The **bookmark** package

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Abstract

This package implements a new bookmark (outline) organization for package `hyperref`. Bookmark properties such as style and color can now be set. Other action types are available (URI, GoToR, Named). The bookmarks are generated in the first compile run. Package `hyperref` uses two runs.

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[2007/04/09 v0.8] .......................................... 45
[2007/04/25 v0.9] .......................................... 45
[2007/05/29 v1.0] .......................................... 45
[2007/07/13 v1.1] .......................................... 45
[2007/09/25 v1.2] .......................................... 45
[2008/08/08 v1.3] .......................................... 45
[2008/09/13 v1.4] .......................................... 46
[2009/08/13 v1.5] .......................................... 46
[2009/12/06 v1.6] .......................................... 46
[2009/12/07 v1.7] .......................................... 46
[2009/12/17 v1.8] .......................................... 46
[2010/03/30 v1.9] .......................................... 46
[2010/04/03 v1.10] .......................................... 46
[2010/04/04 v1.11] .......................................... 46
[2010/04/08 v1.12] .......................................... 46
[2010/07/23 v1.13] .......................................... 46
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[2010/10/19 v1.16] .......................................... 46
[2010/10/25 v1.17] .......................................... 47
[2010/11/05 v1.18] .......................................... 47
[2011/03/20 v1.19] .......................................... 47
[2011/04/13 v1.20] .......................................... 47
[2011/04/21 v1.21] .......................................... 47
[2011/05/13 v1.22] .......................................... 47
[2011/09/19 v1.23] .......................................... 47
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1 Documentation

1.1 Introduction

This package `bookmark` tries to provide a more modern management for bookmarks:

- The bookmarks are already generated in the first \TeX compile run.
- The font style and color of the bookmarks can be changed.
- More actions than simple GoTo actions are possible.

In the same way as `hyperref` the bookmarks are generated in the order of the bookmark generating macros (\texttt{\textbackslash bookmark}). A level number is used to define the tree structure of the bookmarks. The restrictions are less strict:

- The level values may jump and omit values. A \texttt{\textbackslash subsubsection} may follow a \texttt{\textbackslash chapter}. This was an error in `hyperref`, that prints a warning and tries to fix this.

- Several bookmarks may point to the same destination. In `hyperref` this would mess up the bookmark tree completely, because the algorithm assumes that the destination names are keys (unique).

Note that this package is intended as experimentation platform for bookmark management. Feedback is welcome. Also the interfaces may change in future versions.

1.2 Options

Options can be given at four places:

1. \texttt{\textbackslash usepackage\{\langle options\}\{\texttt{\textbackslash bookmark}\}}
   This is the only place for driver options and option \texttt{atend}.

2. \texttt{\textbackslash bookmarksetup\{\langle options\}\}}
   This command is just for setting options.

3. \texttt{\textbackslash bookmarksetupnext\{\langle options\}\}}
   The options are stored and called after the options of the next \texttt{\textbackslash bookmark} command.

4. \texttt{\textbackslash bookmark\{\langle options\}\{\langle title\}\}}
   This command sets the bookmark. The option settings remain limited to this bookmark.

Exception: Driver options, option \texttt{atend} and options \texttt{draft/final} cannot be changed after the package is loaded.
1.2.1 Options draft and final

If a \LaTeX{} file is compiled several times, then a little time can be saved, if option \texttt{draft} is used to disable the bookmark stuff of this package. Default is \texttt{final}. Both options are boolean options, without value the value \texttt{true} is used. \texttt{draft=true} is the same as \texttt{final=false}.

Options of package \texttt{bookmark} are local options with the exception of driver options. Therefore \texttt{draft} or \texttt{final} given as class option is not seen by this package. If you want to optimize first \LaTeX{} runs depending on a global \texttt{draft}, then package \texttt{ifdraft} and \LaTeX{}’s \texttt{\PassOptionsToPackage} might help in the organization of the preamble, for example:

\begin{verbatim}
\documentclass[draft]{article}
\usepackage{ifdraft}
\ifdraft{
  \PassOptionsToPackage{draft}{bookmark}\
}{
}
\end{verbatim}

1.2.2 Driver options

Supported drivers are \texttt{pdftex}, \texttt{dvips}, \texttt{dvipdfm (xetex)}, and \texttt{vtex}. The \TeX{} engines \texttt{pdfTeX}, \texttt{Xe\TeX{}}, and \texttt{VT\TeX{}} are automatically detected. The default for the DVI drivers is \texttt{dvips}. This can be changed in the configuration file \texttt{bookmark.cfg} by \texttt{\BookmarkDriverDefault}, e.g.:

\begin{verbatim}
\def\BookmarkDriverDefault{dvipdfm}
\end{verbatim}

The current versions of the drivers uses new \LaTeX{}-hooks. If an older format than 2020-10-01 is detected frozen versions of the previous drivers are used as fallback.

Open bookmarks with \texttt{dvipdfmx}. Older version of the package had an option \texttt{dvipdfmx-outline-open} to activate code which allows to specify the open status of an outline entry. The package now assumes that all used dvipdfmx version are current enough to understand this code and so activates the code always. The option itself will be ignored.

1.2.3 Layout options

Font options.

\textbf{bold}: The bookmark is shown with a bold font if the PDF viewer supports this (since PDF 1.4).

\textit{italic}: An italic font is used (since PDF 1.4).

Both \textbf{bold} and \textit{italic} can be used together. Using value \texttt{false} disables the font option.

Color option. Colored bookmarks are a feature of PDF 1.4, they are not supported by all PDF viewers.

\textbf{color}: Here the color can be given as color specification of packages \texttt{color} or \texttt{xcolor}.

An empty value means that the color property is not set. Without package \texttt{xcolor} the recognized values are restricted to

- Empty value, no color is set, example: \texttt{color=()}
• Explicit color specification of color model rgb, example for red: \texttt{color=[rgb]{1,0,0}}
• Explicit color specification of color model gray, example for dark gray: \texttt{color=[gray]{0.25}}

Note that this restriction also holds if package \texttt{color} is loaded. With \texttt{xcolor}, however, the full range of color specifications can be used.

### 1.2.4 Action options

**dest:** Destination name.

**page:** Page number, first page is 1.

**view:** View specification, examples:
\texttt{view=\{FitB\},view=\{FitH 842\},view={XYZ \ 0 \ 100 \ null}} Some view specification parameters expect numbers as parameters with unit bp. They can be given either as plain numbers or as length expressions inside \texttt{\calc}. Expressions of package \texttt{calc} are supported if the package is loaded. Otherwise ε-\TeX{}’s \texttt{\dimexpr} is used. Example:
\texttt{view={FitH \ \calc{\paperheight-\topmargin-\lin}}} \texttt{view={XYZ 0 \ \calc{\paperheight} \ null}}

Note that \texttt{\calc} cannot be used for the third parameter of \texttt{XYZ}. This parameter is the zoom value, not a length.

**named:** Named action name:
\texttt{FirstPage,LastPage,NextPage,PrevPage}

**gotor:** Name of the external PDF file.

**uri:** URI specification.

**rawaction:** Raw action specification. Because these specification depends on the driver this option should not be used.

The appropriate action for the bookmark is selected by analyzing the specified options. The actions are distinguished by different sets of options:

<table>
<thead>
<tr>
<th>Action</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>GoTo:</td>
<td>dest</td>
</tr>
<tr>
<td>GoTo:</td>
<td>page + view</td>
</tr>
<tr>
<td>GoToR:</td>
<td>gotor + dest</td>
</tr>
<tr>
<td>GoToR:</td>
<td>gotor + page + view</td>
</tr>
<tr>
<td>Named:</td>
<td>named</td>
</tr>
<tr>
<td>URI:</td>
<td>uri</td>
</tr>
</tbody>
</table>

**Missing actions.** If the action is missing package \texttt{bookmark} throws an error message. Depending on the driver (\texttt{pdftex}, \texttt{dvips} and friends) the package detects it quite late at the end of the document. Since version 2011/04/21 v1.21 the package tries printing the line number and file name of the corresponding occurrence of \texttt{\bookmark}. However, \TeX{} does provide the line number, but unhappily the file name is a secret. The package supports some ways to get the file name:

- If Lua\TeX{} (independently from DVI or PDF modus) is running, then its \texttt{status.filename} is used automatically.
• Package \currfile\[2\] redefines \LaTeX\ internals to keep track of the file name. If the package is loaded, then its \currfilepath is detected and used automatically by package \bookmark.

