

Name: Solis, Paul Vincent M.	Date Performed: 9/19/25
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Instructor: Engr. Robin Valenzuela	Semester and SY: 1st sem 2025-2026

Activity 7: Managing Files and Creating Roles in Ansible

1. Objectives:

- 1.1 Manage files in remote servers
- 1.2 Implement roles in ansible

2. Discussion:

In this activity, we look at the concept of copying a file to a server. We are going to create a file into our git repository and use Ansible to grab that file and put it into a particular place so that we could do things like customize a default website, or maybe install a default configuration file. We will also implement roles to consolidate plays.

Task 1: Create a file and copy it to remote servers

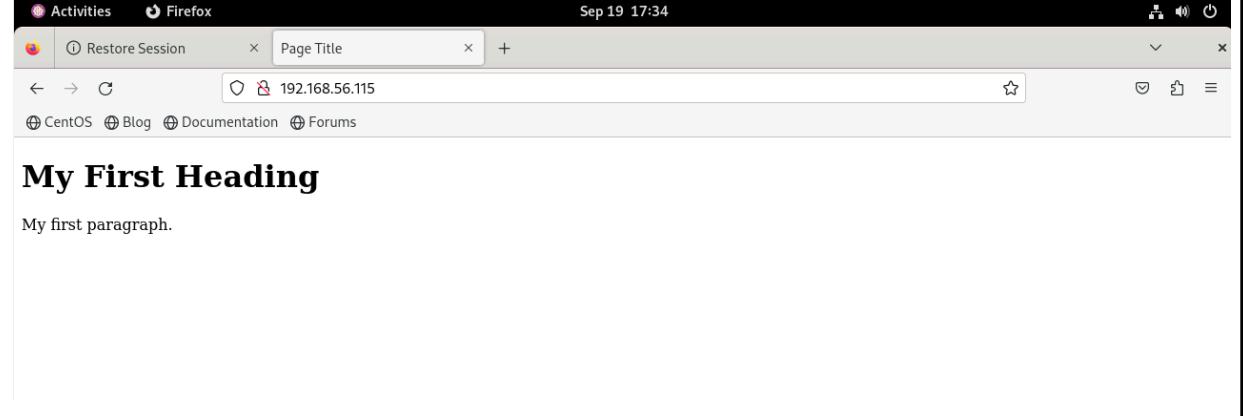
1. Using the previous directory we created, create a directory, and named it "**files**." Create a file inside that directory and name it "**default_site.html**." Edit the file and put basic HTML syntax. Any content will do, as long as it will display text later. Save the file and exit.

```
paul@paul-VirtualBox:~/CPE212_SOLISH0A6/files$ ls
ansible.cfg  CPE232_PAULSOLIS  CPEHOA6  inventory6.ini  site.yml
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ cat ansible.cfg
[default]
Inventory= inventory.ini
private_key_file= ~/.ssh/ansible
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ touch files
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ cd files
bash: cd: files: Not a directory
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ ls
ansible.cfg  CPE232_PAULSOLIS  CPEHOA6  files  inventory6.ini  site.yml
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ mkdir files
mkdir: cannot create directory 'files': File exists
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ rm files
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ mkdir files
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ cs files
Command 'cs' not found, but can be installed with:
sudo apt install csound
paul@paul-VirtualBox:~/CPE212_SOLISH0A6$ cd files
paul@paul-VirtualBox:~/CPE212_SOLISH0A6/files$ sudo nano default_site.html
[sudo] password for paul:
paul@paul-VirtualBox:~/CPE212_SOLISH0A6/files$ ls
default_site.html
paul@paul-VirtualBox:~/CPE212_SOLISH0A6/files$
```

2. Edit the *site.yml* file and just below the *web_servers* play, create a new file to copy the default html file for site:

- name: copy default html file for site

```
tags: apache, apache2, httpd
copy:
  src: default_site.html
  dest: /var/www/html/index.html
  owner: root
  group: root
  mode: 0644
```



Activities Firefox Sep 19 17:34

Restore Session Page Title 192.168.56.115

CentOS Blog Documentation Forums

My First Heading

My first paragraph.

server 1

```
paul@server1:~$ cat /var/www/html/index.html
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

server 2

```
paul@server2:~$ cat /var/www/html/index.html
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

