Appendix A , Getting Started with Linux

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1 Getting onto a Linux Machine

Several possiblities exist for doing this, and there are cost-free alternatives that are excellent working environments. So read through this section and you can choose what you need to do.

If you are at a school or a company, you might have a local guide to Linux, as well as access to a Linux server. Your IT person or teacher will show you where to find this. If you use Windoze, you will need to obtain PuTTY, a small piece of software that allows you to connect to a Linux computer over a network. You can download it on the internet by Googling "putty."

1.1 Running Linux off of a Server

If your school or workplace has a linux server, you need three important pieces of information to connect. These include the following items.

1. A host name is the name that identifies the computer you have access to. The computer you connect to is called a *host*. It will be a dot-separated character sequence such as `cs.unc.edu` or `cs.ncssm.edu`. A host name is just the name of the computer you are using.

2. A login name, which is your user name.
3. A password so you can *authenticate*, or log into the host.

You will need to obtain these from the person who administers your local Linux server.

Here are instructions for connecting to your server via all the basic operating systems. Make sure you have a valid account and password and that the machine you are using is connected to your network. Here is a simple test: Log in to your local machine and try to launch the browser and point it to something like Google. If this works, you are ready to connect to your host.

If you are using Linux If you are using a Linux machine as your PC, open a terminal session and type

```
ssh yourUserName@yourHostName
```

at the UNIX prompt in the terminal window. You will then be asked to enter your user name and your password.

The `ssh` command creates a connection across the network to another computer. The acronym expands to *secure shell*. A *shell* is just an interactive program into which you type commands. It is secure, since any password information or characters you type are encrypted before they are sent over the network.

If you are using MacOSX If you are using a Mac with OSX, you are using a UNIX machine. Open your terminal tool, which is located in `/Applications/Utilities`, and you can use `ssh` as indicated above. Place the terminal tool in your application dock since you will use it frequently. One of the side-benefits of learing UNIX for Mac users is that it will give greater control over your Mac. Mac's dialect of UNIX is based on BSD; it is slightly different from Linux, but not hugely so.

If you are using Windoze If you are using a DSM (Dark Side Machine or Doze Box), things are slightly more complex, but not very. You actually have a couple of different options.

You will need a piece of software called PuTTY. This is free and it is very easy to find a site for PuTTY by Googling. Download PuTTY (`putty.exe`) and place it on your personal computers desktop. Since this program does not perform an installation, you can copy it onto any machine you habitually use. If you carry a USB memory key, you can place PuTTY on it so you have it on any other machine you might use. PuTTY is very small, so it will not hog up

space on your (already brimming) hard drive. Once you have PuTTY, here is what to do.

1. Launch the PuTTY application.
2. A window will appear. You will be prompted for some information. Begin by entering your host name in to the box labeled hostname.
3. Specify SSH as Protocol. Almost all UNIX servers require you to use a secure shell to stymie packet sniffers; these are malware programs that try to steal login information over the network. Your username and password will be sent encrypted over the network.
4. In Saved Sessions, enter a name. This will make it easy for you to relaunch PuTTy. You can just doube-click on the saved session and it will remember your settings and launch.
5. Hit the Save button. This will save your settings for using your host. Next time you use PuTTY, you can double-click on the the name you entered name to connect. If you have accounts on more than one machine, you can save configurations for each one.
6. Hit the Open button; it will open a connection to your host.
7. Enter your login name and password when prompted to do so.

You may open as many instances of PuTTY as you wish and connect to your host via all of them. When you program, you will often maintain two or three windows. Each PuTTY session is a separate terminal session on the Linux host. If you log in successfully, you will see the same greeting screen any UNIX user would see displayed in the PuTTY window.

In any Case... if you have successfully logged in, you will see a banner that looks like this, or something more modest.

```
Last login: Fri Jun 19 09:17:11 2015 from 192.168.119.28
[morrison@cs ~]$
```

and then you will see the *UNIX prompt*, that looks like this.

```
[morrison@cs ~]$
```

To end your session, type `exit` or `logout` at the UNIX prompt and your session will end.

