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Course/Section: CPE232 - CPE31S6	**Date Submitted:** November 6, 2023
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Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

1. Objectives

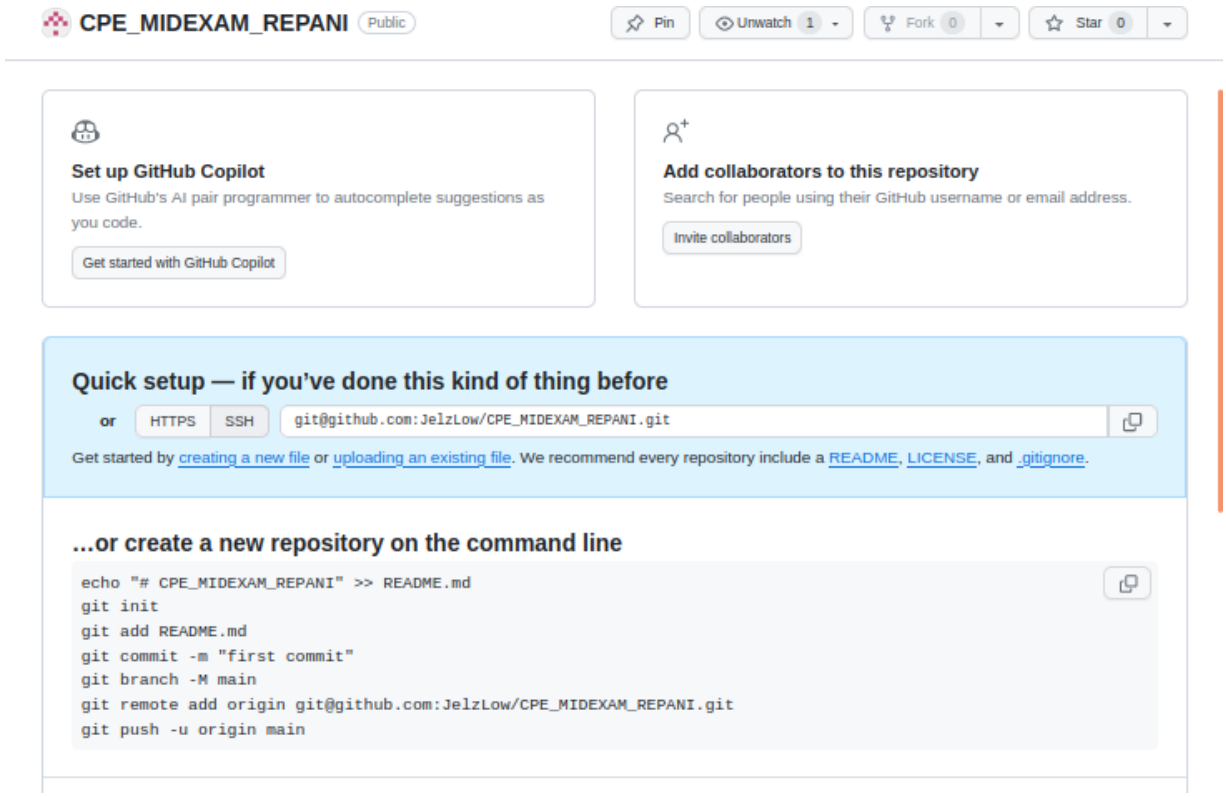
Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.

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)

The first step is to create a new repository named CPE_MIDEXAM_REPANI and clone this repository to the manage node.




```
jello@workstation:~$ git clone git@github.com:JelzLow/CPE_MIDEXAM_REPANI.git
Cloning into 'CPE_MIDEXAM_REPANI'...
warning: You appear to have cloned an empty repository.
jello@workstation:~$ cd CPE_MIDEXAM_REPANI
jello@workstation:~/CPE_MIDEXAM_REPANI$
```

The next steps are the same for the previous activities performed where the ansible.cfg and inventory files are copied from previous activities since it also uses 2 control nodes, 1 ubuntu and 1 centos. And as well as create the roles directory with the ubuntu and centos versions of elastic search, influxdb, grafana, prometheus, and

the nagios for centos.

```
jello@workstation:~/CPE_MIDEXAM_REPANI$ tree
.
├── ansible.cfg
├── config.yml
├── inventory
└── roles
    ├── elk_centos
    │   └── tasks
    │       └── main.yml
    ├── elk_ubuntu
    │   └── tasks
    │       └── main.yml
    ├── igp_centos
    │   └── tasks
    │       └── main.yml
    ├── igp_ubuntu
    │   └── tasks
    │       └── main.yml
    ├── lms_centos
    │   └── tasks
    │       └── main.yml
    ├── lms_ubuntu
    │   └── tasks
    │       └── main.yml
    └── nagios_centos
        └── tasks
            └── main.yml

15 directories, 10 files
```

The inventory file has been modified to fit the different roles created

```
jello@workstation: ~/CPE_MIDEXAM_REPANI
Firefox Web Browser
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                    inventory                         Modified

[elk_ubuntu]
192.168.56.102

[elk_centos]
192.168.56.104

[igp_ubuntu]
192.168.56.102

[igp_centos]
192.168.56.104

[lms_ubuntu]
192.168.56.102

[lms_centos]
192.168.56.104

[nagios_centos]
192.168.56.104
```

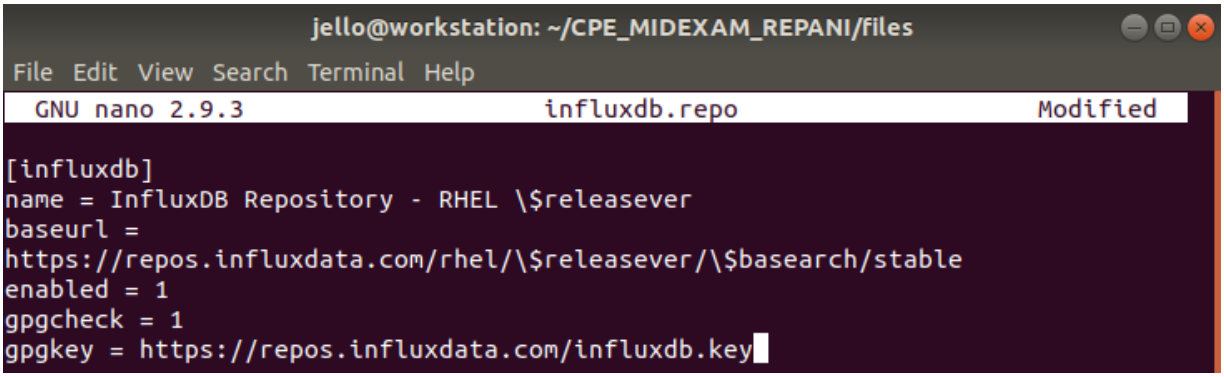
Additionally we will create a files directory which contains the following

```
└── files
    ├── grafana.repo
    ├── influxdb.repo
    ├── kibana.repo
    ├── logstash.repo
    └── prometheus.service
```

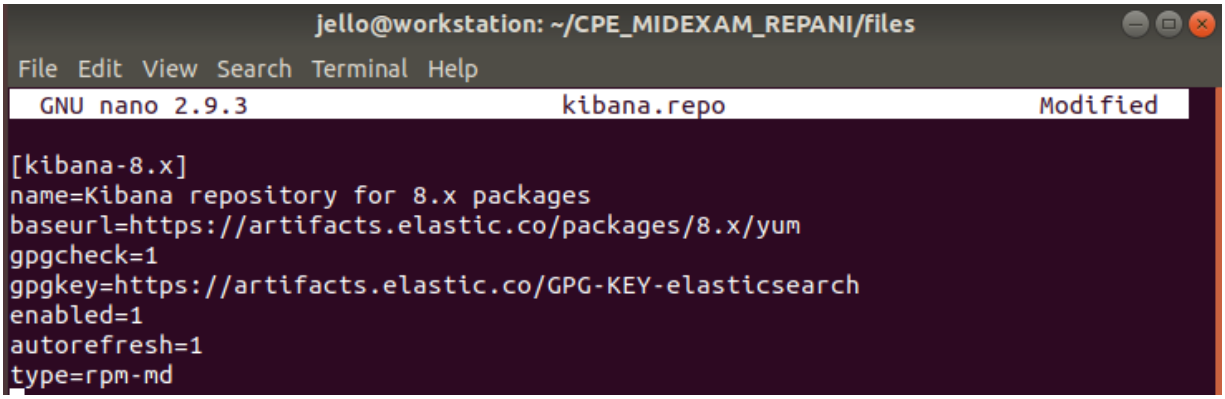
GRAFANA.REPO

```
jello@workstation: ~/CPE_MIDEXAM_REPANI/files
Firefox Web Browser
File  Edit  View  Search  Terminal  Help
  GNU nano 2.9.3                   grafana.repo                       Modified

[grafana]
name=grafana
baseurl=https://packages.grafana.com/oss/rpm
repo_gpgcheck=1
enabled=1
gpgcheck=1
gpgkey=https://packages.grafana.com/gpg.key
sslverify=1
sslcacert=/etc/pki/tls/certs/ca-bundle.crt
```

