

Name: Quizon, Nowell Gabriel C.	Date Performed: 10/18/2023
Course/Section: CPE31S5	Date Submitted: 10/18/2023
Instructor: Engr. Roman Richard	Semester and SY: 1 st – 2023 - 2024

Activity 7: Managing Files and Creating Roles in Ansible

1. Objectives:

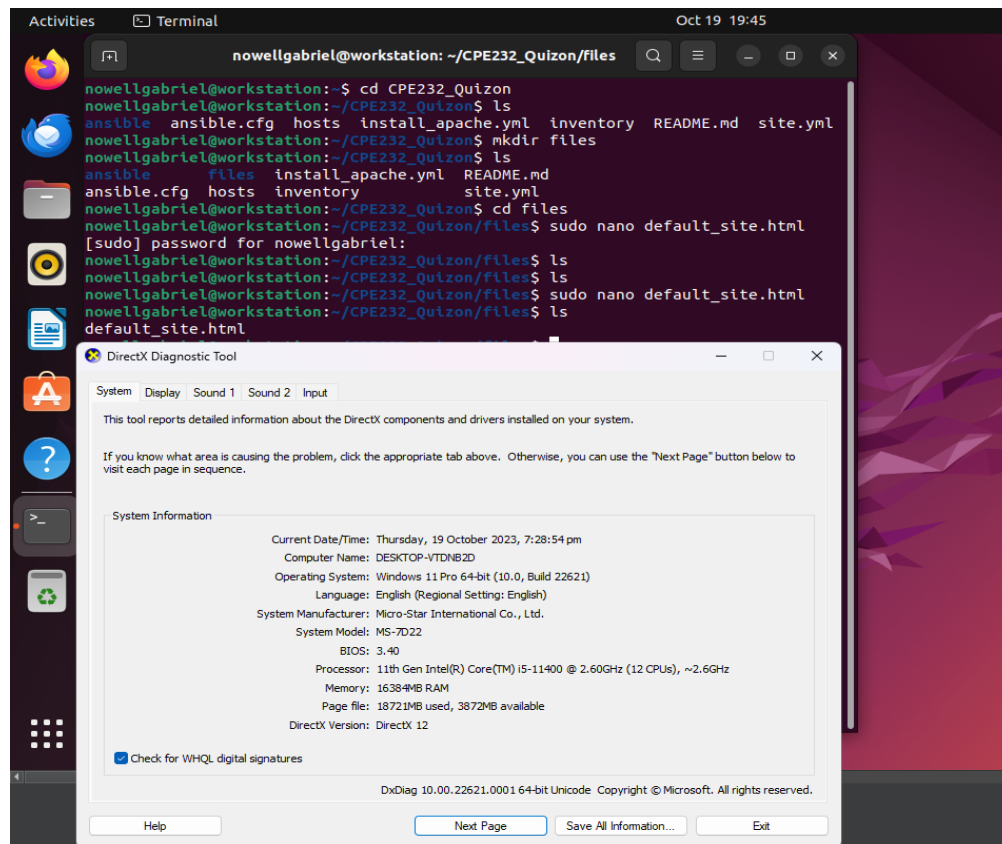
- 1.1 Manage files in remote servers
- 1.2 Implement roles in ansible

2. Discussion:

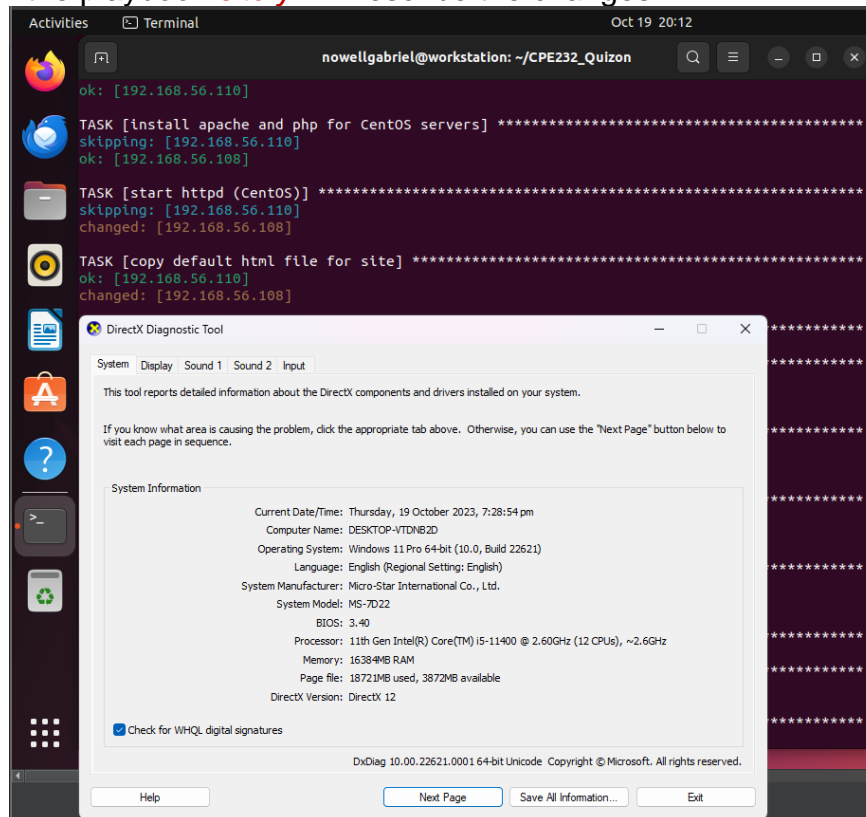
In this activity, we look at the concept of copying a file to a server. We are going to create a file into our git repository and use Ansible to grab that file and put it into a particular place so that we could do things like customize a default website, or maybe install a default configuration file. We will also implement roles to consolidate plays.

