

Thu 04:23

vishal@kali: ~/Desktop

...
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ssages
r every file processed
ially (the default)
ively on '/'
ad of MODE values
ories recursively
exit
]*|[ugo]))+|[-+=][0-7]+'.
/software/coreutils/>
tware/coreutils/chmod>
od invocation'

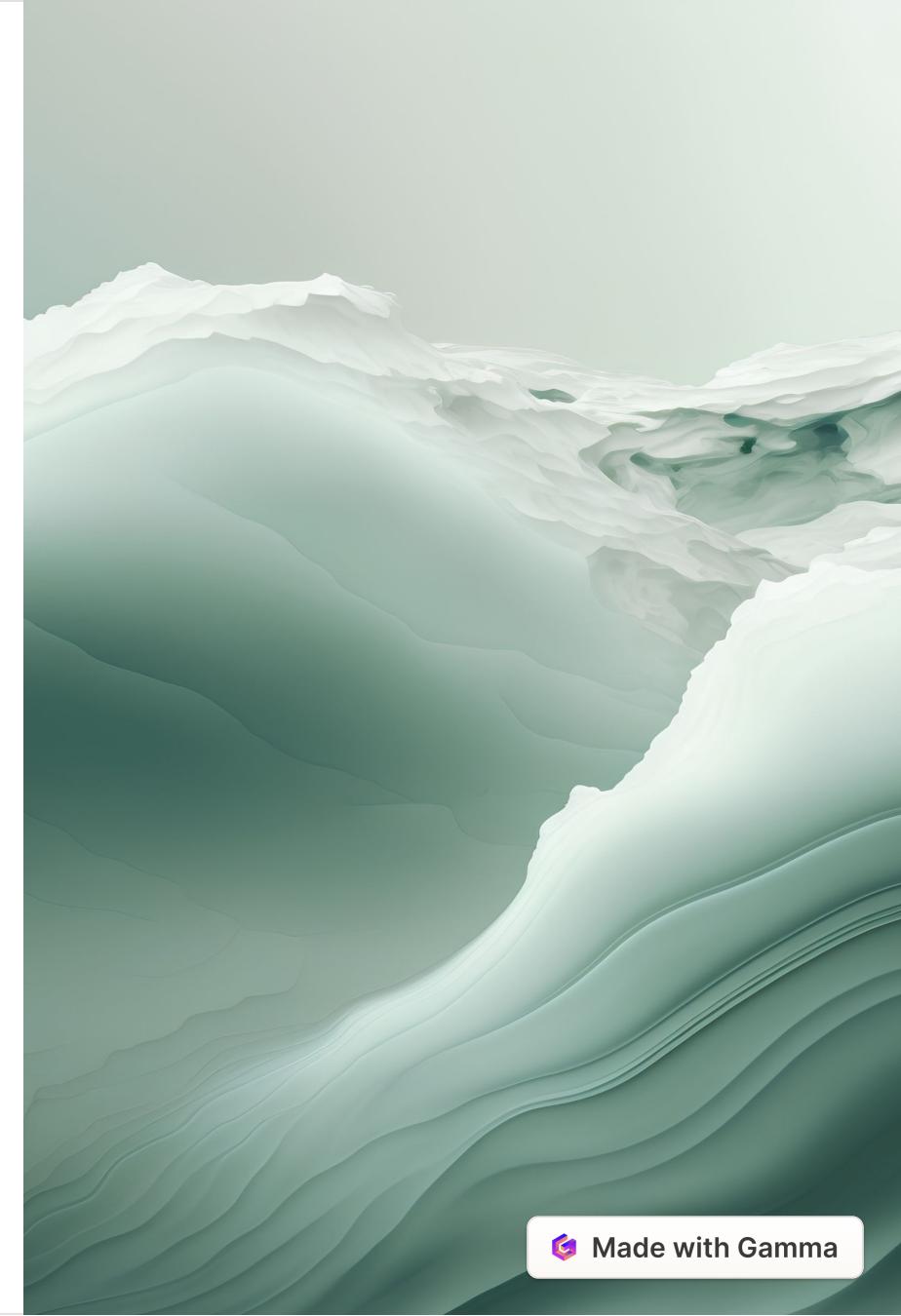
Process Utilities Commands

Learn how to navigate, monitor and optimize your system using a handful of powerful process utilities commands.

 by ANIHANT GADI

Priority Management with nice and renice

Learn how to manage process priority and optimize system performance with the powerful commands 'nice' and 'renice'. These commands allow you to set the priority of processes and adjust them on the fly, ensuring critical processes get the resources they need to run smoothly.



