

SSH

Experiment: 3

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

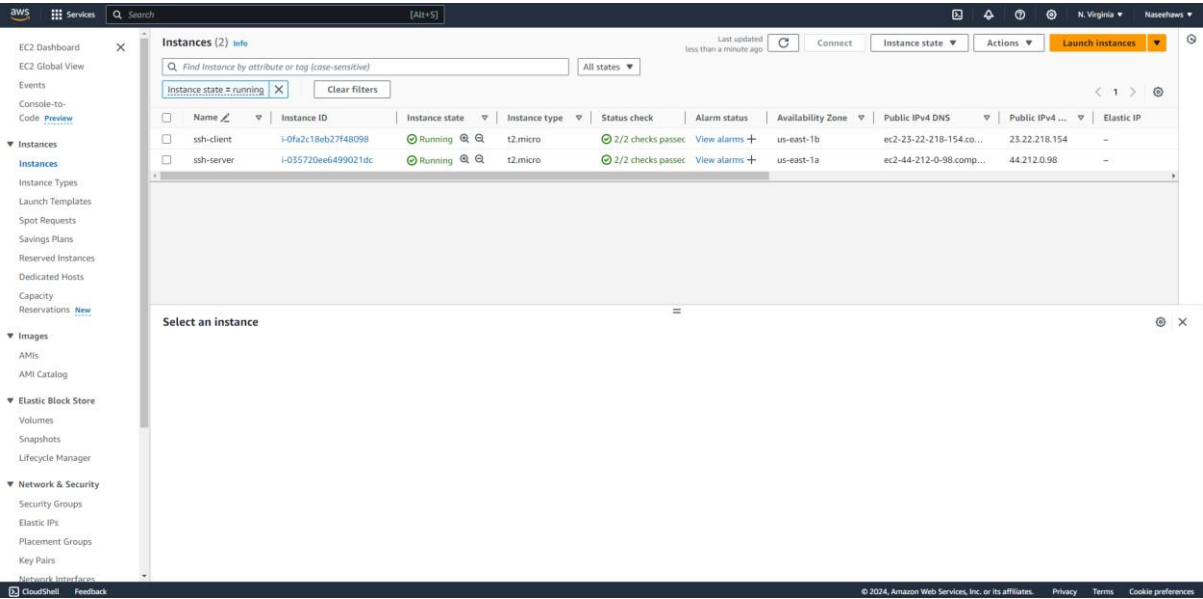
Package name: openssh-client

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:



Server-side:

```
ubuntu@ip-172-31-84-44: ~
Microsoft Windows [Version 10.0.19045.3930]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PC-1>cd Downloads

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

C:\Users\PC-1\Downloads>ssh -i "serssh.pem" ubuntu@ec2-3-86-164-212.compute-1.amazonaws.com
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 10:34:30 UTC 2024
System load:  0.0          Processes:      147
Usage of /:   23.1% of 6.71GB  Users logged in:  1
Memory usage: 33%          IPv4 address for enX0: 172.31.84.44
Swap usage:   0%

=> There are 10 zombie processes.

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 09:57:53 2024 from 103.135.95.46
ubuntu@ip-172-31-84-44:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-84-44:~$ ubuntu@ip-172-31-84-44:~$ touch text.txt
ubuntu@ip-172-31-84-44:~$ sudo service ssh status
o ssh.service - OpenSSH Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Drop-In: /usr/lib/systemd/system/ssh.service.d
            └─ec2-instance-connect.conf
   Active: inactive (dead) since Wed 2024-09-04 10:27:34 UTC; 15min ago
   TriggeredBy: ● ssh.socket
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 1844 (sshd)
     Tasks: 1 (limit: 1130)
    Memory: 4.5M (peak: 7.3M)
       CPU: 268ms
    CGroup: /system.slice/ssh.service
            └─1844 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic_run_autho
```

sudo vim /etc/ssh/sshd_config file opened

```
Select ubuntu@ip-172-31-84-44 ~
# This is the sshd server system-wide configuration file. See
# sshd_config(5) for more information.
# This sshd was compiled with PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games
# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented. Uncommented options override the
# default value.
Include /etc/ssh/sshd_config.d/*.conf
#Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::
#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_ecdsa_key
#HostKey /etc/ssh/ssh_host_ed25519_key
# Ciphers and keying
#RekeyLimit default none
# Logging
#SyslogFacility AUTH
#LogLevel INFO
# Authentication:
#LoginGraceTime 2m
#PermitRootLogin prohibit-password
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10
#PubkeyAuthentication yes
# Expect .ssh/authorized_keys2 to be disregarded by default in future.
#AuthorizedKeysFile .ssh/authorized_keys .ssh/authorized_keys2
#AuthorizedPrincipalsFile none
#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody
# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts
#HostbasedAuthentication no
# Change to yes if you don't trust ~/.ssh/known_hosts for
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes
# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication yes
#PermitEmptyPasswords no
# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
#KbdInteractiveAuthentication no
"/etc/ssh/sshd_config" 122L, 3256B 57,1 Top
```

