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Course/Section: CPE31S6	**Date Submitted: 10/02/2023**
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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.

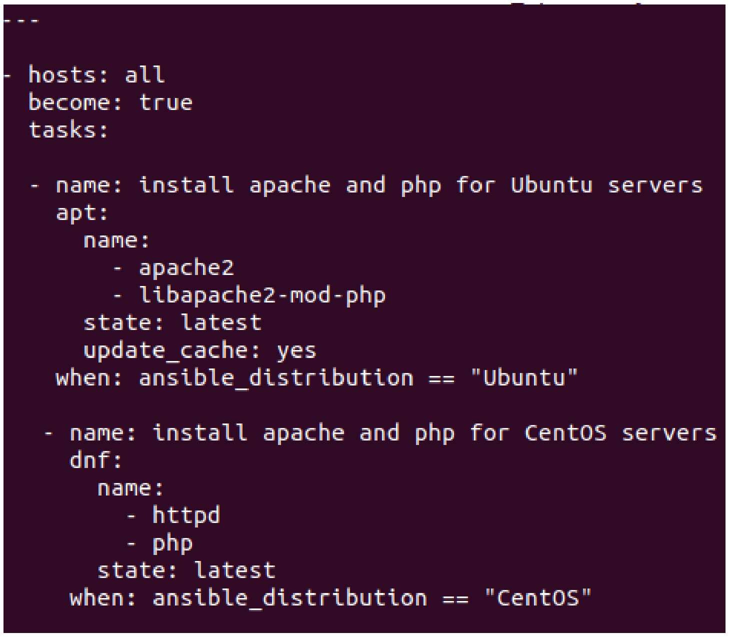
We also try to manage services that do not automatically run using the automations in playbook. For example, when we install web servers or httpd for CentOS, we notice that the service did not start automatically.

Requirement:

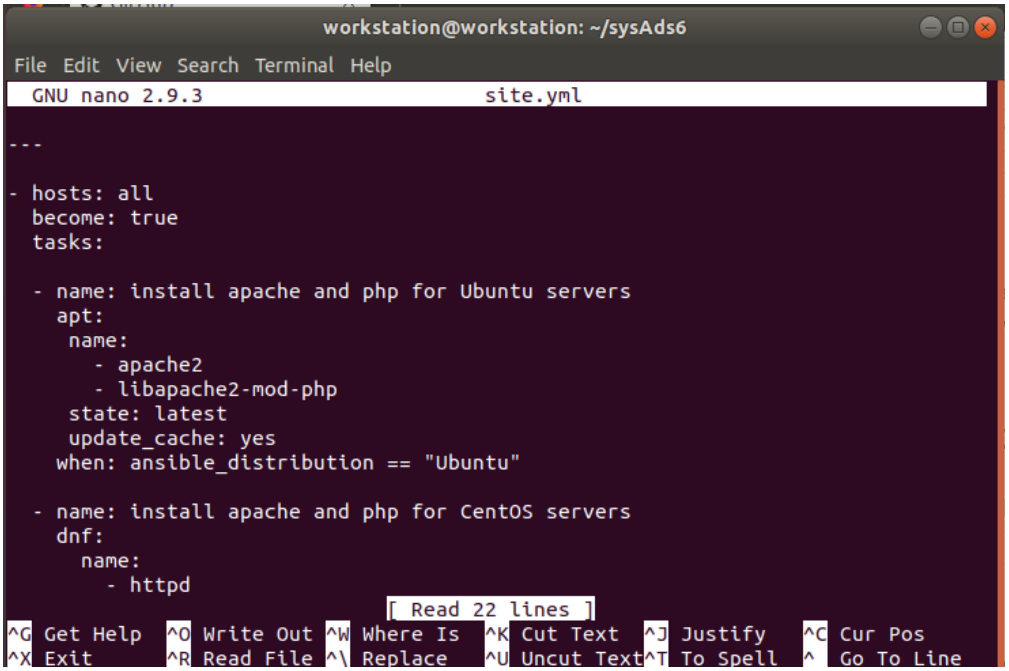
In this activity, you will need to create another Ubuntu VM and name it Server 3. Likewise, you need to activate the second adapter to a host-only adapter after the installations. Take note of the IP address of the Server 3. Make sure to use the command *ssh-copy-id* to copy the public key to Server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

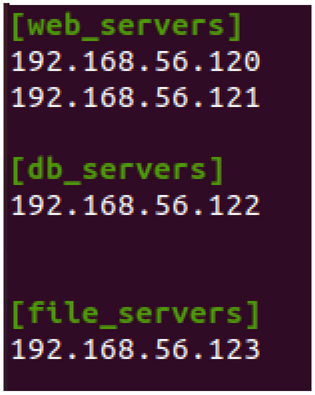


workstation@workstation: ~/sysAds6
File Edit View Search Terminal Help
GNU nano 2.9.3
site.yml

```
---

- 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
```

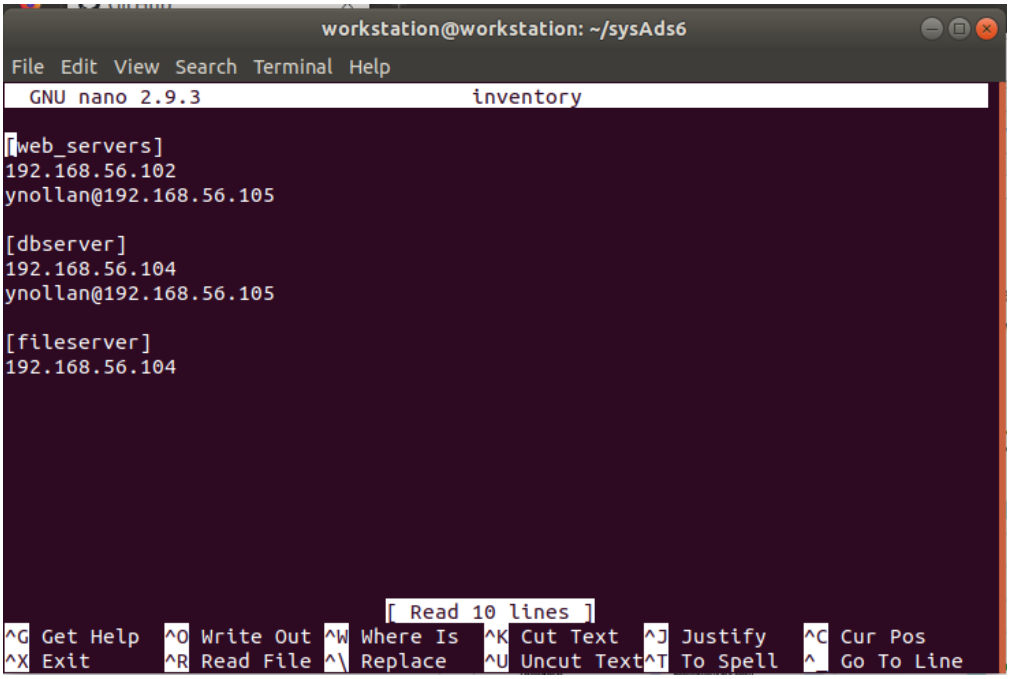
[Read 22 lines]

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.

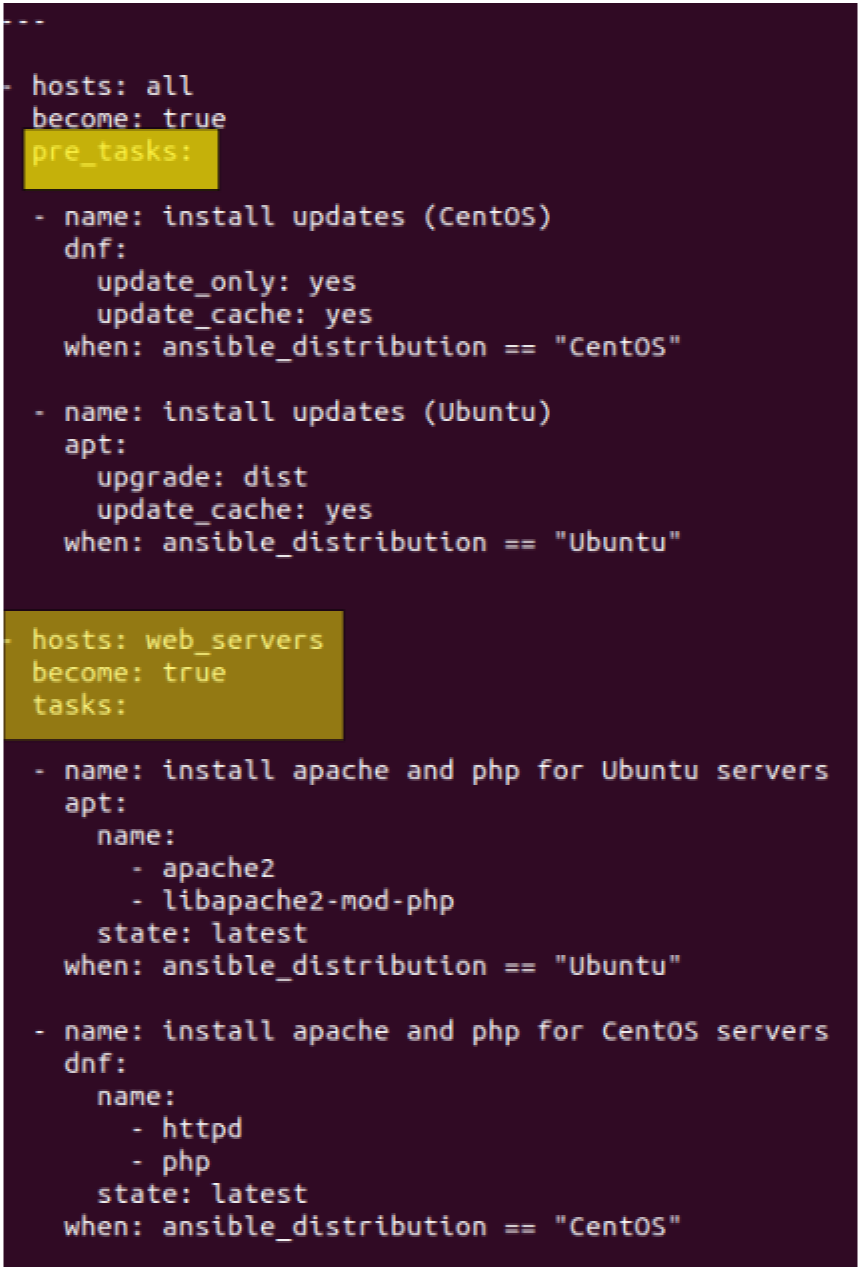


workstation@workstation: ~/sysAds6
File Edit View Search Terminal Help

```
  GNU nano 2.9.3                           inventory

[web_servers]
192.168.56.102
ynollan@192.168.56.105

[dbserver]
192.168.56.104
ynollan@192.168.56.105

[fileserver]
192.168.56.104









                              [ Read 10 lines ]
^G Get Help   ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit       ^R Read File  ^\ Replace    ^U Uncut Text ^T To Spell   ^_ Go To Line
```

