

Name: Andaya, Lyka C.	Date Performed: October 2, 2023
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Instructor: Dr. Jonathan Taylar	Semester and SY: 2023-2024
Activity 6: Targeting Specific Nodes and Managing Services	
1. Objectives: 1.1 Individualize hosts 1.2 Apply tags in selecting plays to run 1.3 Managing Services from remote servers using playbooks	
2. Discussion: <p>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.</p> <p>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.</p> <p>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 <i>ssh-copy-id</i> to copy the public key to Server 3. Verify if you can successfully SSH to Server 3.</p>	
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 2.9.3

site.yml

```
        - libapache2-mod-php
        state: latest
        update_cache: yes
        when: ansible_distribution == "Ubuntu"

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

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

```
[web_servers]
192.168.56.120
192.168.56.121

[db_servers]
192.168.56.122

[file_servers]
192.168.56.123
```

Make sure to save the file and exit.

```
GNU nano 2.9.3                                inventory

[web_servers]
192.168.56.102
192.168.56.104

[db_servers]
192.168.56.104
192.168.56.103

[file_servers]
192.168.56.104
```

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.

```

andayalyka@managenode:~/H0A6$ ansible-playbook --ask-become-pass sites.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [192.168.56.102]

TASK [install apache and php for Ubuntu servers] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

PLAY RECAP *****
192.168.56.102      : ok=2    changed=0    unreachable=0    failed=0    skipped=1    rescued
192.168.56.103      : ok=2    changed=0    unreachable=0    failed=0    skipped=1    rescued
192.168.56.104      : ok=2    changed=0    unreachable=0    failed=0    skipped=1    rescued

```

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

```

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

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

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

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

```

Make sure to save the file and exit.

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

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

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

Description: This tool serves for managing configurations, deploying applications, and automating tasks. It compiles a set of actions that need to be performed prior to the main tasks outlined in the playbook. These actions occur just once, right at the outset of the playbook execution, preceding the application of any roles.

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

Make sure to save the file and exit.

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

```

andayalyka@managenode:~/H0A6$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [192.168.56.102]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]

PLAY [web_servers] *****

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

TASK [install apache and php for Ubuntu servers] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] *****
changed: [192.168.56.103]
changed: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]

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

```

Description: It installed a mariadb package in server2 of Ubuntu and it restarted/enabled the mariadb, also in CentOS it installed a mariadb package.

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.

```
andayalyka@controlnode2:~$ 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 Mon 2023-10-02 12:24:56 PST; 2min 47s ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
   Process: 7438 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START
   Process: 7435 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUC
   Process: 7334 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR
   Process: 7332 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START
   Process: 7331 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/ru
 Main PID: 7408 (mysqld)
    Status: "Taking your SQL requests now..."
     Tasks: 27 (limit: 2374)
   CGroup: /system.slice/mariadb.service
           └─7408 /usr/sbin/mysqld

Oct 02 12:24:56 controlnode2 systemd[1]: Starting MariaDB 10.1.48 database serve
Oct 02 12:24:56 controlnode2 mysqld[7408]: 2023-10-02 12:24:56 139732590103680 [
Oct 02 12:24:56 controlnode2 systemd[1]: Started MariaDB 10.1.48 database server
Oct 02 12:24:56 controlnode2 /etc/mysql/debian-start[7441]: /usr/bin/mysql_upgra
Oct 02 12:24:56 controlnode2 /etc/mysql/debian-start[7441]: Looking for 'mysql'
Oct 02 12:24:56 controlnode2 /etc/mysql/debian-start[7441]: Looking for 'mysqlch
Oct 02 12:24:56 controlnode2 /etc/mysql/debian-start[7441]: This installation of
lines 1-23...skipping...
● 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 12:24:56 PST; 2min 47s ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
   Process: 7438 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_START
   Process: 7435 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUC
   Process: 7334 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && VAR
   Process: 7332 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_START
   Process: 7331 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/ru
```

Description: It shows that the status of mariadb is active(running) in ubuntu


