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Course/Section:	Date Submitted: 11/6/2024
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Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

1. Objectives

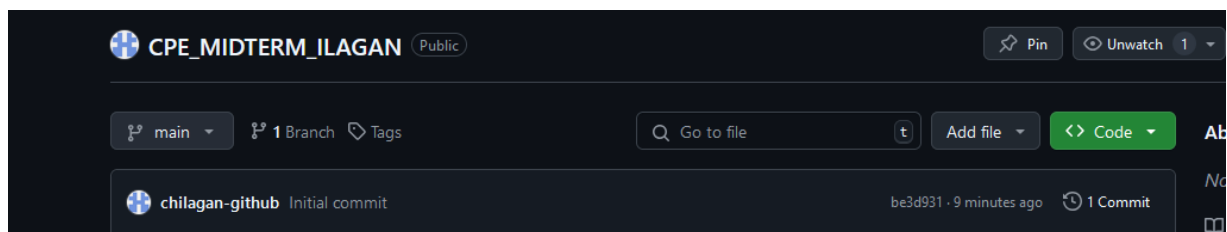
Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.

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)

GITHUB REPOSITORY (START)



Elastic Stack, Kibana, Logstash main.yml:

```
hideki@workstation: ~/CPE_MIDTERM_ILAGAN/ro
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml
---
- name: Add Elasticsearch YUM Repository in CentOS
  yum_repository:
    name: elastic-7.x
    description: Elasticsearch repository for 7.x packages
    baseurl: https://artifacts.elastic.co/packages/7.x/yum
    gpgcheck: yes
    gpgkey: https://artifacts.elastic.co/GPG-KEY-elasticsearch
    enabled: yes
  when: ansible_distribution == 'CentOS'

- name: Install Elasticsearch in CentOS
  yum:
    name: elasticsearch
    state: present
  when: ansible_distribution == "CentOS"

- name: Add Elasticsearch APT GPG Key in Ubuntu
  apt_key:
    url: https://artifacts.elastic.co/GPG-KEY-elasticsearch
    state: present
  when: ansible_distribution == "Ubuntu"

- name: Add Elasticsearch APT Repository for Elasticsearch in Ubuntu
  apt_repository:
    repo: 'deb https://artifacts.elastic.co/packages/7.x/apt stable main'
    state: present
    filename: 'elastic-7.x'
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: Install Elasticsearch in Ubuntu
  apt:
    name: elasticsearch
    state: present
  when: ansible_distribution == "Ubuntu"

- name: Start Elasticsearch
  service:
    name: elasticsearch
    state: started
    enabled: yes
```

```
hideki@workstation: ~/CPE_MIDTERM_ILAGAN/role
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml
--
- name: Install Kibana in CentOS
  yum:
    name: kibana
    state: present
  when: ansible_distribution == "CentOS"

- name: Install Kibana in Ubuntu
  apt:
    name: kibana
    state: present
  when: ansible_distribution == "Ubuntu"

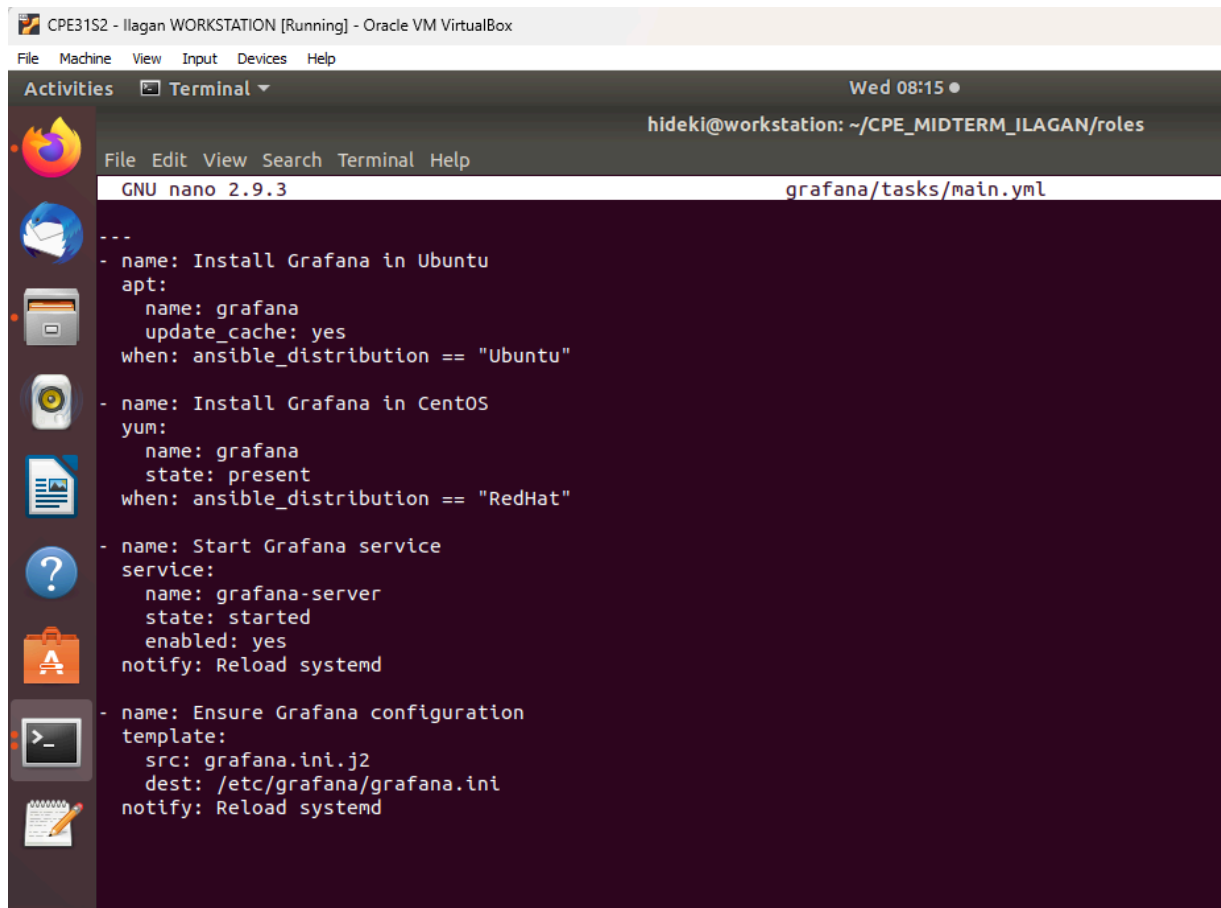
- name: Start Kibana
  service:
    name: kibana
    state: started
    enabled: yes
```

```
hideki@workstation: ~/CPE_MIDTERM_ILAGAN/role
File Edit View Search Terminal Help
GNU nano 2.9.3 main.yml
--
- name: Install Logstash in CentOS
  yum:
    name: logstash
    state: present
  when: ansible_distribution == "CentOS"

- name: Install Logstash in Ubuntu
  apt:
    name: logstash
    state: present
  when: ansible_distribution == "Ubuntu"

- name: Start Logstash
  service:
    name: logstash
    state: started
    enabled: yes
```

