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<b>Course/Section: CPE 232-CPE31S5</b>	<b>Date Submitted: November 15, 2023</b>
<b>Instructor: Engr. Roman Richard</b>	<b>Semester and SY: 1<sup>st</sup> Sem 23-24</b>

### **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.

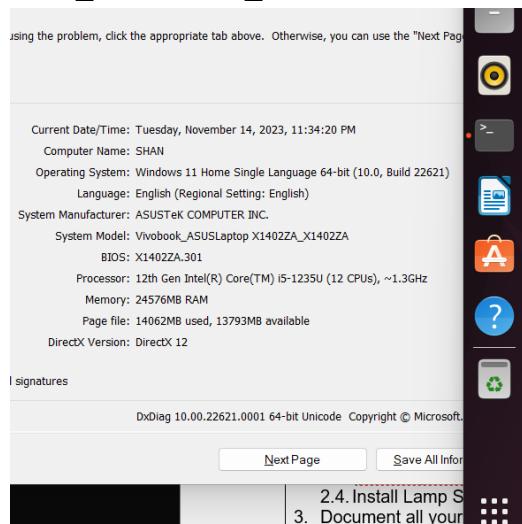
#### **2. Instructions**

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 separate 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)**

##### **1. Create a repository in your GitHub account and label it**

**CPE\_MIDEXAM\_SURNAME**



Using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button at the bottom of the page.

Current Date/Time: Tuesday, November 14, 2023, 11:34:20 PM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

Language: English (Regional Setting: English)

System Manufacturer: ASUSTek COMPUTER INC.

System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz

Memory: 24576MB RAM

Page file: 14062MB used, 13793MB available

DIRECTX Version: DirectX 12

I signatures

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#### Create a new repository

A repository contains all project files, including the revision history. Already have a project? Import a repository.

Required fields are marked with an asterisk (\*).

Owner \* / Repository name \*

srhmshan /  CPE\_MIDEXAM\_SUMAOANG  
 CPE\_MIDEXAM\_SUMAOANG is available.

Great repository names are short and memorable. Need inspiration? How about [bookis](#)

Description (optional)

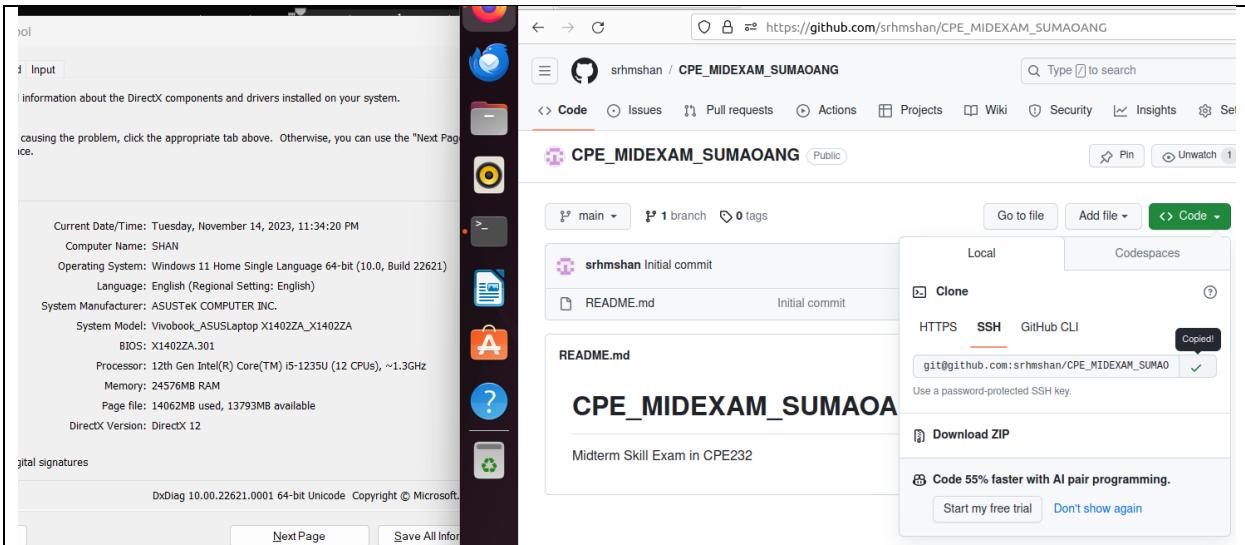
Midterm Skill Exam in CPE232

Public Anyone on the internet can see this repository. You choose who can commit.  
 Private You choose who can see and commit to this repository.

Initialize this repository with:

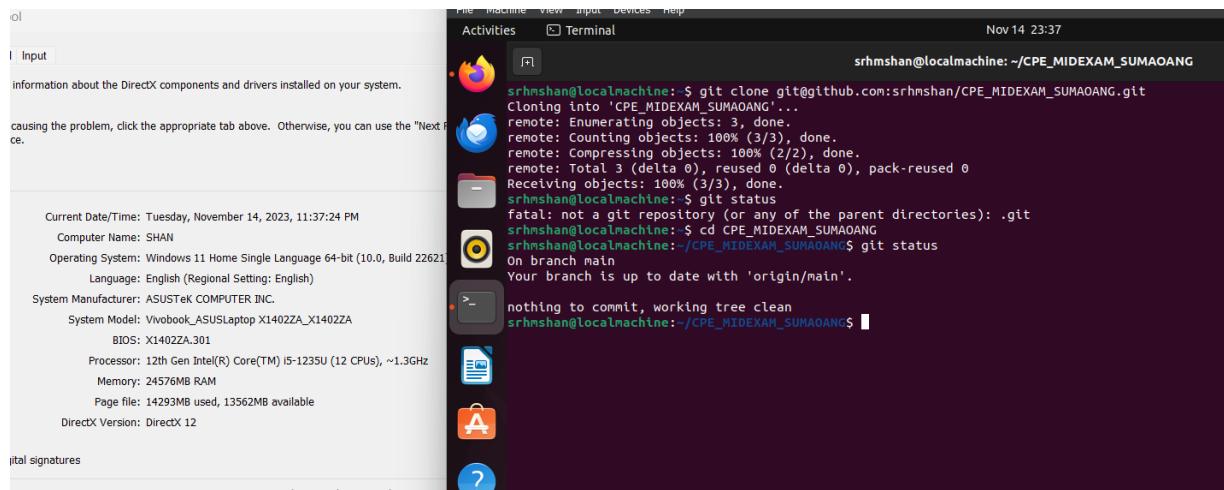
Add a README file  
This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore



After I logged in on GitHub, in my Control Node (Ubuntu Desktop), I created a new repository named “CPE\_MIDEXAM\_SUMAOANG” in GitHub, ticked the checkbox to add a “README.md” and created the new repository.

## 2. Clone the repository.



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

```

srhmshan@localhost: ~/CPE_MIDEXAM_SUMAOANG
Nov 15 00:17
GNU nano 6.2
[nagios_centos]
192.168.5.225

[es_centos]
192.168.5.225

[es_ubuntu]
192.168.5.80 ansible_python_interpreter=/usr/bin/python3

[lsp_centos]
192.168.5.225

[lsp_ubuntu]
192.168.5.80 ansible_python_interpreter=/usr/bin/python3

[ls_centos]
192.168.5.225

[ls_ubuntu]
192.168.5.80 ansible_python_interpreter=/usr/bin/python3

?
```

```

srhmshan@localhost: ~/CPE_MIDEXAM_SUMAOANG
Nov 15 00:18
GNU nano 6.2
[defaults]
inventory = inventory
private_key_file = ~/.ssh/id_rsa
deprecation_warnings = False
```

The “ansible.cfg” serves as the main configuration file of our playbook. The “inventory”, on the other hand, is where the hosts’ IP addresses are (by role). It is important to make sure that these manage nodes are connected through SSH. Otherwise, there will be no connection established between the nodes. I also changed my network settings as follows: NAT for Control Node and Bridged Adapter for the Manage Nodes. I then ran the command “ifconfig” in the manage nodes to show their IP addresses that I placed inside the inventory file.

