

Ansible 2

1. Create two nodes with tag:key role and tag:value master & slave respectively. Setup the dynamic inventory on ansible control nodes.

<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance Sta	Status Checks	Alarm Status
<input type="checkbox"/>	Ansible_master	i-0d18b05828e1dfd80	t2.micro	us-east-1c	● running	✓ 2/2 checks pas...	None
<input checked="" type="checkbox"/>	Ansible_slave	i-0ba5b8b6ef5019824	t2.micro	us-east-1c	● running	✓ 2/2 checks pas...	None
<input type="checkbox"/>	master-server	i-00d8ad3860ede859e	t2.micro	us-east-1c	● running	✓ 2/2 checks pas...	None

Subnet ID	subnet-0fa3917512684d821 (jay)
Network interfaces	eth0
IAM role	EC2fullaccess
Key pair name	Jay
Owner	315002452909
Launch time	April 22, 2020 at 9:25:45 AM UTC+5:30 (less than one hour)

Platform details	-
Usage operation	-
Source/dest. check	True
T2/T3 Unlimited	Disabled
EBS-optimized	False
Root device type	ebs

```
ubuntu@ip-172-31-24-43:/etc/ansible$ ll
total 108
drwxr-xr-x  3 root  root   4096 Apr 22 04:04 ./
drwxr-xr-x 92 root  root   4096 Apr 22 04:12 ../
-rw-r--r--  1 root  root  19985 Apr 17 01:30 ansible.cfg
-rw-rw-r--  1 ubuntu ubuntu 8140 Apr 22 04:05 ec2.ini
-rwxrwxr-x  1 ubuntu ubuntu 63782 Apr 22 04:03 ec2.py*
-rw-r--r--  1 root  root   1016 Apr 17 01:30 hosts
drwxr-xr-x  2 root  root   4096 Apr 17 01:30 roles/
ubuntu@ip-172-31-24-43:/etc/ansible$
```

```

# The following two settings allow flexible ansible host naming based on a
# python format string and a comma-separated list of ec2 tags. Note that:
#
# 1) If the tags referenced are not present for some instances, empty strings
#    will be substituted in the format string.
# 2) This overrides both destination_variable and vpc_destination_variable.
#
#destination_format = {0}.{1}.example.com
#destination_format_tags = Name,environment

# To tag instances on EC2 with the resource records that point to them from
# Route53, uncomment and set 'route53' to True.
route53 = False

# To exclude RDS instances from the inventory, uncomment and set to False.
rds = False

# To exclude ElastiCache instances from the inventory, uncomment and set to False.
elasticsearch = False

# Additionally, you can specify the list of zones to exclude looking up in
# 'route53_excluded_zones' as a comma-separated list.
# route53_excluded_zones = samplezone1.com, samplezone2.com

```

```

    "34.234.100.155"
  ],
  "tag_Name_Ansible_master": [
    "35.172.250.145"
  ],
  "tag_Name_Ansible_slave": [
    "18.208.203.4"
  ],
  "tag_Name_master_server": [
    "34.234.100.155"
  ],
  "type_t2_micro": [
    "35.172.250.145",
    "18.208.203.4",
    "34.234.100.155"
  ],
  "us-east-1": [
    "35.172.250.145",
    "18.208.203.4",
    "34.234.100.155"
  ],
  "us-east-1c": [
    "35.172.250.145",
    "18.208.203.4",
    "34.234.100.155"
  ],
  "vpc_id_vpc_fdfaf987": [
    "35.172.250.145",
    "18.208.203.4",
    "34.234.100.155"
  ]
}

```

./ec2.py --list

Run the following modules using tag key-value:

1.1 Ping master node and slave node separately.

```
ubuntu@ip-172-31-24-43:/etc/ansible$ ansible -i ec2.py tag_Name_Ansible_master -m ping
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this will change, but still be user configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
35.172.250.145 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
ubuntu@ip-172-31-24-43:/etc/ansible$
```

```
ubuntu@ip-172-31-24-43:/etc/ansible$ ansible -i ec2.py tag_Name_Ansible_slave -m ping
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this will change, but still be user configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
The authenticity of host '18.208.203.4 (18.208.203.4)' can't be established.
ECDSA key fingerprint is SHA256:0M02noHkTiU2DbBS9VVAfxucBP0py01gWebzXhWIywg.
Are you sure you want to continue connecting (yes/no)? yes
18.208.203.4 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
ubuntu@ip-172-31-24-43:/etc/ansible$
```

