sure that the Caps Lock light is not on! If it is, press the **CAPS LOCK** key to turn it off.

Be sure to look at section 5 to see how to change your initial password to one that you can remember.

2 Logging out

Once you have logged in, you need to know how to leave. If you don’t log out properly, your account can be accessed by unscrupulous people who could erase your files or otherwise make your life miserable.

To leave:

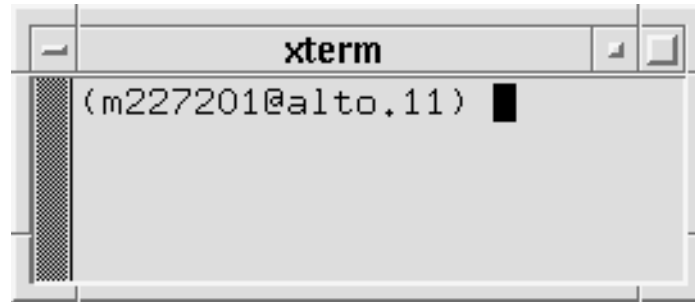
1. Click the “quit” button on the tool bar.
2. Wait and make sure that the default hosts screen from section 1 appears.



3 X Windows in a Hurry

The windowing environment used in the laboratory is called X Windows. It works similarly to other windowing environments such as Windows on PC’s and the Macintosh user interface. However, X Windows is less consistent than these other systems and takes some getting used to.

Every window is surrounded by a frame. The frame is used to move, resize and otherwise manipulated the window. The frame itself is divided into different components: the buttons, the title bar, and the edges.



The title bar is the section in the upper centre that contains a label for the window, in this case **xterm**. There is one button on the left containing a rectangle, and two buttons on the right, one with a small square and one with a large square. The rest of the frame is the edge, which is itself divided as you can see into corner sections and side sections.

- To move a window, click the left mouse button down on the title bar, drag the mouse to the new location, and lift up on the left mouse button.
- To resize the window, click the left mouse button down on any edge, drag the mouse to the desired size for the window, and release the left mouse button. If you resize using a corner section you will be able to make any size you want, whereas if you use a side section, you will be able to resize in one direction only.
- To get windows out of the way, you can *iconify* them. By pressing the button with the small square with the left mouse button, the window will disappear and be replaced by a small icon on the screen like this:



You can restore the icon to the original window by double clicking on the icon with the left mouse button. You will see a couple of windows already iconified when you log in.

- To close a window, double click on the left title bar button with the left mouse button.

Since the windowing system allows several windows to be open at once, there has to be a way to select what window is the one currently being used. To do this, just click on the window's title bar with the left mouse button. The colour of the frame will change to let you know that this is the active window, and everything you type will now be sent to this window.

4 The UNIX Command Line

One way to give instructions to the computer is through a text window interface to UNIX. You can create such a window by clicking on the "xterm" button on the tool bar. This window is something like a MS-DOS shell, inasmuch as a bacterium is something like a human being. From here you will be able to manipulate the file system and start programs.

Files in UNIX are organized into containers called *directories*. Every user has their own personal (home) directory to store files in. What is more, you can organize your files by creating directories within your home directory and storing files in them. At any given time there is a directory, called the *current directory*, that your UNIX commands apply to. This is best explained with an example.

You can see what files you have in the current directory by typing `ls` (the equivalent of the MS-DOS command `dir`) at the command prompt, like this (this is just an example, your files will be different):

```
(maxwell@alto.151) ls
total 6
-rw-r--r--  1 grad          924 Aug 26  1996 lab1a.class
-rw-----  1 grad          887 Aug 26  1996 lab1a.java
drwx-----  2 grad          512 Aug 26  1996 source/
(maxwell@alto.152)
```

Here we see two files, **lab1a.class** and **lab1a.java**, and a directory called **source**. You can tell directories from files because they end in a slash, /, and because the line in the output from `ls` starts with a **d**.

The current directory starts as your home directory. You can change the current directory by using the command `cd`. For example, if you wanted to see the contents of the **source** directory, you could make it you current directory by typing `cd source`. If you typed `ls` now, you would see a list of the contents of **source**. There are two special directories in every directory called `.` (pronounced dot) and `..` (pronounced dot-dot). The first one refers to the current directory, and the second to the parent directory. So if you were in the directory **source**, typing `cd ..` would place you in your home directory. You will find some other useful commands in the table below.

