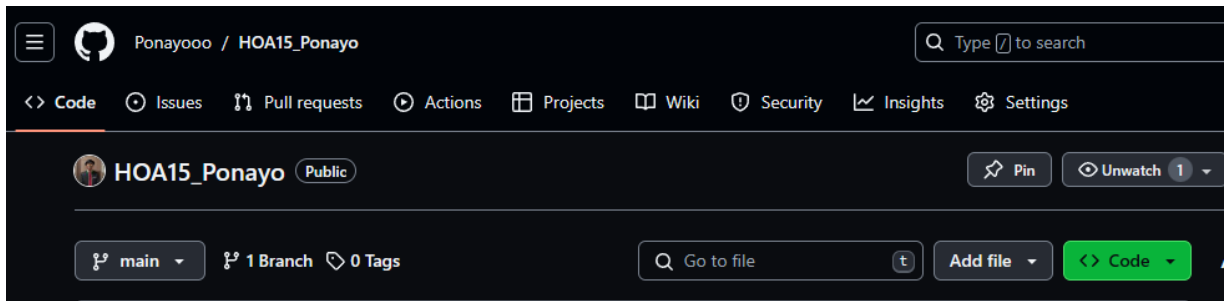


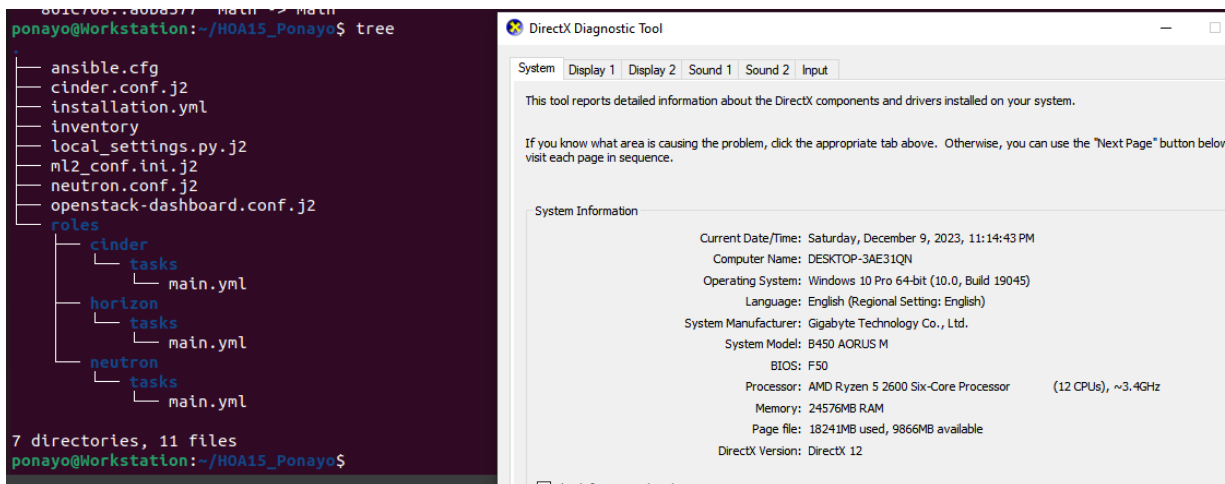
Name: Mark Andrei Ponayo	Date Performed: Dec 9, 2023
Course/Section: BSCPE31S5	Date Submitted: Dec 10, 2023
Instructor: Engr. Roman Richard	Semester and SY: 1st sem 2022 - 2023
Activity 15: OpenStack Installation (Neutron, Horizon, Cinder)	
1. Objectives	
Create a workflow to install OpenStack using 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)	

