

**TO
THE
NEW™**



Assessment -17

ANSIBLE-1

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1. Run Ansible Ad-hoc commands:

1.1 To execute command in bash and see the result

ansible all -a "echo hello"

```
ubuntu@35.172.135.211 | CHANGED | rc=0 >>
hello
ubuntu@3.85.146.206 | CHANGED | rc=0 >>
hello
```

1.2 To check all running processes.

ansible all -a "ps -aux"

```
ubuntu@3.85.146.206 | CHANGED | rc=0 >>
USER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.9 159820  9120 ?        Ss   05:40   0:03 /sbin/init
root           2  0.0  0.0      0     0 ?        S    05:40   0:00 [kthreadd]
root           3  0.0  0.0      0     0 ?        I    05:40   0:00 [kworker/0:0]
root           4  0.0  0.0      0     0 ?        I<   05:40   0:00 [kworker/0:0H]
root           6  0.0  0.0      0     0 ?        I<   05:40   0:00 [mm_percpu_wq]
root           7  0.0  0.0      0     0 ?        S    05:40   0:00 [ksoftirqd/0]
root           8  0.0  0.0      0     0 ?        I    05:40   0:00 [rcu_sched]
root           9  0.0  0.0      0     0 ?        I    05:40   0:00 [rcu_bh]
root          10  0.0  0.0      0     0 ?        S    05:40   0:00 [migration/0]
root          11  0.0  0.0      0     0 ?        S    05:40   0:00 [watchdog/0]
root          12  0.0  0.0      0     0 ?        S    05:40   0:00 [cpuhp/0]
root          13  0.0  0.0      0     0 ?        S    05:40   0:00 [kdevtmpfs]
root          14  0.0  0.0      0     0 ?        I<   05:40   0:00 [netns]
root          15  0.0  0.0      0     0 ?        S    05:40   0:00 [rcu_tasks_kthre]
root          16  0.0  0.0      0     0 ?        S    05:40   0:00 [kauditd]
root          17  0.0  0.0      0     0 ?        S    05:40   0:00 [xenbus]
root          18  0.0  0.0      0     0 ?        S    05:40   0:00 [xenwatch]
root          20  0.0  0.0      0     0 ?        S    05:40   0:00 [khungtaskd]
root          21  0.0  0.0      0     0 ?        S    05:40   0:00 [oom_reaper]
root          22  0.0  0.0      0     0 ?        I<   05:40   0:00 [writeback]
root          23  0.0  0.0      0     0 ?        S    05:40   0:00 [kcompactd0]
root          24  0.0  0.0      0     0 ?        SN   05:40   0:00 [ksmd]
root          25  0.0  0.0      0     0 ?        SN   05:40   0:00 [khugepaged]
```

```

ubuntu@35.172.135.211 | CHANGED | rc=0 >>
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1   0.0   0.9 159820   9140 ?        Ss   05:41    0:03 /sbin/init
root         2   0.0   0.0      0      0 ?        S    05:41    0:00 [kthreadd]
root         3   0.0   0.0      0      0 ?        I    05:41    0:00 [kworker/0:0]
root         4   0.0   0.0      0      0 ?        I<   05:41    0:00 [kworker/0:0H]
root         6   0.0   0.0      0      0 ?        I<   05:41    0:00 [mm_percpu_wq]
root         7   0.0   0.0      0      0 ?        S    05:41    0:00 [ksoftirqd/0]
root         8   0.0   0.0      0      0 ?        I    05:41    0:00 [rcu_sched]
root         9   0.0   0.0      0      0 ?        I    05:41    0:00 [rcu_bh]
root        10   0.0   0.0      0      0 ?        S    05:41    0:00 [migration/0]
root        11   0.0   0.0      0      0 ?        S    05:41    0:00 [watchdog/0]
root        12   0.0   0.0      0      0 ?        S    05:41    0:00 [cpuhp/0]
root        13   0.0   0.0      0      0 ?        S    05:41    0:00 [kdevtmpfs]
root        14   0.0   0.0      0      0 ?        I<   05:41    0:00 [netns]
root        15   0.0   0.0      0      0 ?        S    05:41    0:00 [rcu_tasks_kthre]
root        16   0.0   0.0      0      0 ?        S    05:41    0:00 [kauditd]
root        17   0.0   0.0      0      0 ?        S    05:41    0:00 [xenbus]
root        18   0.0   0.0      0      0 ?        S    05:41    0:00 [xenwatch]

