

Ansible Configuration with AWS

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Create AWS EC2

- Ubuntu Server 22.04 LTS EC2
- 64 Bit Architecture
- t2.micro instance type
- Add "All traffic" security group
- Create 2 instances as below
 - Master
 - Slave

Putty Connection

- Download Putty
 - Copy Public IP of master
 - Connect with authentication
-
- Username: ubuntu

Update Master

Update the master server to make up to date system:

`sudo apt-get update`

```
ubuntu@ip-172-31-11-187: ~  
ubuntu@ip-172-31-11-187:~$ sudo apt-get update  
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease  
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]  
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]  
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]  
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]  
Get:6 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [461 kB]  
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]  
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]  
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]  
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]  
Get:11 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]  
Get:12 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [695 kB]  
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Transl
```

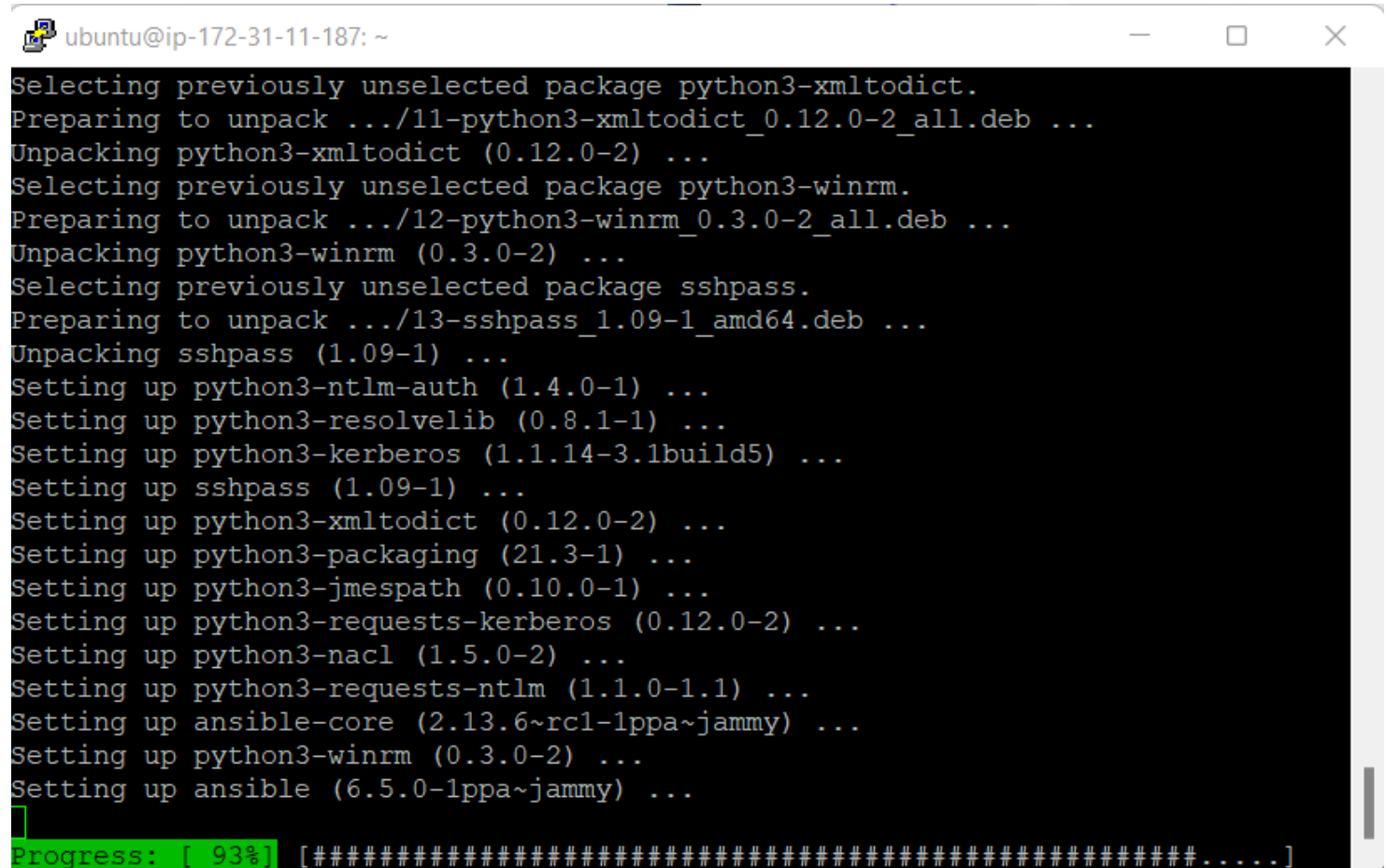
Install Ansible on Master

```
sudo apt install software-properties-common
```

```
sudo apt-add-repository ppa:ansible/ansible
```

```
sudo apt update
```

```
sudo apt install ansible
```

