

SSH

Experiment: 5

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 ssh status`

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`

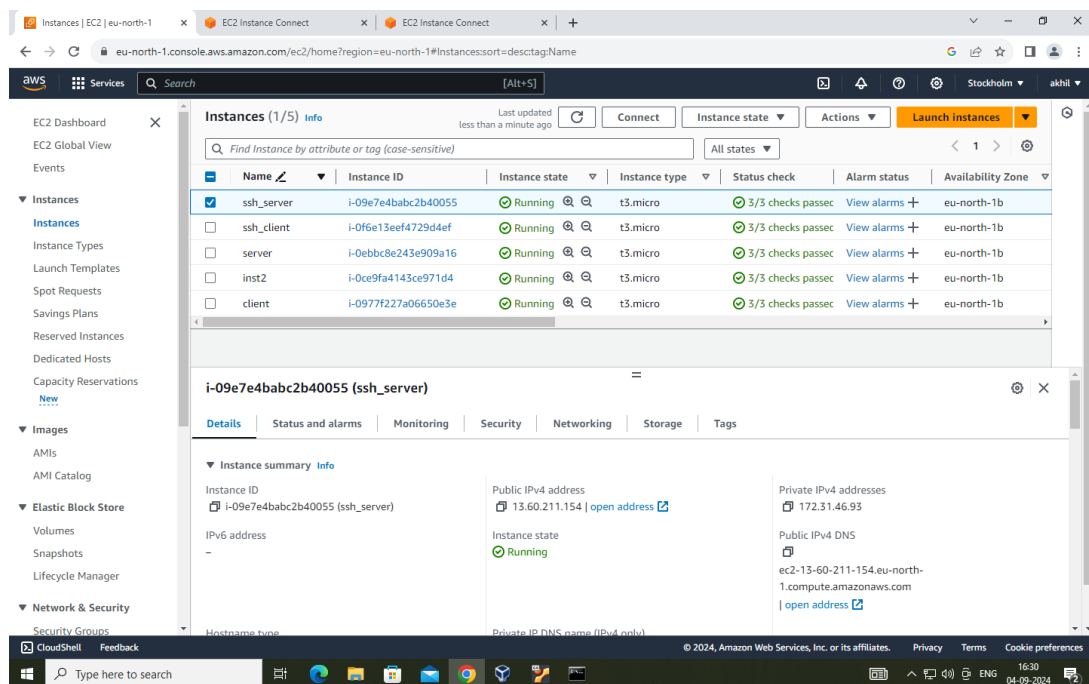
8. Now copy the ssh_keygen form the ssh_client `$ssh-copy-id ubuntu@privateip`

