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CYSE_270_20306

Assignment #6: File Permissions

Task A: Get accounts and groups ready.

Step1: Using sudo groupadd (employee, payroll, admin), we create 3 groups, employee, payroll and admin respectively.



Step 2a: Using sudo useradd -d /home/(Sophia, Olivia, Emma) -m (Sophia, Olivia, Emma), we create user accounts with their home directory being /home/(Sophia, Olivia, Emma) respectively.

myrna@kali: ~ File Actions Edit View Help (myrna kali) - [~]
 sudo useradd -d /home/Sophia -m Sophia
[sudo] password for myrna: (**myrna⊛kali**)-[~] └\$ <u>sudo</u> useradd -d /home/Olivia -m Olivia (myrna⊛kali)-[~] _\$ <u>sudo</u> useradd -d /home/Emma -m Emma (myrna® kali)-[~]

Step 2b: Using sudo usermod -shell /bin/bash (Sophia, Olivia, Emma), the login shell is changed to /bin/bash for each user.

myrna@kali: ~ X **F** File Actions Edit View Help (**myrna⊛kali**)-[~] └\$ <u>sudo</u> usermod --shell **/bin/bash** Sophia (**myrna⊛kali**)-[~] └\$ <u>sudo</u> usermod --shell **/bin/bash** Olivia (myrna⊛kali)-[~] <u>sudo</u> usermod --shell /bin/bash Emma (myrna® kali)-[~]

Step 2c: Using sudo usermod -aG (employee, payroll, admin) (Sophia, Olivia, Emma), we assigned each user to a specific group that will be their primary.

• myrna@kali: ~ File Actions Edit View Help (myrna@kali)-[~] <u>sudo</u> usermod -aG employee Sophia (myrna@kali)-[~] sudo usermod -aG payroll Olivia (myrna⊗kali)-[~] <u>\$ sudo</u> usermod -aG admin Emma

Step 2d: Using **sudo passwd (Sophia, Olivia, Emma)**, we assigned a password to each. Sophia is **Umbr30n!**; Olivia is **Esp30n!!**; Emma is **M3wtw0!!!**

	myrna@kali: ~	\odot
File Actions Edit View	Help	
(myrna@kali)-[~] <u>sudo</u> passwd Sophia New password: Retype new password: passwd: password updated	d successfully	
(myrna@kali)-[~] <u>sudo</u> passwd Olivia New password: Retype new password: passwd: password updated	d successfully	
(myrna@kali)-[~] \$ sudo passwd Emma New password: Retype new password: passwd: password undated	1 successfully	
(myrna@kali)-[~]		
the quieter	you become, the more you are able	to hea

Step 3a: Using sudo groupadd msant023 a shared group was created. Using sudo usermod -a -G msant023 (Sophia, Olivia, Emma) each user was added to this group, which is their secondary.

• myrna@kali: ~ File Actions Edit View Help (myrna@kali)-[~] <u>sudo</u> groupadd msant023 (myrna@kali)-[~] <u>sudo</u> usermod -a -G msant023 Sophia (myrna@kali)-[~] <u>sudo</u> usermod -a -G msant023 Olivia (myrna@kali)-[~] <u>sudo</u> usermod -a -G msant023 Emma (myrna®kali)-[~]

Step 3b: Shows each users group with the command sudo groups (Sohia, Olivia, Emma) respectively.



Step 4a: Using sudo mkdir /home/cyse_project, a new directory is added to home.



Step 4b: Using sudo chgrp msant023 /home/cyse_project, the new directory is assigned ownership to msant023.



