Name: Solis, Paul Vincent M.	Date Performed: 10/10/25
Course/Section: CPE212 - CPE31S2	Date Submitted:10/10/25
Instructor: Engr. Robin Valenzuela	Semester and SY: 1st Sem yr 25-26

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.

   Paul-Solis/CPE_MIDEXAM_SOLIS

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)

SITE.YML

```
C/C++
---

   hosts: all


     become: true


  pre_tasks:

  - name: update repository index (CentOS)
    tags: always
    dnf:
      update_cache: yes
    changed_when: false
    when: ansible_distribution == "CentOS"

  - name: install updates (Ubuntu)
    tags: always
    apt:
      update_cache: yes
    changed_when: false
    when: ansible_distribution == "Ubuntu"


   hosts: all


     become: true


  roles:
    - elastic_stack


   hosts: all


     become: true


  roles:
    - kibana
```

```
 hosts: all

   become: true

roles:
  - logstash

 hosts: all

   become: true

roles:
  - nagios

 hosts: all

   become: true

roles:
  - grafana

 hosts: all

   become: true

roles:
  - prometheus

 hosts: all

   become: true

roles:
  - influxdb
```

INVENTORY.INI

[all]
192.168.56.111 ansible_user=paul
192.168.56.112 ansible_user=paul
192.168.56.115 ansible_user=paul-solis

ROLES:
ELASTIC STACK

```
C/C++
---
 - name: Install pre reqs
   apt:
     name: apt-transport-https
     state: present
   when: ansible_distribution == "Ubuntu"

 - name: add elastic search gpg key
   apt_key:
     url: https://artifacts.elastic.co/GPG-KEY-elasticsearch
     state: present
   when: ansible_distribution == "Ubuntu"

 - name: add elastic search repo
   apt_repository:
     repo: "deb https://artifacts.elastic.co/packages/8.x/apt stable main"
     state: present
   when: ansible_distribution == "Ubuntu"

 - name: Install Elastic Search
   package:
     name: elasticsearch
     state: present
   when: ansible_distribution == "Ubuntu"

 - name: Start and enable elastic search
   systemd:
     name: elasticsearch
     enabled: yes
     state: started
   when: ansible_distribution == "Ubuntu"

 - name: Add Elasticsearch Yum Repository
   yum_repository:
     name: elasticsearch
     description: Elasticsearch repository for 8.x packages
     baseurl: https://artifacts.elastic.co/packages/8.x/yum
     gpgcheck: yes
     gpgkey: https://artifacts.elastic.co/GPG-KEY-elasticsearch
     enabled: yes
   when: ansible_distribution == "CentOS"
```

```
 - name: Install elasticsearch on centos
   dnf:
     name: elasticsearch
     state: latest
   when: ansible_distribution == "CentOS"

 - name: Start and enable elastic search
   systemd:
     name: elasticsearch
     enabled: yes
     state: started
   when: ansible_distribution == "CentOS"
```

KIBANA CODE ROLES

```
C/C++
---

   name: Install kibana on ubuntu


     apt:


    name: kibana
    state: present
  when: ansible_distribution == "Ubuntu"


   name: Start and enable kibana on ubuntu


     service:


    name: kibana
    enabled: yes
    state: started
  when: ansible_distribution == "Ubuntu"


   name: Install kibana on centos


     dnf:


    name: kibana
```

```
    state: present
  when: ansible_distribution == "CentOS"


   name: Start and enable kibana on centos


     systemd:


    name: kibana
    enabled: yes
    state: started
  when: ansible_distribution == "CentOS"
```

LOGSTASH CODE ROLES

```
C/C++
---
 - name: Install logstash Ubuntu
   apt:
     name: logstash
     state: latest
   when: ansible_distribution == "Ubuntu"

 - name: Start ann Enable Logstash on Ubuntu
   systemd:
     name: logstash
     enabled: yes
     state: started
   when: ansible_distribution == "Ubuntu"

 - name: Install Logstash on Ubuntu
   dnf:
     name: logstash
     state: latest
   when: ansible_distribution == "CentOS"

 - name: Start and enable Logsatsh on CentOS
   systemd:
     name: logstash
     enabled: yes
     state: started
   when: ansible_distribution == "CentOS"
```

