Name: Aldwin Joseph B. Revilla	**Date Performed:** 10/17/2023
Course/Section: CPE31S5	**Date Submitted:** 10/19/2023
Instructor: Roman Richard	**Semester and SY: First Sem 2023-2024**

Activity 7: Managing Files and Creating Roles in Ansible

1. **Objectives:**

1.1 Manage files in remote servers

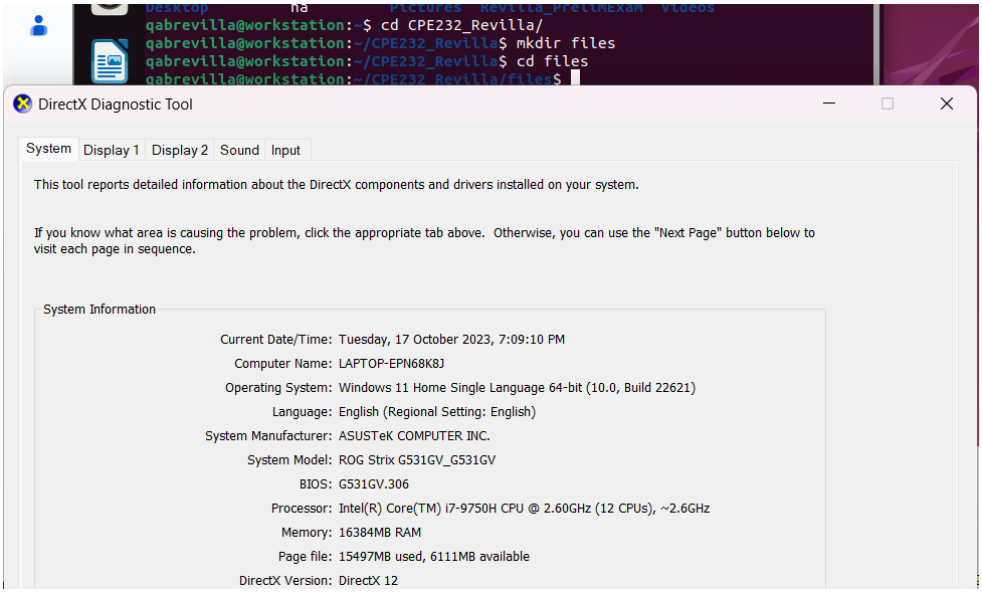
1.2 Implement roles in ansible

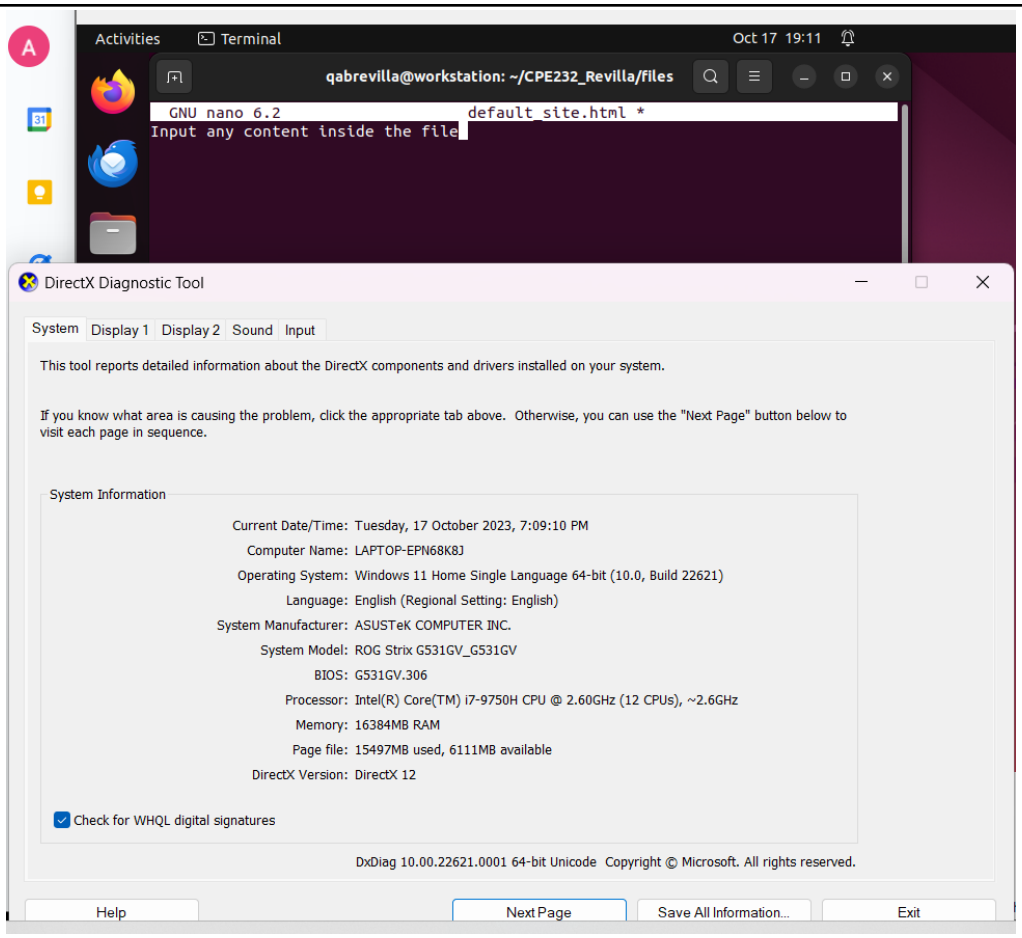
2. **Discussion**:

