Contents

Abstract

This is a help file for the Metafont mode in Alpha. This file should be located in the Help subfolder of Alpha's folder to show up automatically in the Help menu when Alpha is loaded.

1 Introduction

MetafontMode is a mode for the text editor Alpha: it is designed to make writing, processing and testing of Metafont source files much easier. Metafont is the programming language written, as a companion to TeX, by Donald Knuth in order to create characters, fonts, font families (and many other things).

Once Metafont mode is installed, the opening of a Metafont source file (i-e with extension ".mf") invokes a new menu (called Metafont !) in the menu bar with the following features :

- easy insertion of all the basic Metafont commands (with electric stops)

- syntax coloring

- capacity to process a source file from within Alpha with various flags, printer modes, input base files

- editing of the log file

- capacity to make the pk file, to make the dvi from the generic font, to view the dvi;

- creating and editing the property list for a font

- capacity to manage ordinary and virtual fonts metrics, converting files with tftopl, pltotf, vptovf and vftovp

- processing all the source files in a folder

- file marking

- ready to use template for new fonts

- key bindings to choose the processing mode, process files etc.

- word completion

- command clicking on keywords and commands (to bring their definition)

- option clicking on the title bar of a window to bring a list of .mf and .log files located at the same level or in a selected folder and allowing to edit them.

As of this release, both CMacTeX Metafont and OzMetafont are supported.

2 Installation

2.1 Automatic installation

Open the "OPEN TO INSTALL" file. Opening this file indicates to Alpha that a new package has to be installed : the procedure is automatic. Alpha knows where to store the different elements of your Metafont Mode package.

2.2 Manual installation

- put the "Metafont Mode" folder in the "Modes" subfolder of the "Tcl" folder which is located at the same level as your Alpha application

- put the "Metafont Help" file in the "Help" folder located at the same level as your Alpha application. Next time you launch Alpha, you will have a "Metafont Help" item in the Help menu to edit this file.

- launch Alpha. You have to rebuild the package indices and the Tcl ones. "Rebuild Package Indices" is in the Config–"Packages menu, and "Rebuild Tcl Indices" is in the Tcl menu.

- quit Alpha and relaunch it : that's all there is to it.

2.3 After installing

From now on, the opening of any file with the ".mf" extension will invoke the Metafont menu. Have a look at the mode specific preferences : create or open any Metafont source file and choose "Preferences..." in the "Mode Prefs" submenu of the "Config" menu. You can set, for instance, the name of the printer mode corresponding to your printer, or indicate the path of a working folder. More explanations below.

3 Description

Description of the Metafont Menu items :

Switch To Metafont   Launches the Metafont application in front

Run The Buffer   Calls up the Metafont application and processes the current window

Save And Run Saves the current window and calls up the Metafont application to process it.
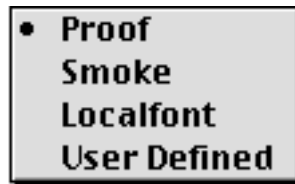
Run a File Prompts you for a "mf" file to run.

Run a Folder When pressing the option key "Run a File" becomes "Run a Folder" Prompts you for a folder of "mf" files to run.

Run Current Folder When pressing the control key "Run a File" becomes "Run Current Folder" Metafont will execute all the "mf" files in the currently selected folder if any. Its name is reflected at the bottom of the "Other Files" submenu.

3.1 Choose Metafont Mode submenu

The word mode has a different meaning for Alpha and for Metafont : here it means the Metafont's printer mode, the one you specify when you (or Maketexpk) process a font. As usual with Metafont if no mode is specified, the default is proof. You can choose among the following list. User Defined should be set in the Current Mode Prefs : it is the printer mode at your installation. If you do not know which mode corresponds to your installation, look in the modes.mf file which comes with your TeX distribution. You can edit this file directly in Alpha from this Metafont Menu (see below).

Proof To make proof characters at 2602 resolution (36 pixels per point). No tfm file is produced in this mode.

Smoke To make black proof characters. No tfm file is produced in this mode.

Localfont Use this mode when you do not know the printer mode's name of your installation : if your administrator did his job well, the "localfont variable" contains the printer mode.

User Defined Comes as default as canonex : you set here what you want.

3.2 Processing Options submenu

Define here any particular processing option allowed by Metafont.

