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Course/Section:CPE 212-CPE31S2	Date Submitted:10/14/2024
Instructor: Engr. Robin Valenzuela	Semester and SY:

Activity 8: Install, Configure, and Manage Availability Monitoring tools

1. Objectives

Create and design a workflow that installs, configure and manage enterprise monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.

2. Discussion

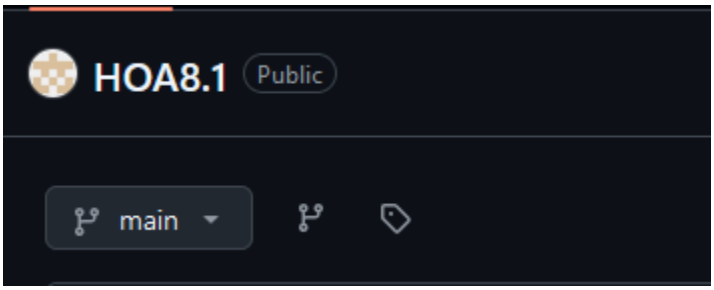
Availability monitoring is a type of monitoring tool that we use if the certain workload is up or reachable on our end. Site downtime can lead to loss of revenue, reputational damage and severe distress. Availability monitoring prevents adverse situations by checking the uptime of infrastructure components such as servers and apps and notifying the webmaster of problems before they impact on business.

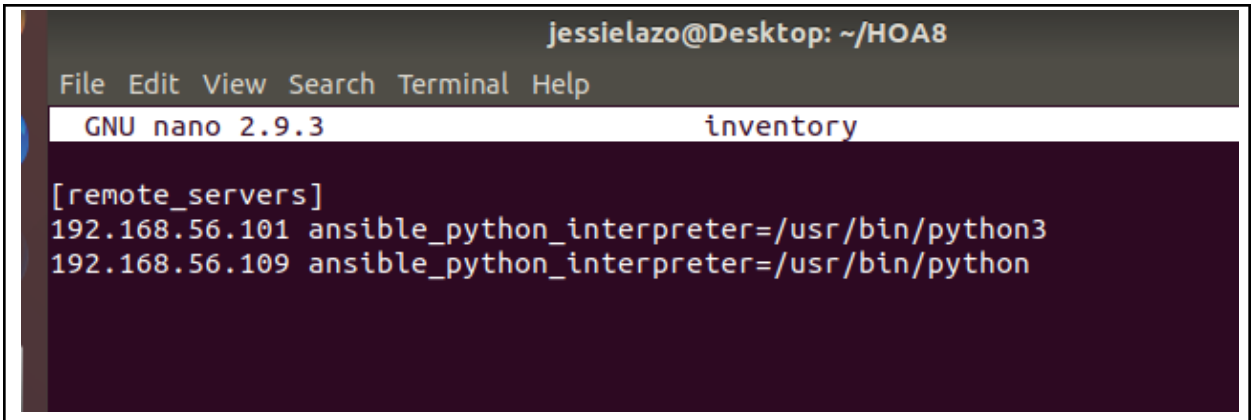
3. Tasks

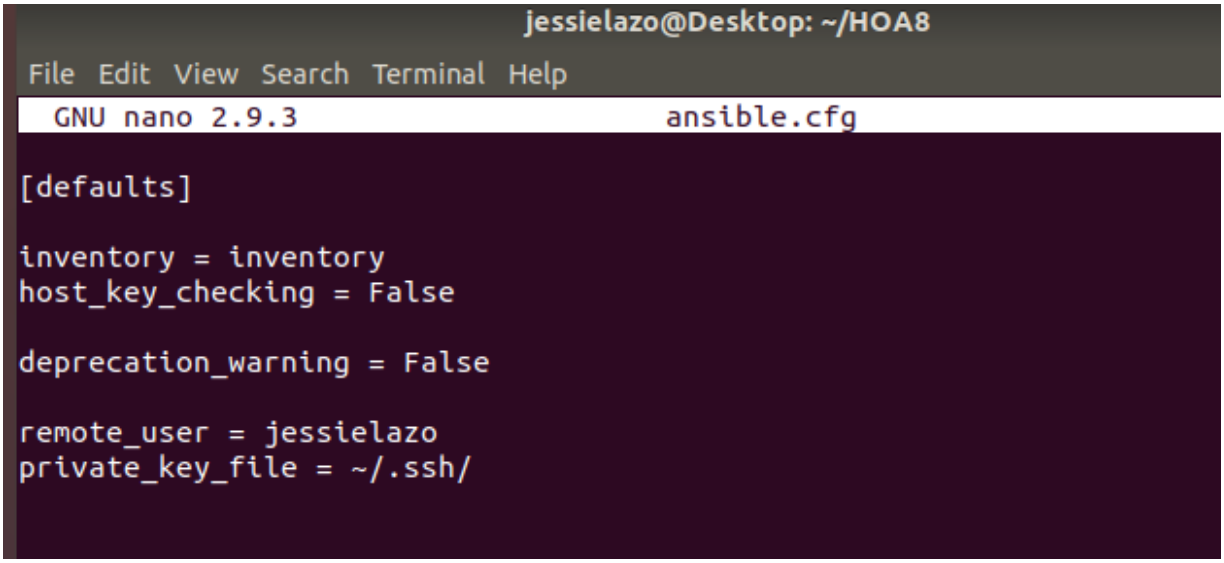
1. Create a playbook that installs Nagios in both Ubuntu and CentOS. Apply the concept of creating roles.
2. Describe how you did step 1. (Provide screenshots and explanations in your report. Make your report detailed such that it will look like a manual.)
3. Show an output of the installed Nagios for both Ubuntu and CentOS.
4. Make sure to create a new repository in GitHub for this activity.

4. Output (screenshots and explanations)

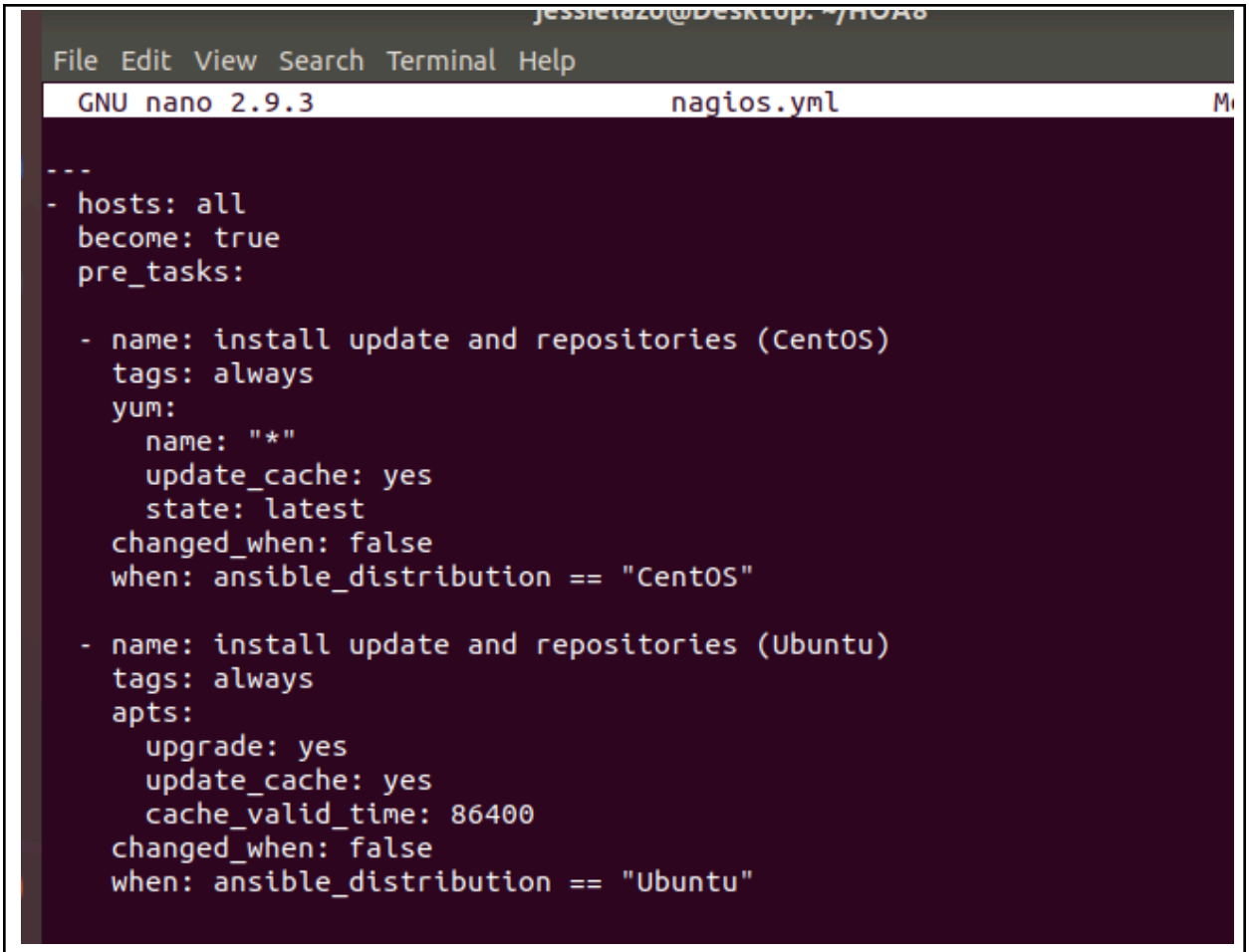
Before beginning the activity, the first thing to do is create a new repository, creating the ansible configuration file and inventory file needed to establish a working ansible environment between one local machine (ubuntu), and two remote machines (Ubuntu, and CentOS).



