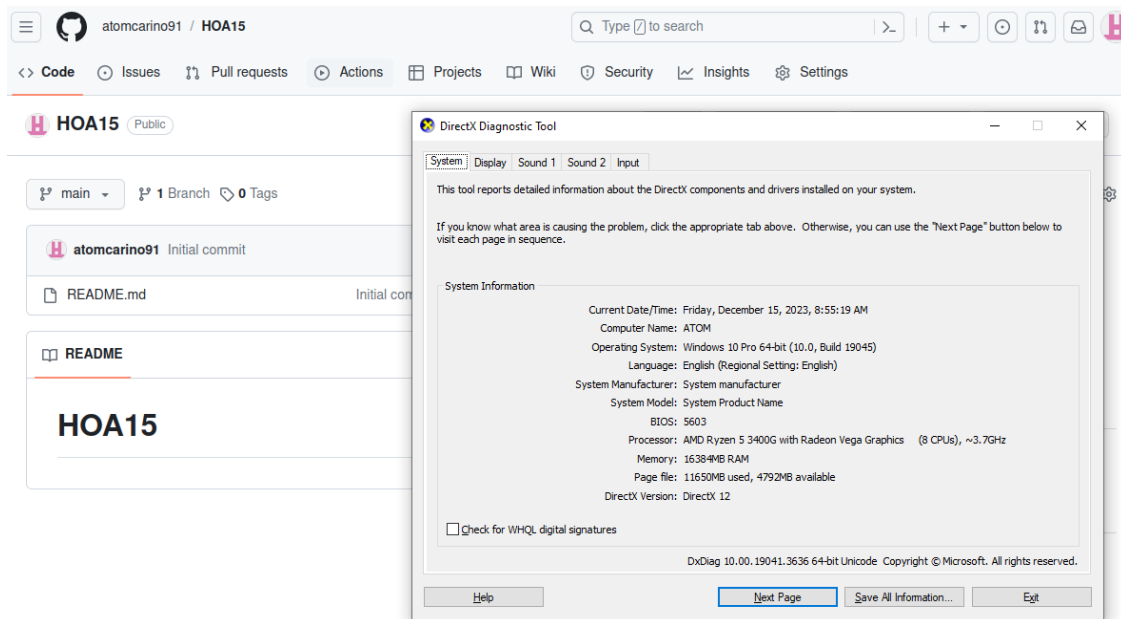
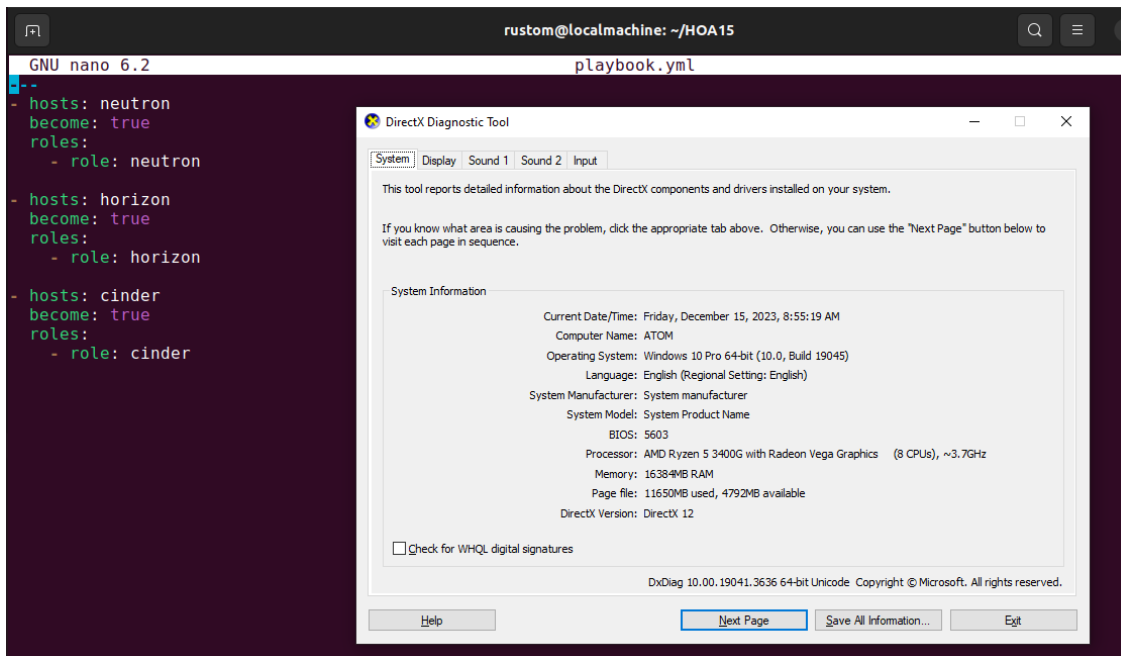


