

# The `attachfile2` package

Heiko Oberdiek  
<oberdiek@uni-freiburg.de>

2007/04/11 v2.3

## 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 pdfTeX. 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    | Perl script <code>pdfatfi.pl</code> . . . . . | 3         |
| 1.3      | Changes to <code>attachfile</code> . . . . .  | 3         |
| <b>2</b> | <b>Implementation</b>                         | <b>4</b>  |
| 2.1      | Package . . . . .                             | 4         |
| 2.2      | Drivers . . . . .                             | 16        |
| 2.2.1    | pdfTeX . . . . .                              | 16        |
| 2.2.2    | dvips . . . . .                               | 18        |
| 2.3      | Perl script <code>pdfatfi.pl</code> . . . . . | 26        |
| <b>3</b> | <b>Installation</b>                           | <b>29</b> |
| 3.1      | Download . . . . .                            | 29        |
| 3.2      | Bundle installation . . . . .                 | 29        |
| 3.3      | Package installation . . . . .                | 30        |
| 3.4      | Refresh file name databases . . . . .         | 30        |
| 3.5      | Script installation . . . . .                 | 30        |
| 3.6      | Some details for the interested . . . . .     | 30        |
| <b>4</b> | <b>References</b>                             | <b>31</b> |
| <b>5</b> | <b>History</b>                                | <b>31</b> |
|          | [2005/02/23 v2.0] . . . . .                   | 31        |
|          | [2005/10/07 v2.1] . . . . .                   | 31        |
|          | [2006/08/17 v2.2] . . . . .                   | 32        |
|          | [2007/04/11 v2.3] . . . . .                   | 32        |
| <b>6</b> | <b>Index</b>                                  | <b>32</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 `dvipsone`, 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` and `pdftex`.
- 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`.

### 1.2.2 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 pdf`TEX` 1.30 are very useful for getting this kind of data. However the main development preceded this pdf`TEX` version. Thus the Perl script `pdfatfi.pl` is used to provide 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 `LATEX` 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`.
- 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 [2007/04/11 v2.3 attach files into PDF (H0)]%

5 \RequirePackage{ifpdf}
6 \RequirePackage{keyval}
7 \RequirePackage{color}
8 \RequirePackage{kvoptions}[2006/08/17]
9
10 % --- hyperref ---
11
12 \RequirePackage{hyperref}
13 % because of \pdfstringdef
14
15 \def\atfi@pdfstringdef#1#2{%
16   \pdfstringdef\atfi@temp@string{#2}%
17   \edef#1{\atfi@temp@string}%
18 }
19
20 % --- convert to hex ---
21
22 \def\atfi@hexdigit#1{%
23   \ifcase#1%
24     0\or 1\or 2\or 3\or 4\or 5\or 6\or 7\or 8\or 9\or
25     a\or b\or c\or d\or e\or f%
26   \fi
27 }
28 % detour via \dimexpr to avoid eTeX's nasty expression rounding
29 \def\atfi@hexchar#1{%
30   \atfi@hexdigit{\numexpr\dimexpr.0625\dimexpr'#1sp\relax\relax\relax}%
31   \atfi@hexdigit{%
32     \numexpr'#1-16*\dimexpr.0625\dimexpr'#1sp\relax\relax\relax
33   }%
34 }
35 \def\atfi@tohex#1{%
36   \ifx\relax#1%
37   \else
38     \atfi@hexchar{#1}%
39     \expandafter\atfi@tohex
40   \fi
41 }
42
43 % --- convert to name ---
44
45 \def\atfi@converttoname#1#2{%
46   \edef#1{#2}%
47   \@onelevel@sanitize#1%
48   \edef#1{\expandafter\atfi@spacetooother#1 \relax}%
49   \edef#1{\expandafter\atfi@converttokens#1\relax}%
50 }
51
52 \edef\atfi@hash{\string#}%
53 \catcode'\_ =12\relax%
54 \def\atfi@space{ }%
55 \catcode'\_ =10\relax%
56
57 \def\atfi@spacetooother#1 #2\relax{%
58   #1%
```

```

59 \ifx\#2\%
60 \else
61 \atfi@space
62 \@ReturnAfterFi{%
63 \atfi@spacetooother #2\relax
64 }%
65 \fi
66 }
67 \long\def\@ReturnAfterFi#1\fi{\fi#1}
68
69 \def\atfi@converttokens#1{%
70 \ifx\relax#1%
71 \else
72 \ifnum'#1<33 %
73 \ifcase'#1%
74 % drop illegal zero
75 \else
76 \atfi@hash\atfi@hexchar#1%
77 \fi
78 \else
79 \ifnum'#1>126 %
80 \atfi@hash\atfi@hexchar#1%
81 \else
82 \ifnum'#1=40 % (
83 \atfi@hash 28%
84 \else\ifnum'#1=41 % )
85 \atfi@hash 29%
86 \else\ifnum'#1=60 % <
87 \atfi@hash 3c%
88 \else\ifnum'#1=62 % >
89 \atfi@hash 3e%
90 \else\ifnum'#1=91 % [
91 \atfi@hash 5b%
92 \else\ifnum'#1=93 % ]
93 \atfi@hash 5d%
94 \else\ifnum'#1=123 % {
95 \atfi@hash 7b%
96 \else\ifnum'#1=125 % }
97 \atfi@hash 7d%
98 \else\ifnum'#1=47 % /
99 \atfi@hash 2f%
100 \else\ifnum'#1=37 % %
101 \atfi@hash 25%
102 \else
103 #1%
104 \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi
105 \fi
106 \fi
107 \expandafter\atfi@converttokens
108 \fi
109 }
110
111
112 % --- options ---
113
114 % options "draft" and "final"
115 \newif\ifatfi@draft
116 \let\atfi@finaltrue\atfi@draftfalse
117 \let\atfi@finalfalse\atfi@drafttrue
118 \define@key{AtFi}{final}[true]{%
119 \csname atfi@final#1\endcsname
120 }

```

```

121 \define@key{AtFi}{draft}[true]{%
122   \csname atfi@draft#1\endcsname
123 }
124
125 % option mimetype
126 \def\atfi@mimetype{%
127   \define@key{AtFi}{mimetype}{%
128     \atfi@converttoname\atfi@mimetype{#1}%
129   \edef\atfi@mimetype{/Subtype/\atfi@mimetype}%
130 }
131
132 % option icon
133 \define@key{AtFi}{icon}{%
134   \def\atfi@icon{/Name/#1}%
135   \def\atfi@icon@icon{#1}%
136 }
137 \setkeys{AtFi}{icon=PushPin}
138
139 % option color
140 \define@key{AtFi}{color}{%
141   \def\atfi@color{/C[#1]}% hash-ok
142   \def\atfi@color@rgb{#1}%
143 }
144 \setkeys{AtFi}{color=1 0.9255 0.7765}
145
146 % time options timezone and date
147 \def\atfi@pad@ii#1{%
148   \ifnum#1>9 %
149     \number#1%
150   \else
151     0\number#1%
152   \fi%
153 }
154 \let\atfi@timezone\@empty
155 \define@key{AtFi}{timezone}{\def\atfi@timezone{#1}}
156 \edef\atfi@time{\the\time}
157 \def\atfi@hours{%
158   \numexpr\dimexpr0.01667\dimexpr\atfi@time sp\relax\relax\relax
159 }
160 \def\atfi@minutes{%
161   \numexpr\atfi@time-60*\atfi@hours\relax
162 }
163 \def\atfi@seconds{0}
164 \def\atfi@date{%
165   /M(D:\the\year
166     \atfi@pad@ii\month
167     \atfi@pad@ii\day
168     \atfi@pad@ii\atfi@hours
169     \atfi@pad@ii\atfi@minutes
170     \atfi@pad@ii\atfi@seconds
171     \atfi@timezone)%
172 }
173 \define@key{AtFi}{date}{%
174   \atfi@pdfstringdef\atfi@date{#1}%
175   \edef\atfi@date{/M(\atfi@date)}%
176 }
177
178 % name for annotation to be used in GoToE actions
179 \let\atfi@annotname\@empty
180 \define@key{AtFi}{annotname}{%
181   \atfi@pdfstringdef\atfi@annotname{#1}%
182   \edef\atfi@annotname{/NM(\atfi@annotname)}%

```

```

183 }
184
185 % text options author, description, and subject
186 \DeclareRobustCommand{\atfi@pdfstringdef}[2]{%
187   \pdfstringdef\atfi@temp@string{#2}%
188   \edef#1{\atfi@temp@string}%
189 }
190
191 % option author
192 \def\atfi@author{}
193 \define@key{AtFi}{author}{%
194   \atfi@pdfstringdef\atfi@author{#1}%
195   \edef\atfi@author{/T(\atfi@author)}%
196 }
197
198 % option description
199 \def\atfi@description{}
200 \define@key{AtFi}{description}{%
201   \atfi@pdfstringdef\atfi@description{#1}%
202   \edef\atfi@description{/Contents(\atfi@description)}%
203 }
204
205 % option subject
206 \def\atfi@subject{}
207 \define@key{AtFi}{subject}{%
208   \atfi@pdfstringdef\atfi@subject{#1}%
209   \edef\atfi@subject{/Subj(\atfi@subject)}%
210 }
211
212 % option print
213 \newif\ifatfi@print
214 \atfi@printtrue
215 \define@key{AtFi}{print}[true]{\csname atfi@print#1\endcsname}
216
217 % option zoom
218 \newif\ifatfi@zoom
219 \atfi@zoomtrue
220 \define@key{AtFi}{zoom}[true]{\csname atfi@zoom#1\endcsname}
221
222 % option appearance
223 \newif\ifatfi@appearance
224 \atfi@appearancetrue
225 \define@key{AtFi}{appearance}[true]{%
226   \csname atfi@appearance#1\endcsname
227 }
228
229 % option scale
230 \def\atfi@scale{1}
231 \define@key{AtFi}{scale}[1]{%
232   \def\atfi@scale{#1}%
233 }
234
235 % option nofiles
236 \newif\ifatfi@nofiles
237 \atfi@nofilesfalse
238 \define@key{AtFi}{nofiles}[true]{%
239   \csname atfi@nofiles#1\endcsname
240 }
241
242 % driver options
243 \let\atfi@driver\@empty
244 \def\atfi@driver@pdftex{pdftex}

```

