# Lab 1.3 : Account Creation and Management

Lab Name:

Systems Administration, Account Creation and Management (L1-CAT-01-03)

Overview:

This lab is designed to introduce readers to creating user and administrative accounts in both Ubuntu Linux and Windows 10 environments.

Prerequisites:

- Introduction to command-line
- Introduction to virtual machines (optional)

Materials:

- Computer with access to a terminal or command prompt
- Ubuntu Linux, either in a virtual machine or as the host operating system
- Windows 10, either in a virtual machine or as the host operating system
- Administrator privileges for certain tasks
- Internet connection (for accessing additional resources)

Learning Objectives:

- Defining User and Administrator accounts.
- Making a new user account in Ubuntu Linux and Windows 10.
- Making a new administrator account in Ubuntu Linux and Windows 10.

Tasks: (Work in Progress)

1. Create both User and Administrator accounts in both the Ubuntu Linux and Windows 10 environments.
2. Delete user accounts in both Ubuntu Linux and Windows 10.
3. Explore using both Powershell and the GUI options to create new users in Windows 10.

Deliverables:

- A PDF file with the given questions in the review category and your corresponding answers.
- Push the completed lab to your Git repository or submit through the designated method provided by your instructor.

Additional Resources:

- VMWare Virtual Machine Documentation

# Topic 1: Defining User and Administrator accounts

Imagine you are a Guest staying in a family member's home. You have your room where you keep your belongings, and you have limited access to other rooms. However, the owner of the house has access to all the rooms and can make changes as per their preference. Similarly, user accounts are like your room in the house, and administrator accounts are like the owner of the house who has access to all the rooms and can make changes as per their preference.

User accounts and administrator accounts are two different types of accounts that serve distinct purposes. User accounts are designed for regular users who access the system to perform specific tasks, while administrator accounts are reserved for system administrators who manage and maintain the system. User and Administrator accounts have 3 key distinct differences:

- Privileges
    - Administrator accounts have more privileges than user accounts. They can perform tasks such as managing users, configuring system settings, and accessing sensitive system information. User accounts, on the other hand, have limited privileges and can only perform tasks that are assigned to them.

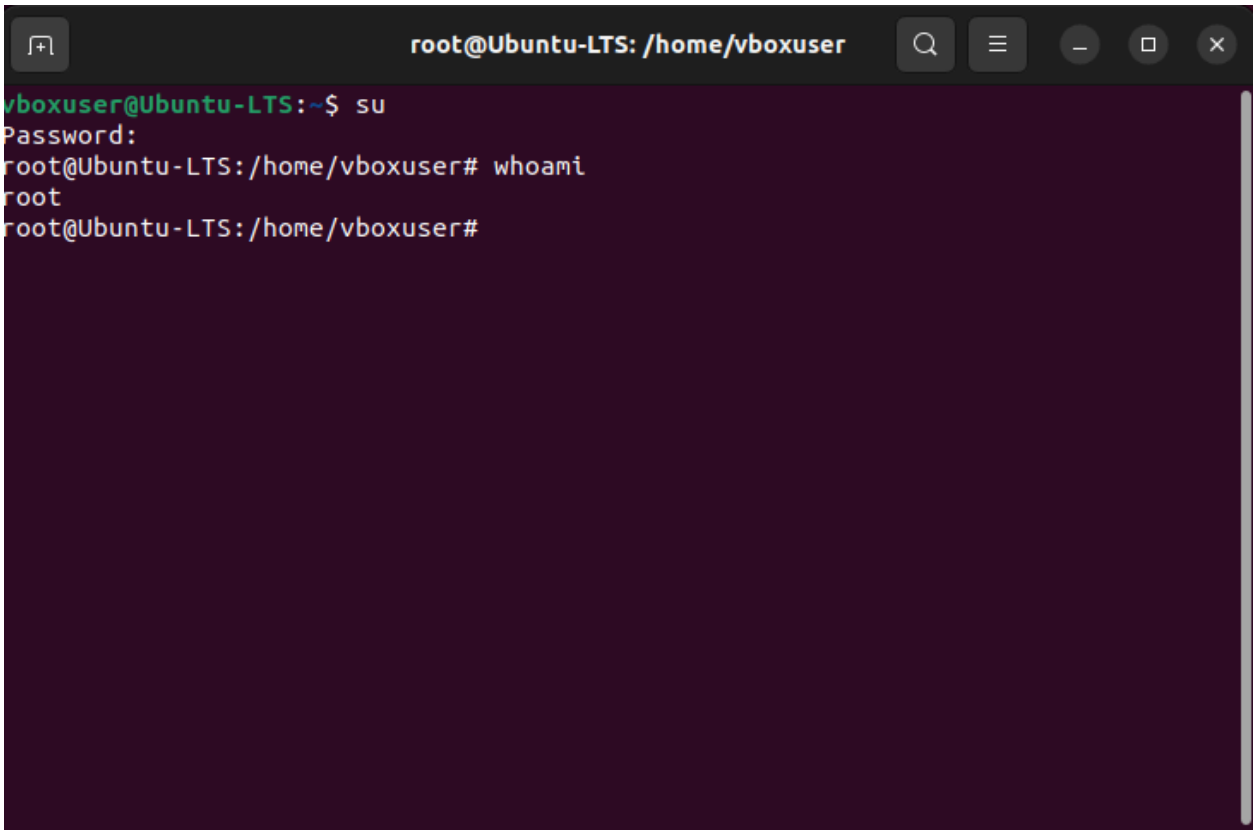
- Access
    - Administrator accounts have access to all areas of the system, while user accounts are restricted to specific areas based on their roles and permissions.

- Responsibilities
    - Administrator accounts are responsible for maintaining the system, troubleshooting issues, and ensuring that the system is running smoothly. User accounts are responsible for performing specific tasks and following established policies and procedures.

## Topic 2: Making a User Account in Ubuntu Linux

Before we can begin making new user accounts, we need to change our account to the root account within the shell. Open terminal and type the **‘su’** command, followed by your password.

Once this is done, you can see we’re in the root account by either looking at the username on the left, or by using the command **‘whoami’**. This command will output your current user so you can identify which user you currently are in the shell.




Now let’s switch back to the vboxuser account by typing **‘su vboxuser’**. This time, you won’t be prompted for a password, since you are the root account.

