

Homework 1

Team Donuts

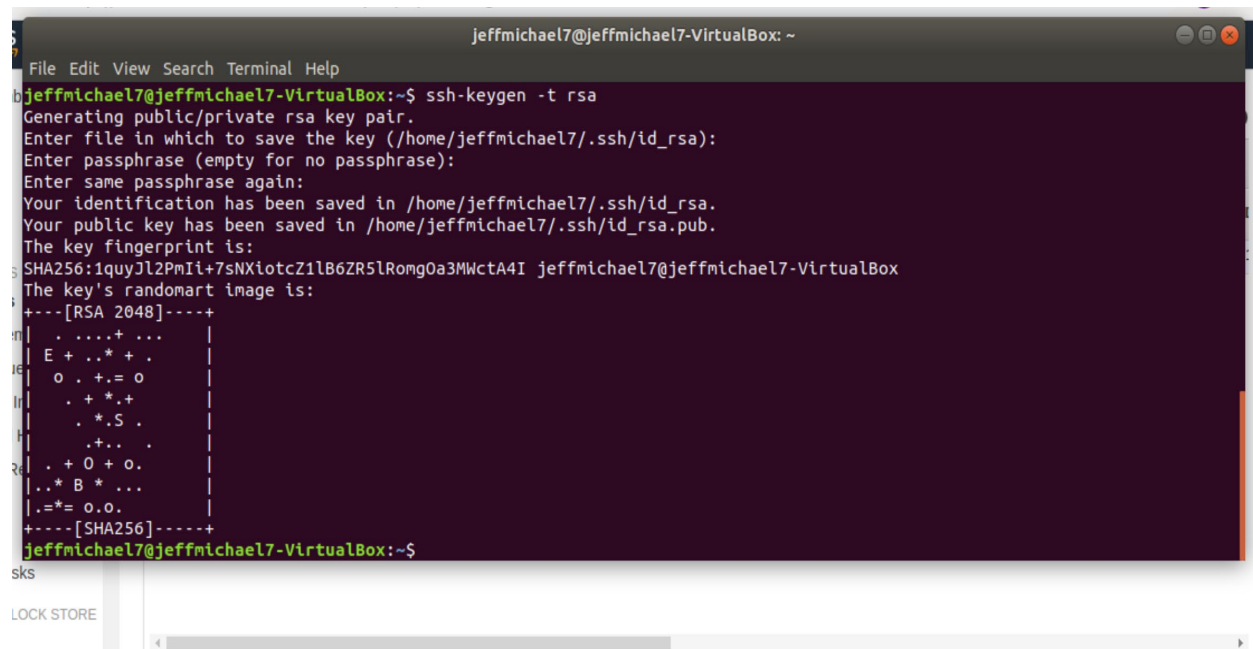
At the commencement of this assignment, we knew nothing of what it meant to deploy a webserver or how to even utilize one. Thus, in our research we found a page to reference in the following site:

https://www.bogotobogo.com/DevOps/Ansible/Ansible_SettingUp_Webservers_Nginx_Install_Env_Configure_Deploy_App.php

To a degree, we followed this procedure along with your installation guide to achieve the result. However, given our inexperience in web development, we found it very difficult to follow. We answered our own questions, as in where we needed to download Ansible, whether on the client machine or the remote server machine. Many other small obstacles like this were overcome with our own research.

The code can be found at https://github.com/jeffmiguel7/CMPE172_HW1

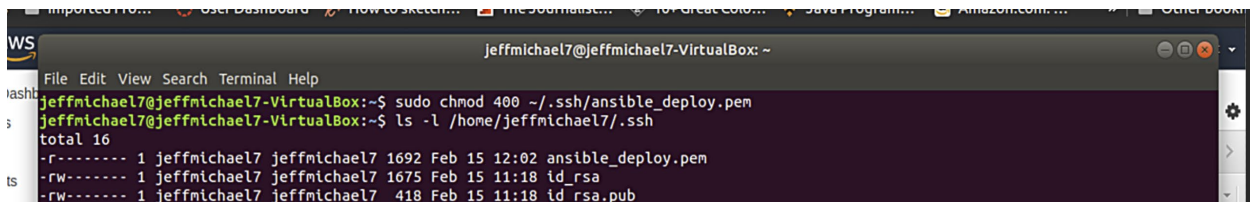
First, we generated the key pair utilizing `ssh-keygen -t rsa` (type rsa).