• The file name can be set manually by option \scrfile in \bookmarksetup or \bookmark. But be careful, manual setting disables the previous ways for file name detection. And a wrong or missed file name setting might get you a wrong source location in the error message.

1.2.5 Level options

The order of the bookmark entries are defined by the appearance order of \bookmark commands. The tree structure is constructed by the property level of the bookmark nodes. The values of level are integers. If the level of a bookmark entry has a higher value than the previous node, then the entry becomes a child of the previous node. The absolute value of the difference does not matter.

Package \bookmark remembers the level of the previous bookmark entry in a global property ‘current level’.

The behaviour of the level system can be configured by following options:

level: Sets the level, see the description above. If option level is given without value, then the default behaviour is restored, that the ‘current level’ is used as level value. Since version 2010/10/19 v1.16 package \bookmark also supports names part, section and other, if the macros \toclevel@part, \toclevel@section are defined (done by package \hyperref, see option \bookmarkdepth).

rellevel: Sets the level relative to the previous level. A positive value means that the bookmark entry become a child of the previous one.

keeplevel: Use the level, set by level or rellevel, but do not change the global property ‘current level’. The option can be disabled by setting to false.

startatroot: At this time the bookmark tree starts at the top level again. The next bookmark entry is not sorted as child to a previous entry. Example scenario: A document uses part. However there are last chapters that should not be put below the last part:

\documentclass{book}
[...]
\begin{document}
\part{First part}
\chapter{First chapter in first part}
[...]
\part{Second part}
\chapter{First chapter in second part}
[...]
\bookmarksetup{startatroot}
\chapter{Index}% does not belong to second part
\end{document}

1.2.6 Style definitions

A style is a group of option settings. It can be defined by macro \bookmarkdefinestyle and is used by option style.
The \langle key value list \rangle of option settings is assigned the style \langle name \rangle.

**style:** The value of option style is the name of a previously defined style. Its option settings are now executed. The options may include option style. Endless recursion by calling the same style recursively is prevented and throws an error.

### 1.2.7 Hook support

A hook is called right after the processing the optional options of macro \bookmark.  

**addtohook:** Code, given as value to this option is added to the hook.

**\bookmarkget** \{\langle option \rangle\}

Macro \bookmarkget extracts the value of the latest option setting of option \langle option \rangle. In case of boolean options number one is returned, if the boolean option is enabled, otherwise the result is zero. The resulting numbers can directly be used in \ifnum or \ifcase. If you want to have the digits 0 and 1, then prefix \bookmarkget with \number. Macro \bookmarkget is expandable. In case of unsupported options an empty string is returned. Supported boolean options are bold, italic, open  

Other supported options: depth, dest, color, gotor, level, named, openlevel, page, rawaction, uri, view,  

Additionally the following key is available:  

**text**  

It returns the text of the outline entry.

**Option setting.** Inside the hook an option can be set using \bookmarksetup.

### 1.3 Compatibility with hyperref

Package bookmark automatically disables hyperref's bookmarks. However the package uses some of the code of hyperref. For example, the package redefines the hook \Hy@writebookmark that hyperref inserts in \addcontentsline and other commands. Therefore hyperref's bookmarks should not be disabled.

Package bookmark uses hyperref's \pdfstringdef and does not provide a replacement.

Some options of hyperref are also implemented in package bookmark:

<table>
<thead>
<tr>
<th>hyperref</th>
<th>bookmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>bookmarksdepth</td>
<td>depth</td>
</tr>
<tr>
<td>bookmarksopen</td>
<td>open</td>
</tr>
<tr>
<td>bookmarksopenlevel</td>
<td>openlevel</td>
</tr>
<tr>
<td>bookmarksnumbered</td>
<td>numbered</td>
</tr>
</tbody>
</table>

The following commands are also available:
1.4 Adding bookmarks at the end

Package option \texttt{atend} enables the following macro:

\begin{verbatim}
\PackageWarning{atend}{Adding bookmarks at the end of the document.}
\end{verbatim}

Macro \texttt{\BookmarkAtEnd{⟨stuff⟩}} puts \textit{⟨stuff⟩} at the end of the document. \textit{⟨stuff⟩} means bookmark commands. Example:

\begin{verbatim}
\usepackage[atend]{bookmark}
\BookmarkAtEnd{\bookmarksetup{startatroot}\
\bookmark[named=LastPage, level=0]{Last page}}
\end{verbatim}

Alternatively, option \texttt{startatroot} can be given in \texttt{\bookmark}:

\begin{verbatim}
\usepackage[atend]{bookmark}
\BookmarkAtEnd{\bookmark[
\startatroot,\
\named=LastPage,\
\level=0,\
]{Last page}}
\end{verbatim}

Remarks.

- \texttt{\BookmarkAtEnd} hides the fact that the method for adding bookmarks at the end of the document depends on the driver.
  The driver \texttt{pdftex} use package \texttt{atveryend}'s for this purpose. \texttt{\AtEndDocument} is too early, the last page might not been shipped out. Because the \texttt{.aux} file is needed, this driver use \texttt{\AfterLastShipout}.
  The implementation of the other drivers (\texttt{dvipdfm}, \texttt{xetex}, \texttt{vtex}) depends on \texttt{\special} that does not have an effect after the last page. In this case \texttt{\AtEndDvi} of package \texttt{atenddvi} helps. It puts its argument on last page of the document. Two \LaTeX{} runs are necessary at least, because the last page is detected by a reference.
  \texttt{dvips} uses now the new \LaTeX{} hook \texttt{shipout/lastpage}.

- The time of expansion of the argument of \texttt{\BookmarkAtEnd} is not specified. This can happen immediately or at the end of the document.

1.5 Limitations/ToDos

- Support for missing actions (Launch, …).

- Better design for \texttt{hyperref}'s option \texttt{bookmarkstype}. 
2 Example

\documentclass{article}
\usepackage{xcolor}[2007/01/21]
\usepackage{hyperref}
\usepackage[
open,
onplevel=2,
atend\]{bookmark}[2019/12/03]
\bookmarksetup{color=blue}
\begin{document}
\section{First section}
\subsection{Subsection A}
\begin{figure}
\hypertarget{fig}{}
A figure.
\end{figure}
\subsection{Subsection B}
\subsubsection{Subsubsection C}
\section{Very important section}
\bookmarksetup{
italic,
bold=false,
color=blue}
\subsection{Italic section}
\bookmarksetup{
italic=false}
\part{Misc}
\section{Diverse}
\bookmarksetup{
startatroot}
\subsection{Subsection, omitting subsection}
\section{Last section outside part}
\subsection{Subsection}
3 Implementation

3.1 Package

/*package*/
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{bookmark}[%
[2020-11-06 v1.29 PDF bookmarks (HO)]%
3.1.1 Requirements
\e-\TeX.
\BKM@CalcExpr
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname numexpr\endcsname\relax
\def\BKM@CalcExpr#1#2#3#4{%
\begingroup
101 \endgroup
\count@=#2\relax
\advance\count@ by#3#4\relax
\edef\x{\endgroup
\edef\noexpand#1{\the\count@}%%%%
}\fi
\else
\def\BKM@CalcExpr#1#2#3#4{%
\edef#1{%
\the\numexpr#2#3#4\relax
}}%
\fi

Escape features of pdfTeX.

