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Course/Section: CPE212 / CPE31S4	**Date Submitted:** 10/10/25
Instructor: Engr. Robin Valenzuela	**Semester and SY:**

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

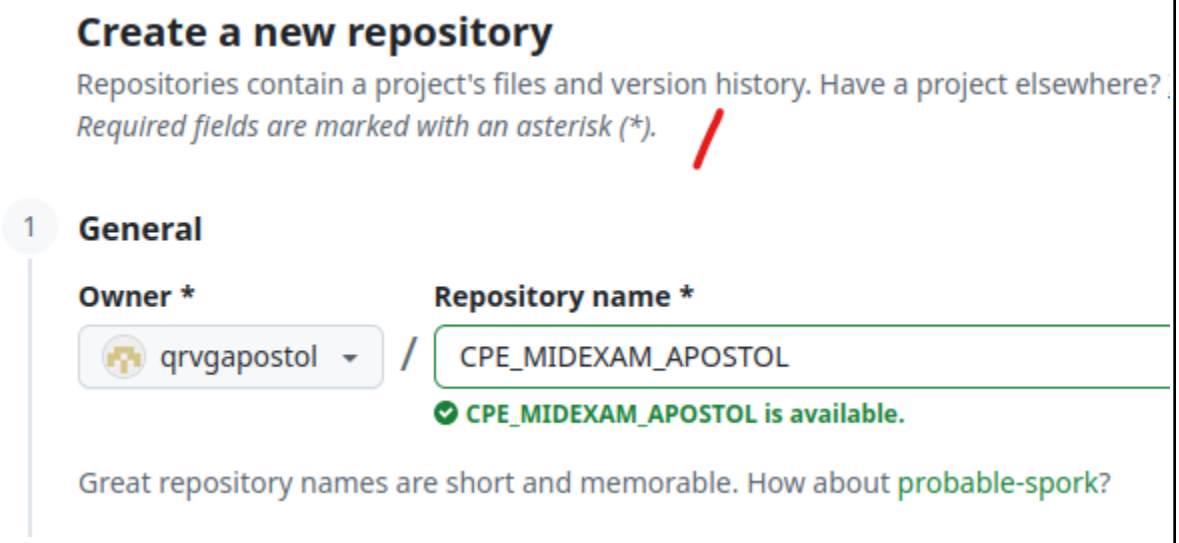
1. Objectives

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)



Add new SSH Key

Title

CPE232

Key type

Authentication Key

Key

sh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQC6hu/
eYRJaso3dwIAM2sW4R6p7c3cWJIoVLMHQXmuyxo35m7pReX7w7CumOSFmkm8drtl4CgBNqinrfucTAFVfYtKOGfnOAIu4LX04DVft
OAqn5/9ojpinPmgARwjecvMKM0bm5mhCWvPNahF6iK867X1rhacEI4R/9aFeq0dQejSkJHnSYpCxO2E3noPj/
ytTD+T7A3A6mEcwjoKDks4MYcbMGsxQsfLfXT1iEQCcGMaHelsx4vD77vFh3xjn4bEr97UEXty4jtQ/
h47xEzY3m7QDP3fx7fzSTtkoqUAZN7aeErZpJLiPYNLzy8C6tXp63PdmQSkwgc8x9l7mB0OMHSiSDJ8tUcfEZZ0dWQjjFJGdKD3ot93A
nu4DqQrtrGJIN7NFJ4qkvCsgbE0w18D5KfwNkW7RwG2ftTVNxCors8SeC1DlCChnNgoUONB13k1LGfBTnIK70a2VFdTeFp1zN+I8L0
HlcpaXMo4JpsgJdnEcifihq0POBN8LLIY+h2ORJtygXzZvzd4k+KTPTvlDz96nVs8yShcb0KhyQcHLGS/
kRhmGJwRPDoCMOBXlt9HZ17DP4HxPZ0Arm88Ff+wGbErm2RZPHrUYJPS3lIJSEEH7cIYS8hhFBdAmPEWgU+jRicU1hF6c1aNep/
i8DuSUdDueCGfDfYbgKdRAFkXBjw== Apostol@ApostolCN