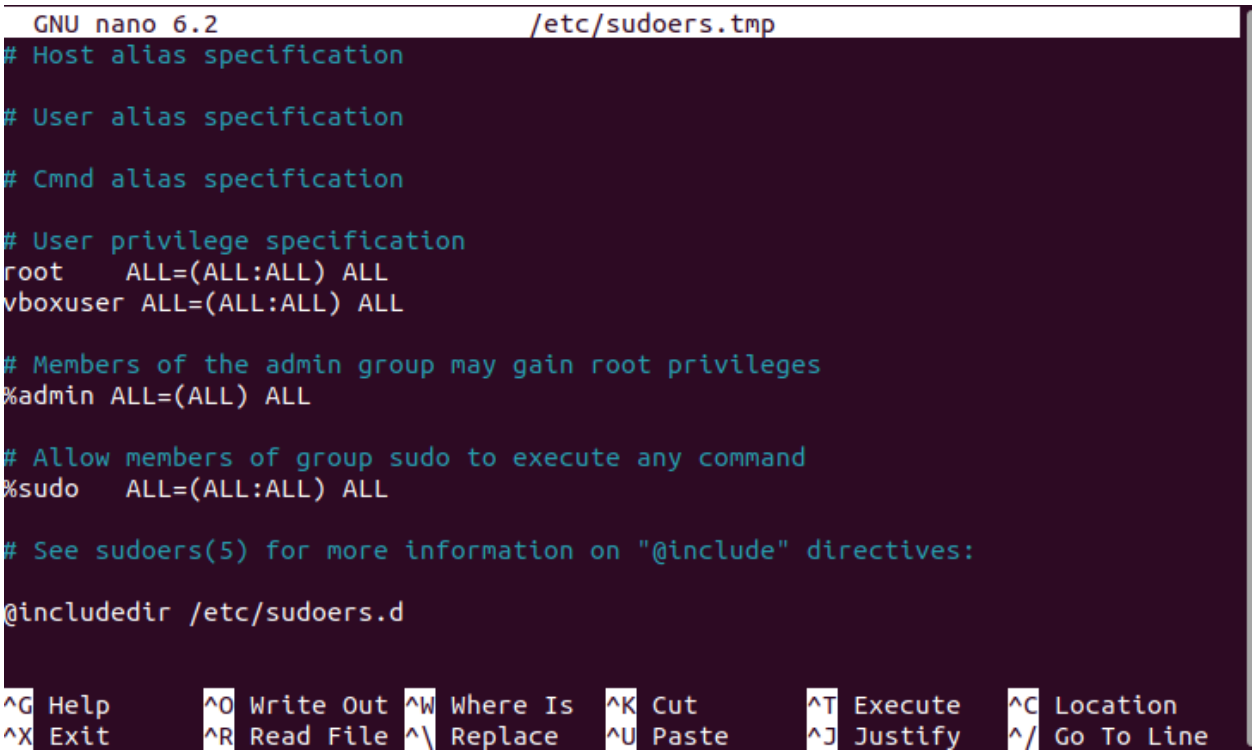
Now let’s begin creating a new user. You can use the command ‘adduser <name>’ to create a new user account with the name listed. However, it’s important to remember that only a system administrator can add a new user to the system.

*With this in mind, using the Ubuntu VM we set up last time, what command would you input to make a new user named joe?*

You would enter ‘sudo adduser joe’

As soon as you enter the information to create the new user, you’ll see that it doesn’t work! We need to add the vboxuser account as a sudoer. To do this, switch to the root account, and type **‘visudo’**. **DO NOT** attempt to modify the /etc/sudoers file without using the ‘visudo’ command, as this can introduce serious vulnerabilities. Visudo creates a temporary copy of the sudoers file in case any formatting errors occur.

This will open a large text file. Here, find where it says ‘User privilege escalation’. Add vboxuser to this category like so.



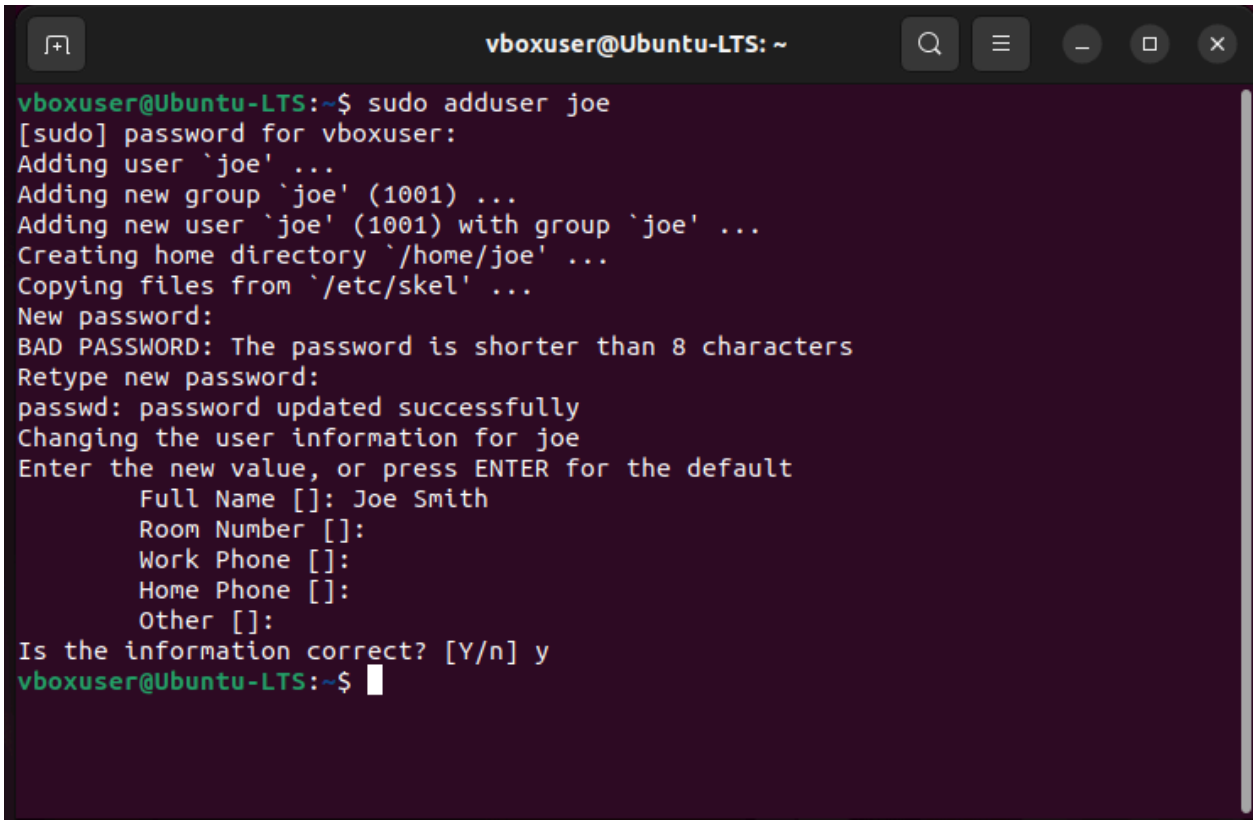

Save the file with ‘CTRL+O’, and quit using ‘CTRL+X’. Now, the vboxuser account has permission to use the sudo command. Use ‘su vboxuser’ to move back to the vboxuser account.

