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Course/Section: CPE 212-CPE31S21	**Date Submitted:** 20/10/24
Instructor: Engr. Robin Valenzuela	**Semester and SY:** 24-25

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

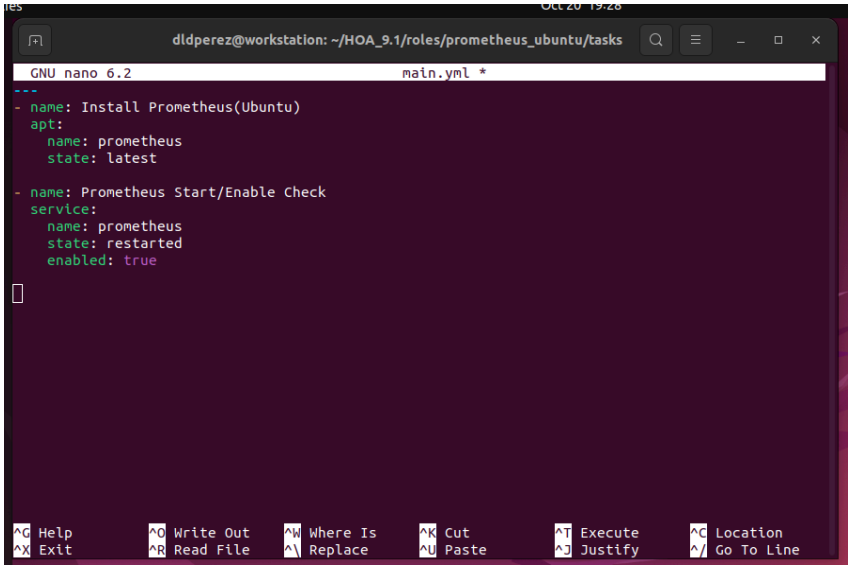
Cacti

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

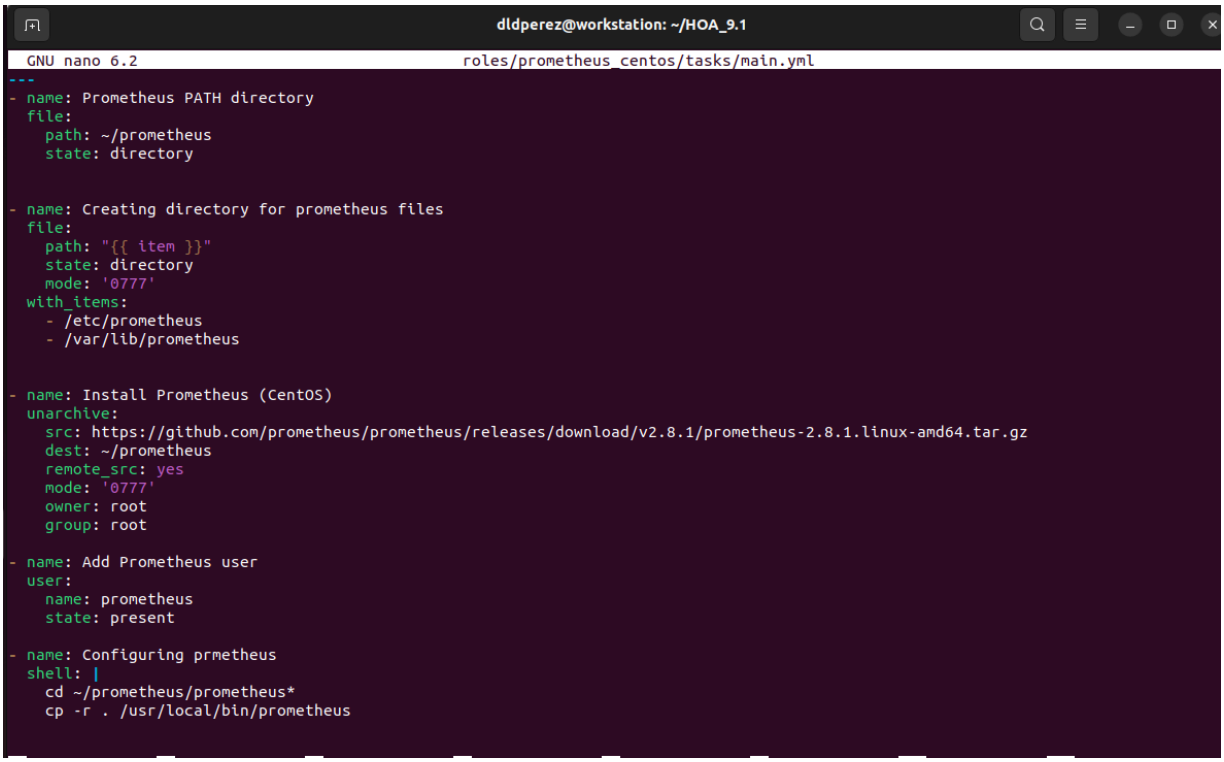
1. Create a playbook that installs Prometheus in both Ubuntu and CentOS. Apply the concept of creating roles.
2. Describe how you did step 1. (Provide screenshots and explanations in your report. Make your report detailed such that it will look like a manual.)
3. Show an output of the installed Prometheus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

