The **skdoc** document class, v1.4b

The skdoc document class*[†]

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Version 1.4b

Abstract The skdoc class provides macros to document the functionality and implementation of \mathbb{E}TEX packages and document classes. It is loosely based on the ydoc and ltxdoc classes, but has a number of incompatible differences. The class defines a MacroCode environment which substitutes the usual docstrip method of installing packages. It has the ability to generate both documentation and code in a single run of a single file.

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^{*}Available on http://www.ctan.org/pkg/skdoc.

[†]Development version available on https://github.com/urdh/skdoc.

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1 Introduction

This document class, inspired by a question on the T_EX Stack Exchange¹, aims to provide an alternative to the standard docstrip method of literate programming for ET_EX packages. It also aims to provide a more modern, appealing style for ET_EX package documentation.

In order to achieve this, it builds upon already existing features of the expl3, verbatim and ydoc packages as well as the KOMA-script document classes.

The documentation of skdoc is in fact typeset using the class itself. It does not, however, make use of the main feature of this class (the MacroCode environment), because bootstrapping the class to generate itself is more complicated than it is useful.

¹Lazarides 2012.

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2 Documentation

Since skdoc is based on ydoc many of the macros and environment present in that package are also available in skdoc, in a possibly redefined incanation. However, any macros or environment present in ydoc but not described in this documentation should be considered part of the private API of skdoc. In the future, the removal of the vdoc dependency may result in such macros being unavailable, and at present changes made by skdoc may break such macros without notice.

2.1 Options

load *(package)*

(\jobname)

The load option declares that if the package specified exists, it should be loaded. This is intended to load any package provided in the implementation, but requires that the documentation provides stub variants of the macros used in the documentation so that LATEX still completes its first run.

highlight

(true)

true, false The highlight option enables or disabled syntax highlighting of the implementation code. Highlighting is performed using minted, and falls back to no highlighting if there is no \write18 access, if minted is unavailable or if the pygmentize binary can't be found. (Note: On non-unix platforms, the test for pygmentize will likely fail. Therefore, syntax highlighting is not supported on such platforms.)

Generally, there should be no reason to disable syntax highlighting unless the documentation describes a very large package, and the repeated calls to pygmentize take too long.

The babel option allows you to specify what languages are loaded by babel the babel package. It is a key-value option, and its content is passed as options to the babel \usepackage declaration.

2.2 General macros

The document class defines a number of general macros intended for use in parts of the document not strictly considered 'documentation'

or 'implementation', in addition to being used in those parts. These 'general' macros include macros that define metadata, generate the title page, typeset notices or warnings and those that refer to macros, environments, packages and such.

2.2.1 Metadata

Several macros for defining metadata (*i.e.* information about the package and its documentation) are made available. These mostly set an internal variable which is used to typeset the title page, and to insert PDF metadata whenever $pdf \bowtie_{TE} X$ is used to generate the documentation.

\package [ctan={identifier}, vcs={url}] {{package name}}

The \package macro defines the package name used by \thepkg, \maketitle and similar macros. It also calls \title to set a sensible default title based on the package name. The optional key-value argument takes two keys: ctan and vcs. The first one accepts an optional value $\langle identifier \rangle$, which should be the identifier the package has on CTAN (the default is \jobname), while the other takes a mandatory argument $\langle url \rangle$ specifying the URL of a VCS repository where development versions of the package are available. The two optional keys imply calls to the \ctan and \repository macros, respectively.

\version $\{\langle version \rangle\}$

Sets the version number of the package the documentation describes. Here, $\langle version \rangle$ should not include the initial 'v', *i.e.* the argument should be the same as that given to *e.g.* the $\texttt{MTEX3} \$ provides ExplPackage or the standard ltxdoc \changes.

\ctan { $\langle identifier \rangle$ }

As detailed above, this macro defines the CTAN identifier of the package, which is (optionally) used in the \maketitle macro.



\repository $\{\langle url \rangle\}$

Again, as detailed above this macro defines the URL of a source code repository containing a development version of the package, which is optionally used by \maketitle.

\author $\{\langle name \rangle\}$

Defines the name of the package author. This is used by \maketitle and is mandatory if \maketitle is used.

\email $\{\langle email \rangle\}$

Defines the email of the package author. This is used by \maketitle and is mandatory if \maketitle is used.

