EXPT9: Installation of Ansible on top of AWS instance, Configure SSH access to Ansible Host/Slave and set up ansible host and tested connection

**SOLUTION:**

1. **You should have an AWS Login**
2. **Launch Instances:2 (Ansible Controller/ Master and Ansible Slave/host Machine)**
3. **UBUNTU 22.04 LTS**
4. **CONFIGURE SECURITY GROUP : Create a new security group: Security group name is (ansible12), SSH🡪 port 22 by default I need because I want to SSH into my connections and Since I am going to deploy lot of services HTTP (80) Anywhere . Also I need to ping my both machine, I will add ALL ICMPv4 0-65535 Anywhere**
5. **Create a key pair and LAUNCH**
6. **Name the machine as: ansible-master , ansible-slave**
7. **Connect to machine via MobaXterm**

**BOTH Machine:**

sudo su

apt-get update

**Slave machine:**

apt-get install python3

python3 –version

**STEP1:] Master Machine:**

**Now since my ubuntu machine does not know about ansible repository. So I have to add ansible repository.Because all ansible file are managed by Ansible Community in an ansible repository**

apt install software-properties-common

apt-add-repository ppa:ansible/ansible

apt update -y

apt install ansible -y

ansible - -version

**STEP2: Master Machine**

root@ip-172-31-2-252:/home/ubuntu# **ssh ubuntu@172.31.13.122**

The authenticity of host '172.31.13.122 (172.31.13.122)' can't be established.

ED25519 key fingerprint is SHA256:0TFai1Ev7/9YAyKTsDhlxysPXTIxJU5GsMQNnVIFToY.

This key is not known by any other names

Are you sure you want to continue connecting (yes/no/[fingerprint])? **yes**

Warning: Permanently added '172.31.13.122' (ED25519) to the list of known hosts.

ubuntu@172.31.13.122: Permission denied (publickey).

root@ip-172-31-2-252:/home/ubuntu# **cd .ssh**

root@ip-172-31-2-252:/home/ubuntu/.ssh# **ls**

authorized\_keys

root@ip-172-31-2-252:/home/ubuntu/.ssh# **cat authorized\_keys**

ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCMD3ONJ+KZXKLq6KA+vSsYWJUrHsPu67NkSjXwJotnS4MVg4qPy20y0VBBa4WRv01u9q47Q6fvunxnqZAzyErU2uyhwWfFADZrQbVWxV5U69pFJK9Do1dPl1zHm4tmJ4zB6Y/Qy5Bftwwwsc2lYTg6c+lmX1hpf6c4CliG+fCM1ODveE5DQ7f0jR016+0/tSnKhTpByjuBsclrbmfwV30kKc9E1uTpB1iqjTJolAb0/0vSBEkGYzkpTTxo7GajEFWa8jn0bUVXO3K1ULYGAeO01gDhmbWAt0utrXDYhiI8MnU0haYtqyx1W1Nf4saiNGimctNE5tq7O/2wvKNMNEED ansible14

**SLAVE MACHINE:**

root@ip-172-31-13-122:/home/ubuntu# **cd .ssh**

root@ip-172-31-13-122:/home/ubuntu/.ssh# **ls**

authorized\_keys

root@ip-172-31-13-122:/home/ubuntu/.ssh# **cat authorized\_keys**

ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCMD3ONJ+KZXKLq6KA+vSsYWJUrHsPu67NkSjXwJotnS4MVg4qPy20y0VBBa4WRv01u9q47Q6fvunxnqZAzyErU2uyhwWfFADZrQbVWxV5U69pFJK9Do1dPl1zHm4tmJ4zB6Y/Qy5Bftwwwsc2lYTg6c+lmX1hpf6c4CliG+fCM1ODveE5DQ7f0jR016+0/tSnKhTpByjuBsclrbmfwV30kKc9E1uTpB1iqjTJolAb0/0vSBEkGYzkpTTxo7GajEFWa8jn0bUVXO3K1ULYGAeO01gDhmbWAt0utrXDYhiI8MnU0haYtqyx1W1Nf4saiNGimctNE5tq7O/2wvKNMNEED ansible14

Now to this file , I want to add one more key which allows my ansible\_master to connect to ansible\_slave

Whick key I need to add, So I need to generate a key for your system

**MASTER MACHINE: To Create SSH Key**

root@ip-172-31-2-252:/home/ubuntu/.ssh# **ssh-keygen -t rsa**

Generating public/private rsa key pair.

