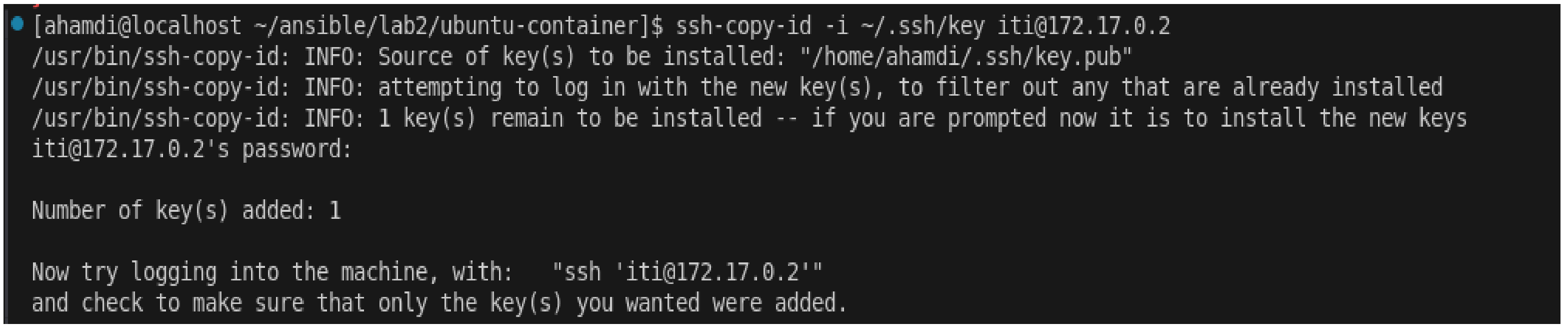
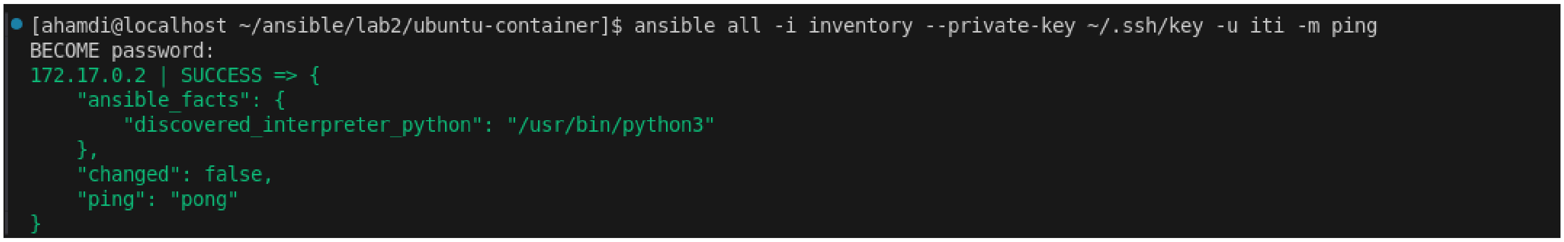
ANSIBLE – LAB 2

TASK-1 => TAGS:

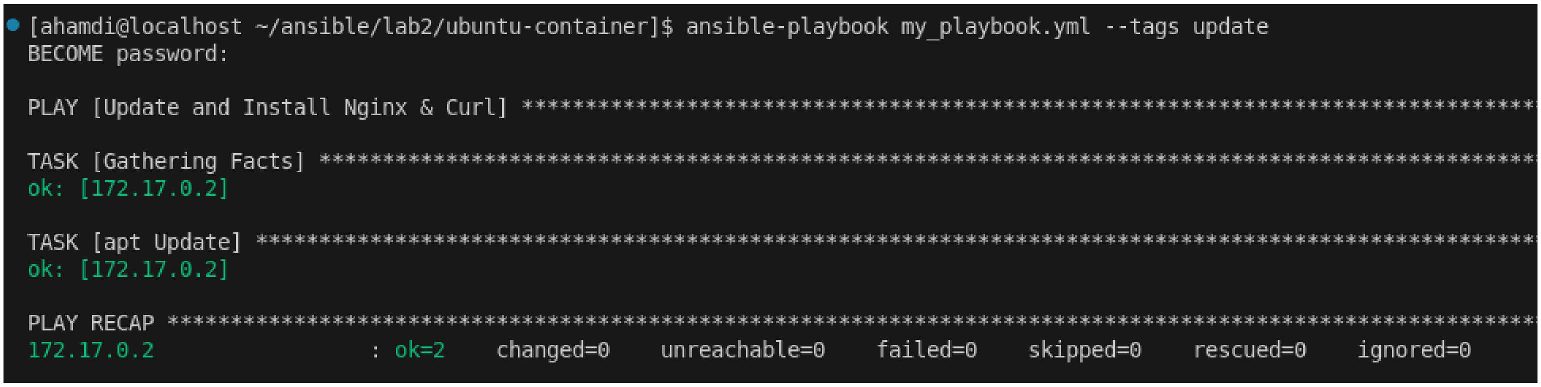
- Write simple playbook file
- Add two tasks (apt update – apt install nginx)
- Add tags to first task: update
- Add tags to second task: install
- Run only the (apt update) task
- Example: ansible-playbook my-playbook.yml --tags update
- Add one task with “tags: always” and run the previous command again



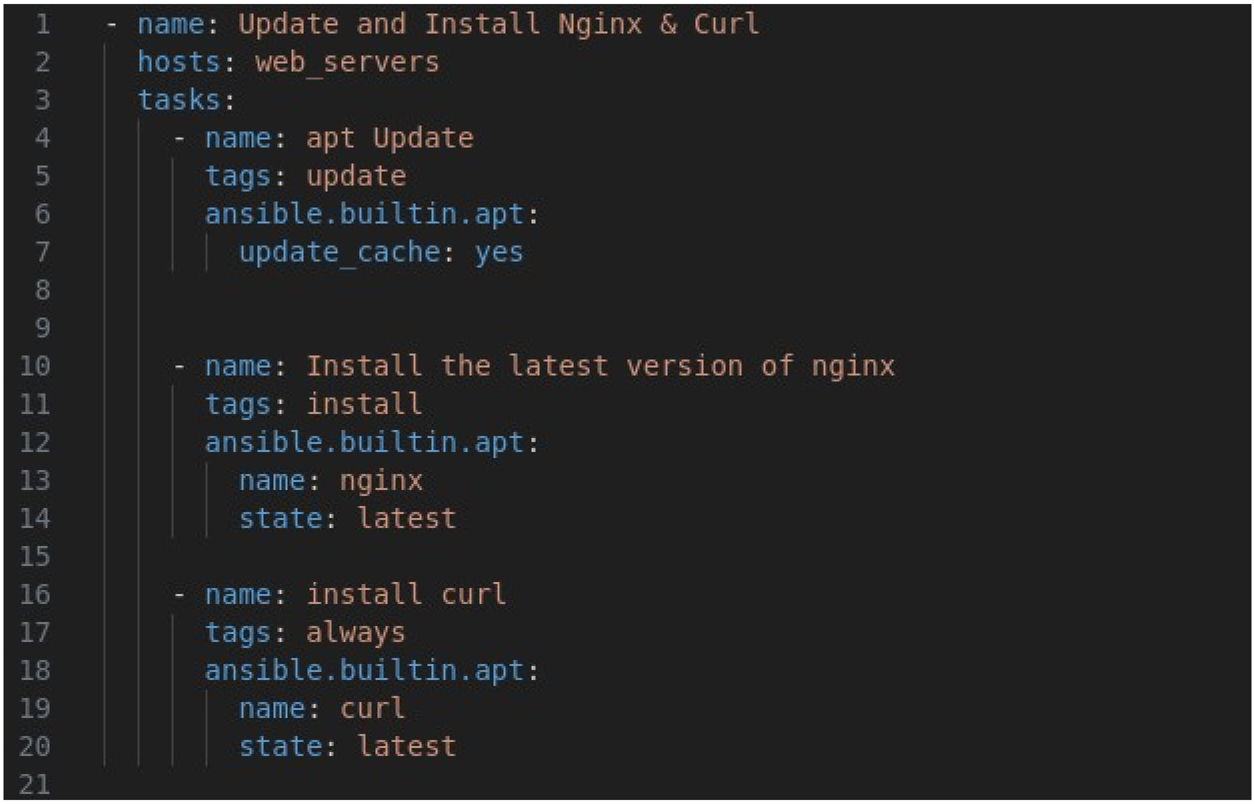
```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ssh-copy-id -i ~/.ssh/key iti@172.17.0.2
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ahamdi/.ssh/key.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
iti@172.17.0.2's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh 'iti@172.17.0.2'"
and check to make sure that only the key(s) you wanted were added.
```



