Name: Bernice M. Peña	**Date Performed:** 10/10/2023
Course/Section: Managing Enterprise Servers / CPE31S5	**Date Submitted:** 10/13/2023
Instructor: Engr. Roman Richard	**Semester and SY:** 1st semester, SY 2023-2024

Activity 6: Targeting Specific Nodes and Managing Services

1. **Objectives:**

1.1 Individualize hosts

1.2 Apply tags in selecting plays to run

1.3 Managing Services from remote servers using playbooks

2. **Discussion**:

In this activity, we try to individualize hosts. For example, we don't want apache on all our servers, or maybe only one of our servers is a web server, or maybe we have different servers like database or file servers running different things on different categories of servers and that is what we are going to take a look at in this activity.

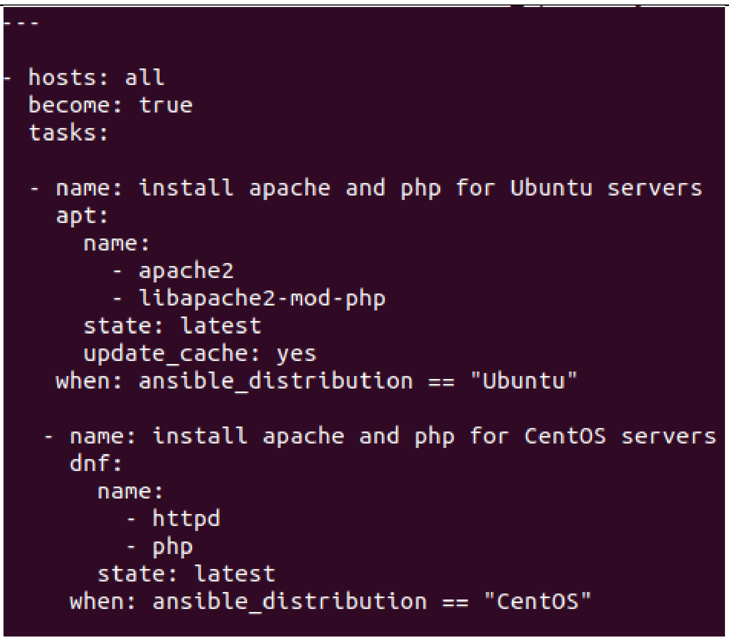
We also try to manage services that do not automatically run using the automations in playbook. For example, when we install web servers or httpd for CentOS, we notice that the service did not start automatically.

Requirement:

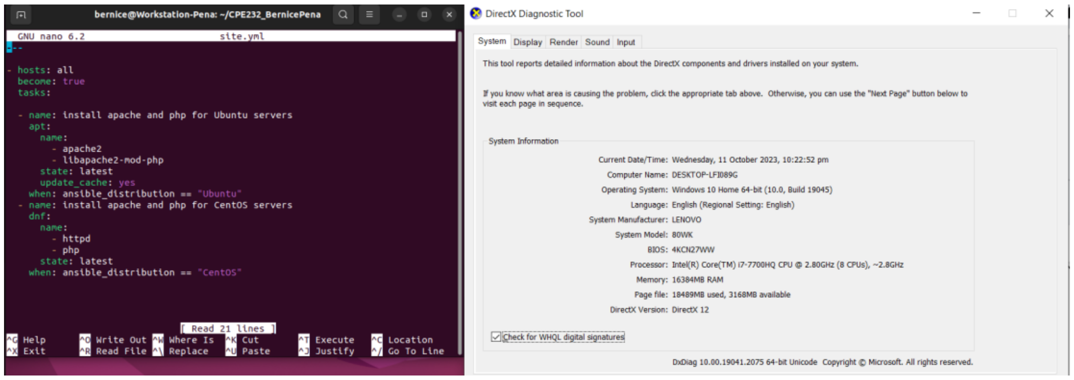
In this activity, you will need to create another Ubuntu VM and name it Server 3. Likewise, you need to activate the second adapter to a host-only adapter after the installations. Take note of the IP address of the Server 3. Make sure to use the command *ssh-copy-id* to copy the public key to Server 3. Verify if you can successfully SSH to Server 3.

Task 1: Targeting Specific Nodes

1. Create a new playbook and named it site.yml. Follow the commands as shown in the image below. Make sure to save the file and exit.



```
---

- hosts: all
  become: true
  tasks:

  - name: install apache and php for Ubuntu servers
    apt:
      name:
        - apache2
        - libapache2-mod-php
      state: latest
      update_cache: yes
    when: ansible_distribution == "Ubuntu"

   - name: install apache and php for CentOS servers
     dnf:
       name:
         - httpd
         - php
       state: latest
     when: ansible_distribution == "CentOS"
```



```
  GNU nano 6.2                          site.yml
---

- hosts: all
  become: true
  tasks:

  - name: install apache and php for Ubuntu servers
    apt:
      name:
        - apache2
        - libapache2-mod-php
      state: latest
      update_cache: yes
    when: ansible_distribution == "Ubuntu"
  - name: install apache and php for CentOS servers
    dnf:
      name:
        - httpd
        - php
      state: latest
    when: ansible_distribution == "CentOS"




                          [ Read 21 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/ Go To Line
```

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.

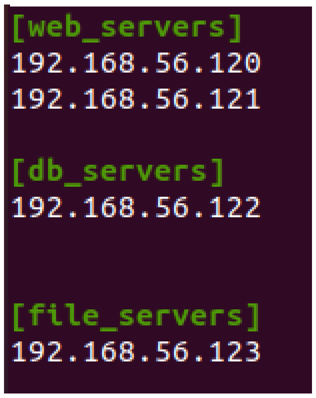
System Information

Current Date/Time:	Wednesday, 11 October 2023, 10:22:52 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	18489MB used, 3168MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

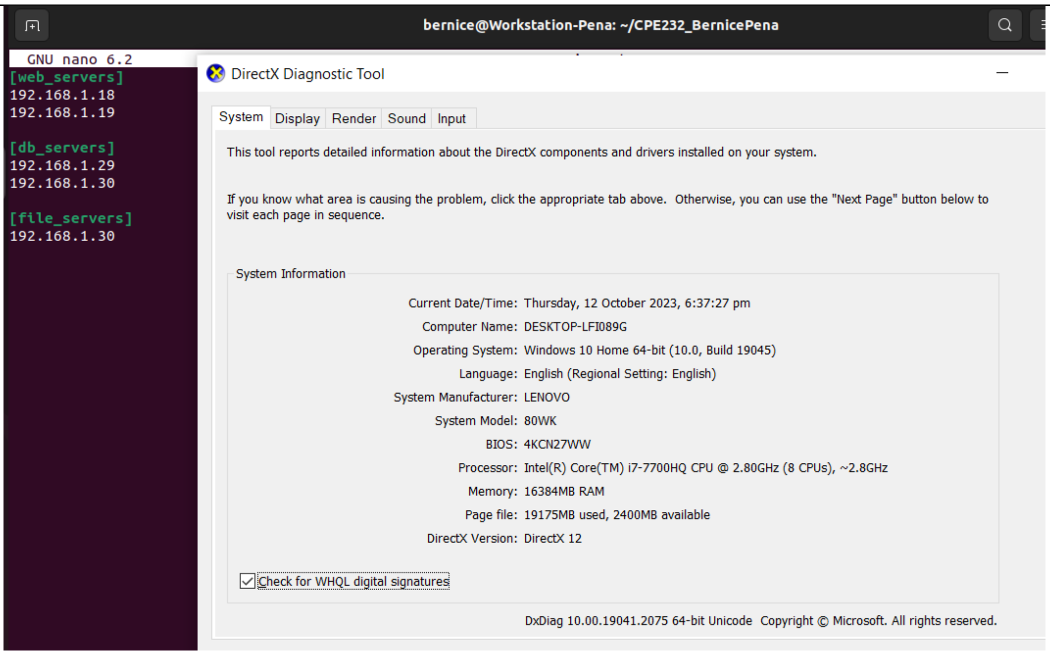
DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

2. Edit the inventory file. Remove the variables we put in our last activity and group according to the image shown below:



```
[web_servers]
192.168.56.120
192.168.56.121

[db_servers]
192.168.56.122


[file_servers]
192.168.56.123
```

Make sure to save the file and exit.


bernice@Workstation-Pena: ~/CPE232_BernicePena

```
  GNU nano 6.2
[web_servers]
192.168.1.18
192.168.1.19

[db_servers]
192.168.1.29
192.168.1.30

[file_servers]
192.168.1.30
```

DirectX Diagnostic Tool

System | Display | Render | Sound | 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, 12 October 2023, 6:37:27 pm
       Computer Name: DESKTOP-LFI089G
    Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
            Language: English (Regional Setting: English)
 System Manufacturer: LENOVO
        System Model: 80WK
                BIOS: 4KCN27WW
           Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
              Memory: 16384MB RAM
           Page file: 19175MB used, 2400MB available
     DirectX Version: DirectX 12
```

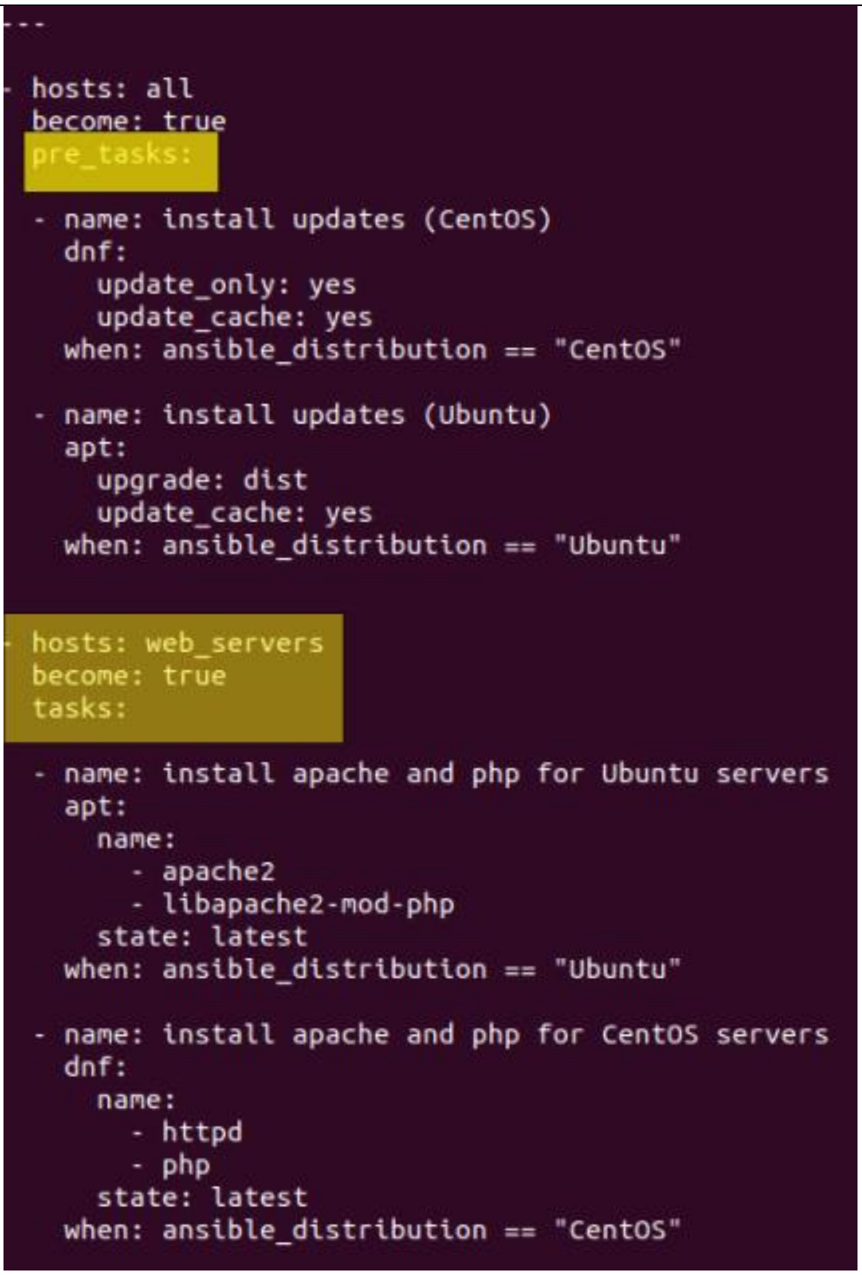
[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

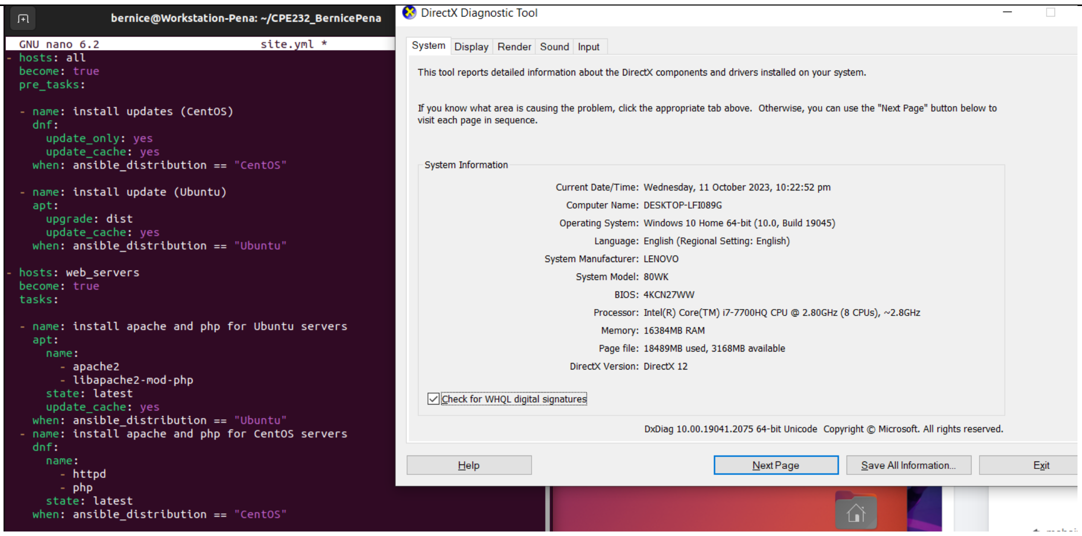
For the web_servers, I used the ip address of my ubuntu servers (1 & 2), for db_servers, I used my CentOS and server 3, and for the file_servers, I used my recently created server which is the server 3.

Right now, we have created groups in our inventory file and put each server in its own group. In other cases, you can have a server be a member of multiple groups, for example you have a test server that is also a web server.

3. Edit the *site.yml* by following the image below:


```
---

- hosts: all
  become: true
  pre_tasks:

  - name: install updates (CentOS)
    dnf:
      update_only: yes
      update_cache: yes
    when: ansible_distribution == "CentOS"

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


- hosts: web_servers
  become: true
  tasks:

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

  - name: install apache and php for CentOS servers
    dnf:
      name:
        - httpd
        - php
      state: latest
    when: ansible_distribution == "CentOS"
```

Make sure to save the file and exit.



bernice@Workstation-Pena: ~/CPE232_BernicePena

```
GNU nano 6.2                          site.yml *
- hosts: all
  become: true
  pre_tasks:

  - name: install updates (CentOS)
    dnf:
      update_only: yes
      update_cache: yes
    when: ansible_distribution == "CentOS"

  - name: install update (Ubuntu)
    apt:
      upgrade: dist
      update_cache: yes
    when: ansible_distribution == "Ubuntu"

- hosts: web_servers
  become: true
  tasks:

  - name: install apache and php for Ubuntu servers
    apt:
      name:
        - apache2
        - libapache2-mod-php
      state: latest
      update_cache: yes
    when: ansible_distribution == "Ubuntu"
  - name: install apache and php for CentOS servers
    dnf:
      name:
        - httpd
        - php
      state: latest
    when: ansible_distribution == "CentOS"
```

DirectX Diagnostic Tool

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

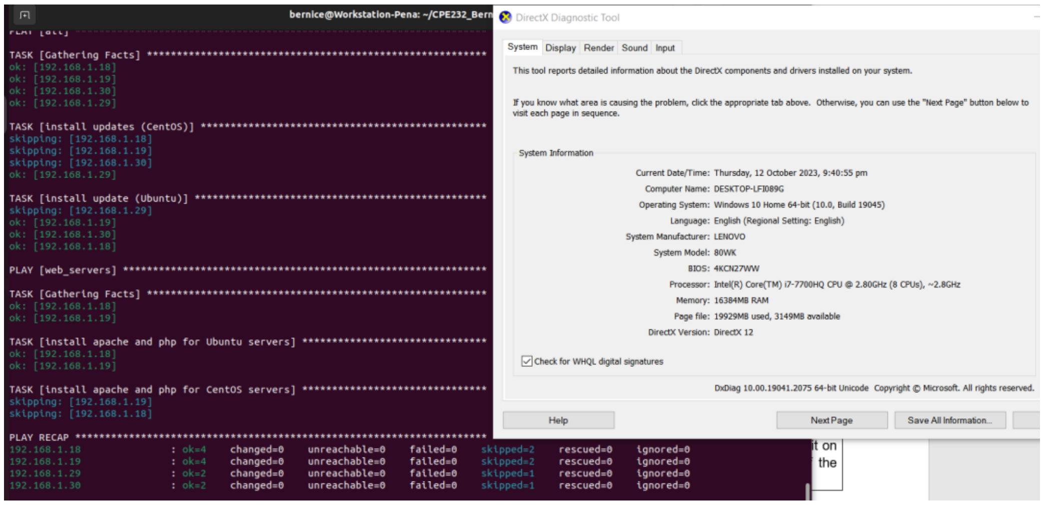
Current Date/Time: Wednesday, 11 October 2023, 10:22:52 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 18489MB used, 3168MB available
DirectX Version: DirectX 12

☑ Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

The *pre-tasks* command tells the ansible to run it before any other thing. In the *pre-tasks*, CentOS will install updates while Ubuntu will upgrade its distribution package. This will run before running the second play, which is targeted at *web_servers*. In the second play, apache and php will be installed on both Ubuntu servers and CentOS servers.

Run the *site.yml* file and describe the result.



bernice@Workstation-Pena: ~/CPE232_Bern

```
PLAY [all] *************************************************************

TASK [Gathering Facts] *************************************************
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install updates (CentOS)] ****************************************
skipping: [192.168.1.18]
skipping: [192.168.1.19]
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install update (Ubuntu)] *****************************************
skipping: [192.168.1.29]
ok: [192.168.1.19]
ok: [192.168.1.30]
ok: [192.168.1.18]

PLAY [web_servers] *****************************************************

TASK [Gathering Facts] *************************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] ***********************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for CentOS servers] ***********************
skipping: [192.168.1.19]
skipping: [192.168.1.18]

PLAY RECAP *************************************************************
192.168.1.18               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.29               : ok=2    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.1.30               : ok=2    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
```

DirectX Diagnostic Tool

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

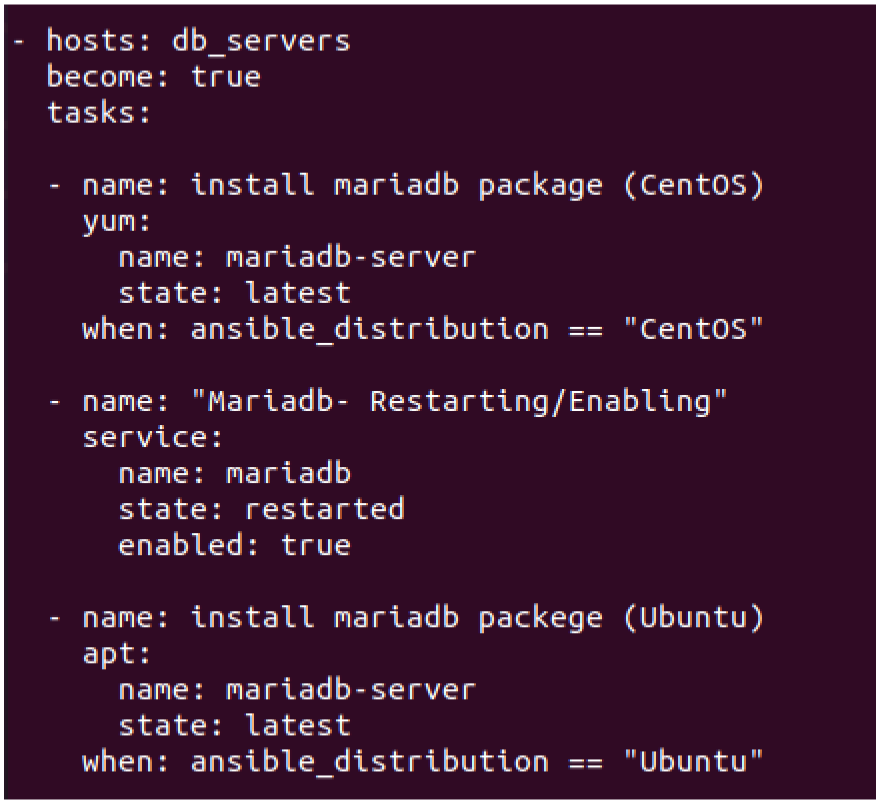
Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

☑ Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

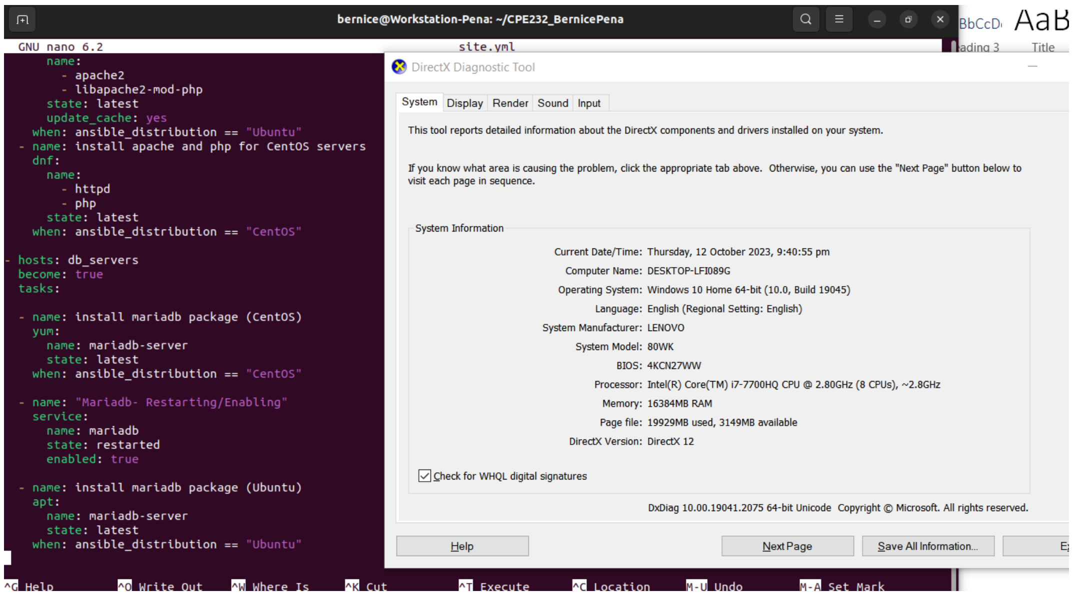
There are various tasks for a specific host, the result shows how the tasks were successfully executed. For the gathering of tasks, it read first the ip addresses listed in my inventory file, as you can see in the “install updates” for Ubuntu, it skipped my CentOS ip address since the task is meant for Ubuntu servers only, same goes with CentOS updates. For the remaining tasks, it did the same process. When the task is meant for Ubuntu servers, it will skip my CentOS and vice versa.

4. Let's try to edit again the *site.yml* file. This time, we are going to add plays targeting the other servers. This time we target the *db_servers* by adding it on the current *site.yml*. Below is an example: (Note add this at the end of the playbooks from task 1.3.



```
- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (CentOS)
    yum:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

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

  - name: install mariadb packege (Ubuntu)
    apt:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "Ubuntu"
```

Make sure to save the file and exit.



```
  GNU nano 6.2                              site.yml
      name:
        - apache2
        - libapache2-mod-php
      state: latest
      update_cache: yes
    when: ansible_distribution == "Ubuntu"
  - name: install apache and php for CentOS servers
    dnf:
      name:
        - httpd
        - php
      state: latest
    when: ansible_distribution == "CentOS"

- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (CentOS)
    yum:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

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

  - name: install mariadb package (Ubuntu)
    apt:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "Ubuntu"

^G Help      ^O Write Out   ^W Where Is   ^K Cut   ^T Execute   ^C Location   M-U Undo   M-A Set Mark
```

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.

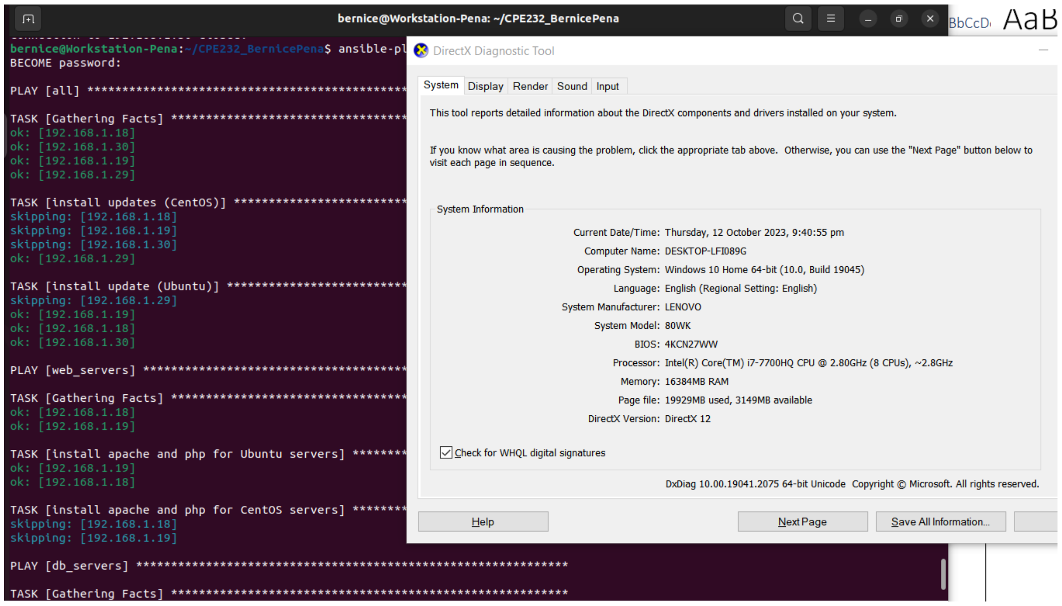
System Information

Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

Run the *site.yml* file and describe the result.



