

Name: Chaudhari Ganesh Dadabhau

Deployment of Webserver on AWS through Ansible

TASK 2

1. Provision of EC2 instance through Ansible
2. Retrieve the public ip of instance by using concept of dynamic inventory
3. Configure the web server through Ansible

Prerequisite: 1. For installation and configuration of ansible with stable version you check this link

<https://www.linkedin.com/pulse/integration-ansible-docker-ganesh-chaudhari>

2. You need to create AWS account

https://signin.aws.amazon.com/signin?redirect_uri=https%3A%2F%2Fconsole.aws.amazon.com%2Fconsole%2Fhome%3Fstate%3Dhas_hArgs%2523%26isauthcode%3Dtrue&client_id=arn%3Aaws%3Aiam%3A%3A015428540659%3Auser%2Fhomepage&forceMobileApp=0&code_challenge=9DSc6iRFkHWe5V2aeBUIWBIIgOwGKd8gPPDtyXhYSh8&code_challenge_method=SHA-256

Lets starts,

1. Provision of EC2 instance

First you need to login with normal user because login with root user is not good practice. After that create ansible.cfg file for normal user in home directory and install boto and boto3 using pip3 which are used for aws connection. Write following details because aws uses ec2-user as user and uses private key with pem extension as password and ec-user is normal so we need to give root access for some tasks hence privilege escalation is created.

```

File Edit View Search Terminal Help
[defaults]
inventory=/home/ganesh/day13/host
host_key_checking=false
remote_user=ec2-user
private_key_file=/home/ganesh/ec2.pem

[privilege_escalation]
become = true
become_method=sudo
become_user=root
#become_ask_pass = false