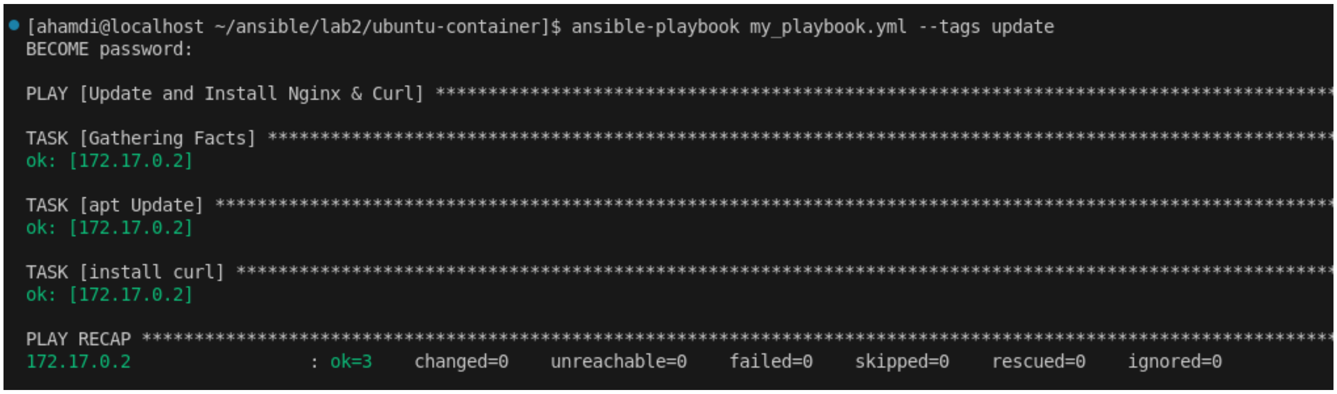
```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible all -i inventory --private-key ~/.ssh/key -u iti -m ping
BECOME password:
172.17.0.2 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
```



```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml --tags update
BECOME password:

PLAY [Update and Install Nginx & Curl] *******************************************************************

TASK [Gathering Facts] ***********************************************************************************
ok: [172.17.0.2]

TASK [apt Update] ****************************************************************************************
ok: [172.17.0.2]

PLAY RECAP ***********************************************************************************************
172.17.0.2                 : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```



```yaml
- name: Update and Install Nginx & Curl
  hosts: web_servers
  tasks:
    - name: apt Update
      tags: update
      ansible.builtin.apt:
        update_cache: yes


    - name: Install the latest version of nginx
      tags: install
      ansible.builtin.apt:
        name: nginx
        state: latest

    - name: install curl
      tags: always
      ansible.builtin.apt:
        name: curl
        state: latest

```

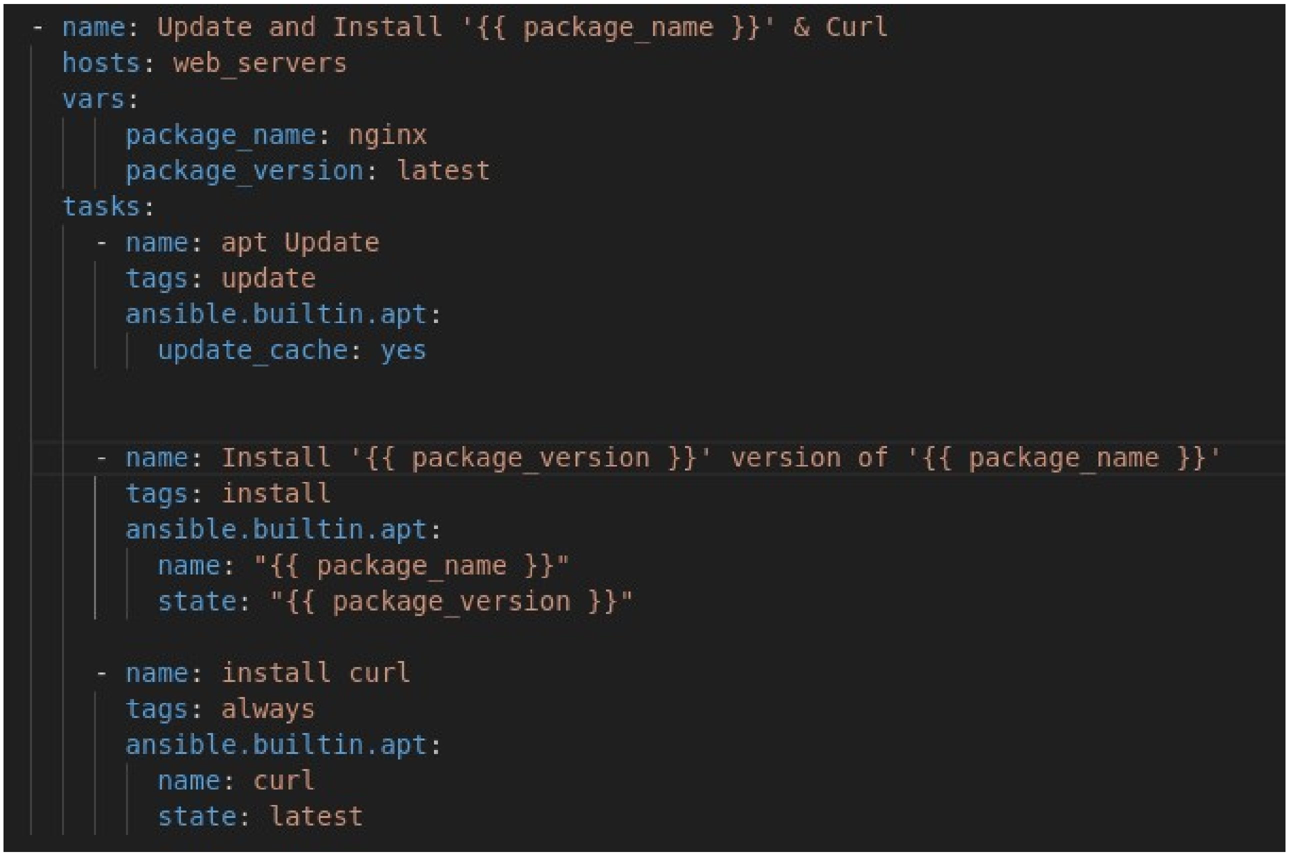


```
● [ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml --tags update
  BECOME password:

  PLAY [Update and Install Nginx & Curl] *************************************************************************************

  TASK [Gathering Facts] *****************************************************************************************************
  ok: [172.17.0.2]

  TASK [apt Update] **********************************************************************************************************
  ok: [172.17.0.2]

  TASK [install curl] ********************************************************************************************************
  ok: [172.17.0.2]

  PLAY RECAP *****************************************************************************************************************
  172.17.0.2                 : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

