# The **skdoc** document class\*†

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Version 1.1

The skdoc class provides macros to document the functionality and implementation of LTFX packages and document classes. It is loosely based on the ydoc and Itxdoc classes, but has a number of incompatible differences. The class defines a MacroCode environment which substi-

tutes 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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<sup>\*</sup>Available on http://www.ctan.org/pkg/skbundle.

<sup>†</sup>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<sub>E</sub>X Stack Exchange<sup>1</sup>, aims to provide an alternative to the standard docstrip method of literate programming for Lagrange packages. It also aims to provide a more modern, appealing style for Lagrange 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.

So far it is mainly intended to be an experiment to explore a less cumbersome way of writing LateX packages, and as such I give no guarantee that this package will continue to exist in a working state (*i.e.* future users may not be able to extract code from package documentation based on skdoc) or that its public API (commands and environments described by this documentation; consider undocumented macros part of a private API) will be stable.

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.

<sup>&</sup>lt;sup>1</sup>Lazarides 2012.

# 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 ydoc 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.

**Warning:** The load option will likely disappear in a future version.

highlight

true, false

(true)

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.

# 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 ET<sub>E</sub>X is used to generate the documentation.

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

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 Lagrange or the standard ltxdoc \changes.

 $\cot \{(identifier)\}$ 

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.

# 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 \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 LTEX 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:

Warning:		
a long 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

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 {\langle environment name \rangle}

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 v1.1, options are typeset using a monospace font.

# \bib $\{\langle BBTEX entry type \rangle\}$

Typesets a BibTeX 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 v1.1, the theme name will be typeset in an upright serif font.

# \file {\langle filename \rangle}

Typesets a filename. As of v1.1, the filename will be typeset in a monospace font.

**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

The documentation part of any Let X manual is arguably the most important one, and to facilitate proper typesetting of the documentation skdoc povides a number of different macros, all inspired by or inherited from ydoc. The first of these macros that will be discussed are the macros that typeset differen kinds of arguments in running text.

```
\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 {\mandatory argument\} \\
\cap {\langle optional argument\} \\
\parg {\langle picture-style argument\} \\
\aarg {\langle beamer-style argument\} \\
\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.

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

```
\verb|\Option{...}\WithValues{...}\AndDefault{...}|
```

```
\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:

- $\ordressim \ordressim \ordres$
- \Options{\langle option \rangle, no \langle option \rangle \} \And \text{Default \{no \langle option \rangle \}}

#### 2.3.2 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 v1.1. They may work, but this is not a guarantee and they are most likely broken or may break other features of skdoc.

#### \DescribeMacro \\n

 $\langle \text{\ } macro \rangle \langle macro \ arguments \rangle$ 

The \DescribeMacro macro documents a macro along with its arguments. Any number of \( \frac{macro arguments} \) may follow the macro, and \DescribeMacro will stop reading arguments on the first non-argument token. The macro will be indexed.

# Warning:

Although  $\langle \backslash macro \rangle$  can include @ signs, it is not possible to document  $\LaTeX$ 3-style macros (with underscores and colons) without the following hack:

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

# \Macro ⟨\macro⟩⟨macro arguments⟩

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

# \MacroArgs \langle macro aguments \rangle

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

# \AlsoMacro \\macro\\further arguments\

This macro should be used inside  $\langle macro\ arguments \rangle$  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 sequence name\\endcsname.

#### 2.3.3 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.

# $\label{lem:lemma$

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  $\langle body\ content \rangle$ .

#### 2.3.4 Other entities

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

These two macros describe a BiBTEX 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 {\langle filename \rangle}
```

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 TEX (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.

With this environment, the implementation of a macro is described. Note that as with  $\DescribeMacro$ ,  $\End{ETE}X3$ -style macros can not be used in  $\mbox{$\langle \rangle$}$  without the catcode hack mentioned earlier.

```
{\langle environment \rangle} \langle \# \ of \ args \rangle \{\langle arg \ 1 \ description \rangle\} \dots \{\langle arg \ n \ description \rangle\}
\begin{environment}
            (description)
                               This environment describes the implementation of an environment.
   \end{environment}
                               \{\langle option \rangle\}
       \begin{option}
            (description)
                               This environment describes the implementation of an option.
          \end{option}
                               \{\langle @entry \rangle\}
    \begin{bibentry}
            ⟨description⟩
                               This environment describes the implementation of a BibT<sub>F</sub>X entry type.
       \end{bibentry} \begin{theme}
                               {\langle theme \rangle}
            (description)
                               This environment describes the implementation of a theme.
           \end{theme}
```

#### 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 [\text{key}=\langle key \rangle, \text{preamble}=\langle preamble \rangle] \{\langle filename \rangle\}
```

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.

 $\SelfPreambleTo \{\langle token \rangle\}$ 

This reads the preamble from the curent file. It is equivalent to the sequence  $\Pr\{o\{(token)\}\}$ 

\end{MacroCode}

 $\{\langle key \rangle\}$ 

The MacroCode environment typesets and exports  $\langle implementation \rangle$  verbatim to the file associated with  $\langle key \rangle$ . 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).

# 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 LTFX 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 LTEX 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 MTEX runs.

# 3 Known issues

A list of current issues is available in the Github repository of this package<sup>2</sup>, but as of the release of v1.1, there is only one known issue:

- #2 When referencing in the implementation, using \cite and similar commands, the references are included in the bibliography even though the referencing command is never typeset. This is a side-effect of the method with which the implementation is hidden, but it should be possible to mitigate (in the same way that \sections are hidden).
- #3 If there is a page break near the beginning of a code block, the key/label marker may stay on the page while the code follows after the break. This only happens with syntax highlighting.

If you discover any bugs in this package, please report them to the issue tracker in the skdoc Github repository.

<sup>&</sup>lt;sup>2</sup>https://github.com/urdh/skdoc/issues

# 4 Installation

The easiest way to install this package is using the package manager provided by your Latex 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 install inside 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**

V1.0 V1.1

General: Initial version.

General: Added support for syntax highlighting using minted.

# 6 Index

Numbers written in boldface 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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Talbot, Nicola (2013). Answer to 'Distinct formatted page numbers with glossaries and Xindy'. Url: http://tex.stackexchange.com/a/89830/66.