\BKM@EscapeName
\def\BKM@EscapeName#1{%
\ifx#1\@empty
\else
EdefEscapeName#1#1%
\fi
}

\BKM@EscapeString
\def\BKM@EscapeString#1{%
\ifx#1\@empty
\else
EdefEscapeString#1#1%
\fi
}

\BKM@EscapeHex
\def\BKM@EscapeHex#1{%
\ifx#1\@empty
\else
EdefEscapeHex#1#1%
\fi
}

\BKM@UnescapeHex
\def\BKM@UnescapeHex#1{%
EdefUnescapeHex#1#1%
}

Packages. Don’t load packages loaded by xpackagehyperref
\RequirePackage{hyperref}[2010/06/18]

3.1.2 Package options
\SetupKeyvalOptions{family=BKM,prefix=BKM@}
\DeclareLocalOptions{%
atend,%
bold,%
color,%
depth,%
}
\bookmarksetup
newcommand*{\bookmarksetup}{kvsetkeys{BKM}}

\BKM@setup
\def\BKM@setup#1{\bookmarksetup{#1}ifx\BKM@HookNext\ltx@empty
\else\expandafter\bookmarksetup\expandafter{\BKM@HookNext}%
\BKM@HookNextClear\fi\BKM@hook\ifBKM@keeplevel
\else\xdef\BKM@currentlevel{\BKM@level}%
\fi}

\bookmarksetupnext
newcommand*{\bookmarksetupnext}[1]{\ltx@GlobalAppendToMacro\BKM@HookNext{,#1}}%

\BKM@setupnext
\BKM@HookNextClear\def\BKM@HookNextClear{\global\let\BKM@HookNext\ltx@empty}%

\BKM@HookNext
\BKM@HookNextClear\DeclareBoolOption{draft}
\DeclareComplementaryOption{final}{draft}
\BKM@DisableOptions
\def\BKM@DisableOptions{%
\DisableKeyvalOption[action=warning,package=bookmark]{BKM}{draft}%
\DisableKeyvalOption[action=warning,package=bookmark]{BKM}{final}%
}%
\DeclareBoolOption[\ifHy@bookmarksopen true\else false\fi]{open}
\bookmark@open
\def\bookmark@open{%
\ifBKM@open\ltx@one\else\ltx@zero\fi
}%
\DeclareStringOption[\maxdimen]{openlevel}
\BKM@openlevel
\edef\BKM@openlevel{%
\DeclareStringOption[\c@tocdepth]{depth}%
\ltx@IfUndefined{Hy@bookmarksdepth}{%\def\BKM@depth{\c@tocdepth}%}{%\let\BKM@depth\Hy@bookmarksdepth%}
\define@key{BKM}{depth}%{
\edef\BKM@param{#1}%
\ifx\BKM@param\@empty\def\BKM@depth{\c@tocdepth}%\else
\ltx@IfUndefined{toclevel@\BKM@param}{%\ifnum\expandafter'\BKM@param>47 %\expandafter\ifnum\expandafter'\BKM@param<58 %
1%
\PackageWarning{bookmark}{Unknown document division name (\BKM@param) for option 'depth'%}\else
\BKM@SetDepthOrLevel\BKM@depth\BKM@param%\fi}\fi\relax\PackageWarning{bookmark}{%Unknown document division name (\BKM@param) for option 'depth'%}\else
\BKM@SetDepthOrLevel\BKM@depth{\csname toclevel@\BKM@param\endcsname}%\fi%\fi\fi%}
}\fi}
\relax\PackageWarning{bookmark}{%Unknown document division name (\BKM@param) for option 'depth'%}\else
\BKM@SetDepthOrLevel\BKM@depth\BKM@param%\fi
}\fi
\bookmark@depth
\def\bookmark@depth{\BKM@depth}
\BKM@SetDepthOrLevel

\def\BKM@SetDepthOrLevel#1#2{%
  \begingroup
  \setbox\z@=\hbox{\count@=#2\relax}
  \expandafter\endgroup
  \expandafter\def\expandafter#1\expandafter{\the\count@}%
}\DeclareStringOption[\BKM@currentlevel]{level}[\BKM@currentlevel]
\define@key{BKM}{level}{\edef\BKM@param{#1}\
  \ifx\BKM@param\BKM@MacroCurrentLevel
    \let\BKM@level\BKM@param
  \else
    \if\IfNoValue\BKM@level\PackageWarning{bookmark}{Unknown document division name (\BKM@param) for option 'level'}%
      \else
        \BKM@SetDepthOrLevel\BKM@level\BKM@param
      \fi
    \fi
  \fi
}\DeclareBoolOption{keeplevel}
\DeclareBoolOption{startatroot}
\BKM@startatrootfalse
\def\BKM@startatrootfalse{\global\let\ifBKM@startatroot\iffalse}
\BKM@startatroottrue
\def\BKM@startatroottrue{\global\let\ifBKM@startatroot\iftrue}

\BKM@MacroCurrentLevel

\def\BKM@MacroCurrentLevel{\BKM@currentlevel}
\DeclareBoolOption{keeplevel}
\DeclareBoolOption{startatroot}

\BKM@startatrootfalse
\def\BKM@startatrootfalse{%
  \global\let\ifBKM@startatroot\iffalse
  \iffalse
}

\BKM@startatroottrue
\def\BKM@startatroottrue{%
  \global\let\ifBKM@startatroot\iftrue
  \iftrue
}
\define@key{BKM}{rellevel}{% \BKM@CalcExpr\BKM@level{#1}+\BKM@currentlevel}

\bookmark@level
\def\bookmark@level{\BKM@level}
\BKM@currentlevel
\def\BKM@currentlevel{0}

Make bookmark's option numbered an alias for hyperref's bookmarksnumbered.
\DeclareBoolOption[\ifHy@bookmarksnumbered true\else false\fi]{numbered}
\g@addto@macro\BKM@numberedtrue{\let\ifHy@bookmarksnumbered\iftrue}
\g@addto@macro\BKM@numberedfalse{\let\ifHy@bookmarksnumbered\iffalse}
\g@addto@macro\Hy@bookmarksnumberedtrue{\let\ifBKM@numbered\iftrue}
\g@addto@macro\Hy@bookmarksnumberedfalse{\let\ifBKM@numbered\iffalse}

\bookmark@numbered
\def\bookmark@numbered{\ifBKM@numbered\ltx@one\else\ltx@zero\fi}

Redefinitions hyperref's options
\BKM@PatchHyperrefOption
\def\BKM@PatchHyperrefOption#1{\expandafter\BKM@@PatchHyperrefOption\csname KV@Hyp@#1\endcsname}

\BKM@@PatchHyperrefOption
\def\BKM@@PatchHyperrefOption#1\BKM@nil#2#3{\def#2##1{#1% \bookmarksetup{#3={##1}}% }}

\BKM@PatchHyperrefOption{bookmarksopen}{open}
\BKM@PatchHyperrefOption{bookmarksopenlevel}{openlevel}
\BKM@PatchHyperrefOption{bookmarksdepth}{depth}
Font style options. Caution: Package *bitset* is zero-based, the PDF specifications starts with one.

```latex
\bitsetReset{BKM@FontStyle}\%
\define@key{BKM}{italic}[true]{%
  \expandafter\ifx\csname if#1\endcsname\iftrue
  \bitsetSet{BKM@FontStyle}{0}\%
  \else
  \bitsetClear{BKM@FontStyle}{0}\%
  \fi
}\%
\define@key{BKM}{bold}[true]{%
  \expandafter\ifx\csname if#1\endcsname\iftrue
  \bitsetSet{BKM@FontStyle}{1}\%
  \else
  \bitsetClear{BKM@FontStyle}{1}\%
  \fi
}\%
\bookmark@italic
\def\bookmark@italic{%
  \ifnum\bitsetGet{BKM@FontStyle}{0}=1 \ltx@one\else\ltx@zero\fi
}\%
\bookmark@bold
\def\bookmark@bold{%
  \ifnum\bitsetGet{BKM@FontStyle}{1}=1 \ltx@one\else\ltx@zero\fi
}\%
\BKM@PrintStyle
\def\BKM@PrintStyle{%
  \bitsetGetDec{BKM@FontStyle}\%
}\%
Options for color.
\define@key{BKM}{color}{%
  \HyColor@BookmarkColor{#1}\BKM@color{bookmark}{color}\%
}\%
\BKM@color
\let\BKM@color\@empty
\bookmark@color
\def\bookmark@color{\BKM@color}

3.1.3 Action options
\def\BKM@temp#1{%
  \DeclareStringOption{#1}\%
  \expandafter\edef\csname bookmark@#1\endcsname{\%
  \expandafter\noexpand\csname BKM@#1\endcsname\%
  }\%
}\%
\bookmark@dest
\BKM@temp{dest}
```
\BKM@TestViewType