ps: Navigating through Processes

```
[sharnadeepss@harmandeepsh: ~$ ps -A
PID TTY      TIME CMD
1 ?        00:00:00 systemd
2 ?
3 ?        00:00:00 kthreadd
4 ?        00:00:00 rcu_gp
5 ?        00:00:00 kwaker/0:b-events
6 ?
7 ?        00:00:00 kwaker/0:0H-events_highpri
8 ?
9 ?        00:00:00 rCU_tasks_kthre
10 ?
11 ?       00:00:00 rCU_tasks_trace
12 ?
13 ?       00:00:00 rcu/r/0
14 ?
15 ?       00:00:00 rCU_prempt
16 ?
17 ?       00:00:00 iufragm/0
18 ?       00:00:00 kwaker/0:1:mm_percpu_wq
19 ?
20 ?       00:00:00 cpuhp/0
21 ?       00:00:00 cryptd/1
22 ?
23 ?       00:00:00 migration/1
24 ?       00:00:00 rCU/c/1
25 ?
26 ?       00:00:00 ksoftirqd/1
```

View all processes

List all running processes with system resources details, and by individual users.

```
[cpuhp@]
root 15 0.0 0.0 0 0 ? S 16:55 0:00 [cpuhp/1]
root 16 0.0 0.0 0 0 ? S 16:55 0:00 [migration/1]
root 17 0.0 0.0 0 0 ? S 16:55 0:00 [migration/2]
root 18 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/1:0H-kblockd]
root 19 0.0 0.0 0 0 ? S 16:55 0:00 [cpuhp/2]
root 20 0.0 0.0 0 0 ? S 16:55 0:00 [migration/2]
root 21 0.0 0.0 0 0 ? S 16:55 0:00 [migration/2]
root 22 0.0 0.0 0 0 ? S 16:55 0:00 [ksoftirqd/2]
root 23 0.0 0.0 0 0 ? S 16:55 0:00 [kwaker/2:0H-mm_percpu_wq]
root 24 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/2:0H-kblockd]
root 25 0.0 0.0 0 0 ? S 16:55 0:00 [cpuhp/3]
root 26 0.0 0.0 0 0 ? S 16:55 0:00 [migration/3]
root 27 0.0 0.0 0 0 ? S 16:55 0:00 [ksoftirqd/3]
root 28 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/3:0H-kblockd]
root 29 0.0 0.0 0 0 ? S 16:55 0:00 [devcgroup]
root 30 0.0 0.0 0 0 ? I< 16:55 0:00 [netns]
root 31 0.0 0.0 0 0 ? S 16:55 0:00 [netns]
root 32 0.0 0.0 0 0 ? S 16:55 0:00 [kauditd]
root 33 0.0 0.0 0 0 ? S 16:55 0:00 [khungtaskd]
root 34 0.0 0.0 0 0 ? S 16:55 0:00 [khungtaskd]
root 35 0.0 0.0 0 0 ? I< 16:55 0:00 [writeback]
root 36 0.0 0.0 0 0 ? S 16:55 0:00 [kcompactd0]
root 37 0.0 0.0 0 0 ? SN 16:55 0:00 [ksmd]
root 38 0.0 0.0 0 0 ? S 16:55 0:00 [khugepaged]
root 39 0.0 0.0 0 0 ? I< 16:55 0:00 [cryptd]
root 40 0.0 0.0 0 0 ? I< 16:55 0:00 [cryptoirtyd]
root 41 0.0 0.0 0 0 ? I< 16:55 0:00 [kblockd]
root 42 0.0 0.0 0 0 ? I< 16:55 0:00 [edac-poller]
root 43 0.0 0.0 0 0 ? I< 16:55 0:00 [devfreq_wq]
root 44 0.0 0.0 0 0 ? S 16:55 0:00 [watchdogd]
root 45 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/2:1:mm_percpu_wq]
```