```

245 \def\atfi@driver@dvips{dvips}
246
247 \define@key{AtFi}{pdftex}[true]{%
248   \let\atfi@driver\atfi@driver@pdftex
249 }
250 \define@key{AtFi}{dvips}[true]{%
251   \let\atfi@driver\atfi@driver@dvips
252 }
253
254 \DeclareRobustCommand{\attachfilesetup}[1]{\setkeys{AtFi}{#1}}
255
256 % timezone setting, ...
257 \InputIfFileExists{attachfile.cfg}{}{}
258
259 \ProcessKeyvalOptions{AtFi}
260
261 % --- evaluate driver options ---
262
263 \ifpdf
264   % ignoring other driver options
265   \let\atfi@driver\atfi@driver@pdftex
266 \else
267   \ifx\atfi@driver\@empty
268     \PackageWarningNoLine{attachfile2}{%
269       Driver is not specified,\MessageBreak
270       enforce draft settings%
271     }%
272     \atfi@drafttrue
273   \fi
274 \fi
275
276 % --- evaluate draft/final options ---
277
278 \DeclareRobustCommand{\notextattachfile}[2][]{%
279   \begingroup
280     \setkeys{AtFi}{#1}%
281     \ifatfi@print
282       \def\atfi@textcolor{##1 ##2 ##3}##4{%
283         \textcolor[rgb]{##1,##2,##3}{##4}}%
284       \expandafter\atfi@textcolor\expandafter
285       (\atfi@color@rgb){#2\strut}%
286     \else
287       \setbox0=\hbox{#2\strut}%
288       \makebox[\wd0]{}%
289     \fi
290   \endgroup
291 }
292
293 \ifatfi@draft
294   \def\atfi@dummy@pushpin{%
295     \raisebox{-1.25bp}{\parbox[b][14bp]{24bp}{}}}%
296  }%
297 \DeclareRobustCommand{\textattachfile}[3][]{%
298   \notextattachfile[{#1}]{#3}%
299 }%
300 \DeclareRobustCommand{\noattachfile}[1][]{%
301   \notextattachfile[{#1}]{\atfi@dummy@pushpin}%
302 }%
303 \DeclareRobustCommand{\attachfile}[2][]{%
304   \noattachfile[{#1}]%
305 }%
306 \expandafter\endinput

```



```

307 \fi
308
309 % --- load driver file ---
310
311 \input{atfi\atfi@driver.def}
312
313 % --- graphics ---
314
315 \def\atfi@acroGraph@data{%
316   \atfi@GSAVE
317   0.5 \atfi@SETGRAYFILL
318   1.1133 0 20.7202 18.2754 \atfi@RECTFILL
319   0 \atfi@SETFLAT
320   0.5 \atfi@SETLINEWIDTH
321   4 \atfi@SETMITERLIMIT
322   \atfi@RECTSTROKEFILL{%
323     1 \atfi@SETGRAYFILL
324   }{%
325     0 \atfi@SETGRAYSTROKE
326   }{%
327     0.25 1.6453 20.145 17.7715 %
328   }%
329   0 \atfi@SETGRAYFILL
330   2.7319 4.1367 3.9571 13.8867 \atfi@RECTFILL
331   8.7031 4.1367 3.9571 9.8867 \atfi@RECTFILL
332   14.7471 4.1367 3.9571 11.8867 \atfi@RECTFILL
333   \atfi@color@rgb\space \atfi@SETRGBCOLORFILL
334   1.689 3.0938 3.9571 13.8867 \atfi@RECTFILL
335   7.6602 3.0938 3.9571 9.8867 \atfi@RECTFILL
336   13.7041 3.0938 3.9571 11.8867 \atfi@RECTFILL
337   \atfi@GRESTORE
338 }
339 \def\atfi@acroGraph{%
340   \raisebox{-1.5bp}{\parbox[b][20bp]{22bp}{%
341     \rule{0pt}{0pt}\atfi@literal{\atfi@acroGraph@data}}}%
342   }%
343 }
344 \newcommand{\atfi@acroPaperclip@data}{%
345   \atfi@GSAVE
346   0.75 \atfi@SETGRAYSTROKE
347   0 \atfi@SETFLAT
348   2.5 \atfi@SETLINEWIDTH
349   1 \atfi@SETLINECAP
350   4 \atfi@SETMITERLIMIT
351   1.9619 11.7559 \atfi@MOVETO
352   1.9619 3.3037 1.9619 2.5059 \atfi@CURVETOY
353   1.9619 1.707 4.0947 1.25 \atfi@CURVETOY
354   7.4141 1.25 \atfi@LINETO
355   9.4292 1.8223 9.4292 3.3066 \atfi@CURVETOY
356   9.4292 4.79 9.4292 16.8945 \atfi@CURVETOY
357   9.7852 18.1514 8.481 18.1514 \atfi@CURVETOY
358   7.1768 18.1514 5.1616 18.1514 \atfi@CURVETOY
359   3.8574 17.9209 3.8574 16.8945 \atfi@CURVETOY
360   3.8574 15.8652 3.8574 6.6172 \atfi@CURVETOY
361   4.3325 5.418 5.1025 5.418 \atfi@CURVETOY
362   5.8726 5.418 6.5845 5.418 \atfi@CURVETOY
363   7.6812 5.6455 7.6812 6.4736 \atfi@CURVETOY
364   7.6812 7.3027 7.6812 11.5264 \atfi@CURVETOY
365   \atfi@STROKE
366   0 \atfi@SETGRAYSTROKE
367   1.2495 12.4404 \atfi@MOVETO
368   1.2495 3.9883 1.2495 3.1895 \atfi@CURVETOY

```

```

369 1.2495 2.3906 3.3833 1.9326 \atfi@CURVETOY
370 6.7026 1.9326 \atfi@LINETO
371 8.7178 2.5068 8.7178 3.9902 \atfi@CURVETOY
372 8.7178 5.4736 8.7178 17.5781 \atfi@CURVETOY
373 9.0732 18.834 7.769 18.834 \atfi@CURVETOY
374 6.4653 18.834 4.4497 18.834 \atfi@CURVETOY
375 3.146 18.6055 3.146 17.5781 \atfi@CURVETOY
376 3.146 16.5498 3.146 7.3018 \atfi@CURVETOY
377 3.6201 6.1016 4.3911 6.1016 \atfi@CURVETOY
378 5.1611 6.1016 5.873 6.1016 \atfi@CURVETOY
379 6.9692 6.3301 6.9692 7.1572 \atfi@CURVETOY
380 6.9692 7.9863 6.9692 12.21 \atfi@CURVETOY
381 \atfi@STROKE
382 \atfi@color@rgb\space \atfi@SETRGBCOLORSTROKE
383 1 \atfi@SETLINEWIDTH
384 1.2495 12.4404 \atfi@MOVETO
385 1.2495 3.9883 1.2495 3.1895 \atfi@CURVETOY
386 1.2495 2.3906 3.3833 1.9326 \atfi@CURVETOY
387 6.7026 1.9326 \atfi@LINETO
388 8.7178 2.5068 8.7178 3.9902 \atfi@CURVETOY
389 8.7178 5.4736 8.7178 17.5781 \atfi@CURVETOY
390 9.0732 18.834 7.769 18.834 \atfi@CURVETOY
391 6.4653 18.834 4.4497 18.834 \atfi@CURVETOY
392 3.146 18.6055 3.146 17.5781 \atfi@CURVETOY
393 3.146 16.5498 3.146 7.3018 \atfi@CURVETOY
394 3.6201 6.1016 4.3911 6.1016 \atfi@CURVETOY
395 5.1611 6.1016 5.873 6.1016 \atfi@CURVETOY
396 6.9692 6.3301 6.9692 7.1572 \atfi@CURVETOY
397 6.9692 7.9863 6.9692 12.21 \atfi@CURVETOY
398 \atfi@STROKE
399 \atfi@GRESTORE
400 }
401 \def\atfi@acroPaperclip{%
402 \raisebox{-1.25bp}{\parbox[b][21bp]{12bp}{%
403 \rule{0pt}{0pt}\atfi@literal{\atfi@acroPaperclip@data}}}%
404 }%
405 }
406 \def\atfi@acroPushPin@data{%
407 \atfi@GSAVE
408 1 \atfi@SETLINEWIDTH
409 1 6 \atfi@MOVETO
410 11 6 \atfi@LINETO
411 11 13 \atfi@LINETO
412 12 13 \atfi@LINETO
413 14 11 \atfi@LINETO
414 21 11 \atfi@LINETO
415 22 12 \atfi@LINETO
416 23 12 \atfi@LINETO
417 23 2 \atfi@LINETO
418 22 2 \atfi@LINETO
419 21 3 \atfi@LINETO
420 14 3 \atfi@LINETO
421 12 1 \atfi@LINETO
422 11 1 \atfi@LINETO
423 11 6 \atfi@LINETO
424 \atfi@FILLSTROKE{%
425 \atfi@color@rgb\space\atfi@SETRGBCOLORFILL
426 }{%
427 0 \atfi@SETGRAYSTROKE
428 }%
429 0.5 \atfi@SETGRAYSTROKE
430 0 7 \atfi@MOVETO

```

```

431 10 7 \atfi@LINETO
432 10 8 \atfi@LINETO
433 1 8 \atfi@LINETO
434 \atfi@STROKE
435 1 \atfi@SETGRAYSTROKE
436 12 12 \atfi@MOVETO
437 14 10 \atfi@LINETO
438 22 10 \atfi@LINETO
439 22 11 \atfi@LINETO
440 \atfi@STROKE
441 \atfi@GRESTORE
442 }
443 \def\atfi@acroPushPin{%
444 \raisebox{-1.25bp}{\parbox[b][14bp]{24bp}{%
445 \rule{0pt}{0pt}\atfi@literal{\atfi@acroPushPin@data}}}%
446 }%
447 }
448 \def\atfi@acroTag@data{%
449 \atfi@GSAVE
450 0.5 \atfi@SETGRAYFILL
451 10.0542 14.9873 \atfi@MOVETO
452 24.27 14.9873 \atfi@LINETO
453 25.252 14.0059 \atfi@LINETO
454 25.252 1.1455 \atfi@LINETO
455 24.1064 0 \atfi@LINETO
456 9.9609 0 \atfi@LINETO
457 6.0327 6.0088 \atfi@LINETO
458 6.0327 9.002 \atfi@LINETO
459 10.0542 14.9873 \atfi@LINETO
460 9.3994 9.376 \atfi@MOVETO
461 8.5215 9.376 7.8096 8.5596 7.8096 7.5527 \atfi@CURVETO
462 7.8096 6.5449 8.5215 5.7285 9.3994 5.7285 \atfi@CURVETO
463 10.2778 5.7285 10.9897 6.5449 10.9897 7.5527 \atfi@CURVETO
464 10.9897 8.5596 10.2778 9.376 9.3994 9.376 \atfi@CURVETO
465 \atfi@CLOSEPATH
466 \atfi@FILL
467 0 \atfi@SETFLAT
468 0.5 \atfi@SETLINEWIDTH
469 4 \atfi@SETMITERLIMIT
470 1 \atfi@SETLINEJOIN
471 8.5107 16.5313 \atfi@MOVETO
472 22.7266 16.5313 \atfi@LINETO
473 23.7085 15.5488 \atfi@LINETO
474 23.7085 2.6895 \atfi@LINETO
475 22.563 1.543 \atfi@LINETO
476 8.4175 1.543 \atfi@LINETO
477 4.4893 7.5527 \atfi@LINETO
478 4.4893 10.5449 \atfi@LINETO
479 8.5107 16.5313 \atfi@LINETO
480 7.856 10.9199 \atfi@MOVETO
481 6.978 10.9199 6.2661 10.1035 6.2661 9.0957 \atfi@CURVETO
482 6.2661 8.0879 6.978 7.2715 7.856 7.2715 \atfi@CURVETO
483 8.7344 7.2715 9.4463 8.0879 9.4463 9.0957 \atfi@CURVETO
484 9.4463 10.1035 8.7344 10.9199 7.856 10.9199 \atfi@CURVETO
485 \atfi@CLOSEPATH
486 \atfi@FILLSTROKE{%
487 \atfi@color@rgb\space\atfi@SETRGBCOLORFILL
488 }{%
489 0 \atfi@SETGRAYSTROKE
490 }%
491 1 \atfi@SETLINEWIDTH
492 12.3291 12.2656 \atfi@MOVETO

```

