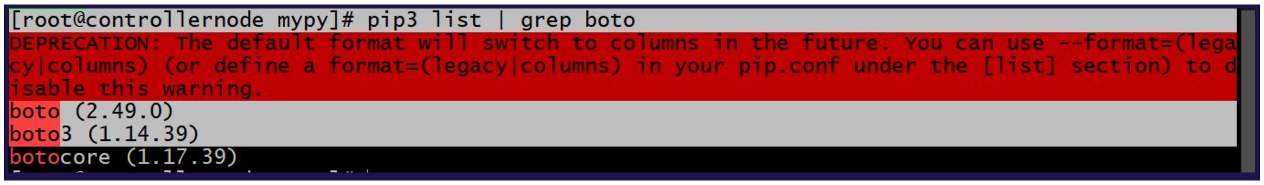
TASK 3:
Task Description 👨🏻‍💻

🔹 Launch an AWS instance with the help of ansible.
🔹 Retrieve the public IP which is allocated to the launched instance.
🔹 With the help of the retrieved Public IP configure the web server in the launched instance.

HOW TO CONNECT AWS TO ANSIBLE?

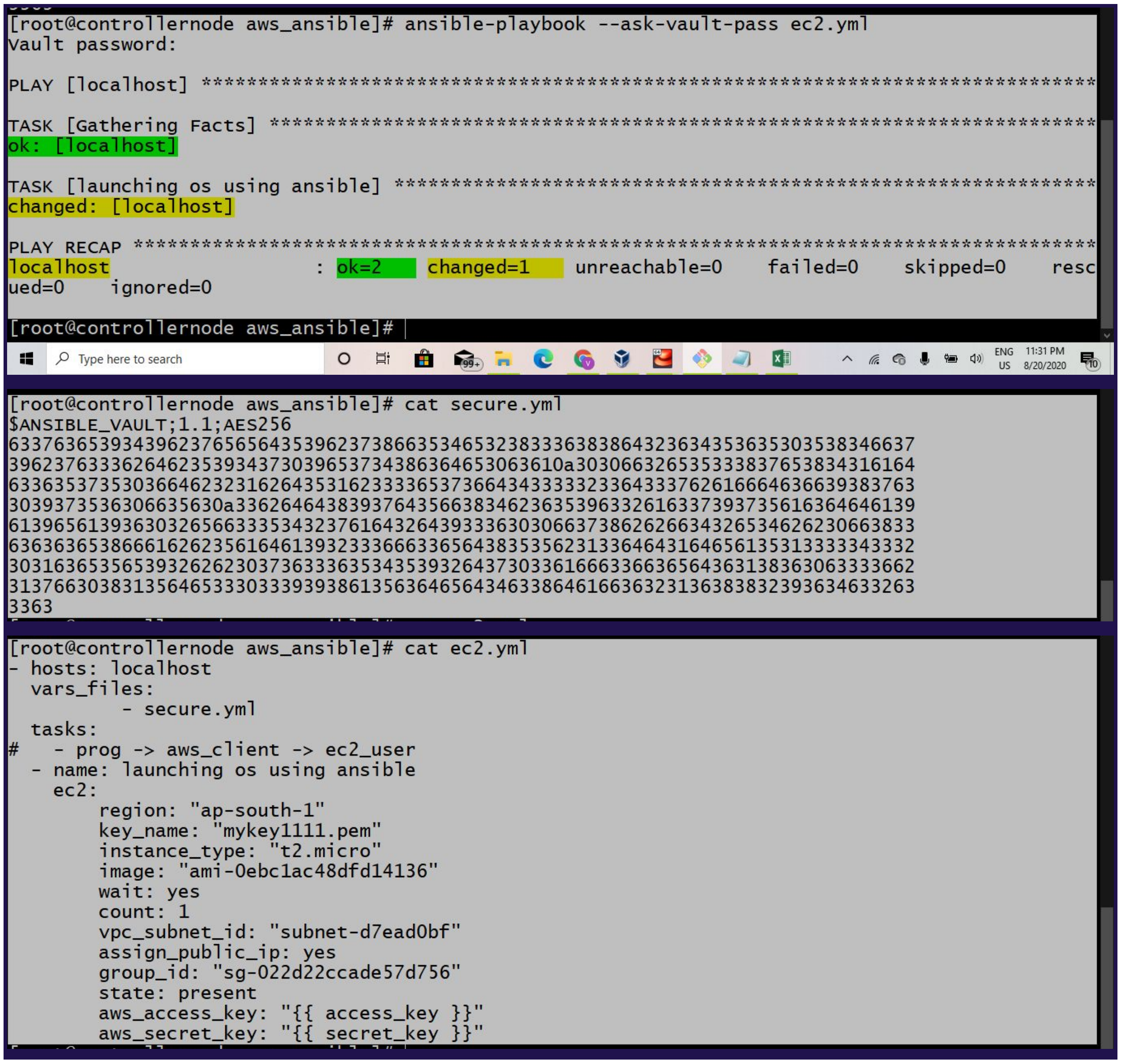
Step 1: Prerequisites

- To install boto3 module
- Setting up the dynamic inventory using python code
- chmod +x filename.yml



```
[root@controllernode mypy]# pip3 list | grep boto
DEPRECATION: The default format will switch to columns in the future. You can use --format=(lega
cy|columns) (or define a format=(legacy|columns) in your pip.conf under the [list] section) to d
isable this warning.
boto (2.49.0)
boto3 (1.14.39)
botocore (1.17.39)
```

Step 2: Launching an AWS Instance using ansible

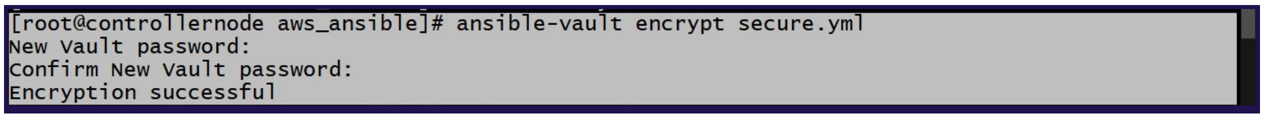


```
[root@controllernode aws_ansible]# ansible-playbook --ask-vault-pass ec2.yml
Vault password:

PLAY [localhost] ************************************************************************

TASK [Gathering Facts] ******************************************************************
ok: [localhost]

TASK [launching os using ansible] *******************************************************
changed: [localhost]

PLAY RECAP ******************************************************************************
localhost                  : ok=2    changed=1    unreachable=0    failed=0    skipped=0    resc
ued=0    ignored=0

[root@controllernode aws_ansible]# |
```

```
[root@controllernode aws_ansible]# cat secure.yml
$ANSIBLE_VAULT;1.1;AES256
63376365393439623765656435396237386635346532383336383864323634353635303538346637
3962376333626462353934373039653734386364653063610a303066326535333837653834316164
63363537353036646232316264353162333365373664343333323364333762616664636639383763
3039373536306635630a336264643839376435663834623635396332616337393735616364646139
61396561393630326566333534323761643264393336303066373862626634326534626230663833
63636365386661626235616461393233366633656438353562313364643164656135313333343332
30316365356539326262303736333635343539326437303361666336636564363138363063333662
31376630383135646533303339393861356364656434633864616636323136383832393634633263
3363
```

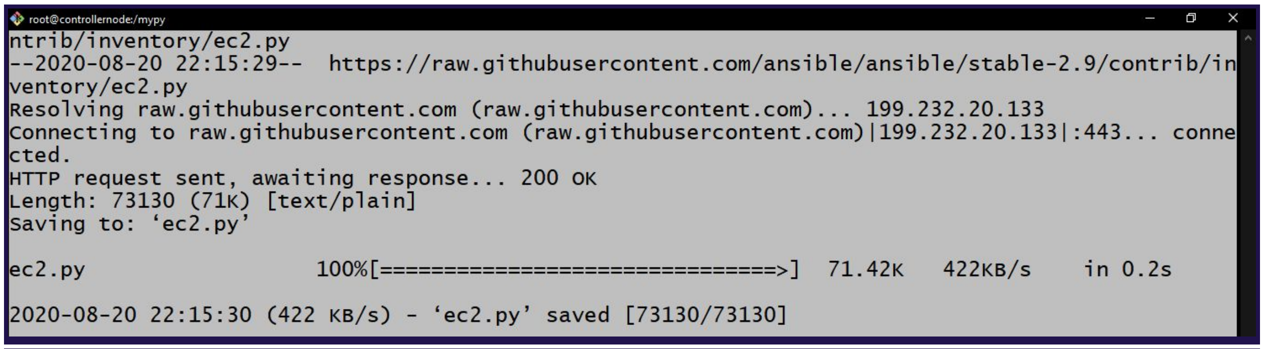
```
[root@controllernode aws_ansible]# cat ec2.yml
- hosts: localhost
  vars_files:
          - secure.yml
  tasks:
#   - prog -> aws_client -> ec2_user
  - name: launching os using ansible
    ec2:
        region: "ap-south-1"
        key_name: "mykey1111.pem"
        instance_type: "t2.micro"
        image: "ami-0ebc1ac48dfd14136"
        wait: yes
        count: 1
        vpc_subnet_id: "subnet-d7ead0bf"
        assign_public_ip: yes
        group_id: "sg-022d22ccade57d756"
        state: present
        aws_access_key: "{{ access_key }}"
        aws_secret_key: "{{ secret_key }}"
```

