

Windows Task Manager:

how it can be useful for troubleshooting performance issues:

- Windows Task Manager is a crucial tool for diagnosing and troubleshooting performance issues on a system. Here's a breakdown of its features and how each can be used for troubleshooting:
- **Processes Tab:** Displays active applications and background processes. This helps identify processes consuming high CPU, memory, or disk resources. If certain processes consistently use high resources, they might be causing slow performance.
- **Performance Tab:** Provides a graphical overview of CPU, memory, disk, and network usage in real-time. This tab allows users to pinpoint if a specific resource is under strain.
- **App History Tab:** Tracks resource usage over time, which is useful for identifying apps with recurring high usage. This can reveal apps that slow down the system when left open for extended periods.
- **Startup Tab:** Lists programs that automatically run on startup. Disabling non-essential programs can improve boot times and overall performance.
- **Users Tab:** Displays resource usage by each logged-in user, which is helpful in multi-user environments to see if a specific user session is straining the system.

- ## How to document the processes running, the CPU and memory usage, any non-responsive processes:

- | الاسم | الحالة | وحدة المـ. | الخيار |
|--------------------------------|--------|------------|----------------|
| تطبيقات (0) | | | |
| Google Chrome (7) | | 20.0 | 318.0 ميجابايت |
| Microsoft Edge (5) | | 20.1 | 34.6 ميجابايت |
| Microsoft Word (2) | | 20.0 | 179.9 ميجابايت |
| مدير المهام (1) | | 20.7 | 33.7 ميجابايت |
| مكتشف Windows | | 20.0 | 0.6 ميجابايت |
| المعالجات الخلفية (18) | | | |
| AggregatorHost | | 20.0 | 0.7 ميجابايت |
| Antimalware Core Service | | 20.0 | 3.4 ميجابايت |
| Antimalware Service Executable | | 20.0 | 106.6 ميجابايت |
| AppHelperCap | | 20.0 | 3.9 ميجابايت |
| Application Frame Host | | 20.0 | 3.9 ميجابايت |
| COM Surrogate | | 20.0 | 2.0 ميجابايت |
| COM Surrogate | | 20.0 | 0.9 ميجابايت |
| Component Support Set | | 20.0 | 1.2 ميجابايت |
| Device Association Framework | | 20.0 | 1.2 ميجابايت |
| Device Association Framework | | 20.0 | 0.0 ميجابايت |
| Device Association Framework | | 20.0 | 1.4 ميجابايت |
| Elan Service | | 20.0 | 0.0 ميجابايت |
| ETD Control Center | | 20.0 | 1.0 ميجابايت |
| Google Chrome | | 20.0 | 0.6 ميجابايت |
| Google Chrome | | 20.0 | 0.7 ميجابايت |

Linux Top Command:

how “top” can help in monitoring and debugging on Linux:

The top command in Linux is an efficient tool for performance monitoring and troubleshooting, providing real-time insights into system processes and resource usage. By displaying updated information at regular intervals (typically every few seconds), it allows users to track the current system status and make rapid decisions to address any potential issues. top is highly interactive, enabling users to sort and manipulate the display to focus on specific performance metrics, such as CPU or memory consumption.

Explain the information provided by “top” on your system:

How to Access Information Provided by the top Command in Linux?

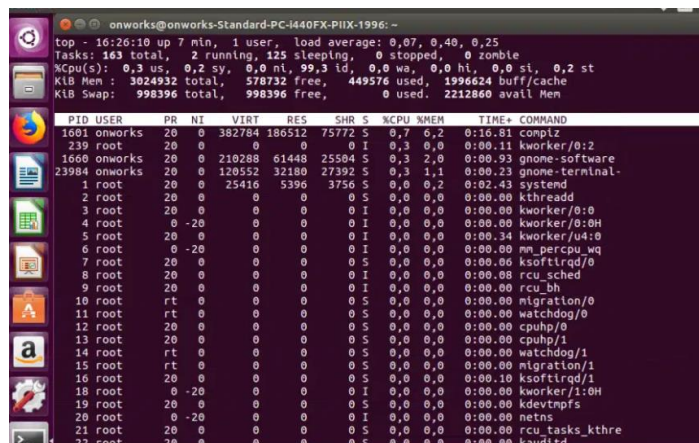
1. Open the Terminal:

In Linux, you can open the terminal from the applications menu or by using a keyboard shortcut (such as Ctrl + Alt + T).



