

Name: Karlo D. Santos	Date Performed: 10/13/2023
Course/Section: CPE31S5	Date Submitted: 10/14/2023
Instructor: Engr. Roman Richard	Semester and SY: 1st sem, 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

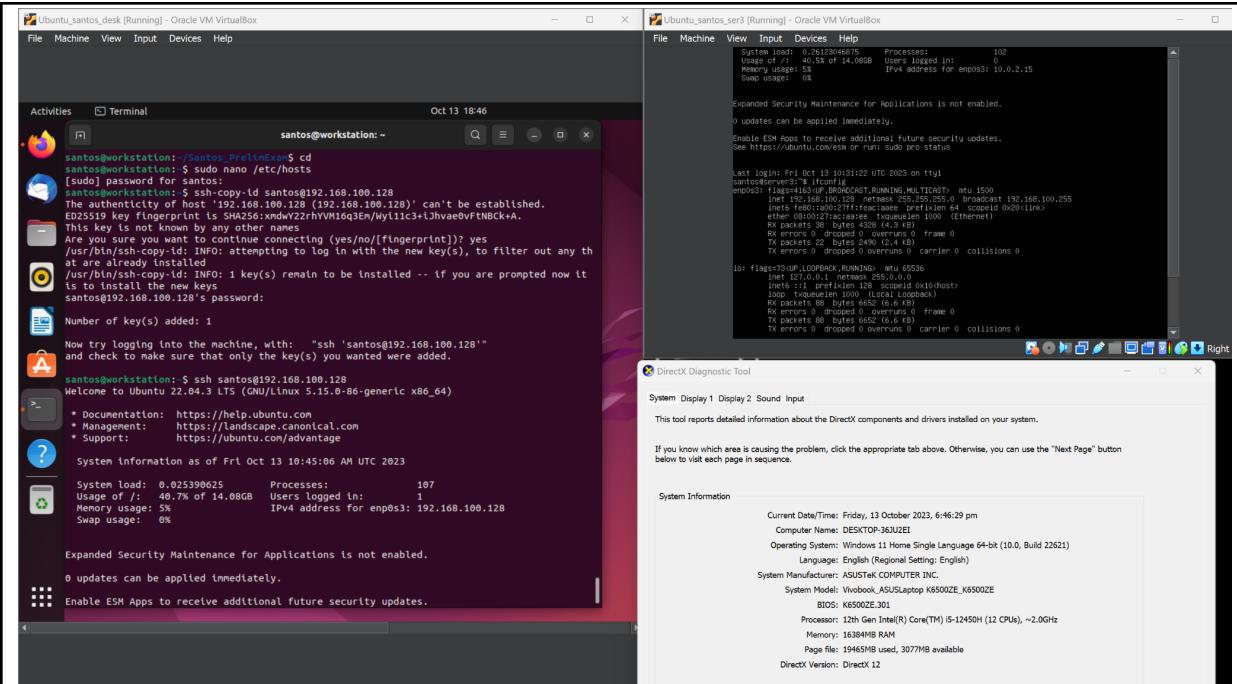
2. Discussion:

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.



I made a server 3 and installed all necessary things that are needed. After that I execute the ssh-copy-id then username@ip address to copy the public key to the new 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"
```

```

santos@workstation: ~/CPE232_KarloSantos
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"

```

System Information

- Current Date/Time: Friday, 13 October 2023, 11:15:08 pm
- Computer Name: DESKTOP-36JU2EI
- Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
- Language: English (Regional Setting: English)
- System Manufacturer: ASUSTEK COMPUTER INC.
- System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
- BIOS: K6500ZE.301
- Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
- Memory: 16384MB RAM
- Page file: 20439MB used, 2825MB available
- DirectX Version: DirectX 12

Check for WHQL digital signatures

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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.

```

santos@workstation: ~/CPE232_KarloSantos
GNU nano 6.2          inventory

[web_servers]
192.168.100.122
192.168.100.123

[db_servers]
192.168.100.128
192.168.100.129

[file_servers]
192.168.100.128

```

System Information

- Current Date/Time: Saturday, 14 October 2023, 1:20:46 am
- Computer Name: DESKTOP-36JU2EI
- Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
- Language: English (Regional Setting: English)
- System Manufacturer: ASUSTEK COMPUTER INC.
- System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
- BIOS: K6500ZE.301
- Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
- Memory: 16384MB RAM
- Page file: 20932MB used, 3616MB available
- DirectX Version: DirectX 12

Check for WHQL digital signatures

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In the inventory I place the ubuntu server 1 and 2 in the web_servers. For the db_server, I put the CentOS and also the server 3. Lastly for the file_server, i used the server 3 on it.

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.

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.

