Name: Rustom C. Cariño	Date Performed: 10/17/2023
Course/Section: CPE31S5	Date Submitted: 10/17/2023
Instructor: Engr. Roman Richard	Semester and SY: 1st sem/2023-2024

Activity 7: Managing Files and Creating Roles in Ansible

1. **Objectives:**

1.1 Manage files in remote servers

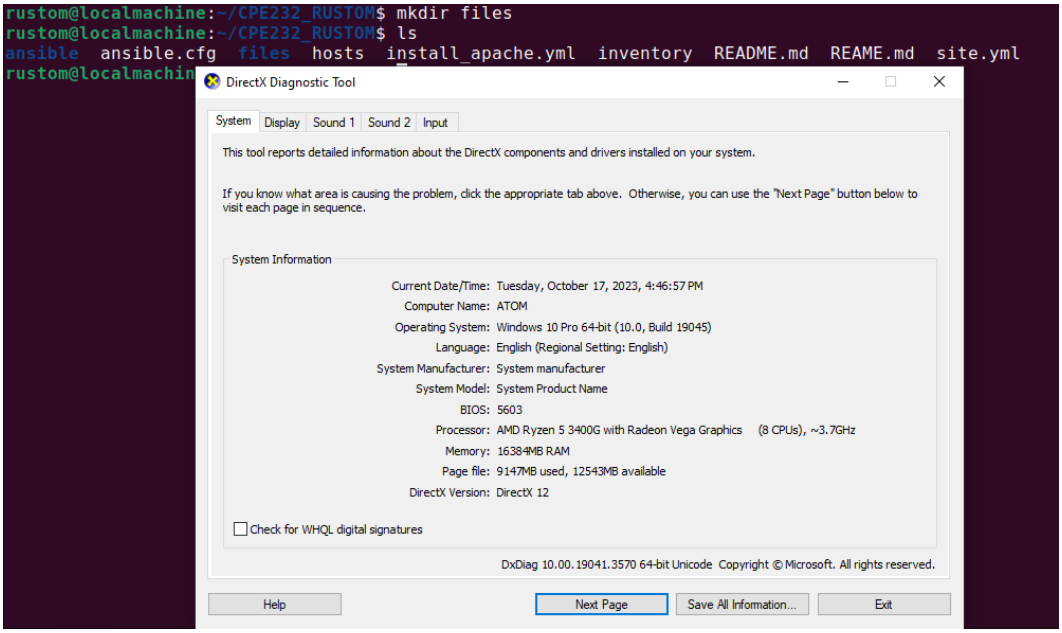
1.2 Implement roles in ansible

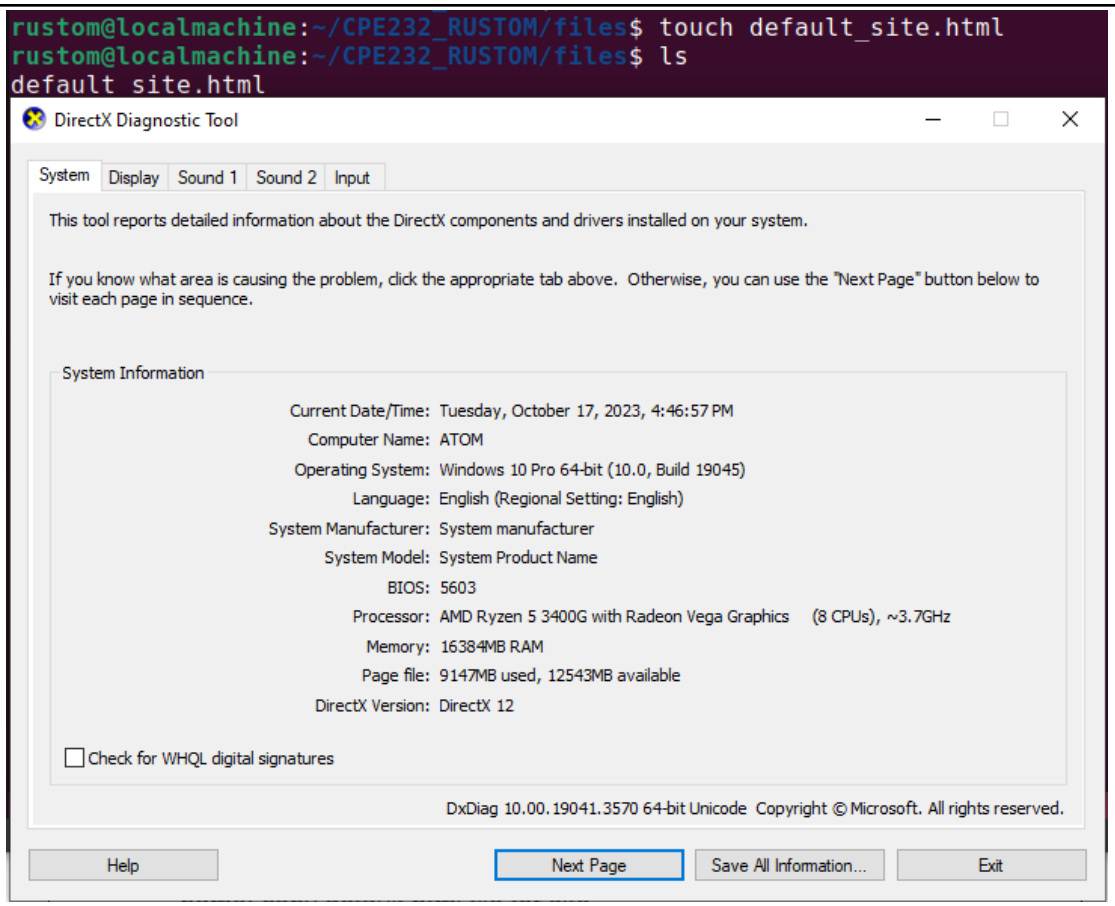
2. **Discussion**:

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

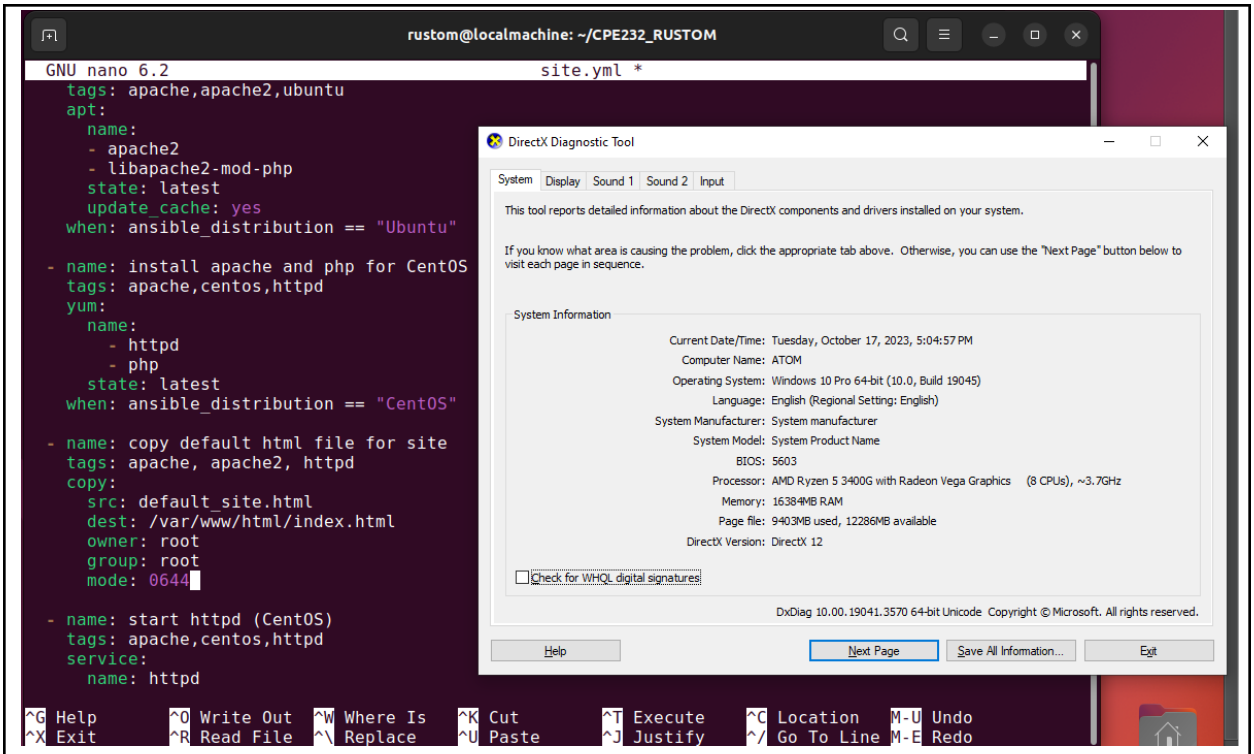
1. Using the previous directory we created, create a directory, and named it "*files*." Create a file inside that directory and name it "*default_site.html*." Edit the file and put basic HTML syntax. Any content will do, as long as it will display text later. Save the file and exit.



