

## 1. Run Ansible Ad-hoc commands:

### 1.1 To execute command in bash and see the result

```
ayush@ayush:~/ansible/assignment$ ansible all -m shell -a '/bin/bash -c "hello=`uname -n` ; touch /var/tmp/\$hello.json;"' -i hosts
ubuntu@3.94.107.192 | CHANGED | rc=0 >>

ayush@ayush:~/ansible/assignment$ ansible all -m shell -a '/bin/bash -c "touch /var/tmp/;"' -i hosts
^C [ERROR]: User interrupted execution
ayush@ayush:~/ansible/assignment$ ansible all -m shell -a '/bin/bash -c "ls /var/tmp/;"' -i hosts
ubuntu@3.94.107.192 | CHANGED | rc=0 >>
cloud-init
ip-172-31-181-77.json
systemd-private-f0d21e966e31479d81dd0cd72adfd835-systemd-resolved.service-qYFHG4
systemd-private-f0d21e966e31479d81dd0cd72adfd835-systemd-timesyncd.service-ZMMAeF
ayush@ayush:~/ansible/assignment$
```

### 1.2 To check all running processes on node.

```
ayush@ayush:~/ansible/assignment$ ansible all -m shell -a '/bin/bash -c "ps -aux;"' -i hosts
ubuntu@3.94.107.192 | CHANGED | rc=0 >>
USER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root            1  0.3  0.9 159756  9160 ?        Ss   03:53   0:02 /sbin/init
root            2  0.0  0.0      0     0 ?        S    03:53   0:00 [kthreadd]
root            3  0.0  0.0      0     0 ?        I    03:53   0:00 [kworker/0:0]
root            4  0.0  0.0      0     0 ?        I<   03:53   0:00 [kworker/0:0H]
root            5  0.0  0.0      0     0 ?        I    03:53   0:00 [kworker/u30:0]
root            6  0.0  0.0      0     0 ?        I<   03:53   0:00 [mm_percpu_wq]
root            7  0.0  0.0      0     0 ?        S    03:53   0:00 [ksoftirqd/0]
root            8  0.0  0.0      0     0 ?        I    03:53   0:00 [rcu_sched]
root            9  0.0  0.0      0     0 ?        I    03:53   0:00 [rcu_bh]
root           10  0.0  0.0      0     0 ?        S    03:53   0:00 [migration/0]
root           11  0.0  0.0      0     0 ?        S    03:53   0:00 [watchdog/0]
root           12  0.0  0.0      0     0 ?        S    03:53   0:00 [cpuhp/0]
root           13  0.0  0.0      0     0 ?        S    03:53   0:00 [kdevtmpfs]
root           14  0.0  0.0      0     0 ?        I<   03:53   0:00 [netns]
root           15  0.0  0.0      0     0 ?        S    03:53   0:00 [rcu_tasks_kthre]
root           16  0.0  0.0      0     0 ?        S    03:53   0:00 [kauditd]
root           17  0.0  0.0      0     0 ?        S    03:53   0:00 [xenbus]
root           18  0.0  0.0      0     0 ?        S    03:53   0:00 [xenwatch]
root           20  0.0  0.0      0     0 ?        S    03:53   0:00 [khungtaskd]
root           21  0.0  0.0      0     0 ?        S    03:53   0:00 [oom_reaper]
root           22  0.0  0.0      0     0 ?        I<   03:53   0:00 [writeback]
```

### 1.3 To copying files to multiple nodes concurrently.

```
ayush@ayush:~/ansible/assignment$ ls
1.txt hosts
ayush@ayush:~/ansible/assignment$ ansible all -m copy --args="src=/home/ayush/ansible/assignment/
1.txt dest=/var/tmp/" -i hosts
ubuntu@3.94.107.192 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "checksum": "da39a3ee5e6b4b0d3255bfef95601890afd80709",
  "dest": "/var/tmp/1.txt",
  "gid": 1000,
  "group": "ubuntu",
  "md5sum": "d41d8cd98f00b204e9800998ecf8427e",
  "mode": "0664",
  "owner": "ubuntu",
  "size": 0,
  "src": "/home/ubuntu/.ansible/tmp/ansible-tmp-1584331875.21-70843250436226/source",
  "state": "file",
  "uid": 1000
}
ayush@ayush:~/ansible/assignment$
```

```
ayush@ayush:~/ansible/assignment$ ansible all -m shell -a '/bin/bash -c "ls /var/tmp/;"' -i hosts
ubuntu@3.94.107.192 | CHANGED | rc=0 >>
1
1.txt
cloud-init
ip-172-31-181-77.json
systemd-private-f0d21e966e31479d81dd0cd72adfd835-systemd-resolved.service-qYFHG4
systemd-private-f0d21e966e31479d81dd0cd72adfd835-systemd-timesyncd.service-ZMMAeF
ayush@ayush:~/ansible/assignment$
```

