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Course/Section: BSCPE31S5	**Date Submitted:** Dec 10, 2023
Instructor: Engr. Roman Richard	**Semester and SY:** 1st sem 2022 - 2023

Activity 14: OpenStack Installation (Keystone, Glance, Nova)

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

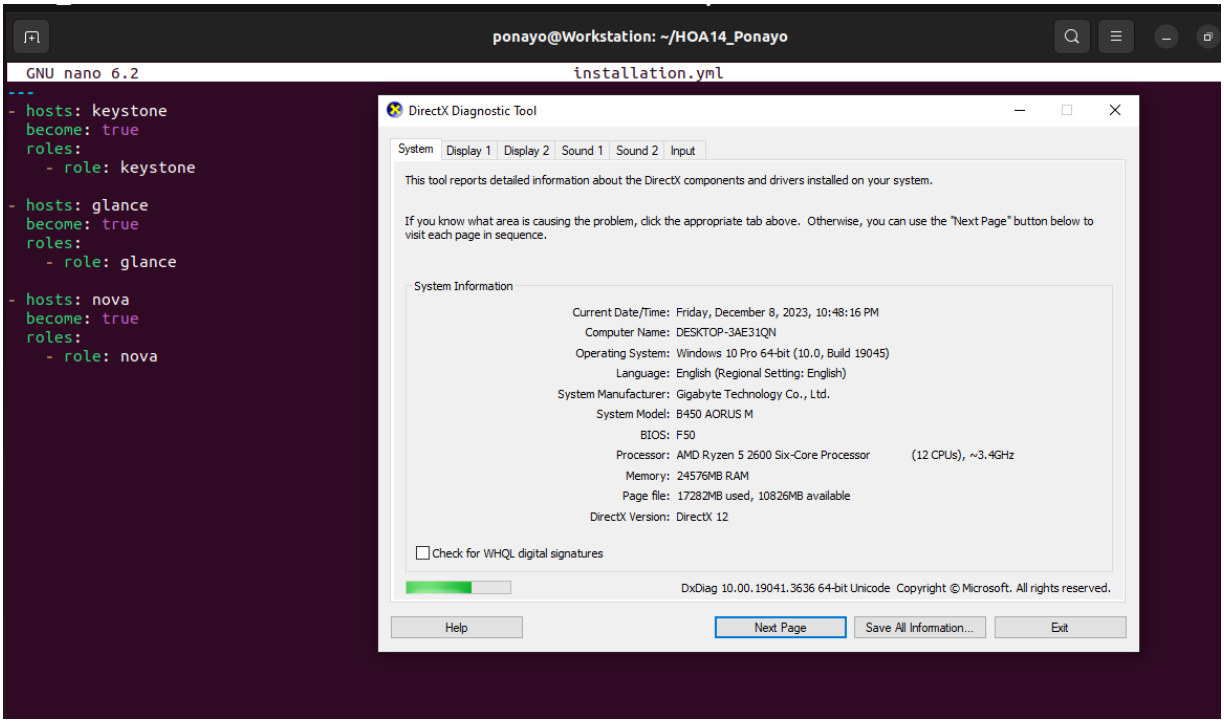
4. Tasks

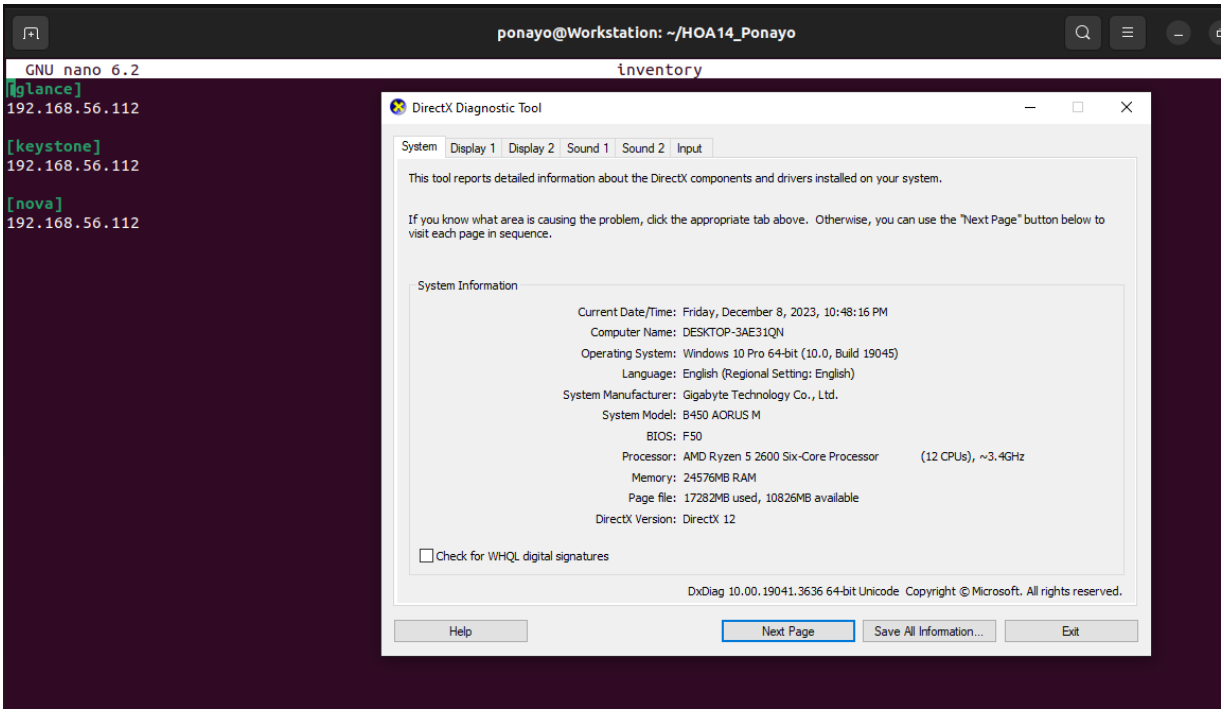
1. Create a new repository for this activity.
2. Create a playbook that converts the steps in the following items in https://docs.openstack.org/install-guide/
    a. Keystone (Identity Service)
    b. Glance (Imaging Service)
    c. Nova (Compute Service)
    d. Create different plays in installing per 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.

