

# The `attachfile2` package

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## Abstract

This package can be used to attach files to a PDF document. It is a further development of Scott Pakin's package `attachfile` for pdf $\TeX$ . Apart from bug fixes, package `attachfile2` adds support for `dvips`, some new options, gets and writes meta information data about the attached files.

## Contents

<b>1</b>	<b>Documentation</b>	<b>2</b>
1.1	Introduction . . . . .	2
1.1.1	Future development . . . . .	2
1.2	User interface . . . . .	3
1.2.1	New options . . . . .	3
1.2.2	Option <code>color</code> . . . . .	4
1.2.3	Perl script <code>pdfatfi.pl</code> . . . . .	4
1.3	Changes to <code>attachfile</code> . . . . .	5
<b>2</b>	<b>Implementation</b>	<b>5</b>
2.1	Package . . . . .	5
2.1.1	Loading of packages . . . . .	5
2.1.2	Value checking . . . . .	5
2.1.3	Option declarations . . . . .	7
2.1.4	Option calling . . . . .	11
2.1.5	Evaluate driver options . . . . .	11
2.1.6	Evaluate options <code>draft/final</code> . . . . .	12
2.1.7	Load driver file . . . . .	13
2.1.8	Graphics . . . . .	13
2.1.9	Reading the <code>.atfi</code> file . . . . .	17
2.1.10	Writing the <code>.atfi</code> file . . . . .	19
2.1.11	Annotation appearance . . . . .	20
2.2	Drivers . . . . .	22
2.2.1	pdf $\TeX$ . . . . .	22
2.3	luatex . . . . .	25
2.3.1	dvips . . . . .	27
2.3.2	dvipdfmx . . . . .	36
2.4	Perl script <code>pdfatfi.pl</code> . . . . .	39

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\*Please report any issues at <https://github.com/ho-tex/attachfile2/issues>

<b>3</b>	<b>Installation</b>	<b>44</b>
3.1	Download	44
3.2	Bundle installation	45
3.3	Package installation	45
3.4	Refresh file name databases	45
3.5	Script installation	45
3.6	Some details for the interested	45
<b>4</b>	<b>References</b>	<b>46</b>
<b>5</b>	<b>History</b>	<b>46</b>
	[2005/02/23 v2.0]	46
	[2005/10/07 v2.1]	47
	[2006/08/17 v2.2]	47
	[2007/04/11 v2.3]	47
	[2008/07/29 v2.4]	47
	[2009/09/25 v2.5]	47
	[2010/09/27 v2.6]	47
	[2012/04/18 v2.7]	47
	[2016/05/16 v2.8]	47
	[2019/07/24 v2.9]	47
	[2019/11/24 v2.10]	48
	[2019/11/26 v2.11]	48
<b>6</b>	<b>Index</b>	<b>48</b>

# 1 Documentation

## 1.1 Introduction

The PDF format ([3]) allows the inclusion of files inside the PDF document. The included files can be bound to an annotation on a page. Or they can be recorded in a sorted list of embedded files. The packages `attachfile` or `attachfile2` follow the first approach, package `embedfile` uses the latter method.

### 1.1.1 Future development

My dream is a large package that merges the features of all these packages mentioned before:

- Files can be attached to a page.
- Files can be attached to the document.
- An easy user interface for simple, common tasks and beginners.
- An interface for the advanced users that want to setup every detail.
- Support of many drivers (`pdftex`, `dvips`, `dvipdfm`, ...).
- ...

However, I have not managed to take the time for this project. Instead:

- First I experimented with package `attachfile`, adding driver support, fixing bugs, .... The result is currently named as `attachfile2`. It uses an external script to get file properties (size, date, checksum, ...).

- In order to avoid an external program for getting basic file properties I provided a patch “EscapeAndOther” for pdfTeX that was accepted for version 1.30.
- Package `embedfile` closes a gap left by the packages for attaching files and allows the embedding of files to the document. Also it makes use of the new primitives of pdfTeX.

Until this future becomes true, I provide the intermediate step `attachfile2` at its current state. There are many things to do:

- Documentation, documentation, ...
- Improving portability of the Perl script `pdfatfi.pl` (Windows, non-GNU, ...).
- Comfortable program for extracting embedded files.
- Embedding files to the document, see package `embedfile`.
- Additionally use features of pdfTeX 1.30. With a recent pdfTeX the Perl script step is then obsolete.
- GoToE links.
- Layout of `PinPush`, especially the tip does not scale well.
- Driver for `dvipson`, similar to `dvips`, changes:
  - coordinate transformation need to be fixed here, `hdvipson.def` contains:
 

```

          /DvipsToPDF { 65781 div } def
          /PDFToDvips { 65781 mul } def
          
```
  - Syntax for `\special`: `hdvipson.def` contains both `\special{! #1}` and `\special{headertext= #1}`. Are both the same?
- File name conversion, see PDF specification:
 

```

      c:\somewhere\foobar.txt → /c/somewhere/foobar.txt
      
```
- Option `scale` for icons?
- Compatibility for plain TeX.
- ToDos for `atfidvips.def`.

## 1.2 User interface

Basically this package `attachfile2` follows the user interface of package `attachfile`, look into its documentation ([1]).

### 1.2.1 New options

- Driver options `dvips`, `pdftex`, `dvipdfmx` and `xetex` that is an alias for `dvipdfmx`.
- Option `driverfallback` specifies a DVI driver if the driver cannot be detected automatically.
- New options `final` and `draft`.

- New option `scale` for scaling the annotation rectangle.
- Options `file` and `nofile` for controlling the generation of the auxiliary file `.atfi`.
- New option `ucfilespec` for file names with characters outside ASCII (PDF 1.7).

### 1.2.2 Option `color`

Package `attachfile`'s option `color` only understands explicit RGB values as three space separated real numbers in the range from 0 to 1.

This package `attachfile2` extends the syntax. The usual color specifications of packages `color` or `xcolor` may be used. The latter one requires that package `xcolor` is loaded. Without package `xcolor` a limited range of explicit color specifications are supported, the color models `rgb` and `gray` (and `cmymk` if package `hyperref`'s option `pdfversion` is set to 1.7 or greater).

Example without package `xcolor`:

```
\documentclass{article}
\usepackage[color={1 0 .5}]{attachfile2}
% Spaces in option values in \usepackage or \documentclass
% must be protected by curly braces. Otherwise LaTeX strips
% the spaces and the package would see 'color=10.5'.
% This protection is not necessary for \attachfilesetup.
\attachfilesetup{color=1 0 .5}
\attachfilesetup{color=[rgb]{1,0,.5}}
\attachfilesetup{color=[gray]{.5}}
```

The following example with package `xcolor` shows additional color specifications:

```
\documentclass{article}
\usepackage{xcolor}
\definecolor{attachfilecolor}{cmymk}{.1,.2,.3,.4}
\usepackage{color=red}{attachfile2}
\attachfilesetup{color=red}
\attachfilesetup{color=attachfilecolor}
```

**For experts.** If the `color` is used in annotations, the `color` is converted with the help of package `xcolor` to RGB. PDF versions 1.7 or later also understand color models Gray and CMYK. The PDF version is detected if the experimental option `pdfversion` of package `hyperref` is used, example:

```
\documentclass{article}
\usepackage[pdfversion=1.7]{hyperref}
\usepackage{attachfile2}
```

However, currently only driver `pdftex` also supports the actual setting of the PDF version in the output PDF file.

### 1.2.3 Perl script `pdfatfi.pl`

This package also tries to get and add meta information data, such as file size, file date, checksum, . . . . As package `embedfile` shows the new features of pdfTeX 1.30 are very useful for getting this kind of data. Since version 2.6 these data are used if available.

For older versions of pdfTeX and XeTeX the Perl script `pdfatfi.pl` is provided to get this data. The use of the Perl script is not mandatory. This data can be shown by PDF viewers, but they are not a requirement of the PDF specification.

Package `attachfile2` and the Perl script communicate via an auxiliary file with file extension `.atfi`. The script is used between two L<sup>A</sup>T<sub>E</sub>X runs and updates the auxiliary file, example for `dvips`:

```
latex test
pdfatfi test
latex test
dvips test
ps2pdf test.ps test.pdf
```

### 1.3 Changes to `attachfile`

Some of the changes I can remember:

- Support for `dvips`.
- Support for `dvipdfmx`/`XeTeX`.
- Setting and filling the `/Param` entry for files (file date, file size, ...).
- Perl script `pdfatfi.pl`.
- New options.
- Bug fixes.
- ...

## 2 Implementation

### 2.1 Package

```
1 \*package)
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesPackage{attachfile2}%
4 [2019/11/26 v2.11 Attach files into PDF (HO)]%
```

#### 2.1.1 Loading of packages

```
5 \RequirePackage{iftex}[2019/11/07]
6 \RequirePackage{keyval}
7 \RequirePackage{color}
8 \RequirePackage{infwarerr}[2010/04/08]
9 \RequirePackage{ltxcmds}[2010/04/26]
10 \RequirePackage{kvoptions}[2009/07/21]
11 \RequirePackage{pdftexcmds}[2010/04/01]
12 \RequirePackage{pdfescape}[2007/11/11]
```

Package `hyperref` is needed because of `\pdfstringdef`.

```
13 \RequirePackage{hyperref}
14 \RequirePackage{hycolor}[2008/07/29]
```

#### 2.1.2 Value checking

`\atfi@Match`

```
15 \ltx@ifundefined{pdfmatch}{%
16 \def\atfi@Match#1#2#3#4#5{%
17 }{%
```

```

18 \def\atfi@Match#1#2#3{%
19   \begingroup
20   \edef\~{\ltx@backslashchar\string^}%
21   \edef\.\{\ltx@backslashchar.}%
22   \let\#\ltx@hashchar
23   \edef\[\{\ltx@backslashchar[]% ]]
24   \edef\$\{\ltx@backslashchar$}%
25   \let%\ltx@percentchar
26   \edef\&\{\string&}%
27   \edef\(\{\ltx@backslashchar(}%
28   \edef\)\{\ltx@backslashchar)}%
29   \edef\|\{\ltx@backslashchar|}%
30   \edef\*\{\ltx@backslashchar*}%
31   \edef\+\{\ltx@backslashchar+}%
32   \edef\?\{\ltx@backslashchar?}%
33   \edef\{\{\ltx@backslashchar\ltx@leftbracechar}%
34   \edef\}\{\ltx@rightbracechar}%
35   \edef\{\{\ltx@backslashchar\ltx@backslashchar}%
36   \edef\~{\string~}%
37   \ifcase\pdfmatch#3{#2}{#1} %
38     \endgroup
39     \expandafter\ltx@secondoftwo
40   \or
41     \endgroup
42     \expandafter\ltx@firstoftwo
43   \else
44     \atfi@Warning{%
45       Internal error: Wrong pattern!\MessageBreak
46       --> #2 <--\MessageBreak
47       Pattern check ignored%
48     }%
49     \endgroup
50     \expandafter\ltx@firstoftwo
51   \fi
52 }%

```

\atfi@PatToken

```

53 \def\atfi@PatToken{%
54   [%
55     -% first character
56     !%
57     \#\%\&'%
58     \*\+\.%
59     0-9%
60     A-Z%
61     \_ '%
62     a-z%
63     \{\}\|\~%
64   ]+%
65 }%

```

\atfi@CR

```

66 \begingroup
67   \lccode64=13 % @
68 \lowercase{\endgroup
69   \def\atfi@CR{@}%
70 }%

```

```

\atfi@PatQuotedString
71 \def\atfi@PatQuotedString{%
72   "%
73   ([^"\\@fi@CR]|\|.)*%
74   "%
75   }%

76 \ltx@ifpackagelater{ltxcmds}{2010/09/11}{}{%

\atfi@ltx@leftbracechar
77 \begingroup
78   \lccode'0='\relax
79   \lowercase{\endgroup
80   \def\ltx@leftbracechar{0}%
81   }%

\ltx@rightbracechar
82 \begingroup
83   \lccode'0='\relax
84   \lowercase{\endgroup
85   \def\ltx@rightbracechar{0}%
86   }%

87 }%
88 }

\atfi@Warning
89 \def\atfi@Warning{\PackageWarning{attachfile2}}

```

### 2.1.3 Option declarations

```

90 \SetupKeyvalOptions{%
91   family=AtFi,%
92   prefix=atfi%
93 }

\atfi@setup
94 \def\atfi@setup{\setkeys{AtFi}}

Options draft and final.
95 \DeclareBoolOption{draft}
96 \DeclareComplementaryOption{final}{draft}

Option mimetype.

\atfi@mimetype
97 \def\atfi@mimetype{}

98 \define@key{AtFi}{mimetype}{%
99   \edef\atfi@mimetype{#1}%
100  \ifx\atfi@mimetype\ltx@empty
101  \else
102    \atfi@Match\atfi@mimetype{%
103      ^(application|audio|image|model|text|video|x-\atfi@PatToken)%
104      /%
105      ([a-z\-\+\.\0-9]+)%
106      (; ?\atfi@PatToken=(\atfi@PatToken|\atfi@PatQuotedString))*$%
107    }{icase}{}{%
108      \atfi@Warning{%

```

```

109     Invalid value ‘\atfi@mimetype’\MessageBreak
110     of option ‘mimetype’.\MessageBreak
111     Value is discarded%
112   }%
113   \let\atfi@mimetype\ltx@empty
114 }%
115 \fi
116 \ifx\atfi@mimetype\ltx@empty
117 \else
118   \EdefEscapeName\atfi@mimetype{\atfi@mimetype}%
119   \edef\atfi@mimetype{/Subtype/\atfi@mimetype}%
120 \fi
121 }

```

Option icon

```

122 \define@key{AtFi}{icon}{%
123   \def\atfi@icon{/Name/#1}%
124   \def\atfi@icon@icon{#1}%
125 }
126 \atfi@setup{icon=PushPin}

```

Option color

```

127 \define@key{AtFi}{color}{%
128   \HyColor@AttachfileColor{#1}%
129   \atfi@color@tex\atfi@color@inline\atfi@color@annot
130   {attachfile2}{color}%
131 }
132 \atfi@setup{color=1 0.9255 0.7765}

```

time options timezone and date

\atfi@pad@ii

```

133 \def\atfi@pad@ii#1{%
134   \ifnum#1>9 %
135     \number#1%
136   \else
137     0\number#1%
138   \fi%
139 }

```

atfi@timezone

```

140 \let\atfi@timezone\ltx@empty
141 \define@key{AtFi}{timezone}{\def\atfi@timezone{#1}}

```

\atfi@time

```

142 \edef\atfi@time{\the\time}

```

\atfi@hours

```

143 \def\atfi@hours{%
144   \numexpr\dimexpr0.01667\dimexpr\atfi@time sp\relax\relax\relax
145 }

```

\atfi@minutes

```

146 \def\atfi@minutes{%
147   \numexpr\atfi@time-60*\atfi@hours\relax
148 }

```

\atfi@seconds

```

149 \def\atfi@seconds{0}

```



\atfi@date

```
150 \def\atfi@date{%
151   /M(D:\the\year
152     \atfi@pad@ii\month
153     \atfi@pad@ii\day
154     \atfi@pad@ii\atfi@hours
155     \atfi@pad@ii\atfi@minutes
156     \atfi@pad@ii\atfi@seconds
157     \atfi@timezone)%
158 }

159 \define@key{AtFi}{date}{%
160   \EdefEscapeString\atfi@date{#1}%
161   \edef\atfi@date{/M(\atfi@date)}%
162 }
```

Text options author, description, and subject

\atfi@pdfstringdef

```
163 \DeclareRobustCommand{\atfi@pdfstringdef}[2]{%
164   \pdfstringdef\atfi@temp@string{#2}%
165   \edef#1{\atfi@temp@string}%
166 }
```

\atfi@NoValue

```
167 \def\atfi@NoValue{\NoValue}
```

\atfi@DefNoValueName

```
168 \def\atfi@DefNoValueName#1#2#3{%
169   \def#1{#3}%
170   \ifx#1\atfi@NoValue
171     \let#1\ltx@empty
172   \else
173     \atfi@pdfstringdef#1{#1}%
174     \edef#1{/#2(#1)}%
175   \fi
176 }
```

Name for annotation to be used in GoToE actions

\atfi@annotname

```
177 \let\atfi@annotname\ltx@empty

178 \define@key{AtFi}{annotname}[\NoValue]{%
179   \atfi@DefNoValueName\atfi@annotname{NM}{#1}%
180 }
```

Option author.

