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<b>Course/Section: BSCPE31S5</b>	<b>Date Submitted: Nov. 15, 2023</b>
<b>Instructor: Engr. Roman Richard</b>	<b>Semester and SY: 1<sup>st</sup> sem 2023-2024</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.

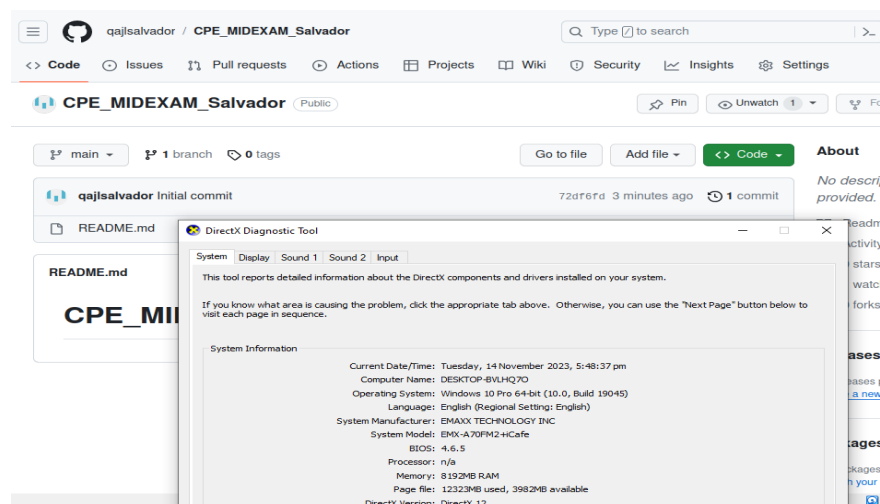
## 2. Instructions

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)

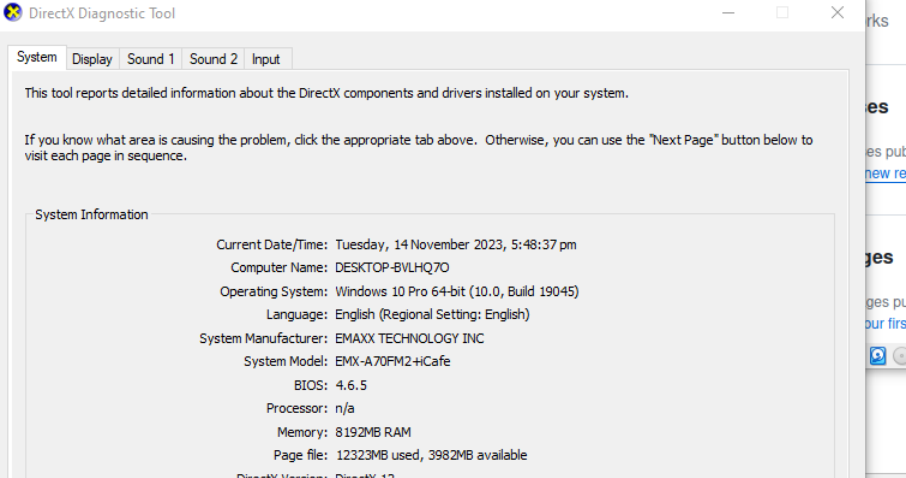
Part 1: Creating the github repository

1.create a new Github repository



## 2. Clone repository the repository and then go inside that repository

```
salvador@Workstation:~$ git clone git@github.com:qajlsalvador/CPE_MIDEXAM_Salvador.git
Cloning into 'CPE_MIDEXAM_Salvador'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
salvador@Workstation:~$ ls
ansible      Documents  id_rsa.pub  Pictures    Salvador_PrelimExam
CPE232_AndreuSalvador Downloads Music      pract       snap
CPE_MIDEXAM_Salvador Elastic    Nagios      Prometheus  Templates
Desktop      id_rsa     nagios-ansible Public       Videos
salvador@Workstation:~$ cd CPE_MIDEXAM_Salvador
salvador@Workstation:~/CPE_MIDEXAM_Salvador$
```



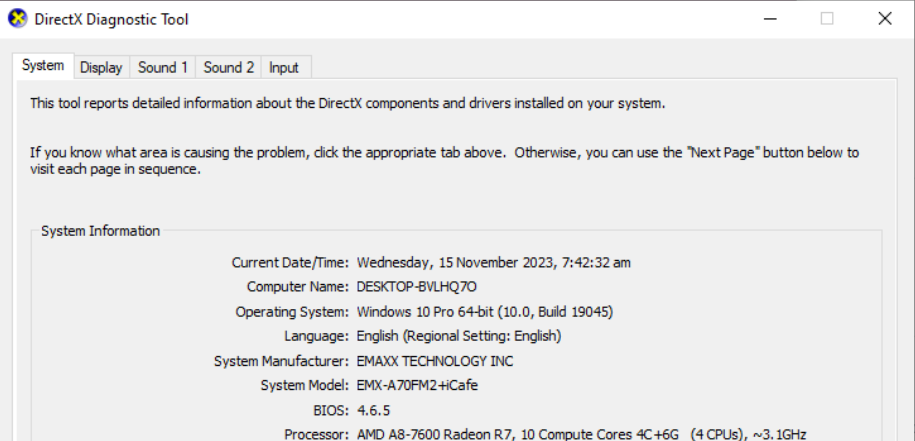
The screenshot shows the DirectX Diagnostic Tool window. The 'System' tab is selected. The window displays system information including: Current Date/Time: Tuesday, 14 November 2023, 5:48:37 pm; Computer Name: DESKTOP-BVLHQ70; Operating System: Windows 10 Pro 64-bit (10.0, Build 19045); Language: English (Regional Setting: English); System Manufacturer: EMAXX TECHNOLOGY INC; System Model: EMX-A70FM2-iCafe; BIOS: 4.6.5; Processor: n/a; Memory: 8192MB RAM; Page file: 12323MB used, 3982MB available.

## Part 2: Installing the features for Ubuntu

1. Create the inventory for the IP addresses of the servers that you will install the features on. Group it to its specific type to call it easily.

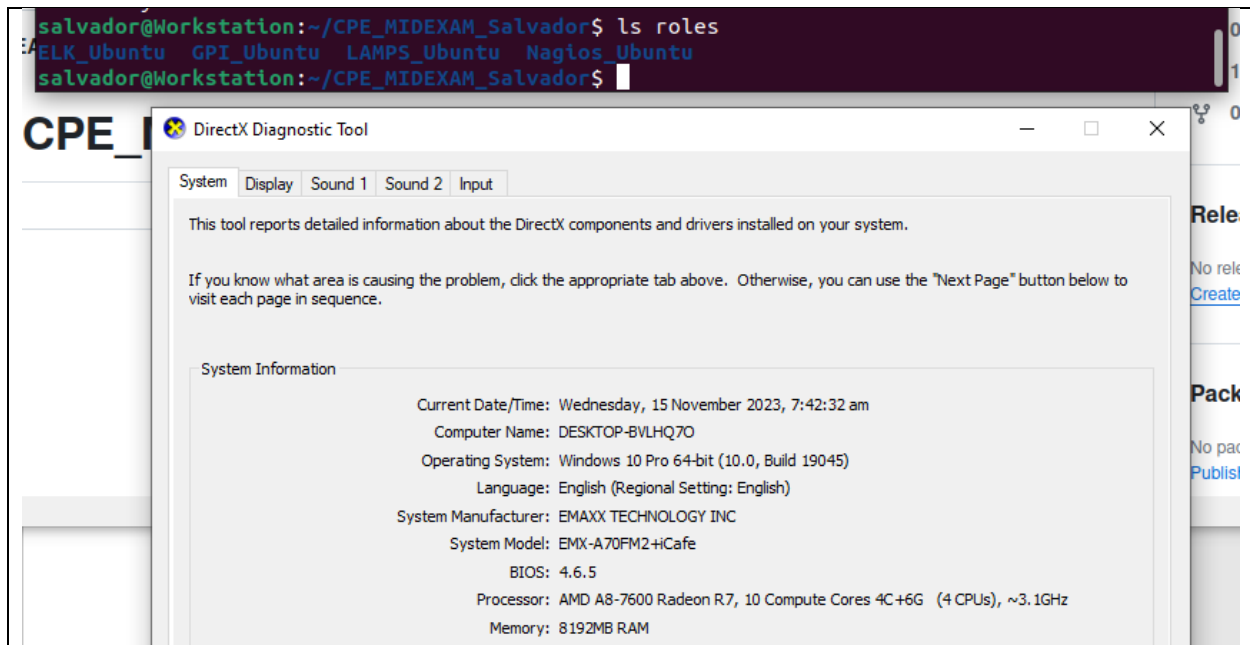
```
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ ls
inventory README.md
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ cat inventory
cat: inventory: No such file or directory
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ cat inventory
[Ubuntu]
192.168.0.146

[CentOS]
192.168.0.145
salvador@Workstation:~$
```

