BSD Unix 2.11 man entries
6/9/2019 - The ShadowTron Blog

Generated using the simh PDP-11/70 emulator with the PiDP11 Front Panel

PiDP11 - https://obsolescence.wixsite.com/obsolescence/pidp-11
SimH - http://simh.trailing-edge.com/
ShadowTronBlog - https://www.youtube.com/channel/UCtUiwjYcRS_u6Egc8iTkHNg
http://shadowtron.com
shadowtronblog@gmail.com

Manual	Area covered
1	Commands and Application Programs
2	System Calls
3	C Library Subroutines
3F	Fortran Library
4	Special Files
5	File Formats
6	Games
--> 7	Miscellaneous
8	System Maintenance

```
**********************************
**** Manual 7 - Miscellaneous ****
**********************************
    intro               miscellaneous useful information pages
    ascii               map of ASCII character set
    environ             user environment
    eqnchar             special character definitions for eqn
    hier                file system hierarchy
    mailaddr            mail addressing description
    man                 macros to typeset manual
    me                  macros for formatting papers
    ms                  text formatting macros
    term                conventional names for terminals
```

NAME

miscellaneous - miscellaneous useful information pages

DESCRIPTION

This section contains miscellaneous documentation, mostly in the area of text processing macro packages for troff(1).

ascii	map of ASCII character set
environ	user environment
eqnchar	special character definitions for eqn
hier	file system hierarchy
mailaddr	mail addressing description
man	macros to typeset manual pages
me	macros for formatting papers
ms	macros for formatting manuscripts
term	conventional names for terminals

NAME

ascii - map of ASCII character set

SYNOPSIS

cat /usr/pub/ascii

DESCRIPTION

Ascii is a map of the ASCII character set, to be printed as needed. It contains:

000 nul	001 soh	002 stx	003 etx	004 eot	005 enq	006 ack	007 bel
010 bs	011 ht	012 nl	013 vt	014 np	015 cr	016 so	017 si
020 dle	021 dc1	022 dc2	023 dc3	024 dc4	025 nak	026 syn	027 etb
030 can	031 em	032 sub	033 esc	034 fs	035 gs	036 rs	037 us
040 sp	041 !	042 "	043 #	044 $	045 %	046 &	047 '
050 (	051)	052 *	053 +	054 ,	055 -	056 .	057 /
060 0	061 1	062 2	063 3	064 4	065 5	066 6	067 7
070 8	071 9	072 :	073 ;	074 <	075 =	076 >	077 ?
100 @	101 A	102 B	103 C	104 D	105 E	106 F	107 G
110 H	111 I	112 J	113 K	114 L	115 M	116 N	117 O
120 P	121 Q	122 R	123 S	124 T	125 U	126 V	127 W
130 X	131 Y	132 Z	133 [	134 \	135]	136 ^	137 _
140 `	141 a	142 b	143 c	144 d	145 e	146 f	147 g
150 h	151 i	152 j	153 k	154 l	155 m	156 n	157 o
160 p	161 q	162 r	163 s	164 t	165 u	166 v	167 w
170 x	171 y	172 z	173 {	174 |	175 }	176 ~	177 del

00 nul	01 soh	02 stx	03 etx	04 eot	05 enq	06 ack	07 bel
08 bs	09 ht	0a nl	0b vt	0c np	0d cr	0e so	0f si
10 dle	11 dc1	12 dc2	13 dc3	14 dc4	15 nak	16 syn	17 etb
18 can	19 em	1a sub	1b esc	1c fs	1d gs	1e rs	1f us
20 sp	21 !	22 "	23 #	24 $	25 %	26 &	27 '
28 (	29)	2a *	2b +	2c ,	2d -	2e .	2f /
30 0	31 1	32 2	33 3	34 4	35 5	36 6	37 7
38 8	39 9	3a :	3b ;	3c <	3d =	3e >	3f ?
40 @	41 A	42 B	43 C	44 D	45 E	46 F	47 G
48 H	49 I	4a J	4b K	4c L	4d M	4e N	4f O
50 P	51 Q	52 R	53 S	54 T	55 U	56 V	57 W
58 X	59 Y	5a Z	5b [	5c \	5d]	5e ^	5f _
60 `	61 a	62 b	63 c	64 d	65 e	66 f	67 g
68 h	69 i	6a j	6b k	6c l	6d m	6e n	6f o
70 p	71 q	72 r	73 s	74 t	75 u	76 v	77 w
78 x	79 y	7a z	7b {	7c |	7d }	7e ~	7f del

FILES

/usr/pub/ascii

NAME

environ - user environment

SYNOPSIS

```
extern char **environ;
```

DESCRIPTION

An array of strings called the `environment' is made available by execve(2) when a process begins. By convention these strings have the form `name=value'. The following names are used by various commands:

PATH The sequence of directory prefixes that sh, time, nice(1), etc., apply in searching for a file known by an incomplete path name. The prefixes are separated by `:'. Login(1) sets PATH=:/usr/ucb:/bin:/usr/bin.

HOME A user's login directory, set by login(1) from the password file passwd(5).