Name: Rustom C. Cariño	Date Performed:12/14/23
Course/Section: CPE232/CPE31S5	Date Submitted:12/16/23
Instructor: Engr. Roman Richard	Semester and SY: 1st sem 2023-2024
Activity 15: OpenStack Installation (Neutron, Horizon, Cinder)	
1. Objectives	
Create a workflow to install OpenStack using Ansible 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. 	

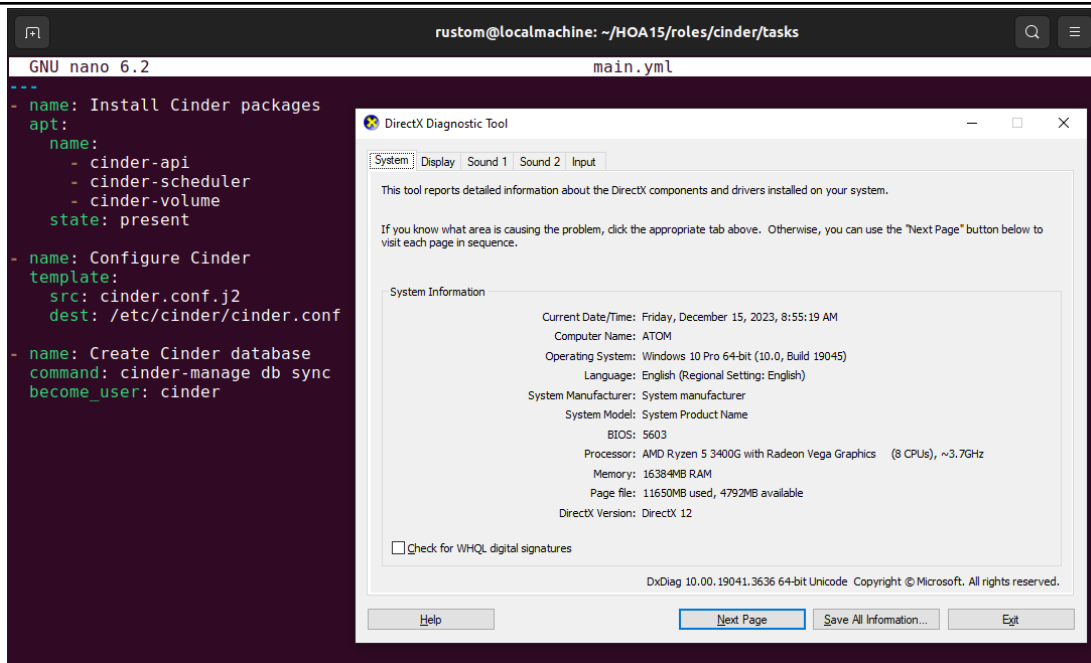
5. Output (screenshots and explanations)



