Name: Jessie Robert Lazo	Date Performed:10/16/2024
Course/Section:CPE 212-CPE31S2	Date Submitted:10/16/2024
Instructor: Engr. Robin Valenzuela	Semester and SY:

Activity 9: Install, Configure, and Manage Performance Monitoring tools

1. Objectives

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

2. Discussion

Performance monitoring is a type of monitoring tool that identifies current resource consumption of the workload, in this page we will discuss multiple performance monitoring tool.

Prometheus

Prometheus fundamentally stores all data as timeseries: streams of timestamped values belonging to the same metric and the same set of labeled dimensions. Besides stored time series, Prometheus may generate temporary derived time series as the result of queries. Source: Prometheus - Monitoring system & time series database

Cacti

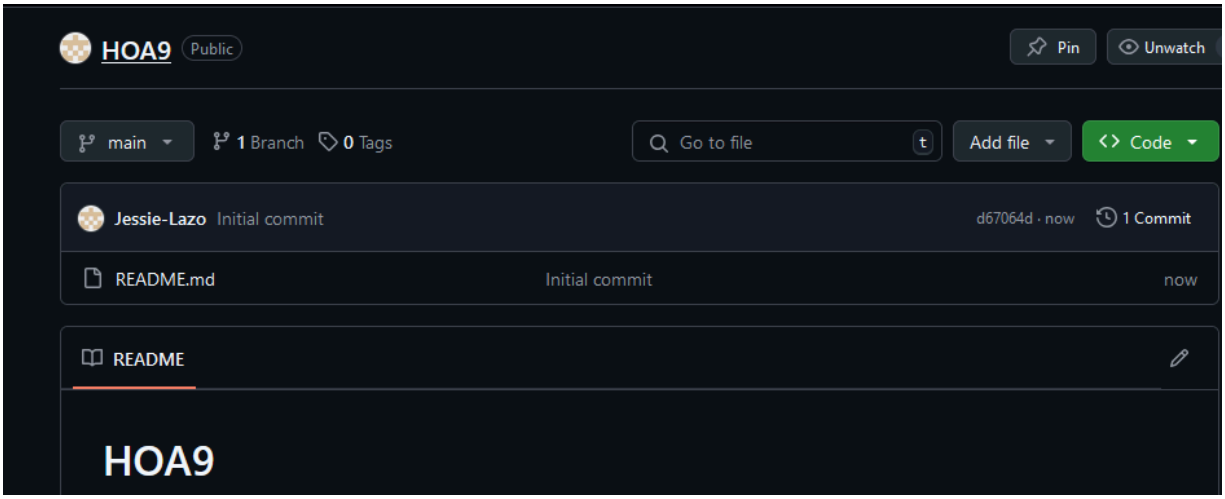
Cacti is a complete network graphing solution designed to harness the power of RRDTool's data storage and graphing functionality. Cacti provides a fast poller, advanced graph templating, multiple data acquisition methods, and user management features out of the box. All of this is wrapped in an intuitive, easy to use interface that makes sense for LAN-sized installations up to complex networks with thousands of devices. Source: Cacti® - The Complete RRDTool-based Graphing Solution

