The Groff and Friends HOWTO

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1. Introduction

This HOWTO attempts to introduce the document formatting system known as *groff*. It isn't intended to be a reference document; other individuals are working on that. It is aimed at two groups: firstly, the individuals who are new to UNIX, Linux or another UNIX variant, and are discovering that operating system's enormous potential and versatility; and secondly, at those who are considering the use of a document formatting system for producing high quality and consistently formatted papers, articles and possibly books.

groff is not the only document formatting system available to writers. In addition to the more recently developed What You See Is What You Get or WYSIWYG type of program such as the many that are available under Microsoft's various operating systems, or perhaps those available from Sun Microsystems or Applix, the versatile TEX system with macro packages such as LATEX, are also available.

As this writer understands the history of text formatting, the predecessor to TEX was known as *troff*. It was developed at AT&T Bell Labs and was in use from about 1971 according to [Kernighan, Lesk, and Ossanna 1978]. *troff* and related programs were provided as part of the **Documenter's WorkBench**, an optional extra for those purchasing a licence to use UNIX. In the late 1980's, the Free Software Foundation's version of these tools was developed, and was named *groff*. At about the same time (possibly a little earlier), the TEX formatting system was developed.

Like *troff/groff*, TEX and subsequently LATEX, use text formatting commands interspersed with document text to describe how a page is to be formatted by a type setting device.[1] *troff/groff* however, tend to be much more like typical UNIX applications in that the commands used to describe page formatting are terse. These commands are typically 3 characters in length and may be combined in sometimes difficult to read combinations (not unlike regular expressions as used by **sed** or **grep**). The macro packages available for use with *troff/groff* are somewhat more easily read, but are still brief. The advantage offered by TEX is that the commands are much more descriptive or readable. Their disadvantage (in the opinion of this writer) is that they take more time to type. Both however offer writers the opportunity to focus on content, without the distraction of look.

While the early systems were designed to drive specific devices, this is no longer the case. Both systems generate a neutral device independent page description which subsequent processes format for specific devices (often via Postscript, which on UNIX or UNIX-clone systems is easily formatted for a wide variety of available printing and plotting devices).

Although we have acknowledged the availability of TEX and LATEX, this document will not dwell on them, or compare *groff* to them.[2] For further information on that document processor, interested readers are referred to [Lamport 1985] and [Knuth 1986].

This document then will describe how one can profit by the use of *groff* to generate high quality articles, reports and even books (many of which have been written using *groff* or *troff*. See for example [Dougherty

[1] The original *troff* program was designed to drive a specific machine, a Graphic Systems Incorporated C/A/T (Computer Assisted Typesetter) [Kernighan, Lesk, and Ossanna 1978; Sun Microsystems 1988].

[2] At least not in this revision.

and O'Reilly 1987; Kernighan and Plauger 1974; Kernighan and Plauger 1976] and [Sequin and Tompsett 1975] to name a few).

2. Disclaimer

This document is intended to be one that assists new users by introducing them to *groff* and friends. It is not intended to be a definitive reference manual. Other documents cover these subjects very well, and are available either with the current distribution or at a web site identified in the sequel. *groff* comes with well-written **man pages** that describe the differences between *groff* and *troff*. These with the aforementioned reference documents are all that have been available for some time. Under development however, are complete reference documents for the *groff* suite.

Given the nature of this document, and the availability of other documentation, please do not hold me responsible for any damages that you or your organization may incur as a result of using the *groff* suite or this HOWTO. As with other free software, you use it at your own risk. No one associated with this software, this document, or any others mentioned herein has intended that you incur any damages. All products described here are made available freely, with the hope that they benefit you as much as they have benefited us.

3. Credits and Copyright

The *groff* document preparation suite was written by James J. Clark who re-implemented the *troff* system in some 60,000 lines of C++ code. Since then he has gone on to develop SGML parsers and related processors in both C and C++. All users of *groff* owe considerable thanks to his not inconsiderable efforts.

The current suite of programs are being maintained by Werner Lemberg and Ted Harding, with contributions by many others. As this document is being written, the current release of the suite, with enhancements for HTML and graph rendering, is 1.13.

4. ms Macro Overview

5. Tables

6. Equations

7. Figures

8. References

9. Useful Scripts

[4] For the terms of this licence, see the file COPYING that comes with the *groff* distribution.

10. Customizing the ms Macros

11. A Sample Document

12. Document Organization and a Sample Makefile

13. Formats Other Than PostScript

14. Questions About *groff*: Some With Answers

14.1. How Do I Convert PostScript to ASCII or HTML?

PostScript to ASCII conversions may be performed via *ps2ascii*. This program is a Ghostscript translator from PostScript or PDF to ASCII (i.e. plain text). Apart from first converting PostScript to ASCII, and then adding suitable formatting commands to generate HTML, I have no idea how one can convert directly to HTML.

14.2. Is There a *groff info* File?

Trent Fisher has contributed a rudimentary groff.texinfo file and this is now a part of the *groff* distribution. Should an interested party wish to extend this work, their assistance would be gratefully received.

14.3. How can I do Cyrillic with *groff*?

14.4. Where can I get Windows binaries of *groff*?

14.5. Is There a Document Like the "Troff User's Manual" for *groff*?

One of the maintainers (Ted Harding) has embarked on such a document. As this is not a trivial undertaking, it may not be available for some time. Readers are encouraged to subscribe to the *groff* mail list to follow the development, or to volunteer to assist Ted in order to speed it along.

For immediate use, are a series of overheads that Ted used in a recent presentation to his local Linux user's group. These foils, with their *groff* source files, are available from the following European site: **http://www.manlug.mcc.ac.uk/19991120/talk.tar.gz**. See the file **talk.txt** for a description of the contents.

15. Other Sources of Information

Several of the references cited earlier are worth looking at, if copies can be located in your local library. In particular, the book by Dougherty and O'Reilly is useful, although not particularly so as a reference[5]. The Sun Microsystems document is very good, and is based on the PostScript files mentioned below.

There are several documents available in PostScript format which describe the use of *troff* and associated processors. These are available at **http://www.kohala.com/start/** in the *troff resources* link and at **http://cm.bell-labs.com/cm/cs/cstr.html**.

At **http://plan9.bell-labs.com/7thEdMan/index.html** may be found the original *troff* sources for the

[5] This writer finds it too wordy, and the index not sufficiently so.

documentation that was shipped with the **Unix Seventh Edition Manual**. Included is material on *troff* and related processors.

The *groff* maintainers have set up a mailing list and web site to provide interested users with the latest releases, bug fixes and problem solving facilities. In addition, a moderated newsgroup named **gnu.groff.bug** is available. It discusses bugs in the GNU roff programs.

To subscribe to the **mail list**, send an Email to **groff-request@ffii.org** with the word **subscribe** in either the header or the mail body. Then, to post to the list, send your email to **groff@ffii.org**. An acknowledgement of your request to join will be received, and you will be assigned a password. Mail received by the list will be archived at **http://ffii.org/archive/mails/groff/**.

The web site is **http://groff.ffii.org/**. There, the latest version of *groff* and friends is always available.

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