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Part One: File and Directory Management Commands



Introduction

File and directory management commands are the foundation of all tasks in Linux. This section covers:

- Basic navigation and search commands
- Creating and managing files/directories
- Advanced usage tips
- Security best practices

① Basic Navigation Commands

cd - Change directory

Description: Change current path

Origin: Change Directory

Usage:

`cd [path]`

Advanced examples:

`cd ~` Go to home directory

`cd ..` Parent directory

`cd -` Previous directory

`cd /var/log` Absolute path navigation

pwd - Show current path

Description: Display full path of current directory

Origin: Print Working Directory

Usage:

`pwd`

② Content Viewing Commands

ls - List files

Description: Show directory contents

Origin: LiSt

Usage:

`ls [options] [path]`

Useful options:

`ls -l` Detailed view (permissions, owner, size)

`ls -a` Show hidden files (starting with `.`)

`ls -lh` Human-readable sizes (KB, MB, GB)

`ls -t` Sorted by modification time

`ls -R` Recursive listing of subdirectories

③ File/Directory Creation/Deletion

mkdir - Create directory

Description: Make new directory

Origin: MaKe DIRectory

Usage:

`mkdir [directory_name]`

Advanced options:

`mkdir -p dir1/dir2/dir3` Create nested path

`mkdir -m 755 secure_dir` With specific permissions

rmdir - Remove empty directory

Description: Delete empty directory

Origin: ReMove DIRectory

Usage:

`rmdir [directory_name]`

rm - Delete files/directories

Description: Remove files or directories

Origin: ReMove

Usage:

`rm [options] [target]`

Important options:

`rm -r` Recursive deletion

`rm -f` Force delete without confirmation

`rm -i` Interactive confirmation

Warning: **rm -rf /** is dangerous! May erase entire system!

touch - Create/update files

Description: Create empty file or update modification time

Origin: Touch

Usage:

`touch [filename]`

Advanced uses:

`touch file{1..10}.txt` # Create 10 files

`touch -t 202401010000 oldfile` # Set specific timestamp

4 File Copying/Moving

cp - Copy files

Description: Copy files/directories

Origin: CoPy

Usage:

`cp [options] [source] [destination]`

Useful options:

`cp -r` Copy directories recursively

`cp -v` Verbose output

cp -u Update only newer files
cp -p Preserve permissions/timestamps

mv - Move/rename

Description: Move or rename files

Origin: MoVe

Usage:

mv [options] [source] [destination]

Examples:

mv oldname.txt newname.txt Rename

mv *.txt /backup/ Move all txt files

mv -n file.txt dir/ Don't overwrite existing

5 Search Commands

find - Advanced search

Description: Search for files/directories

Origin: Find

Usage:

find [path] [criteria] [action]

Advanced examples:

find . -name "*.conf" Search by name

find / -type f -size +10M Files >10MB

find ~ -mtime -7 Modified in last 7 days

find /var -user root Owned by root

find . -perm 777 With 777 permissions

find /tmp -exec rm -f {} ; Delete results (careful!)



Quick Reference Table

Command	Origin	Description	Example
cd	Change Directory	Change directory	cd /var/log
ls	LiSt	List contents	ls -lah
pwd	Print Working Directory	Current path	pwd
mkdir	MaKe DIRectory	Create directory	mkdir -p dir/subdir

rm	ReMove	Delete files	rm -i file.txt
cp	CoPy	Copy files	cp -v file.txt backup/
mv	MoVe	Move/rename	mv old.txt new.txt
find	Find	Advanced search	find / -name "*.conf"

Advanced Tips

1. Wildcards usage:
 - cp *.txt backup/ All txt files
 - rm file?.log file1.log, file2.log...
 - mv dir[123] /target dir1, dir2, dir3
2. Special shortcuts:
 - ~ Home directory
 - . Current directory
 - .. Parent directory
 - o text
 - o Previous directory
2. Command combining:
 - cd /var/log && ls -l | grep error
 - mkdir -p project/{src,doc,test}
3. Security practices:
 - o Use -i with rm, cp, mv for interaction
 - o Use --preserve=all with cp to keep all attributes
 - o Avoid rm -rf with relative paths

Troubleshooting Common Issues

Problem: Cannot delete file

Solution:

sudo rm -f file If needs permissions

rm -- -weird-file For files starting with dash

Problem: Disk full

Diagnostic tools:

du -sh * Directory sizes

find / -size +100M Large files

Note: Always double-check commands before execution, especially with deletion/modification commands!

