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```
raghu@raghu-Inspiron-1440: ~  
File Edit View Search Terminal Help  
top - 00:11:08 up 1:18, 2 users, load average: 0.22, 0.50, 0.55  
Tasks: 149 total, 2 running, 147 sleeping, 0 stopped, 0 zombie  
%Cpu(s): 2.7 us, 1.8 sy, 0.0 ni, 94.0 id, 1.5 wa, 0.0 hi, 0.0 si, 0.0 st  
KiB Mem: 3065928 total, 1186836 used, 1879092 free, 111452 buffers  
KiB Swap: 4095996 total, 0 used, 4095996 free, 675916 cached  


| PID   | USER  | PR | NI | VIRT  | RES  | SHR  | S | %CPU | %MEM | TIME+   | COMMAND         |
|-------|-------|----|----|-------|------|------|---|------|------|---------|-----------------|
| 1713  | root  | 20 | 0  | 82832 | 24m  | 9.9m | S | 4.0  | 0.8  | 1:12.95 | Xorg            |
| 31435 | raghu | 20 | 0  | 387m  | 51m  | 18m  | S | 2.3  | 1.7  | 0:05.59 | shutter         |
| 2260  | raghu | 20 | 0  | 174m  | 13m  | 9656 | S | 0.7  | 0.4  | 0:04.72 | marco           |
| 31433 | raghu | 20 | 0  | 5208  | 1384 | 1032 | R | 0.7  | 0.0  | 0:00.44 | top             |
| 10    | root  | 20 | 0  | 0     | 0    | 0    | S | 0.3  | 0.0  | 0:10.22 | ksoftirqd/1     |
| 1511  | mysql | 20 | 0  | 312m  | 38m  | 5928 | S | 0.3  | 1.3  | 0:03.43 | mysqld          |
| 1892  | root  | 20 | 0  | 120m  | 118m | 608  | D | 0.3  | 4.0  | 0:02.69 | HWActivator     |
| 2285  | raghu | 20 | 0  | 171m  | 11m  | 9232 | S | 0.3  | 0.4  | 0:00.46 | mate-power-mana |
| 2327  | root  | 20 | 0  | 29012 | 4272 | 3200 | S | 0.3  | 0.1  | 0:02.45 | upowerd         |
| 30049 | root  | 20 | 0  | 0     | 0    | 0    | S | 0.3  | 0.0  | 0:00.26 | kworker/1:3     |
| 31208 | raghu | 20 | 0  | 192m  | 13m  | 10m  | S | 0.3  | 0.5  | 0:00.56 | mate-terminal   |
| 1     | root  | 20 | 0  | 3728  | 2172 | 1348 | S | 0.0  | 0.1  | 0:01.10 | init            |
| 2     | root  | 20 | 0  | 0     | 0    | 0    | S | 0.0  | 0.0  | 0:00.00 | kthreadd        |
| 3     | root  | 20 | 0  | 0     | 0    | 0    | S | 0.0  | 0.0  | 0:09.98 | ksoftirqd/0     |
| 6     | root  | rt | 0  | 0     | 0    | 0    | S | 0.0  | 0.0  | 0:00.27 | migration/0     |
| 7     | root  | rt | 0  | 0     | 0    | 0    | S | 0.0  | 0.0  | 0:00.06 | watchdog/0      |
| 8     | root  | rt | 0  | 0     | 0    | 0    | S | 0.0  | 0.0  | 0:00.10 | migration/1     |


```