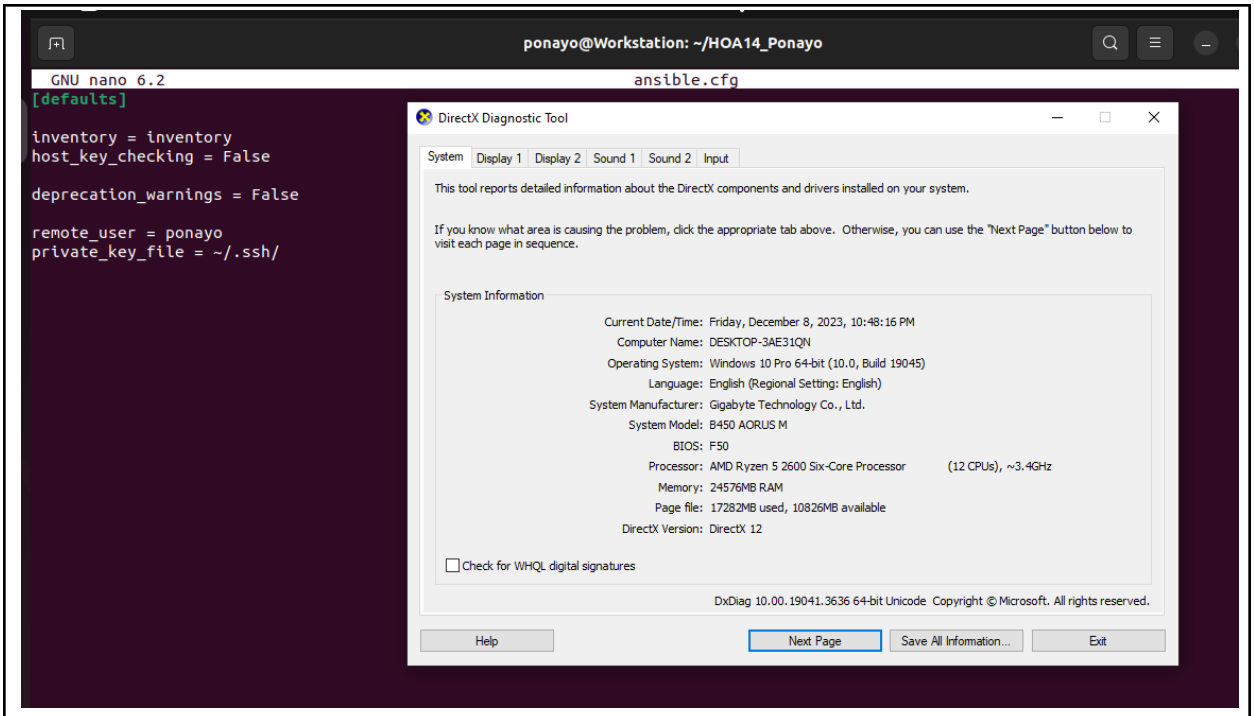
5. Output (screenshots and explanations)

Creating installation.yml, inventory, ansible.cfg

I created the following files to set the ip address, the path of the glance, keystone, and nova, and the default configuration. By creating this, it will help to easily install the nova, glances, and keystone.

