

The `atenddvi` package

Heiko Oberdiek*

2019/12/05 v1.3

Abstract

L^AT_EX offers `\AtBeginDvi`. This package `atenddvi` provides the counterpart `\AtEndDvi`. The execution of its argument is delayed to the end of the document at the end of the last page. Thus `\special` and `\write` remain effective, because they are put into the last page. This is the main difference to `\AtEndDocument`.

Contents

1	Documentation	1
2	Implementation	2
3	Installation	4
3.1	Download	4
3.2	Bundle installation	4
3.3	Package installation	4
3.4	Refresh file name databases	4
3.5	Some details for the interested	5
4	History	5
	[2007/03/20 v1.0]	5
	[2007/04/17 v1.1]	5
	[2016/05/16 v1.2]	5
	[2019/12/05 v1.3]	5
5	Index	5

1 Documentation

`\AtEndDvi {code}`

Macro `\AtEndDvi` provides a hook mechanism to put *code* at the end of the last output page. It is the logical counterpart to `\AtBeginDvi`. Despite the name the output type DVI, PDF or whatever does not matter.

Unlike `\AtBeginDvi` the *code* is not put in a box and therefore executed immediately. The hook for `\AtEndDvi` is based on a macro similar to `\AtBeginDocument` or `\AtEndDocument`. The execution of *code* is delayed until the hook is executed on the last page.

*Please report any issues at <https://github.com/ho-tex/atenddvi/issues>

Commands such as `\special` or `\write` (not the `\immediate` variant) must go as nodes into the contents of a page to have the desired effect. When the hook for `\AtEndDocument` is executed, the last intended page may already be shipped out. Therefore `\special` or `\write` cannot be used in a reliable way without generating new page.

This gap is closed by `\AtEndDvi` of this package `atenddvi`. If the document is compiled the first time, the package remembers the last page in a reference. In the second run, it puts the hook on the page that has been detected in the previous run as last page. The package detects if the number of pages has changed, and then generates a warning to rerun L^AT_EX.

2 Implementation

```
1 <*package>
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{atenddvi}%
4 [2019/12/05 v1.3 At end DVI hook (H0)]%
```

```
Load the required packages
5 \RequirePackage{zref-abspage,zref-lastpage}[2007/03/19]
6 \RequirePackage{atbegshi}
```

`\AtEndDvi@Hook` Macro `\AtEndDvi@Hook` is the data storage macro for the code that is executed later at end of the last page.

```
7 \let\AtEndDvi@Hook\@empty
```

`\AtEndDvi` Macro `\AtEndDvi` is called in the same way as `\AtBeginDocument`. The argument is added to the hook macro.

```
8 \newcommand*{\AtEndDvi}{%
9   \g@addto@macro\AtEndDvi@Hook
10 }
```

`\AtEndDvi@AtBeginShipout`

```
11 \def\AtEndDvi@AtBeginShipout{%
12   \begingroup
```

The reference ‘LastPage’ is marked used. If the reference is not yet defined, then the user gets the warning because of the undefined reference and the rerun warning at the end of the compile run. However, we do not need a warning each page, the first page is enough.

```
13   \ifnum\value{abspage}=1 %
14     \zref@refused{LastPage}%
15   \fi
```

The current absolute page number is compared with the absolute page number of the reference ‘LastPage’.

```
16   \ifnum\zref@extractdefault{LastPage}{abspage}{0}=\value{abspage}%
```

`\AtEndDvi@LastPage` We found the right page and remember it in a macro.

```
17   \xdef\AtEndDvi@LastPage{\number\value{abspage}}%
```

The hook of `\AtEndDvi` is now put on the last page after the contents of the page.

```
18   \global\setbox\AtBeginShipoutBox=\vbox{%
19     \hbox{%
20       \box\AtBeginShipoutBox
21       \setbox\AtBeginShipoutBox=\hbox{%
22         \begingroup
```

```

23         \AtEndDvi@Hook
24     \endgroup
25 }%
26 \wd\AtBeginShipoutBox=\z@
27 \ht\AtBeginShipoutBox=\z@
28 \dp\AtBeginShipoutBox=\z@
29 \box\AtBeginShipoutBox
30 }%
31 }%

```

We do not need the every page hook.

```
32 \global\let\AtEndDvi@AtBeginShipout\@empty
```

The hook is consumed, \AtEndDvi does not have an effect.

```
33 \global\let\AtEndDvi\@gobble
```

Make a protocol entry, which page is used by this package as last page.

```

34 \let\on@line\@empty
35 \PackageInfo{atendddvi}{Last page = \AtEndDvi@LastPage}%
36 \fi
37 \endgroup
38 }

```

`\AtEndDvi@AtBeginDocument` In order to get as late as possible in the chain of the every shipout hook, the call of `\AtBeginShipout` is delayed.

```

39 \def\AtEndDvi@AtBeginDocument{%
40 \AtBeginShipout{\AtEndDvi@AtBeginShipout}%

```

`\AtEndDvi@Check` After `\AtEndDocument` L^AT_EX reads its .aux files again. Code in `\AtEndDocument` could generate additional pages. This is unlikely by code in the .aux file, thus we use the .aux file to run macro `\AtEndDvi@Check` for checking the last page.