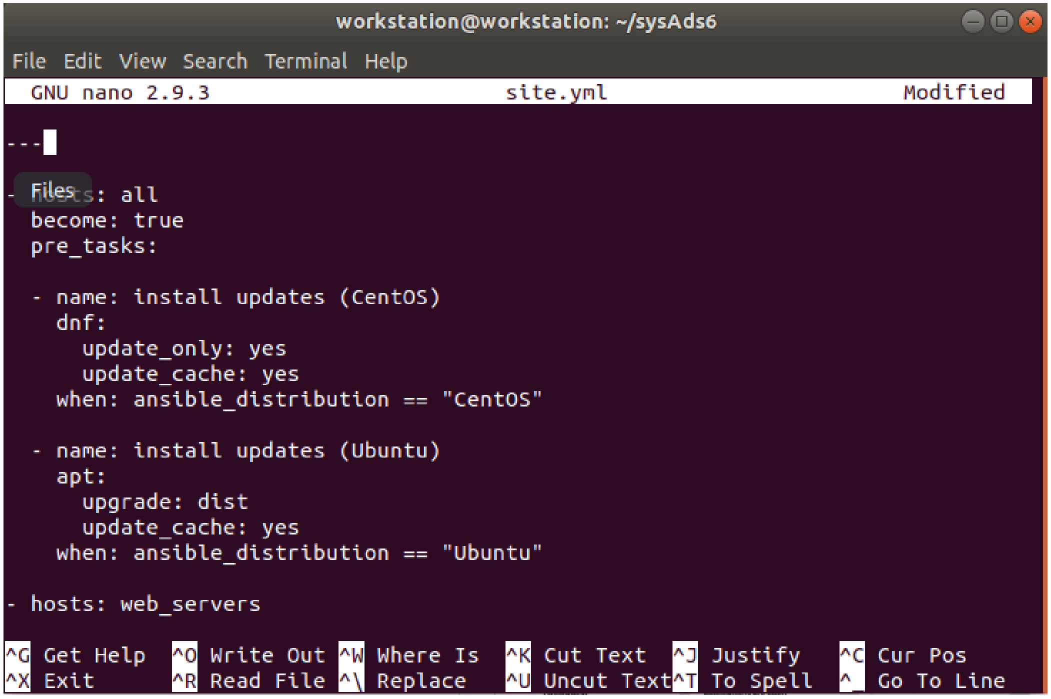
Right now, we have created groups in our inventory file and put each server in its own group. In other cases, you can have a server be a member of multiple groups, for example you have a test server that is also a web server.

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

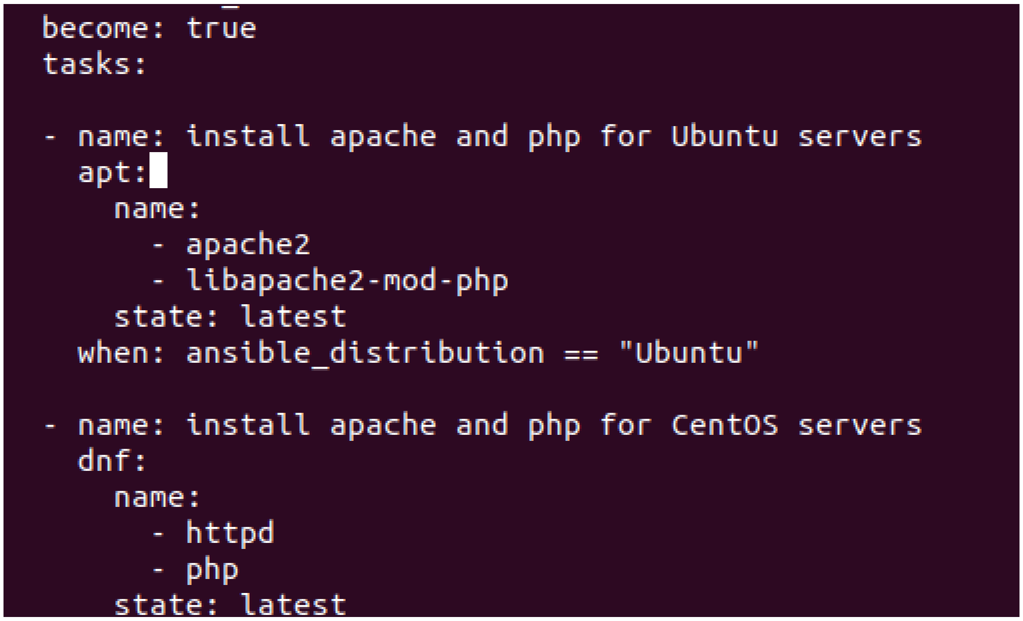


```
---

- 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"
```

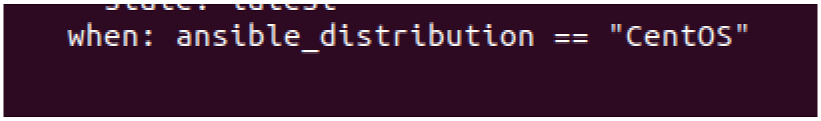
Make sure to save the file and exit.


workstation@workstation: ~/sysAds6
File Edit View Search Terminal Help

```
  GNU nano 2.9.3                    site.yml                       Modified

---

- 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

^G Get Help   ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit       ^R Read File  ^\ Replace    ^U Uncut Text^T To Spell    ^_ Go To Line
```



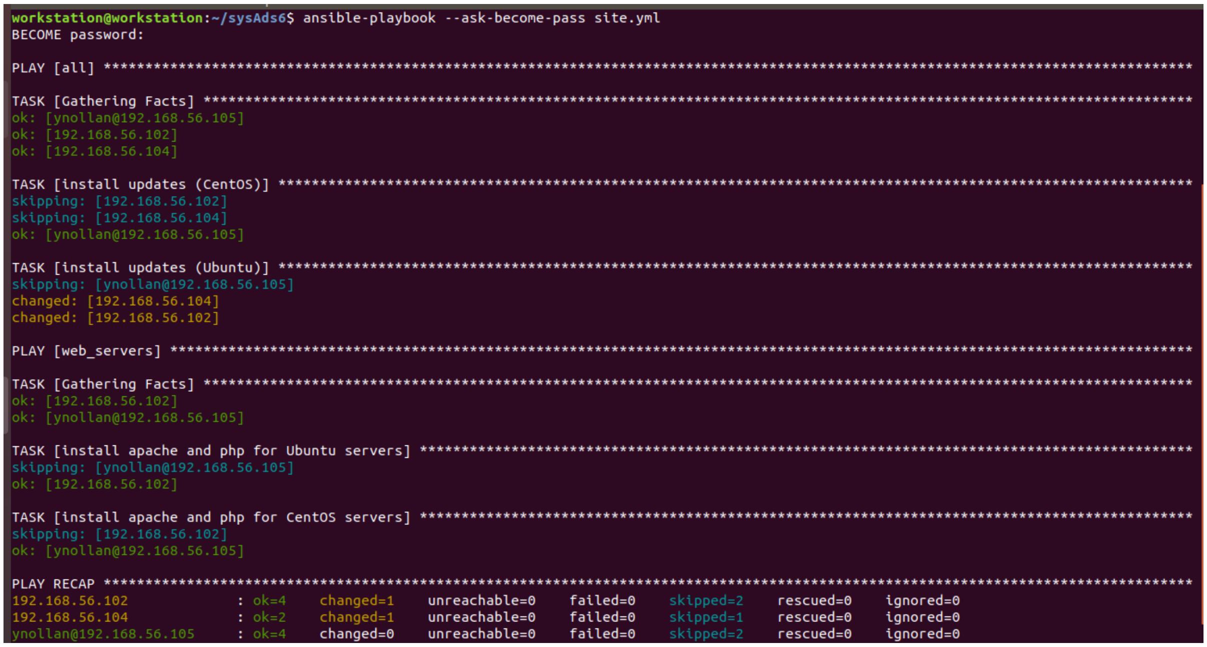
```
  become: true
  tasks:

  - 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"
```

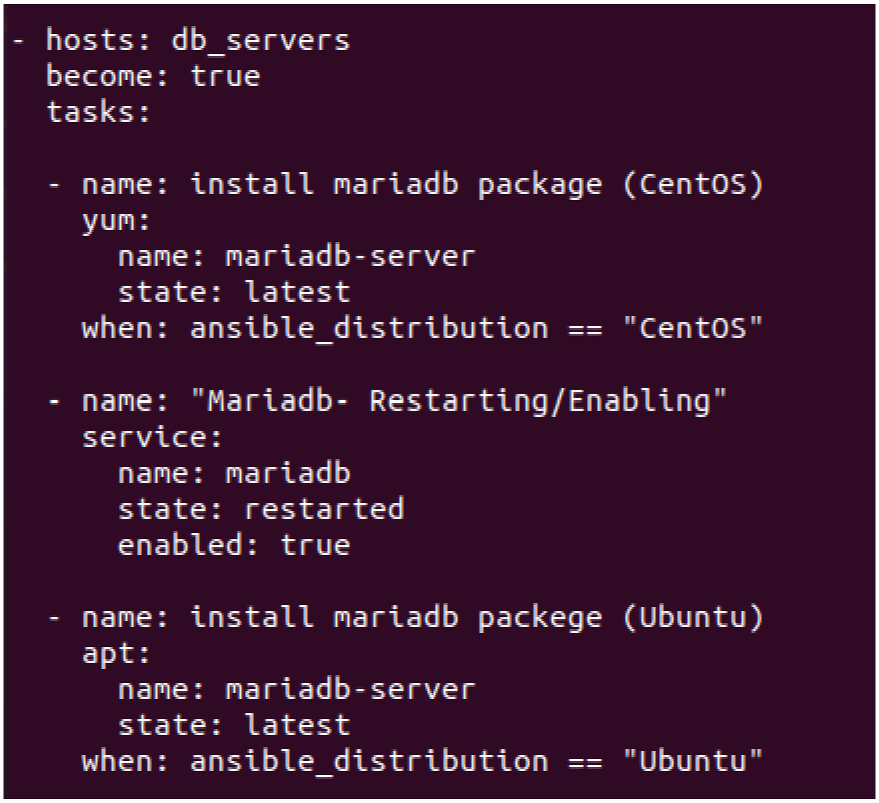
The *pre-tasks* command tells the ansible to run it before any other thing. In the *pre-tasks*, CentOS will install updates while Ubuntu will upgrade its distribution package. This will run before running the second play, which is targeted at *web_servers*. In the second play, apache and php will be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

