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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"
```

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.

   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.

```
angela@workstation:~/HOA6_S4$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the
controller starting with Ansible 2.12. Current version: 3.6.9 (default, Mar 10
2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in
version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
BECOME password:

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

TASK [Gathering Facts] *********************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.101 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
 discovered platform python for this host. See
https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information.
 This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.101]
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.102 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
 discovered platform python for this host. See
https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information.
 This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ************************************************
skipping: [192.168.56.101]
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] ************************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]

TASK [install apache and php for Ubuntu servers] *******************************
skipping: [192.168.56.104]
ok: [192.168.56.101]

TASK [install apache and php for CentOS servers] *******************************
skipping: [192.168.56.101]
changed: [192.168.56.104]

PLAY RECAP *********************************************************************
192.168.56.101             : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.102             : ok=2    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.56.104             : ok=4    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
```

After the code run it first updates the CentOS and the Ubuntu and after that the apache and php packages was installed properly in both distribution without any errors.

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.

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

```
angela@workstation:~/HOA6_S4$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller
starting with Ansible 2.12. Current version: 3.6.9 (default, Mar 10 2023, 16:46:00)
 [GCC 8.4.0]. This feature will be removed from ansible-core in version 2.12.
Deprecation warnings can be disabled by setting deprecation_warnings=False in
ansible.cfg.
BECOME password:

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

TASK [Gathering Facts] **********************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.102 should use
/usr/bin/python3, but is using /usr/bin/python for backward compatibility with
prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be disabled
by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] *****************************************
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] *********************************************
fatal: [192.168.56.102]: FAILED! => {"changed": false, "msg": "Could not find the requested service mariadb: host"}
changed: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] *****************************************
skipping: [192.168.56.104]

PLAY RECAP **********************************************************************
192.168.56.102             : ok=1    changed=0    unreachable=0    failed=1    skipped=1    rescued=0    ignored=0
192.168.56.104             : ok=3    changed=1    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
```

The was an error in the output since the Enabling part was declared before the installation of the mariadb for ubuntu thus making it only installed in the CentOs.

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.

```
angela@server2:~$ systemctl status mariadb
Unit mariadb.service could not be found.
```

```
[angela@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 Mon 2023-10-02 12:04:26 PST; 4min 5s ago
  Process: 5548 ExecStartPost=/usr/libexec/mariadb-wait-ready $MAINPID (code=exited, status=0/SUCCESS)
  Process: 5512 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir %n (code=exited, status=0/SUCCESS)
 Main PID: 5547 (mysqld_safe)
    Tasks: 20
   CGroup: /system.slice/mariadb.service
           ├─5547 /bin/sh /usr/bin/mysqld_safe --basedir=/usr
           └─5712 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysql --plug...

Oct 02 12:04:24 localhost.localdomain systemd[1]: Stopped MariaDB database server.
Oct 02 12:04:24 localhost.localdomain systemd[1]: Starting MariaDB database server...
Oct 02 12:04:24 localhost.localdomain mariadb-prepare-db-dir[5512]: Database MariaDB...
Oct 02 12:04:24 localhost.localdomain mysqld_safe[5547]: 231002 12:04:24 mysqld_safe...
Oct 02 12:04:24 localhost.localdomain mysqld_safe[5547]: 231002 12:04:24 mysqld_safe...
Oct 02 12:04:26 localhost.localdomain systemd[1]: Started MariaDB database server.
Hint: Some lines were ellipsized, use -l to show in full.
```

   As can be seen the one in the Server2 mariadb was not installed as compared to the CentOS where it installed properly. But if the Enabling of mariadb was below the installation for the both distribution then there will be no errors.

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.

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

```
angela@workstation:~/HOA6_S4$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting
with Ansible 2.12. Current version: 3.6.9 (default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This
 feature will be removed from ansible-core in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

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

TASK [Gathering Facts] *********************************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.102 should use
/usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior Ansible
 releases. A future Ansible release will default to using the discovered platform python for
 this host. See https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information. This feature
 will be removed in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.102]

TASK [install samba package] ***************************************************************
changed: [192.168.56.102]

PLAY RECAP *********************************************************************************
192.168.56.102             : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

The installation of the File_servers for server2 was successfully and there were no failure in running the code.

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.

```yaml
---

- 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"
```

```yaml
- 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.
Run the *site.yml* file and describe the result.

