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Course/Section: CPE 212-CPE31S21	**Date Submitted: 8/11/2024**
Instructor:	**Semester and SY: 2024-2025**
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools	

1. Objectives

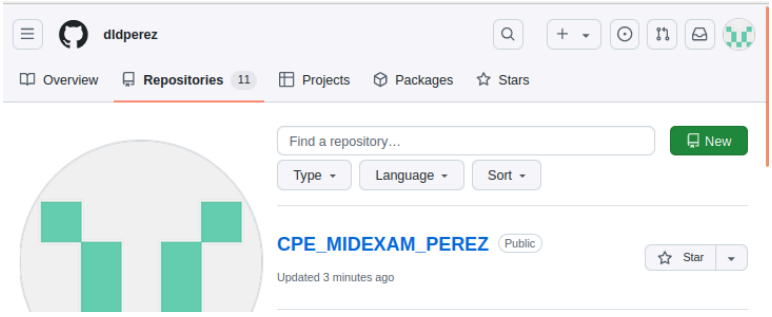
Create and design a workflow that **installs**, **configure** and **manage enterprise availability**, **performance and log monitoring tools** using Ansible as an Infrastructure as Code (IaC) tool.

2. Instructions

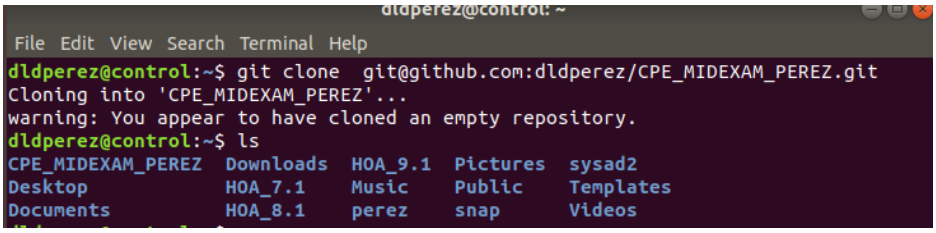
1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME.
2. Clone the repository and do the following:
   2.1. Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:
   2.2. Install and configure Elastic Stack in separate 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)

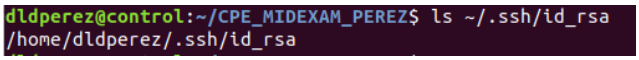
4. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME.

