

*Technical UNIX<sup>®</sup>User Group*

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newsletter of the  
**Technical UNIX<sup>®</sup>**  
**User Group**

**This month ...**

The President's Corner  
The Fortune File  
Solving Those Puzzling Quirks of UNIX Systems Use  
Publisher Listing  
March Agenda

Late Breaking News...  
Next Meeting to be held at  
Health Sciences Centre  
See ANNOUNCEMENT for details

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# Thoughts From The Editor

By Susan Zuk

At our last meeting we had a discussion on TCP/IP. We discussed how to set-up the software on the PC as well as on the UNIX system. Gilbert demonstrated how to use telnet (terminal emulation) as well as ftp (file transfer protocol). It was a very informative and interesting session. Gilbert, in his President's Corner, discusses the subject a little further as well as commenting on AT&T's new System V Release 4 (SVR4).

Our featured article is about nroff and troff, UNIX text formatting utilities. This article gives a simple example on how this tool can be used and defines a few of the commands.

I also included a list of publishing addresses and phone numbers provided to us by Dave Long. This will come in handy if you can't find that specific UNIX book in any of Winnipeg's bookstores. Hope this can help you out.

Unfortunately, Matt Binnie is leaving us. He is moving to

Calgary to start a new job with Oracle Corporation. We wish you all the best with your new job and in your new home.

Since Matt has left, this means that there are openings for a Meeting Co-ordinator and Secretary. If you are interested in helping out the group give us a call. We really would appreciate your support. Remember the group can only continue with participation from its members!

At our last meeting, we discussed adding a new column to the newsletter. It would be a question and answer forum. Any members who are having problems would send a description of the problem and mail (electronically or Canada Post) to me. The problem would be discussed in the newsletter and either would be answered or an answer would be requested from the membership. What do you think? Why don't you give it a try.

That's all I have to say for now. Take care and send in those articles and fortunes.

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## Group Information

The Technical Unix User Group meets at 7:30 pm the second Tuesday of every month, except July and August. The newsletter is mailed to all paid up members 1 week prior to the meeting. Membership dues are \$20 annually and are due at the October meeting. Membership dues are accepted by mail and dues for new members will be pro-rated accordingly.

## The Executive

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Vice President:	Derek Hay	943-5401
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## ANNOUNCEMENT...

### Meeting Location:

The March meeting location will be Health Sciences Centre, Room 431, Basic Medical Sciences Building (Entrance at the Medical College, 770 Bannatyne Avenue).

# President's Corner

*By Gilbert Detillieux, President*

TCP/IP software for networking is becoming the standard not only on UNIX systems, but for other systems as well. This should come as no surprise, given the flexibility TCP/IP provides - it can be implemented over many different types of network data links, such as Ethernet and X.25, and can support many different applications in a hardware and system independent way. It is thus becoming one of the most common ways of interconnecting previously incompatible systems.

For those wanting to interconnect PC's and UNIX systems, as was shown at our last meeting, the setup is reasonably straightforward, and the cost is not prohibitive. Ethernet boards can be purchased for a few hundred dollars, and the coax cabling required for Thin-wire Ethernet is very cheap. The only other thing required, for the PC end of the connection, is the software; and there, the good news is that it is free! Well, at least some of it is.

If all you want to do with the PC is access networked host systems as with a terminal, and perhaps transfer some files back and forth, then Telnet and FTP software is all you need. The National Centre for Supercomputing Applications (NCSA), at the University of Illinois, has developed versions of these two programs for PC's and for Macintosh systems, and released them into the public domain. I have used this software at the U of M, on both types of machines, and can assure you that the quality of the software is quite good; and the price is certainly right.

NCSA Telnet allows multiple simultaneous sessions to one or more hosts. While NCSA Telnet is being run, an FTP server is in the background, ready to handle file transfer requests from another host. Thus file transfers can be done in the background, while an interactive terminal session is in progress. The program emulates a VT102 terminal (VT100 without 132 column mode), and has Tektronix 4014 emulation for graphics. If you have a host on the network that runs a domain name server (such as BIND), NCSA Telnet can make use of it to dynamically determine IP addresses for host names; also, if you are running RARP, it can use it to dynamically determine its own IP address. If you already have access

to a TCP/IP network, and want to add PC's to it, you should consider this software.

On another note, I've just received the March issue of Unix/World, which includes a write-up on AT&T's new System V Release 4 (SVR4) - the system that attempts to merge BSD, SunOS, and XENIX features into the earlier System V releases. My opinion is that such a merging has been needed for a long time, first to introduce a greater degree of standardization in the UNIX industry (this is, after all, UNIX's claim to fame), and secondly to produce a system containing features sadly lacking in each of the earlier variants.