```
[andayalyka@localhost ~]$ systemctl status mariadb
● mariadb.service - MariaDB database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2023-09-19 09:51:32 EDT; 4min 24s ago
     Process: 10750 ExecStartPost=/usr/libexec/mariadb-wait-ready $MAINPID (code=exited, status=0/SUCCESS)
     Process: 10713 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir %n (code=exited, status=0/SUCCESS)
    Main PID: 10748 (mysqld_safe)
      Tasks: 20
     CGroup: /system.slice/mariadb.service
             └─10748 /bin/sh /usr/bin/mysqld_safe --basedir=/usr
               └─10913 /usr/libexec/mysqld --basedir=/usr --datadir=/var/lib/mysql --plu...

Sep 19 09:51:30 localhost.localdomain systemd[1]: Starting MariaDB database server...
Sep 19 09:51:30 localhost.localdomain mariadb-prepare-db-dir[10713]: Database MariaD...
Sep 19 09:51:30 localhost.localdomain mariadb-prepare-db-dir[10713]: If this is not ...
Sep 19 09:51:30 localhost.localdomain mysqld_safe[10748]: 230919 09:51:30 mysqld_saf...
Sep 19 09:51:30 localhost.localdomain mysqld_safe[10748]: 230919 09:51:30 mysqld_saf...
Sep 19 09:51:32 localhost.localdomain systemd[1]: Started MariaDB database server.
Hint: Some lines were ellipsized, use -l to show in full.
```

Description: It shows that the status of mariadb is active(running) in ubuntu

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.

```

andayaLyka@managenode:~/H0A6$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [192.168.56.102]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]

PLAY [web_servers] *****

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

TASK [install apache and php for Ubuntu servers] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] *****
changed: [192.168.56.103]
changed: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]

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=
192.168.56.103      : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=
192.168.56.104      : ok=7    changed=1    unreachable=0    failed=0    skipped=3    rescued=

```

Description: *It shows that the IP address in file_servers installed a samba package*

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 package (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.

```

andayalyka@managenode:~/HOA6$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [192.168.56.102]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]

PLAY [web_servers] *****

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

TASK [install apache and php for Ubuntu servers] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] *****
changed: [192.168.56.103]
changed: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]

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=
192.168.56.103      : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued=
192.168.56.104      : ok=7    changed=1    unreachable=0    failed=0    skipped=3    rescued=

```

Description: It shows that it allows you to assigns a labels to your tasks or roles within the playbook

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

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

```
andayalyka@managenode:~/H0A6$ ansible-playbook --list-tags site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.

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]
```

Description: *It lists all the tags that are defined in the file site.yml along with the tasks that is associated in those tags.*

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

```

andayalyka@managenode:~/HOA6$ ansible-playbook --tags centos --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [192.168.56.102]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]

PLAY [web_servers] *****

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

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.56.103]
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=2    rescued
192.168.56.103      : ok=3    changed=0    unreachable=0    failed=0    skipped=2    rescued
192.168.56.104      : ok=6    changed=0    unreachable=0    failed=0    skipped=1    rescued

```

Description: It only display the specified task with the tag in CentOS that should be executed and it only run a selective parts of the playbook

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


```

andayalyka@managenode:~/HOA6$ ansible-playbook --tags db --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.102]
ok: [192.168.56.104]
ok: [192.168.56.103]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]

PLAY [web_servers] *****

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

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]

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
192.168.56.103      : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued
192.168.56.104      : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued

```

Description: *It only run the tasks that are tagged with “db”*

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

```

andayalyka@managenode:~/H0A6$ ansible-playbook --tags apache --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.104]
ok: [192.168.56.103]
ok: [192.168.56.102]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]

PLAY [web_servers] *****

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

TASK [install apache and php for Ubuntu servers] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]

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=
192.168.56.103      : ok=3    changed=0    unreachable=0    failed=0    skipped=1    rescued=
192.168.56.104      : ok=5    changed=0    unreachable=0    failed=0    skipped=2    rescued=

```

Description: It only execute the tasks that are tagged with “apache”

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