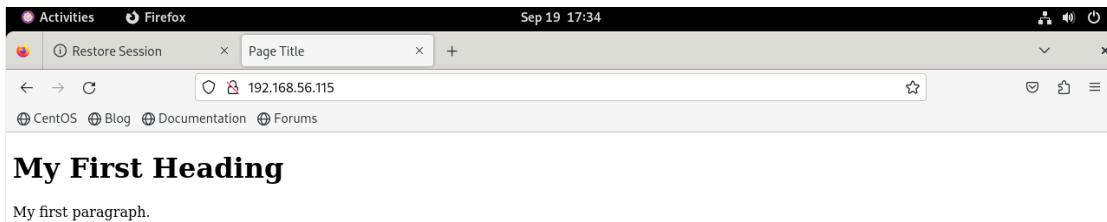
<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

3. Run the playbook *site.yml*. Describe the changes.

i can cat the html that i type and in the cent os i type my ip address and it shows

4. Go to the remote servers ls*web_servers*) listed in your inventory. Use cat command to check if the index.html is the same as the local repository file (*default_site.html*). Do both for Ubuntu and CentOS servers. On the CentOS server, go to the browser and type its IP address. Describe the output.



```
paul@server1:~$ cat /var/www/html/index.html
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

```
paul@server2:~$ cat /var/www/html/index.html
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

5. Sync your local repository with GitHub and describe the changes.
the site.yml changes and some others are not.

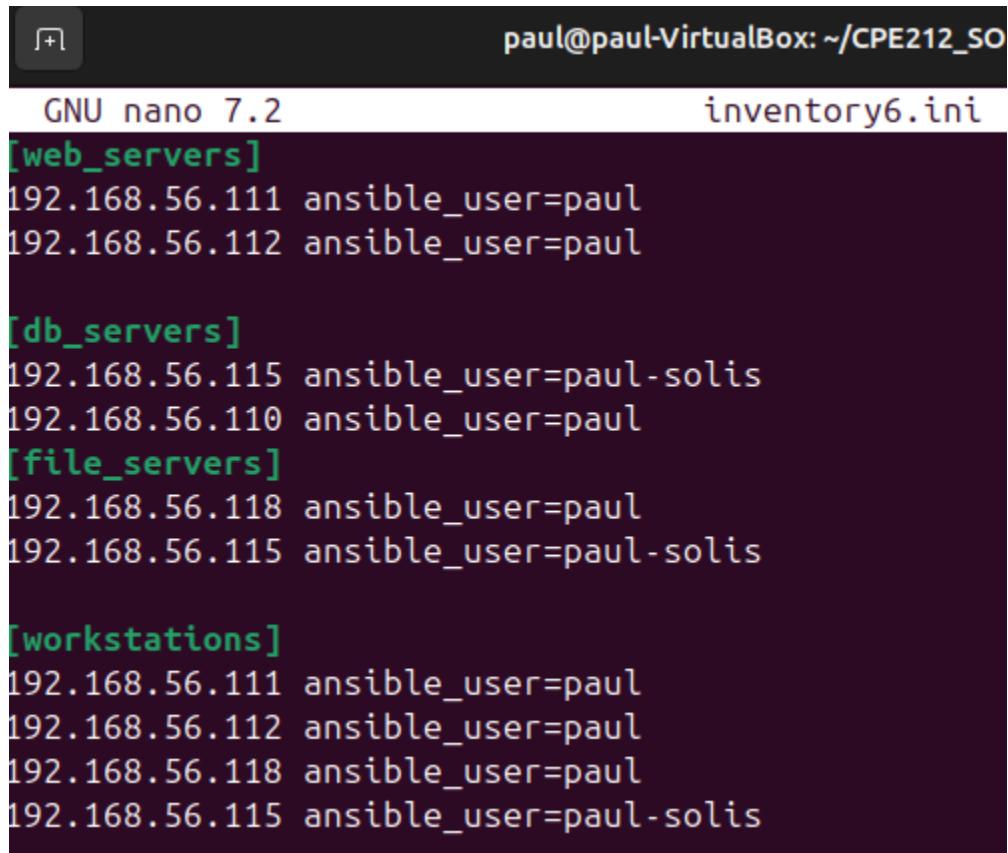
Task 2: Download a file and extract it to a remote server

1. Edit the site.yml. Just before the web_servers play, create a new play:
 - hosts: workstations
become: true
tasks:
 - name: install unzip
package:
name: unzip
 - name: install terraform
unarchive:
src:
https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
dest: /usr/local/bin
remote_src: yes
mode: 0755
owner: root
group: root

```
- hosts: workstations
  become: true
  tasks:
    - name: install unzip
      package:
        name: unzip
        state: present

    - name: install terraform
      unarchive:
        src: https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
        dest: /usr/local/bin
        remote_src: yes
        mode: 0755
        owner: root
        group: root
```

2. Edit the inventory file and add workstations group. Add any Ubuntu remote server. Make sure to remember the IP address.