Mag... Default value is 1, which means no magnification.

Magstep... Default value is 0, which means no magnification Note that you choose a magnification either in mag or in magstep : if you choose the magstep syntax, any choice you previously made with mag will be omitted (and vice versa).

Base File... You can specify a particular file (a base file for instance) which should be input before the file you want to process. Like in the command line :

```
mf \mode=foo ; input somebasefile.mf ; input currentwindowfile.mf
```

To cancel an input file you have to clear all options (see below the menu item "Clear All Options")

Gfcorners Option to draw corners at the corners of the box containing each character. Works in smoke mode.

Imagerules Option to draw the box of each character.

Nodisplays Don't show the characters on the monitor : to build fonts faster

Notransforms Don't calculate any transformation if currenttransform is identity. To run faster.

Screenchars Show each character once it has been calculated.

Screenstrokes Show each character stroke after stroke while it is calculated

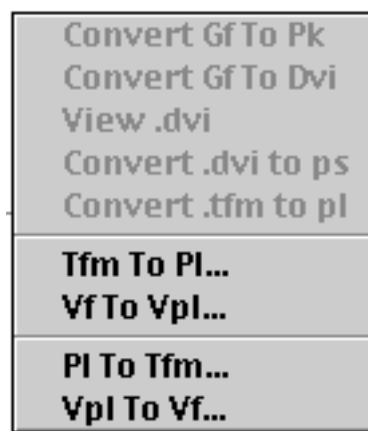**Clear All Options** Cancel all previously selected options.

3.3   Source Files submenu

This submenu contains a hierarchical list of mf source files. You must set the path to the folder containing the mf's in the Mode Prefs : the "Source Files" submenu reproduces the hierarchical structure of this folder. The depth of

nested subfolders can be set in the Prefs with the "Nesting Depth" variable. You can change it at any moment. If your main folder is to big, you might run into memory problems : this can be solved by increasing the memory allocated to Alpha. Choose a folder corresponding to your needs, not necessarily the top one. Choosing any item in the "Source Files" menu will edit the corresponding file.

Rebuild Source List In case new Otp's have been added, you can update the Otp List with this menu item.

3.4 Convert Files submenu

Convert gf to pk Invokes gftopk to transform the "gf" file produced after a run of Metafont to the "pk" (packed) format. This procedure reads in the log file to find the name of the gf file (which depends on the mode chosen and the mag) : if the log file is missing, it won't work. Note that with OzMetafont, pk fonts are automatically produced when a source file is processed.

Convert gf to dvi Invokes gftodvi to transform the "gf" file produced after a run of Metafont to a "dvi" (device independant) file. This procedure reads in the log file to find the name of the gf file (which depends on the mode chosen and the mag) : if the log file is missing, it won't work. This item is present only when using CMacTeX Metafont.

View dvi file If a dvi file has been produced (see previous item) you can view it with the dvi previewer (dvipreview with CMacTeX, built-in previewer with Oz).

The following items allow you to process a single file or all the files in a selected folder :

Tfm to pl... Prompts the user for a "tfm" file to convert to human readable format : extension of these files will be "fpl"

Vf to vpl... Prompts the user for a "vpl" file to convert to the corresponding "tfm" and "vf"

Pl to tfm... Prompts the user for a "pl" file in human readable format to compile a tfm file

Vpl to vf... Prompts the user for "tfm" and "vf" files to convert to the corresponding "vpl"

3.5 Other Files submenu

Open Log File Edit in Alpha (read-only) the log file corresponding to the currentwindow and produced by a run of Metafont on this current window.

Open Property List Open the property list file related to the current window (if it exists, i-e if you have already converted the tfm to pl)

Open Modes.mf Edit (read-only) the modes.mf file. It is the file containing the printer mode definitions for allmost all the available printers.

Open Plain.mf Edit (read-only) the plain.mf file. It is the file containing the definition of all the basic Metafont macros. Note : you have to set the paths to these files in the mode specific preferences when you first use the Metafont Mode.

Remove Files Sub menu to delete several types of files in the current folder : log, gf, pk, dvi, tfm, vf, pl, vpl. The pl files will be removed only if they have the plf extension (to avoid accidentally destroying Perl script files)

Select A Folder... Use the "Select A Folder..." item to select another folder. If a folder has already been selected, its name will be recalled at the bottom of the "Other Files" submenu. It says either

No Folder Selected If no folder is currently selected.