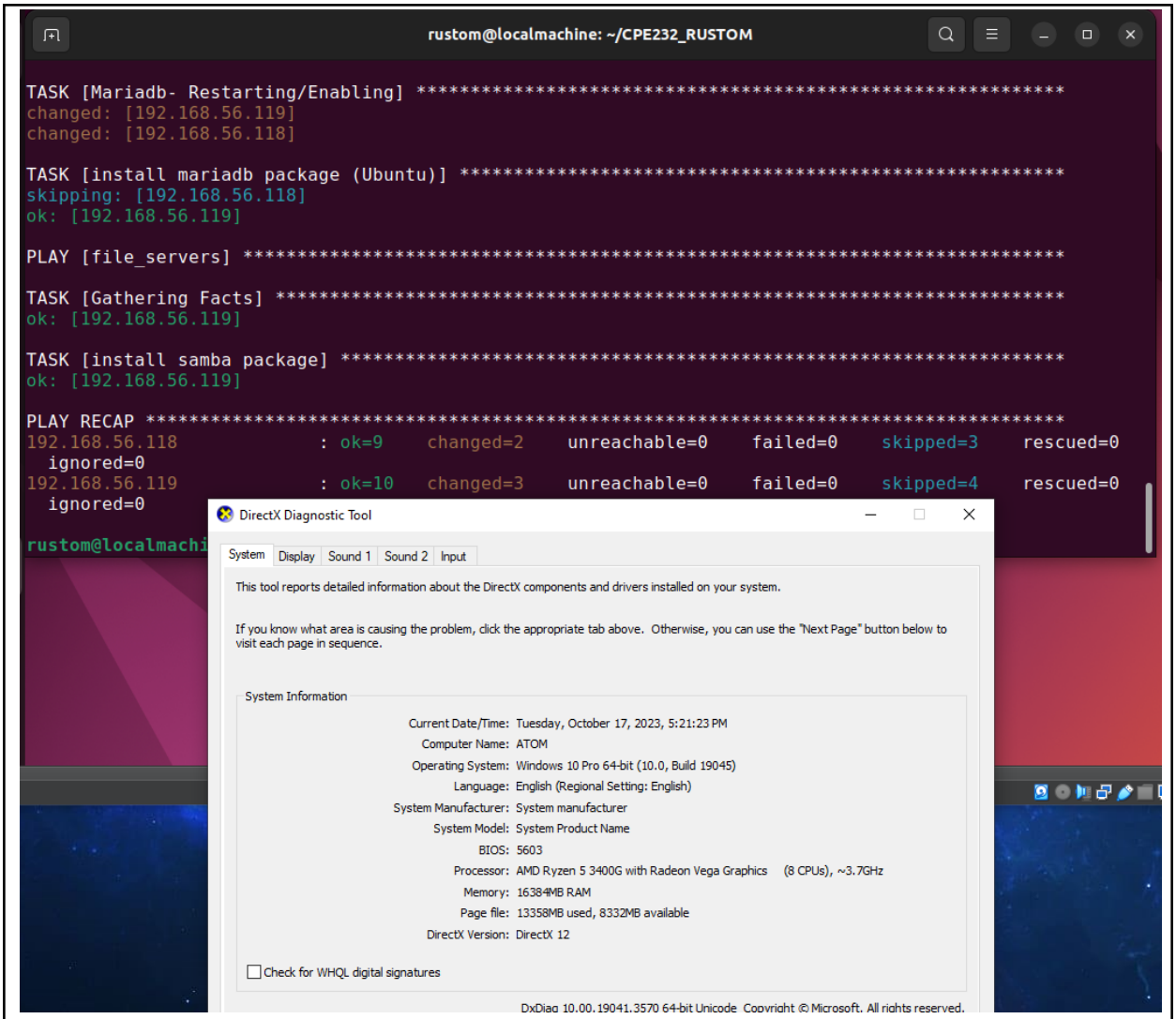


2. Edit the *site.yml* file and just below the *web_servers* play, create a new file to copy the default html file for site:

```
- 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
```

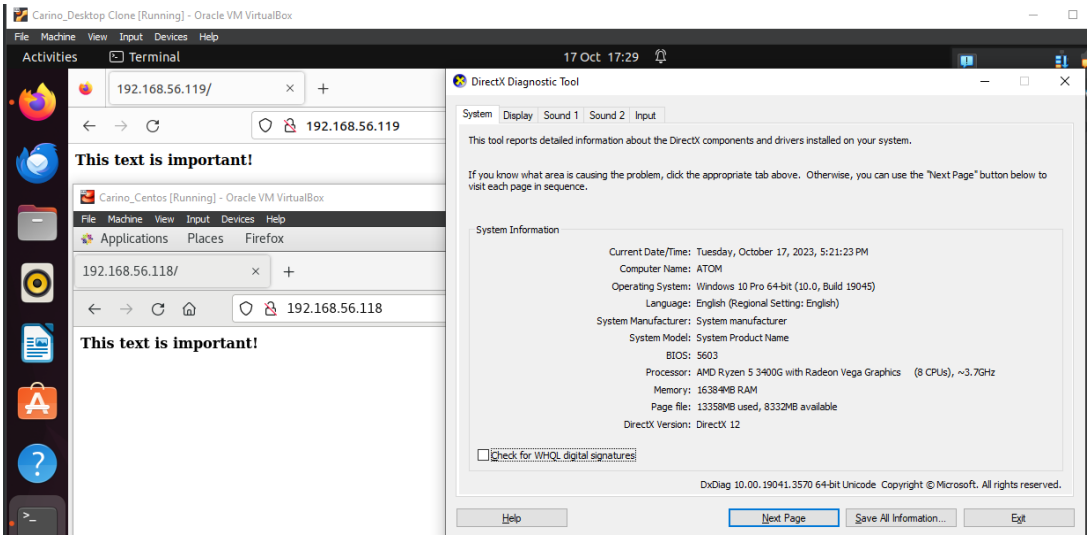


3. Run the playbook *site.yml*. Describe the changes.



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.

```
rustom@localmachine:~/CPE232_RUSTOM/files$ cat default_site.
<strong> This text is important!</strong>
```

