Ansible part 3

Setup --> Control node --> Managed nodes Playbook is just a yaml file

Start all nodes in AWS

	ControlNode	i-0d1704f5a9b20bc67	⊘ Running ② ○	t2.micro	Initializing
	ManagedNode2	i-03c611e5a7b03053b	⊘ Running	t2.micro	TH .
	ManagedNode1	i-0079b27ec6e3e196d	⊗ Running ⊕ ⊖	t2.micro	 Initializing
4 ===	A20		10 200		

```
[ec2-user@lp-1/2-31-14-91 ~]$
[ec2-user@ip-172-31-14-91 ~]$
[ec2-user@ip-172-31-14-91 ~]$ sudo su ansible
[ansible@ip-172-31-14-91 ec2-user]$ ls -l
ls: cannot open directory '.': Permission denied
[ansible@ip-172-31-14-91 ec2-user]$ sudo ls -l
total 0
[ansible@ip-172-31-14-91 ec2-user]$
[ansible@ip-172-31-14-91 ec2-user]$
[ansible@ip-172-31-14-91 ec2-user]$ cd ~
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$ ls -l
total 4
-rw-rw-r--. 1 ansible ansible 108 Apr 14 01:10 01-ping.yml
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$
```

```
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$ cat 01-ping.yml
---
- hosts: all
  tasks:
    - name: Ping all the managed nodes
    ping:
    remote_user: ansible
...
[ansible@ip-172-31-14-91 ~]$ ■
```

```
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml
PLAY [all] ********************************
TASK [Gathering Facts] *************************
[WARNING]: Platform linux on host 172.31.5.77 is using the
interpreter could change the meaning of that path. See http
information.
ok: [172.31.5.77]
[WARNING]: Platform linux on host 172.31.12.31 is using the
interpreter could change the meaning of that path. See http
information.
TASK [Ping all the managed nodes] *****************
ok: [172.31.5.77]
ok: [172.31.12.31]
PLAY RECAP ********************************
                                   changed=0
                                                unreachab
172.31.5.77
                                   changed=0
                                                unreachab
[ansible@ip-172-31-14-91 ~]$
```

More verbose -vv

```
[ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml -vv
 configured module search path = ['/home/ansible/.ansible/plugins/m
 ansible python module location = /usr/lib/python3.9/site-packages/
 ansible collection location = /home/ansible/.ansible/collections:/
 executable location = /usr/bin/ansible-playbook
 python version = 3.9.21 (main, Mar 19 2025, 00:00:00) [GCC 11.5.0
 libyaml = True
No config file found; using defaults
Skipping callback 'default', as we already have a stdout callback. Skipping callback 'minimal', as we already have a stdout callback.
Skipping callback 'oneline', as we already have a stdout callback.
PLAYBOOK: 01-ping.yml ********************************
1 plays in 01-ping.yml
TASK [Gathering Facts] *********************************
[WARNING]: Platform linux on host 172.31.12.31 is using the discover
interpreter could change the meaning of that path. See https://docs.
information.
ok: [172.31.12.31]
[WARNING]: Platform linux on host 172.31.5.77 is using the discovere
interpreter could change the meaning of that path. See https://docs.
information.
TASK [Ping all the managed nodes] **************************
task path: /home/ansible/01-ping.yml:4
changed=0
                                              unreachable=0
172.31.5.77
                                  changed=0
                                              unreachable=0
[ansible@ip-172-31-14-91 ~]$
```

-vvv more verbose ansible report

ansible user already created ansible directory created

```
    We had switched to user ansible: sudo su ansible
    Get into ansible directory: cd ~ or cd ../ansible
    Present working directory: pwd ---> /home/ansible
    [ansible@ip-172-31-14-91 ~]$ vi 01-ping.yml
    ---
    - hosts: all
    tasks:
    - name: Ping all the managed nodes
```

