ANSIBLE TASKS

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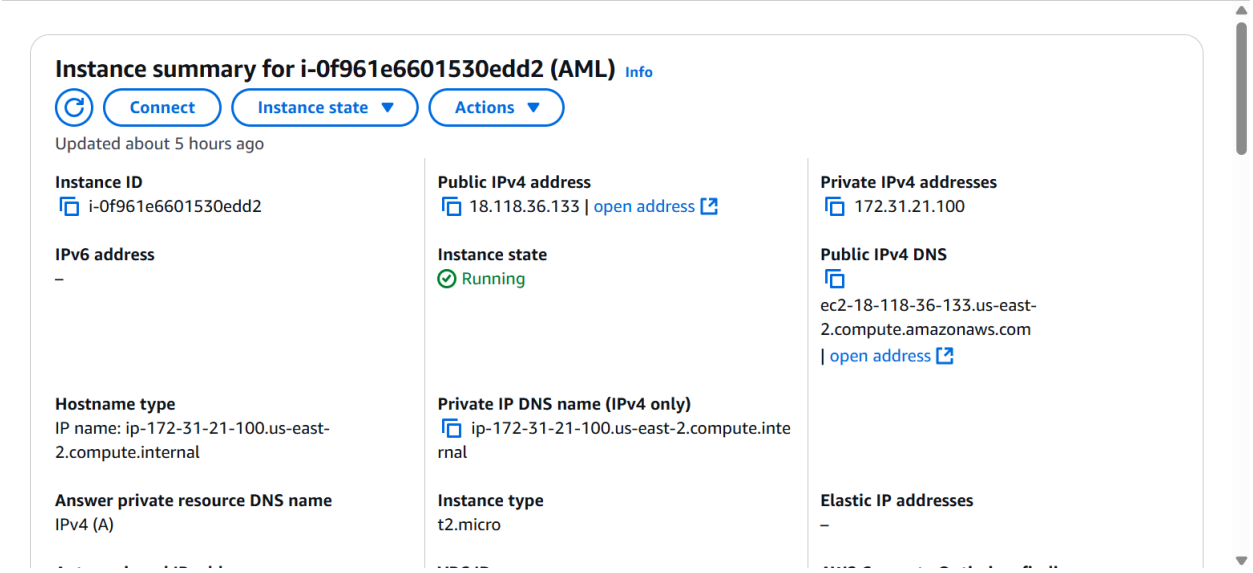
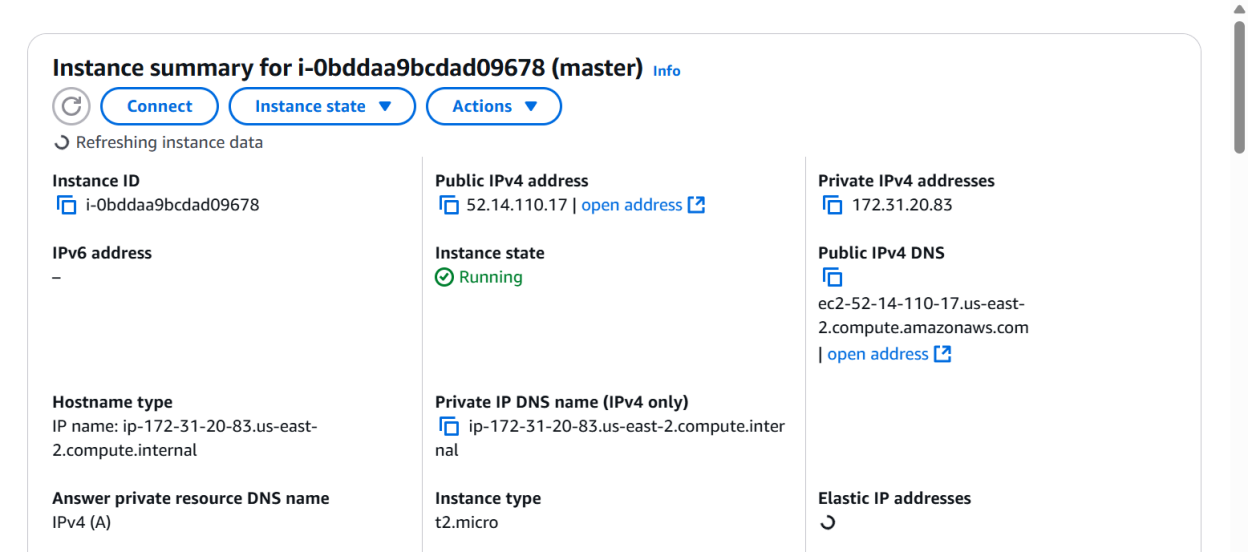
1. Launch the Instances

