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Course/Section: CPE31S5	Date Submitted: 12/10/2023
Instructor: Engr. Roman Richard	Semester and SY: 1st Sem 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	
<ol style="list-style-type: none"> 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	
<p>Oracle VirtualBox (Hypervisor)</p> <p>1x Ubuntu VM or Centos VM</p>	
4. Tasks	
<ol style="list-style-type: none"> 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/ <ol style="list-style-type: none"> 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)	
<ol style="list-style-type: none"> 1. Create a new repository for this activity. 	

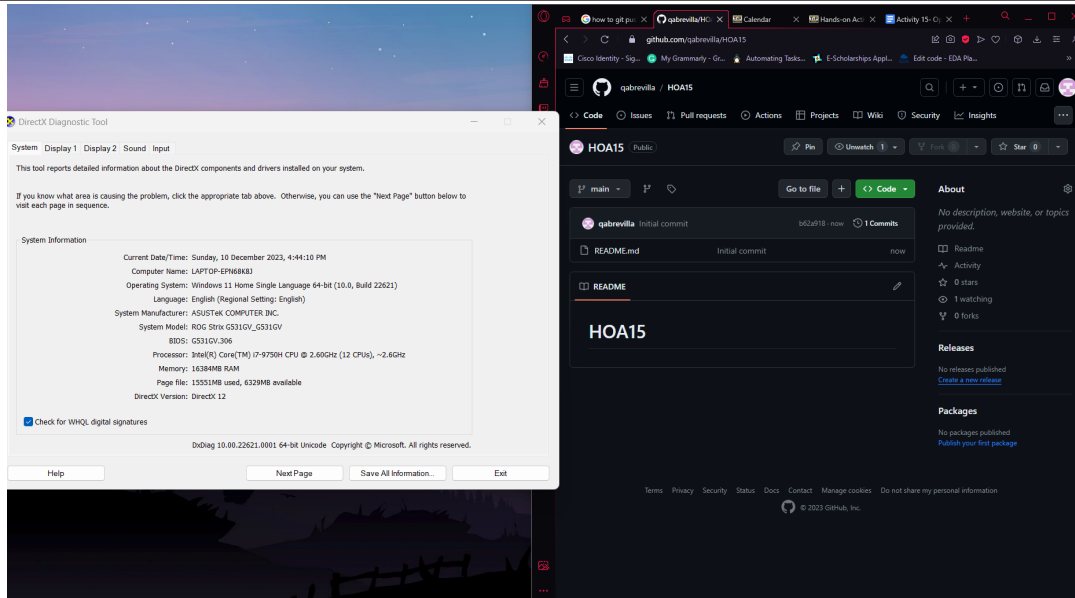


Figure 1.1 Github repository

On the github website, I've created a new repository for Hands-on-Activity 15. I also added a readme file inside the new repository.

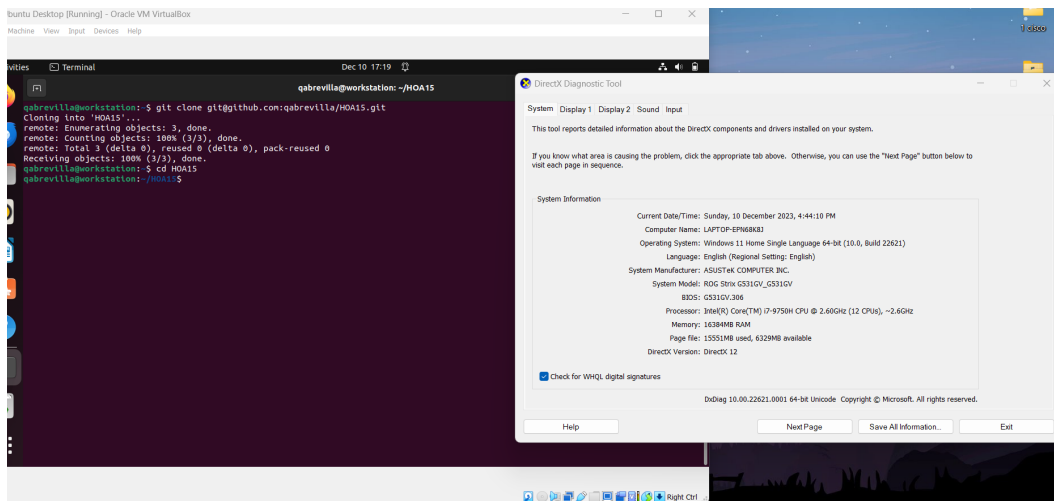


Figure 1.2 Git Clone

In my new HOA15 repository, I copied the ssh code and used it to clone the github. This will be useful later when committing changes.