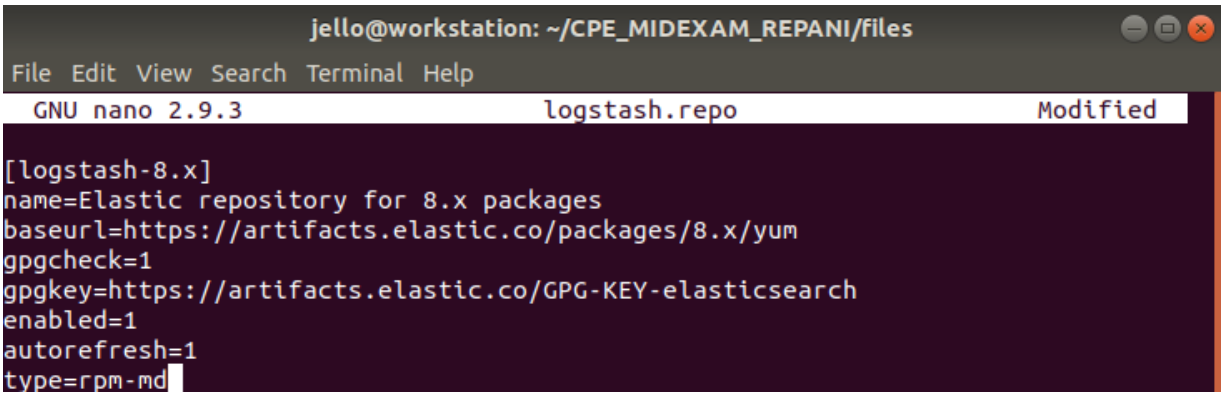
INFLUXDB.REPO



KIBANA.REPO



LOGSTASH.REPO



PROMETHEUS.SERVICE

jello@workstation: ~/CPE_MIDEXAM_REPANI/files

File Edit View Search Terminal Help

GNU nano 2.9.3 prometheus.service Modified

```
[Unit]
Description=Prometheus Service
After=network.target

[Service]
Type=simple
ExecStart=/usr/local/bin/prometheus/prometheus --config.file=/usr/local/bin/pr$

[Install]
WantedBy=multi-user.target
```

Next is the config.yml which contains the functions that would update and initialize the hosts before calling on the different main.yml functions in the different roles.

jello@workstation: ~/CPE_MIDEXAM_REPANI

File Edit View Search Terminal Help

GNU nano 2.9.3 config.yml Modified

```
---

- hosts: all
  become: true
  pre_tasks:

  - name: Installing dnf and epel-release
    yum:
      name:
        - epel-release
        - dnf
    when: ansible_distribution == "CentOS"

  - name: Update and upgrade remote CentOS server
    dnf:
      update_cache: yes
      name:  "*"
      state: latest
    when: ansible_distribution == "CentOS"

  - name: Installing installations dependencies
    apt:
      name:
        - wget
      state: latest
    when: ansible_distribution == "Ubuntu"

  - name: Dpkg fixing in Ubuntu Servers
    shell: |
```

```
      dpkg --configure -a
    when: ansible_distribution == "Ubuntu"

  - name: Update and upgrade remote in Ubuntu servers
    apt:
      update_cache: yes
      upgrade: yes
    when: ansible_distribution == "Ubuntu"

- hosts: elk_centos
  tags: elk_centos, elk_both
  become: true
  roles:
    - elk_centos
```

```
- hosts: elk_ubuntu
  tags: elk_ubuntu, elk_both
  become: true
  roles:
    - elk_ubuntu

- hosts: nagios_centos
  tags: nagios_centos
  become: true
  roles:
    - nagios_centos

- hosts: igp_centos
  tags: igp_centos, igp_both
  become: true
```

```
  roles:
    - nagios_centos

- hosts: igp_centos
  tags: igp_centos, igp_both
  become: true
  roles:
    - igp_centos


- hosts: igp_ubuntu
  tags: igp_ubuntu, igp_both
  become: true
  roles:
    - igp_ubuntu

- hosts: lms_centos
  tags: lms_centos, lms_both
  become: true
  roles:
    - lms_centos
```

```
- hosts: lms_ubuntu
  tags: lms_ubuntu, lms_both
  become: true
  roles:
    - lms_ubuntu
```

For downloading Elastic Search it has similar functions where the dependencies are downloaded and installed before installing the elastic search itself. It is then initialized and the files are modified. The logstash installs a public key and then a new repository is created before installing logstash and its dependencies. The kibana installation makes use of the same process with logstash

CENTOS ELK

jello@workstation: ~/CPE_MIDEXAM_REPANI

File Edit View Search Terminal Help

GNU nano 2.9.3 roles/elk_centos/tasks/main.yml Modified

```
- name: Downloading the source file of Elasticsearch
  tags: es_ubuntu
  get_url:
    url: https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-8.4.3-x86_64.rpm
    dest: /tmp/elasticsearch-8.4.3-x86_64.rpm

- name: Installing Elasticsearch
  tags: es_ubuntu
  yum:
    name: /tmp/elasticsearch-8.4.3-x86_64.rpm
    state: present

- name: Enabling Elasticsearch service
  tags: es_ubuntu
  service:
    name: elasticsearch
    enabled: yes

- name: Modifying service file
  tags: es_ubuntu
  replace:
    path: /usr/lib/systemd/system/elasticsearch.service
    regexp: "TimeoutStartSec=75"
    replace: "TimeoutStartSec=300"

- name: Opening port for elastic search
  tags: es_ubuntu
  shell: |
    sudo firewall-cmd --permanent --zone=public --add-port=9200/tcp
    sleep 10
    sudo firewall-cmd --reload

- name: Enabling elastic search service
  tags: es_ubuntu
  shell: |
    systemctl enable elasticsearch.service
    sleep 10
    systemctl start elasticsearch.service
  ignore_errors: yes


- name: Downloading and installing public signing key
  tags: logstash_ubuntu
  rpm_key:
    state: present
    key: https://artifacts.elastic.co/GPG-KEY-elasticsearch

- name: Creating a repo file for Logstash
  tags: logstash_ubuntu
  copy:
    src: logstash.repo
    dest: /etc/yum.repos.d/logstash.repo
    owner: root
    group: root
    mode: 0777

- name: Updating repo
  tags: logstash_ubuntu
  dnf:
```

```
    update_cache: yes

- name: Installing Logstash and its dependencies
  tags: logstash_ubuntu
  dnf:
    name:
      - logstash
    state: latest

- name: Opening port for Logstash
  tags: logstash_ubuntul, elk_install
  shell: |
    sudo firewall-cmd --permanent --zone=public --add-port=9600/tcp
    sleep 10
    sudo firewall-cmd --reload
```

```
- name: Making sure that logstash is stared and enabled
  tags: logstash_ubuntu, service, logstash_service, elk_service
  service:
    name: logstash
    state: restarted
    enabled: true


- name: Downloading and installing public signing key
  tags: kibana_ubuntu, kibana_install, elk_install
  rpm_key:
    state: present
    key: https://artifacts.elastic.co/GPG-KEY-elasticsearch
```

```
- name: Adding Kibana to the RPM repository
  tags: kibana_ubuntu, kibana_install, elk_install
  copy:
    src: kibana.repo
    dest: /etc/yum.repos.d/kibana.repo
    owner: root
    group: root
    mode: 777

- name: Updating the repository once again
  tags: kibana_ubuntu, kibana_install, elk_install
  yum:
    name:
      - kibana
    state: latest
```

```
- name: Opening port for Kibana
  tags: kibana_ubuntu, kibana_installl, elk_install
  firewalld:
    port: 5601/tcp
    zone: public
    permanent: yes
    state: enabled

- name: Making sure that Kibana is started and enabled
  tags: kibana_ubuntu, elk_service, kibana_service, service
  service:
    name: kibana
    state: restarted
    enabled: true
```