The terminal window shows the nano editor running on a file named `inventory6.ini`. The file contains the following Ansible inventory configuration:

```
GNU nano 7.2                               inventory6.ini
[web_servers]
192.168.56.111 ansible_user=paul
192.168.56.112 ansible_user=paul

[db_servers]
192.168.56.115 ansible_user=paul-solis
192.168.56.110 ansible_user=paul

[file_servers]
192.168.56.118 ansible_user=paul
192.168.56.115 ansible_user=paul-solis

[workstations]
192.168.56.111 ansible_user=paul
192.168.56.112 ansible_user=paul
192.168.56.118 ansible_user=paul
192.168.56.115 ansible_user=paul-solis
```

3. Run the playbook. Describe the output.
4. On the Ubuntu remote workstation, type `terraform` to verify installation of `terraform`. Describe the output.

```
PLAY [workstations] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.115]

TASK [install unzip] ****
ok: [192.168.56.112]
ok: [192.168.56.111]
ok: [192.168.56.115]

TASK [install terraform] ****
changed: [192.168.56.115]
changed: [192.168.56.111]
changed: [192.168.56.112]
```

as soon as i run the code it installs the terraform in my ubuntu servers and the centos servers.

server 1

```
.....
paul@server1:~$ terraform
Usage: terraform [-version] [-help] <command> [args]

The available commands for execution are listed below.
The most common, useful commands are shown first, followed by
less common or more advanced commands. If you're just getting
started with Terraform, stick with the common commands. For the
other commands, please read the help and docs before usage.

Common commands:
  apply           Builds or changes infrastructure
  console         Interactive console for Terraform interpolations
  destroy         Destroy Terraform-managed infrastructure
  env             Workspace management
  fmt             Rewrites config files to canonical format
  get             Download and install modules for the configuration
  graph           Create a visual graph of Terraform resources
  import          Import existing infrastructure into Terraform
  init            Initialize a Terraform working directory
  login           Obtain and save credentials for a remote host
  logout          Remove locally-stored credentials for a remote host
  output          Read an output from a state file
  plan            Generate and show an execution plan
  providers       Prints a tree of the providers used in the configuration
```

server 2

```
paul@server2:~$ terraform
Usage: terraform [-version] [-help] <command> [args]

The available commands for execution are listed below.
The most common, useful commands are shown first, followed by
less common or more advanced commands. If you're just getting
started with Terraform, stick with the common commands. For the
other commands, please read the help and docs before usage.

Common commands:
  apply           Builds or changes infrastructure
  console         Interactive console for Terraform interpolations
  destroy         Destroy Terraform-managed infrastructure
  env             Workspace management
  fmt              Rewrites config files to canonical format
  get              Download and install modules for the configuration
  graph            Create a visual graph of Terraform resources
  import           Import existing infrastructure into Terraform
  init             Initialize a Terraform working directory
  login            Obtain and save credentials for a remote host
  logout           Remove locally-stored credentials for a remote host
  output           Read an output from a state file
  plan             Generate and show an execution plan
  providers        Prints a tree of the providers used in the configuration
```