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

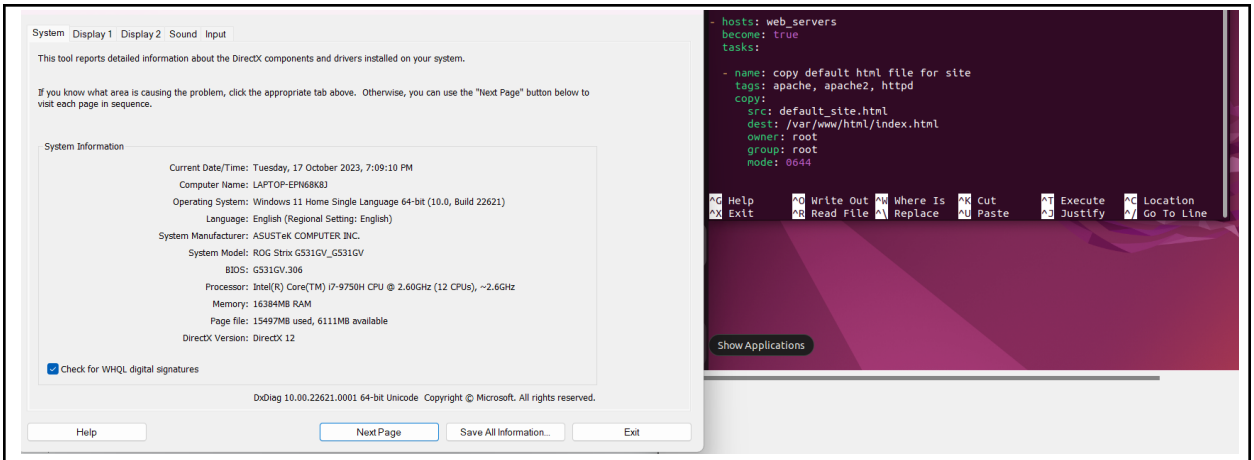
1. Using the previous directory we created, create a directory, and named it "*files*." Create a file inside that directory and name it "*default_site.html*." Edit the file and put basic HTML syntax. Any content will do, as long as it will display text later. Save the file and exit.



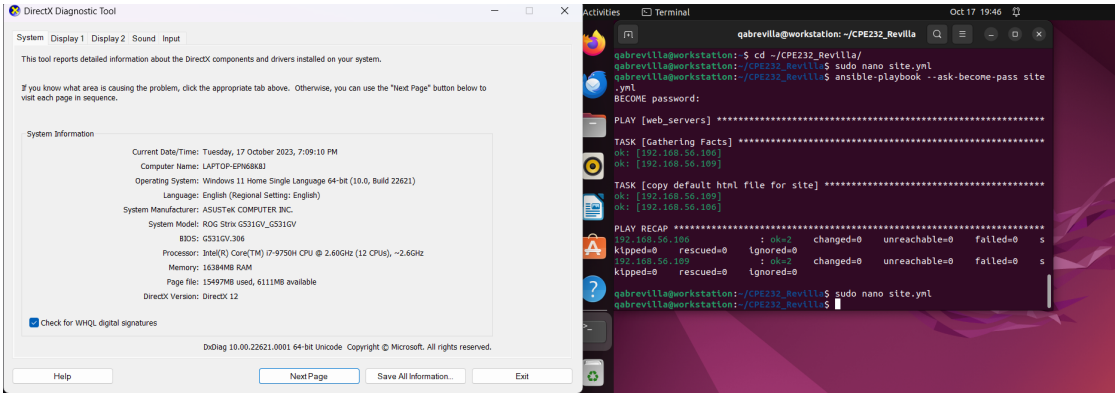


2. Edit the *site.yml* file and just below the *web_servers* play, create a new file to copy the default html file for site:
   - name: copy default html file for site

     tags: apache, apache2, httpd
     copy:
       src: default_site.html
       dest: /var/www/html/index.html
       owner: root
       group: root
       mode: 0644