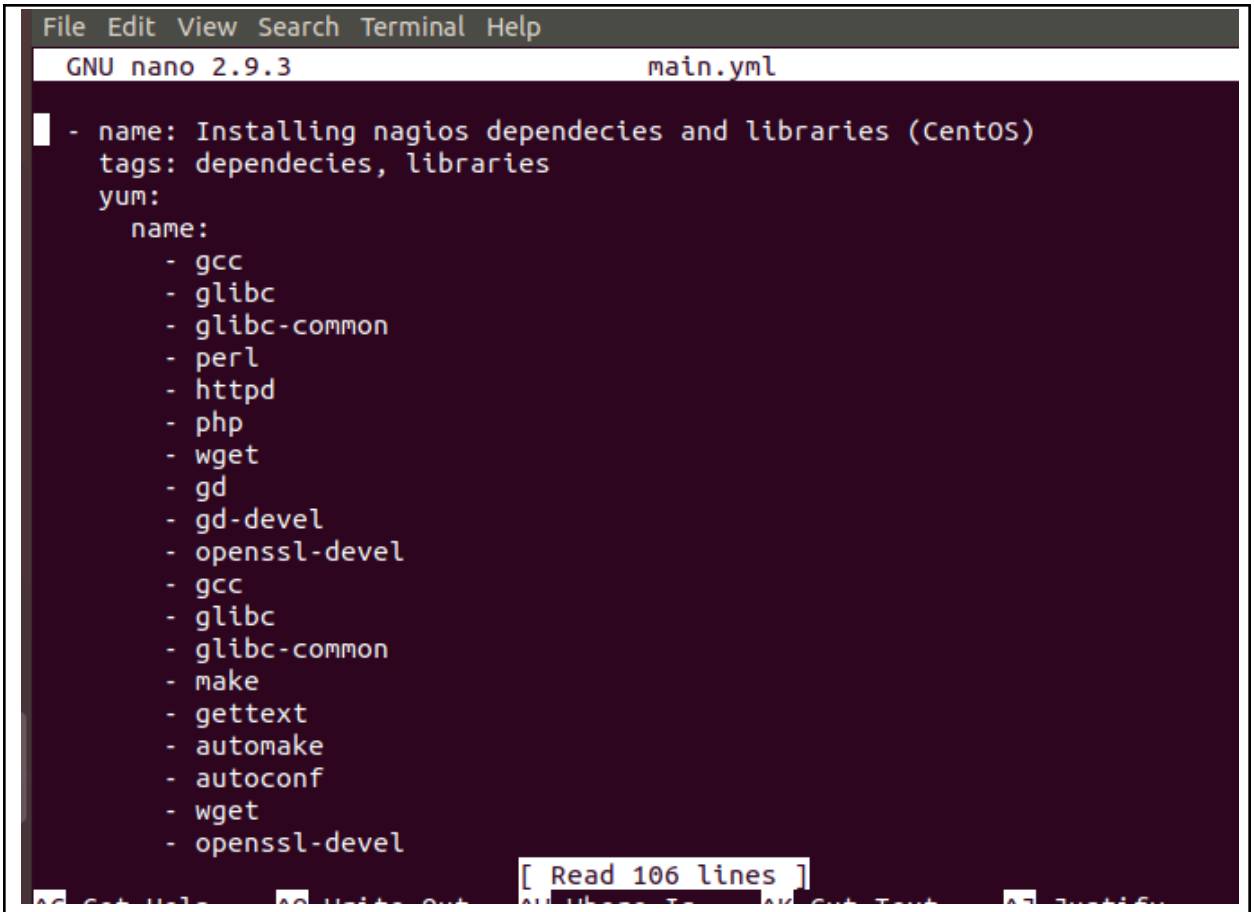




2. Create a playbook named nagios.yml and implement basic update and upgrade commands for Ubuntu and CentOS machines.



3. In setting up the Nagios, there are a lot of dependencies which has to be installed first for they would be used later, during, or upon installation of Nagios.



These are the list of dependencies which consists of libraries, services, and stuff needed for the setup of Nagios.

4. Upon installing the required dependencies for setting up Nagios, the next thing to do is to create a directory for storing the Nagios files and plugins which would later be downloaded.

jessielazo@Desktop: ~/HOA8/roles/remote_servers_centos/tasks

File Edit View Search Terminal Help

GNU nano 2.9.3 main.yml

```
      - net-snmp-utils
      - python3-pip
    state: present
  when: ansible_distribution == "CentOS"

- name: Install passlib python package (CentOS)
  pip:
    executable: /usr/bin/pip3
    name: passlib
  when: ansible_distribution == "CentOS"

- name: Creating a directory for nagios (CentOS)
  file:
    path: ~/nagios
    state: directory
  when: ansible_distribution == "CentOS"
```

