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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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 (`\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 `\subsubsection` may follow a `\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 three places:

1. `\usepackage[`⟨*options*⟩`]{bookmark}`
   This is the only place for driver options and option atend.

2. `\bookmarksetup{`⟨*options*⟩`}`
   This command is just for setting options.

3. `\bookmark[`⟨*options*⟩`]{`⟨*title*⟩`}`
   This command sets the bookmark. The option settings remain limited to this bookmark.

1.2.1 Driver options

Supported drivers are pdftex, dvips, dvipsone, textures, dvipdfm (xetex), and vtex. The TEX engines pdfTEX, XeTEX, and VTEX are automatically detected. The default for the DVI drivers is dvips. This can be changed in the configuration file `bookmark.cfg` by `\BookmarkDefaultDriver`, e.g.:

```
\def\BookmarkDefaultDriver{dvipdfm}
```

Open bookmarks with dvipdfmx. Since 2007-04-25 the cvs version of dvipdfmx contains a patch that extends the `\special` for bookmarks in order to specify the open status of an outline entry. Option dvipdfmx-outline-open notifies the package that the dvi driver program understands this kind of `\special`. Alternatively `\SpecialDvipdfmxOutlineOpen` can be defined as number one in the configuration file or before the package is loaded, e.g.:

```
\chardef\SpecialDvipdfmxOutlineOpen=1\relax
```

1.2.2 Style options

Font options.

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

italic: An italic font is used (since PDF 1.4).

Both bold and italic can be used together. Using value `false` disables the font option.

These options are ignored with a warning if ε-TEX is not detected.

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

color: Here the color can be given as color specification of packages color or xcolor. An empty value means that the color property is not set. Without package xcolor the recognized values are restricted to

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

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

1.2.3 Action options

dest: Destination name.

page: Page number, first page is 1.

view: View specification, examples:
`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 `\calc`. Expressions of package calc are supported if the package is loaded. Otherwise ε-TEX's `\dimexpr` is used. Example:
`view={FitH \calc{\paperheight-\topmargin-1in}}`
`view={XYZ 0 \calc{\paperheight} null}`
Note that `\calc` cannot be used for the third parameter of `XYZ`. This parameter is the zoom value, not a length.

named: Named action name:
`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:

Action	Options
GoTo:	dest
GoTo:	page + view
GoToR:	gotor + dest
GoToR:	gotor + page + view
Named:	named
URI:	uri

1.2.4 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.

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}
```

1.3 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:

hyperref	bookmark
bookmarksdepth	depth
bookmarksopen	open
bookmarksopenlevel	openlevel
bookmarksnumbered	numbered

The following commands are also available:

```
\pdfbookmark
\currentpdfbookmark
\subpdfbookmark
\belowpdfbookmark
```

1.4 Adding bookmarks at the end

Package option atend enables the following macro:

`\BookmarkAtEnd` {⟨*stuff*⟩}

Macro `\BookmarkAtEnd` puts ⟨*stuff*⟩ at the end of the document. ⟨*stuff*⟩ means bookmark commands. Example:

```
\usepackage[atend]{bookmark}
\BookmarkAtEnd{%
  \bookmarksetup{startatroot}%
  \bookmark[named=LastPage, level=0]{Last page}%
}
```

Remarks.

- `\BookmarkAtEnd` hides the fact that the method for adding bookmarks at the end of the document depends on the driver.

  Some drivers (pdftex, dvips, dvipsone, textures) use package atveryend's for this purpose. `\AtEndDocument` is too early, the last page might not been shipped out. Because the `..aux` file is needed, these drivers use `\AfterLastShipout`.

The implementation of the other drivers (dvipdfm, xetex, vtex) depends on `\special` that does not have an effect after the last page. In this case `\AtEndDvi` of package 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.

- The time of expansion of the argument of `\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 hyperref's option bookmarkstype.

2 Example

```
1 ⟨*example⟩
2 \documentclass{article}
3 \usepackage{xcolor}[2007/01/21]
4 \usepackage{hyperref}
5 \usepackage[
6   open,
7   openlevel=2,
8   atend
9 ]{bookmark}[2009/12/17]
10
11 \bookmarksetup{color=blue}
12
13 \BookmarkAtEnd{%
14   \bookmarksetup{startatroot}%
15   \bookmark[named=LastPage, level=0]{End/Last page}%
16   \bookmark[named=FirstPage, level=1]{First page}%
17 }
18
19 \begin{document}
20 \section{First section}
21 \subsection{Subsection A}
22 \begin{figure}
23   \hypertarget{fig}{}%
24   A figure.
25 \end{figure}
26 \bookmark[
27   rellevel=1,
28   keeplevel,
29   dest=fig
30 ]{A figure}
31 \subsection{Subsection B}
32 \subsubsection{Subsubsection C}
33 \subsection{Umlauts: \"A\"O\"U\"a\"o\"u\ss}
34 \newpage
35 \bookmarksetup{
36   bold,
37   color=[rgb]{1,0,0}
38 }
39 \section{Very important section}
40 \bookmarksetup{
41   italic,
42   bold=false,
43   color=blue
44 }
```

```
\subsection{Italic section}
\bookmarksetup{
  italic=false
}
\part{Misc}
\section{Diverse}
\subsubsection{Subsubsection, omitting subsection}
\bookmarksetup{
  startatroot
}
\section{Last section outside part}
\subsection{Subsection}
\bookmarksetup{
  color={}
}
\begingroup
  \bookmarksetup{level=0, color=green!80!black}
  \bookmark[named=FirstPage]{First page}
  \bookmark[named=LastPage]{Last page}
  \bookmark[named=PrevPage]{Previous page}
  \bookmark[named=NextPage]{Next page}
\endgroup
\bookmark[
  page=2,
  view=FitH 800
]{Page 2, FitH 800}
\bookmark[
  page=2,
  view=FitBH \calc{\paperheight-\topmargin-1in-\headheight-\headsep}
]{Page 2, FitBH top of text body}
\bookmark[
  uri={http://www.dante.de/},
  color=magenta
]{Dante homepage}
\bookmark[
  gotor={t.pdf},
  page=1,
  view={XYZ 0 1000 null},
  color=cyan!75!black
]{File t.pdf}
\bookmark[named=FirstPage]{First page}
\bookmark[rellevel=1, named=LastPage]{Last page (rellevel=1)}
\bookmark[named=PrevPage]{Previous page}
\bookmark[level=0, named=FirstPage]{First page (level=0)}
\bookmark[
  rellevel=1,
  keeplevel,
  named=LastPage
]{Last page (rellevel=1, keeplevel)}
\bookmark[named=PrevPage]{Previous page}
\end{document}
```

⟨/example⟩

3 Implementation

3.1 Package