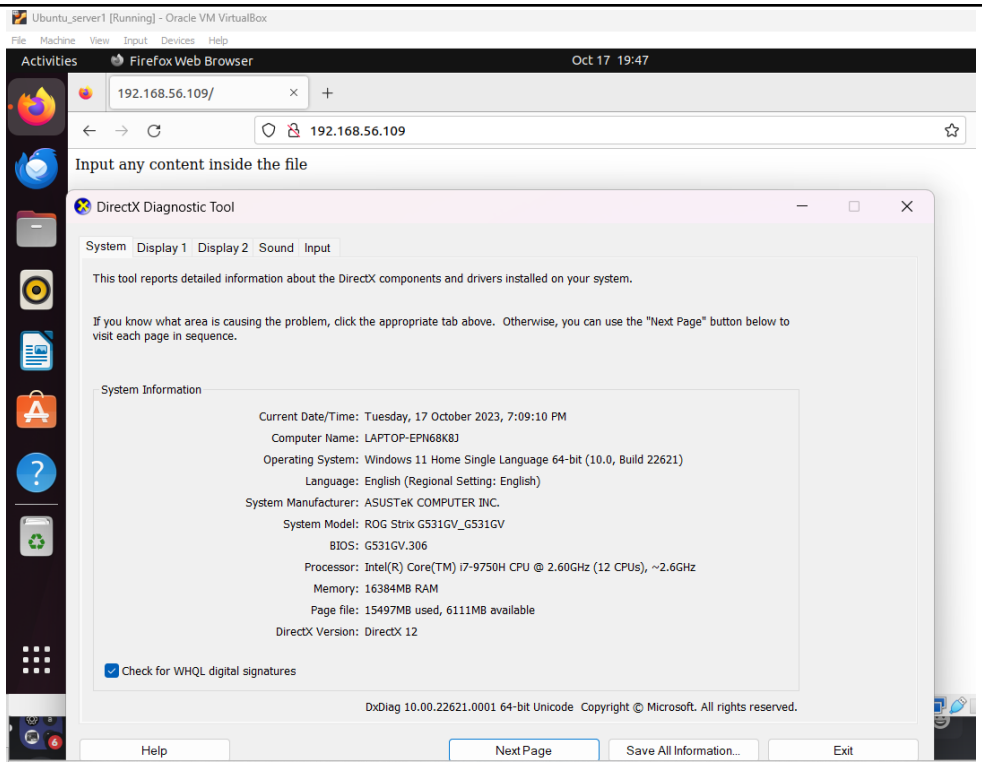


3. Run the playbook *site.yml*. Describe the changes.

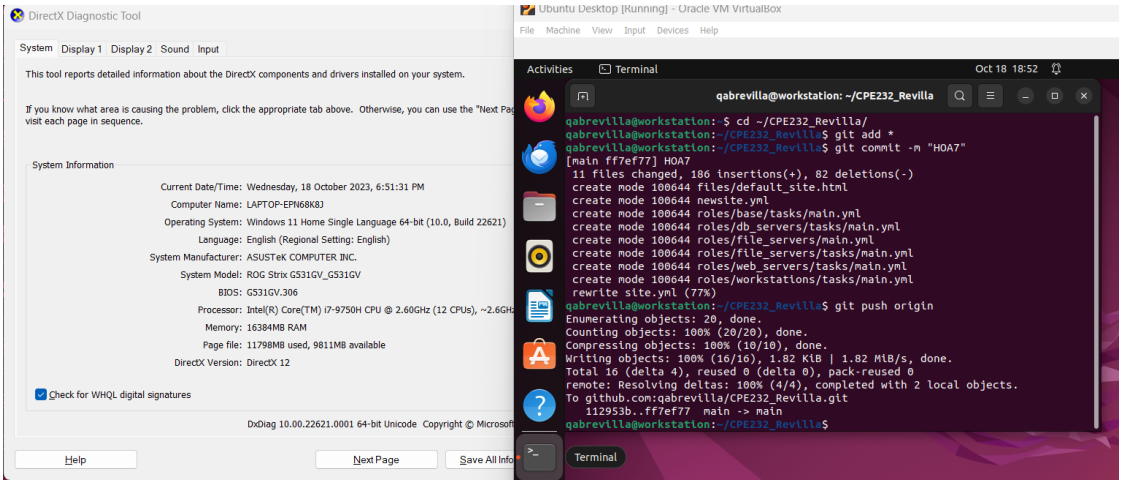


The playbook creates a new file in the directory /var/ww/html/ named index.html. Inside the index.html is a copy of the default_site.hml.

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.



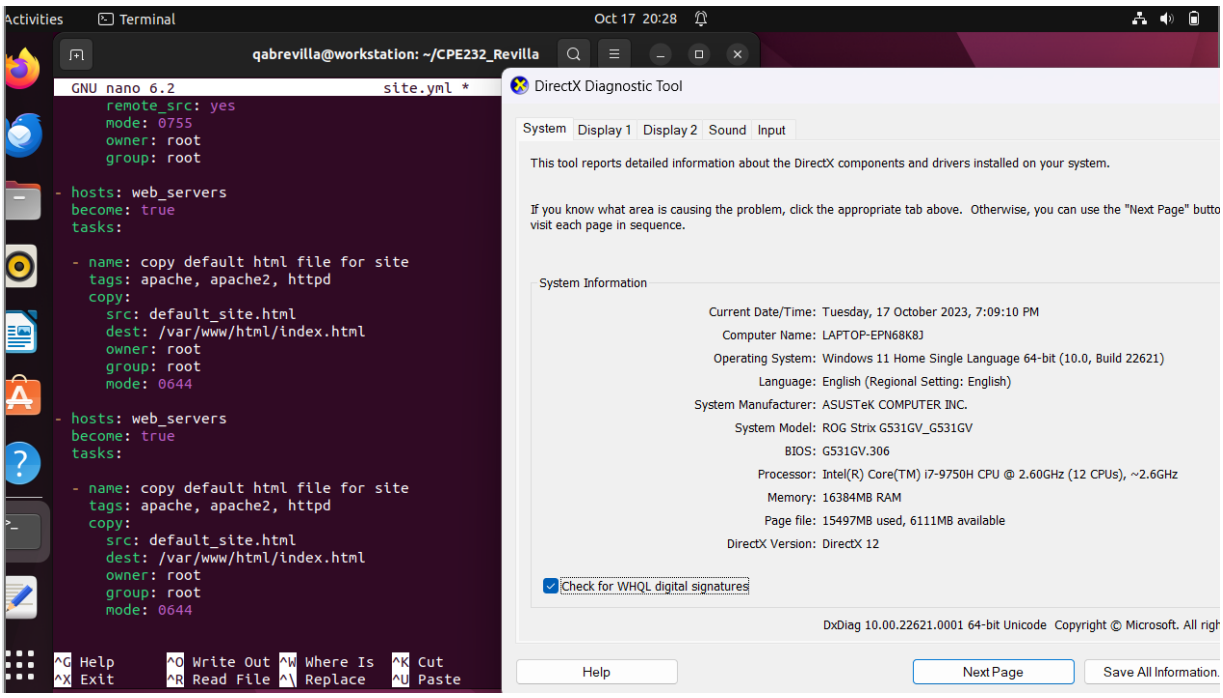
After this set of commands, it made changes in the git repository.

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

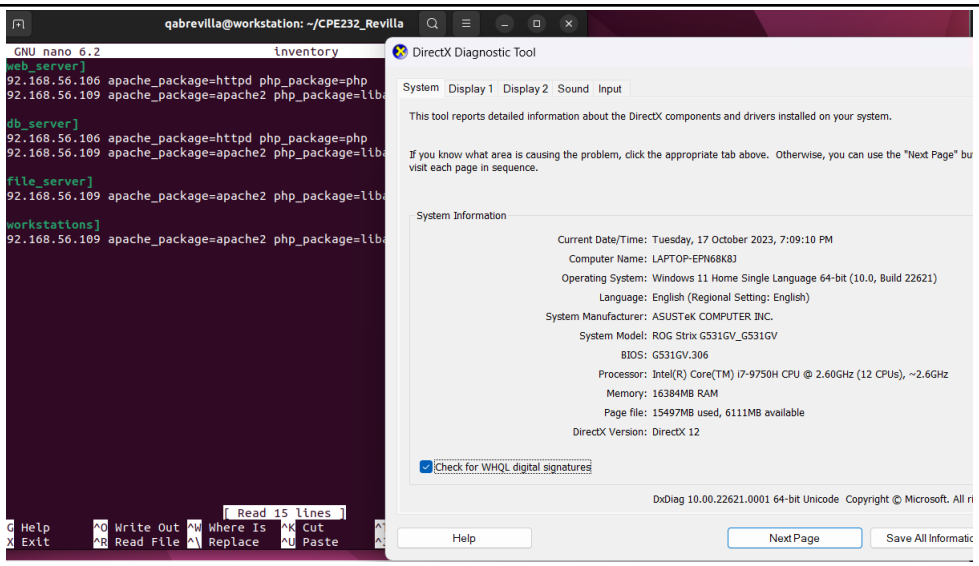
1. Edit the site.yml. Just before the web_servers play, create a new play:
   - hosts: workstations
     become: true
     tasks:

- name: install unzip
  package:
    name: unzip

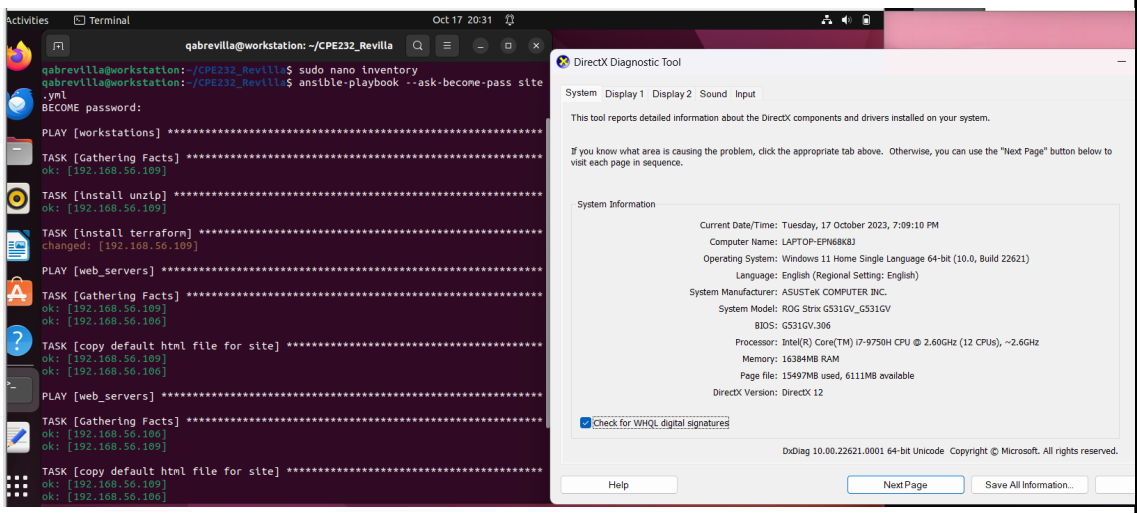
- name: install terraform
  unarchive:
    src: https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
    dest: /usr/local/bin
    remote_src: yes
    mode: 0755
    owner: root
    group: root



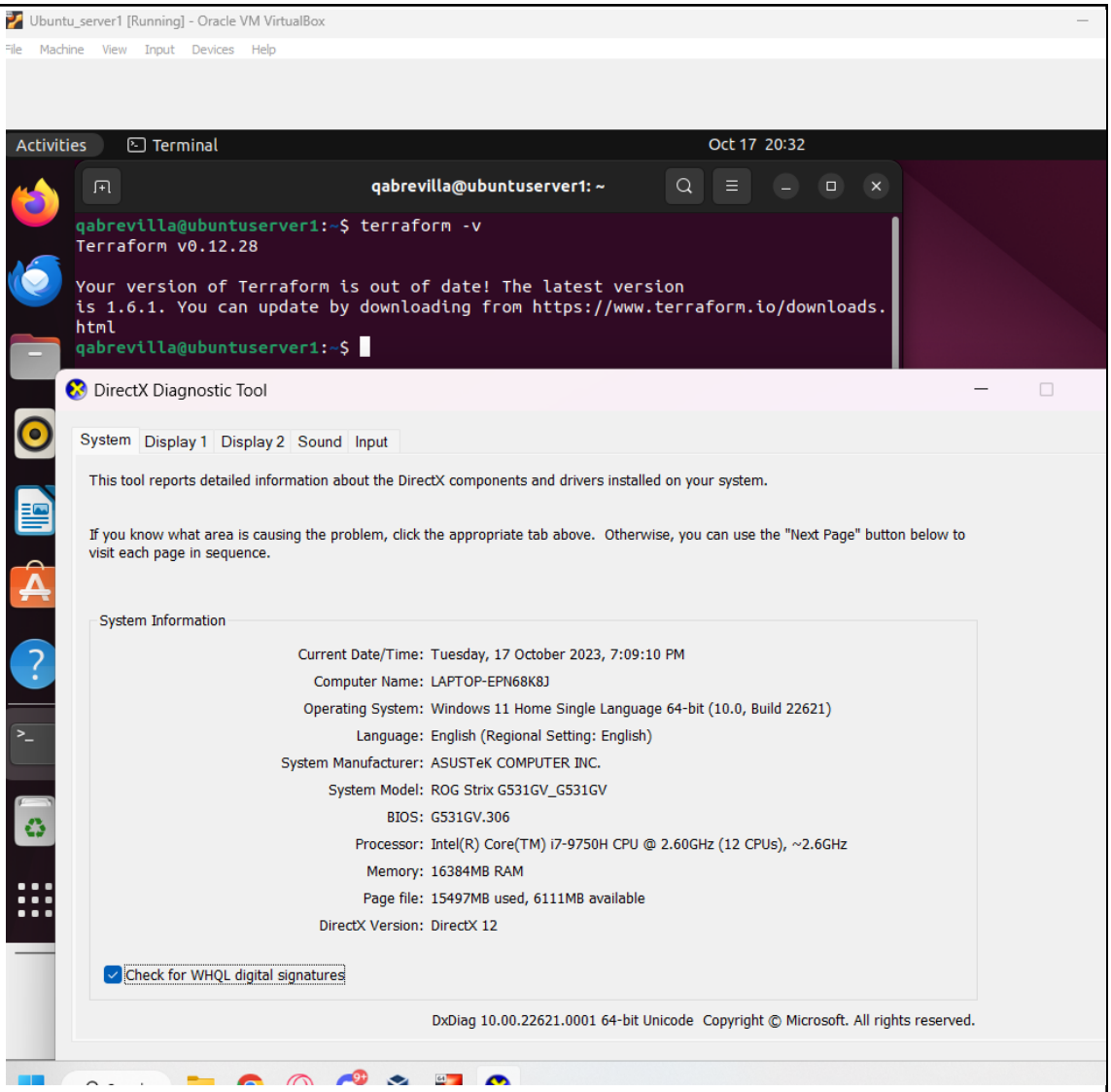
2. Edit the inventory file and add workstations group. Add any Ubuntu remote server. Make sure to remember the IP address.