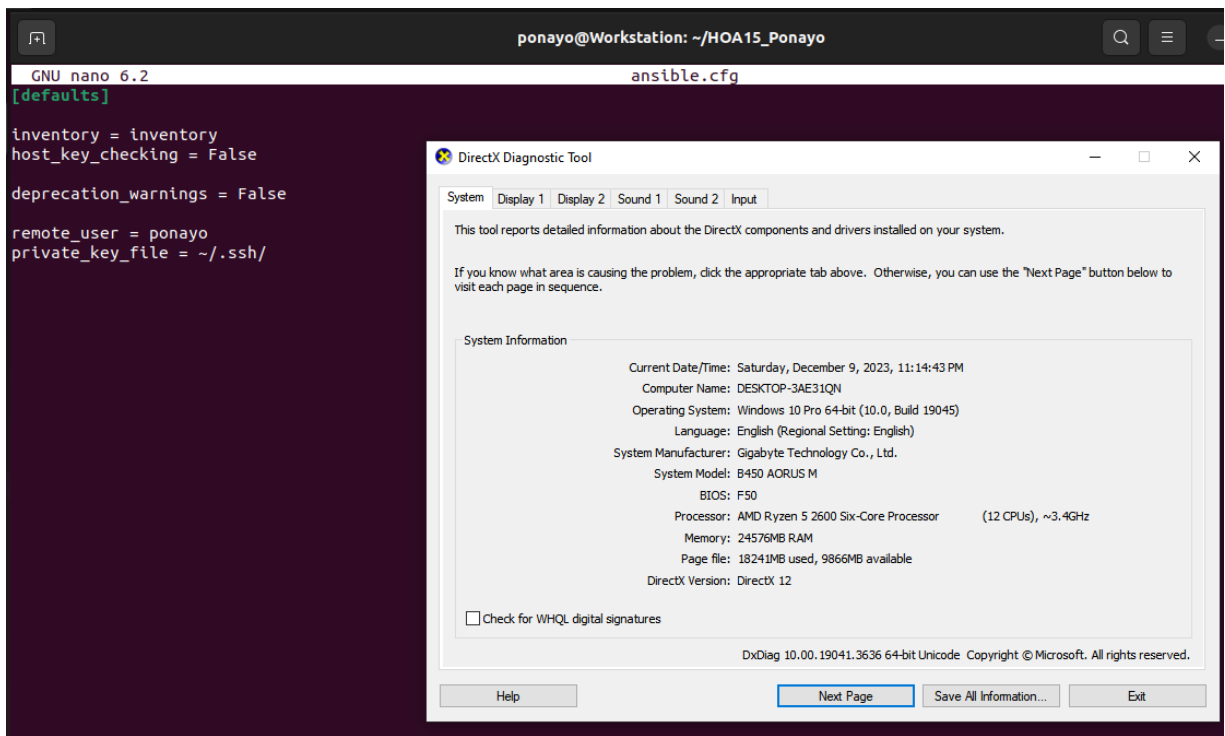
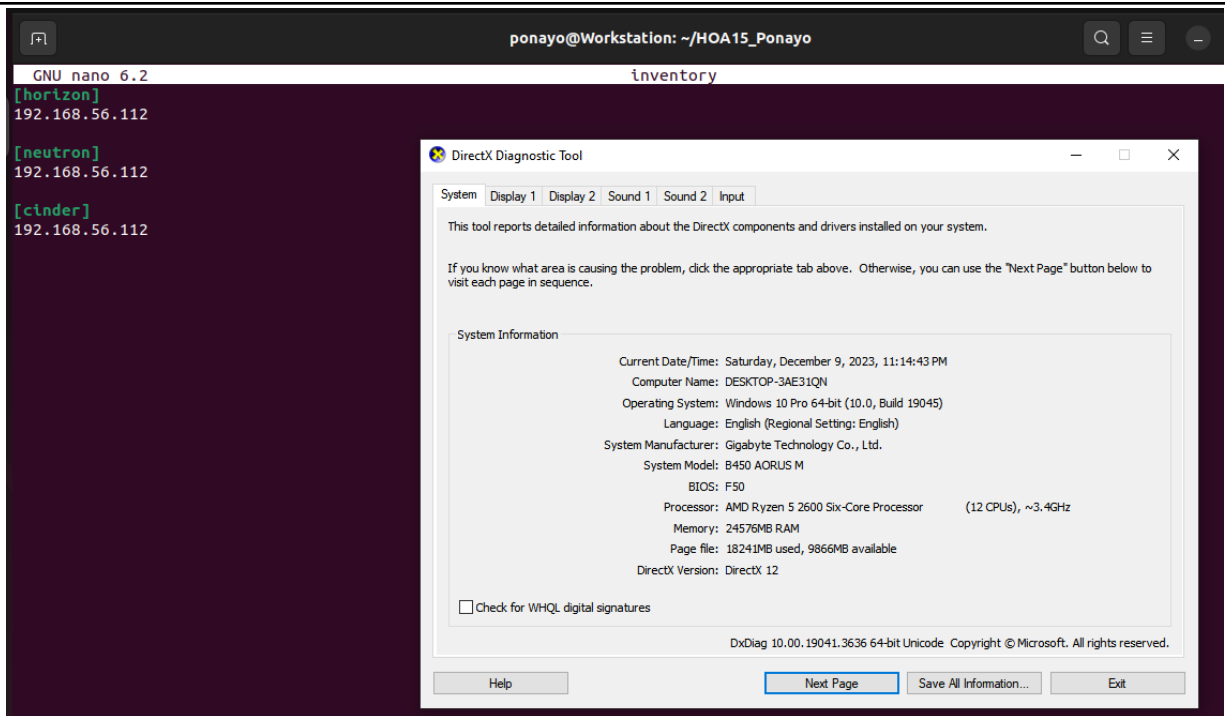
1. Creating a new Repository