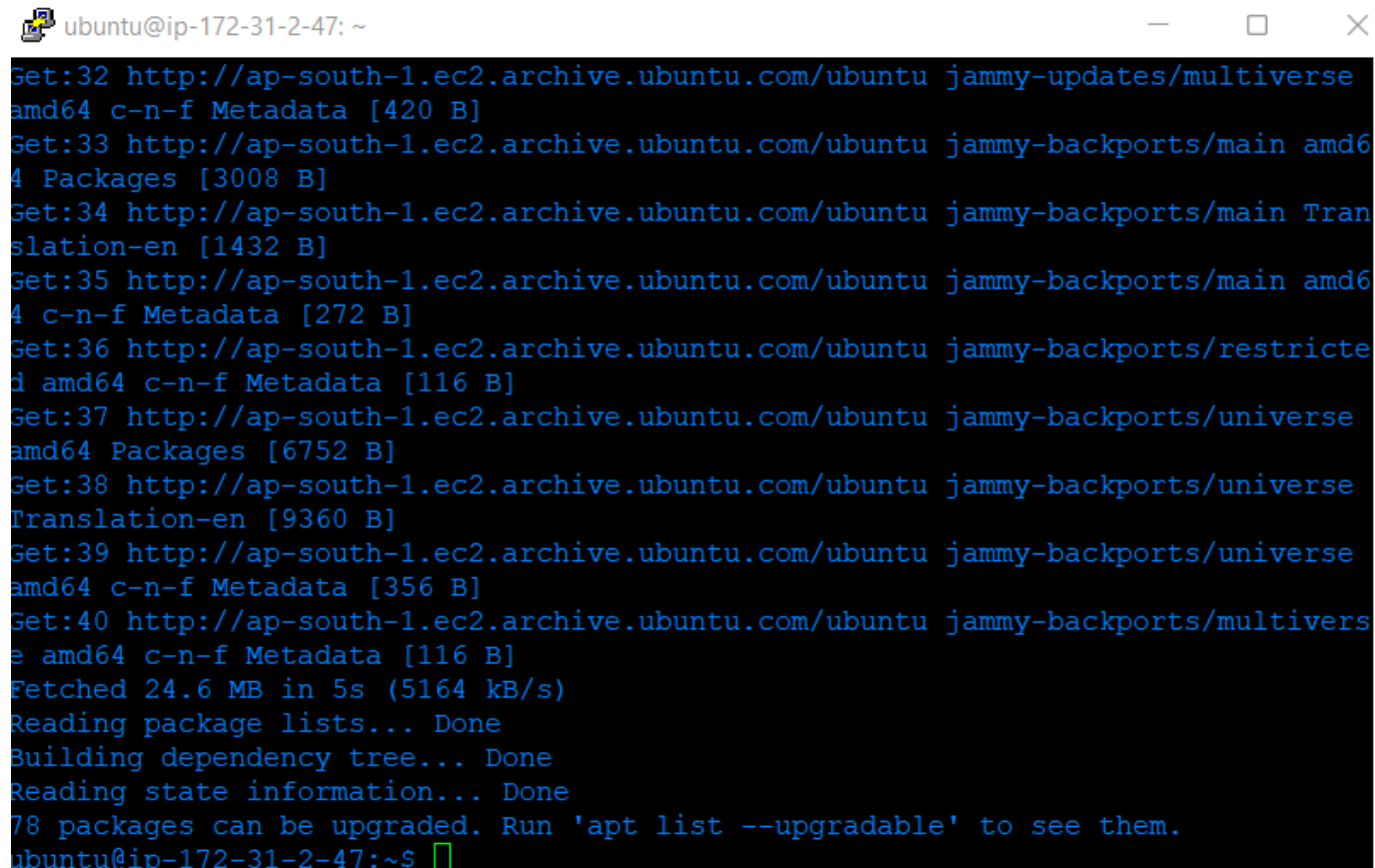


```
ubuntu@ip-172-31-11-187: ~  
Selecting previously unselected package python3-xltdict.  
Preparing to unpack .../11-python3-xltdict_0.12.0-2_all.deb ...  
Unpacking python3-xltdict (0.12.0-2) ...  
Selecting previously unselected package python3-winrm.  
Preparing to unpack .../12-python3-winrm_0.3.0-2_all.deb ...  
Unpacking python3-winrm (0.3.0-2) ...  
Selecting previously unselected package sshpass.  
Preparing to unpack .../13-sshpass_1.09-1_amd64.deb ...  
Unpacking sshpass (1.09-1) ...  
Setting up python3-ntlm-auth (1.4.0-1) ...  
Setting up python3-resolvelib (0.8.1-1) ...  
Setting up python3-kerberos (1.1.14-3.1build5) ...  
Setting up sshpass (1.09-1) ...  
Setting up python3-xltdict (0.12.0-2) ...  
Setting up python3-packaging (21.3-1) ...  
Setting up python3-jmespath (0.10.0-1) ...  
Setting up python3-requests-kerberos (0.12.0-2) ...  
Setting up python3-nacl (1.5.0-2) ...  
Setting up python3-requests-ntlm (1.1.0-1.1) ...  
Setting up ansible-core (2.13.6~rc1-1ppa~jammy) ...  
Setting up python3-winrm (0.3.0-2) ...  
Setting up ansible (6.5.0-1ppa~jammy) ...  
Progress: [ 93%] [#####.....]
```

Update Slave

Update the slave server to make up to date system:

`sudo apt-get update`



```
ubuntu@ip-172-31-2-47: ~  
Get:32 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse  
amd64 c-n-f Metadata [420 B]  
Get:33 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd6  
4 Packages [3008 B]  
Get:34 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Tran  
slation-en [1432 B]  
Get:35 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd6  
4 c-n-f Metadata [272 B]  
Get:36 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricte  
d amd64 c-n-f Metadata [116 B]  
Get:37 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe  
amd64 Packages [6752 B]  
Get:38 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe  
Translation-en [9360 B]  
Get:39 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe  
amd64 c-n-f Metadata [356 B]  
Get:40 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multivers  
e amd64 c-n-f Metadata [116 B]  
Fetched 24.6 MB in 5s (5164 kB/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
78 packages can be upgraded. Run 'apt list --upgradable' to see them.  
ubuntu@ip-172-31-2-47:~$
```

Install Python on Slave

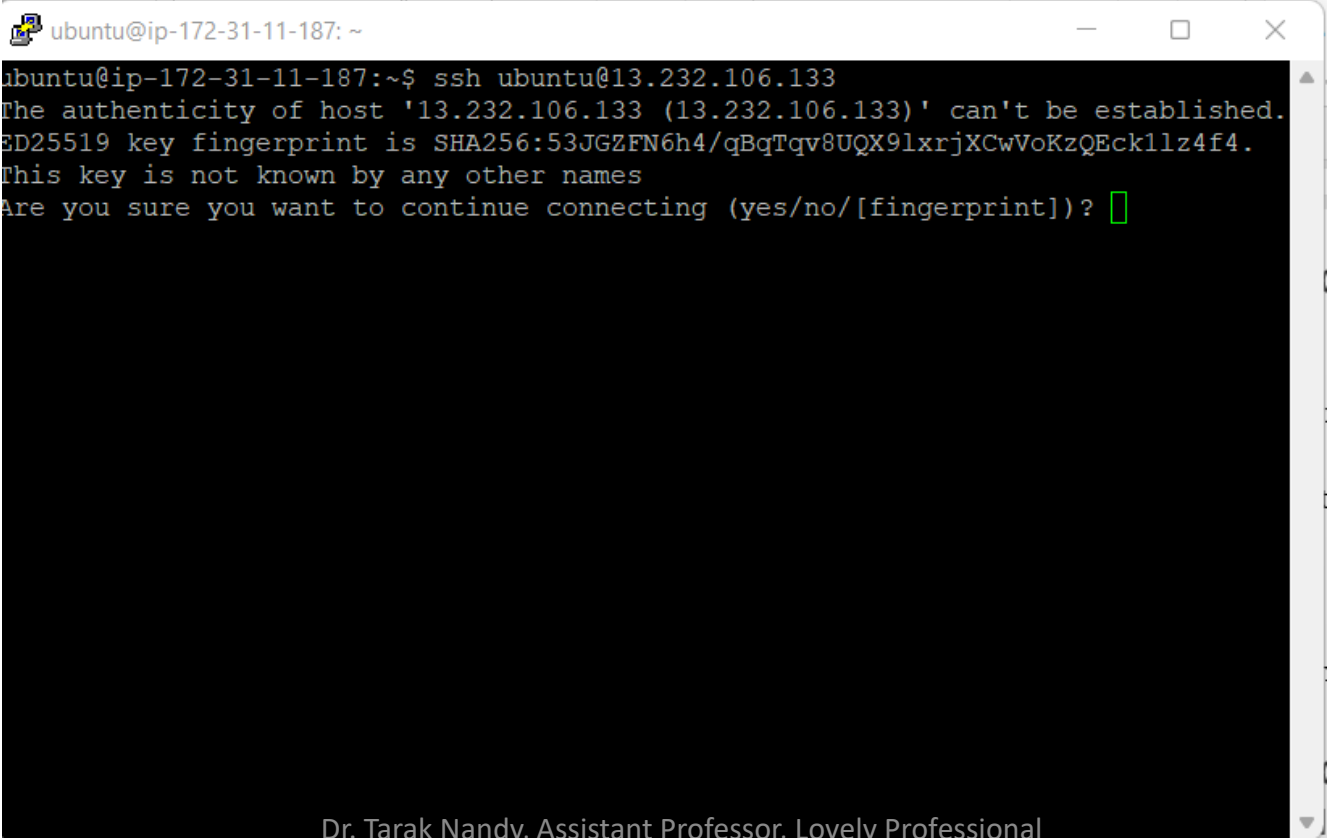
Install python to slave to connect with master:

```
sudo apt-get install python2
```

