

6 quick tools to monitor system resources on Linux

Linux

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Monitor server resources

System administrators need to monitor their server to ensure proper functioning. The practice enables administrators to detect possible issues in advance and recover the system, before it causes any trouble.

There are plenty of commands on Linux to monitor different system resources like cpu usage, memory usage, network, disk usage and so on. Popular ones are top, htop, iostat, nethogs etc.

In this post we are talking about simple command line tools that can monitor multiple system resources like cpu, memory, network, disk, processes etc all together in a real-time and interactive manner. These tools present a whole lot of statistical information on a single screen that is constantly updated.

1. Top

The Top command is the most popular tool to check the cpu and memory utilization processwise. It shows a sorted list of processes with the most resource intensive processes on the top.

Along with the process list it also shows cpu and memory usage.

```

enlightened: top - Konsole
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top - 18:41:52 up 10:44, 7 users, load average: 1.65, 1.55, 1.70
Tasks: 320 total, 3 running, 305 sleeping, 5 stopped, 7 zombie
%Cpu(s): 35.9 us, 1.7 sy, 0.0 ni, 51.6 id, 10.8 wa, 0.0 hi, 0.0 si, 0.0
KiB Mem: 8167136 total, 6714480 used, 1452656 free, 20036 buffers
KiB Swap: 1998844 total, 716380 used, 1282464 free, 683580 cached

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 4793 enlighte  20   0 1887m 878m 14m  R  99.9  11.0  341:24.38 chrome
 4805 enlighte  20   0 1089m 211m 11m  R  17.6   2.7   60:12.38 chrome
 1397 root      20   0 61812 4172 976   S   7.3   0.1    2:31.33 collectl
 3013 enlighte  20   0 1533m 28m  7476  S   3.7   0.4    0:22.27 shutter
10467 enlighte  20   0 999m 148m 29m   S   3.3   1.9    0:08.60 chrome
 1206 root      20   0 504m 68m  50m   S   3.0   0.9    9:30.86 Xorg
 5868 enlighte  20   0 2285m 577m 540m   S   2.0   7.2   13:54.78 VirtualBox
 4497 enlighte  20   0 1567m 241m 30m   S   1.7   3.0   24:51.28 chrome
 2832 enlighte  20   0 2824m 27m  9192  S   1.0   0.3    3:25.00 kwin
 2841 enlighte  20   0 3482m 106m 36m   S   1.0   1.3   1:51.91 plasma-deskto
 4834 enlighte  20   0 1323m 281m 16m   S   0.7   3.5    8:16.73 chrome
 4983 enlighte  20   0 992m 79m  8872  S   0.7   1.0    3:11.07 chrome
10175 enlighte  20   0 1017m 116m 21m   S   0.7   1.5    0:24.65 chrome
 2812 enlighte  20   0 510m 7012 3864  S   0.3   0.1    0:02.58 ksmsserver
 2978 enlighte  20   0 535m 2412 2028  S   0.3   0.0    0:00.62 akonadi_sendl
 4548 enlighte  20   0 983m 80m  8488  S   0.3   1.0    3:33.87 chrome
 4557 enlighte  20   0 960m 43m  6412  S   0.3   0.5    0:14.41 chrome
 4606 enlighte  20   0 995m 85m  8732  S   0.3   1.1    3:43.94 chrome
 4628 enlighte  20   0 977m 74m  8864  S   0.3   0.9    2:40.42 chrome
  
```

Press 'h' while top is running, to display the help page.

2. Htop

This is your all time favorite tool. Similar to top, but much refined and carries a load of extra features along with a very good looking user interface. It is not installed by default, but is available in the default repositories of distros like Ubuntu and Fedora. CentOS users need to use an additional repository like epel or rpmforge to install it.

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```

enlightened : htop - Konsole
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 1 [|||||] 13.3% Tasks: 244, 631 thr, 82 kthr; 4 runn
 2 [|||] 5.8% Load average: 1.81 1.65 1.72
 3 [|||||] 31.4% Uptime: 10:46:11
 4 [|||||] 99.4%
Mem [|||||] 5889/7975MB
Swp [|||||] 688/1951MB