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



```
workstation@workstation:~/sysAds6$ ansible-playbook --ask-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] ***********************************************************************************************************************
ok: [ynollan@192.168.56.105]
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (CentOS)] **************************************************************************************************************
skipping: [192.168.56.102]
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (Ubuntu)] **************************************************************************************************************
skipping: [ynollan@192.168.56.105]
changed: [192.168.56.104]
changed: [192.168.56.102]

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

TASK [Gathering Facts] ***********************************************************************************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install apache and php for Ubuntu servers] *********************************************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *********************************************************************************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

PLAY RECAP ***********************************************************************************************************************************
192.168.56.102             : ok=4    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=2    changed=1    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
ynollan@192.168.56.105     : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
```

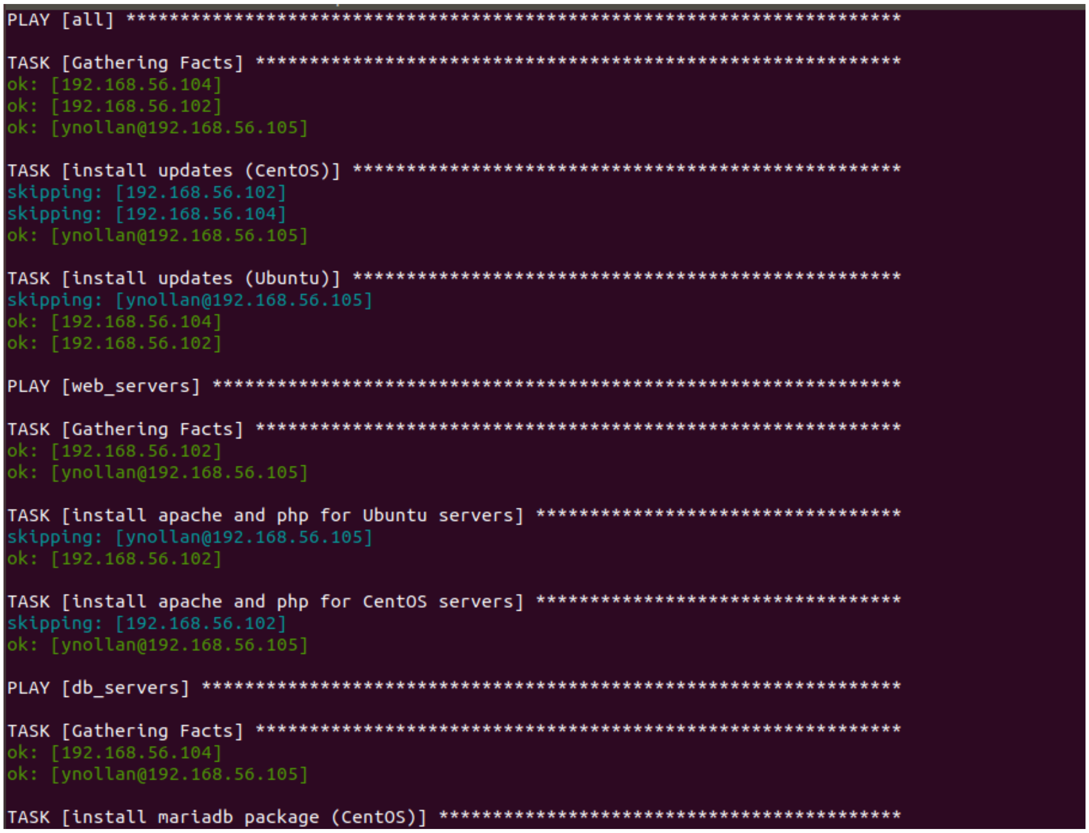
4. Let’s try to edit again the *site.yml* file. This time, we are going to add plays targeting the other servers. This time we target the *db_servers* by adding it on the current *site.yml*. Below is an example: (Note add this at the end of the playbooks from task 1.3.



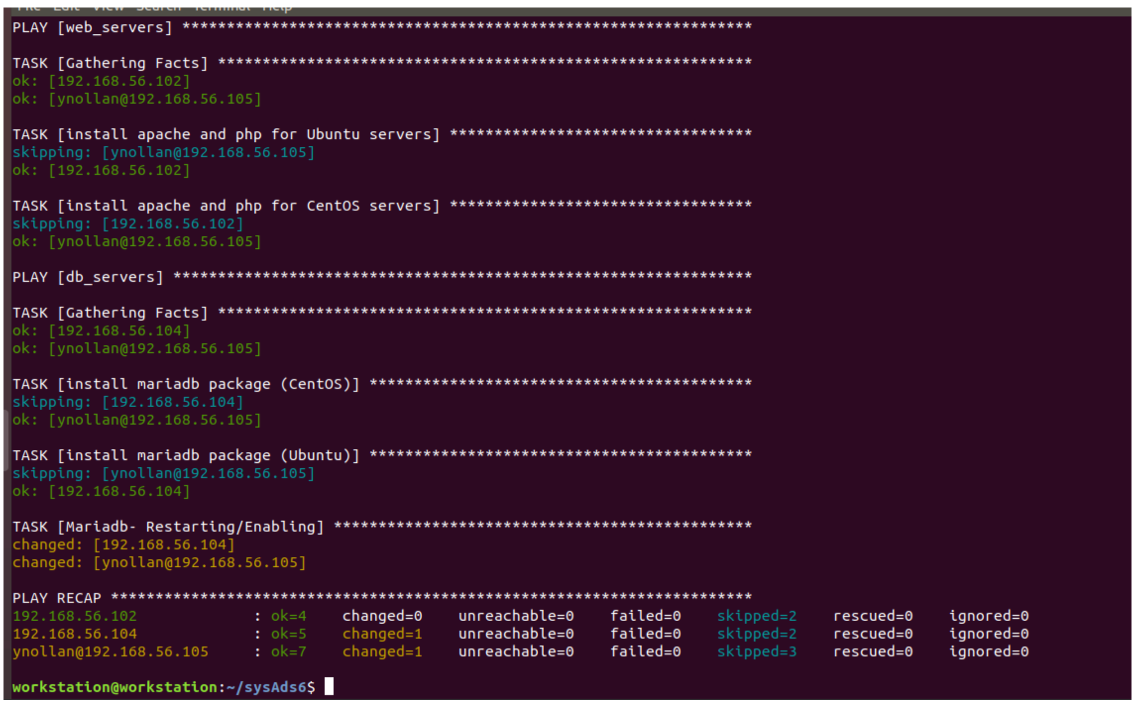
```
- hosts: db_servers
  become: true
  tasks:

  - 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.



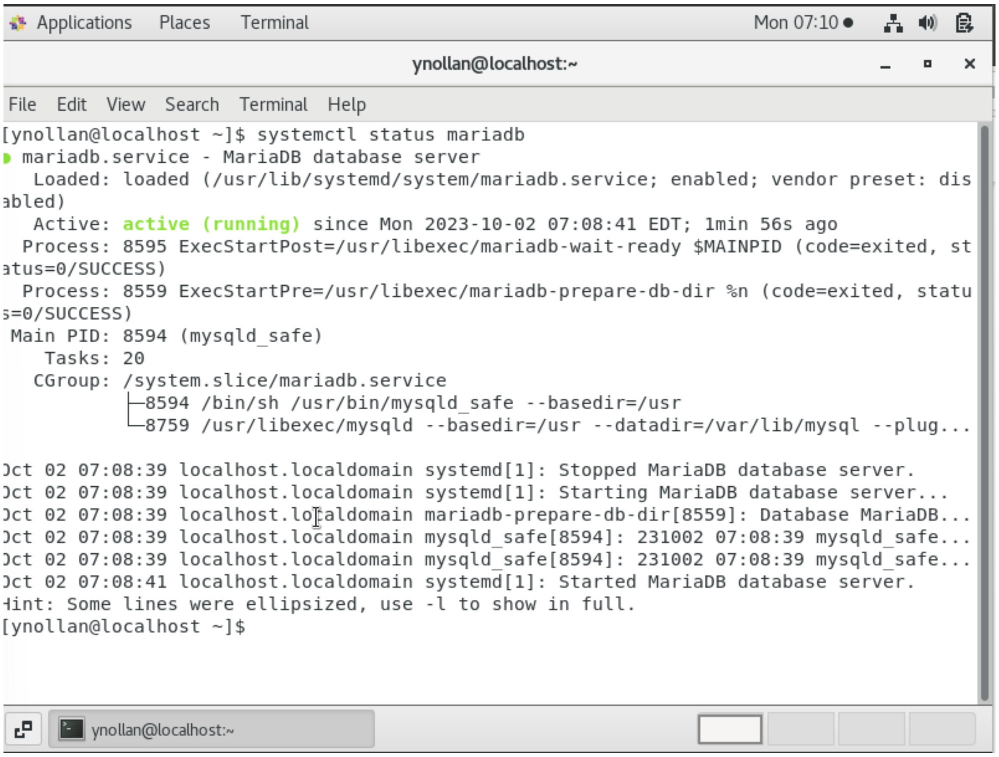
```
PLAY [all] *********************************************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.104]
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install updates (CentOS)] ************************************************
skipping: [192.168.56.102]
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (Ubuntu)] ************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install apache and php for Ubuntu servers] *******************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *******************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (CentOS)] ****************************************
```



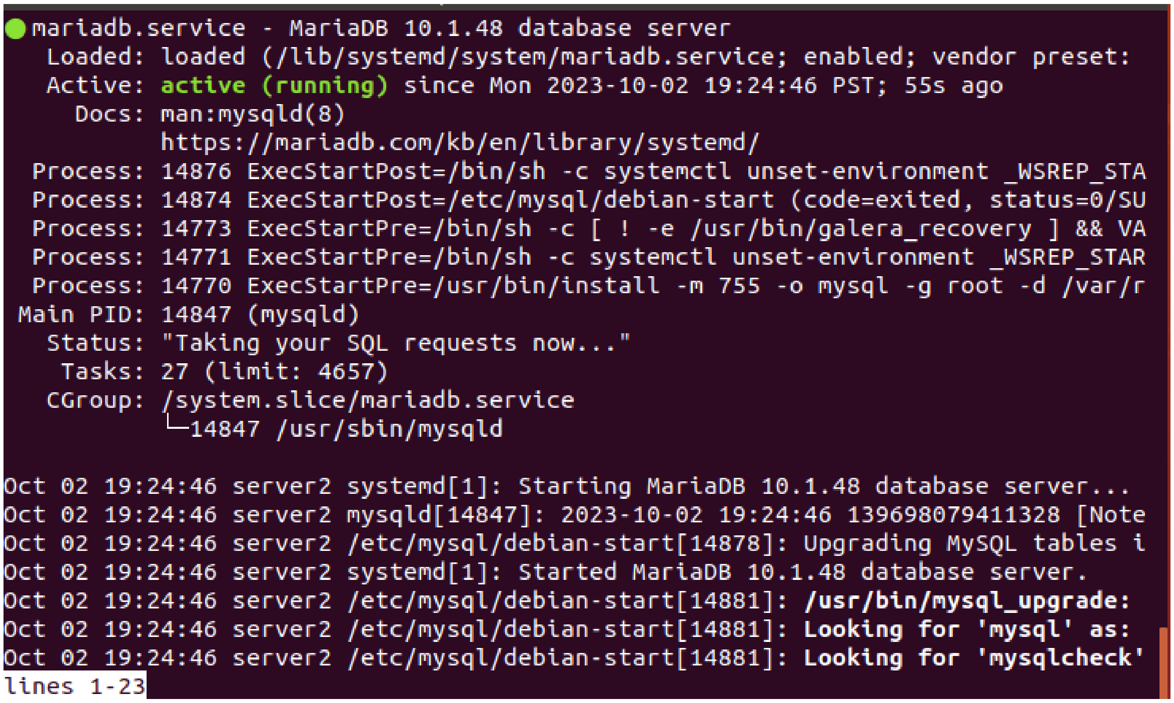
```
PLAY [web_servers] *************************************************************