```
⟨*package⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{bookmark}%
  [2009/12/17 v1.8 PDF bookmarks (HO)]%
```

3.1.1 Requirements

ε-TeX.

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname numexpr\endcsname\relax
  \def\BKM@CalcExpr#1#2#3#4{%
    \begingroup
      \count@=#2\relax
      \advance\count@ by#3#4\relax
      \edef\x{\endgroup
        \def\noexpand#1{\the\count@}%
      }%
    \x
  }%
\else
  \def\BKM@CalcExpr#1#2#3#4{%
    \edef#1{%
      \the\numexpr#2#3#4\relax
    }%
  }%
\fi
```

Escape features of pdfTeX.

```
\RequirePackage{pdfescape}[2007/03/20]
\def\BKM@EscapeName#1{%
  \ifx#1\@empty
  \else
    \EdefEscapeName#1#1%
  \fi
}%
\def\BKM@EscapeString#1{%
  \ifx#1\@empty
  \else
    \EdefEscapeString#1#1%
  \fi
}%
\def\BKM@EscapeHex#1{%
  \ifx#1\@empty
  \else
    \EdefEscapeHex#1#1%
  \fi
}%
\def\BKM@UnescapeHex#1{%
  \EdefUnescapeHex#1#1%
}%
```

Packages.

```
\RequirePackage{ifpdf}[2009/04/10]
\RequirePackage{ifxetex}
\RequirePackage{ifvtex}[2008/11/04]
\RequirePackage{hyperref}
\RequirePackage{auxhook}[2007/04/06]
\RequirePackage{kvoptions}[2009/08/13]
\RequirePackage{hycolor}[2008/09/08]
\RequirePackage{bitset}
```

3.1.2 Package options

```
\SetupKeyvalOptions{family=BKM,prefix=BKM@}
\DeclareLocalOptions{%
  atend,%
  bold,%
```

```
  color,%
  depth,%
  dest,%
  gotor,%
  italic,%
  keeplevel,%
  level,%
  named,%
  numbered,%
  open,%
  openlevel,%
  page,%
  rawaction,%
  rellevel,%
  startatroot,%
  uri,%
  view,%
}
\newcommand*{\bookmarksetup}{\setkeys{BKM}}
\DeclareBoolOption[\ifHy@bookmarksopen true\else false\fi]{open}
\DeclareStringOption[\maxdimen]{openlevel}
\edef\BKM@openlevel{\number\@bookmarksopenlevel}
%\DeclareStringOption[\c@tocdepth]{depth}
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname Hy@bookmarksdepth\endcsname\relax
  \def\BKM@depth{\c@tocdepth}%
\else
  \let\BKM@depth\Hy@bookmarksdepth
\fi
\define@key{BKM}{depth}[]{%
  \edef\BKM@param{#1}%
  \ifx\BKM@param\@empty
    \def\BKM@depth{\c@tocdepth}%
  \else
    \@ifundefined{toclevel@\BKM@param}{%
      \@onelevel@sanitize\BKM@param
      \edef\BKM@temp{\expandafter\@car\BKM@param\@nil}%
      \ifcase 0\expandafter\ifx\BKM@temp-1\fi
              \expandafter\ifnum\expandafter`\BKM@temp>47 %
                \expandafter\ifnum\expandafter`\BKM@temp<58 %
                  1%
                \fi
              \fi
              \relax
        \PackageWarning{bookmark}{%
          Unknown document division name (\BKM@param)%
        }%
      \else
        \BKM@SetDepth\BKM@param
      \fi
    }{%
      \BKM@SetDepth{\csname toclevel@\BKM@param\endcsname}%
    }%
  \fi
}
\def\BKM@SetDepth#1{%
  \begingroup
    \setbox\z@=\hbox{%
      \count@=#1\relax
      \expandafter
    }%
  \expandafter\endgroup
```

```
  \expandafter\def\expandafter\BKM@depth\expandafter{\the\count@}%
}
\DeclareStringOption[\BKM@currentlevel]{level}[\BKM@currentlevel]
\DeclareBoolOption{keeplevel}
\DeclareBoolOption{startatroot}
\define@key{BKM}{rellevel}{%
  \BKM@CalcExpr\BKM@level{#1}+\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
}
```

Redefinitions hyperref's options

```
\def\BKM@PatchHyperrefOption#1{%
  \expandafter\BKM@@PatchHyperrefOption\csname KV@Hyp@#1\endcsname%
}
\def\BKM@@PatchHyperrefOption#1{%
  \expandafter\BKM@@@PatchHyperrefOption#1{##1}\BKM@nil#1%
}
\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}
```

Style options. Caution: Package bitset is zero-based, the PDF specifications starts with one.

```
\bitsetReset{BKM@style}%
\define@key{BKM}{italic}[true]{%
  \expandafter\ifx\csname if#1\endcsname\iftrue
    \bitsetSet{BKM@style}{0}%
  \else
    \bitsetClear{BKM@style}{0}%
  \fi
}%
\define@key{BKM}{bold}[true]{%
  \expandafter\ifx\csname if#1\endcsname\iftrue
    \bitsetSet{BKM@style}{1}%
  \else
    \bitsetClear{BKM@style}{1}%
  \fi
}%
\def\BKM@PrintStyle{%
  \bitsetGetDec{BKM@style}%
```

```
}%
```

