

2.1.1 Linux Shell Overview

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

Linux Shell Overview 0:00-0:30

In this lesson, we're going to talk about the Linux shell. Now, in order for an operating system to be useful, it has to provide some way for the end user to communicate with the operating system itself. Basically, the end user needs a way to tell the operating system what tasks it needs to complete. Maybe we want it to run a program. Maybe we want it to copy a file from one location in the file system to another. Maybe we're done with the computer, and we want to shut the operating system down.

User Interfaces 0:31-1:18

These commands are given to the operating system through a user interface. Most Linux distributions provide two different types of user interfaces that you can employ. The first one is the command line interface, or the CLI. When you're using the command line interface, the end user has to communicate with the operating system by typing commands at the command prompt. We type the command we want, we hit Enter, and that sends it to the operating system, and it does whatever that command is designed to do.

In addition to the command line interface, Linux (at least, most Linux distributions) also offer an easy-to-use and aesthetically pleasing graphical user interface. This interface allows them to interact with the Linux kernel using a keyboard and a mouse (basically, the same environment that you're used to when you're running Windows).

CLI 1:19-2:04

Now, understand that although graphical user interfaces are usually a lot easier to use, most of the tasks you're going to perform in order to administer and support a Linux system, have to be done from the command line. This is because many Linux systems, especially those that have been configured to function as network servers, will not have a graphical user interface enabled. Basically, the idea here is that instead of spending processor cycles continually redrawing a graphical screen, most Linux system administrators configure their systems such that they use the text-based command line interface. That way, system resources are reallocated to just processing network requests instead of redrawing that graphical screen all the time.

The Linux Shell 2:05-2:42

To fully understand how the command line interface works on Linux, you need to understand the concept of a Linux shell. Basically, the shell is a command interpreter that allows you to type commands at the keyboard that are then sent to the operating system kernel. Essentially, the shell provides that command line interface. The neat thing about it is that Linux actually allows you to choose from a variety of different shells. You can try out several different command line shells and then pick the one that you like best. That's not the case with most other operating systems.

With that in mind, let's take a look at some of the more popular Linux shells.

Linux Shells 2:43-3:56

The oldest Linux shell, and probably not widely used anymore, was the Bourne shell, or just sh. The sh shell was developed for UNIX way back in the 1970s, and it's still around in Linux. You can use it if you want.

However, the default shell that's used by most Linux distributions is an improved version of sh called the Bourne-Again shell. In fact, if you're using the command line interface on most Linux systems, more than likely, you're using the Bash shell.

There's an alternative shell that you can use if you wish called the C shell, or csh. The C shell was originally developed for BSD UNIX, and it uses a very different syntax than the sh or the Bash shell. In essence, the syntax that it uses is a variation of C programming.

There's another version of the Linux shell called tsch. The tsch shell is just an improved version of the C Shell. If you're using the free BSD distribution, then that's the shell that you're actually going to be using because it's the default shell on these systems.

The last one is the Z shell. The Z shell is just an improved version of our good old Bash shell.

View the Current Shell 3:57-4:36

When you first boot your Linux system and log in, your default shell will be loaded. You can identify which shell is your default shell using the command that you see here. At the shell prompt, you enter 'echo \$SHELL'. The echo command that you see here is used to display text on the screen.

What we're doing is telling the echo command to go out and get the value of the shell environment variable and display it on the screen. It returns whatever the default shell is. As you can see in this example, the default shell is the Bash shell.

Change Shells 4:37-6:02

Now, understand that you're not stuck with the default shell that's been configured on your system. If you want to switch to a different shell, all you have to do is enter that shell's command name at the prompt. For example, if you're currently using the Bash shell, but you want to use the Z shell instead, all you have to do is enter 'zsh' at the shell prompt and then the Z shell will be loaded, and you can work within that environment.

If you're using the Z shell and you want to exit out and go back to your original shell, such as Bash, you just type 'exit' at the shell prompt, and you're back at your original shell. There's an important thing you need to understand about Linux, and that is the fact that it is capable of running multiple shell sessions at once. Each session can run its own programs all simultaneously. This can be really useful if you have, say, one program running, and you need to access the command prompt to do something else.

If you're working within a command line environment only, a text-only environment, then, on most distributions, you can press Alt plus a function key in order to switch to a new shell session. For example, if you want to switch to shell session two, you push Alt+F2. If you want to switch to a third shell session, you press Alt+F3. If you want to get back to your original first shell session, you push Alt+F1. Be aware that some distributions will require you to also press the Ctrl key in addition to Alt and the Function key to switch to a new shell session.

GUI Shell Sessions 6:03-6:28

In addition to the text-based environment, you can also run terminal sessions within the Linux graphical environment. This is done in much the same way as you would on Windows. You simply run a terminal program, such as Console or Gnome Terminal. Then, in order to run multiple command line sessions, all you have to do is open up two or more terminal windows. Each shell session runs its own programs that are independent of those running in the other shell sessions.

Summary 6:29-6:35

That's it for this lesson. In this lesson, we talked about Linux shells. We first talked about what a shell is, and then we reviewed the different types of shells that are used on Linux distributions.

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