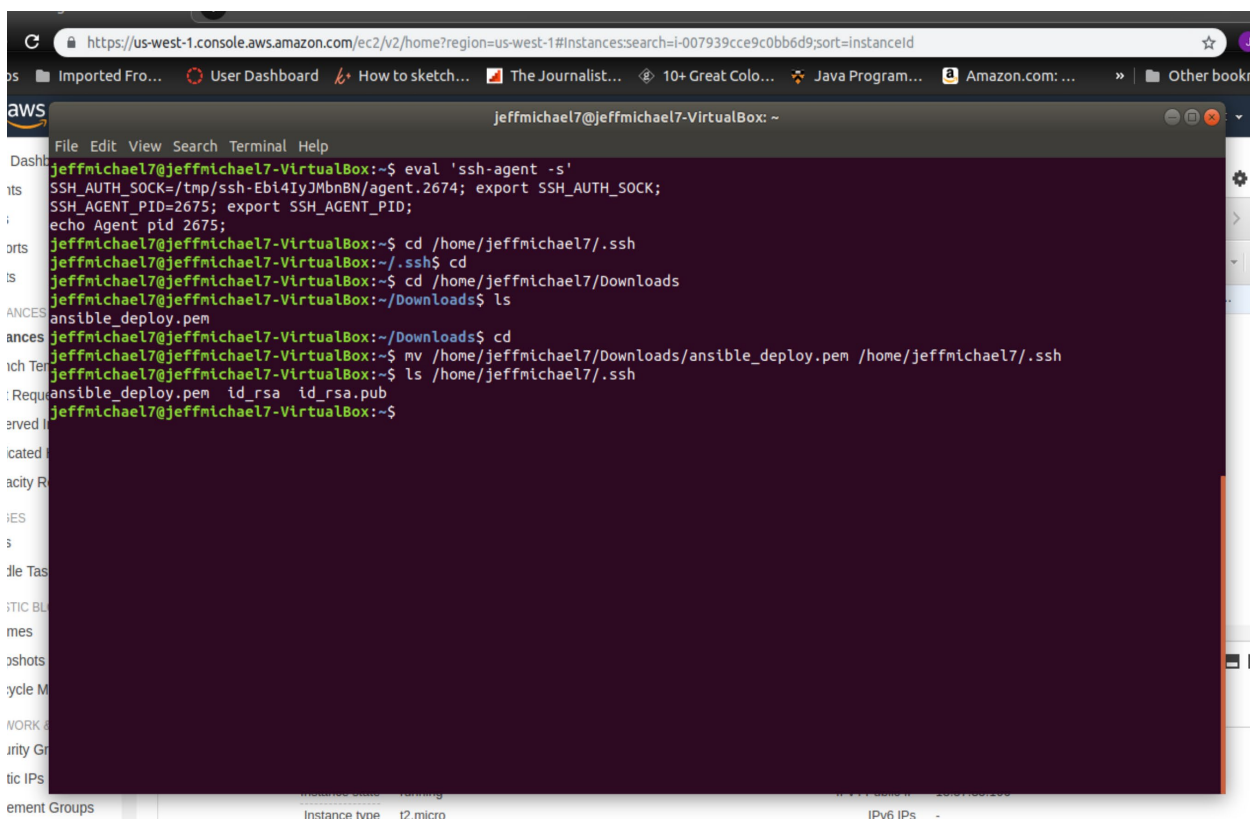
```
jeffmichael7@jeffmichael7-VirtualBox: ~  
File Edit View Search Terminal Help  
jeffmichael7@jeffmichael7-VirtualBox:~$ ssh-keygen -t rsa  
Generating public/private rsa key pair.  
Enter file in which to save the key (/home/jeffmichael7/.ssh/id_rsa):  
Enter passphrase (empty for no passphrase):  
Enter same passphrase again:  
Your identification has been saved in /home/jeffmichael7/.ssh/id_rsa.  
Your public key has been saved in /home/jeffmichael7/.ssh/id_rsa.pub.  
The key fingerprint is:  
SHA256:1quyJl2PmIi+7sNXIotcZ1lB6ZR5lRongOa3MWctA4I jeffmichael7@jeffmichael7-VirtualBox  
The key's randomart image is:  
+---[RSA 2048]-----+  
| . ....+ ...  
| E + ..* + .  
| o . +. = o  
| . + * .+  
| . *.S .  
| .+... .  
| . + O + O.  
| ..* B * ...  
| . = * = o . o .  
+---[SHA256]-----+  
jeffmichael7@jeffmichael7-VirtualBox:~$
```