\BKM@TestViewType{FitH} {% 
  \BKM@CheckParam#2 \@nil{bottom} %
} %
\BKM@TestViewType{FitBV} {% 
  \BKM@CheckParam#2 \@nil{bottom} %
} %
\BKM@TestViewType{FitR} {% 
  \BKM@CheckRect{#2} { } %
} %
\BKM@TestViewType{XYZ} {% 
  \BKM@CheckXYZ{#2} { } %
} %
}\@car{ %
\PackageError{bookmark} {% 
  Unknown view type '\BKM@type', \MessageBreak 
  using 'FitH' instead %
}\@ehc
\def\BKM@view{FitH} %
}\@nil %
\BKM@TestViewType

\def\BKM@TestViewType#1{% 
\def\BKM@temp{#1} %
@onelevel@sanitize\BKM@temp 
@ifx\BKM@type\BKM@temp
  \let\BKM@view\BKM@temp 
  \expandafter\@car
\else
  \expandafter\@gobble
\fi
}\fi %
\BKM@CheckParam

\def\BKM@CheckParam#1 #2\@nil#3{% 
\def\BKM@param{#1} %
@ifx\BKM@param\@empty
  \PackageWarning{bookmark} {% 
    Missing parameter (#3) for '\BKM@type', \MessageBreak 
    using 0% %
  } \@ehc
  \def\BKM@param{0} %
}\else
  \BKM@CalcParam
\fi
\edef\BKM@view{\BKM@view\space\BKM@param} %
}\edef\BKM@view{\BKM@view\space\BKM@param}%

\BKM@CheckRect

\def\BKM@CheckRect#1#2\@nil{% 
  \BKM@@CheckRect#1#2#2#2#2\@nil
}\BKM@@CheckRect

\def\BKM@@CheckRect#1 #2 #3 #4 #5\@nil{ %
\def\BKM@temp{0} %
\edef\BKM@view{\BKM@view\space\BKM@param} %
}\edef\BKM@view{\BKM@view\space\BKM@param} %
\BKM@CheckRect

\def\BKM@CheckRect#1 #2 #3 #4 #5\@nil{% 
\def\BKM@temp{0} %
\BKM@CheckRect
\def\BKM@param{#1}\% 
\ifx\BKM@param\@empty 
\def\BKM@param{0}\% 
\def\BKM@temp{1}\% 
\else 
\BKM@CalcParam \fi 
\edef\BKM@view{\BKM@view\space\BKM@param}\% 
\def\BKM@param{#2}\% 
\ifx\BKM@param\@empty 
\def\BKM@param{0}\% 
\def\BKM@temp{1}\% 
\else 
\BKM@CalcParam \fi 
\edef\BKM@view{\BKM@view\space\BKM@param}\% 
\def\BKM@param{#3}\% 
\ifx\BKM@param\@empty 
\def\BKM@param{0}\% 
\def\BKM@temp{1}\% 
\else 
\BKM@CalcParam \fi 
\edef\BKM@view{\BKM@view\space\BKM@param}\% 
\edef\BKM@param{#4}\% 
\ifx\BKM@param\@empty 
\def\BKM@param{0}\% 
\def\BKM@temp{1}\% 
\else 
\BKM@CalcParam \fi 
\edef\BKM@view{\BKM@view\space\BKM@param}\% 
\edef\BKM@CheckXYZ\% 
\def\BKM@CheckXYZ#1#2{\% 
\BKM@@CheckXYZ#1#2#2#2\@nil \% 
\} 
\BKM@@CheckXYZ\% 
\def\BKM@@CheckXYZ#1 #2 #3 #4\@nil{\% 
\def\BKM@param{#1}\% 
\let\BKM@temp\BKM@param \% 
\@onelevel@sanitize\BKM@temp \% 
\ifx\BKM@param\@empty \% 
\let\BKM@param\BKM@null \% 
\else \% 
\BKM@CalcParam \% 
\fi \% 
\let\BKM@temp\BKM@param \% 
\edef\BKM@view{\BKM@view\space\BKM@param}\% 
\edef\BKM@param{#2}\% 
\let\BKM@temp\BKM@param \%
\def\BKM@null{null}
\@onelevel@sanitize\BKM@null
\BKM@CalcParam
\def\BKM@CalcParam{\begingroup\let\calc@assign@dimen\@firstofone\expandafter\BKM@@CalcParam\BKM@param\@empty\@empty\@nil}
\BKM@@CalcParam
\def\BKM@@CalcParam#1#2#3\@nil{\ifx\calc#1\@ifundefined{calc@assign@dimen}{\@ifundefined{dimexpr}{\setlength{\dimen@}{#2}}{\setlength{\dimen@}{\dimexpr#2\relax}}}{\setlength{\dimen@}{#2}}\dimen@.99626\dimen@\edef\BKM@param{\strip@pt\dimen@}\expandafter\endgroup\expandafter\def\expandafter\BKM@param\expandafter{\BKM@param}\else\endgroup\fi}
3.1.4 Option atend
\DeclareBoolOption{atend}
\g@addto@macro\BKM@DisableOptions{\DisableKeyvalOption[action=warning,package=bookmark]\BKM{atend}}
### 3.1.5 Option style

\bookmarkdefinestyle

\newcommand*{\bookmarkdefinestyle}[2]{%\@ifundefined{BKM@style@#1}{%\PackageInfo{bookmark}{Redefining style ‘#1’}}{%\@namedef{BKM@style@#1}{#2}}}%\define@key{BKM}{style}{%\BKM@StyleCall{#1}}\newif\ifBKM@ok\BKM@StyleCall\def{\BKM@StyleCall}{%\@ifundefined{BKM@style@#1}{%\PackageWarning{bookmark}{Ignoring unknown style ‘#1’}}{%Check style stack.\BKM@oktrue\edef{\BKM@StyleCurrent}{#1}\@onelevel@sanitize{\BKM@StyleCurrent}\let{\BKM@StyleEntry}{\BKM@StyleEntryCheck}\BKM@StyleStack\ifBKM@ok\expandafter\@firstofone\else\PackageError{bookmark}{Ignoring recursive call of style ‘\BKM@StyleCurrent’}@ehc\expandafter\@gobble\fi}{%Push current style on stack.\let{\BKM@StyleEntry}{relax}\edef{\BKM@StyleStack}{\BKM@StyleEntry{\BKM@StyleCurrent}\BKM@StyleStack}\%Call style.\expandafter\expandafter\expandafter{\bookmarksetup}{%\csname BKM@style@\BKM@StyleCurrent\endcsname}\%Pop current style from stack.\BKM@StyleStackPop}%}
3.1.6 Options for source file location

3.1.7 Hook support

3.1.8 Driver setup and loading

Driver detection.
\BKM@DefineDriverKey{pdftex}
\BKM@DefineDriverKey{dvips}
\BKM@DefineDriverKey{dvipdfm}
\BKM@DefineDriverKey{dvipdfmx}
\BKM@DefineDriverKey{xetex}
\BKM@DefineDriverKey{vtex}
\define@key{BKM}{dvipdfmx-outline-open}[true]{%
PackageWarning{bookmark}{Option 'dvipdfmx-outline-open' is obsolete
and ignored}{}}
\bookmark@driver
\def\bookmark@driver{\BKM@driver}
\InputIfFileExists{bookmark.cfg}{}{}
\BookmarkDriverDefault
\providecommand*{\BookmarkDriverDefault}{dvips}
\BKM@driver
Lua\TeX\ and pdf\TeX\ share driver.
\ifpdf
\def\BKM@driver{pdftex}%
\ifx\pdfoutline\@undefined
\else
\protected\def\pdfoutline{\pdfextension outline }
\fi
\fi
\else
\ifvtex
\def\BKM@driver{vtex}%
\else
\edef\BKM@driver{\BookmarkDriverDefault}%
\fi
\fi

Process options.
\ProcessKeyvalOptions*
\BKM@DisableOptions

Option draft
\ifBKM@draft
\PackageWarningNoLine{bookmark}{Draft mode on}%
\let\bookmarksetup\ltx@gobble
\let\BookmarkAtEnd\ltx@gobble
\let\bookmarkdefinestyle\ltx@gobbletwo
\let\bookmarkget\ltx@gobble
\newcommand*{\pdfbookmark}[3][]{}%
\newcommand*{\currentpdfbookmark}[3][]{}%
\newcommand*{\subpdfbookmark}[3][]{}%
\newcommand*{\belowpdfbookmark}[3][]{}%
\renewcommand*{\Hy@writebookmark}[5][]{}%
\let\ReadBookmarks\relax
Driver validation and loading.

