Users & Groups Methodology - Creation

Open VMware Workstation:

1. Create a Virtual Machine from a gold image – Ubuntu 16.04 LTS, and call it **Ansible01**,
2. Each VM logs in under the user L00155876, as a super admin with sudo privileges,
3. Open the VM (Ansible 01) and login using the default password Passw0rd1,
4. Open the terminal window.
5. To confirm that L00155876 is the user on the VM type in whoami
6. The response is L00155876
7. From the cli type in the sudo init 6, to reboot the vm,
8. From the cli, type in te following sudo apt-get Install open-vm-tools
   This installs the tools need to carry out the install, of which one of the tools is the copy and paste command,
9. Input the sudo password Passw0rd1
10. Then on the cli input the following command sudo apt-get install open-vm-tools-desktop, Press enter,
11. From the cli type in the sudo init 6, to reboot the VM,
12. Input the sudo password Passw0rd1
13. Open the terminal window,
14. To determine what IP address Ansible01 has type in the command ifconfig
15. From the output the inet address: is 192.168.191.147
16. Make a copy of the IP address,
17. Now we need to give Ansible01 a host name, type in the command hostnamectl set-hostname Ansible01, Press enter,
18. From the cli type in the sudo init 6, to reboot the VM,
19. Open the terminal window,
20. Then in the cli type in sudo nano /etc/hosts, Press enter,
21. Input the sudo password Passw0rd1
22. Moving into the /etc/hosts folder, remove all the script that is there, and input the following
    127.0.0.1 Ansible01
    127.0.1.1 Ansible01
    192.168.191.147 Ansible01
23. Then accept the changes and write the file to the /etc/hosts folder, returning you to the terminal window,
24. The next step is to get the update, in the cli type in sudo apt-get update, Press enter,
25. Then type in sudo apt-get Install openssh-server, Press enter,
26. Then type into the cli sudo systemctl restart ssh, Press enter,
27. Then type into the cli sudo nano /etc/ssh/sshd_config, Press enter,
28. Moving into the /etc/ssh/sshd_config folder, got to the following lines of code and make the following changes;
    (i) #AuthorizedkeysFile %h/.ssh/authorized_keys - remove the hash to the front, and again, the same text further down
    (ii) #AuthorizedkeysFile %h/.ssh/authorized_keys - remove the hash to the front, and again, the same text further down
    (iii) #PasswordAuthentication no - remove the hash to the front, and change the yes to no

(iv) Then accept the changes and write the file to the /etc/ssh/sshd_config, returning you to the terminal window,

29. Then type into the cli sudo systemctl restart ssh, Press enter,
30. Then type into the cli sudo nano /etc/ssh/sshd_config, Press enter,
31. Moving into the /etc/ssh/sshd_config folder, got to the following lines of code and make the following changes under the PubkeyAuthentication yes script;
    (i) #AuthorizedkeysFile %h/.ssh/authorized_keys - remove the hash to the front, and again, the same text further down,
32. Then accept the changes and write the file to the /etc/ssh/sshd_config folder, returning you to the terminal window,
33. Then type into the cli sudo systemctl restart ssh, Press enter,
34. Then type into the cli ssh-keygen -t rsa, Press enter,
35. Then type into the cli ssh-keygen -t rsa, again, and Press enter,
36. Then type into the cli ssh-copy-Id -l ./.ssh/Id_rsa.pub l00155876@ansible01
37. Then type into the cli sudo systemctl restart ssh
38. Then type into the cli ssh-copy-Id -l ./.ssh/Id_rsa.pub l00155876@ansible01, again to get it to run this time.
39. Then type into the cli sudo nano /etc/ssh/sshd_config, Press enter,
40. The type ssh-agent bash, Press enter,
41. Then type into the cli ssh-add ./.ssh/Id_rsa, Press enter,
42. Then type into the cli sudo visudo, Press enter,
43. Moving into the /etc/sudoers.tmp folder, go to the following lines of code and make the following changes under the %sudo ALL=(ALL:ALL) ALL script;
    (i) l00155876 ALL=(ALL:ALL) NOPASSWD:ALL
44. Then accept the changes and write the file to the /etc/ssh/sshd_config folder, returning you to the terminal window,
45. Then type into the cli sudo apt-add-repository ppa:ansible/ansible, Press enter,
46. Then type into the cli sudo apt install ansible, Press enter,
47. Then type into the cli sudo nano /etc/ansible/hosts, Press enter,
48. Moving into the /etc/ansible/hosts folder, got to the following lines of code and make the following changes under the #[webservers] script; remove

    #alpha.example.rog
    #beta.example.rog
    #192/168.1.100
    #192.168.1.110

Include #192.168.191.147
Ansible01 ansible_hosts=Ansible01 ansible_user=l00155876

49. Then type into the cli sudo mkdir /etc/ansible/hosts_vars, Press enter,
50. Then type into the cli sudo nano /etc/ansible/host_vars/webservers, Press enter,
51. Moving into the /etc/ansible/host_vars/webservers folder, add the following script;
    (i) ansible_host: Ansible01
    (ii) ansible_port: 22
    (iii) ansible_user: l00155876
    (iv) ansible_host: McLeanClient
    (v) ansible_port: 22
    (vi) ansible_user: l00155876

