Name: Victor Ortega	Date Performed: 12/03/23
Course/Section: CPE232 S5	Date Submitted: 12/03/23
Instructor: Engr. Roman Richard	Semester and SY: 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)

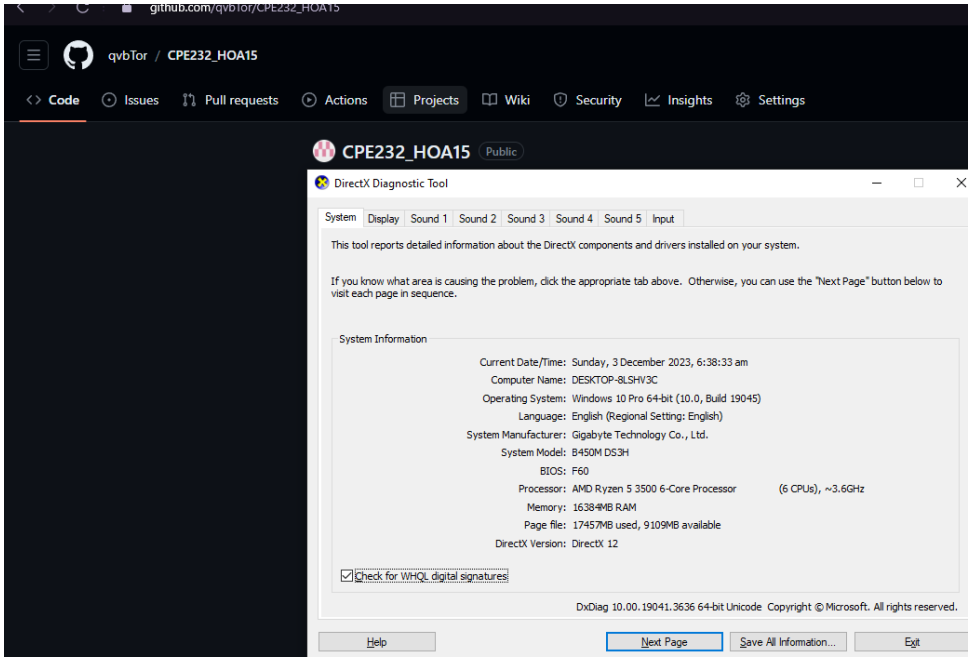
1x Ubuntu VM or Centos VM

4. Tasks

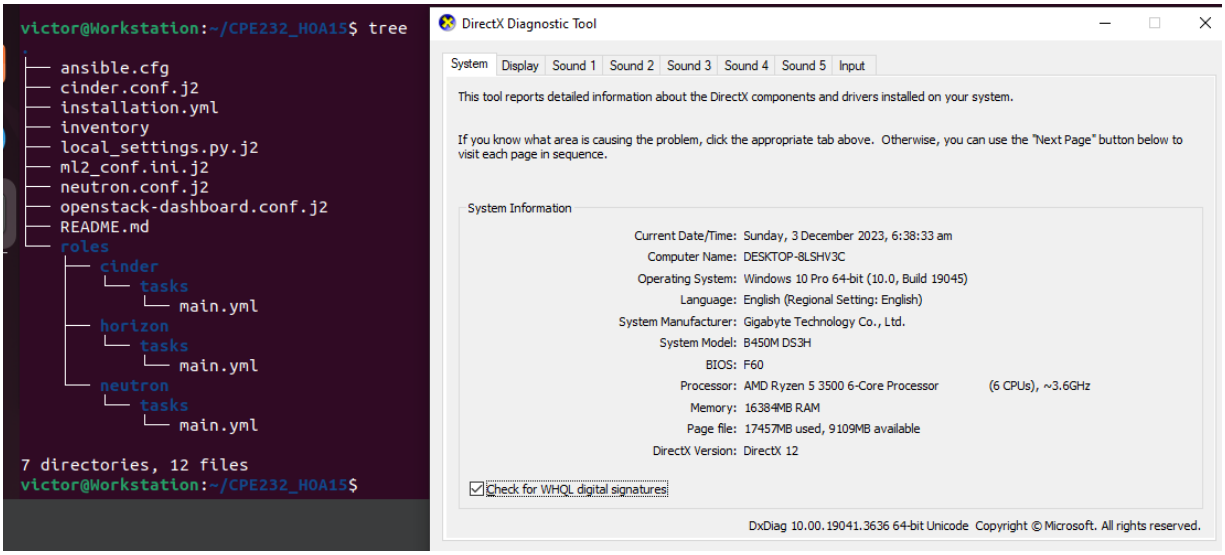
1. Create a new repository for this activity.
2. Create a playbook that converts the steps in the following items in https://docs.openstack.org/install-guide/
    a. Neutron
    b. Horizon
    c. Cinder
    d. Create different plays in installing per server type (controller, compute etc.) and identify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