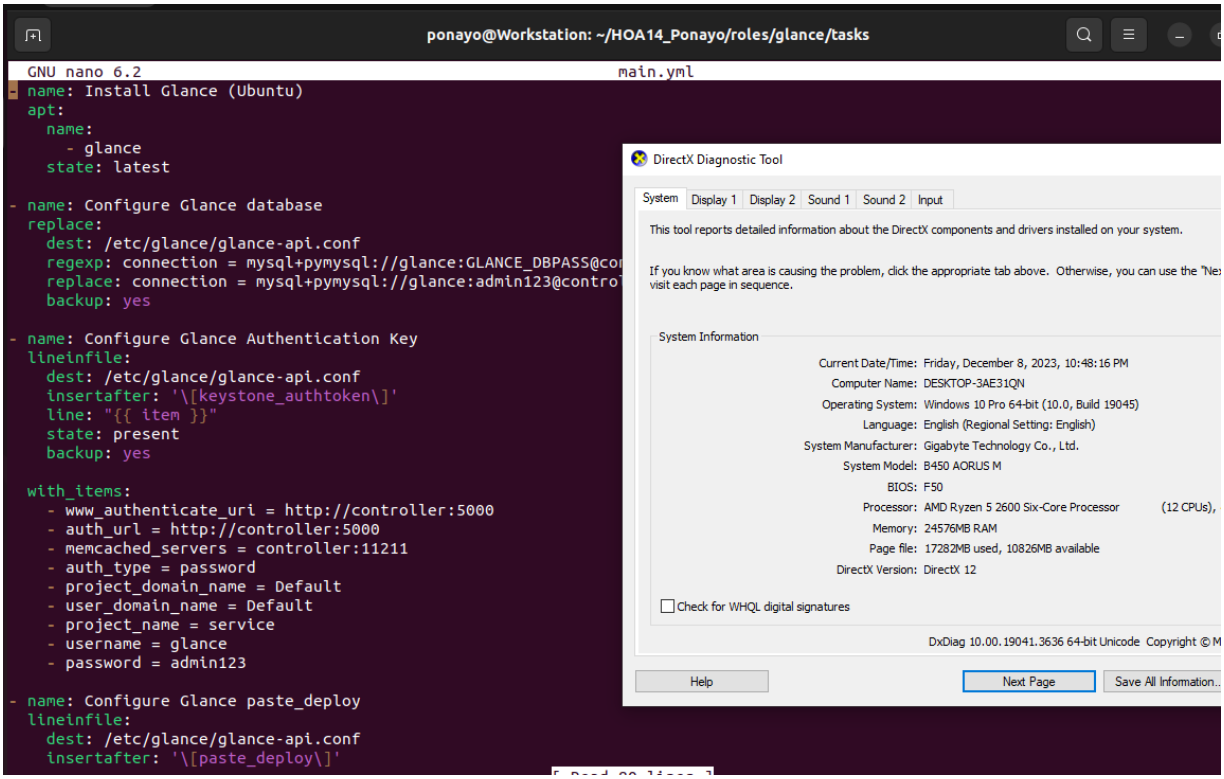


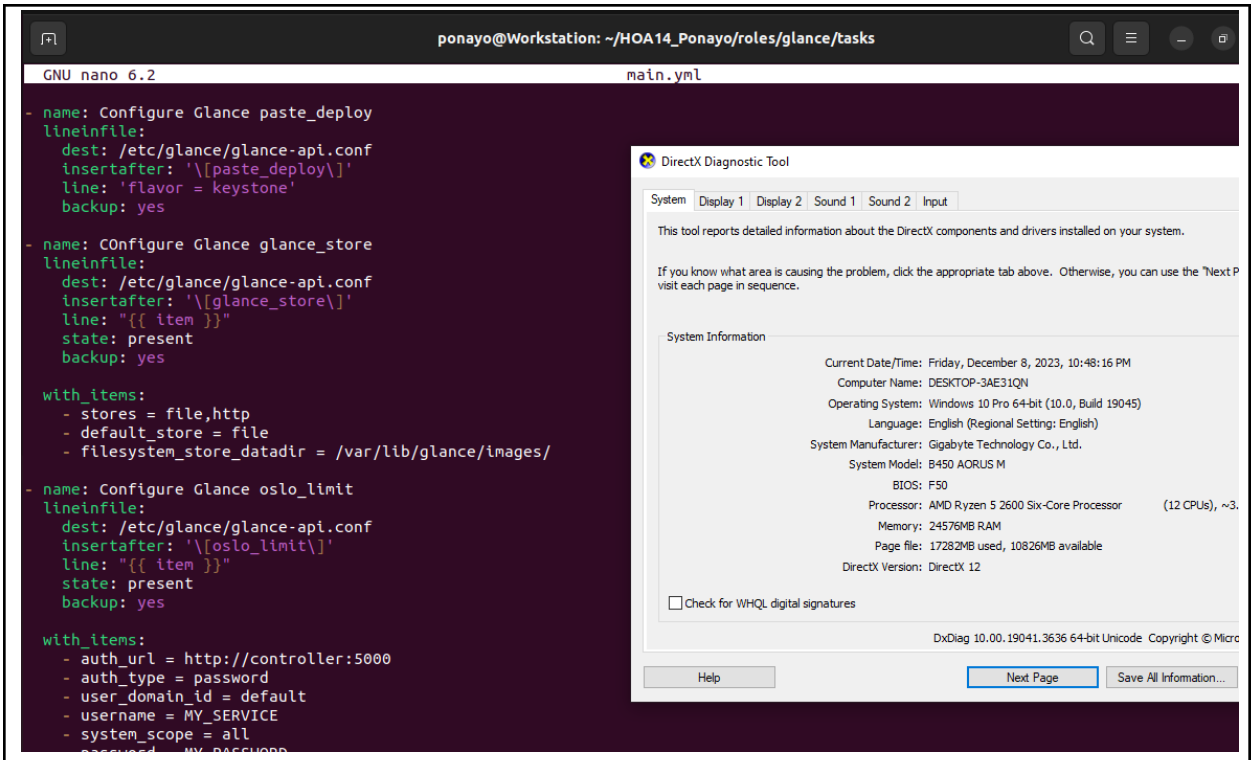




Glance

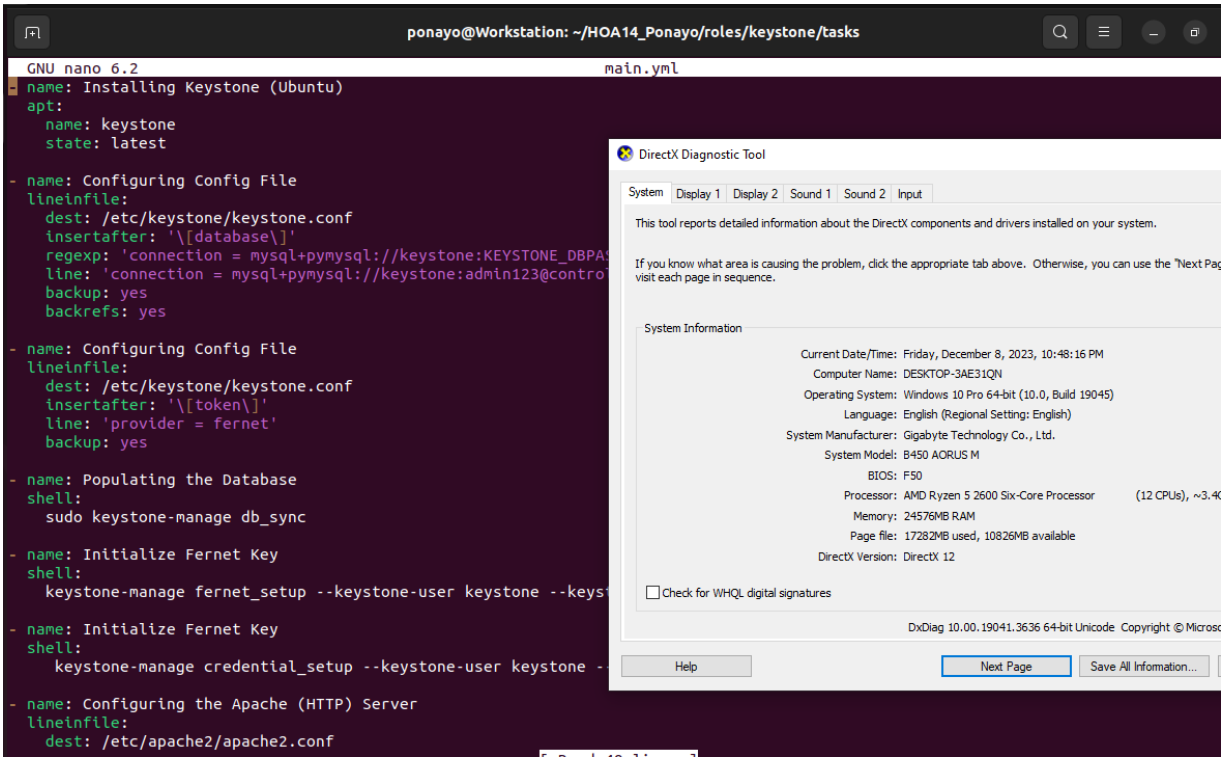
On this file, it will show the following commands to install the glance.

