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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 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.

```
bencito@Workstation:~$ ssh bencitoserver@192.168.56.105
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-48-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sat Oct  8 12:54:17 AM UTC 2022

System load:  0.05126953125   Processes:            109
Usage of /:   33.8% of 13.67GB Users logged in:         1
Memory usage: 12%            IPv4 address for enp0s3: 10.0.2.15
Swap usage:   0%              IPv4 address for enp0s8: 192.168.56.105

39 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Last login: Sat Oct  8 00:50:31 2022
```

Task 1: Targeting Specific Nodes

1. Create a new playbook and named it `site.yml`. Follow the commands as shown in the image below. Make sure to save the file and exit.

```
---
- hosts: all
  become: true
  tasks:

    - name: install apache and php for Ubuntu servers
      apt:
        name:
          - apache2
          - libapache2-mod-php
        state: latest
        update_cache: yes
        when: ansible_distribution == "Ubuntu"

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

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

```
[web_servers]
192.168.56.120
192.168.56.121

[db_servers]
192.168.56.122

[file_servers]
192.168.56.123
```

Make sure to save the file and exit.

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

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

```

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

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

```

Make sure to save the file and exit.

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

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

```

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

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

PLAY RECAP *****
*

```

```

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

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

PLAY RECAP *****
*
192.168.56.102      : 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

```

There is no error when I run the given code on the site.yml

- 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.

```

GNU nano 6.2                                     site.yml
---
- hosts: db_servers
  become: true
  tasks:

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

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

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

```

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

```

bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --ask-become-pass site.yml
BECOME password:

PLAY [db_servers] *****
*

TASK [Gathering Facts] *****
*
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

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

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

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

PLAY RECAP *****
192.168.56.104 : ok=3    changed=2    unreachable=0    failed=0
skipped=1     rescued=0    ignored=0

Show Applications lon:~/CPE232_Bencito$ nano site.yml
bencito@Workstation:~/CPE232_Bencito$

```

It is working because I use the 2 CN and there is 2 changes

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.

```

bencito@Server2:~$ systemctl status mariadb
● mariadb.service - MariaDB 10.6.7 database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2022-10-08 11:00:38 PST; 2min 22s ago
     Docs: man:mariadb(8)
           https://mariadb.com/kb/en/library/systemd/
   Process: 8549 ExecStartPre=/usr/bin/install -m 755 -o mysql -g root -d /var/lib/mysql (code=exited, status=0/SUCCESS)
   Process: 8550 ExecStartPre=/bin/sh -c systemctl unset-environment _WSREP_SSH_KEY (code=exited, status=0/SUCCESS)
   Process: 8552 ExecStartPre=/bin/sh -c [ ! -e /usr/bin/galera_recovery ] && mv /usr/bin/galera_recovery_recovery.log /usr/bin/galera_recovery_recovery.log.bak && /usr/bin/galera_recovery --rm-keyring --no-ssh-key --no-ssh-key (code=exited, status=0/SUCCESS)
   Process: 8597 ExecStartPost=/bin/sh -c systemctl unset-environment _WSREP_SSH_KEY (code=exited, status=0/SUCCESS)
   Process: 8599 ExecStartPost=/etc/mysql/debian-start (code=exited, status=0/SUCCESS)
  Main PID: 8581 (mariabdd)
    Status: "Taking your SQL requests now..."
     Tasks: 10 (limit: 2099)
    Memory: 57.8M
       CPU: 471ms
    CGroup: /system.slice/mariadb.service
            └─8581 /usr/sbin/mariabdd

Oct 08 11:00:38 Server2 mariabdd[8581]: 2022-10-08 11:00:38 0 [Note] /usr/sbin/mariabdd: starting up the MySQL service server, using the following information:
Oct 08 11:00:38 Server2 mariabdd[8581]: Version: '10.6.7-MariaDB-2ubuntu1.1'
Oct 08 11:00:38 Server2 systemd[1]: Started MariaDB 10.6.7 database server.
Oct 08 11:00:38 Server2 /etc/mysql/debian-start[8601]: Upgrading MySQL tables.
Oct 08 11:00:38 Server2 /etc/mysql/debian-start[8604]: Looking for 'mysql' as: mysql

```

Describe the output.

It is activated and it will run successfully.

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.