Task 3: Create roles

1. Edit the site.yml. Configure roles as follows: (make sure to create a copy of the old site.yml file because you will be copying the specific plays for all groups)

```

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

    - name: update repository index (Centos)
      tags: always
      dnf:
        update_cache: yes
        changed_when: false
        when: ansible_distribution == "Centos"
    - name: install updates (Ubuntu)
      tags: always
      apt:
        update_cache: yes
        changed_when: false
        when: ansible_distribution == "Ubuntu"

- hosts: all
  become: true
  roles:
    - base

- hosts: workstations
  become: true
  roles:
    - workstations

- hosts: web_servers
  become: true
  roles:
    - web_servers

- hosts: db_servers
  become: true
  roles:
    - db_servers

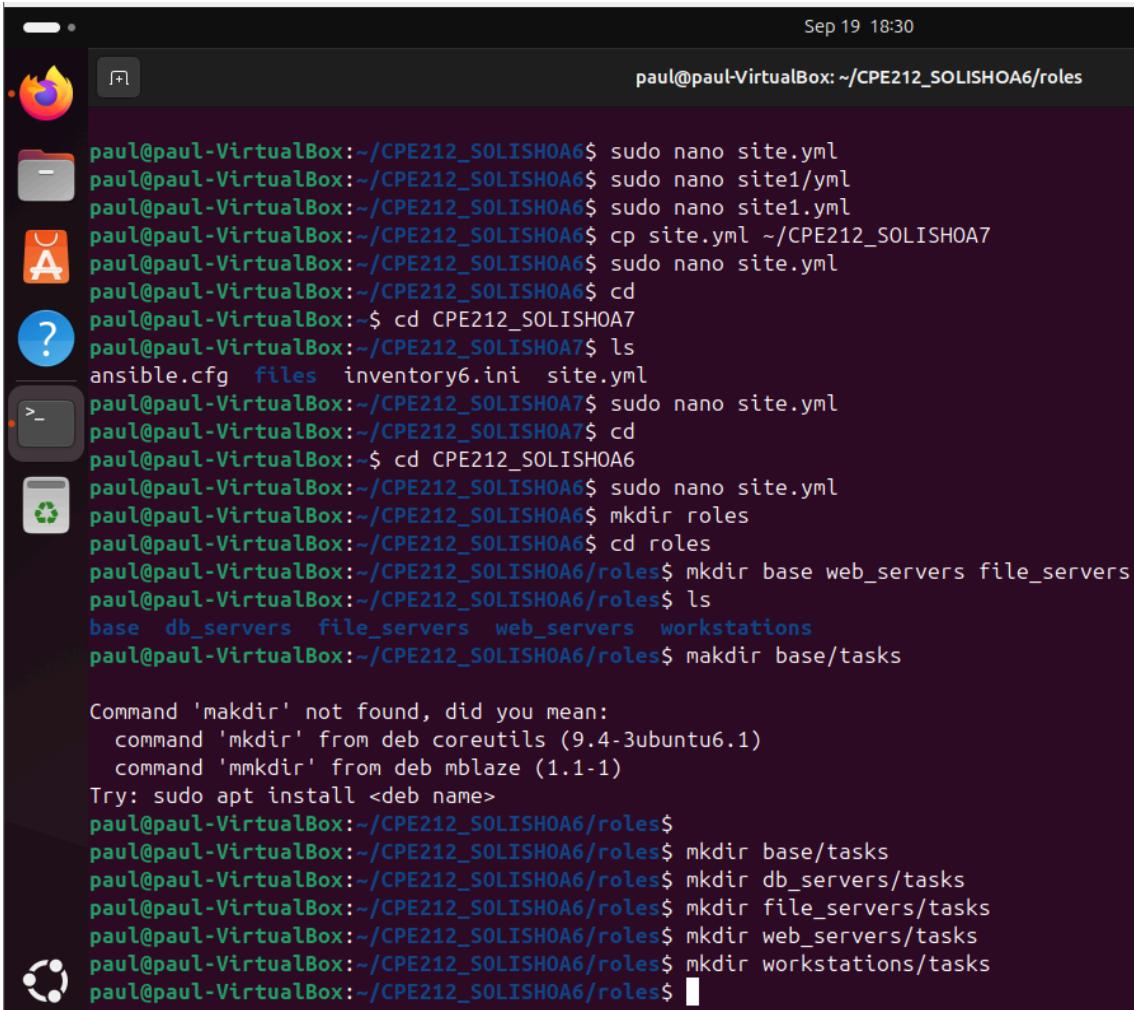
- hosts: file_servers
  become: true
  roles:
    - file_servers

```

Save the file and exit.

2. Under the same directory, create a new directory and name it roles. Enter the roles directory and create new directories: base, web_servers, file_servers,

db_servers and workstations. For each directory, create a directory and name it tasks.



Sep 19 18:30

paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles

```
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site1.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site1.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cp site.yml ~/CPE212_SOLISHOA7
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA7
paul@paul-VirtualBox:~/CPE212_SOLISHOA7$ ls
ansible.cfg files inventory6.ini site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA7$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA7$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ mkdir roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ mkdir base web_servers file_servers
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ ls
base db_servers file_servers web_servers workstations
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ mkdir base/tasks

Command 'makdir' not found, did you mean:
  command 'mkdir' from deb coreutils (9.4-3ubuntu6.1)
  command 'mmkdir' from deb mblaze (1.1-1)
Try: sudo apt install <deb name>
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ mkdir base/tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ mkdir db_servers/tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ mkdir file_servers/tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ mkdir web_servers/tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ mkdir workstations/tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$
```

