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Course/Section: CPE 232 - CPE31S6	**Date Submitted:** September 28. 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.

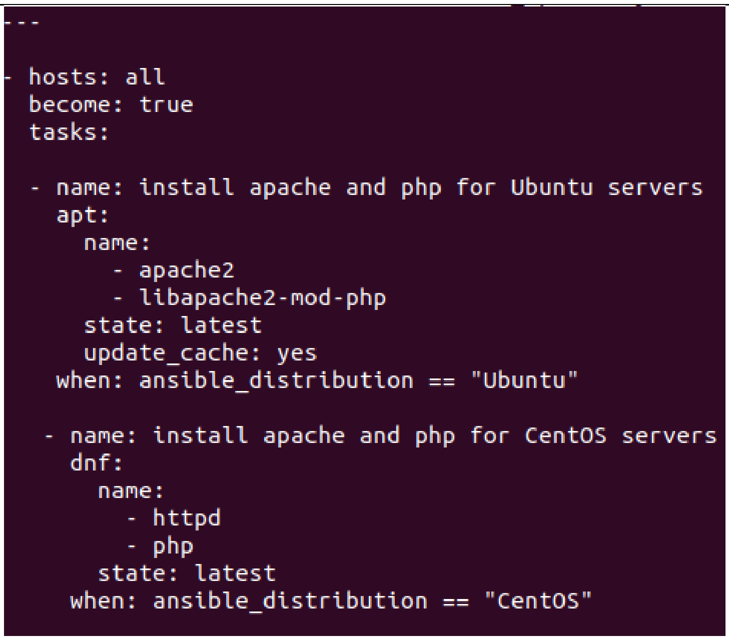
We also try to manage services that do not automatically run using the automations in playbook. For example, when we install web servers or httpd for CentOS, we notice that the service did not start automatically.

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.

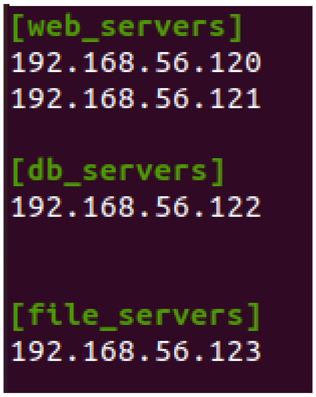
Task 1: Targeting Specific Nodes

1. Create
2. 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.



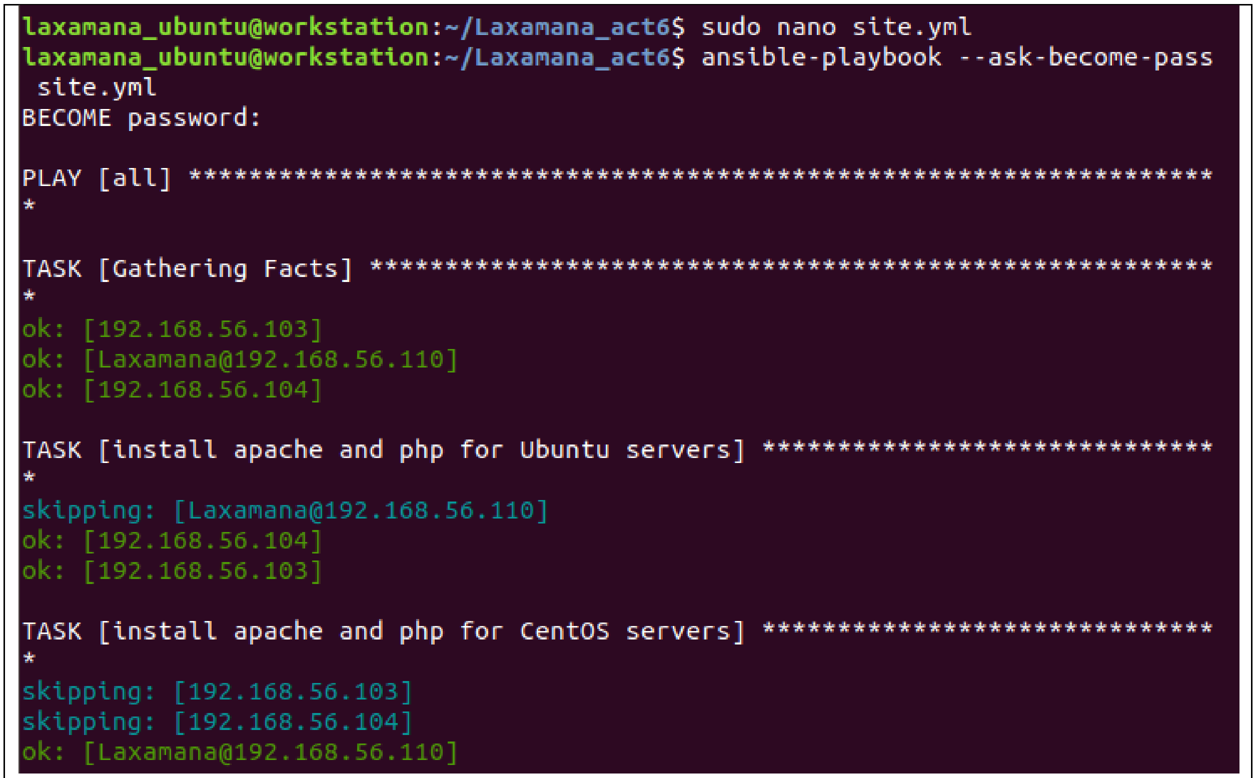
```
---

- 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"
```

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

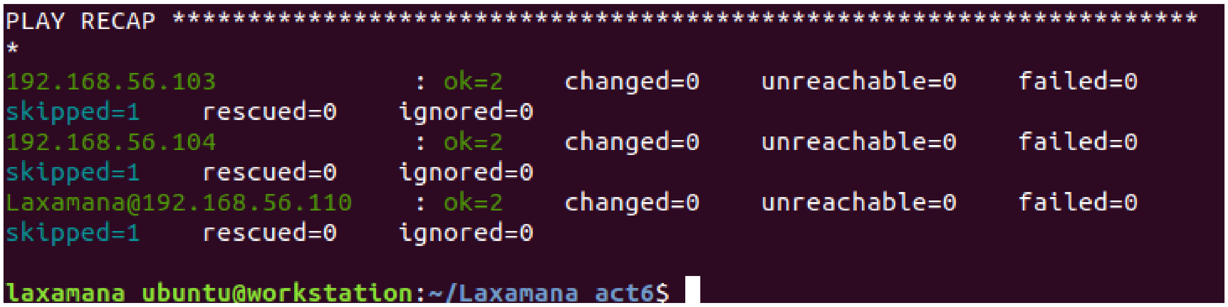


```
[web_servers]
192.168.56.120
192.168.56.121

[db_servers]
192.168.56.122


[file_servers]
192.168.56.123
```

Make sure to save the file and exit.



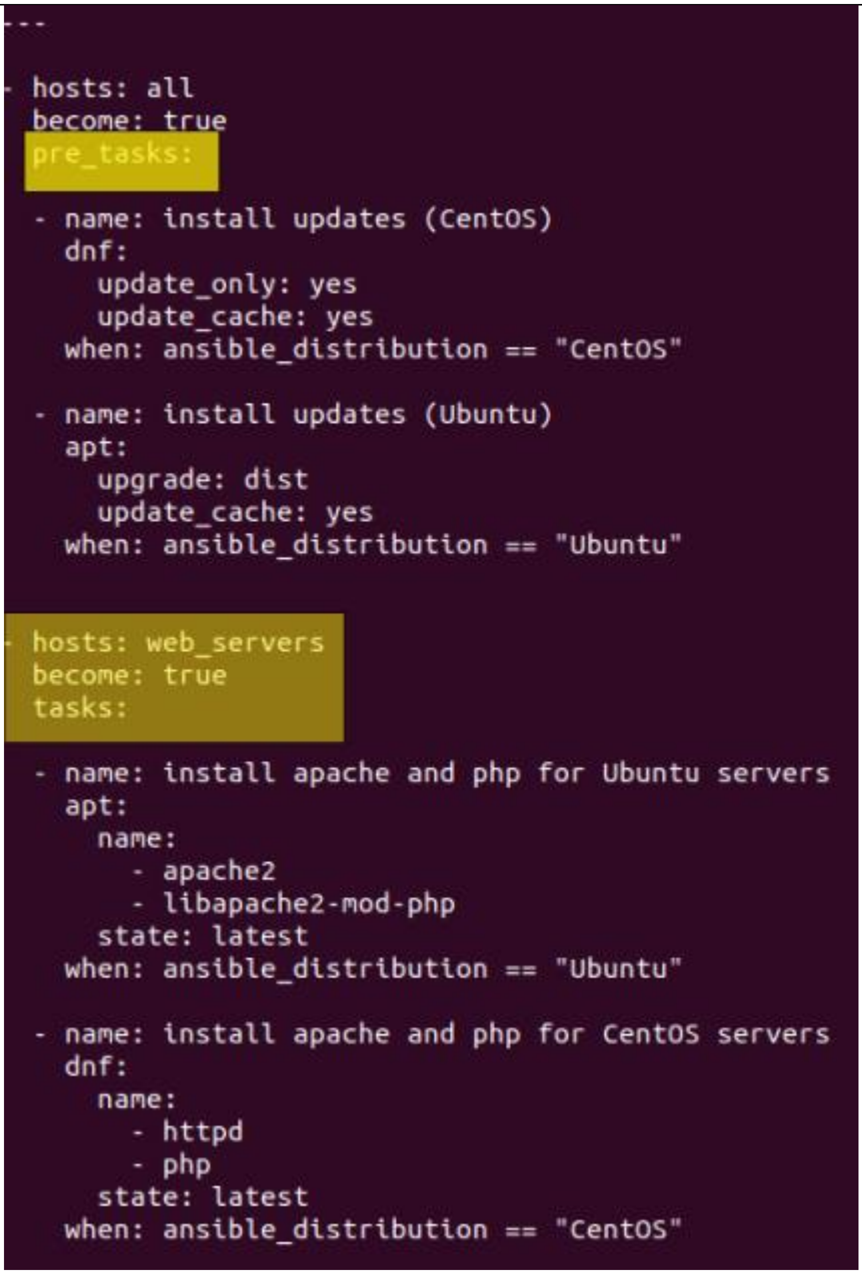
```
laxamana_ubuntu@workstation:~/Laxamana_act6$ sudo nano site.yml
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] ********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [install apache and php for Ubuntu servers] ******************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] ******************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]
```



```
PLAY RECAP ********************************************************************
*
192.168.56.103             : ok=2    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
192.168.56.104             : ok=2    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=2    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$
```

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.