- **Creating an ec2.yml file**
- **Storing access_key and secret_key in a separate vault file**
- **Using ansible-playbook --ask-vault-pass ec2.yml**

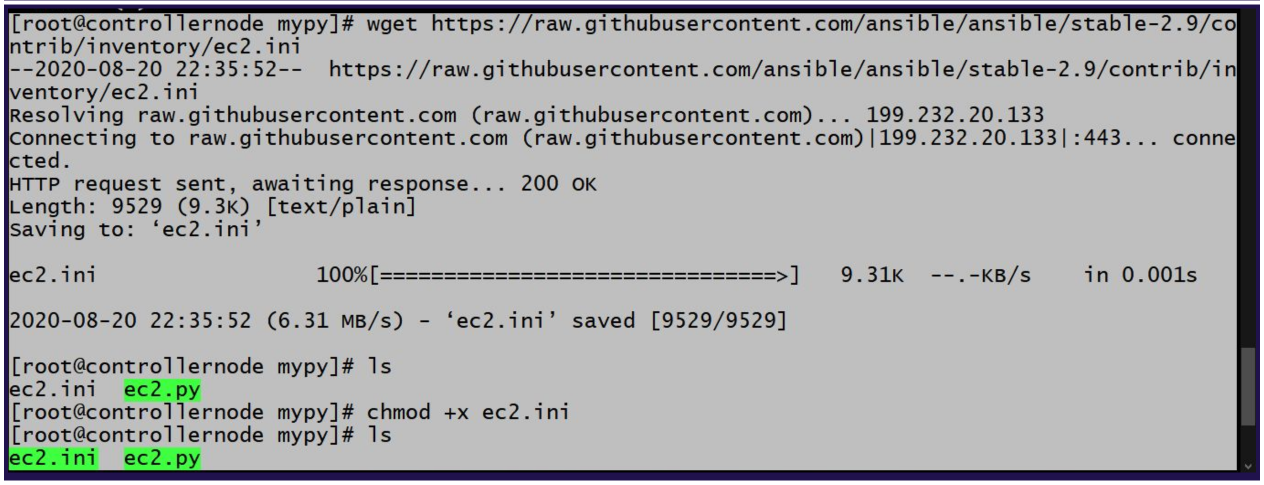


```
[root@controllernode aws_ansible]# ansible-vault encrypt secure.yml
New Vault password:
Confirm New Vault password:
Encryption successful
```

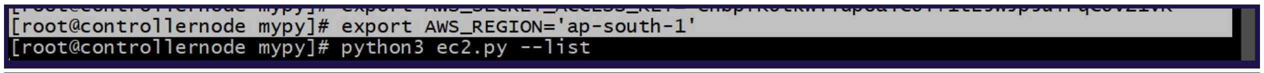
Step 3: Setting up the Dynamic inventory environment



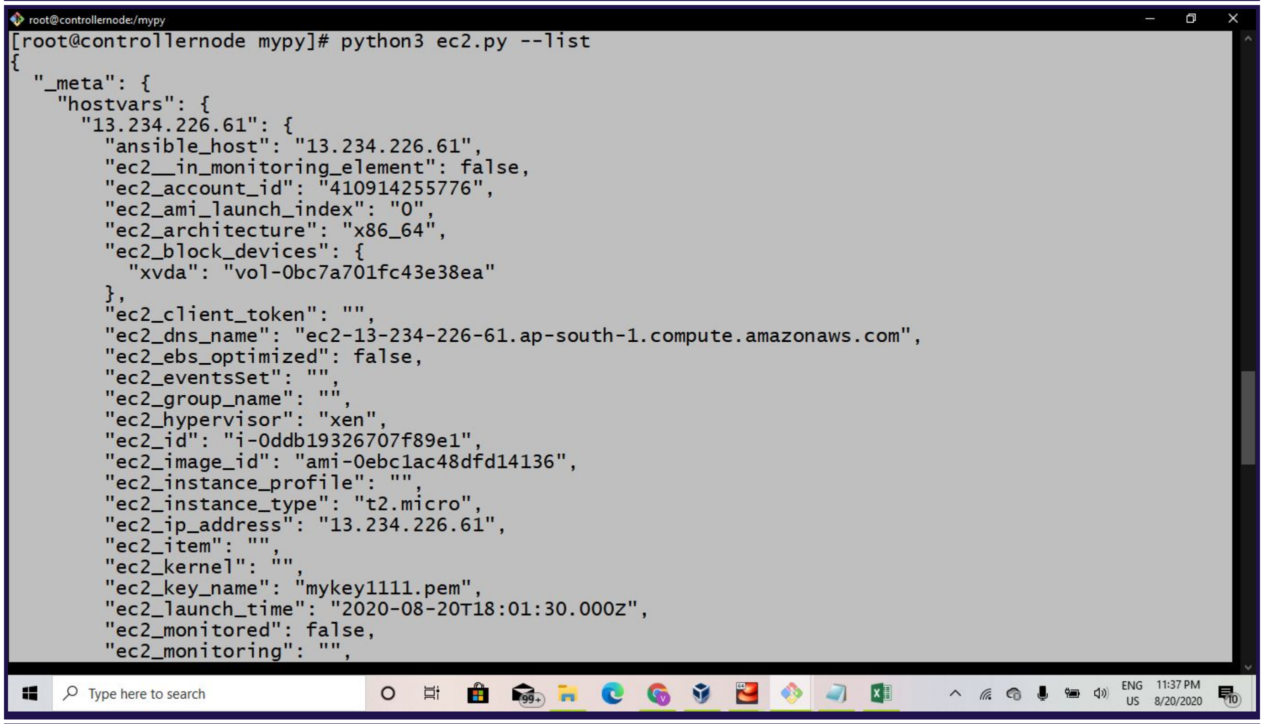
```
ntrib/inventory/ec2.py
--2020-08-20 22:15:29--  https://raw.githubusercontent.com/ansible/ansible/stable-2.9/contrib/in
ventory/ec2.py
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 199.232.20.133
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|199.232.20.133|:443... conne
cted.
HTTP request sent, awaiting response... 200 OK
Length: 73130 (71K) [text/plain]
Saving to: ‘ec2.py’

ec2.py                  100%[===============================>]  71.42K   422KB/s    in 0.2s

2020-08-20 22:15:30 (422 KB/s) - ‘ec2.py’ saved [73130/73130]
```