UBUNTU ELK

jello@workstation: ~/CPE_MIDEXAM_REPANI

File Edit View Search Terminal Help

GNU nano 2.9.3 roles/elk_ubuntu/tasks/main.yml Modified

```
- name: Installing dependencies
  apt:
    name:
      - apt-transport-https
      - openjdk-8-jdk
    state: latest


- name: Downloading in the Logstash package
  tags: logstash_ubuntu
  get_url:
    url: https://artifacts.elastic.co/downloads/logstash/logstash-8.4.3-amd64.deb
    dest: /tmp/logstash-8.4.3-amd64.deb

- name: Installing package
  tags: logstash_ubuntu
  apt:
    deb: /tmp/logstash-8.4.3-amd64.deb

- name: Reloading the daemon
  tags: logstash_ubuntu
  command: /bin/systemctl daemon-reload

- name: Starting and enabling the service
  tags: logstash_ubuntu
  service:
    name: logstash
    state: restarted
    enabled: true


- name: Downloading in the Kibana package
  get_url:
    url: https://artifacts.elastic.co/downloads/kibana/kibana-8.4.3-amd64.deb
    dest: /tmp/kibana-8.4.3-amd64.deb

- name: Installing Kibana
  apt:
    deb: /tmp/kibana-8.4.3-amd64.deb

- name: Reloading the daemon
  command: /bin/systemctl daemon-reload

- name: Making sure that Kibana service is started and enabled
  service:
    name: kibana
    state: restarted
    enabled: true


- name: Downloading in the elastic search package
  get_url:
    url: https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-8.4.3-amd64.deb
    dest: /tmp/elasticsearch-8.4.3-amd64.deb

- name: Installing package
  apt:
```

```
    deb: /tmp/elasticsearch-8.4.3-amd64.deb

- name: Enabling elastic search service
  tags: es_ubuntu
  service:
    name: elasticsearch
    enabled: yes

- name: Modifying service file
  tags: es_ubuntu
  replace:
    path: /usr/lib/systemd/system/elasticsearch.service
    regexp: "TimeoutStartSec=75"
    replace: "TimeoutStartSec=500"

- name: Starting and enabling the deamon
  shell: |
    sudo systemctl enable elasticsearch.service
    sleep 10
```

```
    sudo systemctl start elasticsearch.service
  ignore_errors: yes
```

For the Influxdb, Grafana, and Prometheus, a similar method is used to create the playbook which would install these to the control nodes. First is to copy the repository files so that there is an executable file to download the influxdb. For the grafana it is downloaded from the website, and the prometheus installation is the same as the previous activity performed where it is installed.

CENTOS IGP

jello@workstation: ~/CPE_MIDEXAM_REPANI

File Edit View Search Terminal Help

GNU nano 2.9.3 roles/igp_centos/tasks/main.yml Modified

```
- name: Copying the Influxdb repository file
  unarchive:
    src: https://dl.influxdata.com/influxdb/releases/influxdb2-2.4.0-linux-amd64.tar.gz
    dest: /tmp/
    remote_src: yes
    mode: 0777
    owner: root
    group: root

- name: Adding the executables to the PATH
  shell:
    cd /tmp/influxdb2*
    sudo cp influxdb2-2.4.0-linux-amd64/influxd /usr/local/bin/


- name: Downloading Grafana package
  get_url:
    url: https://dl.grafana.com/enterprise/release/grafana-enterprise-9.2.2-1.x86_64.rpm
    dest: /tmp/grafana-enterprise-9.2.2-1.x86_64.rpm

- name: Installing Grafana
  yum:
    name: /tmp/grafana-enterprise-9.2.2-1.x86_64.rpm

- name: Enabling Grafana service
  service:
    name: grafana-server
    enabled: yes

- name: Modifying service file
  tags: es_ubuntu
  replace:
    path: /usr/lib/systemd/system/grafana-server.service
    regexp: "TimeoutStartSec=75"
    replace: "TimeoutStartSec=500"

- name: Making sure that Grafana service is started and enabled
  service:
```

```
    name: grafana-server
    enabled: true
    state: started


- name: Creating a directory for Prometheus package
  tags: directory
  file:
    path: ~/prometheus
    state: directory

- name: Downloading and extracting Prometheus
  tags: source
  unarchive:
    src: https://github.com/prometheus/prometheus/releases/download/v2.39.1/prometheus-2.39.1.linux-amd64.tar.gz
    dest: ~/prometheus
    remote_src: yes
    mode: 0777
    owner: root
    group: root

- name: Stopping the Prometheus service if exists
  shell:
    sudo systemctl stop prometheus >> /dev/null
  ignore_errors: yes

- name: Adding the Prometheus executables to a PATH
  tags: executables
  shell: |
    cd ~/prometheus/prometheus*
    cp -r . /usr/local/bin/prometheus
  ignore_errors: yes


- name: Copying the Prometheus service file
  tags: servicefile
  copy:
    src: prometheus.service
    dest: /etc/systemd/system/
    owner: root
    group: root
    mode: 777

- name: Making sure that Prometheus service is started and enabled
  service:
    name: prometheus
    state: restarted
    enabled: true
```

UBUNTU IGP

jello@workstation: ~/CPE_MIDEXAM_REPANI

File Edit View Search Terminal Help

GNU nano 2.9.3 roles/igp_ubuntu/tasks/main.yml Modified

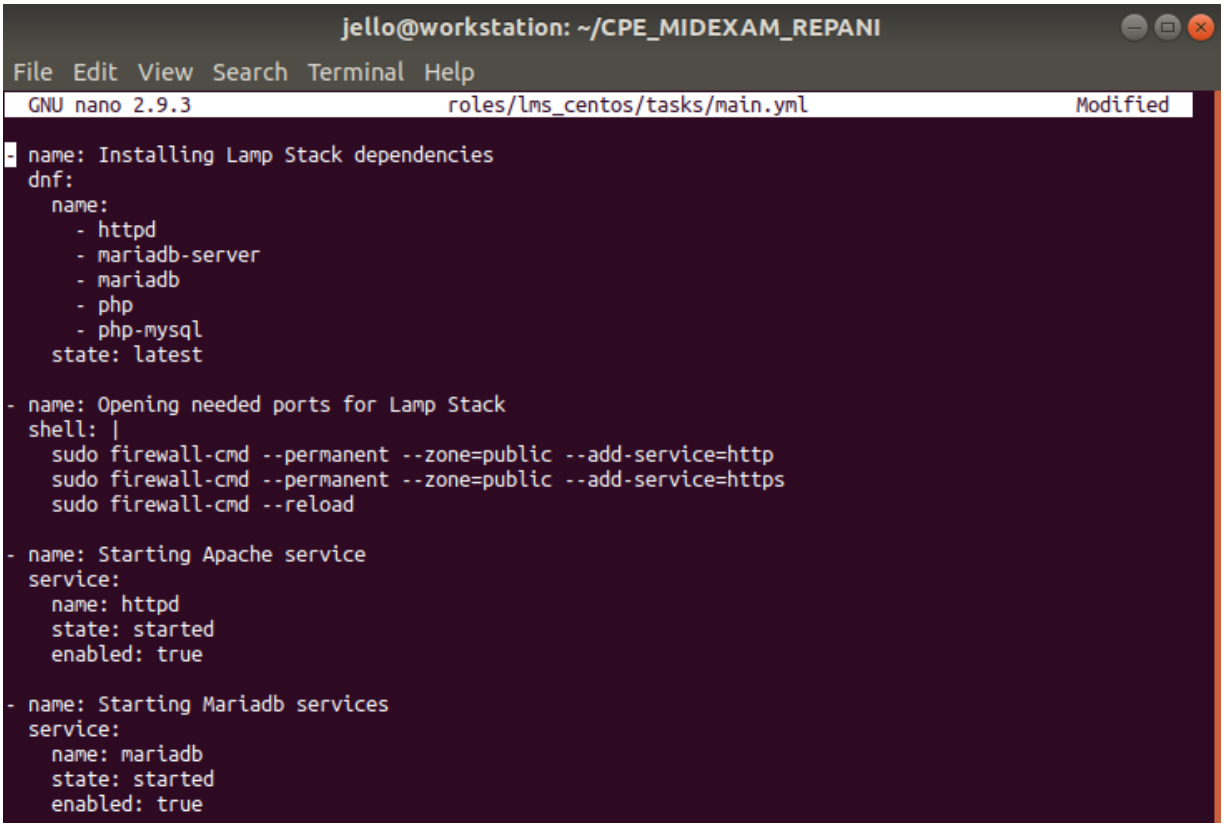
```
- name: Installing dependencies
  apt:
    name:
      - apt-transport-https
      - software-properties-common
      - wget
    state: latest


- name: Adding Influxdb in the repository
  shell: |
    wget -q https://repos.influxdata.com/influxdb.key
    sleep 5
    echo '23a1c8836f0afc5ed24e0486339d7cc8f6790b83886c4c96995b88a061c5bb5d influxdb.key' | sha256sum -c && cat influxd$
    sleep 5
    echo 'deb [signed-by=/etc/apt/trusted.gpg.d/influxdb.gpg] https://repos.influxdata.com/debian stable main' | sudo $

- name: Installing Influxdb
  apt:
    name:
      - influxdb

- name: Making sure that the Influxd is enabled and started
  service:
    name: influxdb
    state: started
    enabled: true


- name: Adding Grafana Repo
  shell: |
    sudo wget -q -O /usr/share/keyrings/grafana.key https://packages.grafana.com/gpg.key

- name: Update repo
  shell: |
    sudo apt-get update

- name: Updating the repo and isntalling grafana
    name:
      - grafana

- name: Reloading the daemon
  shell: |
    sudo systemctl daemon-reload

- name: Making sure that the Grafana server is started and enabled
  service:
    name: grafana-server
    state: restarted
    enabled: true


- name: Creating a directory (where the downloaded files will be stored)
  tags: directory
  file:
    path: ~/prometheus
```

```
    state: directory

- name: Downloading and extracting Prometheus
  tags: source
  unarchive:
    src: https://github.com/prometheus/prometheus/releases/download/v2.39.1/prometheus-2.39.1.linux-amd64.tar.gz
    dest: ~/prometheus
    remote_src: yes
    mode: 0777
    owner: root
    group: root

- name: Stopping the Prometheus service if its exist
  shell: |
    sudo systemctl stop prometheus >> /dev/null
  ignore_errors: yes

- name: Adding the Prometheus executables to a PATH
  tags: executables
```