52. Then accept the changes and write the file to the /etc/ansible/host_vars/webservers folder, returning you to the terminal window,
53. Then type into the cli sudo nano /etc/ansible/hosts, Press enter,
54. Moving into the /etc/ansible/hosts folder, got to the following lines of code and confirm their status remains the same under the #[webservers] script;
    #192.168.191.147
    Ansible01 ansible_hosts=Ansible01 ansible_user=l00155876
55. Then type into the cli sudo nano /etc/ansible/inventory, Press enter,
56. Moving into the /etc/ansible/inventory folder, add the following script
    (i) [Ansible]
    (ii) 192.168.191.147
57. Then accept the changes and write the file to the /etc/ansible/inventory folder, returning you to the terminal window,
58. Then type into the cli sudo nano /etc/ansible/inventory, Press enter,
59. Moving into the /etc/ansible/inventory folder, add the following script
    (iii) [Ansible]
    (iv) 192.168.191.147
    (v) [Ansible01:vars]
    (vi) Admin_group=sudo
60. Then accept the changes and write the file to the /etc/ansible/inventory folder, returning you to the terminal window,
61. From the cli type in the sudo init 6, to reboot the VM,

That concludes the initial build of the Host VM

In order to complete the build, we need to create the second VM

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Now we create the second VM from our gold image. This machine shall be referred to as **McLeanClient**,

1. Again, each VM logs in under the user L00155876, as a super admin with sudo privileges,
2. Open the VM (McLeanClient) and login using the default password Passw0rd1,
3. Open the terminal window.
4. From the cli, type in the following sudo apt-get Install open-vm-tools, press enter,
   This installs the tools need to carry out the install, of which one of the tools is the copy and paste command,
5. From the cli, type in the following hostnamectl set-hostname McLeanClient, press enter,
6. From the cli type in the sudo init 6, to reboot the vm,
7. Input the sudo password Passw0rd1
8. Open the terminal window,
9. From the cli, type in the following sudo apt-get Install open-vm-tools, press enter,
10. Then on the cli input the following command sudo apt-get install open-vm-tools-desktop, Press enter,
11. To determine what IP address McLeanClient has type in the command ifconfig,
12. From the output the inet address: is 192.168.191.148
13. Make a copy of the IP address,
14. From the cli, type sudo nano /etc/hosts, to reset the host file on this client VM, and you will have to do the same on the host VM aswell.
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15. Moving into the /etc/hosts folder, remove all the script that is there, and input the following
    127.0.0.1 McLeanClient
    127.0.1.1 McLeanClient
    192.168.191.148 McLeanClient
    192.168.191.147 Ansible01
16. Then accept the changes and write the file to the /etc/hosts folder, returning you to the terminal window,

One thing I should have done at the start was to turn of the lock, so that each machine did not automatically log out after a period of time.

17. Now back to the Host (Ansible01),
18. Open the terminal window,
19. From the cli, type in the following sudo nano /etc/hosts, press enter,
20. Moving into the /etc/hosts folder, add to the script that is already there, and input the following;
    127.0.0.1 Ansible01
    127.0.1.1 Ansible01
    192.168.191.147 Ansible01
    192.168.191.148 McLeanClient
21. Then accept the changes and write the file to the /etc/hosts folder, returning you to the terminal window,
22. Now back to the client server (McLeanClient),
23. From the cli, type in the following sudo nano /etc/hosts, press enter,
24. From the cli, type in the following sudo apt-get update, press enter,
25. From the cli, type in the following sudo apt-get install openssh-server, press enter,
26. From the cli, type in the following sudo systemctl restart ssh, press enter,
27. From the cli, type in the following sudo nano /etc/ssh/sshd_config, press enter,

28. Now back to the Host (Ansible01),
29. From the cli, type in the following ssh-copy-id -I ./.ssh/id_rsa.pub l00155876@McLeanClient, press enter,

30. Now back to the client server (McLeanClient),
31. Moving into the /etc/ssh/sshd_config folder, got to the following lines of code and make the following changes;
    (v) #AuthorizedkeysFile %h/.ssh/authorized_keys - remove the hash to the front, and again, the same text further down
    (vi) #AuthorizedkeysFile %h/.ssh/authorized_keys - remove the hash to the front, and again, the same text further down
    (vii) #PasswordAuthentication no - remove the hash to the front, and change the yes to no
    (viii) Then accept the changes and write the file to the /etc/ssh/sshd_config, returning you to the terminal window,
32. Then type into the cli sudo systemctl restart ssh, Press enter,
33. Then type into the sudo visudo, Press enter,
34. Moving into the /etc/sudoers,tmp folder, got to the following lines of code and make the following changes;

35.
36. following changes under the %sudo ALL=(ALL:ALL) ALL script;
    (ii) l00155876 ALL=(ALL:ALL) NOPASSWD:ALL

Then accept the changes and write the file to the /etc/ssh/sshd_config folder, returning you to the terminal window,

37. Now back to the Host (Ansible01),
38. Then type into the cli sudo nano /etc/ansible/hosts, Press enter,
    Then under #192.168.191.147
    Ansible01 ansible_hosts=Ansible01 ansible_user=l00155876
    Include #192.168.191.148
    Ansible01 ansible_hosts=McLeanClient ansible_user=l00155876
39. Then accept the changes and write the file to the /etc/ansible/hosts, returning you to the terminal window,
40. Then type into the cli sudo nano /etc/ansible/inventory, Press enter,
41. Moving into the /etc/ansible/inventory folder, add the following script below the black text;

[Ansible]
192.168.191.147
[Ansible01:vars]
Admin_group=sudo
[McLeanClient]
192.168.191.148

[McLeanClient:vars]
Admin_group=sudo

42. Then accept the changes and write the file to the /etc/ansible/inventory folder, returning you to the terminal window,
43. Then type into the cli sudo apt install python-pip, Press enter,
44. Then type into the cli pip install ansible-lint, Press enter,

With the entire pre-configuration now done for both the Ansible-01 & McLeanClient Servers we can now create a user.