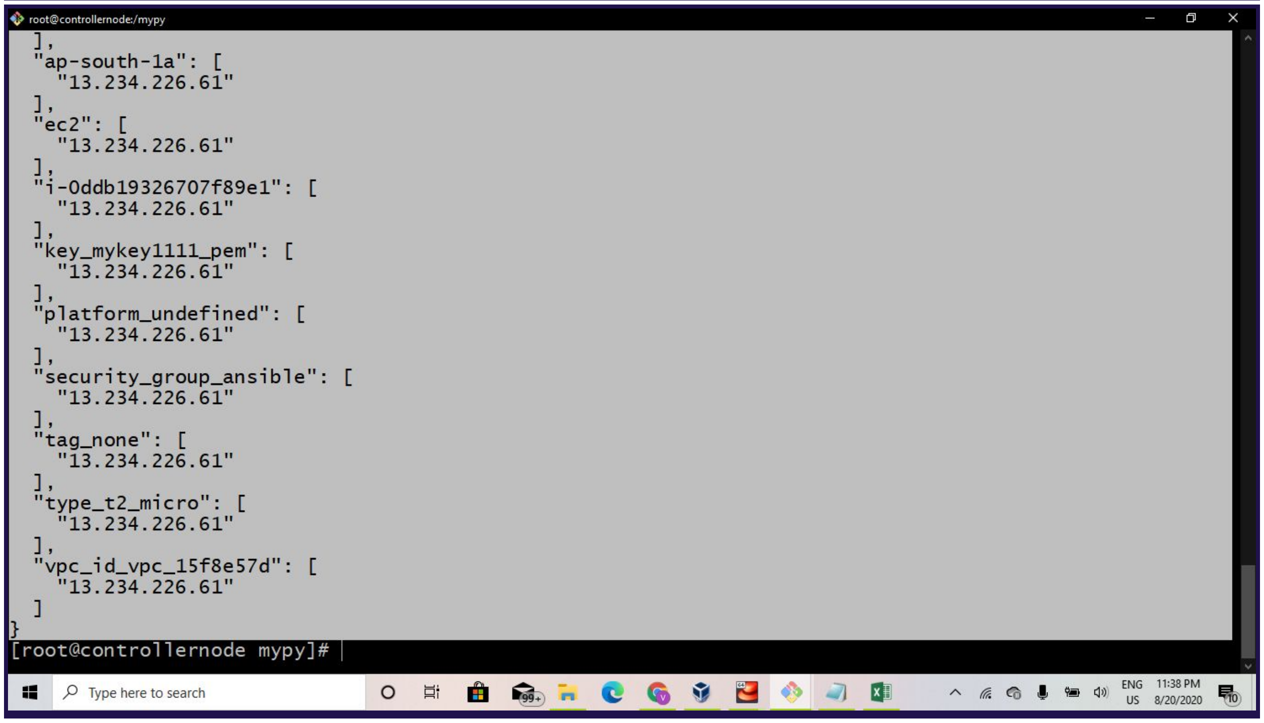
```
[root@controllernode mypy]# wget https://raw.githubusercontent.com/ansible/ansible/stable-2.9/co
ntrib/inventory/ec2.ini
--2020-08-20 22:35:52--  https://raw.githubusercontent.com/ansible/ansible/stable-2.9/contrib/in
ventory/ec2.ini
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 199.232.20.133
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|199.232.20.133|:443... conne
cted.
HTTP request sent, awaiting response... 200 OK
Length: 9529 (9.3K) [text/plain]
Saving to: ‘ec2.ini’

ec2.ini                 100%[===============================>]   9.31K  --.-KB/s    in 0.001s

2020-08-20 22:35:52 (6.31 MB/s) - ‘ec2.ini’ saved [9529/9529]

[root@controllernode mypy]# ls
ec2.ini  ec2.py
[root@controllernode mypy]# chmod +x ec2.ini
[root@controllernode mypy]# ls
ec2.ini  ec2.py
```



```
[root@controllernode mypy]# export AWS_REGION='ap-south-1'
[root@controllernode mypy]# python3 ec2.py --list
```

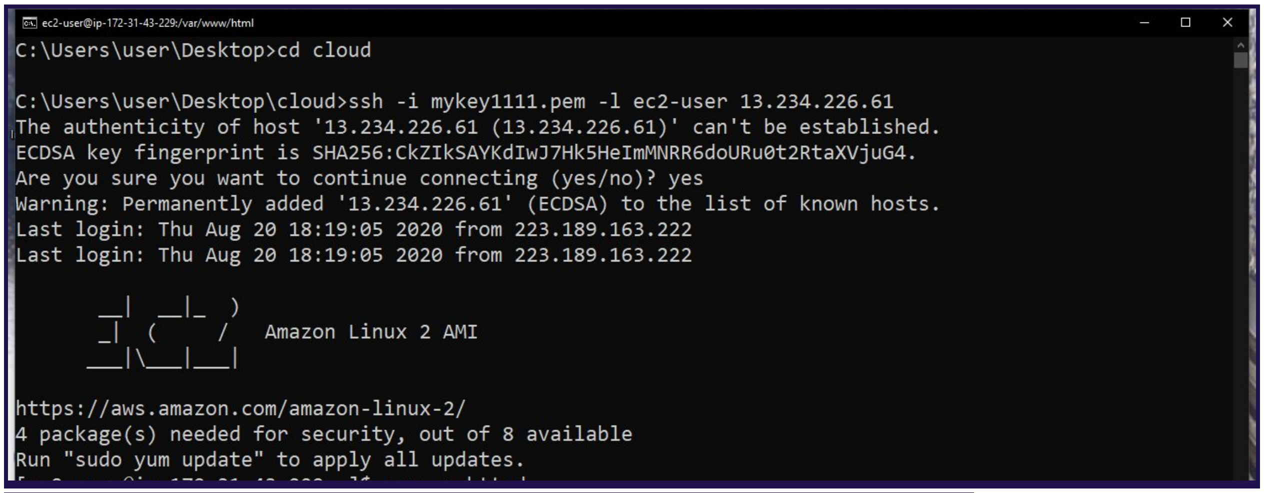


```
[root@controllernode mypy]# python3 ec2.py --list
{
  "_meta": {
    "hostvars": {
      "13.234.226.61": {
        "ansible_host": "13.234.226.61",
        "ec2__in_monitoring_element": false,
        "ec2_account_id": "410914255776",
        "ec2_ami_launch_index": "0",
        "ec2_architecture": "x86_64",
        "ec2_block_devices": {
          "xvda": "vol-0bc7a701fc43e38ea"
        },
        "ec2_client_token": "",
        "ec2_dns_name": "ec2-13-234-226-61.ap-south-1.compute.amazonaws.com",
        "ec2_ebs_optimized": false,
        "ec2_eventsSet": "",
        "ec2_group_name": "",
        "ec2_hypervisor": "xen",
        "ec2_id": "i-0ddb19326707f89e1",
        "ec2_image_id": "ami-0ebc1ac48dfd14136",
        "ec2_instance_profile": "",
        "ec2_instance_type": "t2.micro",
        "ec2_ip_address": "13.234.226.61",
        "ec2_item": "",
        "ec2_kernel": "",
        "ec2_key_name": "mykey1111.pem",
        "ec2_launch_time": "2020-08-20T18:01:30.000Z",
        "ec2_monitored": false,
        "ec2_monitoring": "",
```



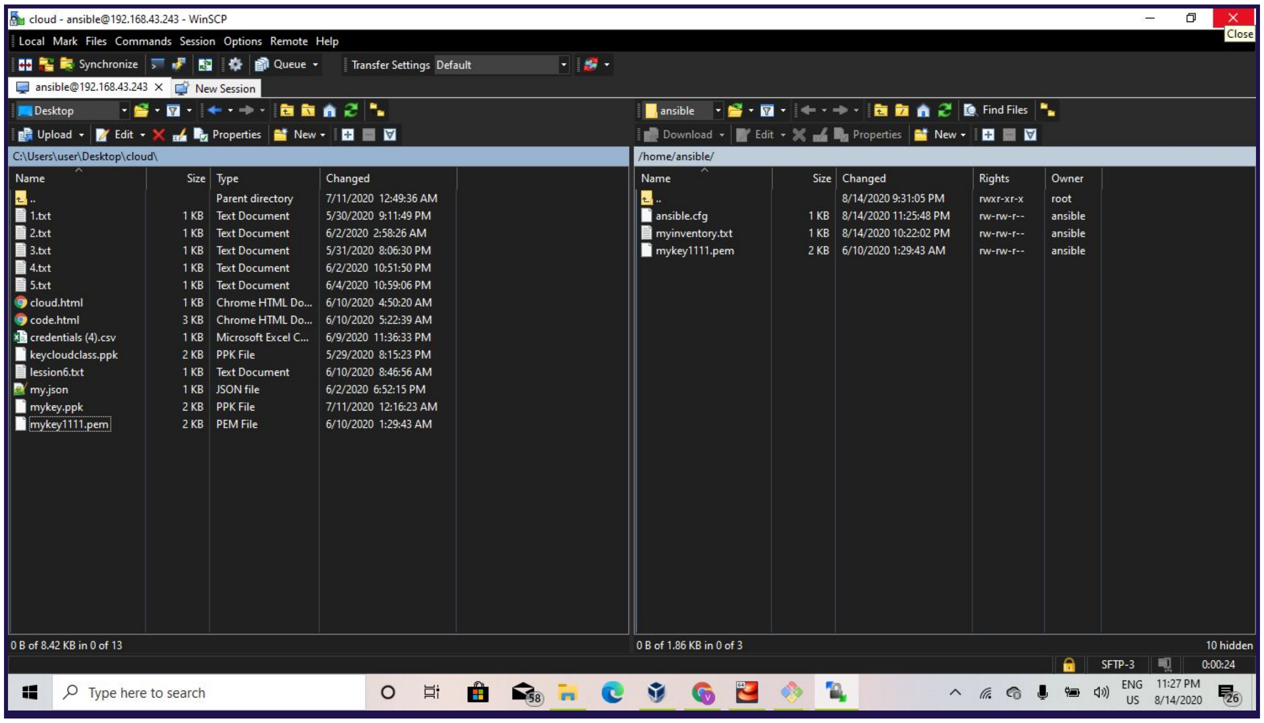
```
  ],
  "ap-south-1a": [
    "13.234.226.61"
  ],
  "ec2": [
    "13.234.226.61"
  ],
  "i-0ddb19326707f89e1": [
    "13.234.226.61"
  ],
  "key_mykey1111_pem": [
    "13.234.226.61"
  ],
  "platform_undefined": [
    "13.234.226.61"
  ],
  "security_group_ansible": [
    "13.234.226.61"
  ],
  "tag_none": [
    "13.234.226.61"
  ],
  "type_t2_micro": [
    "13.234.226.61"
  ],
  "vpc_id_vpc_15f8e57d": [
    "13.234.226.61"
  ]
}
[root@controllernode mypy]#
```