```
bernice@Workstation-Pena: ~/CPE232_BernicePena
bernice@Workstation-Pena:~/CPE232_BernicePena$ ansible-pl
BECOME password:

PLAY [all] ******************************************

TASK [Gathering Facts] ******************************
ok: [192.168.1.18]
ok: [192.168.1.30]
ok: [192.168.1.19]
ok: [192.168.1.29]

TASK [install updates (CentOS)] *********************
skipping: [192.168.1.18]
skipping: [192.168.1.19]
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install update (Ubuntu)] **********************
skipping: [192.168.1.29]
ok: [192.168.1.19]
ok: [192.168.1.18]
ok: [192.168.1.30]

PLAY [web_servers] **********************************

TASK [Gathering Facts] ******************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] *******
ok: [192.168.1.19]
ok: [192.168.1.18]

TASK [install apache and php for CentOS servers] *******
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] ***************************************************************

TASK [Gathering Facts] **********************************************************
```

DirectX Diagnostic Tool

System | Display | Render | Sound | Input

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

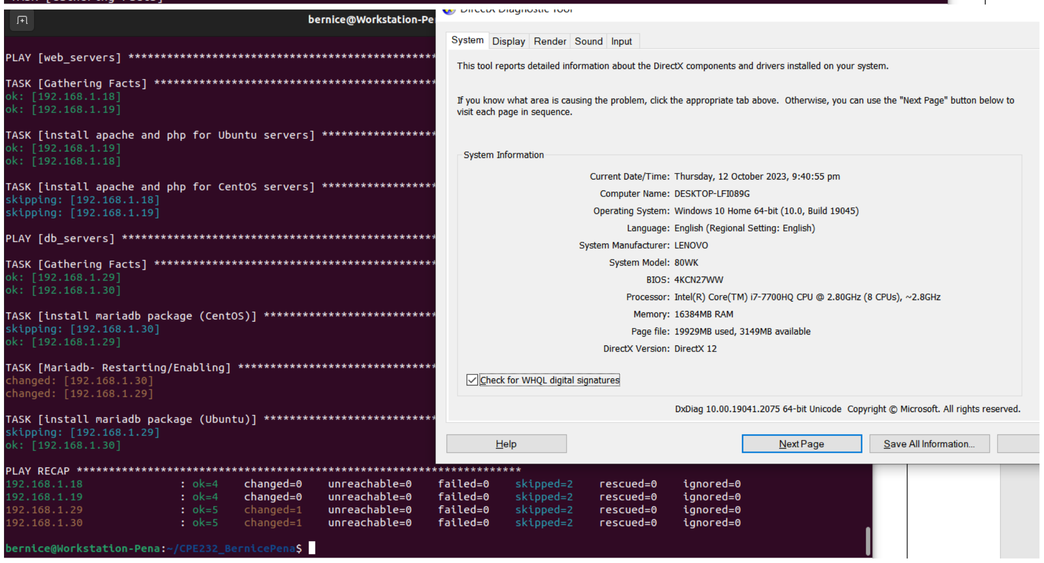
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

System Information

Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.



```
bernice@Workstation-Pe
PLAY [web_servers] **********************************************

TASK [Gathering Facts] ******************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] *****************
ok: [192.168.1.19]
ok: [192.168.1.18]

TASK [install apache and php for CentOS servers] *****************
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] ***********************************************

TASK [Gathering Facts] ******************************************
ok: [192.168.1.29]
ok: [192.168.1.30]

TASK [install mariadb package (CentOS)] *************************
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [Mariadb- Restarting/Enabling] *****************************
changed: [192.168.1.30]
changed: [192.168.1.29]

TASK [install mariadb package (Ubuntu)] *************************
skipping: [192.168.1.29]
ok: [192.168.1.30]

PLAY RECAP **********************************************************************
192.168.1.18               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.29               : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.30               : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

bernice@Workstation-Pena:~/CPE232_BernicePena$
```

System | Display | Render | Sound | 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, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

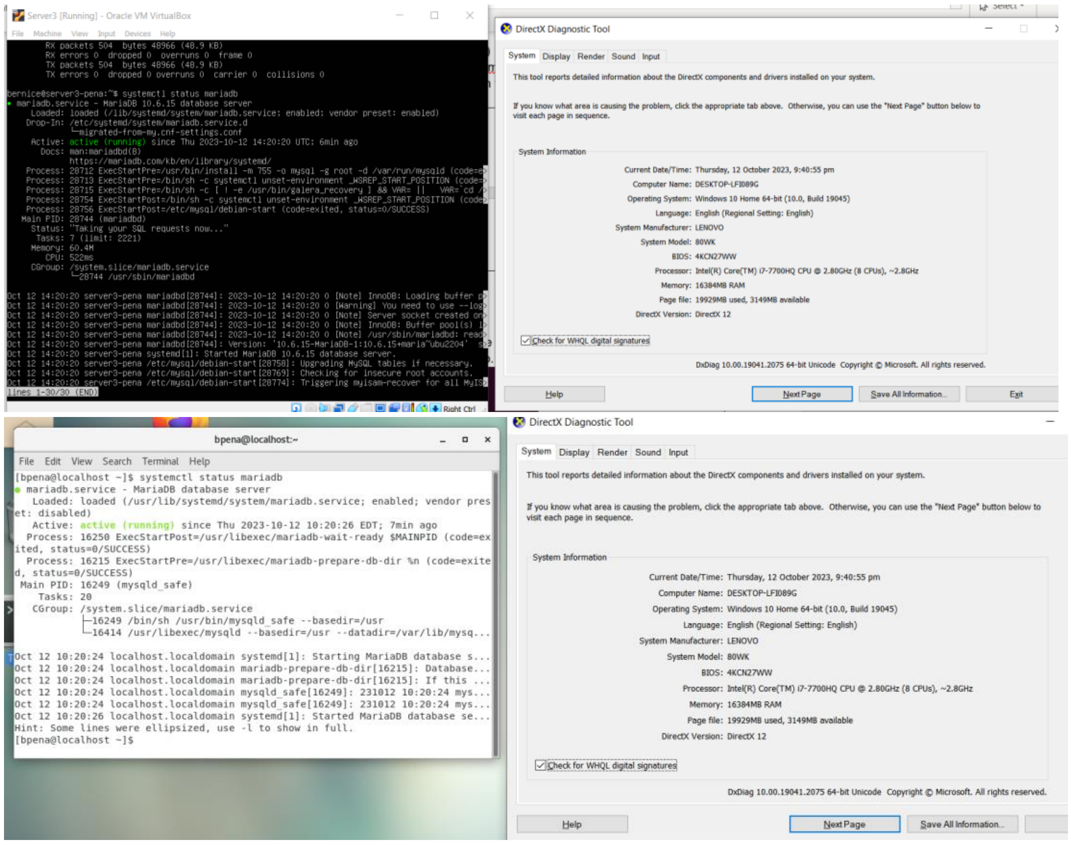
[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

Another PLAY added which is the [db_servers] that is all about installing mariadb package. As I mentioned earlier, I used my CentOS ip address and server 3 under my db_servers, so when it gathers task, it read only the ip addresses that are listed in my db_servers. The installation of mariadb package for CentOS and Ubuntu was successful. As you noticed, changes were made in my CentOS and Ubuntu ip address since mariadb package was installed in those servers.

5. Go to the remote server (Ubuntu) terminal that belongs to the db_servers group and check the status for mariadb installation using the command: *systemctl status mariadb.* Do this on the CentOS server also.

Describe the output.



```
Server3 [Running] - Oracle VM VirtualBox
        RX packets 504  bytes 48966 (48.9 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 504  bytes 48966 (48.9 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

bernice@server3-pena:~$ systemctl status mariadb
● mariadb.service - MariaDB 10.6.15 database server
     Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)
    Drop-In: /etc/systemd/system/mariadb.service.d
             └─migrated-from-my.cnf-settings.conf
     Active: active (running) since Thu 2023-10-12 14:20:20 UTC; 6min ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
    Process: 28712 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/run/mysqld (code=e>
    Process: 28713 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code=>
    Process: 28715 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR= ||   VAR=`cd />
    Process: 28754 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START_POSITION (code>
    Process: 28756 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUCCESS)
   Main PID: 28744 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 7 (limit: 2221)
     Memory: 60.4M
        CPU: 522ms
     CGroup: /system.slice/mariadb.service
             └─28744 /usr/sbin/mariadbd

Oct 12 14:20:20 server3-pena mariadbd[28744]: 2023-10-12 14:20:20 0 [Note] InnoDB: Loading buffer p>
Oct 12 14:20:20 server3-pena mariadbd[28744]: 2023-10-12 14:20:20 0 [Warning] You need to use --log>
Oct 12 14:20:20 server3-pena mariadbd[28744]: 2023-10-12 14:20:20 0 [Note] Server socket created on>
Oct 12 14:20:20 server3-pena mariadbd[28744]: 2023-10-12 14:20:20 0 [Note] InnoDB: Buffer pool(s) l>
Oct 12 14:20:20 server3-pena mariadbd[28744]: 2023-10-12 14:20:20 0 [Note] /usr/sbin/mariadbd: read>
Oct 12 14:20:20 server3-pena mariadbd[28744]: Version: '10.6.15-MariaDB-1:10.6.15+maria~ubu2204'  s>
Oct 12 14:20:20 server3-pena systemd[1]: Started MariaDB 10.6.15 database server.
Oct 12 14:20:20 server3-pena /etc/mysql/debian-start[28758]: Upgrading MySQL tables if necessary.
Oct 12 14:20:20 server3-pena /etc/mysql/debian-start[28769]: Checking for insecure root accounts.
Oct 12 14:20:20 server3-pena /etc/mysql/debian-start[28774]: Triggering myisam-recover for all MyIS>
lines 1-30/30 (END)
```

DirectX Diagnostic Tool

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, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

☑ Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

```
bpena@localhost:~
[bpena@localhost ~]$ systemctl status mariadb
● mariadb.service - MariaDB database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor pres
et: disabled)
   Active: active (running) since Thu 2023-10-12 10:20:26 EDT; 7min ago
  Process: 16250 ExecStartPost=/usr/libexec/mariadb-wait-ready $MAINPID (code=ex
ited, status=0/SUCCESS)
  Process: 16215 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir %n (code=exite
d, status=0/SUCCESS)
 Main PID: 16249 (mysqld_safe)
    Tasks: 20
   CGroup: /system.slice/mariadb.service
           ├─16249 /bin/sh /usr/bin/mysqld_safe --basedir=/usr
           └─16414 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysq...

Oct 12 10:20:24 localhost.localdomain systemd[1]: Starting MariaDB database s...
Oct 12 10:20:24 localhost.localdomain mariadb-prepare-db-dir[16215]: Database...
Oct 12 10:20:24 localhost.localdomain mariadb-prepare-db-dir[16215]: If this ...
Oct 12 10:20:24 localhost.localdomain mysqld_safe[16249]: 231012 10:20:24 mys...
Oct 12 10:20:24 localhost.localdomain mysqld_safe[16249]: 231012 10:20:24 mys...
Oct 12 10:20:26 localhost.localdomain systemd[1]: Started MariaDB database se...
Hint: Some lines were ellipsized, use -l to show in full.
[bpena@localhost ~]$
```

DirectX Diagnostic Tool

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, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

☑ Check for WHQL digital signatures

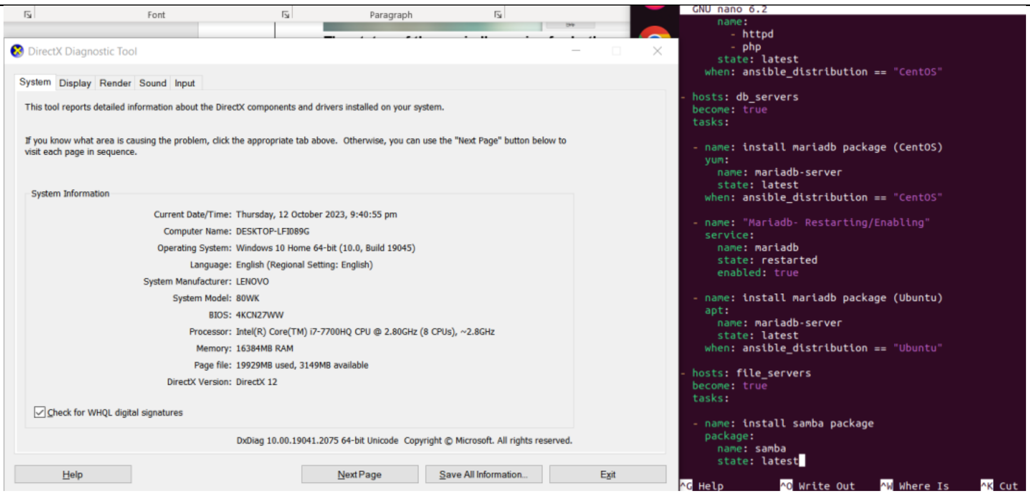
DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

The status of the mariadb.service for both servers (Ubuntu and CentOS) are active (running). This means that the mariadb package were successfully installed for both servers under the db_servers.

6. Edit the *site.yml* again. This time we will append the code to configure installation on the *file_servers* group. We can add the following on our file.