Filter processes

Filter processes by user, ID, and prioritize outputs for better readability.

```
[cpuhp@]
root 15 0.0 0.0 0 0 ? S 16:55 0:00 [cpuhp/1]
root 16 0.0 0.0 0 0 ? S 16:55 0:00 [migration/1]
root 17 0.0 0.0 0 0 ? S 16:55 0:00 [migration/2]
root 18 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/1:0H-kblockd]
root 19 0.0 0.0 0 0 ? S 16:55 0:00 [cpuhp/2]
root 20 0.0 0.0 0 0 ? S 16:55 0:00 [migration/2]
root 21 0.0 0.0 0 0 ? S 16:55 0:00 [migration/2]
root 22 0.0 0.0 0 0 ? S 16:55 0:00 [ksoftirqd/2]
root 23 0.0 0.0 0 0 ? S 16:55 0:00 [kwaker/2:0H-mm_percpu_wq]
root 24 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/2:0H-kblockd]
root 25 0.0 0.0 0 0 ? S 16:55 0:00 [cpuhp/3]
root 26 0.0 0.0 0 0 ? S 16:55 0:00 [migration/3]
root 27 0.0 0.0 0 0 ? S 16:55 0:00 [ksoftirqd/3]
root 28 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/3:0H-kblockd]
root 29 0.0 0.0 0 0 ? S 16:55 0:00 [devcgroup]
root 30 0.0 0.0 0 0 ? I< 16:55 0:00 [netns]
root 31 0.0 0.0 0 0 ? S 16:55 0:00 [netns]
root 32 0.0 0.0 0 0 ? S 16:55 0:00 [kauditd]
root 33 0.0 0.0 0 0 ? S 16:55 0:00 [khungtaskd]
root 34 0.0 0.0 0 0 ? S 16:55 0:00 [khungtaskd]
root 35 0.0 0.0 0 0 ? I< 16:55 0:00 [writeback]
root 36 0.0 0.0 0 0 ? S 16:55 0:00 [kcompactd0]
root 37 0.0 0.0 0 0 ? SN 16:55 0:00 [ksmd]
root 38 0.0 0.0 0 0 ? S 16:55 0:00 [khugepaged]
root 39 0.0 0.0 0 0 ? I< 16:55 0:00 [cryptd]
root 40 0.0 0.0 0 0 ? I< 16:55 0:00 [cryptoirtyd]
root 41 0.0 0.0 0 0 ? I< 16:55 0:00 [kblockd]
root 42 0.0 0.0 0 0 ? I< 16:55 0:00 [edac-poller]
root 43 0.0 0.0 0 0 ? I< 16:55 0:00 [devfreq_wq]
root 44 0.0 0.0 0 0 ? S 16:55 0:00 [watchdogd]
root 45 0.0 0.0 0 0 ? I< 16:55 0:00 [kwaker/2:1:mm_percpu_wq]
```

Advanced searches

Find processes matching a specific name, with network connections information.

kill: Killing a Process

Graceful termination

Sends a termination signal to a process allowing it to finalize before closing.

Forced termination

Immediately terminates a process without allowing it to save any data or resources.

Signal customisation

Choose the signal to be sent to a process to kill it gracefully or forcefully in different scenarios.

Batch process management

Kill all processes matching a certain name, or that belong to a certain user simultaneously.



killall: Freezing and Restarting Processes

- 1 Freeze and Reload

Kills all processes running under a specific name, then reload them as if the system was restarted.
- 2 Batch management

You can freeze and reload multiple groups of processes with a single command.
- 3 Signal customisation

Choose the signal to send during the reloading process and customize which processes are reloaded.