```

1.3 To copying files to multiple nodes concurrently

ansible all -m copy -a "src=/etc/ansible/arun1.txt dest=/home/ubuntu/"

```

ubuntu@3.85.146.206 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "checksum": "f572d396fae9206628714fb2ce00f72e94f2258f",
  "dest": "/home/ubuntu/arun1.txt",
  "gid": 1000,
  "group": "ubuntu",
  "md5sum": "b1946ac92492d2347c6235b4d2611184",
  "mode": "0664",
  "owner": "ubuntu",
  "size": 6,
  "src": "/home/ubuntu/.ansible/tmp/ansible-tmp-1585984779.63-169778492716693/source",
  "state": "file",
  "uid": 1000
}
ubuntu@35.172.135.211 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "checksum": "f572d396fae9206628714fb2ce00f72e94f2258f",
  "dest": "/home/ubuntu/arun1.txt",
  "gid": 1000,
  "group": "ubuntu"
}

```

1.4 To add and delete user

ansible all -m user -a "name=arun state=absent" --become

```
ubuntu@3.85.146.206 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "name": "arun",
  "state": "absent"
}
ubuntu@35.172.135.211 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "force": false,
  "name": "arun",
  "remove": false,
  "state": "absent"
}
```

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

Create an ansible playbook.


```

- --
- hosts: all
  tasks:
    - name: Update apt
      apt:
        update_cache: yes
    - name: Install latest nginx
      apt:
        name: nginx
        state: latest
    - name: start nginx
      service:
        name: nginx
        state: started

```

Run the playbook.

ansible-playbook nginx.yml --become

```

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [ubuntu@3.85.146.206]
ok: [ubuntu@35.172.135.211]

TASK [Update apt] *****
changed: [ubuntu@35.172.135.211]
changed: [ubuntu@3.85.146.206]

TASK [Install latest nginx] *****
changed: [ubuntu@35.172.135.211]
changed: [ubuntu@3.85.146.206]

TASK [start nginx] *****
ok: [ubuntu@35.172.135.211]
ok: [ubuntu@3.85.146.206]

PLAY RECAP *****
ubuntu@3.85.146.206      : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ig
nored=0
ubuntu@35.172.135.211  : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ig
nored=0

```

Check if the default page is running.

```

ubuntu@ip-172-31-150-141:~$ curl localhost:80
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
  body {
    width: 35em;
    margin: 0 auto;
    font-family: Tahoma, Verdana, Arial, sans-serif;
  }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

```

Check if the service is running.

ansible all -a "service nginx status" --become

```

ubuntu@3.85.146.206 | CHANGED | rc=0 >>
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2020-04-04 06:01:02 UTC; 4min 41s ago
     Docs: man:nginx(8)
  Main PID: 2716 (nginx)
    Tasks: 2 (limit: 1152)
   CGroup: /system.slice/nginx.service
           └─2716 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
             └─2718 nginx: worker process

Apr 04 06:01:02 ip-172-31-37-198 systemd[1]: Starting A high performance web server and a reverse proxy ser
ver...
Apr 04 06:01:02 ip-172-31-37-198 systemd[1]: nginx.service: Failed to parse PID from file /run/nginx.pid: I
nvalid argument
Apr 04 06:01:02 ip-172-31-37-198 systemd[1]: Started A high performance web server and a reverse proxy serv
er.
ubuntu@35.172.135.211 | CHANGED | rc=0 >>
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Sat 2020-04-04 06:01:01 UTC; 4min 41s ago
     Docs: man:nginx(8)

```

3. Create role for the same playbook and create custom conf file and index.html

Create ansible role directory structure.

```
sudo ansible-galaxy init nginx_role
```

Go to tasks and edit main.yml

```
- name: update apt
  apt:
    update_cache: yes
- name: install nginx
  apt:
    name: nginx
    state: latest
- name: start nginx
  service:
    name: nginx
    state: started
- name: copy nginx conf file
  copy:
    src: /etc/nginx/sites-available/site1.com
    dest: /etc/nginx/sites-available/site1.com
  become: yes
- name: delete the symlink of default in sites enabled
  file:
    path: "/etc/nginx/sites-enabled/default"
    state: absent
- name: create symlink for site1.com
  file:
    src: /etc/nginx/sites-available/site1.com
    dest: /etc/nginx/sites-enabled/site1.com
```



```

- name: create symlink for site1.com
  file:
    src: /etc/nginx/sites-available/site1.com
    dest: /etc/nginx/sites-enabled/site1.com
    state: link
  become: yes
- name: delete the default from sites-available
  file:
    path: "/etc/nginx/sites-available/default"
    state: absent
- name: copy the content of the website
  copy:
    src: /var/www/html/site1.html
    dest: /var/www/html/site1.html
  become: yes
- name: reload nginx
  service:
    name: nginx
    state: reloaded
  become: yes

```

Create a playbook.

```

---
- hosts: all
  become: yes
  roles:
    - new_role

```

Run the playbook.