Connect Slave from Master

`ssh <slave username>@<slave public IP>`

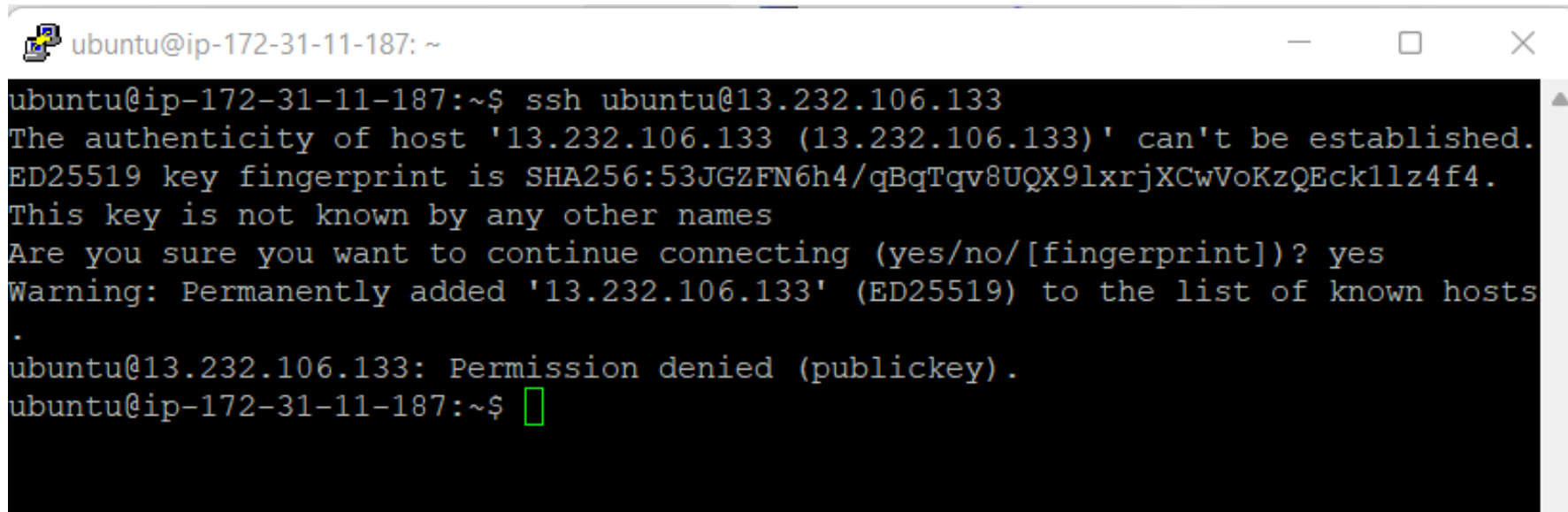
Master asked to add this host to the known list



```
ubuntu@ip-172-31-11-187: ~  
ubuntu@ip-172-31-11-187:~$ ssh ubuntu@13.232.106.133  
The authenticity of host '13.232.106.133 (13.232.106.133)' can't be established.  
ED25519 key fingerprint is SHA256:53JGZFN6h4/qBqTqv8UQX9lXrjXCwVoKzQEck1lz4f4.  
This key is not known by any other names  
Are you sure you want to continue connecting (yes/no/[fingerprint])? 
```


Connect Slave from Master

However, permission is denied because the only way to connect to this server is through a .ppk or .pem file.

A terminal window titled 'ubuntu@ip-172-31-11-187: ~' with standard window controls. The terminal shows an SSH command being executed to connect to '13.232.106.133'. It displays a warning about the host's authenticity, the user confirms by typing 'yes', and the host is added to the known hosts list. However, the connection is ultimately rejected with the message 'Permission denied (publickey)'.

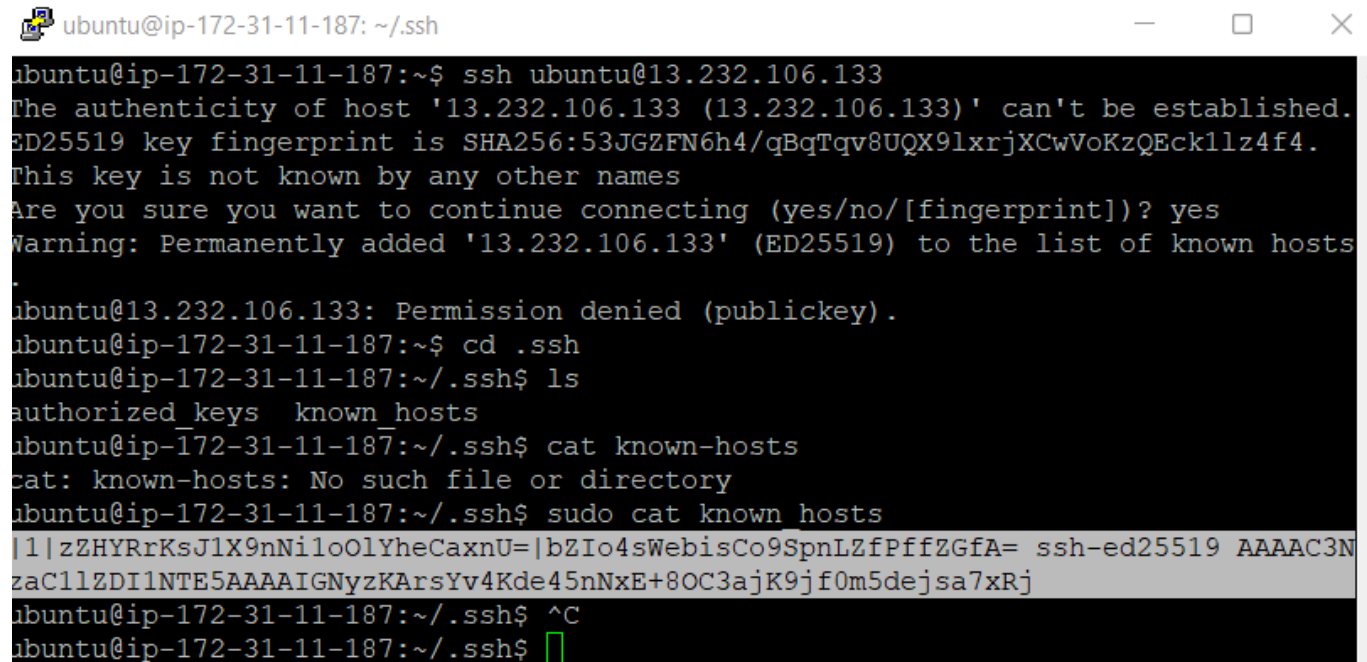
```
ubuntu@ip-172-31-11-187:~$ ssh ubuntu@13.232.106.133
The authenticity of host '13.232.106.133 (13.232.106.133)' can't be established.
ED25519 key fingerprint is SHA256:53JGZFN6h4/qBqTqv8UQX9lXrjXCwVoKzQEck1lz4f4.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.232.106.133' (ED25519) to the list of known hosts
.
ubuntu@13.232.106.133: Permission denied (publickey).
ubuntu@ip-172-31-11-187:~$
```

