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Course/Section: CPE232 S23	Date Submitted:
Instructor: Dr. Taylar	Semester and SY:

Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

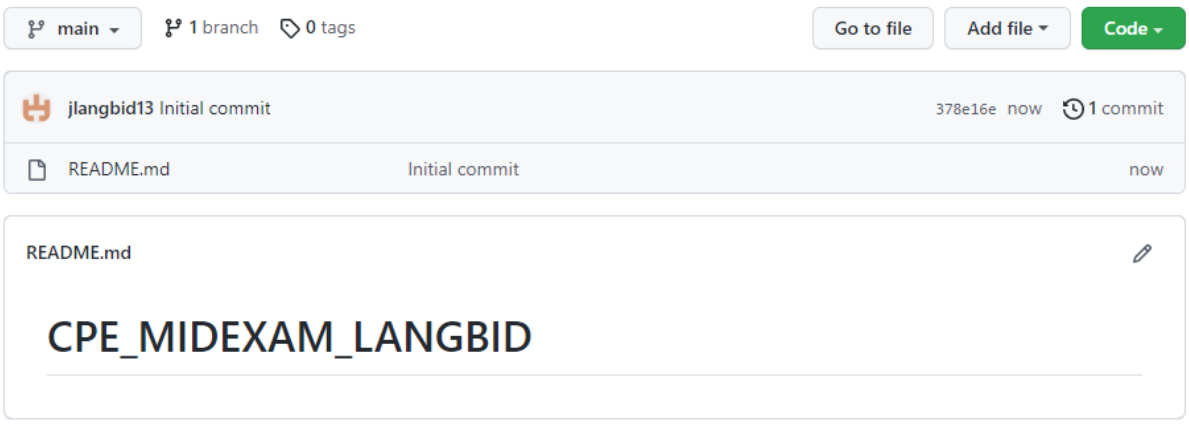
1. Objectives

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

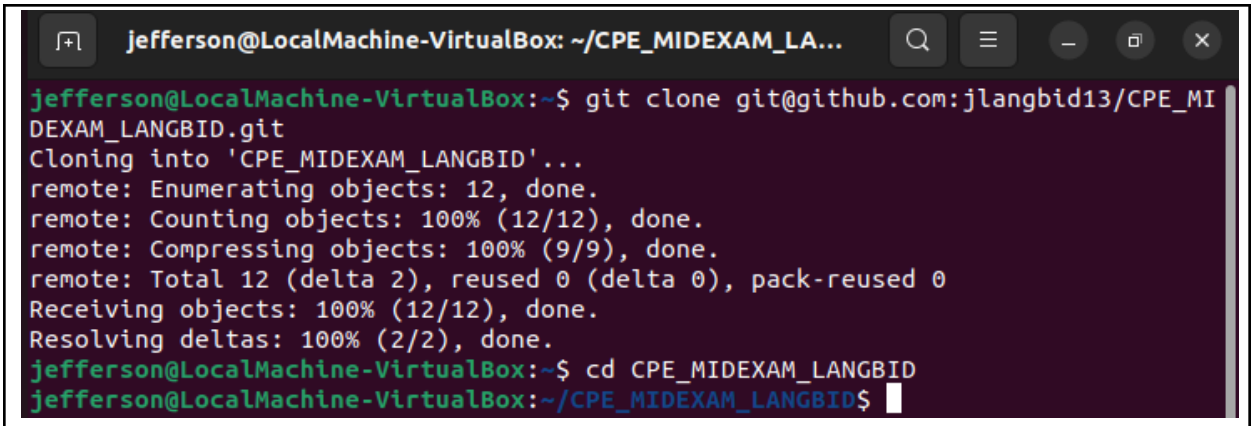
2. Instructions

1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME.
2. Clone the repository and do the following:
   2.1. Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:
   2.2. Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host
   2.3. Install Grafana,Prometheus and Influxdb in seperate hosts (Influxdb,Grafana,Prometheus)
   2.4. Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)
3. Document all your tasks using this document. Provide proofs of all the ansible playbooks codes and successful installations.
4. Document the push and commit from the local repository to GitHub.
5. Finally, paste also the link of your GitHub repository in the documentation.

3. Output (screenshots and explanations)



Create github repository



Clone the github repository to the local machine.

```
  GNU nano 6.2
[remote_servers]
192.168.56.106
192.168.56.110

[elastic_servers]
192.168.56.106
192.168.56.110

[nagios_servers]
192.168.56.106

[igp_servers]
192.168.56.106
192.168.56.110

[lamp_servers]
192.168.56.106
192.168.56.110
```

I created the ansible.cfg and inventory file for the playbook hosts.

17 lines (16 sloc) | 358 Bytes

```
1   ---
2   - hosts: all
3     become: true
4     pre_tasks:
5
6     - name: update repository index (CentOS)
7       tags: always
8       dnf:
9         update_cache: yes
10      changed_when: false
11      when: ansible_distribution == "CentOS"
12    - name: install updates (Ubuntu)
13      tags: always
14      apt:
15        update_cache: yes
16      changed_when: false
17      when: ansible_distribution == "Ubuntu"
```

Create the yml for the playbook.

```
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID/roles$ tree
.
├── elastic
│   └── tasks
│       └── main.yml
└── nagios
    └── tasks
        └── main.yml

4 directories, 2 files
```

for the 2.2 I created the elastic and nagios roles for the main.yml of command of the elastic and nagios.

```
jefferson@LocalMachine-VirtualBox: ~/CPE_MIDEXAM_LA...
  GNU nano 6.2                                main.yml
- name: install elastic stack for ubuntu
  apt:
    name:
      - elasticsearch
      - kibana
      - logstash
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: install elastic stack for centos
  dnf:
    name:
      - elasticsearch
      - kibana
      - logstash
    state: latest
    update_cache: yes
  when: ansible_distribution == "CentOS"
```