3. Run the playbook. Describe the output.



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



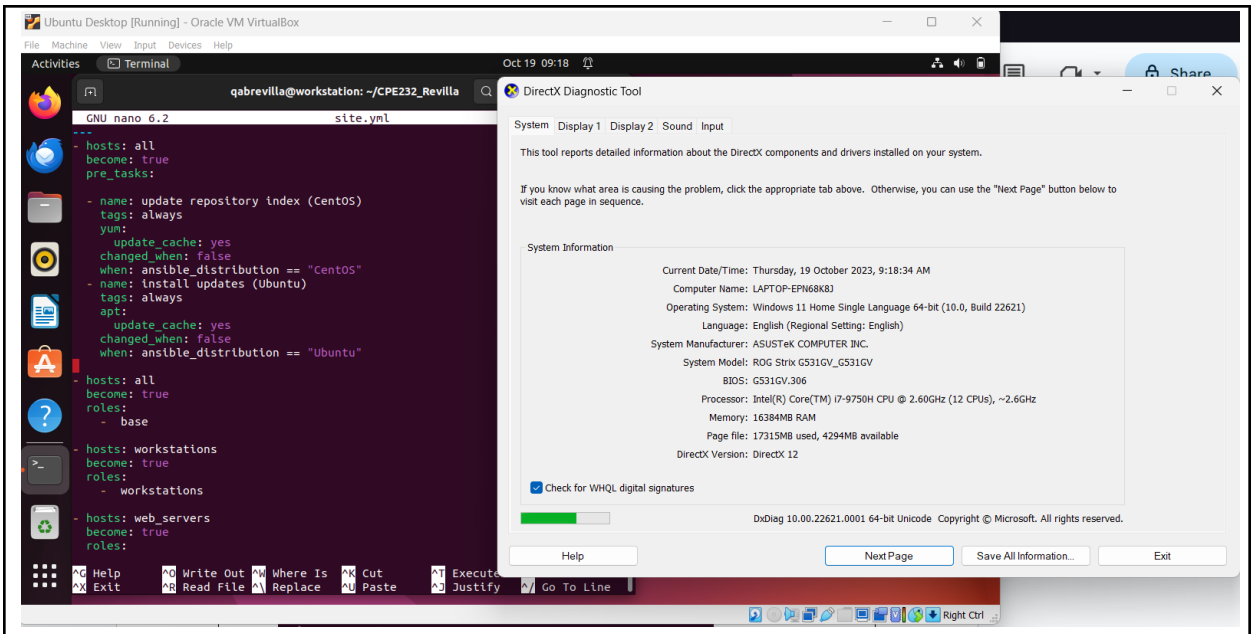
We can see that the terraform is installed in the ubuntu workstation.

Task 3: Create roles

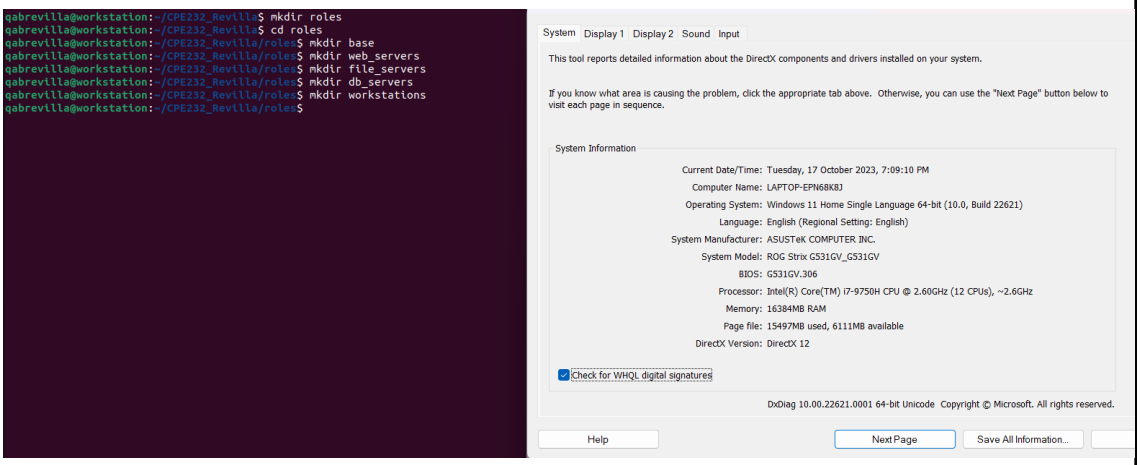
1. Edit the site.yml. Configure roles as follows: (make sure to create a copy of the old site.yml file because you will be copying the specific plays for all groups)

```
---
- 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
```

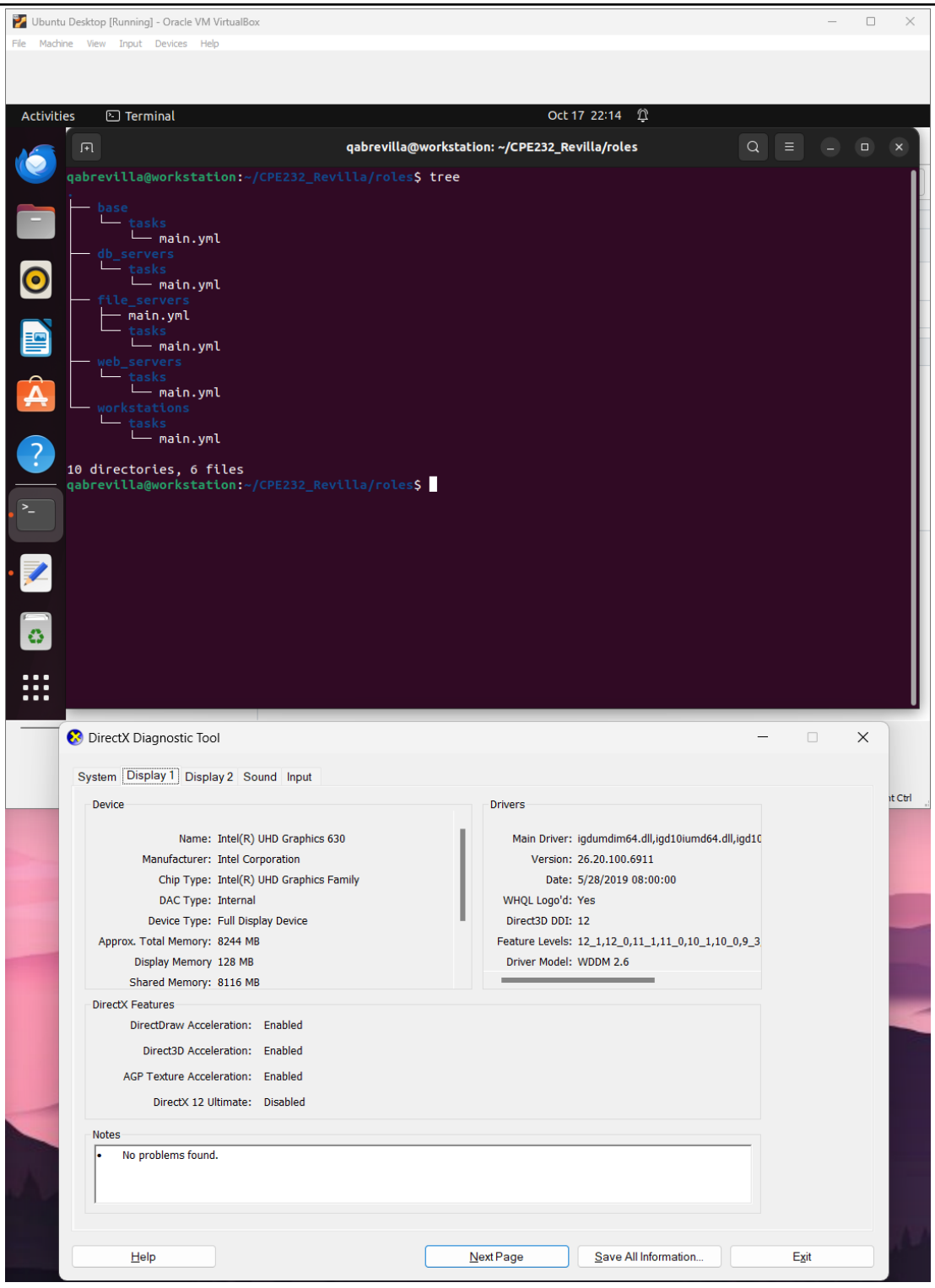
Save the file and exit.