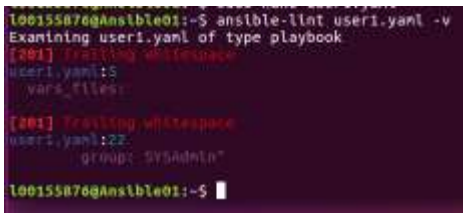
I am still in the Host (Ansible01),

45. Then type into the cli sudo nano /user1.yaml, Press enter,
46. Moving into the File: user1.yaml folder, and add the following script;

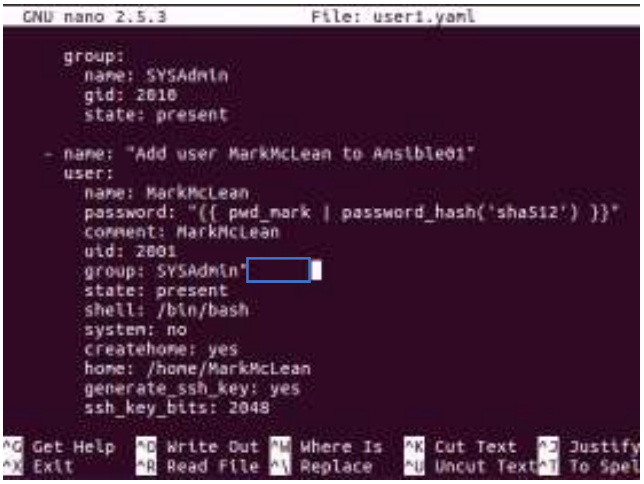
uid:2001
group: SYSAdmin'
state: Present
shell: /bin/bash
System: no
createhome: yes
home: /home/MarkMcLean
generate_ssh_keys: yes
ssh_key_bits: 2048
ssh_key_file: .ssh/id_rsa.pub

47. Then accept the changes and write the file to the File: user1.yaml folder, returning you to the terminal window,

48. Then type into the cli ansible-lint user1.yaml -v, Press enter,
49. With the Ansible script having been run some errors were found, (see screenshot below); the result identified what the error was [201] Trailing whitespace, and the line where the error was made, user1.yaml:5 and user1.yaml:22 from within the user1.yaml playbook.



50. Then type into the cli sudo nano /user1.yaml, Press enter,
51. Moving into the File: user1.yaml folder, amend the following script;
52. 

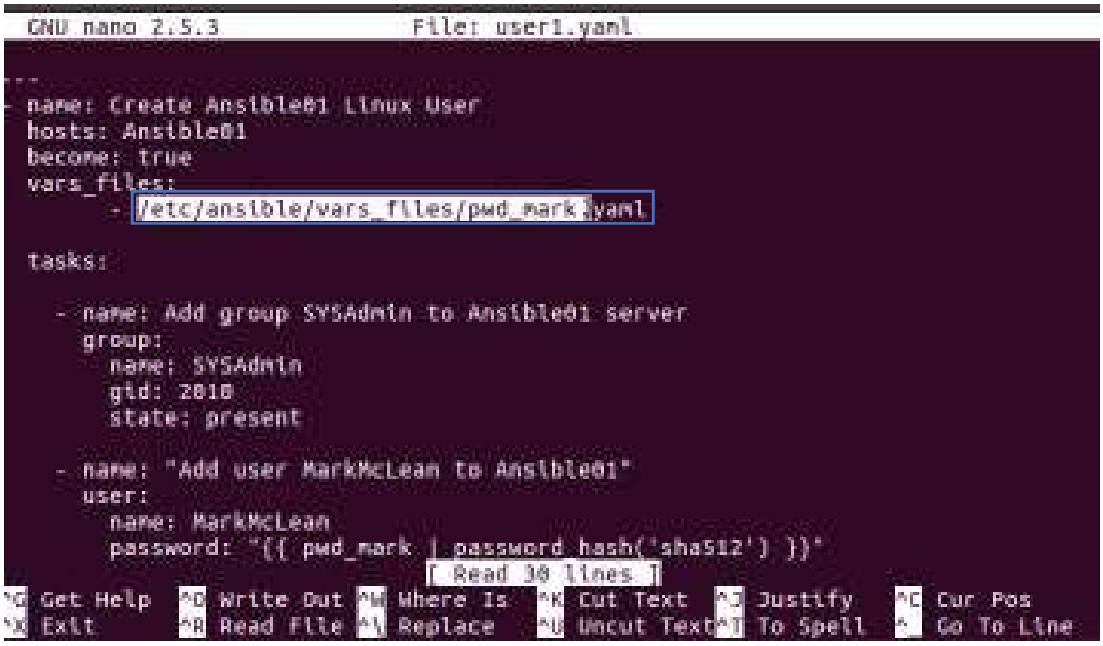
53. Then moving down to line 22 I can see more white spaces present
54. 