Save & Exit

```
ubuntu@ip-172-31-84-44:~$ sudo vim /etc/ssh/sshd_config
ubuntu@ip-172-31-84-44:~$ ubuntu@ip-172-31-84-44:~$ touch text.txt
ubuntu@ip-172-31-84-44:~$ sudo service ssh status
ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Drop-In: /usr/lib/systemd/system/ssh.service.d
            └─ec2-instance-connect.conf
   Active: inactive (dead) since Wed 2024-09-04 10:27:34 UTC; 15min ago
   TriggeredBy: ● ssh.socket
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 1844 (sshd)
     Tasks: 1 (limit: 1130)
    Memory: 4.5M (peak: 7.3M)
       CPU: 268ms
    CGroup: /system.slice/ssh.service
            └─1844 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/eic_run_autho>
Sep 04 10:30:36 ip-172-31-84-44 sshd[2036]: Invalid user foobob from 139.59.18.138 port 37010
Sep 04 10:30:37 ip-172-31-84-44 sshd[2036]: Received disconnect from 139.59.18.138 port 37010:11: Bye Bye [preauth]
Sep 04 10:30:37 ip-172-31-84-44 sshd[2036]: Disconnected from invalid user foobob 139.59.18.138 port 37010 [preauth]
Sep 04 10:31:20 ip-172-31-84-44 sshd[2044]: Received disconnect from 139.59.18.138 port 40888:11: Bye Bye [preauth]
Sep 04 10:31:20 ip-172-31-84-44 sshd[2044]: Disconnected from authenticating user root 139.59.18.138 port 40888 [preauth]
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Invalid user gitlab from 139.59.18.138 port 34378
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Received disconnect from 139.59.18.138 port 34378:11: Bye Bye [preauth]
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Disconnected from invalid user gitlab 139.59.18.138 port 34378 [preauth]
Sep 04 10:34:30 ip-172-31-84-44 sshd[2060]: Accepted publickey for ubuntu from 103.135.95.46 port 51341 ssh2: RSA SHA256:
Sep 04 10:34:30 ip-172-31-84-44 sshd[2060]: pam_unix(sshd:session): session opened for user ubuntu(uid=1000) by ubuntu
lines 1-25/25 (END)
[1]+  Stopped                  sudo service ssh status
ubuntu@ip-172-31-84-44:~$ sudo passwd ubuntu
```

