Name: John Renzo L. Mendoza	**Date Performed:** November 14, 2023
Course/Section: CPE3125	**Date Submitted:** November 15, 2023
Instructor: Engr. Roman Richard	**Semester and SY:**

Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

1. Objectives

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

2. Instructions

1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME.
2. Clone the repository and do the following:
   - 2.1. Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:
   - 2.2. Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host
   - 2.3. Install Grafana,Prometheus and Influxdb in seperate hosts (Influxdb,Grafana,Prometheus)
   - 2.4. Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)
3. Document all your tasks using this document. Provide proofs of all the ansible playbooks codes and successful installations.
4. Document the push and commit from the local repository to GitHub.
5. Finally, paste also the link of your GitHub repository in the documentation.

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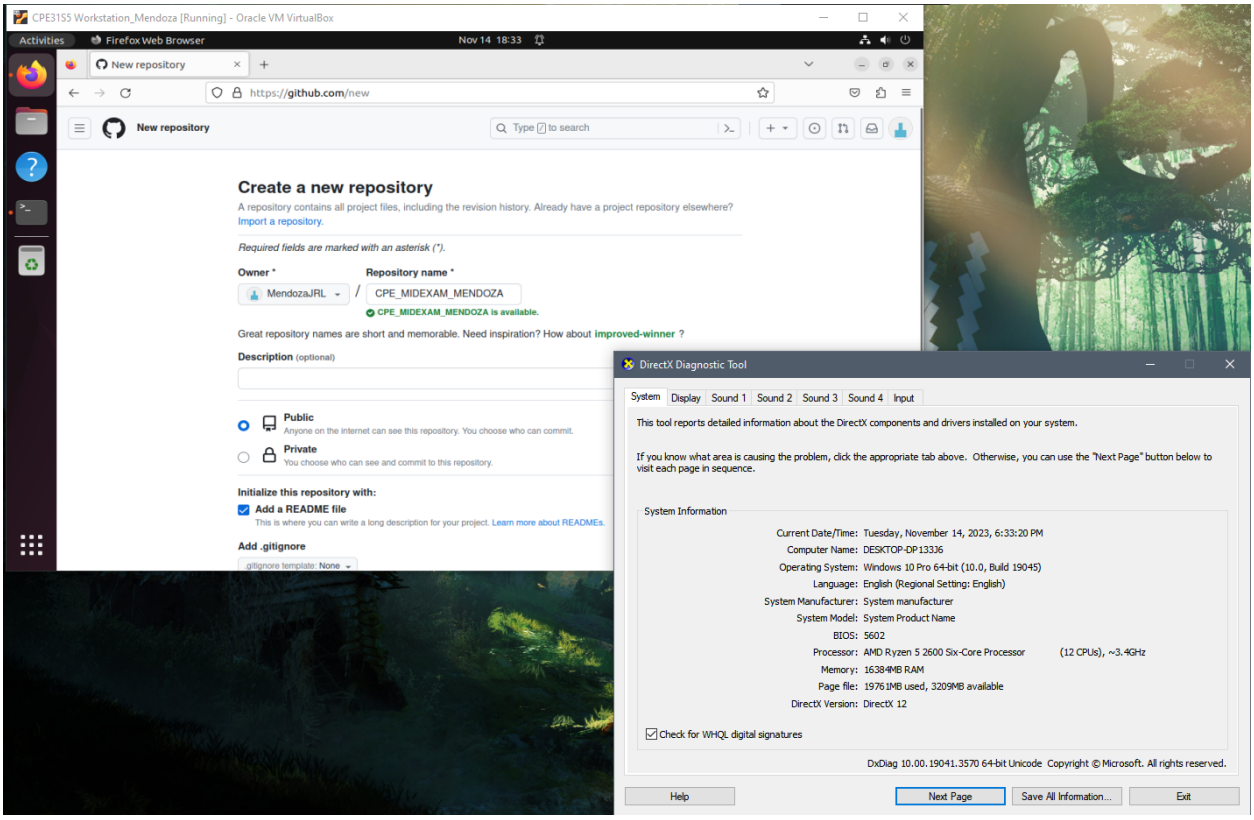
3. Output (screenshots and explanations)

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



Observation:

- I have successfully created a new repository in GitHub.

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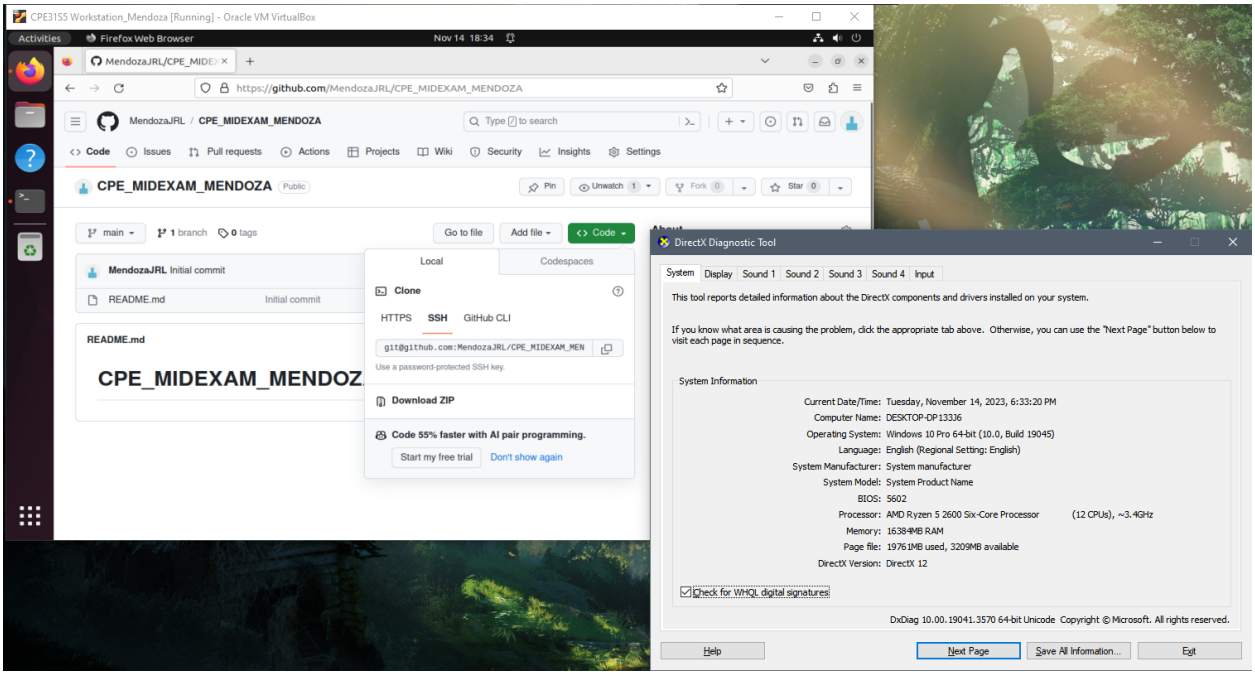

Observation:

- In the created repository, I have copied the SSH link so I can git clone it to my control node.

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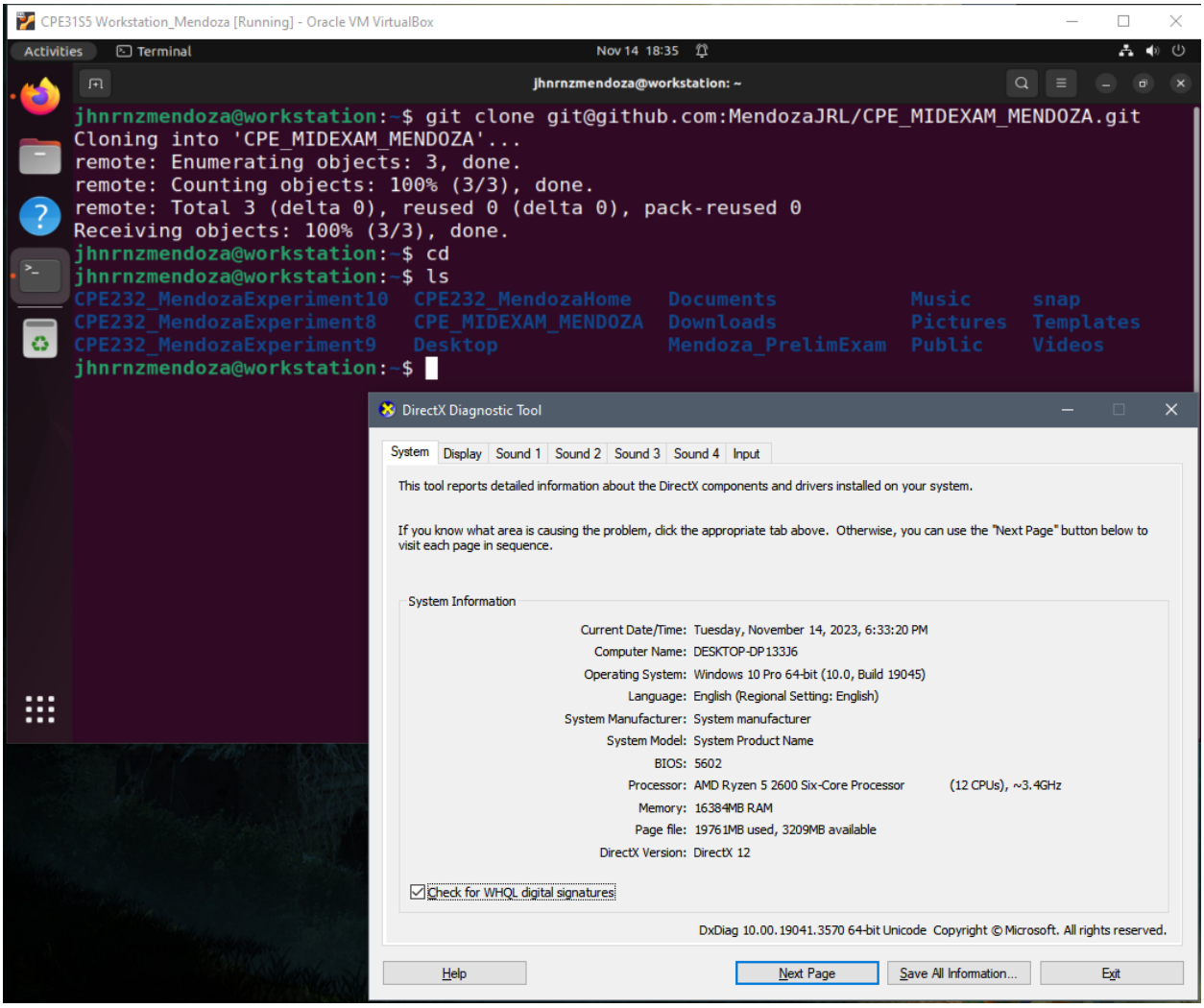

Observation:

- Using the git clone command, I have successfully cloned my repository from the GitHub website. The next procedures would be done in this repository.

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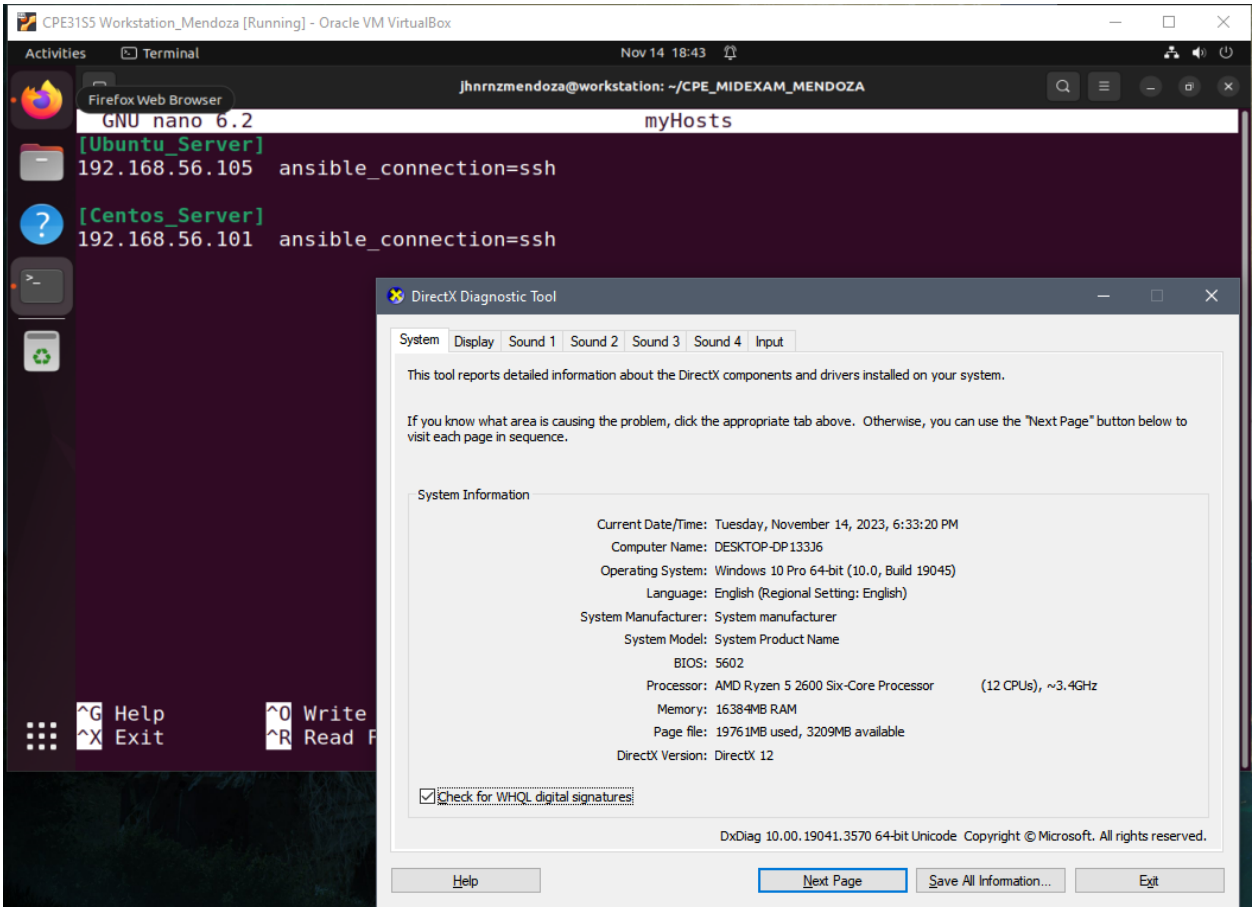

Observation:

- I have created an inventory file named myHosts, this will store the ip address of the managed nodes. In this case, one for Ubuntu, and one for CentOS. The ansible connection is SSH since the managed nodes and control nodes are connected through SSH.

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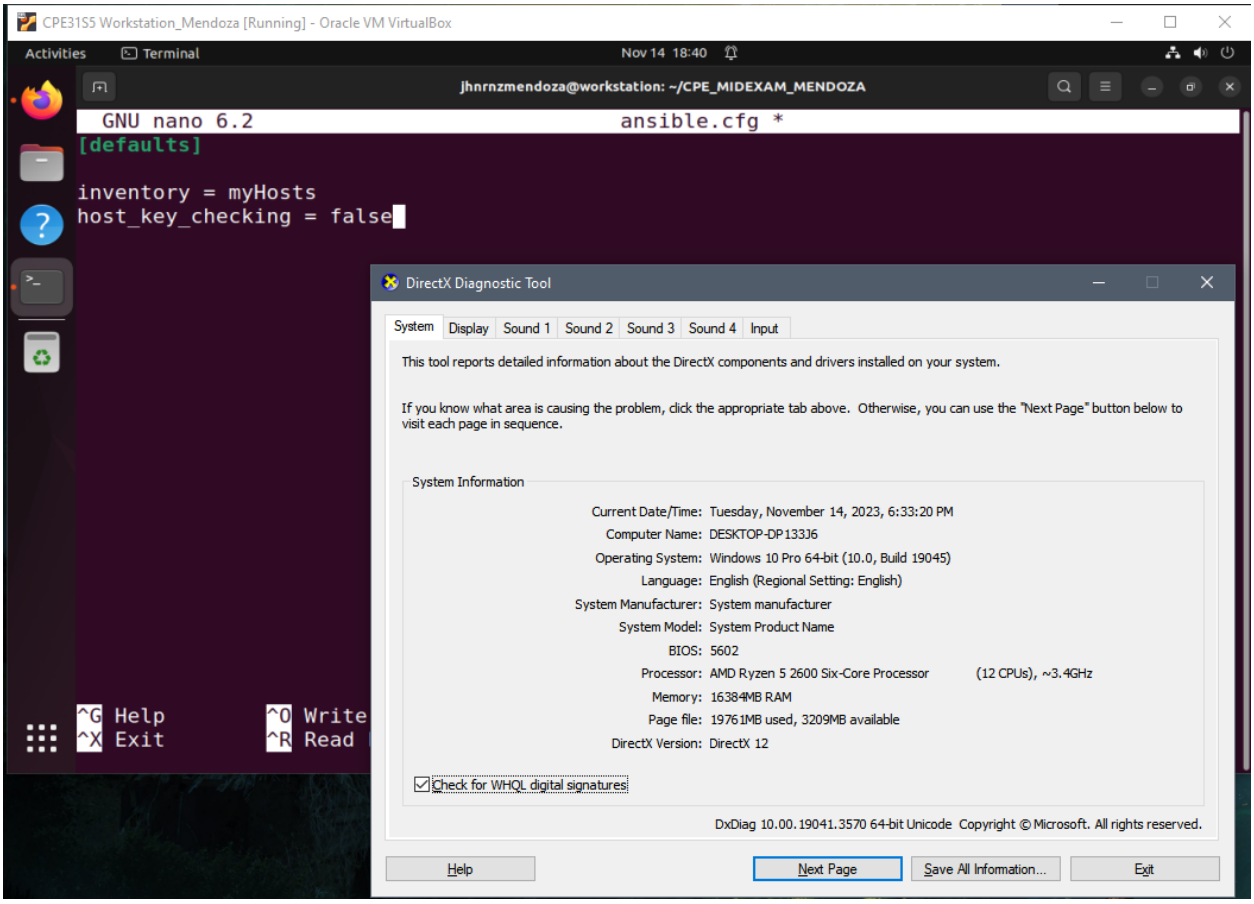

Observation:

- I have created an inventory file named myHosts, this will store the ip address of the managed nodes. In this case, one for Ubuntu, and one for CentOS. The ansible connection is SSH since the managed nodes and control nodes are connected through SSH.

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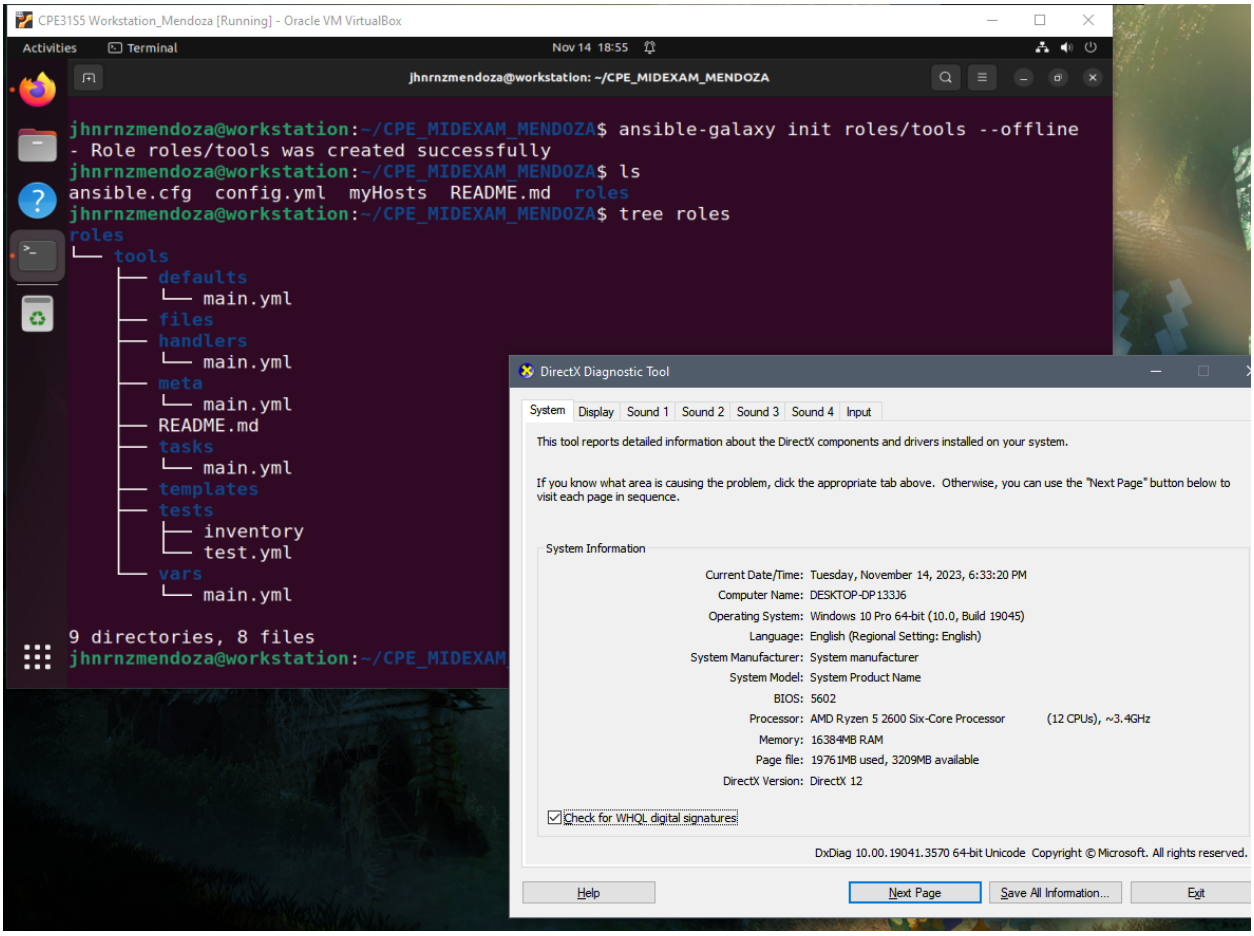

Observation:

- Using the ansible galaxy command, I have a role named tools, which will store the installation tasks needed to install the performance monitoring tools, log monitoring tools, and others.