1.2 To check all running processes on slave node.

```
ubuntu@ip-172-31-24-43:/etc/ansible$ ansible -i ec2.py tag_Role_Ansible_slave -m shell -a "ps -aux"
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this will change, but still be user configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
[WARNING]: Could not match supplied host pattern, ignoring: tag_Role_Ansible_slave
[WARNING]: No hosts matched, nothing to do
ubuntu@ip-172-31-24-43:/etc/ansible$ ansible -i ec2.py tag_Name_Ansible_slave -m shell -a "ps -aux"
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this will change, but still be user configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
18.208.203.4 | CHANGED | rc=0 >>
USER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.9 159812 9120 ?        Ss   02:59   0:03 /sbin/init
root           2  0.0  0.0      0   0 ?        S    02:59   0:00 [kthreadd]
root           3  0.0  0.0      0   0 ?        I    02:59   0:00 [kworker/0:0]
root           4  0.0  0.0      0   0 ?        I<   02:59   0:00 [kworker/0:0H]
root           6  0.0  0.0      0   0 ?        I<   02:59   0:00 [mm_percpu_wq]
root           7  0.0  0.0      0   0 ?        S    02:59   0:00 [ksoftirqd/0]
root           8  0.0  0.0      0   0 ?        I    02:59   0:00 [rcu_sched]
root           9  0.0  0.0      0   0 ?        I    02:59   0:00 [rcu_bh]
root          10  0.0  0.0      0   0 ?        S    02:59   0:00 [migration/0]
root          11  0.0  0.0      0   0 ?        S    02:59   0:00 [watchdog/0]
root          12  0.0  0.0      0   0 ?        S    02:59   0:00 [cpuhp/0]
root          13  0.0  0.0      0   0 ?        S    02:59   0:00 [kdevtmpfs]
root          14  0.0  0.0      0   0 ?        I<   02:59   0:00 [netns]
root          15  0.0  0.0      0   0 ?        S    02:59   0:00 [rcu_tasks_kthre]
root          16  0.0  0.0      0   0 ?        S    02:59   0:00 [kauditd]
root          17  0.0  0.0      0   0 ?        S    02:59   0:00 [xenbus]
root          18  0.0  0.0      0   0 ?        S    02:59   0:00 [xenwatch]
root          20  0.0  0.0      0   0 ?        S    02:59   0:00 [khungtaskd]
root          21  0.0  0.0      0   0 ?        S    02:59   0:00 [oom_reaper]
root          22  0.0  0.0      0   0 ?        I<   02:59   0:00 [writeback]
root          23  0.0  0.0      0   0 ?        S    02:59   0:00 [kcompactd0]
root          24  0.0  0.0      0   0 ?        SN   02:59   0:00 [ksmd]
root          25  0.0  0.0      0   0 ?        SN   02:59   0:00 [khugepaged]
root          26  0.0  0.0      0   0 ?        I<   02:59   0:00 [rcuota1]
```

1.3 To copying files to both nodes concurrently.

```
ubuntu@ip-172-31-24-43:/etc/ansible$ ansible -i ec2.py tag_Name_Ansible_* -m copy -a "src=/etc/hosts dest=/home/ubuntu"
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this will change but still be user configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details
18.208.203.4 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "checksum": "a777be51c79c607edd61c8e12cd9b775ddc8a6c6",
  "dest": "/home/ubuntu/hosts",
  "gid": 1000,
  "group": "ubuntu",
  "md5sum": "1463508f28edb4d6d5ae349b20e00409",
  "mode": "0664",
  "owner": "ubuntu",
  "size": 221,
  "src": "/home/ubuntu/.ansible/tmp/ansible-tmp-1587529468.57-9097-160917148050177/source",
  "state": "file",
  "uid": 1000
}
35.172.250.145 | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": true,
  "checksum": "a777be51c79c607edd61c8e12cd9b775ddc8a6c6",
  "dest": "/home/ubuntu/hosts",
  "gid": 1000,
  "group": "ubuntu",
  "md5sum": "1463508f28edb4d6d5ae349b20e00409",
  "mode": "0664",
  "owner": "ubuntu",
  "size": 221,
  "src": "/home/ubuntu/.ansible/tmp/ansible-tmp-1587529468.57-9098-65366136033032/source",
  "state": "file",
  "uid": 1000
}
```