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install apache and php for Ubuntu servers] *******************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *******************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

TASK [Gathering Facts] *********************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (CentOS)] ****************************************
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (Ubuntu)] ****************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] ********************************************
changed: [192.168.56.104]
changed: [ynollan@192.168.56.105]

PLAY RECAP *********************************************************************
192.168.56.102             : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
ynollan@192.168.56.105     : ok=7    changed=1    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0

workstation@workstation:~/sysAds6$
```

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.

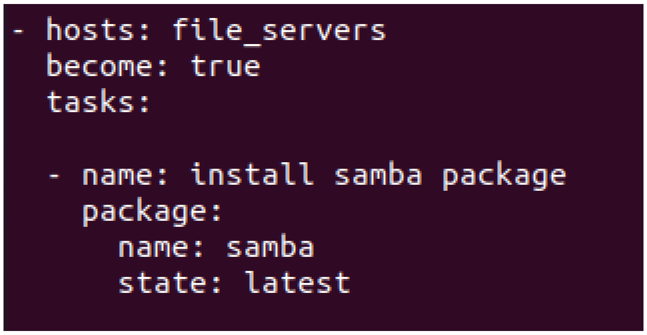


```
[ynollan@localhost ~]$ systemctl status mariadb
● mariadb.service - MariaDB database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor preset: dis
abled)
   Active: active (running) since Mon 2023-10-02 07:08:41 EDT; 1min 56s ago
  Process: 8595 ExecStartPost=/usr/libexec/mariadb-wait-ready $MAINPID (code=exited, st
atus=0/SUCCESS)
  Process: 8559 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir %n (code=exited, statu
s=0/SUCCESS)
 Main PID: 8594 (mysqld_safe)
    Tasks: 20
   CGroup: /system.slice/mariadb.service
           ├─8594 /bin/sh /usr/bin/mysqld_safe --basedir=/usr
           └─8759 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysql --plug...

Oct 02 07:08:39 localhost.localdomain systemd[1]: Stopped MariaDB database server.
Oct 02 07:08:39 localhost.localdomain systemd[1]: Starting MariaDB database server...
Oct 02 07:08:39 localhost.localdomain mariadb-prepare-db-dir[8559]: Database MariaDB...
Oct 02 07:08:39 localhost.localdomain mysqld_safe[8594]: 231002 07:08:39 mysqld_safe...
Oct 02 07:08:39 localhost.localdomain mysqld_safe[8594]: 231002 07:08:39 mysqld_safe...
Oct 02 07:08:41 localhost.localdomain systemd[1]: Started MariaDB database server.
Hint: Some lines were ellipsized, use -l to show in full.
[ynollan@localhost ~]$
```



```
● mariadb.service - MariaDB 10.1.48 database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset:
   Active: active (running) since Mon 2023-10-02 19:24:46 PST; 55s ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
  Process: 14876 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_STA
  Process: 14874 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SU
  Process: 14773 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VA
  Process: 14771 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_STAR
  Process: 14770 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/r
 Main PID: 14847 (mysqld)
   Status: "Taking your SQL requests now..."
    Tasks: 27 (limit: 4657)
   CGroup: /system.slice/mariadb.service
           └─14847 /usr/sbin/mysqld

Oct 02 19:24:46 server2 systemd[1]: Starting MariaDB 10.1.48 database server...
Oct 02 19:24:46 server2 mysqld[14847]: 2023-10-02 19:24:46 139698079411328 [Note
Oct 02 19:24:46 server2 /etc/mysql/debian-start[14878]: Upgrading MySQL tables i
Oct 02 19:24:46 server2 systemd[1]: Started MariaDB 10.1.48 database server.
Oct 02 19:24:46 server2 /etc/mysql/debian-start[14881]: /usr/bin/mysql_upgrade:
Oct 02 19:24:46 server2 /etc/mysql/debian-start[14881]: Looking for 'mysql' as:
Oct 02 19:24:46 server2 /etc/mysql/debian-start[14881]: Looking for 'mysqlcheck'
lines 1-23
```

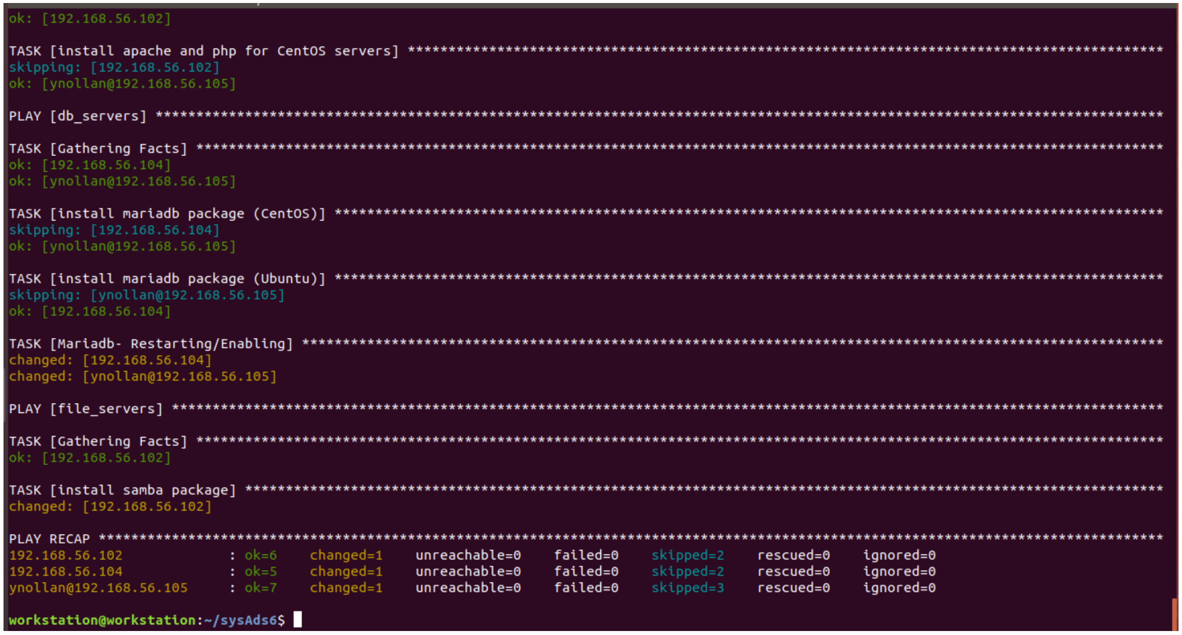
6. Edit the *site.yml* again. This time we will append the code to configure installation on the *file_servers* group. We can add the following on our file.



```
- 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.



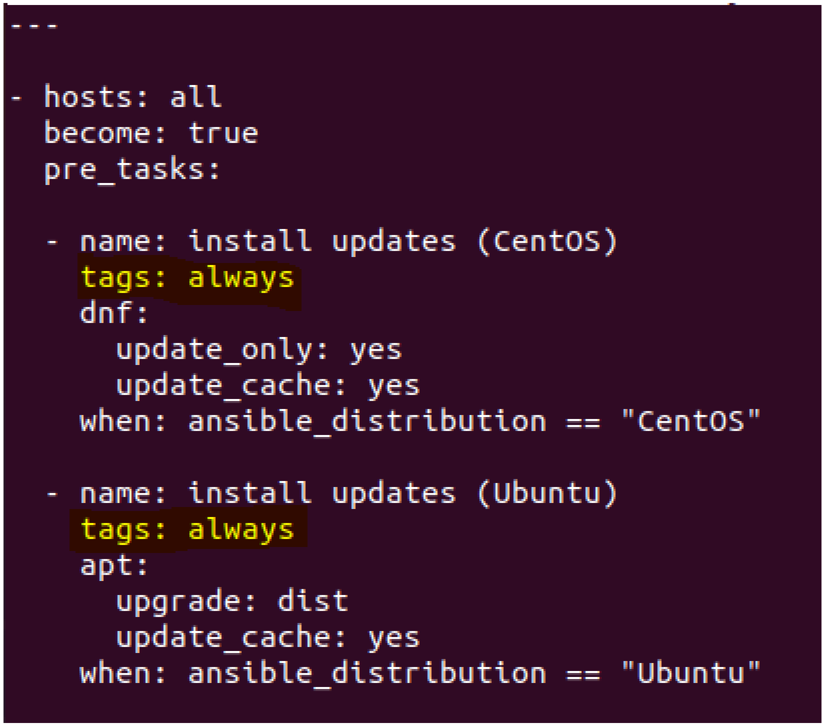
```
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *********************************************************************************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

TASK [Gathering Facts] ***********************************************************************************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (CentOS)] ******************************************************************************************************
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (Ubuntu)] ******************************************************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] **********************************************************************************************************
changed: [192.168.56.104]
changed: [ynollan@192.168.56.105]

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

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

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

PLAY RECAP ***********************************************************************************************************************************
192.168.56.102             : ok=6    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
ynollan@192.168.56.105     : ok=7    changed=1    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0

workstation@workstation:~/sysAds6$ 
```

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.