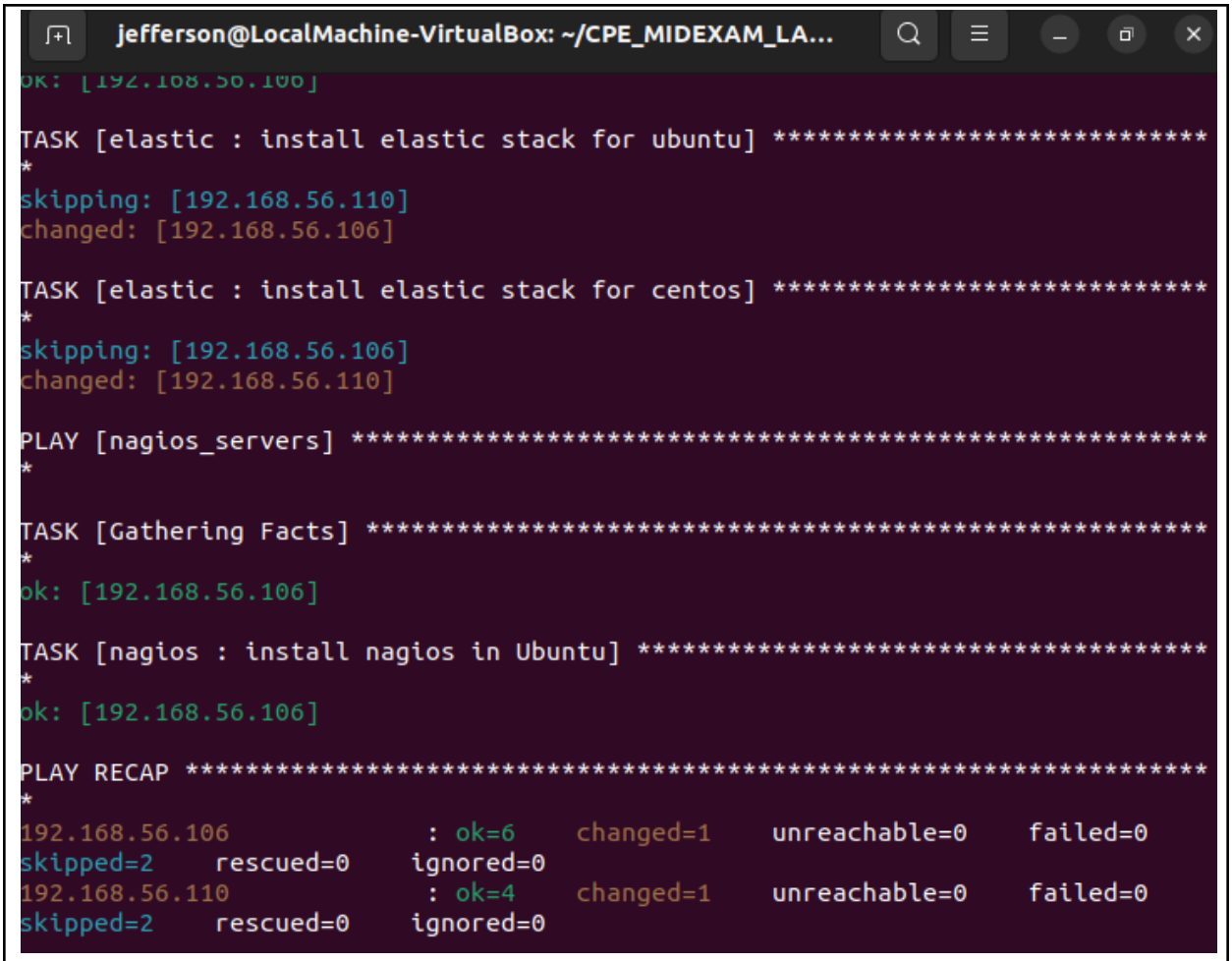
The installation command of the elastic stack is inputted in the main.yml of the elastic role.

```
jefferson@LocalMachine-VirtualBox: ~/CPE_MIDEXAM_LA...
  GNU nano 6.2                                main.yml
- name: install nagios in Ubuntu
  apt:
    name:
      - nagios4
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"
```

The installation command of the nagios is inputted in the main.yml of the nagios role.

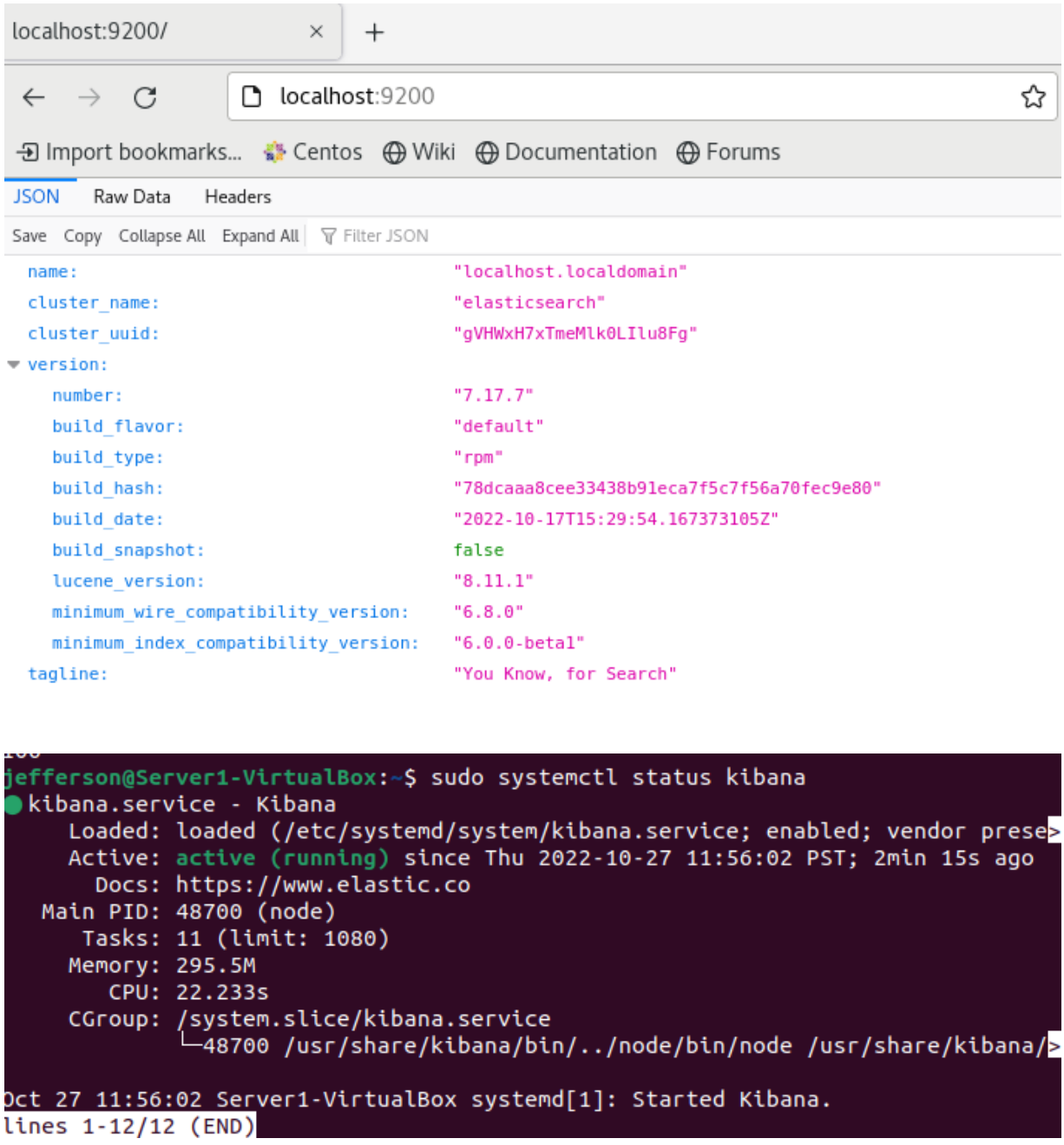
```
- hosts: elastic_servers
  become: true
  roles:
    - elastic

- hosts: nagios_servers
  become: true
  roles:
    - nagios
```

The inputted script to the exam.yml for the playbook.