```
angela@workstation:~/HOA6_S4$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting
with Ansible 2.12. Current version: 3.6.9 (default, Mar 10 2023, 16:46:00) [GCC 8.4.0].
This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be
 disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

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

TASK [Gathering Facts] *********************************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.101 should use
/usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior
Ansible releases. A future Ansible release will default to using the discovered platform
python for this host. See https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information. This
feature will be removed in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.101]
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.102 should use
/usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior
Ansible releases. A future Ansible release will default to using the discovered platform
python for this host. See https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information. This
feature will be removed in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ************************************************************
skipping: [192.168.56.101]
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] ************************************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *********************************************************************
ok: [192.168.56.101]
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ************************************************************
skipping: [192.168.56.101]
skipping: [192.168.56.102]
ok: [192.168.56.104]
```

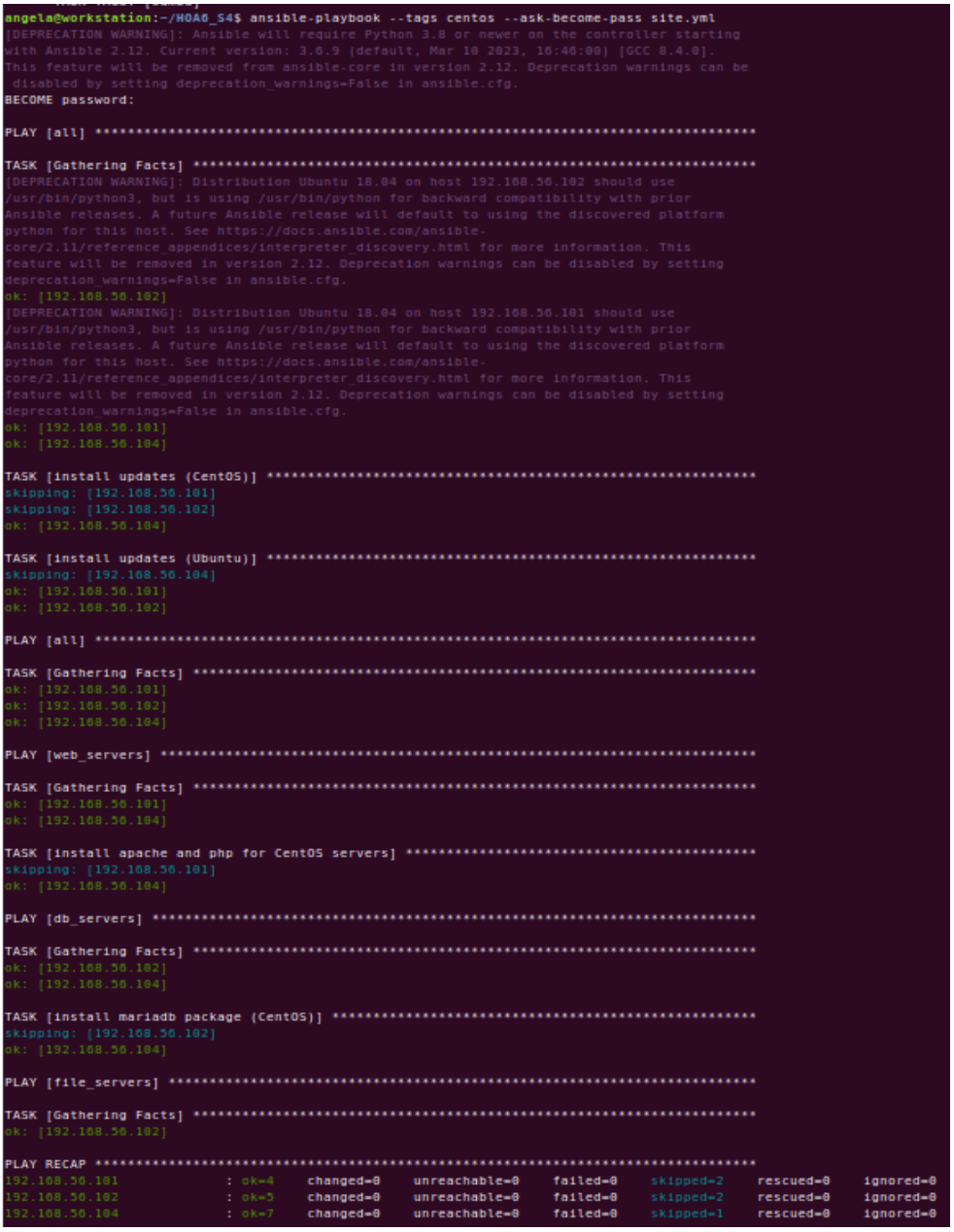
```
TASK [install updates (Ubuntu)] ***********************************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]
ok: [192.168.56.102]