Grafana main.yml:



```
CPE31S2 - Ilagan WORKSTATION [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Wed 08:15
hideki@workstation: ~/CPE_MIDTERM_ILAGAN/roles
GNU nano 2.9.3 grafana/tasks/main.yml
---
- name: Install Grafana in Ubuntu
  apt:
    name: grafana
    update_cache: yes
  when: ansible_distribution == "Ubuntu"

- name: Install Grafana in CentOS
  yum:
    name: grafana
    state: present
  when: ansible_distribution == "RedHat"

- name: Start Grafana service
  service:
    name: grafana-server
    state: started
    enabled: yes
  notify: Reload systemd

- name: Ensure Grafana configuration
  template:
    src: grafana.ini.j2
    dest: /etc/grafana/grafana.ini
  notify: Reload systemd
```

Prometheus main.yml:

```
---
- name: Add Prometheus YUM repository and GPG key
  yum_repository:
    name: "prometheus"
    description: "Prometheus RPM Repository"
    baseurl: https://packagecloud.io/prometheus-rpm/release/el/7/$basearch
    gpgcheck: yes
    enabled: yes

- name: Import Prometheus GPG key if not installed
  command: rpm --import https://packagecloud.io/prometheus-rpm/release/gpgkey
  args:
    creates: /etc/pki/rpm-gpg/RPM-GPG-KEY-Packagecloud-Prometheus
  when: ansible_distribution_major_version == "7"

- name: Install Prometheus in CentOS
  command: dnf install -y --nogpgcheck prometheus
  when: ansible_distribution_major_version == "7"
```

Influxdb main.yml:

```
---
- name: Install InfluxDB in CentOS
  yum:
    name: https://repos.influxdata.com/rhel/\$releasever/\$basearch/stable
    state: present
  when: ansible_distribution == "CentOS"
  notify: start influxdb

- name: Install InfluxDB in Ubuntu
  apt:
    name: influxdb
    state: present
  when: ansible_distribution == "Ubuntu"
  notify: start influxdb

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

- name: Copy InfluxDB configuration file
  template:
    src: influxdb.repo.j2
    dest: /etc/yum.repos.d/influxdb.repo
  when: ansible_distribution == "CentOS"

- name: Copy InfluxDB configuration file
  template:
    src: influxdb.repo.j2
    dest: /etc/apt/sources.list.d/influxdb.list
  when: ansible_distribution == "Ubuntu"

- name: Import InfluxDB GPG key
  apt_key:
    url: https://repos.influxdata.com/influxdb.key
```

Lamp Stack (Httpd, php and mariadb) main.yml

```
---
- name: Install PHP in Ubuntu
  become: yes
  apt:
    name: php
    state: present
  when: ansible_distribution == "Ubuntu"

- name: Install PHP in CentOS
  become: yes
  yum:
    name: php
    state: present
  when: ansible_distribution == "CentOS"

- name: Install MariaDB
  become: yes
  apt:
    name: mariadb-server
    state: present
  when: ansible_os_family == "Ubuntu"

- name: Install MariaDB
  become: yes
  yum:
    name: mariadb-server
    state: present
  when: ansible_distribution == "CentOS"
```

```

- - -
- name: Install Apache in Ubuntu (httpd)
  become: yes
  apt:
    name: apache2
    state: present
  when: ansible_distribution == "Ubuntu"

- name: Install Apache (httpd)
  become: yes
  yum:
    name: httpd
    state: present
  when: ansible_distribution == "CentOS"

