Name: Reyes, Alexzander J.	**Date Performed: 10/10/2025**
Course/Section: CPE212/ CPE31S2	**Date Submitted: 10/10/2025**
Instructor: Engr. Robin Valenzuela	**Semester and SY:**

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

1. Objectives

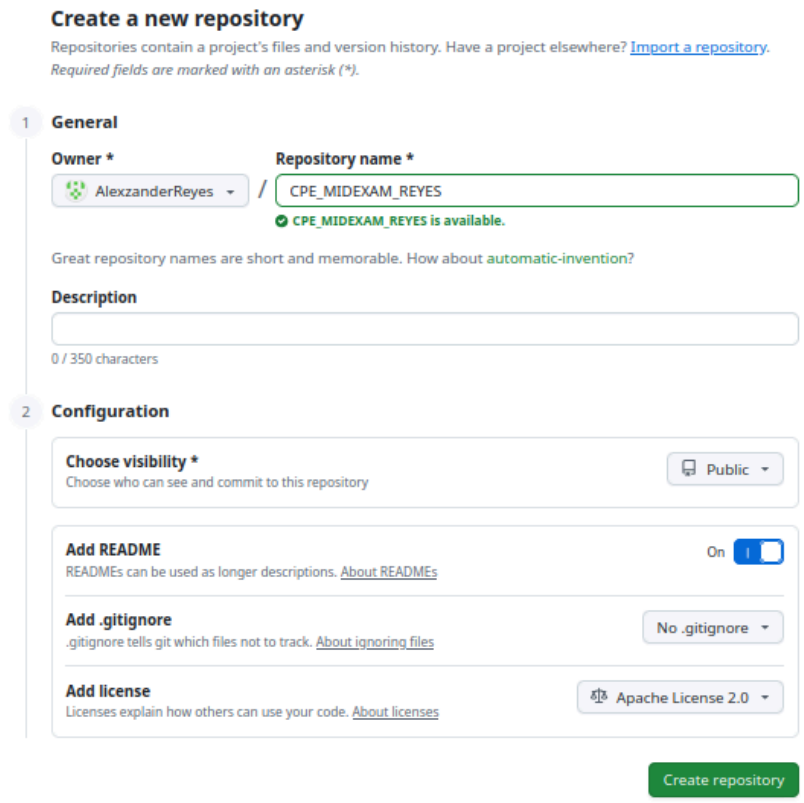
Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.

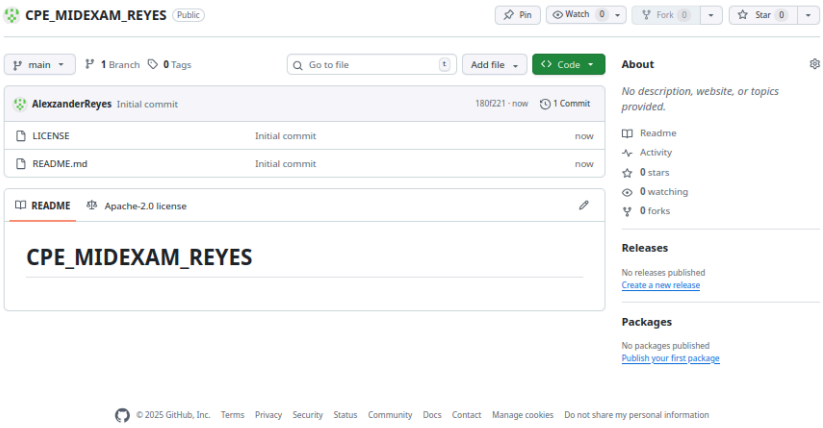
2. Instructions

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)

1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME.





2. Clone the repository and do the following:

```
vboxuser@Workstation:~$ git clone git@github.com:AlexzanderReyes/CPE_MIDEXAM_REY
ES.git
Cloning into 'CPE_MIDEXAM_REYES'...
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (4/4), 4.76 KiB | 1.59 MiB/s, done.
vboxuser@Workstation:~$ ls
control-node                    Documents  Pictures          Templates
CPE212_REYES_ALEXZANDER-LAPTOP-  Downloads  Public            Videos
CPE_MIDEXAM_REYES               hosts.ini  Reyes_PrelimExam
Desktop                         Music      snap
```

vboxuser@Workstation: ~/CPE_MIDEXAM_REYES

```
 GNU nano 7.2                          ansible.cfg *
[default]
inventory=inventory.ini
private_key_file=~/.ssh/ansible
```

vboxuser@Workstation: ~/CPE_MIDEXAM_REYES

```
 GNU nano 7.2                          inventory.ini
[web_servers]
192.168.26.11 ansible_user=vboxuser
192.168.26.13 ansible_user=vboxuser

[db_servers]
192.168.26.13 ansible_user=Reyes

[file_servers]
192.168.26.11
```

vboxuser@Workstation: ~/CPE_MIDEXAM_REYES

```
 GNU nano 7.2                          /etc/ansible/hosts
[web_servers]
192.168.26.11 ansible_user=vboxuser
192.168.26.13 ansible_user=vboxuser
[db_servers]
192.168.26.13 ansible_user=Reyes
[file_servers]
192.168.26.11 ansible_user=vboxuser
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ sudo nano /etc/ansible/hosts
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ansible all -m ping
192.168.26.11 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
192.168.26.13 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ls
ansible.cfg  inventory.ini  playbook.yaml  roles
config.yaml  LICENSE        README.md
```

