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Course/Section: CPE232/CPE31S5	**Date Submitted: 25/10/2023**
Instructor: Prof. Roman Richard	**Semester and SY: 1st sem 2023-2024**

Activity 9: Install, Configure, and Manage Performance Monitoring tools

1. Objectives

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

2. Discussion

Performance monitoring is a type of monitoring tool that identifies current resource consumption of the workload, in this page we will discuss multiple performance monitoring tool.

Prometheus

Prometheus fundamentally stores all data as timeseries: streams of timestamped values belonging to the same metric and the same set of labeled dimensions. Besides stored time series, Prometheus may generate temporary derived time series as the result of queries. Source: Prometheus - Monitoring system & time series database

Cacti

Cacti is a complete network graphing solution designed to harness the power of RRDTool's data storage and graphing functionality. Cacti provides a fast poller, advanced graph templating, multiple data acquisition methods, and user management features out of the box. All of this is wrapped in an intuitive, easy to use interface that makes sense for LAN-sized installations up to complex networks with thousands of devices. Source: Cacti® - The Complete RRDTool-based Graphing Solution

3. Tasks

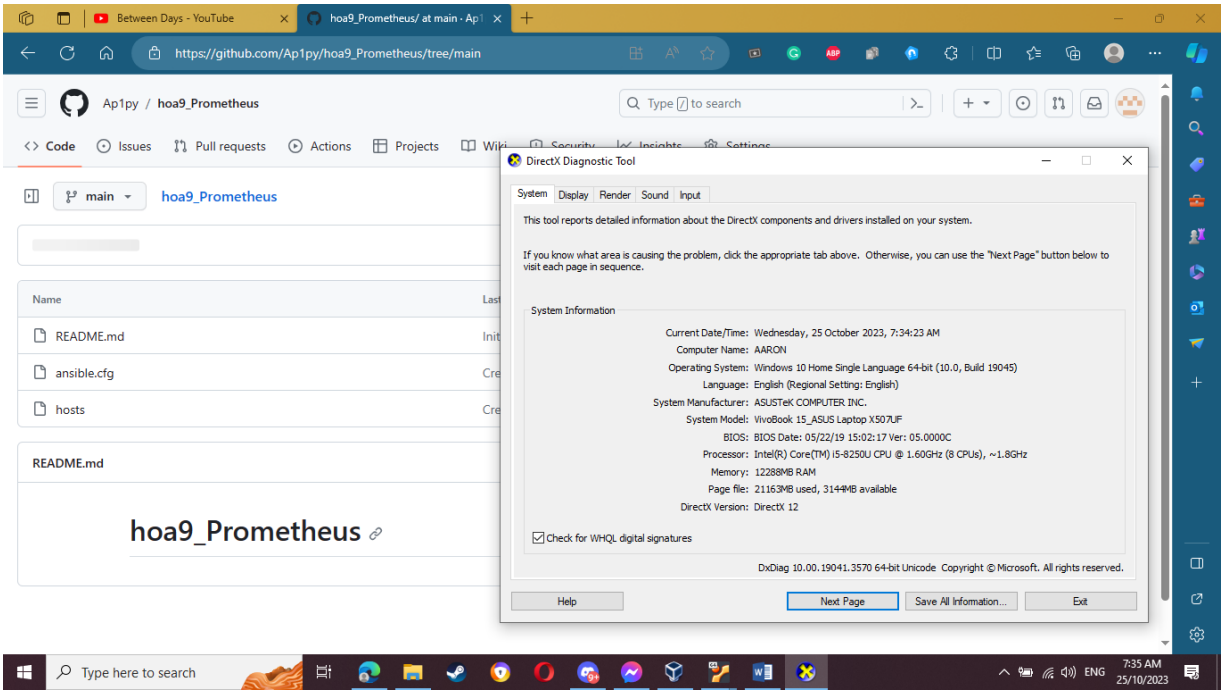
1. Create a playbook that installs Prometheus in both Ubuntu and CentOS. Apply the concept of creating roles.

2. Describe how you did step 1. (Provide screenshots and explanations in your report. Make your report detailed such that it will look like a manual.)

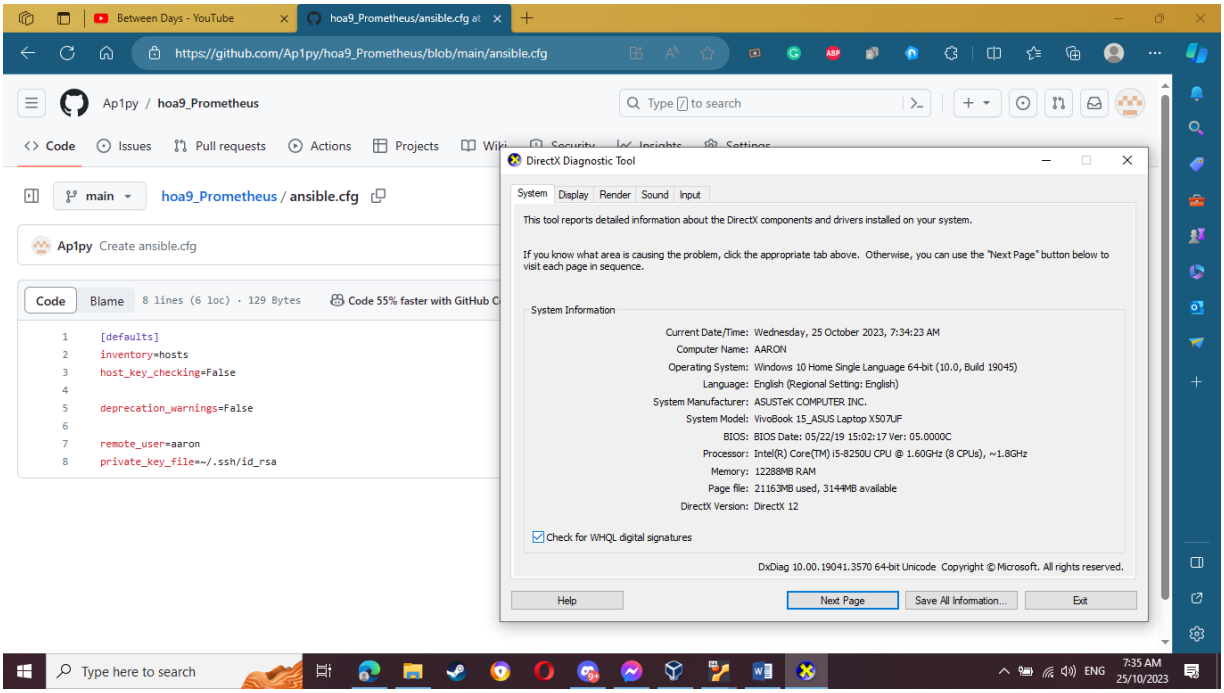
3. Show an output of the installed Prometheus for both Ubuntu and CentOS.