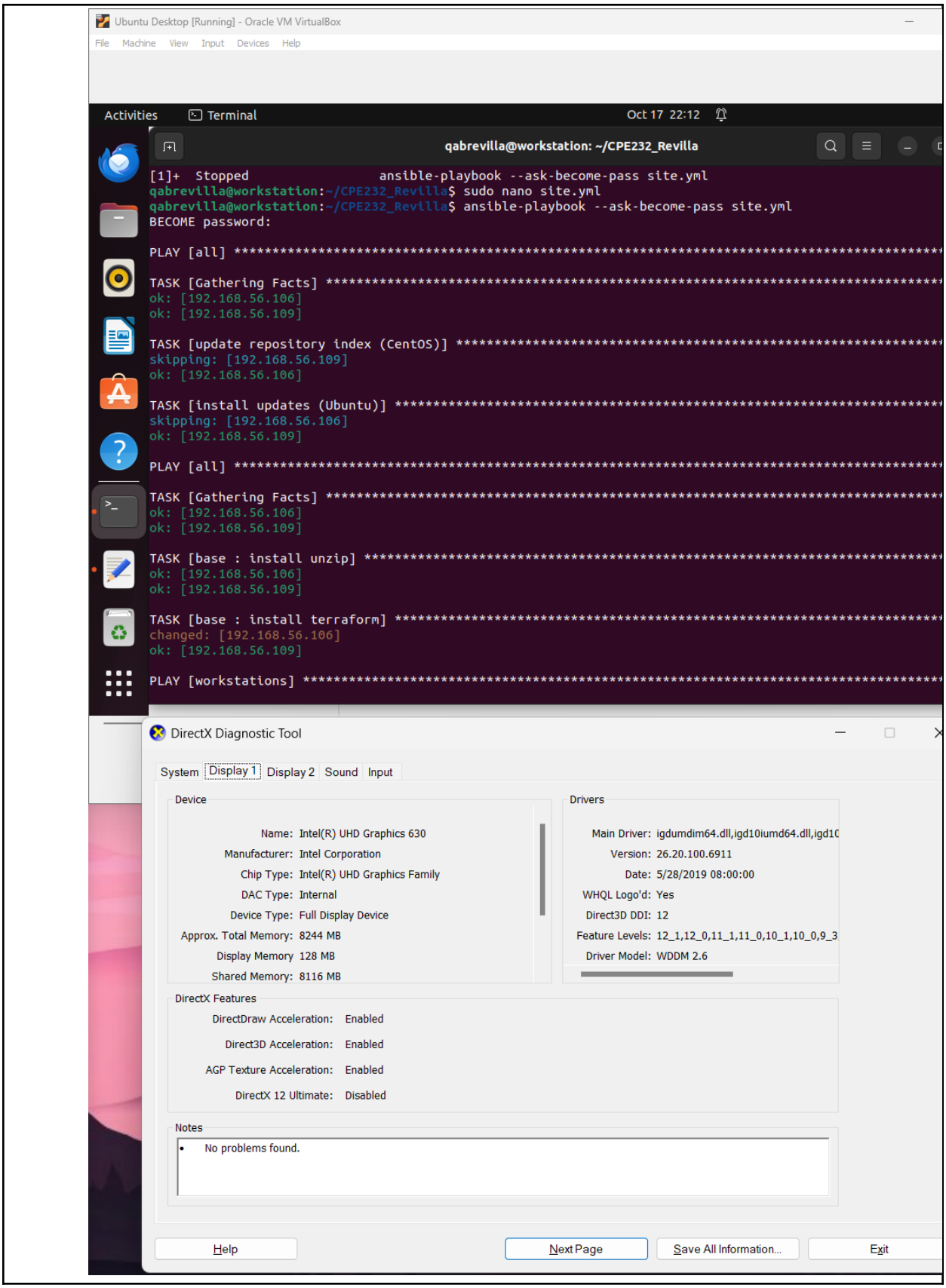
2. Under the same directory, create a new directory and name it roles. Enter the roles directory and create new directories: base, web_servers, file_servers, db_servers and workstations. For each directory, create a directory and name it tasks.

