

## Assignment -2(Ansible)

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### 1. Environment Setup

- Control Node: Configure an Ansible control node.
- Managed Nodes: Set up three managed hosts with distinct domain names (e.g., node1.example.com, node2.example.com, node3.example.com).
- Configure password-less SSH between the control node and managed hosts

Ans.

```
pratibhasingh@rhel [~/ansible] $ cat /etc/hosts | grep -n node*
14:13.203.197.210 node1.example
15:15.206.203.167 node2.example
16:15.206.148.184 node3.example
pratibhasingh@rhel [~/ansible] $ cat hosts | grep -n node*
8:node1.example
9:node2.example
10:node3.example
pratibhasingh@rhel [~/ansible] $ ansible all -m ping
node3.example | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
node1.example | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
node2.example | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python3"
    },
    "changed": false,
    "ping": "pong"
}
pratibhasingh@rhel [~/ansible] $
```

## 2. Tasks to Perform with Playbook

Write a playbook named (Variable.yaml)to perform the following tasks using variables where applicable:

### 1. Create a User:

- Use a variable and create a 3-user. Node1-Sara, Node2-Sam, Node3-Veronica. The variable should be the same for all users
- Example: user\_name: Sam, Sara, Veronica

### 2. Create a File:

- Use a variable file\_path to define the location of a file. Example: file\_path: /tmp/ansible\_file.txt
- Add specific content using a variable file\_content. Example: file\_content: "Hello from Ansible!"

### 3. Create a Directory:

- Use a variable directory\_path to define the directory location.
- The variable should be the same for all directory\_path.
- Example: directory\_path: /root/Aarambh-Node1, Node2, Node3

### 4. Set Permissions:

- Use a variable directory\_permissions to define the directory permissions.

Example: directory\_permissions: '755'

- Use a variable directory\_owner to set the owner of the directory. And the owner should be Sara.
- Modify Files Use a variable line\_content to add a line to the file. Example: line\_content: "Ansible Configuration"

### 5. Modify Files

- Use variables to add to the below block. Example:
- Content = Hi I am using Ansible. Ansible is a Redhat automation tool.

### 6. Install a Package using yum:

- Use a variable package\_name to define the package to be installed. Example: package\_name: nginx

Ans.

```
pratibhasingh@rhel [~/ansible] $ ansible-playbook assignment-2.yml --tags task-2
PLAY [Assignment-2] *****
TASK [Gathering Facts] *****
ok: [node1.example]
ok: [node3.example]
ok: [node2.example]
TASK [Creating Users!] *****
changed: [node1.example]
changed: [node3.example]
changed: [node2.example]
TASK [Creating File!] *****
changed: [node2.example]
changed: [node1.example]
changed: [node3.example]
TASK [Creating Directory!] *****
changed: [node2.example]
changed: [node1.example]
changed: [node3.example]
TASK [Modify File - Add a Line] *****
changed: [node2.example]
changed: [node3.example]
changed: [node1.example]
TASK [Modify File - Add Block Content] *****
changed: [node2.example]
changed: [node1.example]
changed: [node3.example]
TASK [Install a Package on Redhat] *****
changed: [node2.example]
changed: [node1.example]
changed: [node3.example]
PLAY RECAP *****
node1.example      : ok=7    changed=6    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
node2.example      : ok=7    changed=6    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
node3.example      : ok=7    changed=6    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
pratibhasingh@rhel [~/ansible] $
```

### 3. Variable Usage

- **Inline Variables:** Define simple variables directly within the playbook.
- **External Variable File:** Store user and file module variables in an external file (e.g., vars/vars.yml) and include them in the playbook.
- **Host-specific Variables:**
  - Create a host\_vars directory and define specific variables for each managed host (e.g., different user\_name or directory\_path for each host).

Ans.

```

pratibhasingh@rhel [~/ansible] $ cat host_vars/node*
u: Sam
directory_path: /root/Aarambh-Sam
directory_owner: Sam

u: Sara
directory_path: /root/Aarambh-Sara
directory_owner: Sara

u: Veronica
directory_path: /root/Aarambh-Veronica
directory_owner: Veronica

pratibhasingh@rhel [~/ansible] $ cat var.yml
line_content: "Ansible Configuration"
block_content: |
    Hi, I am using Ansible.
    Ansible is a Red Hat automation tool.
    Adding this line From External Variable File!
package_name: nginx
pratibhasingh@rhel [~/ansible] $ 

```

4. Verification with Ad-hoc Commands for all the above tasks. Verify that the users were created on the respective nodes as specified:

- On node1.example.com, the user Sara created.
- On node2.example.com, the user Sam created.
- On node3.example.com, the user Veronica created.
- Verify the file /tmp/ansible\_file.txt created on node1.example.com, node2.example.com, and node3.example.com. Verify the directory created on the respective node as specified.
- /root/Aarambh-Node1 created for node1.example.com.
- /root/Aarambh-Node2 created for node2.example.com.
- /root/Aarambh-Node3 created for node3.example.com. Verify Directories ownership and permissions
- For node1.example.com: The directory /root/Aarambh-Node1 is owned by Sara with permissions 0755.