```

andayalyka@managenode:~/HOA6$ ansible-playbook --tags "apache,db" --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.102]
ok: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]
ok: [192.168.56.102]

PLAY [web_servers] *****

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

TASK [install apache and php for Ubuntu servers] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]

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=
192.168.56.103      : ok=4    changed=0    unreachable=0    failed=0    skipped=2    rescued=
192.168.56.104      : ok=6    changed=0    unreachable=0    failed=0    skipped=3    rescued=

```

Description: *It only run the tasks that are tagged with “apache” and “db”*

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.

```
andalyka@managenode:~/H0A6$ ansible-playbook --ask-become-pass site.yml
[DEPRECATION WARNING]: Ansible will require Python 3.8 or newer on the controller starting with Ans
(default, Mar 10 2023, 16:46:00) [GCC 8.4.0]. This feature will be removed from ansible-core in ve
can be disabled by setting deprecation_warnings=False in ansible.cfg.
BECOME password:

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [192.168.56.103]
ok: [192.168.56.104]
ok: [192.168.56.102]

TASK [install updates (CentOS)] *****
skipping: [192.168.56.102]
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [install updates (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]
ok: [192.168.56.103]

PLAY [web_servers] *****

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

TASK [install apache and php for Ubuntu servers] *****
skipping: [192.168.56.104]
ok: [192.168.56.102]

TASK [install apache and php for CentOS servers] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]
```

```

TASK [start httpd (CentOS)] *****
skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****

TASK [Gathering Facts] *****
ok: [192.168.56.104]
ok: [192.168.56.103]

TASK [install mariadb package (CentOS)] *****
skipping: [192.168.56.103]
ok: [192.168.56.104]

TASK [Mariadb- Restarting/Enabling] *****
changed: [192.168.56.103]
changed: [192.168.56.104]

TASK [install mariadb package (Ubuntu)] *****
skipping: [192.168.56.104]
ok: [192.168.56.103]

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=3    rescued
192.168.56.103      : ok=5    changed=1    unreachable=0    failed=0    skipped=2    rescued
192.168.56.104      : ok=8    changed=1    unreachable=0    failed=0    skipped=3    rescued

```

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

```

- hosts: db_servers
  become: true
  tasks:

    - name: install mariadb package (CentOS)
      tags: centos, db, mariadb
      dnf:
        name: mariadb-server
        state: latest
        when: ansible_distribution == "CentOS"

