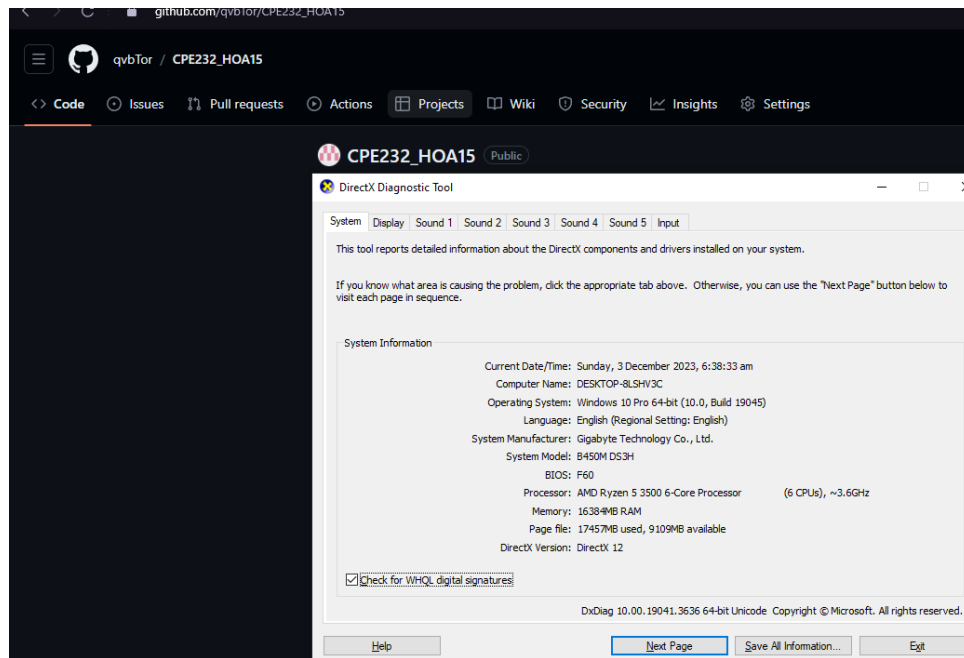
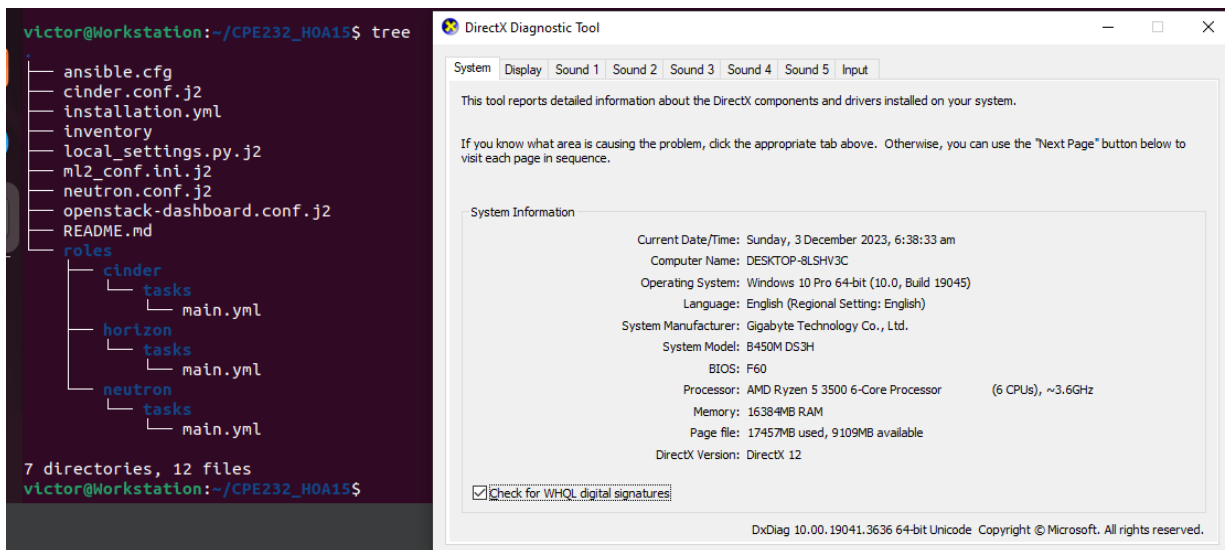


| | |
|---|-----------------------------------|
| Name: Victor Ortega | Date Performed: 12/03/23 |
| Course/Section: CPE232 S5 | Date Submitted: 12/03/23 |
| Instructor: Engr. Roman Richard | Semester and SY: 2023-2024 |
| Activity 15: OpenStack Installation (Neutron, Horizon, Cinder) | |
| 1. Objectives | |
| Create a workflow to install OpenStack using Ansible as your Infrastructure as Code (IaC). | |
| 2. Intended Learning Outcomes | |
| <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 new repository.