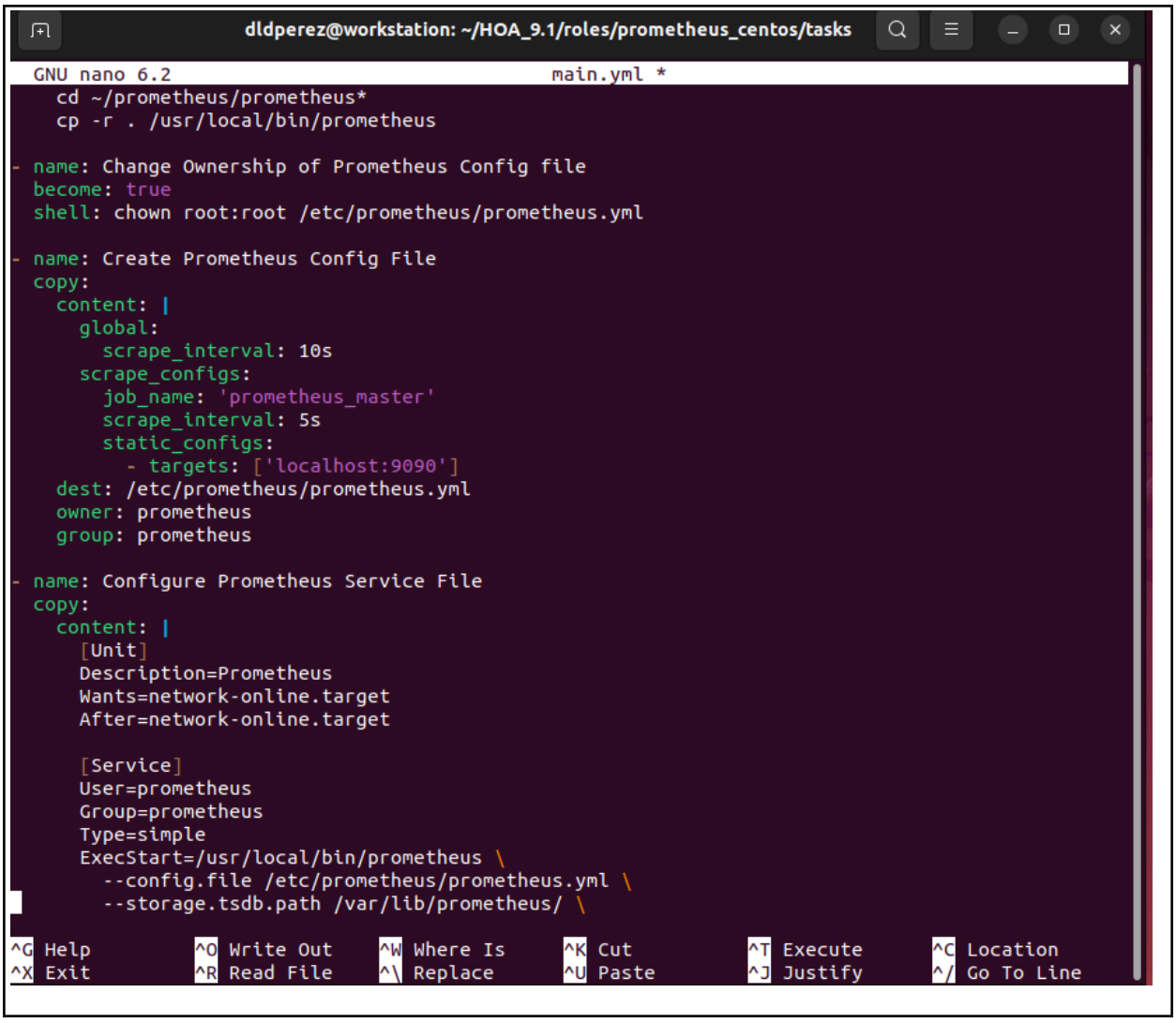
4. Output (screenshots and explanations)