\atfi@author

```
181 \def\atfi@author{}

182 \define@key{AtFi}{author}[\NoValue]{%
183   \atfi@DefNoValueName\atfi@author{T}{#1}%
184 }
```

Option description.

\atfi@description

```
185 \def\atfi@description{}
```

```

186 \define@key{AtFi}{description}[\NoValue]{%
187   \atfi@DefNoValueName\atfi@description{Contents}{#1}%
188 }

```

Option subject.

\atfi@subject

```

189 \def\atfi@subject{}
190 \define@key{AtFi}{subject}[\NoValue]{%
191   \atfi@DefNoValueName\atfi@subject{Subj}{#1}%
192 }

```

Option print.

```
193 \DeclareBoolOption[true]{print}
```

Option zoom.

```
194 \DeclareBoolOption[true]{zoom}
```

Option appearance.

```
195 \DeclareBoolOption[true]{appearance}
```

Option scale.

```
196 \DeclareStringOption[1]{scale}
```

Option ucfilespec.

\atfi@ucfilespec

```

197 \def\atfi@ucfilespec{}
198 \define@key{AtFi}{ucfilespec}[1]{%
199   \def\atfi@ucfilespec{#1}%
200   \ifx\atfi@ucfilespec\ltx@empty
201     \else
202       \atfi@pdfstringdef\atfi@ucfilespec{#1}%
203     \fi
204 }

```

Option nofiles.

```
205 \DeclareBoolOption{nofiles}
```

Driver options.

```

206 \let\atfi@driver\ltx@empty
207 \def\atfi@driver@pdftex{pdftex}
208 \def\atfi@driver@luatex{luatex}
209 \def\atfi@driver@dvi{dvips}
210 \def\atfi@driver@dvi@pdfmx{dvi@pdfmx}
211 \DeclareVoidOption{pdftex}{%
212   \ifpdf
213     \let\atfi@driver\atfi@driver@pdftex
214   \else
215     \let\atfi@driver\ltx@empty
216     \PackageError{attachfile2}{%
217       Wrong driver option 'pdftex',\MessageBreak
218       because pdfTeX in PDF mode is not detected%
219     }\@ehc
220   \fi
221 }
222 \DeclareVoidOption{luatex}{%
223   \let\atfi@driver\atfi@driver@luatex
224 }
225 \DeclareVoidOption{dvi}{%

```

```

226 \let\atfi@driver\atfi@driver@dvi
227 }
228 \DeclareVoidOption{dvipdfmx}{%
229 \let\atfi@driver\atfi@driver@dvi
230 }
231 \DeclareVoidOption{xetex}{%
232 \let\atfi@driver\atfi@driver@dvi
233 }
234 \DeclareStringOption{driverfallback}

```

`\attachfilesetup`

```

235 \DeclareRobustCommand{\attachfilesetup}[1]{\setkeys{AtFi}{#1}}

236 \DeclareLocalOptions{%
237   annotname,%
238   appearance,%
239   author,%
240   color,%
241   date,%
242   description,%
243   icon,%
244   mimetype,%
245   nofiles,%
246   print,%
247   scale,%
248   subject,%
249   timezone,%
250   ucfilespec,%
251   zoom,%
252 }

```

#### 2.1.4 Option calling

Timezone setting, ...

```

253 \InputIfFileExists{attachfile.cfg}{}{}
254 \ProcessKeyvalOptions*

```

`\atfi@DisableOption`

```

255 \def\atfi@DisableOption{%
256 \DisableKeyvalOption[action=error,package=attachfile2]{AtFi}%
257 }

```

#### 2.1.5 Evaluate driver options

```

258 \ifpdf
259 \ifluatex
260 \let\atfi@driver\atfi@driver@luatex
261 \else
262 \let\atfi@driver\atfi@driver@pdftex
263 \fi
264 \else
265 \ifxetex
266 \let\atfi@driver\atfi@driver@dvi
267 \else
268 \ifx\atfi@driver\ltx@empty
269 \ifx\atfi@driverfallback\ltx@empty
270 \else

```

```

271     \expandafter\let\expandafter\atfi@driver
272     \csname atfi@driver@\atfi@driverfallback\endcsname
273     \ifx\atfi@driver\atfi@driver@dvi
274     \else
275     \ifx\atfi@driver\atfi@driver@dvi
276     \else
277     \let\atfi@driver\ltx@empty
278     \PackageWarningNoLine{attachfile2}{%
279     Option 'driverfallback' with unsupported\MessageBreak
280     DVI driver (\atfi@driverfallback)%
281     }%
282     \fi
283     \fi
284     \fi
285     \ifx\atfi@driver\ltx@empty
286     \PackageWarningNoLine{attachfile2}{%
287     Driver is not specified,\MessageBreak
288     enforce draft settings%
289     }%
290     \atfi@drafttrue
291     \fi
292     \fi
293     \fi
294     \fi
295 \atfi@DisableOption{pdftex}
296 \atfi@DisableOption{dvips}
297 \atfi@DisableOption{dvi}
298 \atfi@DisableOption{xetex}
299 \atfi@DisableOption{driverfallback}

```

### 2.1.6 Evaluate options draft/final

\notextattachfile

```

300 \DeclareRobustCommand{\notextattachfile}[2] [] {%
301 \begingroup
302 \atfi@setup{#1}%
303 \ifatfi@print
304 \leavevmode
305 \begingroup
306 \HyColor@UseColor\atfi@color@tex
307 #2\strut
308 \endgroup
309 \else
310 \sbox\ltx@zero{#2\strut}%
311 \makebox[\wd0]{}%
312 \fi
313 \endgroup
314 }

315 \atfi@DisableOption{draft}%
316 \atfi@DisableOption{final}%
317 \ifatfi@draft
318 \def\atfi@dummy@pushpin{%
319 \raisebox{-1.25bp}{\parbox[b][14bp]{24bp}{}}%
320 }%
321 \DeclareRobustCommand{\textattachfile}[3] [] {%
322 \notextattachfile[#{1}]{#3}%
323 }%
324 \DeclareRobustCommand{\noattachfile}[1] [] {%

```

```

325 \notextattachfile[#{1}]{\atfi@dumy@pushpin}%
326 }%
327 \DeclareRobustCommand{\attachfile}[2] []{%
328 \noattachfile[#{1}]%
329 }%
330 \expandafter\endinput
331 \fi

```

### 2.1.7 Load driver file

```
332 \input{atfi-\atfi@driver.def}
```

### 2.1.8 Graphics

\atfi@acroGraph@data

```

333 \def\atfi@acroGraph@data{%
334 \atfi@GSAVE
335 0.5 \atfi@SETGRAYFILL
336 1.1133 0 20.7202 18.2754 \atfi@RECTFILL
337 0 \atfi@SETFLAT
338 0.5 \atfi@SETLINEWIDTH
339 4 \atfi@SETMITERLIMIT
340 \atfi@RECTSTROKEFILL{%
341 1 \atfi@SETGRAYFILL
342 }{%
343 0 \atfi@SETGRAYSTROKE
344 }{%
345 0.25 1.6453 20.145 17.7715 %
346 }%
347 0 \atfi@SETGRAYFILL
348 2.7319 4.1367 3.9571 13.8867 \atfi@RECTFILL
349 8.7031 4.1367 3.9571 9.8867 \atfi@RECTFILL
350 14.7471 4.1367 3.9571 11.8867 \atfi@RECTFILL
351 \atfi@color@inline{FILL}%
352 1.689 3.0938 3.9571 13.8867 \atfi@RECTFILL
353 7.6602 3.0938 3.9571 9.8867 \atfi@RECTFILL
354 13.7041 3.0938 3.9571 11.8867 \atfi@RECTFILL
355 \atfi@GRESTORE
356 }

```

\atfi@acroGraph

```

357 \def\atfi@acroGraph{%
358 \raisebox{-1.5bp}{\parbox[b][20bp]{22bp}{%
359 \rule{Opt}{Opt}\atfi@literal{\atfi@acroGraph@data}}%
360 }%
361 }

```

\atfi@acroPaperclip@data

```

362 \newcommand{\atfi@acroPaperclip@data}{%
363 \atfi@GSAVE
364 0.75 \atfi@SETGRAYSTROKE
365 0 \atfi@SETFLAT
366 2.5 \atfi@SETLINEWIDTH
367 1 \atfi@SETLINECAP
368 4 \atfi@SETMITERLIMIT
369 1.9619 11.7559 \atfi@MOVETO
370 1.9619 3.3037 1.9619 2.5059 \atfi@CURVETO
371 1.9619 1.707 4.0947 1.25 \atfi@CURVETOY
372 7.4141 1.25 \atfi@LINETO

```

```

373 9.4292 1.8223 9.4292 3.3066 \atfi@CURVETOV
374 9.4292 4.79 9.4292 16.8945 \atfi@CURVETOY
375 9.7852 18.1514 8.481 18.1514 \atfi@CURVETOV
376 7.1768 18.1514 5.1616 18.1514 \atfi@CURVETOY
377 3.8574 17.9209 3.8574 16.8945 \atfi@CURVETOV
378 3.8574 15.8652 3.8574 6.6172 \atfi@CURVETOY
379 4.3325 5.418 5.1025 5.418 \atfi@CURVETOV
380 5.8726 5.418 6.5845 5.418 \atfi@CURVETOY
381 7.6812 5.6455 7.6812 6.4736 \atfi@CURVETOV
382 7.6812 7.3027 7.6812 11.5264 \atfi@CURVETOY
383 \atfi@STROKE
384 0 \atfi@SETGRAYSTROKE
385 1.2495 12.4404 \atfi@MOVETO
386 1.2495 3.9883 1.2495 3.1895 \atfi@CURVETOV
387 1.2495 2.3906 3.3833 1.9326 \atfi@CURVETOY
388 6.7026 1.9326 \atfi@LINETO
389 8.7178 2.5068 8.7178 3.9902 \atfi@CURVETOV
390 8.7178 5.4736 8.7178 17.5781 \atfi@CURVETOY
391 9.0732 18.834 7.769 18.834 \atfi@CURVETOV
392 6.4653 18.834 4.4497 18.834 \atfi@CURVETOY
393 3.146 18.6055 3.146 17.5781 \atfi@CURVETOV
394 3.146 16.5498 3.146 7.3018 \atfi@CURVETOY
395 3.6201 6.1016 4.3911 6.1016 \atfi@CURVETOV
396 5.1611 6.1016 5.873 6.1016 \atfi@CURVETOY
397 6.9692 6.3301 6.9692 7.1572 \atfi@CURVETOV
398 6.9692 7.9863 6.9692 12.21 \atfi@CURVETOY
399 \atfi@STROKE
400 \atfi@color@inline{STROKE}%
401 1 \atfi@SETLINEWIDTH
402 1.2495 12.4404 \atfi@MOVETO
403 1.2495 3.9883 1.2495 3.1895 \atfi@CURVETOV
404 1.2495 2.3906 3.3833 1.9326 \atfi@CURVETOY
405 6.7026 1.9326 \atfi@LINETO
406 8.7178 2.5068 8.7178 3.9902 \atfi@CURVETOV
407 8.7178 5.4736 8.7178 17.5781 \atfi@CURVETOY
408 9.0732 18.834 7.769 18.834 \atfi@CURVETOV
409 6.4653 18.834 4.4497 18.834 \atfi@CURVETOY
410 3.146 18.6055 3.146 17.5781 \atfi@CURVETOV
411 3.146 16.5498 3.146 7.3018 \atfi@CURVETOY
412 3.6201 6.1016 4.3911 6.1016 \atfi@CURVETOV
413 5.1611 6.1016 5.873 6.1016 \atfi@CURVETOY
414 6.9692 6.3301 6.9692 7.1572 \atfi@CURVETOV
415 6.9692 7.9863 6.9692 12.21 \atfi@CURVETOY
416 \atfi@STROKE
417 \atfi@GRESTORE
418 }

```

\atfi@acroPaperclip

```

419 \def\atfi@acroPaperclip{%
420 \raisebox{-1.25bp}{\parbox[b][21bp]{12bp}{%
421 \rule{0pt}{0pt}\atfi@literal{\atfi@acroPaperclip@data}}}%
422 }%
423 }

```

\atfi@acroPushPin@data

```

424 \def\atfi@acroPushPin@data{%
425 \atfi@GSAVE
426 1 \atfi@SETLINEWIDTH