The playbook ran successfully and it installed the elastic stack which is elasticsearch, kibana, and logstash in separate hosts in both ubuntu and centos server and it also installed the nagios in ubuntu

proof of installation in ubuntu



```
jefferson@Server1-VirtualBox:~$ sudo systemctl status logstash
● logstash.service - logstash
     Loaded: loaded (/etc/systemd/system/logstash.service; enabled; vendor pre
     Active: active (running) since Thu 2022-10-27 11:58:41 PST; 19s ago
   Main PID: 48994 (java)
      Tasks: 14 (limit: 1080)
     Memory: 253.3M
        CPU: 14.895s
     CGroup: /system.slice/logstash.service
             └─48994 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseCo

Oct 27 11:58:41 Server1-VirtualBox systemd[1]: Started logstash.
Oct 27 11:58:41 Server1-VirtualBox logstash[48994]: Using bundled JDK: /usr/sh
Oct 27 11:58:42 Server1-VirtualBox logstash[48994]: OpenJDK 64-Bit Server VM w
lines 1-13/13 (END)
```

Proof of installation in centos

```
[jefferson@localhost ~]$ sudo systemctl start kibana
[sudo] password for jefferson:
[jefferson@localhost ~]$ sudo systemctl enable kibana
Created symlink from /etc/systemd/system/multi-user.target.wants/kibana.service to /etc
/systemd/system/kibana.service.
[jefferson@localhost ~]$ sudo systemctl status kibana
● kibana.service - Kibana
   Loaded: loaded (/etc/systemd/system/kibana.service; enabled; vendor preset: disabled
)
   Active: active (running) since Thu 2022-10-27 11:59:36 PST; 32s ago
     Docs: https://www.elastic.co
 Main PID: 24456 (node)
   CGroup: /system.slice/kibana.service
           └─24456 /usr/share/kibana/bin/../node/bin/node /usr/share/kibana/bin/../s...

Oct 27 11:59:36 localhost.localdomain systemd[1]: Started Kibana.
[jefferson@localhost ~]$
```

```
[jefferson@localhost ~]$ sudo systemctl start logstash
[jefferson@localhost ~]$ sudo systemctl enable logstash
Created symlink from /etc/systemd/system/multi-user.target.wants/logstash.service to /e
tc/systemd/system/logstash.service.
[jefferson@localhost ~]$ sudo systemctl status logstash
● logstash.service - logstash
   Loaded: loaded (/etc/systemd/system/logstash.service; enabled; vendor preset: disabl
ed)
   Active: active (running) since Thu 2022-10-27 12:00:35 PST; 11s ago
 Main PID: 24590 (java)
   CGroup: /system.slice/logstash.service
           └─24590 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseConcMarkSw...

Oct 27 12:00:35 localhost.localdomain systemd[1]: Started logstash.
Oct 27 12:00:35 localhost.localdomain logstash[24590]: Using bundled JDK: /usr/shar...k
Oct 27 12:00:39 localhost.localdomain logstash[24590]: OpenJDK 64-Bit Server VM war....
Hint: Some lines were ellipsized, use -l to show in full.
[jefferson@localhost ~]$
```

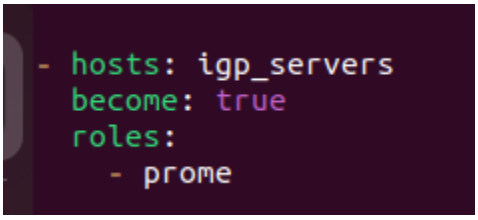
nagios installed

```
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID$ cd roles
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID/roles$ cd prome
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID/roles/prome$ tree
.
└── tasks
    └── main.yml

1 directory, 1 file
```

I created prometheus role which is prome and inputted the installation command of prometheus in the main.yml

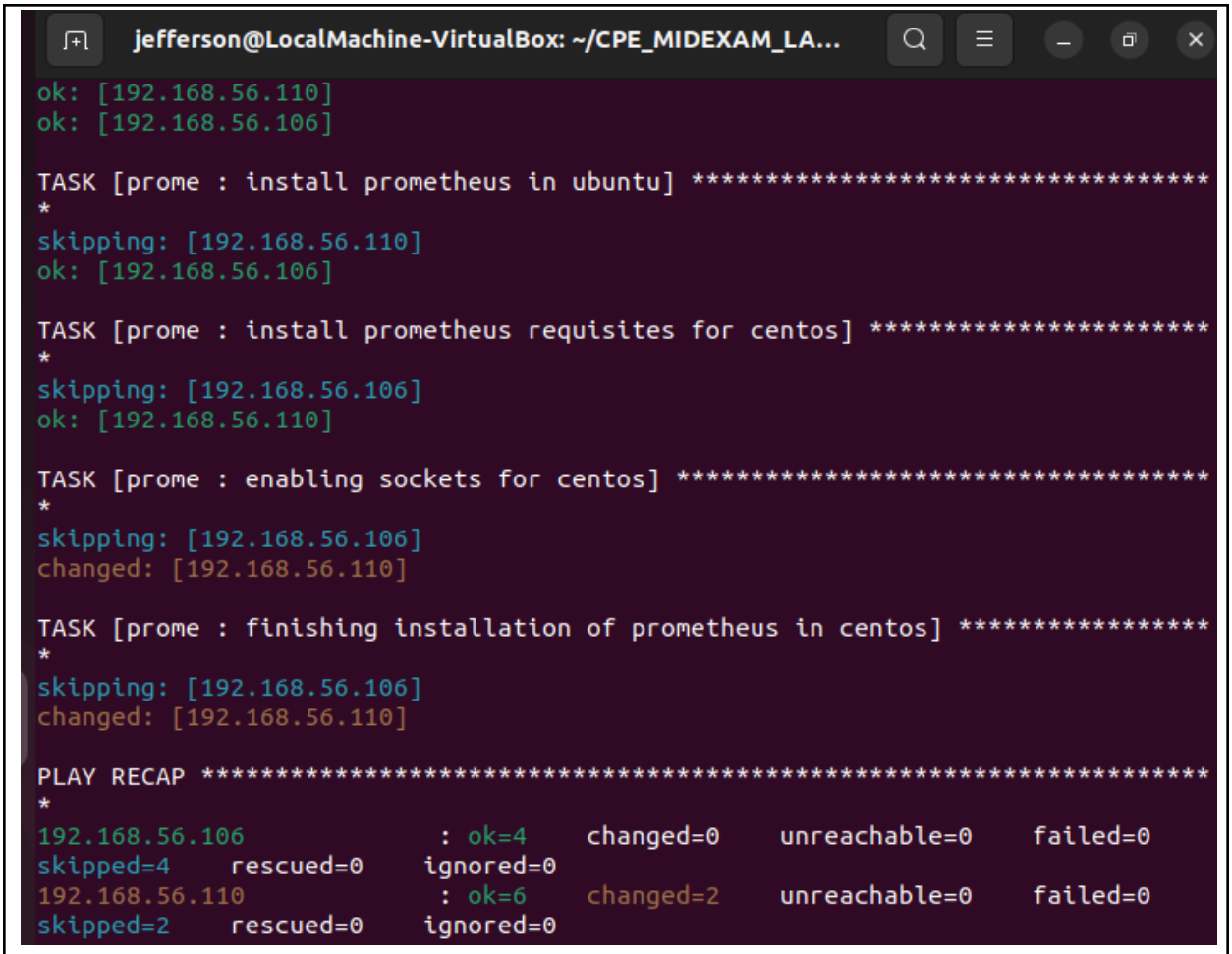
```
jefferson@LocalMachine-VirtualBox: ~/CPE_MIDEXAM_LA...
GNU nano 6.2                                  main.yml
- name: install prometheus in ubuntu
  apt:
    name:
      - prometheus
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: install prometheus requisites for centos
  tags: centos, snapd, epel-release
  yum:
    name:
      - epel-release
      - snapd
    state: latest
  when: ansible_distribution == "CentOS"

- name: enabling sockets for centos
  tags: snapd, centos
  command: systemctl enable --now snapd.socket
  when: ansible_distribution == "CentOS"

- name: finishing installation of prometheus in centos
  tags: centos, prometheus
  command: snap install prometheus --classic
  when: ansible_distribution == "CentOS"
```