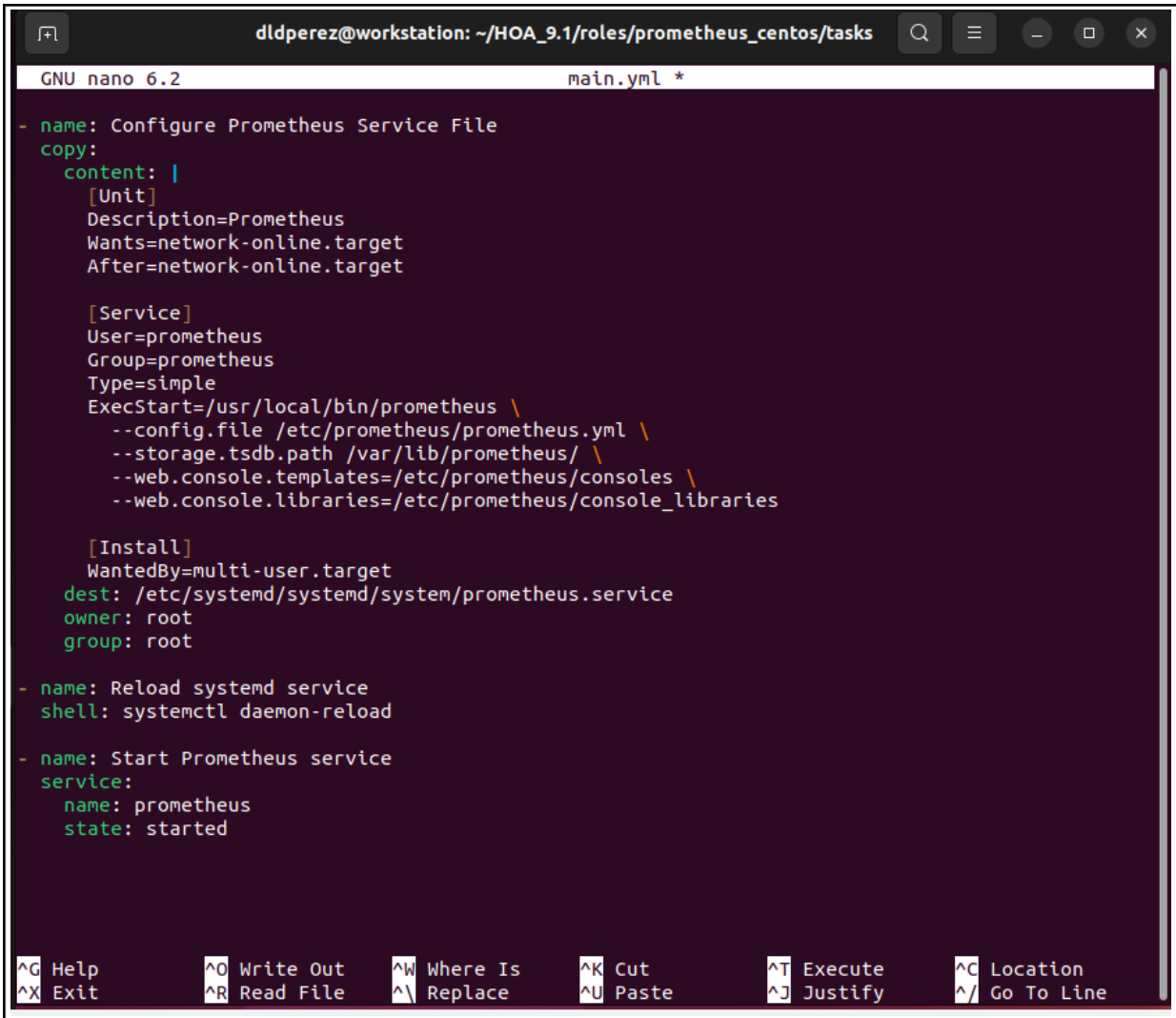


Install Prometheus: Installs Prometheus using the `apt` module for Ubuntu, ensuring the latest version.

Enable Prometheus Service: Restarts the Prometheus service and ensures it's enabled to start on boot.




dldperez@workstation: ~/HOA_9.1/roles/prometheus_centos/tasks
GNU nano 6.2 main.yml *
cd ~/prometheus/prometheus*
cp -r . /usr/local/bin/prometheus
- name: Change Ownership of Prometheus Config file
become: true
shell: chown root:root /etc/prometheus/prometheus.yml
- name: Create Prometheus Config File
copy:
content: |
global:
scrape_interval: 10s
scrape_configs:
job_name: 'prometheus_master'
scrape_interval: 5s
static_configs:
- targets: ['localhost:9090']
dest: /etc/prometheus/prometheus.yml
owner: prometheus
group: prometheus
- name: Configure Prometheus Service File
copy:
content: |
[Unit]
Description=Prometheus
Wants=network-online.target
After=network-online.target
[Service]
User=prometheus
Group=prometheus
Type=simple
ExecStart=/usr/local/bin/prometheus \
--config.file /etc/prometheus/prometheus.yml \
--storage.tsdb.path /var/lib/prometheus/ \
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line

