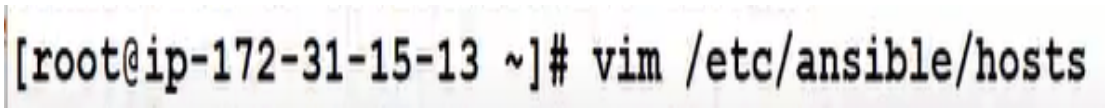
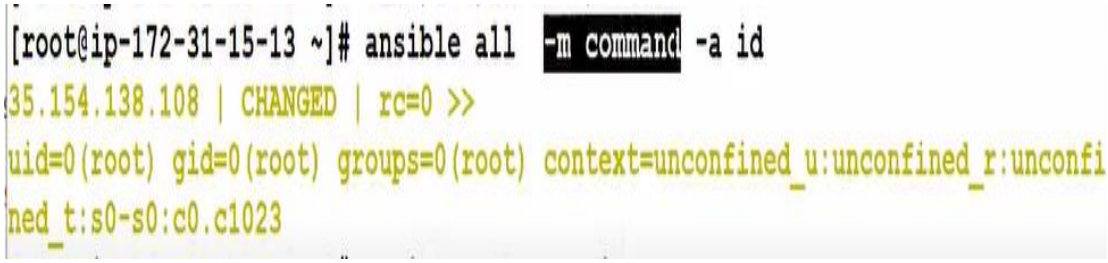
Ansible

Session 7 – 8th Jan 2023 Summary

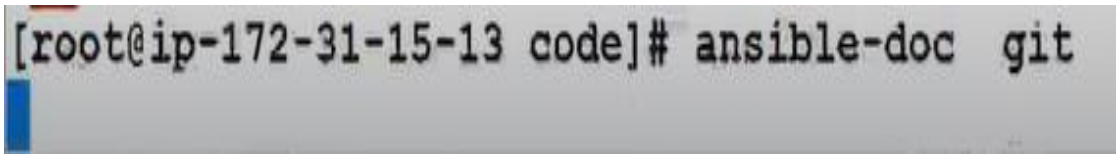
- The command to create an inventory on the controller node "**vim /etc/ansible/hosts**"



- The command to check, the account logged in "**ansible all - m command – a id**"

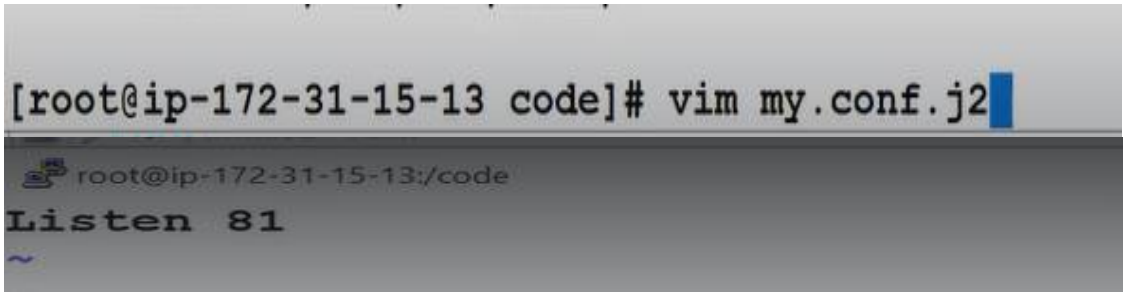


- The command to check the module related to git "ansible-doc git"