The installation command of prometheus in both ubuntu and centos vm.

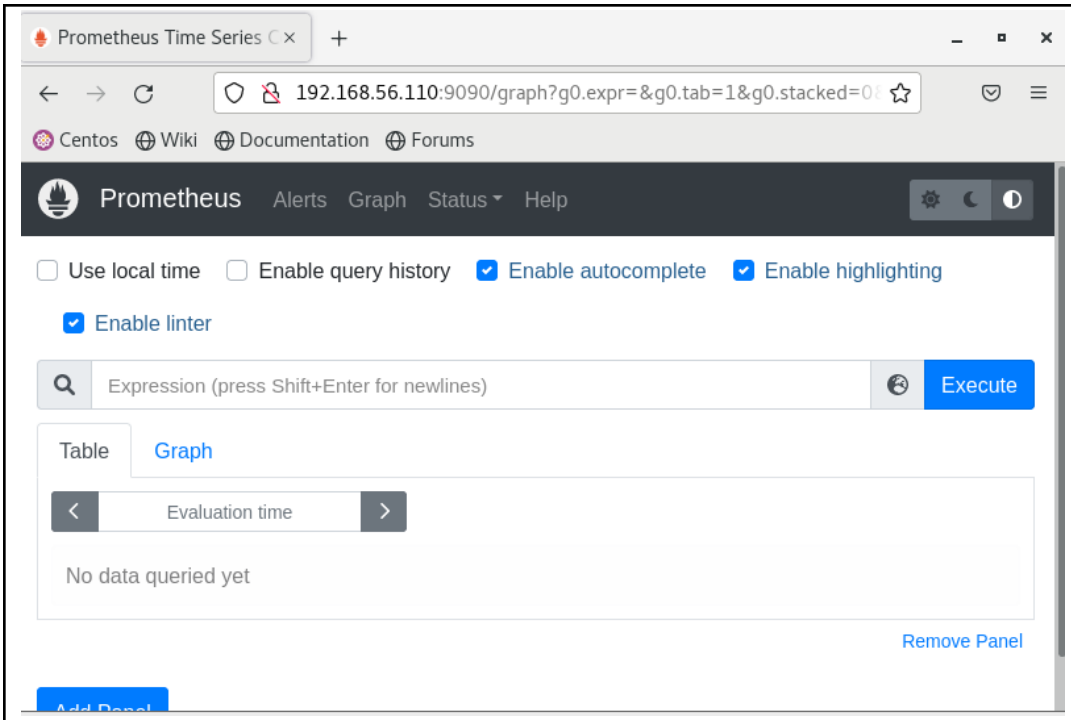


```
- hosts: igp_servers
  become: true
  roles:
    - prome
```

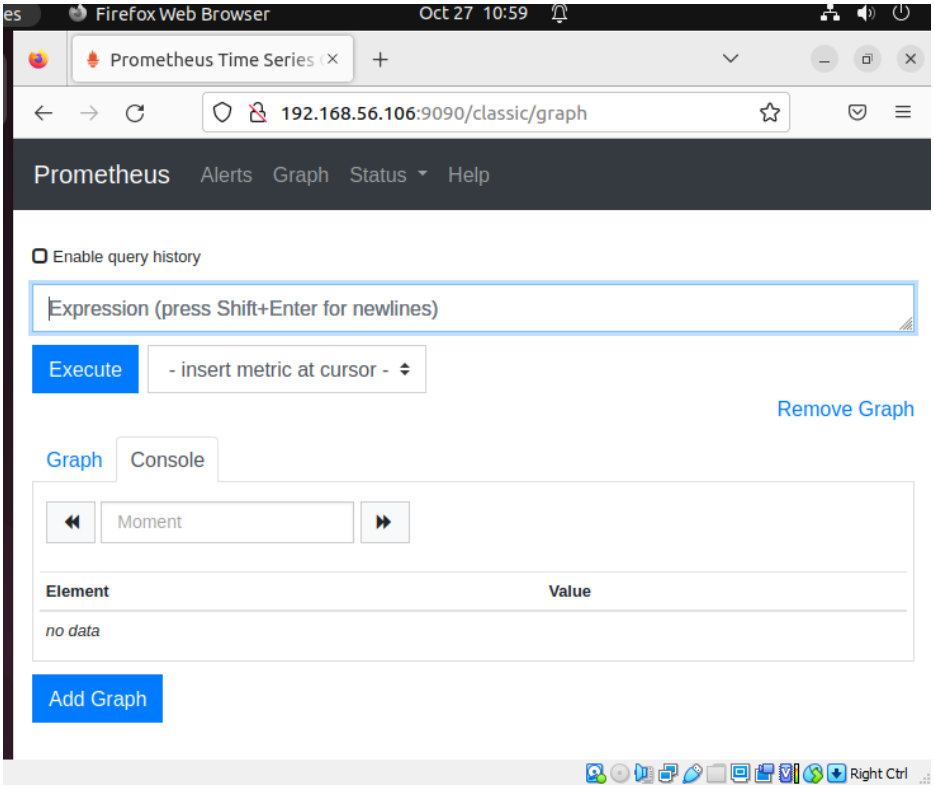
The command to run the host and the prome role.



The prometheus main.yml ran successfully and it installed the prometheus in both ubuntu and centos server.



Prometheus in centos installed.



prometheus in ubuntu installed.