```

Elasticsearch process:

```

PLAY [Install and Configure Elastic Stack] *****

TASK [Gathering Facts] *****
ok: [192.168.56.113]
ok: [192.168.56.111]

TASK [Include Elasticsearch role] *****

TASK [elasticsearch : Add Elasticsearch YUM Repository in CentOS] *****
skipping: [192.168.56.113]
changed: [192.168.56.111]

TASK [elasticsearch : Install Elasticsearch in CentOS] *****
skipping: [192.168.56.113]
changed: [192.168.56.111]

TASK [elasticsearch : Add Elasticsearch APT GPG Key in Ubuntu] *****
skipping: [192.168.56.111]
changed: [192.168.56.113]

TASK [elasticsearch : Add Elasticsearch APT Repository for Elasticsearch in Ubuntu] *****
skipping: [192.168.56.111]
changed: [192.168.56.113]

TASK [elasticsearch : Install Elasticsearch in Ubuntu] *****
skipping: [192.168.56.111]
changed: [192.168.56.113]

TASK [elasticsearch : Start Elasticsearch] *****
changed: [192.168.56.113]
changed: [192.168.56.111]

TASK [Include Kibana role] *****

```


Kibana process:

```
TASK [Include Kibana role] *****
TASK [kibana : Install Kibana in CentOS] *****
skipping: [192.168.56.113]
changed: [192.168.56.111]
TASK [kibana : Install Kibana in Ubuntu] *****
skipping: [192.168.56.111]
changed: [192.168.56.113]
TASK [kibana : Start Kibana] *****
changed: [192.168.56.113]
changed: [192.168.56.111]
```

Logstash process:

```
TASK [Include Logstash role] *****
TASK [logstash : Install Logstash in CentOS] *****
skipping: [192.168.56.113]
changed: [192.168.56.111]
TASK [logstash : Install Logstash in Ubuntu] *****
skipping: [192.168.56.111]
changed: [192.168.56.113]
TASK [logstash : Start Logstash] *****
changed: [192.168.56.113]
changed: [192.168.56.111]
PLAY [Test 11: Nagios & Prometheus] *****
```

Nagios and Prometheus process:

```
TASK [nagios : Install necessary packages for Nagios] *****
ok: [192.168.56.113] => (item=[u'apache2', u'php', u'libapache2-mod-php', u'libgd-tools', u'libgd-dev', u'make', u'autoconf', u'gcc',
u'libc6', u'libgd-dev', u'openssl', u'libssl-dev'])

TASK [nagios : Download Nagios Core] *****
ok: [192.168.56.113]

TASK [nagios : Extract Nagios Core] *****
changed: [192.168.56.113]

TASK [nagios : Extract Nagios source code] *****
ok: [192.168.56.113]

PLAY [Install Prometheus] *****

TASK [Gathering Facts] *****
ok: [192.168.56.113]
ok: [192.168.56.111]

TASK [ubuntuprometheus : Install Prometheus on Ubuntu] *****
skipping: [192.168.56.111]
ok: [192.168.56.113]

TASK [centosprometheus : Add Prometheus YUM repository and GPG key] *****
skipping: [192.168.56.113]
changed: [192.168.56.111]

TASK [centosprometheus : Import Prometheus GPG key if not installed] *****
skipping: [192.168.56.113]
skipping: [192.168.56.111]

TASK [centosprometheus : Install Prometheus in CentOS] *****
skipping: [192.168.56.113]
skipping: [192.168.56.111]
```

httpd, php, mariadb process:

```
PLAY [Install httpd,php,mariadb] *****
TASK [Gathering Facts] *****
ok: [192.168.56.113]
ok: [192.168.56.111]

TASK [apache : Install Apache in Ubuntu (httpd)] *****
skipping: [192.168.56.111]
ok: [192.168.56.113]

TASK [apache : Install Apache (httpd)] *****
skipping: [192.168.56.113]
ok: [192.168.56.111]

TASK [php : Install PHP in Ubuntu] *****
skipping: [192.168.56.111]
ok: [192.168.56.113]

TASK [php : Install PHP in CentOS] *****
skipping: [192.168.56.113]
ok: [192.168.56.111]

TASK [mariadb : Install MariaDB] *****
skipping: [192.168.56.113]
skipping: [192.168.56.111]

TASK [mariadb : Install MariaDB] *****
skipping: [192.168.56.113]
ok: [192.168.56.111]

PLAY RECAP *****
192.168.56.111      : ok=4    changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
192.168.56.113      : ok=3    changed=0    unreachable=0    failed=0    skipped=4    rescued=0    ignored=0
```