```

After create one Role using **ansible-galaxy init server** go into **server/tasks/main.yml** and write following YAML script and write variable like access key and secret key in **server/vars/main.yml** and encrypt the main.yml using **ansible-vault encrypt --vault-id aws@prompt main.yml** like following

```

Activities Terminal Sat 17:54
ganesh@localhost:~/day13/server/tasks
File Edit View Search Terminal Help
[ganesh@localhost tasks]$ pwd
/home/ganesh/day13/server/tasks
[ganesh@localhost tasks]$ cat main.yml
---
# tasks file for server
- ec2:
    key_name: ec2
    instance_type: t2.micro
    image: ami-0a54aef4ef3b5f881
    wait: yes
    group_id: sg-07a0819de46c60076
    count: 1
    state: present
    vpc_subnet_id: subnet-37f5f24d
    assign_public_ip: yes
    region: us-east-2
    aws_access_key: "{{ accessk }}"
    aws_secret_key: "{{ secretk }}"

[ganesh@localhost tasks]$

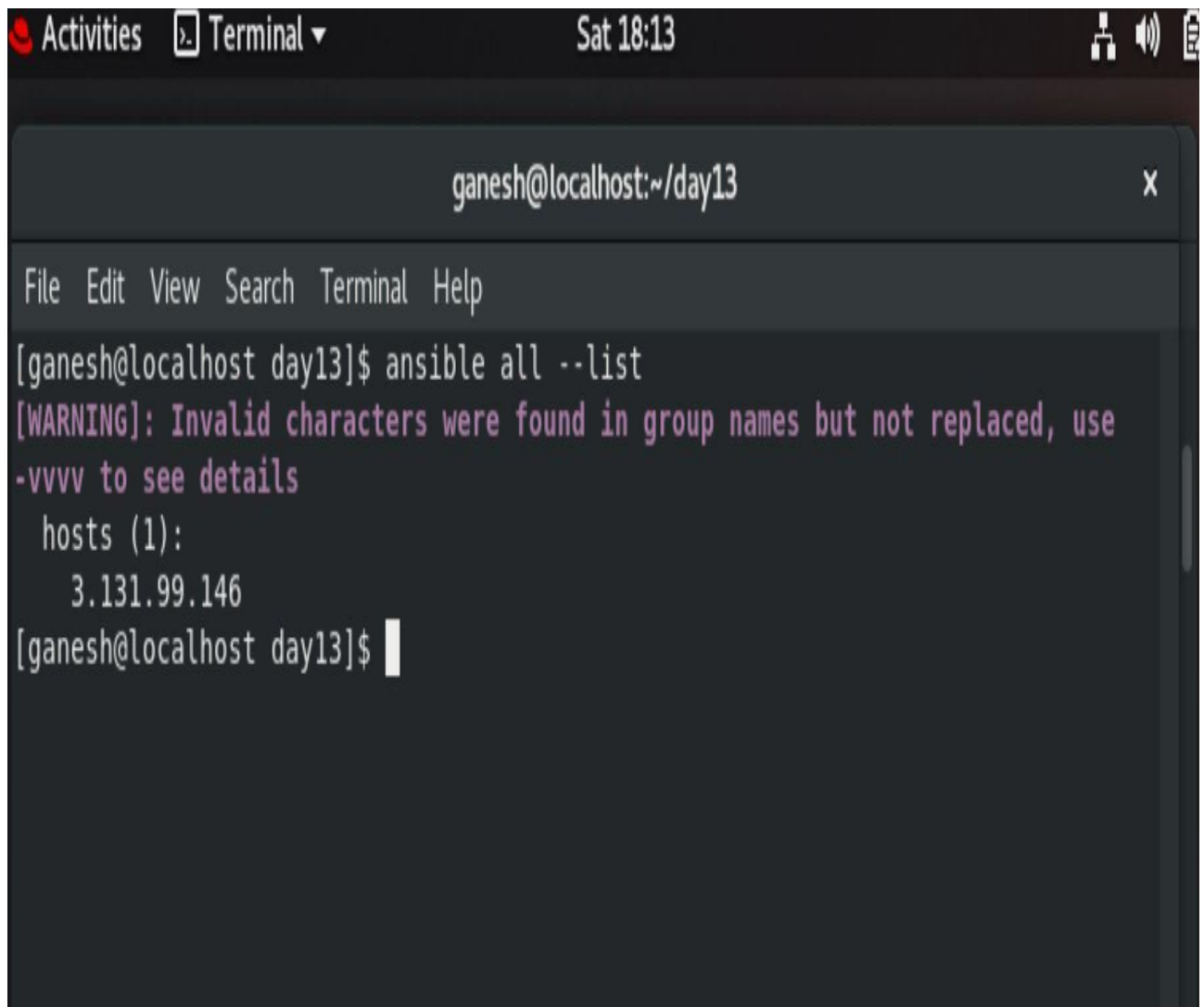
```

```
ganesh@localhost:~/day13/server/vars x
File Edit View Search Terminal Help
[ganesh@localhost server]$ pwd
/home/ganesh/day13/server
[ganesh@localhost server]$ ls
defaults files handlers meta README.md tasks templates tests vars
[ganesh@localhost server]$ cd vars/
[ganesh@localhost vars]$ cat main.yml
$ANSIBLE_VAULT;1.2;AES256;aws
38336230626133666231666136396162353439373461343834343762386238346232376334663864
3163303035353166386361653465356431333933396134300a626637333639383435396437333633
37616564383831613632306338646534373266373963646239653032393364383162353534316466
3136323436646465630a396533303431653336333834353236373063366235666336626339343234
61616434323965343136613863326335366531333961346237373266626139393839613730636130
34633335393463633434373764323632346334316633633533303333326633376466373135663031
62643264376263376138656530373334323531353862303366333134346331343833313034623966
32373663336365626163346361363262376662633938383935396661323739353038663138356162
33353132343962343964343663653230656537373964356235373030363261366130326662316334
3737383066303939333133663062643962323531383663646533
[ganesh@localhost vars]$
```

2. Retrive public ip dynamically

For dynamic inventory pull ec2.py python script for fetching public ip of running instance . For that use wget <https://raw.githubusercontent.com/ansible/ansible/stable-2.9/contrib/inventory/ec2.py> then change permission `chmod +x ec2.py`. Modify ec2.py syntax. Then export `AWS_ACCESS_KEY_ID=""` and `AWS_SECRET_ACCESS_KEY=""` use this link for reference https://docs.ansible.com/ansible/latest/user_guide/intro_dynamic_inventory.html#inventory-script-example-aws-ec2