3. Go to tasks for all directory and create a file. Name it main.yml. In each of the tasks for all directories, copy and paste the code from the old site.yml file. Show all contents of main.yml files for all tasks.cd

```
Sep 19 18:46
paul@paul-VirtualBox:~/CPE212_SOLISHOA6
ansible.cfg files inventory6.ini site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo nano site.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cp site.yml ~/CPE212_SOLISHOA6/roles/base/tasks/main.yml
cp: cannot create regular file '/home/paul/CPE212_SOLISHOA6/roles/base/tasks/main.yml': Permission denied
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo cp site.yml ~/CPE212_SOLISHOA6/roles/base/tasks/main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/base/tasks
bash: cd: CPE212_SOLISHOA6/base/tasks: No such file or directory
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd base
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/base$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/base/tasks$ ls
main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/base/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/base/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/base/tasks$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo cp site.yml ~/CPE212_SOLISHOA6/roles/db_servers/tasks/main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo cp site.yml ~/CPE212_SOLISHOA6/roles/file_servers/tasks/main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo cp site.yml ~/CPE212_SOLISHOA6/roles/web_servers/tasks/main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo cp site.yml ~/CPE212_SOLISHOA6/roles/workstations/tasks/main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd db_servers
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ ls
main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ cd ..
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers$ cd ..

Sep 19 18:46
paul@paul-VirtualBox:~/CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo cp site.yml ~/CPE212_SOLISHOA6/roles/web_servers/tasks/main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ sudo cp site.yml ~/CPE212_SOLISHOA6/roles/workstations/tasks/main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd db_servers
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ ls
main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers/tasks$ cd ..
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers$ cd ..
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ ls
base db_servers file_servers web_servers workstations
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd file_servers
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers/tasks$ ls
main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers/tasks$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ ls
base db_servers file_servers web_servers workstations
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd web_servers
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ cd
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers$ cd
```

```
Sep 19 18:46
paul@paul-VirtualBox:~/CPE212_SOLISHOA6
```

```
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/db_servers$ cd ..
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ ls
base db_servers file_servers web_servers workstations
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd file_servers
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers/tasks$ ls
main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/file_servers/tasks$ cd ..
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ ls
base db_servers file_servers web_servers workstations
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd web_servers
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/web_servers/tasks$ cd ..
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$ cd roles
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ ls
base db_servers file_servers web_servers workstations
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd workstations
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/workstations$ ls
tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/workstations$ cd tasks
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/workstations/tasks$ sudo nano main.yml
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles/workstations/tasks$ cd ..
paul@paul-VirtualBox:~/CPE212_SOLISHOA6/roles$ cd CPE212_SOLISHOA6
paul@paul-VirtualBox:~/CPE212_SOLISHOA6$
```

4. Run the site.yml playbook and describe the output.

```
Sep 19 19:12
paul@paul-VirtualBox:~/CPE212_SOLISHOA6
```

```
PLAY [all] ****
TASK [Gathering Facts] ****
ok: [192.168.56.112]
ok: [192.168.56.118]
ok: [192.168.56.115]
ok: [192.168.56.111]
fatal: [192.168.56.118]: UNREACHABLE! => {"changed": false, "msg": "Failed to connect to the host via ssh: ssh: connect to host 192.168.56.118 port 22: No route to host", "unreachable": true}

TASK [update repository index (CentOS)] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]
skipping: [192.168.56.110]
ok: [192.168.56.115]

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

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

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

```
Sep 19 19:13
paul@paul-VirtualBox: ~/CPE212_SOLISHOA$ 
ok: [192.168.56.110]
ok: [192.168.56.115]

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

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

PLAY [workstations] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.115]

TASK [workstations : install unzip] ****
ok: [192.168.56.112]
ok: [192.168.56.111]
ok: [192.168.56.115]

TASK [workstations : install terraform] ****
ok: [192.168.56.111]
ok: [192.168.56.112]
ok: [192.168.56.115]

PLAY [web_servers] ****
```

```
Sep 19 19:13
paul@paul-VirtualBox: ~/CPE212_SOLISHOA$ 
PLAY [web_servers] ****
TASK [Gathering Facts] ****
ok: [192.168.56.111]
ok: [192.168.56.112]

TASK [web_servers : copy default html file for site] ****
ok: [192.168.56.112]
ok: [192.168.56.111]