jessielazo@Desktop: ~/HOA8/roles/remote_servers_ubuntu/tasks

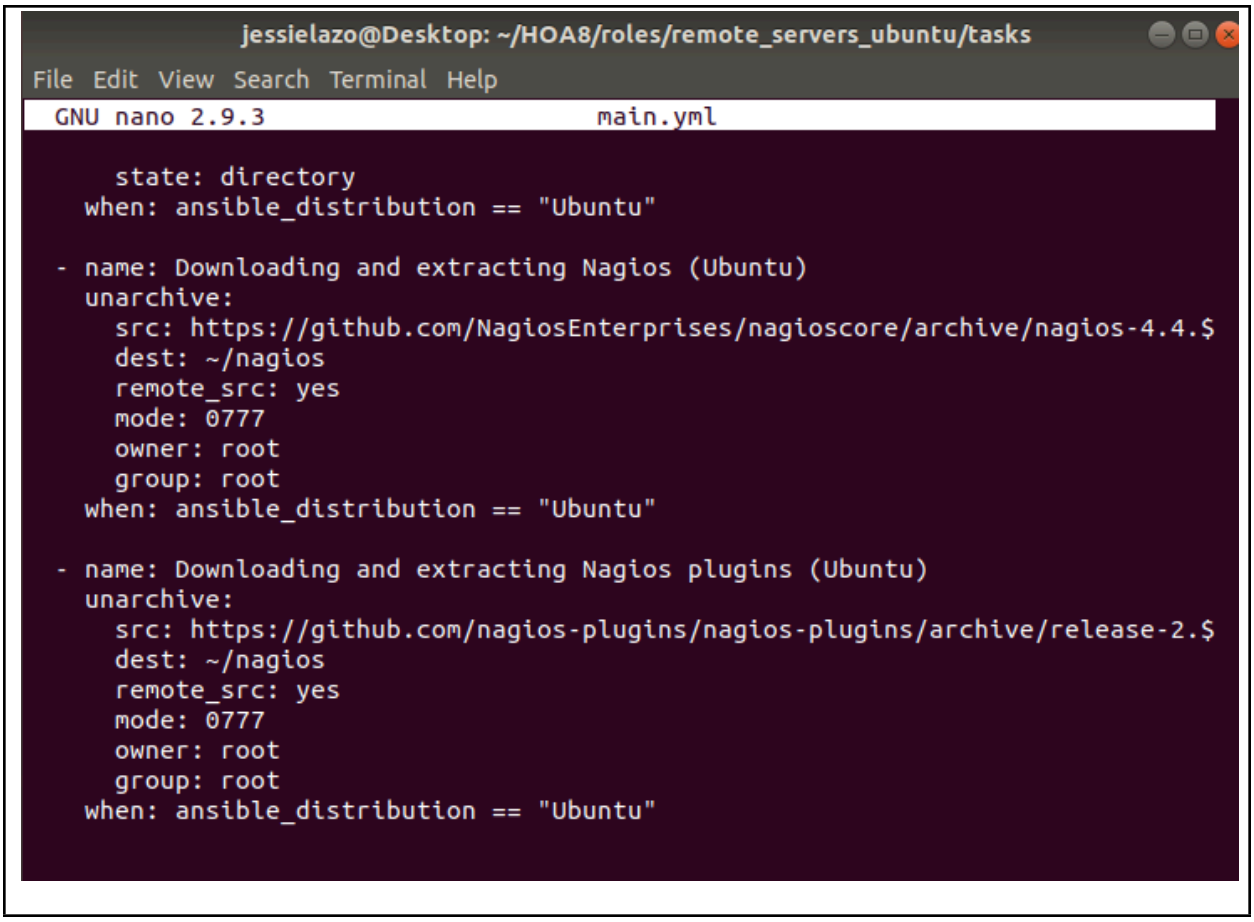
File Edit View Search Terminal Help

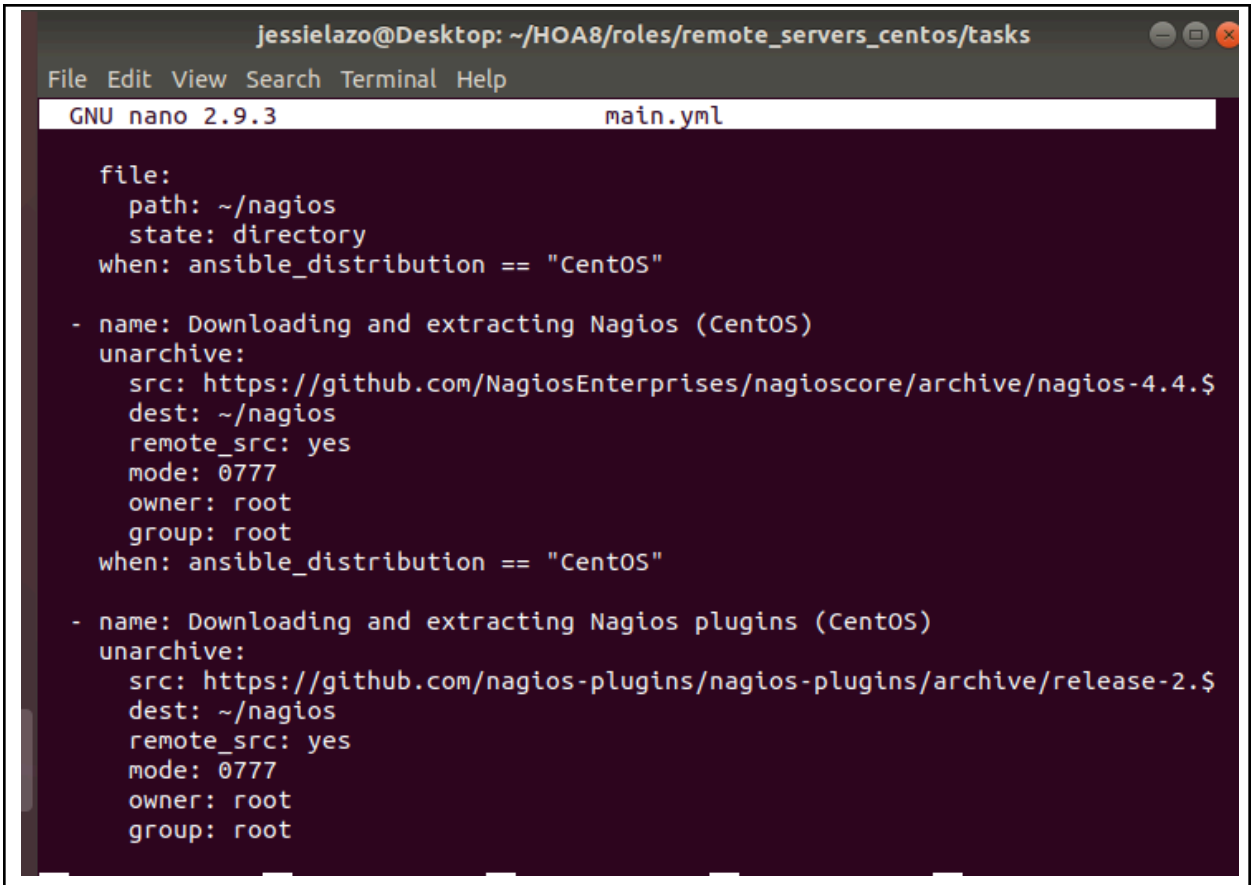
GNU nano 2.9.3 main.yml

```
      - python3-pip
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: passlib package (Ubuntu)
  pip:
    name: passlib
  when: ansible_distribution == "Ubuntu"

- name: Creating a directory for nagios (Ubuntu)
  file:
    path: ~/nagios
    state: directory
  when: ansible_distribution == "Ubuntu"
```

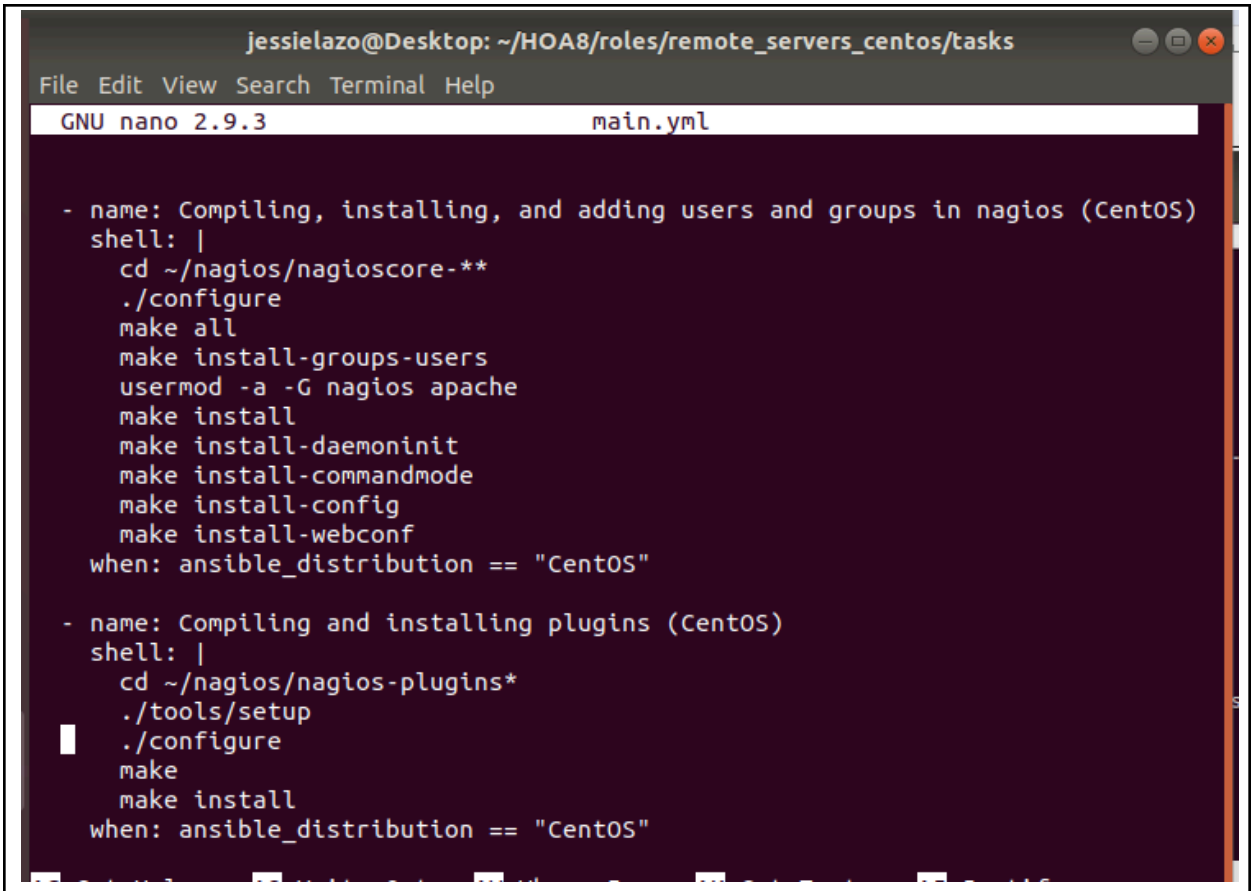
5. After creating a directory, we can start downloading and extracting

Nagios files and Plugins

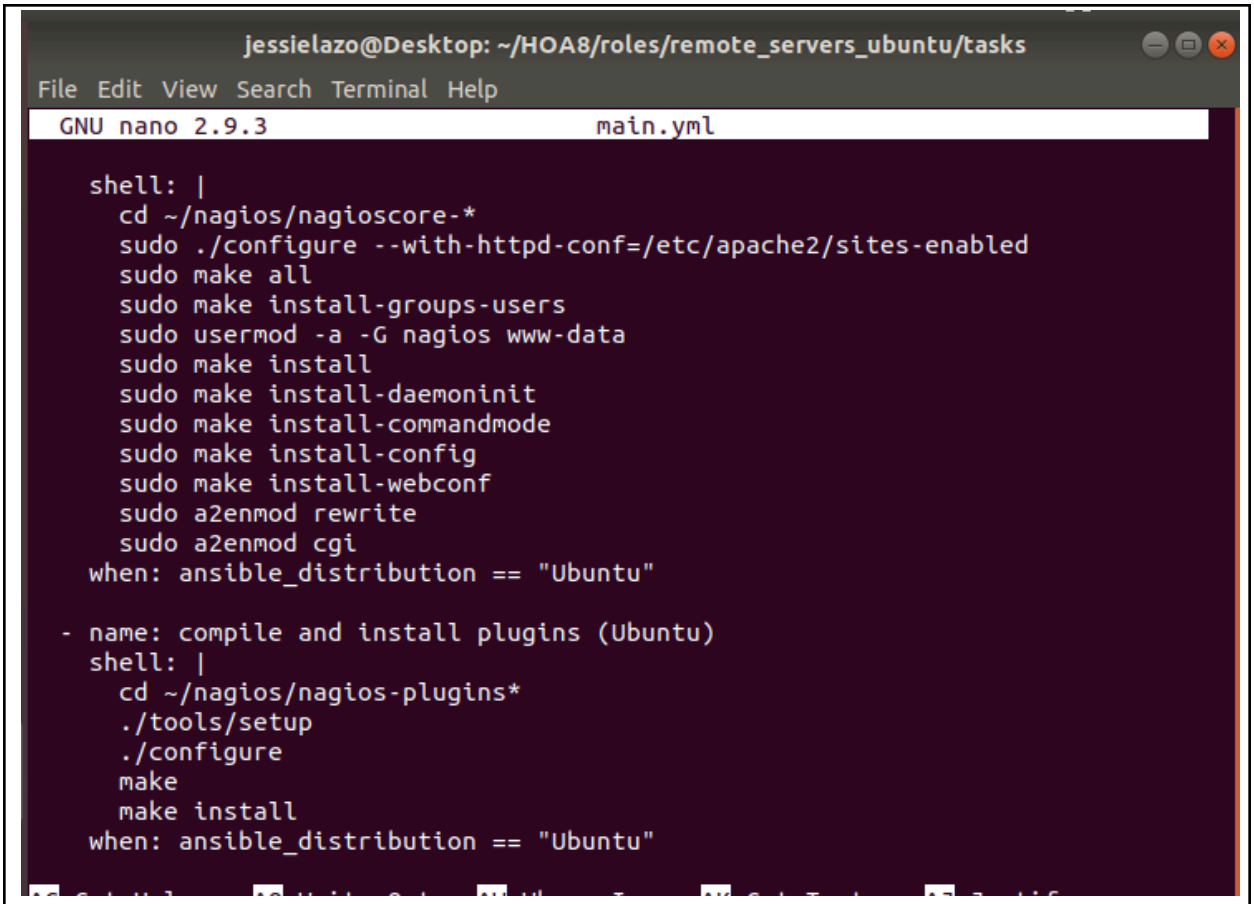

jessielazo@Desktop: ~/HOA8/roles/remote_servers_ubuntu/tasks
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml
state: directory
when: ansible_distribution == "Ubuntu"
- name: Downloading and extracting Nagios (Ubuntu)
unarchive:
src: https://github.com/NagiosEnterprises/nagioscore/archive/nagios-4.4.$
dest: ~/nagios
remote_src: yes
mode: 0777
owner: root
group: root
when: ansible_distribution == "Ubuntu"
- name: Downloading and extracting Nagios plugins (Ubuntu)
unarchive:
src: https://github.com/nagios-plugins/nagios-plugins/archive/release-2.$
dest: ~/nagios
remote_src: yes
mode: 0777
owner: root
group: root
when: ansible_distribution == "Ubuntu"



6. When Nagios files and Plugins are already extracted, we can begin the installation and additional procedures which are the following shell commands as part of the setting up of Nagios.