grafana process:

```
PLAY [Install grafana] *****
TASK [Gathering Facts] *****
ok: [192.168.56.113]
ok: [192.168.56.111]

TASK [grafana : Install Grafana in Ubuntu] *****
skipping: [192.168.56.111]
changed: [192.168.56.113]

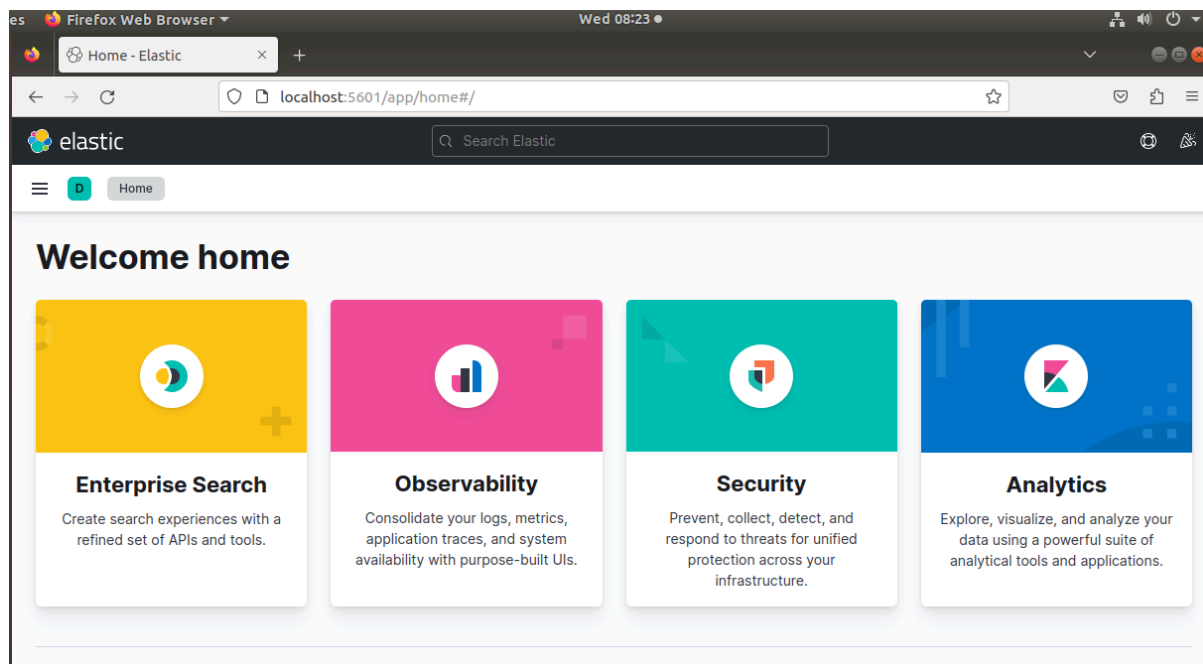
TASK [grafana : Install Grafana in CentOS] *****
skipping: [192.168.56.113]
skipping: [192.168.56.111]
```

Kibana running output Ubuntu and Centos:

```
[1]+ Stopped                  systemctl status elasticsearch
hideki@server1:~$ systemctl status kibana
● kibana.service - Kibana
   Loaded: loaded (/etc/systemd/system/kibana.service; enabled; vendor preset: e
   Active: active (running) since Wed 2024-11-06 08:17:46 +08; 49s ago
     Docs: https://www.elastic.co
   Main PID: 6599 (node)
    Tasks: 11 (limit: 4915)
   CGroup: /system.slice/kibana.service
           └─6599 /usr/share/kibana/bin/../node/bin/node /usr/share/kibana/bin/.
lines 1-8/8 (END)
```

```
[hideki@localhost ~]$ systemctl status kibana
● kibana.service - Kibana
   Loaded: loaded (/etc/systemd/system/kibana.service; enabled; preset: disab>
   Active: active (running) since Wed 2024-11-06 08:17:46 PST; 2min 42s ago
     Docs: https://www.elastic.co
   Main PID: 4593 (node)
    Tasks: 11 (limit: 10964)
   Memory: 263.7M
      CPU: 20.296s
   CGroup: /system.slice/kibana.service
           └─4593 /usr/share/kibana/bin/../node/bin/node /usr/share/kibana/bi>

Nov 06 08:17:46 localhost.localdomain systemd[1]: Started Kibana.
Nov 06 08:17:48 localhost.localdomain kibana[4593]: Kibana is currently running>
```