It’s very important to not utilize the root account unless absolutely necessary. From here on, we’ll be using the vboxuser account with sudo to complete the labs.

Now that we've sorted the vboxuser account, try to create the joe account once again by entering the following command, followed by your password:

**'sudo adduser joe'**

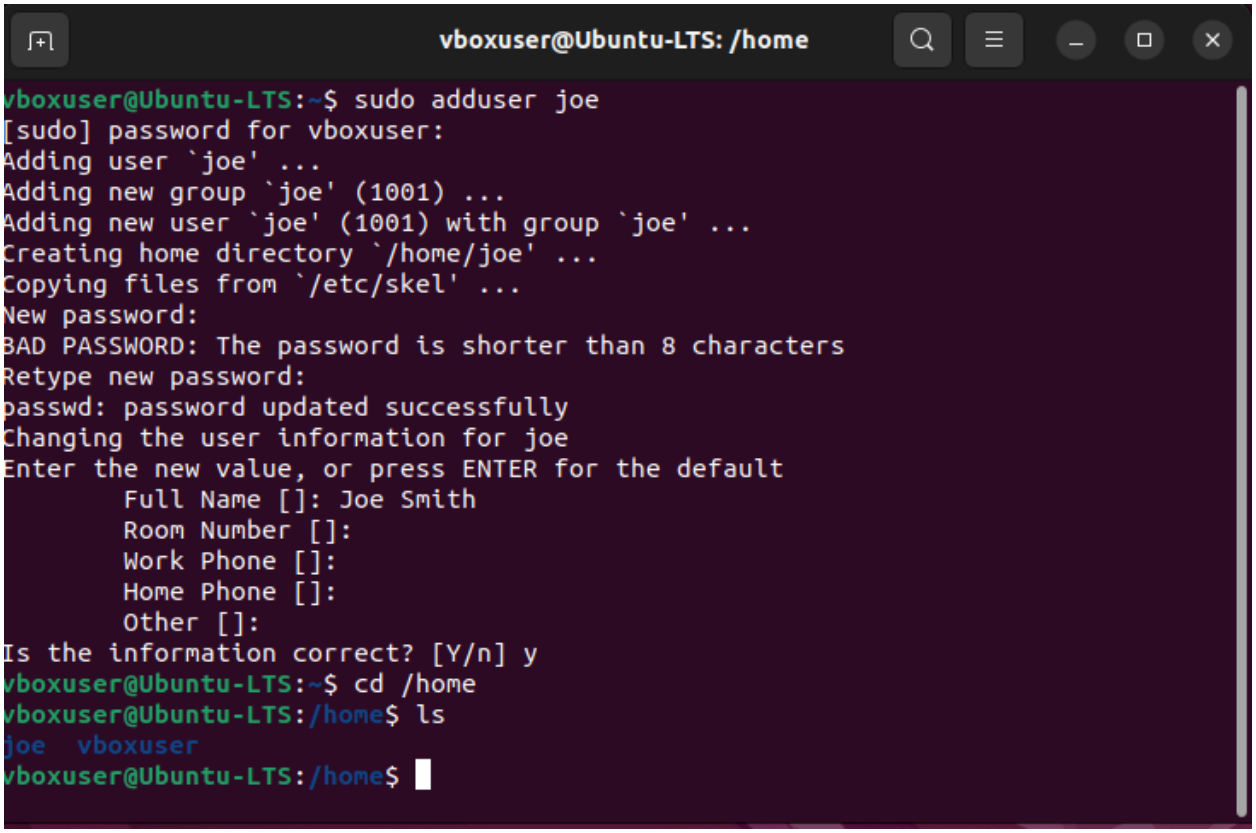
Upon entering the command to make a new user, you'll see that you are given the opportunity to add some information. This can be useful later to help identify which account names belong to which people within your organization. For this example we'll leave these blank, but it's worth noting their importance for the future.



