When you **connect to a remote server using SSH (port 22)**, you are essentially **logging into a full shell** (like bash, sh, zsh) on that remote machine. This means:

✅ **You can execute all the Linux commands available on that remote system**, depending on your user permissions.

🔹 **Understanding SSH Session**

When you SSH into a server:

bash

CopyEdit

ssh username@target_ip

You're accessing:

- A **shell** on the **remote system**
- With the **privileges of the user** you're logged in as (e.g., normal user vs. root)

You’re **not limited to special SSH-only commands** — you get full terminal access (like using your own terminal).

✅ **Common Categories of Commands Usable Over SSH**

Here's a categorized list of **commonly available commands** once you're inside SSH:

🔸 **Filesystem Navigation**

bash

CopyEdit

pwd # Print working directory

ls # List files

cd # Change directory

tree # Visualize directory structure

stat # Show detailed file info

🔸 **File Management**

bash

CopyEdit

cp file1 file2 # Copy

```
mv file1 file2          # Move/Rename
rm file                 # Remove file
mkdir folder            # Create directory
rmdir folder            # Delete empty directory
touch file              # Create empty file
nano/vim/cat/less file  # View/edit file
```

🔸 User Management

```
bash
CopyEdit
whoami                  # Show current user
id                      # Show user & group info
who                     # Who is logged in
w                       # Who is using the system
adduser username        # Add user (if root)
passwd username         # Change password
```

🔸 System Info

```
bash
CopyEdit
uname -a                # Kernel version
uptime                  # System uptime
df -h                   # Disk space
du -sh *                # Directory sizes
top/htop                # Running processes
free -h                 # RAM info
cat /etc/os-release     # OS info
```

🔸 Package Management (depends on distro)

Ubuntu/Debian:

```
bash
```

CopyEdit

apt update

apt install <package>

apt list --installed

CentOS/RHEL:

bash

CopyEdit

yum install <package>

dnf update

🔹 **Networking Tools**

bash

CopyEdit

ifconfig / ip a # Show IP addresses

ping 8.8.8.8 # Ping test

netstat -tuln # Listening ports

ss -tuln # Modern netstat

nmap <target> # Scan ports (if installed)

curl <url> # Fetch content

wget <url> # Download file

🔹 **Process Management**

bash

CopyEdit

ps aux # Show processes

kill <PID> # Kill process

killall <name> # Kill by name

nohup command & # Run command in background

jobs, bg, fg # Job control

🔹 **Service Management**

bash

CopyEdit

systemctl status <service>

systemctl start <service>

systemctl stop <service>

service <name> status # Older distros

🔸 **Permission & Ownership**

bash

CopyEdit

chmod 755 file # Change permissions

chown user:group file # Change ownership

ls -l # View permissions

🔸 **Compression & Archiving**

bash

CopyEdit

tar -czvf file.tar.gz folder/

tar -xzvf file.tar.gz

zip -r file.zip folder/

unzip file.zip

🔸 **SSH-Specific Built-in Options (before connection)**

Outside the SSH shell (from your machine):

bash

CopyEdit

ssh user@host # Basic SSH login

ssh user@host -p 2222 # Custom port

ssh -i key.pem user@host # Use private key

ssh user@host 'ls -la' # Run single command remotely

scp file user@host:/tmp/ # Copy file to server