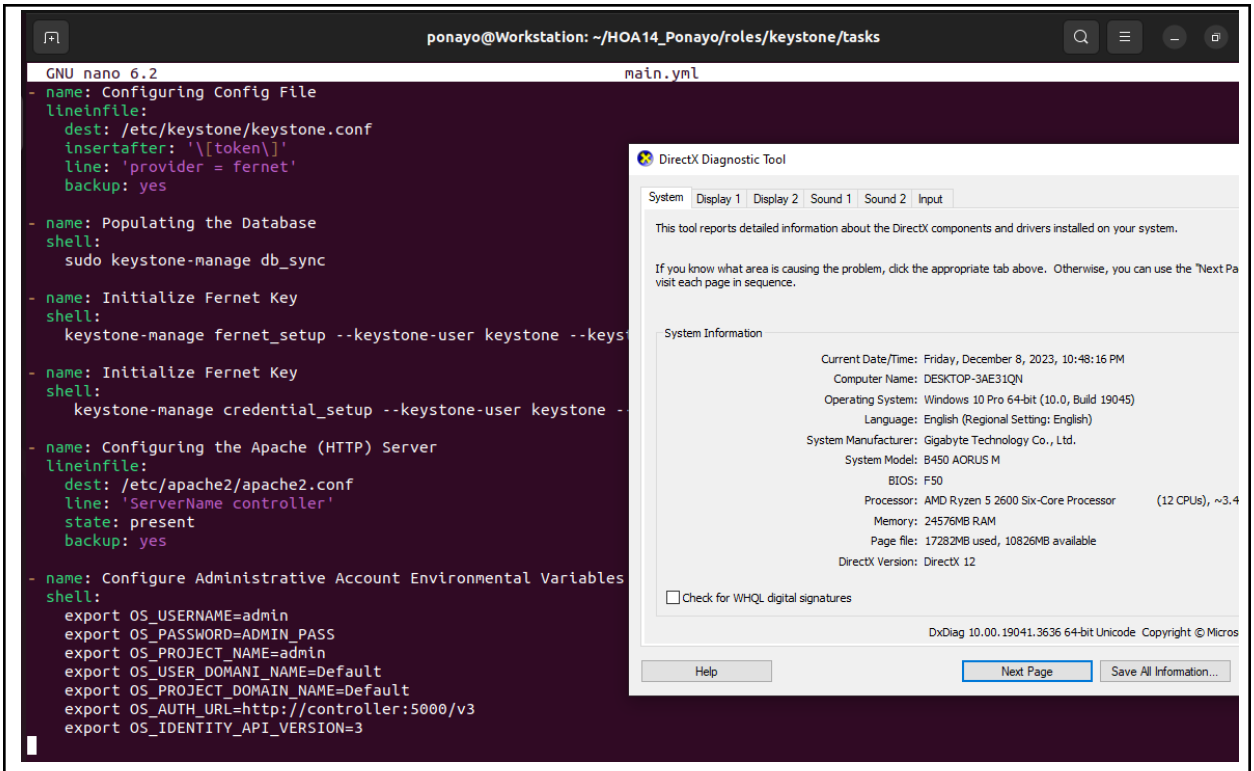




Keystone

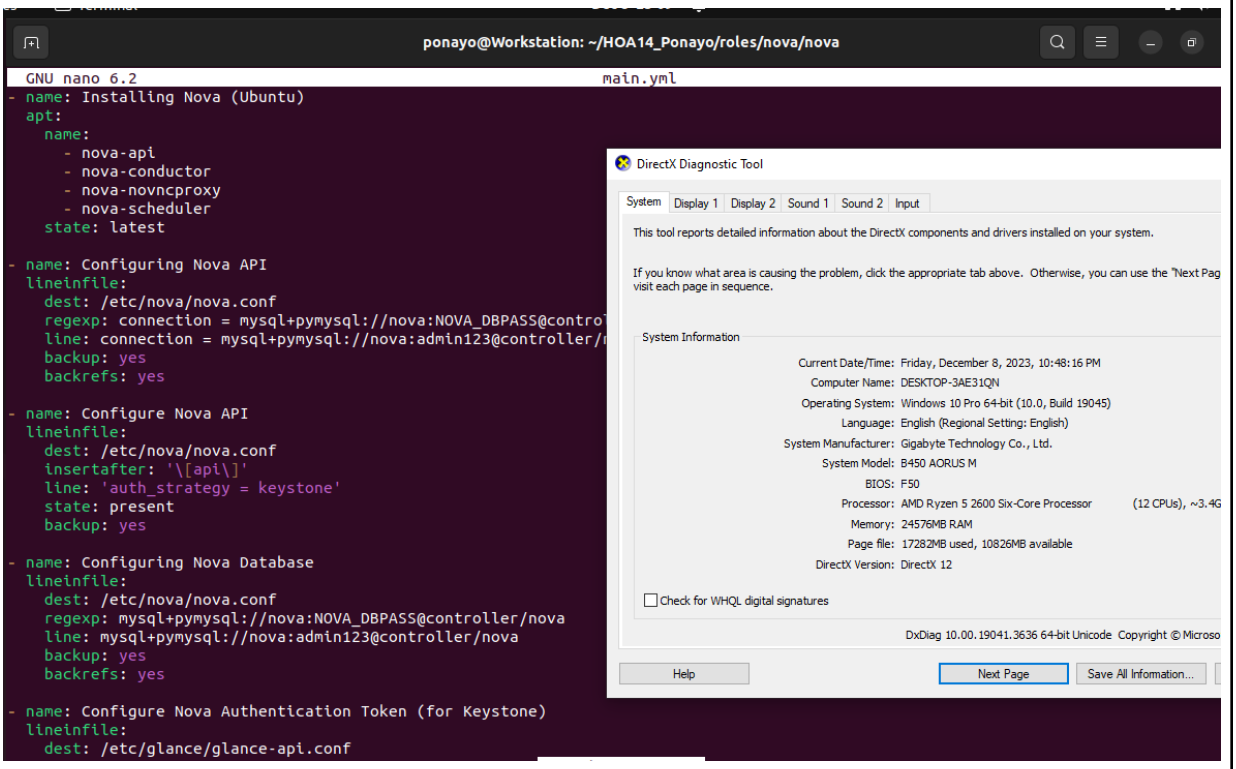
On this file, it will show the following commands to install the keystone.