MARIA DB + HTTPD + PHP ROLES CODE

```
C/C++
---
 - name: Install logstash Ubuntu
   apt:
     name: logstash
     state: latest
   when: ansible_distribution == "Ubuntu"

 - name: Start ann Enable Logstash on Ubuntu
   systemd:
     name: logstash
     enabled: yes
     state: started
   when: ansible_distribution == "Ubuntu"

 - name: Install Logstash on Ubuntu
   dnf:
     name: logstash
     state: latest
   when: ansible_distribution == "CentOS"

 - name: Start and enable Logsatsh on CentOS
   systemd:
     name: logstash
     enabled: yes
     state: started
   when: ansible_distribution == "CentOS"
```

MARIADB CODE

```
C/C++
---
 - name: Install apache and php for Ubuntu Servers
   apt:
     name:
       - apache2
       - libapache2-mod-php
     state: latest
   when: ansible_distribution == "Ubuntu"

 - name: Install apache and php for CentOS servers
   dnf:
     name:
       - httpd
       - php
     state: latest
   when: ansible_distribution == "CentOS"

 - name: Install MariaDB package for CentOS
   yum:
```

```
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

  - name: Start enable mariadb
    service:
      name: mariadb
      state: started
      enabled: true
    when: ansible_distribution == "Ubuntu"

  - name: Install MariaDB package for CentOS
    apt:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "Ubuntu"

  - name: Install MariaDB package for CentOS
    yum:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"
```

APACHE

```
paul@server1:~$ sudo systemctl status mariadb
● 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 17:00:11 PST; 2h 23min ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
   Main PID: 1526 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 10 (limit: 30035)
     Memory: 14.6M (peak: 112.3M swap: 65.1M swap peak: 65.1M)
        CPU: 2.359s
     CGroup: /system.slice/mariadb.service
             └─1526 /usr/sbin/mariadbd
```

ELASTIC SEARCH

```
paul@server2:~$ sudo systemctl status elasticsearch
● elasticsearch.service - Elasticsearch
     Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service; enabled; pr>
     Active: active (running) since Fri 2025-10-10 17:29:36 PST; 31min ago
       Docs: https://www.elastic.co
   Main PID: 18348 (java)
      Tasks: 113 (limit: 4550)
     Memory: 1.1G (peak: 2.4G swap: 1.3G swap peak: 1.3G)
        CPU: 1min 8.640s
     CGroup: /system.slice/elasticsearch.service
             ├─18348 /usr/share/elasticsearch/jdk/bin/java -Xms4m -Xmx64m -XX:+>
             ├─18410 /usr/share/elasticsearch/jdk/bin/java -Des.networkaddress.>
             └─18434 /usr/share/elasticsearch/modules/x-pack-ml/platform/linux->
```