2. Create a playbook that converts the steps in the following items in <https://docs.openstack.org/install-guide/>

2.1 Neutron

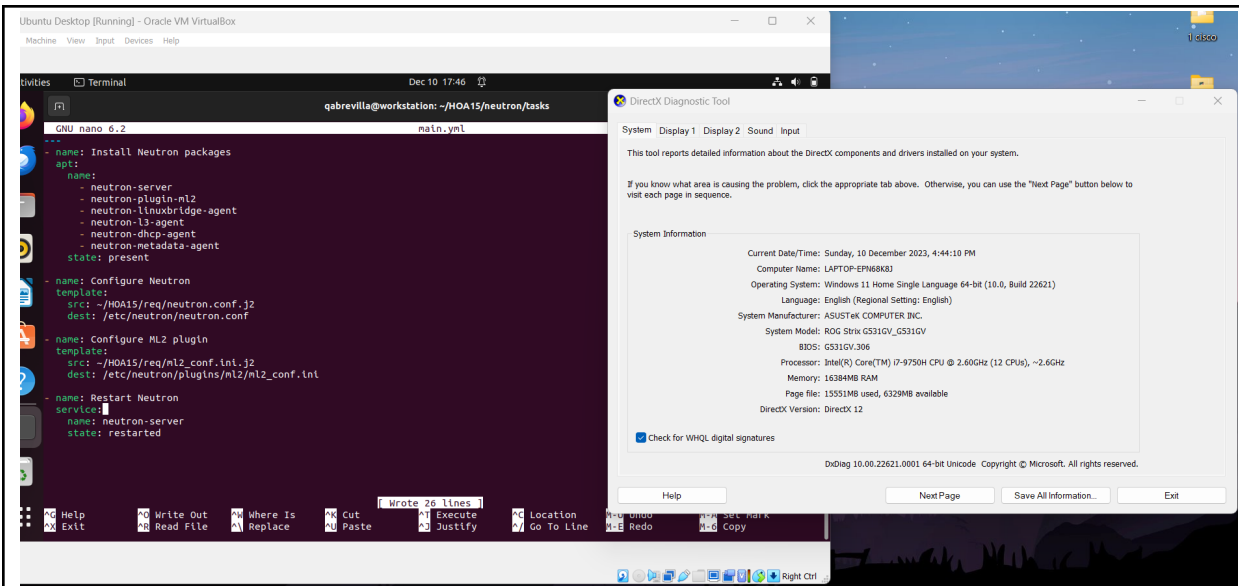


Figure 2.1 Neutron

This is the code inside the main.yml of HOA15/roles/neutron/tasks. It is in charge of installing the latest Neutron in Ubuntu and has the prerequisites needed for the installation in remote servers. It also has the code for creating initial configurations so that it can be ready and usable.