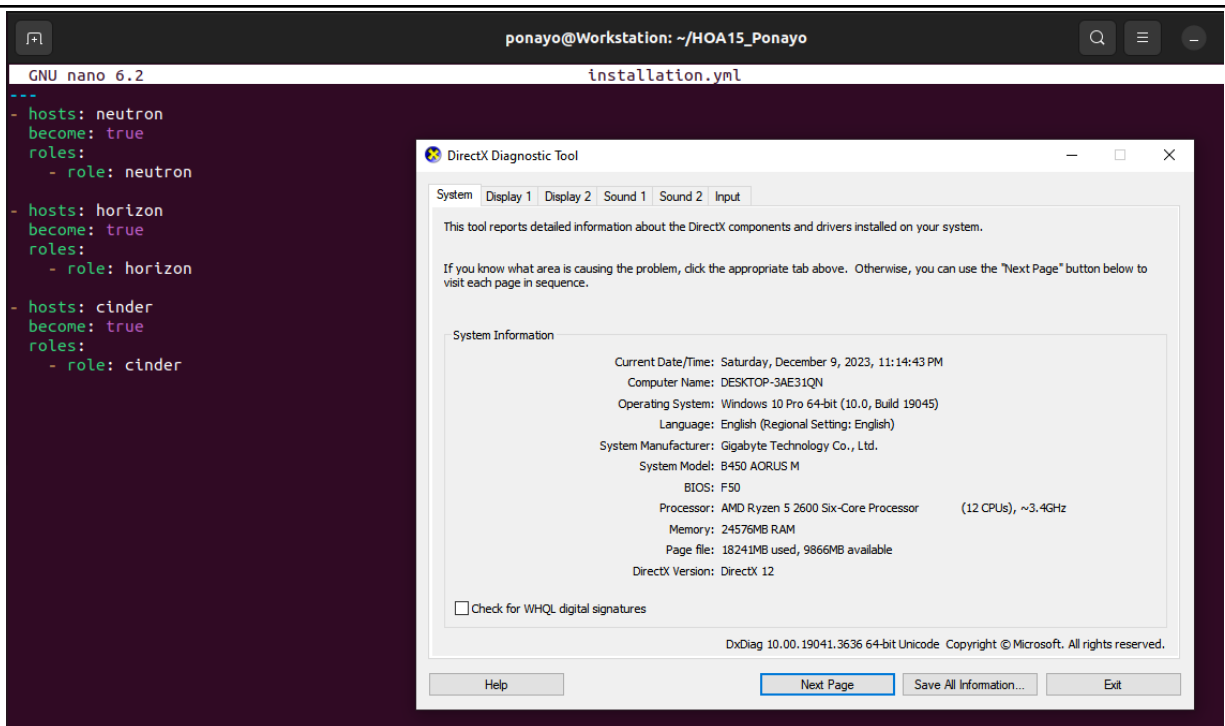


Creating the following files for basic configuration.