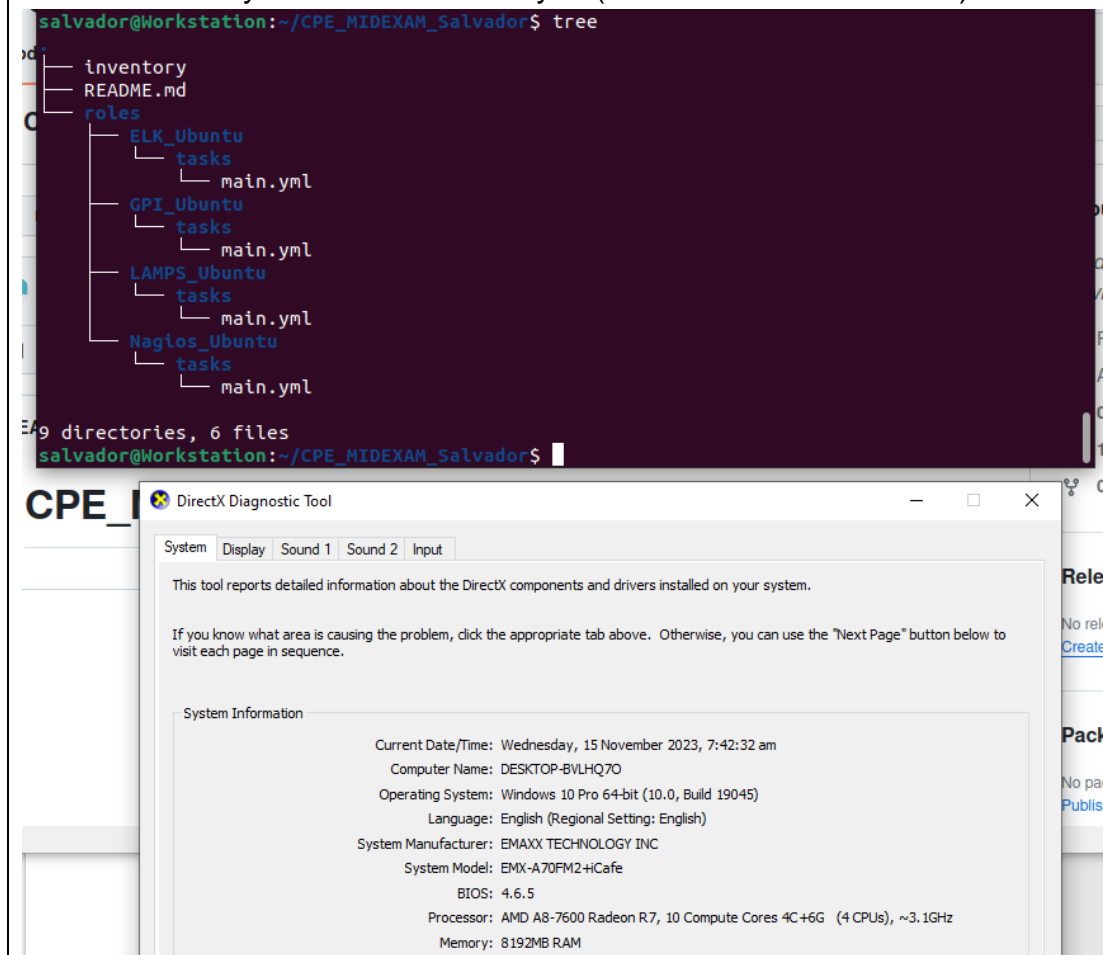


The screenshot shows the DirectX Diagnostic Tool window. The 'System' tab is selected. The window displays system information including: Current Date/Time: Wednesday, 15 November 2023, 7:42:32 am; Computer Name: DESKTOP-BVLHQ70; Operating System: Windows 10 Pro 64-bit (10.0, Build 19045); Language: English (Regional Setting: English); System Manufacturer: EMAXX TECHNOLOGY INC; System Model: EMX-A70FM2-iCafe; BIOS: 4.6.5; Processor: AMD A8-7600 Radeon R7, 10 Compute Cores 4C+6G (4 CPUs), ~3.1GHz.

2. Create the necessary directories for the features you will install. First create a directory named roles and create those necessary directories inside the roles directory.



3. Inside those directories create a tasks directory (on each directories) and also create a yml file named main.yml (on each tasks directories).



#### 4. Put the appropriate commands in installing the features that you need.

##### ELK:

```
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ cat roles/ELK_Ubuntu/tasks/main.yml
```

```
---
- name: Install prerequisites
  apt:
    name:
      - curl
      - apt-transport-https
      - default-jre
      - software-properties-common
    state: present

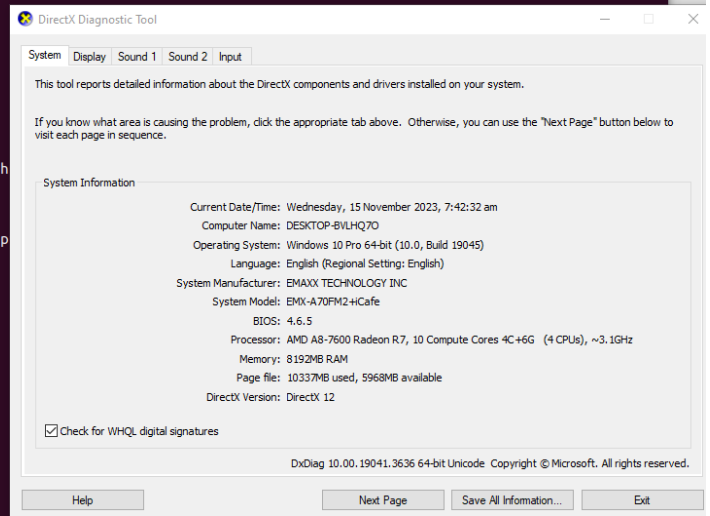
- name: Elasticsearch Key
  apt_key:
    url: https://artifacts.elastic.co/GPG-KEY-elasticsearch

- name: Elasticsearch repository
  apt_repository:
    repo: "deb https://artifacts.elastic.co/packages/7.x/apt
    state: present

- name: Elastisearch install
  apt:
    name: elasticsearch
    state: present
    update_cache: yes

- name: Kibana install
  apt:
    name: kibana
    state: present

- name: Logstash install
  apt:
    name: logstash
    state: present
```



##### Grafana, InfluxDB, and Prometheus:

```
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ cat roles/GPI_Ubuntu/tasks/main.yml
```

```
---
- name: Insalling dependencies
  apt:
    name:
      - apt-transport-https
      - wget
      - curl
      - software-properties-common
    state: present

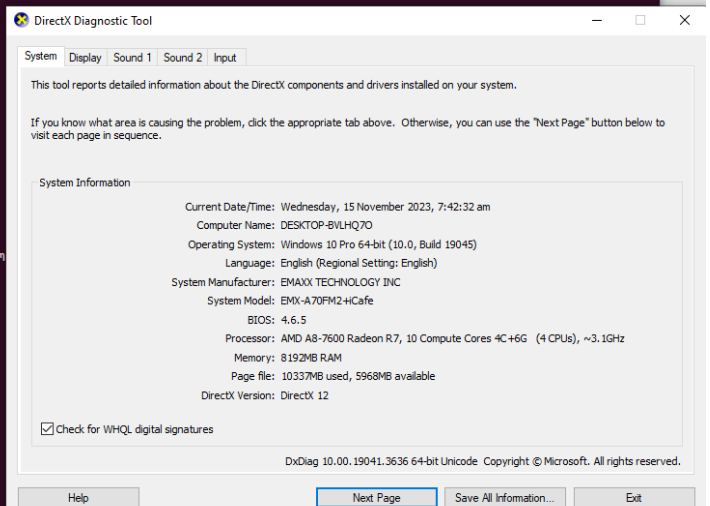
- name: Grafana repository key
  apt_key:
    url: https://packages.grafana.com/gpg.key
    state: present

- name: Grafana repository
  apt_repository:
    repo: deb https://packages.grafana.com/oss/deb stable m
    state: present

- name: Grafana Installation
  apt:
    name: grafana
    state: present
    update_cache: yes

- name: start Grafana service
  systemd:
    name: grafana-server
    enabled: yes
    state: started

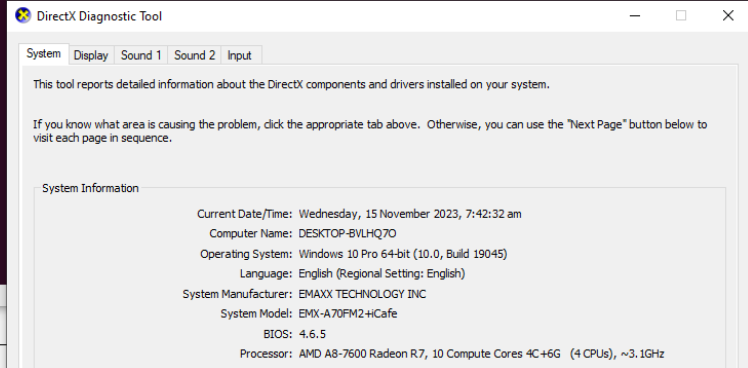
- name: influxDB apt key
```



```

state: present
- name: start influx service
  systemd:
    name: influxdb
    enabled: yes
    state: started
- name: Prometheus Installation
  apt:
    name: prometheus
    state: latest
- name: start prometheus
  service:
    name: prometheus
    state: restarted
    enabled: true
salvador@Workstation:~/CPE_MIDEXAM_Salvador$