```
top - 00:15:48 up 1:23, 2 users, load average: 0.26, 0.33, 0.47
```

The fields display:

- * current time
 - * the time your system is been up
 - * number of users logged in
 - * load average of 5, 10 and 15 minutes respectively.
- This uptime display can be toggled with 'l' command.

1.2 Tasks:

Tasks: 147 total, 2 running, 145 sleeping, 0 stopped, 0 zombie

The second line shows summary of tasks or processes. The processes can be in different states. It shows total number of the processes. Out of these, the processes can be running, sleeping, stopped or in zombie (zombie is the state of a process state, These process summary can be toggled with 't' command.

1.3 CPU States:

%Cpu(s): 1.8 us, 1.2 sy, 0.0 ni, 97.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st

Next is shown the CPU state. Here, %age of CPU time in different modes is shown. The meaning of different CPU times are:

- * us, user: CPU time in running (un-niced) user processes
- * sy, system: CPU time in running kernel processes
- * ni, niced: CPU time in running niced user processes
- * wa, IO wait: CPU time waiting for IO completion
- * hi: CPU time serving hardware interrupts
- * si: CPU time serving software interrupts
- * st: CPU time stolen for this vm by the hipervisor.

This can be toggled with 't' command.

1.4 Memory Usage:

KiB Mem: 3065928 total, 1444436 used, 1621492 free, 189296 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 766820 cached

Next two lines show memory usage, somewhat like 'free' command. 1st of these lines is for physical memory and the second for virtual memory (swap space).

The physical memory is displayed as: total available memory, used memory, free memory, and memory used for buffers

Similarly, swap reflects: total, used, free and cached swap space.

The memory can be toggled with 'm' command.

1.5 Fields/Columns:

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
31435	raghu	20	0	401m	65m	19m	S	7.3	2.2	1:08.82	shutter
1713	root	20	0	84176	25m	10m	S	4.0	0.9	2:00.70	Xorg
2490	raghu	20	0	182m	13m	10m	S	2.0	0.4	0:05.58	wnck-applet
2260	raghu	20	0	175m	14m	10m	S	0.7	0.5	0:10.90	marco
2228	raghu	20	0	101m	11m	9072	S	0.3	0.4	0:01.52	mate-settings-d
2262	raghu	20	0	197m	18m	11m	S	0.3	0.6	0:04.45	mate-panel
2284	raghu	20	0	222m	32m	20m	S	0.3	1.1	0:16.13	caja
27689	raghu	20	0	202m	29m	16m	S	0.3	1.0	0:09.58	pluma
31208	raghu	20	0	192m	13m	10m	S	0.3	0.5	0:01.97	mate-terminal
31433	raghu	20	0	5208	1444	1080	R	0.3	0.0	0:04.45	top
1	root	20	0	3728	2172	1348	S	0.0	0.1	0:01.14	init
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:12.94	ksoftirqd/0
6	root	rt	0	0	0	0	S	0.0	0.0	0:00.27	migration/0
7	root	rt	0	0	0	0	S	0.0	0.0	0:00.07	watchdog/0
8	root	rt	0	0	0	0	S	0.0	0.0	0:00.10	migration/1
10	root	20	0	0	0	0	S	0.0	0.0	0:12.64	ksoftirqd/1

After these horizontal system properties and states, the processes are shown in columns. The different columns represent different properties discussed below.

By default, top shows these attributes associated with processes:

PID

The Process ID, to uniquely identify a processes.

USER

The effective user name of the owner of the processes.

PR

The scheduling priority of the process. Some values in this field are 'rt'. It means that the process is running under real-time.

NI

The nice value of the process. Lower values mean higher priority.

VIRT

The amount of virtual memory used by the process.

RES

The resident memory size. Resident memory is the amount of non-swapped physical memory a task is using.

SHR

SHR is the shared memory used by the process.

S

This is the process status. It can have one of the following values:

D - uninterruptible sleep
R - running
S - sleeping
T - traced or stopped
Z - zombie

%CPU

It is the percentage of CPU time the task has used since last update.

%MEM

Percentage of available physical memory used by the process.

TIME+

The total CPU time the task has used since it started, with precision upto hundredth of a second.

COMMAND

The command which was used to start the process.

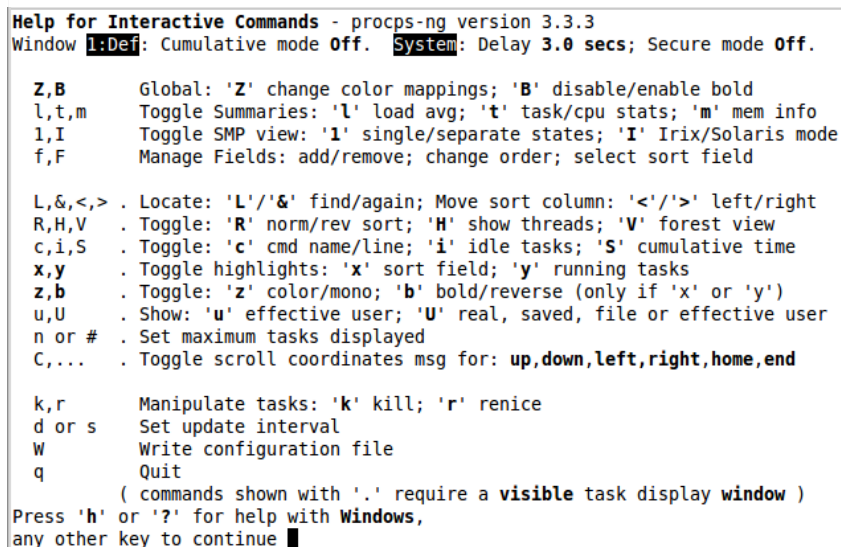
There are many other outputs which are not displayed by default which can display information about page faults, effective group and group ID of the process, and many more.

2. Interactive Commands:

We discussed earlier that the top command is interactive commands. Some of the commands we encountered in the last section. Here we explore these commands further.

2.1 'h': Help

First of all, you can press 'h' or '?' to display the help menu for interactive commands.

A screenshot of the top command's help menu. The title is "Help for Interactive Commands - procs-ng version 3.3.3". Below the title, it says "Window 1:Def: Cumulative mode Off. System: Delay 3.0 secs; Secure mode Off." The help text is organized into sections. The first section lists various toggle and management commands: 'Z,B' for global settings, 'l,t,m' for toggling summaries, 'l,I' for toggling SMP view, and 'f,F' for managing fields. The second section lists navigation and display commands: 'L,&,<,>' for locating and moving sort columns, 'R,H,V' for toggling sort, threads, and forest view, 'c,i,S' for toggling command name/line, idle tasks, and cumulative time, 'x,y' for toggling highlights, 'z,b' for toggling color/mono and bold/reverse, 'u,U' for showing effective user, and 'n or #' for setting maximum tasks displayed. The third section lists task manipulation commands: 'k,r' for kill/renice, 'd or s' for setting update interval, 'w' for writing configuration file, and 'q' for quit. A note at the bottom states "(commands shown with '.' require a visible task display window)". The prompt "Press 'h' or '?' for help with Windows, any other key to continue" is at the bottom.

2.2 '<ENTER>' or '<SPACE>': Refresh Display

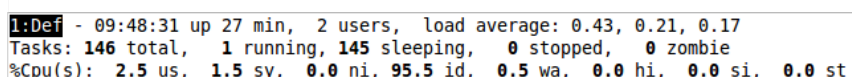
The top command by default refreshes after a certain interval (3 seconds). To refresh manually, user can press enter or space key.

2.3 A: Toggle Alternate Display Mode

This command switches between full-screen Mode and alternate-display mode. In alternate display mode, 4 windows are available:

1. Def
2. Job
3. Mem
4. Usr

Each of the 4 field groups has a unique separately configurable summary area and its own configurable task area. Only one of these 4 windows will be the current window. The current window is displayed on the top left corner.

A screenshot of the top command's output in alternate display mode. The title is "1:Def - 09:48:31 up 27 min, 2 users, load average: 0.43, 0.21, 0.17". Below the title, it shows "Tasks: 146 total, 1 running, 145 sleeping, 0 stopped, 0 zombie". The bottom line shows "%Cpu(s): 2.5 us, 1.5 sy, 0.0 ni, 95.5 id, 0.5 wa, 0.0 hi, 0.0 si, 0.0 st".