TERM The kind of terminal for which output is to be prepared. This information is used by commands, such as nroff or plot(1G), which may exploit special terminal capabilities. See /etc/termcap (termcap(5)) for a list of terminal types.

SHELL The file name of the users login shell.

TERMCAP The string describing the terminal in TERM, or the name of the termcap file, see termcap(5),termcap(3X).

EXINIT A startup list of commands read by ex(1), edit(1), and vi(1).

USER The login name of the user.

PRINTER The name of the default printer to be used by lpr(1), lpq(1), and lprm(1).

Further names may be placed in the environment by the export command and `name=value' arguments in sh(1), or by the setenv command if you use csh(1). Arguments may also be placed in the environment at the point of an execve(2). It is unwise to conflict with certain sh(1) variables that are frequently exported by `.profile' files: MAIL, PS1, PS2, IFS.

SEE ALSO

csh(1), ex(1), login(1), sh(1), execve(2), system(3), termcap(3X), termcap(5)

```
tdefine ciplus % "*" % ndefine ciplus % * % tdefine citimes
% "*" % ndefine citimes % * % tdefine =wig % "=" % ndefine
=wig % ="~" % tdefine bigstar % "*" % ndefine bigstar % * %
tdefine =dot % "*." % ndefine =dot % = dot % tdefine orsign %
"\/" % ndefine orsign % \/ % tdefine andsign % "/\" % nde-
fine andsign % /\ % tdefine =del % "/\" % ndefine =del % =
to DELTA % tdefine oppA % "\/----" % ndefine oppA % V % tdefine
oppE %"--- " % ndefine oppE % E/ % tdefine incl % "---" % ndefine
incl % C % tdefine nomem % "</" % ndefine nomem % C/ % tdefine
angstrom % "A" % ndefine angstrom % A to o % tdefine star %{
roman "*"}% ndefine star % * % tdefine || % || % tdefine
<wig % "<" % ndefine <wig %{ < from "~" }% tdefine >wig %
">" % ndefine >wig %{ > from "~" }% tdefine langle % "/
                                                \" %
ndefine langle %<% tdefine rangle % "\
                                /" % ndefine rangle %>%
tdefine hbar % "h" % ndefine hbar % h % ndefine ppd % | %
tdefine ppd % "|" % tdefine <-> % "<-->" % ndefine <-> % "<--
>" % tdefine <=> % "<= =>" % ndefine <=> % "<=>" % tdefine |< %
"<" % ndefine |< % < % tdefine |> % ">" % ndefine |> % > %
tdefine ang % "/" % ndefine ang % / % tdefine rang % "_" %
ndefine rang % L % tdefine 3dot % "." % ndefine 3dot % .
                                                    %
tdefine thf % "..." % ndefine thf % .. % tdefine quarter %
roman 1/4 % ndefine quarter % 1/4 % tdefine 3quarter % roman
3/4 % ndefine 3quarter % 3/4 % tdefine degree %  % ndefine
degree % nothing sup o % tdefine square % [] % ndefine
square % [] % tdefine circle % O % ndefine circle % O % tde-
fine blot % "[]" % ndefine blot % H % tdefine bullet % + %
ndefine bullet % x % tdefine -wig % "_" % ndefine -wig % -
to "~" % tdefine wig % ~ % ndefine wig % "~" % tdefine prop
% oc % ndefine prop % oc % tdefine empty % O % ndefine empty
% O % tdefine member % < % ndefine member % C % tdefine cup
% () % ndefine cup % U % define cap % () % define subset %
(= % define supset % =) % define !subset % (= % define
!supset % =) %
```

NAME

eqnchar - special character definitions for eqn

SYNOPSIS

```
eqn /usr/pub/eqnchar [ files ] | troff [ options ]

neqn /usr/pub/eqnchar [ files ] | nroff [ options ]
```

DESCRIPTION

Eqnchar contains troff and nroff character definitions for constructing characters that are not available on the Graphic Systems typesetter. These definitions are primarily intended for use with eqn and neqn. It contains definitions for the following characters

"ciplus"	ciplus	"||"	||	"square"	square
"citimes"	citimes	"langle"	langle	"circle"	circle
"wig"	wig	"rangle"	rangle	"blot"	blot

"-wig"	-wig	"hbar"	hbar	"bullet"	bullet
">wig"	>wig	"ppd"	ppd	"prop"	prop
"<wig"	<wig	"<->"	<->	"empty"	empty
"=wig"	=wig	"<=>"	<=>	"member"	member
"star"	star	"|<"	|<	"nomem"	nomem
"bigstar"	bigstar	"|>"	|>	"cup"	cup
"=dot"	=dot	"ang"	ang	"cap"	cap
"orsign"	orsign	"rang"	rang	"incl"	incl
"andsign"	andsign	"3dot"	3dot	"subset"	subset
"=del"	=del	"thf"	thf	"supset"	supset
"oppA"	oppA	"quarter"	quarter	"!subset"	!subset
"oppE"	oppE	"3quarter"	3quarter	"!supset"	!supset
"angstrom"		angstrom	"degree"	degree	

FILES

/usr/pub/eqnchar

SEE ALSO

troff(1), eqn(1)