We then created an AWS EC2 instance to function as our remote server.

We downloaded the .pem file (the remote servers key pair). In order to use an SSH client, we changed the .pem files permission to 400, only readable by the owner. In the following images, you can see the process we traversed to connect to the server via ssh.



```
File Edit View Search Terminal Help
jeffmichael7@jeffmichael7-VirtualBox: ~$ sudo chmod 400 ~/.ssh/ansible_deploy.pem
jeffmichael7@jeffmichael7-VirtualBox: ~$ ls -l /home/jeffmichael7/.ssh
total 16
-r----- 1 jeffmichael7 jeffmichael7 1692 Feb 15 12:02 ansible_deploy.pem
-rw----- 1 jeffmichael7 jeffmichael7 1675 Feb 15 11:18 id_rsa
-rw----- 1 jeffmichael7 jeffmichael7 418 Feb 15 11:18 id_rsa.pub
```



```
File Edit View Search Terminal Help
jeffmichael7@jeffmichael7-VirtualBox: ~$ eval 'ssh-agent -s'
SSH_AUTH_SOCK=/tmp/ssh-Ebi4IyJMbnBN/agent.2674; export SSH_AUTH_SOCK;
SSH_AGENT_PID=2675; export SSH_AGENT_PID;
echo Agent pid 2675;
jeffmichael7@jeffmichael7-VirtualBox: ~$ cd /home/jeffmichael7/.ssh
jeffmichael7@jeffmichael7-VirtualBox: ~$ cd
jeffmichael7@jeffmichael7-VirtualBox: ~$ cd /home/jeffmichael7/Downloads
jeffmichael7@jeffmichael7-VirtualBox: ~/Downloads$ ls
ansible_deploy.pem
jeffmichael7@jeffmichael7-VirtualBox: ~/Downloads$ cd
jeffmichael7@jeffmichael7-VirtualBox: ~$ mv /home/jeffmichael7/Downloads/ansible_deploy.pem /home/jeffmichael7/.ssh
jeffmichael7@jeffmichael7-VirtualBox: ~$ ls /home/jeffmichael7/.ssh
ansible_deploy.pem id_rsa id_rsa.pub
jeffmichael7@jeffmichael7-VirtualBox: ~$
```

```
jeffmichael7@jeffmichael7-VirtualBox:~$ ssh-add ~/.ssh/ansible_deploy.pem
Identity added: /home/jeffmichael7/.ssh/ansible_deploy.pem (/home/jeffmichael7/.ssh/ansible_deploy.pem)
jeffmichael7@jeffmichael7-VirtualBox:~$ ssh-add -l
2048 SHA256:liJoLPgySGnaBPth1uLHnu7nryD7Ajuu51Dy+gBwZQg /home/jeffmichael7/.ssh/ansible_deploy.pem (RSA)
2048 SHA256:0ARILg0XSxoWSfErQjnQp29m5jMmq6DU8pvE0F7I3Uo jeffmichael7@jeffmichael7-VirtualBox (RSA)
jeffmichael7@jeffmichael7-VirtualBox:~$
```

```
WS ubuntu@ip-172-31-1-229: ~
File Edit View Search Terminal Help
jeffmichael7@jeffmichael7-VirtualBox:~$ ssh-copy-id -f ubuntu@13.57.35.106
