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SYSMGMT Laboratory Manual

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6.0 User Administration and File Administration

This section focuses on creating users and managing the accounts. Since files are related to users, file permission are also discussed in this section

6.1. User Administration

The Ubuntu Linux system is a multi-user system. User accounts can be created, removed or change. Aside from user accounts, grouping of users can also be made to allow group of users to have access to a service instead to configuring it one at a time.

Step 1 Before starting, ensure that you shutdown the VM and restart it. Do not start the activity from a VM that is merely suspended.

Step 2 Login to your system and at the command prompt, type in the command '`vi /etc/passwd`'. Examine the file.

2a. Login to your system. At the command prompt, type in the command '`vi /etc/passwd`' and examine the content of the file. What is the file and what is it for? You may research what is this file on the Internet.

It stores the user information of each user in the virtual machine?

Step 3 At the command prompt, type in the command '`vi /etc/group`'. Examine the file.

3a. What is the file? What does it do? You may research what is this file on the Internet.

Allows you to manage the user privileges in ubuntu.

Step 4 At the command prompt type in the command '`sudo adduser student01`'. When prompted for the password, type in '`student123`' after this, you will be prompted for full name, room number, etc. You may input any text you like.

4a. After adding the user, add another user called '`student02`', '`faculty01`' and '`faculty02`'. What is the command you used? How many users are added?

Four users were added.

4b. Examine the '`/home`' directory? Were there new directories created? What are these directories? Who are the owners of these directories?

Four directories, namely, student01,02, faculty 01 and 02. The owners of these are the usrs we have created.

4c. Examine the file '`/etc/passwd`'. Were there any changes from last time you examined it? What are the changes? What does each entry separated by ':' (colon) means?

WE can seee the changes we have made, such as additional users, and I can see the names and information of these users. From what I have researched, each : gives information about the necessary information about the user. For example, the very first partition we see, which is say for example Student01. Which is called the username. While x is always constant, it is the password of the user and etc. The rest are userids, group ids, user id info, home directory and command/shell absolute path.

Step 5 At the command prompt, type in the command '`addgroup faculty`' and '`addgroup student`'.

5a. What does the command do?

It creates the group faculty and student, however, since student is taken, I put estudyante instead.

5b. Examine the file '`/etc/group`'. Were there any changes from the last time you examined it? What are the changes?

yes, it is a long list, but you have to scroll down. Funny enough, we can see the new users we have added as well as the groups we have created.

Step 6 At the command prompt, type in the command '`addgroup student01 student`'.

6a. What does the command do?

Assigns the student01 to the student group.

6b. Examine the file '`/etc/passwd`'. Were there any changes from last time you examined it? What are the changes?

I dont see any changes actually.

6c. Add user account '`faculty01`' to the group faculty. What command did you use?

Same thing, addgroup faculty01 faculty

Step 7 On another machine, use SSH to login to your system using the user account '`student01`' account.

7a. Use the password you set during account creation to login. Are you able to login? Exit the account.

Yes I was able to login.

7b. At the command prompt, type in the command '`sudo passwd student01.`' Use SSH to login to your system using the user account '`student01`'. Use the previous password. Are you successful? Why?

No, Because I changed the password.

7c. Use the password you set using the '`passwd`' command earlier? Are you able to login? Why?

Yes, because you updated the password.

7d. What does the '`passwd`' command do?

Lets you edit a user's password.

Step 8 At the command prompt, type in the command '`sudo chage -l student01`'.

8a. What information does the command display?

Tells you when the user has last used updated the password, password expiry, minimum days of password change, as well as number of days of warning before password expires.

8b. At the command prompt, type in the command '`sudo chage student01`'. Set the following configurations for student01:

- Minimum password age: 1

- Maximum password age: 10
- Last Password change: current date
- Expiration warning: 3
- Password Inactive: 3
- Account expiration: leave at default

8c. Enter the command '`sudo chage student01`'. When is the password expiration date and password inactive date of the account?

The password expiration date is 10 days from now, while password inactive date is 3 days after the expiry.

8d. Use SSH to login to your system using the student01 user account. At the command prompt change your password using the 'passwd' command. Were you able to change the password?

No I was not. able to do so.

8e. At the command prompt, change the password again. Were able to change the password? Why or why not? Logout from the SSH connection after this.

I thin it is because you set the minimum number of days between a password change, meaning you have to let time pass for a bit before you can change the password again.

8f. From the command prompt, change the date of the system to 1 day before the password expiration day of user account 'student01' and login using SSH. Was there a warning to change the password? What does it say?

It says that you have to change the password before it expires.

8g. From the command prompt, change the date of the system to the password expiration day of user account 'student01' and login using SSH. Was there a warning to change the password? What does it say?