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

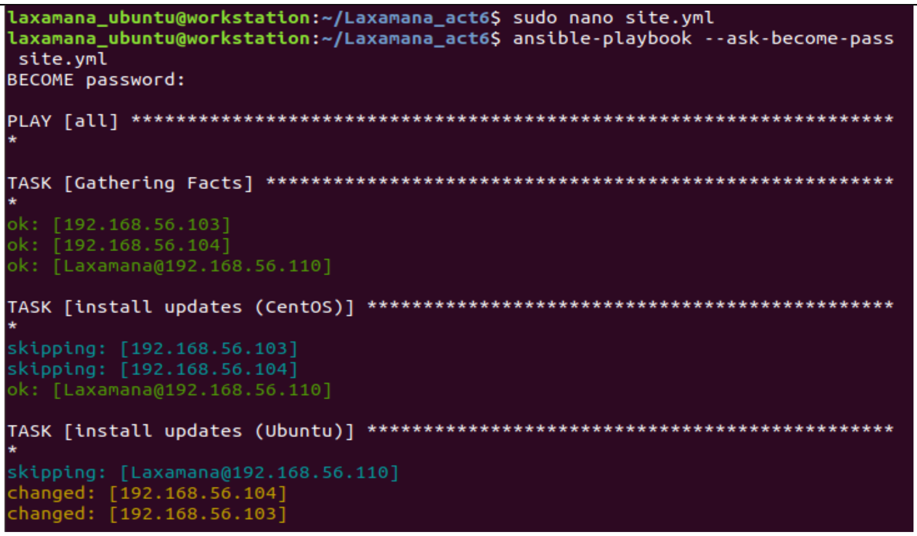


```
---

- 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"
```

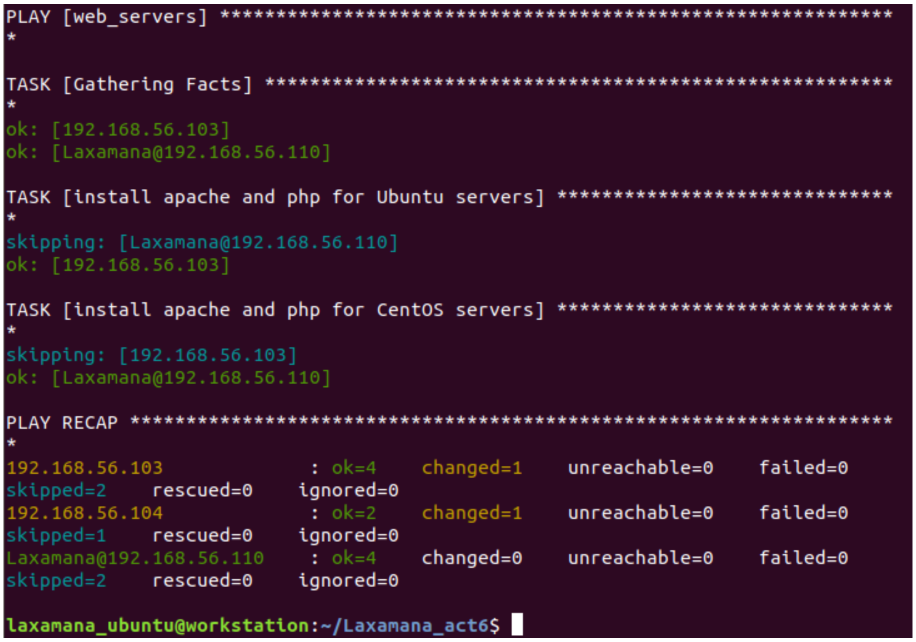
Make sure to save the file and exit.

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.

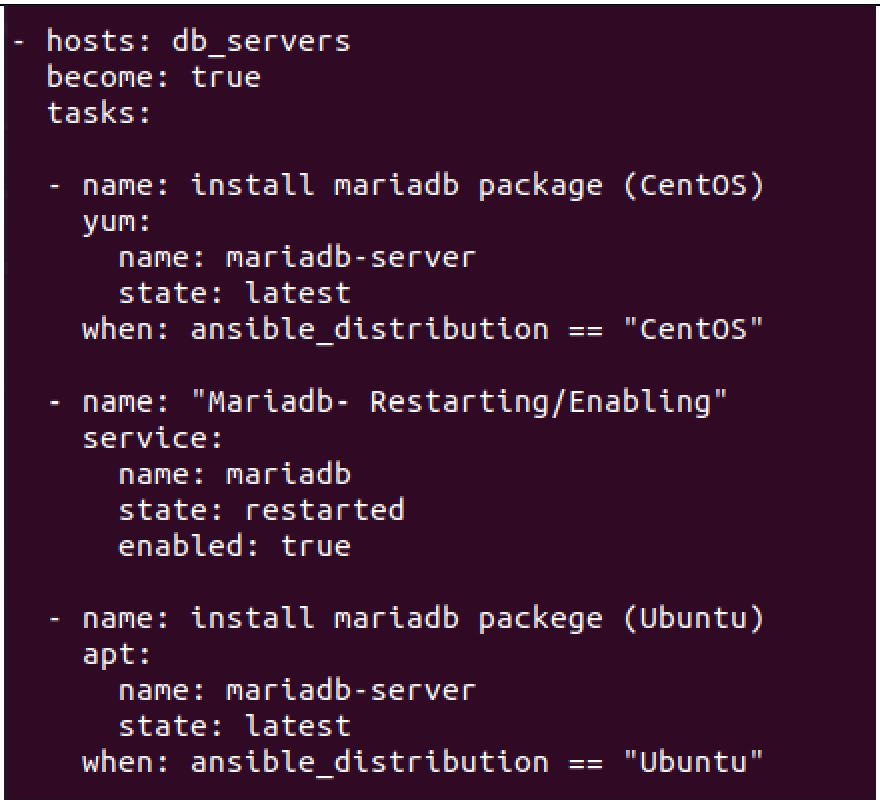


```
laxamana_ubuntu@workstation:~/Laxamana_act6$ sudo nano site.yml
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] *******************************************************
*
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] **********************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] **********************************************
*
skipping: [Laxamana@192.168.56.110]
changed: [192.168.56.104]
changed: [192.168.56.103]
```



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

TASK [Gathering Facts] *******************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] *****************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] *****************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

PLAY RECAP *******************************************************************
*
192.168.56.103             : 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
Laxamana@192.168.56.110    : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$ 
```

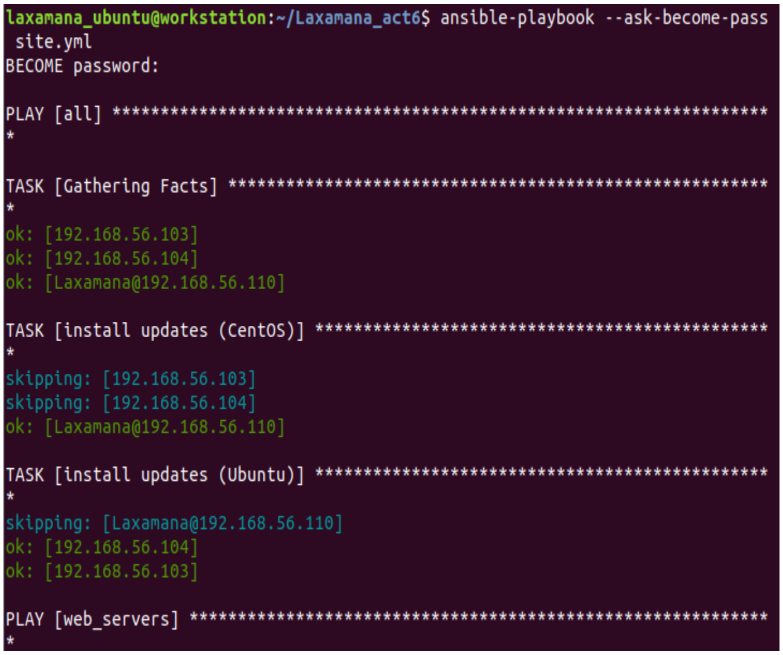
5. Let's try to edit again the *site.yml* file. This time, we are going to add plays targeting the other servers. This time we target the *db_servers* by adding it on the current *site.yml*. Below is an example: (Note add this at the end of the playbooks from task 1.3.



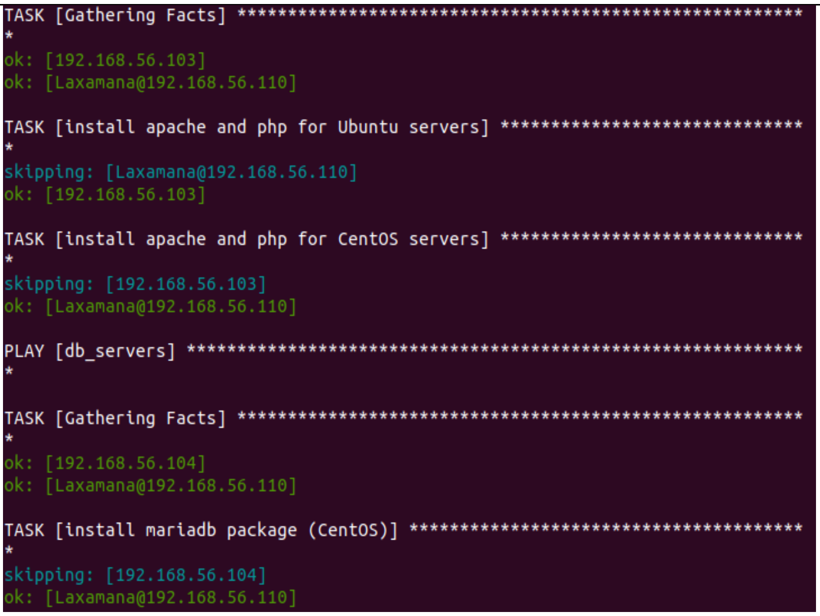
```
- hosts: db_servers
  become: true
  tasks:

  - 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.

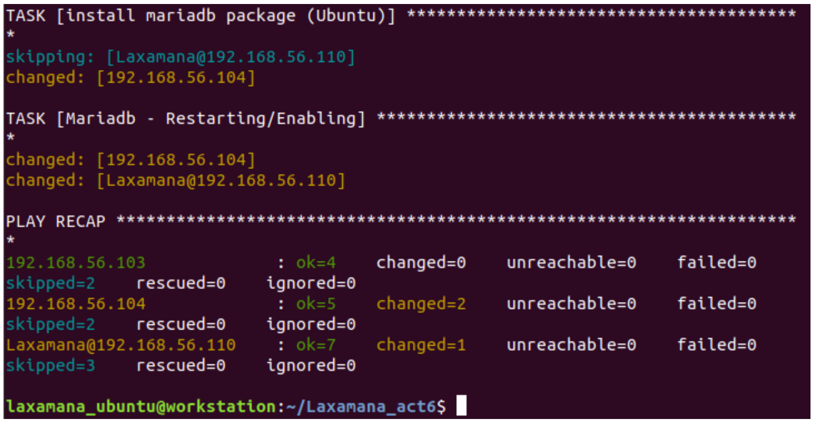
Run the *site.yml* file and describe the result.



```
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] *******************************************************
*
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] **********************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] **********************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]
ok: [192.168.56.103]

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

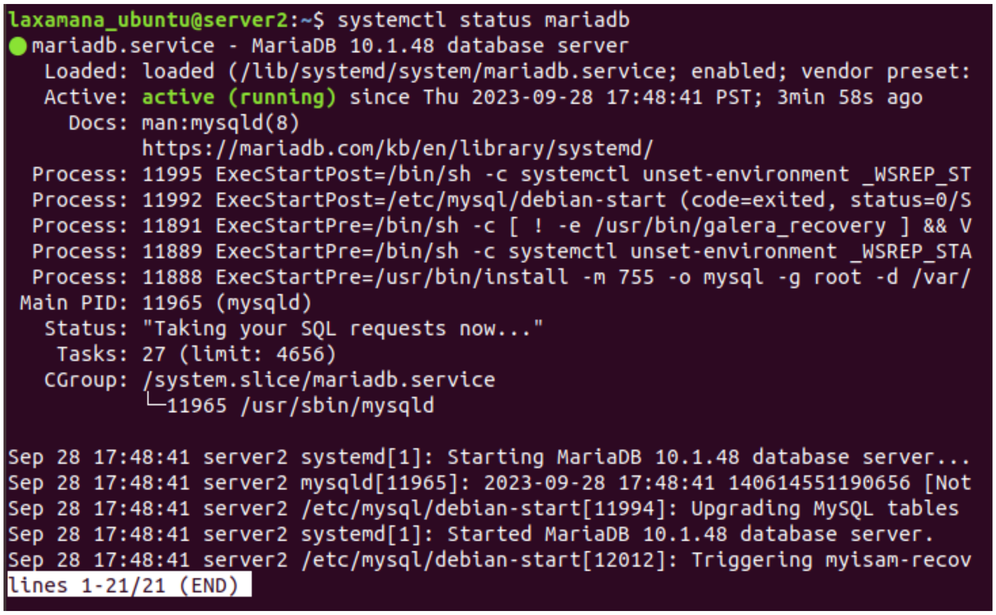