```

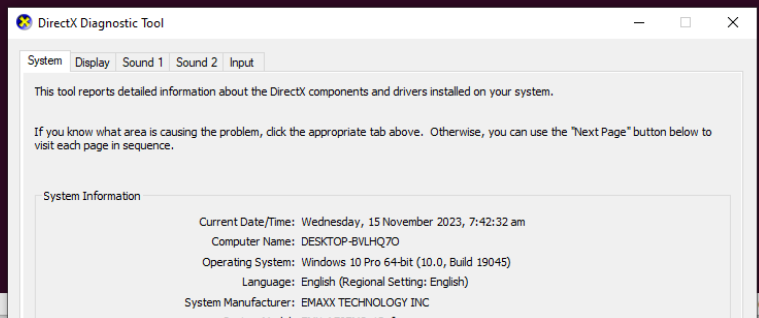


## Lamps:

```

- name: dependencies
  apt:
    name:
      - apache2
      - mysql-server
      - php-mysql
      - php
      - libapache2-mod-php
    state: latest
- name: Start apache 2
  service:
    name: apache2
    state: started
    enabled: true
salvador@Workstation:~/CPE_MIDEXAM_Salvador$

```

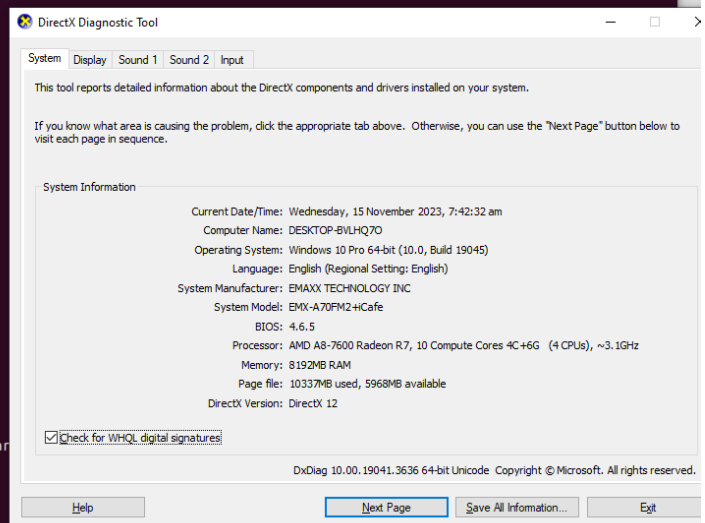


## Nagios:

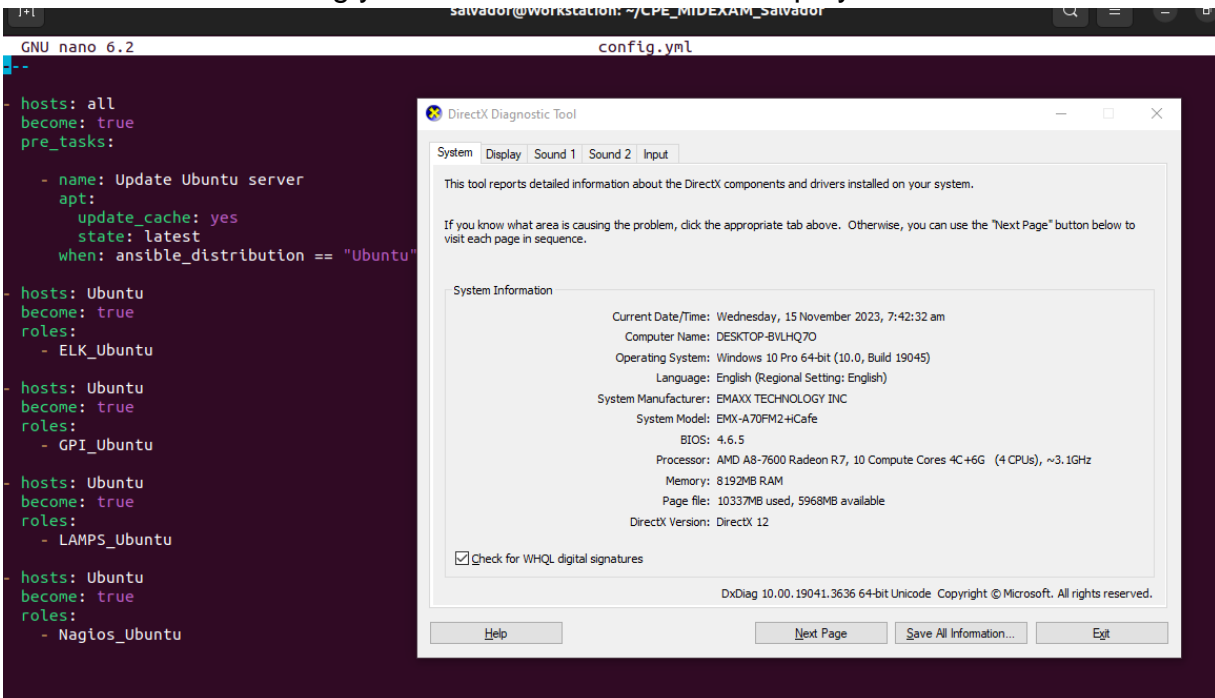
```

---
- name: Install required packages for plugins
  apt:
    name:
      - autoconf
      - build-essential
      - unzip
      - openssl
      - libapache2-mod-php
      - apache2
      - unzip
      - php
      - python3
      - python3-pip
    state: latest
  when: ansible_distribution == "Ubuntu"
- name: install passlib
  pip:
    name: passlib
- name: nagios directory
  file:
    path: ~/nagios
    state: directory
- name: Download Nagios core
  unarchive:
    src: https://github.com/NagiosEnterprises/nagioscore/archive/refs/tags/v4.4.5.tar.gz
    dest: ~/nagios
    remote_src: yes
    mode: 0777
    owner: root
    group: root

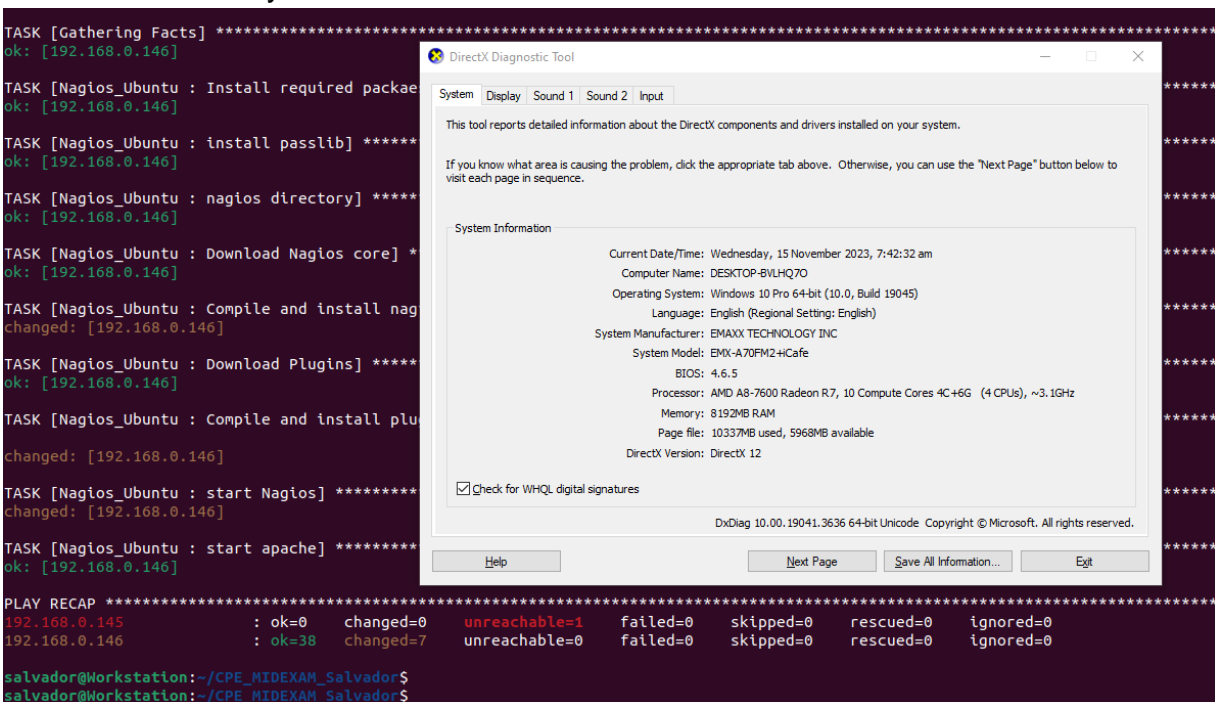
```