4. Make sure to create a new repository in GitHub for this activity.

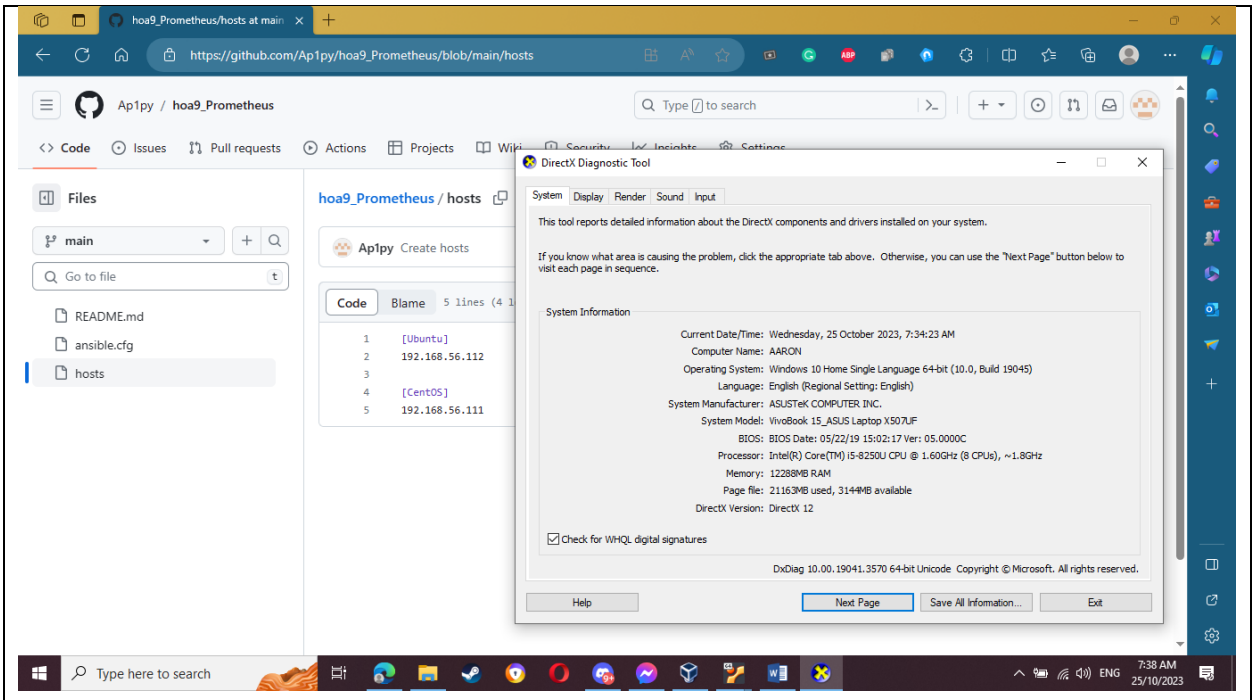
4. **Output** (screenshots and explanations)