```

```

427 1 6 \atfi@MOVETO
428 11 6 \atfi@LINETO
429 11 13 \atfi@LINETO
430 12 13 \atfi@LINETO
431 14 11 \atfi@LINETO
432 21 11 \atfi@LINETO
433 22 12 \atfi@LINETO
434 23 12 \atfi@LINETO
435 23 2 \atfi@LINETO
436 22 2 \atfi@LINETO
437 21 3 \atfi@LINETO
438 14 3 \atfi@LINETO
439 12 1 \atfi@LINETO
440 11 1 \atfi@LINETO
441 11 6 \atfi@LINETO
442 \atfi@FILLSTROKE{%
443 \atfi@color@inline{FILL}}%
444 }{%
445 0 \atfi@SETGRAYSTROKE
446 }%
447 0.5 \atfi@SETGRAYSTROKE
448 0 7 \atfi@MOVETO
449 10 7 \atfi@LINETO
450 10 8 \atfi@LINETO
451 1 8 \atfi@LINETO
452 \atfi@STROKE
453 1 \atfi@SETGRAYSTROKE
454 12 12 \atfi@MOVETO
455 14 10 \atfi@LINETO
456 22 10 \atfi@LINETO
457 22 11 \atfi@LINETO
458 \atfi@STROKE
459 \atfi@GRESTORE
460 }

\atfi@acroPushPin
461 \def\atfi@acroPushPin{%
462 \raisebox{-1.25bp}{\parbox[b][14bp]{24bp}{%
463 \rule{0pt}{0pt}\atfi@literal{\atfi@acroPushPin@data}}}%
464 }%
465 }

\atfi@acroTag@data
466 \def\atfi@acroTag@data{%
467 \atfi@GSAVE
468 0.5 \atfi@SETGRAYFILL
469 10.0542 14.9873 \atfi@MOVETO
470 24.27 14.9873 \atfi@LINETO
471 25.252 14.0059 \atfi@LINETO
472 25.252 1.1455 \atfi@LINETO
473 24.1064 0 \atfi@LINETO
474 9.9609 0 \atfi@LINETO
475 6.0327 6.0088 \atfi@LINETO
476 6.0327 9.002 \atfi@LINETO
477 10.0542 14.9873 \atfi@LINETO
478 9.3994 9.376 \atfi@MOVETO
479 8.5215 9.376 7.8096 8.5596 7.8096 7.5527 \atfi@CURVETO
480 7.8096 6.5449 8.5215 5.7285 9.3994 5.7285 \atfi@CURVETO

```

```

481 10.2778 5.7285 10.9897 6.5449 10.9897 7.5527 \atfi@CURVETO
482 10.9897 8.5596 10.2778 9.376 9.3994 9.376 \atfi@CURVETO
483 \atfi@CLOSEPATH
484 \atfi@FILL
485 0 \atfi@SETFLAT
486 0.5 \atfi@SETLINEWIDTH
487 4 \atfi@SETMITERLIMIT
488 1 \atfi@SETLINEJOIN
489 8.5107 16.5313 \atfi@MOVETO
490 22.7266 16.5313 \atfi@LINETO
491 23.7085 15.5488 \atfi@LINETO
492 23.7085 2.6895 \atfi@LINETO
493 22.563 1.543 \atfi@LINETO
494 8.4175 1.543 \atfi@LINETO
495 4.4893 7.5527 \atfi@LINETO
496 4.4893 10.5449 \atfi@LINETO
497 8.5107 16.5313 \atfi@LINETO
498 7.856 10.9199 \atfi@MOVETO
499 6.978 10.9199 6.2661 10.1035 6.2661 9.0957 \atfi@CURVETO
500 6.2661 8.0879 6.978 7.2715 7.856 7.2715 \atfi@CURVETO
501 8.7344 7.2715 9.4463 8.0879 9.4463 9.0957 \atfi@CURVETO
502 9.4463 10.1035 8.7344 10.9199 7.856 10.9199 \atfi@CURVETO
503 \atfi@CLOSEPATH
504 \atfi@FILLSTROKE{%
505   \atfi@color@inline{FILL}%
506 }{%
507   0 \atfi@SETGRAYSTROKE
508 }%
509 1 \atfi@SETLINEWIDTH
510 12.3291 12.2656 \atfi@MOVETO
511 21.1206 12.2656 \atfi@LINETO
512 \atfi@STROKE
513 12.3291 9.1797 \atfi@MOVETO
514 21.1206 9.1797 \atfi@LINETO
515 \atfi@STROKE
516 12.3291 6.1875 \atfi@MOVETO
517 21.1206 6.1875 \atfi@LINETO
518 \atfi@STROKE
519 % 0 \atfi@SETGRAYSTROKE % redundant?
520 0.5 \atfi@SETLINEWIDTH
521 0 9.0488 \atfi@MOVETO
522 6.2661 9.0957 \atfi@LINETO
523 \atfi@STROKE
524 1.4028 5.2148 \atfi@MOVETO
525 1.4028 9.6094 \atfi@LINETO
526 1.6831 10.6387 2.4316 10.6387 \atfi@CURVETO
527 3.6475 10.6387 3.5542 9.0488 \atfi@CURVETO
528 \atfi@STROKE
529 \atfi@GRESTORE
530 }

```

\atfi@acroTag

```

531 \def\atfi@acroTag{%
532   \raisebox{-1.6bp}{\parbox[b][17bp]{25bp}{%
533     \rule{0pt}{0pt}\atfi@literal{\atfi@acroTag@data}}%
534   }%
535 }

```



## 2.1.9 Reading the .atfi file

Commands used in \jobname.atfi:

- attachfile@timezone{<timezone in PDF format>}
- \attachfile@file[  
Size=<size>,  
CreationDate=<date>, % <date> local time without "D:" and timezone  
ModDateTZ=<date+TZ>,  
ModDate=<date>,  
Checksum=<checksum>  
]{<filename as hex string>}

\attachfile@timezone

```
536 \def\attachfile@timezone#1{%  
537 \ifx\#1\%  
538 % no timezone information given  
539 \else  
540 \def\atfi@timezone{#1}%  
541 \fi  
542 }
```

\attachfile@file

```
543 \newcommand*\attachfile@file}[2][ ]{%  
544 \edefUnescapeHex\atfi@filename{#2}%  
545 \ifx\atfi@filename\ltx@empty  
546 \PackageError{attachfile2}{Empty file name}\@ehc  
547 \else  
548 \@namedef{atfi@file@\atfi@filename}{#1}%  
549 \fi  
550 }  
  
551 \InputIfFileExists{\jobname.atfi}{-}{-}%  
  
552 \newif\ifatfi@checksum  
553 \define@key{AtFi@file}{Checksum}{%  
554 \atfi@checksumtrue  
555 \edef\atfi@params{\atfi@params/Checksum<#1>}%  
556 }  
  
557 \newif\ifatfi@creationdate  
558 \define@key{AtFi@file}{CreationDateTZ}{%  
559 \ifatfi@creationdate  
560 \else  
561 \atfi@creationdatetrue  
562 \edef\atfi@params{%  
563 \atfi@params  
564 /CreationDate(#1)%  
565 }%  
566 \fi  
567 }  
  
568 \define@key{AtFi@file}{CreationDate}{%  
569 \ifatfi@creationdate  
570 \else  
571 \atfi@creationdatetrue  
572 \edef\atfi@params{%  
573 \atfi@params  
574 /CreationDate(#1\atfi@timezone)%  
575 }%
```

```

576 \fi
577 }

578 \newif\ifatfi@moddate
579 \define@key{AtFi@file}{ModDateTZ}{%
580 \ifatfi@moddate
581 \else
582 \atfi@moddatetrue
583 \edef\atfi@params{%
584 \atfi@params
585 /ModDate(#1)%
586 }%
587 \fi
588 }

589 \define@key{AtFi@file}{ModDate}{%
590 \ifatfi@moddate
591 \else
592 \atfi@moddatetrue
593 \edef\atfi@params{%
594 \atfi@params
595 /ModDate(D:#1\atfi@timezone)%
596 }%
597 \fi
598 }

```

\atfi@pdftexdata

```

599 \let\atfi@temp\ltx@one
600 \ltx@ifundefined{pdf@filesize}{%
601 \let\atfi@temp\ltx@zero
602 }{}
603 \ltx@ifundefined{pdf@filemoddate}{%
604 \let\atfi@temp\ltx@zero
605 }{}
606 \ltx@ifundefined{pdf@filemdfivesum}{%
607 \let\atfi@temp\ltx@zero
608 }{}
609 \ifcase\atfi@temp
610 \let\atfi@pdftexdata\ltx@gobble
611 \or
612 \def\atfi@pdftexdata#1{%
613 \edef\atfi@temp{\pdf@filesize{#1}}%
614 \ifx\atfi@temp\ltx@empty
615 \else
616 \setkeys{AtFi@file}{Size=\atfi@temp}%
617 \edef\atfi@temp{\pdf@filemoddate{#1}}%
618 \ifx\atfi@temp\ltx@empty
619 \else
620 \setkeys{AtFi@file}{ModDateTZ=\atfi@temp}%
621 \fi
622 \edef\atfi@temp{\pdf@filemdfivesum{#1}}%
623 \ifx\atfi@temp\ltx@empty
624 \else
625 \setkeys{AtFi@file}{Checksum=\atfi@temp}%
626 \fi
627 \fi
628 }%
629 \fi

```

### 2.1.10 Writing the .atfi file

Respect \nofiles and option nofiles. \nofiles has more weight than option nofiles.

```
630 \if@filesw
631 \else
632   \atfi@nofilestrue
633 \fi
634 \ifatfi@nofiles
635   \PackageInfo{attachfile2}{%
636     File '\jobname.atfi' will not be written because of\MessageBreak
637     \string\nofiles\space or option 'nofiles'%
638   }%

\atfi@writefile

639   \let\atfi@writefile\ltx@gobble

640 \else

\atfi@stream

641   \newwrite\atfi@stream

642   \immediate\openout\atfi@stream=\jobname.atfi\relax
643   \immediate\write\atfi@stream{%
644     \string\attachfile@timezone{\atfi@timezone}%
645   }%

\atfi@writefile

646   \def\atfi@writefile#1{%
647     \begingroup
648       \EdefEscapeHex\atfi@temp{#1}%
649       \immediate\write\atfi@stream{%
650         \string\attachfile@file[%
651           \ltx@ifundefined{atfi@file@#1}{\@nameuse{atfi@file@#1}}%
652         ]{\atfi@temp}%
653       }%
654     \endgroup
655   }%

656 \fi
657 \atfi@DisableOption{nofiles}

\atfi@attachfile

658 \def\atfi@attachfile#1#2{%
659   \ltx@ifundefined{atfi@fileobj@#2}{%
660     \atfi@writefile{#2}%
661   }{%
662     % don't need duplicates
663   }%
664   \atfi@setup{#1}%
665   \atfi@embedfile{#2}%
666   \atfi@set@appearance@icon
667   \atfi@flags@to@int
668   \atfi@insert@file@annot{#2}%
669   \endgroup
670 }
```

### 2.1.11 Annotation appearance

```
\atfi@appearancewidth
671 \newlength{\atfi@appearancewidth}

\atfi@appearanceheight
672 \newlength{\atfi@appearanceheight}

\atfi@appearancedepth
673 \newlength{\atfi@appearancedepth}

\atfi@appearancebox
674 \newsavebox{\atfi@appearancebox}

\atfi@set@appearance@icon
675 \def\atfi@set@appearance@icon{%
676   \ltx@ifundefined{atfi@appobj@\atfi@icon@icon}{%
677     \savebox{\atfi@appearancebox}{%
678       \@nameuse{atfi@acro\atfi@icon@icon}%
679     }%
680   \expandafter
681   \xdef\csname atfi@appwidth@\atfi@icon@icon\endcsname{%
682     \the\wd\atfi@appearancebox
683   }%
684   \expandafter
685   \xdef\csname atfi@appheight@\atfi@icon@icon\endcsname{%
686     \the\ht\atfi@appearancebox
687   }%
688   \expandafter
689   \xdef\csname atfi@appdepth@\atfi@icon@icon\endcsname{%
690     \the\dp\atfi@appearancebox
691   }%
692   \atfi@xform@icon
693   \global\expandafter\let
694     \csname atfi@appobj@\atfi@icon@icon\endcsname
695     \atfi@appearanceobj
696   }{%
697   }%
698   % optimization: \setlength dropped
699   \atfi@appearancewidth=%
700     \@nameuse{atfi@appwidth@\atfi@icon@icon}\relax
701   \atfi@appearanceheight=%
702     \@nameuse{atfi@appheight@\atfi@icon@icon}\relax
703   \atfi@appearancedepth=%
704     \@nameuse{atfi@appdepth@\atfi@icon@icon}\relax
705   \expandafter\let\expandafter\atfi@appearanceobj
706     \csname atfi@appobj@\atfi@icon@icon\endcsname
707 }

\atfi@set@appearance
708 \def\atfi@set@appearance#1{%
709   \savebox{\atfi@appearancebox}{#1}%
710   \atfi@appearancewidth=\wd\atfi@appearancebox
711   \atfi@appearanceheight=\ht\atfi@appearancebox
712   \atfi@appearancedepth=\dp\atfi@appearancebox
713   \atfi@xform
714 }
```

```

715 \newcounter{atfi@flags}

\atfi@flags@to@int
716 \DeclareRobustCommand{\atfi@flags@to@int}{%
717   \setcounter{atfi@flags}{0}%
718   \ifatfi@print
719     \addtocounter{atfi@flags}{4}%
720   \fi%
721   \ifatfi@zoom
722   \else
723     \addtocounter{atfi@flags}{8}%
724   \fi%
725 }

\atfi@textattachfile
726 \def\atfi@textattachfile#1#2{%
727   \endgroup
728   \atfi@textattachfile@i{#1}{#2}%
729 }

\atfi@textattachfile@i
730 \def\atfi@textattachfile@i#1#2#3{%
731   \ltx@ifundefined{atfi@fileobj@#2}{%
732     \atfi@writefile{#2}%
733   }{%
734     % don't need duplicates
735   }%
736   \atfi@setup{#1}%
737   \atfi@embedfile{#2}%
738   \atfi@set@appearance{%
739     \leavevmode
740     \begingroup
741       \HyColor@UseColor\atfi@color@tex
742       #3\strut
743     \endgroup
744   }%
745   \atfi@flags@to@int
746   \atfi@insert@file@annot{#2}%
747 \endgroup
748 }

\attachfile
749 \DeclareRobustCommand{\attachfile}[1] [] {%
750   \begingroup
751     \let\do\@makeother
752     \dospecials
753     \catcode'\{=1\relax
754     \catcode'\}=2\relax
755     \atfi@attachfile{#1}%
756 }

\textattachfile
757 \DeclareRobustCommand{\textattachfile}[1] [] {%
758   \begingroup
759     \begingroup
760       \let\do\@makeother
761       \dospecials
762       \catcode'\{=1\relax

```

```

763     \catcode'\}=2\relax
764     \atfi@textattachfile{#1}%
765 }

\noattachfile

766 \DeclareRobustCommand{\noattachfile}[1] [] {%
767   \begingroup
768     \atfi@setup{#1}%
769     \atfi@set@appearance@icon
770     \ifatfi@print
771     \expandafter
772     \atfi@refxform\cename atfi@appobj@\atfi@icon@icon\endcsname
773   \else
774     \makebox[\atfi@appearancewidth]{}%
775   \fi
776 \endgroup
777 }

778 </package>

```

## 2.2 Drivers

### 2.2.1 pdfTeX

```

779 (*pdfTeX)
780 \NeedsTeXFormat{LaTeX2e}
781 \ProvidesFile{atfi-pdfTeX.def}%
782 [2019/11/26 v2.11 attachfile2 driver for pdfTeX (HO)]%