Task 1: Create a file and copy it to remote servers

1. Using the previous directory we created, create a directory, and named it “*files*.” Create a file inside that directory and name it “*default_site.html*.” Edit the file and put basic HTML syntax. Any content will do, as long as it will display text later. Save the file and exit.

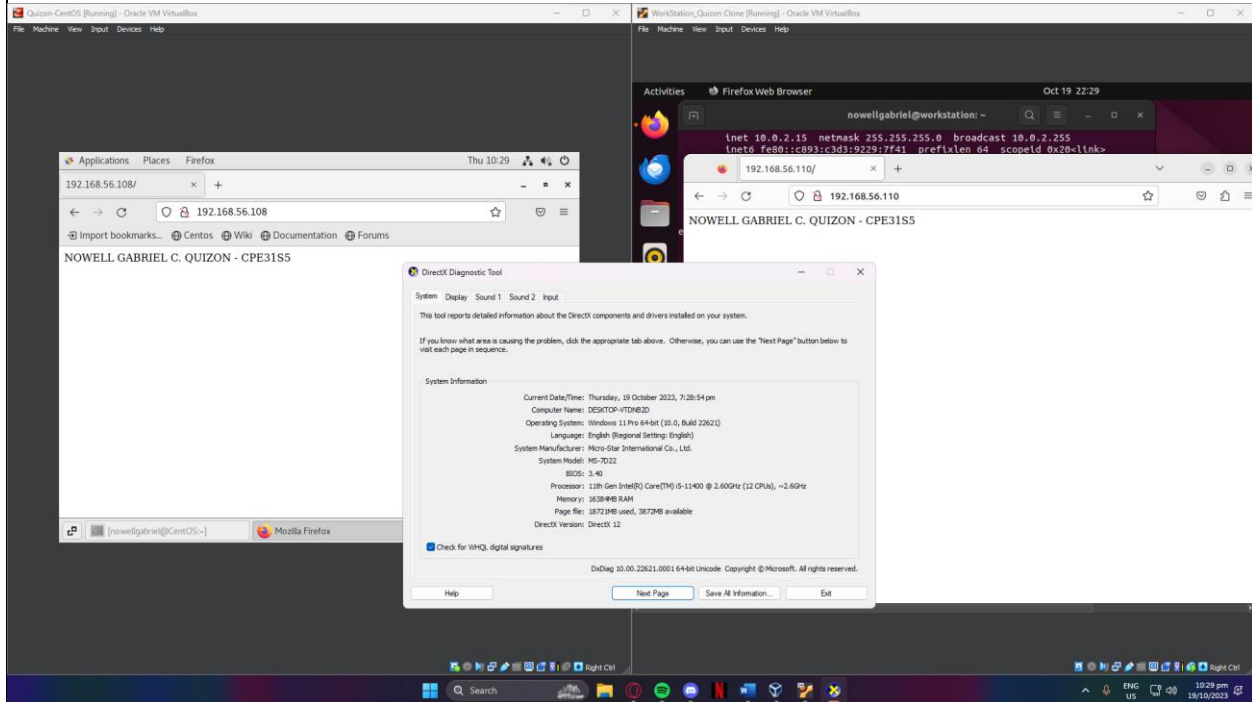


2. Edit the *site.yml* file and just below the *web_servers* play, create a new file to copy the default html file for site:
 - name: copy default html file for site
 - tags: apache, apache2, httpd
 - copy:
 - src: default_site.html
 - dest: /var/www/html/index.html
 - owner: root
 - group: root
 - mode: 0644
3. Run the playbook *site.yml*. Describe the changes.

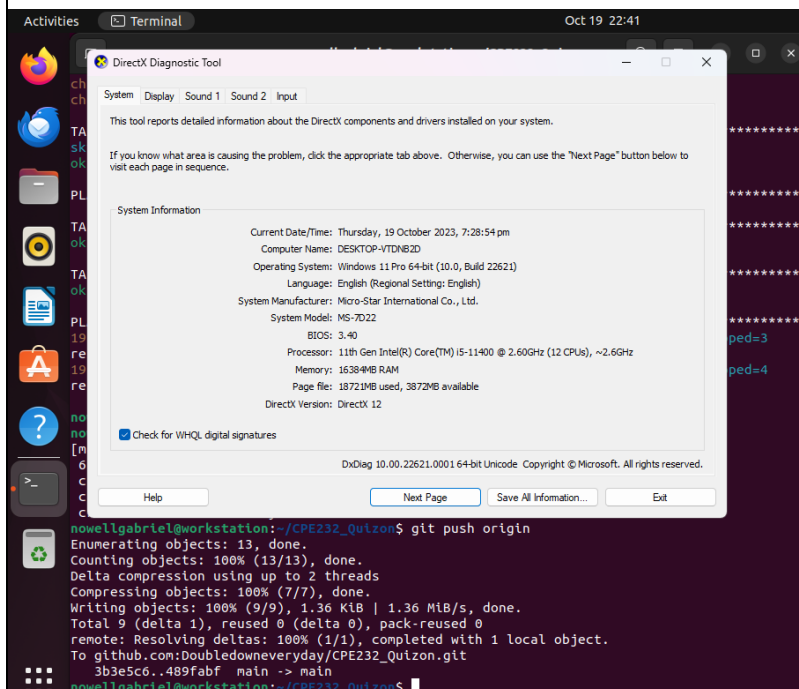


- What it did is copy the default html to a new file and directory. The ownership of the file belongs to root users and also it belongs to the root group. The permission of the file is 0644.

4. Go to the remote servers (**web_servers**) listed in your inventory. Use `cat` command to check if the `index.html` is the same as the local repository file (**default_site.html**). Do both for Ubuntu and CentOS servers. On the CentOS server, go to the browser and type its IP address. Describe the output.



