

How to use the dmesg command in Linux

The dmesg command has been used to troubleshoot server and Linux desktops for decades. It's time to start using this handy command!

On a rare occasion, Linux data center servers are not working as usual. Why? Because simply nothing is perfect and when a computer is connected to the network, the user is never sure when the problem will occur. Unfortunately, it is not possible to prevent those incidents from happening. But the good news is that there are tools needed to solve the problem.

For most services (Apache, MySQL, etc.), having individual logs can be useful in connection, authentication, security, and many other issues. But what happens when the system needs to consider the server platform itself? When there is a hardware problem, which log file will you check?

The first thing that people search is a special command that provides a lot of information about different device drivers, loaded during the boot process. Information presented through this command can help users understand what is happening with their Linux system. That's the command dmesg. This tool has been used to troubleshoot server and Linux desktops for decades. It's time to start using this handy command! Let's see how it works through the following article!

Setting

Lucky. dmesg is one of the commands found on every Linux distribution, so there is nothing to install here. Just open a terminal window and start using this useful tool.

How to use dmesg command

From the bash prompt, issue dmesg. Users will see lots of useful information. In fact, there is a lot of information that users don't know what they mean. So how to take advantage of the benefits of dmesg? There are several different ways. The first way is to make the output of dmesg become more or less, as follows:

```
dmesg | less
```

Running dmesg in this way allows users to skip unnecessary information.


```
Home: dmesg
[436328.396209] vboxnetflt: 0 out of 693 packets were not sent (directed to host)
586190.873395] vboxdrv: 0000000000000000 VMX0.r0
586191.031613] vboxdrv: 0000000000000000 VBoxDDR0.r0
586191.141991] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
586191.156518] vboxdrv: 0000000000000000 VBoxEhciR0.r0
588849.535358] vboxnetflt: 0 out of 100465 packets were not sent (directed to host)
589557.378147] vboxdrv: 0000000000000000 VMX0.r0
589557.521199] vboxdrv: 0000000000000000 VBoxDDR0.r0
589557.557673] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
589557.573673] vboxdrv: 0000000000000000 VBoxEhciR0.r0
593665.719438] vboxnetflt: 0 out of 675591 packets were not sent (directed to host)
593681.617196] vboxdrv: 0000000000000000 VMX0.r0
593681.756507] vboxdrv: 0000000000000000 VBoxDDR0.r0
593681.784661] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
593681.979291] vboxdrv: 0000000000000000 VBoxEhciR0.r0
593682.197303] PS2K: Selected scan set 2
593700.450803] PS2K: Selected scan set 2
594952.765954] PS2K: Selected scan set 2
595080.226697] PS2K: Selected scan set 2
595108.758617] vboxnetflt: 0 out of 494836 packets were not sent (directed to host)
602085.149890] print_req_error: I/O error, dev sdj, sector 32896
602085.152120] print_req_error: I/O error, dev sdj, sector 32832
602085.153634] print_req_error: I/O error, dev sdj, sector 32800
602085.155120] print_req_error: I/O error, dev sdj, sector 32784
602085.156626] print_req_error: I/O error, dev sdj, sector 32784
602085.156631] Buffer I/O error on dev sdj1, logical block 2, async page read
602085.158124] print_req_error: I/O error, dev sdj, sector 32784
602085.158128] Buffer I/O error on dev sdj1, logical block 2, async page read
621921.776667] kauditd_printk_skb: 109 callbacks suppressed
668457.628837] vboxdrv: 0000000000000000 VMX0.r0
668457.749759] vboxdrv: 0000000000000000 VBoxDDR0.r0
668457.790872] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
668457.810058] vboxdrv: 0000000000000000 VBoxEhciR0.r0
671770.512680] vboxnetflt: 14583 out of 394330 packets were not sent (directed to host)
jack@THEHIVE:~$
```

Timestamp

The dmesg command has another handy trick. What if the user wants to know exactly when an error or warning occurred? Fortunately, you can add the **-T** option to get this information:

```
dmesg --level=err,warn -T
```