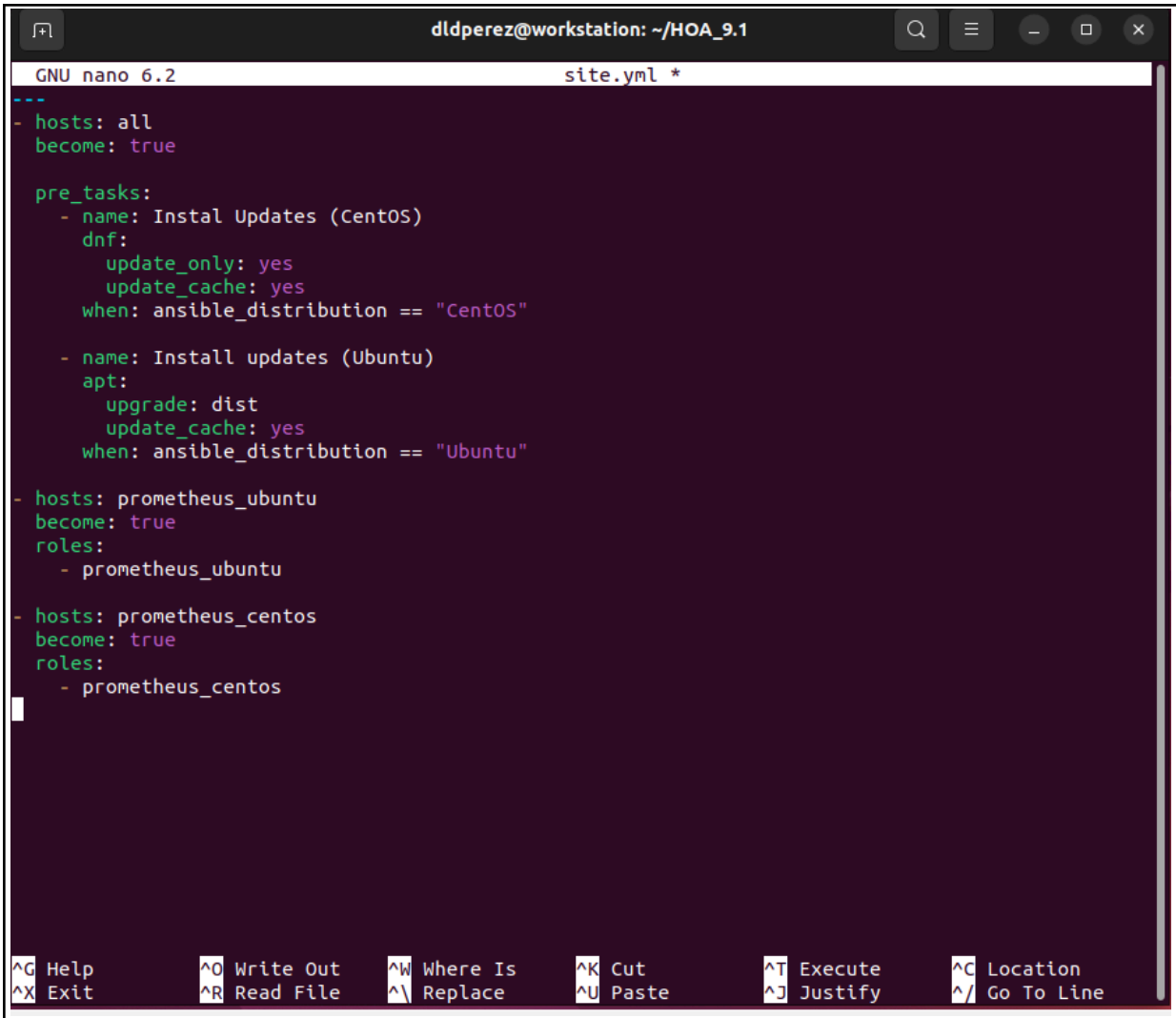


Install Prometheus: Downloads and installs Prometheus on CentOS.

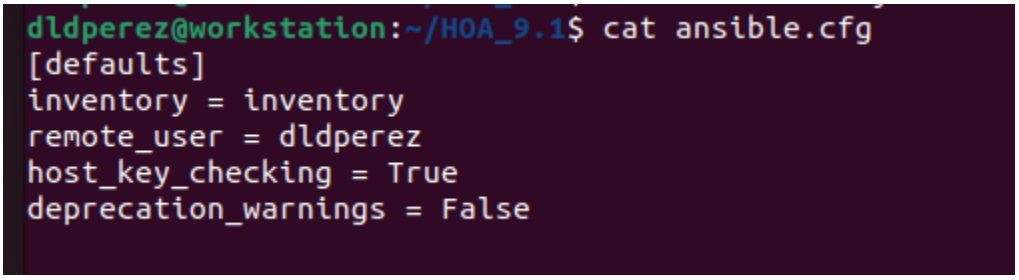
Add Prometheus User: Creates a user named prometheus.

Configure Prometheus: Copies the configuration and service files.