## 5. Create the Config.yml file to run these roles on a playbook.



## 6. Run the Playbook



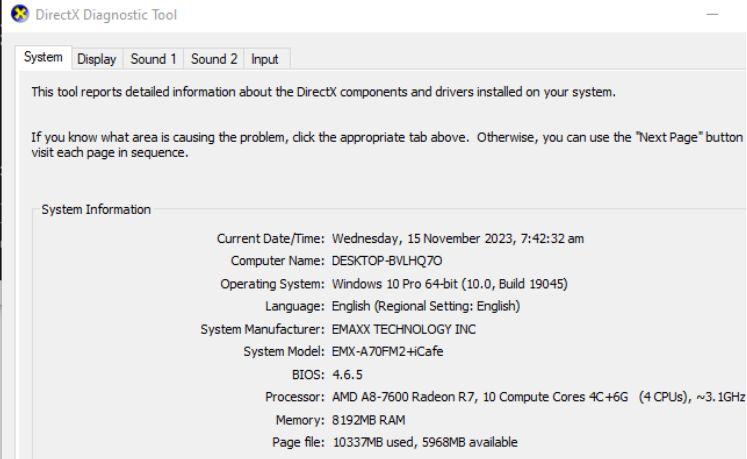
Note: the other ip address is for CentOS it is unreachable because the CentOS is not open since my computer cannot handle more than 2 virtual machine all at the same time.

## 7. Checking ELK:

```
Last login: Tue Nov 14 02:20:50 UTC 2023 from 192.168.0.118 on pts/0
salvador@Server1:~$
salvador@Server1:~$ systemctl status elasticsearch
```

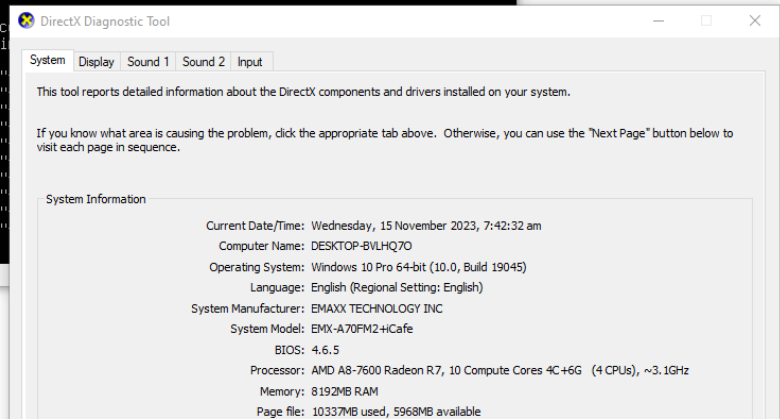
```
• elasticsearch.service - Elasticsearch
   Loaded: loaded (/lib/systemd/systemd; vendor preset: enabled)
   Active: active (running) since Wed 2023-11-15 00:15:32 UTC; 1h 49min ago
     Docs: http://www.elastic.co
   Main PID: 5802 (java)
    Tasks: 39 (limit: 2966)
   Memory: 785.2M
      CPU: 46.095s
   CGroup: /system.slice/elasticsearch.service
           └─5802 /bin/java -Xms2g -Xmx2g
```

```
Nov 15 00:15:30 Server1 systemd[1]: Start
Nov 15 00:15:31 Server1 systemd[1]: Start
Nov 15 00:15:48 Server1 elasticsearch[5802]
lines 1-14/14 (END)
```



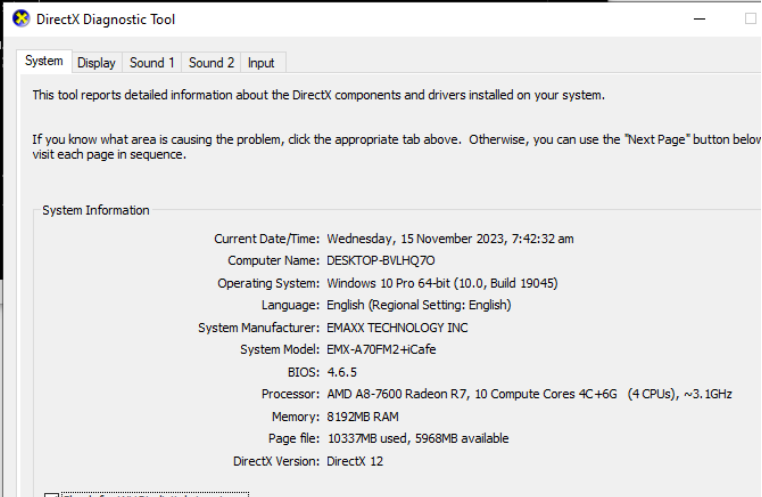
```
• kibana.service - Kibana
   Loaded: loaded (/etc/systemd/system/kibana.service; disabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-11-15 00:15:32 UTC; 1h 49min ago
     Main PID: 5858 (node)
    Tasks: 10 (limit: 2966)
   Memory: 73.1M
      CPU: 12.663s
   CGroup: /system.slice/kibana.service
           └─5858 /usr/share/kibana/bin/node
```

```
Nov 15 00:23:56 Server1 kibana[5858]: {"
Nov 15 00:23:56 Server1 kibana[5858]: {"
Nov 15 00:24:00 Server1 kibana[5858]: {"
Nov 15 00:24:04 Server1 kibana[5858]: {"
Nov 15 00:24:09 Server1 kibana[5858]: {"
Nov 15 00:24:09 Server1 kibana[5858]: {"
Nov 15 00:24:09 Server1 kibana[5858]: {"
Nov 15 00:37:43 Server1 kibana[5858]: {"
Nov 15 00:37:43 Server1 kibana[5858]: {"
Nov 15 00:37:47 Server1 kibana[5858]: {"
Nov 15 00:37:47 Server1 kibana[5858]: {"
lines 1-20/20 (END)
```



```
salvador@Server1:~$ systemctl status logstash
• logstash.service - logstash
   Loaded: loaded (/etc/systemd/systemd; vendor preset: enabled)
   Active: active (running) since Wed 2023-11-15 02:05:52 UTC; 1min 49s ago
     Main PID: 37129 (java)
    Tasks: 14 (limit: 2966)
   Memory: 268.2M
      CPU: 29.480s
   CGroup: /system.slice/logstash.service
           └─37129 /usr/share/logstash/bin/java
```

```
Nov 15 02:05:52 Server1 systemd[1]: Start
Nov 15 02:05:52 Server1 logstash[37129]:
Nov 15 02:05:53 Server1 logstash[37129]:
lines 1-13/13 (END)
```



## GPI:

```
salvador@Server1:~$ 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 Wed 2023-11-15 00:11:27 UTC; 1h 55min ago
     Docs: http://docs.grafana.org
   Main PID: 1361 (grafana)
    Tasks: 16 (limit: 2966)
   Memory: 94.9M
      CPU: 10.806s
   CGroup: /system.slice/grafana-server.service
           └─1361 /usr/share/grafana/b
```

```
Nov 15 00:22:33 Server1 grafana[1361]: I
Nov 15 00:22:33 Server1 grafana[1361]: I
Nov 15 00:22:33 Server1 grafana[1361]: I
Nov 15 00:32:38 Server1 grafana[1361]: I
Nov 15 00:32:39 Server1 grafana[1361]: I
Nov 15 00:32:39 Server1 grafana[1361]: I
Nov 15 02:05:21 Server1 grafana[1361]: I
Nov 15 02:05:23 Server1 grafana[1361]: I
Nov 15 02:05:23 Server1 grafana[1361]: I
Nov 15 02:05:52 Server1 grafana[1361]: I
lines 1-21/21 (END)
```