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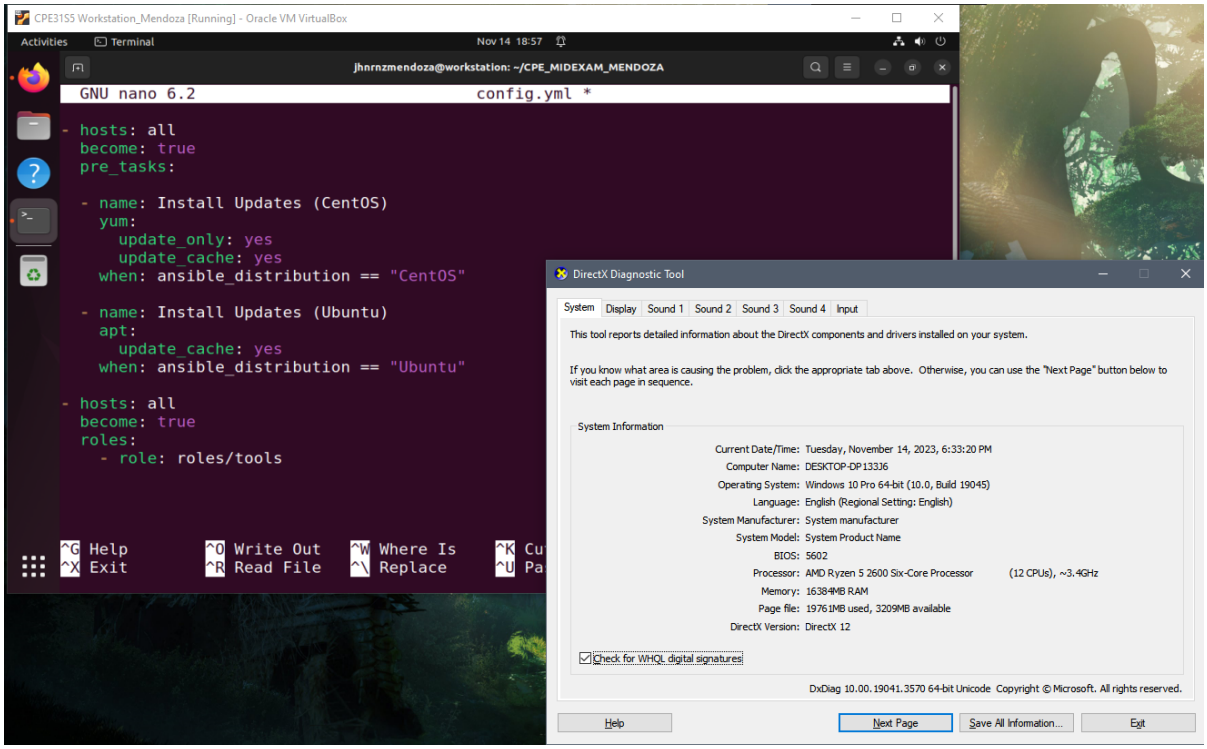
2. Clone the repository and do the following:
   a. Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file.



Observation:

- This config.yml file will initially perform pre-tasks which is to update the Ubuntu and CentOS remote servers. The other task will import the tasks that are defined in the role tools.

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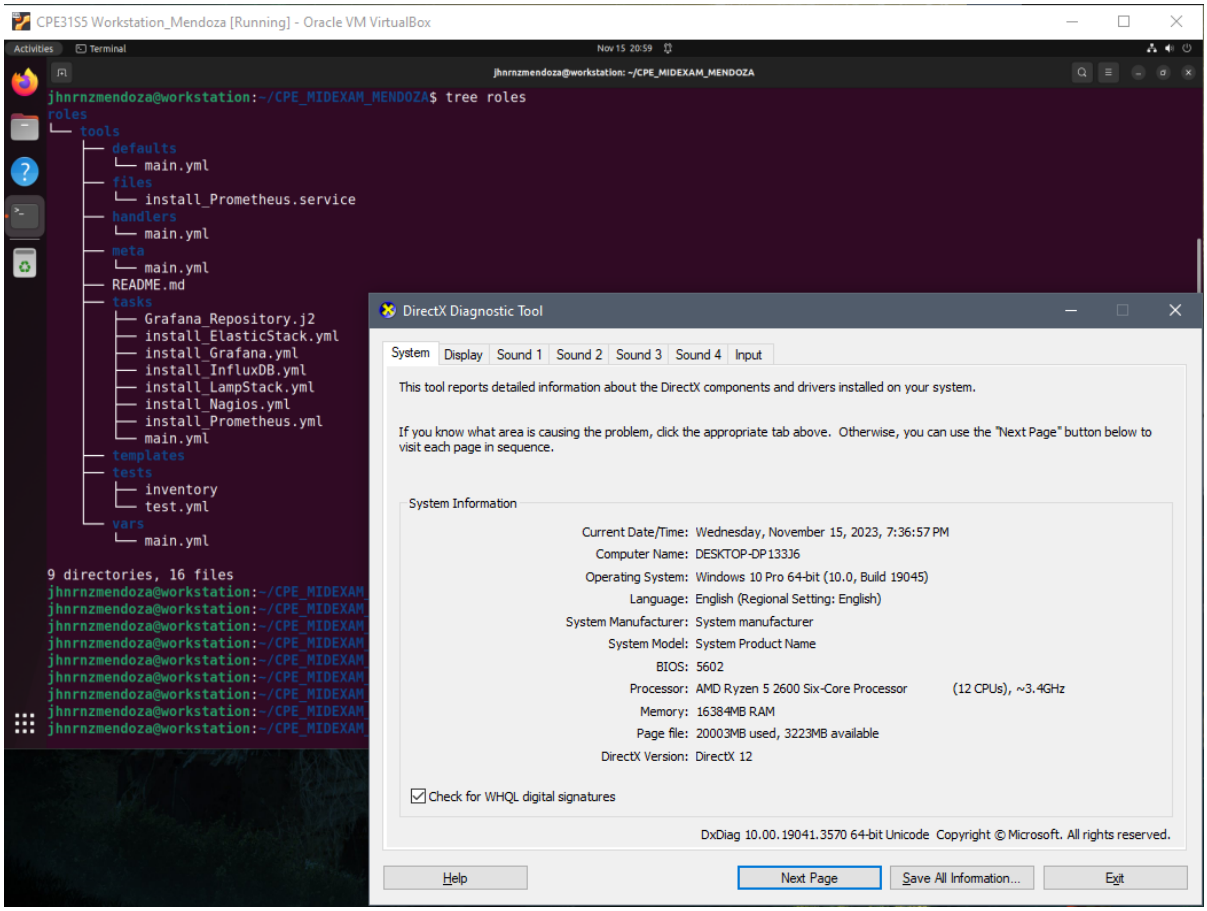

Observation:

- Using the tree command, I have shown the directories under the role tools. The performance monitoring tools, and log monitoring tools needed are in separated yml files. This is so that these yml files would only be called out in the main.yml as needed by the system administrator.

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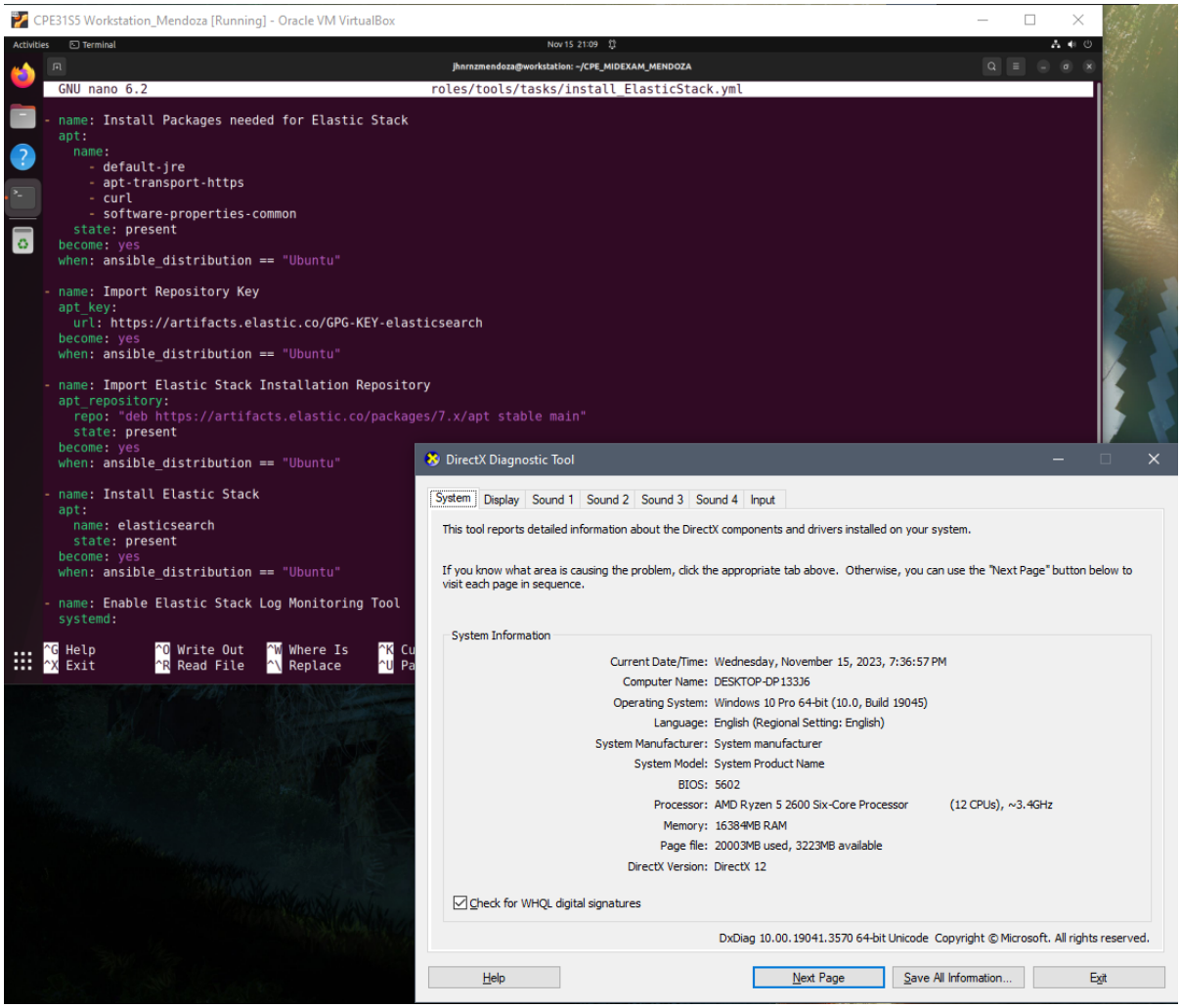
b. Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host.

install_ElasticStack.yml



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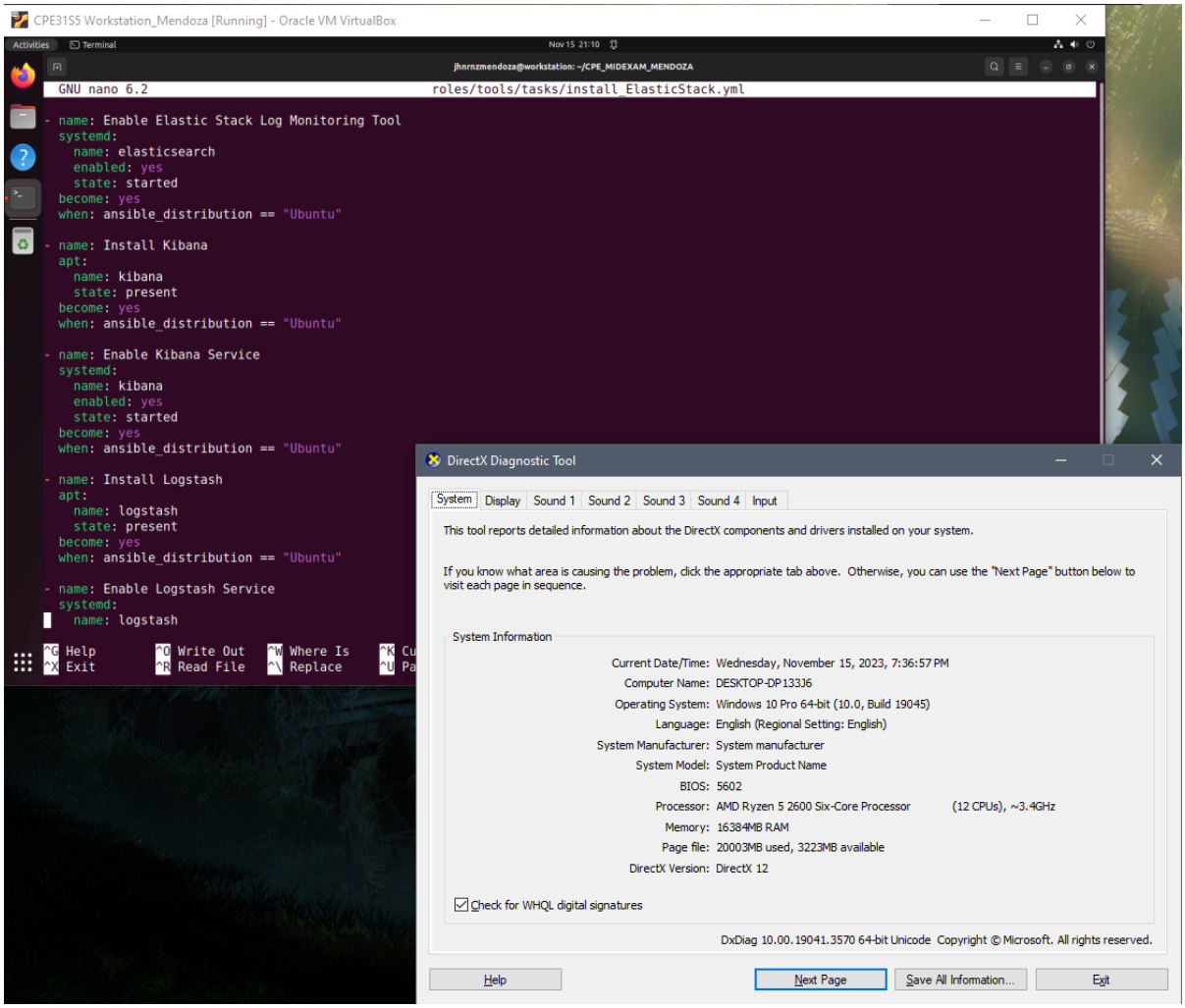

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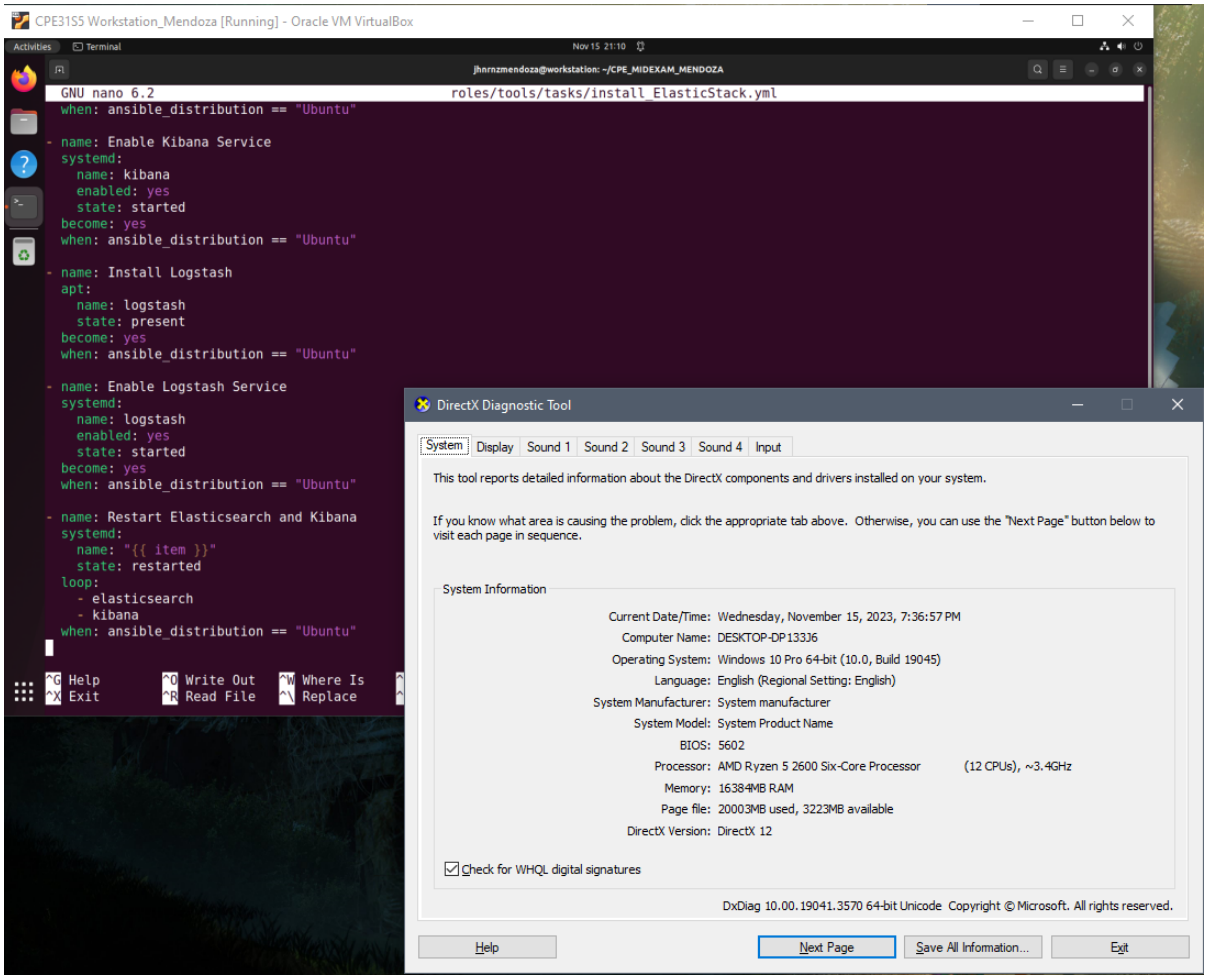

Observation:

- Initially, the tasks would install the prerequisite packages for ElasticStack. The next task would import the repository key to access the ElasticStackrepository in the next task. The third task would import the ElasticStackrepository which is responsible for installing the service. Lastly, the tasks would start and enable the service so that it can be used by the system.
- As observed, the same procedure was done for elasticsearch, kibana, and logstash.

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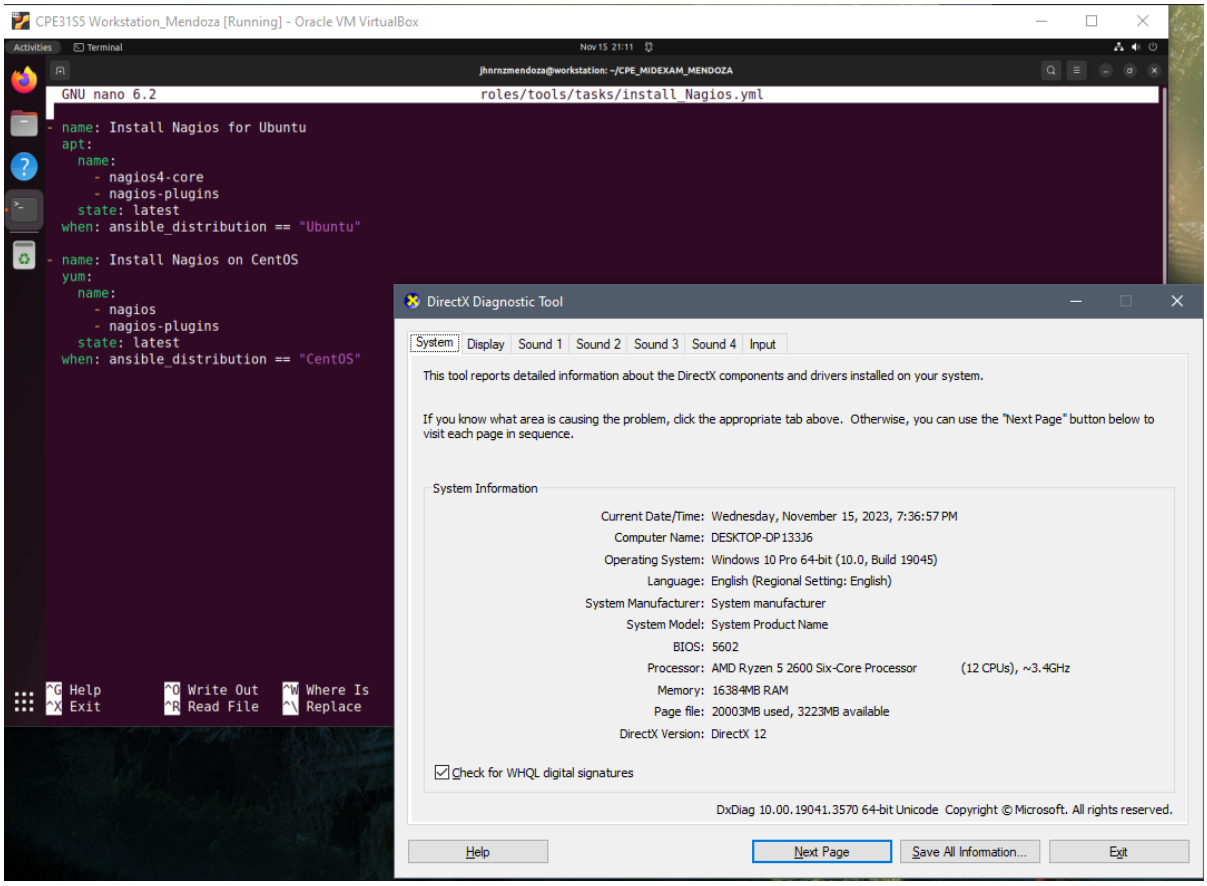
install_Nagios.yml



Observation:

- In install_Nagios.yml, the tasks are simple in which the packages needed are already pre-defined and can be installed on both of the servers.