```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] ******************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] ******************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (CentOS)] ***************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]
```

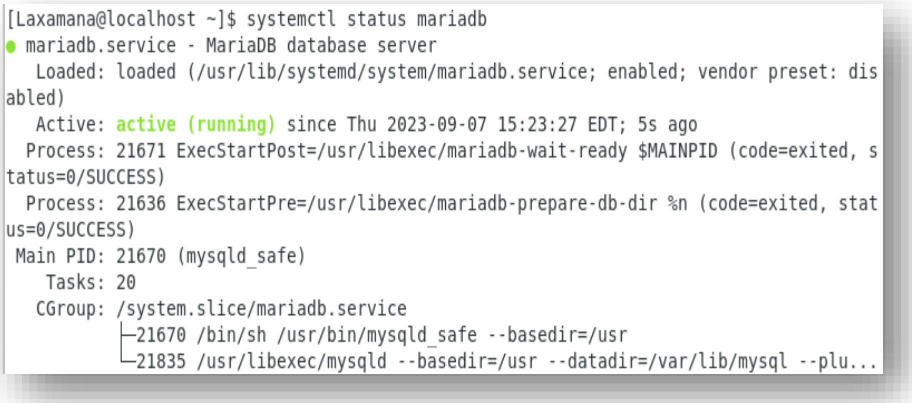


```
TASK [install mariadb package (Ubuntu)] ***************************************
*
skipping: [Laxamana@192.168.56.110]
changed: [192.168.56.104]

TASK [Mariadb - Restarting/Enabling] ******************************************
*
changed: [192.168.56.104]
changed: [Laxamana@192.168.56.110]

PLAY RECAP *********************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=5    changed=2    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=7    changed=1    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$ 
```

6. 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.



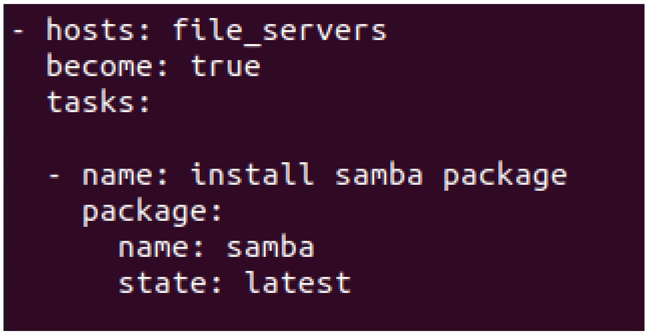
```
laxamana_ubuntu@server2:~$ systemctl status mariadb
● mariadb.service - MariaDB 10.1.48 database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset:
   Active: active (running) since Thu 2023-09-28 17:48:41 PST; 3min 58s ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
  Process: 11995 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_ST
  Process: 11992 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/S
  Process: 11891 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && V
  Process: 11889 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_STA
  Process: 11888 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/
 Main PID: 11965 (mysqld)
   Status: "Taking your SQL requests now..."
    Tasks: 27 (limit: 4656)
   CGroup: /system.slice/mariadb.service
           └─11965 /usr/sbin/mysqld

Sep 28 17:48:41 server2 systemd[1]: Starting MariaDB 10.1.48 database server...
Sep 28 17:48:41 server2 mysqld[11965]: 2023-09-28 17:48:41 140614551190656 [Not
Sep 28 17:48:41 server2 /etc/mysql/debian-start[11994]: Upgrading MySQL tables
Sep 28 17:48:41 server2 systemd[1]: Started MariaDB 10.1.48 database server.
Sep 28 17:48:41 server2 /etc/mysql/debian-start[12012]: Triggering myisam-recov
lines 1-21/21 (END)
```



```
[Laxamana@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 Thu 2023-09-07 15:23:27 EDT; 5s ago
  Process: 21671 ExecStartPost=/usr/libexec/mariadb-wait-ready $MAINPID (code=exited, s
tatus=0/SUCCESS)
  Process: 21636 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir %n (code=exited, stat
us=0/SUCCESS)
 Main PID: 21670 (mysqld_safe)
    Tasks: 20
   CGroup: /system.slice/mariadb.service
           ├─21670 /bin/sh /usr/bin/mysqld_safe --basedir=/usr
           └─21835 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysql --plu...
```

Describe the output.

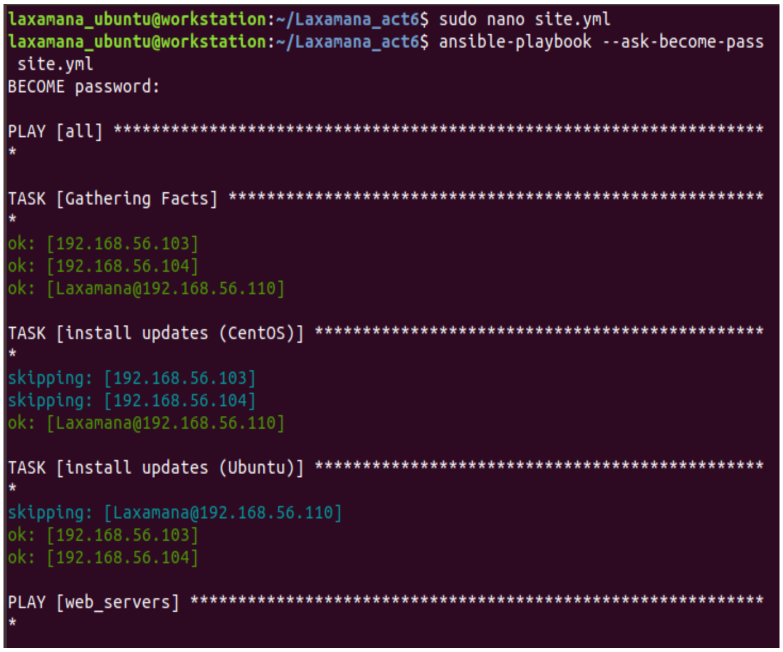
7. Edit the *site.yml* again. This time we will append the code to configure installation on the *file_servers* group. We can add the following on our file.



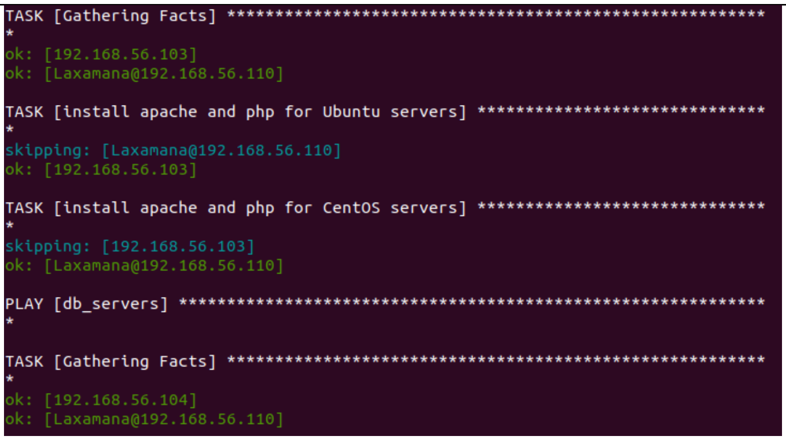
```
- hosts: file_servers
  become: true
  tasks:

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

Make sure to save the file and exit.

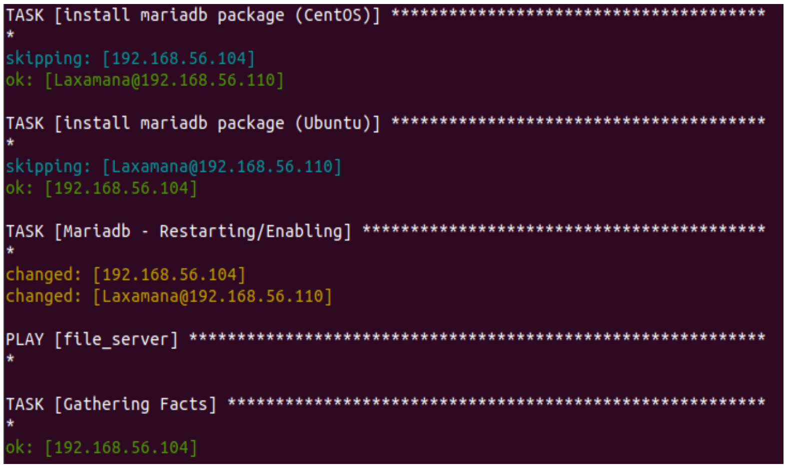
Run the *site.yml* file and describe the result.



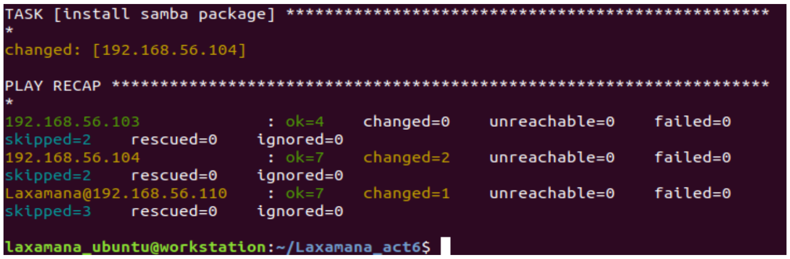
```
laxamana_ubuntu@workstation:~/Laxamana_act6$ sudo nano site.yml
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] **********************************************************
*
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] *************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] *************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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



```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] ******************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] ******************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]
```



```
TASK [install mariadb package (CentOS)] ***************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (Ubuntu)] ***************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [Mariadb - Restarting/Enabling] ******************************************
*
changed: [192.168.56.104]
changed: [Laxamana@192.168.56.110]

PLAY [file_server] *************************************************************
*

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



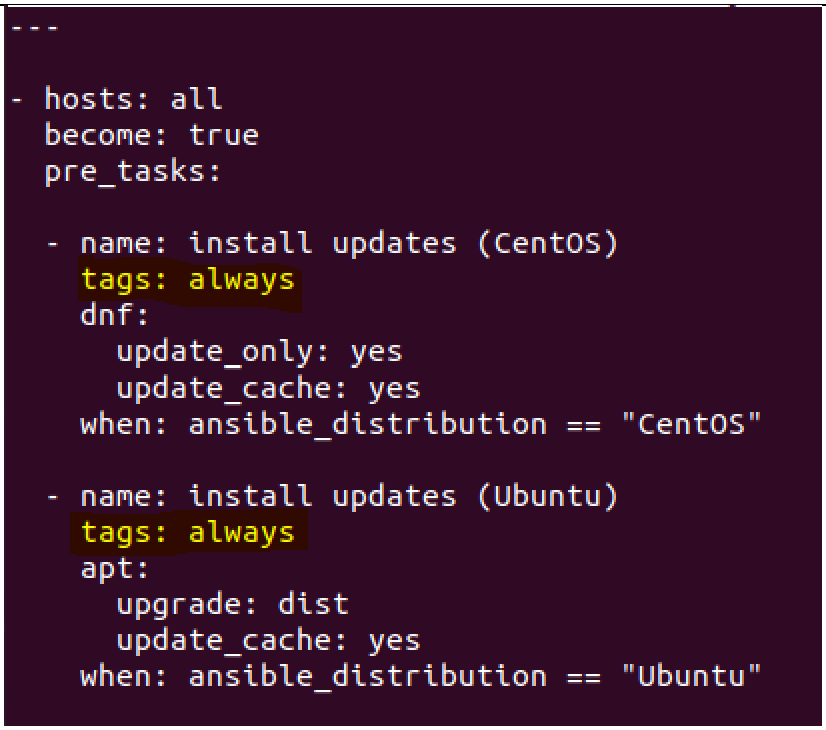
```
TASK [install samba package] ***************************************************
*
changed: [192.168.56.104]

PLAY RECAP *********************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=7    changed=2    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=7    changed=1    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$
```

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.