Step 4: Connect Instance with SSH



```
C:\Users\user\Desktop>cd cloud

C:\Users\user\Desktop\cloud>ssh -i mykey1111.pem -l ec2-user 13.234.226.61
The authenticity of host '13.234.226.61 (13.234.226.61)' can't be established.
ECDSA key fingerprint is SHA256:CkZIkSAYKdIwJ7Hk5HeImMNRR6doURu0t2RtaXVjuG4.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '13.234.226.61' (ECDSA) to the list of known hosts.
Last login: Thu Aug 20 18:19:05 2020 from 223.189.163.222
Last login: Thu Aug 20 18:19:05 2020 from 223.189.163.222

       __|  __|_  )
       _|  (     /   Amazon Linux 2 AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-2/
4 package(s) needed for security, out of 8 available
Run "sudo yum update" to apply all updates.
```

Step 5: Copying key-pair using win-scp



C:\Users\user\Desktop\cloud\

Name	Size	Type	Changed
..		Parent directory	7/11/2020 12:49:36 AM
1.txt	1 KB	Text Document	5/30/2020 9:11:49 PM
2.txt	1 KB	Text Document	6/2/2020 2:58:26 AM
3.txt	1 KB	Text Document	5/31/2020 8:06:30 PM
4.txt	1 KB	Text Document	6/2/2020 10:51:50 PM
5.txt	1 KB	Text Document	6/4/2020 10:59:06 PM
cloud.html	1 KB	Chrome HTML Do...	6/10/2020 4:50:20 AM
code.html	3 KB	Chrome HTML Do...	6/10/2020 5:22:39 AM
credentials (4).csv	1 KB	Microsoft Excel C...	6/9/2020 11:36:33 PM
keycloudclass.ppk	2 KB	PPK File	5/29/2020 8:15:23 PM
lession6.txt	1 KB	Text Document	6/10/2020 8:46:56 AM
my.json	1 KB	JSON file	6/2/2020 6:52:15 PM
mykey.ppk	2 KB	PPK File	7/11/2020 12:16:23 AM
mykey1111.pem	2 KB	PEM File	6/10/2020 1:29:43 AM

0 B of 8.42 KB in 0 of 13

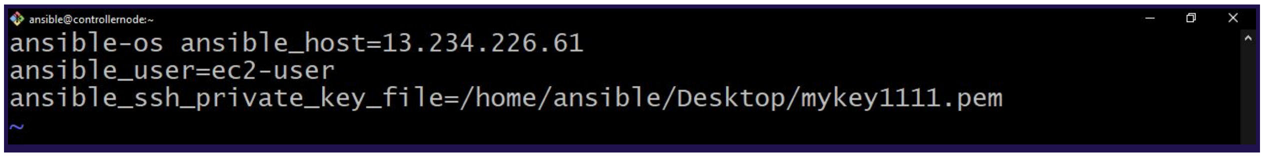
/home/ansible/

Name	Size	Changed	Rights	Owner
..		8/14/2020 9:31:05 PM	rwxr-xr-x	root
ansible.cfg	1 KB	8/14/2020 11:25:48 PM	rw-rw-r--	ansible
myinventory.txt	1 KB	8/14/2020 10:22:02 PM	rw-rw-r--	ansible
mykey1111.pem	2 KB	6/10/2020 1:29:43 AM	rw-rw-r--	ansible

0 B of 1.86 KB in 0 of 3

10 hidden

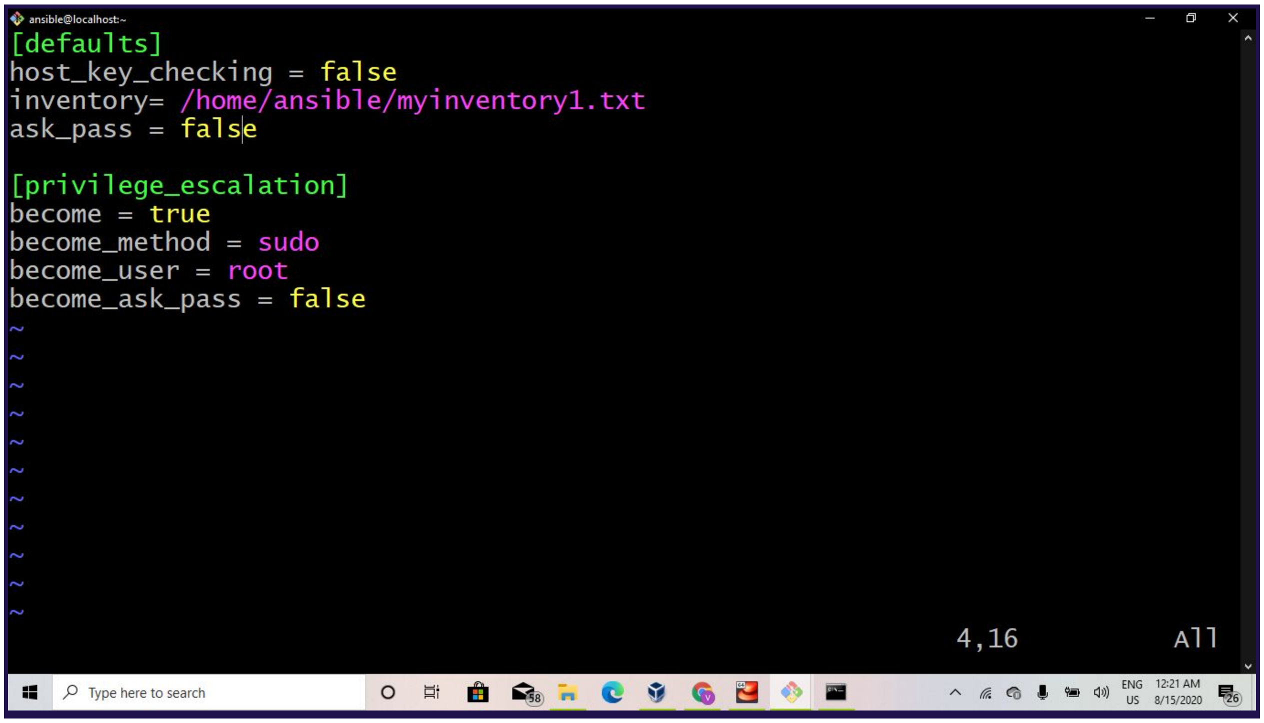
Step 6: Configuring host and config file



```
ansible-os ansible_host=13.234.226.61
ansible_user=ec2-user
ansible_ssh_private_key_file=/home/ansible/Desktop/mykey1111.pem
~
```