```
santos@workstation:~/CPE232_KarloSantos$ ansible-playbook --ask-become-pass site.yml
[sudo] password: 
PLAY [all]
-----
TASK [Gathering Facts]
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (CentOS)]
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (Ubuntu)]
skipping: [192.168.100.129]
ok: [192.168.100.122]
ok: [192.168.100.123]
changed: [192.168.100.123]

PLAY [web_servers]
-----
TASK [Gathering Facts]
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for Ubuntu servers]
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for CentOS servers]
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY RECAP
192.168.100.122 : ok=4    changed=0   unreachable=0   failed=0   skip=2
192.168.100.123 : ok=4    changed=1   unreachable=0   failed=0   skip=1
192.168.100.128 : ok=2    changed=0   unreachable=0   failed=0   skip=1
192.168.100.129 : ok=1    changed=0   unreachable=0   failed=0   skip=1
```

The screenshot shows the terminal output of the Ansible playbook execution. The terminal window title is "santos@workstation: ~/CPE232_KarloSantos". The terminal content shows the playbook running through various tasks: gathering facts, installing updates (skipping Ubuntu), installing apache/php (targeting CentOS), and then installing apache/php (targeting Ubuntu). The final PLAY RECAP summary shows the status of each host: 192.168.100.122 (ok=4, changed=0, failed=0, skip=2), 192.168.100.123 (ok=4, changed=1, failed=0, skip=1), 192.168.100.128 (ok=2, changed=0, failed=0, skip=1), and 192.168.100.129 (ok=1, changed=0, failed=0, skip=1).

It shows that all the tasks are successfully executed. It reads first all the ip addresses that are in the inventory. Next is for installing updates in CentOS so it skips the Ubuntu server, and similarly to installing in Ubuntu it skip the CentOS. It has the same format to the other task that is also executed to the designated server.

- 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:

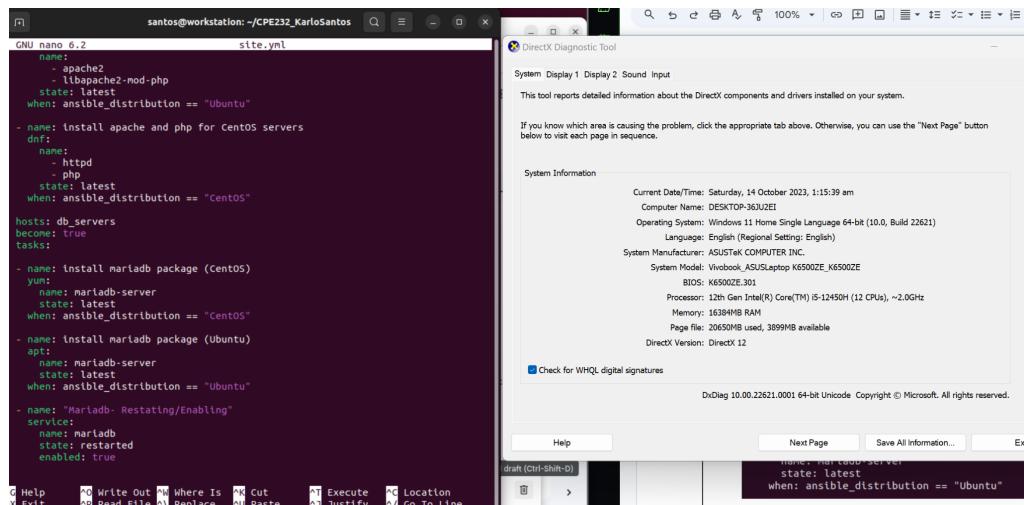
    - name: install mariadb package (Centos)
      yum:
        name: mariadb-server
        state: latest
      when: ansible_distribution == "Centos"

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

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

```

Make sure to save the file and exit.



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

santos@workstation: ~/CPE232_KarloSantos\$ sudo nano site.yml

```

BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.128]
ok: [192.168.100.123]
ok: [192.168.100.129]

TASK [Install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.128]
ok: [192.168.100.122]
ok: [192.168.100.123]

PLAY [web_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for Ubuntu servers] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for Ubuntu servers] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY RECAP *****
192.168.100.122 : ok=4    changed=0   unreachable=0   failed=0   skip=0
192.168.100.123 : ok=4    changed=0   unreachable=0   failed=0   skip=0
192.168.100.128 : ok=5    changed=2   unreachable=0   failed=0   skip=0
192.168.100.129 : ok=5    changed=1   unreachable=0   failed=0   skip=0

```

DIRECTX Diagnostic Tool

System Information

Current Date/Time: Saturday, 14 October 2023, 1:15:39 am
Computer Name: DESKTOP-36JUZIE
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20650MB used, 3899MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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Help Next Page Save All Information... Exit

System Information

Current Date/Time: Saturday, 14 October 2023, 1:15:39 am
Computer Name: DESKTOP-36JUZIE
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20650MB used, 3899MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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Help Next Page Save All Information... Exit

Since we edit the site.yml we can see some changes in the results. It shows another play that is for db_servers that will help in installing the mariadb. It shows that it is installed first in CentOS and in Ubuntu then enables it to both.