```

493 21.1206 12.2656 \atfi@LINETO
494 \atfi@STROKE
495 12.3291 9.1797 \atfi@MOVETO
496 21.1206 9.1797 \atfi@LINETO
497 \atfi@STROKE
498 12.3291 6.1875 \atfi@MOVETO
499 21.1206 6.1875 \atfi@LINETO
500 \atfi@STROKE
501 % 0 \atfi@SETGRAYSTROKE % redundant?
502 0.5 \atfi@SETLINEWIDTH
503 0 9.0488 \atfi@MOVETO
504 6.2661 9.0957 \atfi@LINETO
505 \atfi@STROKE
506 1.4028 5.2148 \atfi@MOVETO
507 1.4028 9.6094 \atfi@LINETO
508 1.6831 10.6387 2.4316 10.6387 \atfi@CURVETO
509 3.6475 10.6387 3.5542 9.0488 \atfi@CURVETOY
510 \atfi@STROKE
511 \atfi@GRESTORE
512 }
513 \DeclareRobustCommand{\atfi@acroTag}{%
514   \raisebox{-1.6bp}{\parbox[b]{17bp}{25bp}{%
515     \rule{0pt}{0pt}\atfi@literal{\atfi@acroTag@data}}}%
516   }%
517 }
518
519 % --- .atfi file reading support ---
520
521 % commands used in \jobname.atfi:
522 % * \attachfile@timezone{<timezone in PDF format>}
523 % * \attachfile@file[
524 %   Size=<size>,
525 %   CreationDate=<date>, % <date> local time without "D:" and timezone
526 %   ModDate=<date>,
527 %   CheckSum=<checksum>
528 % ]{<filename as hex string>}
529 %
530 \def\attachfile@timezone#1{%
531   \ifx\\#1\\%
532     % no timezone information given
533   \else
534     \def\atfi@timezone{#1}%
535   \fi
536 }
537 \newcommand*\attachfile@file}[2][]{%
538   \ifx\\#2\\%
539     \PackageError{attachfile2}{Empty file name}\@ehc
540   \else
541     \edef\atfi@restore{\uccode0=\the\uccode0 \relax}%
542     \let\atfi@filename\@empty
543     \atfi@getfilename#2\relax\relax
544     \atfi@restore
545     \@namedef{atfi@file@\atfi@filename}{#1}%
546   \fi
547 }
548 % convert file name from hex string
549 \begingroup
550 \catcode0=12 %
551 \gdef\atfi@getfilename#1#2{%
552   \ifx\relax#1%
553   \else
554     \uccode0=\numexpr 16*\atfi@hexnum{#1} + \atfi@hexnum{#2}\relax

```

```

555     \uppercase{%
556     \edef\atfi@filename{%
557     \atfi@filename^^@%
558     }%
559     }%
560     \expandafter\atfi@getfilename
561     \fi
562     }%
563 \endgroup
564 \def\atfi@hexnum#1{%
565   \ifnum'#1<58 %
566     \numexpr '#1-48\relax
567   \else
568     \numexpr '#1-87\relax
569   \fi
570 }
571
572 \InputIfFileExists{\jobname.atfi}{-}{-}%
573
574 \newif\ifatfi@checksum
575 \define@key{AtFi@file}{Checksum}{%
576   \atfi@checksumtrue
577   \edef\atfi@params{\atfi@params/Checksum<#1>}%
578 }
579 \newif\ifatfi@creationdate
580 \define@key{AtFi@file}{CreationDate}{%
581   \atfi@creationdatetrue
582   \edef\atfi@params{\atfi@params/CreationDate(D:#1\atfi@timezone)}%
583 }
584 \newif\ifatfi@moddate
585 \define@key{AtFi@file}{ModDate}{%
586   \atfi@moddatetrue
587   \edef\atfi@params{\atfi@params/ModDate(D:#1\atfi@timezone)}%
588 }
589
590 % --- .atfi file writing support ---
591
592 % respect \nofiles and option nofiles
593 % \nofiles has more weight than option nofiles
594 \if@filesw
595 \else
596   \atfi@nofilestrue
597 \fi
598 \ifatfi@nofiles
599   \PackageInfo{attachfile2}{%
600     File '\jobname.atfi' will not be written because of\MessageBreak
601     \string\nofiles\space or option 'nofiles'%
602   }%
603   \let\atfi@writefile\@gobble
604 \else
605   \newwrite\atfi@stream
606   \immediate\openout\atfi@stream=\jobname.atfi\relax
607   \immediate\write\atfi@stream{%
608     \string\attachfile@timezone{\atfi@timezone}%
609   }%
610   \def\atfi@writefile#1{%
611     \begingroup
612     \def\file{#1}%
613     \@onelevel@sanitize\file
614     \edef\file{\@firstofone{\expandafter\atfi@replace\file} \@nil}%
615     \edef\file{\expandafter\atfi@tohex\file\relax}%
616     \immediate\write\atfi@stream{%

```

```

617         \string\attachfile@file[%
618         \@ifundefined{atfi@file@#1}{\@nameuse{atfi@file@#1}}%
619         ]{\file}%
620     }%
621 \endgroup
622 }%
623 \fi
624
625 \def\atfi@attachfile#1#2{%
626     \@ifundefined{atfi@fileobj@#2}{%
627         \atfi@writefile{#2}%
628     }{%
629         % don't need duplicates
630     }%
631     \setkeys{AtFi}{#1}%
632     \atfi@embedfile{#2}%
633     \atfi@set@appearance@icon
634     \atfi@flags@to@int
635     \atfi@insert@file@annot{#2}%
636 \endgroup
637 }
638
639 % convert to hex string
640
641 \def\atfi@replace#1 #2\@nil{%
642     #1%
643     \ifx\\#2\\%
644     \else
645         \atfi@space
646         \@ReturnAfterFi{%
647             \atfi@replace#2\@nil
648         }%
649     \fi
650 }%
651
652 \long\def\@ReturnAfterFi#1\fi{\fi#1}
653
654 % ---
655
656 \newlength{\atfi@appearancewidth}
657 \newlength{\atfi@appearanceheight}
658 \newlength{\atfi@appearancedepth}
659 \newsavebox{\atfi@appearancebox}
660
661 \def\atfi@set@appearance@icon{%
662     \@ifundefined{atfi@appobj@\atfi@icon@icon}{%
663         \savebox{\atfi@appearancebox}{\@nameuse{atfi@acro\atfi@icon@icon}}%
664         \expandafter\xdef\csname atfi@appwidth@\atfi@icon@icon\endcsname{%
665             \the\wd\atfi@appearancebox
666         }%
667         \expandafter\xdef\csname atfi@appheight@\atfi@icon@icon\endcsname{%
668             \the\ht\atfi@appearancebox
669         }%
670         \expandafter\xdef\csname atfi@appdepth@\atfi@icon@icon\endcsname{%
671             \the\dp\atfi@appearancebox
672         }%
673         \atfi@xform@icon
674         \global\expandafter\let\csname atfi@appobj@\atfi@icon@icon\endcsname
675             \atfi@appearanceobj
676     }{%
677     }%
678     % optimization: \setlength dropped

```

```

679 \atfi@appearancewidth=\@nameuse{atfi@appwidth@atfi@icon@icon}\relax
680 \atfi@appearanceheight=\@nameuse{atfi@appheight@atfi@icon@icon}\relax
681 \atfi@appearancedepth=\@nameuse{atfi@appdepth@atfi@icon@icon}\relax
682 \expandafter\let\expandafter\atfi@appearanceobj
683 \csname atfi@appobj@atfi@icon@icon\endcsname
684 }
685
686 \def\atfi@set@appearance#1{%
687 \savebox{\atfi@appearancebox}{#1}%
688 \atfi@appearancewidth=wd\atfi@appearancebox
689 \atfi@appearanceheight=ht\atfi@appearancebox
690 \atfi@appearancedepth=dp\atfi@appearancebox
691 \atfi@xform
692 }
693
694 \newcounter{atfi@flags}
695 \DeclareRobustCommand{\atfi@flags@to@int}{%
696 \setcounter{atfi@flags}{0}%
697 \ifatfi@print
698 \addtocounter{atfi@flags}{4}%
699 \fi%
700 \ifatfi@zoom
701 \else
702 \addtocounter{atfi@flags}{8}%
703 \fi%
704 }
705
706 \def\atfi@textattachfile#1#2{%
707 \endgroup
708 \atfi@textattachfile@i{#1}{#2}%
709 }
710 \def\atfi@textattachfile@i#1#2#3{%
711 \setkeys{AtFi}{#1}%
712 \atfi@embedfile{#2}%
713 \def\atfi@textcolor{##1 ##2 ##3}##4{%
714 \textcolor[rgb]{##1,##2,##3}{##4}}%
715 \atfi@set@appearance{%
716 \expandafter\atfi@textcolor\expandafter
717 (\atfi@color@rgb){#3\strut}}%
718 \atfi@flags@to@int
719 \atfi@insert@file@annot{#2}%
720 \endgroup
721 }
722
723 \DeclareRobustCommand{\attachfile}[1] [] {%
724 \begingroup
725 \let\do\@makeother
726 \dospecials
727 \catcode'\{=1\relax
728 \catcode'\}=2\relax
729 \atfi@attachfile{#1}%
730 }
731 \DeclareRobustCommand{\textattachfile}[1] [] {%
732 \begingroup
733 \begingroup
734 \let\do\@makeother
735 \dospecials
736 \catcode'\{=1\relax
737 \catcode'\}=2\relax
738 \atfi@textattachfile{#1}%
739 }
740 \DeclareRobustCommand{\noattachfile}[1] [] {%

```

```

741 \begingroup
742   \setkeys{AtFi}{#1}%
743   \atfi@set@appearance@icon
744   \ifatfi@print
745   \expandafter\atfi@refxform\cename atfi@appobj@\atfi@icon@icon\endcsname
746   \else
747     \makebox[\atfi@appearancewidth]{}%
748     \fi
749 \endgroup
750 }
751 </package>

```

## 2.2 Drivers

### 2.2.1 pdfTeX