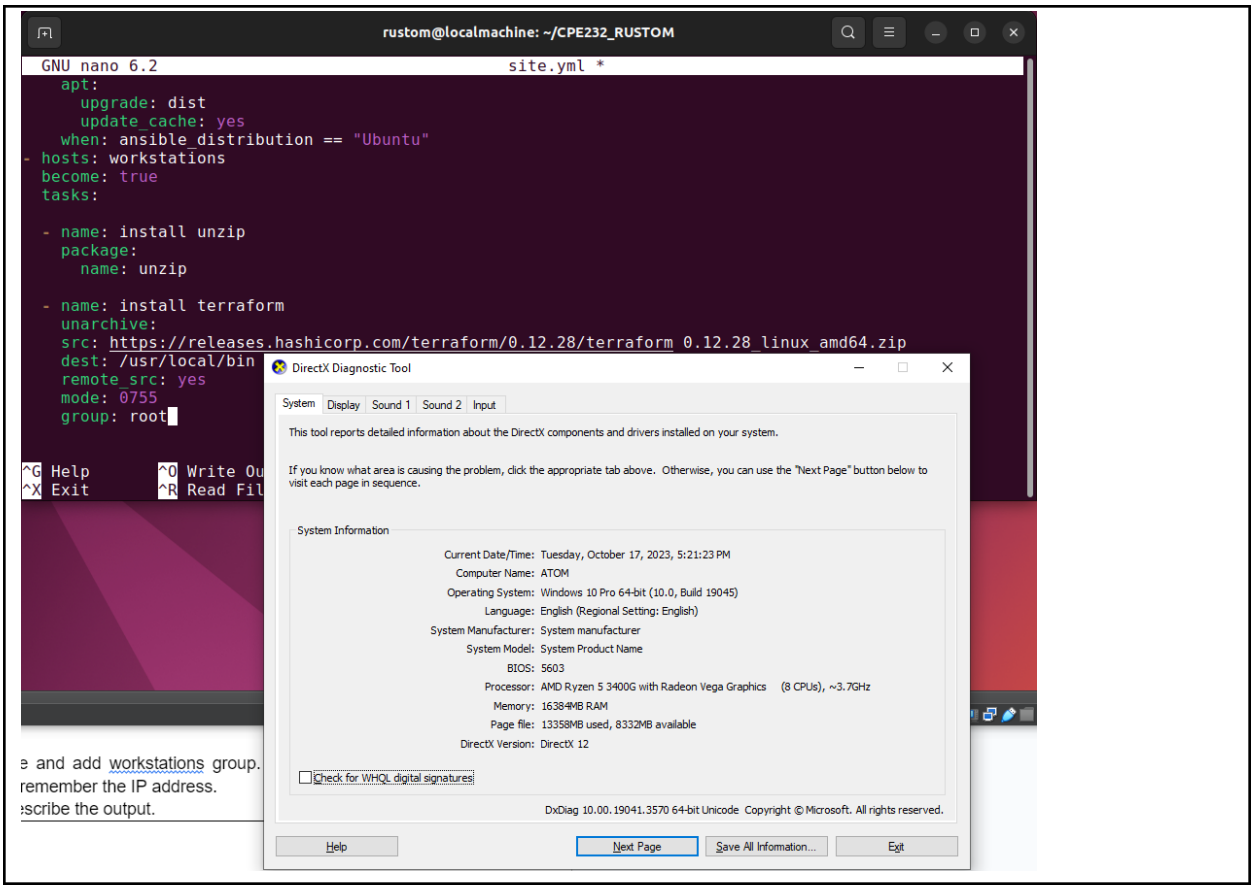


5. Sync your local repository with GitHub and describe the changes.

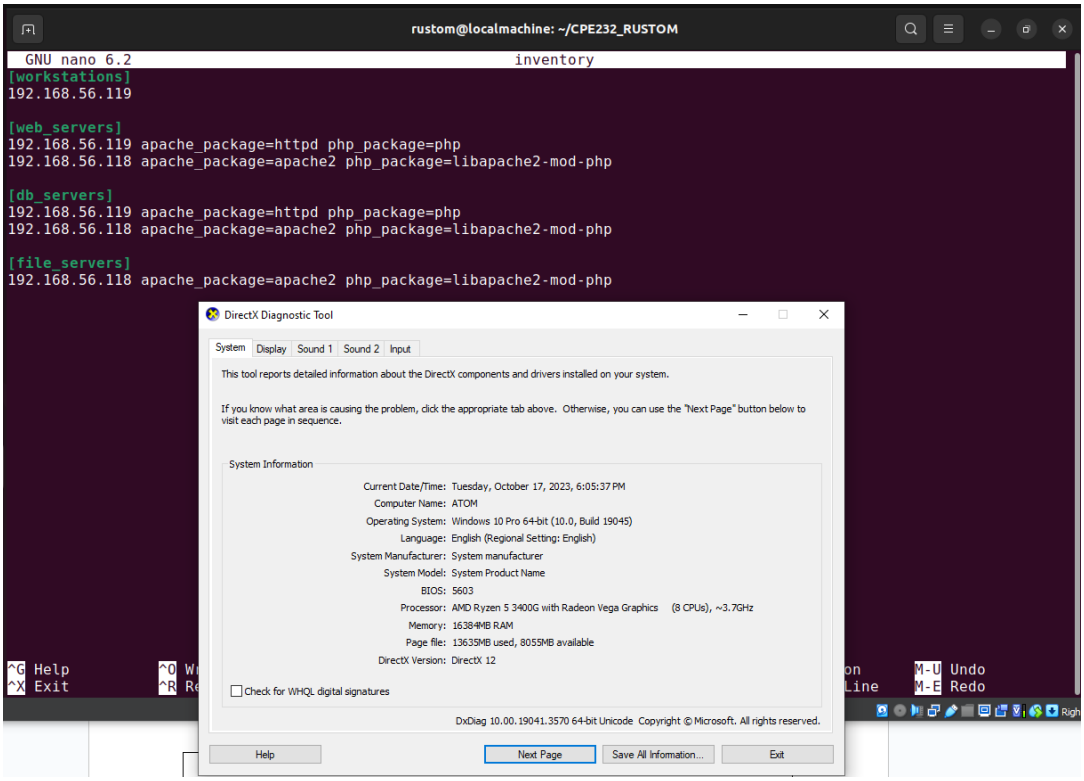
Task 2: Download a file and extract it to a remote server