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.

The screenshot displays two Oracle VM Virtual Machines running Ubuntu and CentOS. Both machines have their respective terminal windows open, showing the output of the command `sudo systemctl status mariadb`. The terminals show the service is active (running) and has been loaded. To the right of each terminal is the Microsoft DirectX Diagnostic Tool window, which provides system information such as processor, memory, and DirectX version.

```

Ubuntu Santos_ser[Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Fri Oct 13 16:25:56 UTC 2023 from 192.168.100.111 on pts/0
[santos@server3 ~]$ systemctl status mariadb
● mariadb.service - MariaDB database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2023-10-13 17:14:26 UTC; 8min ago
     Docs: man:/usr/share/man/man8/mariadb(8)
Main PID: 7639 (mariadb)
   Memory: 60.6M
      CPU: 27mms
     CGroup: /system.slice/mariadb.service
             └─ 7639 /usr/sbin/mariadb

Oct 13 17:14:26 server3 mariadb[7639]: Version '10.6.12-MariaDB-ubuntu.02.04.1' socket: '/run/mariadb/mariadb.sock'
Oct 13 17:14:26 server3 systemd[1]: Started MariaDB 10.6.12 database server.
Oct 13 17:14:26 server3 mariadb[7639]: Upgrading MySQL tables if necessary.
Oct 13 17:14:26 server3 /etc/mysql/debian-start[7656]: Looking for 'mariadb' as /usr/bin/mariadb
Oct 13 17:14:26 server3 /etc/mysql/debian-start[7656]: Found /usr/bin/mariadb
Oct 13 17:14:26 server3 /etc/mysql/debian-start[7659]: This installation of MariaDB is already using
Oct 13 17:14:26 server3 /etc/mysql/debian-start[7659]: There is no need to run mysql_upgrade again.
Oct 13 17:14:26 server3 /etc/mysql/debian-start[7659]: If you need to run
Oct 13 17:14:26 server3 /etc/mysql/debian-start[7657]: Checking for instances not accessible...
Oct 13 17:14:26 server3 /etc/mysql/debian-start[7672]: Triggering mysqld-recover for all MyISAM tab
lines 1-28/28 (END)

1zz : OK=4 Changed=0 Unreachable=0 Talled=0 Skipped=0 Right Ctrl

CentOS_Santos[Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
File Edit View Search Terminal Help
[santos@localhost ~]$ 
[santos@localhost ~]$ systemctl status mariadb
● mariadb.service - MariaDB database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor preset: disabled)
   Active: active (running) since Fri 2023-10-13 13:08:28 EDT; 2min 23s ago
     Process: 14581 ExecStartPre=/usr/libexec/mariadb-wait-ready $NAMEPID (code=exited, status=0/SUCCESS)
    Process: 14581 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir $NAME (code=exited, stat
us=0/SUCCESS)
   Main PID: 14537 (mysqld_safe)
      Tasks: 26
     CGroup: /system.slice/mariadb.service
             └─ 14537 /usr/libexec/mysqld_safe --basedir=/usr
                  ├─ 14701 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysql --plu...
Oct 13 13:08:26 localhost.localdomain systemd[1]: Stopped MariaDB database server.
Oct 13 13:08:26 localhost.localdomain systemd[1]: Starting MariaDB database server...
Oct 13 13:08:26 localhost.localdomain mariadb-prepare-db-dir[14581]: Database Mariab...
Oct 13 13:08:26 localhost.localdomain mariadb-prepare-db-dir[14581]: If this is not ...
Oct 13 13:08:26 localhost.localdomain mysqld_safe[14537]: 231013 13:08:26 mysqld saf...
Oct 13 13:08:26 localhost.localdomain mysqld[14537]: 231013 13:08:26 mysqld saf...
Oct 13 13:08:28 localhost.localdomain systemd[1]: Started MariaDB database server.
Hint: Some lines were ellipsized, use -l to show in full.
[santos@localhost ~]$ 

1zz : OK=4 Changed=0 Unreachable=0 Talled=0 Skipped=0 Right Ctrl

```

Describe the output.

It shows after executing the command that the status of mariadb.service is active (running). So, we can say that we successfully installed it in both 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.