Options for color.

```
\define@key{BKM}{color}{%
  \HyColor@BookmarkColor{#1}\BKM@color{bookmark}{color}%
}
\let\BKM@color\@empty
```

3.1.3 Action options

```
\DeclareStringOption{dest}
\DeclareStringOption{named}
\DeclareStringOption{uri}
\DeclareStringOption{gotor}
\DeclareStringOption{rawaction}
```

```
\define@key{BKM}{page}{%
  \def\BKM@page{#1}%
  \ifx\BKM@page\@empty
  \else
    \edef\BKM@page{\number\BKM@page}%
    \ifnum\BKM@page>\z@
    \else
      \PackageError{bookmark}{Page must be positive}\@ehc
      \def\BKM@page{1}%
    \fi
  \fi
}
\let\BKM@page\@empty
```

```
\define@key{BKM}{view}{%
  \BKM@CheckView{#1}%
}
\let\BKM@view\@empty
\def\BKM@CheckView#1{%
  \BKM@CheckViewType#1 \@nil
}
\def\BKM@CheckViewType#1 #2\@nil{%
  \def\BKM@type{#1}%
  \@onelevel@sanitize\BKM@type
  \BKM@TestViewType{Fit}{}%
  \BKM@TestViewType{FitB}{}%
  \BKM@TestViewType{FitH}{%
    \BKM@CheckParam#2 \@nil{top}%
  }%
  \BKM@TestViewType{FitBH}{%
    \BKM@CheckParam#2 \@nil{top}%
  }%
  \BKM@TestViewType{FitV}{%
    \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{pdfbookmark}{%
      Unknown view type `\BKM@type',\MessageBreak
```

```
      using ‘FitH’ instead%
    }\@ehc
    \def\BKM@view{FitH}%
  }%
  \@nil
}
\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
}
\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%
    }%
    \def\BKM@param{0}%
  \else
    \BKM@CalcParam
  \fi
  \edef\BKM@view{\BKM@view\space\BKM@param}%
}
\def\BKM@CheckRect#1#2{%
  \BKM@@CheckRect#1#2#2#2#2\@nil
}
\def\BKM@@CheckRect#1 #2 #3 #4 #5\@nil{%
  \def\BKM@temp{0}%
  \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}%
  \def\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}%
  \ifnum\BKM@temp>\z@
    \PackageWarning{bookmark}{Missing parameters for `\BKM@type'}%
  \fi
}
\def\BKM@CheckXYZ#1#2{%
  \BKM@@CheckXYZ#1#2#2#2\@nil
}
\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
    \ifx\BKM@temp\BKM@null
    \else
      \BKM@CalcParam
    \fi
  \fi
  \edef\BKM@view{\BKM@view\space\BKM@param}%
  \def\BKM@param{#2}%
  \let\BKM@temp\BKM@param
  \@onelevel@sanitize\BKM@temp
  \ifx\BKM@param\@empty
    \let\BKM@param\BKM@null
  \else
    \ifx\BKM@temp\BKM@null
    \else
      \BKM@CalcParam
    \fi
  \fi
  \edef\BKM@view{\BKM@view\space\BKM@param}%
  \def\BKM@param{#3}%
  \ifx\BKM@param\@empty
    \let\BKM@param\BKM@null
  \fi
  \edef\BKM@view{\BKM@view\space\BKM@param}%
}
\def\BKM@null{null}
\@onelevel@sanitize\BKM@null
\def\BKM@CalcParam{%
  \begingroup
  \let\calc\@firstofone
  \expandafter\BKM@@CalcParam\BKM@param\@empty\@empty\@nil
}
\def\BKM@@CalcParam#1#2#3\@nil{%
  \ifx\calc#1%
    \@ifundefined{calc@assign@dimen}{%
      \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}
\def\BKM@DisableOptions{%
  \DisableKeyvalOption{BKM}{atend}%
}
```

3.1.5 Driver setup and loading

Driver detection.

```
\def\BKM@DefineDriverKey#1{%
  \define@key{BKM}{#1}[]{%
    \def\BKM@driver{#1}%
  }%
  \g@addto@macro\BKM@DisableOptions{%
    \DisableKeyvalOption{BKM}{#1}%
  }%
}
\BKM@DefineDriverKey{pdftex}
\BKM@DefineDriverKey{dvips}
\BKM@DefineDriverKey{dvipsone}
\BKM@DefineDriverKey{textures}
\BKM@DefineDriverKey{dvipdfm}
\BKM@DefineDriverKey{dvipdfmx}
\BKM@DefineDriverKey{xetex}
\BKM@DefineDriverKey{vtex}
\define@key{BKM}{dvipdfmx-outline-open}[true]{%
  \expandafter\ifx\csname if#1\expandafter\endcsname
                  \csname iftrue\endcsname
    \chardef\SpecialDvipdfmxOutlineOpen\@ne
  \else
    \chardef\SpecialDvipdfmxOutlineOpen\z@
  \fi
}
\g@addto@macro\BKM@DisableOptions{%
  \DisableKeyvalOption{BKM}{dvipdfmx-outline-open}%
}
```

```
\InputIfFileExists{bookmark.cfg}{}{}
\providecommand*{\BookmarkDriverDefault}{dvips}
\ifpdf
  \def\BKM@driver{pdftex}%
\else
  \ifxetex
    \def\BKM@driver{dvipdfm}%
  \else
    \ifvtex
      \def\BKM@driver{vtex}%
    \else
      \edef\BKM@driver{\BookmarkDriverDefault}%
    \fi
  \fi
\fi
```

