Managing Users and Groups

Initial conditions/prerequisites:

- To start this lab, insert the knoppix bootable cd into the cd rom drive, then reboot the system. Before knoppix starts up, set the screen size by typing

knoppix screen=800x600

- Once the computer is done starting up, either open a terminal by clicking on the thing that looks like a terminal on the toolbar, or switch to the command line by holding ctrl and alt and pressing F1.
- Every time you finish reading a section, go to the number on the worksheet that it corresponds to and answer the questions.

Goals:

- Learn how Linux manages users, sets passwords and changes permissions.
- Understand the "principle of least privilege," the model by which Linux authorizes access and rights to alter files.

On your home computer, your probably not worried about someone else logging on and mucking things up. A cluster isnt like your home computer: its a resource that hundreds of people may be using at once. You have to control who gets access, who doesnt, and what each person is allowed to do. This is accomplished with user accounts and user groups. Any time someone wants to use the cluster, they have to supply a login ID (their username) and a password that is encrypted for security purposes. Each users settings can be set individually, or user groups can be created to satisfy the needs of the different categories of users.

Procedure	Explanation / Background
1. Find out which user you are. Type **who** Now switch to the root user. Type **su -** and to see which user you've become, type **who** again. You were able to become root because the root user doesnt have a password yet. Make a root password by typing **passwd root** then entering a password twice. If you try to give anyone too simple of a password, you'll get an error message, but you can still enter it. Now leave the root user. Theres two ways to do this. You can either type **su – knoppix** or **exit**	• The root user you switched to is sometimes called the superuser, since it can access and alter every file. Since in Linux, every system configuration is a file, small typo's as root can have huge effects. Theres some strategies that help dimminish that risk. For example, when changing a configuration file and adding a new entry, always copy an entry that you already know works and chage that to make sure you format the entry correctly. • There are 3 things on the system called root. Theres the root user, or superuser. Theres the root directory, which is the root users home folder. Then theres the directory / that's pronounced 'root' which is the lowest directory on the system.

Now that you know what a user is and how to change users, its time to make new user accounts and groups.

2. Come up with a username for yourself. Since my name is Adam Barlev, I'm going to make an 'abarlev' account. Switch to root, then type **useradd abarlev** Now I make my password by typing **passwd abarlev** then entering the password twice as prompted. Check that you've created this user by looking at the newest 4 lines of the **/etc/passwd** file. Type **tail -n 4 /etc/passwd** Your new user should be last on the list.	Since the root user is so powerful, you usually dont want to be it even if you are the administrator on the cluster. The first thing you should do once you've installed Linux is make a user account.
3.To put a user in a group or create new groups, you have to be adept at changing the **/etc/passwd** and **/etc/group** files. Make a group for the regular users on the system. Call it common. As root, type **vi /etc/group** Copy one of the lines and paste it at the bottom. It should look like **mortals:x:504:jdoe** The first field is the group name, so change that to common. Change the third field, which is the group ID number, to a number thats not already on the list. Any users that you enter in the last field, seperated by commas, are the members of the group. Save and close the file. Since you've changed the **/etc/group** file, the group knows which are its users. But the new users you've made dont yet know which groups they're in. You have to alter the **/etc/passwd** file. **vi /etc/passwd** Go to the line where you made your new user account. The 4th field is the users' group ID. Paste the group ID you used for the common group into that field and close and save the file.	
4. Switch to root. Make a new file by opening VI, typing some gibberish, then save it and quit. Switch back to a normal user and try to alter the file. Switch to root again. Type **chown 777** then the file name and enter. Return to the normal user.	Linux security follows the “principle of least privilege,” which means that any user must be granted the right to do anything. Windows, on the other hand, follows the “principle of most privilege,” meaning that any user can automatically do everything, and their rights must be systematically denied.

Lab Worksheet

Name: _____

Date: _____

1.a) What user are you when you first boot up knoppix?_____

b)What user did you switch to?_____

c)Try both ways to switch back to the knoppix user. Whats different?_____

2.a)Do a **`man`** on **`useradd`**. Can it auotmatically put a user in a group? What flag does this?_____

3.a)What happens if you open up the **`/etc/passwd`** file or **`/etc/group`** file as a normal user?_____

b)What happens if you try to save your changes to these files as a regular user?_____

c)Make a new user using the command **`useradd`** then look in the **`/etc/passwd`** in the second field. Whats there?_____

d)Now make the user a password, and reopen the file. Whats changed?_____

4.a)What error message do you get when you try to change a file root made?_____

b)If you try to change the file now, can you?_____