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Course/Section: CPE232/CPE31S5	**Date Submitted: 08/12/2023**
Instructor: Prof. Roman Richard	**Semester and SY: 1st 2023-2024**

Activity 15: OpenStack Installation (Neutron, Horizon, Cinder)

1. Objectives

Create a workflow to install OpenStack using Ansible as your Infrastructure as Code (IaC).

2. Intended Learning Outcomes

1. Analyze the advantages and disadvantages of cloud services
2. Evaluate different Cloud deployment and service models
3. Create a workflow to install and configure OpenStack base services using Ansible as documentation and execution.

3. Resources

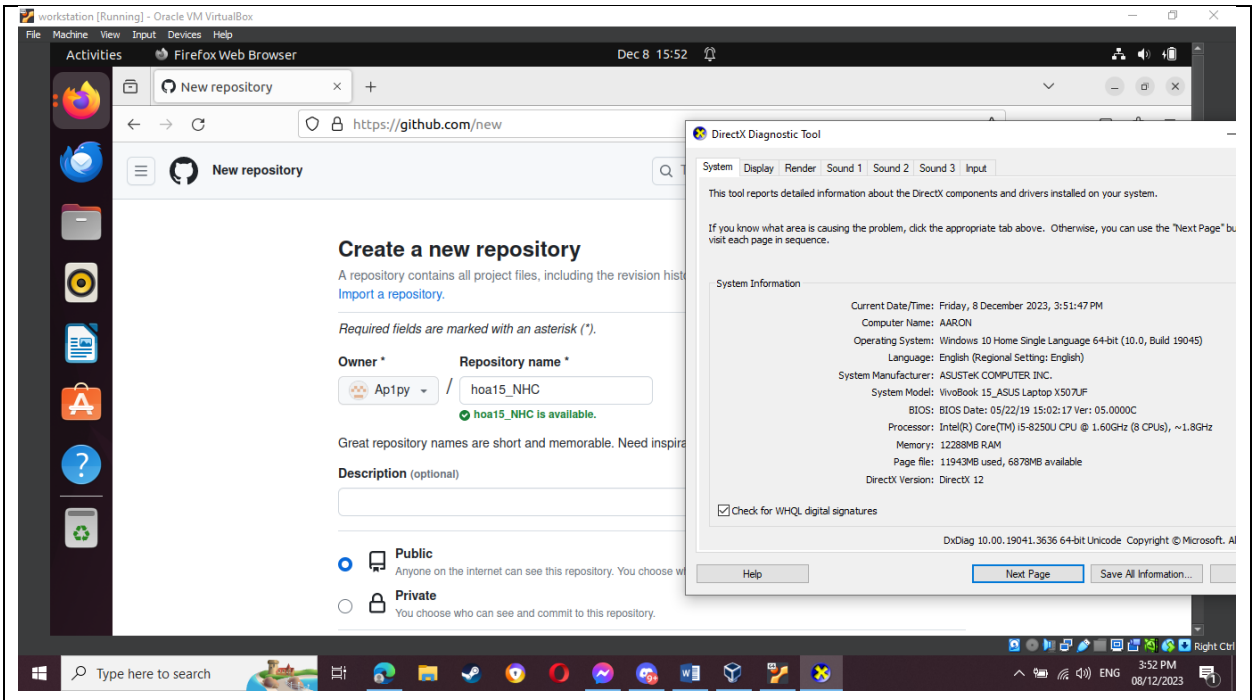
Oracle VirtualBox (Hypervisor)

1x Ubuntu VM or Centos VM

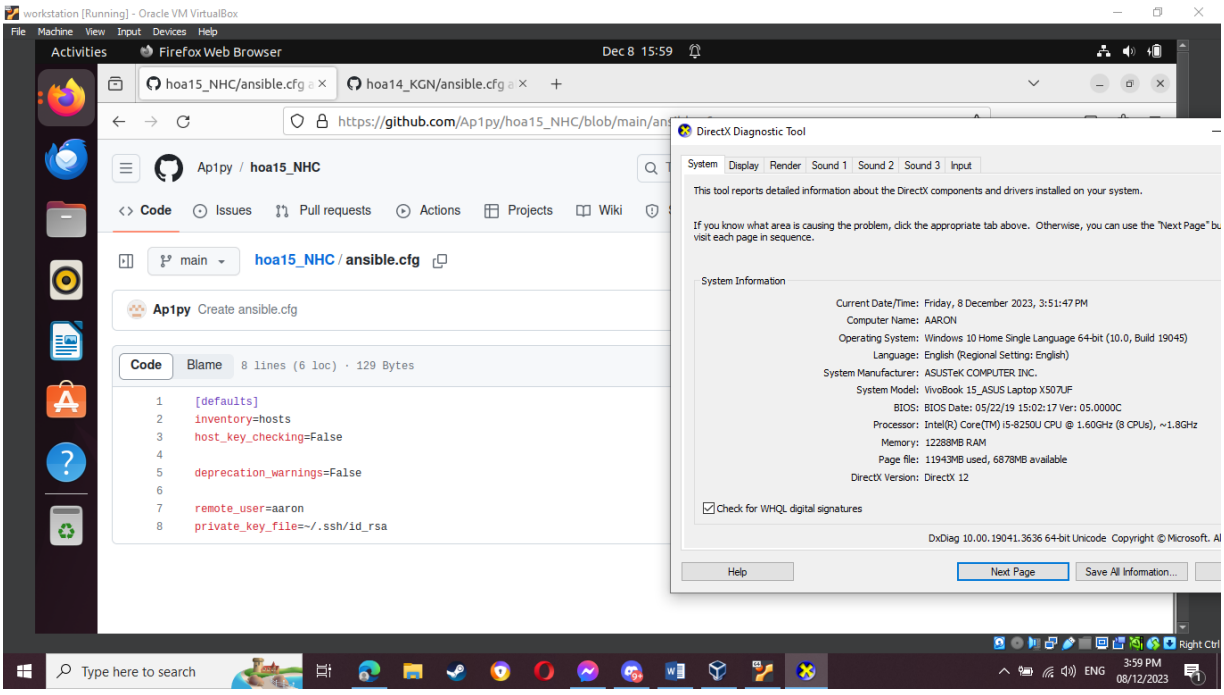
4. Tasks

1. Create a new repository for this activity.
2. Create a playbook that converts the steps in the following items in https://docs.openstack.org/install-guide/
   a. Neutron
   b. Horizon
   c. Cinder
   d. Create different plays in installing per server type (controller, compute etc.) and identify it as a group in the Inventory file.
   e. Add, commit and push it to your GitHub repo.