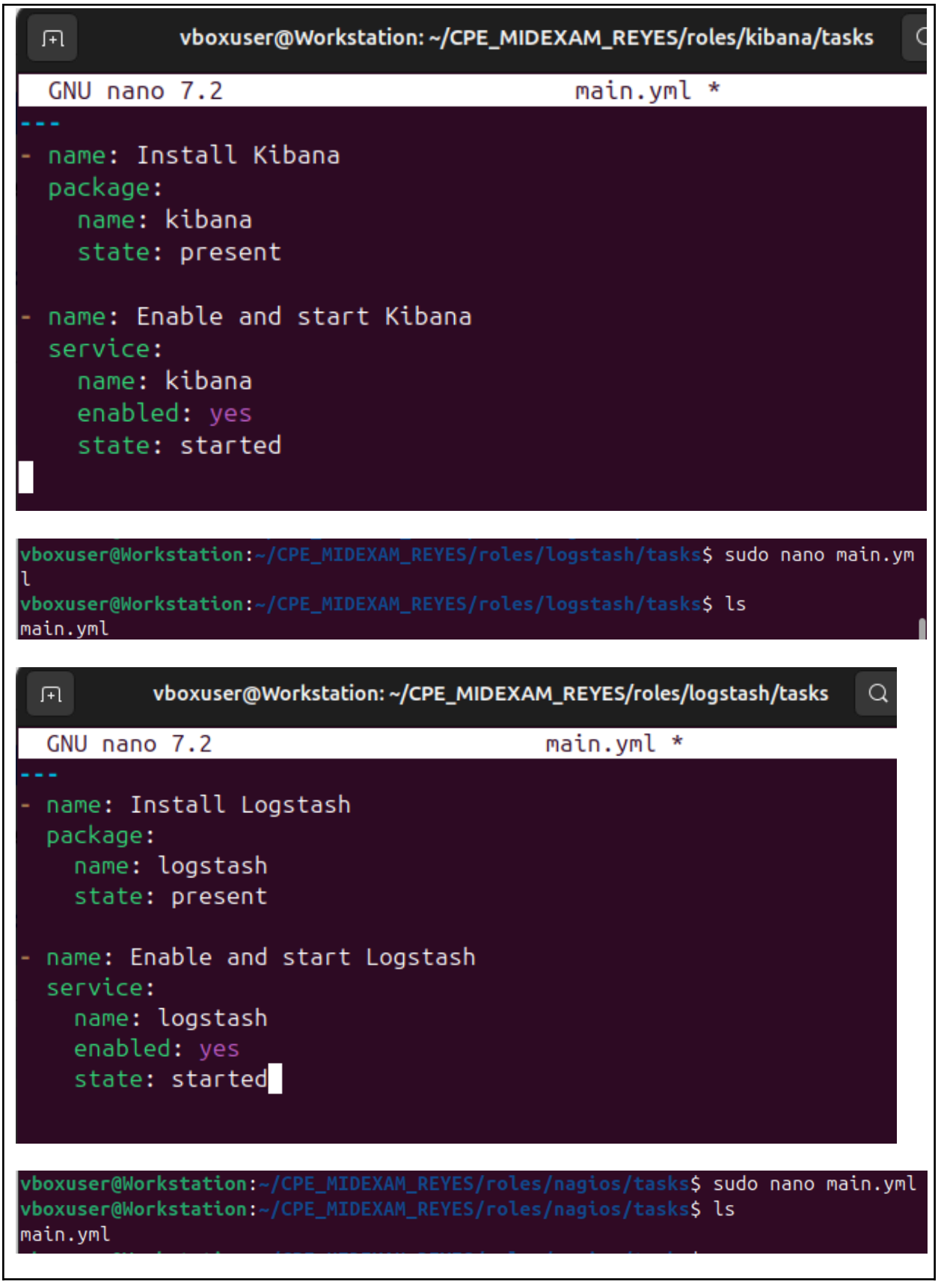
- 2.1 Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:
- 2.2 Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host
- 2.3 Install Grafana,Prometheus and Influxdb in seperate hosts (Influxdb,Grafana,Prometheus)
- 2.4 Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ cd roles
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir elasticsearch
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir kibana
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir logstash
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir nagios
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir influxdb
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir grafana
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir prometheus
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir httpd_php
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ mkdir mariadb
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles$ ls
elasticsearch  httpd_php  kibana    mariadb  prometheus
grafana        influxdb   logstash  nagios
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/elasticsearch/tasks$ rmdir main.y
ml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/elasticsearch/tasks$ sudo nano ma
in.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/elasticsearch/tasks$ ls
main.yml
```

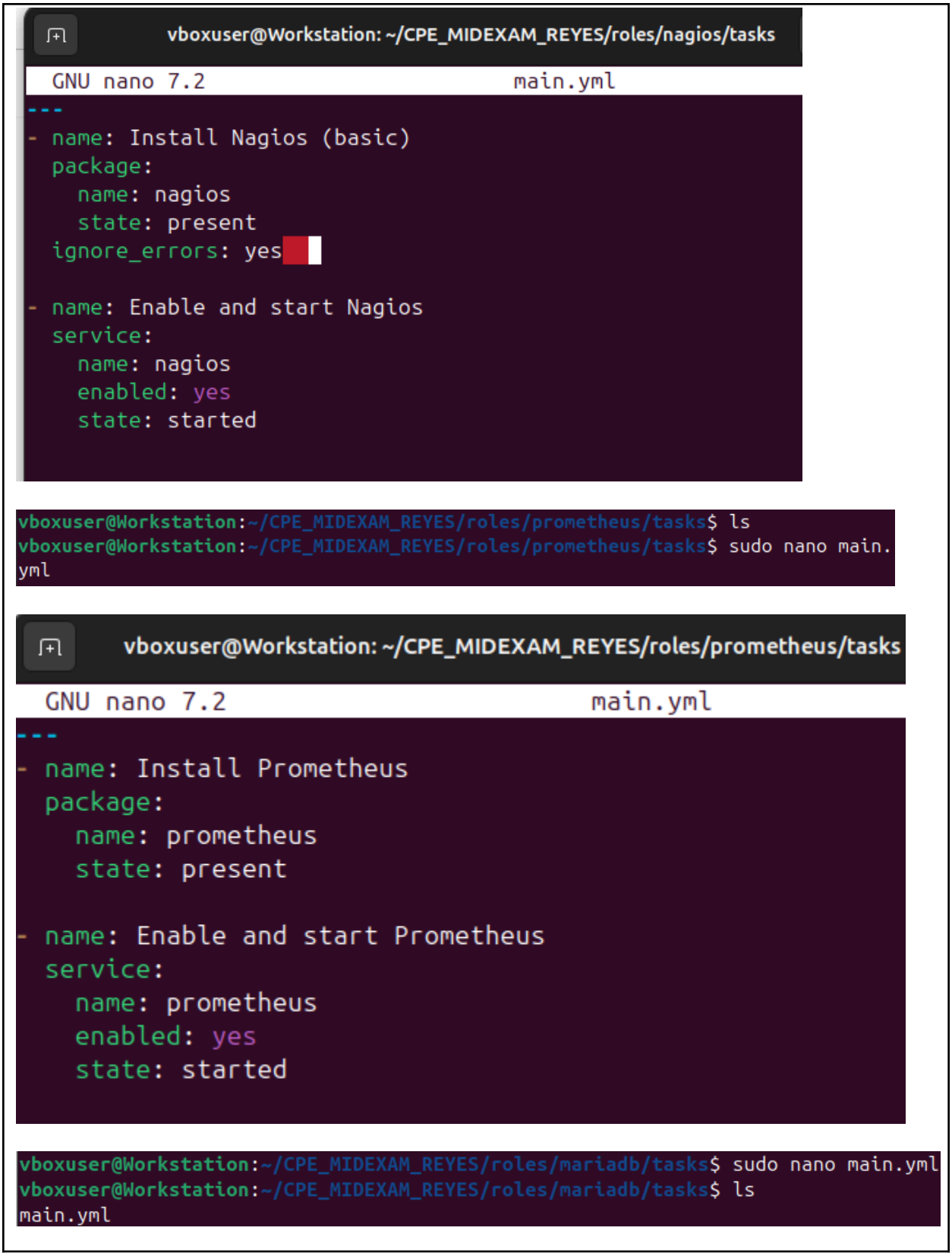
```
  GNU nano 7.2                                main.yml
---
- name: Install dependencies
  package:
    name: "{{ item }}"
    state: present
  loop:
    - apt-transport-https
    - curl
  when: ansible_os_family == "Debian"

- name: Install dependencies
  package:
    name: "{{ item }}"
    state: present
  loop:
    - curl
  when: ansible_os_family == "RedHat"