The authenticity of host '13.57.35.106 (13.57.35.106)' can't be established.
ECDSA key fingerprint is SHA256:d0NIw+WOYYb/n1cz49yg14gD001GYGB4CYvFD2Tb9/w.
Are you sure you want to continue connecting (yes/no)? yes
Number of key(s) added: 2
Now try logging into the machine, with: "ssh 'ubuntu@13.57.35.106'"
and check to make sure that only the key(s) you wanted were added.
jeffmichael7@jeffmichael7-VirtualBox:~$ ssh ubuntu@13.57.35.106
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-1021-aws x86_64)

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

System information as of Fri Feb 15 20:34:06 UTC 2019

System load:  0.0          Processes:      85
Usage of /:   13.4% of 7.69GB   Users logged in:  0
Memory usage: 13%          IP address for eth0: 172.31.1.229
Swap usage:   0%

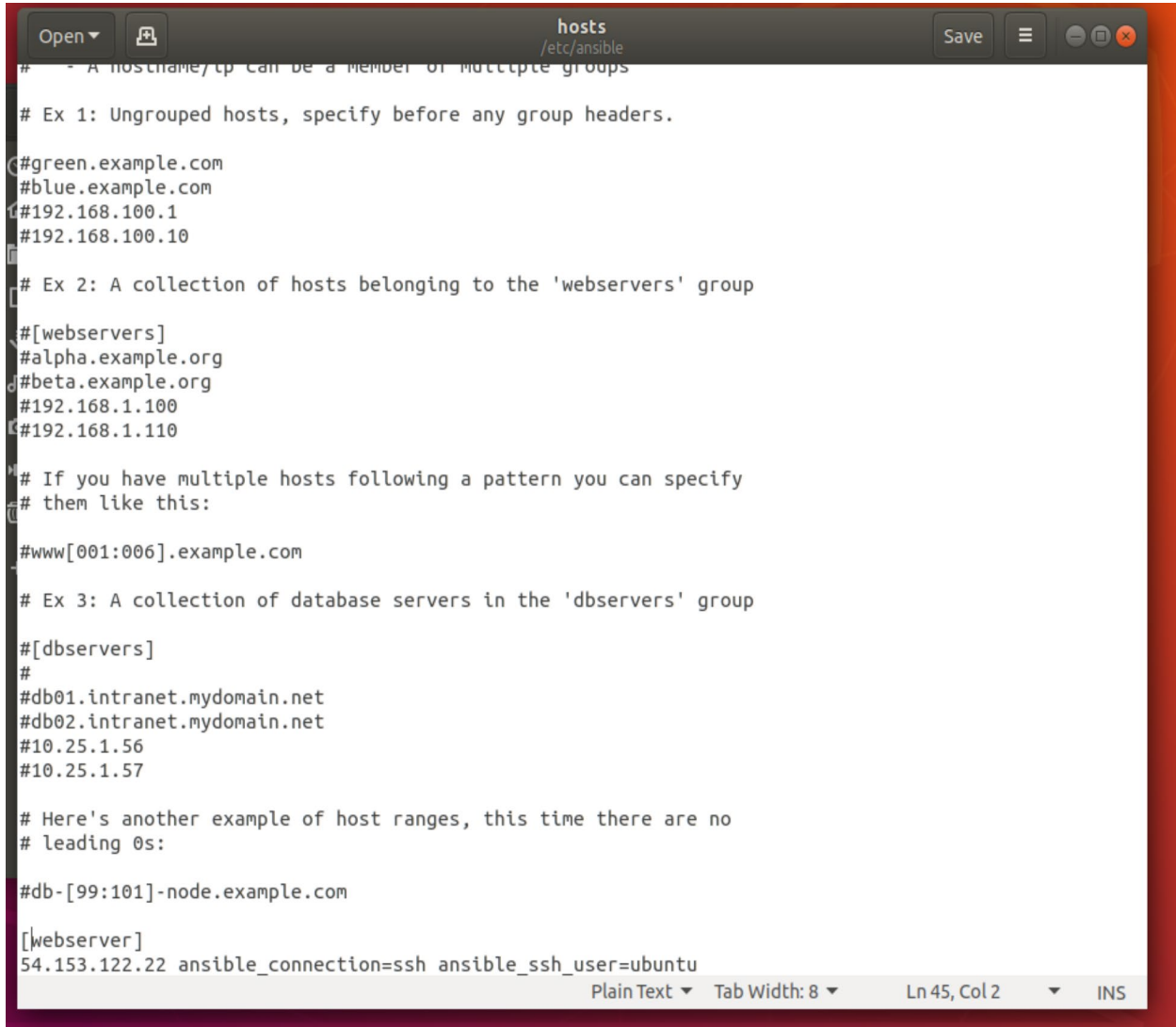
Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

0 packages can be updated.
0 updates are security updates.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
```

```
ubuntu@ip-172-31-6-60: ~  
File Edit View Search Terminal Help  
hb /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  
  
Number of key(s) added: 1  
  
Now try logging into the machine, with: "ssh 'ubuntu@54.153.122.22'"  
and check to make sure that only the key(s) you wanted were added.  
s jeffmichael7@jeffmichael7-VirtualBox:~$ ssh 'ubuntu@54.153.122.22'  
s Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-1021-aws x86_64)  
  
en * Documentation: https://help.ubuntu.com  
ue * Management: https://landscape.canonical.com  
ue * Support: https://ubuntu.com/advantage  
  
f In  
d H System information as of Sun Feb 17 06:22:06 UTC 2019  
  
Re System load: 0.0 Processes: 85  
Usage of /: 13.4% of 7.69GB Users logged in: 0  
Memory usage: 13% IP address for eth0: 172.31.6.60  
Swap usage: 0%  
  
as Get cloud support with Ubuntu Advantage Cloud Guest:  
3L http://www.ubuntu.com/business/services/cloud  
  
0 packages can be updated.  
ls 0 updates are security updates.  
M  
  
< Last login: Sun Feb 17 06:19:36 2019 from 73.15.52.100  
Gr To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
s  
s ubuntu@ip-172-31-6-60:~$
```

