

Premia: The Documentation system

version 22

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The documentation system of PREMIA has been written in \LaTeX to avoid problems with the mathematical formulas. Then, it has been compiled in PDF (Files format of Acrobat Reader) to allow a large diffusion. It is strongly linked with the source files directory structure. In order to be able to navigate easily between the different files of the documentation, a system of hyperlinks have been undertaken up.

1 PREMIA \LaTeX files

1.1 The different kinds of \LaTeX files

There exist 3 types of files:

- For each source files (.c, .h) of the software, for instance gottlieb.c, a file gottlieb_src.tex is created, it is a \LaTeX version of the source file.
- For some source files (such as the routine files or general documentation on numerical methods, models or options), a documentation file is created, for instance gottlieb_doc.tex.
- For each __doc.tex files there exists a __docl.tex files which contains only the hyperlinks of the first file and is not compilable.

The first and the last kind of \LaTeX files are generated automatically by the routine PremiaCToTex.exe. We will come back to this later.

1.2 Common \LaTeX files

Some files contain some \LaTeX code of common usage (preamble, packages...). They are all located in the Doc subdirectory of PREMIA1. So if you plan to compile a \LaTeX file in PREMIA you need to add the PREMIA/man directory to path list for \LaTeX input files (in MikTeX.ini if you use MikTeX under Windows).

- **premiamble.tex**: contains the declaration of the use of the packages color and hyperref with its options.
- **premiambledoc.tex**: same as above, except that it is only for the general documentation files. In addition it creates a bar of links to the help on the kernel, the documentation the VAR system, the Interface, and the contents of the directory PREMIA1.
- **premiadata.tex**: contains some declaration of custom commands for \LaTeX .
- **premiaend.tex**: links to the bibliography and last commands necessary to the file.

1.3 The hyperlinks system

As we say above, the hyperlinks are automatically generated by PremiaCToTeX. What kind of links are generated?

- For a routine file: A link to the source file, the model, the option family, the file `model_option`, the list of archived trials of the routine, and the algorithmic family (like `tree`, `finite-difference...`) of the routine

Example:

[tr_euler_bs_doc.pdf](#)

- For an option file: A link to the source file and the (corresponding) option family.

Example:

[calleuro_doc.pdf](#)

- For a `model_option` file: A link to the source file, the model, the option family, the dynamic test routine of the directory, and the comparison tests between different routines of the directory. Also a list of links to all the routines of the directory.

Example:

[bs1d_std_doc.pdf](#)

- For a `model_option_test` file: A link to the source file, the model, the option family, the `model_option` file of the directory, and the dynamical tests involving a routine of the directory.

Example:

[bs1d_std_test_doc.pdf](#)

2 L^AT_EX packages

All the following packages can be found on the CTAN site (<ftp.dante.de>).

[Biblio](#)

[C Source](#)

2.1 The package Hyperref

Of course this is the cornerstone of the documentation system. The package `hyperref` extends the functionality of all the \LaTeX cross-referencing commands (including the table of contents, bibliographies etc...) to produce special commands which a driver can turn into hypertext links under PDF in particular; it also provides new commands to allow the user to write hypertext links, including those to external documents and URLs. The package `hyperref` is available on the CTAN sites (like ftp.dante.de).

2.2 Other packages

We also use (essentially to get a nicer presentation) the following packages: **`fancyhdr`**, **`latexsym`**, **`alltt`**, **`varioref`**, **`keyval`**, **`nameref`**, **`verbatim`**, **`time`**.

3 Dvipdfm

This is a DVI to PDF conversion utility, that support hyperlinks. It also can include a JPEG image as an encapsulated object and offer great possibilities with colors and fonts. It produces a nicer output than `ps2pdf` or even `distiller` (after running `dvips`)...and it is free.

4 The routine PremiaCToTex

All the hyperlinks of the files `_doc.tex` and `_src.tex` are generated automatically by the programs `PremiaCToTex`. They are located in the file `_docl.tex` for the first kind. This file is the one modified by `PremiaCToTex` which also erases all the `_src.tex` and at the opposite neither write in the `_doc.tex` files (except if it does not exist, then the routine creates it with the appropriate inputs, links and declaration).

This program also creates the file `summury.tex` which lists all the source files of the program `PREMIA`.

5 Scripts

5.1 From \LaTeX to Pdf

A script for both Windows and Unix have been implemented to transform the \LaTeX files in PDF format: [tex2pdfone](#). There is also a script to compile all the \LaTeX files, [tex2pdfall](#).

5.2 Out2Pdf

This is a script (a .bat file under Windows, bash file under Unix) to produce a (hopefully) nice Pdf output out of the software output ([premia.out](#), etc..). The output file ([gnupremia.pdf](#)) is put in the Win or Unix subdirectory of PREMIA1, so the hyperlinks to the model, option,..will not work: it is intended as a trial stage before launching [ArchivePdf](#) if the output is found to be satisfactory. Of course [ArchivePdf](#) can be launched directly.

5.3 ArchivePdf

The same as above, except that in addition the output Pdf file is integrated in the documentation system, and the corresponding list of archived files (either a single routine list, or a comparison list or a dynamical test list) is updated. Under Windows it requires a bash shell like that of Cygnus (cf [readme.txt](#)).