Font Paragraph

Input

Information about the DirectX components and drivers installed on your system.

Causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 12:39:05 AM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

Language: English (Regional Setting: English)

System Manufacturer: ASUSTeK COMPUTER INC.

System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz

Memory: 24576MB RAM

Page file: 22707MB used, 5148MB available

DirectX Version: DirectX 12

All signatures

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```

srhmshan@localhost: ~/CPE_MIDEXA
config.yml

GNU nano 6.2
---
- 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"

# ES CentOS
- hosts: es_centos
  tags: es_centos, es_both

```

Font Paragraph

Input

Information about the DirectX components and drivers installed on your system.

Causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 12:39:05 AM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

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System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz

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```

srhmshan@localhost: ~/CPE_MIDEXA
config.yml

GNU nano 6.2
# ES CentOS
- hosts: es_centos
  tags: es_centos, es_both
  become: true
  roles:
    - es_centos
# ES Ubuntu
- hosts: es_ubuntu
  tags: es_ubuntu, es_both
  become: true
  roles:
    - es_ubuntu
# Nagios CentOS
- hosts: nagios_centos
  tags: nagios_centos
  become: true
  roles:
    - nagios_centos
# IGP (Influxdb, Grafana, Prometheus) CentOS
- hosts: igp_centos
  tags: igp_centos, igp_both
  become: true
  roles:
    - igp_centos
# IGP (Influxdb, Grafana, Prometheus) Ubuntu
- hosts: igp_ubuntu
  tags: igp_ubuntu, igp_both
  become: true
  roles:
    - igp_ubuntu

```

The screenshot shows the DxDiag tool interface on the left and a terminal window on the right. The terminal window displays an Ansible playbook configuration file named config.yml.

```

GNU nano 6.2
- nagios_centos

# IGP (Influxdb, Grafana, Prometheus) Centos
- hosts: igp_centos
tags: igp_centos, igp_both
become: true
roles:
- igp_centos

# IGP (Influxdb, Grafana, Prometheus) Ubuntu
- hosts: igp_ubuntu
tags: igp_ubuntu, igp_both
become: true
roles:
- igp_ubuntu

# Lamp Stack (HTTPD + Php, Mariadb) Centos
- hosts: ls_centos
tags: ls_centos, ls_both
become: true
roles:
- ls_centos

# Lamp Stack (HTTPD + Php, Mariadb) Ubuntu
- hosts: ls_ubuntu
tags: ls_ubuntu, ls_both
become: true
roles:
- ls_ubuntu

```

In my Ansible playbook (config.yml), I start by handling package installation based on the server's distribution. For Ubuntu, I use the "apt" module, specifying that my Ansible manage node is Ubuntu-based. On the other hand, for CentOS, I use the "dnf" module with added error handling. The playbook is organized into roles for different services, ensuring the installation of the latest package versions and updating the package cache beforehand. Tags allow me to selectively execute specific sections based on the services I want to install.

The screenshot shows the DxDiag tool interface on the left and a terminal window on the right. The terminal window displays the directory structure of an Ansible project named CPE\_MIDEXAM\_SUMAOANG.

```

srhmshan@localmachine:~/CPE_MIDEXAM_SUMAOANG$ tree
.
├── ansible.cfg
├── config.yml
└── files
    └── prometheus.service
├── inventory
└── README.md

roles
├── es_centos
│   └── tasks
│       └── main.yml
├── es_ubuntu
│   └── tasks
│       └── main.yml
├── igp_centos
│   └── tasks
│       └── main.yml
├── igp_ubuntu
│   └── tasks
│       └── main.yml
├── ls_centos
│   └── tasks
│       └── main.yml
├── ls_ubuntu
│   └── tasks
│       └── main.yml
└── nagios_centos
    └── tasks
        └── main.yml

16 directories, 12 files

```

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

```

srhmshan@localhost: ~/CPE_MIDEXAM_SUMAOANG/roles/es_centos/tasks
GNU nano 6.2
main.yml *

- name: Install necessary prerequisites
  yum:
    name:
      - java-1.8.0-openjdk
      - epel-release
      - wget
      - which
    state: present
  become: yes

- name: Download the GPG Key
  get_url:
    url: https://artifacts.elastic.co/GPG-KEY-elasticsearch
    dest: ~/Downloads

- name: Copy Elasticsearch GPG key to target server
  copy:
    src: ~/Downloads/GPG-KEY-elasticsearch
    dest: /etc/pki/rpm-gpg/GPG-KEY-elasticsearch
    become: yes

- name: Add the Elasticsearch YUM repository
  copy:
    content: |
      [elasticsearch-7.x]
      name=Elasticsearch repository for 7.x packages
      baseurl=https://artifacts.elastic.co/packages/7.x/yum
      gpgcheck=1
      gpgkey=/etc/pki/rpm-gpg/GPG-KEY-elasticsearch
      enabled=1
      autorefresh=1
      type=rpm-md
    dest: /etc/yum.repos.d/elasticsearch.repo
    become: yes

```

```

Input

formation about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 1:09:20 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22623)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA_301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 22712MB used, 5142MB available
DirectX Version: DirectX 12

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```

```

GNU nano 0.2
- name: Install Elasticsearch
  yum:
    name: elasticsearch
    state: present
  become: yes

- name: Enable and start Elasticsearch service
  systemd:
    name: elasticsearch
    enabled: yes
    state: started
  become: yes

- name: Install Kibana
  yum:
    name: kibana
    state: present
  become: yes

- name: Enable and start Kibana service
  systemd:
    name: kibana
    enabled: yes
    state: started
  become: yes

- name: Install Logstash
  yum:
    name: logstash
    state: present
  become: yes

- name: Enable and start Logstash service
  systemd:
    name: logstash
    enabled: yes

```

```

Current Date/Time: Wednesday, November 15, 2023, 1:09:20 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 2262)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 22712MB used, 5142MB available
DirectX Version: DirectX 12

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```

```

name: kibana
enabled: yes
state: started
become: yes

- name: Install Logstash
yum:
  name: logstash
  state: present
become: yes

- name: Enable and start Logstash service
systemd:
  name: logstash
  enabled: yes
  state: started
become: yes

- name: Restart Elasticsearch and Kibana services
systemd:
  name: "{{ item }}"
  state: restarted
loop:
  - elasticsearch
  - kibana

```

In my Ansible playbook (es\_centos), I set up Elasticsearch on CentOS. I install prerequisites, download the GPG key, add the Elasticsearch repository, and install Elasticsearch, Kibana, and Logstash. The playbook then enables and starts the corresponding services and restarts Elasticsearch and Kibana.

```

put

Information about the DirectX components and drivers installed on your system.

In the problem, click the appropriate tab above. Otherwise, you can use the "Next" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 1:09:20 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 2262)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 22712MB used, 5142MB available
DirectX Version: DirectX 12

signatures

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```