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

TASK [Gathering Facts] ********************************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]

TASK [install apache and php for Ubuntu servers] ******************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]

TASK [install apache and php for CentOS servers] ******************************************
skipping: [192.168.56.101]
ok: [192.168.56.104]

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

TASK [Gathering Facts] ********************************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] ***************************************************
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] *******************************************************
fatal: [192.168.56.102]: FAILED! => {"changed": false, "msg": "Could not find the requested service mariadb: host"}
changed: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] ***************************************************
skipping: [192.168.56.104]

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

PLAY RECAP ********************************************************************************
192.168.56.101             : ok=6    changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
192.168.56.102             : ok=5    changed=0    unreachable=0    failed=1    skipped=3    rescued=0    ignored=0
192.168.56.104             : ok=9    changed=1    unreachable=0    failed=0    skipped=4    rescued=0    ignored=0
```

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

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

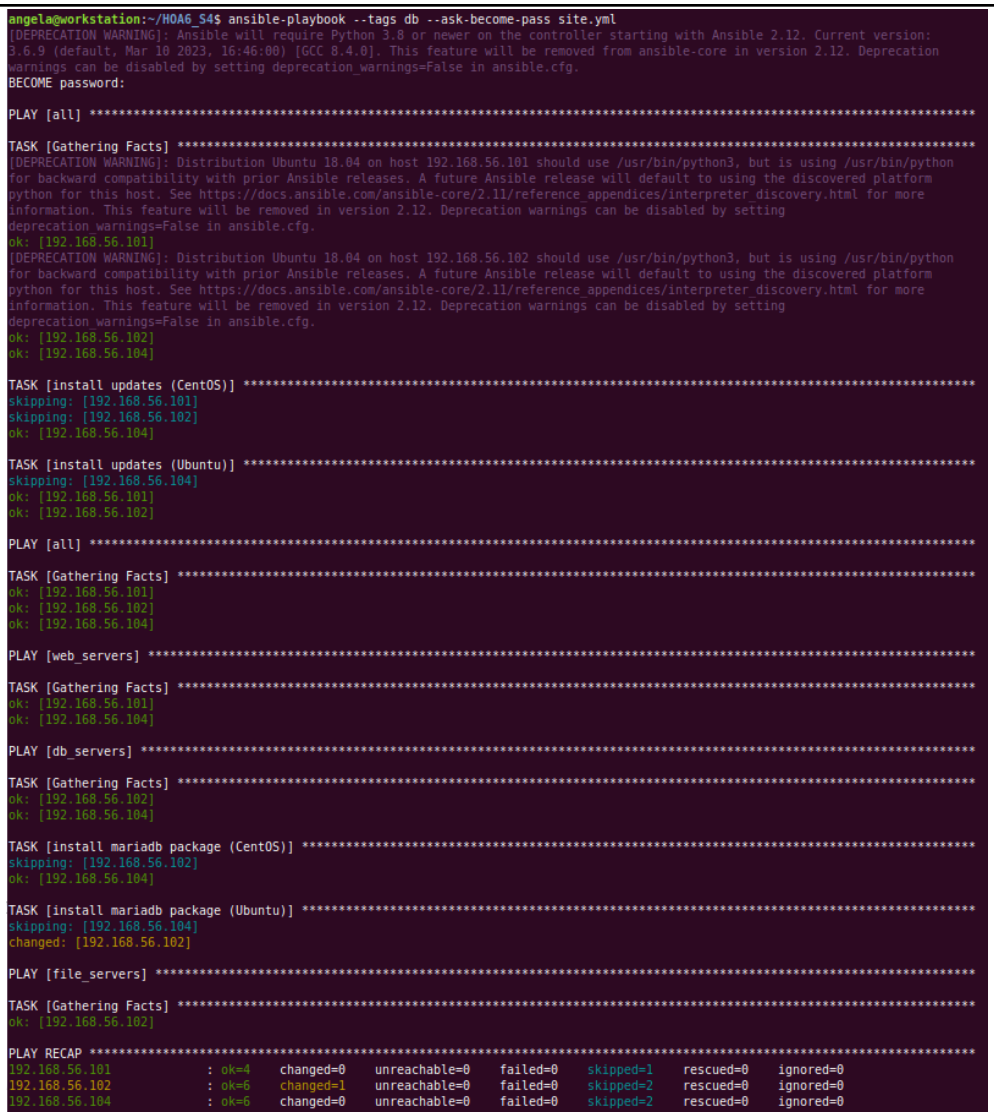
```
angela@workstation:~/HOA6_S4$ ansible-playbook --list-tags site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on
with Ansible 2.12. Current version: 3.6.9 (default, Mar 10 2023, 16
This feature will be removed from ansible-core in version 2.12. Dep
 disabled by setting deprecation_warnings=False in ansible.cfg.

