Physics 410: Physics and Astronomy Computer Lab PC/Linux Machines

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The Physics and Astronomy Department currently has three PC workstations running Linux (Mandrake 7.2), which you will be able to use during this course. They are located in Hennings 205, in a small separate room just to your left as you enter the lab. I urge all of you to take full advantage of this resource, particularly if you do *not* have routine access to the ‘‘console’’ of a Unix system. These machines have dual fast processors and high-end graphics cards, so are ideal platforms for developing and running computational- and graphics-intensive applications. Let me know *immediately* if you have any problems using them.

NOTE that all of these machines are in the **.physics.ubc.ca** domain.

Machine	Processor	Memory	Disk	Graphics
lnx1	2 x 700 Mhz PIII	512 Mb	20 Gb	nVidia GEForce 2 MX (32Mb)
lnx2	2 x 700 Mhz PIII	512 Mb	20 Gb	nVidia GEForce 2 MX (32Mb)
lnx3	2 x 800 Mhz PIII	512 Mb	20 Gb	nVidia GEForce 2 MX (32Mb)

Note that your home directory on these machines ("the **lnx** machines") will be distinct from your home directory on **physics.ubc.ca**. We will attempt to set things up so that you will be able to access your **lnx** files directly from **physics**, but for security reasons, it will probably *not* be possible to directly access your **physics** files from the **lnx** machines.

Notes on Linux Desktop Environments: Over the past few years, great progress has been made in equipping Linux with powerful graphical user interfaces (GUIs, window managers) to the core operating system and major applications. When you login to the console of one of the **lnx** machines, you can select from no fewer than 11 such interfaces. I recommend that you use one of the following window managers

- **KDE**
- **Gnome**

Windows afficionados should feel especially comfortable with KDE. Both interfaces have extensive on-line help facilites.

IMPORTANT!!: When first logging-in at a console of one of the **lnx** machines, do the following:

1. Type your username in the login prompt type-in; alternatively right or left-click on the icon labelled with your username. Hit **Enter**.
2. Right or left-click on **Session** in the upper left corner of the login window **and select *Gnome***.
3. Return to the login prompt type-in, type your password, and hit **Enter**.

It is *imperative* that you select **Gnome** as your window manager the first time you login. If you wish to use **KDE** instead, you can immediately logout (using the pop-up menu activated by left-clicking on the foot-print icon located at the left of the toolbar), and then login as above, but selecting **KDE** from the session menu.

Note on lnx home directories: The **lnx** machines have access to each others' disks via **NFS** (Network File System). The process of attaching a remote file system to a directory name within the local Unix system (i.e. to a directory name somewhere within the file hierarchy rooted in '/') is known as *mounting* the file system. In a shell, you can generate a listing of all of the file systems currently mounted with the Unix **df** command. For example, you can see the output of **df** as executed on **lnx1 HERE**.

Again, each of you has a *single* home directory on the **lnx** machines, and that directory is physically located on *one* of the machines **lnx1**, **lnx2** or **lnx3**. Let's consider the case of the ‘‘test’’ user **jdoe**, whose home directory is physically located on **lnx1**, within the file system **/home**:

```
[jdoe@lnx1 ~]$ cd
[jdoe@lnx1 ~]$ pwd
/home/jdoe
```

jdoe now logs into **lnx2** and executes the same command sequence:

```
[jdoe@lnx1 ~]$ ssh lnx2
Host key not found from the list of known hosts.
Are you sure you want to continue connecting (yes/no)? yes
Host 'lnx2' added to the list of known hosts.
jdoe@lnx2's password:
No mail.
[jdoe@lnx2 ~]$ cd
[jdoe@lnx2 ~]$ pwd
/d/lnx1/home/jdoe
```

This behaviour can be understood by looking at the specific part of the output from **df** which tells us about the file systems from **lnx1** which have been mounted on **lnx2**:

```
[jdoe@lnx2 ~]$ df | grep lnx1
lnx1:/home            19449328   2870652  15590684  16% /d/lnx1/home
```

Since the remote, physical file system **lnx1:/home** has been mounted on the local file system **/d/lnx1/home**, when logged into **lnx2**, **jdoe**'s working directory is indeed **/d/lnx1/home/jdoe**.

Moreover, things have been set up so that you can use the "long" form of your home directory on **all** of the machines, so that, for example, **jdoe** can execute the following:

```
[jdoe@lnx1 ~]$ cd /d/lnx1/home/jdoe
[jdoe@lnx1 ~]$ pwd
/home/jdoe
```

Note that the specific name of the local mount point, e.g. **/d/lnx1/home**, is a matter of convention ('d' for disk, then the hostname, then the remote file system name); other system administrators will use different conventions for NFS mounts.

As always, contact me immediately if you have any questions on this issue.