```

752 <*pdfTeX>
753 \NeedsTeXFormat{LaTeX2e}
754 \ProvidesFile{atfipdfTeX.def}%
755   [2007/04/11 v2.3 attachfile2 driver for pdfTeX (HO)]%
756 \let\atfi@literal\pdfliteral
757
758 % --- macros for graphics data ---
759
760 \def\atfi@GSAVE{q }
761 \def\atfi@GRESTORE{Q }
762 \def\atfi@SETLINEWIDTH{w }
763 \def\atfi@LINETO{l }
764 \def\atfi@MOVETO{m }
765 \def\atfi@STROKE{S }
766 \def\atfi@FILL{f }
767 % \atfi@FILLSTROKE{<fill color>}{<stroke color>}
768 \def\atfi@FILLSTROKE#1#2{#1#2B }
769 % color: uppercase are stroke colors, lowercase non-stroke (fill) colors
770 % PS, however, does not different between stroke and not-stroke colors
771 \def\atfi@SETRGBCOLORSTROKE{RG }
772 \def\atfi@SETRGBCOLORFILL{rg }
773 \def\atfi@SETGRAYSTROKE{G }
774 \def\atfi@SETGRAYFILL{g }
775 \def\atfi@RECTFILL{re f }
776 \def\atfi@RECTSTROKEFILL#1#2#3{#1#2#3re B }
777 \def\atfi@SETMITERLIMIT{M }
778 \def\atfi@SETFLAT{i }
779 \def\atfi@SETLINECAP{J }
780 \def\atfi@CURVETO{c }
781 \def\atfi@CURVETOv{v }
782 \def\atfi@CURVETOY{y }
783 \def\atfi@CLOSEPATH{h }
784 \def\atfi@SETLINEJOIN{j }
785
786 % ---
787
788 \define@key{AtFi@file}{Size}{%
789   \edef\atfi@params{\atfi@params/Size #1}%
790 }
791
792 \def\atfi@embedfile#1{%
793   \ifundefined{atfi@fileobj@#1}{%
794     \begingroup
795       \let\atfi@params\@empty
796       \ifundefined{atfi@file@#1}{%
797         \edef\x{\noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}}%
798         \x

```



```

799     }%
800     \ifx\atfi@params\@empty
801     \else
802         \edef\atfi@params{/Params<<\atfi@params>>}%
803     \fi
804     \immediate\pdfobj stream attr {%
805         /Type/EmbeddedFile%
806         \atfi@mimetype
807         \atfi@params
808     } file {#1}%
809     \expandafter\xdef\csname atfi@fileobj@#1\endcsname{\the\pdflastobj}%
810 \endgroup
811 }{%
812     % file already embedded
813 }%
814 }
815
816 % ---
817
818 % input: \atfi@appearancebox, output: \atfi@appearanceobj
819 \def\atfi@xform{%
820     \immediate\pdfxform\atfi@appearancebox
821     \edef\atfi@appearanceobj{\the\pdflastxform}%
822 }
823 \let\atfi@xform@icon\atfi@xform
824
825 \def\atfi@refxform#1{%
826     \pdfrefxform#1\relax
827 }
828
829 % ---
830
831 \def\atfi@insert@file@annot#1{%
832     \rule{0pt}{0pt}%
833     \ifatfi@appearance
834         \def\atfi@appearance@dict{%
835             /AP<<%
836                 /N \atfi@appearanceobj\space 0 R%
837                 /R \atfi@appearanceobj\space 0 R%
838                 /D \atfi@appearanceobj\space 0 R%
839             >>%
840         }%
841     \else
842         \let\atfi@appearance@dict\@empty
843     \fi
844     \@ifundefined{atfi@fsobj@#1}{%
845         \atfi@pdfstringdef\atfi@file{#1}%
846         \immediate\pdfobj{%
847             <<%
848                 /Type/Filespec%
849                 /F(\atfi@file)%
850                 /EF<<%
851                     /F \@nameuse{atfi@fileobj@#1} 0 R%
852                 >>%
853             >>%
854         }%
855         \expandafter\xdef\csname atfi@fsobj@#1\endcsname{%
856             \the\pdflastobj
857         }%
858     }{%
859     }%
860     \pdfannot width \atfi@scale\atfi@appearancewidth

```

```

861         height \atfi@scale\atfi@appearanceheight
862         depth \atfi@scale\atfi@appearancedepth {%
863 /Subtype/FileAttachment%
864 \atfi@icon
865 \atfi@color
866 \atfi@author
867 \atfi@date
868 \atfi@annotname
869 \atfi@description
870 \atfi@subject
871 \atfi@appearance@dict
872 /F \theatfi@flags
873 /FS \@nameuse{atfi@fsobj@#1} 0 R%
874 }%
875 \rule{0pt}{\atfi@appearanceheight}%
876 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
877 \rule{\atfi@appearancewidth}{0pt}%
878 }
879 </pdftex>

```

### 2.2.2 dvips

```

880 <*dvips>
881 \NeedsTeXFormat{LaTeX2e}
882 \ProvidesFile{atfipdf.tex.def}%
883 [2007/04/11 v2.3 attachfile2 driver for dvips (H0)]%
884 \def\atfi@literal#1{%
885 \special{ps:atfi_dict begin{#1}atfi_?pdfmark end}%
886 }
887
888 \def\atfi@header#1{%
889 \special{! #1}%
890 }
891
892 % --- macros for graphics data ---
893
894 \atfi@header{%
895 userdict begin 20 dict dup /atfi_dict exch def end begin%
896 /atfi_?pdfmark systemdict %
897 dup/pdfmark known%
898 {%
899 /exec get def%
900 }{%
901 /pop get def%
902 } ifelse%
903 {%
904 %
905 % x y width height atfi_re ->
906 languagelevel 2 ge {%
907 /atfi_rectfill { rectfill } bind def%
908 /atfi_rectstroke { rectstroke } bind def%
909 }{%
910 /atfi_rect {%
911 /atfi_height exch def%
912 /atfi_width exch def%
913 /atfi_x exch def%
914 /atfi_y exch def %
915 newpath %
916 atfi_x atfi_y moveto %
917 atfi_x atfi_width add atfi_y lineto %
918 atfi_x atfi_width add atfi_y atfi_height add lineto %
919 atfi_x atfi_y atfi_height add lineto %
920 closepath%

```

```

921     } bind def%
922     /atfi_rectfill {%
923         atfi_rect fill%
924     } bind def%
925     /atfi_rectstroke {%
926         atfi_rect stroke%
927     } bind def%
928 } ifelse%
929 /atfi_curveto_v {%
930     currentpoint 6 2 roll curveto%
931 } bind def%
932 /atfi_curveto_y {%
933     2 copy curveto%
934 } bind def%
935 %
936 % help macro for atfi_convert_date
937 /atfi_two {%
938     dup 10 lt%
939     {%
940         1 string cvs %
941         exch 1 add exch%
942     }{%
943         2 string cvs%
944     } ifelse %
945     putinterval%
946 } bind def%
947 %
948 % <seconds since 1970-01-01> atfi_convert_date -> (D:...Z)
949 /atfi_convert_date {%
950     dup%
951     /atfi_days exch 3600 idiv 24 idiv def%
952     % calc date part
953     /atfi_year 1970 def%
954     {%
955         atfi_year 400 mod 0 eq %
956         atfi_year 100 mod 0 ne %
957         atfi_year 4 mod 0 eq %
958         and or%
959         {366} {365} ifelse %
960         dup atfi_days lt%
961         {%
962             atfi_days exch sub /atfi_days exch def%
963             /atfi_year atfi_year 1 add def%
964         }{%
965             exit%
966         } ifelse%
967     } loop%
968     /atfi_month 1 def%
969     /atfi_days atfi_days 1 add def %
970     31 atfi_days lt%
971     {%
972         atfi_days 31 sub /atfi_days exch def%
973         /atfi_month atfi_month 1 add def %
974         366 eq {29} {28} ifelse dup atfi_days lt%
975         {%
976             atfi_days exch sub /atfi_days exch def%
977             /atfi_month atfi_month 1 add def %
978             31 atfi_days lt%
979         }{%
980             atfi_days 31 sub /atfi_days exch def%
981             /atfi_month atfi_month 1 add def %
982             30 atfi_days lt%

```

```

983      {%
984      atfi_days 30 sub /atfi_days exch def%
985      /atfi_month atfi_month 1 add def %
986      31 atfi_days lt%
987      {%
988      atfi_days 31 sub /atfi_days exch def%
989      /atfi_month atfi_month 1 add def %
990      30 atfi_days lt%
991      {%
992      atfi_days 30 sub /atfi_days exch def%
993      /atfi_month atfi_month 1 add def %
994      31 atfi_days lt%
995      {%
996      atfi_days 31 sub /atfi_days exch def%
997      /atfi_month atfi_month 1 add def %
998      31 atfi_days lt%
999      {%
1000      atfi_days 31 sub /atfi_days exch def%
1001      /atfi_month atfi_month 1 add def %
1002      30 atfi_days lt%
1003      {%
1004      atfi_days 30 sub /atfi_days exch def%
1005      /atfi_month atfi_month 1 add def %
1006      31 atfi_days lt%
1007      {%
1008      atfi_days 31 sub /atfi_days exch def%
1009      /atfi_month atfi_month 1 add def %
1010      30 atfi_days lt%
1011      {%
1012      atfi_days 30 sub /atfi_days exch def%
1013      /atfi_month atfi_month 1 add def %
1014      31 atfi_days lt%
1015      {%
1016      atfi_days 31 sub /atfi_days exch def%
1017      /atfi_month atfi_month 1 add def%
1018      } if%
1019      } if%
1020      } if%
1021      } if%
1022      } if%
1023      } if%
1024      } if%
1025      } if%
1026      } if%
1027      } if%
1028      } { pop } ifelse%
1029      }{ pop } ifelse %
1030      % calc time part
1031      3600 24 mul mod %
1032      dup 3600 idiv dup /atfi_hour exch def %
1033      3600 mul sub %
1034      dup 60 idiv dup /atfi_min exch def %
1035      60 mul sub %
1036      /atfi_sec exch def%
1037      (D:19700101000000Z)%
1038      dup 2 atfi_year 4 string cvs putinterval %
1039      dup 6 atfi_month atfi_two %
1040      dup 8 atfi_days atfi_two %
1041      dup 10 atfi_hour atfi_two %
1042      dup 12 atfi_min atfi_two %
1043      dup 14 atfi_sec atfi_two%
1044      } bind def %

```