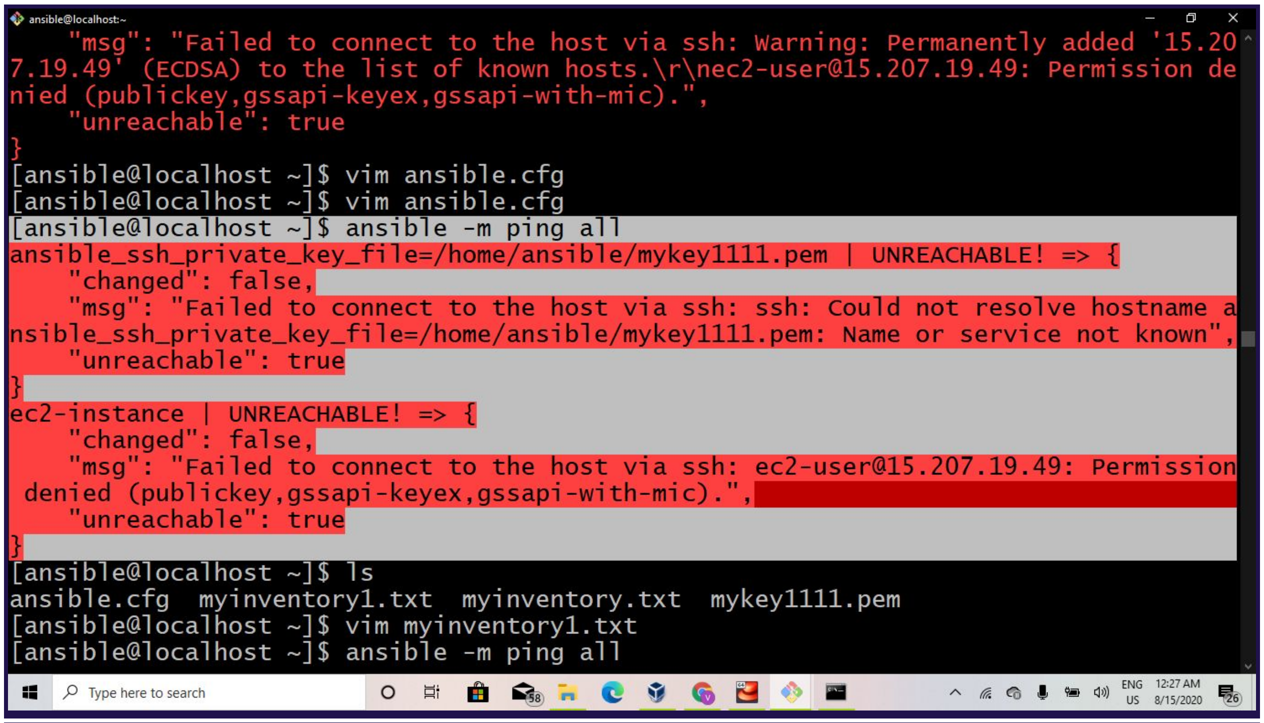
The information you will need is:

- Name for the instance
- IP Address of your AWS instance(public-ip)
- The user present on your AWS instance (ec2-user)
- Location to your private key (.pem) file

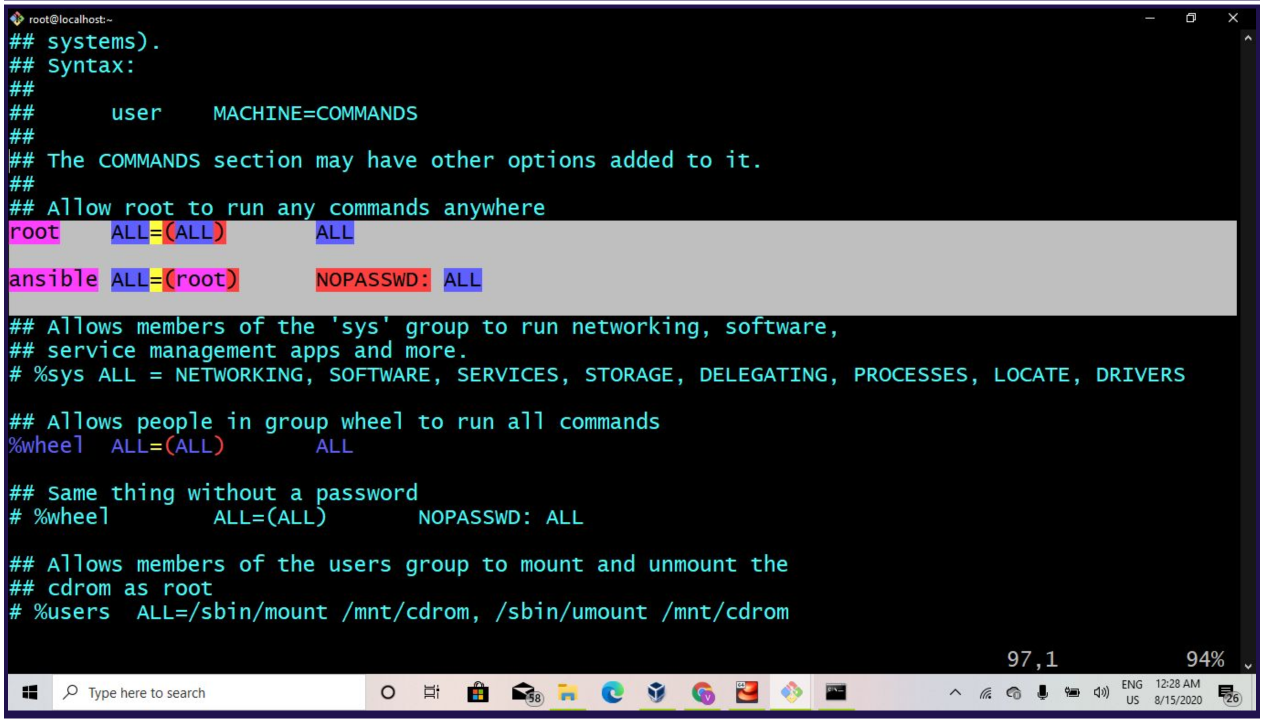


```
[defaults]
host_key_checking = false
inventory= /home/ansible/myinventory1.txt
ask_pass = false

[privilege_escalation]
become = true
become_method = sudo
become_user = root
become_ask_pass = false
~
~
~
~
~
~
~
~
~
~
~
                                                          4,16          All
```

Step 7: Configuring the setting and making public-key to private



```
ansible@localhost:~
    "msg": "Failed to connect to the host via ssh: Warning: Permanently added '15.20
7.19.49' (ECDSA) to the list of known hosts.\r\nec2-user@15.207.19.49: Permission de
nied (publickey,gssapi-keyex,gssapi-with-mic).",
    "unreachable": true
}
[ansible@localhost ~]$ vim ansible.cfg
[ansible@localhost ~]$ vim ansible.cfg
[ansible@localhost ~]$ ansible -m ping all
ansible_ssh_private_key_file=/home/ansible/mykey1111.pem | UNREACHABLE! => {
    "changed": false,
    "msg": "Failed to connect to the host via ssh: ssh: Could not resolve hostname a
nsible_ssh_private_key_file=/home/ansible/mykey1111.pem: Name or service not known",
    "unreachable": true
}
ec2-instance | UNREACHABLE! => {
    "changed": false,
    "msg": "Failed to connect to the host via ssh: ec2-user@15.207.19.49: Permission
 denied (publickey,gssapi-keyex,gssapi-with-mic).",
    "unreachable": true
}
[ansible@localhost ~]$ ls
ansible.cfg  myinventory1.txt  myinventory.txt  mykey1111.pem
[ansible@localhost ~]$ vim myinventory1.txt
[ansible@localhost ~]$ ansible -m ping all
```

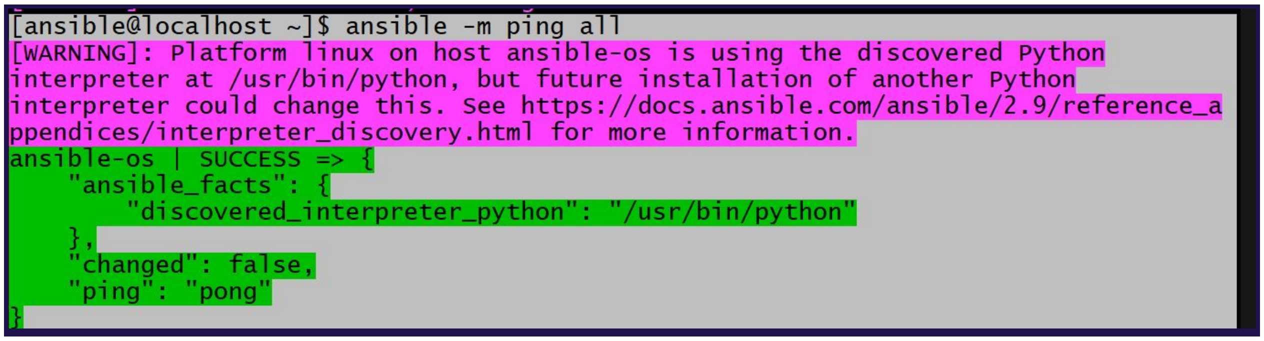


```
root@localhost:~
## systems).
## Syntax:
##
##      user    MACHINE=COMMANDS
##
## The COMMANDS section may have other options added to it.
##
## Allow root to run any commands anywhere
root    ALL=(ALL)       ALL

ansible ALL=(root)      NOPASSWD: ALL

## Allows members of the 'sys' group to run networking, software,
## service management apps and more.
# %sys ALL = NETWORKING, SOFTWARE, SERVICES, STORAGE, DELEGATING, PROCESSES, LOCATE, DRIVERS

## Allows people in group wheel to run all commands
%wheel  ALL=(ALL)       ALL

## Same thing without a password
# %wheel        ALL=(ALL)       NOPASSWD: ALL

## Allows members of the users group to mount and unmount the
## cdrom as root
# %users  ALL=/sbin/mount /mnt/cdrom, /sbin/umount /mnt/cdrom

                                                            97,1          94%
```

```
sudo chmod 600 /home/ansible/mykey1111.pem
```

