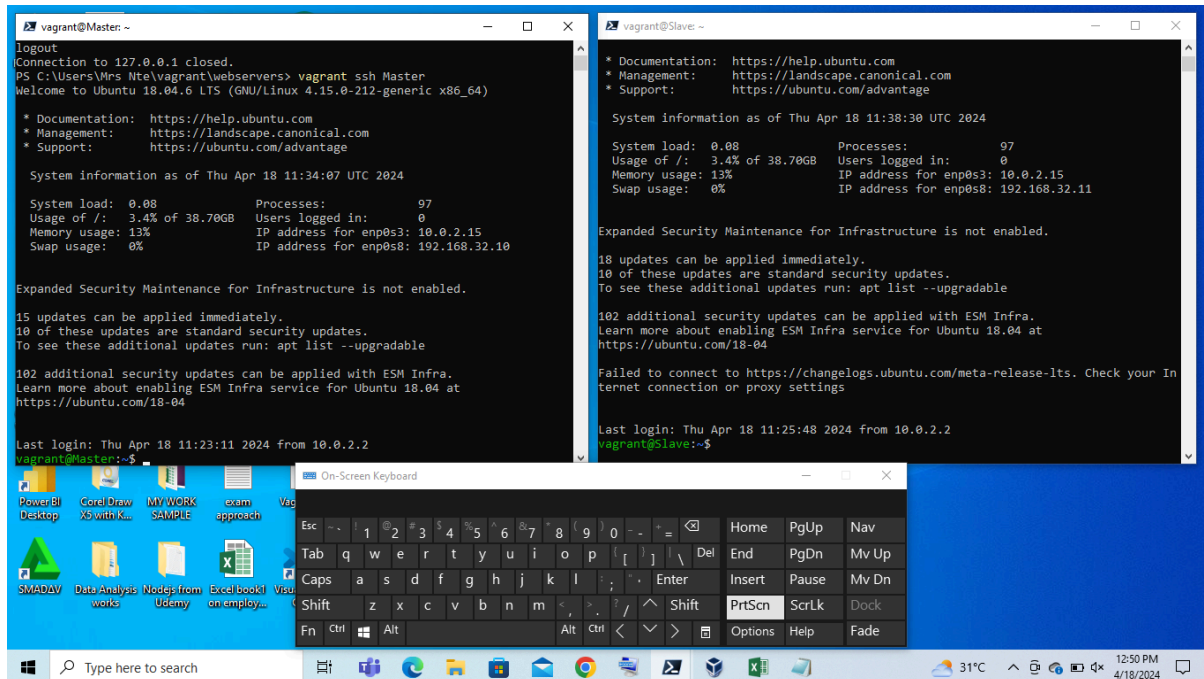


1. Successful login in to both Master node and Slave node



The screenshot displays two terminal windows side-by-side. The left window, titled 'vagrant@Master: ~', shows a successful SSH login to a Master node. It displays system information for Ubuntu 18.04.6 LTS, including system load, memory usage, and IP addresses. The right window, titled 'vagrant@Slave: ~', shows a successful SSH login to a Slave node. It displays system information for Ubuntu 18.04, including system load, memory usage, and IP addresses. Below the terminal windows, a Windows desktop is visible with an on-screen keyboard overlay. The taskbar shows the time as 12:50 PM on 4/18/2024.

```
vagrant@Master: ~
logout
Connection to 127.0.0.1 closed.
PS C:\Users\Mrs Nte\vagrant\webservers> vagrant ssh Master
Welcome to Ubuntu 18.04.6 LTS (GNU/Linux 4.15.0-212-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Thu Apr 18 11:34:07 UTC 2024

System load:  0.08               Processes:    97
Usage of /:   3.4% of 38.7GB     Users logged in: 0
Memory usage: 13%               IP address for enp0s3: 10.0.2.15
Swap usage:   0%                IP address for enp0s8: 192.168.32.10