```

GNU nano 6.2
srhmshan@localmachine: ~/CPE_MIDEXAM_SUMAOANG/roles/es_ubuntu/tasks/main.yml *
- name: Install necessary prerequisites
apt:
  name:
    - default-jre
    - apt-transport-https
    - curl
    - software-properties-common
  state: present
become: yes

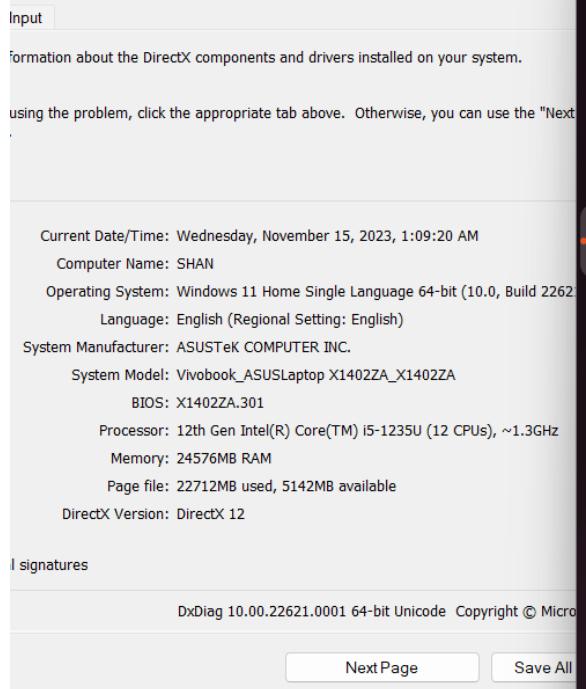
- name: Add Elasticsearch APT repository GPG key
apt_key:
  url: https://artifacts.elastic.co/GPG-KEY-elasticsearch
become: yes

- name: Add the Elasticsearch APT repository
apt_repository:
  repo: "deb https://artifacts.elastic.co/packages/7.x/apt stable main"
  state: present
become: yes

- name: Install Elasticsearch
apt:
  name: elasticsearch
  state: present
become: yes

- name: Enable and start Elasticsearch service
systemd:
  name: elasticsearch
  enabled: yes
  state: started
become: yes

```



```

- name: Install Kibana
  apt:
    name: kibana
    state: present
    become: yes

- name: Enable and start Kibana service
  systemd:
    name: kibana
    enabled: yes
    state: started
    become: yes

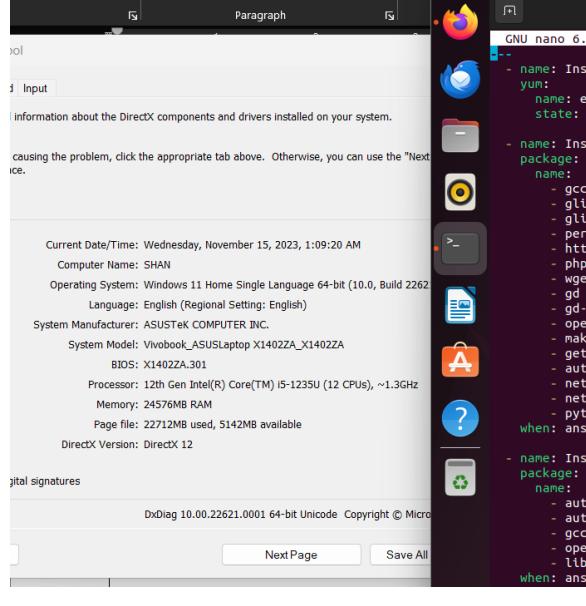
- name: Install Logstash
  apt:
    name: logstash
    state: present
    become: yes

- name: Enable and start Logstash service
  systemd:
    name: logstash
    enabled: yes
    state: started
    become: yes

- name: Restart Elasticsearch and Kibana services
  systemd:
    name: "{{ item }}"
    state: restarted
    loop:
      - elasticsearch
      - kibana

```

In my Ansible playbook (es\_ubuntu), I created a setup for Elasticsearch on Ubuntu. Prerequisites like Java, apt-transport-https, curl, and software-properties-common are installed. I add the Elasticsearch GPG key and repository, install Elasticsearch, Kibana, and Logstash using the "apt" module. Services are then enabled, started, and Elasticsearch and Kibana are restarted as needed.



```

srhmshan@localhost: ~/CPE_MIDEXAM_SUMAOANG/roles/nagios_centos/tasks/main.yml
GNU nano 6.2
- name: Install EPEL repository
  yum:
    name: epel-release
    state: present

- name: Install Nagios Libraries
  package:
    name:
      - gcc
      - glibc
      - glibc-common
      - perl
      - httpd
      - php
      - wget
      - gd
      - gd-devel
      - openssl-devel
      - make
      - gettext
      - automake
      - net-snmp
      - net-snmp-utils
      - python-pip
  when: ansible_distribution_major_version == '7'

- name: Install Development Tools and Libraries
  package:
    name:
      - automake
      - autoconf
      - gcc-c++
      - openssl-devel
      - libtool
  when: ansible_distribution_major_version == '7'

```

Information about the DirectX components and drivers installed on your system.

Using the problem, click the appropriate tab above. Otherwise, you can use the "Next" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 1:09:20 AM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 2262)

Language: English (Regional Setting: English)

System Manufacturer: ASUSTeK COMPUTER INC.

System Model: Vivobook\_ASUSLaptop\_X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz

Memory: 24576MB RAM

Page file: 22712MB used, 5142MB available

DirectX Version: DirectX 12

All signatures

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```

GNU nano 6.2
main.yml

- name: Add nagios user
  user:
    name: nagios
    state: present

- name: Add nagcmd group
  group:
    name: nagcmd
    state: present

- name: Add nagios to nagcmd group
  user:
    name: nagios
    groups: nagcmd
    append: yes

- name: Add apache to nagcmd group
  user:
    name: apache
    groups: nagcmd
    append: yes

- name: Create Nagios directory PATH
  file:
    path: ~/nagios
    state: directory

- name: Download 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

```

Information about the DirectX components and drivers installed on your system.

Using the problem, click the appropriate tab above. Otherwise, you can use the "Next" button to continue.

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All signatures

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```

GNU nano 6.2
main.yml

- name: Download 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: Compile and Install Nagios and Web Configuration
  shell: |
    cd ~/nagios/nagioscore-**
    ./configure
    make all
    make install
    make install-init
    make install-commandmode
    make install-config
    make install-webconf

- name: Compile and Install Nagios plugins
  shell: |
    cd ~/nagios/nagios-plugins*
    ./tools/setup
    ./configure
    make
    make install

