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| <b>Course/Section:</b> CPE212 - CPE31S2   | <b>Date Submitted:</b> 9/12/25            |
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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"
```

```
GNU nano 7.2          site.yml
---
- hosts: all
  become: true
  tasks:
    - name: install apache and php for Ubuntu servers
      apt:
        name:
          - apache2
          - libapache2-mod-php
        state: latest
        update_cache: yes
      when: ansible_distribution == "Ubuntu"

    - name: install apache and php for CentOS servers
      dnf:
        name:
          - httpd
          - php
[ Read 22 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut      ^T Execute  ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste    ^J Justify  ^/ Go To Line
```

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
```

```
GNU nano 7.2          inventory6.ini
[workstation]
192.168.56.111
192.168.56.112
[db_servers]
192.168.56.110
[file_servers]
192.168.56.118
```

[ Read 9 lines ]

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

Make sure to save the file and exit.

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

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

```
---
```

```
- hosts: all
  become: true
  pre_tasks:
    - name: install updates (CentOS)
      dnf:
        update_only: yes
        update_cache: yes
      when: ansible_distribution == "CentOS"

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

```
- hosts: web_servers
  become: true
  tasks:
    - name: install apache and php for Ubuntu servers
      apt:
        name:
          - apache2
          - libapache2-mod-php
        state: latest
      when: ansible_distribution == "Ubuntu"

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

Make sure to save the file and exit.

Sep 12 17:27

GNU nano 7.2 paul@paul-VirtualBox: ~/CPE212\_SOLISHOA6 site.yml

```
---
- hosts: all
  become: true
  pre_tasks:

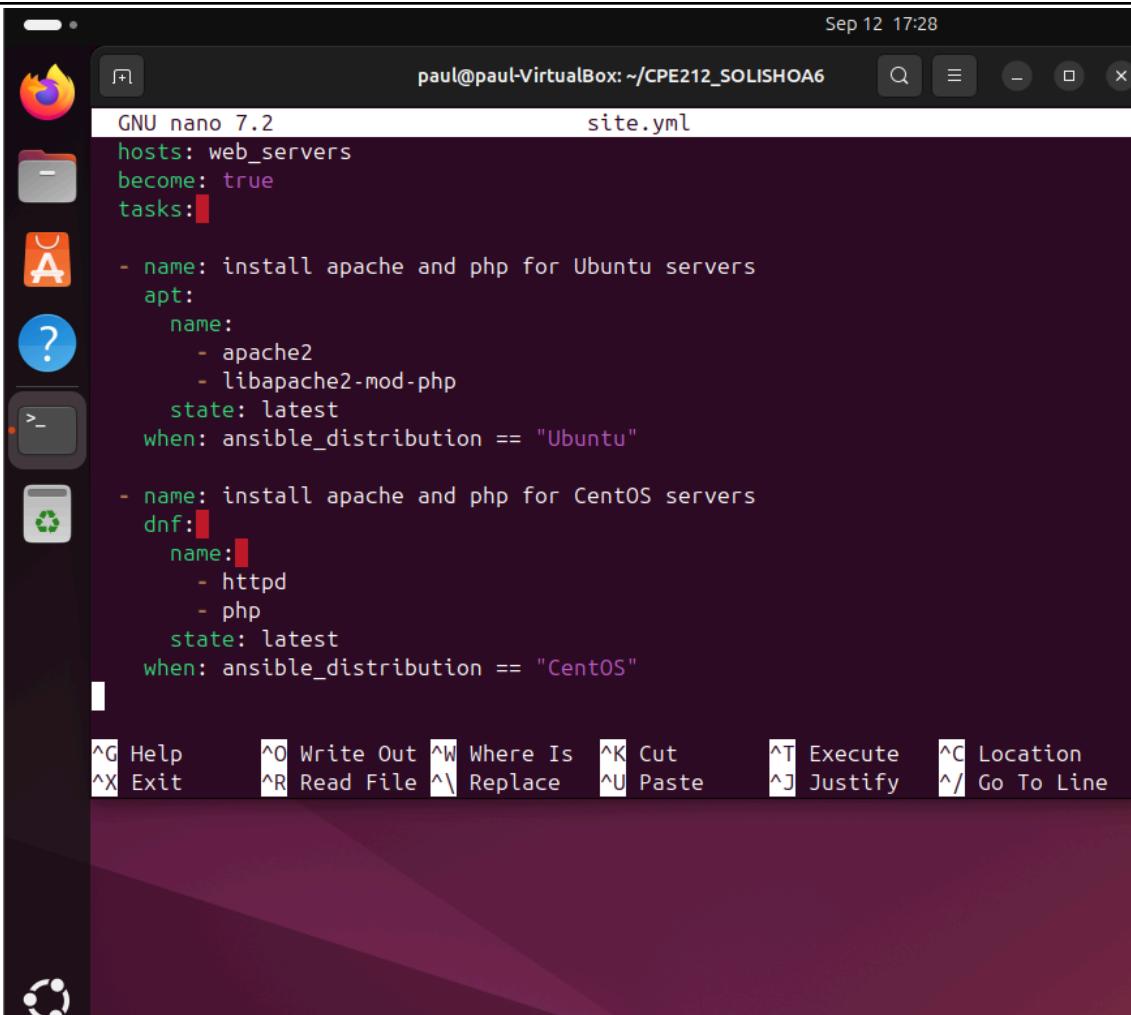
    - name: install updates (CentOS)
      dnf:
        update_only: yes
        update_cache: yes
      when: ansible_distribution == "CentOS"

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

  hosts: web_servers
  become: true
```