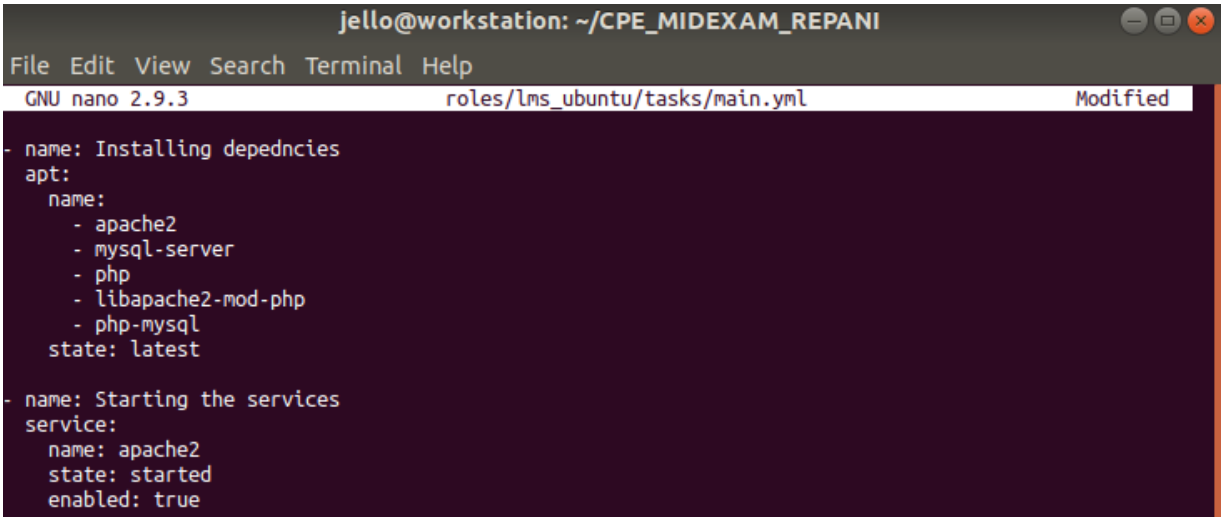
```
  shell: |
    cd ~/prometheus/prometheus*
    cp -r . /usr/local/bin/prometheus

- name: Copying the Prometheus service file
  tags: servicefile
  copy:
    src: prometheus.service
    dest: /etc/systemd/system/
    owner: root
    group: root
    mode: 777

- name: Making sure that Prometheus service is started and enabled
  tags: serviceon
  service:
    name: prometheus
    state: started
    enabled: true
```

The next part is installing Lampstack to both the ubuntu and centos host. This is done by

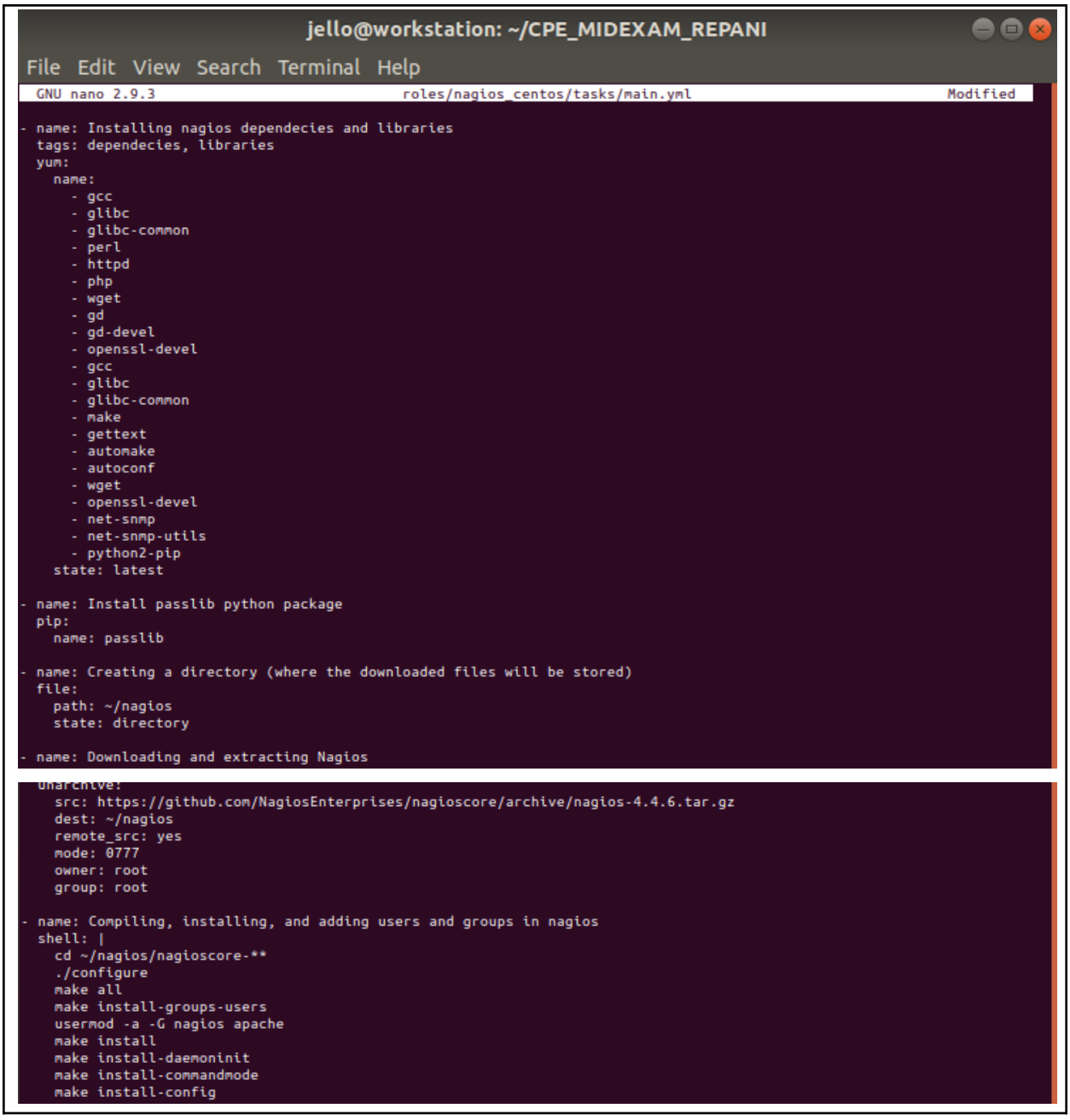
CENTOS Lampstack



UBUNTU Lampstack



The last task is to add nagios to one of the host which in this case is centos. The process is the same as the previous activity where nagios was installed.


