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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
<code>cd</code>	Change Directory	Change directory	<code>cd /var/log</code>
<code>ls</code>	LiSt	List contents	<code>ls -lah</code>
<code>pwd</code>	Print Working Directory	Current path	<code>pwd</code>
<code>mkdir</code>	MaKe DIRectory	Create directory	<code>mkdir -p dir/subdir</code>

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
 - text
 - Previous directory

2. Command combining:

cd /var/log && ls -l | grep error
 mkdir -p project/{src,doc,test}

3. Security practices:

- Use `-i` with `rm`, `cp`, `mv` for interaction
- Use `--preserve=all` with `cp` to keep all attributes
- 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!