From BSD, SVR4 incorporates the C shell, job control, the fast file system, symbolic links, and several commands and system calls. From SunOS, SVR4 gets NFS and virtual memory mapped files. From XENIX, SVR4 gets source code compatibility with the UNIX variant which has the largest installed base. SVR4 also implements industry standards such as Posix 1003.1 (system interface), and ANSI C. This release also includes some of AT&T's own enhancements, such as real-time support, and the Korn shell. The Open Look graphical user interface is also part of SVR4, as is FACE (Framed Access Command Environment) - a menu-oriented user interface for character based terminals.

SVR4 certainly seems like a significant step in the right direction, but it does not solve all of the UNIX compatibility problems. Unix International and the OSF still have to come to an agreement before we can see one standard for the UNIX operating system itself, and for its graphical user interface.

Graphical user interfaces are one of the hot new areas of discussion on UNIX systems, and in future meetings, we will hopefully get a closer look. As for the March meeting, we will likely be looking at another hot topic - DOS/UNIX interfacing, or UNIX-based DOS emulators, to be more specific. As I write this, the meeting location has yet to be decided; take a look at the cover page for directions. In any case, the meeting time hasn't changed. It will be at 7:30PM on Tuesday, March 13. Hope to see you then.

# Solving Those Puzzling Quirks of UNIX Systems Use

By Steve List & Bruce Stewart

Reprinted with permission from the July August 1988 issue of *CommUNIXations*,  
published by Uniforum

We were working on a little quiz for class we were about to teach the other day, and we wanted to be able to produce two versions of the quiz: one with just the questions, and one with the answers and some commentary. Certainly, there are brute force solutions that work quite nicely. We could complete the quiz, then copy it, and include the answers and commentary. Unfortunately, if we changed the quiz we would have to edit two files.

## Let's get a little creative

The first step we tried was to define a set of "answer" files and then associate them with specific questions. In the body of our test file we would then include that text with the `.so` command. The results are shown in Figures 1 and 2. Figure 1 is a sample of the quiz file. Figure 2 is a sample of the answer file. The problem with this is that the "answer" files are included unconditionally. Because the goal is to be able to produce two versions of this file without maintaining two versions, this doesn't satisfy our basic requirement.

## How do we make it optional?

The challenge is before us: how do we make the inclusion of the answers optional? Because *troff* provides conditional execution macros (particularly `.if`), there must be a way to use them. Assuming you can somehow set the value of a numeric register in the body of the quiz and only include the answer file if it's non-zero. Figure 3 shows the inclusion of this option.

This works quite neatly. Though it may be a little ugly, it is very functional and satisfies the requirements. How is the register set? *troff* allows any single-character named numeric register on the command line to be set with the `-rN##` option. Perusal of the *troff* and macro manuals reveals that register `X` is normally unused. Substitution of the actual register to be used is seen in Figure 4.

If numeric register `X` is non-zero (if it is not set, it is automatically treated as having the value zero), the answer files are included. Using the memorandum (`mm`) macros, the final test file using numeric register `X` to control inclusion is shown in Figure 5. The file can be output with the register set with the command:

```
troff -rX1 quiz
```

While this works, it has a few remaining flaws. Perhaps most prominent is that if the questions need to be reordered, the answers must be moved also. The answer files are no longer numbered according to their questions. A different naming convention could be adopted, but this still leaves a bunch of answer files for one test. Wouldn't it be nice if all those extra

**Figure 1: Sample Questions with Answer Included**

```
.AL
.LI
What is your name?
.so answer.1
.LI
What is your address?
.so answer.2
.LE
```

**Figure 2: Answer to Question 1 (file answer.1)**

```
.ML \->
.LI
My name is whatever it says on my driver's license.
.LE
```

**Figure 3: Sample Questions with Answers Conditionally Included**

```
.AL
.LI
What is your name?
.if \n# .so answer.1
.LI
What is your address?
.if \n# .so answer.2
.LE
```

**Figure 4: Sample Questions with Answers Included Based on Numeric Register**

```
.AL
.LI
What is your name?
.if \nX .so answer.1
.LI
What is your address?
.if \nX .so answer.2
.LE
```

files weren't needed? The goal has become to not only conditionally include the answers, but to do it in a single file. Having already covered the basics of conditional execution, it's only one step farther to bracket a section of the document with that conditional macro. To do this, the text is delimited by backslash-leftbrace(\{) at the start and backslash-rightbrace (\}) at the end. Figure 6 shows the finished product.

Using this technique, the questions *and* answers are contained in the same file. With the use of numeric register X, you have the option to print either just the questions or both answers and questions. With a little more work, you can bracket each question using comments, and readily find a particular question and answer when moving within the file.

### Some Final Notes

We assume that there will be at least a few of you who will question "What is all that *other* stuff in the example?" (We certainly would.) The following is a summary of what is going on in the example, providing a few more hints to the usage of *troff*. The basic assumption is that we are using the Memorandum Macros (mm).

*.if t ...* -- The four lines at the top set the Offset (left margin) and Width (line length) depending on whether the file is being formatted with *troff* or *nroff*. Because *nroff* cannot work with scaling, these parameters must be set in terms that *nroff* can understand.