jello@workstation: ~/CPE_MIDEXAM_REPANI
File Edit View Search Terminal Help
GNU nano 2.9.3 roles/nagios_centos/tasks/main.yml Modified
- name: Installing nagios dependecies and libraries
tags: dependecies, libraries
yum:
name:
- gcc
- glibc
- glibc-common
- perl
- httpd
- php
- wget
- gd
- gd-devel
- openssl-devel
- gcc
- glibc
- glibc-common
- make
- gettext
- automake
- autoconf
- wget
- openssl-devel
- net-snmp
- net-snmp-utils
- python2-pip
state: latest
- name: Install passlib python package
pip:
name: passlib
- name: Creating a directory (where the downloaded files will be stored)
file:
path: ~/nagios
state: directory
- name: Downloading and extracting Nagios
unarchive:
src: https://github.com/NagiosEnterprises/nagioscore/archive/nagios-4.4.6.tar.gz
dest: ~/nagios
remote_src: yes
mode: 0777
owner: root
group: root
- name: Compiling, installing, and adding users and groups in nagios
shell: |
cd ~/nagios/nagioscore-**
./configure
make all
make install-groups-users
usermod -a -G nagios apache
make install
make install-daemoninit
make install-commandmode
make install-config

```
    make install-webconf
- name: Downloading and extracting Nagios plugins
  unarchive:
    src: https://github.com/nagios-plugins/nagios-plugins/archive/release-2.3.3.tar.gz
    dest: ~/nagios
    remote_src: yes
    mode: 0777
    owner: root
    group: root

- name: Compiling and installing plugins
  shell: |
    cd ~/nagios/nagios-plugins*
    ./tools/setup
    ./configure
    make
    make install
- name: Add a user to a password file and ensure permissions are set
  community.general.htpasswd:
```

```
    path: /usr/local/nagios/etc/htpasswd.users
    name: admin
    password: admin123

- name: Making sure that nagios is started and enabled
  service:
    name: nagios
    state: restarted
    enabled: true

- name: Making sure that httpd is started and enabled
  service:
    name: httpd
    state: restarted
    enabled: true
```

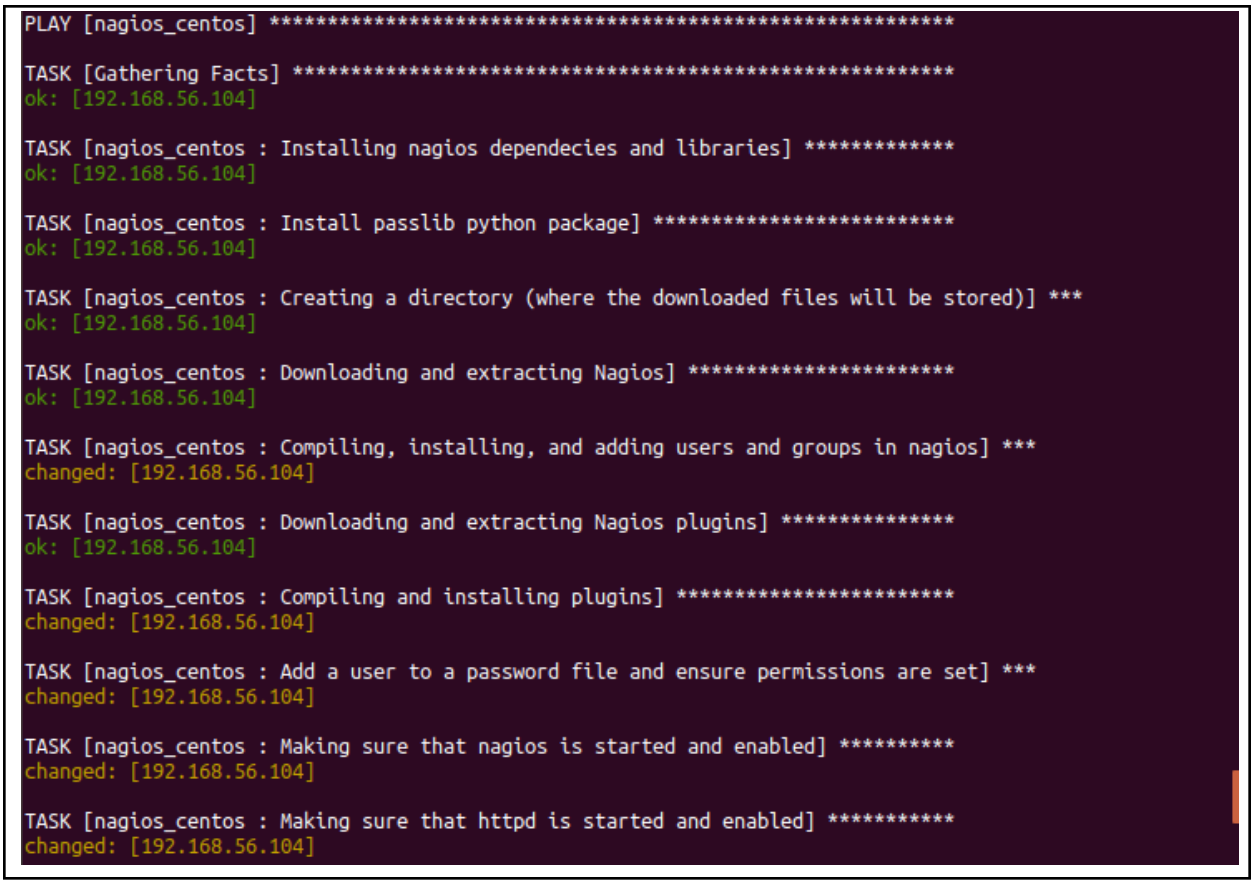
Running config.yml

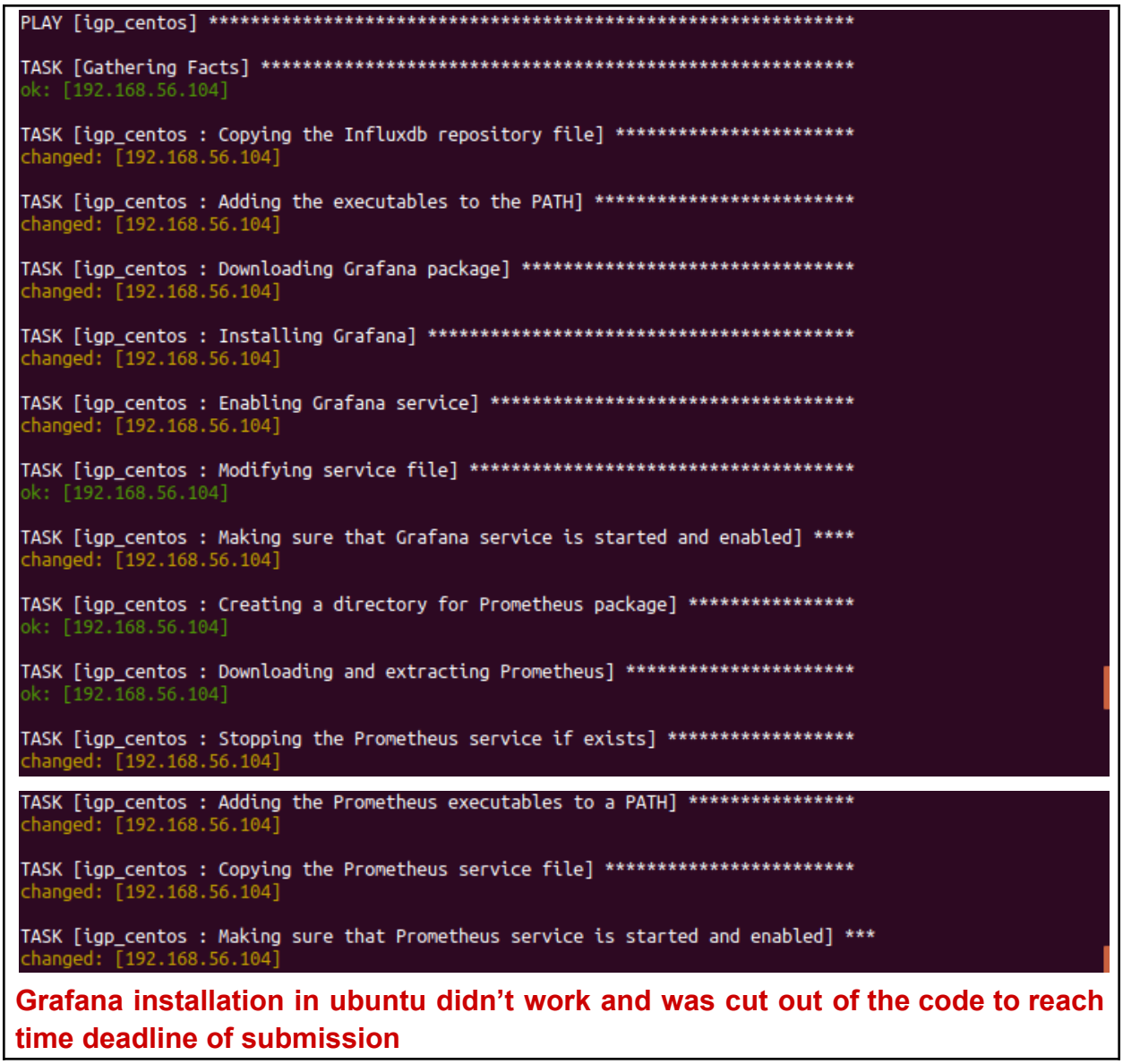
```
jello@workstation:~/CPE_MIDEXAM_REPANI$ ansible-playbook --ask-become-pass config.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [Installing dnf and epel-release] *****************************************
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [Update and upgrade remote CentOS server] *********************************
skipping: [192.168.56.102]
changed: [192.168.56.104]

TASK [Installing installations dependencies] ***********************************
skipping: [192.168.56.104]
ok: [192.168.56.102]

TASK [Dpkg fixing in Ubuntu Servers] *******************************************
skipping: [192.168.56.104]
changed: [192.168.56.102]

TASK [Update and upgrade remote in Ubuntu servers] *****************************
skipping: [192.168.56.104]
ok: [192.168.56.102]
```

```
PLAY [elk_centos] ***********************************************************

TASK [Gathering Facts] ******************************************************
ok: [192.168.56.104]

TASK [elk_centos : Downloading the source file of Elasticsearch] ************
ok: [192.168.56.104]

TASK [elk_centos : Installing Elasticsearch] ********************************
ok: [192.168.56.104]

TASK [elk_centos : Enabling Elasticsearch service] **************************
ok: [192.168.56.104]

TASK [elk_centos : Modifying service file] **********************************
ok: [192.168.56.104]

TASK [elk_centos : Opening port for elastic search] *************************
changed: [192.168.56.104]

TASK [elk_centos : Enabling elastic search service] *************************
changed: [192.168.56.104]

TASK [elk_centos : Downloading and installing public signing key] ***********
ok: [192.168.56.104]

TASK [elk_centos : Creating a repo file for Logstash] ***********************
ok: [192.168.56.104]

TASK [elk_centos : Updating repo] *******************************************
ok: [192.168.56.104]

TASK [elk_centos : Installing Logstash and its dependencies] ****************
ok: [192.168.56.104]

TASK [elk_centos : Opening port for Logstash] *******************************
changed: [192.168.56.104]

TASK [elk_centos : Making sure that logstash is stared and enabled] *********
changed: [192.168.56.104]

TASK [elk_centos : Downloading and installing public signing key] ***********
ok: [192.168.56.104]

TASK [elk_centos : Adding Kibana to the RPM repository] *********************
ok: [192.168.56.104]

TASK [elk_centos : Updating the repository once again] **********************
ok: [192.168.56.104]

TASK [elk_centos : Opening port for Kibana] *********************************
ok: [192.168.56.104]

TASK [elk_centos : Making sure that Kibana is started and enabled] **********
changed: [192.168.56.104]
```