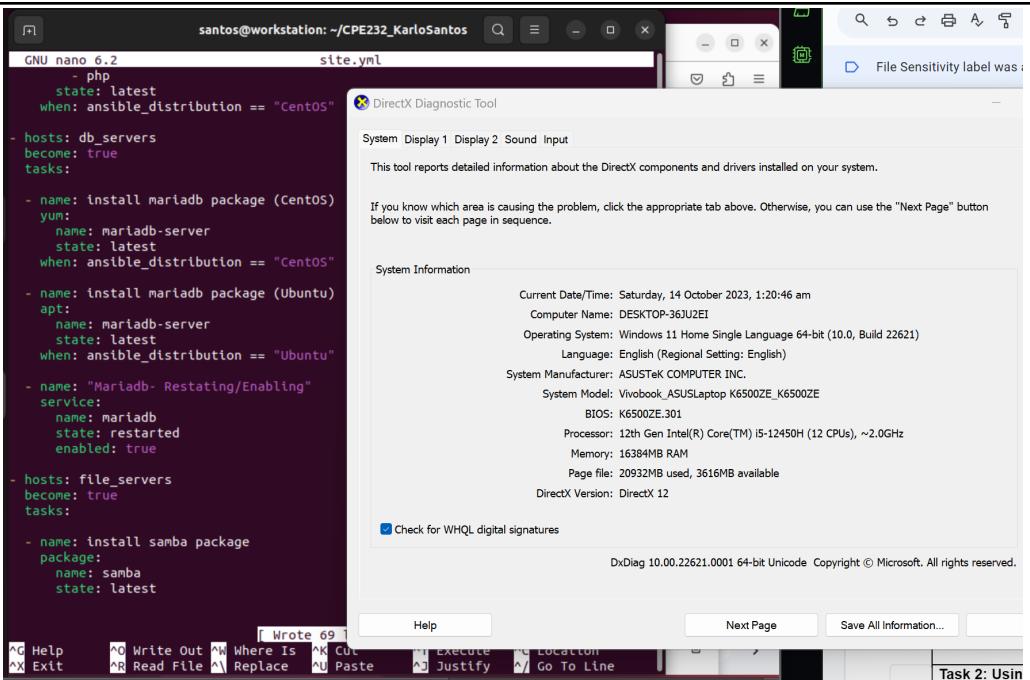
```

- hosts: file_servers
  become: true
  tasks:

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

```

Make sure to save the file and exit.

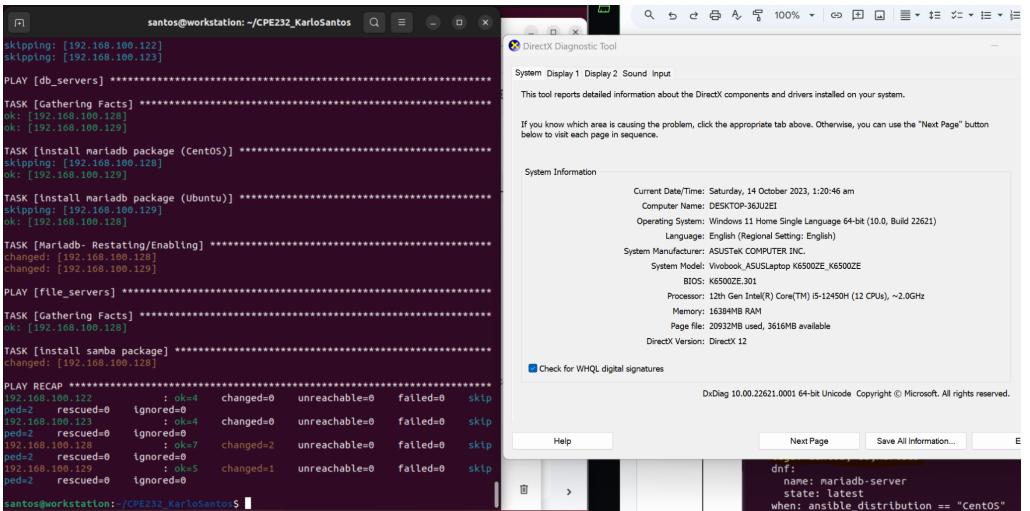


```

santos@workstation: ~/CPE232_KarloSantos
GNU nano 6.2          site.yml
  - 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: install mariadb package (Ubuntu)
        apt:
          name: mariadb-server
          state: latest
          when: ansible_distribution == "Ubuntu"
      - name: "Mariadb- Restating/Enabling" service:
          name: mariadb
          state: restarted
          enabled: true
  - hosts: file_servers
    become: true
    tasks:
      - name: install samba package
        package:
          name: samba
          state: latest

```

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



```

santos@workstation: ~/CPE232_KarloSantos
skipping: [192.168.100.122]
skipping: [192.168.100.123]
PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.100.122]
ok: [192.168.100.123]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.100.122]
ok: [192.168.100.123]

TASK [Mariadb- Restating/Enabling] *****
changed: [192.168.100.122]
changed: [192.168.100.123]

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]

TASK [install samba package] *****
changed: [192.168.100.122]

PLAY RECAP *****
192.168.100.122 : ok=4    changed=0    unreachable=0    failed=0    skipped=2
                   rescued=0   ignored=0
192.168.100.123 : ok=4    changed=0    unreachable=0    failed=0    skipped=2
                   rescued=0   ignored=0
192.168.100.122 : ok=7    changed=2    unreachable=0    failed=0    skipped=0
                   rescued=0   ignored=5
192.168.100.123 : ok=5    changed=1    unreachable=0    failed=0    skipped=0
                   rescued=0   ignored=0

```

It shows a new play since I added a play for *file_servers*. As you can see it shows that it successfully execute all the tasks.