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

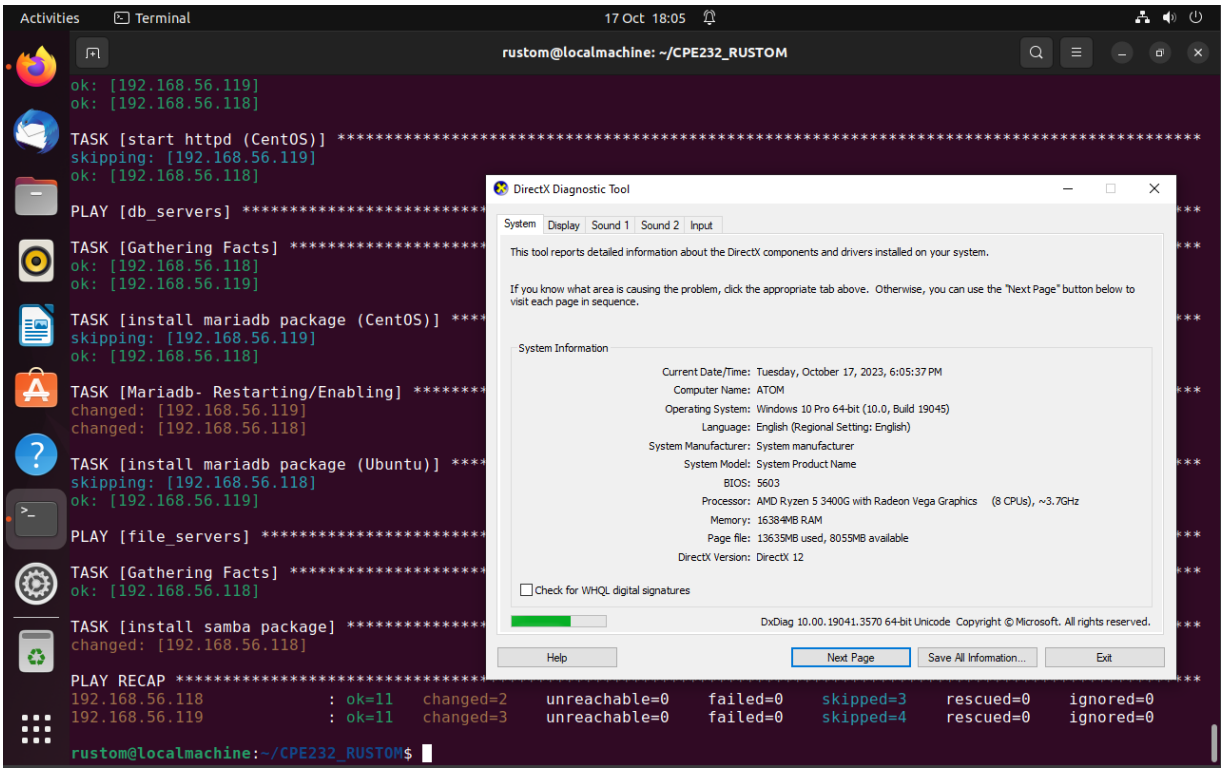
```
- hosts: workstations
  become: true
  tasks:

  - 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
```


rustom@localmachine: ~/CPE232_RUSTOM
GNU nano 6.2 site.yml *
apt:
upgrade: dist
update_cache: yes
when: ansible_distribution == "Ubuntu"
- 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
group: root
^G Help
^X Exit
^O Write Ou
^R Read Fil
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: Tuesday, October 17, 2023, 5:21:23 PM
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: 13358MB used, 8332MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
DxDiag 10.00.19041.3570 64-bit Unicode Copyright © Microsoft. All rights reserved.
Help
Next Page
Save All Information...
Exit
e and add workstations group.
remember the IP address.
scribe the output.

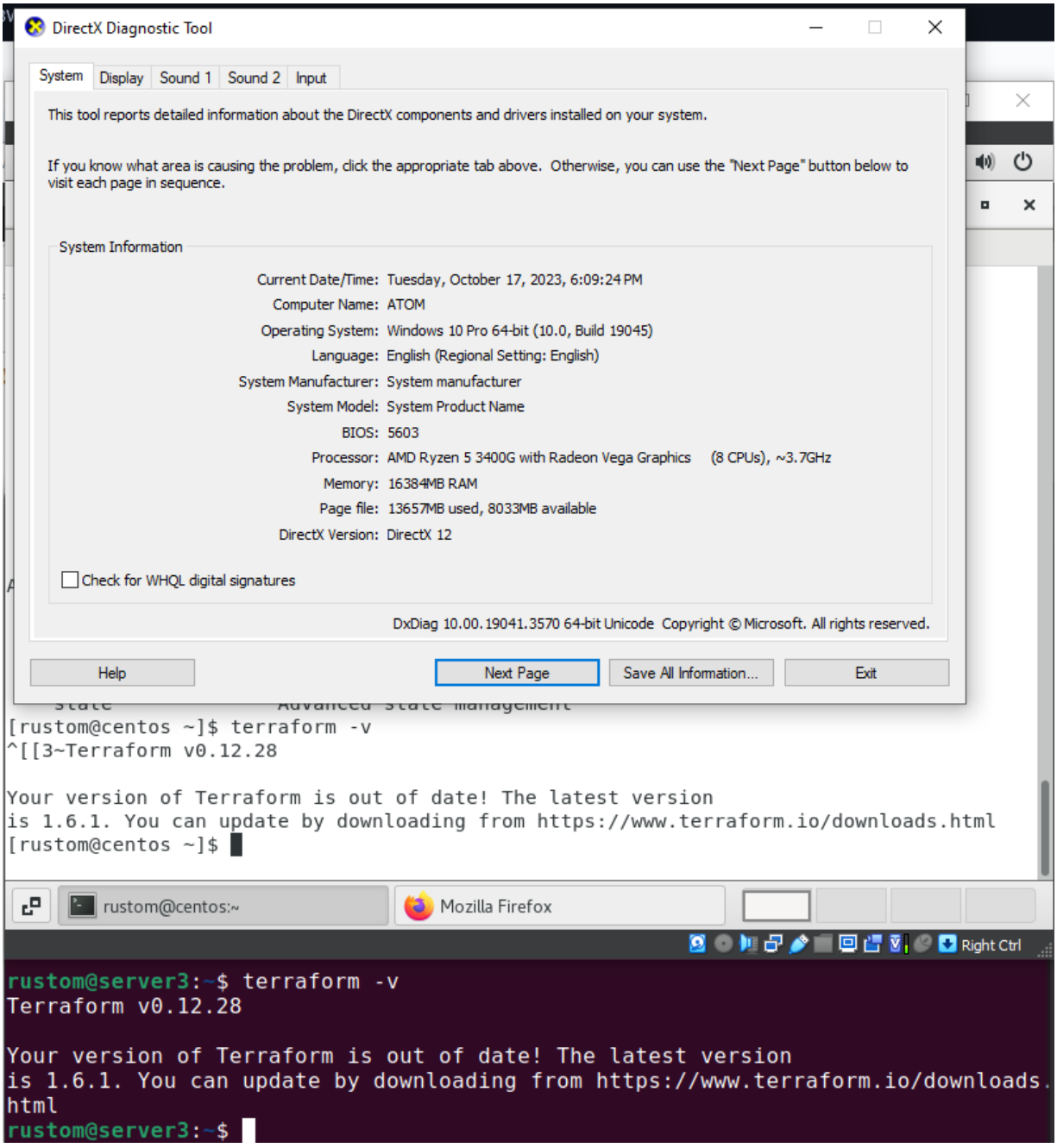
2. Edit the inventory file and add workstations group. Add any Ubuntu remote server. Make sure to remember the IP address.