Enable keyless access to Slave from Master

`cd .ssh`

`ls`

`sudo cat known_hosts`

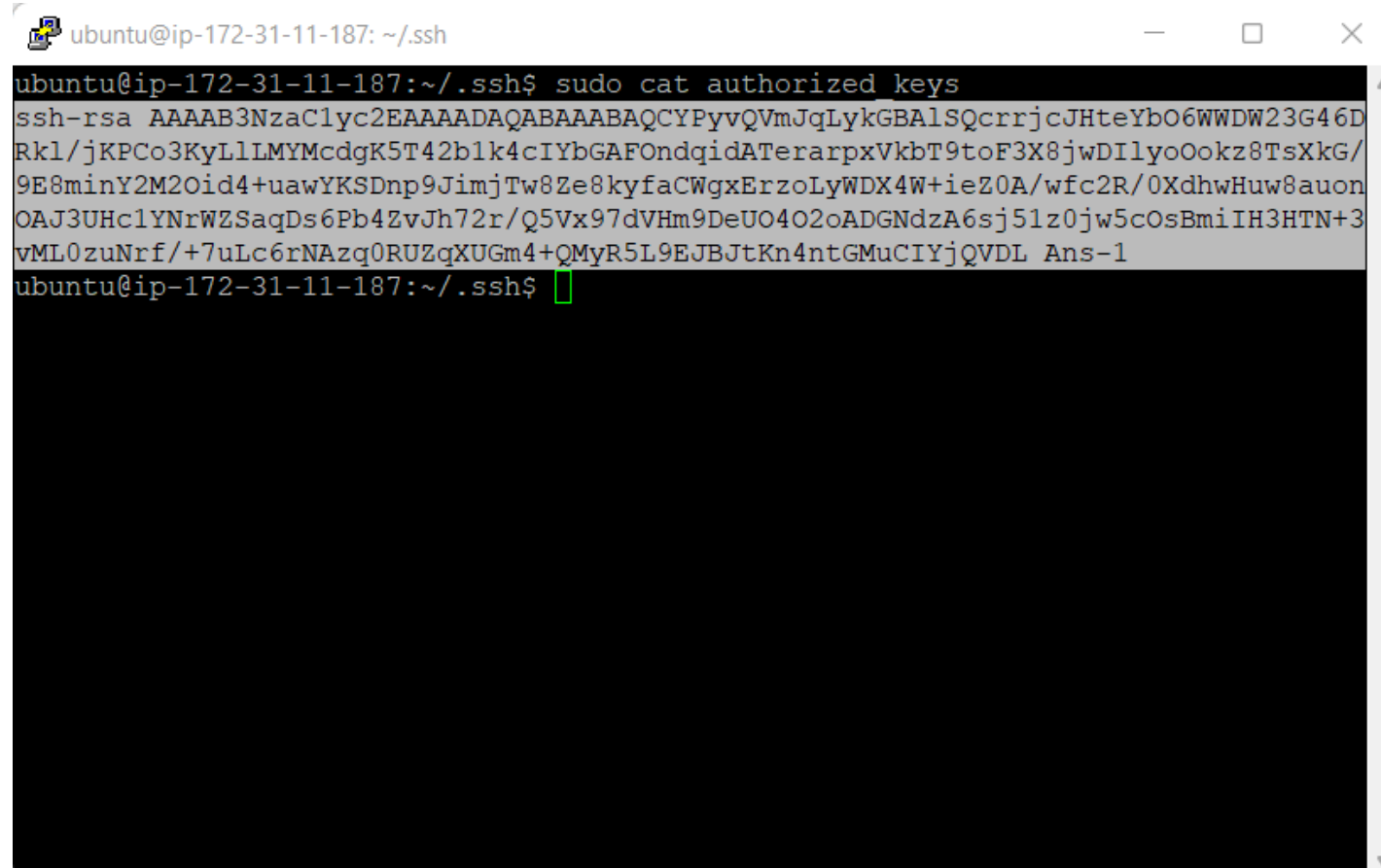


```
ubuntu@ip-172-31-11-187: ~/.ssh
ubuntu@ip-172-31-11-187:~$ ssh ubuntu@13.232.106.133
The authenticity of host '13.232.106.133 (13.232.106.133)' can't be established.
ED25519 key fingerprint is SHA256:53JGZFN6h4/qBqTqv8UQX9lXrjXCwVoKzQEck1lz4f4.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.232.106.133' (ED25519) to the list of known hosts
.
ubuntu@13.232.106.133: Permission denied (publickey).
ubuntu@ip-172-31-11-187:~$ cd .ssh
ubuntu@ip-172-31-11-187:~/.ssh$ ls
authorized_keys  known_hosts
ubuntu@ip-172-31-11-187:~/.ssh$ cat known-hosts
cat: known-hosts: No such file or directory
ubuntu@ip-172-31-11-187:~/.ssh$ sudo cat known_hosts
|1|zZHYRrKsJlX9nNi1oOlyheCaxnU=|bZIo4sWebisCo9SpnLZfPffZGfA= ssh-ed25519 AAAAC3N
zaC1lZDI1NTE5AAAAIGNyzKArSv4Kde45nNx8+8OC3ajK9jf0m5dejsa7xRj
ubuntu@ip-172-31-11-187:~/.ssh$ ^C
ubuntu@ip-172-31-11-187:~/.ssh$
```

The host is added to the known list of the master.

Enable keyless access to Slave from Master

Authorized_key

A terminal window titled 'ubuntu@ip-172-31-11-187: ~/.ssh' with standard window controls. The command 'sudo cat authorized_keys' has been executed, displaying a single line of an SSH public key. The key is an RSA key with a base64-encoded body. The terminal prompt is 'ubuntu@ip-172-31-11-187: ~/.ssh\$' with a green cursor.