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.

santos@workstation:~/CPE232_KarloSan... site.yml

```

- 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

```

GNU nano 6.2 [Read 76 lines]

DIRECTX Diagnostic Tool

System Display 1 Display 2 Sound Input

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

If you know which 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: Saturday, 14 October 2023, 1:20:46 am
Computer Name: DESKTOP-36JU2EI
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20932MB used, 3616MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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Help Next Page Save All Information

santos@workstation:~/CPE232_KarloSan... site.yml

```

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: install mariadb package (Ubuntu)
    tags: db, mariadb,ubuntu
    apt:
      name: mariadb-server
      state: latest
    when: ansible_distribution == "Ubuntu"
  - name: "Mariadb- Restating/Enabling"
    service:
      name: mariadb
      state: restarted
      enabled: true
  hosts: file_servers
  become: true
  tasks:
    - name: install samba package
      tags: samba
      package:
        name: samba
        state: latest

```

GNU nano 6.2

DIRECTX Diagnostic Tool

System Display 1 Display 2 Sound Input

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

If you know which 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: Saturday, 14 October 2023, 1:20:46 am
Computer Name: DESKTOP-36JU2EI
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20932MB used, 3616MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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

Main Next Page Save All Information

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

The screenshot shows two terminal windows and two DirectX Diagnostic Tool windows. The top terminal window displays the output of an Ansible playbook run on a group of servers. The bottom terminal window shows a similar Ansible run, but with different tasks and host selection. The two DirectX Diagnostic Tool windows provide detailed system information for the host machine, including processor, memory, and DirectX version.

```
santos@workstation: ~/CPE232_KarloSan...
ped=2 rescued=0 ignored=0
santos@workstation:~/CPE232_KarloSan...$ sudo nano site.yml
santos@workstation:~/CPE232_KarloSan...$ ansible-playbook --ask-become-pass site.yml
BECOME password:
PLAY [all] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.128]
skipping: [192.168.100.123]
ok: [192.168.100.129]

TASK [Install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for Ubuntu servers] *****
ok: [192.168.100.123]
ok: [192.168.100.122]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]
ok: [192.168.100.129]

santos@workstation: ~/CPE232_KarloSan...
ok: [192.168.100.123]

TASK [Install apache and php for Ubuntu servers] *****
ok: [192.168.100.123]
ok: [192.168.100.122]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install mariadb package (CentOS)] *****
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install mariadb package (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.128]

TASK [Mariadb - Restating/Enabling] *****
changed=0 ok=1 skipped=0
ok: [192.168.100.129]

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]

TASK [Install samba package] *****
ok: [192.168.100.128]

PLAY RECAP *****
192.168.100.122 : ok=4 changed=0 unreachable=0 failed=0 skip=0
ped=2 rescued=0 ignored=0
192.168.100.123 : ok=4 changed=0 unreachable=0 failed=0 skip=0
ped=2 rescued=0 ignored=0
192.168.100.128 : ok=7 changed=1 unreachable=0 failed=0 skip=0
ped=2 rescued=0 ignored=0
192.168.100.129 : ok=5 changed=1 unreachable=0 failed=0 skip=0
ped=2 rescued=0 ignored=0
```

The tags that I add in the site.yml helps in executing certain tasks that will help in targeting a specific group of servers. It installs all needed packages in the group of servers and it will skip the unnecessary tasks that are for other groups of servers.

2. On the local machine, try to issue the following commands and describe each result:

2.1 *ansible-playbook --list-tags site.yml*

```

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]

TASK [install samba package] *****
ok: [192.168.100.128]

PLAY RECAP *****
192.168.100.122 : ok=4    changed=0    unreachable=0    failed=0
pede2  rescued=0  ignored=0
192.168.100.123 : ok=4    changed=0    unreachable=0    failed=0
pede2  rescued=0  ignored=0
192.168.100.128 : ok=7    changed=1    unreachable=0    failed=0
pede2  rescued=0  ignored=0
192.168.100.129 : ok=5    changed=1    unreachable=0    failed=0
pede2  rescued=0  ignored=0

santos@workstation:~/CPE232_KarloSantos$ sudo nano site.yml
santos@workstation:~/CPE232_KarloSantos$ ansible-playbook --list-tags site.yml
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]

```

After executing the command it shows all the tags I added to the site.yml. The tags represent each plays that will help in organizing and making sure that only needed tasks will be executed.