\title { $\langle title \rangle$ }

Defines the package title. By default, the \package macro sets a sensible title that should suit most packages, but using \title will override this title (useful for *e.g.* document classes or BIBTEX styles).

Three macros retrieving the set metadata are also available. They can be used to typeset the current version of the package, and the package name, respectively.

$\$ theversion

Returns the version as defined by version, with a leading 'v'. That is, issuing $version{1.0}$ makes theversion print 'v1.0'.

\thepackage

thepkg

The \thepackage and \thepkg macros return the package name as defined by the \package macro, enclosed in \pkg*. That is, the package name is typeset as a package but not indexed.

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2.2.2 The preamble

The preamble of any documentation most often consists of a title page containing an abstract, and possibly a table of contents. The skdoc package provides macros and environments that typeset such things, and these should be fully compatible with most other document classes.

maketitle

The $\mbox{maketitle}$ macro typesets a title page. This title page uses the metadata defined by the macros described earlier, and typesets them in a manner which is illustrated by the documentation of this class. This style is inspired by skrapport, which is in turn inspired by the title pages of the PracTEX Journal.

\begin{**abstract**}

{package abstract}
\end{abstract}

The abstract environment typesets an abstract of the package. Again, its style is illustrated by this document and it is inspired by the skrapport package as well as the PracTEX Journal.

\tableofcontents

Finally, a Table of Contents may be printed. The actual table of contents is provided by the scrartcl document class, but skdoc redefines a couple of the internal macros to style the Table of Contents in a manner similar to that of the microtype manual.

2.2.3 The LPPL license

PrintLPPL

If the LPPL license is present in a directory where LPL can find it, in a file called lppl.tex, then \PrintLPPL will include the entire LPPL license in the document, and typeset it in a fairly compact manner.



2.2.4 Notices and warnings

The document class provides macros to indicate information that may be of extra importance in the documentation. Such information is categorized as either notices or warnings, which are treated differently.

Notice $\{\langle notice \rangle\}$

A notice is a short piece of text that contains information that may explain some unexpected but unharmful behaviour of a macro or similar. It is typeset inline, emphasized and in parantheses — as such, the sequence $\Notice{a notice}$ yields (*Note: a notice*).

\Warning $\{\langle warning \rangle\}$

A warning is a short comment that conveys information that the user must be aware of. This includes unexpected potentially harmful behaviour, deprecation notices and so on. It is typeset in its own fbox the sequence $Warning{a warning}$ yields the following:

Warning: a warning

\LongWarning $\{\langle warning \rangle\}$

The \LongWarning macro is a variant of \Warning that has been adapted for longer texts, possibly including paragraph breaks. Like \Warning, it is typeset in a box:

a long warning

Warning:

2.2.5 Referential macros

The family of macros originating from \cs are used to typeset various concepts in running text. In addition to adhering to the general format

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of the corresponding concept, they index their argument. Each of these macros have a starred variant which does not index its argument; use these when appropriate.

\cs { $\langle command \ sequence \rangle$ }

Typesets a command sequence, or macro. The argument should be provided without the leading backslash, and the command sequence will be typeset in a monospaced font.

\env {*(environment name)*}

Typesets an environment name, which will be typeset in a monospace font.

\pkg { $\langle package name \rangle$ }

Typesets a package, document class or bundle name. The name will be typeset in a sans-serif font.

opt $\{\langle option \rangle\}$

Typesets a package or document class option. As of v1.4b, options are typeset using a monospace font.

bib { $(BIBT_EX entry type)$ }

Typesets a BIBT_EX entry type. The agument should be provided without the leading @ sign. The entry type will be typeset in a monospace font.

\thm { $\langle theme \ name \rangle$ }

Typesets a theme name. As of v1.4b, the theme name will be typeset in an upright serif font.

\file { $\langle filename \rangle$ }

Typesets a filename. As of v1.4b, the filename will be typeset in a mono-space font.

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Table 1:	Typesetting	arguments
----------	-------------	-----------

Invokation	Result
\ marg {argument}	$\{\langle argument \rangle\}$
\ oarg {argument}	$[\langle argument \rangle]$
\ parg {argument}	($\langle argument \rangle$)
\ aarg {argument}	<(argument)>
\sarg	*

2.3 Documenting the package

\meta $\{\langle meta \ text \rangle\}$

The \meta macro typesets a placeholder to be placed in an argument. This can be used to refer to arguments and contents of macros and environments described by commands discussed later in this documentation. It is typeset in brackets: $\langle meta \ text \rangle$.