5. Output (screenshots and explanations)

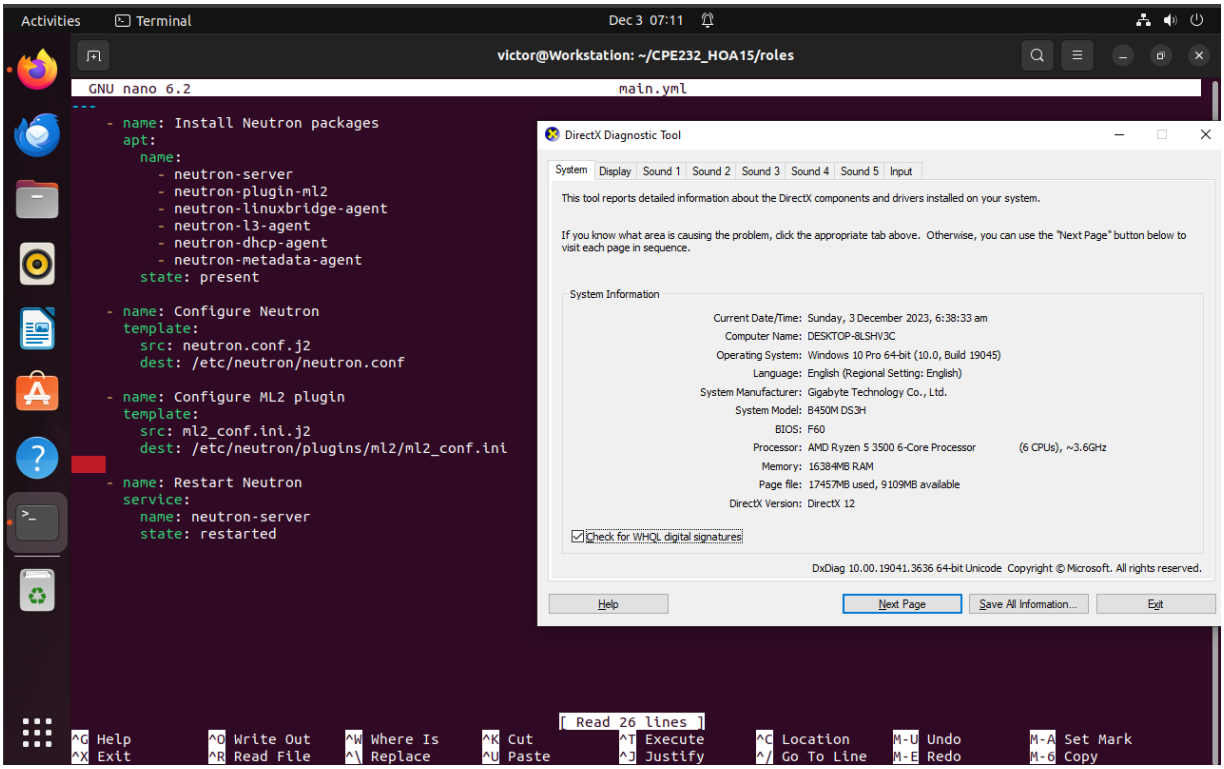
1. Creating new repository.