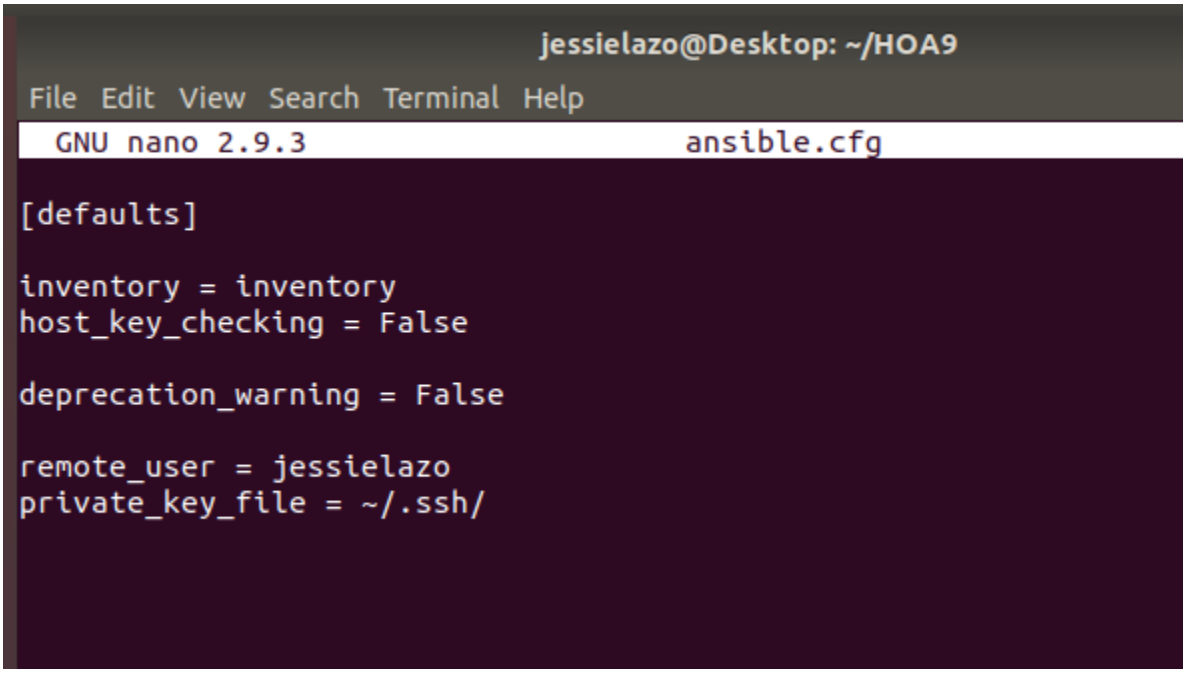
3. Tasks

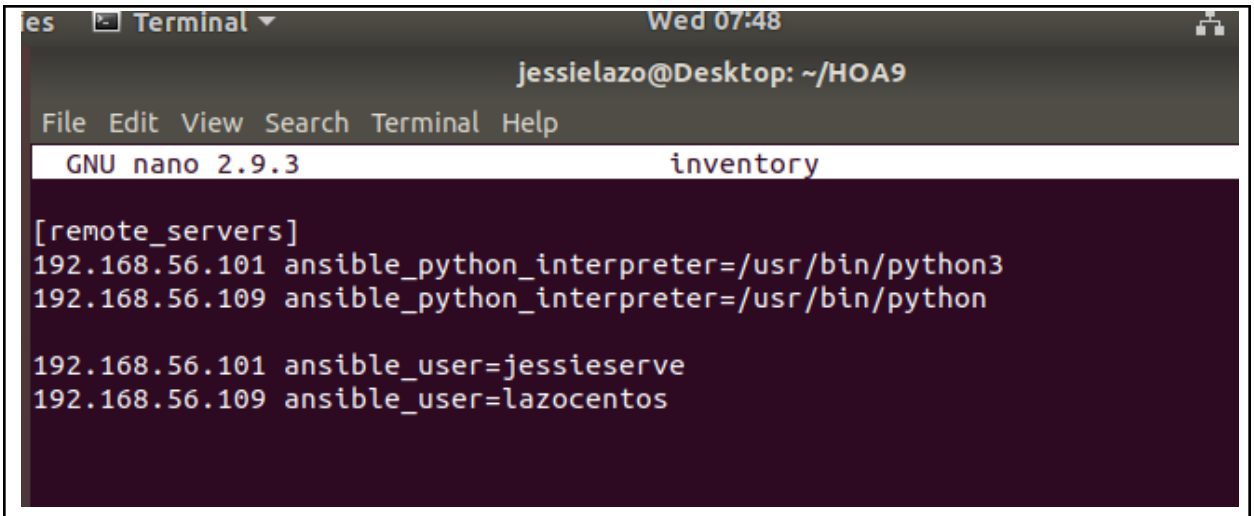
1. Create a playbook that installs Prometheus in both Ubuntu and CentOS. Apply the concept of creating roles.