Client-Side Login:

```
ubuntu@ip-172-31-84-44: ~
Microsoft Windows [Version 10.0.19045.3930]
(c) Microsoft Corporation. All rights reserved.

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

C:\Users\PC-1\Downloads>ssh -i "sshKey.pem" ubuntu@ec2-174-129-170-133.compute-1.amazonaws.com
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 10:34:49 UTC 2024

System load:  0.0           Processes:            105
Usage of /:   22.9% of 6.71GB Users logged in:      0
Memory usage: 19%          IPv4 address for enX0: 172.31.91.151
Swap usage:   0%

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 09:58:55 2024 from 103.135.95.46
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 10:34:49 UTC 2024

System load:  0.0           Processes:            105
Usage of /:   22.9% of 6.71GB Users logged in:      0
Memory usage: 19%          IPv4 address for enX0: 172.31.91.151
Swap usage:   0%

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 09:58:55 2024 from 103.135.95.46
ubuntu@ip-172-31-91-151:~$ sudo vim /etc/ssh/sshd_config
[1] 172-31-91-151:~$ sudo service ssh restart
[1] 172-31-91-151:~$ ssh ubuntu@172.31.84.44
(ubuntu@172.31.84.44) Password:
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 10:44:05 UTC 2024

System load:  0.0           Processes:            153
Usage of /:   23.1% of 6.71GB Users logged in:      1
Memory usage: 34%          IPv4 address for enX0: 172.31.84.44
Swap usage:   0%

=> There are 10 zombie processes.

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 10:34:31 2024 from 103.135.95.46
ubuntu@ip-172-31-84-44:~$ ls
text.txt
ubuntu@ip-172-31-84-44:~$ ls
naseeh.txt text.txt
ubuntu@ip-172-31-84-44:~$
```

```
ubuntu@ip-172-31-84-44:~$  
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 10:34:30 UTC 2024  
  
System load: 0.0          Processes: 147  
Usage of /: 23.1% of 6.71GB  Users logged in: 1  
Memory usage: 33%         IPv4 address for enx0: 172.31.84.44  
Swap usage: 0%  
  
=> There are 10 zombie processes.  
  
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 09:57:53 2024 from 103.135.95.46  
ubuntu@ip-172-31-84-44:~$ sudo vim /etc/ssh/sshd_config  
ubuntu@ip-172-31-84-44:~$ sudo systemctl status ssh  
ubuntu@ip-172-31-84-44:~$ sudo service ssh status  
ssh.service - OpenSSH Secure Shell server  
Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)  
Drop-In: /usr/lib/systemd/system/ssh.service.d  
Active: inactive (dead) since Wed 2024-09-04 10:27:34 UTC; 15min ago  
TriggeredBy: ● ssh.socket  
Docs: man:ssh(8)  
       man:ssh_config(5)  
Main PID: 1844 (sshd)  
Tasks: 1 (limit: 1130)  
Memory: 4.5M (peak: 7.3M)  
CPU: 268ms  
CGroup: /system.slice/ssh.service  
        └─1844 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/elc_run_autho  
Sep 04 10:30:36 ip-172-31-84-44 sshd[2036]: Invalid user foobob from 139.59.18.138 port 37910  
Sep 04 10:30:37 ip-172-31-84-44 sshd[2036]: Received disconnect from 139.59.18.138 port 37910:11: Bye Bye [preauth]  
Sep 04 10:30:37 ip-172-31-84-44 sshd[2036]: Disconnected from invalid user foobob 139.59.18.138 port 37910 [preauth]  
Sep 04 10:31:29 ip-172-31-84-44 sshd[2044]: Received disconnect from 139.59.18.138 port 40888:11: Bye Bye [preauth]  
Sep 04 10:31:29 ip-172-31-84-44 sshd[2044]: Disconnected from authenticating user root 139.59.18.138 port 40888 [preauth]  
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Invalid user gitlab from 139.59.18.138 port 34378  
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Received disconnect from 139.59.18.138 port 34378:11: Bye Bye [preauth]  
Sep 04 10:32:22 ip-172-31-84-44 sshd[2055]: Disconnected from invalid user gitlab 139.59.18.138 port 34378 [preauth]  
Sep 04 10:34:30 ip-172-31-84-44 sshd[2060]: Accepted publickey for ubuntu from 103.135.95.46 port 51341 ssh2: RSA 50  
Sep 04 10:34:30 ip-172-31-84-44 sshd[2060]: pam_unix(sshd:session): session opened for user ubuntu(uid=1000) by ubun  
lines 1-25/25 (END)  
[1]* Stopped  
ubuntu@ip-172-31-84-44:~$ sudo service ssh status  
New password:  
Retype new password:  
passwd: password updated successfully  
ubuntu@ip-172-31-84-44:~$  
  
lines 1-18/18 (END)  
[2]* Stopped  
ubuntu@ip-172-31-91-151:~$ sudo systemctl disable ssh  
Synchronizing state of ssh.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.  
Executing: /usr/lib/systemd/systemd-sysv-install disable ssh  
[6]Removed /etc/systemd/system/multi-user.target.wants/ssh.service".  
Removed "/etc/systemd/system/ssh.service".  
Disabling "ssh.service", but its triggering units are still active:  
ssh.socket  
ubuntu@ip-172-31-91-151:~$ 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  
Active: inactive (dead) since Wed 2024-09-04 10:41:49 UTC; 1min 11s ago  
TriggeredBy: ● ssh.socket  
Docs: man:ssh(8)  
       man:ssh_config(5)  
Main PID: 1345  
Tasks: 1 (limit: 1130)  
Memory: 1.2M (peak: 1.4M)  
CPU: 21ms  
CGroup: /system.slice/ssh.service  
        └─1345 "sshd: /usr/sbin/sshd -D -o AuthorizedKeysCommand /usr/share/ec2-instance-connect/elc_run_autho  
Sep 04 10:41:49 ip-172-31-91-151 systemd[1]: Starting ssh.service - OpenSSH Secure Shell server...  
Sep 04 10:41:49 ip-172-31-91-151 sshd[1345]: Server listening on : port 22.  
Sep 04 10:41:49 ip-172-31-91-151 systemd[1]: Started ssh.service - OpenSSH Secure Shell server.  
lines 1-18/18 (END)  
[3]* Stopped  
ubuntu@ip-172-31-91-151:~$ ssh ubuntu@172.31.84.44  
(ubuntu@172.31.84.44) Password:  
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 10:44:05 UTC 2024  
  
System load: 0.0          Processes: 153  
Usage of /: 23.1% of 6.71GB  Users logged in: 1  
Memory usage: 34%         IPv4 address for enx0: 172.31.84.44  
Swap usage: 0%  
  
=> There are 10 zombie processes.  
  
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 10:34:31 2024 from 103.135.95.46  
ubuntu@ip-172-31-84-44:~$ ls  
test.txt  
ubuntu@ip-172-31-84-44:~$
```

Conclusion:

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