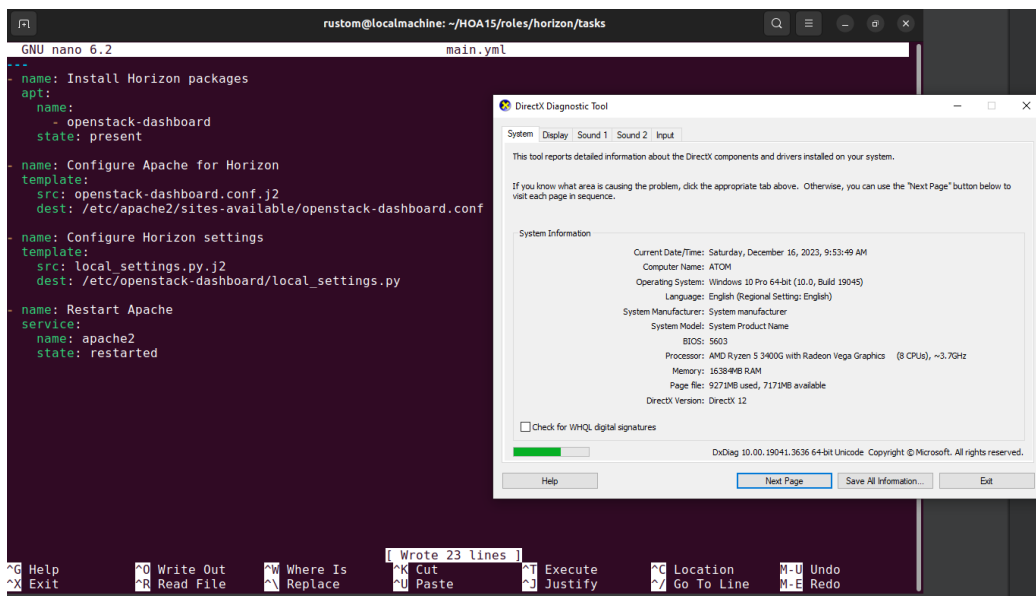
- Creating a repository.



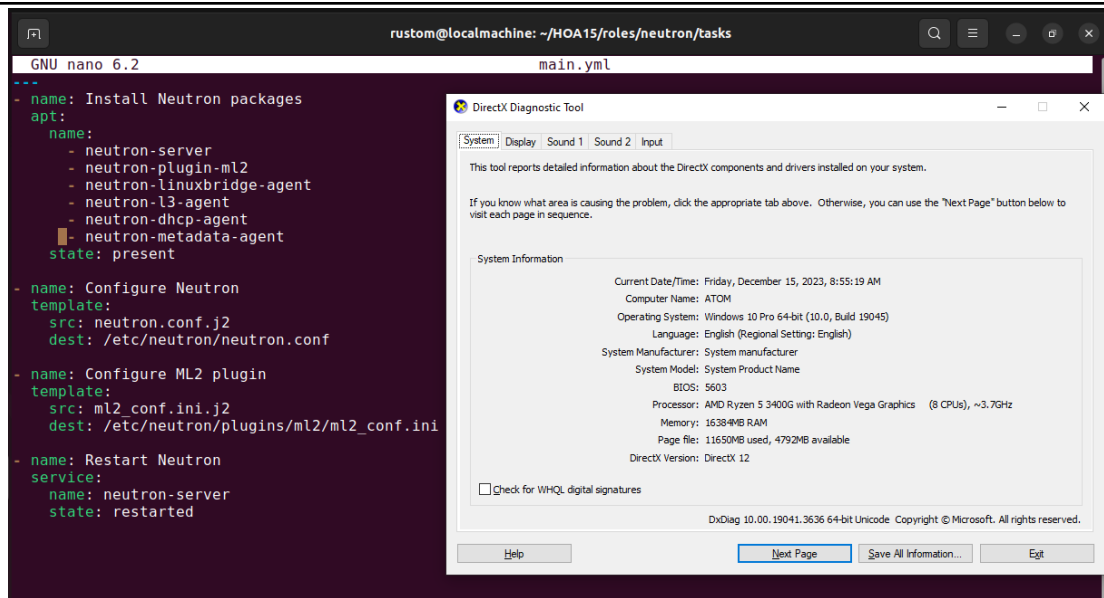
- Main playbook that execute the command per role.



- Playbook that installs the cinder packages.