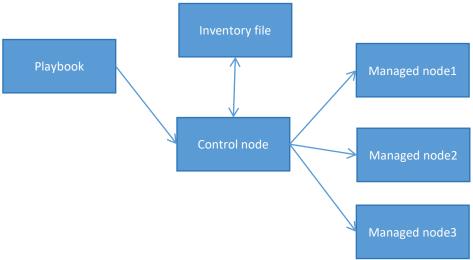
10. ping:

```
11.
      remote user: ansible
12. ...
13. ansible-playbook 01-ping.yml
14. To get more info about the playbook execution or internal info about the playbook --> Verbosity
15. ansible-playbook 01-ping.yml -vv --> more verbosity or more detailed output
16. To check playbook syntax
17. ansible-playbook 01-ping.yml --syntax-check
18. Inventory file will have the information about the machines we are managing
     [ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml --syntax-check
    playbook: 01-ping.yml
20. To check which hosts will be affected by a Playbook:
21. [ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml --list-hosts
22.
23. playbook: 01-ping.yml
24.
25. play #1 (all): all TAGS: []
    pattern: ['all']
    hosts (2):
27
28.
      172.31.5.77
      172.31.12.31
     [ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml --list-hosts
    playbook: 01-ping.yml
       play #1 (all): all
                                    TAGS: []
          pattern: ['all']
          hosts (2):
            172.31.5.77
             172.31.12.31
     [ansible@ip-172-31-14-91 ~]$
31. Execute one step at a time and confirm each task before running with yes, no or continue
32. [ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml --step
    [ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml --step
    Perform task: TASK: Gathering Facts (N)o/(y)es/(c)ontinue: c
    [WARNING]: Platform linux on host 172.31.12.31 is using the discovered Python interpreter at /usr/bin/python3.9, but interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendice
    ok: [172.31.12.31]
[WARNING]: Platform linux on host 172.31.5.77 is using the discovered Python interpreter at /usr/bin/python3.9, but fu
interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.15/reference_appendices
    ok: [172.31.12.31
ok: [172.31.5.77]
    skipped=0
skipped=0
                                 changed=0
changed=0
                                           unreachable=0
unreachable=0
                                                         failed=0
failed=0
                         : ok=2
: ok=2
                                                                             rescued=0
rescued=0
                                                                                       ignored=0
```

34. For dryrun

```
[ansible@ip-172-31-14-91 ~]$ ansible-playbook 01-ping.yml --check
[WARNING]: Platform linux on host 172.31.12.31 is using the discovered Python interprete
interpreter could change the meaning of that path. See https://docs.ansible.com/ansible
information.
[WARNING]: Platform linux on host 172.31.5.77 is using the discovered Python interpreter interpreter could change the meaning of that path. See https://docs.ansible.com/ansible-
information.
failed=0
                         changed=0 unreachable=0
                                                     skipped=0
                         changed=0
                                             failed=0
                                                     skipped=0
                                 unreachable=0
[ansible@ip-172-31-14-91 ~]$
```

35. 36.



I want to create file in each of the Managed nodes using Ansible

Log into Managed Node1
[ec2-user@ip-172-31-5-77 ~]\$ sudo su ansible
[ansible@ip-172-31-5-77 ec2-user]\$
[ansible@ip-172-31-5-77 ec2-user]\$
[ansible@ip-172-31-5-77 ec2-user]\$
[ansible@ip-172-31-5-77 ec2-user]\$ cd ~

Go to Control node:

[ansible@ip-172-31-14-91 ~]\$ vi 02-create-file.yml

[ansible@ip-172-31-14-91 \sim]\$ cat 02-create-file.yml

- hosts: all tasks:

```
- name: Create file in all the managed nodes
  path: /home/ansible/fromControlNode.txt
  state: touch
```

