Hands-on Final Exam	
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Course/Section: CPE31S2CPE212	**Date Submitted:** 12/04/24
Subject: Automating Server Management	**Instructor:** Engr. Robin Valenzuela

Tools Needed:

1. Control Node (CN) - 1
2. Manage Node (MN) - 1 Ubuntu, 1 CentOS

Procedure:

1. Create a repository and label it as "Final_Exam_Surname"

2. Clone your new repository in your VM

3. Create an Ansible playbook that does the following with an input of a config.yaml file and structure inventory file.

3.1 Install and configure one enterprise service that can be installed in Debian and Centos servers

3.2 Install and configure one monitoring tool that can be installed in Debian and Centos servers (if it is a stack there should be option of different host)

4.4 Change Motd as "Ansible Managed by <username>"

4. Push and commit your files in GitHub

5. Make sure to show evidence of input (codes) process (codes successfully running) and output (evidence of installation)

5. For your final exam to be counted, please paste your repository link as an answer in this exam.

Note: Extra points if you will implement the said services via containerization.

Answers:

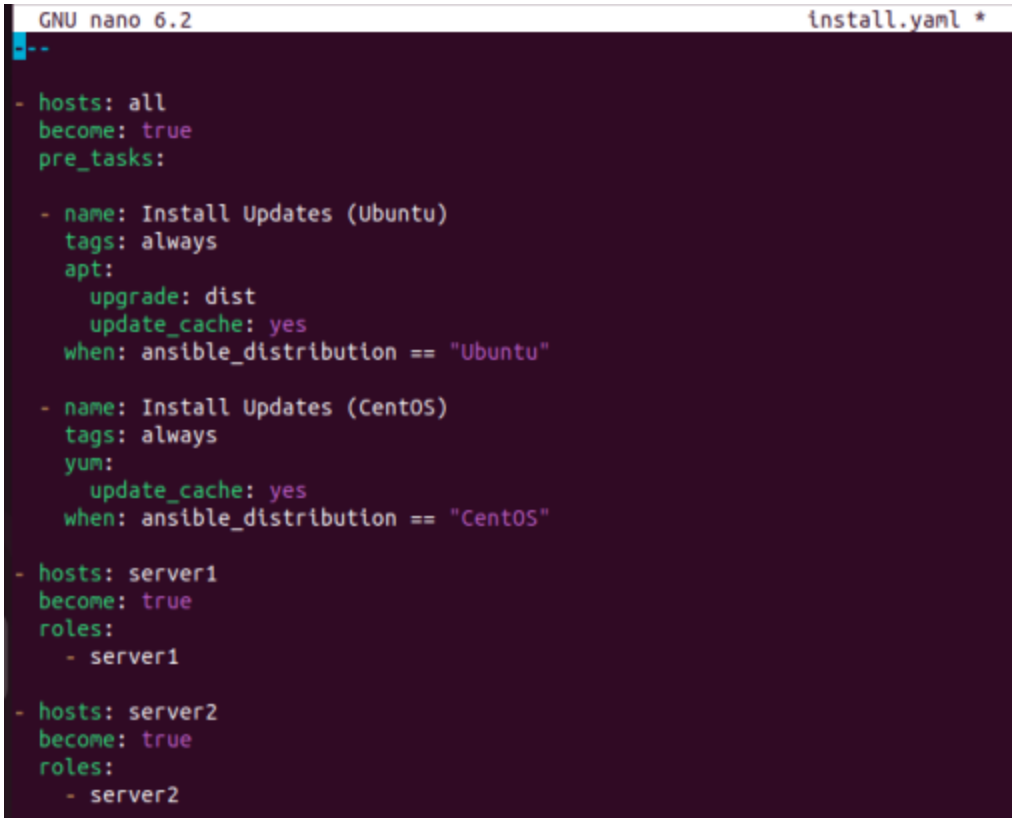
Input:

```
 GNU nano 6.2                                                ansible.cfg
[defaults]
inventory = ~/Final_Exam_DeOmampo/inventory.yaml
interpreter_python = /usr/bin/python3
deprecation_warnings = False
remote_user = jmado
host_key_checking = True
```