2. Overall of repository, including prerequisite for neutron, horizon and cinder.

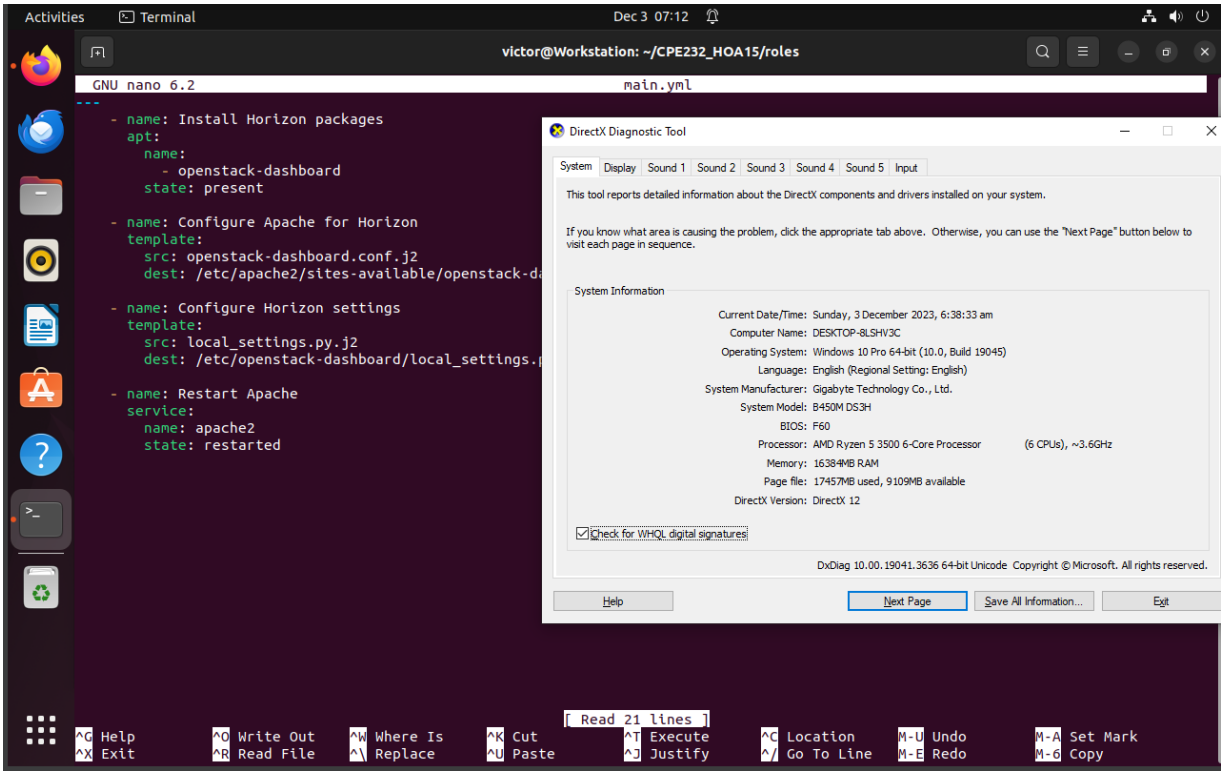


a. Neutron


Activities
Terminal
Dec 3 07:11
victor@Workstation: ~/CPE232_HOA15/roles
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
DirectX Diagnostic Tool
System
Display
Sound 1
Sound 2
Sound 3
Sound 4
Sound 5
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: Sunday, 3 December 2023, 6:38:33 am
Computer Name: DESKTOP-8LSHV3C
Operating System: Windows 10 Pro 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: Gigabyte Technology Co., Ltd.
System Model: B450M DS3H
BIOS: F60
Processor: AMD Ryzen 5 3500 6-Core Processor (6 CPUs), ~3.6GHz
Memory: 16384MB RAM
Page file: 17457MB used, 9109MB 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
[Read 26 lines]
^G Help
^X Exit
^O Write Out
^R Read File
^W Where Is
^\ Replace
^K Cut
^U Paste
^T Execute
^J Justify
^C Location
^/ Go To Line
M-U Undo
M-E Redo
M-A Set Mark
M-6 Copy