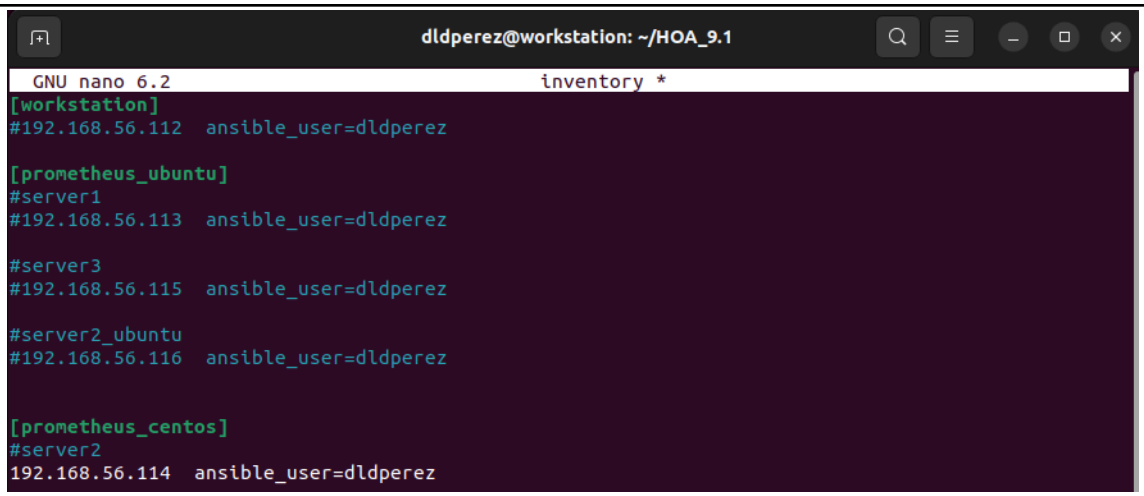
Start Prometheus: Enables and starts the Prometheus service.



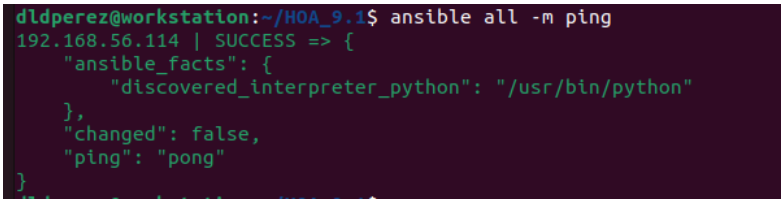
site.yml configuration



ansible.cfg configuration



inventory configuration: Only Centos for now because my laptop can't handle it when another server is open.



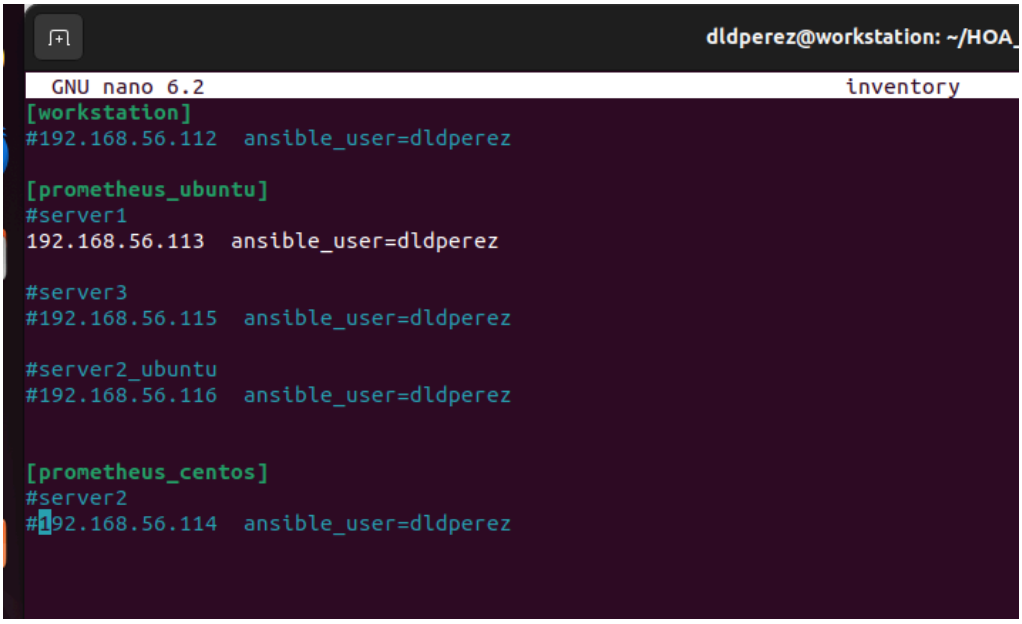
Ansible connection to the centos: Success.