- name: Add Elasticsearch GPG key
  ansible.builtin.shell: |
                                [ Read 57 lines ]
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/kibana/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/kibana/tasks$ ls
main.yml
```


vboxuser@Workstation: ~/CPE_MIDEXAM_REYES/roles/kibana/tasks
GNU nano 7.2 main.yml *

- name: Install Kibana
package:
name: kibana
state: present
- name: Enable and start Kibana
service:
name: kibana
enabled: yes
state: started
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/logstash/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/logstash/tasks$ ls
main.yml
vboxuser@Workstation: ~/CPE_MIDEXAM_REYES/roles/logstash/tasks
GNU nano 7.2 main.yml *

- name: Install Logstash
package:
name: logstash
state: present
- name: Enable and start Logstash
service:
name: logstash
enabled: yes
state: started
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/nagios/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/nagios/tasks$ ls
main.yml


vboxuser@Workstation: ~/CPE_MIDEXAM_REYES/roles/nagios/tasks
GNU nano 7.2 main.yml

- name: Install Nagios (basic)
package:
name: nagios
state: present
ignore_errors: yes
- name: Enable and start Nagios
service:
name: nagios
enabled: yes
state: started
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/prometheus/tasks$ ls
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/prometheus/tasks$ sudo nano main.
yml
vboxuser@Workstation: ~/CPE_MIDEXAM_REYES/roles/prometheus/tasks
GNU nano 7.2 main.yml

- name: Install Prometheus
package:
name: prometheus
state: present
- name: Enable and start Prometheus
service:
name: prometheus
enabled: yes
state: started
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/mariadb/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/mariadb/tasks$ ls
main.yml

vboxuser@Workstation: ~/CPE_MIDEXAM_REYES/roles/mariadb/tasks

```
 GNU nano 7.2                                  main.yml
---
- name: Install MariaDB
  package:
    name: mariadb-server
    state: present

- name: Enable and start MariaDB
  service:
    name: mariadb
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/influxdb/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/influxdb/tasks$ ls
main.yml
```

vboxuser@Workstation: ~/CPE_MIDEXAM_REYES/roles/influxdb/tasks

```
 GNU nano 7.2                                  main.yml
---
- name: Install InfluxDB
  package:
    name: influxdb
    state: present

- name: Enable and start InfluxDB
  service:
    name: influxdb
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/httpd_php/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/httpd_php/tasks$ ls
main.yml
```

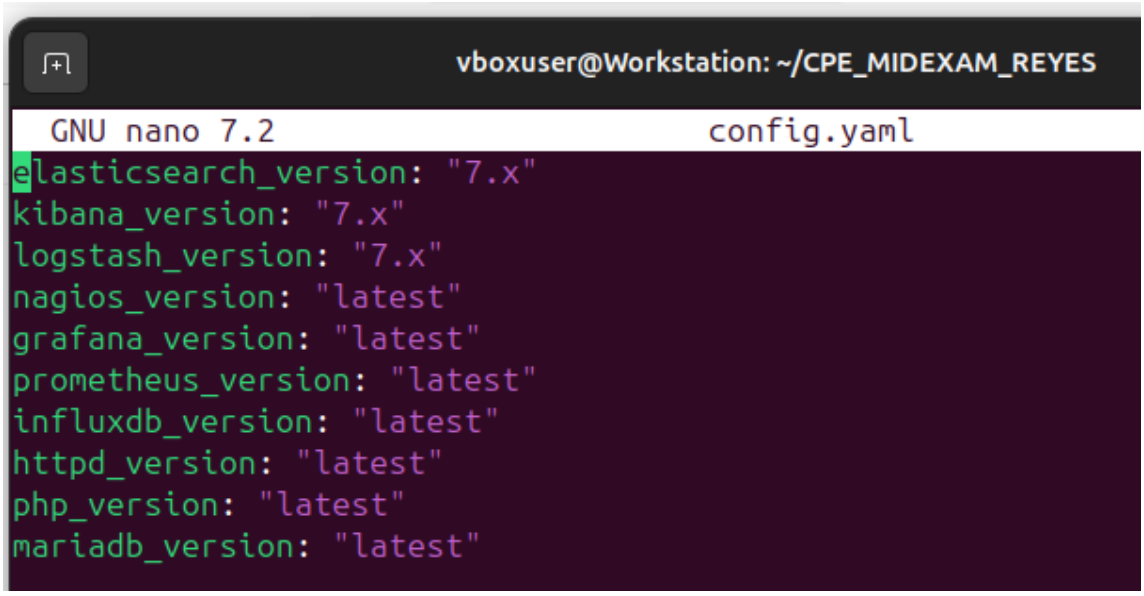
```
 GNU nano 7.2                          main.yml
---
- name: Install Apache
  package:
    name: "{{ 'httpd' if ansible_os_family == 'RedHat' else 'apache2' }}"
    state: present

- name: Install PHP
  package:
    name: php
    state: present

- name: Enable and start Apache
  service:
    name: "{{ 'httpd' if ansible_os_family == 'RedHat' else 'apache2' }}"
    enabled: yes
    state: started
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/grafana/tasks$ sudo nano main.yml
vboxuser@Workstation:~/CPE_MIDEXAM_REYES/roles/grafana/tasks$ ls
main.yml
```

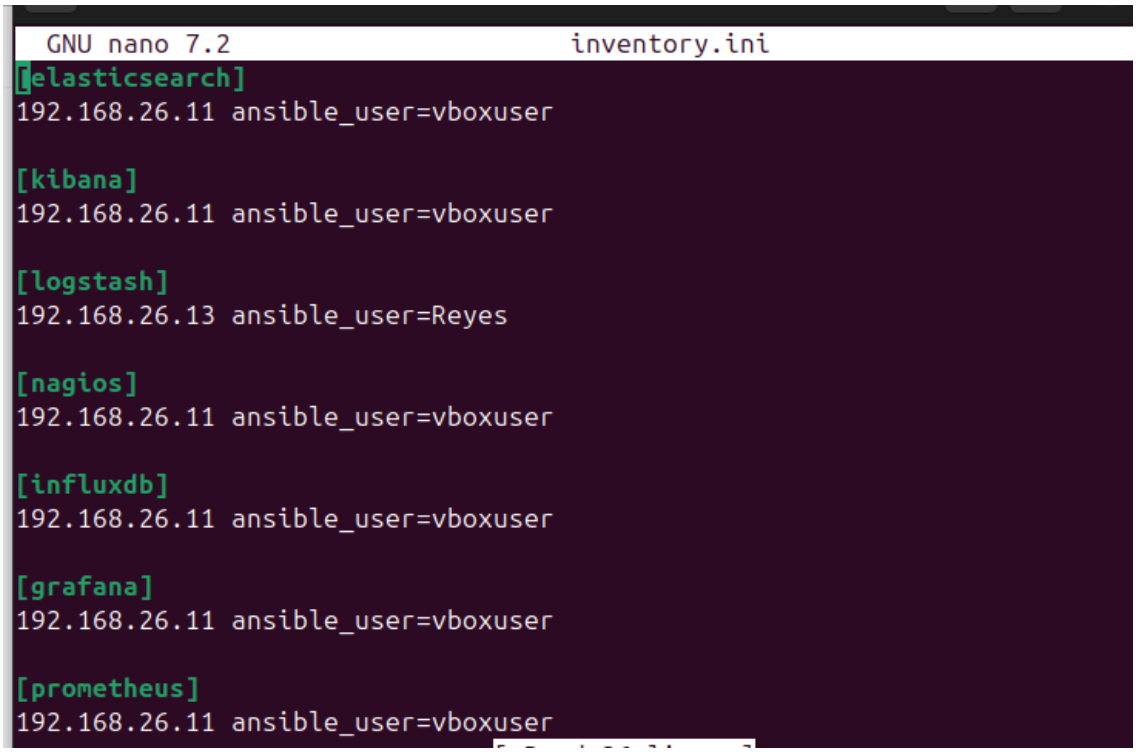
vboxuser@Workstation: ~/CPE_MIDEXAM_REYES/roles/grafana/tasks

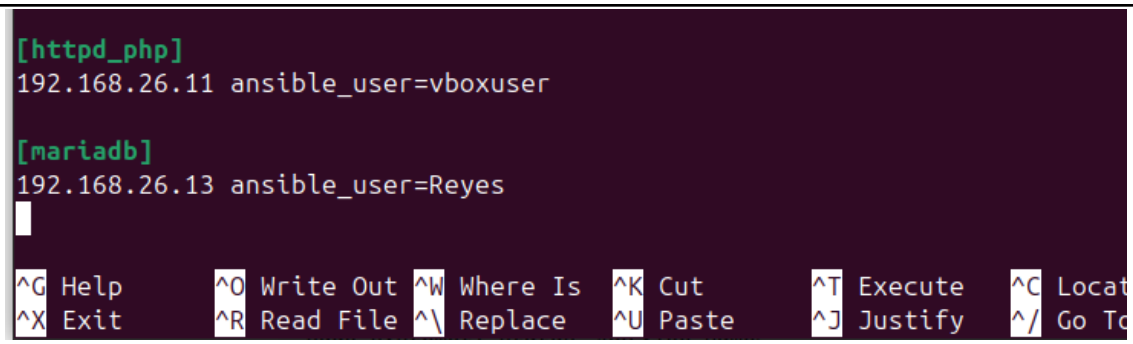
```
 GNU nano 7.2                          main.yml
---
- name: Install Prometheus
  package:
    name: prometheus
    state: present