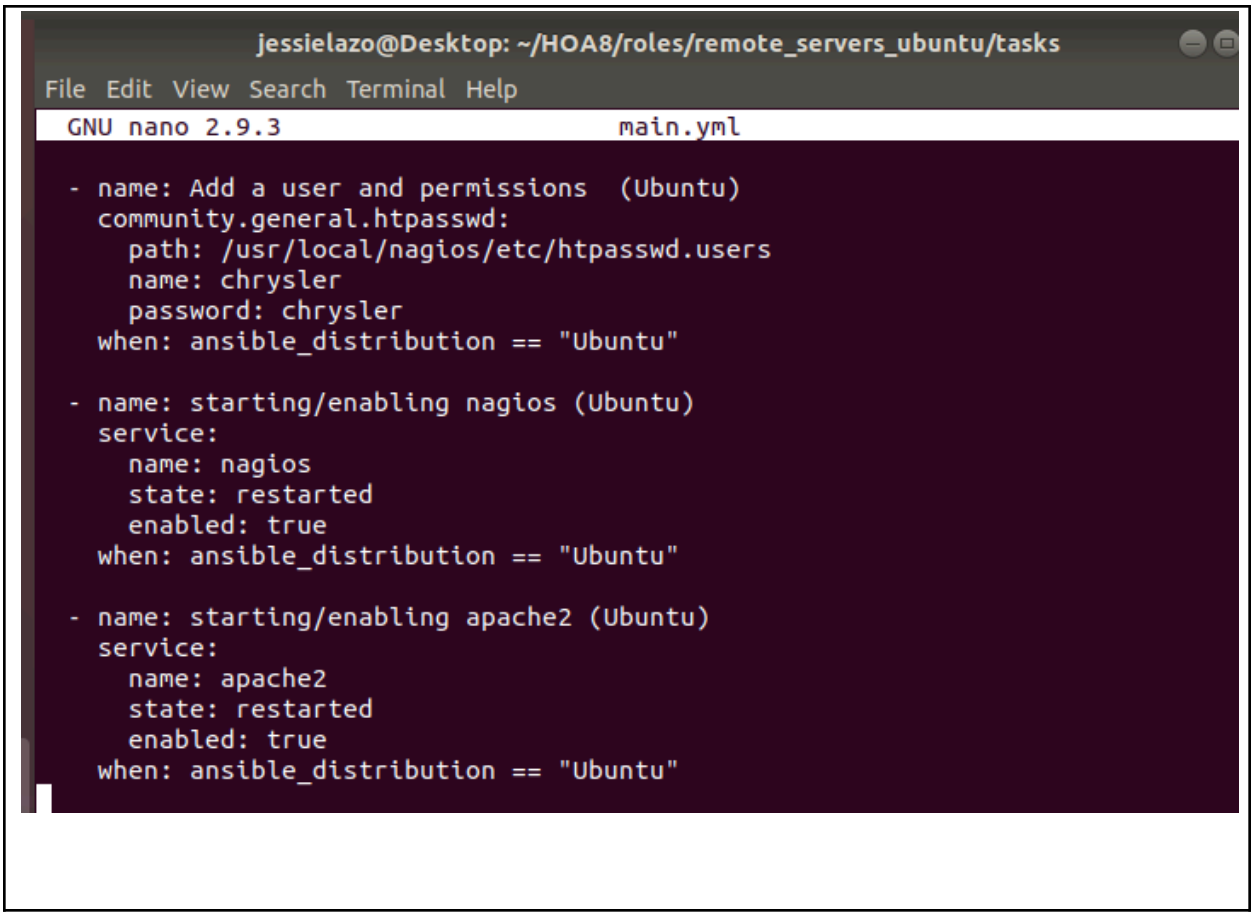


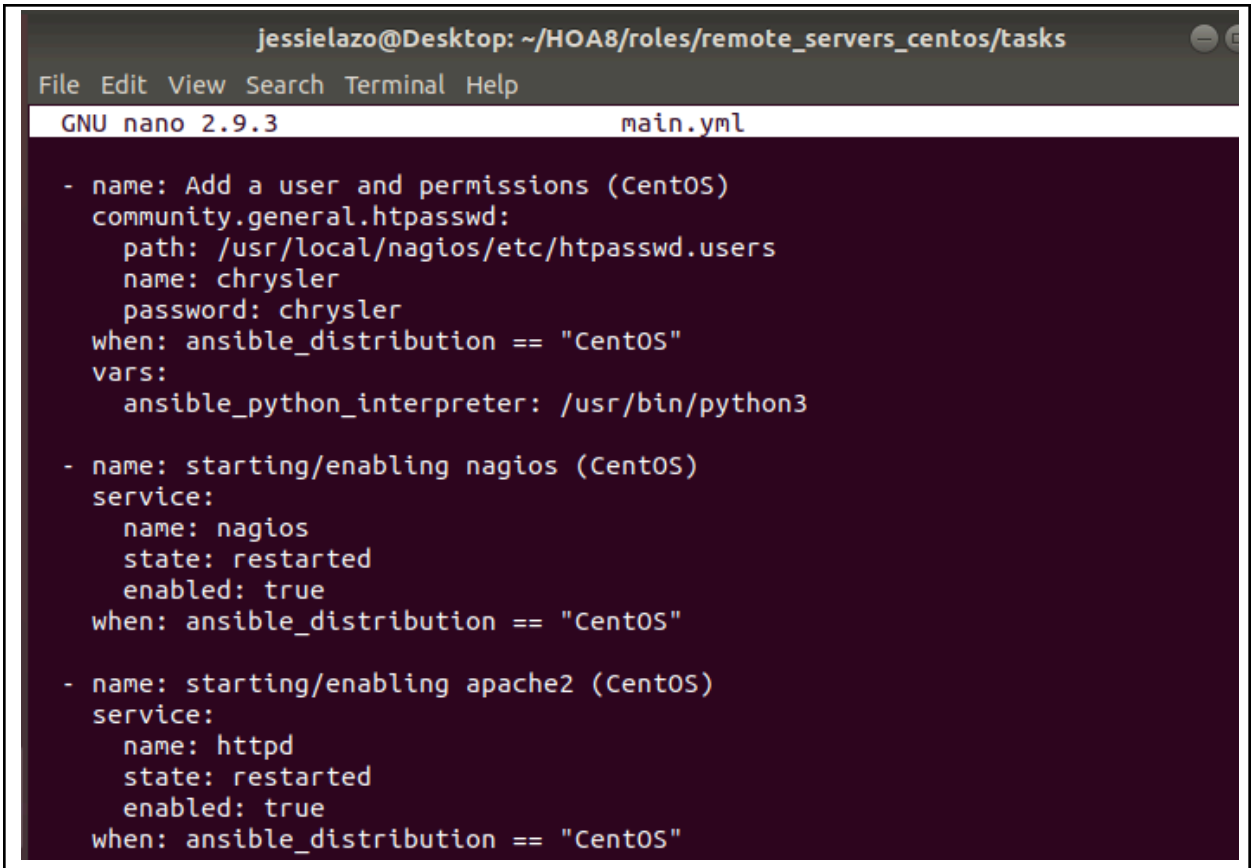

```
- name: install, compile, adding users and groups in Nagios (Ubuntu)
  shell: |
    cd ~/nagios/nagioscore-*
    sudo ./configure --with-httpd-conf=/etc/apache2/sites-enabled
    sudo make all
    sudo make install-groups-users
    sudo usermod -a -G nagios www-data
    sudo make install
    sudo make install-daemoninit
    sudo make install-commandmode
    sudo make install-config
    sudo make install-webconf
```



