

Linux Fundamentals

Linux is a multi-user, multitasking operating system based on UNIX principles. It powers servers, desktops, and embedded systems worldwide. Below are some core commands and their practical examples with outputs.

```
$ uname -a
Linux sheetal-pc 5.15.0-1051-azure #59-Ubuntu SMP Fri Jun 16 10:30:00 UTC
2023 x86_64 GNU/Linux
```

Displays detailed system information including kernel version and architecture.

```
$ lsb_release -a
Distributor ID: Ubuntu
Description: Ubuntu 22.04.3 LTS
Release: 22.04
Codename: jammy
```

Shows distribution-specific information such as version and codename.

```
$ hostnamectl
Static hostname: sheetal-pc
Icon name: computer-laptop
Chassis: laptop
Machine ID: ab12cd34ef56gh78ij90kl
Boot ID: 1234abcd5678efgh9012ijkl
Operating System: Ubuntu 22.04.3 LTS
Kernel: Linux 5.15.0-1051-azure
Architecture: x86-64
```

Displays system hostname and OS information in a structured format.

```
$ pwd
/home/sheetal
```

Prints the current working directory.

```
$ ls -l
-rw-r--r-- 1 sheetal sheetal 4096 Oct 31 10:00 notes.txt
-rw-r--r-- 1 sheetal sheetal 2048 Oct 31 10:01 report.pdf
```

Lists files in long format with details like permissions, owner, and size.

```
$ cd /etc
$ pwd
/etc
```

Changes the current directory to /etc and confirms with pwd.

```
$ cat /etc/os-release
NAME="Ubuntu"
VERSION="22.04.3 LTS (Jammy Jellyfish)"
```

```
ID=ubuntu
```

```
PRETTY_NAME="Ubuntu 22.04.3 LTS"
```

Displays OS release information.