b. Horizon


Activities
Terminal
Dec 3 07:12
victor@Workstation: ~/CPE232_HOA15/roles
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-d
- name: Configure Horizon settings
template:
src: local_settings.py.j2
dest: /etc/openstack-dashboard/local_settings.
- name: Restart Apache
service:
name: apache2
state: restarted
DirectX Diagnostic Tool
System
Display
Sound 1
Sound 2
Sound 3
Sound 4
Sound 5
Input
This tool reports detailed information about the DirectX components and drivers installed on your system.
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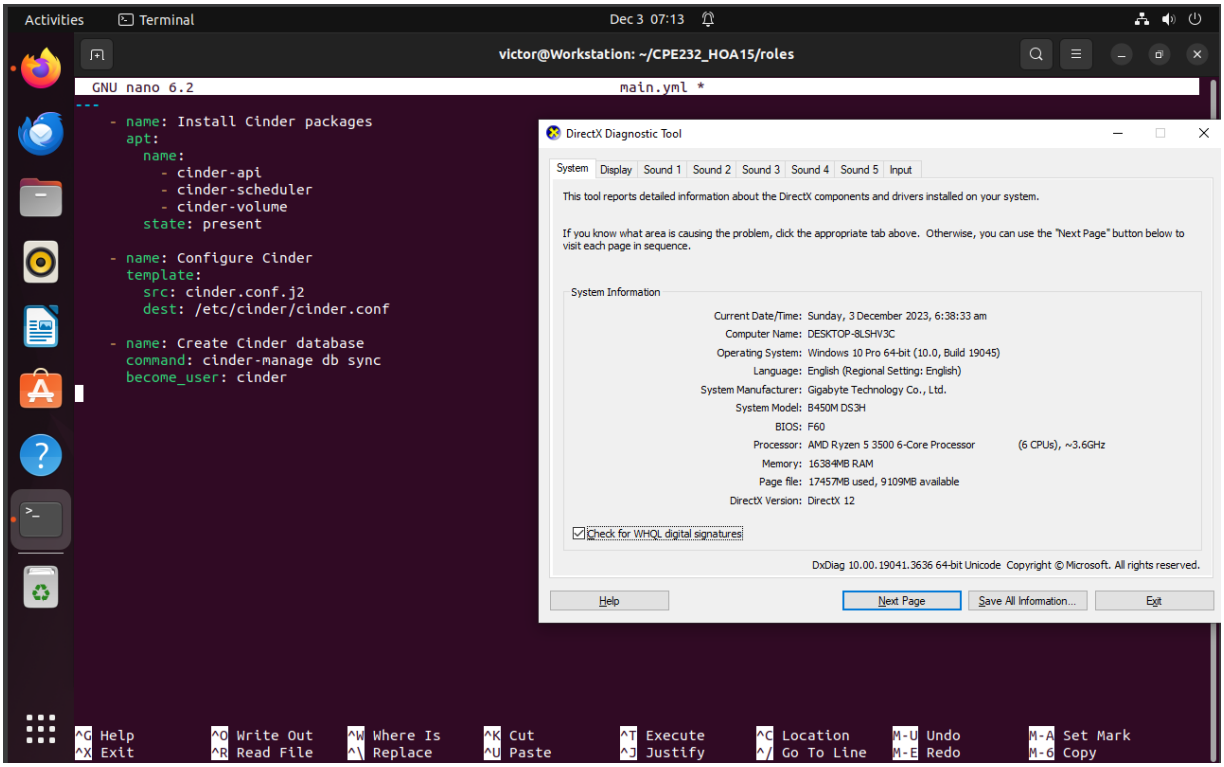
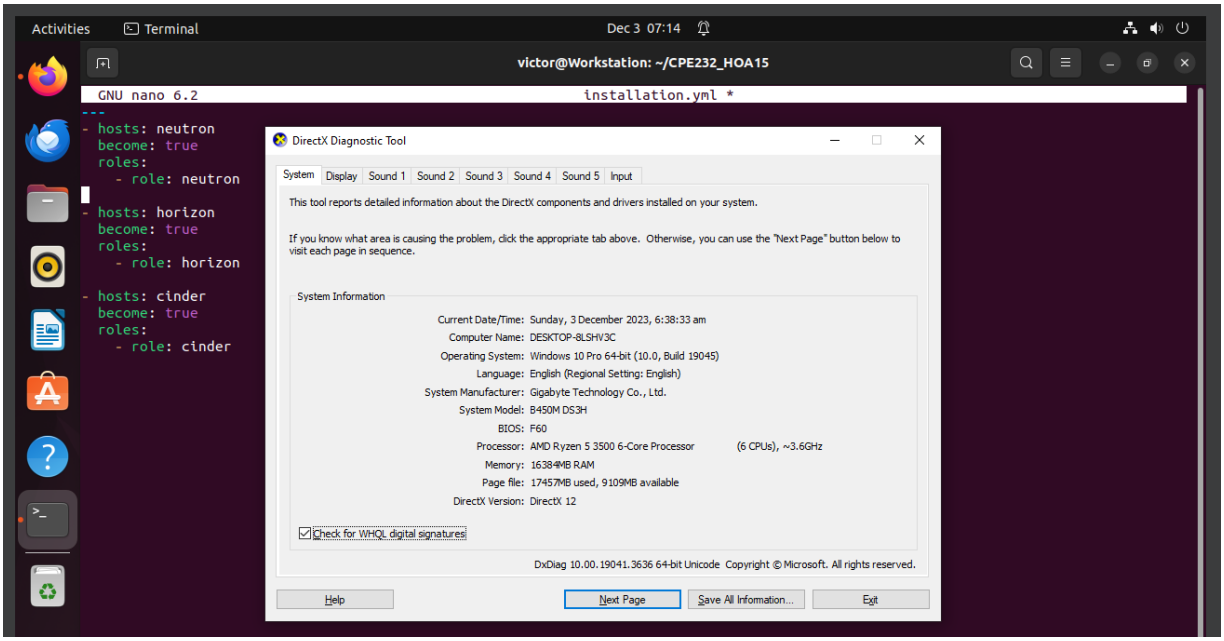
Check for WHQL digital signatures
DxDiag 10.00.19041.3636 64-bit Unicode Copyright © Microsoft. All rights reserved.
Help
Next Page
Save All Information...
Exit
[Read 21 lines]
^G Help
^X Exit
^O Write Out
^R Read File
^W Where Is
^\ Replace
^K Cut
^U Paste
^T Execute
^J Justify
^C Location
^/ Go To Line
M-U Undo
M-E Redo
M-A Set Mark
M-6 Copy