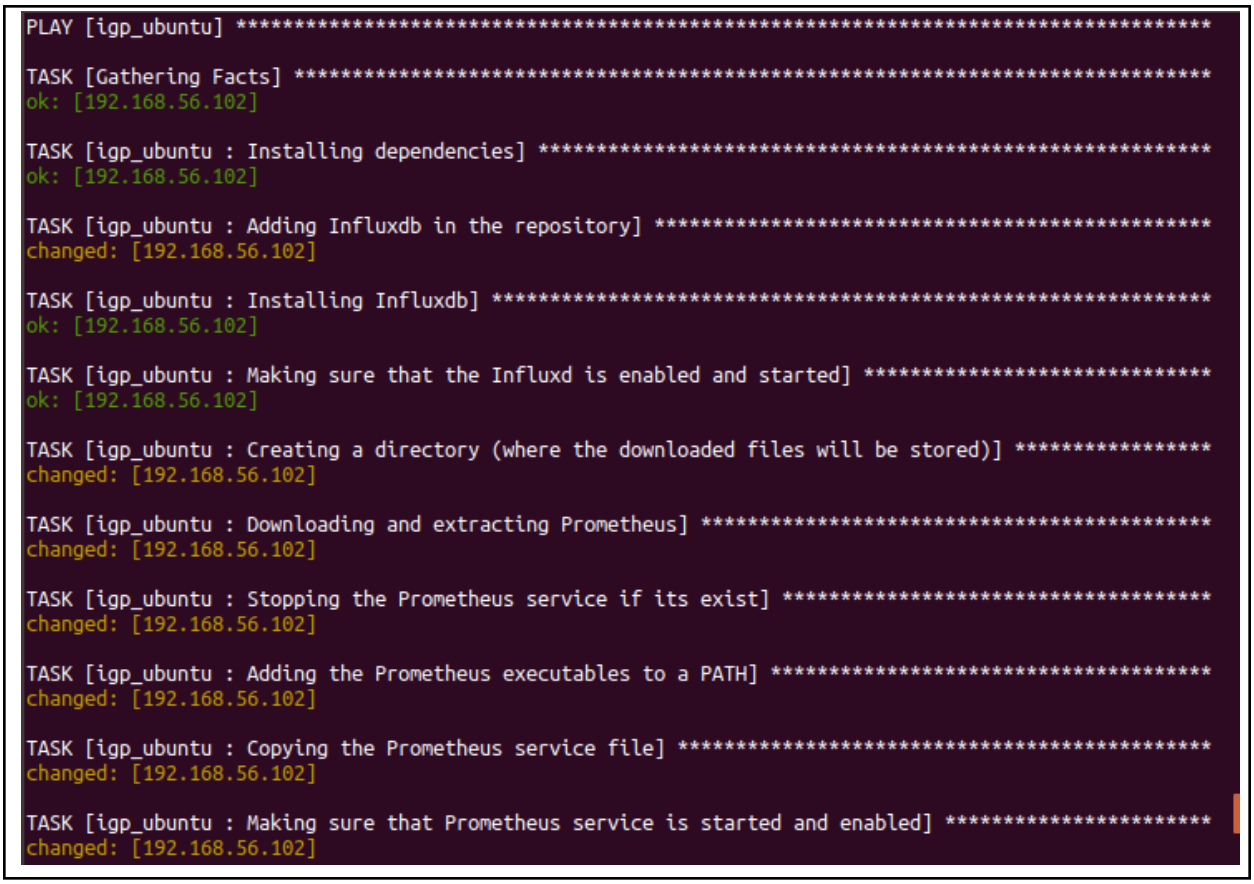
```
PLAY [elk_ubuntu] ***********************************************************

TASK [Gathering Facts] ******************************************************
ok: [192.168.56.102]

TASK [elk_ubuntu : Installing dependencies] *********************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Downloading in the Logstash package] *********************
changed: [192.168.56.102]

TASK [elk_ubuntu : Installing package] **************************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Reloading the daemon] ************************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Starting and enabling the service] ************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Downloading in the Kibana package] ************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Installing Kibana] ***************************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Reloading the daemon] ************************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Making sure that Kibana service is started and enabled] *****
changed: [192.168.56.102]
```

```
TASK [elk_ubuntu : Downloading in the elastic search package] ******************
changed: [192.168.56.102]

TASK [elk_ubuntu : Installing package] **************************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Enabling elastic search service] **************************
ok: [192.168.56.102]

TASK [elk_ubuntu : Modifying service file] **********************************
changed: [192.168.56.102]

TASK [elk_ubuntu : Starting and enabling the deamon] *************************
changed: [192.168.56.102]
```


PLAY [nagios_centos] **
TASK [Gathering Facts] ***
ok: [192.168.56.104]
TASK [nagios_centos : Installing nagios dependecies and libraries] *************
ok: [192.168.56.104]
TASK [nagios_centos : Install passlib python package] *************************
ok: [192.168.56.104]
TASK [nagios_centos : Creating a directory (where the downloaded files will be stored)] ***
ok: [192.168.56.104]
TASK [nagios_centos : Downloading and extracting Nagios] **********************
ok: [192.168.56.104]
TASK [nagios_centos : Compiling, installing, and adding users and groups in nagios] ***
changed: [192.168.56.104]
TASK [nagios_centos : Downloading and extracting Nagios plugins] **************
ok: [192.168.56.104]
TASK [nagios_centos : Compiling and installing plugins] ***********************
changed: [192.168.56.104]
TASK [nagios_centos : Add a user to a password file and ensure permissions are set] ***
changed: [192.168.56.104]
TASK [nagios_centos : Making sure that nagios is started and enabled] **********
changed: [192.168.56.104]
TASK [nagios_centos : Making sure that httpd is started and enabled] ***********
changed: [192.168.56.104]