DirectX Diagnostic Tool

System Display Sound 1 Sound 2 Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

#### System Information

Current Date/Time: Wednesday, 15 November 2023, 7:42:32 am  
Computer Name: DESKTOP-BVLHQ70  
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)  
Language: English (Regional Setting: English)  
System Manufacturer: EMAXX TECHNOLOGY INC  
System Model: EMX-A70FM2-iCafe  
BIOS: 4.6.5  
Processor: AMD A8-7600 Radeon R7, 10 Compute Cores 4C+6G (4 CPUs), ~3.1GHz  
Memory: 8192MB RAM  
Page file: 10337MB used, 5968MB available

```
salvador@Server1:~$ 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 Wed 2023-11-15 00:11:08 UTC; 1h 56min ago
     Docs: https://docs.influxdata.com/influxdb/
   Main PID: 789 (influxd)
    Tasks: 9 (limit: 2966)
   Memory: 22.3M
      CPU: 2.908s
   CGroup: /system.slice/influxdb.service
           └─789 /usr/bin/influxd -con
```

```
Nov 15 02:05:48 Server1 influxd-systemd-
Nov 15 02:05:58 Server1 influxd-systemd-
Nov 15 02:06:08 Server1 influxd-systemd-
Nov 15 02:06:18 Server1 influxd-systemd-
Nov 15 02:06:28 Server1 influxd-systemd-
Nov 15 02:06:38 Server1 influxd-systemd-
Nov 15 02:06:48 Server1 influxd-systemd-
Nov 15 02:06:58 Server1 influxd-systemd-
Nov 15 02:07:08 Server1 influxd-systemd-
Nov 15 02:07:18 Server1 influxd-systemd-
lines 1-21/21 (END)
```

DirectX Diagnostic Tool

System Display Sound 1 Sound 2 Input

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#### System Information

Current Date/Time: Wednesday, 15 November 2023, 7:42:32 am  
Computer Name: DESKTOP-BVLHQ70  
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)  
Language: English (Regional Setting: English)  
System Manufacturer: EMAXX TECHNOLOGY INC  
System Model: EMX-A70FM2-iCafe  
BIOS: 4.6.5  
Processor: AMD A8-7600 Radeon R7, 10 Compute Cores 4C+6G (4 CPUs), ~3.1GHz  
Memory: 8192MB RAM

```
salvador@Server1:~$ 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 Wed 2023-11-15 00:20:34 UTC; 1h 47min ago
     Docs: https://prometheus.io/docs/introduction/overview/
   Main PID: 8687 (prometheus)
    Tasks: 8 (limit: 2966)
   Memory: 38.5M
      CPU: 3.207s
   CGroup: /system.slice/prometheus.service
           └─8687 /usr/bin/prometheus
```

```
Nov 15 00:20:43 Server1 prometheus[8687]
Nov 15 00:20:51 Server1 prometheus[8687]
Nov 15 00:20:51 Server1 prometheus[8687]
Nov 15 00:20:51 Server1 prometheus[8687]
Nov 15 00:20:51 Server1 prometheus[8687]
Nov 15 00:30:54 Server1 prometheus[8687]
Nov 15 00:30:56 Server1 prometheus[8687]
Nov 15 00:31:00 Server1 prometheus[8687]
Nov 15 00:31:05 Server1 prometheus[8687]
Nov 15 00:31:08 Server1 prometheus[8687]
lines 1-22/22 (END)
```

DirectX Diagnostic Tool

System Display Sound 1 Sound 2 Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

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#### System Information

Current Date/Time: Wednesday, 15 November 2023, 7:42:32 am  
Computer Name: DESKTOP-BVLHQ70  
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)  
Language: English (Regional Setting: English)  
System Manufacturer: EMAXX TECHNOLOGY INC  
System Model: EMX-A70FM2-iCafe  
BIOS: 4.6.5  
Processor: AMD A8-7600 Radeon R7, 10 Compute Cores 4C+6G (4 CPUs), ~3.1GHz  
Memory: 8192MB RAM  
Page file: 10337MB used, 5968MB available  
DirectX Version: DirectX 12



## LAMPS:

```
salvador@Server1:~$ systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-11-15 00:10:49 UTC; 1h 57min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 1091 (apache2)
     Tasks: 7 (limit: 2966)
    Memory: 7.3M
       CPU: 256ms
    CGroup: /system.slice/apache2.service
            └─1091 /usr/sbin/apache2 -k
              1093 /usr/sbin/apache2 -k
              1094 /usr/sbin/apache2 -k
              1095 /usr/sbin/apache2 -k
              1096 /usr/sbin/apache2 -k
              1097 /usr/sbin/apache2 -k
              6061 /usr/sbin/apache2 -k

Nov 15 00:10:22 Server1 systemd[1]: Start
Nov 15 00:10:48 Server1 apache2[1091]:
Nov 15 00:10:49 Server1 systemd[1]: Start
lines 1-20/20 (END)
```

### DirectX Diagnostic Tool

System Display Sound 1 Sound 2 Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

#### System Information

Current Date/Time: Wednesday, 15 November 2023, 7:42:32 am  
Computer Name: DESKTOP-BVLHQ70  
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)  
Language: English (Regional Setting: English)  
System Manufacturer: EMAXX TECHNOLOGY INC  
System Model: EMX-A70FM2-HCafe  
BIOS: 4.6.5  
Processor: AMD A8-7600 Radeon R7, 10 Compute Cores 4C+6G (4 CPUs), ~3.1GHz  
Memory: 8192MB RAM  
Page file: 10337MB used, 5968MB available  
DirectX Version: DirectX 12

☒ Check for WHQL digital signatures

## Nagios:

```
salvador@Server1:~$ systemctl status nagios
● nagios.service - Nagios Core 4.4.6
   Loaded: loaded (/lib/systemd/system/nagios.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-11-15 00:26:14 UTC; 1h 42min ago
     Docs: https://www.nagios.org/documentation
   Main PID: 23235 (nagios)
     Tasks: 6 (limit: 2966)
    Memory: 6.1M
       CPU: 545ms
    CGroup: /system.slice/nagios.service
            └─23235 /usr/local/nagios/bin/nagios -d /usr/local/nagios/etc/nagios.cfg
              23236 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              23237 /usr/local/nagios/bin/nagios --worker /usr/local/nagios/var/rw/nagios.qh
              23238 /usr/local/nagios/b
              23239 /usr/local/nagios/b
              23240 /usr/local/nagios/b

Nov 15 00:26:14 Server1 nagios[23235]: w
Nov 15 00:26:14 Server1 nagios[23235]: S
Nov 15 02:03:37 Server1 nagios[23235]: W
Nov 15 02:06:37 Server1 nagios[23235]: S
Nov 15 02:06:37 Server1 nagios[23235]: S
Nov 15 02:06:37 Server1 nagios[23235]: w
Nov 15 02:06:37 Server1 nagios[23235]: w
Nov 15 02:06:37 Server1 nagios[23235]: w
Nov 15 02:06:37 Server1 nagios[23235]: w
Nov 15 02:06:37 Server1 nagios[23235]: w
Nov 15 02:06:37 Server1 nagios[23235]: w
lines 1-26/26 (END)
```

### DirectX Diagnostic Tool

System Display Sound 1 Sound 2 Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

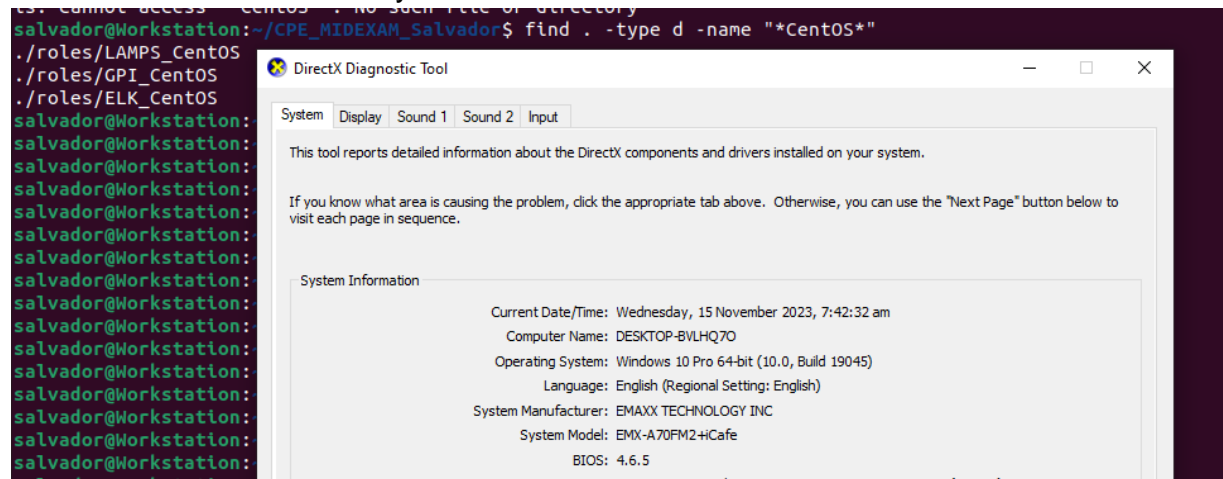
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