top: System Performance Monitoring

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+ COMMAND
1226	ubuntu	20	0	315460	15144	8504	2.3	0.7	0:05.00	gst-launch-1.0
699	ubuntu	20	0	827880	69856	31568	5	0.3	3.5	0:01.82 node
1 root		20	0	101988	11496	8506	5	0.0	0.0	0:03.67 systemd
2 root		20	0	101988	11496	8506	5	0.0	0.0	0:03.67 systemd
3 root		0	-20	0	0	0	0.1	0.0	0.0	rcu_par_gp
4 root		0	-20	0	0	0	0.1	0.0	0.0	0:00.00 rCU_parallel_gp
5 root		20	0	0	0	0	0.1	0.0	0.0	0:00.02 kworker/u0-0-events
6 root		0	-20	0	0	0	0.1	0.0	0.0	0:00.00 kworker/u0-1-events
7 root		20	0	0	0	0	0.1	0.0	0.0	0:00.00 kworker/u0-1-events
8 root		20	0	0	0	0	0.1	0.0	0.0	0:00.02 kworker/u30:0-exe-rsv-conversion
9 root		0	-20	0	0	0	0.1	0.0	0.0	0:00.00 mm_percpu_wq
10 root		20	0	0	0	0	0.5	0.0	0.0	0:00.00 rcu_tasks_rude
11 root		20	0	0	0	0	0.5	0.0	0.0	0:00.00 rcu_tasks_rude
12 root		20	0	0	0	0	0.5	0.0	0.0	0:00.10 ksoftirqd/0
13 root		20	0	0	0	0	0.0	0.0	0.0	0:01.10 rcu_sched
14 root		rt	0	0	0	0	0.5	0.0	0.0	0:00.00 migration/0
15 root		51	0	0	0	0	0.0	0.0	0.0	0:00.00 idle_inject/0
16 root		20	0	0	0	0	0.5	0.0	0.0	0:00.00 oom_reaper
17 root		20	0	0	0	0	0.5	0.0	0.0	0:00.00 kdevtmpfs
18 root		0	-20	0	0	0	0.1	0.0	0.0	0:00.00 netns
19 root		0	-20	0	0	0	0.1	0.0	0.0	0:00.00 net_frag_wq
20 root		20	0	0	0	0	0.1	0.0	0.0	0:00.00 netns
21 root		20	0	0	0	0	0.5	0.0	0.0	0:00.00 khungtsksd
22 root		20	0	0	0	0	0.5	0.0	0.0	0:00.00 com_reaper
23 root		20	0	0	0	0	0.1	0.0	0.0	0:00.00 writeback
24 root		20	0	0	0	0	0.5	0.0	0.0	0:00.02 kcompactd0
25 root		25	5	0	0	0	0.5	0.0	0.0	0:00.00 ksmd
26 root		39	19	0	0	0	0.5	0.0	0.0	0:00.00 khugepaged

Real-time performance

Provides real-time system performance statistics and resource usage details for ongoing processes.

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+ COMMAND
30952	peras	20	0	315460	31568	3014	0.0	0.1	0:02.13	Top -c peras
18571	peras	20	0	315460	31568	3014	0.0	0.1	0:00.00 (idle)	Top -c peras
1896	peras	20	0	315460	31568	3014	0.0	0.05	0:00.05 /usr/lib/xorg/Xorg -user	Top -c peras
2051	peras	20	0	315460	31568	3014	0.0	0.1	0:00.77 /usr/lib/xorg/Xorg -user	Top -c peras
2046	peras	20	0	315460	31568	3014	0.0	0.05	0:00.40 /usr/lib/xorg/Xorg -user	Top -c peras
2058	peras	20	0	315460	31568	3014	0.0	0.12	0:00.53 /usr/lib/xorg/Xorg -user	Top -c peras
2008	peras	20	0	315460	31568	3014	0.0	0.05	0:00.73 /usr/lib/xorg/Xorg -user	Top -c peras
2033	peras	20	0	315460	31568	3014	0.0	0.05	0:00.40 /usr/lib/xorg/Xorg -user	Top -c peras
2110	peras	20	0	315460	31568	3014	0.0	0.05	0:00.45 /usr/lib/xorg/Xorg -user	Top -c peras
2122	peras	20	0	315460	31568	3014	0.0	0.05	0:00.26 pgrep -lomedm /home/parallel/gpmp -use-standard-socket --daemon	Top -c peras
2165	peras	20	0	3153230	16048	31127	0.0	0.03	0:07.40 /usr/lib/xorg/Xorg -user	Top -c peras
2174	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.45 /usr/lib/xorg/Xorg -user	Top -c peras
2176	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.59 /usr/lib/xorg/Xorg -user	Top -c peras
2195	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.70 /usr/lib/xorg/Xorg -user	Top -c peras
2220	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.42 /usr/lib/xorg/Xorg -user	Top -c peras
2226	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2228	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2230	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2231	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2232	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2233	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2234	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2235	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2236	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2237	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2238	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2239	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2240	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2241	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2242	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2243	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2244	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2245	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2246	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2247	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2248	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2249	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2250	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2251	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2252	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2253	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2254	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2255	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2256	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2257	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2258	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2259	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2260	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2261	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2262	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2263	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2264	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2265	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2266	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2267	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2268	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2269	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2270	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2271	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2272	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2273	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2274	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2275	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2276	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2277	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2278	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2279	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2280	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2281	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2282	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2283	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2284	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2285	peras	20	0	3153230	16048	31127	0.0	0.03	0:00.32 /usr/lib/xorg/Xorg -user	Top -c peras
2286	peras	20	0	315323						