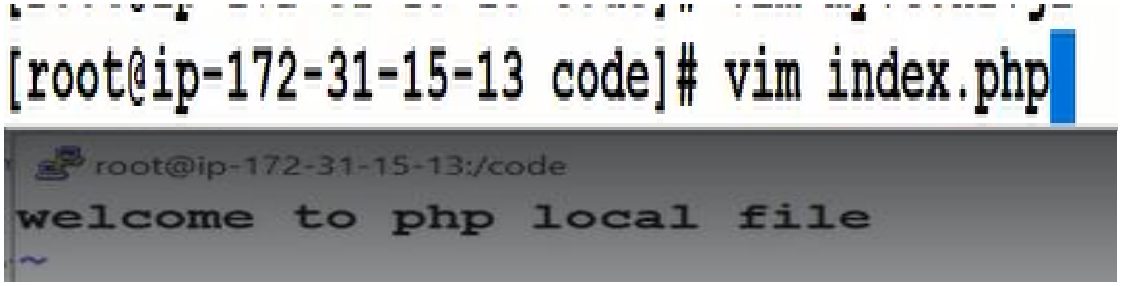


```
EXAMPLES:

- name: Git checkout
  ansible.builtin.git:
    repo: 'https://foosball.example.org/path/to/repo.git'
    dest: /srv/checkout
    version: release-0.22
```

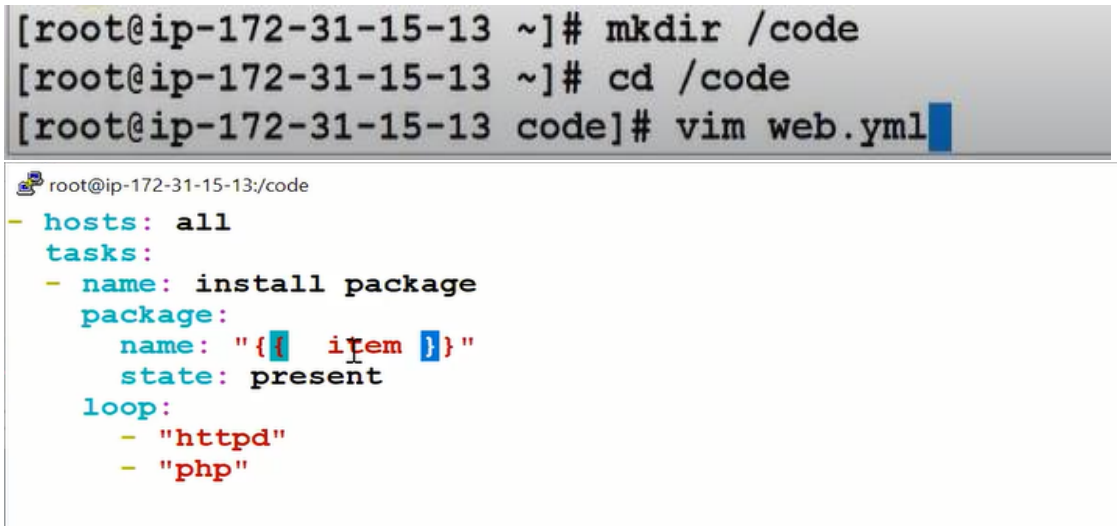
- The command to create the jinja template “vim my.conf.j2”, the webserver works on port 81



- The command to create a php file “**vim index.php**”



- The command to create a playbook “**vim web.yml**”, to deploy web services



```
root@ip-172-31-15-13:/code

- name: setup conf file
  template:
    src: "my.conf.j2"
    dest: "/etc/httpd/conf.d/my.conf"

- name: deploy web page from local
  copy:
    src: "index.php"
    dest: "/var/www/html/index.php"

- name: Git pull code web page
  git:
    repo: 'https://github.com/vimallinuxworld13/ansible-training-2022.git'
    dest: "/var/www/html/mygit/"
  ignore_errors: true

- name: service httpd
  service:
    name: "httpd"
    state: "started"
    enabled: yes
```

- The command to check the syntax of the playbook

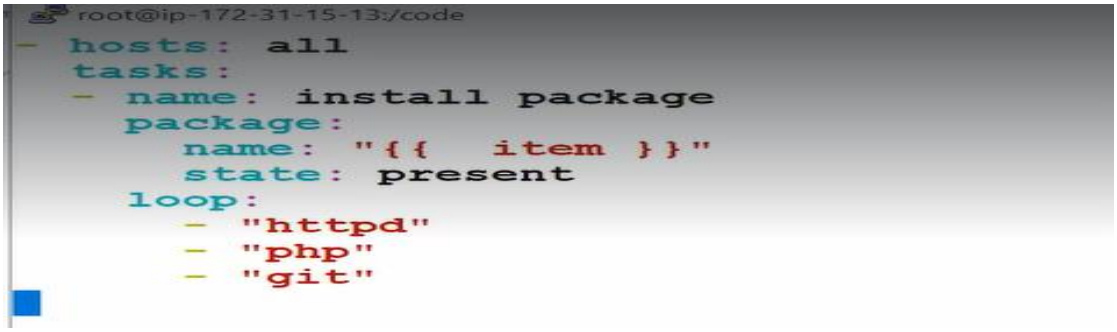
```
[root@ip-172-31-15-13 code]# ansible-playbook  web.yml --syntax-check

playbook: web.yml
```