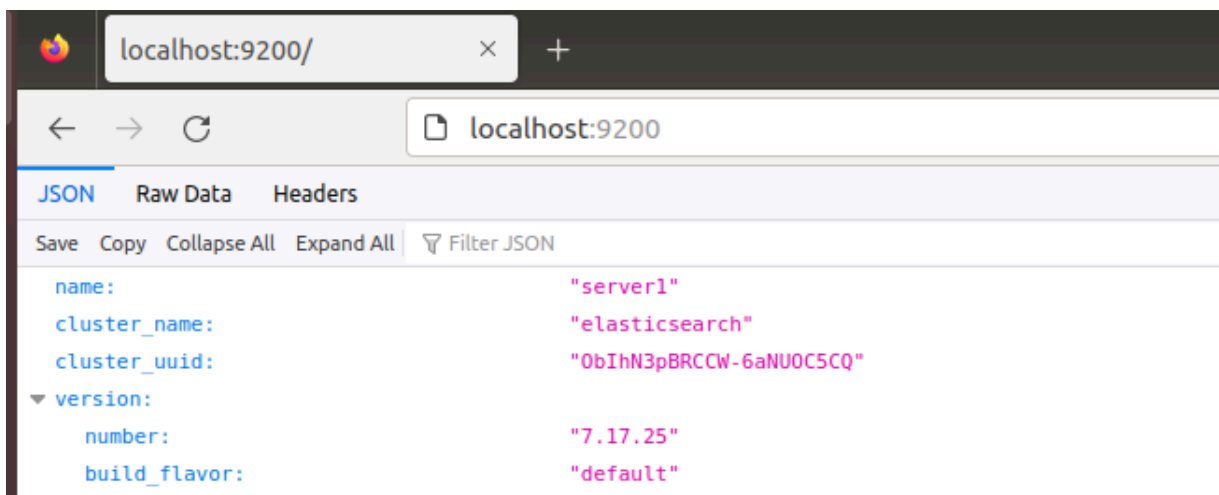


Elasticsearch running output Ubuntu and Centos:

```
hideki@server1:~$ systemctl status elasticsearch
● elasticsearch.service - Elasticsearch
   Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service; enabled; vendor
   Active: active (running) since Wed 2024-11-06 08:08:05 +08; 5min ago
     Docs: https://www.elastic.co
    Main PID: 5811 (java)
      Tasks: 67 (limit: 4915)
    CGroup: /system.slice/elasticsearch.service
            └─5811 /usr/share/elasticsearch/jdk/bin/java -Xshare:auto -Des.networ
              6009 /usr/share/elasticsearch/modules/x-pack-ml/platform/linux-x86_
lines 1-9/9 (END)
```

```
[hideki@localhost ~]$ systemctl status elasticsearch
● elasticsearch.service - Elasticsearch
   Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service; enabled; pr>
   Active: active (running) since Wed 2024-11-06 08:08:34 PST; 8min ago
     Docs: https://www.elastic.co
    Main PID: 3826 (java)
      Tasks: 59 (limit: 10964)
    Memory: 864.6M
      CPU: 35.474s
    CGroup: /system.slice/elasticsearch.service
            └─3826 /usr/share/elasticsearch/jdk/bin/java -Xshare:auto -Des.net>
              3976 /usr/share/elasticsearch/modules/x-pack-ml/platform/linux-x>

Nov 06 08:07:41 localhost.localdomain systemd[1]: Starting Elasticsearch...
Nov 06 08:07:54 localhost.localdomain systemd-entrypoint[3826]: Nov 06, 2024 8:>
Nov 06 08:07:54 localhost.localdomain systemd-entrypoint[3826]: WARNING: COMPAT>
Nov 06 08:08:34 localhost.localdomain systemd[1]: Started Elasticsearch.
lines 1-16/16 (END)
```



The screenshot shows a web browser window with the address bar set to `localhost:9200/`. The page content is displayed in JSON format, showing the following details:

- `name:` "server1"
- `cluster_name:` "elasticsearch"
- `cluster_uuid:` "0bIhN3pBRCCW-6aNUOC5CQ"
- `version:`
 - `number:` "7.17.25"
 - `build_flavor:` "default"

Logstash running output Ubuntu and CentOS

```
[2]# systemctl status kibana
[hideki@localhost ~]$ systemctl status logstash
● logstash.service - logstash
   Loaded: loaded (/etc/systemd/system/logstash.service; enabled; preset: disabled)
   Active: active (running) since Wed 2024-11-06 08:34:58 PST; 35s ago
     Main PID: 5950 (java)
       Tasks: 14 (limit: 10964)
      Memory: 253.9M
         CPU: 6.529s
    CGroup: /system.slice/logstash.service
            └─5950 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseConcMa

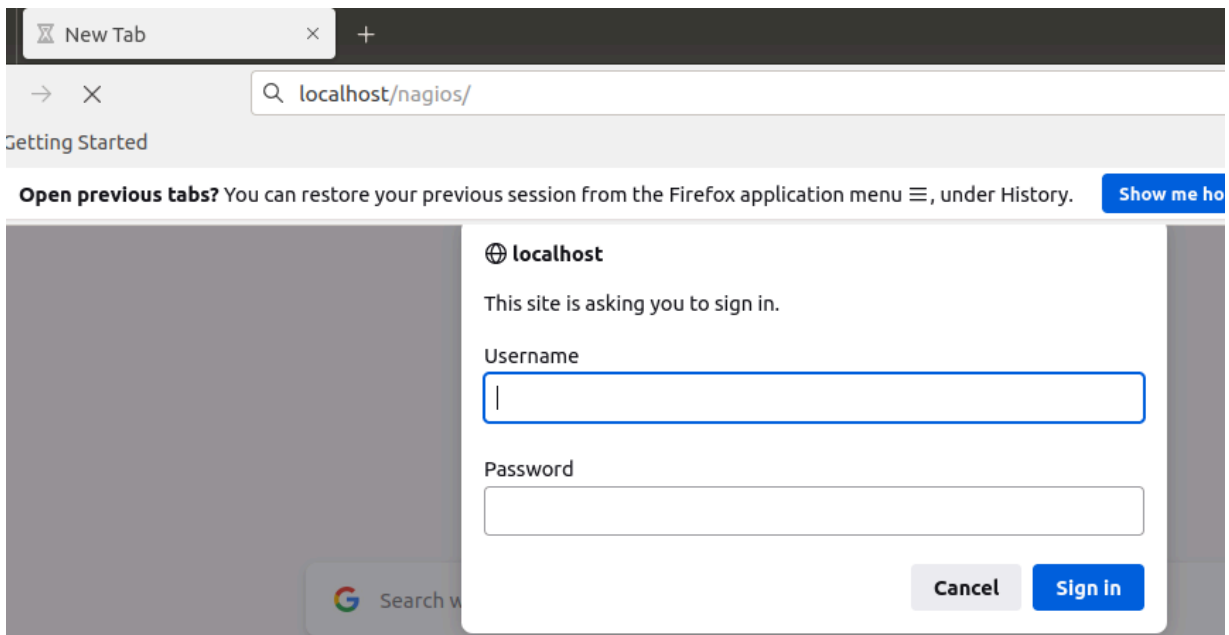
Nov 06 08:34:58 localhost.localdomain systemd[1]: Started logstash.
Nov 06 08:35:00 localhost.localdomain logstash[5950]: Using bundled JDK: /usr/s>
Nov 06 08:35:05 localhost.localdomain logstash[5950]: OpenJDK 64-Bit Server VM >
```