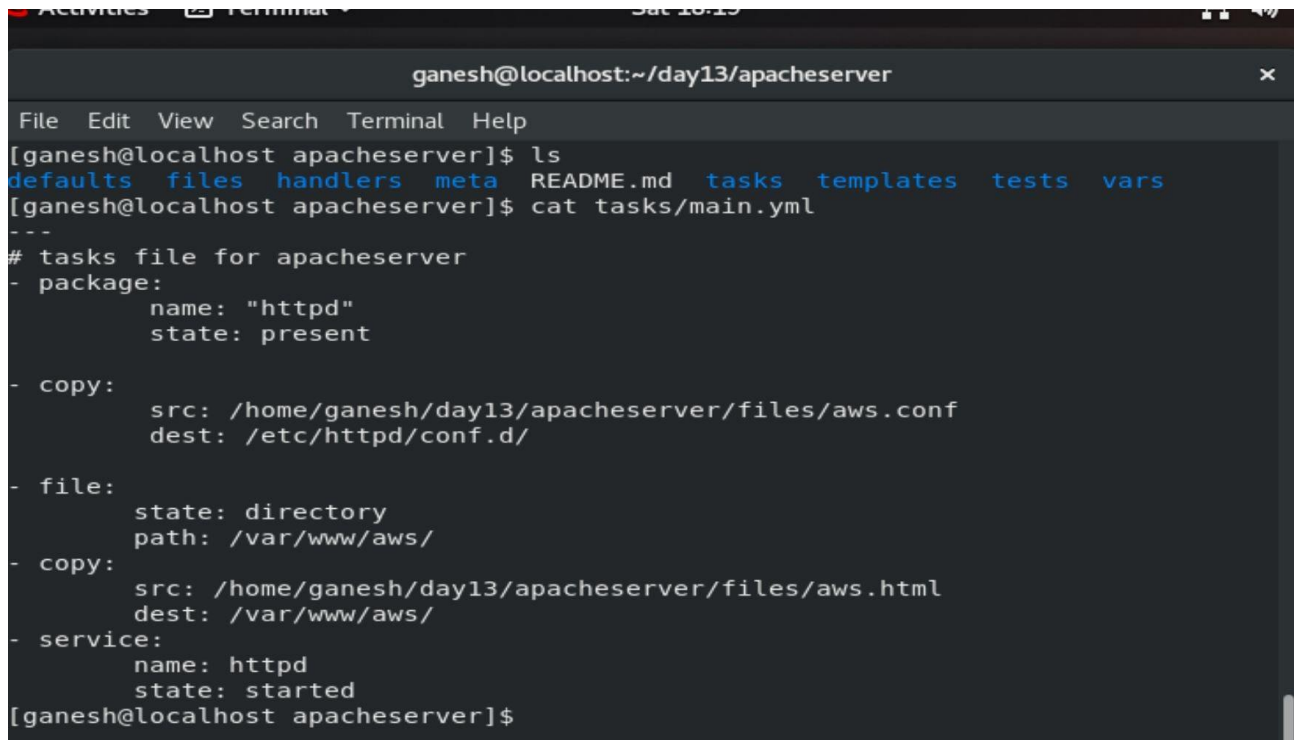
Use ansible all --list

A terminal window titled 'ganesh@localhost:~/day13' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'ansible all --list' being executed. The output includes a warning about invalid characters in group names and a list of hosts: 'hosts (1): 3.131.99.146'. The prompt '[ganesh@localhost day13]\$' is visible at the bottom.

```
ganesh@localhost:~/day13
File Edit View Search Terminal Help
[ganesh@localhost day13]$ ansible all --list
[WARNING]: Invalid characters were found in group names but not replaced, use
-vvvvv to see details
  hosts (1):
    3.131.99.146
[ganesh@localhost day13]$
```

3. Configuration of webserver

Create another Role `apacheserver` using `ansible-galaxy init apacheserver` and write `apacheserver/tasks/main.yml`