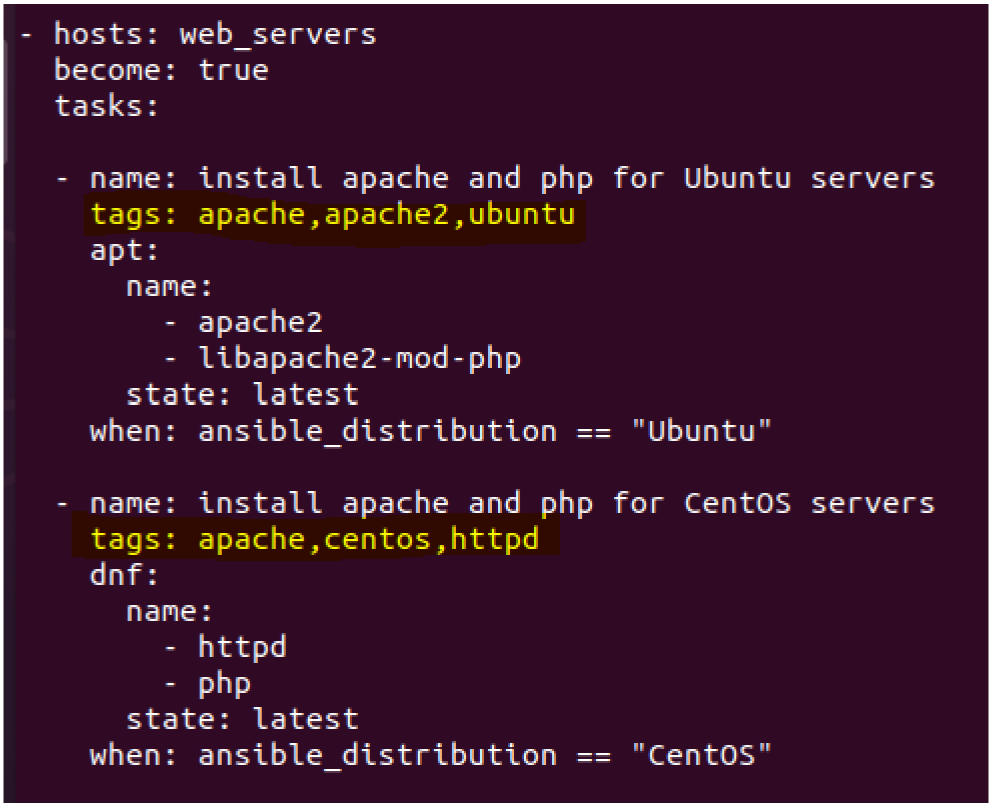
Task 2: Using Tags in running playbooks

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.

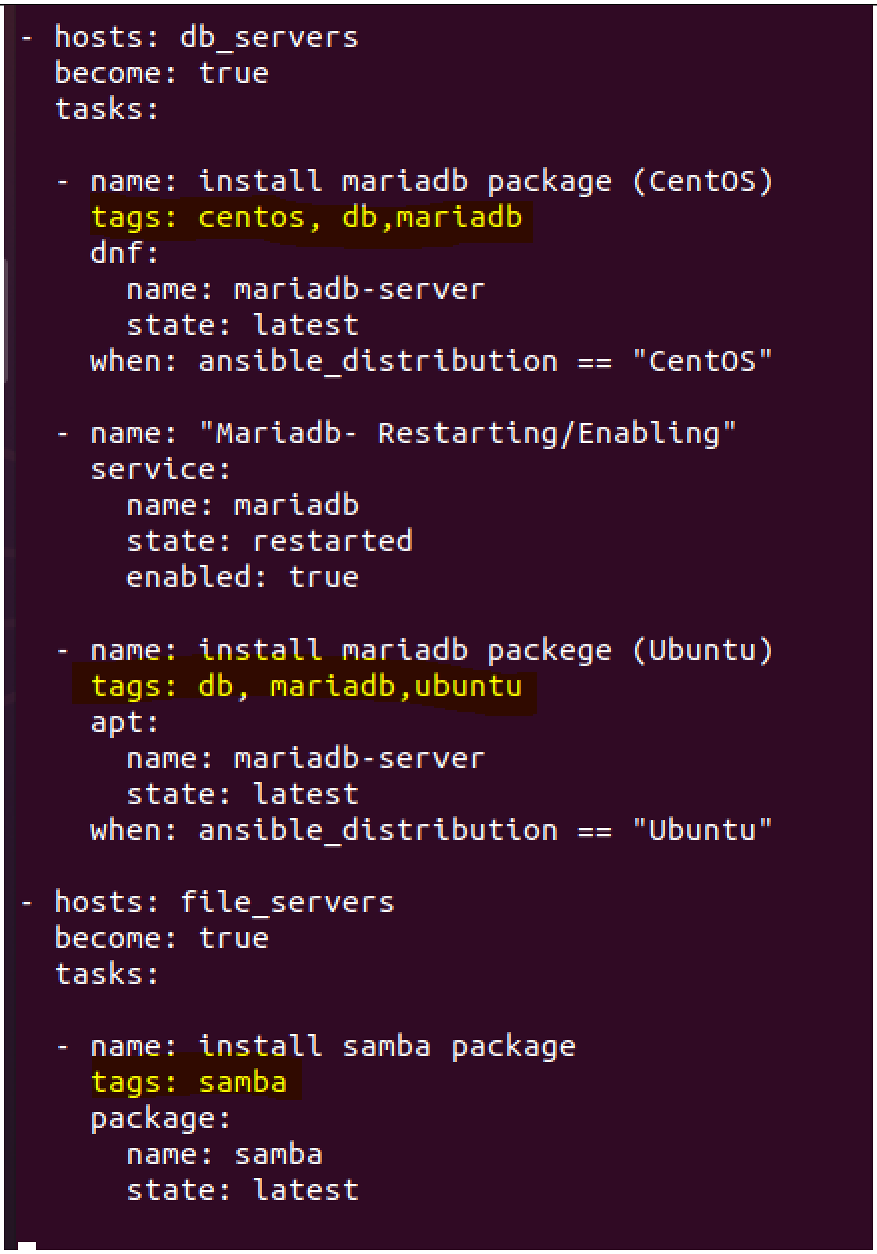
1. Edit the *site.yml* file. Add tags to the playbook. After the name, we can place the tags: *name_of_tag*. This is an arbitrary command, which means you can use any name for a tag.



```
---

- 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"
```



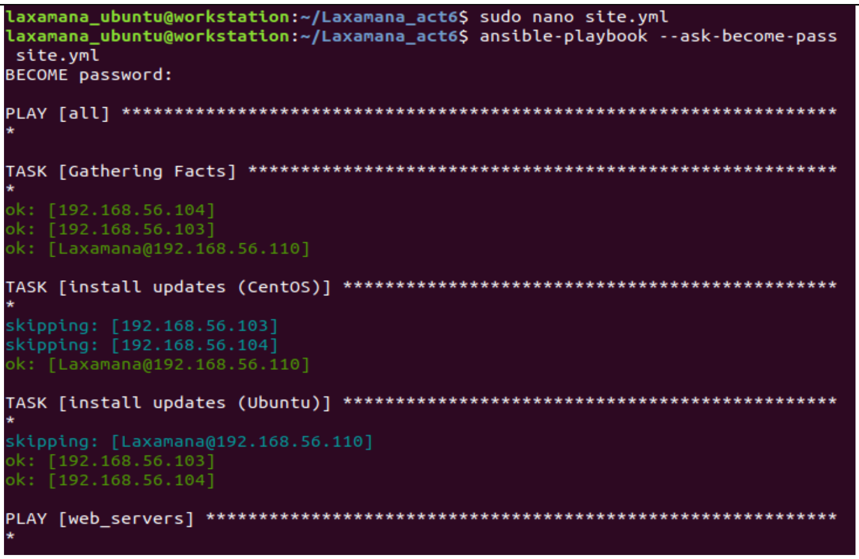
```
- hosts: web_servers
  become: true
  tasks:

  - 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"
```



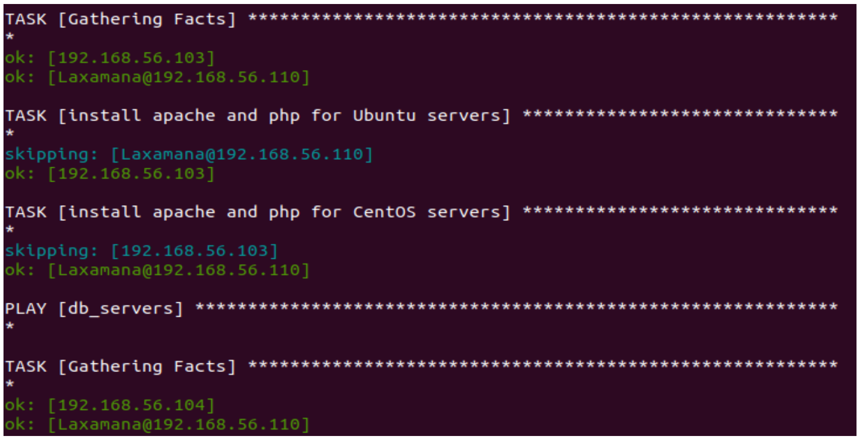
```
- hosts: db_servers
  become: true
  tasks:

  - 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.

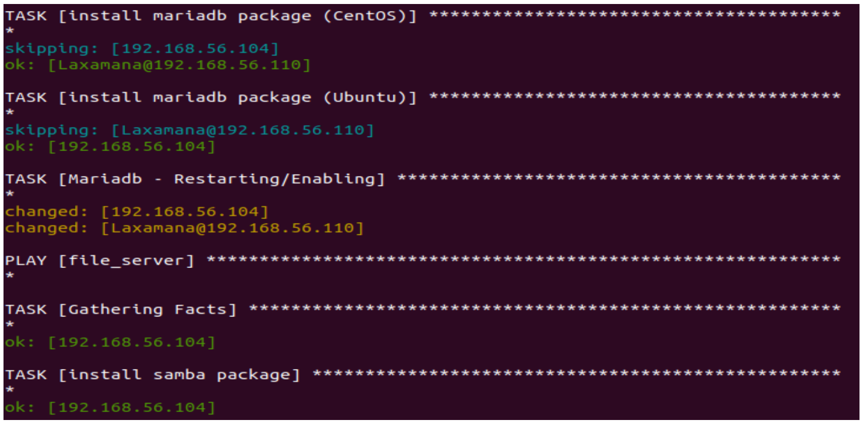
Run the *site.yml* file and describe the result.



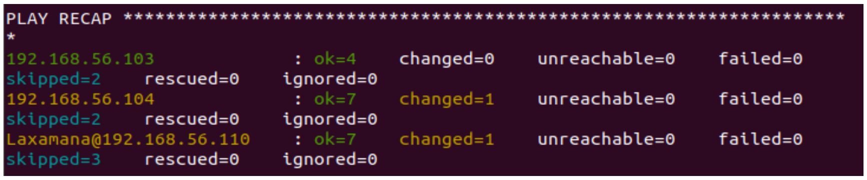
```
laxamana_ubuntu@workstation:~/Laxamana_act6$ sudo nano site.yml
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] ************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] ************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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



```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] *******************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] *******************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]
```