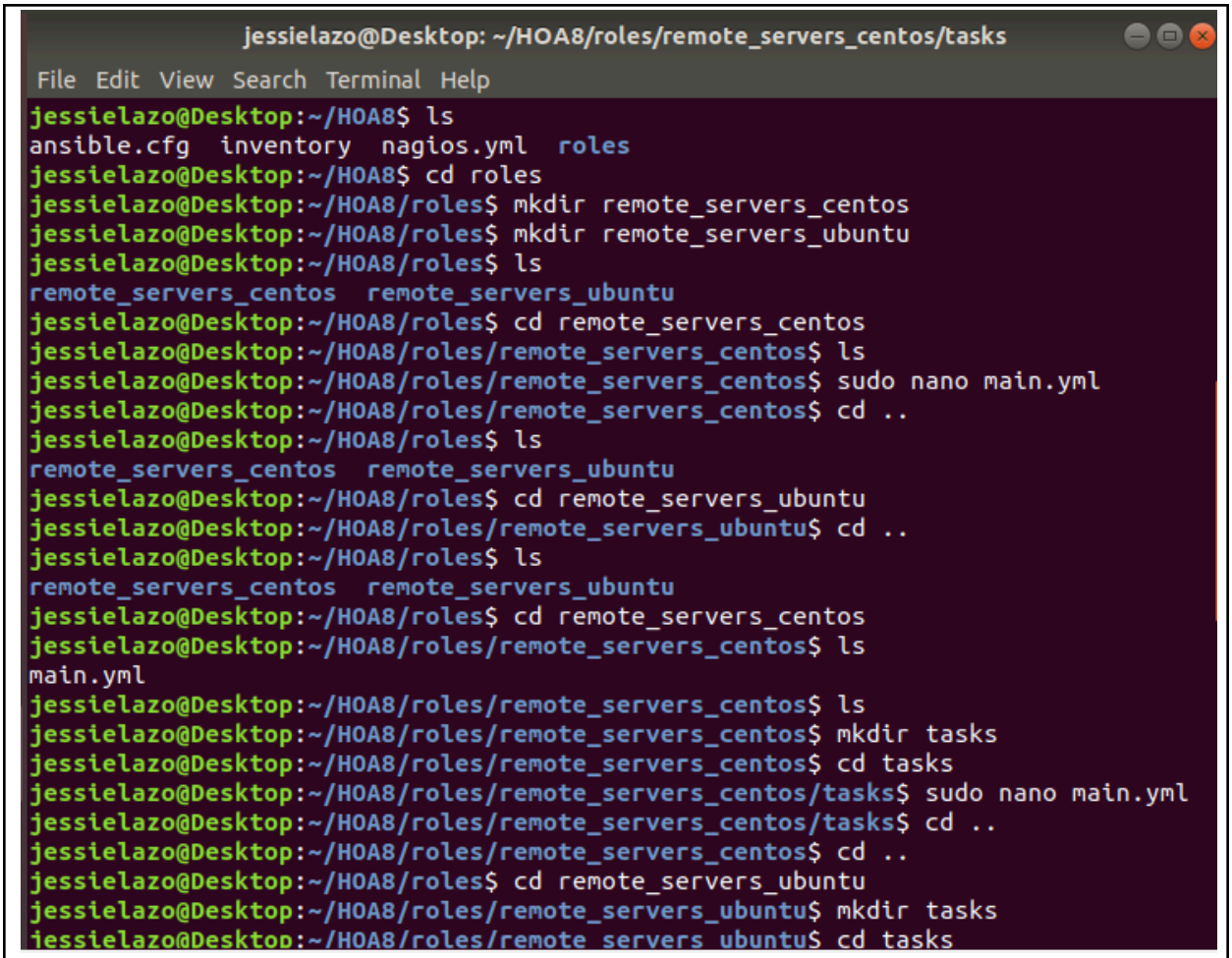
This includes compiling and installing Nagios files and plugins, and lastly adding a user and its permissions

7. After running the necessary installation and configurations of Nagios files and plugins, we have to make sure the Nagios and apache/httpd services are in UP state.

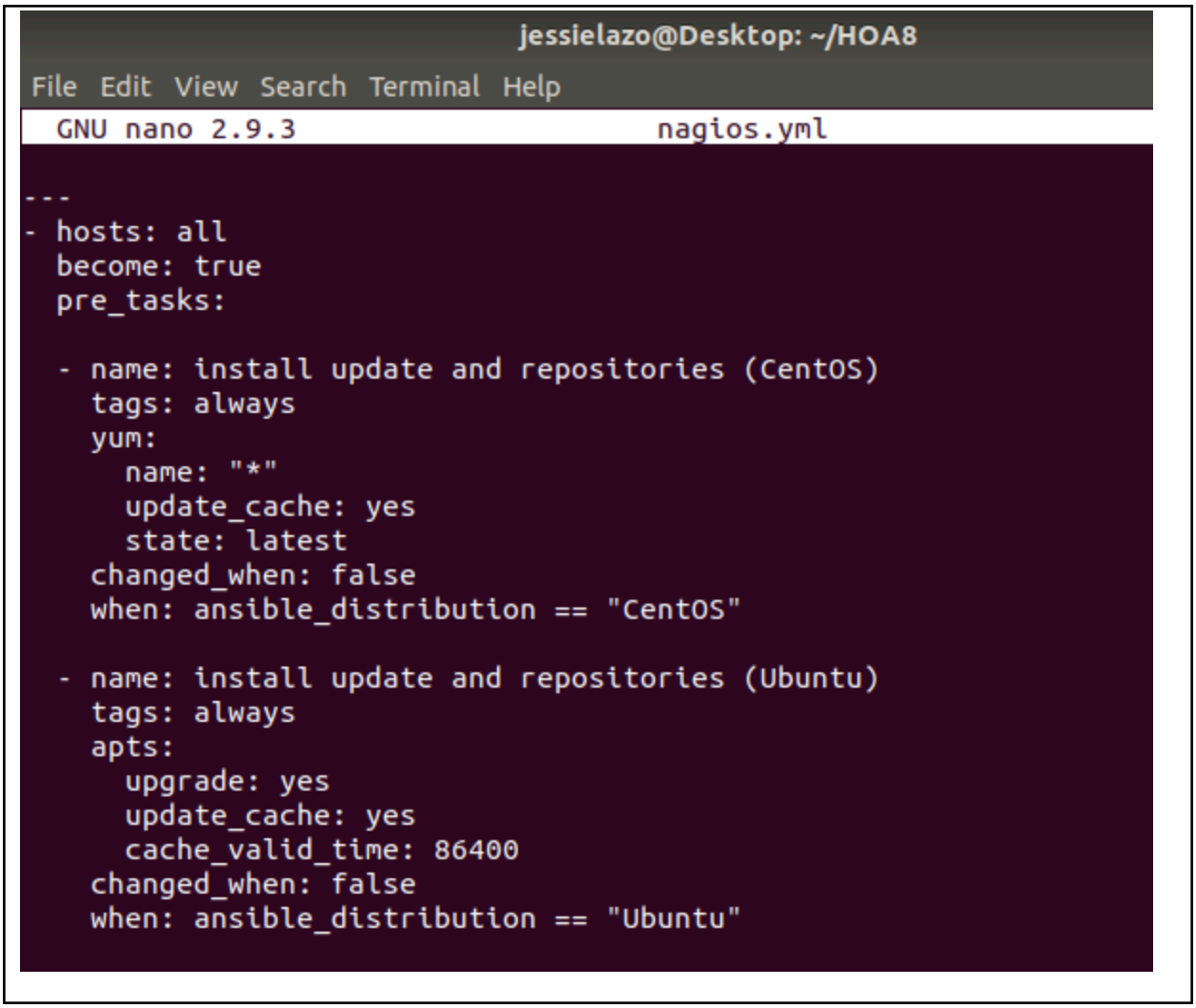

jessielazo@Desktop: ~/HOA8/roles/remote_servers_ubuntu/tasks
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml
- name: Add a user and permissions (Ubuntu)
community.general.htpasswd:
path: /usr/local/nagios/etc/htpasswd.users
name: chrysler
password: chrysler
when: ansible_distribution == "Ubuntu"
- name: starting/enabling nagios (Ubuntu)
service:
name: nagios
state: restarted
enabled: true
when: ansible_distribution == "Ubuntu"
- name: starting/enabling apache2 (Ubuntu)
service:
name: apache2
state: restarted
enabled: true
when: ansible_distribution == "Ubuntu"



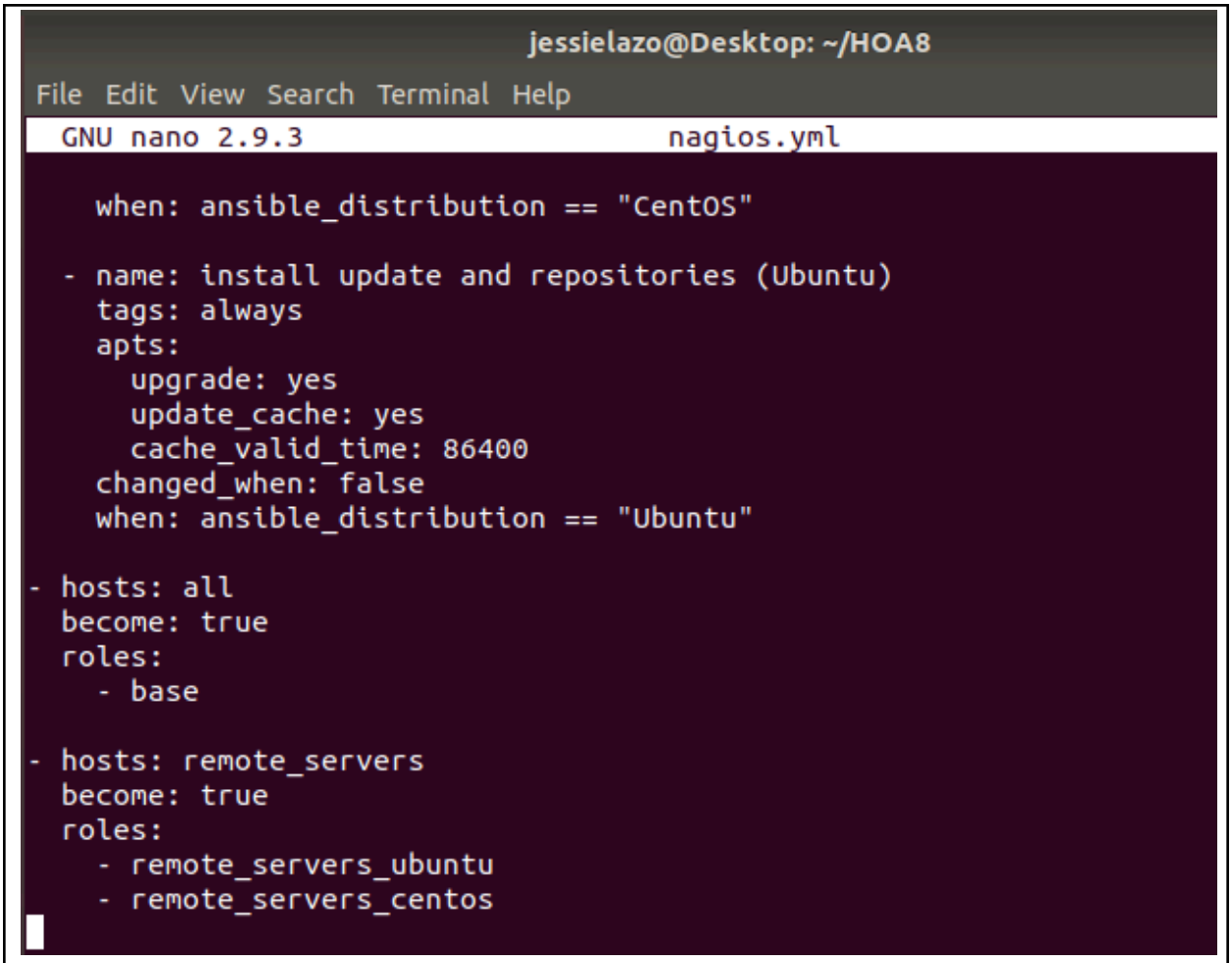
8. To make the management more convenient, it is highly suggested to implement roles. Make a directory named roles, then make its required subdirectories for implementing the role



