

# SSH

Experiment: 5.

Ajay Aji-22UBCA7312

Aim: Installation of Open SSH between two ubuntu machines.

Description:

Remote File Sharing using SSH

OpenSSH is a powerful collection of tools for the remote control of, and transfer of data between, networked computers. You will also learn about some of the configuration settings possible with the OpenSSH server application and how to change them on your Ubuntu system.

OpenSSH is a freely available version of the Secure Shell (SSH) protocol family of tools for remotely controlling, or transferring files between computers. Traditional tools used to accomplish these functions, such as telnet or rcp, are insecure and transmit the user's password in cleartext when used. OpenSSH provides a server daemon and client tools to facilitate secure, encrypted remote control and file transfer operations, effectively replacing the legacy tools.

Port No: 22

Package name: openssh-client

Configuration file: /etc/ssh/sshd\_config

Procedure:

1. create two EC2 instance of ubuntu ssh client and ssh server
2. Create the password for the instance of ssh server by `$sudo passwd ubuntu`
3. Now check whether the ssh server is running by the command `$sudo service ssh status`
4. configure the sshd\_config file by the following command `$sudo vim /etc/ssh/sshd_config` and include the following changes  
`PasswordAuthentication yes , KbdInteractiveAuthentication`

no ,KerberosGetAFSToken no

5. Now check the status of the ssh server by the command \$sudo service sshstatus

6. Now create a text file by the command \$touch text.txt

7. Now log in to the ssh\_client and create a ssh\_keygen by the command

\$ssh\_keygen

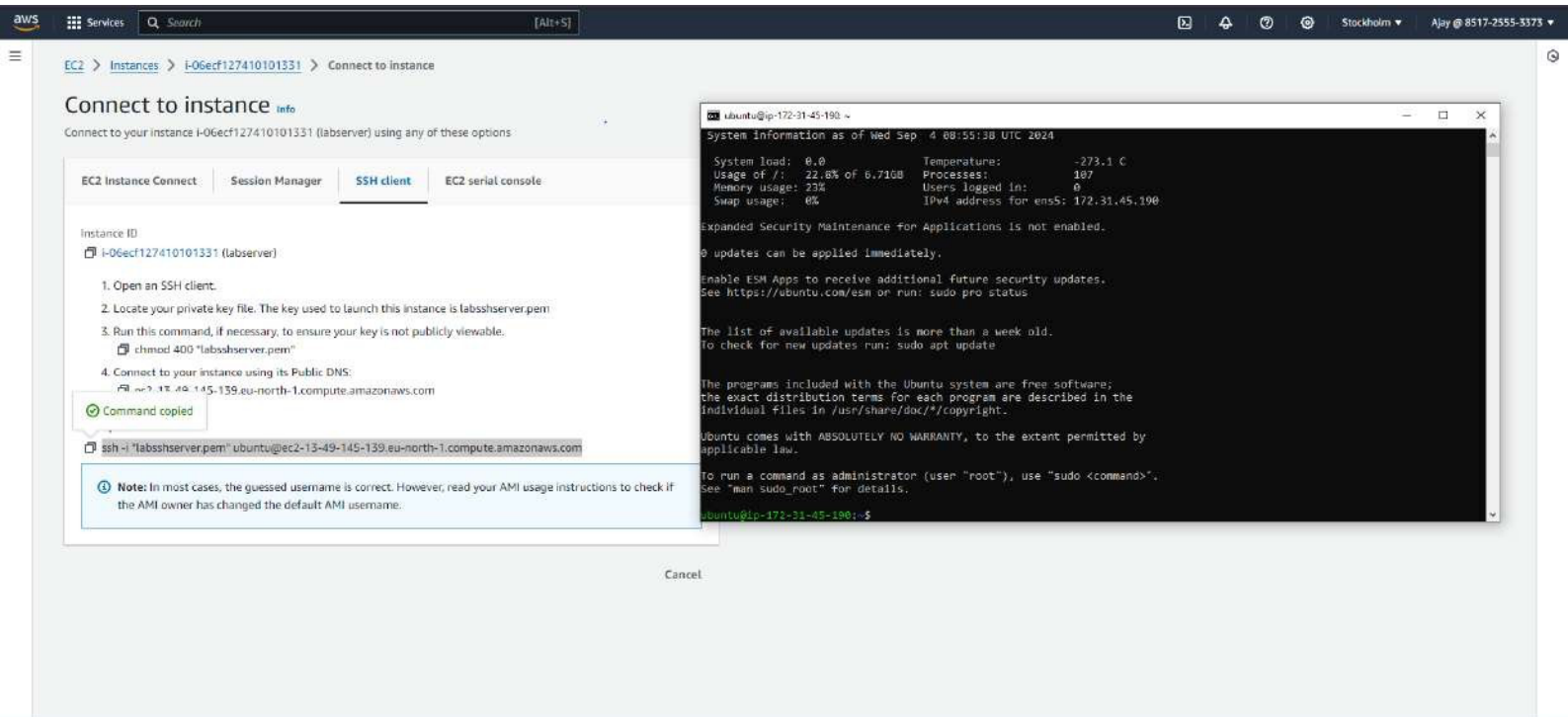
8. Now copy the ssh\_keygen form the ssh\_client \$ssh-copy-idubuntu@privateip