NAME

hier - file system hierarchy

DESCRIPTION

The following outline gives a quick tour through a representative directory hierarchy.

```
/       root
/vmunix
   the kernel binary (UNIX itself)
/lost+found
   directory for connecting detached files for fsck(8)
/dev/
   devices (4)
   MAKEDEV
        shell script to create special files
   MAKEDEV.local
        site specific part of MAKEDEV
   console
        main console, tty(4)
   tty* terminals, tty(4)
   hp*  disks, hp(4)
   rhp* raw disks, hp(4)
   up*  UNIBUS disks up(4)
   ...
/bin/
   utility programs, cf /usr/bin/ (1)
   as   assembler
   cc   C compiler executive, cf /lib/ccom, /lib/cpp,
        /lib/c2
   csh  C shell
   ...
/lib/
   object libraries and other stuff, cf /usr/lib/
   libc.a
        system calls, standard I/O, etc. (2,3,3S)
   ...
   ccom C compiler proper
   cpp  C preprocessor
   c2   C code improver
   ...
/etc/
   essential data and maintenance utilities; sect (8)
   dump dump program dump(8)
   passwd
        password file, passwd(5)
   group
        group file, group(5)
   motd message of the day, login(1)
   termcap
        description of terminal capabilities, termcap(5)
   ttytype
```

```
            table of what kind of terminal is on each port,
            ttytype(5)
         mtab mounted file table, mtab(5)
         dumpdates
            dump history, dump(8)
         fstab
            file system configuration table fstab(5)
         disktab
            disk characteristics and partition tables,
            disktab(5)
         hosts
            host name to network address mapping file,
            hosts(5)
         networks
            network name to network number mapping file,
            networks(5)
         protocols
            protocol name to protocol number mapping file,
            protocols(5)
         services
            network services definition file, services(5)
         remote
            names and description of remote hosts for tip(1C),
            remote(5)
         phones
            private phone numbers for remote hosts, as
            described in phones(5)
         ttys properties of terminals, ttys(5)
         getty
            part of login, getty(8)
         init the parent of all processes, init(8)
         rc   shell program to bring the system up
         rc.local
            site dependent portion of rc
         cron the clock daemon, cron(8)
         mount
            mount(8)
         ...
      /sys/
         system source
         h/   header (include) files
            acct.h
               acct(5)
            stat.h
               stat(2)
            ...
         sys/ machine independent system source
            init_main.c
            uipc_socket.c
            ufs_syscalls.c
            ...
         conf/
```

```
            site configuration files
            GENERIC
            ...
         net/ general network source
         netinet/
            DARPA Internet network source
         netimp/
            network code related to use of an IMP
            if_imp.c
            if_imphost.c
            if_imphost.h
            ...
         vax/ source specific to the VAX
            locore.s
            machdep.c
            ...
         vaxuba/
            device drivers for hardware which resides on the
            UNIBUS
            uba.c
            dh.c
            up.c
            ...
         vaxmba/
            device drivers for hardware which resides on the
            MASBUS
            mba.c
            hp.c
            ht.c
            ...
         vaxif
            network interface drivers for the VAX
            if_en.c
            if_ec.c
            if_vv.c
            ...
      /tmp/
         temporary files, usually on a fast device, cf /usr/tmp/
         e*   used by ed(1)
         ctm* used by cc(1)
         ...
      /usr/
         general-pupose directory, usually a mounted file system
         adm/ administrative information
            wtmp login history, utmp(5)
            messages
               hardware error messages
            tracct
               phototypesetter accounting, troff(1)
            lpacct
               line printer accounting lpr(1)
            vaacct, vpacct
```

```
               varian and versatec accounting vpr(1),
               vtroff(1), pac(8)
     /usr /bin
        utility programs, to keep /bin/ small
        tmp/ temporaries, to keep /tmp/ small
             stm* used by sort(1)
             raster
                used by plot(1G)
        dict/
             word lists, etc.
             words
                principal word list, used by look(1)
             spellhist
                history file for spell(1)
        games/
             hangman
             lib/ library of stuff for the games
                quiz.k/
                   what quiz(6) knows
                   index
                        category index
                   africa
                        countries and capitals
                   ...
                ...
             ...
        include/
             standard #include files
             a.out.h
                object file layout, a.out(5)
             stdio.h
                standard I/O, intro(3S)
             math.h
                (3M)
             ...
             sys/ system-defined layouts, cf /sys/h
             net/ symbolic link to sys/net
             machine/
                symbolic link to sys/machine
             ...
        lib/ object libraries and stuff, to keep /lib/ small
             atrun
                scheduler for at(1)
             lint/
                utility files for lint
                lint[12]
                   subprocesses for lint(1)
                llib-lc
                   dummy declarations for /lib/libc.a, used
                   by lint(1)
                llib-lm
                   dummy declarations for /lib/libc.m
```

```
            ...
         struct/
            passes of struct(1)
         ...
         tmac/
            macros for troff(1)
            tmac.an
               macros for man(7)
            tmac.s
               macros for ms(7)
            ...
         font/
            fonts for troff(1)
            ftR  Times Roman
            ftB  Times Bold
            ...
         uucp/
            programs and data for uucp(1C)
            L.sys
               remote system names and numbers
            uucico
               the real copy program
            ...
         units
            conversion tables for units(1)
         eign list of English words to be ignored by ptx(1)
   /usr/    man/
      volume 1 of this manual, man(1)
         man0/
            general
            intro
               introduction to volume 1, ms(7) format
            xx       template for manual page
         man1/
            chapter 1
            as.1
            mount.1m
            ...
         ...
         cat1/
            preformatted pages for section 1
         ...
      msgs/
         messages, cf msgs(1)
         bounds
            highest and lowest message
      new/ binaries of new versions of programs
      preserve/
         editor temporaries preserved here after
         crashes/hangups
      public/
         binaries of user programs - write permission to
```

```
        everyone
    spool/
        delayed execution files
        at/  used by at(1)
        lpd/ used by lpr(1)
           lock present when line printer is active
           cf*  copy of file to be printed, if necessary
           df*  daemon control file, lpd(8)
           tf*  transient control file, while lpr is
              working
        uucp/
           work files and staging area for uucp(1C)
           LOGFILE
              summary log
           LOG.*
              log file for one transaction
        mail/
           mailboxes for mail(1)
           name mail file for user name
           name.lock
              lock file while name is receiving mail
        secretmail/
           like mail/
        uucp/
           work files and staging area for uucp(1C)
           LOGFILE
              summary log
           LOG.*
              log file for one transaction
           mqueue/
              mail queue for sendmail(8)
    wd  initial working directory of a user, typically wd
        is the user's login name
        .profile
           set environment for sh(1), environ(7)
        .project
           what you are doing (used by ( finger(1) )
        .cshrc
           startup file for csh(1)
        .exrc
           startup file for ex(1)
        .plan
           what your short-term plans are (used by
           finger(1) )
        .netrc
           startup file for various network programs
        .msgsrc
           startup file for msgs(1)
        .mailrc
           startup file for mail(1)
        calendar
           user's datebook for calendar(1)
```

```
        doc/ papers, mostly in volume 2 of this manual,
             typically in ms(7) format
             as/  assembler manual
             c    C manual
             ...
     /usr/     src/
        source programs for utilities, etc.
        bin/ source of commands in /bin
             as/  assembler
             ar.c source for ar(1)
             ...
        usr.bin/
             source for commands in /usr/bin
             troff/
                source for nroff and troff(1)
                font/
                   source for font tables, /usr/lib/font/
                   ftR.c
                        Roman
                   ...
                term/
                   terminal characteristics tables,
                   /usr/lib/term/
                   tab300.c
                        DASI 300
                   ...
                ...
        ucb  source for programs in /usr/ucb
        games/
             source for /usr/games
        lib/ source for programs and archives in /lib
             libc/
                C runtime library
                csu/ startup and wrapup routines needed with
                   every C program
                   crt0.s
                        regular startup
                   mcrt0.s
                        modified startup for cc -p
                sys/ system calls (2)
                   access.s
                   brk.s
                   ...
             stdio/
                standard I/O functions (3S)
                fgets.c
                fopen.c
                ...
             gen/ other functions in (3)
                abs.c
                ...
             net/ network functions in (3N)
```

```
               gethostbyname.c
               ...
          local/
               source which isn't normally distributed
          new/ source for new versions of commands and library
               routines
          old/ source for old versions of commands and library
               routines
          ucb/ binaries of programs developed at UCB
               ...
               edit editor for beginners
               ex   command editor for experienced users
               ...
               mail mail reading/sending subsystem
               man  on line documentation
               ...
               pi   Pascal translator
               px   Pascal interpreter
               ...
               vi   visual editor
```