```

1045 %
1046 % <filename> atfi_calc_checksum -> /Checksum <checksum>
1047 % or returns nothing, if MD5Encode is not given
1048 false %
1049 languagelevel 2 ge {%
1050 (MD5Encode)%
1051 { pop true or }%
1052 (MD5Encode) length string%
1053 /Filter %
1054 resourceforall%
1055 } if%
1056 {%
1057 /atfi_calc_checksum {%
1058 /atfi_checksum 16 string def%
1059 /atfi_file exch (r) file def%
1060 /atfi_md5sum atfi_checksum /MD5Encode filter def %
1061 % not too efficient to read and write byte by byte,
1062 % using a buffer is probably faster
1063 atfi_size {%
1064 atfi_file read%
1065 {%
1066 atfi_md5sum exch write%
1067 } if%
1068 } repeat %
1069 atfi_md5sum closefile %
1070 atfi_file closefile%
1071 /Checksum atfi_checksum%
1072 } bind def%
1073 }{%
1074 /atfi_calc_checksum { pop } bind def%
1075 } ifelse%
1076 %
1077 /atfi_pttobp { 72.27 div 72 mul } bind def%
1078 /atfi_pdftodvipsx { 72.27 div Resolution mul } bind def%
1079 /atfi_pdftodvipsy { 72.27 div VResolution mul } bind def%
1080 %
1081 } atfi_?pdfmark %
1082 end%
1083 }
1084
1085 \def\atfi@GSAVE{gsave }
1086 \def\atfi@GRESTORE{grestore }
1087 \def\atfi@SETLINEWIDTH{setlinewidth }
1088 \def\atfi@LINETO{lineto }
1089 \def\atfi@MOVETO{moveto }
1090 \def\atfi@STROKE{stroke }
1091 \def\atfi@FILL{fill }
1092 \def\atfi@FILLSTROKE#1#2{gsave #1 fill grestore #2 stroke }
1093 \def\atfi@SETRGBCOLORSTROKE{setrgbcolor }
1094 \def\atfi@SETRGBCOLORFILL{setrgbcolor }
1095 \def\atfi@SETGRAYSTROKE{setgray }
1096 \def\atfi@SETGRAYFILL{setgray }
1097 \def\atfi@RECTFILL{atfi_rectfill }
1098 \def\atfi@RECTSTROKEFILL#1#2#3{%
1099 #3%
1100 #1%
1101 gsave atfi_rectfill grestore %
1102 #2%
1103 #3%
1104 atfi_rectstroke %
1105 #1%
1106 }

```

```

1107 \def\atfi@SETMITERLIMIT{setmiterlimit }
1108 \def\atfi@SETFLAT{setflat }
1109 \def\atfi@SETLINECAP{setlinecap }
1110 \def\atfi@CURVETO{curveto }
1111 \def\atfi@CURVETOv{atfi_curveto_v }
1112 \def\atfi@CURVETOY{atfi_curveto_y }
1113 \def\atfi@CLOSEPATH{closepath }
1114 \def\atfi@SETLINEJOIN{setlinejoin }
1115
1116 % ---
1117
1118 \newcounter{atfi@obj}
1119 \renewcommand*{\theatfi@obj}{%
1120   {atfi_obj\_number\c@atfi@obj}%
1121 }
1122
1123
1124 % most values for Params dictionary found in the .atfi file have
1125 % priority:
1126 % * Recalculation (md5sum, ...) is avoided.
1127 % * An external script has more possibilities than programming
1128 %   at PostScript level (operating system, getting the date and
1129 %   time values of the file with correct interpretation.
1130 % * Exception: status is called to test file existence, thus
1131 %   we get the value of size for free
1132
1133 \define@key{AtFi@file}{Size}{%
1134
1135 \def\atfi@embedfile#1{%
1136   \@ifundefined{atfi@fileobj@#1}{%
1137     \atfi@pdfstringdef\atfi@psfilename{#1}%
1138     \stepcounter{atfi@obj}%
1139     \expandafter\xdef\csname atfi@fileobj@#1\endcsname{\theatfi@obj}%
1140     \begingroup
1141       \let\atfi@params\@empty
1142       \@ifundefined{atfi@file@#1}{%}{%
1143         \edef\x{\noexpand\setkeys{AtFi@file}{\@nameuse{atfi@file@#1}}}%
1144         \x
1145       }%
1146       \atfi@literal{%
1147         /atfi_filename(\atfi@psfilename)def %
1148         atfi_filename status%
1149         {%
1150           % ok: file found
1151           % save parameters of status command
1152           /atfi_created exch def%
1153           /atfi_referenced exch def%
1154           /atfi_size exch def %
1155           pop % drop parameter "pages" (storage space), never needed
1156           % ghostscript:
1157           %   created:      stat.st_ctime
1158           %   referenced:   stat.st_mtime
1159           %   stat.st_ctime: interpretation depends on operating system:
1160           %                   * unix: inode change time (not interesting)
1161           %                   * win32: probably creation time
1162           %                   --> /CreationDate
1163           %   stat.st_mtime: modification time --> /ModDate
1164           %   time values are seconds since 1970-01-01, GMT
1165           % TODO: ghostscript offers "getenv" for getting the value
1166           %         of an environment variable. That could be used to
1167           %         to detect windows and settingthe /CreationDate entry.
1168           % TODO: how are these values interpreted by other distiller

```

```

1169      %      programs?
1170      %
1171      [%
1172          /_objdef \theatfi@obj
1173          /type/stream%
1174      /OBJ pdfmark%
1175      [%
1176          \theatfi@obj
1177      <<%
1178          /Type/EmbeddedFile%
1179          \atfi@mimetype
1180          /Params%
1181      <<%
1182          \atfi@params
1183          %
1184          /Size atfi_size%
1185          %
1186          /product where%
1187          {%
1188              pop %
1189              % check for ghostscript
1190              product (Ghostscript) search%
1191              {%
1192                  pop pop pop %
1193                  % ghostscript is running
1194                  %
1195                  \ifatfi@creationdate
1196                  \else
1197                      false % TODO: test for windows
1198                      {%
1199                          /CreationDate atfi_created atfi_convert_date%
1200                      } if%
1201                  \fi
1202                  \ifatfi@moddate
1203                  \else
1204                      /ModDate atfi_referenced atfi_convert_date%
1205                  \fi
1206                  } if%
1207                  %
1208                  % look for MD5Encode filter and calculate CheckSum
1209                  } if %
1210                  \ifatfi@checksum
1211                  \else
1212                      atfi_filename atfi_calc_checksum%
1213                  \fi
1214              >>%
1215          >>%
1216      /PUT pdfmark%
1217      [%
1218          \theatfi@obj
1219          atfi_filename (r) file%
1220      /PUT pdfmark%
1221      [%
1222          \theatfi@obj
1223      /CLOSE pdfmark%
1224      }{%
1225          % error: file not found
1226          % currently nothing is done
1227      } ifelse%
1228      }%
1229      \endgroup
1230      }{%

```

```

1231 % file already embedded
1232 }%
1233 }
1234
1235 % ---
1236
1237 % output: \atfi@appearanceobj
1238 % input: \atfi@appearancebox, \atfi@icon@icon
1239 \def\atfi@xform@icon{%
1240   \stepcounter{atfi@obj}%
1241   \edef\atfi@appearanceobj{\theatfi@obj}%
1242   \atfi@literal{%
1243     [%
1244       /_objdef \atfi@appearanceobj
1245       /BBox[%
1246         0 %
1247         0 %
1248         \strip@pt\wd\atfi@appearancebox\space atfi_pttobp %
1249         \strip@pt\dimexpr\dp\atfi@appearancebox
1250         +\ht\atfi@appearancebox\relax\space atfi_pttobp%
1251       ]%
1252       /BP pdfmark %
1253       \csname atfi@acro\atfi@icon@icon @data\endcsname
1254       [%
1255       /EP pdfmark%
1256     }%
1257   }
1258 % output: \atfi@appearanceobj
1259 % input: \atfi@appearancebox
1260 \def\atfi@xform{%
1261   \stepcounter{atfi@obj}%
1262   \edef\atfi@appearanceobj{\theatfi@obj}%
1263   \begin{group}
1264     \setbox0=\hbox{%
1265       \atfi@literal{%
1266         [%
1267           /_objdef \atfi@appearanceobj
1268           /BBox[%
1269             currentpoint %
1270             \strip@pt\dp\atfi@appearancebox\space sub %
1271             currentpoint %
1272             exch \strip@pt\wd\atfi@appearancebox\space add %
1273             exch \strip@pt\ht\atfi@appearancebox\space add%
1274           ]%
1275           /BP pdfmark %
1276           gsave %
1277           currentpoint %
1278           2 copy translate %
1279           72.27 Resolution div 72.27 VResolution div neg scale %
1280           exch neg exch neg translate%
1281         }%
1282         \usebox{\atfi@appearancebox}%
1283         \atfi@literal{%
1284           grestore%
1285           [%
1286           /EP pdfmark%
1287         }%
1288       }%
1289 % do not allocate any space for xobject definition
1290 \dp0=\z@
1291 \ht0=\z@
1292 \wd0=\z@

```



```

1293     \mbox{\usebox0}%
1294 \endgroup
1295 }
1296
1297 \def\atfi@refxform#1{%
1298   \raisebox{-\atfi@appearancedepth}{%
1299     \atfi@literal{%
1300       gsave %
1301       currentpoint translate %
1302       Resolution 72 div VResolution neg 72 div scale%
1303       [#1 /SP pdfmark % hash-ok
1304       grestore%
1305     }%
1306     \makebox[\atfi@appearancewidth]{}%
1307   }%
1308   \rule{0pt}{\atfi@appearanceheight}%
1309 }
1310
1311 % ---
1312
1313 \def\atfi@insert@file@annot#1{%
1314   \rule{0pt}{0pt}%
1315   \ifatfi@appearance
1316     \def\atfi@appearance@dict{%
1317       /AP<<%
1318       /N \atfi@appearanceobj
1319       /R \atfi@appearanceobj
1320       /D \atfi@appearanceobj
1321     >>%
1322   }%
1323   \else
1324     \let\atfi@appearance@dict\@empty
1325   \fi
1326   \@ifundefined{atfi@fsobj@#1}{%
1327     \stepcounter{atfi@obj}%
1328     \expandafter\xdef\csname atfi@fsobj@#1\endcsname{\theatfi@obj}%
1329     \atfi@pdfstringdef\atfi@file{#1}%
1330     \atfi@literal{%
1331       [%
1332         /_objdef \theatfi@obj
1333         /type/dict%
1334         /OBJ pdfmark%
1335       [%
1336         \theatfi@obj
1337       <<%
1338         /Type/Filespec%
1339         /F(\atfi@file)%
1340         /EF<<%
1341         /F \csname atfi@fileobj@#1\endcsname
1342       >>%
1343     >>%
1344     /PUT pdfmark%
1345   }%
1346 }{%
1347 }%
1348 \atfi@literal{%
1349   [%
1350     /Subtype/FileAttachment%
1351     \atfi@icon
1352     \atfi@color
1353     \atfi@author
1354     \atfi@date

```

```

1355     \atfi@annotname
1356     \atfi@description
1357     \atfi@subject
1358     \atfi@appearance@dict
1359     /F \theatfi@flags
1360     /FS \csname atfi@fsobj@#1\endcsname
1361     /Rect[%
1362         currentpoint %
1363         \strip@pt\dimexpr\atfi@scale\atfi@appearancedepth\relax
1364         \space atfi_pdftodvipsy add %
1365         currentpoint %
1366         exch \strip@pt\dimexpr\atfi@scale\atfi@appearancewidth\relax
1367         \space atfi_pdftodvipsx add %
1368         exch \strip@pt\dimexpr\atfi@scale\atfi@appearanceheight\relax
1369         \space atfi_pdftodvipsy sub %
1370     ]%
1371     /ANN pdfmark%
1372 }%
1373 \rule{0pt}{\atfi@appearanceheight}%
1374 \rule[-\atfi@appearancedepth]{0pt}{\atfi@appearancedepth}%
1375 \rule{\atfi@appearancewidth}{0pt}%
1376 }
1377 </dvips>

```

## 2.3 Perl script pdfatfi.pl