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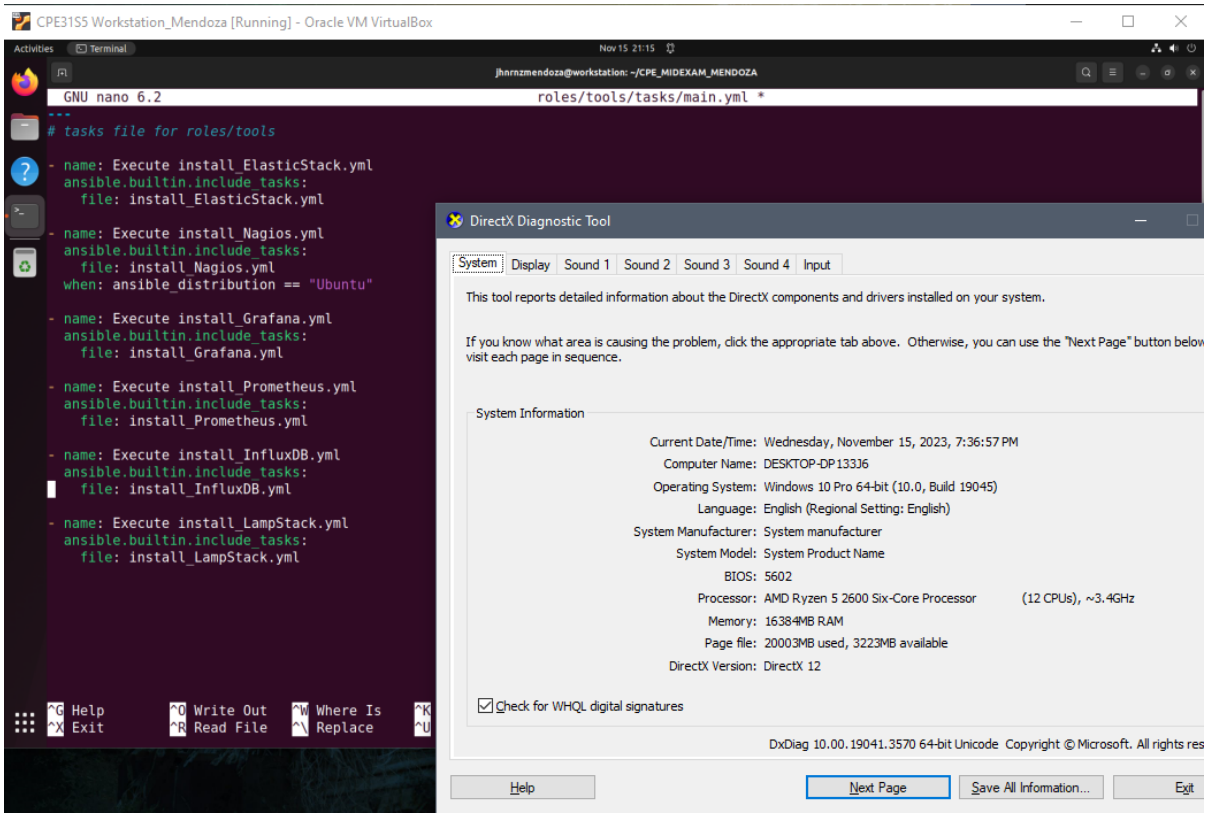
To limit the installation to one host, I have a conditional statement on the main.yml



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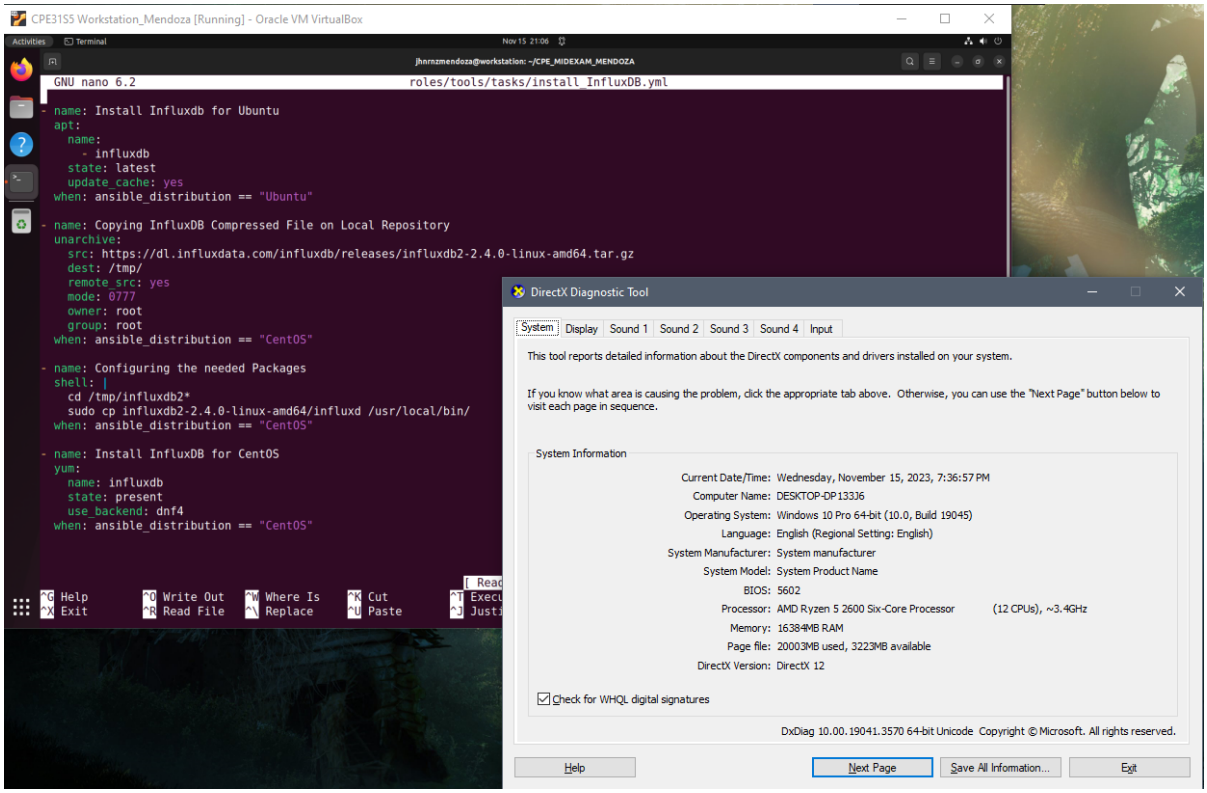
c. Install Grafana,Prometheus and Influxdb in separate hosts (Influxdb,Grafana,Prometheus).

install_InfluxDB.yml



Observation:

- Initially, the tasks would install the prerequisite packages for InfluxDB. The next task would copy the compressed file of the InfluxDB to our local terminal. These imported packages would be configured. The last task is to install and enable the InfluxDB to the remote server.

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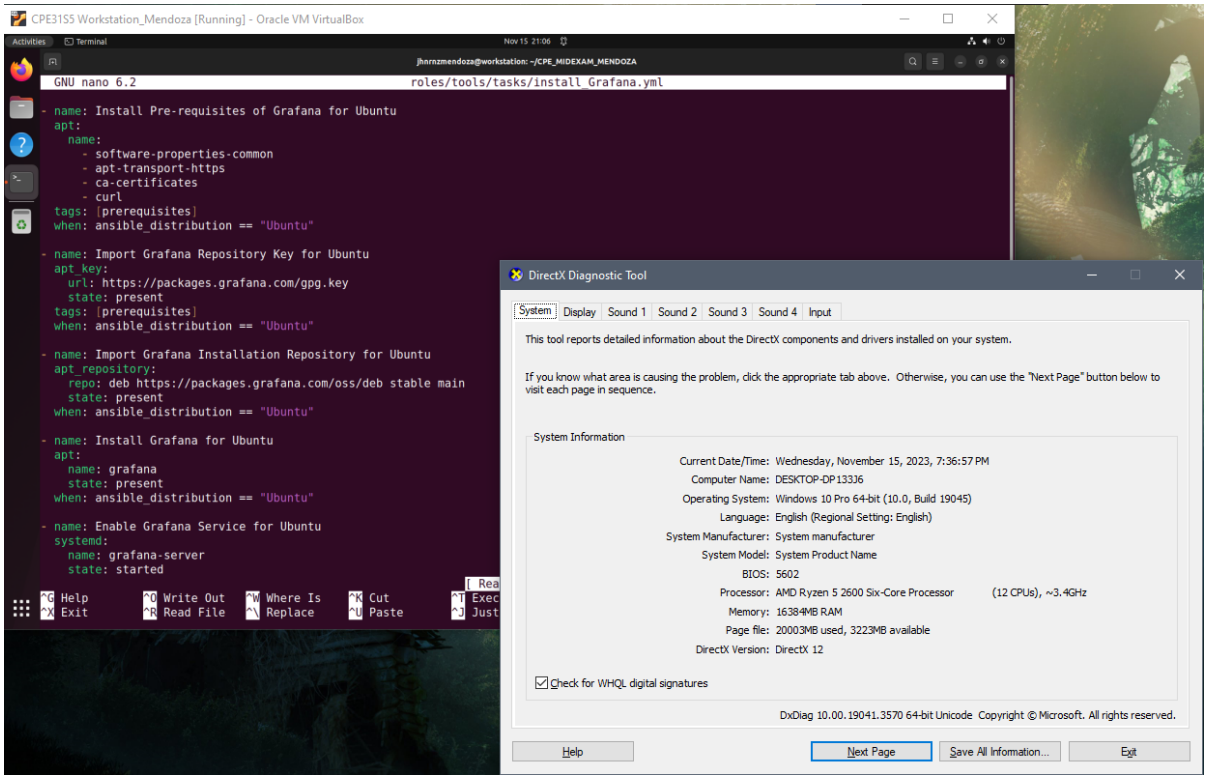
install_Grafana.yml



Observation:

- Initially, the tasks would install the prerequisite packages for Grafana. The next task would import the repository key of the Grafana to our local terminal. Then, the repository would be imported as well to our local terminal. The last task is to install and enable the Grafana service to our managed node.

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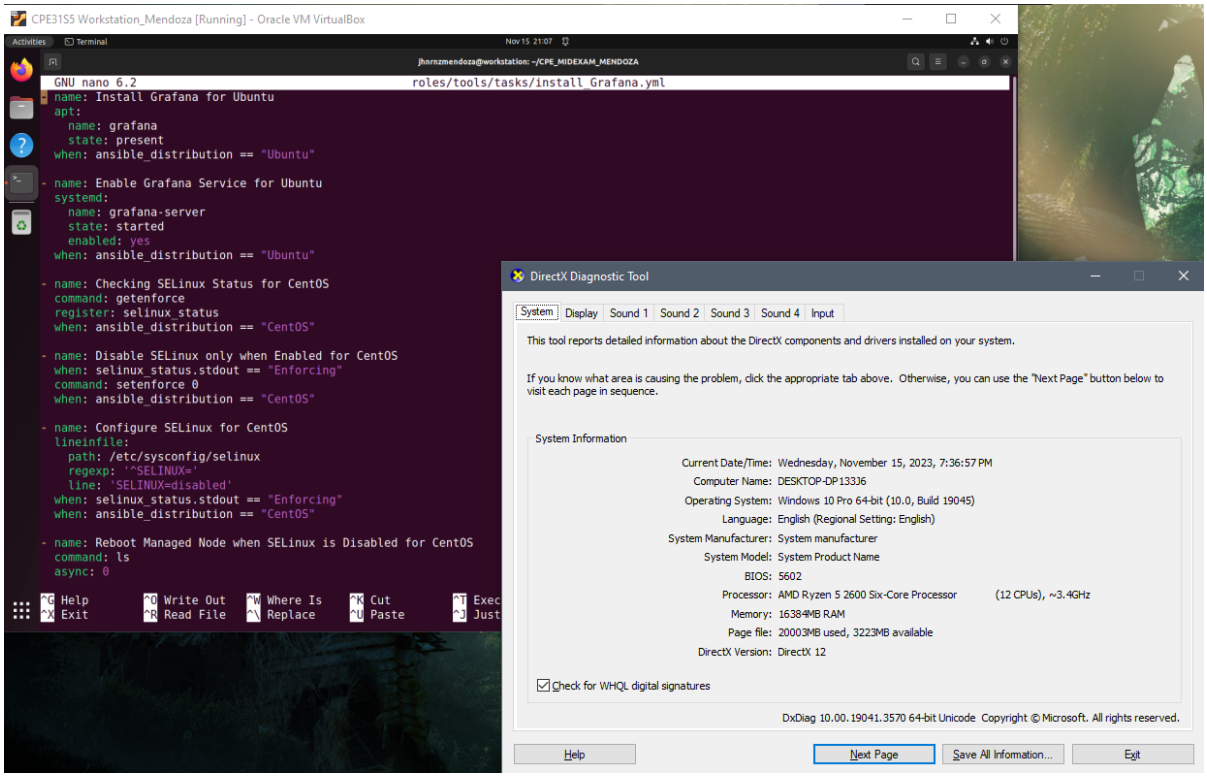

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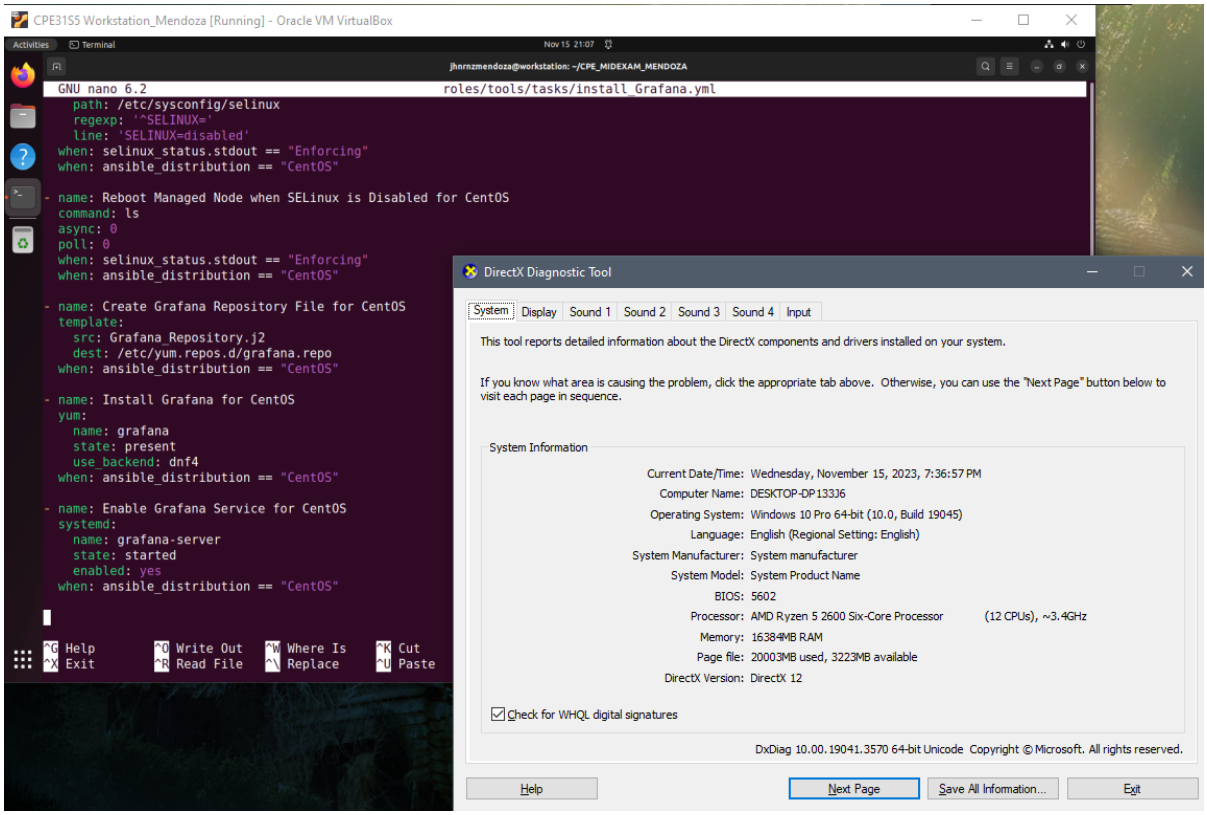

Observation:

- For the CentOS, there are tasks that require the managed node to enable and disable the getenforce as needed to prepare the managed node for the installation of grafana. After which, the managed node is also required to reboot. Then, the last tasks would be the installation of Grafana and enabling it so that the managed node can use the service.

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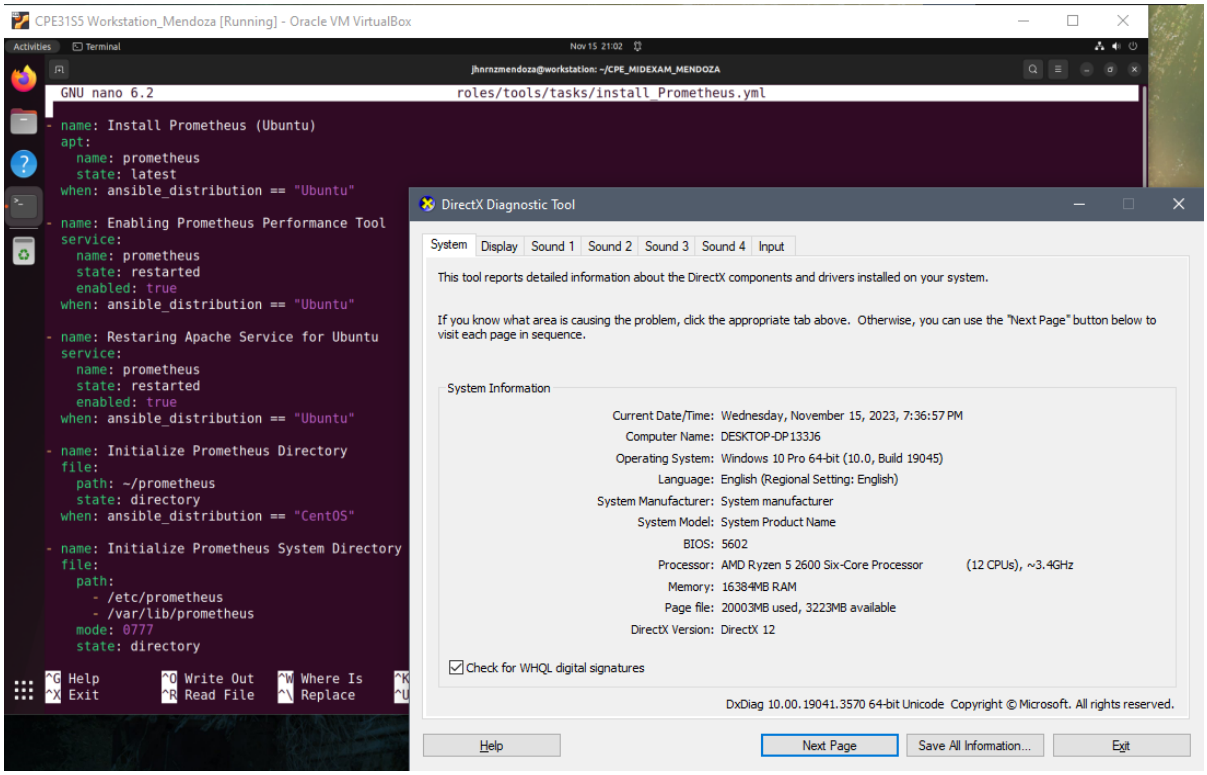
install_Prometheus.yml



