Managing Access Control in Linux

(CompTIA Security + SY – 601)

Objectives:

- To create users and groups
- To add users to a group
- To create directories and files
- To configure ownership and permissions

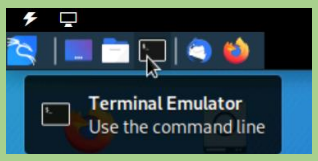
Resources:

- Kali Virtual Machine (PT1-Kali VM)
- Command line tools

Instructions:

Create users and groups

- Sign-in to PT1- Kali VM
- From the toolbar at the top of the Desktop, open the Terminal



- Run the following command to create a new user named **user01**

```
root@KALI:~# useradd user01
```

- Run the following command to set a password for user 01

```
root@KALI:~# passwd user01
```

- When prompted, enter and confirm the password, **Pa$$w0rd**

```
root@KALI:~# passwd user01
New password:
Retype new password:
passwd: password updated successfully
```

- Repeat the above steps to create **user 02**, and then set **Pa$$w0rd** as password

```
root@KALI:~# useradd user02
root@KALI:~# passwd user02
New password:
Retype new password:
passwd: password updated successfully
```

- Run the following command to create a new group named **admins**

```
root@KALI:~# groupadd admins
```

- Create a second group named **devs**

```
root@KALI:~# groupadd devs
```

- Add **user01** to the **admins** group

```
root@KALI:~# usermod -aG admins user01
```

- Run these commands to verify the group memberships

```
id user01
```

▶ Manage groups.

```
tail /etc/group
```

```
root@KALI:~# id user01
uid=1000(user01) gid=1000(user01) groups=1000(user01),1002(admins)
root@KALI:~# tail /etc/group
postdrop:x:143:
bind:x:144:
redis:x:145:
tss:x:146:
nm-openvpn:x:147:
nm-openconnect:x:148:
user01:x:1000:
user02:x:1001:
admins:x:1002:user01
devs:x:1003:
```

- Add **user02** to the **devs** group

```
root@KALI:~# usermod -aG devs user02
```

Create directories and files

- Run the following commands to create three directories

```
mkdir /projects
```

```
mkdir /projects/ITprojects
```

```
mkdir /projects/devprojects
```

```
root@KALI:~# usermod -aG devs user02
root@KALI:~# mkdir /projects
root@KALI:~# mkdir /projects/ITprojects/
root@KALI:~# mkdir /projects/devprojects
```

- Run the following commands to create two files

```
touch /projects/ITprojects/servers.txt
```

```
touch /projects/devprojects/programming
```

```
root@KALI:~# touch /projects/ITprojects/servers.txt
root@KALI:~# touch /projects/devprojects/programming
```

Configure ownership

- Run the following commands to display the current default permissions on the contents of the **/labs directory**

```
ls -ld /projects
```

```
root@KALI:~# ls -ld /projects
drwxr-xr-x 4 root root 4096 Jul 16 06:28 /projects
```

- Run the following commands to change ownership from root to the specified users and groups:

```
root@KALI:~# chown -R user01:admins /projects/ITprojects
```

```
root@KALI:~# ls -ld /projects
drwxr-xr-x 4 root root 4096 Jul 16 06:28 /projects
```

- Run the following command to display the user and group associations for the **/projects /itprojects** directory itself

```
ls -ld /projects/ITprojects
```

```
root@KALI:~# ls -ld /projects/ITprojects
drwxr-xr-x 2 user01 admins 4096 Jul 16 06:31 /projects/ITprojects
```

- Run the following command to display the user and group associations for the contents of the **/projects/ITprojects** directory

```
root@KALI:~# ls -l /projects/ITprojects
total 0
-rw-r--r-- 1 user01 admins 0 Jul 16 06:31 servers.txt
```

Configure Permissions

- Run the following command to display the current permissions for the **/projects/ITprojects** directory

```
ls -ld /projects/ITprojects
```

```
root@KALI:~# ls -ld /projects/ITprojects
drwxr-xr-x 2 user01 admins 4096 Jul 16 06:31 /projects/ITprojects
```

- Configure the permissions according to the table below. You may select the *set the permissions* section below if you need a reminder on how to configure permissions

Resource:	User/Group:	Access Level:
/projects/ITprojects	user01/admins	rwxrwxr-x
/projects/devprojects	user02/devs	rwxrwxr-x

▶ Set the permissions

Observations:

- Users and groups were created successfully.
- Users were added to their respective groups.
- Directories and files were created and ownership was assigned correctly.
- Permissions were configured and verified for accuracy.

Results:

- Successful creation and configuration of users, groups, directories, and files.
- Accurate assignment of ownership and permissions.

Conclusion:

The lab effectively demonstrated managing access control in Linux by creating users, groups, directories, and files, and configuring their ownership and permissions, ensuring secure and organized access management.

Future Work:

- Automate user and group management with scripts.
- Implement more granular permission settings for specific use cases.
- Explore additional security measures like SELinux for enhanced access control.