Add SSH key

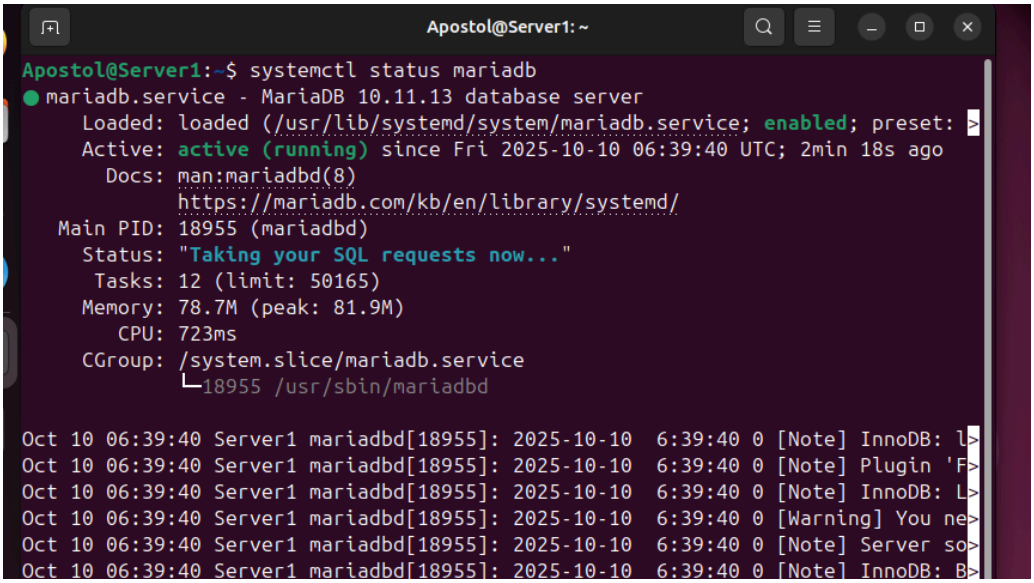
```
no changes added to commit (use "git add" and/or "git commit -a")
Apostol@ApostolCN:~/CPE_MIDEXAM_APOSTOL$ git add README.md
Apostol@ApostolCN:~/CPE_MIDEXAM_APOSTOL$ git commit -m Stage1
[main c2818c1] Stage1
 1 file changed, 1 insertion(+)
Apostol@ApostolCN:~/CPE_MIDEXAM_APOSTOL$ git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Writing objects: 100% (3/3), 278 bytes | 278.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:qrvgapostol/CPE_MIDEXAM_APOSTOL.git
   2b6cdbf..c2818c1  main -> main
Apostol@ApostolCN:~/CPE_MIDEXAM_APOSTOL$
```

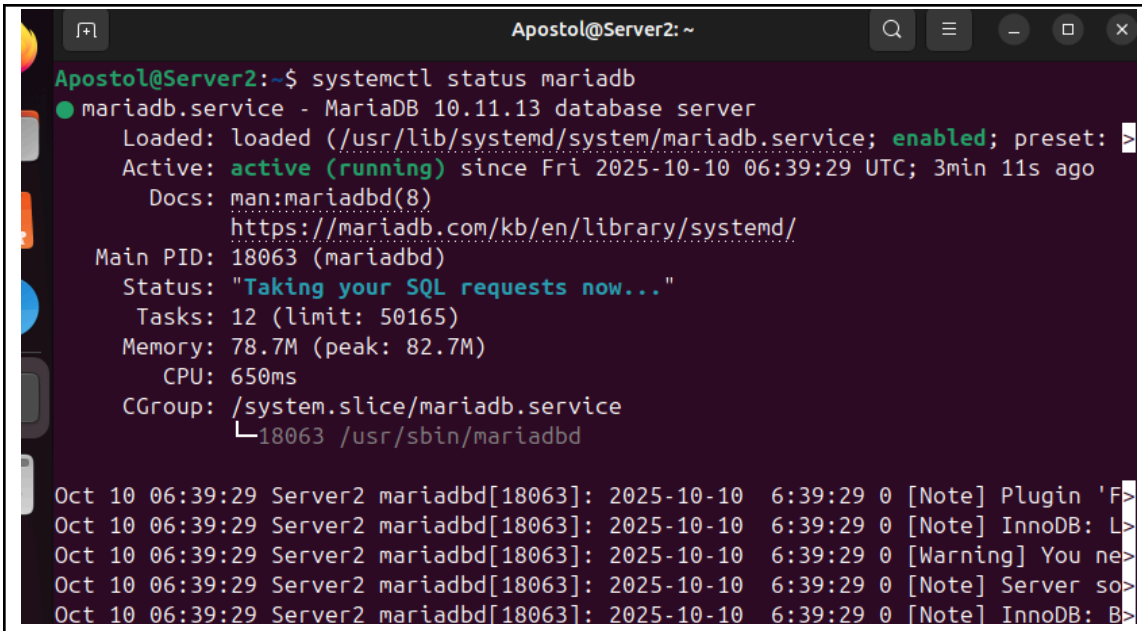
Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)