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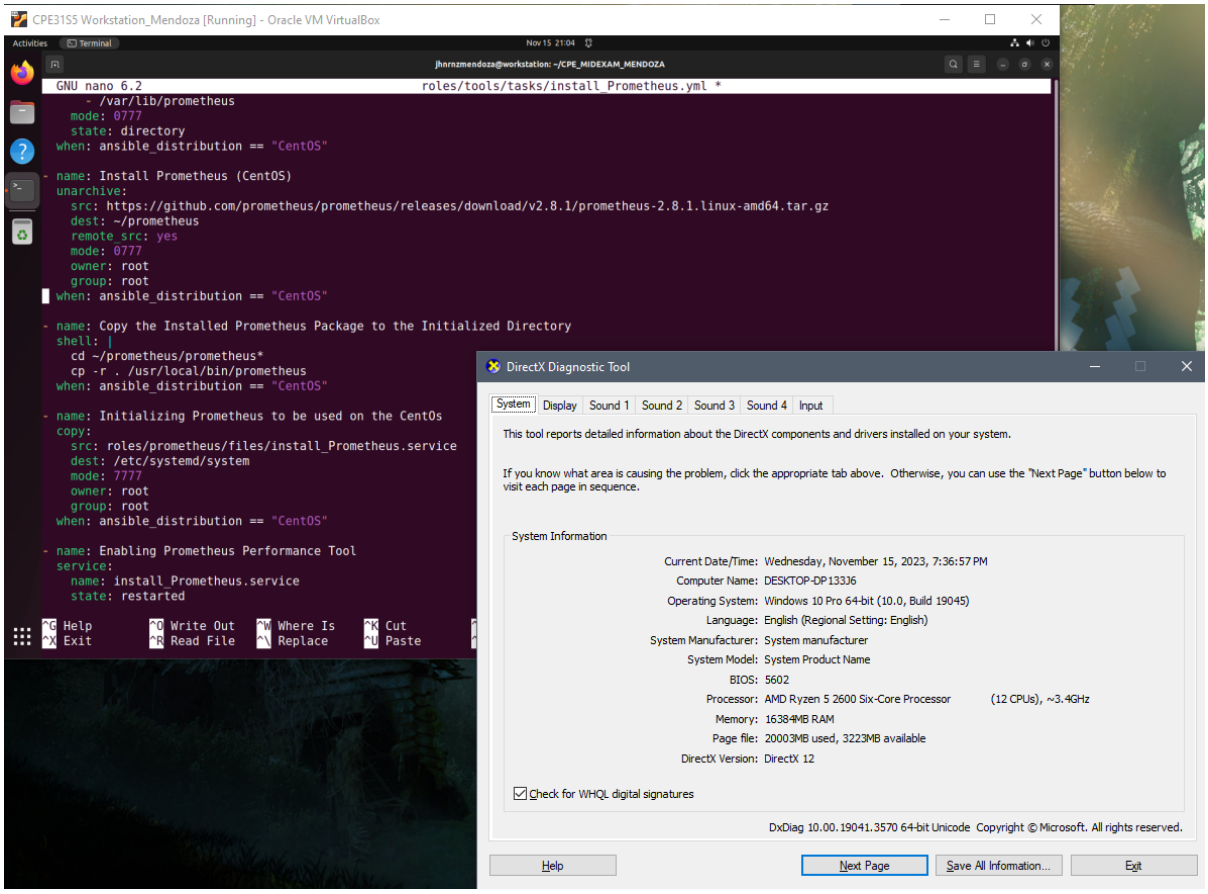

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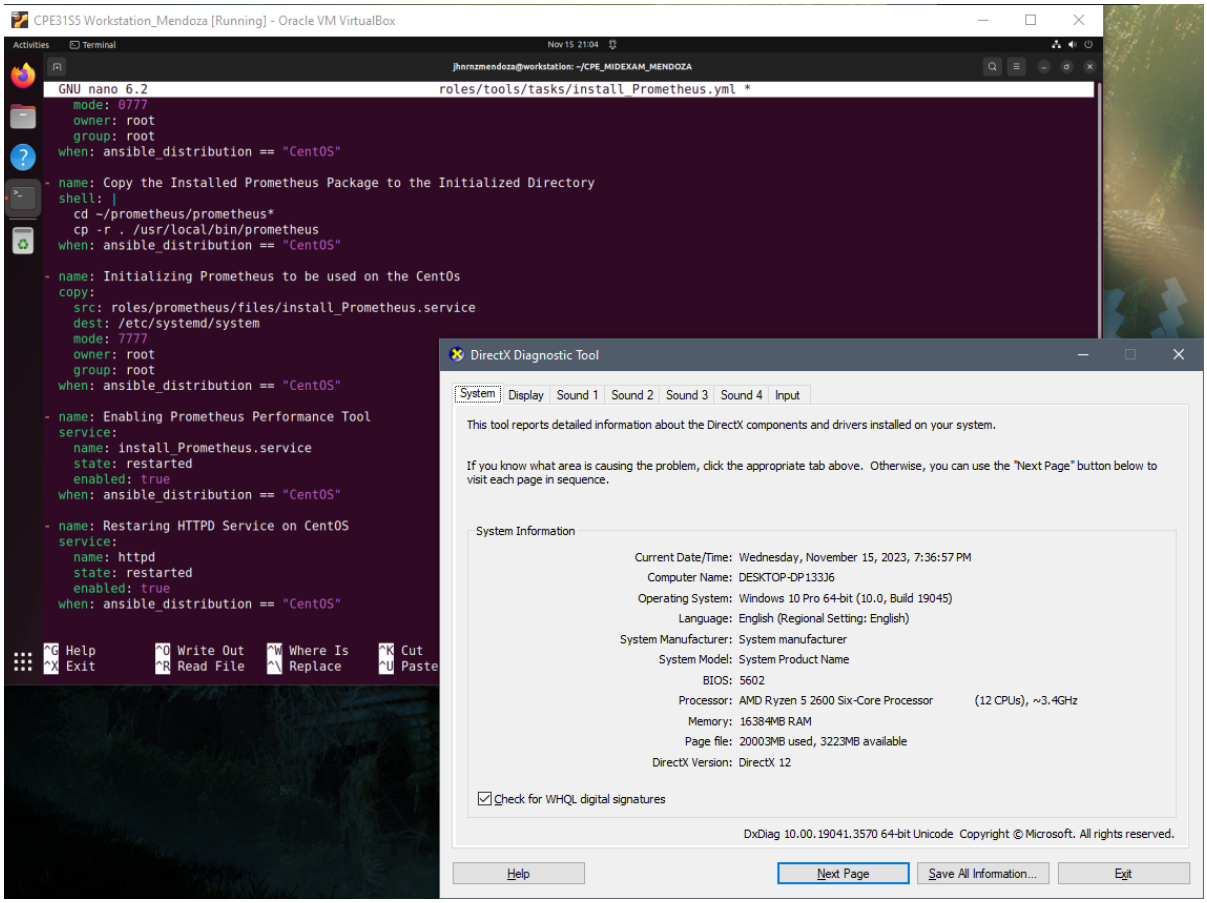

Observation:

- This install_Prometheus.yml would install prometheus on Ubuntu and CentOS. For Ubuntu, the tasks are relatively shorter, as it can directly install prometheus, and enable prometheus so that it can be implemented on the managed node.
- For CentOS, the tasks are longer as it needs to import the repository key, the repository, as well as prerequisite packages needed to install Prometheus. Lastlt, it will install prometheus and enable the service for the server.

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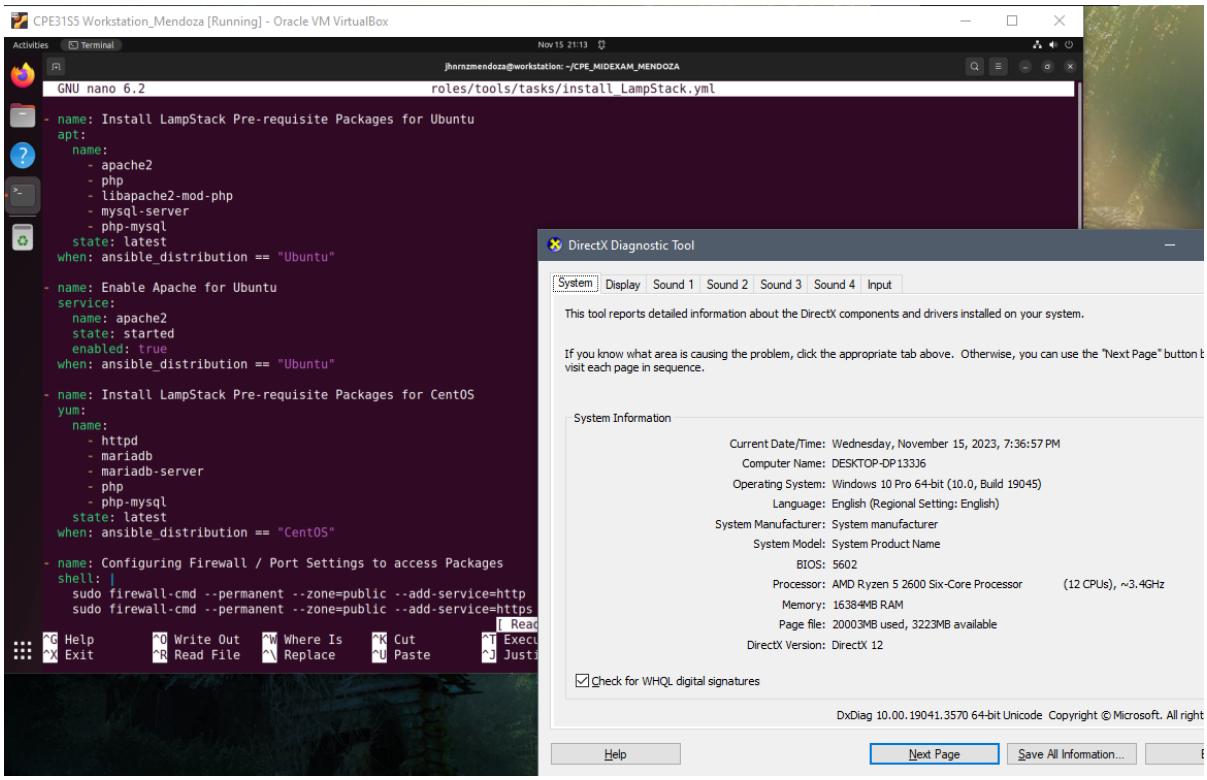
d. Install Lamp Stack in separate hosts (Httpd + Php,Mariadb).

install_LampStack.yml



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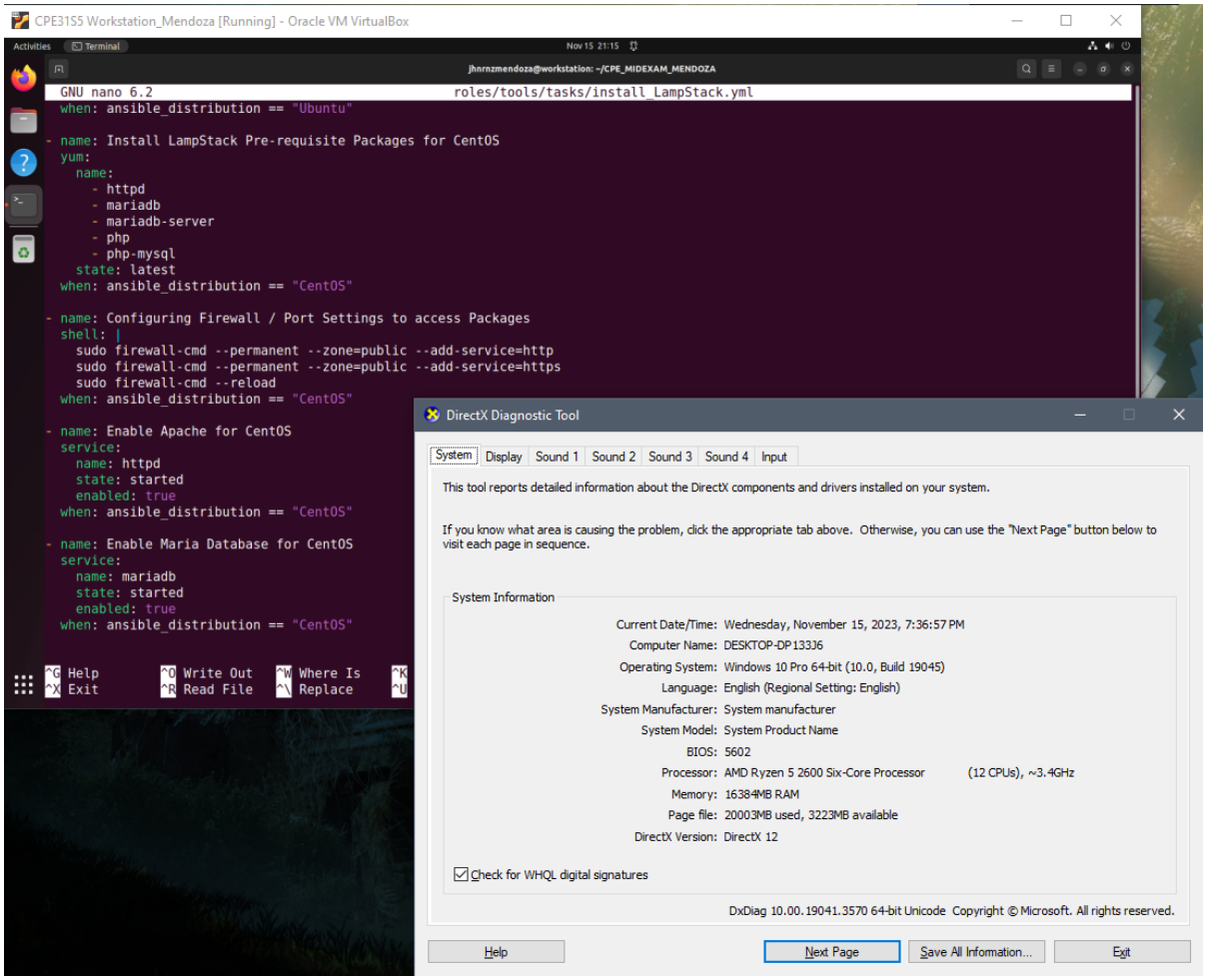

Observation:

- The LampStack tools are composed of Apache2 for Ubuntu, Httpd, and MariaDB for CentOS. All of the configurations would simply install each of the tools and enable them so that the target managed nodes would be able to use them.

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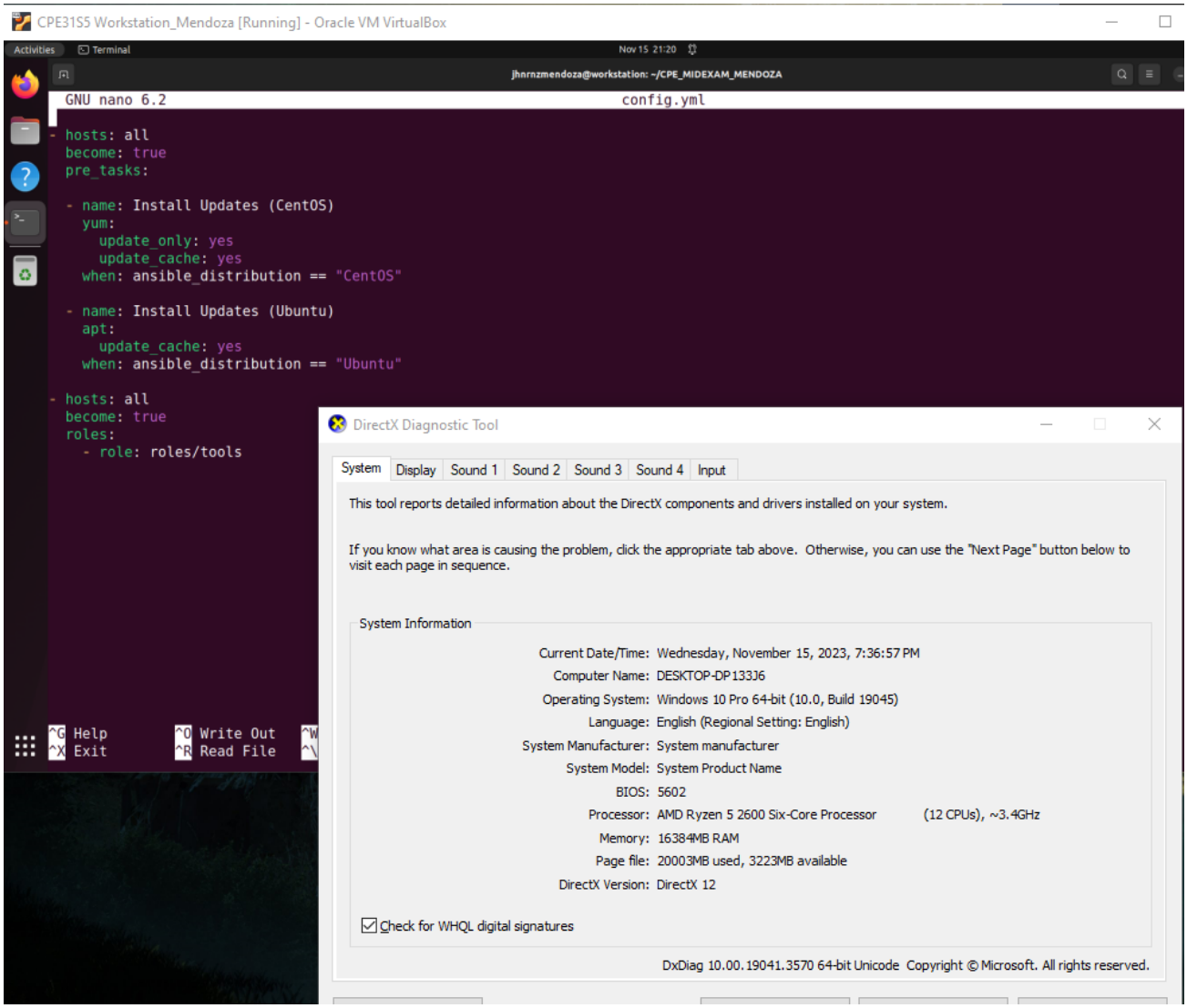
3. Document all your tasks using this document. Provide proofs of all the ansible playbooks codes and successful installations.

config.yml



Observation:

- In this config.yml, the pre-tasks is to update the managed nodes before performing installation of the required tools. Then, it will import tasks from the roles/tools/tasks folder.

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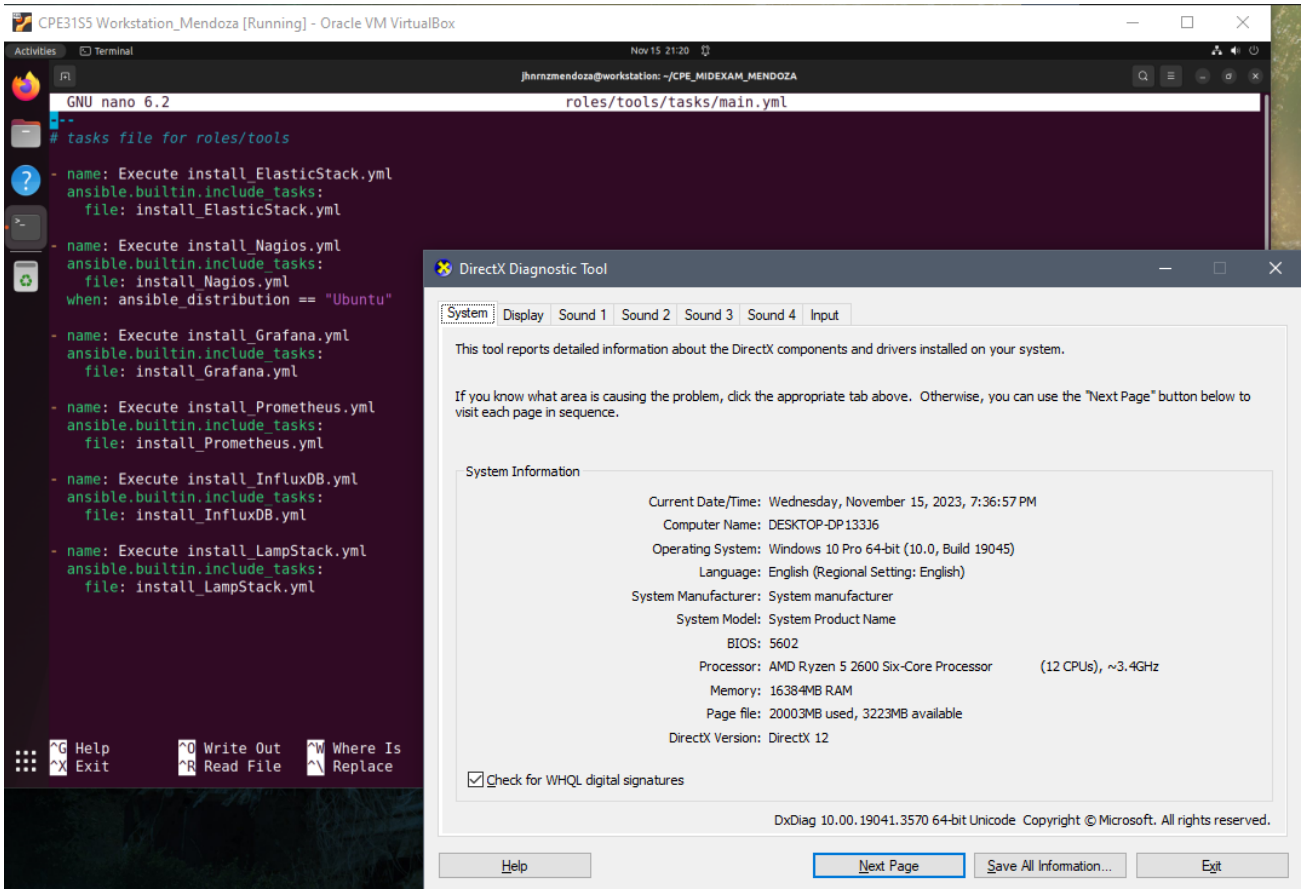
roles/tools/tasks/main.yml



Observation:

- In this screenshot, I have shown the main.yml file that is defined in the roles/tools/tasks directory. This playbook file will cover the needed installation tasks. All of the tools needed are installed on both managed nodes, except the Nagios tool, as it is only installed in one node which is Ubuntu.