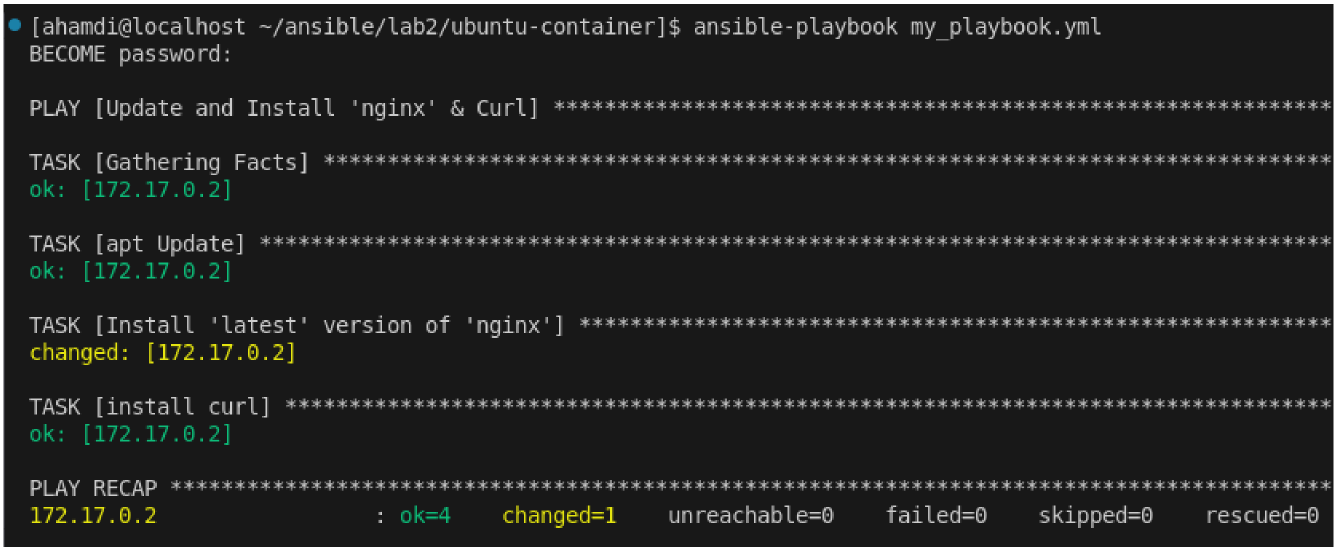
TASK-2 => VARIABLES:

Define these variables (package_name, package_version)

- on playbook level

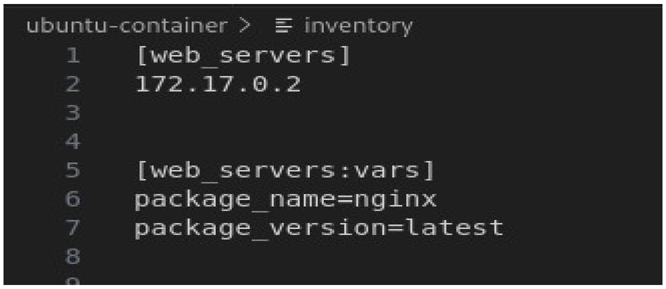


```yaml
- name: Update and Install '{{ package_name }}' & Curl
  hosts: web_servers
  vars:
      package_name: nginx
      package_version: latest
  tasks:
    - name: apt Update
      tags: update
      ansible.builtin.apt:
        update_cache: yes


    - name: Install '{{ package_version }}' version of '{{ package_name }}'
      tags: install
      ansible.builtin.apt:
        name: "{{ package_name }}"
        state: "{{ package_version }}"

    - name: install curl
      tags: always
      ansible.builtin.apt:
        name: curl
        state: latest
```



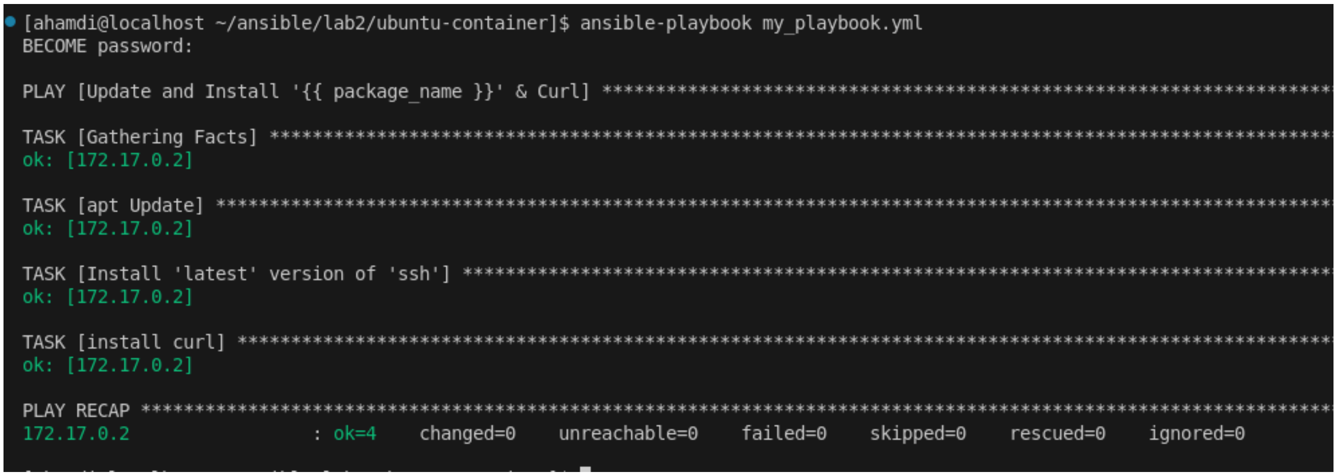
```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml
BECOME password:

PLAY [Update and Install 'nginx' & Curl] *************************************************************

TASK [Gathering Facts] *******************************************************************************
ok: [172.17.0.2]

TASK [apt Update] ************************************************************************************
ok: [172.17.0.2]

TASK [Install 'latest' version of 'nginx'] ***********************************************************
changed: [172.17.0.2]

TASK [install curl] **********************************************************************************
ok: [172.17.0.2]

PLAY RECAP *******************************************************************************************
172.17.0.2                 : ok=4    changed=1    unreachable=0    failed=0    skipped=0    rescued=0
```

- on inventory level

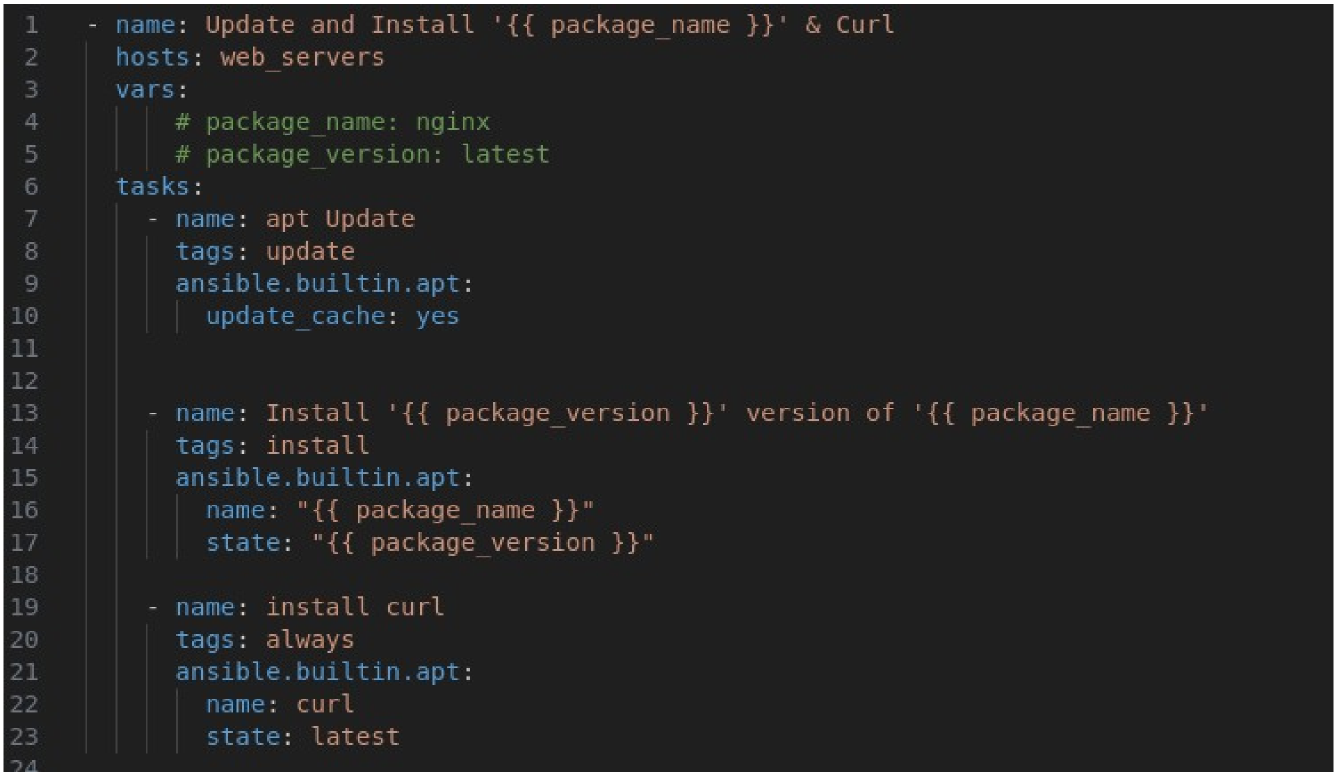


ubuntu-container > ≡ inventory

```
[web_servers]
172.17.0.2


[web_servers:vars]
package_name=nginx
package_version=latest