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

config.yaml

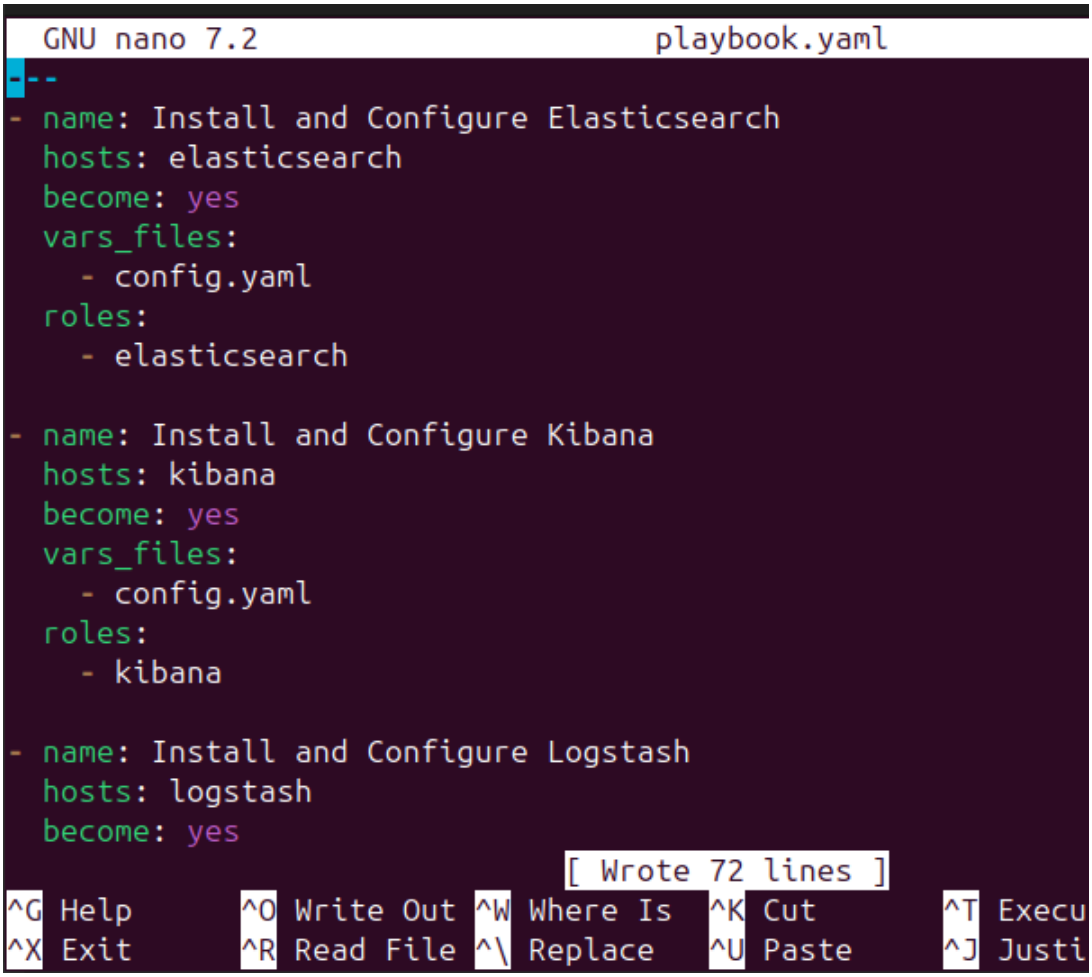


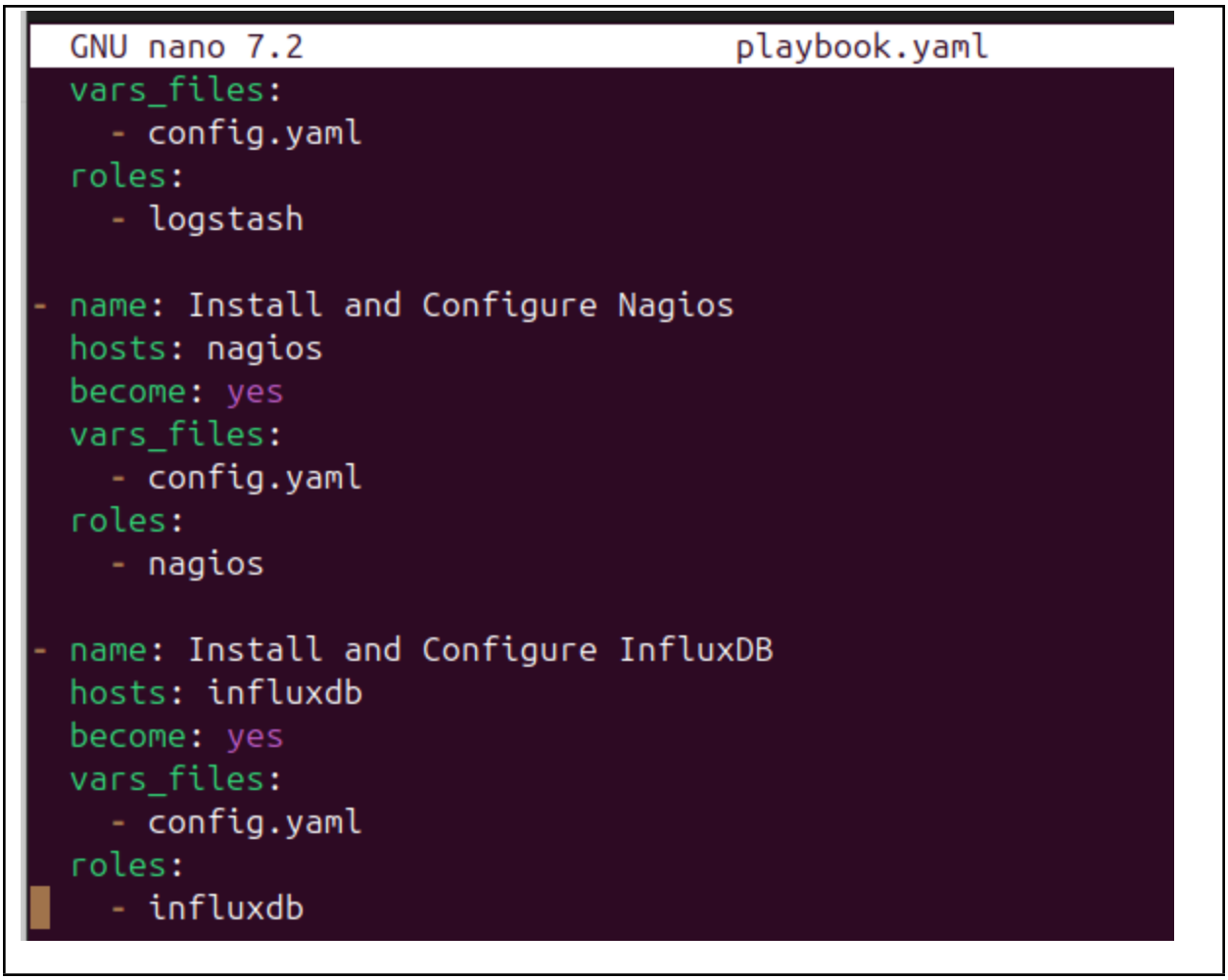
inventory.ini




[httpd_php]
192.168.26.11 ansible_user=vboxuser
[mariadb]
192.168.26.13 ansible_user=Reyes
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Locat
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To

playbook.yaml




GNU nano 7.2 playbook.yaml
vars_files:
- config.yaml
roles:
- logstash
- name: Install and Configure Nagios
hosts: nagios
become: yes
vars_files:
- config.yaml
roles:
- nagios
- name: Install and Configure InfluxDB
hosts: influxdb
become: yes
vars_files:
- config.yaml
roles:
- influxdb

```yaml
- name: Install and Configure Prometheus
  hosts: prometheus
  become: yes
  vars_files:
    - config.yaml
  roles:
    - prometheus

- name: Install and Configure Apache + PHP
  hosts: httpd_php
  become: yes
  vars_files:
    - config.yaml
  roles:
    - httpd_php

- name: Install and Configure MariaDB
  hosts: mariadb
  become: yes
  vars_files:
    - config.yaml
  roles:
    - mariadb
```

Elasticsearch

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ansible-playbook -i inventory.ini play
book.yaml -K
BECOME password:

PLAY [Install and Configure Elasticsearch] ************************************

TASK [Gathering Facts] ********************************************************
ok: [192.168.26.11]

TASK [elasticsearch : Install dependencies on Debian/Ubuntu] ******************
ok: [192.168.26.11]

TASK [elasticsearch : Install dependencies on RedHat/CentOS] ******************
skipping: [192.168.26.11]

TASK [elasticsearch : Add Elasticsearch GPG key (Ubuntu)] *********************
changed: [192.168.26.11]