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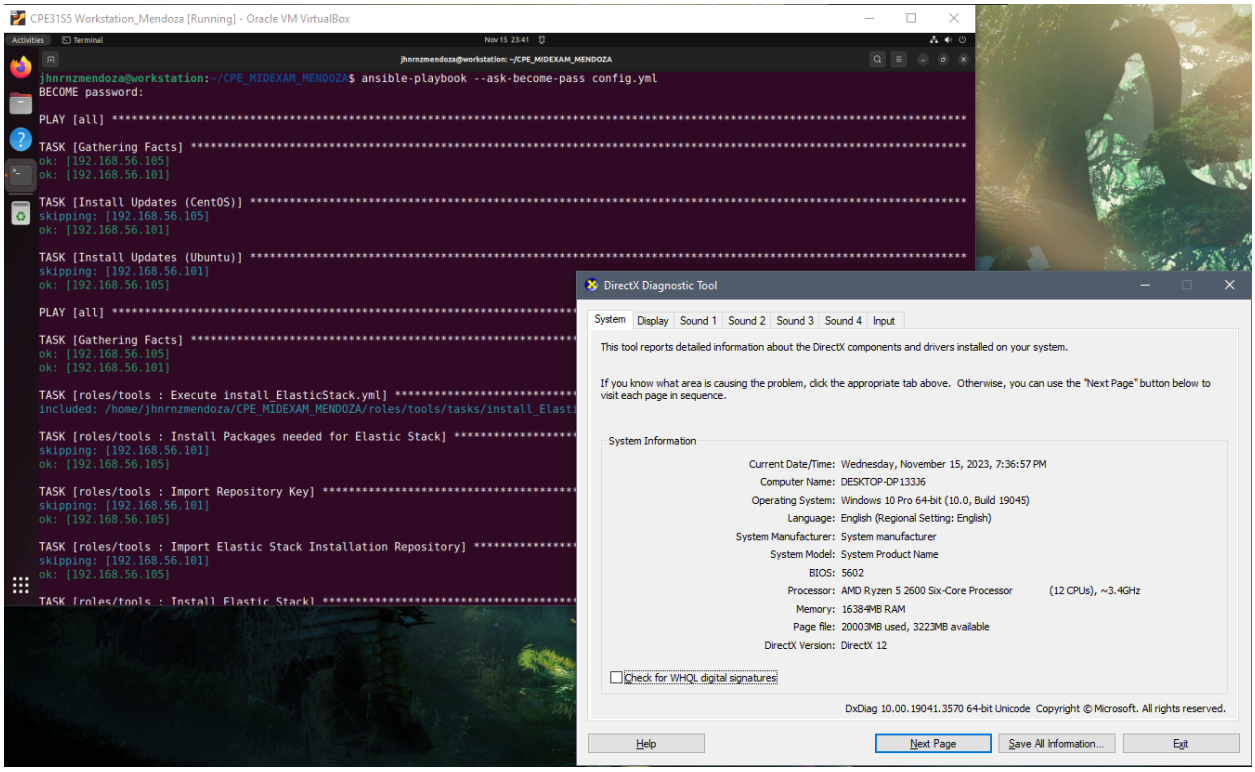
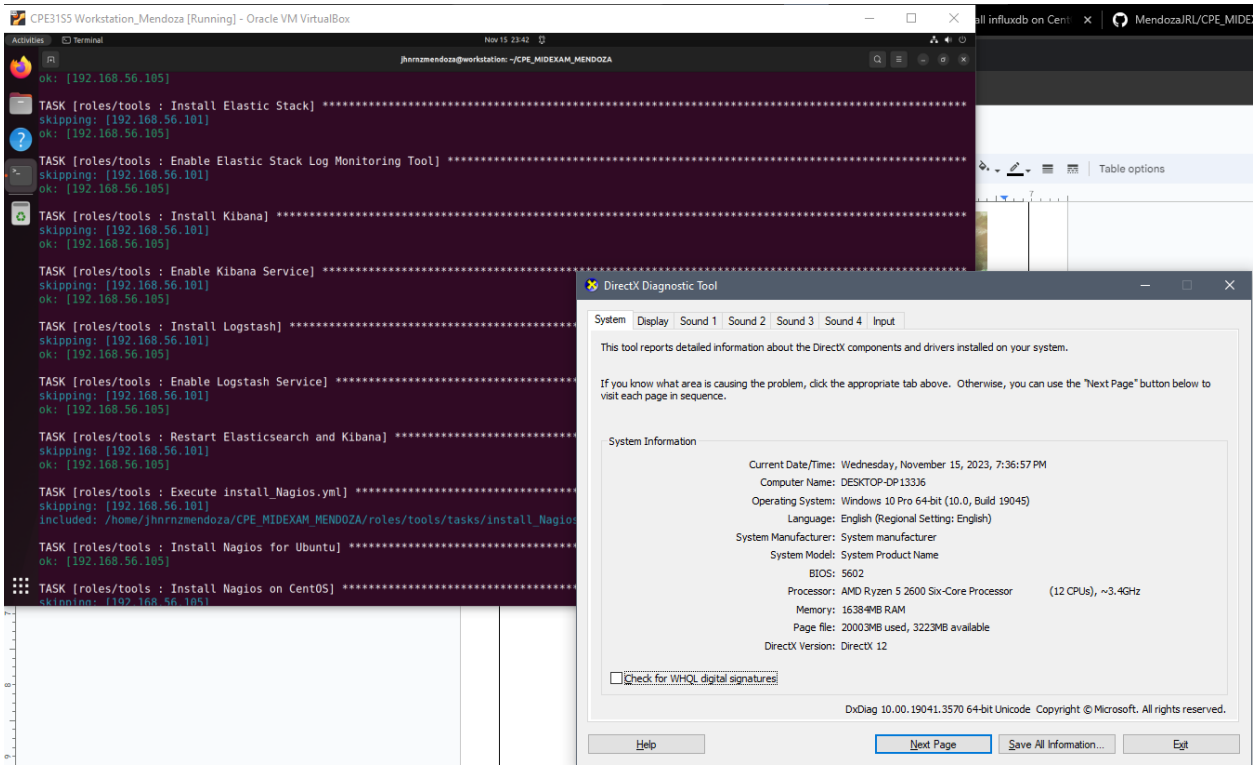
Playbook Output:





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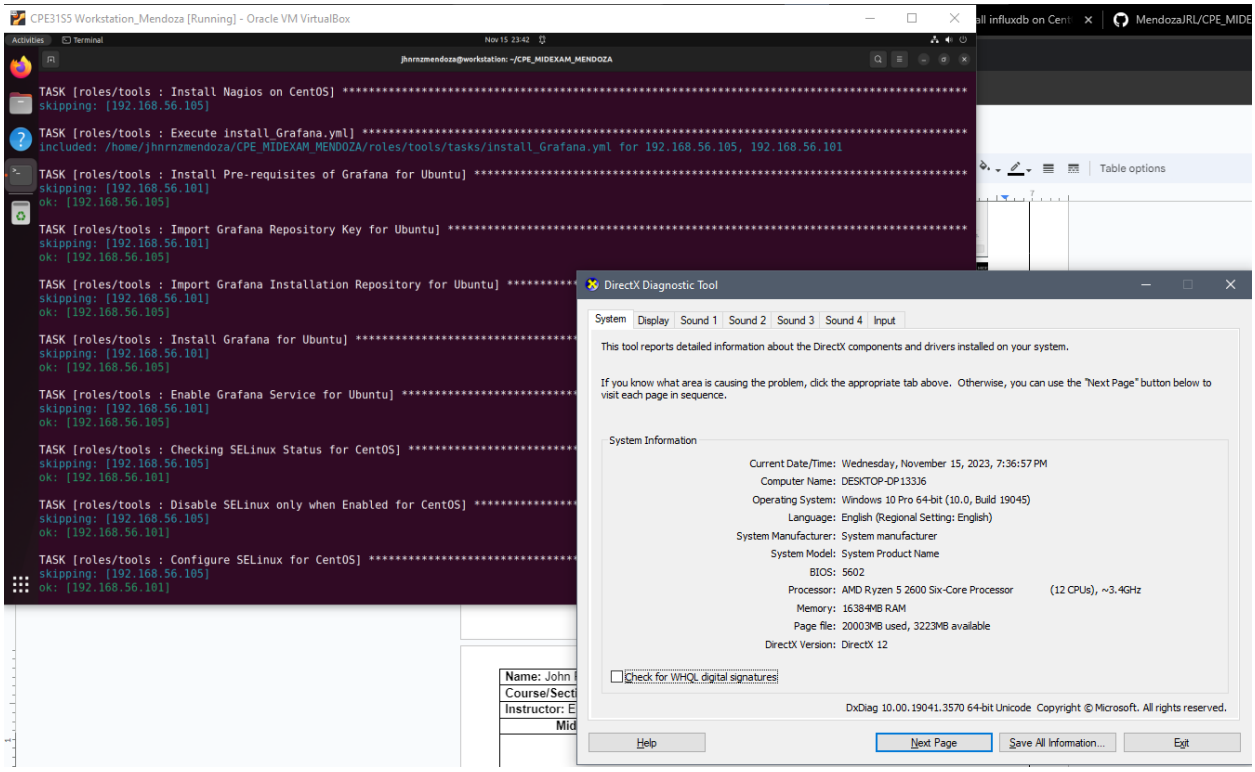

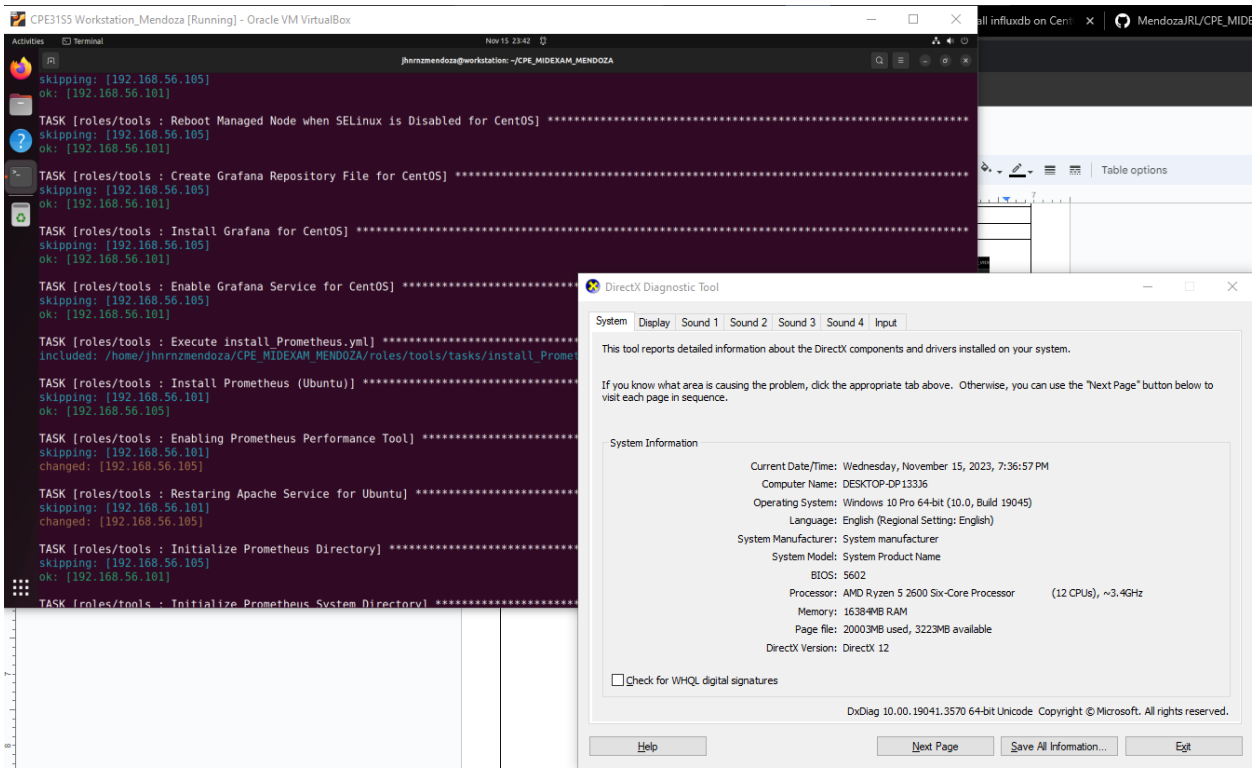

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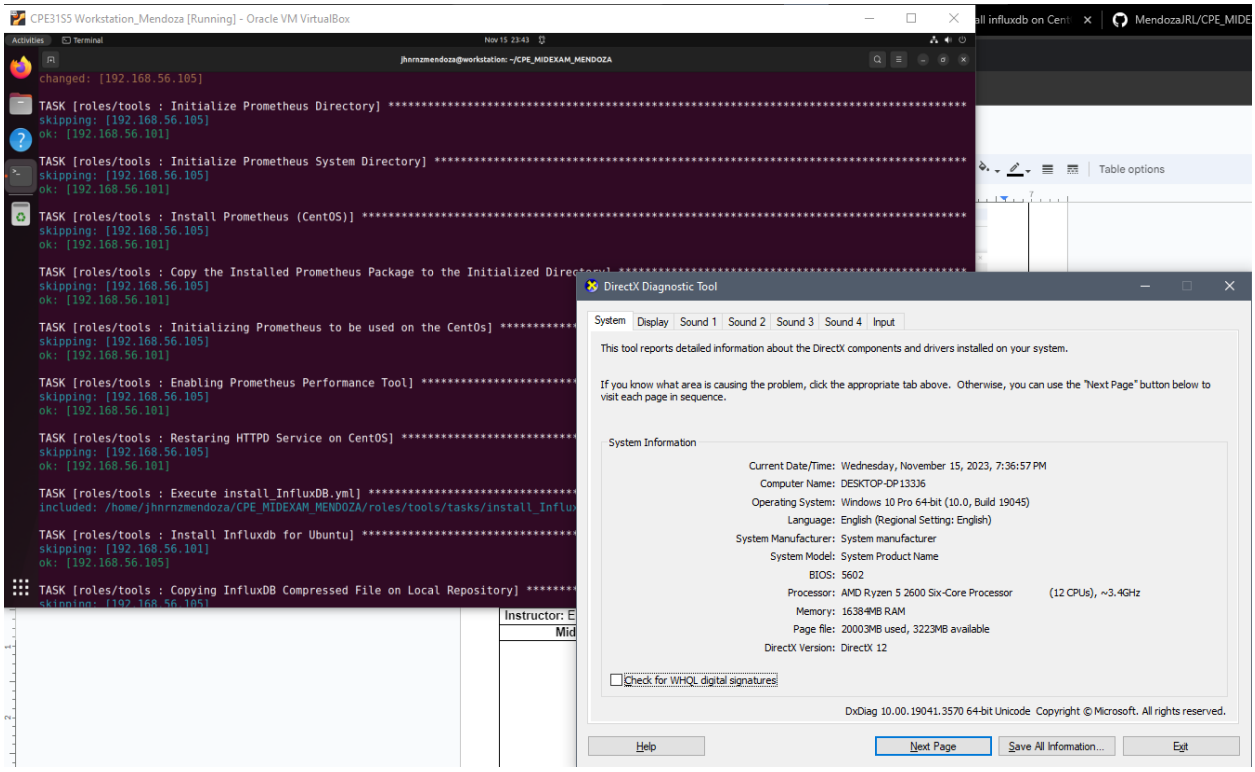

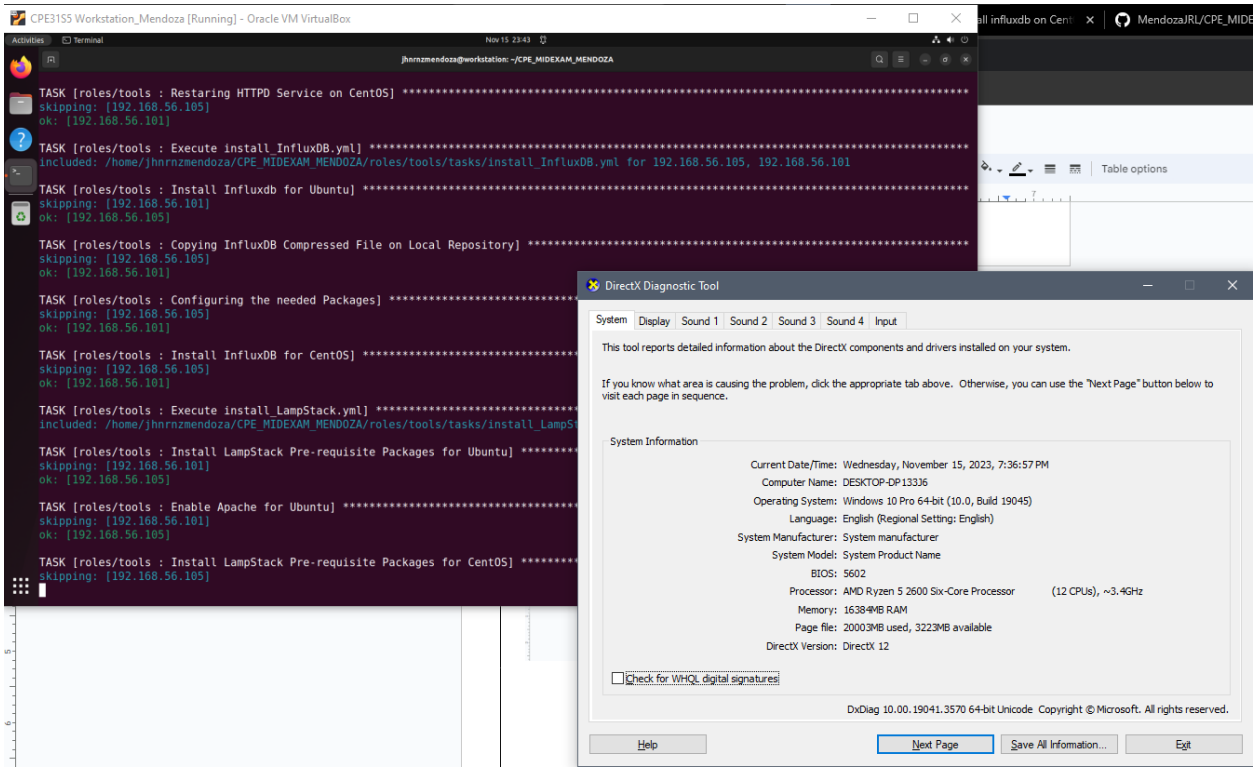

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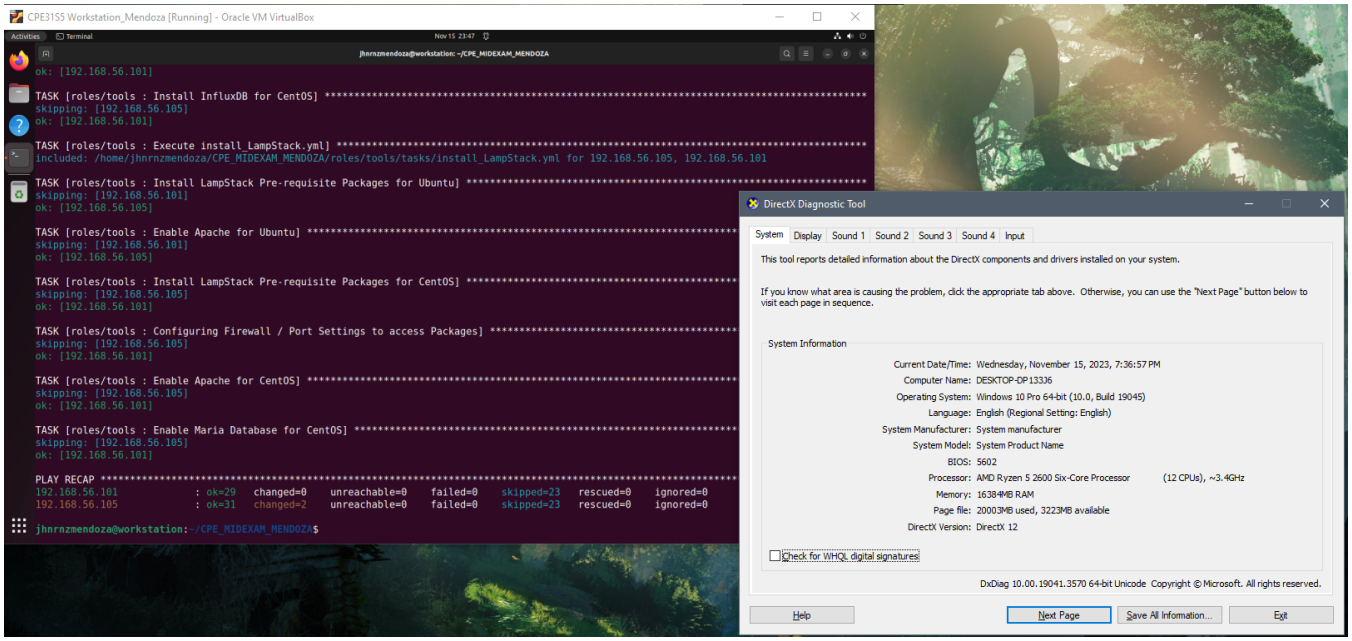
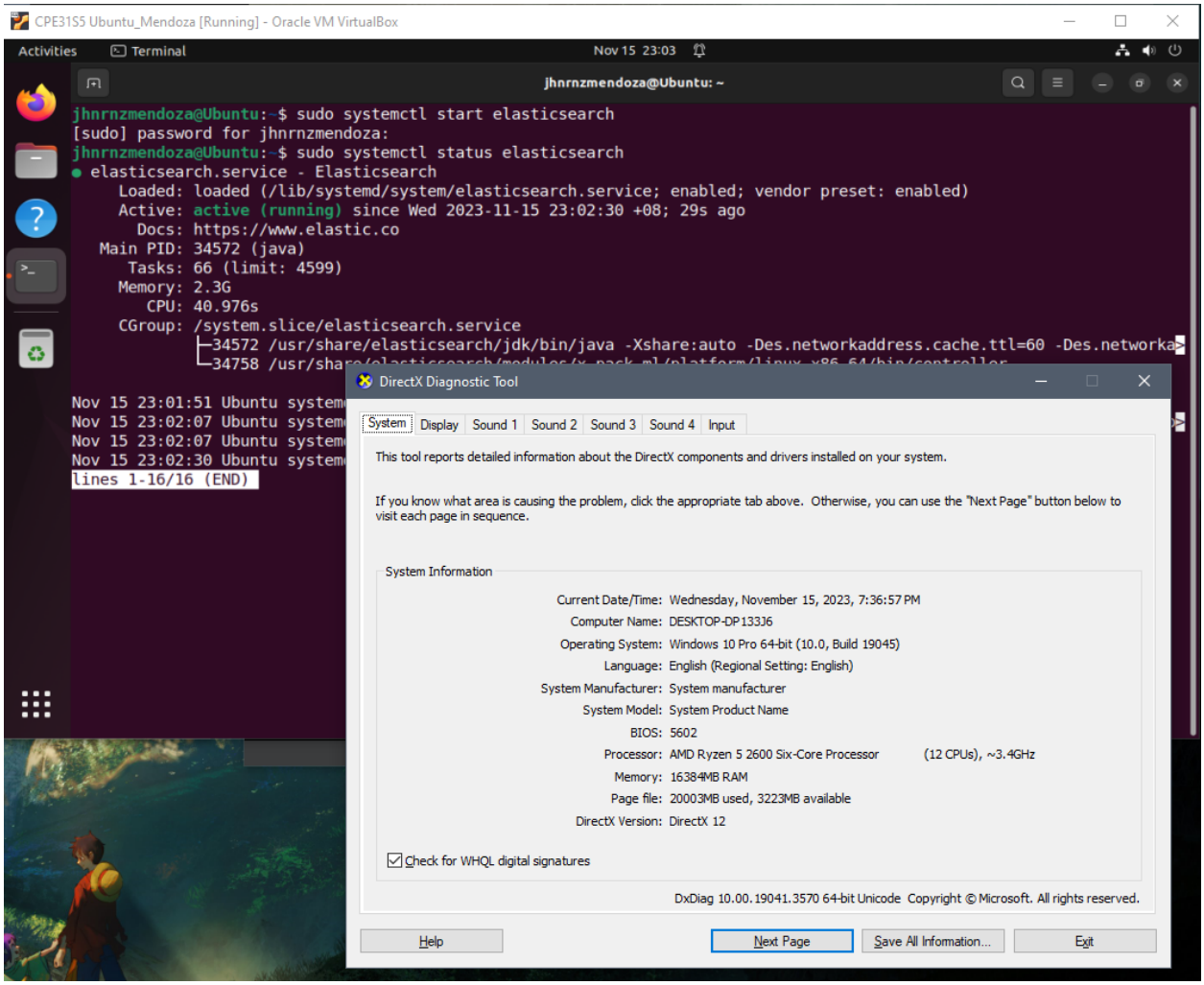
Midterm Skills Exam: **Install, Configure, and Manage Log Monitoring tools**



