**Introduction to Secure Shell(SSH)**

Secure Shell (SSH) is a cryptographic network protocol for operating network services securely over an unsecured network. Typical applications include remote command-line, login, and remote command execution, but any network service can be secured with SSH.

SSH provides a secure channel over an unsecured network by using a client–server architecture, connecting an SSH client application with an SSH server. The protocol specification distinguishes between two major versions, referred to as SSH-1 and SSH-2. The standard TCP port for SSH is 22. SSH is generally used to access Unix-like operating systems, but it can also be used on Microsoft Windows.

# Client Setup

## Install SSH client:

### sudo apt install openssh-client

# Server Setup

## Install SSH Server:

### sudo apt install openssh-server

Port 22 is the default port for ssh. Make sure port 22 is open and not blocked by firewall.

## Check Listening Port:

### sudo lsof -i -P -n | grep LISTEN

Or

### sudo ufw status

If port 22 is not listening then run following command otherwise skip this step

## Allow Port 22:

### 

### sudo ufw allow 22

## SSH Status:

### sudo service ssh status

## Start SSH:

### sudo service ssh start

## Stop SSH:

### sudo service ssh stop

## Restart SSH:

### sudo service ssh restart

# Connect Remote PC via SSH

From the client computer, we need to run this command for ssh connection.

## Connect Remote PC:

### ssh username@user\_ip\_address

Here username = remote pc username

and

ip=remote pc IP address

To find ip address of remote PC we have to run following command from remote PC

## FindIP address:

### ip a

Or

### ifconfig

Then we need to provide the user password. That is the remote PC user password.Then we will successfully login to our remote computer.

# Transfer files through SSH

## From local to remote:

### scp src\_addr username@userip:dest\_addr

## From remote to local:

### scp username@userip:dest\_addr src\_addr

## To copy all files of a folder simply use

### scp -r

You can also use sftp for transferring files graphically through ssh.

# 

# Forward X

You can also forward graphical applications from your remote computer to your local computer. To do that, you simply need to add the option -X during the login.

## Connect Remote PC:

### ssh -X remoteuser@remote-ip-address

## To specify a display

### export DISPLAY=localhost:0.0

Or

### export DISPLAY=your\_ip:0.0

# Uninstalling SSH

## Uninstall SSH Server:

### sudo apt remove openssh-server

## Uninstall SSH client:

### sudo apt remove openssh-client