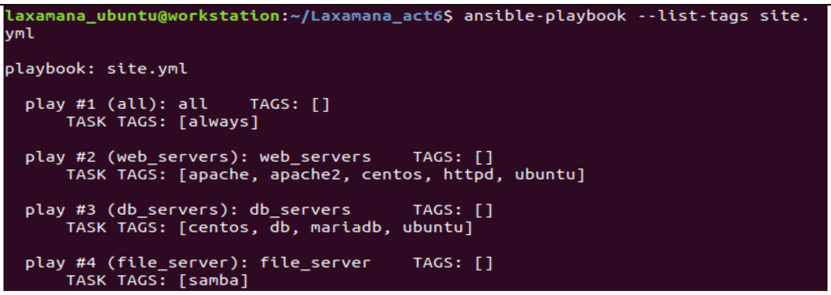
```
TASK [install mariadb package (CentOS)] ****************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (Ubuntu)] ****************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [Mariadb - Restarting/Enabling] *******************************************
*
changed: [192.168.56.104]
changed: [Laxamana@192.168.56.110]

PLAY [file_server] *************************************************************
*

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

TASK [install samba package] ***************************************************
*
ok: [192.168.56.104]
```



```
PLAY RECAP *********************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=7    changed=1    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=7    changed=1    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0
```

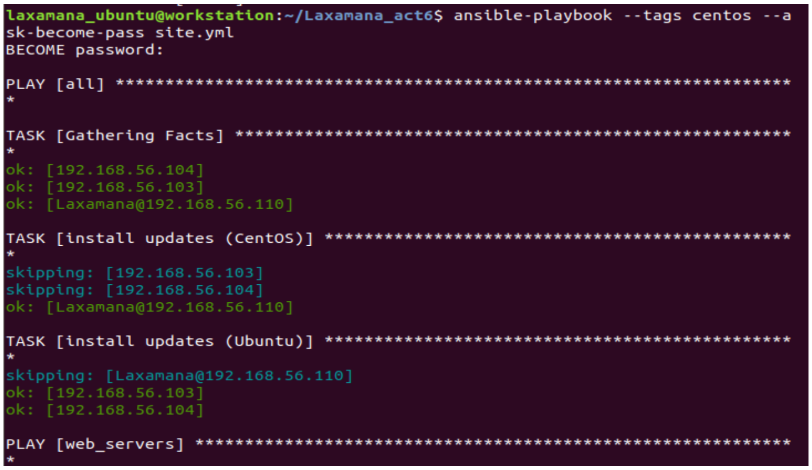
2. On the local machine, try to issue the following commands and describe each result:

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

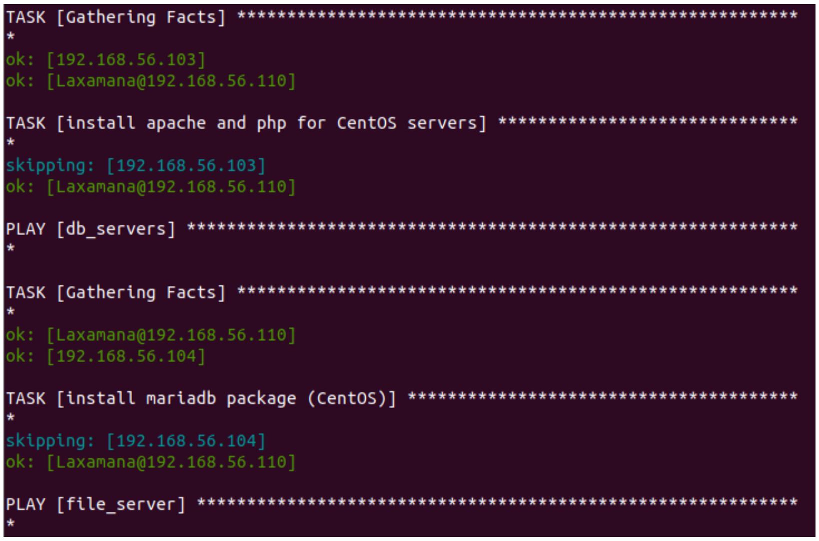


```
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --list-tags site.
yml

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_server): file_server    TAGS: []
      TASK TAGS: [samba]
```

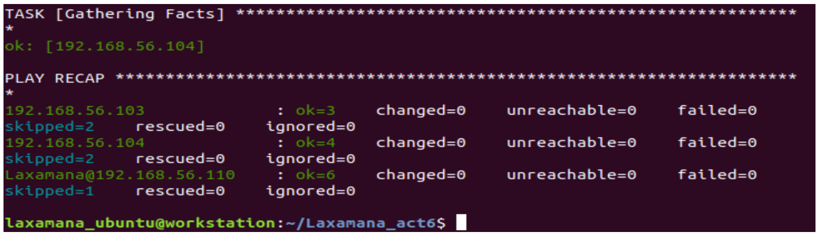
2.2 *ansible-playbook --tags centos --ask-become-pass site.yml*



```
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --tags centos --a
sk-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] *******************************************************
*
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] **********************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] **********************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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

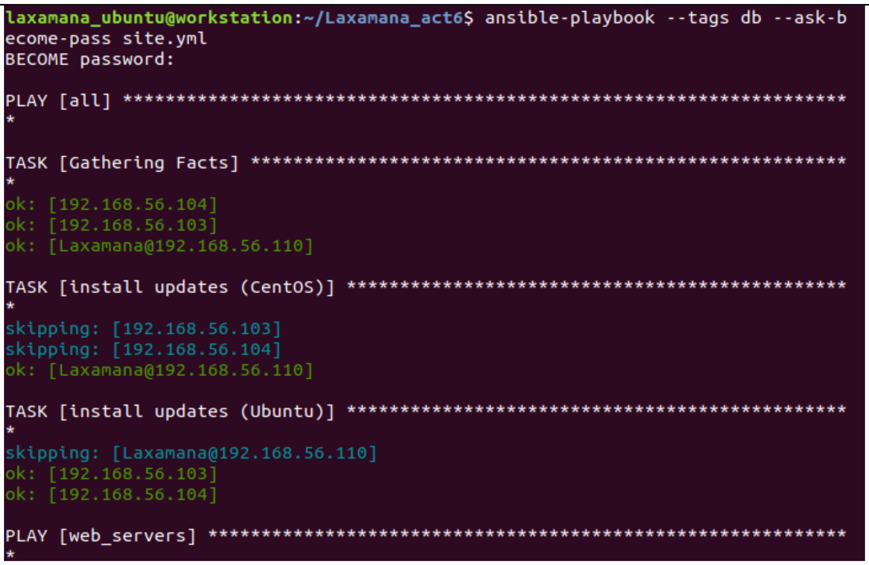


```
TASK [Gathering Facts] *******************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for CentOS servers] *****************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] *******************************************************
*
ok: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] **************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

PLAY [file_server] ***********************************************************
*
```

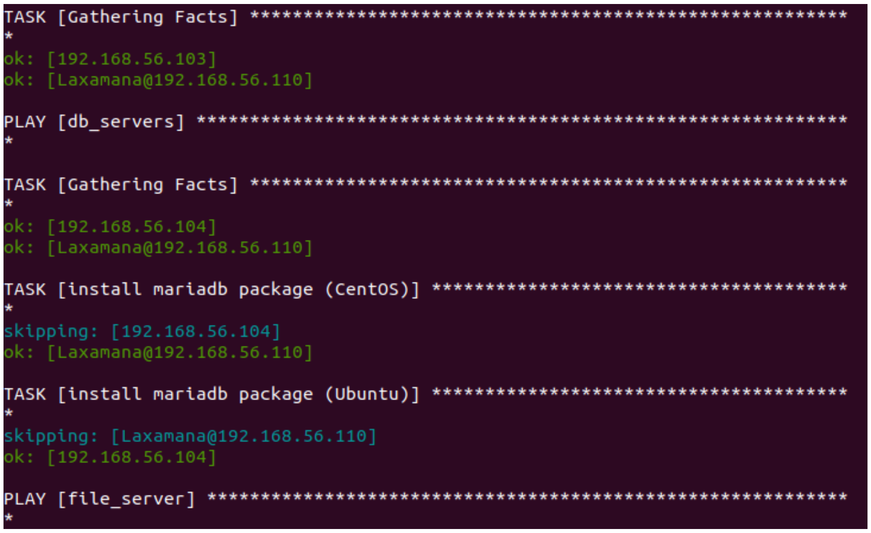


```
TASK [Gathering Facts] *******************************************************
*
ok: [192.168.56.104]

PLAY RECAP *******************************************************************
*
192.168.56.103             : ok=3    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=6    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$ 
```

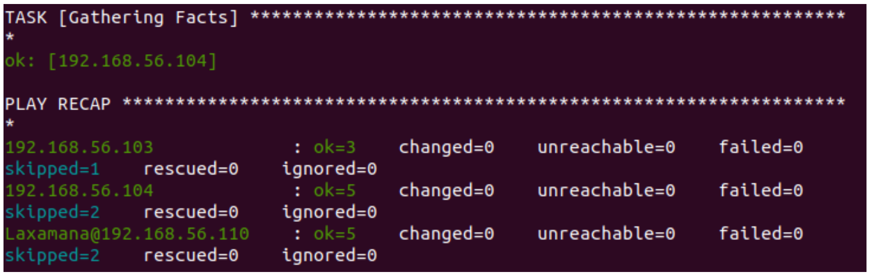
2.3 *ansible-playbook --tags db --ask-become-pass site.yml*



```
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --tags db --ask-b
ecome-pass site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] ************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] ************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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

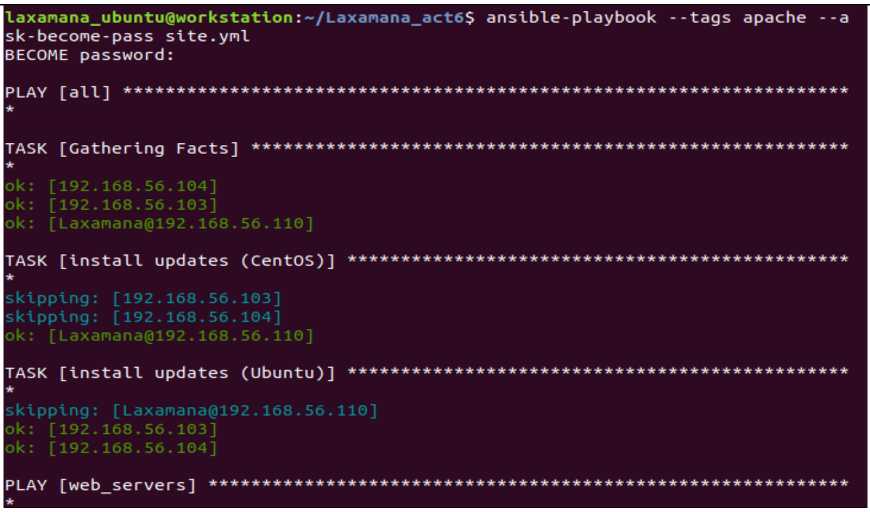


```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (CentOS)] ****************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (Ubuntu)] ****************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

PLAY [file_server] *************************************************************
*
```

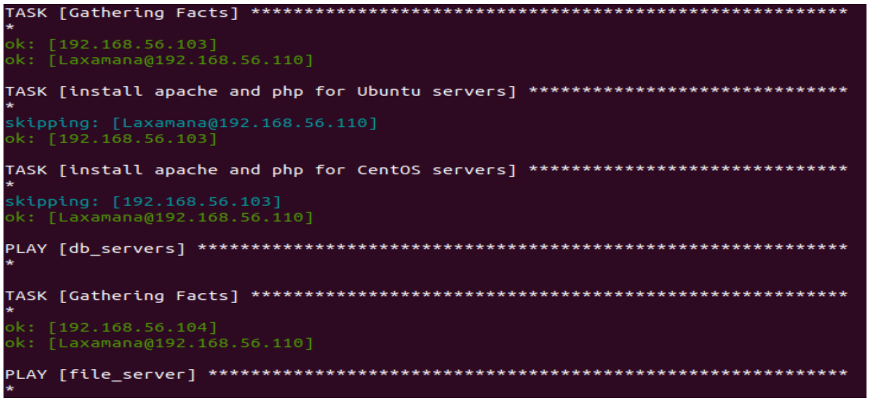


```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]

PLAY RECAP *********************************************************************
*
192.168.56.103             : ok=3    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=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=5    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
```