A terminal window titled 'ganesh@localhost:~/day13/apacheserver' with a menu bar (File, Edit, View, Search, Terminal, Help). The user runs 'ls' showing a directory listing with files like defaults, files, handlers, meta, README.md, tasks, templates, tests, and vars. Then they run 'cat tasks/main.yml' which displays a YAML configuration for the httpd service, including package, copy, file, and service definitions.

```
ganesh@localhost:~/day13/apacheserver
File Edit View Search Terminal Help
[ganesh@localhost apacheserver]$ ls
defaults files handlers meta README.md tasks templates tests vars
[ganesh@localhost apacheserver]$ cat tasks/main.yml
---
# tasks file for apacheserver
- package:
  name: "httpd"
  state: present

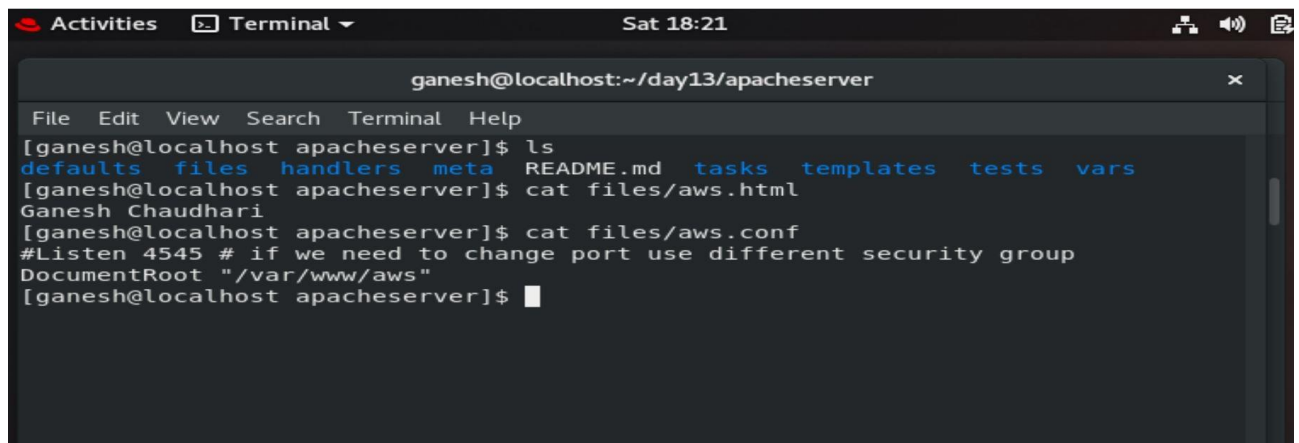
- copy:
  src: /home/ganesh/day13/apacheserver/files/aws.conf
  dest: /etc/httpd/conf.d/

- file:
  state: directory
  path: /var/www/aws/

- copy:
  src: /home/ganesh/day13/apacheserver/files/aws.html
  dest: /var/www/aws/

- service:
  name: httpd
  state: started
[ganesh@localhost apacheserver]$
```

create static files in apacheserver/files like aws.conf which is configuration file of httpd and aws.html it is html page.

A terminal window titled 'ganesh@localhost:~/day13/apacheserver' with a menu bar. The user runs 'ls' showing the directory listing. Then they run 'cat files/aws.html' which shows 'Ganesh Chaudhari'. Finally, they run 'cat files/aws.conf' which shows configuration parameters like 'Listen 4545' and 'DocumentRoot'.

```
ganesh@localhost:~/day13/apacheserver
File Edit View Search Terminal Help
[ganesh@localhost apacheserver]$ ls
defaults files handlers meta README.md tasks templates tests vars
[ganesh@localhost apacheserver]$ cat files/aws.html
Ganesh Chaudhari
[ganesh@localhost apacheserver]$ cat files/aws.conf
#Listen 4545 # if we need to change port use different security group
DocumentRoot "/var/www/aws"
[ganesh@localhost apacheserver]$
```

After that create two provision.yml for provision of EC2 and webserver.yml for configuration of httpd like

```
ganesh@localhost:~/day13
File Edit View Search Terminal Help
[ganesh@localhost day13]$
[ganesh@localhost day13]$ ls
ansible.cfg  apacheserver  host  host.txt  provision.yml  server  webserver.yml
[ganesh@localhost day13]$ cat provision.yml
- hosts: localhost
  roles:
    - server

[ganesh@localhost day13]$ cat webserver.yml
- hosts: all
  roles:
    - apacheserver
[ganesh@localhost day13]$
```