- The command to run the playbook

```
[root@ip-172-31-15-13 code]# ansible-playbook  web.yml
```

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

TASK [Gathering Facts] *********************************************************
ok: [35.154.138.108]

TASK [install package] *********************************************************
ok: [35.154.138.108] => (item=httpd)
changed: [35.154.138.108] => (item=php)

TASK [setup conf file] *********************************************************
changed: [35.154.138.108]

TASK [deploy web page from local] **********************************************
changed: [35.154.138.108]

TASK [Git pull code web page] **************************************************
fatal: [35.154.138.108]: FAILED! => {"changed": false, "msg": "Failed to find re
quired executable \"git\" in paths: /root/.local/bin:/root/bin:/usr/local/sbin:/
usr/local/bin:/usr/sbin:/usr/bin:/sbin"}
...ignoring

TASK [service httpd] ***********************************************************
changed: [35.154.138.108]

PLAY RECAP *********************************************************************
35.154.138.108             : ok=6    changed=1    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=1
```

- The error says that git running on the target node, do not have a git command, for this we have to install the “git” software



- The command to run the playbook “ansible-playbook web.yml”

- For better organization of code, we create a folder “/myweb”, in that we create a separate folder “**vars**” for variables, “**tasks**” for tasks and “**handlers**” for handlers

```
[root@ip-172-31-15-13 myweb]# mkdir vars
[root@ip-172-31-15-13 myweb]# ls
vars
[root@ip-172-31-15-13 myweb]#
```

```
root@ip-172-31-15-13:/myweb
[root@ip-172-31-15-13 myweb]# pwd
/myweb
[root@ip-172-31-15-13 myweb]# mkdir tasks
[root@ip-172-31-15-13 myweb]# ls
tasks  vars
[root@ip-172-31-15-13 myweb]# vim tasks/main.yml
```

```
root@ip-172-31-15-13:/myweb
- name: install package
  package:
       name: "{{  item }}"
       state: present
  loop:
       - "httpd"
       - "php"
       - "git"
       - "dialog"
  notify: software install debug
  when: ansible_facts['distribution'] in  myos

- name: setup conf file
  template:
       src: "my.conf.j2"
       dest: "/etc/httpd/conf.d/my.conf"
  notify: "service httpd"
```

```
- name: deploy web page from local
  copy:
      src: "index.php"
      dest: "/var/www/html/index.php"

- name: Git pull code web page
  git:
      repo: 'https://github.com/vimallinuxworld13/ansible-training-2022.git'
      dest: "/var/www/html/mygit/"
  ignore_errors: true
```

```
[root@ip-172-31-15-13 myweb]# mkdir handlers
[root@ip-172-31-15-13 myweb]# ls
handlers  tasks  vars
[root@ip-172-31-15-13 myweb]# vim handlers/main.yml
```

```
root@ip-172-31-15-13:/myweb
- name: service httpd
  service:
      name: "httpd"
      state: "restarted"
      enabled: yes

- name: software install debug
  debug:
      msg: "i m debug new software install"
```

- For all static files, we create separate folder

```
[root@ip-172-31-15-13 myweb]# mkdir files
[root@ip-172-31-15-13 myweb]# pwd
/myweb
[root@ip-172-31-15-13 myweb]# pwd
/myweb
[root@ip-172-31-15-13 myweb]# ls
files  handlers  tasks  vars
[root@ip-172-31-15-13 myweb]# ls -l files/
total 4
-rw-r--r--. 1 root root 26 Jan  8 10:25 index.php
[root@ip-172-31-15-13 myweb]#
```

- Similarly for templates files, we create a separate folder