Process options.

```
\ProcessKeyvalOptions*
\BKM@DisableOptions
```

Driver validation and loading.

```
\newif\ifBKM@DvipdfmxOutlineOpen
```

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname SpecialDvipdfmxOutlineOpen\endcsname\relax
\else
  \ifnum\SpecialDvipdfmxOutlineOpen>\z@
    \BKM@DvipdfmxOutlineOpentrue
  \fi
\fi
\def\BKM@temp{dvipdfmx}%
\ifx\BKM@temp\BKM@driver
  \def\BKM@driver{dvipdfm}%
\fi
\def\BKM@temp{pdftex}%
\ifpdf
  \ifx\BKM@temp\BKM@driver
  \else
    \PackageWarningNoLine{bookmark}{%
      Wrong driver `\BKM@driver', using `pdftex' instead%
    }%
    \let\BKM@driver\BKM@temp
  \fi
\else
  \ifx\BKM@temp\BKM@driver
    \PackageError{bookmark}{%
      Wrong driver, pdfTeX is not running in PDF mode.\MessageBreak
      Package loading is aborted%
    }\@ehc
    \expandafter\expandafter\expandafter\endinput
  \fi
  \def\BKM@temp{dvipdfm}%
  \ifxetex
    \ifx\BKM@temp\BKM@driver
    \else
      \PackageWarningNoLine{bookmark}{%
        Wrong driver `\BKM@driver',\MessageBreak
        using `dvipdfm' for XeTeX instead%
      }%
      \let\BKM@driver\BKM@temp
    \fi
  \else
    \def\BKM@temp{vtex}%
    \ifvtex
      \ifx\BKM@temp\BKM@driver
      \else
        \PackageWarningNoLine{bookmark}{%
          Wrong driver `\BKM@driver',\MessageBreak
          using `vtex' for VTeX instead%
        }%
        \let\BKM@driver\BKM@temp
      \fi
    \else
      \ifx\BKM@temp\BKM@driver
        \PackageError{bookmark}{%
          Wrong driver, VTeX is not running in PDF mode.\MessageBreak
          Package loading is aborted%
        }\@ehc
        \expandafter\expandafter\expandafter\endinput
      \fi
    \fi
  \fi
\fi
\InputIfFileExists{bkm-\BKM@driver.def}{}{%
  \PackageError{bookmark}{%
```

```
    Unsupported driver ‘\BKM@driver’.\MessageBreak
    Package loading is aborted%
  }\@ehc
  \endinput
}
```

3.1.6 Compatibility for **hyperref**

```
\renewcommand*{\pdfbookmark}[3][0]{%
  \bookmark[level=#1,dest={#3.#1}]{#2}%
  \hyper@anchorstart{#3.#1}\hyper@anchorend
}
\renewcommand*{\currentpdfbookmark}{%
  \pdfbookmark[\BKM@currentlevel]%
}
\renewcommand*{\subpdfbookmark}{%
  \BKM@CalcExpr\BKM@CalcResult\BKM@currentlevel+1%
  \expandafter\pdfbookmark\expandafter[\BKM@CalcResult]%
}
\renewcommand*{\belowpdfbookmark}[2]{%
  \xdef\BKM@gtemp{\number\BKM@currentlevel}%
  \subpdfbookmark{#1}{#2}%
  \global\let\BKM@currentlevel\BKM@gtemp
}
```

section number, text, label, level, file

```
\renewcommand*{\Hy@writebookmark}[5]{%
  \ifnum#4>\BKM@depth\relax
  \else
    \def\BKM@type{#5}%
    \ifx\BKM@type\Hy@bookmarkstype
      \begingroup
        \ifBKM@numbered
          \let\numberline\Hy@numberline
          \let\partnumberline\Hy@numberline
          \let\chapternumberline\Hy@numberline
        \else
          \let\numberline\@gobble
          \let\partnumberline\@gobble
          \let\chapternumberline\@gobble
        \fi
        \bookmark[level=#4,dest={#3}]{#2}%
      \endgroup
    \fi
  \fi
}
\let\ReadBookmarks\relax
```

⟨/package⟩

3.2 Driver for dvipdfm

```
⟨*dvipdfm⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-dvipdfm.def}%
  [2009/12/17 v1.8 bookmark driver for dvipdfm (HO)]%
\newcount\BKM@id
\BKM@id=\z@
\def\BKM@0{000}
\newif\ifBKM@sw
\newcommand*{\bookmark}[2][]{%
  \if@filesw
    \begingroup
```

```
    \bookmarksetup{#1}%
    \ifBKM@keeplevel
    \else
      \xdef\BKM@currentlevel{\BKM@level}%
    \fi
    \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@
        \global\BKM@startatrootfalse
        \expandafter\xdef\csname BKM@\the\BKM@id\endcsname{%
          0{\BKM@level}\BKM@abslevel
        }%
        \BKM@swfalse
      \else
        \expandafter\expandafter\expandafter\BKM@getx
            \csname BKM@\BKM@prev\endcsname
        \ifnum\BKM@level>\BKM@x@level\relax
          \BKM@CalcExpr\BKM@abslevel\BKM@x@abslevel+1%
          \expandafter\xdef\csname BKM@\the\BKM@id\endcsname{%
            {\BKM@prev}{\BKM@level}\BKM@abslevel
          }%
          \BKM@swfalse
        \else
          \let\BKM@prev\BKM@x@parent
        \fi
      \fi
    }%
    \csname HyPsd@XeTeXBigCharstrue\endcsname
    \pdfstringdef\BKM@title{#2}%
    \edef\BKM@FLAGS{\BKM@PrintStyle}%
    \let\BKM@action\@empty
    \ifx\BKM@gotor\@empty
      \ifx\BKM@dest\@empty
        \ifx\BKM@named\@empty
          \ifx\BKM@rawaction\@empty
            \ifx\BKM@uri\@empty
              \ifx\BKM@page\@empty
                \PackageError{bookmark}{Missing action}\@ehc
                \edef\BKM@action{/Dest[@page1/Fit]}%
              \else
                \ifx\BKM@view\@empty
                  \def\BKM@view{Fit}%
                \fi
                \edef\BKM@action{/Dest[@page\BKM@page/\BKM@view]}%
              \fi
            \else
              \BKM@EscapeString\BKM@uri
              \edef\BKM@action{%
                /A<<%
                  /S/URI%
                  /URI(\BKM@uri)%
                >>%
              }%
            \fi
          \else
            \edef\BKM@action{/A<<\BKM@rawaction>>}%
          \fi
        \else
          \BKM@EscapeName\BKM@named
```