TASK [elasticsearch : Add Elasticsearch GPG key (CentOS)] *********************
skipping: [192.168.26.11]

TASK [elasticsearch : Add Elasticsearch APT repo (Ubuntu)] ********************
changed: [192.168.26.11]
```

```
TASK [elasticsearch : Add Elasticsearch YUM repo (CentOS)] ***************
skipping: [192.168.26.11]

TASK [elasticsearch : Update APT package cache (Ubuntu)] *****************
changed: [192.168.26.11]

TASK [elasticsearch : Install Elasticsearch] *****************************
ok: [192.168.26.11]

TASK [elasticsearch : Enable and start Elasticsearch service] ************
ok: [192.168.26.11]
```

```
vboxuser@Server1:~$ sudo systemctl status elasticsearch
[sudo] password for vboxuser:
● elasticsearch.service - Elasticsearch
     Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service; enabled; pr>
     Active: active (running) since Fri 2025-10-10 10:18:58 UTC; 26s ago
       Docs: https://www.elastic.co
   Main PID: 1174 (java)
      Tasks: 71 (limit: 12072)
     Memory: 5.5G (peak: 5.5G)
        CPU: 56.151s
     CGroup: /system.slice/elasticsearch.service
             ├─1174 /usr/share/elasticsearch/jdk/bin/java -Xshare:auto -Des.net>
             └─2388 /usr/share/elasticsearch/modules/x-pack-ml/platform/linux-x>

Oct 10 10:18:12 Server1 systemd[1]: Starting elasticsearch.service - Elasticsea>
Oct 10 10:18:31 Server1 systemd-entrypoint[1174]: Oct 10, 2025 10:18:31 AM sun.>
Oct 10 10:18:31 Server1 systemd-entrypoint[1174]: WARNING: COMPAT locale provid>
Oct 10 10:18:58 Server1 systemd[1]: Started elasticsearch.service - Elasticsear>
lines 1-16/16 (END)
[1]+  Stopped                 sudo systemctl status elasticsearch
```

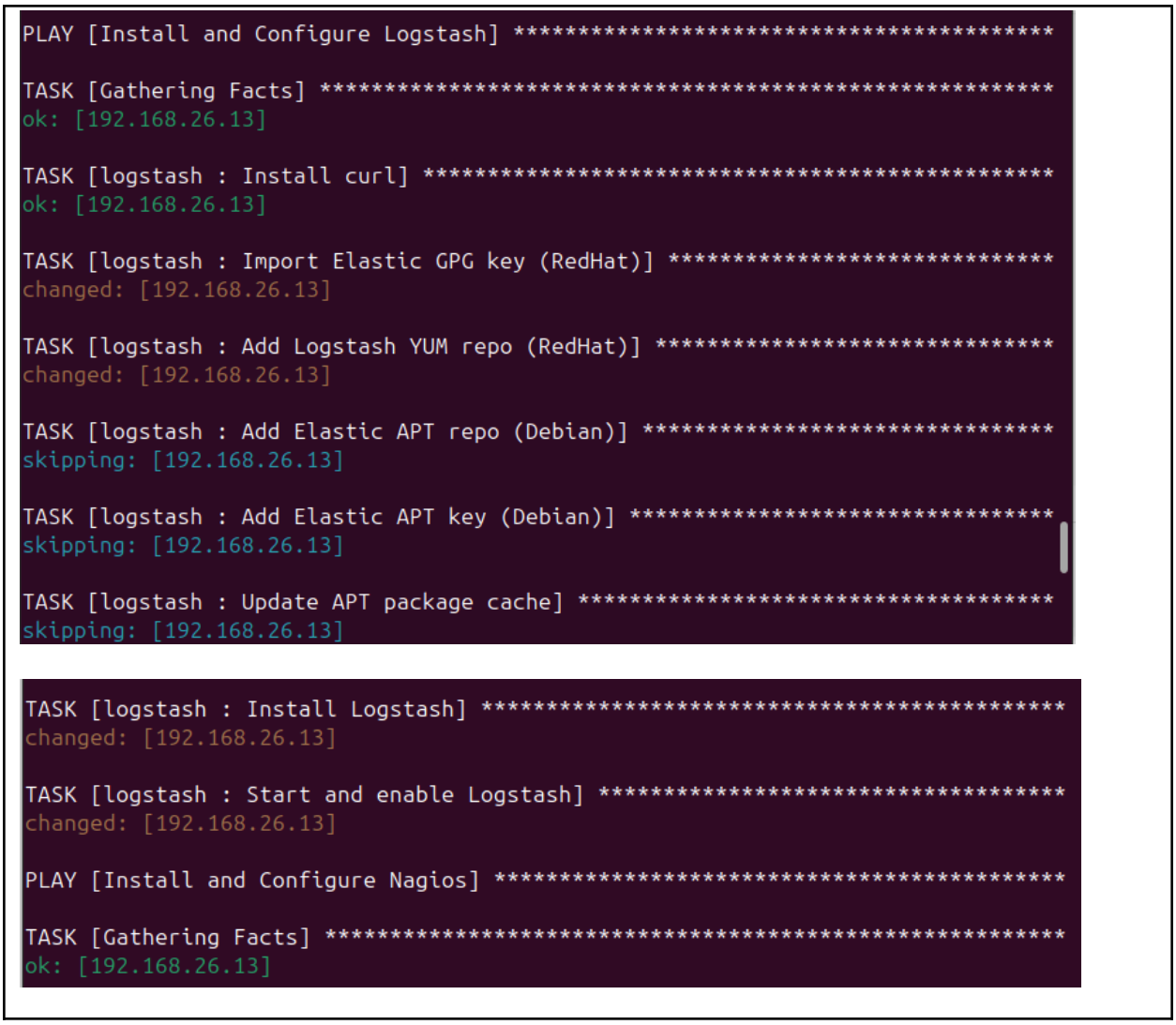
Kibana