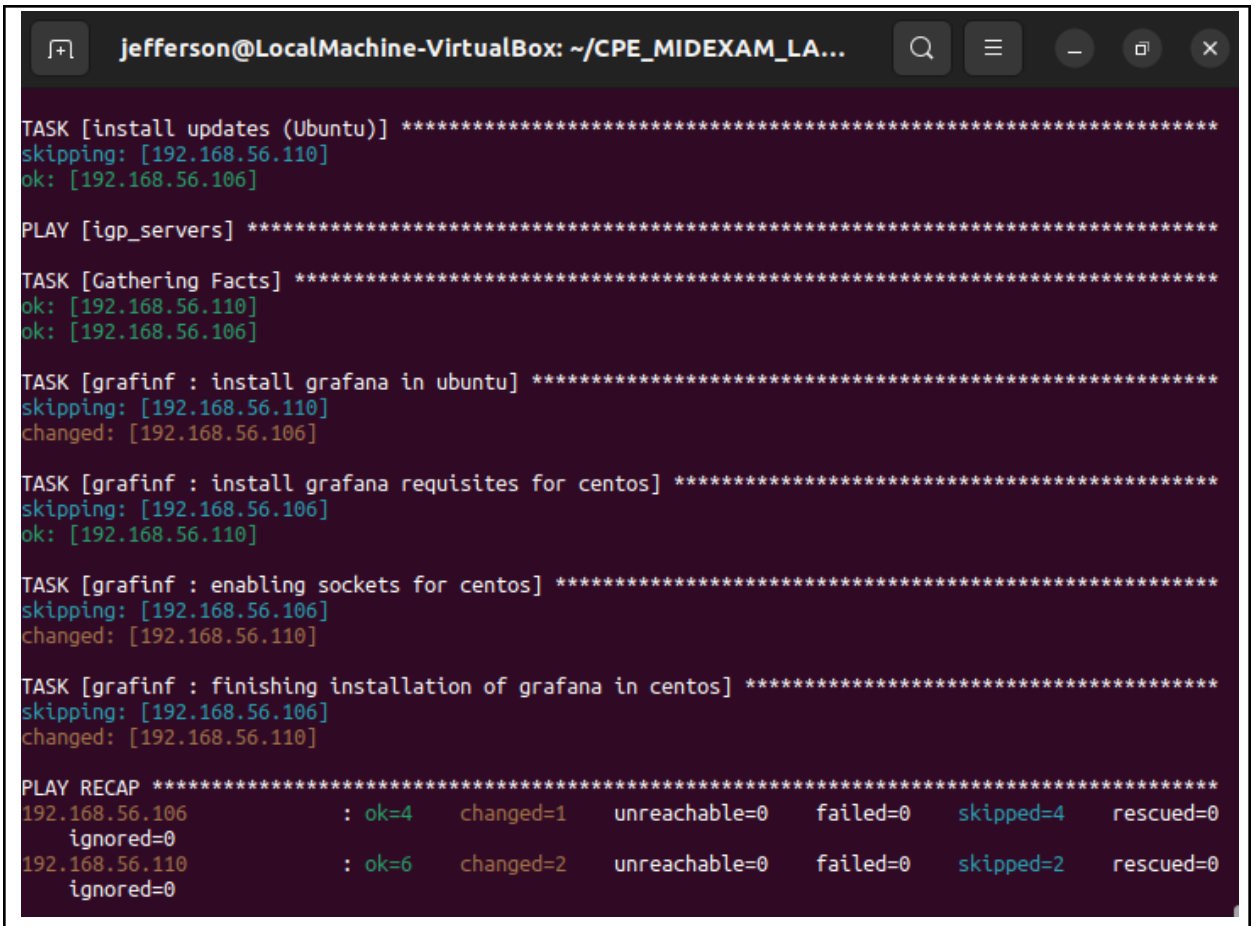
jefferson@LocalMachine-VirtualBox: ~/CPE_MIDEXAM_LA...

GNU nano 6.2 main.yml *

```
- name: install grafana in ubuntu
  apt:
    name:
      - grafana
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: install grafana requisites for centos
  tags: centos, snapd, epel-release
  yum:
    name:
      - epel-release
      - snapd
    state: latest
  when: ansible_distribution == "CentOS"

- name: enabling sockets for centos
  tags: snapd, centos
  command: systemctl enable --now snapd.socket
  when: ansible_distribution == "CentOS"

- name: finishing installation of grafana in centos
  tags: centos, grafana
  command: snap install grafana --classic
  when: ansible_distribution == "CentOS"
```

I created a role for grafana and inputted the command in main.yml

```
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID/roles/grafinf$ tree
.
└── tasks
    └── main.yml

1 directory, 1 file
```


jefferson@LocalMachine-VirtualBox: ~/CPE_MIDEXAM_LA...
TASK [install updates (Ubuntu)] ***
skipping: [192.168.56.110]
ok: [192.168.56.106]
PLAY [igp_servers] **
TASK [Gathering Facts] **
ok: [192.168.56.110]
ok: [192.168.56.106]
TASK [grafinf : install grafana in ubuntu] **
skipping: [192.168.56.110]
changed: [192.168.56.106]
TASK [grafinf : install grafana requisites for centos] **
skipping: [192.168.56.106]
ok: [192.168.56.110]
TASK [grafinf : enabling sockets for centos] **
skipping: [192.168.56.106]
changed: [192.168.56.110]
TASK [grafinf : finishing installation of grafana in centos] **
skipping: [192.168.56.106]
changed: [192.168.56.110]
PLAY RECAP **
192.168.56.106 : ok=4 changed=1 unreachable=0 failed=0 skipped=4 rescued=0
ignored=0
192.168.56.110 : ok=6 changed=2 unreachable=0 failed=0 skipped=2 rescued=0
ignored=0

grafana

```
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID$ cd roles
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID/roles$ cd lamp
jefferson@LocalMachine-VirtualBox:~/CPE_MIDEXAM_LANGBID/roles/lamp$ tree
.
└── tasks
    └── main.yml

1 directory, 1 file
```

I created the new role which is the lamp for the main.yml of the installation of php,httpd, and mariadb.