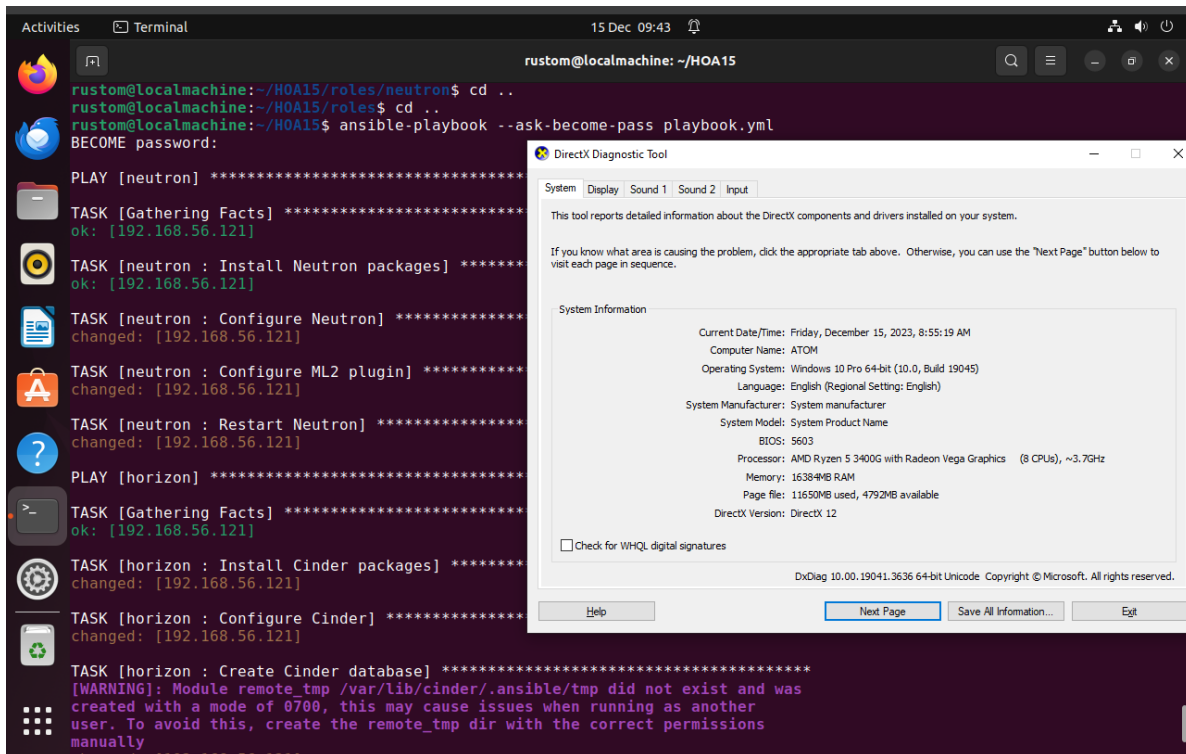


- Playbook that installs the horizon packages.



- Playbook that installs the neutron packages.

Executing the playbook.



```
rustom@localmachine: ~/HOA15
rustom@localmachine:~/HOA15/roles$ cd ..
rustom@localmachine:~/HOA15$ ansible-playbook --ask-become-pass playbook.yml
BECOME password:

PLAY [neutron] *****
TASK [Gathering Facts] *****
ok: [192.168.56.121]
TASK [neutron : Install Neutron packages] *****
ok: [192.168.56.121]
TASK [neutron : Configure Neutron] *****
changed: [192.168.56.121]
TASK [neutron : Configure ML2 plugin] *****
changed: [192.168.56.121]
TASK [neutron : Restart Neutron] *****
changed: [192.168.56.121]
PLAY [horizon] *****
TASK [Gathering Facts] *****
ok: [192.168.56.121]
TASK [horizon : Install Cinder packages] *****
changed: [192.168.56.121]
TASK [horizon : Configure Cinder] *****
changed: [192.168.56.121]
TASK [horizon : Create Cinder database] *****
[WARNING]: Module remote_tmp /var/lib/cinder/.ansible/tmp did not exist and was
created with a mode of 0700, this may cause issues when running as another
user. To avoid this, create the remote_tmp dir with the correct permissions
manually
192.168.56.121: ok=13 changed=7 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
rustom@localmachine:~/HOA15$
```

DirectX Diagnostic Tool

System | Display | Sound 1 | Sound 2 | Input

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 "Next Page" button below to visit each page in sequence.