```
PLAY [Install and Configure Kibana] ********************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.26.11]

TASK [kibana : Install Kibana] *************************************************
ok: [192.168.26.11]

TASK [kibana : Enable and start Kibana] ****************************************
ok: [192.168.26.11]

PLAY [Install and Configure Logstash] ******************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.26.13]

TASK [logstash : Install curl] *************************************************
ok: [192.168.26.13]

TASK [logstash : Import Elastic GPG key (RedHat)] ******************************
changed: [192.168.26.13]
```

```
TASK [logstash : Add Logstash YUM repo (RedHat)] ********************************
changed: [192.168.26.13]

TASK [logstash : Add Elastic APT repo (Debian)] *********************************
skipping: [192.168.26.13]

TASK [logstash : Add Elastic APT key (Debian)] **********************************
skipping: [192.168.26.13]

TASK [logstash : Update APT package cache] **************************************
skipping: [192.168.26.13]
```

```
[1]+  Stopped                 sudo systemctl status elasticsearch
vboxuser@Server1:~$ sudo systemctl status kibana
● kibana.service - Kibana
     Loaded: loaded (/etc/systemd/system/kibana.service; enabled; preset: enabl>
     Active: active (running) since Fri 2025-10-10 10:18:12 UTC; 1min 22s ago
       Docs: https://www.elastic.co
   Main PID: 1191 (node)
      Tasks: 11 (limit: 12072)
     Memory: 836.0M (peak: 836.2M)
        CPU: 20.698s
     CGroup: /system.slice/kibana.service
             └─1191 /usr/share/kibana/bin/../node/bin/node /usr/share/kibana/bi>

Oct 10 10:18:12 Server1 systemd[1]: Started kibana.service - Kibana.
Oct 10 10:18:14 Server1 kibana[1191]: Kibana is currently running with legacy O>
lines 1-13/13 (END)
[2]+  Stopped                 sudo systemctl status kibana
```

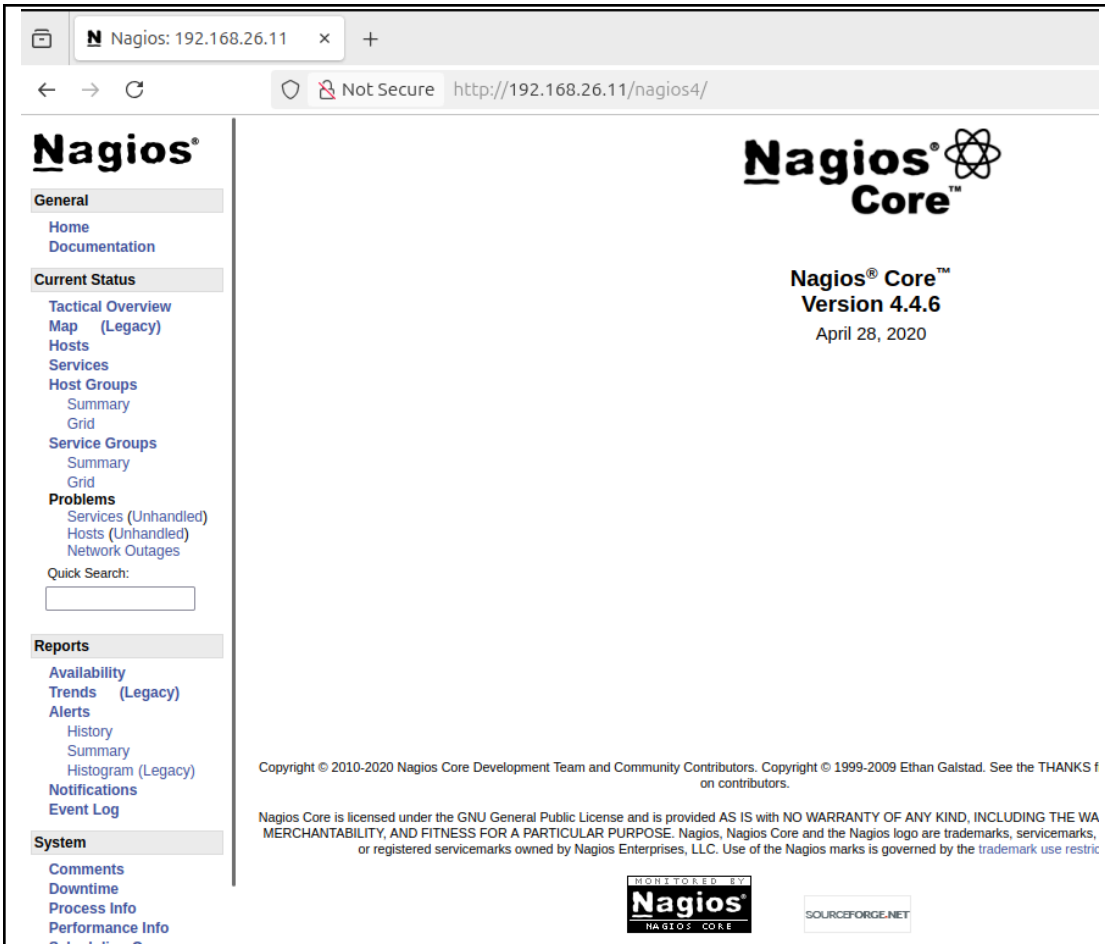
Logstash


PLAY [Install and Configure Logstash] **
TASK [Gathering Facts] **
ok: [192.168.26.13]
TASK [logstash : Install curl] **
ok: [192.168.26.13]
TASK [logstash : Import Elastic GPG key (RedHat)] *****************************
changed: [192.168.26.13]
TASK [logstash : Add Logstash YUM repo (RedHat)] ******************************
changed: [192.168.26.13]
TASK [logstash : Add Elastic APT repo (Debian)] *******************************
skipping: [192.168.26.13]
TASK [logstash : Add Elastic APT key (Debian)] ********************************
skipping: [192.168.26.13]
TASK [logstash : Update APT package cache] ************************************
skipping: [192.168.26.13]
TASK [logstash : Install Logstash] **
changed: [192.168.26.13]
TASK [logstash : Start and enable Logstash] ***********************************
changed: [192.168.26.13]
PLAY [Install and Configure Nagios] ***
TASK [Gathering Facts] **
ok: [192.168.26.13]

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ssh CentOS@Reyes
ssh: Could not resolve hostname reyes: Temporary failure in name resolution
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ ssh Reyes@CentOS
Activate the web console with: systemctl enable --now cockpit.socket

Last login: Fri Oct 10 18:22:18 2025
[Reyes@CentOS ~]$ sudo systemctl status logstash
[sudo] password for Reyes:
● logstash.service - logstash
     Loaded: loaded (/etc/systemd/system/logstash.service; enabled; preset: dis>
     Active: active (running) since Fri 2025-10-10 18:22:44 PST; 10s ago
   Main PID: 7339 (java)
      Tasks: 15 (limit: 123502)
     Memory: 404.8M (peak: 416.8M)
        CPU: 15.879s
     CGroup: /system.slice/logstash.service
             └─7339 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseConc>

Oct 10 18:22:44 CentOS systemd[1]: Started logstash.
Oct 10 18:22:45 CentOS logstash[7339]: Using bundled JDK: /usr/share/logstash/j>
Oct 10 18:22:45 CentOS logstash[7339]: OpenJDK 64-Bit Server VM warning: Option>
lines 1-13/13 (END)
```