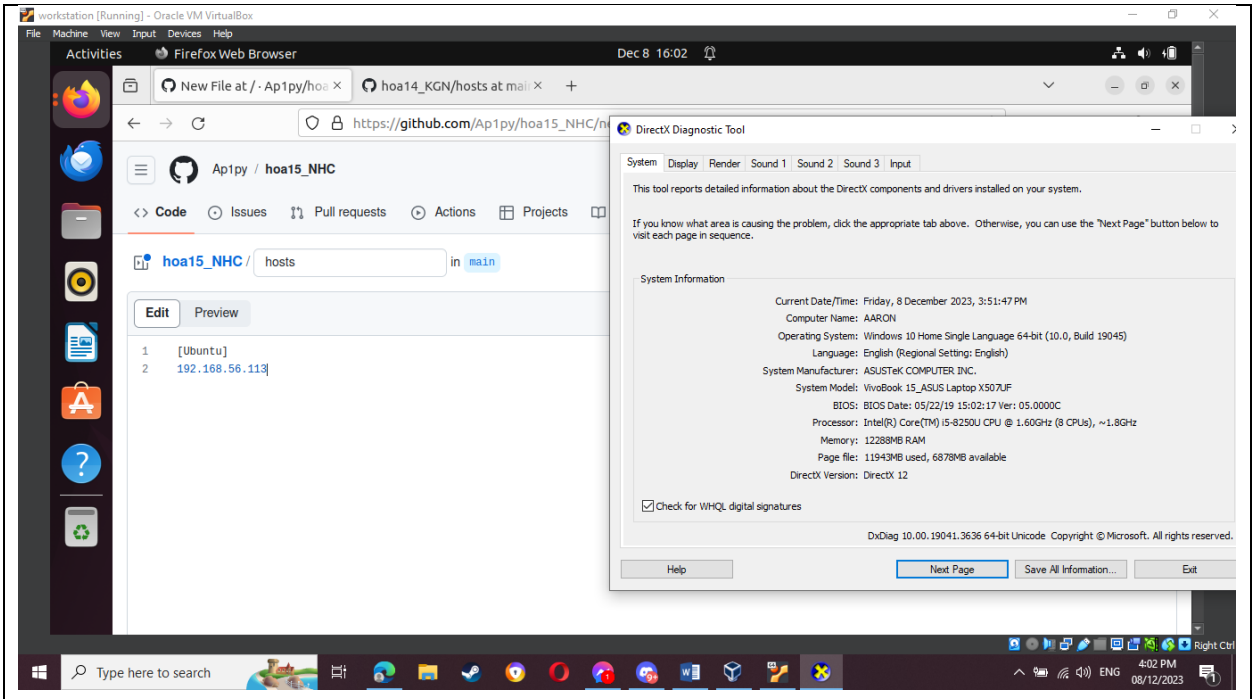
5. Output (screenshots and explanations)



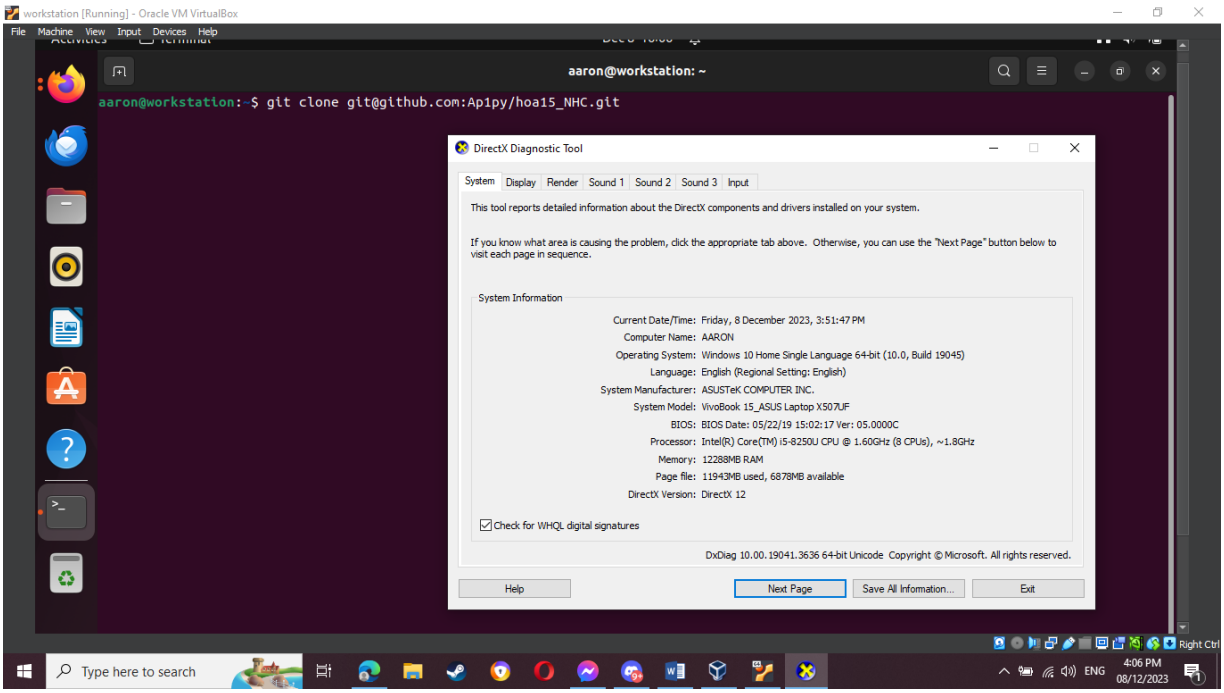
Creating the Repository



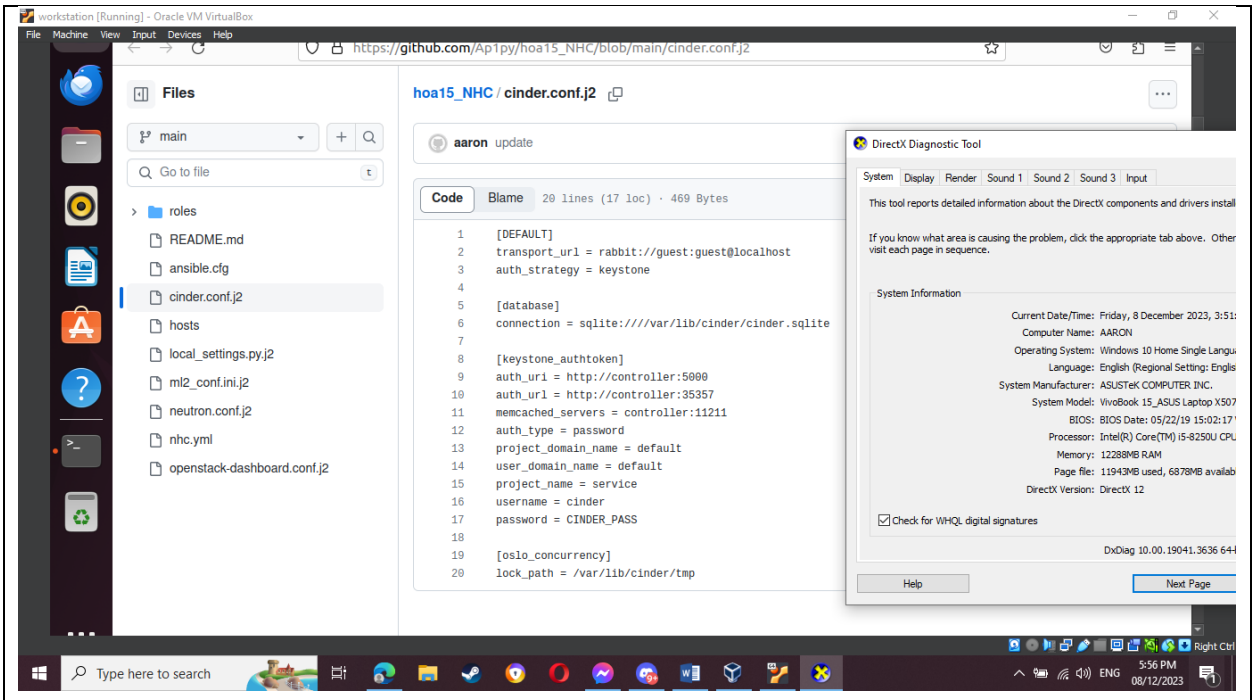
Ansible configuration copied from previous activity