## 1.4 To add and delete users.

```
ayush@ayush:~/ansible/assignment$ mkpasswd --method=sha-512
Password:
$6$2BDL4xK0rWne$EceV6mp3mZHKF3yoXeeqzOgFhyvTWLdedfI15J6lfZnp5A.RbWUdrfygc4L09xQESx51axbhoU.Cy/mfj4/I.0
ayush@ayush:~/ansible/assignment$ ansible all -b -m user -a "name=ayush password=$6$2BDL4xK0rWne$EceV6mp3mZHKF3yoXeeqzOgFhyvTWLdedfI15J6lfZnp5A.RbWUdrfygc4L09xQESx51axbhoU.Cy/mfj4/I.0" -i hosts

[WARNING]: The input password appears not to have been hashed. The 'password' argument must be encrypted for this module to work properly.
ubuntu@3.94.107.192 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "comment": "",
  "create_home": true,
  "group": 1001,
  "home": "/home/ayush",
  "name": "ayush",
  "password": "NOT_LOGGING_PASSWORD",
  "shell": "/bin/sh",
  "state": "present",
  "system": false,
  "uid": 1001
}
ayush@ayush:~/ansible/assignment$

ayush@ayush:~/ansible/assignment$ ansible all -m shell -a '/bin/bash -c "cat /etc/passwd";' -i hosts | tail
messagebus:x:103:107::/nonexistent:/usr/sbin/nologin
_apt:x:104:65534::/nonexistent:/usr/sbin/nologin
lxd:x:105:65534::/var/lib/lxd:/bin/false
uidd:x:106:110::/run/uidd:/usr/sbin/nologin
dnsmasq:x:107:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
landscape:x:108:112::/var/lib/landscape:/usr/sbin/nologin
sshd:x:109:65534::/run/sshd:/usr/sbin/nologin
pollinate:x:110:1::/var/cache/pollinate:/bin/false
ubuntu:x:1000:1000:Ubuntu:/home/ubuntu:/bin/bash
ayush:x:1001:1001::/home/ayush:/bin/sh
ayush@ayush:~/ansible/assignment$
```

2. Create nginx ansible-playbook and run the node, also check if nginx service and default page is running or not.

```
---
- hosts: all
  tasks:
    - name: ensure nginx is at the latest version
      apt: name=nginx state=latest
    - name: start nginx
      service:
        name: nginx
        state: started
```

```
ayush@ayush:~/ansible/assignment$ ansible-playbook -b -i hosts playbook.yml

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [ubuntu@3.94.107.192]

TASK [ensure nginx is at the latest version] *****
ok: [ubuntu@3.94.107.192]

TASK [start nginx] *****
ok: [ubuntu@3.94.107.192]

PLAY RECAP *****
ubuntu@3.94.107.192      : ok=3    changed=0    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0

ayush@ayush:~/ansible/assignment$
```

3. Create the roles for the same playbook and use a custom conf file and index.html.

```
ayush@ayush:~/ansible/assignment$ cat playbook.yml
---
- name: ayush-nginx
  hosts: all
  gather_facts: true
  become: yes
  roles:
    - nginx
ayush@ayush:~/ansible/assignment$
```



```
ayush@ayush:~/ansible/assignment/nginx/templates$ cat default.j2
server{
    listen 8080;
    server_name {{ansible_hostname}};
    index index.html;
    root /var/www/html;
}
```

```
ayush@ayush:~/ansible/assignment/nginx/files$ cat index.html
hello this is a test file
ayush@ayush:~/ansible/assignment/nginx/files$
```

```
ayush@ayush:~/ansible/assignment/nginx/tasks$ cat main.yml
---
# tasks file for nginx
- name: update server
  apt:
    update_cache: true
    state: present

- name: install nginx
  apt:
    name: nginx
    state: present

- name: copy configuration
  template:
    src: default.j2
    dest: /etc/nginx/sites-available/default
    group: root
    owner: root
    mode: "0644"

- name: copy index.html
  copy:
    src: index.html
    dest: /var/www/html/index.html
    group: root
    owner: root
    mode: "0644"

- name: restart nginx
  service:
    name: nginx
    state: restarted
```

```

ayush@ayush:~/ansible/assignment$ ansible-playbook -i hosts -b playbook.yml

PLAY [ayush-nginx] *****

TASK [Gathering Facts] *****
ok: [ubuntu@3.94.107.192]

TASK [nginx : update server] *****
changed: [ubuntu@3.94.107.192]

TASK [nginx : install nginx] *****
ok: [ubuntu@3.94.107.192]

TASK [nginx : copy configuration] *****
changed: [ubuntu@3.94.107.192]

TASK [nginx : copy index.html] *****
ok: [ubuntu@3.94.107.192]

TASK [nginx : restart nginx] *****
changed: [ubuntu@3.94.107.192]

PLAY RECAP *****
ubuntu@3.94.107.192      : ok=6    changed=3    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0

```

hello this is a test file

Reference:

<https://code-maven.com/install-and-configure-nginx-using-ansible>

#### 4. Using loops, copy multiple files from ansible machine to remote node.

```
ayush@ayush:~/ansible/assignment/nginx/files$ ll
total 12
drwxr-xr-x  2 ayush ayush 4096 Mar 16 13:49 ./
drwxr-xr-x 10 ayush ayush 4096 Mar 16 11:07 ../
-rw-r--r--  1 ayush ayush   0 Mar 16 13:47 hello.txt
-rw-r--r--  1 ayush ayush   0 Mar 16 13:47 hi.txt
-rw-r--r--  1 ayush ayush  26 Mar 16 11:27 index.html
-rw-r--r--  1 ayush ayush   0 Mar 16 13:47 welcome.txt
ayush@ayush:~/ansible/assignment/nginx/files$
```

```
ayush@ayush:~/ansible/assignment$ ls
1.txt  hosts  nginx  playbook.yml
ayush@ayush:~/ansible/assignment$ cat playbook.yml
---
- name: ayush-nginx
  hosts: all
  gather_facts: true
  become: yes
  roles:
    - nginx
ayush@ayush:~/ansible/assignment$
```

```
---
- name: copy task
  copy: src={{ item.src }} dest={{ item.dest }}
  with_items:
    - { src: 'hello.txt', dest: '/var/tmp' }
    - { src: 'hi.txt', dest: '/var/tmp' }
    - { src: 'welcome.txt', dest: '/var/tmp' }
```

```

ayush@ayush:~/ansible/assignment$ ansible-playbook -i hosts playbook.yml

PLAY [ayush-nginx] *****

TASK [Gathering Facts] *****
ok: [ubuntu@3.94.107.192]

TASK [nginx : copy task] *****
ok: [ubuntu@3.94.107.192] => (item={u'dest': u'/var/tmp', u'src': u'hello.txt'})
ok: [ubuntu@3.94.107.192] => (item={u'dest': u'/var/tmp', u'src': u'hi.txt'})
changed: [ubuntu@3.94.107.192] => (item={u'dest': u'/var/tmp', u'src': u'welcome.txt'})

PLAY RECAP *****
ubuntu@3.94.107.192 : ok=2    changed=1    unreachable=0    failed=0    s
kipped=0    rescued=0    ignored=0

ayush@ayush:~/ansible/assignment$

```

5. Write a playbook to demonstrate the precedence of default and var file, override them from CLI.

```

ayush@ayush:~/ansible/assignment/nginx/tasks$ cat main.yml
---
- name: debug variable task
  debug:
    msg: "this is {{a}}"
ayush@ayush:~/ansible/assignment/nginx/tasks$

```

```

ayush@ayush:~/ansible/assignment/nginx/defaults$ cat main.yml
---
# defaults file for nginx
a: "defaults"
ayush@ayush:~/ansible/assignment/nginx/defaults$

```



```

ayush@ayush:~/ansible/assignment$ ansible-playbook -i hosts playbook.yml

PLAY [ayush-nginx] *****

TASK [Gathering Facts] *****
ok: [ubuntu@3.94.107.192]

TASK [nginx : debug variable task] *****
ok: [ubuntu@3.94.107.192] => {
    "msg": "this is defaults"
}

PLAY RECAP *****
ubuntu@3.94.107.192      : ok=2    changed=0    unreachable=0    failed=0    skipped=0
rescued=0    ignored=0

```

```

ayush@ayush:~/ansible/assignment/nginx/vars$ cat main.yml
---
# vars file for nginx
a: "vars"
ayush@ayush:~/ansible/assignment/nginx/vars$

```

```

ayush@ayush:~/ansible/assignment/nginx/defaults$ cat main.yml
---
# defaults file for nginx
a: "defaults"
ayush@ayush:~/ansible/assignment/nginx/defaults$

```

```

ayush@ayush:~/ansible/assignment$ ansible-playbook -i hosts playbook.yml
\
PLAY [ayush-nginx] *****

TASK [Gathering Facts] *****
ok: [ubuntu@3.94.107.192]

TASK [nginx : debug variable task] *****
ok: [ubuntu@3.94.107.192] => {
    "msg": "this is vars"
}

PLAY RECAP *****
ubuntu@3.94.107.192      : ok=2    changed=0    unreachable=0    failed=0    skipped=0
rescued=0    ignored=0

```

```
ayush@ayush:~/ansible/assignment$ ansible-playbook -i hosts playbook.yml -e "a=CLI"

PLAY [ayush-nginx] *****

TASK [Gathering Facts] *****
ok: [ubuntu@3.94.107.192]

TASK [nginx : debug variable task] *****
ok: [ubuntu@3.94.107.192] => {
  "msg": "this is CLI"
}

PLAY RECAP *****
ubuntu@3.94.107.192 : ok=2    changed=0    unreachable=0    failed=0    skipped=0
rescued=0    ignored=0
```