\def\BKM@temp{dvipdfmx}\
\ifx\BKM@temp\BKM@driver
  \def\BKM@driver{dvipdfm}\
\fi
\def\BKM@temp{pdftex}\
\ifpdf
  \ifx\BKM@temp\BKM@driver
    \PackageWarningNoLine{bookmark}{Wrong driver '\BKM@driver', using 'pdftex' instead}\
  \else
    Package loading is aborted\
  \fi
\let\BKM@driver\BKM@temp
\fi
\def\BKM@temp{dvipdfm}\
\ifetex
  \ifx\BKM@temp\BKM@driver
    \PackageWarningNoLine{bookmark}{Wrong driver, pdfTeX is not running in PDF mode.\MessageBreak Package loading is aborted\MessageBreak}\
  \else
    Package loading is aborted\MessageBreak\@ehc
  \fi
\fi
\expandafter\expandafter\expandafter\endinput
\fi
\def\BKM@temp{vtex}\
\ifvtex
  \ifx\BKM@temp\BKM@driver
    \PackageWarningNoLine{bookmark}{Wrong driver 'vtex' for VTeX instead}\
  \else
    Package loading is aborted\MessageBreak\@ehc
  \fi
\fi
\expandafter\expandafter\expandafter\endinput
\fi
\fi
\fi
3.1.9 Compatibility for hyperref

\pdfbookmark

\let\pdfbookmark\ltx@undefined
\newcommand*{\pdfbookmark}[3][0]{\bookmark[level=#1,dest={#3.#1}]{#2}\hyper@anchorstart{#3.#1}\hyper@anchorend}

\currentpdfbookmark

\def\currentpdfbookmark{\pdfbookmark[\BKM@currentlevel]}

\subpdfbookmark

\def\subpdfbookmark{\BKM@CalcExpr\BKM@CalcResult\BKM@currentlevel+1\expandafter\pdfbookmark\expandafter\BKM@CalcResult}

\belowpdfbookmark

\def\belowpdfbookmark#1#2{\xdef\BKM@gtemp{\number\BKM@currentlevel}\subpdfbookmark{#1}{#2}\global\let\BKM@currentlevel\BKM@gtemp}

\Hy@writebookmark

\def\Hy@writebookmark#1#2#3#4#5{\ifnum#4>\BKM@depth\relax\else\def\BKM@type{#5}\ifx\BKM@type\Hy@bookmarkstype\begingroup\ifBKM@numbered\let\numberline\Hy@numberline\let\booknumberline\Hy@numberline\let\partnumberline\Hy@numberline\let\chapternumberline\Hy@numberline\else\let\numberline\@gobble\let\booknumberline\@gobble\let\partnumberline\@gobble\let\chapternumberline\@gobble\fi\bookmark[level=#4,dest={\HyperDestNameFilter{#3}}]\endgroup\fi\fi}
3.2 Driver for dvipdfm

(`dvipdfm`)  
\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-dvipdfm.def} [%
[2020-11-06 v1.29 bookmark driver for dvipdfm (HO)] %
\BKM@id
\newcount\BKM@id
\BKM@id=\z@
\BKM@0
\@namedef{BKM@0}{000}
\ifBKM@sw
\newif\ifBKM@sw
\bookmark
\newcommand*{\bookmark}[2]{% 
\if@filesw
\begingroup
\def\bookmark@text{#2}%
\BKM@setup{#1}%
\edef\BKM@prev{\the\BKM@id}%
\global\advance\BKM@id\@ne
\BKM@swtrue
\@whilesw\ifBKM@sw\fi{%
\def\BKM@abslevel{1}%
\ifnum\ifBKM@startatroot\z@\else\BKM@prev\fi=\z@%
\BKM@startatrootfalse
\expandafter\xdef\csname BKM@\BKM@prev@endcsname{%
0{\BKM@level}\BKM@abslevel
}%
\BKM@swfalse
\else
\expandafter\expandafter\expandafter\expandafter\BKM@getx
\expandafter\csname BKM@BKM@prev@endcsname
\ifnum\BKM@level>\BKM@x@level\relax
\BKM@CalcExpr\BKM@abslevel\BKM@x@abslevel+1%
\expandafter\xdef\csname BKM@BKM@id@endcsname{%
{\BKM@level}\BKM@abslevel
}%
\BKM@swfalse
\else
\let\BKM@prev\BKM@x@parent
\fi
\fi
}%
}%
\edef\BKM@action{/D(\BKM@dest)}% 
\fi 
\BKM@EscapeString\BKM@gotor 
\edef\BKM@action{%/A<<%/S/GoToR%/F(\BKM@gotor)%} 
\BKM@action >>% 
\fi 
\special{pdf:}% 
out [
\ifBKM@open 
\ifnum\BKM@level<
/expandafter/ltx@firstofone/expandafter 
{\number\BKM@openlevel} % 
\else 
-% 
\fi 
\else 
-% 
\fi 
\if\BKM@color\@empty 
/\C[\BKM@color]% 
\fi 
/\F [\BKM@FLAGS]% 
/F [\BKM@FLAGS] 
\fi 
\BKM@action >>% 
\}% 
\endgroup

\BKM@getx 
def\BKM@getx#1#2#3{% 
def\BKM@x@parent{#1}% 
def\BKM@x@level{#2}% 
def\BKM@x@abslevel{#3}% 
}

⟨/dvipdfm⟩

3.3 Driver for VTeX

⟨*vtex⟩
\NeedsTeXFormat{LaTeX2e} 
\ProvidesFile{bkm-vtex.def}% [2020-11-06 v1.29 bookmark driver for VTeX (HO)]% \ifvtexpdf
\def\BKM@action{\if\BKM@page\BKM@page\else\edef\BKM@action{\BKM@page}\fi\else\BKM@EscapeString\BKM@uri\edef\BKM@action{\texttt{<u=}%\texttt{/S/URI}%\texttt{/URI(\BKM@uri)}%}\fi\else\edef\BKM@action{\texttt{<u=\BKM@rawaction}>}}%\fi\else\BKM@EscapeName\BKM@named\edef\BKM@action{\texttt{<u=}%\texttt{/S/Named}%\texttt{/N/\BKM@named}}%\fi\else\BKM@EscapeString\BKM@dest\edef\BKM@action{\BKM@dest}\fi\else\if\BKM@dest\@empty\if\BKM@page\@empty\def\BKM@page{1}\fi\else\BKM@EscapeString\BKM@dest\edef\BKM@action{/D(\BKM@dest)}\fi\BKM@EscapeString\BKM@gotor\edef\BKM@action{\texttt{<u=}%\texttt{/S/GoToR}%\texttt{/F(\BKM@gotor)}%\texttt{\BKM@action}}%\fi\fi\if\BKM@color\@empty\let\BKM@RGBcolor\@empty\else\expandafter\BKM@toRGB\BKM@color\@nil\fi\special{\texttt{!outline \BKM@action;}}
\def\BKM@getx{
\def\BKM@getx#1#2{\%}
\def\BKM@x@parent{#1} \def\BKM@x@level{#2} \%}