```
- hosts: file_servers
  become: true
  tasks:

  - name: install samba package
    package:
      name: samba
      state: latest
```

Make sure to save the file and exit.



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

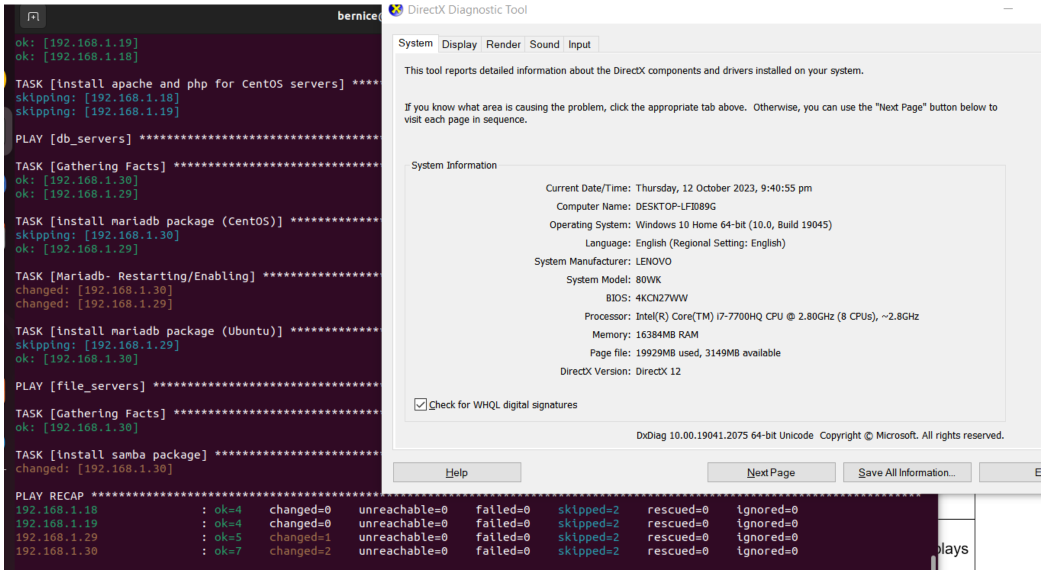
Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

```
 GNU nano 6.2
      name:
        - httpd
        - php
      state: latest
    when: ansible_distribution == "CentOS"

- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (CentOS)
    yum:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

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

  - name: install mariadb package (Ubuntu)
    apt:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "Ubuntu"

- hosts: file_servers
  become: true
  tasks:

  - name: install samba package
    package:
      name: samba
      state: latest
^G Help       ^O Write Out    ^W Where Is     ^K Cut
```

Run the *site.yml* file and describe the result.



```
ok: [192.168.1.19]
ok: [192.168.1.18]

TASK [install apache and php for CentOS servers] ****
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] ***********************************

TASK [Gathering Facts] ******************************
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install mariadb package (CentOS)] *************
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [Mariadb- Restarting/Enabling] *****************
changed: [192.168.1.30]
changed: [192.168.1.29]

TASK [install mariadb package (Ubuntu)] *************
skipping: [192.168.1.29]
ok: [192.168.1.30]

PLAY [file_servers] *********************************

TASK [Gathering Facts] ******************************
ok: [192.168.1.30]

TASK [install samba package] ************************
changed: [192.168.1.30]

PLAY RECAP ***********************************************************************************************
192.168.1.18               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.29               : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.30               : ok=7    changed=2    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
```

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, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

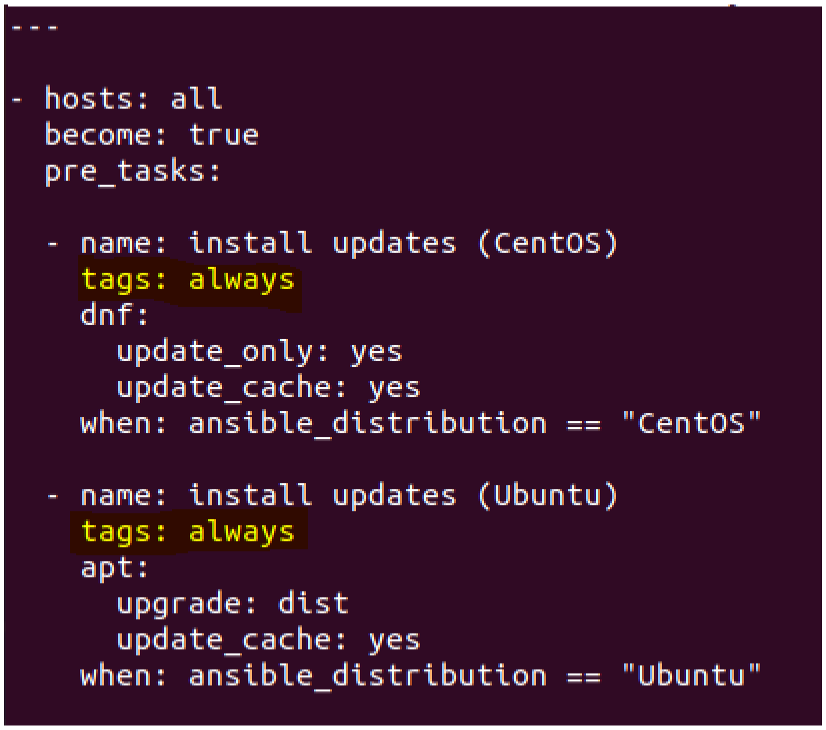
Since I used my CentOS ip address for my file_servers, notice that the task only executed on my CentOS ip address and it was skipping my ubuntu servers.

The testing of the *file_servers* is beyond the scope of this activity, and as well as our topics and objectives. However, in this activity we were able to show that we can target hosts or servers using grouping in ansible playbooks.

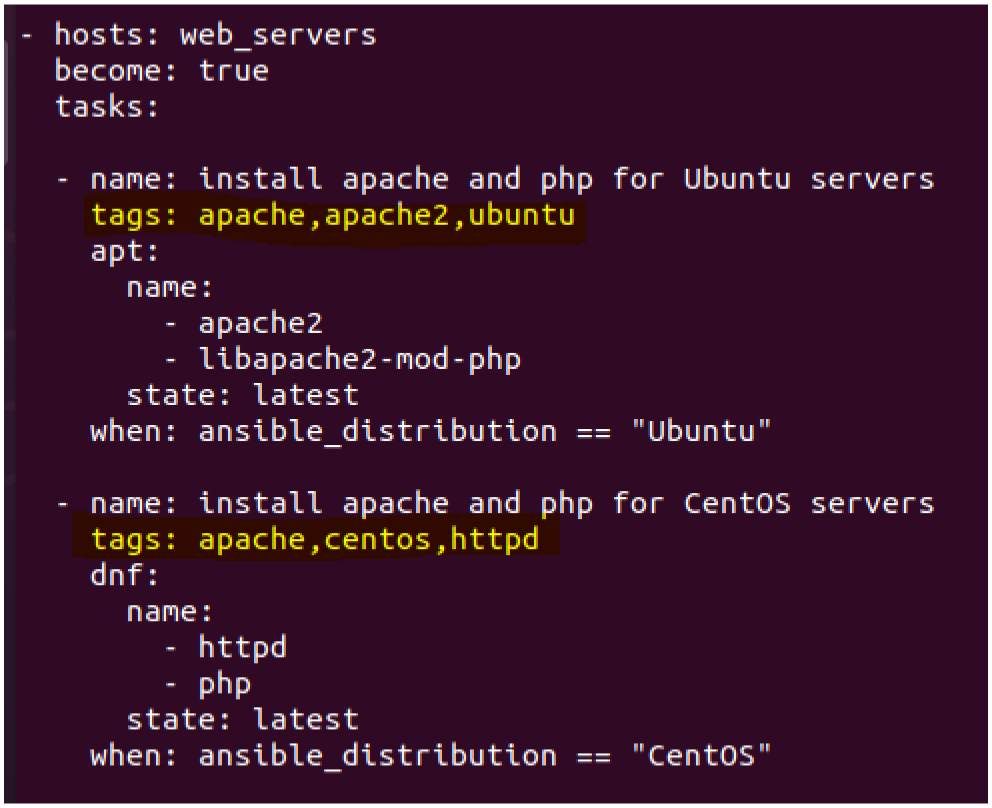
Task 2: Using Tags in running playbooks

In this task, our goal is to add metadata to our plays so that we can only run the plays that we want to run, and not all the plays in our playbook.

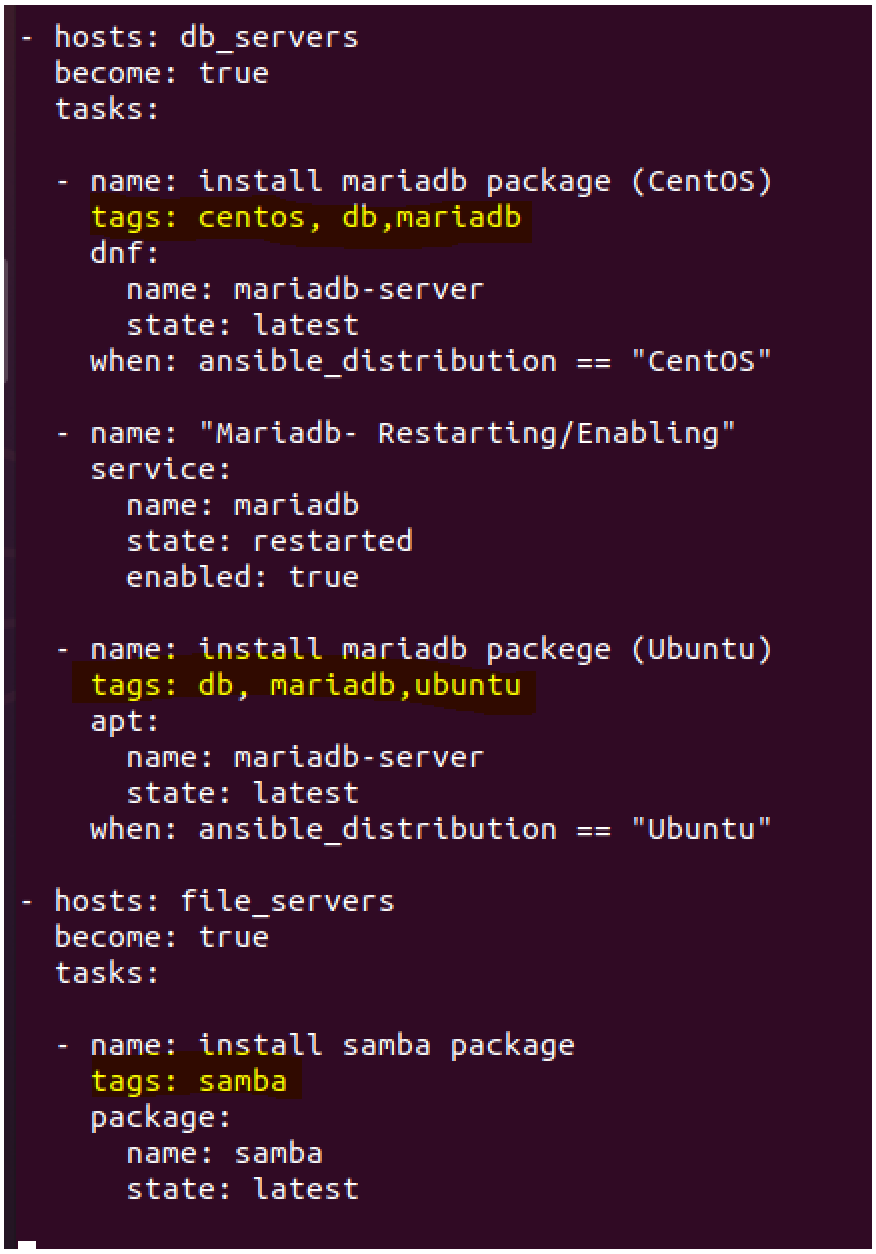
1. Edit the *site.yml* file. Add tags to the playbook. After the name, we can place the tags: *name_of_tag*. This is an arbitrary command, which means you can use any name for a tag.



