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Mastering Bash: Essential Commands for Everyday Use

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...

```
Scanner scanner = new Scanner(System.in);
String start = scanner.nextLine();
String goal = scanner.nextLine();
System.out.println("Enter airline miles are on: ");
String miles = scanner.nextLine();
System.out.println("Enter goal airline: ");
String pathForMiles = scanner.nextLine();
ArrayList<String> pathForFiles = new ArrayList<String>();
ArrayList<String> airlinesVisited = new ArrayList<String>();
ArrayList<String> airlinesNetwork = new ArrayList<String>();
String current = start;
String goal = goal;
pathForFiles.add(pathForMiles);
pathForFiles.add(goal);
pathForFiles.add(current);
airlinesVisited.add(goal);
airlinesVisited.add(current);
if (current.equals(goal)) {
    System.out.println("You can't go from " + current + " to " + goal);
} else if (!airlinesVisited.contains(current)) {
    System.out.println("Cannot convert miles from " + start + " to " + goal);
} else {
    if (pathForMiles.isEmpty()) {
        System.out.println("Path to redeem miles: " + pathForFiles);
    } else {
        System.out.println("Path to redeem miles: " + pathForFiles);
    }
}
private static boolean contains(String current, String goal,
    ArrayList<String> pathForFiles, ArrayList<String> airlinesVisited,
    ArrayList<String> airlinesNetwork) {
    for (String i : pathForFiles) {
        if (i.equals(goal)) {
            return true;
        }
    }
    for (String i : airlinesVisited) {
        if (i.equals(goal)) {
            return true;
        }
    }
    for (String i : airlinesNetwork) {
        if (i.equals(goal)) {
            return true;
        }
    }
    return false;
}
```

Bash, the Bourne Again Shell, is a powerful tool for interacting with your Linux system. Whether you're a beginner or an experienced user, mastering essential Bash commands can significantly boost your productivity. In this article, we'll cover some of the most useful and frequently used Bash commands, with examples to help you get started.

1. Navigating File System with `cd`, `pwd`, and `ls`

`cd` (Change Directory)

The `cd` command is used to navigate through the file system. You can move between directories easily with this command:

```
cd /path/to/directory
```

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```
cd -
```

pwd (Print Working Directory)

If you ever get lost in the terminal and want to know where you are, use `pwd`:

```
pwd
```

It prints the full path of your current directory.

ls (List Directory Contents)

Want to see what files and directories are inside the current directory? Use

`ls`:

```
ls
```

To display more details, such as file permissions, size, and modification date, use the `-l` flag:

```
ls -l
```

2. Managing Files with `cp`, `mv`, and `rm`

cp (Copy Files or Directories)

The `cp` command is used to copy files or directories from one location to another:

```
cp file1.txt /path/to/destination/
```

To copy a directory and its contents, use the `-r` (recursive) option:

```
cp -r /path/to/source/ /path/to/destination/
```

mv (Move or Rename Files)

The `mv` command can either move files to a new location or rename them:

```
mv oldfile.txt newfile.txt # Renames file  
mv file.txt /new/location/ # Moves file to new directory
```

rm (Remove Files or Directories)

To delete files, use the `rm` command:

```
rm file.txt
```

For directories and their contents, use the `-r` option:

```
rm -r /path/to/directory/
```

Be careful when using `rm`, as deleted files are not moved to a trash bin.

3. Viewing and Editing Files with `cat`, `less`, and `nano`

`cat` (Concatenate and Display Files)

The `cat` command displays the content of a file directly in the terminal:

```
cat file.txt
```

To concatenate multiple files and display them, list all files:

```
cat file1.txt file2.txt
```

`less` (View File Content One Page at a Time)

The `less` command lets you view large files page by page, making navigation easier:

```
less largefile.txt
```

You can scroll through the file using arrow keys and press q to quit.

nano (Simple Text Editor)

For quick file editing, `nano` is a lightweight and user-friendly command-line text editor:

```
nano file.txt
```

Once you're done editing, press `Ctrl + X` to exit, `Y` to save changes, and `Enter` to confirm.

4. Searching with grep and find

grep (Search Within Files)

The `grep` command searches for a specific pattern within files. For example, to search for the word "error" in a log file:

```
grep "error" logfile.txt
```

To ignore case sensitivity, add the `-i` option:

```
grep -i "error" logfile.txt
```

find (Search for Files or Directories)

To locate files or directories on your system, use the `find` command. For example, to search for a file named `document.txt`:

```
find / -name "document.txt"
```

The `find` command is powerful and can be combined with other options to search by date, size, or file type.

5. Viewing System Information with df, du, and top

df (Disk Free Space)

The `df` command displays the amount of available disk space on file systems:

```
df -h
```

The `-h` option shows the output in a human-readable format (KB, MB, GB).

du (Disk Usage)

If you need to know how much space a directory is using, `du` can help:

```
du -sh /path/to/directory/
```

This command provides a summary of the directory's size.

top (Monitor System Processes)

The `top` command gives you a real-time view of running processes and their resource usage:

```
top
```

You can monitor CPU, memory usage, and even kill processes directly from this interface.

top - 10:30:45 up 540 days, 9:05, 1 user, load average: 0.47, 0.25, 0.20												
Tasks: 120 total, 1 running, 78 sleeping, 0 stopped, 0 zombie												
%Cpu(s): 0.0 us, 0.3 sy, 0.0 ni, 99.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st												
KiB Mem : 2040892 total, 488620 free, 848120 used, 704152 buff/cache												
KiB Swap: 0 total, 0 free, 0 used. 1260784 avail Mem												
PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND	
16212	root	20	0	1444356	26300	0	S	0.3	1.3	12:08.26	dockerd	
1	root	20	0	225600	5416	2684	S	0.0	0.3	21:49.82	systemd	
2	root	20	0	0	0	0	S	0.0	0.0	0:04.96	kthreadd	
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H	
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq	
7	root	20	0	0	0	0	S	0.0	0.0	18:45.14	ksoftirqd/0	
8	root	20	0	0	0	0	I	0.0	0.0	67:45.76	rcu_sched	
9	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_bh	
10	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	migration/0	
11	root	rt	0	0	0	0	S	0.0	0.0	2:18.92	watchdog/0	
12	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cputhp/0	
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs	
14	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns	
15	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_kthre	
16	root	20	0	0	0	0	S	0.0	0.0	0:00.01	kauditfd	
17	root	20	0	0	0	0	S	0.0	0.0	0:25.06	khungtaskd	
18	root	20	0	0	0	0	S	0.0	0.0	0:00.06	oom_reaper	
19	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	writeback	
20	root	20	0	0	0	0	S	0.0	0.0	0:00.10	kcompactd0	
21	root	25	5	0	0	0	S	0.0	0.0	0:00.00	ksmd	
22	root	39	19	0	0	0	S	0.0	0.0	12:18.79	khugepaged	
23	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	crypto	
24	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kintegrityd	
25	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kblockd	
26	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	ata_sff	
27	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	md	
28	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	edac-poller	
29	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	devfreq_wq	
30	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	watchdogd	
31	root	20	0	0	0	0	S	0.0	0.0	4:20.21	keymapd	

Conclusion

These essential Bash commands are your gateway to mastering the Linux command line. By practicing these commands and incorporating them into your daily workflow, you'll become more efficient and capable of handling system tasks with ease. Bash is vast and powerful, and this guide is just the start of your journey into command-line mastery.

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