9. Now restart the client machine

10. Then connect to the ssh\_server by ssh\_client

11. then type ls you will be prompted with the screen with your text file which you havecreated

Result:



aws

Services

Search

[Alt+5]

Stockholm

Ajay @ 8517-2555-5373

EC2 > Instances > i-0ba9e0639567a44a2 > Connect to instance

Connect to instance

Info

Connect to your instance i-0ba9e0639567a44a2 (labclient) using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

i-0ba9e0639567a44a2 (labclient)

1. Open an SSH client.

2. Locate your private key file. The key used to launch updates can be applied immediately.

3. Run this command, if necessary, to ensure your system is up to date. Enable ESM Apps to receive additional future security updates. See https://ubuntu.com/esm or run: sudo pro status

chmod 400 'labsshclient.pem'

4. Connect to your instance using its Public DNS:

ec2-16-170-246-138.eu-north-1.compute.amazonaws.com

Command copied

ssh -i 'labsshclient.pem' ubuntu@ec2-16-170-246-138.eu-north-1.compute.amazonaws.com

Note:

In most cases, the guessed username is ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

the AMI owner has changed the default AMI user.

ubuntu@ip-172-31-42-168 ~

System information as of Wed Sep 4 08:55:38 UTC 2024

System load: 0.0

Temperature: -273.1 C

Usage of /: 22.8% of 6.71GB

Processes: 107

Memory usage: 23%

Users logged in: 0

Swap usage: 0%

IPv4 address for ens5: 172.31.42.168

Expanded Security Maintenance for Applications is not enabled.

The list of available updates is more than a week old.

To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;

the exact distribution terms for each program are described in the

individual files in /usr/share/doc/\*/\*copyright.

To run a command as administrator (user "root"), use "sudo <command>".

See "man sudo\_root" for details.

ubuntu@ip-172-31-42-168:~\$

EC2

>

Instances

>

I-0ba9d0639567a44a2

>

Connect to instance

Connect to instance

Info

Connect to your instance I-0ba9d0639567a44a2 (labclient) using any of these options

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

Instance ID

I-0ba9d0639567a44a2 (labclient)

1. Open an SSH client.

2. Locate your private key file. The key used to launch this instance is labsshclient.pem

3. Run this command, if necessary, to ensure your key is not publicly viewable.  
chmod 400 "labsshclient.pem"

4. Connect to your instance using its Public DNS:  
ec2-16-170-246-138.eu-north-1.compute.amazonaws.com

Example:  
ssh -i "labsshclient.pem" ubuntu@ec2-16-170-246-138.eu-north-1.compute.amazonaws.com

Note:

In most cases, the guessed username is correct. However, read your AMI usage instructions to ensure the AMI owner has changed the default AMI username.

ubuntu@ip-172-31-45-190 ~\$

Docs: man:ssh(8)

man:ssh config(5)

Process: 1014 ExecStartPre=/usr/sbin/ssh -t (code=exited, status=0/SUCCESS)

Main PID: 1016 (sshd)

Tasks: 1 (limit: 1078)

Memory: 3.9M (peak: 5.4M)

CPU: 22ms

CGroup: /system.slice/ssh.service

└─1016 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic\_run\_authorized\_keys %u %p"

Sep 04 08:58:53 ip-172-31-45-190 sshd[1216]: Received disconnect from 167.172.72.45 port 34590:11: Bye Bye [preauth]

Sep 04 08:58:53 ip-172-31-45-190 sshd[1216]: Disconnected from invalid user ts3user 167.172.72.45 port 34590 [preauth]

Sep 04 08:59:40 ip-172-31-45-190 sshd[1218]: Invalid user user1 from 167.172.72.45 port 50786

Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Received disconnect from 167.172.72.45 port 59786:11: Bye Bye [preauth]

Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Disconnected from invalid user user1 167.172.72.45 port 50786 [preauth]

Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Invalid user guest from 167.172.72.45 port 53310

Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Received disconnect from 167.172.72.45 port 53310:11: Bye Bye [preauth]

Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Disconnected from invalid user guest 167.172.72.45 port 53310 [preauth]

Sep 04 09:02:03 ip-172-31-45-190 sshd[1225]: Received disconnect from 167.172.72.45 port 52400:11: Bye Bye [preauth]

Sep 04 09:02:03 ip-172-31-45-190 sshd[1225]: Disconnected from authenticating user root 167.172.72.45 port 52400 [preauth]

EC2 > Instances > i-0ba9d0639567a44a2 > Connect to instance

Connect to instance

Connect to your instance i-0ba9d0639567a44a2 (labclient) using any of these options

EC2 Instance ConnectSession ManagerSSH clientEC2 serial console

Instance ID

i-0ba9d0639567a44a2 (labclient)

1. Open an SSH client.

2. Locate your private key file. The key used to launch this instance is labsshclient.pem

3. Run this command, if necessary, to ensure your key is not publicly viewable.

chmod 400 "labsshclient.pem"

4. Connect to your instance using its Public DNS:

ec2-16-170-246-138.eu-north-1.compute.amazonaws.com

Example:

ssh -i "labsshclient.pem" ubuntu@ec2-16-170-246-138.eu-north-1.compute.amazonaws.com

Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to ensure that the AMI owner has changed the default AMI username.

ubuntu@ip-172-31-45-190: ~

Tasks: 1 (limit: 1076)  
Memory: 3.0M (peak: 5.4M)  
CPU: 229ms  
CGROUP: /system.slice/ssh.service  
1016 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic\_run\_authorized\_keys %u %f"