```

- hosts: file_servers
  become: true
  tasks:

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

```

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

I make it dnf to run and install on the CentOS

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

```

bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --ask-become-pass site.yml
BECOME password:

PLAY [db_servers] *****
*

TASK [Gathering Facts] *****
*
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

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

TASK [Mariadb- Restarting/Enabling] *****
*

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

PLAY [file_servers] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]

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

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

```

The result was successful and there was no error. We can see that there are 1 changes on both CN

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"
```

```

GNU nano 6.2                                     site.yml
---
- 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"

```

```

PLAY [all] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

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

```

OUTPUT RESULT

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

PLAY [db_servers] *****
*

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

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

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

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

PLAY [file_servers] *****
*

TASK [Gathering Facts] *****
*
```

```
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=4    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
192.168.56.104      : ok=5    changed=2    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
```

```

- 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"

```

```

GNU nano 6.2 site.yml
---
- hosts: all
  become: true
  pre_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"

```

OUTPUT RESULT

```
BECOME password:

PLAY [all] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

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

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

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

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

PLAY [db_servers] *****
*

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

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

```

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

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

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=5    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104      : ok=6    changed=1    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

bencito@Workstation:~/CPE232_Bencito$ nano site.yml
bencito@Workstation:~/CPE232_Bencito$

```

```

- 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

```

```

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

- 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
      dnf:
        name: samba
        state: latest

```

Make sure to save the file and exit.

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

```

*
TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

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

TASK [install updates (CentOS)] *****

```

```

ok: [192.168.56.104]

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

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

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

PLAY [db_servers] *****
*

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

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

```

```

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

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

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=5    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
192.168.56.104      : ok=6    changed=1    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

```

It was all successful. Because the tags is only need to make it specific install on your CN

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

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


```

bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --list-tags site.yml
playbook: site.yml

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

play #2 (db_servers): db_servers    TAGS: []
TASK TAGS: [centos, db, mariadb, ubuntu]

play #3 (file_servers): file_servers TAGS: []
TASK TAGS: [samba]

```

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

```

bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --tags centos --ask-become-pass site.yml
BECOME password:

PLAY [all] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

```

```

skipping: [192.168.56.102]
ok: [192.168.56.104]

PLAY [db_servers] *****
*

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

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

PLAY [file_servers] *****
*

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

PLAY RECAP *****
*
192.168.56.102      : ok=4    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
192.168.56.104      : ok=3    changed=0    unreachable=0    failed=0
skipped=3    rescued=0    ignored=0

```

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

```
bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --tags db --ask-become-pass site.yml
BECOME password:

PLAY [all] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

*

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

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

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

PLAY [file_servers] *****
*

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

PLAY RECAP *****
*
192.168.56.102      : ok=3    changed=0    unreachable=0    failed=0
skipped=1    rescued=0    ignored=0
192.168.56.104      : ok=4    changed=0    unreachable=0    failed=0
skipped=2    rescued=0    ignored=0
```

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

```
bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --tags apache --ask-become-pass site.yml
BECOME password:
```

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

```
TASK [Gathering Facts] *****
*
```

```
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
```

```
ok: [192.168.56.102]
```

```
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
```

```
ok: [192.168.56.104]
```

```
Trash install apache and php for Ubuntu servers] *****
*
```

```
skipping: [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]
```

```
TASK [install apache and php for CentOS servers] *****
*
```

```
skipping: [192.168.56.104]
```

```
ok: [192.168.56.102]
```

```
TASK [install updates (CentOS)] *****
*
```

```
skipping: [192.168.56.104]
```

```
ok: [192.168.56.102]
```

```
TASK [install updates (Ubuntu)] *****
*
```

```
skipping: [192.168.56.102]
```

```
ok: [192.168.56.104]
```

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

```
TASK [Gathering Facts] *****
*
```

```
ok: [192.168.56.104]
```

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

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

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

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

bencito@Workstation:~/CPE232_Bencito$
```

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

```
bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --tags "apache,db" --ask
-become-pass site.yml
BECOME password:

PLAY [all] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [192.168.56.104]

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

```

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

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

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

PLAY [db_servers] *****
*

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

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

TASK [install mariadb package (Ubuntu)] *****

```

```

PLAY [file_servers] *****
*

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

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

```

Task 3: Managing Services

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

```

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

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

```

Figure 3.1.1

Make sure to save the file and exit.

```
- name: start httpd (CentOS)
  tags: apache,centos,httpd
  service:
    name: httpd
    state: 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

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

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

```
bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --tags "apache,db" --ask
-become-pass site.yml
BECOME password:
```

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

```
TASK [Gathering Facts] *****
*
```

```
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
```

```
ok: [192.168.56.102]
```

```
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
```

```
ok: [192.168.56.104]
```

```
TASK [install apache and php for Ubuntu servers] *****
*
```

```
skipping: [192.168.56.102]
```

```
ok: [192.168.56.104]
```

```
TASK [Gathering Facts] *****
*
```

```
ok: [192.168.56.104]
```

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

```
skipping: [192.168.56.104]
```

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

```
ok: [192.168.56.104]
```

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

```
TASK [Gathering Facts] *****
*
```

```
ok: [192.168.56.102]
```

```
PLAY RECAP *****
*
```

```
192.168.56.102      : ok=6    changed=1    unreachable=0    failed=0
```

```
skipped=2    rescued=0    ignored=0
```

```
192.168.56.104      : ok=6    changed=0    unreachable=0    failed=0
```

```
skipped=4    rescued=0    ignored=0
```

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.


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

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.