Yes there was, it actually prompts you to change the password.

8h. Logout the student account but do not change the password. Change the system date using your account to 2 days after the password expiration day of user account 'student01' and use SSH to login. Were you able to login? Was there a warning? What was the message?

Yes you are able to login, and there was a prompt to change the password.

8i. Logout the student account but do not change the password. Change the system date using your account to 5 days after the password expiration day of user account 'student01' and use SSH to login. Were you able to login? Why?

No, because the account has expired.

8j. Change the system date back to the correct date.

Step 9 At the command prompt, type in the command '`deluser student01`'.

9a. What does the command do?

deletes a user.

9b. Examine the '`passwd`' file. Does the user account '`student01`' still exist? Why?

9c. Check the '`/home`' directory. Does the home directory of user '`student01`' still exist? Does the command clear or remove the directory?

Yes, the directory is still there, so the command does not tdelete the user.

6.2. File Permissions

File permission or access rights allows a system administrator to tailor fit access of files on the server. File permission allows the system administrator to set accesses of certain directories or files to specific users or group of users.

Step 10 Login to your system and create a directory named '`student_data1`' at the root directory.

10a. At the command prompt type in the command '`ls –ld /student_data1`'. Who are owner and group owner of the directory?

root, root.

10b. At the command prompt type in the command '`sudo chgrp student /student_data1`'. Did the group owner of the file become different? Who is the new group owner of the directory?

from root, it became student.

10c. At the command prompt type in the command '`sudo chown student02 /student_data1`' and '`sudo chmod 774 /student_data1`'. Did the owner of the file become different? Who is the new owner of the directory? What are the permissions of the owner, group and others?

Yes it did, now the student group can access the fil and that student is the owner.

Note: To allow other users or groups an access to read only (browsing) to a directory, there should be an "execute" permission.

10d. At the command prompt type in the command '`cd /student_data1`' and create an empty file using the command '`touch file1`'. Are you able to create the file why?

Because I am the owner of the file, and I didnt even need to use sudo.

10e. At the command prompt type in the command '`sudo touch file1`'. Are you able to create the directory? Why?

Yes, because I am a super user and I invoked my right to complete control.

10f. Login remotely using the '`student02`' account via SSH. Go to the '`/student_data1`' directory and type in the command 'touch file2'. Are you able to create the file? Why? What is the default permission of the file for owner, group and others? (Do not exit the SSH connection)

Yes I was able to create teh file. student_data1 is clearly a view and write permission for the student02

10g. Create another SSH connection but login as 'student03'. Go to the '`/student_data1`' directory and type in the command 'touch file3'. Are you able to create the file? Why?

No, the permission was denied. Perhaps because I can only view it? since I am part of the group

10h. Using the '`student03`' SSH connection, edit the file '`file2`' and enter the text "The quick brown fox jumps over the lazy dog." and try to save it. Are you able to save or modify it? Why?

I cant even edit the file or create it.

10i. Using the '`student02`' SSH connection, edit the file '`file2`' by entering the text "The quick brown fox". Are you able to edit it? Why?

yes, because I have write permissions in my own folder.

10j. Using the '`student02`' SSH connection, change the permission of file '`file2`' by using the command '`chmod 765 file2`'. Are you able to change the permission? Why? What is the new permission?

It allows other users to read and yes as student02 I was able to.

10k. Using the '`student03`' SSH connection, try to edit the file '`file3`' by entering the text "The quick brown fox" and save the file. Are you able to save or modify it? Why?

No, sadly there is a warning in red flavor text that you cannot edit a read only file.

10l. Using the '`student03`' SSH connection, erase the file '`file2`'. Are you able to delete it? Why?

yes I was able to delete the read only protected file.

Step 11 Using the default account, create another directory named '`faculty_data1`'. Change the group ownership to faculty. Make sure that the group permission allows the group to have a read, write and execute access to it. For the permission of other users, make sure that they only have read access.

11a. Write down the series to command you used to be able to accomplish the requirement.

Easy. You do the same steps you did earlier I suppose, change the owner and group, then I googled how to do it(lols) all you have to do is sud chmod a+rwx faculty_data1.

11b. Creating a new SSH connection, login as '`faculty01`' and go to directory '`/faculty_data1`'. Type in the command '`touch file1`'. Are you able to create the file why?

Yes I was even able to remove it.

11c. Using the '`student02`' SSH connection, try to create a file in the '`faculty_data1`' directory named '`ffile2`'. Are you able to create it? Why?

Oop. Yes I was able to.

11d. Change the permission of the directory '`faculty_data1`' to read, write access for other users. Use the '`student02`' connection to create the '`ffile2`' file. Are you able to create it? Why?

yes I was able to due to the settings I inputted earlier .