```
---

- hosts: all
  become: true
  pre_tasks:

  - name: install updates (CentOS)
    tags: always
    dnf:
      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"
```

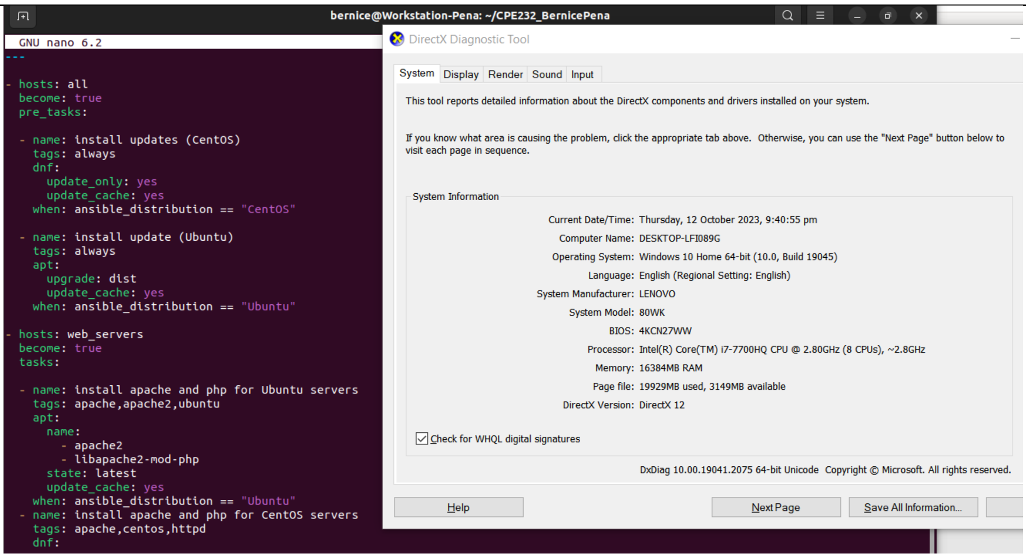


```
- hosts: web_servers
  become: true
  tasks:

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

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



```
- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (CentOS)
    tags: centos, db,mariadb
    dnf:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

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

  - name: install mariadb packege (Ubuntu)
    tags: db, mariadb,ubuntu
    apt:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "Ubuntu"

- hosts: file_servers
  become: true
  tasks:

  - name: install samba package
    tags: samba
    package:
      name: samba
      state: latest
```

Make sure to save the file and exit.



bernice@Workstation-Pena: ~/CPE232_BernicePena

```
GNU nano 6.2
---
- hosts: all
  become: true
  pre_tasks:

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

  - name: install update (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
        - libapache2-mod-php
      state: latest
      update_cache: yes
    when: ansible_distribution == "Ubuntu"
  - name: install apache and php for CentOS servers
    tags: apache,centos,httpd
    dnf:
```

DirectX Diagnostic Tool

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

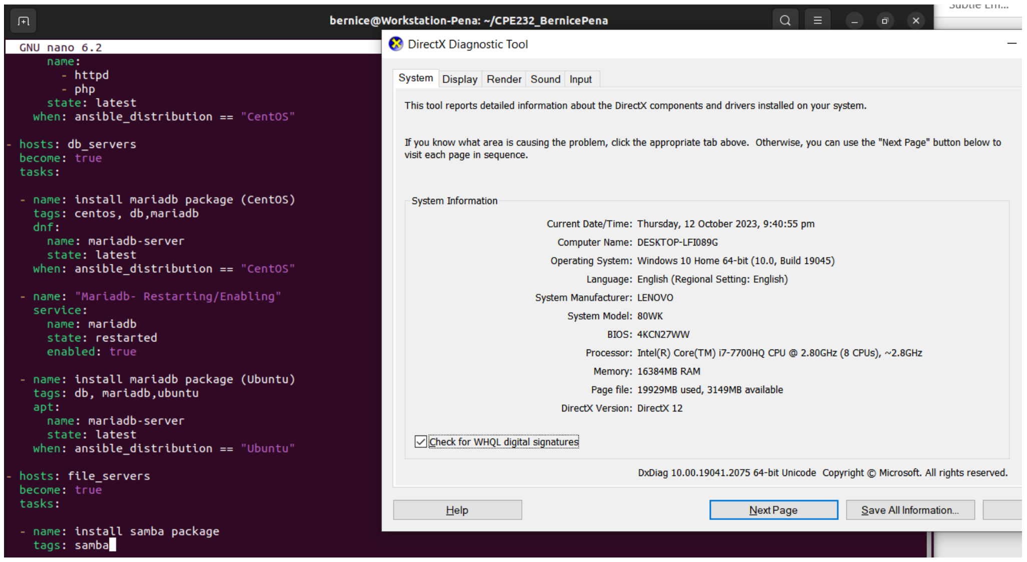
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

System Information

```
        Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
            Computer Name: DESKTOP-LFI089G
         Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
                 Language: English (Regional Setting: English)
      System Manufacturer: LENOVO
             System Model: 80WK
                     BIOS: 4KCN27WW
                Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
                   Memory: 16384MB RAM
                Page file: 19929MB used, 3149MB available
          DirectX Version: DirectX 12
```

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.



bernice@Workstation-Pena: ~/CPE232_BernicePena

```
GNU nano 6.2
      name:
        - httpd
        - php
      state: latest
    when: ansible_distribution == "CentOS"

- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (CentOS)
    tags: centos, db,mariadb
    dnf:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

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

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

- hosts: file_servers
  become: true
  tasks:

  - name: install samba package
    tags: samba
```

DirectX Diagnostic Tool

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.

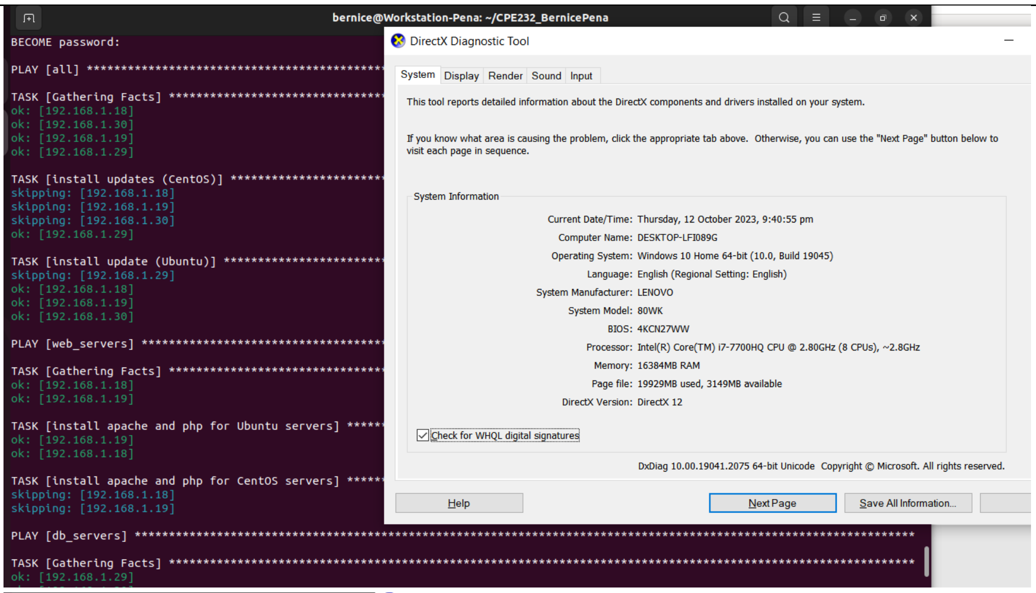
System Information

```
        Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
            Computer Name: DESKTOP-LFI089G
         Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
                 Language: English (Regional Setting: English)
      System Manufacturer: LENOVO
             System Model: 80WK
                     BIOS: 4KCN27WW
                Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
                   Memory: 16384MB RAM
                Page file: 19929MB used, 3149MB available
          DirectX Version: DirectX 12
```

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

Run the *site.yml* file and describe the result.



bernice@Workstation-Pena: ~/CPE232_BernicePena

```
BECOME password:

PLAY [all] ********************************************

TASK [Gathering Facts] ********************************
ok: [192.168.1.18]
ok: [192.168.1.30]
ok: [192.168.1.19]
ok: [192.168.1.29]

TASK [install updates (CentOS)] ***********************
skipping: [192.168.1.18]
skipping: [192.168.1.19]
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install update (Ubuntu)] ************************
skipping: [192.168.1.29]
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]

PLAY [web_servers] ************************************

TASK [Gathering Facts] ********************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] ******
ok: [192.168.1.19]
ok: [192.168.1.18]

TASK [install apache and php for CentOS servers] ******
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] **************************************************************************************************************

TASK [Gathering Facts] *********************************************************************************************************
ok: [192.168.1.29]
```

DirectX Diagnostic Tool

System | Display | Render | Sound | 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.

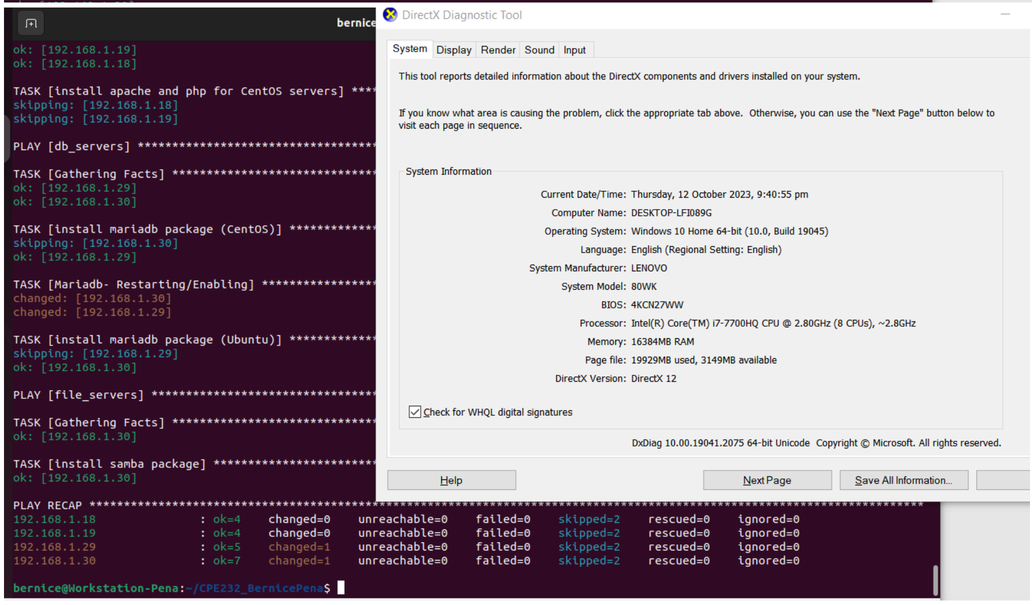
System Information

Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

Help | Next Page | Save All Information...



```
ok: [192.168.1.19]
ok: [192.168.1.18]

TASK [install apache and php for CentOS servers] ****
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] ***********************************

TASK [Gathering Facts] ******************************
ok: [192.168.1.29]
ok: [192.168.1.30]

TASK [install mariadb package (CentOS)] *************
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [Mariadb- Restarting/Enabling] *****************
changed: [192.168.1.30]
changed: [192.168.1.29]

TASK [install mariadb package (Ubuntu)] *************
skipping: [192.168.1.29]
ok: [192.168.1.30]

PLAY [file_servers] *********************************

TASK [Gathering Facts] ******************************
ok: [192.168.1.30]

TASK [install samba package] ************************
ok: [192.168.1.30]

PLAY RECAP *********************************************************************************************************************
192.168.1.18               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.29               : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.30               : ok=7    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

bernice@Workstation-Pena:~/CPE232_BernicePena$
```

DirectX Diagnostic Tool

System | Display | Render | Sound | 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, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

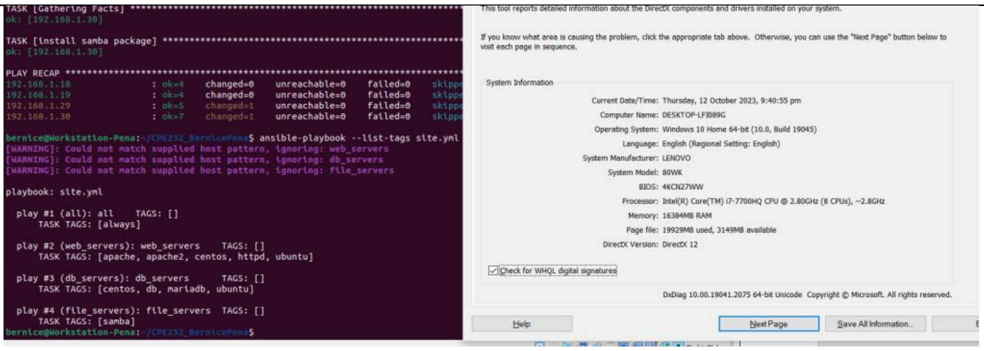
[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

Help | Next Page | Save All Information...

The tags in my playbook allows which tasks are executed making it flexible since it targets specific groups of servers for certain tasks. When I added the tags in the code, it enables me to install the necessary packages on the appropriate server types (web_servers, db_servers, file_servers) while skipping unnecessary tasks for the other servers.