5. Sync your local repository with GitHub and describe the changes.



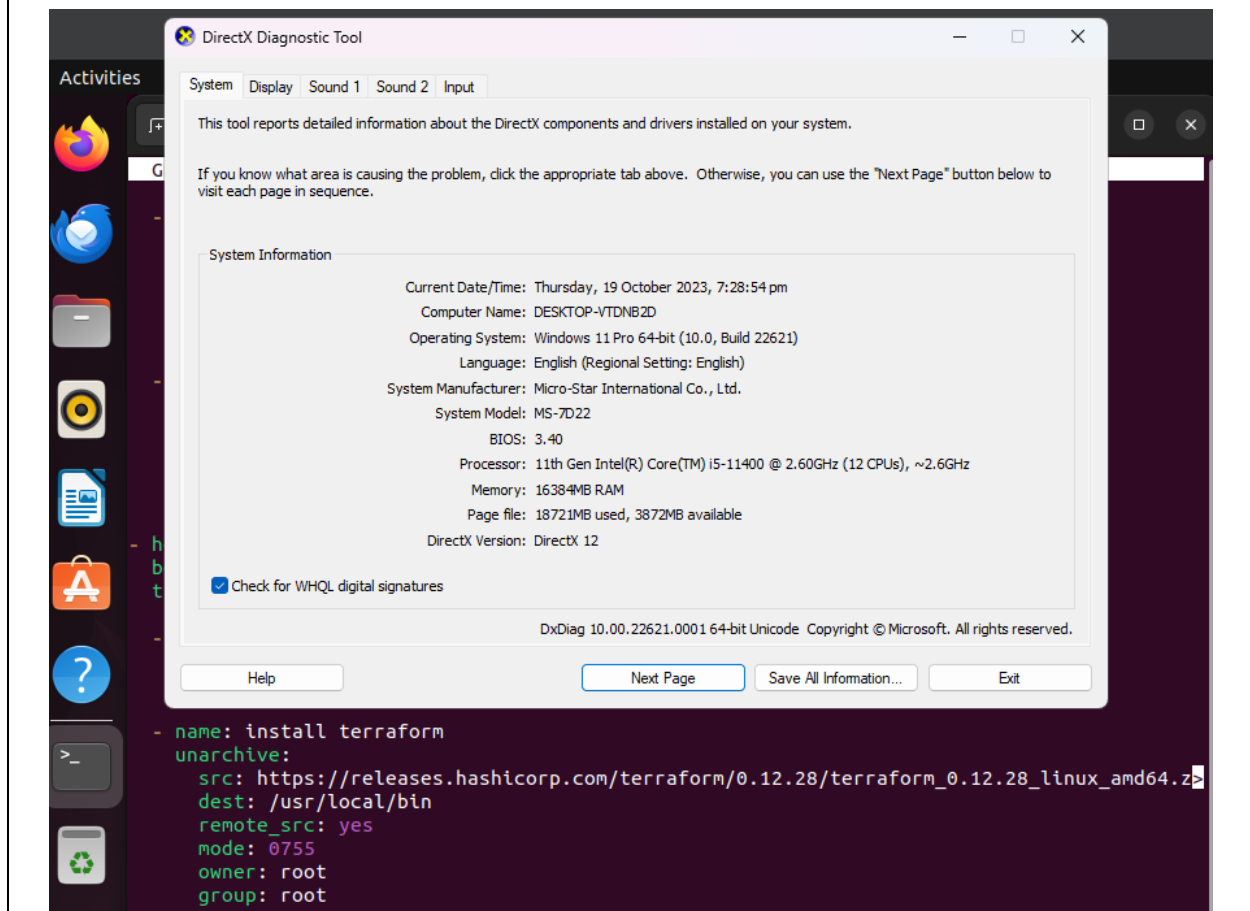
Task 2: Download a file and extract it to a remote server

1. Edit the site.yml. Just before the web_servers play, create a new play:

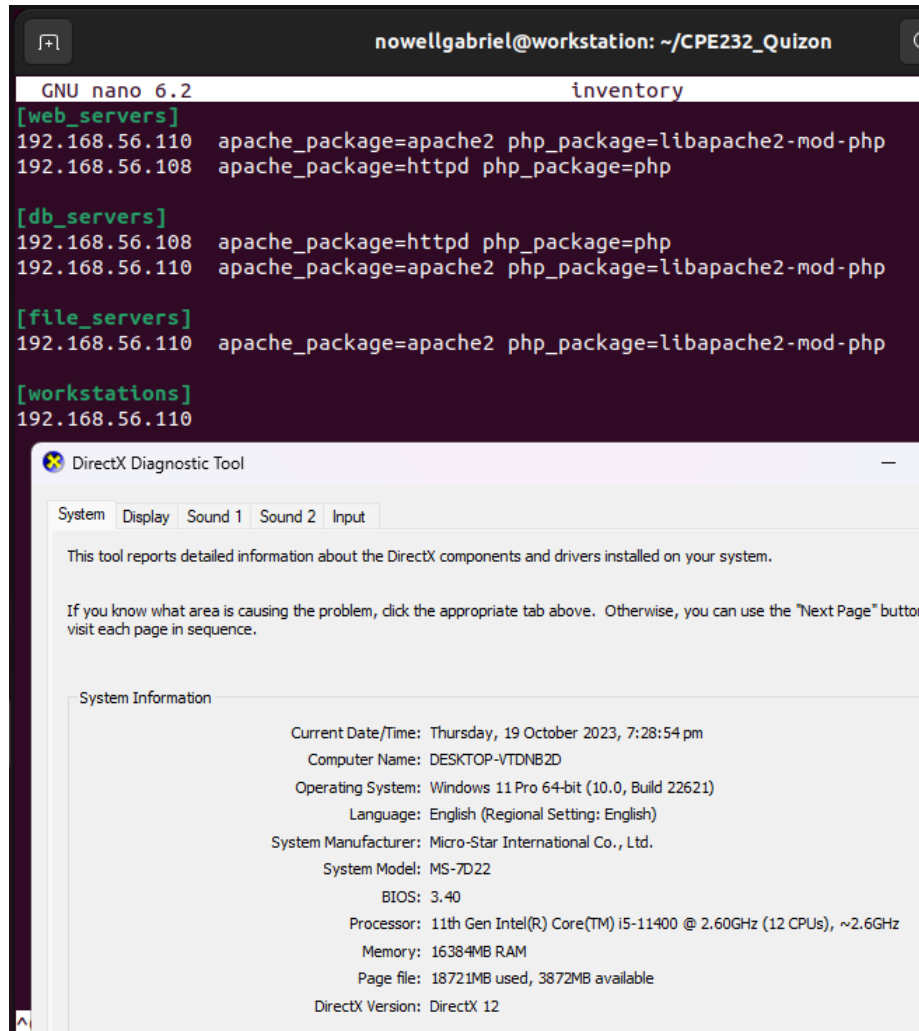
- hosts: workstations
become: true
tasks:

- name: install unzip
package:
name: unzip

- name: install terraform
unarchive:
src:
https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
dest: /usr/local/bin
remote_src: yes
mode: 0755
owner: root
group: root



2. Edit the inventory file and add workstations group. Add any Ubuntu remote server. Make sure to remember the IP address.



The image shows two overlapping windows. The top window is a terminal running GNU nano 6.2, editing a file named 'inventory'. The bottom window is the Windows DirectX Diagnostic Tool, showing system information.

Terminal Window (GNU nano 6.2):

```
inventory

[web_servers]
192.168.56.110 apache_package=apache2 php_package=libapache2-mod-php
192.168.56.108 apache_package=httpd php_package=php

[db_servers]
192.168.56.108 apache_package=httpd php_package=php
192.168.56.110 apache_package=apache2 php_package=libapache2-mod-php

[file_servers]
192.168.56.110 apache_package=apache2 php_package=libapache2-mod-php

[workstations]
192.168.56.110
```

DirectX Diagnostic Tool (System tab):

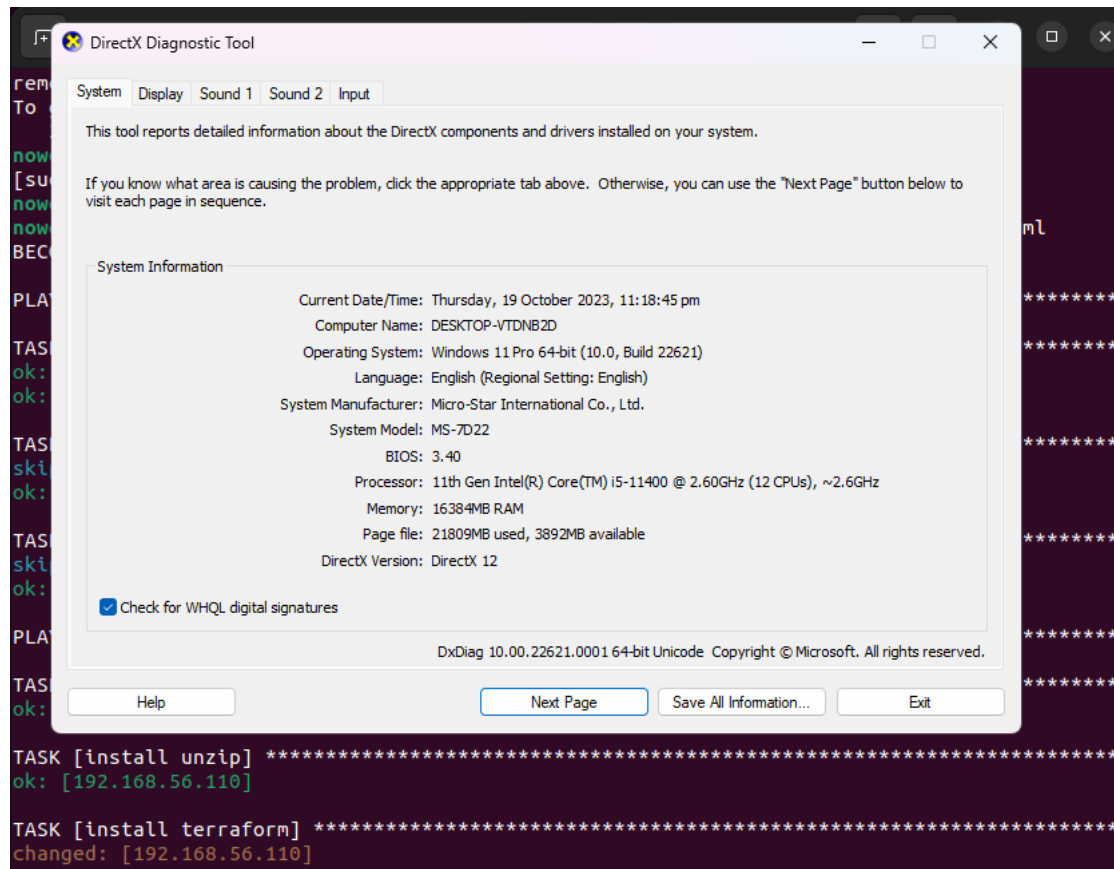
This tool reports detailed information about the DirectX components and drivers installed on your system.

If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button to visit each page in sequence.