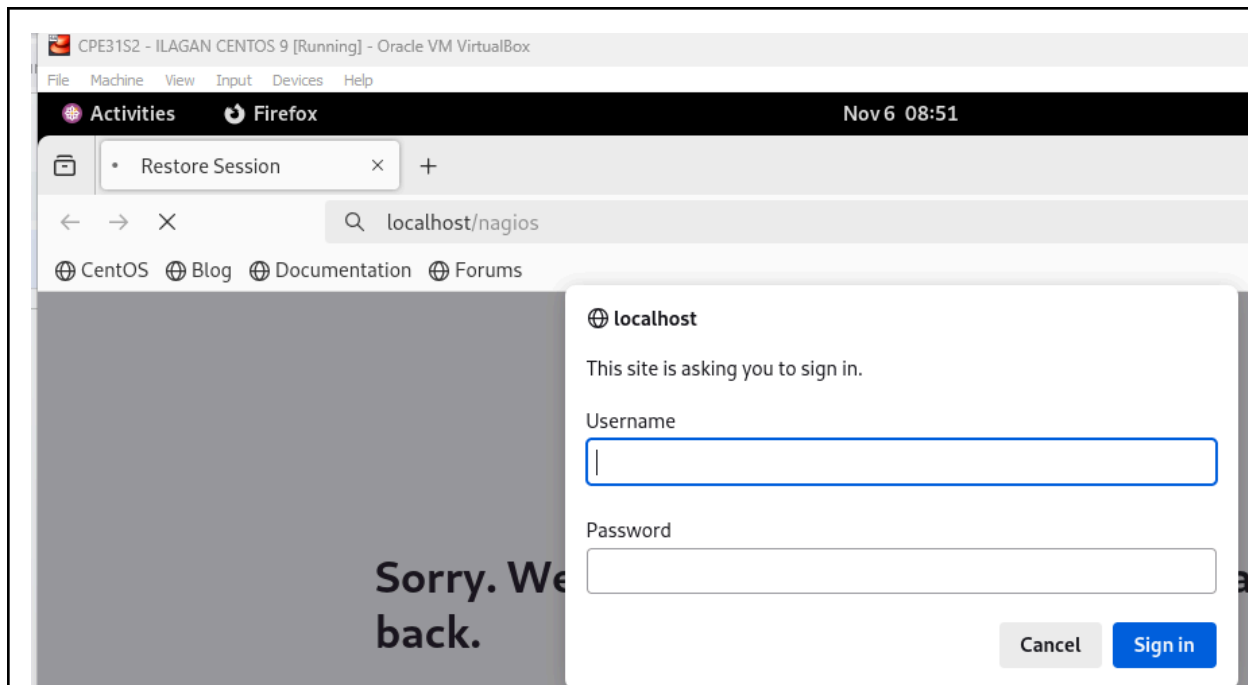
```
[3]# systemctl status nagios
hideki@server1:~$ systemctl status logstash
● logstash.service - logstash
   Loaded: loaded (/etc/systemd/system/logstash.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2024-11-06 08:43:09 +08; 5s ago
     Main PID: 10854 (java)
       Tasks: 15 (limit: 4915)
      CGroup: /system.slice/logstash.service
            └─10854 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseConcMa

lines 1-7/7 (END)
```

Nagios running output Ubuntu and CentOS:

```
hideki@server1:~$ systemctl status nagios
● nagios.service - Nagios Core 4.5.6
   Loaded: loaded (/lib/systemd/system/nagios.service; enabled; vendor preset: e
   Active: active (running) since Wed 2024-11-06 07:28:54 +08; 1h 13min ago
     Docs: https://www.nagios.org/documentation
   Main PID: 939 (nagios)
    Tasks: 6 (limit: 4915)
   CGroup: /system.slice/nagios.service
           └─939 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cf
              └─944 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/
                 └─945 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/
                    └─946 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/
                       └─947 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/
                          └─961 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cf
```

