***CS 345 Week 4 Homework***

Make sure you put your answers in numerical order! **Answers are in yellow**

1. Put a data disk CD in the Linux VM’s virtual optical drive. Show how to mount the CD. Do an ls -l of the CD’s contents. Copy a file from the CD-ROM to your home directory. Show how to unmount the disk. (Run the commands and show the necessary output – no screenshots)

**root@CS345:~# mount -t iso9660 -o ro /dev/cdrom /media/cdrom**

**root@CS345:~# cd /media/cdrom**

**root@CS345:/media/cdrom# ls -l**

**total 849**

**-r-xr-xr-x 1 root root 73216 May 12 11:03 Ganzak\_Hw1.doc**

**-r-xr-xr-x 1 root root 24499 May 23 16:15 Ganzak\_Hw2.docx**

**-r-xr-xr-x 1 root root 771422 May 30 17:54 Ganzak\_Hw3.docx**

**root@CS345:/media/cdrom#**

**root@CS345:/media/cdrom# cp Ganzak\_Hw3.docx /home**

**root@CS345:/home# ls**

**copyspot Ganzak\_Hw3.docx reguser**

**root@CS345:/home# umount /media/cdrom**

**root@CS345:/home# ls -l /media/cdrom**

**total 0**

1. Show the contents of the fstab (Run the command and show the necessary output – no screenshots). Explain the meaning of each entry in the file.

**root@CS345:/home# cat /etc/fstab**

**# /etc/fstab: static file system information.**

**#**

**# Use 'blkid' to print the universally unique identifier for a**

**# device; this may be used with UUID= as a more robust way to name devices**

**# that works even if disks are added and removed. See fstab(5).**

**#**

**# <file system> <mount point> <type> <options> <dump> <pass>**

**# / was on /dev/sda5 during installation**

**UUID=59c00c57-a2ac-4670-b9b0-760f03c5e610 / ext4 errors=remount-ro 0 1**

**# swap was on /dev/sda1 during installation**

**UUID=26b42ed2-f545-4e8b-8ffd-f3e825c14dfb none swap sw 0 0**

**The table shows columns which define parameters regarding a specific filesystem. The UUID’s are unique and can never be changed. The table shows what type of file it is, and any mount points currently within the filesystem.**

1. Show how to check the free space on the disk devices of the system (Run the command and show the necessary output – no screenshots). Comment on the output generated.

root@CS345:~# df -h

Filesystem Size Used Avail Use% Mounted on

udev 462M 0 462M 0% /dev

tmpfs 99M 708K 98M 1% /run

/dev/sda5 6.0G 3.6G 2.2G 63% /

tmpfs 491M 0 491M 0% /dev/shm

tmpfs 5.0M 4.0K 5.0M 1% /run/lock

tmpfs 491M 0 491M 0% /sys/fs/cgroup

tmpfs 99M 0 99M 0% /run/user/0

root@CS345:~#

The output shows what file systems are being used, their size and how much is being used, as well as what it is mounted to.

1. Add a new user using the manual method (this is where you edit the necessary files yourself). The user's real name is Steve Smith and his username should be stsmith. Set a UID of 321 and make sure that he is a member of the group newusers, which should have a GID of 500. Make whatever changes you need to the appropriate files in /etc. Cat the passwd, shadow and group files after you have made the necessary changes so that I can see what you did (Run the commands and show the necessary output – no screenshots).

**root@CS345:~# vipw**

**root@CS345:~# cat /etc/passwd**

**root:x:0:0:root:/root:/bin/bash**

**daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin**

**.**

**.**

**geoclue:x:109:113::/var/lib/geoclue:/usr/sbin/nologin**

**nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin**

**reguser:x:1000:1000:RegUser,,,:/home/reguser:/bin/bash**

**sshd:x:108:65534::/run/sshd:/usr/sbin/nologin**

**stsmith:x:321:500:Steve Smith:/home/stsmith:/bin/bash**

**root@CS345:~# vipw -g**

**root@CS345:~# cat /etc/group**

**root:x:0:**

**daemon:x:1:**

**bin:x:2:**

**sys:x:3:**

**.**

**.**

**reguser:x:1000:**

**lpadmin:x:116:reguser**

**sambashare:x:121:reguser**

**newusers:x:500:stsmith**

**root@CS345:~# vipw -s**

**You have modified /etc/shadow.**

**You may need to modify /etc/passwd for consistency.**

**Please use the command 'vipw' to do so.**

**root@CS345:~# cat /etc/shadow**

**root:$6$nBwK0ey05HJPfAfL$7QUqF1CVBxL1V.FHtWVPy8Of2UobDRHnGV0EHQLcmdFxetawXe/cJrK5x1Kor./678n7uWscBfQlQhK6ZNWny/:19127:0:99999:7:::**

