

# Linux File Handling Utilities: A Comprehensive Guide

Mastering Linux file handling utilities is essential for efficiently managing files and directories in a Linux environment. In this guide, we'll explore the significance of these tools and learn how to simplify file operations.

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## SYSTEM

uname -a	=>Display linux system information
uname -r	=>Display kernel release information
uptime	=>Show how long the system has been running + load
hostname	=>Show system host name
hostname -i	=>Display the IP address of the host
last reboot	=>Show system reboot history
date	=>Show the current date and time
cal	=>Show this month calendar
w	=>Display who is online
whoami	=>Who you are logged in as
finger user	=>Display information about user

## HARDWARE

dmesg	=>Detected hardware and boot messages
cat /proc/cpuinfo	=>CPU model
cat /proc/meminfo	=>Hardware memory
cat /proc/interrupts	=>Lists the number of interrupts per CPU per I/O device
lshw	=>Displays information on hardware configuration of the system
lsblk	=>Displays block device related information in Linux
free -m	=>Used and free memory (-m in MB)
lspci -v	=>Show PCI devices
lsusb -v	=>Show USB devices
dmidecode	=>Show hardware info from the BIOS
hdparm -i /dev/sda	=>Show info about disk sda
hdparm -T /dev/sda	=>Do a read speed test on disk sda
badblocks -s /dev/sda	=>Test for unreadable blocks on disk sda

## USERS

id	=>Show the active user id with login and group
last	=>Show last logins on the system
who	=>Show who is logged on the system
groupadd admin	=>Add group "admin"
useradd -c "Sam Tomhi"	=>g admin -m sam #Create user "sam"
userdel sam	=>Delete user sam
adduser sam	=>Add user "sam"
usermod	=>Modify user information

## FILE COMMANDS

ls -al	=>Display all information about files/ directories
pwd	=>Show the path of current directory
mkdir directory-name	=>Create a directory
rm file-name	=>Delete file
rm -r directory-name	=>Delete directory recursively
rm -f file-name	=>Forcefully remove file
rm -rf directory-name	=>Forcefully remove directory recursively
cp file1 file2	=>Copy file1 to file2
cp -r dir1 dir2	=>Copy dir1 to dir2, create dir2 if it doesn't exist
mv file1 file2	=>Rename source to dest / move source to directory
ln -s /path/to/file-name link-name	#Create symbolic link to file-name
touch file	=>Create or update file
cat > file	=>Place standard input into file
more file	=>Output contents of file
head file	=>Output first 10 lines of file
tail file	=>Output last 10 lines of file
tail -f file	=>Output contents of file as it grows starting with the last 10 lines
gpg -c file	=>Encrypt file
gpg file.gpg	=>Decrypt file
wc	=>Print the number of bytes, words, and lines in files
xargs	=>Execute command lines from standard input

## PROCESS RELATED

ps	=>Display your currently active processes
ps aux   grep 'telnet'	=>Find all process id related to telnet process
pmap	=>Memory map of process
top	=>Display all running processes
kill pid	=>Kill process with mentioned pid
killall proc	=>Kill all processes named proc
kill process-name	=>Send signal to a process with its name
bg	=>Resumes suspended jobs without bringing them to foreground
fg	=>Brings the most recent job to foreground
fg n	=>Brings job n to the foreground

## FILE PERMISSION RELATED

chmod octal file-name	=>Change the permissions of file to octal
Example	
chmod 777 /data/test.c	=>Set rwx permission for owner,group,world
chmod 755 /data/test.c	=>Set rx permission for owner,rx for group and world
chown owner-user file	=>Change owner of the file
chown owner-user:owner-group file-name	=>Change owner and group owner of the file
chown owner-user:owner-group directory	=>Change owner and group owner of the directory

## NETWORK

ip addr show	=>Display all network interfaces and ip address (a iproute2 command, powerful than ifconfig)
ip address add 192.168.0.1 dev eth0	=>Set ip address
ethtool eth0	=>Linux tool to show ethernet status
mi-tool eth0	=>Linux tool to show ethernet connection
ping host	=>Send echo request to test connection
whos domain	=>Get who is information for domain
dig domain	=>Get DNS information for domain
dig +x host	=>Reverse lookup host
host google.com	=>Lookup DNS ip address for the name
hostname -i	=>Lookup local ip address
wget file	=>Download file
netstat -tulp	=>Listing all active listening ports