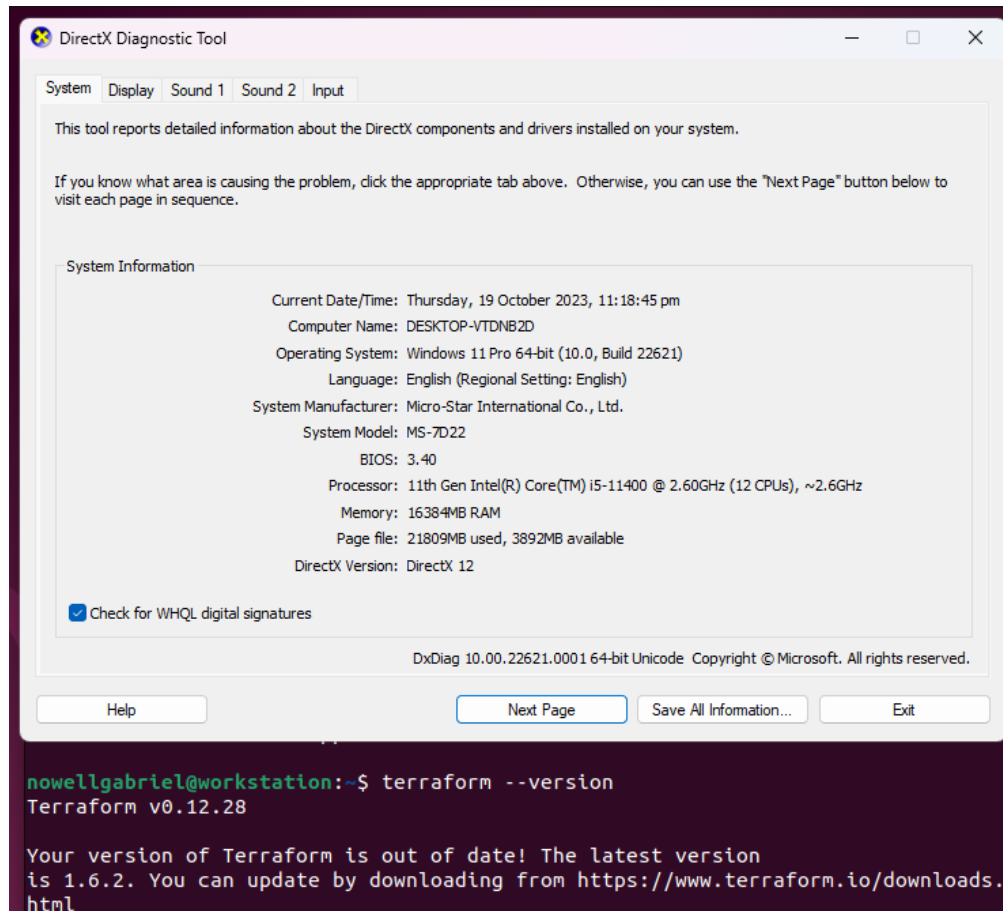
System Information

- Current Date/Time: Thursday, 19 October 2023, 7:28:54 pm
- Computer Name: DESKTOP-VTDNB2D
- Operating System: Windows 11 Pro 64-bit (10.0, Build 22H2)
- Language: English (Regional Setting: English)
- System Manufacturer: Micro-Star International Co., Ltd.
- System Model: MS-7D22
- BIOS: 3.40
- Processor: 11th Gen Intel(R) Core(TM) i5-11400 @ 2.60GHz (12 CPUs), ~2.6GHz
- Memory: 16384MB RAM
- Page file: 18721MB used, 3872MB available
- DirectX Version: DirectX 12