2. On the local machine, try to issue the following commands and describe each result:
   2.1 *ansible-playbook --list-tags site.yml*



```
TASK [Gathering Facts] *************************************************
ok: [192.168.1.30]

TASK [install samba package] *******************************************
ok: [192.168.1.30]

PLAY RECAP *************************************************************
192.168.1.18               : ok=4    changed=0    unreachable=0    failed=0    skippe
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skippe
192.168.1.29               : ok=5    changed=1    unreachable=0    failed=0    skippe
192.168.1.30               : ok=7    changed=1    unreachable=0    failed=0    skippe

bernice@Workstation-Pena:~/CPE232_BernicePena$ ansible-playbook --list-tags site.yml
[WARNING]: Could not match supplied host pattern, ignoring: web_servers
[WARNING]: Could not match supplied host pattern, ignoring: db_servers
[WARNING]: Could not match supplied host pattern, ignoring: file_servers

playbook: site.yml

  play #1 (all): all	TAGS: []
      TASK TAGS: [always]

  play #2 (web_servers): web_servers	TAGS: []
      TASK TAGS: [apache, apache2, centos, httpd, ubuntu]

  play #3 (db_servers): db_servers	TAGS: []
      TASK TAGS: [centos, db, mariadb, ubuntu]

  play #4 (file_servers): file_servers	TAGS: []
      TASK TAGS: [samba]
bernice@Workstation-Pena:~/CPE232_BernicePena$
```

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

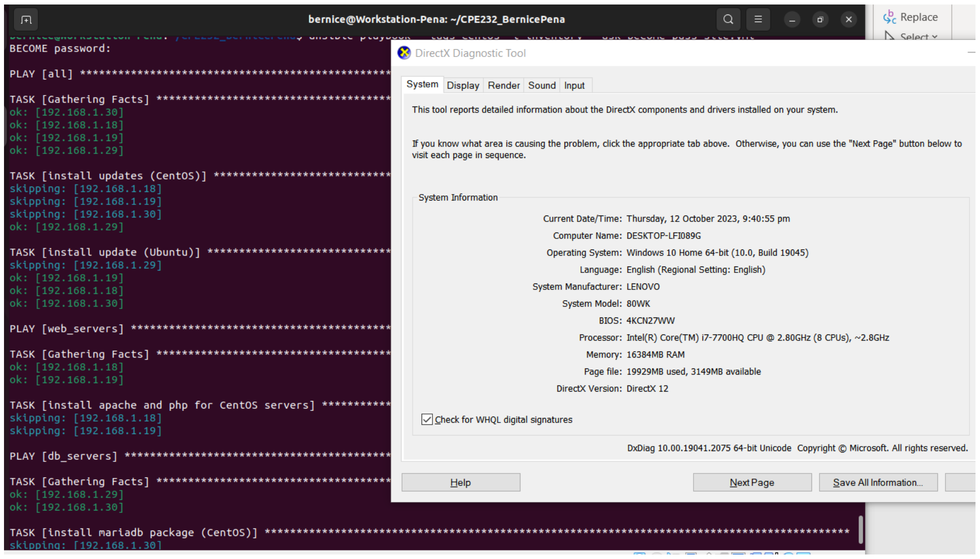
Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

It displayed all the tags that I recently added in the yml file, these tags indicate the tasks within each PLAY, this helps in organizing and making the structure more simplified according to what tasks are being executed.

2.2 *ansible-playbook --tags centos --ask-become-pass site.yml*



```
bernice@Workstation-Pena: ~/CPE232_BernicePena
BECOME password:

PLAY [all] *************************************************

TASK [Gathering Facts] *************************************
ok: [192.168.1.30]
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.29]

TASK [install updates (CentOS)] ****************************
skipping: [192.168.1.18]
skipping: [192.168.1.19]
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install update (Ubuntu)] *****************************
skipping: [192.168.1.29]
ok: [192.168.1.19]
ok: [192.168.1.18]
ok: [192.168.1.30]

PLAY [web_servers] *****************************************

TASK [Gathering Facts] *************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for CentOS servers] ***********
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] ******************************************

TASK [Gathering Facts] *************************************
ok: [192.168.1.29]
ok: [192.168.1.30]

TASK [install mariadb package (CentOS)] ******************************************************************************
skipping: [192.168.1.30]
```

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

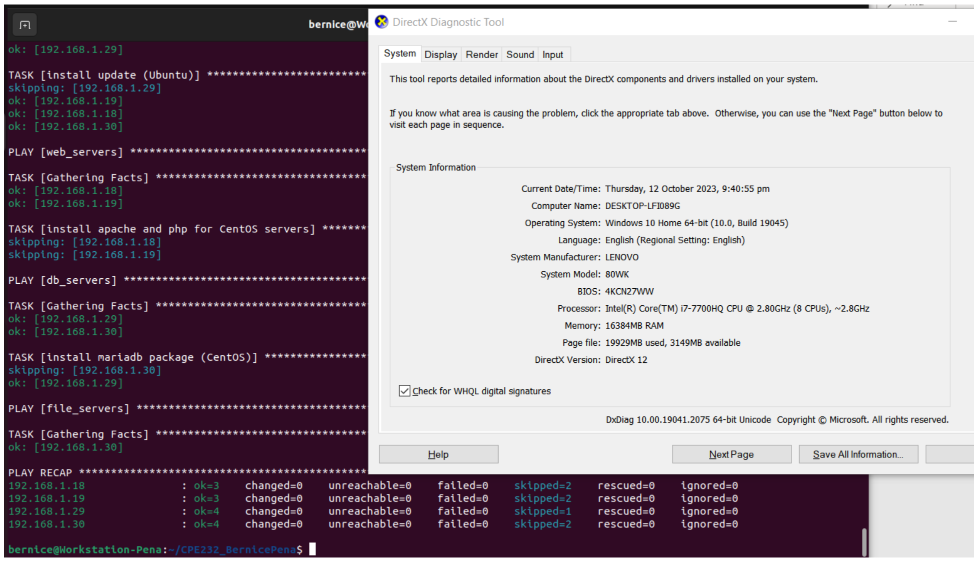
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

System Information

Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.



```
ok: [192.168.1.29]

TASK [install update (Ubuntu)] *****************************
skipping: [192.168.1.29]
ok: [192.168.1.19]
ok: [192.168.1.18]
ok: [192.168.1.30]

PLAY [web_servers] *****************************************

TASK [Gathering Facts] *************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for CentOS servers] *******
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] ******************************************

TASK [Gathering Facts] *************************************
ok: [192.168.1.29]
ok: [192.168.1.30]

TASK [install mariadb package (CentOS)] ****************
skipping: [192.168.1.30]
ok: [192.168.1.29]

PLAY [file_servers] ****************************************

TASK [Gathering Facts] *************************************
ok: [192.168.1.30]

PLAY RECAP *************************************************
192.168.1.18               : ok=3    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.19               : ok=3    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.29               : ok=4    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.1.30               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

bernice@Workstation-Pena:~/CPE232_BernicePena$
```

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, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

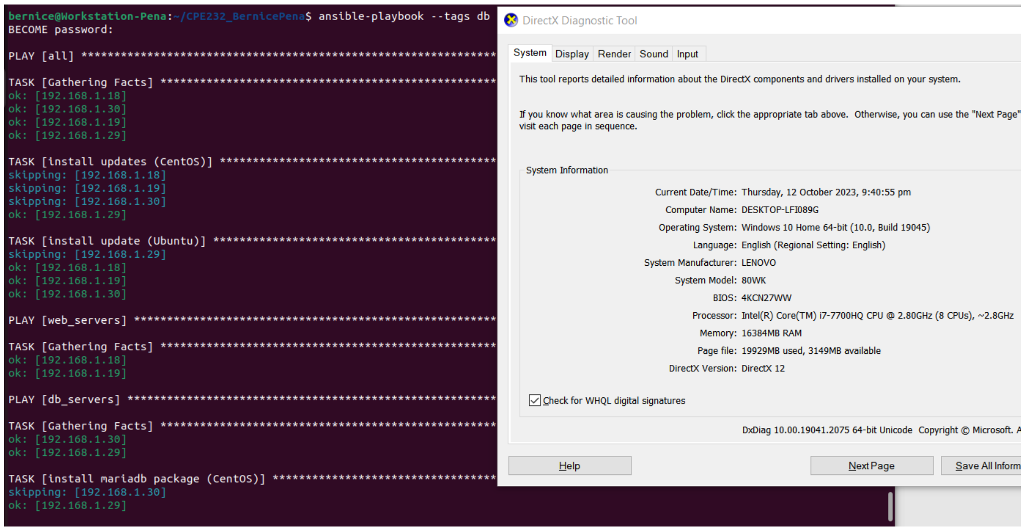
[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

It executed the tasks that have been labeled with “centos” using the

tag command

2.3 *ansible-playbook --tags db --ask-become-pass site.yml*



```
bernice@Workstation-Pena:~/CPE232_BernicePena$ ansible-playbook --tags db
BECOME password:

PLAY [all] **************************************************************

TASK [Gathering Facts] **************************************************
ok: [192.168.1.18]
ok: [192.168.1.30]
ok: [192.168.1.19]
ok: [192.168.1.29]

TASK [install updates (CentOS)] *****************************************
skipping: [192.168.1.18]
skipping: [192.168.1.19]
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install update (Ubuntu)] ******************************************
skipping: [192.168.1.29]
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]

PLAY [web_servers] ******************************************************

TASK [Gathering Facts] **************************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

PLAY [db_servers] *******************************************************

TASK [Gathering Facts] **************************************************
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install mariadb package (CentOS)] *********************************
skipping: [192.168.1.30]
ok: [192.168.1.29]
```

DirectX Diagnostic Tool

System | Display | Render | Sound | 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" visit each page in sequence.

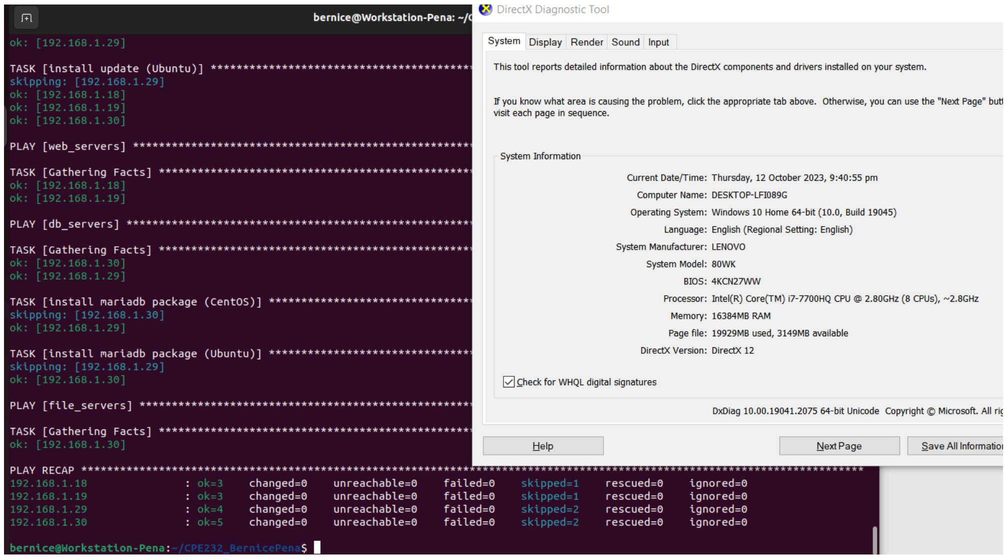
System Information

Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

☑ Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. A

Help | Next Page | Save All Inform



```
bernice@Workstation-Pena: ~/C
ok: [192.168.1.29]

TASK [install update (Ubuntu)] ******************************************
skipping: [192.168.1.29]
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]

PLAY [web_servers] ******************************************************

TASK [Gathering Facts] **************************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

PLAY [db_servers] *******************************************************

TASK [Gathering Facts] **************************************************
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install mariadb package (CentOS)] *********************************
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install mariadb package (Ubuntu)] *********************************
skipping: [192.168.1.29]
ok: [192.168.1.30]

PLAY [file_servers] *****************************************************

TASK [Gathering Facts] **************************************************
ok: [192.168.1.30]

PLAY RECAP **************************************************************************************************************
192.168.1.18               : ok=3    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.1.19               : ok=3    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.1.29               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.30               : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

bernice@Workstation-Pena:~/CPE232_BernicePena$
```

DirectX Diagnostic Tool

System | Display | Render | Sound | 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" butt visit each page in sequence.

System Information

Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

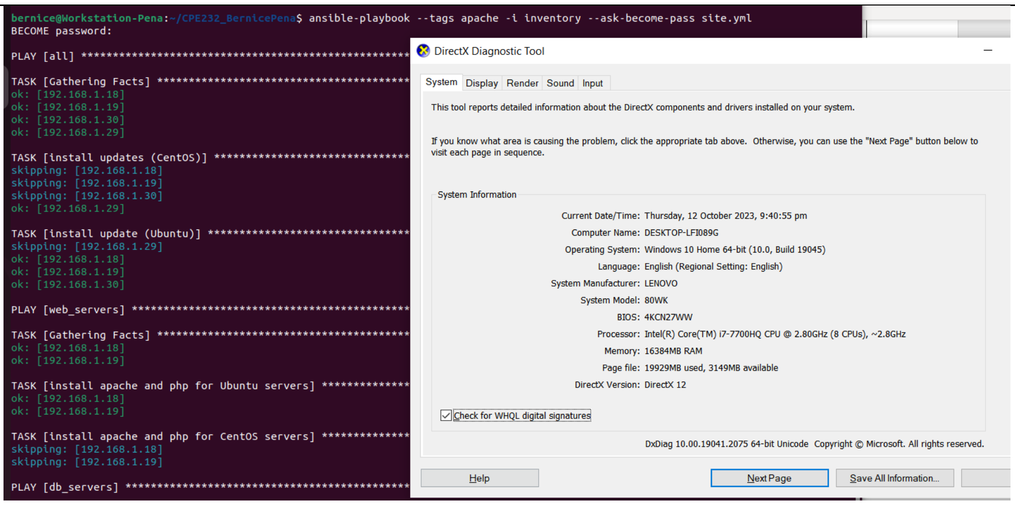
☑ Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All ri

Help | Next Page | Save All Informatio

Since db tag was used in this command, it executes the tasks that have been labeled db.