- name: Adding Users to Nagios
  community.general.httpswd:
    path: /usr/local/nagios/etc/htpasswd.users
    name: admin
    password: admin

```

Information about the DirectX components and drivers installed on your system.

Using the problem, click the appropriate tab above. Otherwise, you can use the "Next" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 1:09:20 AM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 2262)

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Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz

Memory: 24576MB RAM

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```

- name: Start Apache
  service:
    name: httpd
    state: started
    enabled: yes

- name: Change directory to Nagios installation directory
  command: cd ~/nagios

- name: Verify Nagios Configuration
  command: > /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg
  changed_when: false

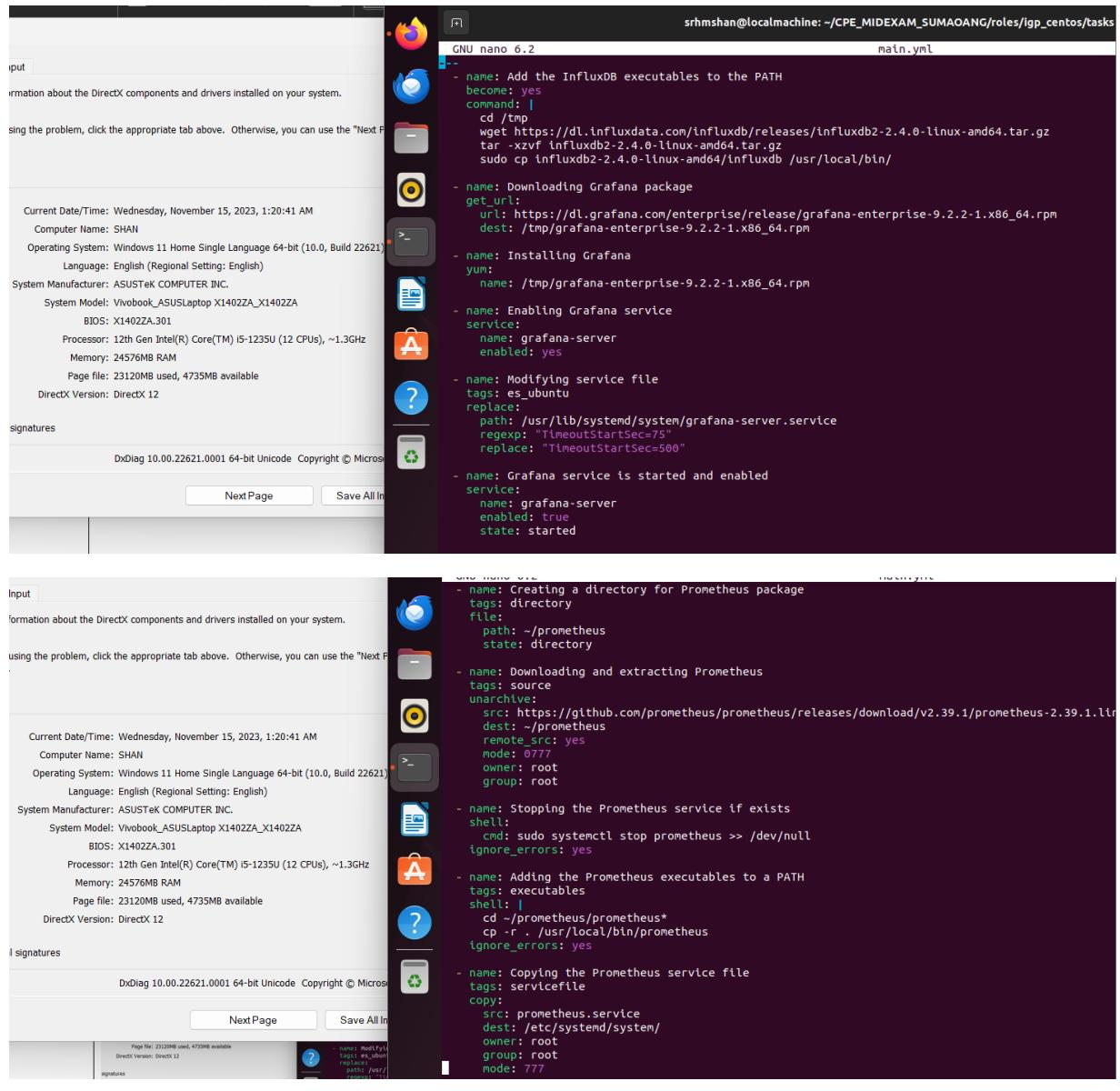
- name: Start and enable Nagios
  service:
    name: nagios
    state: restarted
    enabled: true

- name: Start and enable HTTPD
  service:
    name: httpd
    state: restarted
    enabled: true

```

I chose CentOS to be the host for the installation of Nagios. This Ansible playbook configures Nagios on CentOS by installing EPEL repository, Nagios libraries, and development tools. It sets up Nagios user and groups, creates directories, and downloads Nagios and its plugins. The playbook compiles and installs Nagios and its web config. Users are added using "community.general.htpasswd," Apache is started, and Nagios configuration is verified. Finally, Nagios and HTTPD services are restarted and enabled.

### 2.3. Install Grafana, Prometheus and Influxdb in seperate hosts (Influxdb,Grafana,Prometheus)



```

srhmshan@localhost: ~/CPE_MIDEXAM_SUMAOANG/roles/lgp_centos/tasks
GNU nano 6.2
main.yml
- name: Add the InfluxDB executables to the PATH
  become: yes
  command: |
    cd /tmp
    wget https://dl.influxdata.com/influxdb/releases/influxdb2-2.4.0-linux-amd64.tar.gz
    tar -xzf influxdb2-2.4.0-linux-amd64.tar.gz
    sudo cp influxdb2-2.4.0-linux-amd64/influxdb /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: 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:
    cmd: 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

```

```

Current Date/Time: Wednesday, November 15, 2023, 1:20:41 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 23120MB used, 4735MB available
DirectX Version: DirectX 12

[...]

```

```

shell:
  cmd: 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

```

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In the "igp\_centos" Ansible playbook, I simplify the setup of InfluxDB, Grafana, and Prometheus on CentOS. The playbook copies InfluxDB files, integrates them into the system's PATH, and effortlessly installs Grafana. It ensures Grafana's service is enabled, started, and optimized for performance. Additionally, for Prometheus, the playbook creates a directory, downloads, and manages the service for CentOS.

```

srhmshan@localhost: ~/CPE_MIDEXAM_SUMAOANG/roles/igp_ubuntu/tasks
main.yml

GNU nano 6.2
- name: Install Dependencies
  apt:
    name:
      - apt-transport-https
      - software-properties-common
      - wget
    state: latest

- name: Add Grafana APT Repository Key
  apt_key:
    url: https://packages.grafana.com/gpg.key
    state: present

- name: Add Grafana APT Repository
  apt_repository:
    repo: deb https://packages.grafana.com/oss/deb stable main
    state: present

- name: Install Grafana
  apt:
    name: grafana
    state: present

- name: Start and Enable Grafana Service
  systemd:
    name: grafana-server
    enabled: yes
    state: started

[...]

```

```

Input
Information about the DirectX components and drivers installed on your system.

Using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 1:20:41 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 23120MB used, 4735MB available
DirectX Version: DirectX 12

[...]

```

```

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

- name: Installing Influxdb
  apt:
    name:
      - influxdb
    state: present

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

- name: Install Prerequisites on Ubuntu
  apt:
    name: "{{ item }}"
    state: present
  loop:
    - apt-transport-https
    - software-properties-common
    when: ansible_distribution == "Ubuntu"

- name: Install Prometheus on Ubuntu
  apt:
    name: prometheus
    state: present
    when: ansible_distribution == "Ubuntu"

```

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Next Page Save All

```

Current Date/Time: Wednesday, November 15, 2023, 1:20:41 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
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Memory: 24576MB RAM
Page file: 23120MB used, 4735MB available
DirectX Version: DirectX 12

```

```

apt:
  name: prometheus
  state: present
when: ansible_distribution == "Ubuntu"
- name: Update Prometheus on Ubuntu
apt:
  name: prometheus
  state: latest
when: ansible_distribution == "Ubuntu"
- name: Start/Restart Prometheus
service:
  name: prometheus
  state: restarted
  enabled: true

```

digital signatures

Help Write Out Where Is

In the "igp\_ubuntu" Ansible playbook, I created a code for installation of Grafana, InfluxDB, and Prometheus on Ubuntu. The playbook starts by installing dependencies, adding Grafana's repository key and repository, and installing Grafana. It then ensures Grafana is up and running.