## COMPRESSION / ARCHIVES

tar cf home.tar home	=>Create tar named home.tar containing home/
tar xf file.tar	=>Extract the files from file.tar
tar czf file.tar.gz files	=>Create a tar with gzip compression
gzip file	=>Compress file and renames it to file.gz

## INSTALL PACKAGE

rpm -i pkgnmae.rpm	=>Install rpm based package
rpm -e pkgnmae	=>Remove package

## INSTALL FROM SOURCE

/configure  
make  
make install

## SEARCH

grep pattern files	=>Search for pattern in files
grep -r pattern dir	=>Search recursively for pattern in dir
locate file	=>Find all instances of file
find /home/tom -name 'index*	=>Find files names that start with "index"
find /home -size +10000k	=>Find files larger than 10000k in /home

## LOGIN (SSH AND TELNET)

ssh user@host	=>Connect to host as user
ssh -p port user@host	=>Connect to host using specific port
telnet host	=>Connect to the system using telnet port

## FILE TRANSFER

scp	=>Secure copy file.txt to remote host /tmp folder
scp file.txt server2:/tmp	=>Secure copy file.txt to remote host /tmp folder
rsync	=>Syncronize source to destination
rsync -a /home/apps /backup/	=>Syncronize source to destination

## DISK USAGE

df -h	=>Show free space on mounted filesystems
df -i	=>Show free inodes on mounted filesystems
frisk -d	=>Show disks partitions sizes and types
du -h	=>Display disk usage in human readable form
du -sh	=>Display total disk usage on the current directory
findmnt	=>Resumes target mount point for all filesystems
mount --device-path mount-point	=>Mount a device

## DIRECTORY TRAVERSE

cd ..	=>To go up one level of the directory tree
cd .	=>To go back to current directory
cd /test	

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# Access the Power of Command Line Basics

Unlock the unparalleled control and versatility of the Linux command line interface (CLI). Learn how to execute commands directly, modify files, and perform tasks with efficiency. Get comfortable with the CLI and explore its full potential.

## Commands

Explore and use various essential commands in the CLI

## File Modification

Modify files and directories with ease using the CLI

## Efficiency

Perform tasks with speed and efficiency on the command line



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# Delve into the File System Hierarchy

Gaining a deep understanding of the Linux file system hierarchy is crucial for efficient file and directory navigation. Learn about the root directory ("/") and its subdirectories, and discover how they're structured to help you quickly locate files and directories.

## 1 — Root Directory

Understand the root directory and its subdirectories

## 2 — File Navigation

Navigate through the file system with ease

## 3 — Directory Organization

Organize files and directories in the Linux file system

# Master the Art of Navigating the File System

Effortlessly navigate through the file system with essential commands like `pwd`, `ls`, and `cd`. Whether you're looking for a specific directory or just browsing, these commands will make your navigation experience seamless.

```
2.bash
anastasias-mbp:~ anastasialanz$ pwd
/Users/anastasialanz
anastasias-mbp:~ anastasialanz$ █
```

pwd

Print the current working directory

1s

## List the contents of a directory

```
cd  
open home  
The file /Users/jideaderibigbe/home does not exist.  
open desktop  
→  
Session Contents Restored on 18 Jan 2020 at 16:05  
Last login: Sat Jan 18 16:04:28 on console  
> cd  
> ls  
Applications Documents Library Music Public  
Desktop Downloads Movies Pictures test  
> cd test  
> ls  
test1  
> cd test1  
> ls  
test2  
> cd test2  
cd: no such file or directory: test2  
~/test/test2 → 16:07:52
```

cd

## Change the current working directory

# Learn to Create Files and Directories Effortlessly

Use these simple commands to create files and directories effortlessly. With touch, you can quickly create empty files, while mkdir will generate directories in just a few easy steps. Organize your content effectively by mastering these essential commands.