Enter file in which to save the key (/root/.ssh/id\_rsa):

/root/.ssh/id\_rsa already exists.

Overwrite (y/n)? y

Enter passphrase (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /root/.ssh/id\_rsa

Your public key has been saved in /root/.ssh/id\_rsa.pub

The key fingerprint is:

SHA256:jkMIUf6q8UJ8T8EZcPQjeZ7UJSzpZexAjJ8KHFyOGfQ root@ip-172-31-2-252

The key's randomart image is:

+---[RSA 3072]----+

| .+=+++.+. . |

| ooBoo=.=o |

| ..+oE==B. |

| .oo+=+o. |

| . ..ooS |

| o .ooo |

| ....oo . |

| .+ .. |

| ... |

+----[SHA256]-----+

root@ip-172-31-2-252:/home/ubuntu/.ssh# **cd /root/.ssh**

root@ip-172-31-2-252:~/.ssh# **ls**

authorized\_keys id\_rsa id\_rsa.pub known\_hosts

and we have to copy the content of the public key to all the host machine (slave) wherever the MASTER Machine will be pushing the modules into. So this key id\_rsa.pub to be present on all the SLAVE machine, if you want to be a passwordless SSH Connection. Also, every host machine will also have SSH configured on it and we have to copy the content of id\_rsa.pub this key into the authorized keys file of all the host machine.

root@ip-172-31-2-252:~/.ssh# **cat id\_rsa.pub**

ssh-rsa  root@ip-172-31-2-252

**SLAVE MACHINE**

root@ip-172-31-13-122:/home/ubuntu/.ssh# **cd /root/.ssh**

root@ip-172-31-13-122:~/.ssh# **ls**

authorized\_keys

root@ip-172-31-13-122:~/.ssh# **nano authorized\_keys**

**HERE Copy the key from master machine which you get from cat id\_rsa.pub**

**Now although I have added key, there is one parameter inside the sshd configuration file ie:PERMITROOTLOGIN: YES**

root@ip-172-31-13-122:~/.ssh# **nano /etc/ssh/sshd\_config**

#LoginGraceTime 2m

#PermitRootLogin prohibit-password

**PermitRootLogin yes**

#StrictModes yes

#MaxAuthTries 6

#MaxSessions 10

This means that anyone can have ssh connection into my machine with the root permission because we will be running lot of module and this will require a root access. Let’s say you want to add a user, to delete a user, to install any service, install a package, uninstall a package etc. So all this require a root permission, SO unless you have a root permission allowed over SSH Connection, this modules won’t work. So this is one setting that we have to do in the sshd\_config file

**STEP3: SETTING UP ANSIBLE HOST and TESTING CONNECTION**

**Now, like I said in my ppt that there is an Ansible Inventory component that you have to configured , to tell it that which are the slave/host machine that ansible will be managing. So where is this INVENTORY Component file. It is in /etc/ansible/hosts**

**MASTER MACHINE**

root@ip-172-31-2-252:~/.ssh# **nano /etc/ansible/hosts**

**# Ex 2: A collection of hosts belonging to the 'webservers' group:**

**[client\_1]**

**172.31.13.122 🡪 IP address of Slave Machine**

**I will tell my ansible\_controller/ master that this is the IP categories as [client\_1] that it has to configured. So Whenever I Push the modules to this [client\_1] group, this machine 172.31.13.122 will be configured.**

**TESTING**

Now the configuration is done:

1. The Controller/Master is configured
2. We have installed Ansible services in it.
3. We created SSH Key
4. We copy the key into host/slave machine and just ensure there is a passwordless communication allowed over the controller/master machine into the HOST/SLAVE Machine.

**We will start executing ANSIBLE MODULE:**

Just to check Ansible connect to my host/slave machine or not.