```
KiB Mem: 3065928 total, 954952 used, 2110976 free, 115936 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 458732 cached
```

1	PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND			
	1704	root	20	0	88708	25m	12m	S	3.3	0.8	0:24.09	Xorg			
	3073	raghu	20	0	395m	59m	18m	S	2.7	2.0	0:12.83	shutter			
	3070	raghu	20	0	5208	1380	1032	R	0.7	0.0	0:00.34	top			
2	PID	PPID	TIME+	%CPU	%MEM	PR	NI	S	VIRT	SWAP	RES	UID	COMMAND		
	3138	2	0:00.00	0.0	0.0	20	0	S	0	0	0	0	kworker/0:0		
	3073	1	0:12.83	2.7	2.0	20	0	S	395m	0	59m	1000	shutter		
	3070	2702	0:00.34	0.7	0.0	20	0	R	5208	0	1380	1000	top		
3	PID	%MEM	VIRT	SWAP	RES	CODE	DATA	SHR	nMaj	nDRT	S	PR	NI	%CPU	COMMAND
	2605	2.7	413m	0	79m	12	146m	21m	167	0	S	20	0	0.0	totem
	3073	2.0	395m	0	59m	1428	82m	18m	70	0	S	20	0	2.7	shutter
	1883	1.4	43960	0	41m	20	40m	396	0	0	S	20	0	0.0	HWActivato
	1500	1.3	312m	0	38m	9392	299m	5876	0	0	S	20	0	0.3	mysqld
4	PID	PPID	UID	USER	RUSER	TTY	TIME+	%CPU	%MEM	S	COMMAND				
	1096	1	101	syslog	syslog	?	0:00.21	0.0	0.0	S	rsyslogd				
	1048	1	116	statd	statd	?	0:00.00	0.0	0.0	S	rpc.statd				
	2241	1	107	rtkit	rtkit	?	0:00.01	0.0	0.0	S	rtkit-daem				
	1	0	0	root	root	?	0:00.84	0.0	0.1	S	init				

You can switch between 4 windows with 'a' and 'w' keys. 'a' moves to next and 'w' to previous window. With 'g' command, you can enter a number to select the current window.

3:Mem - 14:02:14 up 4:41, 2 users, load average: 0.16, 0.21, 0.23
Tasks: 145 total, 1 running, 144 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.6 us, 0.6 sy, 0.0 ni, 98.4 id, 0.4 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem: 3065928 total, 2367520 used, 698408 free, 602652 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 992792 cached
Choose field group (1 - 4)

1	PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND			
	1704	root	20	0	87864	25m	12m	S	0.6	0.9	4:59.60	Xorg			
	3	root	20	0	0	0	0	S	0.3	0.0	0:31.96	ksoftirqd/0			
	1096	syslog	20	0	31072	1496	1148	S	0.3	0.0	0:01.67	rsyslogd			
2	PID	PPID	TIME+	%CPU	%MEM	PR	NI	S	VIRT	SWAP	RES	UID	COMMAND		
	6613	2	0:00.04	0.0	0.0	20	0	S	0	0	0	0	kworker/0:0		
	6603	2702	0:00.33	0.3	0.0	20	0	R	5208	0	1376	1000	top		
	6553	2	0:00.31	0.3	0.0	20	0	S	0	0	0	0	kworker/1:1		
3	PID	%MEM	VIRT	SWAP	RES	CODE	DATA	SHR	nMaj	nDRT	S	PR	NI	%CPU	COMMAND
	1883	14.0	421m	0	419m	20	419m	396	0	0	S	20	0	0.0	HWActivato
	3073	2.4	406m	0	70m	1428	93m	19m	73	0	S	20	0	0.0	shutter
	1500	1.3	312m	0	38m	9392	299m	5880	0	0	S	20	0	0.3	mysqld
4	PID	PPID	UID	USER	RUSER	TTY	TIME+	%CPU	%MEM	S	COMMAND				
	1096	1	101	syslog	syslog	?	0:01.67	0.3	0.0	S	rsyslogd				
	1048	1	116	statd	statd	?	0:00.00	0.0	0.0	S	rpc.statd				
	2241	1	107	rtkit	rtkit	?	0:00.15	0.0	0.0	S	rtkit-daem				
	1	0	0	root	root	?	0:00.98	0.0	0.1	S	init				

2.4 B: Toggle Bold Display

Some important information is shown in bold characters. This command toggles use of bold.