It is successful on CentOS. Lets Double check it.

It is installed and the version is 2.8.1

```
[root@server2 dldperez]# sudo systemctl status prometheus
× prometheus.service - Prometheus
     Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; preset: disabled)
     Active: failed (Result: exit-code) since Sun 2024-10-20 10:42:43 EDT; 13s ago
   Duration: 99ms
    Process: 57550 ExecStart=/usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --storage.tsdb.path /var/lib/prometheus/ --web.c>
   Main PID: 57550 (code=exited, status=1/FAILURE)
        CPU: 24ms

Oct 20 10:42:43 server2 prometheus[57550]: level=info ts=2024-10-20T14:42:43.27465259Z caller=web.go:418 component=web msg="Start listening for conn>
Oct 20 10:42:43 server2 prometheus[57550]: level=info ts=2024-10-20T14:42:43.275241497Z caller=main.go:505 msg="Scrape discovery manager stopped"
Oct 20 10:42:43 server2 prometheus[57550]: level=info ts=2024-10-20T14:42:43.294361294Z caller=manager.go:736 component="rule manager" msg="Stopping>
Oct 20 10:42:43 server2 prometheus[57550]: level=info ts=2024-10-20T14:42:43.294478845Z caller=manager.go:742 component="rule manager" msg="Rule man>
Oct 20 10:42:43 server2 prometheus[57550]: level=info ts=2024-10-20T14:42:43.295042816Z caller=main.go:539 msg="Scrape manager stopped"
Oct 20 10:42:43 server2 prometheus[57550]: level=info ts=2024-10-20T14:42:43.296168397Z caller=notifier.go:521 component=notifier msg="Stopping noti>
Oct 20 10:42:43 server2 prometheus[57550]: level=info ts=2024-10-20T14:42:43.296186901Z caller=main.go:708 msg="Notifier manager stopped"
Oct 20 10:42:43 server2 prometheus[57550]: level=error ts=2024-10-20T14:42:43.296375327Z caller=main.go:717 err="error loading config from \"/etc/pr>
Oct 20 10:42:43 server2 systemd[1]: prometheus.service: Main process exited, code=exited, status=1/FAILURE
Oct 20 10:42:43 server2 systemd[1]: prometheus.service: Failed with result 'exit-code'.
lines 1-18/18 (END)
```

Ubuntu server, prometheus installation.