htop: Resource Usage Tracking

- 1

Real-time process monitoring

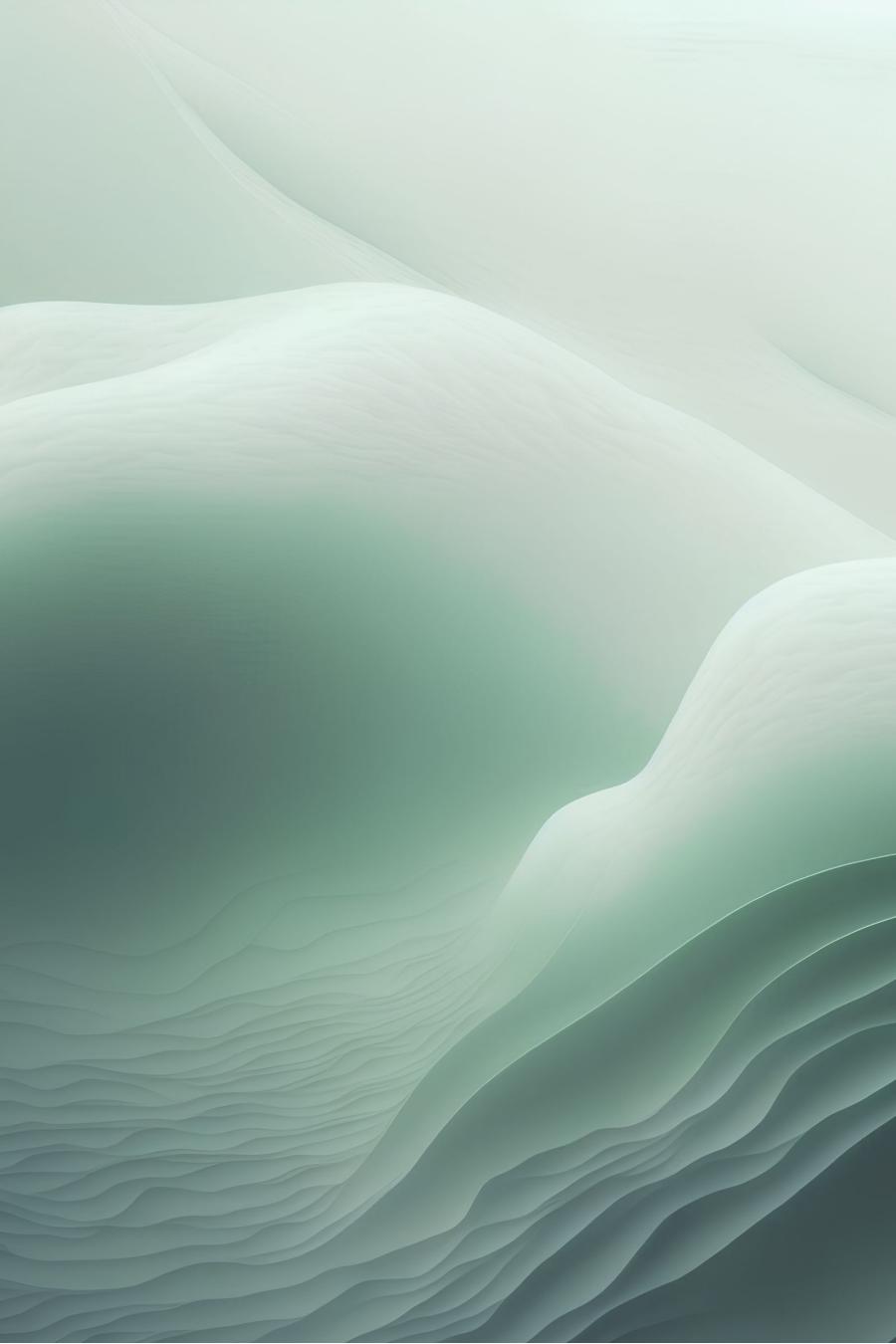
Real-time display of both processes and system resources.
- 2

Interactive processes control

Control and manage processes and adjust system priorities through an interactive interface.
- 3

Resource usage insights

Displays the resources usage details for the processes, and the system as a whole.



Conclusion and Other Useful Commands

1 Conclusion

Mastering these commands offers a powerful toolkit to manage processes and optimize system performance in a Linux environment.

2 Other useful commands

Additional useful commands include "pgrep", "nice", "renice", "sar", "iostat".

Bonus Tip: Aliasing Commands

Save time

Alias your most frequent or complex commands in a personalized script file.

Enhance readability

Use meaningful and descriptive aliases in place of complex command strings.