All coding done only we need to run

ansible-playbook --vault-id aws@prompt provision.yml

Output:

```
ganesh@localhost:~/day13
File Edit View Search Terminal Help
[ganesh@localhost day13]$ ansible-playbook --vault-id aws@prompt provision.yml
/vault password (aws):
[WARNING]: * Failed to parse /home/ganesh/day13/host/ec2.py with script
plugin: Inventory script (/home/ganesh/day13/host/ec2.py) had an execution
error: Traceback (most recent call last):  File
'/home/ganesh/day13/host/ec2.py', line 1712, in <module>      Ec2Inventory()
File "/home/ganesh/day13/host/ec2.py", line 285, in __init__
self.do_api_calls_update_cache()  File "/home/ganesh/day13/host/ec2.py", line
556, in do_api_calls_update_cache
self.get_elasticache_clusters_by_region(region)  File
'/home/ganesh/day13/host/ec2.py', line 796, in
get_elasticache_clusters_by_region      response =
conn.describe_cache_clusters(None, None, _marker, True)  File
'/usr/local/lib/python3.6/site-packages/boto/elasticache/layer1.py', line 617,
in describe_cache_clusters      path='/', params=params)  File
'/usr/local/lib/python3.6/site-packages/boto/elasticache/layer1.py', line 1659,
in _make_request      body = response.read().decode('utf-8')  File
'/usr/local/lib/python3.6/site-packages/boto/connection.py', line 410, in read
self._cached_response = http_client.HTTPResponse.read(self)  File
'/usr/lib64/python3.6/http/client.py', line 462, in read      s =
self._safe_read(self.length)  File "/usr/lib64/python3.6/http/client.py", line
512, in _safe_read      chunk = self.fp.read(min(amt, MAXAMOUNT))  File
'/usr/lib64/python3.6/socket.py', line 586, in readinto      return
self._sock.recv_into(b)  File "/usr/lib64/python3.6/ssl.py", line 968, in
Enterprise Li
```



```
ganesh@localhost:~/day13
File Edit View Search Terminal Help
/home/ganesh/day13/host/ec2.py:3: Error parsing host definition ''': No
closing quotation
[WARNING]: Unable to parse /home/ganesh/day13/host/ec2.py as an inventory
source
[WARNING]: Unable to parse /home/ganesh/day13/host as an inventory source
[WARNING]: No inventory was parsed, only implicit localhost is available
[WARNING]: provided hosts list is empty, only localhost is available. Note that
the implicit localhost does not match 'all'

PLAY [localhost] *****

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

TASK [server : ec2] *****
changed: [localhost]

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

ansible-playbook webserver.yml

Output:

```
Activities Terminal Sat 18:43
ganesh@localhost:~/day13
File Edit View Search Terminal Help

[ganesh@localhost day13]$ ansible-playbook webserver.yml
[WARNING]: Invalid characters were found in group names but not replaced, use
-vvvv to see details

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [3.131.99.146]

TASK [apacheserver : package] *****
ok: [3.131.99.146]

TASK [apacheserver : copy] *****
changed: [3.131.99.146]

TASK [apacheserver : file] *****
changed: [3.131.99.146]

TASK [apacheserver : copy] *****
changed: [3.131.99.146]
```

```
Activities Terminal Sat 18:44
ganesh@localhost:~/day13
File Edit View Search Terminal Help

TASK [Gathering Facts] *****
ok: [3.131.99.146]

TASK [apacheserver : package] *****
ok: [3.131.99.146]

TASK [apacheserver : copy] *****
changed: [3.131.99.146]

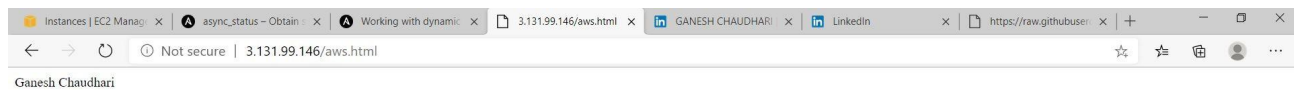
TASK [apacheserver : file] *****
changed: [3.131.99.146]

TASK [apacheserver : copy] *****
changed: [3.131.99.146]

TASK [apacheserver : service] *****
changed: [3.131.99.146]

PLAY RECAP *****
3.131.99.146 : ok=6 changed=4 unreachable=0 failed=0 s
kipped=0 rescued=0 ignored=0

[ganesh@localhost day13]$
```



Task 2 successfully completed