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

TASK [Gathering Facts] *****
ok: [ubuntu@35.172.135.211]
ok: [ubuntu@3.85.146.206]

TASK [new_role : update apt] *****
changed: [ubuntu@35.172.135.211]
changed: [ubuntu@3.85.146.206]

TASK [new_role : install nginx] *****
ok: [ubuntu@35.172.135.211]
ok: [ubuntu@3.85.146.206]

TASK [new_role : start nginx] *****
ok: [ubuntu@35.172.135.211]
ok: [ubuntu@3.85.146.206]

TASK [new_role : copy nginx conf file] *****
changed: [ubuntu@3.85.146.206]
changed: [ubuntu@35.172.135.211]

TASK [new_role : delete the symlink of default in sites enabled] *****
changed: [ubuntu@3.85.146.206]
changed: [ubuntu@35.172.135.211]
```

Go to hosts and check for website.

curl localhost:80

```
ubuntu@ip-172-31-150-141:/etc/nginx/sites-available$ curl localhost:80
<html>
  <head> site1</head>
  <body>Welcome</body>
</html>
ubuntu@ip-172-31-150-141:/etc/nginx/sites-available$
```

4. Using loops copy multiple files from ansible machine to the remote machine.

Ansible Playbook

Create a playbook.

```

- - -
- hosts: all
  tasks:
    - name: copy some files from ansible machine to remote servers.
      copy:
        src: "/home/arun/{{ item }}"
        dest: "/home/ubuntu/{{ item }}"
      with_items:
        - demo.txt
        - test.sh

```

```

PLAY [all] *****

TASK [Gathering Facts] *****
ok: [ubuntu@35.172.135.211]
ok: [ubuntu@3.85.146.206]

TASK [copy some files from ansible machine to remote servers.] *****
changed: [ubuntu@3.85.146.206] => (item=demo.txt)
changed: [ubuntu@35.172.135.211] => (item=demo.txt)
changed: [ubuntu@3.85.146.206] => (item=test.txt)
changed: [ubuntu@35.172.135.211] => (item=test.txt)

PLAY RECAP *****
ubuntu@3.85.146.206      : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
ubuntu@35.172.135.211  : ok=2    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

```

Check for the files on remote server.

```

ubuntu@ip-172-31-150-141:~$ ls
demo.txt  test.sh
ubuntu@ip-172-31-150-141:~$

```

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

Create a role.

sudo ansible-galaxy init precedence_role.

Now go to the default folder and define the value of the variable.

```
---
var: I am from defaults folder
# defaults file for var_role
~
```

Go to the vars folder and define the value of the variable.

```
---
var: I am from vars folder
# vars file for var_role
```

Go to the task folder.

```
---
- name: Print value of var
  shell:
    cmd: echo "{{ var }}" > arun.txt
# tasks file for var_role
~
```

Playbook:

```
---
- hosts: all
  become: yes
  roles:
    - precedence_role
```

Output when we mention value in the vars folder.


```
ubuntu@ip-172-31-150-141:~$ ls
arun.txt  demo.txt  test.sh
ubuntu@ip-172-31-150-141:~$ cat arun.txt
I am from vars folder
ubuntu@ip-172-31-150-141:~$
```

Output when we don't mention the value in the vars folder.

```
ubuntu@ip-172-31-150-141:~$ cat arun.txt
I am from defaults folder
ubuntu@ip-172-31-150-141:~$
```

Output when we pass values as external arguments. It overrides all the values.
ansible-playbook precedence.yml --extra-vars "var=100"

```
ubuntu@ip-172-31-150-141:~$ ls
arun.txt  demo.txt  test.sh
ubuntu@ip-172-31-150-141:~$ cat arun.txt
100
ubuntu@ip-172-31-150-141:~$
```