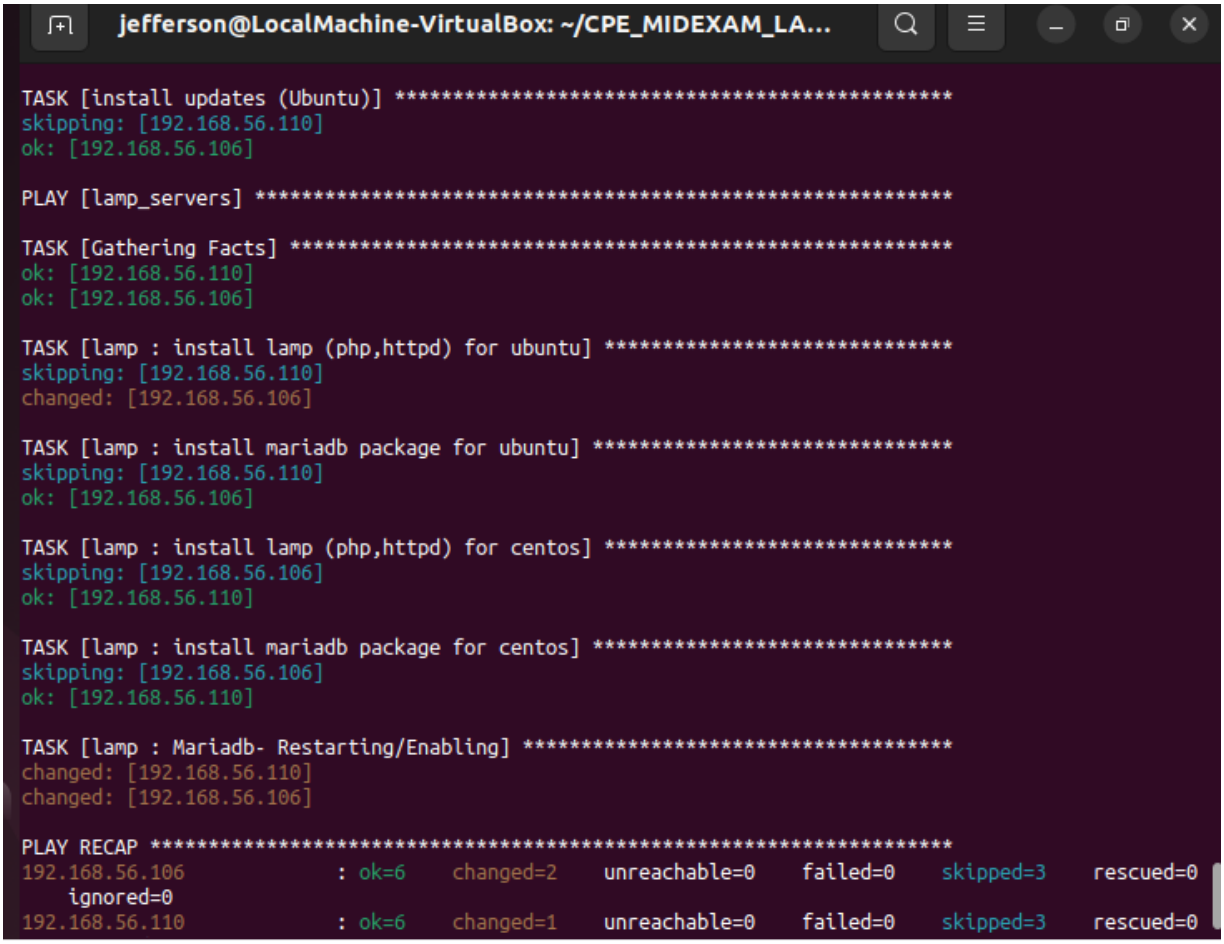
jefferson@LocalMachine-VirtualBox: ~/CPE_MIDEXAM_LA...

GNU nano 6.2 main.yml

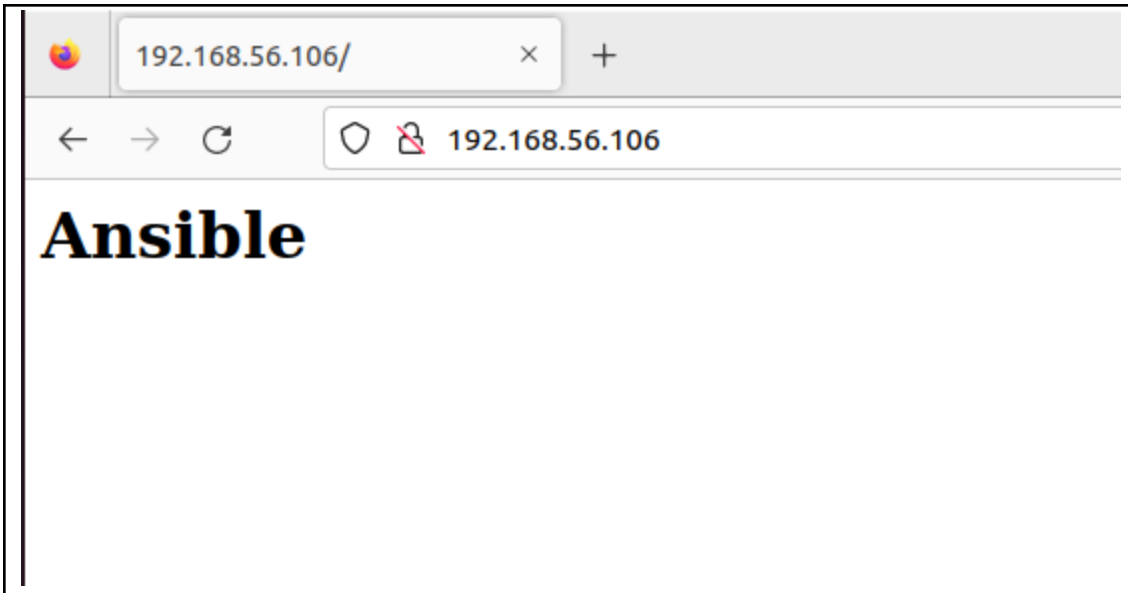
```yaml
- name: install lamp (php,httpd) for ubuntu
  apt:
    name:
      - apache2
      - php
    state: latest
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: install mariadb package for ubuntu
  apt:
    name: mariadb-server
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: install lamp (php,httpd) for centos
  dnf:
    name:
      - php
      - httpd
    state: latest
    update_cache: yes
  when: ansible_distribution == "CentOS"

- name: install mariadb package for centos
  yum:
    name: mariadb-server
    state: latest
  when: ansible_distribution == "CentOS"
```

```yaml
- name: "Mariadb- Restarting/Enabling"
  service:
    name: mariadb
    state: restarted
    enabled: true
```

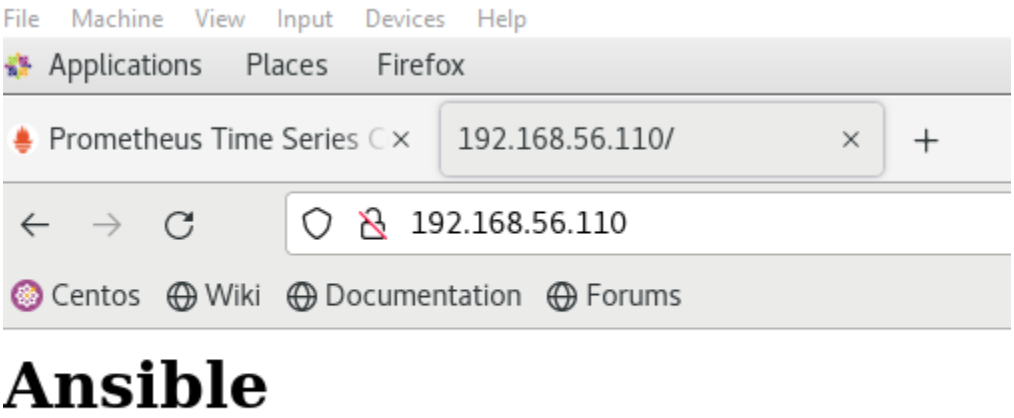
The content of the main.yml of the lamp role that will install the lamp stack (httpd, php, and mariadb) in separate hosts in both centos and ubuntu server.