2. Run the top Command:

Type top in the terminal and press Enter. This will display the top user interface, showing real-time system information.



```
onworks@onworks-Standard-PC-i440FX-PiIX-1996: ~  
top - 16:26:10 up 7 min, 1 user, load average: 0.07, 0.40, 0.25  
Tasks: 163 total, 2 running, 125 sleeping, 0 stopped, 0 zombie  
Cpu(s): 0.3 us, 0.2 sy, 0.0 ni, 99.3 id, 0.0 wa, 0.0 hi, 0.0 si, 0.2 st  
Mem: 3824932 total, 578732 free, 449576 used, 1996624 buff/cache  
Mem Swap: 998396 total, 998396 free, 0 used, 2212860 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1601	onworks	20	0	382784	186512	75772	S	0.7	0.2	0:16.81	Compiz
239	root	20	0	0	0	0	I	0.3	0.0	0:00.11	kworker/0:2
1608	onworks	20	0	210288	61448	25584	S	0.3	2.0	0:00.93	gnome-software
23984	onworks	20	0	120552	32180	27392	S	0.3	1.1	0:00.23	gnome-terminal-
1	root	20	0	25416	5396	3756	S	0.0	0.2	0:02.43	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H
5	root	20	0	0	0	0	I	0.0	0.0	0:00.34	kworker/u4:0
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	0:00.00	ksoftirqd/0
8	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
9	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_sched
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	0:00.00	watchdog/0
12	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
14	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	watchdog/1
15	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	migration/1
16	root	20	0	0	0	0	S	0.0	0.0	0:00.10	ksoftirqd/1
18	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/1:0H
19	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs
20	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns
21	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_kthre
22	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kaudtd

3. Understand the Displayed Data:

After running top, several key pieces of information will appear at the top, including:

- System Statistics: Uptime, number of users, and average CPU load.
- CPU and Memory Usage: Indicates CPU and memory consumption.
- Process List: Displays active processes along with their details like PID, user, resource usage percentages, and commands being executed.

4. Use Sorting Options:

You can press M to sort processes by memory usage or P to sort by CPU usage. These functions help quickly identify the most resource-intensive processes.

add filter #1 (ignoring case) as: [!]FLD?VAL **P**

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%
812	root	20	0	222496	62068	28904	R	4,5	
1601	onworks	20	0	381928	185696	75772	S	4,5	

```
onworks@onworks-Standard-PC-i440FX-PIIX-1996: ~  
top - 17:14:24 up 4 min, 1 user, load average: 1.09, 0.65, 0.28  
KiB Mem : 3024932 total, 636584 free, 438524 used, 1949824 buff/cache  
KiB Swap: 998396 total, 998396 free, 0 used, 2231856 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
812	root	20	0	227640	63084	29416	S	1,0	2,1	0:02.97	Xorg
230	root	20	0	8376	2724	2344	S	0,3	0,1	0:00.15	systemd-jo+
1601	onworks	20	0	382104	185896	75772	S	0,3	6,1	0:08.86	compiz
6884	onworks	20	0	120424	32096	27536	S	0,3	1,1	0:00.21	gnome-term+
8304	onworks	20	0	9604	3728	3208	R	0,3	0,1	0:00.03	top
1	root	20	0	25416	5396	3756	S	0,0	0,2	0:02.25	systemd
2	root	20	0	0	0	0	S	0,0	0,0	0:00.00	kthreadd
3	root	20	0	0	0	0	I	0,0	0,0	0:00.00	kworker/0:0
4	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	kworker/0:+
5	root	20	0	0	0	0	I	0,0	0,0	0:00.36	kworker/u4+
6	root	0	-20	0	0	0	I	0,0	0,0	0:00.00	mm_percpu_+
7	root	20	0	0	0	0	S	0,0	0,0	0:00.05	ksoftirqd/0
8	root	20	0	0	0	0	I	0,0	0,0	0:00.05	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	0:00.00	watchdog/0
12	root	20	0	0	0	0	S	0,0	0,0	0:00.00	cpuhp/0
13	root	20	0	0	0	0	S	0,0	0,0	0:00.00	cpuhp/1
14	root	rt	0	0	0	0	S	0,0	0,0	0:00.00	watchdog/1

5. Exit the Command:

Press q to exit the top interface when you finish monitoring.

```
9 root 20 0 0 0 0 I 0,0 0,0 0:00.00 rcu_bh  
onworks@onworks-Standard-PC-i440FX-PIIX-1996:~$
```

Compare Task Manager and Top (functionality & usage):

The top command in Linux can be likened to Windows Task Manager, as both provide access to essential resource data and control over processes, including the ability to end unresponsive tasks. However, top operates through a command-line interface, appealing to advanced users, while Windows Task Manager provides a **graphical** interface suitable for general users.

Additionally, top offers **dynamic and interactive** data sorting, allowing users to adjust criteria, such as by CPU or memory usage. Conversely, Windows Task Manager has visual aids like resource graphs, making it easier to track resource usage over time in a more user-friendly way.

References

For Windows Task Manager: Microsoft learn - task manager

<https://learn.microsoft.com/en-us/shows/inside/task-manager>

Linux Top Command: phoenixnap

<https://phoenixnap.com/kb/top-command-in-linux>

i used ChatGPT to rephrase sentences in an organized manner and to translate sentences i finds challenging to write in proficient English.