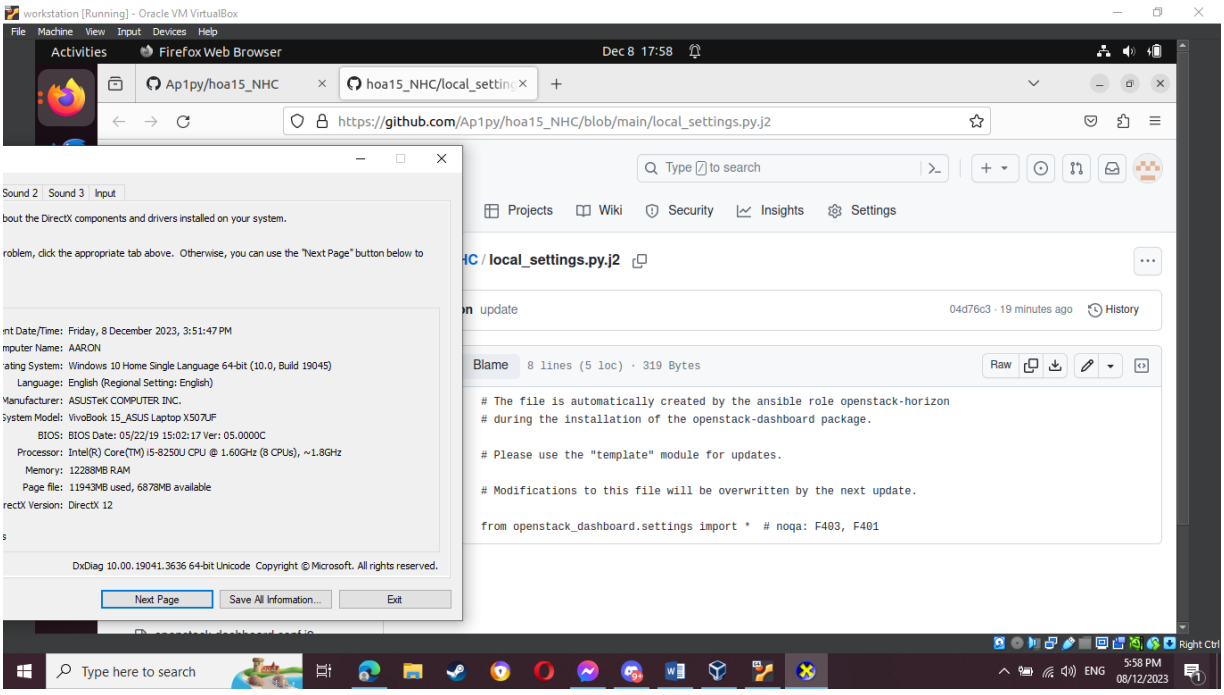
Host configuration copied from previous activity



