ansible controller

Inside the ansible-controller

```
λ Cmder

[root@ip-172-31-93-156 ~]# yum install ansible
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
No package ansible available.
Error: Nothing to do


ansible is available in Amazon Linux Extra topic "ansible2"

To use, run
# sudo amazon-linux-extras install ansible2

Learn more at
https://aws.amazon.com/amazon-linux-2/faqs/#Amazon_Linux_Extras
```

```
[root@ip-172-31-93-156 ~]# sudo amazon-linux-extras install ansible2
Installing ansible
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Cleaning repos: amzn2-core amzn2extra-ansible2 amzn2extra-docker amzn2extra-kernel-5.10
17 metadata files removed
6 sqlite files removed
0 metadata files removed
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                                                   | 3.7 kB  00:00:00
amzn2extra-ansible2                                                          | 3.0 kB  00:00:00
amzn2extra-docker                                                           | 3.0 kB  00:00:00
amzn2extra-kernel-5.10                                                      | 3.0 kB  00:00:00
(1/9): amzn2-core/2/x86_64/group_gz                                         | 2.5 kB  00:00:00
(2/9): amzn2-core/2/x86_64/updateinfo                                       | 539 kB  00:00:00
(3/9): amzn2extra-docker/2/x86_64/primary_db                                |  99 kB  00:00:00
(4/9): amzn2extra-kernel-5.10/2/x86_64/updateinfo                           |  22 kB  00:00:00
(5/9): amzn2extra-ansible2/2/x86_64/updateinfo                              |  76 B   00:00:00
```

```
[root@ip-172-31-93-156 ~]# ansible --version
ansible 2.9.23
  config file = /etc/ansible/ansible.cfg
  configured module search path = [u'/root/.ansible/plugins/modules', u'/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python2.7/site-packages/ansible
  executable location = /usr/bin/ansible
  python version = 2.7.18 (default, May 25 2022, 14:30:51) [GCC 7.3.1 20180712 (Red Hat 7.3.1-15)]
[root@ip-172-31-93-156 ~]#
```

```
[root@ip-172-31-93-156 ansible]# ansible all --list-hosts
[WARNING]: provided hosts list is empty, only localhost is available. Note that the implicit localhost does not match 'all'
  hosts (0):
[root@ip-172-31-93-156 ansible]#
```

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create inventory file

```
[frontend]
    34.238.151.4   ansible_user=root ansible_password=redhat


[backend]
[backend]
    44.211.254.135    ansible_user=root ansible_password=redhat
  | 44.211.175.117    ansible_user=root ansible_password=redhat
```

[frontend]
  34.238.151.4 ansible_user=root ansible_password=redhat

[backend]

  44.211.254.135   ansible_user=root ansible_password=redhat
  44.211.175.117   ansible_user=root ansible_password=redhat

```
[root@ip-172-31-93-156 ~]# ansible all --list-host
  hosts (3):
    34.238.151.4
    44.211.254.135
    44.211.175.117
[root@ip-172-31-93-156 ~]# ansible all -m ping
34.238.151.4 | FAILED! => {
    "msg": "Using a SSH password instead of a key is not possible because Host Key checking is enabled and sshpass does not support this.  Please add
this host's fingerprint to your known_hosts file to manage this host."
}
44.211.254.135 | FAILED! => {
    "msg": "Using a SSH password instead of a key is not possible because Host Key checking is enabled and sshpass does not support this.  Please add
this host's fingerprint to your known_hosts file to manage this host."
}
44.211.175.117 | FAILED! => {
    "msg": "Using a SSH password instead of a key is not possible because Host Key checking is enabled and sshpass does not support this.  Please add
this host's fingerprint to your known_hosts file to manage this host."
}
[root@ip-172-31-93-156 ~]#
```

Edit ansible.cfg file

```
# uncomment this to disable SSH key host checking
host_key_checking = False

# change the default callback, you can only have one 'stdout' type  enabled at a time.
#stdout_callback = skippy
```

```
[defaults]

# some basic default values...

inventory        = /etc/ansible/hosts
#library         = /usr/share/my_modules/
#module_utils    = /usr/share/my_module_utils/
#remote_tmp      = ~/.ansible/tmp
#local_tmp       = ~/.ansible/tmp
```

