



Introduction to

Linux

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- Open-source Unix-like operating system
- Created by Linus Torvalds in 1991
- Free to use and customize
- Popular for servers, development, and embedded systems

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Linux Distributions

- Ubuntu, Fedora, Debian, Arch, CentOS
- Differences in package managers and target users
- Most use Linux kernel + GNU tools

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File System Structure

- / – Root directory
- /home – User directories
- /etc – Configuration files
- /var – Logs and variable data
- /bin, /sbin – Essential binaries

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Basic Linux Commands

- ls, cd, pwd, cp, mv, rm
- chmod, chown, mkdir, rmdir
- man – Access manual pages

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File Permissions

- Format: rwxr-xr--
- User, Group, Others
- Change with chmod, chown

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Package Management

- Debian-based: apt, dpkg
- RedHat-based: yum, dnf, rpm
- Installing, updating, and removing packages

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Process Management

- ps, top, htop
- kill, killall, nice, renice
- & for background processes

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Shell Scripting Basics

- `#!/bin/bash`
- Variables, conditionals, loops
- Automate tasks and cron jobs

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Networking Commands

- ping, ifconfig, ip, netstat
- scp, ssh, wget, curl

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Linux for Developers

- Text editors: vim, nano, gedit
- Compilers: gcc, g++
- Git and version control integration