Step 4c: Using cd /home, we moved to home directory and ls -l /home shows permissions and group owners of directory cyse_project.

	myrna@kali: /home	\odot
File Actions Edit View Help		
<pre>(myrna line) - [~] cd /home/</pre>		
<pre>(myrna & kali)-[/home] \$ ls -l /home total //</pre>		
total 44 drwxr-xr-x 5 Emma admin drwxr-xr-x 5 Olivia payroll drwxr-xr-x 5 Sophia employee drwxr-xr-x 2 root msant023 drwx 16 myrna myrna drwxr-xr-x 5 user1 user1 drwxr-xr-x 5 user2 user2 drwxr-xr-x 5 user3 user3 drwxr-xr-x 5 user4 user4 drwxr-xr-x 5 user5 user5 drwxr-xr-x 5 user6 user6 (myrna@kali)-[/home]	<pre>4096 Oct 10 21:17 Emma 4096 Oct 10 21:16 Olivia 4096 Oct 10 21:16 Sophia 4096 Oct 10 22:49 cyse_project 4096 Oct 10 16:44 myrna 4096 Oct 2 17:08 user1 4096 Oct 2 17:11 user2 4096 Oct 2 17:20 user4 4096 Oct 2 17:25 user5 4096 Oct 2 17:29 user6</pre>	able to heat

Step 5: Using sudo chmod 770 /home/cyse_project the previous permissions are changed and only owner user and group can read, write and execute the files created inside the directory.



Step 6: Using su Sophia, we change to Sophia's account. Using cd and cd /home/cyse_project we navigated to the shared directory in Sophia's account. Using umask 137 Sophia changed her permissions to read and write for her and only read for groups. A test file created using vi command shows the new permissions assigned.



Step 7: Using vi Sophia_homework, we create a new file under Sophia's account. Using ls -ld Sophia_homework and cat Sophia homework, we can see the permissions and content of the new file respectively.



Step 8: Using cp Sophia_homework /home/cyse_project, we copy the new file into the shared directory, but we can see that the permissions for Sophia persists in the shared directory.



Step 9: Using su Emma, we changed accounts and tried to read Sophia's file, but we are denied permission because of Sophia's original permissions supersede the directory permissions.

Emma@kali: /home/cyse_project × File Actions Edit View Help (Sophia@ kali)-[/home/cyse_project]
 cd Password: (Emma@kali)-[/home/Sophia]
 cd [Emma@kali)-[~]
\$ cd /home/cyse_project (Emma@kali)-[/home/cyse_project]
 cat Sophia_homework
cat: Sophia_homework: Permission denied [Emma@kali)-[/home/cyse_project]

Step 10: Using su myrna we return to sudoer user.

```
myrna@kali: ~
F
File Actions Edit View Help
(Sophia@kali)-[/home/cyse_project]
_$ cd
[Sophia⊗kali)-[~]

└$ su Emma
Password:
[---(Emma@kali)-[/home/Sophia]
_s cd
[Emma@kali)-[~]
    cd /home/cyse_project
(Emma@kali)-[/home/cyse_project]
    cat Sophia_homework
cat: Sophia_homework: Permission denied
 ---(Emma@kali)-[/home/cyse_project]
-s cd
 ----(Emma@kali)-[~]
__$ su myrna
Password:
(myrna skali)-[/home/Emma]
(myrna®kali)-[~]
```

Task B: Set SGID permission.

Step 1: Using sudo chmod g+s /home/cyse_project we supersede users permissions and allow other users that shared the directory to interact with the file.



Step 2: Changing to Sophia account we make a new copy of Sophia's homework and named it Sophia_homework2, using **cp** command. We still see that any file created by Sophia still has her original permissions but the changes in the directory permissions will allow users to see the new copy.



Step 3: Now when we change to Emma, she can see the homework 2 file because the shared directory has ownership too thanks to shared group msant023

```
└─$ cd
[Sophia⊗kali)-[~]

↓ su Emma
Password:
 ----(Emma@kali)-[/home/Sophia]
└─$ cd
(Emma®kali)-[~]
__s cd /home/cyse_project
(Emma@kali)-[/home/cyse_project]
_$ ls -l
total 12
-rw-r 1 Sophia Sophia 18 Oct 15 18:11 Sophia_homework
-rw-r 1 Sophia msant023 18 Oct 15 18:32 Sophia_homework2
-rw-r-1 Sophia Sophia 5 Oct 15 17:52 test
[---(Emma@kali)-[/home/cyse_project]
______s cat Sophia_homework
cat: Sophia homework: Permission denied
(Emma@kali)-[/home/cyse_project]
    cat Sophia_homework2
Myrna E. Santiago
 —(Emma@kali)-[/home/cyse_project]
-s clear
```