Sep 04 08:58:53 ip-172-31-45-190 sshd[1216]: Received disconnect from 167.172.72.45 port 34590:11: Bye Bye [preauth]  
Sep 04 08:58:53 ip-172-31-45-190 sshd[1216]: Disconnected from invalid user tsuser 167.172.72.45 port 34590 [preauth]  
Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Invalid user user1 from 167.172.72.45 port 59780  
Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Received disconnect from 167.172.72.45 port 59780:11: Bye Bye [preauth]  
Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Disconnected from invalid user user1 167.172.72.45 port 59780 [preauth]  
Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Invalid user guest from 167.172.72.45 port 53310  
Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Received disconnect from 167.172.72.45 port 53310:11: Bye Bye [preauth]  
Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Disconnected from invalid user guest 167.172.72.45 port 53310 [preauth]  
Sep 04 09:02:03 ip-172-31-45-190 sshd[1225]: Received disconnect from 167.172.72.45 port 52400:11: Bye Bye [preauth]  
Sep 04 09:02:03 ip-172-31-45-190 sshd[1225]: Disconnected from authenticating user root 167.172.72.45 port 52400 [preauth]

```
# some RW modules and threads
KbdInteractiveAuthentication no

# Kerberos options
#KerberosAuthentication no
#KerberosDelegations no
#KerberosGetAFSToken no
#KerberosTicketCleanup yes
#KerberosUsePAM yes

# GSSAPI options
#GSSAPIAuthentication no
#GSSAPICleanupCredentials yes
#GSSAPIInitiatorAcceptorsCheck yes
#GSSAPIKeyExchange no

# Set this to 'yes' to enable PAM authentication, account processing,
# and session processing. If this is enabled, PAM authentication will
# be allowed through the KbdInteractiveAuthentication and
# PasswordAuthentication. Depending on your PAM configuration,
# PAM authentication via KbdInteractiveAuthentication may bypass
# the setting of 'PermitRootLogin prohibit-password'.
# If you just want the PAM account and session checks to run without
# PAM authentication, then enable this but set PasswordAuthentication
# and KbdInteractiveAuthentication to 'no'.
UsePAM yes

#X11Forwarding yes
#X11UseXauth yes
#GatewayPorts no
X11Forwarding yes
X11DisplayOffset 10
X11UseXauth yes
#PermitTTY yes
#PrintMotd no
#PermitRootLogin yes
#StrictHostKeyChecking yes
#PermitUserEnvironment no
#Compression delayed
#ClientAliveInterval 0
#ClientAliveCountMax 3
#MuxMax 0
#PidFile /run/sshd.pid
#MaxStartups 10:30:100
#PermitTunnel no
#PermitLocalCommand yes
#PermitOpen none

# no default banner path
#Banner none

# Allow client to pass locale environment variables
AcceptEnv LANG LC_*

# override default of no subsystems
Subsystem sftp /usr/lib/openssh/sftp-server

# Example of overriding settings on a per-user basis
Match User anoncis
#
X11Forwarding no
#
X11UseXauth no
#
PermitTTY no
#
PermitLocalCommand no
#
PermitOpen no
```

```
"/etc/ssh/sshd_config" 122L, 3253B
```



```

ubuntu@ip-172-31-42-168:~$
| .E+.,-----|
|-----[SHA256]-----|
ubuntu@ip-172-31-42-168:~$
ubuntu@ip-172-31-42-168:~$ ssh-copy-id ubuntu@172.31.42.168
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/home/ubuntu/.ssh/id_ed25519.pub"
The authenticity of host '172.31.42.168 (172.31.42.168)' can't be established.
ED25519 key fingerprint is SHA256:uadw07P/3j0vtrffh34S2R51F/Q1d1shhTQP11TV/fg.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? 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
ubuntu@172.31.42.168: Permission denied (publickey).
ubuntu@ip-172-31-42-168:~$ ssh-copy-id ubuntu@172.31.42.168
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/home/ubuntu/.ssh/id_ed25519.pub"
/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
ubuntu@172.31.42.168: Permission denied (publickey).
ubuntu@ip-172-31-42-168:~$
ubuntu@ip-172-31-42-168:~$ SHA256:axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass ubuntu@ip-172-31-42-168
SHA256:axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass: command not found
ubuntu@ip-172-31-42-168:~$ ssh-SHA256:axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass ubuntu@ip-172-31-42-168
ssh-SHA256:axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass: command not found
ubuntu@ip-172-31-42-168:~$ ssh-axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass ubuntu@ip-172-31-42-168
ssh-axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass: command not found
ubuntu@ip-172-31-42-168:~$ SHA256 ubuntu@ip-172-31-42-168
SHA256: command not found
ubuntu@ip-172-31-42-168:~$ ssh-coS-H256:axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass ubuntu@ip-172-31-42-168
ssh-coSHA256:axkvF06oI8zvUT45kIB+5BW486MRnugYDA009f64ass: command not found
ubuntu@ip-172-31-42-168:~$ ssh-copy-id ubuntu@ip-172.31.42.168
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/home/ubuntu/.ssh/id_ed25519.pub"
/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: ERROR: ssh: Could not resolve hostname ip-172.31.42.168: Name or service not known
ubuntu@ip-172-31-42-168:~$ ssh-copy-id ubuntu@ip-172.31.45.190
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/home/ubuntu/.ssh/id_ed25519.pub"
/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: ERROR: ssh: Could not resolve hostname ip-172.31.45.190: Name or service not known
ubuntu@ip-172-31-42-168:~$ ssh-copy-id ubuntu@ip-172-31-45-190
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/home/ubuntu/.ssh/id_ed25519.pub"
The authenticity of host 'ip-172-31-45-190 (172.31.45.190)' can't be established.
ED25519 key fingerprint is SHA256:fH/qd/ChqQZmeSe8OrTxxn8rc39WZc8CuAeJdqsM7A.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? 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
(ubuntu@ip-172-31-45-190) Password:
Number of key(s) added: 1
Now try logging into the machine, with:  "ssh 'ubuntu@ip-172-31-45-190'"
and check to make sure that only the key(s) you wanted were added.
ubuntu@ip-172-31-42-168:~$