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 Prometheus for both Ubuntu and CentOS.
4. Make sure to create a new repository in GitHub for this activity.

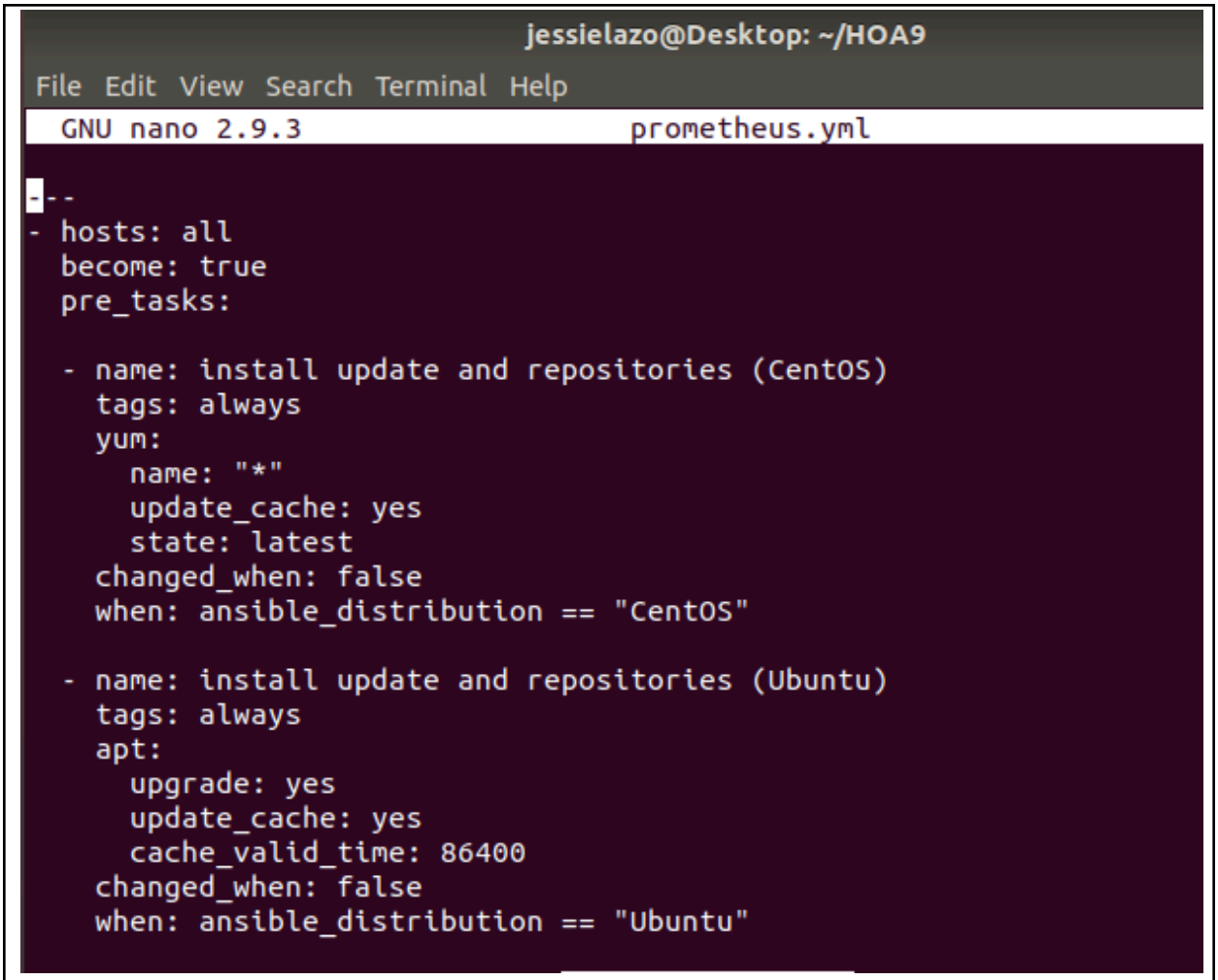
Before beginning the activity, the first thing to do is create a new repository, creating the ansible configuration file and inventory file needed to establish a working ansible environment between one local machine (ubuntu), and two remote machines (Ubuntu, and CentOS.