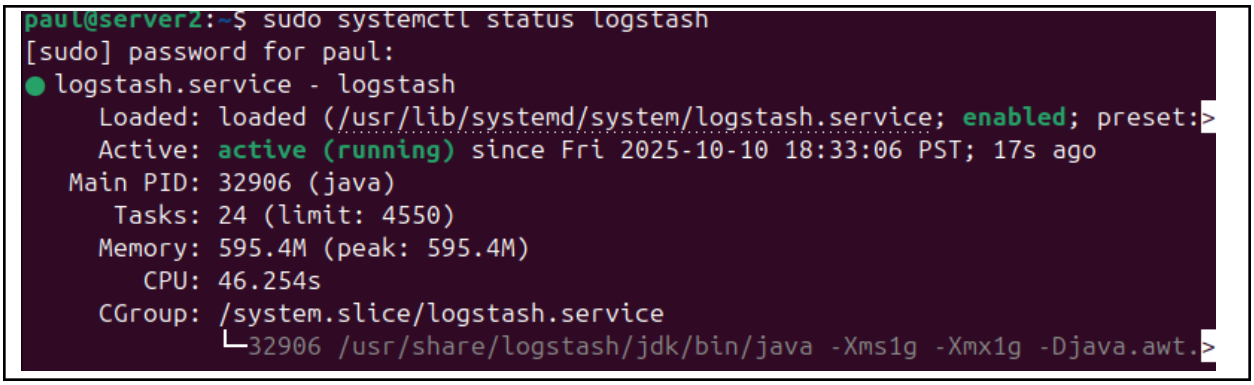
KIBANA

```
paul@server2:~$ sudo systemctl status kibana
● kibana.service - Kibana
     Loaded: loaded (/usr/lib/systemd/system/kibana.service; enabled; preset: e>
     Active: active (running) since Fri 2025-10-10 18:02:43 PST; 1min 52s ago
       Docs: https://www.elastic.co
   Main PID: 25826 (node)
      Tasks: 11 (limit: 4550)
     Memory: 275.4M (peak: 381.8M)
        CPU: 16.710s
     CGroup: /system.slice/kibana.service
             └─25826 /usr/share/kibana/bin/../node/glibc-217/bin/node /usr/shar>

Oct 10 18:02:46 server2 kibana[25826]: Native global console methods have been >
Oct 10 18:02:49 server2 kibana[25826]: [2025-10-10T18:02:49.811+08:00][INFO ][r>
Oct 10 18:02:49 server2 kibana[25826]: [2025-10-10T18:02:49.847+08:00][INFO ][n>
Oct 10 18:03:01 server2 kibana[25826]: [2025-10-10T18:03:01.790+08:00][INFO ][p>
Oct 10 18:03:01 server2 kibana[25826]: [2025-10-10T18:03:01.850+08:00][INFO ][h>
```

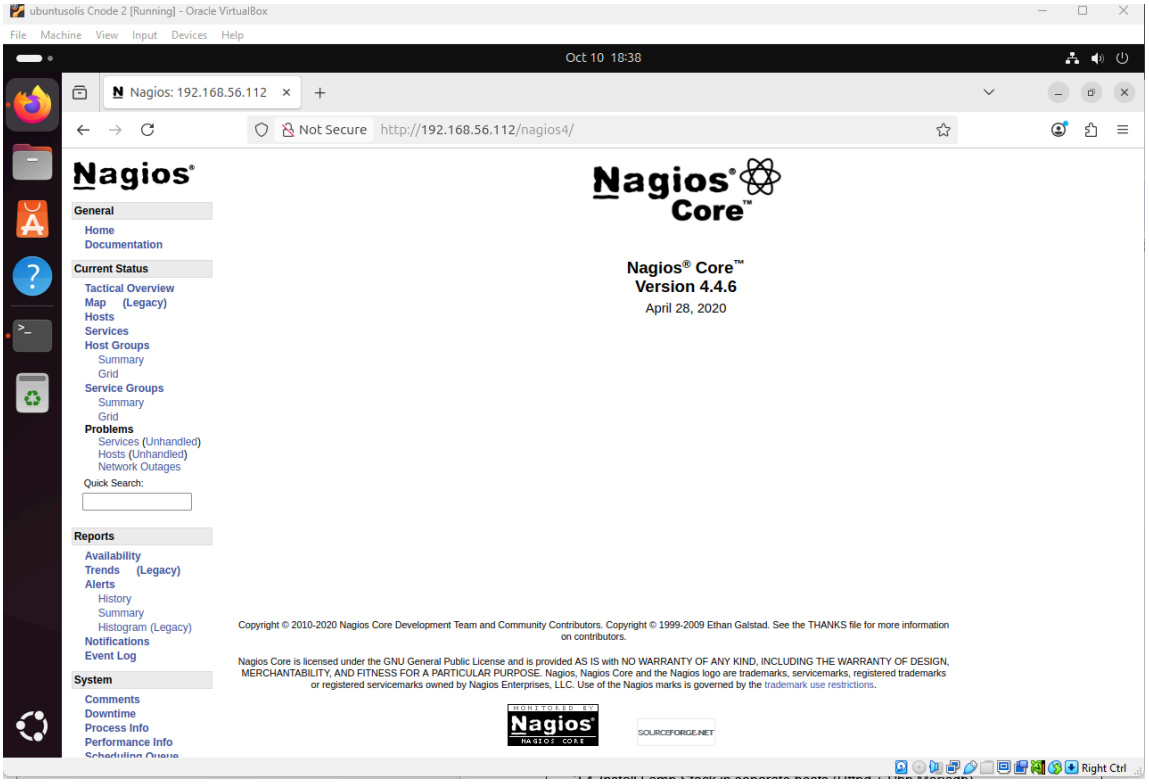
```
[paul-solis@vbox ~]$ sudo systemctl status kibana
● kibana.service - Kibana
     Loaded: loaded (/usr/lib/systemd/system/kibana.service; enabled; preset: d>
     Active: active (running) since Fri 2025-10-10 18:15:29 PST; 8min ago
       Docs: https://www.elastic.co
   Main PID: 46004 (node)
      Tasks: 11 (limit: 23004)
     Memory: 318.6M
        CPU: 13.823s
     CGroup: /system.slice/kibana.service
             └─46004 /usr/share/kibana/bin/../node/glibc-217/bin/node /usr/shar>
```