Current Folder Is: Followed by the name of the currently selected folder

New Font Template Builds a template for a complete new font source file. User is asked for the number of characters in the font.

Make Short Menu / Make Long Menu Toggle between short and long menu. The long menu adds a series of submenus containing all Metafont commands (primitives and macros from the plain format).

Any item you choose will be inserted in your file at the cursor's current position with electric tabs for those commands which need arguments. In some cases, you will be asked to enter a number (see "makegrid" for instance). All the macros relevant to a particular aspect have been collected together in a (supposedly) logical way:

- "Boolean"

- "Characters"

- "Conditions"

- "Debugging"

- ”Definitions”

- ”Displaying”

- ”Drawing”

- ”Font Internals”

- ”Functions”

- ”Internal Variables”

- ”Miscellaneous”

- ”Output”

- ”Paths”

- ”Pens”

- ”Pictures”

- ”Pixellisation”

- ”Positioning”

- ”Strings”

- ”Transformations”

- ”Modes Definitions”

- ”Variables”

NB : make use of the option, shift and command keys to get variants of the macros. For instance, if you hold the option key down, ”addto contour” will become ”addto contour withpen” ; with the command key you will get ”addto contour withweight”

4   File marking

Various elements are marked : macros definitions, character definitions, related files, input files etc. and can be easily accessed through pop-up menus and option or command clicking.

5   The Mark pop-up menu

If you choose to mark your file from the ”M” pop-up menu (top right of your editing window), all the def, vardef and beginchar declarations in your source file will be marked. Remember that the beginchar command is customizable (in the Mode Prefs) and any change you make there will be taken into account for marking. If the ’Auto Mark’ checkbox is checked in the Prefs, the file is automatically marked at opening.

6   The Functions pop-up menu

The "" pop-up menu (top right of your editing window) contains the functions and macros defined in your source file. We list here all the def, primarydef, secondarydef, tertiarydef and vardef definitions as well as the files input with an "input" command.

7   Command double clicking a word

If you Command-Double-Click on a keyword you access its definition. This procedure looks first for a definition in the current file itself, then in the list of primitives, then in the plain Metafont macros file and finally in the other text files located in the same folder and called in the current file by an 'input' command (typically they are macros files).

8   Option clicking the title bar

If you Option-Click on a the title bar, you get a list of all the .mf and .log files located :

- in the "local" folder (folder of your current window).

- in the "selected" folder (selected when you process an entire folder with "Run A Folder" or in the "Remove Files" sub menu)

Selecting any item in this list will open it in a window or bring its window to front if it is already open.

9   Completions

There is a set of completion procedures in Metafont Mode. To enable them, you must activate the "elecCompletion" package (in "Config–" Preferences–" Menus and Features") and choose your completion key (default is F1).

Completion will behave differently depending on the context.

- First we have a set abbreviations and contractions. Just type the following abbreviations and hit the completion key to have them expanded to the entire word or to a complete structure :

bc	beginchar endchar
bg	begingroup endgroup
dbp	define_blacker_pixels
dcp	define_corrected_pixels
dgxp	define_good_x_pixels
dgyp	define_good_y_pixels
dhcp	define_horizontal_corrected_pixels
dp	define_pixels
dwp	define_whole_pixels
dwvp	define_whole_vertical_pixels
sc	screen_cols
sr	screen_rows

for	for endfor;
def	def enddef;
prim	primarydef enddef;
sec	secondarydef enddef;
ter	tertiarydef enddef;
vardef	vardef enddef;
forever	forever endfor;
forsuffixes	forsuffixes endfor;
if	if fi

cu'n	currentpen
cu'p	currentpicture
cu't	currenttransform
cu'w	currentwindow
di'p	directionpoint
di't	directiontime
re'a	reflectedabout
ro'a	rotatedaround

- You can also type the first letters of a word and hit the completion key. If it is recognized as a keyword, it will be completed. If there are different possible completions, they will be listed in the status bar : hit the completion key again and you will have a list of all the possibilities from which you can select the one you want.

