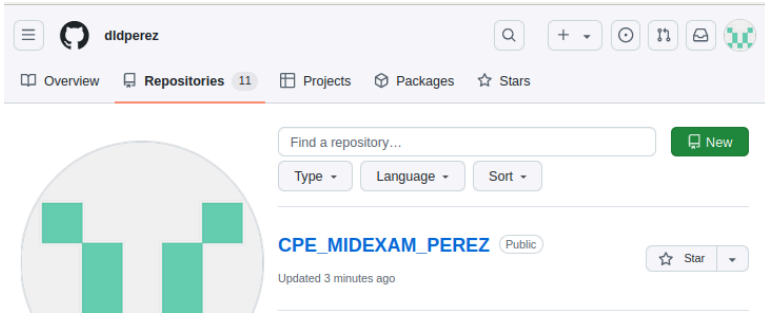


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Course/Section: CPE 212-CPE31S21	Date Submitted: 8/11/2024
Instructor:	Semester and SY: 2024-2025
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools	
1. Objectives	
Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.	
2. Instructions	
<ol style="list-style-type: none"> 1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME. 2. Clone the repository and do the following: <ol style="list-style-type: none"> 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)	
<ol style="list-style-type: none"> 4. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME. 	

5. Clone the repository and do the following:

```
dldperez@control: ~  
File Edit View Search Terminal Help  
dldperez@control:~$ git clone git@github.com:dldperez/CPE_MIDEXAM_PEREZ.git  
Cloning into 'CPE_MIDEXAM_PEREZ'...  
warning: You appear to have cloned an empty repository.  
dldperez@control:~$ ls  
CPE_MIDEXAM_PEREZ  Downloads  HOA_9.1  Pictures  sysad2  
Desktop            HOA_7.1   Music    Public    Templates  
Documents          HOA_8.1   perez    snap     Videos
```

Repository was cloned successfully

```
dldperez@control:~/CPE_MIDEXAM_PEREZ$ ls ~/.ssh/id_rsa  
/home/dldperez/.ssh/id_rsa
```

```
dldperez@control: ~/CPE_MIDEXAM_PEREZ  
File Edit View Search Terminal Help  
GNU nano 2.9.3 inventory  
[server1]  
192.168.56.135 ansible_user=dldperez  
[server3]  
192.168.56.139 ansible_user=dldperez
```

Inventory

```
dldperez@control: ~/CPE_MIDEXAM_PEREZ  
File Edit View Search Terminal Help  
GNU nano 2.9.3 ansible.cfg Modified  
[defaults]  
inventory = inventory  
remote_user=dldperez  
host_key_checking= False  
retry_files_enabled=False
```

Ansible.cfg

```
dldperez@control: ~/CPE_MIDEXAM_PEREZ  
File Edit View Search Terminal Help  
GNU nano 2.9.3 /etc/hosts Modified  
127.0.0.1 localhost  
127.0.0.1 Perez.myguest.virtualbox.org Perez  
192.168.56.135 server1  
192.168.56.139 server3
```

/etc/hosts

```
dldperez@control: ~/CPE_MIDEXAM_PEREZ  
File Edit View Search Terminal Help  
dldperez@control:~/CPE_MIDEXAM_PEREZ$ ansible all -m ping  
192.168.56.139 | SUCCESS => {  
  "changed": false,  
  "ping": "pong"  
}  
192.168.56.135 | SUCCESS => {  
  "changed": false,  
  "ping": "pong"  
}
```

Connectivity to the remote hosts

```
dldperez@control:~/CPE_MIDEXAM_PEREZ$ tree  
.  
├── ansible.cfg  
├── config.yaml  
└── inventory  
0 directories, 3 files
```

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:

```
dldperez@control: ~/CPE_MIDEXAM_PEREZ  
File Edit View Search Terminal Help  
GNU nano 2.9.3 config.yaml Modified  
#This is the playboook
```

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

```
dldperez@control:~/CPE_MIDEXAM_PEREZ/roles$ tree
.
├── elasticsearch
│   ├── defaults
│   │   └── main.yml
│   ├── files
│   ├── handlers
│   │   └── main.yml
│   ├── meta
│   │   └── main.yml
│   ├── README.md
│   ├── tasks
│   │   └── main.yml
│   ├── templates
│   ├── tests
│   │   ├── inventory
│   │   └── test.yml
│   └── vars
│       └── main.yml
└──
```

```
kibana
├── defaults
│   └── main.yml
├── files
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── README.md
├── tasks
│   └── main.yml
├── templates
├── tests
│   ├── inventory
│   └── test.yml
├── vars
│   └── main.yml
└──
```

```
logstash
├── defaults
│   └── main.yml
├── files
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── README.md
├── tasks
│   └── main.yml
├── templates
├── tests
│   ├── inventory
│   └── test.yml
├── vars
│   └── main.yml
└──
```

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.

```
dldperez@control: ~/CPE_MIDEXAM_PEREZ/roles/kibana/tasks
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml Modified
---
- name: Install Kibana with apt
  apt:
    name: kibana
    update_cache: yes

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

- name: Defining server port
  lineinfile:
    destfile: /etc/kibana/kibana.yml
    regexp: 'server.port:'
    line: 'server.port: 5601'

- name: Defining Elasticsearch URL
  lineinfile:
    destfile: /etc/kibana/kibana.yml
    regexp: 'elasticsearch.url:'
    line: 'elasticsearch.url: "http://localhost:9200"'

- name: Starting Kibana
  service:
    name: kibana
    state: started
```

This is the kibana playbook.

```
dldperez@control: ~/CPE_MIDEXAM_PEREZ
File Edit View Search Terminal Help
GNU nano 2.9.3 config.yaml
---
- hosts: all
  remote_user: dldperez
  become: yes
  become_user: root
  roles:
    - { role: elasticsearch }
    - { role: kibana }
    - { role: logstash }
```

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 Done"
[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 the process of push and commit.

 dldperez	Update main.yml	a8ffa01 · 1 minute ago	
 roles	Update main.yml	1 minute ago	
 ansible.cfg	Elasticsearch and Kibana Done	10 minutes ago	
 config.yaml	Elasticsearch and Kibana Done	10 minutes ago	
 inventory	Elasticsearch and Kibana Done	10 minutes ago	

The files are updated in github.

- 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.