```

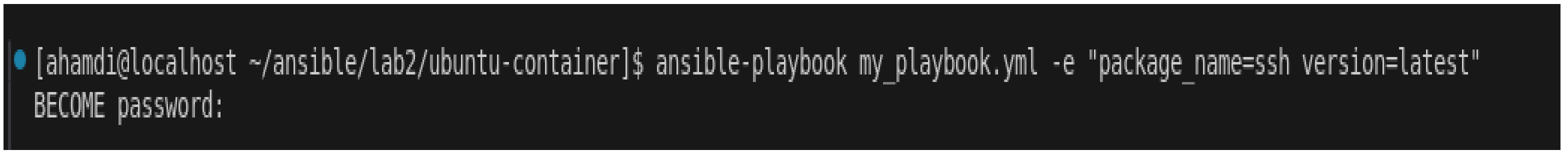


```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml
BECOME password:

PLAY [Update and Install '{{ package_name }}' & Curl] ************************************************************

TASK [Gathering Facts] *******************************************************************************************
ok: [172.17.0.2]

TASK [apt Update] ************************************************************************************************
ok: [172.17.0.2]

TASK [Install 'latest' version of 'ssh'] *************************************************************************
ok: [172.17.0.2]

TASK [install curl] **********************************************************************************************
ok: [172.17.0.2]

PLAY RECAP *******************************************************************************************************
172.17.0.2                 : ok=4    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

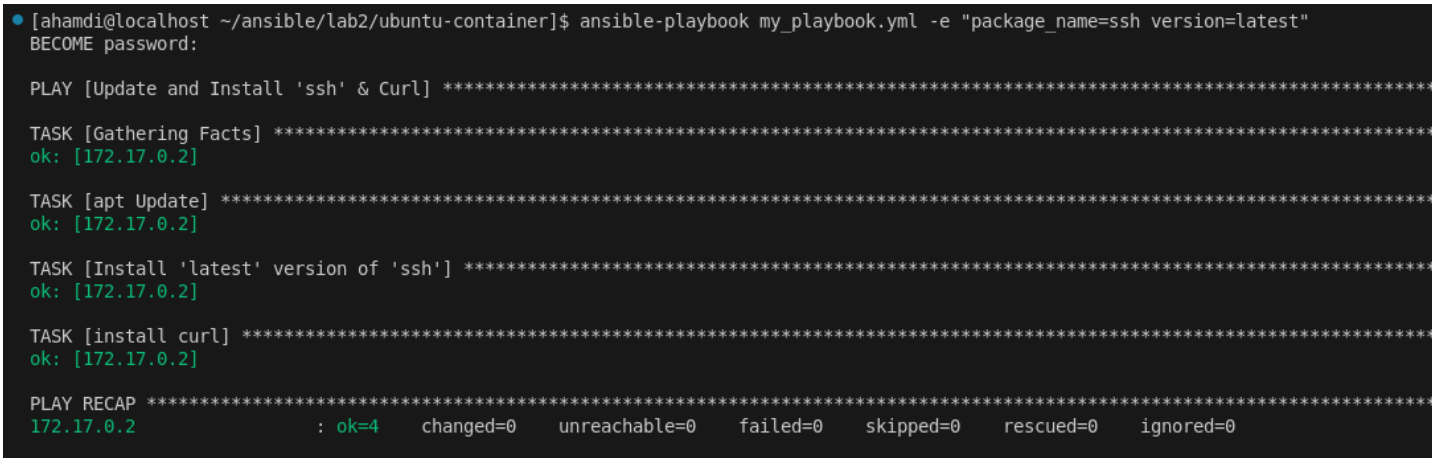


```
- name: Update and Install '{{ package_name }}' & Curl
  hosts: web_servers
  vars:
    # package_name: nginx
    # package_version: latest
  tasks:
    - name: apt Update
      tags: update
      ansible.builtin.apt:
        update_cache: yes


    - name: Install '{{ package_version }}' version of '{{ package_name }}'
      tags: install
      ansible.builtin.apt:
        name: "{{ package_name }}"
        state: "{{ package_version }}"

    - name: install curl
      tags: always
      ansible.builtin.apt:
        name: curl
        state: latest
```

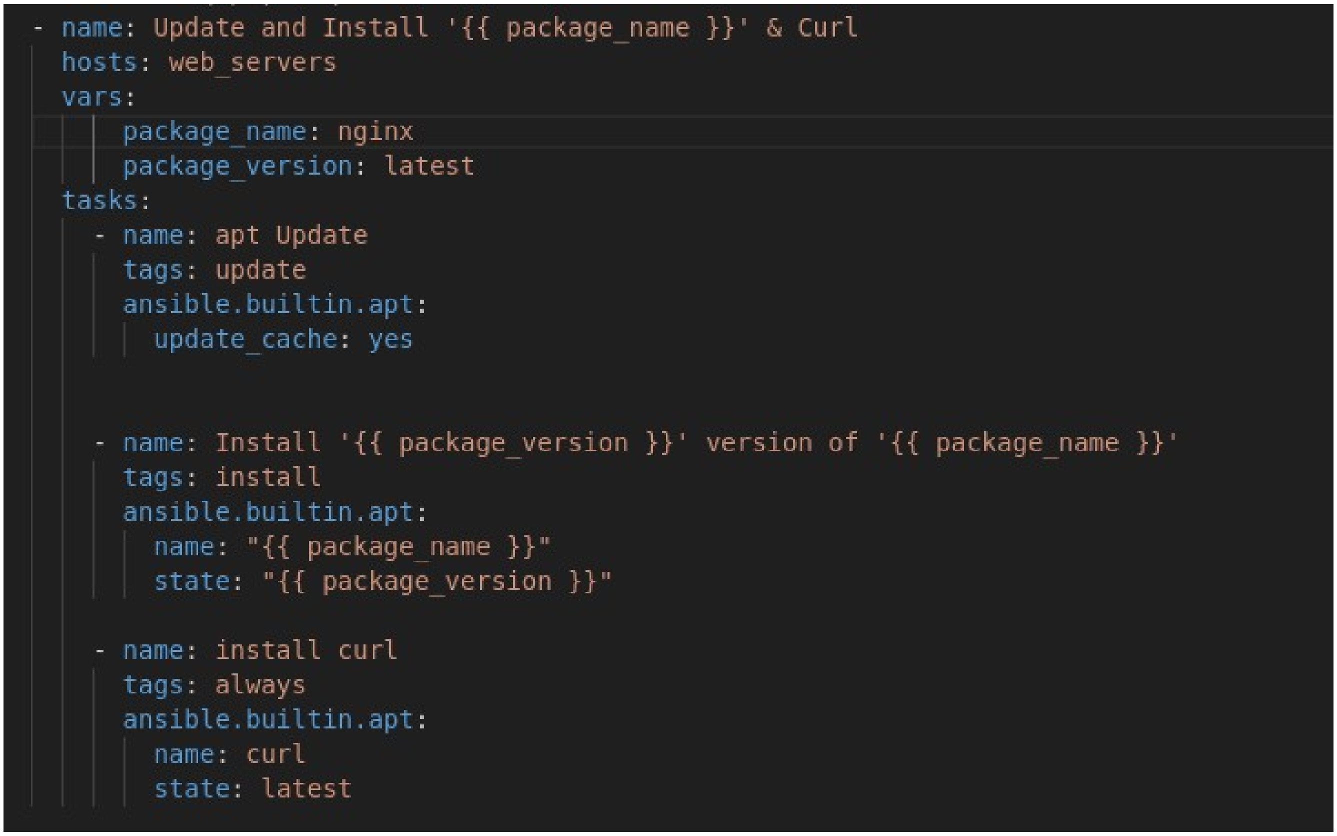
- on command line level