[ Read 37 lines ]

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

A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window titled "paul@paul-VirtualBox: ~/CPE212\_SOLISHOA6". The terminal displays a portion of an Ansible playbook named "site.yml". The code shows two plays: one for "web\_servers" targeting "Ubuntu" where it installs apache2 and libapache2-mod-php via apt, and another for "CentOS" where it installs httpd and php via dnf. A "pre-tasks" section is present at the top of the play for "web\_servers". The terminal window has a dark theme and includes standard nano editor key bindings at the bottom.

```
GNU nano 7.2                                         site.yml
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"
```

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.

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.

```

paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ ansible-playbook -i inventory6.ini --ask-become-pass site.yml
BECOME password:
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISH0A6/site.yml, line 3, column 3, found a duplicate dict
key (hosts). Using last defined value only.
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISH0A6/site.yml, line 3, column 3, found a duplicate dict
key (become). Using last defined value only.

PLAY [web_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [install updates (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

TASK [isntall updates (Ubuntu)] ****
ok: [192.168.56.112]
ok: [192.168.56.111]

```

```
paul@paul-VirtualBox: ~/CPE212_SOLISH0A6$ 
TASK [install updates (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

TASK [isntall updates (Ubuntu)] ****
ok: [192.168.56.112]
ok: [192.168.56.111]

TASK [install apache and php for Ubuntu servers] ****
ok: [192.168.56.112]
ok: [192.168.56.111]

TASK [install apache and php for CentOS servers] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

PLAY RECAP ****
192.168.56.111      : ok=3    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.112      : ok=3    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0

paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ 
```

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.

