11.2.2 Resource Monitoring Tools

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

Resource Monitoring Tools 0:00-0:37

In this demonstration, I will show you the different utilities and programs that can be used for resource monitoring on our Linux system.

First thing we need to do is make sure that we're the superuser of the system. We need to do that is to make sure that all the programs run as they should. So, we'll do a ‘sudo su -‘ update so that we can log in and authenticate as our root user. Go ahead and put in the password, and we now have the hash sign for our prompt, so we're good to go.

Top 0:38-2:59

The first one that I want to show you is ‘top'. Top comes with pretty much every system and what it does is it shows me a lot of information about the system. It shows me how many tasks are running, how long my systems been up, how many users are logged in, how many processes are running, how many are sleeping, how many are stopped. Zombie processes. A zombie process occurs when a parent process ends but the child process still runs.

It's a normal operation. It shouldn't be there very much but every once in a while, you'll see a zombie.

Up to the top we see load averages. That gives us the current load average, the last minute, last five minutes. And then we have CPU percentages. We have ‘us', system, nice processes. You could see that are idle is about 99 or 97 percent.

We have zero weight, which is good. We also see all of the memory that we have in our system.

Further down in the bottom, the meat of this, tells us what applications are running. Now you can see top is taking quite a bit of processing time, but we also have other programs and processes that are running.

To exit, we just simply hit q and that takes us back to the prompt. There are other command line I/O monitoring tools, virtual memory monitoring tools, we have list open files. Let's do that one. So, let me go ahead and clear, and I'll type lsof (List Open Files).

These are all of the open files in our system. You can see, there are quite a lot of them. As I expand this box, it will be a little bit easier to read. So, you can see all of the files that are open, what processes that are running, who owns them. Here are all the libraries that are open. There's a lot. This is a virtual machine, that's running inside Linux, so there's going to be a lot of extra files here.

We can see there are quite a few open files. What this is good for, is it can tell us if a user has too many open files or if you're trying to run a process, this can tell you whether or not that file is open or not.

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netstat 3:00-3:59

Another command is called netstat. And just to show them all, if I enter --help then it can show us all of the command line parameters and as you can see, there are quite a few of them. We're just going to go ahead and do a simple netstat.

I'll do a netstat -a and we'll go ahead and pipe it through last so we can scroll through. You can see, it produces quite a bit of the output. What this does is this tells us what processes are running within TCP.

We can look at ports that are open, what's listening to our system. You can see here, I have SMTP is listening. And then if we go on down, you can see that there are indeed a lot of ports that are either connected or streamed. It tells us also what that process is. There's a lot of information here. Again, q to exit out.

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iostat 4:00-5:22

There is iostat. Now iostat is one of those commands that I really like a lot. You'll see that it provides some information. Tells us what our Linux version is, how many CPUs we have, that this is a base 64 system, gives us our current date.

What it does is, it shows me, in this case, every two seconds for five iterations, it shows me the average CPU use. The nice value. What our system percentage. How much weight time.

How much idle time. And for devices, these are our disk devices, the important one is sda. You can see transactions per second, or 6.58 kilobytes read per second, kilobytes written per second, kilobytes read, and kilobytes written. And it does this accordingly every two seconds for five iterations. Where this makes sense is if there are some issues where you the system is slowing down, this command can be run during that time and the results saved to a log, and we can see what's happening during that time.

Obviously, we're probably going to want to increase our interval and increase the number of times it runs, but we can schedule this so it runs at important times in our system.

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vmstat 5:23-6:02

The last command I want to show his vmstat. I'll do the same thing, it'll run every two seconds for five iterations. This shows information about memory.

It shows how much memory was swapped, which is none. How much is free. You can see it's changing a little bit. What our cache is. It gives us a lot of information about swap, about io, about our system in general, and information about our CPU during that time.

You can see that RCP started off at 95% idle. But then as it ran it used some more CPU cycles, and it went down to 88% idle.

Summary 6:03-6:18

In this demonstration, we showed you several resource monitoring tools like iostat, vmstat, top, lsof, and netstat.

These tools along with other system management will provide you information on how your system is acting and behaving and potentially solve problems.