\BKM@toRGB
\def\BKM@toRGB#1 #2 #3\@nil{\%}
\let\BKM@RGBcolor\@empty \BKM@toRGBComponent[#1]\% 
\BKM@toRGBComponent[#2]\% 
\BKM@toRGBComponent[#3]\%}

\BKM@toRGBComponent
\def\BKM@toRGBComponent#1{\%}
\ifdim#1=1pt\relax \ifdim#1\@0 \ifdim#1<1\relax \ifdim#1=255\relax \advance#1 by 32768sp \relax \divide#1 by 65536 \relax \\dimen\romannumeral-\dimen=\dimen \divide\dimen by 16 \relax \edef\BKM@RGBcolor{\BKM@RGBcolor\BKM@toHexDigit\dimen\relax}
\relax }
\edef\BKM@RGBcolor{\BKM@RGBcolor\BKM@toHexDigit\dimen\relax}
\BKM@toRGBcolor\% 
\BKM@toRGBcolor \BKM@toHexDigit\dimen\% 
\dimen\relax \BKM@toRGBcolor\% 
\BKM@toRGBcolor \% 
\dimen\relax \BKM@toRGBcolor\% 
\BKM@toHexDigit\dimen\% 
\BKM@toHexDigit\dimen}
\BKM@toHexDigit

\def\BKM@toHexDigit#1{% 
\ifcase\expandafter\@firstofone\expandafter{\number#1} % 
0 \or 1 \or 2 \or 3 \or 4 \or 5 \or 6 \or 7 \or 
8 \or 9 \or A \or B \or C \or D \or E \or F% 
\fi
\}
\begingroup
\catcode`\|=0 %
\catcode`\|=12 %

\BKM@vtex@title

|gdef|\BKM@vtex@title{% 
|@onelevel@sanitize|\BKM@title
|edef|\BKM@title{|expandafter|\BKM@vtex@leftparen|\BKM@title\nil}%
|edef|\BKM@title{|expandafter|\BKM@vtex@rightparen|\BKM@title\nil}%
|edef|\BKM@title{|expandafter|\BKM@vtex@zero|\BKM@title\0\nil}%
|edef|\BKM@title{|expandafter|\BKM@vtex@one|\BKM@title\1\nil}%
|edef|\BKM@title{|expandafter|\BKM@vtex@two|\BKM@title\2\nil}%
|edef|\BKM@title{|expandafter|\BKM@vtex@three|\BKM@title\3\nil}%
}%

\BKM@vtex@leftparen

|gdef|\BKM@vtex@leftparen#1\(#2\nil{% 
#1% 
|ifx||#2||% 
|else
|}%
|ltx@ReturnAfterFi{% 
|\BKM@vtex@leftparen#2\nil 
}%
|fi
|}%

\BKM@vtex@rightparen

|gdef|\BKM@vtex@rightparen#1\)#2\nil{% 
#1% 
|ifx||#2||% 
|else
|}%
|ltx@ReturnAfterFi{% 
|\BKM@vtex@rightparen#2\nil
}%
|fi
|}%

\BKM@vtex@zero

|gdef|\BKM@vtex@zero#1\0#2\nil{% 

\begin{verbatim}
1135  #1%
1136  |ifx||#2||%
1137  |else
1138  |noexpand|hv@pdf@char0%
1139  |ltx@ReturnAfterFi%
1140  |BKM@vtex@zero#2|@nil
1141  }%
1142  |fi
1143  }%
\BKM@vtex@one
1144  |gdef|BKM@vtex@one#1\1#2|@nil{% 
1145  #1%
1146  |ifx||#2||%
1147  |else
1148  |noexpand|hv@pdf@char1%
1149  |ltx@ReturnAfterFi%
1150  |BKM@vtex@one#2|@nil
1151  }%
1152  |fi
1153  }%
\BKM@vtex@two
1154  |gdef|BKM@vtex@two#1\2#2|@nil{% 
1155  #1%
1156  |ifx||#2||%
1157  |else
1158  |noexpand|hv@pdf@char2%
1159  |ltx@ReturnAfterFi%
1160  |BKM@vtex@two#2|@nil
1161  }%
1162  |fi
1163  }%
\BKM@vtex@three
1164  |gdef|BKM@vtex@three#1\3#2|@nil{% 
1165  #1%
1166  |ifx||#2||%
1167  |else
1168  |noexpand|hv@pdf@char3%
1169  |ltx@ReturnAfterFi%
1170  |BKM@vtex@three#2|@nil
1171  }%
1172  |fi
1173  }%
1174  |endgroup
1175  ⟨/vtex⟩
\end{verbatim}

3.4 Driver for pdfTEX

\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-pdfTeX.def} \[2020-11-06 v1.29 bookmark driver for pdfTeX (HO)]
\BKM@DO@entry
\def\BKM@DO@entry#1#2{%
\begingroup
\kvsetkeys{BKM@DO}{#1}\
\def\BKM@DO@title{#2}\
\ifx\BKM@DO@srcfile\@empty\
\else\
    \BKM@UnescapeHex\BKM@DO@srcfile\
\fi\
\BKM@UnescapeHex\BKM@DO@title\
\expandafter\expandafter\expandafter\BKM@getx\csname BKM@\BKM@DO@id\endcsname\@empty\@empty\
\let\BKM@attr\@empty\
\ifx\BKM@DO@flags\@empty\
\else\
    \edef\BKM@attr{/F \BKM@DO@flags}\
\fi\
\ifx\BKM@DO@color\@empty\
\else\
    \edef\BKM@attr{/C\BKM@DO@color}\
\fi\
\ifx\BKM@attr\@empty\
\else\
    \edef\BKM@attr{attr{\BKM@attr}}\
\fi\
\let\BKM@action\@empty\
\ifx\BKM@DO@gotor\@empty\
\ifx\BKM@DO@dest\@empty\
\ifx\BKM@DO@named\@empty\
\ifx\BKM@DO@rawaction\@empty\
\ifx\BKM@DO@uri\@empty\
\ifx\BKM@DO@page\@empty\
\PackageError{bookmark}{Missing action}\@ehc\
\edef\BKM@action{goto page1{/Fit}}\
\else\
\BKM@UnescapeHex\BKM@DO@uri\
\BKM@EscapeString\BKM@DO@uri\
\edef\BKM@action{user{<</S/URI/URI(\BKM@DO@uri)>>}}\
\fi\
\else\
\BKM@UnescapeHex\BKM@DO@rawaction\
\edef\BKM@action{\BKM@DO@rawaction}\
\fi\
\else\
\BKM@EscapeName\BKM@DO@named\
\edef\BKM@action{\BKM@DO@named}\
\fi\
\else\
\PackageError{bookmark}{Missing action}\@ehc\
\edef\BKM@action{goto page1{/Fit}}\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
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\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi\
\fi

34
\BKM@DefGotoNameAction

Macro \BKM@DefGotoNameAction is a hook for package hypdestopt.