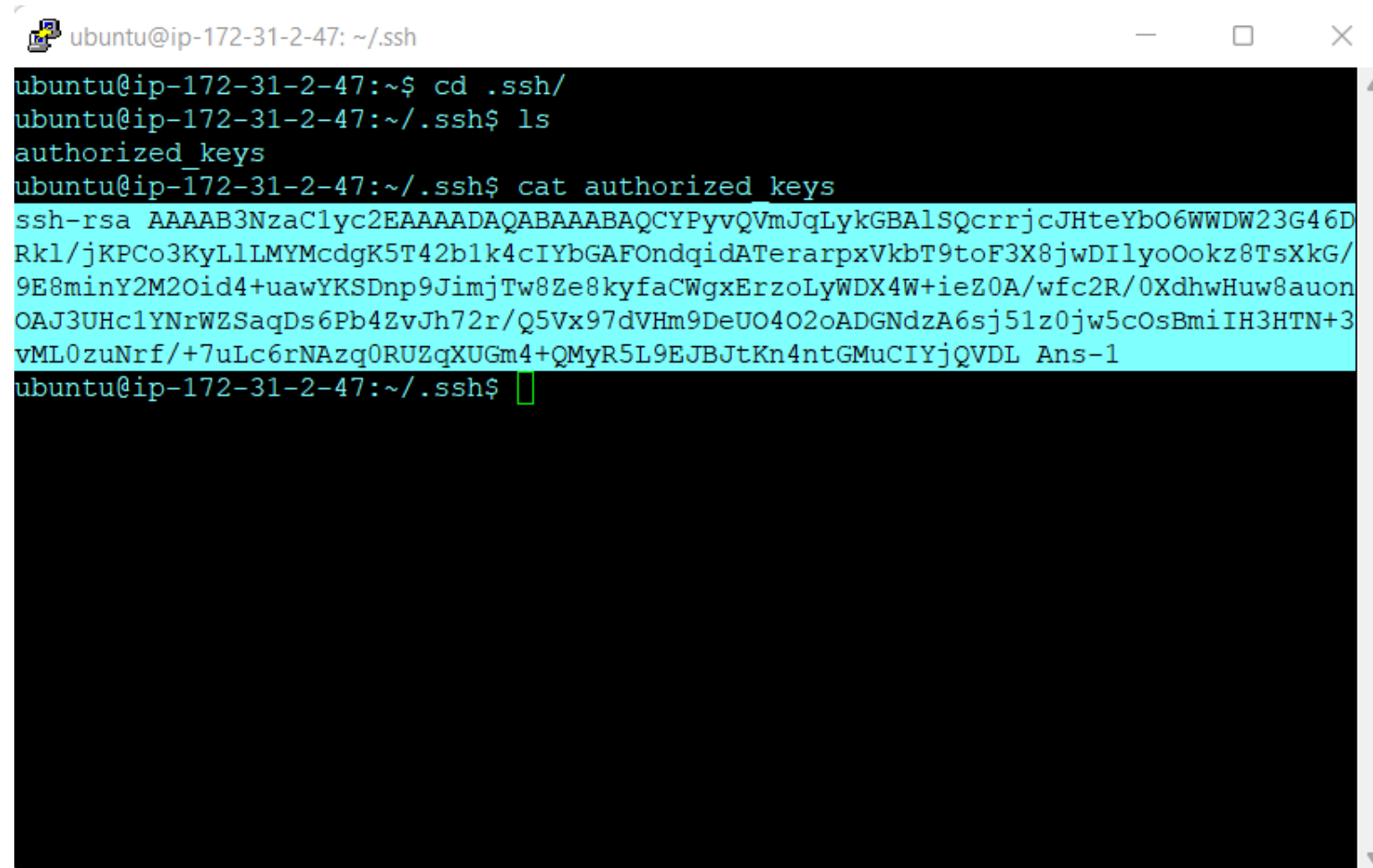
```
ubuntu@ip-172-31-11-187: ~/.ssh$ sudo cat authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQACYPyvQVmJqLykGBAlSQcrrjcJHteYbO6WWDW23G46D
Rkl/jKPCo3KyLlLMYMcdgK5T42b1k4cIYbGAFondqidATerarpXVkbT9toF3X8jwDIlyoOokz8TsXkG/
9E8minY2M2Oid4+uawYKSDnp9JimjTw8Ze8kyfaCWgxErzoLyWDX4W+ieZ0A/wfc2R/0XdhwHuw8auon
OAJ3UHclYNrWZSaQDs6Pb4ZvJh72r/Q5Vx97dVHm9DeUO4O2oADGNdzA6sj51z0jw5cOsBmiIH3HTN+3
vML0zuNrf/+7uLc6rNAzq0RUZqXUGm4+QMyR5L9EJBjtKn4ntGMuCIYjQVDL Ans-1
ubuntu@ip-172-31-11-187: ~/.ssh$
```

Check the authentication key for the Slave

cd .ssh

ls

cat authorized_keys

A terminal window titled 'ubuntu@ip-172-31-2-47: ~/.ssh' with standard window controls. The terminal shows the following commands and output:

```
ubuntu@ip-172-31-2-47:~$ cd .ssh/  
ubuntu@ip-172-31-2-47:~/.ssh$ ls  
authorized_keys  
ubuntu@ip-172-31-2-47:~/.ssh$ cat authorized_keys  
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCYPyvQVmJqLykGBAlSQcrrjcJHteYbO6WWDW23G46D  
Rkl/jKPCo3KyLlLMYMcdgK5T42b1k4cIYbGAFondqidATerarpXVkbT9toF3X8jwDilyoOokz8TsXkG/  
9E8minY2M2Oid4+uawYKSDnp9JimjTw8Ze8kyfaCWgxErzoLyWDX4W+ieZ0A/wfc2R/0XdhwHuw8auon  
OAJ3UHclYNrWZSaqDs6Pb4ZvJh72r/Q5Vx97dVHm9DeUO4O2oADGNdzA6sj51z0jw5cOsBmiIH3HTN+3  
vML0zuNrF/+7uLc6rNAzq0RUZqXUGm4+QMyR5L9EJBjtKn4ntGMuCIYjQVDL Ans-1  
ubuntu@ip-172-31-2-47:~/.ssh$
```