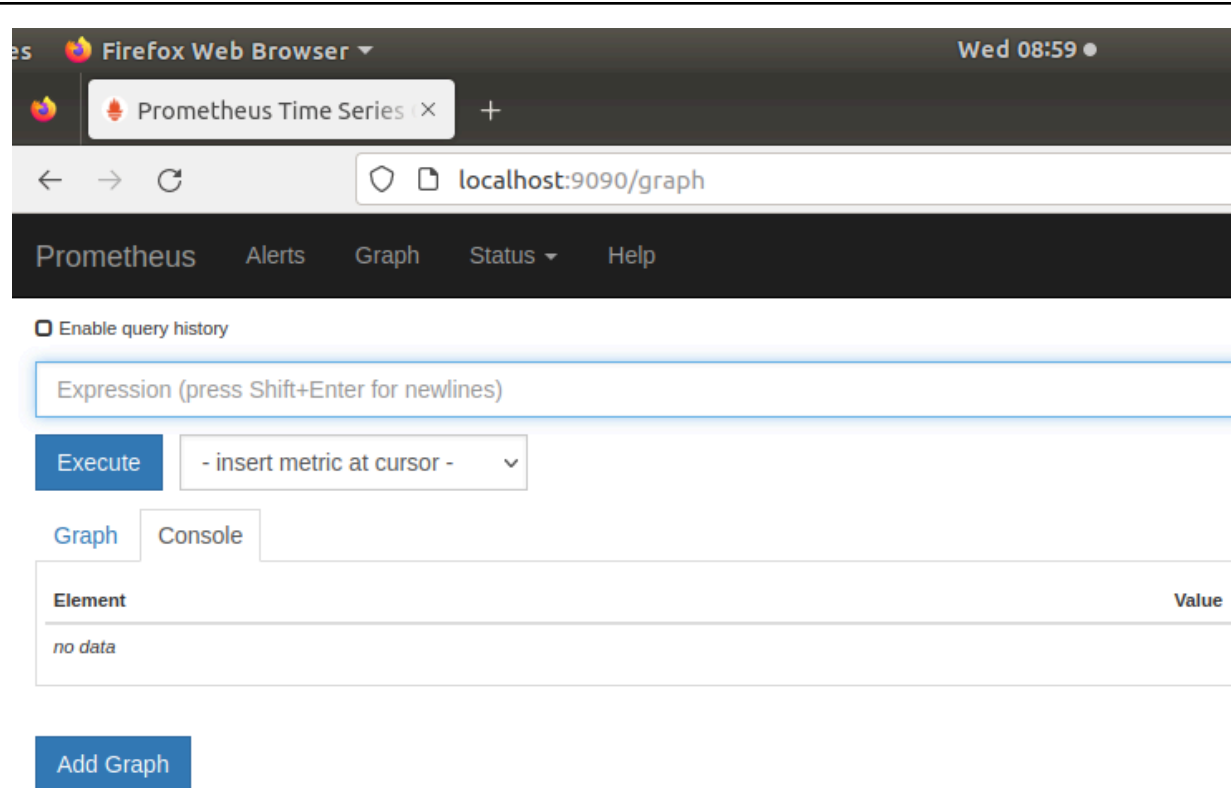




```
s[hideki@localhost ~]$ systemctl status nagios
● nagios.service - Nagios Core 4.5.6
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; preset: d>
   Active: active (running) since Wed 2024-11-06 07:30:02 PST; 1h 25min ago
     Docs: https://www.nagios.org/documentation
    Main PID: 915 (nagios)
      Tasks: 6 (limit: 10964)
     Memory: 17.8M
        CPU: 1.836s
    CGroup: /system.slice/nagios.service
            └─915 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios>
            └─934 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/>
            └─915 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/>
            └─936 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/>
```

Prometheus running output Ubuntu

```
hideki@server1:~$ systemctl status prometheus
● prometheus.service - Monitoring system and time series database
   Loaded: loaded (/lib/systemd/system/prometheus.service; enabled; vendor prese
   Active: active (running) since Wed 2024-11-06 07:28:50 +08; 1h 29min ago
     Docs: https://prometheus.io/docs/introduction/overview/
    Main PID: 826 (prometheus)
      Tasks: 9 (limit: 4915)
     CGroup: /system.slice/prometheus.service
            └─826 /usr/bin/prometheus
```

Apache output in Ubuntu:

```
hideki@server1:~$ apachectl -v
Server version: Apache/2.4.29 (Ubuntu)
Server built:   2023-03-08T17:34:33
```

php output in Ubuntu:

```
hideki@server1:~$ php -v
PHP 7.2.24-0ubuntu0.18.04.17 (cli) (built: Feb 23 2023 13:29:25) ( NTS )
Copyright (c) 1997-2018 The PHP Group
Zend Engine v3.2.0, Copyright (c) 1998-2018 Zend Technologies
    with Zend OPcache v7.2.24-0ubuntu0.18.04.17, Copyright (c) 1999-2018, by Zen
d Technologies
hideki@server1:~$
```

Mariadb output in Ubuntu:

```
hideki@server1:~$ sudo mariadb -v
[sudo] password for hideki:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 32
Server version: 10.1.48-MariaDB-0ubuntu0.18.04.1 Ubuntu 18.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Reading history-file /home/hideki/.mysql_history
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
```

php, httpd, and mariadb output in CentOS:

```
[hideki@localhost ~]$ php -v
PHP 8.0.30 (cli) (built: Aug  3 2023 17:13:08) ( NTS gcc x86_64 )
Copyright (c) The PHP Group
Zend Engine v4.0.30, Copyright (c) Zend Technologies
    with Zend OPcache v8.0.30, Copyright (c), by Zend Technologies
[hideki@localhost ~]$ apachectl -v
Server version: Apache/2.4.62 (CentOS Stream)
Server built:   Aug  3 2024 00:00:00
[hideki@localhost ~]$ sudo mariadb -v
[sudo] password for hideki:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 3
Server version: 10.5.22-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Reading history-file /root/.mysql_history
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
```

grafana output in Ubuntu:

```
hideki@server1:~$ systemctl status grafana-server
● grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2024-11-06 09:55:26 +08; 2min 30s ago
     Docs: http://docs.grafana.org
    Main PID: 25610 (grafana)
      Tasks: 16 (limit: 4915)
    CGroup: /system.slice/grafana-server.service
            └─25610 /usr/share/grafana/bin/grafana server --config=/etc/grafana/g
```