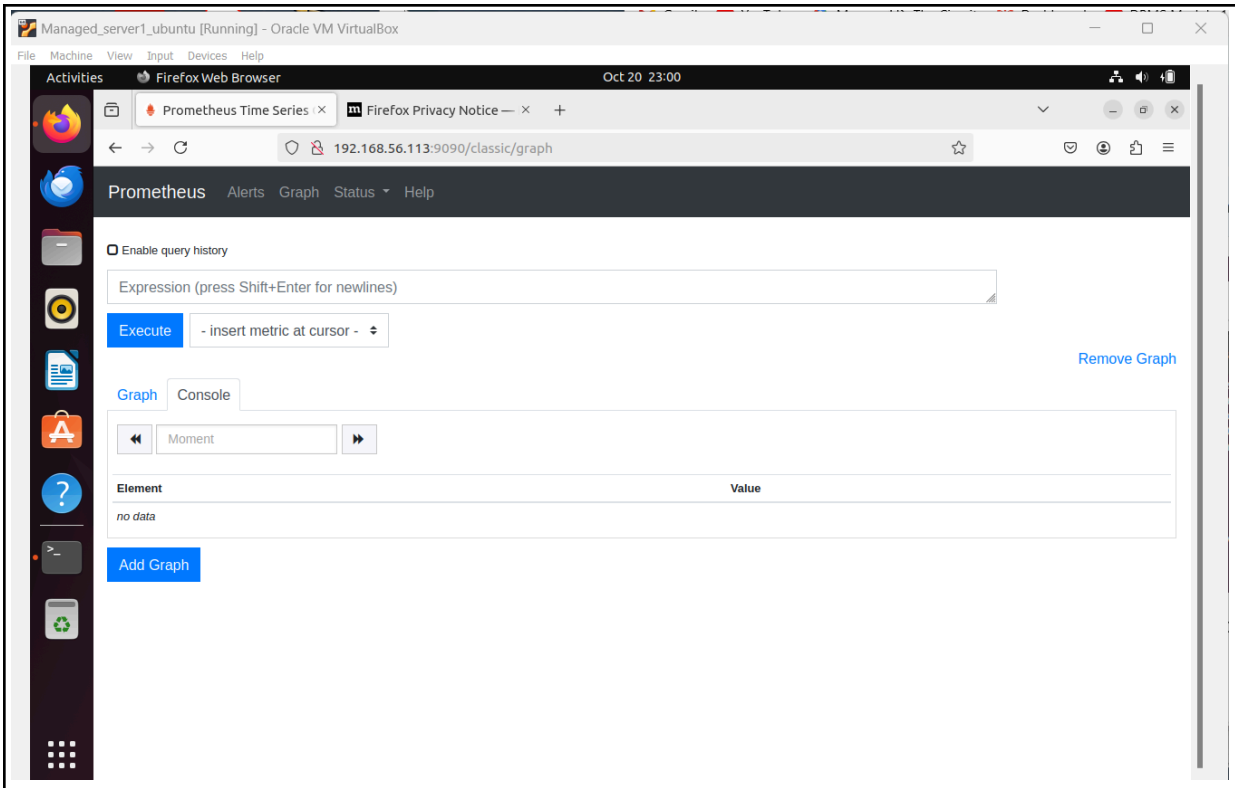
We will use server1.

```
dldperez@workstation:~/HOA_9.1$ ansible-playbook --ask-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************************************************************************
ok: [192.168.56.113]

TASK [Instal Updates (CentOS)] *************************************************************************************************************
skipping: [192.168.56.113]

TASK [Install updates (Ubuntu)] ************************************************************************************************************
changed: [192.168.56.113]

PLAY [prometheus_ubuntu] *******************************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************************
ok: [192.168.56.113]

TASK [prometheus_ubuntu : Install Prometheus(Ubuntu)] **************************************************************************************
changed: [192.168.56.113]

TASK [prometheus_ubuntu : Prometheus Start/Enable Check] ***********************************************************************************
changed: [192.168.56.113]

PLAY [prometheus_centos] *******************************************************************************************************************
skipping: no hosts matched

PLAY RECAP *********************************************************************************************************************************