Generate a key for Master

ssh-keygen

Enter

Enter

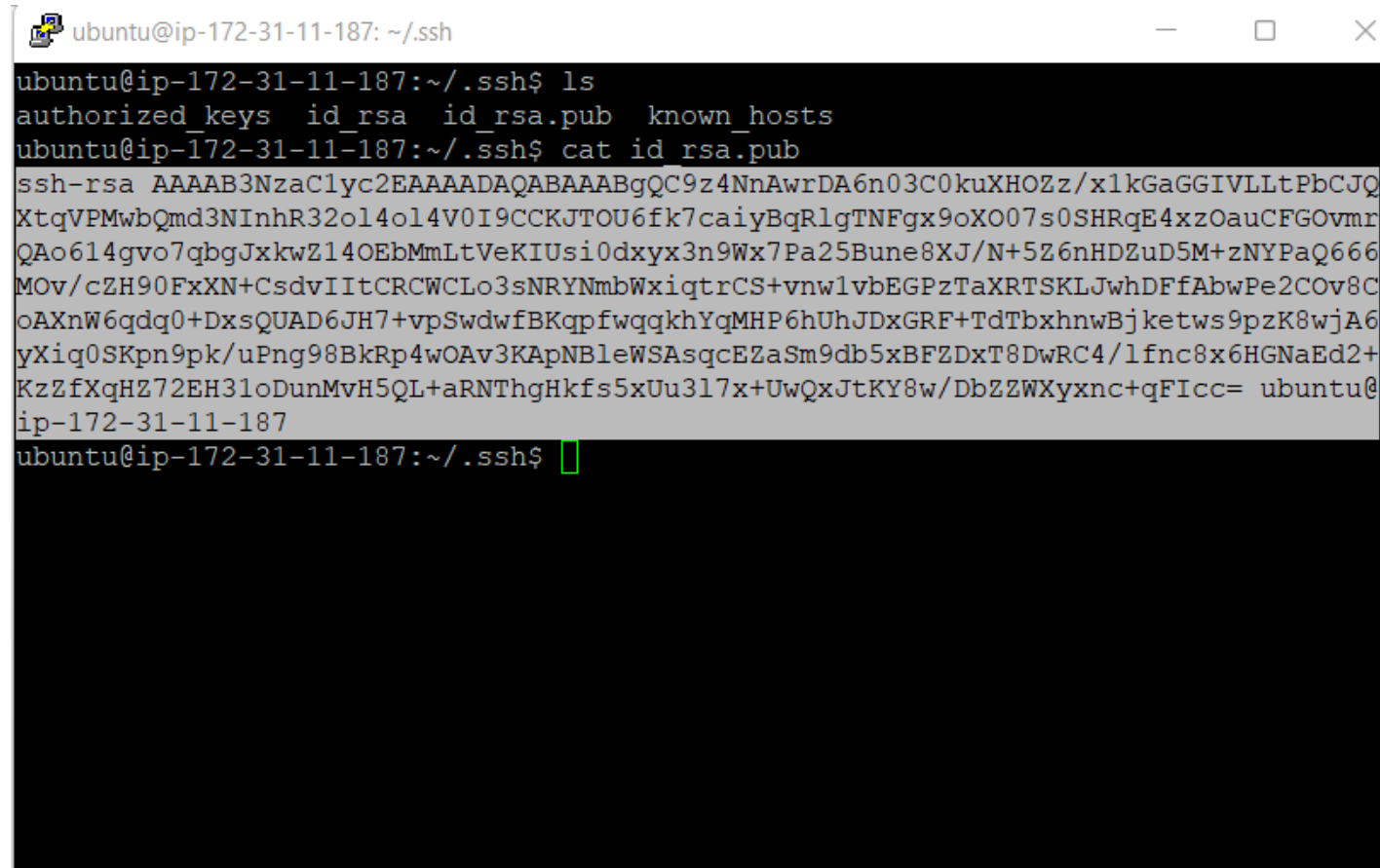
Enter

```
ubuntu@ip-172-31-11-187: ~  
ubuntu@ip-172-31-11-187:~$ ssh-keygen  
Generating public/private rsa key pair.  
Enter file in which to save the key (/home/ubuntu/.ssh/id_rsa):  
Enter passphrase (empty for no passphrase):  
Enter same passphrase again:  
Your identification has been saved in /home/ubuntu/.ssh/id_rsa  
Your public key has been saved in /home/ubuntu/.ssh/id_rsa.pub  
The key fingerprint is:  
SHA256:plrYSB2jo0+LB49AB0+We0f52CvZgdN8HvOA5uJPAK0 ubuntu@ip-172-31-11-187  
The key's randomart image is:  
+---[RSA 3072]-----+  
|  .  .  |  
| . + .o |  
| = ..+.B |  
| . + +oB O =  
| . . =Eo.S = =  
| . .o = *.+ . .  
| ..++ = o.  
| .+o+ ..  
| ..+ ..  
+---[SHA256]-----+  
ubuntu@ip-172-31-11-187:~$ ^C  
ubuntu@ip-172-31-11-187:~$
```

Generate a key for Master

Check the content in id_rsa.pub file

cat id_rsa.pub

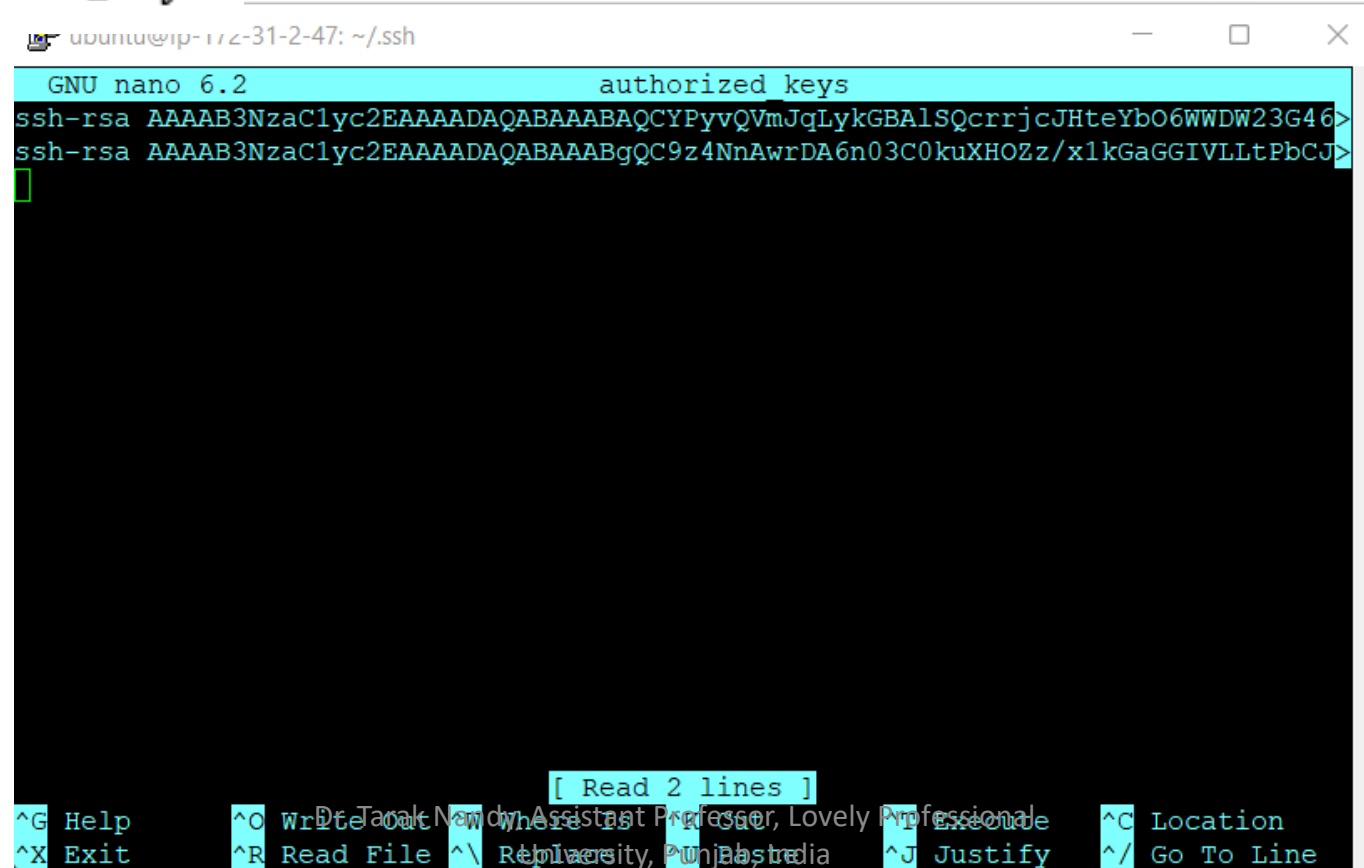
A terminal window titled 'ubuntu@ip-172-31-11-187: ~/.ssh' with standard window controls. The terminal shows the following commands and output:

```
ubuntu@ip-172-31-11-187:~/.ssh$ ls
authorized_keys  id_rsa  id_rsa.pub  known_hosts
ubuntu@ip-172-31-11-187:~/.ssh$ cat id_rsa.pub
ssh-rsa AAAAB3NzaClyc2EAAAADAQABAAQgQC9z4NnAwrDA6n03C0kuXHOZz/x1kGaGGIVLLtPbCJQ
XtqVPMwbQmd3NinhR32ol4ol4V0I9CCKJTOU6fk7caiyBqRlgTNFgx9oXO07s0SHRqE4xzOauCFGOvmr
QAo614gvo7qbgJxkwZ140EbMmLtVeKIUsi0dxyx3n9Wx7Pa25Bune8XJ/N+5Z6nHDZuD5M+zNYPaQ666
MOv/cZH90FxXN+CsdvIItCRCWCLo3sNRYNmbWxiqtrCS+vnwlvbEGPzTaXRTSKLJwhDFfAbwPe2COv8C
oAXnW6qdq0+DxsQUAD6JH7+vpSwdwfBKqpfwqqkhYqMHP6hUhJDxGRF+TdTbxhnwBjketws9pzK8wjA6
yXiq0SKpn9pk/uPng98BkRp4wOAv3KApNBleWSAsqcEZA5m9db5xBFZDxT8DwRC4/lfnc8x6HGNaEd2+
KzZfXqHZ72EH31oDunMvH5QL+aRNThgHkfs5xUu3l7x+UwQxJtKY8w/DbZZWXyxnc+qFIcc= ubuntu@
ip-172-31-11-187
ubuntu@ip-172-31-11-187:~/.ssh$
```