55. Then type into the cli ansible-lint user1.yaml -v, Press enter,
56. The command line returned is Examining user-1.yaml of type playbook
L00155876ansible01:-$

Check Mode (“Dry Run”)

57. Then type into the cli ansible-playbook user1-yaml --check, Press enter,

58. 

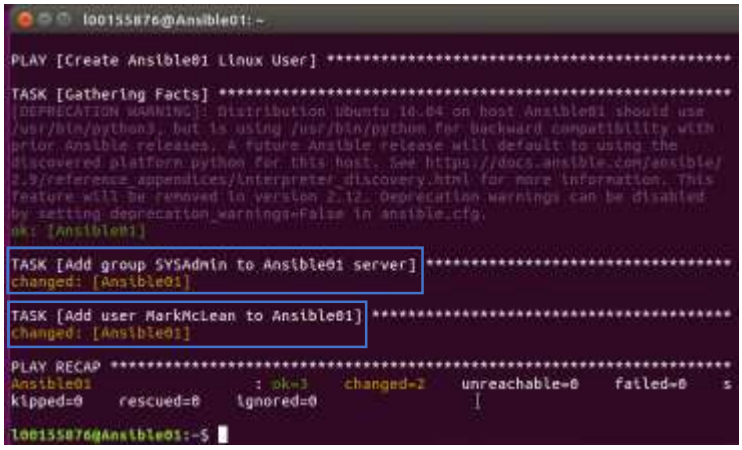
59. Having run check mode it found that /etc/ansible/vars_files/pwd_mark.yaml was not yet created.
60. Then type into the cli sudo nano /user1.yaml, Press enter,
61. 

62. Then accept the changes and write the file to the /etc/ansible/inventory folder, returning you to the terminal window,
63. Then type into the cli sudo mkdir /etc/ansible/vars_files/, Press enter,
64. This folder has now been created
65. Then type into the cli sudo mkdir /etc/ansible/vars_files/pwd_mark, Press enter,
66. Then type into the cli sudo nano pwd_mark.yaml Press enter,
67. 

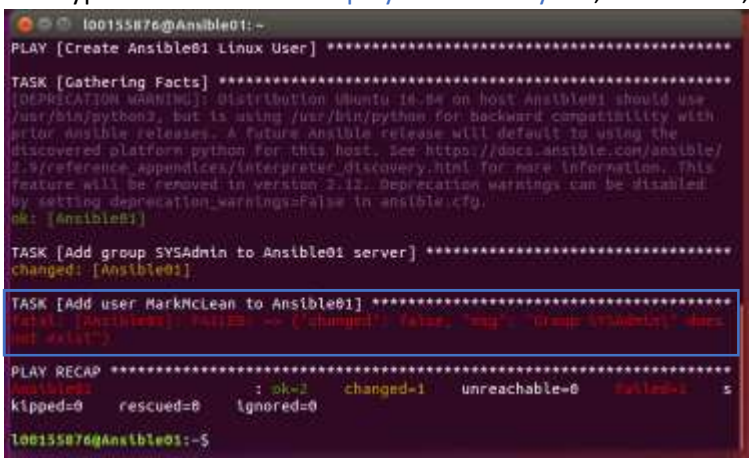
68. Then accept the changes and write the file to the /etc/ansible/inventory folder, returning you to the terminal window,
69. Then type into the cli cd home/l00155876, Press enter,
70. You have been returned to the home directory of l00155876

Now to check that the Playbook runs, again a dry run;

71. Then type into the cli ansible-playbook user1.yaml --check, Press enter,

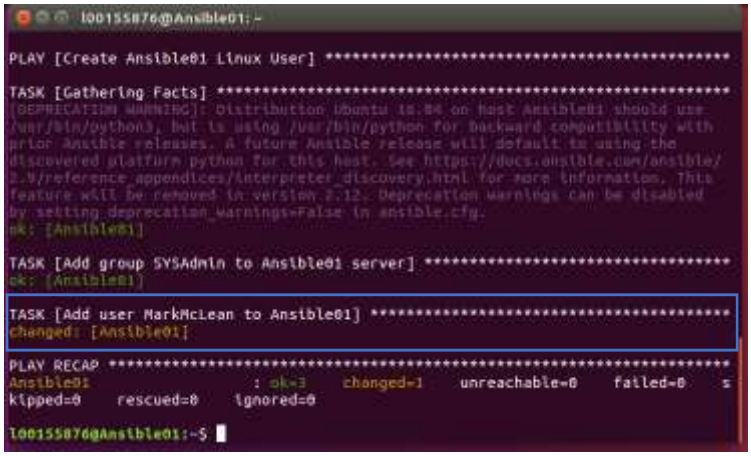
72. 