Expanded Security Maintenance for Infrastructure is not enabled.

15 updates can be applied immediately.
10 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

102 additional security updates can be applied with ESM Infra.
Learn more about enabling ESM Infra service for Ubuntu 18.04 at
https://ubuntu.com/18-04

Last login: Thu Apr 18 11:23:11 2024 from 10.0.2.2
vagrant@Master:~$
```

```
vagrant@Slave: ~
 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Thu Apr 18 11:38:30 UTC 2024

System load:  0.08               Processes:    97
Usage of /:   3.4% of 38.7GB     Users logged in: 0
Memory usage: 13%               IP address for enp0s3: 10.0.2.15
Swap usage:   0%                IP address for enp0s8: 192.168.32.11

Expanded Security Maintenance for Infrastructure is not enabled.

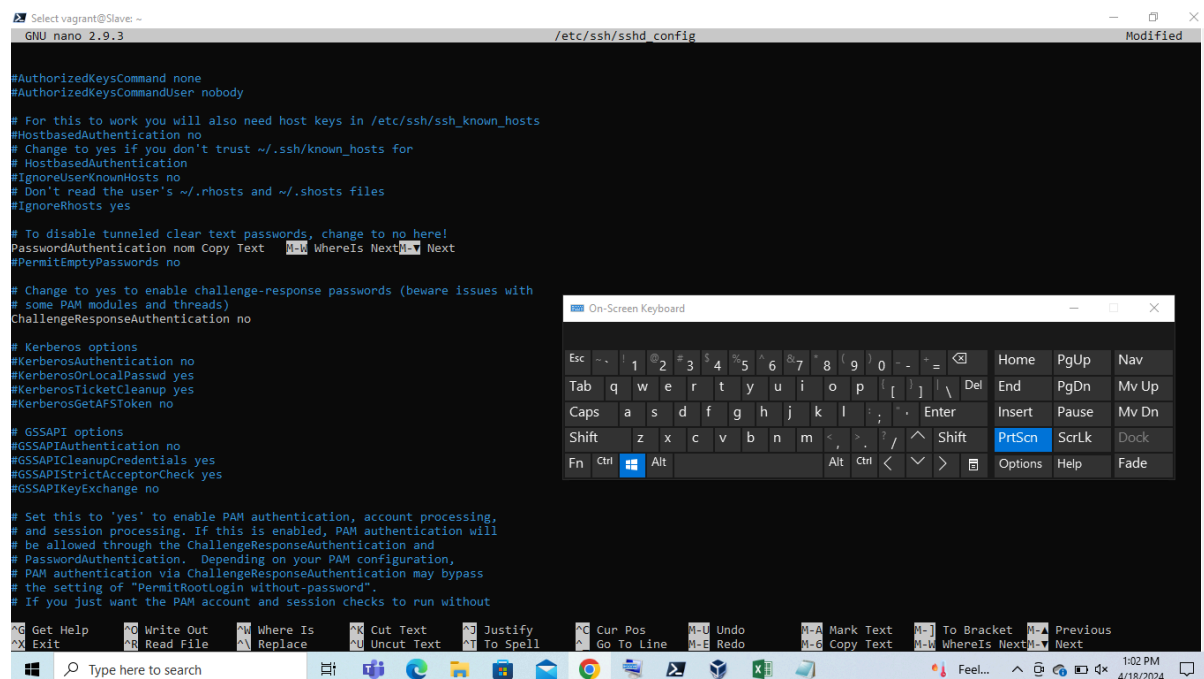
18 updates can be applied immediately.
10 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

102 additional security updates can be applied with ESM Infra.
Learn more about enabling ESM Infra service for Ubuntu 18.04 at
https://ubuntu.com/18-04

Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings

Last login: Thu Apr 18 11:25:48 2024 from 10.0.2.2
vagrant@Slave:~$
```