- With 'input' instructions : type 'input xx' and the proc will look for a known mf file whose name starts with 'xx'. This proc searches among the mf files in the source directory defined in the mode prefs (and in ALL its subfolders). If the source directory hasn't been defined, it searches in the current folder and its subfolders.

10 Key bindings

A few key bindings are defined in Metafont mode. For all of them you have to hit 'ctrl-m', release, then hit one of the following letters : 'p', 's', 'l' or 'u' to select respectively "p"roof, "s"moke, "l"ocalfont or "u"ser defined modes

'b'	to process the "b"uffer
'f'	to process a "f"ile
'd'	to process a "d"irectory
'n'	to create a "n"ew font template
'm'	to edit the "m"odes file 'modes.mf'
'c'	to edit the macro "c"ommands file 'plain.mf'
'g'	to edit the lo"g" file
't'	to convert "t"fm file to pl
'i'	to convert gf file to dv"i"
'k'	to convert gf file to p"k"
'i'	to "v"iew the d"v"i

11 Metafont Mode preferences

The "Preferences..." item in the "Mode Prefs" submenu of the "Config" menu allows you to edit specific preferences for the Metafont Mode. All of them should be self-explanatory. You can specify there :

- the paths to the modes.mf and plain.mf files.

- the name of the output folder in which to put the files produced by Metafont, gftopk of tftopl

- a "User Beginchar" : it is customary in Metafont's font files to modify the definition of the beginchar/endchar routine and to give it a different name : for instance "beginlogochar" in the logo.mf font or "cmchar" in Computer Modern fonts or whatever. You can specify here this modified name in order to get a correct file marking from the little "M" pop-up menu on the top right corner of the current window.

- the "Use Work Fold" flag can be set if you want to designate a different folder for output (with the "Mfwork Folder" pref). By default, the output folder is the folder of the current window. This feature will work only if you have CMacTeX Metafont version 2.2.1 or later.

12 Version History

- 1.0b1 – 03/28/99 – Created the Metafont Mode including the following features : new Metafont menu, submenus to insert Metafont macros with electric stops, syntax colorizing.

- 1.0b2 – 03/30/99 – Added file marking : all the def and vardef declarations are marked. All the beginchar environments are marked too (beginchar can be changed by the user).

- 1.0b3 – 04/02/99 – Added submenu to choose the processing options (screenchars, screenstrokes etc) and the Metafont printer mode. Added direct editing of the modes.mf and plain.mf files. The paths to these files is stored in the Current Mode Prefs.

- 1.0b4 – 04/06/99 – Added Apple event to have CMaCTeX process the current window or any mf file. Added building of the entire command line that will be sent to Metafont.

- 1.0b5 – 04/07/99 – Added error messages for noncompatible options. Problems of compatibility between mag and magstep resolved. Editing of the property list file (human readable translation of the tfm file)

- 1.0b6 – 04/08/99 – Added conversion of gf file to pk file from the Metafont menu.

- 1.0b7 – 04/09/99 – Improved error handling. Corrected a few bugs.

- 1.0b8 – 04/15/99 – Made "Other Files" submenu dynamic. Includes the name of the current files and rebuilds each time it is necessary : when a window is changed, when a file has been processed etc.

- 1.0b9 – 04/17/99 – Added alternate items in the menu : when pressing the option key, "Run a File" becomes "Run a Folder" etc. We can now process a whole folder, convert all the processed files to pk; all the tfm to pl...

- 1.0b10 – 04/19/99 – Added New Font Template.

- 1.0b11 – 04/21/99 – Added T. Kiffe's new Apple event syntax for CMacTeX Metafont to take the output folder into account.

- 1.0b12 – 04/27/99 – Added support for OzMetafont. Since OzMetafont cannot receive a complete Mf command line through an Apple event, a temporary make file is created and processed by the built-in MakeTeXPk

- 1.0b13 – 04/29/99 – Extended the "make file" technique to a complete folder. Extended it to CmacTeX too. Runs much faster : the user doesn't have anymore to confirm between each run of Metafont.

- 1.0b14 – 05/25/99 – Corrected a bug concerning conversion of tfm to pl.

- 1.0 – 05/27/99 – First public release of metafontMode (version 1.0).

- 1.01 – 05/29/99 – Corrected a minor bug for the Metafont menu to build correctly with the newly released Alpha 7.2.