Task C: Unset SGID permissions

Step 1 and 2: Using sudo chmod g-s /home/cyse_project, we removed the permissions of the shared directory once more. Moving again into Sophia's account we copy once more Sophia's homework into another file called Sophia_homework3.

```
<u>-</u>
                                  Sophia@kali: /home/cyse_project
                                                                                              ×
File Actions Edit View Help
  -(myrna@kali)-[~]
__$ sudo chmod g-s /home/cyse_project
(myrna@kali)-[~]
$ ls -ld /home/cyse_project
drwxrwx-2 root msant023 4096 Oct 15 18:28 /home/cyse_project
[ (myrna⊗ kali)-[~]

_$ su Sophia
Password:
 -(Sophia@kali)-[/home/myrna]
└─$ cd
(Sophia@kali)-[/home/cyse_project]
_$
```

Step 3: We go into Olivia's account and try to read the 3 files. The first one still has Sophia's permissions which block the ability to access the file. The second file still has the previous permissions of the shared directory which allows the access of the second copy of the file, and we can see its content. After revoking the permissions and a new file is created. The new file will have Sophia's permissions that will block access to that file.

```
F
                                    Olivia@kali: /home/cyse_project
                                                                                                  X
File Actions Edit View Help
  -(Sophia@kali)-[/home/cyse_project]
└─$ cd
__(Sophia⊗ kali)-[~]
_$ su Olivia
Password:
(Olivia@ kali)-[/home/Sophia]
_$ cd
(Olivia@ kali)-[~]
    cd /home/cyse_project
(Olivia@kali)-[/home/cyse_project]
    cat Sophia_homework
cat: Sophia homework: Permission denied
Myrna E. Santiago
cat: Sophia homework3: Permission denied
(Olivia@kali)-[/home/cyse_project]
_$
```

Extra Credit: Sticky bit.

Step 1: Still in Olivia's account we go into the share file and using **rm** command, we remove the copy of the first Sophia's Homework.



Step 2: Going back to sudoer account, we used the sudo chmod +t /home/cyse_project to assign the sticky bit to the directory.

```
(Olivia@kali)-[/home/cyse_project]
  -$ cd
  -(Olivia@kali)-[~]
峙 su myrna
Password:
  -(myrna@kali)-[/home/Olivia]
—$ cd
  -(myrna@kali)-[~]
$ <u>sudo</u> chmod +t /home/cyse_project
[sudo] password for myrna:
   (myrna@kali)-[~]
```

Step 3: Navigating Back to Olivia's account we try to erase copy of homework 3 and we cannot because Sticky bit is on, preventing the deletion of said file. We can see under the **ls -ld** command that cyse_project permissions have a **T** in the permissions, that wasn't there before the sticky bit was turned on.

```
Olivia@kali: /home/cyse_project
5
File Actions Edit View Help
 —(myrna⊛kali)-[~]
└_$ su Olivia
Password:
-(Olivia@kali)-[/home/cyse_project]
s rm Sophia_homework3
rm: remove write-protected regular file 'Sophia_homework3'? y
rm: cannot remove 'Sophia_homework3': Operation not permitted
drwxrwx--T 2 root msant023 4096 Oct 15 18:47
 -(Olivia® kali)-[/home/cyse_project]
____$ ls -l
total 12
-rw-r— 1 Sophia msant023 18 Oct 15 18:32 Sophia_homework2
-rw-r 1 Sophia Sophia 18 Oct 15 18:41 Sophia_homework3
-rw-r 1 Sophia Sophia
                        5 Oct 15 17:52 test
```