\BKM@SourceLocation

\def\BKM@SourceLocation{%
\ifx\BKM@DO@srcfile\@empty
  \ifx\BKM@DO@srcline\@empty
    .\MessageBreak
    Source: line \BKM@DO@srcline
  \else
    \MessageBreak
    Source: line \BKM@DO@srcline
  \fi
\else
  Source: file \BKM@DO@srcfile
\fi
\fi
}
3.5 Drivers with pdfmark specials

3.5.1 Driver dvips

\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-dvips.def} [2020-11-06 v1.29 bookmark driver for dvips (HO)]
\BKM@PSHeaderFile
\def\BKM@PSHeaderFile#1{\special{PSfile=#1}}
\def\BKM@filename{\jobname.out.ps}
\AddToHook{shipout/lastpage}{\BKM@pdfmark@out \BKM@PSHeaderFile\BKM@filename}
\BKM@pdfmark@out
Do not use package \texttt{rerunfilecheck} here, because the file \texttt{\BKM@filename} is not read during the \TeX run.
\def\BKM@pdfmark@out{%}
\if@filesw
\newwrite\BKM@file
\immediate\openout\BKM@file=\BKM@filename\relax
\BKM@write{%
/BKMARK{where{pop}}% 
{}/userdict ifelse%
/BKMARK{where{pop} globaldict}ifelse%
/BKMARK{cleartomark} load put%
}
\else
\let\BKM@write\@gobble
\let\BKM@DO@entry\@gobbletwo
\fi
}

3.5.2 Common part

\def\BKM@pdfmark@out{%}
\if@filesw
\newwrite\BKM@file
\immediate\openout\BKM@file=\BKM@filename\relax
\BKM@write{%
/BKMARK{where{pop} globaldict}{userdict}ifelse%
/BKMARK{cleartomark} load put%
}
\else
\let\BKM@write\@gobble
\let\BKM@DO@entry\@gobbletwo
\fi

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The specification for pdfmark says that /Color is the name of the key for color, however ghostscript only passes the key into the PDF file, thus the key name must be /C.
3.6 Common part for pdftex and pdfmark

3.6.1 Write auxiliary file

```latex
\AddToHook{begindocument}{%
  \immediate\write\@mainaux{\string\providecommand\string\BKM@entry[2]{}}}

\BKM@id
\newcount\BKM@id
\BKM@id=\z@ \BKM@0
\@namedef{BKM@0}{000}
\ifBKM@sw
  \newif\ifBKM@sw
  \bookmark
  \newcommand*{\bookmark}[2]{% 
    \if@filesw
      \begingroup
      \BKM@InitSourceLocation
      \def\bookmark@text{#2}\
      \BKM@setup{#1}\
      \ifx\BKM@srcfile\@empty\else\BKM@EscapeHex\BKM@srcfile\fi
      \edef\BKM@prev{\the\BKM@id}\
      \global\advance\BKM@id\@ne
      \BKM@swtrue
      \@whilesw\ifBKM@sw\fi{\%
        \ifnum\ifBKM@startatroot\z@\else\BKM@prev\fi=\z@\BKM@startatrootfalse
        \expandafter\xdef\csname BKM@\the\BKM@id\endcsname{\%
          \BKM@svtrue\%
          \@chislev\ifBKM@svsw\fi{%
            \ifnum\ifBKM@startatroot\z@\else\BKM@prev\fi=\z@\BKM@startatrootfalse
              \expandafter\xdef\csname BKM@the\BKM@id\endcsname{\%
                \csname BKM@level\endcsname=0\%
              \}%
            \}%
          \}%
        \}%
      \}%
    \else\%
      \expandafter\expandafter\expandafter\BKM@getx\csname BKM@\BKM@prev\endcsname{\%
        \BKM@level\}%
      \}%
    \}%
  \}%
\}
```

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\expandafter\xdef\csname BKM@id\endcsname{\BKM@prev\BKM@level}\%
\ifnum\BKM@prev>z0
  \BKM@CalcExpr\BKM@CalcResult\BKM@x@childs+1%
  \expandafter\xdef\csname BKM@prev\endcsname{\BKM@x@parent\BKM@x@level}\%
\fi
\BKM@swfalse
\else
  \let\BKM@prev\BKM@x@parent
\fi
\fi
\pdfstringdef\BKM@title{\bookmark@text}%
edef\BKM@FLAGS{\BKM@PrintStyle}%
csname BKM@HypDestOptHook\endcsname
\BKM@EscapeHex\BKM@dest
\BKM@EscapeHex\BKM@uri
\BKM@EscapeHex\BKM@gotor
\BKM@EscapeHex\BKM@rawaction
\BKM@EscapeHex\BKM@title
immediate\write\@mainaux{\string\BKM@entry{\number\BKM@id}{\if\BKM@open\ifnum\BKM@level<\BKM@openlevel\open\fi\fi}{\ifnum\BKM@FLAGS>z0\flags=\BKM@FLAGS\fi}{\BKM@x@parent}{\BKM@x@level}{\BKM@x@childs}{\BKM@auxentry{dest}}{\BKM@auxentry{named}}{\BKM@auxentry{uri}}{\BKM@auxentry{gotor}}{\BKM@auxentry{page}}{\BKM@auxentry{view}}{\BKM@auxentry{rawaction}}{\BKM@auxentry{color}}{\ifnum\BKM@FLAGS>z0\flags=\BKM@FLAGS\fi}{\BKM@auxentry{srcline}}{\BKM@auxentry{srcfile}}{\BKM@title}{}
\ imprg@auxentry}
def\BKM@getx#1#2#3{\BKM@x@parent{#1}\BKM@x@level{#2}\BKM@x@childs{#3}}
def\BKM@auxentry{\BKM@getx#1#2#3}{
3.6.2 Read auxiliary data

\SetupKeyvalOptions{family=BKM@DO,prefix=BKM@DO@}
\DeclareStringOption[0]{id}
\DeclareBoolOption{open}
\DeclareStringOption{flags}
\DeclareStringOption{color}
\DeclareStringOption{dest}
\DeclareStringOption{named}
\DeclareStringOption{uri}
\DeclareStringOption{gotor}
\DeclareStringOption{page}
\DeclareStringOption{view}
\DeclareStringOption{rawaction}
\DeclareStringOption{srcline}
\DeclareStringOption{srcfile}
3.7 Option atend

3.7.1 Hook

This is a dummy definition that generates a warning if option atend has not been given.

\newcommand{\BookmarkAtEnd}[1]{% 
\PackageWarning{bookmark}{Ignored, because option ‘atend’ is missing}% 
}% 
\expandafter\endinput

3.7.2 Drivers using hooks at end of document

Driver pdftex use the LaTeX hook enddocument/afterlastpage (which is equivalent to the previously used \AfterLastShipout of atveryend’s), because it still needs the .aux file. It uses uses \pdfoutline for the bookmarks that can be used after the last page.

- Driver pdftex uses \pdfoutline that can be used after the last page.

3.7.3 Drivers using shipout/lastpage

The other drivers implement \bookmark using \special commands. Thus the last bookmarks must be put on the last page, not afterwards. AtEndDocument cannot be used, because it is too late, the last page can already be output. Therefore we use the LaTeX hook shipout/lastpage. At least two \LaTeX runs are necessary. The postscript driver dvips use an external PostScript file for the bookmarks. The file writing has been moved to the the last shipout page too to avoid conflicts with pgf.
4 Installation

4.1 Download

Package. This package is available on CTAN:\(^1\):

\texttt{CTAN:macros/latex/contrib/bookmark/bookmark.dtx} The source file.

\texttt{CTAN:macros/latex/contrib/bookmark/bookmark.pdf} Documentation.

Bundle. All the packages of the bundle ‘bookmark’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

\texttt{CTAN:install/macros/latex/contrib/bookmark.tds.zip}

\textit{TDS} refers to the standard “A Directory Structure for \TeX\ Files” (\texttt{CTAN:pkg/tds}). Directories with \texttt{texmf} in their name are usually organized this way.

4.2 Bundle installation

Unpacking. Unpack the \texttt{bookmark.tds.zip} in the TDS tree (also known as \texttt{texmf} tree) of your choice. Example (linux):

\begin{verbatim}
unzip bookmark.tds.zip -d ~/texmf
\end{verbatim}

4.3 Package installation

Unpacking. The \texttt{.dtx} file is a self-extracting \texttt{docstrip} archive. The files are extracted by running the \texttt{.dtx} through plain \TeX:

\begin{verbatim}
tex bookmark.dtx
\end{verbatim}

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as \texttt{texmf} tree):

\begin{verbatim}
bookmark.sty → tex/latex/bookmark/bookmark.sty
bkm-dvipdfm.def → tex/latex/bookmark/bkm-dvipdfm.def
bkm-dvips.def → tex/latex/bookmark/bkm-dvips.def
bkm-pdfTeX.def → tex/latex/bookmark/bkm-pdfTeX.def
bkm-vTeX.def → tex/latex/bookmark/bkm-vTeX.def
bookmark.pdf → doc/latex/bookmark/bookmark.pdf
bookmark-example.tex → doc/latex/bookmark/bookmark-example.tex
bookmark.dtx → source/latex/bookmark/bookmark.dtx
\end{verbatim}

If you have a \texttt{docstrip.cfg} that configures and enables \texttt{docstrip}’s TDS installing feature, then some files can already be in the right place, see the documentation of \texttt{docstrip}.