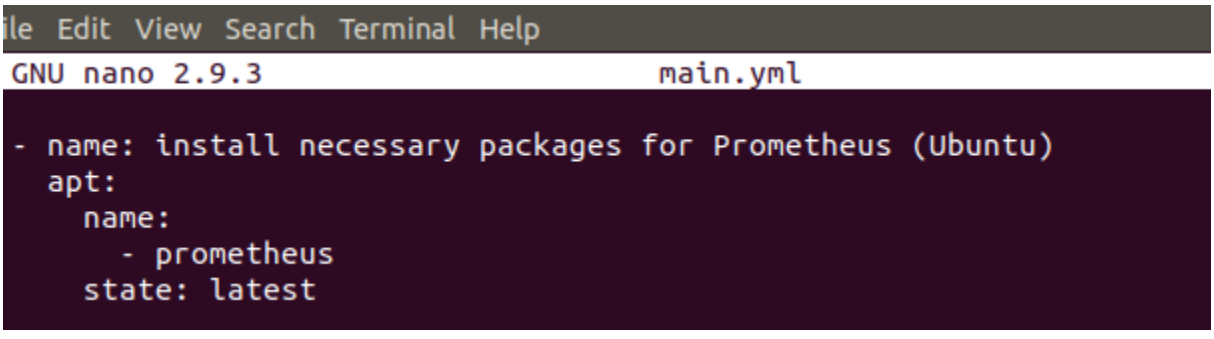


Create a playbook named prometheus.yml and implement basic update and upgrade commands for Ubuntu and CentOS machines