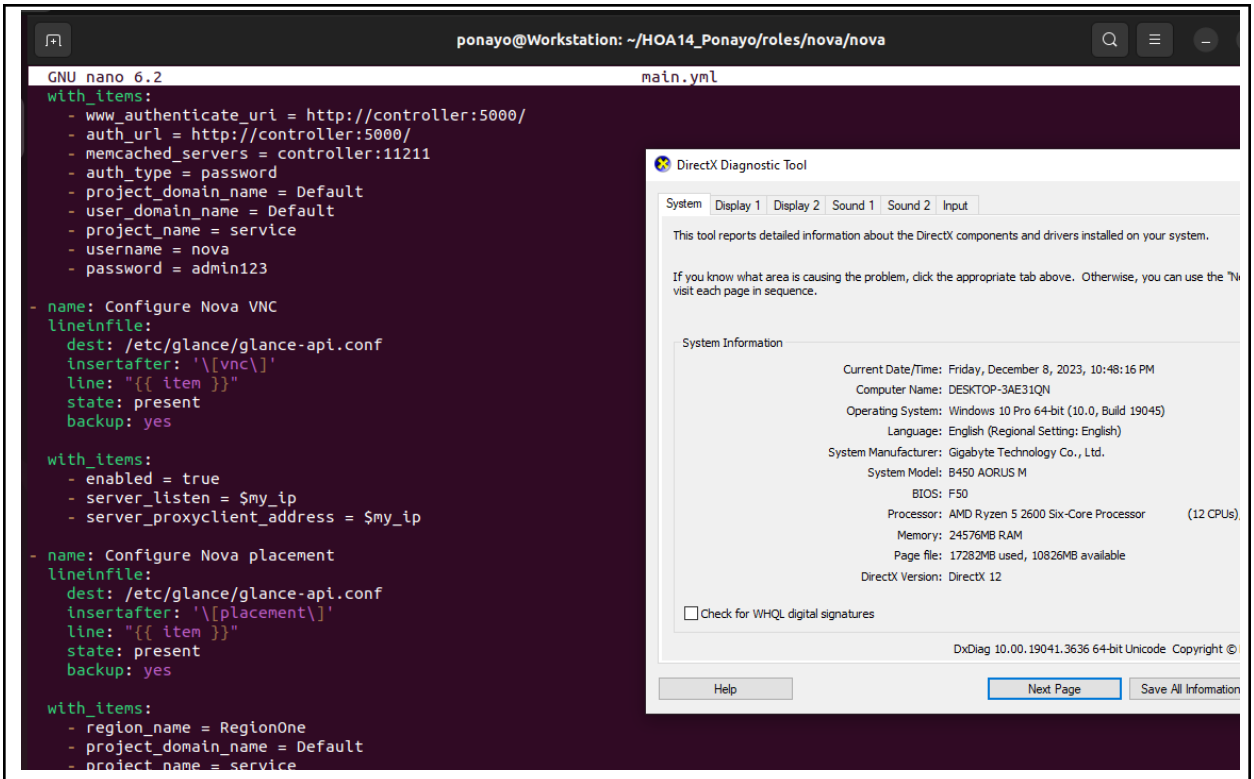




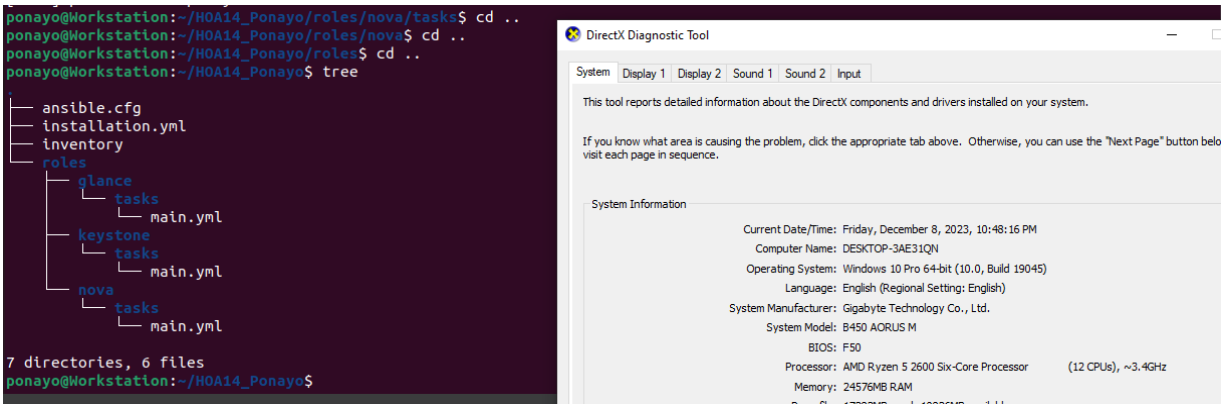
Nova

On this file, it will show the following command to install the Nova

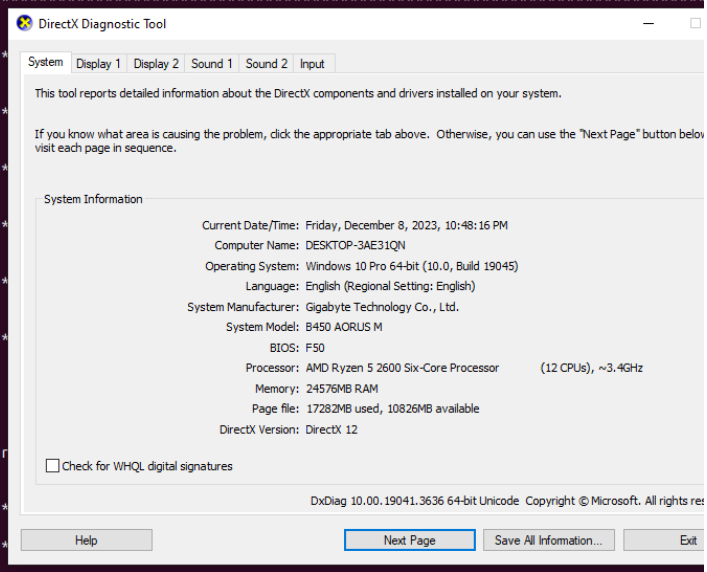




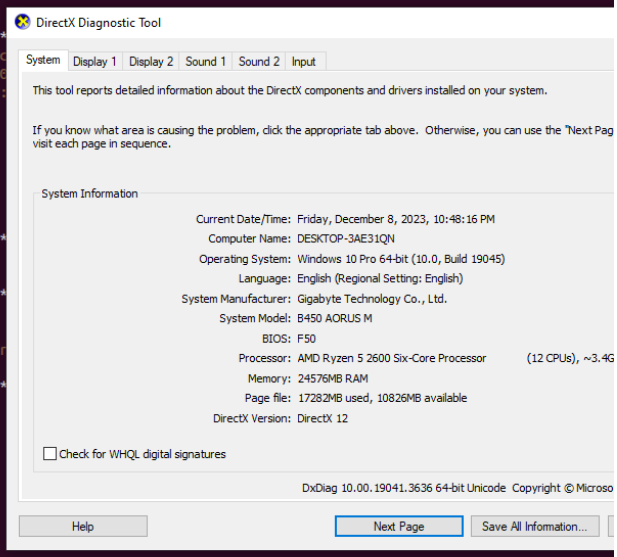
On the following step, I use the tree command to see the following files and use the ansible-playbook command to run the installation.