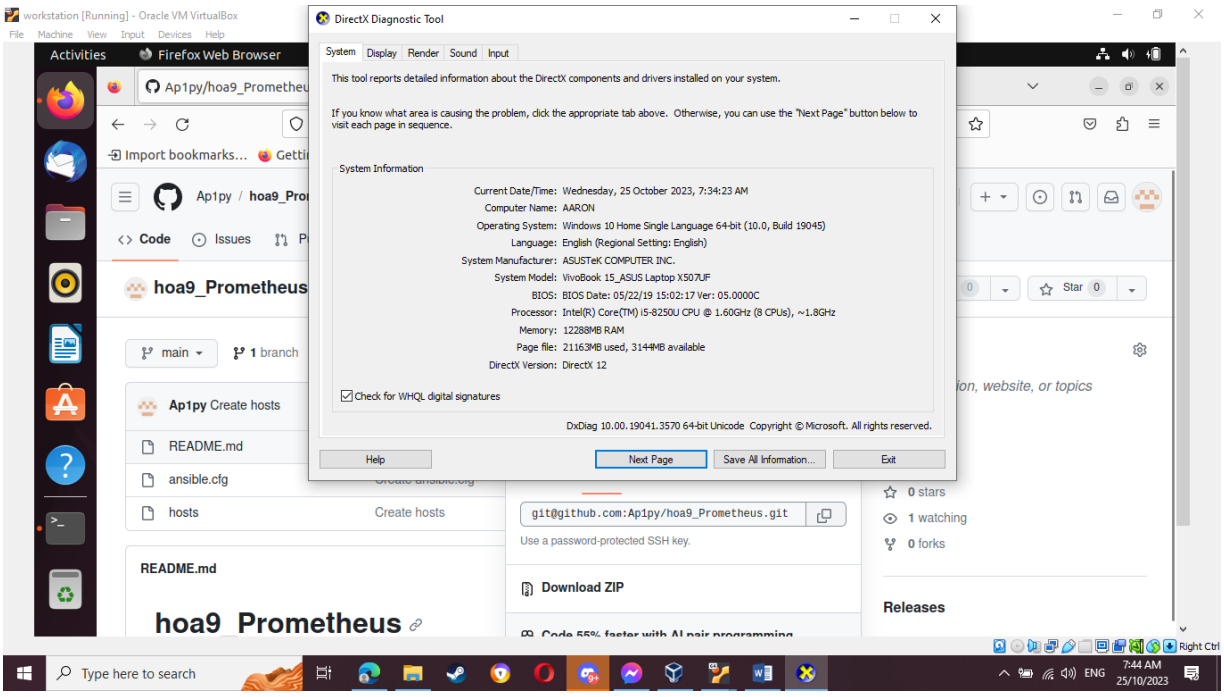
Creating A new repository

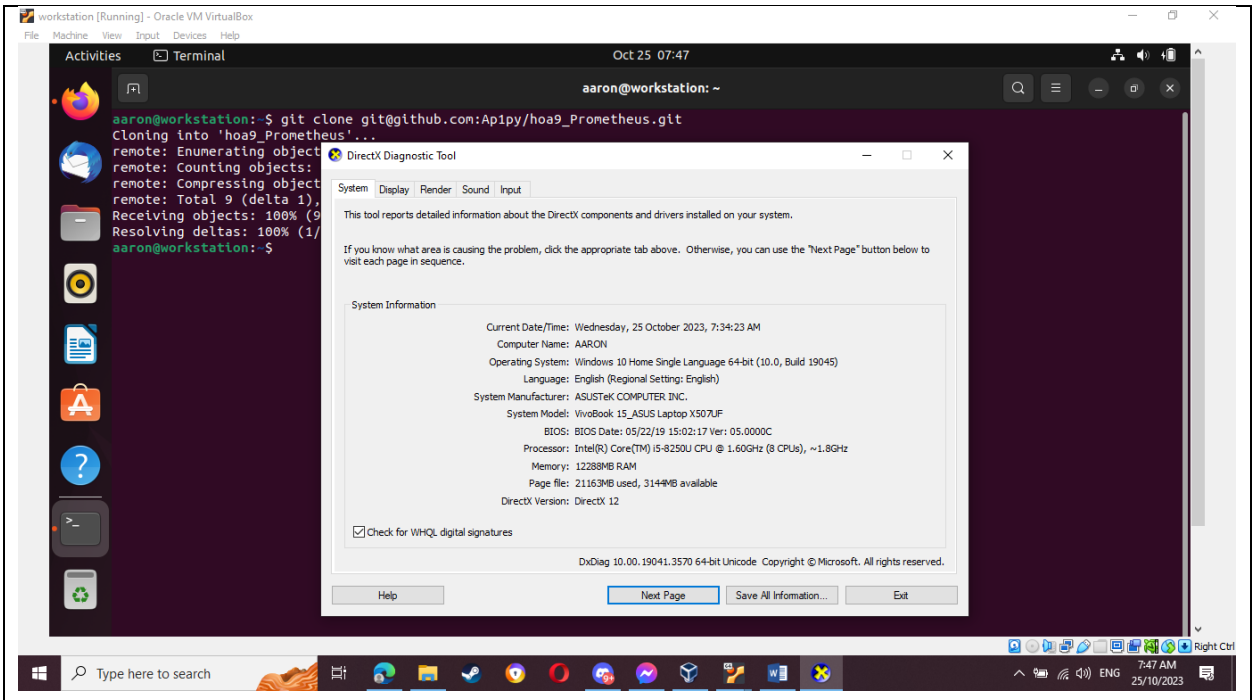


The cfg set up copied from the previous activity can also be manually typed in the workstation terminal or in github