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



a. Neutron

The screenshot shows a Linux workstation environment. On the left, a vertical dock contains icons for various applications including a file manager, terminal, and web browser. The main workspace is divided into two windows.

The background window is a terminal titled "GNU nano 6.2" showing the editing of a file named "main.yml". The content of the file is as follows:

```
- 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 foreground window is the "DirectX Diagnostic Tool". It has tabs for "System", "Display", "Sound 1", "Sound 2", "Sound 3", "Sound 4", "Sound 5", and "Input". The "System" tab is selected, displaying the following information:

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.

Buttons at the bottom: Help, Next Page, Save All Information..., Exit.

At the bottom of the terminal window, a status bar shows keyboard shortcuts: Help, Exit, Write Out, Read File, Where Is, Replace, Cut, Paste, Execute, Justify, Location, Go To Line, Undo, Redo, Set Mark, Copy.

b. Horizon

The screenshot shows a Linux workstation environment. The top bar indicates the date and time as Dec 3 07:12. The terminal window, titled 'victor@Workstation: ~/CPE232_HOA15/roles', is running GNU nano 6.2 and editing a file named 'main.yml'. The content of the file is an Ansible playbook with the following tasks:

```
- 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

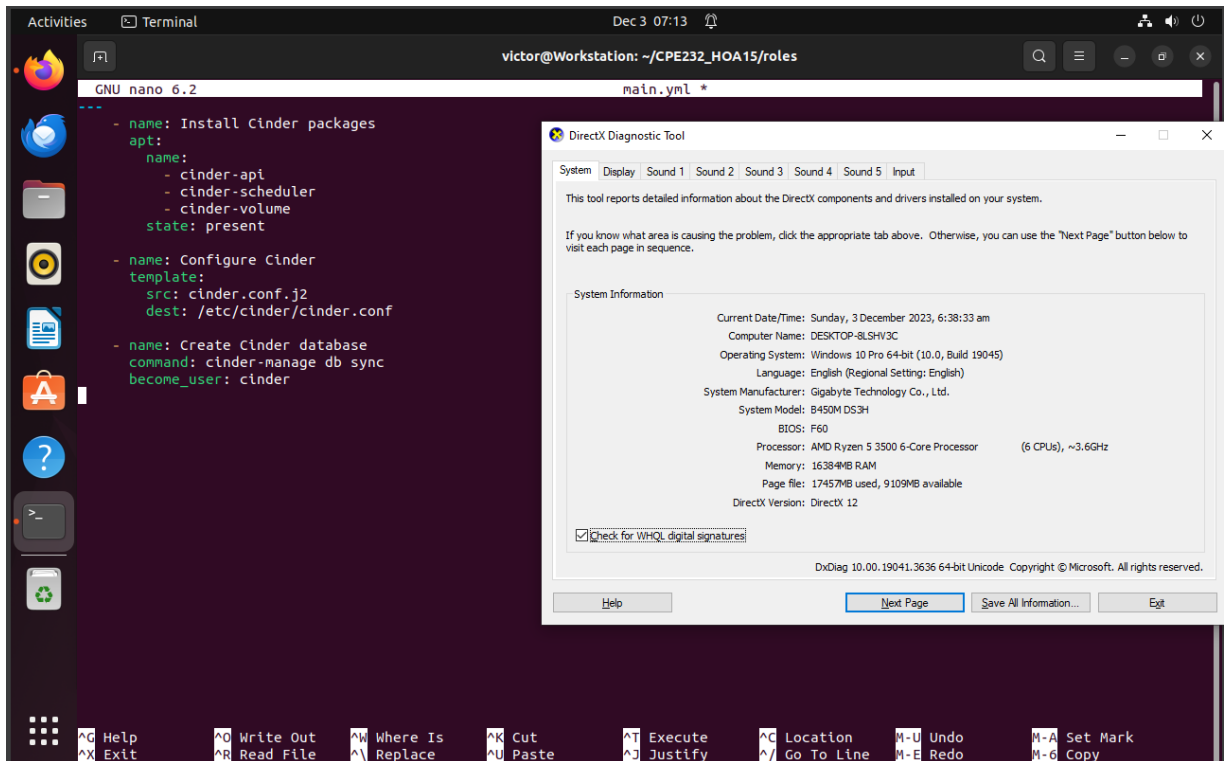
- name: Configure Horizon settings
  template:
    src: local_settings.py.j2
    dest: /etc/openstack-dashboard/local_settings.py