3. Run the playbook. Describe the output.



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

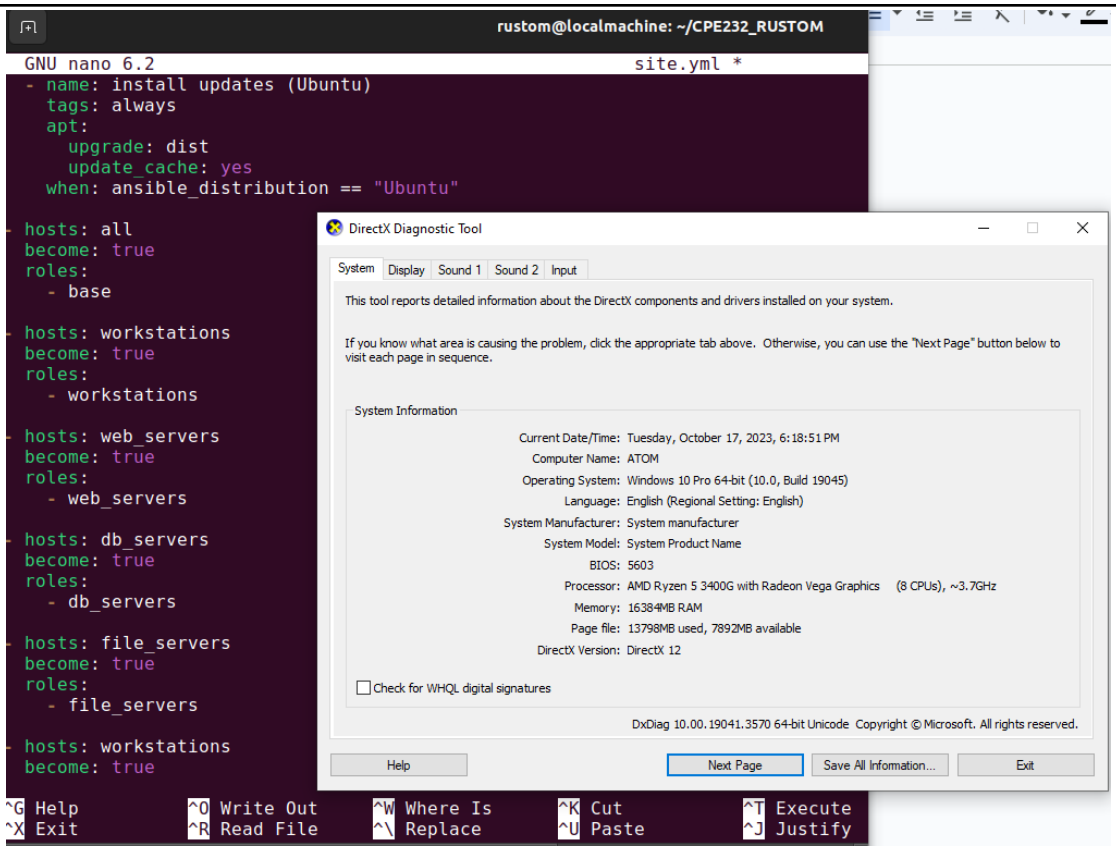


- **It displays the status of the terraform of your virtual machine and it also provides the latest version for you to download.**

Task 3: Create roles

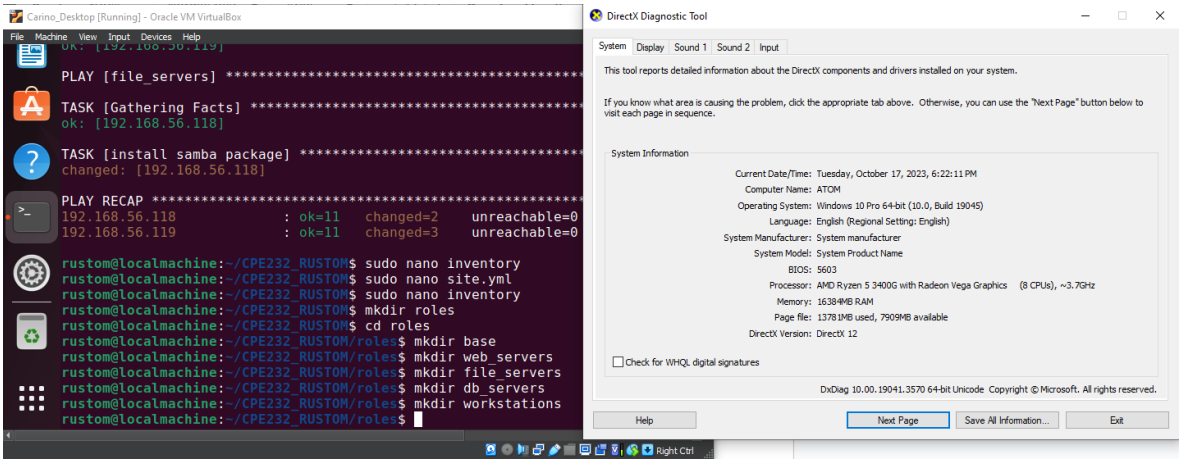
1. Edit the site.yml. Configure roles as follows: (make sure to create a copy of the old site.yml file because you will be copying the specific plays for all groups)

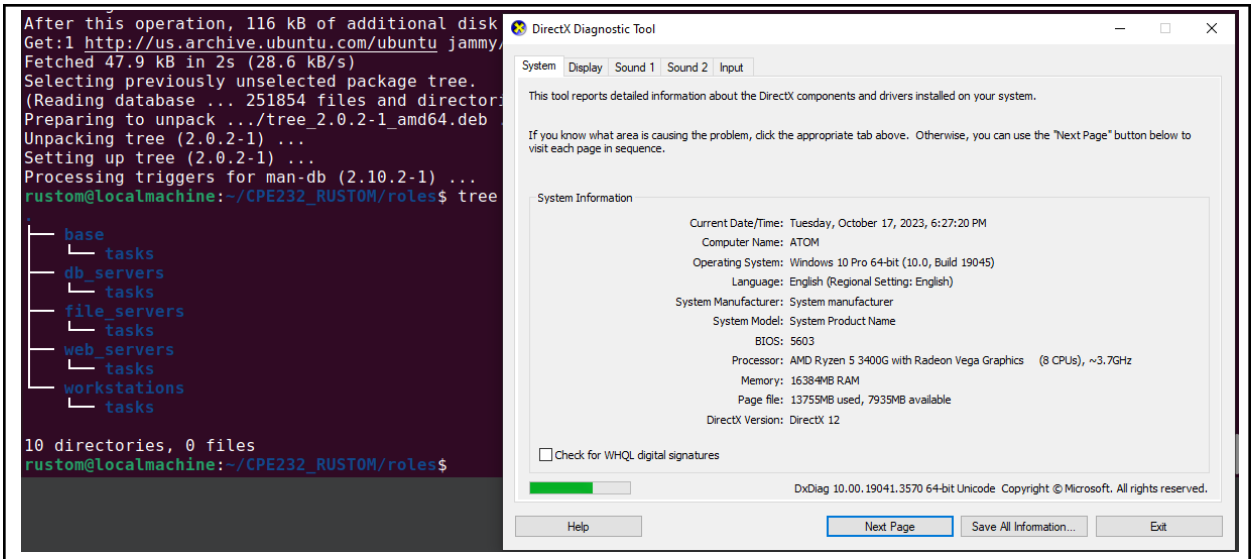
```
---
- hosts: all
  become: true
  pre_tasks:

  - 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
```



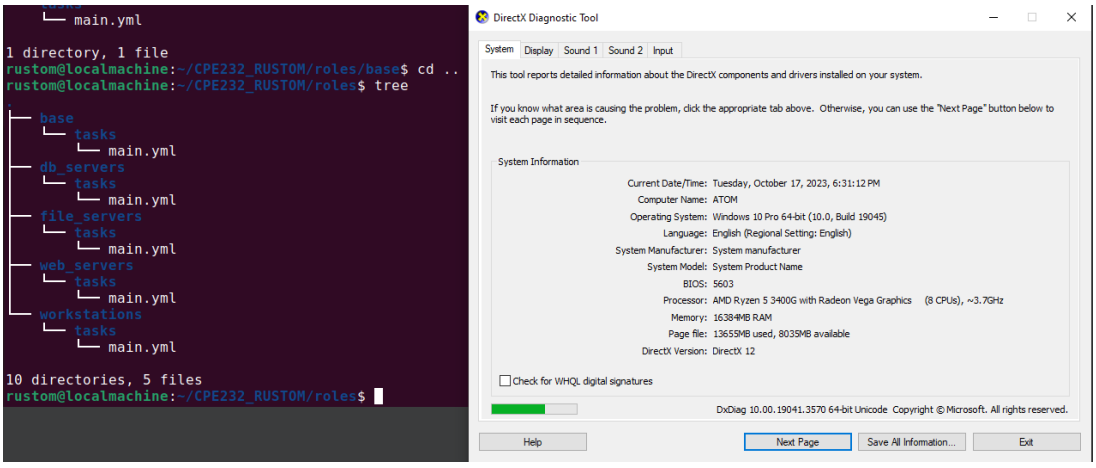
Save the file and exit.