Nagios

```
PLAY [Install and Configure Nagios] ************************************

TASK [Gathering Facts] *************************************************
ok: [192.168.26.11]

TASK [nagios : Install Nagios on Ubuntu] *******************************
changed: [192.168.26.11]

TASK [nagios : Ensure Nagios is running] *******************************
changed: [192.168.26.11]

PLAY [Install and Configure InfluxDB] **********************************

TASK [Gathering Facts] *************************************************
ok: [192.168.26.11]
```



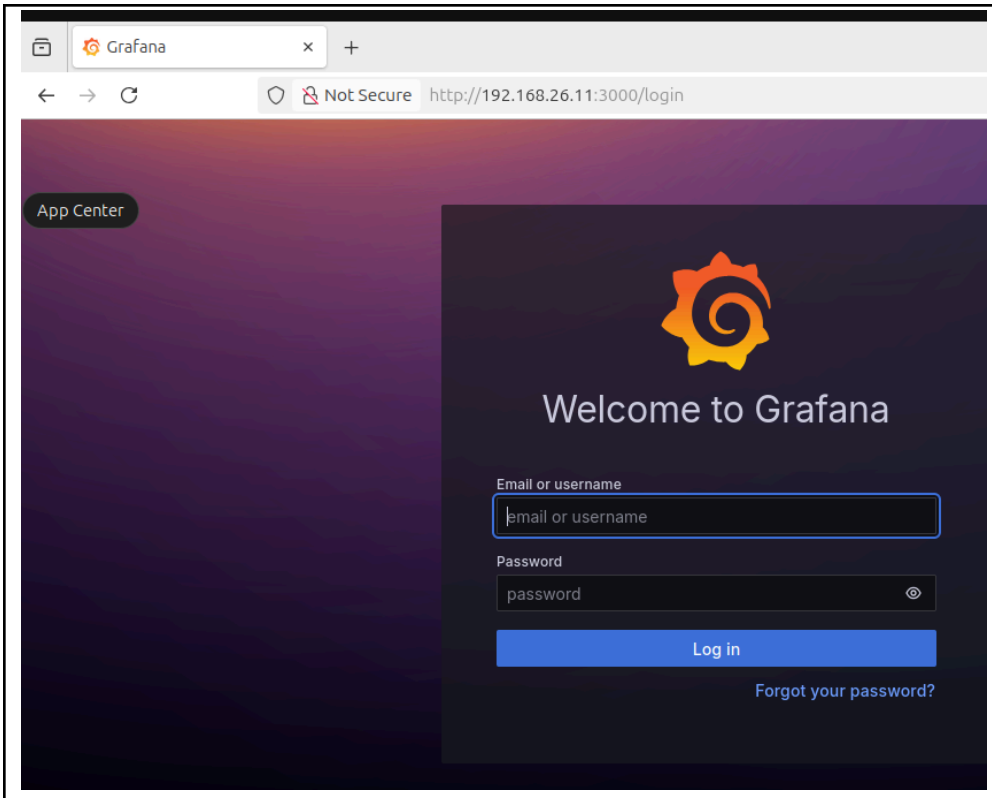
InfluxDB

```
PLAY [Install and Configure InfluxDB] ******************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.26.11]

TASK [influxdb : Install InfluxDB] *********************************************
changed: [192.168.26.11]

TASK [influxdb : Enable and start InfluxDB] ************************************
ok: [192.168.26.11]

PLAY [Install and Configure Grafana] *******************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.26.13]
```

```
Expanded Security Maintenance for Applications is not enabled.

35 updates can be applied immediately.
12 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Fri Oct 10 10:31:06 2025 from 192.168.26.10
vboxuser@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 10:29:13 UTC; 5min ago
       Docs: man:influxd(1)
   Main PID: 13459 (influxd)
      Tasks: 8 (limit: 12072)
     Memory: 6.9M (peak: 7.4M)
        CPU: 328ms
     CGroup: /system.slice/influxdb.service
             └─13459 /usr/bin/influxd -config /etc/influxdb/influxdb.conf
lines 1-10/10 (END)
```

Grafana

```
PLAY [Install and Configure Grafana] *************************************

TASK [Gathering Facts] ***************************************************
ok: [192.168.26.11]

TASK [grafana : Add Grafana APT key] *************************************
ok: [192.168.26.11]

TASK [grafana : Add Grafana APT repo] ************************************
ok: [192.168.26.11]

TASK [grafana : Update apt cache] ****************************************
changed: [192.168.26.11]

TASK [grafana : Install Grafana] *****************************************
ok: [192.168.26.11]

TASK [grafana : Enable and start Grafana service] ************************
ok: [192.168.26.11]
```



Prometheus

```
PLAY [Install and Configure Prometheus] ************************************

TASK [Gathering Facts] *****************************************************
ok: [192.168.26.11]

TASK [prometheus : Install Prometheus] *************************************
changed: [192.168.26.11]

TASK [prometheus : Enable and start Prometheus] ****************************
ok: [192.168.26.11]

PLAY [Install and Configure Apache + PHP] **********************************
```

```
vboxuser@Server1:~$ systemctl status prometheus
● prometheus.service - Monitoring system and time series database
     Loaded: loaded (/usr/lib/systemd/system/prometheus.service; enabled; prese>
     Active: active (running) since Fri 2025-10-10 11:08:16 UTC; 2min 34s ago
       Docs: https://prometheus.io/docs/introduction/overview/
             man:prometheus(1)
   Main PID: 31094 (prometheus)
      Tasks: 7 (limit: 12072)
     Memory: 28.2M (peak: 28.6M)
        CPU: 341ms
     CGroup: /system.slice/prometheus.service
             └─31094 /usr/bin/prometheus
lines 1-11/11 (END)
```