Name: John Renzo L. Mendoza	**Date Performed:** November 14, 2023
Course/Section: CPE3125	**Date Submitted:** November 15, 2023
Instructor: Engr. Roman Richard	**Semester and SY:**

Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

Ubuntu: Successful Installation of ElasticStack



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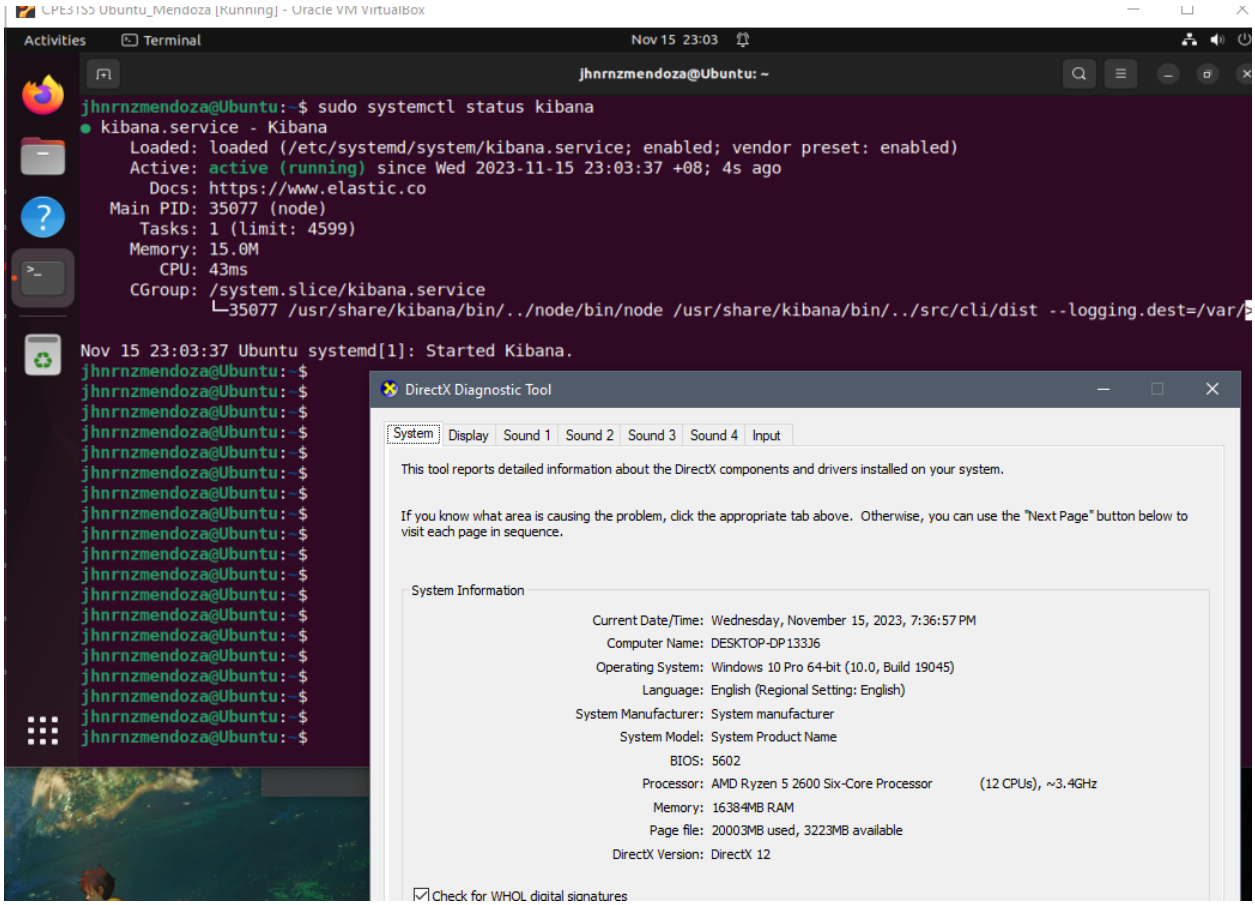
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools



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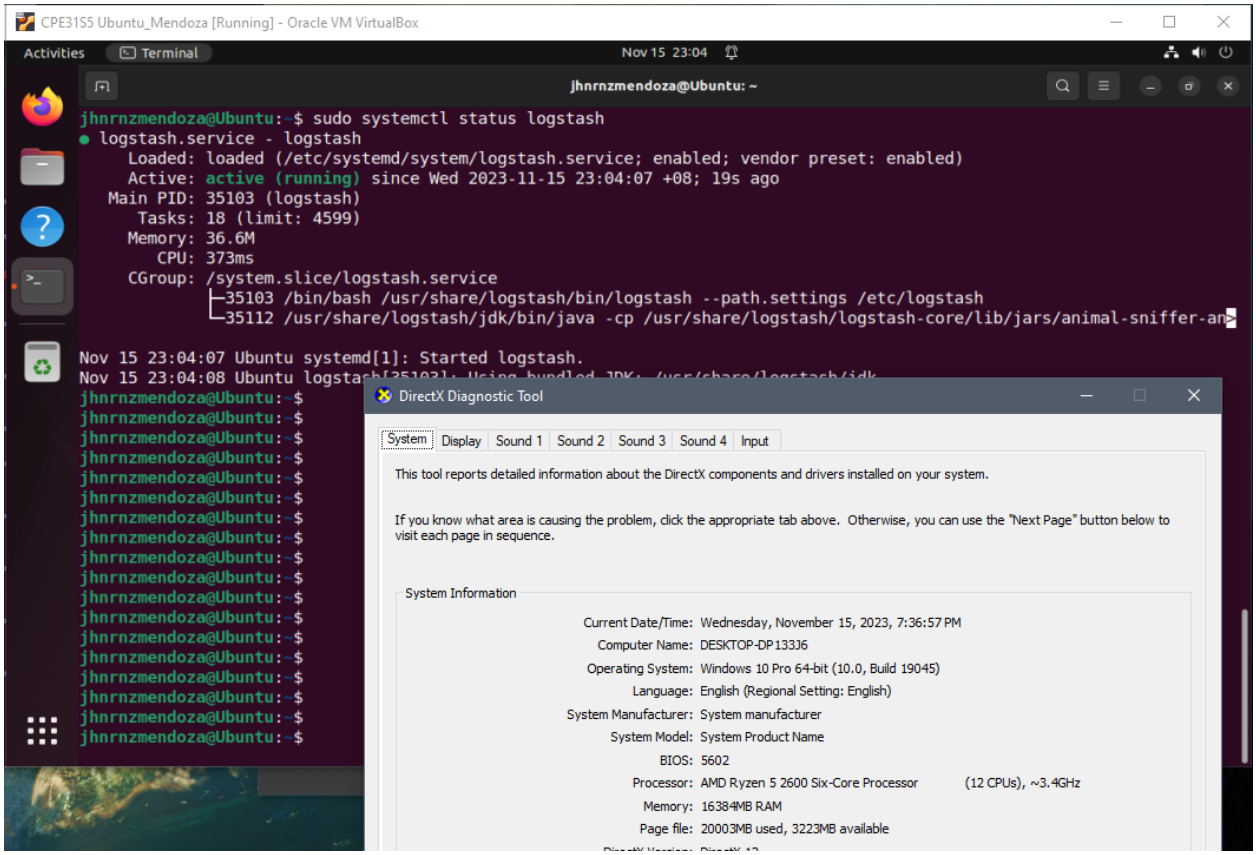
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools



Observation:

- In this screenshot, ElasticStackis successfully installed on the CentOS managed node. I have used the sudo systemctl command to show that it is enabled and running.

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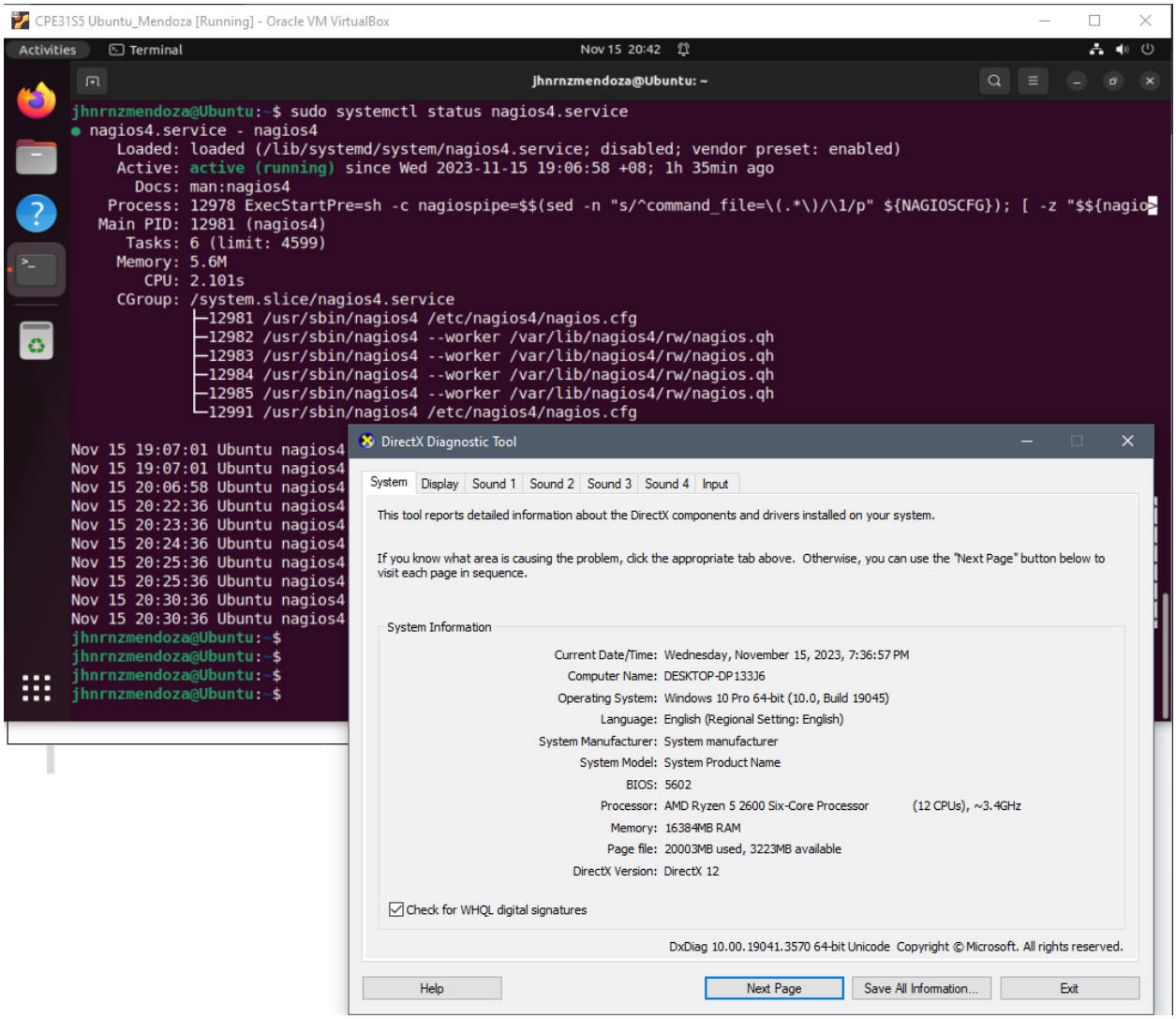
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

Ubuntu: Successful Installation of Nagios



Observation:

- In this screenshot, Nagios is successfully installed on the Ubuntu managed node. I have used the sudo systemctl command to show that it is enabled and running.

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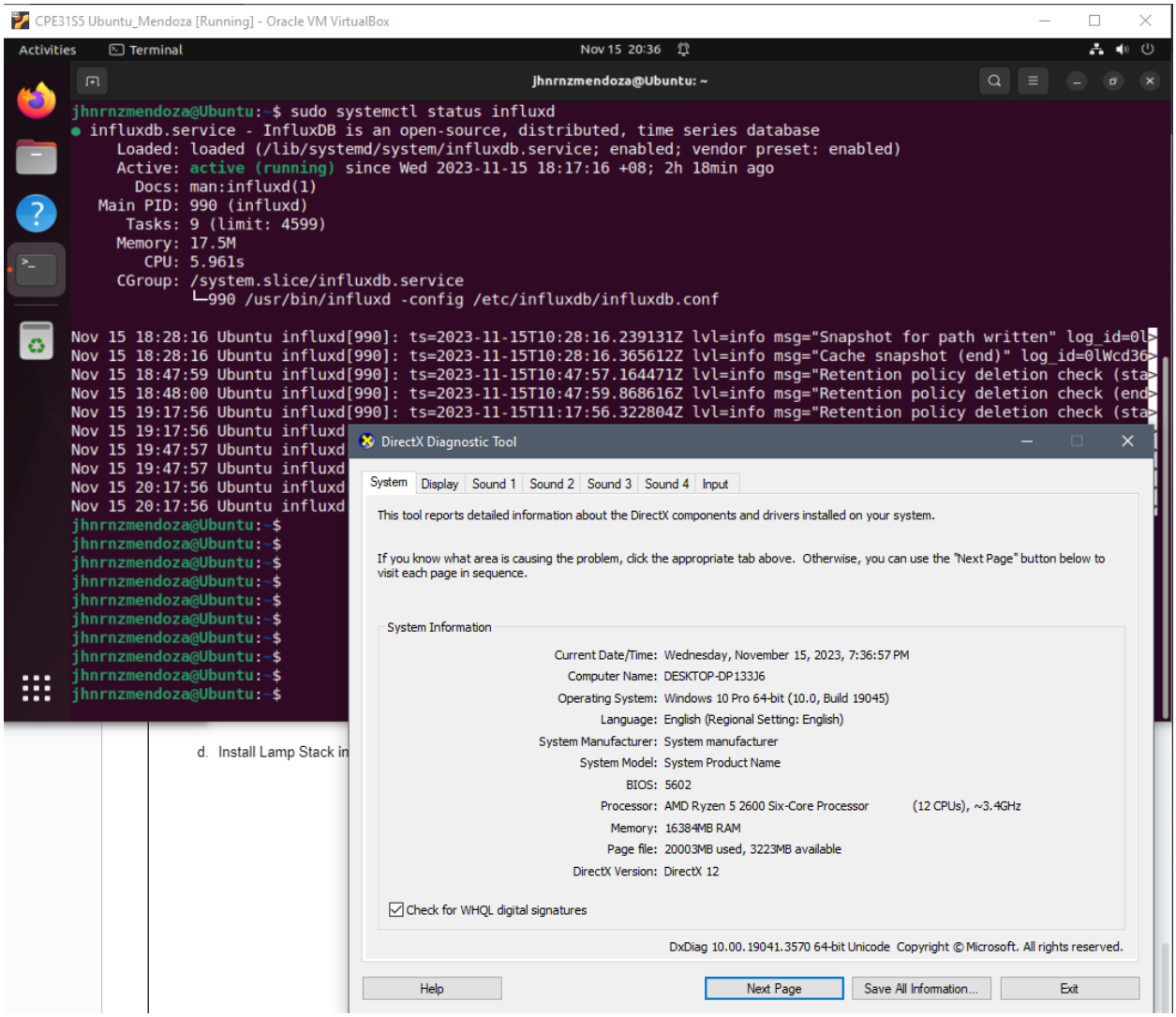
Ubuntu: Successful Installation of InfluxDB



Observation:

- In this screenshot, InfluxDB is successfully installed on the Ubuntu managed node. I have used the sudo systemctl command to show that it is enabled and running.

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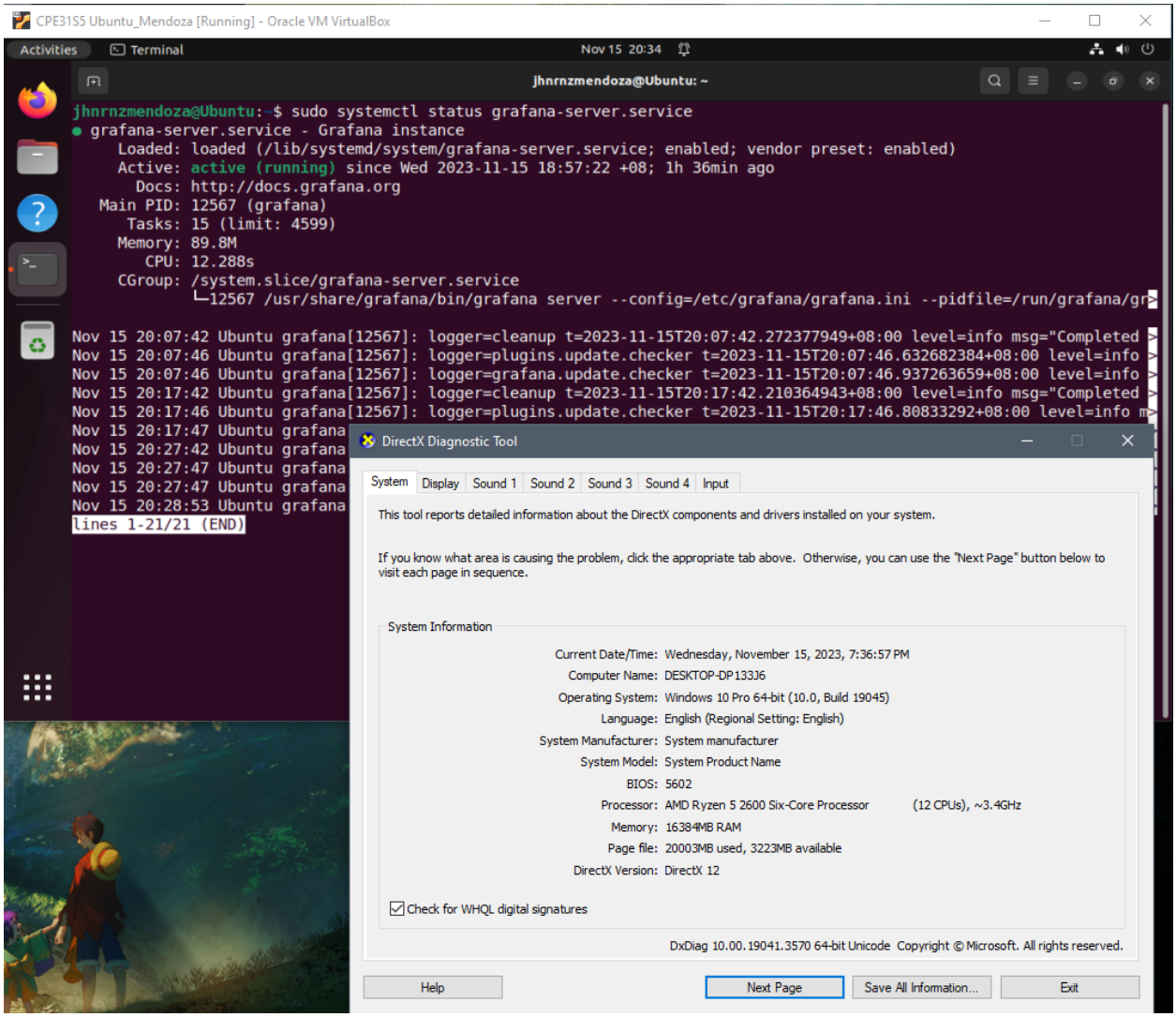
Ubuntu: Successful Installation of Grafana



Observation:

- In this screenshot, Grafana is successfully installed on the Ubuntu managed node. I have used the sudo systemctl command to show that it is enabled and running.

