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Activity 7: Managing Files and Creating Roles in Ansible

1. **Objectives:**

1.1 Manage files in remote servers

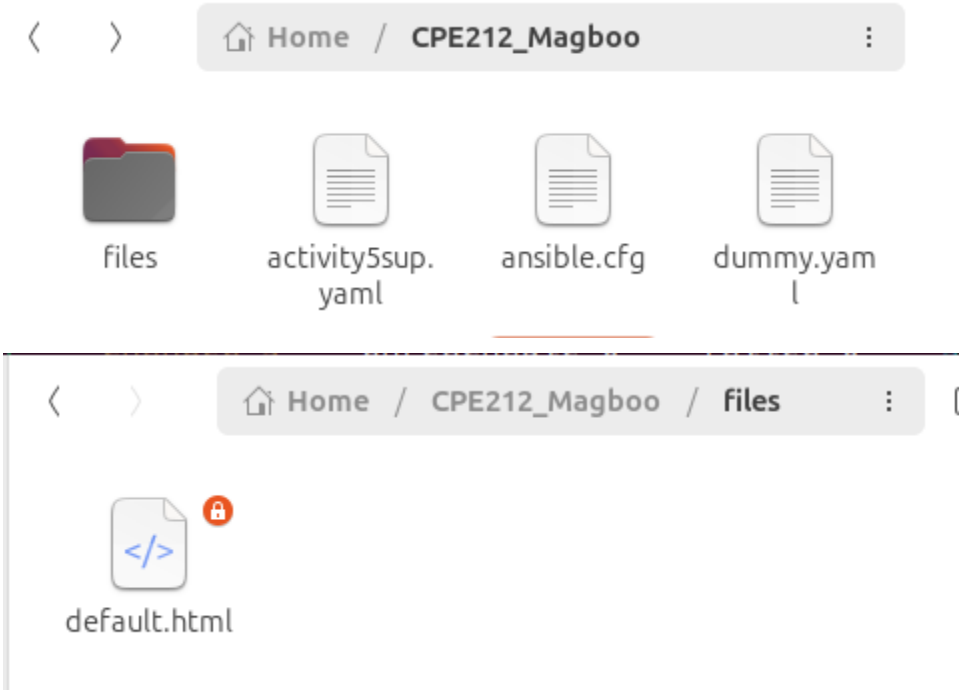
1.2 Implement roles in ansible

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.



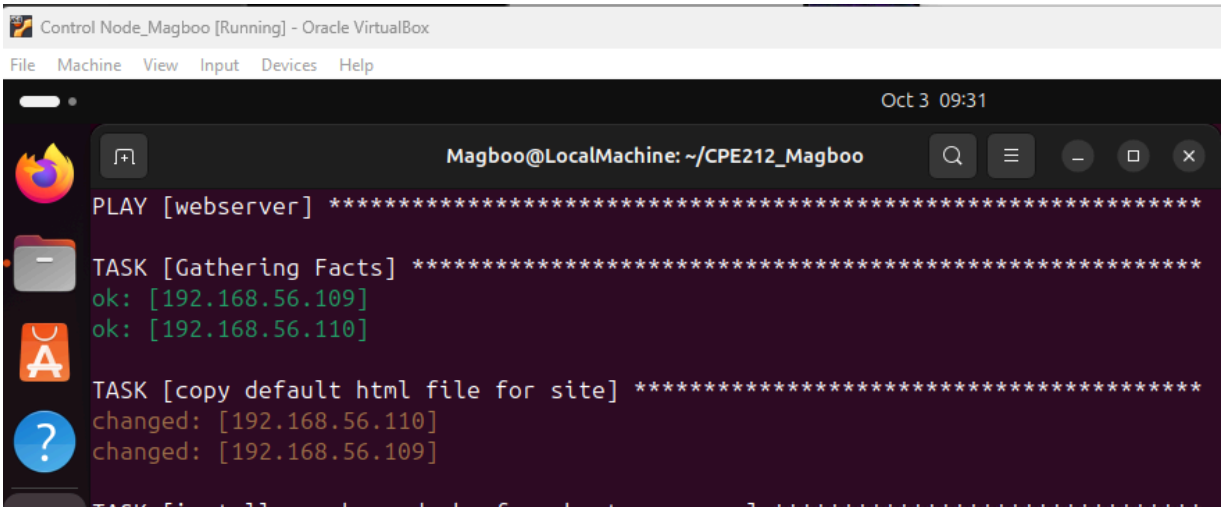
2. Edit the *site.yml* file and just below the *web_servers* play, create a new file to copy the default html file for site:

- name: copy default html file for site

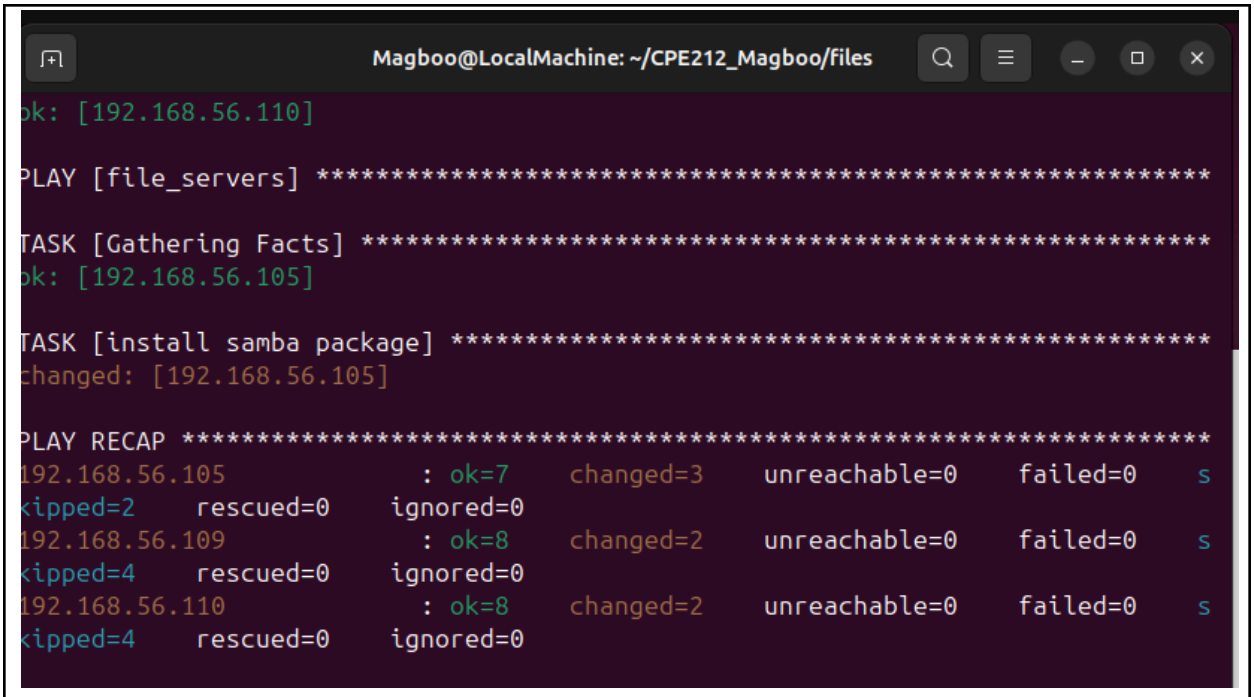
  tags: apache, apache2, httpd
  copy:
    src: default_site.html
    dest: /var/www/html/index.html
    owner: root
    group: root
    mode: 0644

```
- hosts: webserver
  become: true
  tasks:
  - name: copy default html file for site
    tags: apache, apache2, httpd
    copy:
      src: /home/Magboo/CPE212_Magboo/files/default.html
      dest: /var/www/html/index.html
      owner: root
      group: root
      mode: 0644
    become: True
```