```
top - 14:04:21 up 4:43, 2 users, load average: 0.18, 0.21, 0.23
Tasks: 145 total, 1 running, 144 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.7 us, 0.8 sy, 0.0 ni, 95.8 id, 1.5 wa, 0.0 hi, 0.2 si, 0.0 st
KiB Mem: 3065928 total, 2371364 used, 694564 free, 603076 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 993428 cached
```

PID	%MEM	VIRT	SWAP	RES	CODE	DATA	SHR	nMaj	nDRT	S	PR	NI	%CPU	COMMAND
1883	14.1	424m	0	423m	20	422m	396	0	0	S	20	0	0.0	HWActivator
3073	2.4	406m	0	70m	1428	93m	19m	73	0	S	20	0	1.3	shutter
1500	1.3	312m	0	38m	9392	299m	5880	0	0	S	20	0	0.0	mysqld
2274	1.1	222m	0	31m	2024	53m	19m	517	0	S	20	0	0.0	caja
2683	1.0	202m	0	29m	672	30m	16m	56	0	S	20	0	0.0	pluma
1704	0.9	88032	0	25m	2164	32m	12m	0	0	S	20	0	2.0	Xorg
2301	0.8	204m	0	23m	2120	35m	13m	35	0	S	20	0	0.0	mintUpdate
2251	0.6	197m	0	17m	600	32m	11m	57	0	S	20	0	0.0	mate-panel
2294	0.6	41592	0	16m	2120	6524	9348	9	0	S	20	0	0.0	applet.py
2696	0.5	193m	0	15m	288	30m	10m	7	0	S	20	0	0.0	mate-termin
2249	0.5	175m	0	14m	528	12m	10m	6	0	S	20	0	0.0	marco
2276	0.5	331m	0	14m	300	30m	10m	60	0	S	20	0	0.0	nm-applet
2478	0.4	181m	0	12m	48	20m	9.9m	4	0	S	20	0	0.0	wnck-applet
2217	0.4	240m	0	12m	32	11m	9820	26	0	S	20	0	0.0	mate-settin
2496	0.4	182m	0	12m	116	20m	9568	6	0	S	20	0	0.0	clock-apple
2550	0.4	14356	0	11m	1428	9848	2480	0	0	S	20	0	0.0	SystemTools

2.5 'd' or 's': Set Display Time interval

When 'd' or 's' is pressed, you will be prompted to enter a value (in seconds) which will be set as display interval. If you enter 1 here, top will refresh every second.