the mariadb has installed and enabled  
server 1

```
paul@server1:~$ sudo systemctl status mariDB
[sudo] password for paul:
Unit mariDB.service could not be found.

paul@server1:~$ sudo systemctl status mariadb
● mariadb.service - MariaDB 10.11.13 database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; pres
   Active: active (running) since Fri 2025-09-12 16:38:04 PST; 1h 0min ag
     Docs: man:mariadb(8)
           https://mariadb.com/kb/en/library/systemd/
   Main PID: 1386 (mariadb)
     Status: "Taking your SQL requests now..."
       Tasks: 10 (limit: 30035)
      Memory: 107.8M (peak: 112.4M)
        CPU: 1.551s
      CGroup: /system.slice/mariadb.service
              └─1386 /usr/sbin/mariadb

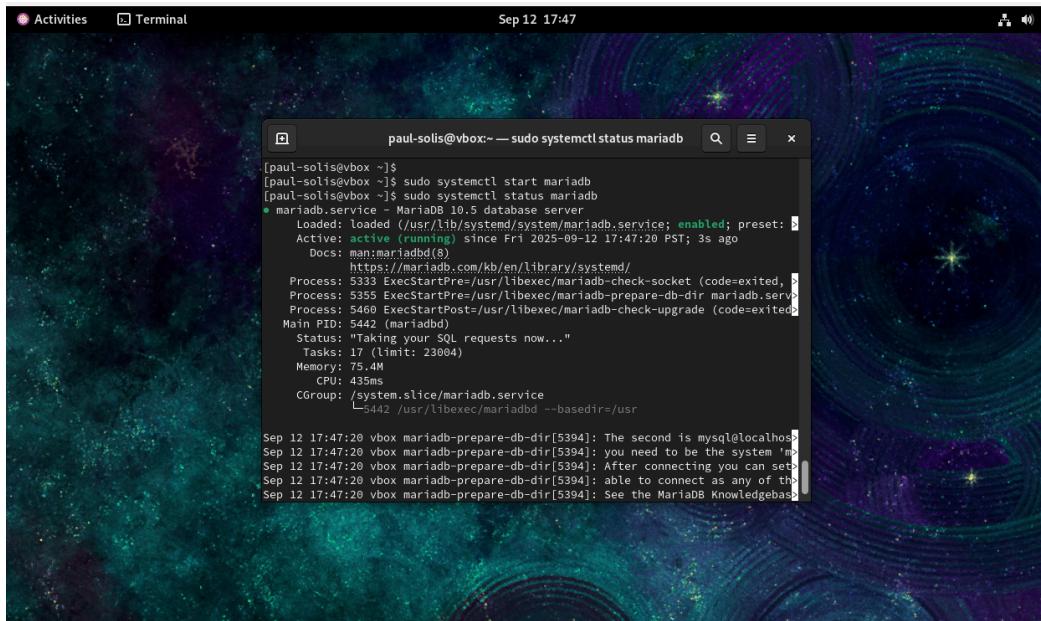
Sep 12 16:38:04 server1 mariadb[1386]: 2025-09-12 16:38:04 0 [Note] InnoDB
Sep 12 16:38:04 server1 mariadb[1386]: 2025-09-12 16:38:04 0 [Note] Plugin
Sep 12 16:38:04 server1 mariadb[1386]: 2025-09-12 16:38:04 0 [Note] InnoDB
Sep 12 16:38:04 server1 mariadb[1386]: 2025-09-12 16:38:04 0 [Warning] You
Sep 12 16:38:04 server1 mariadb[1386]: 2025-09-12 16:38:04 0 [Note] InnoDB
Sep 12 16:38:04 server1 mariadb[1386]: 2025-09-12 16:38:04 0 [Note] Server
Sep 12 16:38:04 server1 mariadb[1386]: 2025-09-12 16:38:04 0 [Note] /usr/s
```

## server 2

```
paul@server2:~$ sudo systemctl status mariadb
● mariadb.service - MariaDB 10.11.13 database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset: >
   Active: active (running) since Fri 2025-09-12 17:41:32 PST; 29s ago
     Docs: man:mariadb(8)
           https://mariadb.com/kb/en/library/systemd/
   Main PID: 13789 (mariadb)
     Status: "Taking your SQL requests now..."
       Tasks: 12 (limit: 30035)
      Memory: 78.7M (peak: 82.1M)
        CPU: 457ms
      CGroup: /system.slice/mariadb.service
              └─13789 /usr/sbin/mariadb

Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Note] InnoDB: F>
Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Note] InnoDB: l>
Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Note] Plugin 'F>
Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Note] InnoDB: L>
Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Warning] You ne>
Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Note] Server so>
Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Note] InnoDB: B>
Sep 12 17:41:32 server2 mariadb[13789]: 2025-09-12 17:41:32 0 [Note] /usr/sbin>
Sep 12 17:41:32 server2 mariadb[13789]: Version: '10.11.13-MariaDB-0ubuntu0.24>
Sep 12 17:41:32 server2 systemd[1]: Started mariadb.service - MariaDB 10.11.13 >
Lines 1-23
```