2.2 Horizon

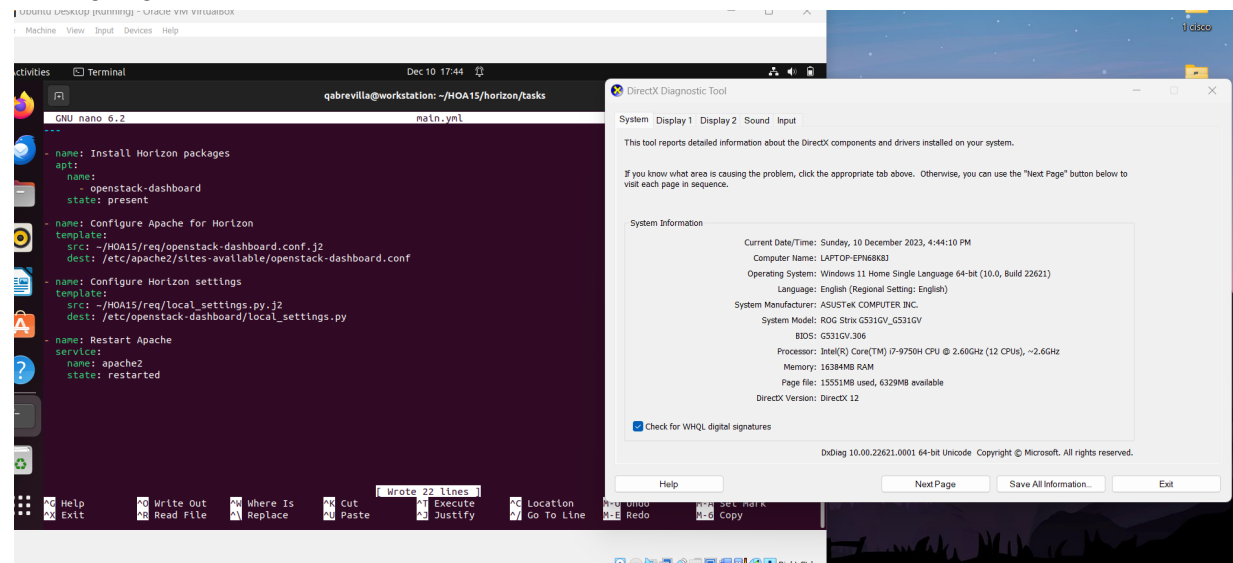


Figure 2.2 Horizon

This is the code inside the main.yml of HOA15/roles/horizon/tasks. This is in charge of installing Horizon in Ubuntu and creating initial configurations for it to work.

2.3 Cinder

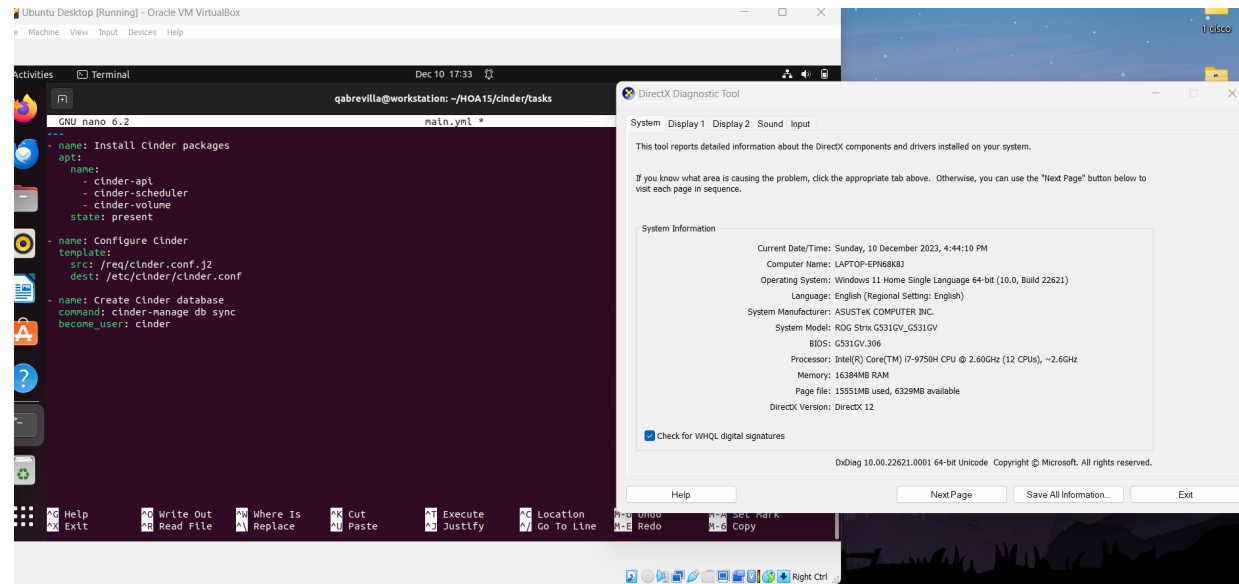


Figure 2.3 Cinder

This is the code inside the main.yml of HOA14/roles/cinder/tasks. It is in charge of installing Cinder and it needs to run in Ubuntu. It also has tasks for initial configurations that will work for setting up and include the fundamentals of the Cinder.

3. Create different plays in installing per server type (controller, compute etc.) and identify it as a group in the Inventory file.