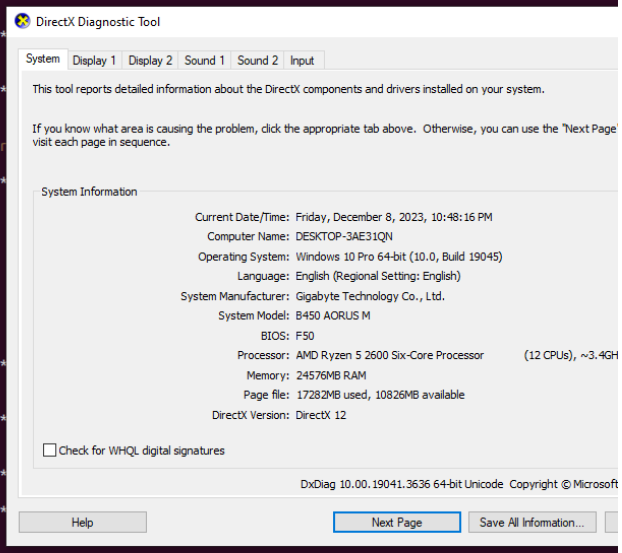
```
ponayo@Workstation:~/HOA14_Ponayo$ ansible-playbook --ask-become-pass installation.yml
BECOME password:

PLAY [keystone] ***************************************************************************************************************

TASK [Gathering Facts] ********************************************************************************************************
ok: [192.168.56.112]

TASK [keystone : Installing Keystone (Ubuntu)] ********
changed: [192.168.56.112]

TASK [keystone : Configuring Config File] *************
ok: [192.168.56.112]

TASK [keystone : Configuring Config File] *************
changed: [192.168.56.112]

TASK [keystone : Populating the Database] *************
changed: [192.168.56.112]

TASK [keystone : Initialize Fernet Key] ***************
changed: [192.168.56.112]

TASK [keystone : Initialize Fernet Key] ***************
changed: [192.168.56.112]

TASK [keystone : Configuring the Apache (HTTP) Server]
changed: [192.168.56.112]

TASK [keystone : Configure Administrative Account Envir
changed: [192.168.56.112]

PLAY [glance] *****************************************

TASK [Gathering Facts] ********************************
ok: [192.168.56.112]

TASK [glance : Install Glance (Ubuntu)] ***************************************************************************************
changed: [192.168.56.112]
```



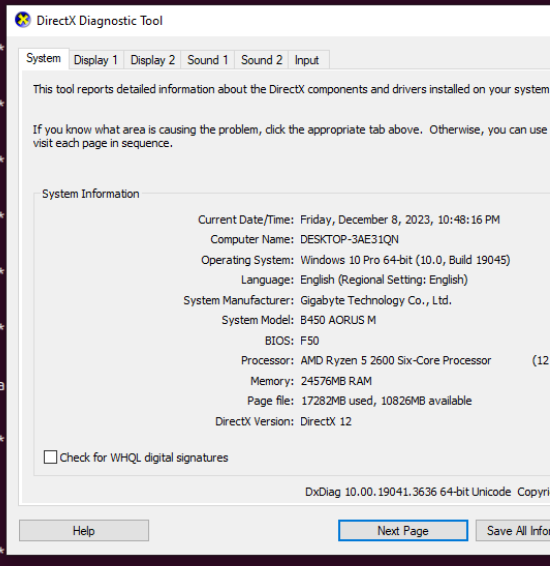

```
TASK [glance : Install Glance (Ubuntu)] ***************************************************************************************
changed: [192.168.56.112]

TASK [glance : Configure Glance database] *************************************************************************************
ok: [192.168.56.112]

TASK [glance : Configure Glance Authentication Key] ***************
changed: [192.168.56.112] => (item=www_authenticate_uri = http://c
changed: [192.168.56.112] => (item=auth_url = http://controller:50
changed: [192.168.56.112] => (item=memcached_servers = controller:
changed: [192.168.56.112] => (item=auth_type = password)
changed: [192.168.56.112] => (item=project_domain_name = Default)
changed: [192.168.56.112] => (item=user_domain_name = Default)
changed: [192.168.56.112] => (item=project_name = service)
changed: [192.168.56.112] => (item=username = glance)
changed: [192.168.56.112] => (item=password = admin123)

TASK [glance : Configure Glance paste_deploy] *********************
changed: [192.168.56.112]

TASK [glance : COnfigure Glance glance_store] *********************
changed: [192.168.56.112] => (item=stores = file,http)
changed: [192.168.56.112] => (item=default_store = file)
changed: [192.168.56.112] => (item=filesystem_store_datadir = /var

TASK [glance : Configure Glance oslo_limit] ***********************
ok: [192.168.56.112] => (item=auth_url = http://controller:5000)
ok: [192.168.56.112] => (item=auth_type = password)
changed: [192.168.56.112] => (item=user_domain_id = default)
changed: [192.168.56.112] => (item=username = MY_SERVICE)
changed: [192.168.56.112] => (item=system_scope = all)
changed: [192.168.56.112] => (item=password = MY_PASSWORD)
changed: [192.168.56.112] => (item=endpoint_id = ENDPOINT_ID)
changed: [192.168.56.112] => (item=region_name = RegionOne)

TASK [glance : Configure Glance DEFAULT] **************************************************************************************
changed: [192.168.56.112]

TASK [glance : Populating Image Service Database] *****************************************************************************
```



```
changed: [192.168.56.112] => (item=auth_type = password)
changed: [192.168.56.112] => (item=project_domain_name = Default)
changed: [192.168.56.112] => (item=user_domain_name = Default)
changed: [192.168.56.112] => (item=project_name = service)
changed: [192.168.56.112] => (item=username = glance)
changed: [192.168.56.112] => (item=password = admin123)

TASK [glance : Configure Glance paste_deploy] ********************
changed: [192.168.56.112]

TASK [glance : COnfigure Glance glance_store] ********************
changed: [192.168.56.112] => (item=stores = file,http)
changed: [192.168.56.112] => (item=default_store = file)
changed: [192.168.56.112] => (item=filesystem_store_datadir = /var

TASK [glance : Configure Glance oslo_limit] **********************
ok: [192.168.56.112] => (item=auth_url = http://controller:5000)
ok: [192.168.56.112] => (item=auth_type = password)
changed: [192.168.56.112] => (item=user_domain_id = default)
changed: [192.168.56.112] => (item=username = MY_SERVICE)
changed: [192.168.56.112] => (item=system_scope = all)
changed: [192.168.56.112] => (item=password = MY_PASSWORD)
changed: [192.168.56.112] => (item=endpoint_id = ENDPOINT_ID)
changed: [192.168.56.112] => (item=region_name = RegionOne)

TASK [glance : Configure Glance DEFAULT] *************************
changed: [192.168.56.112]

TASK [glance : Populating Image Service Database] ****************
changed: [192.168.56.112]

PLAY [nova] ******************************************************

TASK [Gathering Facts] *******************************************
ok: [192.168.56.112]

PLAY RECAP *******************************************************************************************************************
192.168.56.112             : ok=19   changed=14   unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

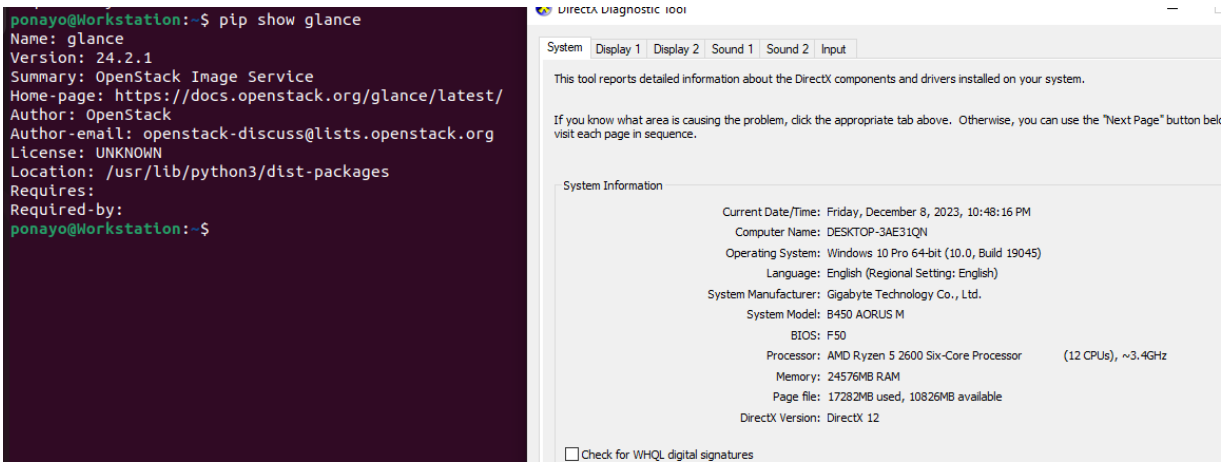