```
680           \edef\BKM@action{%
681             /A<</S/Named/N/\BKM@named>>%
682           }%
683         \fi
684       \else
685         \BKM@EscapeString\BKM@dest
686         \edef\BKM@action{%
687           /A<<%
688             /S/GoTo%
689             /D(\BKM@dest)%
690           >>%
691         }%
692       \fi
693     \else
694       \ifx\BKM@dest\@empty
695         \ifx\BKM@page\@empty
696           \def\BKM@page{0}%
697         \else
698           \BKM@CalcExpr\BKM@page\BKM@page-1%
699         \fi
700         \ifx\BKM@view\@empty
701           \def\BKM@view{Fit}%
702         \fi
703         \edef\BKM@action{/D[\BKM@page/\BKM@view]}%
704       \else
705         \BKM@EscapeString\BKM@dest
706         \edef\BKM@action{/D(\BKM@dest)}%
707       \fi
708       \BKM@EscapeString\BKM@gotor
709       \edef\BKM@action{%
710         /A<<%
711           /S/GoToR%
712           /F(\BKM@gotor)%
713           \BKM@action
714         >>%
715       }%
716     \fi
717     \special{pdf:%
718       out \ifBKM@DvipdfmxOutlineOpen
719             [%
720             \ifBKM@open
721               \ifnum\BKM@level<\BKM@openlevel
722               \else
723                 -%
724               \fi
725             \else
726               -%
727             \fi
728             ] %
729           \fi
730           \BKM@abslevel
731       <<%
732         /Title(\BKM@title)%
733         \ifx\BKM@color\@empty
734         \else
735           /C[\BKM@color]%
736         \fi
737         \ifnum\BKM@FLAGS>\z@
738           /F \BKM@FLAGS
739         \fi
740         \BKM@action
741       >>%
```

```
      }%
    \endgroup
  \fi
}
\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}%
  [2009/12/17 v1.8 bookmark driver for VTeX (HO)]%
\ifvtexpdf
\else
  \PackageWarningNoLine{bookmark}{%
    The VTeX driver only supports PDF mode%
  }%
\fi
\newcount\BKM@id
\BKM@id=\z@
\def\BKM@0{00}
\newif\ifBKM@sw
\newcommand*{\bookmark}[2][]{%
  \if@filesw
    \begingroup
      \bookmarksetup{#1}%
      \ifBKM@keeplevel
      \else
        \xdef\BKM@currentlevel{\BKM@level}%
      \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@
          \global\BKM@startatrootfalse
          \def\BKM@parent{0}%
          \expandafter\xdef\csname BKM@\the\BKM@id\endcsname{%
            0{\BKM@level}%
          }%
          \BKM@swfalse
        \else
          \expandafter\expandafter\expandafter\BKM@getx
              \csname BKM@\BKM@prev\endcsname
          \ifnum\BKM@level>\BKM@x@level\relax
            \let\BKM@parent\BKM@prev
            \expandafter\xdef\csname BKM@\the\BKM@id\endcsname{%
              {\BKM@prev}{\BKM@level}%
            }%
            \BKM@swfalse
          \else
            \let\BKM@prev\BKM@x@parent
          \fi
        \fi
      }%
```

```
    \pdfstringdef\BKM@title{#2}%
    \BKM@vtex@title
    \edef\BKM@FLAGS{\BKM@PrintStyle}%
    \let\BKM@action\@empty
    \ifx\BKM@gotor\@empty
      \ifx\BKM@dest\@empty
        \ifx\BKM@named\@empty
          \ifx\BKM@rawaction\@empty
            \ifx\BKM@uri\@empty
              \ifx\BKM@page\@empty
                \PackageError{bookmark}{Missing action}\@ehc
                \def\BKM@action{!1}%
              \else
                \edef\BKM@action{!\BKM@page}%
              \fi
            \else
              \BKM@EscapeString\BKM@uri
              \edef\BKM@action{%
                <u=%
                  /S/URI%
                  /URI(\BKM@uri)%
                >%
              }%
            \fi
          \else
            \edef\BKM@action{<u=\BKM@rawaction>}%
          \fi
        \else
          \BKM@EscapeName\BKM@named
          \edef\BKM@action{%
            <u=%
              /S/Named%
              /N/\BKM@named
            >%
          }%
        \fi
      \else
        \BKM@EscapeString\BKM@dest
        \edef\BKM@action{\BKM@dest}%
      \fi
    \else
      \ifx\BKM@dest\@empty
        \ifx\BKM@page\@empty
          \def\BKM@page{1}%
        \fi
        \ifx\BKM@view\@empty
          \def\BKM@view{Fit}%
        \fi
        \edef\BKM@action{/D[\BKM@page/\BKM@view]}%
      \else
        \BKM@EscapeString\BKM@dest
        \edef\BKM@action{/D(\BKM@dest)}%
      \fi
      \BKM@EscapeString\BKM@gotor
      \edef\BKM@action{%
        <u=%
          /S/GoToR%
          /F(\BKM@gotor)%
          \BKM@action
        >>%
      }%
    \fi
```