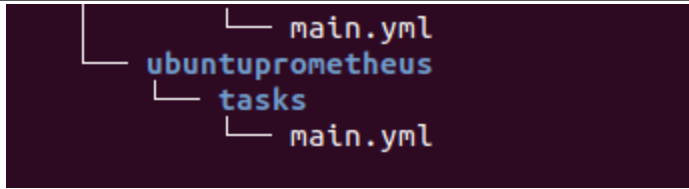
```
hideki@server1:~$ grafana-server -v  
Version 11.3.0 (commit: d9455ff7db73b694db7d412e49a68bec767f2b5a, branch: HEAD)
```

Github tree:

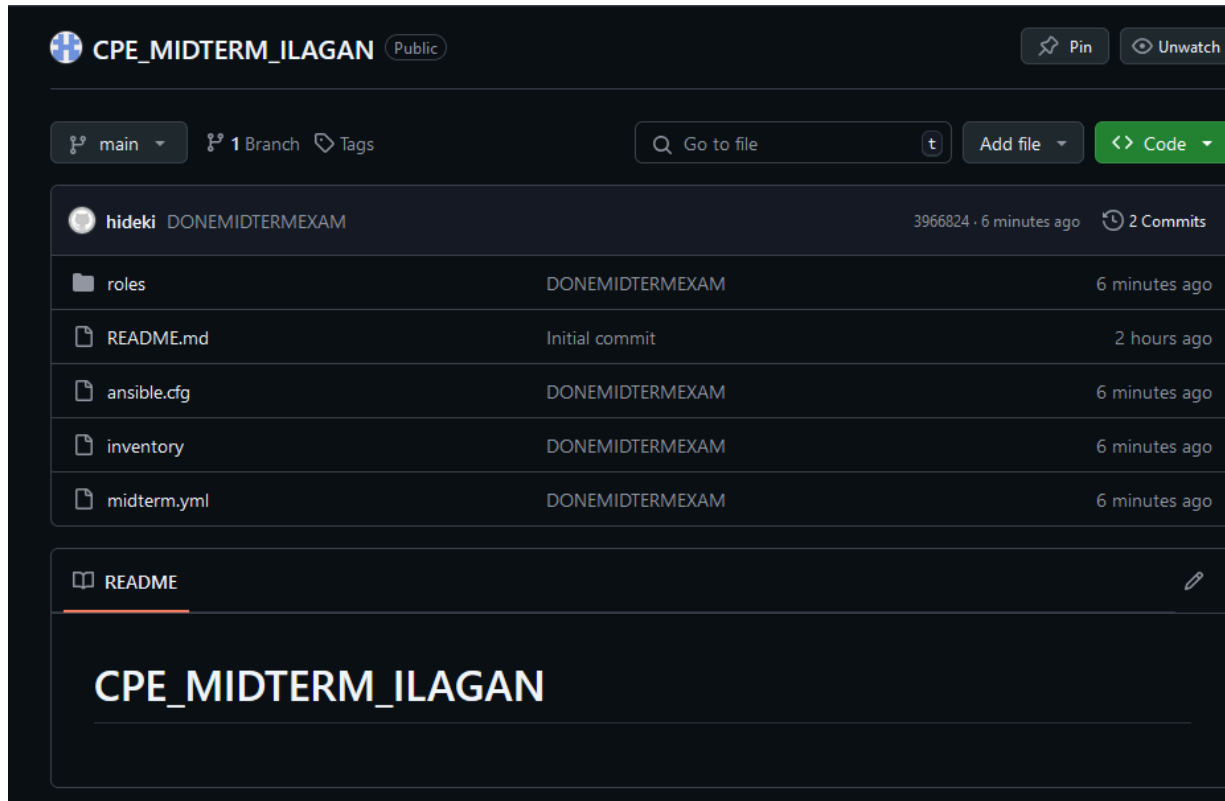
ERROR: The requested handler 'reload systemd' was not

hideki@workstation:~/CPE_MIDTERM_ILAGAN\$ tree

```
.
├── ansible.cfg
├── inventory
├── midterm.yml
├── roles
│   ├── apache
│   │   └── tasks
│   │       └── main.yml
│   ├── base
│   │   └── tasks
│   │       └── main.yml
│   ├── centosprometheus
│   │   └── tasks
│   │       └── main.yml
│   ├── elasticsearch
│   │   └── tasks
│   │       └── main.yml
│   ├── grafana
│   │   ├── tasks
│   │   │   ├── main.yml
│   │   └── templates
│   │       └── grafana.ini.j2
│   ├── influxdb
│   │   ├── defaults
│   │   │   └── main.yml
│   │   ├── handlers
│   │   │   └── main.yml
│   │   ├── tasks
│   │   │   └── main.yml
│   │   └── templates
│   │       └── influxdb.repo.j2
│   ├── kibana
│   │   └── tasks
│   │       └── main.yml
│   ├── logstash
│   │   └── tasks
│   │       └── main.yml
│   ├── mariadb
│   │   └── tasks
│   │       └── main.yml
│   ├── nagios
│   │   └── tasks
│   │       └── main.yml
│   ├── php
│   │   └── tasks
│   │       └── main.yml
│   └── ubuntucentosprometheus
```



Github repository end:



GitHub link:

https://github.com/chilagan-github/CPE_MIDTERM_ILAGAN

Conclusions: (link your conclusion from the objective)

Overall, I was able to install almost all of the software that was needed in both Ubuntu and CentOS. Although I have encountered some issues such as laggy servers. The only software that I wasn't able to install was the influxdb and I had no more time to troubleshoot it. These softwares were all installed to the managednodes using ansible playbook.