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

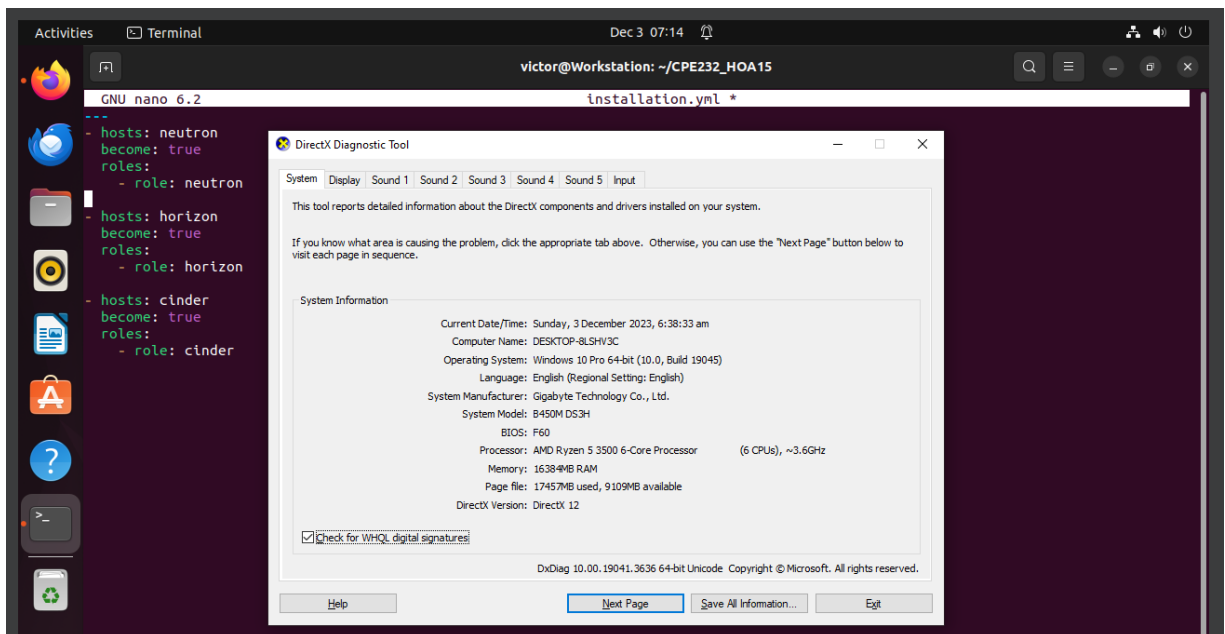
Overlaid on the terminal is the DirectX Diagnostic Tool window. It displays system information for a Windows 10 Pro 64-bit system. The 'System' tab is selected, showing details such as the current date/time, computer name, operating system, language, system manufacturer, system model, BIOS, processor, memory, and page file. The DirectX version is reported as 12. The window also includes a 'Check for WHQL digital signatures' checkbox and buttons for 'Help', 'Next Page', 'Save All Information...', and 'Exit'.

At the bottom of the terminal window, a status bar displays various keyboard shortcuts for editing and navigation, such as 'Help', 'Exit', 'Write Out', 'Read File', 'Where Is', 'Replace', 'Cut', 'Paste', 'Execute', 'Justify', 'Location', 'Go To Line', 'Undo', 'Redo', 'Set Mark', and 'Copy'.

c. Cinder



3. Playbook.



4. Verifying all the requirements are installed.

The screenshot shows a Windows 10 desktop. On the left is the taskbar with icons for Firefox, Telegram, File Explorer, Camera, Edge, and the Start button. The main window is the DirectX Diagnostic Tool, which is open to the 'System' tab. It displays system information including the current date/time, computer name, operating system, language, system manufacturer, system model, BIOS, processor, memory, page file, and DirectX version. Below the system information, there is a checkbox for 'Check for WHQL digital signatures' which is checked. At the bottom of the window are buttons for 'Help', 'Next Page', 'Save All Information...', and 'Exit'. In the background, a terminal window is open, showing a message about the deprecated neutron CLI and the output of the 'horizon --version' and 'cinder --version' commands.

Activities

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

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Help Next Page Save All Information... Exit

neutron CLI is deprecated and will be removed in the Z cycle. Use openstack CLI instead.
7.8.0
victor@Workstation:~\$ horizon --version
horizon: command not found
victor@Workstation:~\$ cinder --version
8.3.0
victor@Workstation:~\$

5. Pushing into GitHub repository

The screenshot shows a terminal window with the following commands and output:

```
victor@Workstation:~/CPE232_H0A15$ git add *
victor@Workstation:~/CPE232_H0A15$ git commit -m "Update main 8dc1df4" Updates
3 files changed, 2 insertions(+), 2 deletions(-)
create mode 100644 main
victor@Workstation:~/CPE232_H0A15$ git push origin
Enumerating objects: 14, done.
Counting objects: 100% (14/14), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (8/8), 570 bytes | 570.00 KiB/s, done.
Total 8 (delta 3), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
To github.com:qvbtor/CPE232_H0A15.git
   41876c7..8dc1df4  main -> main
victor@Workstation:~/CPE232_H0A15$
```

The background shows the same DirectX Diagnostic Tool window as in the previous screenshot, displaying system information.

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).