```

1378 <*pdfatfi>
1379 eval '(exit $?0)' && eval 'exec perl -S $0 ${1+"$@"}' && eval 'exec perl -S $0 $argv:q'
1380 if 0;
1381 use strict;
1382 $^W=1; # turn warning on
1383 #
1384 # pdfatfi.pl
1385 #
1386 # Copyright (C) 2005, 2006 Heiko Oberdiek.
1387 #
1388 # This work may be distributed and/or modified under the
1389 # conditions of the LaTeX Project Public License, either version 1.3
1390 # of this license or (at your option) any later version.
1391 # The latest version of this license is in
1392 #   http://www.latex-project.org/lppl.txt
1393 # and version 1.3 or later is part of all distributions of LaTeX
1394 # version 2005/12/01 or later.
1395 #
1396 # This work has the LPPL maintenance status "maintained".
1397 #
1398 # This Current Maintainer of this work is Heiko Oberdiek.
1399 #
1400 # See file "attachfile2.pdf" for a list of files that belong to this project.
1401 #
1402 # This file "pdfatfi.pl" may be renamed to "pdfatfi"
1403 # for installation purposes.
1404 #
1405 my $file      = "pdfatfi.pl";
1406 my $program   = uc($&) if $file =~ /\w+/;
1407 my $version   = "2.3";
1408 my $date      = "2007/04/11";
1409 my $author    = "Heiko Oberdiek";
1410 my $copyright = "Copyright (c) 2005, 2006 by $author.";
1411 #
1412 # History:
1413 #   2005/05/21 v1.0: First release.
1414 #   2006/08/16 v2.2: Included in DTX file of attachfile2.dtx.

```

```

1415 #
1416
1417 use POSIX qw(strftime); # %z is used (GNU)
1418 use Digest::MD5;
1419
1420 ### program identification
1421 my $title = "$program $version, $date - $copyright\n";
1422
1423 ### error strings
1424 my $Error = "!!! Error: "; # error prefix
1425
1426 ### variables
1427 my $atfile;
1428
1429 ### option variables
1430 my @bool = ("false", "true");
1431 $::opt_help      = 0;
1432 $::opt_quiet     = 0;
1433 $::opt_debug     = 0;
1434 $::opt_verbose   = 0;
1435
1436 my $usage = <<"END_OF_USAGE";
1437 ${title}Syntax:  \L$program\E [options] <file[.atfi]>
1438 Function: Help program for LaTeX package "attachfile2".
1439 Options:                                     (defaults:)
1440 --help          print usage
1441 --(no)quiet     suppress messages             ($bool[$::opt_quiet])
1442 --(no)verbose   verbose printing             ($bool[$::opt_verbose])
1443 --(no)debug     debug informations           ($bool[$::opt_debug])
1444 END_OF_USAGE
1445
1446 ### process options
1447 my @OrgArgv = @ARGV;
1448 use Getopt::Long;
1449 GetOptions(
1450   "help!",
1451   "quiet!",
1452   "debug!",
1453   "verbose!",
1454 ) or die $usage;
1455 !$::opt_help or die $usage;
1456 @ARGV == 1 or die "$usage$Error Missing jobname!\n";
1457
1458 $::opt_quiet = 0 if $::opt_verbose;
1459
1460 print $title unless $::opt_quiet;
1461
1462 ### get jobname
1463 $atfile = $ARGV[0];
1464 if (!-f $atfile && -f "$atfile.atfi") {
1465   $atfile .= ".atfi";
1466 }
1467 -f $atfile or die "$Error File '$atfile' not found!\n";
1468
1469 print "* job file      = $atfile\n" if $::opt_verbose;
1470
1471 if ($::opt_debug) {
1472   print <<"END_DEB";
1473   * OSNAME: $^O
1474   * PERL_VERSION: $]
1475   * ARGV: @OrgArgv
1476 END_DEB

```

```

1477 }
1478
1479 my $tmpfile = $atffile . ".tmp";
1480
1481 my $timezone = strftime "%z", localtime;
1482 $timezone =~ s/^( [+ - ] \d \d ) ( \d \d ) $ / $1 '$2' /;
1483
1484 open(IN, $atffile) or die "$Error Cannot open '$atffile'!\n";
1485 open(OUT, ">$tmpfile") or die "$Error Cannot write '$tmpfile'!\n";
1486
1487 while(<IN>) {
1488     # timezone
1489     if (s/^(\\attachfile\\@timezone\\{.*\\})$/$1$timezone$2/) {
1490         print "* timezone      = $timezone\n" if $::opt_verbose;
1491     }
1492
1493     # file entry
1494     if (/^(\\attachfile\\@file\\[[^\\]]*\\)\\{(.*)\\}$/) {
1495         my $hexfile = $1;
1496         my $file = pack('H*', $hexfile);
1497         my @s = stat($file);
1498         if (@s == 0) {
1499             print "!!! Warning: File '$file' not found!\n";
1500         }
1501         else {
1502             my $size = @s[7];
1503             my $mtime = @s[9];
1504             my $ctime = @s[10]; # inode change time
1505
1506             my ($sec, $min, $hour, $mday, $mon, $year) = localtime($mtime);
1507             my $moddate = sprintf("%04d%02d%02d%02d%02d",
1508                                     $year + 1900, $mon + 1, $mday,
1509                                     $hour, $min, $sec);
1510
1511             # Manual page "perlport" says that "ctime" is creation
1512             # time instead of inode change time for "Win32" and
1513             # "Mac OS", but it is unsupported for "Mac OS X".
1514             my $creationdate = "";
1515             if ($^O eq 'MSWin32') { # cygwin?
1516                 ($sec, $min, $hour, $mday, $mon, $year) = localtime($ctime);
1517                 $creationdate = sprintf("%04d%02d%02d%02d%02d",
1518                                         $year + 1900, $mon + 1, $mday,
1519                                         $hour, $min, $sec);
1520             }
1521
1522             # md5 checksum
1523             my $checksum = "";
1524             my $ctx = Digest::MD5->new;
1525             if (open(FILE, $file)) {
1526                 $ctx->addfile(*FILE);
1527                 $checksum = $ctx->hexdigest;
1528                 close(FILE);
1529             }
1530             else {
1531                 print "!!! Warning: File '$file' cannot be read,"
1532                     . " dropping checksum!\n";
1533             }
1534
1535             $_ = "\\attachfile\\@file["
1536                 . "ModDate=$moddate,Size=$size"
1537                 . ((($checksum) ? ",Checksum=$checksum" : ""))
1538                 . ((($creationdate) ? ",CreationDate=$creationdate" : ""))

```

```

1539         . "${hexfile}\n";
1540     if ($::opt_verbose) {
1541         print "* file entry    = $file\n";
1542         print "  size        = $size\n";
1543         print "  moddate       = $moddate\n";
1544         print "  creationdate = $creationdate\n" if $creationdate;
1545         print "  checksum      = $checksum\n" if $checksum;
1546     }
1547 }
1548 }
1549
1550 print OUT $_;
1551 }
1552
1553 close(IN);
1554 close(OUT);
1555
1556 unlink($atffile) or die "$Error Cannot delete old '$atffile'!\n";
1557 rename $tmpfile, $atffile
1558     or die "$Error Cannot move '$tmpfile' to '$atffile'!\n";
1559
1560 print "*** ready. ***\n" unless $::opt_quiet;
1561
1562 __END__
1563 </pdfatfi>

```

## 3 Installation

### 3.1 Download

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

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

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

[CTAN:macros/latex/contrib/oberdiek/pdfatfi.pl](#) Script.

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

[CTAN:macros/latex/contrib/oberdiek/oberdiek-tds.zip](#)

*TDS* refers to the standard “A Directory Structure for  $\text{\TeX}$  Files” ([CTAN:tds/tds.pdf](#)). Directories with `texmf` in their name are usually organized this way.

### 3.2 Bundle installation

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

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

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

```

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

```

---

<sup>1</sup>[ftp://ftp.ctan.org/tex-archive/](http://ftp.ctan.org/tex-archive/)

### 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/oberdiek/attachfile2.sty
atfidvips.def   → tex/latex/oberdiek/atfidvips.def
atfipdftex.def → tex/latex/oberdiek/atfipdftex.def
attachfile2.pdf → doc/latex/oberdiek/attachfile2.pdf
attachfile2.dtx → source/latex/oberdiek/attachfile2.dtx
pdfatfi.pl      → scripts/oberdiek/pdfatfi.pl
```

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 (te`TEX`, mik`TEX`, ...) relies on file name databases, you must refresh these. For example, te`TEX` users run `texhash` or `mktextlsr`.

### 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

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

```
pdftk attachfile2.pdf unpack_files output .
```