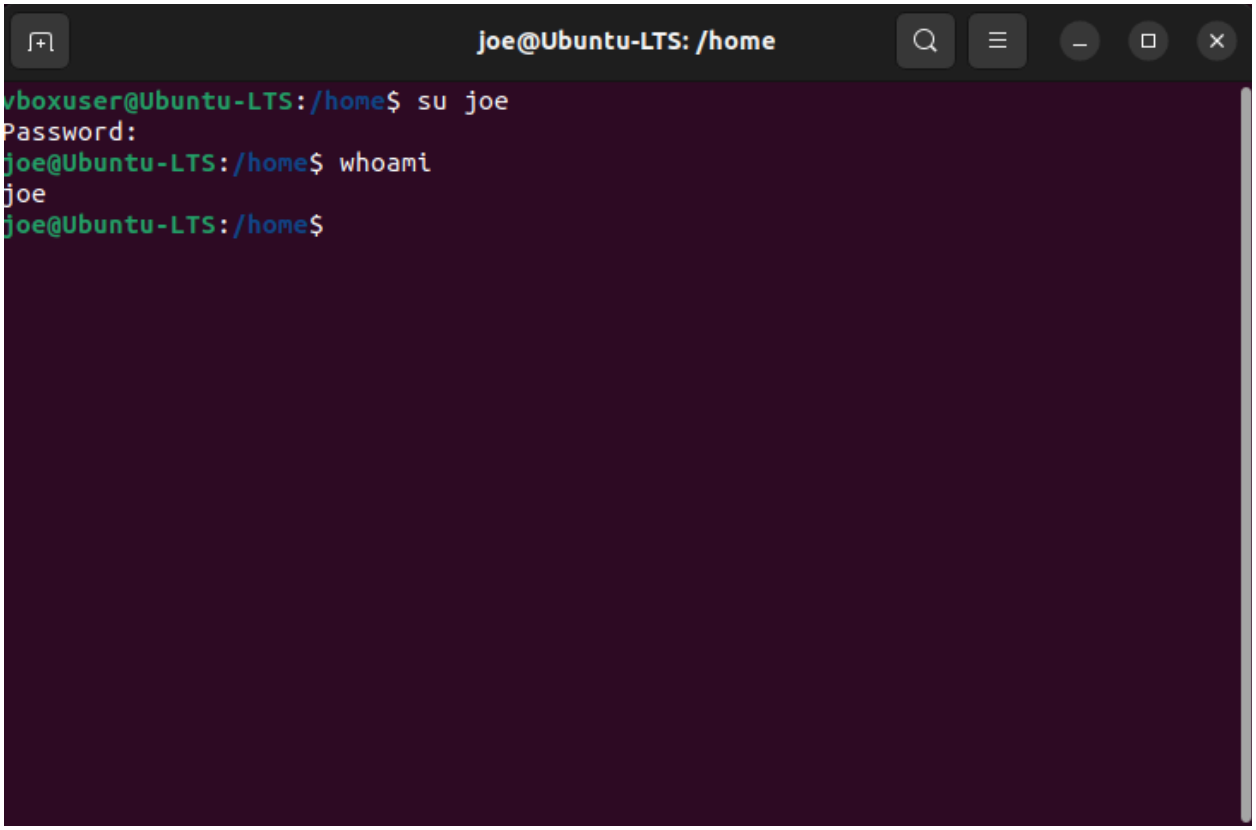
## Exploring the New User

Now that we've made a new user, check the folders contained in /home with 'ls /home'. You'll see that we now have a new folder named 'joe'.

Every user on the system has their own home folder where they can store their own files and settings. In different operating systems this folder may be in different places, but on Ubuntu Linux you'll always find it in the /home directory.




If you want to switch users to Joe's account in the shell, you can do this by typing 'su joe', and typing joe's password. This will alter the shell to utilize Joe's account instead of yours. This can be particularly useful when managing multiple accounts that have different levels of access to different areas of the system.




Deleting a User from the system

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*What do you think the following command does?*

**‘deluser joe’**

*Try entering it!*

The ‘deluser’ command is responsible for deleting users from the system. As you may have seen, it also requires administrative permissions to be executed. This way, only administrators can remove a user from the system, should a user account become compromised.

## Understanding Groups

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Cindy is an accountant working in building A for XYZ Corporation. Mike is an engineer working in building A for XYZ Corporation. Kevin is also an accountant for XYZ Corporation, but works in building B. George is an Engineer that works in building B.

*Given this prompt, how would you group these people?*

There are multiple ways you could group these people.

- You could group them by profession, since Cindy and Kevin are both accountants, whereas Mike and George are both Engineers.
- You could also group them by location, as Cindy and Mike work in building A, but Kevin and George work in building B.
- You could group all of these people together as XYZ Corporation employees.

All of these groupings are valid and correct, but they are also unique. You might want Cindy and Kevin to have access to accounting information, but not Mike and George. Likewise, you wouldn't want Cindy and Mike to be entering building B when they don't work there. Each one of these groups has their own permissions for what they can and cannot do.

Groups in system administration are exactly the same. Collections of users that are grouped together by some category, that sometimes includes overlap. However, different groups have differing levels of permissions. The next lab will cover permissions and groups in more depth, but for now, we'll be looking at two groups: Users and Administrators.

## Topic 3: Making an Administrator Account in Ubuntu Linux

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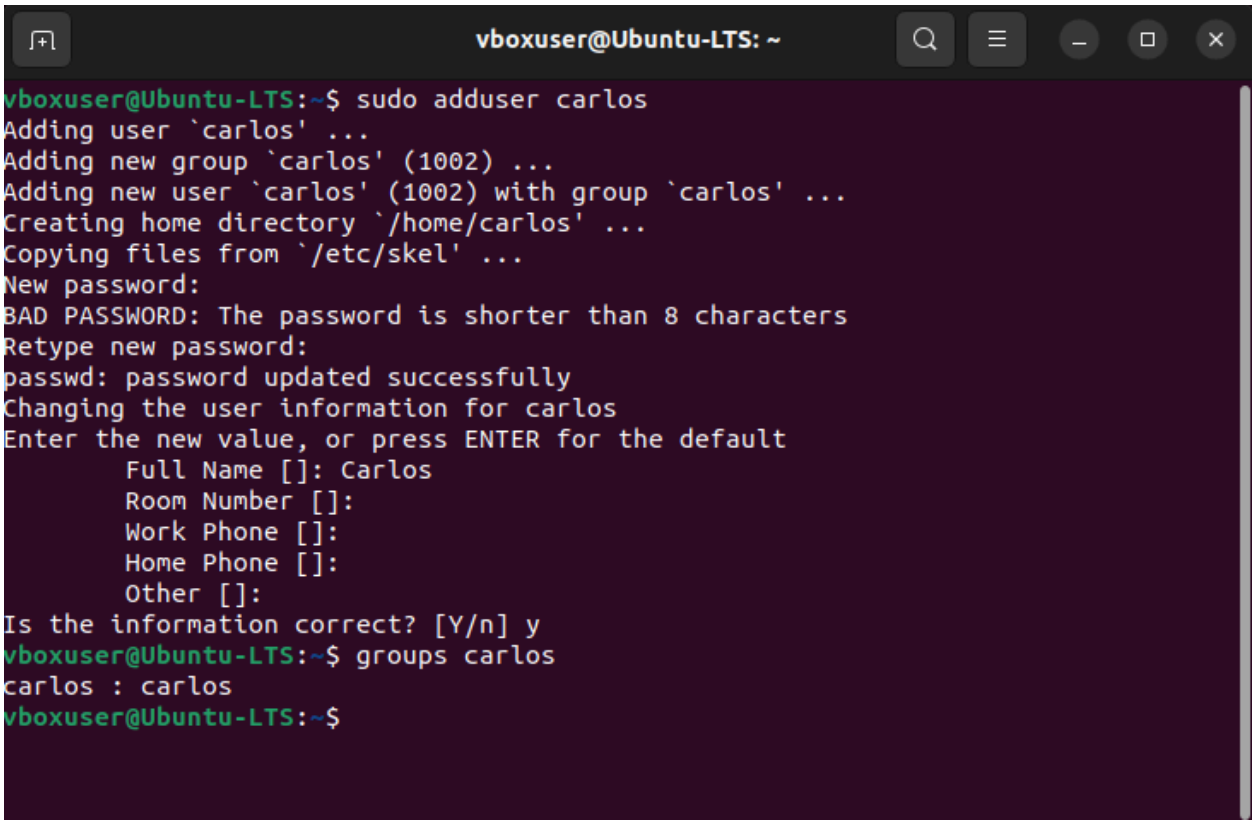
Now that you have an understanding of groups, let's add a user as an administrator.