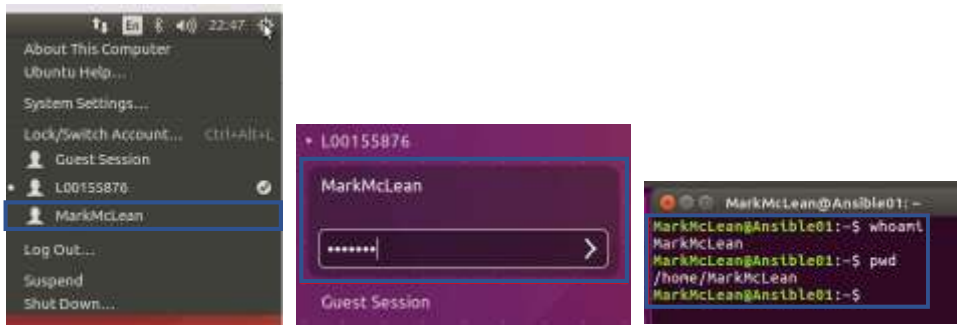
Now to run the playbook for real;

73. Then type into the cli ansible-playbook user1.yaml, Press enter,
74. 

75. Then type into the cli Sudo nano user1.yaml, Press enter,
76. 

77. So, running the command again, type into the cli ansible-playbook user1.yaml, Press enter,

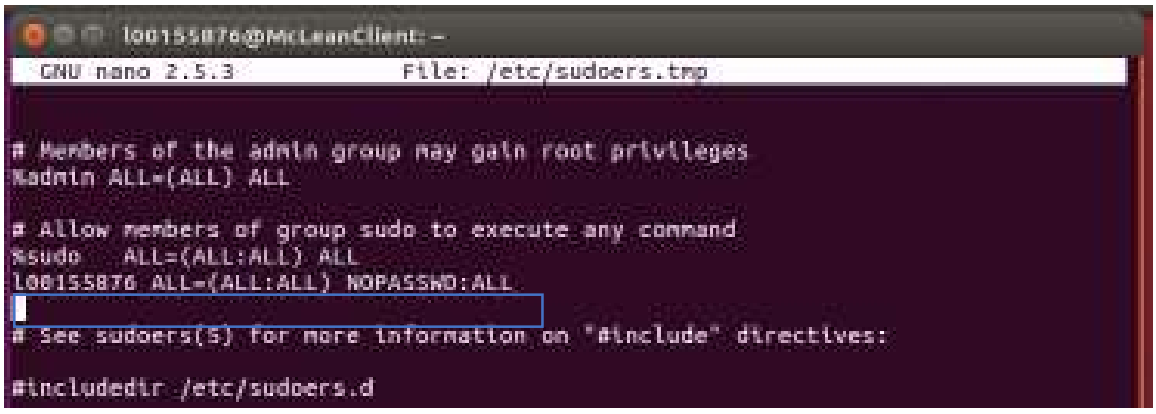
78. 

79. 

80. So, for now the user MarkMcLean only exists on this host machine.

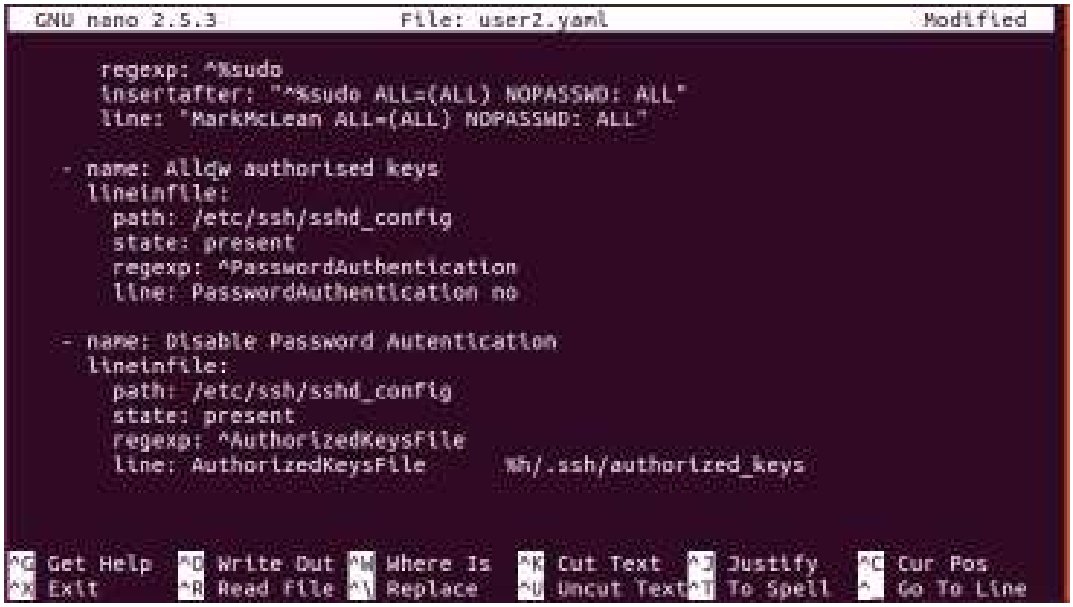
So, the user MarkMcLean now only exists on this machine the host machine, so the next step would be to create the user on the second machine the McLeanClient client machine

81. Now back to the client server (McLeanClient),
82. A check to confirm you don't exist would be to go the McLean Client client machine
83. Then type into the cli Sudo nano /etc/sudoers.tmp, Press enter,