Step 12 Using the '`student02`' SSH connection, create the file '`file4`' using the command '`touch file4`' in the '`/student_data1`' directory. Change the permission of the '`/student_data1`' directory by using the command '`chmod 1777 /student_dat1`'. This command sets the sticky bit on the file. Also change the permission of the 'file4' by using the command '`chmod 777 file4`'.

12a. Using the 'student03' connection, try to delete the file. Are you able to delete it?

Operation was not permitted.

12b. Using the '`student02`' connection, try to delete the file. Are you able to delete it? What does the sticky bit do?

yes, I think it gives the file protection rights from other users.

12c. Exit all accounts including all SSH connections.

6.3. File Permission – Using ACL (Access Control List)

Although the traditional file permission can allow access to certain users and groups, Linux ACL allows the system administrator or even a user, to have finer permission settings. An example use of ACL is allowing two groups to access directories with different directories which traditional permission settings cannot do.

Commands used to set the ACL are 'getfacl' and 'setfacl'. The 'getfacl' command displays the ownership and permission of a directory or file while the 'setfacl' command sets the permission of a directory or file.

Step 13 Login to the Ubuntu Linux system and type in the command 'sudo apt-get install acl'. After installing, edit the entry in the '/etc/fstab' file from:

```
/dev/mapper/NETOPSY-root /    ext4   errors=remount-ro   0  1
```

to

```
/dev/mapper/NETOPSY-root /    ext4   errors=remount-ro,acl   0  1
```

This modification in the entry allows the system to use ACLa in the Ubuntu Linux file system. After editing, reboot the system.

13a. Add the following user: '`staff01`', and '`staff02`'. Add the user accounts to the group '`staff`'.

13b. Add a directory named '`faculty_data02`' in the root directory. Change the group ownership to the group '`faculty`' with the group permission of read and write. Leave the owner of the directory as '`root`'.

13c. At the command prompt, type in the command '`getfacl /faculty_data2`'. Who are the owner, group owner and permissions of the directory?

Owner is the root, group is faculty. The permissions for that is r-x, Im assuming read only.

13d. Using an SSH connection, login as '`faculty01`'. Go to directory '`/faculty_data2`' and create an empty file called '`faculty_file1`'. Are you able to create the file? Why?

permission denied. As I assumed earlier I assumed that this is only a read only permission.

13e. Using another SSH connection, login as '`student02`' and go to directory '`/faculty_data2`'. Create an empty file called '`student_file1`'. Are you able to create the file? Why?

Permission denied, perhaps because he is not in the group.

13f. Using another SSH connection, login as '`faculty02`' and go to directory '`/faculty_data2`'. Edit the file called '`faculty_file1`' by entering the "The quick brown fox" and save the file. Are you able to save and modify the file? Why?

No, it is only a read only file.

Step 14 At the command prompt, type in the command '`sudo setfacl u:faculty02:rw- /faculty_data2/faculty_file1`' and '`sudo setfacl g:student:rw- /faculty_data2`'.

14a. At the command prompt, type in the command '`getfacl faculty_file1`'. Who are the owner and what are the permissions of the file?

It is the root and the owner is the root.

14b. Using the '`faculty01`' SSH connection, edit the file '`faculty_file1`' by entering the text "The quick brown fox" and save the file. Are you able to modify and save the file? Why?

Nope, I am only able to read only.

14c. Using the '`faculty02`' SSH connection, edit the file '`faculty_file1`' by entering the text "jumps over the lazy dog." and save the file. Are you able to modify and save the file? Why?

Its still read only sadly.

14d. Using the '`student01`' connection, try to create an empty file in the '`/faculty_data2`' directory named '`student_file1`'. Are you able to create the file? Why?

I cannot create a directory, as it is permission denied.

14e. Using another SSH connection, login as '`staff01`' and go to directory '`/faculty_data2`'. Try to create an empty file named '`staff-file1`'. Are able to create the file? Why?

Permission denied, perhaps because I am a staff and not a faculty memebr.

14f. Using the '`staff01`' SSH connection, try to edit the '`faculty_file1`' file and enter the text "and the quick cat too". Are you able to modify and save the file? Why?

No because I am a staff and the user required to edit the faculty file is to have a faculty edit it and not a staff.

Step 15 At the command prompt, type in the command '`sudo setfacl -x g:student /faculty_data2`'.

15a. Using the '`student01`' SSH connection, try to create an empty file named '`student_file2`'. Are you able to create the file? Why?

No sadly, perhaps the permission is not high enough to warrant my actions.

15b. What is the command to remove the ACL permission of user '`student01`' on the file '`faculty_file1`'?

sudo chmod 1770 faculty_file1