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

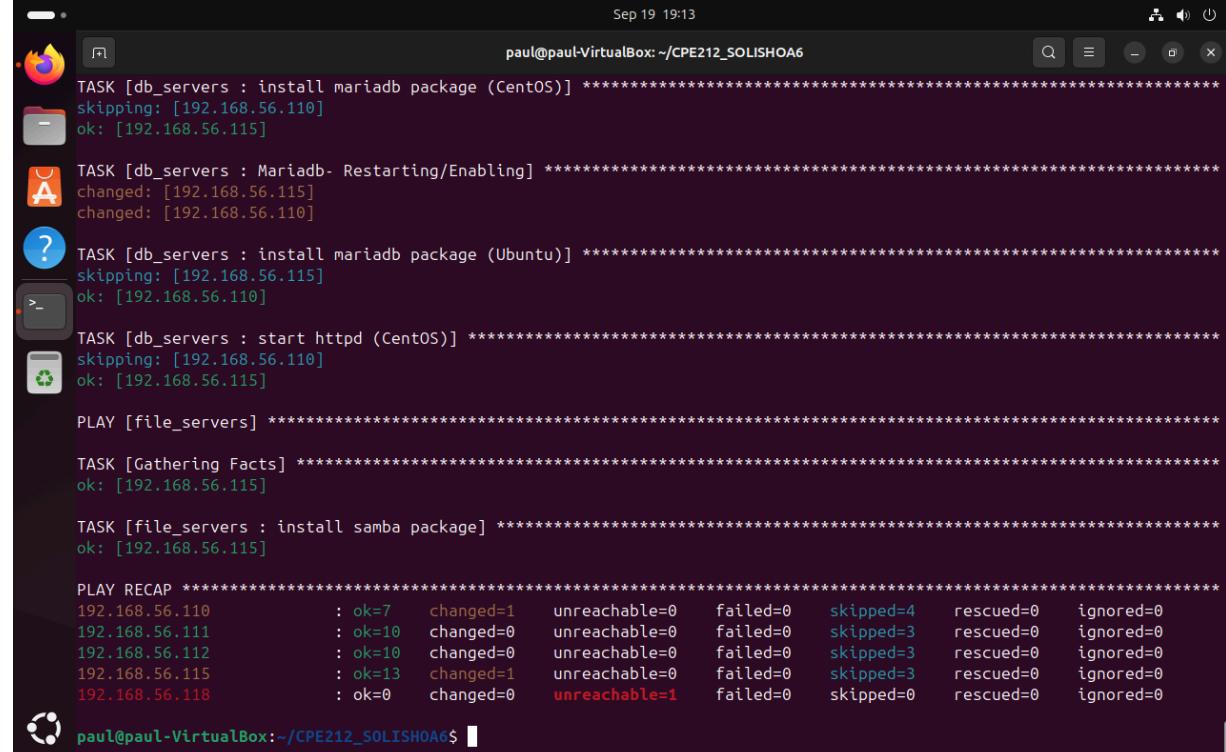
TASK [web_servers : install apache and php for CentOS servers] ****
skipping: [192.168.56.111]
skipping: [192.168.56.112]

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

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

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

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



Sep 19 19:13
paul@paul-VirtualBox: ~/CPE212_SOLISHOA6

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

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

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

TASK [db_servers : start httpd (CentOS)] ****
skipping: [192.168.56.110]
ok: [192.168.56.115]

PLAY [file_servers] ****

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

TASK [file_servers : install samba package] ****
ok: [192.168.56.115]

PLAY RECAP ****
192.168.56.110      : ok=7    changed=1    unreachable=0    failed=0    skipped=4    rescued=0    ignored=0
192.168.56.111      : ok=10   changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
192.168.56.112      : ok=10   changed=0    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
192.168.56.115      : ok=13   changed=1    unreachable=0    failed=0    skipped=3    rescued=0    ignored=0
192.168.56.118      : ok=0    changed=0    unreachable=1    failed=0    skipped=0    rescued=0    ignored=0
```

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Reflections:

Answer the following:

1. What is the importance of creating roles?

Creating roles in a paragraph is important because it helps improve accessibility for users who rely on assistive technologies, such as screen readers. By assigning roles, the content becomes more understandable and navigable, allowing these tools to interpret the structure and purpose of the text correctly.

2. What is the importance of managing files?

Managing files is important because it helps keep your data organized, secure, and easy to access. Proper file management allows you to quickly find, edit, or share documents when needed, which improves productivity and reduces the risk of losing important information.