```

#### Macros for graphics data

\atfi@literal

```

783 \let\atfi@literal\pdfliteral

784 \def\atfi@GSAVE{q }
785 \def\atfi@GRESTORE{Q }
786 \def\atfi@SETLINEWIDTH{w }
787 \def\atfi@LINETO{l }
788 \def\atfi@MOVETO{m }
789 \def\atfi@STROKE{S }
790 \def\atfi@FILL{f }
791 % \atfi@FILLSTROKE{<fill color>}{<stroke color>}
792 \def\atfi@FILLSTROKE#1#2{#1#2B }

```

color: uppercase are stroke colors, lowercase non-stroke (fill) colors PS, however, does not differ between stroke and not-stroke colors

```

793 \def\atfi@SETRGBCOLORSTROKE{RG }
794 \def\atfi@SETRGBCOLORFILL{rg }
795 \def\atfi@SETGRAYSTROKE{G }
796 \def\atfi@SETGRAYFILL{g }
797 \def\atfi@SETCMYKCOLORSTROKE{K }
798 \def\atfi@SETCMYKCOLORFILL{k }
799 \def\atfi@RECTFILL{re f }
800 \def\atfi@RECTSTROKEFILL#1#2#3{#1#2#3re B }
801 \def\atfi@SETMITERLIMIT{M }
802 \def\atfi@SETFLAT{i }
803 \def\atfi@SETLINECAP{J }
804 \def\atfi@CURVETO{c }
805 \def\atfi@CURVETO{v }
806 \def\atfi@CURVETOY{y }

```

```

807 \def\atfi@CLOSEPATH{h }
808 \def\atfi@SETLINEJOIN{j }

```

### File embedding

```

809 \define@key{AtFi@file}{Size}{%
810 \edef\atfi@params{\atfi@params/Size #1}%
811 }

```

\atfi@embedfile

```

812 \def\atfi@embedfile#1{%
813 \ltx@ifundefined{atfi@fileobj@#1}{%
814 \begingroup
815 \let\atfi@params\ltx@empty
816 \expandafter\let\expandafter\atfi@temp
817 \csname atfi@file@#1\endcsname
818 \ifx\atfi@temp\ltx@empty
819 \let\atfi@temp\relax
820 \fi
821 \ifx\atfi@temp\relax
822 \atfi@pdftexdata{#1}%
823 \else
824 \edef\x{%
825 \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}%
826 }%
827 \x
828 \fi
829 \ifx\atfi@params\ltx@empty
830 \else
831 \edef\atfi@params{/Params<<\atfi@params>>}%
832 \fi
833 \immediate\pdfobj stream attr {%
834 /Type/EmbeddedFile%
835 \atfi@mimetype
836 \atfi@params
837 } file {#1}%
838 \expandafter
839 \xdef\csname atfi@fileobj@#1\endcsname{\the\pdfobj}%
840 \endgroup
841 }{%
842 % file already embedded
843 }%
844 }

```

### Annotation appearance

\atfi@xform input: \atfi@appearancebox, output: \atfi@appearanceobj

```

845 \def\atfi@xform{%
846 \immediate\pdfxform\atfi@appearancebox
847 \edef\atfi@appearanceobj{\the\pdfastxform}%
848 }

```

\atfi@xform@icon

```

849 \let\atfi@xform@icon\atfi@xform

```

\atfi@refxform

```

850 \def\atfi@refxform#1{%
851 \pdfrefxform#1\relax
852 }

```

## File attachment annotation

\atfi@insert@file@annot

```
853 \def\atfi@insert@file@annot#1{%
854   \rule{0pt}{0pt}%
855   \ifatfi@appearance
856   \def\atfi@appearance@dict{%
857     /AP<<%
858     /N \atfi@appearanceobj\space 0 R%
859     /R \atfi@appearanceobj\space 0 R%
860     /D \atfi@appearanceobj\space 0 R%
861     >>%
862   }%
863   \else
864     \let\atfi@appearance@dict\ltx@empty
865   \fi
866   \ltx@ifundefined{atfi@fsobj@#1}{%
867     \begingroup
868     \hypersetup{unicode=false}%
869     \atfi@pdfstringdef\atfi@file{#1}%
870     \immediate\pdfobj{%
871       <<%
872         /Type/Filespec%
873         /F(\atfi@file)%
874         \ifx\atfi@ucfilespec\ltx@empty
875         \else
876           /UF(\atfi@ucfilespec)%
877         \fi
878         /EF<<%
879         /F \@nameuse{atfi@fileobj@#1} 0 R%
880       >>%
881     >>%
882   }%
883   \expandafter\xdef\csname atfi@fsobj@#1\endcsname{%
884     \the\pdfobj%
885   }%
886   \endgroup
887 }{%
888 }%
889 \pdfannot width \atfi@scale\atfi@appearancewidth
890           height \atfi@scale\atfi@appearanceheight
891           depth \atfi@scale\atfi@appearancedepth {%
892   /Subtype/FileAttachment%
893   \atfi@icon
894   \atfi@color@annot
895   \atfi@author
896   \atfi@date
897   \atfi@annotname
898   \atfi@description
899   \atfi@subject
900   \atfi@appearance@dict
901   /F \theatfi@flags
902   /FS \@nameuse{atfi@fsobj@#1} 0 R%
903 }%
904 \rule{0pt}{\atfi@appearanceheight}%
905 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
906 \rule{\atfi@appearancewidth}{0pt}%
907 }
```



908 </pdfTeX>

## 2.3 luatex

```
909 (*luatex)
910 \NeedsTeXFormat{LaTeX2e}
911 \ProvidesFile{atfi-luatex.def}%
912 [2019/11/26 v2.11 attachfile2 driver for luaTeX (HO)]%
913 \protected\def\atfi@literal      {\pdfextension literal}
914 \def\atfi@GSAVE{q }
915 \def\atfi@GRESTORE{Q }
916 \def\atfi@SETLINEWIDTH{w }
917 \def\atfi@LINETO{l }
918 \def\atfi@MOVETO{m }
919 \def\atfi@STROKE{S }
920 \def\atfi@FILL{f }
921 \def\atfi@FILLSTROKE#1#2#{#1#2B }
922 \def\atfi@SETRGBCOLORSTROKE{RG }
923 \def\atfi@SETRGBCOLORFILL{rg }
924 \def\atfi@SETGRAYSTROKE{G }
925 \def\atfi@SETGRAYFILL{g }
926 \def\atfi@SETCMYKCOLORSTROKE{K }
927 \def\atfi@SETCMYKCOLORFILL{k }
928 \def\atfi@RECTFILL{re f }
929 \def\atfi@RECTSTROKEFILL#1#2#3#{#1#2#3re B }
930 \def\atfi@SETMITERLIMIT{M }
931 \def\atfi@SETFLAT{i }
932 \def\atfi@SETLINECAP{J }
933 \def\atfi@CURVETO{c }
934 \def\atfi@CURVETOv{v }
935 \def\atfi@CURVETOY{y }
936 \def\atfi@CLOSEPATH{h }
937 \def\atfi@SETLINEJOIN{j }
938 \define@key{AtFi@file}{Size}{%
939   \edef\atfi@params{\atfi@params/Size #1}%
940 }
941 \def\atfi@embedfile#1{%
942   \ltx@ifundefined{atfi@fileobj@#1}{%
943     \begingroup
944       \let\atfi@params\ltx@empty
945       \expandafter\let\expandafter\atfi@temp
946         \csname atfi@file@#1\endcsname
947       \ifx\atfi@temp\ltx@empty
948         \let\atfi@temp\relax
949       \fi
950       \ifx\atfi@temp\relax
951         \atfi@pdftexdata{#1}%
952       \else
953         \edef\x{%
954           \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}%
955         }%
956         \x
957       \fi
958       \ifx\atfi@params\ltx@empty
959       \else
960         \edef\atfi@params{Params<<\atfi@params>>}%
961       \fi
962     \immediate\pdfextension obj stream attr {%
```

```

963         /Type/EmbeddedFile%
964         \atfi@mimetype
965         \atfi@params
966     } file {#1}%
967     \expandafter
968     \xdef\csname atfi@fileobj@#1\endcsname{\the\numexpr\pdffeedback lastobj\relax}%
969     \endgroup
970 }{%
971     % file already embedded
972 }%
973 }
974 \def\atfi@xform{%
975     \immediate\saveboxresource\atfi@appearancebox
976     \edef\atfi@appearanceobj{\the\lastsavedboxresourceindex}%
977 }
978 \let\atfi@xform@icon\atfi@xform
979 \def\atfi@refxform#1{%
980     \useboxresource#1\relax
981 }
982 \def\atfi@insert@file@annot#1{%
983     \rule{0pt}{0pt}%
984     \ifatfi@appearance
985         \def\atfi@appearance@dict{%
986             /AP<<%
987             /N \atfi@appearanceobj\space 0 R%
988             /R \atfi@appearanceobj\space 0 R%
989             /D \atfi@appearanceobj\space 0 R%
990             >>%
991         }%
992     \else
993         \let\atfi@appearance@dict\ltx@empty
994     \fi
995     \ltx@ifundefined{atfi@fsobj@#1}{%
996         \begingroup
997         \hypersetup{unicode=false}%
998         \atfi@pdfstringdef\atfi@file{#1}%
999         \immediate\pdfextension obj{%
1000             <<%
1001             /Type/Filespec%
1002             /F(\atfi@file)%
1003             \ifx\atfi@ucfilespec\ltx@empty
1004             \else
1005             /UF(\atfi@ucfilespec)%
1006             \fi
1007             /EF<<%
1008             /F \@nameuse{atfi@fileobj@#1} 0 R%
1009             >>%
1010             >>%
1011         }%
1012         \expandafter\xdef\csname atfi@fsobj@#1\endcsname{%
1013             \the\numexpr\pdffeedback lastobj\relax
1014         }%
1015     \endgroup
1016 }{%
1017 }%
1018 \pdfextension annot width \atfi@scale\atfi@appearancewidth
1019 height \atfi@scale\atfi@appearanceheight
1020 depth \atfi@scale\atfi@appearancedepth {%

```

```

1021 /Subtype/FileAttachment%
1022 \atfi@icon
1023 \atfi@color@annot
1024 \atfi@author
1025 \atfi@date
1026 \atfi@annotname
1027 \atfi@description
1028 \atfi@subject
1029 \atfi@appearance@dict
1030 /F \theatfi@flags
1031 /FS \@nameuse{atfi@fsobj@#1} 0 R%
1032 }%
1033 \rule{0pt}{\atfi@appearanceheight}%
1034 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
1035 \rule{\atfi@appearancewidth}{0pt}%
1036 }
1037 </luatex>

```

### 2.3.1 dvips

```

1038 (*dvips)
1039 \NeedsTeXFormat{LaTeX2e}
1040 \ProvidesFile{atfi-dvips.def}%
1041 [2019/11/26 v2.11 attachfile2 driver for dvips (HO)]%

```

#### Macros for graphics data

\atfi@literal

```

1042 \def\atfi@literal#1{%
1043 \special{ps:atfi_dict begin{#1}atfi_?pdfmark end}%
1044 }

```

\atfi@header

```

1045 \def\atfi@header#1{%
1046 \special{! #1}%
1047 }

1048 \atfi@header{%
1049 userdict begin 20 dict dup /atfi_dict exch def end begin%
1050 /atfi_?pdfmark systemdict %
1051 dup/pdfmark known%
1052 {%
1053 /exec get def%
1054 }{%
1055 /pop get def%
1056 } ifelse%
1057 {%
1058 %
1059 % x y width height atfi_re ->
1060 languagelevel 2 ge {%
1061 /atfi_rectfill { rectfill } bind def%
1062 /atfi_rectstroke { rectstroke } bind def%
1063 }{%
1064 /atfi_rect {%
1065 /atfi_height exch def%
1066 /atfi_width exch def%
1067 /atfi_x exch def%
1068 /atfi_y exch def %
1069 newpath %
1070 atfi_x atfi_y moveto %

```

```

1071         atfi_x atfi_width add atfi_y lineto %
1072         atfi_x atfi_width add atfi_y atfi_height add lineto %
1073         atfi_x atfi_y atfi_height add lineto %
1074         closepath%
1075     } bind def%
1076     /atfi_rectfill {%
1077         atfi_rect fill%
1078     } bind def%
1079     /atfi_rectstroke {%
1080         atfi_rect stroke%
1081     } bind def%
1082 } ifelse%
1083 /atfi_curveto_v {%
1084     currentpoint 6 2 roll curveto%
1085 } bind def%
1086 /atfi_curveto_y {%
1087     2 copy curveto%
1088 } bind def%
1089 %
1090 % help macro for atfi_convert_date
1091 /atfi_two {%
1092     dup 10 lt%
1093     {%
1094         1 string cvs %
1095         exch 1 add exch%
1096     }{%
1097         2 string cvs%
1098     } ifelse %
1099     putinterval%
1100 } bind def%
1101 %
1102 % <seconds since 1970-01-01> atfi_convert_date -> (D:...Z)
1103 /atfi_convert_date {%
1104     dup%
1105     /atfi_days exch 3600 idiv 24 idiv def%
1106     % calc date part
1107     /atfi_year 1970 def%
1108     {%
1109         atfi_year 400 mod 0 eq %
1110         atfi_year 100 mod 0 ne %
1111         atfi_year 4 mod 0 eq %
1112         and or%
1113         {366} {365} ifelse %
1114         dup atfi_days lt%
1115         {%
1116             atfi_days exch sub /atfi_days exch def%
1117             /atfi_year atfi_year 1 add def%
1118         }{%
1119             exit%
1120         } ifelse%
1121     } loop%
1122     /atfi_month 1 def%
1123     /atfi_days atfi_days 1 add def %
1124     31 atfi_days lt%
1125     {%
1126         atfi_days 31 sub /atfi_days exch def%
1127         /atfi_month atfi_month 1 add def %
1128         366 eq {29} {28} ifelse dup atfi_days lt%