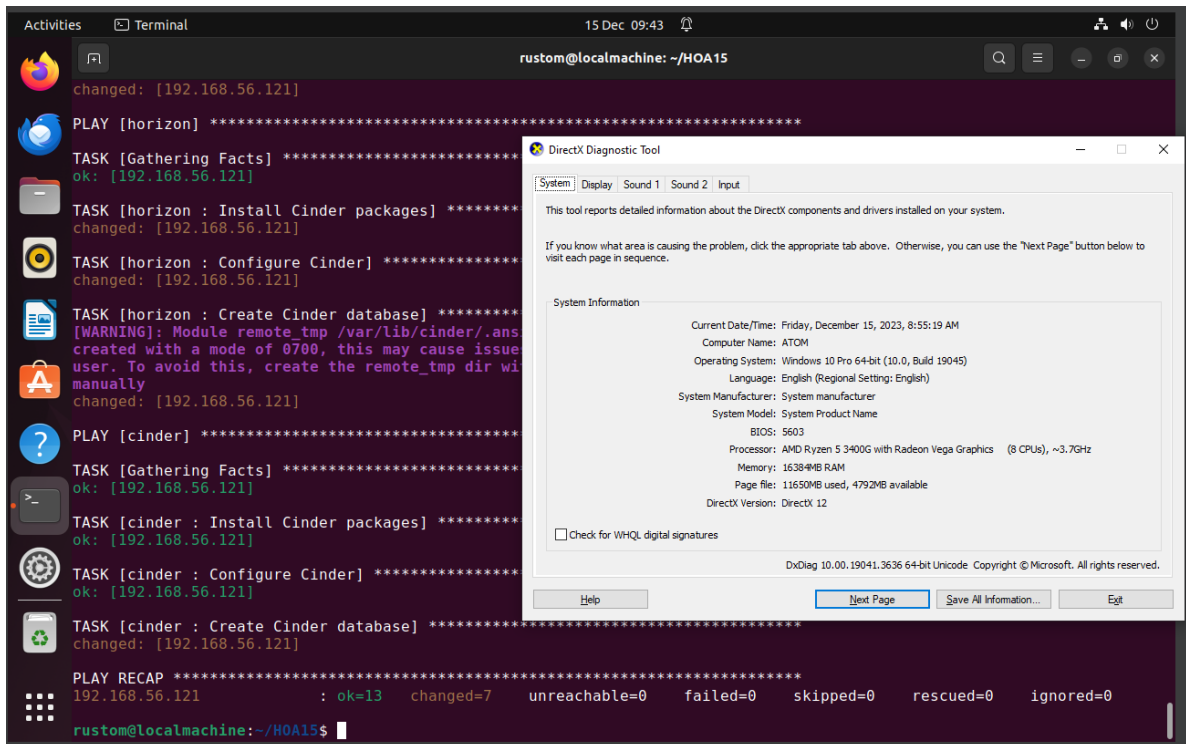
System Information

Current Date/Time: Friday, December 15, 2023, 8:55:19 AM
Computer Name: ATOM
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: System manufacturer
System Model: System Product Name
BIOS: 5603
Processor: AMD Ryzen 5 3400G with Radeon Vega Graphics (8 CPUs), ~3.7GHz
Memory: 16384MB RAM
Page file: 11650MB used, 4792MB available
DirectX Version: DirectX 12

☐ Check for WHQL digital signatures

DxDiag 10.00.19041.3636 64-bit Unicode Copyright © Microsoft. All rights reserved.

Help Next Page Save All Information... Exit



```
changed: [192.168.56.121]
PLAY [horizon] *****
TASK [Gathering Facts] *****
ok: [192.168.56.121]
TASK [horizon : Install Cinder packages] *****
changed: [192.168.56.121]
TASK [horizon : Configure Cinder] *****
changed: [192.168.56.121]
TASK [horizon : Create Cinder database] *****
[WARNING]: Module remote_tmp /var/lib/cinder/.ans
created with a mode of 0700, this may cause issue
user. To avoid this, create the remote_tmp dir wi
manually
changed: [192.168.56.121]
PLAY [cinder] *****
TASK [Gathering Facts] *****
ok: [192.168.56.121]
TASK [cinder : Install Cinder packages] *****
ok: [192.168.56.121]
TASK [cinder : Configure Cinder] *****
ok: [192.168.56.121]
TASK [cinder : Create Cinder database] *****
changed: [192.168.56.121]
PLAY RECAP *****
192.168.56.121: ok=13 changed=7 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
rustom@localmachine:~/HOA15$
```

DirectX Diagnostic Tool

System | Display | Sound 1 | Sound 2 | Input

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 "Next Page" button below to visit each page in sequence.

