4.5.2 Shut Down the System

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

Shut Down the System 0:00-0:57

In this demonstration we're going to look at shutting down the system. There are actually many different ways and commands you can use to shut down a Linux system. For example, if you're working in a graphical environment such as this, most distributions in the graphical interface will provide some method for shutting down the system.

In this Fedora system, I can click on this down arrow right here, click on the power button, and specify whether I want to power off or restart. That works great, and you're welcome to use that option if it's available. However, be aware that many Linux systems, especially servers, will not have a graphical user interface installed, and you cannot use that option.

For these systems, you need to know how to shut down the system from a shell session, from the command line, and there are actually two different ways that you can do this from the command line. The first option is to change the current boot target, and the second option is to run the shutdown command line utility.

Change the Boot Target 0:58-2:47

Let's look at the first option. One way to shut down the system is to change the current boot target. This is done using the 'systemctl isolate' command. After the isolate command, we specify which boot target we want to switch the system to.

If you want to reboot the system, you can switch to the 'reboot.target'. This is the equivalent of switching to runlevel 6 on an older Linux system that uses init. On an older Linux system, you would type init 6 in order to accomplish the same thing.

On this newer Linux distribution, we use systemctl isolate reboot.target. If I wanted to power the system completely off, I would use a different target. I would use the 'poweroff.target'.

Let's go ahead and do that right now and power this system down. Because I am switching boot targets, I do have to authenticate as my root user. And the system is powered off.

At this point, I've powered my system back on and I've opened up another shell session that we can work within. The method that we just looked at for shutting down the Linux system--that of changing the boot targets--is probably an acceptable way to do things if you're working with a single user Linux system. Meaning that this is like a desktop system and you're the only one logged in to it at any given time.

However, on a multi-user system like a server, where you may have lots of users logged in to the system at the same time, shutting down the system by changing the boot target really isn't the best option. It's problematic.

The reason for this is that the other users, who may be logged in, aren't given any warning that the system is going off. They're over there reading their email. They're typing on a document or whatever, and all of the sudden the system goes down. That makes people a mite upset, and we don't want to do that.

Command Line Shutdown 2:48-5:49

A better option for rebooting, or shutting down, the system in the scenario where we have lots of users simultaneously logged in to the system, is to use the shutdown command. I'm going to switch to my root user account.

Using the shutdown command instead of changing boot targets provides you with a little bit more flexibility about how the system goes down. For example, you can use it to halt the system, power it off. You can use it to reboot the system.

You can also add a delay. You can run the shutdown command but not have it actually execute until some point later in time. For example, we could say 'shutdown +5'. The plus sign followed by a number tells the shutdown command to start the process, but hold off until you actually execute it--until the number of minutes specified passes. In this case, the shutdown command will run, but it won't actually shut down the system until five minutes have passed.

In addition, you can also add a message to everybody. Basically giving them a warning that the system is going down, and if they're working on anything, they should close out and save their work so they don't lose anything that they've been working on.

For example, we could enter 'shutdown +5 The system is going down for maintenance in five minutes. Please save your work and log out now.' Press Enter. You can see that the shutdown is now scheduled for five minutes in the future, and a broadcast message is sent from me--

the root user on the system--to all of the other users that may be logged in to the system. It tells them that the system is going down for maintenance in five minutes, please save your work and log out now.

If you don't provide any message, then this default message will be displayed by itself here. Where the shutdown command itself tells you, "Hey, the system is going down for power off at this future time." Either way, the end user is warned that something is going to happen, and they need to be aware of that and take the necessary precautions to keep from losing their work.

Let's suppose you started a shutdown process. You scheduled it for five minutes in the future like we just did. Then you realize this is really a bad time to do that, because Accounting is running their year-end reports. They're going to be very, very angry.

You can actually cancel a pending shutdown. To do this, let's open up a new terminal session, switch to root, and to cancel a pending shutdown, you just type 'shutdown -c', for cancel. Notice that over here it tells us that the system shutdown has been cancelled.

The shutdown command can also be used to reboot the system, instead of just powering it off. To do that, we type 'shutdown', and then we use the '-r' option, instead of the -h option. -r is for reboot, -h is for halt. Just as with the -h option, we can specify a message; we can specify a time.

For example, if we needed to reboot the system right now because of an emergency, and we're not going to give anybody an option to get out of the system first, we can just specify a time parameter of 'now'. Which will cause the system to immediately reboot.

Summary 5:50-5:57

That's it for this demonstration. In this demo we talked about how to shut down the system. We first looked at how to shut down the system by changing the boot target, and then we talked about how to shut down the system from the command line.