For InfluxDB, the playbook adds the repository, installs InfluxDB, and ensures it's set as a service. It also handles prerequisites and the installation/update of Prometheus on Ubuntu. The playbook finishes by starting or restarting the Prometheus service. In the "files" directory, the "prometheus.service" file sets up Prometheus as a systemd service, specifying its executable path and configuration file location.

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

```

Information about the DirectX components and drivers installed on your system.

Using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button.

Current Date/Time: Wednesday, November 15, 2023, 1:29:27 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 23117MB used, 4738MB available
DirectX Version: DirectX 12

```

```

GNU nano 6.2
srhmshan@localmachine: ~/CPE_MIDEXAM_SUMAOANG/roles/lamp/tasks/main.yml
main.yml
- name: Installing Lamp Stack dependencies
dnf:
  name:
    - httpd
    - mariadb-server
    - mariadb
    - php
    - php-mysql
  state: latest
- name: Opening needed ports for Lamp Stack
shell:
  - |
    sudo firewall-cmd --permanent --zone=public --add-service=http
    sudo firewall-cmd --permanent --zone=public --add-service=https
    sudo firewall-cmd --reload
- name: Starting Apache service
service:
  name: httpd
  state: started
  enabled: true
- name: Starting MariaDB services
service:
  name: mariadb
  state: started
  enabled: true

```

digital signatures

The screenshot shows a Windows Task Manager window on the left displaying system details like processor, memory, and DirectX version. On the right, a terminal window titled 'srhmshan@localhost: ~/CPE\_MIDEXAM\_SUMAOANG/roles/ls\_ubuntu/tasks' runs the command 'GNU nano 6.2'. The file content is a YAML-based Ansible playbook:

```

name: Installing dependencies
  apt:
    name:
      - apache2
      - mysql-server
      - php
      - libapache2-mod-php
      - php-mysql
    state: latest

- name: Starting the services
  service:
    name: apache2
    state: started
    enabled: true

```

In the playbook called "ls\_centos" I configured the installation of a Lamp Stack, on CentOS. Initially it takes care of installing dependencies such as Apache, MariaDB and PHP by utilizing the "module. Subsequently it opens the ports for Lamp Stack. Initiates the Apache and MariaDB services.

Similarly within the "ls\_ubuntu" playbook I have set up Lamp Stack on Ubuntu. This involves installing Apache, MySQL, PHP and their corresponding modules, through the utilization of the "module. Afterward, it. Enables the Apache service.

### 3. Document all your tasks using this document. Provide proofs of all the ansible playbooks codes and successful installations.

The screenshot shows a Windows Task Manager window on the left displaying system details like processor, memory, and DirectX version. On the right, a terminal window titled 'srhmshan@localhost: ~/CPE\_MIDEXAM\_SUMAOANG\$ ansible-playbook --ask-become-pass config.yml' runs the command. The output shows the execution of various tasks:

- PLAY [all] \*\*\*\*
- TASK [Gathering Facts] \*\*\*\*
  - ok: [192.168.5.80]
  - ok: [192.168.5.214]
- TASK [Installing dnf and epel-release] \*\*\*\*
  - skipping: [192.168.5.80]
  - ok: [192.168.5.214]
- TASK [Update and upgrade remote CentOS server] \*\*\*\*
  - skipping: [192.168.5.80]
  - ok: [192.168.5.214]
- TASK [Installing installations dependencies] \*\*\*\*
  - skipping: [192.168.5.214]
  - ok: [192.168.5.80]
- TASK [Dpkg fixing in Ubuntu Servers] \*\*\*\*
  - skipping: [192.168.5.214]
  - changed: [192.168.5.80]
- Help es\_centos] \*\*\*\*
- TASK [es\_centos : Gathering Facts] \*\*\*\*
  - ok: [192.168.5.214]
- TASK [es\_centos : Install necessary prerequisites] \*\*\*\*
  - ok: [192.168.5.214]
- TASK [es\_centos : Download the GPG Key] \*\*\*\*
  - ok: [192.168.5.214]
- TASK [es\_centos : Copy Elasticsearch GPG key to target server] \*\*\*\*
  - ok: [192.168.5.214]

```

srhmshan@localmachine: ~/CPE_MIDEXA
[1] 192.168.5.214
TASK [es_centos : Add the Elasticsearch YUM repository] ****
ok: [192.168.5.214]
[2] 192.168.5.214
TASK [es_centos : Install Elasticsearch] ****
ok: [192.168.5.214]
[3] 192.168.5.214
TASK [es_centos : Enable and start Elasticsearch service] ****
ok: [192.168.5.214]
[4] 192.168.5.214
TASK [es_centos : Install Kibana] ****
ok: [192.168.5.214]
[5] 192.168.5.214
TASK [es_centos : Enable and start Kibana service] ****
ok: [192.168.5.214]
[6] 192.168.5.214
TASK [es_centos : Install Logstash] ****
ok: [192.168.5.214]
[7] 192.168.5.214
TASK [es_centos : Enable and start Logstash service] ****
ok: [192.168.5.214]
[8] 192.168.5.214
TASK [es_centos : Restart Elasticsearch and Kibana services] ****
changed: [192.168.5.214] => (item=elasticsearch)
changed: [192.168.5.214] => (item=kibana)
[9] 192.168.5.214
PLAY [es_ubuntu] ****
[10] 192.168.5.80
TASK [Gathering Facts] ****
ok: [192.168.5.80]
[11] 192.168.5.80
TASK [es_ubuntu : Install necessary prerequisites] ****
ok: [192.168.5.80]
[12] 192.168.5.80
TASK [es_ubuntu : Add Elasticsearch APT repository GPG key] ****
ok: [192.168.5.80]
[13] 192.168.5.80
TASK [es_ubuntu : Add the Elasticsearch APT repository] ****
ok: [192.168.5.80]
[14] 192.168.5.80
TASK [es_ubuntu : Install Elasticsearch] ****
ok: [192.168.5.80]
[15] 192.168.5.80
TASK [es_ubuntu : Enable and start Elasticsearch service] ****
ok: [192.168.5.80]
[16] 192.168.5.80
TASK [es_ubuntu : Install Kibana] ****
ok: [192.168.5.80]
[17] 192.168.5.80
TASK [es_ubuntu : Enable and start Kibana service] ****
changed: [192.168.5.80]
[18] 192.168.5.80
TASK [es_ubuntu : Install Logstash] ****
ok: [192.168.5.80]
[19] 192.168.5.80
TASK [es_ubuntu : Enable and start Logstash service] ****
ok: [192.168.5.80]
[20] 192.168.5.80
TASK [es_ubuntu : Restart Elasticsearch and Kibana services] ****
changed: [192.168.5.80] => (item=elasticsearch)
changed: [192.168.5.80] => (item=kibana)
[21] 192.168.5.214
PLAY [nagios_centos] ****
[22] 192.168.5.214
TASK [Gathering Facts] ****
ok: [192.168.5.214]
[23] 192.168.5.214
TASK [nagios_centos : Install EPEL repository] ****
ok: [192.168.5.214]
[24] 192.168.5.214
TASK [nagios_centos : Install Nagios Libraries] ****
ok: [192.168.5.214]
[25] 192.168.5.214
TASK [nagios_centos : Install Development Tools and Libraries] ***
ok: [192.168.5.214]
[26] 192.168.5.214
TASK [nagios_centos : Add nagios user] ****
ok: [192.168.5.214]

```

Information about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button.