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 have created

Result:



```
ubuntu@ip-172-31-46-93: ~
Microsoft Windows [Version 10.0.19045.3693]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PC-1>cd Downloads

C:\Users\PC-1\Downloads>ssh -i "keyyy.pem" ubuntu@ec2-13-60-211-154.eu-north-1.compute.amazonaws.com
The authenticity of host 'ec2-13-60-211-154.eu-north-1.compute.amazonaws.com (13.60.211.154)' can't be established.
ECDSA key fingerprint is SHA256:pfJUSwMftJHoEUMHzq0+UvCkEXjgDm9VUM2pUMfjY.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-13-60-211-154.eu-north-1.compute.amazonaws.com,13.60.211.154' (ECDSA) to the list of known hosts.
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 10:32:27 UTC 2024

System load:  0.0          Temperature:   -273.1 C
Usage of /:   23.0% of 6.71GB    Processes:    124
Memory usage: 37%            Users logged in: 1
Swap usage:   0%              IPv4 address for ens5: 172.31.46.93

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 09:33:55 2024 from 13.48.4.202
ubuntu@ip-172-31-46-93:~$ sudo passwd ubuntu
New password:
Retype new password:
passwd: password updated successfully
ubuntu@ip-172-31-46-93:~$ sudo service ssh status
* ssh.service - OpenBSD 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 09:33:49 UTC; 1h 0min ago
   TriggeredBy: ● ssh.socket
   Docs: man:sshd(8)
          man:ssh_config(5)
   Process: 1006 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 1008 (sshd)
   Tasks: 1 (limit: 1078)

Type here to search
```

```
ubuntu@ip-172-31-46-93: ~
passwd: password updated successfully
ubuntu@ip-172-31-46-93:~$ sudo service ssh status
* ssh.service - OpenBSD 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 09:33:49 UTC; 1h 0min ago
   TriggeredBy: ● ssh.socket
   Docs: man:sshd(8)
          man:ssh_config(5)
   Process: 1006 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 1008 (sshd)
   Tasks: 1 (limit: 1078)
   Memory: 6.3M (peak: 8.5M)
   CPU: 2.543s
   CGROUP: /system.slice/ssh.service
   └─1006 sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand=/usr/share/ec2-instance-connect/eic_run_authorizedkeys
Sep 04 09:53:34 ip-172-31-46-93 sshd[1562]: Connection closed by 168.121.56.26 port 52916
Sep 04 10:10:24 ip-172-31-46-93 sshd[1630]: Invalid user ssh_server from 172.31.38.237 port 52598
Sep 04 10:10:24 ip-172-31-46-93 sshd[1630]: Connection closed by invalid user ssh_server 172.31.38.237 port 52598 [preauth]
Sep 04 10:12:20 ip-172-31-46-93 sshd[1647]: Connection closed by invalid user ssh_server 172.31.46.93 port 39658 [preauth]
Sep 04 10:20:01 ip-172-31-46-93 sshd[1663]: Invalid user ssh_server from 172.31.38.237 port 48406
Sep 04 10:20:01 ip-172-31-46-93 sshd[1663]: Connection closed by invalid user ssh_server 172.31.38.237 port 48406 [preauth]
Sep 04 10:30:17 ip-172-31-46-93 sshd[1673]: Connection reset by 190.225.24.42 port 62172 [preauth]
Sep 04 10:32:27 ip-172-31-46-93 sshd[1682]: Accepted publickey for ubuntu from 103.135.95.46 port 53084 ssh2: RSA SHA256:
(session): session opened for user ubuntu(uid=1000) by ubuntu
ubuntu@ip-172-31-46-93:~$ sudo vim /etc/ssh/sshd_config

[1]+  Stopped                  sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-46-93:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-46-93:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-46-93:~$ ubuntu@ip-172-31-46-93:~$ sudo service ssh restart
ubuntu@ip-172-31-46-93:~$ touch text.txt
ubuntu@ip-172-31-46-93:~$ ls
text.txt  text3.txt
ubuntu@ip-172-31-46-93:~$
```

```
ubuntu@ip-172-31-46-92: ~
Microsoft Windows [Version 10.0.19045.3693]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PC-1>Downloads
'Downloads' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\PC-1>cd Downloads

C:\Users\PC-1\Downloads>ssh -i "keyyy.pem" ubuntu@ec2-13-60-46-10.eu-north-1.compute.amazonaws.com
The authenticity of host 'ec2-13-60-46-10.eu-north-1.compute.amazonaws.com (13.60.46.10)' can't be established.
ECDSA key fingerprint is SHA256:PQoNwoK18SyEgBvveMlCHVj3884L+78uCPLez4qxzM.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-13-60-46-10.eu-north-1.compute.amazonaws.com,13.60.46.10' (ECDSA) to the list of known hosts.
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 10:53:40 UTC 2024

System load:  0.51           Temperature:   -273.1 C
Usage of /:   22.8% of 6.71GB Processes:      113
Memory usage: 25%           Users logged in: 0
Swap usage:   0%            IPv4 address for ens5: 172.31.45.66

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

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.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-45-66:~$ ssh keygen
ssh: Could not resolve hostname keygen: Temporary failure in name resolution
ubuntu@ip-172-31-45-66:~$ ssh_keygen
```

```
ubuntu@ip-172-31-46-92: ~
ssh: Could not resolve hostname keygen: Temporary failure in name resolution
ubuntu@ip-172-31-45-66:~$ ssh_keygen
Command 'ssh_keygen' not found, did you mean:
  command 'ssh-keygen' from deb openssh-client (1:9.6p1-3ubuntu13.4)
Try: sudo apt install <deb name>
ubuntu@ip-172-31-45-66:~$ sudo ssh_keygen
sudo: ssh_keygen: command not found
ubuntu@ip-172-31-45-66:~$ sudo service ssh status
* ssh.service - OpenBSD 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 10:53:35 UTC; 1min 40s ago
   TriggeredBy: * ssh.socket
   Docs: man:sshd(8)
          man:sshd_config(5)
   Process: 1008 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 1010 (sshd)
   Tasks: 1 (limit: 1078)
   Memory: 3.9M (peak: 4.4M)
   CPU: 59ms
   CGroup: /system.slice/ssh.service
           └─1010 *sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic_run_authorized...

Sep 04 10:53:35 ip-172-31-45-66 systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Sep 04 10:53:35 ip-172-31-45-66 sshd[1010]: Server listening on :: port 22.
Sep 04 10:53:35 ip-172-31-45-66 systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
Sep 04 10:53:40 ip-172-31-45-66 sshd[1011]: Accepted publickey for ubuntu from 103.135.95.46 port 53383 ssh2: RSA SHA256:
:session): session opened for user ubuntu(uid=1000) by ubuntu
ubuntu@ip-172-31-45-66:~$ sudo ssh_keygen
sudo: ssh_keygen: command not found
ubuntu@ip-172-31-45-66:~$ ssh-keygen
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/ubuntu/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Your identification has been saved in /home/ubuntu/.ssh/id_ed25519
Your public key has been saved in /home/ubuntu/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:tl9ys+tk00utuyg7GEmuXlJZecNrdk24wAXydsyH ubuntu@ip-172-31-45-66
The key's randomart image is:
+--[ED25519 256]--+
|
|      .
|      E =
|      . + +
|      o  S o
|      + + o o
|      o . + @ % o
|      .o + & %
|      +*o=B o
|
+-----+