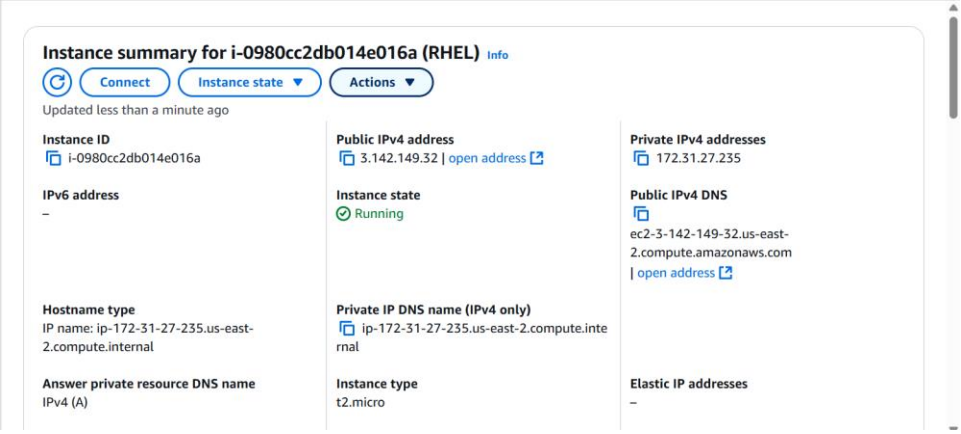
- Go to the AWS Console and launch an instance.
  - **AMI**: REDHAT
  - **Keypair**: OHIO
  - **User Data**:

```
#! /bin/bash
yum install python-pip -y
pip install ansible
```

  - Launch the instance.







2. Connect the Master via Putty

- Open Putty and connect it with the master node.
- Create a `slaves.txt` file and add all the IPs of the slave machines.

```
vi slaves.txt
```

3. Configure Ansible

- Open the Ansible configuration file.

```
vi ansible.cfg
```

- Copy and paste a sample configuration from: Ansible Config Example

4. Create a `tags.yaml` Playbook

- Run the playbook:

```
  GNU nano 8.3                          tags.yml                          Modified
- hosts : all
  become : yes
  remote_user : ec2-user
  tasks :
    - name: Install required packages
      yum:
        name: "{{ item }}"
        state: present
      loop:
        - python3
        - python3-pip
        - git
        - httpd
      tags:
        - install
```

```
ansible-playbook -i slaves.txt tags.yaml --tags update
```

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-playbook -i slaves.txt tags.yml --tags ins
tall
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot creat
e it, aborting


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

TASK [Gathering Facts] *********************************************************
ok: [172.31.21.100]
ok: [172.31.27.235]

TASK [Install required packages] ***********************************************
ok: [172.31.21.100] => (item=python3)
ok: [172.31.21.100] => (item=python3-pip)
ok: [172.31.27.235] => (item=python3)
changed: [172.31.21.100] => (item=git)
ok: [172.31.27.235] => (item=python3-pip)
changed: [172.31.21.100] => (item=httpd)
```