SEE ALSO

ls(1), apropos(1), whatis(1), whereis(1), finger(1), which(1), ncheck(8), find(1), grep(1)

BUGS

The position of files is subject to change without notice.

NAME

hostname - host name resolution description

DESCRIPTION

Hostnames are domains, where a domain is a hierarchical, dot-separated list of subdomains; for example, the machine monet, in the Berkeley subdomain of the EDU subdomain of the ARPANET would be represented as

```
monet.Berkeley.EDU
```

(with no trailing dot).

Hostnames are often used with network client and server programs, which must generally translate the name to an address for use. (This function is generally performed by the library routine gethostbyname(3).) Hostnames are resolved by the internet name resolver in the following fashion.

If the name consists of a single component, i.e. contains no dot, and if the environment variable ``HOSTALIASES'' is set to the name of a file, that file is searched for an string matching the input hostname. The file should consist of lines made up of two white-space separated strings, the first of which is the hostname alias, and the second of which is the complete hostname to be substituted for that alias. If a case-sensitive match is found between the hostname to be resolved and the first field of a line in the file, the substituted name is looked up with no further processing.

If the input name ends with a trailing dot, the trailing dot is removed, and the remaining name is looked up with no further processing.

If the input name does not end with a trailing dot, it is looked up in the local domain and its parent domains until either a match is found or fewer than 2 components of the local domain remain. For example, in the domain CS.Berkeley.EDU, the name lithium.CChem will be checked first as lithium.CChem.CS.Berkeley.EDU and then as lithium.CChem.Berkeley.EDU. Lithium.CChem.EDU will not be tried, as the there is only one component remaining from the local domain.