1] root@ip-172-31-2-252:~/.ssh# **ansible -m ping all**

**172.31.13.122 | SUCCESS => {**

**"ansible\_facts": {**

**"discovered\_interpreter\_python": "/usr/bin/python3"**

**},**

**"changed": false,**

**"ping": "pong"**

**}**

root@ip-172-31-2-252:~/.ssh# **ansible -m ping client\_1**

**172.31.13.122 | SUCCESS => {**

**"ansible\_facts": {**

**"discovered\_interpreter\_python": "/usr/bin/python3"**

**},**

**"changed": false,**

**"ping": "pong"**

**}**

root@ip-172-31-2-252:~/.ssh# **ansible -m ping client\_2**

**[WARNING]: Could not match supplied host pattern, ignoring: client\_2**

**[WARNING]: No hosts matched, nothing to do**

**2] Display Host Information**

root@ip-172-31-2-252:~/.ssh**# ansible client\_1 -m setup**

**3] How do you manage software package from one Ansible Machine?**

**SLAVE MACHINE:**

root@ip-172-31-13-122:~/.ssh# **git --version**

**git version 2.34.1**

**So Let me remove it**

root@ip-172-31-13-122:~/.ssh# **apt remove git**

root@ip-172-31-13-122:~/.ssh# **git --version**

**bash: /usr/bin/git: No such file or directory**

**Now I want to install git on all machine from Ansible\_master**

**MASTER MACHINE:**

root@ip-172-31-2-252:~/.ssh# **ansible client\_1 -m apt -a "name=git state=present" --become**

**SLAVE MACHINE:**

root@ip-172-31-13-122:~/.ssh# **git --version**

**git version 2.34.1**

**4] How do uninstall software package from Ansible Controller / Master Machine?**

**MASTER MACHINE**

root@ip-172-31-2-252:~/.ssh# **ansible client\_1 -m apt -a "name=nano state=absent" –become**

**SLAVE MACHINE:**

root@ip-172-31-13-122:~/.ssh# **nano test.txt**

**bash: /usr/bin/nano: No such file or directory**

**MASTER MACHINE**

root@ip-172-31-2-252:~/.ssh# **ansible client\_1 -m apt -a "name=git state=absent" –become**

root@ip-172-31-13-122:~/.ssh# **git --version**

**bash: /usr/bin/git: No such file or directory**

**EXPT 10]** Deploy a Web Application by Provisioning LAMP STACK using ANSIBLE Playbook.

**SLAVE MACHINE:**

root@ip-172-31-13-122:~/.ssh# **mysql**

**Command 'mysql' not found, but can be installed with:**

**apt install mysql-client-core-8.0 # version 8.0.32-0ubuntu0.22.04.2, or**

**apt install mariadb-client-core-10.6 # version 1:10.6.12-0ubuntu0.22.04.1**

root@ip-172-31-13-122:~/.ssh# **apache2**

**Command 'apache2' not found, but can be installed with:**

**apt install apache2-bin**

root@ip-172-31-13-122:~/.ssh# **php**

**Command 'php' not found, but can be installed with:**

**apt install php8.1-cli # version 8.1.2-1ubuntu2.11, or**

**apt install php-cli # version 2:8.1+92ubuntu1**

**MASTER MACHINE:**

root@ip-172-31-2-252:~/.ssh# **cd ~**

root@ip-172-31-2-252:~# **mkdir ansible2**

root@ip-172-31-2-252:~# **cd ansible2/**

root@ip-172-31-2-252:~/ansible2# **git clone** [**https://github.com/sujataoak799/ansible-codes.git**](https://github.com/sujataoak799/ansible-codes.git)

root@ip-172-31-2-252:~/ansible2# **ls**

**ansible-codes**

root@ip-172-31-2-252:~/ansible2# **cd ansible-codes/**

root@ip-172-31-2-252:~/ansible2/ansible-codes# **ls**

config.php lampstack\_1.yml mysqlmodule.yml reset-password.php

deploywebsite.yml login.php readme.txt users.sql

index.html logout.php register.php welcome.php

root@ip-172-31-2-252:~/ansible2/ansible-codes# **nano lampstack\_1.yml**

root@ip-172-31-2-252:~/ansible2/ansible-codes# **ansible-playbook lampstack\_1.yml**

**PLAY [client\_1] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**TASK [Gathering Facts] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**ok: [172.31.13.122]**

**TASK [install lamp stack] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**changed: [172.31.13.122]**

**TASK [start apache service] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**ok: [172.31.13.122]**

**TASK [start mysql service] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**ok: [172.31.13.122]**

**TASK [create target directory] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**ok: [172.31.13.122]**

**TASK [deploy index.html] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**changed: [172.31.13.122]**

**PLAY RECAP \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**172.31.13.122 : ok=6 changed=2 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0**