Every user belongs to a group of their own name that contains their permissions. To view what groups a user belongs to, type **'groups <name>'.**

To make a user an administrator, we need to add them to the 'sudo' group.

First, make a new user named Carlos. Carlos has recently been promoted to an administrator, so he needs a sudoers account.

Now that Carlos has an account, let's view what groups he is in with the command 'groups Carlos'




As you can see, Carlos only belongs to the carlos group, since we've just created the account. We just need to add him to the 'sudo' group so that he will have administrative privileges.

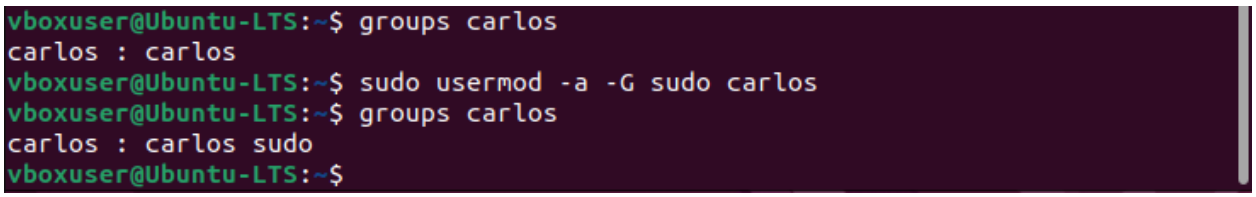
To add a user to a group, we can use the ‘usermod’ command. Note that this command requires administrator permission so that users can not change their own or other users’ permissions.

To add Carlos as an administrator, type the following command:

**‘sudo usermod -a -G sudo carlos’**

Usermod is the command, which requires administrator permission to execute, so we preface it with ‘sudo’.
The ‘-a’ means ‘append’, or to add to an existing group instead of making a new one.
The ‘-G’ refers to ‘group’, and tells the computer that we are about to list the name of the group we want to add Carlos to.
Finally we specify ‘carlos’ as the user that we want to add to the previously mentioned group.

After executing and entering the administrator password, we can verify that Carlos is an administrator by checking what groups he belongs to.



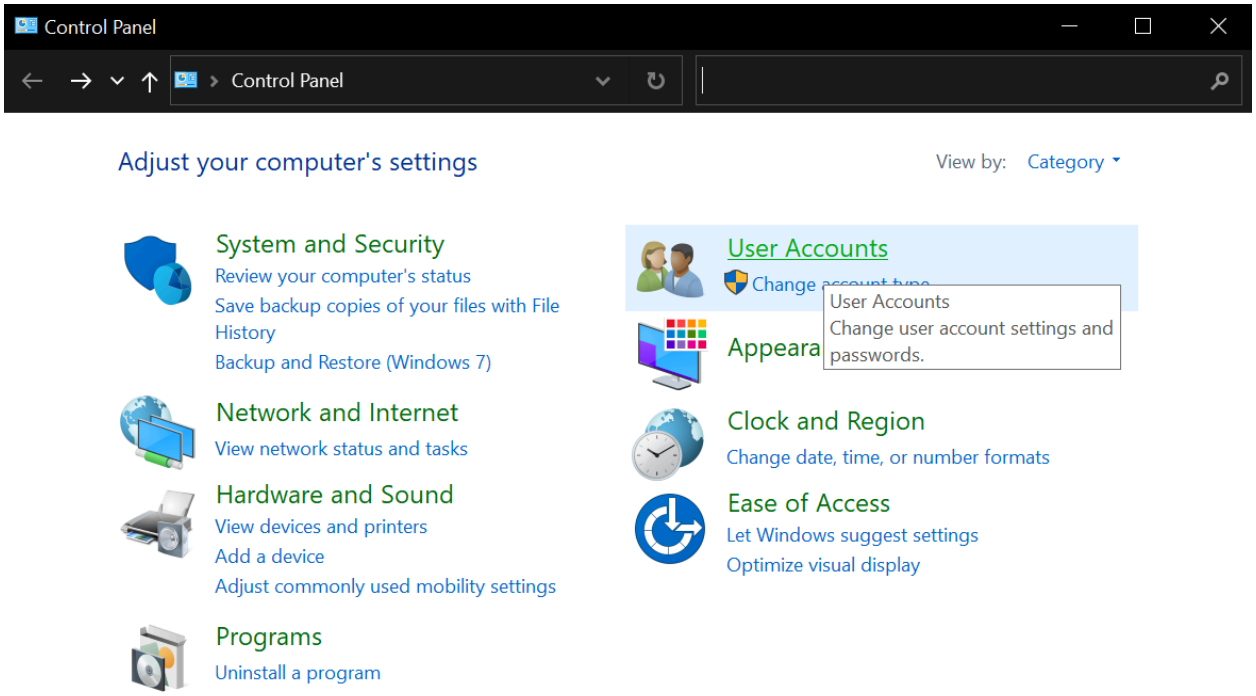
# Topic 4: Making a User Account in Windows 10

Now that you know how to add a user to Ubuntu Linux, let's cover how to do the same in Windows.