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

```

TASK TAGS: [always]
santos@workstation:~/CPE232_KarloSantos$ ansible-playbook --tags centos --ask-become-pass site.yml
BECOME password:

PLAY [all] *****
TASK [Gathering Facts] *****
ok: [192.168.100.129]
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.129]
ok: [192.168.100.122]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install mariadb package (CentOS)] *****
skipping: [192.168.100.128]
ok: [192.168.100.129]

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]

PLAY RECAP *****
192.168.100.122 : ok=3    changed=0    unreachable=0    failed=0    skipped=3
pede2  rescued=0  ignored=0
192.168.100.123 : ok=3    changed=0    unreachable=0    failed=0    skipped=3
pede2  rescued=0  ignored=0
192.168.100.128 : ok=0    changed=0    unreachable=0    failed=0    skipped=3
pede2  rescued=0  ignored=0
192.168.100.129 : ok=4    changed=0    unreachable=0    failed=0    skipped=0
pede1  rescued=0  ignored=0

```

As you can see in the results, it will execute a different task that is with centos on its tag.

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

```
santos@werkstation:~/CPE232_KarlosSantos$ ansible-playbook --tags db --ask-become-pass site.yml
BECOME password:
PLAY [all] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.128]

PLAY [file_servers] *****
TASK [install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.128]

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]

PLAY RECAP *****
192.168.100.122 : ok=3    changed=0    unreachable=0    failed=0    skip=0
ped1: rescued=0  ignored=0
192.168.100.123 : ok=3    changed=0    unreachable=0    failed=0    skip=0
ped1: rescued=0  ignored=0
192.168.100.128 : ok=3    changed=0    unreachable=0    failed=0    skip=0
ped2: rescued=0  ignored=0
192.168.100.129 : ok=4    changed=0    unreachable=0    failed=0    skip=0
ped2: rescued=0  ignored=0
```

The screenshot shows the DirectX Diagnostic Tool window. It displays system information including the current date/time (Saturday, 14 October 2023, 1:20:46 am), computer name (DESKTOP-36JU2EI), operating system (Windows 11 Home Single Language 64-bit (10.0, Build 22621)), language (English), regional setting (English), and system manufacturer (ASUSTeK COMPUTER INC.). It also shows the system model (Vivobook ASUSLaptop K6500ZE_K6500ZE), BIOS version (K6500ZE.301), processor (12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz), memory (16384MB RAM), page file (20932MB used, 3616MB available), and DirectX version (DirectX 12). A checkbox for 'Check for WHQL digital signatures' is checked. The status bar at the bottom indicates 'DxDiag 10.00.22621.0001 64-bit Unicode Copyright © Microsoft. All rights reserved.'

After I execute the command, it only play the tasks that have db labeled on it.

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

```

santos@workstation: ~/PE332_EarlosSantos $ ansible-playbook --tags apache --ask-become-pass site.yml
PLAY [all] *****
TASK [Gathering Facts] *****
ok: [192.168.100.123]
ok: [192.168.100.122]
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.123]
ok: [192.168.100.122]
ok: [192.168.100.128]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for Ubuntu servers] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.129]
ok: [192.168.100.128]

TASK [Install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.123]
ok: [192.168.100.122]
ok: [192.168.100.128]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for Ubuntu servers] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.129]
ok: [192.168.100.128]

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]

PLAY RECAP *****
192.168.100.122 : ok=4    changed=0   unreachable=0   failed=0   skip=2
pedr2  rescued=0  ignored=0
192.168.100.123 : ok=4    changed=0   unreachable=0   failed=0   skip=2
pedr2  rescued=0  ignored=0
192.168.100.128 : ok=4    changed=0   unreachable=0   failed=0   skip=1
pedr1  rescued=0  ignored=0
192.168.100.129 : ok=3    changed=0   unreachable=0   failed=0   skip=1
pedr1  rescued=0  ignored=0

```

DirectX Diagnostic Tool

System Display 1 Display 2 Sound Input

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

If you know which 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: Saturday, 14 October 2023, 1:20:46 am
Computer Name: DESKTOP-36JUZEI
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTek COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20932MB used, 3616MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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Help Next Page Save All Information... Exit

DirectX Diagnostic Tool

System Display 1 Display 2 Sound Input

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

If you know which 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: Saturday, 14 October 2023, 1:20:46 am
Computer Name: DESKTOP-36JUZEI
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTek COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20932MB used, 3616MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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Help Next Page Save All Information... Exit

For this one, it only executes different tasks that have apache on its tags.