Command	What You Type	What it Does
<code>cd</code>	<code>cd <i>dirname</i></code>	moves you into the directory <i>dirname</i>
<code>ls</code>	<code>ls</code>	lists the files in the current directory
<code>cp</code>	<code>cp <i>file1 file2</i></code>	makes a copy of <i>file1</i> and puts it in <i>file2</i>
<code>mv</code>	<code>mv <i>file1 file2</i></code>	renames (MoVes) <i>file1</i> to <i>file2</i>
<code>rm</code>	<code>rm <i>file1</i></code>	deletes (ReMOVes) <i>file1</i>
<code>mkdir</code>	<code>mkdir <i>newdir</i></code>	makes a new directory called <i>newdir</i>
<code>rmdir</code>	<code>rmdir <i>dirname</i></code>	deletes the directory <i>dirname</i> , which must be empty

You can specify files not in your current directory by prepending the name with the directories you would have to go through to get to the file. For example, if the directory **source** contained the file **garbage**, you could delete it while in your home directory by typing `rm source/garbage`. Notice the forward slash character / which is used to separate directory names. (MS-DOS users: this is different from the backslash (\) used in MS-DOS.)

You can start programs from the command line by typing the program name followed by any arguments the command takes. For example, to compile the Java program **lab1a.java**, you would type `javac lab1a.java`. Here `javac` is the name of the program that compiles Java programs, and `lab1a.java` is filename of the Java program to be compiled. When the program finishes, you will see another command line. If the program is one that runs in a window, such as Netscape and `nedit` that you will see later in this document, you will want to end the line with an ampersand (&) character. This gives you your command line back without waiting for the program you started to end. So if you wanted to start Netscape from the command line, you would type `netscape &`.

5 Changing Your Password

Your initial password is virtually impossible to remember – and consequently is not secure. You will need to change it soon after you log in. To do this,

1. Invent a new password. The password must contain at least six characters, of which at least two are alphabetic and two are numeric or special. One way to construct a password is to make up a sentence you can remember and include the first character of each word in the sentence and all of the punctuation in your password.
2. Click the “changepasswd” button on the toolbar.
3. At the prompt **Enter login password:** type in your old password, and hit **RETURN**.
4. At the prompt **New password:** type in your new password. The system may reject your password because it is too short or easy to guess. If this happens, just think of a new password and type it in.
5. At the prompt **Retype new password:**, type your new password in again. This is a check to make sure you haven’t made any typos.
6. You will now get either the error message **Password unchanged** if you made a mistake, or a message saying your new password is in effect. Hit **RETURN** and the password changing window will disappear. If your attempt to change your password failed, return to step 1.

6 Netscape

You have probably heard of Netscape before. This product, which also exists on the Mac and PC and is *free* for students, is an all-purpose slicing dicing tool for the net. We use it in the lab for viewing course notes, help files, and running Java applets.

You may start Netscape by clicking the “Netscape” button on the tool bar. A short while later Netscape will appear, displaying the Math department home page. The program is easy to use. When it displays a document, some sections of text might be underlined. If you click on the text with the left mouse button, Netscape will send you to a document connected to this text. To go back to where you came from (or forward if you have gone backwards), you can click on the backward and forward buttons on the tool bar:

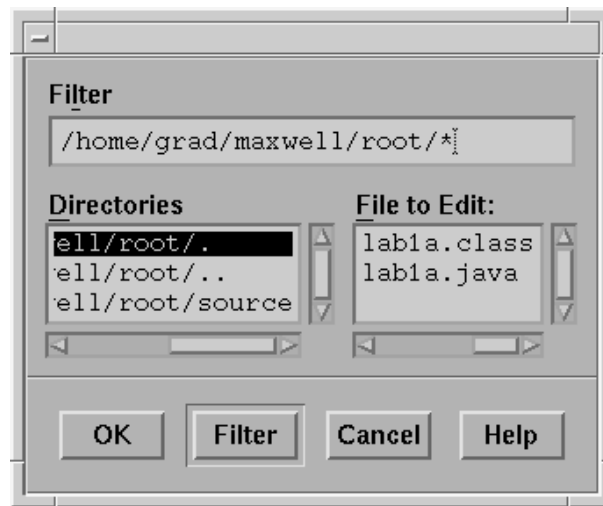


Unfortunately, life isn’t always this simple. In the Undergraduate Online Help system, which you will be able to access with Netscape (see section 10), the screen is divided into regions called frames. There is a main frame that contains documents and two other small frames containing useful links to help you navigate the system. If you want to go back in this system, the **Back** button won’t work since Netscape isn’t sure if you want to see an earlier document within one of the frames, or even which frame you want to go back in. To go back in a frame, hold the *right* mouse key down within the frame to make a menu containing the items **Back in Frame** and **Forward in Frame** appear. Move the cursor onto your choice and release the right mouse button. If you want to leave the Undergraduate Online Help system, use the **Back** button.

7 Editing files: nedit

You will probably want to modify various source files. These files are usually stored in a *text-file* format which can be modified using a tool called a *text-editor*. Our text-editor, nedit, may be started by clicking the “Nedit” button on the tool bar. Nedit is an easy to use, mouse based, text editor. In this primer, I will describe how to load and save files, and how to cut and paste text.

To load a file, select **Open ...** from the **File** menu. The following file selection dialog will appear:



The files in the dialog correspond with those in the example in section 4 above – again, yours will be different. To move to a directory, double click on the directory you want on the left side of the dialog. To move up a directory, double click on the the .. selection (remember, .. means the parent directory). When you see the file you want on the right side of the dialog (you might have to use the scroll bar if there are more files than there is room in the dialog), double click on it and nedit will load it. If you are already editing a file, nedit will open a new window for the file you just loaded. By the way, you can also start a copy of nedit that already contains a specified file. Just type `nedit myfile &`, where `myfile` is the name of the file you want to edit, at a UNIX prompt.

Cutting and pasting works just like on Windows or Macintosh computers. You select a region of text by pushing the left mouse button down at the beginning of the text, dragging the cursor to the end of the text, and releasing the mouse button. This will highlight the text – you will now be able to use the **Copy** and **Cut** options from the **Edit** menu. To paste the text, position the text cursor at the spot where you want your copied or cut text to appear, and select **Paste** from the **Edit** menu.

To save a file you are working on, just select **Save** from the **File** menu.

You will notice that for all of these commands, the menu lists next to the menu option the name of some keys. For example, the **Open ...** menu item has **Ctrl+O** listed next to it. If you hold down **CONTROL** and type **O**, this has the same effect as selecting **Open ...** from the menu. For the other commands, **Ins** stands for the **INSERT** key and **Del** stands for the the **DELETE** key.

You can exit nedit by selecting **Exit** from the **File** menu.

8 Printing

To print a file named, for example, `myfile` issue the command `lpr myfile` in an xterm. It will be printed on the default printer for the Unix lab, which is the hp printer in Math 201. If you want to print on the lexmark printer in the Math/Stat Resource Centre, you would use `lpr -Plexmark myfile` instead. Note, however, that lexmark is a postscript printer. Plain text files are not printed unless they are first fed through an ascii to postscript converter. So, DO NOT print any email or text files on the lexmark.

9 Email

Your account may both send and receive email. Just click the email button on the tool bar. Your email address is `<loginname>@ugrad.math.ubc.ca`, where `<loginname>` is the login id that you use when you log in. However, because your account will be destroyed at the end of term, it is not a good idea to use it for general email correspondence. You should use your interchange account instead.

10 Getting Help

Now you know just enough to get started. There are some other good places to find help once you are up and running:

Online help The Mathematics Undergraduate Lab has a nice online help system you can access from Netscape. Type “`http://gamba.math.ubc.ca/localdoc/`” into Netscape’s Location window and hit **RETURN**. The system covers topics such as the UNIX command line, X Windows, Maple, Java and more.

netscape The browser netscape has an online manual that you can access by pressing the **Handbook** button in the row of buttons just above the document display area.

nedit Then nedit text editor has an online help system under the **Help** menu.

man pages The UNIX online help manual is cryptic but comprehensive. If you want information on, say, the `ls` command, you can type `man ls` at the UNIX prompt and you will see a scrolling text page about the `ls` command. If you want to find information about removing files, but don’t know the name of the UNIX command that does it, try `man -k remove` which will produce a list of topics you could look at (the `-k` stands for keyword).

Good luck!