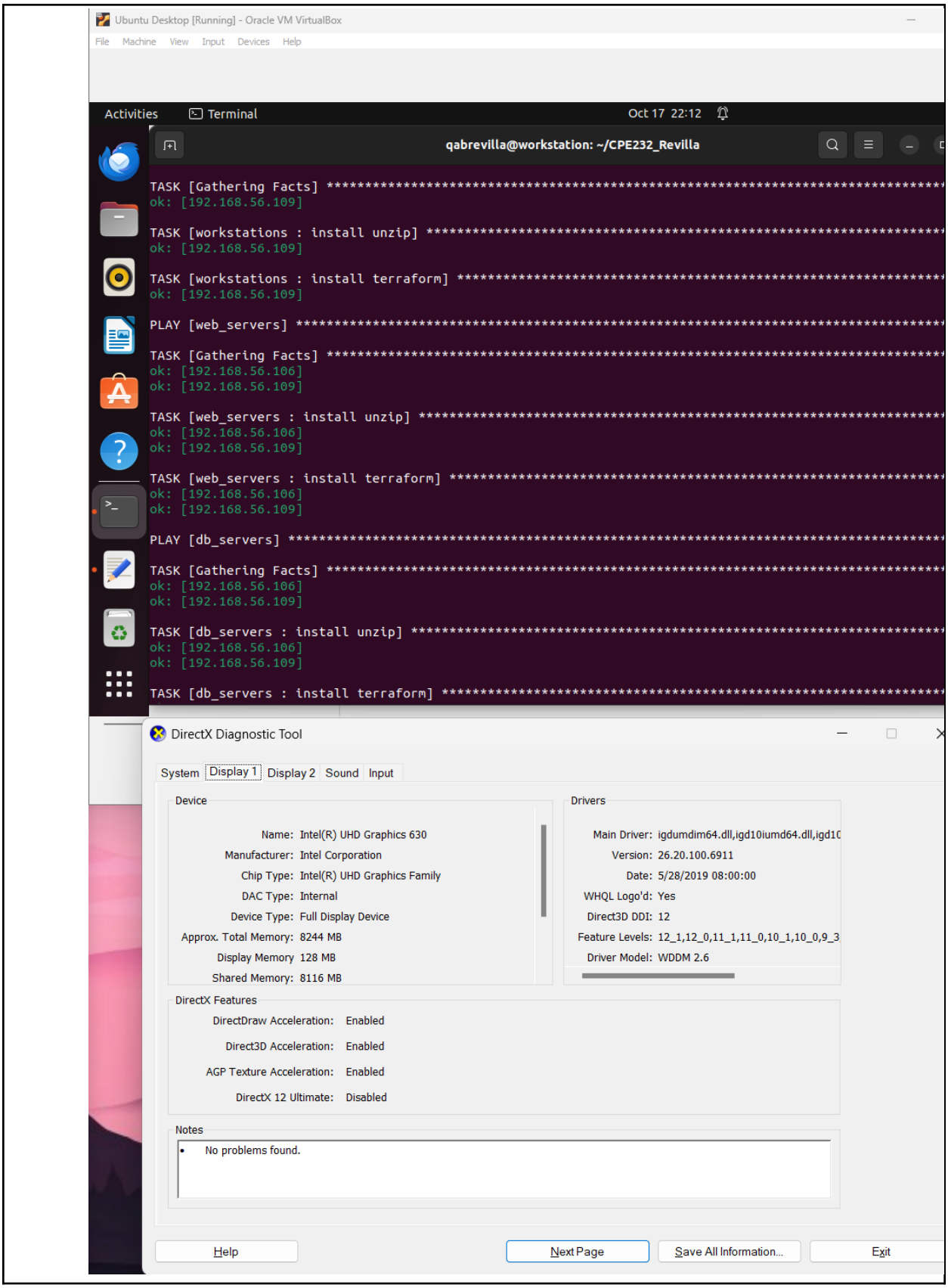


3. Go to tasks for all directory and create a file. Name it main.yml. In each of the tasks for all directories, copy and paste the code from the old site.yml file. Show all contents of main.yml files for all tasks.