**SLAVE MACHINE:**

root@ip-172-31-13-122:~/.ssh# **mysql**

**Welcome to the MySQL monitor. Commands end with ; or \g.**

**Your MySQL connection id is 8**

**Server version: 8.0.32-0ubuntu0.22.04.2 (Ubuntu)**

root@ip-172-31-13-122:~/.ssh# **php --version**

**PHP 8.1.2-1ubuntu2.11 (cli) (built: Feb 22 2023 22:56:18) (NTS)**

**Copyright (c) The PHP Group**

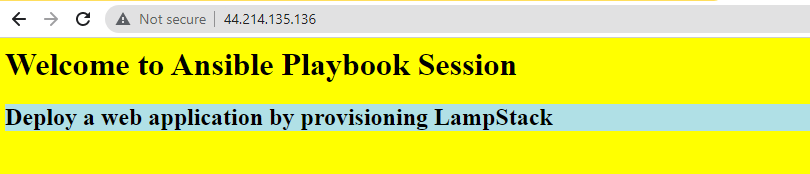
root@ip-172-31-13-122:~/.ssh# **service apache2 status**

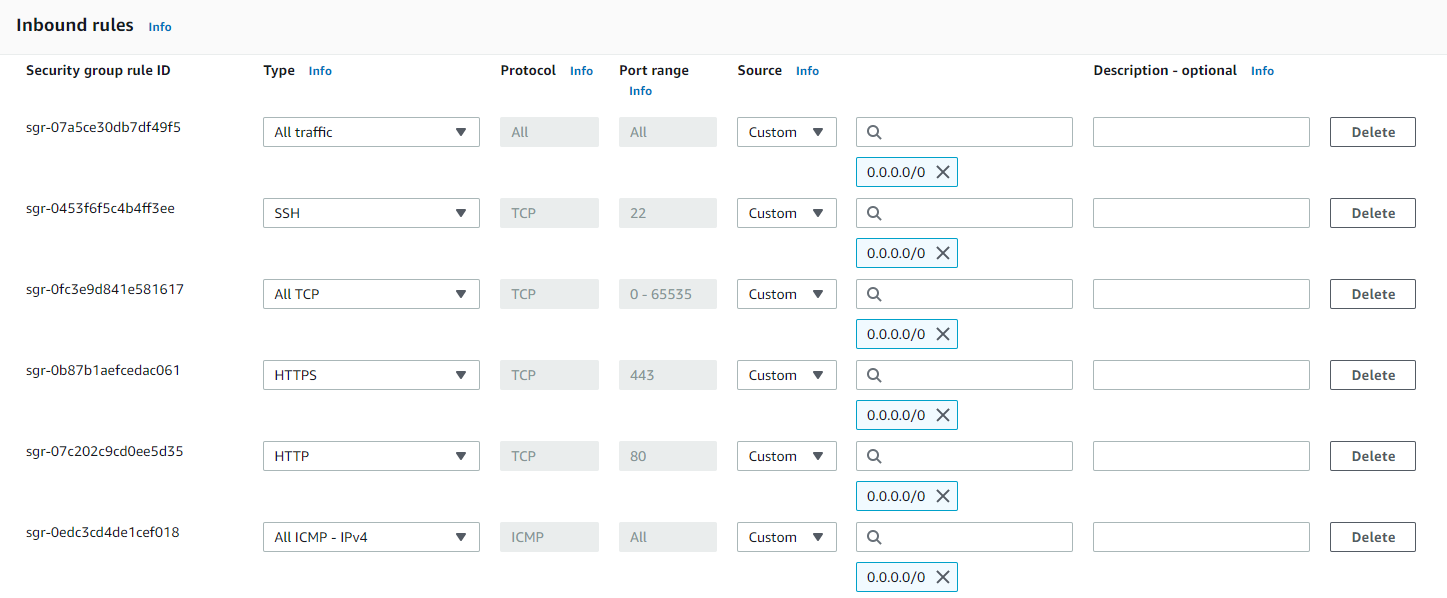
**● apache2.service - The Apache HTTP Server**

**Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: >**

**Active: active (running) since Sat 2023-04-01 19:04:03 UTC; 1min 38s ago**

**GOTO BROWSER , COPY IPv6 Address of ansible\_slave Machine of AWS:**

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