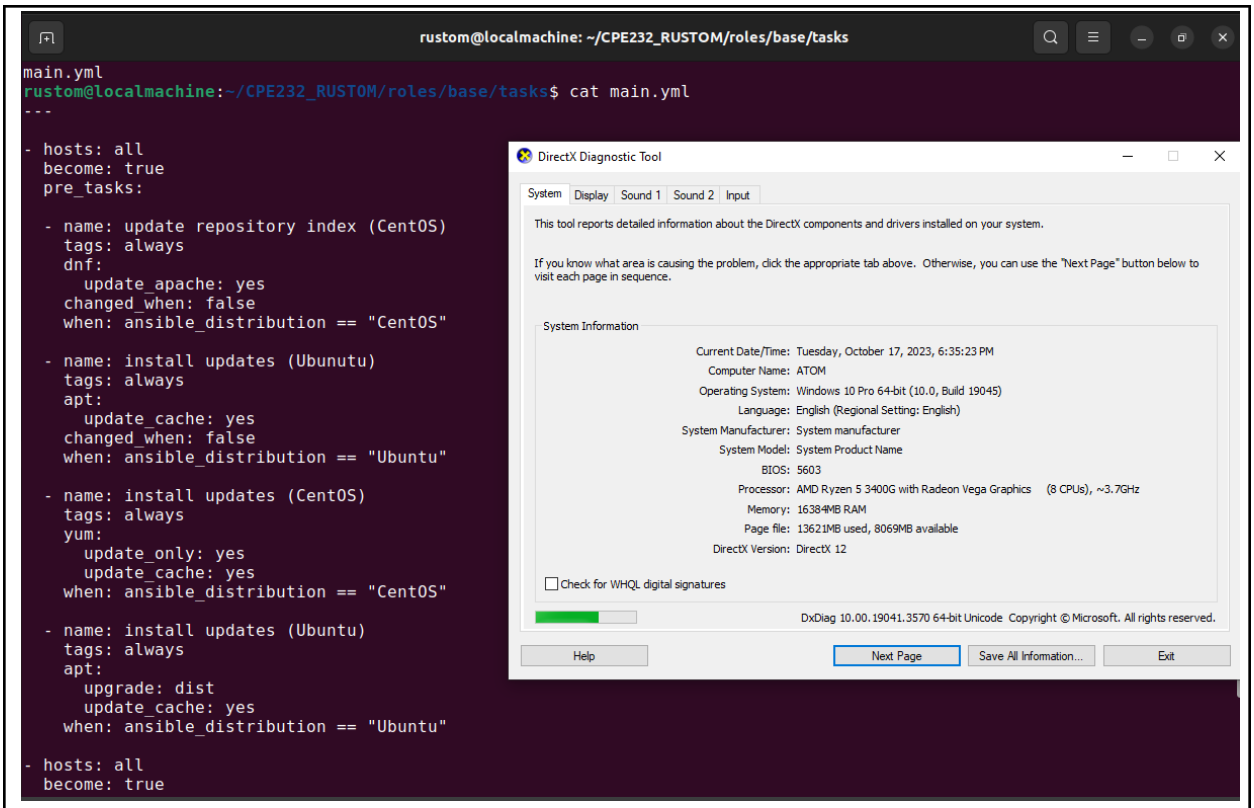
2. Under the same directory, create a new directory and name it roles. Enter the roles directory and create new directories: base, web_servers, file_servers, db_servers and workstations. For each directory, create a directory and name it tasks.



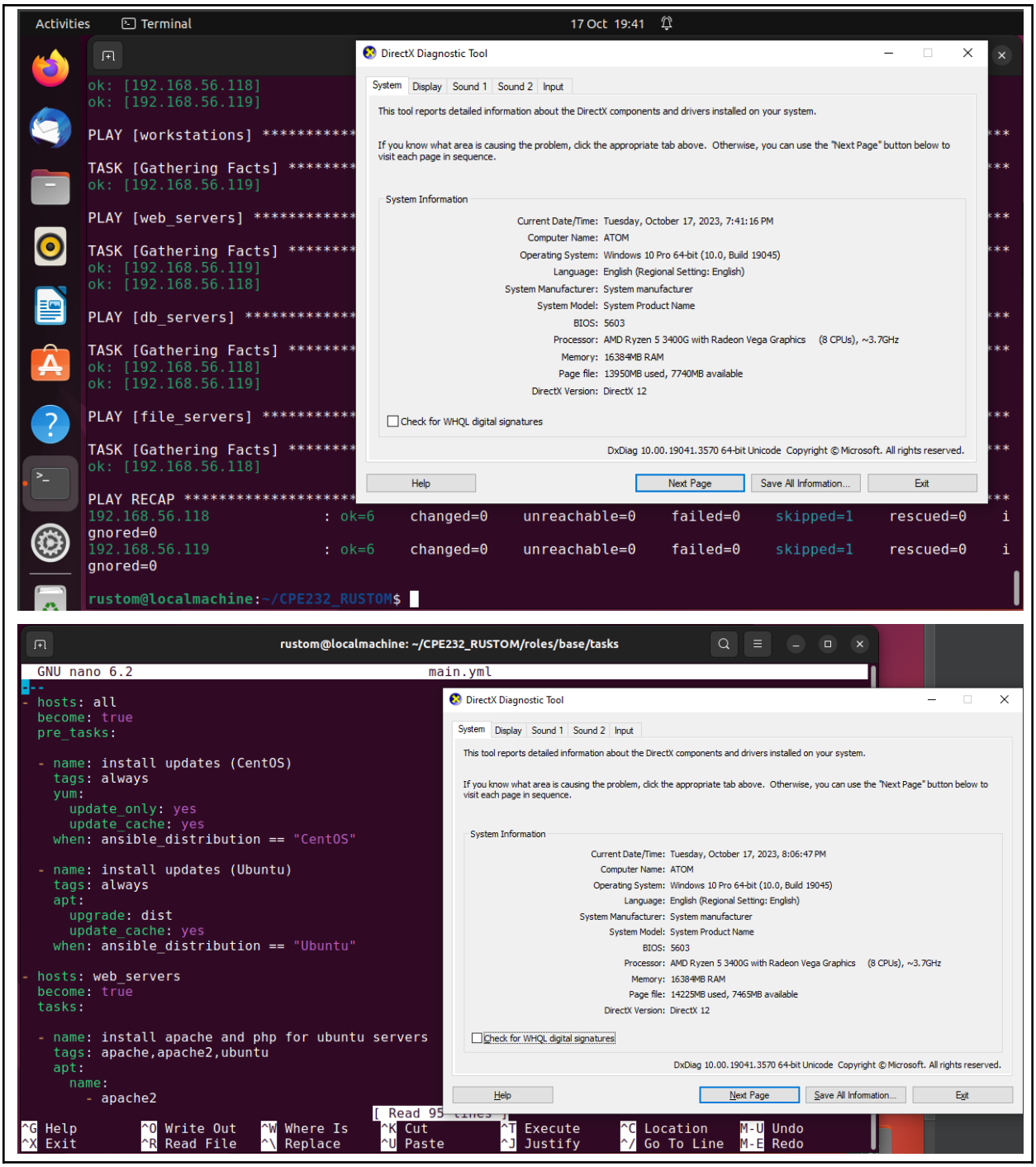


3. Go to tasks for all directory and create a file. Name it main.yml. In each of the tasks for all directories, copy and paste the code from the old site.yml file. Show all contents of main.yml files for all tasks.