We then downloaded Ansible via apt-get. Once downloaded we entered /etc/ansible and modified the default inventory file *hosts*, to add our remote server, as seen below.



```
# - A hostname/ip can be a member of multiple groups

# Ex 1: Ungrouped hosts, specify before any group headers.
#green.example.com
#blue.example.com
#192.168.100.1
#192.168.100.10

# Ex 2: A collection of hosts belonging to the 'webservers' group
#[webservers]
#alpha.example.org
#beta.example.org
#192.168.1.100
#192.168.1.110

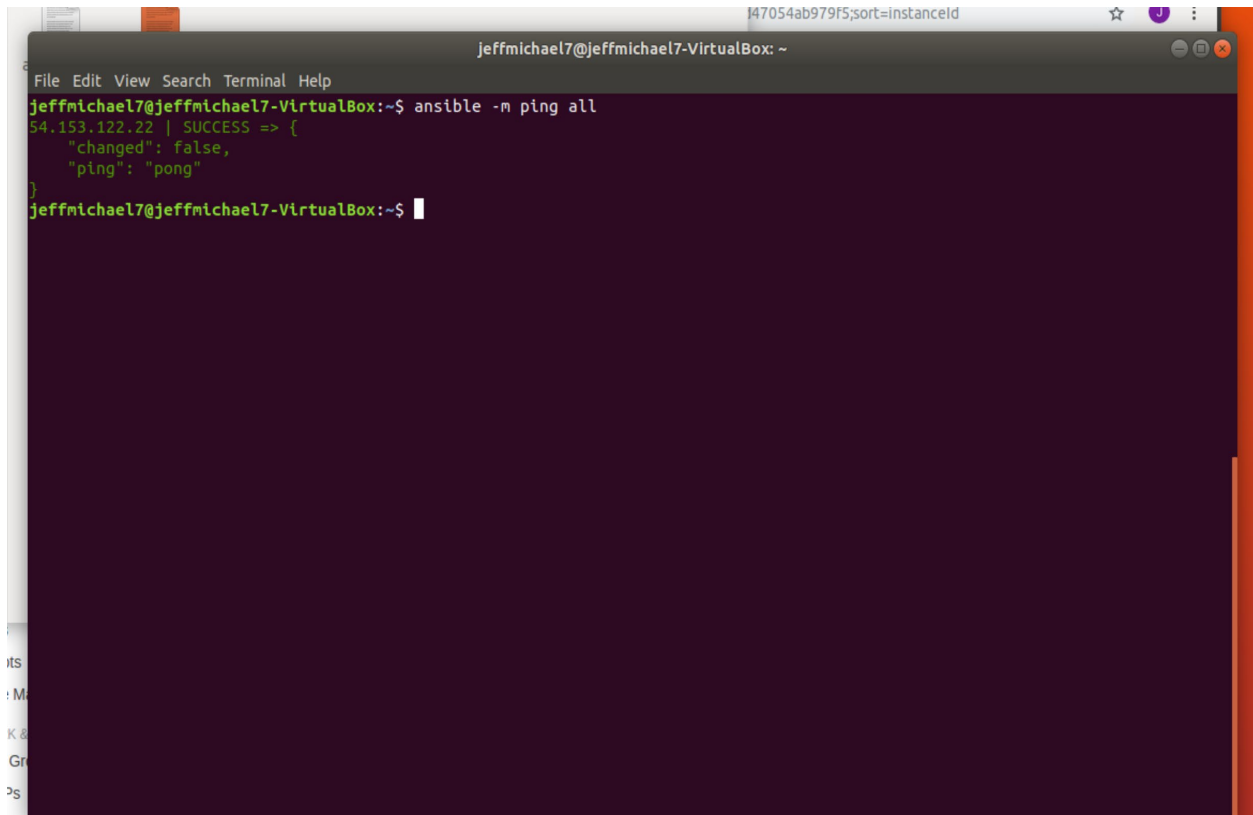
# If you have multiple hosts following a pattern you can specify
# them like this:
#www[001:006].example.com

# Ex 3: A collection of database servers in the 'dbservers' group
#[dbservers]
#
#db01.intranet.mydomain.net
#db02.intranet.mydomain.net
#10.25.1.56
#10.25.1.57

# Here's another example of host ranges, this time there are no
# leading 0s:
#db-[99:101]-node.example.com

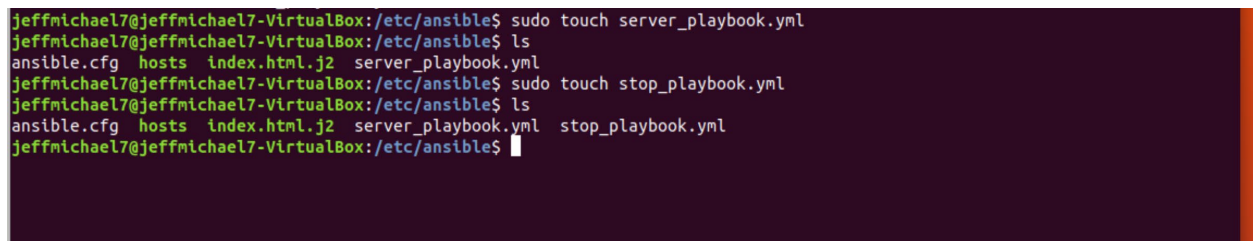
[webserver]
54.153.122.22 ansible_connection=ssh ansible_ssh_user=ubuntu
```