```
PLAY RECAP *********************************************************************
172.31.21.100              : ok=2    changed=1    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0
172.31.27.235              : ok=2    changed=1    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0
```

5. Create an ignoreerrors Playbook

```
  GNU nano 8.3                          tags.yml                          Modified
- hosts : all
  become : yes
  remote_user : ec2-user
  tasks :
    - name: Install required packages
      yum:
        name: "{{ item }}"
        state: present
      loop:
        - python3
        - python3-pip
        - git
        - httpd
        - manoj
        - cprime
      tags:
        - install
      ignore_errors : yes
```

- Run the playbook:

```
ansible-playbook -i slaves.txt tags.yaml
```

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-playbook -i slaves.txt tags.yml
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot creat
e it, aborting


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

TASK [Install required packages] ***********************************************
ok: [172.31.21.100] => (item=python3)
ok: [172.31.27.235] => (item=python3)
ok: [172.31.21.100] => (item=python3-pip)
ok: [172.31.21.100] => (item=git)
ok: [172.31.27.235] => (item=python3-pip)
ok: [172.31.21.100] => (item=httpd)
failed: [172.31.21.100] (item=manoj) => {"ansible_loop_var": "item", "changed":
false, "failures": ["No package manoj available."], "item": "manoj", "msg": "Fai
led to install some of the specified packages", "rc": 1, "results": []}
ok: [172.31.27.235] => (item=git)
failed: [172.31.21.100] (item=cprime) => {"ansible_loop_var": "item", "changed":
 false, "failures": ["No package cprime available."], "item": "cprime", "msg": "
Failed to install some of the specified packages", "rc": 1, "results": []}
...ignoring
ok: [172.31.27.235] => (item=httpd)
failed: [172.31.27.235] (item=manoj) => {"ansible_loop_var": "item", "changed":
false, "failures": ["No package manoj available."], "item": "manoj", "msg": "Fai
led to install some of the specified packages", "rc": 1, "results": []}
failed: [172.31.27.235] (item=cprime) => {"ansible_loop_var": "item", "changed":
 false, "failures": ["No package cprime available."], "item": "cprime", "msg": "
Failed to install some of the specified packages", "rc": 1, "results": []}
...ignoring

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

7. Create a Conditional (when) Playbook

```
[ec2-user@ip-172-31-20-83 ~]$ cat tags.yml
- hosts: all
  become: yes
  remote_user: ec2-user
  tasks:
    - name: Install required packages on RedHat only
      yum:
        name: "{{ item }}"
        state: present
      loop:
        - git
        - httpd
      when: ansible_distribution == "RedHat"
      tags:
        - install
      ignore_errors: yes
```

ansible-playbook -i slaves.txt tags.yaml

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-playbook -i slaves.txt tags.yml
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting


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

TASK [Install required packages on RedHat only] ********************************************************************************
skipping: [172.31.21.100] => (item=git)
skipping: [172.31.21.100] => (item=httpd)
skipping: [172.31.21.100]
ok: [172.31.27.235] => (item=git)
ok: [172.31.27.235] => (item=httpd)

PLAY RECAP *********************************************************************************************************************
172.31.21.100              : ok=0    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
172.31.27.235              : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

8. Create a Role for Apache

- Create an `index.html` file for the web server.
- Initialize an Ansible role:

```
ansible-galaxy init cprime
```

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-galaxy init cprime
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting

- Role cprime was created successfully
[ec2-user@ip-172-31-20-83 ~]$ tree cprime
```

```
[ec2-user@ip-172-31-20-83 ~]$ cd cprime/tasks/
[ec2-user@ip-172-31-20-83 tasks]$ nano main.yml
[ec2-user@ip-172-31-20-83 tasks]$ cd
[ec2-user@ip-172-31-20-83 ~]$ cd cprime/tasks/
[ec2-user@ip-172-31-20-83 tasks]$ cat main.yml
- name: Install required packages
      yum:
        name: "{{ item }}"
        state: present
      loop:
        - git
        - httpd

      tags:
        - install
      ignore_errors : yes
# tasks file for cprime
[ec2-user@ip-172-31-20-83 tasks]$
```