```
top - 10:17:07 up 56 min, 2 users, load average: 0.03, 0.08, 0.13
Tasks: 147 total, 1 running, 146 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.3 us, 0.3 sy, 0.0 ni, 99.3 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem: 3065928 total, 1036096 used, 2029832 free, 134812 buffers
```

KiB Swap: 4095996 total, 0 used, 4095996 free, 475972 cached
Change delay from 3.0 to 1

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
-----	------	----	----	------	-----	-----	---	------	------	-------	---------

2.6 'l', 't', 'm': Toggle Load, Task, Memory Info

These will toggle load average, task/cpu status and mem info respectively as discussed.

Tasks: 146 total, 2 running, 144 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.8 us, 0.8 sy, 0.0 ni, 96.3 id, 2.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem: 3065928 total, 1043436 used, 2022492 free, 135132 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 476536 cached

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1704	root	20	0	88300	25m	12m	S	2.3	0.8	1:01.76	Xorg
2249	raghu	20	0	37672	13m	9824	S	0.7	0.4	0:15.02	marco
2696	raghu	20	0	192m	13m	10m	S	0.7	0.5	0:02.24	mate-terminal
3070	raghu	20	0	5208	1448	1088	R	0.7	0.0	0:05.35	top
3	root	20	0	0	0	0	S	0.3	0.0	0:06.86	ksoftirqd/0
1241	root	20	0	0	0	0	S	0.3	0.0	0:00.09	flush-8:0

top - 10:21:32 up 1:00, 2 users, load average: 0.13, 0.12, 0.14
KiB Mem: 3065928 total, 1047312 used, 2018616 free, 135204 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 479624 cached

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3073	raghu	20	0	395m	59m	18m	R	4.0	2.0	0:39.41	shutter
1704	root	20	0	89764	25m	12m	S	3.0	0.8	1:03.12	Xorg
3	root	20	0	0	0	0	S	0.3	0.0	0:06.93	ksoftirqd/0
25	root	20	0	0	0	0	R	0.3	0.0	0:02.34	kworker/1:1
2251	raghu	20	0	196m	16m	11m	S	0.3	0.6	0:01.83	mate-panel
3070	raghu	20	0	5208	1448	1088	R	0.3	0.0	0:05.42	top

top - 10:22:42 up 1:01, 2 users, load average: 0.18, 0.14, 0.14
Tasks: 146 total, 3 running, 143 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.5 us, 0.5 sy, 0.0 ni, 97.8 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1704	root	20	0	88388	25m	12m	S	1.7	0.8	1:05.16	Xorg
3073	raghu	20	0	396m	60m	18m	S	1.3	2.0	0:43.34	shutter
3	root	20	0	0	0	0	S	0.3	0.0	0:07.12	ksoftirqd/0
1500	mysql	20	0	312m	38m	5876	S	0.3	1.3	0:03.04	mysqld
2249	raghu	20	0	37672	13m	9824	S	0.3	0.4	0:15.72	marco
2251	raghu	20	0	196m	16m	11m	S	0.3	0.6	0:01.88	mate-panel
2696	raghu	20	0	192m	13m	10m	S	0.3	0.5	0:02.39	mate-terminal
3070	raghu	20	0	5208	1448	1088	R	0.3	0.0	0:05.63	top

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
974	root	20	0	0	0	0	S	0.3	0.0	0:00.04	jbd2/sda8-8
1500	mysql	20	0	312m	38m	5876	S	0.3	1.3	0:03.15	mysqld
1704	root	20	0	88136	25m	11m	S	0.3	0.8	1:09.74	Xorg
1	root	20	0	3732	2188	1348	S	0.0	0.1	0:00.91	init
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:07.50	ksoftirqd/0
6	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	migration/0
7	root	rt	0	0	0	0	S	0.0	0.0	0:00.06	watchdog/0

2.7 'f': Field Management

This is used to chose what field you want to display on the output screen. The fields marked as * are selected.

Fields Management for window 1:Def, whose current sort field is %CPU			
Navigate with Up/Dn, Right selects for move then <Enter> or Left commits, 'd' or <Space> toggles display, 's' sets sort. Use 'q' or <Esc> to end!			
* PID	= Process Id	PGRP	= Process Group Id
* USER	= Effective User Name	TTY	= Controlling Tty
* PR	= Priority	TPGID	= Tty Process Grp Id
* NI	= Nice Value	SID	= Session Id
* VIRT	= Virtual Image (KiB)	nTH	= Number of Threads
* RES	= Resident Size (KiB)	P	= Last Used Cpu (SMP)
* SHR	= Shared Memory (KiB)	TIME	= CPU Time
* S	= Process Status	SWAP	= Swapped Size (KiB)
* %CPU	= CPU Usage	CODE	= Code Size (KiB)
* %MEM	= Memory Usage (RES)	DATA	= Data+Stack (KiB)
* TIME+	= CPU Time, hundredths	nMaj	= Major Page Faults
* COMMAND	= Command Name/Line	nMin	= Minor Page Faults
PPID	= Parent Process pid	nDRT	= Dirty Pages Count
UID	= Effective User Id	WCHAN	= Sleeping in Function
RUID	= Real User Id	Flags	= Task Flags <sched.h>
RUSER	= Real User Name	CGROUPS	= Control Groups
SUID	= Saved User Id	SUPGIDS	= Supp Groups IDs
SUSER	= Saved User Name	SUPGRPS	= Supp Groups Names
GID	= Group Id	TGID	= Thread Group Id
GROUP	= Group Name		

'<' and '>'

The '<' command moves the sorted field to the left and '>' to the right

2.8 'R': Reverse Sort

Toggle Reverse/Normal sort order

2.9 'c': Toggle Command

Toggle full path of command that started the process and program name.

```
top - 14:08:53 up 4:47, 3 users, load average: 0.25, 0.19, 0.22
Tasks: 147 total, 1 running, 146 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.0 us, 0.5 sy, 0.0 ni, 98.3 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
KiB Mem: 3065928 total, 2455576 used, 610352 free, 603736 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 1066620 cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1704	root	20	0	93652	25m	12m	S	2.0	0.9	5:14.54	/usr/bin/X :0 -au
2683	raghu	20	0	202m	30m	16m	S	0.7	1.0	0:14.48	pluma /media/ragh
10	root	20	0	0	0	0	S	0.3	0.0	0:29.07	[ksoftirqd/1]
1451	root	20	0	46388	4672	3556	S	0.3	0.2	0:06.81	/opt/teamviewer8/
2490	raghu	20	0	17100	3076	2652	S	0.3	0.1	0:00.29	/usr/lib/at-spi2-
2696	raghu	20	0	193m	14m	10m	S	0.3	0.5	0:13.58	mate-terminal
6959	raghu	20	0	5208	1380	1032	R	0.3	0.0	0:00.21	top
1	root	20	0	3732	2188	1348	S	0.0	0.1	0:00.98	/sbin/init
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	[kthreadd]
3	root	20	0	0	0	0	S	0.0	0.0	0:32.78	[ksoftirqd/0]
6	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	[migration/0]
7	root	rt	0	0	0	0	S	0.0	0.0	0:00.24	[watchdog/0]
8	root	rt	0	0	0	0	S	0.0	0.0	0:00.15	[migration/1]
11	root	rt	0	0	0	0	S	0.0	0.0	0:00.10	[watchdog/1]
12	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	[cpuset]
13	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	[khelper]