I created the following files named inventory, installation.yml, and ansible.cfg to create the basic configuration of ansible. I also created the following file cinder.conf.j2, local_settings.py.j2, ml2_conf.ini.j2, neutron.conf.j2, and openstack-dashboard.conf.j2 since it was needed as remote source for installation of the horizon, cinder, and neutron.

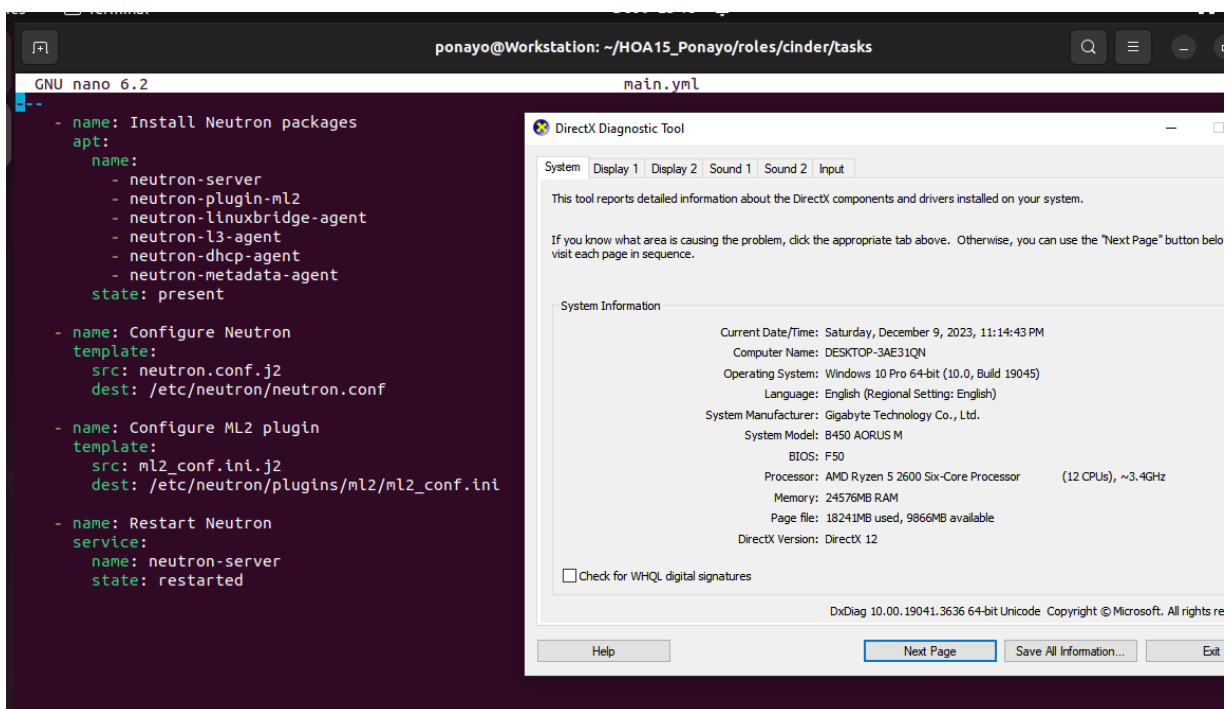






Cinder

This is the following code for installation of cinder.