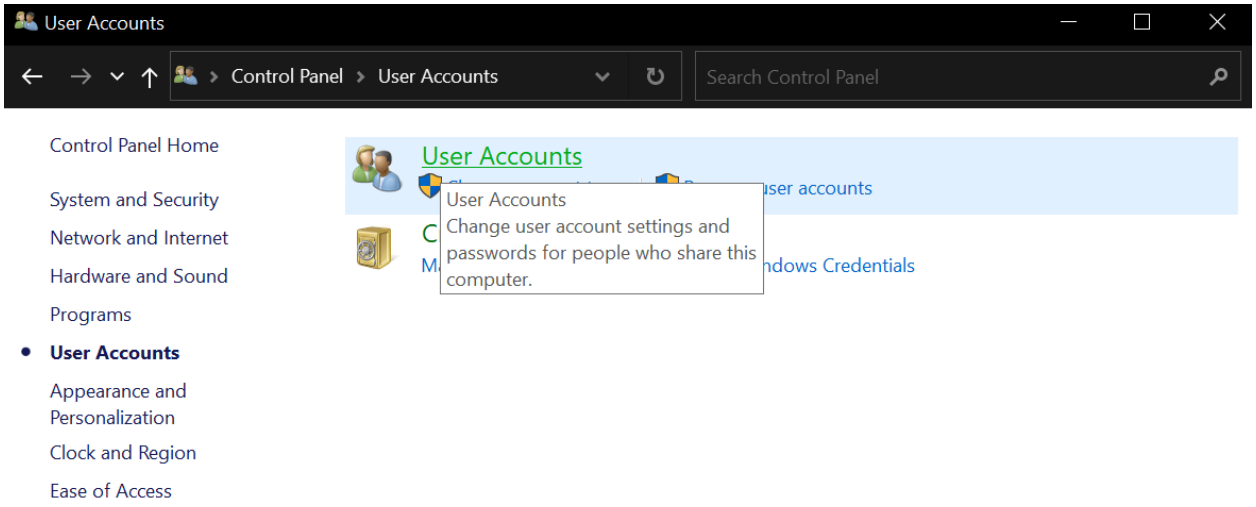
We'll be covering two ways to make user and administrator accounts in Windows. The first will be through the GUI, or graphical user interface, and the second will be utilizing Powershell.

## Using the GUI (Graphical User Interface)

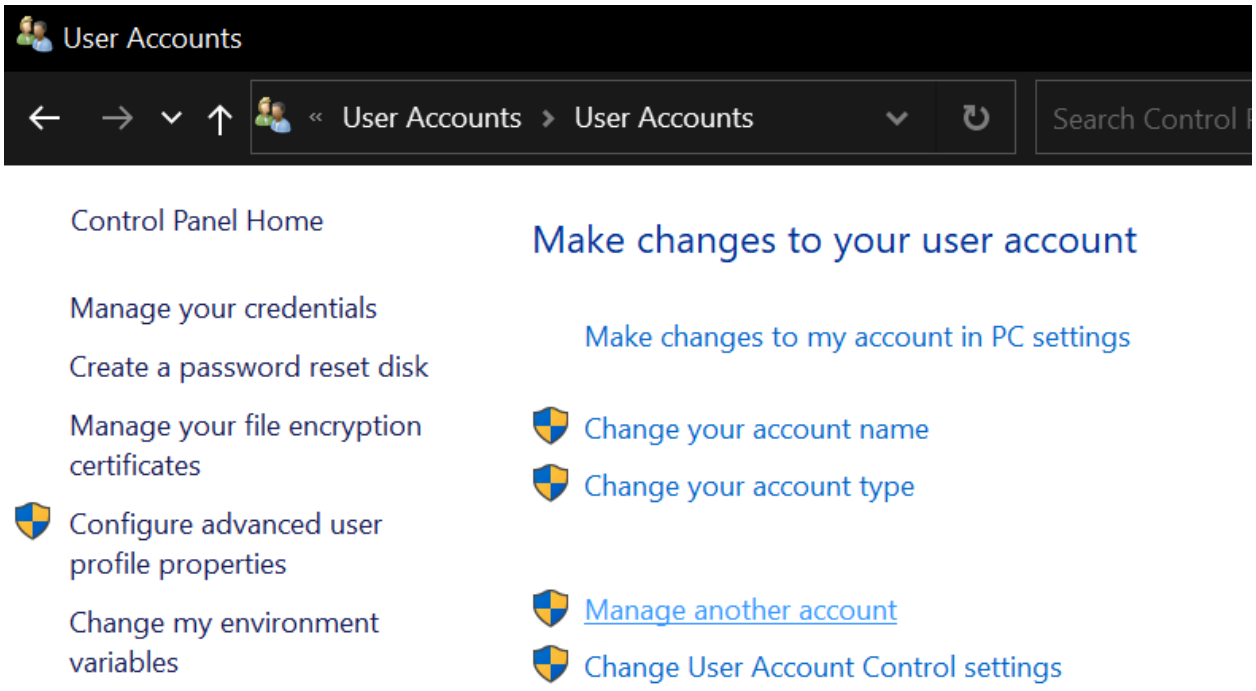
First, you'll want to open 'Control Panel'. Here you'll be able to find a plethora of computer settings, one of them being User Accounts. Click on the 'User Accounts' header to view more information.




Once inside the User Account settings, click 'User Accounts' once again to view more specific user settings.