## CentOS



```
[paul-solis@vbox:~] paul-solis@vbox:~$ sudo systemctl start mariadb
[paul-solis@vbox:~] paul-solis@vbox:~$ sudo systemctl status mariadb
● mariadb.service - MariaDB 10.5 database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset: )
   Active: active (running) since Fri 2025-09-12 17:47:20 PST; 3s ago
     Docs: man:mariadb(8)
           https://mariadb.com/kb/en/library/systemd/
   Main PID: 5442 (mariadbd)
      Status: "Taking your SQL requests now..."
      Tasks: 17 (limit: 23004)
     Memory: 75.4M
        CPU: 435ms
       CGroup: /system.slice/mariadb.service
               └─5442 /usr/libexec/mariadb --basedir=/usr

Sep 12 17:47:20 vbox mariadb-prepare-db-dir[5304]: The second is mysql@localhost
Sep 12 17:47:20 vbox mariadb-prepare-db-dir[5304]: you need to be the system 'root'
Sep 12 17:47:20 vbox mariadb-prepare-db-dir[5304]: After connecting you can set
Sep 12 17:47:20 vbox mariadb-prepare-db-dir[5304]: able to connect as any of the
Sep 12 17:47:20 vbox mariadb-prepare-db-dir[5304]: See the MariaDB Knowledgebase
```

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.  
It installed the samba package that we added

ubuntusolis [Running] - Oracle VirtualBox

File Machine View Input Devices Help

Sep 12 18:04

```
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano inventory6.ini
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ ansible-playbook -i inventory6.ini --ask-become-pass site.yml
BECOME password:
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISHOA6/site.yml, line 3, column 3, found a duplicate dict
key (hosts). Using last defined value only.
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISHOA6/site.yml, line 3, column 3, found a duplicate dict
key (become). Using last defined value only.

PLAY [web_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [install updates (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

TASK [isntall updates (Ubuntu)] ****
ok: [192.168.56.112]
ok: [192.168.56.111]
```

Sep 12 18:04

```
paul@paul-VirtualBox: ~/CPE212_SOLISHOA6
```

TASK [isntall updates (Ubuntu)] \*\*\*\*  
ok: [192.168.56.112]  
ok: [192.168.56.111]

TASK [install apache and php for Ubuntu servers] \*\*\*\*  
ok: [192.168.56.112]  
ok: [192.168.56.111]

TASK [install apache and php for CentOS servers] \*\*\*\*  
skipping: [192.168.56.111]  
skipping: [192.168.56.112]

PLAY [file\_servers] \*\*\*\*

TASK [Gathering Facts] \*\*\*\*  
ok: [192.168.56.118]  
ok: [192.168.56.115]

TASK [install samba package] \*\*\*\*  
ok: [192.168.56.118]  
changed: [192.168.56.115]

PLAY RECAP \*\*\*\*

```
skipping: [192.168.56.111]
skipping: [192.168.56.112]

PLAY [file_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.118]
ok: [192.168.56.115]

TASK [install samba package] *****
ok: [192.168.56.118]
changed: [192.168.56.115]

PLAY RECAP *****
192.168.56.111      : ok=3    changed=0    unreachable=0    failed=0    s
kipped=2  rescued=0  ignored=0
192.168.56.112      : ok=3    changed=0    unreachable=0    failed=0    s
kipped=2  rescued=0  ignored=0
192.168.56.115      : ok=2    changed=1    unreachable=0    failed=0    s
kipped=0  rescued=0  ignored=0
192.168.56.118      : ok=2    changed=0    unreachable=0    failed=0    s
kipped=0  rescued=0  ignored=0

paul@paul-VirtualBox:~/CPE212_SOLISHOA6$
```