playbook: site.yml

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

  play #2 (all): all    TAGS: []
      TASK TAGS: []

  play #3 (web_servers): web_servers    TAGS: []
      TASK TAGS: [apache, apache2, centos, httpd, ubuntu]

  play #4 (db_servers): db_servers      TAGS: []
      TASK TAGS: [centos, db, maradb, mariadb, ubuntu]

  play #5 (file_servers): file_servers  TAGS: []
      TASK TAGS: [samba]
```

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



```
angela@workstation:~/HOA6_S4$ ansible-playbook --tags centos --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting
with Ansible 2.12. Current version: 3.6.9 (default, Mar 10 2023, 10:46:00) [GCC 8.4.0].
This feature will be removed from ansible-core in version 2.12. Deprecation warnings can be
 disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

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

TASK [Gathering Facts] *********************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.102 should use
/usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior
Ansible releases. A future Ansible release will default to using the discovered platform
python for this host. See https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information. This
feature will be removed in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.101 should use
/usr/bin/python3, but is using /usr/bin/python for backward compatibility with prior
Ansible releases. A future Ansible release will default to using the discovered platform
python for this host. See https://docs.ansible.com/ansible-
core/2.11/reference_appendices/interpreter_discovery.html for more information. This
feature will be removed in version 2.12. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.101]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ************************************************
skipping: [192.168.56.101]
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] ************************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.101]
ok: [192.168.56.102]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]

TASK [install apache and php for CentOS servers] *******************************
skipping: [192.168.56.101]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] ****************************************
skipping: [192.168.56.102]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.102]

PLAY RECAP *********************************************************************
192.168.56.101             : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.102             : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=7    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
```

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



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

```
angela@workstation:~/HOA6_S4$ ansible-playbook --tags apache --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Curren
2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings ca
deprecation_warnings=False in ansible.cfg.
BECOME password:

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

TASK [Gathering Facts] *********************************************************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.101 should use /usr/bin/python3, but is using /u
compatibility with prior Ansible releases. A future Ansible release will default to using the discovered platform py
https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information. Thi
2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.101]
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.102 should use /usr/bin/python3, but is using /u
compatibility with prior Ansible releases. A future Ansible release will default to using the discovered platform py
https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information. Thi
2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ************************************************************************************
skipping: [192.168.56.101]
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] ************************************************************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.101]
ok: [192.168.56.102]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]

TASK [install apache and php for Ubuntu servers] *******************************************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]

TASK [install apache and php for CentOS servers] *******************************************************************
skipping: [192.168.56.101]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.102]

PLAY RECAP *********************************************************************************************************
192.168.56.101             : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.102             : ok=5    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.56.104             : ok=6    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
```

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

```
angela@workstation:~/HOA6_S4$ ansible-playbook --tags "apache,db" --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ansible 2.12. Curre
2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in version 2.12. Deprecation warnings c
deprecation_warnings=False in ansible.cfg.
BECOME password:

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

TASK [Gathering Facts] *********************************************************************************************
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.101 should use /usr/bin/python3, but is using /
compatibility with prior Ansible releases. A future Ansible release will default to using the discovered platform p
https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information. Th
2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.101]
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 192.168.56.102 should use /usr/bin/python3, but is using /
compatibility with prior Ansible releases. A future Ansible release will default to using the discovered platform p
https://docs.ansible.com/ansible-core/2.11/reference_appendices/interpreter_discovery.html for more information. Th
2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ************************************************************************************
skipping: [192.168.56.101]
skipping: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] ************************************************************************************
skipping: [192.168.56.104]
ok: [192.168.56.101]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.101]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]

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

TASK [Gathering Facts] *********************************************************************************************
ok: [192.168.56.102]

PLAY RECAP *********************************************************************************************************
192.168.56.101             : ok=4    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.56.102             : ok=5    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.56.104             : ok=5    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
```

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
```

