UnixWorld ‘‘New To Unix’’ Column: July 1988

Getting Started With UNIX

Editor’s Note: During the latter half of 1988 and up through 1990 UnixWorld Magazine published a series of columns for newcomers to UNIX written by Augie Hansen. Augie Hansen was uniquely qualified to write this column because he has extensive experience training users on UNIX and other systems and is a fluent and cogent writer.

I’m now resurrecting this series for our Web server because most of this basic information applies even to today’s UNIX systems. However, I’ll update information that is outmoded. Even if you’re a UNIX expert, you may find these columns useful for users in your organization who are new to or who are migrating to a UNIX environment.

By Augie Hansen

My goal in the first few installments is to help you begin using UNIX productively. Our initial exploration of UNIX will be, by design, only skin-deep. But once you’ve gained a basic level of familiarity with UNIX, we will delve more deeply into its different aspects, its user interfaces, its utilities, and its application programs. We will occasionally put the microscope to areas of UNIX that satisfy the specific needs of a particular user community, but only where such investigations could also benefit the broader population of the UNIX users.

This first column aims to get you started using UNIX. It deals with the often frustrating task of establishing connections with the host computer and discusses how to log in and out.

First, let’s consider UNIX for a moment. UNIX is a multitasking, multi-user operating system. That mouthful means that UNIX can serve more than one user at a time and that it can do more than one job at a time for each of the users.

An operating system is a set of programs that manage detail. There is an incredible amount of detail associated with computer hardware and software. If you had to worry about the details, as the computer pioneers did, you would have time for little else. A good operating system gives you the means of achieving a high level of productivity, and UNIX is a very good operating system for realizing that goal.

I will use AT&T UNIX System V as the basis of this column. Where differences between AT&T’s version, the Berkeley version, and XENIX become apparent, I will cover each version.

Making Connections

Before you can use UNIX, you may need to set up your terminal and modem so that they can talk to the computer. If you are fortunate enough to have a high-speed direct connection, you won’t have to deal with a modem because none is needed. But you still have to set up the terminal correctly. If someone set up your terminal for you, it would still be in your best interest to know how to do it yourself. Here are some tips to help you with the mechanical and electrical details.

On dial-up lines, you should set certain parameters to values that work for all of your system’s components: the terminal (or a computer emulating a terminal), the modem or other communication device, and the host computer. It's also important to have the phone number of the system you are calling.

The transmission rate in bits per second (bps) must be the same for your terminal as for the computer system you are calling. You may need to set switches or use software to set the speed of your terminal and the modem. Use a value that your terminal equipment supports in common with the host computer. A typical UNIX host will have telephone interface equipment that can run at 9600 bps or some other speed. A rate of 14,400 bps is now common, and an even higher speed (28,800 bps) is rapidly becoming coming commonplace.

If you are using a video terminal, use the highest speed possible so that your screen updates as quickly as possible. If you must use a hardcopy terminal, don't push it beyond its mechanical limits. Today's high-speed printing terminal can run at 1200bps or higher.

All characters in the ASCII character set can be represented by a seven-bit code. ASCII stands for the American Standard Code for Information Interchange, which is the character set upon which UNIX is based. The codes are in the range of 0 to 127 decimal. You can set the number of data bits to a value between five and eight, with seven being the most commonly used value because it is required for full ASCII support.

The number of stop bits for transmission speeds of 300 bps or greater should be one.

Parity is a simple and nearly useless form of error checking. The normal UNIX setting is even parity when the number of data bits is seven. When you use eight data bits, set parity to none. UNIX doesn't use the parity bit for anything, but you should set the terminal to match the host computer's hardware settings.

If you are using a direct connection, you won't need a modem or other communication device. You just connect your terminal to the host with a ''null-modem'' cable, which has certain pairs of signal wires crossed to simulate the appearance of data communication equipment.

Logging In

Once you've connected your terminal to the UNIX system, it's time to log in. PC users will undoubtedly find this an unnecessary inconvenience. But in a multiuser environment, all users have their own log-in (also known as an account), and each log-in can be individually protected from unauthorized access. The UNIX system needs to know who you are before giving you access to the computer. Usually, you need to have both a log-in name and a password.

Your log-in name is a unique sequence of characters on the computer system you are using. Because each log-in name must not be duplicated on a given computer or network of computers, log-in names are usually assigned by a system administrator. The user's initials and surnames or even first names are commonly used as log-in names.

When you access the computer by dialing in or by pressing the Return or Break key on a direct line, you receive a prompt (''login: '') requesting your log-in name. Simply type your log- in name and press Return.

The second prompt you see is ‘‘Password:,’’ which requests that you enter your personal password. A password is another sequence of characters that, for security reasons, only you should know. When you type your password, it will not be displayed on the screen, thus preventing anyone else from seeing it. Just type in your password and then press Return.

If either the log-in name or the password you enter is incorrect, you are prompted all over again. If you type correct log-in and password entries, you gain access to the system and may be greeted by the ‘‘message of the day’’ and other information. Here’s a sample log-in sequence:

```
login: arh
Password:
UNIX System V Release 2.0.4 3B2 Version 2
omniware
Copyright (c) 1984 AT&T
All Rights Reserved

***************************************************************
*                                                             *
* The system will be down tonight from 9pm to about          *
* 10pm for routine backup and the addition of more serial     *
* port hardware (finally!).                                   *
*                                                             *
***************************************************************

You have mail
$ []
```

The system information and other messages will vary with the system you are logging in to. If there is any electronic mail for you, you’ll see the message‘‘You have mail.’’ Later in this series, you’ll find out how to read mail.

At some companies, data security is a prominent concern. Such companies may attempt to further restrict external access by requiring an external password in addition to the user’s personal password. Also, some systems give you only a limited number of chances to get the log-in/password sequence right on external dial-up lines. If you incorrectly type the log-in or password, the system breaks the connection, forcing you to redial and start over. These measures are designed to thwart those who would try to break into a system by repeatedly trying to log in.

Logging Out

When you are finished with your session, you should log out. This frees terminal and connection resources and helps reduce the possibility of someone else using your log-in without your knowledge.

To log off of most UNIX systems, type ^D (press the Control and D keys simultaneously). Some UNIX variants require that you invoke a special log-out command, such as `exit` or `logout`, so you should check local practices to get the recommended procedure.

Just hanging up the line on a dial-up connection is usually not an adequate means of ending your session. To be sure you won’t be in communication with the host, log out explicitly so the next person who dials in can’t acquire unfettered use of your log-in.

Now you know how to get access to UNIX and how to log off. Next month, we'll learn about essential UNIX commands and files.

Editor's note: Of course, these days users are more likely to have their own workstation attached to a high-speed local area network instead of a terminal connected to a multiple-user UNIX system. However, they'll still use the same log-in procedure discussed here..

Edited by Becca Thomas / Online Editor / UnixWorld Online / editor@unixworld.com

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