2. Configure ssh for both master slave using ssh-keygen by setting password Authentication



The screenshot shows the /etc/ssh/sshd_config file being edited in nano. The configuration includes settings for host keys, authentication methods, and password authentication. An on-screen keyboard is visible over the terminal, with the 'PrtScn' key highlighted. The taskbar shows the time as 1:02 PM on 4/18/2024.

```
GNU nano 2.9.3 /etc/ssh/sshd_config Modified

#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody

# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts
#HostbasedAuthentication no
# Change to yes if you don't trust ~/.ssh/known_hosts for
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes

# To disable tunneled clear text passwords, change to no here!
PasswordAuthentication no Copy Text WhereIs Next Next
#PermitEmptyPasswords no

# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
ChallengeResponseAuthentication no

# Kerberos options
#KerberosAuthentication no
#KerberosOrLocalPasswd yes
#KerberosTicketCleanup yes
#KerberosGetAFSToken no

# GSSAPI options
#GSSAPIAuthentication no
#GSSAPICleanupCredentials yes
#GSSAPIStrictAccepterCheck yes
#GSSAPIKeyExchange no

# Set this to 'yes' to enable PAM authentication, account processing,
# and session processing. If this is enabled, PAM authentication will
# be allowed through the ChallengeResponseAuthentication and
# PasswordAuthentication. Depending on your PAM configuration,
# PAM authentication via ChallengeResponseAuthentication may bypass
# the setting of "PermitRootLogin without-password".
# If you just want the PAM account and session checks to run without
```

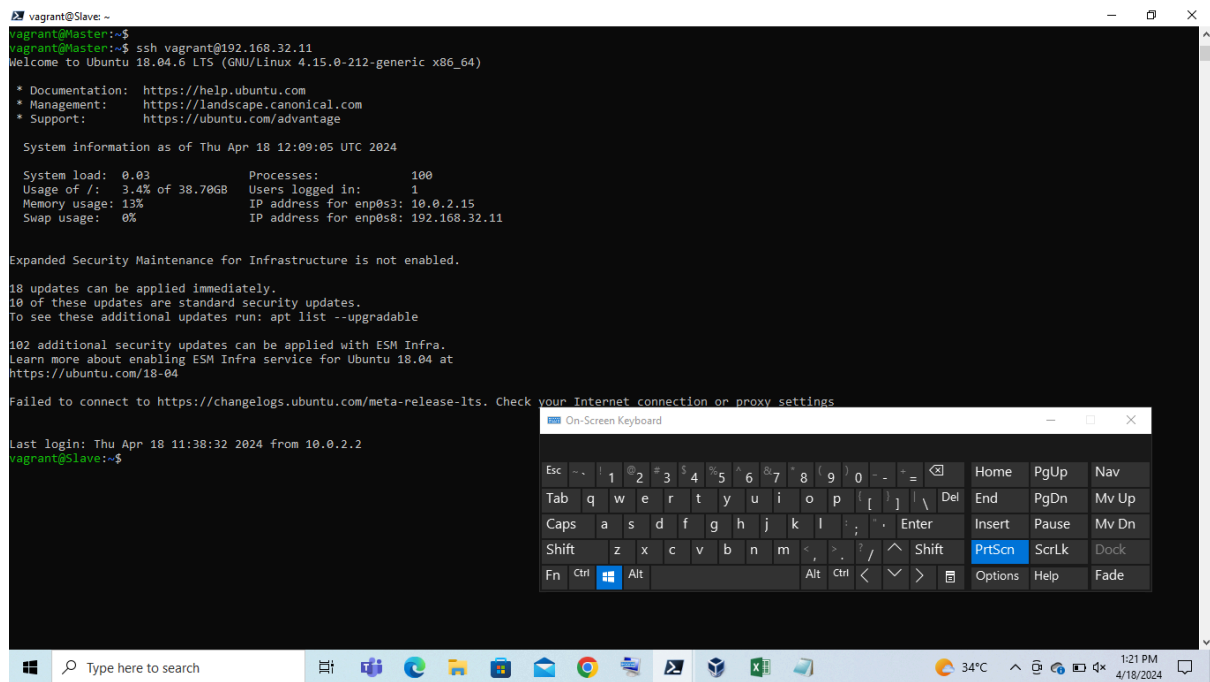
3. Disabling and Enabling Password Authentication

```
vagrant@Slave:~  
System information as of Thu Apr 18 11:38:30 UTC 2024  
System load: 0.08      Processes:      97  
Usage of /: 3.4% of 38.7GB Users logged in: 0  
Memory usage: 13%     IP address for enp0s3: 10.0.2.15  
Swap usage: 0%        IP address for enp0s8: 192.168.32.11  
  
Expanded Security Maintenance for Infrastructure is not enabled.  
18 updates can be applied immediately.  
10 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
102 additional security updates can be applied with ESM Infra.  
Learn more about enabling ESM Infra service for Ubuntu 18.04 at  
https://ubuntu.com/18-04  
  
Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your Internet connection or proxy settings  
  
Last login: Thu Apr 18 11:25:48 2024 from 10.0.2.2  
vagrant@Slave:~$  
vagrant@Slave:~$ sudo nano /etc/ssh/sshd_config  
vagrant@Slave:~$ vagrant@Slave:~$  
vagrant@Slave:~$ sudo systemctl restart sshd  
vagrant@Slave:~$ sudo nano /etc/ssh/sshd_config  
vagrant@Slave:~$ vagrant@Slave:~$ sudo systemctl restart sshd/sshd/sshd_config  
vagrant@Slave:~$
```