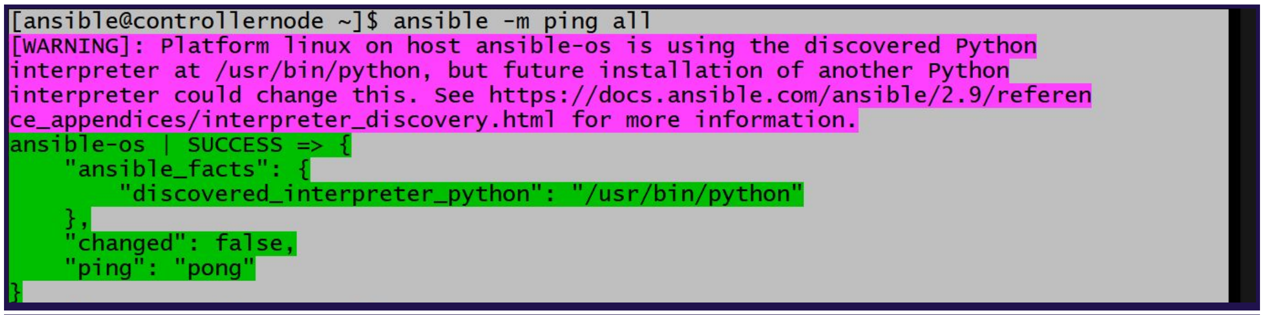
```
sudo chmod 755 ~/.ssh
```

Step 8: Run Ansible Ping Module

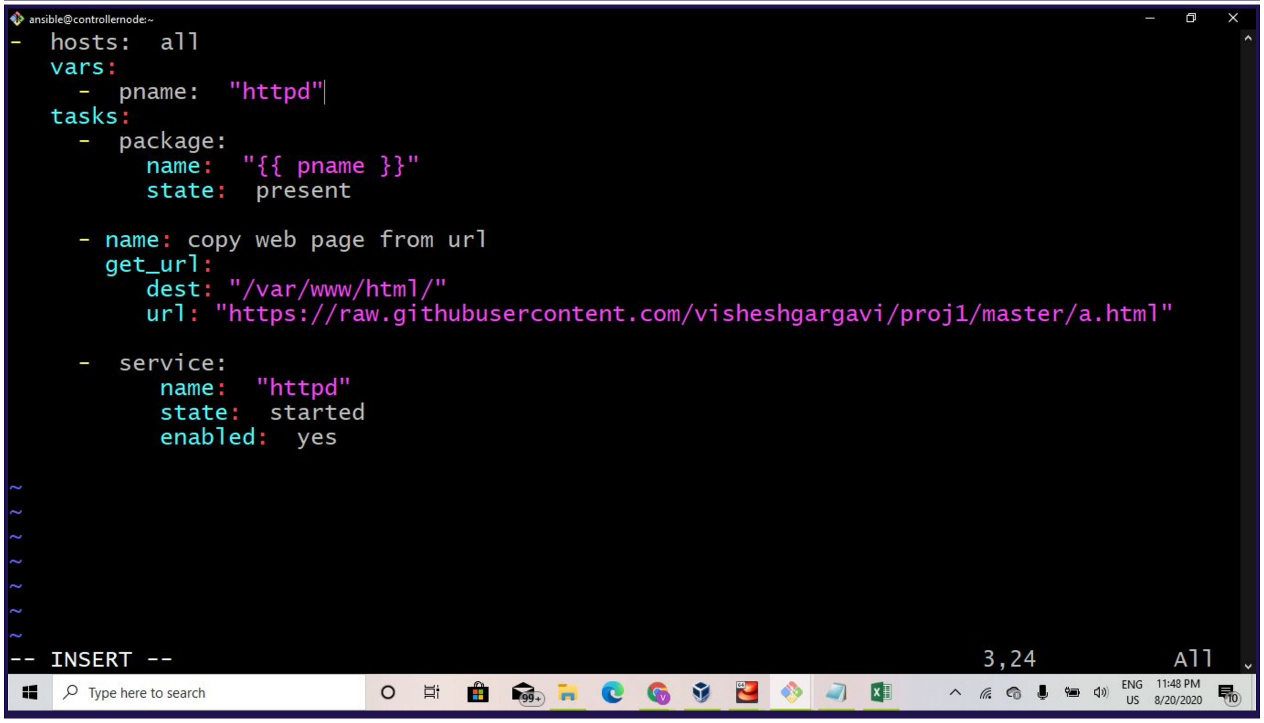


```
[ansible@localhost ~]$ ansible -m ping all
[WARNING]: Platform linux on host ansible-os is using the discovered Python
interpreter at /usr/bin/python, but future installation of another Python
interpreter could change this. See https://docs.ansible.com/ansible/2.9/reference_a
ppendices/interpreter_discovery.html for more information.
ansible-os | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
```

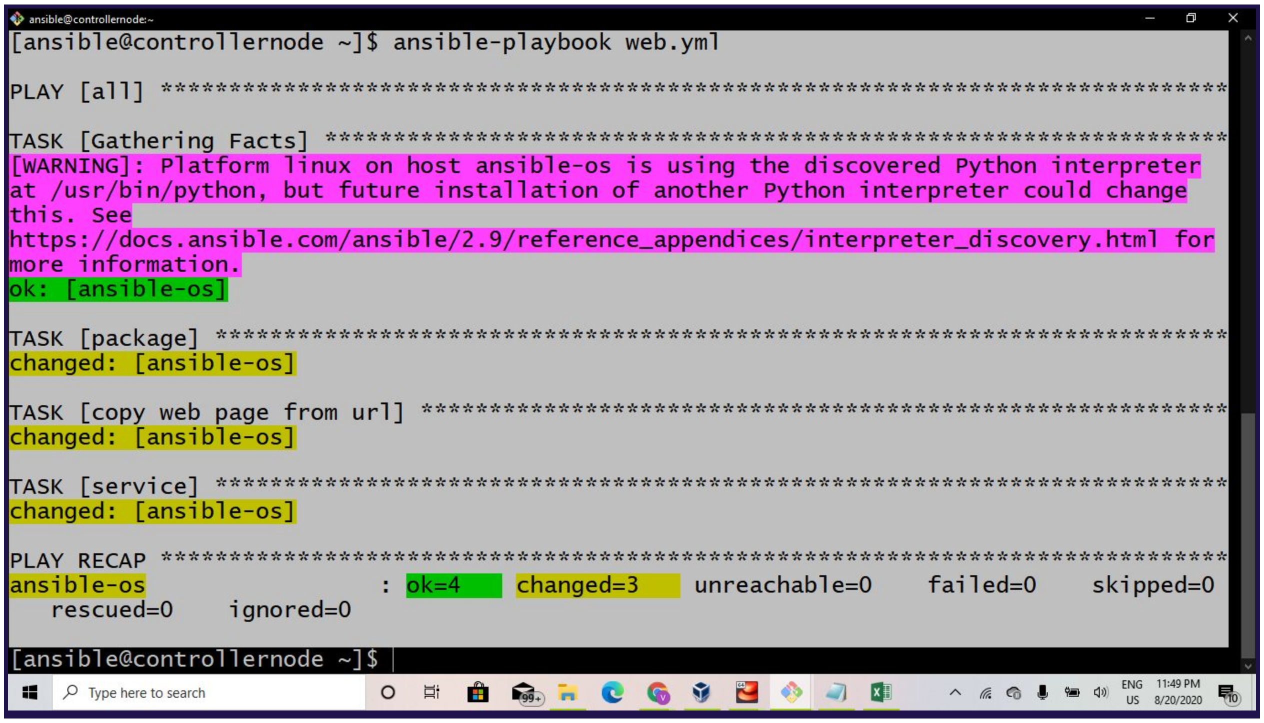
Step 9: Installing the web server and copying the file in ec2-user



```
[ansible@controllernode ~]$ ansible -m ping all
[WARNING]: Platform linux on host ansible-os is using the discovered Python
interpreter at /usr/bin/python, but future installation of another Python
interpreter could change this. See https://docs.ansible.com/ansible/2.9/referen
ce_appendices/interpreter_discovery.html for more information.
ansible-os | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
```