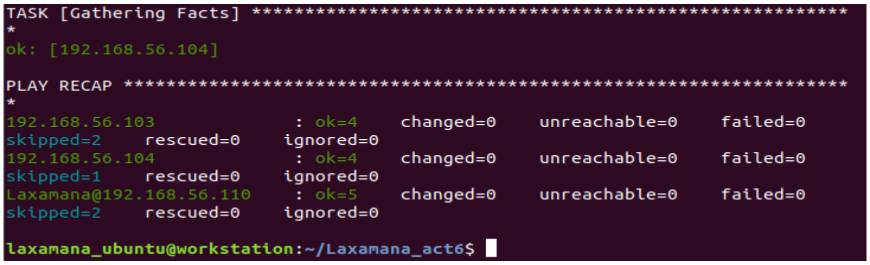
2.4 *ansible-playbook --tags apache --ask-become-pass site.yml*



```
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --tags apache --a
sk-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] ************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] ************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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

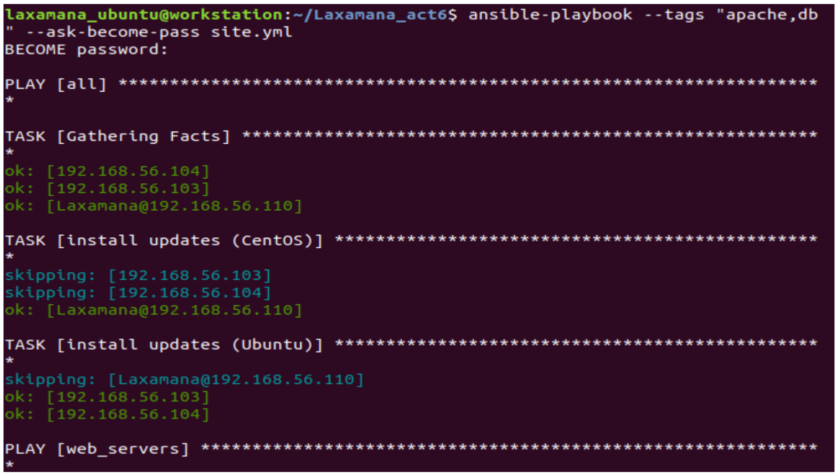


```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] *******************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] *******************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

PLAY [file_server] *************************************************************
*
```

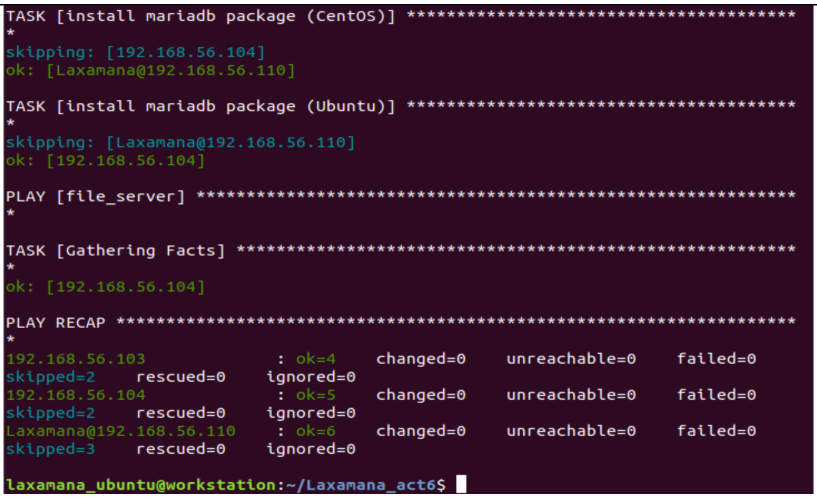


```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]

PLAY RECAP *********************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=4    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=5    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$ 
```

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



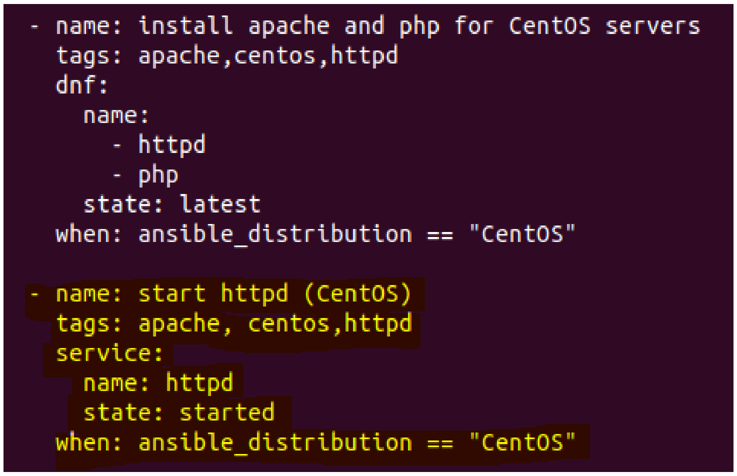
```
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --tags "apache,db
" --ask-become-pass site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] ************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] ************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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



```
TASK [install mariadb package (CentOS)] ****************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (Ubuntu)] ****************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

PLAY [file_server] *************************************************************
*

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

PLAY RECAP *********************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104             : ok=5    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=6    changed=0    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$
```

Task 3: Managing Services

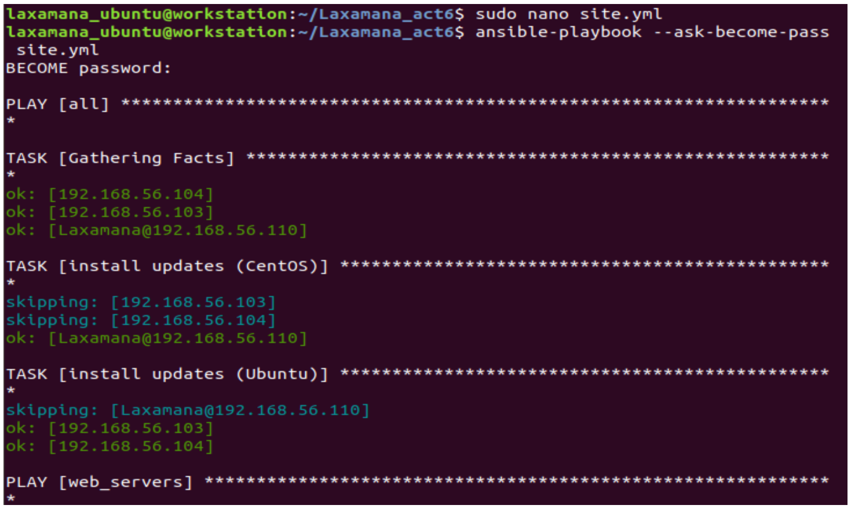
1. Edit the file site.yml and add a play that will automatically start the httpd on CentOS server.



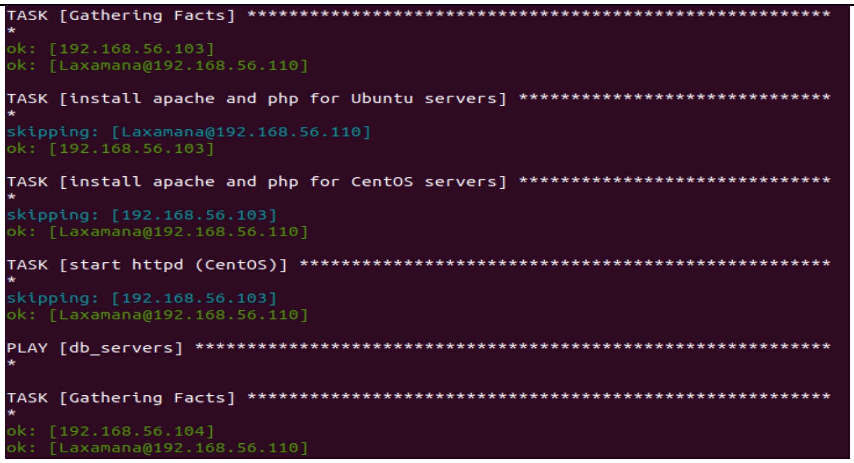
```
- name: install apache and php for CentOS servers
  tags: apache,centos,httpd
  dnf:
    name:
      - httpd
      - php
    state: latest
  when: ansible_distribution == "CentOS"

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

Figure 3.1.1

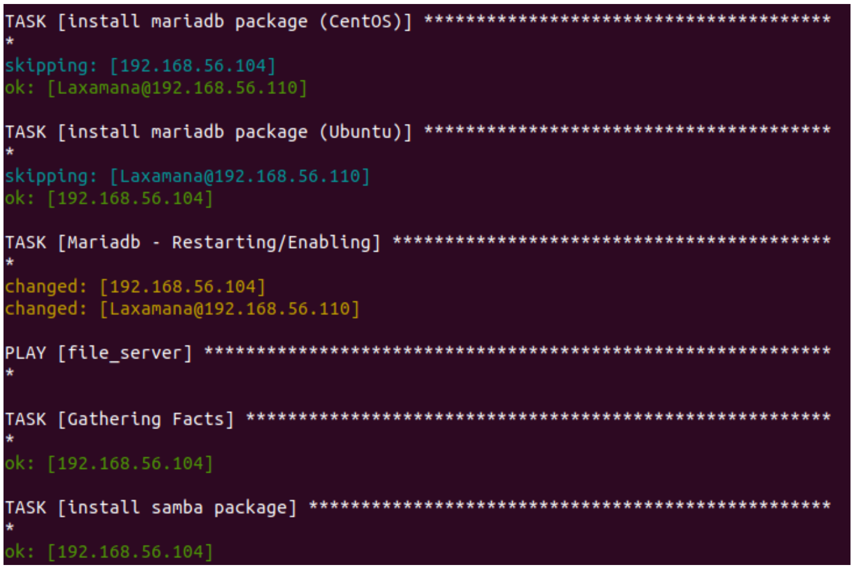
Make sure to save the file and exit.



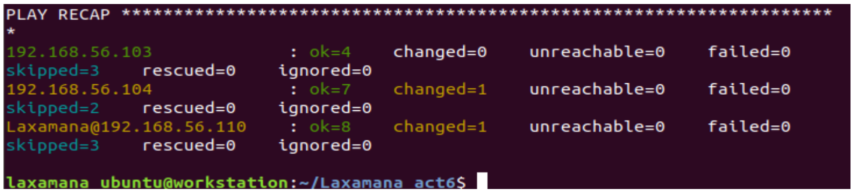
```
laxamana_ubuntu@workstation:~/Laxamana_act6$ sudo nano site.yml
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] ************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] ************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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



```
TASK [Gathering Facts] ***************************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] *************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] *************************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [start httpd (CentOS)] **********************************************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] ***************************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]
```

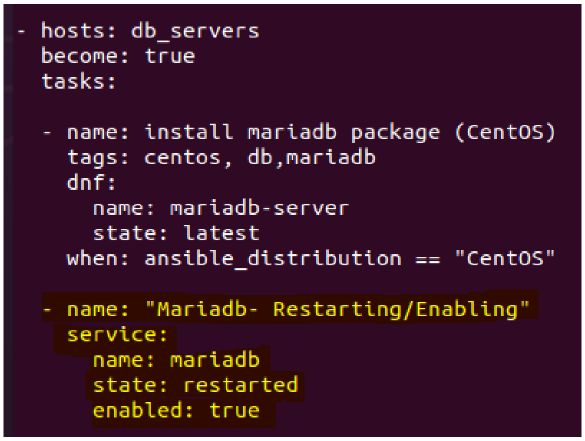


```
TASK [install mariadb package (CentOS)] **************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (Ubuntu)] **************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [Mariadb - Restarting/Enabling] *****************************************
*
changed: [192.168.56.104]
changed: [Laxamana@192.168.56.110]

PLAY [file_server] ***********************************************************
*

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

TASK [install samba package] *************************************************
*
ok: [192.168.56.104]
```