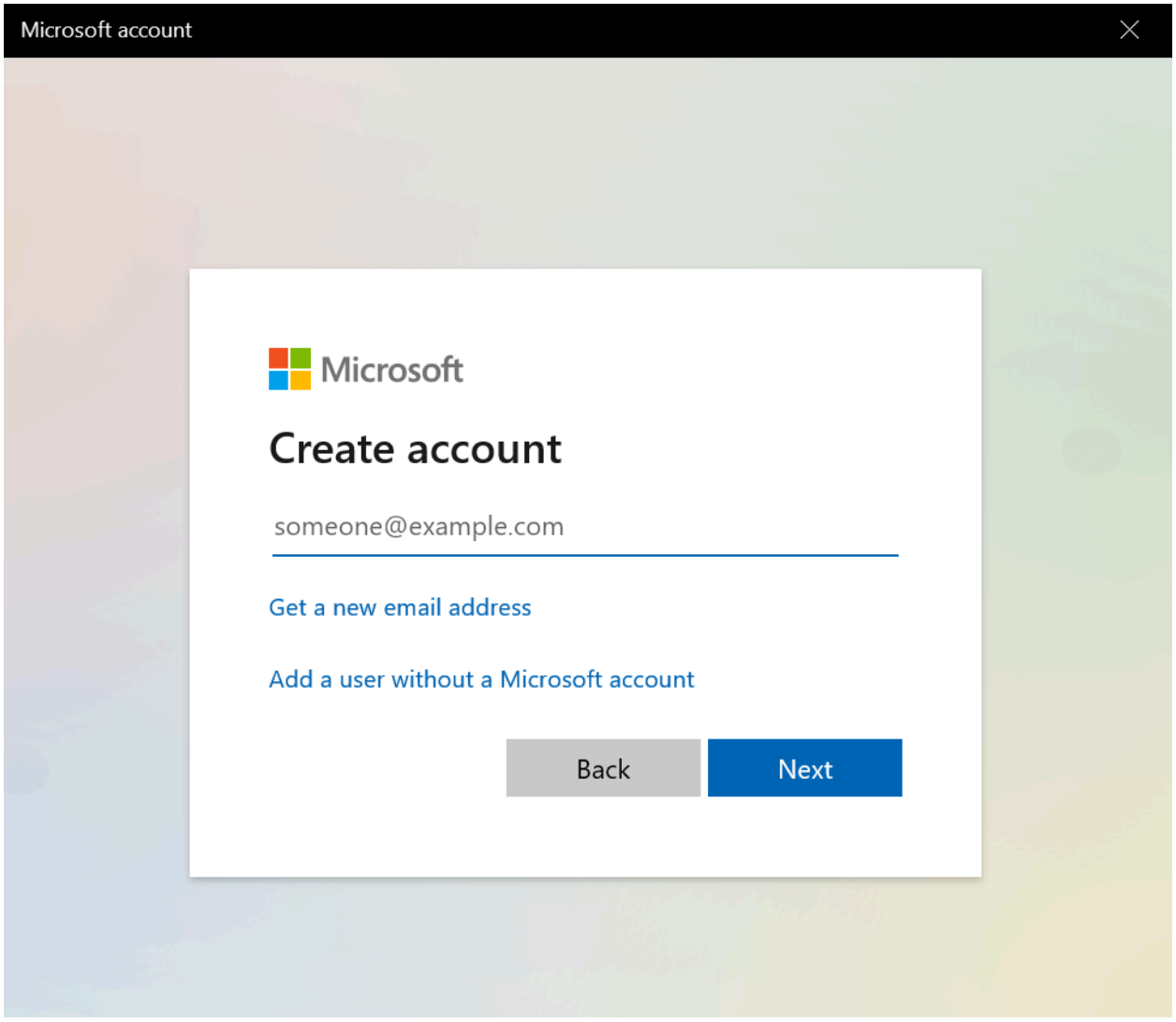



Now you should be able to see multiple options for managing your own, or others' users. Note that all of these options will require Administrative access, in the same way that Linux does.




To make a new user account, click **'Manage another account'.** This will show a window with all the PC users, including the option to add a new user. Click this option, and walk through the Wizard to create a new user.

You may be prompted to enter microsoft credentials to add a new user. This is not required, and we can simply click that we don’t have the login credentials, and then not utilize a microsoft account when creating this new user.




You can also delete accounts in the user accounts menu if needed.

To make a new user account using Powershell, first open the Powershell program with administrative privileges.

Next, we'll have to create a secure string to store our password in temporarily by entering the following command:

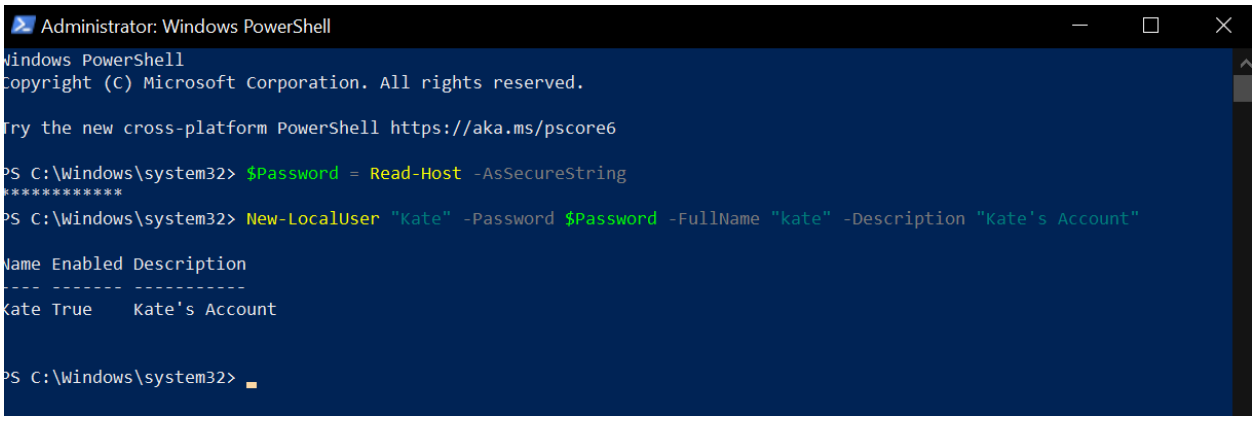
**'$Password = Read-Host -AsSecureString'**

Hit enter, and then type the password you would like this new user account to have. Then, to create the new account, enter the following command, filling in the details:

**'New-LocalUser "<ACCOUNT NAME>" -Password $Password -FullName "<USER FULLNAME>" -Description "<DESCRIPTION>"'**

This command will create a new local user with your specified account name, password, full name, and a description.

Now that you know how to create user accounts, make a new account for Kate! She is a secretary at XYZ Corporation. She doesn't need to have administrative access right now since she has just joined, but relies on using some Windows programs for her daily tasks.




To remove a user from the system using Powershell, we can utilize the following command:

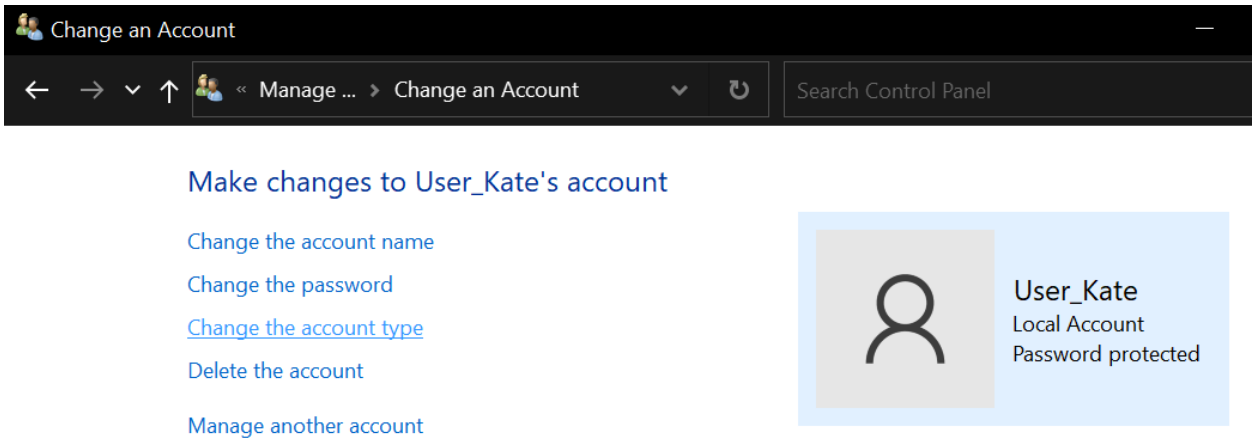
**'Remove-LocalUser <USERNAME>'**

## Topic 5: Making an Administrator Account in Windows 10

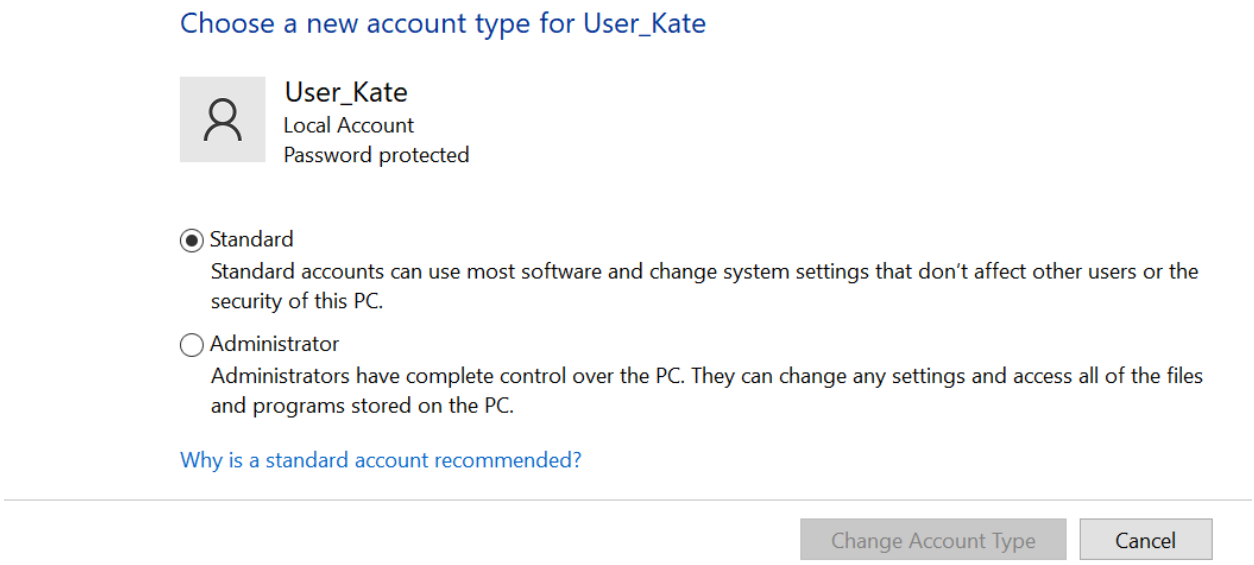
Now that we have created a new user account, we'll show the process for how to promote a user account to have administrative privileges. It's important to only grant administrator privileges to users who you really trust, since these permissions will allow them full access to the system.

### Using the GUI (Graphical User Interface)

To make a user an administrator in the Windows 10 user interface, navigate to 'Control Panel' ->  'User Accounts' -> 'User Accounts' -> 'Manage Another Account'. If you are logged into an Administrator account, you should be able to change the account type.




Click to change the account type, and switch it to an administrator account from a standard account.




You can also delete accounts in the user accounts menu if needed.

## Using Powershell

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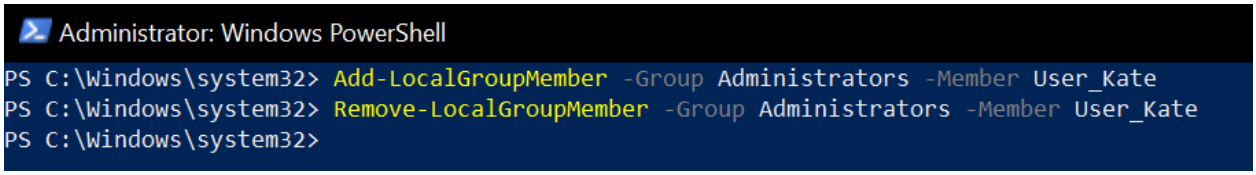
To add a user as an administrator using Powershell, first open Powershell with administrative privileges and type the following command:

**'Add-LocalGroupMember -Group Administrators -Member <USERNAME>'**

This command adds the username specified as a member to the administrator group.




You can also use the following command to remove a user from the administrator group using Powershell:

**'Remove-LocalGroupMember -Group Administrators -Member <USERNAME>'**

Using these commands you can manage which users are in which groups on the system, not just the administrators group.

## Topic 6: Review

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Congratulations! You have now learned how to create accounts of various types in both Ubuntu Linux and Windows 10. Remember that every Linux distribution is slightly different, but the process should be relatively similar with only minor changes across any debian-based distribution. ~Please feel free to Google anything you don't know.~

1. Imagine Carlos has just been promoted to CFO and needs his permissions elevated to an administrative level. Modify Carlos's user permissions so that he is an administrator.

2. Maura is the new CISO at XYZ Corporation. What is a CISO? What kind of permissions would you expect a CISO to have? Please add Maura as a user and configure her permissions.

3. Joe is Maura's executive assistant. He has been at XYZ Corp. since its conception and has been granted a lot of access. Since Maura has joined the team, Joe has sent in multiple tickets to your department regarding loss of access. How would you determine his current access? Do you think there is a way to find out his previous access?

4. Victoria is also a new hire at XYZ Corp. She is now working in the IT department as a help desk technician.  Do you think her position requires administrative access? Please create a profile for her and give her administrative access if her position requires it.

5. Maura has quit! She had decided to take a position elsewhere. The new CISO is coming in and needs access. His name is Alec. Please set up his access.

6. Check back in with Joe, does he have a password associated with his login? How could you find out? Can you find out what that password is?

7. Can you create a group for the CISO office? Who should be in it?

8. Make sure to get rid of any users who should no longer have access to the system!

**In order to receive credit for this lab, please take the time to record your screen for a short 1 to 3 minute video showing the user you chose added as an administrator on their respective platform so you can show your **lecturer**.**