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.

the maria db installed restarting and enabling is changed

and the installing mariadb package one is skipped and one is ok so its all good

```
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano inventory6.ini
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ ansible-playbook -i inventory6.ini
  k-become-pass site.yml
BECOME password:
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISHOA6/site.yml, line 3, column 3, found a duplicate d
key (hosts). Using last defined value only.
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISHOA6/site.yml, line 3, column 3, found a duplicate d
key (become). Using last defined value only.

PLAY [web_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [install updates (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

TASK [isntall updates (Ubuntu)] ****
ok: [192.168.56.111]
ok: [192.168.56.112]
```

```
paul@paul-VirtualBox: ~/CPE212_SOLISHOA6
[ASK [install apache and php for Ubuntu servers] ****
  ok: [192.168.56.112]
  ok: [192.168.56.111]

[ASK [install apache and php for CentOS servers] ****
  skipping: [192.168.56.111]
  skipping: [192.168.56.112]

[PLAY [file_servers] ****
[ASK [Gathering Facts] ****
  ok: [192.168.56.118]
  ok: [192.168.56.115]

[ASK [install samba package] ****
  ok: [192.168.56.118]
  ok: [192.168.56.115]

[PLAY [db_servers] ****
[ASK [Gathering Facts] ****
  ok: [192.168.56.110]
  ok: [192.168.56.115]
```

```
paul@paul-VirtualBox: ~/CPE212_SOLISHOA6
  ok: [192.168.56.110]
  ok: [192.168.56.115]

[ASK [install mariadb package (CentOS)] ****
  skipping: [192.168.56.110]
  ok: [192.168.56.115]

[ASK [Mariadb- Restarting/Enabling] ****
  changed: [192.168.56.110]
  changed: [192.168.56.115]

[ASK [install mariadb package (Ubuntu)] ****
  skipping: [192.168.56.115]
  ok: [192.168.56.110]

[PLAY RECAP ****
192.168.56.110      : ok=3    changed=1    unreachable=0    failed=0    s
skipped=1  rescued=0  ignored=0
192.168.56.111      : ok=3    changed=0    unreachable=0    failed=0    s
skipped=2  rescued=0  ignored=0
192.168.56.112      : ok=3    changed=0    unreachable=0    failed=0    s
skipped=2  rescued=0  ignored=0
192.168.56.115      : ok=5    changed=1    unreachable=0    failed=0    s
skipped=1  rescued=0  ignored=0
```

```
PLAY RECAP ****
192.168.56.110      : ok=3    changed=1    unreachable=0    failed=0    s
kipped=1  rescued=0  ignored=0
192.168.56.111      : ok=3    changed=0    unreachable=0    failed=0    s
kipped=2  rescued=0  ignored=0
192.168.56.112      : ok=3    changed=0    unreachable=0    failed=0    s
kipped=2  rescued=0  ignored=0
192.168.56.115      : ok=5    changed=1    unreachable=0    failed=0    s
kipped=1  rescued=0  ignored=0
192.168.56.118      : ok=2    changed=0    unreachable=0    failed=0    s
kipped=0  rescued=0  ignored=0

paul@paul-VirtualBox:~/CPE212_SOLISHOA6$
```

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

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

```
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ ansible-playbook -i inventory6.ini --list-tags site.yml
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISHOA6/site.yml, line 3, column 3, found a duplicate dict
key (hosts). Using last defined value only.
[WARNING]: While constructing a mapping from
/home/paul/CPE212_SOLISHOA6/site.yml, line 3, column 3, found a duplicate dict
key (become). Using last defined value only.

playbook: site.yml

  play #1 (web_servers): web_servers    TAGS: []
        TASK TAGS: [always, apache, apache2, centos, httpd, ubuntu]

  play #2 (file_servers): file_servers   TAGS: []
        TASK TAGS: [samba]

  play #3 (db_servers): db_servers       TAGS: []
        TASK TAGS: [centos, db, mariadb, ubuntu]
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$
```