4. Generating ssh-key from master to connect and copy to slave successfully

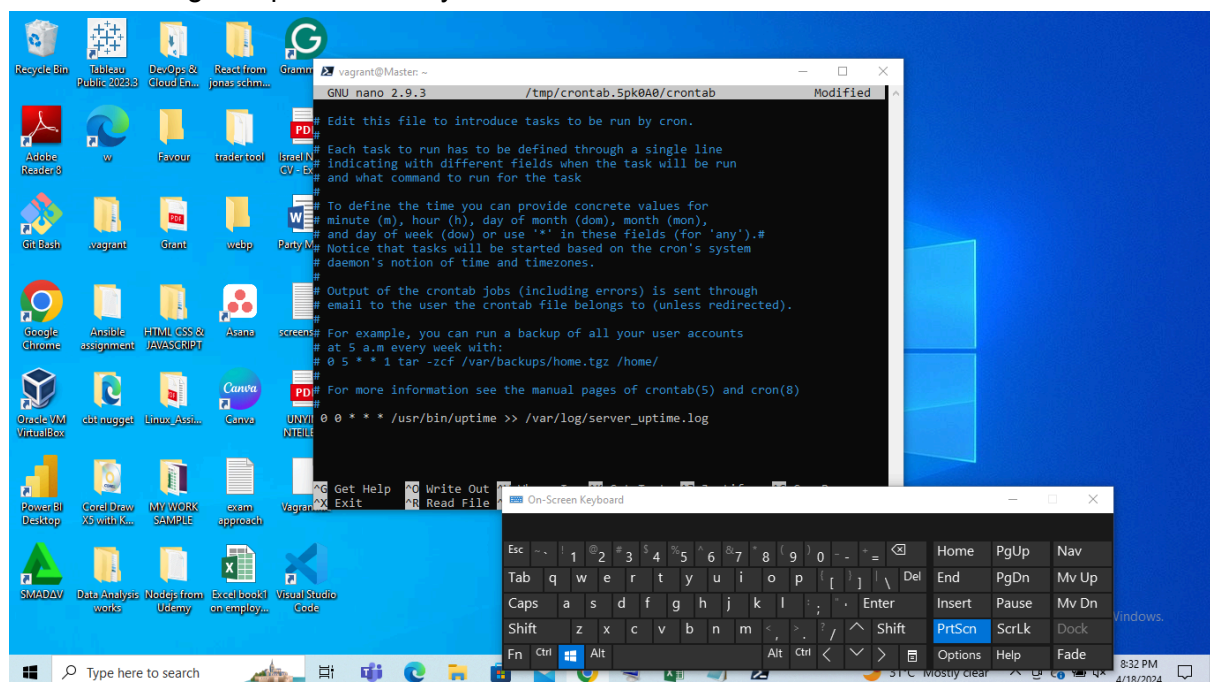
```
vagrant@Master:~  
SHA256:d2R7iScNLeah2f0gPHnQtQwN7iAk37inyskwJ709Y4 vagrant@Master  
The key's randomart image is:  
+-----[RSA 2048]-----+  
|  
| o .o  
| + .*.+.|  
| o .*.+*oo|  
| = Soo%.Xo|  
| . +.+O O +|  
| o . B . .|  
| ..E.+|  
| ..+|  
+-----[SHA256]-----+  
vagrant@Master:~$ ssh-copy-id -i vagrant@192.168.32.11  
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/vagrant/.ssh/id_rsa.pub"  
The authenticity of host '192.168.32.11 (192.168.32.11)' can't be established.  
ECDSA key fingerprint is SHA256:aD8ReKX0SP8wZ86gXo22YbKp6bPHTSKXy2CteUC1bu.  
Are you sure you want to continue connecting (yes/no)? yes  
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed  
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys  
vagrant@192.168.32.11's password:  
Permission denied, please try again.  
vagrant@192.168.32.11's password:  
Number of key(s) added: 1  
  
Now try logging into the machine, with: "ssh 'vagrant@192.168.32.11'"  
and check to make sure that only the key(s) you wanted were added.  
vagrant@Master:~$
```