```

```

1129      {%
1130          atfi_days 31 sub /atfi_days 31 add def%
1131          /atfi_month atfi_month 1 add def %
1132      31 atfi_days lt%
1133      {%
1134          atfi_days 31 sub /atfi_days 31 add def%
1135          /atfi_month atfi_month 1 add def %
1136      30 atfi_days lt%
1137      {%
1138          atfi_days 30 sub /atfi_days 30 add def%
1139          /atfi_month atfi_month 1 add def %
1140      31 atfi_days lt%
1141      {%
1142          atfi_days 31 sub /atfi_days 31 add def%
1143          /atfi_month atfi_month 1 add def %
1144      30 atfi_days lt%
1145      {%
1146          atfi_days 30 sub /atfi_days 30 add def%
1147          /atfi_month atfi_month 1 add def %
1148      31 atfi_days lt%
1149      {%
1150          atfi_days 31 sub /atfi_days 31 add def%
1151          /atfi_month atfi_month 1 add def %
1152      31 atfi_days lt%
1153      {%
1154          atfi_days 31 sub /atfi_days 31 add def%
1155          /atfi_month atfi_month 1 add def %
1156      30 atfi_days lt%
1157      {%
1158          atfi_days 30 sub /atfi_days 30 add def%
1159          /atfi_month atfi_month 1 add def %
1160      31 atfi_days lt%
1161      {%
1162          atfi_days 31 sub /atfi_days 31 add def%
1163          /atfi_month atfi_month 1 add def %
1164      30 atfi_days lt%
1165      {%
1166          atfi_days 30 sub /atfi_days 30 add def%
1167          /atfi_month atfi_month 1 add def %
1168      31 atfi_days lt%
1169      {%
1170          atfi_days 31 sub /atfi_days 31 add def%
1171          /atfi_month atfi_month 1 add def%
1172      } if%
1173      } if%
1174      } if%
1175      } if%
1176      } if%
1177      } if%
1178      } if%
1179      } if%
1180      } if%
1181      } if%
1182      } { pop } ifelse%
1183      } { pop } ifelse %
1184      % calc time part
1185      3600 24 mul mod %
1186      dup 3600 idiv dup /atfi_hour 3600 add def %

```

```

1187     3600 mul sub %
1188     dup 60 idiv dup /atfi_min exch def %
1189     60 mul sub %
1190     /atfi_sec exch def%
1191     (D:19700101000000Z)%
1192     dup 2 atfi_year 4 string cvs putinterval %
1193     dup 6 atfi_month atfi_two %
1194     dup 8 atfi_days atfi_two %
1195     dup 10 atfi_hour atfi_two %
1196     dup 12 atfi_min atfi_two %
1197     dup 14 atfi_sec atfi_two%
1198   } bind def %
1199   %
1200   % <filename> atfi_calc_checksum -> /Checksum <checksum>
1201   % or returns nothing, if MD5Encode is not given
1202   false %
1203   languagelevel 2 ge {%
1204     (MD5Encode)%
1205     { pop true or }%
1206     (MD5Encode) length string%
1207     /Filter %
1208     resourceforall%
1209   } if%
1210   {%
1211     /atfi_calc_checksum {%
1212       /atfi_checksum 16 string def%
1213       /atfi_file exch (r) file def%
1214       /atfi_md5sum atfi_checksum /MD5Encode filter def %
1215       % not too efficient to read and write byte by byte,
1216       % using a buffer is probably faster
1217       atfi_size {%
1218         atfi_file read%
1219         {%
1220           atfi_md5sum exch write%
1221         } if%
1222       } repeat %
1223       atfi_md5sum closefile %
1224       atfi_file closefile%
1225       /Checksum atfi_checksum%
1226     } bind def%
1227   }{%
1228     /atfi_calc_checksum { pop } bind def%
1229   } ifelse%
1230   %
1231   /atfi_pttobp { 72.27 div 72 mul } bind def%
1232   /atfi_pdftodvipsx { 72.27 div Resolution mul } bind def%
1233   /atfi_pdftodvipsy { 72.27 div VResolution mul } bind def%
1234   %
1235   } atfi_?pdfmark %
1236 end%
1237 }

1238 \def\atfi@GSAVE{gsave }
1239 \def\atfi@GRESTORE{grestore }
1240 \def\atfi@SETLINEWIDTH{setlinewidth }
1241 \def\atfi@LINETO{lineto }
1242 \def\atfi@MOVETO{moveto }
1243 \def\atfi@STROKE{stroke }
1244 \def\atfi@FILL{fill }

```

```

1245 \def\atfi@FILLSTROKE#1#2{gsave #1 fill grestore #2 stroke }
1246 \def\atfi@SETRGBCOLORSTROKE{setrgbcolor }
1247 \def\atfi@SETRGBCOLORFILL{setrgbcolor }
1248 \def\atfi@SETGRAYSTROKE{setgray }
1249 \def\atfi@SETGRAYFILL{setgray }
1250 \def\atfi@SETCMYKCOLORSTROKE{setcmykcolor }
1251 \def\atfi@SETCMYKCOLORFILL{setcmykcolor }
1252 \def\atfi@RECTFILL{atfi_rectfill }
1253 \def\atfi@RECTSTROKEFILL#1#2#3{%
1254   #3%
1255   #1%
1256   gsave atfi_rectfill grestore %
1257   #2%
1258   #3%
1259   atfi_rectstroke %
1260   #1%
1261 }
1262 \def\atfi@SETMITERLIMIT{setmiterlimit }
1263 \def\atfi@SETFLAT{setflat }
1264 \def\atfi@SETLINECAP{setlinecap }
1265 \def\atfi@CURVETO{curveto }
1266 \def\atfi@CURVETOY{atfi_curveto_v }
1267 \def\atfi@CURVETOY{atfi_curveto_y }
1268 \def\atfi@CLOSEPATH{closepath }
1269 \def\atfi@SETLINEJOIN{setlinejoin }

1270 \newcounter{atfi@obj}
1271 \renewcommand*{\theatfi@obj}{%
1272   {atfi_obj_\number\c@atfi@obj}}%
1273 }

```

**File embedding** Most values for Params dictionary found in the .atfi file have priority:

- Recalculation (md5sum, ...) is avoided.
- An external script has more possibilities than programming at PostScript level (operating system, getting the date and time values of the file with correct interpretation.
- Exception: status is called to test file existence, thus we get the value of size for free.

```
1274 \define@key{AtFi@file}{Size}{}
```

\atfi@embedfile

```

1275 \def\atfi@embedfile#1{%
1276   \ltx@ifundefined{atfi@fileobj@#1}{%
1277     \atfi@pdfstringdef\atfi@psfilename{#1}%
1278     \stepcounter{atfi@obj}%
1279     \expandafter\xdef\c@name atfi@fileobj@#1\endcsname{\theatfi@obj}}%
1280   \begingroup
1281     \let\atfi@params\ltx@empty
1282     \expandafter\let\expandafter\atfi@temp
1283     \c@name atfi@file@#1\endcsname
1284     \ifx\atfi@temp\ltx@empty
1285       \let\atfi@temp\relax
1286     \fi
1287     \ifx\atfi@temp\relax

```

```

1288     \atfi@pdftexdata{#1}%
1289     \else
1290     \edef\x{%
1291     \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file#1}}%
1292     }%
1293     \x
1294     \fi
1295     \atfi@literal{%
1296     /atfi_filename(\atfi@psfilename)def %
1297     atfi_filename status%
1298     {%

```

ok: file found

save parameters of status command

```

1299     /atfi_created exch def%
1300     /atfi_referenced exch def%
1301     /atfi_size exch def %
1302     pop %

```

drop parameter "pages" (storage space), never needed

ghostscript:

```

created:      stat.st_ctime
referenced:   stat.st_mtime
stat.st_ctime: interpretation depends on operating system:
               * unix: inode change time (not interesting)
               * win32: probably creation time
                 --> /CreationDate
stat.st_mtime: modification time --> /ModDate
time values are seconds since 1970-01-01, GMT

```

TODO: ghostscript offers "getenv" for getting the value of an environment variable. That could be used to detect windows and setting the /CreationDate entry.

TODO: how are these values interpreted by other distiller programs?

```

1303     [%
1304     /_objdef \theatfi@obj
1305     /type/stream%
1306     /OBJ pdfmark%
1307     [%
1308     \theatfi@obj
1309     <<%
1310     /Type/EmbeddedFile%
1311     \atfi@mimetype
1312     /Params%
1313     <<%
1314     \atfi@params
1315     %
1316     /Size atfi_size%
1317     %
1318     /product where%
1319     {%
1320     pop %

```

check for ghostscript

```

1321     product (Ghostscript) search%
1322     {%
1323     pop pop pop %

```

ghostscript is running



```

1324         \ifatfi@creationdate
1325         \else
1326             false % TODO: test for windows
1327         {%
1328             /CreationDate atfi_created atfi_convert_date%
1329         } if%
1330         \fi
1331         \ifatfi@moddate
1332         \else
1333             /ModDate atfi_referenced atfi_convert_date%
1334         \fi
1335     } if%

```

look for MD5Encode filter and calculate CheckSum

```

1336         } if %
1337         \ifatfi@checksum
1338         \else
1339             atfi_filename atfi_calc_checksum%
1340         \fi
1341         >>%
1342     >>%
1343     /PUT pdfmark%
1344     [%
1345         \theatfi@obj
1346         atfi_filename (r) file%
1347     /PUT pdfmark%
1348     [%
1349         \theatfi@obj
1350     /CLOSE pdfmark%
1351     }{%

```

error: file not found  
currently nothing is done

```

1352         } ifelse%
1353     }%
1354     \endgroup
1355 }{%

```

file already embedded

```

1356 }%
1357 }

```

**Annotation appearance** output: \atfi@appearanceobj  
input: \atfi@appearancebox, \atfi@icon@icon

atfi@xfrom@icon

```

1358 \def\atfi@xform@icon{%
1359     \stepcounter{atfi@obj}%
1360     \edef\atfi@appearanceobj{\theatfi@obj}%
1361     \atfi@literal{%
1362         [%
1363             /_objdef \atfi@appearanceobj
1364             /BBox[%
1365                 0 %
1366                 0 %
1367                 \strip@pt\wd\atfi@appearancebox\space atfi_pttobp %
1368                 \strip@pt\dimexpr\dp\atfi@appearancebox
1369                 +\ht\atfi@appearancebox\relax\space atfi_pttobp%
1370             ]%

```

```

1371 /BP pdfmark %
1372 \csname atfi@acro\atfi@icon@icon @data\endcsname
1373 [%
1374 /EP pdfmark%
1375 }%
1376 }

```

\atfi@xform output: \atfi@appearanceobj, input: \atfi@appearancebox

```

1377 \def\atfi@xform{%
1378 \stepcounter{atfi@obj}%
1379 \edef\atfi@appearanceobj{\theatfi@obj}%
1380 \begingroup
1381 \setbox\ltx@zero=\hbox{%
1382 \atfi@literal{%
1383 [%
1384 /_objdef \atfi@appearanceobj
1385 /BBox[%
1386 currentpoint %
1387 \strip@pt\dp\atfi@appearancebox\space sub %
1388 currentpoint %
1389 exch \strip@pt\wd\atfi@appearancebox\space add %
1390 exch \strip@pt\ht\atfi@appearancebox\space add%
1391 ]%
1392 /BP pdfmark %
1393 gsave %
1394 currentpoint %
1395 2 copy translate %
1396 72.27 Resolution div 72.27 VResolution div neg scale %
1397 exch neg exch neg translate%
1398 }%
1399 \usebox{\atfi@appearancebox}%
1400 \atfi@literal{%
1401 grestore%
1402 [%
1403 /EP pdfmark%
1404 }%
1405 }%
1406 % do not allocate any space for xobject definition
1407 \dp\ltx@zero=\z@
1408 \ht\ltx@zero=\z@
1409 \wd\ltx@zero=\z@
1410 \mbox{\usebox\ltx@zero}%
1411 \endgroup
1412 }

```

\atfi@refxform

```

1413 \def\atfi@refxform#1{%
1414 \raisebox{-\atfi@appearancedepth}{%
1415 \atfi@literal{%
1416 gsave %
1417 currentpoint translate %
1418 Resolution 72 div VResolution neg 72 div scale%
1419 [#1 /SP pdfmark % hash-ok
1420 grestore%
1421 }%
1422 \makebox[\atfi@appearancewidth]{}%
1423 }%
1424 \rule{0pt}{\atfi@appearanceheight}%

```

1425 }

## File attachment annotation

\atfi@insert@file@annot

```
1426 \def\atfi@insert@file@annot#1{%
1427   \rule{0pt}{0pt}%
1428   \ifatfi@appearance
1429     \def\atfi@appearance@dict{%
1430       /AP<<%
1431       /N \atfi@appearanceobj
1432       /R \atfi@appearanceobj
1433       /D \atfi@appearanceobj
1434     >>%
1435   }%
1436 \else
1437   \let\atfi@appearance@dict\ltx@empty
1438 \fi
1439 \ltx@ifundefined{atfi@fsobj@#1}{%
1440   \stepcounter{atfi@obj}%
1441   \expandafter
1442   \xdef\csname atfi@fsobj@#1\endcsname{\theatfi@obj}%
1443   \begingroup
1444     \hypersetup{unicode=false}%
1445     \atfi@pdfstringdef\atfi@file{#1}%
1446     \atfi@literal{%
1447       [%
1448         /_objdef \theatfi@obj
1449         /type/dict%
1450         /OBJ pdfmark%
1451       [%
1452         \theatfi@obj
1453       <<%
1454         /Type/Filespec%
1455         /F(\atfi@file)%
1456         \ifx\atfi@ucfilespec\ltx@empty
1457         \else
1458           /UF(\atfi@ucfilespec)%
1459         \fi
1460         /EF<<%
1461         /F \csname atfi@fileobj@#1\endcsname
1462       >>%
1463     >>%
1464     /PUT pdfmark%
1465   }%
1466 \endgroup
1467 }{%
1468 }%
1469 \atfi@literal{%
1470   [%
1471     /Subtype/FileAttachment%
1472     \atfi@icon
1473     \atfi@color@annot
1474     \atfi@author
1475     \atfi@date
1476     \atfi@annotname
1477     \atfi@description
1478     \atfi@subject
```

```

1479 \atfi@appearance@dict
1480 /F \theatfi@flags
1481 /FS \csname atfi@fsobj@#1\endcsname
1482 /Rect[%
1483   currentpoint %
1484   \strip@pt\dimexpr\atfi@scale\atfi@appearancedepth\relax
1485   \space atfi_pdftodvipsy add %
1486   currentpoint %
1487   exch %
1488   \strip@pt\dimexpr\atfi@scale\atfi@appearancewidth\relax
1489   \space atfi_pdftodvipsx add %
1490   exch %
1491   \strip@pt\dimexpr\atfi@scale\atfi@appearanceheight\relax
1492   \space atfi_pdftodvipsy sub %
1493 ]%
1494 /ANN pdfmark%
1495 }%
1496 \rule{0pt}{\atfi@appearanceheight}%
1497 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
1498 \rule{\atfi@appearancewidth}{0pt}%
1499 }

1500 </dvips>

```

### 2.3.2 dvipdfmx

```

1501 (*dvipdfmx)
1502 \NeedsTeXFormat{LaTeX2e}
1503 \ProvidesFile{atfi-dvipdfmx.def}%
1504 [2019/11/26 v2.11 attachfile2 driver for dvipdfmx/XeTeX (HO)]%