- Create a `roles.yaml` file:

```
- hosts: all
  remote_user: ec2-user
  become: yes
  roles:
    - cprime
```

```
[ec2-user@ip-172-31-20-83 ~]$ cat roles.yml
- hosts : all
  become : yes
  remote_user : ec2-user
  roles :
    - cprime
[ec2-user@ip-172-31-20-83 ~]$
```

- Run the playbook:

```
ansible-playbook -i slaves.txt roles.yaml
```

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-playbook -i slaves.txt roles.yml
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting


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

TASK [Gathering Facts] *********************************************************************************************************************************************
ok: [172.31.27.235]
[WARNING]: Platform linux on host 172.31.21.100 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python
interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more
information.
ok: [172.31.21.100]

TASK [cprime : Install required packages] **************************************************************************************************************************
ok: [172.31.21.100] => (item=git)
ok: [172.31.27.235] => (item=git)
ok: [172.31.21.100] => (item=httpd)
ok: [172.31.27.235] => (item=httpd)

PLAY RECAP *********************************************************************************************************************************************************
172.31.21.100              : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.27.235              : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ec2-user@ip-172-31-20-83 ~]$
```

9. Encrypt and Manage Vault Files

- Encrypt the tags.yaml file:

  ```
  ansible-vault encrypt tags.yaml
  ```

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-vault encrypt tags.yml
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting

New Vault password:
Confirm New Vault password:
Encryption successful
```

- Run the encrypted playbook:

```
ansible-playbook -i slaves.txt tags.yaml --ask-vault-pass
```

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-playbook -i slaves.txt tags.yml --ask-vault-pass
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting

Vault password:

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

TASK [Gathering Facts] *********************************************************************************************************************************************************
ok: [172.31.27.235]
[WARNING]: Platform linux on host 172.31.21.100 is using the discovered Python interpreter at /usr/bin/python3.9, but future installation of another Python
interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices/interpreter_discovery.html for more
information.
ok: [172.31.21.100]

TASK [Install required packages on RedHat only] ********************************************************************************************************************************
skipping: [172.31.21.100] => (item=git)
skipping: [172.31.21.100] => (item=httpd)
skipping: [172.31.21.100]
ok: [172.31.27.235] => (item=git)
ok: [172.31.27.235] => (item=httpd)

PLAY RECAP *********************************************************************************************************************************************************************
172.31.21.100              : ok=1    changed=0    unreachable=0    failed=0    skipped=1    rescued=0    ignored=0
172.31.27.235              : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[ec2-user@ip-172-31-20-83 ~]$
```

- View the encrypted file:

`ansible-vault view tags.yaml`

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-vault view tags.yml
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting

Vault password:
- hosts: all
  become: yes
  remote_user: ec2-user
  tasks:
    - name: Install required packages on RedHat only
      yum:
        name: "{{ item }}"
        state: present
      loop:
        - git
        - httpd
      when: ansible_distribution == "RedHat"
      tags:
        - install
      ignore_errors: yes
[ec2-user@ip-172-31-20-83 ~]$
```

- Change the vault password:

`ansible-vault rekey tags.yaml`

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-vault rekey tags.yml
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting

Vault password:
New Vault password:
Confirm New Vault password:
Rekey successful
```

- Decrypt the file:

`ansible-vault decrypt tags.yaml`

```
[ec2-user@ip-172-31-20-83 ~]$ ansible-vault decrypt tags.yml
[WARNING]: log file at /var/log/ansible.log is not writeable and we cannot create it, aborting

Vault password:
Decryption successful
[ec2-user@ip-172-31-20-83 ~]$
```