2.10 'i': Idle Tasks

Toggle idle tasks.

```
top - 14:10:41 up 4:49, 3 users, load average: 0.29, 0.23, 0.23
Tasks: 147 total, 1 running, 146 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.7 us, 1.3 sy, 0.0 ni, 97.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem: 3065928 total, 2457808 used, 608120 free, 603996 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 1065300 cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1704	root	20	0	92972	26m	12m	S	2.7	0.9	5:20.37	Xorg
3073	raghu	20	0	406m	70m	19m	S	1.3	2.4	1:30.54	shutter
2249	raghu	20	0	175m	14m	10m	S	0.7	0.5	1:03.79	marco
10	root	20	0	0	0	0	S	0.3	0.0	0:29.41	ksoftirqd/1
1451	root	20	0	46388	4672	3556	S	0.3	0.2	0:06.85	teamviewerd
2204	raghu	20	0	4436	1624	780	S	0.3	0.1	0:00.35	dbus-daemon
2683	raghu	20	0	202m	30m	16m	S	0.3	1.0	0:15.27	pluma
2696	raghu	20	0	193m	14m	10m	S	0.3	0.5	0:13.72	mate-terminal
6959	raghu	20	0	5208	1380	1032	R	0.3	0.0	0:00.56	top

2.11 'V': Forest View

Toggle forest view mode.

```
top - 14:12:20 up 4:51, 3 users, load average: 0.23, 0.23, 0.23
Tasks: 147 total, 2 running, 145 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.3 us, 1.0 sy, 0.0 ni, 98.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem: 3065928 total, 2455576 used, 610352 free, 604260 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 1059964 cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	3732	2188	1348	S	0.0	0.1	0:00.98	init
492	root	20	0	2956	872	664	S	0.0	0.0	0:00.33	`- upstart-udev-
494	root	20	0	3400	1684	792	S	0.0	0.1	0:00.23	`- udevd
626	root	20	0	3396	1224	372	S	0.0	0.0	0:00.17	`- udevd
636	root	20	0	3396	1364	464	S	0.0	0.0	0:00.00	`- udevd
853	root	20	0	2708	968	732	S	0.0	0.0	0:00.02	`- rpcbind
913	root	20	0	2820	592	436	S	0.0	0.0	0:00.01	`- upstart-socke
971	root	20	0	5596	1440	812	S	0.0	0.0	0:15.46	`- mount.ntfs
990	root	20	0	22948	4724	3920	S	0.0	0.2	0:00.05	`- smbd
1035	root	20	0	23464	1336	536	S	0.0	0.0	0:00.00	`- smbd
999	messageb	20	0	3940	1780	940	S	0.0	0.1	0:01.06	`- dbus-daemon
1002	root	20	0	2908	392	216	S	0.0	0.0	0:00.00	`- rpc.idmapd
1007	root	20	0	7420	2884	2268	S	0.0	0.1	0:00.02	`- modem-manager
1008	root	20	0	4788	1676	1476	S	0.0	0.1	0:00.00	`- bluetoothd
1046	root	20	0	6692	2392	1968	S	0.0	0.1	0:00.00	`- sshd
1048	statd	20	0	2964	1296	880	S	0.0	0.0	0:00.00	`- rpc.statd

2.12 'Z': Change color map

Pressing the 'Z' key takes the user to a screen where the display color can be changed for top command. There are 8 task areas to chose from and 8 colors.

```
current window: 4:Usr

color - 04:25:44 up 8 days, 50 min, 7 users, load average:
Tasks: 64 total, 2 running, 62 sleeping, 0 stopped,
%Cpu(s): 76.5 user, 11.2 system, 0.0 nice, 12.3 idle
Nasty Message! -or- Input Prompt
PID TTY PR NI %CPU TIME+ VIRT SWAP S COMMAND
17284 pts/2 8 0 0.0 0:00.75 1380 0 S /bin/bash
8601 pts/1 7 -10 0.4 0:00.03 916 0 R color -b -z
11005 ? 9 0 0.0 0:02.50 2852 1008 S amor -sessi
available toggles: B =disable bold globally (Off),
z =color/mono (On), b =tasks "bold"/reverse (On)

Select target as upper case letter:
S = Summary Data, M = Messages/Prompts,
H = Column Heads, T = Task Information
Select color as number:
0 = black, 1 = red, 2 = green, 3 = yellow,
4 = blue, 5 = magenta, 6 = cyan, 7 = white

Selected: target T; color 4
press 'q' to abort changes to window '4:Usr'
press 'a' or 'w' to commit & change another, <Enter> to commit and end
```

The below screen shows full colored top view with all 4 screens on.

```
2:Job - 14:25:09 up 5:04, 3 users, load average: 0.05, 0.13, 0.19
Tasks: 147 total, 1 running, 146 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.7 us, 1.0 sy, 0.0 ni, 95.5 id, 1.7 wa, 0.0 hi, 0.2 si, 0.0 st
KiB Mem: 3065928 total, 2477308 used, 588620 free, 605500 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 1059588 cached

1 PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
1 root 20 0 3732 2188 1348 S 0.0 0.1 0:00.99 init
492 root 20 0 2956 872 664 S 0.0 0.0 0:00.34 ` - upstart-udev
494 root 20 0 3400 1684 792 S 0.0 0.1 0:00.23 ` - udevd

2 PID PPID TIME+ %CPU %MEM PR NI S VIRT SWAP RES UID COMMAND
7551 2 0:00.00 0.0 0.0 20 0 S 0 0 0 0 kworker/0:0
7492 2 0:00.36 0.0 0.0 20 0 S 0 0 0 0 kworker/1:0
7484 2 0:00.39 0.0 0.0 20 0 S 0 0 0 0 kworker/0:1

3 PID %MEM VIRT SWAP RES CODE DATA SHR nMaj nDRT S PR NI %CPU COMMAND
1883 15.2 455m 0 454m 20 453m 396 0 0 S 20 0 0.0 HWActivato
3073 2.4 406m 0 70m 1428 93m 19m 73 0 S 20 0 0.3 shutter
1500 1.3 312m 0 38m 9392 299m 5880 0 0 S 20 0 0.3 mysqld

4 PID PPID UID USER RUSER TTY TIME+ %CPU %MEM S COMMAND
1096 1 101 syslog syslog ? 0:01.79 0.0 0.0 S rsyslogd
1048 1 116 statd statd ? 0:00.00 0.0 0.0 S rpc.statd
2241 1 107 rtkit rtkit ? 0:00.16 0.0 0.0 S rtkit-daem
1 0 0 root root ? 0:00.99 0.0 0.1 S init
```