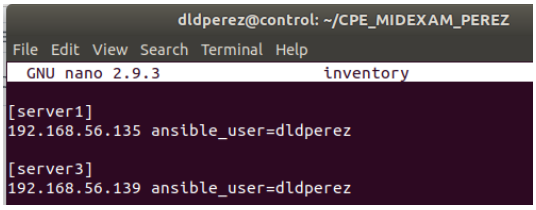


5. Clone the repository and do the following:

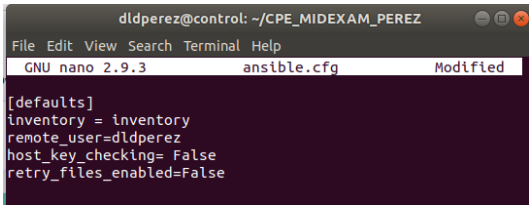


Repository was cloned successfully

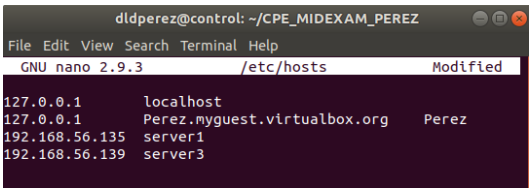




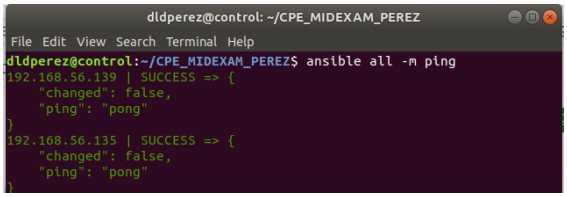
Inventory



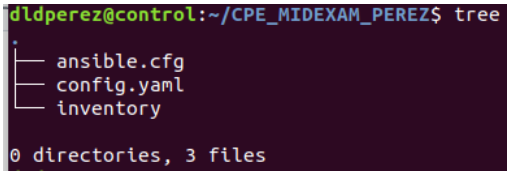
Ansible.cfg



/etc/hosts

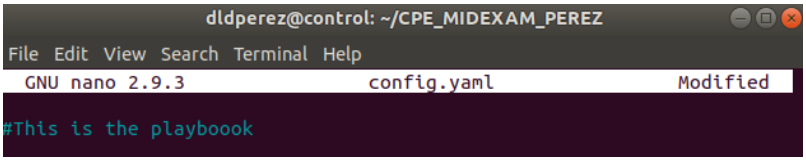


Connectivity to the remote hosts

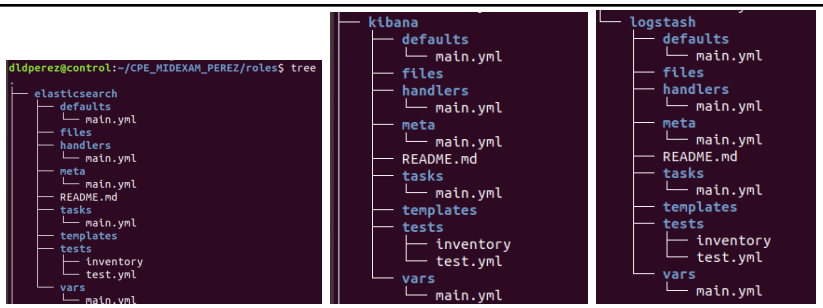


This is the initial tree.

5.1 Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:



5.2 Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host



This is created using the command ansible-galaxy init

```
dldperez@control:~/CPE_MIDEXAM_PEREZ$ ansible-playbook --ask-become-pass config
.yaml
SUDO password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.139]
ok: [192.168.56.135]

TASK [elasticsearch : Add Elasticsearch apt key] *******************************
*
changed: [192.168.56.139]
changed: [192.168.56.135]

TASK [elasticsearch : Adding Elasticsearch repo] *******************************
*
changed: [192.168.56.135]
changed: [192.168.56.139]
```

```
TASK [elasticsearch : Install Elasticsearch] ***********************************
*
changed: [192.168.56.139]
changed: [192.168.56.135]

TASK [elasticsearch : Updating the config file to allow outside access] *******
*
changed: [192.168.56.139]
changed: [192.168.56.135]

TASK [elasticsearch : Updating the port in config file] ************************
*
changed: [192.168.56.139]
changed: [192.168.56.135]

TASK [elasticsearch : Starting Elasticsearch] **********************************
*
changed: [192.168.56.139]
changed: [192.168.56.135]
```

```
TASK [kibana : Install Kibana with apt] ****************************************
*
changed: [192.168.56.135]
changed: [192.168.56.139]

TASK [kibana : Updating the config file to allow outside access] **************
*
changed: [192.168.56.139]
changed: [192.168.56.135]

TASK [kibana : Defining server port] *******************************************
*
changed: [192.168.56.139]
changed: [192.168.56.135]

TASK [kibana : Defining Elasticsearch URL] *************************************
*
changed: [192.168.56.139]
changed: [192.168.56.135]
```

```
TASK [kibana : Starting Kibana] ********************************************
*
changed: [192.168.56.139]
changed: [192.168.56.135]

PLAY RECAP *********************************************************************
*
192.168.56.135             : ok=12   changed=11   unreachable=0    failed=0
192.168.56.139             : ok=12   changed=11   unreachable=0    failed=0

dldperez@control:~/CPE_MIDEXAM_PEREZ$
```

This is the Elasticsearch and Kibana Installation to both servers via ansible-playbook.