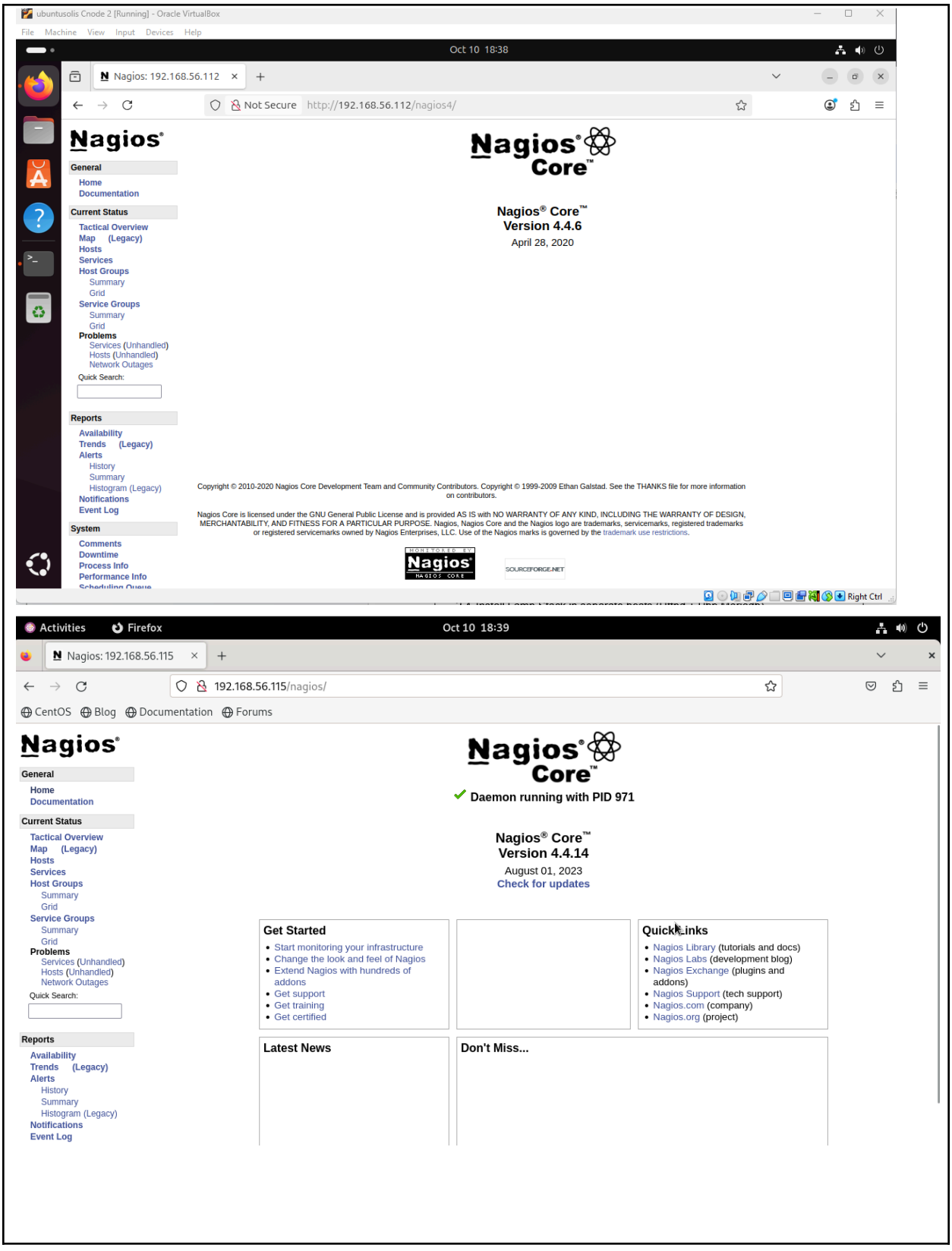
LOGSTASH


paul@server2:~$ sudo systemctl status logstash
[sudo] password for paul:
● logstash.service - logstash
Loaded: loaded (/usr/lib/systemd/system/logstash.service; enabled; preset:>
Active: active (running) since Fri 2025-10-10 18:33:06 PST; 17s ago
Main PID: 32906 (java)
Tasks: 24 (limit: 4550)
Memory: 595.4M (peak: 595.4M)
CPU: 46.254s
CGroup: /system.slice/logstash.service
└─32906 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -Djava.awt.>

```
[paul-solis@vbox ~]$ sudo systemctl status logstash
● logstash.service - logstash
     Loaded: loaded (/usr/lib/systemd/system/logstash.service; enabled; preset:>
     Active: active (running) since Fri 2025-10-10 18:35:56 PST; 23s ago
   Main PID: 58926 (java)
      Tasks: 23 (limit: 23004)
     Memory: 555.1M
        CPU: 45.839s
     CGroup: /system.slice/logstash.service
             └─58926 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -Djava.awt.>

Oct 10 18:35:56 vbox systemd[1]: Started logstash.
Oct 10 18:35:56 vbox logstash[58926]: Using bundled JDK: /usr/share/logstash/jdk
lines 1-12/12 (END)
```




ubuntusolis Cnode 2 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Oct 10 18:38
Nagios: 192.168.56.112
Not Secure http://192.168.56.112/nagios4/
Nagios
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)
Alerts
History
Summary
Histogram (Legacy)
Notifications
Event Log
System
Comments
Downtime
Process Info
Performance Info
Nagios Core™
Nagios® Core™
Version 4.4.6
April 28, 2020
Copyright © 2010-2020 Nagios Core Development Team and Community Contributors. Copyright © 1999-2009 Ethan Galstad. See the THANKS file for more information on contributors.