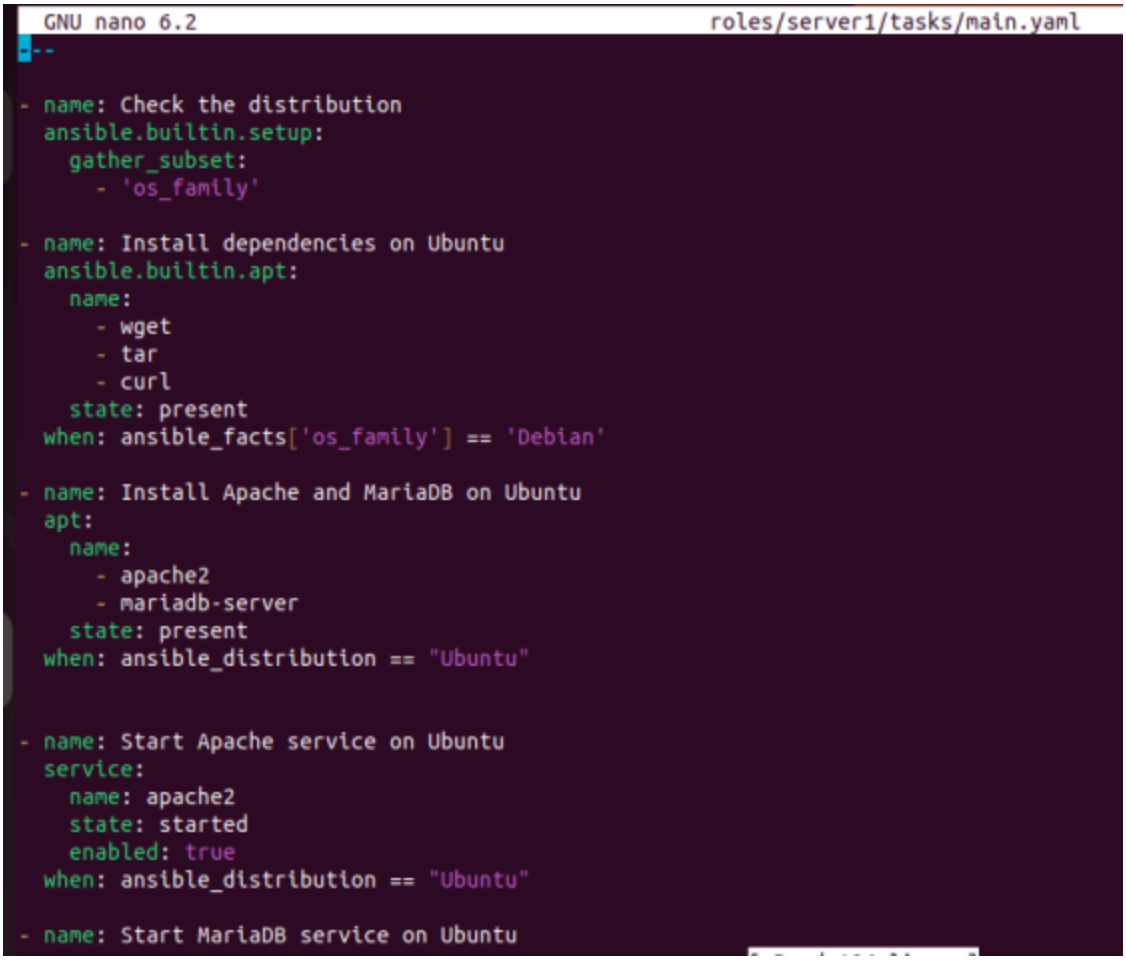
ansible.yaml

```
 GNU nano 6.2                                              inventory.yaml *
[server1]
192.168.56.109

[server2]
192.168.56.111
```