3. Run the playbook. Describe the output.



4. On the Ubuntu remote workstation, type terraform to verify installation of terraform. Describe the output.



Task 3: Create roles

1. Edit the site.yml. Configure roles as follows: (make sure to create a copy of the old site.yml file because you will be copying the specific plays for all groups)

```
---
- hosts: all
  become: true
  pre_tasks:

    - name: update repository index (CentOS)
      tags: always
      dnf:
        update_cache: yes
        changed_when: false
        when: ansible_distribution == "CentOS"
    - name: install updates (Ubuntu)
      tags: always
      apt:
        update_cache: yes
        changed_when: false
        when: ansible_distribution == "Ubuntu"

- hosts: all
  become: true
  roles:
    - base

- hosts: workstations
  become: true
  roles:
    - workstations

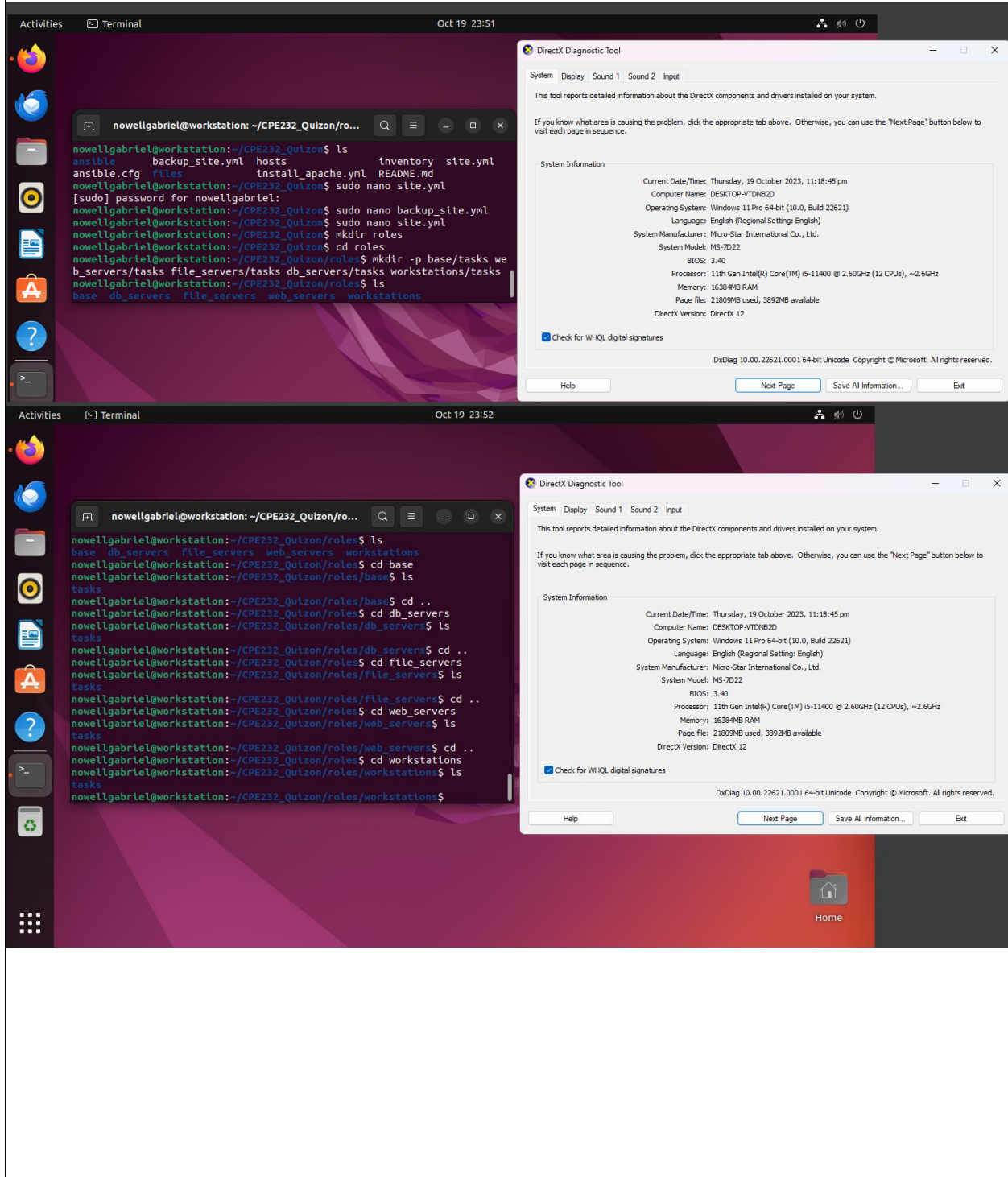
- hosts: web_servers
  become: true
  roles:
    - web_servers

- hosts: db_servers
  become: true
  roles:
    - db_servers

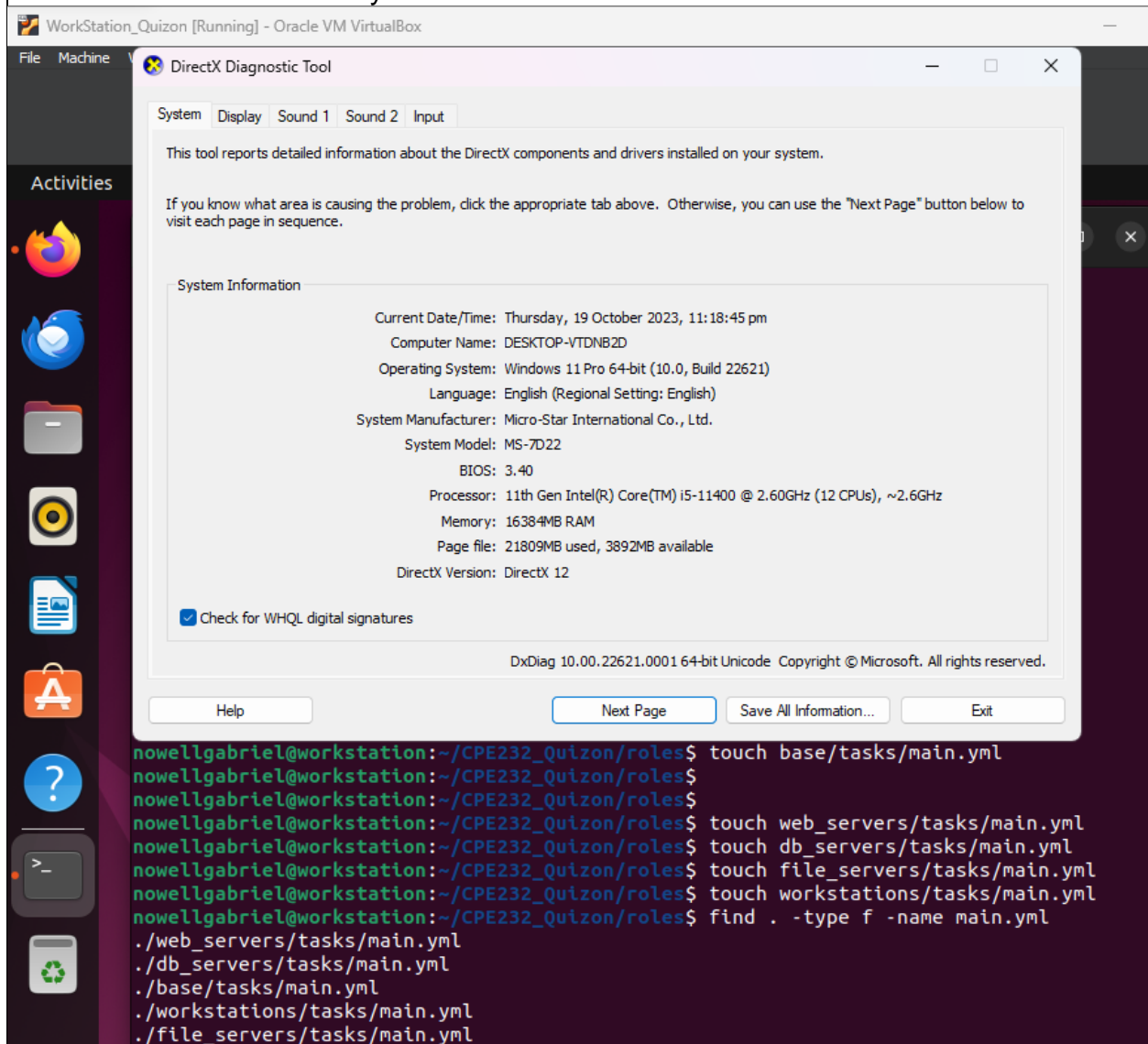
- hosts: file_servers
  become: true
  roles:
    - file_servers
```

Save the file and exit.