*.so ...* -- There are two basic means to specify invocation of a macro package. First, if it is a package that is *known* to *troff*, it can be invoked from the command line with the *-mx* option (*-mm* for memorandum, *-ms* for manuscript). Second, all macro packages have a file in the */usr/lib/tmac* directory if they are supplied with the system. These files have a name of the form *tmac.x*, where the *x* is replaced by the package designator (*m* for memorandum, *s* for manuscript, *an* for manual pages). The files can be included (or "sourced") with the *.so* macro. Because of the use of the memorandum macros, the *tmac.m* macro file has been included.

*.SA 1* -- This mm macro specifies that all lines are to be filled and adjusted at both margins.

We hope this gives you some additional insight into the power and flexibility available with the *troff* formatters and macro packages..

**Figure 5: Sample Questions with Answers Included Based on Register X**

```
.if t .nr 0 li
.if t .nr W 6i
.if n .nr 0 10
.if n .nr W 60
.so /usr/lib/tmac/tmac.m
.SA 1
.AL
.LI
What is your name?
.if \nX .so answer.1
.LLI
What is your address?
.if \nX .so answer.2
.LE
```

**Figure 6: Sample Questions with Answers in the Body**

```
.if t .nr 0 li
.if t .nr W 6i
.if n .nr 0 10
.if n .nr W 60
.so /usr/lib/tmac/tmac.m
.SA 1
.AL
.LI
What is your name?
.if \nX \{
.ML \{->
.LI
My name is whatever it says on my driver's license.
.LE\}
.LI
What is your address?
.if \nX \{
.ML \{->
.LI
I live in my house.
.LE\}
.LE
```

## The Fortune File

Submitted by Kirk Marat

From the U of M Sun 4/280:

*The lesser-known programming languages # 17 - SARTRE*

*Named after the late existential philosopher, SARTRE is a extremely unstructured language. Statements in SARTRE have no purpose; they just are. Thus SARTRE programs are left to define their own functions. SARTRE programmers tend to be boring and depressed, and are no fun at parties.*

# Publisher Listing

*Compiled by Dave Long*

The following list of publishing houses was compiled by Dave Long. This should help you with your UNIX book ordering. Thanks Dave for sharing your list with us.

**/usr/group Magazine**  
4655 Old Ironside Drive #200  
Santa Clara, California, 95054

(408) 986-8840

**Systems Publications Inc.** (Armond Dalton Pub)  
1435 East Grand River Avenue  
Willowston, Minnesota, 48895

(517) 655-1082

**Jim Joyce's UNIX Bookstore**  
47 Potomac Street  
San Francisco, California, 94117

(415) 626-7581

**Unique Magazine**  
115 East Kanas Avenue #206  
McPherson, Kansas, 67460

(916) 677-5870

**Collier McMillan** (Que/Sam/Hayden Books)  
539 Collier McMillan Drive  
Cambridge, Ontario

1-800-265-8674

**Firefly** (Sybex)  
250 Sparks Avenue  
Willowdale, Ontario, M2H 2S4

1-800-387-6192

**Georgetown Book Warehouse** (GTW)

(416) 792-8806

**Prentice-Hall Canada**  
Toronto, Ontario

(416) 293-3621

**Wiley-Interscience** (A division of John Wiley & Sons Inc)  
Toronto, Ontario

(416) 675-3580

**Addison Wesley Publishing Company** (Benjamin/Cummings Pub.)  
Don Mills, Ontario

(416) 447-5101

**McGraw Hill**  
Toronto, Ontario

(416) 293-1911

**Clascom Computers**  
5101-80 Richmond Street  
Toronto, Ontario

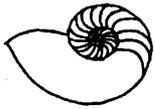
(416) 369-9944

**O'Reilly & Associates Inc.**  
632 Petaluma Avenue  
Sebastopol, California, 95472

(707) 829-0515  
(707) 829-0104 FAX

**Benjamin/Cummings Publishing Company**  
Menlo Park, California

(416) 854-6020  
Order from Addison Wesley



Technical UNIX® User Group

**Agenda**  
for  
**Tuesday, March 13, 1990**  
**7:30pm**  
**Health Sciences Centre**  
**Room 431, Basic Medical Sciences Building**  
**Entrance at Medical College**  
**770 Bannatyne Avenue**

- |                                  |      |
|----------------------------------|------|
| 1. Round Table                   | 7:30 |
| 2. Business Meeting              | 8:00 |
| a) Membership Secretary's Report |      |
| b) Newsletter Report             |      |
| c) Treasurer's Report            |      |
| 4. Break                         | 8:30 |
| 5. Presented Topic               | 8:40 |
| DOS/UNIX Interfacing - VPix      |      |
| Derek Hay (FACS Record Center)   |      |
| OR                               |      |
| System Administration            |      |
| 6. Adjourn                       | 9:30 |