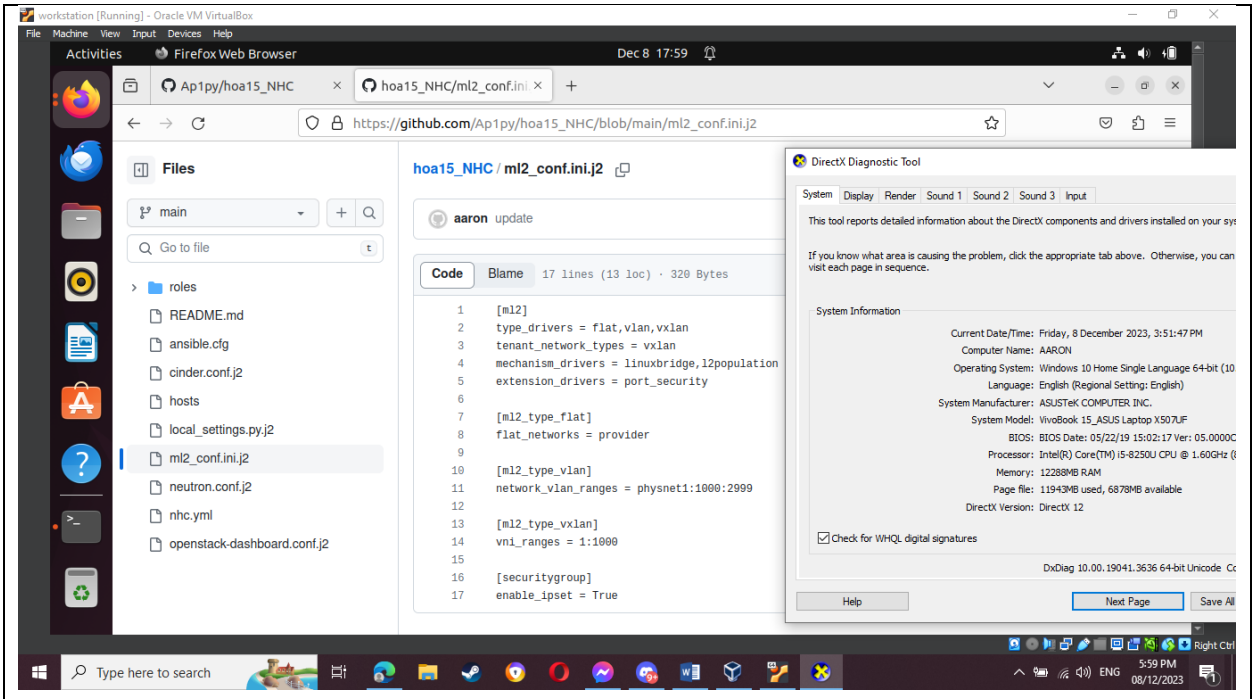
Cloning the repository



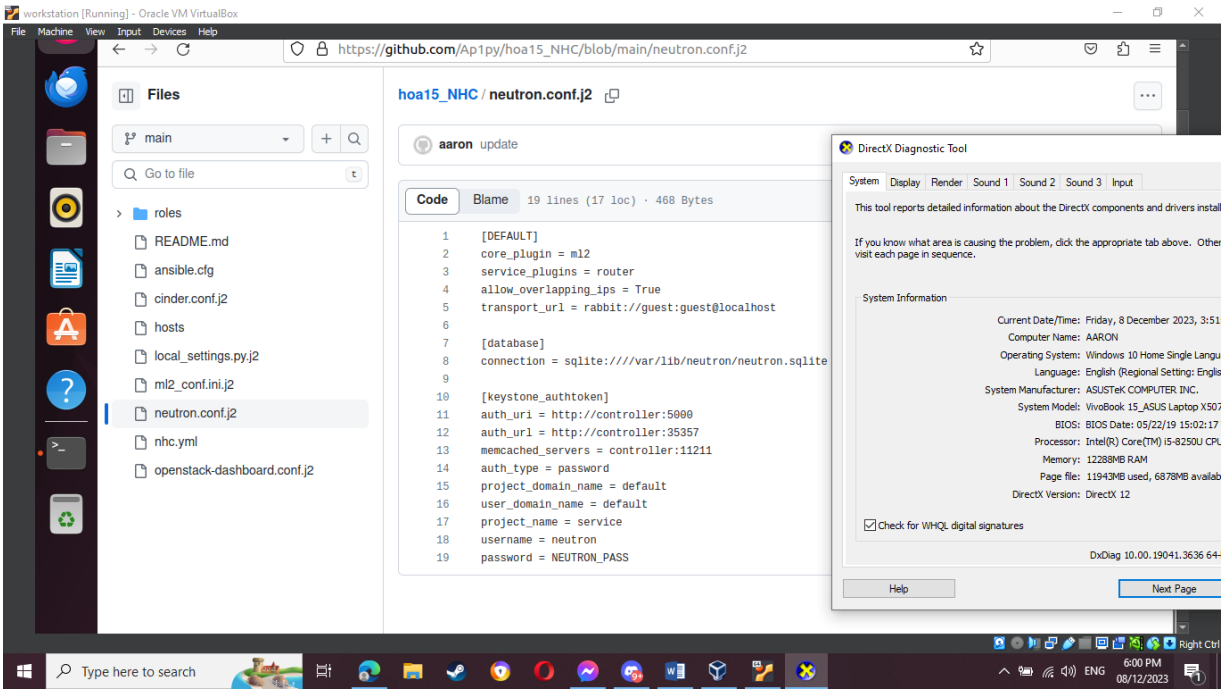
Cinder j2 configuration



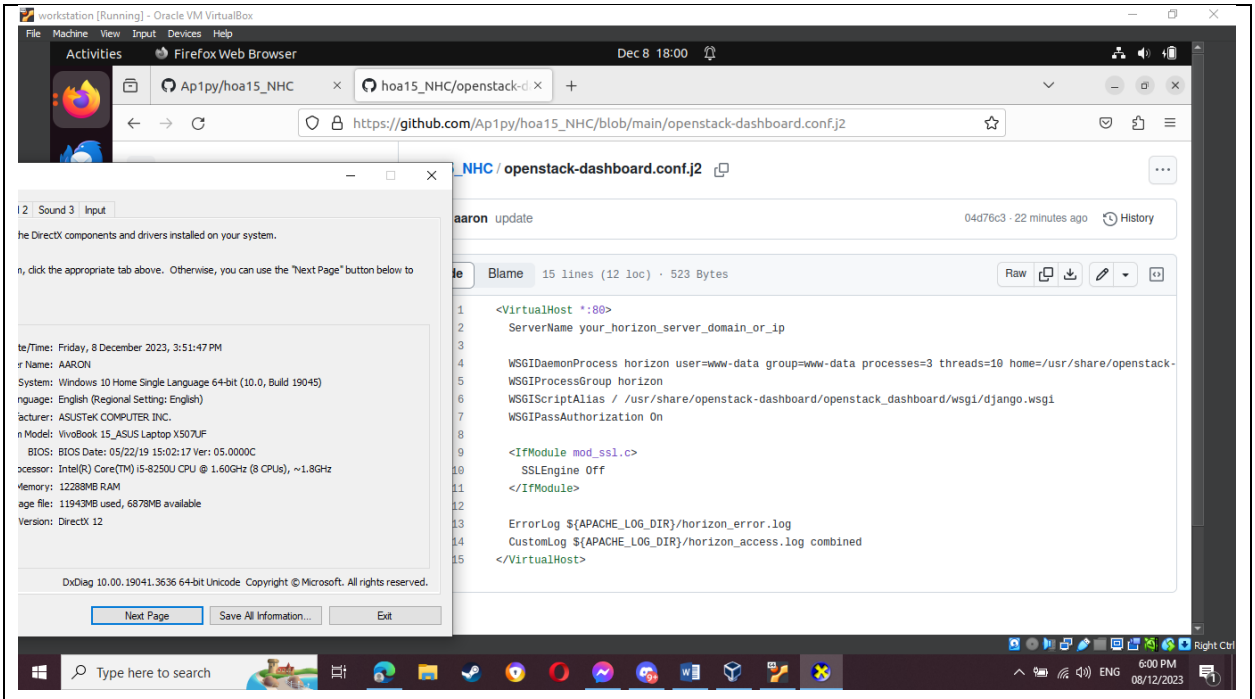
Local settings j2 configuration



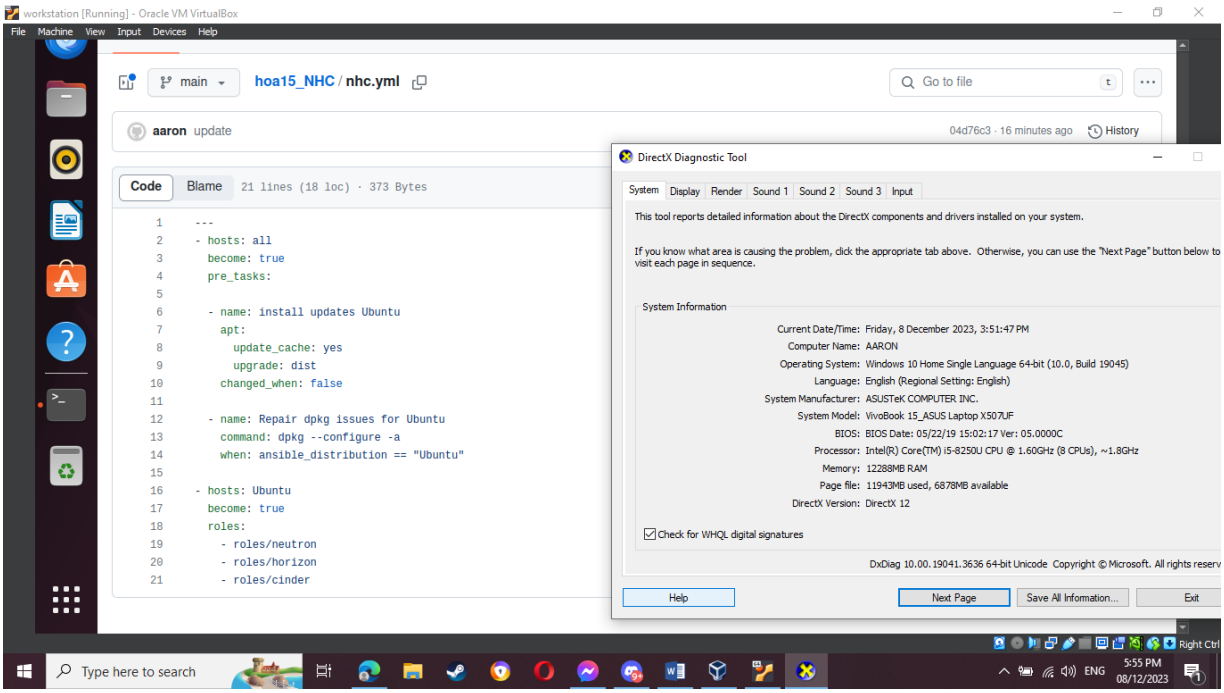
ml2 j2 configuration



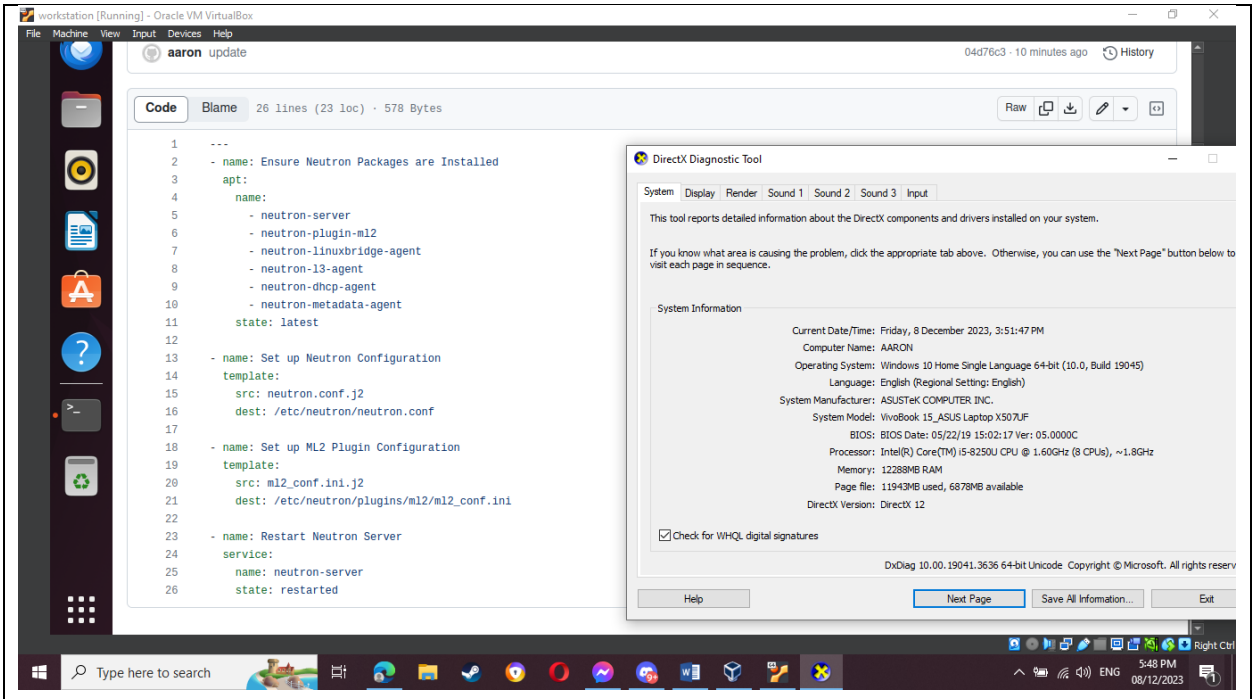
Neutron j2 configuration



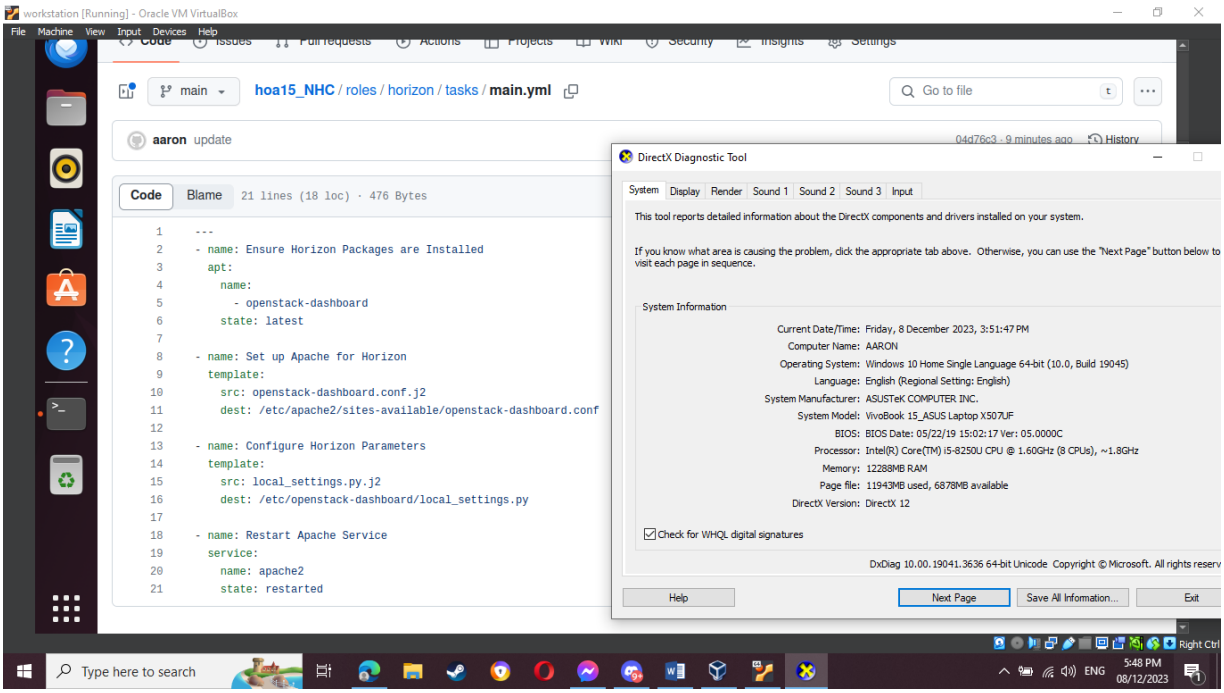
Openstack dashboard configuration file



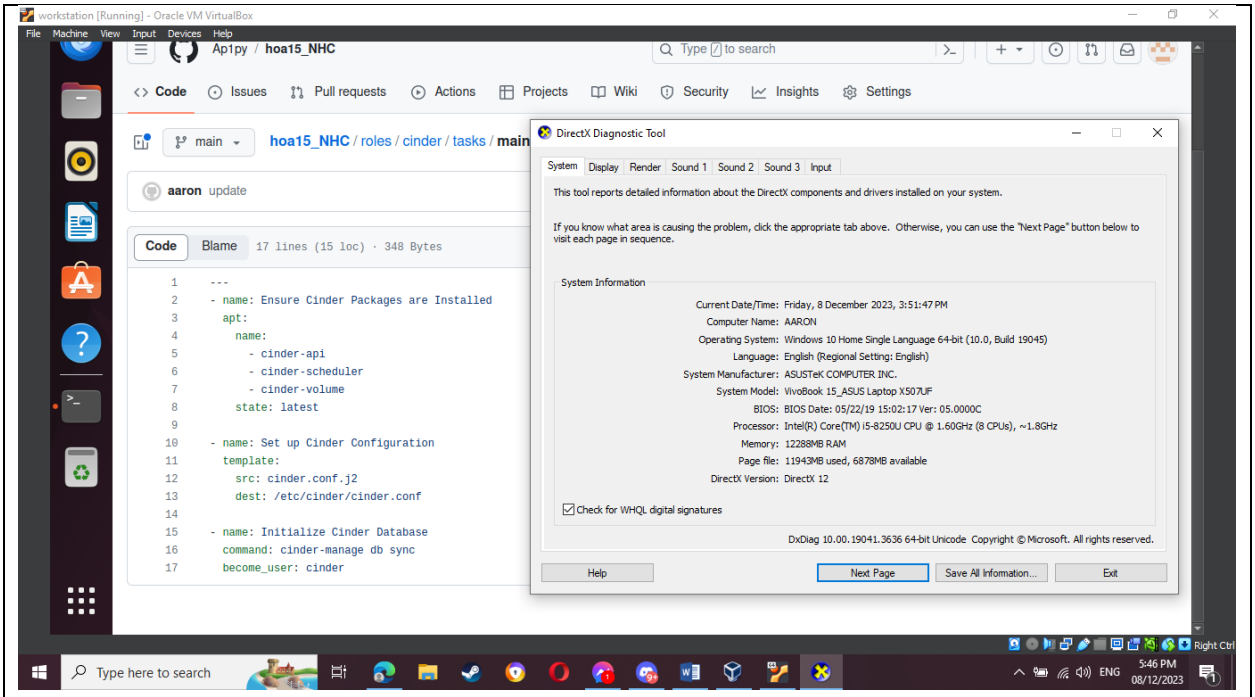
The playbook that will call the roles



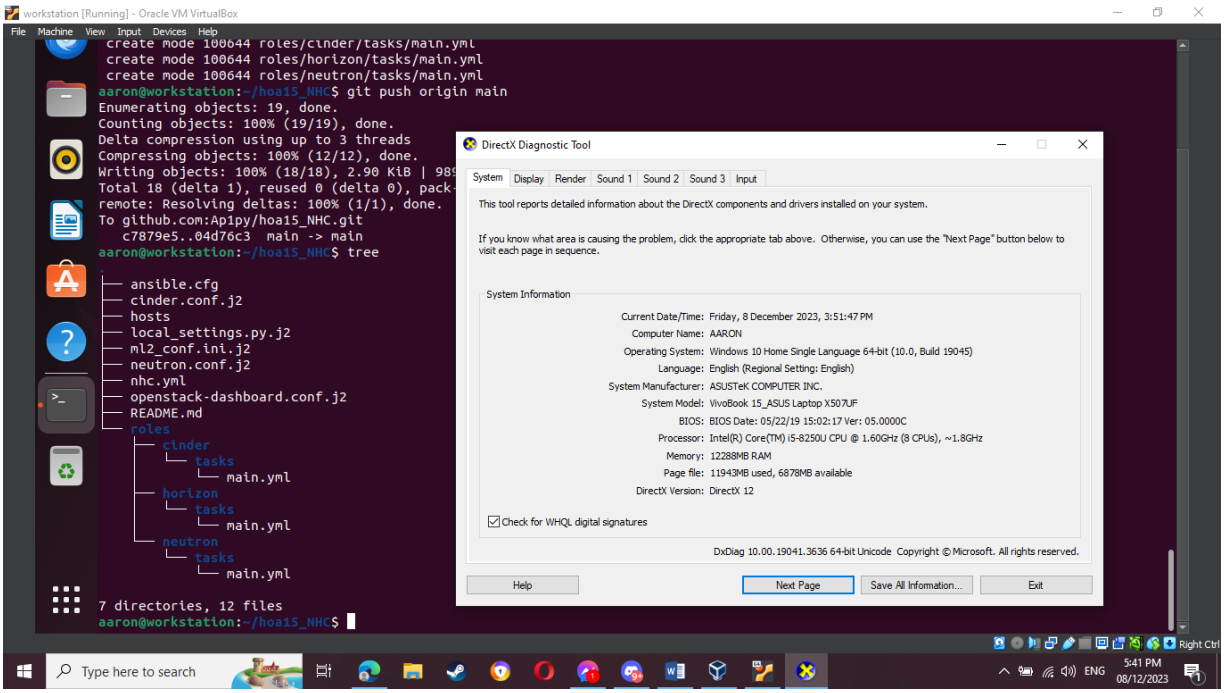
Neutron playbook