- **\marg** { $\langle mandatory argument \rangle$ }
- **\oarg** { $\langle optional argument \rangle$ }
- **\parg** { $\langle picture-style argument \rangle$ }
- **\aarg** { $\langle beamer-style argument \rangle$ }
- \sarg

These macros typeset different kinds of arguments (mandatory, optional, picture-style, beamer-style and star arguments, respetively). These can be used to describe arguments, but are mostly used internally. See table 1 for examples of how these macros are typeset.

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2.3.1 Examples

Perhaps the most powerful way to illustrate features of a package is to show their function by examples. This is made possible by the example environment. By enclosing example code in this environment, the actual code is typeset next to the result it would produce, as seen below²³:

Example:

Simply typesetting a <i>paragraph</i> may be simple enough, but it should showcase the utility of the environment well enough.	<pre>% Simply typesetting a % \emph{paragraph} may % be simple enough, but % it should showcase % the utility of the % environment well enough.</pre>
	%

Note that for this to work the package obviously needs to be loaded. As such, it is probably a good idea to combine the use of $e \times ample$ with the load option, so be sure to read up on the caveats of using that option (see page 4).

Since the example environment is based on the same mechanisms as MacroCode, (mostly) the same typesetting properties apply. In particular, the code will be highlighted if minted is available. (*Note: Since the backend utilizes* *verbatim, the usual caveats apply. In particular, leaving whitespace before* *end{*(*example*)} *will result in an extra newline at the end of the displayed code.*)

2.3.2 Options

Package options are of course important to describe, and to this end four macros are provided. They aid in describing options of both regular

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²Note that the showcased example environment doesn't contain another example environment — the environment is not intended to be nested inside itself.

³The percent characters in the example are caused by the docstrip requirement of prefixing the documentation with them.

boolean and the more modern key-value syntax. They are intended to be used in a sequence:

\Option $\{\langle option \rangle\}$ **\Options** $\{\langle option \rangle, \ldots\}$

These macros typeset an option, and may be followed by the \WithValues macro (*Note:* the with \Options, only the first option in the list will work with \WithValues).

\WithValues $\{\langle value \rangle, \ldots\}$

This macro typesets a comma-separated list of values a specific option can take. It may be followed by the \AndDefault macro.

\AndDefault $\{\langle default value \rangle\}$

This macro typesets the default value of an option. It may follow either \Options or \WithValues.

Common constructs using these macros include:

- $Option{\langle option \rangle} \setminus WithValues{\langle value \rangle, ...} \setminus AndDefault{\langle default \rangle}$
- **Options**{(option), no(option)} **AndDefault**{no(option)}

2.3.3 Macros

The skdoc class inherits a number of macros for describing the package macros from the ydoc package. Only four of them are to be considered stable.

Warning:

The macros \MakeShortMacroArgs and \DeleteShortMacroArgs and the environments DescribeMacros and DescribeMacrosTab provided by ydoc are unsupported as of skdoc v1.4b. They may work, but this is not a guarantee and they are most likely broken or may break other features of skdoc.

\DescribeMacro (\macro)(macro arguments)

The \DescribeMacro macro documents a macro along with its arguments. Any number of $\langle macro arguments \rangle$ may follow the macro, and \DescribeMacro will stop reading arguments on the first non-argument token. The macro will be indexed.

Warning:Although $\langle macro \rangle$ can include @ signs, it is not possible to document ET_EX3 -style macros (with underscores and colons) without the followinghack:

```
\ExplSyntaxOn
\cs_set_protected_nopar:Npn\ExplHack{
   \char_set_catcode_letter:n{ 58 }
   \char_set_catcode_letter:n{ 95 }
}
\ExplSyntaxOff
\ExplHack
```

\Macro $\langle macro \rangle \langle macro arguments \rangle$

This is simply a variant of \DescribeMacro for use in running text. It is equivalent to \MacroArgs\AlsoMacro.

\MacroArgs (macro aguments)

This macro formats (macro arguments) the same way \DescribeMacro does. As with \Macro, it is used in running text.

\AlsoMacro (*\macro*) (*further arguments*)

This macro should be used inside (*macro arguments*) of the macros described above, and typesets an additional macro as part of the syntax of the described macro. For instance, the \csname macro could be described with the sequence \Macro\csname<command sequence name>\AlsoMacro\endcsname, which would be rendered as **csname**(*command*)

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$sequence name angle \setminus endcsname$.