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

```
paul@paul-VirtualBox:~/CPE212_S0LISH0A6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_S0LISH0A6$ ansible-playbook -i inventory6.ini --tags centos
BECOME password:

PLAY [all] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.118]
ok: [192.168.56.110]
ok: [192.168.56.115]
ok: [192.168.56.112]

TASK [install updates (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]
skipping: [192.168.56.110]
skipping: [192.168.56.118]
ok: [192.168.56.115]

TASK [install updates (Ubuntu)] ****
skipping: [192.168.56.115]
ok: [192.168.56.118]
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.110]

PLAY [web_servers] ****
```

```

PLAY [web_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [install apache and php for CentOS servers] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

PLAY [file_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.118]
ok: [192.168.56.115]

PLAY [db_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.110]
ok: [192.168.56.115]

TASK [install mariadb package (CentOS)] ****
skipping: [192.168.56.110]
ok: [192.168.56.115]

PLAY RECAP ****
192.168.56.110      : ok=3    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.111      : ok=3    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.112      : ok=3    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.115      : ok=5    changed=0    unreachable=0    failed=0    skipped=1

TASK [install mariadb package (CentOS)] ****
skipping: [192.168.56.110]
ok: [192.168.56.115]

PLAY RECAP ****
192.168.56.110      : ok=3    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.111      : ok=3    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.112      : ok=3    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.115      : ok=5    changed=0    unreachable=0    failed=0    skipped=1
192.168.56.118      : ok=3    changed=0    unreachable=0    failed=0    skipped=1

paul@paul-VirtualBox:~/CPE212_SOLTSHOAE$ 

```

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

```
Sep 12 18:56
paul@paul-VirtualBox: ~/CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ ansible-playbook -i inventory6.ini --tags db --a
BECOME password:

PLAY [all] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.118]
ok: [192.168.56.110]
ok: [192.168.56.115]

TASK [install updates (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]
skipping: [192.168.56.110]
skipping: [192.168.56.118]
ok: [192.168.56.115]

TASK [install updates (Ubuntu)] ****
skipping: [192.168.56.115]
ok: [192.168.56.111]
ok: [192.168.56.112]
changed: [192.168.56.118]
changed: [192.168.56.110]

PLAY [web_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.112]
ok: [192.168.56.111]
```

```
Sep 12 18:57
paul@paul-VirtualBox: ~/CPE212_SOLISHOA6

PLAY [file_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.118]
ok: [192.168.56.115]

PLAY [db_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.110]
ok: [192.168.56.115]

TASK [install mariadb package (CentOS)] ****
skipping: [192.168.56.110]
ok: [192.168.56.115]

TASK [install mariadb package (Ubuntu)] ****
skipping: [192.168.56.115]
ok: [192.168.56.110]

PLAY RECAP ****
192.168.56.110      : ok=4    changed=1    unreachable=0    failed=0    skipped=2
192.168.56.111      : ok=3    changed=0    unreachable=0    failed=0    skipped=1
192.168.56.112      : ok=3    changed=0    unreachable=0    failed=0    skipped=1
192.168.56.115      : ok=5    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.118      : ok=3    changed=1    unreachable=0    failed=0    skipped=1

paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ ansible-playbook -i inventory6.ini --tags centos
BECOME password:

PLAY [file_servers] ****
```