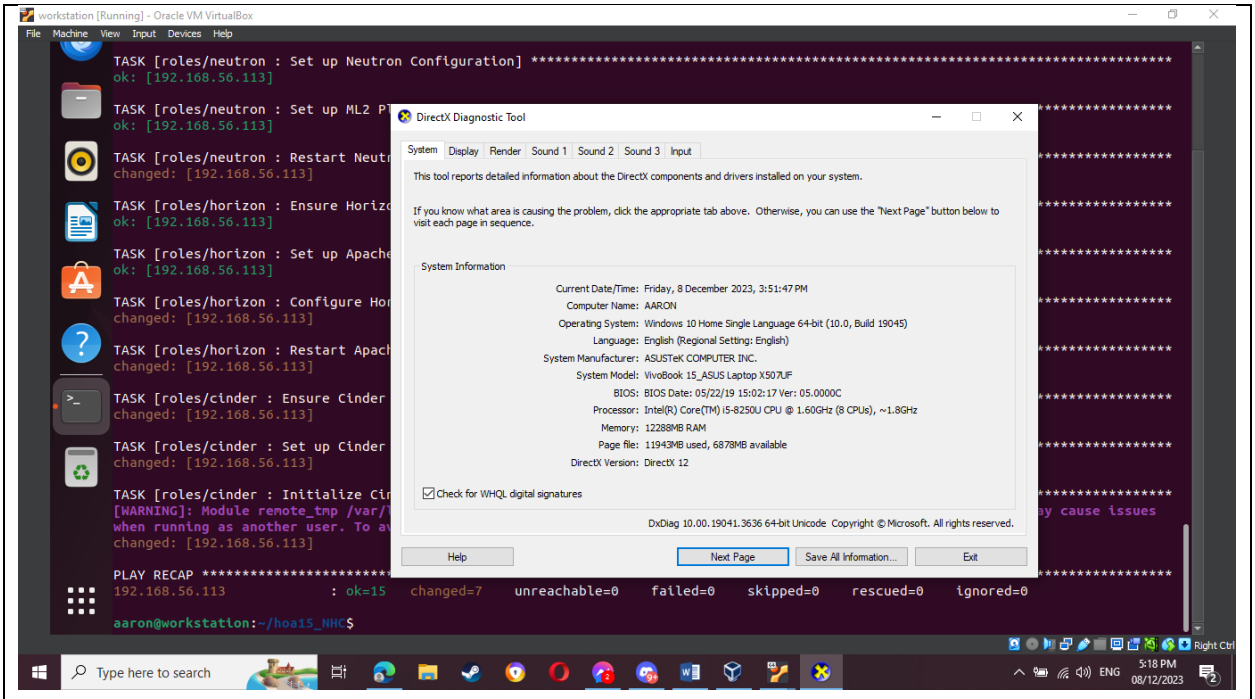
Horizon Playbook



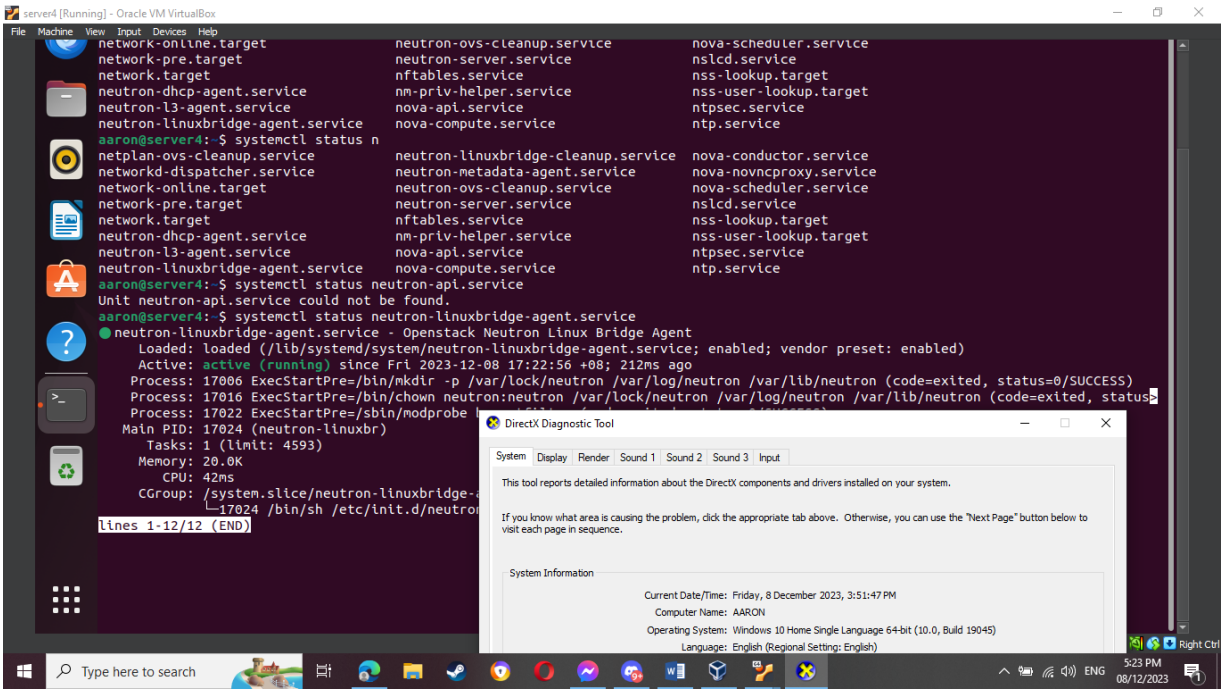
Cinder playbook



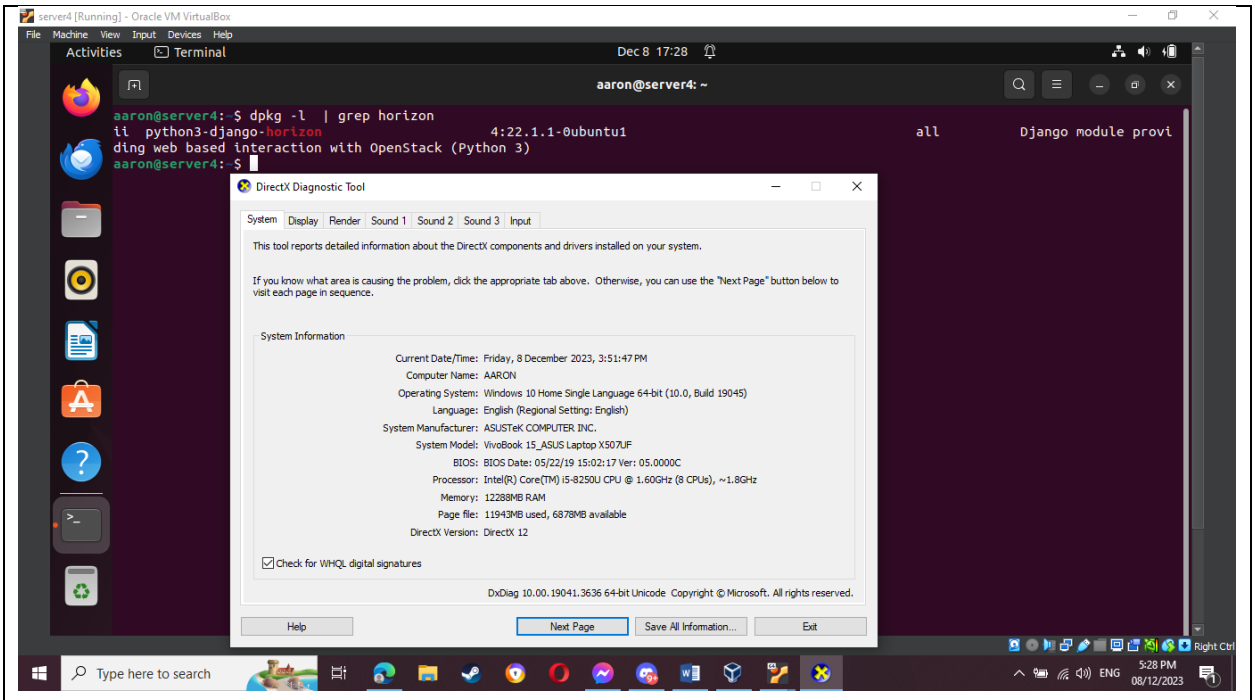
The structure



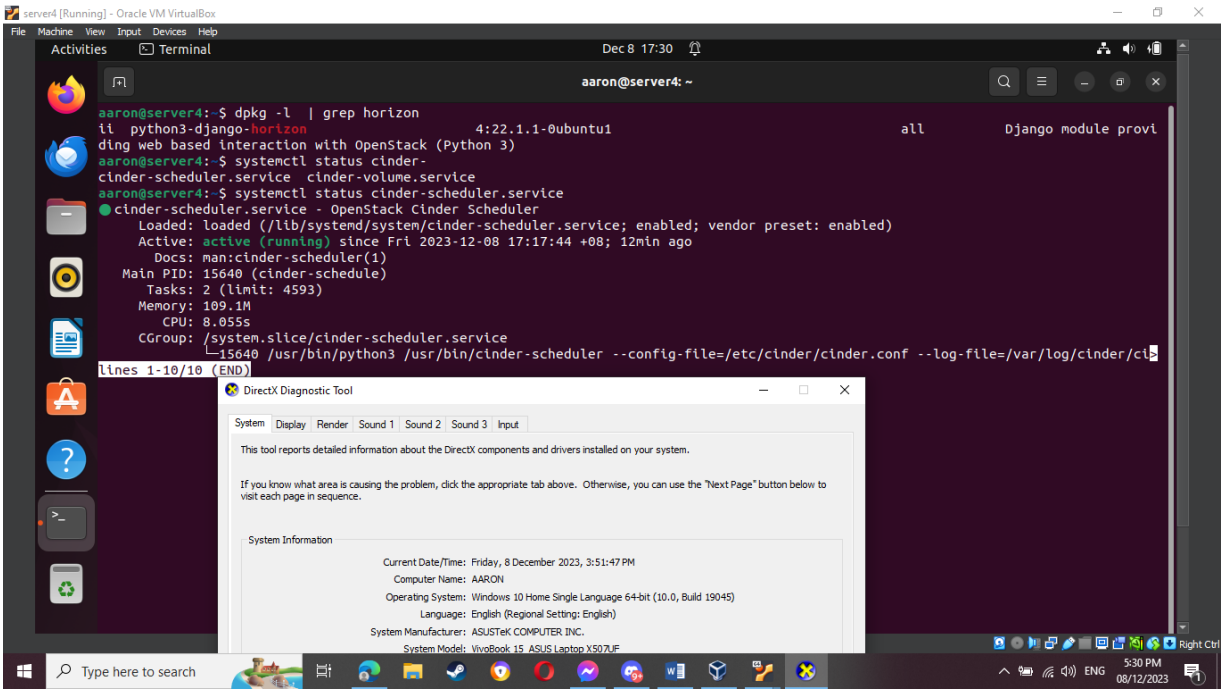
Running the playbook



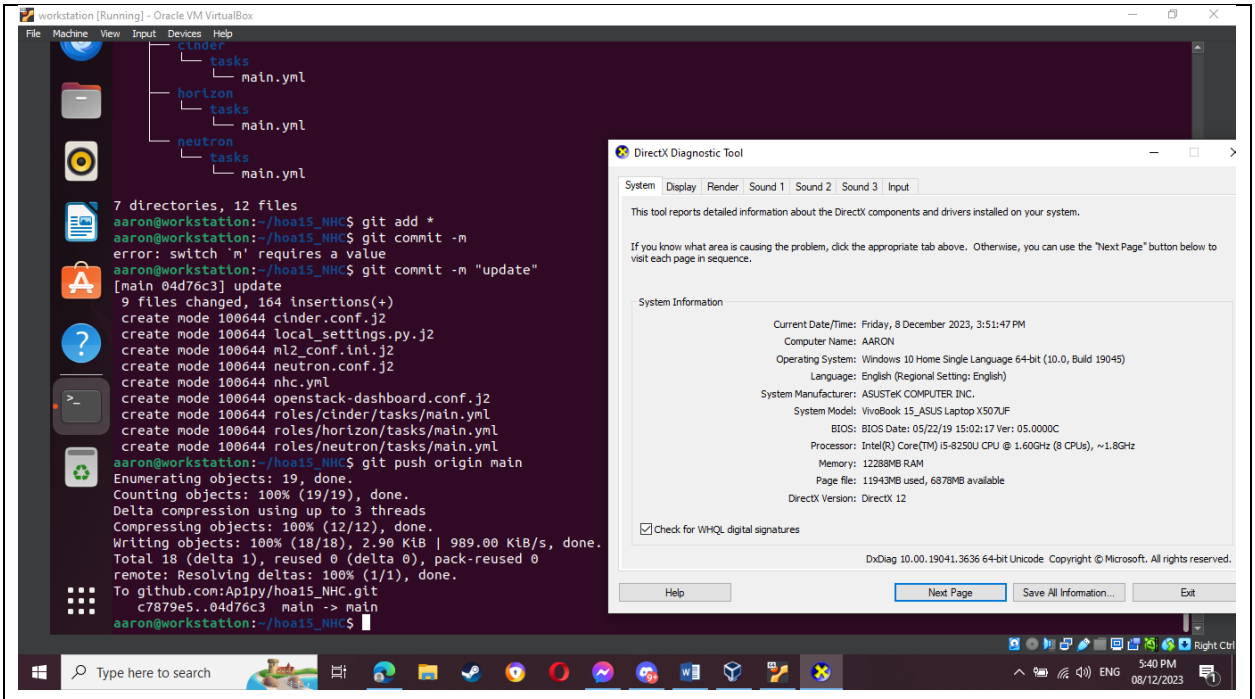
Verifying the neutron installation



Verifying the horizon installation



Verifying the Cinder Installation



Updating the Repository

Reflections:

Answer the following:

1. Describe Neutron, Horizon and Cinder services