System Information

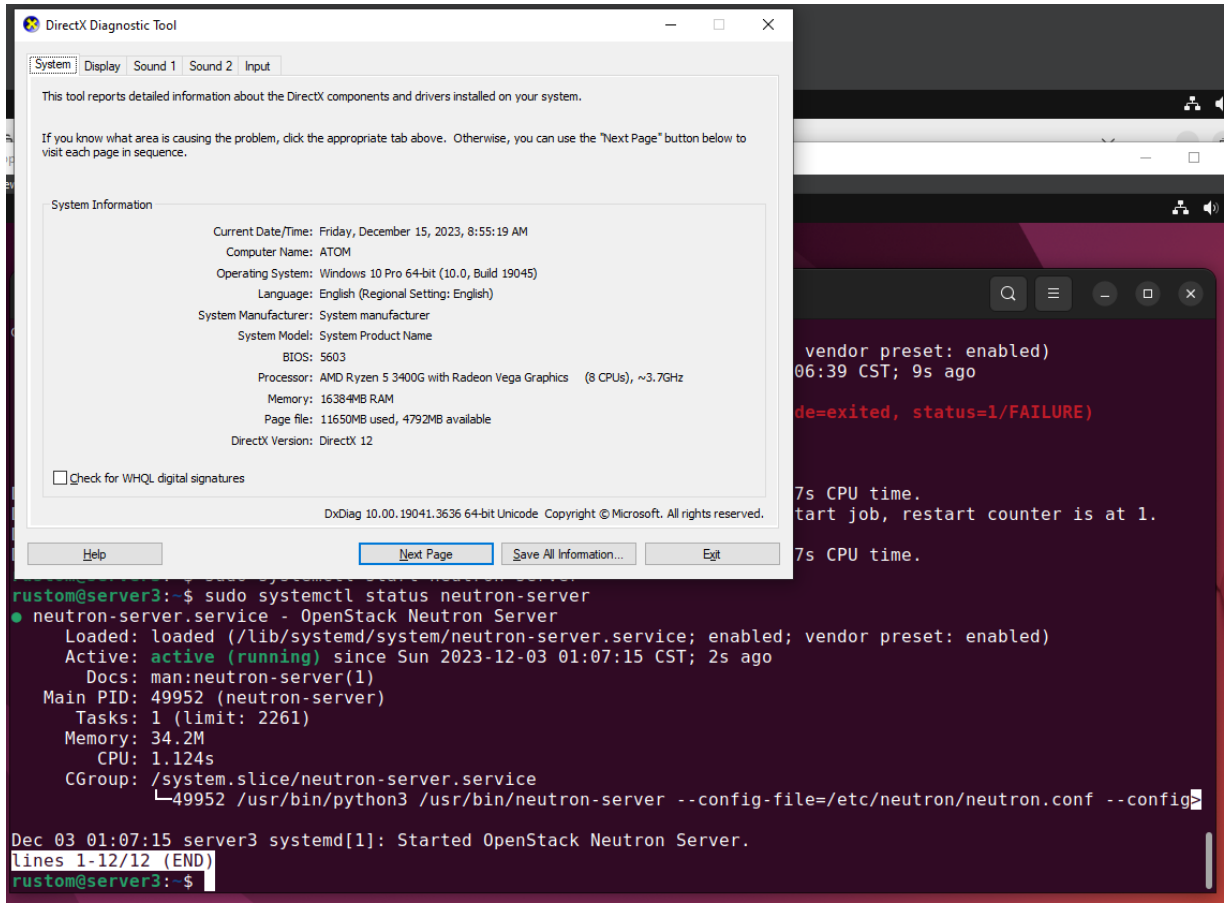
Current Date/Time: Friday, December 15, 2023, 8:55:19 AM
Computer Name: ATOM
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: System manufacturer
System Model: System Product Name
BIOS: 5603
Processor: AMD Ryzen 5 3400G with Radeon Vega Graphics (8 CPUs), ~3.7GHz
Memory: 16384MB RAM
Page file: 11650MB used, 4792MB available
DirectX Version: DirectX 12

☐ Check for WHQL digital signatures

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Help Next Page Save All Information... Exit

Proof that neutron, cinder and horizon was installed in ubuntu.