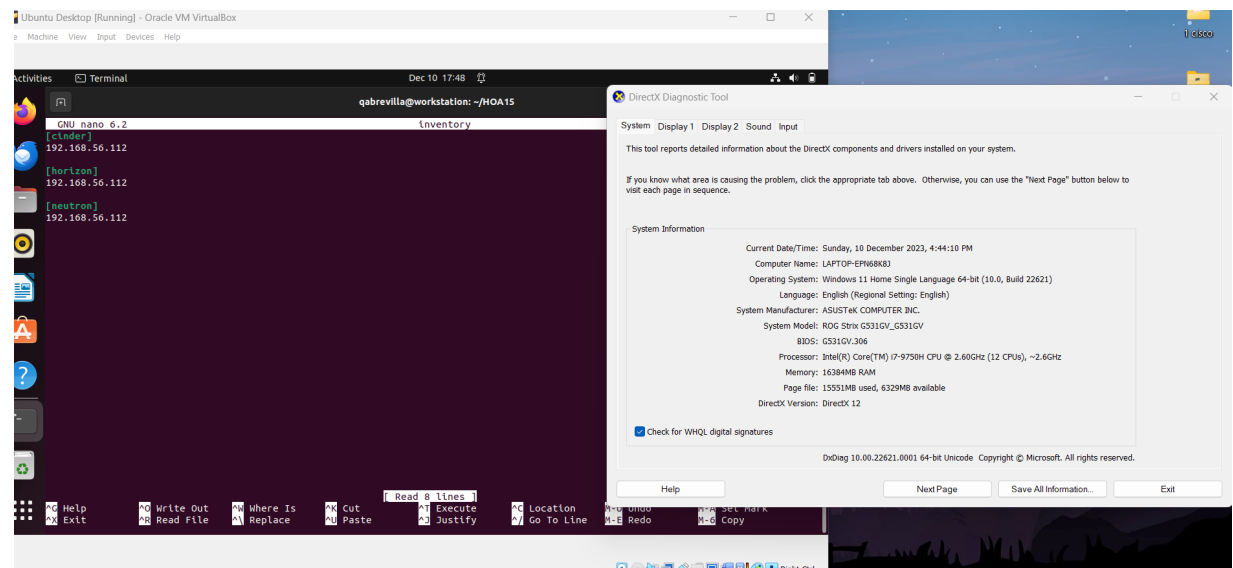


Figure 3.1 Inventory

In the inventory file, It contains the ip addresses of the remote servers. The instruction given was, we can use one server of our chosen operating system. It has the ip address of one Ubuntu remote server named Revilla_Ubuntu_clone2

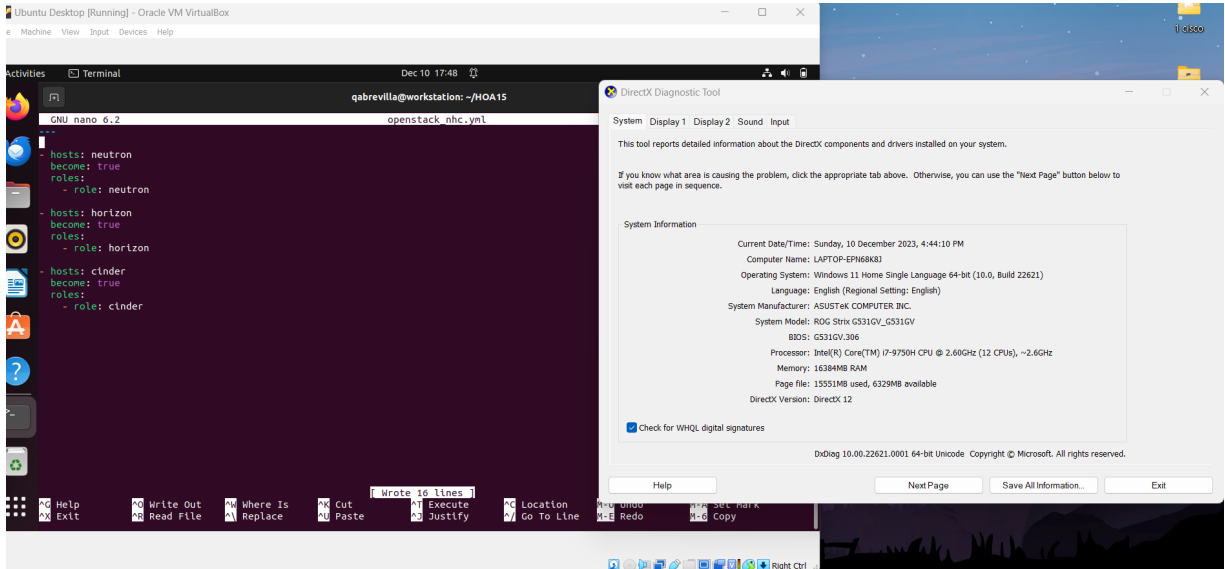


Figure 3.2 Ansible playbook

This is the main brain of the process of installation. It has the step by step program of how the playbook works.