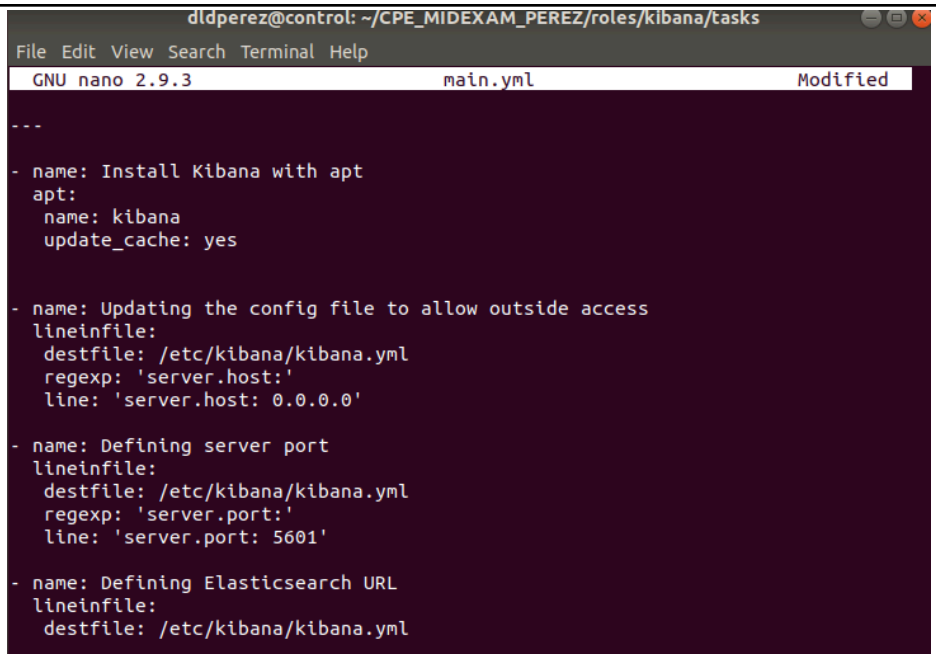
dldperez@control: ~/CPE_MIDEXAM_PEREZ/roles/elasticsearch/tasks

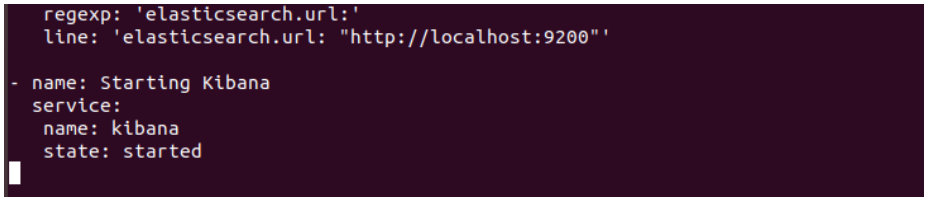
File Edit View Search Terminal Help

GNU nano 2.9.3 main.yml Modified

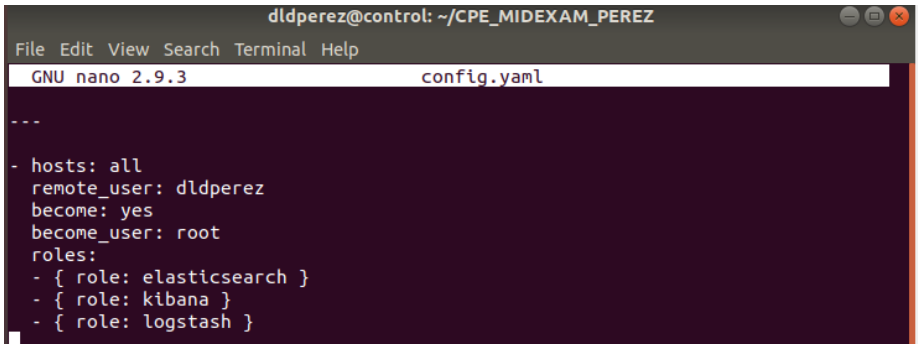
```
---
- name: Add Elasticsearch apt key
  apt_key:
   url: "https://packages.elastic.co/GPG-KEY-elasticsearch"
   state: present

- name: Adding Elasticsearch repo
  apt_repository:
   repo: deb https://artifacts.elastic.co/packages/5.x/apt stable main
   state: present

- name: Install Elasticsearch
  apt:
   name: elasticsearch
   update_cache: yes

- name: Updating the config file to allow outside access
  lineinfile:
   destfile: /etc/elasticsearch/elasticsearch.yml
   regexp: 'network.host:'
   line: 'network.host: 0.0.0.0'

- name: Updating the port in config file
  lineinfile:
   destfile: /etc/elasticsearch/elasticsearch.yml
   regexp: 'http.port:'
   line: 'http.port: 9200'

- name: Starting Elasticsearch
  service:
   name: elasticsearch
   state: started
```

This is the main.yml of the elasticsearch.