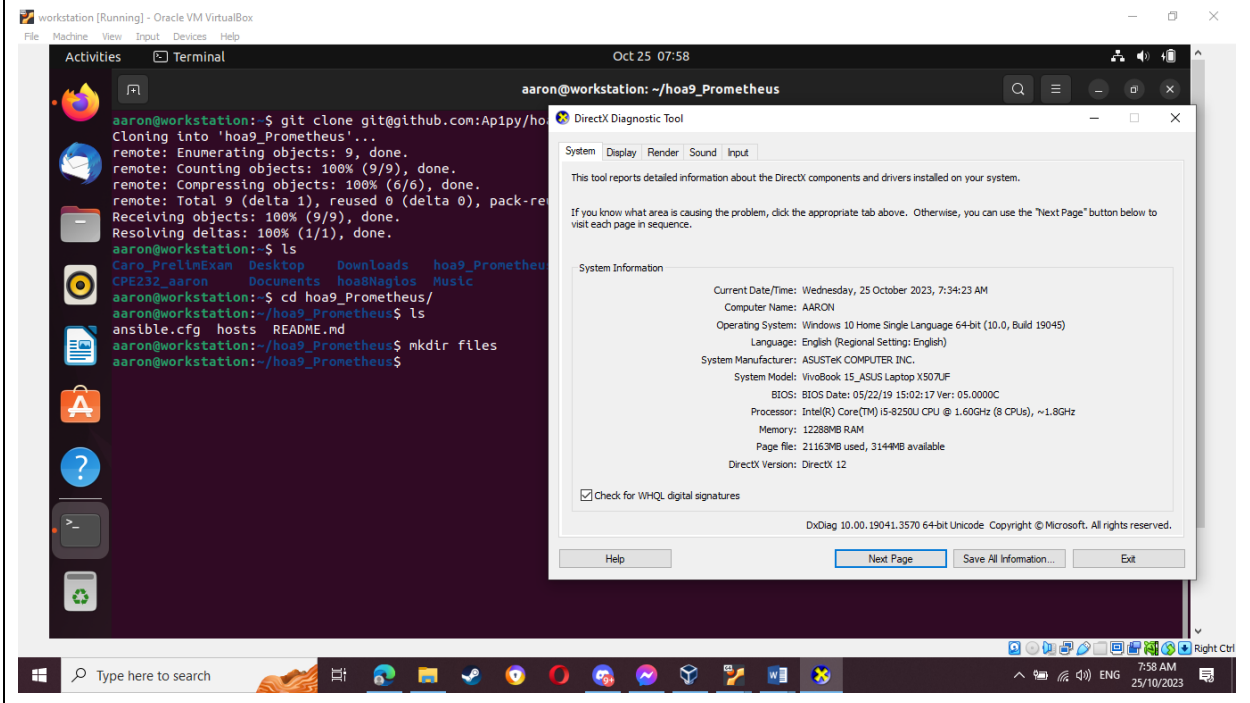


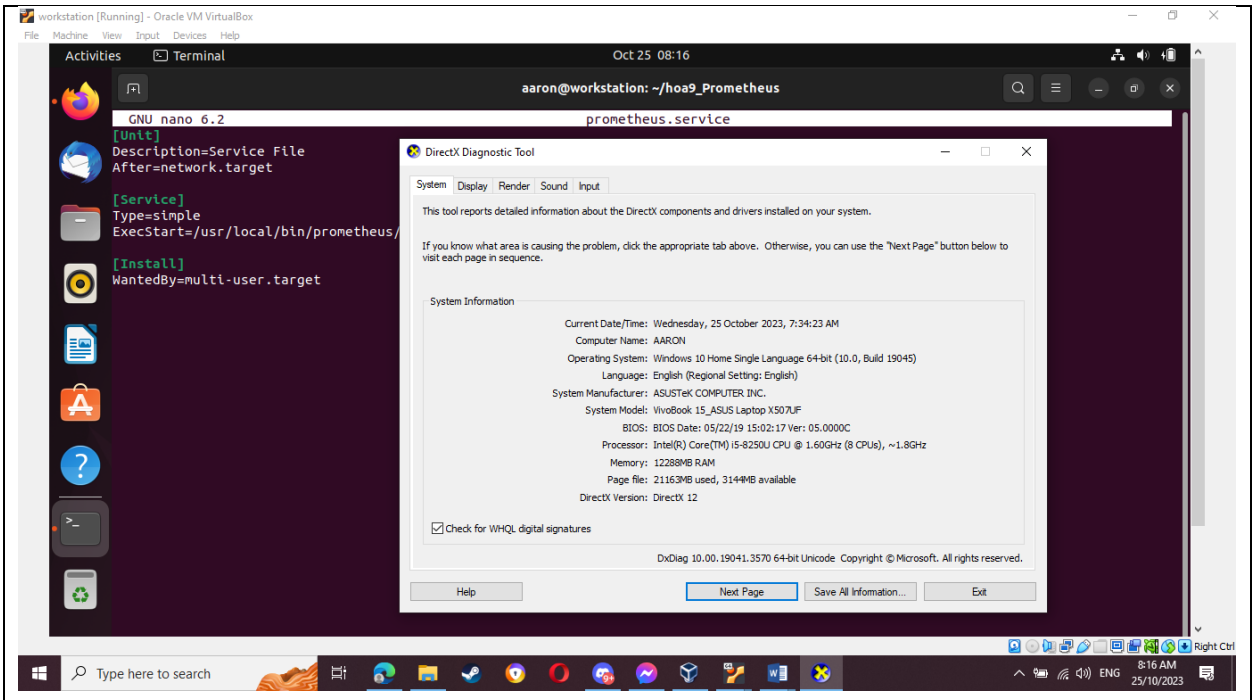
The hosts set up (Set up depends on the ip address available). Can be done in git hub or manually typed in Ubuntu Terminal.