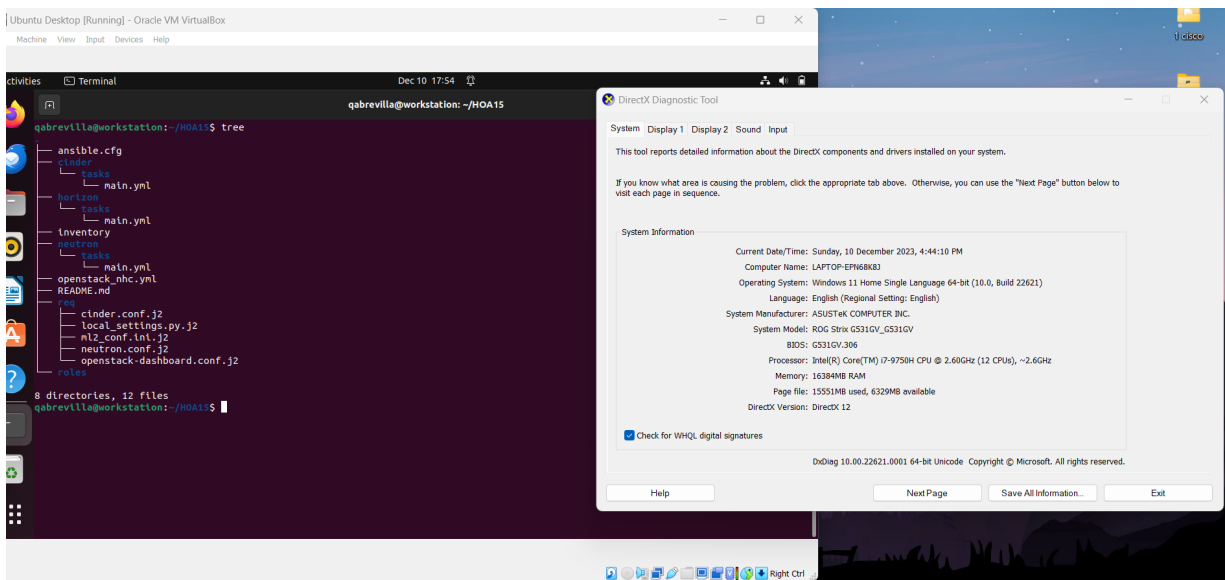


Figure 3.3 Tree

I use the tree command by downloading sudo apt install tree. This will show the structure of the files and directories

