10.1.5 Viewing Process Information with top

Click one of the buttons to take you to that part of the video.

View Process Information with top 0:00-0:16

In this demonstration we're going to talk about using the top utility for viewing running processes on your Linux system. top is a very useful utility. To run it, all you have to do is type top at the shell prompt.

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top Output 0:17-2:47

Before we do that, I am going to switch to my root user account, then top. When I do, a list of some of the running processes on my system is displayed. Notice here that each process is listed on one line in the output of the top command.

The information about each process is sorted into several categories. The first category is the PID category. This is the process ID number that's been assigned to the process. The next column is the user column, which identifies which user owns that process.

PR column specifies priority number that's been assigned to the process. The NI column lists the nice value that's been assigned to the process. The VIRT column specifies the amount of virtual memory that's currently being used by the process.

The RES column specifies the amount of physical RAM that the process is using, in kilobytes. This is called its residence size, which is why the column is labeled RES. The next column is the SHR column. This specifies the amount of shared memory being used by the process.

The next column is a very important one; it's the S column. This displays the status of the process. There are several different statuses that can be assigned to a process. First of all, if it's listed as D, it means the process is uninterruptedly sleeping.

If it's R, as you see right here, the process is running. However, if it's S on the other hand, it means the process is sleeping. Occasionally, you might see a process that is listed with a status of T. That means the process is being traced, or in other words, it's currently stopped.

On rare occasions you might see a Z in this column, which means the process has been zombied. A zombie process is one where the process has finished executing and has exited, but the process's parent process didn't get notified that its child process is finished, and therefore it hasn't released that child process's PID number.

A zombie process may eventually clear up by itself, but if it doesn't, you may have to actually manually kill the parent process. The next column is the CPU column. This specifies the percentage of CPU time that's being used by the process.

There's also a MEM column. This specifies the percentage of available physical RAM being used by the process. There's also a TIME column. This specifies the total amount of CPU time the process has consumed since it was started.

Then finally we have the COMMAND column. This column lists the name of the command that was run in order to start the process.

Dynamic Nature 2:48-5:04

One of the key things that I like about top is the fact that it is dynamic in nature. As you can see, after watching this screen for a minute or two, the output is constantly updated to reflect the latest information about each process. You can sort the information that's being displayed.

To find out how, you can press the H key to bring up the help screen. If you look over here, we see that you can use the F key right here in order to modify the sort order. Go ahead and do that. I'll press Escape to get out of the help screen.

I'm going to press Shift + F. In this screen I can do a couple of things. Number one is add or remove columns to be displayed in the output of the command.

For example, if I wanted to add the parent process ID to the output of the display, I just press the space bar and a star appears next to the column, and it will be added to the display. In addition, if I want to sort on a particular column, I arrow up to that column.

For example, we can go up to the Resident Size, and then I press the s key as it notes right here. The output of the top command will be sorted on this column. Press Escape to get out.

You can see that the parent process ID column has been added to the output of the display, and we're now sorting on the RES column. Notice that the process using the most memory is listed at the top, and it goes in descending order from there.

I really love top. It's an extremely useful utility. The only thing I don't like about it is the fact that it only shows a limited number of processes in the output. There are many more processes running on the system than what top is showing right here.

Essentially, top provides a nice snapshot of what's going on, on your system. For example, if we look up here, we can see how long the system has been up.

We can see how many users are logged in. We can see the load averages right here. We can see how many tasks are running. We can see the total number of tasks. How many are running, how many are sleeping, how many are stopped.

Notice here we do have one zombie process running. We can view CPU information. We can see memory information, and so on.

If we need advanced process troubleshooting functionality, then top really isn't the best tool. Instead the ps utility, which we'll cover in a different lesson, would be the better choice.

Summary 5:05-5:06

That's it for this demonstration. In this demo we talked about using the top utility to view process information.