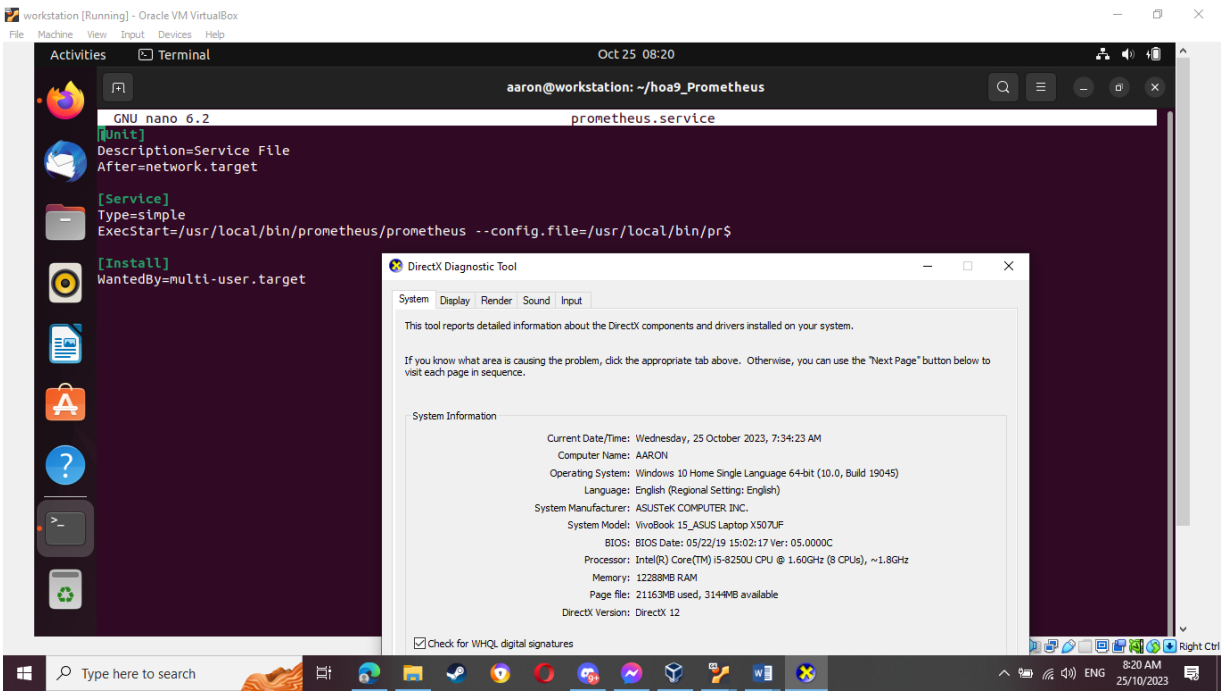




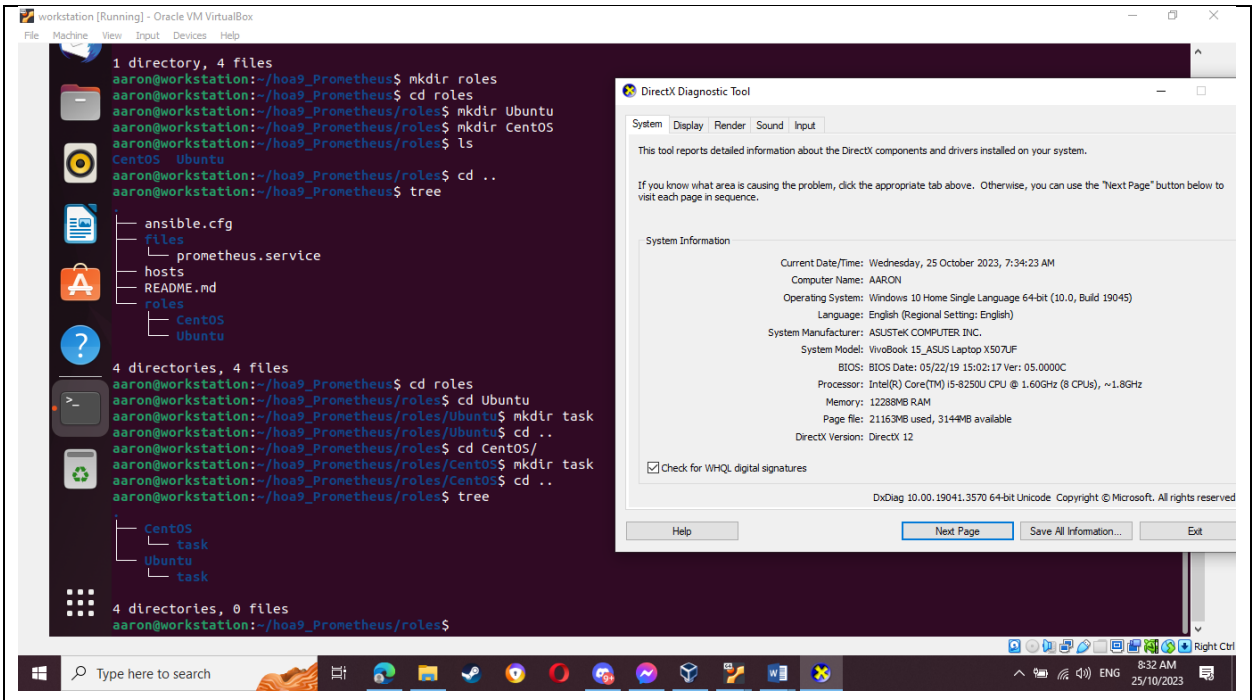
Cloning the Repository



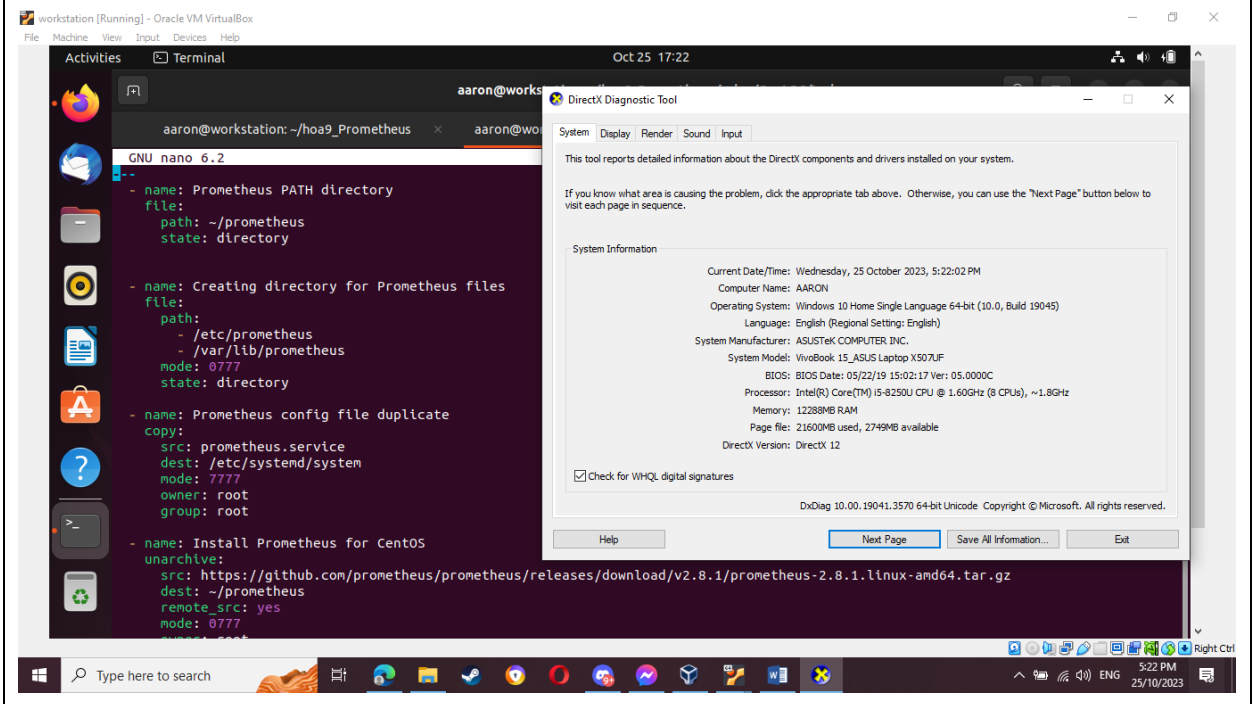


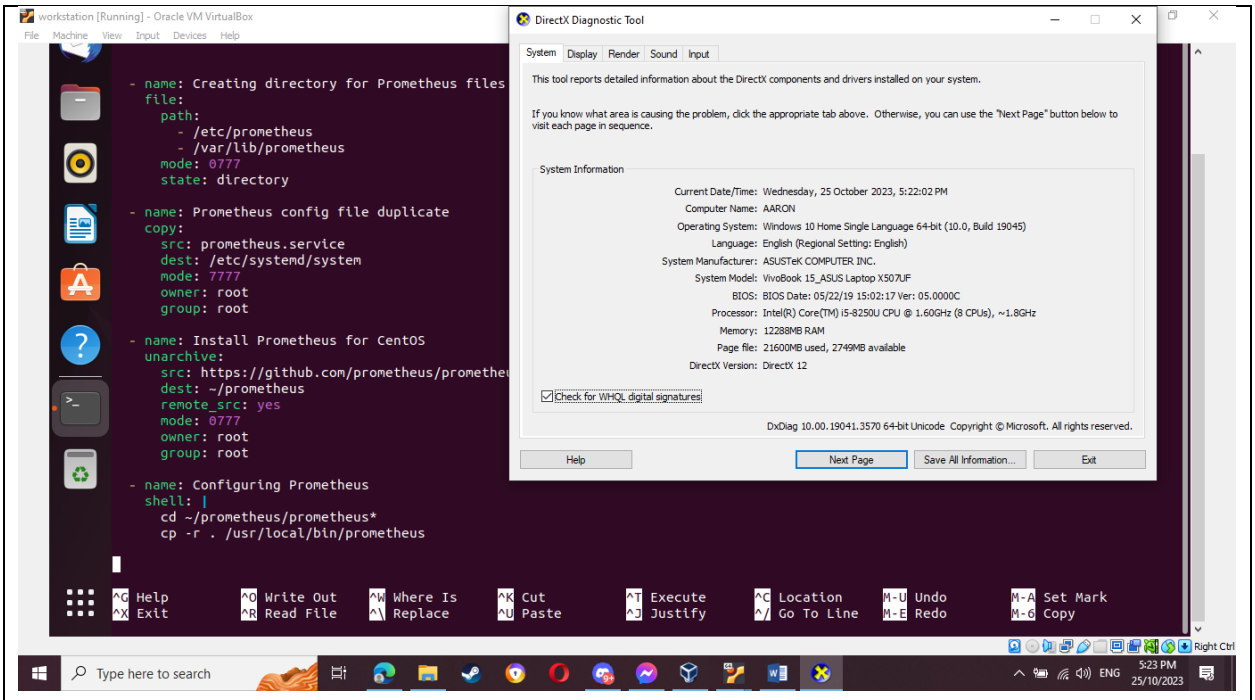


Set-up the Prometheus configuration file. First create a directory for files then go to the newly created directory and set up the configuration file. This file will be the callback file for the centos playbook.