```
TASK [glance : Populating Image Service Database] ****************
changed: [192.168.56.112]

TASK [nova : install the packages] *******************************
changed: [192.168.56.112]

TASK [nova : configuring RabbitMQ message queue access] **********
changed: [192.168.56.112]

TASK [nova : configuring identity service access (1)] ************
changed: [192.168.56.112]

TASK [nova : configuring identity service access (2)] ************
changed: [192.168.56.112]

TASK [nova : enable and configure remote console access] *********
changed: [192.168.56.112]

TASK [nova : configure the location of the image service API] ****
changed: [192.168.56.112]

TASK [nova : configure the lock path] ****************************
changed: [192.168.56.112]

TASK [nova : configure the placement API] ************************
changed: [192.168.56.112]

TASK [nova : configuring to make the computer node to support hardware a
changed: [192.168.56.112]

TASK [nova : restarting the computer service] ********************
changed: [192.168.56.112]

TASK [nova : Verifying if already running and active the nova-compute.]
changed: [192.168.56.112]

TASK [nova : debug] **********************************************
ok: [192.168.56.112] => {
    "msg": [
```

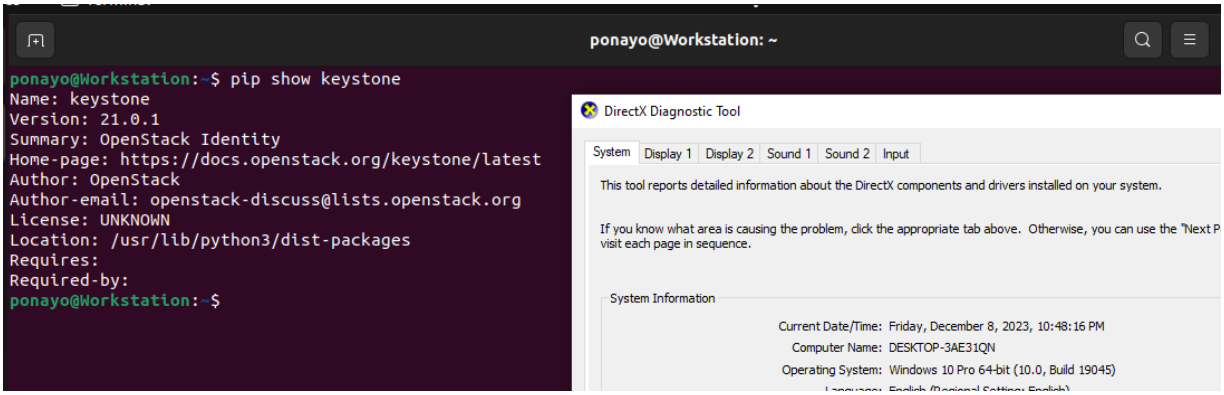


Checking if the installation is successful

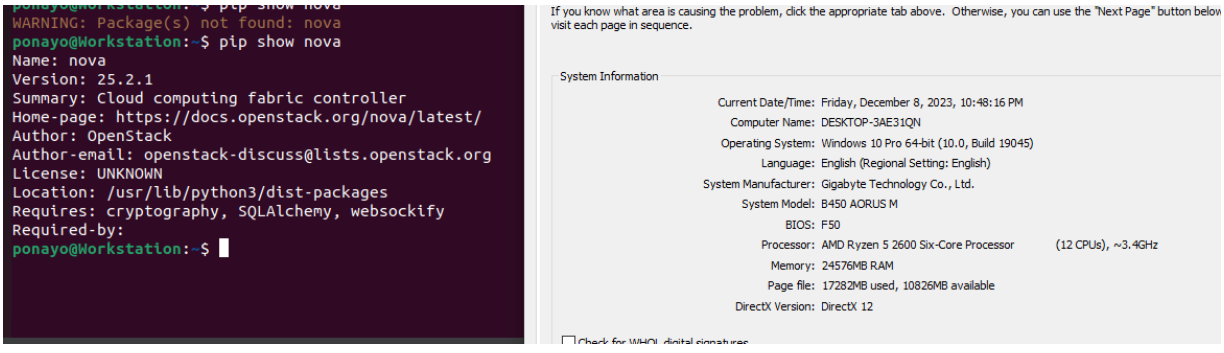
Glance