```



ubuntu@ip-172-31-45-190: ~

```
ubuntu@ip-172-31-45-190:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-45-190:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-45-190:~$ sudo service ssh status
* ssh.service - OpenSSH Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Drop-In: /usr/lib/systemd/system/ssh.service.d
            └─ec2-instance-connect.conf
   Active: active (running) since Wed 2024-09-04 08:49:21 UTC; 39min ago
   TriggeredBy: ● ssh.socket
     Docs: man:sshd(8)
            man:sshd_config(5)
   Process: 1614 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 1616 (sshd)
     Tasks: 1 (limit: 1078)
    Memory: 3.0M (peak: 5.4M)
       CPU: 229ms
   CGroup: /system.slice/ssh.service
            └─1616 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic_run_authorized_keys %u %f -o AuthorizedKeysCommanduser ec2-instance-connect [listener] 0 of 10-100 startups"

Sep 04 08:58:53 ip-172-31-45-190 sshd[1216]: Received disconnect from 167.172.72.45 port 34590:11: Bye Bye [preauth]
Sep 04 08:58:53 ip-172-31-45-190 sshd[1216]: Disconnected from invalid user ts3user 167.172.72.45 port 34590 [preauth]
Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Invalid user user1 from 167.172.72.45 port 59786
Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Received disconnect from 167.172.72.45 port 59786:11: Bye Bye [preauth]
Sep 04 08:59:49 ip-172-31-45-190 sshd[1218]: Disconnected from invalid user user1 167.172.72.45 port 59786 [preauth]
Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Invalid user guest from 167.172.72.45 port 53310
Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Received disconnect from 167.172.72.45 port 53310:11: Bye Bye [preauth]
Sep 04 09:00:56 ip-172-31-45-190 sshd[1222]: Disconnected from invalid user guest 167.172.72.45 port 53310 [preauth]
Sep 04 09:02:03 ip-172-31-45-190 sshd[1225]: Received disconnect from 167.172.72.45 port 52400:11: Bye Bye [preauth]
Sep 04 09:02:03 ip-172-31-45-190 sshd[1225]: Disconnected from authenticating user root 167.172.72.45 port 52400 [preauth]
ubuntu@ip-172-31-45-190:~$ touch text.txt
ubuntu@ip-172-31-45-190:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-45-190:~$ sudo service ssh restart
ubuntu@ip-172-31-45-190:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-45-190:~$ ls
text.txt
ubuntu@ip-172-31-45-190:~$
```

EC2 Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity

Reservations

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Services

Search

[Alt+S]

Stockholm

Ajay @ 8517-2555-3373

EC2 > Instances > i-0ba9d0639567a44a2

Instance summary for i-0ba9d0639567a44a2 (labclient) info

Updated 37 minutes ago

Refresh

Connect

Instance state

Actions

Instance ID

i-0ba9d0639567a44a2 (labclient)

IPv6 address

—

Hostname type

IP name: ip-172-31-42-168.eu-north-1.compute.internal

Answer private resource DNS name

IPv4 (A)

Auto-assigned IP address

16.170.246.138 [Public IP]

Public IPv4 address

16.170.246.138 | open address

Instance state

Running

Private IP DNS name (IPv4 only)

ip-172-31-42-168.eu-north-1.compute.internal

Instance type

t3.micro

VPC ID

vpc-05b700e1fb9661952

IAM Role

—

Subnet ID

subnet-0dabbb73da82db395

Instance ARN

arn:aws:ec2:eu-north-1:851725553373:instance/i-0ba9d0639567a44a2

Private IPv4 addresses

172.31.42.168

Public IPv4 DNS

ec2-16-170-246-138.eu-north-1.compute.amazonaws.com | open address

Elastic IP addresses

—

AWS Compute Optimizer finding

User: arn:aws:iam:851725553373:user/Ajay is not authorized to perform: compute-optimizer:GetEnrollmentStatus on resource: \* because no identity-based policy allows the compute-optimizer:GetEnrollmentStatus action

Auto Scaling Group name

—

Details

Status and alarms

Monitoring

Security

Networking

Storage

Tags

Instance details info

Platform

Libuntu (Inferred)

AMI ID

ami-04cdc91e49cb06165

Monitoring

disabled

Platform details

AMI name

Termination protection

—

```
ubuntu@ip-172-31-45-100 ~$
ED25519 key fingerprint is SHA256:Fh/qd/CNqg0zme5E80rTxxn8rc39wZc8cuAeJdqsm7A.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? 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
(ubuntu@ip-172-31-45-190) Password:

Number of key(s) added: 1

Now try logging into the machine, with:  "ssh 'ubuntu@ip-172-31-45-190'"
and check to make sure that only the key(s) you wanted were added.

ubuntu@ip-172-31-42-168:~$ ls
ubuntu@ip-172-31-42-168:~$ touch ajoy.txt
ubuntu@ip-172-31-42-168:~$ ls
ajoy.txt
ubuntu@ip-172-31-42-168:~$ ssh ubuntu@ip-172-31-45-190
Welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1012-aws x86_64)

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

System Information as of Wed Sep  4 10:29:59 UTC 2024

System load:  0.0           Temperature:   -273.1 C
Usage of /:   23.1% of 6.71GB Processes:      111
Memory usage: 34%          Users logged in: 1
Swap usage:   0%           IPv4 address for ens5: 172.31.45.190

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Sep  4 08:55:40 2024 from 103.135.95.46
ubuntu@ip-172-31-45-190:~$ ls
text.txt
ubuntu@ip-172-31-45-190:~$
```