Horizon

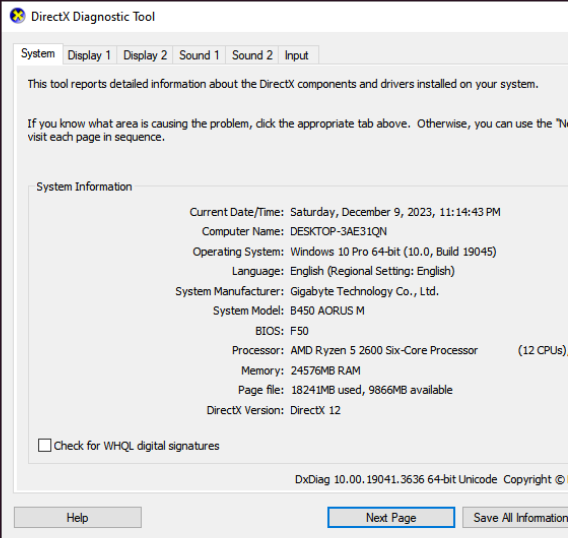
This is the following code for the installation of horizon.

```
ponayo@Workstation: ~/HOA15_Ponayo/roles/horizon/tasks
GNU nano 6.2 main.yml
--
- name: Install Horizon packages
  apt:
    name:
      - openstack-dashboard
    state: present

- name: Configure Apache for Horizon
  template:
    src: openstack-dashboard.conf.j2
    dest: /etc/apache2/sites-available/openstack-dashboard.conf

- name: Configure Horizon settings
  template:
    src: local_settings.py.j2
    dest: /etc/openstack-dashboard/local_settings.py

- name: Restart Apache
  service:
    name: apache2
    state: restarted
```



The screenshot shows the DirectX Diagnostic Tool window. It has tabs for System, Display 1, Display 2, Sound 1, Sound 2, and Input. The System tab is active, displaying system information. Below the tabs, there is a text box stating: "This tool reports detailed information about the DirectX components and drivers installed on your system. If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the 'N' visit each page in sequence." The System Information section lists the following details: Current Date/Time: Saturday, December 9, 2023, 11:14:43 PM; Computer Name: DESKTOP-3AE31QN; Operating System: Windows 10 Pro 64-bit (10.0, Build 19045); Language: English (Regional Setting: English); System Manufacturer: Gigabyte Technology Co., Ltd.; System Model: B450 AORUS M; BIOS: F50; Processor: AMD Ryzen 5 2600 Six-Core Processor (12 CPUs); Memory: 24576MB RAM; Page file: 18241MB used, 9866MB available; DirectX Version: DirectX 12. At the bottom, there is a checkbox for "Check for WHQL digital signatures" and buttons for "Help", "Next Page", and "Save All Information".

Neutron

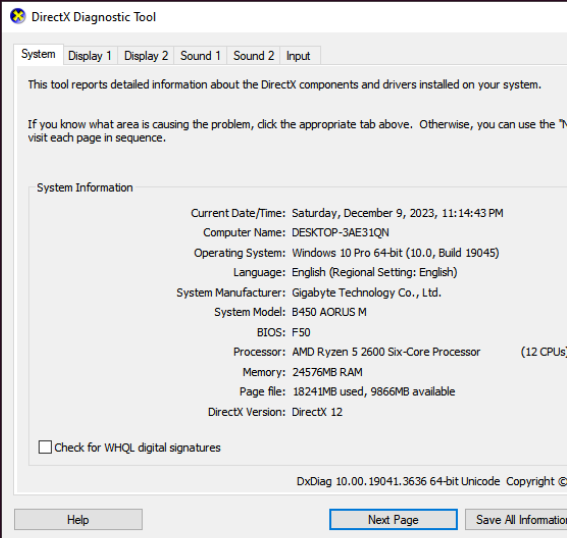
This is the following code for the installation of Neutron.

```
ponayo@Workstation: ~/HOA15_Ponayo/roles/neutron/tasks
GNU nano 6.2 main.yml
--
- name: Install Neutron packages
  apt:
    name:
      - neutron-server
      - neutron-plugin-ml2
      - neutron-linuxbridge-agent
      - neutron-l3-agent
      - neutron-dhcp-agent
      - neutron-metadata-agent
    state: present

- name: Configure Neutron
  template:
    src: neutron.conf.j2
    dest: /etc/neutron/neutron.conf

- name: Configure ML2 plugin
  template:
    src: ml2_conf.ini.j2
    dest: /etc/neutron/plugins/ml2/ml2_conf.ini

- name: Restart Neutron
  service:
    name: neutron-server
    state: restarted
```