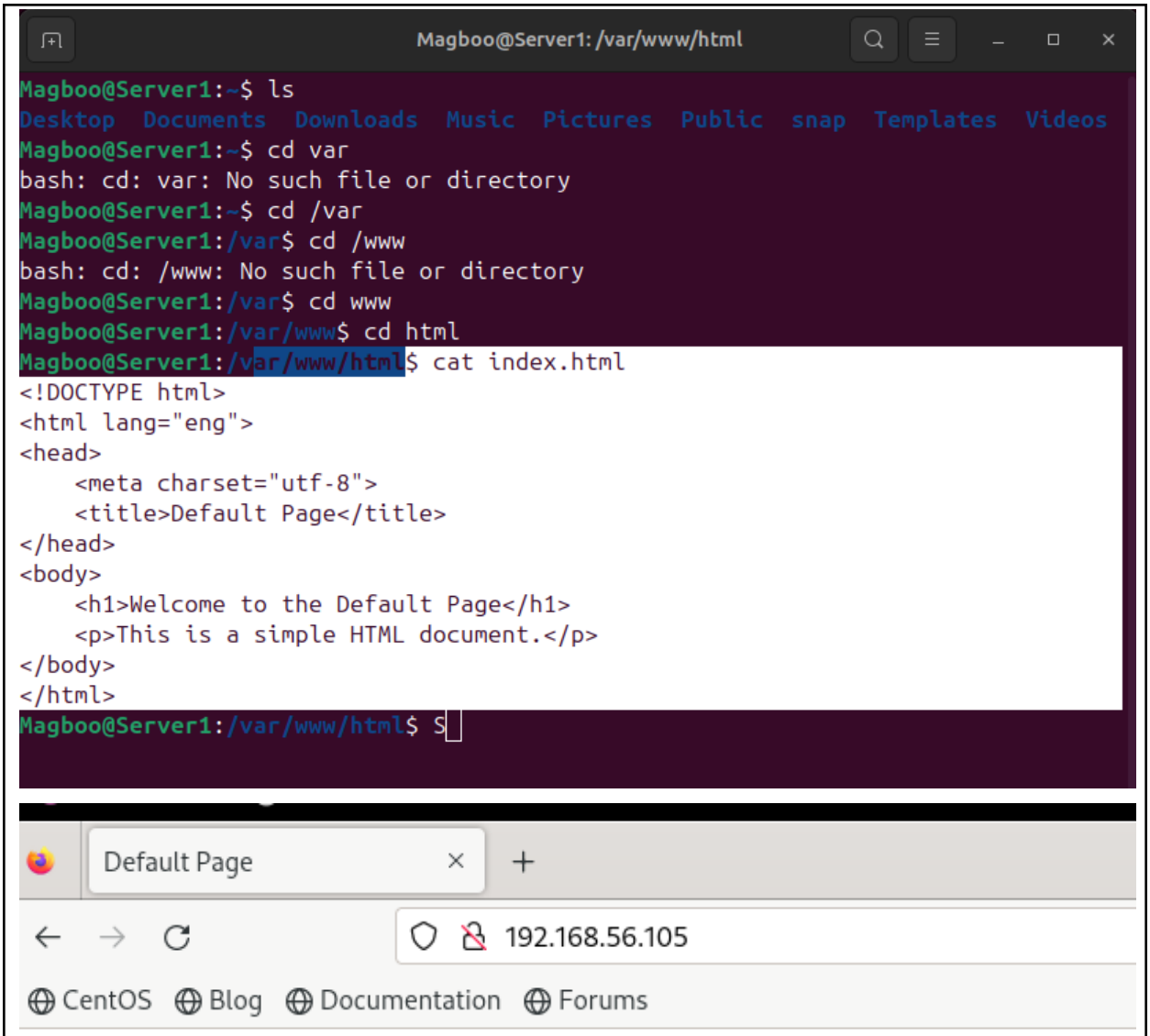
3. Run the playbook *site.yml*. Describe the changes.



it copied the file default.html in manage node for the web_servers.



4. Go to the remote servers (*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.



it what's inside of the default.html in the manage node then created its own file as index.html

5. Sync your local repository with GitHub and describe the changes.

```
Magboo@LocalMachine:~/CPE212_Magboo$ git commit -m "act 7"
[main b98a40d] act 7
 2 files changed, 20 insertions(+)
 create mode 100644 files/default.html
Magboo@LocalMachine:~/CPE212_Magboo$ git push origin main
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 6 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 713 bytes | 713.00 KiB/s, done.
Total 5 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To github.com:MagbooMattClemence/CPE212_Magboo.git
   e71b14c..b98a40d  main -> main
```