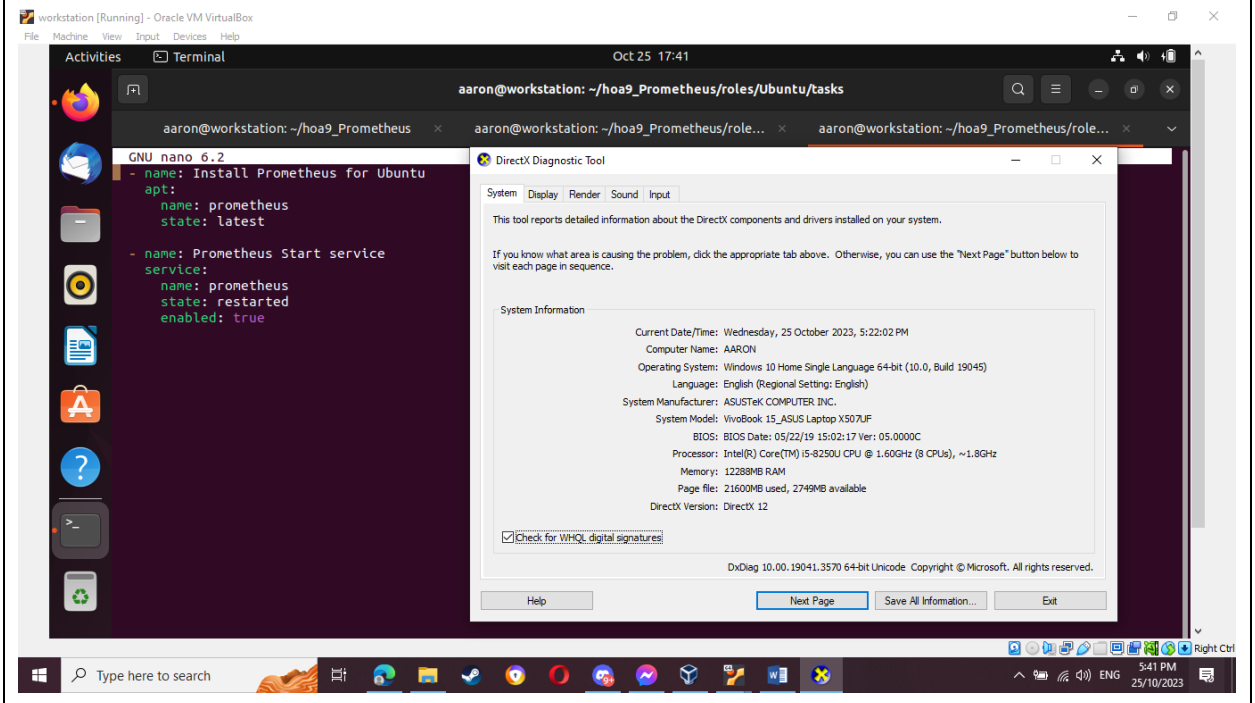


Set up the role directory using an mkdir command then within the role directory create a directory for the targeted ip's in the ansible inventory. Then create a task directory for each of them. The task directory will be used to create a playbook for each of them.