- For node2.example.com: The directory /root/Aarambh-Node2 is owned by Sam with permissions 0755.
- For node3.example.com: The directory /root/Aarambh-Node3 is owned by Veronica with permissions 0755.

Ans.

```
pratibhasingh@rhel [~/ansible] $ ansible node1.example -m command -a "getent passwd Sam"
node1.example | CHANGED | rc=0 >>
Sam:x:3004:3004::/home/Sam:/bin/bash
pratibhasingh@rhel [~/ansible] $ ansible node2.example -m command -a "getent passwd Sara"
node2.example | CHANGED | rc=0 >>
Sara:x:3004:3004::/home/Sara:/bin/bash
pratibhasingh@rhel [~/ansible] $ ansible node3.example -m command -a "getent passwd Veronica"
node3.example | CHANGED | rc=0 >>
Veronica:x:3004:3004::/home/Veronica:/bin/bash
pratibhasingh@rhel [~/ansible] $ ansible all -m command -a "ls -l /tmp/ansible_file.txt"
node3.example | CHANGED | rc=0 >>
-rw-r--r--. 1 Veronica root 208 Mar  3 04:21 /tmp/ansible_file.txt
node2.example | CHANGED | rc=0 >>
-rw-r--r--. 1 Sara root 208 Mar  3 04:21 /tmp/ansible_file.txt
node1.example | CHANGED | rc=0 >>
-rw-r--r--. 1 Sam root 208 Mar  3 04:21 /tmp/ansible_file.txt
pratibhasingh@rhel [~/ansible] $ ansible node1.example -m command -a "ls -ld /root/Aarambh-Sam"
node1.example | CHANGED | rc=0 >>
drwxr-xr-x. 2 Sam root 6 Mar  3 04:21 /root/Aarambh-Sam
pratibhasingh@rhel [~/ansible] $ ansible node2.example -m command -a "ls -ld /root/Aarambh-Sara"
node2.example | CHANGED | rc=0 >>
drwxr-xr-x. 2 Sara root 6 Mar  3 04:21 /root/Aarambh-Sara
pratibhasingh@rhel [~/ansible] $ ansible node3.example -m command -a "ls -ld /root/Aarambh-Veronica"
node3.example | CHANGED | rc=0 >>
drwxr-xr-x. 2 Veronica root 6 Mar  3 04:21 /root/Aarambh-Veronica
pratibhasingh@rhel [~/ansible] $ ansible node1 -m command -a "cat /tmp/ansible_file.txt"
[WARNING]: Could not match supplied host pattern, ignoring: node1
[WARNING]: No hosts matched, nothing to do
pratibhasingh@rhel [~/ansible] $ ansible node1.example -m command -a "cat /tmp/ansible_file.txt"
node1.example | CHANGED | rc=0 >>
Hello from Ansible!
Ansible Configuration
# BEGIN ANSIBLE MANAGED BLOCK
Hi, I am using Ansible.
Ansible is a Red Hat automation tool.
Adding this line From External Variable File!
# END ANSIBLE MANAGED BLOCK
pratibhasingh@rhel [~/ansible] $
```

5. Set a variable from the command line. Create a user named Tom and Jerry on all Managed hosts.

- When we run `ansible-playbook Variable.yml -e "user_name=Tom"`, Ansible will use Tom for the `user_name` variable, even if a different value is set in `host_vars`. This is because command-line variables have higher priority and will replace any values set in the playbook or `host_vars`.
- The output will show Tom in golden, meaning the user was created.
- If We run `ansible-playbook Variable.yml -e "user_name=Jerry"`, the user will be created as Jerry, and the output will show in golden.

Ans.

```
pratibhasingh@rhel [~/ansible] $ ansible-playbook assignment-2.yml --tags task-5 -e "user_name=Tom"

PLAY [Assignment-2] *****

TASK [Gathering Facts] *****
ok: [node2.example]
ok: [node3.example]
ok: [node1.example]

TASK [Create user Tom] *****
changed: [node2.example]
changed: [node3.example]
changed: [node1.example]

PLAY RECAP *****
node1.example : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
node2.example : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
node3.example : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

pratibhasingh@rhel [~/ansible] $ ansible-playbook assignment-2.yml --tags task-5 -e "user_name=Jerry"

PLAY [Assignment-2] *****

TASK [Gathering Facts] *****
ok: [node2.example]
ok: [node3.example]
ok: [node1.example]

TASK [Create user Jerry] *****
changed: [node2.example]
changed: [node3.example]
changed: [node1.example]

PLAY RECAP *****
node1.example : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
node2.example : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
node3.example : ok=2 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

pratibhasingh@rhel [~/ansible] $
```