2.13 'z': Toggle Color

Toggle color, i.e. turn on or off the colored display.

2.14 'x' or 'y'

Toggle highlights: 'x' sort field; 'y' running tasks. Depending upon your display settings, You might have to make the output colored in order to notice these highlights.

```
top - 14:30:17 up 5:09, 4 users, load average: 0.23, 0.16, 0.19
Tasks: 148 total, 2 running, 146 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.2 us, 0.6 sy, 0.0 ni, 98.2 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem: 3065928 total, 2488236 used, 577692 free, 606284 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 1059548 cached

PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
1704 root 20 0 94852 26m 12m S 1.2 0.9 5:52.62 Xorg
6959 raghu 20 0 5208 1476 1116 R 1.2 0.0 0:05.33 top
1 root 20 0 3732 2188 1348 S 0.0 0.1 0:00.99 init
2 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kthreadd
3 root 20 0 0 0 0 S 0.0 0.0 0:34.94 ksoftirqd/0
6 root rt 0 0 0 0 S 0.0 0.0 0:00.00 migration/0
7 root rt 0 0 0 0 S 0.0 0.0 0:00.26 watchdog/0
8 root rt 0 0 0 0 S 0.0 0.0 0:00.15 migration/1
10 root 20 0 0 0 0 S 0.0 0.0 0:31.64 ksoftirqd/1
11 root rt 0 0 0 0 S 0.0 0.0 0:00.11 watchdog/1
12 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 cpuset
13 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 khelper
14 root 20 0 0 0 0 S 0.0 0.0 0:00.00 kdevtmpfs
15 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 netns
17 root 20 0 0 0 0 S 0.0 0.0 0:00.04 sync supers
18 root 20 0 0 0 0 S 0.0 0.0 0:00.00 bdi-default
```

2.15 'u': Processes of a User

Show processes for a particular user. You are prompted to enter the username. Blank will show for all users.

```
top - 14:34:49 up 5:13, 4 users, load average: 0.27, 0.26, 0.23
Tasks: 149 total, 1 running, 148 sleeping, 0 stopped, 0 zombie
%Cpu(s): 4.7 us, 1.2 sy, 0.0 ni, 92.9 id, 1.1 wa, 0.0 hi, 0.2 si, 0.0 st
KiB Mem: 3065928 total, 2582408 used, 483520 free, 616564 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 1086656 cached
```

Which user (blank for all) raghu

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
8208	raghu	20	0	385m	67m	21m	S	6.0	2.2	0:04.15	totem
2239	raghu	9	-11	161m	6100	4460	S	1.4	0.2	1:46.09	pulseaudio
2249	raghu	20	0	175m	14m	10m	S	1.2	0.5	1:13.95	marco
3073	raghu	20	0	406m	70m	19m	S	0.7	2.4	2:03.11	shutter
2274	raghu	20	0	231m	33m	20m	S	0.2	1.1	0:27.52	caja
2490	raghu	20	0	17100	3076	2652	S	0.2	0.1	0:00.48	at-spi2-registr
2017	raghu	20	0	63316	3708	3128	S	0.0	0.1	0:00.04	gnome-keyring-d
2094	raghu	20	0	39868	7036	5412	S	0.0	0.2	0:00.45	mate-session
2200	raghu	20	0	4096	208	0	S	0.0	0.0	0:00.07	ssh-agent
2203	raghu	20	0	3852	532	332	S	0.0	0.0	0:00.00	dbus-launch
2204	raghu	20	0	4436	1652	780	S	0.0	0.1	0:00.42	dbus-daemon
2209	raghu	20	0	9980	3736	2440	S	0.0	0.1	0:00.79	mateconfd-2
2217	raghu	20	0	240m	12m	9820	S	0.0	0.4	0:03.71	mate-settings-d
2219	raghu	20	0	46196	3096	2604	S	0.0	0.1	0:00.02	mate-keyring-da
2225	raghu	20	0	26884	2772	2380	S	0.0	0.1	0:00.07	gvfsd
2229	raghu	20	0	42768	2988	2532	S	0.0	0.1	0:00.00	gvfsd-fuse