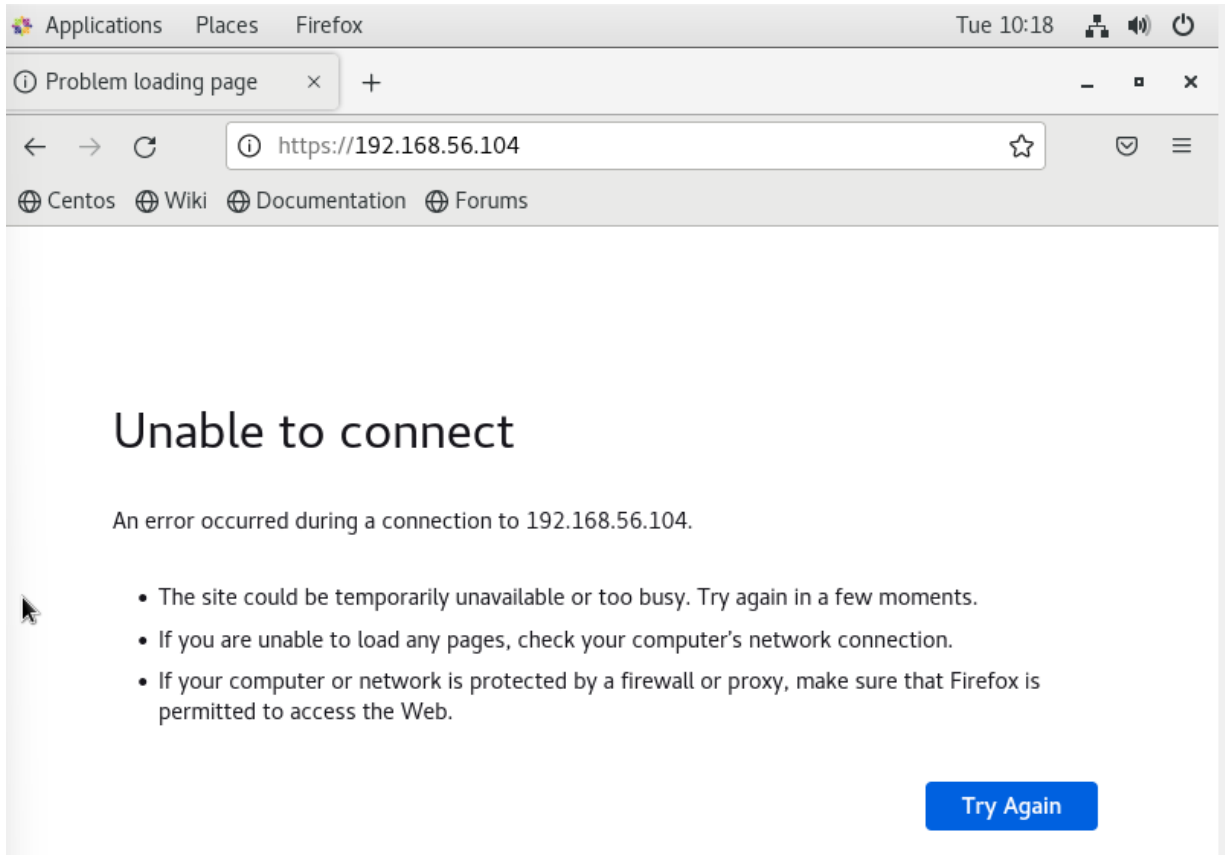
    - name: "Mariadb- Restarting/Enabling"
      service:
        name: mariadb
        state: restarted
        enabled: true

```

Figure 3.1.2

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

2. To test it, before you run the saved playbook, go to the CentOS server and stop the currently running httpd using the command `sudo systemctl stop httpd`. When prompted, enter the sudo password. After that, open the browser and enter the CentOS server's IP address. You should not be getting a display because we stopped the httpd service already.



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

Testing 123..

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

Description: After entering the IP address of the CentOS it has now displayed Tesing 123.....

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.

Reflections:

Answer the following:

1. What is the importance of putting our remote servers into groups?
 - **Grouping servers is a core tenet of infrastructure management. It fosters systematic organization and simplifies configuration management. Moreover, it allows for focused task execution, supports the implementation of role-based access controls, and significantly assists in troubleshooting within complex environments.**
2. What is the importance of tags in playbooks?
 - **Tags are a valuable instrument for precisely managing task execution in an Ansible playbook. Their flexibility, efficiency, and ability to organize tasks make them crucial for orchestrating complex infrastructure setups.**
3. Why do think some services need to be managed automatically in playbooks?
 - **Automating service management using playbooks not only ensures efficiency and consistency but also allows for smooth scalability, reducing the potential for errors. This approach is a fundamental element**

in modern IT operations, particularly in environments marked by dynamic or extensive infrastructures.

CONCLUSION:

Customizing hosts in Ansible on Ubuntu entails tailoring configurations to suit the unique roles, characteristics, or requirements of each server. This skill is pivotal in overseeing a diverse and ever-changing infrastructure. It enables precision in configurations, thereby enhancing efficiency, bolstering security, and fortifying the reliability of your server management procedures. Using tags in Ansible plays enables the precise execution of particular tasks or roles within a playbook. This focused play selection method provides a flexible and highly effective way to control task execution. It's a crucial capability for managing complex infrastructures with meticulous attention to detail, ensuring the smooth orchestration of your operations.