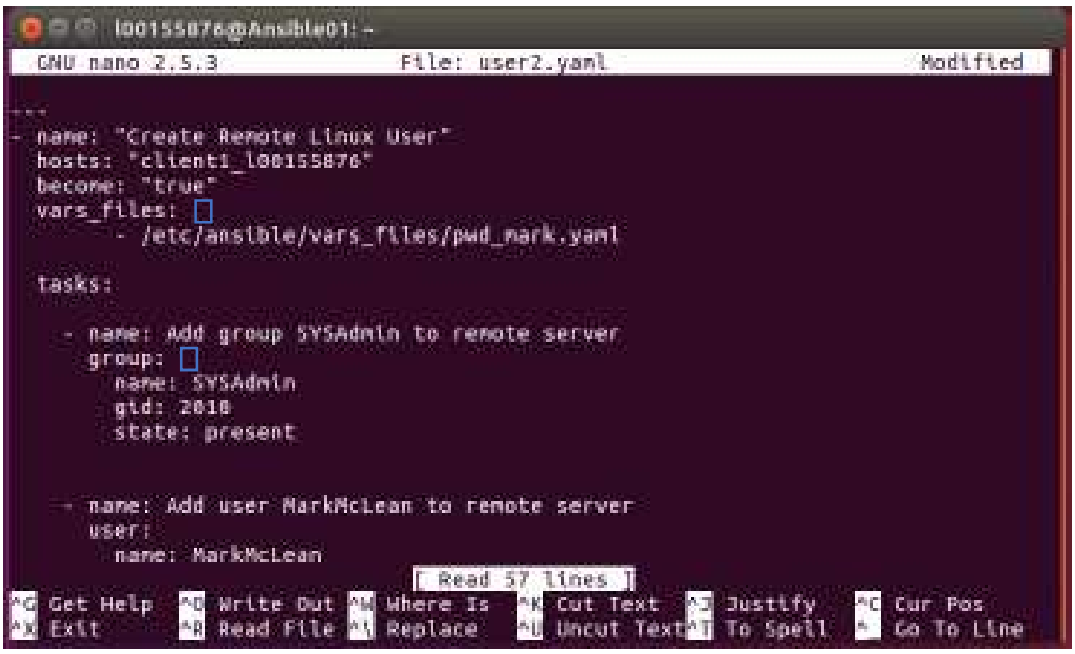


So, making sure to be logged in as the Host (Ansible01), and as the Super user L00155876

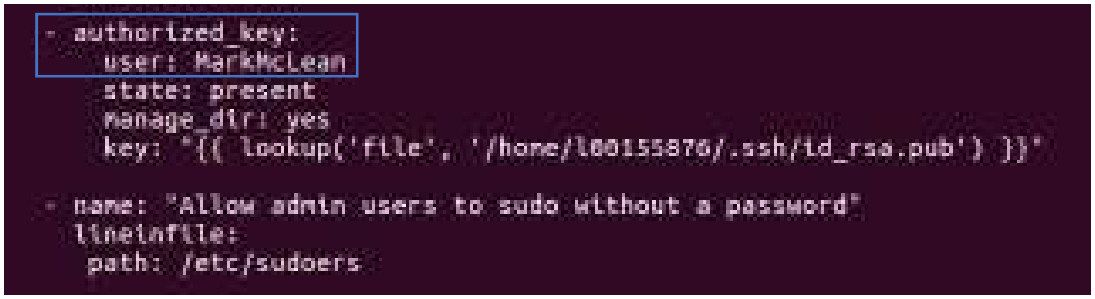
84. Create the second user on the client machine with the following commands
85. Then type into the cli Sudo nano user2.yaml, Press enter,

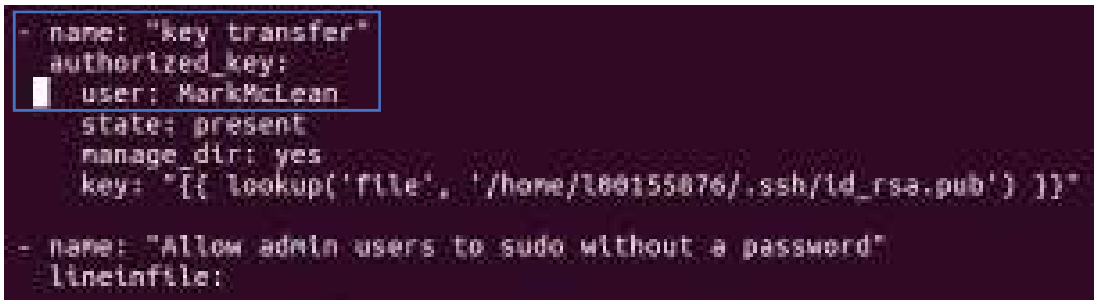
86. 

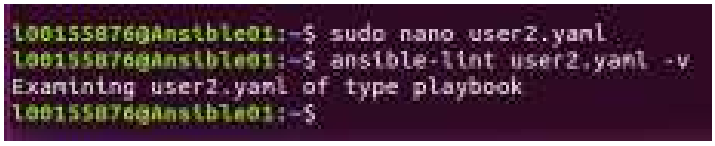
87. Then accept the changes and write the file to the user2.yaml, returning you to the terminal window,
88. Then type into the cli ansible-lint user2.yaml -v, Press enter,
89. 