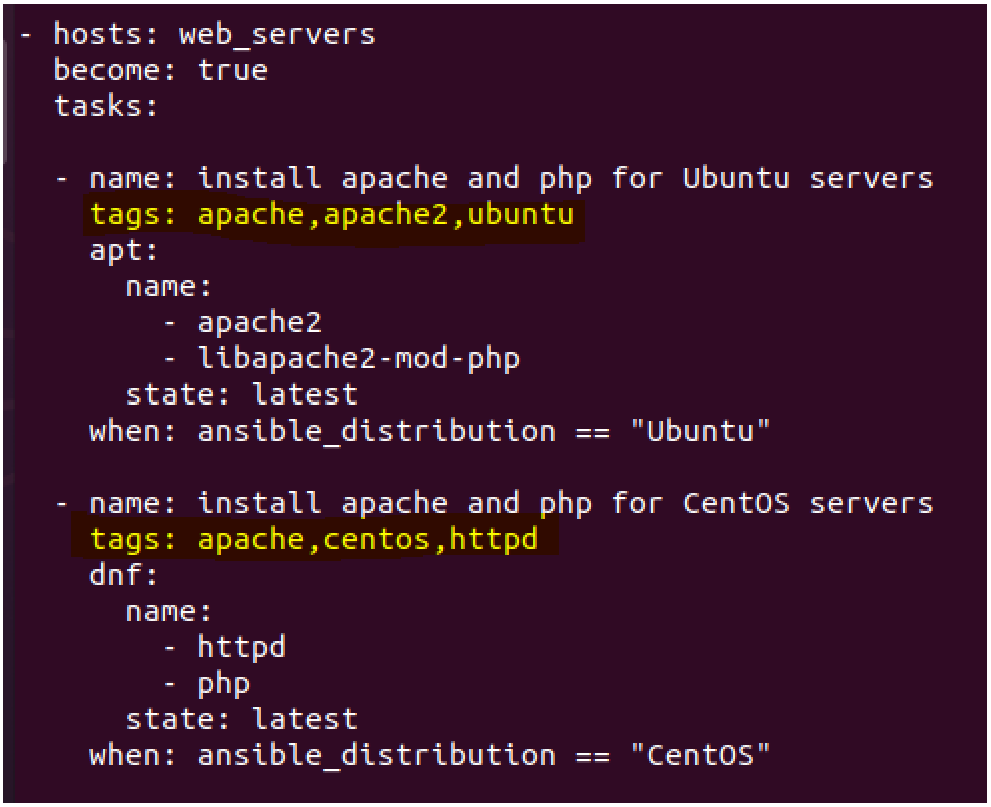
Task 2: Using Tags in running playbooks

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.

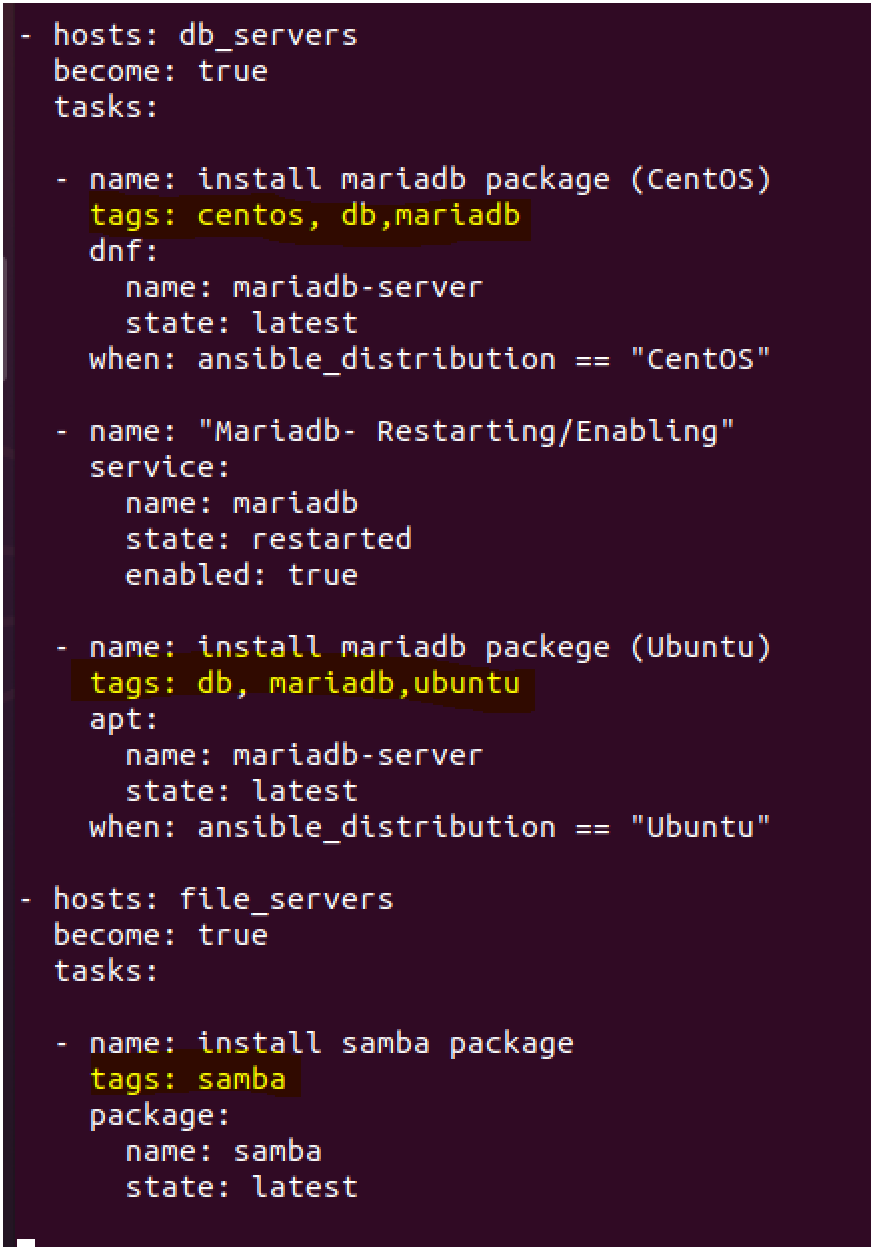
1. Edit the *site.yml* file. Add tags to the playbook. After the name, we can place the tags: *name_of_tag*. This is an arbitrary command, which means you can use any name for a tag.



```
---

- 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"
```

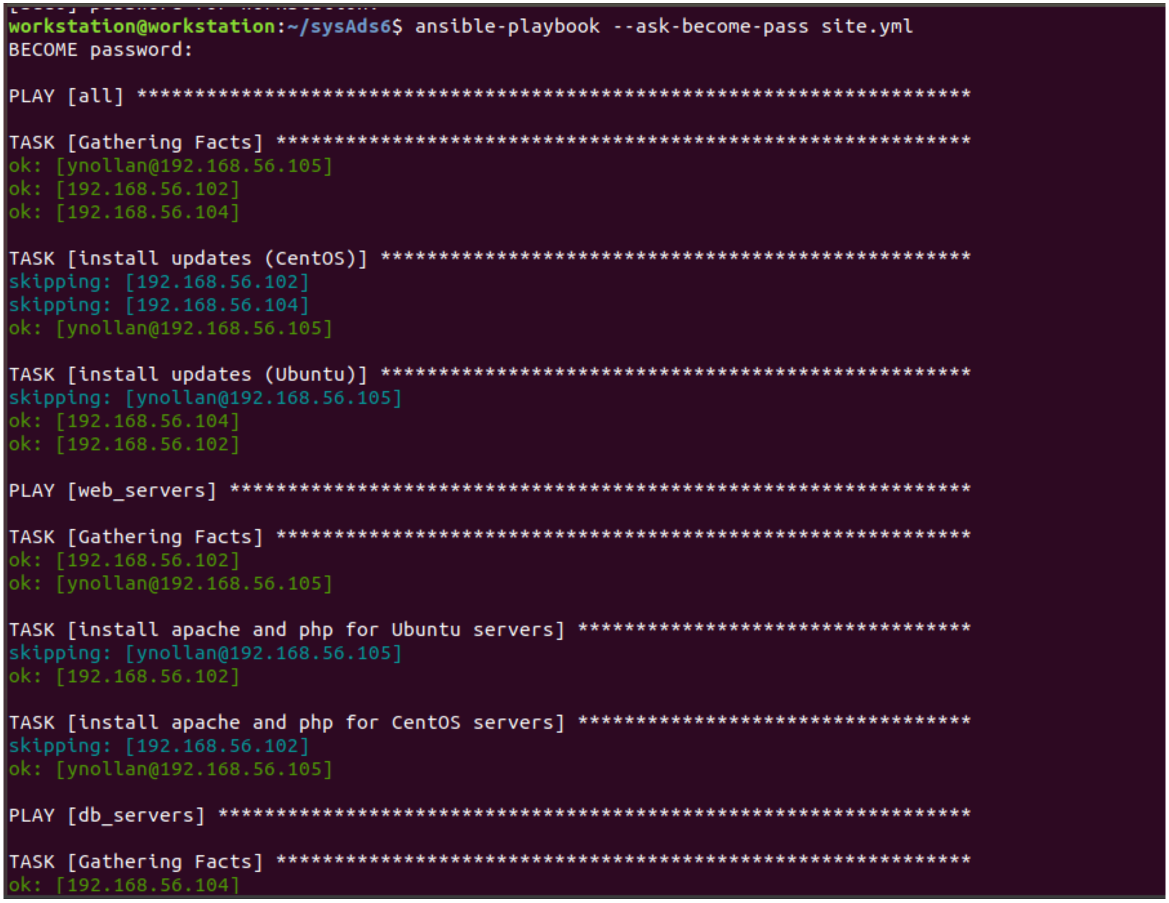


```
- hosts: web_servers
  become: true
  tasks:

  - 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"
```

