



SCHOOL OF COMPUTER SCIENCE
SPCM LAB FILE
ANSIBLE LAB

Submitted by

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Lab Exercise 01

Creating Static Host Inventory

Objective: To create a static host inventory for managing and automating infrastructure tasks efficiently across multiple servers using Ansible

Tools required: Ubuntu OS

Prerequisites: You need to have Ansible installed to proceed with this demo

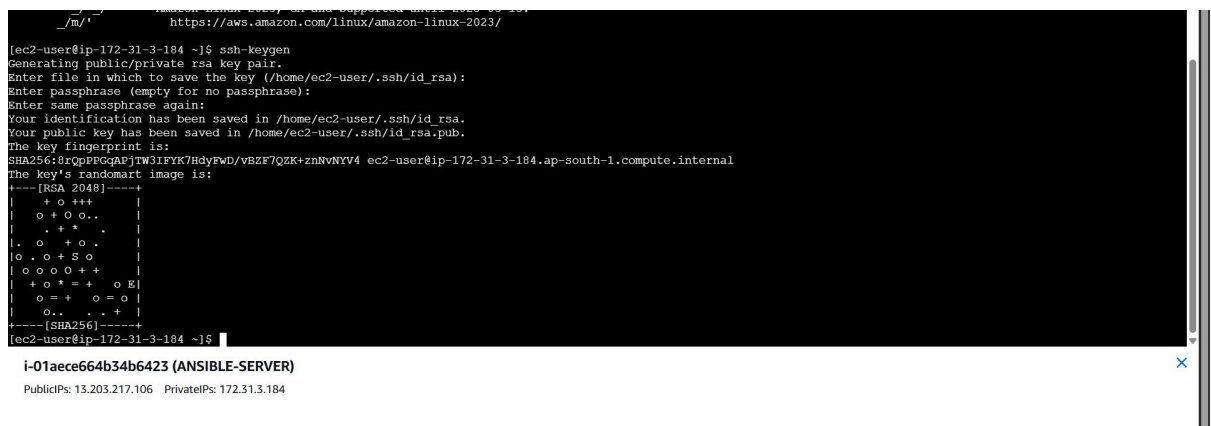
Steps to be followed:

1. Generate SSH key pair on the main node
2. Copy the SSH key to the two other nodes
3. Update the inventory or host file with the host IP address
4. Establish connectivity between the hosts specified in the host file and the Ansible server

Step 1: Generate SSH key pair on the main node

1.1 Use the following command to generate the SSH key on the Ansible server:

ssh-keygen



```
ec2-user@ip-172-31-3-184 ~]$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ec2-user/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ec2-user/.ssh/id_rsa.
Your public key has been saved in /home/ec2-user/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:8t0pPPGqAP7W31FYK7HdyFWD/vB2F7QZK+znNVNYV4 ec2-user@ip-172-31-3-184.ap-south-1.compute.internal
The key's randomart image is:
+--[RSA 2048]-----+
|  + o + + + |
| o + o o . . |
| . + * . |
| . o + o . |
| o . o + S o |
| o o o o + + |
| + o * + + o E |
| o = + o = o |
| o . . . + |
+-----[SHA256]-----+
ec2-user@ip-172-31-3-184 ~]$
```

i-01aace664b34b6423 (ANSIBLE-SERVER)
PublicIPs: 13.203.217.106 PrivateIPs: 172.31.3.184

Step 2: Copy the SSH key to the other two nodes

2.1 Use the following command to copy the public key to a file named **authorized_keys** in localhost:

cat .ssh/id_rsa.pub >> .ssh/authorized_keys

2.2 Run the following command to go to the `.ssh` directory of the Ansible server:

```
cd .ssh
```

```
o = +   o = o |
  o..   . . + |
---[SHA256]-----+
c2-user@ip-172-31-3-184 ~]$ cd .ssh
c2-user@ip-172-31-3-184 .ssh]$
```

i-01aece664b34b6423 (ANSIBLE-SERVER)