2.3.4 Environments

In addition to the macros describing macros, skdoc also inherits one environment and one macro to describe environments. These are similar to the macros described previously in both form and function, but lack equivalents for running text.

\DescribeEnv [\langle body content \rangle] {\langle name \rangle } \langle arguments \rangle

This macro describes an environment, in the same way \DescribeMacro does for macros. The $\langle body \ content \rangle$, which is optional, may be used to indicate what kind of content the environment is designed to contain. The \MacroArgs macro is automatically inserted before $\langle body \ content \rangle$.

2.3.5 Other entities

The document class also provides macros to describe $BiBT_EX$ entries and generic themes. The $BiBT_EX$ entries are described using the \BibEntry and \WithFields macros, while themes are described using the \Theme macro.

\BibEntry {*\entry name*}**\WithFields**[*\optional fields*\] {*\entry mandatory fields*\}

These two macros describe a BiBT_EX entry named $\langle entry name \rangle$ (*i.e.*, $@\langle entry name \rangle$) along with its optional and mandatory fields.

\Theme $\{\langle theme \ name \rangle\}$

This macro describes a theme named $\langle theme name \rangle$. These could be used to describe any kind of theme, such as color themes of a document class.

\DescribeFile {*\filename*}

This macro describes a special file named $\langle filename \rangle$. This could be a configuration file or similar that is either part of the package or something the package reads if available.



2.4 Describing the implementation

In true T_EX (and literal programming) fashion the document class also provides ways to describe, in detail, parts of the implementation. The most essential of the implementation environments, without which skdoc doesn't generate any files, is the MacroCode environment. Other than that, the implementation environments should be compatible with or analogous to the standard ltxdoc document class.

2.4.1 Implementation environments

The environments described in this section indicate the implementation of different concepts including macros, environments and options. They each have a starred variant which doesn't print the concept name (only indexes it), and a non-starred variant which does (*Note: inside these environments, \changes will refer to the relevant entity instead of logging 'general' changes*).

Some of the following environment can typeset descriptions of the internal arguments (#1, #2 *etc.*) to improve readability of the implementation code.

\begin{ macro } <i>\description</i> \end{ macro }	$\{(macro)\}[(\# of args)]\{(arg 1 description)\}[(default value)] \{(arg n description)\}[(default value)]$ With this environment, the implementation of a macro is described.
	Note that as with \DescribeMacro, $\mathbb{E}T_EX3$ -style macros can not be used in $\langle macro \rangle$ without the catcode hack mentioned earlier.
egin{environment} \langle description \rangle	$ \{\langle environment \rangle\} [\langle \# of args \rangle] \{\langle arg \ 1 \ description \rangle\} [\langle default \ value \rangle] \dots \{\langle arg \ n \ description \rangle\} [\langle default \ value \rangle] $
\end{ environment }	This environment describes the implementation of an environment.
\begin{ option }	$\{\langle option \rangle\}$
<i>(description)</i>	This environment describes the implementation of an option.
\end{ pption } \begin{ bibentry }	$\{\langle @entry \rangle\}$
<i>description</i>	This environment describes the implementation of a B ${ m BT}_{ m E}{ m X}$ entry type.
\end{ bibentry } \begin{ theme }	$\{\langle theme \rangle\}$
〈 <i>description</i> 〉 \end{ theme }	This environment describes the implementation of a theme.

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2.4.2 The MacroCode environment

The 'main event' of the skdoc document class is the MacroCode environment. It has roughly the same role the macrocode environment has in the docstrip system, except that it in addition to typesetting the implementation also saves it to the target files.

The workflow is simple; before using MacroCode to export code to a file the file must be declared using \DeclareFile, which also assigns a key to the file (the default is the filename). This key is passed to the MacroCode environment, which saves the code to the specified file.

\DeclareFile [key=(key), preamble=(preamble)]{(filename)}

The \DeclareFile macro declares a file for future use with MacroCode. The optional argument is a comma separated list of key-value options, where the possible keys are key and preamble. Here $\langle key \rangle$ is a key that is used instead of the filename in MacroCode, and $\langle preamble \rangle$ is a token or command sequence expanding to a preamble which will be prepended to the file on output.

\PreambleTo $\{\langle token \rangle\} \{\langle filename \rangle\}$

Reads the preamble from $\langle filename \rangle$. Lines from the file are appended to $\langle token \rangle$ until a line which does not begin with %% is encountered.