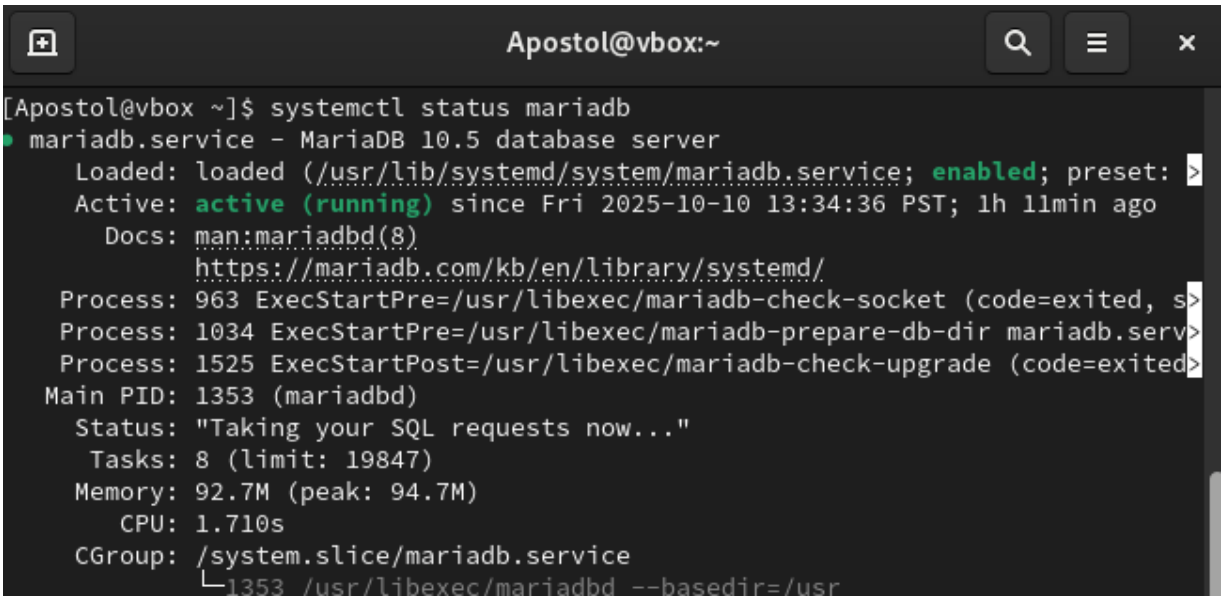
```
PLAY RECAP *********************************************************
192.168.56.104             : ok=0    changed=0    unreachable=1
kipped=0    rescued=0    ignored=0
192.168.56.106             : ok=8    changed=6    unreachable=0
kipped=0    rescued=0    ignored=0
192.168.56.108             : ok=8    changed=6    unreachable=0
kipped=0    rescued=0    ignored=0
192.168.56.113             : ok=1    changed=0    unreachable=0
kipped=0    rescued=0    ignored=0

Apostol@ApostolCN:~/CPE_MIDEXAM_APOSTOL$
```