PublicIPs: 13.203.217.106 PrivateIPs: 172.31.3.184

2.3 Run the following command to copy the public key to another node that will connect to the Ansible server:

```
ssh-copy-id username@ip -p 22
```

```
/usr/bin/ssh-copy-id: ERROR: Host key verification failed.
[ec2-user@ip-172-31-3-184 .ssh]$ ssh-copy-id devops@13.233.73.211
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ec2-user/.ssh/id_rsa.pub"
The authenticity of host '13.233.73.211 (13.233.73.211)' can't be established.
ECDSA key fingerprint is SHA256:GpJyJl7975+whftNqlHMiCzmC/KkYmOPS1QYIXPOCPA.
ECDSA key fingerprint is MD5:32:d9:4f:83:f4:01:c9:61:3a:19:1e:a2:b6:e8:f5:02.
Are you sure you want to continue connecting (yes/no)? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
devops@13.233.73.211's password:
```

Note: You must use a `username@ip` with your node and IP username, which are provided in the lab credential.

2.4 Execute the following command to exit the `.ssh` directory of the Ansible server:

```
cd
```

```
[ec2-user@ip-172-31-3-184 .ssh]$ cd
[ec2-user@ip-172-31-3-184 ~]$
```

Step 3: Update the inventory or host file with the host IP address

3.1 Use the following command to open the Ansible inventory file and add the host localhost to it:

sudo vi /etc/ansible/hosts

```
[ec2-user@ip-172-31-3-184 ~]$ cd
[ec2-user@ip-172-31-3-184 ~]$ sudo vi /etc/ansible/hosts
[ec2-user@ip-172-31-3-184 ~]$
```

i-01aece664b34b6423 (ANSIBLE-SERVER)

PublicIPs: 13.203.217.106 PrivateIPs: 172.31.3.184

3.2 When the file opens, add the three lines of code below to the end of the file:

[spcm]

172.31.2.18

172.31.1.82

```
## alpha.example.org
## beta.example.org
## 192.168.1.100
## 192.168.1.110

# If you have multiple hosts following a pattern you can specify
# them like this:

## www[001:006].example.com

# Ex 3: A collection of database servers in the 'dbservers' group

## [dbservers]
##
## db01.intranet.mydomain.net
## db02.intranet.mydomain.net
## 10.25.1.56
## 10.25.1.57

# Here's another example of host ranges, this time there are no
# leading 0s:
[spcm]
172.31.2.18
172.31.1.82
## db-[99:101]-node.example.com

"/etc/ansible/hosts" 46L, 1054B          44,15          Bot
```

i-01aece664b34b6423 (ANSIBLE-SERVER)

PublicIPs: 13.203.217.106 PrivateIPs: 172.31.3.184

Step 4: Establish connectivity between the hosts specified in the host file and the Ansible server

4.1 Run the following command to copy the public key to another node that will connect

Note: Press **esc**, then write **:wq** and press **enter** to save the file.

to the Ansible server:

ansible -m ping spcm

```

[WARNING]: Could not match supplied host pattern, ignoring: spcm
[ec2-user@ip-172-31-3-184 ~]$ ansible -m ping spcm
[WARNING]: Platform linux on host localhost 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.
localhost | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}
[WARNING]: Platform linux on host 172.31.2.18 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.
172.31.2.18 | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python"
  },
  "changed": false,
  "ping": "pong"
}

```

4.2 Use the following command to check the number of hosts in the host file:

ansible all --list-hosts

```

[root@ip-172-31-3-184 ~]# cd
[root@ip-172-31-3-184 ~]# ansible all --list-hosts
hosts (2):
  172.31.2.18
  172.31.1.82
[root@ip-172-31-3-184 ~]#

```

i-01aece664b34b6423 (ANSIBLE-SERVER)

PublicIPs: 13.203.217.106 PrivateIPs: 172.31.3.184

By following these steps, you have successfully created a static host inventory for managing and automating infrastructure tasks efficiently across multiple servers using Ansible.