now we ping all the host through ansible

```
[root@ip-172-31-93-156 ansible]# ansible all -m ping
[WARNING]: Platform linux on host 44.211.175.117 is using the discovered Python interpreter at /usr/bin/python, but future installation of another
Python interpreter could change this. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more information.
44.211.175.117 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
[WARNING]: Platform linux on host 44.211.254.135 is using the discovered Python interpreter at /usr/bin/python, but future installation of another
Python interpreter could change this. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more information.
44.211.254.135 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
[WARNING]: Platform linux on host 34.238.151.4 is using the discovered Python interpreter at /usr/bin/python, but future installation of another
Python interpreter could change this. See https://docs.ansible.com/ansible/2.9/reference_appendices/interpreter_discovery.html for more information.
34.238.151.4 | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
```

it gives warning

adding the line "**interpreter_python = /usr/bin/python**" to "/etc/ansible/ansible.cfg"

```
[defaults]

# some basic default values...
interpreter_python = /usr/bin/python
inventory        = /etc/ansible/hosts
#library         = /usr/share/my_modules/
#module_utils    = /usr/share/my_module_utils/
#remote_tmp      = ~/.ansible/tmp
```

now the warning has gone:

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```
[root@ip-172-31-93-156 ansible]# ansible all -m ping
44.211.254.135 | SUCCESS => {
    "changed": false,
    "ping": "pong"
}
34.238.151.4 | SUCCESS => {
    "changed": false,
    "ping": "pong"
}
44.211.175.117 | SUCCESS => {
    "changed": false,
    "ping": "pong"
}
```

now we create a playbook for backend server:

```yaml
- hosts: backend
  tasks:
  - name: Install web package
    package:
      name: "httpd"
      state: present

  - name: Install php package
    package:
      name: "php"
      state: present

  - name: Deploy pdp code
    copy:
      src: "index.php"
      dest: "/var/www/html"

  - name: Service start
    service:
      name: "httpd"
      state: "started"
      enabled: true
```

- hosts: backend
 tasks:
 - name: Install web package
  package:
   name: "httpd"
   state: present

 - name: Install php package
  package:
   name: "php"
   state: present

 - name: Deploy pdp code
  copy:
   src: "index.php"
   dest: "/var/www/html"

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```yaml
- name: Service start
  service:
    name: "httpd"
    state: "started"
    enabled: true
```

create web page


```html
<html>
<head>
<title> Saini</title>
</head>
<body>
<h1 style=text-align:center;>Horizontal scalling </h1>
<h2> Scale Out</h2>
<br>
<br>
<?php

print_r("Now Backend server ip is <div style=color:red;font-size:25px><b>".$_SERVER[SERVER_ADDR]."</b></div><br><br><br>");

print_r("Now your Browser(client) ip is <div style=color:blue;font-size:25px><b>".$_SERVER[REMOTE_ADDR]."</b></div>");
?>

<br>
<br><br><br><br>
<h3>by :  Shivam Saini</h3>

</body>
</html>
```

```
[root@ip-172-31-93-156 shivamSaini]# ansible-playbook  backend.yml

PLAY [backend] *********************************************************************

TASK [Gathering Facts] ************************************************************
ok: [44.211.175.117]
ok: [44.211.254.135]

TASK [Install web package] *********************************************************
changed: [44.211.254.135]
changed: [44.211.175.117]

TASK [Install php package] *********************************************************
changed: [44.211.254.135]
changed: [44.211.175.117]

TASK [Deploy pdp code] ************************************************************
changed: [44.211.175.117]
changed: [44.211.254.135]

TASK [Service start] **************************************************************
changed: [44.211.254.135]
changed: [44.211.175.117]

PLAY RECAP ************************************************************************
44.211.175.117             : ok=5    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
44.211.254.135             : ok=5    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[root@ip-172-31-93-156 shivamSaini]#
```

Now write a code for frontend(loadblancer) server:

```yaml
- hosts: frontend
  tasks:
  - name: Install Haproxy package
    package:
      name: "haproxy"
      state: present

  - name: Configure a file of haproxy
    template:
      src: "conf.j2"
      dest: "/etc/haproxy/haproxy.cfg"

  - name: Start a Service
    service:
      name: "haproxy"
      state: restarted
      enabled: true
~
~
~
~
```

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```
- hosts: frontend
  tasks:
  - name: Install Haproxy package
    package:
      name: "haproxy"
      state: present


  - name: Configure a file of haproxy
    template:
      src: "conf.j2"
      dest: "/etc/haproxy/haproxy.cfg"


  - name: Start a Service
    service:
      name: "haproxy"
      state: restarted
      enabled: true
```

write configuration file for HAPROXY:

Here i use jinja template of python and ansible magic variable