We then pinged Ansible for a successful ping.

A terminal window titled 'jeffmichael7@jeffmichael7-VirtualBox: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'ansible -m ping all' being executed. The output is '54.153.122.22 | SUCCESS => { "changed": false, "ping": "pong" }'. The prompt returns to 'jeffmichael7@jeffmichael7-VirtualBox: ~\$'.

```
jeffmichael7@jeffmichael7-VirtualBox: ~$ ansible -m ping all
54.153.122.22 | SUCCESS => {
  "changed": false,
  "ping": "pong"
}
jeffmichael7@jeffmichael7-VirtualBox: ~$
```

We then created the Ansible playbooks necessary to perform tasks:

A terminal window showing the creation of two Ansible playbooks. The user is in the directory '/etc/ansible'. They run 'sudo touch server_playbook.yml' and 'ls', which shows 'ansible.cfg hosts index.html.j2 server_playbook.yml'. Then they run 'sudo touch stop_playbook.yml' and 'ls', which shows 'ansible.cfg hosts index.html.j2 server_playbook.yml stop_playbook.yml'.

```
jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$ sudo touch server_playbook.yml
jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$ ls
ansible.cfg  hosts  index.html.j2  server_playbook.yml
jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$ sudo touch stop_playbook.yml
jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$ ls
ansible.cfg  hosts  index.html.j2  server_playbook.yml  stop_playbook.yml
jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$
```

At this junction, there was much difficulty in solving the Nginx issue, given that our page continued to show the default Nginx greeting page. Nonetheless, we solved it.

These are the playbooks to deploy and un-deploy the resources.

A screenshot of a code editor window titled 'server_playbook.yml' with the path '/etc/ansible' below it. The editor has a dark theme and includes a toolbar with 'Open', 'Save', and window control buttons. The code is written in a YAML format with syntax highlighting. It defines a playbook for setting up a webserver. The 'hosts' section is 'webserver', 'remote_user' is 'ubuntu', and 'gather_facts' is 'false'. A 'vars' section defines 'MyMessage' as 'HELLO WORLD!'. The 'tasks' section contains two tasks: one for installing Nginx using the 'apt' module, and another for copying an 'index.html' template to the web root directory using the 'template' module.

```
- hosts: webserver
  remote_user: ubuntu
  gather_facts: false

  vars:
    - MyMessage: "HELLO WORLD!"

  tasks:
    - name: Nginx setup
      become: yes
      apt: pkg=nginx state=installed update_cache=true

    - name: index.html copy
      become: yes
      template: src=index.html.j2 dest=/var/www/html/index.nginx-debian.html
```

Open ▾



server_stop_playbook.yml
/etc/ansible

Save



```
hosts: webservers
remote_user: ubuntu
```

```
tasks:
```

- name: stop
 become: yes
 service: name=nginx state=stopped

Finally, we test the deploy server playbook and the stop server playbook, of which both tests were successful.

```
jeffmichael7@jeffmichael7-VirtualBox: /etc/ansible
File Edit View Search Terminal Help
jeffmichael7@jeffmichael7-VirtualBox:~$ cd /etc/ansible
jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$ ansible-playbook -i hosts server_playbook.yml

PLAY [webserver] *****

TASK [Nginx setup] *****
[DEPRECATION WARNING]: State 'installed' is deprecated. Using state 'present' instead.. This feature will be removed in version 2.9.
Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
changed: [54.153.122.22]

TASK [index.html copy] *****
changed: [54.153.122.22]

PLAY RECAP *****
54.153.122.22 : ok=2    changed=2    unreachable=0    failed=0

jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$
```



```
jeffmichael7@jeffmichael7-VirtualBox: /etc/ansible
File Edit View Search Terminal Help
jeffmichael7@jeffmichael7-VirtualBox:~$ cd /etc/ansible
jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$ ansible-playbook -i hosts server_playbook.yml

PLAY [webserver] *****

TASK [Nginx setup] *****
[DEPRECATION WARNING]: State 'installed' is deprecated. Using state 'present' instead.. This feature will be removed in version 2.9.
Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
changed: [54.153.122.22]

TASK [index.html copy] *****
changed: [54.153.122.22]

PLAY RECAP *****
54.153.122.22 : ok=2 changed=2 unreachable=0 failed=0

jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$ ansible-playbook -i hosts server_stop_playbook.yml

PLAY [webserver] *****

TASK [Gathering Facts] *****
ok: [54.153.122.22]

TASK [stop] *****
changed: [54.153.122.22]

PLAY RECAP *****
54.153.122.22 : ok=2 changed=1 unreachable=0 failed=0

jeffmichael7@jeffmichael7-VirtualBox:/etc/ansible$
```



This site can't be reached

54.153.122.22 refused to connect.

Try:

- Checking the connection
- [Checking the proxy and the firewall](#)

ERR_CONNECTION_REFUSED

Details

Reload