Now the user has a timestamp related to each item.

```
Home: dmesg
[Mon Jul 9 10:39:50 2018] vboxdrv: 0000000000000000 VMX0.r0
[Mon Jul 9 10:39:51 2018] vboxdrv: 0000000000000000 VBoxDDR0.r0
[Mon Jul 9 10:39:51 2018] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
[Mon Jul 9 10:39:51 2018] vboxdrv: 0000000000000000 VBoxEhciR0.r0
[Mon Jul 9 11:24:09 2018] vboxnetflt: 0 out of 100465 packets were not sent (directed to host)
[Mon Jul 9 11:35:57 2018] vboxdrv: 0000000000000000 VMX0.r0
[Mon Jul 9 11:35:57 2018] vboxdrv: 0000000000000000 VBoxDDR0.r0
[Mon Jul 9 11:35:57 2018] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
[Mon Jul 9 11:35:57 2018] vboxdrv: 0000000000000000 VBoxEhciR0.r0
[Mon Jul 9 12:44:25 2018] vboxnetflt: 0 out of 675591 packets were not sent (directed to host)
[Mon Jul 9 12:44:41 2018] vboxdrv: 0000000000000000 VMX0.r0
[Mon Jul 9 12:44:41 2018] vboxdrv: 0000000000000000 VBoxDDR0.r0
[Mon Jul 9 12:44:41 2018] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
[Mon Jul 9 12:44:41 2018] vboxdrv: 0000000000000000 VBoxEhciR0.r0
[Mon Jul 9 12:44:42 2018] PS2K: Selected scan set 2
[Mon Jul 9 12:45:00 2018] PS2K: Selected scan set 2
[Mon Jul 9 13:05:52 2018] PS2K: Selected scan set 2
[Mon Jul 9 13:08:06 2018] PS2K: Selected scan set 2
[Mon Jul 9 13:08:28 2018] vboxnetflt: 0 out of 494836 packets were not sent (directed to host)
[Mon Jul 9 15:04:45 2018] print_req_error: I/O error, dev sdj, sector 32896
[Mon Jul 9 15:04:45 2018] print_req_error: I/O error, dev sdj, sector 32832
[Mon Jul 9 15:04:45 2018] print_req_error: I/O error, dev sdj, sector 32800
[Mon Jul 9 15:04:45 2018] print_req_error: I/O error, dev sdj, sector 32784
[Mon Jul 9 15:04:45 2018] print_req_error: I/O error, dev sdj, sector 32784
[Mon Jul 9 15:04:45 2018] Buffer I/O error on dev sdj1, logical block 2, async page read
[Mon Jul 9 15:04:45 2018] print_req_error: I/O error, dev sdj, sector 32784
[Mon Jul 9 15:04:45 2018] Buffer I/O error on dev sdj1, logical block 2, async page read
[Mon Jul 9 20:35:21 2018] kauditd_printk_skb: 109 callbacks suppressed
[Tue Jul 10 09:30:57 2018] vboxdrv: 0000000000000000 VMX0.r0
[Tue Jul 10 09:30:57 2018] vboxdrv: 0000000000000000 VBoxDDR0.r0
[Tue Jul 10 09:30:57 2018] VBoxNetFlt: attached to 'enp10s0' / 00:13:3b:0f:a2:5b
[Tue Jul 10 09:30:57 2018] vboxdrv: 0000000000000000 VBoxEhciR0.r0
[Tue Jul 10 10:26:10 2018] vboxnetflt: 14583 out of 394330 packets were not sent (directed to host)
jack@THEHIVE:~$
```

If you still see too much information, reduce the output of the above command to a lesser level and users can skim through the output easily. If there is no time to read through all the output at a particular time, move it to a file to read later:

```
dmesg --level=err,warn -T > dmesg_output
```

After that, you can view the output in that file at any time.

Surely after reading this article, readers will want to have dmesg command in their data center administration toolkit. With this easy-to-use tool, you can start troubleshooting your server on a large scale and then start narrowing your search.

Good luck!

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2. Kali Linux commands from AZ and commonly used commands
3. 10 most useful Linux commands

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