[ansible@ip-172-31-14-91 ~]\$ ansible-playbook 02-create-file.yml --syntax

playbook: 02-create-file.yml

[ansible@ip-172-31-14-91 ~]\$ ansible-playbook 02-create-file.yml

```
[ansible@ip-1/2-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$ ansible-playbook 02-create-file.yml
[WARNING]: Platform linux on host 172.31.12.31 is using the discovered Py
interpreter could change the meaning of that path. See https://docs.ansib
information.
[WARNING]: Platform linux on host 172.31.5.77 is using the discovered Pyt
interpreter could change the meaning of that path. See https://docs.ansib
information.
ok: [172.31.5.77]
TASK [Create file in all the managed nodes] ********************
changed: [172.31.12.31]
changed: [172.31.5.77]
172.31.12.31
                           changed=1 unreachable=0
                                                  failed
172.31.5.77
                           changed=1
                                     unreachable=0
                                                  faile
```

```
Go to Managed Node 1:
```

```
ans wte(atp-1/2-51-5-
[ansible@ip-172-31-5-77 ~]$ ls -l
total 0
-rw-rw-r--. 1 ansible ansible 0 Apr 27 22:25 fromControlNode.txt
[ansible@ip-172-31-5-77 ~]$
```

The file 'fromControlNode.txt is created'

```
Second Managed node:
[ansible@ip-172-31-5-77 ~]$ ls -l
total 0
-rw-rw-r--. 1 ansible ansible 0 Apr 27 22:25 fromControlNode.txt
[ansible@ip-172-31-5-77 ~]$ pwd
/home/ansible
[ansible@ip-172-31-5-77 ~]$
```

Same file is created

Back to ControlNode:

Modify yml file lightly to create another file in managed nodes

```
Managed Node1:
```

```
[ansible@ip-172-31-5-77 ~]$ ls -l
total 0
-rw-rw-r--. 1 ansible ansible 0 Apr 27 22:42 alien.txt
-rw-rw-r--. 1 ansible ansible 0 Apr 27 22:25 fromControlNode.txt
[ansible@ip-172-31-5-77 ~]$ ■
```

Steps we followed so far:

Create files in Managed Nodes using Ansible from Control Node

Create a new yml playbook file in Control Node vi 02-create-file.yml

[ansible@ip-172-31-14-91 ~]\$ cat 02-create-file.yml

```
---
```

hosts: all tasks:

- name: Create file in all the managed nodes

file:

path: /home/ansible/alien.txt

state: touch

•••

ansible-playbook 02-create-file.yml

Later get connected to managed nodes and check if files are created

Task 3: Install git in client (Managed nodes) ---> Assignment to install Maven

[ansible@ip-172-31-14-91 ~]\$ vi 03-install-git.yml

become: true gives admin privilleges

- hosts: all become: true

tasks:

- name: Install Git in all the managed nodes

yum: name: git state: latest

•••

[ansible@ip-172-31-14-91 ~]\$ ansible-playbook 03-install-git.yml --syntax-check

playbook: 03-install-git.yml

```
ansible(dip-1/2-31-14-91 ~]$
 [ansible@ip-172-31-14-91 ~]$ ansible-playbook 03-install-git.yml
 [WARNING]: Platform linux on host 172.31.5.77 is using the discovered F
 interpreter could change the meaning of that path. See https://docs.ans
 information.
 ok: [172.31.5.77]
 [WARNING]: Platform linux on host 172.31.12.31 is using the discovered
 interpreter could change the meaning of that path. See https://docs.ans
 information.
 TASK [Install Git in all the managed nodes] *****************
 changed: [172.31.12.31]
 172.31.12.31
                             changed=1
                                       unreachable=0
                                                     fail
                             changed=0
                                       unreachable=0
                                                     fail
Go to Managed Node 1:
[ansible@ip-172-31-5-77 ~]$ git -v
git version 2.47.1
```

Git is installed successfully

Same in Managed node 2:

```
[ansible@ip-172-31-5-77 ~]$ git -v
git version 2.47.1
[ansible@ip-172-31-5-77 ~]$
```