This is the kibana playbook.



This is the main playbook.

5.3 Install Grafana,Prometheus and Influxdb in seperate hosts (Influxdb,Grafana,Prometheus)

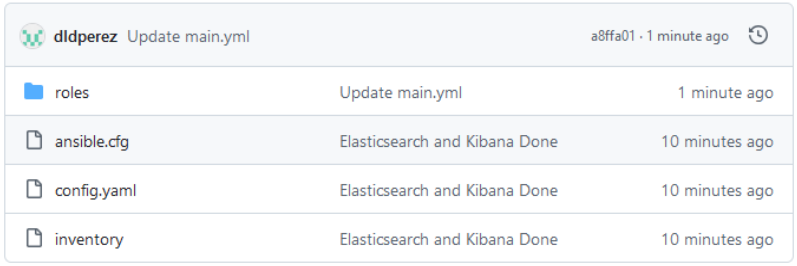
5.4 Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)

6. Document all your tasks using this document. Provide proofs of all the ansible playbooks codes and successful installations.
7. Document the push and commit from the local repository to GitHub.

```
dldperez@control:~/CPE_MIDEXAM_PEREZ$ git add .
dldperez@control:~/CPE_MIDEXAM_PEREZ$ git commit -m "Elasticsearch and Kibana D
one"
[master (root-commit) 03195e3] Elasticsearch and Kibana Done
 28 files changed, 417 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yaml
 create mode 100644 inventory
 create mode 100644 roles/elasticsearch/README.md
 create mode 100644 roles/elasticsearch/defaults/main.yml
 create mode 100644 roles/elasticsearch/handlers/main.yml
 create mode 100644 roles/elasticsearch/meta/main.yml
 create mode 100644 roles/elasticsearch/tasks/main.yml
 create mode 100644 roles/elasticsearch/tests/inventory
 create mode 100644 roles/elasticsearch/tests/test.yml
 create mode 100644 roles/elasticsearch/vars/main.yml
 create mode 100644 roles/kibana/README.md
 create mode 100644 roles/kibana/defaults/main.yml
 create mode 100644 roles/kibana/handlers/main.yml
 create mode 100644 roles/kibana/meta/main.yml
 create mode 100644 roles/kibana/tasks/main.yml
 create mode 100644 roles/kibana/tasks/site.yml
 create mode 100644 roles/kibana/tests/inventory
 create mode 100644 roles/kibana/tests/test.yml
 create mode 100644 roles/kibana/vars/main.yml
 create mode 100644 roles/logstash/README.md
 create mode 100644 roles/logstash/defaults/main.yml
```

```
 create mode 100644 roles/logstash/handlers/main.yml
 create mode 100644 roles/logstash/meta/main.yml
 create mode 100644 roles/logstash/tasks/main.yml
 create mode 100644 roles/logstash/tests/inventory
 create mode 100644 roles/logstash/tests/test.yml
 create mode 100644 roles/logstash/vars/main.yml
dldperez@control:~/CPE_MIDEXAM_PEREZ$ git push
Counting objects: 44, done.
Delta compression using up to 3 threads.
Compressing objects: 100% (20/20), done.
Writing objects: 100% (44/44), 4.78 KiB | 2.39 MiB/s, done.
Total 44 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), done.
To github.com:dldperez/CPE_MIDEXAM_PEREZ.git
 * [new branch]      master -> master
```

This is thee process of push and commit.



The files are updated in github.

8. Finally, paste also the link of your GitHub repository in the documentation.

GitHub link:

https://github.com/dldperez/CPE_MIDEXAM_PEREZ.git

Conclusions: (link your conclusion from the objective)

Creating and designing workflows are important in order for the files or the process to be neatly recorded. As we properly do this, we can know every update that we did. Using ansible for this creation is very efficient.