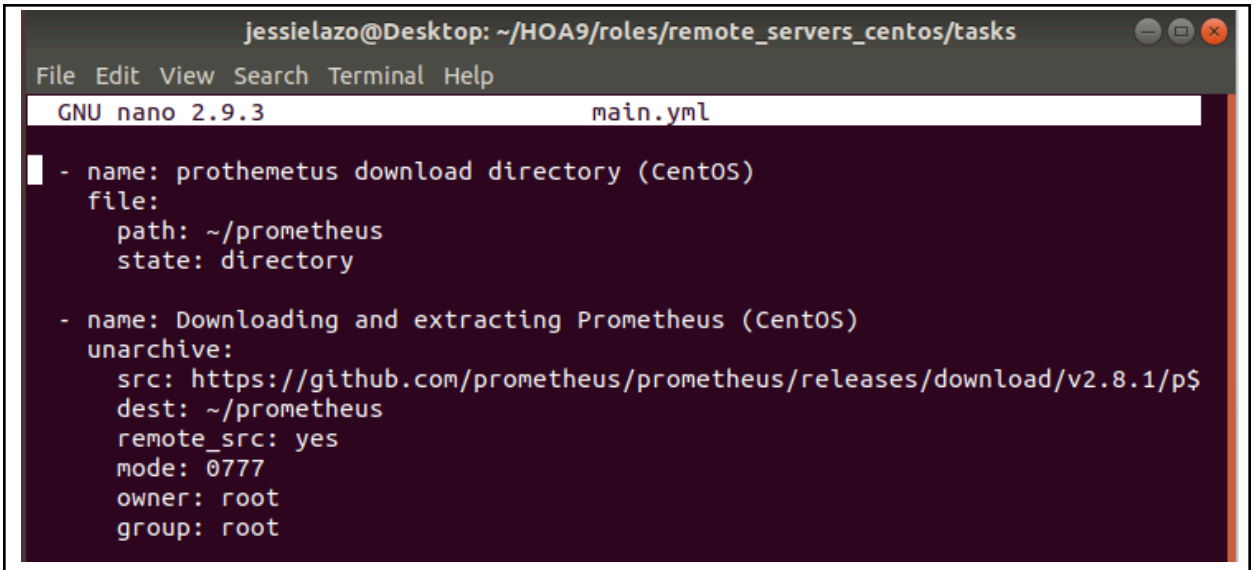


Next is we install the necessary packages for the installation of Prometheus.

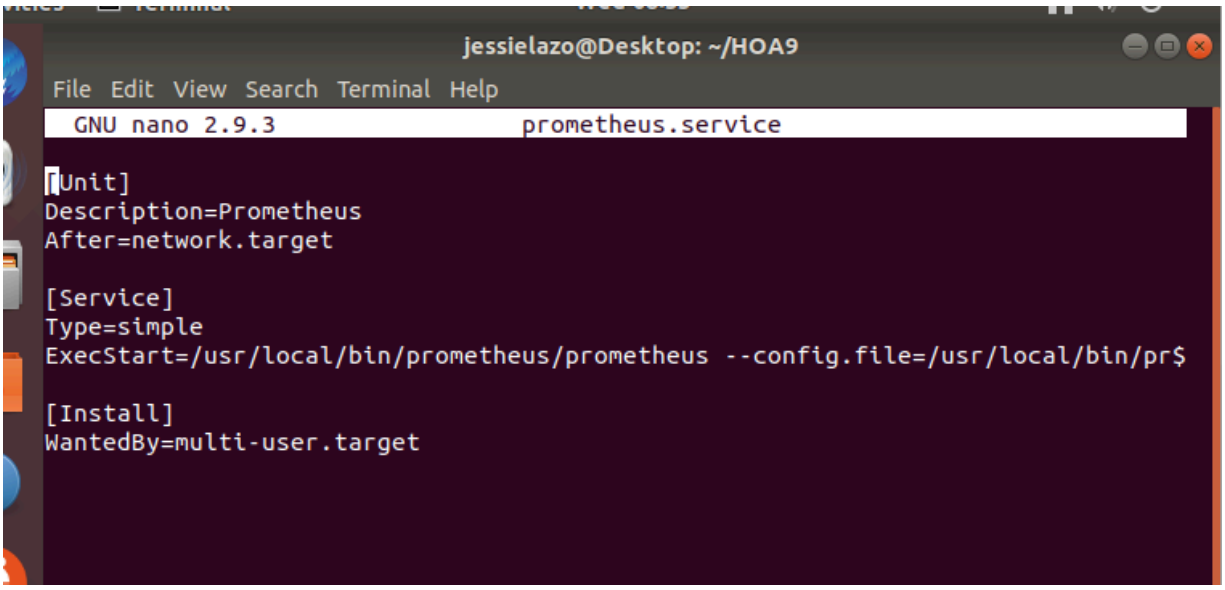
For Ubuntu:



For CentOS:



Make the Prometheus Configuration file



Make a code for moving the pre-made prometheus configuration file to its designated path directory on the remote machine's prometheus file.

```
GNU nano 2.9.3                          main.yml

  shell: |
    cd ~/prometheus/prometheus*
    cp -r . /usr/local/bin/prometheus

- name: Copying the Prometheus Configuration (CentOS)
  copy:
    src: prometheus.service
    dest: /etc/systemd/system/prometheus.service
    owner: root
    group: root
    mode: 777
```

```
- name: Copying the Prometheus Configuration (Ubuntu)
  copy:
    src: prometheus.service
    dest: /etc/systemd/system/prometheus.service
    owner: root
    group: root
    mode: 777
```