**Unpacking with L<sup>A</sup>T<sub>E</sub>X.** The `.dtx` chooses its action depending on the format:

**plain-`TEX`:** Run `docstrip` and extract the files.

**L<sup>A</sup>T<sub>E</sub>X:** Generate the documentation.

If you insist on using L<sup>A</sup>T<sub>E</sub>X for `docstrip` (really, `docstrip` does not need L<sup>A</sup>T<sub>E</sub>X), 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 pdfL<sup>A</sup>T<sub>E</sub>X:

```
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:macros/latex/contrib/attachfile/](http://ctan.org/macros/latex/contrib/attachfile/).
- [2] Heiko Oberdiek: *The embedfile package*; 2006/08/16 v1.0; [CTAN:macros/latex/contrib/oberdiek/embedfile.pdf](http://ctan.org/macros/latex/contrib/oberdiek/embedfile.pdf).
- [3] Adobe Systems Incorporated: *PDF Reference, Fifth Edition, Version 1.6*, November 2004; <http://partners.adobe.com/public/developer/pdf/index-reference.html>.
- [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.
- $\varepsilon$ -T<sub>E</sub>X (`\numexpr`, `\dimexpr`) used.
- New auxiliary file `\jobname.atfi` to get data unavailable by (pdf)T<sub>E</sub>X, 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.

## 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; numbers in roman refer to the code lines where the entry is used.

| Symbols                        |                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------|
| \- .....                       | 1482                                                                                                                 |
| \@ReturnAfterFi .....          | 62, 67, 646, 652                                                                                                     |
| \@ehc .....                    | 539                                                                                                                  |
| \@empty .....                  | 154, 179, 243,<br>267, 542, 795, 800, 842, 1141, 1324                                                                |
| \@file .....                   | 1494, 1535                                                                                                           |
| \@firstofone .....             | 614                                                                                                                  |
| \@gobble .....                 | 603                                                                                                                  |
| \@ifundefined .....            | 618, 626,<br>662, 793, 796, 844, 1136, 1142, 1326                                                                    |
| \@makeother .....              | 725, 734                                                                                                             |
| \@namedef .....                | 545                                                                                                                  |
| \@nameuse .....                | 618, 663,<br>679, 680, 681, 797, 851, 873, 1143                                                                      |
| \@nil .....                    | 614, 641, 647                                                                                                        |
| \@onelevel@sanitize .....      | 47, 613                                                                                                              |
| \@timezone .....               | 1489                                                                                                                 |
| \[ .....                       | 1494                                                                                                                 |
| \. . .                         | 59, 531, 538, 643, 1489, 1494, 1535                                                                                  |
| \{ .....                       | 727, 736, 1489, 1494                                                                                                 |
| \} .....                       | 728, 737, 1489, 1494                                                                                                 |
| \] .....                       | 1494                                                                                                                 |
| \_ .....                       | 53, 55                                                                                                               |
| A                              |                                                                                                                      |
| \addtocounter .....            | 698, 702                                                                                                             |
| \atfi@acroGraph .....          | 339                                                                                                                  |
| \atfi@acroGraph@data .....     | 315, 341                                                                                                             |
| \atfi@acroPaperclip .....      | 401                                                                                                                  |
| \atfi@acroPaperclip@data ..... | 344, 403                                                                                                             |
| \atfi@acroPushPin .....        | 443                                                                                                                  |
| \atfi@acroPushPin@data .....   | 406, 445                                                                                                             |
| \atfi@acroTag .....            | 513                                                                                                                  |
| \atfi@acroTag@data .....       | 448, 515                                                                                                             |
| \atfi@annotname .....          | 179, 181, 182, 868, 1355                                                                                             |
| \atfi@appearance@dict .....    | 834, 842, 871, 1316, 1324, 1358                                                                                      |
| \atfi@appearancebox .....      | 659, 663,<br>665, 668, 671, 687, 688, 689,<br>690, 818, 820, 1238, 1248, 1249,<br>1250, 1259, 1270, 1272, 1273, 1282 |
| \atfi@appearancedepth .....    | 658,<br>681, 690, 862, 876, 1298, 1363, 1374                                                                         |
| \atfi@appearanceheight .....   | 657,<br>680, 689, 861, 875, 1308, 1368, 1373                                                                         |
| \atfi@appearanceobj .....      | 675, 682, 818, 821,<br>836, 837, 838, 1237, 1241, 1244,<br>1258, 1262, 1267, 1318, 1319, 1320                        |
| \atfi@appearancetrue .....     | 224                                                                                                                  |
| \atfi@appearancewidth .....    | 656, 679,<br>688, 747, 860, 877, 1306, 1366, 1375                                                                    |
| \atfi@attachfile .....         | 625, 729                                                                                                             |
| \atfi@author .....             | 192, 194, 195, 866, 1353                                                                                             |
| \atfi@checksumtrue .....       | 576                                                                                                                  |
| \atfi@CLOSEPATH .....          | 465, 485, 783, 1113                                                                                                  |
| \atfi@color .....              | 141, 865, 1352                                                                                                       |
| \atfi@color@rgb .....          | 142, 285, 333, 382, 425, 487, 717                                                                                    |
| \atfi@converttokens .....      | 49, 69, 107                                                                                                          |
| \atfi@converttoname .....      | 45, 128                                                                                                              |
| \atfi@creationdatetrue .....   | 581                                                                                                                  |
| \atfi@CURVETO .....            | 461, 462, 463,<br>464, 481, 482, 483, 484, 780, 1110                                                                 |
| \atfi@CURVETO V .....          | 352, 355,<br>357, 359, 361, 363, 368, 371,<br>373, 375, 377, 379, 385, 388,<br>390, 392, 394, 396, 508, 781, 1111    |
| \atfi@CURVETO Y .....          | 353, 356,<br>358, 360, 362, 364, 369, 372,<br>374, 376, 378, 380, 386, 389,<br>391, 393, 395, 397, 509, 782, 1112    |
| \atfi@date .....               | 164, 174, 175, 867, 1354                                                                                             |
| \atfi@description .....        | 199, 201, 202, 869, 1356                                                                                             |
| \atfi@draftfalse .....         | 116                                                                                                                  |
| \atfi@drafttrue .....          | 117, 272                                                                                                             |
| \atfi@driver .....             | 243, 248, 251, 265, 267, 311                                                                                         |
| \atfi@driver@dvi .....         | 245, 251                                                                                                             |
| \atfi@driver@pdftex .....      | 244, 248, 265                                                                                                        |
| \atfi@dummy@pushpin .....      | 294, 301                                                                                                             |
| \atfi@embedfile .....          | 632, 712, 792, 1135                                                                                                  |
| \atfi@file .....               | 845, 849, 1329, 1339                                                                                                 |
| \atfi@filename .....           | 542, 545, 556, 557                                                                                                   |
| \atfi@FILL .....               | 466, 766, 1091                                                                                                       |



|                                           |                                          |
|-------------------------------------------|------------------------------------------|
| \atfi@FILLSTROKE .....                    | \atfi@SETGRAYFILL .....                  |
| ..... 424, 486, 767, 768, 1092            | ..... 317, 323, 329, 450, 774, 1096      |
| \atfi@finalfalse .....                    | \atfi@SETGRAYSTROKE 325, 346, 366,       |
| ..... 117                                 | 427, 429, 435, 489, 501, 773, 1095       |
| \atfi@finaltrue .....                     | \atfi@SETLINECAP .....                   |
| ..... 116                                 | 349, 779, 1109                           |
| \atfi@flags@to@int .....                  | \atfi@SETLINEJOIN .....                  |
| ..... 634, 695, 718                       | 470, 784, 1114                           |
| \atfi@getfilename .....                   | \atfi@SETLINEWIDTH .....                 |
| ..... 543, 551, 560                       | 320, 348,                                |
| \atfi@GRESTORE .....                      | 383, 408, 468, 491, 502, 762, 1087       |
| ..... 337, 399, 441, 511, 761, 1086       | \atfi@SETMITERLIMIT .....                |
| \atfi@GSAVE 316, 345, 407, 449, 760, 1085 | ..... 321, 350, 469, 777, 1107           |
| \atfi@hash .....                          | \atfi@SETRGBCOLORFILL .....              |
| 52, 76, 80, 83,                           | ..... 333, 425, 487, 772, 1094           |
| 85, 87, 89, 91, 93, 95, 97, 99, 101       | \atfi@SETRGBCOLORSTROKE 382, 771, 1093   |
| \atfi@header .....                        | \atfi@space .....                        |
| 888, 894                                  | 54, 61, 645                              |
| \atfi@hexchar .....                       | \atfi@spacetooother .....                |
| 29, 38, 76, 80                            | 48, 57, 63                               |
| \atfi@hexdigit .....                      | \atfi@stream .....                       |
| 22, 30, 31                                | 605, 606, 607, 616                       |
| \atfi@hexnum .....                        | \atfi@STROKE 365, 381, 398, 434, 440,    |
| 554, 564                                  | 494, 497, 500, 505, 510, 765, 1090       |
| \atfi@hours .....                         | \atfi@subject . 206, 208, 209, 870, 1357 |
| 157, 161, 168                             | \atfi@temp@string ... 16, 17, 187, 188   |
| \atfi@icon .....                          | \atfi@textattachfile .....               |
| 134, 864, 1351                            | 706, 738                                 |
| \atfi@icon@icon .....                     | \atfi@textattachfile@i .....             |
| 135,                                      | 708, 710                                 |
| 662, 663, 664, 667, 670, 674,             | \atfi@textcolor ... 282, 284, 713, 716   |
| 679, 680, 681, 683, 745, 1238, 1253       | \atfi@time .....                         |
| \atfi@insert@file@annot .....             | 156, 158, 161                            |
| ..... 635, 719, 831, 1313                 | \atfi@timezone .....                     |
| \atfi@LINETO .....                        | . 154, 155, 171, 534, 582, 587, 608      |
| 354, 370, 387,                            | \atfi@tohex .....                        |
| 410, 411, 412, 413, 414, 415,             | 35, 39, 615                              |
| 416, 417, 418, 419, 420, 421,             | \atfi@writefile .....                    |
| 422, 423, 431, 432, 433, 437,             | 603, 610, 627                            |
| 438, 439, 452, 453, 454, 455,             | \atfi@xform .....                        |
| 456, 457, 458, 459, 472, 473,             | 691, 819, 823, 1260                      |
| 474, 475, 476, 477, 478, 479,             | \atfi@xform@icon .....                   |
| 493, 496, 499, 504, 507, 763, 1088        | 673, 823, 1239                           |
| \atfi@literal .....                       | \atfi@zoomtrue .....                     |
| 341,                                      | 219                                      |
| 403, 445, 515, 756, 884, 1146,            | \attachfile .....                        |
| 1242, 1265, 1283, 1299, 1330, 1348        | 303, 723                                 |
| \atfi@mimetype 126, 128, 129, 806, 1179   | \attachfile@file .....                   |
| \atfi@minutes .....                       | 523, 537, 617                            |
| 160, 169                                  | \attachfile@timezone ..                  |
| \atfi@moddatetrue .....                   | 522, 530, 608                            |
| 586                                       | \attachfilesetup .....                   |
| \atfi@MOVETO ... 351, 367, 384, 409,      | 254                                      |
| 430, 436, 451, 460, 471, 480,             |                                          |
| 492, 495, 498, 503, 506, 764, 1089        |                                          |
| \atfi@nofilesfalse .....                  |                                          |
| 237                                       |                                          |
| \atfi@nofilestrue .....                   |                                          |
| 596                                       |                                          |
| \atfi@pad@ii 147, 166, 167, 168, 169, 170 |                                          |
| \atfi@params .....                        |                                          |
| 577, 582, 587,                            |                                          |
| 789, 795, 800, 802, 807, 1141, 1182       |                                          |
| \atfi@pdfstringdef .. 15, 174, 181,       |                                          |
| 186, 194, 201, 208, 845, 1137, 1329       |                                          |
| \atfi@printtrue .....                     |                                          |
| 214                                       |                                          |
| \atfi@psfilename .....                    |                                          |
| 1137, 1147                                |                                          |
| \atfi@RECTFILL .....                      |                                          |
| 318, 330,                                 |                                          |
| 331, 332, 334, 335, 336, 775, 1097        |                                          |
| \atfi@RECTSTROKEFILL .. 322, 776, 1098    |                                          |
| \atfi@refxform .....                      |                                          |
| 745, 825, 1297                            |                                          |
| \atfi@replace .....                       |                                          |
| 614, 641, 647                             |                                          |
| \atfi@restore .....                       |                                          |
| 541, 544                                  |                                          |
| \atfi@scale .....                         |                                          |
| 230,                                      |                                          |
| 232, 860, 861, 862, 1363, 1366, 1368      |                                          |
| \atfi@seconds .....                       |                                          |
| 163, 170                                  |                                          |
| \atfi@set@appearance .....                |                                          |
| 686, 715                                  |                                          |
| \atfi@set@appearance@icon .....           |                                          |