SEE ALSO

gethostbyname(3), resolver(5), mailaddr(7), named(8), RFC883

NAME

mailaddr - mail addressing description

DESCRIPTION

Mail addresses are based on the ARPANET protocol listed at the end of this manual page. These addresses are in the general format

user@domain

where a domain is a hierarchical dot separated list of sub-domains. For example, the address

eric@monet.berkeley.edu

is normally interpreted from right to left: the message should go to the ARPA name tables (which do not correspond exactly to the physical ARPANET), then to the Berkeley gateway, after which it should go to the local host monet. When the message reaches monet it is delivered to the user ``eric''.

Unlike some other forms of addressing, this does not imply any routing. Thus, although this address is specified as an ARPA address, it might travel by an alternate route if that were more convenient or efficient. For example, at Berkeley, the associated message would probably go directly to monet over the Ethernet rather than going via the Berkeley ARPANET gateway.

Abbreviation.

Under certain circumstances it may not be necessary to type the entire domain name. In general, anything following the first dot may be omitted if it is the same as the domain from which you are sending the message. For example, a user on ``calder.berkeley.edu'' could send to ``eric@monet'' without adding the ``berkeley.edu'' since it is the same on both sending and receiving hosts.

Certain other abbreviations may be permitted as special cases. For example, at Berkeley, ARPANET hosts may be referenced without adding the ``berkeley.edu'' as long as their names do not conflict with a local host name.

Compatibility.

Certain old address formats are converted to the new format to provide compatibility with the previous mail system. In particular,

user@host.ARPA

is allowed and

host:user

is converted to

user@host

to be consistent with the rcp(1) command.

Also, the syntax

host!user

is converted to:

user@host.UUCP

This is normally converted back to the ``host!user'' form before being sent on for compatibility with older UUCP hosts.

The current implementation is not able to route messages automatically through the UUCP network. Until that time you must explicitly tell the mail system which hosts to send your message through to get to your final destination.

Case Distinctions.

Domain names (i.e., anything after the ``@'' sign) may be given in any mixture of upper and lower case with the exception of UUCP hostnames. Most hosts accept any combination of case in user names, with the notable exception of MULTICS sites.

Route-addrs.

Under some circumstances it may be necessary to route a message through several hosts to get it to the final destination. Normally this routing is done automatically, but sometimes it is desirable to route the message manually. Addresses which show these relays are termed ``route-addrs.'' These use the syntax:

<@hosta,@hostb:user@hostc>

This specifies that the message should be sent to hosta, from there to hostb, and finally to hostc. This path is forced even if there is a more efficient path to hostc.

Route-addrs occur frequently on return addresses, since these are generally augmented by the software at each host. It is generally possible to ignore all but the ``user@domain'' part of the address to determine the actual sender.

Postmaster.

Every site is required to have a user or user alias designated ``postmaster'' to which problems with the mail system may be addressed.

Other Networks.

Some other networks can be reached by giving the name of the network as the last component of the domain. This is not a standard feature and may not be supported at all sites. For example, messages to CSNET or BITNET sites can often be sent to ``user@host.CSNET'' or ``user@host.BITNET'' respectively.

BUGS

The RFC822 group syntax (``group:user1,user2,user3;'') is not supported except in the special case of ``group:;'' because of a conflict with old berknet-style addresses.

Route-Address syntax is grotty.

UUCP- and ARPANET-style addresses do not coexist politely.

SEE ALSO

mail(1), sendmail(8); Crocker, D. H., Standard for the Format of Arpa Internet Text Messages, RFC822.

NAME

man - macros to typeset manual

SYNOPSIS

nroff -man file ...

troff -man file ...

DESCRIPTION

These macros are used to lay out pages of this manual. A skeleton page may be found in the file /usr/man/man.template.

Any text argument t may be zero to six words. Quotes may be used to include blanks in a `word'. If text is empty, special treatment is applied to the next input line with text to be printed. In this way .I may be used to italicize a whole line, or .SM may be followed by .B to make small bold letters.

A prevailing indent distance is remembered between successive indented paragraphs, and is reset to default value upon reaching a non-indented paragraph. Default units for indents i are ens.

Type font and size are reset to default values before each paragraph, and after processing font and size setting macros.

These strings are predefined by -man:

*R `(Reg)', trademark symbol in troff.

*S Change to default type size.

FILES

/usr/share/tmac/tmac.an
/usr/man/man.template

SEE ALSO

troff(1), man(1)

BUGS

Relative indents don't nest.