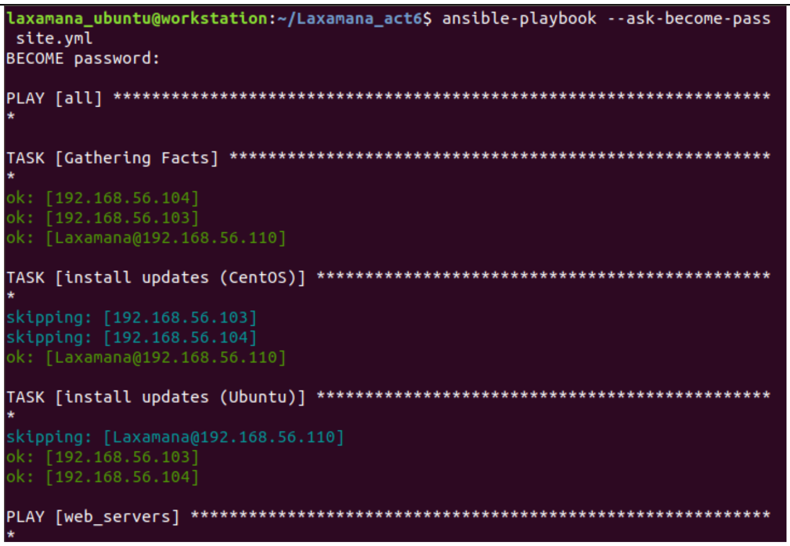
```
PLAY RECAP ***************************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0
192.168.56.104             : ok=7    changed=1    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=8    changed=1    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$
```

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

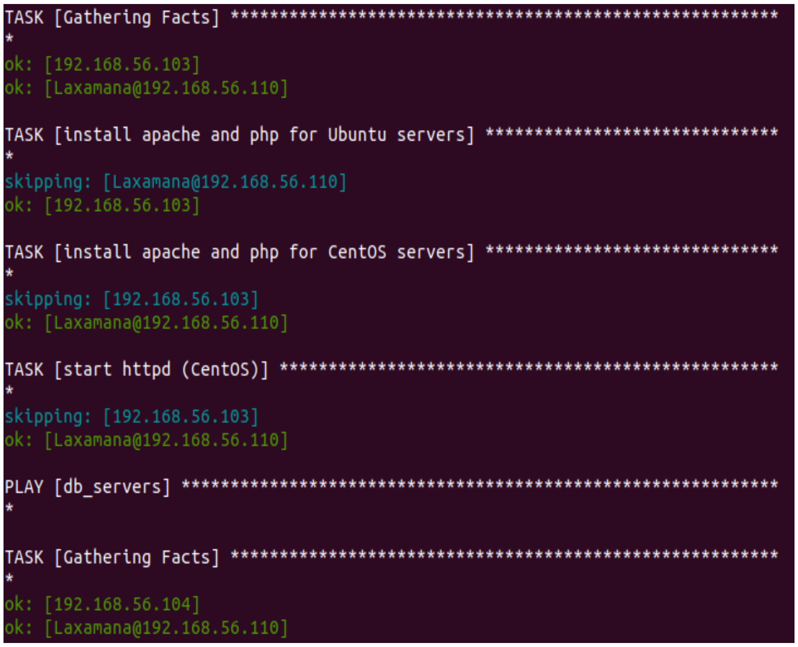


```
- hosts: db_servers
  become: true
  tasks:

  - 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
```

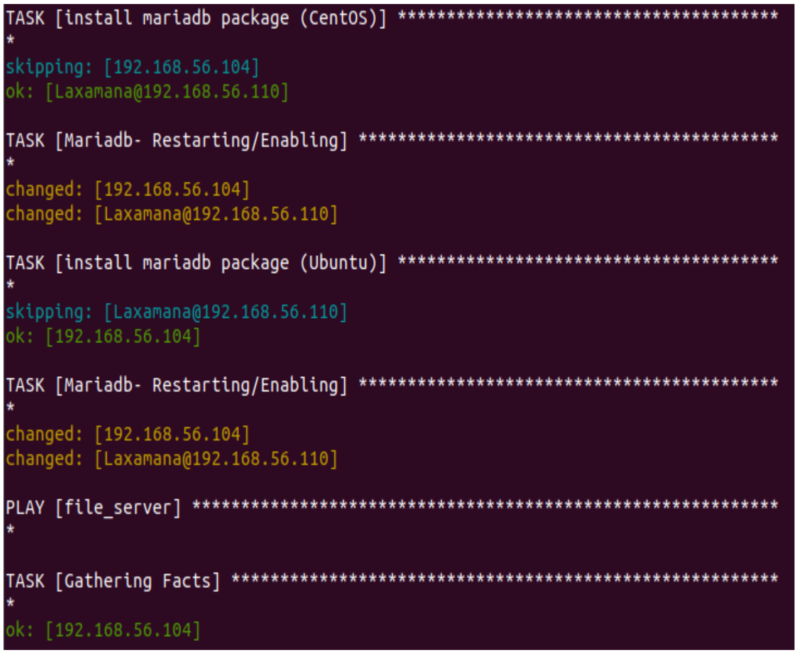
Figure 3.1.2



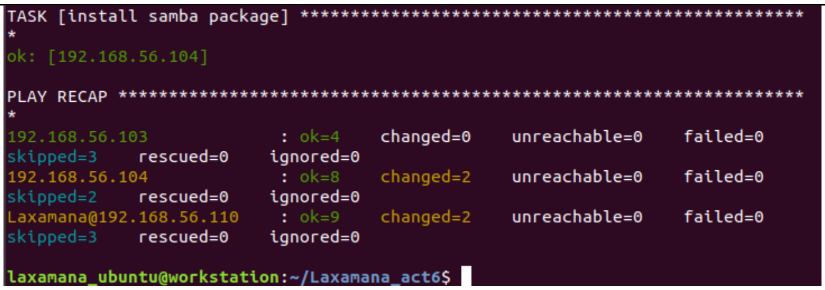
```
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install updates (CentOS)] ************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] ************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]

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



```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] *******************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] *******************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [start httpd (CentOS)] ****************************************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]
```



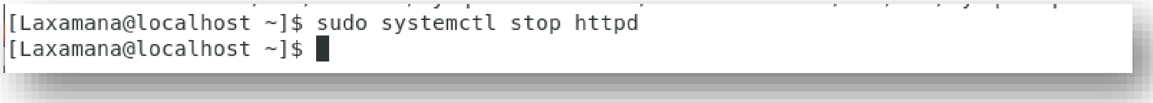
```
TASK [install mariadb package (CentOS)] ****************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [Mariadb- Restarting/Enabling] ********************************************
*
changed: [192.168.56.104]
changed: [Laxamana@192.168.56.110]

TASK [install mariadb package (Ubuntu)] ****************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] ********************************************
*
changed: [192.168.56.104]
changed: [Laxamana@192.168.56.110]

PLAY [file_server] *************************************************************
*

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



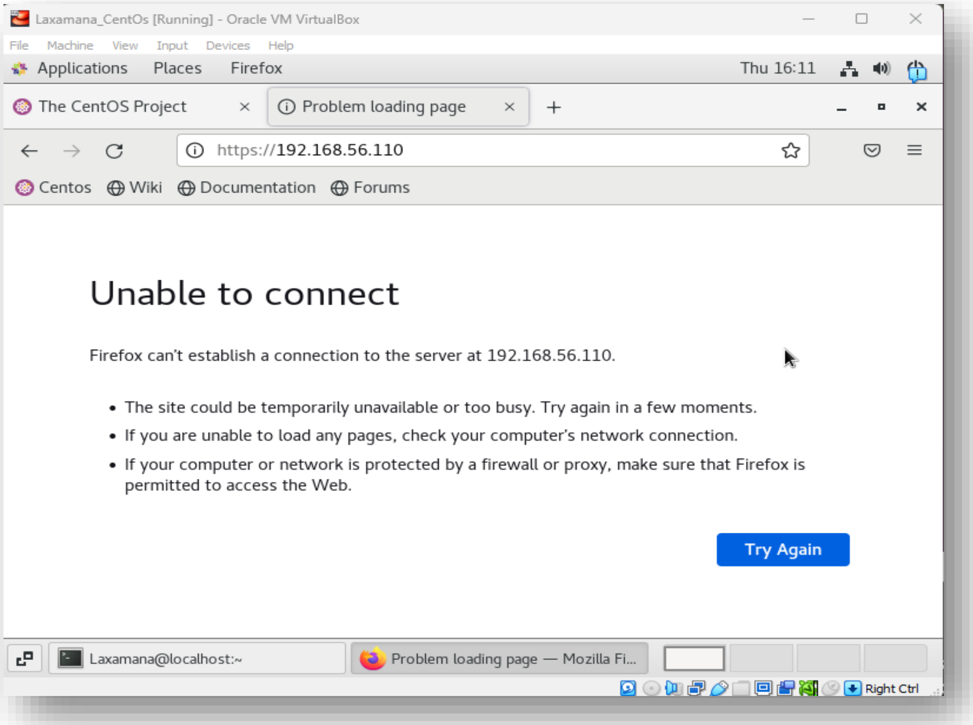
```
TASK [install samba package] *****************************************************
*
ok: [192.168.56.104]

PLAY RECAP ***********************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0
192.168.56.104             : ok=8    changed=2    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=9    changed=2    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$
```

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.



```
[Laxamana@localhost ~]$ sudo systemctl stop httpd
[Laxamana@localhost ~]$ 
```



Laxamana_CentOs [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Firefox
Thu 16:11
The CentOS Project
Problem loading page
https://192.168.56.110
Centos Wiki Documentation Forums
Try Again
Laxamana@localhost:~
Problem loading page — Mozilla Fi...
Right Ctrl

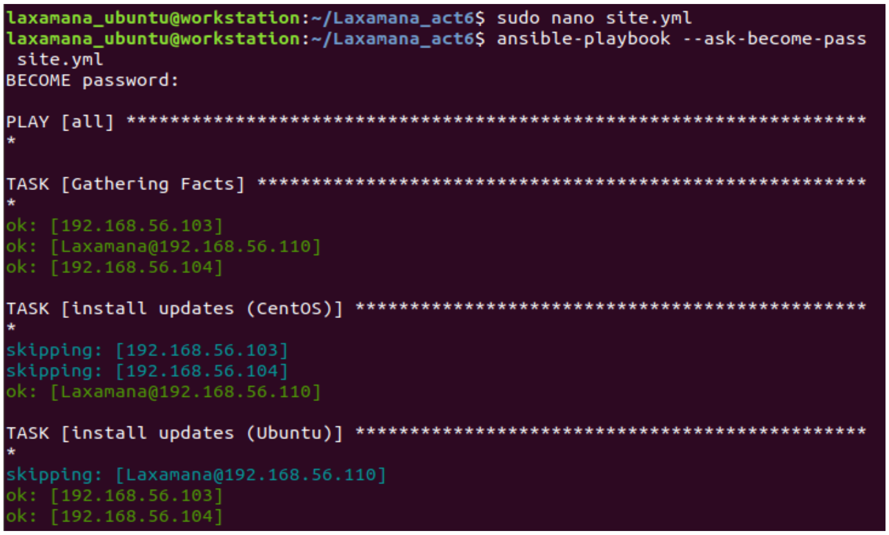
Unable to connect

Firefox can't establish a connection to the server at 192.168.56.110.