```
frontend loadblancer
        bind *:8081
        timeout client 10s
        default_backend webServer

backend webServer
        balance roundrobin
        timeout connect 10s
        timeout server 10s

{% for i in groups['backend'] %}

        server backendServer{{ loop.index }} {{ i }}:80

{% endfor %}
```

frontend loadblancer
    bind *:8081
    timeout client 10s
    default_backend webServer

backend webServer

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balance roundrobin
timeout connect 10s
timeout server 10s

{% for i in groups['backend'] %}

    server backendServer{{ loop.index }} {{ i }}:80

{% endfor %}

```
[root@ip-172-31-93-156 shivamSaini]# ansible-playbook frontend.yml

PLAY [frontend] *******************************************************************************

TASK [Gathering Facts] ************************************************************************
ok: [34.238.151.4]

TASK [Install Haproxy package] ****************************************************************
changed: [34.238.151.4]

TASK [Configure a file of haproxy] ************************************************************
changed: [34.238.151.4]

TASK [Start a Service] ************************************************************************
changed: [34.238.151.4]

PLAY RECAP ************************************************************************************
34.238.151.4               : ok=4    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[root@ip-172-31-93-156 shivamSaini]#
```

Now we can check our server:

if more and more user come then we can **scale out** our server:

now i add one more server:

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```
## db-[99:101]-node.example.com
[frontend]
     34.238.151.4   ansible_user=root ansible_password=redhat


[backend]
[backend]
     44.211.254.135    ansible_user=root ansible_password=redhat
     44.211.175.117    ansible_user=root ansible_password=redhat

     #Scale out our server
     3.82.243.77   ansible_user=root ansible_password=redhat
```

```
[root@ip-172-31-93-156 shivamSaini]# ansible-playbook frontend.yml

PLAY [frontend] ****************************************************************************************

TASK [Gathering Facts] ********************************************************************************
ok: [34.238.151.4]

TASK [Install Haproxy package] ************************************************************************
ok: [34.238.151.4]

TASK [Configure a file of haproxy] ********************************************************************
changed: [34.238.151.4]

TASK [Start a Service] ********************************************************************************
changed: [34.238.151.4]

PLAY RECAP ********************************************************************************************
34.238.151.4               : ok=4    changed=2    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[root@ip-172-31-93-156 shivamSaini]#
```

ansible-playbook backend.yml

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```
TASK [Gathering Facts] ***********************************************************
ok: [44.211.175.117]
ok: [44.211.254.135]
ok: [3.82.243.77]

TASK [Install web package] ***********************************************************
ok: [44.211.175.117]
ok: [44.211.254.135]
changed: [3.82.243.77]

TASK [Install php package] ***********************************************************
ok: [44.211.254.135]
ok: [44.211.175.117]
changed: [3.82.243.77]

TASK [Deploy pdp code] ***********************************************************
ok: [44.211.175.117]
ok: [44.211.254.135]
changed: [3.82.243.77]

TASK [Service start] ***********************************************************
ok: [44.211.254.135]
ok: [44.211.175.117]
changed: [3.82.243.77]

PLAY RECAP ***********************************************************
3.82.243.77       : ok=5    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
44.211.175.117    : ok=5    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
44.211.254.135    : ok=5    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

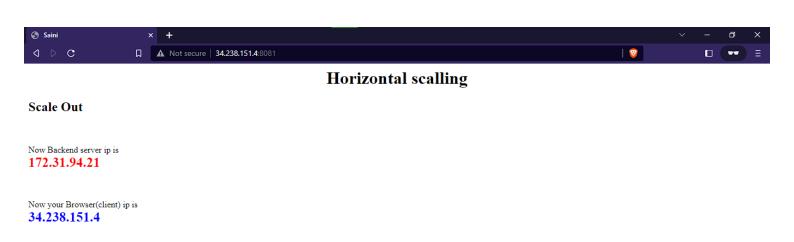test our loadblancer :

ip of frontend server >>**34.238.151.4:8081**

Horizontal scalling

Scale Out

Now Backend server ip is
172.31.80.75

Now your Browser(client) ip is
34.238.151.4

by : Shivam Saini

again refresh

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Horizontal scalling

Scale Out

Now Backend server ip is
172.31.94.21

Now your Browser(client) ip is
34.238.151.4

by : Shivam Saini

again refresh

Horizontal scalling

Scale Out

Now Backend server ip is
172.31.94.217

Now your Browser(client) ip is
34.238.151.4

by : Shivam Saini

use private tab when testing because browser store the web page in it's buffer or cache

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