Go back to ControlNode: [ansible@ip-172-31-14-91 ~]\$ cat /etc/ansible/hosts [webservers] 172.31.5.77

[dbservers] 172.31.12.31

We have created two groups: webservers and dbservers group

```
[ansible@ip-172-31-14-91 ~]$ vi 04-website-hosting.yml [ansible@ip-172-31-14-91 ~]$ [ansible@ip-172-31-14-91 ~]$ [ansible@ip-172-31-14-91 ~]$ cat 04-website-hosting.yml
```

- hosts: webservers become: true

tasks:

name: Install httpd package in only Managed node1 yum:
 name: httpd
 state: latest
 name: Copy index.html file
 copy:
 src: index.html
 dest: /var/www/html/index.html
 name: Start httpd server
 service: Start httpd server
 name: httpd
 state: started

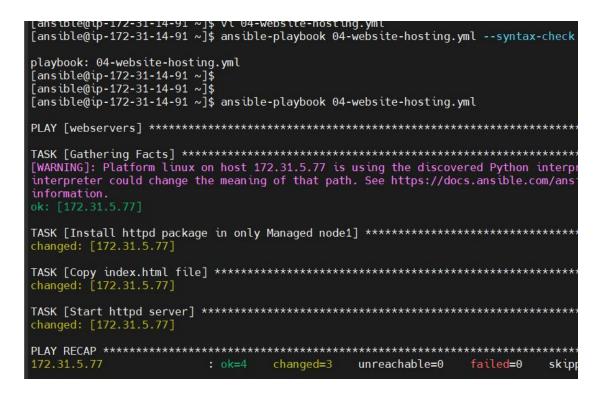
```
In the ControlNode:
 [ansible@ip-172-31-14-91 ~]$
 [ansible@ip-172-31-14-91 ~]$ vi 04-website-hosting.yml
 [ansible@ip-172-31-14-91 ~]$
 [ansible@ip-172-31-14-91 ~]$
 [ansible@ip-172-31-14-91 ~]$ cat 04-website-hosting.yml
 hosts: webservers
  become: true
  tasks:
     - name: Install httpd package in only Managed node1
         name: httpd
         state: latest
     - name: Copy index.html file
      copy:
         src: index.html
         dest: /var/www/html/index.html
     - name: Start httpd server
       service: Start httpd server
        name: httpd
         state: started
```

In the ControlNode, create one file called as 'index.html' file [ansible@ip-172-31-14-91 ~]\$ vi index.html

[ansible@ip-172-31-14-91 ~]\$ cat index.html <h1> DevOps Course Ansible </h1>>

[ansible@ip-172-31-14-91 ~]\$ ansible-playbook 04-website-hosting.yml --syntax-check

playbook: 04-website-hosting.yml



Copy public IP of Managed host 1



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Steps we followed so far for webhosting vi 04-website-hosting.yml

[ansible@ip-172-31-14-91 ~]\$ cat 04-website-hosting.yml

- hosts: webservers become: true

tasks:

- name: Install httpd package in only Managed node1

yum:

name: httpd state: latest

- name: Copy index.html file

copy:

src: index.html

dest: /var/www/html/index.html

- name: Start httpd server

service: name: httpd state: started

• • •

```
[ansible@ip-172-31-14-91 ~]$ ansible-playbook 04-website-hosting.yml --list-hosts
```

playbook: 04-website-hosting.yml

```
play #1 (webservers): webservers TAGS: [] pattern: ['webservers'] hosts (1): 172.31.5.77
```