The installation of lamp stack (httpd,php, and mariadb) ran successfully and installed in separate hosts in both centos and ubuntu.



httpd in ubuntu installed



httpd in centos installed

```
[jefferson@localhost ~]$ php -v
PHP 5.4.16 (cli) (built: Apr  1 2020 04:07:17)
Copyright (c) 1997-2013 The PHP Group
Zend Engine v2.4.0, Copyright (c) 1998-2013 Zend Technologies
[jefferson@localhost ~]$
```

php installed in centos

```
jefferson@Server1-VirtualBox:~$ php -v
PHP 8.1.2 (cli) (built: Aug  8 2022 07:28:23) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.1.2, Copyright (c) Zend Technologies
    with Zend OPcache v8.1.2, Copyright (c), by Zend Technologies
jefferson@Server1-VirtualBox:~$
```

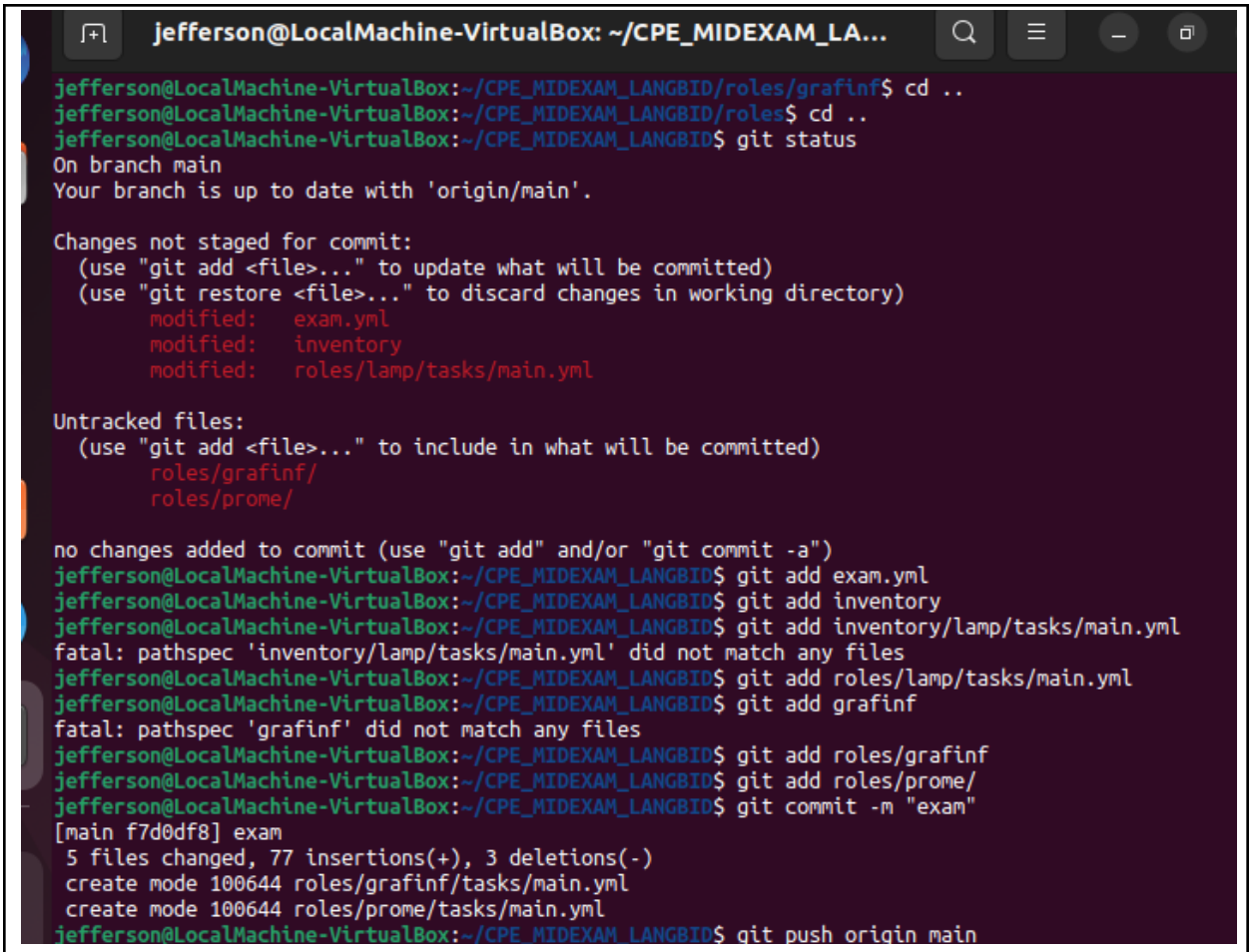
php installed in ubuntu

```
[jefferson@localhost ~]$ sudo systemctl status mariadb
[sudo] password for jefferson:
● mariadb.service - MariaDB database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor preset: dis
abled)
   Active: active (running) since Thu 2022-10-27 10:23:38 PST; 39min ago
  Process: 17000 ExecStartPost=/usr/libexec/mariadb-wait-ready $MAINPID (code=exited, s
tatus=0/SUCCESS)
  Process: 16964 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir %n (code=exited, stat
us=0/SUCCESS)
 Main PID: 16999 (mysqld_safe)
    Tasks: 20
   CGroup: /system.slice/mariadb.service
           ├─16999 /bin/sh /usr/bin/mysqld_safe --basedir=/usr
           └─17164 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysql --plu...

Oct 27 10:23:36 localhost.localdomain systemd[1]: Stopped MariaDB database server.
Oct 27 10:23:36 localhost.localdomain systemd[1]: Starting MariaDB database server...
Oct 27 10:23:36 localhost.localdomain mariadb-prepare-db-dir[16964]: Database MariaD...
Oct 27 10:23:36 localhost.localdomain mysqld_safe[16999]: 221027 10:23:36 mysqld_saf...
```