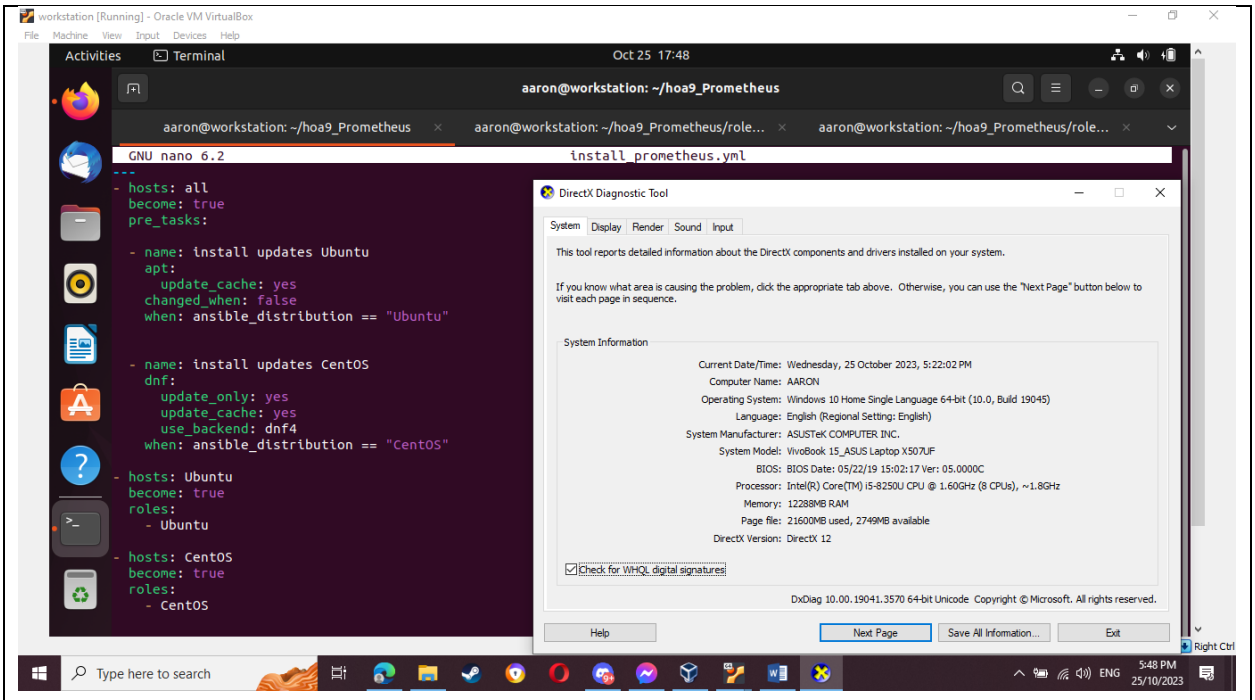




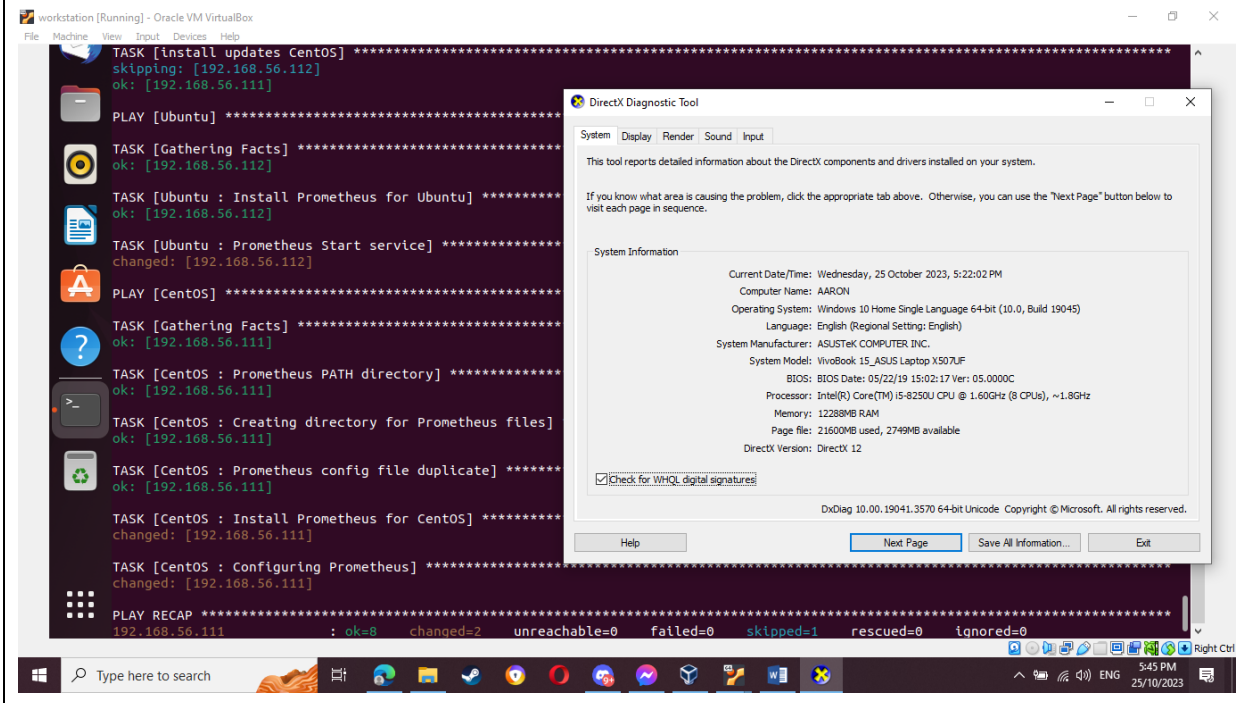
The configuration for the main.yml for centos it needs a lot of syntax and it needs to callback the service file that is created earlier