During the first reading of the .aux file, `\AtEndDvi@Check` is disabled, its real meaning is assigned afterwards.

```

41 \if@files
42 \immediate\write\@mainaux{%
43 \string\providecommand\string\AtEndDvi@Check}%
44 }%
45 \immediate\write\@mainaux{%
46 \string\AtEndDvi@Check
47 }%
48 \fi
49 \let\AtEndDvi@Check\AtEndDvi@CheckImpl
50 }

```

```
51 \AtBeginDocument{\AtEndDvi@AtBeginDocument}
```

`\AtEndDvi@CheckImpl` First check is whether a last page was found at all. Secondly the found last page is compared with the real last page.

```

52 \def\AtEndDvi@CheckImpl{%
53 \@ifundefined{AtEndDvi@LastPage}{%
54 \PackageWarningNoLine{atendddvi}{%
55 Rerun LaTeX, last page not yet found%
56 }%
57 }{%
58 \ifnum\AtEndDvi@LastPage=\value{abspage}%
59 \else
60 \PackageWarningNoLine{atendddvi}{%
61 Rerun LaTeX, last page has changed%
62 }%

```

```

63 \fi
64 }%
65 }

66 </package>

```

3 Installation

3.1 Download

Package. This package is available on CTAN¹:

[CTAN:macros/latex/contrib/atendddvi/atendddvi.dtx](#) The source file.

[CTAN:macros/latex/contrib/atendddvi/atendddvi.pdf](#) Documentation.

Bundle. All the packages of the bundle ‘atendddvi’ 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/atendddvi.tds.zip](#)

TDS refers to the standard “A Directory Structure for T_EX Files” ([CTAN:pkg/tds](#)). Directories with `texmf` in their name are usually organized this way.

3.2 Bundle installation

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

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

3.3 Package installation

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

```
tex atendddvi.dtx
```

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

```

atendddvi.sty → tex/latex/atendddvi/atendddvi.sty
atendddvi.pdf → doc/latex/atendddvi/atendddvi.pdf
atendddvi.dtx → source/latex/atendddvi/atendddvi.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`.

3.4 Refresh file name databases

If your T_EX distribution (T_EX Live, mikT_EX, ...) relies on file name databases, you must refresh these. For example, T_EX Live users run `texhash` or `mktextlsr`.

¹[CTAN:pkg/atendddvi](#)

3.5 Some details for the interested

Unpacking with L^AT_EX. The .dtx chooses its action depending on the format:

plain T_EX: Run docstrip and extract the files.

L^AT_EX: Generate the documentation.

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

```
latex \let\install=y\input{atenddvi.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 pdfL^AT_EX:

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

4 History

[2007/03/20 v1.0]

- First version.

[2007/04/17 v1.1]

- Package atbegshi replaces package everyshi.

[2016/05/16 v1.2]

- Documentation updates.

[2019/12/05 v1.3]

- Documentation updates.

5 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	\@gobble	33
\@empty	7, 32, 34	\@ifundefined 53

\@mainaux	42, 45	N	
		\NeedsTeXFormat	2
A		\newcommand	8
\AtBeginDocument	51	\number	17
\AtBeginShipout	40		
\AtBeginShipoutBox		O	
	18, 20, 21, 26, 27, 28, 29	\on@line	34
\AtEndDvi	1, 8, 33		
\AtEndDvi@AtBeginDocument	39	P	
\AtEndDvi@AtBeginShipout	11, 40	\PackageInfo	35
\AtEndDvi@Check	41	\PackageWarningNoLine	54, 60
\AtEndDvi@CheckImpl	49, 52	\providecommand	43
\AtEndDvi@Hook	7, 9, 23	\ProvidesPackage	3
\AtEndDvi@LastPage	17, 35, 58		
		R	
B		\RequirePackage	5, 6
\box	20, 29		
		S	
D		\setbox	18, 21
\dp	28		
		V	
G		\value	13, 16, 17, 58
\g@addto@macro	9	\vbox	18
H		W	
\hbox	19, 21	\wd	26
\ht	27	\write	42, 45
I		Z	
\if@files	41	\z@	26, 27, 28
\ifnum	13, 16, 58	\zref@extractdefault	16
\immediate	42, 45	\zref@refused	14