The screenshot shows the DirectX Diagnostic Tool window, identical to the one in the Horizon section. It displays the same system information: Current Date/Time: Saturday, December 9, 2023, 11:14:43 PM; Computer Name: DESKTOP-3AE31QN; Operating System: Windows 10 Pro 64-bit (10.0, Build 19045); Language: English (Regional Setting: English); System Manufacturer: Gigabyte Technology Co., Ltd.; System Model: B450 AORUS M; BIOS: F50; Processor: AMD Ryzen 5 2600 Six-Core Processor (12 CPUs); Memory: 24576MB RAM; Page file: 18241MB used, 9866MB available; DirectX Version: DirectX 12. The interface includes tabs for System, Display 1, Display 2, Sound 1, Sound 2, and Input, a text box with instructions, a checkbox for "Check for WHQL digital signatures", and buttons for "Help", "Next Page", and "Save All Information".

Running the files

For the step, i used the ansible-playbook `--ask-become-pass` installation command to run the following files to install the neutron, horizon, and cinder.

```
ponayo@Workstation:~/HOA15_Ponayo$ ansible-playbook --ask-become-pass installation.yml
BECOME password:

PLAY [neutron] *****

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

TASK [neutron : Install Neutron packages] *****
ok: [192.168.56.112]

TASK [neutron : Configure Neutron] *****
ok: [192.168.56.112]

TASK [neutron : Configure ML2 plugin] *****
ok: [192.168.56.112]

TASK [neutron : Restart Neutron] *****
changed: [192.168.56.112]