Inventory.yaml



Install.yaml



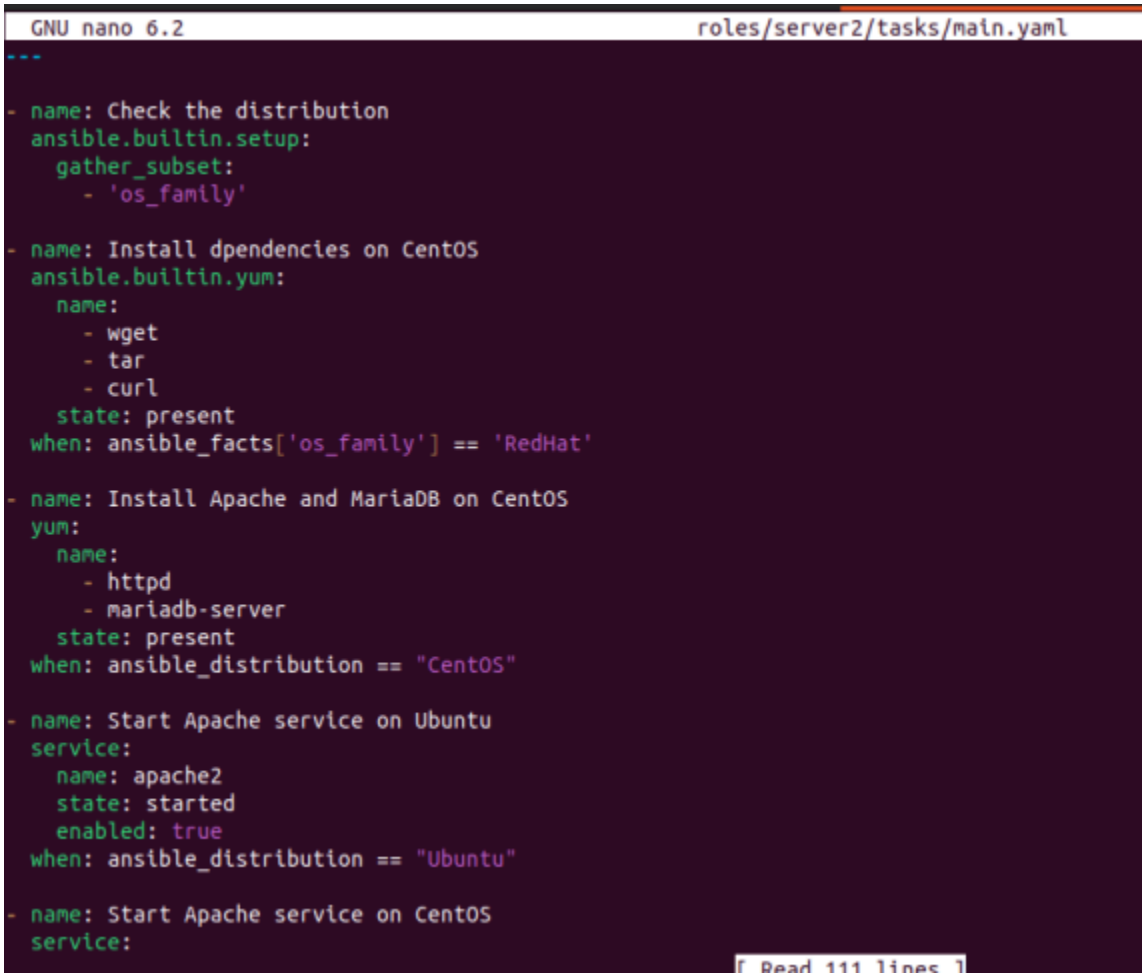
Server1 main.yaml

```
 GNU nano 6.2                                    roles/server1/tasks/main.yaml
- name: Start MariaDB service on Ubuntu
  service:
    name: mariadb
    state: started
    enabled: true
  when: ansible_distribution == "Ubuntu"

- name: Create Prometheus user
  user:
    name: prometheus
    shell: /sbin/nologin

- name: Create necessary directories
  file:
    path: "{{ item }}"
    state: directory
    owner: prometheus
    group: prometheus
    mode: '0755'
  with_items:
    - /etc/prometheus
    - /var/lib/prometheus

- name: Download Prometheus
  get_url:
    url: https://github.com/prometheus/prometheus/releases/download/v2.46.0/prometheus-2.46.0.linux-amd64.tar.gz
    dest: /tmp/prometheus.tar.gz

- name: Extract Prometheus
  unarchive:
    src: /tmp/prometheus.tar.gz
    dest: /opt/
    remote_src: yes
```