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

Sep 12 18:59

paul@paul-VirtualBox: ~/CPE212\_SOLISHOA6

```
TASK [Gathering Facts] *****
ok: [192.168.56.110]
ok: [192.168.56.111]
ok: [192.168.56.118]
ok: [192.168.56.112]
ok: [192.168.56.115]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.111]
skipping: [192.168.56.112]
skipping: [192.168.56.110]
skipping: [192.168.56.118]
ok: [192.168.56.115]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.115]
ok: [192.168.56.111]
ok: [192.168.56.118]
ok: [192.168.56.112]
ok: [192.168.56.110]

PLAY [web_servers] *****
TASK [Gathering Facts] *****
ok: [192.168.56.112]
ok: [192.168.56.111]

TASK [install apache and php for Ubuntu servers] *****
ok: [192.168.56.111]
ok: [192.168.56.112]
```

```
TASK [Gathering Facts] ****
ok: [192.168.56.112]
ok: [192.168.56.111]

TASK [install apache and php for Ubuntu servers] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [install apache and php for CentOS servers] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

PLAY [file_servers] ****

TASK [Gathering Facts] ****
ok: [192.168.56.118]
ok: [192.168.56.115]

PLAY [db_servers] ****

TASK [Gathering Facts] ****
ok: [192.168.56.110]
ok: [192.168.56.115]

PLAY RECAP ****
192.168.56.110      : ok=3    changed=0    unreachable=0    failed=0    skipped=1
192.168.56.111      : ok=4    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.112      : ok=4    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.115      : ok=4    changed=0    unreachable=0    failed=0    skipped=1
192.168.56.118      : ok=3    changed=0    unreachable=0    failed=0    skipped=1
```

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

```
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ ansible-playbook -i inventory6.ini --tags "apache"
BECOME password:

PLAY [all] ****
TASK [Gathering Facts] ****
ok: [192.168.56.110]
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.118]
ok: [192.168.56.115]

TASK [install updates (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]
skipping: [192.168.56.110]
skipping: [192.168.56.118]
ok: [192.168.56.115]

TASK [install updates (Ubuntu)] ****
skipping: [192.168.56.115]
ok: [192.168.56.118]
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.110]

PLAY [web_servers] ****
```

```
TASK [install updates (Ubuntu)] ****
skipping: [192.168.56.115]
ok: [192.168.56.118]
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.110]

PLAY [web_servers] ****

TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [install apache and php for Ubuntu servers] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [install apache and php for CentOS servers] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

PLAY [file_servers] ****

TASK [Gathering Facts] ****
ok: [192.168.56.118]
ok: [192.168.56.115]

PLAY [db_servers] ****
```

```
TASK [install apache and php for CentOS servers] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

PLAY [file_servers] ****

TASK [Gathering Facts] ****
ok: [192.168.56.118]
ok: [192.168.56.115]

PLAY [db_servers] ****

TASK [Gathering Facts] ****
ok: [192.168.56.110]
ok: [192.168.56.115]

TASK [install mariadb package (CentOS)] ****
skipping: [192.168.56.110]
ok: [192.168.56.115]

TASK [install mariadb package (Ubuntu)] ****
skipping: [192.168.56.115]
ok: [192.168.56.110]

PLAY RECAP ****
192.168.56.110      : ok=4    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.111      : ok=4    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.112      : ok=4    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.115      : ok=5    changed=0    unreachable=0    failed=0    skipped=2
192.168.56.118      : ok=3    changed=0    unreachable=0    failed=0    skipped=1
```