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

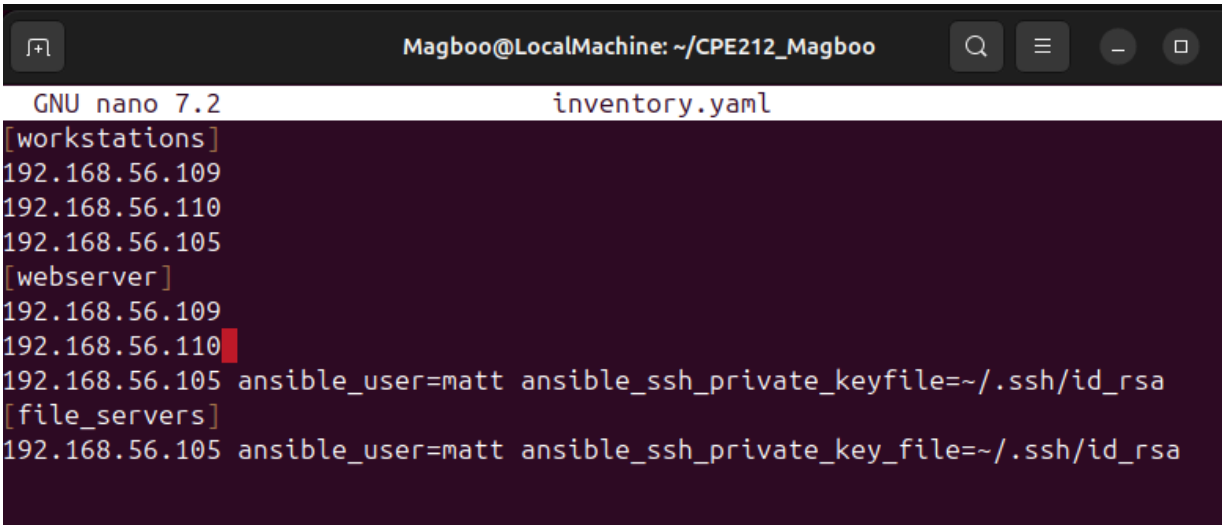
1. Edit the site.yml. Just before the web_servers play, create a new play:
   - hosts: workstations
     become: true
     tasks:

     - name: install unzip
       package:
         name: unzip

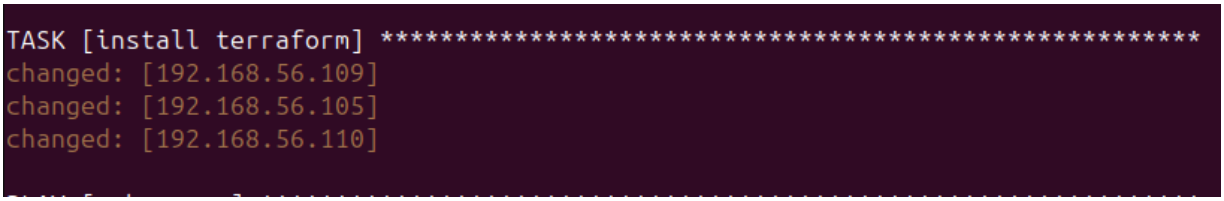
     - name: install terraform
       unarchive:
         src: https://releases.hashicorp.com/terraform/0.12.28/terraform_0.12.28_linux_amd64.zip
         dest: /usr/local/bin
         remote_src: yes
         mode: 0755
         owner: root
         group: root