#### System Information

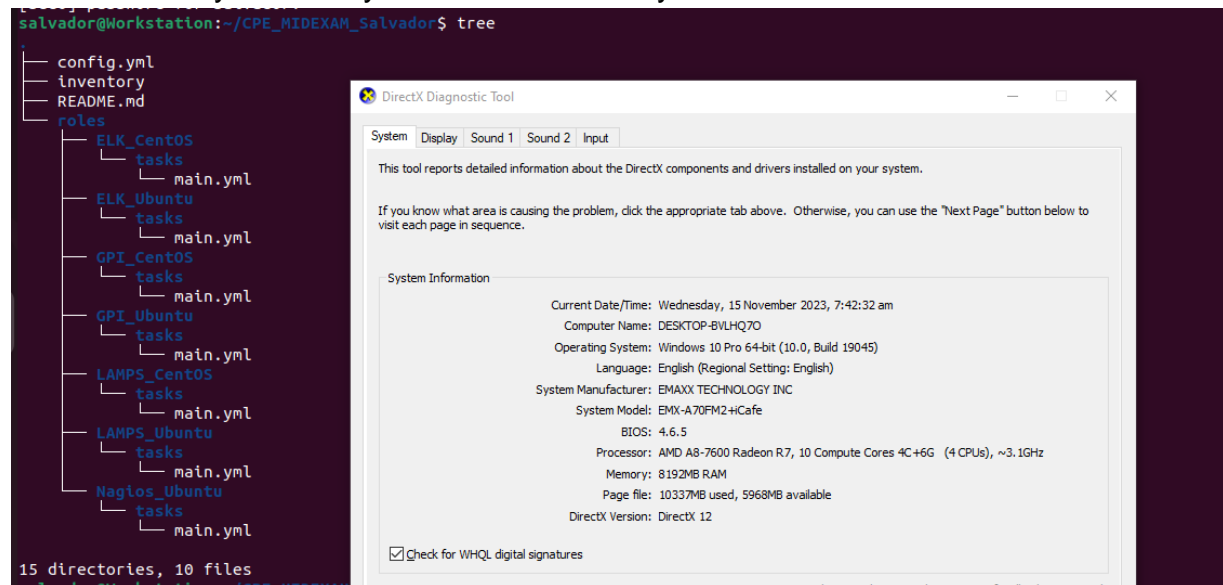
Current Date/Time: Wednesday, 15 November 2023, 7:42:32 am  
Computer Name: DESKTOP-BVLHQ70  
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)  
Language: English (Regional Setting: English)  
System Manufacturer: EMAXX TECHNOLOGY INC  
System Model: EMX-A70FM2-HCafe  
BIOS: 4.6.5  
Processor: AMD A8-7600 Radeon R7, 10 Compute Cores 4C+6G (4 CPUs), ~3.1GHz  
Memory: 8192MB RAM  
Page file: 10337MB used, 5968MB available  
DirectX Version: DirectX 12

## Part 3: Installing the features for CentOS

### 1. Create the necessary directories for the features



### 2. Inside the directories, create a directory named tasks and inside that tasks directory create a yml file named main.yml



### 3. Inside each main.yml file, put the necessary commands in installing the features needed.

## ELK:

```
salvador@Workstation:~/CPE_MIDEXAM_Salvador/roles$ cat ELK_CentOS/tasks/main.yml
```

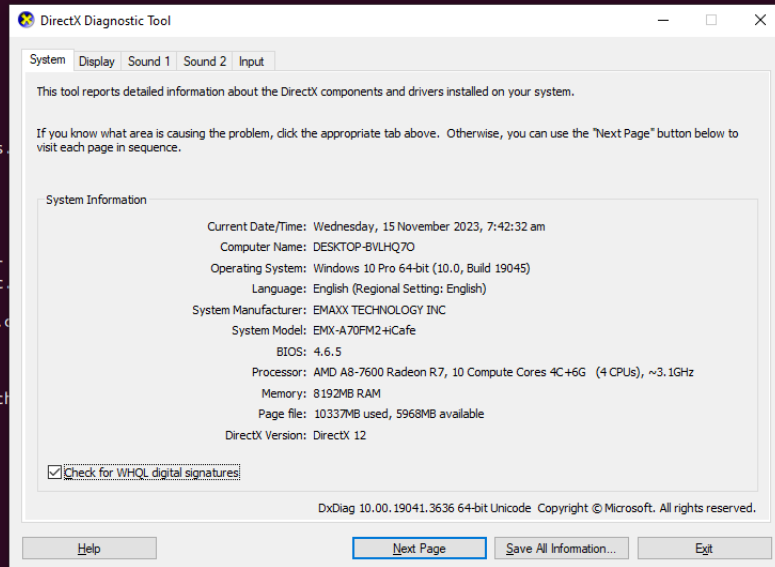
```
---
- name: Prerequisites
  dnf:
    name:
      - wget
      - java-1.8.0-openjdk
      - which
      - epel-release
      - openssl
      - autoconf
    state: present

- name: add Elastic search
  shell: rpm --import https://artifacts.elastic.co/GPG-KEY-ELASTICSEARCH

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

- name: Install Elastic search
  dnf:
    name: elasticsearch
    state: present

- name: start elasticsearch
  systemd:
    name: elasticsearch
    enabled: yes
```



## Grafana, InfluxDB, and Prometheus

```
salvador@Workstation:~/CPE_MIDEXAM_Salvador/roles$ cat GPI_CentOS/tasks/main.yml
```

```
---
- name: Download Grafana
  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

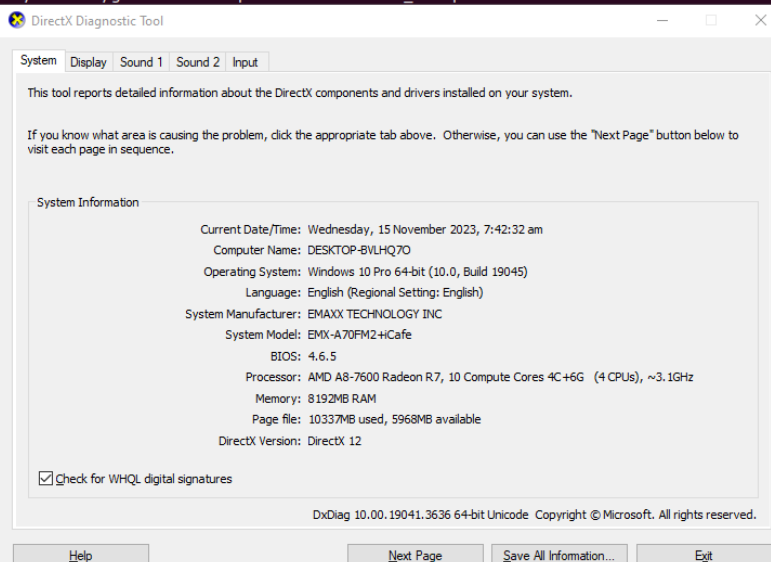
- name: installing grafana
  yum:
    name: /tmp/grafana-enterprise-9.2.2-1.x86_64.rpm

- name: enable grafana
  service:
    name: grafana-server
    enabled: yes

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

- name: start grafana
  service:
    name: grafana-server
    enabled: true
    state: started

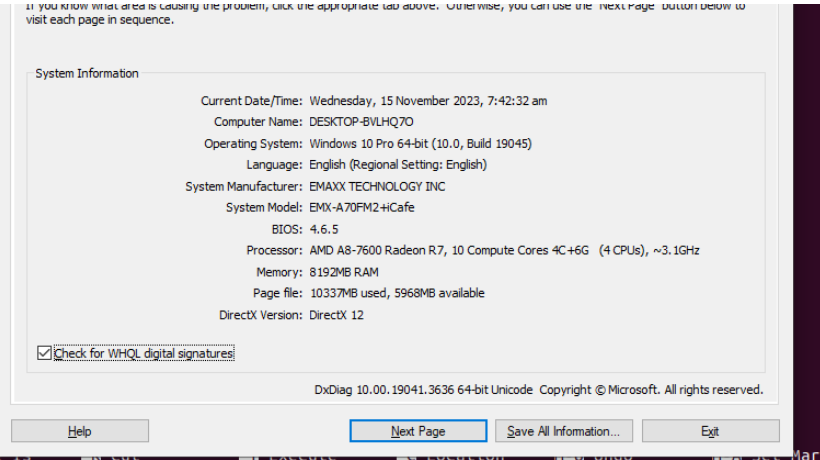
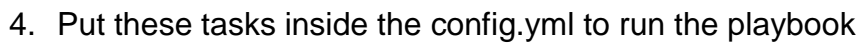
- name: InfluxDB repository
  copy:
    content: |
      [influxdb]
      name = InfluxDB Repository
      baseurl = https://repos.influxdata.com/linux
      gpgcheck = 1
      gpgkey = https://repos.influxdata.com/GPG-KEY-INFLUXDB1
      enabled = 1
      type = rpm
```



```
poll: 0
salvador@Workstation:~/CPE_MIDEXAM_Salva
...
- name: Intall dependencies
  dnf:
    name:
      - httpd
      - mariadb-server
      - php-mysql
      - mariadb
      - php
    state: latest

- name: ports needed for Lamp
  shell: |
    sudo firewall-cmd --permanent --zone
    sudo firewall-cmd --permanent --zone
    sudo firewall-cmd --reload

- name: start apache service
  service:
    name: httpd
    state: started
    enabled: true
```