```
      \ifx\BKM@color\@empty
        \let\BKM@RGBcolor\@empty
      \else
        \expandafter\BKM@toRGB\BKM@color\@nil
      \fi
      \special{%
        !outline \BKM@action;%
        p=\BKM@parent,%
        i=\number\BKM@id,%
        s=%
          \ifBKM@open
            \ifnum\BKM@level<\BKM@openlevel
              o%
            \else
              c%
            \fi
          \else
            c%
          \fi,%
        \ifx\BKM@RGBcolor\@empty
        \else
          c=\BKM@RGBcolor,%
        \fi
        \ifnum\BKM@FLAGS>\z@
          f=\BKM@FLAGS,%
        \fi
        t=\BKM@title
      }%
    \endgroup
  \fi
}
\def\BKM@getx#1#2{%
  \def\BKM@x@parent{#1}%
  \def\BKM@x@level{#2}%
}
\def\BKM@toRGB#1 #2 #3\@nil{%
  \let\BKM@RGBcolor\@empty
  \BKM@toRGBComponent{#1}%
  \BKM@toRGBComponent{#2}%
  \BKM@toRGBComponent{#3}%
}
\def\BKM@toRGBComponent#1{%
  \dimen@=#1pt\relax
  \ifdim\dimen@>\z@
    \ifdim\dimen@<\p@
      \dimen@=255\dimen@
      \advance\dimen@ by 32768sp\relax
      \divide\dimen@ by 65536\relax
      \dimen@ii=\dimen@
      \divide\dimen@ii by 16\relax
      \edef\BKM@RGBcolor{%
        \BKM@RGBcolor
        \BKM@toHexDigit\dimen@ii
      }%
      \dimen@ii=16\dimen@ii
      \advance\dimen@-\dimen@ii
      \edef\BKM@RGBcolor{%
        \BKM@RGBcolor
        \BKM@toHexDigit\dimen@
      }%
    \else
      \edef\BKM@RGBcolor{\BKM@RGBcolor FF}%
```

```
    \fi
  \else
    \edef\BKM@RGBcolor{\BKM@RGBcolor00}%
  \fi
}
\def\BKM@toHexDigit#1{%
  \expandafter\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 %
  |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}%
  }%
  |gdef|BKM@vtex@leftparen#1\(#2|@nil{%
    #1%
    |ifx||#2||%
    |else
      (%
      |@ReturnAfterFi{%
        |BKM@vtex@leftparen#2|@nil
      }%
    |fi
  }%
  |gdef|BKM@vtex@rightparen#1\)#2|@nil{%
    #1%
    |ifx||#2||%
    |else
      )%
      |@ReturnAfterFi{%
        |BKM@vtex@rightparen#2|@nil
      }%
    |fi
  }%
  |gdef|BKM@vtex@zero#1\0#2|@nil{%
    #1%
    |ifx||#2||%
    |else
      |noexpand|hv@pdf@char0%
      |@ReturnAfterFi{%
        |BKM@vtex@zero#2|@nil
      }%
    |fi
  }%
  |gdef|BKM@vtex@one#1\1#2|@nil{%
    #1%
    |ifx||#2||%
    |else
      |noexpand|hv@pdf@char1%
      |@ReturnAfterFi{%
        |BKM@vtex@one#2|@nil
      }%
    |fi
```

```
  }%
  |gdef|BKM@vtex@two#1\2#2|@nil{%
    #1%
    |ifx||#2||%
    |else
      |noexpand|hv@pdf@char2%
      |@ReturnAfterFi{%
        |BKM@vtex@two#2|@nil
      }%
    |fi
  }%
  |gdef|BKM@vtex@three#1\3#2|@nil{%
    #1%
    |ifx||#2||%
    |else
      |noexpand|hv@pdf@char3%
      |@ReturnAfterFi{%
        |BKM@vtex@three#2|@nil
      }%
    |fi
  }%
|endgroup
\long\def\@ReturnafterFi#1\fi{\fi#1}
```

⟨/vtex⟩

3.4 Driver for pdfTeX

```
⟨*pdftex⟩
\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-pdftex.def}%
  [2009/12/17 v1.8 bookmark driver for pdfTeX (HO)]%
\def\BKM@DO@entry#1#2{%
  \begingroup
    \setkeys{BKM@DO}{#1}%
    \def\BKM@DO@title{#2}%
    \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{\BKM@attr/F \BKM@DO@flags}%
    \fi
    \ifx\BKM@DO@color\@empty
    \else
      \edef\BKM@attr{\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
                \ifx\BKM@DO@view\@empty
                  \def\BKM@DO@view{Fit}%
```

```
            \fi
            \edef\BKM@action{goto page\BKM@DO@page{/\BKM@DO@view}}%
          \fi
        \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{%
          user{%
            <<%
              \BKM@DO@rawaction
            >>%
          }%
        }%
      \fi
    \else
      \BKM@EscapeName\BKM@DO@named
      \edef\BKM@action{%
        user{<</S/Named/N/\BKM@DO@named>>}%
      }%
    \fi
  \else
    \BKM@UnescapeHex\BKM@DO@dest
    \BKM@DefGotoNameAction\BKM@action\BKM@DO@dest
  \fi
\else
  \ifx\BKM@DO@dest\@empty
    \ifx\BKM@DO@page\@empty
      \def\BKM@DO@page{0}%
    \else
      \BKM@CalcExpr\BKM@DO@page\BKM@DO@page-1%
    \fi
    \ifx\BKM@DO@view\@empty
      \def\BKM@DO@view{Fit}%
    \fi
    \edef\BKM@action{/D[\BKM@DO@page/\BKM@DO@view]}%
  \else
    \BKM@UnescapeHex\BKM@DO@dest
    \BKM@EscapeString\BKM@DO@dest
    \edef\BKM@action{/D(\BKM@DO@dest)}%
  \fi
  \BKM@UnescapeHex\BKM@DO@gotor
  \BKM@EscapeString\BKM@DO@gotor
  \edef\BKM@action{%
    user{%
      <<%
        /S/GoToR%
        /F(\BKM@DO@gotor)%
        \BKM@action
      >>%
    }%
  }%
\fi
\pdfoutline\BKM@attr\BKM@action
            count\ifBKM@DO@open\else-\fi\BKM@x@childs
            {\BKM@DO@title}%
\endgroup
}
```

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