5. Successful login into Slave node from Master node using ssh vagrant@192.168.32.11

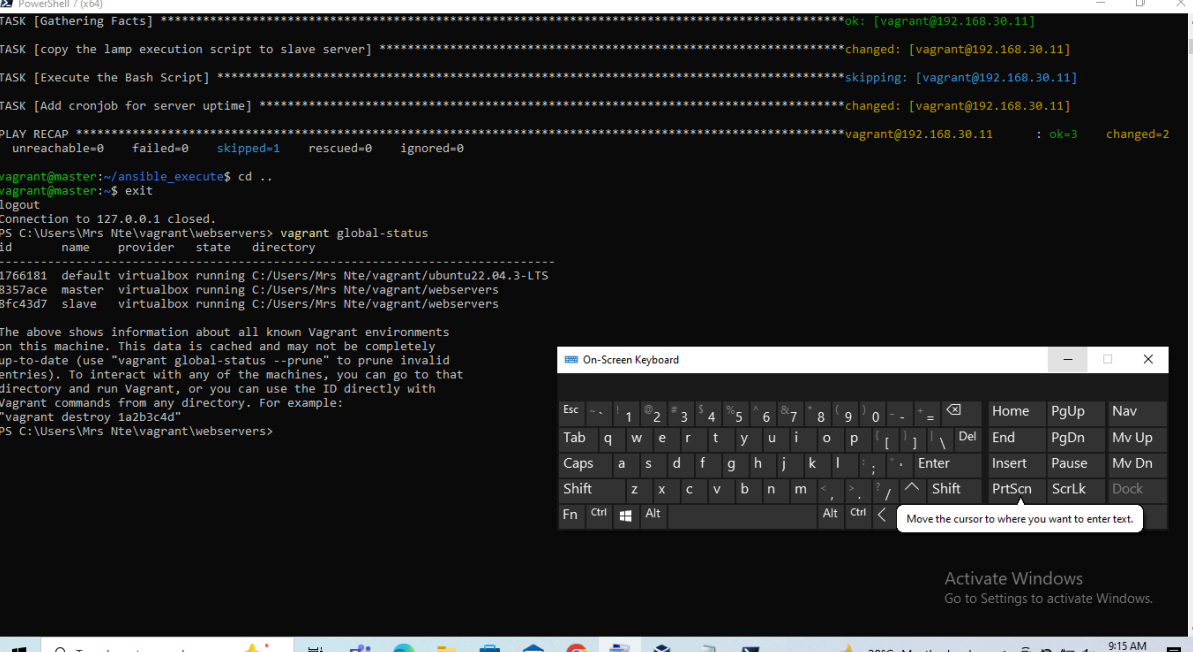


6. Checking Ansible status on both Nodes if it is installed Ansible --version

Crontab setting for uptime at every 12am



7. Checking if the ansible playbook will have any error

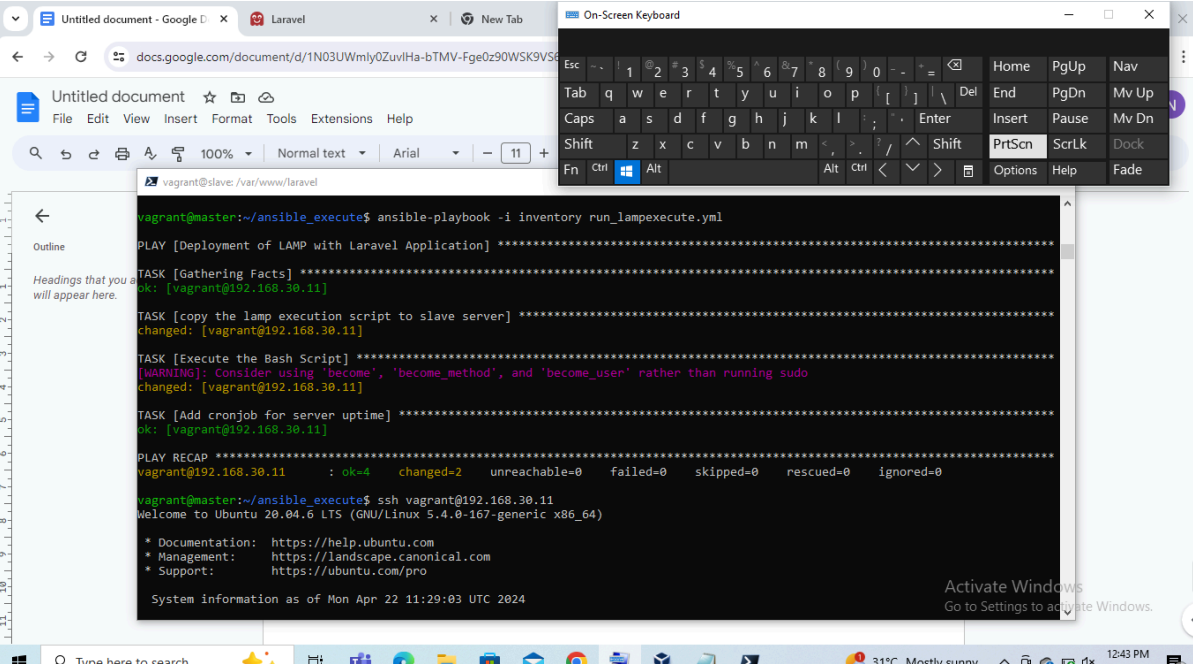


```
PowerShell 7 (x64)
TASK [Gathering Facts] *****ok: [vagrant@192.168.30.11]
TASK [copy the lamp execution script to slave server] *****changed: [vagrant@192.168.30.11]
TASK [Execute the Bash Script] *****skipping: [vagrant@192.168.30.11]
TASK [Add cronjob for server uptime] *****changed: [vagrant@192.168.30.11]
PLAY RECAP *****vagrant@192.168.30.11 : ok=3  changed=2
unreachable=0  failed=0  skipped=1  rescued=0  ignored=0

vagrant@master:~/ansible_execute$ cd ..
vagrant@master:~$ exit
logout
Connection to 127.0.0.1 closed.
PS C:\Users\Mrs Nte\ansible\webservers> vagrant global-status
id      name      provider  state  directory
-----
1766181 default  virtualbox running C:/Users/Mrs Nte/vagrant/ubuntu22.04.3-LTS
8357ace master   virtualbox running C:/Users/Mrs Nte/vagrant/webrowsers
8fc43d7 slave    virtualbox running C:/Users/Mrs Nte/vagrant/webrowsers

The above shows information about all known Vagrant environments
on this machine. This data is cached and may not be completely
up-to-date (use "vagrant global-status --prune" to prune invalid
entries). To interact with any of the machines, you can go to that
directory and run Vagrant, or you can use the ID directly with
Vagrant commands from any directory. For example:
"vagrant destroy 1a2b3c4d"
PS C:\Users\Mrs Nte\ansible\webservers>
```