192.168.56.113             : ok=5    changed=3    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0

dldperez@workstation:~/HOA_9.1$
```

It is successful on Ubuntu. Let's double check it.

```
dldperez@server1: ~
dldperez@server1:~$ systemctl status prometheus
● prometheus.service - Monitoring system and time series database
     Loaded: loaded (/lib/systemd/system/prometheus.service; enabled; vendor pr>
     Active: active (running) since Sun 2024-10-20 22:56:56 +08; 1min 49s ago
       Docs: https://prometheus.io/docs/introduction/overview/
             man:prometheus(1)
   Main PID: 18310 (prometheus)
      Tasks: 9 (limit: 2270)
     Memory: 25.2M
        CPU: 668ms
     CGroup: /system.slice/prometheus.service
             └─18310 /usr/bin/prometheus

dldperez@server1:~$
```

It is active and running.



It is also working on the browser.

Reflections:

Answer the following:

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

   There are a lot of benefits in having a performance monitoring tool, first is that we can monitor the performance and get detailed information on how it is working. We can even detect early issues that may occur. Thus improving the efficiency and productivity.

Conclusions:

In this laboratory activity, I learned how to install and set up prometheus using ansible on Ubuntu and Centos by creating roles and playbooks. It is not as easy as installing an application. It needs a lot of important details and commands that needs to be satisfied first.