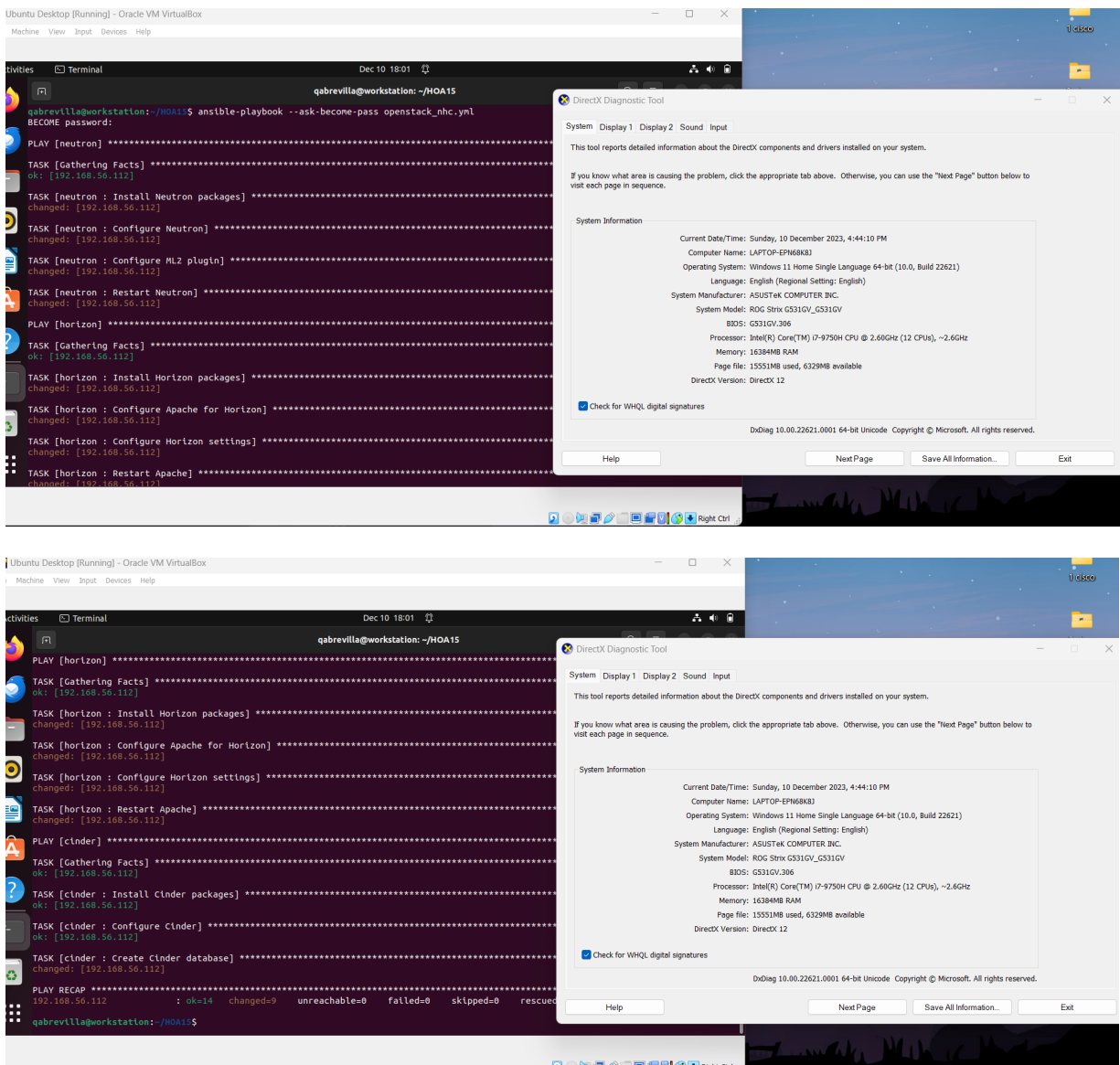


Figure 3.4 Running Playbook

The playbook works fine and achieves its tasks to install Neutron, Horizon, and Cinder. It has all the prerequisites and it initializes configuration in the system of the ubuntu remote server.