```
\def\BKM@DefGotoNameAction#1#2{%
  \BKM@EscapeString\BKM@DO@dest
  \edef#1{goto name{#2}}%
}
```

⟨/pdftex⟩

3.5 Drivers with pdfmark specials

3.5.1 Driver dvips

⟨*dvips⟩

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-dvips.def}%
  [2009/12/17 v1.8 bookmark driver for dvips (HO)]%
\def\BKM@PSHeaderFile#1{%
  \special{header=#1}%
}
```

⟨/dvips⟩

3.5.2 Driver dvipsone

⟨*dvipsone⟩

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-dvipsone.def}%
  [2009/12/17 v1.8 bookmark driver for dvipsone (HO)]%
\def\BKM@PSHeaderFile#1{%
  \special{header=#1}%
}
```

⟨/dvipsone⟩

3.5.3 Driver textures

⟨*textures⟩

```
\NeedsTeXFormat{LaTeX2e}
\ProvidesFile{bkm-textures.def}%
  [2009/12/17 v1.8 bookmark driver for textures (HO)]%
\def\BKM@PSHeaderFile#1{%
  \special{prePostScriptfile #1}%
}
```

⟨/textures⟩

3.5.4 Common part

⟨*pdfmark⟩

```
\def\BKM@filename{\jobname.out.ps}
\BKM@PSHeaderFile\BKM@filename
\RequirePackage{atveryend}[2009/12/07]
\AfterLastShipout{\BKM@pdfmark@out}
```

Do not use package rerunfilecheck here, because the file `\BMK@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{\@percentchar!}%
    \BKM@write{/pdfmark where{pop}}%
    \BKM@write{%
      {%
        /globaldict where{pop globaldict}{userdict}ifelse%
        /pdfmark/cleartomark load put%
      }%
    }%
```

```
    \BKM@write{ifelse}%
  \else
    \let\BKM@write\@gobble
    \let\BKM@DO@entry\@gobbletwo
  \fi
}
\def\BKM@write#{%
  \immediate\write\BKM@file
}
```

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`.

```
\def\BKM@DO@entry#1#2{%
  \begingroup
    \setkeys{BKM@DO}{#1}%
    \def\BKM@DO@title{#2}%
    \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{\BKM@attr/F \BKM@DO@flags}%
    \fi
    \ifx\BKM@DO@color\@empty
    \else
      \edef\BKM@attr{\BKM@attr/C[\BKM@DO@color]}%
    \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{%
                  /Action/GoTo%
                  /Page 1%
                  /View[/Fit]%
                }%
              \else
                \ifx\BKM@DO@view\@empty
                  \def\BKM@DO@view{Fit}%
                \fi
                \edef\BKM@action{%
                  /Action/GoTo%
                  /Page \BKM@DO@page
                  /View[/\BKM@DO@view]%
                }%
              \fi
            \else
              \BKM@UnescapeHex\BKM@DO@uri
              \BKM@EscapeString\BKM@DO@uri
              \edef\BKM@action{%
                /Action<<%
                  /Subtype/URI%
                  /URI(\BKM@DO@uri)%
                >>%
              }%
            \fi
          \else
```

```
          \BKM@UnescapeHex\BKM@DO@rawaction
          \edef\BKM@action{%
            /Action<<%
              \BKM@DO@rawaction
            >>%
          }%
        \fi
      \else
        \BKM@EscapeName\BKM@DO@named
        \edef\BKM@action{%
          /Action<<%
            /Subtype/Named%
            /N/\BKM@DO@named
          >>%
        }%
      \fi
    \else
      \BKM@UnescapeHex\BKM@DO@dest
      \BKM@EscapeString\BKM@DO@dest
      \edef\BKM@action{%
        /Action/GoTo%
        /Dest(\BKM@DO@dest)cvn%
      }%
    \fi
  \else
    \ifx\BKM@DO@dest\@empty
      \ifx\BKM@DO@page\@empty
        \def\BKM@DO@page{1}%
      \fi
      \ifx\BKM@DO@view\@empty
        \def\BKM@DO@view{Fit}%
      \fi
      \edef\BKM@action{%
        /Page \BKM@DO@page
        /View[/\BKM@DO@view]%
      }%
    \else
      \BKM@UnescapeHex\BKM@DO@dest
      \BKM@EscapeString\BKM@DO@dest
      \edef\BKM@action{%
        /Dest(\BKM@DO@dest)cvn%
      }%
    \fi
    \BKM@UnescapeHex\BKM@DO@gotor
    \BKM@EscapeString\BKM@DO@gotor
    \edef\BKM@action{%
      /Action/GoToR%
      /File(\BKM@DO@gotor)%
      \BKM@action
    }%
  \fi
  \BKM@write{[}%
  \BKM@write{/Title(\BKM@DO@title)}%
  \ifnum\BKM@x@childs>\z@
    \BKM@write{/Count \ifBKM@DO@open\else-\fi\BKM@x@childs}%
  \fi
  \ifx\BKM@attr\@empty
  \else
    \BKM@write{\BKM@attr}%
  \fi
  \BKM@write{\BKM@action}%
  \BKM@write{/OUT pdfmark}%
```

```
  \endgroup
}
```
⟨/pdfmark⟩