**daemon:x:19127:0:99999:7:::**

**bin:x:19127:0:99999:7:::**

**sys:x:19127:0:99999:7:::**

**sync:x:19127:0:99999:7:::**

**news:x:19127:0:99999:7:::**

**uucp:x:19127:0:99999:7:::**

**proxy:x:19127:0:99999:7:::**

**.**

**.**

**sshd:\*:19127:0:99999:7:::**

**stsmith:x:19127:0:99999:7:::**

**root@CS345:~#**

1. Create any necessary directories and files needed by the stsmith account. (Run the command and show the necessary output – no screenshots)

**root@CS345:~# mkdir /home/stsmith**

**root@CS345:~# cd /home**

**root@CS345:/home# ls**

**copyspot reguser stsmith**

**root@CS345:/home/stsmith# touch /var/spool/stsmith**

**root@CS345:/home/stsmith#**

1. Copy the skeleton files into the stsmith home directory. Set the permissions and ownership of these items up so that stsmith can access them properly. (Run the commands and show the necessary output – no screenshots)

root@CS345:/home# cp -R /etc/skel stsmith

root@CS345:/home# cd stsmith

root@CS345:/home/stsmith# ls

skel

root@CS345:/home/stsmith/skel# ls -a

. .. .bash\_logout .bashrc .config .profile

root@CS345:/home# chgrp newusers stsmith

root@CS345:/home# ls -l

total 12

-rw-r--r-- 1 root root 18 May 23 21:06 copyspot

drwxr-xr-x 16 reguser reguser 4096 May 30 16:16 reguser

drwxr-xr-x 3 root newusers 4096 Jun 6 21:18 stsmith

root@CS345:/home# chown stsmith stsmith

root@CS345:/home# ls -l

total 12

-rw-r--r-- 1 root root 18 May 23 21:06 copyspot

drwxr-xr-x 16 reguser reguser 4096 May 30 16:16 reguser

drwxr-xr-x 3 stsmith newusers 4096 Jun 6 21:18 stsmith

root@CS345:/home#

1. Change the password for stsmith to smit5678. (Run the command and show the necessary output – no screenshots)

root@CS345:~# sudo passwd stsmith

New password:

Retype new password:

passwd: password updated successfully

root@CS345:~#

1. Login as stsmith and make sure that you have access to everything that you ought to have access to by performing an ls -l command. Become root from stsmith account by using the su command. (Run the commands and show the necessary output – no screenshots)

root@CS345:/home/stsmith/skel# login

CS345 login: stsmith

Password:

.

.

stsmith@CS345:~$ ls -l

total 4

drwxr-xr-x 3 root root 4096 Jun 6 21:18 skel

stsmith@CS345:~$

stsmith@CS345:~$ su root

Password:

root@CS345:/home/stsmith#

1. Now create a second user named Sue Smith using the automated useradd command. Her username should be set to susmith and also set Sue’s “real name” in the command. Once you’ve completed the account creation work, set susmith's password to smit1234. Login as susmith and make sure that you have access to everything you should have access to. Logout as user susmith, exit the root shell and logout as user stsmith. (Run the commands and show the necessary output – no screenshots)

root@CS345:/home/stsmith# useradd -g 500 -c "Sue Smith" -d /home/susmith -s /bin/bash susmith

root@CS345:/home# login susmith

Password:

Welcome to Bodhi 6.0 (GNU/Linux 5.4.0-72-generic x86\_64)

root@CS345:/home/susmith# cat /etc/group

root:x:0:

daemon:x:1:

bin:x:2:

sys:x:3:

adm:x:4:syslog,reguser

.

.

lpadmin:x:116:reguser

sambashare:x:121:reguser

newusers:x:500:stsmith,susmith

root@CS345:/home/susmith# cat /etc/passwd

root:x:0:0:root:/root:/bin/bash

daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin

bin:x:2:2:bin:/bin:/usr/sbin/nologin

sys:x:3:3:sys:/dev:/usr/sbin/nologin

geoclue:x:109:113::/var/lib/geoclue:/usr/sbin/nologin

nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin

.

.

reguser:x:1000:1000:RegUser,,,:/home/reguser:/bin/bash

sshd:x:108:65534::/run/sshd:/usr/sbin/nologin

stsmith:x:321:500:Steve Smith:/home/stsmith:/bin/bash

susmith:x:1001:500:Sue Smith:/home/susmith:/bin/bash

root@CS345:/home/susmith# ls -l

total 0

root@CS345:/home/susmith#

root@CS345:/home# ls -l

total 16

-rw-r--r-- 1 root root 18 May 23 21:06 copyspot

drwxr-xr-x 16 reguser reguser 4096 May 30 16:16 reguser

drwxr-xr-x 5 stsmith newusers 4096 Jun 6 22:49 stsmith

drwxr-xr-x 3 susmith newusers 4096 Jun 6 23:15 susmith

root@CS345:/home#

I could not figure out why no files were available in Sue’s profile, she got added to /passwd and /group but still had no files.