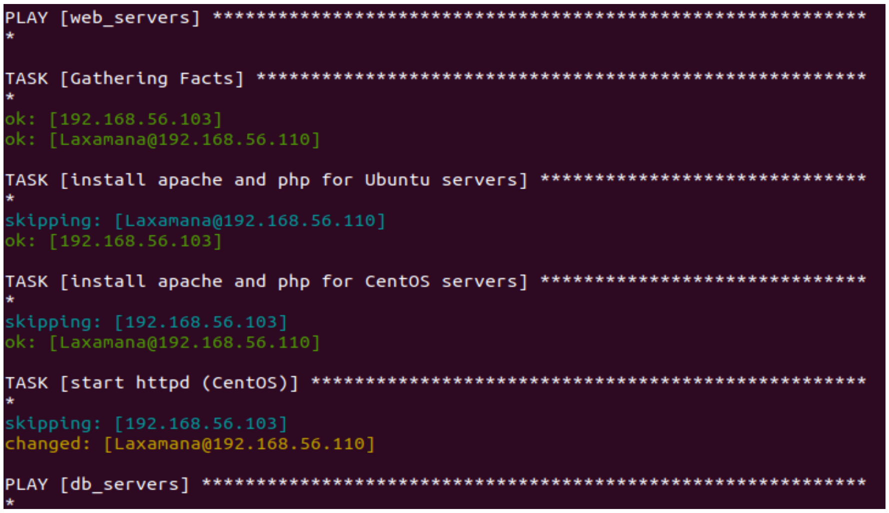
- The site could be temporarily unavailable or too busy. Try again in a few moments.
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the Web.

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.

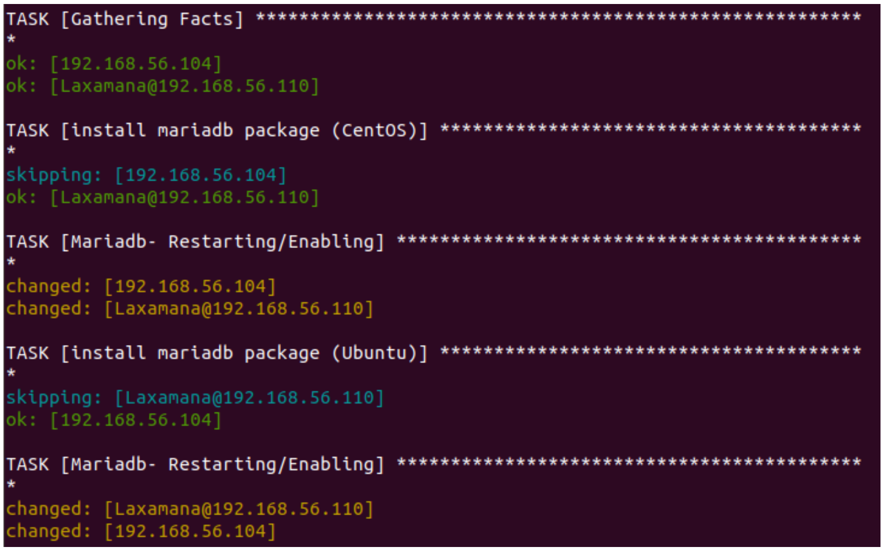
To automatically enable the service every time we run the playbook, use the command *enabled: true* similar to Figure 7.1.2 and save the playbook.



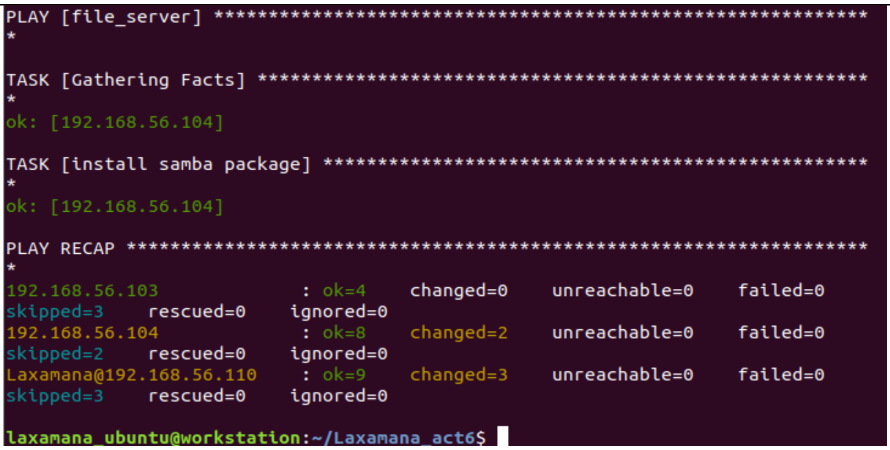
```
laxamana_ubuntu@workstation:~/Laxamana_act6$ sudo nano site.yml
laxamana_ubuntu@workstation:~/Laxamana_act6$ ansible-playbook --ask-become-pass
 site.yml
BECOME password:

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

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [install updates (CentOS)] ************************************************
*
skipping: [192.168.56.103]
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install updates (Ubuntu)] ************************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]
ok: [192.168.56.104]
```



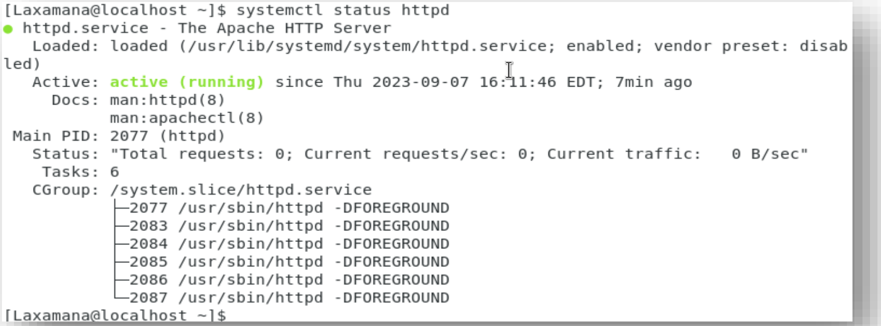
```
PLAY [web_servers] *************************************************************
*

TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [install apache and php for Ubuntu servers] *******************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.103]

TASK [install apache and php for CentOS servers] *******************************
*
skipping: [192.168.56.103]
ok: [Laxamana@192.168.56.110]

TASK [start httpd (CentOS)] ****************************************************
*
skipping: [192.168.56.103]
changed: [Laxamana@192.168.56.110]

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



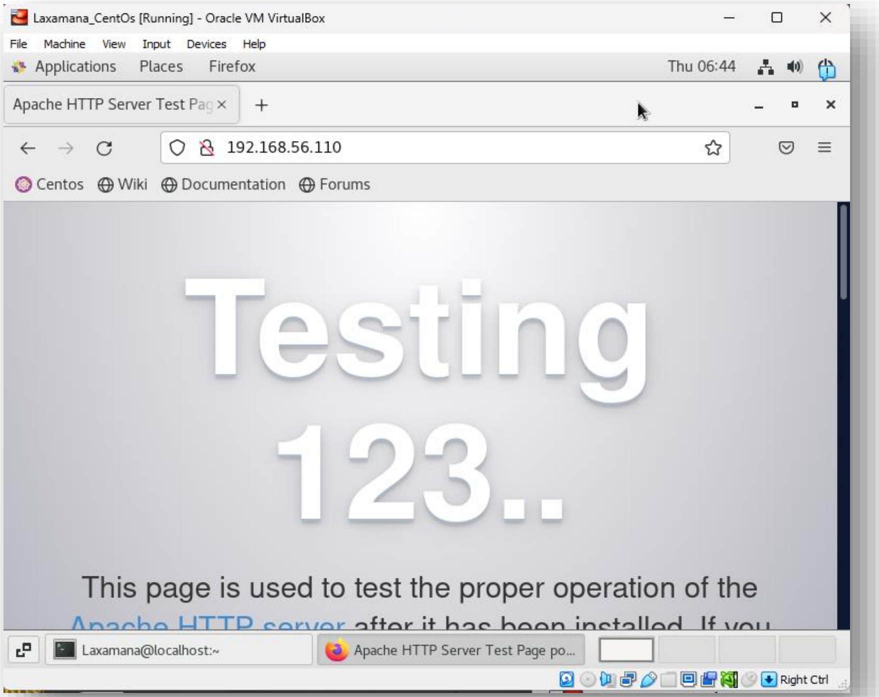
```
TASK [Gathering Facts] *********************************************************
*
ok: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [install mariadb package (CentOS)] ****************************************
*
skipping: [192.168.56.104]
ok: [Laxamana@192.168.56.110]

TASK [Mariadb- Restarting/Enabling] ********************************************
*
changed: [192.168.56.104]
changed: [Laxamana@192.168.56.110]

TASK [install mariadb package (Ubuntu)] ****************************************
*
skipping: [Laxamana@192.168.56.110]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] ********************************************
*
changed: [Laxamana@192.168.56.110]
changed: [192.168.56.104]
```



```
PLAY [file_server] **************************************************************
*

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

TASK [install samba package] ****************************************************
*
ok: [192.168.56.104]

PLAY RECAP **********************************************************************
*
192.168.56.103             : ok=4    changed=0    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0
192.168.56.104             : ok=8    changed=2    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
Laxamana@192.168.56.110    : ok=9    changed=3    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

laxamana_ubuntu@workstation:~/Laxamana_act6$
```



```
[Laxamana@localhost ~]$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disab
led)
   Active: active (running) since Thu 2023-09-07 16:11:46 EDT; 7min ago
     Docs: man:httpd(8)
           man:apachectl(8)
 Main PID: 2077 (httpd)
   Status: "Total requests: 0; Current requests/sec: 0; Current traffic:   0 B/sec"
    Tasks: 6
   CGroup: /system.slice/httpd.service
           ├─2077 /usr/sbin/httpd -DFOREGROUND
           ├─2083 /usr/sbin/httpd -DFOREGROUND
           ├─2084 /usr/sbin/httpd -DFOREGROUND
           ├─2085 /usr/sbin/httpd -DFOREGROUND
           ├─2086 /usr/sbin/httpd -DFOREGROUND
           └─2087 /usr/sbin/httpd -DFOREGROUND
[Laxamana@localhost ~]$
```



Testing 123..

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

\\

REFLECTIONS:

Answer the following:

1. **What is the importance of putting our remote servers into groups?**

   Putting remote servers into groups makes the processing faster and our playbook more simple as we are not going to repeat the process for every remote server and we can avoid running unnecessary parts of the playbook to perform a specific process.

2. **What is the importance of tags in playbooks?**

   The role of tags in a playbook is to assign a tag or a nickname for the automation tasks. What we can infer from this, is that it is very useful in separating tasks to process. Tags allows us to run automation tasks within a playbook selectively. Utilizing tags can alleviate unnecessary action in running the playbooks.

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

   From what it seems to me, playbooks should automatically manage services in order to maintain an architecture that is dependable, consistent, and scalable. Since playbooks for automated management frequently increase a system's agility and dependability without compromising security and compliance criteria.

CONCLUSION:

I therefore conclude that it is better and easier to handle hosts when we compartmentalize them. By creating meta groups, it became easier to target specific tasks for specific hosts. Also, utilization of tag plays a great role in simplifying the command in running a playbook. It alleviates wasted time and it is less time consuming for the playbook to run. Additionally, I have understood that playbooks are better way to manage services from remote services as we can compile automations tasks for different servers in a single playbook. It is less confusing and better to debug as errors shows all at once after running the playbook.

REPOSITORY LINK: https://github.com/Abigaiiiil/Laxamana_act6.git