

Linux Commands Cheat Sheet

File Management

- **mv**: Move or rename files
 - **Syntax**: `mv [file] [destination]`
- **head/tail**: Display the beginning or end of a file
 - **Options**:
 - **-n N**: Display the first or last N lines of the file
- **>>**: Append content to a file
- **>**: Overwrite content in a file

Text Processing

- **paste**: Combine files side by side
- **cut**: Extract sections of lines from a file
 - **Options**:
 - **-c**: Select a number of characters per line
- **sort**: Sort lines in a file alphabetically
 - **Options**:
 - **-r**: Reverse the sort order
- **join**: Combine lines from two sorted files
 - **Syntax**: `join [options] file1 file2`
- **uniq**: Remove duplicate lines from a sorted file
 - **Options**:
 - **-c**: Count repeated lines
 - **-d**: Show duplicate lines
 - **-u**: Show unique lines
- **wc**: Count words, lines, and characters
 - **Options**:
 - **-l**: Count lines
 - **-w**: Count words
 - **-m**: Count characters
- **grep**: Search for patterns within files
 - **Syntax**: `grep [options] pattern [file]`
 - **Options**:
 - **-i**: Ignore case
 - **-r**: Search recursively
 - **-l**: List filenames containing the pattern
 - **-n**: Show line numbers for matches
 - **-o**: Display only matching text
- **tr**: Translate or delete characters
 - **Syntax**: `tr [options] set1 [set2]`
 - **Options**:
 - **-d**: Delete specified characters
 - **-c**: Replace specified characters
- **sed**: Perform basic text transformations

User Management

- **useradd**: Add a new user
 - **Options**:
 - **-m**: Create a home directory
 - **-s**: Specify the login shell
- **passwd**: Set or change a user's password
- **usermod**: Modify user accounts
 - **Options**:
 - **-p**: Change password
 - **-u**: Change user ID
 - **-G**: Add user to a group
 - **-aG**: Append user to a group
- **userdel**: Delete a user
 - **Options**:
 - **-r**: Remove user's home directory
- **groupadd**: Create a new group
- **gpasswd**: Manage group memberships
 - **Options**:
 - **-a**: Add user to a group
 - **-d**: Remove user from a group

System Monitoring and Management

- **chmod**: Change file permissions
 - **Syntax**: `chmod [permissions] [file]`
- **top/htop**: Display active processes
- **df**: Display disk space usage
- **cat**: View file contents
- **uname**: Display system information
 - **Options**:
 - **-a**: Show all system details

Networking

- **ifconfig**: Display or configure network interfaces
- **ping**: Check network connectivity
- **nmcli**: Manage network connections
 - **Options**:
 - **connection show**: List all connections
 - **device status**: Show device statuses

Scripting and Variables

- **Declaring variables**: Assign values using `variable=value`
- **Printing variables**: Use `$variable` within commands
- **Conditional statements**:
 - **if**: Execute commands based on conditions
 - **Syntax**: `if [condition]; then ... fi`
 - **Comparison operators**:
 - **-eq**: Equal to
 - **-ne**: Not equal to
 - **-gt**: Greater than
 - **-ge**: Greater than or equal

- **-lt**: Less than
 - **-le**: Less than or equal
 - **String comparison:**
 - **=**: Strings are equal
 - **!=**: Strings are not equal
 - **-z**: String is null
 - **-n**: String is not null
- **Loops:**
 - **For**: Iterate over a range or list
 - **While**: Execute commands while a condition is true
 - **Case**: Match a variable against patterns

Services

- **systemctl**: Manage system services
 - **Options:**
 - **start**: Start a service
 - **stop**: Stop a service
 - **restart**: Restart a service
 - **enable**: Enable a service at boot
 - **disable**: Disable a service
 - **status**: Check service status

Cron Jobs

- **crontab**: Schedule tasks
 - **Options:**
 - **-l**: List scheduled tasks
 - **-e**: Edit cron jobs
 - **Time fields**: Minute, Hour, Day of Month, Month, Day of Week

Syntax:

```
awk [options] 'pattern {action}'
[file]
```

Options:

- **-F**: Specify a field separator.
- **-v**: Assign values to variables before execution.

Built-in Variables:

- **\$1, \$2, ...**: Represent fields in the current record.
- **\$0**: The entire current record (line).
- **NR**: Line number being processed.
- **NF**: Number of fields in the current record.
- **FS**: Input field separator (default: space/tab).
- **OFS**: Output field separator.

While loop

```
while [ condition ]
do
```

```
    #command
```

```
done
```

Case logic

```
case $variable in
    pattern1)
```

```
    # Commands to execute if $variable matches
```

```
pattern1
```

```
;;
```

```
    pattern2)
```

```
    # Commands to execute if $variable matches
```

```
pattern2
```

```
;;
```

```
*)
```

```
    # Default case if no patterns match
```

```
;;
```

```
Esac
```

For loop:

```
for variable in {[initialvalue]..[maxvalue]..[increment]}
do
```

```
    #commands
```

```
done
```

If statement

```
If [ condition ]; then
then
```

```
    Commands
```

```
else
```

```
    Commands
```

```
fi
```

Select command

```
PS3="String" (Prompt string)
select variable_name in list
do
```

```
    commands
```

```
done
```

```
Adding color to text:
```

```
echo "${COLOR}....${NC}"
```

```
read: user input
```

```
-p: replaces echo
```

```
which: shows address of a command
```

Mathematical operations

```
let
```

```
let result result=var1+var2
```

```
expr
```

```
result=$(expr 5 + 3)
```

```
Use \ for *
```