PLAY [horizon] *****

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

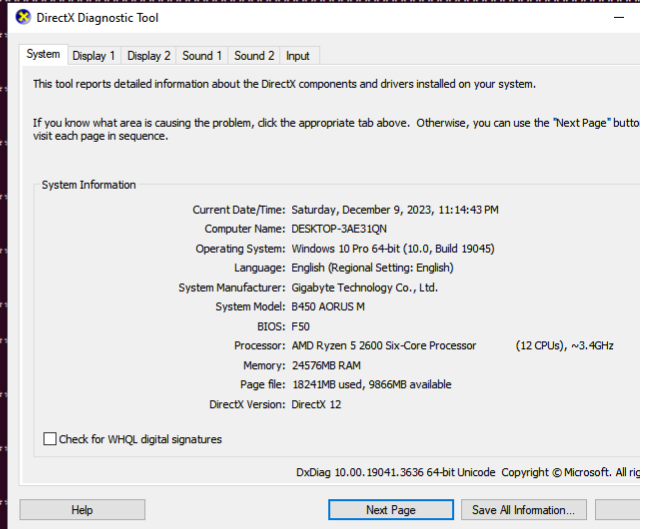
TASK [horizon : Install Horizon packages] *****
ok: [192.168.56.112]

TASK [horizon : Configure Apache for Horizon] *****
ok: [192.168.56.112]

TASK [horizon : Configure Horizon settings] *****
ok: [192.168.56.112]

TASK [horizon : Restart Apache] *****
changed: [192.168.56.112]

PLAY [cinder] *****
```



```
ponayo@Workstation: ~/HOA15_Ponayo

changed: [192.168.56.112]

PLAY [horizon] *****

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

TASK [horizon : Install Horizon packages] *****
ok: [192.168.56.112]

TASK [horizon : Configure Apache for Horizon] *****
ok: [192.168.56.112]

TASK [horizon : Configure Horizon settings] *****
ok: [192.168.56.112]

TASK [horizon : Restart Apache] *****
changed: [192.168.56.112]

PLAY [cinder] *****

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

TASK [cinder : Install Neutron packages] *****
ok: [192.168.56.112]

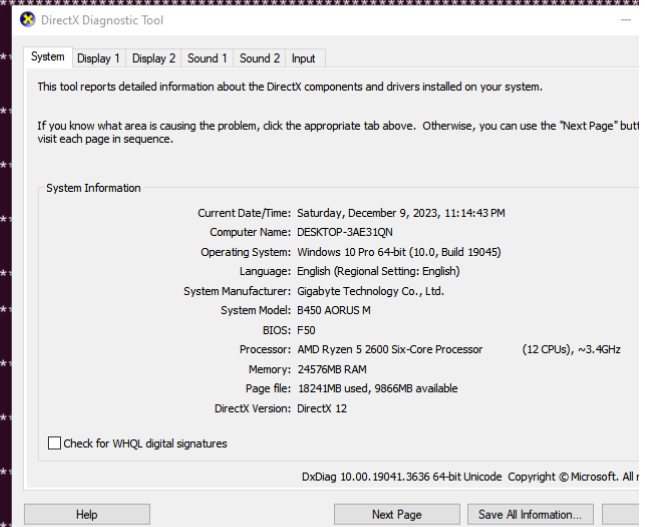
TASK [cinder : Configure Neutron] *****
ok: [192.168.56.112]

TASK [cinder : Configure ML2 plugin] *****
ok: [192.168.56.112]

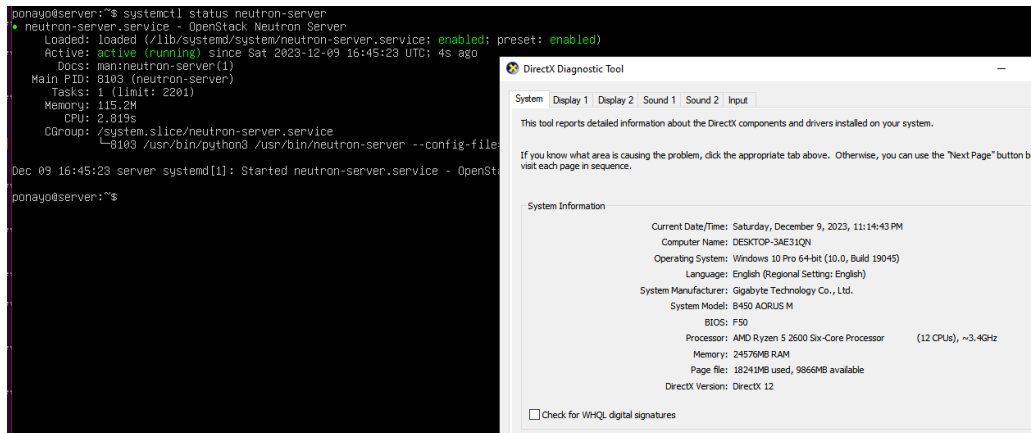
TASK [cinder : Restart Neutron] *****
changed: [192.168.56.112]

PLAY RECAP *****
192.168.56.112      : ok=15  changed=3  unreachable=0  failed=0  skipped=0  rescued=0  ignored=0

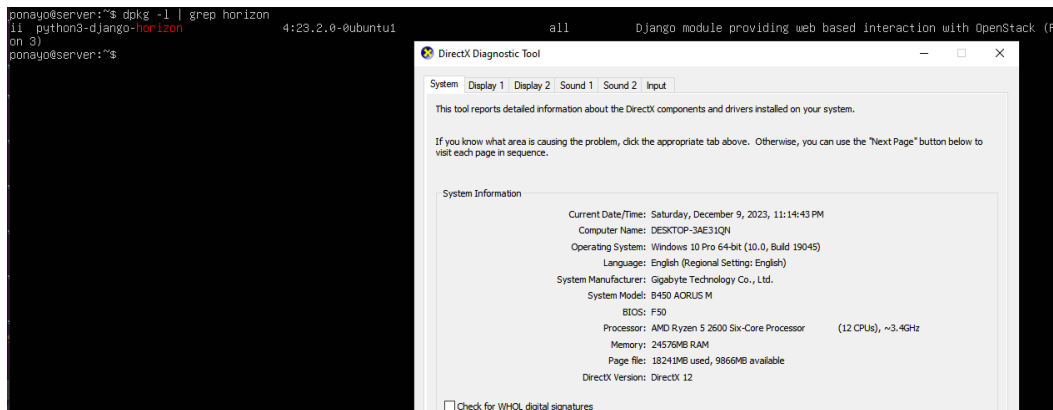
ponayo@Workstation:~/HOA15_Ponayo$
```