2.4 *ansible-playbook --tags apache --ask-become-pass site.yml*



```
bernice@Workstation-Pena:~/CPE232_BernicePena$ ansible-playbook --tags apache -i inventory --ask-become-pass site.yml
BECOME password:

PLAY [all] ****************************************

TASK [Gathering Facts] ****************************
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install updates (CentOS)] *******************
skipping: [192.168.1.18]
skipping: [192.168.1.19]
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install update (Ubuntu)] ********************
skipping: [192.168.1.29]
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]

PLAY [web_servers] ********************************

TASK [Gathering Facts] ****************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] **
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for CentOS servers] **
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] *********************************
```

DirectX Diagnostic Tool

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

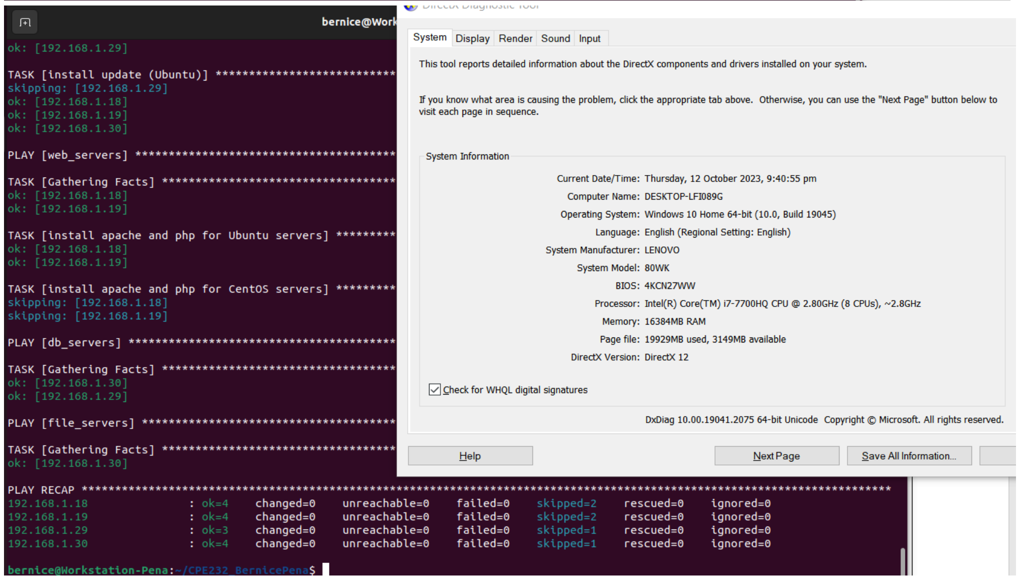
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

System Information

Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.



```
ok: [192.168.1.29]

TASK [install update (Ubuntu)] ****************************
skipping: [192.168.1.29]
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]

PLAY [web_servers] ****************************************

TASK [Gathering Facts] ************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] *********
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for CentOS servers] *********
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] *****************************************

TASK [Gathering Facts] ************************************
ok: [192.168.1.30]
ok: [192.168.1.29]

PLAY [file_servers] ***************************************

TASK [Gathering Facts] ************************************
ok: [192.168.1.30]

PLAY RECAP *************************************************************************************************************
192.168.1.18               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.29               : ok=3    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.1.30               : ok=4    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0

bernice@Workstation-Pena:~/CPE232_BernicePena$
```

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

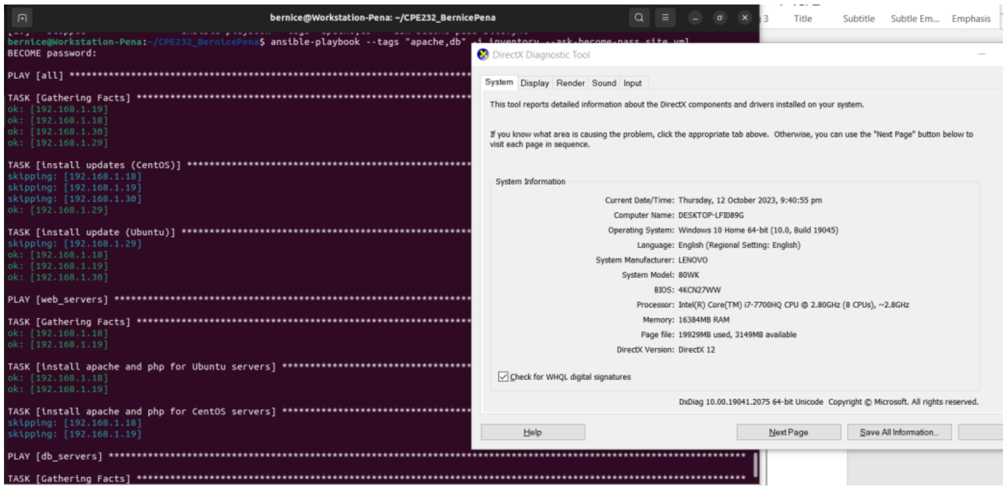
Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

This time, the tasks that have been labeled with apache was executed.

2.5 *ansible-playbook --tags "apache,db" --ask-become-pass site.yml*



```
bernice@Workstation-Pena:~/CPE232_BernicePena$ ansible-playbook --tags "apache,db" -i inventory --ask-become-pass site.yml
BECOME password:

PLAY [all] ****************************************************

TASK [Gathering Facts] ****************************************
ok: [192.168.1.19]
ok: [192.168.1.18]
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install updates (CentOS)] *******************************
skipping: [192.168.1.18]
skipping: [192.168.1.19]
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install update (Ubuntu)] ********************************
skipping: [192.168.1.29]
ok: [192.168.1.18]
ok: [192.168.1.19]
ok: [192.168.1.30]

PLAY [web_servers] ********************************************

TASK [Gathering Facts] ****************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] **************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for CentOS servers] **************
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] *********************************************************************************

TASK [Gathering Facts] ****************************************************************************
```

DirectX Diagnostic Tool

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

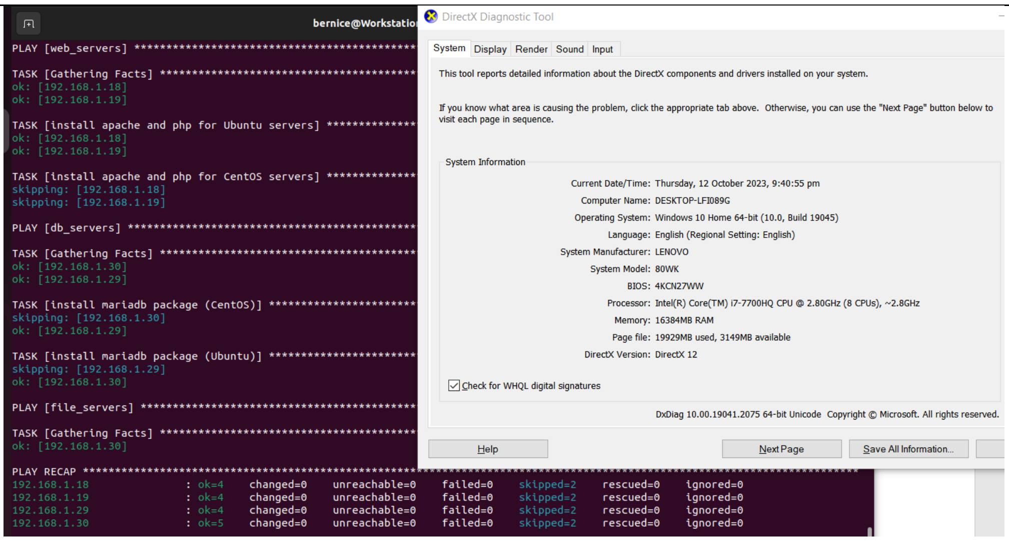
If you know what area is causing the problem, click the appropriate tab above. Otherwise, you can use the "Next Page" button below to visit each page in sequence.

System Information

Current Date/Time:	Thursday, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.



```
bernice@Workstatio

PLAY [web_servers] ********************************************

TASK [Gathering Facts] ****************************************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for Ubuntu servers] **************
ok: [192.168.1.18]
ok: [192.168.1.19]

TASK [install apache and php for CentOS servers] **************
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] *********************************************

TASK [Gathering Facts] ****************************************
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install mariadb package (CentOS)] ***********************
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [install mariadb package (Ubuntu)] ***********************
skipping: [192.168.1.29]
ok: [192.168.1.30]

PLAY [file_servers] *******************************************

TASK [Gathering Facts] ****************************************
ok: [192.168.1.30]

PLAY RECAP ****************************************************************************************************
192.168.1.18               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.29               : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.1.30               : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
```

DirectX Diagnostic Tool

System | Display | Render | Sound | 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, 12 October 2023, 9:40:55 pm
Computer Name:	DESKTOP-LFI089G
Operating System:	Windows 10 Home 64-bit (10.0, Build 19045)
Language:	English (Regional Setting: English)
System Manufacturer:	LENOVO
System Model:	80WK
BIOS:	4KCN27WW
Processor:	Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory:	16384MB RAM
Page file:	19929MB used, 3149MB available
DirectX Version:	DirectX 12

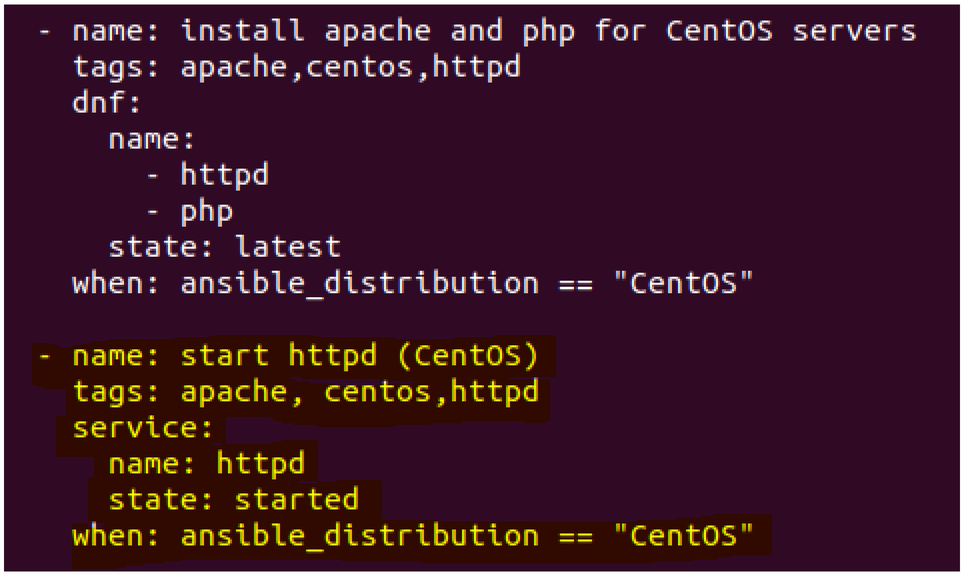
☑ Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

For this command, we used the tags with “apache,db”, this executes the tasks of db_servers and web_servers since I recently added a tag under these plays using the “apache,db” tag.

Task 3: Managing Services

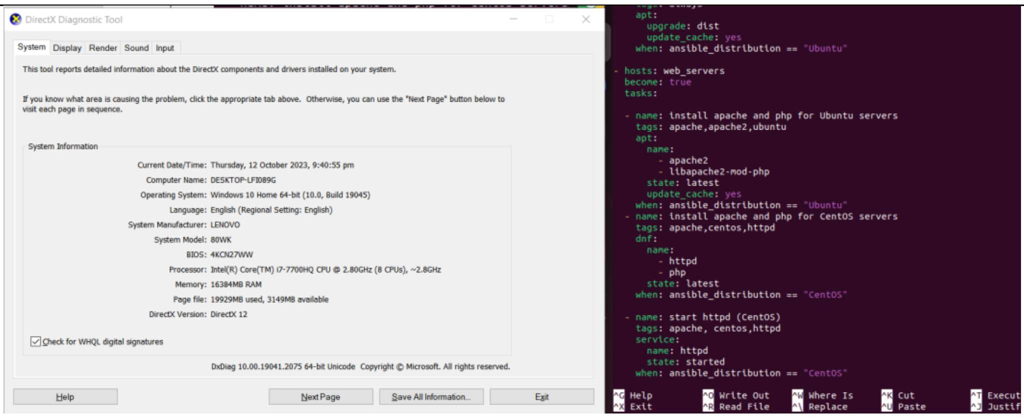
1. Edit the file site.yml and add a play that will automatically start the httpd on CentOS server.



```
- name: install apache and php for CentOS servers
  tags: apache,centos,httpd
  dnf:
    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"
```

Figure 3.1.1

Make sure to save the file and exit.