Apache + PHP

```
PLAY [Install and Configure Apache + PHP] ***************************************

TASK [Gathering Facts] **********************************************************
ok: [192.168.26.11]

TASK [httpd_php : Install Apache] ***********************************************
ok: [192.168.26.11]

TASK [httpd_php : Install PHP] **************************************************
changed: [192.168.26.11]

TASK [httpd_php : Enable and start Apache] **************************************
ok: [192.168.26.11]
```

```
vboxuser@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 10:28:56 UTC; 44min ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 12408 (apache2)
      Tasks: 9 (limit: 12072)
     Memory: 14.7M (peak: 17.3M)
        CPU: 316ms
     CGroup: /system.slice/apache2.service
             ├─12408 /usr/sbin/apache2 -k start
             ├─12449 /usr/sbin/apache2 -k start
             ├─12450 /usr/sbin/apache2 -k start
             ├─12451 /usr/sbin/apache2 -k start
             ├─12452 /usr/sbin/apache2 -k start
             ├─12453 /usr/sbin/apache2 -k start
             ├─14746 /usr/sbin/apache2 -k start
             ├─14769 /usr/sbin/apache2 -k start
             └─14770 /usr/sbin/apache2 -k start
lines 1-18/18 (END)
```

```
vboxuser@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
```

mariadb

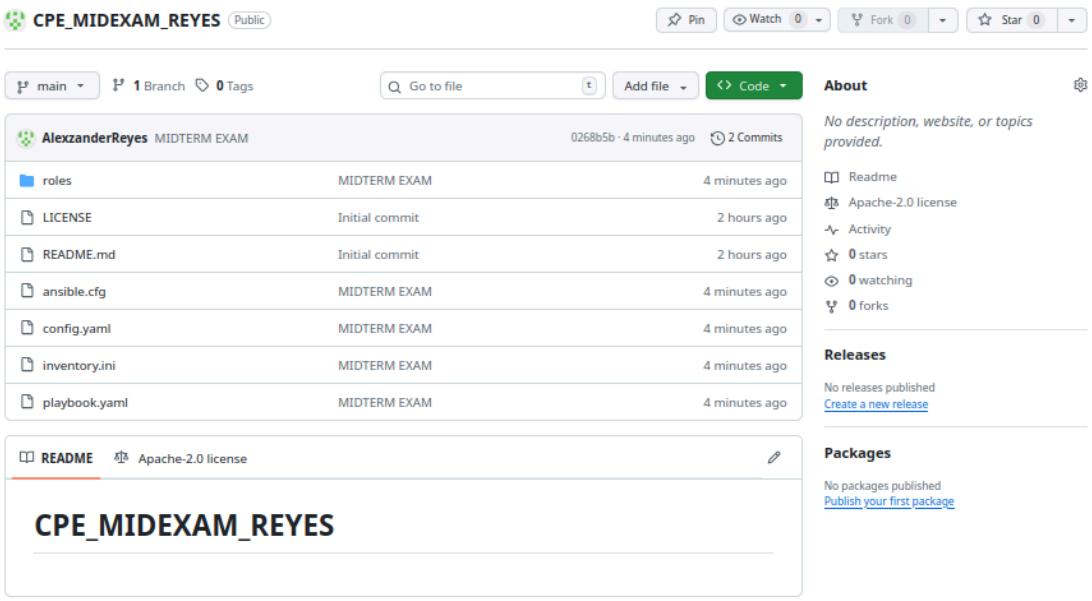
```
PLAY [Install and Configure MariaDB] ***************************************

TASK [Gathering Facts] *****************************************************
ok: [192.168.26.13]

TASK [mariadb : Install MariaDB] *******************************************
ok: [192.168.26.13]

TASK [mariadb : Enable and start MariaDB] **********************************
ok: [192.168.26.13]

PLAY RECAP *****************************************************************
192.168.26.11              : ok=29   changed=4    unreachable=0    failed=0    s
kipped=3    rescued=0    ignored=0
192.168.26.13              : ok=9    changed=0    unreachable=0    failed=0    s
kipped=3    rescued=0    ignored=0
```

```
● 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 10:18:14 UTC; 56min ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
   Main PID: 1273 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 9 (limit: 79678)
     Memory: 107.9M (peak: 112.2M)
        CPU: 1.589s
     CGroup: /system.slice/mariadb.service
             └─1273 /usr/sbin/mariadbd

Oct 10 10:18:14 Server1 mariadbd[1273]: 2025-10-10 10:18:14 0 [Note] InnoDB: Lo>
Oct 10 10:18:14 Server1 mariadbd[1273]: 2025-10-10 10:18:14 0 [Note] Plugin 'FE>
Oct 10 10:18:14 Server1 mariadbd[1273]: 2025-10-10 10:18:14 0 [Warning] You nee>
Oct 10 10:18:14 Server1 mariadbd[1273]: 2025-10-10 10:18:14 0 [Note] InnoDB: Bu>
Oct 10 10:18:14 Server1 mariadbd[1273]: 2025-10-10 10:18:14 0 [Note] Server soc>
Oct 10 10:18:14 Server1 mariadbd[1273]: 2025-10-10 10:18:14 0 [Note] /usr/sbin/>
Oct 10 10:18:14 Server1 mariadbd[1273]: Version: '10.11.13-MariaDB-0ubuntu0.24.>
Oct 10 10:18:14 Server1 systemd[1]: Started mariadb.service - MariaDB 10.11.13 >
Oct 10 10:18:14 Server1 /etc/mysql/debian-start[1447]: Upgrading MariaDB tables>
Oct 10 10:18:15 Server1 /etc/mysql/debian-start[1503]: Triggering myisam-recove>
lines 1-23
```

4. Document the push and commit from the local repository to GitHub.

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ git add .
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ git commit -m "MIDTERM EXAM"
[main 0268b5b] MIDTERM EXAM
 13 files changed, 334 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yaml
 create mode 100644 inventory.ini
 create mode 100644 playbook.yaml
 create mode 100644 roles/elasticsearch/tasks/main.yml
 create mode 100644 roles/grafana/tasks/main.yml
 create mode 100644 roles/httpd_php/tasks/main.yml
 create mode 100644 roles/influxdb/tasks/main.yml
 create mode 100644 roles/kibana/tasks/main.yml
 create mode 100644 roles/logstash/tasks/main.yml
 create mode 100644 roles/mariadb/tasks/main.yml
 create mode 100644 roles/nagios/tasks/main.yml
 create mode 100644 roles/prometheus/tasks/main.yml
```

```
vboxuser@Workstation:~/CPE_MIDEXAM_REYES$ git push origin main
Enumerating objects: 35, done.
Counting objects: 100% (35/35), done.
Delta compression using up to 2 threads
Compressing objects: 100% (16/16), done.
Writing objects: 100% (34/34), 3.85 KiB | 1.28 MiB/s, done.
Total 34 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To github.com:AlexzanderReyes/CPE_MIDEXAM_REYES.git
   180f221..0268b5b  main -> main
```



GitHub link: https://github.com/AlexzanderReyes/CPE_MIDEXAM_REYES#

Conclusions: (link your conclusion from the objective)

- I was able to install, configure, and manage different monitoring tools and LAMP stack using Ansible. The setup was done in separate hosts using a playbook, config file, and inventory. This activity helped me understand how to automate tasks using Infrastructure as Code. All outputs were tested and uploaded to GitHub.