The image shows two overlapping windows. The top window is the 'DirectX Diagnostic Tool' from Microsoft, displaying system information. The bottom window is a terminal showing the command to check the status of the OpenStack Neutron service.

DirectX Diagnostic Tool - System Information

- Current Date/Time: Friday, December 15, 2023, 8:55:19 AM
- Computer Name: ATOM
- Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)
- Language: English (Regional Setting: English)
- System Manufacturer: System manufacturer
- System Model: System Product Name
- BIOS: 5603
- Processor: AMD Ryzen 5 3400G with Radeon Vega Graphics (8 CPUs), ~3.7GHz
- Memory: 16384MB RAM
- Page file: 11650MB used, 4792MB available
- DirectX Version: DirectX 12

☐ Check for WHQL digital signatures

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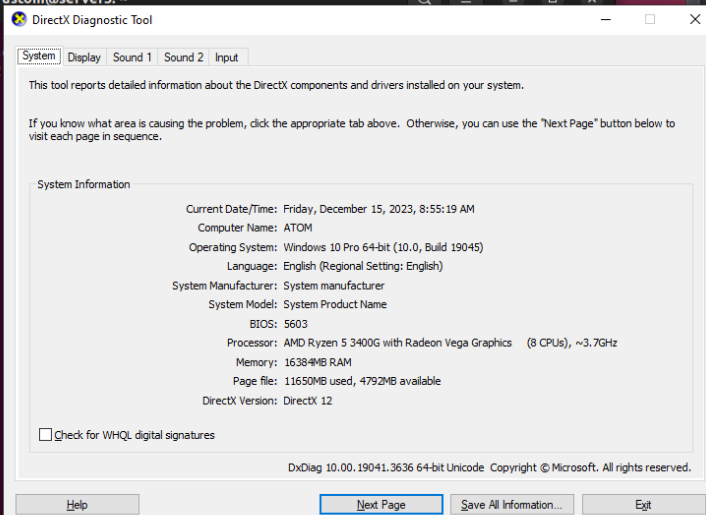
Buttons: Help, Next Page, Save All Information..., Exit

Terminal Output:

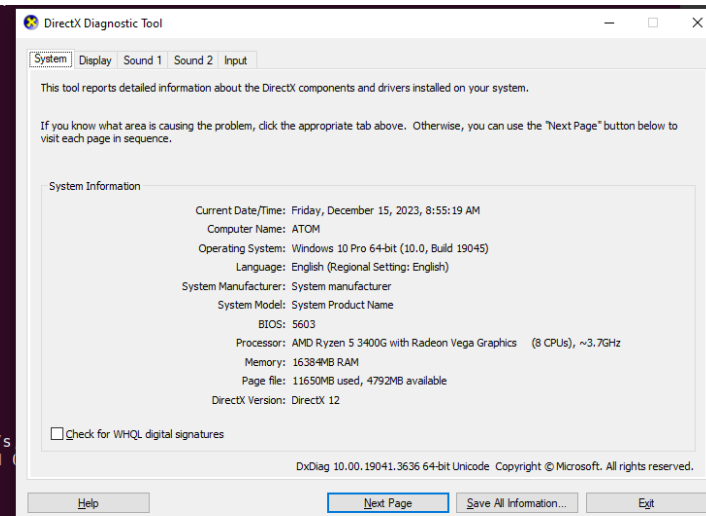
```
rustom@server3:~$ sudo systemctl status neutron-server
● neutron-server.service - OpenStack Neutron Server
   Loaded: loaded (/lib/systemd/system/neutron-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Sun 2023-12-03 01:07:15 CST; 2s ago
     Docs: man:neutron-server(1)
  Main PID: 49952 (neutron-server)
    Tasks: 1 (limit: 2261)
   Memory: 34.2M
      CPU: 1.124s
   CGroup: /system.slice/neutron-server.service
           └─49952 /usr/bin/python3 /usr/bin/neutron-server --config-file=/etc/neutron/neutron.conf --config>

Dec 03 01:07:15 server3 systemd[1]: Started OpenStack Neutron Server.
lines 1-12/12 (END)
rustom@server3:~$
```

```
rustom@server3: ~  
● apache2.service - The Apache HTTP Server  
   Loaded: loaded (/lib/systemd/system/apache2.s  
   Active: active (running) since Sat 2023-12-02  
     Docs: https://httpd.apache.org/docs/2.4/  
    Main PID: 23671 (apache2)  
      Tasks: 46 (limit: 2261)  
     Memory: 27.6M  
        CPU: 5.475s  
    CGroup: /system.slice/apache2.service  
            └─23671 /usr/sbin/apache2 -k start  
            └─52034 "(wsgi:cinder-wsgi" -k start  
            └─52035 "(wsgi:cinder-wsgi" -k start  
            └─52036 "(wsgi:cinder-wsgi" -k start  
            └─52037 "(wsgi:cinder-wsgi" -k start  
            └─52038 "(wsgi:cinder-wsgi" -k start  
            └─52039 "(wsgi:keystone-pu" -k start  
            └─52040 "(wsgi:keystone-pu" -k start  
            └─52041 "(wsgi:keystone-pu" -k start  
            └─52042 "(wsgi:keystone-pu" -k start  
            └─52043 "(wsgi:keystone-pu" -k start  
            └─52044 /usr/sbin/apache2 -k start  
            └─52045 /usr/sbin/apache2 -k start  
            └─52046 /usr/sbin/apache2 -k start  
            └─52047 /usr/sbin/apache2 -k start  
            └─52048 /usr/sbin/apache2 -k start  
  
Dec 02 23:12:52 server3 systemd[1]: Starting The A  
...skipping...
```



```
The most similar command is  
commit  
rustom@localmachine:~/HOA15$ git add *  
rustom@localmachine:~/HOA15$ git commit -m "final"  
[main 9b5522d] final  
11 files changed, 171 insertions(+)  
create mode 100644 ansible.cfg  
create mode 100644 cinder.conf.j2  
create mode 100644 inventory  
create mode 100644 local_setting.py.j2  
create mode 100644 ml2_conf.ini.j2  
create mode 100644 neutron.conf.j2  
create mode 100644 openstack-dashboard.conf.j2  
create mode 100644 playbook.yml  
create mode 100644 roles/cinder/tasks/main.yml  
create mode 100644 roles/horizon/tasks/main.yml  
create mode 100644 roles/neutron/tasks/main.yml  
rustom@localmachine:~/HOA15$ git push origin  
Enumerating objects: 18, done.  
Counting objects: 100% (18/18), done.  
Delta compression using up to 2 threads  
Compressing objects: 100% (13/13), done.  
Writing objects: 100% (17/17), 2.58 KiB | 1.29 MiB/s  
Total 17 (delta 1), reused 0 (delta 0), pack-reused 0  
remote: Resolving deltas: 100% (1/1), done.  
To github.com:atomcarino91/HOA15.git  
a68efd9..9b5522d main -> main  
rustom@localmachine:~/HOA15$
```



- Add, commit and push my playbooks to the GitHub repository.

Reflections:

Answer the following:

1. Describe Neutron, Horizon and Cinder services

- Neutron, Horizon, and Cinder are essential components of OpenStack, a cloud computing platform on Ubuntu. Neutron manages virtual networks, Horizon provides a web dashboard, and Cinder manages block storage volumes. These services are well-integrated with Ubuntu, allowing seamless integration and management of virtual machines, storage, and resources.

Conclusions:

- In this activity I will be able to install openstack using ansible as my infrastructure as code. I am also able to analyze and evaluate the advantages and disadvantages of cloud servind and its service model. Cloud computing offers advantages like scalability, agility, and cost optimization, but challenges like vendor lock-in and security concerns need careful consideration. OpenStack and Ansible are tools for deploying and configuring private clouds, promoting consistency, efficiency, and scalability.