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|               Freemacs MULE   1.0   |
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|               under the   GNU GPL   |
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----- 1. Freemacs MULE. -----

Welcome to Freemacs MULE.

This package contains a series of utilities to help transforming FREEMACS into a multilingual environment.

FREEMACS MULE uses the FreeDOS utility XKEYB together with a modified version of Kurt Zammit's GNUCHCP, to load fonts and keyboard drivers.

A series of mint functions has been written which permits the user to switch character sets and keyboards from within FREEMACS, and to print text to a PS file. You can later print that file directly with a PostScript printer, or, using the GNU program GhostView, you can view it or transform it into a PDF.

You can refer to the file LISTING.TXT, for the list of files contained in the package.

----- 2. How to install MULE. -----

To install MULE, you will have to follow two steps, and, if you don't use a US keyboard, a preliminary step also. A simple batch script has been included which performs the first step, and finding the file INSTALL.MIN into Freemacs will help you perform the rest.

- 1) If you use a keyboard other than an US one, first open the file

LANGCFG.MIN

into EMACS, and follows the instructions therein.

- 2) Make sure that you have the DOS environment variable EMACS defined. (You already should have it, because, if you haven't, Freemacs doesn't work). Then make sure you have no directory called "MULE" into your EMACS directory (if you happen to have one, rename it before you go ahead).

3) First step: now you can switch to the directory where you unzipped the MULE package, with all its .dat, .key, .exe, .ed, .ps, .txt and .bat files. Then just run

INSTALL

and a subdirectory \mule will be created in your EMACS directory; all files will be copied to their proper positions, then EMACS should be invoked, and the file INSTALL.MIN visualized. For the second step, just follow the instructions therein.

----- 3. How to use Freemacs with MULE. -----

MULE provides your Freemacs editor with five new functions, which get installed into the USER library (they have have prefix U:).

If you have chosen a key binding for the functions during the installation, you can invoke them by hitting the corresponding keychords. If not, you can invoke them with M-x, followed by the function's name.

The functions are:

1. kbd-fnt-ld ("keyboard and font loading"). This function loads a font into the video memory, in the upper ASCII table (characters 128 to 255), and a keyboard driver, which will have your keyboard display those characters.

When you invoke this function, you will be prompted for an encoding name (see files ENCODING.TXT and LANGS.TXT for more info).

If you type "cyr1", your Freemacs should start displaying Cyrillic characters.

To find out how to get the various Russian letters with your keyboard, see the keyboard mappings in the files "cyr1_map.ps" (if you use the .txt version, make sure you first loaded Cyrillic fonts!).

2. kbd-fnt-uld ("unload keyboard and font"). Restores font and keyboard driver. If you have typed something in Russian and then invoke kbd-fnt-uld, you will now see strange signs in place of the Russian characters you typed. However, don't worry. The data you typed are still all in. If you invoke again kbd-fnt-ld and respond "russian" at the prompt, you will see your Russian letters again.

And if you make a PS while still seeing the strange signs, you'll get the correct characters in the PS.

3. kbd-load ("Load keyboard") and

4. kbd-unload ("Unload keyboard"). This functions load/unload only the keyboard driver; the font remains loaded in memory. So, if you are typing Russian, and need to enter something in English, you need only to temporarily unload the keyboard driver. Invoke kbd-unload, and you'll see Russian characters still in place.

However, if you type something now, you'll get Latin letters. When you are done with English, and want to switch back to Russian, you can invoke kbd-load.

If you have to invoke some Freemacs command, remember to invoke kbd-unload first, in order to switch off the keyboard driver. Otherwise, if you are prompted for a "y/n" answer and type a "n", you'll be actually typing a Cyrillic n (with a differen ASCII code),

and your answer will not be recognized! (If you get into such a situation by mistake, simply exit the command by typing C-G, then invoke kbd-unload to switch off the keyboard driver, then try again).

Using kbd-load and kbd-unload, you can toggle between keyboard drivers if you have to write a mixed-language text.