Lastly, begin or restart the Prometheus service

```
    mode: 777

- name: Begin/Restart the Prometheus service (Ubuntu)
  service:
    name: prometheus
    state: restarted
    enabled: yes
```

```
- name: Begin/Restart the Prometheus service (CentOS)
  service:
    name: prometheus
    state: restarted
    enabled: yes
```

Apply the concept of roles

```
jessielazo@Desktop:~/HOA9$ mkdir roles
jessielazo@Desktop:~/HOA9$ mkdir -p roles/{base,remote_servers_ubuntu,remote_se
rvers_centos}
jessielazo@Desktop:~/HOA9$ cd roles
jessielazo@Desktop:~/HOA9/roles$ mkdir -p remote_servers_ubuntu/tasks
jessielazo@Desktop:~/HOA9/roles$ mkdir -p remote_servers_centos/tasks
jessielazo@Desktop:~/HOA9/roles$ sudo nano remote_servers_ubuntu/tasks/main.yml
jessielazo@Desktop:~/HOA9/roles$ sudo nano remote_servers_centos/tasks/main.yml

jessielazo@Desktop:~/HOA9/roles$
```

Terminal — Wed 09:01

jessielazo@Desktop: ~/HOA9

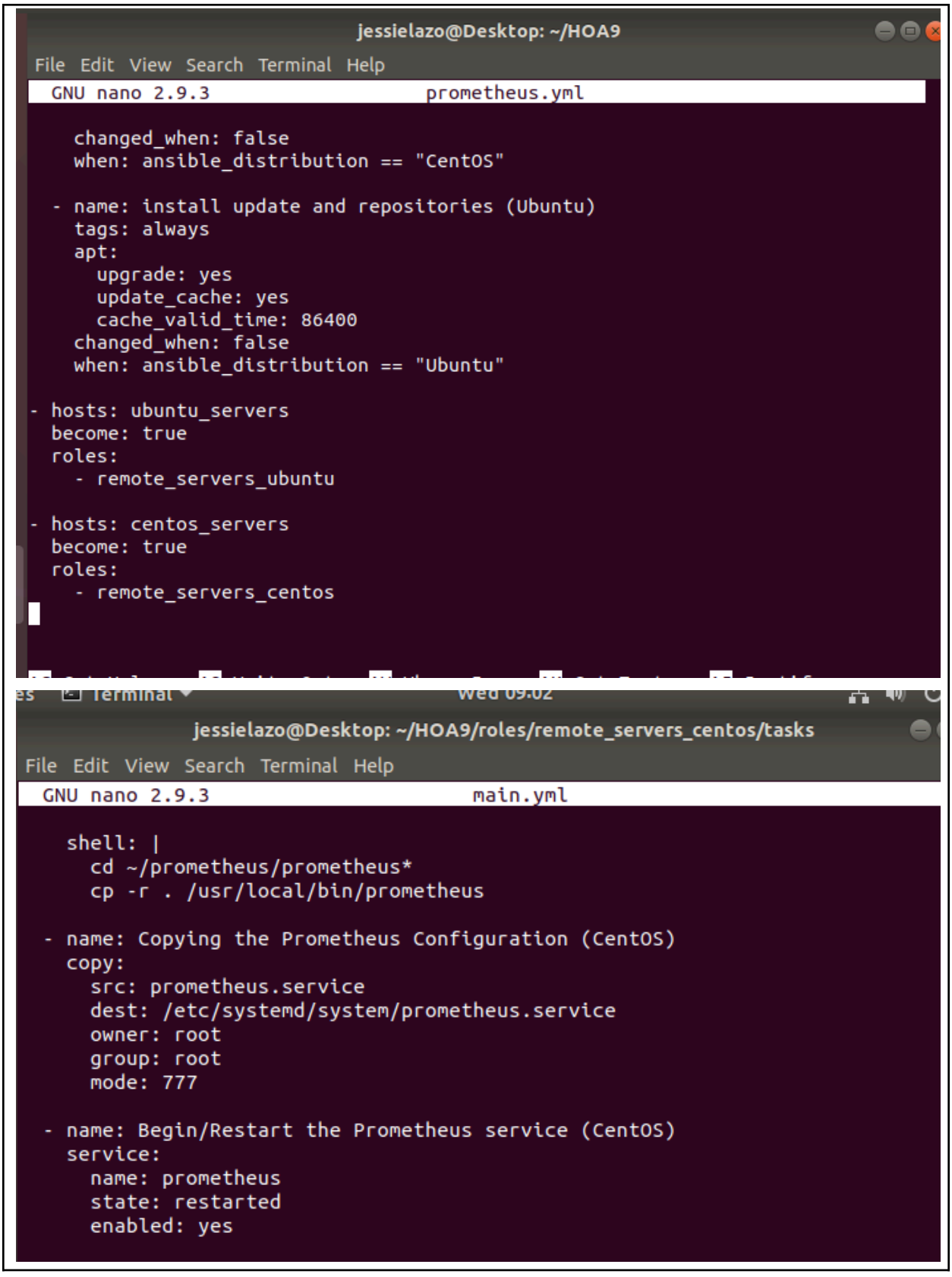
File Edit View Search Terminal Help

```
  GNU nano 2.9.3                    prometheus.yml

---
- hosts: all
  become: true
  gather_facts: yes
  pre_tasks:

  - name: install update and repositories (CentOS)
    tags: always
    dnf:
      name: "*"
      update_cache: yes
      state: latest
    changed_when: false
    when: ansible_distribution == "CentOS"

  - name: install update and repositories (Ubuntu)
    tags: always
    apt:
      upgrade: yes
      update_cache: yes
      cache_valid_time: 86400
    changed_when: false
    when: ansible_distribution == "Ubuntu"
                          [ Read 33 lines ]
^G Get Help    ^O Write Out   ^W Where Is    ^K Cut Text    ^J Justify
```