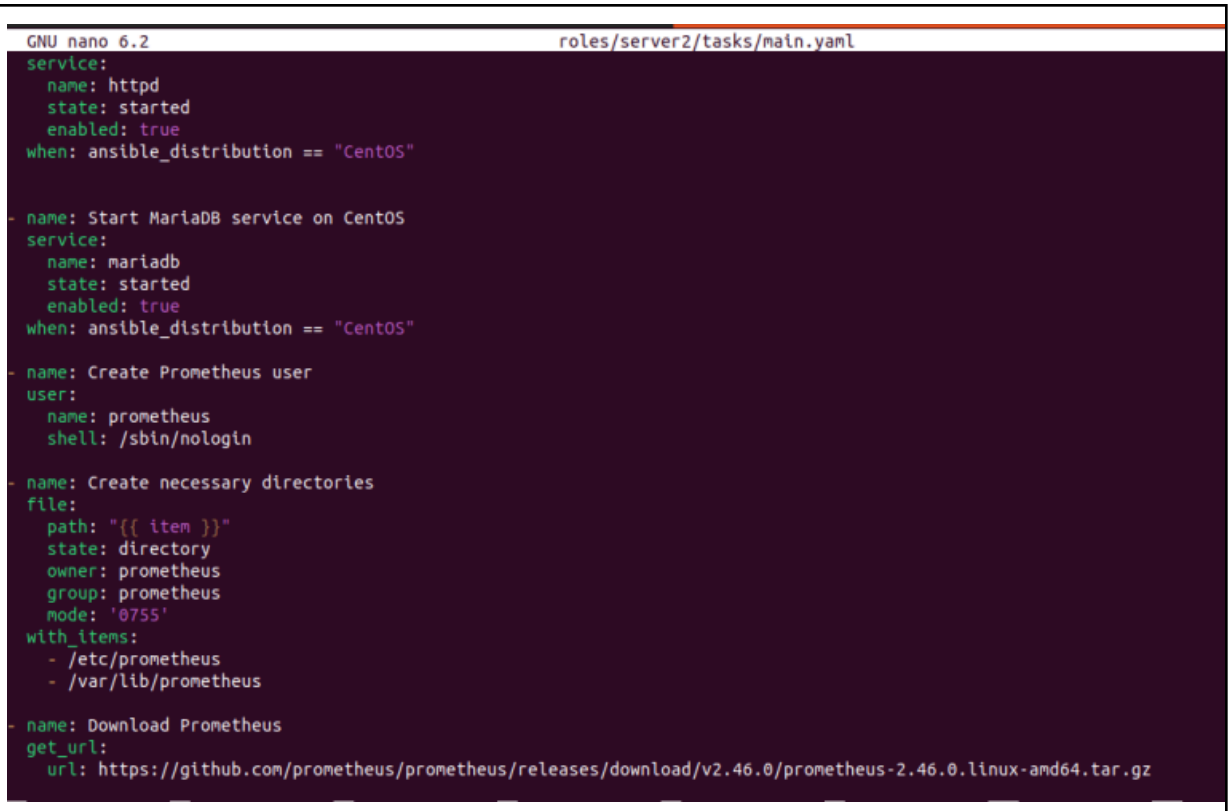
Server1 main.yaml

```
 GNU nano 6.2                                    roles/server1/tasks/main.yaml
- name: Set Prometheus binary permissions
  file:
    path: /usr/local/bin/prometheus
    owner: prometheus
    group: prometheus
    mode: '0755'

- name: Create Prometheus systemd service file
  copy:
    dest: /etc/systemd/system/prometheus.service
    content: |
      [Unit]
      Description=Prometheus
      Wants=network-online.target
      After=network-online.target

      [Service]
      User=prometheus
      ExecStart=/usr/local/bin/prometheus --config.file /etc/prometheus/prometheus.yml --storage.tsdb.path /var/lib/prometheus/

      [Install]
      WantedBy=multi-user.target

- name: Reload systemd
  systemd:
    daemon_reload: yes

- name: Enable and restart Prometheus service
  systemd:
    name: prometheus
    enabled: yes
    state: started
```