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


Activities
Terminal
17 Oct 19:41
ok: [192.168.56.118]
ok: [192.168.56.119]
PLAY [workstations] ***********
TASK [Gathering Facts] ********
ok: [192.168.56.119]
PLAY [web_servers] ************
TASK [Gathering Facts] ********
ok: [192.168.56.119]
ok: [192.168.56.118]
PLAY [db_servers] *************
TASK [Gathering Facts] ********
ok: [192.168.56.118]
ok: [192.168.56.119]
PLAY [file_servers] ***********
TASK [Gathering Facts] ********
ok: [192.168.56.118]
PLAY RECAP ********************
192.168.56.118 : ok=6 changed=0 unreachable=0 failed=0 skipped=1 rescued=0 i
gnored=0
192.168.56.119 : ok=6 changed=0 unreachable=0 failed=0 skipped=1 rescued=0 i
gnored=0
rustom@localmachine:~/CPE232_RUSTOM$
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: Tuesday, October 17, 2023, 7:41:16 PM
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: 13950MB used, 7740MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
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Help
Next Page
Save All Information...
Exit

rustom@localmachine: ~/CPE232_RUSTOM/roles/base/tasks
GNU nano 6.2 main.yml

- hosts: all
become: true
pre_tasks:
- 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"
- hosts: web_servers
become: true
tasks:
- name: install apache and php for ubuntu servers
tags: apache,apache2,ubuntu
apt:
name:
- apache2
[Read 95 lines]
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo
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: Tuesday, October 17, 2023, 8:06:47 PM
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: 14225MB used, 7465MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
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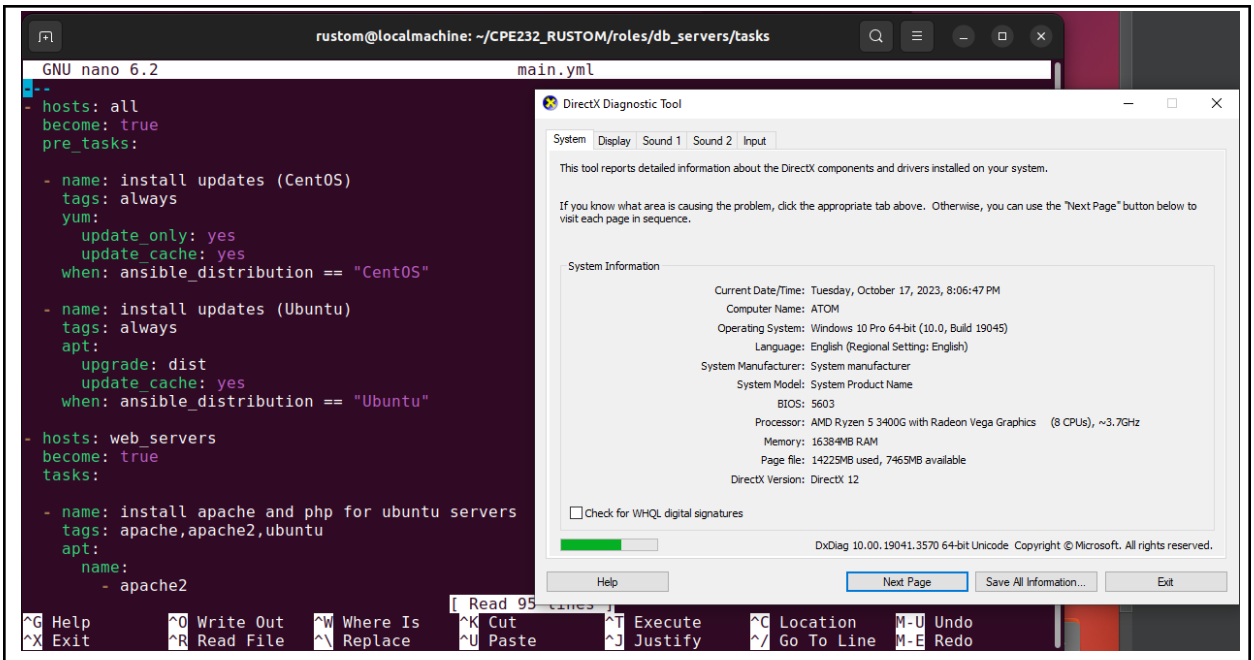
Help
Next Page
Save All Information...
Exit


rustom@localmachine: ~/CPE232_RUSTOM/roles/db_servers/tasks
GNU nano 6.2 main.yml

- hosts: all
become: true
pre_tasks:
- 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"
- hosts: web_servers
become: true
tasks:
- name: install apache and php for ubuntu servers
tags: apache,apache2,ubuntu
apt:
name:
- apache2
[Read 95 lines]
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo
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: Tuesday, October 17, 2023, 8:06:47 PM
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: 14225MB used, 7465MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
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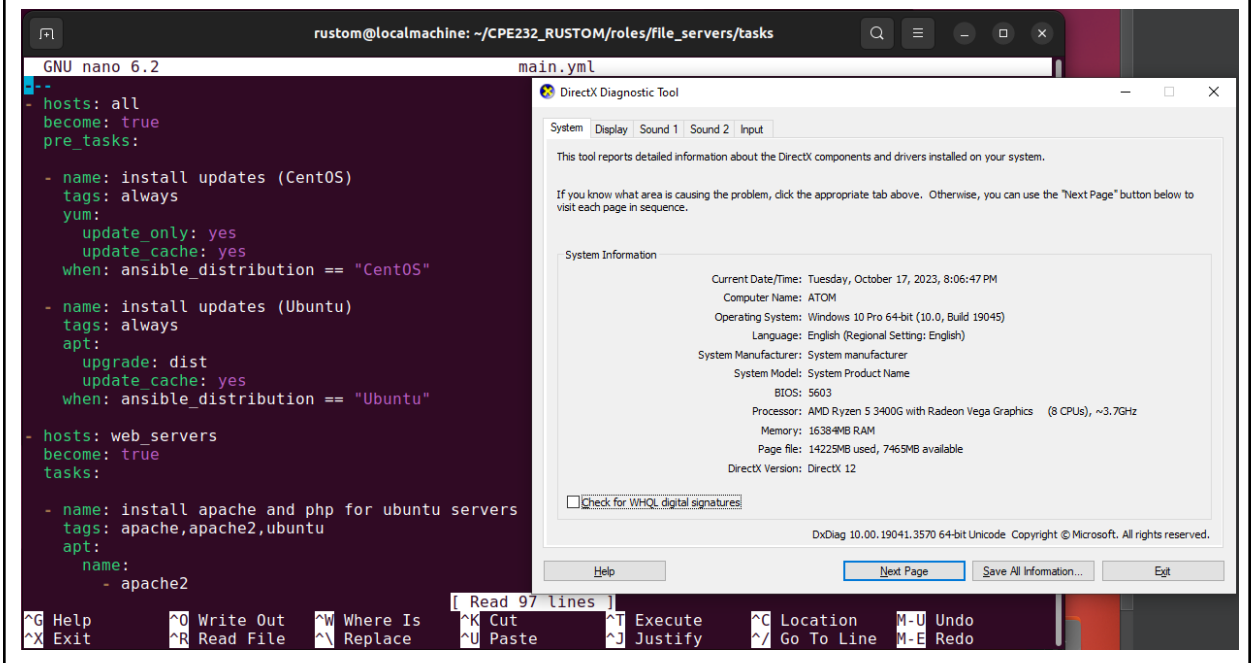
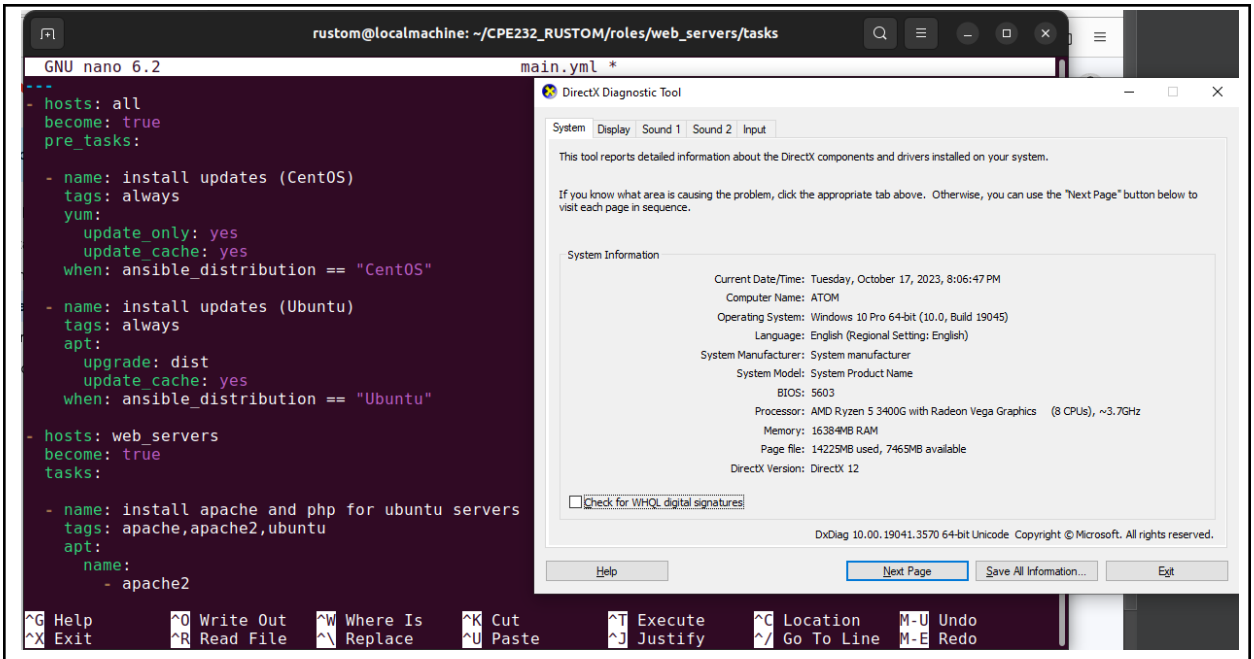
Help Next Page Save All Information... Exit


