# Mosh Roaming remote shell

**mosh client** local → SSH (TCP 22) → **Login** starts mosh-server → UDP 60000-61000 → **mosh-server** your shell → roams with you → **Session** survives IP changes

## CONCEPTS

SSH only logs in and starts mosh-server; the session itself runs over UDP, so it survives sleep, Wi-Fi changes and roaming.

Only the visible screen is synced, so there is no scrollback. Run tmux or screen on the server for history.

Both client and server need mosh installed, and UDP must get through. Windows has no native client (use WSL or Cygwin).

## CONNECT

`mosh <host>`
Connect to a host

`mosh <user>@<host>`
Connect as another user

`mosh <host> -- <command>`
Run a command instead of the shell

`mosh --ssh="ssh -p <port>" <host>`
Use a non-default SSH port

## CONNECT (cont.)

`mosh --ssh="ssh -i <keyfile>" <host>`
Pass SSH options such as a key

`mosh <host> -- tmux new -As <name>`
Attach to or create a tmux session

`mosh --server=<path> <host>`
Path to mosh-server on the remote

`mosh -4 <host>`
IPv4 only

`mosh -6 <host>`
IPv6 only

## PORTS AND FIREWALL

`mosh -p <port> <host>`
Use one server UDP port

`mosh -p <low>:<high> <host>`
Use a UDP port range

`sudo ufw allow 60000:61000/udp`
Open the mosh range in ufw

`sudo firewall-cmd --add-port=60000-61000/udp --permanent`
Open the range in firewalld

## ESCAPE KEY

`Ctrl+^ .`
Kill the connection

`Ctrl+^ Ctrl+Z`
Suspend the client

`MOSH_ESCAPE_KEY=<char> mosh <host>`
Change the escape character

## LOCAL ECHO

`mosh --predict=adaptive <host>`
Echo locally only on slow links (default)

`mosh -a <host>`
Always predict typing

`mosh -n <host>`
Never predict typing

## SERVER

`sudo apt install mosh`
Install on Debian or Ubuntu

`sudo dnf install mosh`
Install on Fedora

`sudo pacman -S mosh`
Install on Arch

`brew install mosh`
Install on macOS

`mosh-server --version`
Check mosh-server is found

## SERVER (cont.)

`locale`
Check a UTF-8 locale is set

`export LC_ALL=en_US.UTF-8`
Set a UTF-8 locale

`pgrep -a mosh-server`
List running sessions on the server

## TROUBLESHOOTING

`mosh-server new`
Test it starts and prints a port and key

### Common errors

| Message | Likely cause |
|---|---|
| Nothing received from server on UDP port | Firewall blocks UDP |
| mosh-server: command not found | Not on remote PATH, use --server |
| needs a UTF-8 native locale | Set LC_ALL on both ends |
| Connection to server lost | Wait, it resumes on its own |

## TROUBLESHOOTING (cont.)

No UDP on the network (some hotels, corporate Wi-Fi) means no mosh. Fall back to plain SSH inside tmux.

## RECIPES

### Roaming tmux session

```
# survives laptop sleep and network changes
mosh <user>@<host> -- tmux new -As main
```

### Open the firewall (ufw)

```
sudo ufw allow OpenSSH
sudo ufw allow 60000:61000/udp
sudo ufw status
```

### Smaller port range

```
# fewer sessions, fewer open ports
sudo ufw allow 60000:60010/udp
mosh -p 60000:60010 <host>
```

### Config via ssh_config alias

```
# ~/.ssh/config
Host box
    HostName <host>
    Port 2222
    User <user>

mosh --ssh="ssh -p 2222" box
```