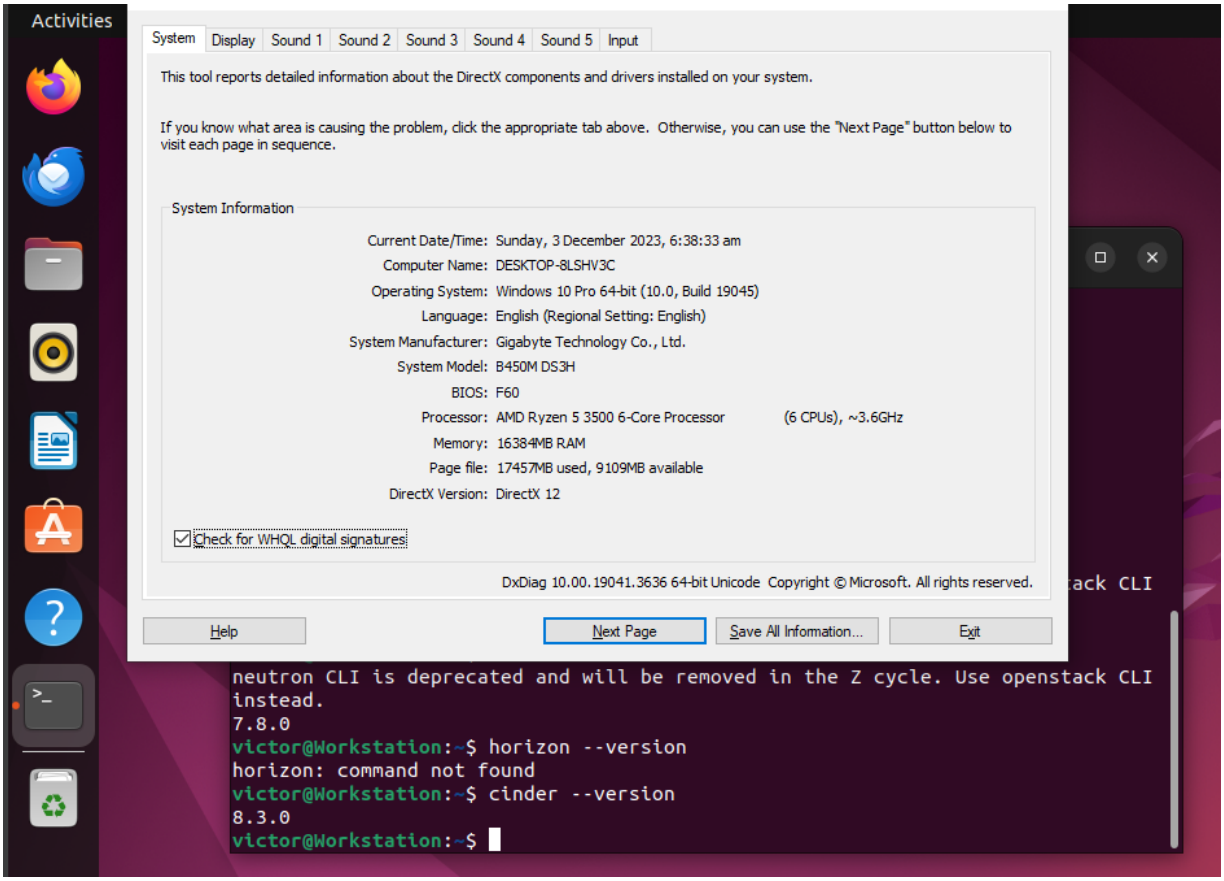
c. Cinder



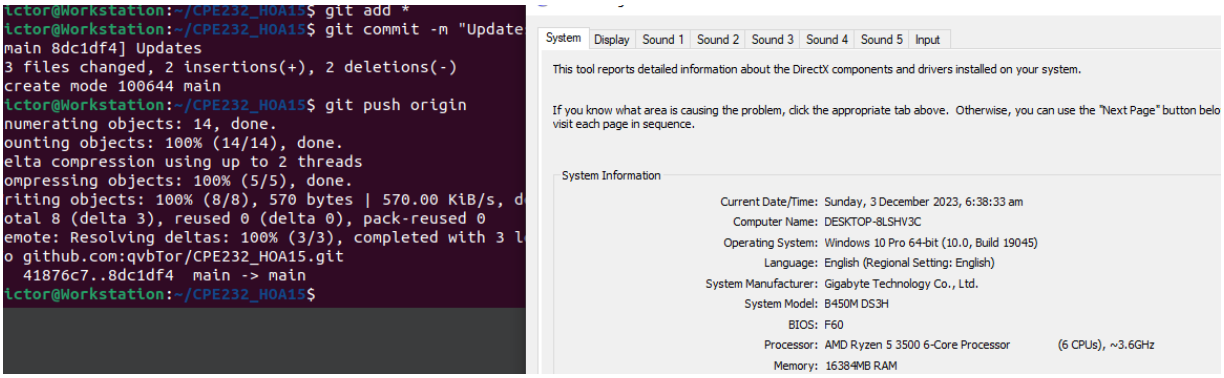
3. Playbook.



4. Verifying all the requirements are installed.



5. Pushing into GitHub repository



Reflections:

Answer the following:

1. Describe Neutron, Horizon and Cinder services
    a. **Neutron:**

Neutron, part of OpenStack, oversees network services, managing connectivity and IP addresses for instances. It facilitates the creation and customization of virtual networks within a cloud environment.

    b. **Horizon:**

Horizon is OpenStack's web-based dashboard, serving as a visual interface for users and administrators. It acts as a centralized portal for efficient management and monitoring of various OpenStack services.

    c. **Cinder:**

Cinder, an integral OpenStack service, handles block storage, providing persistent block-level storage for instances. Users can create, attach, and detach block storage volumes, ensuring scalable and dependable storage solutions for virtual machines.

Conclusions:

Therefore, employing an Ansible playbook greatly simplifies the installation of Horizon, Neutron, and Cinder services in OpenStack. This method ensures a seamless deployment, reducing complexities and optimizing the configuration of these essential components. Through the playbook's efficiency, organizations can swiftly establish a well-integrated OpenStack infrastructure, taking advantage of a user-friendly dashboard (Horizon), robust networking capabilities (Neutron), and scalable block storage solutions (Cinder).