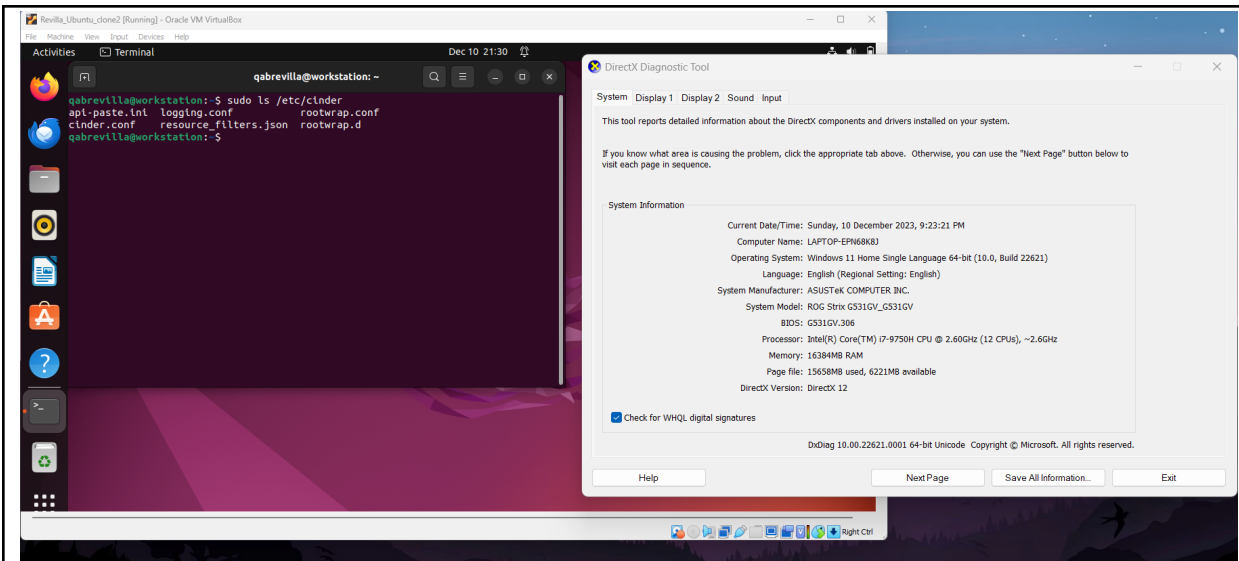
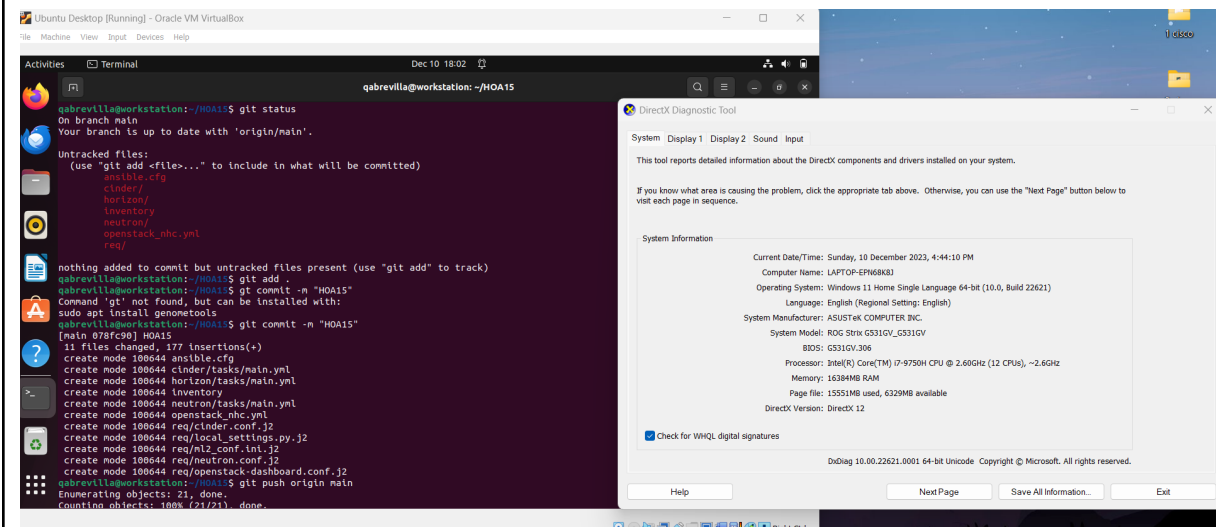


Figure 3.7 Proof of installation (Cinder)

4. Add, commit and push it to your GitHub repo.



Reflections:

Answer the following:

1. Describe Neutron, Horizon and Cinder services

Neutron - It is the networking service for openstack that has various plugins for it to work within networks. It manages and lets users create resources for routers, subnets, and network groups. It provides connectivity for all interface devices managed by other openstack services.

Horizon - Is a dashboard (web based) interface for managing and provisioning resources in openstack. It supports multiple users allowing them to have permissions and roles assigned to them. It allows unified view and control over different components and instances.

Cinder - cinder creates additional storage for applications, databases and important storages can be managed by users. It is a block storage service in openstack that provides storage for computer instances like virtual machines. It can also support features such as snapshotting, cloning, and encryption for flexibility and security purposes.

Conclusions:

This activity is a continuation of the previous activity Hands-on-activity 14. We focus on Neutron, Horizon, and Cinder all are services that we can use in openstack. I was able to create a Ansible playbook that will install these tools and set initial configurations in the remote servers. I learned about the core services integral to managing different aspects of cloud infrastructure. Learning this will deepen our understanding of cloud infrastructure and provide an initial idea of how we can use them in the future. Understanding them opens up opportunities in cloud computing and infrastructure management. Personally I want to learn more about cloud and I want to improve my learnings and skills in these fields. I hope that I can learn more in the future because this is one of my reason why I pursue system administrator in Computer Engineering.