### 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.

```
GNU nano 7.2                                     site.yml
when: ansible_distribution == "CentOS"

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

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

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

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"

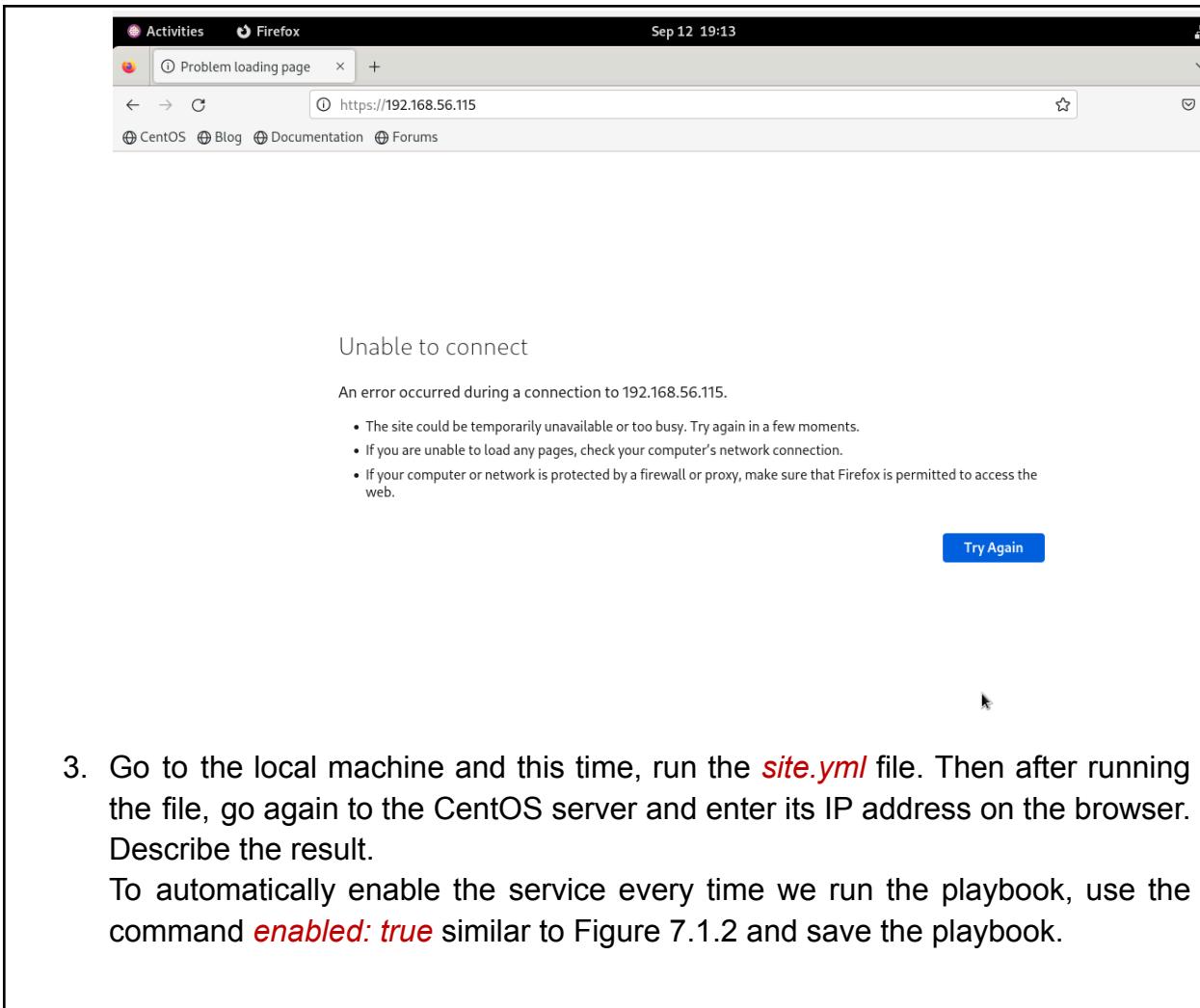
- name: "Mariadb- Restarting/Enabling"
service:
  name: mariadb
  state: restarted
  enabled: true
```

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.

```
[paul-solis@vbox ~]$ sudo systemctl stop httpd
[paul-solis@vbox ~]$
```



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

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

The screenshot shows a Firefox browser window with the following details:

- Address Bar:** Shows the URL `192.168.56.115`.
- Page Content:**
  - CentOS Logo:** A small logo in the top left corner.
  - Section Headers:**
    - If you are a member of the general public:**
    - If you are the website administrator:**
    - For systems using the Apache HTTP Server:**
  - Text Content:**
    - The general public section states: "The website you just visited is either experiencing problems or is undergoing routine maintenance."
    - The administrator section states: "You may now add content to the webroot directory. Note that until you do so, people visiting your website will see this page, and not your content."
    - The Apache section states: "You may now add content to the directory `/var/www/html/`. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from"