3.6 Common part for **pdftex** and **pdfmark**

⟨*pdftex | pdfmark⟩

3.6.1 Write auxiliary file

```
\RequirePackage{auxhook}

\AddLineBeginMainAux{%
  \string\providecommand\string\BKM@entry[2]{}%
}

\newcount\BKM@id
\BKM@id=\z@

\def\BKM@0{000}

\newif\ifBKM@sw

\newcommand*{\bookmark}[2][]{%
  \if@filesw
    \begingroup
      \bookmarksetup{#1}%
      \ifBKM@keeplevel
      \else
        \xdef\BKM@currentlevel{\BKM@level}%
      \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@
          \global\BKM@startatrootfalse
          \expandafter\xdef\csname BKM@\the\BKM@id\endcsname{%
            0{\BKM@level}0%
          }%
          \BKM@swfalse
        \else
          \expandafter\expandafter\expandafter\BKM@getx
              \csname BKM@\BKM@prev\endcsname
          \ifnum\BKM@level>\BKM@x@level\relax
            \expandafter\xdef\csname BKM@\the\BKM@id\endcsname{%
              {\BKM@prev}{\BKM@level}0%
            }%
            \ifnum\BKM@prev>\z@
              \BKM@CalcExpr\BKM@CalcResult\BKM@x@childs+1%
              \expandafter\xdef\csname BKM@\BKM@prev\endcsname{%
                {\BKM@x@parent}{\BKM@x@level}{\BKM@CalcResult}%
              }%
            \fi
            \BKM@swfalse
          \else
            \let\BKM@prev\BKM@x@parent
          \fi
        \fi
      }%
      \pdfstringdef\BKM@title{#2}%
      \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{%
          id=\number\BKM@id
          \ifBKM@open
            \ifnum\BKM@level<\BKM@openlevel
              ,open%
            \fi
          \fi
          \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>\z@
            ,flags=\BKM@FLAGS
          \fi
        }{\BKM@title}%
      }%
    \endgroup
  \fi
}
\def\BKM@getx#1#2#3{%
  \def\BKM@x@parent{#1}%
  \def\BKM@x@level{#2}%
  \def\BKM@x@childs{#3}%
}
\def\BKM@auxentry#1{%
  \expandafter\ifx\csname BKM@#1\endcsname\@empty
  \else
    ,#1={\csname BKM@#1\endcsname}%
  \fi
}
```

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}
\AtBeginDocument{%
  \let\BKM@entry\BKM@DO@entry
}
```

⟨/pdftex | pdfmark⟩

3.7 Option **atend**

3.7.1 Hook

⟨*package⟩

```
\ifBKM@atend
\else
```

\BookmarkAtEnd 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
\fi
```

\BookmarkAtEnd

```
\newcommand*{\BookmarkAtEnd}{%
  \g@addto@macro\BKM@EndHook
}

\let\BKM@EndHook\@empty
```

⟨/package⟩

3.7.2 Drivers using hooks at end of document

The following drivers use package atveryend's \AfterLastShipout, because they still need the ..aux file.

- Driver pdftex uses \pdfoutline that can be used after the last page.
- PostScript drivers such as dvips use an external PostScript header file for the bookmarks. File writing can be done after the last shipout page, but before the ..aux file is closed.

```
⟨*pdftex | pdfmark⟩
\ifBKM@atend
  \AfterLastShipout{%
    \BKM@EndHook
  }%
\fi
⟨/pdftex | pdfmark⟩
```

3.7.3 Drivers using \AtEndDvi

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 package atenddvi that uses the help of packages atbegshi and zref. The argument of \AtEndDvi is put at the end of the last page. At least two LaTeX runs are necessary.

```
⟨*dvipdfm | vtex⟩
\ifBKM@atend
  \RequirePackage{atenddvi}%
  \AtEndDvi{\BKM@EndHook}%
\fi
⟨/dvipdfm | vtex⟩
```

4 Installation

4.1 Download

Package. This package is available on CTAN[1]:

CTAN:macros/latex/contrib/oberdiek/bookmark.dtx The source file.

CTAN:macros/latex/contrib/oberdiek/bookmark.pdf Documentation.

[1] ftp://ftp.ctan.org/tex-archive/

Bundle. All the packages of the bundle 'oberdiek' 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.

CTAN:install/macros/latex/contrib/oberdiek.tds.zip

TDS refers to the standard "A Directory Structure for TEX Files" (CTAN:tds/tds.pdf). Directories with `texmf` in their name are usually organized this way.

4.2 Bundle installation

Unpacking. Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package attachfile2 comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
```

4.3 Package installation

Unpacking. The `.dtx` file is a self-extracting docstrip archive. The files are extracted by running the `.dtx` through plain-TEX:

```
tex bookmark.dtx
```

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

```
bookmark.sty          → tex/latex/oberdiek/bookmark.sty
bkm-dvipdfm.def       → tex/latex/oberdiek/bkm-dvipdfm.def
bkm-dvips.def         → tex/latex/oberdiek/bkm-dvips.def
bkm-dvipsone.def      → tex/latex/oberdiek/bkm-dvipsone.def
bkm-textures.def      → tex/latex/oberdiek/bkm-textures.def
bkm-pdftex.def        → tex/latex/oberdiek/bkm-pdftex.def
bkm-vtex.def          → tex/latex/oberdiek/bkm-vtex.def
bookmark.pdf          → doc/latex/oberdiek/bookmark.pdf
bookmark-example.tex → doc/latex/oberdiek/bookmark-example.tex
bookmark.dtx          → source/latex/oberdiek/bookmark.dtx
```

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

4.4 Refresh file name databases

If your TEX distribution (teTEX, mikTEX, ...) relies on file name databases, you must refresh these. For example, teTEX users run `texhash` or `mktexlsr`.

4.5 Some details for the interested

Attached source. The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is pdftk, e.g. unpack the file into the current directory:

```
pdftk bookmark.pdf unpack_files output .
```

Unpacking with LaTeX. The `.dtx` chooses its action depending on the format:

plain-TeX: Run docstrip and extract the files.

LaTeX: Generate the documentation.

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

```
latex \let\install=y\input{bookmark.dtx}
```

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

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

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with pdfLaTeX:

```
pdflatex bookmark.dtx
makeindex -s gind.ist bookmark.idx
pdflatex bookmark.dtx
makeindex -s gind.ist bookmark.idx
pdflatex bookmark.dtx
```

5 History

[2007/02/19 v0.1]

- First experimental version.

[2007/02/20 v0.2]

- Option startatroot added.
- Dummies for `\pdf(un)escape...` commands added to get the package basically work for non-pdfTeX users.

[2007/02/21 v0.3]

- Dependency from pdfTeX 1.30 removed by using package pdfescape.

[2007/02/22 v0.4]

- hyperref's bookmarkstype 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 ε-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 ε-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.

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