PID USER PRI NI VIRT RES VIRT SHR S CPU% MEM% TIME+ Command
4793 enlighten 20 0 1847M 847M 1847M 15264 R 100. 10.6 5h42:58 /opt/go
4805 enlighten 20 0 1089M 212M 1089M 11276 S 21.5 2.7 1h00:28 /opt/go
2841 enlighten 20 0 3485M 110M 3485M 38800 S 6.5 1.4 1:52.73 /usr/bi
1206 root 20 0 515M 72872 515M 53820 S 3.9 0.9 9:33.30 /usr/bi
10590 enlighten 20 0 26364 2628 26364 1432 R 3.3 0.0 0:00.30 htop
2832 enlighten 20 0 2825M 28132 2825M 9232 S 2.6 0.3 3:25.86 kwin -s
5868 enlighten 20 0 2285M 577M 2285M 540M S 2.0 7.2 13:56.56 /usr/li
3013 enlighten 20 0 1536M 50244 1536M 13344 S 2.0 0.6 0:23.21 /usr/bi
4497 enlighten 20 0 1571M 240M 1571M 30572 R 1.3 3.0 24:54.97 /opt/go
4834 enlighten 20 0 1323M 281M 1323M 16796 S 1.3 3.5 8:17.60 /opt/go
5897 enlighten 20 0 2285M 577M 2285M 540M S 1.3 7.2 7:42.30 /usr/li
10467 enlighten 20 0 1035M 179M 1035M 33116 S 0.7 2.2 0:15.96 /opt/go
5124 enlighten 20 0 1046M 177M 1046M 10288 S 0.7 2.2 5:33.29 /opt/go
10175 enlighten 20 0 1018M 117M 1018M 22060 S 0.7 1.5 0:25.44 /opt/go
4977 enlighten 20 0 978M 75556 978M 8272 S 0.7 0.9 2:44.45 /opt/go
4983 enlighten 20 0 993M 81064 993M 8872 S 0.7 1.0 3:11.50 /opt/go
F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Nnice F9Kill F10Q
enlightened : htop

```

Here are some shortcuts to configure htop output interactively.

```

M: Sort processes by memory usage
P: Sort processes by processor usage
?: Access help
k: Kill current/tagged process
F2: Setup htop. You can choose display options here.
/: Search processes

```

Refer to the man page to learn more about htop.

3. Atop

Atop is a tool to monitor system resources and processes. It shows the current usage levels of cpu, memory, disk and network along with a list of processes sorted by cpu usage in descending order. Similar to top and htop.

```

enlightened : sudo - Konsole
File Edit View Bookmarks Settings Help

ATOP - enlightened 2014/03/15 18:44:16 ----- 10h47m0s elapsed
PRC sys 30m42s user 531m15s #proc 326 #exit 0
CPU sys 6% user 89% idle 300% wait 4%
cpu sys 1% user 23% idle 74% cpu001 w 1%
cpu sys 1% user 23% idle 75% cpu003 w 1%
cpu sys 2% user 22% idle 75% cpu000 w 1%
cpu sys 2% user 22% idle 76% cpu002 w 1%
CPL avg1 3.88 avg5 2.27 csw 196158e3 intr 35150e4
MEM free 1.3G cache 691.8M buff 22.2M slab 137.2M
SWP tot 1.9G free 1.2G vmcom 13.9G vmlim 5.8G
PAG scan 1903e3 stall 0 swin 21411 swout 182153
DSK sda busy 4% read 166930 write 324091
NET transport tcpo 2856754 udpi 35275
NET network ipo 640377 ipfrw 0 deliv 863140
NET eth0 0% pcki 265029 pcko 260766 so 15 Kbps
NET lo --- pcki 16870 pcko 16870 so 0 Kbps

*** system and process activity since boot ***
PID SYSCPU USRCPU VGR0W RGR0W RDDSK WRDSK EXC S CPU CMD 1/41
4793 20.29s 343m28s 1.8G 872.5M 8748K 0K - R 53% chrome
4805 25.45s 60m12s 1.1G 212.1M 3244K 0K - S 9% chrome
4497 4m36s 20m21s 1.5G 239.3M 663.8M 1.8G - S 4% chrome
5380 90.68s 17m28s 1.4G 332.4M 12608K 0K - S 3% chrome
5868 5m51s 8m06s 2.2G 577.0M 120.7M 2.5G - S 2% VirtualBox
1206 5m00s 4m35s 507.5M 65392K 11532K 332K - S 1% Xorg
4834 1m55s 6m23s 1.3G 281.9M 21256K 236K - S 1% chrome
5124 15.03s 5m19s 1.0G 177.8M 1844K 0K - S 1% chrome

```

4. Nmon

Nmon is another very easy to use tool to monitor cpu, memory, network, disk usage and process list on a single screen. Nmon works well as a reporting only tool but does not have any other feature or option to manage processes or modify the report display. It can save the statistics to a spreadsheet file.

Check out our previous post on [Nmon](#).


```
enlightened : saidar - Konsole
File Edit View Bookmarks Settings Help
Hostname : enlightened Uptime : 10:50:59 Date : 2014-03-15 18:4
8:14
Load 1 : 2.06 CPU Idle : 45.38% Running : 3 Zombie :
7d 5 : 2.05 CPU System: 5.77% Sleeping : 310 Total :
326d 15 : 1.91 CPU User : 51.28% Stopped : 6 No. Users :
7
Mem Total : 7975M Swap Total: 1951M Mem Used : 84.79% Paging in :
110 Used : 6762M Swap Used : 685M Swap Used : 35.12% Paging out:
158 Free : 1213M Swap Free : 1266M Total Used: 75.02%

Disk Name Read Write Network Interface rxtx
sda 110K 156K eth0 6484B 100
14B lo 518B 5
18Ba1 110K 156K
Mount Point Free U
sed
```

Check our previous post on how to [monitor system resources with saidar](#).

So if you come across any other similar tool then let us know in the comment box below.
Have a great day!

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