```

```
ubuntu@ip-172-31-46-93:~$ sudo ssh restart
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro

System information as of Wed Sep 4 10:57:47 UTC 2024

System load: 0.07 Temperature: -273.1 C
Usage of /: 23.0% of 6.71GB Processes: 128
Memory usage: 39% Users logged in: 1
Swap usage: 0% IPv4 address for ens5: 172.31.46.93

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 10:32:28 2024 from 103.135.95.46
ubuntu@ip-172-31-46-93:~$ sudo service ssh restart
ssh: Could not resolve hostname restart: Temporary failure in name resolution
ubuntu@ip-172-31-46-93:~$ sudo service ssh restart
text.txt text.txt
ubuntu@ip-172-31-46-93:~$
```

```
ubuntu@ip-172-31-46-93:~$ ssh-copy-id ubuntu@ip-172-31-46-93
The key fingerprint is:
SHA256:t01Y54tktoZuTuy87GEmXNjZecNrdk24wAXxydSyM ubuntu@ip-172-31-46-93
The key's randomart image is:
+--[ED25519 256]--+
|      .      .      .      .      .      .      .      .      .      .      |
|      E      =      +      +      +      +      +      +      +      +      |
|      o      .      S      o      .      .      .      .      .      .      |
|      =      *      o      o      .      .      .      .      .      .      |
|      o      .      @      %      o      .      .      .      .      .      |
|      .      o      &      %      .      .      .      .      .      .      |
|      +*o-B-o      .      .      .      .      .      .      .      .      |
+-----[SHA256]-----+
ubuntu@ip-172-31-46-93:~$ ssh-copy-id ubuntu@ip-172-31-46-93
/usr/bin/ssh-copy-id: ERROR: Too many arguments. Expecting a target hostname, got:
Usage: /usr/bin/ssh-copy-id [-h|-?|-f|-n|-s|-x] [-i [identity_file]] [-p port] [-F alternative_ssh_config_file] [-t target_path] [--ssh-options ssh_options] ... [user@]hostname
-f: force mode -- copy keys without trying to check if they are already installed
-n: dry run -- no keys are actually copied
-s: use sftp -- use sftp instead of executing remote-commands. Can be useful if the remote only allows sftp
-x: debug -- enables -x in this shell, for debugging
-h|-?: print this help
ubuntu@ip-172-31-46-93:~$ ssh-copy-id ubuntu@ip-172-31-46-93
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ubuntu/.ssh/id_ed25519.pub"
The authenticity of host 'ip-172-31-46-93 (172.31.46.93)' can't be established.
ED25519 key fingerprint is SHA256:FQxdofczt24zo30t70L+QhHads/E3zf5Pwhok/ORqg.
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-172-31-46-93) Password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'ubuntu@ip-172-31-46-93'"
and check to make sure that only the key(s) you wanted were added.

ubuntu@ip-172-31-46-93:~$ sudo service ssh restart
*[[3=ubuntu@ip-172-31-46-93:~$ is
ubuntu@ip-172-31-46-93:~$ ssh ubuntu@ip-172-31-46-93
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 10:57:47 UTC 2024

System load: 0.07 Temperature: -273.1 C
Usage of /: 23.0% of 6.71GB Processes: 128
Memory usage: 39% Users logged in: 1
```

Conclusion: All the commands have been executed and the output has been obtained successfully.