90. 

91. Then type into the cli ansible-lint user2.yaml -v, Press enter,
92. 

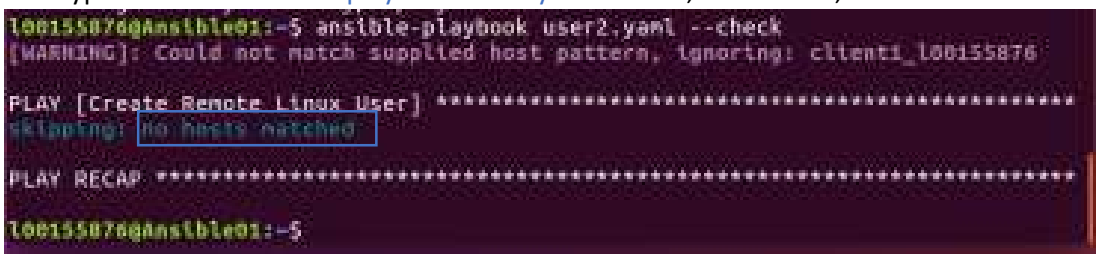
93. 

94. 

95. Then accept the changes and write the file to the user2.yaml, returning you to the terminal window,
96. Then type into the cli ansible-lint user2.yaml -v, Press enter,
97. 

98. Another check needs to be carried out using the command

Check Mode (“Dry Run”)

99. Then type into the cli ansible-playbook user2.yaml --check, Press enter,
100. 

101. So, by returning to sudo nano user2.yaml

102.
```
  GNU nano 2.5.3                File: user2.yaml

---
- name: "Create Remote Linux User"
  hosts: 'client1 l00155876'
  become: "true"
  vars_files:
        - /etc/ansible/vars_files/pwd_mark.yaml
```

103. We can see that we did not change the name of the host on the second machine

104.
```
  GNU nano 2.5.3                File: user2.yaml                Modified

---
- name: "Create Remote Linux User"
  hosts: "McLeanClient"
  become: "true"
  vars_files:
        - /etc/ansible/vars_files/pwd_mark.yaml
```

105. Then accept the changes and write the file to the user2.yaml, returning you to the terminal window,
106. Now we need to run the playbook to

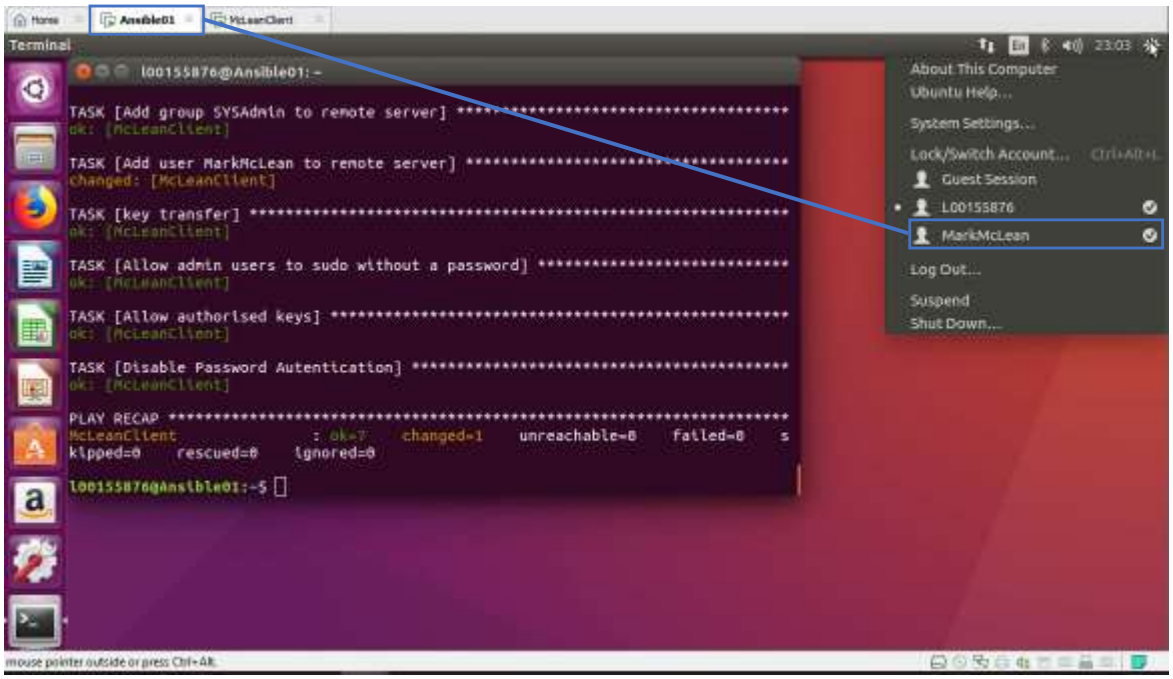
107.
```
l00155876@Ansible01:~$ ansible-playbook user2.yaml
```