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

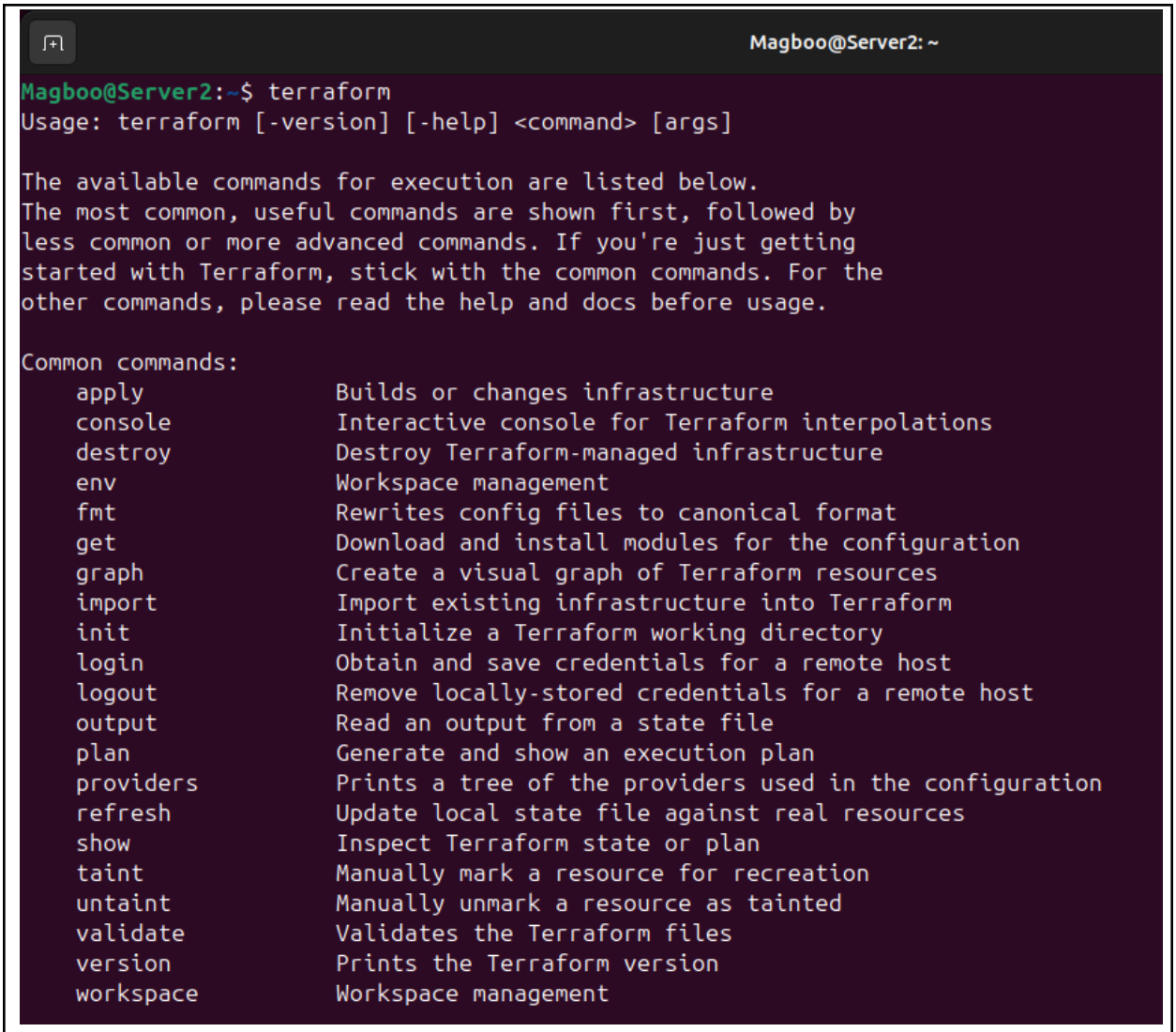
2. Edit the inventory file and add workstations group. Add any Ubuntu remote server. Make sure to remember the IP address.



3. Run the playbook. Describe the output.



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



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.

```
Magboo@LocalMachine:~/CPE212_Magboo/roles$ mkdir -p {base,webservers,file_servers,db_servers,workstations}/tasks
Magboo@LocalMachine:~/CPE212_Magboo/roles$ ls base
tasks
```

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.

```
Magboo@LocalMachine:~/CPE212_Magboo/roles/base/tasks$ ls
main.yml
```

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

```
Magboo@LocalMachine: ~/CPE212_Magboo

PLAY [webservers] ***************************************************************
skipping: no hosts matched
[WARNING]: Could not match supplied host pattern, ignoring: db_servers

PLAY [db_servers] ***************************************************************
skipping: no hosts matched

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

TASK [Gathering Facts] **********************************************************
ok: [192.168.56.105]

TASK [file_servers : install samba package] *************************************
ok: [192.168.56.105]

PLAY RECAP **********************************************************************
192.168.56.105             : ok=9    changed=0    unreachable=0    failed=0    s
kipped=2    rescued=0    ignored=0
192.168.56.109             : ok=7    changed=0    unreachable=0    failed=0    s
kipped=2    rescued=0    ignored=0
192.168.56.110             : ok=7    changed=0    unreachable=0    failed=0    s
kipped=2    rescued=0    ignored=0
```

Reflections:

Answer the following:

1. What is the importance of creating roles?
   it automates tasks that is specified for them
2. What is the importance of managing files?

for you to find the files fast and fix problems quickly you can also share the work with others but organized