# Duplicate Files and Directories Effortlessly with cp

Discover the versatility of the cp command. Whether you need to back up important files or duplicate entire directories, cp is an indispensable tool. Explore various scenarios and practical examples where copying files becomes a must-have capability.

## 1 —— cp

Learn how to copy files and directories

## 2 —— Usage Examples

Explore useful scenarios for copying files and directories

## 3 —— Tips and Tricks

Master the use of cp with advanced tips and tricks

# Renaming and Moving Files with mv

Unleash your creativity and efficiently reorganize your file system layout with the power of the mv command. With just a few keystrokes, you can move and rename files and directories with ease.

## mv

Understand the functionality of the mv command

## Rename Files

Rename files with the mv command

## Move Files

Move files to any directory with the mv command

## Advanced Techniques

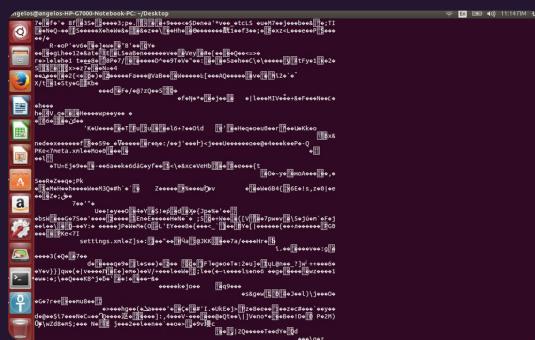
Learn advanced techniques for merging and renaming files and directories



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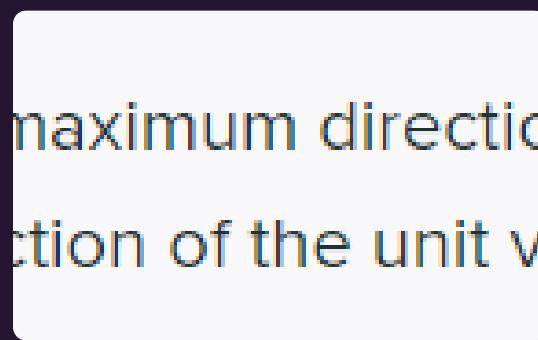
# Unlock the Ability to View File Contents

Effortlessly view file contents with these essential commands. Use cat to display the contents of a file. Or, when working with large text files, use less or more to navigate through them step by step.



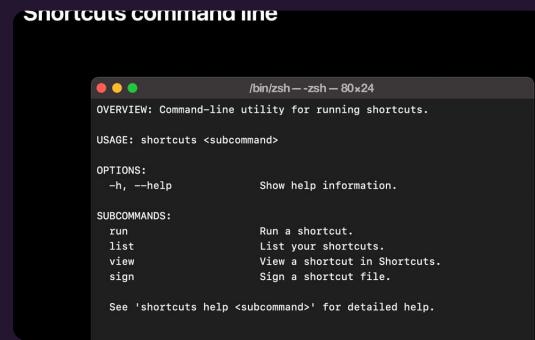
**cat**

Print the contents of a file to the terminal



**less**

Navigate larger files one screen at a time



**more**

View text files one page at a time

A vertical column of glowing, translucent vertical bars in shades of yellow, orange, red, pink, and purple, set against a dark background.

# Enter the Realm of Efficient File Editing

Become proficient in efficient file editing with text editors like nano, vim, or emacs. Familiarize yourself with essential commands that will elevate your productivity when you're working with files. Discover a whole new world of file editing possibilities.