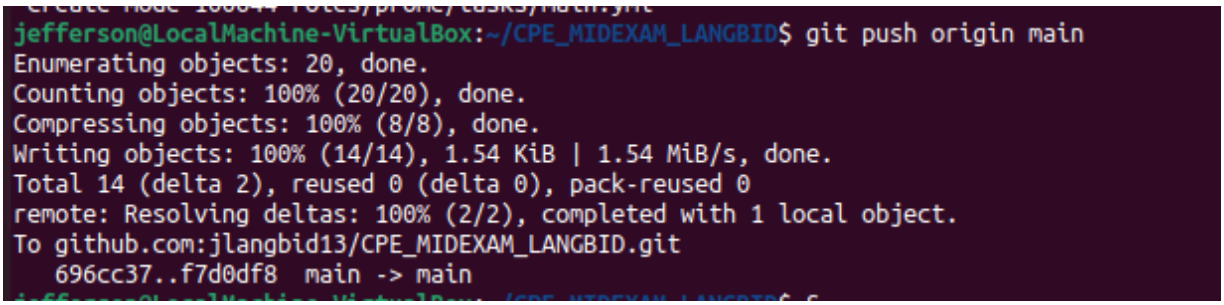
mariadb installed in centos

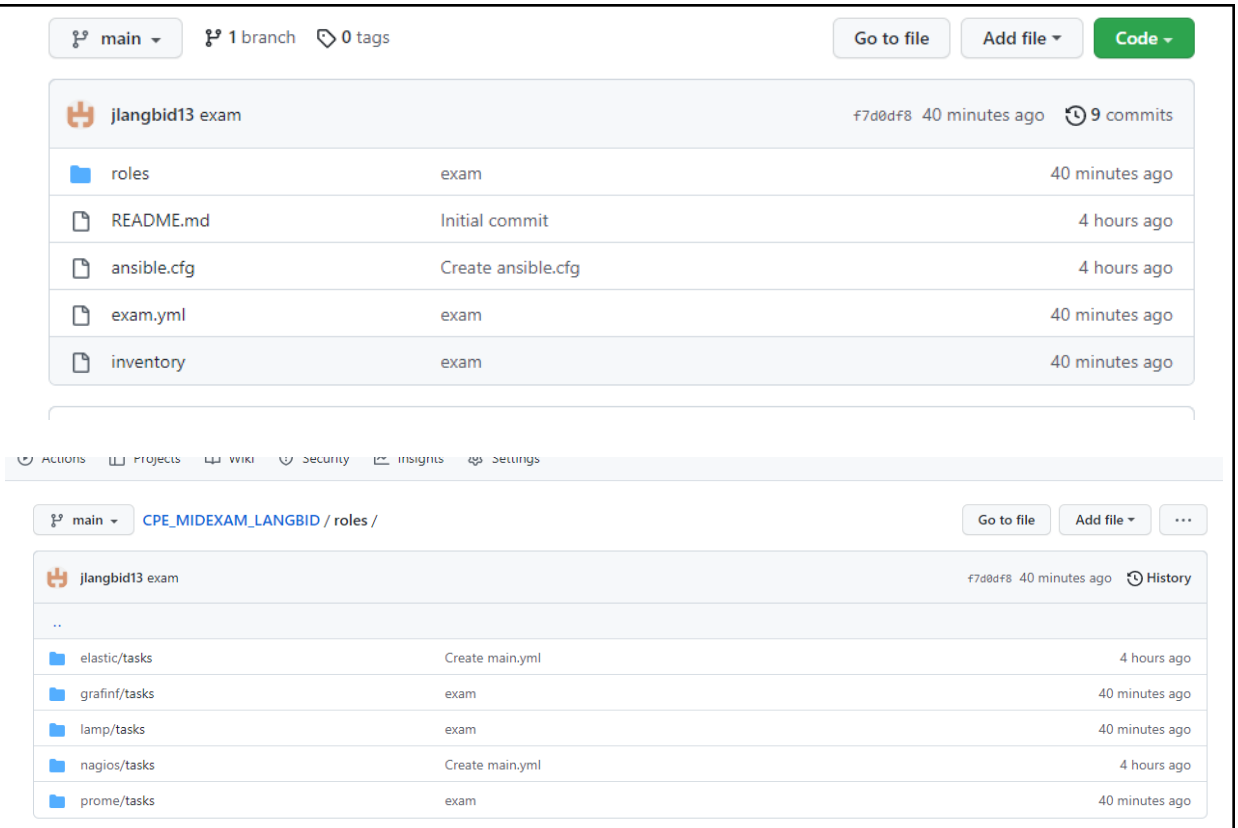
```
jefferson@Server1-VirtualBox:~$ sudo systemctl status mariadb
[sudo] password for jefferson:
● mariadb.service - MariaDB 10.6.7 database server
     Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor pres>
     Active: active (running) since Thu 2022-10-27 10:23:41 PST; 39min ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
   Main PID: 18480 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 7 (limit: 1080)
     Memory: 1.0M
        CPU: 1.040s
     CGroup: /system.slice/mariadb.service
             └─18480 /usr/sbin/mariadbd

Oct 27 10:23:41 Server1-VirtualBox mariadbd[18480]: 2022-10-27 10:23:41 0 [Not>
Oct 27 10:23:41 Server1-VirtualBox mariadbd[18480]: Version: '10.6.7-MariaDB-2>
Oct 27 10:23:41 Server1-VirtualBox systemd[1]: Started MariaDB 10.6.7 database>
Oct 27 10:23:41 Server1-VirtualBox /etc/mysql/debian-start[18494]: Upgrading M>
Oct 27 10:23:42 Server1-VirtualBox /etc/mysql/debian-start[18497]: Looking for>
```

mariadb installed in ubuntu.



I committed all I have edited to the origin.



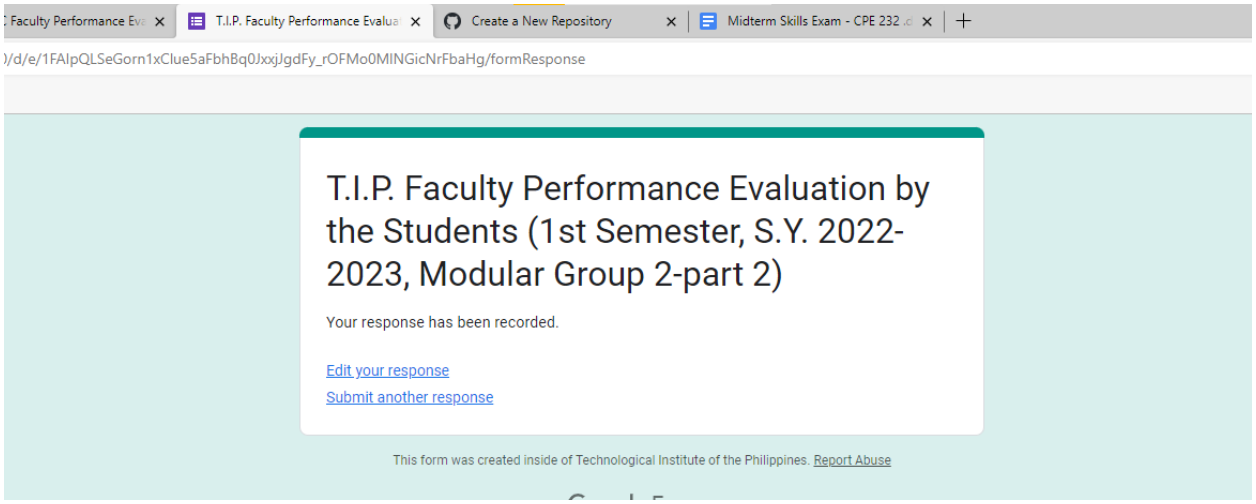


GitHub link:

jlangbid13/CPE_MIDEXAM_LANGBID (github.com)

Conclusions: (link your conclusion from the objective)

All in all, I created a new github repository and created a new file which is ansible.cfg and an inventory file for the playbook hosts. After the ansible and inventory file the next is the exam.yml that has the content of the pre task for the servers. I created the new roles which are the elastic_server, nagios_server, igp_server, and lamp_server for separated hosts and roles. I created the main.yml in each role to input the respective command that is needed. After that, I ran the exam.yml to try the code and it ran successfully and I included the images of the proof of installment. after all the images I committed the files to the github repository to be saved.


Faculty Performance Eva
T.I.P. Faculty Performance Evalua
Create a New Repository
Midterm Skills Exam - CPE 232
/d/e/1FAIpQLSeGorn1xClue5aFbhBq0JxxjJgdFy_rOFMo0MINGicNrFbaHg/formResponse
T.I.P. Faculty Performance Evaluation by the Students (1st Semester, S.Y. 2022-2023, Modular Group 2-part 2)
Your response has been recorded.
Edit your response
Submit another response
This form was created inside of Technological Institute of the Philippines. Report Abuse