\SelfPreambleTo {(\token)}

\begin{MacroCode}

This reads the preamble from the curent file. It is equivalent to the sequence $PreambleTo{(token)}{(jobname.tex)}$.

$\{\langle key \rangle, \ldots\}$

\implementation \
\end{MacroCode}
The MacroCode environment typesets and exports (implementation)
verbatim to the file associated with (key). As such, it is the analogue
of the macrocode environment from ltxdoc, but does not suffer from
some of its drawbacks (the sensitivity to whitespace, for instance). As
detailed by the description of the highlight option (on page 4), the
environment will highlight the code using minted if possible. Multiple
(key)s are allowed, and the code will be written to all corresponding files.

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2.4.3 Hiding the implementation

For lagre packages it may be of interest to hide the implementation from the documentation. This is accomplished using the two marker macros \Implementation and \Finale (which should be present even if not hiding the implementation), and the switch macro \OnlyDescription.

Implementation

This macro indicates the start of the implementation. Normally, this would directly precede the \section under which the implementation is organized.

Finale

This macro indicates the end of the implementation. Usually the only things happening after this is the printing of indices, the change log, bibliographies and the end of the document environment.

\OnlyDescription

This macro, which should be issued in the preamble, indicates that the implementation should be hidden.

Warning: this has the side effect that a page break is inserted where the implementation would normally reside.

2.5 Documenting changes

One type of useful information you should provide in your documentation is a list of changes. The skdoc document class provides a change list system based on the glossaries package. As such, including a change list in your documentation requires you to run makeglossaries between the first and second LargeX run.



\changes $\{\langle version \rangle\} \{\langle description \rangle\}$

The \changes macro provides the main interface to the change list system, and adds changes to the change list. Each change is added with a *context*; if the macro is issued inside one of the macros described in section 2.4.1, the concept currenly being described will be the context. Outside these environment, the context is 'general'. For every context and $\langle version \rangle$, only one change may be recorded, otherwise glossaries will issue a warning.

PrintChanges

This macro prints the list of changes. As explained earlier, this requires you to run makeglossaries between the two LATEX runs.

2.6 Producing an index

The macros previously discussed in sections 2.2.5, 2.3 and 2.4.1 automatically index their aguments using glossaries. By running makeglossaries you can include an index of all macros, environments, packages and such that are discussed, documented or implemented in your package.

PrintIndex

Much like the PrintChanges macro, this prints the index. As with the list of changes, this requires that you run makeglossaries between the two $\&T_EX$ runs.

3 Known issues

A list of current issues is available in the Github repository of this package⁴, but as of the release of v1.4b, there are no known issues. If you discover any bugs in this package, please report them to the issue tracker in the skdoc Github repository.



⁴https://github.com/urdh/skdoc/issues

4 Installation

The easiest way to install this package is using the package manager provided by your LTEX installation if such a program is available. Failing that, provided you have obtained the package source (skdoc.dtx and Makefile) from either CTAN or Github, running make installinside the source directory works well. This will extract the documentation and code from skdoc.dtx, install all files into the TDS tree at TEXMFHOME and run mktexlsr.

If you want to extract code and documentation without installing the package, run make all instead. If you insist on not using make, remember that skdoc.cls is generated by running tex, while the documentation is generated by running pdflatex.

5 Changes

v1.0v1.3General: Initial version.General: Allow multiple targets per

V1.1

General: Added support for syntax highlighting using minted.

v1.1a

General: Deprecate the use of bibtex in favour of biblatex.

V1.2

General: Use I3prg booleans instead of toggles.

v1.2b

General: Use inconsolata. Don't use ascii.

General: Use sourcecodepro instead of inconsolata. Fix issue with index entries of different types with same name.

MacroCode.

V1.4

v1.3b

General: Added option to control babel. Allow optional default value arguments in macro and friends. Fix spacing issue in option and friends.

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v1.4a

General: Fix various compatibility issues with latest glossaries.

General: Track expl3 changes (thanks to Joseph Wright).

6 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the page were the implementation of the corresponding entry is discussed. Numbers in roman refer to other mentions of the entry.

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\title <mark>5,</mark> 6

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7 Bibliography

Lazarides, Yannis (2012). *Different approach to literate programming for ETEX*. URL: http://tex.stackexchange.com/q/47237/66.

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