DirectX Diagnostic Tool

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

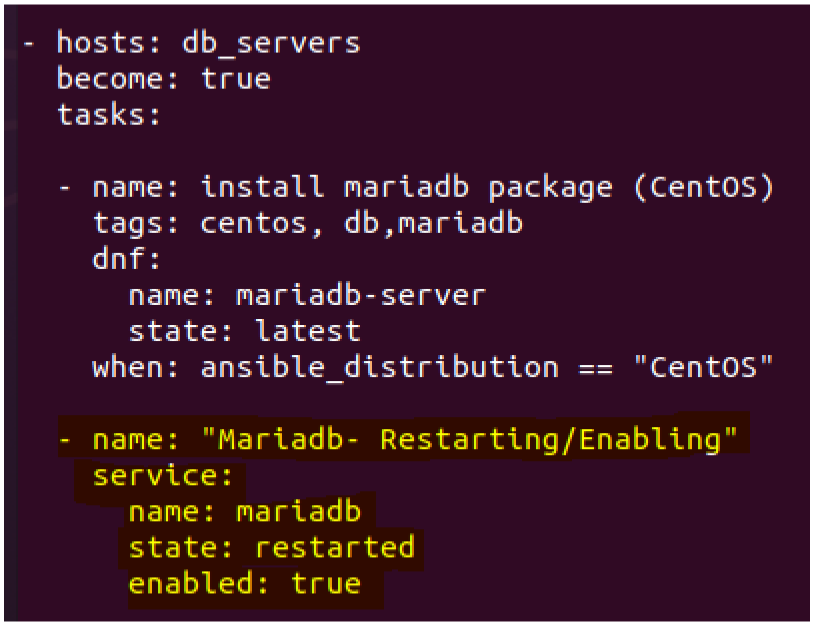
```
   Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
       Computer Name: DESKTOP-LFI089G
    Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
            Language: English (Regional Setting: English)
 System Manufacturer: LENOVO
        System Model: 80WK
                BIOS: 4KCN27WW
           Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
              Memory: 16384MB RAM
           Page file: 19929MB used, 3149MB available
     DirectX Version: DirectX 12
```

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

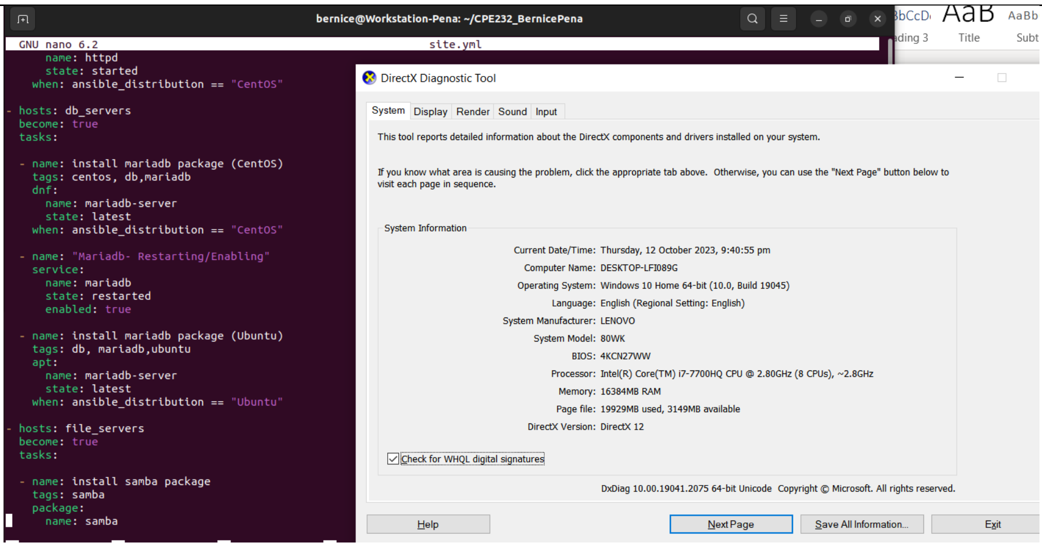
```
    apt:
      upgrade: dist
      update_cache: yes
    when: ansible_distribution == "Ubuntu"

- hosts: web_servers
  become: true
  tasks:

  - name: install apache and php for Ubuntu servers
    tags: apache,apache2,ubuntu
    apt:
      name:
        - apache2
        - libapache2-mod-php
      state: latest
      update_cache: yes
    when: ansible_distribution == "Ubuntu"
  - name: install apache and php for CentOS servers
    tags: apache,centos,httpd
    dnf:
      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"

^G Help      ^O Write Out  ^W Where Is  ^K Cut     ^T Execut
^X Exit      ^R Read File  ^\ Replace   ^U Paste   ^J Justif
```

You would also notice from our previous activity that we already created a module that runs a service.



```
- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (CentOS)
    tags: centos, db,mariadb
    dnf:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

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

Figure 3.1.2



```
GNU nano 6.2                                  site.yml
      name: httpd
      state: started
    when: ansible_distribution == "CentOS"

- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (CentOS)
    tags: centos, db,mariadb
    dnf:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "CentOS"

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

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

- hosts: file_servers
  become: true
  tasks:

  - name: install samba package
    tags: samba
    package:
      name: samba
```

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

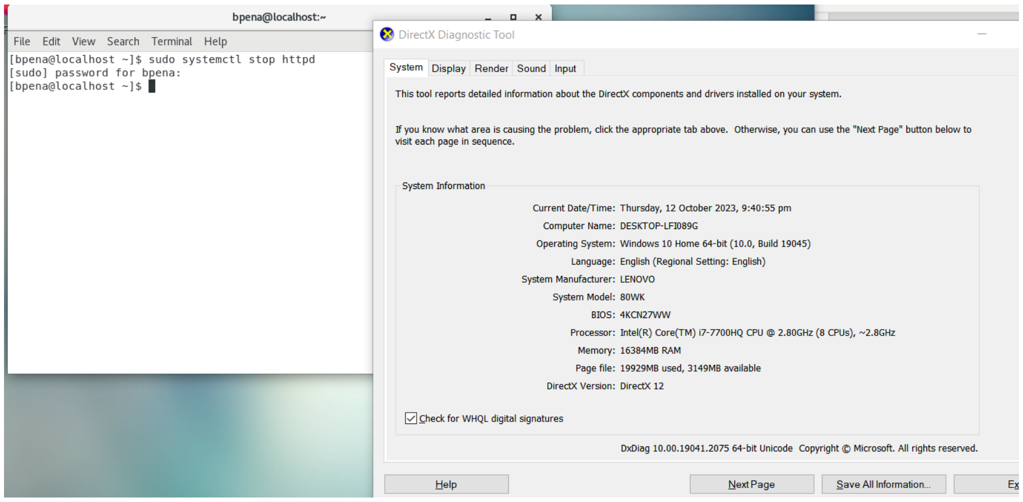
```
  Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
      Computer Name: DESKTOP-LFI089G
   Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
           Language: English (Regional Setting: English)
System Manufacturer: LENOVO
       System Model: 80WK
               BIOS: 4KCN27WW
          Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
             Memory: 16384MB RAM
          Page file: 19929MB used, 3149MB available
    DirectX Version: DirectX 12
```

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

This is because in CentOS, installed packages' services are not run automatically. Thus, we need to create the module to run it automatically.

2. To test it, before you run the saved playbook, go to the CentOS server and stop the currently running httpd using the command *sudo systemctl stop httpd.* When prompted, enter the sudo password. After that, open the browser and enter the CentOS server's IP address. You should not be getting a display because we stopped the httpd service already.



```
[bpena@localhost ~]$ sudo systemctl stop httpd
[sudo] password for bpena:
[bpena@localhost ~]$ 
```

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.

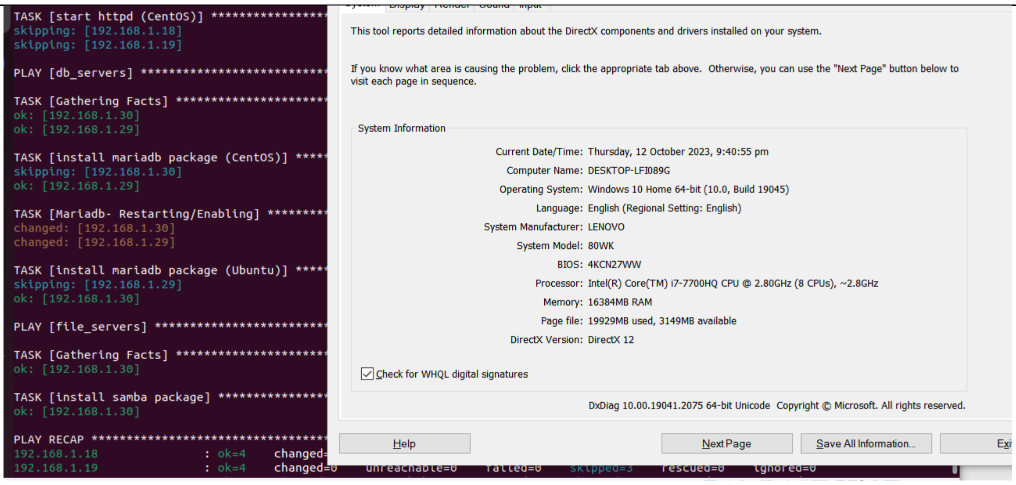
System Information

```
  Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
      Computer Name: DESKTOP-LFI089G
   Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
           Language: English (Regional Setting: English)
System Manufacturer: LENOVO
       System Model: 80WK
               BIOS: 4KCN27WW
          Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
             Memory: 16384MB RAM
          Page file: 19929MB used, 3149MB available
    DirectX Version: DirectX 12
```

[✓] Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

3. Go to the local machine and this time, run the *site.yml* file. Then after running the file, go again to the CentOS server and enter its IP address on the browser. Describe the result.



```
TASK [start httpd (CentOS)] ****************
skipping: [192.168.1.18]
skipping: [192.168.1.19]

PLAY [db_servers] *****************************

TASK [Gathering Facts] ***********************
ok: [192.168.1.30]
ok: [192.168.1.29]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.1.30]
ok: [192.168.1.29]

TASK [Mariadb- Restarting/Enabling] *********
changed: [192.168.1.30]
changed: [192.168.1.29]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.1.29]
ok: [192.168.1.30]

PLAY [file_servers] **************************

TASK [Gathering Facts] ***********************
ok: [192.168.1.30]

TASK [install samba package] ****************
ok: [192.168.1.30]

PLAY RECAP ***********************************
192.168.1.18               : ok=4    changed=
192.168.1.19               : ok=4    changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
```

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

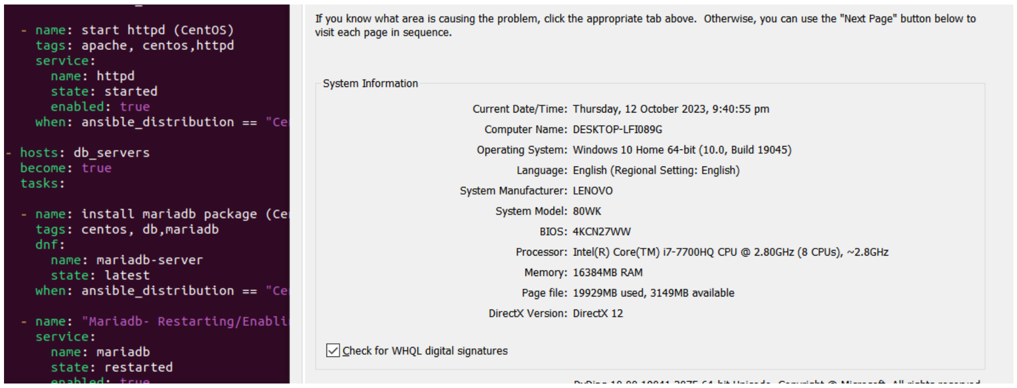
Current Date/Time: Thursday, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

☑ Check for WHQL digital signatures

DxDiag 10.00.19041.2075 64-bit Unicode Copyright © Microsoft. All rights reserved.

The task for start httpd for CentOS skipped my two Ubuntu servers since it should be done only for CentOS server

To automatically enable the service every time we run the playbook, use the command *enabled: true* similar to Figure 7.1.2 and save the playbook.



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

- hosts: db_servers
  become: true
  tasks:

  - name: install mariadb package (Ce
    tags: centos, db,mariadb
    dnf:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "Ce

  - name: "Mariadb- Restarting/Enabli
    service:
      name: mariadb
      state: restarted
```

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, 12 October 2023, 9:40:55 pm
Computer Name: DESKTOP-LFI089G
Operating System: Windows 10 Home 64-bit (10.0, Build 19045)
Language: English (Regional Setting: English)
System Manufacturer: LENOVO
System Model: 80WK
BIOS: 4KCN27WW
Processor: Intel(R) Core(TM) i7-7700HQ CPU @ 2.80GHz (8 CPUs), ~2.8GHz
Memory: 16384MB RAM
Page file: 19929MB used, 3149MB available
DirectX Version: DirectX 12

☑ Check for WHQL digital signatures

Reflections:

Answer the following:

1. What is the importance of putting our remote servers into groups?
   When having multiple servers with specific purposes, grouping them makes it more organized and less complex when creating tasks depending on which server should handle the tasks. Grouping the servers provides efficient infrastructure management since it simplifies the tasks and makes it flexible since this is where we can also control it as we group them into our desired group.
2. What is the importance of tags in playbooks?
   The tags allow us to make task selection since it provides the ability to execute selected or specific tasks in a group of servers, this also saves time since not all the tasks need to be executed. Tags can also be helpful when it comes to identifying what are the executed tasks allowing us to easily debug errors.

3. Why do think some services need to be managed automatically in playbooks?
   Some services need automation especially when it requires consistency and repeated configurations, this helps in reducing human error as well as maintaining the purpose of the service. Aside from this, automation saves time, instead of manually repeating all the tasks, automation have the ability to repeat them all automatically using the same process, this is very helpful when in terms of maintaining consistency and scalability of a certain environment.