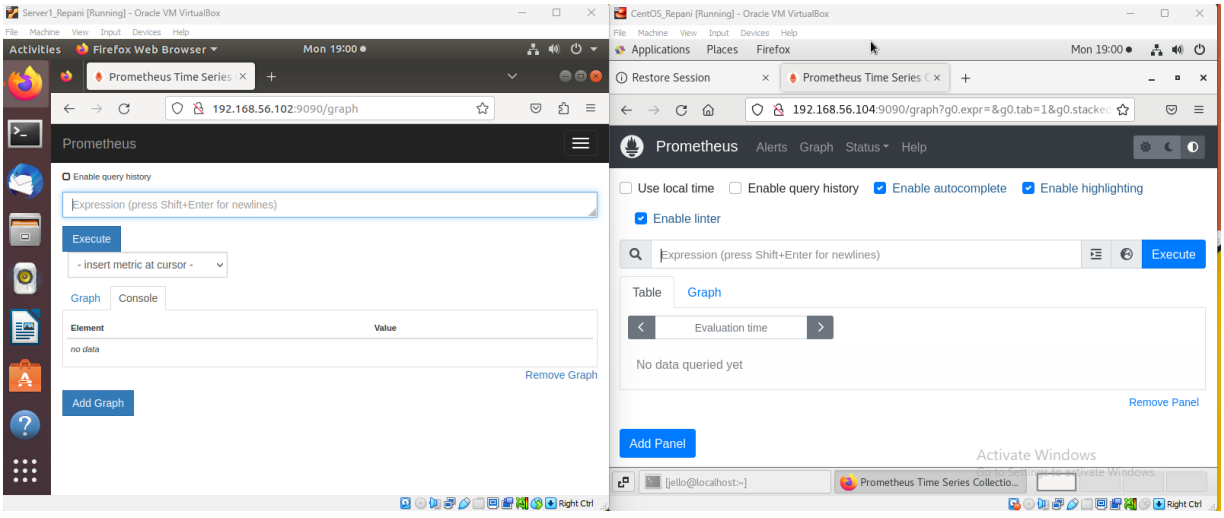
Grafana installation in ubuntu didn't work and was cut out of the code to reach time deadline of submission

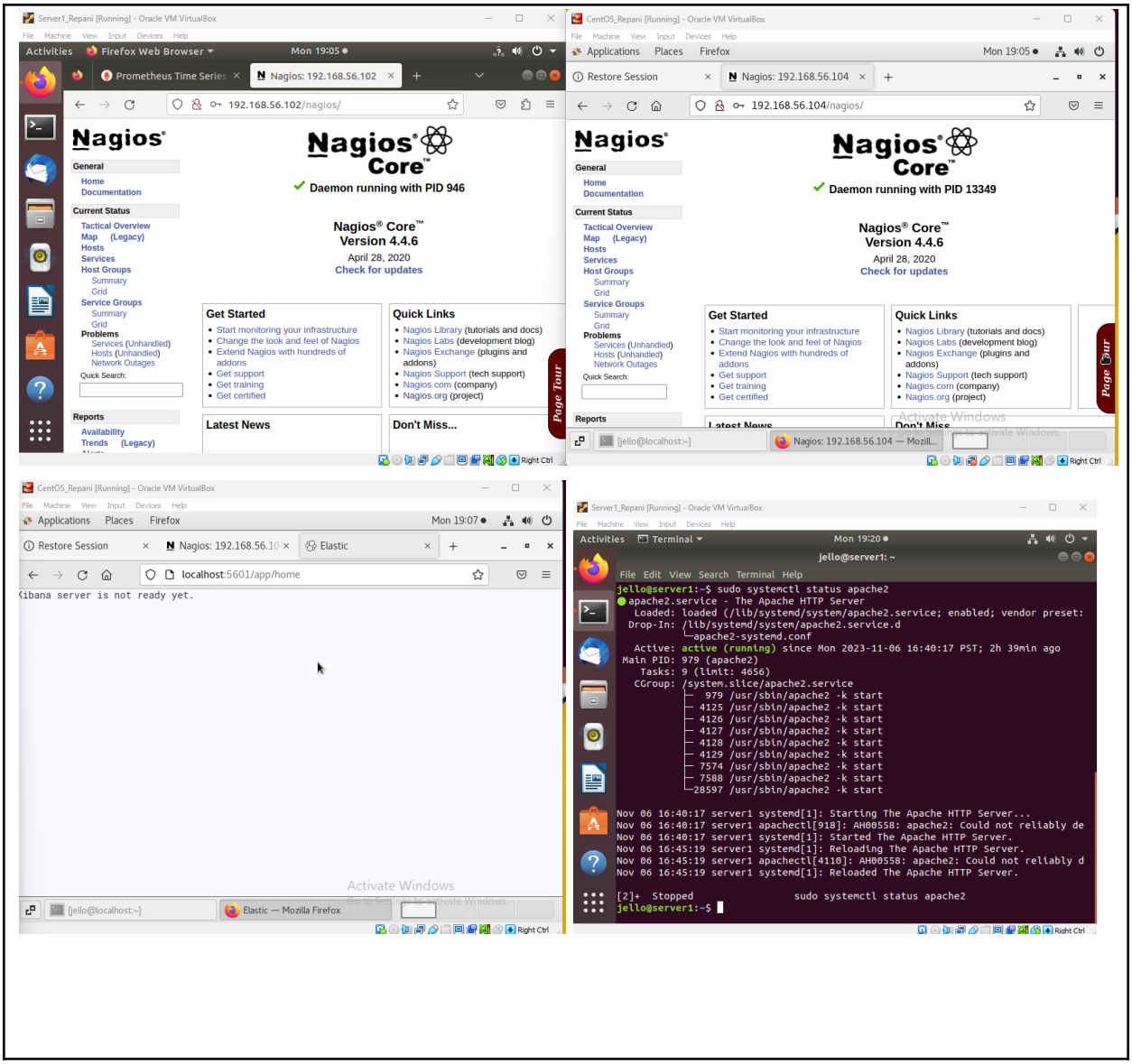

PLAY [igp_ubuntu] **
TASK [Gathering Facts] **
ok: [192.168.56.102]
TASK [igp_ubuntu : Installing dependencies] **
ok: [192.168.56.102]
TASK [igp_ubuntu : Adding Influxdb in the repository] **
changed: [192.168.56.102]
TASK [igp_ubuntu : Installing Influxdb] **
ok: [192.168.56.102]
TASK [igp_ubuntu : Making sure that the Influxd is enabled and started] ****************************
ok: [192.168.56.102]
TASK [igp_ubuntu : Creating a directory (where the downloaded files will be stored)] ****************
changed: [192.168.56.102]
TASK [igp_ubuntu : Downloading and extracting Prometheus] **
changed: [192.168.56.102]
TASK [igp_ubuntu : Stopping the Prometheus service if its exist] ***********************************
changed: [192.168.56.102]
TASK [igp_ubuntu : Adding the Prometheus executables to a PATH] ************************************
changed: [192.168.56.102]
TASK [igp_ubuntu : Copying the Prometheus service file] **
changed: [192.168.56.102]
TASK [igp_ubuntu : Making sure that Prometheus service is started and enabled] *********************
changed: [192.168.56.102]

```
PLAY [lms_centos] ***************************************************************************************

TASK [Gathering Facts] **********************************************************************************
ok: [192.168.56.104]

TASK [lms_centos : Installing Lamp Stack dependencies] **************************************************
changed: [192.168.56.104]

TASK [lms_centos : Opening needed ports for Lamp Stack] *************************************************
changed: [192.168.56.104]

TASK [lms_centos : Starting Apache service] *************************************************************
ok: [192.168.56.104]

TASK [lms_centos : Starting Mariadb services] ***********************************************************
ok: [192.168.56.104]

PLAY [lms_ubuntu] ***************************************************************************************

TASK [Gathering Facts] **********************************************************************************
ok: [192.168.56.102]

TASK [lms_ubuntu : Installing depedncies] ***************************************************************
changed: [192.168.56.102]

TASK [lms_ubuntu : Starting the services] ***************************************************************
ok: [192.168.56.102]
```

```
PLAY RECAP ************************************************************************************************
192.168.56.102             : ok=15   changed=8    unreachable=0    failed=0    skipped=0    rescued=0
   ignored=0
192.168.56.104             : ok=6    changed=2    unreachable=0    failed=0    skipped=0    rescued=0
   ignored=0
```