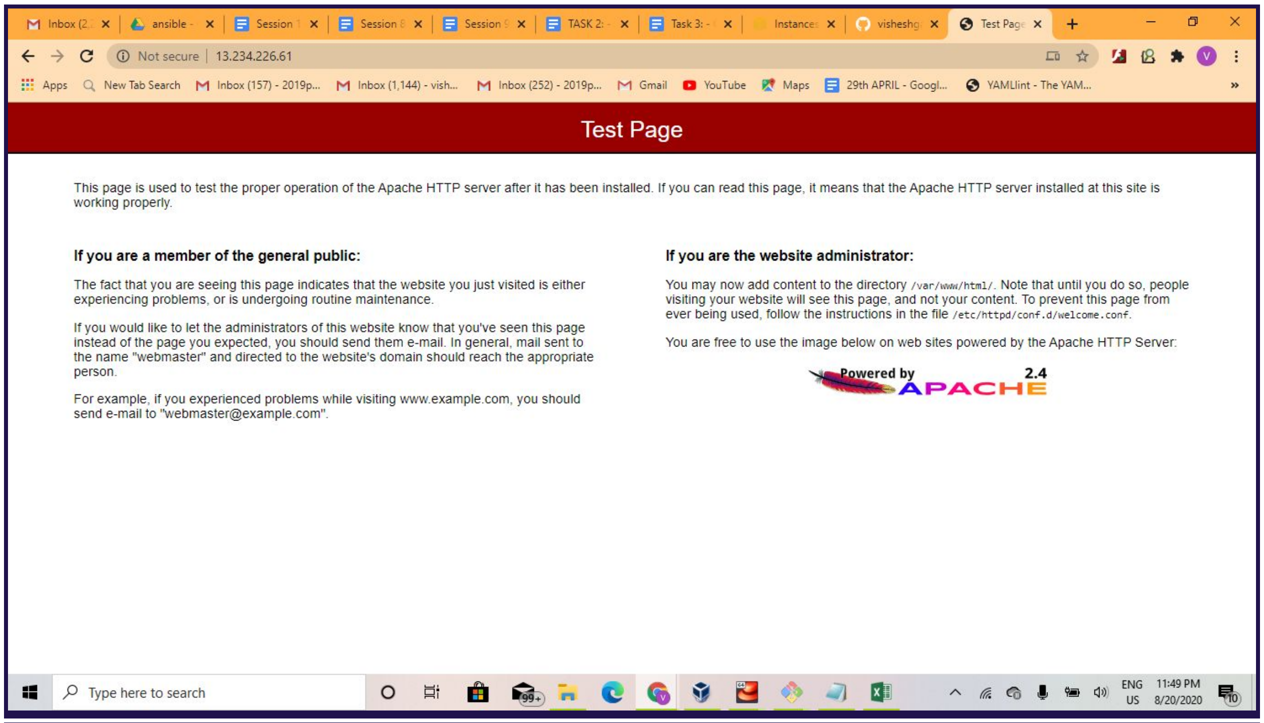


```
-  hosts:  all
   vars:
     -  pname:  "httpd"
   tasks:
     -  package:
          name:  "{{ pname }}"
          state:  present

     - name: copy web page from url
       get_url:
          dest: "/var/www/html/"
          url: "https://raw.githubusercontent.com/visheshgargavi/proj1/master/a.html"

     -  service:
           name:  "httpd"
           state:  started
           enabled:  yes

~
~
~
~
~
~
~
-- INSERT --                                              3,24          All
```



```
[ansible@controllernode ~]$ ansible-playbook web.yml

PLAY [all] *****************************************************************************

TASK [Gathering Facts] *****************************************************************
[WARNING]: Platform linux on host ansible-os is using the discovered Python interpreter
at /usr/bin/python, but future installation of another Python interpreter could change
this. See
https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for
more information.
ok: [ansible-os]

TASK [package] *************************************************************************
changed: [ansible-os]

TASK [copy web page from url] **********************************************************
changed: [ansible-os]

TASK [service] *************************************************************************
changed: [ansible-os]

PLAY RECAP *****************************************************************************
ansible-os                 : ok=4    changed=3    unreachable=0    failed=0    skipped=0
   rescued=0    ignored=0

[ansible@controllernode ~]$
```

Step 10: Output



This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you can read this page, it means that the Apache HTTP server installed at this site is working properly.

If you are a member of the general public:

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

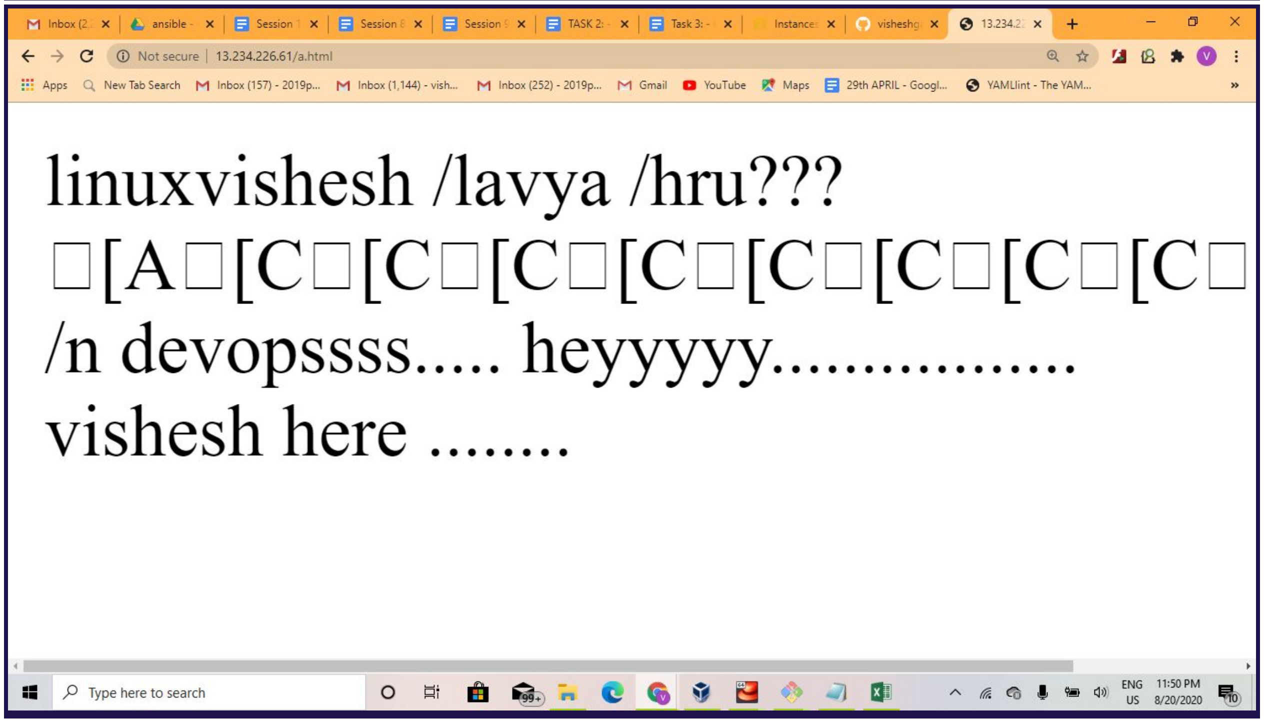
If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

If you are the website administrator:

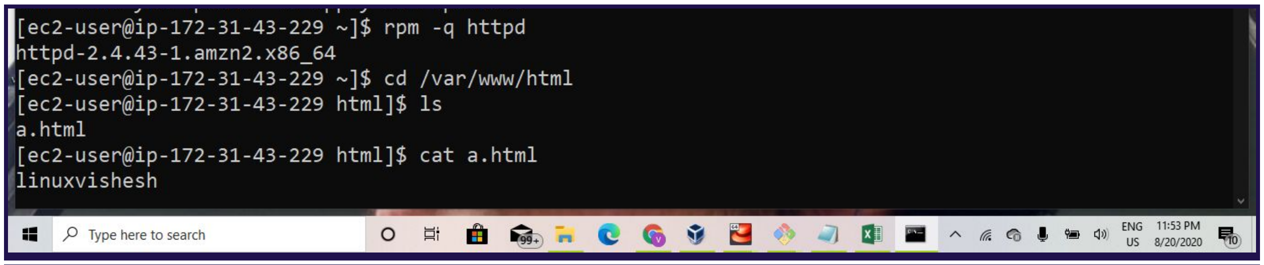
You may now add content to the directory `/var/www/html/`. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

You are free to use the image below on web sites powered by the Apache HTTP Server:

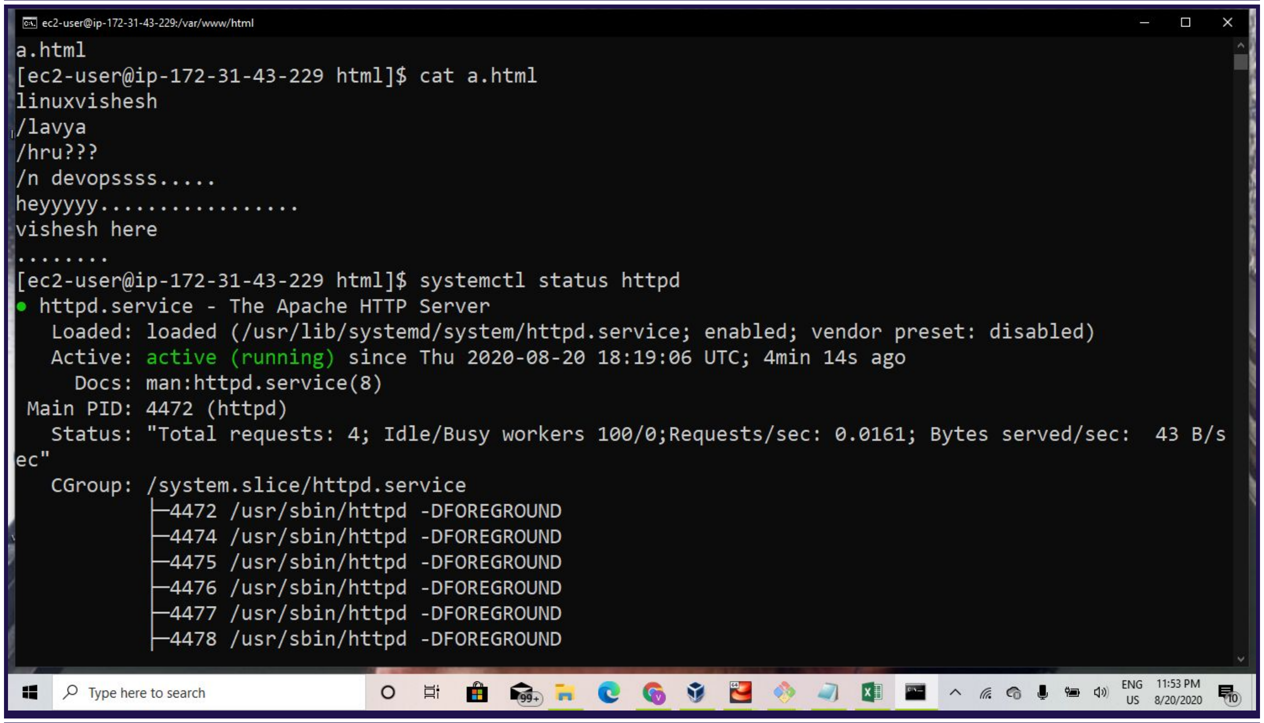


```
linuxvishesh /lavya /hru???
□[A□[C□[C□[C□[C□[C□[C□[C□[C□
/n devopssss..... heyyyyy................
vishesh here ........
```

Step 11: final Evaluation

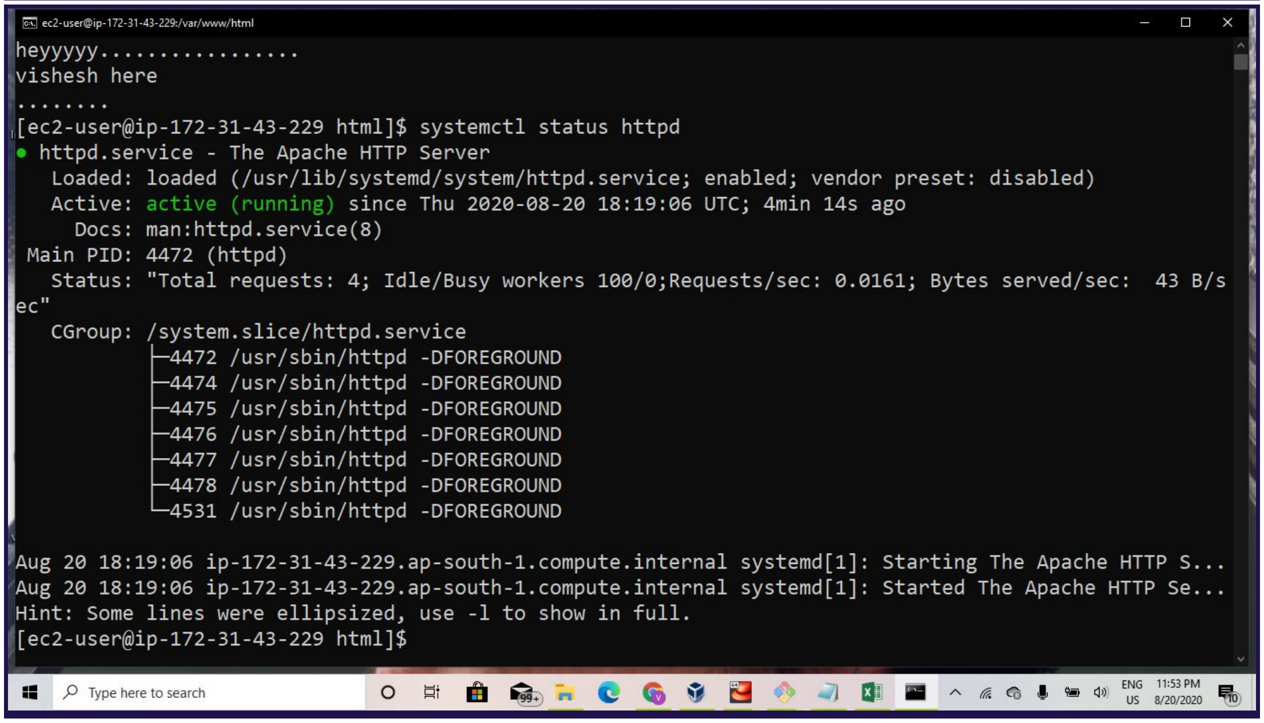


```
[ec2-user@ip-172-31-43-229 ~]$ rpm -q httpd
httpd-2.4.43-1.amzn2.x86_64
[ec2-user@ip-172-31-43-229 ~]$ cd /var/www/html
[ec2-user@ip-172-31-43-229 html]$ ls
a.html
[ec2-user@ip-172-31-43-229 html]$ cat a.html
linuxvishesh
```



ec2-user@ip-172-31-43-229:/var/www/html

```
a.html
[ec2-user@ip-172-31-43-229 html]$ cat a.html
linuxvishesh
/lavya
/hru???
/n devopssss.....
heyyyyy.................
vishesh here
........
[ec2-user@ip-172-31-43-229 html]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2020-08-20 18:19:06 UTC; 4min 14s ago
     Docs: man:httpd.service(8)
 Main PID: 4472 (httpd)
   Status: "Total requests: 4; Idle/Busy workers 100/0;Requests/sec: 0.0161; Bytes served/sec:  43 B/s
ec"
   CGroup: /system.slice/httpd.service
           ├─4472 /usr/sbin/httpd -DFOREGROUND
           ├─4474 /usr/sbin/httpd -DFOREGROUND
           ├─4475 /usr/sbin/httpd -DFOREGROUND
           ├─4476 /usr/sbin/httpd -DFOREGROUND
           ├─4477 /usr/sbin/httpd -DFOREGROUND
           ├─4478 /usr/sbin/httpd -DFOREGROUND
```



ec2-user@ip-172-31-43-229:/var/www/html

```
heyyyyy.................
vishesh here
........
[ec2-user@ip-172-31-43-229 html]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2020-08-20 18:19:06 UTC; 4min 14s ago
     Docs: man:httpd.service(8)
 Main PID: 4472 (httpd)
   Status: "Total requests: 4; Idle/Busy workers 100/0;Requests/sec: 0.0161; Bytes served/sec:  43 B/s
ec"
   CGroup: /system.slice/httpd.service
           ├─4472 /usr/sbin/httpd -DFOREGROUND
           ├─4474 /usr/sbin/httpd -DFOREGROUND
           ├─4475 /usr/sbin/httpd -DFOREGROUND
           ├─4476 /usr/sbin/httpd -DFOREGROUND
           ├─4477 /usr/sbin/httpd -DFOREGROUND
           ├─4478 /usr/sbin/httpd -DFOREGROUND
           └─4531 /usr/sbin/httpd -DFOREGROUND

Aug 20 18:19:06 ip-172-31-43-229.ap-south-1.compute.internal systemd[1]: Starting The Apache HTTP S...
Aug 20 18:19:06 ip-172-31-43-229.ap-south-1.compute.internal systemd[1]: Started The Apache HTTP Se...
Hint: Some lines were ellipsized, use -l to show in full.
[ec2-user@ip-172-31-43-229 html]$
```