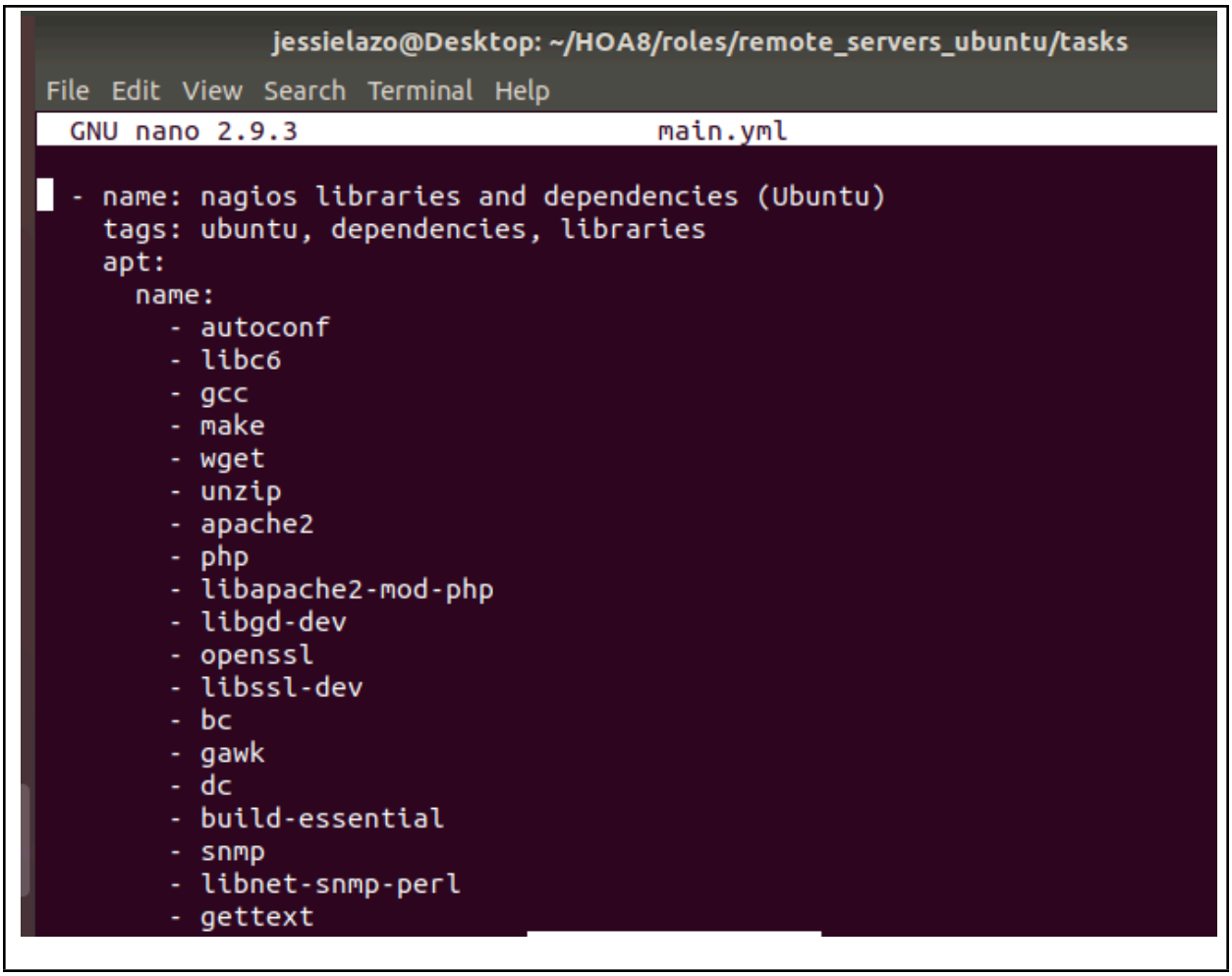
9. Modify the nagios.yml file according to how the roles in a playbook are implemented

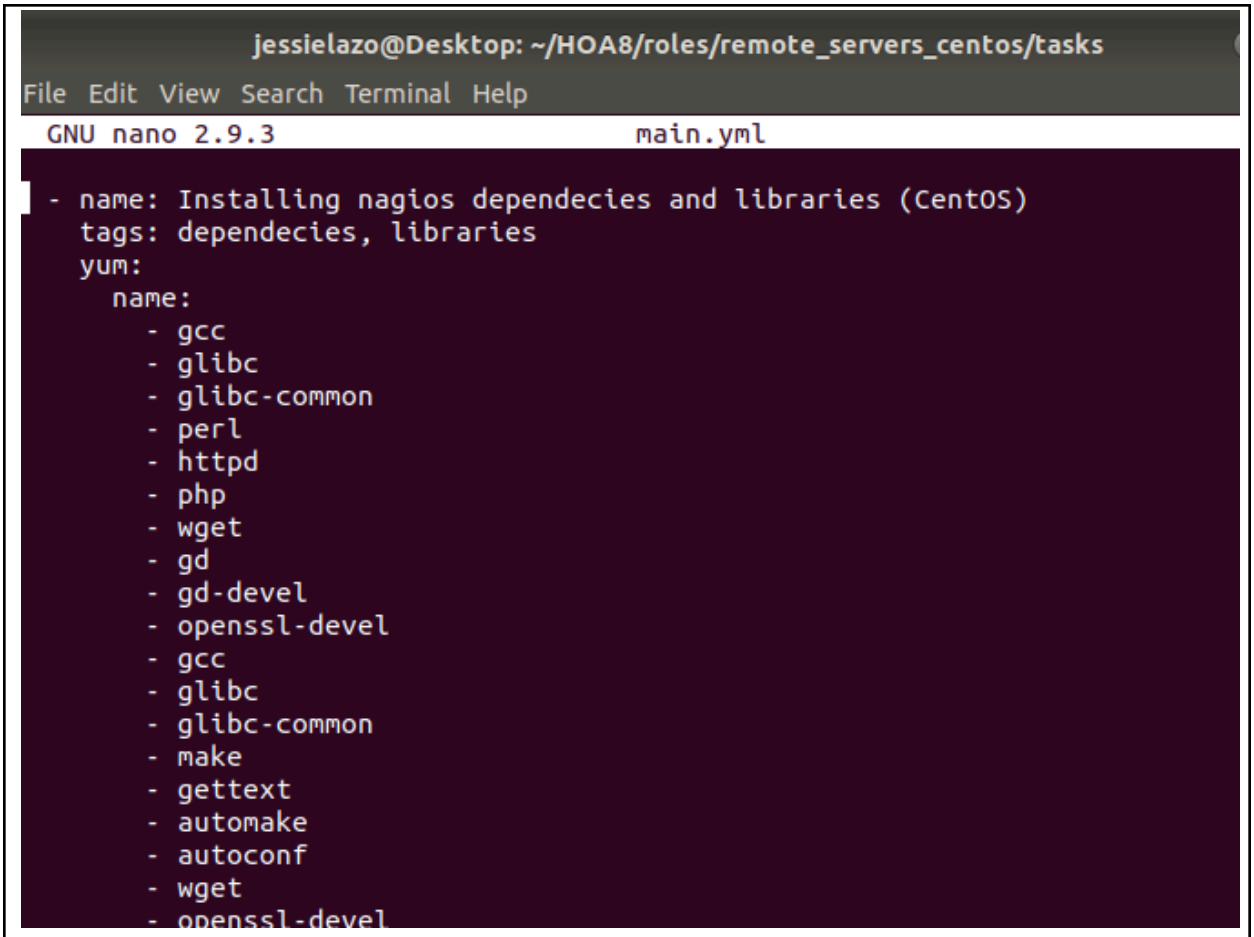

jessielazo@Desktop: ~/HOA8
File Edit View Search Terminal Help
GNU nano 2.9.3 nagios.yml

- hosts: all
become: true
pre_tasks:
- name: install update and repositories (CentOS)
tags: always
yum:
name: "*"
update_cache: yes
state: latest
changed_when: false
when: ansible_distribution == "CentOS"
- name: install update and repositories (Ubuntu)
tags: always
apts:
upgrade: yes
update_cache: yes
cache_valid_time: 86400
changed_when: false
when: ansible_distribution == "Ubuntu"



10. .The main.yml file for ubuntu_servers and centos_servers must be copied from the old nagios.yml file.


jessielazo@Desktop: ~/HOA8/roles/remote_servers_ubuntu/tasks
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml
- name: nagios libraries and dependencies (Ubuntu)
tags: ubuntu, dependencies, libraries
apt:
name:
- autoconf
- libc6
- gcc
- make
- wget
- unzip
- apache2
- php
- libapache2-mod-php
- libgd-dev
- openssl
- libssl-dev
- bc
- gawk
- dc
- build-essential
- snmp
- libnet-snmp-perl
- gettext