```
bencito@Workstation:~/CPE232_Bencito$ ansible-playbook --ask-become-pass site.yml
BECOME password:

PLAY [all] *****
*

TASK [Gathering Facts] *****
*
[WARNING]: Distribution centos 7.9.2009 on host 192.168.56.102 should use
/usr/bin/python, but is using /usr/bin/python2.7, since the discovered platform
python interpreter was not present. See https://docs.ansible.com/ansible/2.10/r
eference_appendices/interpreter_discovery.html for more information.
ok: [192.168.56.102]
[DEPRECATION WARNING]: Distribution ubuntu 22.04 on host 192.168.56.104 should
use /usr/bin/python3, but is using /usr/bin/python for backward compatibility
with prior Ansible releases. A future Ansible release will default to using the
discovered platform python for this host. See https://docs.ansible.com/ansible
/2.10/reference_appendices/interpreter_discovery.html for more information.
This feature will be removed in version 2.12. Deprecation warnings can be
disabled by setting deprecation_warnings=False in ansible.cfg.
```

```
skipping: [192.168.56.104]

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

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

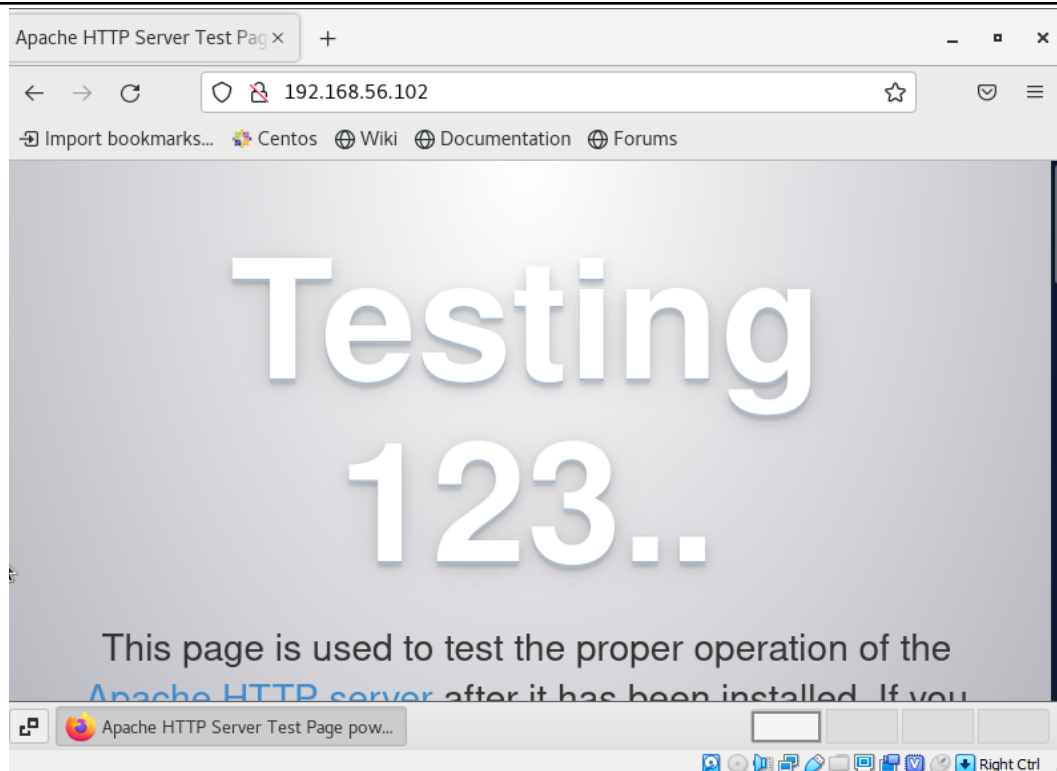
PLAY [file_servers] *****
*

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

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

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

Describe the result.



It was successfully run. because I make it the right code.

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

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

Reflections:

Answer the following:

1. What is the importance of putting our remote servers into groups?
The server group is very important to make a specific server that you want to install a code.
2. What is the importance of tags in playbooks?
The importance of tags is to save such time and to make it simplify the running and debugging on specific control nodes.
3. Why do I think some services need to be managed automatically in playbooks?
some services are not installed automatically. you need to have a manual to make sure if it is installed or not. also, to know if it's working or not in your control nodes.