REQUESTS

Request	Cause Break	If no Argument	Explanation
.B t	no	t=n.t.l.	*Text t is bold.
.BI t	no	t=n.t.l.	Join words of t alternating bold and italic.
.BR t	no	t=n.t.l.	Join words of t alternating bold and

```
                    Roman.
.DT         no    .5i 1i...Restore default tabs.
.HP i       yes   i=p.i.*  Set prevailing indent to i. Begin
                    paragraph with hanging indent.
.I t        no    t=n.t.l. Text t is italic.
.IB t       no    t=n.t.l. Join words of t alternating italic
                    and bold.
.IP x i     yes   x=""     Same as .TP with tag x.
.IR t       no    t=n.t.l. Join words of t alternating italic
                    and Roman.
.LP         yes   -         Same as .PP.
.PD d       no    d=.4v    Interparagraph distance is d.
.PP         yes   -         Begin paragraph.  Set prevailing
                    indent to .5i.
.RE         yes   -         End of relative indent.  Set prevail-
                    ing indent to amount of starting .RS.
.RB t       no    t=n.t.l. Join words of t alternating Roman and
                    bold.
.RI t       no    t=n.t.l. Join words of t alternating Roman and
                    italic.
.RS i       yes   i=p.i.   Start relative indent, move left mar-
                    gin in distance i. Set prevailing
                    indent to .5i for nested indents.
.SH t       yes   t=n.t.l. Subhead.
.SM t       no    t=n.t.l. Text t is small.
.TH n c x v m       yes         -Begin page named n of chapter c; x
                    is extra commentary, e.g. `local',
                    for page foot center; v alters page
                    foot left, e.g. `4th Berkeley Distri-
                    bution'; m alters page head center,
                    e.g. `Brand X Programmer's Manual'.
                    Set prevailing indent and tabs to
                    .5i.
.TP i       yes   i=p.i.   Set prevailing indent to i. Begin
                    indented paragraph with hanging tag
                    given by next text line.  If tag
                    doesn't fit, place it on separate
                    line.
```

* n.t.l. = next text line; p.i. = prevailing indent

NAME

me - macros for formatting papers

SYNOPSIS

```
nroff -me [ options ] file ...
troff -me [ options ] file ...
```

DESCRIPTION

This package of nroff and troff macro definitions provides a canned formatting facility for technical papers in various formats. When producing 2-column output on a terminal, filter the output through col(1).

The macro requests are defined below. Many nroff and troff requests are unsafe in conjunction with this package, however, these requests may be used with impunity after the first .pp:

```
.bp      begin new page
.br      break output line here
.sp n    insert n spacing lines
.ls n    (line spacing) n=1 single, n=2 double space
.na      no alignment of right margin
.ce n    center next n lines
.ul n    underline next n lines
.sz +n   add n to point size
```

Output of the eqn, neqn, refer, and tbl(1) preprocessors for equations and tables is acceptable as input.

FILES

/usr/share/tmac/tmac.e
/usr/share/me/*

SEE ALSO

eqn(1), troff(1), refer(1), tbl(1)
-me Reference Manual, Eric P. Allman
Writing Papers with Nroff Using -me

REQUESTS

In the following list, "initialization" refers to the first .pp, .lp, .ip, .np, .sh, or .uh macro. This list is incomplete; see The -me Reference Manual for interesting details.

Request	Initial Value	Cause Break	Explanation
.(c	-	yes	Begin centered block
.(d	-	no	Begin delayed text
.(f	-	no	Begin footnote
.(l	-	yes	Begin list
.(q	-	yes	Begin major quote
.(x x	-	no	Begin indexed item in index x

```
.(z         -          no    Begin floating keep
.)c         -          yes   End centered block
.)d         -          yes   End delayed text
.)f         -          yes   End footnote
.)l         -          yes   End list
.)q         -          yes   End major quote
.)x         -          yes   End index item
.)z         -          yes   End floating keep
.++ m H       -        no    Define paper section.  m defines the
                     part of the paper, and can be C
                     (chapter), A (appendix), P (prelim-
                     inary, e.g., abstract, table of con-
                     tents, etc.), B (bibliography), RC
                     (chapters renumbered from page one
                     each chapter), or RA (appendix renum-
                     bered from page one).
.+c T       -          yes   Begin chapter (or appendix, etc., as
                     set by .++).  T is the chapter title.
.1c         1          yes   One column format on a new page.
.2c         1          yes   Two column format.
.EN         -          yes   Space after equation produced by eqn
                     or neqn.
.EQ x y       -        yes   Precede equation; break out and add
                     space.  Equation number is y.  The
                     optional argument x may be I to indent
                     equation (default), L to left-adjust
                     the equation, or C to center the equa-
                     tion.
.GE         -          yes   End gremlin picture.
.GS         -          yes   Begin gremlin picture.
.PE         -          yes   End pic picture.
.PS         -          yes   Begin pic picture.
.TE         -          yes   End table.
.TH         -          yes   End heading section of table.
.TS x       -          yes   Begin table; if x is H table has
                     repeated heading.
.ac A N       -        no    Set up for ACM style output.  A is the
                     Author's name(s), N is the total
                     number of pages.  Must be given before
                     the first initialization.
.b x        no       no    Print x in boldface; if no argument
                     switch to boldface.
.ba +n           0          yes   Augments the base indent by n. This
                     indent is used to set the indent on
                     regular text (like paragraphs).
.bc         no       yes   Begin new column
.bi x       no       no    Print x in bold italics (nofill only)
.bu         -          yes   Begin bulleted paragraph
.bx x       no       no    Print x in a box (nofill only).
.ef 'x'y'z'  ''''     no    Set even footer to x  y  z
.eh 'x'y'z'  ''''     no    Set even header to x  y  z
.fo 'x'y'z'  ''''     no    Set footer to x  y  z
```

```
.hx        -          no    Suppress headers and footers on next
                     page.
.he 'x'y'z'  ''''     no    Set header to x  y  z
.hl        -          yes   Draw a horizontal line
.i x       no       no    Italicize x; if x missing, italic text
                     follows.
.ip x y      no       yes   Start indented paragraph, with hanging
                     tag x.  Indentation is y ens (default
                     5).
.lp        yes      yes   Start left-blocked paragraph.
.lo        -          no    Read in a file of local macros of the
                     form .*x.  Must be given before ini-
                     tialization.
.np        1          yes   Start numbered paragraph.
.of 'x'y'z'  ''''     no    Set odd footer to x      y  z
.oh 'x'y'z'  ''''     no    Set odd header to x      y  z
.pd        -          yes   Print delayed text.
.pp        no       yes   Begin paragraph.  First line indented.
.r         yes      no    Roman text follows.
.re        -          no    Reset tabs to default values.
.sc        no       no    Read in a file of special characters
                      and diacritical marks.  Must be given
                      before initialization.
.sh n x      -        yes   Section head follows, font automati-
                     cally bold.   n is level of section, x
                     is title of section.
.sk        no       no    Leave the next page blank.  Only one
                     page is remembered ahead.
.sm x      -          no    Set x in a smaller pointsize.
.sz +n           10p     no    Augment the point size by n points.
.th        no       no    Produce the paper in thesis format.
                     Must be given before initialization.
.tp        no       yes   Begin title page.
.u x       -          no    Underline argument (even in troff).
                    (Nofill only).
.uh        -          yes   Like .sh but unnumbered.
.xp x      -          no    Print index x.
```