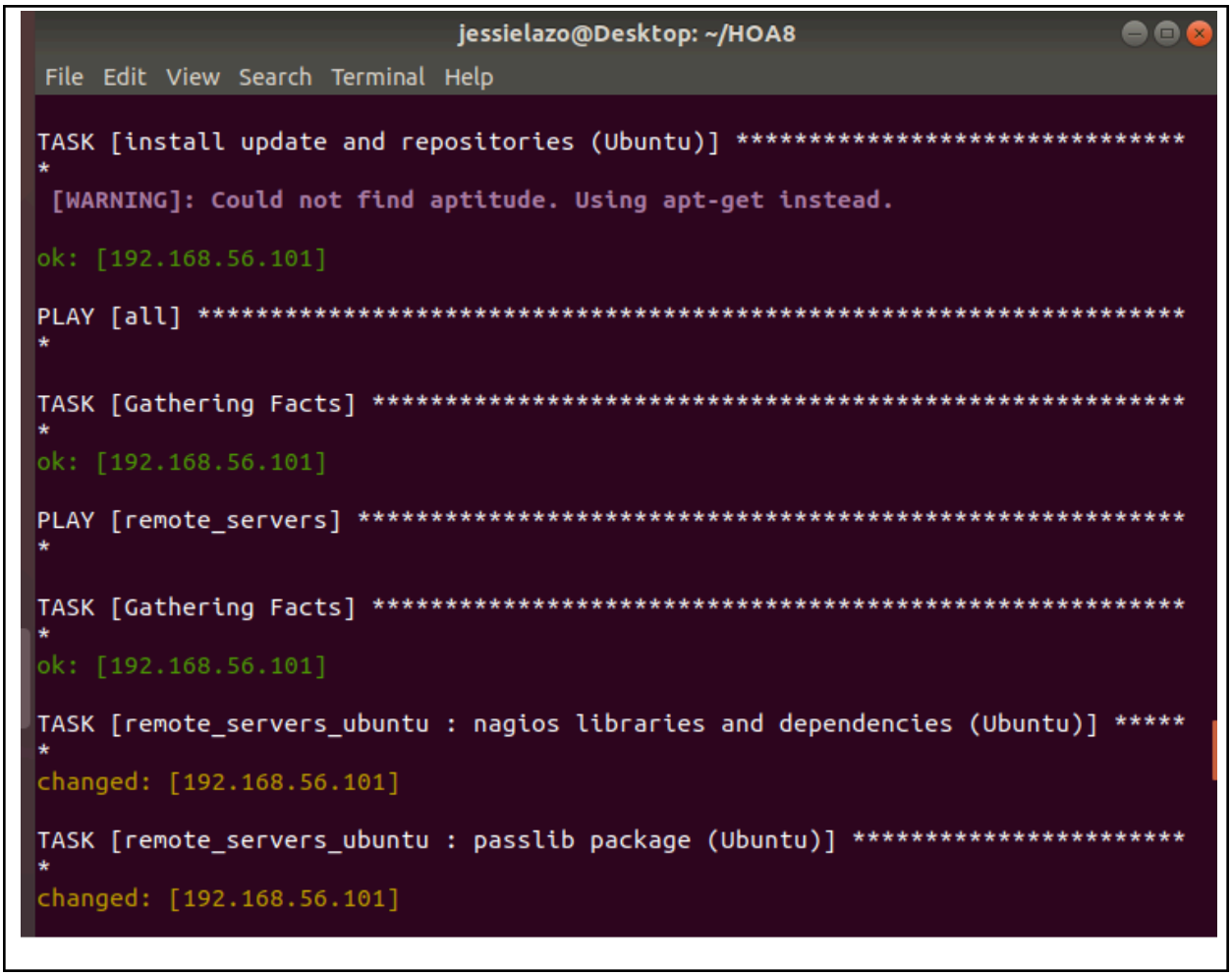


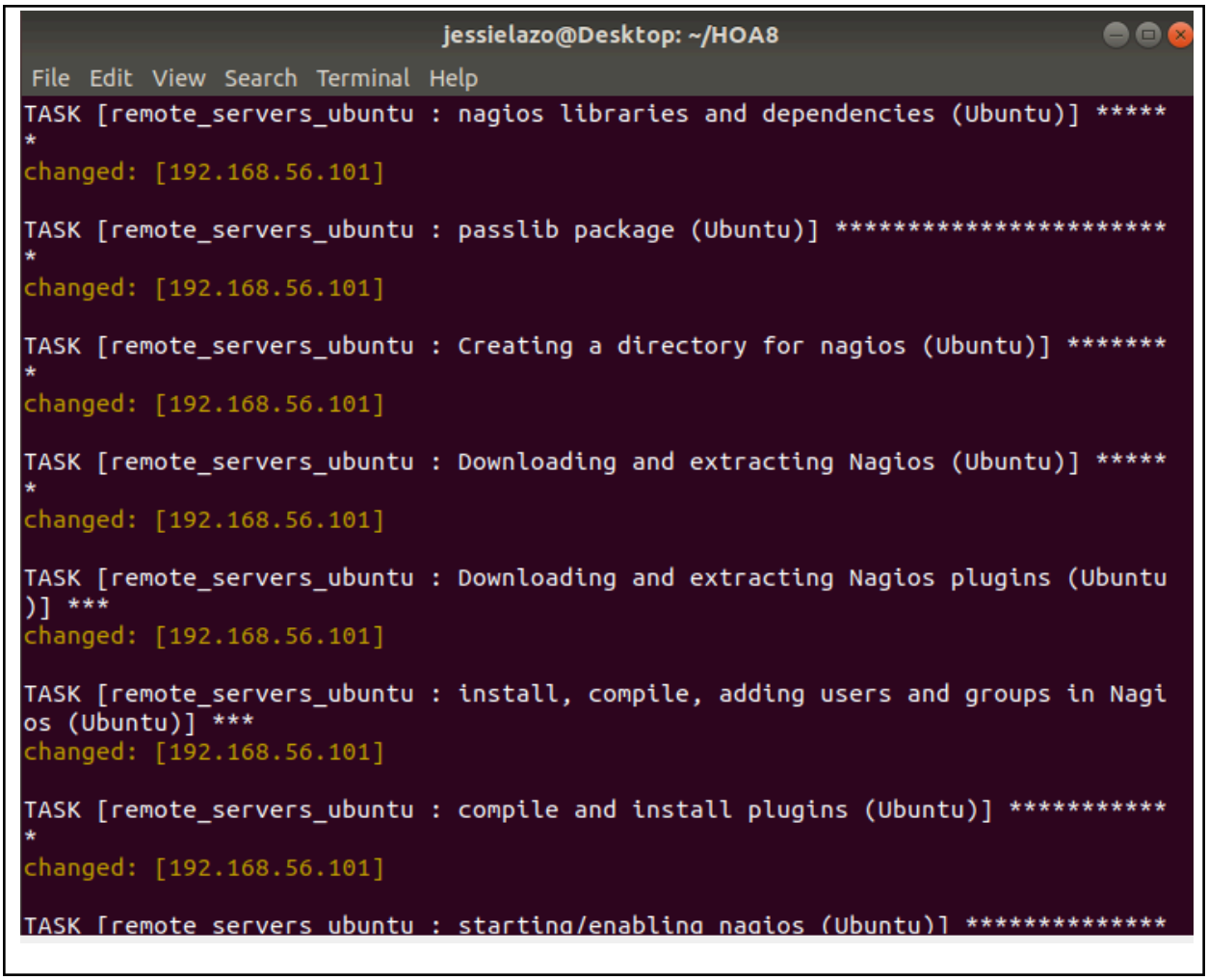
11. Run the nagios.yml and check and debug for errors, and lastly provide proof for working Nagios.

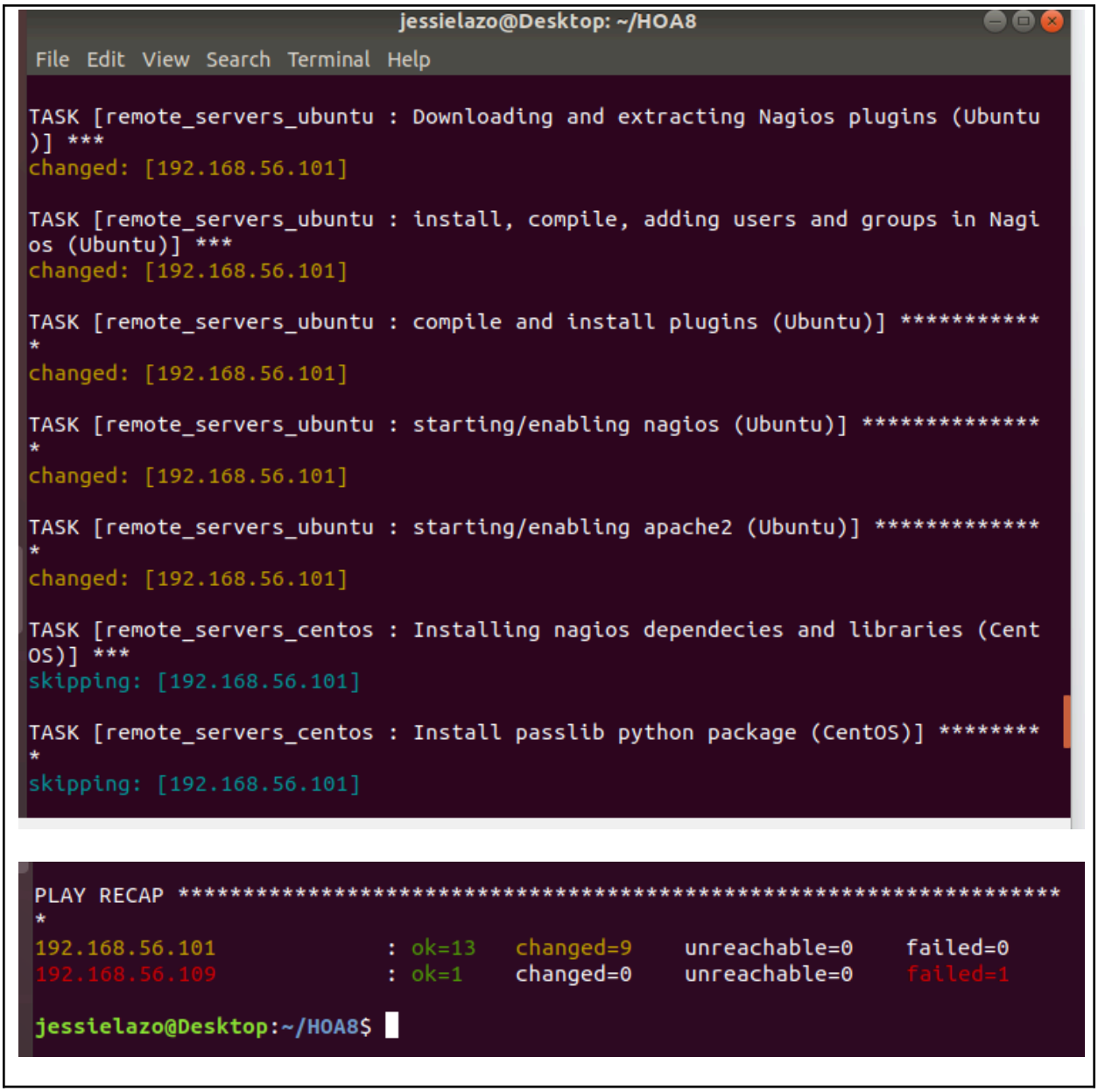
12. Sync the repository with Github.