8. Running the Ansible playbook



```
Untitled document - Google Docs
docs.google.com/document/d/1N03UWmly0ZuVlHa-bTMV-Fge0z90WSK9V56...

vagrant@slave: /var/www/laravel

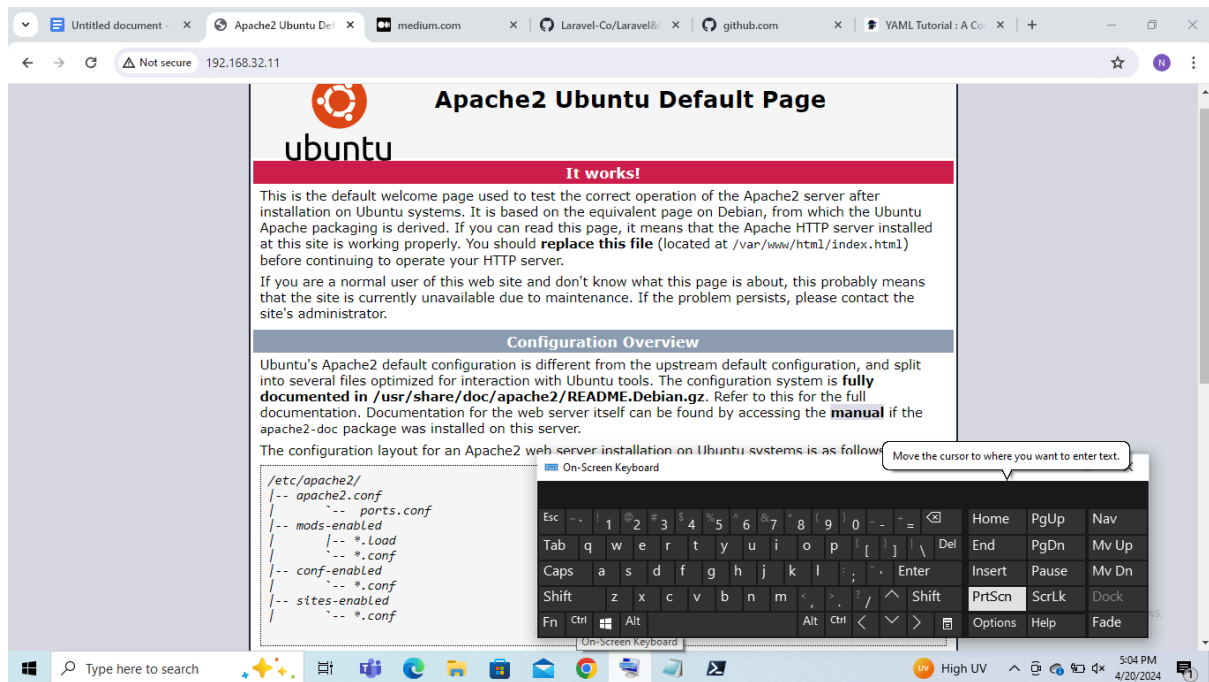
vagrant@master:~/ansible_execute$ ansible-playbook -i inventory run_lampexecute.yml
PLAY [Deployment of LAMP with Laravel Application] *****
TASK [Gathering Facts] *****ok: [vagrant@192.168.30.11]
TASK [copy the lamp execution script to slave server] *****changed: [vagrant@192.168.30.11]
TASK [Execute the Bash Script] *****[WARNING]: Consider using 'become', 'become_method', and 'become_user' rather than running sudo
changed: [vagrant@192.168.30.11]
TASK [Add cronjob for server uptime] *****ok: [vagrant@192.168.30.11]
PLAY RECAP *****vagrant@192.168.30.11 : ok=4  changed=2  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

vagrant@master:~/ansible_execute$ ssh vagrant@192.168.30.11
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.4.0-167-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Mon Apr 22 11:29:03 UTC 2024
```

9. The Apache screen



10. The laravel screen

