

Welcome to class. Here is some useful housekeeping information.

We will use computers for some hands-on exercises. They are virtual machines (VMs), operated within VirtualBox on your own machine. Their operating system is linux. (Detailed procedures for obtaining and installing them are documented elsewhere.)

How to log in to one of our virtual computers:

Start it (within VirtualBox, equivalent to turning on a physical computer). The bootloader should present a menu offering you some choices. Allow it to time out (5 seconds); linux will boot, yielding a screen that presents a character-mode login prompt.

ACCOUNTS

Two accounts you might use are defined on the system:

<u>Account</u>	<u>Password</u>	<u>Account type</u>
student	c\$l@bLinuX	ordinary - restricted
root	c\$l@bLinuX	supervisor/administrator - unrestricted

Whenever a software process runs it does so in association with one of the system's defined accounts. That account plays a role in what limitations the software will have. The same software running as "root," might have behavior different than if running as "student." For example an editor that runs as student might be unable to open or save a given file, while it would be able to do that if running as root instead. When one process launches another, the second one inherits the same user account association as the first one had. The shell you get when the system boots runs as whichever account you logged in on. Then, whatever software you launch from it, downstream, runs also as that user. You should normally log in as student.

at the login prompt please type: student

at the password prompt, please type: c\$l@bLinuX

(Note: the password is a mnemonic for "computer science lab linux"; third character is letter ell not numeral won.)

You are now logged in as student, presented with the command prompt from the shell program. Anything you run will now run as student.

On some occasions you may need to run a command that will only work if run as root. This system is configured to allow you to do that if you precede the command with "sudo". For example, if you want to change a file that can't be opened or saved by an ordinary user using the "gedit" editor, run it as follows:

```
sudo gedit &
```

It will run as root instead of as student.

Other commands you may want to run as root from time to time in this class:

```
sudo dhclient -v eno1
```

```
sudo poweroff
```

```
sudo su -
```

dhclient - obtains an IP network address so your computer can communicate with other ones

poweroff - turns the computer off

su - obtains a shell that runs as root, in which you operate as root for a sustained period (not encouraged); to later revert to being student, give the command "exit"

GRAPHICAL INTERFACE

The machine is not configured to automatically launch a graphical interface. It will do so if asked.

Here's the command:

```
startx
```

After the graphical desktop appears, launch a terminal window. To do that, click on "Activities" and note the terminal window icon (black rectangle). Click on it to get the terminal window. Any commands you run from within this window will be executed as "student".

NETWORK

The machine is not configured to automatically become part of a network. It can do so if asked. First of all, the machine lacks an enabled network interface/adaptor/card. It does have one, known to VirtualBox as "Adapter 4" and to linux, once booted, as "enp0s10". But it needs to be enabled. With the machine powered off go to the "Network" section found under the machine's "Settings." There, choose the "Adapter 4" tab, check its "Enable Network Adapter" checkbox, and press the "OK" button. Now that the machine has an enabled, bridged interface, the next step is that it acquire an internet address. Only the root user is allowed to do this. Power the machine on and log in as student. Here's the command:

```
sudo dhclient -v enp0s10    [ "sudo" causes the dhclient command to be performed by the root user ]
```

In technical terms this acquires and assigns to the computer's network interface a so-called IP (Internet Protocol) address. Assuming success, dhclient will report "bound to..." followed by the IP address your interface named enp0s10 has acquired. The IP address comes from the outside, namely from a dhcp server program that must be running on some other computer in the network to which yours is connected. This is the normal case in home networks, where the other computer is the ISP-installed router which runs a dhcp server program within.

EDITING FILES

On some occasions, you may need to edit a file that cannot be edited as a non-root user. So you need to run an editor as root. This command:

```
sudo gedit &
```

gets you the editor tool you'll need. While there is an icon for this editor among the "favorites" on the desktop, remember if you launch it from there it will run as student, not root.