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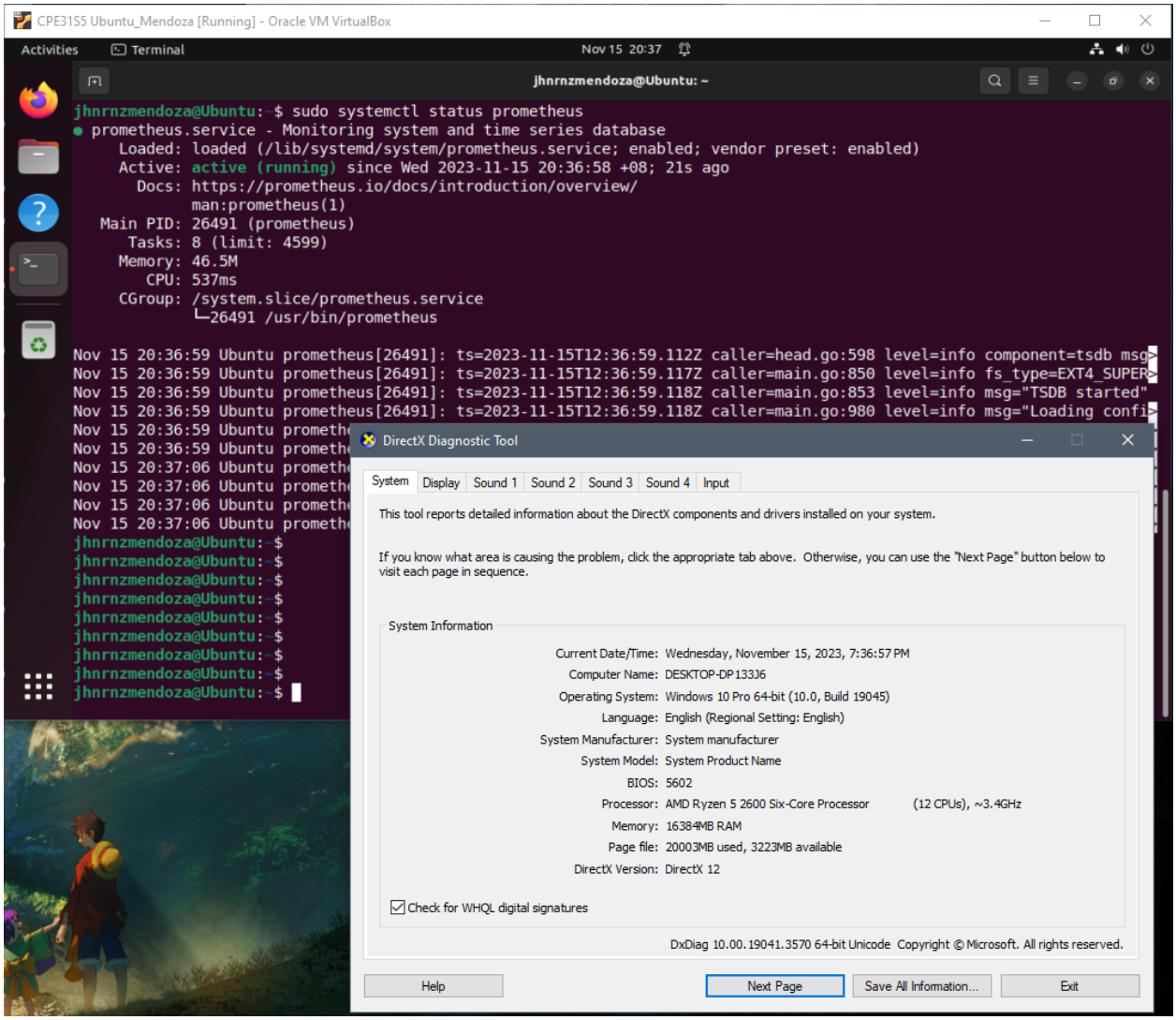
Ubuntu: Successful Installation of Prometheus



Observation:

- In this screenshot, Prometheus is successfully installed on the Ubuntu managed node. I have used the sudo systemctl command to show that it is enabled and running.

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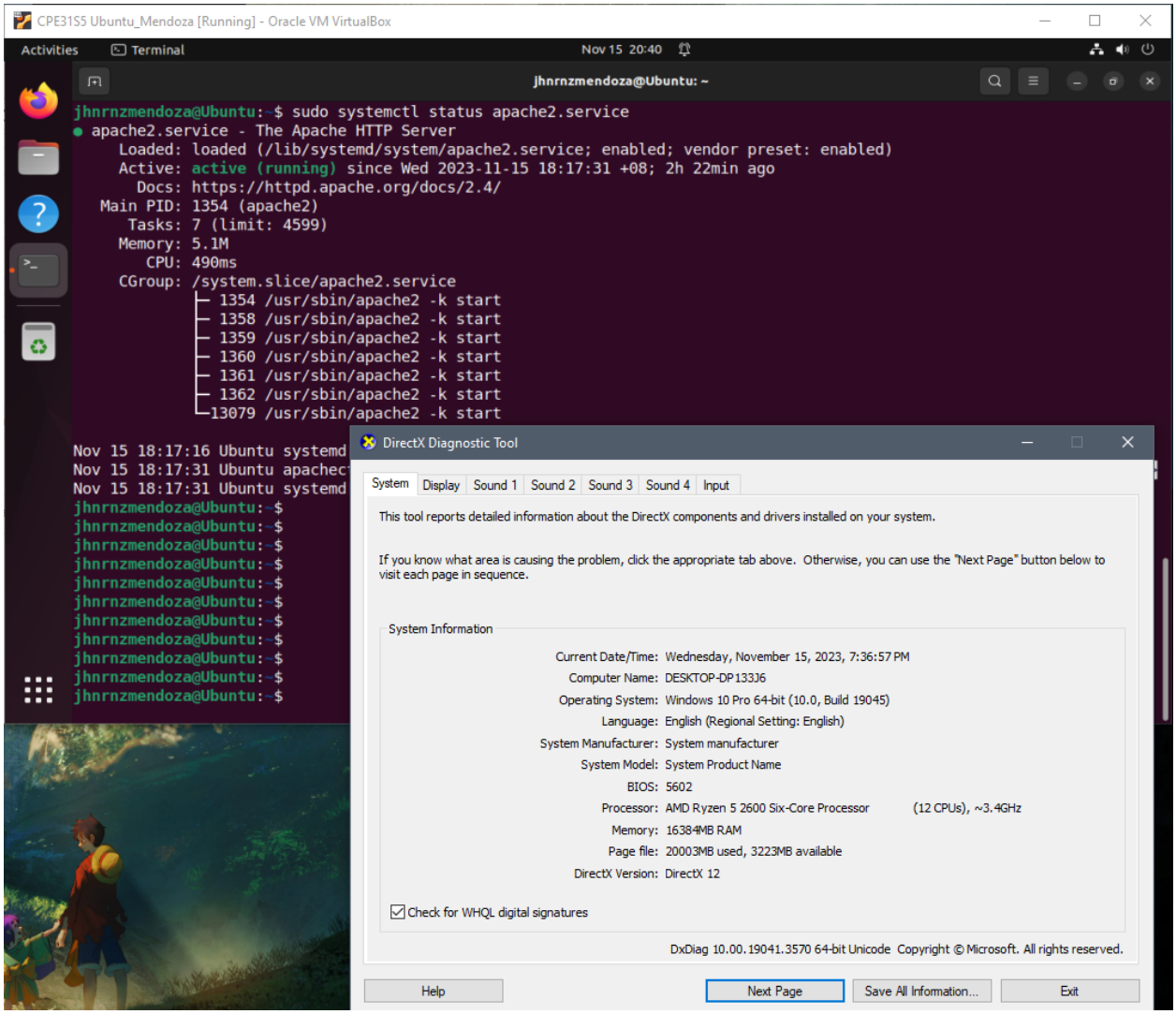
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

Ubuntu: Successful Installation of LampStack's Apache2



Observation:

- In this screenshot, LampStack is successfully installed on the Ubuntu managed node. In this case, Ubuntu only has the Apache2 service as the httpd and mariadb are exclusive on CentOS. I have used the sudo systemctl command to show that it is enabled and running.

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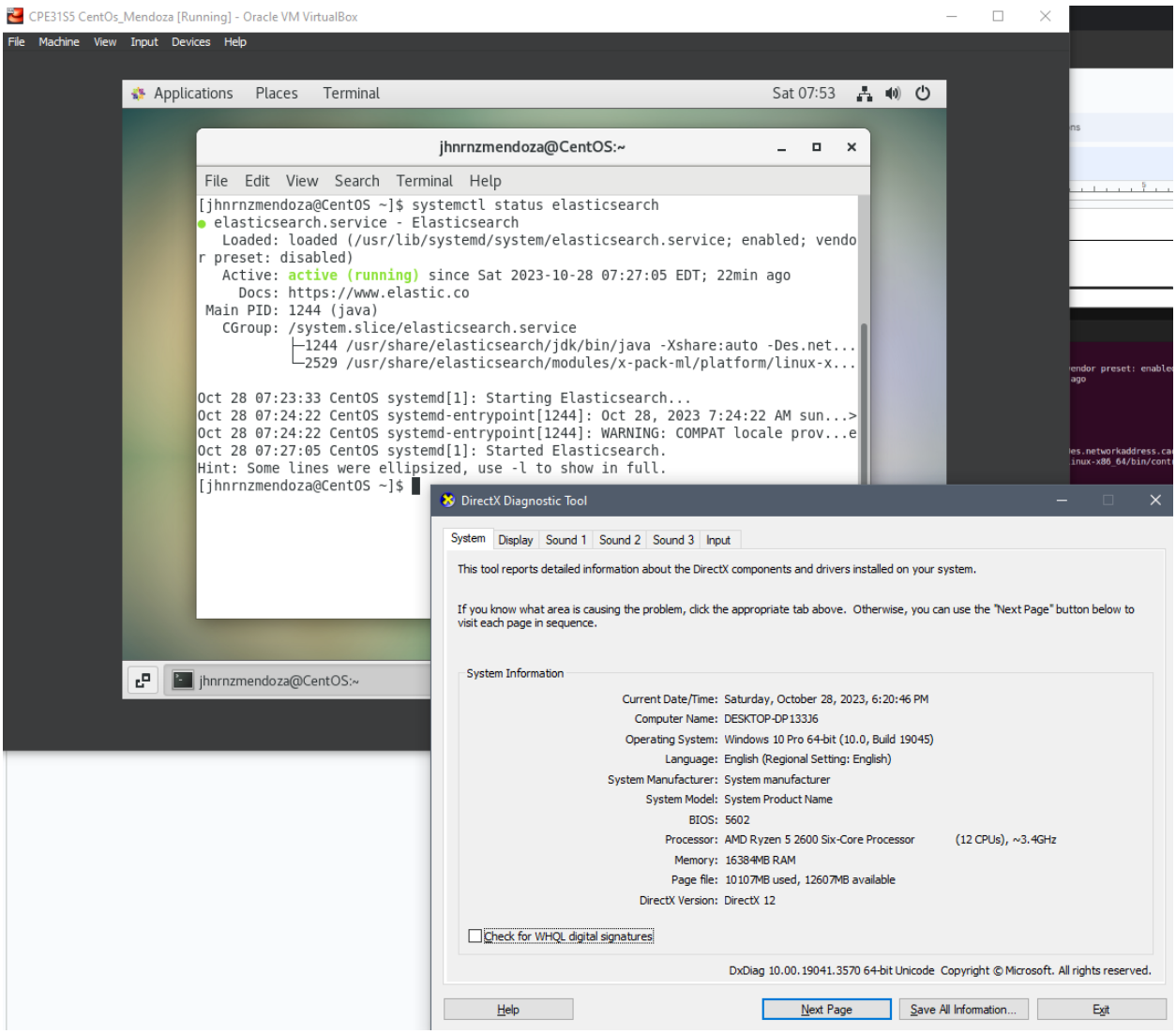
CentOS: Successful Installation of ElasticStack



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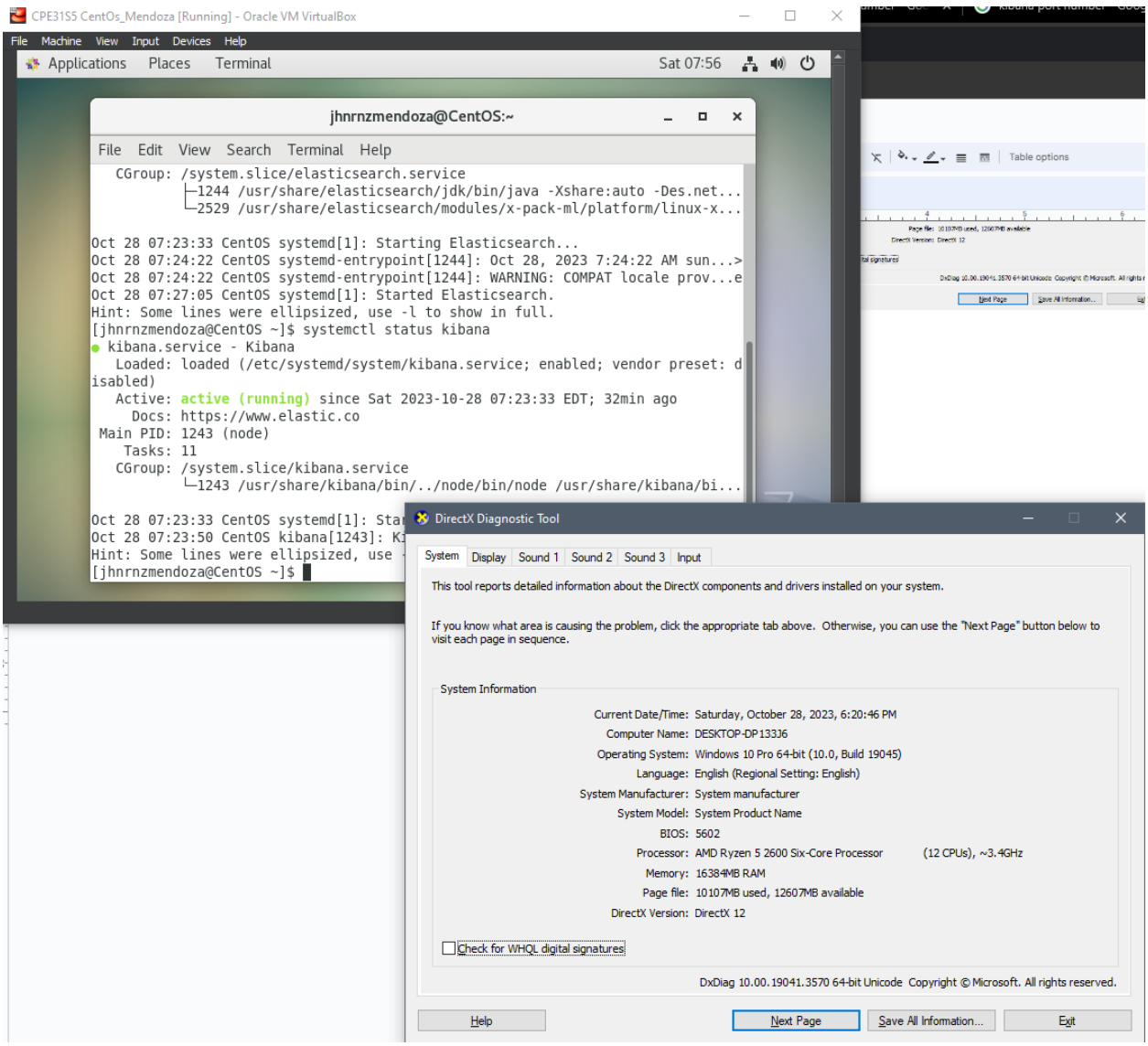
Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools



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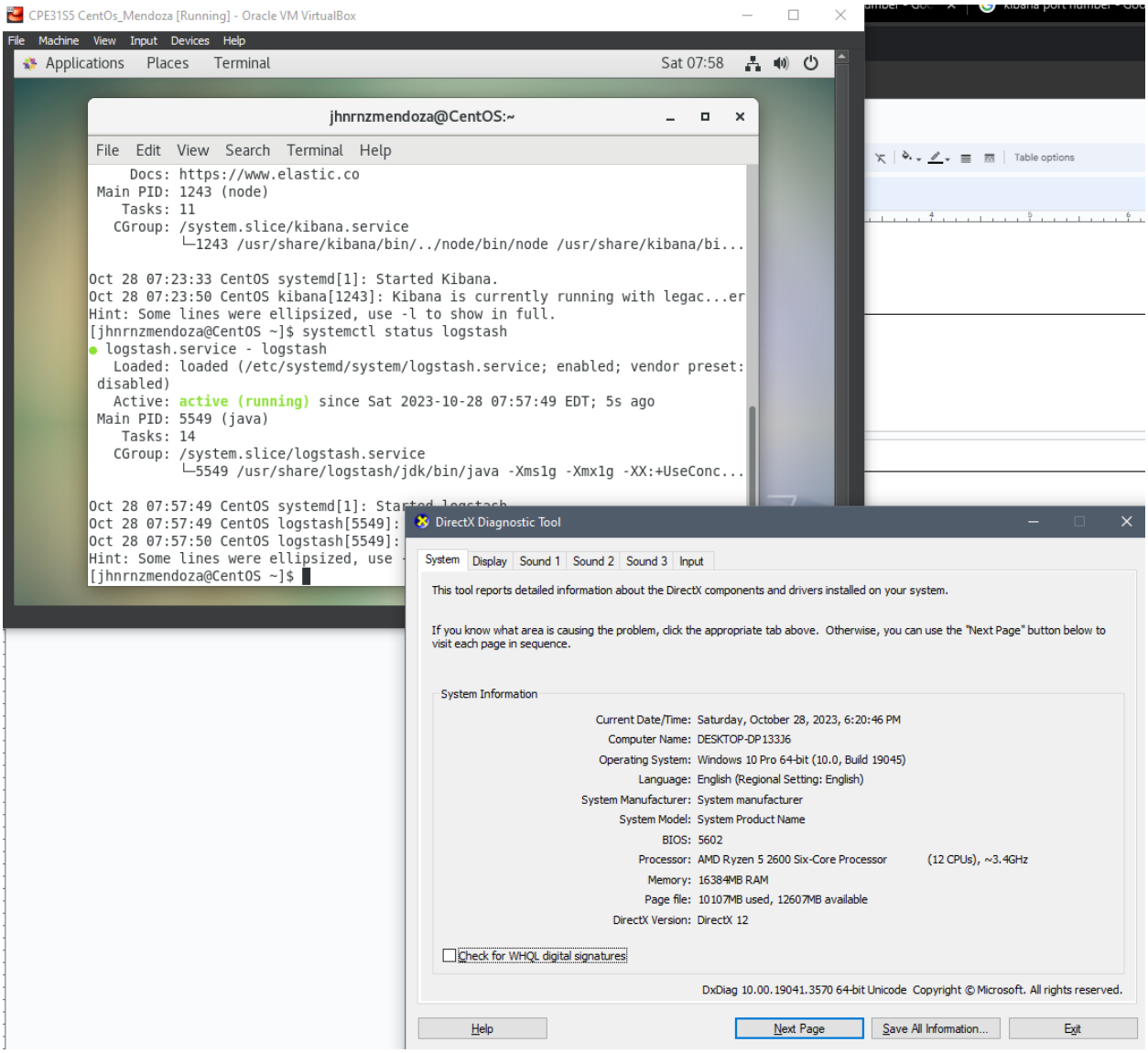

Observation:

- In this screenshot, ElasticStack is successfully installed on the CentOS managed node. I have used the sudo systemctl command to show that it is enabled and running.

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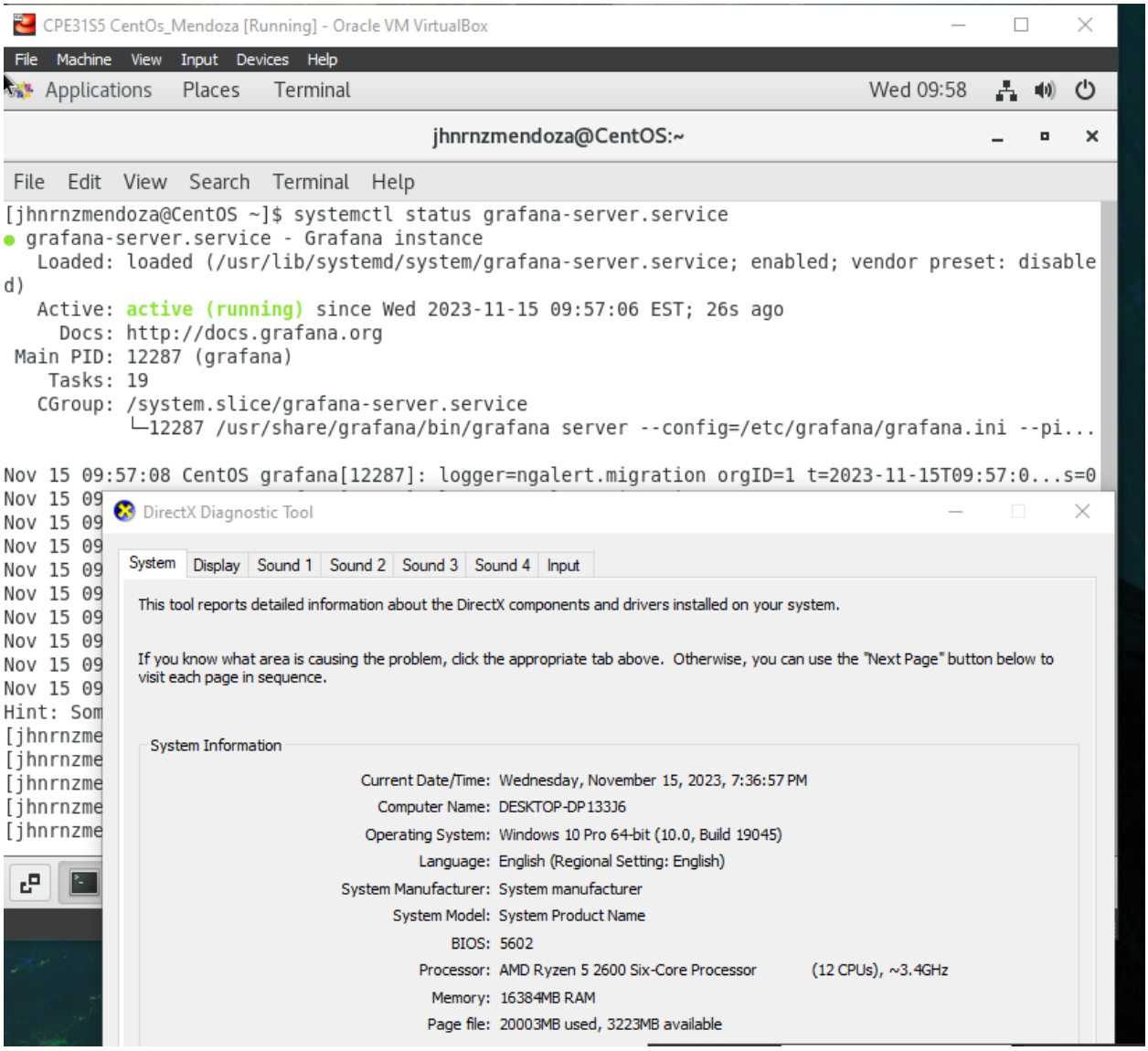
CentOS: Successful Installation of Grafana



Observation:

- In this screenshot, Grafana is successfully installed on the CentOS managed node. I have used the sudo systemctl command to show that it is enabled and running.