Current Date/Time: Wednesday, November 15, 2023, 1:48:37 AM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

Language: English (Regional Setting: English)

System Manufacturer: ASUSTeK COMPUTER INC.

System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz

Memory: 24576MB RAM

Page file: 23044MB used, 4811MB available

DirectX Version: DirectX 12

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Information about the DirectX components and drivers installed on your system.

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Current Date/Time: Wednesday, November 15, 2023, 1:48:37 AM

Computer Name: SHAN

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```

Input
formation about the DirectX components and drivers installed on your system.

using the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button to continue.

Current Date/Time: Wednesday, November 15, 2023, 1:48:37 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
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Memory: 24576MB RAM
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```

```

TASK [nagios_centos : Add nagcmd group] *****
ok: [192.168.5.214]
TASK [nagios_centos : Add nagios to nagcmd group] *****
ok: [192.168.5.214]
TASK [nagios_centos : Add apache to nagcmd group] *****
ok: [192.168.5.214]
TASK [nagios_centos : Create Nagios directory PATH] *****
ok: [192.168.5.214]
TASK [nagios_centos : Download Nagios] *****
ok: [192.168.5.214]
TASK [nagios_centos : Download Nagios plugins] *****
ok: [192.168.5.214]
TASK [nagios_centos : Compile and Install Nagios and Web Configuration] *****
changed: [192.168.5.214]
TASK [nagios_centos : Compile and Install Nagios plugins] *****
changed: [192.168.5.214]
TASK [nagios_centos : Adding Users to Nagios] *****
ok: [192.168.5.214]
TASK [nagios_centos : Start Apache] *****
ok: [192.168.5.214]
TASK [nagios_centos : Change directory to Nagios installation directory] *****
changed: [192.168.5.214]
TASK [nagios_centos : Verify Nagios Configuration] *****
ok: [192.168.5.214]
TASK [nagios_centos : Start and enable Nagios] *****
changed: [192.168.5.214]

```

```

TASK [nagios_centos : Start and enable Nagios] *****
changed: [192.168.5.214]
TASK [nagios_centos : Start and enable HTTPPD] *****
changed: [192.168.5.214]
PLAY [lfp_centos] *****
TASK [Gathering Facts] *****
ok: [192.168.5.214]
TASK [lfp_centos : Add the InfluxDB executables to the PATH] *****
changed: [192.168.5.214]
TASK [lfp_centos : Downloading Grafana package] *****
ok: [192.168.5.214]
TASK [lfp_centos : Installing Grafana] *****
ok: [192.168.5.214]
TASK [lfp_centos : Enabling Grafana service] *****
ok: [192.168.5.214]
TASK [lfp_centos : Modifying service file] *****
ok: [192.168.5.214]
TASK [lfp_centos : Grafana service is started and enabled] *****
ok: [192.168.5.214]
TASK [lfp_centos : Creating a directory for Prometheus package] *****
ok: [192.168.5.214]
TASK [lfp_centos : Downloading and extracting Prometheus] *****
ok: [192.168.5.214]
TASK [lfp_centos : Stopping the Prometheus service if exists] *****
[WARNING]: Consider using 'become', 'become_method', and 'become_user' rather than running sudo
changed: [192.168.5.214]

```

```

TASK [lfp_centos : Adding the Prometheus executables to a PATH] *****
changed: [192.168.5.214]
TASK [lfp_centos : Copying the Prometheus service file] *****
ok: [192.168.5.214]
TASK [lfp_centos : Making sure that Prometheus service is started and enabled] *****
changed: [192.168.5.214]
PLAY [lfp_ubuntu] *****
TASK [Gathering Facts] *****
ok: [192.168.5.80]
TASK [lfp_ubuntu : Install Dependencies] *****
ok: [192.168.5.80]
TASK [lfp_ubuntu : Add Grafana APT Repository Key] *****
ok: [192.168.5.80]
TASK [lfp_ubuntu : Add Grafana APT Repository] *****
ok: [192.168.5.80]
TASK [lfp_ubuntu : Install Grafana] *****
ok: [192.168.5.80]
TASK [lfp_ubuntu : Start and Enable Grafana Service] *****
ok: [192.168.5.80]
TASK [lfp_ubuntu : Adding Influxdb in the repository] *****
[WARNING]: Consider using the get_url or urt module rather than running 'wget'. If you need to use command because get_url or urt is insufficient you can add 'warn: false' to this command task or set 'command_warnings=False' in ansible.cfg to get rid of this message
changed: [192.168.5.80]
TASK [lfp_ubuntu : Installing Influxdb] *****
ok: [192.168.5.80]
TASK [lfp_ubuntu : Making sure that the Influxdb is enabled and started] *****
ok: [192.168.5.80]

```

Information about the DirectX components and drivers installed on your system.

causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button.

Current Date/Time: Wednesday, November 15, 2023, 1:48:37 AM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

Language: English (Regional Setting: English)

System Manufacturer: ASUSTek COMPUTER INC.

System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz

Memory: 24576MB RAM

Page file: 23044MB used, 4811MB available

DIRECTX Version: DirectX 12

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Current Date/Time: Wednesday, November 15, 2023, 1:48:37 AM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

Language: English (Regional Setting: English)

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Memory: 24576MB RAM

Page file: 23044MB used, 4811MB available

DIRECTX Version: DirectX 12

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PLAY RECAP \*\*\*\*\*  
192.168.5.214 : ok=52 changed=11 unreachable=0 failed=0 skipped=2 rescued=0 ignored=0  
192.168.5.80 : ok=30 changed=5 unreachable=0 failed=0 skipped=2 rescued=0 ignored=0

In my Ansible playbook, I successfully managed various tasks on both CentOS and Ubuntu machines. For CentOS, I installed or updated dnf and epel-release, configured Elasticsearch, Kibana, Logstash, Nagios, InfluxDB, Grafana, and Prometheus, and set up the Lamp Stack. On Ubuntu, I handled apt and dpkg updates, installed Elasticsearch, Kibana, Logstash, InfluxDB, Grafana, Prometheus, and Lamp Stack. The recap indicates successful execution, with a few changes reflecting updates during the process. Overall, my playbook efficiently orchestrated diverse configurations, showcasing effective automation for system setup and management.

#### **Proof of successful installations:**

```
Nov 10 09:51:45 CentOS.localdomain systemd[1]: Started Elasticsearch.
Hint: Some lines were ellipsized, use -l to show in full.
[srhmshan@centos ~]$ systemctl status logstash
● logstash.service - logstash
    Loaded: loaded (/etc/systemd/system/logstash.service; enabled; vendor preset: disabled)
      Active: active (running) since Fri 2023-11-10 02:07:28 PST; 9h ago
        Main PID: 15650 (java)
           Tasks: 22
          CGroup: /system.slice/logstash.service
                    └─15650 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseConcMarkSw...
System Date/Time: Wednesday, November 15, 2023, 5:13:00 PM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA-301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 20456MB used, 7398MB available
DirectX Version: DirectX 12
al signatures
```