```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml -e "package_name=ssh version=latest"
BECOME password:
```



```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml -e "package_name=ssh version=latest"
BECOME password:

PLAY [Update and Install 'ssh' & Curl] *******************************************************************************

TASK [Gathering Facts] ***********************************************************************************************
ok: [172.17.0.2]

TASK [apt Update] ****************************************************************************************************
ok: [172.17.0.2]

TASK [Install 'latest' version of 'ssh'] *****************************************************************************
ok: [172.17.0.2]

TASK [install curl] **************************************************************************************************
ok: [172.17.0.2]

PLAY RECAP ***********************************************************************************************************
172.17.0.2                 : ok=4    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

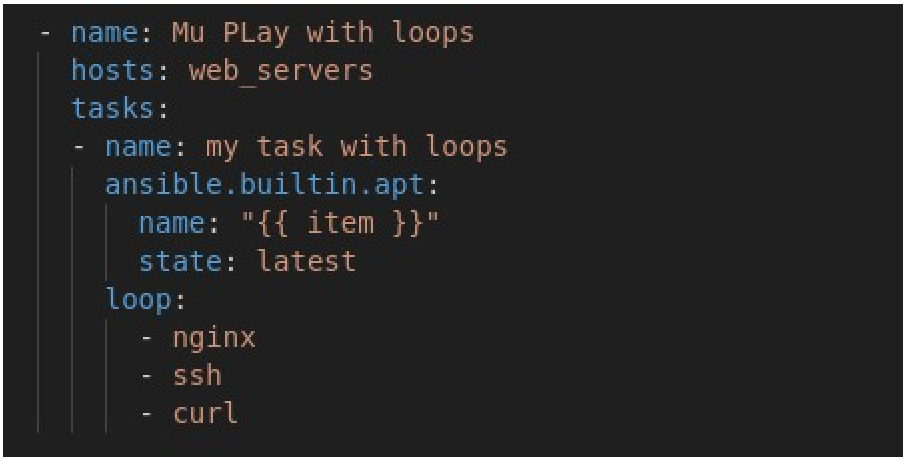


```
- name: Update and Install '{{ package_name }}' & Curl
  hosts: web_servers
  vars:
    package_name: nginx
    package_version: latest
  tasks:
    - name: apt Update
      tags: update
      ansible.builtin.apt:
        update_cache: yes


    - name: Install '{{ package_version }}' version of '{{ package_name }}'
      tags: install
      ansible.builtin.apt:
        name: "{{ package_name }}"
        state: "{{ package_version }}"

    - name: install curl
      tags: always
      ansible.builtin.apt:
        name: curl
        state: latest
```

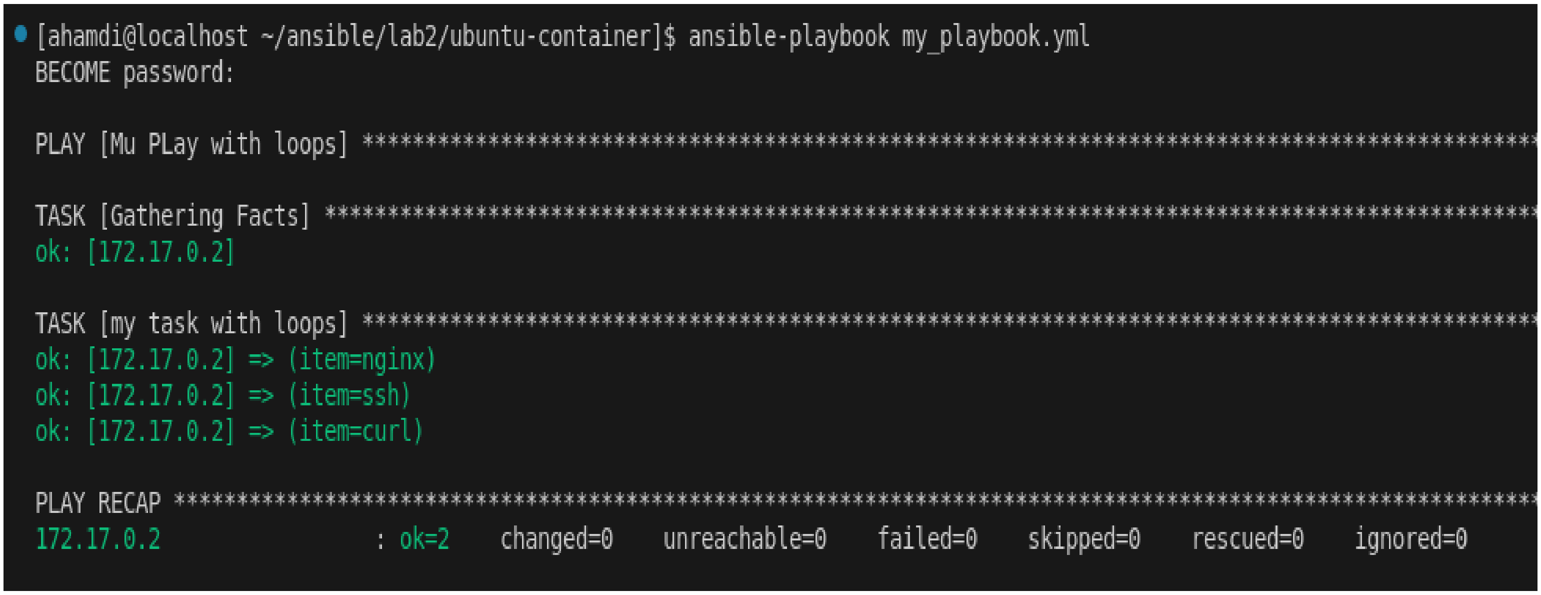
Use apt module with the package name and version from your variables

<u>TASK-3 => LOOPS:</u>

- Loop over a list of packages and install latest versions.

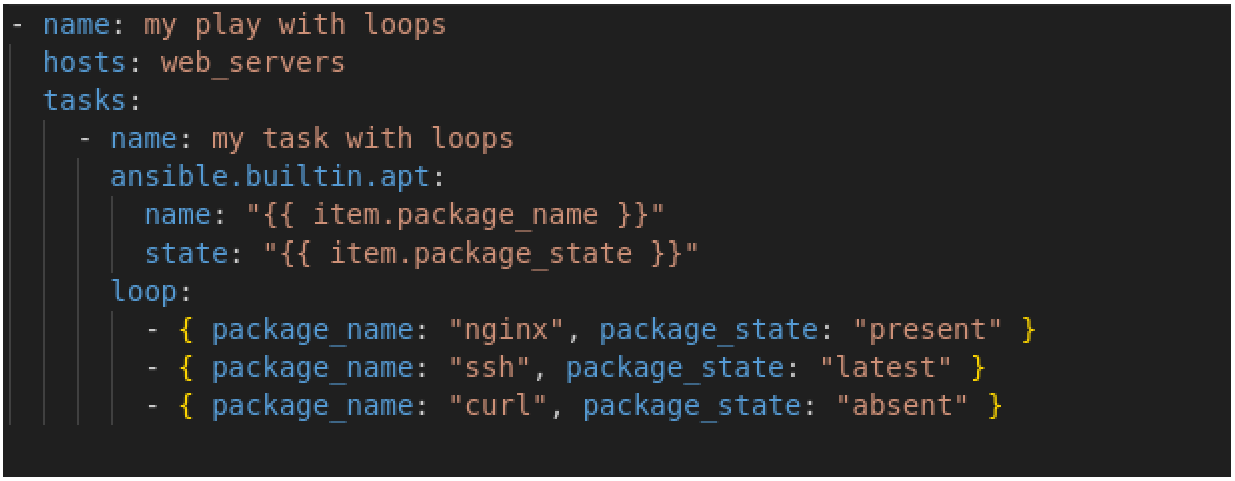


```yaml
- name: Mu PLay with loops
  hosts: web_servers
  tasks:
  - name: my task with loops
    ansible.builtin.apt:
      name: "{{ item }}"
      state: latest
    loop:
      - nginx
      - ssh
      - curl
```