2. Setup nginx on both nodes with a single custom configuration template, on master nginx should run on 8000 while on slave nginx would listen on port 80. [Jinja2+conditional]

```
ubuntu@ip-172-31-24-43:/etc/ansible$ cd roles/nginx/
ubuntu@ip-172-31-24-43:/etc/ansible/roles/nginx$ tree
.
├── README.md
├── defaults
│   └── main.yml
├── files
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── tasks
│   └── main.yml
├── templates
│   └── default.j2
├── tests
│   ├── inventory
│   └── test.yml
└── vars
    └── main.yml

8 directories, 9 files
ubuntu@ip-172-31-24-43:/etc/ansible/roles/nginx$
```

```

ubuntu@ip-172-31-24-43:/etc/ansible$ cat roles/nginx/vars/main.yml
---
# vars file for nginx
which_port: "{{ '8080' if ec2_tag_Role == 'Master' else '80' }}"
ubuntu@ip-172-31-24-43:/etc/ansible$ cat roles/nginx/templates/default.j2
server {
    listen {{ which_port }} ;
    server_name _;
    root /var/www/html;
    index index .nginx-debian.html;
}
ubuntu@ip-172-31-24-43:/etc/ansible$ cat roles/nginx/tasks/main.yml
---
# tasks file for nginx
#
- name: updateing ec2
  apt:
    update_cache: yes
- name: install nginx
  apt:
    name: nginx
- name: checking ports
  debug:
    msg: "PORTS = {{ which_port }}"
- name: setting uop conf for nginx
  template:
    src: default.j2
    dest: /etc/nginx/sites-available/default
- name: restart nginx
  service:
    name: nginx
    state: restarted
ubuntu@ip-172-31-24-43:/etc/ansible$

```

```

ubuntu@ip-172-31-24-43:/etc/ansible$ cd ../..
ubuntu@ip-172-31-24-43:/etc/ansible/yaml$ cat main.yml
---
- hosts: tag_Role_*
  become: yes

  tasks:
    - import_role:
        name: nginx
ubuntu@ip-172-31-24-43:/etc/ansible/yaml$

```

```
ubuntu@ip-172-31-24-43:/etc/ansible/yaml$ ansible-playbook -i /etc/ansible/ec2.py main.yml
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this will change,
but still be user configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details

PLAY [tag_Role_*] *****

TASK [Gathering Facts] *****
ok: [35.172.250.145]
ok: [18.208.203.4]

TASK [nginx : update ec2] *****
changed: [18.208.203.4]
changed: [35.172.250.145]

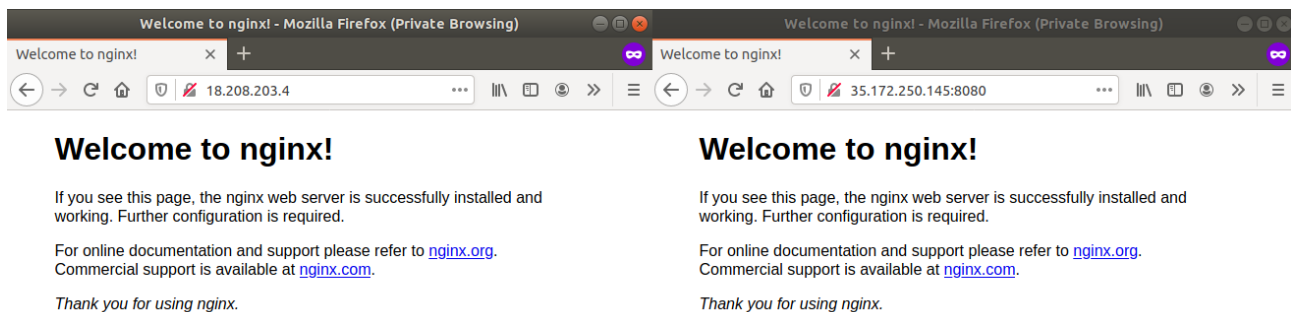
TASK [nginx : install nginx] *****
changed: [35.172.250.145]
changed: [18.208.203.4]

TASK [nginx : checking ports] *****
ok: [18.208.203.4] => {
  "msg": "PORTS = 80 "
}
ok: [35.172.250.145] => {
  "msg": "PORTS = 8080 "
}

TASK [nginx : setting uop conf for nginx] *****
changed: [35.172.250.145]
changed: [18.208.203.4]

TASK [nginx : restart nginx] *****
changed: [18.208.203.4]
changed: [35.172.250.145]

PLAY RECAP *****
18.208.203.4 : ok=6 changed=4 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
```



