

Linux Administration Guide

Super User (Admin)

- In Linux, Admin is called as "super-user"
- Admin's login name is "root"
- Most modern Linux distributions disable "root" login for security
- To execute commands with admin privileges use "sudo" (if approved by system admin)

Common Admin Commands

```
sudo apt update
sudo apt install vim gcc python3
sudo snap install --classic code
```

Directory Commands

Command	Description	Syntax
pwd	Print present working directory	pwd
cd	Change directory	cd dirpath
ls	List directory contents	ls dirpath
mkdir	Make directory	mkdir dirpath
rmdir	Remove empty directory	rmdir dirpath

Special CD Commands

- cd ~ - Change to home directory
- cd - - Change to previous directory
- cd / - Change to root directory
- cd . - Stay in current directory
- cd .. - Change to parent directory

File Commands

Command	Description
cat filepath	Display file contents
cat > filepath	Create new file
cat >> filepath	Append to file
touch filepath	Create empty file Or Change file timestamp

Command	Description
<code>rm filepath</code>	Delete file
<code>rm -r dirpath</code>	Delete directory recursively
<code>mv filepath destpath</code>	Move/rename file
<code>cp filename newname</code>	Copy file
<code>cp -r dirpath destpath</code>	Copy directory recursively

File Types and Permissions

File Types

- Regular file (-)
- Directory (d)
- Link file (l)
- Pipe file (p)
- Socket file (s)
- Character special file (c)
- Block special file (b)

File Permissions

- `r` - read
- `w` - write
- `x` - execute
- Format: `(rwx)user (rwx)group (rwx)others`

Additional File Commands

Listing Commands

- `ls` - List files
- `ls` - list the contents of present working directory
- `ls path` - list the contents of given path
- `ls -l` - list the contents in detail format
 - e.g `$ls -l`
 - Output columns:
 - `-rwxr-xr-x 1 user group 4096 Jan 01 12:00 filename`
 - Columns represent:
 - File type
 - File permissions (rwx for user, group, others)
 - Number of links
 - Owner name
 - Group name
 - File size in bytes
 - Last modified date and time

■ File name

- options with `ls` command
- `ls -h` - Human readable sizes
- `ls -l` - Detailed listing
- `ls -a` - Show hidden files
- `ls -A` - Show hidden files (except . and ..)
- `ls -i` - list contents with indoe number(inode number is unique number given to every file)
- `ls -s` - list content with size (number of blocks)
- `ls -S` - list content in descending order of their sizes
- `ls -alh` - combine multiple options
- `ls -R` - list contents recursively (including sub-directories)
- For more options use `man ls` command

File Information

- `stat file` - Display file information
- `head file` - Display first 10 lines
- `tail file` - Display last 10 lines
- `sort file` - Sort contents alphabetically
- `uniq file` - Display unique lines
- `rev filepath` - Reverse each line
- `tac filepath` - Reverse file contents
- `wc file` - Word count (lines, words, characters)
- `file filepath` - Determine file type
- Use `man command` to get more information about any command.

Utility Commands

- `alias list="ls -l"` - Create command alias
- `unalias list` - Remove alias
- `which command` - Show command location
- `whereis command` - Show command and manual locations
- `date` - Display current date and time
- `cal` - Display calendar
- `clear` - Clear terminal screen
- `history` - Show command history
- `sleep seconds` - Pause for specified seconds
- `uptime` - Show system uptime
- `df` - Show disk space usage

Manual Pages

-man pages provide detailed information about commands, options, and usage.

- `man command` - Show manual page for a command
- Example: `man ls`
 - Use `q` to exit manual page viewer
 - Use `/searchterm` to search within the manual page
 - Use `n` to go to next search result
 - Use `Shift+n` to go to previous search result
- man pages are organized into sections:
 1. User commands
 2. System calls
 3. Library functions
 4. Special files
 5. File formats
 6. Games
 7. Miscellaneous
 8. System administration commands