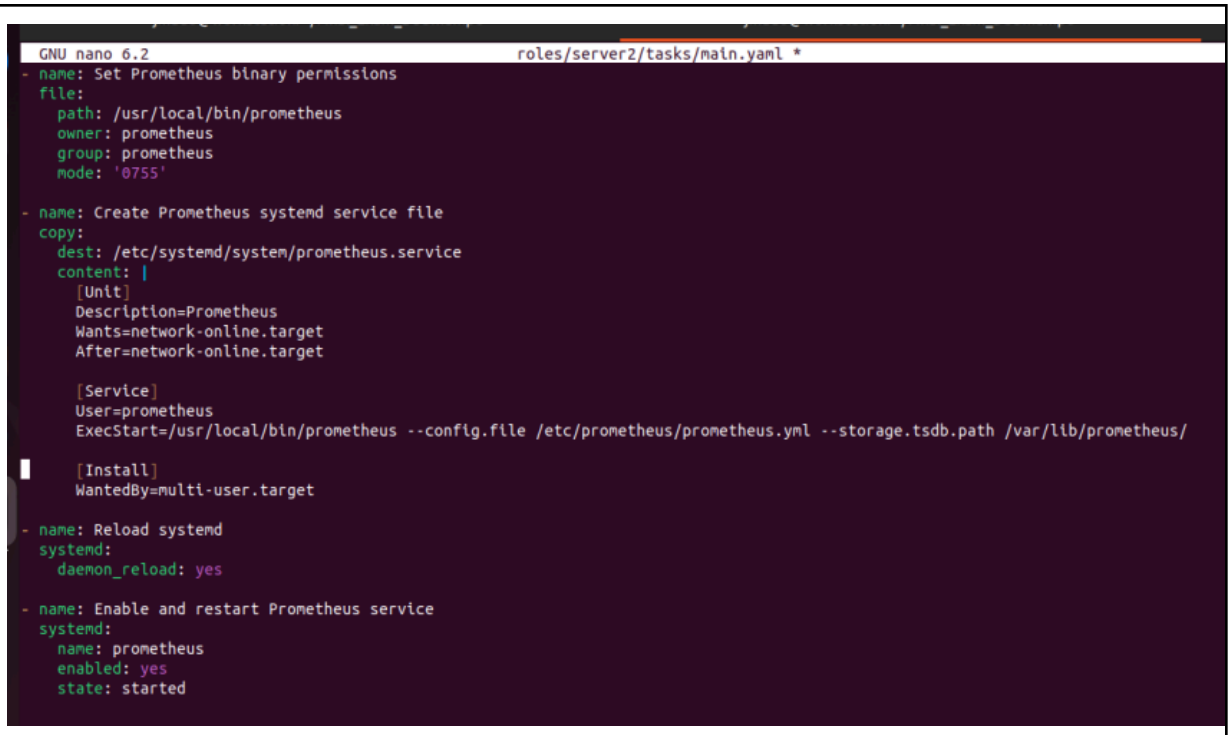
Server1 main.yaml



Server2 main.yaml

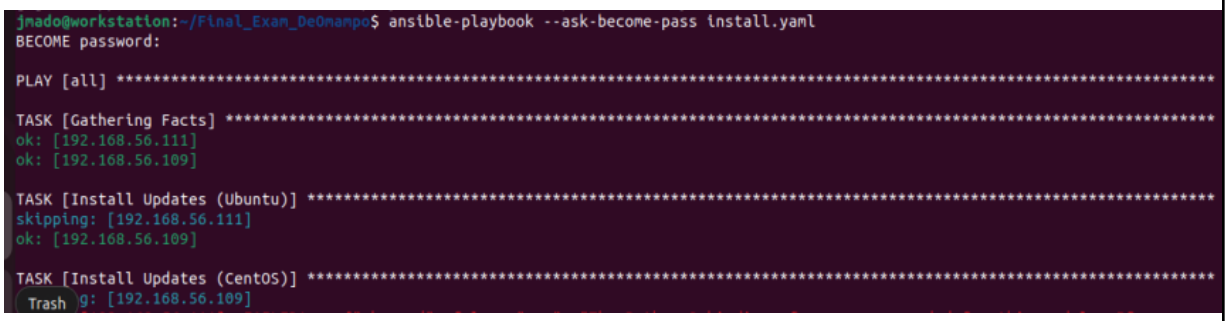