\(^1\text{CTAN:pkg/bookmark}\)
4.4 Refresh file name databases

If your \TeX{} distribution (\TeX{} Live, MiK\TeX{}, …) relies on file name databases, you must refresh these. For example, \TeX{} Live users run \texttt{texhash} or \texttt{mktexlsr}.

4.5 Some details for the interested

Unpacking with \LaTeX{}. The \texttt{.dtx} chooses its action depending on the format:

plain \TeX{}: Run \texttt{docstrip} and extract the files.

\LaTeX{}: Generate the documentation.

If you insist on using \LaTeX{} for \texttt{docstrip} (really, \texttt{docstrip} does not need \LaTeX{}), then inform the autodetect routine about your intention:

\begin{verbatim}
latex \let\install=y\input{bookmark.dtx}
\end{verbatim}

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the \texttt{.dtx} or the \texttt{.drv} to generate the documentation. The process can be configured by the configuration file \texttt{ltxdoc.cfg}. For instance, put this line into this file, if you want to have A4 as paper format:

\begin{verbatim}
\PassOptionsToClass{a4paper}{article}
\end{verbatim}

An example follows how to generate the documentation with pdf\LaTeX{}:

\begin{verbatim}
pdflatex bookmark.dtx
makeindex -s gind.ist bookmark.idx
pdflatex bookmark.dtx
makeindex -s gind.ist bookmark.idx
pdflatex bookmark.dtx
\end{verbatim}

5 References

[1] Sebastian Rahtz, Heiko Oberdiek: \textit{The hyperref package}; 2011/04/17 v6.82g; \texttt{CTAN:pkg/hyperref}

[2] Martin Scharrer: \textit{The currfile package}; 2011/01/09 v0.4. \texttt{CTAN:pkg/currfile}

6 History

[2007/02/19 v0.1]
- First experimental version.

[2007/02/20 v0.2]
- Option \texttt{startatroot} added.
- Dummies for \texttt{\pdf\un}escape\ldots{} commands added to get the package basically work for non-pdf\TeX{} users.

[2007/02/21 v0.3]
- Dependency from pdf\TeX{} 1.30 removed by using package \texttt{pdfescape}.

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[2007/02/22 v0.4]
• hyperref’s bookmarksrootype respected.

[2007/03/02 v0.5]
• Driver options vtex (PDF mode), dvipsone, and textures added.
• Implementation of option depth completed. Division names are supported, see hyperref’s option bookmarksdepth.
• hyperref’s options bookmarksopen, bookmarksopenlevel, and bookmarksdepth respected.

[2007/03/03 v0.6]
• Option numbered as alias for hyperref’s bookmarksnumbered.

[2007/03/07 v0.7]
• Dependency from \-\TeX\ removed.

[2007/04/09 v0.8]
• Option atend added.
  • Option rgbcolor removed. rgbcolor=<r> <g> <b> can be replaced by color={rgb}{<r>,<g>,<b>}. 
  • Support of recent cvs version (2007-03-29) of dvipdfmx that extends the \special\ for bookmarks to specify open outline entries. Option dvipdfmx-outline-open or \specialDvipdfmxOutlineOpen\ notify the package.

[2007/04/25 v0.9]
• The syntax of \special\ of dvipdfmx, if feature dvipdfmx-outline-open is enabled, has changed. Now cvs version 2007-04-25 is needed.

[2007/05/29 v1.0]
• Bug fix in code for second parameter of XYZ.

[2007/07/13 v1.1]
• Fix for pdfmark with GoToR action.

[2007/09/25 v1.2]
• pdfmark driver respects \nofiles.

[2008/08/08 v1.3]
• Package flags replaced by package bitset. Now flags are also supported without \-\TeX\.
• Hook for package hypdestopt added.
[2008/09/13 v1.4]
  • Fix for bug introduced in v1.3, package flags is one-based, but package
    bitset is zero-based. Thus options bold and italic are wrong in v1.3. (Daniel
    Müllner)

[2009/08/13 v1.5]
  • Except for driver options the other options are now local options. This
    resolves a problem with KOMA-Script v3.00 and its option open.

[2009/12/06 v1.6]
  • Use of package atveryend for drivers pdftex and pdfmark.

[2009/12/07 v1.7]
  • Use of package atveryend fixed.

[2009/12/17 v1.8]
  • Support of hyperref 2009/12/17 v6.79v for XeTeX.

[2010/03/30 v1.9]
  • Package name in an error message fixed.

[2010/04/03 v1.10]
  • Option style and macro \bookmarkdefinestyle added.
  • Hook support with option addtohook added.
  • \bookmarkget added.

[2010/04/04 v1.11]
  • Bug fix (introduced in v1.10).

[2010/04/08 v1.12]
  • Requires ltxcmds 2010/04/08.

[2010/07/23 v1.13]
  • Support for memoir's \booknumberline added.

[2010/09/02 v1.14]
  • (Local) options draft and final added.

[2010/09/25 v1.15]
  • Fix for option dvipdfmx-outline-open.
  • Option dvipdfmx-outline-open is set automatically, if XeTeX ≥ 0.9995 is
    detected.
• Option ‘startatroot’ now acts globally.
• Option ‘level’ also accepts names the same way as option ‘depth’.

• \bookmarksetupnext added.
• Using \kvsetkeys of package kvsetkeys, because \setkeys of package keyval is not reentrant. This can cause problems (unknown keys) with older versions of hyperref that also uses \setkeys (found by GL).

• Use of \pdf@ifdraftmode of package pdftexcmds for the default of option draft.

• Use of \dimexpr fixed, if \eTeX{} is not used. (Bug found by Martin Münch.)
• Fix in documentation. Also layout options work without \eTeX{}.

• Bug fix: \BKM@SetDepth renamed to \BKM@SetDepthOrLevel.

• Some support for file name and line number in error messages at end of document (pdftex and pdftexmark based drivers).

• Change of version 2010/11/05 v1.18 reverted, because otherwise draftmode disables some .aux file entries.

• Some \renewcommand changed to \def to avoid trouble if the commands are not defined, because hyperref stopped early.

• Small optimization in \BKM@toHexDigit.

• Documentation updates.

• define \pdfoutline to allow pdftex driver to be used with \LuaTeX.
[2019/06/04 v1.27]  
• unknown style options are ignored (issue 67)

[2019/12/03 v1.28]  
• Documentation updates.
• adjust package loading (all required packages already loaded by hyperref).

[2020-11-06 v1.29]  
• Adapted the dvips to avoid a clash with pgf.  
  https://github.com/pgf-tikz/pgf/issues/944

• All drivers now use the new LaTeX hooks and so require a format  
  2020-10-01 or newer. The older drivers are provided as frozen versions and  
  are used if an older format is detected.

• Added support for destlabel option of hyperref,  
  https://github.com/ho-tex/bookmark/issues/1

• Removed the dvipsone and textures driver.

• Removed the code for option dvipdfmx-outline-open and  
  \SpecialDvipdfmxOutlineOpen. All dvipdfmx version should now support  
  this out-of-the-box.

7 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; plain numbers refer to the code lines where the entry is used.

Symbols
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\(  
\@bookmarksopenlevel  
\@car  
\@ech  
\@empty  
\@firstofone  
\@gobble  
\@gobbletwo  
\@ifl@t@r  
\@ifundefined  
\@mainaux  
\@namedef  
\@ne  
\@nil  
\@onelevel@sanitize  
\@percentchar  
\@undefined  
\@whilesw  
\\  
\|  
\0

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\0

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