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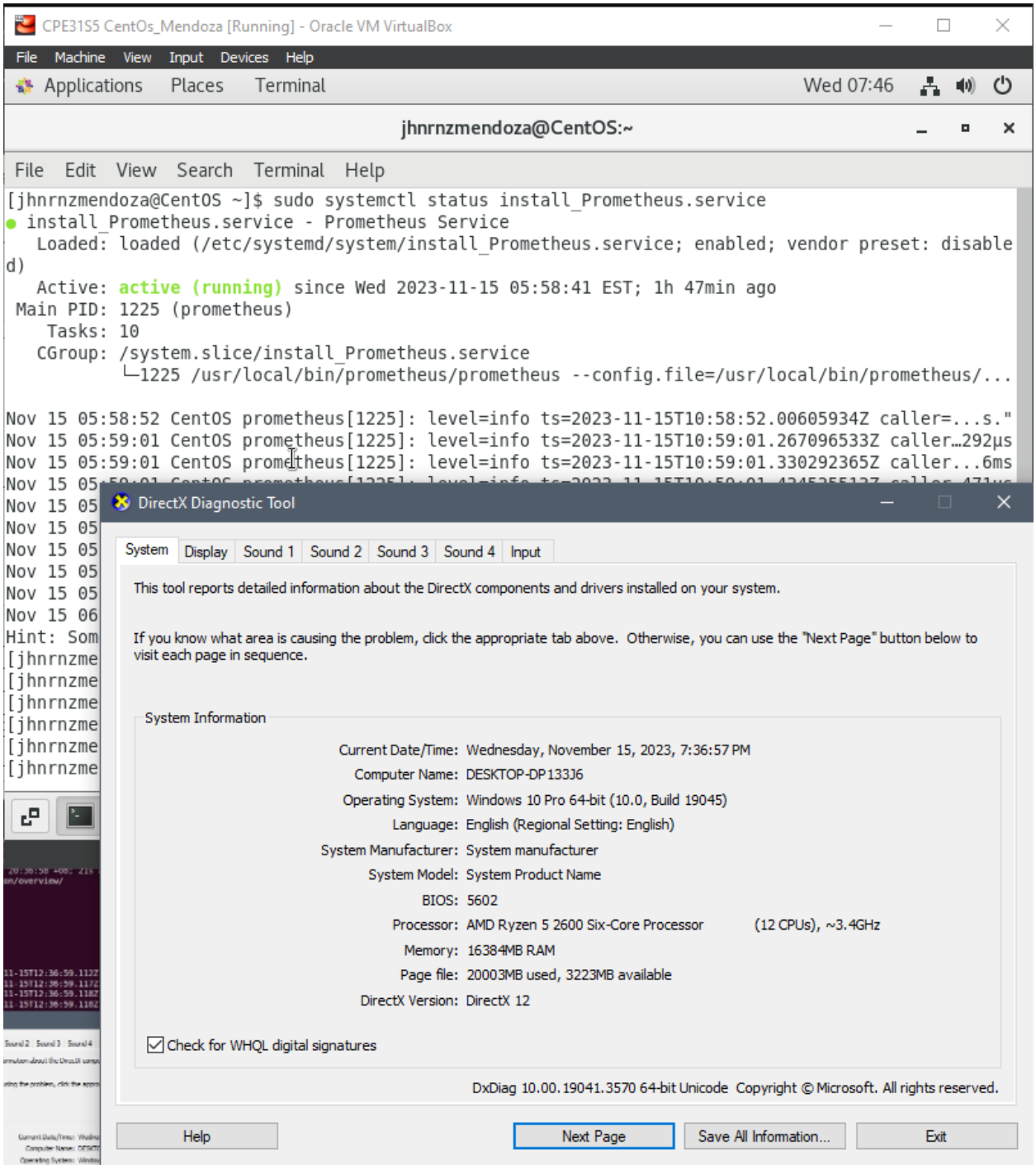
CentOS: Successful Installation of Prometheus



Observation:

- In this screenshot, Prometheus is successfully installed on the CentOS managed node. I have used the sudo systemctl command to show that it is enabled and running.

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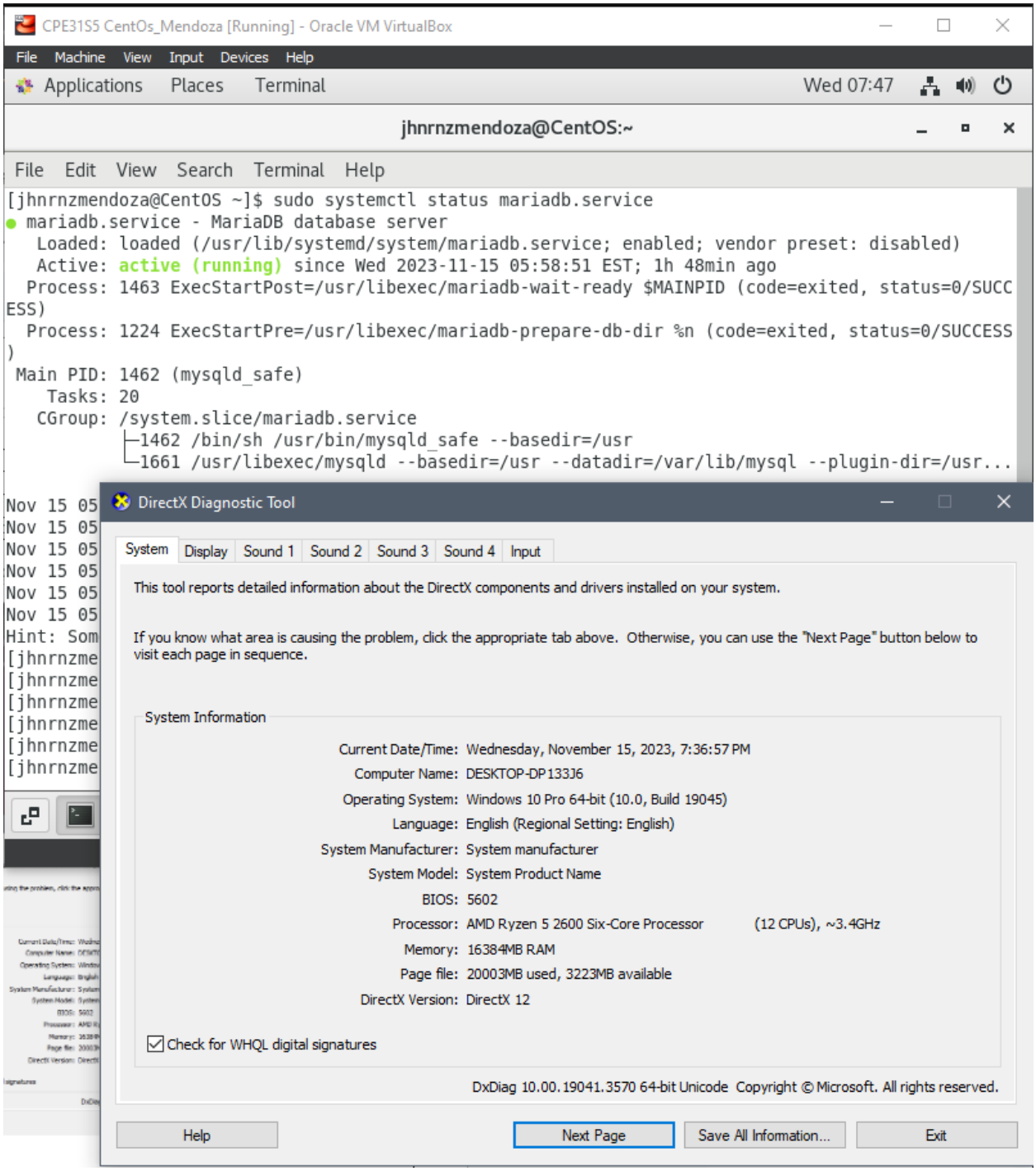
CentOS: Successful Installation of LampStack's MariaDB



Observation:

- In this screenshot, LampStack's MariaDB is successfully installed on the CentOS managed node. I have used the sudo systemctl command to show that it is enabled and running.

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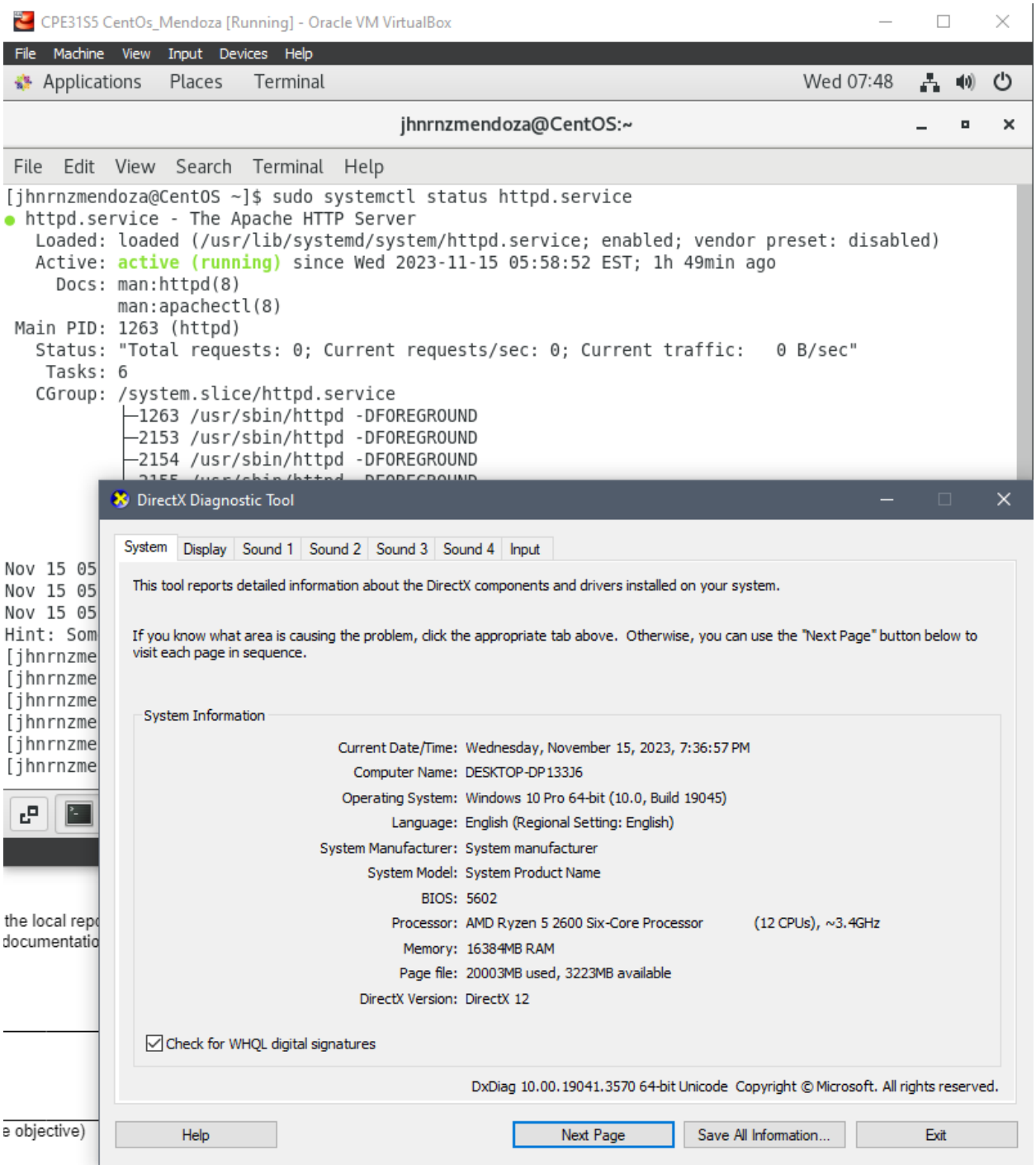
CentOS: Successful Installation of LampStack's httpd



Observation:

- In this screenshot, LampStack's HTTPD is successfully installed on the CentOS managed node. I have used the sudo systemctl command to show that it is enabled and running.

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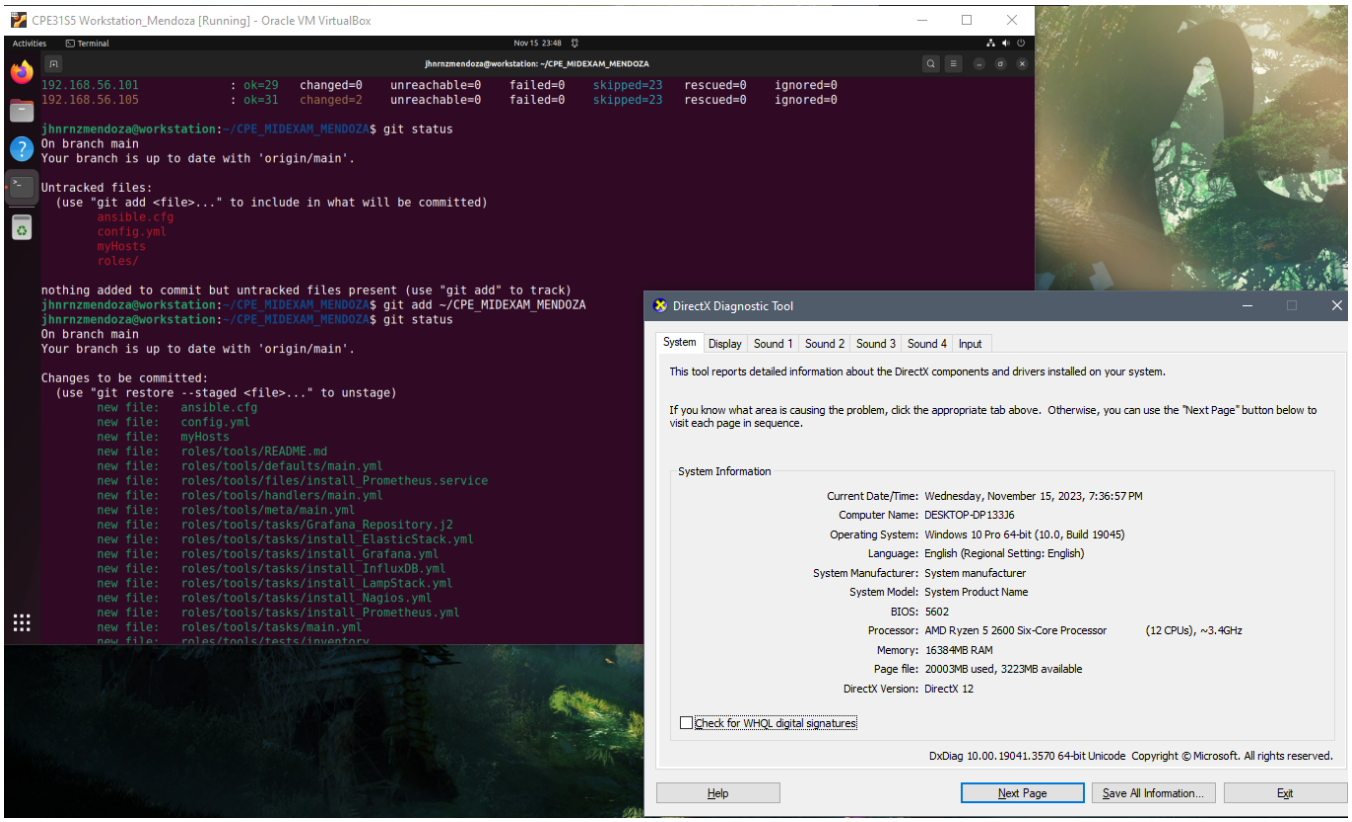
4. Document the push and commit from the local repository to GitHub. Finally, paste also the link of your GitHub repository in the documentation.



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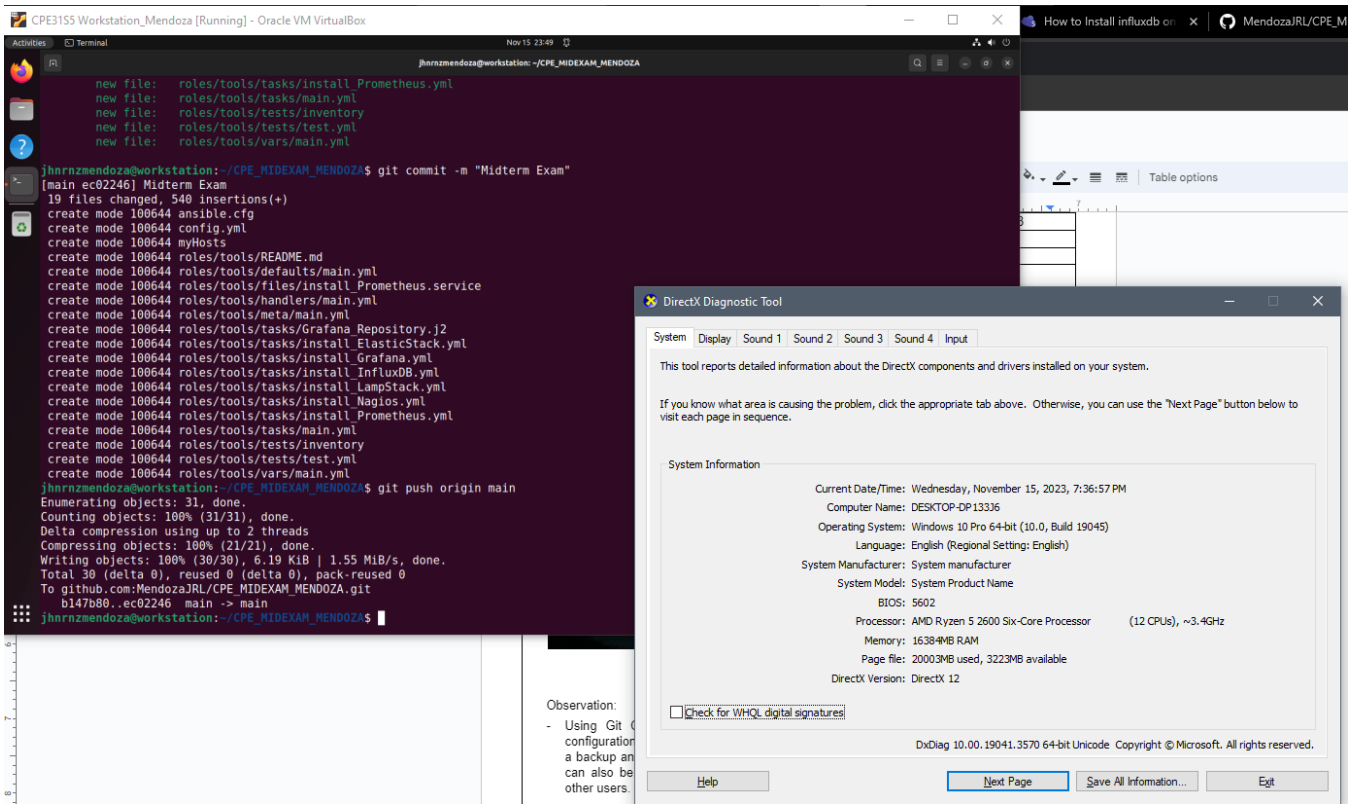

Observation:

- Using Git Commands, I have been able to add, commit, and push all of the configurations to the GitHub cloud repository. The importance of this is that it serves as a backup and a storage of the program that is run on my local terminal. This repository can also be accessed through the cloud which means, can be imported remotely by other users.

GitHub link:

https://github.com/MendozaJRL/CPE_MIDEXAM_MENDOZA.git

Conclusions: (link your conclusion from the objective)

In this midterm examination, the students are able to implement, and install previously discussed performance monitoring tools, and log monitoring tools. The students are able to do this on the 2 managed nodes Ubuntu and CentOS remote servers. The students utilized ansible to perform the automatic installation of the tools as needed on each remote server.

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The students also used ansible roles as a way to simplify the structure of the code as it gets messy if all of the codes are in one ansible playbook. To do this, the student organized the codes for each tool. As observed, the student had multiple yml files under the roles/tools/tasks/ directory, so that the system administrator would just call them when the managed node is required to install the service.

In addition, the students used ansible as an infrastructure to do the problem or the task defined by the exam. Furthermore, the students are able to observe the importance of such infrastructure as it helps system administrators to identify and debug problems if there are any. In this exam, the students have experienced errors in which the service was not playing properly, this is mainly because the service is already installed in the managed node which yields an unsuccessful playbook run. Although the given constraints, the student is able to identify and analyze this problem with the help of the organized infrastructure with Ansible.