```

#### Macros for graphics data

\atfi@special

```

1505 \def\atfi@special#1{%
1506   \special{pdf:#1}%
1507 }

```

\atfi@literal

```

1508 \def\atfi@literal#1{%
1509   \atfi@special{content #1}%
1510 }

1511 \def\atfi@GSAVE{q }
1512 \def\atfi@GRESTORE{Q }
1513 \def\atfi@SETLINEWIDTH{w }
1514 \def\atfi@LINETO{l }
1515 \def\atfi@MOVETO{m }
1516 \def\atfi@STROKE{S }
1517 \def\atfi@FILL{f }
1518 \def\atfi@FILLSTROKE#1#2{#1#2B }
1519 \def\atfi@SETRGBCOLORSTROKE{RG }
1520 \def\atfi@SETRGBCOLORFILL{rg }
1521 \def\atfi@SETGRAYSTROKE{G }
1522 \def\atfi@SETGRAYFILL{g }
1523 \def\atfi@SETCMYKCOLORSTROKE{K }
1524 \def\atfi@SETCMYKCOLORFILL{k }
1525 \def\atfi@RECTFILL{re f }
1526 \def\atfi@RECTSTROKEFILL#1#2#3{#1#2#3re B }

```

```

1527 \def\atfi@SETMITERLIMIT{M }
1528 \def\atfi@SETFLAT{i }
1529 \def\atfi@SETLINECAP{J }
1530 \def\atfi@CURVETO{c }
1531 \def\atfi@CURVETO{v }
1532 \def\atfi@CURVETOY{y }
1533 \def\atfi@CLOSEPATH{h }
1534 \def\atfi@SETLINEJOIN{j }

1535 \newcounter{atfi@obj}
1536 \renewcommand*\theatfi@obj}{%
1537   @atfi_obj_\number\c@atfi@obj
1538 }

```

### File embedding

```

1539 \define@key{AtFi@file}{Size}{%
1540   \edef\atfi@params{\atfi@params/Size #1}%
1541 }

```

\atfi@embedfile

```

1542 \def\atfi@embedfile#1{%
1543   \ltx@ifundefined{atfi@fileobj@#1}{%
1544     \stepcounter{atfi@obj}%
1545     \begingroup
1546       \let\atfi@params\ltx@empty
1547       \expandafter\let\expandafter\atfi@temp
1548       \csname atfi@file@#1\endcsname
1549       \ifx\atfi@temp\ltx@empty
1550         \let\atfi@temp\relax
1551       \fi
1552       \ifx\atfi@temp\relax
1553         \atfi@pdftexdata{#1}%
1554       \else
1555         \edef\x{%
1556           \noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}%
1557         }%
1558         \x
1559       \fi
1560       \ifx\atfi@params\ltx@empty
1561       \else
1562         \edef\atfi@params{/Params<<\atfi@params>>}%
1563       \fi
1564       \edef\atfi@FILE{#1}%
1565       \filename@parse\atfi@FILE
1566       \ifx\filename@area\ltx@empty
1567         \edef\atfi@FILE{./\atfi@FILE}%
1568       \fi
1569       \EdefEscapeString\atfi@FILE{\atfi@FILE}%
1570       \atfi@special{fstream %
1571         \theatfi@obj
1572         (\atfi@FILE)%
1573         <<%
1574         /Type/EmbeddedFile%
1575         \atfi@mimetype
1576         \atfi@params
1577         >>%
1578       }%
1579       \atfi@special{close \theatfi@obj}%

```

```

1580     \expandafter
1581     \xdef\csname atfi@fileobj@#1\endcsname{\theatfi@obj}%
1582     \endgroup
1583 }{%
1584   % file already embedded
1585 }%
1586 }

```

### Annotation appearance

\atfi@xform input: \atfi@appearancebox, output: \atfi@appearanceobj

```

1587 \def\atfi@xform{%
1588   \stepcounter{atfi@obj}%
1589   \smash{%
1590     \rlap{%
1591       \atfi@special{bxobj \theatfi@obj\space
1592         width \the\wd\atfi@appearancebox\space
1593         height \the\ht\atfi@appearancebox\space
1594         depth \the\dp\atfi@appearancebox
1595       }%
1596       \usebox\atfi@appearancebox
1597     \atfi@special{exobj}%
1598   }%
1599 }%
1600 \edef\atfi@appearanceobj{\theatfi@obj}%
1601 }

```

\atfi@xform@icon

```
1602 \let\atfi@xform@icon\atfi@xform
```

\atfi@refxform

```

1603 \def\atfi@refxform#1{%
1604   \leavevmode
1605   \atfi@special{uxobj #1}%
1606 }

```

### File attachment annotation

\atfi@insert@file@annot

```

1607 \def\atfi@insert@file@annot#1{%
1608   \rule{0pt}{0pt}%
1609   \ifatfi@appearance
1610     \def\atfi@appearance@dict{%
1611       /AP<<%
1612       /N \atfi@appearanceobj
1613       /R \atfi@appearanceobj
1614       /D \atfi@appearanceobj
1615     >>%
1616   }%
1617   \else
1618     \let\atfi@appearance@dict\ltx@empty
1619   \fi
1620   \ltx@ifundefined{atfi@fsobj@#1}{%
1621     \begingroup
1622     \ifxetex
1623       \let\atfi@temp\Hy@Warning
1624       \let\Hy@Warning\ltx@gobble

```

```

1625 \fi
1626 \hypersetup{unicode=false}%
1627 \ifxetex
1628 \let\Hy@Warning\atfi@temp
1629 \fi
1630 \atfi@pdfstringdef\atfi@file{#1}%
1631 \stepcounter{atfi@obj}%
1632 \atfi@special{obj \theatfi@obj <<%
1633 /Type/Filespec%
1634 /F(\atfi@file)%
1635 \ifx\atfi@ucfilespec\ltx@empty
1636 \else
1637 /UF(\atfi@ucfilespec)%
1638 \fi
1639 /EF<<%
1640 /F \@nameuse{atfi@fileobj@#1}%
1641 >>%
1642 >>%
1643 }%
1644 \expandafter\xdef\csname atfi@fsobj@#1\endcsname{%
1645 \theatfi@obj
1646 }%
1647 \endgroup
1648 }{%
1649 }%
1650 \begingroup
1651 \dimen@=\atfi@scale\atfi@appearancewidth
1652 \edef\atfi@rule{width \the\dimen@}%
1653 \dimen@=\atfi@scale\atfi@appearanceheight
1654 \edef\atfi@rule{\atfi@rule\space height \the\dimen@}%
1655 \dimen@=\atfi@scale\atfi@appearancedepth
1656 \edef\atfi@rule{\atfi@rule\space depth \the\dimen@}%
1657 \atfi@special{ann \atfi@rule
1658 <<%
1659 /Subtype/FileAttachment%
1660 \atfi@icon
1661 \atfi@color@annot
1662 \atfi@author
1663 \atfi@date
1664 \atfi@annotname
1665 \atfi@description
1666 \atfi@subject
1667 \atfi@appearance@dict
1668 /F \theatfi@flags
1669 /FS \@nameuse{atfi@fsobj@#1}%
1670 >>%
1671 }%
1672 \endgroup
1673 \rule{0pt}{\atfi@appearanceheight}%
1674 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
1675 \rule{\atfi@appearancewidth}{0pt}%
1676 }
1677 </dvipdfmx>

```

## 2.4 Perl script pdfatfi.pl

```
1678 (*pdfatfi)
```

```

1679 #!/usr/bin/env perl
1680 use strict;
1681 $^W=1; # turn warning on
1682 #
1683 # pdfatfi.pl
1684 #
1685 # Copyright (C) 2005-2010, 2012 Heiko Oberdiek.
1686 #
1687 # This work may be distributed and/or modified under the
1688 # conditions of the LaTeX Project Public License, either
1689 # version 1.3c of this license or (at your option) any later
1690 # version. This version of this license is in
1691 #   https://www.latex-project.org/lppl/lppl-1-3c.txt
1692 # and the latest version of this license is in
1693 #   https://www.latex-project.org/lppl.txt
1694 # and version 1.3 or later is part of all distributions of
1695 # LaTeX version 2005/12/01 or later.
1696 #
1697 # This work has the LPPL maintenance status "maintained".
1698 #
1699 # The Current Maintainers of this work are
1700 # Heiko Oberdiek and the Oberdiek Package Support Group
1701 # https://github.com/ho-tex/attachfile2/issues
1702 #
1703 # See file "attachfile2.pdf" for a list of files that belong to
1704 # this project.
1705 #
1706 # This file "pdfatfi.pl" may be renamed to "pdfatfi"
1707 # for installation purposes.
1708 #
1709 my $prj      = 'pdfatfi';
1710 my $file     = "$prj.pl";
1711 my $program  = uc($&) if $file =~ /\w+/;
1712 my $version  = "2.9";
1713 my $date     = "2019/11/26";
1714 my $author   = "Heiko Oberdiek";
1715 my $copyright = "Copyright (c) 2005-2010, 2012 by $author.";
1716 #
1717 # History:
1718 #   2005/05/21 v1.0: First release.
1719 #   2006/08/16 v2.2: Included in DTX file of attachfile2.dtx.
1720 #   2010/09/27 v2.6: Keys ModDateTZ and CreationDateTZ added.
1721 #   2016/05/16 v2.8: Option --version added.
1722 #   2019/11/24 v2.10: adapted version to attachfile2 version.
1723 #
1724
1725 use POSIX qw(strftime); # %z is used (GNU)
1726 use Digest::MD5;
1727
1728 ### program identification
1729 my $title = "$program $version, $date - $copyright\n";
1730
1731 ### error strings
1732 my $Error = "!!! Error:"; # error prefix
1733
1734 ### variables
1735 my $atffile;
1736

```



```

1737 ### option variables
1738 my @bool = ("false", "true");
1739 $::opt_help      = 0;
1740 $::opt_quiet     = 0;
1741 $::opt_debug     = 0;
1742 $::opt_verbose   = 0;
1743 $::opt_version   = 0;
1744
1745 my $usage = <<"END_OF_USAGE";
1746 ${title}Syntax:  \L$program\E [options] <file[.atfi]>
1747 Function: Help program for LaTeX package "attachfile2".
1748 Options:
1749     --help          print usage
1750     --version       print version number
1751     --(no)quiet    suppress messages      ($bool[$::opt_quiet])
1752     --(no)verbose  verbose printing      ($bool[$::opt_verbose])
1753     --(no)debug    debug informations    ($bool[$::opt_debug])
1754 END_OF_USAGE
1755
1756 ### process options
1757 my @OrgArgv = @ARGV;
1758 use Getopt::Long;
1759 GetOptions(
1760     "help!",
1761     "version!",
1762     "quiet!",
1763     "debug!",
1764     "verbose!",
1765 ) or die $usage;
1766 !$::opt_help or die $usage;
1767 if ($::opt_version) {
1768     print "$prj $date v$version\n";
1769     exit(0);
1770 }
1771 @ARGV == 1 or die "$usage$Error Missing jobname!\n";
1772
1773 $::opt_quiet = 0 if $::opt_verbose;
1774
1775 print $title unless $::opt_quiet;
1776
1777 ### get jobname
1778 $atffile = $ARGV[0];
1779 if (!-f $atffile && -f "$atffile.atfi") {
1780     $atffile .= ".atfi";
1781 }
1782 -f $atffile or die "$Error File '$atffile' not found!\n";
1783
1784 print "* job file      = $atffile\n" if $::opt_verbose;
1785
1786 if ($::opt_debug) {
1787     print <<"END_DEB";
1788     * OSNAME: $^O
1789     * PERL_VERSION: $]
1790     * ARGV: @OrgArgv
1791 END_DEB
1792 }
1793
1794 my $tmpfile = $atffile . ".tmp";

```

```

1795
1796 my $timezone = strftime "%z", localtime;
1797
1798 sub gettz ($) {
1799     my $time = shift;
1800     my $tz = strftime "%z", localtime($time);
1801     return '' unless $tz;
1802     return 'Z' if $tz eq '+0000';
1803     $tz =~ s/^( [+ - ] \d \d ) ( \d \d ) $ / $1 '$2' /;
1804     return $tz;
1805 }
1806
1807 open(IN, $atffile) or die "$Error Cannot open '$atffile'!\n";
1808 open(OUT, ">$tmpfile") or die "$Error Cannot write '$tmpfile'!\n";
1809
1810 while(<IN>) {
1811     # timezone
1812     if (s/^(\\attachfile@timezone\{).*\{ \} $ / $1 $timezone $2 /) {
1813         print "* timezone      = $timezone\n" if $::opt_verbose;
1814     }
1815
1816     # file entry
1817     if (/^(\\attachfile@file\[[^\]]*\]\{ \} \{ \} \{ \} \{ \} /) {
1818         my $hexfile = $1;
1819         my $file = pack('H*', $hexfile);
1820         my @s = stat($file);
1821         if (@s == 0) {
1822             print "!!! Warning: File '$file' not found!\n";
1823         }
1824         else {
1825             my $size = $s[7];
1826             my $mtime = $s[9];
1827             my $ctime = $s[10]; # inode change time
1828
1829             my ($sec, $min, $hour, $mday, $mon, $year) =
1830                 localtime($mtime);
1831             my $moddate = sprintf("%04d%02d%02d%02d%02d",
1832                 $year + 1900, $mon + 1, $mday,
1833                 $hour, $min, $sec);
1834             my $moddatetz = 'D:' . $moddate . gettz($mtime);
1835
1836             # Manual page "perlport" says that "ctime" is creation
1837             # time instead of inode change time for "Win32" and
1838             # "Mac OS", but it is unsupported for "Mac OS X".
1839             my $creationdate = "";
1840             my $creationdatetz = "";
1841             if ($^O eq 'MSWin32') { # cygwin?
1842                 ($sec, $min, $hour, $mday, $mon, $year) =
1843                     localtime($ctime);
1844                 $creationdate = sprintf("%04d%02d%02d%02d%02d",
1845                     $year + 1900, $mon + 1, $mday,
1846                     $hour, $min, $sec);
1847                 $creationdatetz =
1848                     'D:' . $creationdate . gettz($ctime);
1849             }
1850
1851             # md5 checksum
1852             my $checksum = "";