1.2 Running Linux on Your Own Computer

If you would like to run Linux on your own box, you have several options. If you are using a Mac, you already have UNIX on your machine. A Mac is a UNIX machine. A Mac's UNIX system is based ont the BSD dialect of UNIX. This differes a little from Linux, and where it does we will point that out for you. The differences are fairly small.

If you run Windoze, you can also do a Windoze install of Ubuntu. This runs as a Windoze application and no reformatting or re-partitioning is needed. You can obtain the installer program at [**?**]. Once you install this, you can use Ubuntus repositories to download all the things you need. The Ubuntu website has all you need to get started. This is the simplest alternative. It is free.

You can also opt to *dual-boot*. This allows you to choose, at boot time, which OS you wish to launch. Dual-booting is not a simple process; you need to set up your machine by partitioning the drive properly. We do not encourage beginners to dual-boot.

However, if you are comfortable with partitioning drives and wish to dual-boot, we will point out some useful facts. Be warned that setting your machine to dual-boot is a hazardous process; back up your data prior to performing such an install. Be warned that performing any operating system install is a complex and hazardous process.

You can dual-boot with Ubunutu. Other popular alternatives include Arch Linux, Linux Mint and Red Hat Fedora Linux. All of these are freely available and they run on a wide variety of PCs.

Also, Ubuntu distribution comes in a variant called Xubuntu (pronounced shoe-buntu), which will run on a pretty decrepit old desktop. If you have one of these mouldering in your computer room, try pulling it out and running Xubuntu on it. You can sometimes use Linux to give new life to aging PCs. Xubuntu will happily run a browser and an office suite for you. Firefox and LibreOffice will fill these roles for you, and they are freely available. You can obtain Firefox at [**?**] and LibreOffice at [**?**].

1.3 Previewing Ubuntu Linux

Ubuntu is available as a `live DVD`. A live DVD is bootable, i.e. you can stick the CD in your machine and start your machine right off the CD. You will need to download the CD or DVD image and burn it onto a DVD or CD. Download this CD at [**?**]. This DVD has all you need to install Ubuntu on any computer or to do a Windoze install.

Once you do this, stick the DVD in in the CD/DVD bay of your machine, restart, and your box will boot (start) on the CD or DVD. You will boot into the Unity desktop; this will look a little different from your usual desktop but it

will also have many familiar elements. You can use this DVD to try out Linux and explore its features without changing anything on your machine. All of the conveniences you have on a Mac or Windoze box are available for Linux, including word processors, web browsers, and email programs. The live DVD allows you to try Ubuntu without changing anything on your computer.

In fact it is not a bad idea to boot off a live DVD when doing online banking, because the browser and all of the features revert to their original state on reboot. No storage of malware between uses is possible.

If you are interested in installing Ubuntu, you might want to obtain a copy of this book [**?**].

In this desktop environment, you may run several terminal sessions concurrently. All of our discussions will be about working within the context of a terminal session.

1.4 Fedora

The Fedora Project is hosted at this site [**?**]. You can download a bootable install DVD from this site.

Your first order of business is to get some version of Linux or UNIX working on your machine, either working via a server or by using it on your machine directly. Then you are ready to begin in earnest.

Useful URLs We list here all of the software sources cited in this section. All of these pieces of software are open source and freely available.

1. At [**?**], you can download the Ubuntu DVD and it has the Windoze installer for Ubuntu.
2. [**?**], the source of Firefox.
3. [**?**], the source of LibreOffice, an open source office suite that runs on Linux and Windoze.
4. [**?**], the source of Ubuntu Linux.
5. [**?**], the source of Fedora Linux.

Things to Do

1. Decide on and install a version of UNIX. Most people will opt to do the simple Windoze install of Ubuntu. An excellent source is [**?**]. His entire website resides at [**?**]. It brims with all manner of useful stuff, including a tutorial introduction to Linux for n00bs. You should explore it and see what kinds of goodies are afforded you. There are goodies that will be enjoyed by advanced programmers as well.

2. Learn how to open a terminal in it. We will use the terminal a lot in this and in future chapters. It will get you ready in earnest for the next section. In most versions of Linux, you click on a little black window icon.