jessielazo@Desktop: ~/HOA9
File Edit View Search Terminal Help
GNU nano 2.9.3 prometheus.yml
changed_when: false
when: ansible_distribution == "CentOS"
- name: install update and repositories (Ubuntu)
tags: always
apt:
upgrade: yes
update_cache: yes
cache_valid_time: 86400
changed_when: false
when: ansible_distribution == "Ubuntu"
- hosts: ubuntu_servers
become: true
roles:
- remote_servers_ubuntu
- hosts: centos_servers
become: true
roles:
- remote_servers_centos
Terminal
Wed 09:02
jessielazo@Desktop: ~/HOA9/roles/remote_servers_centos/tasks
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml
shell: |
cd ~/prometheus/prometheus*
cp -r . /usr/local/bin/prometheus
- name: Copying the Prometheus Configuration (CentOS)
copy:
src: prometheus.service
dest: /etc/systemd/system/prometheus.service
owner: root
group: root
mode: 777
- name: Begin/Restart the Prometheus service (CentOS)
service:
name: prometheus
state: restarted
enabled: yes

```
jessielazo@Desktop: ~/HOA9/roles/remote_servers_ubuntu/tasks
File  Edit  View  Search  Terminal  Help
 GNU nano 2.9.3                    main.yml

- name: install necessary packages for Prometheus (Ubuntu)
  apt:
    name:
      - prometheus
    state: latest

- name: Copying the Prometheus Configuration (Ubuntu)
  copy:
    src: prometheus.service
    dest: /etc/systemd/system/prometheus.service
    owner: root
    group: root
    mode: 777

- name: Begin/Restart the Prometheus service (Ubuntu)
  service:
    name: prometheus
    state: restarted
    enabled: yes
```

4. **Output** (screenshots and explanations)