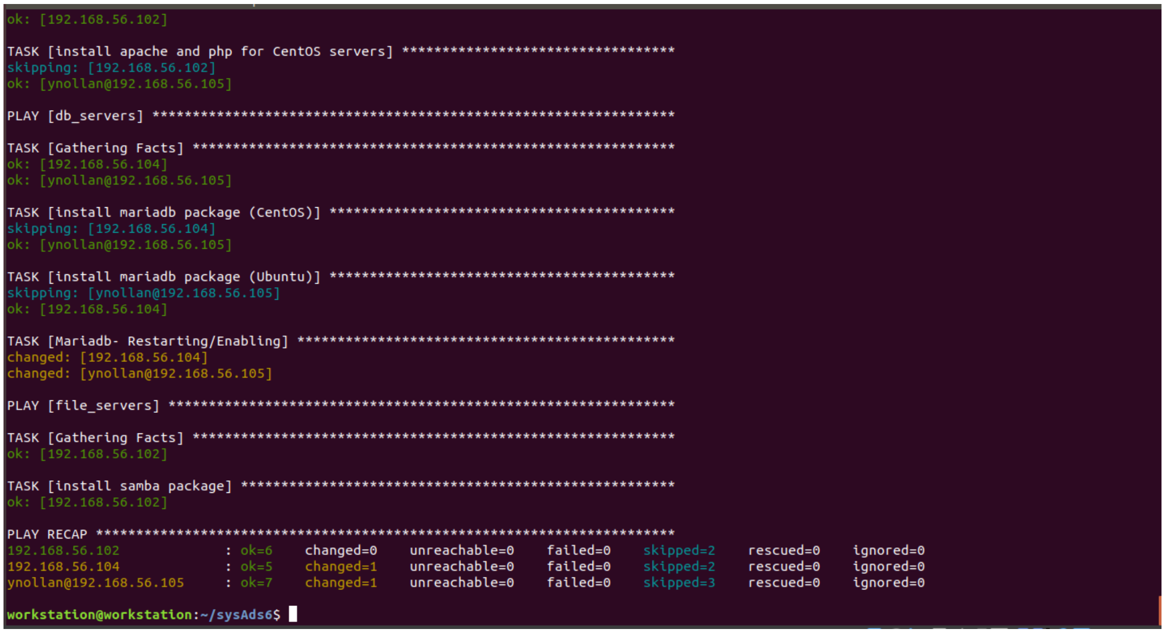


```
- hosts: db_servers
  become: true
  tasks:

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



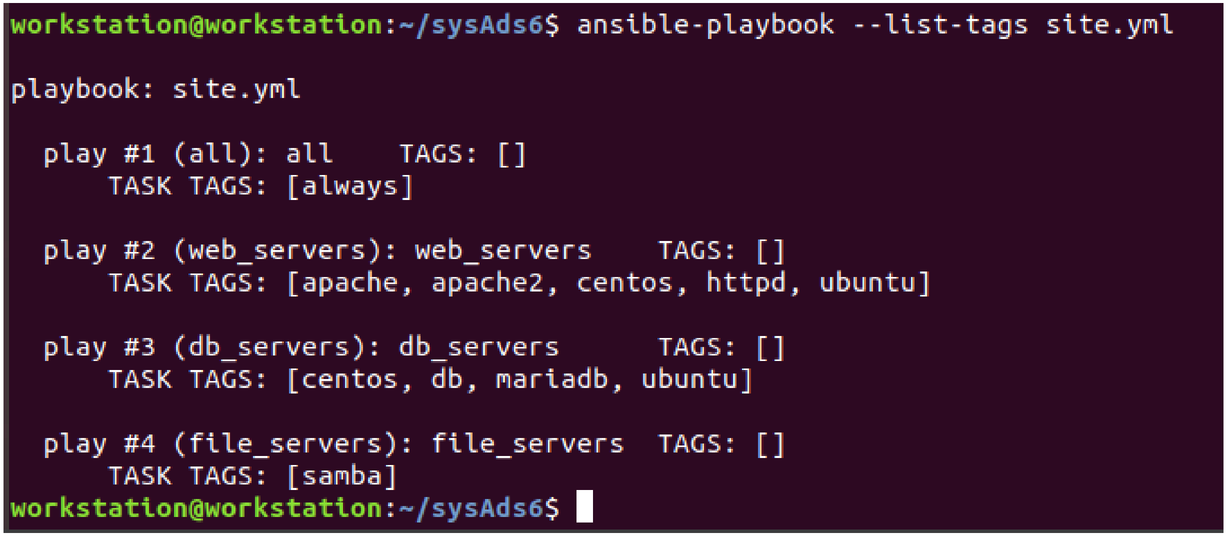
```
workstation@workstation:~/sysAds6$ ansible-playbook --ask-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] *************************************************************
ok: [ynollan@192.168.56.105]
ok: [192.168.56.102]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ****************************************************
skipping: [192.168.56.102]
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (Ubuntu)] ****************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *************************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install apache and php for Ubuntu servers] ***********************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] ***********************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

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



```
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] ***********************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

TASK [Gathering Facts] *************************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (CentOS)] ********************************************
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (Ubuntu)] ********************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] ************************************************
changed: [192.168.56.104]
changed: [ynollan@192.168.56.105]

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

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

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

PLAY RECAP *************************************************************************
192.168.56.102             : ok=6    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
ynollan@192.168.56.105     : ok=7    changed=1    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0

workstation@workstation:~/sysAds6$
```

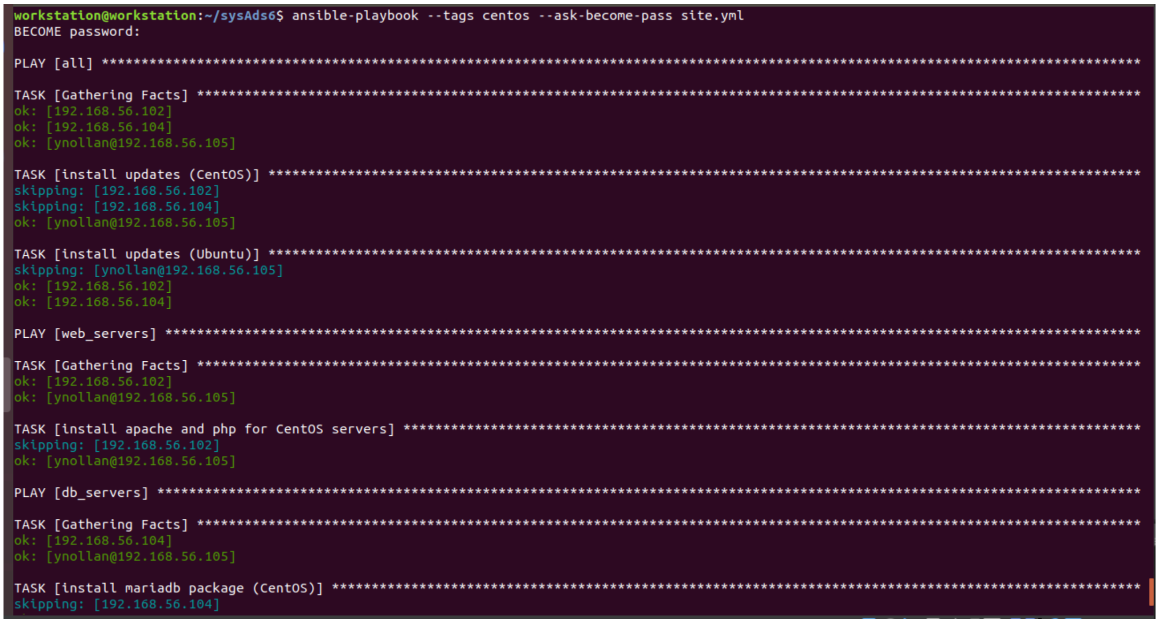
2. On the local machine, try to issue the following commands and describe each result:

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

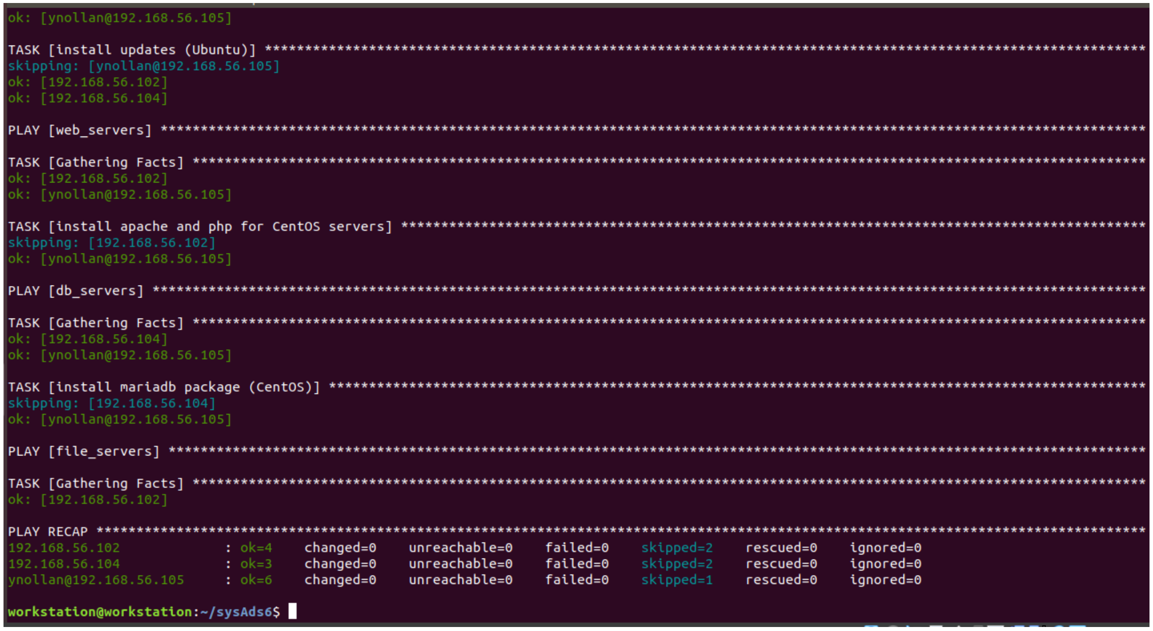


```
workstation@workstation:~/sysAds6$ ansible-playbook --list-tags site.yml

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]
workstation@workstation:~/sysAds6$ 
```

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

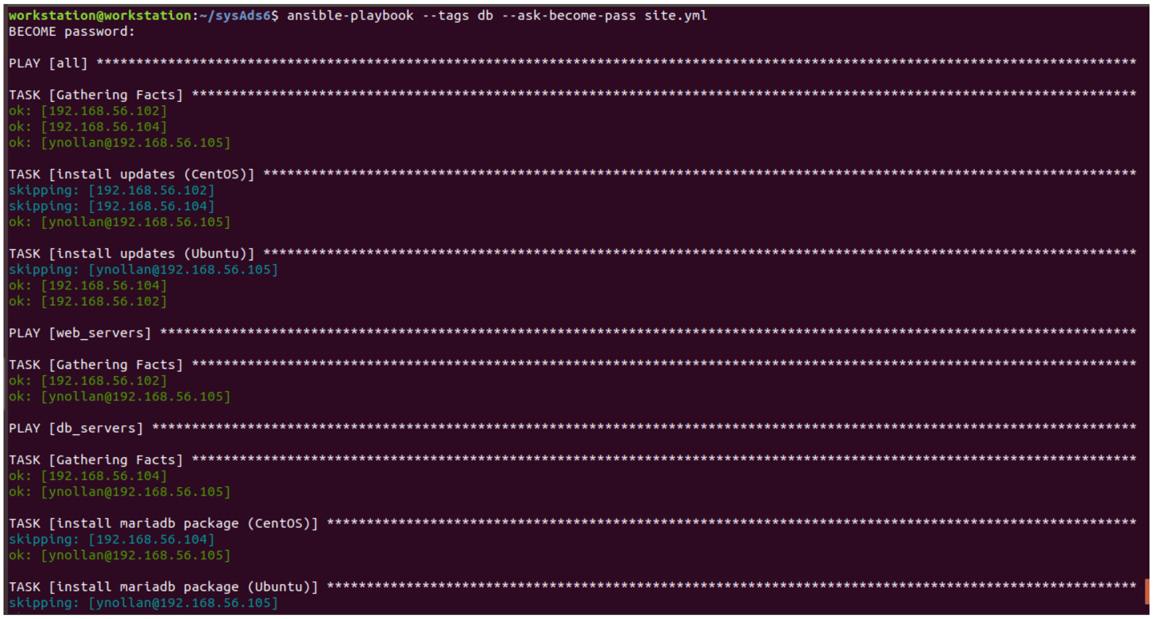


```
workstation@workstation:~/sysAds6$ ansible-playbook --tags centos --ask-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] ***********************************************************************************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (CentOS)] **************************************************************************************************************
skipping: [192.168.56.102]
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (Ubuntu)] **************************************************************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.102]
ok: [192.168.56.104]

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

TASK [Gathering Facts] ***********************************************************************************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install apache and php for CentOS servers] *********************************************************************************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

TASK [Gathering Facts] ***********************************************************************************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

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

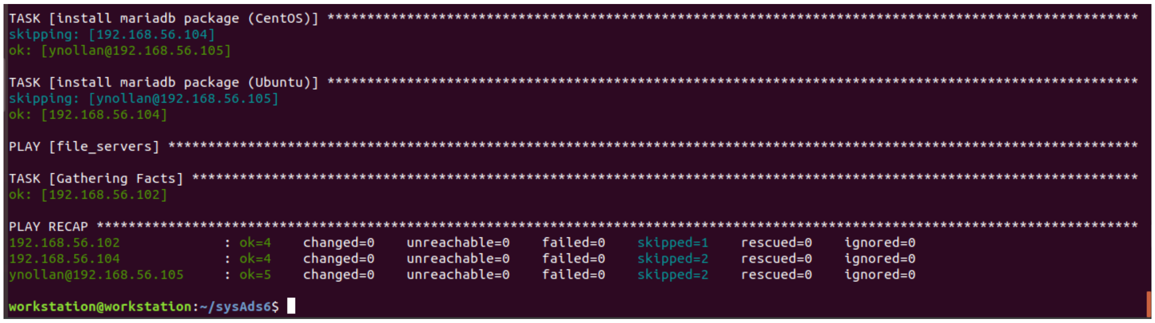