[ansible@ip-172-31-14-91 ~]\$ ansible-playbook 04-website-hosting.yml --syntax-check

playbook: 04-website-hosting.yml

[ansible@ip-172-31-14-91 ~]\$ ansible-playbook 04-website-hosting.yml

Use Public IP of webservers group machine and check if website is up and running

```
I run the same file again from ControlNode
[ansible@ip-172-31-14-91 ~]$
[ansible@ip-172-31-14-91 ~]$ ansible-playbook 04-website-hosting.yml
TASK [Gathering Facts] *****************************
[WARNING]: Platform linux on host 172.31.5.77 is using the discovered
interpreter could change the meaning of that path. See https://docs.an
information.
ok: [172.31.5.77]
TASK [Install httpd package in only Managed node1] **************
ok: [172.31.5.77]
TASK [Copy index.html file] ******************************
ok: [172.31.5.77]
TASK [Start httpd server] **********************************
ok: [172.31.5.77]
changed=0
                                        unreachable=0
```

Note: Changed=0 that means no change

Now if I make changes to the same file, then changed=1 because it's treated as a new file

Variables:

Used to store data / information

id: 1

name: Rohan

We can use the concept of variables in Ansible in 4 different ways:

Runtime variables Playbook variables Group variables Host variables Runtime variables: while I execute the particular playbook yml file, I will be passing the values Playbook variables: In the Playbook itself I will be creating the variables

Group variables: we create variables at Group levels. Inside Inventory file, we have information about Managed nodes and Groups. Group variables we create the Inventory level. Same goes with the Host variable

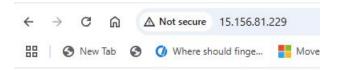
Host variable: Created in the Inventory level, in one Group, possibility of having multiple machines

1. Runtime variable: We can pass variable value at Runtime.

```
[ansible@ip-172-31-14-91 ~]$ vi 05-website-hosting-variable.yml
[ansible@ip-172-31-14-91 ~]$ cat 05-website-hosting-variable.yml
- hosts: webservers
become: true
 tasks:
  - name: Install httpd package in only Managed node1
    name: "{{package name}}"
    state: latest
  - name: Copy index.html file
   copy:
    src: index.html
    dest: /var/www/html/index.html
  - name: "{{package_name}}"
   service:
    name: httpd
    state: started
```

Add [ansible@ip-172-31-14-91 $^{\sim}$]\$ ansible-playbook 05-website-hosting-variable.yml --extra-vars package_name=httpd

--extra-vars package_name=httpd



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>

Runtime variable

2. Playbook variable ---> Declare and use the variables within playbook [ansible@ip-172-31-14-91 ~]\$ vi 06-playbook-variables.yml [ansible@ip-172-31-14-91 ~]\$ cat 06-playbook-variables.yml

--- hosts: webservers
become: true
vars:
 package_name: httpd webserver
tasks:
 - name: Install httpd package in only Managed node1
 yum:
 name: "{{package_name}}"
 state: latest

- name: Copy index.html file
 copy:
 src: index.html
 dest: /var/www/html/index.html

- name: "{{package_name}}"
 service:
 name: httpd
 state: started

```
[ansible@ip-172-31-14-91 ^{\sim}]$ vi 06-playbook-variables.yml
[ansible@ip-172-31-14-91 ~]$ cat 06-playbook-variables.yml
- hosts: webservers
become: true
  package_name: httpd webserver
  - name: Install "{{package_name}}" in only Managed node1
   yum:
    name: httpd
    state: latest
 - name: Copy index.html file
   copy:
    src: index.html
    dest: /var/www/html/index.html
 - name: "{{package_name}}"
   service:
    name: httpd
    state: started
```

[ansible@ip-172-31-14-91 ~]\$ [ansible@ip-172-31-14-91 ~]\$ ansible-playbook 06-playbook-variables.yml [WARNING]: Platform linux on host 172.31.5.77 is using the discovered Python interpreter could change the meaning of that path. See https://docs.ansible. information. changed: [172.31.5.77] ok: [172.31.5.77] 172.31.5.77 changed=1 unreachable=0 [ansible@ip-172-31-14-91 ~]\$



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>

Testing Playbook variable

Assignment: Write Ansible playbook to install Java in webserver group and MySQL in dbserver group