rustom@localmachine: ~/CPE232_RUSTOM/roles/file_servers/tasks
GNU nano 6.2 main.yml

- hosts: all
become: true
pre_tasks:
- 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"
- hosts: web_servers
become: true
tasks:
- name: install apache and php for ubuntu servers
tags: apache,apache2,ubuntu
apt:
name:
- apache2
[Read 97 lines]
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo
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: Tuesday, October 17, 2023, 8:06:47 PM
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: 14225MB used, 7465MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
DxDiag 10.00.19041.3570 64-bit Unicode Copyright © Microsoft. All rights reserved.
Help Next Page Save All Information... Exit


rustom@localmachine: ~/CPE232_RUSTOM/roles/web_servers/tasks
GNU nano 6.2 main.yml *

- hosts: all
become: true
pre_tasks:
- 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"
- hosts: web_servers
become: true
tasks:
- name: install apache and php for ubuntu servers
tags: apache,apache2,ubuntu
apt:
name:
- apache2
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo
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: Tuesday, October 17, 2023, 8:06:47 PM
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: 14225MB used, 7465MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
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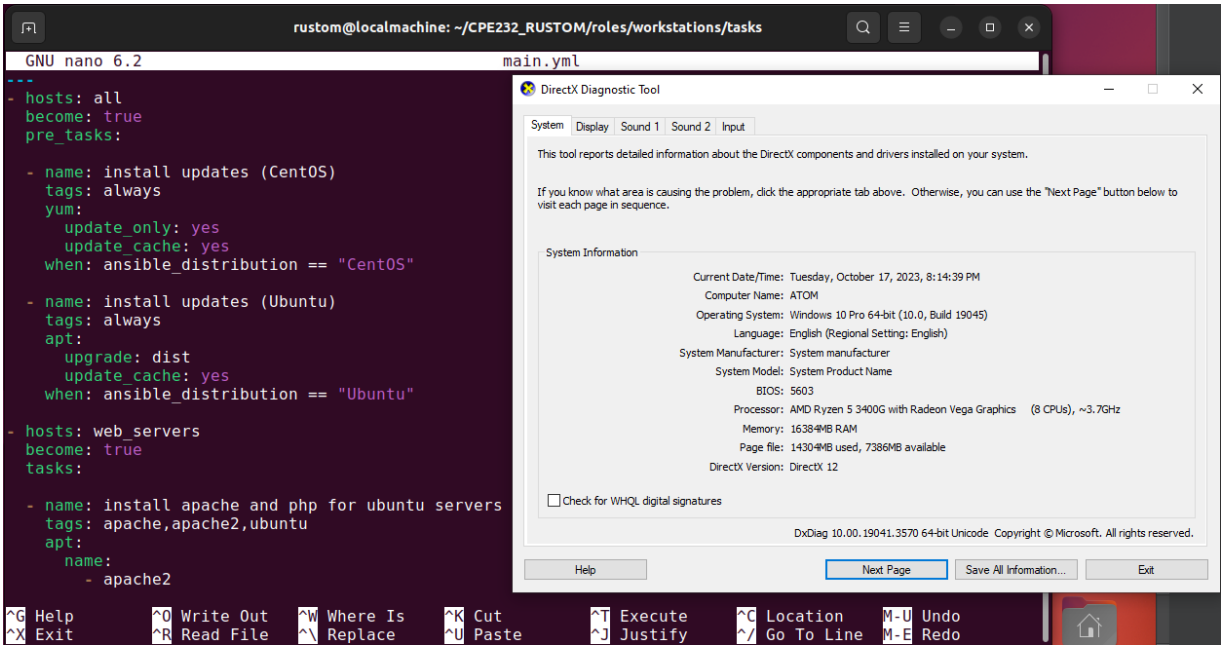
Help Next Page Save All Information... Exit


rustom@localmachine: ~/CPE232_RUSTOM/roles/workstations/tasks
GNU nano 6.2 main.yml

- hosts: all
become: true
pre_tasks:
- 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"
- hosts: web_servers
become: true
tasks:
- name: install apache and php for ubuntu servers
tags: apache,apache2,ubuntu
apt:
name:
- apache2
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo
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: Tuesday, October 17, 2023, 8:14:39 PM
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: 14304MB used, 7386MB available
DirectX Version: DirectX 12
Check for WHQL digital signatures
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Help Next Page Save All Information... Exit

Reflections:
Answer the following:

1. **What is the importance of creating roles?**
   Creating roles is important to save time, and reduces human error risk. It also enhances development efficiency by creating and managing development environments. Creating roles enhances reusability, and manageability. For example, roles for updates deployment prevent unauthorized access, accidental changes, and system stability.

2. **What is the importance of managing files?**

   Managing files is important when it comes to productivity, efficiency, and security. It simplifies access to files, saves time, and prevents unauthorized access. Another importance of managing files is that it can support multiple files and can simplify the organizing and access of large and complex multiple files.