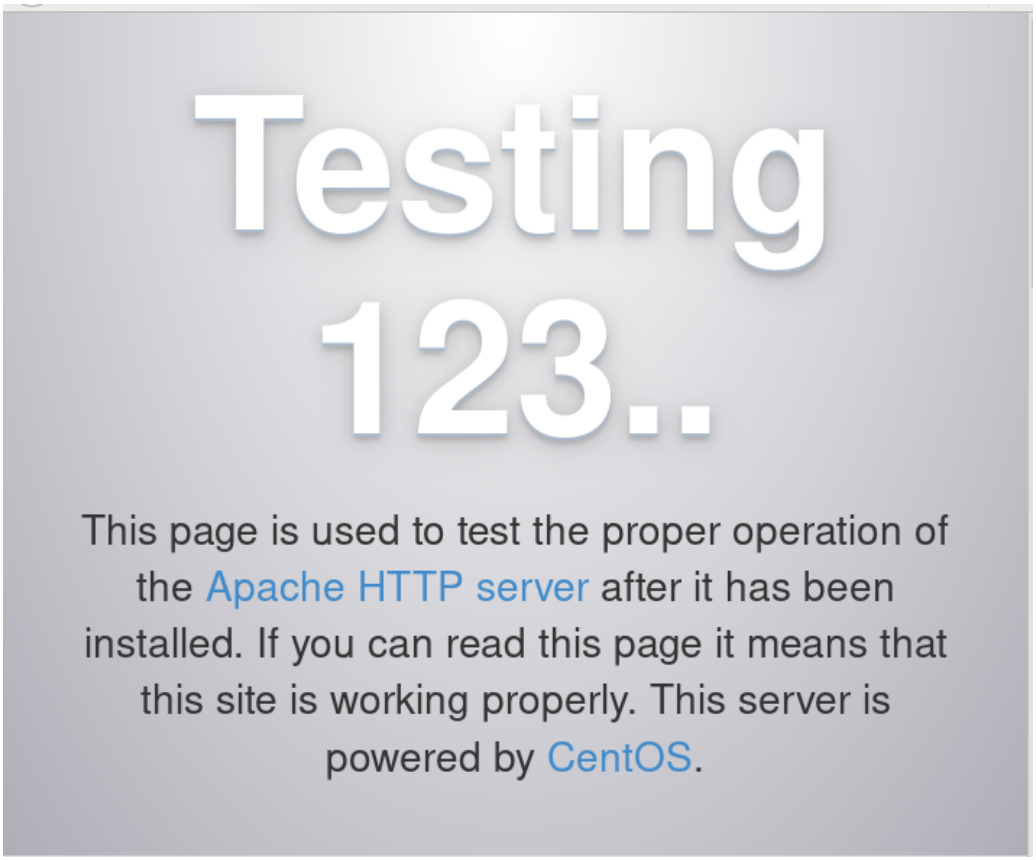
Figure 3.1.2

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.

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.
   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.



The httpd are now running again since in the site.yml there is a part there where we install it again, And after putting the ip address of the CentOS in the browser we can confirm it.

Reflections:

Answer the following:

1. **What is the importance of putting our remote servers into groups?**
   Putting the remote servers into group makes it easier to use them since we don't have to individually input or modify the inventory everytime that we are using only specific remote servers. We can just get the group name and input that in to the hosts and the installation and other modification will just be applied on the remote

servers under that group name. This is very convenient especially if we are working on a lot of remote servers, making it save time.

2. **What is the importance of tags in playbooks?**
   Tags in playbooks allows us to specify which subnets tasks or certain tasks are we willing to run in the playbook. This limits the amount of work that the playbook is going to run, making it cut some running time. Since only the specific tags that we have applied or input in the code will be the only to execute.

3. **Why do you think some services need to be managed automatically in playbooks?**

   There are a lot of reasons depending on what and how they are managing these playbooks. Common reason is that it is very efficient to do tasks in a playbook as it can execute and run multiple codes and services at once without sacrificing so much in running time. Related to the previous one like I mentioned, the rapid response of the playbook makes it easier to modify immediately and run it again. Its ability to be refactored and updated with new commands and services is also a handy factory for some.

Conclusion:

For this activity we learned why we execute the grouping of remote servers in the inventory files. One is to make using the remote servers more efficient as we don't have to modify the inventory file every time we modify the hosts in the playbook. In here we also were able to use tags for the playbook which have benefits when running the playbook. It allows for more specific tasks to be executed and save time and space for the remote servers. Managing services for the remote services using the playbooks make for its optimization. Using a playbook allows for more organization and all the needed services in one file. Overall, this activity introduced us to the use of groups and tags so that we can better the playbooks and use them for efficiency.

"I affirm that I will not give or receive any unauthorized help on this activity and that all work will be my own."