2.5 ansible-playbook --tags “apache,db” --ask-become-pass site.yml

```

santos@workstation:/CPE232_KarlosSantos$ ansible-playbook --tags "apache,db" --ask-become-pass site.yml
PLAY [all] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]
ok: [192.168.100.129]

TASK [install updates (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.128]
skipping: [192.168.100.129]
ok: [192.168.100.123]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.122]
ok: [192.168.100.128]
ok: [192.168.100.123]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [install apache and php for Ubuntu servers] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

```

DirectX Diagnostic Tool

System Information

Current Date/Time: Saturday, 14 October 2023, 1:20:46 am
Computer Name: DESKTOP-363U2I
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE_301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20932MB used, 3616MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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Help Next Page Save All Information... Exit


```

ok: [192.168.100.122]
ok: [192.168.100.123]
ok: [192.168.100.128]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [install apache and php for Ubuntu servers] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.122]
ok: [192.168.100.123]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.128]

PLAY [file_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.100.128]

PLAY RECAP *****
192.168.100.122 : ok=6 changed=0 unreachable=0 failed=0 skipped=0
192.168.100.123 : ok=6 changed=0 unreachable=0 failed=0 skipped=0
192.168.100.128 : ok=6 changed=0 unreachable=0 failed=0 skipped=0
192.168.100.129 : ok=6 changed=0 unreachable=0 failed=0 skipped=0

```

DirectX Diagnostic Tool

System Information

Current Date/Time: Saturday, 14 October 2023, 1:20:46 am
Computer Name: DESKTOP-363U2I
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE_301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20932MB used, 3616MB available
DirectX Version: DirectX 12

Check for WHQL digital signatures

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Help Next Page Save All Information... Exit

We can see using this command it uses the tags that have “apache,db”. It only executes the tasks under the db_servers and web servers.

Task 3: Managing Services

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

```

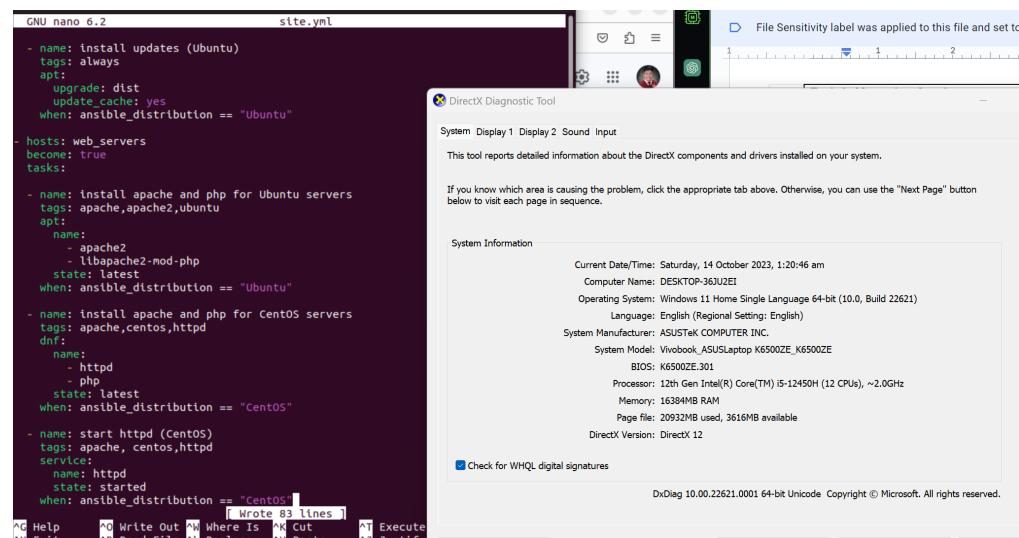
- name: install apache and php for CentOS servers
  tags: apache,centos,httpd
  dnf:
    name:
      - httpd
      - php
    state: latest
  when: ansible_distribution == "CentOS"

- 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.



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

```

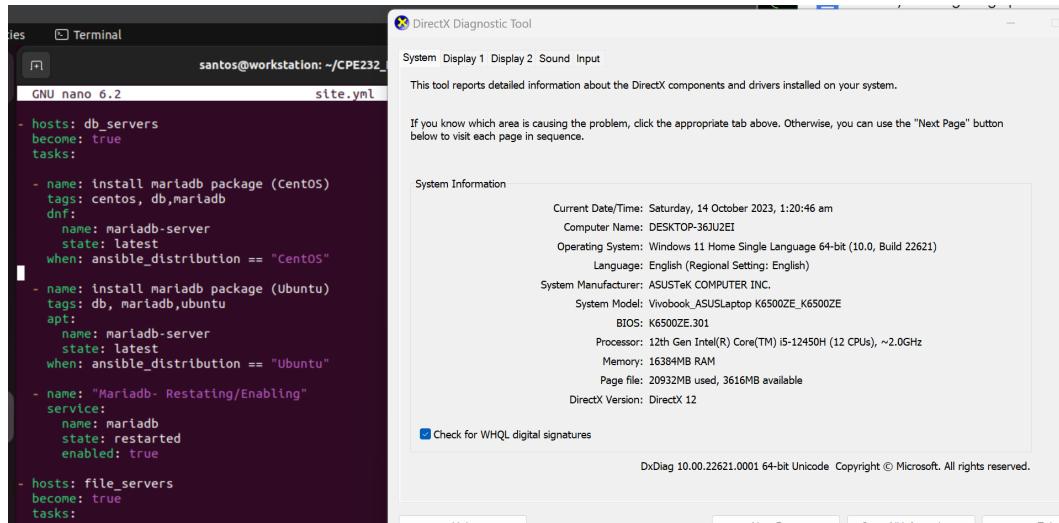
- hosts: db_servers
  become: true
  tasks:

    - 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



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.