Current Date/Time: Wednesday, November 15, 2023, 5:13:00 PM  
Computer Name: SHAN  
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)  
Language: English (Regional Setting: English)  
System Manufacturer: ASUSTeK COMPUTER INC.  
System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA  
BIOS: X1402ZA-301  
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz  
Memory: 24576MB RAM  
Page file: 204656MB used, 7398MB available  
DirectX Version: DirectX 12

al signatures

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```
ix errors & dropped & overruns & carrier & collisions &
[srhmshan@CentOS tmp]$ systemctl status nagios
● nagios.service - Nagios Core 4.4.6
   Loaded: loaded (/usr/lib/systemd/system/nagios.service; enabled; vendor preset: disabled)
     Active: active (running) since Fri 2023-11-10 09:54:05 PST; 50min ago
       Docs: https://www.nagios.org/documentation
   Process: 12340 ExecStopPost=/bin/rm -f /usr/local/nagios/var/rw/nagios.cmd (code=exit
ed, status=0/SUCCESS)
      Process: 12336 ExecStop=/bin/kill -s TERM ${MAINPID} (code=exited, status=0/SUCCESS)
      Process: 12344 ExecStart=/usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios
.cfg (code=exited, status=0/SUCCESS)
      Process: 12342 ExecStartPre=/usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nag
ios.cfg (code=exited, status=0/SUCCESS)
      Main PID: 12346 (nagios)
         Tasks: 6
        CGroup: /system.slice/nagios.service
               └─12346 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
      12347 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios
      12348 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios
      12349 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios
      12351 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios
```

Information about the DirectX components and drivers installed on your system.

causing the problem, click the appropriate tab above. Otherwise, you can use the tabs below.

Current Date/Time: Wednesday, November 15, 2023, 5:13:00 PM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

Language: English (Regional Setting: English)

System Manufacturer: ASUSTeK COMPUTER INC.

System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.4 GHz

Memory: 24576MB RAM

Page file: 20456MB used, 7398MB available

DirectX Version: DirectX 12

Initial signatures

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File Edit View Search Terminal Help

```
[srhmshan@CentOS tmp]$ systemctl status grafana-server
● grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; vendor preset: disabled)
     Active: active (running) since Fri 2023-11-10 02:35:51 PST; 9h ago
       Docs: http://docs.grafana.org
     Main PID: 20841 (grafana-server)
        Tasks: 20
      CGroup: /system.slice/grafana-server.service
              └─20841 /usr/sbin/grafana-server --config=/etc/grafana/grafana.ini --pidfile=/var/run/grafana-server/grafana.pid
```

Server3\_Sumaolang [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
srhmshan@server3:~$ sudo systemctl status grafana-server
● grafana-server.service - Grafana instance
   Loaded: loaded (/lib/systemd/system/grafana-server.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2023-11-13 18:10:19 UTC; 1 day 15h ago
       Docs: http://docs.grafana.org
     Main PID: 64864 (grafana)
        Tasks: 10 (limit: 4558)
      Memory: 98.9M
        CPU: 30.670s
      CGroup: /system.slice/grafana-server.service
              └─64864 /usr/share/grafana/bin/grafana server --config=/etc/grafana/grafana.ini --pidfile=/var/run/grafana/grafana.pid
```

Nov 15 09:42:22 server3 grafana[64864]: logger=cleanup t=2023-11-15T09:42:22.323808947Z level=info
Nov 15 09:42:22 server3 grafana[64864]: logger=grafana.update.checker t=2023-11-15T09:42:22.507254Z level=info
Nov 15 09:42:22 server3 grafana[64864]: logger=plugins.update.checker t=2023-11-15T09:42:22.890799Z level=info
Nov 15 09:52:22 server3 grafana[64864]: logger=cleanup t=2023-11-15T09:52:22.3224807282Z level=info
Nov 15 09:52:22 server3 grafana[64864]: logger=grafana.update.checker t=2023-11-15T09:52:22.756421Z level=info
Nov 15 09:52:23 server3 grafana[64864]: logger=plugins.update.checker t=2023-11-15T09:52:23.304394Z level=info

Input

Information about the DirectX components and drivers installed on your system.

causing the problem, click the appropriate tab above. Otherwise, you can use the tabs below.

Current Date/Time: Wednesday, November 15, 2023, 5:13:00 PM

Computer Name: SHAN

Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)

Language: English (Regional Setting: English)

System Manufacturer: ASUSTeK COMPUTER INC.

System Model: Vivobook\_ASUSLaptop X1402ZA\_X1402ZA

BIOS: X1402ZA.301

Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.4 GHz

Memory: 24576MB RAM

Page file: 20456MB used, 7398MB available

DirectX Version: DirectX 12

Initial signatures

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File Edit View Search Terminal Help

```
[srhmshan@CentOS tmp]$ sudo systemctl status prometheus
● prometheus.service - Prometheus Service
   Loaded: loaded (/etc/systemd/system/prometheus.service; enabled; vendor preset: disabled)
     Active: active (running) since Fri 2023-11-10 11:59:41 PST; 19s ago
       Docs: https://prometheus.io/docs/introduction/overview/
     Main PID: 23994 (prometheus)
        Tasks: 7
      CGroup: /system.slice/prometheus.service
              └─23994 /usr/local/bin/prometheus --config.file=/usr/local/bin/prometheus.yml
```

Server3\_Sumaolang [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

```
srhmshan@server3:~$ sudo systemctl status prometheus
● prometheus.service - Monitoring system and time series database
   Loaded: loaded (/lib/systemd/system/prometheus.service; enabled; vendor preset: enabled)
     Active: active (running) since Tue 2023-11-14 17:40:54 UTC; 16h ago
       Docs: https://prometheus.io/docs/introduction/overview/
     Main PID: 73506 (prometheus)
        Tasks: 9 (limit: 4558)
      Memory: 55.7M
        CPU: 11.390s
      CGroup: /system.slice/prometheus.service
              └─73506 /usr/bin/prometheus
```

Nov 14 17:40:55 server3 prometheus[73506]: ts=2023-11-14T17:40:55.986Z caller=main.go:1017 level=info
Nov 14 17:40:55 server3 prometheus[73506]: ts=2023-11-14T17:40:55.987Z caller=main.go:795 level=info
Nov 14 17:41:02 server3 prometheus[73506]: ts=2023-11-14T17:41:02.161Z caller=compact.go:509 level=info
Nov 14 17:41:02 server3 prometheus[73506]: ts=2023-11-14T17:41:02.165Z caller=head.go:805 level=info
Nov 14 17:41:02 server3 prometheus[73506]: ts=2023-11-14T17:41:02.166Z caller=checkpoint.go:97 level=info

Next Page

File Machine View Input Devices Help

```
srhmshan@server3:~$ systemctl status influxdb
● influxdb.service - InfluxDB is an open-source, distributed, time series database
   Loaded: loaded (/lib/systemd/system/influxdb.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2023-11-13 18:10:39 UTC; 1 day 16h ago
       Docs: man:influxd(1)
     Main PID: 65123 (influxd)
        Tasks: 9 (limit: 4558)
      Memory: 23.9M
        CPU: 18.416s
      CGroup: /system.slice/influxdb.service
              └─65123 /usr/bin/influxd -config /etc/influxdb/influxdb.conf
```