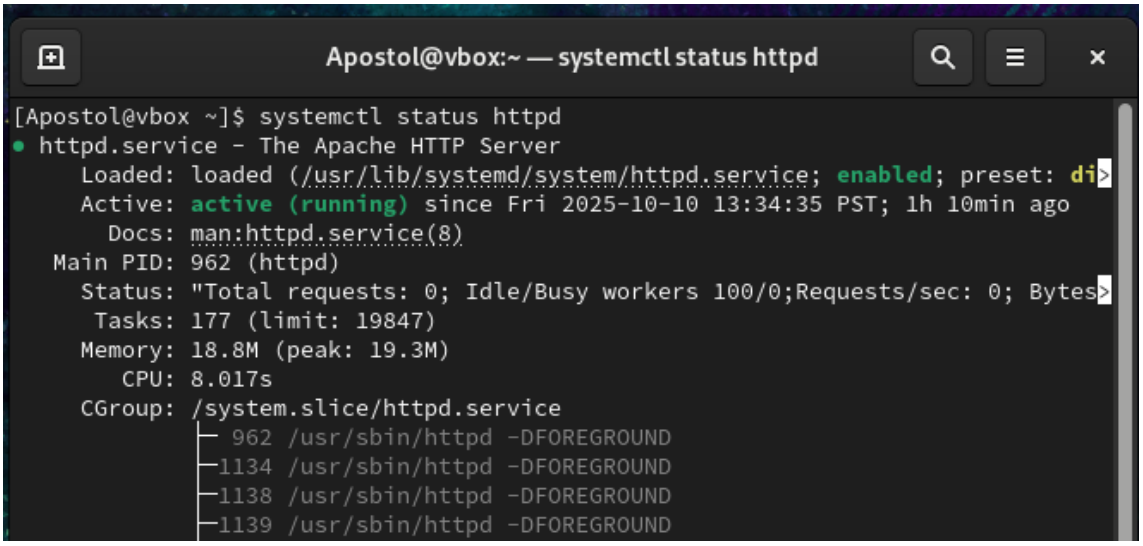
MariaDB:

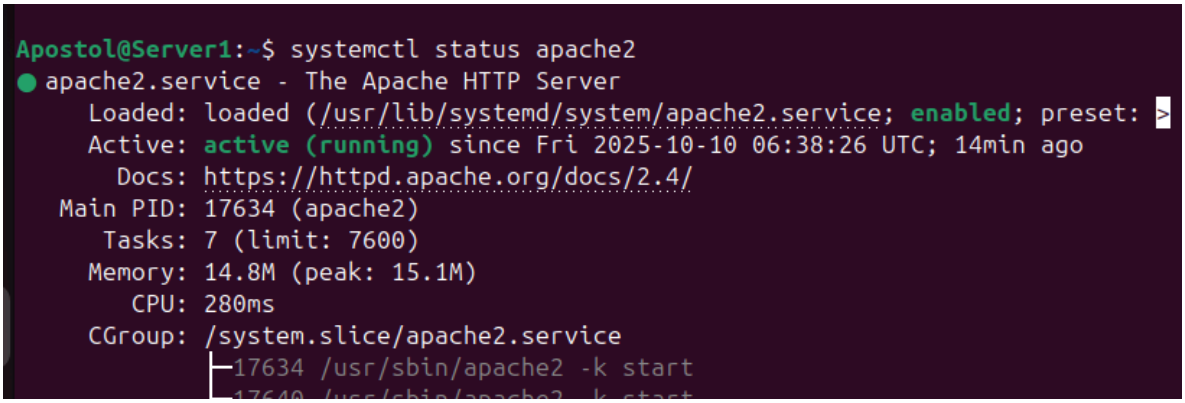


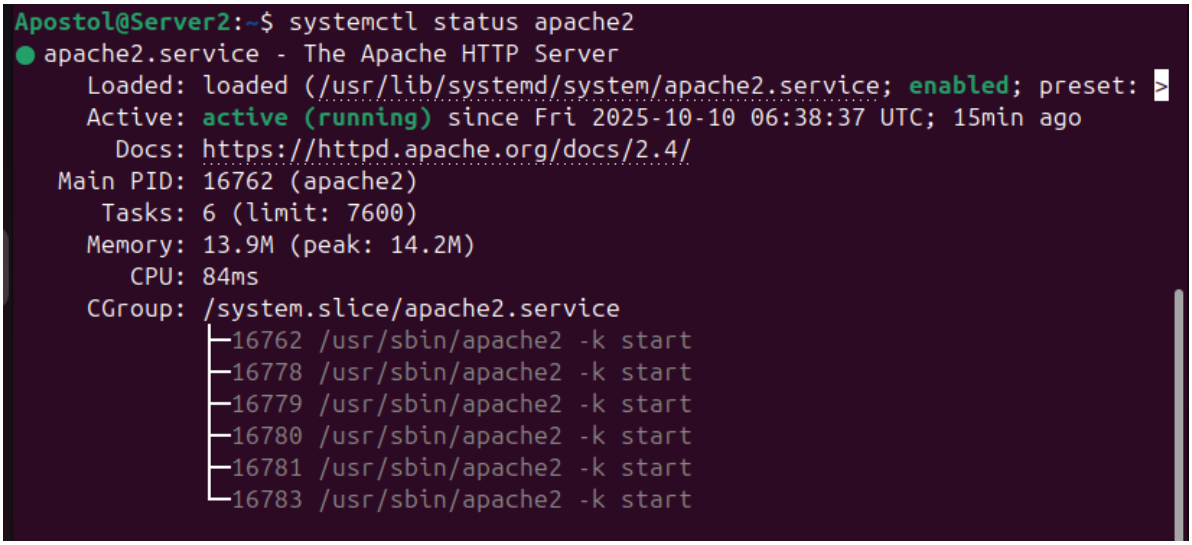

Apostol@Server2: ~
Apostol@Server2:~$ systemctl status mariadb
● mariadb.service - MariaDB 10.11.13 database server
Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset:
Active: active (running) since Fri 2025-10-10 06:39:29 UTC; 3min 11s ago
Docs: man:mariadbd(8)
https://mariadb.com/kb/en/library/systemd/
Main PID: 18063 (mariadbd)
Status: "Taking your SQL requests now..."
Tasks: 12 (limit: 50165)
Memory: 78.7M (peak: 82.7M)
CPU: 650ms
CGroup: /system.slice/mariadb.service
└18063 /usr/sbin/mariadbd
Oct 10 06:39:29 Server2 mariadbd[18063]: 2025-10-10 6:39:29 0 [Note] Plugin 'F
Oct 10 06:39:29 Server2 mariadbd[18063]: 2025-10-10 6:39:29 0 [Note] InnoDB: L
Oct 10 06:39:29 Server2 mariadbd[18063]: 2025-10-10 6:39:29 0 [Warning] You ne
Oct 10 06:39:29 Server2 mariadbd[18063]: 2025-10-10 6:39:29 0 [Note] Server so
Oct 10 06:39:29 Server2 mariadbd[18063]: 2025-10-10 6:39:29 0 [Note] InnoDB: B


Apostol@vbox:~
[Apostol@vbox ~]$ systemctl status mariadb
● mariadb.service - MariaDB 10.5 database server
Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset:
Active: active (running) since Fri 2025-10-10 13:34:36 PST; 1h 11min ago
Docs: man:mariadbd(8)
https://mariadb.com/kb/en/library/systemd/
Process: 963 ExecStartPre=/usr/libexec/mariadb-check-socket (code=exited, s
Process: 1034 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir mariadb.serv
Process: 1525 ExecStartPost=/usr/libexec/mariadb-check-upgrade (code=exited
Main PID: 1353 (mariadbd)
Status: "Taking your SQL requests now..."
Tasks: 8 (limit: 19847)
Memory: 92.7M (peak: 94.7M)
CPU: 1.710s
CGroup: /system.slice/mariadb.service
└1353 /usr/libexec/mariadbd --basedir=/usr

httpd:


Apostol@vbox:~ — systemctl status httpd
[Apostol@vbox ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: di
Active: active (running) since Fri 2025-10-10 13:34:35 PST; 1h 10min ago
Docs: man:httpd.service(8)
Main PID: 962 (httpd)
Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes
Tasks: 177 (limit: 19847)
Memory: 18.8M (peak: 19.3M)
CPU: 8.017s
CGroup: /system.slice/httpd.service
├─ 962 /usr/sbin/httpd -DFOREGROUND
├─1134 /usr/sbin/httpd -DFOREGROUND
├─1138 /usr/sbin/httpd -DFOREGROUND
└─1139 /usr/sbin/httpd -DFOREGROUND


Apostol@Server1:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset:
Active: active (running) since Fri 2025-10-10 06:38:26 UTC; 14min ago
Docs: https://httpd.apache.org/docs/2.4/
Main PID: 17634 (apache2)
Tasks: 7 (limit: 7600)
Memory: 14.8M (peak: 15.1M)
CPU: 280ms
CGroup: /system.slice/apache2.service
├─17634 /usr/sbin/apache2 -k start


Apostol@Server2:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset:
Active: active (running) since Fri 2025-10-10 06:38:37 UTC; 15min ago
Docs: https://httpd.apache.org/docs/2.4/
Main PID: 16762 (apache2)
Tasks: 6 (limit: 7600)
Memory: 13.9M (peak: 14.2M)
CPU: 84ms
CGroup: /system.slice/apache2.service
├─16762 /usr/sbin/apache2 -k start
├─16778 /usr/sbin/apache2 -k start
├─16779 /usr/sbin/apache2 -k start
├─16780 /usr/sbin/apache2 -k start
├─16781 /usr/sbin/apache2 -k start
└─16783 /usr/sbin/apache2 -k start