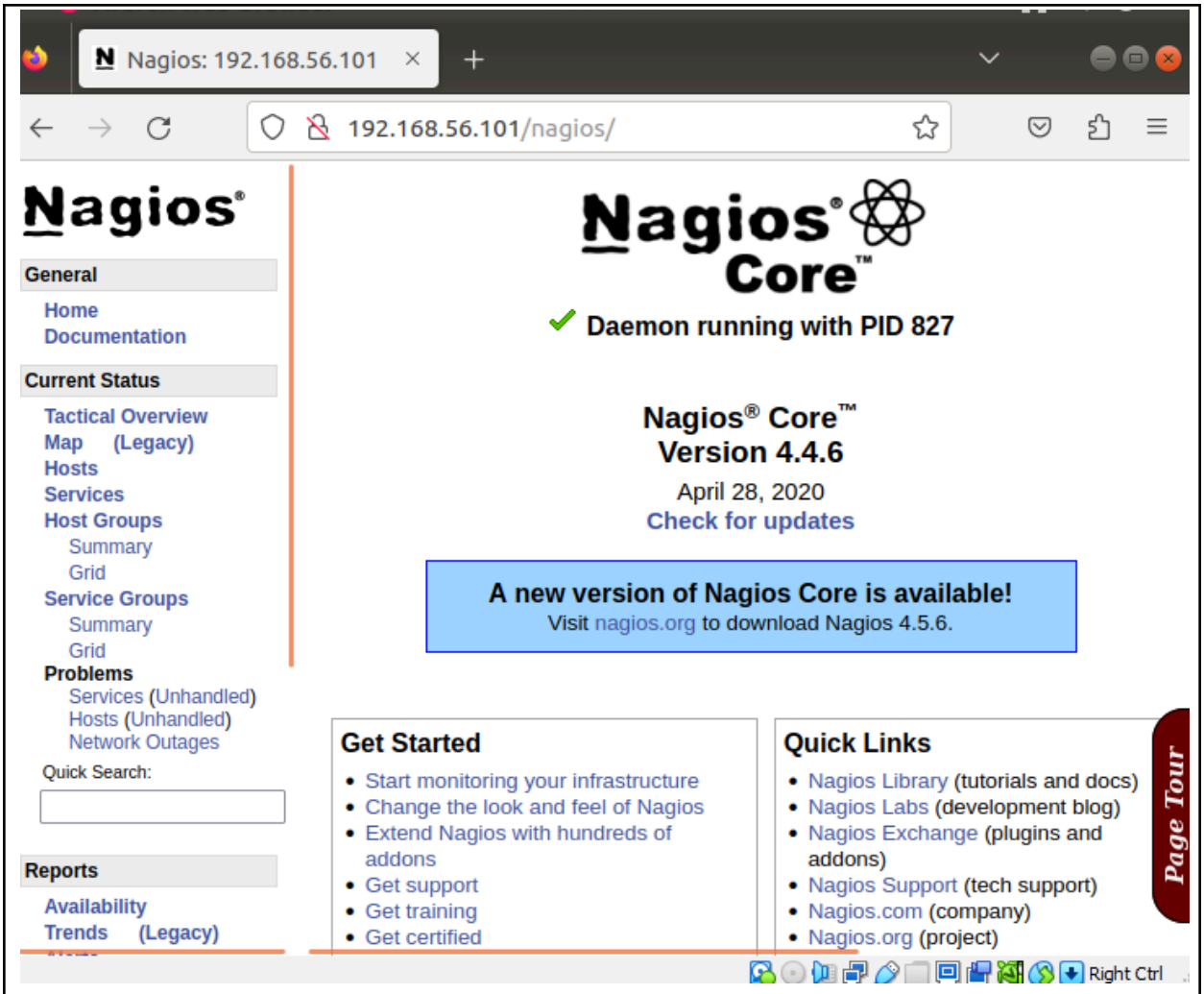
Outputs:

1st run: Ubuntu runs successfully without error. I still encounter centos errors like in previous activity.


jessielazo@Desktop: ~/HOA8
File Edit View Search Terminal Help
TASK [install update and repositories (Ubuntu)] ********************************
*
[WARNING]: Could not find aptitude. Using apt-get instead.
ok: [192.168.56.101]
PLAY [all] ***
*
TASK [Gathering Facts] ***
*
ok: [192.168.56.101]
PLAY [remote_servers] **
*
TASK [Gathering Facts] ***
*
ok: [192.168.56.101]
TASK [remote_servers_ubuntu : nagios libraries and dependencies (Ubuntu)] *****
*
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : passlib package (Ubuntu)] ***********************
*
changed: [192.168.56.101]


jessielazo@Desktop: ~/HOA8
File Edit View Search Terminal Help
TASK [remote_servers_ubuntu : nagios libraries and dependencies (Ubuntu)] *****
*
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : passlib package (Ubuntu)] **********
*
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : Creating a directory for nagios (Ubuntu)] *******
*
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : Downloading and extracting Nagios (Ubuntu)] *****
*
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : Downloading and extracting Nagios plugins (Ubuntu
)] ***
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : install, compile, adding users and groups in Nagi
os (Ubuntu)] ***
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : compile and install plugins (Ubuntu)] **********
*
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : starting/enabling nagios (Ubuntu)] **********


jessielazo@Desktop: ~/HOA8
File Edit View Search Terminal Help
TASK [remote_servers_ubuntu : Downloading and extracting Nagios plugins (Ubuntu)] ***
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : install, compile, adding users and groups in Nagi os (Ubuntu)] ***
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : compile and install plugins (Ubuntu)] ********** *
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : starting/enabling nagios (Ubuntu)] ************** *
changed: [192.168.56.101]
TASK [remote_servers_ubuntu : starting/enabling apache2 (Ubuntu)] ************* *
changed: [192.168.56.101]
TASK [remote_servers_centos : Installing nagios dependecies and libraries (Cent OS)] ***
skipping: [192.168.56.101]
TASK [remote_servers_centos : Install passlib python package (CentOS)] ******** *
skipping: [192.168.56.101]
PLAY RECAP ********** *
192.168.56.101 : ok=13 changed=9 unreachable=0 failed=0
192.168.56.109 : ok=1 changed=0 unreachable=0 failed=1
jessielazo@Desktop:~/HOA8$



Reflections:

Answer the following:

1. What are the benefits of having an availability monitoring tool?

   Being able to use an availability monitoring tool is like being a networking administrator on top of all your remote machines which you can easily see which specific areas have a problem such as what services. This is what the Nagios do in an enterprise, it eases the monitoring work between remote machines especially in a large enterprise.

Conclusions:

This activity primarily focused on giving the experience of what it is like to install, configure, and manage enterprise availability monitoring through the ansible. The very objective of the activity is to create and design a workflow that installs, configures, and manages enterprise monitoring tools using Ansible as

an Infrastructure as Code (IaC) tool. The activity does not provide steps on what should be done to accomplish the objective hence I have read references on how to set up the Nagios including the prerequisites for installing the Nagios such as its dependencies and plugins. In setting up the Nagios, we were tasked to descriptively explain each and every step we have done to accomplish the activity so I made my own procedure. The procedures were divided into three groups, first is the installation of Nagios prerequisites which includes the creation of a new repository, an inventory file, and an ansible configuration file given that the activity started from scratch. To talk about the prerequisites of Nagios, one of these are the dependencies needed before beginning its setup which includes a lot of libraries and services. Next is the creation of a downloaded files directory for the Nagios files and then downloading the necessary files and plugins before starting the actual installation.
Moving forward to the next task which begins the setup, the installation of Nagios files and plugins was performed at this point including the necessary compilations of specific files. Also, the creation of a user needed for the Nagios (and its permissions) was performed in this part. Then the last task was to implement roles to further organize the use of ansible playbook. I made the necessary folders in order to be able to implement the roles, and then I did some debugging, checkings, and lastly the proof of installation. Upon I ended performing the activity, I had successfully achieved my intended learning outcomes for this activity, and I was able to get the key takeaways from this activity.