1. Show how to disable the susmith account. (Run the commands and show the necessary output – no screenshots)

root@CS345:/home# usermod -L susmith

root@CS345:/home# login susmith

Password:

Login incorrect

1. Login as root and remove user stsmith manually by editing the files in /etc. Again, cat any of the /etc files that you changed so I can see what you have done. Make sure that any files, directories, permissions, et cetera that you changed/deleted in this task show up so that I know what you have done. (Run the commands and show the necessary output – no screenshots)

**root@CS345:/home# cat /etc/passwd**

**root:x:0:0:root:/root:/bin/bash**

**daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin**

**bin:x:2:2:bin:/bin:/usr/sbin/nologin**

**sys:x:3:3:sys:/dev:/usr/sbin/nologin**

**.**

**.**

**reguser:x:1000:1000:RegUser,,,:/home/reguser:/bin/bash**

**sshd:x:108:65534::/run/sshd:/usr/sbin/nologin**

**susmith:x:1001:500:Sue Smith:/home/susmith:/bin/bash**

**root@CS345:/home#**

**root@CS345:/home# cat /etc/shadow**

**root:$6$nBwK0ey05HJPfAfL$7QUqF1CVBxL1V.FHtWVPy8Of2UobDRHnGV0EHQLcmdFxetawXe/cJrK5x1Kor./678n7uWscBfQlQhK6ZNWny/:19127:0:99999:7:::**

**daemon:x:19127:0:99999:7:::**

**bin:x:19127:0:99999:7:::**

**sys:x:19127:0:99999:7:::**

**.**

**.**

**geoclue:x:19127:0:99999:7:::**

**nobody:x:19127:0:99999:7:::**

**reguser:$6$1glh7M3SZ0O6e3eI$Q7XwWNfBb4MSjlw6CnYd/ySeKBmxrxi0O2K4HSqjh2wv7L.taG7/XpHKlGJ2FSSVdRtqBvcxFAKyXqdVUAPzm/:19127:0:99999:7:::**

**sshd:\*:19127:0:99999:7:::**

**susmith:!$6$4P7ItbmbeYDqVEXa$g4icUty0FW/9gmbIm43UAySNwl4p1bvpfZ3/e8z2/0ENT0T2Pg8UNJjuuKpcyW3NWNZL3KtO3K2hd3Y/5vupr.:19150:0:99999:7:::**

**root@CS345:/home# cat /etc/group**

**root:x:0:**

**daemon:x:1:**

**bin:x:2:**

**sys:x:3:**

**adm:x:4:syslog,reguser**

**.**

**.**

**lpadmin:x:116:reguser**

**sambashare:x:121:reguser**

**newusers:x:500:susmith**

**root@CS345:/home# rm -r stsmith**

**root@CS345:/home# ls**

**copyspot reguser**

1. Remove the susmith account using the automated delete user command. Clean up anything that the command doesn't take care of (and there are things to clean up!). (Run the commands and show the necessary output – no screenshots)

root@CS345:/home# userdel susmith

root@CS345:/home# groupdel newusers

root@CS345:/home# rm -r susmith

root@CS345:/home# ls

copyspot reguser

1. Explain three different ways you might consider getting free space on a Linux filesystem back.

One way you can get free space back is by deleting anything in /tmp. These files can be deleted with no repercussions. The second way is to delete any core (memory dump) files laying around on your pc. Lastly, you can move the system log file /var/log/messages to another file system that has no reached its capacity yet

1. Show how much swap space is currently in use (run the command and show the necessary output – no screenshots). Comment on the output generated.

root@CS345:/home# free

total used free shared buff/cache available

Mem: 1004808 93988 707104 716 203716 768220

Swap: 1998844 0 1998844

None of the swap space is currently being used. It is displaying the information in kilobytes

1. Explain the process of adding a new hard drive as the third disk device on the bus to the system. List (do not perform these!) the commands to create two partition on the disk and then format both as Linux native filesystem(s). Finally show the necessary changes to the fstab to permit the new partitions to be mounted each time the system boots up. The first partition should have a mount point of /usr/extraapps and the second partition should have a mount point of /usr/extradata

Step one is physically installing the hardware onto the system. Step two is using the Linux fdisk program to view the partitions of the hard drive, and making new partitions as needed. Running the command fdisk /dev/sdc will start up the third disk device on the bus. Following this step you need to format the partitions by running mke2fs command.

exit