NAME

ms - text formatting macros

SYNOPSIS

```
nroff  -ms  [ options ]  file  ...
troff  -ms  [ options ]  file  ...
```

DESCRIPTION

This package of nroff and troff macro definitions provides a formatting facility for various styles of articles, theses, and books. When producing 2-column output on a terminal or lineprinter, or when reverse line motions are needed, filter the output through col(1). All external -ms macros are defined below. Many nroff and troff requests are unsafe in conjunction with this package. However, the first four requests below may be used with impunity after initialization, and the last two may be used even before initialization:

```
.bp  begin new page
.br  break output line
.sp n  insert n spacing lines
.ce n  center next n lines
.ls n  line spacing: n=1 single, n=2 double space
.na  no alignment of right margin
```

Font and point size changes with \f and \s are also allowed; for example, ``\fIword\fR'' will italicize word. Output of the tbl, eqn, and refer(1) preprocessors for equations, tables, and references is acceptable as input.

FILES

/usr/share/tmac/tmac.x
/usr/share/ms/x.???

SEE ALSO

eqn(1), refer(1), tbl(1), troff(1)

REQUESTS

Macro Name	Initial Value	Break? Reset?	Explanation
.AB x	-	y	begin abstract; if x=no don't label abstract
.AE	-	y	end abstract
.AI	-	y	author's institution
.AM	-	n	better accent mark definitions
.AU	-	y	author's name
.B x	-	n	embolden x; if no x, switch to boldface
.B1	-	y	begin text to be enclosed in a box
.B2	-	y	end boxed text and print it
.BT	date	n	bottom title, printed at foot of page
.BX x	-	n	print word x in a box
.CM	if t	n	cut mark between pages
.CT	-	y,y	chapter title: page number moved to CF (TM only)
.DA x	if n	n	force date x at bottom of page; today if no x

```
.DE   -       y    end display (unfilled text) of any kind
.DS x y I     y    begin display with keep; x=I,L,C,B; y=indent
.ID y 8n,.5i  y    indented display with no keep; y=indent
.LD   -       y    left display with no keep
.CD   -       y    centered display with no keep
.BD   -       y    block display; center entire block
.EF x -       n    even page footer x (3 part as for .tl)
.EH x -       n    even page header x (3 part as for .tl)
.EN   -       y    end displayed equation produced by eqn
.EQ x y -     y    break out equation; x=L,I,C; y=equation number
.FE   -       n    end footnote to be placed at bottom of page
.FP   -       n    numbered footnote paragraph; may be redefined
.FS x -       n    start footnote; x is optional footnote label
.HD   undef   n    optional page header below header margin
.I x  -       n    italicize x; if no x, switch to italics
.IP x y -     y,y  indented paragraph, with hanging tag x; y=indent
.IX x y -     y    index words x y and so on (up to 5 levels)
.KE   -       n    end keep of any kind
.KF   -       n    begin floating keep; text fills remainder of page
.KS   -       y    begin keep; unit kept together on a single page
.LG   -       n    larger; increase point size by 2
.LP   -       y,y  left (block) paragraph.
.MC x -       y,y  multiple columns; x=column width
.ND x if t    n    no date in page footer; x is date on cover
.NH x y -     y,y  numbered header; x=level, x=0 resets, x=S sets to y
.NL   10p     n    set point size back to normal
.OF x -       n    odd page footer x (3 part as for .tl)
.OH x -       n    odd page header x (3 part as for .tl)
.P1   if TM   n    print header on 1st page
.PP   -       y,y  paragraph with first line indented
.PT   - % -   n    page title, printed at head of page
.PX x -       y    print index (table of contents); x=no suppresses title
.QP   -       y,y  quote paragraph (indented and shorter)
.R    on      n    return to Roman font
.RE   5n      y,y  retreat: end level of relative indentation
.RP x -       n    released paper format; x=no stops title on 1st page
.RS   5n      y,y  right shift: start level of relative indentation
.SH   -       y,y  section header, in boldface
.SM   -       n    smaller; decrease point size by 2
.TA   8n,5n   n    set tabs to 8n 16n ... (nroff) 5n 10n ... (troff)
.TC x -       y    print table of contents at end; x=no suppresses title
.TE   -       y    end of table processed by tbl
.TH   -       y    end multi-page header of table
.TL   -       y    title in boldface and two points larger
.TM   off     n    UC Berkeley thesis mode
.TS x -       y,y  begin table; if x=H table has multi-page header
.UL x -       n    underline x, even in troff
.UX x -       n    UNIX; trademark message first time; x appended
.XA x y -     y    another index entry; x=page or no for none; y=indent
.XE   -       y    end index entry (or series of .IX entries)
.XP   -       y,y  paragraph with first line exdented, others indented
.XS x y -     y    begin index entry; x=page or no for none; y=indent
```

```
.1C   on      y,y  one column format, on a new page
.2C   -       y,y  begin two column format
.]-   -       n    beginning of refer reference
.[0   -       n    end of unclassifiable type of reference
.[N   -       n    N= 1:journal-article, 2:book, 3:book-article, 4:report
```