2.16 'n' or '#': Number of tasks

Set maximum number of tasks displayed.

```
top - 14:36:32 up 5:15, 4 users, load average: 0.66, 0.38, 0.27
Tasks: 149 total, 2 running, 147 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.3 us, 1.4 sy, 0.0 ni, 95.3 id, 0.0 wa, 0.0 hi, 0.1 si, 0.0 st
KiB Mem: 3065928 total, 2589104 used, 476824 free, 618308 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 1088324 cached
Maximum tasks = 10, change to (0 is unlimited)
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
8208	raghu	20	0	385m	67m	21m	S	6.1	2.3	0:10.17	totem
2239	raghu	9	-11	161m	6100	4460	S	1.6	0.2	1:47.62	pulseaudio
1704	root	20	0	96136	27m	12m	S	1.4	0.9	6:07.85	Xorg
971	root	20	0	5752	1440	812	S	0.3	0.0	0:16.62	mount.ntfs
3	root	20	0	0	0	0	S	0.1	0.0	0:35.60	ksoftirqd/0
1451	root	20	0	46388	4672	3556	S	0.1	0.2	0:07.54	teamviewerd
1500	mysqld	20	0	312m	38m	5880	S	0.1	1.3	0:16.69	mysqld
1883	root	20	0	472m	471m	396	S	0.1	15.7	0:11.40	HWActivator
2249	raghu	20	0	175m	14m	10m	S	0.1	0.5	1:15.25	marco
2696	raghu	20	0	193m	15m	10m	S	0.1	0.5	0:17.42	mate-terminal

2.17 'k': Kill tasks

One of the most important commands of top. Used to send signals to tasks (Usually kill tasks).

```
top - 20:15:45 up 2:58, 2 users, load average: 0.45, 0.86, 0.62
Tasks: 152 total, 1 running, 151 sleeping, 0 stopped, 0 zombie
%Cpu(s): 4.2 us, 5.9 sy, 0.0 ni, 88.3 id, 0.5 wa, 0.0 hi, 1.2 si, 0.0 st
KiB Mem: 3065928 total, 1714168 used, 1351760 free, 139496 buffers
KiB Swap: 4095996 total, 0 used, 4095996 free, 684480 cached
pid to signal/kill 1467
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
2745	root	20	0	197m	23m	16m	S	4.6	0.8	6:59.27	MobilePartner.b
3011	raghu	20	0	455m	128m	32m	S	2.7	4.3	4:34.28	skype
6576	raghu	20	0	825m	276m	39m	S	2.0	9.2	20:06.22	firefox
1710	root	20	0	93200	28m	12m	S	1.7	1.0	4:25.73	Xorg
10	root	20	0	0	0	0	S	0.3	0.0	0:28.72	ksoftirqd/1
5715	root	20	0	0	0	0	S	0.3	0.0	0:00.60	kworker/0:0
22142	root	20	0	0	0	0	S	0.3	0.0	0:02.01	kworker/1:1

2.18 'r': Renice

Renice a task to change the scheduling priority.

3. Command line options:

Most of these command line options are similar to the commands discussed above. Top output can be manipulated interactively with commands. But you can start top with some parameters set to your convenience with these options.

3.1 -b: Batch mode

The -b option starts top command in batch mode. It can be useful when you want to save the output in a file.

3.2 -c: Command/Program-name toggle:

As discussed in the above commands, this option will toggle from the last remembered state of command/program name display.

3.3 -d: Set delay interval

Set the delay interval for top (in seconds). For example:

```
$ top -d 1
```

will start the top command with 1 sec delay interval.

3.4 -i: idle process toggle

This option sets the top command with last remembered 'i' state reversed.

3.5 -n: Set number of iterations

With -n option, you can set the number of iterations after which top will end.

```
$ top -n 3
```

will exit top automatically after 3 outputs.

3.6 -p: monitor specific PIDs

You can specify what PIDs you want to monitor with -p option. PID value 0 will be treated as process ID of top command itself.

3.7 -u or -U: username or UID

The process of a particular user can be viewed with these options. Username or UID can be specified to the option. The -p, -u and -U options are mutually exclusive. Only one of the options can be used at a time. You get error when you try to use any combination of these options:

```
$ top -p 28453 -u raghu
top: conflicting process selections (U/p/u)
```

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Comments (4)

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1. *shaffooo* says:
[November 22, 2014 at 10:35 pm](#)

Hi,
Great article. I learnt a lot from this.
I have a question though. Can we show particular columns in Linux from command line, the way we show them in mac using -stats pid, res, ...

Thanks

[Reply](#)



- *Bobbin Zachariah* says:
[November 23, 2014 at 5:11 pm](#)

Hey Shafoo,

Two option you have (output from centos)

1)pass values using awk

Example

```
top -b -n 1 | awk '{print $1,$2,$NF}'
```

2) press "f" and it will list all available column names. You can deselect the columns which you dont want by pressing respective keys.

Example of output

```
top - 17:06:20 up 43 days, 17:58, 1 user, load average: 0.00, 0.01, 0.05
Tasks: 81 total, 0 running, 0 sleeping, 0 stopped, 0 zombie
Cpu(s): 0.0%us, 0.0%sy, 0.0%ni,100.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 1012912k total, 749008k used, 263904k free, 14772k buffers
Swap: 524284k total, 49964k used, 474320k free, 323908k cached
```

PID RES

```
1 1072
2 0
3 0
4 0
5 0
```

```
7 0
8 0
9 0
10 0
11 0
```

[Reply](#)