Add the generated key to the Slave

Copy the content that is present in the id_rsa.pub file and paste it into authorized_keys in slave.

```
sudo nano authorized_keys
```



```
ubuntu@ip-172-31-2-47: ~/ssh
GNU nano 6.2 authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCYPyvQVmJqLykGBAlSQcrrjcJHteYbO6WWDW23G46>
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgQC9z4NnAwrDA6n03C0kuXHOZz/x1kGaGGIVLLtPbCJ>
[ Read 2 lines ]
^G Help      ^O Write Out  ^W Where Is   ^R Read File  ^_ Replace     ^J Justify    ^C Location
^X Exit      ^R Read File  ^_ Replace     ^J Justify    ^/ Go To Line
```

Try to connect Slave through Master

Go to master and do the following.

ssh ubuntu@13.127.225.139

ubuntu@ip-172-31-2-47: ~

```
* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/advantage

System information as of Sat Nov  5 09:32:04 UTC 2022

System load:  0.00146484375    Processes:            104
Usage of /:   29.0% of 7.57GB   Users logged in:      1
Memory usage: 29%              IPv4 address for eth0: 172.31.2.47
Swap usage:   0%

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

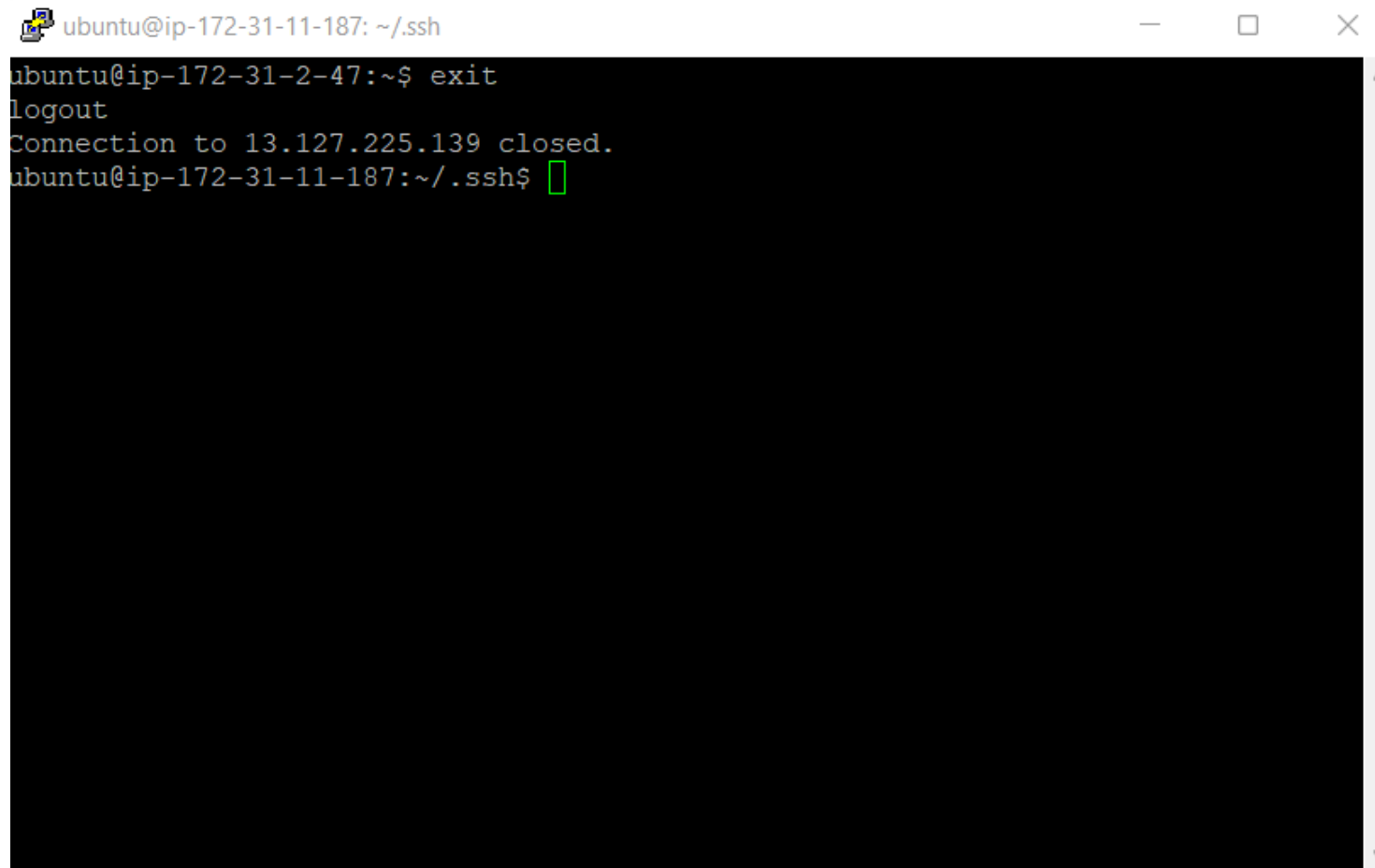
https://ubuntu.com/aws/pro

29 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

*** System restart required ***
Last login: Sat Nov  5 09:08:24 2022 from 112.196.62.6
ubuntu@ip-172-31-2-47:~$
```


Leave Slave access from Master

Exit



```
ubuntu@ip-172-31-11-187: ~/.ssh
ubuntu@ip-172-31-2-47:~$ exit
logout
Connection to 13.127.225.139 closed.
ubuntu@ip-172-31-11-187:~/.ssh$
```