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


Ubuntu Desktop [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
Oct 17 22:12
qabrevilla@workstation: ~/CPE232_Revilla
[1]+ Stopped ansible-playbook --ask-become-pass site.yml
qabrevilla@workstation:~/CPE232_Revilla$ sudo nano site.yml
qabrevilla@workstation:~/CPE232_Revilla$ ansible-playbook --ask-become-pass site.yml
BECOME password:
PLAY [all] ***
TASK [Gathering Facts] ***
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [update repository index (CentOS)] ***
skipping: [192.168.56.109]
ok: [192.168.56.106]
TASK [install updates (Ubuntu)] ***
skipping: [192.168.56.106]
ok: [192.168.56.109]
PLAY [all] ***
TASK [Gathering Facts] ***
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [base : install unzip] ***
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [base : install terraform] ***
changed: [192.168.56.106]
ok: [192.168.56.109]
PLAY [workstations] ***
DirectX Diagnostic Tool
System Display 1 Display 2 Sound Input
Device
Name: Intel(R) UHD Graphics 630
Manufacturer: Intel Corporation
Chip Type: Intel(R) UHD Graphics Family
DAC Type: Internal
Device Type: Full Display Device
Approx. Total Memory: 8244 MB
Display Memory 128 MB
Shared Memory: 8116 MB
Drivers
Main Driver: igdumdim64.dll,igd10iumd64.dll,igd10
Version: 26.20.100.6911
Date: 5/28/2019 08:00:00
WHQL Logo'd: Yes
Direct3D DDI: 12
Feature Levels: 12_1,12_0,11_1,11_0,10_1,10_0,9_3
Driver Model: WDDM 2.6
DirectX Features
DirectDraw Acceleration: Enabled
Direct3D Acceleration: Enabled
AGP Texture Acceleration: Enabled
DirectX 12 Ultimate: Disabled
Notes
No problems found.
Help
Next Page
Save All Information...
Exit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Terminal
Oct 17 22:12
qabrevilla@workstation: ~/CPE232_Revilla
TASK [Gathering Facts] ***********
ok: [192.168.56.109]
TASK [workstations : install unzip] ***********
ok: [192.168.56.109]
TASK [workstations : install terraform] ***********
ok: [192.168.56.109]
PLAY [web_servers] ***********
TASK [Gathering Facts] ***********
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [web_servers : install unzip] ***********
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [web_servers : install terraform] ***********
ok: [192.168.56.106]
ok: [192.168.56.109]
PLAY [db_servers] ***********
TASK [Gathering Facts] ***********
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [db_servers : install unzip] ***********
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [db_servers : install terraform] ***********
DirectX Diagnostic Tool
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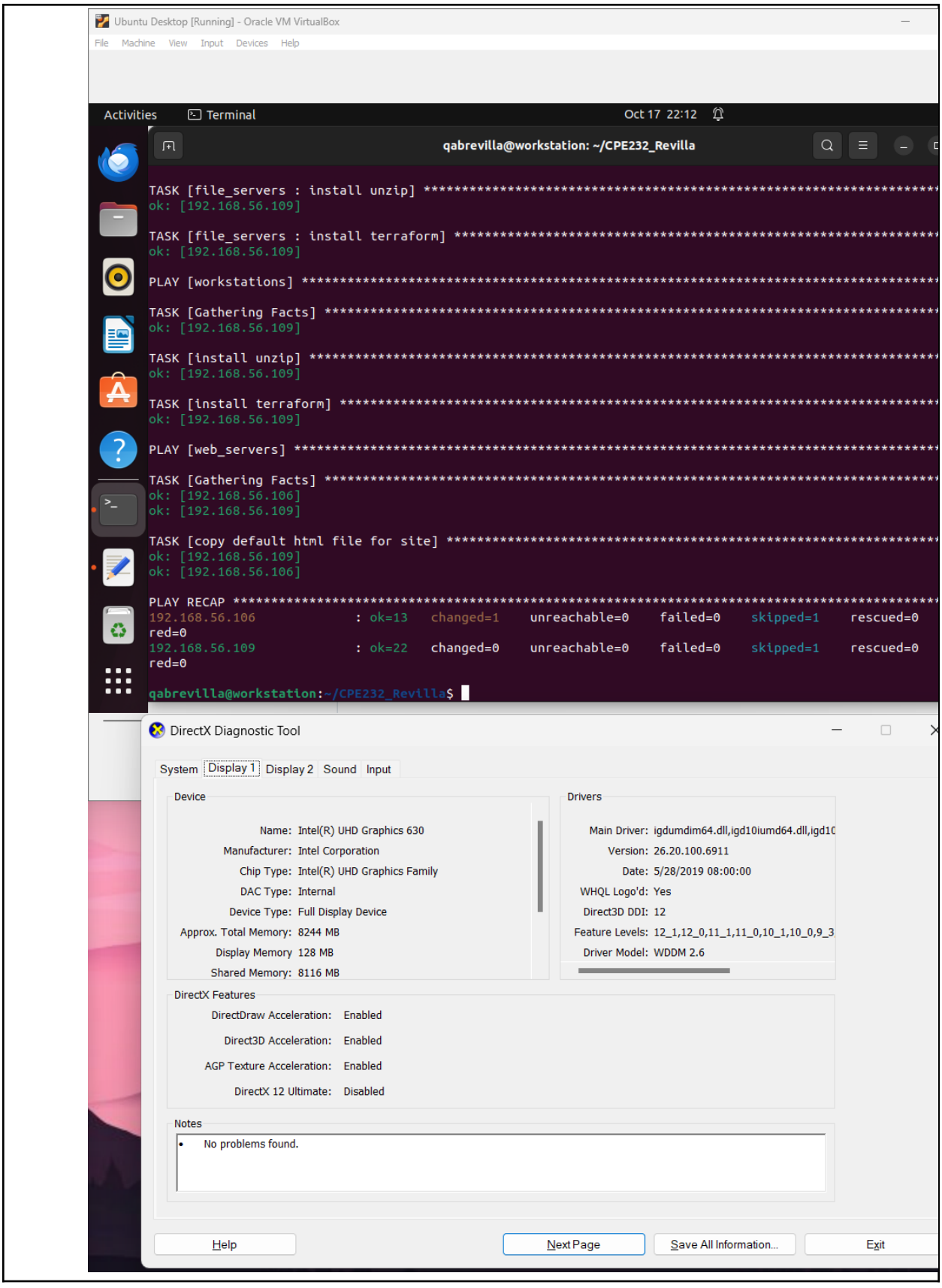
Ubuntu Desktop [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
Oct 17 22:12
qabrevilla@workstation: ~/CPE232_Revilla
TASK [file_servers : install unzip] ***********
ok: [192.168.56.109]
TASK [file_servers : install terraform] ***********
ok: [192.168.56.109]
PLAY [workstations] ***********
TASK [Gathering Facts] ***********
ok: [192.168.56.109]
TASK [install unzip] ***********
ok: [192.168.56.109]
TASK [install terraform] ***********
ok: [192.168.56.109]
PLAY [web_servers] ***********
TASK [Gathering Facts] ***********
ok: [192.168.56.106]
ok: [192.168.56.109]
TASK [copy default html file for site] ***********
ok: [192.168.56.109]
ok: [192.168.56.106]
PLAY RECAP ***********
192.168.56.106 : ok=13 changed=1 unreachable=0 failed=0 skipped=1 rescued=0
red=0
192.168.56.109 : ok=22 changed=0 unreachable=0 failed=0 skipped=1 rescued=0
red=0
qabrevilla@workstation:~/CPE232_Revilla$
DirectX Diagnostic Tool
System Display 1 Display 2 Sound Input
Device
Name: Intel(R) UHD Graphics 630
Manufacturer: Intel Corporation
Chip Type: Intel(R) UHD Graphics Family
DAC Type: Internal
Device Type: Full Display Device
Approx. Total Memory: 8244 MB
Display Memory 128 MB
Shared Memory: 8116 MB
Drivers
Main Driver: igdumdim64.dll,igd10iumd64.dll,igd10
Version: 26.20.100.6911
Date: 5/28/2019 08:00:00
WHQL Logo'd: Yes
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Feature Levels: 12_1,12_0,11_1,11_0,10_1,10_0,9_3
Driver Model: WDDM 2.6
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DirectDraw Acceleration: Enabled
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It successfully runs all tasks using different roles. First it updates for both servers, next is it installs unzip and terraform in both Ubuntu and centos, and lastly it copies the default html for both servers.

Reflections:

Answer the following:

1. What is the importance of creating roles?

   In the playbook roles are created to group multiple tasks. This way you can manage access and control the command effectively. It can help the administrator, developer, or users to access control and maintain the efficiency of having the tasks.

2. What is the importance of managing files?

   Managing files is important because it allows an efficient way of maintaining and organizing your files in remote servers. It is very effective in keeping file management and essential in controlling ansible remote servers. For me it is also good habit to manage files especially when collaborating with other developers.

Conclusion:

In this activity, I was able to learn how to manage files in remote servers and create roles in ansible. Using a playbook that has roles and programmed to manage files can create a lot of potential and can be used in different tasks. In line with the activity, we are able to install terraform in ubuntu server and centos server using one command in playbook site.yml.