| ..... 633, 661, 743                       |                                          |
| \atfi@SETFLAT . 319, 347, 467, 778, 1108  |                                          |

## C

|                                          |      |
|------------------------------------------|------|
| \c@atfi@obj .....                        | 1120 |
| \catcode 53, 55, 550, 727, 728, 736, 737 |      |
| \csname .....                            | 119, |
| 122, 215, 220, 226, 239, 664,            |      |
| 667, 670, 674, 683, 745, 809,            |      |
| 855, 1139, 1253, 1328, 1341, 1360        |      |

## D

|                                      |                            |
|--------------------------------------|----------------------------|
| \d .....                             | 1482                       |
| \day .....                           | 167                        |
| \DeclareRobustCommand .....          |                            |
| ..... 186, 254, 278, 297,            |                            |
| 300, 303, 513, 695, 723, 731, 740    |                            |
| \define@key .... 118, 121, 127, 133, |                            |
| 140, 155, 173, 180, 193, 200,        |                            |
| 207, 215, 220, 225, 231, 238,        |                            |
| 247, 250, 575, 580, 585, 788, 1133   |                            |
| \dimexpr .....                       | 28,                        |
| 30, 32, 158, 1249, 1363, 1366, 1368  |                            |
| \do .....                            | 725, 734                   |
| \dospecials .....                    | 726, 735                   |
| \dp .....                            | 671, 690, 1249, 1270, 1290 |

## E

|          |      |
|----------|------|
| \E ..... | 1437 |
|----------|------|

|                                              |                                                                                                                     |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <code>\endcsname</code> . . . . .            | 119,<br>122, 215, 220, 226, 239, 664,<br>667, 670, 674, 683, 745, 809,<br>855, 1139, 1253, 1328, 1341, 1360         |
| <code>\endinginput</code> . . . . .          | 306                                                                                                                 |
| <b>F</b>                                     |                                                                                                                     |
| <code>\file</code> . . . . .                 | 612, 613, 614, 615, 619                                                                                             |
| <b>G</b>                                     |                                                                                                                     |
| <code>\gdef</code> . . . . .                 | 551                                                                                                                 |
| <b>H</b>                                     |                                                                                                                     |
| <code>\hbox</code> . . . . .                 | 287, 1264                                                                                                           |
| <code>\ht</code> . . . . .                   | 668, 689, 1250, 1273, 1291                                                                                          |
| <b>I</b>                                     |                                                                                                                     |
| <code>\if@files</code> . . . . .             | 594                                                                                                                 |
| <code>\ifatfi@appearance</code> . . . . .    | 223, 833, 1315                                                                                                      |
| <code>\ifatfi@checksum</code> . . . . .      | 574, 1210                                                                                                           |
| <code>\ifatfi@creationdate</code> . . . . .  | 579, 1195                                                                                                           |
| <code>\ifatfi@draft</code> . . . . .         | 115, 293                                                                                                            |
| <code>\ifatfi@moddate</code> . . . . .       | 584, 1202                                                                                                           |
| <code>\ifatfi@nofiles</code> . . . . .       | 236, 598                                                                                                            |
| <code>\ifatfi@print</code> . . . . .         | 213, 281, 697, 744                                                                                                  |
| <code>\ifatfi@zoom</code> . . . . .          | 218, 700                                                                                                            |
| <code>\ifcase</code> . . . . .               | 23, 73                                                                                                              |
| <code>\ifnum</code> . . . . .                | 72, 79, 82, 84, 86,<br>88, 90, 92, 94, 96, 98, 100, 148, 565                                                        |
| <code>\ifpdf</code> . . . . .                | 263                                                                                                                 |
| <code>\ifx</code> . . . . .                  | 36,<br>59, 70, 267, 531, 538, 552, 643, 800                                                                         |
| <code>\immediate</code> . . . . .            | 606, 607, 616, 804, 820, 846                                                                                        |
| <code>\input</code> . . . . .                | 311                                                                                                                 |
| <code>\InputIfFileExists</code> . . . . .    | 257, 572                                                                                                            |
| <b>J</b>                                     |                                                                                                                     |
| <code>\jobname</code> . . . . .              | 521, 572, 600, 606                                                                                                  |
| <b>L</b>                                     |                                                                                                                     |
| <code>\L</code> . . . . .                    | 1437                                                                                                                |
| <b>M</b>                                     |                                                                                                                     |
| <code>\makebox</code> . . . . .              | 288, 747, 1306                                                                                                      |
| <code>\mbox</code> . . . . .                 | 1293                                                                                                                |
| <code>\MessageBreak</code> . . . . .         | 269, 600                                                                                                            |
| <code>\month</code> . . . . .                | 166                                                                                                                 |
| <b>N</b>                                     |                                                                                                                     |
| <code>\n</code> . . . . .                    | 1421, 1456,<br>1467, 1469, 1484, 1485, 1490,<br>1499, 1532, 1539, 1541, 1542,<br>1543, 1544, 1545, 1556, 1558, 1560 |
| <code>\NeedsTeXFormat</code> . . . . .       | 2, 753, 881                                                                                                         |
| <code>\newcommand</code> . . . . .           | 344, 537                                                                                                            |
| <code>\newcounter</code> . . . . .           | 694, 1118                                                                                                           |
| <code>\newif</code> . . . . .                | 115,<br>213, 218, 223, 236, 574, 579, 584                                                                           |
| <code>\newlength</code> . . . . .            | 656, 657, 658                                                                                                       |
| <code>\newsavebox</code> . . . . .           | 659                                                                                                                 |
| <code>\newwrite</code> . . . . .             | 605                                                                                                                 |
| <code>\noattachfile</code> . . . . .         | 300, 304, 740                                                                                                       |
| <code>\nofiles</code> . . . . .              | 592, 593, 601                                                                                                       |
| <code>\notextattachfile</code> . . . . .     | 278, 298, 301                                                                                                       |
| <code>\number</code> . . . . .               | 149, 151, 1120                                                                                                      |
| <code>\numexpr</code> . . . . .              | 30, 32, 158, 161, 554, 566, 568                                                                                     |
| <b>O</b>                                     |                                                                                                                     |
| <code>\openout</code> . . . . .              | 606                                                                                                                 |
| <b>P</b>                                     |                                                                                                                     |
| <code>\PackageError</code> . . . . .         | 539                                                                                                                 |
| <code>\PackageInfo</code> . . . . .          | 599                                                                                                                 |
| <code>\PackageWarningNoLine</code> . . . . . | 268                                                                                                                 |
| <code>\parbox</code> . . . . .               | 295, 340, 402, 444, 514                                                                                             |
| <code>\pdfannot</code> . . . . .             | 860                                                                                                                 |
| <code>\pdfastobj</code> . . . . .            | 809, 856                                                                                                            |
| <code>\pdfastxform</code> . . . . .          | 821                                                                                                                 |
| <code>\pdfliteral</code> . . . . .           | 756                                                                                                                 |
| <code>\pdfobj</code> . . . . .               | 804, 846                                                                                                            |
| <code>\pdfrefxform</code> . . . . .          | 826                                                                                                                 |
| <code>\pdfstringdef</code> . . . . .         | 13, 16, 187                                                                                                         |
| <code>\pdfxform</code> . . . . .             | 820                                                                                                                 |
| <code>\ProcessKeyvalOptions</code> . . . . . | 259                                                                                                                 |
| <code>\ProvidesFile</code> . . . . .         | 754, 882                                                                                                            |
| <code>\ProvidesPackage</code> . . . . .      | 3                                                                                                                   |
| <b>R</b>                                     |                                                                                                                     |
| <code>\raisebox</code> . . . . .             | 295, 340, 402, 444, 514, 1298                                                                                       |
| <code>\renewcommand</code> . . . . .         | 1119                                                                                                                |
| <code>\RequirePackage</code> . . . . .       | 5, 6, 7, 8, 12                                                                                                      |
| <code>\rule</code> . . . . .                 | 341, 403, 445, 515, 832, 875, 876,<br>877, 1308, 1314, 1373, 1374, 1375                                             |
| <b>S</b>                                     |                                                                                                                     |
| <code>\savebox</code> . . . . .              | 663, 687                                                                                                            |
| <code>\setbox</code> . . . . .               | 287, 1264                                                                                                           |
| <code>\setcounter</code> . . . . .           | 696                                                                                                                 |
| <code>\setkeys</code> . . . . .              | 137, 144,<br>254, 280, 631, 711, 742, 797, 1143                                                                     |
| <code>\setlength</code> . . . . .            | 678                                                                                                                 |
| <code>\space</code> . . . . .                | 333, 382, 425, 487,<br>601, 836, 837, 838, 1248, 1250,<br>1270, 1272, 1273, 1364, 1367, 1369                        |
| <code>\special</code> . . . . .              | 885, 889                                                                                                            |
| <code>\stepcounter</code> . . . . .          | 1138, 1240, 1261, 1327                                                                                              |
| <code>\strip@pt</code> . . . . .             | 1248, 1249,<br>1270, 1272, 1273, 1363, 1366, 1368                                                                   |
| <code>\strut</code> . . . . .                | 285, 287, 717                                                                                                       |
| <b>T</b>                                     |                                                                                                                     |
| <code>\textattachfile</code> . . . . .       | 297, 731                                                                                                            |
| <code>\textcolor</code> . . . . .            | 283, 714                                                                                                            |
| <code>\the</code> . . . . .                  | 156, 165,<br>541, 665, 668, 671, 809, 821, 856                                                                      |
| <code>\theatfi@flags</code> . . . . .        | 872, 1359                                                                                                           |
| <code>\theatfi@obj</code> . . . . .          | . 1119, 1139, 1172, 1176, 1218,<br>1222, 1241, 1262, 1328, 1332, 1336                                               |
| <code>\time</code> . . . . .                 | 156                                                                                                                 |
| <b>U</b>                                     |                                                                                                                     |
| <code>\uccode</code> . . . . .               | 541, 554                                                                                                            |
| <code>\uppercase</code> . . . . .            | 555                                                                                                                 |
| <code>\usebox</code> . . . . .               | 1282, 1293                                                                                                          |
| <b>W</b>                                     |                                                                                                                     |
| <code>\w</code> . . . . .                    | 1406                                                                                                                |

|                     |       |                                 |                    |       |                  |
|---------------------|-------|---------------------------------|--------------------|-------|------------------|
| <code>\wd</code>    | ...   | 288, 665, 688, 1248, 1272, 1292 |                    |       | <b>Y</b>         |
| <code>\write</code> | ..... | 607, 616                        | <code>\year</code> | ..... | 165              |
|                     |       |                                 |                    |       |                  |
|                     |       | <b>X</b>                        |                    |       | <b>Z</b>         |
| <code>\x</code>     | ..... | 797, 798, 1143, 1144            | <code>\z@</code>   | ..... | 1290, 1291, 1292 |