The screenshot shows a terminal window with the following content:

```
TASK [GPI_CentOS : down
ok: [192.168.0.145]

TASK [GPI_CentOS : extr
ok: [192.168.0.145]

TASK [GPI_CentOS : move
ok: [192.168.0.145]

TASK [GPI_CentOS : star
changed: [192.168.0.145]

PLAY [CentOS] *****

TASK [Gathering Facts]
ok: [192.168.0.145]

TASK [LAMPs_CentOS : In
ok: [192.168.0.145]

TASK [LAMPs_CentOS : po
[WARNING]: Consider us
changed: [192.168.0.145]

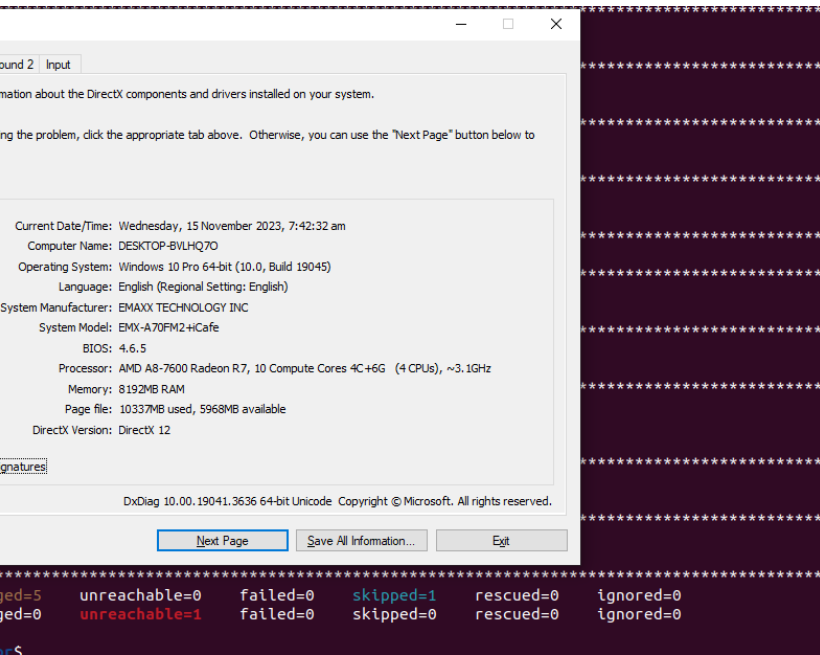
TASK [LAMPs_CentOS : st
ok: [192.168.0.145]

TASK [LAMPs_CentOS : st
ok: [192.168.0.145]

PLAY RECAP *****
192.168.0.145           : ok=32   chang
192.168.0.146           : ok=0     chang

salvador@Workstation:~/CPE_MIDEXAM$
```

Overlaid on the right side of the terminal is the "DirectX Diagnostic Tool" window. It has tabs for "System", "Display", "Sound", and "Network". The "System" tab is active, showing the text: "This tool reports detailed information about the system components that are used by DirectX." Below this, it says: "If you know what area is causing the problem, you can visit each page in sequence." There is a section for "System Information" which is currently empty. At the bottom, there is a checkbox labeled "Check for WHQL digital signatures" which is checked, and a "Help" button.



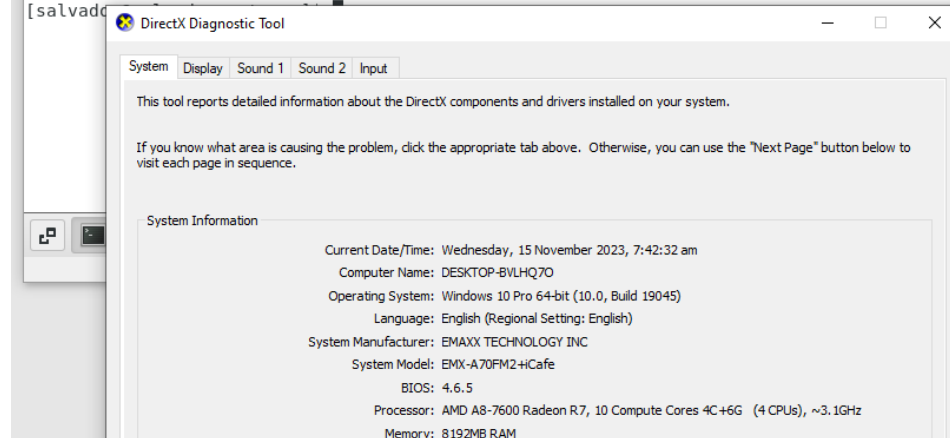
ELK:

```

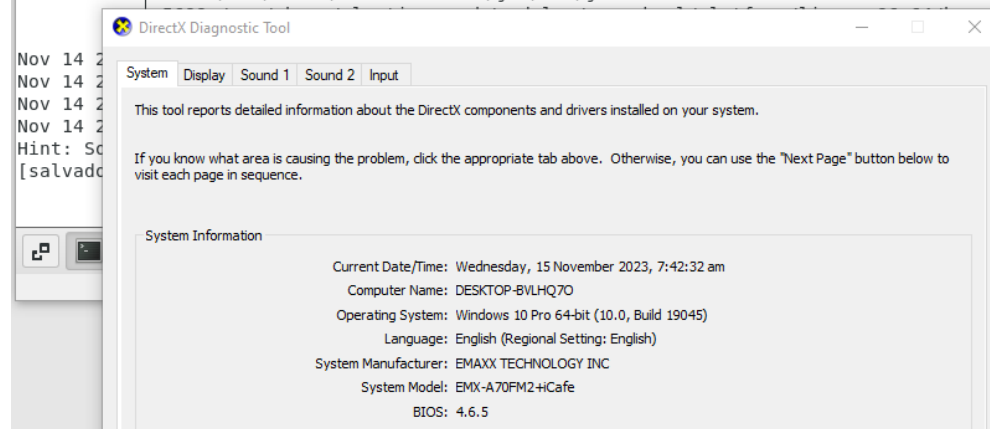
[salvador@salvadorcentos ~]$ systemctl logstash
Unknown operation 'logstash'.
[salvador@salvadorcentos ~]$ systemctl status logstash
● logstash.service - logstash
   Loaded: loaded (/etc/systemd/system/logstash.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2023-11-14 20:41:20 EST; 22s ago
     Main PID: 8565 (java)
       Tasks: 14
      CGroup: /system.slice/logstash.service
              └─8565 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g -XX:+UseConcMarkSwe...

Nov 14 20:41:20 salvadorcentos systemd[1]: Started logstash.
Nov 14 20:41:20 salvadorcentos logstash[8565]: Using bundled JDK: /usr/share/logsta...k
Nov 14 20:41:21 salvadorcentos logstash[8565]: OpenJDK 64-Bit Server VM warning: Op...
Hint: Some lines were ellipsized, use -l to show in full.