```
[root@ip-172-31-15-13 myweb]# mkdir templates
[root@ip-172-31-15-13 myweb]# ls
files  handlers  tasks  templates  vars
[root@ip-172-31-15-13 myweb]#
```

- All the components are organised in a proper manner called as file structure, each folder in meant for a specific function like setting up a load balancer or setting up a webserver or setting up cloud instances called as **role**

```
root@ip-172-31-15-13:/myweb
[root@ip-172-31-15-13 myweb]# pwd
/myweb
[root@ip-172-31-15-13 myweb]# ls
files  handlers  tasks  templates  vars
[root@ip-172-31-15-13 myweb]#
```

- For using a role, we need to create a playbook such playbooks are called **set-up playbook.** In this we specify the **playbook run on which host** and the **role**

```
[root@ip-172-31-15-13 ~]# vim setup.yml
```

```
root@ip-172-31-15-13:~
- hosts: all
  roles:
  - webserver
~
```

- There is a predefined role path, to keep the role. The command to see how many roles we have in a system

```
[root@ip-172-31-15-13 ~]# ansible-galaxy   list
# /usr/share/ansible/roles
# /etc/ansible/roles
[WARNING]: - the configured path /root/.ansible/roles does not exist.
[root@ip-172-31-15-13 ~]#
```

- In the configuration file, we can specify the role path. Uncomment the line and add the role path

```
[root@ip-172-31-15-13 ~]# vim /etc/ansible/ansible.cfg
```

```
# (pathspec) Colon separated paths in which Ansible will search for Roles.
roles_path=~/.ansible/roles:/usr/share/ansible/roles:/etc/ansible/roles:/lw
```

- The command to see how many roles we have in a system

```
[root@ip-172-31-15-13 ~]# ansible-galaxy  list
# /usr/share/ansible/roles
# /etc/ansible/roles
# /lw
```

- The command for role management

```
[root@ip-172-31-15-13 ~]# ansible-galaxy  -h
usage: ansible-galaxy [-h] [--version] [-v] TYPE ...

Perform various Role and Collection related operations.

positional arguments:
  TYPE
    collection   Manage an Ansible Galaxy collection.
    role         Manage an Ansible Galaxy role.

optional arguments:
  --version      show program's version number, config file location,
                 configured module search path, module location, executable
                 location and exit
  -h, --help     show this help message and exit
  -v, --verbose  Causes Ansible to print more debug messages. Adding multiple
                 -v will increase the verbosity, the builtin plugins currently
                 evaluate up to -vvvvvv. A reasonable level to start is -vvv,
                 connection debugging might require -vvvv.
```

- The command to create a role “ansible-galaxy role init mynewrole”, they automatically create a structure.

```
root@ip-172-31-15-13:~
[root@ip-172-31-15-13 ~]# ansible-galaxy  role  init  mynewrole
- Role mynewrole was created successfully
[root@ip-172-31-15-13 ~]#
```

```
[root@ip-172-31-15-13 ~]# ls
mynewrole  setup.yml
[root@ip-172-31-15-13 ~]# cd mynewrole/
[root@ip-172-31-15-13 mynewrole]# ls
defaults  files  handlers  meta  README.md  tasks  templates  tests  vars
[root@ip-172-31-15-13 mynewrole]#
```

Important Links –

Hash13 link for Sessions and extra sessions recordings – https://learning.hash13.com/

How to build Inventory:- https://docs.ansible.com/ansible/latest/inventory_guide/intro_inventory.html

Ansible Documentation- Copy Module - https://docs.ansible.com/ansible/latest/collections/ansible/builtin/copy_module.html

Ansible Documentation- Package Module - https://docs.ansible.com/ansible/latest/collections/ansible/builtin/package_module.html

Ansible Documentation- Service Module – https://docs.ansible.com/ansible/latest/collections/ansible/builtin/service_module.html

Ansible Documentation – Debug Module – https://docs.ansible.com/ansible/latest/collections/ansible/builtin/debug_module.html