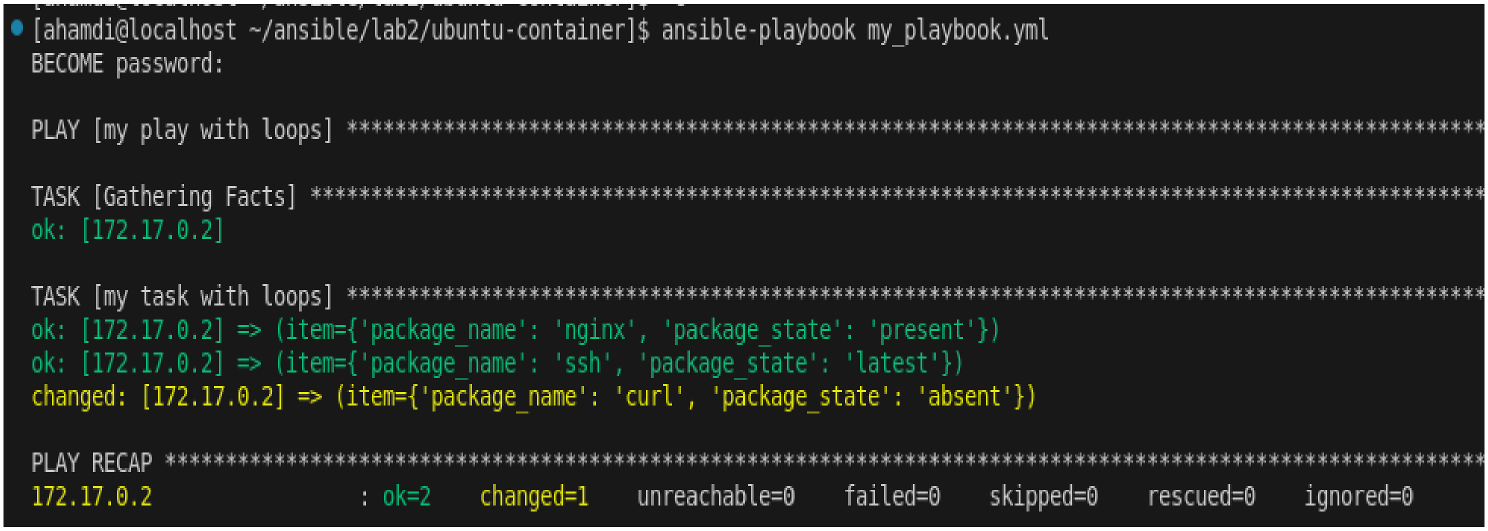


```
● [ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml
  BECOME password:

  PLAY [Mu PLay with loops] ****************************************************************************

  TASK [Gathering Facts] *******************************************************************************
  ok: [172.17.0.2]

  TASK [my task with loops] ****************************************************************************
  ok: [172.17.0.2] => (item=nginx)
  ok: [172.17.0.2] => (item=ssh)
  ok: [172.17.0.2] => (item=curl)

  PLAY RECAP *******************************************************************************************
  172.17.0.2                 : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

- Loop over a list of packages and perform different actions as per input.



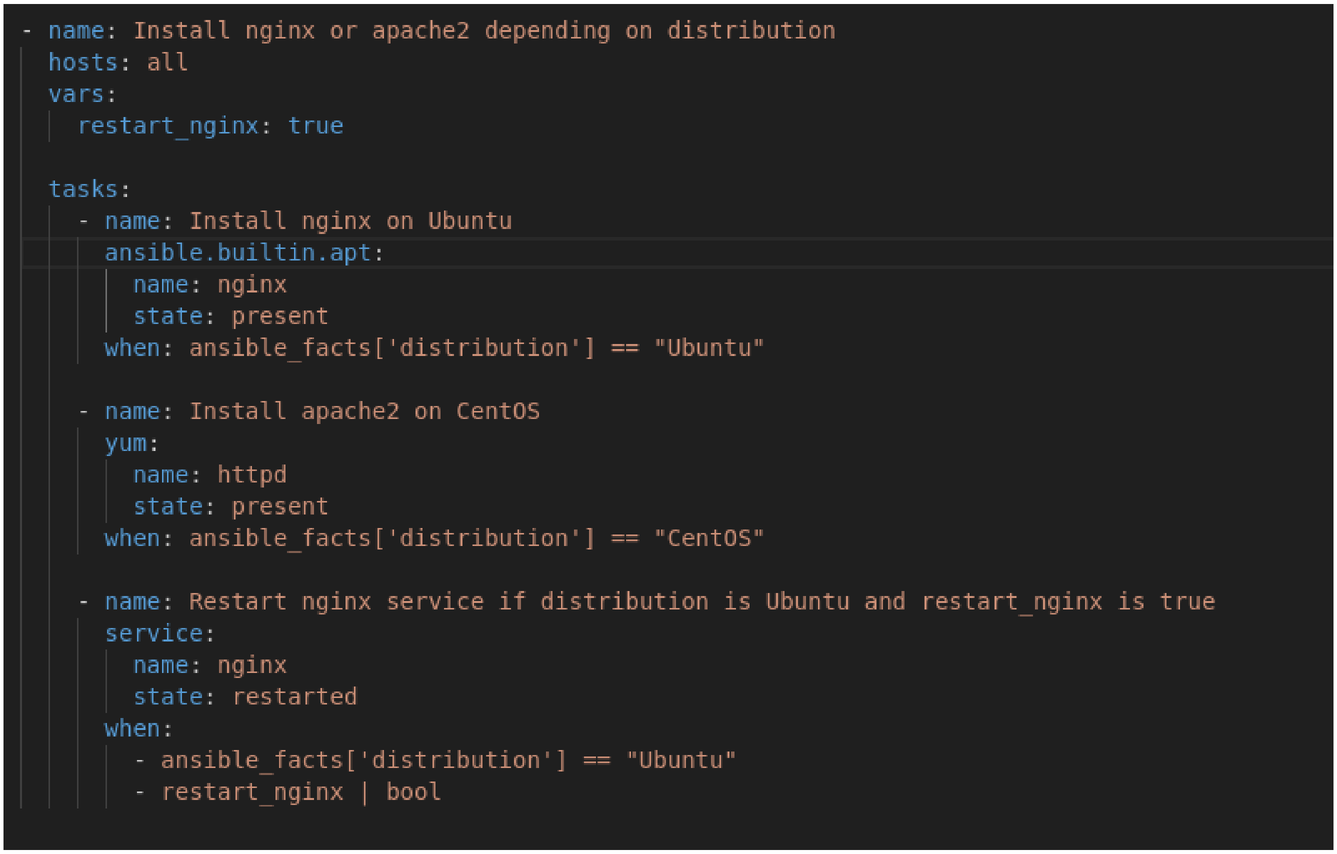
```yaml
- name: my play with loops
  hosts: web_servers
  tasks:
    - name: my task with loops
      ansible.builtin.apt:
        name: "{{ item.package_name }}"
        state: "{{ item.package_state }}"
      loop:
        - { package_name: "nginx", package_state: "present" }
        - { package_name: "ssh", package_state: "latest" }
        - { package_name: "curl", package_state: "absent" }
```



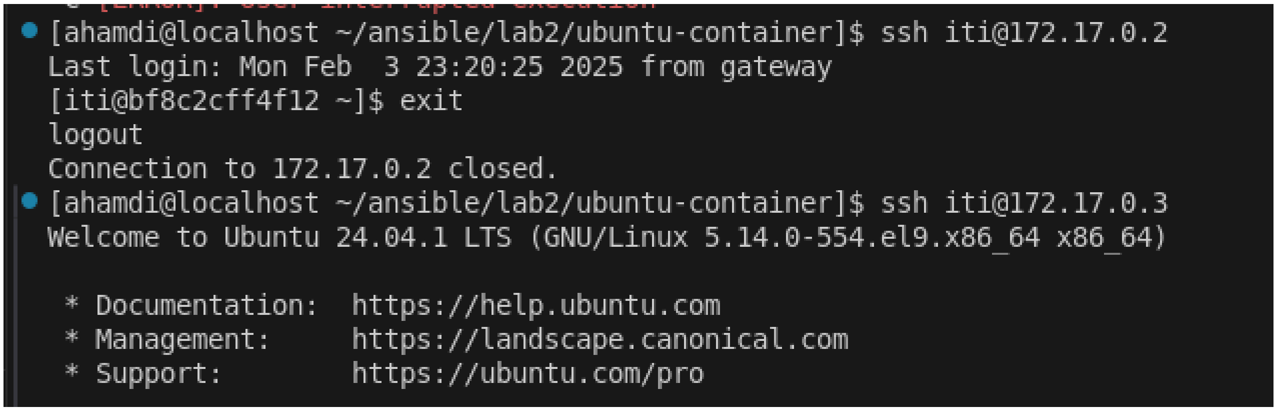
```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml
BECOME password:

PLAY [my play with loops] ****************************************************************************************

TASK [Gathering Facts] *******************************************************************************************
ok: [172.17.0.2]

TASK [my task with loops] ****************************************************************************************
ok: [172.17.0.2] => (item={'package_name': 'nginx', 'package_state': 'present'})
ok: [172.17.0.2] => (item={'package_name': 'ssh', 'package_state': 'latest'})
changed: [172.17.0.2] => (item={'package_name': 'curl', 'package_state': 'absent'})

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

TASK-4 => WHEN:

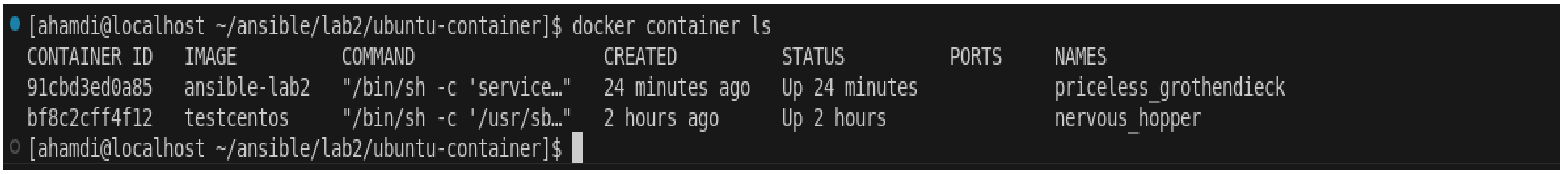
- Install nginx or apache2 depending on distribution
- Restart nginx service if distribution is ubuntu and variable value is true



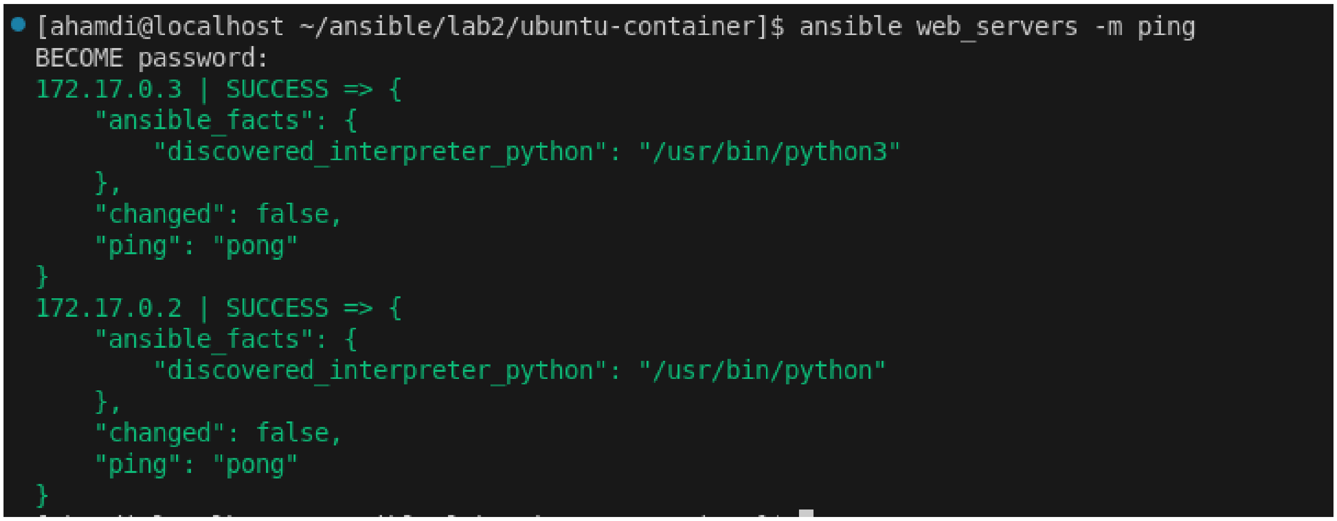
```yaml
- name: Install nginx or apache2 depending on distribution
  hosts: all
  vars:
    restart_nginx: true

  tasks:
    - name: Install nginx on Ubuntu
      ansible.builtin.apt:
        name: nginx
        state: present
      when: ansible_facts['distribution'] == "Ubuntu"

    - name: Install apache2 on CentOS
      yum:
        name: httpd
        state: present
      when: ansible_facts['distribution'] == "CentOS"

    - name: Restart nginx service if distribution is Ubuntu and restart_nginx is true
      service:
        name: nginx
        state: restarted
      when:
        - ansible_facts['distribution'] == "Ubuntu"
        - restart_nginx | bool
```



```
^C [ERROR]: User interrupted execution
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ssh iti@172.17.0.2
Last login: Mon Feb  3 23:20:25 2025 from gateway
[iti@bf8c2cff4f12 ~]$ exit
logout
Connection to 172.17.0.2 closed.
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ssh iti@172.17.0.3
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 5.14.0-554.el9.x86_64 x86_64)

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



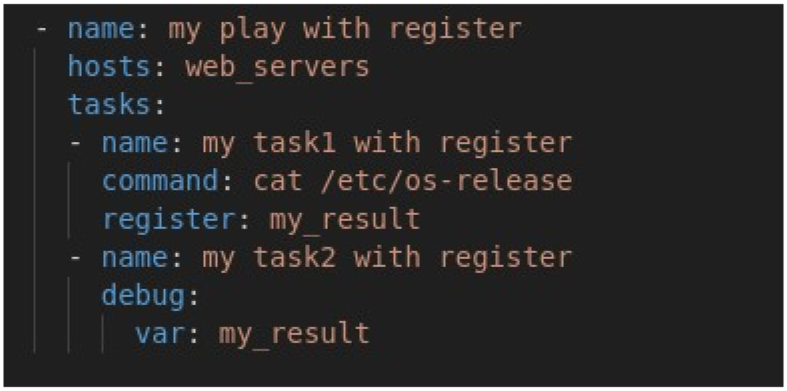
```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED          STATUS          PORTS     NAMES
91cbd3ed0a85   ansible-lab2   "/bin/sh -c 'service…"   24 minutes ago   Up 24 minutes             priceless_grothendieck
bf8c2cff4f12   testcentos     "/bin/sh -c '/usr/sb…"   2 hours ago      Up 2 hours                nervous_hopper
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$
```



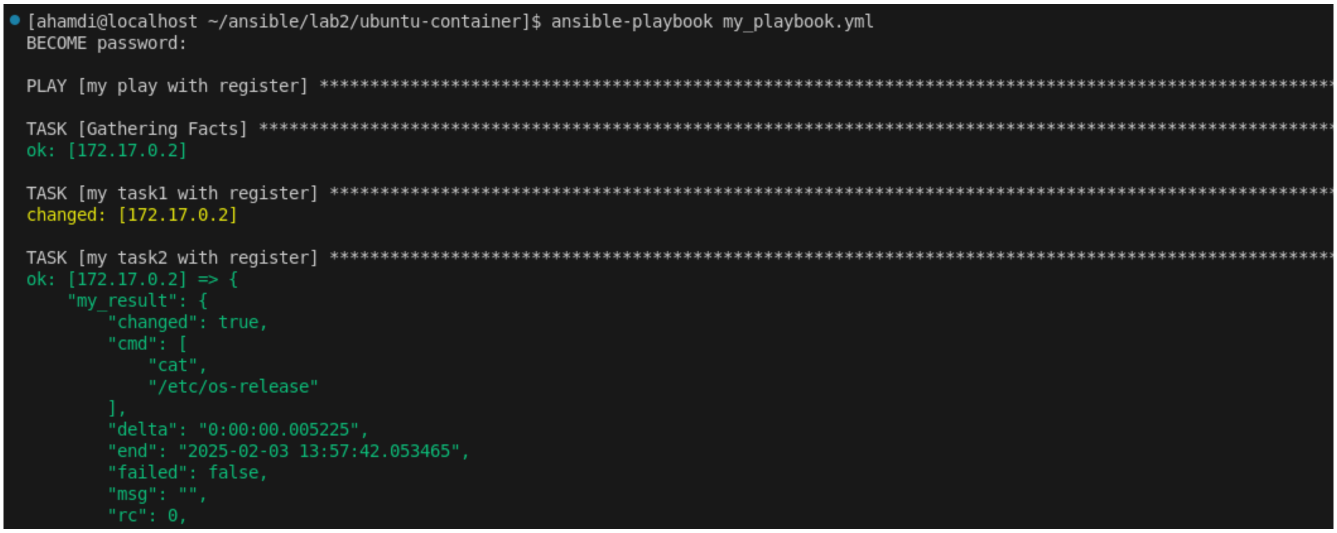
```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible web_servers -m ping
BECOME password:
172.17.0.3 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
172.17.0.2 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
```

TASK-5 => REGISTER:

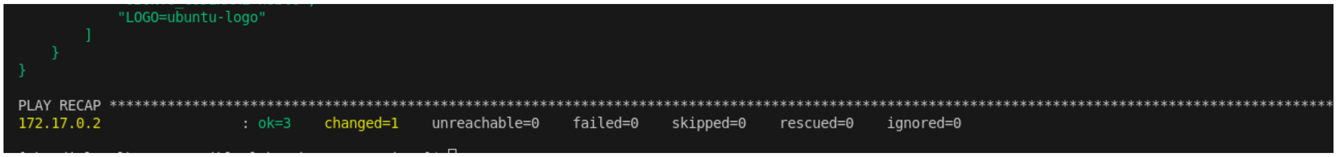
- View the value of your register variable using debug module