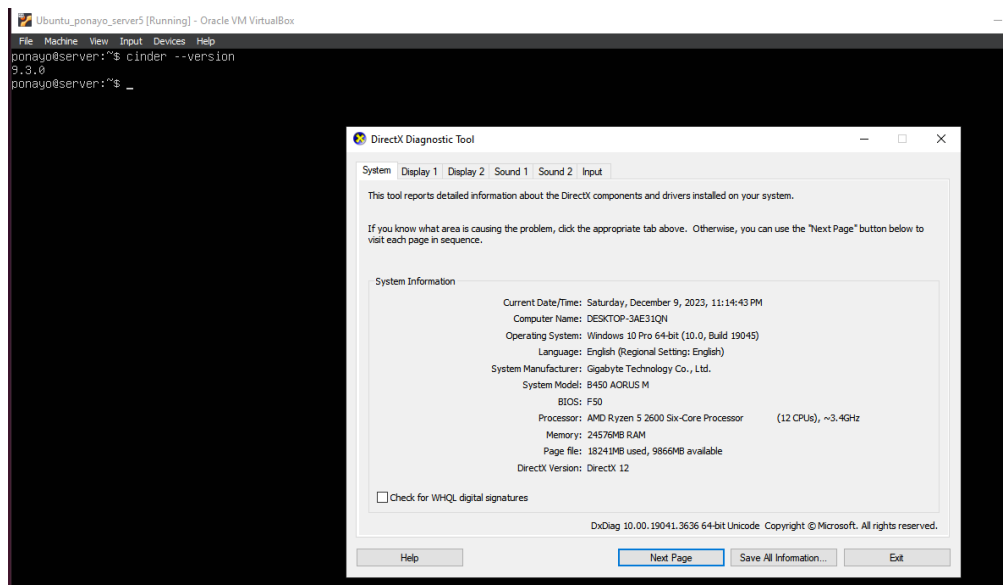
Neutron



Horizon



Cinder



Github

The screenshot shows a GitHub repository page for 'HOA15_Ponayo' by user 'Ponayooo'. The repository is public and has 1 branch and 0 tags. The file list includes:

File	Commit	Time
roles	HOA 15	15 hours ago
ansible.cfg	HOA 15	16 hours ago
cinder.conf.j2	HOA 15	15 hours ago
installation.yml	HOA 15	16 hours ago
inventory	HOA 15	16 hours ago
local_settings.py.j2	HOA 15	15 hours ago
ml2_conf.ini.j2	HOA 15	15 hours ago
neutron.conf.j2	HOA 15	15 hours ago
openstack-dashboard.conf.j2	HOA 15	15 hours ago

The right sidebar shows repository statistics: 0 stars, 1 watching, and 0 forks. It also includes sections for Releases, Packages, and Languages, all of which are currently empty.

https://github.com/Ponayooo/HOA15_Ponayo

Reflections:

Answer the following:

1. Describe Neutron, Horizon and Cinder services

- In addition to the functionality provided by Keystone, Glance, and Nova, the OpenStack cloud computing platform also includes Neutron, Horizon, and Cinder as essential services. In OpenStack, network connectivity comes as a service by Neutron, the networking service. The web-based Horizon dashboard for OpenStack provides a graphical user interface (GUI) for resource management and monitoring. The Block Storage service, Cinder, is in charge of giving OpenStack instances persistent block storage.

Conclusions:

In conclusion, using Ansible to deploy Neutron, Horizon, and Cinder in OpenStack is an effective way to make installation of critical cloud services easy. When compared to manual setups, Ansible's automation features make the deployment process more efficient and less prone to error. Ansible ensures that networking services are connected perfectly. Neutron, making it possible to create and maintain a variety of network topologies that are necessary for OpenStack instances. Ansible automation makes Horizon, the web-based dashboard, more accessible and simple. Ansible simplifies the block storage resource management process for Cinder.