5. print-to-ps. This function "prints" the current buffer to a PS file. If your buffer has a filename associated with it, the PS file will have the same name, only with a .ps extension. If you are using a buffer without associated file name, the output file will be named "print.ps", and will be located in the current directory.

----- 4. How Freemacs MULE works -----

This multilingual environment is aimed first of all at American First Nation Languages, but I have included some basic charsets as latin1 (Western Europe), latin2 (Central and Eastern Europe), Cyrillic and Greek. For these I have followed ISO 8859 codepages.

In this way, a text in, say, Russian, written with Freemacs, should be properly rendered by other text editors as well, provided that the correct encoding is set.

For American First Nation Languages, on the other hand, I have tried to define some new "codepages". These encodings won't work with other text editors or word processors (they will work if you load the font file with gnuchcp2: for example, to load Inuktitut syllabary, which is specified by the "afn3" encoding, enter

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gnuchcp3 %EMACS%mule\fonts\afn3.dat
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before you invoke the editor, and

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gnuchcp3 %EMACS%mule\fonts\afn3.dat
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PS files should be properly printed by every PostScript printer, and displayed correctly by every PS viewer such as GhostView, because print2ps embeds a font dictionary into the text, building it from the bitmaps stored in the .dat file. If you have GNU GhostScript (which is available for many platforms, including DOS), you'll be able to make a PDF from the PS file, and this PDF should show the correct glyphs everywhere (only, this PDF won't be of a very high quality because of the bitmap fonts).

Every .dat file in the set is associated to a keyboard driver with extension .key, and with a similar name. I have used three or four character names for the .dat files.

The .key files are ASCII text files to be used by XKEYB. Their name starts with the .dat file name, followed by a "_", and a further two-letter code which identifies the keyboard installed, and finally the .key extension.

Finally, every .key file has an associated text file with the same name and extension .map. Such a file contains a list of the key bindings for the corresponding keyboard driver. Have a look at this file to find out which keys to hit in order to get the characters you want. Hence, for an Italian keyboard, you will have:

FONTS[]KEYBOARDS[]MAPPINGS

cyrl.dat cyrl_it.key cyrl_it.map (cyrl_it.ps)
grk.dat grk_it.key grk_it.txt (grk_it.ps)
etc.

In this package, I have provided .key files for US, SP and IT keyboards, but if you have another keyboard installed in your DOS, you can easily make your own keyboard driver with MAKEKEYB (downloadable from my web page). Please note that, having an Italian keyboard, I couldn't test the US and SP series properly (feedback will be warmly welcomed).

Of course, if you are not satisfied with the mapping I provide, you can make your own driver with MAKEKEYB (for example, if you already have a Russian keyboard, you probably will want to use the mapping you are accustomed to, rather than the US-, IT- or SP-keyboard compliant).

(Please note that keyboard mappings and encoding are independent of each other. In the Cyrillic fonts provided here, for example, a Cyrillic uppercase "A" is encoded as ASCII 176, irrespectively of which key a keyboard driver binds that character to).

MULE directory tree:

%EMACS%MULE	MULE main directory. Contains .exe and .ed files, the .ps template file, and COPYING.TXT.
%EMACS%MULE\SRC	Contains mint and PASCAL sources.
%EMACS%MULE\DOC	Contains .txt files for documentation.
%EMACS%MULE\KEY	Contains the keyboard drivers.
%EMACS%MULE\FONTS	Contains the bitmaps.
%EMACS%MULE\MAPPINGS	Contains the .map files.

5. How to customize and update MULE.

If you want to install some new font and keyboard driver, you will have to:

- give the font bitmap file a .dat extension, and copy it into the %EMACS%MULE\FONTS directory;
- copy the keyboard driver source file, with extension .key, into the %EMACS%MULE\KEYB directory. These two filenames must obey the MULE fonts and keyboards naming convention (see above at the end of section 4);

If you changed your system keyboard, you will need to define new mappings with MAKEKEYB and move all your new .key and .map files into the appropriate subdirectories. Then open the file

%EMACS%MULE\SRC\LANGCFG.MIN

with FREEMACS and follow the instructions therein.