```

```

1853         my $ctx = Digest::MD5->new;
1854         if (open(FILE, $file)) {
1855             $ctx->addfile(*FILE);
1856             $checksum = $ctx->hexdigest;
1857             close(FILE);
1858         }
1859         else {
1860             print "!!! Warning: File '$file' cannot be read,"
1861                 . " dropping checksum!\n";
1862         }
1863
1864         $_ = "\\attachfile\\@file["
1865             . "ModDateTZ=$moddatetz"
1866             . ",Size=$size"
1867             . ($checksum ? ",Checksum=$checksum" : "")
1868             . ($creationdatetz ?
1869                 ",CreationDateTZ=$creationdatetz" :
1870                 ($creationdate ?
1871                     ",CreationDate=$creationdate" : ""))
1872             . "]{ $hexfile}\n";
1873         if ($::opt_verbose) {
1874             print "* file entry   = $file\n";
1875             print "  size           = $size\n";
1876             print "  moddate        = $moddate\n";
1877             print "  creationdate   = $creationdate\n"
1878                 if $creationdate;
1879             print "  checksum       = $checksum\n" if $checksum;
1880         }
1881     }
1882 }
1883
1884     print OUT $_;
1885 }
1886
1887 close(IN);
1888 close(OUT);
1889
1890 unlink($atffile) or die "$Error Cannot delete old '$atffile'!\n";
1891 rename $tmpfile, $atffile
1892     or die "$Error Cannot move '$tmpfile' to '$atffile'!\n";
1893
1894 print "*** ready. ***\n" unless $::opt_quiet;
1895
1896 __END__
1897 </pdfatfi>
1898 <(*pdfatfiman)>
1899 .TH pdfatfi 1 "2019-11-24"
1900 .SH NAME
1901 pdfatfi \- Help program for the LaTeX package attachfile2.
1902 .SH SYNOPSIS
1903 pdfatfi <command> [<options>] <file[.atfi]>]
1904 .SH DESCRIPTION
1905 Helper program for the LaTeX package attachfile2.
1906
1907 This package also tries to get and add meta information data,
1908 such as file size, file date, checksum, ....
1909
1910 The script pdfatfi.pl is provided for use with old versions of

```

1911 pdfTeX and XeTeX that do not provide access  
1912 to file metadata.  
1913  
1914 The use of the Perl script is not mandatory. This data can be shown  
1915 by PDF viewers, but they are not a requirement of the PDF specification.  
1916  
1917 Package attachfile2 and the Perl script communicate  
1918 via an auxiliary file with file extension .atfi. The script  
1919 is used between two LaTeX runs and updates the auxiliary file.  
1920  
1921 .nf  
1922 latex test  
1923 pdfatfi test  
1924 latex test  
1925 dvips test  
1926 ps2pdf test.ps test.pdf  
1927 .fi  
1928  
1929 .SH OPTIONS  
1930 Various options are supported  
1931 .IP --help  
1932 Show help text.  
1933 .IP --version  
1934 Print version number  
1935 .IP --(no)quiet  
1936 Suppress/don't suppress messages  
1937 .IP --(no)verbose  
1938 Verbose (not verbose) printing.  
1939 .IP --(no)debug  
1940 Debug information printed (not printed)  
1941 .SH BUGS  
1942 Please log issues on the GitHub homepage:  
1943 .br  
1944 <https://github.com/ho-tex/attachfile2/issues>.  
1945 .SH AUTHOR  
1946 Heiko Oberdiek (ho-tex@tug.org)  
1947 .SH SEE ALSO  
1948 See attachfile2.pdf for more details.  
1949 `/pdfatfiman`

## 3 Installation

### 3.1 Download

**Package.** This package is available on CTAN<sup>1</sup>:

[CTAN:macros/latex/contrib/attachfile2/attachfile2.dtx](#) The source file.

[CTAN:macros/latex/contrib/attachfile2/attachfile2.pdf](#) Documentation.

**Bundle.** All the packages of the bundle ‘attachfile2’ 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/attachfile2.tds.zip](#)

TDS refers to the standard “A Directory Structure for T<sub>E</sub>X Files” ([CTAN:tds/tds.pdf](#)). Directories with `texmf` in their name are usually organized this way.

---

<sup>1</sup>[CTAN:pkg/attachfile2](#)

## 3.2 Bundle installation

**Unpacking.** Unpack the `attachfile2.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip attachfile2.tds.zip -d ~/texmf
```

**Script installation.** Check the directory `TDS:scripts/attachfile2/` 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/attachfile2/pdfatfi.pl
cp scripts/attachfile2/pdfatfi.pl /usr/local/bin/
```

## 3.3 Package installation

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

```
tex attachfile2.dtx
```

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

```
attachfile2.sty → tex/latex/attachfile2/attachfile2.sty
atfi-dvips.def  → tex/latex/attachfile2/atfi-dvips.def
atfi-pdftex.def → tex/latex/attachfile2/atfi-pdftex.def
atfi-dvipdfmx.def → tex/latex/attachfile2/atfi-dvipdfmx.def
pdfatfi.pl     → scripts/attachfile2/pdfatfi.pl
attachfile2.pdf → doc/latex/attachfile2/attachfile2.pdf
attachfile2.dtx → source/latex/attachfile2/attachfile2.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  $\TeX$  distribution ( $\TeX$  Live, `mik $\TeX$` , ...) relies on file name databases, you must refresh these. For example,  $\TeX$  Live users run `texhash` or `mktexlsr`.

## 3.5 Script installation

This package comes with a Perl script `pdfatfi.pl`. Install it somewhere so that it is executed, when it is called as `pdfatfi` on the command line. Example for installing it under Linux:

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

## 3.6 Some details for the interested

**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{attachfile2.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 `pdf $\LaTeX$` :