- 1.01a – 09/19/99 – Corrected a bug due to new Alpha 7.2 syntax : old proc isPositiveInteger is replaced now by is::PositiveInteger.

- 1.1.1 – 09/21/99 – Started a Metapost Mode. This will be a standalone mode so I have to change the name of the procedures in both modes to avoid interferences : all procs follow the "Mf::" naming convention. rearranged the sub-menus.

- 1.1.2 – 12/02/99 – Added a "Convert Gf to Dvi" command (only with CMacTeX) along with a "View Dvi" command in the submenu "Other-Files" Corrected a bug concerning the paths with the tfm to pl conversion. Corrected multiple tftopl conversion routines.

- 1.1.3 – 12/16/99 – Rewritten code to clarify the outputfolders'mess. A new flag "useWorkFold" has been added : if not set the output folder defaults to the current folder ; if set you can choose a different folder for the output (only with CMacTeX Metafont 2.2.1 or later)

- 1.1.4 – 01/12/00 – Redesigned the "Other Files" menu : it now indicates which is the currently selected folder. Added a few items to the "Remove Files" submenu. Added a userEndchar in the prefs (since there was already a userBeginchar, this is logical) : they are used in the New Font Template (default values are beginchar and endchar) and with the "beginchar...endchar" menu item.

- 1.1.5 – 02/12/00 – Corrected a bug : the vftovp menu item did not work because of a typing error. Added a few keywords met in the pl files for syntax colorizing.

- 1.1.6 – 03/07/00 – Added some menu items concerning pencircle and pensquare : press the option or the command key to get variants. Added a proc to build a penstroke command : use the penstroke item with the option key.

- 1.1.7 – 04/18/00 – Added missing primitives to the Keywords list. Improved the mark file procedure.

- 1.1.8 – 05/03/00 – Added a lot of key bindings. Changed some basic code for future compatibility with Alpha 8 and AlphaTk.

- 1.2 – 05/08/00 – Added Mf::DblClick, Mf::OptionTitlebar, Mf::OptionTitlebarSelect and Mf::parseFuncs ad hoc procs. Modified syntax colorizing to distinguish Metafont primitives from plain format macros.

- 1.2.1 – 05/20/00 – Added a "Source Files" subfolder to list the mf source files on the installation : top level folder is chosen in the mode prefs. Added a flag to en/dis-able this feature. Added completion procs.

- 1.2.2 – 06/06/00 – Improved the file marking proc : now mark the description string of a char if there is one or its character code. Def and beginchar instructions are separated.

- 2.0 – 02/13/01 – Rewritten Metafont Mode to make it compatible with Alpha 7.4 and future Alpha 8. Modernised the Apple Events to make use of the new tclAE library. Reorganized the menu structure and added a Convert File submenu. Possibility to switch between a short and a long menu. Changed license to BSD.

- 2.0.1 – 04/04/01 – Suppressed unnecessary setmode in ShowBindings.

- 2.0.2 – 15/07/01 – Update of obsolete removeArrDef and addArrDef procs. Corrected a bug at startup when user cancels choice of mf app.

13 Known problems

With versions of CMacTeX Metafont OLDER than 2.2.1 (this is Metafont's version number, not CMacTeX version number), the output folder defaults to the current window's folder. In this case, don't change it in the mode specific preferences.

The file extension for property lists (corresponding to fonts metrics) is 'pl' which is the same as the extension of Perl script files : this means that when you open a pl file, it invokes automatically the Perl menu. The only thing you can do is to set Mf mode in the popup menu at the right bottomof the screen.

Due to a CMacTeX limitation concerning the tftopl, pltotf etc. programms, it is necessary to quit and relaunch the programms each time they are used. This leads to a semi-automatic processing of an entire folder : user is asked to click each time to guarantee that delays are sufficient for the applications to perform their tasks. Mf itself is not concerned by this. So far only CMacTeX Metafont and OzMetafont are supported : I'll try to add support for Textures in the future if there is a demand for it.

Please e-mail any problem or bug you encounter : berdesg@easynet.fr

Visit my Metafont Web page for updates and the utilities for Alpha page:
http://perso.easynet.fr/b̃erdesg/metafont.html
http://perso.easynet.fr/b̃erdesg/alpha.html

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