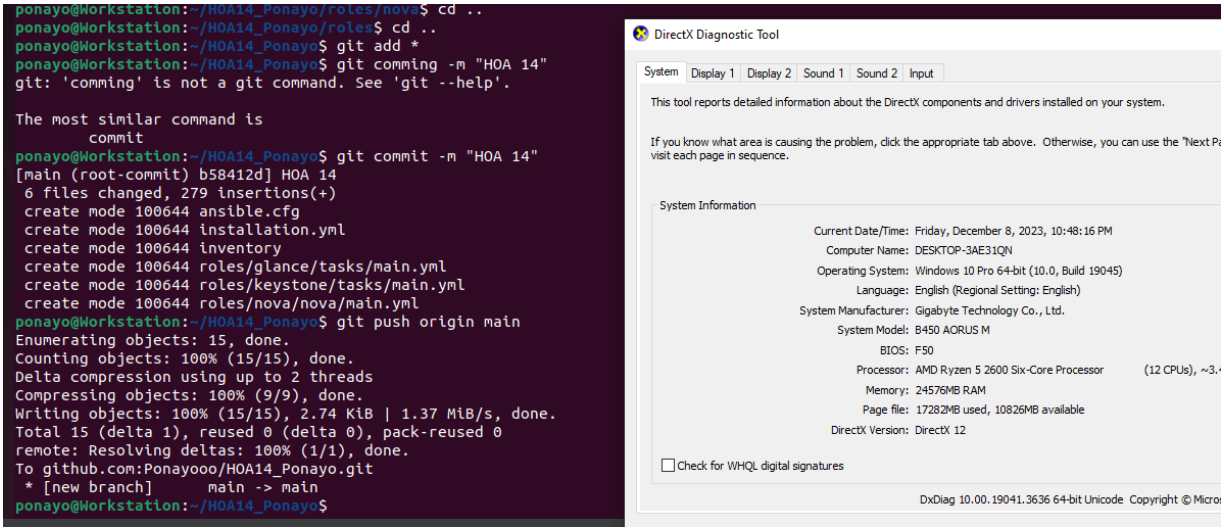
Keystone

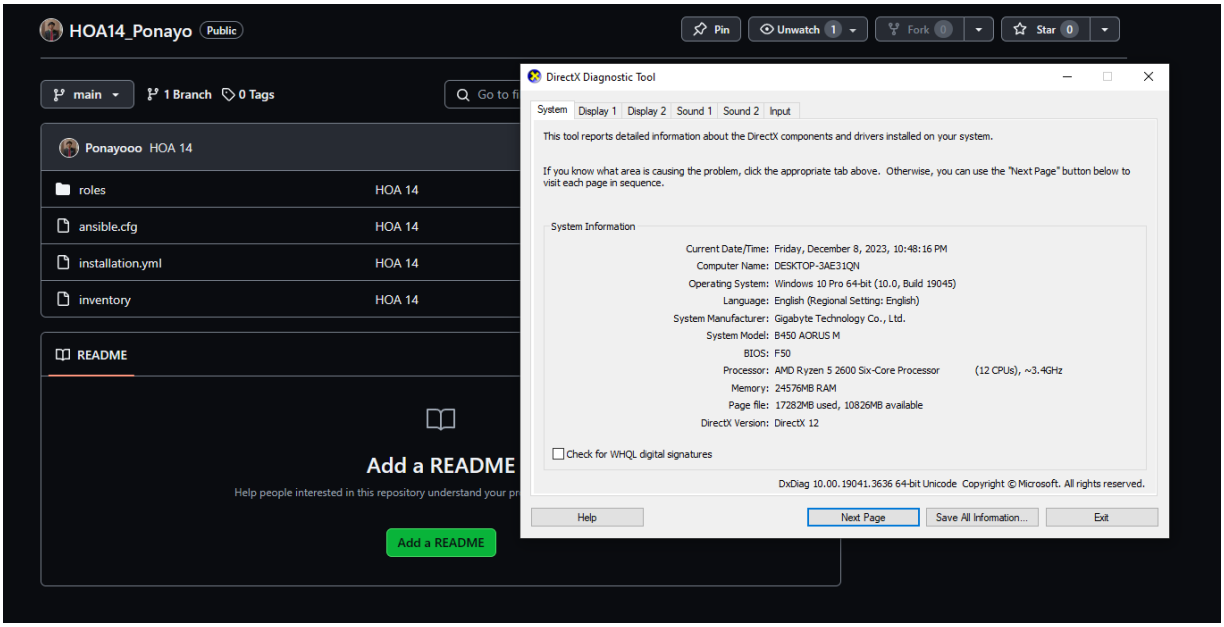


Nova



Git push and Proof





https://github.com/Ponayooo/HOA14_Ponayo

Reflections:

Answer the following:

1. Describe Keystone, Glance and Nova services

- The core services of the OpenStack cloud computing platform are Keystone, Glance, and Nova. Each service is essential to the management of various cloud infrastructure components. Keystone is the identity service in OpenStack, responsible for authentication and authorization. Glance is the image service that manages and catalogs virtual machine images used by OpenStack. Nova is the compute service in OpenStack, responsible for managing and provisioning compute resources.

Conclusions:

In conclusion, using Ansible to deploy Glance, Keystone, and Nova in OpenStack makes the installation and configuration procedure, resulting in a more automated and effective solution. Ansible is a powerful automation tool that makes it possible to deploy these essential services consistently and repeatedly, which lowers the possibility of mistakes and guarantees a standardized setup. We can specify the intended state of their OpenStack environment and carry out the deployment process across several nodes using Ansible playbooks and roles. This method improves not just the first installation but also upcoming updates and maintenance.