For Ubuntu:

```
ok: [192.168.56.101]

TASK [remote_servers_ubuntu : install necessary packages for Prometheus (Ubuntu
)] ***
changed: [192.168.56.101]

TASK [remote_servers_ubuntu : Copying the Prometheus Configuration (Ubuntu)] **
*
changed: [192.168.56.101]

TASK [remote_servers_ubuntu : Begin/Restart the Prometheus service (Ubuntu)] **
*
changed: [192.168.56.101]

PLAY [centos_servers] **********************************************************
*
        to retry, use: --limit @/home/jessielazo/HOA9/prometheus.retry

PLAY RECAP *********************************************************************
*
192.168.56.101             : ok=6    changed=3    unreachable=0    failed=0
192.168.56.109             : ok=1    changed=0    unreachable=0    failed=1

jessielazo@Desktop:~/HOA9$
```

CentOS: still failed like previous activity.

```
jessielazo@Desktop:~/HOA9$ tree
.
├── ansible.cfg
├── inventory
├── prometheus.retry
├── prometheus.service
├── prometheus.yml
└── roles
    ├── base
    ├── remote_servers_centos
    │   └── tasks
    │       └── main.yml
    └── remote_servers_ubuntu
        └── tasks
            └── main.yml

6 directories, 7 files
jessielazo@Desktop:~/HOA9$
```

Show Applications

Proof for Ubuntu:

```
jessieserver@Server2: ~
File  Edit  View  Search  Terminal  Help
jessieserver@Server2:/usr/local/nagios/etc$ sudo htpasswd -c /usr/local/nagios/
etc/htpasswd.users nagiosadmin
New password:
Re-type new password:
Adding password for user nagiosadmin
jessieserver@Server2:/usr/local/nagios/etc$ cd
jessieserver@Server2:~$ sudo systemctl status prometheus
● prometheus.service - Monitoring system and time series database
   Loaded: loaded (/lib/systemd/system/prometheus.service; enabled; vendor pres
   Active: active (running) since Wed 2024-10-16 09:27:34 +08; 12s ago
     Docs: https://prometheus.io/docs/introduction/overview/
 Main PID: 7309 (prometheus)
    Tasks: 9 (limit: 2318)
   CGroup: /system.slice/prometheus.service
           └─7309 /usr/bin/prometheus

Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.413
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.414
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.414
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.414
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.417
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.417
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.512
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.512
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.514
Oct 16 09:27:34 Server2 prometheus[7309]: level=info ts=2024-10-16T01:27:34.515

jessieserver@Server2:~$
```

Reflections:

Answer the following:

1. What are the benefits of having a performance monitoring tool?

Using Prometheus to monitor performance on Ubuntu and CentOS machines provides a versatile way to collect, save, and study system and app data. This helps system administrators take early action to oversee and resolve issues, ensuring that the system works well and stays dependable.

Conclusions:

This activity will demonstrate the installation, configuration, and management of performance monitoring tools using the Prometheus. We will be creating and designing a workflow for the installation, configuration, and management of enterprise performance tools using Ansible as the infrastructure as Code, IaC, tool. To achieve my intended learning outcomes, I read various references for learning about

Prometheus, how it works, and how to install it on two different machines, Ubuntu and Centos. After compiling the necessary tasks for setting up the Prometheus, then proceeds to the actual activity. For this activity, I created a new repository where I made a playbook to easily update as well as upgrade repositories on both Centos and ubuntu machines. Then was the installation of Prometheus, I did not get any error in the Ubuntu but I cannot still resolve the centos issue. Then, I created a configuration file in Prometheus. For this, the Prometheus configuration should be provided as it does not hold an individual configuration file and has to be created by the system administrator. Then I verified whether it has started the service and finally applied the role concept as instructed in the activity. After going through the activity, I was able to meet all my intended learning outcomes, and I successfully created an Ansible playbook code that would install Prometheus, which functions on Ubuntu machines.