3. Setup mysql on a remote server, create a user with password. Passwords should be encrypted using Ansible vault. Verify the setup by log in to mysql.

```
ubuntu@ip-172-31-24-43:/etc/ansible/yaml$ cat mysql_auth.yml
---
- hosts: tag_Role_Slave
  become: yes
  tasks:
    - import_role:
        name: mysql_authubuntu@ip-172-31-24-43:/etc/ansible/yaml$
```

yaml/mysql_auth.yml(main playbook)


```
ubuntu@ip-172-31-24-43:/etc/ansible/roles/mysql_auth$ tree
.
├── README.md
├── defaults
│   └── main.yml
├── files
├── handlers
│   └── main.yml
├── meta
│   └── main.yml
├── tasks
│   └── main.yml
├── templates
├── tests
│   ├── inventory
│   └── test.yml
└── vars
    └── main.yml

8 directories, 8 files
ubuntu@ip-172-31-24-43:/etc/ansible/roles/mysql_auth$
```

role for mysql_auth

```
ubuntu@ip-172-31-24-43:/etc/ansible/roles/mysql_auth$ cat tasks/main.yml
- name: updating ec1
  apt:
    update_cache: yes
    name: "{{ item }}"
    state: present
  with_items:
    - python-mysqldb
    - mysql-server
- name: start mysql
  service:
    name: mysql
    state: started
- name: creating a new user
  mysql_user:
    user: jay
    password: "{{ mysql_password }}"
    priv: '*.*:ALL'
    host: "%"
- name: updating ec2
  service:
    name: mysql
    state: restarted
ubuntu@ip-172-31-24-43:/etc/ansible/roles/mysql_auth$
```

mysql_auth/tasks/main.yml

```
ubuntu@ip-172-31-24-43:/etc/ansible/roles/mysql_auth$ ansible-vault encrypt vars/main.yml
New Vault password:
Confirm New Vault password:
Encryption successful
ubuntu@ip-172-31-24-43:/etc/ansible/roles/mysql_auth$ cat vars/main.yml
$ANSIBLE_VAULT;1.1;AES256
63353131356164353933653931666434376636616264396230376433663235363932323734313964
3765333530653465633236386561653337366231346364640a643663306133323838303733376330
64333837613431613563376261373162396661633062373966383139613765353736373533663936
3264613061313566340a653763643938363333316637643734313361303939626364303431323764
65363837363963383563656264366434356537613637633833643931313136336639306136306362
65646534316236613233326433316462313233616364663532373134343863656265653662303933
646439353061333666633862373339656535
ubuntu@ip-172-31-24-43:/etc/ansible/roles/mysql_auth$
```

mysql_auth/vars/main.yml

```

ubuntu@ip-172-31-24-43:/etc/ansible/yanl$ ansible-playbook -i ../ec2.py mysql_auth.yml --ask-vault-pass
Vault password:
[DEPRECATION WARNING]: The TRANSFORM_INVALID_GROUP_CHARS settings is set to allow bad characters in group names by default, this will change,
but still be user configurable on deprecation. This feature will be removed in version 2.10. Deprecation warnings can be disabled by setting
deprecation_warnings=False in ansible.cfg.
[WARNING]: Invalid characters were found in group names but not replaced, use -vvvv to see details

PLAY [tag_Role_Slave] *****

TASK [Gathering Facts] *****
[DEPRECATION WARNING]: Distribution Ubuntu 18.04 on host 18.208.203.4 should use /usr/bin/python3, but is using /usr/bin/python for backward
compatibility with prior Ansible releases. A future Ansible release will default to using the discovered platform python for this host. See
https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more information. This feature will be removed in
version 2.12. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [18.208.203.4]

TASK [mysql_auth : updating ec1] *****
[DEPRECATION WARNING]: Invoking "apt" only once while using a loop via squash actions is deprecated. Instead of using a loop to supply multiple
items and specifying 'name: "{{ item }}"', please use 'name: ['python-mysqldb', 'mysql-server']' and remove the loop. This feature will be
removed in version 2.11. Deprecation warnings can be disabled by setting deprecation_warnings=False in ansible.cfg.
ok: [18.208.203.4] => (item=[u'python-mysqldb', u'mysql-server'])
[WARNING]: Updating cache and auto-installing missing dependency: python-apt

TASK [mysql_auth : start mysql] *****
ok: [18.208.203.4]

TASK [mysql_auth : creating a new user] *****
[WARNING]: Module did not set no_log for update_password
changed: [18.208.203.4]

TASK [mysql_auth : updating ec2] *****
changed: [18.208.203.4]

PLAY RECAP *****
18.208.203.4 : ok=5 changed=2 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0

ubuntu@ip-172-31-24-43:/etc/ansible/yanl$

```

```

ubuntu@ip-172-31-24-58:~$ mysql -u jay -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.7.29-0ubuntu0.18.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>

```

Ansible-slave node