Prepare Slave for Connection

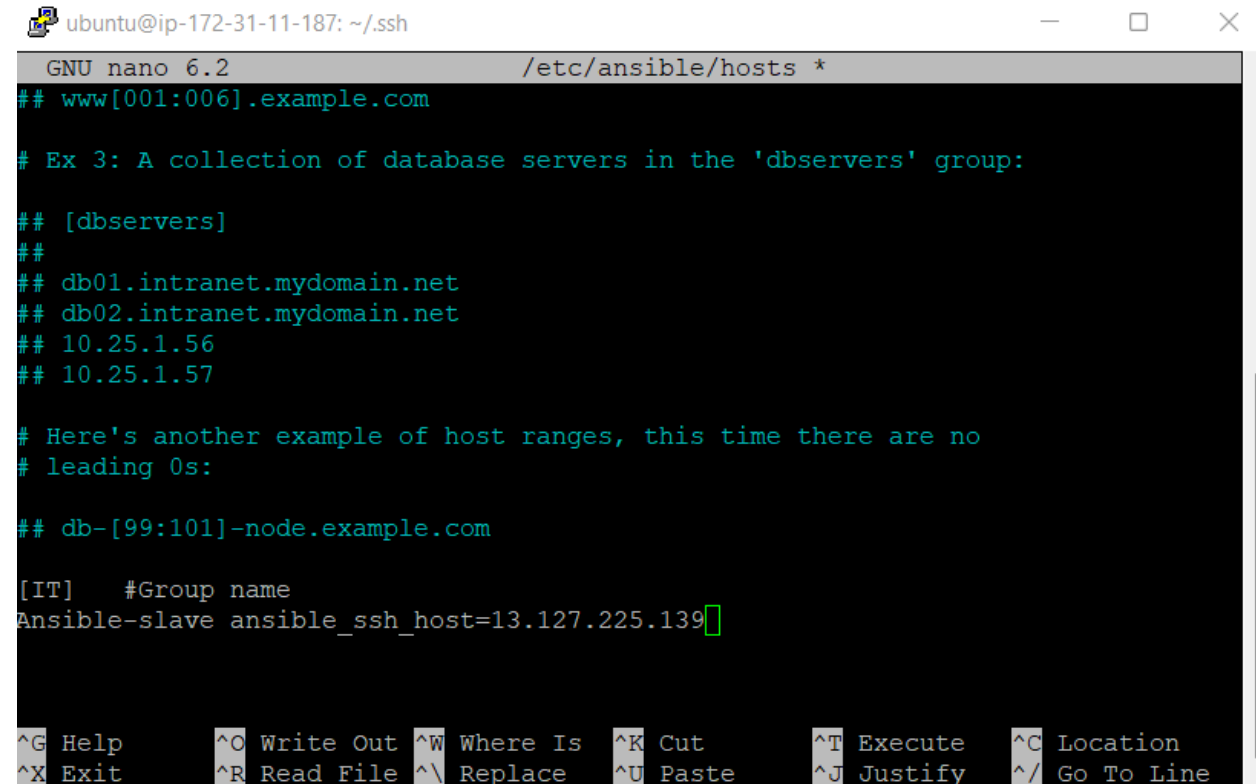
Open the hosts file and edit as per the below information

```
sudo nano /etc/ansible/hosts
```

Add the last line

```
[IT] #Group name
```

```
Ansible-slave ansible_ssh_host=13.127.225.139 //public IP of the slave
```



```
ubuntu@ip-172-31-11-187: ~/.ssh
GNU nano 6.2 /etc/ansible/hosts *
## 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:

## db-[99:101]-node.example.com

[IT] #Group name
Ansible-slave ansible_ssh_host=13.127.225.139
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/ Go To Line
```

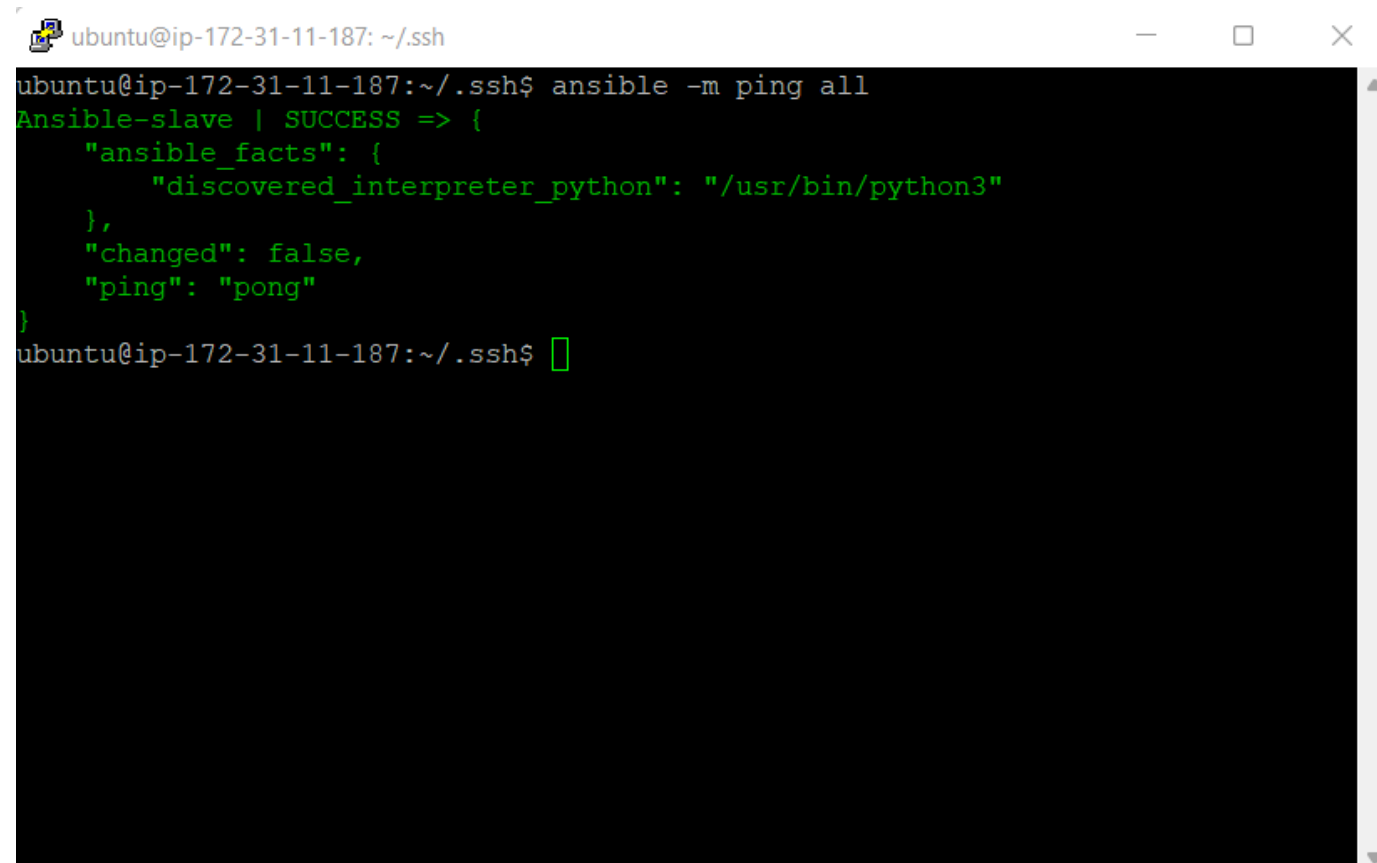
Ping and test the connection from Master to Slave

`ansible -m ping all //for all hosts`

`ansible -m ping IT // ping by group`

`ansible -m ping Ansible-slave //ping by hostname`

`ansible -m ping 13.127.225.139 //ping by the IP of the host`



```
ubuntu@ip-172-31-11-187: ~/.ssh
ubuntu@ip-172-31-11-187:~/.ssh$ ansible -m ping all
Ansible-slave | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3"
  },
  "changed": false,
  "ping": "pong"
}
ubuntu@ip-172-31-11-187:~/.ssh$
```

Thank you