## 1 Text Editors

Familiarize yourself with essential text editors like nano, vim, and emacs

## 2 Key Commands

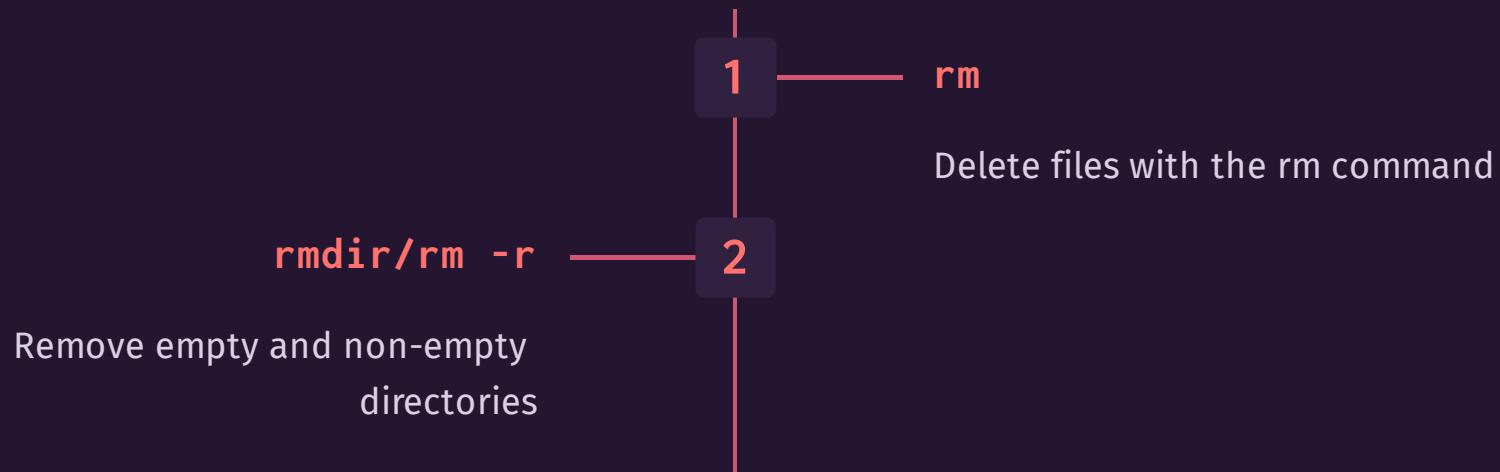
Discover essential commands that will increase your productivity

## 3 Advanced Techniques

Learn advanced techniques for file editing in Linux

# Acquire the Knowledge to Confidently Manage Your Storage Space

Confidently remove files and directories with these commands. Learn how to use `rm` to delete files and `rmdir` or `rm -r` to remove empty and non-empty directories. Manage your storage space safely, efficiently, and worry-free.





# Understand the Importance of File Permissions and Ownership

Learn how file permissions and ownership impact data integrity and security. Utilize commands like chmod to modify file permissions and chown to change file ownership. Protect your files and directories from unauthorized access and maintain the right balance between access and security.

## 1 File Permissions

Understand the different types of file permissions in Linux

## 2 Ownership

Explore the importance of file ownership for data security and integrity

## 3 Commands

Learn how to modify file permissions and ownership using commands like chmod and chown



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# Learn about Archiving and Compression

Optimize your storage while retaining accessibility with archiving and compression utilities. Learn about the tar command for creating file archives, as well as gzip, bzip2, or zip for compressing and decompressing files. Discover how easy it is to keep your storage tidy and efficient.

## 1 —— File Archiving

Learn how to create and extract file archives using tar

## 2 —— Compression Techniques

Explore various file compression techniques such as gzip, bzip2, and zip

## 3 —— Use Cases

Discover useful scenarios for archiving and compressing your files

# Unleash the Power of File Search Tools

Discover the power of file search tools like `find` to locate files and directories based on various criteria, such as name, size, and more. Use `grep` for advanced searches within files. Tame the vastness of your file system by unleashing these essential search capabilities.

## File Search Techniques

Learn how to search for files and directories using `find`

## Advanced Searches

Discover `grep` for advanced file searches over large files

## Search Examples

Explore different file search scenarios and their solutions



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## Recap the Key Points

Now that you've explored the significance of Linux file handling utilities, understood their potential in efficiently managing files and directories, and learned how to navigate the file system effectively - it's time to recap the key points. Always remember that these tools equip you for seamless navigation and organization, making your file management experience significantly more efficient.





# Thank You

As we wrap up this presentation, we want to take a moment to express our sincere gratitude. We appreciate your time and attention and we hope that you found this information valuable. Thank you for being a part of our journey towards success!