```yaml
- name: my play with register
  hosts: web_servers
  tasks:
  - name: my task1 with register
    command: cat /etc/os-release
    register: my_result
  - name: my task2 with register
    debug:
      var: my_result
```

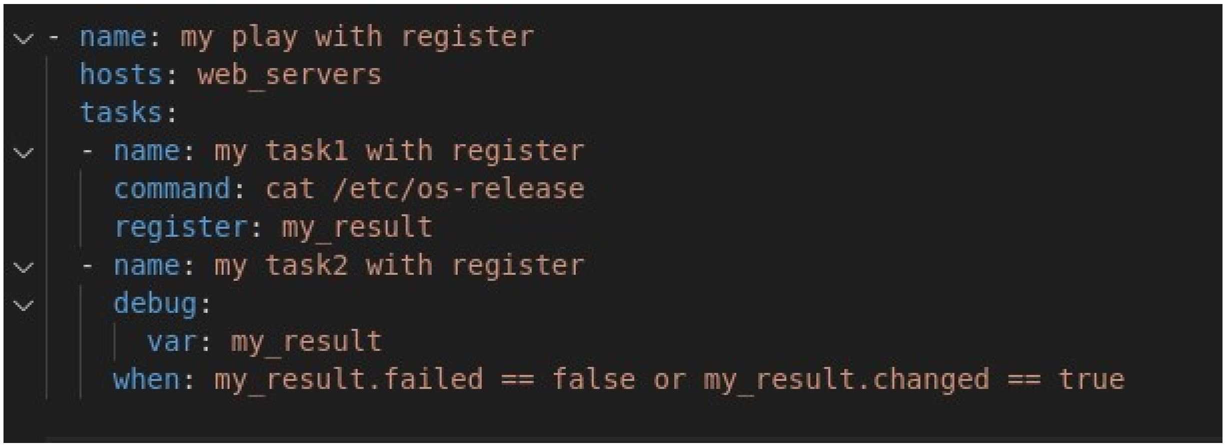


```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml
BECOME password:

PLAY [my play with register] **********************************************************************************

TASK [Gathering Facts] ****************************************************************************************
ok: [172.17.0.2]

TASK [my task1 with register] *********************************************************************************
changed: [172.17.0.2]

TASK [my task2 with register] *********************************************************************************
ok: [172.17.0.2] => {
    "my_result": {
        "changed": true,
        "cmd": [
            "cat",
            "/etc/os-release"
        ],
        "delta": "0:00:00.005225",
        "end": "2025-02-03 13:57:42.053465",
        "failed": false,
        "msg": "",
        "rc": 0,
```

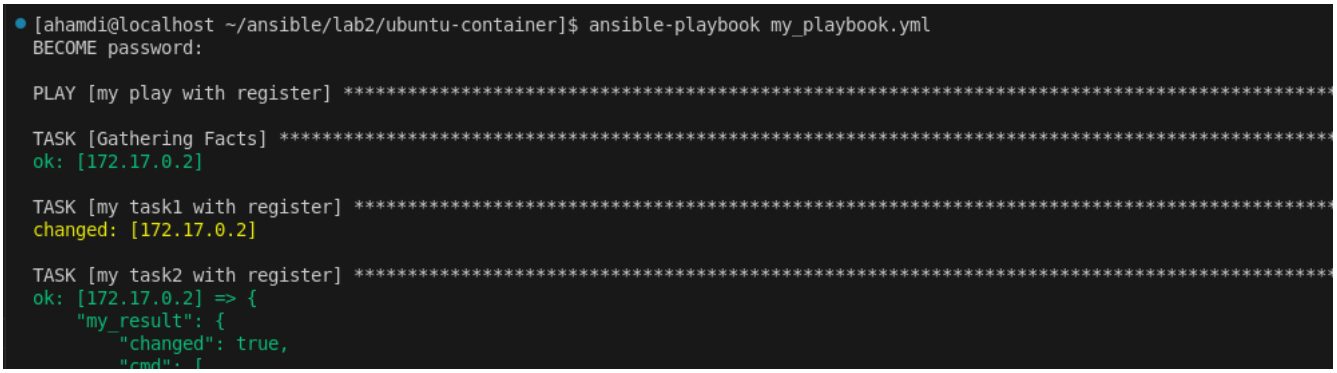


```
                "LOGO=ubuntu-logo"
            ]
        }
}

PLAY RECAP ****************************************************************************************************
172.17.0.2                 : ok=3    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

- Restart service if the installation task was changed or was not failed



```yaml
- name: my play with register
  hosts: web_servers
  tasks:
  - name: my task1 with register
    command: cat /etc/os-release
    register: my_result
  - name: my task2 with register
    debug:
      var: my_result
    when: my_result.failed == false or my_result.changed == true
```



```
[ahamdi@localhost ~/ansible/lab2/ubuntu-container]$ ansible-playbook my_playbook.yml
BECOME password:

PLAY [my play with register] *******************************************************************************************

TASK [Gathering Facts] *************************************************************************************************
ok: [172.17.0.2]

TASK [my task1 with register] ******************************************************************************************
changed: [172.17.0.2]

TASK [my task2 with register] ******************************************************************************************
ok: [172.17.0.2] => {
    "my_result": {
        "changed": true,
        "cmd": [
```