108.
```
l00155876@Ansible01: ~

TASK [Add group SYSAdmin to remote server] ********************************
changed: [McLeanClient]

TASK [Add user MarkMcLean to remote server] *******************************
changed: [McLeanClient]

TASK [key transfer] *******************************************************
changed: [McLeanClient]

TASK [Allow admin users to sudo without a password] ***********************
changed: [McLeanClient]

TASK [Allow authorised keys] **********************************************
ok: [McLeanClient]

TASK [Disable Password Autentication] *************************************
changed: [McLeanClient]

PLAY RECAP ****************************************************************
McLeanClient               : ok=7    changed=5    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0

l00155876@Ansible01:~$ ansible-playbook user2.yaml
```

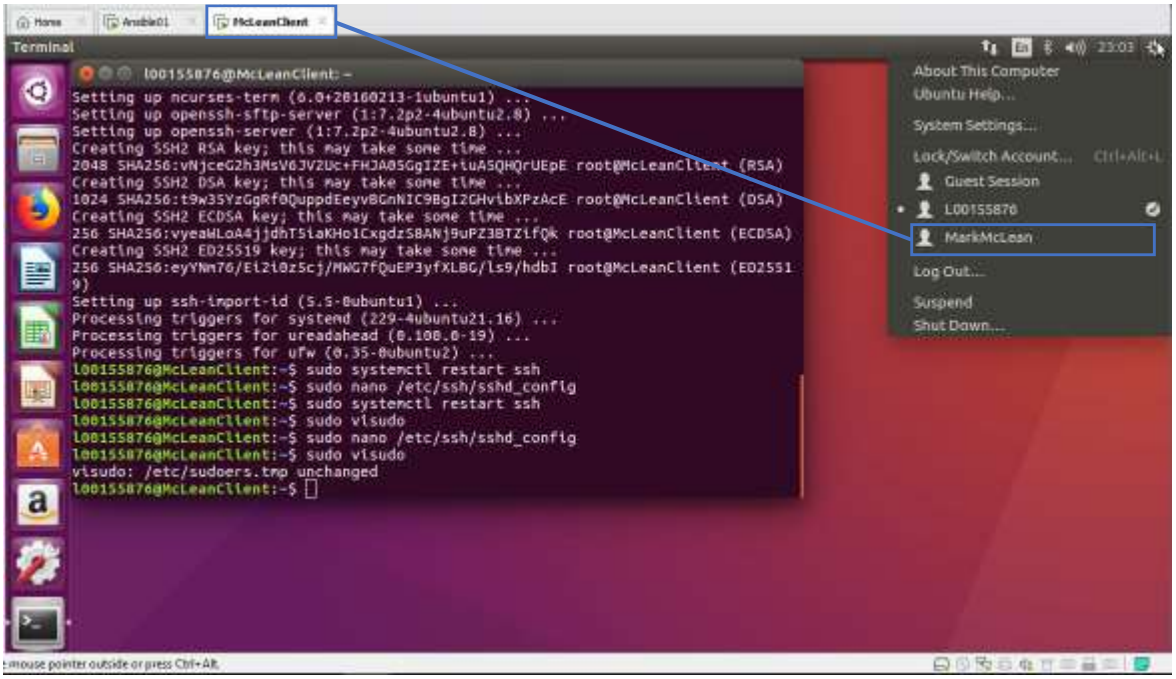
109. Then type into the cli ansible-playbook user2.yaml --check, Press enter,

110.
```
l00155876@Ansible01: ~

TASK [Add group SYSAdmin to remote server] ********************************
ok: [McLeanClient]

TASK [Add user MarkMcLean to remote server] *******************************
changed: [McLeanClient]

TASK [key transfer] *******************************************************
ok: [McLeanClient]

TASK [Allow admin users to sudo without a password] ***********************
ok: [McLeanClient]

TASK [Allow authorised keys] **********************************************
ok: [McLeanClient]

TASK [Disable Password Autentication] *************************************
ok: [McLeanClient]

PLAY RECAP ****************************************************************
McLeanClient               : ok=7    changed=1    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0

l00155876@Ansible01:~$
```

111. Screenshot taken of Ansible01 VM and new user.

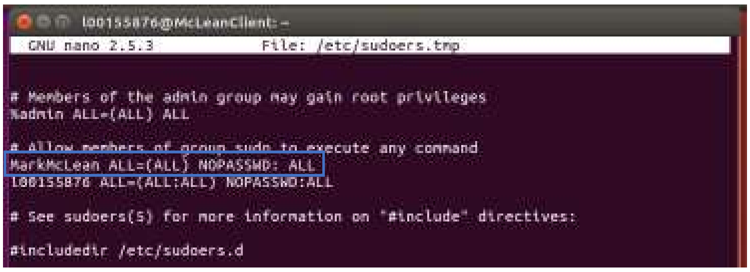


112. Screenshot taken of McCleanClient VM and new user.




```
- name: Allow authorised keys
  lineinfile:
    path: /etc/ssh/sshd_config
    state: present
    regexp: ^PasswordAuthentication
    line: PasswordAuthentication no

- name: Disable Password Autentication
  lineinfile:
    path: /etc/ssh/sshd_config
    state: present
    regexp: ^AuthorizedKeysFile
    line: AuthorizedKeysFile      %h/.ssh/authorized_keys
```

113. New Admin user MarkMcLean shown added to McLeanClient



Final period/duration of build equated to 1hr and fifteen minutes

>>

End……