Oct 13 13:08:26 localhost.localdomain systemd[1] Oct 13 13:08:26 localhost.localdomain systemd[1] Oct 13 13:08:26 localhost.localdomain mariadb-pr... Oct 13 13:08:26 localhost.localdomain mysqld_saf... Oct 13 13:08:26 localhost.localdomain mysqld_saf... Oct 13 13:08:26 localhost.localdomain systemd[1] Hint: Some lines were ellipsized, use '-l' to show [santos@localhost ~]\$ sudo systemctl stop httpd [sudo] password for santos: sudo: systemctl: command not found [santos@localhost ~]\$ sudo systemctl stop httpd [santos@localhost ~]\$

tall samba package
ba
amba
latest

^O Write Out ^W Where Is ^K Cut
^R Read File ^A Replace ^U Paste

System Display 1 Display 2 Sound Input
This tool reports detailed information about the DirectX components and drivers installed on your system.
If you know which 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: Saturday, 14 October 2023, 1:20:46 am
Computer Name: DESKTOP-36JU2EI
Operating System: Windows 11 Home Single Language 64-bit (10.0, Build 22621)
Language: English (Regional Setting: English)
System Manufacturer: ASUSTeK COMPUTER INC.
System Model: Vivobook_ASUSLaptop K6500ZE_K6500ZE
BIOS: K6500ZE.301
Processor: 12th Gen Intel(R) Core(TM) i5-12450H (12 CPUs), ~2.0GHz
Memory: 16384MB RAM
Page file: 20932MB used, 3616MB available
DirectX Version: DirectX 12
 Check for WHQL digital signatures
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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.

```
santos@workstation: ~/CPE232_KarloSan... 
TASK [Install apache and php for Ubuntu servers] *****
ok: [192.168.100.123]
ok: [192.168.100.123]

TASK [Install apache and php for CentOS servers] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

TASK [Start httpd (CentOS)] *****
skipping: [192.168.100.122]
skipping: [192.168.100.123]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.100.123]
ok: [192.168.100.128]

TASK [Install mariadb package (CentOS)] *****
skipping: [192.168.100.128]
ok: [192.168.100.129]

TASK [Install mariadb package (Ubuntu)] *****
skipping: [192.168.100.129]
ok: [192.168.100.128]

TASK [Mariadb: Restating/Enabling] *****
changed: [192.168.100.128]
changed: [192.168.100.129]

PLAY [file_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.100.128]

TASK [Install samba package] *****
ok: [192.168.100.128]

PLAY RECAP *****
192.168.100.122 : ok=4    changed=0    unreachable=0    failed=0    skip=0
192.168.100.123 : ok=4    changed=0    unreachable=0    failed=0    skip=0
ped2            : ok=7    changed=1    unreachable=0    failed=0    skip=0
192.168.100.128 : ok=5    changed=1    unreachable=0    failed=0    skip=0
192.168.100.129 : ok=5    changed=1    unreachable=0    failed=0    skip=0
```

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As it shows in the output, that tasks for the start httpd for CentOS skip the both Ubuntu server since it was set to only execute in 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.

```

GNU nano 6.2                               site.yml
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"
    - name: start httpd (CentOS)
      tags: apache, centos,httpd
      service:
        name: httpd
        state: started
        enabled: true
      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"

```

DirectX Diagnostic Tool

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Help Next Page Save All Information... |

Reflections:

Answer the following:

1. What is the importance of putting our remote servers into groups?
 - It will help in various things, one of these is in making it more organized and being more simple to understand. By putting the remote server to the groups it will help to execute different tasks that are only for them. Since grouping different remote servers that have specific jobs is a good way to avoid confusion. Aside from that it also helps in managing those servers easier since they are also in a group, it is flexible for you since you can control them as a whole.
2. What is the importance of tags in playbooks?
 - Based on the activity, we can see some importance of tags in the playbook. One of the most noticeable is it helps in allowing me to execute specific tasks that have tags that I give. Since it only executes a few tasks that have the given tags it also helps in saving time since it doesn't need to execute the tasks that are not needed.
3. Why do think some services need to be managed automatically in playbooks?
 - We can see different benefits by using automation on management in the playbook. It helps to make the system efficient since the playbook can execute different tasks easily and faster than humans doing it manually. Another one, it is consistent since playbooks will execute the tasks

consistently and it helps to avoid inconsistency if it is done manually. Scalability is one of the reasons why some services need to be managed automatically by playbook. Since, the higher the number of services the higher that number of errors and manual management is also impractical. So, automation using playbooks help in scaling up the service of managing the system. Lastly, it helps to avoid human error in managing services. Since playbooks have specific steps that it will follow and it will help to avoid other mistakes like misconfiguration.