```
pdflatex attachfile2.dtx
makeindex -s gind.ist attachfile2.idx
pdflatex attachfile2.dtx
makeindex -s gind.ist attachfile2.idx
pdflatex attachfile2.dtx
```

## 4 References

- [1] Scott Pakin: *The attachfile package*; 2005/02/20 v1.2; [CTAN:pkg/attachfile](#).
- [2] Heiko Oberdiek: *The embedfile package*; 2006/08/16 v1.0; [CTAN:macros/latex/contrib/oberdiek/embedfile.pdf](#).
- [3] Adobe Systems Incorporated: *PDF Reference, Version 1.7*,
- [4] Network Working Group: RFC 2046, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*, November 1996; <http://www.rfc-editor.org/>.
- [5] IANA (Internet Assigned Numbers Authority): *MIME Media Types*, May 2006; <http://www.iana.org/assignments/media-types/>.

## 5 History

[2005/02/23 v2.0]

- New options: `draft/final`.
- New option `scale` for scaling the annotation rectangle.
- Supported driver options: `pdftex`, `dvips`.
- Configuration file ‘`attachfile.cfg`’ supported.
- Dependency of package `calc` dropped.
- $\epsilon$ - $\TeX$  (`\numexpr`, `\dimexpr`) used.
- New auxiliary file `\jobname.atfi` to get data unavailable by (pdf) $\TeX$ , controlled by `\nofiles` and option `nofiles`.
- Use of package `prokvopt` (never released).

**[2005/10/07 v2.1]**

- Option `annotname` for naming annotations (this name can be used for embedded go-to actions).

**[2006/08/17 v2.2]**

- Use of package `kvoptions` instead of `prokvopt`.
- DTX framework.
- A little documentation.

**[2007/04/11 v2.3]**

- Line ends sanitized.

**[2008/07/29 v2.4]**

- Improved color support. Option `color` now understands the usual color specifications if package `xcolor` is loaded.

**[2009/09/25 v2.5]**

- New option `ucfilespec` (since PDF 1.7).
- Fix: `hyperref`'s option `unicode` is disabled for file names except for `ucfilespec`.

**[2010/09/27 v2.6]**

- Support for `dvipdfmx` added, new option `dvipdfmx` and alias option `xetex`. (Thanks Will Robertson for pointing to `\special{pdf:fstream ...}`).
- New option `driverfallback`.
- All options except driver options are local options, that means they are ignored as global options.
- Some options are disabled after they are used (driver options, `draft`, `final`, `nofiles`).
- Driver files renamed from `atfi<driver>.def` to `atfi-<driver>.def`.
- Bug fix: `\textattachfile` now adds an entry into the `.atfi` file.
- Program `pdfatfi.pl` sets modification and creation time with time zone, because the time zone offset might differ with the file date.

**[2012/04/18 v2.7]**

- Program `pdfatfi.pl`: Option `version` added.

**[2016/05/16 v2.8]**

- Documentation updates.

**[2019/07/24 v2.9]**

- Added `luatex` driver (UF, issue 69)

[2019/11/24 v2.10]

- Fix perl header comment
- Address perl warning  
Scalar value @s[7] better written as \$s[7] at pdfatfi.pl line 147
- use CTAN:pkg/iftex not CTAN:pkg/ifpdf, CTAN:pkg/ifxetex,  
CTAN:pkg/ifluatex.

[2019/11/26 v2.11]

- Add man file for pdfatfi.

## 6 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	
\#	22, 57
\\$	24
\%	25, 57
\&	26, 57
\(	27
\)	28
\*	30, 58
\+	31, 58, 105
\-	105, 1901
\.	21, 58, 105
\?	32
\@ehc	219, 546
\@makeother	751, 760
\@namedef	548
\@nameuse	651, 678, 700, 702, 704, 825, 879, 902, 954, 1008, 1031, 1291, 1556, 1640, 1669
\[	23
\]	35, 73, 537
\{	33, 63, 78, 753, 762
\}	34, 63, 83, 754, 763
\^	20, 61
\	29, 63
\~	36, 63
\atfi@annotname	177, 179, 897, 1026, 1476, 1664
\atfi@appearance@dict	856, 864, 900, 985, 993, 1029, 1429, 1437, 1479, 1610, 1618, 1667
\atfi@appearance@box	674, 677, 682, 686, 690, 709, 710, 711, 712, 846, 975, 1367, 1368, 1369, 1387, 1389, 1390, 1399, 1592, 1593, 1594, 1596
\atfi@appearance@depth	673, 703, 712, 891, 905, 1020, 1034, 1414, 1484, 1497, 1655, 1674
\atfi@appearance@height	672, 701, 711, 890, 904, 1019, 1033, 1424, 1491, 1496, 1653, 1673
\atfi@appearance@obj	695, 705, 847, 858, 859, 860, 976, 987, 988, 989, 1360, 1363, 1379, 1384, 1431, 1432, 1433, 1600, 1612, 1613, 1614
\atfi@appearance@width	671, 699, 710, 774, 889, 906, 1018, 1035, 1422, 1488, 1498, 1651, 1675
\atfi@attachfile	658, 755
\atfi@author	181, 183, 895, 1024, 1474, 1662
\atfi@checksumtrue	554
\atfi@CLOSEPATH	483, 503, 807, 936, 1268, 1533
\atfi@color@annot	129, 894, 1023, 1473, 1661
\atfi@color@inline	129, 351, 400, 443, 505
\atfi@color@tex	129, 306, 741
\atfi@CR	66, 73
\atfi@creationdatetrue	561, 571
A	
\addtocounter	719, 723
\atfi@acroGraph	357
\atfi@acroGraph@data	333, 359
\atfi@acroPaperclip	419
\atfi@acroPaperclip@data	362, 421
\atfi@acroPushPin	461
\atfi@acroPushPin@data	424, 463
\atfi@acroTag	531
\atfi@acroTag@data	466, 533



`\atfi@CURVETO` 479, 480, 481, 482, 499, 500, 501, 502, 804, 933, 1265, 1530  
`\atfi@CURVETOV` . 370, 373, 375, 377, 379, 381, 386, 389, 391, 393, 395, 397, 403, 406, 408, 410, 412, 414, 526, 805, 934, 1266, 1531  
`\atfi@CURVETOY` . 371, 374, 376, 378, 380, 382, 387, 390, 392, 394, 396, 398, 404, 407, 409, 411, 413, 415, 527, 806, 935, 1267, 1532  
`\atfi@date` ..... 150, 160, 161, 896, 1025, 1475, 1663  
`\atfi@DefNoValueName` ..... 168, 179, 183, 187, 191  
`\atfi@description` ..... 185, 187, 898, 1027, 1477, 1665  
`\atfi@DisableOption` .... 255, 295, 296, 297, 298, 299, 315, 316, 657  
`\atfi@draftrue` ..... 290  
`\atfi@driver` ... 206, 213, 215, 223, 226, 229, 232, 260, 262, 266, 268, 271, 273, 275, 277, 285, 332  
`\atfi@driver@dvi` ..... 210, 229, 232, 266, 275  
`\atfi@driver@dvi` ..... 209, 226, 273  
`\atfi@driver@luatex` ... 208, 223, 260  
`\atfi@driver@pdftex` ... 207, 213, 262  
`\atfi@driver@fallback` .. 269, 272, 280  
`\atfi@dumy@pushpin` ..... 318, 325  
`\atfi@embedfile` ..... 665, 737, 812, 941, 1275, 1542  
`\atfi@FILE` 1564, 1565, 1567, 1569, 1572  
`\atfi@file` ..... 869, 873, 998, 1002, 1445, 1455, 1630, 1634  
`\atfi@filename` ..... 544, 545, 548  
`\atfi@FILL` .. 484, 790, 920, 1244, 1517  
`\atfi@FILLSTROKE` ..... 442, 504, 791, 792, 921, 1245, 1518  
`\atfi@flags@to@int` .... 667, 716, 745  
`\atfi@GRESTORE` ..... 355, 417, 459, 529, 785, 915, 1239, 1512  
`\atfi@GSAVE` ..... 334, 363, 425, 467, 784, 914, 1238, 1511  
`\atfi@header` ..... 1045, 1048  
`\atfi@hours` ..... 143, 147, 154  
`\atfi@icon` . 123, 893, 1022, 1472, 1660  
`\atfi@icon@icon` ..... 124, 676, 678, 681, 685, 689, 694, 700, 702, 704, 706, 772, 1372  
`\atfi@insert@file@annot` ..... 668, 746, 853, 982, 1426, 1607  
`\atfi@LINETO` 372, 388, 405, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 449, 450, 451, 455, 456, 457, 470, 471, 472, 473, 474, 475, 476, 477, 490, 491, 492, 493, 494, 495, 496, 497, 511, 514, 517, 522, 525, 787, 917, 1241, 1514  
`\atfi@literal` ..... 359, 421, 463, 533, 783, 913, 1042, 1295, 1361, 1382, 1400, 1415, 1446, 1469, 1508  
`\atfi@ltx@leftbracechar` ..... 77  
`\atfi@Match` ..... 15, 102  
`\atfi@mimetype` ..... 97, 99, 100, 102, 109, 113, 116, 118, 119, 835, 964, 1311, 1575  
`\atfi@minutes` ..... 146, 155  
`\atfi@moddatetru` ..... 582, 592  
`\atfi@MOVETO` ..... 369, 385, 402, 427, 448, 454, 469, 478, 489, 498, 510, 513, 516, 521, 524, 788, 918, 1242, 1515  
`\atfi@nofilestrue` ..... 632  
`\atfi@NoValue` ..... 167, 170  
`\atfi@pad@ii` 133, 152, 153, 154, 155, 156  
`\atfi@params` ..... 555, 562, 563, 572, 573, 583, 584, 593, 594, 810, 815, 829, 831, 836, 939, 944, 958, 960, 965, 1281, 1314, 1540, 1546, 1560, 1562, 1576  
`\atfi@PatQuotedString` ..... 71, 106  
`\atfi@PatToken` ..... 53, 103, 106  
`\atfi@pdfstringdef` ..... 163, 173, 202, 869, 998, 1277, 1445, 1630  
`\atfi@pdftexdata` ..... 599, 822, 951, 1288, 1553  
`\atfi@psfilename` ..... 1277, 1296  
`\atfi@RECTFILL` . 336, 348, 349, 350, 352, 353, 354, 799, 928, 1252, 1525  
`\atfi@RECTSTROKEFILL` ..... 340, 800, 929, 1253, 1526  
`\atfi@refxform` 772, 850, 979, 1413, 1603  
`\atfi@rule` .... 1652, 1654, 1656, 1657  
`\atfi@scale` ..... 889, 890, 891, 1018, 1019, 1020, 1484, 1488, 1491, 1651, 1653, 1655  
`\atfi@seconds` ..... 149, 156  
`\atfi@set@appearance` ..... 708, 738  
`\atfi@set@appearance@icon` ..... 666, 675, 769  
`\atfi@SETCMYKCOLORFILL` ..... 798, 927, 1251, 1524  
`\atfi@SETCMYKCOLORSTROKE` ..... 797, 926, 1250, 1523  
`\atfi@SETFLAT` ..... 337, 365, 485, 802, 931, 1263, 1528  
`\atfi@SETGRAYFILL` ..... 335, 341, 347, 468, 796, 925, 1249, 1522  
`\atfi@SETGRAYSTROKE` ..... 343, 364, 384, 445, 447, 453, 507, 519, 795, 924, 1248, 1521  
`\atfi@SETLINECAP` ..... 367, 803, 932, 1264, 1529

<code>\atfi@SETLINEJOIN</code> .....	<code>\DeclareBoolOption</code> .....
..... 488, 808, 937, 1269, 1534	..... 95, 193, 194, 195, 205
<code>\atfi@SETLINEWIDTH</code> .....	<code>\DeclareComplementaryOption</code> ....
..... 338, 366, 401, 426,	..... 96
486, 509, 520, 786, 916, 1240, 1513	<code>\DeclareLocalOptions</code> .....
<code>\atfi@SETMITERLIMIT</code> .....	..... 236
..... 339, 368, 487, 801, 930, 1262, 1527	<code>\DeclareRobustCommand</code> 163, 235, 300,
<code>\atfi@SETRGBCOLORFILL</code> .....	..... 321, 324, 327, 716, 749, 757, 766
..... 794, 923, 1247, 1520	<code>\DeclareStringOption</code> .....
<code>\atfi@SETRGBCOLORSTROKE</code> .....	..... 196, 234
..... 793, 922, 1246, 1519	<code>\DeclareVoidOption</code> .....
<code>\atfi@setup</code> .....	..... 211, 222, 225, 228, 231
.. 94, 126, 132, 302, 664, 736, 768	<code>\define@key</code> .....
<code>\atfi@special</code> ... 1505, 1509, 1570,	.. 98, 122, 127, 141, 159, 178,
1579, 1591, 1597, 1605, 1632, 1657	182, 186, 190, 198, 553, 558,
<code>\atfi@stream</code> .....	568, 579, 589, 809, 938, 1274, 1539
..... 641, 642, 643, 649	<code>\dimen@</code> 1651, 1652, 1653, 1654, 1655, 1656
<code>\atfi@STROKE</code> .....	<code>\dimexpr</code> .. 144, 1368, 1484, 1488, 1491
..... 383,	<code>\DisableKeyvalOption</code> .....
399, 416, 452, 458, 512, 515,	..... 256
518, 523, 528, 789, 919, 1243, 1516	<code>\do</code> .....
<code>\atfi@subject</code> .....	..... 751, 760
.. 189, 191, 899, 1028, 1478, 1666	<code>\dospecials</code> .....
<code>\atfi@temp</code> 599, 601, 604, 607, 609,	<code>\dp</code> ... 690, 712, 1368, 1387, 1407, 1594
613, 614, 616, 617, 618, 620,	
622, 623, 625, 648, 652, 816,	<b>E</b>
818, 819, 821, 945, 947, 948,	<code>\EdefEscapeHex</code> .....
950, 1282, 1284, 1285, 1287,	..... 648
1547, 1549, 1550, 1552, 1623, 1628	<code>\EdefEscapeName</code> .....
<code>\atfi@temp@string</code> .....	..... 118
..... 164, 165	<code>\EdefEscapeString</code> .....
<code>\atfi@textattachfile</code> .....	..... 160, 1569
..... 726, 764	<code>\EdefUnescapeHex</code> .....
<code>\atfi@textattachfile@i</code> .... 728, 730	..... 544
<code>\atfi@time</code> .....	<code>\endcsname</code> 272, 681, 685, 689, 694,
..... 142, 144, 147	706, 772, 817, 839, 883, 946,
<code>\atfi@timezone</code> .....	968, 1012, 1279, 1283, 1372,
..... 140,	1442, 1461, 1481, 1548, 1581, 1644
140, 141, 157, 540, 574, 595, 644	<code>\endinput</code> .....
<code>\atfi@ucfilespec</code> .....	..... 330
.. 197, 199, 200, 202, 874, 876,	
1003, 1005, 1456, 1458, 1635, 1637	<b>F</b>
<code>\atfi@Warning</code> .....	<code>\filename@area</code> .....
..... 44, 89, 108	..... 1566
<code>\atfi@writefile</code> ... 639, 646, 660, 732	<code>\filename@parse</code> .....
<code>\atfi@xform</code> .....	..... 1565
..... 713,	
845, 849, 974, 978, 1377, 1587, 1602	<b>H</b>
<code>\atfi@xform@icon</code> .....	<code>\hbox</code> .....
..... 692, 849, 978, 1358, 1602	..... 1381
<code>\atfi@xfrom@icon</code> .....	<code>\ht</code> ... 686, 711, 1369, 1390, 1408, 1593
..... 1358	<code>\Hy@Warning</code> .....
<code>\attachfile</code> .....	..... 1623, 1624, 1628
..... 327, 749	<code>\HyColor@AttachfileColor</code> .....
<code>\attachfile@file</code> .....	..... 128
..... 543, 650	<code>\HyColor@UseColor</code> .....
<code>\attachfile@timezone</code> .....	..... 306, 741
..... 536, 644	<code>\hypersetup</code> .....
<code>\attachfilesetup</code> .....	..... 868, 997, 1444, 1626
..... 235	
	<b>I</b>
<b>C</b>	<code>\if@filesw</code> .....
<code>\c@atfi@obj</code> .....	..... 630
..... 1272, 1537	<code>\ifatfi@appearance</code> 855, 984, 1428, 1609
<code>\catcode</code> .....	<code>\ifatfi@checksum</code> .....
..... 753, 754, 762, 763	..... 552, 1337
<code>\csname</code> ... 272, 681, 685, 689, 694,	<code>\ifatfi@creationdate</code> .....
706, 772, 817, 839, 883, 946,	..... 557, 559, 569, 1324
968, 1012, 1279, 1283, 1372,	<code>\ifatfi@draft</code> .....
1442, 1461, 1481, 1548, 1581, 1644	..... 317
	<code>\ifatfi@moddate</code> .. 578, 580, 590, 1331
<b>D</b>	<code>\ifatfi@nofiles</code> .....
<code>\day</code> .....	..... 634
..... 153	<code>\ifatfi@print</code> .....
	..... 303, 718, 770
	<code>\ifatfi@zoom</code> .....
	..... 721
	<code>\ifcase</code> .....
	..... 37, 609
	<code>\ifluatex</code> .....
	..... 259
	<code>\ifnum</code> .....
	..... 134
	<code>\ifpdf</code> .....
	..... 212, 258

<code>\ifx</code> . . .	100, 116, 170, 200, 268, 269, 273, 275, 285, 537, 545, 614, 618, 623, 818, 821, 829, 874, 947, 950, 958, 1003, 1284, 1287, 1456, 1549, 1552, 1560, 1566, 1635	<code>\noattachfile</code> . . . . .	324, 328, 766
<code>\ifxetex</code> . . . . .	265, 1622, 1627	<code>\nofiles</code> . . . . .	637
<code>\immediate</code> . . . . .	642, 643, 649, 833, 846, 870, 962, 975, 999	<code>\notextattachfile</code> . . . .	300, 322, 325
<code>\input</code> . . . . .	332	<code>\NoValue</code> . . . . .	167, 178, 182, 186, 190
<code>\InputIfFileExists</code> . . . . .	253, 551	<code>\number</code> . . . . .	135, 137, 1272, 1537
		<code>\numexpr</code> . . . . .	144, 147, 968, 1013
			<b>O</b>
		<code>\openout</code> . . . . .	642
			<b>P</b>
<b>J</b>		<code>\PackageError</code> . . . . .	216, 546
<code>\jobname</code> . . . . .	551, 636, 642	<code>\PackageInfo</code> . . . . .	635
		<code>\PackageWarning</code> . . . . .	89
		<code>\PackageWarningNoLine</code> . . . . .	278, 286
<b>L</b>		<code>\parbox</code> . . . . .	319, 358, 420, 462, 532
<code>\lastsavedboxresourceindex</code> . . . . .	976	<code>\pdf@filemdfivesum</code> . . . . .	622
<code>\lccode</code> . . . . .	67, 78, 83	<code>\pdf@filemoddate</code> . . . . .	617
<code>\leavevmode</code> . . . . .	304, 739, 1604	<code>\pdf@filesize</code> . . . . .	613
<code>\lowercase</code> . . . . .	68, 79, 84	<code>\pdfannot</code> . . . . .	889
<code>\ltx@backslashchar</code> . . . . .	20, 21, 23, 24, 27, 28, 29, 30, 31, 32, 33, 35	<code>\pdfextension</code> . . . . .	913, 962, 999, 1018
<code>\ltx@empty</code> . . . . .	100, 113, 116, 140, 171, 177, 200, 206, 215, 268, 269, 277, 285, 545, 614, 618, 623, 815, 818, 829, 864, 874, 944, 947, 958, 993, 1003, 1281, 1284, 1437, 1456, 1546, 1549, 1560, 1566, 1618, 1635	<code>\pdffeedback</code> . . . . .	968, 1013
<code>\ltx@firstoftwo</code> . . . . .	42, 50	<code>\pdflastobj</code> . . . . .	839, 884
<code>\ltx@gobble</code> . . . . .	610, 639, 1624	<code>\pdflastxform</code> . . . . .	847
<code>\ltx@hashchar</code> . . . . .	22	<code>\pdfliteral</code> . . . . .	783
<code>\ltx@ifpackagelater</code> . . . . .	76	<code>\pdfmatch</code> . . . . .	37
<code>\ltx@ifUndefined</code> . . . . .	15, 600, 603, 606, 659, 676, 731, 813, 866, 942, 995, 1276, 1439, 1543, 1620	<code>\pdfobj</code> . . . . .	833, 870
<code>\ltx@ifundefined</code> . . . . .	651	<code>\pdfrefxform</code> . . . . .	851
<code>\ltx@leftbracechar</code> . . . . .	33, 80	<code>\pdfstringdef</code> . . . . .	164
<code>\ltx@one</code> . . . . .	599	<code>\pdfxform</code> . . . . .	846
<code>\ltx@percentchar</code> . . . . .	25	<code>\ProcessKeyvalOptions</code> . . . . .	254
<code>\ltx@rightbracechar</code> . . . . .	34, 82	<code>\protected</code> . . . . .	913
<code>\ltx@secondoftwo</code> . . . . .	39	<code>\ProvidesFile</code> . . . . .	781, 911, 1040, 1503
<code>\ltx@zero</code> . . . . .	310, 601, 604, 607, 1381, 1407, 1408, 1409, 1410	<code>\ProvidesPackage</code> . . . . .	3
			<b>R</b>
<b>M</b>		<code>\raisebox</code> . . . . .	319, 358, 420, 462, 532, 1414
<code>\makebox</code> . . . . .	311, 774, 1422	<code>\renewcommand</code> . . . . .	1271, 1536
<code>\mbox</code> . . . . .	1410	<code>\RequirePackage</code> . . . . .	5, 6, 7, 8, 9, 10, 11, 12, 13, 14
<code>\MessageBreak</code> . . . . .	45, 46, 109, 110, 217, 279, 287, 636	<code>\rlap</code> . . . . .	1590
<code>\month</code> . . . . .	152	<code>\rule</code> . . . . .	359, 421, 463, 533, 854, 904, 905, 906, 983, 1033, 1034, 1035, 1424, 1427, 1496, 1497, 1498, 1608, 1673, 1674, 1675
			<b>S</b>
		<code>\savebox</code> . . . . .	677, 709
<code>\NeedsTeXFormat</code> . . . . .	2, 780, 910, 1039, 1502	<code>\saveboxresource</code> . . . . .	975
<code>\newcommand</code> . . . . .	362, 543	<code>\sbox</code> . . . . .	310
<code>\newcounter</code> . . . . .	715, 1270, 1535	<code>\setbox</code> . . . . .	1381
<code>\newif</code> . . . . .	552, 557, 578	<code>\setcounter</code> . . . . .	717
<code>\newlength</code> . . . . .	671, 672, 673	<code>\setkeys</code> . . . . .	94, 235, 616, 620, 625, 825, 954, 1291, 1556
<code>\newsavebox</code> . . . . .	674	<code>\setlength</code> . . . . .	698
<code>\newwrite</code> . . . . .	641	<code>\SetupKeyvalOptions</code> . . . . .	90
		<code>\smash</code> . . . . .	1589
		<code>\space</code> . . . . .	637, 858, 859, 860, 987, 988, 989, 1367, 1369,

1387, 1389, 1390, 1485, 1489, 1492, 1591, 1592, 1593, 1654, 1656	\time .....	142
\special .....	<b>U</b>	
\stepcounter .....	\usebox .....	1399, 1410, 1596
1359, 1378, 1440, 1544, 1588, 1631	\useboxresource .....	980
\strip@pt .....	<b>W</b>	
1387, 1389, 1390, 1484, 1488, 1491	\wd .....	311, 682, 710, 1367, 1389, 1409, 1592
\strut .....	\write .....	643, 649
<b>T</b>		
\textattachfile .....	<b>X</b>	
\the .....	\x .....	824, 827, 953, 956, 1290, 1293, 1555, 1558
142, 151, 682, 686, 690, 839, 847, 884, 968, 976, 1013, 1592, 1593, 1594, 1652, 1654, 1656	<b>Y</b>	
\theatfi@flags ..	\year .....	151
\theatfi@obj ....	<b>Z</b>	
1271, 1279, 1304, 1308, 1345, 1349, 1360, 1379, 1442, 1448, 1452, 1536, 1571, 1579, 1581, 1591, 1600, 1632, 1645	\z@ .....	1407, 1408, 1409