2. Under the same directory, create a new directory and name it roles. Enter the roles directory and create new directories: base, web_servers, file_servers, db_servers and workstations. For each directory, create a directory and name it tasks.



3. Go to tasks for all directory and create a file. Name it main.yml. In each of the tasks for all directories, copy and paste the code from the old site.yml file. Show all contents of main.yml files for all tasks.



Base:

The terminal window shows the following Ansible tasks in `main.yml`:

```
- name: install updates (CentOS)
  tags: always
  yum:
    update_only: yes
    update_cache: yes
  when: ansible_distribution == "CentOS"

- name: install updates (Ubuntu)
  tags: always
  apt:
    upgrade: dist
    update_cache: yes
  when: ansible_distribution == "Ubuntu"
```

The DirectX Diagnostic Tool window displays the following system information:

- Current Date/Time: Thursday, 19 October 2023, 11:18:45 pm
- Computer Name: DESKTOP-VTDNB2D
- Operating System: Windows 11 Pro 64-bit (10.0, Build 22621)
- Language: English (Regional Setting: English)
- System Manufacturer: Micro-Star International Co., Ltd.
- System Model: MS-7D22
- BIOS: 3.40
- Processor: 11th Gen Intel(R) Core(TM) i5-11400 @ 2.60GHz (12 CPUs), ~2.6GHz
- Memory: 16384MB RAM
- Page file: 21809MB used, 3892MB available
- DirectX Version: DirectX 12

Check for WHQL digital signatures is checked.

DxDiag 10.00.22621.0001 64-bit Unicode Copyright © Microsoft. All rights reserved.

Workstations:

The terminal window shows the following Ansible tasks in `main.yml`:

```
- name: install unzip
  package:
    name: unzip

- name: install terraform
  unarchive:
    src: https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root
```

The DirectX Diagnostic Tool window displays the same system information as the previous screenshot.

web_servers:

Activities Terminal Oct 20 01:09

nowellgabriel@workstation: ~/CPE232_Quizon/roles/web_servers/ta...
nowellgabriel@workstation: ~/CPE232_Quiz... x nowellgabriel@workstation: ~/CPE232_Quiz...

GNU nano 6.2 main.yml

```
- name: install apache and php for Ubuntu servers
  tags: apache,apache2,ubuntu
  apt:
    name:
      - apache2
      - libapache2-mod-php
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: install apache and php for CentOS servers
  tags: apache,centos,httpd
  yum:
    name:
      - httpd
      - php
    state: latest
  when: ansible_distribution == "CentOS"

- name: start httpd (CentOS)
  tags: apache,centos,httpd
  service:
    name: httpd
    state: started
  when: ansible_distribution == "CentOS"

- name: copy default html file for site
  tags: apache,apache2,httpd
  copy:
    src: default_site.html
    dest: /var/www/html/index.html
    owner: root
    group: root
```

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: Thursday, 19 October 2023, 11:18:45 pm
Computer Name: DESKTOP-VTDNB2D
Operating System: Windows 11 Pro 64-bit (10.0, Build 22H2)
Language: English (Regional Setting: English)
System Manufacturer: Micro-Star International Co., Ltd.
System Model: MS-7D22
BIOS: 3.40
Processor: 11th Gen Intel(R) Core(TM) i5-11400 @ 2.60GHz (12 CPUs), ~2.6GHz
Memory: 16384MB RAM
Page file: 21809MB used, 3892MB available
DirectX Version: DirectX 12

☒ Check for WHQL digital signatures

DxDiag 10.00.22621.0001 64-bit Unicode Copyright © Microsoft. All rights reserved.

Help Next Page Save All Information... Exit

Home

db_servers:

nowellgabriel@workstation: ~/CPE232_Quizon/roles/db_servers/tasks
nowellgabriel@workstation: ~/CPE232_Quiz... x nowellgabriel@workstation: ~/CPE232_Quiz...

GNU nano 6.2 main.yml

```
- name: install mariadb package (Ubuntu)
  tags: centos,db,mariadb
  apt:
    name: mariadb-server
    state: latest
  when: ansible_distribution == "Ubuntu"

- name: "Mariadb- Restart/Enabling"
  service:
    name: mariadb
    state: restarted
    enabled: true

- name: install mariadb package (CentOS)
  tags: db,mariadb,ubuntu
  yum:
    name: mariadb-server
    state: latest
  when: ansible_distribution == "CentOS"
```

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: Thursday, 19 October 2023, 11:18:45 pm
Computer Name: DESKTOP-VTDNB2D
Operating System: Windows 11 Pro 64-bit (10.0, Build 22H2)
Language: English (Regional Setting: English)
System Manufacturer: Micro-Star International Co., Ltd.
System Model: MS-7D22
BIOS: 3.40
Processor: 11th Gen Intel(R) Core(TM) i5-11400 @ 2.60GHz (12 CPUs), ~2.6GHz
Memory: 16384MB RAM
Page file: 21809MB used, 3892MB available
DirectX Version: DirectX 12

☒ Check for WHQL digital signatures

DxDiag 10.00.22621.0001 64-bit Unicode Copyright © Microsoft. All rights reserved.