```



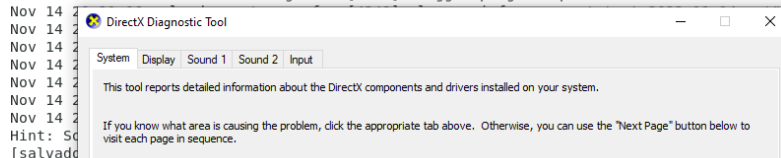
```
[salvador@salvadorcentos ~]$ systemctl status elasticsearch
● elasticsearch.service - Elasticsearch
   Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service; enabled; vendor prese
t: disabled)
   Active: active (running) since Tue 2023-11-14 20:24:05 EST; 20min ago
     Docs: https://www.elastic.co
   Main PID: 5525 (java)
    Tasks: 64
   CGroup: /system.slice/elasticsearch.service
           └─5525 /usr/share/elasticsearch/jdk/bin/java -Xshare:auto -Des.networkadd...
```



## GPI:

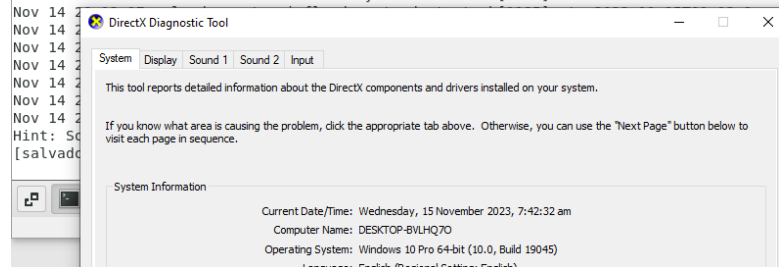
```
[salvador@salvadorcentos ~]$ systemctl status grafana-server
● grafana-server.service - Grafana instance
   Loaded: loaded (/usr/lib/systemd/system/grafana-server.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2023-11-14 20:20:27 EST; 26min ago
     Docs: http://docs.grafana.org
    Main PID: 4249 (grafana)
      Tasks: 12
     CGroup: /system.slice/grafana-server.service
             └─4249 /usr/share/grafana/bin/grafana server --config=/etc/grafana/grafan...
```

```
Nov 14 20:20:28 salvadorcentos grafana[4249]: logger=ticker t=2023-11-14T20:20:28...00
Nov 14 20:20:28 salvadorcentos grafana[4249]: logger=grafana.update.checker t=2023...ms
Nov 14 20:20:28 salvadorcentos grafana[4249]: logger=plugins.update.checker t=2023...ms
```



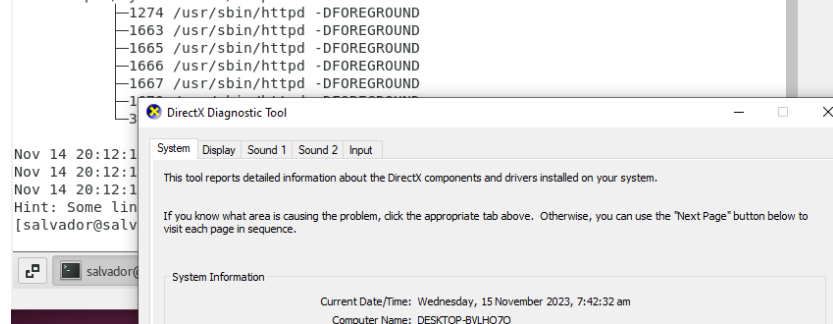
```
[salvador@salvadorcentos ~]$ systemctl status influxdb
● influxdb.service - InfluxDB is an open-source, distributed, time series database
   Loaded: loaded (/usr/lib/systemd/system/influxdb.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2023-11-14 20:12:18 EST; 35min ago
     Docs: https://docs.influxdata.com/influxdb/
    Main PID: 1208 (influxd)
      Tasks: 8
     CGroup: /system.slice/influxdb.service
             └─1208 /usr/bin/influxd -config /etc/influxdb/influxdb.conf
```

```
Nov 14 20:12:17 salvadorcentos influxd-systemd-start.sh[1185]: ts=2023-11-15T01:12:1...
Nov 14 20:12:17 salvadorcentos influxd-systemd-start.sh[1185]: ts=2023-11-15T01:12:1...
Nov 14 20:12:17 salvadorcentos influxd-systemd-start.sh[1185]: ts=2023-11-15T01:12:1...
```



## LAMPS:

```
[salvador@salvadorcentos ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2023-11-14 20:12:18 EST; 41min ago
     Docs: man:httpd(8)
           man:apachectl(8)
    Main PID: 1274 (httpd)
   Status: "Total requests: 8; Current requests/sec: 0; Current traffic: 0 B/sec"
      Tasks: 7
     CGroup: /system.slice/httpd.service
             └─1274 /usr/sbin/httpd -DFOREGROUND
               └─1663 /usr/sbin/httpd -DFOREGROUND
                 └─1665 /usr/sbin/httpd -DFOREGROUND
                   └─1666 /usr/sbin/httpd -DFOREGROUND
                     └─1667 /usr/sbin/httpd -DFOREGROUND
```



## Part 4: Push the created files and directory to github

```
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ git add *
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ git commit -m "Task s
[main 03df2df] Task successfully achieved
9 files changed, 447 insertions(+)
create mode 100644 config.yml
create mode 100644 inventory
create mode 100644 roles/ELK_CentOS/tasks/main.yml
create mode 100644 roles/ELK_Ubuntu/tasks/main.yml
create mode 100644 roles/GPI_CentOS/tasks/main.yml
create mode 100644 roles/GPI_Ubuntu/tasks/main.yml
create mode 100644 roles/LAMPS_CentOS/tasks/main.yml
create mode 100644 roles/LAMPS_Ubuntu/tasks/main.yml
create mode 100644 roles/Nagios_Ubuntu/tasks/main.yml
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ git push origin main
Enumerating objects: 27, done.
Counting objects: 100% (27/27), done.
Compressing objects: 100% (11/11), done.
Writing objects: 100% (26/26), 4.20 KiB | 716.00 KiB/s, done.
Total 26 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:qajlsalvador/CPE_MIDEXAM_Salvador.git
72df6fd..03df2df  main -> main
salvador@Workstation:~/CPE_MIDEXAM_Salvador$ git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
```

System | Display | Sound 1 | Sound 2 | Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

System Information

Current Date/Time: Wednesday, 15 November 2023, 7:42:32 am  
Computer Name: DESKTOP-BVLHQ70  
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)  
Language: English (Regional Setting: English)  
System Manufacturer: EMAXX TECHNOLOGY INC  
System Model: EMX-A70FM2+H+Cafe  
BIOS: 4.6.5  
Processor: AMD A8-7600 Radeon R7, 10 Compute Cores 4C+6G (4 CPUs), ~3.1G  
Memory: 8192MB RAM  
Page file: 10337MB used, 5968MB available  
DirectX Version: DirectX 12

☒ Check for WHQL digital signatures

DxDiag 10.00.19041.3636 64-bit Unicode Copyright © Microsoft. All ri

Help Next Page Save All Information...

qajlsalvador / CPE\_MIDEXAM\_Salvador

<> Code Issues Pull requests Actions Projects Wiki Security Insights Settings

CPE\_MIDEXAM\_Salvador Public

main 1 branch 0 tags

Go to file Add file <> Code

qajlsalvador Task successfully achieved 03df2df 3 minutes ago 2 commits

roles	Task successfully achieved	3 minutes ago
README.md	Initial commit	15 hours ago
config.yml	Task successfully achieved	3 minutes ago
inventory	Task successfully achieved	3 minutes ago

DirectX Diagnostic Tool

System | Display | Sound 1 | Sound 2 | Input

This tool reports detailed information about the DirectX components and drivers installed on your system.

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System Manufacturer: EMAXX TECHNOLOGY INC  
System Model: EMX-A70FM2+H+Cafe

GitHub link:

[https://github.com/qajlsalvador/CPE\\_MIDEXAM\\_Salvador.git](https://github.com/qajlsalvador/CPE_MIDEXAM_Salvador.git)

**Conclusions:**

Using the information from the previous activities, the installation of the certain monitoring tools like Prometheus, Elk, and etc. the creation of the design of the workflow was relatively simple. With the help of the playbook and git, I have obtained the necessary commands that is intended to access such files and tools to successfully run the ansible playbook in the tasks inside. The have used the function of the roles in order to easily access and connect the main playbook (the config.yml) to run the tasks and install the monitoring tools. There are a lot of errors in making the tasks primarily the inconsistency of the my computer in making the server run smoothly although it took a significant amount of time, in the end it successfully installed the needed tools to the server thus meeting the objective's goal.