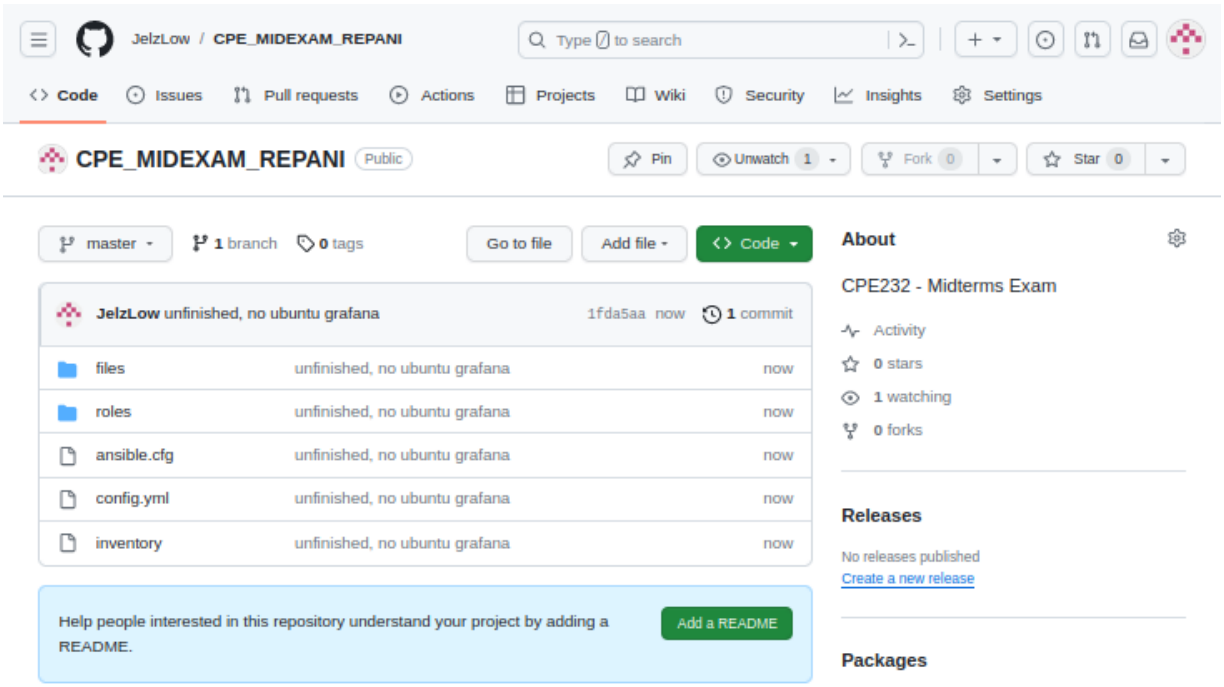
Proof:




Server1_Repani [Running] - Oracle VM VirtualBox
Activities
Firefox Web Browser
Mon 19:05
Prometheus Time Series
Nagios: 192.168.56.102
192.168.56.102/nagios/
Nagios
Nagios Core
Daemon running with PID 946
Nagios® Core™
Version 4.4.6
April 28, 2020
Check for updates
General
Home
Documentation
Current Status
Tactical Overview
Map (Legacy)
Hosts
Services
Host Groups
Summary
Grid
Service Groups
Summary
Grid
Problems
Services (Unhandled)
Hosts (Unhandled)
Network Outages
Quick Search:
Reports
Availability
Trends (Legacy)
Get Started
Start monitoring your infrastructure
Change the look and feel of Nagios
Extend Nagios with hundreds of addons
Get support
Get training
Get certified
Quick Links
Nagios Library (tutorials and docs)
Nagios Labs (development blog)
Nagios Exchange (plugins and addons)
Nagios Support (tech support)
Nagios.com (company)
Nagios.org (project)
Latest News
Don't Miss...
Page Tour
CentOS_Repani [Running] - Oracle VM VirtualBox
Applications
Places
Firefox
Mon 19:05
Restore Session
Nagios: 192.168.56.104
192.168.56.104/nagios/
Daemon running with PID 13349
Activate Windows
CentOS_Repani [Running] - Oracle VM VirtualBox
Applications
Places
Firefox
Mon 19:07
Restore Session
Nagios: 192.168.56.10
Elastic
localhost:5601/app/home
Kibana server is not ready yet.
Activate Windows
[jello@localhost:~]
Elastic — Mozilla Firefox
Server1_Repani [Running] - Oracle VM VirtualBox
Activities
Terminal
Mon 19:20
jello@server1: ~
File Edit View Search Terminal Help
jello@server1:~$ sudo systemctl status apache2
apache2.service - The Apache HTTP Server
Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset:
Drop-In: /lib/systemd/system/apache2.service.d
└─apache2-systemd.conf
Active: active (running) since Mon 2023-11-06 16:40:17 PST; 2h 39min ago
Main PID: 979 (apache2)
Tasks: 9 (limit: 4656)
CGroup: /system.slice/apache2.service
├─ 979 /usr/sbin/apache2 -k start
├─4125 /usr/sbin/apache2 -k start
├─4126 /usr/sbin/apache2 -k start
├─4127 /usr/sbin/apache2 -k start
├─4128 /usr/sbin/apache2 -k start
├─4129 /usr/sbin/apache2 -k start
├─7574 /usr/sbin/apache2 -k start
├─7588 /usr/sbin/apache2 -k start
└─28597 /usr/sbin/apache2 -k start
Nov 06 16:40:17 server1 systemd[1]: Starting The Apache HTTP Server...
Nov 06 16:40:17 server1 apachectl[918]: AH00558: apache2: Could not reliably de
Nov 06 16:40:17 server1 systemd[1]: Started The Apache HTTP Server.
Nov 06 16:45:19 server1 systemd[1]: Reloading The Apache HTTP Server.
Nov 06 16:45:19 server1 apachectl[4110]: AH00558: apache2: Could not reliably d
Nov 06 16:45:19 server1 systemd[1]: Reloaded The Apache HTTP Server.
[2]+ Stopped sudo systemctl status apache2
jello@server1:~$

Committing Git

```
jello@workstation:~/CPE_MIDEXAM_REPANI$ git add *
jello@workstation:~/CPE_MIDEXAM_REPANI$ git commit -m "unfinished, no ubuntu grafana"
[master (root-commit) 1fda5aa] unfinished, no ubuntu grafana
 15 files changed, 676 insertions(+)
 create mode 100644 ansible.cfg
 create mode 100644 config.yml
 create mode 100644 files/grafana.repo
 create mode 100644 files/influxdb.repo
 create mode 100644 files/kibana.repo
 create mode 100644 files/logstash.repo
 create mode 100644 files/prometheus.service
 create mode 100644 inventory
 create mode 100644 roles/elk_centos/tasks/main.yml
 create mode 100644 roles/elk_ubuntu/tasks/main.yml
 create mode 100644 roles/igp_centos/tasks/main.yml
 create mode 100644 roles/igp_ubuntu/tasks/main.yml
 create mode 100644 roles/lms_centos/tasks/main.yml
 create mode 100644 roles/lms_ubuntu/tasks/main.yml
 create mode 100644 roles/nagios_centos/tasks/main.yml
jello@workstation:~/CPE_MIDEXAM_REPANI$ git push origin
Counting objects: 33, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (19/19), done.
Writing objects: 100% (33/33), 6.42 KiB | 3.21 MiB/s, done.
Total 33 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), done.
To github.com:JelzLow/CPE_MIDEXAM_REPANI.git
 * [new branch]      master -> master
```



GitHub link:
https://github.com/JelzLow/CPE_MIDEXAM_REPANI

Conclusions: (link your conclusion from the objective)

In this midterms exam, the task is to be able to implement the knowledge learned such as the creation of roles and applying roles in order to make an organized ansible playbook. I was able to create an ansible playbook that installed the Elastic search, kibana, logstash, and nagios. Another which will installed grafana, prometheus, and influxdb. And lastly the lamp stack. This was a very confusing and lengthy process due to how many different roles I had to create in order to organize the tasks into each of the roles yml playbook. With the help of searching the internet for tutorials and straight up codes and commands for the ansible playbook, I was able to accomplish the task in the end.
Honor Pledge: “I affirm that I will not give or receive any unauthorized help on this exam, and that all work will be my own.”

Pa- paste lang po ng notes dito sir hehe:

centos systemctl access denied
https://stackoverflow.com/questions/40484860/centos-systemctl-access-denied