REGISTERS

Formatting distances can be controlled in -ms by means of built-in number registers. For example, this sets the line length to 6.5 inches:

```
.nr  LL  6.5i
```

Here is a table of number registers and their default values:

Name	Register Controls	Takes Effect	Default
PS	point size	paragraph	10
VS	vertical spacing	paragraph	12
LL	line length	paragraph	6i
LT	title length	next page	same as LL
FL	footnote length	next .FS	5.5i
PD	paragraph distance	paragraph	1v (if n), .3v (if t)
DD	display distance	displays	1v (if n), .5v (if t)
PI	paragraph indent	paragraph	5n
QI	quote indent	next .QP	5n
FI	footnote indent	next .FS	2n
PO	page offset	next page	0 (if n), ~1i (if t)
HM	header margin	next page	1i
FM	footer margin	next page	1i
FF	footnote format	next .FS	0 (1, 2, 3 available)

When resetting these values, make sure to specify the appropriate units. Setting the line length to 7, for example, will result in output with one character per line. Setting FF to 1 suppresses footnote superscripting; setting it to 2 also suppresses indentation of the first line; and setting it to 3 produces an .IP-like footnote paragraph.

Here is a list of string registers available in -ms; they may be used anywhere in the text:

Name	String's Function
*Q	quote (" in nroff, `` in troff)
*U	unquote (" in nroff, '' in troff)
*-	dash (-- in nroff, - in troff)
*(MO	month (month of the year)
*(DY	day (current date)
**	automatically numbered footnote
*'	acute accent (before letter)
*`	grave accent (before letter)
*^	circumflex (before letter)
*,	cedilla (before letter)
*:	umlaut (before letter)
*~	tilde (before letter)

When using the extended accent mark definitions available with .AM, these strings should come after, rather than

before, the letter to be accented.

BUGS

Floating keeps and regular keeps are diverted to the same space, so they cannot be mixed together with predictable results.

NAME

term - conventional names for terminals

DESCRIPTION

Certain commands use these terminal names. They are maintained as part of the shell environment (see sh(1),environ(7)).

adm3a	Lear Seigler Adm-3a
2621	Hewlett-Packard HP262? series terminals
hp	Hewlett-Packard HP264? series terminals
c100	Human Designed Systems Concept 100
h19	Heathkit H19
mime	Microterm mime in enhanced ACT IV mode
1620	DIABLO 1620 (and others using HyType II)
300	DASI/DTC/GSI 300 (and others using HyType I)
33	TELETYPE(Reg.) Model 33
37	TELETYPE Model 37
43	TELETYPE Model 43
735	Texas Instruments TI735 (and TI725)
745	Texas Instruments TI745
dumb	terminals with no special features
dialup	a terminal on a phone line with no known characteristics
network	a terminal on a network connection with no known characteristics
4014	Tektronix 4014
vt52	Digital Equipment Corp. VT52

The list goes on and on. Consult /etc/termcap (see termcap(5)) for an up-to-date and locally correct list.

Commands whose behavior may depend on the terminal either consult TERM in the environment, or accept arguments of the form -Tterm, where term is one of the names given above.

SEE ALSO

stty(1), tabs(1), plot(1G), sh(1), environ(7) ex(1), clear(1), more(1), ul(1), tset(1), termcap(5), termcap(3X), ttytype(5)
troff(1) for nroff

BUGS

The programs that ought to adhere to this nomenclature do so only fitfully.