Nagios Core is licensed under the GNU General Public License and is provided AS IS with NO WARRANTY OF ANY KIND, INCLUDING THE WARRANTY OF DESIGN, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. Nagios, Nagios Core and the Nagios logo are trademarks, servicemarks, registered trademarks or registered servicemarks owned by Nagios Enterprises, LLC. Use of the Nagios marks is governed by the trademark use restrictions.
SOURCEFORGE.NET
Right Ctrl
Activities
Firefox
Oct 10 18:39
Nagios: 192.168.56.115
192.168.56.115/nagios/
CentOS
Blog
Documentation
Forums
Nagios
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)
Alerts
History
Summary
Histogram (Legacy)
Notifications
Event Log
Nagios Core™
Daemon running with PID 971
Nagios® Core™
Version 4.4.14
August 01, 2023
Check for updates
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...

IN THIS UBUNTU I RAN ALL THOSE CODE ABOCE TO PLAY THIS AND TO SHOW THAT MY CODE WORKS AFTER I RAN MY PLAYBOOK AND IT WORKS

Paul-Solis MIDTERM EXAM — f0f1c30 · 6 minutes ago — 2 Commits

roles	MIDTERM EXAM	6 minutes ago
LICENSE	Initial commit	2 hours ago
README.md	Initial commit	2 hours ago
ansible.cfg	MIDTERM EXAM	6 minutes ago
inventorymid.ini	MIDTERM EXAM	6 minutes ago
main.yml	MIDTERM EXAM	6 minutes ago
site.yml	MIDTERM EXAM	6 minutes ago

https://github.com/Paul-Solis/CPE_MIDEXAM_SOLIS

Conclusions: (link your conclusion from the objective)

in this midterm exam i just learned on how to use the roles and it is convenient and im hoping to gain more knowledge in this because im interested and i look forward on this role more.