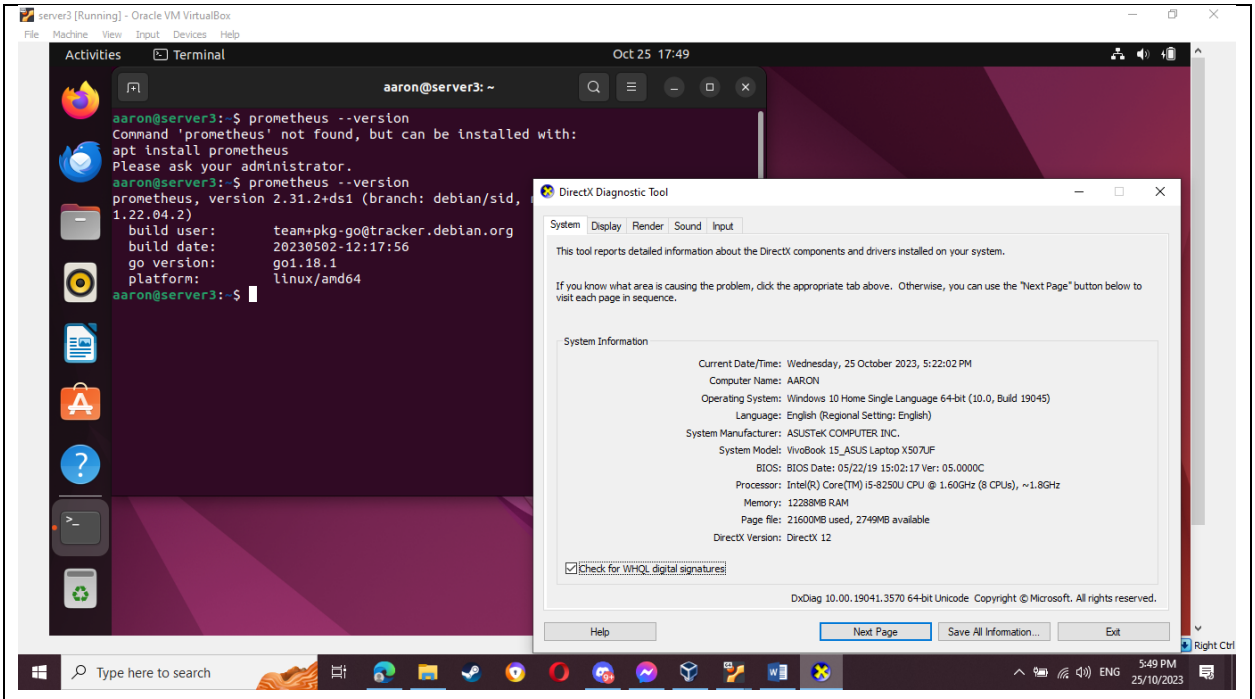
The configuration for the Ubuntu main.yml



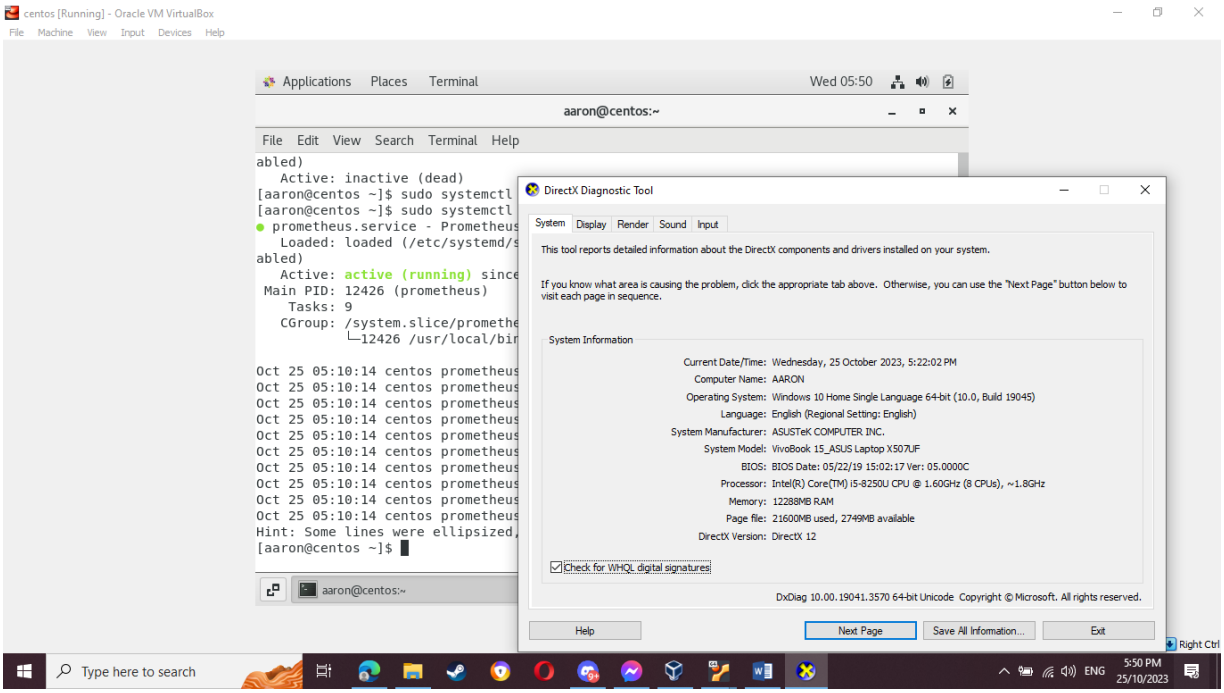
The playbook for the roles.



Running the play book



Verifying the installation using Prometheus –version command



Starting the Prometheus service in centos

Reflections:

Answer the following:

1. What are the benefits of having a performance monitoring tool?

A performance monitoring tool offers numerous benefits, including ongoing perceivability into framework execution, asset usage, and security, empowering associations to proactively address issues, further develop proficiency, and improve framework dependability. By gathering and envisioning measurements, these devices engage information-driven navigation, improving asset assignment and scaling procedures. Moreover, they support security by recognizing abnormalities and expected dangers, assisting associations with responding quickly to relieve weaknesses and keep up with the respectability of their frameworks, at last adding to generally speaking functional greatness.

Conclusions:

In conclusion, a performance monitoring tool is an indispensable asset for modern organizations, offering comprehensive insights into system health, resource management, and security. It facilitates proactive issue resolution, efficiency improvement, and system reliability, all driven by data-driven decision-making. With the ability to detect anomalies and threats, these tools not only maintain system integrity but also contribute to a well-optimized and secure operational environment, making them essential for businesses and IT teams aiming to achieve peak performance and seamless functionality.