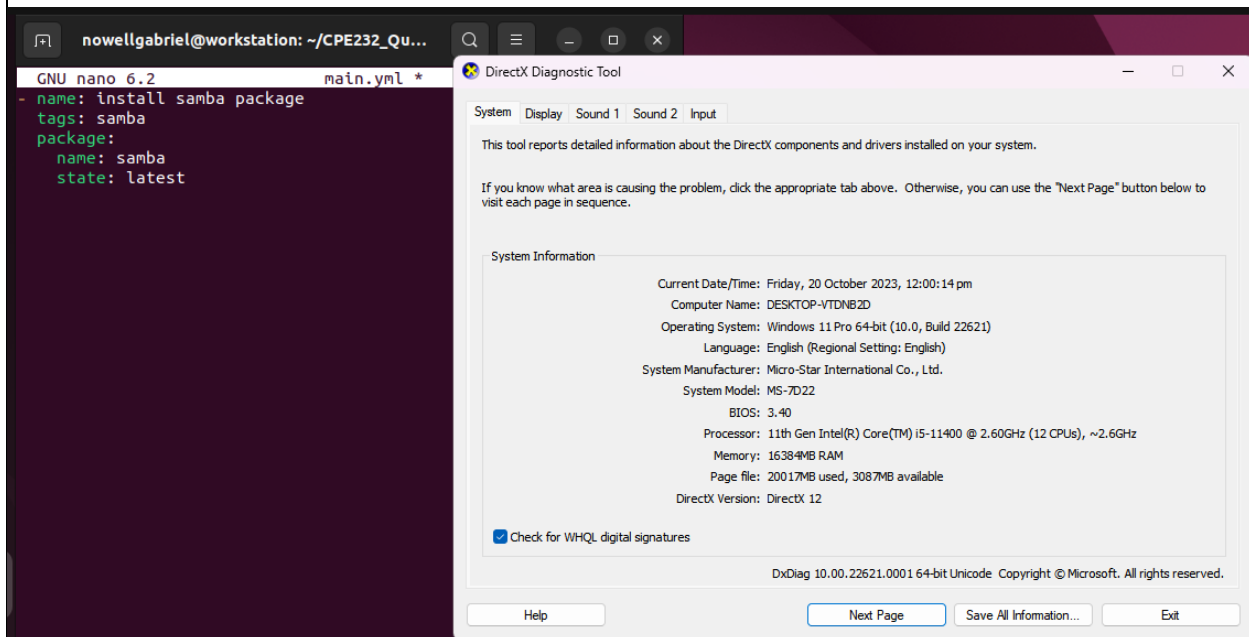
Help Next Page Save All Information... Exit

Home

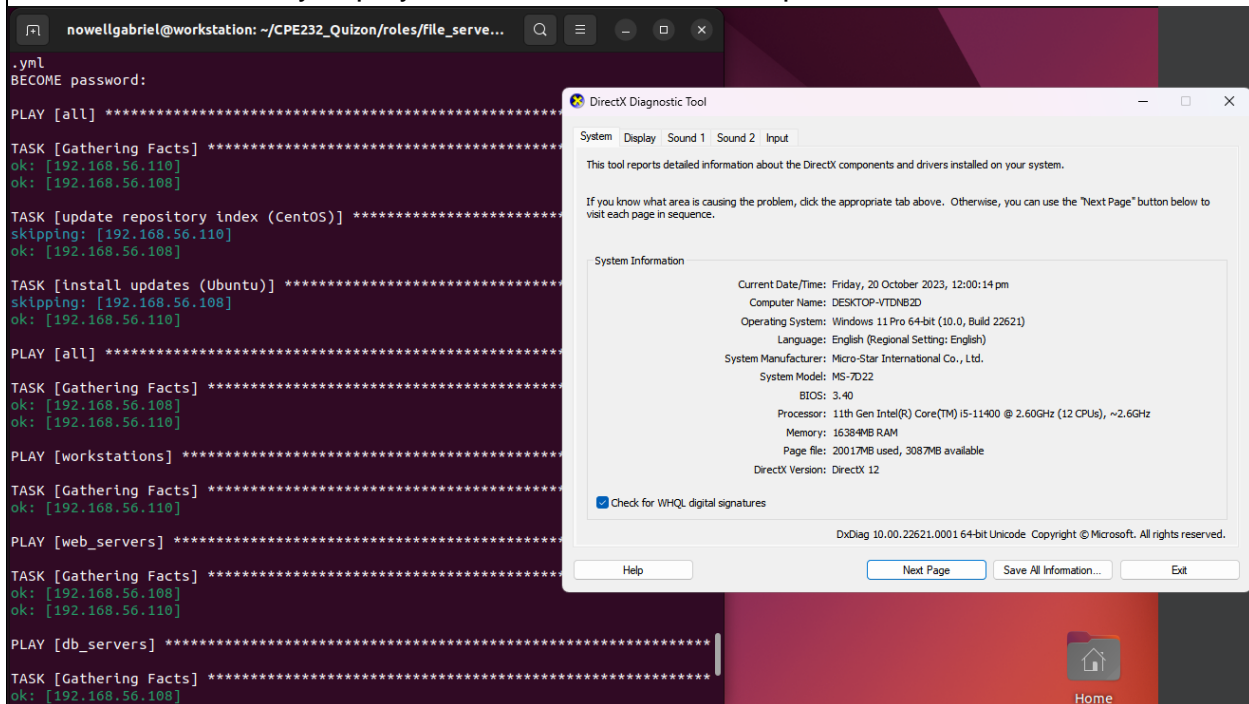
File Name to Write: main.yml

Help M-D DOS Format M-A Append M-B Backup File
Cancel M-M Mac Format M-P Prepend M-T Browse

file_servers:



4. Run the site.yml playbook and describe the output.



- From what I observed from the output, when it ran the playbook, because of the roles assigned to each group, it is not confusing anymore because it's more efficient.

Reflections:

Answer the following:

1. What is the importance of creating roles?

The important of creating roles is to lessen the work that is being done because you only call on specific roles, so it will not do unnecessary tasks anymore compared to the previous configuration we made.

2. What is the importance of managing files?

Managing files is vital if you want security and efficiency in organizing important data. It is easier to access and to distinguish if you manage your files properly.