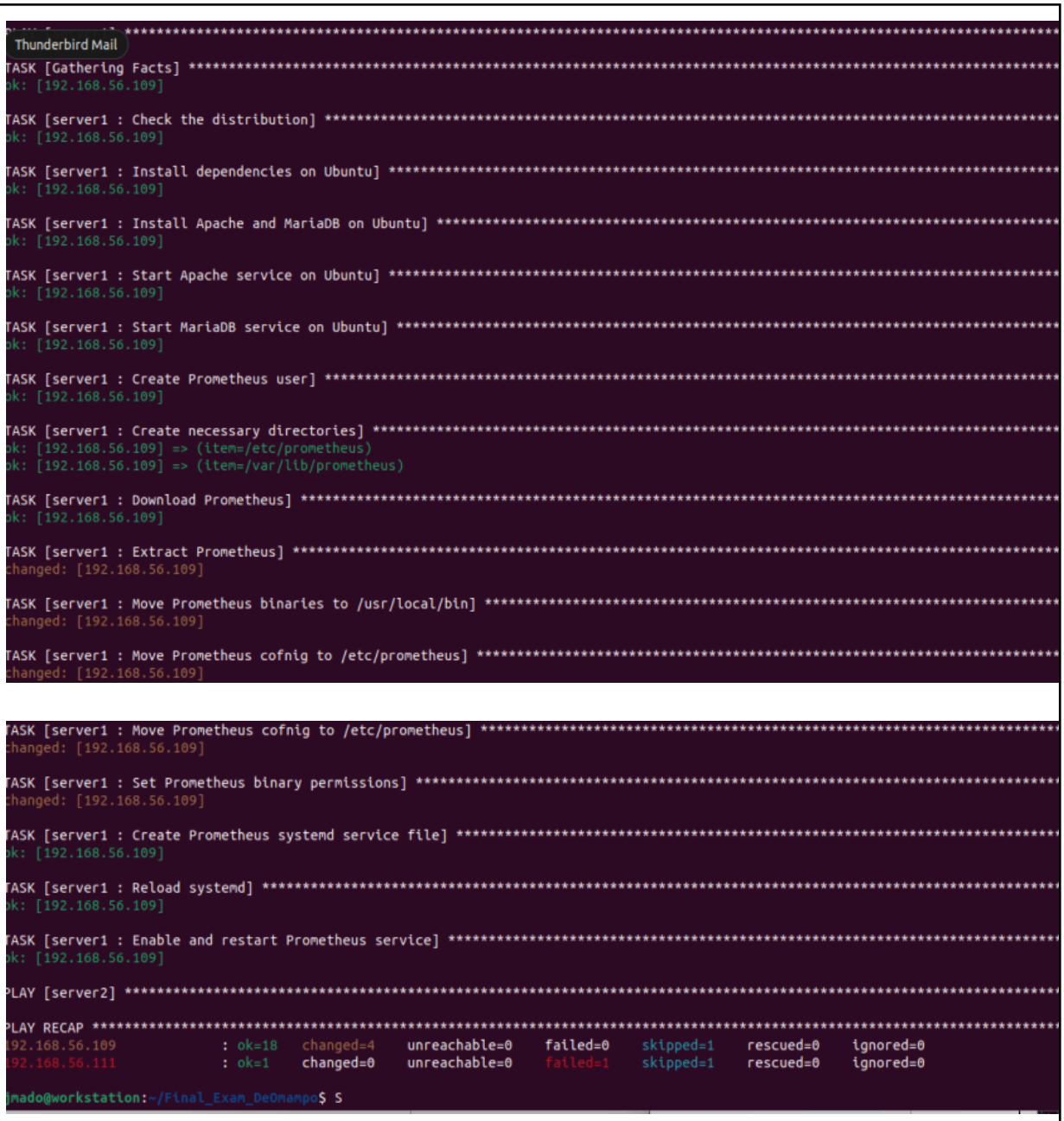
Server2 main.yaml



Server2 main.yaml

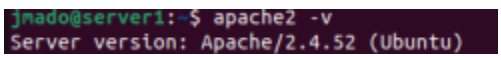
Process:




Thunderbird Mail
TASK [Gathering Facts] ********
ok: [192.168.56.109]
TASK [server1 : Check the distribution] ********
ok: [192.168.56.109]
TASK [server1 : Install dependencies on Ubuntu] ********
ok: [192.168.56.109]
TASK [server1 : Install Apache and MariaDB on Ubuntu] ********
ok: [192.168.56.109]
TASK [server1 : Start Apache service on Ubuntu] ********
ok: [192.168.56.109]
TASK [server1 : Start MariaDB service on Ubuntu] ********
ok: [192.168.56.109]
TASK [server1 : Create Prometheus user] ********
ok: [192.168.56.109]
TASK [server1 : Create necessary directories] ********
ok: [192.168.56.109] => (item=/etc/prometheus)
ok: [192.168.56.109] => (item=/var/lib/prometheus)
TASK [server1 : Download Prometheus] ********
ok: [192.168.56.109]
TASK [server1 : Extract Prometheus] ********
changed: [192.168.56.109]
TASK [server1 : Move Prometheus binaries to /usr/local/bin] ********
changed: [192.168.56.109]
TASK [server1 : Move Prometheus cofnig to /etc/prometheus] ********
changed: [192.168.56.109]

TASK [server1 : Move Prometheus cofnig to /etc/prometheus] ********
changed: [192.168.56.109]
TASK [server1 : Set Prometheus binary permissions] ********
changed: [192.168.56.109]
TASK [server1 : Create Prometheus systemd service file] ********
ok: [192.168.56.109]
TASK [server1 : Reload systemd] ********
ok: [192.168.56.109]
TASK [server1 : Enable and restart Prometheus service] ********
ok: [192.168.56.109]
PLAY [server2] ********
PLAY RECAP ********
192.168.56.109 : ok=18 changed=4 unreachable=0 failed=0 skipped=1 rescued=0 ignored=0
192.168.56.111 : ok=1 changed=0 unreachable=0 failed=1 skipped=1 rescued=0 ignored=0
jmado@workstation:~/Final_Exam_DeOmampo$ S

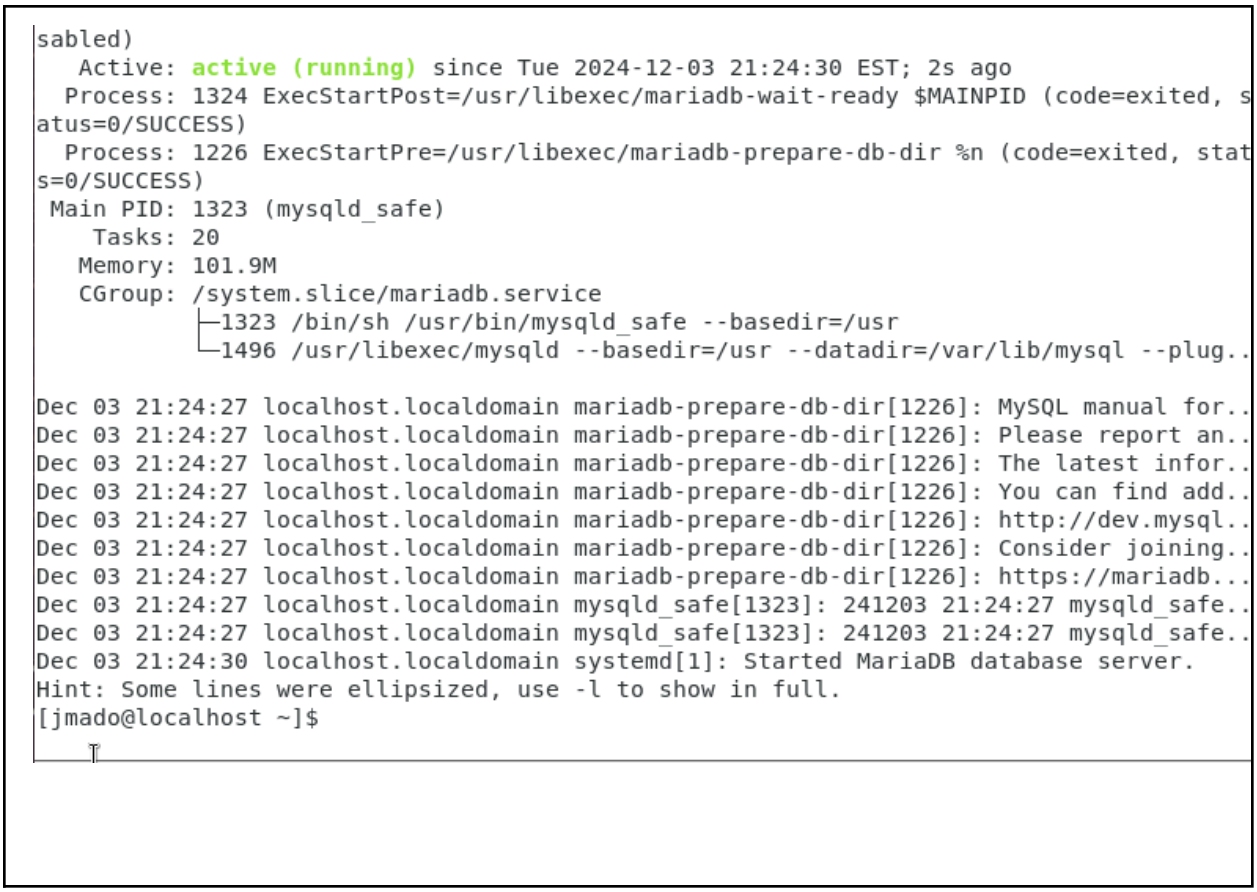
Output:


jmado@server1:~$ apache2 -v
Server version: Apache/2.4.52 (Ubuntu)

```
jmado@server1:~$ systemctl status mariadb
● mariadb.service - MariaDB 10.6.18 database server
     Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2024-12-04 07:58:31 +08; 2h 23min ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
   Main PID: 1107 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 8 (limit: 29650)
     Memory: 7.1M
        CPU: 1.557s
     CGroup: /system.slice/mariadb.service
             └─1107 /usr/sbin/mariadbd

Warning: some journal files were not opened due to insufficient permissions.
jmado@server1:~$
```

```
jmado@server1:~$ systemctl status prometheus
● prometheus.service - Prometheus
     Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2024-12-04 07:58:06 +08; 2h 24min ago
   Main PID: 746 (prometheus)
      Tasks: 10 (limit: 4492)
     Memory: 58.0M
        CPU: 12.951s
     CGroup: /system.slice/prometheus.service
             └─746 /usr/bin/prometheus

Warning: some journal files were not opened due to insufficient permissions.
jmado@server1:~$
```

```
[jmado@localhost ~]$ httpd -v
Server version: Apache/2.4.6 (CentOS)
Server built:   May 30 2023 14:01:11
[jmado@localhost ~]$
```


sabled)
Active: active (running) since Tue 2024-12-03 21:24:30 EST; 2s ago
Process: 1324 ExecStartPost=/usr/libexec/mariadb-wait-ready $MAINPID (code=exited, s
atus=0/SUCCESS)
Process: 1226 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir %n (code=exited, stat
s=0/SUCCESS)
Main PID: 1323 (mysqld_safe)
Tasks: 20
Memory: 101.9M
CGroup: /system.slice/mariadb.service
├─1323 /bin/sh /usr/bin/mysqld_safe --basedir=/usr
└─1496 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysql --plug..
Dec 03 21:24:27 localhost.localdomain mariadb-prepare-db-dir[1226]: MySQL manual for..
Dec 03 21:24:27 localhost.localdomain mariadb-prepare-db-dir[1226]: Please report an..
Dec 03 21:24:27 localhost.localdomain mariadb-prepare-db-dir[1226]: The latest infor..
Dec 03 21:24:27 localhost.localdomain mariadb-prepare-db-dir[1226]: You can find add..
Dec 03 21:24:27 localhost.localdomain mariadb-prepare-db-dir[1226]: http://dev.mysql..
Dec 03 21:24:27 localhost.localdomain mariadb-prepare-db-dir[1226]: Consider joining..
Dec 03 21:24:27 localhost.localdomain mariadb-prepare-db-dir[1226]: https://mariadb...
Dec 03 21:24:27 localhost.localdomain mysqld_safe[1323]: 241203 21:24:27 mysqld_safe..
Dec 03 21:24:27 localhost.localdomain mysqld_safe[1323]: 241203 21:24:27 mysqld_safe..
Dec 03 21:24:30 localhost.localdomain systemd[1]: Started MariaDB database server.
Hint: Some lines were ellipsized, use -l to show in full.
[jmado@localhost ~]$