PHP:

```
Apostol@Server1:~$ php -v
PHP 8.3.6 (cli) (built: Jul 14 2025 18:30:55) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.3.6, Copyright (c) Zend Technologies
    with Zend OPcache v8.3.6, Copyright (c), by Zend Technologies
Apostol@Server1:~$
```

```
Apostol@Server2:~$ php -v
PHP 8.3.6 (cli) (built: Jul 14 2025 18:30:55) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.3.6, Copyright (c) Zend Technologies
    with Zend OPcache v8.3.6, Copyright (c), by Zend Technologies
Apostol@Server2:~$
```

Install Grafana,Prometheus and Influxdb in separate hosts (Influxdb,Grafana,Prometheus)

```
TASK [Install Grafana] *********************************************
ok: [192.168.56.106]
ok: [192.168.56.108]

TASK [Start and enable Grafana service] ****************************
ok: [192.168.56.108]
ok: [192.168.56.106]

TASK [Create Prometheus user] **************************************
ok: [192.168.56.106]
ok: [192.168.56.108]

TASK [Create Prometheus directories] *******************************
ok: [192.168.56.108] => (item=/etc/prometheus)
ok: [192.168.56.106] => (item=/etc/prometheus)
ok: [192.168.56.108] => (item=/var/lib/prometheus)
ok: [192.168.56.106] => (item=/var/lib/prometheus)

TASK [Download Prometheus] *****************************************
```

```
Apostol@ApostolCN:~/CPE_MIDEXAM_APOSTOL$ nano task2.yml
Apostol@ApostolCN:~/CPE_MIDEXAM_APOSTOL$ ansible-playbook --ask-become-pass task
2.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
fatal: [192.168.56.104]: UNREACHABLE! => {"changed": false, "msg": "Failed to co
nnect to the host via ssh: Apostol@192.168.56.104: Permission denied (publickey,
password).", "unreachable": true}
[WARNING]: Platform linux on host 192.168.56.106 is using the discovered Python
interpreter at /usr/bin/python3.12, but future installation of another Python
```

Influxdb:

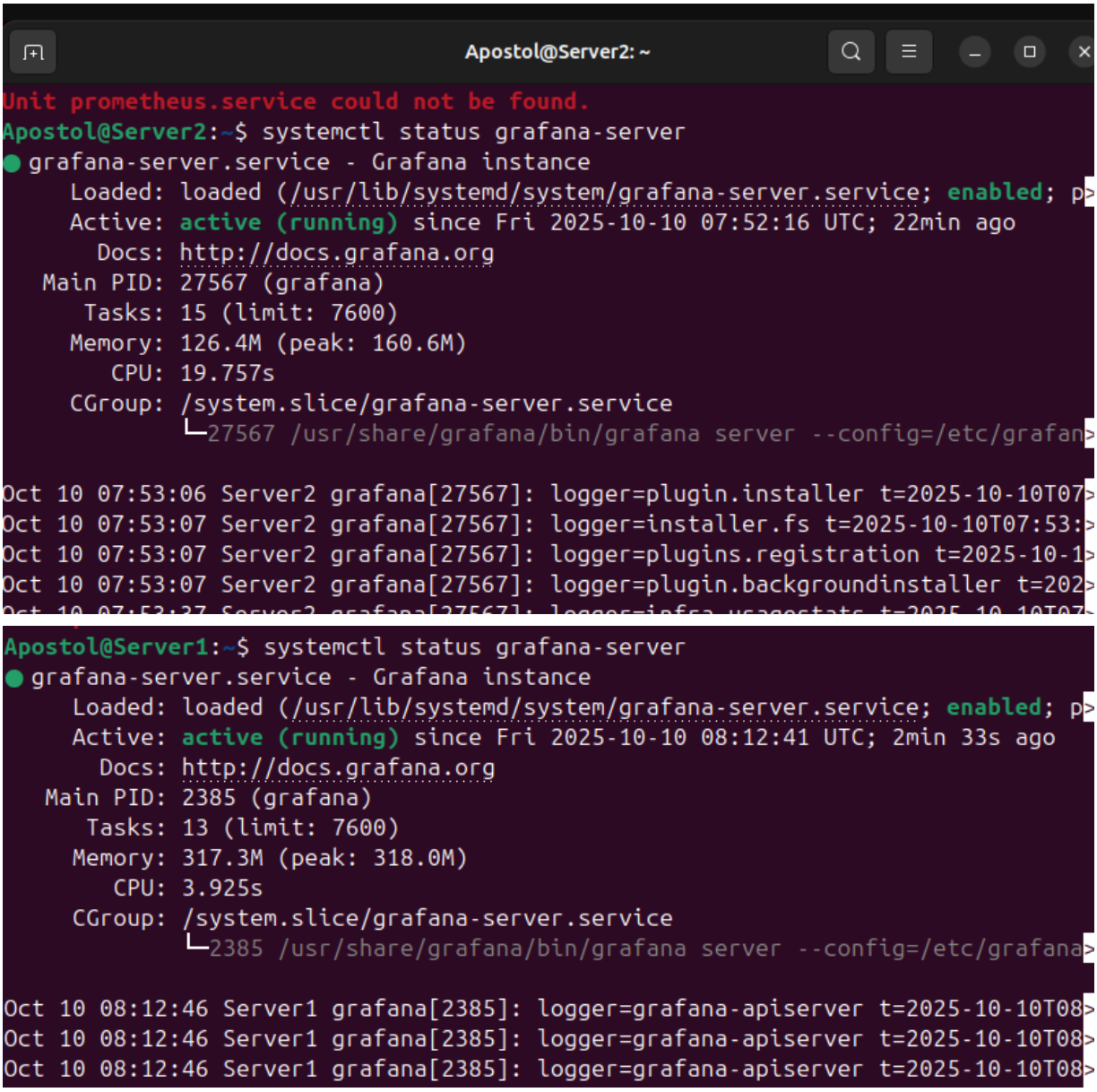
```
Apostol@Server2:~$ systemctl status influxdb
● influxdb.service - InfluxDB is an open-source, distributed, time series datab>
     Loaded: loaded (/usr/lib/systemd/system/influxdb.service; enabled; preset:>
     Active: activating (start) since Fri 2025-10-10 08:10:27 UTC; 1min 11s ago
       Docs: https://docs.influxdata.com/influxdb/
   Cntrl PID: 34251 (influxd-systemd)
      Tasks: 10 (limit: 7600)
     Memory: 28.3M (peak: 43.5M)
        CPU: 941ms
     CGroup: /system.slice/influxdb.service
             ├─34251 /bin/bash -e /usr/lib/influxdb/scripts/influxd-systemd-sta>
             ├─34282 /usr/bin/influxd -config /etc/influxdb/influxdb.conf
             └─34477 sleep 1

Oct 10 08:11:35 Server2 influxd-systemd-start.sh[34470]: /usr/lib/influxdb/scri>
Oct 10 08:11:35 Server2 influxd-systemd-start.sh[34251]: InfluxDB API unavailab>
Oct 10 08:11:36 Server2 influxd-systemd-start.sh[34472]: /usr/lib/influxdb/scri>
```

```
Apostol@Server1: ~
Apostol@Server1:~$ systemctl status influxdb
● influxdb.service - InfluxDB is an open-source, distributed, time series datab>
     Loaded: loaded (/usr/lib/systemd/system/influxdb.service; enabled; preset:>
     Active: active (running) since Fri 2025-10-10 08:12:41 UTC; 29s ago
       Docs: https://docs.influxdata.com/influxdb/
    Process: 1818 ExecStart=/usr/lib/influxdb/scripts/influxd-systemd-start.sh >
   Main PID: 2289 (influxd)
      Tasks: 9 (limit: 7600)
     Memory: 98.1M (peak: 115.6M)
        CPU: 1.307s
     CGroup: /system.slice/influxdb.service
             └─2289 /usr/bin/influxd -config /etc/influxdb/influxdb.conf

Oct 10 08:12:41 Server1 influxd-systemd-start.sh[2289]: ts=2025-10-10T08:12:41.>
Oct 10 08:12:41 Server1 influxd-systemd-start.sh[2289]: ts=2025-10-10T08:12:41.>
Oct 10 08:12:41 Server1 influxd-systemd-start.sh[2289]: ts=2025-10-10T08:12:41.>
```

Grafana:



Prometheus:

GitHub link:

- https://github.com/qrvgapostol/CPE_MIDEXAM_APOSTOL

Conclusions:

- My conclusion is on how to install all of the tasks using ansible playbooks and using the roles. I installed https,mariadb, and many more that are required in this exam.