Nov 15 10:28:55 server3 influxd[65123]: ts=2023-11-15T10:28:55.740184Z lvl=info msg="Error writing to database"
Nov 15 10:28:56 server3 influxd[65123]: ts=2023-11-15T10:28:56.739560Z lvl=info msg="Cache snapshot"
Nov 15 10:28:56 server3 influxd[65123]: ts=2023-11-15T10:28:56.739612Z lvl=info msg="Cache snapshot"
Nov 15 10:28:56 server3 influxd[65123]: ts=2023-11-15T10:28:56.739619Z lvl=info msg="Error writing to database"
Nov 15 10:28:57 server3 influxd[65123]: ts=2023-11-15T10:28:57.741308Z lvl=info msg="Cache snapshot"
Nov 15 10:28:57 server3 influxd[65123]: ts=2023-11-15T10:28:57.741370Z lvl=info msg="Cache snapshot"
Nov 15 10:28:57 server3 influxd[65123]: ts=2023-11-15T10:28:57.741380Z lvl=info msg="Error writing to database"
Nov 15 10:28:58 server3 influxd[65123]: ts=2023-11-15T10:28:58.740636Z lvl=info msg="Cache snapshot"
Nov 15 10:28:58 server3 influxd[65123]: ts=2023-11-15T10:28:58.740986Z lvl=info msg="Cache snapshot"
Nov 15 10:28:58 server3 influxd[65123]: ts=2023-11-15T10:28:58.741078Z lvl=info msg="Error writing to database"

signatures

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Lines 1-21/21 (END)

```

Input
[srhmshan@CentOS ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset
          led)
     Active: active (running) since Fri 2023-11-10 09:54:07 PST; 5 days ago
       Docs: man:httpd(8)
              man:apachectl(8)
      Main PID: 12468 (httpd)
        Status: "Total requests: 32; Current requests/sec: 0; Current traffic: 0 B/
         Tasks: 6
        CGroup: /system.slice/httpd.service
                  └─12468 /usr/sbin/httpd -DFOREGROUND
                      ├─12470 /usr/sbin/httpd -DFOREGROUND
                      ├─12471 /usr/sbin/httpd -DFOREGROUND
                      ├─12472 /usr/sbin/httpd -DFOREGROUND
                      ├─12473 /usr/sbin/httpd -DFOREGROUND
                      └─12474 /usr/sbin/httpd -DFOREGROUND
Nov 10 09:54:07 CentOS.localdomain systemd[1]: Starting The Apache HTTP Server..
Nov 10 09:54:07 CentOS.localdomain httpd[12468]: AH00558: httpd: Could not relia
Nov 10 09:54:07 CentOS.localdomain systemd[1]: Started The Apache HTTP Server.
Hint: Some lines were ellipsized, use -l to show in full.
[srhmshan@CentOS ~]$ systemctl status mariadb
● mariadb.service - MariaDB database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor pres
          led)
     Active: active (exited) since Wed 2023-11-15 11:02:49 UTC; 5s ago
       Docs: man:systemd-sysv-generator(8)
      Process: 76653 ExecStart=/etc/init.d/mariadb start (code=exited, status=0/SUCCESS)
        CPU: 1ms
Nov 15 11:02:49 server3 systemd[1]: Starting LSB: Start and stop the mysql database server daemon...
Nov 15 11:02:49 server3 systemd[1]: Started LSB: Start and stop the mysql database server daemon.
srhmshan@server3:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2023-11-11 16:57:47 UTC; 3 days ago
       Docs: https://httpd.apache.org/docs/2.4/
      Main PID: 55023 (apache2)
        Tasks: 6 (limit: 4558)
         Memory: 11.1M
            CPU: 1.75s
        CGroup: /system.slice/apache2.service
                  ├─55023 /usr/sbin/apache2 -k start

```

ital signatures

Server3\_Sumaoang [Running] - Oracle VM VirtualBox

#### 4. Document the push and commit from the local repository to GitHub.

```

Current Date/Time: Wednesday, November 15, 2023, 2:00:46 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 23016MB used, 4838MB available

```

```

srhmshan@localmachine:~/CPE_MIDEXAM_SUMAOANG$ git status
On branch main
Your branch is up to date with 'origin/main'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    ansible.cfg
    config.yml
    files/
    inventory
    roles/
nothing added to commit but untracked files present (use "git add" to track)
srhmshan@localmachine:~/CPE_MIDEXAM_SUMAOANG$ 

```

I issued this command to see the status of my git. It is on the main branch and these untracked files are what I am supposed to add.

```

Current Date/Time: Wednesday, November 15, 2023, 2:00:46 AM
Computer Name: SHAN
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA
BIOS: X1402ZA.301
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz
Memory: 24576MB RAM
Page file: 23016MB used, 4838MB available

```

```

srhmshan@localmachine:~/CPE_MIDEXAM_SUMAOANG$ git add .
[srhmshan@localmachine:~/CPE_MIDEXAM_SUMAOANG$ git commit -m "Midterm Exam in CPE232"
[main 785ad9f] Midterm Exam in CPE232
11 files changed, 596 insertions(+)
create mode 100644 ansible.cfg
create mode 100644 config.yml
create mode 100644 files/prometheus.service
create mode 100644 inventory
create mode 100644 roles/es_centos/tasks/main.yml
create mode 100644 roles/es_ubuntu/tasks/main.yml
create mode 100644 roles/tp_centos/tasks/main.yml
create mode 100644 roles/tp_ubuntu/tasks/main.yml
create mode 100644 roles/ls_centos/tasks/main.yml
create mode 100644 roles/ls_ubuntu/tasks/main.yml
create mode 100644 roles/nagios_centos/tasks/main.yml

```

Using “.” will add everything that I’ve done so far, without having to type each filename. After adding, I issued the command “commit” with a short description that will be shown in these files.

```
Current Date/Time: Wednesday, November 15, 2023, 2:05:32 AM  
Computer Name: SHAN  
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)  
Language: English (Regional Setting: English)  
System Manufacturer: ASUSTek COMPUTER INC.  
System Model: Vivobook_ASUSLaptop X1402ZA_X1402ZA  
BIOS: X1402ZA.301  
Processor: 12th Gen Intel(R) Core(TM) i5-1235U (12 CPUs), ~1.3GHz  
Memory: 24576MB RAM  
Page file: 22601MB used, 5253MB available  
DirectX Version: DirectX 12
```

```
create mode 100644 roles/nagios_centos/tasks/main.yml  
srhmshan@localmachine:~/CPE_MIDEXAM_SUMAOANG$ git push origin main  
Enumerating objects: 30, done.  
Counting objects: 100% (30/30), done.  
Delta compression using up to 2 threads  
Compressing objects: 100% (14/14), done.  
Writing objects: 100% (29/29), 5.38 KB | 2.69 MiB/s, done.  
Total 29 (delta 1), reused 0 (delta 0), pack-reused 0  
remote: Resolving deltas: 100% (1/1), done.  
To github.com:srhmshan/CPE_MIDEXAM_SUMAOANG.git  
 bfbbaeb..785ad9f main -> main  
srhmshan@localmachine:~/CPE_MIDEXAM_SUMAOANG$
```

I successfully pushed the contents to GitHub.

**GitHub link:** [https://github.com/srhmshan/CPE\\_MIDEXAM\\_SUMAOANG](https://github.com/srhmshan/CPE_MIDEXAM_SUMAOANG)

**Conclusions:** (link your conclusion from the objective)

**In this practical exam, I successfully created an Ansible playbook to set up and manage various monitoring tools for enterprise systems. The journey began with creating a GitHub repository for organized version control. The playbook, designed in a straightforward manner, tackled the installation and configuration of tools like Elastic Stack, Nagios, Grafana, Prometheus, InfluxDB, and a Lamp Stack. By using roles, tags, and conditional statements, the playbook was made adaptable and easy to troubleshoot. Tags, especially, were instrumental in identifying and fixing errors. Through clear documentation and helpful screenshots, I ensured that the installation process is ran smoothly. This hands-on experience not only sharpened my Ansible skills but also underscored the practical advantages of automation in managing complex system setups. The playbook stands as a practical solution for deploying monitoring tools, aligning with the simplicity and efficiency required in modern infrastructure management.**