```
ok: [ynollan@192.168.56.105]

TASK [install updates (Ubuntu)] *****************************************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.102]
ok: [192.168.56.104]

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

TASK [Gathering Facts] **************************************************************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install apache and php for CentOS servers] ************************************************************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

TASK [Gathering Facts] **************************************************************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (CentOS)] *********************************************************************************
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

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

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

PLAY RECAP **************************************************************************************************************
192.168.56.102             : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=3    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
ynollan@192.168.56.105     : ok=6    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0

workstation@workstation:~/sysAds6$ 
```

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

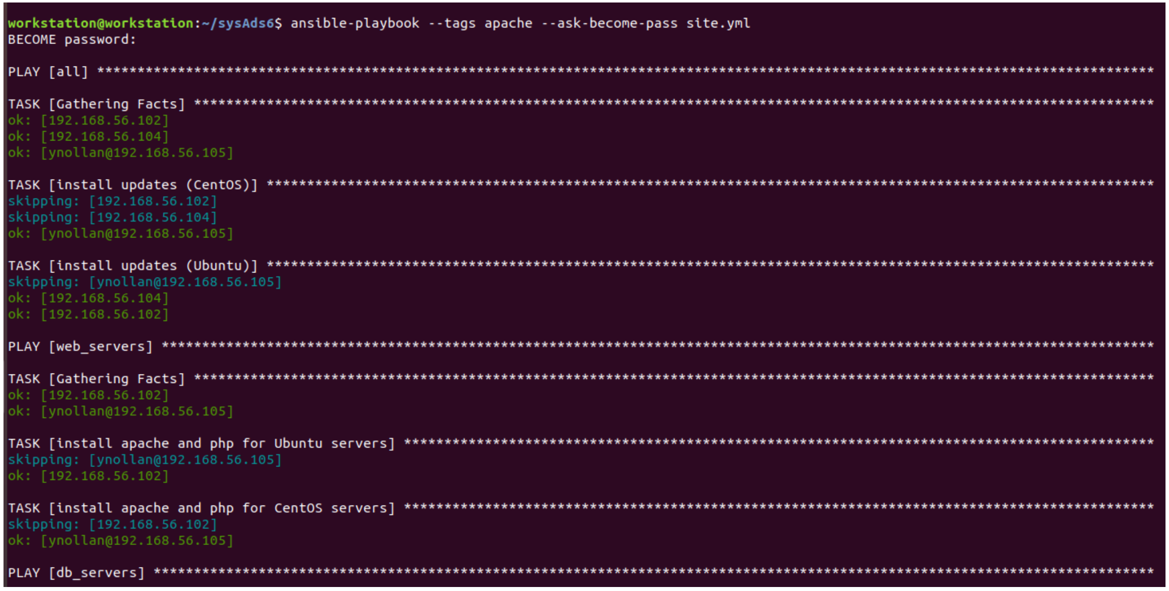


```
workstation@workstation:~/sysAds6$ ansible-playbook --tags db --ask-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] **************************************************************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (CentOS)] *****************************************************************************************
skipping: [192.168.56.102]
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (Ubuntu)] *****************************************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]
ok: [192.168.56.102]

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

TASK [Gathering Facts] **************************************************************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

TASK [Gathering Facts] **************************************************************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (CentOS)] *********************************************************************************
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (Ubuntu)] *********************************************************************************
skipping: [ynollan@192.168.56.105]
```

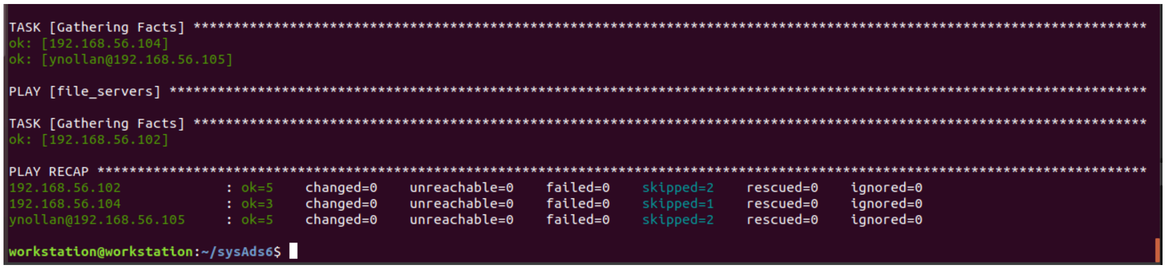


```
TASK [install mariadb package (CentOS)] *********************************************************************************
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install mariadb package (Ubuntu)] *********************************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]

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

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

PLAY RECAP **************************************************************************************************************
192.168.56.102             : ok=4    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
192.168.56.104             : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
ynollan@192.168.56.105     : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

workstation@workstation:~/sysAds6$ 
```

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



```
workstation@workstation:~/sysAds6$ ansible-playbook --tags apache --ask-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] *******************************************************************************************
ok: [192.168.56.102]
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (CentOS)] **********************************************************************************
skipping: [192.168.56.102]
skipping: [192.168.56.104]
ok: [ynollan@192.168.56.105]

TASK [install updates (Ubuntu)] **********************************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.104]
ok: [192.168.56.102]

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

TASK [Gathering Facts] *******************************************************************************************
ok: [192.168.56.102]
ok: [ynollan@192.168.56.105]

TASK [install apache and php for Ubuntu servers] *****************************************************************
skipping: [ynollan@192.168.56.105]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****************************************************************
skipping: [192.168.56.102]
ok: [ynollan@192.168.56.105]

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

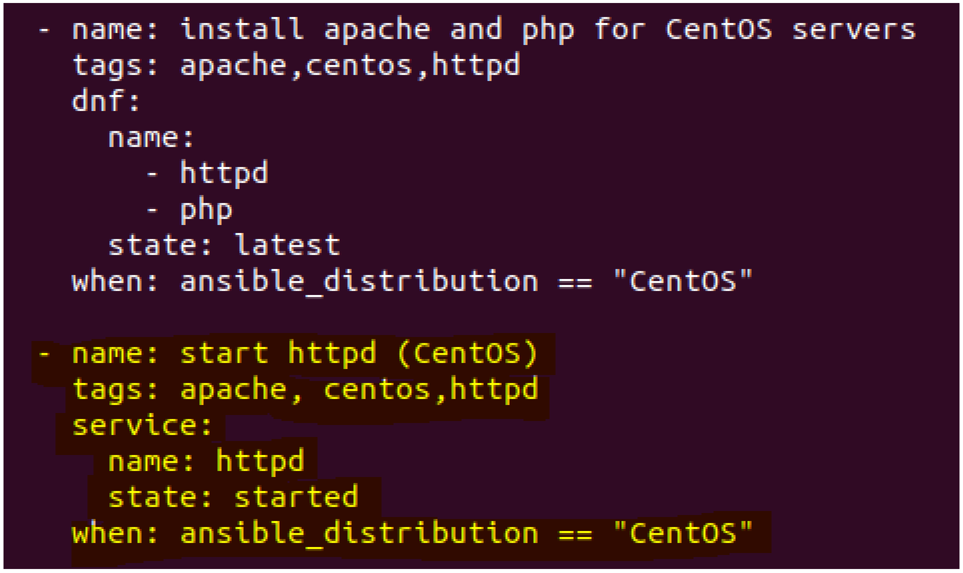


```
TASK [Gathering Facts] *******************************************************************************************
ok: [192.168.56.104]
ok: [ynollan@192.168.56.105]

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

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

PLAY RECAP *******************************************************************************************************
192.168.56.102             : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=3    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
ynollan@192.168.56.105     : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=0    ignored=0

workstation@workstation:~/sysAds6$ 
```

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

Task 3: Managing Services

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

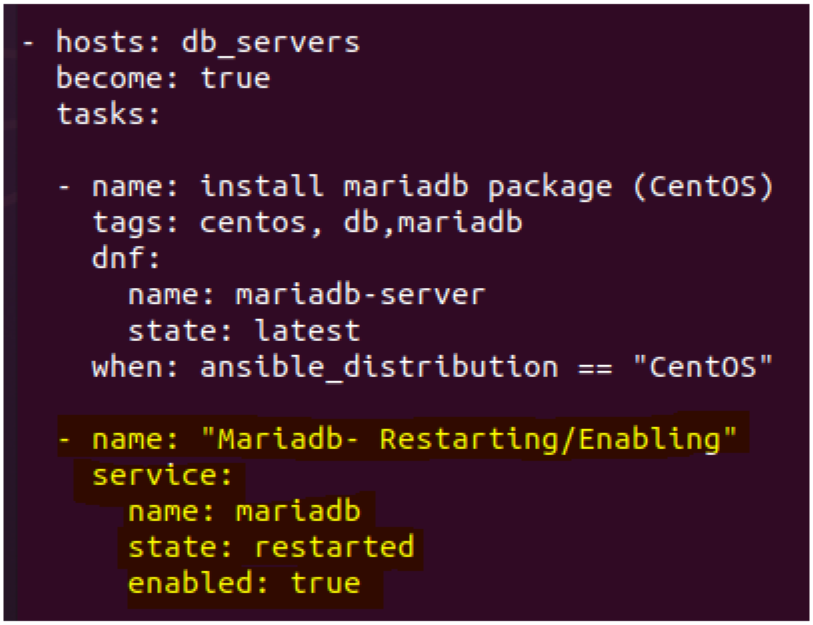


```
- name: install apache and php for CentOS servers
  tags: apache,centos,httpd
  dnf:
    name:
      - httpd
      - php
    state: latest
  when: ansible_distribution == "CentOS"

- 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.



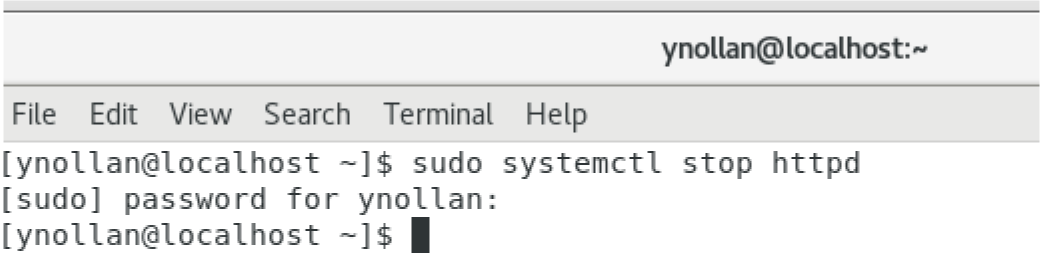
```
- hosts: db_servers
  become: true
  tasks:

  - 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

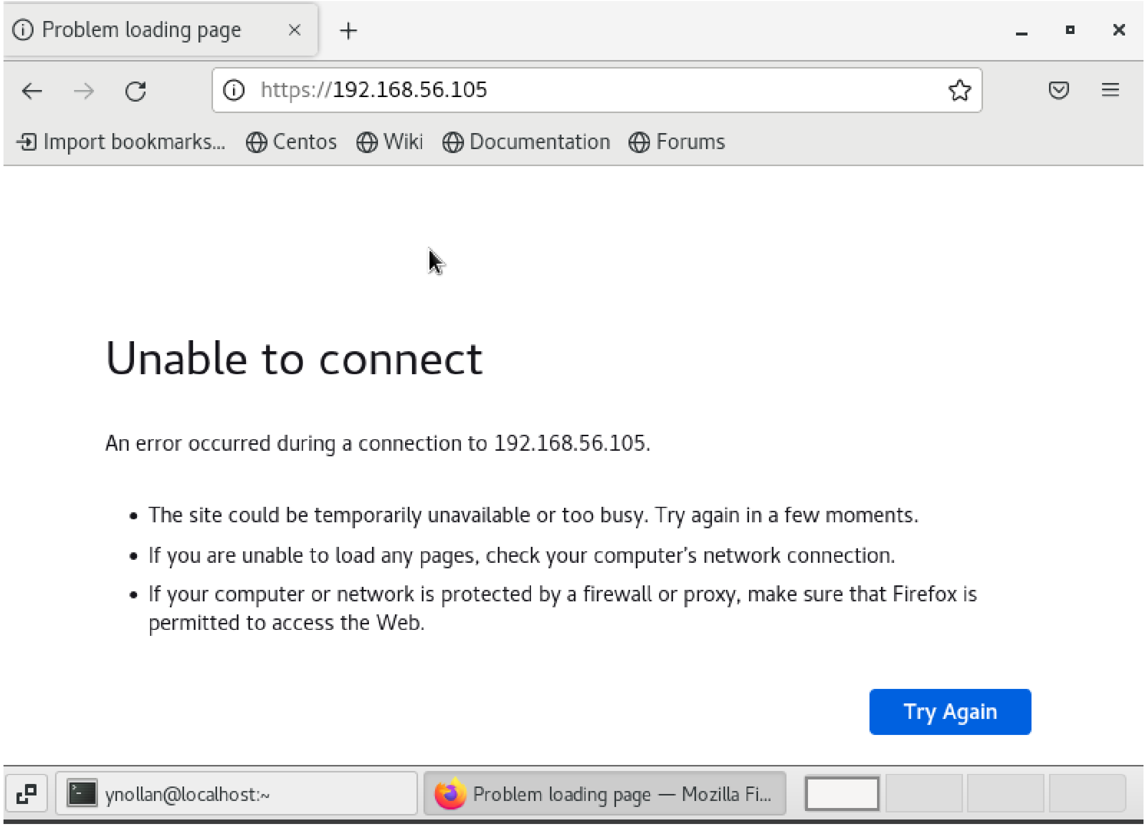
This is because in CentOS, installed packages' services are not run automatically. Thus, we need to create the module to run it automatically.

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.



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

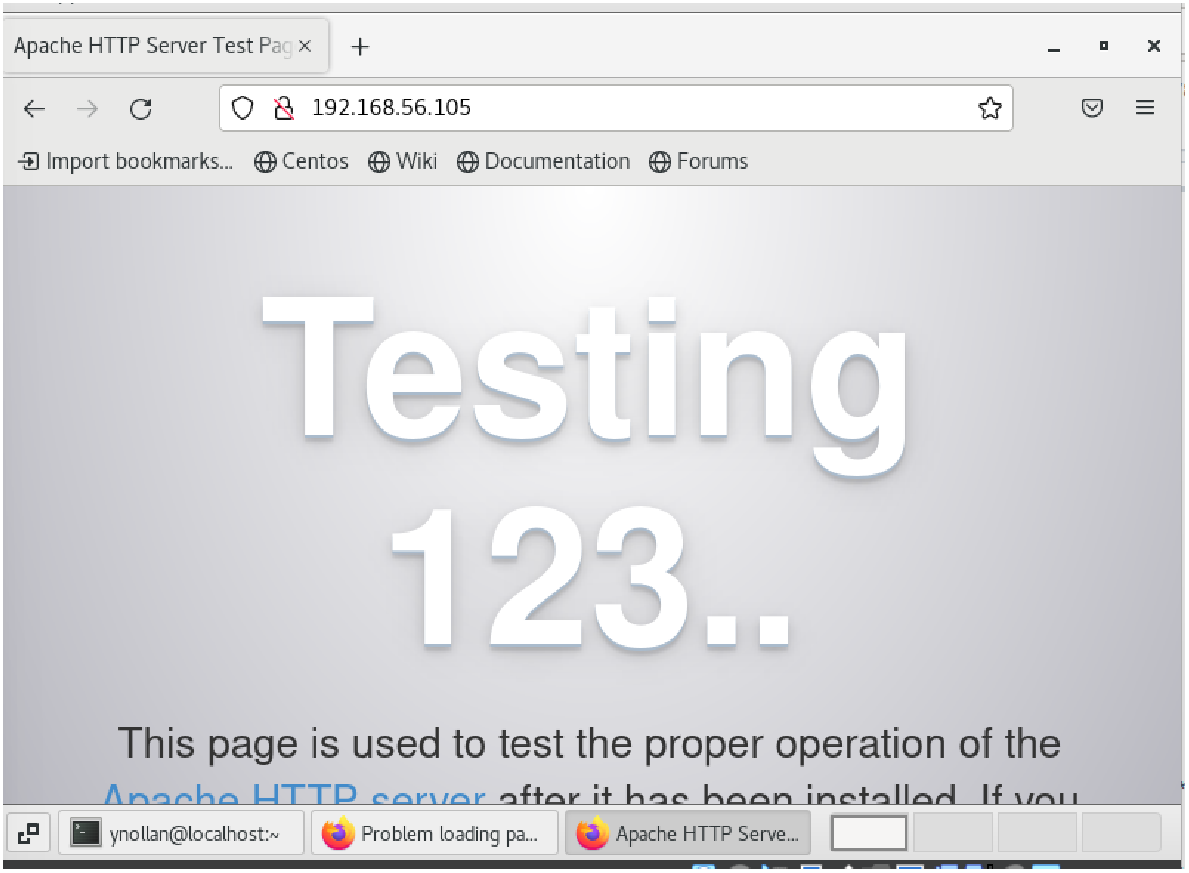


Unable to connect

An error occurred during a connection to 192.168.56.105.

- The site could be temporarily unavailable or too busy. Try again in a few moments.
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the Web.

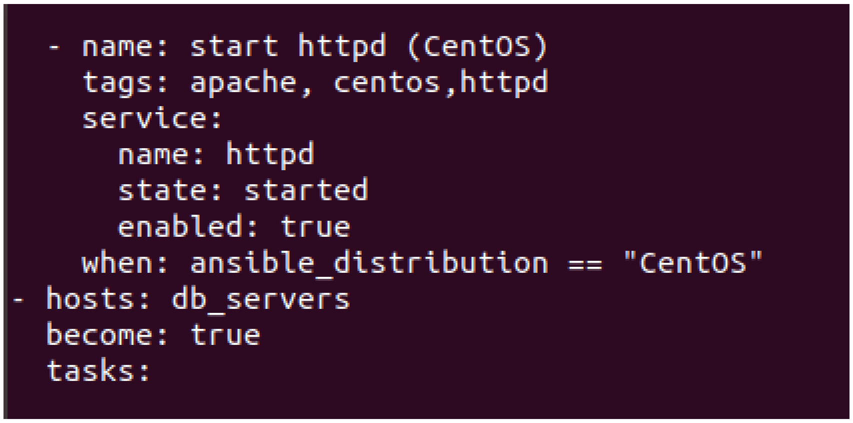
3. Go to the local machine and this time, run the *site.yml* file. Then after running the file, go again to the CentOS server and enter its IP address on the browser. Describe the result.



Testing 123..

This page is used to test the proper operation of the Apache HTTP server after it has been installed. If you

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 == "CentOS"
- hosts: db_servers
  become: true
  tasks:
```

Reflections:

Answer the following:

1. What is the importance of putting our remote servers into groups?
   - For a number of reasons, it is crucial to group remote servers. First of all, it enables system administrators to remotely administer and watch over the business network, making it simpler to work on several servers at once.

Second, it facilitates quicker troubleshooting since personnel are better equipped to recognize and address potential issues. Thirdly, by applying security policies to groups of servers and guaranteeing that every server in the group has the same level of security, grouping servers together can enhance security. Last but not least, remote server access can boost productivity by enabling system administrators to resolve problems more rapidly, providing consumers with services that are quicker and more responsive.

2. What is the importance of tags in playbooks?
   - In an Ansible playbook, tasks can have tags attached to them as metadata, enabling runtime targeting of certain activities. Tag inheritance is the process through which tags are added to a play or tasks and roles that have been statically imported. By defining tags at the level of a block, play, role, or import, tags can be added to a single task, an include, or to several tasks. It is possible to run individual tasks within a playbook on demand by using tags to choose or skip jobs while running a playbook. Because tags can be complex when utilizing includes or imports, it is crucial to understand how they are transferred inside the hierarchy of imports.
3. Why do think some services need to be managed automatically in playbooks?
   - Because automated playbooks can identify new threats more quickly, require less manual intervention, and give users self-service options, managing services automatically in playbooks can have a number of advantages. These advantages include increased efficiency, quicker response times, improved customer satisfaction, operational excellence, and scalability.

Conclusion:

In summary, individualizing hosts, using tags to determine which plays to run, and managing services from remote servers through playbooks are crucial goals that can be attained through the use of automation, which can offer advantages like increased efficiency, quicker response times, improved customer satisfaction, operational excellence, and scalability.