   Neutron, Horizon, and Cinder are fundamental parts of the OpenStack cloud stage, each serving a particular capability. Neutron, the Systems Administration, works with the creation and the board of virtual organizations, subnets, and switches, supporting different organization geographies. Horizon goes about as the online Dashboard administration, giving clients an instinctive point of interaction for the graphical administration of OpenStack assets, including occurrences, volumes, and organizations. In the meantime, Cinder, the Block Stockpiling administration, directs tireless block-level capacity for virtual machines, permitting clients to make, join, and oversee volumes with help from different capacity backends and elements like depictions and encryption. With their OpenStack-based networking, user interface, and block storage capabilities, these services make up a complete cloud infrastructure solution.

Conclusions:

Neutron, Horizon, and Cinder play crucial roles in the OpenStack cloud platform, collectively providing a robust and versatile infrastructure for cloud computing. Neutron ensures efficient networking by allowing users to define and manage virtual networks, routers, and subnets. Horizon enhances the user experience with its web-based interface, enabling intuitive management of OpenStack resources. Cinder contributes

essential block storage services, facilitating the creation, attachment, and management of persistent storage volumes for virtual machines. Together, these services form a comprehensive suite that empowers users to build, deploy, and manage cloud environments with flexibility and efficiency. OpenStack's integration of Neutron, Horizon, and Cinder exemplifies its commitment to delivering a scalable and feature-rich cloud computing solution.